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FUTURE FORCES FORUM

International Platform for Trends & Technologies in Defence & Security



17 - 21 OCTOBER 2016

CATALOGUE 2016

PRAGUE, CZECH REPUBLIC

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Word from the Future Forces Forum Managing Director

Dear Future Forces Forum Attendees,

Thank you for your attendance and enjoy all FFF international expert events including exhibition and networking.

We deeply believe that our unique combination of wide expert programme will help to interdisciplinary define realistic goals or new possibilities for the current as well as for the future needs and mutual cooperation in the field of international defence and security.

We have tried to develop for you a long-term continuous platform where leading experts, people involved in research and development, academicians, government bodies and members of acquisition offices can meet representatives of the industry and trade to establish contacts and develop cooperation to ensure necessary defence and security capabilities at both national and international levels. It presents interests, needs and acquisition plans of armies, elements of the Integrated Rescue System (police, Fire Rescue Corps, paramedics), Prison Guard Service and other uniformed ones, local and foreign government bodies, industry, the latest achievements of science, research and development, thus connecting with the public and the private sectors which are both interested in long-term effective cooperation.

The exhibition and its programme, static and dynamic demonstrations will give you an opportunity to make a first-hand acquaintance with the latest technologies in the field of armament and equipment of armed and security forces, means of CBRN protection, critical infrastructure protection, protection of population, robotic technologies, unmanned ground and aerial vehicles, capabilities that can be used to stem the migration flow, border protection, defence against terrorism or principles of cyber security and ethics, civil-military cooperation (CIMIC), logistic solutions (Smart Energy, supply of water and POLs, storage, transport), use of innovative materials, and others.

Daniel KOČÍ
FFF Managing Director



The Czech Republic and FFF have also the honour of hosting official meetings of key expert working groups. Including these meetings, October in Prague becomes one of the biggest gathering place for experts in the world.

We wish you to fully enjoy unequalled FFF Networking in a common friendly atmosphere, to obtain a lot of breakthrough information and new valuable contacts, business opportunities and overall professional enrichment.

On behalf of the whole Future Forces Forum team, please let me also say many thanks all our supporters, all leading representatives from the Czech Republic and other countries, as well as all our partners, in particular the companies LOM PRAHA, VOP CZ and the Czech Technical University (CTU), for their essential support, which help us to evolve FFF step by step forward to carry out all its future challenges.

Word from the Minister of Defence of the Czech Republic

Ladies and Gentlemen,

The Future Forces Forum project held under my auspices exactly matches the interests of the Ministry of Defence of the Czech Republic both in terms of its contents and focus. It is a project that offers ample opportunities for all men and women in uniform to expand their familiarity with the latest trends and development tendencies in the domain of defence and security.

The fact that the Ministry of Defence of the Czech Republic renders a full support to the FFF project is not by coincidence. We are committed to making sure our armed forces have all relevant policy, legal, financial and military requisites conducive to successful activities and we stand ready to do everything needed for the technology in the inventory of the Czech Armed Forces to match current demands of the global development trends. As a networking venue for military and civilian experts, Czech and foreign institutions, and national and international organisations, the FFF enables the Ministry of Defence to increase visibility of its activities and readiness to manage military as well as non-military emergency situations involving massive migration, terrorism, cyber defence, autonomous systems, protection of population and critical infrastructure.

The Czech Republic has acted on a sustained basis in support of Euro-Atlantic defence potential with specific focus on developing its specialised capabilities. We are committed to advancing the concept of European security that is largely based on the North Atlantic Treaty Organisation. The rationale for the Czech Republic's Atlantic orientation is deeply rooted in the historical experience of World War I and World War II as well as the present stage of development in international relations.

The key principles embodied in our approach to security are realism and transparency. A successful security policy is not conceived only with crises looming – it is a long-term and continuous process with many constantly scrutinised variables.

Most diverse challenges and risks we are facing will continue to claim a comprehensive approach and international cooperation al-

Martin STROPNICKÝ

Minister of Defence of the Czech Republic



ready when preventing them. What we witness is a dynamic development of defence concepts, which would nevertheless be hardly feasible without an effective and efficient cooperation in foreign, security and economic policy.

Besides political and diplomatic instruments, military capabilities will nevertheless remain one of the key factors in successful crisis management. Defence and security will continue to be based on building and development of defence capabilities with the support of defence and security industry, whose capacity and potential must be subject to our permanent attention. The Future Forces Forum project therefore addresses armed forces and security services as well as security community comprising the government, science and research institutions, the academia and industries engaging in projects of public interest. Current status and development goals of the Czech Armed Forces will be shown in their entirety to the domestic and international defence and security community.

I am confident the twelfth edition of the Future Forces project, with its venue again in our capital, will follow on the successful outcomes of previous meetings and will offer much valuable information and contacts to all involved. In a comprehensively conceived program, the FFF will showcase current and future defence and security trends, and pave the way to new prospects for trade as well as mutual understanding.

Word from the Minister of Industry and Trade of the Czech Republic

Ladies and Gentlemen,

The period during which we experienced the fall of communist totalitarianism is not too far away. We believed in the global peace and the existence of huge armies seemed unnecessary. The 9/11 attacks and the related rise of terrorism have been a cruel awakening for us from a dream that military industry is an anachronism. The today's globalized world is facing new threats and the professional army with modern military equipment is a must. That is why I feel honored to participate in such an important conference, which is the 12th edition of the Future Forces Forum.

Protecting the security interests of the Czech Republic is now among the forefront interests of the Czech government. Terrorist organizations are now typical with their structure of transnational networks of interconnected groups, which, even without a unified command, share resources, information, ideology, goals and plans to achieve them. They present a direct threat both to people and national critical infrastructure. Another are the troops activities outside the country in a different geographical, climatic and cultural environment, which also newly defines the army's needs. The non-existence of a direct military threat to the Czech Republic allows us to limit quantitative parameters of the army. Nevertheless the nature of action in foreign operations requires a new definition of the needs of modularity of weapons systems and military equipment and mobility and interoperability when sharing information with our allies.

A state investment in military research and development have always been the engine of technological change and revolutionary inventions. Many of them are now commonly used in our everyday life. Military systems have been and will be at the forefront of development and always one step ahead of the civilian resources. In these efforts, the Czech Republic does not want to stand aside and will always support those components of industry that contribute to this development. This is also related to a sophisticated system of state export promotion, which actively encourages export activities of these firms. Above all, I would emphasize the Client Centre for Export as a joint project of the Ministry of Industry and Trade, Ministry of Foreign Affairs and the CzechTrade agency. The Client Centre for Export serves the Czech entrepreneurs who want to expand into for-

Jan MLÁDEK

Minister of Industry and Trade of the Czech Republic



foreign markets by providing consultations on export and investment plans. Through a unified international network of Czech embassies and foreign offices of the CzechTrade, it is capable of mediating services in more than 90 countries.

A selected export specialist advises the client according to the nature of his request, facilitate his orientation in the state export promotion and will be in contact with him throughout the processing of the request. The Client Centre also offers services for big companies with a large-scale contracts. Export consultants have available a daily updated list of export opportunities, foreign inquiries, projects and tenders, investment opportunities, offers of foreign companies and opportunities in various fields, including energy.

In addition, Czech Business and Investment Development Agency CzechInvest support existing and new entrepreneurs and foreign investors in the Czech Republic. Agency contributes to attracting foreign investment and developing domestic companies through its services and development programs. CzechInvest also promotes the Czech Republic abroad and its task is also to provide potential investors current data and information on its business climate, investment environment and investment opportunities.

Ladies and gentlemen, I believe that the 12th edition of the Future Forces Forum will be an important enrichment for us and will bring a plenty of information on current trends in the field of defense and security.

Word from the Chief of the General Staff of Armed Forces of the Czech Republic

Dear colleagues and participants,

In the second half of October 2016, Prague will be the venue to the Future Forces Forum (FFF) project that offers a welcome opportunity for all servicemembers of the Czech Armed Forces to expand their familiarity with the latest trends in defence and security.

The FFF project primarily focuses on seeking practical and realistic answers to future challenges and threats. In this kind of events, it is of central importance to induce an appropriate constructive environment, which FFF organisers manage truly successfully in cooperation with the Czech Armed Forces and other partners. The global networking platform offers ideal opportunities for presenting interests of the Czech Armed Forces and for meeting experts from the Czech Republic, other nations and multinational security organisations.

The FFF offers exclusive access to the latest outcomes of science and research, including demonstrations of possibilities and offers by industries in innovative, dual and smart technologies. The vehicle the FFF project uses to establish possible cooperation primarily involves the combination of theoretical specialist solutions presented in the congress, conferences, workshops and meetings with leading officials, experts, manufacturers and users with practical demonstrations on site. For us, the soldiers, it is also an opportunity to obtain information, achieve enhanced interoperability, better deliver the commitments to our NATO Partners and make use of the doorway to some universities and schools educating possible future experts.

While the project has been recently rebranded, it builds on several previous editions of similarly conceived successful international

GEN Josef BEČVÁŘ

Chief of the General Staff of Armed Forces of the Czech Republic



project Future Soldier and Future Forces. Thanks to the FFF project, Prague remains one of the venues for the leading personalities of the international security community to meet on regular basis. The centrality of the Czech Armed Forces' participation in the project is underscored by our active participation in the specialised events prepared in conjunction with experienced representatives from NATO expert groups, COE JCBRN D in Vyškov or indeed Prague-based MLCC.

As the Chief of General Staff Czech Armed Forces, it is my pleasure to again express my support to the project that I believe is up to highest professional standards and brings multiple benefits. Topics proposed for 2016 are very interesting. I am therefore confident that our experts as experienced users will voice their opinions in individual parts of the program.

With best wishes for the success of the Future Forces Forum project, I am looking forward, together with other officials of the Czech Armed Forces High Command, to meeting FFF participants in Prague.

Ladies and Gentlemen,

As part of the Czech Defence Minister's assuming of the patronage over the Future Forces Forum project, it is my pleasure to inform you about the active participation of the Ministry of Defence of the Czech Republic in this extraordinary project that will come to a head in Prague PVA EXPO centre on October 17-21st, 2016.

The Future Forces Forum is a project that offers opportunities for the representatives of the Ministry of Defence and all servicemembers of the Czech Armed Forces to expand their familiarity with the latest trends and developments in the domain of defense and security, especially through meetings with international experts but also through learning about the outcomes of research and development, including demonstrations by industrial enterprises and their offers of innovative technologies. There is a long-term and first-rate support by the Ministry of Defence and cooperation between the Ministry and the FFF project. The exhibition, congress, conference, workshops, meetings of expert groups and other accompanying events follow up on previous successful Future Soldier international exhibition and conference series, which saw regular participation by subject matter experts of the Ministry of Defence and relevant services of the Czech Armed Forces. The level of support that the Ministry of Defence provides for this project is not only political but actually takes on the form of the factual participation. That involves participation by the representatives of the Ministry of Defence in expert activities. For example the University of Defence is engaged in all expert programmes.

Internationally, the Future Forces Forum project is a unique opportunity to obtain the latest information about future trends, technologies, materials, armament and equipment innovations of future soldier, and interoperability of armed and special services. Therefore, Future Forces Forum will surely be of interest to the government, scientific and academic community concerned with security and also to the enterprises working on the public interest projects.

Tomáš KUČHTA

Deputy Minister of Defence of the Czech Republic



The international Future Forces Forum project also provides opportunity to introduce the current status and development goals of the Czech Armed Forces along with domestic defence and security industry to experts and specialists.

In the course of the main programme of Future Forces Forum in October 2016, the Ministry of Defence will present itself in accordance with the main topics of this year's forum. The integral part of the participation of the Ministry of Defence will also be a presentation of possible cooperation with defence and security industry of the Czech Republic because the Czech defence industry is a substantial and highly regarded partner to the Ministry of Defence of the Czech Republic.

I am confident that the long-term Future Forces Forum project will become a key venue for experts from all around the world to meet and allow presentation and exchange of experience and visions. With regard to the role and importance of this project, especially in the field of support for industrial and scientific organisations in the Czech Republic, I am honoured to assume the "Honorary Chairman" status of the expert programmes of the Future Forces Forum 2016 project.

Word from the Police President of the Czech Republic

Dear Ladies and Gentlemen,

I am very pleased and honoured that the Police of the Czech Republic received the offer to present its activities in such an important event as the Future Forces Forum (FFF) is without any doubt.

The Future Forces Forum is exactly the kind of action, which is according to my opinion necessary to organise regularly. In the relatively short time period many subjects, which have to say something to contemporary questions in the area of the newest trends and demands concerning the safety and security and defense, could be presented in one place. I consider as a very beneficial for all participants mainly the connection of practical demonstrations and subsequent discussions on the topic.

We as the police together with the Army of the Czech Republic ensure the safety and security of the Czech Republic. In this connection I would like to highlight the co-operation of these two security bodies, which was realised last time for example during the exercise focused on the protection of state borders regarding possible migration risks.

The Police of the Czech Republic has been changing and developing all the time. Inhabitants do not apprehend it as something „troublesome“ anymore, but as the modern security body providing their safety and security. Not to fall short of their confidence, it is necessary to support exactly these types of actions, where we have the possibility to monitor the current development in the field of the internal security.

From this point of view we consider our participation at the Future Forces Forum as the possibility to develop and to improve our further co-operation with other parts of the Integrated Rescue System as well. The proof of our interest to evolve this co-operation is for example the opening of the training polygon in Zbiroh financed in the frame of the Swiss and Czech co-operation. The above mentioned polygon is used besides the Police of the Czech Republic also by

MG Tomáš TUHÝ
Police President



members of Fire Brigades, Army of the Czech Republic, Health Rescue Service and other parts of the Integrated Rescue System.

The Police of the Czech Republic provides the internal security at the territory of the Czech Republic. Regarding the current development in the field of migration problems we express our copartnership concerning the protection of Schengen outer borders by the deployment of our police officers to Macedonia, Hungary, Slovenia and Greece. In the frame of the international co-operation the mission of Czech police divers to Bosnia and Herzegovina was realised. The team of divers has continued in the gradual and very dangerous mine clearance from the Sava river (the residue from the war in years 1992-1995) during the stay in these territories.

In this connection I would like to mention that the equipment of police divers, which is by the way on the high level, was purchased from the financial means of European funds. Thanks these funds the purchase of police boats for the surveillance over waters was realised.

I would like to use this occasion to inform you that after the reception of the offer to present the Police of the Czech Republic at the Future Forces Forum I decided without any hesitation about the participation of our security force in this, for us so important, event.

Word from the Director General of the Fire Rescue Service of the Czech Republic

Dear friends,

Lately we have witnessed a growing complexity and prevalence of security threats and resulting risks, directly or indirectly affecting our ability to protect Czech citizens and critical infrastructure. Units of the Security System of the Czech Republic therefore need to constantly adapt their competencies in order to be able to react to potential threats, which can concatenate, and their impacts on the protected interests of the society can be multiplied. In light of the growing number of natural and man-made disasters (including the migration crisis) and the severity of their consequences, targeted integrated approach to reduce the impact of these adverse events is becoming increasingly imperative.

Contemporary cross-linked and interconnected society is becoming more and more vulnerable and must face new challenges in protecting the population and its infrastructure. This is reflected in the new approaches of the society not only towards dealing with the consequences of adverse events, but essentially towards their prevention, and the development of materially-technical preparedness.

At this point I would like to emphasize importance of developing the material base concerning the equipment of all units of the Integrated Rescue System. Based on the good experience with some of the well-tried domestic suppliers of rescue equipment and technology, we would like to continue to cooperate with them. A wider international cooperation in the above area also represents an important and increasingly significant factor contributing to reducing the consequences of such events.

Fire Rescue Service of the Czech Republic (FRC CR) within the Integrated Rescue System of the Czech Republic together with other security forces endeavours to save lives, health, and possessions of the citizens not only in the Czech Republic but also beyond. An important role of the Fire Rescue Service is not only fighting fires, but also to come to the rescue during other emergencies, such as various natural disasters, and industrial and road accidents. Moreover, it has recently undertaken an important task to provide domestic and international humanitarian aid.

I would hereto like to mention material humanitarian assistance provided to Bulgaria, Serbia, Bosnia and Herzegovina, and Ukraine. However, we have also delivered aid in more distant places, such as in Japan and Nepal. During the recent months, in connection with the refugee crisis, vehicles loaded with fully furnished tents were dispatched to Hungary, Croatia, Macedonia and Slovenia. Furthermore, members of the Fire Rescue Service participated in the

MG Drahošlav RYBA
Director General of the Fire Rescue Service of the Czech Republic

construction of the tent detention facility in Breclav-Poštoná and Jezova-Bela in Mlada Boleslav region. European Union projects have also significantly helped to improve technical equipment of the Fire Rescue Service. It can be proudly said that the overall preparedness for all types of emergencies is being constantly developed and improved. Not only firefighters, but all bodies of the Integrated Rescue System, state administration, local governments and NGOs have learned to deal with such events with much better efficiency.



International cooperation involving both neighborly bilateral and multilateral support in dealing with emergencies, including the provision of material and humanitarian aid, has proved to be increasingly vital. I am convinced that with an ever-increasing intensity, scope and frequency of non-military emergency situations a greater success in managing them and minimizing subsequent losses of human lives, damages to public health, property values, and the environment will be achieved. This is also affirmed by the gradual improvement of the population readiness to adequately respond to an imminent or already incurred emergency situation. A new Act on the Fire Rescue Service will come in force from January 1st, 2016. It will replace the existing Act of 2000, which was deficient in a number of legal solutions that are standard at the Security Forces nowadays. The Act on the FRS newly establishes or modifies some of its authorities. The Act maintains the current status and mission of the FRS, but it clarifies and amends its various parts. The new Act on the Fire Rescue Service has the potential to contribute to the development of skills needed to ensure security of the Czech Republic by completing tasks of the fire protection, population protection, civil emergency planning, Integrated Rescue System, crisis management and other existing tasks.

I have the honor to inform you that the Fire Rescue Service of the Czech Republic became part of Future Forces Forum and will be presented at the exhibition, as well as on the second World CBRN and medical Congress with a presentation on “CBRN preparedness and response in the Czech Republic.” I am convinced that the Future Forces Forum is a platform of global network where all stakeholders can exchange information and present the latest technologies, materials and processes in the field of security.

Word from the General Director of the Customs Administration of the Czech Republic

The Customs is sometimes called the “Police of goods”, as it ensures the security of international supply chain while eliminating dangerous goods and materials from the market and fighting illegal activities such as money laundering, smuggling of goods or counterfeiting which represent a serious threat to society.

Apart from its fiscal role, the Czech Customs Administration carries out important tasks in the area of security such as fight against terrorism and extremism and together with the police and fire rescue authorities participates in other actions ensuring the security in the Czech Republic. Considering the latest development in Europe, the Czech Customs Administration has been recently involved also in the area of migration.

With respect to the security issues, the activity of the World Customs Organization should be mentioned. In June 2005, the World Customs Organization’s Council adopted the SAFE Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework) that would act as a deterrent to international terrorism, secure revenue collections and promote trade facilitation worldwide. The Czech Customs Administration is actively involved and complies with all the requirements stipulated by this programme.

To ensure efficient performance of the above mentioned tasks, the Czech Customs Administration has been empowered with surveillance and investigation competencies. It has technical means such as customs mobile labs at its disposal. This technical mobile unit is unique in Europe and it ensures operational detection of transported goods especially mineral oils, alcohol, narcotic and psychotropic substances. It is capable to obtain and analyse samples of the transported fuels directly on the spot from the cistern vehicles. These activities are important from the perspective of health and security of our citizens.

Another example of the latest technology is a new large capacity mobile scanner – a new technology capable to identify both organic and inorganic substances. It is the only high-tech equipment avail-

BG Petr KAŠPAR

General Director, Customs Administration of the Czech Republic



able in the Czech Republic capable to scan all means of transport on the roads and elsewhere. In this way, it can be used to identify all kinds of illegal transport of ammunition, weapons, military materials and dual use goods and other materials dangerous for health and security of Czech citizens.

The above mentioned equipment as well as the work of the worldwide respected Czech Customs Administration’s canine service will be presented at the Future Forces Exhibition.

The Czech Customs Administration is a part of Integrated Rescue System and upon request, it cooperates with other enforcement authorities during emergency and crisis situations. The active involvement of the customs officers and technical equipment of the Czech Customs Administration in rescue operations during the major flooding in the Czech Republic is a practical example.

I am very pleased that the Czech Customs Administration has the privilege to become, for the first time, part of the Future Forces Forum and will actively participate in the exhibition. My expectations from our participation would be to exchange the experience in the area of security technology, and at the same time, to acquire insight into the latest high-tech development in this field.

Word from the General Director of the Czech Trade Promotion Agency/CzechTrade

Agentura CzechTrade je již 19 let pevným článkem státní podpory exportu. Jejím cílem je rozvíjet mezinárodní obchod a vzájemnou spolupráci mezi českými i zahraničními subjekty.

Kromě poradenských a informačních služeb nabízí i služby a projekty šité na míru požadavkům a potřebám zákazníků. Největší přidanou hodnotou je know-how zahraničních zástupců CzechTrade, kteří fyzicky působí v teritoriu. Znají tamní prostředí, mají důležité kontakty a našim firmám předávají informace z první ruky. V současné době disponuje CzechTrade sítí 46 zahraničních kanceláří, které nabízejí služby v 49 zemích. V tomto roce bude síť ještě rozšířena.

CzechTrade je v zahraničí vnímán jako solidní státní agentura. Zahraniční kanceláře tak otvírají českým firmám pomyslné dveře k jejich potenciálním obchodním partnerům. Ve spolupráci s ministerstvem průmyslu a obchodu a ministerstvem zahraničních věcí byla vytvořena Mapa globálních oborových příležitostí. Jejím cílem je pomoci identifikovat perspektivní možnosti pro uplatnění českých podniků na zahraničních trzích. CzechTrade společně s oběma ministerstvy provozuje Klientské centrum pro export. Služby státu exportérům jsou nabízeny prostřednictvím přehledného Katalogu služeb Jednotné zahraniční sítě, do které jsou zapojené jak zastupitelské úřady, tak i zahraniční kanceláře CzechTrade.

Radomil DOLEŽAL, MBA General Director, CzechTrade



Agentura podporuje firmy napříč všemi obory. V roce 2015 pro ně zrealizovala 1996 zakázek. Firmy potvrdily 122 úspěšných exportních kontraktů. Služby CzechTrade v loňském roce pomohly například české firmě ke zkušební dodávce horolezeckých lan pro izraelskou armádu nebo České zbrojovce při prezentaci na zahraničním veletrhu.

Future Forces Forum vnímáme jako významný projekt pro podporu exportu v oblasti obrany a bezpečnosti. Proto se stal CzechTrade partnerem tohoto kontinuálního projektu na podporu českých firem, vědy a výzkumu v této oblasti.

Word from the Chairman of the NATO COMEDS/NSO CBRN Medical Working Group

Dear Ladies and Gentlemen,

Welcome to the World CBRN & Medical Congress (CEBIRAM) which has been organized to address the main aspects of the chemical, biological, radiological and nuclear (CBRN) threats and defence against their effects.

Since 2013, sarin, chlorine and sulfur mustard have repeatedly been used in the Irak-Syria war zone. This proves that the threat from the deliberate use of chemical agents has not diminished although its nature has evolved. Proliferation of nuclear weapons is also a matter of great concern. Finally, although of natural origin, the Ebola virus crisis reinforced the need for a global preparation against outbreak of diseases that would be deliberately initiated.

All CBRN agents will not lead to doomsday and mass destruction; in fact, except for nuclear bombs or a highly lethal, and easily and rapidly spreading virus that may induce a major pandemic, the consequences could be manageable. However, to prevent a very probable mass disruption, preparation is paramount. Medical services have a great role to play, before, during and after the event. Medical countermeasures and casualty care is indeed one of the five enabling components for NATO CBRN defence. By attending the con-

COL Frederic DORANDEU (PharmD, PhD, prof.)
NATO COMEDS/NSO CBRN Medical Working Group Chairman



gress, you will be able to discover how the medical component also significantly contributes to the other four pillars of CBRN defence. Nations have their own expertise but, within NATO, they can also rely on the highly effective and collective expertise of the CBRN Medical Working Group that I have the honor and pleasure to chair.

Therefore, on behalf of the CBRN Medical WG, it is my pleasure to encourage CEBIRAM participants to attend the different talks that will be given.

I look forward to seeing you in Prague.

Word from the Chairperson of the NATO SCI-295 Working Group

Ladies and Gentlemen,

The primary goal of any security and defense policy is to ensure the safety and protection of soldiers and civilians. Detection and protection systems have to deal with asymmetric threats and also with technologically sophisticated opponents. In recent years the concepts to achieve platform protection are getting more and more complex. A successful response to new challenges requires the application of a wide range of new technologies in order to identify and combat threats at an early stage. Rapid technological developments establish new possibilities for the detection and identification of threats and the protection of soldiers and platforms.

The Future Forces Forum provides a unique opportunity to discuss current and future needs of the armed and security forces. Exhibition, workshops and conferences will bring together scientists, engineers and military personnel. The agenda contains interesting presentations on innovative technologies and new devices. An impressive number of international experts both from the military and the academia will share their knowledge.

Dr. Karin STEIN
Member at large for camouflage, concealment and deception of the Systems Concepts and Integration (SCI) Panel, NATO STO



I am convinced that the FFF will offer many opportunities to network with colleagues from a variety of disciplines in academia, industry, and government from all over the world.

With best wishes for the success of the Future Forces Forum project, I am looking forward to this meeting and many fruitful discussions.

See you in Prague!

Word from the CEO of LOM PRAHA Future Forces Forum General Partner

LOM PRAHA, s. p. is the leading company specializing on the Mi helicopters lifecycle support in the NATO and EU countries certified by the Russian MVZ Mil and OAO Klimov companies, the Interstate Aviation Committee MAK and domestic aviation authorities. Unlike many competitors, we can offer comprehensive services associated with overhauls, i.e. a complex support of the aviation technology lifecycle. Our experienced staff, utilization of advanced technologies and emphasis on top quality can be considered our greatest competitive advantage.

We focus, in particular, on overhauls, upgrades and modernizations of Mi-2, Mi-8/17, Mi-24/35 helicopters and their dynamic components (turboshaft engines, gearboxes and auxiliary power units) lifecycle support. We also provide training for pilots in our Flight Training Center in Pardubice. VR Group, a. s., the company's subsidiary, is providing comprehensive services regarding tactical simulation for aircraft, helicopters and ground forces training.

During our 100 year long experience we have been supporting many

Roman PLANIČKA
Chief Executive Officer LOM PRAHA, s. p.



events connected more or less with aviation and military technology. One of the most important events that we can cooperate on is for us the Future Forces Forum. We are more than happy to have the honor to be one of the main partners of this excellent event. Be sure not to miss this great opportunity to meet the strongest players in the defence field from the whole World.

Word from the CEO of Deloitte General Partner - Future of Cyber Conference

Dear Ladies and Gentlemen,
Welcome to the Future of Cyber Conference – CYBER TRENDS. Deloitte as a global leader in several cyber security areas is proud to link knowledge from multiple business sectors with the defence sector and the critical infrastructure of states.

While cyber threats are present and real, the defence is to be already in place from prevention, through detection and to thorough further investigation. Even speaking about cyber security requires awareness that security is multidisciplinary and integration of non-IT disciplines with the cyber one is necessary. Simplifying the security down to a perimeter level only would be an easy target for cyber criminals. Developing a mature, advanced cyber risk program starts with investing in a balance of secure, vigilant, and resilient capabilities tailored to the organisation and aligned to its strategic goals.

The scale of security areas to be covered is getting more complex by new technologies penetrating the environment. The Internet of Things and the Industry 4.0 initiative brings security enhancement to a large number of simple devices. The growing demand for distributed trust architecture without a central single authority opens discussions related to the Blockchain technologies. The use of advanced analytics such as predictive models or machine learning algorithms enables us to look towards the future or even bring light to

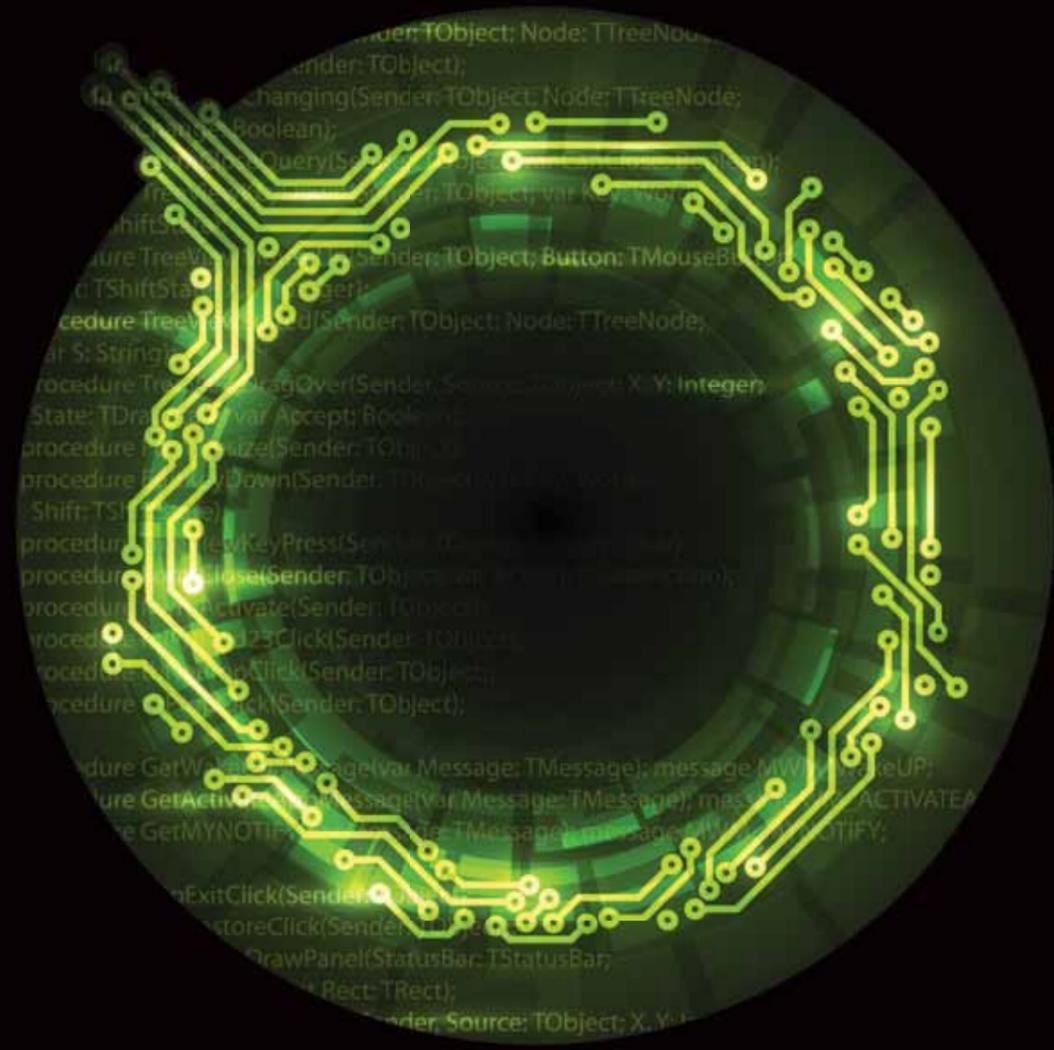
Adrian Demeter
Cyber Security Advisor, Deloitte, Czech Republic



dark spaces. Moreover, it is not only about the technology but also about the people participating in the security.

The cyber world is spreading more than globally. Currently space is getting closer to us and cyber topics reach satellites in orbit. Such interaction of ground and space open gateways to new horizons for technologies and security needs.

We, the Deloitte team, are happy to answer your questions and discuss your interests. We are looking forward to meeting you at the Future Forces Forum.



Multidisciplinary Security Approach
www.deloitte.com/cz/security

17 – 18 October 2016, PRAGUE

17 October 2016

NATO Working Groups' Sessions

18 October 2016

NATO Working Groups' Sessions

19 – 21 October 2016, PVA EXPO PRAGUE

19 October 2016 – “Czech Armed Forces Day”

09:30 - 10:25	Official Opening Ceremony /Congress Hall VHII/ (invited persons only) Mr. Jan Hamáček, President of Chamber of Deputies, CZE H.E. Jan Mládek, Minister of Industry and Trade, CZE Dr. Jakub Landovský, Deputy Minister, Head of the Defence Policy and Strategy Division, Ministry of Defence, CZE Mr. Václav Kolaja, Deputy Minister, Ministry of Foreign Affairs, CZE GEN Josef Bečvář, Chief of the General Staff, CZE GEN Petr Pavel, M.A., Chairman of the Military Committee, NATO H.E. Zoran Jolevski, Ph.D., Minister of Defence, MKD Mr. Roman Planička, Director, LOM PRAHA, CZE Mr. Jiří Hynek, President, Defence and Security Industry Association, CZE Mr. Daniel Kočí, Managing Director Future Forces Forum, CZE
09:30 - 17:00	Future Forces Exhibition (FF16)
09:30 - 17:00	NATO Working groups' Sessions
10:30 - 10:30	Ribbon Cutting Ceremony /VHII : HALL 3/
10:30 - 11:50	VIP Guided Exhibition Tour
10:30 - 16:00	CYBER Defence Simulations /GORDIC Cyber Pavilion, HALL 2, stand 202 AFCEA/
10:50 - 11:00	World Premiere UL-39 Military – Jihlavan Airplanes & Czech Technical University in Prague, /HALL 3, stand 369/
11:30 - 11:50	Future Forces Forum Press Conference /Congress Hall VHII/
11:50 - 12:00	VIP Photo /Indoor dynamic demonstrations area HALL 4/
12:00 - 12:45	VIP Lunch (invited persons only)

Expert Events and Exhibiton Guided Tour of NATO Working Groups' Delegates

Czech Armed Forces static and dynamic presentation /outdoor demonstrations are open to the public/ static presentation	
09:30 - 17:00	daily /exhibition HALL 3, stand 399 and outdoor exhibition area VP2/ dynamic presentation
12:15 - 12:40	Mobile Isolation Unit /HALL 3, stand 399/
12:45 - 12:50	Czech Air Force Ceremonial Flyby /outdoor dynamic demonstration area/
12:50 - 13:20	Technical resources influence on the quality and speed of task force preparation and management /outdoor dynamic demonstration area/
16:35 - 17:00	Mobile Isolation Unit /HALL 3, stand 399/
12:45 - 13:15	Poster Sessions /Expert Programme Centre HALL 2/
13:15 - 17:00	VIP Guided Exhibition Tour
13:30 - 17:15	World CBRN & Medical Congress (CEBIRAM) /Expert Programme Centre HALL 2/
13:30 - 17:00	Geospatial, Hydrometeorological & GNSS Workshop (GEOMETOC) /Expert Programme Centre HALL 2/
14:00 - 15:20	Round Table "Multinational Training Centre for Jet Pilots" (invited persons only)
14:50 - 15:20	International Press Jury - Future Forces Forum Best Products Awards /HALL 3, stand 393/
15:30 - 16:30	Generals' Club (invited persons only) /VIP Lounge/
16:35 - 17:00	Mobile Isolation Unit /HALL 3, stand 399/
20:00 - 24:00	Future Forces Forum Galaevening (invited persons only) /24 Airbase Kbely/

20 October 2016 – “Czech Integrated Emergency Management System Day”

09:00 - 17:00	Future Forces Exhibition (FF16)
09:00 - 17:00	NATO Working groups' Sessions
09:00 - 14:30	Future of Cyber Conference - CYBER TRENDS (FCC) /Conference Room #1, VHII/
09:30 - 17:30	World CBRN & Medical Congress (CEBIRAM) /Expert Programme Centre HALL 2/
09:30 - 17:00	Future Soldier Systems Conference (FSSC) /Expert Programme Centre HALL 2/

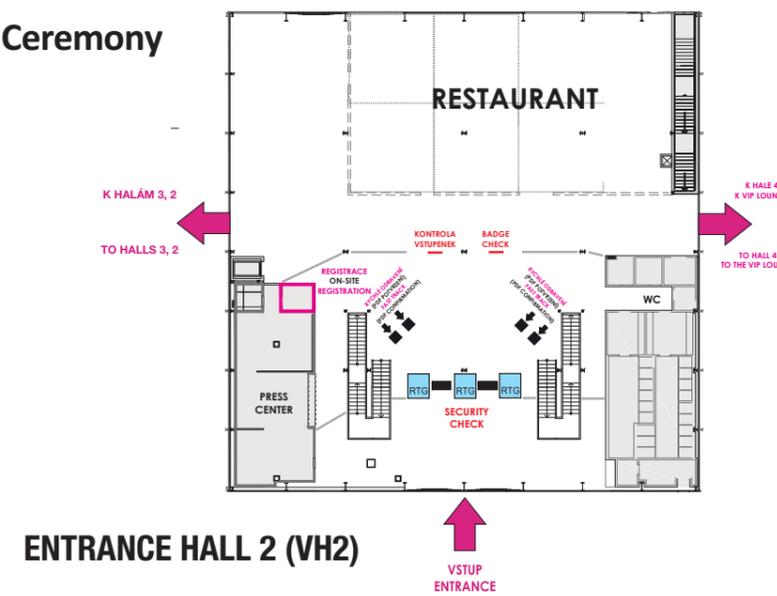
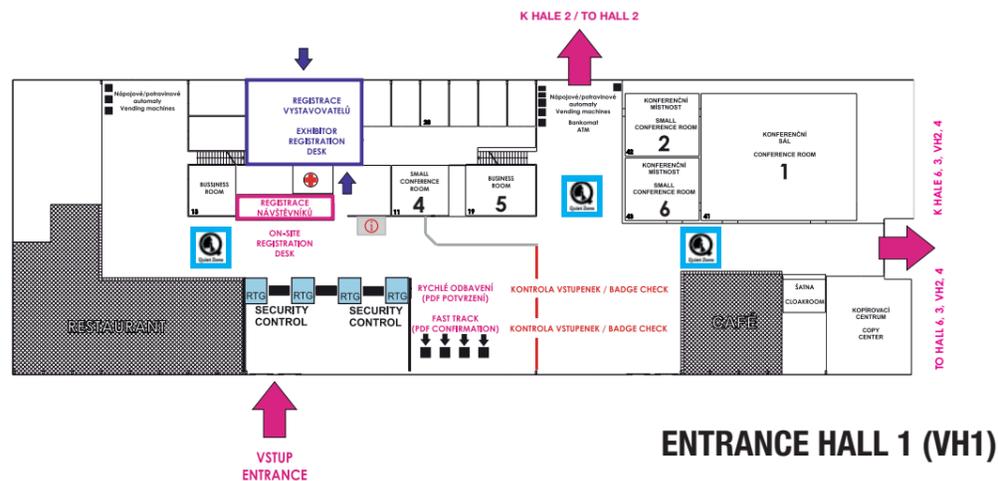
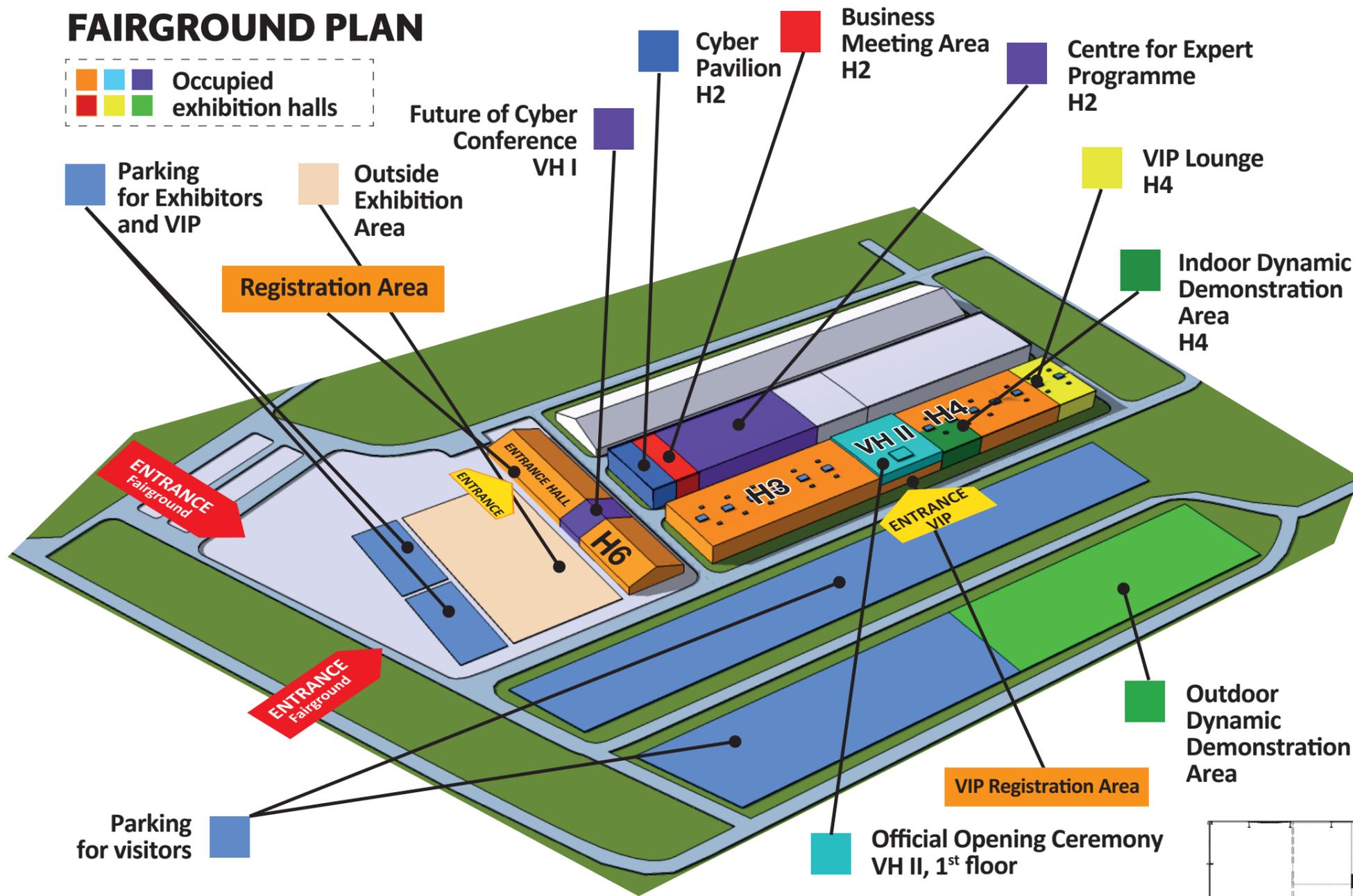
09:30 - 17:00	Military Advanced Robotic Systems Conference (MARS) /Expert Programme Centre HALL 2/
09:30 - 17:00	Geospatial, Hydrometeorological & GNSS Workshop (GEOMETOC) /Expert Programme Centre HALL 2/
09:30 - 17:25	Logistics Capability Workshop (LCWS) /Expert Programme Centre HALL 2/
10:00 - 12:00	VIP Guided Exhibition Tour
11:00 - 11:30	Live Demo - Identification of the Victims of Mass Disasters - DVI Team /outdoor exhibit area VP3/
11:30 - 14:55	CYBER Defence Simulations /GORDIC Cyber Pavilion, HALL 2, stand 202 AFCEA/
12:00 - 12:45	VIP Lunch (invited persons only)
12:00 - 12:15	Live Demo - Mobile Isolation Unit /HALL 3, stand 399/
NATO Working Groups' Delegates - Expert Events and Exhibiton Guided Tour	
Czech Police Forces static and dynamic presentation /outdoor demonstrations are open to the public/ static presentation	
09:30 - 17:00	daily /exhibition HALL 4, stand 432 and outdoor exhibition area VP3/ dynamic presentation
11:00 - 11:30	Identification of the Victims of Mass Disasters /outdoor exhibition area VP3/ DVI Team, Institute of Criminalistics Prague
12:20 - 12:40	Joint intervention of the Police, Fire & Rescue Brigade and Air Rescue Service /outdoor dynamic demonstration area/
Czech Fire Rescue Service static and dynamic presentation /outdoor demonstrations are open to the public/ static presentation	
09:30 - 17:00	daily /exhibition HALL 4, stand 424/
11:00 - 15:00	/outdoor dynamic demonstration area/ dynamic presentation
12:40 - 13:00	Deployment in a case of finding unknown substances /outdoor dynamic demonstration area/
13:00 - 17:00	CBRN Workshop /Expert Programme Centre HALL 2/
13:00 - 17:00	Medical Workshop /Expert Programme Centre HALL 2/
13:40 - 16:00	VIP Guided Exhibition Tour
15:00 - 17:45	Future of Cyber Conference - CYBER TRENDS Workshops (FCCWS)
16:15 - 16:40	Live Demo - Mobile Isolation Unit /HALL 3, stand 399/

21 October 2016 – “Czech Prison & Czech Customs Administration Day”

09:00 - 17:00	Future Forces Exhibition (FF16)
09:00 - 17:00	NATO Working groups' Sessions
09:00 - 14:30	Future of Cyber Conference - CYBER TRENDS (FCC) /Conference Room #1, VHII/
09:30 - 12:30	World CBRN & Medical Congress (CEBIRAM) /Expert Programme Centre HALL 2/
09:30 - 14:15	Future Soldier Systems Conference (FSSC) /Expert Programme Centre HALL 2/
09:30 - 14:15	Military Advanced Robotic Systems Conference (MARS) /Expert Programme Centre HALL 2/
09:30 - 13:30	Geospatial, Hydrometeorological & GNSS Workshop (GEOMETOC) /Expert Programme Centre HALL 2/
09:30 - 13:30	Logistics Capability Workshop (LCWS) /Expert Programme Centre HALL 2/
09:30 - 14:15	CBRN Workshop /Expert Programme Centre HALL 2/
09:30 - 14:15	Medical Workshop /Expert Programme Centre HALL 2/
10:00 - 12:00	VIP Guided Exhibition Tour
11:30 - 14:55	CYBER Defence Simulations /GORDIC Cyber Pavilion, HALL 2, stand 202 AFCEA/
NATO Working Groups' Delegates - Expert Events and Exhibiton Guided Tour	
Czech Prison Service static and dynamic presentation /outdoor demonstrations are open to the public/ static presentation	
09:30 - 17:00	daily /exhibition HALL 4, stand 429 and outdoor exhibition area VP1/ dynamic presentation
12:00 - 12:30	Service dogs intervention against dangerous offenders /outdoor dynamic demonstration area/
Czech Customs Administration static presentation /outdoor demonstrations are open to the public/ static presentation	
09:30 - 17:00	daily /HALL 4, stand 430/
12:35 - 12:55	Live Demo - Mobile Isolation Unit /HALL 3, stand 399/
13:00 - 13:45	VIP Lunch (invited person only)
13:45 - 16:00	VIP Guided Exhibition Tour
14:25 - 14:55	Live Demo - Mobile Isolation Unit /HALL 3, stand 399/
15:00 - 16:15	Future of Cyber Conference - CYBER TRENDS Workshops (FCCWS)

FAIRGROUND PLAN

- Occupied exhibition halls



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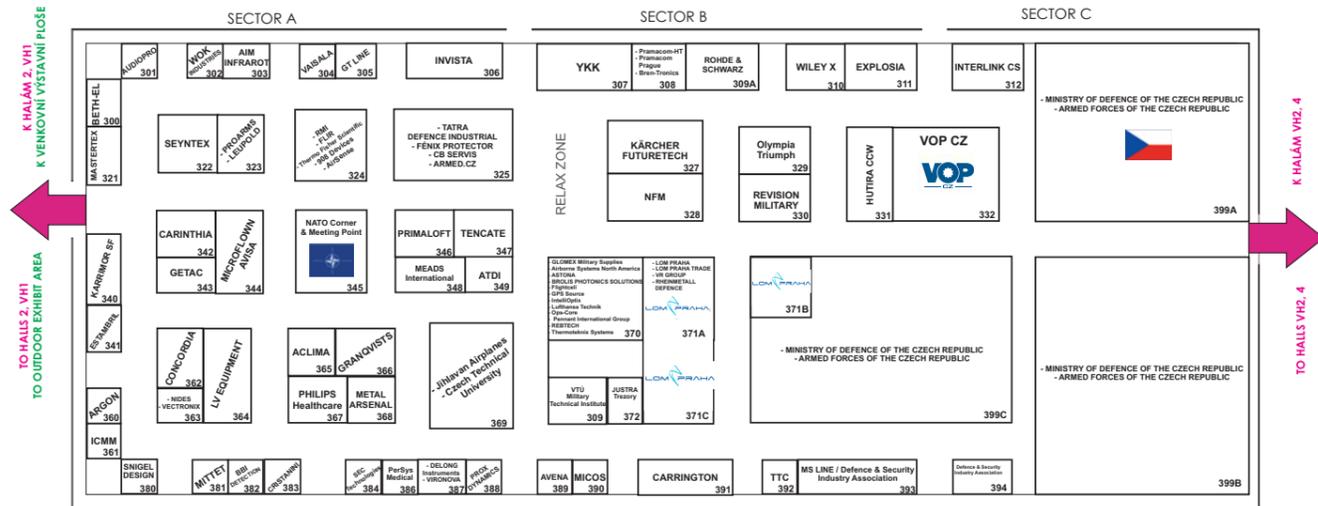



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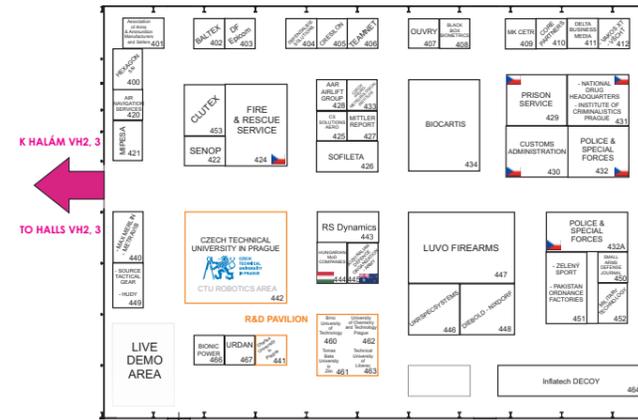
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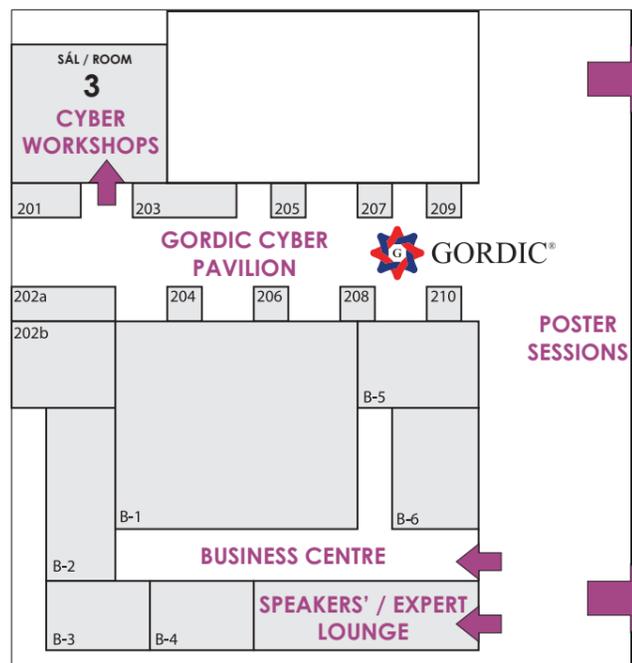
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Hall: 3, stand: 324

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Armed Forces Communications & Electronics Association (AFCEA) Czech Chapter is a non-profit membership association serving the military, government, industry, and academia as an ethical forum for advancing professional knowledge and relationships in the fields of communications, information technology, intelligence, and security.

AFCEA was established in 1946 in United States. At the present time, association has more than 38.000 members all around the world. AFCEA Czech Chapter was established on the 5th of May, 1993 and currently has roughly 125 individual and collective members. Czech chapter is managed by a board of thirteen members. The head of the board is the chapter president. Current chapter president is Mr. Tomas Muller. The board consists additionally of three vice-presidents, secretary of the chapter, secretary of the program vice president, a treasurer and six board members.

Czech chapter currently has two honorary vice-presidents, who are General Petr Pavel, Chief of the General Staff of the Czech Armed Forces; General Vlastimil Píček and General Jan Kaše.

Hall: 2, stand: 202

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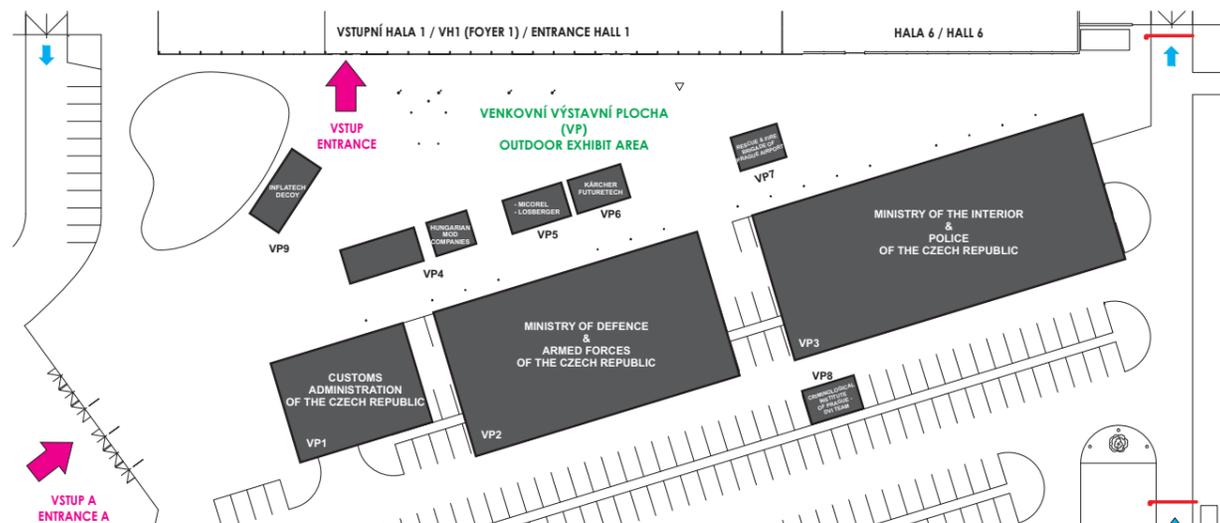
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Hall: 3, stand: 303

Outdoor Exhibit Area



MINISTRY OF DEFENCE OF THE CZECH REPUBLIC / MINISTERSTVO OBRANY ČR.....	VP2
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LOSBERGER RDS.....	VP5
MICOREL s.r.o.....	VP5
POLICE OF THE CZECH REPUBLIC.....	VP3
RESCUE & FIRE BRIGADE OF PRAGUE AIRPORT.....	VP7

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Hall: 3, stand: 370

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AIRSENSE Analytics has committed itself to making the world a safer place as one of the leading manufactures of reliable instruments for the detection of hazardous compounds in public security, catastrophe management and defense. The instruments which are produced in Germany are in use in many different areas to fight CBRNE threats.

Hall: 3, stand: 324

ALLIED TELESIS INTERNATIONAL, B.V.

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e-mail: pet_todorov@alliedtelesis.com
www.alliedtelesis.com



Allied Telesis is a global provider of secure IP/Ethernet switching solutions, and an industry leader in the deployment and provision of IP Triple Play

networks and networking solutions infrastructure. Networking has always been the core business of Allied Telesis. Allied Telesis has based its development on organic and internal growth.

Our mission is to build a worldwide organization that is customer focused, that delivers high quality, cost-effective, advanced end-to-end IP-based networking solutions and services that meet current requirements, offer investment protection, but also scale to meet the business application demands of tomorrow.

FCC Partner Slot & TT

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Represented companies and brands: Radsim, Camsim, PlumeSIM

Hall: 3, stand: 360

ARMED STORE s.r.o.

Pižeňská 103/215a
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e-mail: info@armed.cz
www.armed.cz

The ARMED STORE s.r.o. company is standing behind one of the largest stores with tactical and outdoor products in the Czech Republic. Beyond that, ARMED focus on supplying selected products to Czech Army and LE units. We can be proud on our delivery of Laser Ammo laser training system to Czech special forces units. Laser Ammo is cost effective training system, which allows the users to perform „dry training“ with his own personal weapon. Using laser cartridge, the user can perform various drills, including safe manipulation with weapon and correct trigger engagement, while he still can see the results on target. That leads to much better results in live fire and also better safety of the user and other people at range. Reduced costs for ammunition and other expenses necessary when attending firing range are bonuses. The Laser Ammo also offer various accessories, which makes often not popular „dry firing“ quite interesting and entertaining addition to live training. At Future Forces show, we will present both basic and additional parts of Laser Ammo training system. There will be possibility for everyone to try the Laser Ammo at our booth.

Besides the Laser Ammo, the ARMED STORE s.r.o. company is distributor of many other premium brands. We will present the most important ones at the show. This would be the military series of knives, multitools and tools from Gerber. Among others, Gerber products are used by U.S. Armed forces, British and German armed forces. We will also display backpacks, plate carriers, pouches and other tactical equipment from Warrior Assault Systems. Warrior Assault Systems products offer perfect quality of materials and manufacturing for reasonable price. Besides that, the products comply with IRR standards.

Represented companies and brands: Laser Ammo, Gerber, Warrior Assault Systems, Marathon, Original S.W.A.T., Maxpedition

Hall: 3, stand: 325

ASOCIACE OBRANNÉHO A BEZPEČNOSTNÍHO PRŮMYSLU

see DEFENCE AND SECURITY INDUSTRY ASSOCIATION

Hall: 3, stand: 394

ASSOCIATION OF GUNS AND AMMUNITION MANUFACTURERS AND SELLERS / ASOCIACE VÝROBCŮ A PRODEJČŮ ZBRANÍ A STŘELIVA o.s.

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e-mail: asociace@guns.cz
www.guns.cz



The Czech Association of Arms and Ammunition, Manufacturers and Supplier unifies a member base (45 subjects) in the Czech Republic:

- design, manufacturing of weapons, ammunition, their storage and maintenance
- mending of weapons and their accessories
- producer of short-run cartridges tailor made
- authorized experts in the fields of ballistics etc.
- operators of shooting ranges, polygons
- traders with weapons, ammunitions, military and safety materials including articles of commission
- firms dealing with safety in the consequentive special activities

The aim of the association is to cooperate with the state administration in the updating of the legislation. It develops programmes for special trainings of the employees of the association members as well as self-employed individuals. In the case of apprentices and secondary school youth for the expertness gunsmith, ammunition technician.

Hall: 4, stand: 401

ASTONA

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The company Lubomír Mlček – ASTONA is focused on development, production and distribution of camouflage suits, protecting work clothes, leisure time clothes, commission knitting production and other. Targeted is focused on the trade needs and individual demand.

Hall: 3, stand: 370

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ATDI is a global leader the development and implementation of automated spectrum management systems, whose expertise extends to software development, spectrum engineering and management. ATDI is evolving its product line to an open-source web architecture which is attracting a great deal of interest from the telecommunications industry.

Hall: 3, stand: 349

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Represented companies and brands: Ayron-SkyRanger, Epson, Fujinon, Honeywell-Quietpro, Phonak Communications, Panorama, Kowa Optimed Deutschland GmbH, SFC energy, SKB Cases

Hall: 3, stand: 301

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Hall: 4, stand: 445

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Hall: 3, stand: 389

AXENTA a.s.

Mlýnská 326/13
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tel.: +420 549 492 289
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www.axenta.cz



Axenta is a company focused on implementation of IT security products and solutions, IT security projects and running of security services. The company was founded in 2009 and it operates in both Czech and Slovak Republics.

Specialties:

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Axenta offers:

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- Trendmicro Deep Security for VMWare environment.
- Performance monitoring based on Nagios, Centreon, op5, Cacti.

Axenta is an authorized distributor of Balabit products in the Czech and Slovak Republic.

Represented companies and brands: Balabit

Hall: 2, stand: 208

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Hall: 4, stand: 402

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Hall: 3, stand: 382

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Hall: VH1

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Hall: 3, stand: 300

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Hall: 4, stand: 434

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Hall: 4, stand: 460

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Hall: 3, stand: 391

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Represented companies and brands: FN Herstal, Lapua, Walther, Magtech-CBC, Pardini, Armi Dallera Custom, Ruag, Accuracy International, Desert Tech, Bersa, D.I.Optical, Holosun

Hall: 3, stand: 325

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Hall: 4, stand: 412

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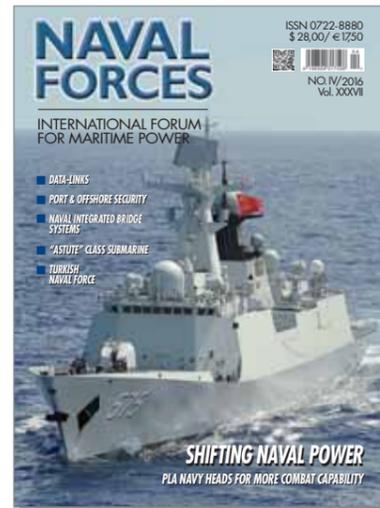
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Hall: 4, stand: 453

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Hall: 3, stand: 362

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Hall: 4, stand: 405

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Hall: 4 + Outdoor Area, stand: 431 + VP8

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Hall: 4 + Outdoor Area, stand: 430 + VP1



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Hall: 2, stand: 205

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Hall: 4, stand: 442 / Hall: 3, stand: 369

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DSIA is an interest association of more than 100 corporate bodies dealing with military and security material and services.

Hall: 3, stand: 394

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Activities of the company comprise research, development and fabrication in a field of electron-optical devices, and low voltage electron microscopes. The main product in this area is the transmission electron microscope (TEM) LVEM 25. This versatile TEM is small, easy to operate and can be placed in any standard laboratory without any need for a dark room or cooling water.

Hall: 3, stand: 387

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Represented companies and brands: Counter-IED Report; Cyber Security Review

Hall: 4, stand: 411

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Represented companies and brands: NanoBodix®

Hall: 4, stand: 401

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Hall: 4, stand: 404

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tel.: +34 91 327 3865
e-mail: alfredo.ramirez@epicom.es

EPICOM, Spanish company with more than 20 years experience, develops, manufactures and markets equipment. Devices and solutions that guarantee the protection of strategic, sensitive and critical communication lines and means as well as the information running through them the solutions are based on wide range of IP network, voice and data protection, both physically and logically.

Hall: 4, stand: 403

DIEBOLD NIXDORF



Lužná 591, 160 00 Praha 6
Czech Republic
tel.: +420 233 037 474
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www.dieboldnixdorf.com

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Hall: 4, stand: 448

FFF Main Technical Partner

ECCOTARP

see METAL ARSENAL s.r.o.

Hall: 3, stand: 368

ELAT s.r.o.



Údolní 567/33, 602 00 Brno
Czech Republic
tel.: +420 725 858 296
e-mail: vondracek@elat.cz
www.elat.cz

ELAT is a Czech consulting company with an extensive experience, competence and knowledge in field of ICT, TELCO, SECURITY and FACILITY MANAGEMENT. Thanks to our experience with diverse environments, from small businesses through public institutions, to multinational corporations, together we can combine the flexibility and dynamic way of functioning of small businesses with standards and processes of the really big ones.

ELAT company belongs to the leading Czech consulting companies in the field of cyber security.

Hall: 2, stand: 208

FCC WS Partner

ELVAC a.s.

Hasičská 53, 700 30 Ostrava-Hrabůvka
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tel.: +420 597 407 300
e-mail: petra.vicenikova@elvac.eu
www.elvac.eu

ELVAC is a joint-stock company with a history of 25 years. ELVAC is a part of the largest Czech engineering alliance group VAE CONTROLS. We focus on technical trading and provide development and contracting services in the field of manufacturing automation, industrial and unique customised PC systems, power electronics and special purpose machines. ELVAC operates mainly in the Czech Republic (Ostrava headquarters and the regional centre in Prague).

Apart from that, we merchandise via our branch office in Slovakia (the regional centre in Trenčín).

Great emphasis is placed on the development of new and customised products.

We introduce our own customised products that we have developed for the needs of the security and defence sectors, as well as military industry product portfolio, produced by vendors that we represent on the Czech and Slovak markets.

Examples are resistant keyboards and pointing devices, robust tablets and notebooks, industrial data storage and special customized computers.

Hall: 3, stand: 343

ERUCOM, spol. s r.o.

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Czech Republic
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e-mail: obchod@erucm.cz
www.erucm.cz

Erucom provides professional full services in the area of IT infrastructure and telecommunications. We provide ensure data security, wi-fi networks, secure remote connectivity for individuals and remote sites. We work closely with a world leader in the field of complex multilayer ensure customer safety.

Hall: 2, stand: 204

ESTAMBRIL INTERNATIONAL S.L.

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Spain
tel.: +34 93 747 6010
e-mail: EvaLatorre@estambriinternacional.com
www.estambri.com

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Represented companies and brands: Du Pont International

Hall: 3, stand: 341

EXPLORER CASES by GT LINE

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Italy
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MADE IN ITALY waterproof cases for extreme applications in navy, military, nautic, scuba, diving, photographic, medical fields. Ideal to protect and transport sensitive equipment. Resistant to impacts, water, corrosion, dust and atmospheric agents. IP67 certifications.

Hall: 3, stand: 305

EXPLOZIA, a. s.

Semtín 107, 530 02 Pardubice
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e-mail: explosia@explosia.cz
www.explosia.cz

EXPLOZIA a. s. is production and trading company primary in the field of production of explosives and services associated with a polication of energetic materials for commercial as well as military use.

Hall: 3, stand: 311

FENIX PROTECTOR s.r.o.

262 03 Mokrovraty č.p. 30
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tel.: +420 602 208 701
e-mail: info@fenix-protector.com
www.fenix-protector.com

Production of modular systems, individual ballistic protection - body armours.

Hall: 3, stand: 325

FIDELIS CYBERSECURITY

Empiria Business Centre, Na Strži 1702/65, 140 00 Praha 4
Czech Republic
tel.: +420 222 191 918
e-mail: emea@fidelissecurity.com
www.fidelissecurity.com



Fidelis Cybersecurity is creating a world where attackers have no place left to hide. We reduce the time it takes to detect attacks and resolve security incidents. Our Fidelis Network™ and Fidelis Endpoint™ products look deep inside your traffic and content where attackers hide their exploits. Then, we pursue them out to your endpoints where your critical data lives. With Fidelis you'll know when you're being attacked, you can retrace attackers' footprints and prevent data theft at every stage of the attack lifecycle. To learn more about Fidelis Cybersecurity products and incident response services, please visit www.fidelissecurity.com and follow us on Twitter @FidelisCyber.

Hall: 2, stand: 206

FCC Partner

FIRE RESCUE SERVICES OF THE CZECH REPUBLIC - POPULATION PROTECTION INSTITUTE

Kloknerova 26, 148 01 Praha 414, Czech Republic
tel.: +420 950 580 111
fax: +420 950 580 101
e-mail: spisovna@ioolb.izscr.cz
www.hzscr.cz



Stationary presentation of the Fire Rescue Service, a demonstration of special mobile biological laboratories, chemical detection devices, with explanation of methods of their use. Information about current technical equipment.

Hall: 4, stand: 424



The poster features a central graphic with the text "Defense & Security 2017" surrounded by various security-related terms: MILITARY COOPERATION, BORDER CONTROL, CYBER SECURITY, DRUG TRAFFICKING, HUMAN TRAFFICKING, and TERRORISM. The main headline reads "The Power of Partnership" followed by the dates "6 - 9 November 2017" and the location "IMPACT Exhibition and Convention Center, Bangkok Thailand". Below this, it states "Tri-Service Asian Defense & Security Exhibition, Conference and Networking Event".

Official Publication and Official Show Daily: **ADJ** (Asian Defence Journal)

Bilingual Show Daily: **ARMADA** (Asian Military Review)

Supporting Publications: **MÖNCH**, **MILITARY TECHNOLOGY**, **APDR**, **DEFENCE**, **European Security & Defence**, **ASIAN DEFENCE TECHNOLOGY**, **SHEPHARD**, **JED**, **TECHNOLOGY**, **DEFENSE**, **KANWA**

Official Supported by: **TCEB** (Thailand Convention & Exhibition Bureau)

Organized by: **GML**

Defense & Security 2017
Tel: +66 (0) 2642 6911 Ext. 132 E-mail: info@asiandefense.com www.asiandefense.com

FIRE RESCUE SERVICES PRAGUE

www.hzscr.cz/hzs-hlavniho-mesta-prahy
Czech Republic



Demonstration of a response to unknown substance:

Members of Fire and Rescue Service of Czech Republic will demonstrate methodical procedures at place of an accident for detection of possible toxicity, radioactivity and elimination of unknown substance.

Chemical reconnaissance, work in positive pressure protective suits, work with detection devices, analysis and identification of an unknown substance and decontamination of firefighters will be shown."

Outdoor Area

FLIGHTCELL INTERNATIONAL

Vickerman Street
7010 98 Nelson
New Zealand
tel.: +64 3 545 8651
fax: +64 548 8091
e-mail: info@flightcell.com
www.flightcell.com

Flightcell International has been at the forefront of avionics communications integration since 2001, providing GPS tracking, voice and data solutions for government and small to medium sized private operators. The primary markets served are military, firefighters, police, search & rescue, agriculture and local carriers - providing custom solutions to allow them to work smarter. High profile customers include the U.S. Air Force, Army, Navy, Marines and the U.S. State Department. Flightcell's flagship product is the DZMx, the world's only all-in-one iridium and cellular solution for voice, data & GPS tracking. DZMx is also the smallest, lightest and smartest system on the market and built to handle the rigors of military use.

Hall: 3, stand: 370

FLIR DETECTION

27700 SW Parkway Ave
OR 97070 Wilsonville
USA
tel.: +1 405 372 9535
fax: +1 405 372 9537
e-mail: detection@flir.com
flir.com/threatdetection

FLIR Systems, Inc. designs, develops, manufactures, markets, and distributes technologies that enhance perception and awareness. We bring innovative sensing solutions into daily life through our thermal imaging systems, visible-light imaging systems, locator systems, measurement and diagnostic systems, and advanced threat detection systems. Our products improve the way people interact with the world around them, enhance public safety and well-being, increase energy efficiency, and enable healthy and entertained communities.

Represented companies and brands: Fido, identiFINDER, Griffin

Hall: 3, stand: 324

FORTINET organizační složka

Pobřeží 620/3
186 00 Praha 8
Czech Republic
tel.: +420 773 788 788
e-mail: csr_sales@fortinet.com
www.fortinet.com



Fortinet's mission is to deliver the most innovative, highest performing network security platform to secure and simplify your IT infrastructure. We

are a leading global provider of network security appliances for carriers, data centers, enterprises and distributed offices.

Hall: 2, stand: 204

FCC Partner

GENERAL STAFF OF ARMED FORCES OF THE CZECH REPUBLIC

Vítězná nám. 5, 160 01 Praha 6 – Dejvice
Czech Republic
www.acr.army.cz



LCWS Specialized Partner

GETAC TECHNOLOGY CORPORATION

Getac is one of the leading rugged computer providers, Getac offers the most extensive rugged computing product lines including laptops, tablets and handheld computers. Getac serves a wide range of vertical markets from including military & defence, law enforcement, public safety, emergency services, utility, field services, oil and gas, telecommunications, transportation and industrial manufacturing.

Since 1989, Getac has been providing rugged computing solutions for demanding professionals in extreme environments.

Getac was established as a joint venture with GE Aerospace to supply defence electronic products.

Getac is one of the key subsidiaries of the MITAC-Synnex Group, the third largest computing group in Taiwan, with US\$29.4 billion in revenues (2014).

Our products have passed the most stringent international rugged testing standards for rough handling and outdoor mobility.

Getac has made several technological breakthroughs that improve the performance and safety of using computers in dangerous environments including:

- QuadraClear® sunlight readable display screens.
- Night vision without goggles.
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- Industry's first resistive multi-touch display for use with gloves.
- Industry-best 5-year warranty on our fully rugged computers.

Hall: 3, stand: 343

GLOMEX MS, s.r.o.

Pomněnková 61, 106 00 Praha 10
Czech Republic
tel.: +420 222 541 719
fax: +420 226 013 280
e-mail: info@glomex-ms.com
www.glomex-ms.com

GLOMEX Military Supplies is one of the leading suppliers of products and services to the Police and Armed Forces. Our main areas of activity are providing Special Forces, Air Forces & Police equipment including night vision, combat identification, reconnaissance unmanned aerial vehicles, pilot personal protection equipment, parachute systems and special aviation equipment.

Since 1998, our marketing, engineering, maintenance and training specialists have worked in co-operation with manufacturers and designers around the world to provide the most up to date equipment and technologies. GLOMEX Military Supplies continually works with its partners in the long term support and maintenance of equipment that is currently in use by operating its own technical, maintenance and storage facility equipped to work with precision electronics including night vision devices and special aviation equipment.

Hall: 3, stand: 370

GORDIC spol. s r.o.

Erbenova 4
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Czech Republic
tel.: +420 567 309 136
e-mail: gordic@gordic.cz
www.gordic.cz



Creator and supplier of information systems.

Represented companies and brands: KYBEZ, GINIS, HDL

Hall: 2, stand: 201

CYBER Pavilion Sponsor

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e-mail: lberry@gpssource.com
www.gpssource.com

GPS Source, Inc. is a Pueblo West, Colorado based company that manufactures and sells GNSS signal distribution products, solutions and services. Serving public safety, commercial electronics, survey, telecom, aerospace, automotive, DOD, Federal Government, and other demanding markets, GPS Source's products add value on a daily basis to the successful operations of our customers around the world. With over 30 years of collective experience in the GNSS industry, including a staff of seasoned RF and GPS systems engineers, GPS Source has the flexibility and technical know-how to design and deliver complete solutions for your unique GNSS signal distribution needs.

Hall: 3, stand: 370

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Hexagon's solutions integrate sensors, software, domain knowledge and customer workflows into intelligent information ecosystems that deliver actionable information, automate business processes and improve productivity. They are used in a broad range of vital industries.

Hall: 4, stand: 400

GEOMETOC Silver Partner

HUDYsport a.s.

Bynovec 138, 405 02 Děčín
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e-mail: janek@hudy.cz
www.hudy.cz



HUDYsport a.s. presents unique integrated carrier and protective system Source Virtus. VIRTUS allows the gear to be scaled to the demands of the mission, eliminating unnecessary weight. The integrated design results in significantly improved physical performance for the infantry soldier, enhancing mobility, agility and survivability in complex missions. The stand also presents hydration systems Source and backpacks Source and Deuter.

Hall: 4, stand: 449

HUNGARIAN DEFENCE FORCES & MoD Companies: HM EI Zrt. / HM ARZENÁL Zrt.

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Hungary
tel.: +36 1 431 29 00
fax: +36 1 275 0972
e-mail: hmei@hmei.hu
www.hmei.hu, www.arzenal.hu



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HM EI Zrt.: RDL-15 Biological Laboratory, UAVs -XR-XS
HM Arzenál Zrt.: P-18MH2, AK-63F modernization, Missile systems

Hall: 4 + Outdoor Area, stand: 444 + VP4

LCWS Specialized Partner

HUTIRA – BRNO, s.r.o.

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Czech Republic
tel.: +420 541 212 144
fax: +420 541 219 763
e-mail: info@hutira.cz
www.hutira.cz



Manufacturer and supplier of water treatment technology HUTIRA CCW (crystal clear water). We treat surface or underground water. Water treatment container units HUTIRA CCW = Compact modular design, easy to transport, install and operate.

Hall: 3, stand: 331

**LCWS Platinum Partner
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e-mail: uk@cuni.cz
www.cuni.cz

Charles University is one of the oldest universities in Europe. It is among leading educational, scientific and research institutions.

Hall: 4, stand: 441

ICMM - INTERNATIONAL COMMITTEE OF MILITARY MEDICINE

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1120 Brussels
Belgium
tel.: +32 2 264 4348
fax: +32 2 264 4367
e-mail: info@cimm-icmm.org
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Neutral, International and Intergovernmental Organization with 112 Member States. The aim is to facilitate contact between Armed Forces Medical Services in order to strengthen mutual understanding and promote complementary by exchanging information and sharing experiences.

Hall: 3, stand: 361

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ICT NETWORK NEWS / AVERIA Ltd.

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ICT Network News - Landing page of our community collects the latest and the best of all of our media. This page is a guidepost of our community for both new and existing readers. Applications such as Event Calendar, Jobs in ICT, ICT SECURITY, SECURITY & DEFENCE or ICT-TV completes the practical landing page and give more reasons for visiting.

Hall: 2, stand: 209

FCC Media Partner

ICT UNIE z.s.

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Czech Republic
tel.: +420 222 582 880
e-mail: ictu@ictu.cz
www.ictu.cz



ICT UNIE is a professional association of companies active in the field of information technology and electronic communication. Its goal is to increase the awareness of the importance of adopting and making use of modern information technology in our society. This includes creating an optimal setting for the development of public electronic communication networks in the Czech Republic, as the networks development is a necessary step towards establishing an information society.

FCC Partner

INTEL INTERNATIONAL Inc., INTEL SECURITY Division

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McAfee is one of the largest, independent, pure-play cybersecurity companies in the industry, known and trusted by businesses, consumers and governments. The company delivers proactive and proven solutions and services that help secure systems, networks, and mobile devices around the world, allowing users to safely connect to the Internet, browse the Web or shop here. McAfee provides a solution that protects home users, SMBs, non-commercial institutions and large multinational corporations from already known and emerging threats.

Hall: 2, stand: 210

FCC Partner Slot & TT

INTELLIOPTIX by IT&T

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Hall: 3, stand: 370

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Hall: 3, stand: 312

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The company JIHLAVAN airplanes, Ltd. was established in March 2005 in Czech Republic after takeover of all incorporeal rights on production of the ultralight and S-LSA aircraft incl. the complete technology of production. With the usage of such know-how company started the production of all-metal UL/S-LSA airplane under its own previous trade marks evolved to new SKYLEADER.

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Hall: 3, stand: 369

KÄRCHER FUTURETECH GmbH

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www.karcher-futuretech.com



Kärcher Group

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Hall: 3 + Outdoor Area, stand: 327 + VP6

CBRN WS Platinum Partner + LCWS Partner

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Hall: 3, stand: 340

KRIMINALISTICKÝ ÚSTAV PRAHA

see CRIMINOLOGICAL INSTITUTE OF PRAGUE - DVI TEAM

Hall: 4 + Outdoor Area, stand: 431 + VP8

LABORATORY FOR FORENSIC ANALYSES OF BIOLOGICALLY ACTIVE SUBSTANCES, UNIVERSITY OF CHEMISTRY AND TECHNOLOGY

Technická 5, 166 28 Praha 6
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e-mail: martin.kuchar@vscht.cz
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Hall: 4, stand: 412

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Outdoor Area, stand: VP7

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Manufacturer of optical products.

Hall: 3, stand: 323

LOGISTICS AGENCY

www.alog.army.cz
Czech Republic



The Logistics Agency is the expert authority subordinated to Director of the Division of Support. It is responsible for a comprehensive logistic support of ministerial events and military missions and operations on the Czech territory and abroad. The Agency supports allied armed forces on the territory of the Czech Republic in accordance with the Host National Support.

The Agency provides management, planning, and coordination of military transports and movements of Czech and allied forces on the Czech territory.

In relation to NATO, it is the National Transport Coordination Centre.

LCWS Partner

LOM PRAHA s.p.

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www.lompraha.cz



LOM PRAHA focuses, in particular, on complete overhauls, upgrades and

modernizations of Mi-8/17/171/24/35 helicopters and their dynamic components TV3-117/VR-14/VR-24/APU lifecycle support. We also provide pilot trainings (Mi-17/L-39) in our Flight Training Center and a tactical pilot trainings on simulators in our Tactical Simulation Centre. VR Group, a.s., the company's subsidiary, is providing the complex solution regarding the simulation technologies.

Hall: 3, stand: 371A,B,C

FFF General Partner

LOSBERGER RDS

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Outdoor Area, stand: VP5

LUFTHANSA TECHNIK AG

Weg beim Jaeger 193, 22335 Hamburg
Germany
tel.: +49 40 5070 5553
fax: +49 40 5070 8860
www.lufthansa-technik.com

Lufthansa Technik's Next Generation Patient Transport Unit (PTU NG) is displayed at Future Forces Forum 2016, Prague. Developed within 14 months together with Aerolite AG, a well-known specialized production and design organization for intensive care equipment in aircraft, four PTU NGs have been delivered to its launch customers for the integration into Airbus A380 and Boeing 747-8 aircraft. The PTU NG offers the latest medical technology. It presents the optimum solution for transporting patients requiring intensive medical care and for medical evacuation missions. Improvements of the established design are based on the in-service experience of many operators around the globe using the PTU today.

The Patient Transport Unit Next Generation presents the optimum solution for transporting patients requiring intensive medical care and features a modern, modular design. The combination of composite panels, aluminum integral structures and special edge protections delivers a low-weight and robust construction. Thanks to its modular design, consisting of three basic elements: two modules and the bed with a very comfortable mattress, the PTU NG can be tailored to the specific medical support requirements of each individual customer, offering perfect solutions for medical services of airlines, flying hospitals on special missions and to customized installations on governmental and VIP aircraft.

An optional ergonomic, versatile and space-saving equipment rack can accommodate a comprehensive set of medical instruments. The three modules are connected by quick-locks, enabling the unit to be assembled or disassembled in less than 30 minutes. With its variable rail adapter, the PTU NG can be quickly and easily installed in the cabins of many different aircraft types. It integrates virtually any medical equipment commonly used in intensive care, including an optional EASA-certified internal oxygen system. All equipment is supplied with power via a universal power connection. A control panel and displays indicate power availability, oxygen pressure and system status.

The PTU NG is a product of Lufthansa Technik's new Original Equipment Innovation product division. Together with other innovative Aeromedical Services Lufthansa Technik AG is offering turnkey solutions for VIP, Medevac and Special Mission operation building on a long-term experience for Medevac aircraft completions, modifications and MRO Services.

Hall: 3, stand: 370

LUVO Praha s.r.o.

Rejskova 7, 120 00 Praha 2
Czech Republic
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Hall: 4, stand: 447

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www.lvequipment.nl

LV Equipment BV, a NL based wholesale company, is the exclusive partner from Berghaus Ltd. in the UK for the development and supply of military & police load carrying systems (LCS) world wide.

Represented companies and brands: Berghaus, Victorinox

Hall: 3, stand: 364

MASARYK UNIVERSITY MASARYKOVA UNIVERZITA

Žerotínovo nám. 617/9
601 77 Brno
Czech Republic
Tel.: +420 549 491 111
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e-mail: info@muni.cz
www.muni.cz

Hall: 2, stand: 208

FCC WS Partner

MASTER TEXTILE MILLS LTD

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Master Textiles Mills have Complete Vertical Setup which includes Spinning with 32,000 spindles Weaving with 120 Air-jet looms, Dyeing & Finishing of Apparel Fabrics with 3 million meters per month running production and Garment Manufacturing. We are specialist in producing IRR Camouflage fabrics for Military & dyed fabrics for Police Uniforms. We are producing branded CORDURA ® IRR CAMOUFLAGE fabrics for Military & Combat Forces & Workwear end use.

Hall: 3, stand: 321

MAX MERLIN spol. s r.o.

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fax: +420 286 853 439
e-mail: max@maxmerlin.cz
www.maxmerlin.cz

1. Acoustic gunshot detection system (PILAR V - mobile version and PEARL - weapon version)
2. Multipurpose non-lethal self defense weapon (OSA - 4-shot and 2-shot version)
3. Self defense device (PYRODEFENDER)
4. Digital radiographic personal scanner (CONPASS)

Hall: 4, stand: 440

MAXIMUM PARTY SERVICE

Panelová 406, 190 15 Praha – Satalice
tel.: +420 283 921 6
Czech Republic
e-mail: catering@maximumparty.cz
www.maximumparty.cz



FFF Service Partner

MEADS INTERNATIONAL

Germany
tel.: +49 82 5299 8613
e-mail: horst.boljahn@mbda-systems.de
www.meads-amd.com

MEADS International is a tri-national joint venture (MBDA Deutschland, MBDA Italia, Lockheed Martin) dedicated to develop the Medium Extended Air and Missile Defence System (MEADS).

Represented companies and brands: Lockheed Martin, MBDA-DEU, MBDA-ITA

Hall: 3, stand: 348

METAL ARSENAL s.r.o.

Poděbradova 1920, 289 22 Lysá nad Labem
Czech Republic
tel.: +420 325 514 723
e-mail: info@eccotarp.com
www.eccotarp.com

Metal Arsenal s.r.o. is a developer and manufacturer of collapsible and portable products for environmental protection produced under the brand Eccotarp.

Products are mainly used by rescuers and firefighters, by the army and police in accidents for capturing leaks of hazardous substances.

They also have also proven to be useful to prevent spills during storage or transport of substances in industry and transport.

Eccotarp products include: spill bunds, funnels, sorbent carts, magnetic drain covers, high-capacity tanks, berms, collapsible hexagons tanks etc.

All products are collapsible, multifunctional, easily portable, resistant to oil products and chemicals. Through combination of these unique properties the products Eccotarp have achieved a great success and are sold throughout Europe as well as in the US and Canada.

Metal Arsenal s.r.o. is an exclusive distributor of rescue manikins Ruth Lee for Czechia a Slovakia.

Represented companies and brands: Ruth Lee

Hall: 3, stand: 368

METRAVIB

200 chemin des Ormeaux
69578 Limonest
France
tel.: +33 4 7252 4800
e-mail: nicolas.delassus@acoemgroup.com
www.metravib.com

Hall: 4, stand: 440

MICOREL s.r.o.

Dopravní 537, 463 11 Liberec
Czech Republic
tel.: +420 777 046 949
e-mail: zakoucky@micorel.cz
www.micorel.cz

Mobile lighting technic, electric energy wires for temporary workplaces, electric power generators, emergency landing areas for aircraft, temporary mobile ways.

Represented companies and brands: R.V.M. B.V., Generac, Green Power

Outdoor Area, stand: VP5

MICOS spol. s r.o.

Vápenice 17, 796 01 Prostějov
Czech Republic
tel.: +420 604 222 657 (English)
+420 604 222 661 (česky)

fax: +420 582 307 688
e-mail: pavel.schuster@micos.cz (English)
petr.samalik@micos.cz (česky)

www.telcom.micos.cz

Micos spol. s r.o. is a company with more than 25th history. It is known not only by production and export of passive products for telecommunication networks but also by production and montage of special products and components suitable for difficult operating condition usage.

Heavy duty transport box line MTS data cabinets line BS and containers components as e.g. Special doors belong to well-known products.

In the case of EMC demand our products achieve quality requirements for attenuation of electric and magnetic fields in wide frequency range.

Company biggest advantage is tailored solution offer!!!

Hall: 3, stand: 390

MICROFLOWN AVISA

Tivolilaan 205, BV 6824 Arnhem
Netherlands
tel.: +31 880 010820
e-mail: ivanova@microflown.com
www.microflown-avisa.com



Microflown AVISA (www.microflown-avisa.com) provides complete 3D acoustic situational awareness for the global defense industry.

Its proprietary Acoustic Multi-Mission Sensors can be used to detect, locate and (where applicable) track three sorts of audible threats on the battlefield:

- Small Arms Fire
- Rockets, artillery and mortars
- UAVs and helicopters

Enabler is the Microflown, the world's first and only acoustic sensor that measures acoustic particle velocity instead of the well-known sound pressure.

An AMMS is passive, cannot be jammed, requires no line of sight (darkness, fog, dust) and also works under adverse weather conditions (heavy rain).

As the AMMS is low Size, Weight and Power, it has been fielded on various platforms:

- unattended ground sensor
- vehicles
- helicopters
- multicopters

The AMMS is considered to be the game changer in a situational awareness, allowing new doctrines.

Hall: 3, stand: 344

**MICROSOFT ČESKÁ REPUBLIKA
A SLOVENSKO**

Vyskočilova 1561/4a
140 00 Praha 4
Czech Republic
e-mail: zdenekj@microsoft.com
www.microsoft.cz



Microsoft (Nasdaq "MSFT" @microsoft) is the leading platform and productivity company for the mobile-first, cloud-first world, and its mission is to empower every person and every organization on the planet to achieve more. We strive to create more personal computing, reinvent productivity & business proces and build the intelligent cloud.

FCC Partner

MILITARY RESEARCH INSTITUTE

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637 00 Brno
Czech Republic
tel.: +420/543 562 111
fax: +420/543 562 100
e-mail: vvu@vvubrno.cz
www.vvubrno.cz



MILITARY RESEARCH INSTITUTE is conduct by its founder (MoD resort) to research and development related to high-level innovation, particularly of ground forces equipment and material in key areas of competence.

FSSC Specialized Partner

MILITARY TECHNICAL INSTITUTE

Mladoboleslavská 944
197 06 Praha 9- Kbely
Czech Republic
tel.: +420 910 105 111
fax: +420 284 817 086
e-mail: info@vtusp.cz
www.vtusp.cz



Vojenský technický ústav, s.p. (Military Technical Institute) offers defense and security R&D services, certified testing, manufacturing and modernization of armament and military technologies for Armed Forces of the Czech Republic as well as for other state or private customers.

Hall: 3, stand: 309

MARS Platinum Partner

**MINISTRY OF DEFENCE OF THE CZECH
REPUBLIC / MINISTERSTVO OBRANY ČR**

Tychonova 1
160 01 Praha 6
Czech Republic
tel.: +420/973 200 147
e-mail: info@army.cz
www.army.cz



Presentation of new technologies, examples of gear and equipment, modern technologies.

Hall: 3 + Outdoor Area, stand: 399 + VP2

**MINISTRY OF INTERIOR OF THE CZECH
REPUBLIC / MINISTERSTVO VNITRA ČR**

Nad Štolou 3
170 34 Praha 7
www.mvcr.cz
Czech Republic



The Ministry of Interior is supreme office for the realms of public administration, internal security, border protection and eGovernment in the Czech Republic. The scope of competencies of the Ministry of the Interior is defined by Section 12 of Act No. 2/1969 Coll. on Establishing Ministries and Other Institutions of Central Government of the Czech Republic, as amended. The head of the Ministry of Interior is minister, currently Mr. Milan Chovanec. Police of the Czech Republic and Directorate General of Fire Rescue Service of the Czech Republic are also part of the Ministry of interior.

The Ministry of the Interior is a central governmental authority for home affairs, in particular for public order and other matters relating to internal order and security within its defined scope of competence, including supervision of road traffic protection, first names and surnames, registers of births, marriages and deaths, nationality, identity cards, residence reporting, register of inhabitants and personal identification numbers, the right of association and the right of assembly, registration of organizations with international links, public collections, maintaining archives, firearms and ammunition, fire protection, travel documents, granting residence to foreign nationals and refugee status, the territorial structure of the state, national borders, their surveying, maintenance and documentation, state symbols, state, economic and service secret. It also bears the overall national coordinator role for public administration. In addition, Ministry of Interior is responsible for national ICT infrastructure and maintains some national information and communications systems. Related activities, including cybersecurity, are provided by Section of Information and Communication Technologies.

Hall: 2, stand: 202

MIPESA s. r. o.

Hyacintová 7
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fax: +420 272 655 140
e-mail: sajnar@mipesa.cz
www.mipesa.cz

Representation of companies PELI, Ansmann, Electromem, Elspro, LIGHT BOY on the Czech market. The company is a supplier for the Czech Army, Police and Fire Rescue Service of the Czech Republic. The PELI assortment consists of portable lighting systems, tactical flashlights, lamp explosion-proof and highly resistant special cases and boxes for weapons, military equipment and sensitive equipment transporting. ANSMANN is a leading manufacturer of advanced battery chargers and batteries. ELECTROMEM provides complete care for lead-acid batteries.

Represented companies and brands: PELI, ANSMANN, ELECTROMEM, ELSPRO, LIGHT-BOY

Hall: 4, stand: 421

MITTET AS

Kvasnesvegen 2, 6037 Eidsnes
Norway
tel.: +47 958 35 677
e-mail: vidar@mittet.com
www.mittet.com

Mittet AS is a family owned company established in 1946. Main office is located in the city of Aalesund. Turnover in 2015 was 7,3 million euro; 55 employees; 2 factories in Norway and 1 in Lithuania.

Product range of Mittet AS

- Pullover boots for cold weather
- Cold weather inlay soles
- Filters for air ventilation
- Quilting for furniture
- Quilting for lining in work wear
- Knitted fabrics for paint roller
- Knitted fabrics for lining in garments and shoes
- Technical fabrics for sound and condensation insulation
- Lamination and coating

Hall: 3, stand: 381

**MITTLER REPORT VERLAG / EUROPEAN
SECURITY & DEFENCE (ESD)**

Baunscheidtstrasse 11, 53113 Bonn
Germany
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fax: +49 228 3500 871
e-mail: stephen.barnard@mittler-report.de
www.euro-sd.com

European Security & Defence (ESD)

ESD is a Mittler Report Verlag (MRV) publication, with history back to 1789.

Since January 2015 ESD has evolved into a top-quality, global bimonthly print publication. Supplemented fortnightly by ESD Spotlight, the on-line Security and Defence newsletter, distribution tripled in 2015 and continues to be the fastest growing publication in the international Defence & Security field. ESD offers a unique blend of top-quality editorial content, going beyond thought leadership into Knowledge-Based Influence (KBI). ESD: * Conveys Military, Security and Industrial requirements and capabilities within Europe * Transmits non-European Industrial capabilities and expertise within Europe * Highlights core European Industrial expertise * Offers proven communication directly to European decision-makers.

ESD: Intelligence for the Intelligent.

Hall: 4, stand: 427

MK CETR s.r.o.

Zdislavina 21/26, 674 01 Třebíč
Czech Republic
tel.: +420 606 633 164
fax: +420 568 845 698
e-mail: mkcetr@volny.cz
www.mkcetr.cz

We are Czech company founded in 1994. We develop and produce casual, sports and special types of gloves (e.g. for army or police forces) for retail as well as for public/state sector. Our experience and 100% Czech production guarantee the best quality you can find.

Hall: 4, stand: 409

MONCH PUBLISHING GROUP

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MONCH is one of the world's largest publishers of professional defence and security journals which are available in print and in digital form – and reinforced by blog and other on-liner activities.

MONCH journals are in English (MILITARY TECHNOLOGY, NAVAL FORCES and SAFETY & SECURITY INTERNATIONAL), in German, Italian and Arabic.

MILITARY TECHNOLOGY (of which the WORLD DEFENCE ALMANAC is an annual special issue), NAVAL FORCES and SAFETY & SECURITY INTERNATIONAL are edited for a global readership.

WEHRTECHNIK in German is directed specifically at readers in Germany, Austria and Switzerland. AL DEFAIYA in Arabic is directed at readers in the Middle East and in North Africa. TECNOLOGIA MILITAR in Spanish is edited for readers in Latin America and in Spain. RIVISTA ITALIANA DIFESA is the leading defence monthly of Italy.

Hall: 4, stand: 452

MS Line, s.r.o.

Vykáň 82, 289 15 Kounice
Czech Republic
tel.: +420 321 672 601
e-mail: info@msline.cz
www.msline.cz

Our company is a member of the DSIA, whose objectives are among others to establish contacts with similar associations in NATO countries, assist, initiate and broadly support foreign-business activities of the association members promoting proexport oriented programs created with a support of the government and bank sector and to provide information and media support to the association members and other companies.

Hall: 3, stand: 393

MULTINATIONAL LOGISTICS COORDINATION CENTRE



Vítězné náměstí 1500/5, 160 01 Praha 6
Czech Republic
Tel.: +420 973 214 478
Fax: +420 973 214 309
e-mail: mlcc@army.cz
www.mlcc-eng.army.cz

Multinational Logistics Coordination Centre (MLCC) is designed to coordinate multinational logistics support, consisting in providing assistance to coalition partners in planning and logistics support to current and future operations led by coalition forces, coordination in the field of training and education in the field of logistics, the development of standardization and interoperability in logistics, analysis, applications, and exchange of experience in operations conducted in the area of logistics, coordination of transport and troop movements and the development of international cooperation, which it exercises on the basis of international agreements concluded between States Parties.

LCWS Specialized Partner

**NATIONAL CYBER SECURITY CENTRE
NÁRODNÍ CENTRUM KYBERNETICKÉ
BEZPEČNOSTI**

Na Popelce 2/16, 150 00 Praha 5
Czech Republic
www.nckb.cz, www.ncsc.cz

According to the Decision n. 781 of the Government of the Czech Republic from 19th October 2011, the National Security Authority was established as a competent national authority for the issues of cybernetic security. The Statute of the Council for Cybernetic Security was added to this Decision. The National Cyber Security Centre (NCSC) has been established on the basis of this Decision as a part of the National Security Authority. The main task of the NCSC is coordination of cooperation on both national and international level to prevent cybernetic attacks, to propose and adopt measures for incident solving and against ongoing attacks.

Hall: 2, stand: 202

**NATIONAL DRUG HEADQUARTERS
NÁRODNÍ PROTIDROGOVÁ CENTRÁLA**

Hall: 4, stand: 431

**NATO CENTRE of EXCELLENCE
for MILITARY MEDICINE**

Róbert Károly krt. 44.
1134 Budapest
Hungary
e-mail: info@coemed.org
www.coemed.hu



Hall: 3, stand: 345

CEBIRAM Specialized Partner

NATO JCBRN DEFENCE COE

Hall: 3, stand: 345

CEBIRAM Specialized Partner



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net.pointers Ltd. is a genuine Czech company focusing on Cybersecurity and Unified Communications solution within Central Europe, Middle East and Asia Pacific.

We would like to be your partner and transfer our deep knowledge to your team in areas of APT, Anti DDoS protection, Forensic analysis, Unified Communication and Cybersecurity Education. Services provided include professional customer support, technology deployment, managed security services and continuous software development including proprietary applications based on specific customer needs. <http://net.pointers.cz>

Hall: 2, stand: 206

FCC Partner

NETWORK SECURITY MONITORING CLUSTER

Botanická 554/68a, 602 00 Brno
Czech Republic
tel.: +420 602 129 224
e-mail: jiri.sedlacek@nscluster.com
www.nsmcluster.com



Network Security Monitoring Cluster is a center of excellence, knowledge-based platform, an association of Czech companies and experts focused to Cyber Security. It was founded in 2010 and its members are companies from the private sector and institutions of academia. NSMC is a member of many associations. It participated on the formulation of Czech Cyber Security Act and its harmonization with EU regulations. NSMC has created its own educational Cyber Security course and is co-founder of educational fields of cyber security at secondary schools and universities. Theoretical knowledge of NSMC members are supported by their experience and know-how. That's why NSMC was able to create unique concept of active security and reliability of IT infrastructure.

Hall: 2, stand: 208

FCC WS Partner

NFM GROUP

Glyntveien 27, 1400 Ski
Norway
tel.: +47 64 85 14 00
fax: +47 64 85 14 01
e-mail: info@nfm.no
www.nfm.no



NFM offers its end users the full spectrum of protection while enhancing capability, from GARM combat clothing, to THOR load-bearing system, SKJOLD body armor, and helmets.

User-centered design and high quality production make NFM's products sought after by soldiers and police officers globally.

Represented companies and brands: GARM, THOR, SKJOLD, OPS-CORE, EC Paint

Hall: 3, stand: 328

NIDES s. r. o.

Šumavská 31a, 602 00 Brno
Czech Republic
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+420 773 550 795
fax: +420 532 093 279
e-mail: info@nides.cz
www.nides.cz



Authorized distributor of the company Vectronix which is a global leader in state-of-the-art optronic equipment, systems and sensors for military and civil applications. Handheld Equipment: Pocket Laser Range Finder, Rangefinder Binoculars, Night Vision Monoculars and Goggles, Multifunction Devices. Mounted Equipment: Night Vision Devices Weapon or Vehicle Mounted. Day and Night Orientation Systems: Non-magnetic based target acquisition system. Modules: Digital Magnetic Compass, Laser Range Finder

Hall: 3, stand: 363

NOVICOM, s.r.o.

Koněvova 67a, 130 00 Praha 3
Czech Republic
tel.: +420 271 777 231
e-mail: info@novicom.cz
www.novicom.cz



Novicom is Czech developer of solutions for monitoring, administration and security of large networks. By using its very own technologies, Novicom achieves premium security and operational reliability, even in large distributed networks. Its key product is AddNet – integrated IPAM/DDI/NAC solution which provides highly efficient IP address space management and network access control in large networks.

Hall: 2, stand: 208

FCC WS Partner

OLYMPIA TRIUMPH MANUFACTURING LIMITED

15 Westminster Road, Wareham, BH20 4SP Dorset
United Kingdom
tel.: +44 1929 424 326
fax: +44 1929 550 984
e-mail: sales@olympia-triumph.co.uk
www.olytri.com

Olympia Triumph Boarding Equipment includes a range of carbon fibre, glass fibre and aluminium telescopic and folding poles, titanium grapple hooks, wire and webbing ladders, pneumatic launchers and rope ascent devices for urban and marine applications.

Hall: 3, stand: 329

OPS-CORE

324 Main St.
PA 18407 Simpson
USA
tel.: +44 7909 255 190
e-mail: swilliams@helmets.co.uk
gentexcorp.com
ops-core.com

Gentex is a leading provider of innovative solutions that enhance personal protection and situational awareness for global defense forces and emergency responders operating in high performance environments. The company's product portfolio includes helmet system platforms and capability upgrades sold under the Gentex, Ops-Core, ALPHA, and Aegisound brands. Privately held, Gentex is headquartered in Carbondale, Pennsylvania and supports its global customers through a worldwide distributor network and eight other facilities in the U.S. and the U.K. Learn more at www.gentexcorp.com.

Hall: 3, stand: 370

OUVRY SAS

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69009 Lyon
France
tel.: +33 4 8611 3202
fax: +33 4 8611 3805
e-mail: info@ouvry.com
www.ouvry.com



OUVRY is a French manufacturer which specializes in the study, research, development and manufacturing of CBRN personal protective equipment (PPE) and decontamination solutions, for the civilian and military markets. Our engineering team is highly experienced in the fields of textiles, materials selection, CBRN threat spectrum, chemistry, and physiological factors, which enables us to propose innovative solutions which benefit fully from the results of extensive ongoing R&D activities. OUVRY will present its DEC'POL® decontamination mitt, a new concept of emergency decontamination developed with the support of the French Defense Procurement Agency (DGA).

Hall: 4, stand: 407

PAKISTAN ORDNANCE FACTORIES

Wah Cantt
Pakistan

Pakistan Ordnance Factories consists of 14 different factories which produces Small arms ammo & weapons. It also produces Medium Artillery, heavy Artillery, Tank and Anti Tank, Propellants, Rockets, Grenades Clothing items (Army uniforms and PLCs, plastic products for packing, shot Gun ammo 12 bore. It supplies all its products to Pak Army and also exports its, products to desired countries.

It is headed by Chairman POF Board, and its employee strength is approx 22000.

Hall: 4, stand: 451

PENNANT INTERNATIONAL GROUP PLC

Pennant Court, Staverton Technology Park
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United Kingdom
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www.pennantplc.co.uk

Pennant International Group is a leading provider of technology based training solutions to Defence, Aerospace, and safety critical industries

in the UK and overseas. An established supplier to the UK MoD and other major defence contractors, Pennant has a proven capability in the Design, Development, Manufacture, Delivery and Support of training services and solutions.

Hall: 3, stand: 370

PERSYS MEDICAL

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Israel tel.: +972 9 951 7444
fax: +972 9 951 7666
e-mail: info@persysmedical.com
www.ps-med.com



Life Saving Innovations for the Military, EMS, Law Enforcement, and Emergency Departments worldwide. Company main products: The NIO - new intraosseous device, the emergency bondage and Blizzard hypothermia treatment.

Hall: 3, stand: 386

PHILIPS

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tel.: +44 7826 877 582
e-mail: alwena.hall@philips.com
www.philips.com/militarysolutions



Care and treatment, when and where it's needed

Our solutions are developed across the healthcare continuum with the aim of improving patient experience and outcomes for primary care needs as well as trauma and injuries sustained whilst on the battlefield.

Our understanding and delivery of clinical solutions across the entire healthcare continuum, from preparedness, through to primary care, diagnosis and treatment, to

recovery and on-going long-term sustainable healthcare delivery means we can create more effective, integrated care solutions that will help you meet your needs. By focusing on enabling care as close to the point of injury as possible we believe we can ultimately create the best solutions. Solutions that improve outcomes, save lives and reduce costs.

Hall: 3, stand: 367

CEBIRAM Platinum Partner

POLICE ACADEMY OF THE CZECH REPUBLIC IN PRAGUE / POLICEJNÍ AKADEMIE ČR V PRAZE

Lhotecká 559/7, 143 01 Praha 4
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tel.: +420 974 828 501
e-mail: polac@polac.cz
www.polac.cz



According to Higher Education Act N.111/1998 Coll., as amended, colleges and universities, as the highest level of educational system, are the supreme centres of learning, independent knowledge and creative activity, and they play the key role in scientific, cultural, social and economic development of the society.

The Police Academy of the Czech Republic is a state school a university type, towards which the Ministry of Interior of the Czech Republic executes the responsibilities according to 95 of Higher Education Act. It is the supreme educational and scientific institution within the Ministry of Interior.

Hall: 2, stand: 202

POLICE OF THE CZECH REPUBLIC

Strojnická 27, 170 00 Praha 7
Czech Republic
tel.: +420 974 834 387
e-mail: martina.aismanova@pcr.cz
www.policie.cz



Static outdoor demonstration of Police vehicles, helicopter and boat. Dynamic display - Czech Police, Fire Rescue Service and Air Rescue Service - crackdown against armed offenders (drug dealers during the handing over drug shipment). Internal static demonstration - Police divers and special riot unit (equipment and weapons of the Czech Police).

Hall: 4 + Outdoor Area, stand: 432 +432A + VP3

PRAGUE AIRPORT

K letišti 6/1019, 160 08 Praha 6
Czech Republic
tel.: +420 220 111 888
e-mail: milan.mraz@prg.aero
www.prg.aero



Static demonstration of a car for CBRN defence:

The car contains compressed-air pressure chemical protective suits, equal-air pressure chemical suits, SCBA, sets for biological protection, equipment for decontamination, a light system, and equipment for marking a danger area. We want to draw your attention for a storage of the decontamination equipment, kept in a container which can be removed out of the car, and for sets for the biological protection.

Outdoor Area, stand: VP7

CEBIRAM & MARS Gold Partner + GEOMETOC Specialized Partner

PRAMACOM - HT, spol. s r. o.

Na pískách 1667/36, 160 00 Praha 6
Czech Republic
tel.: +420 588 188 401
e-mail: infrared@infrared.cz
www.infrared.cz

PRAMACOM-HT is involved into development, integration, delivery and service of opto-electronics and C4ISTAR systems for dismounted deployment. Development is primarily devoted to multi-spectral fusion in NIR, SWIR and LWIR bands. The company supplies systems integrating key technologies of ISTAR including unmanned aerial vehicles (UAV).

Represented companies and brands: „AeroVironment, Inc., CILAS, L-3 Communications, Communication Systems West, NIVISYS LLC., Persistent Systems, LLC., Thales Defense and Security, Inc.

Hall: 3, stand: 308

PRAMACOM PRAGUE spol. s r. o.

Tlumačovská 1097/30
155 00 Praha 13
Czech Republic
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e-mail: pramacom@pramacom.cz
www.pramacom.cz



Pramacom Prague was incorporated in September 1991 as a limited liability company. Since its establishment, Pramacom Prague has specialized in radio communication. It was as early as in the mid 1990s when Pramacom Prague got significantly involved in the PEGAS radio-communication system designed for the Czech Integrated Rescue System.

Pramacom Prague is a local partner of Airbus DS SAS, an international corporation based in Europe, including former Matra Communications – the

winner in the public tender launched in 1994 for a new radio-communication network for the Czech Police and the Integrated Rescue System.

By becoming a signatory to an alliance agreement with Airbus DS SAS (former EADS) in 2003, Pramacom Prague was awarded an exclusive supplier agreement for repairs, maintenance, system solution optimization and radioengineering of the PEGAS system.

Hall: 3, stand: 308

PRIMALOFT GmbH

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www.primaloft.com



PrimaLoft, Inc., a materials science company based in Latham, New York with offices in Germany and China, is the world leader in research and innovative development of comfort solutions with high performance insulations and fabrics. The PrimaLoft® brand, a registered trademark of PrimaLoft, Inc., delivers feel-good products that are used in the top global outdoor and fashion brands, home furnishings, work wear, hunting and military applications. PrimaLoft® insulation was originally developed for the U.S. army as water-resistant, synthetic alternative to down. For more information, please visit www.PrimaLoft.com, and follow PrimaLoft on Facebook, Twitter and Instagram.

Hall: 3, stand: 346

PRISON SERVICE OF THE CZECH REPUBLIC

Soudní 1a/1672, 140 67 Praha 4
Czech Republic
tel.: +420 244 024 111
e-mail: rblanda@grvs.justice.cz
www.vscr.cz



Within dynamic demonstrations the Prison Service will present service dogs' training interventions in specific situations against particularly dangerous offenders.

Hall: 4, stand: 429

PROARMS ARMORY, s.r.o.

Toušeňská 431
250 81 Nehvizdy, Praha – východ
Czech Republic
tel.: +420 326 997 345
fax: +420 326 997 345
e-mail: info@proarms-armory.com
www.proarms-armory.com



PROARMS ARMORY is manufacturer of piston operated, high precision assault rifles PAR Mk3.

Hall: 3, stand: 323

PROX DYNAMICS AS



Nye Vakås vei 56, 1395 Hvalstad
Norway
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e-mail: mail@proxdynamics.com
www.proxdynamics.com

At Prox Dynamics our core mission is to develop, produce and sell the World's smallest and most advanced Unmanned Aircraft Systems (UAS).

Represented companies and brands: Black Hornet 2 Nano-UAV

Hall: 3, stand: 388

R&D PAVILON

Hall: 4, stand: 441 + 442 + 460 + 461 + 462 + 463

REBTECH

1500 Brown Trail, 76022 Bedford, Texas, USA
tel.: +1 817 285 7740
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For the past 20 years REBTECH has modified over 700 aircraft worldwide for NVG compatibility, both military and civilian aircraft ranging from C-130's, C-5's, S-61's and KA-32's to R44's and Bell 412's. REBTECH hold 27 NVG Lighting STC's for both rotor craft and fixed wing aircraft. Qualified teams of technicians install and certify the lighting ranging from post lights and bezels to internal modification of instruments and avionics systems all done at the customers preferred location.

Hall: 3, stand: 370

RESCUE AND FIRE BRIGADE OF PRAGUE AIRPORT

K letišti 6/1019, 160 08 Praha 6
Czech Republic
tel.: +420 220 111 888
e-mail: milan.mraz@prg.aero
www.prg.aero



Static demonstration of a car for CBRN defence:

The car contains compressed-air pressure chemical protective suits, equal-air pressure chemical suits, SCBA, sets for biological protection, equipment for decontamination, a light system, and equipment for marking a danger area. We want to draw your attention for a storage of the decontamination equipment, kept in a container which can be removed out of the car, and for sets for the biological protection.

Outdoor Area, stand: VP7

REVISION MILITARY

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Revision develops and delivers purpose-built protective soldier equipment for military use worldwide. The company, which began with eyewear, has expanded to face, head and torso protection as well as energy storage and power management products, continues to develop innovative capabilities for integrated, performance-enhancing soldier systems.

Hall: 3, stand: 330

RHEINMETALL DEFENCE ELECTRONICS GmbH

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As longstanding partner of the armed forces Rheinmetall is a source of competent advice in the innovative use of advanced training and simulation technology. At Future Forces 2016 we are presenting our LEGATUS(R) live combat training system - a decisive contribution to successful missions.

Hall: 3, stand: 371

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www.rohde-schwarz.cz

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Hall: 3, stand: 309A

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Hall: 4, stand: 443

ŘÍZENÍ LETOVÉHO PROVOZU ČESKÉ REPUBLIKY s.p.

see AIR NAVIGATION SERVICES OF THE CZECH REPUBLIC

Hall: 4, stand: 420

SEC TECHNOLOGIES

Druzstevna 5, 031 01 Liptovský Mikuláš
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Hall: 3, stand: 384

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Represented companies and brands: HUSKY

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SNIGEL DESIGN AB

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Hall: 3, stand: 380

SOFILETA SAS

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Department is oriented to research in the field of smart functional and high performance textile based structures by using of advanced sources of energy, nanotechnology and computer oriented design. There are developed special techniques for evaluations of end use tactile and consumer oriented properties, maintain ability and durability. Department is cooperating in the field of side emitting optical fibers applications with companies SCILIF and SINTEX.

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Hall: 3, stand: 347

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*ClipIR not for sale/use in USA

Hall: 3, stand: 370

TOMAS BATA UNIVERSITY in Zlín FACULTY OF LOGISTICS AND CRISIS MANAGEMENT

Studentské nám. 1532, 686 01 Uherské Hradiště
Czech Republic
tel.: +420 576 032 080
e-mail: dekanat@flkr.utb.cz, skybova@flkr.utb.cz
www.utb.cz/fai

EXHIBITION

Faculty of Logistics and Crisis Management (FLCM) was founded on September 1, 2009 and it is the youngest faculty of Tomas Bata University in Zlín. It continues the educational and research activities of the Institute of Security Technology in Uherske Hradiste, which belonged to Faculty of Technology.

Currently FLCM offers studies in these degree programmes and courses: Bachelor's programmes and courses: Degree programme: Process Engineering, Degree course: Risk Control, Degree programme: Population Protection, Degree course: Population Protection, From academic year 2011/2012 Degree programme: Security of Society Degree course: Environmental Risk Management

FLCM focuses on logistics area, logistics support in emergency and crisis situations and on crisis management in its research and development activities. The aim of FLCM is to continually improve faculty teaching degree programmes and courses so that its graduates will be the most competitive in the employment market.

Hall: 4, stand: 461

TOMAS BATA UNIVERSITY IN ZLÍN FACULTY OF APPLIED INFORMATICS

Nad Stráněmi 4511, 760 05 Zlín
Czech Republic
tel.: +420 576 035 221
fax: +420 576 035 279
e-mail: info@fai.utb.cz; dekanat@fai.utb.cz
www.utb.cz/fai

The inauguration of a faculty focused on Applied Sciences as an independent element of Tomas Bata University in Zlín is the logical result of the University's efforts to succeed in the Information Technology field. The Faculty of Applied Informatics (FAI) was established on 01.01.2006 through the transformation of the existing Institute for Process Control and Applied Informatics (IRPI) at the Faculty of Technology which, in turn, had been founded in the first half of 2004, and came into being through the restructuring of the Institute of Information Technology. The foundations of the latter institution was the Institute (formerly Department) of Automation and Control Technology, which had existed for more than 14 years at the Faculty of Technology at the time (The Department of Automation was established on 01.09.1986).

Research activities of department of security engineering:

- security theory,
- physical security and property protection,
- commercial security technology,
- alarm systems (alarm security systems, access control systems, CCTV, Fire Alarm)
- information technology to support crisis management,
- detective work and professional defense,
- protection and resilience of critical infrastructure,
- modeling of crisis situations.

Hall: 4, stand: 461

TTC TELEKOMUNIKACE, s.r.o.

Třebostická 987/5, 100 00 Praha 10, Czech Republic
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Hall: 4, stand: 446

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The UNIVERSITY OF DEFENCE is responsible for education of military professionals and other experts engaged in national security and defence.

Hall: 3, stand: 399

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UCT Prague is a public higher education university pursuing scientific, research, development, and implementation activities. UCT Prague is known for the depth and breadth of its educational and research activities in almost all branches of chemistry, chemical engineering, food chemistry and technology, biochemistry, refining, water treatment, power and biological sciences etc.

Hall: 4, stand: 462

UNIVERZITA KARLOVA

see CHARLES UNIVERSITY IN PRAGUE

Hall: 4, stand: 441

UNIVERZITA TOMÁŠE BATI VE ZLÍNĚ FAKULTA APLIKOVANÉ INFORMATIKY

see TOMAS BATA UNIVERSITY in Zlín / Faculty of Applied Informatics

stand: 461

UNIVERZITA TOMÁŠE BATI VE ZLÍNĚ FAKULTA LOGISTIKY A KRIZOVÉHO ŘÍZENÍ

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stand: 461

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Hall: 4, stand: 467

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Hall: 3, stand: 304

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Hall: 3, stand: 363

VĚŽEŇSKÁ SLUŽBA ČESKÉ REPUBLIKY

see PRISON SERVICE

Hall: 4, stand: 429

VIENNA HOUSE DIPLOMAT PRAGUE

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Hall: VH2

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- an institution offering training in English to international students in the form of expert courses in military management, engineering or medicine
- a university allowing education or training under the Erasmus+ programme umbrella
- an institution involved in NATO and/or EU military training programmes, such as NATO Defence Education Enhancement Programme
- the defence and security research and development centre of the Army of the Czech Republic
- an institution involved in the international research and development programmes open to cooperation in the fields supporting the national security system or the fight against terrorism

University of Defence structure

- Faculty of Military Leadership
- Faculty of Military Technology
- Faculty of Military Health Sciences
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- Centre for Security and Military Strategic Studies
- Language Centre
- Physical Training and Sports Centre



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- Field of study: Military Management

■ Bachelor degree in Military Technology

- Field of study: Weapons and Ammunitions
- Field of study: Communication and Information Systems

■ Doctoral degree (PhD)

- all programmes of Faculty of Military Technology (9)
- all programmes of Faculty of Military Health Sciences (8)

Publications – journals

- Advances in Military Technology
- Economics and Management
- Defence and Strategy
- Military Medical Sciences Letters
- University of Defence Journal

University of Defence

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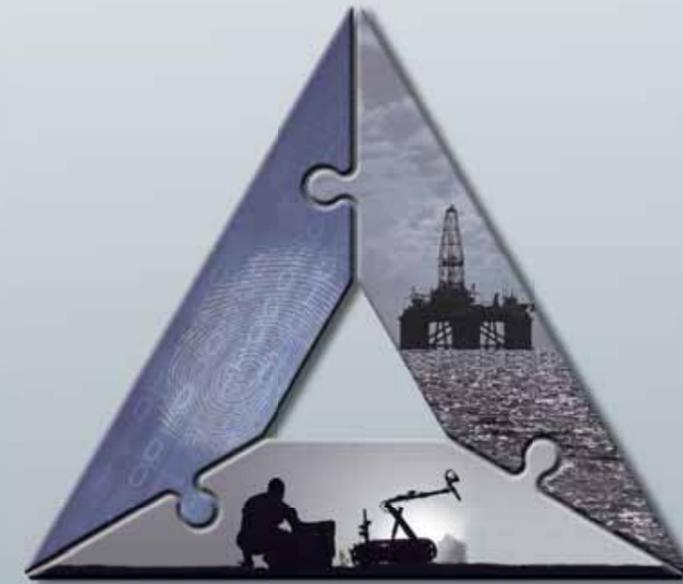


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Hall: 3, stand: 332

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Defence Procurement International, Registered address: Davina House, 137-149 Goswell Road, London, EC1V 7ET

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Published by Trident Publications Limited, England, Company number: 7535727

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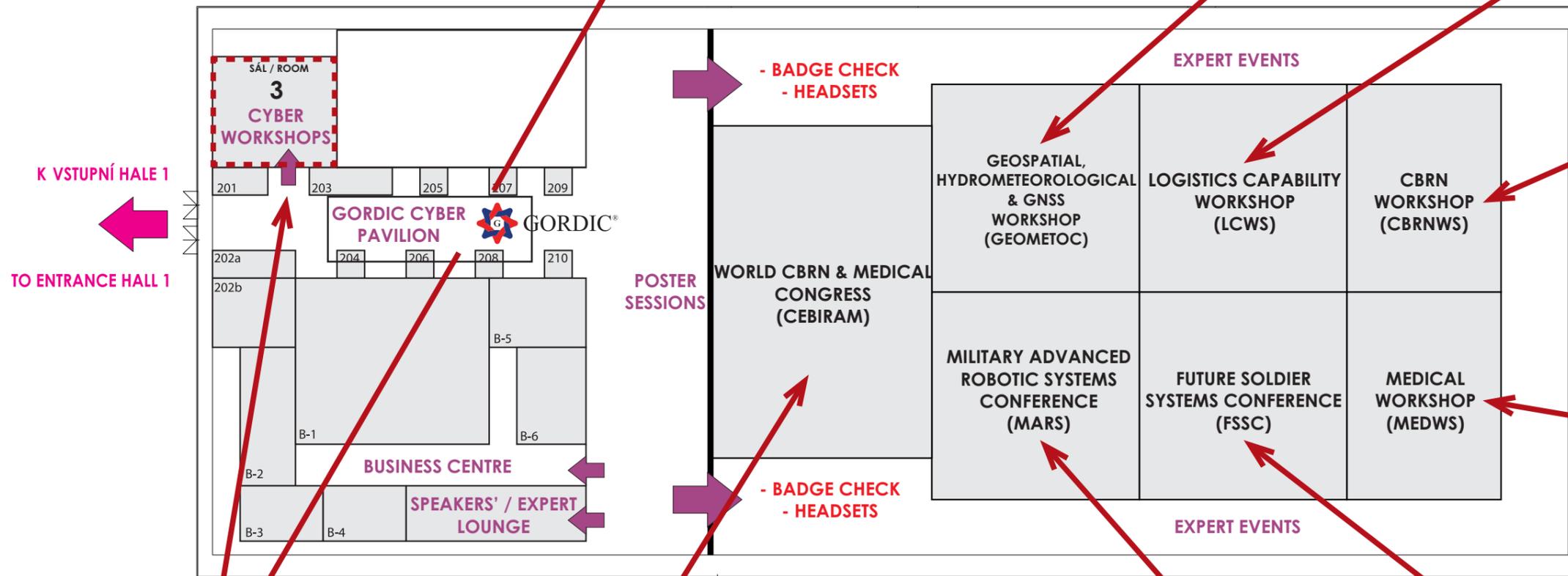
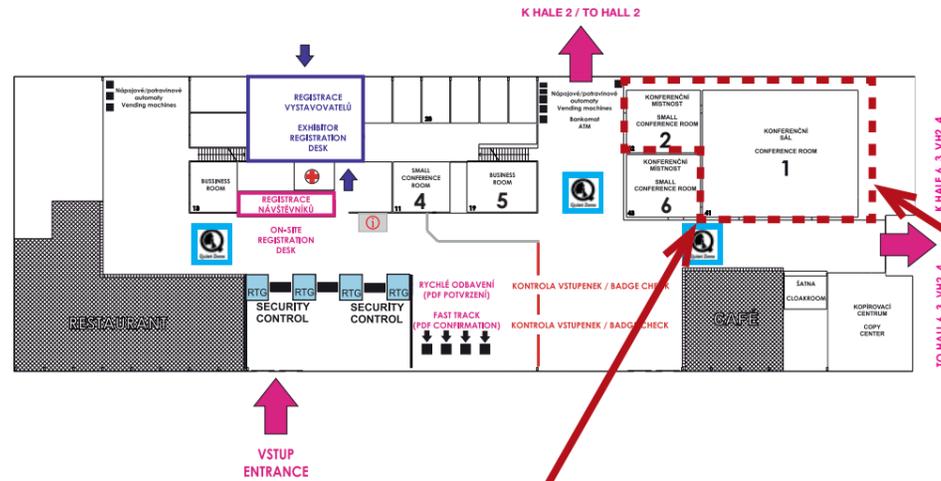
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**GEOSPATIAL,
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19 – 21 OCTOBER 2016
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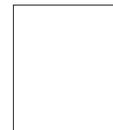
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Word from the FFF Director of Foreign Relations

Dear Future Forces Forum Attendees,

I would like to express my deep appreciation for your attendance in the Future Forces Forum (FFF).

The aim of the Future Forces Forum is to provide all participants with the top level event with an international programme which allows you to obtain the most in-depth information on the subject matter of FFF.

The Future Forces Forum, as a global networking event in the area of defence & security, has brought so many important people from all around the world (defence & security representatives, users, experts, scientists, industry representatives, etc.) to one place to discuss the topics of current and future security needs.

The Future Forces Forum has been developed in close cooperation with the Czech governmental organizations as well as together with the international defence & security organizations, that is why we all believe that New Strategic Concept of the FUTURE FORCES FORUM is the Czech Republic's contribution to the mutual cooperation within NATO and other International security organizations and partner 's nations.

I would especially like to thank for the support we have had from: President of the Czech Republic; President of the Chamber of Deputies; Parliament of the Czech Republic; Office of the Government of the Czech Republic; Deputy Prime Minister for the Science, Research and Innovation; Ministry of Defence, Ministry of Foreign Affairs, Ministry of Interior, Ministry of Industry and Trade, Ministry of Transport, Ministry of Education, Youth and Sports, Ministry of Health, Ministry of the Environment of the Czech Republic; General Staff of the Armed Forces of the Czech Republic; University of Defence; Hungarian Defence Forces; NATO HQ; NSPA; NATO STO; EDA; UNICRI; FRONTEX; EUROPOL; EASA; WHO; ICRC; NATO JCBRN Defense Centre of Excellence; NATO Centre of Excellence for Military Medicine; National Security Authority; Police Presidium, Police, Fire Rescue Services, Prison Service, General Directorate of Customs of the Czech Republic; Prague City Hall; Permanent Delegation of the Czech Republic to NATO; Permanent

Representation of the Czech Republic to EU, Embassy of the Czech Republic in Vienna, Budapest, Bratislava, Ankara, Berlin, Geneva, Bern, Brussels, Paris, The Hague Defence and Security Industry Association; Committee on Defence, Chamber of Deputies, Parliament of the Czech Republic; Subcommittee for MoD acquisitions, trade in military material and Innovations of ACR, Chamber of Deputies, Parliament of the Czech Republic; Czech Chamber of Commerce; NATO Committee of the Chiefs of Military Medical Services (COMEDS); NATO AC/225 LCG DSS WG, NATO CBRN MED WG; NATO MMMP Panel; NATO MedCIS WG; NATO I-AMMO WG; Multinational Logistics Coordination Centre; ICMM - CIMM - International Committee of Military Medicine; Hungarian Defence Forces; United States European Command; Civil Aviation Authority; Czech Trade Promotion Agency/CzechTrade; CzechInvest; Research Institute of Geodesy, Topography and Cartography; Czech Office for Surveying, Mapping and Cadastre; Czech Hydrometeorological Institute; Air Navigation Services of the Czech Republic; Prague airport; Czech Red Cross; Czech Television; LOM Praha, s.e.; VOP CZ, s.e.; Czech Technical University in Prague who all helped to set the agenda and provided key contacts to make this event what it is today.



FFF exhibition and dynamic presentation will allow seeing the latest technologies, solutions and products produced by international and regional defence and security industry.

I hope that FFF helps you to build strong relationship with all, increase your business opportunities and also that you enjoy the beauty of Prague, the city which is rightfully called "Mother of Cities"

Mr. Pavel Zelenka
FFF Director of Foreign Relations

Word from the FFF Programme Director

Dear FFF EXPERT EVENTS attendees,

I am proud to announce that more than 250 speakers and poster presenters have decided to share their experience, results of their work, studies, plans, ideas and thoughts during the three-day Future Forces Forum 2016.

Majority of active attendees are representatives of governments, diplomacy, defence and security, academia, R & D and industry. Thanks to their participation and also thanks to the presence of delegates from all over the world, this autumn the city of Prague has become a gathering place for security experts again.

I would especially like to thank to all keynote speakers, chairpersons, honorary chairmen, vice-chairmen, members of preparatory committees and advisors for their professional guidance, personal support, cooperation, and excellent work done with the aim to prepare an event presenting lessons learned, current achievements, and mainly future challenges, opportunities and tasks in order to remain faithful to the headline of the Future Forces Forum "BETTER SECURITY = BETTER FUTURE".

I am sure the outcomes of the congress, conferences and workshops will highlight the key trends and factors in evaluating the future security environment. Together with the knowledge about significant technology-related trends, it will be the basis for the next expert events organized by the FFF.

Thank you for your attention and let me wish you interesting, active and fruitful participation in the Future Forces Forum 2016.

Mr. Jiří Štirba (LTC Ret.)
FFF Programme Director



Word from the Chairman of World CBRN & Medical Congress



Dear Sirs, Ladies, Gentlemen,
Let me provide you with the initial information concerning CEBIRAM (World CBRN and Medical Congress), which is one of the most significant activities this year and we are honored that CEBIRAM is a part of the worldwide project in the area of defence and security Future Forces Forum.

CEBIRAM is a unique compilation of the Congress itself, designed for a sharing the strategic topics followed by two separated workshops dealing specifically with medical and CBRN issues.

CEBIRAM is a great platform to present current and future military and security technologies and research outcomes in medical and CBRN area. It is designed not only for servicemen, but also for civilian professionals dealing with mentioned matters, particularly representatives of industry, science, research and education.

Our intention is to highlight the needs for interoperability, modular approach and deeper cooperation in a Smart Defence projects led by NATO, overbridged and connecting both areas of interest. Portfolio of the speakers, selected topics and issues corresponds to the representation of all stakeholders in defence, security and mainly experts from areas of military and civilian medicine and CBRN community.

CEBIRAM is one of the first concepts to bring together two main areas of interest in a turbulent time and space. It is an honor to me to be a chairman of CEBIRAM Congress. I am confident we will deliver a significant outcomes and our effort will deeply support an international solutions and interoperability not only in a military, but in civilian area too.

In conclusion, to emphasize the importance of CEBIRAM, allow me to quote an inventor Thomas Alva Edison: „ The secret of success in life is not doing what we like, but find a pleasure in what we do.“

BG Zoltán BUBENÍK, M.D.
Surgeon General, Director of Military Medical Agency

Word from the Chairman of CBRN WORKSHOP



Dear Ladies and Gentlemen,

Welcome to the CBRN Workshop as a part of World CBRN & Medical Congress (CEBIRAM) which is design to discuss wide range of aspects related to prevention from, protection against and response to CBRN threats.

As of today, we are facing evolving threats from both state and non-state actors that includes range of complex challenges, including hybrid warfare, terrorism, cyber-attacks and wide range of events involving weapons of mass destruction (WMD) and chemical, biological, radiological, and nuclear (CBRN) threats.

The full extent of the potential threat cannot be predicted because CBRN threats can evolve in non-linear ways, and can be affected by a number of outside factors, including meteorological conditions, economy (Toxic Industrial Threats), flow of goods and people, etc. Such uncertainty can make it difficult to determine the nature or origin of such a threat, and complicate responses efforts when detailed information is not yet available.

Effective responses to CBRN events often require the initiation of a response before the origin or full extent of the event is understood, which requires familiarity with various aspects of diverse scenarios that can only be achieved through advanced consideration. Advance planning together with the access to timely, accurate and relevant information is a critical component of any CBRN response, heavily supported by the diverse, multipurpose capabilities necessary to provide the operational flexibility for a wide range of future CBRN response efforts.

All these topics closely linked with Lessons Learned from recent CBRN responses will be discussed at the workshop divided in four thematic panels harmonizing civil-military responses, defining challenges (e.g. Information exchange/sharing) and outlining the way ahead in response to future CBRN threats.

Therefore, on behalf of the CBRN Workshop Programme Committee, it is my pleasure to encourage CEBIRAM participants to attend the CBRN Workshop which, I am sure, will be recognized as interesting and beneficial for all of you.

Looking forward to see you in Prague.

COL Vratislav OSVALD
Training Education and Exercise
Department Director, NATO JCBRN Defence COE

Word from the Chairperson of MEDICAL WORKSHOP



On behalf of the Medical Workshop Organizing Committee it is our pleasure to invite you to the WORLD CBRN & MEDICAL CONGRESS 2016 the Workshop is a part of.

We are opening the "Medical Workshop" at the time of worsening of the global safety situation when the research community is expected to produce a specific security measures.

Medical section will focus on the cutting-edge CBRN medical countermeasures and innovative approach in the Field Medicine (Advanced First Aid, Resuscitation Techniques, Material and Pharmacy Support, Robotics), Toxicology, Radiobiology and Biology. The

last but not least topic will be Research and Development in the Force Health Support. There is a strong need for a technological push to enhance the future CBRN defense capabilities.

The exchange of scientific information will contribute to the implementation of new knowledge in the Field Medical and countermeasures in CBRN area. The program will serve as a bridge between the civil and military CBRN protection communities and will present new innovative trends. There is a big potential to integrate the expected results of the research program into a future CBRN defense system.

We encourage all congress attendees to participate in the Medical Workshop of the Congress and to enrich the scientific program.

Finally, enjoy CEBIRAM and Prague!

COL (GS) Zuzana ŠINKOROVÁ

Head, Department of Radiobiology, Faculty of Military Health Sciences, University of Defence, CZE

Word from the Chairperson of Future Soldier Systems Conference



Ladies and gentlemen,

It is my pleasure to invite you to attend the Future Soldier Systems Conference, which is a follow-up of the successful Open NATO Future Soldier Workshop 2014. The goal of the conference remains the same as two years ago: to bring together experts from the military area, academia and security as well as rescue forces and to offer them a platform where they can share their experience and knowledge in the area of dismounted soldiers' protection.

There is no doubt that the role of a dismounted soldier on a modern battlefield has not declined. Moreover, there are new threats that he must be ready to face. Modern technologies that soldiers could have only dreamt of fifty years ago can be of huge help as well as a big disadvantage. However, the human under all the new equipment is still the same as he was fifty years ago. The crucial challenge thus of course is to provide him with all he needs to complete his mission while respecting his limits at the same time. Providing him with all the state-of-art equipment without implementing human factors as

much as possible will lead only to a dead end. No matter how many modern devices the soldier wears or carries, he will not be able to fulfill his tasks while being crushed by extreme thermal or weight burden. On the other hand, there is no doubt that cleverly-used new solutions can be a huge step forward in soldiers' protection, survivability and mobility.

Therefore, dismounted soldier systems will be the highlight of the Future Soldier Systems Conference. The conference will be a great platform for presentations, discussions and dynamic and static demonstrations with a major focus on current and future military technologies and particularly on interoperability of soldier systems. The conference is intended to become a meeting point for military and civilian experts from both government and industry.

I believe that the conference will help to address soldier systems challenges falling into the four sections of the programme. I hope that both speakers and attendees will find the conference valuable and will enjoy the time spent in the beautiful city of Prague.

Do not hesitate to join us in October!

Ms. Jana BARANCICOVA

Vice-Chairperson NATO LCG DSS/CCIEP WG
Logistics Agency, Logistic Materiel Supply Center Brno,
Dept. For Technical Specifications

Word from the Chairman of Military Advanced Robotic Systems Conference



Dear Ladies and Gentlemen,

In context of the MARS Conference introduction, let me briefly remark, that after one century, automated and robotic platforms have developed in a highly sophisticated systems, which plays irreplaceable role in today's world, and we can assume that progress in the next ten years will probably differ from the (let's say) "linear" trend, to which we were accustomed in the

past. This factor also creates new threats, conditions, approaches, scenarios and the operational dimensions, to which the troops in the past have not been prepared.

The MARS Conference 2016 (as the successor of the Unmanned Systems Workshop 2014), creates a great opportunity to bring together operational and robotic community to present and discuss the latest security and technological trends, and project contemporary progress into the future operational environment.

I have the honour to be in chair of the MARS Conference and to welcome well-known international experts and VIP guests from military, security, government, industry and academic background. It is a unique chance to meet these "world-class" professionals at one place for one and half day to listen to and to discuss the key problems, exchange the contacts, extend common overview or potential cooperation.

Also, I would like to encourage wide range of non-military visitors to come, see, listen and discuss, because the MARS Conference covers topics bridging the operational, legal, ethical, psychological and other aspects of the robotic systems in the future.

Allow me also to express my special thanks to the Future Forces Forum organizers for the opportunity that MARS become a part of the worldwide known and biggest defence & security event this year.

LTC Jan MAZAL

Deputy Chief of the Tactics Department, University of Defence

Word from the Chairman of Logistics Capability Workshop



Dear Sirs, Ladies, Gentlemen,

Let me provide You initial information concerning Logistics Capability Workshop (LCWS), which is one of the significant activities of the Multinational Logistics Coordination Centre (MLCC) in 2016.

LCWS is projected to bring together international logistic community to discuss modern military capabilities that Alliance will require in

the future. As logistics is an integral part of NATO strategic concept range of topics is also built to address issues related to the current defence and security situation from logistics perspective.

LCWS is a great platform to show current and future military technologies in logistic area. It is designed not only for servicemen, but also for civilian professionals dealing with defence and security matters, particularly representatives of industry, science, research and education.

Our intention is to highlight the need for interoperability, the need for deeper cooperation with science and research to eliminate current and future threats. Topics and speaker's composition corresponds to the representation of all stakeholders in defence and security elements, including national and international organizations.

LCWS is founded on our experience from conducting multinational logistic exercises focusing on standardization and interoperability. It is an honour to me to be a chairman of Logistics Capability Workshop. I am confident we will deliver meaningful outcomes and our effort will encourage international community to support multinational solutions in logistics.

In conclusion, to emphasize the importance of LCWS, allow me to quote renowned U.S. General Dwight D. Eisenhower: "You will not find it difficult to prove that battles, campaigns, and even wars have been won or lost primarily because of logistics."

COL(GS) Jan HUSÁK

Director of Multinational Logistics Coordination Centre

Word from the Chairman of Geospatial, Hydrometeorological and GNSS Workshop



I would like to adumbrate You with primary information related to the International Geographical, Hydro-meteorological and Global Navigation Satellite Systems (GNSS) Workshop (GEOMETOC WS), which is a crucial part of the Future Forces Forum project.

Permanently growing daily basis requirement for GEOMETOC data, information and products entitles

GEOMETOC WS to be a powerful tool in the FFF 2016.

GEOMETOC WS provides You not only with the newest information, knowledge and technologies closely associated scientific branches as are Geography, Hydrology and Meteorology but additionally You have an unique chance to see and meet experts and technologies related to the GNSS branch as well.

The program and selection of speakers in all above mentioned branches responds the requirements not limited to the defence and security impacts only but also to other areas (i.e. financial, traveling sectors) as well. Therefore GEOMETOC WS offers to all a chance to share and find solution by increasing cooperation amongst main providers and users.

I am honoured to chair the GEOMETOC Workshop 2016 and I believe You interested in GEOMETOC and GNSS will be delivered with great contemporary and future knowledge and technologies. Moreover, I truly hope, You will be able to find key partners and solutions for Your business demanding support from GEOMETOC area.

Let me close the opening words with quotation of Sun Tzu (*544 BC, 496 BC) „If I know the Air and the Ground as well, my Victory will be total.“

COL Jan Círek Dipl. Eng.

Ministry of Defence - General Staff, Armed Forces
Chief of Hydrometeorological Service, Ministry of Defence - General Staff, Armed Forces

Word from the Chairman of Future of Cyber Conference



AFCEA (Armed Forces Communications & Electronics Association) Czech charter mission is to create a professional and expert forum among specialists representing military, government, industry, and academia of Czech Republic. Since 1993, when our chapter was established, we have organized more than 50 international conferences and more than 100 specialized seminars and workshops.

We are very pleased and honored to be expert and executive guarantor of the professional conference Cyber Trends, which is primarily aimed at the security and information community of the public sector, armed and security forces, the academia and private business cooperating in projects of public interest. We are convinced, that development of international cooperation in the area of cyber security is, at the present time, the crucial for defense and security sector and there is necessary, in the maximum extend, to create appropriate environments for discussions and experience exchanges, which move the themes ahead in favour of defense and security of our inhabitants as well as our country.

Mr. Tomáš Müller

President
AFCEA Czech Chapter

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NATO JCBRN Defence COE



NATO MILMED COE



International Committee of Military Medicine

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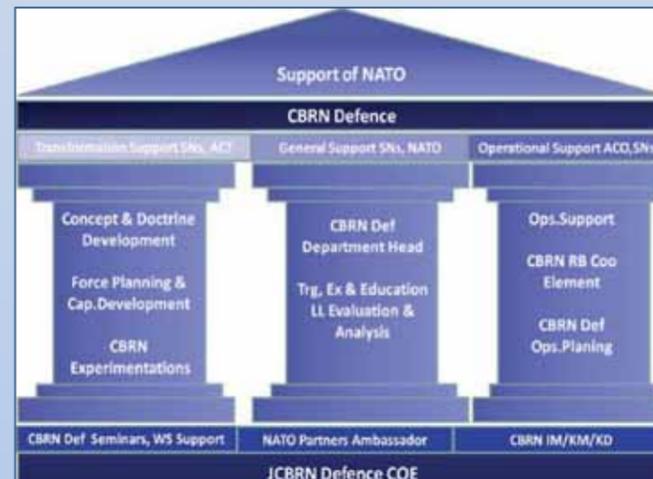
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JCBRN Defence COE

Joint Chemical, Biological, Radiological and Nuclear Defence Centre of Excellence



The Joint CBRN Defence Centre of Excellence is a multinationally sponsored International Military Organization with Czech Republic as the framework nation, which offers recognized expertise and experience to the benefit of the Alliance, and supports NATO's CBRN Defence transformation process.



Key Areas of Interest

- ✓ CBRN Concept & Doctrine Development
- ✓ Force Planning & Capability Development
- ✓ Experimentation Support
- ✓ Training, Exercise & Education
- ✓ CBRN Lessons Learned, Evaluation & Analysis
- ✓ CBRN Operations Support
- ✓ CBRN Modelling & Simulation Capabilities
- ✓ CBRN Knowledge distribution to NATO Community
- ✓ Mutual Cooperation among all NATO COE's
- ✓ Support to the NATO Ballistic Missile Defence
- ✓ Support to Partners in CBRN Defence on request
- ✓ Cooperation with the European Union

Missions and Tasks

- ✓ Provide advice in all CBRN Defence related areas.
- ✓ Develop CBRN Defence doctrines, standards, knowledge to support improvement of interoperability and capabilities.
- ✓ Provide opportunities to enhance education and training.
- ✓ Contribute to the relevant lessons learned processes.
- ✓ Within a Programme of Work approved by the Steering Committee assist NATO, Sponsoring Nations, Contributing Participants and other international institutions and organisations in their CBRN Defence related efforts, including validation through experimentation.

- ✓ CBRN Defence Education and Training, Command Post Exercises,
- ✓ Field Training Exercises, Chemical Live Agent Training
- ✓ Exercises Scenarios Development
- ✓ Units certification assistance
- ✓ Lessons Identified / Lessons Learned
- ✓ NATO Department Head for CBRN Training
- ✓ Quality Assurance

- ✓ Virtual Centre of CBRN expertise
- ✓ Advice to NATO Command Structure, NATO Force Structure
- ✓ CBRN Reachback
- ✓ Information Knowledge Management Development
- ✓ Symposia, Conferences, VIP Events

Development

- 26 OCT 2006 founded by Czech Republic, Germany, United Kingdom, Italy, Romania, Slovakia and Slovenia
- 21 MAR 2007 NATO Accreditation
- 01 AUG 2007 Status as International Military Organization
- 16 SEP 2008 Accession of Poland
- 15 SEP 2009 Accession of Hungary
- 18 JUN 2011 Accession of the United States of America
- 01 JUL 2013 Establishment of the Operations Support Department
- 21 JUL 2013 Accession of France
- 31 DEC 2015 Full Operational Capability of the Reachback Element
- 26 AUG 2016 Accession of Austria as first Non-NATO Nation

Products / Outcomes

- ✓ CBRN Courses
- ✓ CBRN Scenarios, Main Incidents List and Main Events List
- ✓ NATO Training and Education Panel Chairmanship
- ✓ NATO CBRN Reachback Element
- ✓ Information Knowledge Management
- ✓ NATO Doctrine & Terminology Panel Chairmanship
- ✓ Experimentation reports

CEBIRAM Programme Committee – alphabetical order



BG Zoltán Bubenik, M.D.
Surgeon General/Director
of Military Medical Agency, CZE



COL Jiří Gajdoš
Director, JCBRN Defence COE, CZE



Mr. Libor Hadrava
Councillor for Safety,
Prague City Hall, CZE



COL Karel Huleja, MSc.
Chief of Chemical Corps of the Army,
General Staff, Armed Forces, CZE



BG (Ret.) Božetěch Jurenka, M.D.
Anaesthesiologist,
Former Surgeon General, CZE



Mr. Tomáš Kuchta
Deputy Minister, Head of the Industrial
Cooperation and Organisations Man-
agement Division, MoD, CZE



**MG Jaromír Zúna, Dipl. Eng., MSc.,
Ph.D.**
Division of Support Director, General
Staff, Armed Forces, CZE

As of September 2015

CEBIRAM Speakers – alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



COL (GS) Jaromír Alan, Msc.
Deputy Director – Capabilities Development and Planning Division
Ministry of Defence



Welcome Speech



Mr. Shahzad Ali
CBRN & Human Factors Officer
European Defence Agency



CBRN Protection & Human Factors Work in the EDA

As CBRN threats are of concern, highly dynamic and difficult to predict, innovation is needed to cope with current and future challenges. Cat A and B Ad Hoc R & T activities are conducted and under preparation in the fields of CBRN detection, hazard management including decontamination and its control, medical countermeasures and personal and collective protection measures including preparatory work for Test and Evaluation standards for detection and personal protective equipment.

CBRN protection work in the EDA framework follows the EU concept of CBRN protection and includes detection/identification (networks), decontamination, next generation (collective and individual) protection measures, modelling & simulation of protection architectures and medical countermeasures.

The CapTech CBRN protection also supports the Joint Investment Programme on CBRN protection, which started in March 2012 and is running with 14 projects. Contributing members are Austria, Belgium, Czech Republic, Germany, Spain, France, Ireland, Italy, Netherlands, Poland, Portugal, Sweden and Norway. The Ad hoc budget allocated to the JIP CBRN programme is €12 million.

The Human Factors CapTech supports many of the Capability Development Plan (CDP) Priority Actions regarding systems development and human skills development elements as well as other CDP work. The CapTech has prepared several projects in the areas of individual and team performance, such as optimisation of training (centrifuge and simulator High G) for air crew and optimization of psychological screening in recruitment as a follow on to a successful first feasibility phase.



MG Jean-Robert Bernier
Chairman, Committee of the Chiefs of Military Medical Services in NATO (COMEDS)
NATO



Medical Trends and Challenges in Future NATO Operations

The end of the Cold War and subsequent NATO operations led to military medical experiences, capabilities, and capacity that do not necessarily reflect all aspects of medical readiness required by NATO forces to deal with future trends and challenges. For example, the scale, environment, and mobility of ISAF medical support did not reflect all medical challenges and required capabilities relevant to the evolving hybrid threat on NATO's eastern flank. Extensive strategic, operational, and scientific analysis are necessary to foresee and optimize readiness for this and future instability situations, as well as to exploit future opportunities. As the global security environment becomes less stable, NATO must be ready to respond to multiple and varied threats internally, on its borders, and trans-nationally. To support NATO's readiness for future challenges, current medical support capability is expected to require adaptations in many areas such as readiness, responsiveness, resilience, adaptability, and partnerships with non-NATO organisations, as well as the maintenance of scientific, technological, and quality advantages.

This presentation will highlight some of the key military, socio-political, environmental, scientific and technological trends and challenges to be considered in establishing near-term readiness in light of NATO's Readiness Action Plan, as well as future mid-term readiness out to 2030. It will review some of the most significant factors and potential mitigation approaches relevant to future military medical support. Finally, it will summarize current and planned efforts of NATO's medical and transformation authorities to anticipate and establish medical readiness for future operations.



Mr. Bohuslav Chalupa
Vice-Chairman of the Defence Committee
Chamber of Deputies of the Parliament of the Czech Republic



Welcome Speech



Dr. Oleg Chestnov
Assistant Director-General, Noncommunicable Diseases and Mental Health
World Health Organization



COL Michael Cohen
Medical Advisor
NATO Special Operations Headquarters



Special Operations Medical Planning and Support

Medical planning and support of Special Operations is a dynamic process that requires knowledge and understanding of strategic and tactical actions and how these actions apply to different operational environments. Proper medical planning is critical for supporting the Commander and accomplishing the mission. This presentation will discuss how medical planning applies to Special Operations and how medical support functions as a combat enabler. The presentation will discuss various models of medical support and how the NATO Special Operations Medical Branch can assist with improving medical capabilities across the Alliance. The presentation will discuss the development of a more standardized uniform approach to medical capabilities and support in order to further enhance interoperability and to optimize a network of medical support across the Alliance.



Mr. Wilfried Covent
Head of Security Operations, Brussels Airport Company,
Vice – Chairman of the Security Committee of Airports Council International Europe (Association of European Airports)



**The Brussels Airport Attack – And afterwards
A Story of Strength, Hope and Resilience**

March 22 – 2016, Brussels Airport has been hit by a terroristic attack. Terrorists were targeting the public part of the airport terminal, with the purpose to kill innocent people at the check in area.

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After a short introduction of Brussels Airport, the scenario of the Brussels Airport bombing will be explained, followed by the roll out of the emergency phase.
The recovery period 're start of operations' was also key for the contingency of the airport. How did we manage?
The landside part of the airport became a vulnerable area, where people are crowding. The security of public airport terminals became high priority on the agenda.
How to survive as an airport and how can we keep the operations safe and secure for future?



COL prof. Erwin Dhondt MD
Director Health & Well-Being Policy, Defense Staff Department Well Being
Defense Staff Department Well Being



CEBIRAM: Operational Aspects and Lessons Learned of the Belgium Terrorist Bombings 22nd of March 2016



COL prof. Frederic Dorandeu PharmD, Ph.D.
Chairman NATO CBRN Med WG, Head of Toxicology Research Department, IRBA
French Academy of Pharmacy



Medical Contribution to NATO CBRN Defence: an Overview

Since 2013, sarin, chlorine and sulfur mustard have repeatedly been used in the Irak-Syria war zone. This proves that the threat from the deliberate use of chemical agents has not diminished although its nature has evolved. Proliferation of nuclear weapons is also a matter of great concern. Finally, although of natural origin, the Ebola virus crisis reinforced the need for a global preparation against outbreaks of diseases that would be deliberately initiated. Proliferation and scientific advances that may reshape the threat that NATO is facing require similar agility from the medical services. Despite more than 10 years of operations in Afghanistan where CBRN was not considered a prime threat, NATO kept a close attention to CBRN scenarios and developed new doctrines, equipment and training. To support the Surgeon Generals from NATO (Committee of the Chiefs of Military Medical Services in NATO, COMEDS), and partner countries, the CBRN medical working group initiates and develops common principles, policies, concepts, doctrines, procedures, techniques, programmes and initiatives in the whole CBRN medical capability field. It supports Allied Command Operations (ACO) and Allied Command Transformation (ACT) for all CBRN medical matters, from doctrine to training. It keeps liaison with all other relevant COMEDS WG, the military medicine centre of excellence (MILMED COE) as well as the NATO CBRN defence community (Joint CBRN Defence – capability development group, JCBRND-CDG, and its panels, WMD centre) and the Joint CBRN defence COE. In this talk, the main concepts and doctrine of medical support to operations when CBRN threat is no longer a fantasy will be presented. The fact that medical counter-measures and casualty care is one of the five enabling components for CBRN defence and that the medical component also significantly contributes to the other four pillars will be emphasized.



COL Lászlo Fazekas, MD
Director
NATO Centre of Excellence for Military Medicine



NATO MILMED COE Role in Medical Support Training

The NATO Centre of Excellence for Military Medicine (NATO MILMED COE) is an international military organization with the mission to support and assist the Strategic Commands, other NATO bodies, nations, other civil and military bodies by supporting the transformation of the Alliance and thereby improving medical support to operations and to provide subject matter expertise in the following areas:

- Medical training and evaluation leading to certification (Training Branch)
- Medical Lessons Learned focusing on tactical aspects (Lessons Learned Branch)
- Standards development and custodianship (Interoperability Branch)
- Deployment related health surveillance (Deployment Health Surveillance Capability Branch)

Altogether, the COE aims to become the central hub of military-medical knowledge and the main link for the civilian medical disciplines that may benefit NATO. With a project portfolio distributed among the branches and ad-hoc project teams, the COE continues to target the most pressing issues of contemporary military medicine and it enjoys an excellent linkage with the senior decision-making body of NATO's medical community, the Committee of the Chiefs of Medical Services in NATO (COMEDS) and its extensive Working Group and Expert Panel structure, for which the COE routinely delegates its own Subject Matter Experts (SMEs).

The COE also engages in projects envisioned by such SMEs, most prominently in the multinational medical exercise series in NATO, the Vigorous Warrior (VW). The exercise series so far had 3 iterations and currently in the planning phase of the 2017 event. The exercise is a unique occasion to test major medical concepts, to collect lessons and observations, to offer unprecedented possibility for training in a truly multinational environment and to experiment with scenarios in a controlled setting. This allows the COE for example to take such lessons and observations from the previous iteration and validate them or the corrective/preventive actions resulted from them on the next occasion, providing an extraordinary possibility to feed the medical Lessons Learned process and the COE's Knowledge Management (KM) system.

CEBIRAM Speakers – alphabetical order

The presentation provides an overview of NATO MILMED COE's individual, collective training activities its goals and areas for further development. The presentation includes description of NATO's Medical Evaluation process and the MILMED COE's strategic aim in it together with the VW exercise series with special emphasis on its next iteration with the current opportunities. Moreover, the MILMED COE Department Head on Medical Support role, its importance and the possible impact on national medical training facilities and activities will be briefed in detail.



Mr. Walter Gaber, MD
Vice President and Medical Director Frankfurt Airport
Frankfurt Airport Services Worldwide



Medical Disaster Management at Frankfurt international Airport

Fraport AG is generally required to observe regulations and requirements of the government authorities in regard to emergency events. The actual responsibility for rescue and emergency physician services is in the hands of the Fire Control Center Frankfurt/Main.

Fraport AG has independently organized qualified chief emergency physicians and chief paramedics with the necessary medical equipment for major disasters.

At Fraport all doctors in the Airport Clinic (open 24 hours/365 days) are qualified as chief emergency physicians and public health agents (PHA). All paramedics are qualified as chief paramedics. The objective is to make these emergency physicians and paramedics available to the authorities in Frankfurt and the State of Hesse. Once being "transferred" in case of an emergency to the authorities, these colleagues will be able to assist emergency management in handling a disaster.

Rescue services at Fraport are equipped with 8 ambulances (all equipped as emergency physician vehicles) that are available around the clock. One to nine emergency physicians can be contacted via Swissphone immediately during regular working hours and would rush to the airport.

Fraport AG is well prepared in regard to medical treatment in case of a "disaster" or emergency event. Nonetheless, all responsible persons (government agencies) must know that Fraport or the Fire Control Center of Frankfurt city or another medical organization could not handle a "disaster" (airplane crash with 100 and more seriously injured persons like a A 380 e.g.) on their own.



MG (Ret.) Jan Gavrila
Head of Defense, Security and Aerospace Department
Teamnet Group



MEDICS – LogFS Logistics Functional Services Programme for NATO

The Logistics Functional Services programme provides improved interoperability across multiple functions, utilising existing platforms and open systems.

MEDICS, part of LogFS project, is an integrated system whose main goal is to provide all resources required to support triage, treatment, evacuation, injury recovery therapy and flow of corresponding information from initial point of wounding, injury or sickness through evacuation to definitive treatment and final disposition.

For automation and standardisation of medical processes, we provide MEDICS services through largely bespoke modules built on pre-existing medical information management capability and accessed via web services. There will be delivered the integrated IT resources required for Medical Mission Support and Force Health Protection. The software is structured so that it can absorb Medical Planning and Medical Intelligence functions during the Evolution Phase.

The main deliverables are: patient workflows design, coordination, control and tracking within the medical chain, diagnostics and disease monitoring, as well as predictive analysis.



BG (Ret.) Assoc. Prof. Leo Klein MD, Ph.D.
Plastic and Burns Surgeon, Former NATO ACE Medical Advisor, Former Surgeon General



A Successful Czech Project of Civil – Military Co-operation in Humanitarian Assistance

More than 215 (August, 2015) foreign patients have received comprehensive treatment in various Prague hospitals. The Czech government earmarked a special budget for this project yearly. Military medical personnel, supplemented by appropriate civilian specialists, carried out selection and diagnostic-procedures through enhanced field-hospital facilities; transportation of patients was also organised by the military. The Home Office solved the most complicated problem of migrant-status for the children and their accompanying adults by granting them temporary asylum-seeker status, while the Ministry of Health guaranteed the provision of highly-specialised health-care providers in University Hospitals in Prague. In order to standardise handling-sequences and co-ordination-procedures, specific medical criteria of the „MEDEVAC“ Project were predicated.

CEBIRAM Speakers – alphabetical order



COL Boguslaw Kot
Chief Expert in the Department of Defence Against WM
General Command of Polish Armed Forces



prof. Martin Kovář, Ph.D.
Vice-Rector for Public Affairs
Charles University



Welcome Speech



BG Stefan Kowitz MD, MBA
Medical Advisor of NATO's Allied Command Operations
SHAPE, NATO



Operational Challenges for Future Medical Support in NATO Missions

Recent destabilizing developments around the globe and within the Euro-Atlantic periphery highlight, that the Alliance has to address an increasingly volatile, complex and uncertain security environment with emerging transnational and multidimensional threats in an ongoing climate of fiscal austerity. The ultimate role of military medical health care system - supporting the troops in performing their tasks by preserving and restoring their health and fighting strength - remains unchanged.

Without the Nations Medical Services providing reliable and sustainable medical support for NATO missions and operations, there would be a strong reluctance for politicians and military leadership to commit their forces for missions or operations. Additionally, the public's expectation of quality medical support to troops continually grows. An effective and reliable military medical support system improves troop morale, and assists in maintaining the trust of military personnel, the public, and its political leadership. The influence of these factors leads to an increasing requirement for a shift towards development, delivery, sustainment and preservation of multi-national deployable medical capabilities in support of the Alliance's Level of Ambition.

Multi-nationality/interoperability poses a number of key challenges including the formation of an effective command structure. To preserve the recent successes of the multinational health care system (i.e. low Disease Non-Battle Injury rates, high survival rate, high quality care), it is important to use the lessons learned in our recent operations to develop or improve existing best practices related to interoperability.

The experiences of recent missions have demonstrated the importance of direct access, and a strong connection between the medical function and the operational community to realize effective and medical planning. Medical decision-making is dependent on the efficient processing and distribution of environmental, operational, tactical, and casualty data. Such information is fundamental to effective medical planning, deployment health surveillance and the administration of personnel support to the deployed force.

After the Wales Summit, NATO nations refocused their efforts to generate medical support for large-scale formations in a collective defence and conventional environment. The spectrum of the medical support will be related to the golden hour, prolonged field care, with longer transportation timelines, but using early medical assistance during the mainly provided ground medevac period, and triage, where the aim is to provide medical support in away, that enables the treatment and improves the chances of survivability to the greatest number of patients.

There will be always be concerns regarding capacity versus capability. By using experiences of prolonged field care and effective operational medical planning, the aim is to follow the MC 326-3, that "medical care is based on internationally accepted best medical practice".

The medical contribution to operational planning is twofold. On the one hand is the input of medical expertise to the general planning process. On the other is the development of a Medical Concept and Medical Support Plan for the operation. The environment of such an operation is characterized by following factors: longer possible periods lacking of air superiority, high tactical and also operational mobility.

With the lack of air superiority, higher number of casualties the planning process has to calculate a greater number of MTFs and higher MEDEVAC capabilities (ground and air). For the Air component, a Theatre PECC linked to an Air Component Headquarter has to be planned, to coordinate the movement out of the theatre to rear countries. The high mobility on tactical and operational level will require movements and deployment of medical units in compliance with the Humanitarian Conventions. Therefore, the medical units will require more support for movement, supply, and communication. All this adaption for a collective defence scenario will require a higher amount and capacity of deployed medical units.

To ensure continuous route of medical care, the medical HOST Nation support - military and civilian- in countries associated with NATO mission, and the deployed NATO forces have to be coordinated for collective defence scenarios. The linkage of medical military assets with medical HNS capabilities has to be organized and planned by the different nations. The collocation of military MTFs beside civilian hospitals in such a crisis provides a synergy-effect.

Building on the successes of the health care system from previous and current missions - low DNBI rates, high survival rate- it is very important to use the experiences of last missions especially best practices and L/LL to support further development of medical interoperability. The aim of all our.



Mr. Joe Landolina
Chief Executive Officer
Cresilon, Inc.



Controlling a Traumatic Bleed in Seconds

87% of battlefield mortalities occur in the pre-medical treatment facility environment and 91% of potentially survivable mortalities are related to hemorrhage. Thus, uncontrolled hemorrhage is one of the leading causes of preventable deaths on the battlefield, demonstrating a clear market need for a product that can instantly stop bleeding that results from life-threatening injuries. Hemostatic devices (tourniquets, gauzes, hemostatic powders, sponges, etc.) have been developed to control and promptly stop bleeding, but existing devices often present significant drawbacks. Suneris recognizes the potential of its hemostatic gel technology for the military, which in preliminary studies has been shown to control traumatic bleeds by achieving hemostasis in seconds. This presentation will delve into the gel technology's properties, relevant research, and preparation for regulatory applications that are underway in our Brooklyn, New York headquarters.



COL Andrew L. Miltner
Chief of Staff
NATO JCBRN Defence COE



Joint CBRN Defence Centre of Excellence: Preparedness through Partner Collaboration

Global economic and political stresses have contributed in recent years to an increasing number of nations whose CBRN Defence capabilities are under resourced and whose associated industrial base has languished as a result. A growing availability of chemical, biological, radiological and nuclear weapons by state and non-state actors places a premium on multi-national burden sharing and civ-mil collaboration as a method for realizing adequate CBRN Defence preparedness. The Joint CBRN Defence Center of Excellence was established in 2006 with the objective of sharing CBRN Defence knowledge to improve partner nation and civ-mil interoperability and improve readiness through cost-effective burden sharing. What began as a multi-national training center quickly grew to include a 24-7 world class reach-back element, research and experimentation competency, and exercise development and execution capability, providing a customized platform for verifying concept limitations and identifying gaps. Additionally, as greater emphasis is placed on forensic exploitation and attribution, the COE remains committed to its advanced Chemical, Biological and Radiological sampling and analysis courses. The eleven Sponsoring Nations and one Contributing Participant Nation remain committed to resourcing the COE and shaping its critical support to NATO and the EU. The professionals who operate the COE offer a unique mix of academic, institutional and practical CBRN Defence experience that combine to offer a critical capability at a time of increasing WMD threat. These professionals are prepared to provide NATO and the EU pre-crisis and crisis support whenever necessary.



LTC Ladislava Navrátilová, Ph.D.
Population Protection Institute
General Directorate of Fire Rescue Service of the Czech Republic



CBRN Preparedness and Response in the Czech Republic

The presentation describes preparedness and response of Czech responsible bodies for CBRN incident. Presentation is divided into 3 main parts. In the first part is described emergency response system of the Czech Republic (CR), explained a role and functionality of Integrated Rescue System (IRS) of the CR and coordination of its bodies. In the second part is described practical procedure of identification of HazMat on site. It continues with practical examples of chemical incidents and threats, that happened in the CR. In the third part is described detection, identification and monitoring equipment, that is used in Fire Rescue Service of Czech Republic, and here is also explained a special and unique Czech methodology for identification of solids and liquids, that was invented in Population Protection Institute and currently is used also in other EU countries. In conclusion are summarised advantages of Czech complex system of coordination of IRS bodies.



Mr. Daniel Petřířák, Msc.
Project Officer Medical, Capability, Armament & Technology Directorate
European Defence Agency



The Activities Performed by the EDA in the Domain of Medical Support

Presentation covers the activities performed by the EDA in order to introduce Agency, which tasks include supporting the development of European defence capabilities and military cooperation, stimulating defence Research and Technology (R & T) and strengthening the European defence industry. In medical field with the aim to support the improvement of current and future medical capabilities for CSDP Operations by promoting and improving interoperability and cooperation in medical support, with particular reference to the activities performed in the domains of deployable medical treatment facilities, aeromedical evacuation, medical equipment or medical training.

CEBIRAM Speakers – alphabetical order



Mr. John Quinn MD
PhD Researcher
Prague Center for Global Health, Institute of Hygiene and Epidemiology, First Faculty of Medicine, Charles University in Prague



Conflict and Disaster Medicine: the State of Battlefield Medicine in Ukraine

Ukraine is at war with Russia and Russian militant proxies. Ukraine is still in transition to a stable modern state from that of a fragile one teetering on state failure. Owing to the difficulties associated with severing Soviet era state institutional ties with Russia, the birth of a modern Ukrainian State remains elusive and fragile. The new sovereign Ukraine seeks to be connected to the world in a transparent fashion and accountable to a European order which encourages health security and access to primary healthcare for its citizens. The public health crisis associated with the fallout from conflict in Ukraine will be studied for many years to come. We describe some of the institutional issues related to health and conclude that prevention is the best medicine and that state institutional capacity strengthening and resilience, accountability and transparency promote health most effectively. This brief commentary describes the human cost from 2014 - 2016 from conflict and offers some prescriptive policy considerations that may continue the state transition of Ukraine into a stable and sovereign nation by promoting health security.



Mr. Carlos Rojas-Palma, Ph.D.
Senior Project Manager Security Research and CT
Belgian Nuclear Research Center (SCK•CEN)



Training First Responders and Emergency Room Physicians for a Non-conventional Attack with Ionizing Radiation
Co-presentation with Mr. Wiktor WOJTAS

In the period 2006—2009 the European Commission co-funded a targeted research project that was coordinated by the Belgian Nuclear Research Centre (SCK•CEN) and which resulted in a production of a handbook for the triage, monitoring and treatment of the public exposed to the malevolent use of ionising radiation: TMT Handbook (www.tmthandbook.org). The handbook has been very well received by practitioners, therefore the European Commission's Directorate General for Migration and Home Affairs sought to take this initiative forward by organising a series of train-the-trainer courses for the EU Member States authorities based on TMT Handbook. The main objectives of this training course are: to disseminate knowledge and expertise, identify best practices, capacity building, create synergies among EU Member States, share results and contribute to preparedness and resilience to mass casualties resulting from acts of terror using ionising radiation. This presentation will elaborate on the main lessons learned from the organization of a series of training courses and present plans to carry this initiative forward taking into consideration the needs from EU MS.



Mr. Wolfgang Rudischhauser
Director
NATO, Weapons of Mass Destruction Non-Proliferation Centre



Proliferation of WMD and Defending Against CBRN Threats

The aim of the speech is to highlight the main aspects and challenges of NATO's WMD/CBRN policy, WMD non-proliferation efforts and the development of the NATO CBRN Defence capabilities against CBRN threats following the Warsaw Summit. The initial part of the briefing is focused on emerging CBRN threats. WMD remain a serious and ever growing threat to NATO despite some positive developments in the past two years. In particular, the nexus between chemical, biological and radiological agents and terrorism poses one of the gravest potential risks to our security. The next part of the speech points out how NATO's policies, capabilities and activities aim at responding to current CBRN threats and other related challenges. Allies reiterate their common understanding that the future security environment will demand a broad capability profile beyond what one nation can achieve alone, therefore increasing the importance of capability pooling and sharing to ensure Euro-Atlantic security and stability. NATO's future challenges arising from the Warsaw Summit.



Mr. Václav Salač LL.M.
Business Development & Export Director
HUTIRA - BRNO, s. r. o.



Water Treatment Technology HUTIRA CCW

Company HUTIRA – BRNO, s. r. o. is a traditional czech family company which was founded in the year 1997 and operates in gas & water industry in the Czech Republic, Slovakia and more than 30 foreign countries. Besides operating in the gas industry HUTIRA-BRNO is a leading global producer of the patented and unique water treatment technology HUTIRA CCW on a hydraulic and mechanical basis, especially focused on the containerized units. The target customers are armed forces, police, fire brigades and other rescue corps, crisis organisations and many others. Bullet presentation points: HUTIRA CCW - patented and unique technology - introduction, HUTIRA CCW - 2-level treatment process, HUTIRA CCW - the top A class drinking water without chemicals, Containerized Units for Armed Forces, Rescue Corps and Crisis Organisations

CEBIRAM Speakers – alphabetical order



Cdr Dr. Stef Stienstra
SME CBRN 1-CMI Command
the Royal Dutch Armed Forces



Investing in Public Health Gives - Especially in Low Income Countries - Extremely Impressive Returns

The implementation of the International Health Regulation (IHR) of WHO in 2005 for world-wide public health systems is already in its second extension phase. At the 2012 deadline only 16% of the countries were fully prepared to detect and respond to pandemics. In 2014 the Ebola Virus Disease outbreak in West Africa was another indicator that WHO's IHR has to be taken seriously. Especially the biosecurity part of IHR is not fully in place yet for most developing countries, which makes the world vulnerable for bioterrorism.

The returns from investing in public healthcare are extremely impressive and is not a high risk venture as with a rapid mortality decline many 'value life years' (VLYs) are gained. For low- and middle-income countries typically about a quarter of the growth in full income resulted from VLYs gained and supports not only the local economy but also the world economy, stability and safety.

Therefor several international programs help to prepare low- and middle-income countries to mitigate outbreaks of infectious diseases. EU CBRN CoE initiatives and the US CBEP, DTRA, CTR, GEIS, DIMO, USAID, PEPFAR and several other programs are involved in establishing public health systems and give local healthcare workers trainings in both disease outbreak mitigation and biosecurity.



LTC (Ret.) Jaroslav Straka Dipl. Eng.
Inspector Chemical Weapons Prohibition
State Office For Nucler Safety



Chemical Weapons Convention Implementation in the Czech Republic

Convention on the prohibition of the development, production, stockpiling and use of chemical weapons (the Convention) and on their destruction and its implementation in the Czech Republic.

Fundamental pillars of the Convention, basic definition, its implementation into the Legal Code of the Czech Republic, adopted legislature. Prohibition of the use of toxic chemicals for other than non prohibited purposes. Prohibition of the development of Chemical weapons based on other than Schedule 1 chemicals, specifics of the Riot Control agents and Incapacitating Chemical agents.

The role of the Czech National Authority in the implementation of the Convention in the Czech republic, national and International inspections in the Chemical industry. State parties obligations in a case of CW discovery.



Mrs. Veronika Stromšíková
Director, Office of Strategy and Policy
Organisation for the Prohibition of Chemical Weapons



Chemical Terrorism and the Chemical Weapons Convention – Responding to an Emerging Threat

The presentation will first introduce the scope of the CWC and the role of the OPCW in chemical disarmament and prevention of re-emergence of chemical weapons. It will then look at ways how the OPCW can respond to the threat of toxic chemicals being misused by non-State Actors, including terrorists. It will point both to the legal basis offered by the CWC and to different activities the OPCW can offer to face this emerging threat, as part of the larger CBRN risks reduction efforts.

Lastly, there will be a brief outline the OPCW mission in Syria and also of the process of removing chemical weapons arsenal from Libya which was primarily aimed at preventing the risk of the stored chemicals falling into the hands of terrorist groups.



Mr. Derek Tarrant
Military & Disaster Relief International Account Manager
Philips Healthcare



The Opportunity for Future Military Healthcare Needs

The shape of future forces is changing as major reforms take place globally and also as the nature of the situations they respond to change. How can we ensure that military medical capability also adapts and continues to deliver optimal care now and in the future? Partnerships, planning, technology, innovation, adaptable, flexible solutions and connected data all have a part to play. So too does having a clear vision of what you are trying to achieve and the need to work together with industry to co-create solutions and develop clinical workflows that supports that vision. This presentation will cover the above points as well as share some insight into the newest technology solutions currently being developed for the provision of deployable military medical care.

CEBIRAM Speakers – alphabetical order



Mr. Alois Tichý
Safeguards Inspector
State Office For Nuclear Safety



Introduction of the Nuclear Non-Proliferation Department

The focus of this presentation will be on introducing core responsibilities and related activities of the Nuclear Non-Proliferation Department of the State Office for Nuclear Safety. The presentation will also touch upon current challenges in the area of nuclear non-proliferation and nuclear safeguards.



MG (Ret.) Roger Van Hoof, MD
Secretary General
International Committee of Military Medicine



Global Health Cooperation and Military Medicine

Civil-military cooperation is mandatory in CBRN defense matters. For to the 'B' aspect in CBRN, the civil-military, or better, the civil-military medical cooperation has to be imbedded in a 'global health' approach. However, when we want to analyze the possible participation of military medical services in a global health approach, we have first to answer some important questions : 1. What is 'Global Health'? 2. What is 'Global Health Cooperation'? Only if we have the answers on these questions, we can decide what kind of participation military medical services can offer in such a cooperation. However, the definitions of 'Global Health' and 'Global Health Cooperation' are yet not clear and certainly very complicated because of the involvement of various different elements. For example 'Global Health' evolved progressively from controlling infectious-disease transmission in a globalized world to the effect of the global economy on health issues, with other aspects between these two. Governments, transnational corporations, non-governmental organizations, religious and other international movements, can make their own decisions when they participate in a global health cooperation. Military medical services however are embedded in national structures, under the authority of their government and cannot take decisions on their own when they participate in such a cooperation. Depending on the kind of cooperation, military medical services can either not at all or only partially – after approval by their government - participate in a global health cooperation. For military medical services, participation in a multilateral international cooperation, approved by their government, is much more realistic in the defense against infectious agents. However, cooperation in some health research and in exchange of scientific knowledge and practical medical and health experience is more appropriate for the national military medical services. This is the focus and the mission of the International Committee of Military Medicine, as intergovernmental, neutral and impartial organization.



Mr. Jamie A. Williamson
Head of Unit of relations with the Arms Carriers
International Committee of the Red Cross (ICRC)



Civil Military Cooperation in Complex Emergencies

The increasing role of the armed forces in relief activities, and complex situations, particularly during the emergency phases of natural disasters, is evident, given the likely superior logistical capacity of the military response, which can result in faster and larger amounts of much-needed aid being received by affected people in the immediate aftermath of an emergency. As a result, in many contexts, as witnessed during the Ebola crisis in 2015, military and humanitarian actors will likely be called upon to 'work together' for the benefit of the affected communities. In light of the respective mandates and roles of the militaries and humanitarian actors, CMCoord requires differentiated and contextualised approaches and people-centred responses, rather than a "one-size-fits-all approach". CMCoord is an essential aspect of humanitarian action, including at minimum the necessary network-building, communication, and coordination as relates to the security, acceptance, and access of humanitarian personnel and volunteers.



Mr. Wiktor Wojtas
Counter Terrorism Unit
European Commission DG Home Affairs



Training First Responders and Emergency Room Physicians for a Non-conventional Attack with Ionizing Radiation

Co-presentation with Mr. Carlos ROJAS-PALMA

In the period 2006—2009 the European Commission co-funded a targeted research project that was coordinated by the Belgian Nuclear Research Centre (SCK•CEN) and which resulted in a production of a handbook for the triage, monitoring and treatment of the public exposed to the malevolent use of ionising radiation: TMT Handbook (www.tmt handbook.org). The handbook has been very well received by practitioners, therefore the European Commission's Directorate General for Migration and Home Affairs sought to take this initiative forward by organising a series of train-the-trainer courses for the EU Member States authorities based on TMT Handbook. The main objectives of this training course are: to disseminate knowledge and expertise, identify best practices, capacity building, create synergies among EU Member States, share results and contribute to preparedness and resilience to mass casualties resulting from acts of terror using ionising radiation. This presentation will elaborate on the main lessons learned from the organization of a series of training courses and present plans to carry this initiative forward taking into consideration the needs from EU MS.



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Computer-generated concept drawing.

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Learn more by visiting Cresilon at stand #405 in Hall 4 and by attending CEO Joe Landolina's lecture on Thursday, 20 October 2016 between 13:00-17:00 in Hall 2.

Congress Programme

Wednesday, 19 October 2016		PVA EXPO Praha, Hall 2
09:00 - 17:00	Registration	
12:45 - 13:15	Poster Sessions	
13:30 - 14:30 CONGRESS OPENING AND WELCOME SPEECHES		
	Introductory Remarks & Welcome Speech - BG Zoltán BUBENÍK - CEBIRAM Chairman, Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	
	Welcome Speech - H.E. Zoran JOLEVSKI - Minister of Defence, MKD	
	Welcome Speech - Mr. Bohuslav CHALUPA - Vice-Chairman of the Defence Committee, Chamber of Deputies of the Parliament of the Czech Republic, CZE	
	Welcome Speech - COL (GS) Jaromír ALAN - Deputy Director - Capabilities Development and Planning Division, Ministry of Defence, CZE	
	Welcome Speech - BG Roman HLINOVSÝ - Director of the Fire Rescue Service the Capital City of Prague, CZE	
	Welcome Speech - MG (Ret.) Roger VAN - Secretary General of International Committee of Military Medicine, BEL	
14:30 - 17:15		
14:30 - 14:50	Medical Trends and Challenges in Future NATO Operations MG Jean Robert BERNIER - Chairman Committee of the Chiefs of Military Medical Services in NATO, CAN	
14:50 - 15:10	Proliferation of WMD and Defending Against CBRN Threats Mr. Wolfgang RUDISCHHAUSER - Director, WMD Non-Proliferation Centre Emerging Security Challenges Division, NATO	
15:10 - 15:30	Coffee Break & Networking	
15:30 - 15:50	The Opportunity for Future Military Healthcare Needs Platinum Partner Presentation - Mr. Derek TARRANT - Military & Disaster Relief International Account Manager, Philips Healthcare Stand No. 367	
15:50 - 16:10	Global Health Cooperation and Military Medicine MG (Ret.) Roger VAN HOOFF - Secretary General of International Committee of Military Medicine, BEL	
16:10 - 16:30	Medical Disaster Management at Frankfurt International Airport Mr. Walter GABER - Medical Director, Frankfurt Airport Services Worldwide, DEU	
16:30 - 16:50	A Successful Czech Project of Civil-Military Co-operation in Humanitarian Assistance BG (Ret.) Leo KLEIN - Plastic and Burns Surgeon, Former NATO ACE Medical Advisor, Former Surgeon General, CZE	
16:50 - 17:10	Operational Challenges for Future Medical Support in NATO Missions BG Stefan KOWITZ - Medical Advisor of NATO's Allied Command Operations, SHAPE, NATO	
17:10 - 17:15	Closing Remarks - BG Zoltán BUBENÍK - CEBIRAM Chairman; Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
08:30 - 17:00	Registration	
08:45 - 09:15	Poster Sessions	
09:30 - 12:10 MORNING SESSION		
09:30 - 09:50	Introductory Remarks - BG Zoltán BUBENÍK - CEBIRAM Chairman, Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	
	Welcome Speech - prof. Martin KOVÁŘ - Vice-Rector for Public Affairs, Charles University, CZE	
09:50 - 10:10	The Brussels Airport Attack - And Afterwards: A Story of Strength, Hope and Resilience Mr. Wilfried COVENT - Head of Security Operations, Brussels Airport Company; Vice - Chairman of the Security Committee of Airports Council International Europe (Association of European Airports), BEL	
10:10 - 10:30	Chemical Terrorism and the Chemical Weapons Convention - Responding to an Emerging Threat Ms. Veronika STROMŠIKOVÁ - Director, Office of Strategy and Policy, Organisation for the Prohibition of Chemical Weapons, OPCW	
10:30 - 10:50	MEDICS - LogFS Logistics Functional Services Programme for NATO Gold Partner Presentation - MG (Ret.) Jan GAVRILÁ - Head of Defence, Security and Aerospace Department, Teamnet Group Stand No. 406	
10:50 - 11:10	Coffee Break & Networking	
11:10 - 11:30	CBRN Protection & Human Factors Work in the EDA Mr. Shahzad ALI - CapTech CBRN & HF Officer, European Defence Agency, EDA	
11:30 - 11:50	WHO Priorities, Health Policy and Systems Research - Topic TBD Mr. Oleg CHESTNOV - WHO Assistant Director-General, Noncommunicable Diseases and Mental Health, WHO	
11:50 - 12:10	Civil Military Cooperation in Complex Emergencies Mr. Jamie A. WILLIAMSON - Head of Unit of Relations with the Arms Carriers, International Committee of the Red Cross, ICRC	

Future Forces Expert Programme

Congress Programme

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
12:10 - 13:10	Lunch Break & Networking	
12:45 - 13:00	Poster Sessions	
13:10 - 17:30 AFTERNOON SESSION		
13:10 - 13:30	Medical Contribution to NATO CBRN Defence: an Overview COL Frederic DORANDEU - Chairman CBRN Med WG, Head of Toxicology Research Department IRBA, FRA	
13:30 - 14:10	Operational Aspects and Lessons Learned of the Belgium Terrorist Bombings 22 nd of March 2016 COL Erwin DHONDT - Vice President of the National Council for Emergency Medical Care, Defence Staff, Department Health & Well Being, BEL	
14:10 - 14:30	Controlling a Traumatic Bleed in Seconds Gold Partner Presentation - Mr. Joe LANDOLINA - Chief Executive Officer, Cresilon, Inc. Stand No. 405	
14:30 - 14:50	Coffee Break & Networking	
14:50 - 15:10	NATO MILMED COE Role in Medical Support Training COL László FAZEKAS - Director of NATO MILMED COE, NATO	
15:10 - 15:30	Joint CBRN Defence Centre of Excellence: Preparedness through Partner Collaboration COL Andrew L. MILTNER - Chief of Staff of the NATO JCBRN Defence COE, NATO	
15:30 - 15:50	CBRN Preparedness and Response in the Czech Republic LTC Ladislava NAVRÁTILOVÁ - Population Protection Institute, General Directorate, Fire & Rescue Service, CZE	
15:50 - 16:10	Water Treatment Technology HUTIRA CCW Industry presentation - Mr. Václav SALAČ - Business Development & Export Director, HUTIRA - BRNO, s. r. o. Stand No. 331	
16:10 - 16:20	Break	
16:20 - 16:40	Polish View on Trends and Future Challenges in CBRND - Topic TBC COL Bogusław KOT - Chief Expert in the Department of Defence Against WMD, General Command of Polish Armed Forces, POL	
16:40 - 17:00	Training First Responders and Emergency Room Physicians for a Non-conventional Attack with Ionizing Radiation Mr. Carlos ROJAS-PALMA - Belgian Nuclear Research Center (SCK•CE), BEL Mr. Wiktor WOJTAS - European Commission DG Home Affairs, Counter Terrorism Unit, EU	
17:00 - 17:20	The Activities Performed by the EDA in the Domain of Medical Support COL (Ret.) Daniel PETRILÁK - Project Officer Medical, Capability, Armament & Technology Directorate, European Defence Agency	
17:20 - 17:30	Closing Remarks - BG Zoltán BUBENÍK - CEBIRAM Chairman, Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	

Friday, 21 October 2016		PVA EXPO Praha, Hall 2
08:30 - 11:35	Registration	
09:00 - 09:15	Poster Sessions	
09:30 - 11:35		
09:30 - 09:40	Introductory Remarks - BG Zoltán BUBENÍK - CEBIRAM Chairman, Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	
09:40 - 10:00	Special Operations Medical Planning and Support COL Michael COHEN - NATO Special Operations HQ, NATO	
10:00 - 10:20	Investing in Public Health Gives - Especially in Low Income Countries - Extremely Impressive Returns CDR Stef STIENSTRA - SME CBRN 1-CMI Command of the Royal Dutch Armed Forces, NLD	
10:20 - 10:40	Coffee Break & Networking	
10:40 - 11:05	Chemical Weapons Convention Implementation in the Czech Republic/Introduction of the Nuclear Non-Proliferation Department LTC (Ret.) Jaroslav STRAKA - Inspector, Division of Chemical and Biological Weapons Prohibition, State Office For Nuclear Safety, CZE Mr. Alois TICHÝ - Inspector, Division of Nuclear Non-proliferation, State Office For Nuclear Safety, CZE	
11:05 - 11:25	Conflict and Disaster Medicine: The State of Battlefield Medicine in Ukraine Mr. John QUINN - PhD Researcher, Prague Center for Global Health, Institute of Hygiene and Epidemiology, First Faculty of Medicine, Charles University in Prague, USA	
11:25 - 11:35	Congress Closing Remarks - BG Zoltan BUBENÍK - CEBIRAM Chairman, Surgeon General, Director of Military Medical Agency of Armed Forces of the Czech Republic, CZE	
11:35 - 12:35	Lunch & Networking	

Designated time for a presentation includes time for questions from the audience. The order of speakers and timings may be changed.

Teamnet transforming technology

Company profile

Teamnet is a leading regional systems integration group delivering cutting edge technological innovation throughout Central Eastern Europe and Middle East. In the last years, the group has made strategic steps and sustainable investments to expand in terms of solutions portfolio, innovative technologies provided to customers and regional footprint. Currently, Teamnet has offices in 7 countries (Romania, Turkey, Croatia, Serbia, Republic of Moldova, Belgium, and Switzerland). The group is recognized on the international market for its strong competences in emergency, robotics, medical, cloud and SCADA.

The Group recorded over 110 million euros turnover in 2015 and was included, for the eighth consecutive years, in Deloitte's rankings.

Together with International Finance Corporation – World Bank Group Member - and Black Sea Trade & Development Bank, as strategic and financial partners, Teamnet Group aims to enhance the growth potential in Romania and in the region.

NATO & defence became some of the focus areas in the last years in Teamnet and the current reference elements are, as follows:

- Basic Ordering Agreement (BOA) with NC3A (current NCI Agency) activated in January 2011;
- Software development and integration – MEDICS and M&T / NATO Logistics Functional Services (LOG FS) Project;
- Support with knowledge and expertise the capabilities development throughout a significant number of NATO Industrial Advisory Group (NIAG) pre-feasibility studies in domains like: Cyber Defence, UAVs, surveillance and control, standardization and measurements etc.
- Participation in a number of NATO – Industry Initiatives like: Transatlantic Industry Interface Group for Alliance Future Surveillance and Control (AFTS) and Industry Involvement Initiative for NATO Exercises (I3X) Programme;
- Successful participation with mini-UAS HIRRUS in the NATO Joint ISR Trial "Unified Vision 2014" and preparation for NATO Joint ISR Trial "Unified Vision 2016" participation;
- Support of the Romanian MOD in standardization, testing and training activities with a surveillance and reconnaissance system and aerial targets drones.

For further information about Teamnet Group, access www.teamnet.ro/en.

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CBRN WS Programme Committee – alphabetical order



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Researcher
Ministry of Interior - General Directorate, Fire Rescue Service of the Czech Republic, Population Protection Institute, CZE



CWO Ladislav Kojzar
CBRN Defence Department, Capabilities Development and Planning Division
Ministry of Defence, CZE



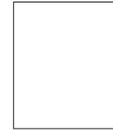
COL (Ret.) Ivan Koleňák
Ministry of Interior - General Directorate, Fire Rescue Service of the Czech Republic, CZE



LTC Pavel Kubiček
General Staff, Armed Forces
Ministry of Defence - General Staff, Armed Forces, CZE



Mr. Milan Mráz Dipl. Eng.
Chief of Fire Services
Prague Airport, CZE



COL (Ret.) Ivo Musil M.S.
Live Agent Training Manager
Military Research Institute, CZE



COL Vratislav Osvald
Training Education and Exercise Department Director, Chairman of the CBRN Workshop
NATO JCBRN Defence COE, CZE



CAPT Lenka Zárbybnická Ph.D.
Vice-Dean for Public Relations and Marketing
University of Defence, CZE

CBRN WS Speakers – alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



Mr. Irakli Beridze
Senior Strategy and Policy Advisor, CBRN Risk Mitigation and Security Governance Programme
United Nations Interregional Crime and Justice Institute (UNICRI)



New Technologies and CBRN Threats and Opportunities: Future Considerations

The threat posed by chemical, biological, radiological and nuclear (CBRN) materials and weapons are certainly at the top of the international security agenda. Relevant stakeholders, including policy makers, scientists, academics and civil servants within the international community continually examine the significance and varying origins of this threat and acknowledge that managing CBRN risks is an increasingly difficult and complex challenge. It is also becoming increasingly evident that an effective strategy to mitigate CBRN risks of criminal, accidental or natural origin requires a very high level of co-operation and co-ordination both between different national agencies and among countries and International and Regional Organizations.

The threat that humanity faces through the misuse of CBRN materials is far from static and unchanging. In the vanguard of this evolution are the rapid advances in autonomy, robotics and artificial intelligence. The potential benefits of this technology are legion but the latent possibility of its criminal misuse is a threat about which we should be acutely aware.

Current and likely future developments of new technologies, such as autonomous robotics and artificially intelligent systems have potentially far-reaching implications, changing the dynamic of security, security governance and CBRN risk mitigation. Such technology will have considerable appeal for terrorist organisations or other non-state actors who wish to exploit CBRN materials, most particularly given the potential value of autonomous systems as delivery mechanisms. Developments in this field open up a whole new world of CBRN threats.

In this respect, UNICRI is striving to advance understanding of the various technological, economic, demographic, environmental, legal and political considerations involved in the risk-benefit duality of AI and robotics, in order to maximize the benefits, while minimising the risks. We strongly believe however, that it is absolutely critical not to stifle innovation.



Mr. John Bosmans
Manager General and Cooperative Services Programme
NATO Support and Procurement Agency (NSPA)



NSPA CBRN Activities

The NATO Support and Procurement Agency (NSPA) brings together in a single organisation NATO's logistics and procurement support activities, providing integrated multinational support solutions for its stakeholders. NSPA is a fully customer-funded agency, operating on a "no profit - no loss" basis. NSPA is the executive body of the NATO Support Organisation (NSPO), of which all 28 NATO nations are members. The NSPA General and Cooperative Services Programme (LB) has wide range of CBRN related projects both in NATO and Partner Nations, including the procurement of CBRN related equipment to turn-key projects. We consolidate the similar requirements from the nations and we aim to create a multinational platform for the CBRN based procurement and projects. During the last 5 years, CBRN business showed continuous increase, which corresponds to total 200 MEUR turnover. It is anticipated that this trend will continue in the upcoming years. NSPA LB Programme is also being represented at NATO CBRN COE and several NATO groups (e.g. The Joint Chemical, Biological, Radiological and Nuclear Defence Capability Development Group (JCBRND-CDG))



Dr. Ian A. Fallis
School of Chemistry
Cardiff University



High Fidelity CWA Tests for Generalist Use

The identification and confirmation of CWAs is a difficult and complex task, with a range of technological solutions currently employed. Basic detection methods typically have a high rate of false positives, while advanced technological solutions are expensive, subject to interferants and bear a significant training burden. We have developed a series of field-deployable tests for a range of H, G and V chemical agents based on a chemical reaction specific to the presence of each agent. These each give a coloured output to indicate the presence (or absence) of agent, and have been confirmed to be able to detect H, G and V type agents. The tests have been incorporated into a simple swab system designed to be usable with minimal training, and to allow simple operation and interpretation of the output while wearing PPE. These represent a novel, cost-effective alternative method to CWA detection for generalist use.



BG Roman Hlinovský
Director of Fire Rescue Service of Capital of Prague
Fire Rescue Service Prague



Fire Rescue Service of the Prague - CBRN Team

Integrated rescue system, Fire Rescue Service the Capital city of Prague and a special team for interventions for hazardous substances.



MAJ (Ret.) Marc Jacoby
CBRN Defence Advisor
CRISTANINI



Biological Outbreaks: Containment and Consequence Management

The spread of ebola in West Africa and the emergence of isolated cases in Western and other countries caused widespread alarm among international and non-governmental organisations, governments and populations. Decontamination is sometimes considered the lesser of the pillars of CBRN protection, but the point will be made that you need decontamination to prevent an event becoming a crisis in the first instance, not only to support an emergency that is ongoing. The paper will consider the contribution of industry to consequence management of biological hazards in the context of the Ebola outbreak and outline a case history where a full spectrum decontamination approach was rapidly deployed to support a suspect event in South America. Key aspects cover the requirement for multi-functional and modular equipment solutions, rapidly deployable and with a low training burden, as well as proven and environmentally friendly universal decontaminant. Various decontamination scenarios will be considered, ranging from decontamination of personnel, platforms including aircraft, equipment including sensitive equipment, and the decontamination of infrastructure (internal and external) and finally, terrain. Preventive decontamination and sanitization of equipment prior to repatriation will also be considered.



COL Pavel Kolář Dipl. Eng.
Deputy Director
Institute of Criminalistics Prague



The Institute of Criminalistics Prague – Tasks and Activities

The Institute of Criminalistics Prague (ICP) is a body of the Czech Republic Police with nation-wide responsibility in the field of forensic science. It is the expert institution listed in the register of the Ministry of Justice. Main activities of the ICP are forensic casework, research and development and methodical activity including training and education towards police forensic and crime scene units and also the justice. The ICP is accredited according ČSN EN ISO/IEC 17025:2005. At the institute we perform forensic examination in 19 fields of forensic science, e.g. fingerprints, DNA examination, chemistry, forensic IT etc. Up-to-date technology for the examination of forensic evidence and documentation of the crime scene have been used by the employees of the institute and new methods developed within research projects are continuously being introduced to its activity.



COL (GS) Assoc. Prof. Zuzana Kročová, Ph.D.
Head of Department of Molecular Pathology and Biology, Faculty of Military Health Sciences
University of Defence



Biological Threat and BioDIM Concept

The current issues of detection, identification and monitoring of biological agents according to BIO DIM concept will be discussed. The history of the biological weapon attacks is very old. Up to day the terrorist abuse of biological agents is the most possible. The biggest risk of the biological incident is done by hidden (silent) dissemination of the B-agent when the first signs of incident were associated with the first diagnosis of infection

CBRN WS Speakers – alphabetical order

disease. BioDIM (Detection, Identification and Monitoring of Biological Agents) concept include technical means before, in the course and after biological incident. Considering the time as a substantial factor for resolution of BIO incident, no one technology is able to cover the BIO DIM requirements. As already known, detection, identification and typing needs specific technologies oriented to different targets, detection technologies rely rather on physico-chemical properties of microbes, as are optic or fluorescent characteristics of whole microbes, identification and typing rely rather to their unique molecular characteristics representing by several types of biomolecules



Mr. Milan Mráz Dipl. Eng.
Chief of Fire Services
Prague Airport



Contagious Disease on Board

Vaclav Havel Prague Airport is an international airport with its own medical service (two ambulances, one doctor) and a rescue and fire brigade. The airport has direct connection with some endemic areas of contagious diseases and it is transfer and terminal point for passengers from over the world. We had 12 millions of checked passengers last year. Vaclav Havel Airport Prague is also an entry point for aircrafts with an infected person on the board. It is obviously that the airport must be prepared for hazards of contagious disease. On the solution for these situations the Rescue and Fire Brigade at Vaclav Havel Airport Prague cooperates with state and local authorities and services. The presentation describes tactical procedures in a case of probably infected person on a board in three parts: - beginning of the situation (how it can happen); - solution of the situation (specific case which was practised twice); - decontamination (when and how it proceeded).



LTC Assoc. Prof. Pavel Otrisal, Ph.D., MBA
Chief of CBRN Corps Section
NBC Defence Institute, University of Defence



Capabilities of Chemical Units Supporting CBRN Consequence Management Operations

Co-presentation with CPT Radim ZAHRAĐNÍČEK

Recovering from chemical, biological, radiological, or nuclear (CBRN) event is a primary goal of operations, which are termed "CBRN consequence management". Not only restoration of essential combat capability of troops but also civil support to affected people is a current approach to the topic in North Atlantic Treaty Organization. Based on CBRN units' operational experience, the article offers systematic view on capability areas necessary to conduct CBRN consequence management operations. The article provides discussion on CBRN capabilities and its relation to civil-military interaction.



Mr. Emil Pavlík MD
Faculty of Biomedical Engineering
Czech Technical University in Prague



Contribution of the Czech Technical University in Prague to Preparing of Crisis Managers and Integrated Rescue System Professionals for War Events and/or Terrorists Attack

Protection of Life, Health and Ownership Valuables together with National Sovereignty, Territorial Integrity and Democratic Policy Principles in the Czech Republic is major obligation and function of the state. It includes complex activities and plans of action for minimalizing negative consequences of extraordinary events on life, health and living conditions of the country's population. Faculty of Biomedical Engineering of the Technical University in Prague, established in 2005 as the youngest faculty of CTU based in the city of Kladno, prepared and in 2010 opened accredited study program **Protection of Population** with paramedical study field **Planning and Management of Crisis Situations**, all in full-time study forms. In the same academic year 2010/2011 was also opened full time master field **Civil Emergency Planning** and combined study form of master study field **Systematic Integration Processes in Health Care**.

The study field's Planning and Management of Crisis Situations contents is based on Decrees No. 14 (2004) and 32 (2007) adopted by the State Security Council and covers Common Minimum for Education of Experts in Security Units. During 3 years of studies the students gain necessary knowledge in jurisdiction, security, technical disciplines, nature and health science, economics and social science, all in theoretical and practical level. For immediate contact to everyday practice a close cooperation with all units of Integrated Rescue System, State Institute for Nuclear, Chemical and Biological Protection, State Institute for nuclear Security, Institute for Population Protection etc. have been introduced together with employment of skilled leading officers of these Institutions and Crisis Managers for education purposes. The aim of this study field is to prepare interdisciplinary educated professionals with broad practical skills in analyzing critical situations and implementing measures for effective population protection in state-owned, regional and private security organizations. The Bachelor's degree holders may also follow their studies in a two-year study program Civil Emergency Planning. The Master's degree programs provide wide choice of subjects, clerkships, excursions and practice including common team-projects and enable specialties especially in crisis health care and protection of radiation, chemical, biological weapons, bioterrorism or management of major accidents. Graduates are supposed to find jobs in broad scale of positions in IRS, armed forces and civil service as well as in many private subjects focused on security and protection. Furthermore, the accredited postgraduate CBRN study programs have been existing since 2015. They are based on Long-term Basic Direction of Investigation in Security and Defense of the Czech Republic.

CBRN WS Speakers – alphabetical order



Mr. François Renaud, Ph.D.
Professor Emeritus, Scientific Advisor
OUVRY SAS



A New Active Decontamination Mitt with Antichemical and Antibacterial Activities

When a chemical or microbial product has been spread on a surface, the harmful substance must be removed rapidly in order to stop the deleterious effect and avoid cross contaminations. The classical product like Fuller's earth adsorbs the toxic and removes it from the support. However, the powder remains contaminated and causes cross contaminations. Other devices exist with a mono activity against biological or microbiological toxics. OUVRY SAS has developed a new concept of emergency decontamination mitt called "Polyvalent Decontaminant = DECPOL". The innovative nature of this product lies in the synergy of the material adsorption capabilities around 600 % with the functionality of integrated active agents able to destroy both chemical and biological noxious substances without dispersion in the air avoiding cross contamination. DECPOL is able to neutralize more than 90 % of paraoxon (VX simulant), 7 log an Escherichia coli strain and 3 log of a Staphylococcus strain in 3 hours. This decontamination mitt is intended to be used in military applications (immediate decontamination) as well as by first responders (terrorist acts, industrial accident...), research laboratories.



Assoc. Prof. Jozef Sabol, Ph.D., DSc.
Department of Crisis Management
Police Academy of the Czech Republic



Recent Developments in the Prevention, Detection, Response and Mitigation of Consequences Related to the CBRN Threat

Co-author: Mr. Bedřich ŠESTÁK

The paper discusses the current approach of major worldwide players, including NATO, EU and International Atomic Energy Agency (IAEA) as well as other UN relevant organizations and agencies specializing in specific CBRN aspects, to fighting global CBRN danger and reducing its impact on the health of the population and the contamination of the environment. Special attention will be paid to the monitoring and assessment of radioactive substances released in case of nuclear accidents or radiological attacks in terms of the exposure of rescue teams and other persons affected by external radiation and internal radioactive contamination. In addition to an overview of international standards and recommendations relevant to the CBRN threats, the national strategy of the Czech Republic has also been examined. Some basic principles and importance of communicating the CBRN risks to the public has also been shortly outlined.



COL(Ret.) Dr. Jaroslav Ševčík
Ministerial Councillor / CBRN Responsibility
Ministry of Defence



Some CZE Views and Experiences Related to CBRN Information Exchange and Cooperation Amongst Countries / Subjects

A sufficient flow and exchange of CBRN information and related issues (Medical, Intel, EOD, Cyber, etc.) are critical for an efficient WMD/CBRN Defence. Better collaboration with civil organizations, entities, Partners', and other coalition countries has become tangible evidence and commonly accepted approach to save and touch human assets (e.g. time, measures, money, persons, devices, tools etc.). Since incoming threats with hybrid features, cyber attacks, terrorism, etc. have already affected both armed forces and civilians, former routines and stereotypes in WMD/CBRN Defence might be reasonably changed. Thus, the only way to counter both classical and emerging threats is to communicate and better interact, share information, pool capabilities, merge capacities and utilize all available sources. CZE, as a small country with limited capacities and resources, has no other way but to streamline its concern in an innovative effort. Therefore CZE approach/views could be an inspiration or momentum towards countries and/or organizations how to tackle CBRN challenges in future. That is why own specific examples and outcomes are used.



Mr. Trey Sieger
Market Director, Safety & Security
908 Devices



Advancing CBRN Detection Systems in the Field and their Role in CBRN Forensics

Despite the range of detection and identification equipment available to first responders, capability gaps exist for down range CWA/TICs missions and Sensitive Site Exploitation (SSE). Recent development of High-Pressure Mass Spectrometry (HPMS) technology has enabled the release of rugged, handheld devices that help operators address many of these gaps with fast detection of priority CWAs, TICs, and precursors. Samples can now be measured by non-scientists in the field with greater confidence than less specific techniques available previously, while allowing for flexible tactical use analyzing vapors and particulates at trace levels. The presentation will provide an overview of HPMS technology and discuss its implementation in current and future down-range tools with particular attention to field CONOPs and integration with other deployed meters. Several incident scenarios will be reviewed to present hot zone deployment options for HPMS tools including continuous monitoring, wipe samples, and identifying target chemicals in the presence of interferents. The presentation will consider results of third-party performance data and of field evaluations in relation to other available technologies.

CBRN WS Speakers – alphabetical order



Mr. Miroslav Skoumal, Msc., PhD.
Head of Decontamination Department
Military Research Institute, s.e.



Comparative Evaluation of Adsorptive Strength of Selected Adsorptive Materials Towards Neat Liquid GB Agent

The presented comparative results show significant differences among the classic powdered adsorptive materials (activated charcoal, bentonite) and adsorptive materials containing active metal oxide (nano) materials (FastAct, SX 34). Classic adsorptive materials keep the liquid agent in their porous structure without any contribution of decomposition processes and agent releasing curves in time show characteristic slow desorption rates. Therefore the agent release continues until exhausting (desorbing/evaporating) of the whole mass of adsorbed agent. On the contrary the FastAct and SX34 materials show significant contribution of decomposition processes in powdered adsorptive material structure containing the nano metal oxides.



Cdr Dr. Stef Stienstra
SME CBRN 1-CMI Command
the Royal Dutch Armed Forces



CBRN Information Exchange and Sharing among Civ-Mil Responders

Sharing security threat information is a challenge for governments and their agencies. Especially in biotechnology and microbiology the agencies do not know how to classify or to disclose collected information on potential CBRN-threats. There is vague border between man-made and natural chemical and/or biological threats. Also publications of details from chemical or biological research, which could be misused by malicious individuals, gets more attention of the security agencies. Examples are in toxin production and in studies in which highly contagious diseases are mutated to see the how the route of infection can be changed. Recently was show that only a small number of mutations were necessary to change the H5N1 virus so that it can spread through the respiratory system between mammals. This implies a risk on a H5N1 pandemic and these kind of experiments are now banned in the USA although this information can be used to develop new therapies and/or vaccines for influenza.



Mr. Konstantin Volchek, Ph.D., P. Eng.
Head, Environmental Restoration Emergencies Science and Technology Section
EOALRS, Water Science and Technology Environment Canada



Infrastructure Mitigation Technology to Respond to Radiological Incidents

Environment and Climate Change Canada (ECCC) and its partners have developed a mitigation technology to rapidly reduce levels of radioactivity in areas and infrastructure impacted by a radiological release. This study was funded by the Canadian Safety and Security Program. The technology uses water-based chemical formulations that facilitate the removal of radionuclides from affected surfaces. It enables responders to accomplish their tasks more safely, effectively, and to operate for longer periods of time. The mitigation technology is usable by first responders themselves and can be quickly deployed over a wide area. It has a low cost and is environmentally friendly. The technology was successfully demonstrated on a large scale in summer of 2015. This presentation will focus on the demonstration trial, lessons learned, and opportunities for a full-scale technology implementation.



COL (Ret.) Wolfgang Widders
Senior Military Advisor for CBRN Protection Systems
FUTURETECH Kärcher Group



Future Decontamination Capabilities - a Conceptual and Technological Approach

At the beginning the presentation demonstrates some fundamental statements on threats, risks, concepts, and possible theatres of operation from a German point of view. CBRN defense as a system of systems will only work if we can fall back on different capabilities. The presentation will highlight and focus decontamination technology on a qualified capability level. Thanks to new decontamination systems and the associated new decontamination procedures and decontaminants, CBRN defense forces have a promising future in the field of decontamination and are able to cope with scenarios ranging from incidents of limited scale to a major influx of contaminated assets. Analysis, exploration and evaluation of decontamination systems led to the development of containerized systems with special modules incorporating the needed equipment for the different decontamination functions, namely the devices and appliances, and the resources, such as water, decontaminants and energy. A scrutiny revealed that a lot of systems are not suited for all missions due to their weight and size. Hence, the development of light systems which are air-portable and perfectly well suited for the initial operations conducted by airmobile forces was completed. In this context there will be introduced decontamination technology and systems which guarantee "state-of-the-art" technology, worldwide employability, high performance capability whether employed individually or together, reduced timelines for preparation, decontamination and after-action activities, self-sufficiency for up to 3 hours, flexibility, modularity and mobility, effective use of water resources thanks to low consumption, no more ecologically harmful and aggressive decontaminants, and reduced number of operating personnel and workload. A look into the future concerning the further development of decontamination technology, systems, and procedures as well as new decontaminants will conclude the presentation.

CBRN WS Speakers – alphabetical order



CAPT Radim Zahradníček Dipl. Eng.
Senior Lecturer
NBC Defence Institute, University of Defence



Capabilities of Chemical Units Supporting CBRN Consequence Management Operations

Co-presentation with LTC Pavel OTRÍSAL

Recovering from chemical, biological, radiological, or nuclear (CBRN) event is a primary goal of operations, which are termed "CBRN consequence management". Not only restoration of essential combat capability of troops but also civil support to affected people is a current approach to the topic in North Atlantic Treaty Organization. Based on CBRN units' operational experience, the article offers systematic view on capability areas necessary to conduct CBRN consequence management operations. The article provides discussion on CBRN capabilities and its relation to civil-military interaction.

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CBRN Workshop Programme

Thursday, 20 October 2016 PVA EXPO Praha, Hall 2

08:30 - 17:00	Registration	
12:15 - 12:45	Poster Sessions	
13:00 - 16:50	CIV-MIL COOPERATION & CBRN INFORMATION EXCHANGE AND SHARING (RELATION TO INTEL)	
13:00 - 13:10	Introductory Remarks and Welcome Speech – COL Vratislav OSVALD – CBRN WS Chairman; JCBRN Defence COE, NATO	
13:10 - 13:30	Some CZE Views and Experiences Related to CBRN Information Exchange and Cooperation Amongst Countries / Subjects COL (Ret.) Jaroslav ŠEVČÍK – Ministerial Councillor of CZE MoD/ CBRN Responsibility, CZE	
13:30 - 13:50	CBRN Information Exchange and Sharing among Civ-Mil Responders Cdr. Stef STIENSTRA – SME CBRN 1 – CMI Command of the Royal Dutch Armed Forces, NLD	
13:50 - 14:10	Future Decontamination Capabilities -A Conceptual and Technological Approach Platinum Partner Presentation – COL (Ret.) Wolfgang WIDDERS -Senior Military Advisor for CBRN Protection Systems, FUTURETECH Kärcher Group StandNo. 327	FUTURETECH Kärcher Group
14:10 - 14:30	Capabilities of Chemical Units Supporting CBRN Consequence Management Operations LTC Pavel OTRISAL – Chief of CBRN Corps Section of the NBC Defence Institute, University of Defence, CZE CAPT Radim ZÁHRADNÍČEK – Senior Lecturer, NBC Defence Institute, University of Defence, CZE	
14:30 - 14:50	Biological Outbreaks: Containment and Consequence Management Industry Presentation – MAJ (Ret.) Marc JACOBY StandNo. 383	CRISTANINI CBRN RECONTAMINATION SYSTEMS
14:50 - 15:10	Coffee Break & Networking	
15:40 - 16:00	Contagious Disease Board Gold Partner Presentation – Mr. Milan MRÁZ – Chief of Fire Services, Airport Prague	Prague Airport
16:00 - 16:20	New Active Decontamination Mitt with Antichemical and Antibacterial Activities Industry Presentation – Mr. François RENAUD – Professor Emeritus, Scientific Advisor at OUVRY SAS StandNo. 407	OUVRY CBRN protective system
16:20 - 16:40	Biological Threat and BioDIM Concept COL(GS) Zuzana KROČOVÁ – Head of Department of Molecular Pathology and Biology, Faculty of Military Health Sciences, University of Defence, CZE	
16:40 - 16:50	Closing Remarks – COL Vratislav OSVALD -CBRN WS Chairman; JCBRN DefenceCOE, NATO	

Friday, 21 October 2016 PVA EXPO Praha, Hall 2

08:30 - 14:10	Registration	
08:45 - 09:15	Poster Sessions	
09:30 - 12:00	WMD DISABLEMENT AND CBRN FORENSICS	
09:30 - 09:40	Introductory Remarks and Welcome Speech - COL Vratislav OSVALD - CBRN WS Chairman; JCBRN Defence COE, NATO	
09:40 - 10:00	Fire Rescue Service of the Prague - CBRN Team BG Roman HLINOVSKY - Director of the Fire Rescue Service the Capital City of Prague, CZE	
10:00 - 10:20	Advancing CBRN Detection Systems in the Field and their Role in CBRN Forensics Industry Slot - Mr. Trey SIEGER - Market Director, Safety & Security, 908 Devices Stand No. 324	908devices
10:20 - 10:40	New Technologies and CBRN Threats and Opportunities: Future Considerations Mr. Irakli BERIDZE - Senior Strategy and Policy Advisor, CBRN Risk Mitigation and Security Governance Programme, United Nations Interregional Crime and Justice Institute, UNICRI	
10:40 - 11:00	Coffee Break & Networking	
11:00 - 11:20	High Fidelity CWA Tests for Generalist Use Mr. Ian A. FALLIS - School of Chemistry Cardiff University, GBR	
11:20 - 11:40	NSPA CBRN Activities Mr. John BOSMANS - Manager General and Cooperative Services Programme, NATO Support and Procurement Agency (NSPA)	
11:40 - 12:00	The Institute of Criminalistics Prague – Tasks and Activities COL Pavel KOLÁR - Deputy Director, Institute of Criminalistics Prague, CZE	
12:00 - 13:00	Lunch Break & Networking	
12:30 - 12:45	Poster Sessions	
13:00 - 14:10	CBRN DEFENCE CAPABILITY DEVELOPMENT AND R & D PROJECTS	
13:00 - 13:20	Infrastructure Mitigation Technology to Respond to Radiological Incidents Mr. Konstantin VOLCHEK - Head of Environmental Restoration, Environment Canada/Water Science and Technology/EOALRS, CAN	
13:20 - 13:40	Comparative Evaluation of Adsorptive Strength of Selected Adsorptive Materials Towards Neat Liquid GB Agent Mr. Miroslav SKOUMAL - Head, Decontamination Department, Military Research Institute, CZE	
13:40 - 14:00	Recent Developments in the Prevention, Detection, Response and Mitigation of Consequences Related to the CBRN Threat Mr. Jozef SABOL - Department of Crisis Management, Faculty of Safety Management, Police Academy of the Czech Republic in Prague, CZE	
14:00 - 14:10	Workshop Closing Remarks - COL Vratislav OSVALD - CBRN WS Chairman; JCBRN Defence COE, NATO	

Designated time for a presentation includes time for questions from the audience. The order of speakers and timings may be changed.



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MEDICAL WS Programme Committee – in alphabetical order



BG Zoltán Bubenik M.D.
Surgeon General, Director of Military Medical Agency, Chairman of World CBRN & Medical Congress Ministry of Defence, CZE



MG (Ret) Jiří Halaška Dipl. Eng., Ph.D.
Vice-Dean for Development and External Reactions, Faculty of Biomedical Engineering Czech Technical University in Prague, CZE



Prof. Jiří Kassa M.D.
Academic Staff University of Defence, Faculty of Health Sciences/Department of Toxicology and Military Pharmacy, CZE



Prof. Leoš Navrátil M.D., Ph.D.
Head of Department of Health Care Disciplines and Population Protection of the Faculty of Biomedical Engineering Czech Technical University in Prague, CZE



Mr. Daniel Petřílák MSc
Project Officer Medical, Capability, Armament & Technology Directorate European Defence Agency, CZE



Mr. Jaroslav Slezák Dipl. Eng.
Crisis Manager The Prague Emergency Medical Service, CZE



COL (GS) Assoc. Prof. Zuzana Šinkorová MVD, Ph.D.
Head Department of Radiobiology, Faculty of Military Health Sciences, Chairperson of the Medical Workshop University of Defence, CZE

MEDICAL WS Speakers – in alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



COL (Ret.) Assoc. Prof. Jiří Bajgar M.D., Sc.D.
Department of Toxicology and Military Pharmacy, Faculty of Military Health Sciences University of Defence



Some Possibilities to Study New Prophylactics Against Nerve Agent Poisoning

Nerve agents belong to the most dangerous chemical warfare agents and can be/were misused by terrorists. Effective prophylaxis and treatment is necessary to diminish their effect. General principles of prophylaxis are summarized (protection against acetylcholinesterase inhibition, detoxification, treatment “in advance” and use of different drugs). It is necessary to test effectivity in vivo and compare the results with protection in vitro. Though the number of possible prophylactics is relatively high, the only four drugs were introduced into practice. At present, PYRIDOSTIGMINE seems to be common prophylactic antidote; prophylactics PANPAL (tablets with pyridostigmine, trihexyphenidyle and benactyzine), TRANSANT (transdermal patch containing HI-6) are other means introduced into different armies as prophylactics. Scavenger commercially available is Protexia. Future development will be focused on scavengers, and to other drugs either reversible cholinesterase inhibitors (e.g. huperzine A, physostigmine, acridine derivatives etc.) or other compounds. This work was supported by the Ministry of Defence, Czech Republic (Long-term organization development plan 1011).



Dr. Frederico Benelli
Research Analyst Observatory on Security and CBRNe Defence – OSDIFE



Medical CBRN as Educational Path through a New Way of Cooperation

The evolution of the current global situation, including the increasing terrorism threat, the refugee migration as well as the proliferation of both WMD and CBRN agents, constrains health authorities and security experts to face a growing likelihood of crises and hazardous events based on complex and multidimensional features. Such emergency scenarios require specific methods, procedures and competencies in order to prevent, manage and mitigate consequences. In this regard, a multi-agency and inter-institutional approach represents the fundamental basis in order to provide stakeholders with adequate instruments to implement plans, procedures and techniques as well as to improve useful and appropriate interventions in case of need. The purpose is to present an advanced educational methodology able to provide awareness in the Medical CBRN environment, taking advantage from a valuable cooperation between Academia, LEAs, Army and Healthcare Organizations as well.



Dr. William Blakely
Senior Scientist – Radiation Biodosimetry Armed Forces Radiobiology Research Institute, Uniformed Services University of Health Sciences



The Trends and Challenges in Radiobiology: Applications in Radiological Medical Countermeasures

Since the four coordinated terrorist attacks on 11 September 2001, there has been a scientific renaissance of international efforts resulting in enhancements in radiological medical countermeasures both in radiation diagnostics and the development of drugs and new treatment strategies

MEDICAL WS Speakers – in alphabetical order



Mr. Steven A. Bland
Surgeon Commander Royal Navy, Defence Specialist Advisor in CBRN Medicine Royal Navy



CBRN Medical Training

Medical training in any austere environment requires an innovative approach to deliver operational effect. Training for medical support in a Chemical, Biological, Radiation or even Nuclear environment is a particular challenge. The presentation describes a blended learning approach using an all-hazards casualty care model including trauma along a continuum of care. Individual and collective training includes the use of simulation and other training aides to add another dimension to a hazardous environment based on lesson learnt from the past.



MAJ Anthony P. Cardile II
Command Surgeon United States Army Research Institute of Infectious Diseases (USAMRIID)



The Evolution of Biocontainment Care: Identifying US Lessons-Learned from the West Africa Ebola Outbreak

Medical evacuation of patients to the US from West Africa during the 2014-15 Ebola outbreak unearthed unexpected challenges in providing patient care in a biocontainment setting. Previously, the three US high-level containment care facilities had been compared to “Noah’s Ark” - ready for use, but not exercised with “real” patients infected by BSL-4 viruses. However, Ebola care presented clinical and logistical challenges that had not been anticipated until these models were tested. In cooperation with the National Institute of Allergy and Infectious Diseases of the National Institutes of Health, Emory University, and the University of Nebraska, we submitted a 45-question survey to healthcare providers who spent 20 hours or more caring for a patient in their biocontainment units. This survey queried about best practices and challenges faced while caring for Ebola patients. Survey results on these practices and challenges are currently in process and will be presented.



Mr. Carl A. Curling Sc.D
Office of the Army Surgeon General in Support of National and NATO Requirements



US Radiological Agent Analysis

Co-presentation with LTC H. Mike STEWART, Jr.

This presentation identifies and illustrates the applicability of using a novel measure of hazard to evaluate the credibility of a radioisotope to pose a threat in a specified radiological weapon scenario. The analysis identifies the radioisotopes of interest from within the full spectrum of radiological threats. Thirty one radioisotopes were evaluated for their credibility as radiological weapons under seven different routes of exposure (or types of radiological weapons), including external irradiation from a point source or contaminated ground; aerosol exposure by inhalation, ingestion, contamination, and submersion in contaminated air; and immersion in a radioactive gas. The novel measure, a ratio of the activity of a radioisotope found in commercial practice (“P”) with the amount of radioactive material to cause concern (“C”) within a specified scenario, is described. The P/C ratio is an indication of enough radioactive material is available to credibly construct a radiological weapon for the given scenario. It is useful in limiting the number of different radioisotopes considered. Further work can be done to address physical form, security, and other aspects which limit the utility and availability of radioisotopes, and there by limit the credibility of using them in a radiological weapon scenario.



COL prof. Erwin Dhondt MD
Director Health & Well-Being Policy, Defense Staff Department Well Being Defense Staff Department Well Being



Lifesaving Interventions in a CBRN Environment

MEDICAL WS Speakers – in alphabetical order



Mr. Martin Falk, Ph.D.
Head of Department of Cell Biology and Radiobiology, Institute of Biophysics
The Czech Academy of Science



Detection of DSB Repair Foci as a Potent Tool in Biodosimetry and Cancer Research

Radiobiology currently experiences its renaissance, especially in light of the globally increased threat of terrorist attacks, potential industrial disasters, planned cosmic journeys, and (cancer) radiotherapy development. DNA double strand breaks (DSBs) represent the most serious DNA lesions induced by ionizing radiation and radiomimetic chemicals. In this lecture, we will focus on current possibilities of DSB detection and quantification by the means of immunofluorescence microscopy and flow cytometry. Applications of these techniques in biodosimetry and cancer research/medicine will be discussed. foci appear at sites of DSB in minutes after irradiation (as the consequence of histones phosphorylation on serine 139) and represent a specific, very sensitive DSB marker. The number of foci corresponds to that of DSBs and nuclear distribution is characteristic for high-LET and low-LET radiations.



Dr. Walter Gaber MD
Vice President and Medical Director Frankfurt Airport
Frankfurt Airport Services Worldwide



Bioterrorism – the Real Threat?

Within the changing world with attacks in paris and brussels we have to realize that the threat with biological agents might be possible at any time worldwide. Biological weapons can disseminate at a great distance, the clouds are invisible and the detection is quite difficult within a short time. Those kind of attacks will create panic and the medical capacities will be overwhelmed and there is only a short window for effective intervention. Awareness, training and close cooperation with all national and international agencies has to be optimized.



Mr. Francis Hérodin PharmD, PhD
Chair of NATO HFM-222 RTG, Expert in Radiobiology
French Army Biomedical Research Institute



Activities of the NATO HFM-222 Research Task Group on Ionizing Radiation Effects and Medical Countermeasures

The NATO Human Factors and Medicine (HFM) Panel contributes to optimize health, human protection, well being and performance of the human in operational environments. The HFM-222 RTG has been tasked to provide NATO leaders with the state of the art in medical countermeasures against nuclear and radiological threats. The mission of this RTG is to develop improved methods to prevent, assess, treat, and manage casualties and long-term health effects (stochastic and non stochastic) associated with ionizing radiation exposure from evolving threats in military operations. The RTG focuses mainly on early events related to RDD and RED scenarios to improve medical responses for mass casualty management. Among its main topics are radiation injury assessment and biodosimetry, prophylaxis, mitigation and therapy, radiobiology mechanisms and late effects, combined injury and internal contamination modeling, radiation preparedness and networking. As an example, the HFM-222 RTG has been involved in preparedness through two biological and clinical dosimetry exercises conducted by the German Army Institute of Radiobiology. Finally, HFM-222 RTG translates its medical expertise in recommendations to NATO COMEDS and guidance to inform field commanders and deployed forces.



Assoc. Prof. Jiří Kofránek M.D.
Head of Laboratory of Biocybernetics
1st Faculty of Medicine, Charles University



PHYSIOMODEL – Large Scale Integrated Model of Human Physiology as a Core of a Sophisticated Medical Simulators

Models used as the theoretical foundation of sophisticated medical simulators must include mathematical models not only of individual physiological subsystems, but also their interconnections, thus forming a more complex unit. We have designed the large-scale integrative model of human physiology PHYSIOMODEL (www.physiomodel.org) as the reimplementation and extension of model HumMod 1.6 from Mississippi University (www.hummod.org). Our extensions in acid-base and blood gases transport improve the usability of the model during the modeling of complex disorders of acid-base, ionic, volume and osmotic homeostasis, which is very important for urgent medicinal statuses. The PHYSIOMODEL is an Open Source model written in Modelica language. Modelica is a new computer language that enables to create a transparent and legible model structure and therefore offers easier model modifications and extensions. The PHYSIOMODEL was used for our project “Virtual Patient”, where many theoretical scenarios can be simulated with a virtual environment like a computer game.



1LT Klára Kubelková, Ph.D.
Faculty of Military Health Sciences, Department of Molecular Pathology and Biology
University of Defence



Investigation of Microbial-host Interactions for Development of Decontamination and Biodefence Strategies

Glycosylation is a key modification of proteins and lectin-carbohydrate interactions are essential in many host-microbial processes including adherence, colonization and infection. To study important carbohydrate-mediated microbial interactions, high-throughput lectin and glycan microarrays are increasingly utilised. These platforms can be custom made to cover a wide range of specificities, carbohydrates presented on glycoproteins

MEDICAL WS Speakers – in alphabetical order

and neoglycoconjugates (NGCs) and allow screening of multiple interactions with low sample and probe usage, providing high data yield at the same time. After an initial microarray screening the most significant binding partners can be further explored using other glycobiology techniques. This study was supported by a long-term organization development plan 1011 obtained from the Czech Ministry of Defense and A-1152-RT-GP obtained from European Defence Agency



Mr. Kobi Ludwin
Senior Manager, Sales and Business development
Persys Medical



The Use of the NIO Intraosseous Device in a CBRN Environment

The NIO (New IntraOsseous) device by Persys Medical is a safe, quick and easy intraosseous device for use in the Proximal Tibia and in the humeral head. Its unique and innovative structure and mechanism enables safe and successful vascular access for drug and fluid administration even in the most extreme conditions. The NIO is used by militaries and emergency services worldwide. The NIO has been used during a recent CBRN exercise where successful insertion and the time to do so have been measured. The purpose of the presentation is to share the outcome and results of this exercise.



LTC Philip Mullenix M.D.
Assistant Chief of Cardiothoracic Surgery
Walter Reed National Military Medical Center



Critical Skills Retention and Readiness for Military Trauma Surgery

Although the US and its allied partners have achieved unprecedented efficacy and success in operational surgical care through recent conflicts, declining deployments and evolutions in peacetime surgical care threaten the readiness of surgeons to sustain these outstanding outcomes in future military operations. Surgical skills sustainment for combat operations is a critical priority that will require the definition of critical skill sets, emphasis on these skills in surgical training and peacetime practice, and ensuring that military surgeons all participate in trauma care on a regular basis. In addition, all deployable surgeons should participate in a comprehensive, military-specific trauma surgery training course at regular intervals.



Mr. Rudi Pauwels, Ph.D.
Chief Executive Officer
BIOCARTIS



Idylla™ Medical Diagnostic System and Mobile Laboratory

Civil military collaboration for civilian and force health protection is critical to successful preparedness and response to emergency infectious disease outbreaks. Idylla™, Biocartis' fully automated, real-time PCR based molecular diagnostics system, is designed to quickly detect and quantify pathogens present in a variety of (clinical) sample types: blood, swabs, stool and tissue. Idylla™ covers the entire process from sample to result in a time frame of 35 to 150 minutes with less than 2 minutes' hands-on time. All this is miniaturized into a compact and disposable cartridge.

Idylla Mobile laboratory uses an all-terrain vehicle (4x4 or 6x6 configurations possible, depending on the region and terrain conditions) which is equipped to handle pathogens up to level IV using a closed, under-pressured biosafety isolator with an external entry port to bring infectious samples in. The lab can house up to 8 Idylla Instruments, which offers a test capacity up to 96 tests per day. Idylla™ Mobile can be deployed during disease outbreaks and is ideally suited for disease surveillance activities.



Mr. Martin Ryner
Head of Instruments
Vironova AB



MiniTEM™, a Broad Range Viral Pathogen Detection System

Co-author: Eva Coufalová, DELONG Instruments, a. s.

The MiniTEM-LVEM25 is an automated desktop transmission electron microscope system developed by Vironova and DELONG INSTRUMENTS that can provide a compact, easy to use solution that offers broad range virus detection in situations where time is critical for identifying highly pathogenic viruses. MiniTEM -LVEM25 is a desk-top instrument that in contrast to traditional electron microscopy technology is easy to operate and can be placed in any standard laboratory setting. It enables automatic sample screening and imaging in addition to simplified manual operation due to the automatic calibration to optimized parameters. Electron microscopy is the golden standard in broad range virus family determination. Until today the use of this technology is restricted to a few laboratories around Europe where expert level operators are available. MiniTEM-LVEM25 revolutionizes the electron microscopy technology by offering ease of use and accessibility also to non-expert users.

MEDICAL WS Speakers – in alphabetical order



LTC H. Michael Stewart Jr.
Chemical, Biological, Radiation, and Nuclear Branch Chief, Health Care Operation Directorate, Headquarters, Department of the Army Office of The Surgeon General
Army Office of the Surgeon General/MEDCOM



US Radiological Agent Analysis

Co-presentation with Mr. Carl A. CURLING

This presentation identifies and illustrates the applicability of using a novel measure of hazard to evaluate the credibility of a radioisotope to pose a threat in a specified radiological weapon scenario. The analysis identifies the radioisotopes of interest from within the full spectrum of radiological threats. Thirty one radioisotopes were evaluated for their credibility as radiological weapons under seven different routes of exposure (or types of radiological weapons), including external irradiation from a point source or contaminated ground; aerosol exposure by inhalation, ingestion, contamination, and submersion in contaminated air; and immersion in a radioactive gas. The novel measure, a ratio of the activity of a radioisotope found in commercial practice (“P”) with the amount of radioactive material to cause concern (“C”) within a specified scenario, is described. The P/C ratio is an indication of enough radioactive material is available to credibly construct a radiological weapon for the given scenario. It is useful in limiting the number of different radioisotopes considered. Further work can be done to address physical form, security, and other aspects which limit the utility and availability of radioisotopes, and there by limit the credibility of using them in a radiological weapon scenario.



Mr. Derek Tarrant
Military & Disaster Relief International Account Manager
Philips Healthcare



The Opportunity for Future Military Healthcare Needs

The shape of future forces is changing as major reforms take place globally and also as the nature of the situations they respond to change. How can we ensure that military medical capability also adapts and continues to deliver optimal care now and in the future? Partnerships, planning, technology, innovation, adaptable, flexible solutions and connected data all have a part to play. So too does having a clear vision of what you are trying to achieve and the need to work together with industry to co-create solutions and develop clinical workflows that supports that vision. This presentation will cover the above points as well as share some insight into the newest technology solutions currently being developed for the provision of deployable military medical care.



COL prof. Dr. Horst Thiermann
Chief of Institute
Bundeswehr Institute of Pharmacology and Toxicology



Nerve Agent Poisoning: Intensive Research is Necessary to Close Existing Therapeutic Gaps

Most recently, the director general of the organisation for the prohibition of chemical weapons expressed his serious concerns about “recent reports of possible use of chemical weapons” in the Middle East conflict area. Indeed, there was a huge number of victims in 2013 after release of the nerve agent Sarin in Syria. Hence, it has to be discussed how the available therapeutic strategies, in particular for nerve agent poisoning, can be optimized. Generally, nerve agents include highly volatile G-agents, e.g. sarin, which exert their toxic effect very fast after inhalation exposure and persistent V-agents, which pose a specific threat by percutaneous exposure, showing a delayed onset of signs and symptoms which may persist for a remarkable long period. Hence, medical personal needs adequate protection to prevent secondary contamination. Although nerve agent induced cholinergic crisis presents comparably specific, the events in Syria showed great diagnostic uncertainty during early care. Without verifying the used nerve agent, inhibition of red blood cell acetylcholinesterase is indicative for poisoning by organophosphorus compounds. Thus, this parameter, which can be assayed on-site, easily could confirm clinical diagnosis. Standard therapy consists of the administration of atropine, an oxime, benzodiazepine and may also include supportive care, e.g. artificial ventilation. While the importance of aggressive atropinisation is undoubted, there is some dispute on the use of oximes. Generally, in military scenarios in which doses of up to 5 times LD50 are expected, effective oximes should be effective when administered rapidly, at adequate dose and for required duration. An elaborated system, the cholinesterase status is available, to assess the necessary parameters at early stages of care. Unfortunately, however, poisoning by several nerve agents cannot be treated successfully with oximes at present and the critical neuromuscular block, in particular at the respiratory muscle, may result in respiratory arrest. Current approaches to prevent inhibition of cholinesterase in the body by scavengers will be discussed. An alternative approach consists in restoration of neuromuscular function in spite of acetylcholine excess by antinicotinics. Recent experimental results will be shown, indicating that this approach may be an option for the future.

NATO Centre of Excellence for Military Medicine (MILMED COE)



- As an accredited NATO body, NATO MILMED COE contributes to the functioning of the NATO Command Structure (MC 324/2)
- **Framework nation:** Hungary, Location: Budapest, Hungary; Satellite Location: Munich, Germany
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- **Nations in joining process:** United States of America (USA have provided personnel since 2014) and the Republic of Slovakia (the joining processes will be finished in 2016)
- MILMED COE unites highly experienced **medical professionals**
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- Now organizing the 4th iteration of the medical exercise **Vigorous Warrior** that will occur in 2017 in Germany with participation of 20 nations
- Facilitated **8 medical evaluations** and hosted **10 workshops and conferences** with more than 500 attendees
- In 2015 received the **Dominique-Jean Larrey Award** by (COMEDS) in recognition of a significant and lasting contribution to improvements in the provision of health care in NATO missions within the areas of military medical support and military healthcare development

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Vision Further development of NATO medical support by innovation, experience, creating and sharing best practices

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MEDICAL WS Programme

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
12:15 - 17:00	Registration	
12:15 - 12:45	Poster Sessions	
13:00 - 17:00	Moderated by: LTC Jaroslav PEJCHAL - Faculty of Military Health Sciences, University of Defence, CZE	
13:00 - 13:10	MEDICAL WS Introductory Remarks and Welcome Speech COL (GS) Zuzana ŠINKOROVÁ - MEDICAL WS Chairperson, Head Department of Radiobiology, Faculty of Military Health Sciences, CZE prof. Jiří KASSA - MEDICAL WS Co-Chairman; University of Defence, Faculty of Health Sciences/Department of Toxicology and Military Pharmacy, CZE	
13:10 - 13:30	Bioterrorism - Impact to the Public Health Mr. Walter GABER - Vice President and Medical Director Frankfurt Airport, DEU	
13:30 - 13:50	The Evolution of Biocontainment Care: Identifying US Lessons-Learned from the West Africa Ebola Outbreak MAJ Anthony P. CARDILE II – Command Surgeon, United States Army Research Institute of Infectious Diseases (USAMRIID), USA	
13:50 - 14:10	Investigation of Microbial-host Interactions for Development of Decontamination and Biodefence Strategies LT Klára KUBELKOVÁ - University of Defence, Faculty of Military Health Sciences, Department of Molecular Pathology and Biology, CZE	
14:10 - 14:30	The Opportunity for Future Military Healthcare Needs CEBIRAM Platinum Partner Presentation - Mr. Derek TARRANT - Military & Disaster Relief International Account Manager, PHILIPS Healthcare, GBR Stand No. 367	
14:30 - 14:50	Coffee Break & Networking	
14:50 - 15:10	Idylla™ Medical Diagnostic System and Mobile Laboratory Medical Workshop Platinum Partner Presentation – Mr. Rudi PAUWELS – CEO, BIOARTIS Stand No. 434	
15:10 - 15:30	Some Possibilities to Study new Prophylactics Against Nerve Agent Poisoning COL (Ret.) Jiří BAJGAR -Department of Toxicology and Military Pharmacy, Faculty of Military Health Sciences, University of Defence, CZE	
15:30 - 15:50	Nerve Agent Poisoning: Intensive Research is Necessary to Close Existing Therapeutic Gaps COL prof. Horst THIERMANN - Chief of Bundeswehr Institute of Pharmacology and Toxicology, DEU	
15:50 - 16:10	The Use of the NIO Intraosseous Device in a CBRN Environment Industry presentation - Mr. Kobi LUDWIN - Senior Manager, Sales and Business development, PerSys Medical Stand No. 386	
16:10 - 16:30	Critical Skills Retention and Readiness for Military Trauma Surgery LTC Philip MULLENIX - Cardiothoracic Surgeon Walter Reed National Military Medical Center, USA	
16:30 - 16:50	CBRN Medical Training Mr. Steven A. BLAND - Surgeon Commander, Defence Specialist Advisor in CBRN Medicine Royal Navy, GBR	
16:50 - 17:00	Closing Remarks - COL (GS) Zuzana ŠINKOROVÁ - MEDICAL WS Chairperson, Head Department of Radiobiology, Faculty of Military Health Sciences, CZE	
Friday, 21 October 2016		PVA EXPO Praha, Hall 2
08:30 - 14:30	Registration	
08:45 - 09:15	Poster Sessions	
09:30 - 14:10	Moderated by: LTC Jaroslav PEJCHAL - Faculty of Military Health Sciences, University of Defence, CZE	
09:30 - 09:40	MEDICAL WS Introductory Remarks and Welcome Speech COL (GS) Zuzana ŠINKOROVÁ - MEDICAL WS Chairperson, Head Department of Radiobiology, Faculty of Military Health Sciences, CZE prof. Jiří KASSA - MEDICAL WS Co-Chairman; University of Defence, Faculty of Health Department of Toxicology and Military Pharmacy, CZE	
09:40 - 10:00	Lifesaving Interventions in a CBRN Environment COL Erwin DHONDT - Director Health & Well-Being Policy, Defense Staff Department Well Being, BEL	
10:00 - 10:20	MiniTEM™ a Broad Range Viral Pathogen Detection System Industry presentation - Mr. Martin RYNER - Head of Instruments at Vironova AB Stand No. 387	
10:20 - 10:40	Coffee Break & Networking	
10:40 - 11:00	Biodosimetric Methods in the Army of Czech Republic COL (GS) Zuzana ŠINKOROVÁ - MEDICAL WS Chairperson, Head Department of Radiobiology, Faculty of Military Health Sciences, CZE	
11:00 - 11:20	Activities of the NATO HFM-222 Research Task Group on Ionizing Radiation Effects and Medical Countermeasures Mr. Francis HÉRODIN - Chair of NATO HFM-222 RTG, Expert in Radiobiology at the French Army Biomedical Research Institute, FRA	
11:20 - 11:40	The Trends and Challenges in Radiobiology: Applications in Radiological Medical Countermeasures Mr. William F. BLAKELY - Senior Scientist, Radiation Biodosimetry Armed Forces Radiobiology Research Institute, Uniformed Services University of Health Sciences, USA	
11:40 - 12:00	Detection of DSB Repair Foci as a Potent Tool in Biodosimetry and Cancer Research Mr. Martin FALK - Head of Department of Cell Biology and Radiobiology, Institute of Biophysics, The Czech Academy of Science, CZE	
12:00 - 12:20	US Radiological Agent Analysis LTC H. Mike STEWART, Jr. - CBRN Branch Chief, Health Care Operation Directorate, Headquarters, Department of the Army Office of The Surgeon General, MEDCOM, USA Mr. Carl A. CURLING - Office of the Army Surgeon General in Support of National and NATO Requirements, USA	
12:20 - 13:20	Lunch Break & Networking	
12:30 - 12:45	Poster Sessions	
13:20 - 13:40	Medical CBRN as Educational Path Through a New Way of Cooperation Mr. Federico BENOLLI - Research Analyst, Observatory on Security and CBRNe Defence – OSDIFE, ITA	
13:40 - 14:00	PHYSIOMODEL – Large Scale Integrated Model of Human Physiology as a Core of a Sophisticated Medical Simulators Mr. Jiří KOFRÁNEK - Head of Laboratory of Biocybernetics, 1 st Faculty of Medicine, Charles University, CZE	
14:00 - 14:10	Closing Remarks - COL (GS) Zuzana ŠINKOROVÁ - MEDICAL WS Chairperson, Head Department of Radiobiology, Faculty of Military Health Sciences, CZE	

Designated time for a presentation includes time for questions from the audience. The order of speakers and timings may be changed.

CEBIRAM Poster Sessions

World CBRN & Medical Congress (CEBIRAM) / Medical Workshop (Medical WS) / CBRN Workshop (CBRN WS)
CEBIRAM: Poster presenters to be present (Time noted / recommended in programme) 19OCT : 12:45-13:15 / 20OCT : 09:00 - 09:15; 12:45 - 13:00 / 21OCT : 09:00 - 09:15
Medical WS: Poster presenters to be present (Time noted / recommended in programme) 20OCT : 12:15 - 12:45 / 21OCT : 08:45 - 09:15; 12:30 - 12:45
CNRN WS: Poster presenters to be present (Time noted / recommended in programme) 20OCT : 12:15 - 12:45 / 21OCT : 09:00 - 09:15; 12:30 - 12:45

 **Mass Spectrometry-Based Method for Detection and Identification of Highly Dangerous Protein Toxins in Environmental Samples**
Ms. Alena MYSLIVCOVÁ-FUČIKOVÁ - Department of Molecular Pathology and Biology, Faculty of Military Health Sciences; University of Defense, CZE

Protein toxins (plant, bacterial) are due to the simple preparation procedure and high human toxicity preferred substances for use in bioterrorism. Parallel reaction monitoring (PRM) has become an important method for protein detection and quantification in complex samples with high sensitivity, selectivity and good reproducibility. Therefore this method can offer a suitable tool for fast detection, identification and partial quantification of high number of protein toxins in one analytical run. The main goal of our study was to develop a suitable assay for rapid detection, identification and peptide based quantification of selected protein toxins (ricin, abrin, staphylococcal enterotoxin B, toxins from Clostridium botulinum and Clostridium perfringens) in complex biological samples using PRM.

 **Czech Wound Management Association – its Role and Future Perspectives**
Ms. Lenka VEVRKOVÁ - Czech Wound Management Association, CZE

Czech Wound Management Association (Česká společnost pro léčbu ran - CSLR) was founded in 2001 as a multiprofessional organization associating different health care professionals engaged in comprehensive wound care. CWMA to date has 358 legitimate members. Our aims are promotion of multiprofessional cooperation based on the recent scientific evidence and various educational activities. We cooperate with national medical association and run successful collaboration with EWMA and EPUAP, we also participate in a number of international projects. Sharing of knowledge and expertise is realized mainly in form of the conferences and workshops. Our organization supports transfer and the implementation of new technologies and new treatment procedures into daily clinical practice (i.e. nanotechnology, new approaches to NPWT, special materials for skin integrity, new local treatment products especially with antimicrobial agents) and promotes their use in various facilities across the Czech Republic.

 **Influence of Therapeutic Laser on Leucocytes in Gama-Irradiated Mice**
Ms. Julia EFREMOVÁ - Czech Technical University in Prague, Faculty of Biomedical Engineering, CZE

Leukopenia is one of the most influential causes of high mortality rates of organisms with acute radiation syndrome. Purpose The purpose of this study was to investigate the influence of 940-nm diode laser on count of some types of leucocytes in gamma-irradiated mice. Material and Methods Mice were assigned to eight groups according to the type(s) of influence: (1) no influence, (2) gamma radiation (8.7 Gy), (3) 940-nm diode laser at final energy 33 J, (4) 132 J and (5) 200 J, and (6, 7, 8) combination of gamma radiation (8.7 Gy) and laser (33, 132 and 200 J). Each group was randomly subdivided into 2 subgroups, where mortality of mice and counts of leucocytes were analysed. Results 940-nm diode laser at 132 J significantly decreased mortality rate of mice (p<0,05). In the same group, counts of leucocytes were significantly higher than in other gamma-irradiated groups (p<0,05). Conclusion 940-nm diode laser at 132 J decreases mortality of gamma-irradiated mice and recovers count of leucocytes in blood. Mechanisms responsible for these effects will be investigated in further studies. This work was supported by Studentská grantová soutěž of Czech Technical University in Prague (SGS15/230/OHK4/3T/17).

 **Chiral Separation of Pharmaceuticals and New Synthetic Drugs on Chiral Ion Exchangers**
Mr. Michal KOHOUT - Assistant professor, Department of Organic Chemistry, University of Chemistry and Technology, CZE

A unique class of chiral ion exchanger type selectors and derived chiral stationary phases (CSPs) have been designed and developed to separate chromatographically enantiomers of ionised substances. These can be derived from chiral acids, bases or amphoteric compounds. In this work, methods to enantiomerically separate several important biologically active substances will be presented. Using our set-up, mefloquine (the active substance of antimalarial Lariam) can be efficiently resolved. The control of this antimalarial is of the eminent importance; the erythro-(+)-enantiomer exhibit higher antimalarial activity and lower side effects (depression, etc.) comparing to the erythro-(-)-enantiomer. Similar differences in metabolic pathways are expected for enantiomers of frequently abused new synthetic drugs. Newly developed methods that allows for efficient chiral analysis of these substances and their metabolites are presented.

 **Indirect Detection of 2-nitrotoluene Explosives Taggant on Chemiresistors**
Mr. Martin VRŇATA - Faculty of Chemical Engineering, Department of Physics and Measurement, University of Chemical Technology Prague, CZE

The contribution deals with indirect detection of 2-nitrotoluene (2-NT), which is the most widely used taggant in explosives, on chemiresistors, whose sensitive layer consists of palladium nanoparticles and silver phthalocyanine – Pd (1 nm)/AgPc (250 nm). The taggant vapors were detected chemiresistor in two modes: without- or with- photoactivation by ultraviolet radiation (λ = 266 nm). While the dc-response (S_{dc}) to 190 ppm of non-activated 2-NT was negligible, on photoactivation we reached the value of S_{dc} = 5. 8. This significant improvement, which is attributed to the formation of nitrogen dioxide during photoactivation of 2-NT, and also negligible interaction of sensor with water vapor as the most common interferent, make our method applicable for early detection of tagged explosives in real "field" conditions. The detection limit was estimated to be 10 ppm of 2-NT. Moreover, the Pd/AgPc chemiresistors exhibited excellent recovery after detection of photoactivated 2-NT.

 **Examination of Forensic Evidence Contaminated by CBRNE**
Mr. Tomáš DROPA - National Institute for NBC Protection, CZE
Co-authors: Mr. Martin URBAN - National Institute for NBC Protection, CZE
Mr. Petr HLAVIN, Mr. Pavel KOLÁŘ - Institute of Criminalistics Prague, CZE

Forensic science laboratories carry out laboratory examination of evidence collected at the crime scene. They employ themselves by analysis of number of various objects starting from invisible stuff to large pieces of industrial equipment. Sometimes, the submitted objects can contain and/or can be contaminated by highly dangerous substances. Especially, the presence of CBRN compounds at the crime scene is a serious restriction, threatening police investigators involved.

The aim of the paper is to introduce cooperation between specialists of *Institute of Criminalistics* and *National Institute for NBC Protection* during investigation of contaminated objects. Authors of the contribution focused not only on detailed description of forensic investigation modified with respect to CBRN contamination at the crime scene; they also describe an optimal work-flow procedures applied for fingerprint and/ or DNA identification and traces treatment performance provided inside special premises of the *National Institute for NBC Protection*.

World CBRN & Medical Congress (CEBIRAM) / Medical Workshop (Medical WS) / CBRN Workshop (CBRN WS)



Ammonium Nitrate Safe Governance Program Initiative in Georgia

Mrs. Tamar CHACHIBAIA - Head of Intergovernmental Agency for Ammonium Nitrate Safe Governance, GEO
Co-authors: Mr. Manuel PASTOR - Scientific Responsible of the NMR Unit, University of Santiago de Compostela, ESP
Mr. Radovan FIALA - Head of Josef Dadok National NMR Centre, National Centre for Biomolecular Research & Central European Institute of Technology, Masaryk University, CZE

Ammonium Nitrate is agricultural fertilizer, which is dual use chemicals, as potent explosive and detonator. There are risks associated with the use of AN. Ammonium nitrate-based explosives were used in the Oklahoma City (1995), in 2011 Delhi and Oslo bombings. The counter-Home Made Explosives (HME) safeguard measures vary from country to country. In 2008 Ammonium Nitrate Security Program was proposed by the USA Department of Homeland Security (DHS). In several European Countries is banned use of AN, e.g. Germany and Ireland. Since 2010 the fertilizer is banned in Afghanistan and Pakistan. In 2016 June President of Turkey banned sales of AN in the country. In our study we propose NMR spectroscopy for fast and reliable detection of AN, which may be applied in different fields, like border and custom points, as well in forensic and analytical chemistry laboratories for environmental, food and water safety testing.



Extracorporeal Membranous Oxygenation in Warfare

Mr. David MACKŮ - Czech Technical University in Prague, Department of Cybernetics, CZE
Co-author: Mr. Pavel HEDVIČÁK - Motol University Hospital, Department of Cardiovascular Surgery, CZE

Extracorporeal membranous oxygenation (ECMO) can provide cardiac and respiratory support for patients whose heart and lungs cannot perform their functions adequately. This hi-tech equipment can be understood as being artificial heart and lungs, standing outside the patient, connected by tubing, helping patients to survive. The army knows this device. There are known case reports when wounded soldiers were placed on ECMO in the army hospital on the battlefield and then were transported to the military home hospital for long-term and intensive care. ECMO stabilized their circulation and oxygenation. Now the question has arisen whether the ECMO can save more lives of soldier-patients, closer to battlefields. The basic guidelines for seriously wounded soldiers on the battlefield that should be following:

- Hemostasis - Stopping bleeding
- Anesthesia
- Fluid replacement
- ECMO Installation, heparinization, ECMO initiation
- Transport to the army hospital
- Surgery or intensive care with ECMO in the army hospital



Limiting the Sequelae of Hazardous Environmental Exposure: a Case for Collaboration of Oncology and Military Medicine

Mr. Tomáš BÜCHLER - Scientific Secretary, Czech Society for Oncology, CZE

The use of chemical, biological and nuclear weapons is a potential risk of modern warfare. Their use in conflicts and, more frequently, industrial or military accidents involving radioactive or chemical substances can result in long-term physical and psychological damage in exposed persons. In addition, military duty even in the time of peace can result in substantial hazardous exposure (Richards, 2011). Current treatment of cancer exposes patients to significant levels of radiation and noxious chemical stimuli. There are multiple common pathways for health damage after exposure to nonconventional warfare and cancer therapies (Table 1). Indeed, exposure to atomic bombings of Japanese cities at the end of World War II has been used to model long-term consequences of therapeutic and diagnostic radiation (Hall and Brenner, 2008). The population of cancer survivors is growing rapidly in the developed countries. Oncologists have been working on strategies to reduce long-term harm resulting from cancer therapies and to identify individuals at highest risk of complications. Newer studies are trying to identify and validate molecular predictors of susceptibility to long-term complications of therapy. Protocols are being developed for the follow-up of cancer survivors. These protocols are also potentially applicable to health surveillance of soldiers or civilians exposed to environmental hazards or nonconventional warfare. In conclusion, despite the fact that oncology is not an immediately obvious partner of military medicine, common efforts could result in significant advances in the prevention and management of long-term toxicities associated with exposure to ionizing radiation and cytotoxic chemicals.



The Safety at Work Involving the Manipulation with Unsealed Radioactive Sources

Ms. Jana HUDZIETZOVÁ - Faculty of Biomedical Engineering, Czech Technical University in Prague, CZE

Unsealed radioactive sources are used in many applications including nuclear medicine where they serve for both diagnostic and therapy purposes. In any handling of these sources the persons are always subjected to some exposure coming both from external radiation and internal contamination. This exposure has to be controlled and kept within the relevant dose limits and preferably as low as reasonably achievable taking into account the existing circumstances. The paper summarises the radiation protection requirements related to the manipulation with radiopharmaceuticals where special attention has been paid to the assessment of the equivalent dose to the skin of workers based on the use of specific thermoluminescent dosimeters. The results of such measurement as well as procedures for the monitoring of the workplace have been described. A similar approach can also be applied in the exposure assessment and protection of persons in the case of the contamination resulting from a radiological attack.



The Proposal of Software Solving for Soft Targets by Using Fuzzy Logic

Ms. Lucia ĐURICOVÁ - Doctoral Student and the Member in Project Resilience VI20152019049, SVK

Security and safety situations in objects which are categorized as soft targets, is difficult. The current solving is based on several different type of solving. Soft targets are specific objects, and it requires special software solution. The proposal is based on fuzzy logic. Fuzzy logic could apply more expert knowledges and it could help owners and managers with adequate responses in critical situation, and also definition of adequate preventive actions. The system solving could help effectivity of proposed measures. The decision making is based on this fuzzy logic support and aim is explained in presentation.



Multi-Functional Sol-Gel Coatings

Mrs. Diana HORKAVCOVÁ - Assistant professor at Department of Glass and Ceramics, University of Chemical Technology Prague, CZE

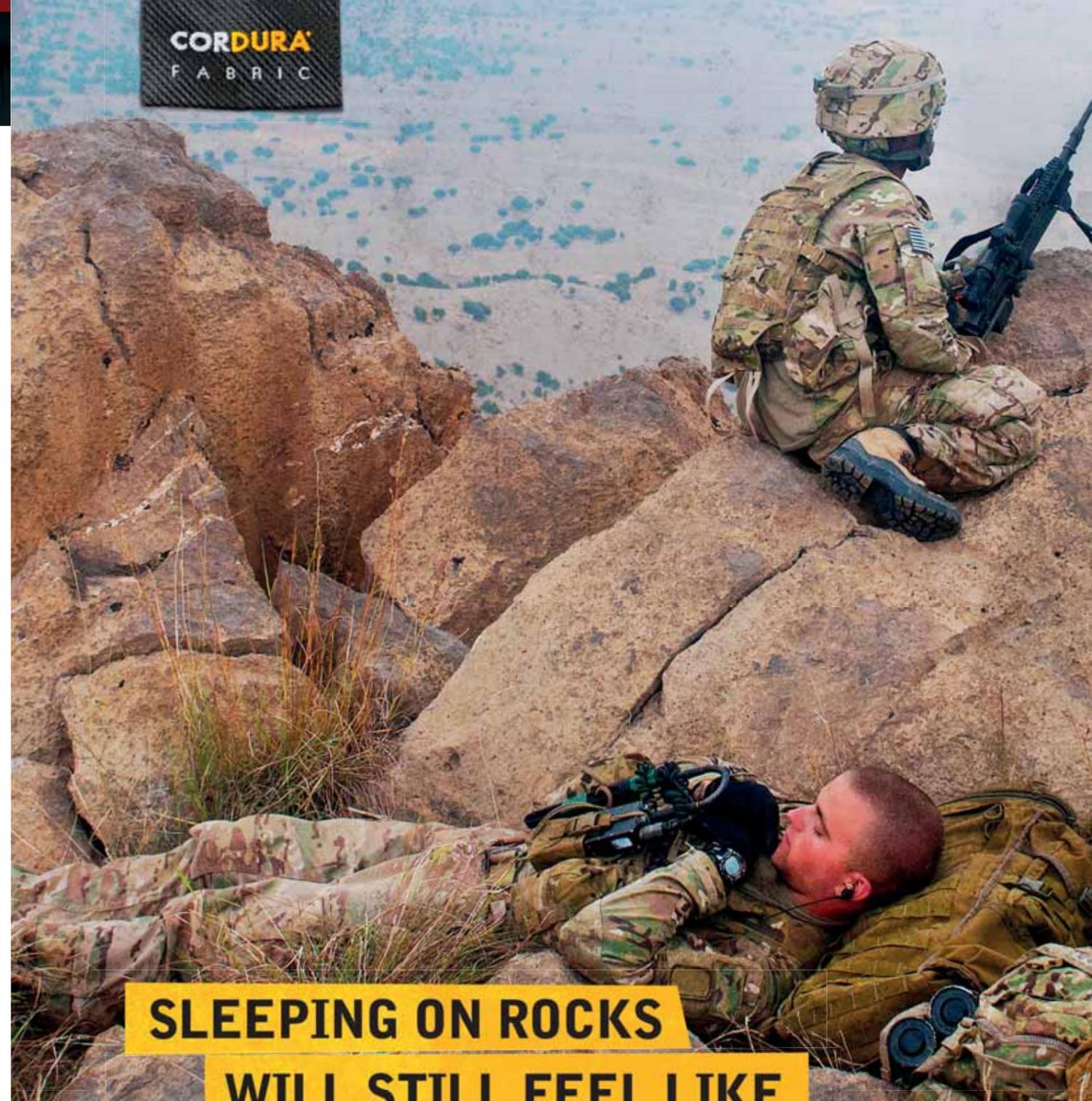
Nowadays the biomaterials are widely used in the implantology to protect, promote, or replacement of damaged parts in the living body. Strict requirements are subject on properties of biomaterials. The most important qualities of these materials are biocompatibility, strength, flexibility and corrosion resistance. From metal implants the stainless steel, titanium and its alloys are the most commonly used. Their surface can be improved by coatings containing ions or nanoparticles. These coatings increase the rate of osseo-integration and reduce risk of postoperative infection. Department of Glass and Ceramics in collaboration with the department of Metals and Corrosion Engineering and the department of Biochemistry and Microbiology has developed and characterized modified silica and titania sol-gel coatings on glass, ceramics and metals. Formation of coatings by sol-gel dip-coating technique allows to obtain very thin coatings on substrates of different shapes. Calcium phosphates and silver nanoparticles enable multi-functionality of the coated substrate. Bioactive properties were tested in vitro, the adhesion properties were tested by using the scratch and tape test. Antibacterial properties were observed on Gram-negative and Gram-positive bacteria. Cytotoxicity was measured on mouse fibroblasts and human osteosarcoma cells.



Performance Analysis of Possible Terrorists Attacks Using Unmanned Aerial Vehicles

LTC Marek HÜTTER - Ph.D student, Lecturer, Fire Rescue College, Fire Rescue Service of the Czech Republic, CZE
Co-author: Mr. Radomír ŠCUREK - Faculty of Safety Engineering, VSB - Technical University of Ostrava, CZE

This paper analyzes technical capabilities of commercially available unmanned aerial vehicles (UAVs) in relation to their potential abuse for terrorist targets. This article also compares options which have UAVs (for example their maximum payload) and the possible consequences that could be caused by application of CBRN agents. For this purpose we chose two CBRNE agents - SOMAN and PETRIT, and we watched their potential effect on the selected area of urban development (we used a simulation program Terex). Results are shown graphically.



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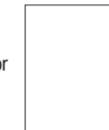
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Military Research Institute, s.e., CZE

FSSC Speakers – in alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



CPT Petr Blatný
Chief Commissioner, D.s.d.a.t. Diver/Lector
Police Presidium of the Czech Republic



New Trends in Diving and Diving Equipment within Police Force of the Czech Republic

Presentation focuses on daily assignments of D.S.D.A.T. (Department of Special Diving Activities and Training) divers, especially on SAR operations, underwater search and recovery of criminal clues and on police diving in extreme conditions (100 m depths, cave systems, under ice diving, HAZMAT diving, etc.). At the same time, presentation will also touch the topic of underwater EOD missions recently performed by D.S.D.A.T. divers in Balkans (recovery of UXO from rivers Sava and Una in Bosnia and Herzegovina - relics from 1992 -1995 war). Second part of presentation will focus on introduction of new and modern technology used by D.S.D.A.T. divers (eCCR system LIBERTY, sonar system Kongsberg MS 1000 and more).



Mr. Bart de Lombaerde
R & D Ballistics Expert
Seyntex NV



Columbus® the Soft Ballistic Protection of the Future!

Co-presentation with Mr. Corneliu Ioan Mitoiu

Columbus® is the latest development in the soft ballistic protection from Seyntex NV. It is the lightest, the thinnest and most flexible solution including bullet, knife and spike protection according to European and American standards.

FSSC Speakers – in alphabetical order



Mr. Jasper Groenewegen
Specialist Energy Storage
DNV GL



Standard Architecture for Soldier Power System

The European Defence Agency facilitates the development of a Standard Architecture for Soldier Systems (STASS). As a first step, a consortium consisting of Rheinmetall Defence Electronics, Larimart, Fraunhofer ICT and DNV GL is tasked to develop the soldier power system (SPS). The SPS represents a comprehensive architecture for the power aspect of soldier systems.

The purpose of this architecture is to promote interoperability and interchangeability for national dismounted soldier programmes. The SPS will help to minimize physical, operational and cognitive burden of the soldier, stimulate continuous improvement of components and reduce costs.

The soldier power architecture provides interfaces that comply with publically available open standards. The possibility for modular components to connect to the system via these interfaces promotes third party competition and makes it possible to connect COTS to the system. This will promote innovation, diversity and reduce the costs of an integrated soldier power system.



Mr. Enrico Grossmann
Senior Sales Manager of Simulation and Training Division
Rheinmetall Defence Electronics



Future Live Training for the Czech Armed Force

Rheinmetall Defence and LOM Praha will provide the Czech Armed Forces with the latest and worldwide state of the art Live Training technology to build up the future Czech Combat Training Centre.



MAJ Magnus Hallberg
Project Manager Soldier Equipment, Sweden; NATO AC/225 LCG DSS Vice-Chairman
Land Warfare Centre



Structure of and Hot Topics from LCG DSS with Subgroups

The presentation is aiming to give a sneak peek into what LCG DSS and its Sub Groups is working on and has been working with. Some example of accomplished work and remaining challenges will be presented.



COL Vendulka Holá Dipl. Eng.
Deputy Managing Director and Director of the International and Public Relations Division of the General Directorate of Customs
General Directorate of Customs



Welcome Speech



COL Assoc. Prof. Martin Hrinko, Ph.D., MBA.
Public Order Police Directorate - Director
Police Presidium of the Czech Republic



New Trends in the Field of the Equipment of the Police of the Czech Republic

The contribution will describe new trends in the solving of problems concerning the public order, the overview of the newest technical equipment used e.g. for the solution of exceptional events, demonstrations, sport matches, floods, etc., then characteristics of the realisation of the serious interventions focused mainly on the elimination of the active shooter or the dangerous offender endangering a larger number of persons at the overt places by so called „first coming“ patrols. These patrols are equipped by the necessary ballistic protection, shoulder weapons and sufficiently efficient motor vehicles.

FSSC Speakers – in alphabetical order



LTC Luděk Jedlička Dipl. Eng., Ph.D.
Head of Ballistics and Ammunition Group
University of Defence



Testing of Small Arms Ammunition - Substitute Targets

Testing of munition properties and capabilities, e.g. penetrating and wounding potential, becomes more and more important for contemporary armed forces. Today it is possible, with the use of modern design and production technologies, to create a small arms munition that is tailored to the testing conditions but performance of the munition out the scope of testing conditions can be totally different. From this point of view, the proposed test conditions should reflect as close as possible the real-life conditions at which the munition will be used. It means to define not only the environmental and technical requirements for the use of munition but also type of target and required effect of munition on this target. The presentation introduces development of new small arms munition together with the testing methodology based on end-user requirements and expectations.



Mr. Torstein Espolin Johnson
Chairman NATO LCG/DSS/SCAG Soldier Capabilities Analysis Subgroup
Norwegian Army



Nordic Combat Uniform Project

Co-presentation with MAJ Magnus HALLBERG

Presentation is focused on the cooperation between the countries. The cooperation is organized under the NORDEFECO umbrella, so some information about NORDEFECO will be provided.

And then we have focused in the organization of the Nordic Combat Uniform (NCU) project, with scope.

The user requirement is one document all four countries has agreed upon. This user requirement is object for cooperation further on making all the common requirement used for announcement of tender, all four countries together.



Mr. Marek Kalbarczyk
Project Officer Land Systems Technologies
European Defence Agency (EDA)



EDA Activities in Soldier System Domain

European Defence Agency CapTech Ground Systems (Land) is currently addressing the following technology gaps: fully integrated, reconfigurable and upgradable platforms and mission systems; modular multipurpose vehicle design; power generation and energy storage; enhanced autonomy, conveying and ground traffic insertion of unmanned ground vehicles (UGV); enhanced agility and performance of soldier systems and enhanced detection and identification of IEDs while on the move. The CapTech Land addresses these topics through a system perspective meaning that its approach is more “capability driven” rather than “technology driven”. Within soldier systems main activities are performed in the frame of the Combat Equipment for Dismounted Soldier Feasibility Study Programme (CEDS FSP), where nine feasibility projects have been conducted addressing technological advancements in observation, energy, human factor and survivability areas. From capability perspective one of the current critical requirement for soldier systems is to increase both its protection and combat effectiveness without increasing its weight. This could be achieved by decreasing weight of all components or designing soldier’s system which is mission tailored. For both solutions, the current CEDS FSP will provide only limited answers. However this aspect is being addressed in the Standard Architecture for Soldier Systems (STASS) study aiming to develop an open system architecture with focus on power management and infrastructure which shall promote interoperability and interchangeability for national dismounted soldier programmes both at the system level and the component level. Information management and infrastructure will be addressed in the future study. The EDA activities in soldier systems with focus on CEDS FSP programme outcomes will be presented. The STASS study will be provided in details by the study contractor (a separate paper was submitted “Standard Architecture for Soldier Power System”; Contact Author: Name: Jasper Groenewegen) Therefore it would be appreciated if EDA and STASS presentation will be put together.



Dr. Hans Kariis
Department of Electrooptical Systems
Swedish Defence Research Agency



Assessment Methods for Camouflage in Operational Context

Detecting the enemy before the enemy detects you increases your survivability. To provide evidence that advanced camouflage gives this utility in the operational context a new NATO task group has started on “Assessment Methods for Camouflage in Operational Contexts”. The group marks a change from its predecessors; from evaluating coatings and patterns in various environments, to measuring the influence of camouflage on operations. To ensure military relevance we will seek significant input from officers currently serving in the forces of the participating nations: Sweden (lead), the Netherlands, Germany, France, Australia, USA, Estonia, UK and the Czech Republic. The group will use scenarios to highlight the multispectral nature of camouflage. Several modelling and simulation tools will be employed in the work.

FSSC Speakers – in alphabetical order



GEN Mikhail Kostarakos
Chairman
European Union Military Committee (EUMC)



Welcome Speech



CPT Jaroslav Krejčí, Ph.D.
Senior Lecturer of Department of Weapon and Ammunition
University of Defence



The Possibilities of Hyperspectral Imaging for Improving of Validation of Superficial Quality of Spectral Features of Camouflage Surfaces

Co-Authors: LTC Teodor BALÁŽ, Mr. Adam JOBÁNEK, MAJ František RACEK

The paper deals with description of upcoming method of Hyperspectral camera utilization for determination of superficial quality of spectral features of camouflage surfaces. Camouflage, the art of blending, is the endeavor to match the spectral signatures of the subject with the spectral signature of its background. The validation of spectral requirements on the camouflage materials (e.g. prints) in laboratory conditions is the task that plays the significant role of getting the better camouflage. Hyperspectral techniques described in this paper could improve the quality of control mechanism by changing the concept of spectral defects identification on the camouflage prints and thereby it increases the effectiveness of camouflage. The measurement of camouflage prints with HS camera for determination the superficial quality of spectral features of camouflage surfaces is designed as an extension of actual spot measurement that is applied in the current condition of ACR.



LTC (Ret.) Jonathan D. Long
Global Innovation Manager
INVISTA



Soldiers - Core of Military Capability

Senior leadership recognizes the Soldier is the single most important asset in the Army." The first line of protection for soldiers is the uniform. Soldier uniforms and gear must provide tremendous durability. CORDURA® fabrics define durability as Tensile Strength + Tear Strength + Abrasion Resistance. Many North Atlantic Treaty Organization (NATO) have modernization programs under development for ground combat personnel. These programs share a "Survivability" goal. This goal requires lighter weight, improved protection and performance balance, enhanced comfort, and improved material performance; all achieving better integration. Unlike polyester based uniform and gear solutions, CORDURA® based Nylon 6.6 solutions can offer improvements in abrasion resistance, higher tensile and increased tear resistance, improved moisture management and no melt no drip performance when exposed to thermal threats. Building on the last 50 years, CORDURA® fabrics continue to partner with innovate for NATO forces



LTC (Ret.) Richard Mácha
Czech National Armaments Director Representative
Permanent Delegation of the Czech Republic to HQ NATO



NATO Capability Roadmap Areas

Addressing priority capability areas coherently, across the DOTMLPFI (doctrine, organization, training, materiel, leadership and education, personnel and facilities) spectrum, from the short to the longer term is a new way of working for the Alliance and is intended to be achieved over time. Roadmaps should be seen as an instrument of The NATO Defence Planning Process (NDPP) Step 4. Consistently connected with the other steps, they will help the Alliance move away from the anecdotal "snapshots" of priorities presented periodically as an outcome of Summit or Ministerial meetings and provide an enduring tool allowing Allies to measure and report progress toward delivering on critical capabilities. This should improve NDPP effectiveness and help nations make effective defence investment choices as they implement the Defence Investment Pledge. Roadmaps aim at providing nations with a tool for comprehensive and coherent NDPP capability development in priority capability areas, from the short to the longer term, which can inform national decisions on defence investment.



COL Zdeněk Mikula Dipl. Eng.
Head of the Mechanized & Infantry Department, Capability Development and Planning
Ministry of Defence



The Concept of Land Forces Development in Light of Security Environmental Changes

The main changes of the security environment and future battlefield generate new requirements for Land Forces. The MOD of the Czech Republic created The Conception of the Czech Army Development and consequently The Conception of Land Forces Development to deal with the changes. Both conceptions analyze the current situation and future possible development and define the End state, priorities and ways how to accomplish Capability Targets.

FSSC Speakers – alphabetical order

A soldier, associated into a manoeuvre unit, is decisive player across the battlefield. Increase of interoperability between dismounted infantry and armoured vehicles is crucial factor for success.

The main development projects supporting our goal and potential requirements for the armament industry are also outlined.



prof. Jiří Militký, Msc., PhD, EURING, FEA
Head of Department of Material Engineering, Faculty of Textile Engineering
Technical University of Liberec



How Can Textiles Meet Requirements of Future Soldiers?

The main aim of this contribution is presentation of basic requirements of future soldiers' uniform from point of view of textile technology possibilities and real potential developments in area of smart textiles and new materials. Majority of prognosis of future uniforms are till yet based on too optimistic extrapolation of currently existing scientific achievements without correct description of both pros and cons. The aspects of durability, maintenance, aging and influence of external conditions (mainly weather) are not discussed. In this contribution the aspect of comfort especially in extreme weather conditions, electromagnetic shielding and thermal signature reduction, C/B protection, antimicrobial protection, reducing flammability, self-cleaning potential and wearable electronics will be comprehensively discussed. The forecasts based on the knowledge of limitations of known solutions will be proposed as well.



Mr. Corneliu Ioan Mitoiu
Business Development Director
Seyntex NV



Columbus® the Soft Ballistic Protection of the Future!

Co-presentation with Mr. Bart de Lombaerde

Columbus® is the latest development in the soft ballistic protection from Seyntex NV. It is the lightest, the thinnest and most flexible solution including bullet, knife and spike protection according to European and American standards.



MAJ Shadman Sipar Ocean
Bangladesh Army



Towards Developing a Cost-effective Advanced Battlefield Command System in Reaching the Future Soldier Systems

Co-authors: MAJ Md Faruk Hussain Khan, MAJ Muhammad Nazrul Islam, LTC Md Abdur Razzak, COL A B M Humayun Kabir

The structure and thoughts of 'Future Soldier Systems' is rapidly changing with the evolution of new technologies. Military budget is increasing every year with the advancement of technologies. To equip the military forces, almost every country spends a lion share of her national budget. In this project, we tried to design and develop a prototype of 'Future Soldier Systems' focusing on battle command system by incorporating an indigenous advanced combat helmet, which will be used by the frontline troops. The proposed system will use both the data and satellite connectivity. An android based mobile application is developed as part of the proposed system that will help soldiers to get the necessary information about first aid kit, field manuals, weather forecast, translation navigation services. Special consideration is emphasized on power management to make the system more sustainable in any rough terrain. Using the proposed system, commander in different tiers will be able to visualize the actual picture of the battle field through live streaming, which in turn will help them in the process of decision making about battle field. Cost effectiveness is considered in all aspects of the proposed system. The proposed system may be a good option for the soldiers of developing countries.



Dr. Jiří Plachý
Head of CCDO Group
Military Research Institute, s.e.



Natural Background of Electro-Optical Signatures

Measurement of electro-optical signatures of natural backgrounds is part of solution of CZE research project for general purpose camouflage pattern of BDUs. This project will solve new patterns effective in VIS and NIR part of electromagnetic spectrum and includes evaluation of current status within CZE and on the world as well, proposals of new patterns, lab and field measurements with lab samples and field BDUs, proposals of CZE military standards etc. The results from the project can be used by the CZE Ministry of Defence and armed forces for new decisions and preparation for producing of new BDUs.

FSSC Speakers – alphabetical order



COL Karel Řehka
Director Special Forces
Ministry of Defence - General Staff



Technology and Industry from the Czech SOF Perspective

Czech Special Forces recently underwent their own transformation and are working on new capabilities. Today's constantly developing strategic and operational environments require new approaches to operational use of technology. That applies to both asymmetrical and conventional conflicts. Czech Special Forces represent a unique customer. Their cooperation with the defense industry poses numerous challenges but it offers some unique opportunities as well. The aim of the presentation is to explain what is unique about Czech SOF from the perspective of technology and industry and to offer some ideas on potential future requirements.



Dr. Karl-Heinz Rippert
Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBW)
German Armed Forces



Next Update of Infanterist der Zukunft - Extended System

The follow-up procurement of the German dismounted soldier program „Infanterist der Zukunft – Extended System (IdZ-ES)“ in the new platoon configuration will be briefed. A short overview of the system will be given, covering clothing, protection weapon and sensors and C4I subsystems. Improvements, changes and residual gaps as well as the way ahead will complete the briefing.



Mr. Jonathan Russell
Chairman NATO LCG/DSS/HBS Head Borne Systems Team of Experts
NATO LCG DSS Working group



Trends and Challenges of Head Borne Systems

The soldier is increasingly expected to carry heavy loads distributed across the platform, with real-estate on the head limited, and maximum load on the head even more constrained.

However, the increasing trend is for the soldier as a platform becoming power and data enabled, with the head zone playing a major part in providing the chassis for a number of head-borne sensors and other equipment. Paramount to design is good physical integration and open-systems architecture to mitigate burden and allow ease of interoperability across the platform.

To aid the development of requirements, the UK has developed a concept demonstrator: Helmet As A Platform (HAAP) using the Generic Soldier Architecture.

The presentation will address what NATO defines as a head borne system, what is occurring across NATO, what head borne systems trends and challenges are, as well as what the future may look like.



Dr. Emiel Tijs
Scientist
Microflown AVISA



PALS, a Man-wearable Personal Acoustic Localization System

Networked arrays of stationary ground based Acoustic Multi-Mission Sensors are fielded in several (NATO) countries for the simultaneous localization of gunshots and rockets/artillery/mortars.

As far as installation on moving platforms is concerned, arrays on both ground vehicles and tactical drones are currently being introduced, leaving the dismounted soldier as a platform unaddressed.

Co-funded by the Netherlands Ministry of Defense, Microflown AVISA started the development of a walking array, considering several challenging requirements.

From the dismounted soldier's perspective, low size, weight and power are absolute "musts". In addition, the sensors should comply with IP 67 standards to withstand immersion and dust. Furthermore, a network of sensor nodes is needed in challenging acoustic scenarios with reflections from buildings and other obstacles that can bias a single sensor node.

As a result of these requirements, a self-contained so-called mini-AMMS has been developed with adequate size, weight, and power consumption. The mini-AMMS is equipped with networking and geo-referencing capabilities to enable communication between nodes and capture the relative sensor position and orientation.

A networked 'walking' array of these mini-AMMS's has been tested against small arms live firing in open field conditions in September 2016. This paper presents the underlying technology, the results of this test, and an outlook on future developments.

Authors: Dr. Ing. Emiel Tijs, Ivan Artamonov, Msc., David Cabo, Msc., Charlie Dufort, Msc., Microflown AVISA, the Netherlands

FSSC Speakers – in alphabetical order



Dr. Frank Tobias
Product Specialist
W.L. Gore & Associates GmbH



Field Proven, Battle Tested. GORE Fabrics Play a Vital Role in the Development of Protective Equipment

We continue to pioneer fabric technologies that enhance mission performance by extending the range of utility in changing temperatures and environments.

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New technological advancements such as PYRAD® for heat and flame protection and chemical and biological (CB) protection are an integral part of systems, designed to meet military requirements



BG Thomas H. Todd III
Deputy Commanding General of the U.S. Army Research, Development and Engineering Command (RDECOM)
Commanding General, Natick Soldier Systems Center (NSSC)
U.S. Army



US Army Research and Development Command: Structure and Missions.

In an austere funding environment, RDECOM must partner with our foreign partners and leverage their intellectual capital and research capabilities. Our allied partners, with their leading-edge scientific research, will significantly contribute to advancements that further enable and improve our capabilities together. RDECOM's international strategy has four fundamental goals. First, RDECOM can broaden the technology ecosystem to generate new ideas from a multitude of sources. Second, we start the process of building interoperability with our allies at the beginning of technology development. Third, working together improves our partners' capabilities simultaneously with our own. Lastly, we can maximize our visibility of technology development worldwide to avoid technology surprise on the battlefield. Many tools are available to meet these ends which include: Government-to-Government information sharing, collaborative projects between the U.S. and one or more foreign partners, the temporary exchange of scientists and engineers, and funding of academic seed projects



Dr. Tatjana Topalovic
Director R & D
TenCate



Next Generation Protective Fabrics for Military Uniforms

The military continuously requires new modifications and improvements in its uniforms that are functional, but also overcome the climatic conditions and protect against various threats and hazards (including flash fire) during their mission. In order to meet these criteria, uniforms need to integrate high-performance protective fabrics that offer excellent protection, increased breathability, and superior mechanical properties in a variety of environments. The next-generation TenCate Defender™ M protective fabrics are the result of forward-thinking research and development, rigorous testing and state-of-the-art manufacturing processes, as well as an understanding of the hazards soldiers have to face in practice. These fabrics incorporate the most significant enhancements to PPE in recent years. Exceeding all expectations, they are at the forefront of industry innovation, offering exceptional levels of heat and flame protection, while guaranteeing comfort and durability.



MG Tomáš Tuhý
Police President
Police Presidium of the Czech Republic



Welcome Speech



MAJ Stephen Wagener
Future Soldier Modernisation
Australian Army Headquarters



Modernisation of the Australian Soldier

New ideas required: How we define and frame a problem, determines how we solve it. **System goal:** Overmatch without overburden.

FSSC Speakers – in alphabetical order

Project Outcome: Technical and human performance overmatch against the most likely and most dangerous threats.

The Challenge: The Soldier system is a 'Human Platform' equipment replacement only maintains parity. Human performance issues and 'whole of system' design must be addressed up front, not after equipment acquisition. Improved human performance requires direct (capital) investment in the education and training function. The Australian 'Soldier System Program' seeks to integrate multiple lines of effort to deliver a decisive capability advantage.

'Human System Integration' is worth the effort: A difficult task led by Diggerworks and our Defence Scientists.



Dr. Max Winkelmann
Scientist
Research Institute FhG IOSB



Adaptive Camouflage – the EDA Project ACAMS

ACAMS is a one year feasibility study with the main objective to transform novel and promising advances in materials and textile technologies into a suggestion of an adaptive camouflage concept for the dismounted soldier. The activities include threat analysis, scenario development, cost and production analysis and evaluation techniques. The innovative aspect is the combination of competences in materials and components with military aspects, system integration, evaluation and industrial production. The results from the project can be used by armed forces while setting requirements, assigning development programs and assessing new commercial products coming to the market. To demonstrate the investigated technologies, a "proof of concept" in the shape of a poncho is produced and shown by the project team. The poncho is, however, not intended for operational use. Suggestions for a follow-on-project developing the "proof of concept" into a demonstrator are given.

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FSSC Programme

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
08:30 – 17:00	Registration	
09:00 – 09:15	Poster Sessions	
09:30 – 10:00	Introductory Remarks and Welcome Speech - Ms. Jana BARANČICOVÁ - FSSC Chairperson, Vice-chairperson NATO LCG DSS/CCIEP WG; Logistics Agency, Logistic Materiel Supply Center Brno, Dept. For Technical Specifications, CZE	
	Welcome Speech - MG Tomáš TUHÝ - Police President, Police Presidium of the Czech Republic, CZE	
10:00 – 12:20	SOLDIER AND SPECIALIST SYSTEMS Moderated by: Mr. Stanislav MOKRÝ	
10:00 – 10:20	The Concept of Land Forces Development in Light of Security Environmental Changes COL Zdeněk MIKULA - Head of the Mechanized & Infantry Department, Capability Development and Planning, Ministry of Defence - General Staff, CZE	
10:20 – 10:40	US Army Research and Development Command: Structure and Missions BG Thomas H. TODD III - Deputy Commanding General of the U.S. Army Research, Development and Engineering Command (RDECOM); Commanding General, Natick Soldier Systems Center (NSSC), USA	
10:40 – 11:00	NATO Land Capability Group - Dismounted Soldier Systems (LCG DSS) and its Sub Groups MAJ Magnus HALLBERG - NATO LCG DSS Vice-Chairman; Project Manager Soldier Equipment, Land Warfare Centre, SWE	
11:00 – 11:20	Coffee Break & Networking	
11:20 – 11:40	Soldiers - Core of Military Capability Gold Partner Presentation - Mr. Jonathan D. LONG - Global Innovation Manager, INVISTA Stand No. 306	
11:40 – 12:00	EDA Activities in Soldier System Domain / Standard Architecture for Soldier Power System Mr. Marek KALBARCZYK - Project Officer Land Systems Technologies, EDA Mr. Jasper GROENEWEGEN - Specialist Energy Storage DNV GL – Energy, NLD	
12:00 – 12:20	New Trends in the Field of the Equipment of the Police / New Trends in Diving and Diving Equipment within Police Force of the Czech Republic COL Martin HRINKO - Public Order Police Directorate - Director, Police Presidium of the Czech Republic, CZE CAPT Petr BLATNÝ - Chief Commissioner, D.S.D.A.T. Diver/Lector, Police Presidium of the Czech Republic, CZE	
12:20 – 13:10	Lunch Break & Networking	
12:50 – 13:05	Poster Sessions	
13:10 – 16:50	SOLDIER SYSTEMS: PROJECT UPDATES AND SOLDIER PROTECTION (UNIFORMS, BODY ARMOUR, CAMOUFLAGE) Moderated by: Mr. Stanislav MOKRÝ	
12:20 – 13:10	Lunch Break & Networking	
12:50 – 13:05	Poster Sessions	
13:10 – 13:20	„Future Soldier Systems – Needs for New Technologies / - in the Context of EU Defence and Security Armaments Projects“ - TBC GEN Mikhail Kostarakos - Chairman of the European Union Military Committee, EU	
13:20 – 13:40	Next Update of Infanterist der Zukunft - Extended System Mr. Karl-Heinz RIPPERT - Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBW), Koblenz, DEU	
13:40 – 14:00	Trends and Challenges of Head Borne Systems Mr. Jonathan RUSSELL - Chairman NATO LCG/DSS/HBS Head Borne Systems Team of Experts, GBR	
14:00 – 14:20	Columbus@ the Soft Ballistic Protection of the Future! Industry Presentation - Mr. Corneliu Ioan MITOIU - Business Development Director, SEYNTEX Mr. Bart De LOMBAERDE – R & D Ballistics Expert, SEYNTEX Stand No. 322	
14:20 – 14:40	Nordic Combat Uniform Project Mr. Torstein Espolin JOHNSON - Chairman NATO LCG/DSS/SCAG Soldier Capabilities Analysis Subgroup; Project Manager, Norwegian Defence Materiel Agency, NOR MAJ Magnus HALLBERG - NATO LCG DSS Vice-Chairman; Project Manager Soldier Equipment, Land Warfare Centre, SWE	
14:40 – 15:00	Field Proven, Battle Tested. GORE Fabrics Play a Vital Role in the Development of Protective Equipment Silver Partner Presentation - Mr. Frank TOBIAS – Product Specialist, W.L. Gore & Associates GmbH	
15:00 – 15:20	Coffee Break & Networking	
15:20 – 15:40	Next Generation Protective Fabrics for Military Uniforms Industry Presentation - Mrs. Tatjana TOPALOVIC - Director R & D, TenCate Stand No. 347	
15:40 – 16:00	Natural Background of Electro-Optical Signatures Mr. Jiří PLACHÝ - Head of CCDO Group, Military Research Institute Brno, CZE	
16:00 – 16:20	Adaptive Camouflage – the EDA Project ACAMS Mr. Max WINKELMANN - Scientist, Research Institute FhG IOSB, DEU	
16:20 – 16:40	Assessment Methods for Camouflage in Operational Context Mr. Hans KARIIS - Department of Electrooptical Systems, Defence Research Agency, SWE	
16:40 – 16:50	Chairperson's Closing Remarks - Ms. Jana BARANČICOVÁ - FSSC Chairperson, Vice-chairperson NATO LCG DSS/CCIEP WG; Logistics Agency, Logistic Materiel Supply Center Brno, Dept. For Technical Specifications, CZE	

FSSC Programme

Friday, 21 October 2016		PVA EXPO Praha, Hall 2
08:30 – 12:50	Registration	
09:00 – 09:15	Poster Sessions	
09:30 – 09:40	Introductory Remarks - Ms. Jana BARANČICOVÁ - FSSC Chairperson, Vice-chairperson NATO LCG DSS/CCIEP WG; Logistics Agency, Logistic Materiel Supply Center Brno, Dept. For Technical Specifications, CZE	
	Welcome Speech - COL Vendulka HOLÁ - Deputy Managing Director and Director of the International and Public Relations Division of the General Directorate of Customs, CZE	
09:40 – 12:00	SOLDIER SYSTEMS: MODERNISATION, WAYS AHEAD, SIMULATIONS Moderated by: Mr. Stanislav MOKRÝ	
09:40 – 10:00	Technology and Industry from the Czech SOF Perspective COL Karel REHKA - Director Special Forces, MoD, CZE	
10:00 – 10:20	PALS, a Man Wearable Personal Acoustic Localization System Industry Presentation - Mr. Emiel TIJS - Scientist, Microflow AVISA Stand No. 344	
10:20 – 10:40	Modernisation of the Australian Soldier MAJ Stephen WAGENER - Future Soldier Modernisation, Australian Army Headquarters, AUS	
10:40 – 11:00	Coffee Break & Networking	
11:00 – 11:20	Towards Developing a Cost-effective Advanced Battlefield Command System in Reaching the Future Soldier Systems MAJ Shadman Sipar OCEAN - Bangladesh Army, BGD	
11:20 – 11:40	NATO Capability Roadmap Areas LTC (Ret.) Richard MÁCHA - Czech National Armaments Director Representative, Permanent Representation of the Czech Republic to NATO, CZE	
11:40 – 12:00	Future Live Training for the Czech Armed Forces Industry Presentation - Mr. Enrico GROSSMANN - Senior Sales Manager of Simulation and Training Division, Rheinmetall Defence Electronics	
12:00 – 13:00	Lunch Break & Networking	
12:30 – 12:45	Poster Sessions	
13:00 – 14:10	SOLDIER SYSTEMS: SOLDIER PROTECTION (UNIFORMS, WEAPONS, CAMOUFLAGE) Moderated by: Mr. Stanislav MOKRÝ	
13:00 – 13:20	Testing of Small Arms Ammunition - Substitute Targets LTC Luděk JEDLIČKA - Head of Ballistics and Ammunition Group, University of Defence, CZE	
13:20 – 13:40	How Can Textiles Meet Requirements of Future Soldiers? prof. Jiří MILITKY - Head of Department of Material Engineering, Faculty of Textile Engineering, Technical University of Liberec, CZE	
13:40 – 14:00	The Possibilities of Hyperspectral Imaging for Improving of Validation of Superficial Quality of Spectral Features of Camouflage Surfaces CPT Jaroslav KREJČÍ - Senior lecturer of Department of Weapon and Ammunition, University of Defence, CZE Co-Authors: LTC Teodor BALÁŽ, Mr. Adam JOBÁNEK, MAJ František RACEK	
14:00 – 14:10	Conference Closing Remarks - Ms. Jana BARANČICOVÁ - FSSC Chairperson, Vice-chairperson NATO LCG DSS/CCIEP WG; Logistics Agency, Logistic Materiel Supply Center Brno, Dept. For Technical Specifications, CZE	

Designated time for a presentation includes time for questions from the audience.
The order of speakers and timings may be changed.



FSSC Poster Sessions

Future Soldier Systems Conference (FSSC)

FSSC: Poster presenters to be present (Time noted / recommended in programme) : 20OCT : 09:00 - 09:15; 12:50 - 13:10 / 21OCT : 09:00 - 09:15; 12:30 - 12:45



Portable Line Illumination Systems

Mrs. Dana KŘEMENÁKOVÁ - Dept. of Material Engineering, Textile Faculty, Technical University of Liberec, CZE
Portable Line Illumination Systems

The main aim of this contribution is description of side emitting plastic optical fibers (SEPOF) basic properties and their efficient embedding into fibrous structures for creation of line illuminating textile structures with active visibility in shadows. Line illumination system is composed from SEPOF in fibrous tube, light emitting diode (LED) and rechargeable battery with control unit. These systems can be used for some applications where the standard lighting is not efficient or impossible: • Silhouette visualization in the dark conditions for active visibility of persons, objects, and animals. • Temporary security and emergency lighting systems. • Temporary setting of limits or bounding of space (parking barriers, runways). • Illumination in remote areas without access to electricity



Thermal Insulation Layers for Extreme Cold Weather Conditions

Mr. Rajesh MISHRA - Dept. of Material Engineering, Textile Faculty, Technical University of Liberec, CZE

Protection of soldiers in extreme cold weather conditions (temperatures below 25oC and severe wind) requires the construction of efficient thermal insulation layers used as part of their uniforms. For design purposes, it is necessary to specify suitable fiber type, construction of layers and their required thickness. Perpendicularly laid nonwoven structures of new ROTIS type can be prepared in tailor made variation of porosities and thickness due to changing of amplitude and density of "waves". The proper selection of porosity and fiber fineness is important as well. The combination of active layers e.g. fibrous nano-assemblies with embedded aerogel particles by ROTIS technology will be presented. New device for measurement of total insulation in extreme cold conditions will be used for optimal thermal insulation layers design.



Textile Structures with Electromagnetic Shielding Ability

Ms. Veronika TUNÁKOVÁ - Dept. of Material Engineering, Faculty of Textile Engineering, Technical University of Liberec, CZE

In recent years, conductive fabrics have obtained increased attention for electromagnetic shielding and anti-electrostatic purposes. This is mainly due to their desirable flexibility and lightweight. One way how conductive fabrics can be created is by using electrically conductive fibers. Second very promising possibility is to use fibers with deposition of metallic layer on their surface. In this lecture, the twill 2/2 woven fabrics with different content of conductive component (Inox staple fibers) in hybrid polypropylene yarns and thin, ultra lightweight and highly porous nonwovens with surface coating by copper, are investigated. The dependence between electric conductivity and EM shielding efficiency are quantified. It is experimentally proven that designed fabrics with increased resistivity to electromagnetic radiation fulfill requirements of thermo-physiological comfort for wearing.



Promesogenic Photosensitive Ligands for Magnetic Nanoparticles Modification

Ms. Anna PORYVAI - Ph.D. Student, University of Chemistry and Technology Prague, CZE

Combination of magnetic nanoparticles (NPs) and liquid crystalline matrixes (LCM) gives rise to new metamaterials, which are of high interest because of their unique properties (negative permittivity, permeability or refractive index) and can be used for the construction of ideal lenses or new advanced ferroelectric LCDs.

Stable colloidal systems are achieved by using NPs modified with various types of promesogenic/mesogenic ligands (ranging from amines and thiols to carboxylic and phosphonic acids.). Additional surfactant usage leads to the significant changes in the ligands topological arrangement, what negatively affects metamaterials properties or also causes surfactant desorption from the NPs surface leading to the LCM contamination.

Herein, we have designed and synthesized new promesogenic chiral photosensitive ligands, which are used not only to stabilize nanoparticles in the matrixes, but also to "switch off" the mesomorphic behaviour of the bulk composite upon UV-irradiation.

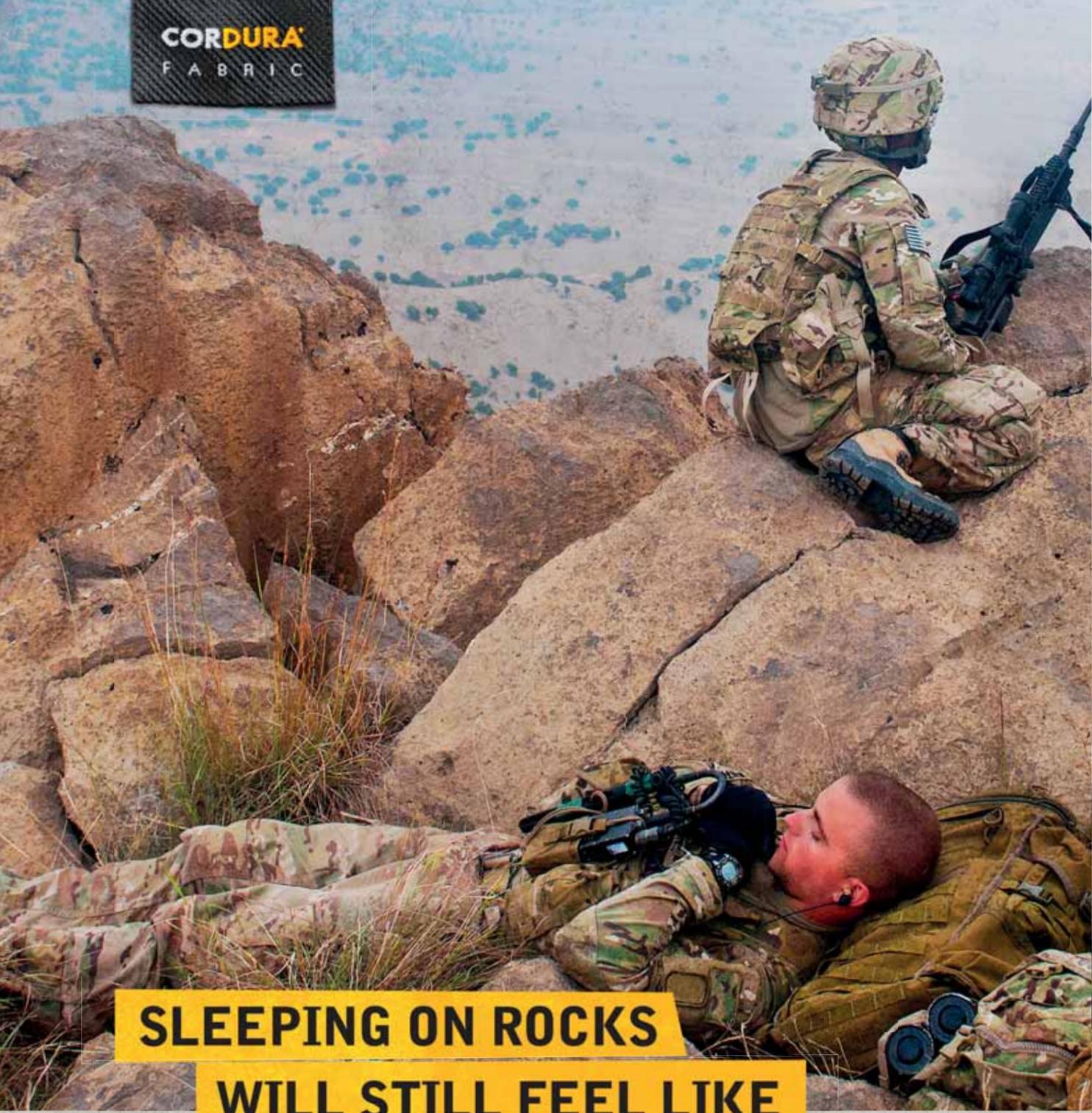


Low Bit-rate Coded Speech Intelligibility – Comparison of Laboratory Test Results and Results of Test with Parallel Task

Mr. Jan HOLUB - Faculty of Electrical Engineering, Head of Dept. of Measurement, Czech Technical University in Prague, CZE

A special subjective intelligibility test design and results are reported. The same sample set has been tested twice using Modified Rhyme Test (MRT) [1] method, first in regular laboratory environment conforming to ITU-T P. 807 [2] or ANSI/ASA S3.2 [4]. The second test run is performed with parallel task [3], loading the subjects with both mental and physical load simulating more realistic field environment. The results are compared not only in terms of their reliability and statistical parameters but also with respect to their practical consequences and potential applications.

In total, 48 test subjects have participated in the test. The tested conditions are car (HMMWV) cabin noise at different levels as the background noise, the coding used is Mixed Excitation with Linear Prediction/Enhanced (MELPe) [5],[6] operated at 2.4 kbit/s. The results indicate interesting opposite pair rankings of results for laboratory and simulated field environments for certain conditions, thus justifying the need for further research and standardization of dual-task based subjective tests.



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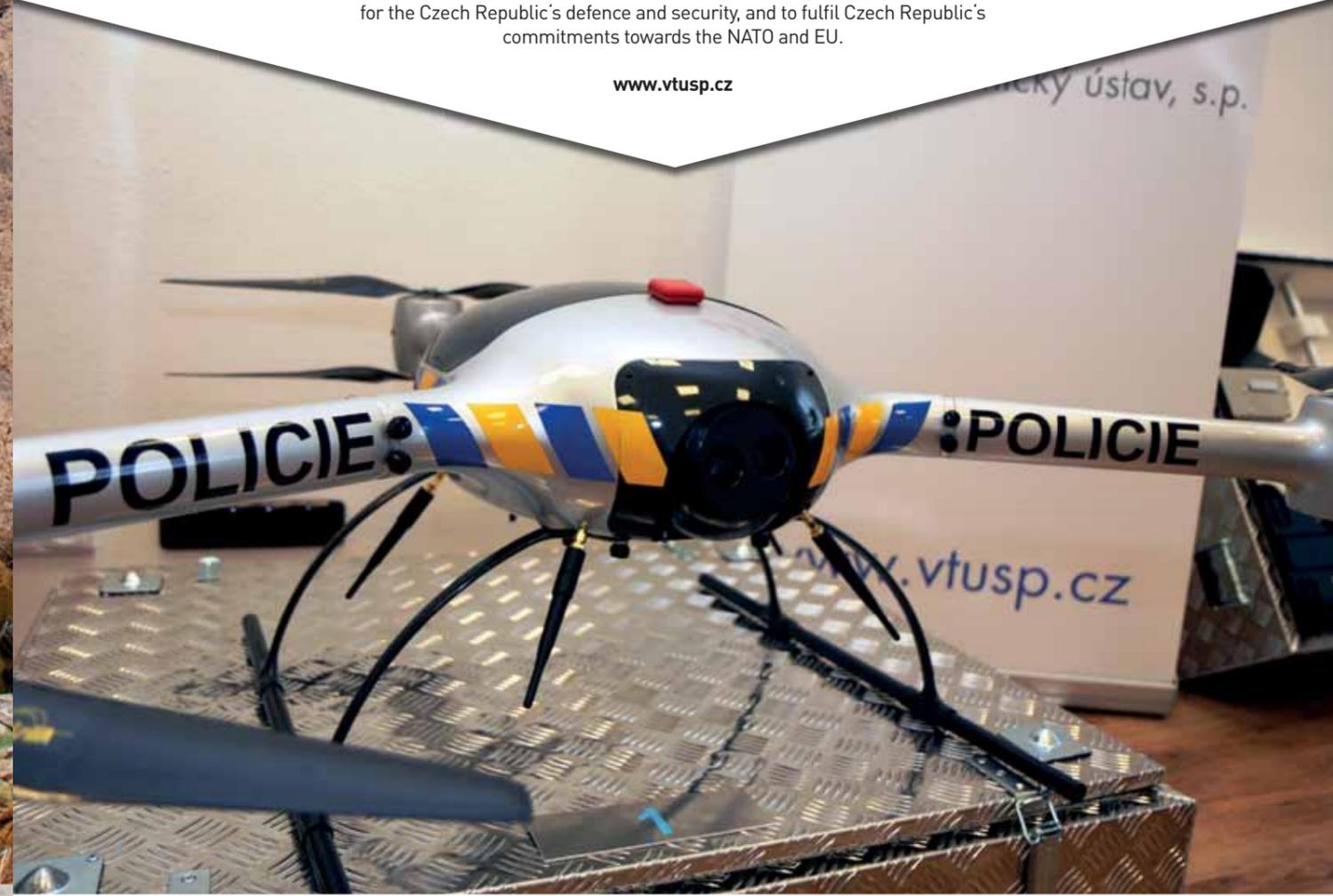


Vojenský technický ústav, s. p.

Vojenský technický ústav je státní podnik založený Ministerstvem obrany ČR za účelem poskytování strategických dodávek a služeb potřebných pro zajištění obrany a bezpečnosti České republiky a plnění závazků vyplývajících z členství České republiky v NATO a EU.

The Military Technical Institute (VTÚ , s. p.) is a state-owned enterprise established by the Ministry of Defence of the Czech Republic with an aim to deliver strategic supplies and services vital for the Czech Republic's defence and security, and to fulfil Czech Republic's commitments towards the NATO and EU.

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As of September 2015

MARS Speakers – in alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



prof. Ronald C. Arkin
Regents Professor & Director of the Mobile Robot Laboratory, Associate Dean for Research & Space Planning, College of Computing
Georgia Institute of Technology



Robots that Need to Misperceive: Biologically-inspired Machine Deception

Expanding our work in understanding the relationships maintained in teams of humans and robots, this talk describes previous and ongoing research for the Office of Naval Research on deception and its application within robotic systems. Earlier we explored the use of psychological interdependence theory as the basis for producing deceit in robotic systems in order to evade capture. More recent work involves studying squirrel hoarding and bird mobbing behavior as it applies to deception, in the first case for misleading a predator, and in the second for feigning strength when none exists. Results are presented from these biological models in both simulation and robotic systems, as well as consideration of the ethical implications of this research.



MG Paul Benenati
Deputy Chief of Staff
U.S. Army Training and Doctrine Command (TRADOC)




prof. Agostino Bruzzone
President of Simulation Team & MIPET Full Professor, DIME
University of Genoa



New Challenges and Missions for Autonomous Systems operating in Multiple Domains within Cyber and Hybrid Warfare Scenarios

Autonomous Systems are quickly evolving in many different domains and applications; indeed their achievements are already valuable in terms of saving, safety, persistence etc.; indeed the expectations about the related future capabilities result even more impressive even if several goals will require further years for being fully achieved.

Currently, the presence and missions of Autonomous Systems are quickly evolving, not only in defense, but also in civil applications. Due to all these reasons, Autonomous Systems are exponentially proliferating within urban areas and over different domains turning into a crucial elements respect new scenarios. In particular these aspects are relevant respect the “cyber warfare” and “hybrid warfare”. These new kinds of conflicts are really strongly influenced by intensive presence of autonomous systems and they require sophisticated interoperable simulation to be investigated. So it is evident that creating models reproducing multi domains and interactions respect these complex scenarios is a strategic advantage to address the future; Hybrid warfare as cyber defense need to be addressed scientifically and understood by using M & S in order to evaluate shortfalls as well as to support new policies development and new capabilities definition. So this presentation focuses on proposing Models for this context. The presentation proposes Case Studies where the Autonomous Systems interoperate over multiple domains in simulation experiments allowing to evaluate the impact of actions on the cyber layer and the “hybrid warfare” impacts and vulnerabilities of modern Societies.



MG John W. Charlton
Vice Director for Joint Force Development
US Joint Staff J7



The Challenge of Autonomous Systems for Future Force Development

MG Charlton will present autonomous systems as a tremendous opportunity for the U.S., allies, and partners to gain and maintain operational advantage, enhance conventional deterrence, and reduce risk to warfighters. The keynote will address three general U.S. approaches to future force development in the field of autonomous systems. First, the Joint Concept for Robotic and Autonomous Systems provides a conceptual framework for force development, which will also inform the development of U.S. policy. Second, autonomous systems development in the near-term will emphasize systems that can reduce avoidable risks to warfighters. Third, the U.S. is developing capabilities to address vulnerabilities of autonomous system in the cyber domain, which serve as the foundation for any sustainable advantages in the use of autonomous systems. The general will conclude that autonomy offers the potential to make warfare more humane, but will require a cooperative, proactive, and deliberate effort on the part of the U.S., partners, and allies.



Mr. Tomáš Čoček Dipl. Eng., Ph.D.
1st Deputy Minister - State Secretary
Ministry of Transport



Drones - Opportunities and Challenges – Aviation Authority Perspective

Background:

Aviation authorities in the Czech Republic, EU and other countries alike are confronted with dynamic qualitative and quantitative development in the area of unmanned aircraft (drones). Extremely broad scope of drones – from miniature toys to sophisticated aircraft such as RQ-4 Global Hawk - represent great opportunities but at the same time big challenge for regulators.

Summary of issues:

Similarities and differences between operation of traditional aviation and drones are assessed and conclusions drawn. Need for balanced and innovative approach to regulation is advocated. Different values and interests at stake are identified and addressed. Experience of the Czech Republic concerning regulation of drones is summarized and assessed including its strong and weak points. Anticipated impact of the new emerging EU regulation for drones is evaluated and preferences and suggestions in this respect explained. A need to take into account interest of both civil and military/security domains and to interconnect them is addressed.

Conclusion:

Recent trends and experience should be analyzed and concrete priorities and actions should be identified and taken in order to balance needs of industry, operators and state agencies on the one hand and safety, security and privacy issues on the other hand. Various instruments should be taken into consideration.



Mr. Jan Dvořák Dipl. Eng.
Head of the Electrical Department
VOP CZ, s. p.



Autonomous Functions of TAROS – Tactical Robotic System

TAROS V2 (in configuration 6x6) is being tested and developed especially in advanced autonomous functions. The main target of development is to have a fully automated vehicle with orientation in urban environment and in the rugged terrain.

Advanced autonomous functions we are working on now:

Waypoint navigation – uses the GNSS modules – autonomous driving a vehicle along defined coordinates, repeating of previously learned routes, abilities to follow the routes learned by another robotic device which uses the same GNSS modules.

Anti-collision system – uses LMS system to detect obstacles – a laser detection of near collisions in the direction of the vehicle travel on a planar ground and in simple situations.

Follow me - enables navigation of the vehicle so that the vehicle follows a person (object) in a predetermined distance.



Dr. Robert Finkelstein
President
Robotic Technology Inc.



Autonomous Cars: Opportunities and Threats for the Military

The advent of commercially feasible autonomous cars and trucks is imminent, by 2020 or so. This disruptive and transformational technology will have profound effects on the military, the automotive industry, and society.

We will discuss the opportunities for the military from the commercial availability of autonomous cars and trucks and how they might affect doctrine, strategy, and tactics. We will examine the emerging threats arising from commercially available autonomous vehicles, especially from non-state adversaries, and we will consider prospective countermeasures.

MARS Speakers – in alphabetical order



Dr. Dimitrios Gkritzapis D.N.
Chief of Police
Hellenic Police - Special Police Forces Division – UAVs department



UAVs Applications for Border Surveillance (Maritime and Land)

Co-presentation with Mr. Zacharias SARRIS

“Surveillance and control of land and maritime borders has become a key issue for European Union and needs to be addressed through a political, social, operational and technological perspective.

The large size of the European maritime borders, as well as the diverse nature of the land borderline, present multifaceted challenges related to ensuring their efficient and effective monitoring and control by EU authorities.

Counteracting security threats such as illegal immigration, smuggling, trafficking and terrorism, requires a strong European cooperation between competent public agencies and demands EU initiatives in the use of available technology and practices. The competence of UAVs in Intelligence Surveillance and Reconnaissance missions has been proven over the past decade in the military and defence terrain and now the time has come for them to prove their capabilities in law enforcement and security applications.

The aim of this presentation is to provide an insight to the practices and conclusions derived from the use of unmanned systems in border surveillance applications and provide a concept of operations in both tactical and strategic levels for UAS missions in support to EU Border Surveillance”.



Mr. Martin Hill
Chairman of NATO Industrial Advisory Group, Senior Consultant for Thales for NATO and EDA



Generic Policies and Actions we Need Address today to Ensure we have the Knowledge, Skills and Infrastructure Produce Advanced Systems in the Future



Early industry engagement in capability development. Industry has consistently requested to be allowed to make early inputs to NATO capability development. Typically industry advice on technology roadmaps, investment choices and industrial partnership can affect the timing and scope of future requirements. There has been some reluctance from NATO to allow this as differences in national rules mean some nations are opposed. Some nations do not accept that industry has valid inputs in the early stages.

Discussion point: Can we define the content of industry inputs that will be acceptable to nations and be within existing national regulations?

Defence Technology and Industrial Base (DTIB). Lack of investment in defence R & T and in programmes is eroding the DTIB. Investment several decades ago gave us the lead in technologies, skilled people and sophisticated systems on which today’s capabilities are built. If we do not invest today we will not be able to produce the required level of capability in the future.

Discussion Point: How can nations be persuaded to invest in spite of other national budget priorities? Can NATO/EU relations be developed to allow complementary investments? Are there new challenges that might persuade nations to increase investment?

Defence Programmes. The gestation and execution of defence programmes is very slow and tortuous. From an industry perspective this adds significantly to risk and cost and means that only the largest companies can afford to participate. There are many companies who decide not to participate at all. This is especially true for non-traditional defence industry although their inputs, especially in the IT and cyber domain, may be vital.

Discussion Point: How do we engage with industry at a senior level about programmes to ensure senior executives support the investment needed? How do we engage with senior executives from non-traditional companies?

Cooperation (including Transatlantic Defence Cooperation). Cooperation is necessary to avoid duplication in research programmes, to achieve economies of scale in production and to ensure effective support in operational environments. Cooperation has to consider the institutional environment, regional cooperation, European cooperation and Transatlantic cooperation.

Discussion point: Defence export regulation, technology sharing, work share, imbalance of investment between nations, security of supply.



Dr. Thomas H. Killion
Chief Scientist
NATO Science and Technology Organization



More Autonomous Systems

This presentation will discuss the increasing use and capabilities of unmanned systems in military operations. The title is purposefully ambiguous, to cover both the proliferation of unmanned systems across multiple operational domains (air, sea, land) and the increasing level of autonomy inherent in these systems. In addition to addressing the expanding application of unmanned systems, there will be a discussion of some of the technical challenges associated with future use, particularly in the context of coalition operations.



Dr. Roger Lee King
Executive Director, Institute for Computational Research in Science and Engineering
Mississippi State University



Robot Needs Assessment and Issues Discovered from Tactical SWAT Team Exercises

This paper examines the tactical use of robots by SWAT teams as a surrogate for tactical uses by warfighters in an operational theater. Law enforcement officers encounter similar dangerous, challenging, and unknown environments and situations as part of their responsibilities. This is even more evident for members of Special Weapons and Tactics (SWAT) teams. They are typically called out to serve high-risk arrest and search warrants, to subdue barricaded suspects, to engage with active shooters that may be heavily armed, to rescue hostages, and other similar operations (many tasks similar to urban combat operations). SWAT team officers are trained and equipped with specialized gear that may include assault rifles, breaching equipment, riot control (less-lethal) agents, stun grenades, and sniper rifles. Robots could become a significant force multiplier if SWAT team members are trained with robots and learn their capabilities. This research project explored ways in which robots could be incorporated into a SWAT team as a member of the team and not just another piece of equipment. The project explored potential roles of the robot working with the team and how it could be incorporated in with their existing team model and operations.



prof. Petr Konvalinka
Rector of the Czech Technical University in Prague, Head of the Experimental Centre Faculty of Civil Engineering.
Czech Technical University in Prague



Welcome Speech



Mr. Tomáš Kuchta
Deputy Minister – Head of the Industrial Cooperation and Organisations Management Division
Ministry of Defence



Welcome Speech



Ms. Sabina Lajdová
Security Systems Specialist
Prague Airport



Mitigation Threats from UAS and Possible use of UAS for Perimeter Protection at Specific Civil Airport Conditions

Civil airport perimeter security is based on fences, visual observation and perimeter intrusion detection systems. All these technologies such as electronic fences, near fence detectors (infrared barriers), thermal vision cameras with videoanalysis and even perimeter doppler surveillance radars are designed to detect intruders on ground. New threats were created with the latest technology development that can intrude airplanes in the most critical parts of flight which are take off and landing. When creating a system of UAS threats mitigation at the civil airport we need to respect the air traffic. Anti UAS systems can not disrupt navigation and communication systems used at the airport. This specific conditions of civil airport need to be respected even when using own UAS for perimeter protection.



Mr. Jean Marchal
Project Officer “Experimentation, Systems of Systems, Space, and Modelling & Simulation
European Defence Agency



What „Unmanned“, „Autonomous“ and „Swarm“ could Mean and Implicate Tomorrow for Military Next Generation of Systems?

EDA managed R & T studies on UxV dedicated for each type of environment (air, ground, sea), considering remoted solutions, semi-autonomous or autonomous possibilities. Swarm is another step in the complexity of management of Unmanned Systems that is also studied in some specific areas. But now the global management of various unmanned systems to support military operations has to be imagined. What could be, in the future military capabilities including Artificial Intelligence, the typical system architectures using autonomous UxV tasking and sharing between „unmanned and manned“ actions and decisions? In the framework of the Preparatory Actions to prepare a thematic theme for CSDP-related research in the next Research Framework Programme of the EU, EDA has launched in Sept 2016, a Pilot Project PP-15-INR-01 called „Unmanned Heterogeneous Swarm of Sensor Platforms“ covering such problematic. It is expected to deliver a first level description and specification of future autonomous swarm systems, and foster the convergence of related existing and planned research efforts. The open architecture approach will stimulate further innovation in platforms and devices, with an impact on military products, technologies and systems. The expected disruptive effect is expected to influence the military doctrine (tactics, techniques and procedures) for future 2025 missions.

MARS Speakers – in alphabetical order



Mr. Jiří Nohýl, Ph.D.
Researcher
Military Technical Institute



Air Robotic Vehicles of Military Technical Institute

The Military Technical Institute, state-owned enterprise (VTÚ, s. p.) has more than 30 years of experience in the development and manufacture of aerial robotic systems - UAVs. As an example can be mentioned the SOJKA unmanned aircraft system, developed in 1989-1995, which was subsequently mass produced and served in the Army of the Czech Republic for 12 years. Currently, R & D activities are focused on unmanned rotor universal system (BRUS), intended to facilitate the work of members of security agencies in guarding important objects of interest, special units of the Joint Rescue System, as well as for the benefit of the Army of the Czech Republic. Exclusivity of our control system solutions rests in own hardware and software, with possibility of their development and modification according to the customer's requirements.



Mr. Lukáš Novák, Ph.D.
Special Systems Test Room and Fuel and Lubricants Test Room
Military Technical Institute of Ground Forces, Vyškov



Conception of Using of Unmanned Systems

Presentation is focused on results of KOROBs project, which is solved by VTÚ, s. p. in benefit of Czech army. KOROBs project deals with concept proposal of using of unmanned (robotic) systems in Czech army. The conception includes necessities of Czech army in section of tactical use of unmanned systems and their incorporation into combat and support units of Czech army. Proposed conception includes the appropriate logistical support of unmanned systems and the assumption of needed range and way of military education.



Dr. Earl W. Powers
Research Fellow, Potomac Institute for Policy Studies
Center for Emerging Threats and Opportunities (CETO)



Human – Robotic & Autonomous Systems Teaming (H-RAST) Beyond 2030

The potential exists for robotic & autonomous systems (RAS) to become an integral part of every scenario across the range of military operations (ROMO). H-RAST is the interaction between humans and RAS to perform complex, real-world tasks. In military parlance, this has been known as manned-unmanned teaming (MUMT) and in the civilian world, human-robot interaction (HRI). This close interaction needs new theoretical models to improve the robot's utility and to evaluate the risks and benefits of H-RAST in the future operating environment. Principal issues • RAS will evolve, especially in the commercial sector • RAS will be more capable and autonomous • Quantum computing still far off but computers are exponentially faster and can identify spoken words and analyze big data to learn skills like recognizing photos, understanding natural language, and developing courses of action (COAs) for consideration by commanders • RAS will increasingly supplement, complement, and augment human activities • RAS will be present in all operating environments • RAS will be employed by commercial, civil, hybrid, and military actors Research questions: • How will H-RAST influence the future operating environment? • What H-RAST capabilities will adversaries likely possess? • How will adversary H-RAST affect friendly operations? • What MUMT capabilities should friendly forces possess in order to counter adversary capabilities? • What H-RAST capabilities will neutral parties/non-combatants likely possess? Research methods: Mixed methods research, to include literature review, personal interaction, conference proceedings, and personal interviews. Conclusions: Robotics will continue to revolutionize just about every aspect of military operations but none more than the area of H-RAST. It is imperative that the military begin the important shift to increased use of robotics to ensure that we do not lag our adversaries in this coming capability.



Mr. Paul D. Rogers Ph.D
Director
U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC)



Trends and Challenges in Autonomous Logistics for Future Operations

Autonomy-enabled systems have the ability to provide significant overmatch capabilities in theater operations involving air and ground systems. In the context of an overarching strategic progression of autonomous systems capabilities in the US Army, this presentation will outline mature near-term capabilities such as Leader-Follower Convoy in obtaining assured resupply logistics. The challenges of integrating these technologies into military platforms, the development of modular adaptable kitted solutions, and other examples of demonstrating unmanned systems capability to execute operationally-relevant warfighter scenarios will be discussed. These demonstrations involve both the user community and industrial partners informing the Science and Technology (S & T), combat and materiel developer communities. The role of virtual and physical prototyping in experimentation in technology development and insertion process used by TARDEC, referred to as the Digital Physical Thread, will also be described.



Mr. Milan Rollo, Ph.D.
Researcher, Artificial Intelligence Center
Czech Technical University in Prague



Distributed Control of Heterogeneous Team of Autonomous UAVs

Most field missions are carried out nowadays by remotely piloted aircraft (RPA). With the increasing complexity of these missions and the growing number of aircraft involved, it becomes desirable to use autonomous UAVs. These will take over some of the tasks that are at present carried out by a ground control station (GCS) operator. Autonomous UAVs require UAV control software with greater capabilities. Our system allows distributed control of a heterogeneous team of autonomous UAVs utilizing state-of-the-art AI algorithms for resource allocation and mission execution without direct involvement of a human operator during the planning phase. The system addresses three important considerations: (i) it provides a wrapper for planners and control algorithms, and interfaces them with the underlying hardware (or simulated) infrastructure, (ii) it enables multi-agent communication and negotiation among entities, and (iii) it provides support for heterogeneous asset allocation to tactical mission tasks.



Mr. Zacharias Sarris
Expert in Area of UAVs Research & Development, Systems Integration Activities of Defense, Security and Innovative Technology Programs.
ALTUS LSA



UAVs Applications for Border Surveillance (Maritime and Land)

Co-presentation with Mr. Dimitrios GKRTZAPIS
Surveillance and control of land and maritime borders has become a key issue for European Union and needs to be addressed through a political, social, operational and technological perspective. The large size of the European maritime borders, as well as the diverse nature of the land borderline, present multifaceted challenges related to ensuring their efficient and effective monitoring and control by EU authorities. Counteracting security threats such as illegal immigration, smuggling, trafficking and terrorism, requires a strong European cooperation between competent public agencies and demands EU initiatives in the use of available technology and practices. The competence of UAVs in Intelligence Surveillance and Reconnaissance missions has been proven over the past decade in the military and defence terrain and now the time has come for them to prove their capabilities in law enforcement and security applications. The aim of this presentation is to provide an insight to the practices and conclusions derived from the use of unmanned systems in border surveillance applications and provide a concept of operations in both tactical and strategic levels for UAS missions in support to EU Border Surveillance.



Mr. Christoph Sulzbachner
Senior Engineer
Austrian Institute of Technology



Collision Avoidance

Collision avoidance systems are a key technology for future unmanned aerial systems and advanced air traffic services. It is required to observe and understand the environment in real-time. This approach goes beyond state of the art, making use of novel sensing techniques and route planning strategies for avoidance. The technology is capable to detect both cooperative and non-cooperative objects in the airspace by fusion of passive electro-optical and thermal-infrared and active radar sensors. In addition, existing classical technologies such as Automatic Dependent Surveillance - Broadcast and Traffic Advisory System will be used. This robust detection is the basis for the avoidance strategy and maneuver to avoid a potential collision. It focuses on the last possible conflict phase, where both the procedural and separation phase have failed and an immediate maneuver is the last possibility of collision avoidance.



Mr. Thomas Torjusen
Key Account Manager
Prox Dynamics AS

The Black Hornet – A Life Saver and a Game Changer

The PD-100 Black Hornet® Personal Reconnaissance System™ (PRSTM) is the World's smallest operational Unmanned Air System (UAS) and has been used extensively on combat operations by NATO forces in recent years. The PRSTM is truly a Cargo Pocket-sized solution for the modern warfighter and has become regarded by its users as a "Game Changer" and "Life Saver". The PD-100® PRSTM bridges the gap between aerial and ground-based sensors, significantly enhancing Situational Awareness during both dismounted and mounted operations. Total System weight of only 1.3Kg the PD-100® PRSTM is compact and easily integrated with an operator's personal equipment. The PD-100® PRSTM utilizes nano air vehicles weighing only 18 grams, equipped with EO or EO/IR cameras. The Black Hornet® nano air vehicles are inherently safe, organic and covert, providing users with imagery day and night while remaining undetected.

MARS Speakers – in alphabetical order



Ms. Ina Wanca
Adjunct Professor, John Jay College of Criminal Justice, New York;
Director of Cybercrime Prevention, Crime Commission of NYC



Cybersecurity-Threat and Governance Model for the Use of Autonomous Machines in Built and Connected Environments

The cybersecurity of autonomous agents remains particularly hard to influence because of its nascent state, the rapid trajectory of deployment, and the breadth and diversity of devices; the number of actual and potential vendors, and the lack of international technical standards and operating procedures. The paper identifies and assesses cybersecurity vulnerabilities and the cyber risks of existing autonomous machines deployments to the society. After evaluating ten case studies from the military domain, the author develops appropriate cyber-threat and governance models for the safety use of autonomous agents in built environments. The researcher seeks to engage various government agencies, international institutions, and manufacturers of AI machines to build a sustainable partnership by modifying their political, ethical, security, and economic approaches to AI.



Mr. Jamie A. Williamson
Head of Unit of relations with the Arms Carriers
International Committee of the Red Cross (ICRC)



Advanced Robotics - A Humanitarian Perspective”The Evolution of Warfare: Implications for Humanitarian Action”

With the development of more sophisticated weapons and weapons systems, including autonomous technology, it has been argued that ‘cleaner’ wars may be possible, enabling much more precise targeting and efficient defense weapons systems, and minimizing excessive collateral damage. Armed conflicts could become ‘de-humanized’ in the sense that unnamed weapons, vehicles and drones, and the reach of cyber lessen the involvement of the soldier on the battlefield. The risks with the technological advances are evident. Yet there are also possible opportunities from the humanitarian perspective. If war is to be fought with drones and robots, will the delivery of humanitarian aid follow suit? To what extent will humanitarian agencies be able to benefit from and harness technological advances to deliver humanitarian aid?



UGV TAROS

- For combat and logistical support of mechanized, reconnaissance and special forces
- Modular system in configurations of 4x4, 6x6, 8x8
- Autonomous driving on GPS coordinates
- Autonomous waypoint navigation
- Autonomous driving using a visual navigation system

THE FUTURE IS NOW



Czech Technical University in Prague (CTU) a leading technical research university with a long tradition, located in the picturesque city of Prague.

CTU in Prague is the oldest non-military technical university in Europe, founded in 1707. The University's long tradition of cutting edge science and engineering, together with high-quality technical education, ensues from the work of many great personalities.

Currently, more than 21,000 students are enrolled at eight faculties and five institutes, covering a total of 123 study programmes with 449 fields of study.

The University has built up strong bonds with its industrial partners, including important world-scale players, such as Toyota, Skanska, Bosch, Siemens,

Honeywell, GE, ABB, McKinsey, DaimlerChrysler and Skoda-Volkswagen.

CTU will present the following exhibits:

- Navigation of a hexapod walking robot for robotic information gathering in rough terrain.
- Real-time end-to-end audio/video QOS network simulator.
- Ballistic mobile barriers.
- Distributed control of a heterogeneous team of autonomous UAVs.
- Protection for critical infrastructure.
- Miniature intelligent analyzer of gases.
- Flexiguard.
- Navigation systems.
- The research carried out by the intelligent and mobile robotics group.

PLACE: PVA EXPO PRAGUE – LETŇANY HALL 4, STAND NUMBER 442

CONTACTS

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MARS Programme

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
08:30 – 17:00	Registration	
08:45 – 09:15	Poster Sessions	
09:30 – 09:50	Introductory Remarks and Welcome Speech - LTC Jan MAZAL - MARS Chairman; Deputy Head of Department of Tactics, Faculty of Military Leadership, University of Defence, CZE	
	Welcome Speech - Mr. Tomáš KUČHTA - Deputy Minister of Defence, Head of the Industrial Cooperation and Organisations Management Division, CZE	
	Welcome Speech - prof. Petr KONVALINKA - Rector of the Czech Technical University in Prague, Head of the Experimental Centre, Faculty of Civil Engineering, CZE	
09:50 – 12:30	MORNING SESSION 1 - LESSONS LEARNED, FUTURE TRENDS, CONCEPTS, R & D Moderated by: Mr. Milan ROLLO - Researcher, Czech Technical University in Prague, CZE	
09:50 – 10:10	Drones - Opportunities and Challenges – Aviation Authority Perspective Mr. Tomáš ČOČEK – 1 st Deputy Minister of Transport – State Secretary, CZE	
10:10 – 10:30	More Autonomous Systems Mr. Thomas KILLION - NATO Chief Scientist, NATO	
10:30 – 10:50	The Challenge of Autonomous Systems for Future Force Development MG John W. CHARLTON - Vice Director for Joint Force Development, J7 (Suffolk), US Joint Staff J7, USA	
10:50 – 11:10	Coffee Break & Networking	
11:10 – 11:30	Generic Policies and Actions we Need Address Today to Ensure we Have the Knowledge, Skills and Infrastructure Mr. Martin HILL - Chairman of NATO Industrial Advisory Group (NIAG), Senior Consultant for Thales for NATO and EDA, GBR	
11:30 – 11:50	Conception of Using of Unmanned Systems Platinum Partner Presentation - Mr. Lukáš NOVÁK - Research and Development, Military Technical Institute Stand No. 309	
11:50 – 12:10	Topic TBD MG Paul BENENATI - Deputy Chief of Staff, U.S. Army Training and Doctrine Command (TRADOC), USA	
12:10 – 12:30	Trends and Challenges in Autonomous Logistics for Future Operations Mr. Paul D. ROGERS - Director of U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC), USA	
12:30 – 13:30	Lunch Break & Networking	
13:00 – 13:15	Poster Sessions	
13:30 – 17:00	AFTERNOON SESSION 1 - LESSONS LEARNED, FUTURE TRENDS, CONCEPTS, R & D Moderated by: Mr. Milan ROLLO - Researcher, Czech Technical University in Prague, CZE	
13:30 – 13:50	Human – Robotic & Autonomous Systems Teaming (H-RAST) Beyond 2030 Mr. Earl W. POWERS - Research Fellow, Potomac Institute for Policy Studies, Center for Emerging Threats and Opportunities (CETO), USA	
13:50 – 14:50	Robots that Need to Mislead: Biologically-inspired Machine Deception prof. Ronald C. ARKIN - Regents' Professor & Director of the Mobile Robot Laboratory, Associate Dean for Research & Space Planning, College of Computing, Georgia Institute of Technology, USA	
14:50 – 15:10	Autonomous Cars: Opportunities and Threats for the Military Mr. Robert FINKELSTEIN - President, Robotic Technology Inc., USA	
15:10 – 15:40	Coffee Break & Networking	
15:40 – 16:00	The Black Hornet – A Life Saver and a Game Changer Industry presentation - Mr. Thomas TORJUSSEN - Key Account Manager, Prox Dynamics AS Stand No. 388	
16:00 – 16:20	New Challenges and Missions for Autonomous Systems operating in Multiple Domains within Cyber and Hybrid Warfare Scenarios prof. Agostino BRUZZONE - President of Simulation Team & MIPET Full Professor, DIME, University of Genova, ITA	
16:20 – 16:40	Collision Avoidance Mr. Christoph SULZBACHNER - Senior Engineer, Austrian Institute of Technology, AUT	
16:40 – 17:00	Session 1 Closing Remarks - LTC Jan MAZAL - MARS Chairman; Deputy Head of Department of Tactics, Faculty of Military Leadership, University of Defence, CZE	



Friday, 21 October 2016		PVA EXPO Praha, Hall 2
08:30 – 14:00	Registration	
08:45 – 09:15	Poster Sessions	
09:30 – 09:40	Introductory Remarks and Welcome Speech - LTC Jan MAZAL - MARS Chairman; Deputy Head of Department of Tactics, Faculty of Military Leadership, University of Defence, CZE	
09:40 – 14:15	SESSION 2 – ADVANCED AUTONOMOUS AND ROBOTIC SYSTEMS, ARTIFICIAL INTELLIGENCE, CONTEMPORARY & FUTURE APPLICATIONS Moderated by: Mr. Milan ROLLO - Researcher, Czech Technical University in Prague, CZE	
09:40 – 10:00	What „Unmanned“, „Autonomous“ and „Swarm“ Could Mean and Implicate Tomorrow for Military Next Generation of Systems? Mr. Jean MARCHAL - Project Officer "Experimentation, Systems of Systems, Space, and Modelling & Simulation", EDA	
10:00 – 10:20	UAVs Applications for Border Surveillance (Maritime and Land) Dr. Dimitrios GKRIITZAPIS - Captain of Hellenic Police in the Office of Research and Development (R & D) in the Criminal Investigation Division, GRC Mr. Zacharias SARRIS - Expert in Area of UAVs Research & Development, Systems Integration Activities of Defense, Security and Innovative Technology Programs, GRC	
10:20 – 10:40	Coffee Break & Networking	
10:40 – 11:00	Mitigation Threats from UAS and Possible Use of UAS for Perimeter Protection at Specific Civil Airport Conditions Gold Partner Presentation - Ms. Sabina LAJDOVÁ - Security Systems Specialist, Prague Airport	
11:00 – 11:20	Autonomous Functions of TAROS – Tactical Robotic System FFF Partner Presentation - Mr. Jan DVORÁK - Head of the Electrical Department, VOP CZ Stand No. 332	
11:20 – 11:40	Robot Needs Assessment and Issues Discovered from Tactical SWAT Team Exercises Mr. Roger L. KING - Executive Director of the Institute for Computational Research in Science and Engineering, USA	
11:40 – 12:40	Lunch Break & Networking	
12:10 – 12:30	Poster Sessions	
12:40 – 13:00	Distributed Control of Heterogeneous Team of Autonomous UAVs General R & D Partner Presentation - Mr. Milan ROLLO - Researcher, Artificial Intelligence Center, CTU in Prague, CZE Stand No. 442 and 369	
13:00 – 13:20	Advanced Robotics - A Humanitarian Perspective „The Evolution of Warfare: Implications for Humanitarian Action“ Mr. Jamie A. WILLIAMSON - Head of Unit, International Committee of the Red Cross, ICRC	
13:20 – 13:40	Cybersecurity - Threat and Governance Model for the Use of Autonomous Machines in Built and Connected Environments Ms. Ina G. WANCA - Adjunct Professor, John Jay College of Criminal Justice, New York; Director of Cybercrime Prevention, Crime Commission of NYC; Outreach Chair and UN Delegate, Council of American Students (CASIN), USA	
13:40 – 14:00	Air Robotic Vehicles of Military Technical Institute Platinum Partner Presentation - Mr. Jiří NOHYL - Researcher, Military Technical Institute Stand No. 309	
14:00 – 14:15	Conference Closing Remarks - LTC Jan MAZAL - MARS Chairman, Deputy Head of Department of Tactics, Faculty of Military Leadership, University of Defence, CZE	

DEPARTMENT OF ROBOTICS

Department of Robotics (robot.vsb.cz) at Faculty of Mechanical Engineering, VŠB-Technical University of Ostrava, Czech republic, since its establishment in 1989, has been focusing on the complex field of robotics – in education, research and science and expert services for practice. According to the current trends the department concentrates on the service robotics, collaborative robotics and mechatronics.

Currently, the department deals with problems related to detection and emergency robots and their subsystems for army, rescuers, firemen and pyrotechnics. The department is a member of the Centre for Advanced Field Robotics group which brings together organizations engaged in research and development in the field of advanced robotics and autonomous systems in the Czech Republic (www.cafr.cz).

Department R & D in the last 5 years is focused on: 3D map building, machine vision, special robotics arm, FT sensors, control systems and electronics for ATEX, anti-collision systems for robots, rapid prototyping of mobile platforms, HMI in robotics.

VŠB - Technical University of Ostrava was ranked in the top 2 % of all world universities by Times Higher Education (THE), the well-known ranking organization. This places VŠB-TUO in the grouping 301–350 in THE Times Higher Education World University Rankings 2016.

MARS Poster Sessions

Military Advanced Robotic Systems Conference (MARS)

MARS: Poster presenters to be present (Time noted / recommended in programme) : 20OCT : 08:45 - 09:15; 13:00 - 13:15 / 21OCT : 08:45 - 09:15; 12:10 - 12:30



The Requirements for Future Military Robots Supporting Mobility

2LT Michal KOPULETÝ - Engineer S-3 staff officer/153rd Engineer Battalion, Olomouc, CZE
Co-author: CAPT Ota ROLENEC - Senior Lector, Department of Engineer Technology, Faculty of Military Technology, University of Defence, CZE

The paper deals with tasks related to engineer support to mobility, contemporary requirements for military robots and their possible future application within mobility support task. The result of this paper is an evaluation of requirements for engineer vehicles predestined for the tasks of engineer mobility support and analysis of the individual engineer tasks from the perspective of the realization by military robots in future operations. Knowledge obtained by studying of scientific and professional literature was assessed by methods of analysis and deduction. Methods of induction and synthesis were used for exploring the possibilities of future application of military robots and for gathering partial conclusions. Information dealing with requirements for engineer means supporting mobility were gathered by method of structured interview from chosen experts. The text provides a general insight in to the issue of robotization of engineer tasks related to engineer support to mobility and requirements for military robots. Thus it mediates a preview on the future performance of engineer mobility tasks and it can serve as a guidance for consideration of prospective investments into engineer corps.



SCI-ET-022 - Novel Employments for Autonomous Military Systems (AMS)

prof. Phil SUTTON - Visiting Professor of Science, Engineering & Technology Strategy, Department of Electrical & Electronic Engineering, Imperial College London, GBR

Advances in artificial intelligence and other enabling technologies are fostering the development of the next generation of defence systems with gradually increasing autonomous functions and capabilities.

Proliferation of systems at various degrees of autonomy in support of military operations is a reality.

The potential for greater levels of independent decision-making by lethal and non-lethal systems of technologies exists and indicates that the time is right to consider what military capability might be achievable in the medium to longer time-frame.

Scope Of The Exploratory Team (ET)

There is a need to focus on understanding the future trends in autonomous systems, presenting both new concepts, capabilities and opportunities in military operations, and, at the same time, the challenges and emerging threats posed by systems at various levels of autonomy used by adversaries.

It has been agreed that the main activities of the ET will be the following 5 tasks:

1. Survey existing works on novel impacts of AMS (e.g., where do humans become a limitation).
2. Survey existing works on emerging technologies.
3. Investigate and understand key turning points in historical major warfare innovations (e.g., steam to sail, cavalry to tanks, etc.).
4. Conceive new system concepts enabled by AMS.
5. Determine what warfare areas are amenable to new AMS system concepts



Mobile Robot for Extreme External Working Conditions

prof. Petr NOVÁK - VŠB-Technical University Ostrava, Faculty of Mechanical Engineering, Department of Robotics, CZE
Co-authors: Mr. Ján BABJAK, Mr. Tomáš KOT, Mr. Petr OLIVKA - VŠB-Technical University Ostrava, Faculty of Mechanical Engineering, Department of Robotics, CZE
Mr. Wojciech MOCZULSKI, Mr. Marek ADAMCZYK, Mr. Marcin JANUSZKA - Institute of Fundamentals of Machine Design, Silesian University of Technology Gliwice, POL



Using Virtual Reality to Assist an Operator of the Military Robotic Manipulator Arm TAROS

Mr. Tomáš KOT - VŠB-Technical University Ostrava, Faculty of Mechanical Engineering, Department of Robotics, CZE
Co-author: prof. Petr NOVÁK - VŠB-Technical University Ostrava, Faculty of Mechanical Engineering, Department of Robotics, CZE

The article presents some aspects of a complex control system of a teleoperated military mobile robot TAROS related to virtual reality and assistance to human operator in general. Described is especially the unique and innovative system of virtual operator station which uses the HMD Oculus Rift to put the operator into a virtual space containing visual feedback from the robot and camera images, including stereovision. The virtual operator station serves as a very cheap and portable replacement of what otherwise would be a large room with expensive equipment. Mentioned is also another system that helps the operator with remote manipulation tasks – the anti-collision system preventing damage done to mechanical parts of the robot by incautious movements of the manipulator arm.



Financial and Economic Aspects of the Use of Advanced Robotic Systems in Future Military Operations

Mr. Aleš OLEJNÍČEK - Head of the Section of Economics at the Department of Economics at the Faculty of Military Leadership, University of Defence, CZE

During the last decade there has been a rapid increase in the number of military advanced robotic systems in the armament of armed forces. It results not only in their real employment in armed conflicts, but also in the growing interest of experts in this issue. Such an interest is legitimate and driven by effort to answer the query what lies behind the rapid development of robotic technology in the military. Discussion is mostly focused on determining the military, technical, legal and ethical aspects of the employment of autonomous robotic systems in combat operations. Much less attention has been paid to financial and economic aspects of introducing and developing the military robotic systems in armed forces and on the battlefield. It is just this particular ability to assess the financial-economic aspect of employing the military advanced robotic vehicles and systems which enables us to discuss the possibility of further development and implementation of this technology in the armed forces. The article is aimed at describing the fundamental benefits and costs connected with implementing and developing the advanced robotic systems in the military, as well as at determining the ways of expressing their financial and economic values. The cost-benefit analysis methodology has been applied to meet such an objective.

Prague Airport, Joint Stock Company

We Are One of the Most Developing Airports in the World

Prague Airport is a daughter company of the Czech Aeroholding Group and its greatest asset. Our core business is the efficient and safe operation of the international civil aviation airport, Václav Havel Airport Prague, ensuring its growth and facilitating modern, fast and comfortable travel for customers. We are active in developing air connections, we allocate airport capacity to individual air carriers and provide additional commercial services in the field of gastronomy, parking and commercial space leasing. According to the IATA results, we are one of the world's most developing airports. In 2015, we won the acclaimed World Routes Marketing Award, under which the quality of our work was assessed by airline representatives. We also ranked second among European airports in the prestigious international survey focused on the quality of service conducted by the Airports Council International, ACI.

Passengers Appreciate Our Services

Based on passenger feedback, we excel among European airports predominantly in the areas of cleanliness of the premises, the professional conduct and willingness of our employees to help, easy orientation, the availability of services, such as free Wi-Fi, and the quality of security control. In recent years, there has been a number of improvements in the services offered, successively improving our evaluation year-on-year. We have expanded our offer of services for parents travelling with children, creating new children's corners. We have upgraded the relaxation rooms for parents with children and airport baby strollers available for rent. We have also focused on the cleanliness of the airport and the offer of the most requested services, such as fast free Wi-Fi connection and mobile phone recharging stations. Passengers will thus be able to use Wi-Fi on the airport premises, at public transport stops in front of terminal buildings and also, starting next year, in the cars of contracted taxi service providers. Standard outlets are now complemented by USB



outlets and the option of inductive charging of mobile devices is also available.

We attempt to personify the airport. Therefore, we have created a team of on-site assistants who actively advise travellers, alert them to news and help facilitate their smooth passage through the airport. We are one of the few airports in the world that guarantee the option of purchasing bottled water from vending machines for less than 1 EUR and offer hot main courses for prices starting at 3.5 EUR. Naturally, we have water fountains with free drinking water installed in all the piers.

We Provide Comfortable Connections Worldwide

The interest in Prague as a final destination has significantly increased in recent years. During the first eight months of 2016, Prague Airport handled about a half million more passengers than the previous year. We currently offer direct scheduled services to more than 145 destinations worldwide and the option of choosing from the offer of 60 air carriers. Prague Airport actively motivates airlines to launch new direct scheduled connections and increase the capacity of the existing ones. In the last year alone, over 50 new regular scheduled operations, including 38 new or renewed destinations, were added to the schedule. Three of the new long-haul flights connect Prague with cities in China, namely Beijing, Shanghai and Chengdu. Effective May 2016, we have joined the elite group of 16 European airports which handle Airbus A380s on a regular basis.

Passenger Safety Is Our Priority

Lately, safety has become an important topic. We follow the principle that safety in the air starts with safety on the ground, at the airport. We aim to remain on par with the referential best airports in Europe and around the world. Therefore, we continuously monitor safety risks and keep developing our safety measures accordingly. On average, we invest half a billion Czech crowns a year to ensure that you feel safe with us.



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Multinational Logistics Coordination Centre



General Staff of Armed Forces of the Czech Republic



Hungarian Defence Forces



U.S. European Command

LCWS is endorsed by



Logistics Agency



Police Presidium



Fire Rescue Service



University of Defence



Military Health Institute

WATER TREATMENT CONTAINER UNITS HUTIRA CCW KU Crystal Clear Water

Output water is always drinkable, crystal clear and tasty

We treat surface and underground water that has many types of pollution (particle, chemical, biological, industrial, radioactive, oil...)

Very little preparation necessary. Only the baseplate for positioning the container

Possibility to connect it to the reverse osmosis technology to treat the desalinated water

Simple and fully automated operation including sludge removal with the only exception of refilling additives

Compact modular design, easy to transport, install and operate

Simple water supply solution for:

- Military field hospitals
- Military camps
- Military trainings
- Deployments in peacekeeping missions
- Refugee camps
- Peacekeeping field operations



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Future Forces Expert Programme

LOGISTICS
CAPABILITY
WORKSHOP

LCWS Programme Committee – in alphabetical order



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Deputy Chief of M&T Department,
General Staff
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Ministry of Defence - General Staff,
CZE

As of September 2015

LCWS Speakers – in alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



LTG Jiří Baloun, Ph.D., Msc.
First Deputy Chief of the General Staff
Ministry of Defence - General Staff

Welcome Speech



COL Jean-Marc Bouillet
Deputy Director
NATO ENERGY SECURITY CENTRE OF EXCELLENCE

NATO Military Advice on Energy Efficiency and Standardization: Best Practices and Lessons Identified

Operational energy demand is one of the driving factors that influence the design and footprint of the logistic support structure for operations, both deployed within theatre and across tactical to strategic lines of communication. Reductions in deployed energy demand through enhanced energy efficiency have a direct influence on the agility and sustainability of deployed forces. Smart energy solutions, both materiel (equipment) and non- materiel (management tools) need to be analyzed, tested and implemented in order to transform the traditional view on energy as an enabling commodity towards the energy as a force multiplier, which directly influences military capabilities and operational outcome. This presentation aims to: 1. highlight advantages of operational and materiel standardization for enhancing energy efficiency among NATO, nations and partners; 2. Observe current energy efficiency standardization proposals derived from exercise Capable Logistician 2015, 3. Discuss standardization way ahead for energy efficiency.



LCWS Speakers – in alphabetical order



COL (Ret.) Hartmut Bühl
INTERNATIONAL CONSULTING - European Security and Defence Policy & NATO Affairs,
External Member of NATO HQ Smart Energy Expert Team



Smart Energy „Production“ - Using Hybrid Generating Systems

Forces being deployed need power supply. Challenges being faced in energy supply include reducing the use of fossil fuels and minimizing logistical work, and thereby increasing reliability and effectiveness. A modern intelligent energy system must enable construction of robust scalable micro grids based on renewable energy anywhere it is needed. Battery storage and, if required, modern diesel generators ensure the supply remains stable. The intelligent control balances power generation and consumption optimally, and powerful battery storage ensures network stability. How a modern hybrid system could look like Solar panels, wind turbines, modern diesel generators: these are the different types of energy sources to be engaged. Connected to an intelligent power management system, reliable and weather-independent, use can be made of renewable energy to generate electricity in remote areas, in conflict zones or in camps. Modern lithiumion batteries and modern diesel generators ensure a stable supply of power. Combining all these assets lead to a significant reduction in operating costs and fossil fuel consumption. How to control? The main task of the control software is to guarantee grid stability around the clock with optimum energy efficiency. The system has to select automatically the renewable energy source independently. As soon as there is an oversupply of energy, the battery is charged. If there is not enough power being generated, for example when there is no wind or it's raining, the "controller" utilises the batteries to their minimum capacity, before falling back on diesel generators. Thus, the system achieves an efficiency rate of 90 %.



Mr. Bruno Cantin
Head, Logistics Capabilities Section, Directorate for Defence Policy and Capabilities
NATO IS



Logistics Transformation in Light of the Evolving Security Situation

Does the NATO Strategic Concept provide enough guidance to logisticians?
Does logistics interoperability require more attention by NATO and nations?
What collective logistics solutions need more focused attention?



Mr. Cornelious Doraton
USA NATO International Standardization and Interoperability Representative
NATO



Standardization - Roadmap to Interoperability

Objective is to provide an observation of "NATO Operational Standardization": What it provides and the potential contribution it offers for strengthening international standardization and interoperability effectiveness of NATO Nations and Partners. Aim is to highlight importance of standardization within NATO, to stress the effects of standardization and encourage nations and NATO authorities to develop, agree and implement concepts, doctrines and procedures to achieve and maintain the most effective levels of compatibility, interchangeability, commonality in the fields of operations, administration, materiel.



Commodore Marcel Hallé
ACOS J4, SHAPE
NATO Supreme Headquarters Allied Powers Europe (SHAPE)



Logistic Challenges within NATO

As a result of the changing security environment, NATO has had to adjust and adapt. Commensurate with these changes are the challenges being addressed within the logisitics domain in order to maintain support to operations.



COL (GS) Jan Husák
Director of Multinational Logistics Coordination Centre, Chairman of the Logistics Capability Workshop
Ministry of Defence - General Staff



Multinational Logistics Coordination Centre



COL Pedro Jooren, MBA MTL EMLog
Branch Chief Logistics Policy EU Military Staff (EUMS)
European External Action Service (EEAS)



EUMS Perspective on Multinational Logistics in EU Missions and Operations

Co-presentation with BG Dionigi LORIA.

- The EU Common Security and Defence Policy (CSDP)
- The European Union Military Staff
- An overview of the current CSDP military operations & missions
- Multinational logistics, the EUMS' perspective:
 - Why multinational logistics matters
 - Constraints, challenges, risks & opportunities
- The toolbox: fostering multinational logistics (partnership and cooperation)
- What next: from multinational logistics to integrated logistics?



MG Trond R. Karlsen
Director of the Logistics and Resources Division
NATO International Military Staff



Multinational Logistics and its Involvement in Future Coalition Operations

Multinational Logistics is a broad activity, which includes a wide variety of functions, to include: joint planning, mutual operational support, joint logistics education and training, improved standardization and interoperability, coordinated transport and troop movement, shared experience, and international agreements between coalition members. Our current and future environment, both from an economic and security perspective, require us to consider the conduct of all future coalition operations using Multinational Logistics. Each member nation in any coalition will bring both common and unique capabilities to the effort. NATO is working hard to enable multinational logistics through the implementation of common processes, establishment of new organisational structures, development of information technology solutions, and encouraging nations to develop and share capabilities.



LTC Ladislav Krech
Specialist for Environment, Firefighting and Infrastructure, Logistic Section
Ministry of Defence - General Staff, Armed Forces



The SMARTEN Project -Reduction of Energy Consumption in the Field

Co-presentation with COL Pavel MAÑAS

The Ministry of Defense of the Czech Republic launched a project to develop a conceptual solution aimed at reducing the energy consumption and fuel dependency in the operational field.

The two-year project will give impulses for further development of technologies and subsequent procurement processes of energy efficient solutions for the national deployable forces.

By the end of the first year (2016) a comprehensive concept will be published and discussed among the stakeholder community.

During 2017 laboratory tests and technology demonstrations will be conducted and assessed for interoperability with conventional equipment that is currently in use and for the total cost/savings.

Co-authors: COL Pavel MAÑAS, PhD.; Assoc. Prof. Stanislav ROLC



BG Dionigi Maria Loria
Director LOGRES Directorate
EU Military Staff (EUMS)



EUMS Perspective on Multinational Logistics in EU Missions and Operations

Co-presentation with COL Pedro JOOREN.

- The EU Common Security and Defence Policy (CSDP)
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- What next: from multinational logistics to integrated logistics?

LCWS Speakers – in alphabetical order



COL Assoc. Prof. Pavel Mañas, Ph.D.
Head of Department of Engineer Technologies, Faculty of Military Technology
University of Defence



The SMARTEN Project - Reduction of Energy Consumption in the Field

Co-presentation with LTC Ladislav KRECH

The Ministry of Defense of the Czech Republic launched a project to develop a conceptual solution aimed at reducing the energy consumption and fuel dependency in the operational field.

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Co-authors: LTC Ladislav KRECH; Assoc. Prof. Stanislav ROLC



Mr. Piotr Marciniak
Regional Sales Manager – Benelux, Scandinavia, Eastern Europe, Russia and CIS
PELI PRODUCTS, S.L.U.



Heavy Duty Packaging Systems

Peli Products will present modern transportation and storage containers and its application in in the military. In particular the presentation will show cases for IT equipment, weapon containers and containers for aircrafts spare parts.



Dr. Patrick Marcus
Executive Head of Technical Sales, Training and Service
FUTURETECH Kärcher Group



Increase Energy Efficiency and thereby Reduce Costs with Increasing Security - Direct Heat Generation by Diesel-powered Cooking and Hot Water Systems

To further reduce the costs and the risks to people and material in military operations, it is necessary to minimize the transportation of primary energy. This can only be achieved using energy efficient technologies and products. For each transformation of energy losses occur, which have negative impact on the efficiency of the overall process. Therefore, to achieve the highest possible efficiency, it's necessary to directly use primary energy sources without conversion.

Kärcher Futuretech (KFT) uses this approach to offer easy-to-use and highly efficient mobile cooking modules with integrated diesel burners. These modules achieve compared to electrically powered devices significantly lower operating costs (up to a factor of 5). They can be used as separate cooking units or as an integrated part of larger catering systems such as e.g. container cooking system. With five cooking modules up to 100,000 liter of diesel per year can be saved. Here, the KFT cooking modules can, due to the control system (human-machine-interface concept) and the gas-tight combustion chamber (independent of the room air), be operated just as easy, hygienic and safe as electric cooking utensils. Another example is the diesel-powered hot water module (HWM) 100. The HWM 100 is able to heat up 3,000 liters of water per hour to shower temperature. Through its highly efficient, integrated diesel burner it is possible to save up to 80 percent of fuel compared to electric systems powered by an electricity generator.



Mr. Rudolf Maus
Director of the Logistics Operations
NATO Support and Procurement Agency



NSPA's Perspective on Multinational Logistics Opportunities

The presentation will high light the importance of and the opportunities lying in capability focused multinational cooperation, consolidation of requirements and contracted logistics support solutions to achieve highly effective and efficient results in the domains of sustained support to operations and exercises, capability development and capacity building. It will also provide a comprehensive overview about NSPAs capability set up targeted to best support NATO, it's nations and partner nations to meet today's and future challenges.



Dr. Susanne Michaelis
Officer (Smart Energy and Environment) Energy Security Section, Emerging Security Challenges Division (ESCD)
NATO



NATO Smart Energy – From a Concept to a Standard

Since “Capable Logistician 2013” (CL13) that took place in Slovakia, Smart Energy Multinational Integrated Logistics Unit (MILU) has become a major feature of the “Capable Logistician 2015” (CL15) exercise that took place in Hungary in June last year. Interoperability of the Smart Energy equipment that was contributed by 14 companies, the German Bundeswehr and the U.S. Army was tested and assessed in demonstrations and scenarios. Furthermore, Smart Energy delivered real life support. Not everything went smoothly, especially when Smart Energy micro grids tried to integrate old power equipment and high energy consumers. But this was the purpose of the exercise: to identify gaps in materiel and operational standards. Following the observations and recommendations resulting from the exercise, NATO is now starting the process of standardization for power production and micro grids.



Mr. Jan Mrázek Dipl. Eng.
Doctoral Student
Tomas Bata University in Zlín



Movement and Transportation Dangerous Substances

The critical infrastructure elements are important for every state. Individual elements affect its proper functioning as well as safety. Traffic has become a major element. Daily we come across a lorry transporting hazardous substances. These substances create a risk for their surroundings. A transportation company should inform population about the track stand on its motion to have an overview of what elements of critical infrastructure during transport can endanger. To minimize risks should be an amendment of the route which the vehicle transporting dangerous substance undergoes.



Mr. Avi Raz, MBA
Military Solutions Marketing
URDAN Metal & Casting Ind.



Logistics at Tank's Speed

Modern tanks are taking the action farther and faster to terrains not accessible before, thus necessitating new ways of bringing supplies to the fighting forces at the front as they progress, and without risking operation, human lives and vehicles.

Urdans' BackTrail is a direct response to this challenge, providing the forces with continuous supply without hindering their ability to maneuver in all directions and switch positions quickly and effectively.

The Israeli Defense Forces (IDF) is in the process of receiving delivery of the BackTrail logistics trailers that can be towed by its tanks, armored personnel carriers (APCs) and armored engineering vehicles. BackTrails are used alongside tanks and heavy APC's to extend their operation time, distance and performance. According to army calculations, one BackTrail can extend a company's operation time by 50%!

BackTrail enables the continuous supply of fuel, food, water, weapons and ammunition. It has a net cargo area of 4x2m and can carry up to 8 tons of useful payload.

The versatility offered by the BackTrail's unique design makes it the ideal solution for the modern battlefield.



Mr. Václav Salač LL.M.
Business Development & Export Director
HUTIRA - BRNO, s. r. o.



Water Treatment Technology HUTIRA CCW

Company HUTIRA – BRNO, s. r. o. is a traditional czech family company which was founded in the year 1997 and operates in gas & water industry in the Czech Republic, Slovakia and more than 30 foreign countries. Besides operating in the gas industry HUTIRA-BRNO is a leading global producer of the patented and unique water treatment technology HUTIRA CCW on a hydraulic and mechanical basis, especially focused on the containerized units. The target customers are armed forces, police, fire brigades and other rescue corps, crisis organisations and many others. Bullet presentation points: HUTIRA CCW - patented and unique technology - introduction, HUTIRA CCW - 2-level treatment process, HUTIRA CCW - the top A class drinking water without chemicals, Containerized Units for Armed Forces, Rescue Corps and Crisis Organisations

LCWS Speakers – in alphabetical order



Mr. Alexander Zotos
Hybrid Systems Product Manager in Intracom Defense Electronics, External member of NATO HQ Smart Energy Expert Team



Smart Micro-Grids Create new Deployable Energy Ecosystem

This briefing will explain why deployed camps present unique capabilities for energy efficiency, as a result of holistic electric system architecture. Most Electric Systems (generation-distribution-consumption) present limited capabilities for end-to-end control, since the many different stakeholders have to put a regulatory framework on debate about the share of burden imposed by the required changes in installations, changes that in turn are subject to a separate discussion among different technologies. Things are simpler with electric infrastructure in deployed camps, where its stakeholders (rarely more than one) need rather a decision than a framework agreement. Industry accepts the challenge to provide decision assistance through proven solutions to customers having this flexibility. The proposed solutions exploit the capabilities of smart Micro-Grids integrating multi-sources power generation, distribution and consumption under common management that creates an Energy Ecosystem offering exceptional configuration flexibility, scalability and mobility with high proven efficiency, performance and significantly low Life-Cycle-Cost.



MG Jaromír Zúna, Msc., Ph.D.
Director of the Division of Support
Ministry of Defence - Czech Armed Forces



The Czech Approach to Defence Logistics

The presentation covers the main decisions which have been made recently within the AFCE to strengthen defence logistics capabilities with regards to stationary and operational logistics including the information about the acquisition process plan 2016 – 2025.

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LCWS Programme

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
08:30 – 17:00	Registration	
09:00 – 09:15	Poster Sessions	
09:30 – 09:45	LCWS Introductory Remarks - Moderator - LTC Peter ÁCS, Senior Staff Officer, MLCC, SVK	
	Welcome speech - LTG Jiří BALOUN – 1 st Deputy Chief of General Staff, Armed Forces of the Czech Republic, CZE	
	Welcome speech - COL (GS) Jan HUSÁK - LCWS Chairman, Director, MLCC, CZE	
09:45 – 12:00	MORNING SESSION NATIONAL AND INTERNATIONAL VIEWS ON FUTURE DEVELOPMENT OF LOGISTICS AND RELATED TECHNOLOGIES	
09:45 – 10:05	Multinational Logistics Coordination Centre COL (GS) Jan HUSÁK - Director of MLCC, CZE	
10:05 – 10:40	The Czech Approach to Defence Logistics MG Jaromír ZÚNA - Support Division Director, MoD, CZE	
10:40 – 11:00	Coffee Break & Networking	
11:00 – 11:20	Multinational Logistics and its Involvement in Future Coalition Operations MG Trond R. KARLSEN - Director of the Logistics and Resources Division, NATO International Military Staff, NATO	
11:20 – 11:40	Water Treatment Technology HUTIRA CCW Platinum Partner presentation - Mr. Václav SALAČ - Director for Export and Development, HUTIRA - BRNO Stand No. 331	
11:40 – 12:00	Standardization - Roadmap to Interoperability Mr. Cornelious DORATON - CL13 and CL15 Evaluation Analysis and Reporting Cell (EARC) Director, USA NATO International Standardization Program Representative, USA	
12:00 – 13:00	Lunch Break & Networking	
12:30 – 12:45	Poster Sessions	
13:00 – 17:25	AFTERNOON SESSION NATIONAL AND INTERNATIONAL VIEWS ON FUTURE DEVELOPMENT OF LOGISTICS AND RELATED TECHNOLOGIES	
12:00 – 13:00	Lunch & Networking	
12:30 – 12:45	Poster Sessions	
13:00 – 13:40	EUMS Perspective on Multinational Logistics in EU Missions and Operations BG Dionigi Maria LORIA - Director LOGRES Directorate, European Union Military Staff, EU COL Pedro JOOREN - Branch Chief Logistics Policy, Logistics Directorate, European Union Military Staff, EU	
13:40 – 14:20	Logistics Transformation in Light of the Evolving Security Situation Mr. Bruno CANTIN - Head of Logistics Capabilities Section, Directorate for Defence Policy and Capabilities, NATO International Staff, NATO	
14:20 – 15:00	Coffee Break & Networking	
15:00 – 15:40	Logistic Challenges within NATO Cndre Marcel HALLÉ - ACOS J4, SHAPE, NATO	
15:40 – 16:00	NSPA's Perspective on Multinational Logistics Opportunities Mr. Rudolf MAUS - Director of Logistics Operations, NSPA	
16:00 – 16:10	Break	
16:10 – 16:30	Heavy Duty Packaging Systems Industry presentation - Mr. Piotr MARCINIAK - Regional Sales Manager – Benelux, Scandinavia, Eastern Europe, Russia and CIS, PELI PRODUCTS, S.L.U. Stand No. 421	
16:30 – 16:50	Logistics at Tank's Speed Industry presentation - Mr. Avi RAZ - Military Marketing, URDAN Metal & Casting, ISR Stand no. 467	
16:50 – 17:10	Movement and Transportation Dangerous Substances Mr. Jan MRÁZEK - Doctoral Student, Tomas Bata University in Zlín, CZE	
17:10 – 17:20	Chairman's Closing Remarks - COL (GS) Jan HUSÁK - LCWS Chairman, Director, MLCC, CZE	
17:20 – 17:25	Administrative Instructions – Moderator - LTC Peter ÁCS, Senior Staff Officer, MLCC, SVK	

LCWS Programme

Friday, 21 October 2016		PVA EXPO Praha, Hall 2
08:30 – 12:35	Registration	
09:00 – 09:15	Poster Sessions	
09:30 – 09:40	Introductory Remarks - Moderator - LTC Peter ÁCS, Senior Staff Officer, MLCC, SVK Welcome speech - COL (GS) Jan HUSÁK - LCWS Chairman, Director, MLCC, CZE	
09:40 – 10:00	Increase Energy Efficiency and Thereby Reduce Costs with Increasing Security - Direct Heat Generation by Diesel-Powered Cooking and Hot Water Systems Industry presentation - Mr. Patrick MARCUS - Executive Head of Technical Sales, Training and Service, FUTURETECH Kärcher Group Stand No. 327	FUTURETECH Kärcher Group
10:00 – 12:35	SMART ENERGY PANEL	
10:00 – 10:05	Welcome speech - Ms. Susanne MICHAELIS - Officer (Smart Energy and Environment) Energy Security Section, Emerging Security Challenges Division (ESCD), NATO	
10:05 – 10:25	NATO Smart Energy – From a Concept to a Standard Ms. Susanne MICHAELIS - Officer (Smart Energy and Environment) Energy Security Section, Emerging Security Challenges Division (ESCD), NATO	
10:25 – 10:55	NATO Military Advice on Energy Efficiency and Standardization: Best Practices and Lessons Identified COL Jean-Marc BOUILLET - Deputy Director, NATO Energy Security Centre of Excellence, NATO	
10:55 – 11:20	Coffee Break & Networking	
11:20 – 11:40	Smart Micro-Grids Create New Deployable Energy Ecosystems Mr. Alexander ZOTOS - External Member of NATO HQ Smart Energy Expert Team, GRC	
11:40 – 12:00	Smart Energy „Production“ - Using Hybrid Generating Systems Mr. Hartmut BÜHL - INTERNATIONAL CONSULTING - European Security and Defence Policy & NATO Affairs, External Member of NATO HQ Smart Energy Expert Team, DEU	
12:00 – 12:20	The SMARTEN Project-Reduction of Energy Consumption in the Field COL Pavel MAŇAS - Head of Department of Engineer Technologies, Faculty of Military Technology, University of Defence, CZE LTC Ladislav KRECH - Environmental, Firefighting and Infrastructure Specialist at Logistic Section of MOD, CZE	
12:20 – 12:25	Smart Energy Panel Closing Ms. Susanne MICHAELIS - Officer (Smart Energy and Environment) Energy Security Section, Emerging Security Challenges Division (ESCD), NATO	
12:25 – 12:35	Chairman's LCWS Closing Remarks COL (GS) Jan HUSÁK - LCWS Chairman, Director, MLCC	
12:35 – 13:30	Lunch & Networking	

Designated time for a presentation includes time for questions from the audience.
The order of speakers and timings may be changed.

LCWS Poster Sessions

Logistics Capability Workshop (LCWS)

LCWS: Poster presenters to be present (Time noted / recommended in programme): 20OCT : 09:00 - 09:15; 12:30 - 12:45 / 21OCT : 09:00 - 09:15



Vanadium Flow Battery as Stationary Storage of Electricity

Mr. Jiří VRÁNA - PhD Student and Researcher, Faculty of Chemical Engineering; University of Chemistry and Technology, Prague, CZE

We have developed vanadium flow battery, solution for stationary applications. Power of the battery is independent on the capacity and can be easily tailored to the needs. Battery shows excellent durability and cycleability and appear as strong and robust energy storage. Non-explosive, safe, environmentally friendly technology with low maintenance requirements excels as strong and robust heart of not only island grids. We have developed stack with 2 kW power and efficiency overlapping 80 %, which can be easily assembled to larger systems. In this work we present comparison of our developed technology with its competitors and outline of possible applications of energy storage in public sector. Also experiences and competences of our research group in field of morphological analysis using rentgen microtomography and in development of innovative energy storage solutions are presented.



Electrochemistry for Independent Mobile Energy Supply and Water Disinfection

Mr. Martin PAIDAR - University of Chemistry and Technology, CZE
Co-author: prof. Karel BOUZEK - University of Chemistry and Technology, CZE

Electrochemistry poses unique option for independent system. It uses electric energy as part of chemical reaction and can be realized worldwide if source of electric energy (i.e. solar panels) is available. Electrochemistry also have unavoidable role for energy storage. For longtime energy storage and for onsite fuel generation the electrolysis of water is versatile option. Hydrogen generated form water onsite can be stored and accordingly to needs converted back to electric energy in fuel cell based system. Minimum noise and no need of supply of huge volumes of fuel to be transported and/or stored represent the main benefits. Another attractive application of electrochemistry technologies is water disinfection. As the water sources are frequently contaminated naturally or intentionally by humans, electrochemical advanced oxidation processes can eliminate biological as well as chemical contamination. Direct generation of ozone or ferrates(VI) on site can eliminate threats like anthrax only by use of electricity.



Logistics Agency

The Logistics Agency is the expert authority subordinated to Director of the Division of Support. It is responsible for a comprehensive logistic support of ministerial events and military missions and operations on the Czech territory and abroad. The Agency supports allied armed forces on the territory of the Czech Republic in accordance with the Host National Support.

The Agency provides management, planning, and coordination of military transports and movements of Czech and allied forces on the Czech territory. In relation to NATO, it is the National Transport Coordination Centre.

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MULTINATIONAL LOGISTICS COORDINATION CENTRE

General

The MLCC is a Multinational Military Organization based in the Czech Republic whose vision is to be a centre of expertise for the development, coordination and provision of efficient and effective multinational military logistics solutions. The MLCC is building its capabilities throughout steps including the MLCC Enlargement, increase of the MLCC members' personnel contribution, effective use of available resources, and enhancement of multinational cooperation. Structure was created for national benefit and it is based on voluntary national contribution. Presently MLCC consists of 16 member nations and 4 other nations signed the Letter of Intent and officially declared their intention to join.

MLCC mission

The mission of the MLCC is to build and/or enhance logistics capabilities, address critical logistics shortfalls and reduce costs of the MLCC Members and Non Members by providing multinational solutions for the logistic support of their forces in operations and exercises.

The MLCC is a permanent point of contact for NATO Allies and Partners in order to share information and improve visibility of nations' capabilities and plans. The MLCC will assist nations to better understand NATO logistics requirements and provide NATO with better visibility of national logistics intentions and National Support Elements.

The MLCC coordinates and supports development of bilateral and multilateral cooperation, eliminates barriers to multinational contributions and increases confidence between nations and NATO in each other's support capabilities. The MLCC facilitates cooperation in national and multinational logistics training and practical exercises.

The MLCC organizes, coordinates and supports international meetings, workshops, seminars and conferences. It also organizes and coordinates support for developing national capabilities, facilitates accessibility of national educational and training programs, in order to enhance logistics standardization and interoperability.

MLCC main objectives

- 1) Development of Multinational Logistics Capabilities (leading Smart Defence projects, development of V4 JLSG Core Staff Element, support to partner nations like support to Ukrainian army logistics reform)
- 2) Coordination of logistics education, training & exercises (since January 2015 Department Head for NATO Logistics Education & Training, organization of the logistics & standardization exercise Capable Logistician series (CL13 in Slovakia, CL15 in Hungary, CL19 in Poland), conduction of logistics courses like JLSG and RSOM courses, contribution to the Defence Education Enhancement Programme, etc.)
- 3) International logistics cooperation (Workshops, seminars, bilateral/multilateral programmes, Logistics Staff Assistance Visits, etc.)

Summary

MLCC supports the implementation of collective logistics where maximum use of available synergies among all tasks and action brings significant savings for all involved nations and organizations. Exercise Capable Logistician series offers wide variety of opportunities for training of logistics experts and units, provides perfect testing ground for logistic standards and processes. Education and training program in connection with each exercise Capable Logistician series significantly enhances capabilities of logistic units and experts and of NATO and Partners logistic organizations.

Geographic and Hydrometeorologic Services of the Czech Armed Forces



Geographic Service of the Czech Armed Forces (GeoS CAF) is a part of the Ministry of Defense (MoD) designed for the geographic support of the Czech Armed Forces, NATO and EU armed forces in operations, peace-keeping activities and trainings:

- standard and thematic state map series production;
- geodetic and vertical control points administration for the purposes of national defense;
- gazetteer maintenance;
- international and national cooperation;
- research and development;
- land surveying for the national defense;
- GNSS (Global Navigation Satellite System) user support.



Hydrometeorologic Service of the Czech Armed Forces (HMS CAF) is a part of the MoD designed for the hydrometeorologic support of the Czech Armed Forces, NATO and EU armed forces in operations, peace-keeping activities and trainings:

- hydrometeorologic and information support service for command and control systems;
- aeronautical meteorological services for the military air force;
- hydrometeorologic support of national integrated rescue system and components of state and local governments as a part of national defense tasks;
- provision of meteorological information to the national monitoring system of radiation, chemical and biological situation on the territory of the Czech Republic;
- metrological support.



Office of Military Geography and Hydrometeorology is the key production and development facility of the GeoS CAF and HMS CAF. It provides operational geographic and hydrometeorologic support for the Czech Armed Forces on the national territory and abroad:

- military topographic and thematic maps production;
- digital elevation model maintenance;
- remote sensing;
- military geographic information and documentation production;
- geodetic support;
- GNSS implementation to the Czech Armed Forces;
- geophysical monitoring;
- printing services and support for Ministry of Defense, stamp production and military forms administration;
- standardized hydrometeorologic information and products support;
- aeronautical meteorological services for military air force;
- area of interest climatographic description production;
- open atmosphere elements and events evaluation;
- military geographic and hydrometeorologic training.



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Military Geographic and Hydrometeorology Office



National Security Authority



Land Survey Office



Czech Association of Geoinformation



Czech Television



Research Institute of Geodesy, Topography and Cartography

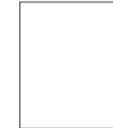
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Director
Land Survey Office, CZE



COL Jan Čírek Dipl. Eng.
Chief of Hydrometeorological Service
Ministry of Defence - General Staff,
Armed Forces, CZE



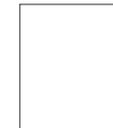
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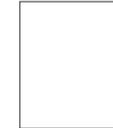
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Dr. Radim Tolasz Ph.D.
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Czech Hydrometeorology Institute, CZE



Mr. Jiří Valenta
Frequency Manager, Flight Operations and Safety Division
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Ministry of Defence - General Staff,
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COL Radek Wildmann
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Office of Military Geography and Hydrometeorology, CZE

GEOMETOC Speakers – in alphabetical order

Personal Curriculum Vitae (speakers, poster presenters and programme committee members) are available on web: www.future-forces-forum.org



Mr. Hamid Ashraf
School of Mining Engineering University of the Witwatersrand, Johannesburg



Avalanche Risk Assessment: A Case Study of Gyong Sector Siachen Pakistan

Avalanches are a natural hazard that damage infrastructures and threaten lives in high altitude mountainous terrains. A massive ice avalanche struck a Pakistani Army base camp at Gayari sector, Saltoro Valley on 7 April 2012 burying 148 soldiers. Avalanche release zone modelling and alpha-beta model were used to carry out the suitability of the present camp site in Gyong Sector Siachen. Using expert knowledge of known avalanche paths, terrain parameters were documented and statistically evaluated for key factors. ArcGIS model builder was used to model the avalanche starting zones with terrain modelling by utilizing a digital elevation model (DEM). Linear regression analysis of the five known avalanches in the area yielded $\alpha=0.94\beta-0.81$ as the $\alpha\beta$ equation. The β angle for the avalanche 1 was 19.13° , α angle was 17.17° and maximum runout was 3910 m down the slope of the release point. Modelling of the avalanche above the present camp site resulted in high probability of triggering and the camp was declared as dangerous.

Co-authors: Javed Iqbal, Naveed Hamza Tipu



COL (Ret.) Karel Brázdil, Ph.D.
Director
Land Survey Office



Civil-military Cooperation in Geospatial Information in the Czech Republic

The presentation aims to inform about civil – military cooperation in geospatial information in the Czech Republic. There are two public bodies responsible for the maintenance of geospatial information and products in the Czech Republic. Firstly, there is the national mapping agency – the Land Survey Office – which is responsible for the collection and maintenance of fundamental geospatial information for state public authorities. Secondly, there is the Military Geographic and Hydrometeorologic Office that is responsible for the maintenance and production of geospatial and cartographic products dedicated to defence and crisis management. Both organisations cooperate within the whole range of geospatial business (geodesy, remote sensing and photogrammetry, GIS).

GEOMETOC Speakers – in alphabetical order



Dr. Radmila Brožková
Head of Numerical Weather Prediction Department
Czech Hydrometeorological Institute



Seamless Weather Forecast by the ALADIN System

Numerical weather prediction models are key strategic and cross-cutting components in prediction systems regarding the atmospheric, hydrological and air pollution aspects as well as numerous ensuing applications. Here we present main features of the ALADIN System being jointly developed by 16 countries, including Czech Republic. We especially focus on the seamless forecast concept in the sense the System can be used in various applications on the different time and space scales, where the requirement is to provide qualitatively very homogeneous results across the varying grid-mesh sizes. Besides the overview of main choices of the System, we will show some recent realization examples brought in by modern advancements in turbulence and thermodynamic theories and/or in the cost-effective pairing of microphysics with the radiative computations.



Dr. Jan Daňhelka, Ph.D.
Deputy Director, Head of Hydrology Division
Czech Hydrometeorological Institute



Understanding the Flood Risk: Has 20 Years of Experience Led to Turn from Disaster Management to Culture of Risk Management, Prevention and Preparedness?

In 1997, a catastrophic flood occurred in Central Europe, which highlighted the urgent need for development of all aspects of flood risk management. Disaster management and disaster response capabilities were enhanced significantly in a short time before following catastrophic flood in 2002 resulting in significant decrease of fatalities. However the corresponding development of prevention and preparedness measures and instruments has been slower so far. This presentation summarizes changes in the monitoring, forecasting and warning system between floods in 2002 and 2013. In addition, an overview of EU Flood risk directive (2007/60/EC) implementation and resulting flood risk management plans is given. We conclude that while the role of disaster (flood) risk prevention and preparedness is emphasized in discussions, the legislation and practice still stresses disaster response activities within the whole risk management issue.



Mr. Jan Douša M.Sc., Ph.D.
Geodetic Observatory Pečny
Research Institute of Geodesy, Topography and Cartography



17 Years of Precise GNSS Tropospheric Products and Services from Geodetic Observatory Pečny

Co-presentation with Mr. Pavel VÁCLAVOVIC

Geodetic Observatory Pečny (GOP) has a long-term experience in developing and estimating precise tropospheric parameters using data from GNSS permanent stations, in particular under the limited timelines of near real time. For more than 17 years, the GOP Zenith Total Delay (ZTD) product has contributed to various projects in Europe (COST-716, TOUGH, E-GVAP, GNSS4SWEC, EUREF, IGS) with over a decade flowing via the meteorological observation exchange network to end users worldwide. Currently, the GOP regional and global ZTD products are routinely assimilated in Météo France and UK MetOffice and exploited in other meteorological institutions. During the period, GOP has extended the list of tropospheric products and activities towards a variety of solutions covering all different temporal, spatial, and qualitative scales. The tropospheric products are thus provided from several regional European networks as well as from a global one. The products update ranges from the re-processing activities to the near real-time and real-time generation. The solutions consist of various parameterizations - standard (ZTD only) and advanced (ZTD, horizontal gradients, slant delays) and uses multi-GNSS data and high-resolution parameter sampling. Our recent activities have focused on the software development. We have installed the in-house GOP-TropNET system (<http://www.pecny.cz/Joomla25/index.php/trop-net>) at several institutions in support of establishing new E-GVAP analyses centres for near real-time troposphere solutions. We have completed the development of in-house G-Nut/Tefnut software (<http://www.pecny.cz/Joomla25/index.php/gnss/sw/tefnut>) for real-time troposphere monitoring with support of all GNSS constellations (GPS, GLONASS, Galileo, BeiDou) and all possible parameters (ZTD, tropospheric horizontal gradients and slant delays). Finally, we are developing a powerful system, GOP-TropDB (<http://www.pecny.cz/Joomla25/index.php/gop-tropdb>), for the evaluation of tropospheric parameters gained from different observation techniques which is planned for serving a wide community in the framework of the International GNSS Service (IGS) in future. The presentation will give a summary over these developments and achieved results.



Mr. Mark Dumville
General Manager
Nottingham Scientific Ltd



GNSS Vulnerabilities and Potential Solutions

GNSS is being used for an ever increasing range of safety, security, business and policy critical applications and embedded into many parts of European critical infrastructures. Most GNSS applications rely on unhindered access to the L1/E1 frequency which is used by GPS, EGNOS and GALILEO. This includes consumer, professional and safety of life services. International economies are now dependent on GNSS. At the same time as GNSS is penetrating all aspects of society, business and policy, GNSS vulnerabilities are being exposed and threats of denial of GNSS services are increasing. The paper will present the latest information on GNSS threats and vulnerabilities from results obtained from the STRIKE3 global monitoring network which is aiming to detect, characterise and catalogue a global register of threat waveforms.

GEOMETOC Speakers – in alphabetical order



Mr. Václav Dvořák, Ph.D.
Director
Czech Hydrometeorological Institute



Welcome Speech



HEXAGON
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Cloud based Geospatial Exploitation

The cloud-based exploitation solution developed by Hexagon is a revolutionary approach to bring vital geospatial capabilities to a larger number of users in a streamlined and elegant manner. Users are namely the reconnaissance and surveillance departments, analyzing spatial data for e.g. mission preparation or actionable intelligence while producing the regular military products.

It is important to draw a distinction here comparing these new cloud-based applications to existing desktop software where a “one size fits all” view exists. It is known that many users only take advantage of a small percentage of a desktop product’s full set of capabilities. These new mission-specific applications are more intuitive and focus more directly on user-specific requirements and workflows pertaining to the organization



1LT Helena Holečková
Officer and Synoptist at Hydrometeorological Mobile Station
Office of Military Geography and Hydrometeorology



Mobile Hydrometeorological Support of Foreign Deployment

There occurred many new tasks as the consequences of entrance the Czech republic to NATO. The most of them were connected with foreign deployment. Based on that the Hydrometeorological Service of the Czech Army decided to focus on new project about development and creation of the first mobile equipment as well as focus on an education and training of special unit. It ensured the flexibility and ability to provide direct support independently anywhere in area of interest. Purpose of the speech is analyze ability of Meteorological Mobile Unit and familiarize you with three different Mobile Stations and with direct support of Czech Meteorological Service in international operations.



Assoc. Prof. Jiří Horák Dipl. Eng.
Czech Association for Geoinformation (CAGI), Vice-president
VŠB - Technical University of Ostrava



Spatial Data Integration and Multidimensional Databases for Czech Crime Prevention

A rapid development of various information systems including public sector registers enables to integrate valuable data from heterogeneous data sources. Multidimensional databases incorporating spatial and temporal dimensions and other tools of Business Intelligence provide efficient environment to store harmonised, integrated and aggregated georeferenced data. Utilisation of such complex spatio-temporal databases offers an easy access and analysis of various indicators of geographical, human, economical environments for both long-term studies of indicators and early warning systems for detecting rapid changes of local human/social (and other) status which may trigger adequate preventive measures. Three methodologies and pilot prototypes focused on crime prevention were developed in the frame of the research project “Geoinformatics as a tool to support integrated activities of safety and emergency units” supported by the Czech Ministry of Interior.



MAJ Jiří Hubička
Chief of GNSS Department
Office of Military Geography and Hydrometeorology



Using Multiple GNSS Constellations in Satellite Navigation

Are receivers using multiple GNSS constellations really much more precise in connection with positioning? It is one of the crucial question on which we would like to answer. This answer is based on testing GPS receivers GPSMAP 64s in various conditions. Our testing of accuracy was organized on the GNSS testing base which was built in areas with different conditions for measurement, such as uncovered terrain sparse mixed forest, dense mixed forest and urban area. Two receivers were being used during testing. The first one was set to receive signal from all at the moment visible GPS and GLONASS satellites. The second one was set to receive signal from all at the moment visible GPS satellites only. All results were being stored in NMEA format 0183. Result of our testing clearly showed that receivers equipped with technology for using multiple GNSS constellations are much more precise especially in areas with difficult conditions for measurement.

GEOMETOC Speakers – in alphabetical order



Mr. Radovan Klíma Dipl. Eng.
National PRS Centre
National Security Authority



Implementation of the Galileo Public Regulated Service in the Czech Republic

Galileo, the European Global Navigation Satellite System, will offer to its users a set of services designated for various users with different requirements. One of them – Galileo Public Regulated Service (PRS) – is dedicated only to government-authorized users who require the highest continuity of service with controlled access. In accordance with EU legislation, access to PRS puts the particular demands and tasks on the relevant stakeholders responsible for implementation of PRS and its management. The aim of the presentation is to provide the overall information on current status and way forward in the process of PRS implementation in the Czech Republic.



MG (Ret.) Denis Koehl
Senior Military Advisor
European Aviation Safety Agency (EASA)



The Necessary Cooperation on Safety between Civil and Military Aviation

The cooperation between civil and military in aviation safety has never been so relevant and as necessary as it is today. Both operate in same airspace with often dual-use platforms, safety and security threats are increasingly interconnected, while facing similar technological challenges. As EU aviation safety regulator, the European Aviation Safety Agency (EASA) applies a total system approach as its scope of competences cover airworthiness, operations, licences, airports and traffic management. To adapt to its various challenges, the Agency implements a performance-based regulatory environment. This concept is built on the principle that the regulator can define safety performance objectives and control how industry reaches these objectives while leaving to industry a degree of freedom in the choice of means to achieve such safety objectives. This performance based environment suits very well the military sector, which has its own standards not necessarily compliant with those in civilian aviation, but very often exceeding performance requirements. In these challenging times, where new security and safety threats are rapidly emerging, and where resources to counter them are scarce, civil-military cooperation is key to success. EASA has been a pioneer in identifying and utilising synergies between civil and military activities in several projects. It is among its strategic aims to continue this role and reach out for further partnerships in the future.



prof. Jan Kostecký Dipl. Eng., Dr. Sc.
Faculty of Mining and Geology
VŠB - Technical University of Ostrava



Implementation of GNSS Technology to Practical Geodesy - Coordinate System S-JTSK/05

Co-presentation with Mr. Karel RADĚJ

The introduction of satellite technology GNSS to surveying practice made it necessary to address the relationship between the geocentric system, which operates GNSS, with national positioning system. The Czech Republic regards specifically the ETRS89 connection with the systém S-JTSK. The paper describes the implementation of the newly designed S-JTSK / 05, which addresses the relationship between ETRS89 and S-JTSK, including consideration of deformation classically built geodetic control Co-author: Mr. Karel Raděj



COL Assoc. Prof. Vladimír Kovařík, Ph.D.
Head of the Department of Military Geography and Meteorology
University of Defence



Specifics of the Thematic Map Production at a Strategic Command Level

Experience from working at a strategic command level both at NATO and EU shows that there are certain specifics brought by the working environment, technical conditions, organizational conditions, staff structure, and other factors that significantly influence the geospatial support activities at that command level. Standard geographic products are usually of a little use in this environment and thematic maps represent products that are required by customers most often. These specifics are great responsibility of a mapmaker, absence of a production team, unknown destinations of maps, incomplete and incorrect orders, political correctness of maps, delivery time requirements, employing the DTP tools, utilizing someone else's products, classification of maps, releasability of maps, variety of map types and formats, production originality, and some other. Despite these specifics the mapmaker should always respect cartographic principles and rules to ensure the cartographic communication process is working.

GEOMETOC Speakers – in alphabetical order



Mr. Horst Kremers Dipl. Eng.
Chair CODATA-Germany (German National Committee for the Committee on Data for Science and Technology of ICSU – International Council for Science
German Cartographic Society e.V. (DGfK)



Enhanced Disaster Preparedness by Multi-Actor Cross-Organizational Information Infrastructures

The United Nations Sendai Framework 2015-2030 makes the holistic view of all of the requirements in the many phases of risk management for natural and technical risk situations mandatory. Proposals for an information strategy to an inclusive and inter-organizational management are made and the challenges to Information Management are sketched from the background of requirement analysis, systems design, implementation and operational dynamic decision support.



Mr. Miroslav Kuridza, Msc.
GNSS / GALILEO Advisor (DE MoD Sub-structure)



GPS PPS and GALILEO PRS

Presentation will come up with the current GNSS situation and the expectation and prerequisites of a combination (PPS and PRS). Additionally a short overview about current nat. RT & D activities and the necessary support of EU MS towards a User-Segment Roadmap will be discussed.



Mr. Pascal Legai
Director
European Union Satellite Centre (EUSC)



The Geospatial Services of the EU Satellite Centre to Support the EU External Action in the CFSP/CSDP Field

Facing a much more demanding international situation in terms of Security and Defense, with emerging crises all over the world characterized by their suddenness and dangerousness, it turns out essential to dispose of the necessary capacities to support decision makers and people deployed on the ground. More specifically, in the geospatial domain, a clear understanding of the need, the reactivity and the flexibility to offer relevant services become an absolute necessity. In this context the EU Satellite Centre has a role of geospatial services provider to meet the needs of a large range of users (e.g. EU institutions, Member States, International Organizations). Its role mainly consists in collecting appropriate data from space-based satellites, but also from other sensors, in due time, to analyse them before disseminating the resulting products. The today challenges are to manage a huge amount of data and to efficiently work with different partners (Industry, R & T institutional, operational) to face the present but also mainly to anticipate on the coming needs.



Mr. Aki Lilja, Msc.
Regional Manager
VAISALA



The Importance of Accurate Measurement in Soundings Operations

Radiosonde measures critical atmospheric variables from the ground to altitudes up to 35 km with accuracy and precision that cannot be obtained with any other meteorological observations. The quality and reliability of the measurements are essential because even small inaccuracies in the profiles can prevent the meteorologists from observing critical details and making the correct conclusions of the weather. When conducting a sounding, the radiosonde will transmit measurement data by radio to a ground receiver. To provide value, a sounding system needs to work reliably. It should provide excellent data availability and accurate measurements, at all times and consistently. In any sounding system the radiosonde must be fast and stable with individual, SI-standard traceable calibration. Seamless communications between the radiosonde and ground equipment are essential. During this presentation we will cover the importance of accurate weather measurement in weather prediction, and also go through the commonly used equipment for observing weather in mobile field conditions.



MAJ Jan Matula
Standardization Coordinator
Office of Military Geography and Hydrometeorology



Vector Geospatial Databases in the Czech Armed Forces

To achieve the information superiority is one of the key enabler for successful conducting of operations. The Geospatial Service of the Czech Armed Forces contributes to information superiority by very fundamental way. Vector Geospatial Databases play and will play in the future very important role in providing the armed forces with geospatial information that keeps a lot of associated attributes and their values. What are Vector Geospatial Databases for geospatial support of the Czech Armed Forces deployed on its own territory or abroad? How new technologies of geospatial data distribution are applied? What about the feedback from data users? What is our participation on multinational vector data production? What is the application of standards? What are the difficulties or even obstacles of sharing national Vector Geospatial Databases among partners? These are the questions we would like to discuss.

GEOMETOC Speakers – in alphabetical order



Dr. Tatána Míková
Head of the Weather Department
Czech Television



Weather Phenomena Warning in The Czech Television from 1997 to Nowadays

The role of public media in the dangerous weather phenomena warning in the past 20 years fundamentally changed. Since the first experience with an extensive floods in 1997 passed nearly 20 years. The important result of that time there is a complete warning system against natural disasters in the Czech Republic. Its development and ways of use in audiovisual media, especially in the public Czech Television are to be shown.



Dr. Petr Novák, Ph.D.
Radar Department
Czech Hydrometeorological Institute



CZRAD - the Modern Dual Polarization Czech Weather Radar Network

The Czech weather radar network (CZRAD), operated by the Czech Hydrometeorological Institute (CHMI), covers entire area of the Czech Republic and vicinity using volume scan measurements of its two radars with 5 minute update rate up to 260 km range. The CZRAD data are used for severe weather and precipitation monitoring, nowcasting and warning by national civil and military weather services, operational hydrology, air traffic control and many other users including general public. In 2015, the CZRAD radars were completely replaced with new modern dual polarization Doppler weather radars Vaisala WRM-200. Upgrade of the CZRAD will ensure continuity of high quality radar measurements in next decades. A dual polarization capability of the new radars enable improve quality of standard radar reflectivity data (better filtering of non-meteorological data and attenuation correction) and also enable measurements of new radar quantities that can be used for radar echo classification. The presentation will summarized current technical parameters of the Czech weather radar network. It will discussed improvements of radar data after network upgrade. Utilization of the radar data in the CHMI operational applications will be also shown.



LTC Josef Novotný Dipl. Eng., Ph.D.
Deputy Head of Department of Military Geography and Meteorology
University of Defence



Teaching of Meteorology at the University of Defense

The teaching of meteorology at the University of Defense is currently realized through accredited programs of bachelor and magister degrees. Apart from military students, the courses are also available for civil students, who are trained for security sector. As the military studies came through a formal change (the so-called SP-2014), the meteorology became one of the disciplines constituting the knowledge base for every officer of the Army of the Czech Republic. From the original concept of meteorology, that mainly covered the needs of air traffic management and education of pilots, nowadays the range of meteorological knowledge has evolved to affect such military specializations as for example chemical army, biological protection units as well as ground troops and artillery. The present tendencies of new technology application (e.g. meteorological information systems) can be expected to intensify in the near future not only for educational, but also scientific and expert activities. The resulting practical advantages are used by the department since 2014 in the form of data collected from professionally equipped university meteorological station. An alternative direction of the future department research represents the study of employment of unmanned aerial vehicles, for the purpose of different meteorological applications.



Mr. Karel Raděj
Director
Research Institute of Geodesy, Topography and Cartography



Implementation of GNSS Technology to Practical Geodesy - Coordinate System S-JTSK/05

Co-presentation with prof. Jan KOSTELECKÝ

The introduction of satellite technology GNSS to surveying practice made it necessary to address the relationship between the geocentric system, which operates GNSS, with national positioning system. The Czech Republic regards specifically the ETRS89 connection with the systém S-JTSK. The paper describes the implementation of the newly designed S-JTSK / 05, which addresses the relationship between ETRS89 and S-JTSK, including consideration of deformation classically built geodetic control. Co-author: Mr. Jan Kostelecký



Mr. Petr Rapant
Institute of Geoinformatics, Faculty of Mining and Geology
VŠB - Technical University of Ostrava



Flash Flood Risk Assessment Using Weather Radar

Flash floods caused extensive damage annually to property and sometimes loss of life. So far, there was no simple way of fast predicting the growth of the risk of flash floods along watercourses. The goal of the presented research was to develop such a method of qualitative prediction of the growing risk of flash floods and generating an early warning for the potentially affected municipalities. The developed methodology is based on the weather radar data processing. It has been implemented in GIS. Off-line tests confirmed its effectiveness and also efficient usability.

GEOMETOC Speakers – in alphabetical order



prof. Dr. Ing. Wolfgang Reinhardt
AGIS GI research group, Professorship of Geoinformatics, Department of Applied Computer Sciences
University of the Bundeswehr Munich



Selected Challenges and Trends in the Field of Geoinformatics

The author has worked in Geographic Information Science, in research and development projects as well as in GIS applications for many years. Very often data management as well as dissemination of geographic data and information and quality issues are crucial for the success of the projects. In the presentation, the author will address some of these issues.



Mr. Tomáš Rosa, Ph.D.
External consultant
National Security Authority



Facing the New Era of Widespread Attacks on GNSS

The software-defined radio (SDR) concept not only dramatically changes the way we design our new radio applications, it also significantly alters the way on how to effectively break them. We review the contemporary widely accessible GNSS hacking tools by presenting efficient GPS L1 C/A spoofing attacks based just on public SDR internet sources. Despite the extreme simplicity, their impact on COTS GPS receivers is often devastating. Direct extension towards successful GLONASS meaconing attack is also shown and the impact on other GNSS services is discussed. The aim is to provide concrete inputs for practical risk analyses and penetration tests in e.g. financial security area.



Mr. Kamil Rudolecký
Deputy Minister of Transport- Department of Infrastructure, Civil Aviation and Space Activities
Ministry of Transport



Welcome Speech



Mr. Marjan Sandev
Head of Central Forecasting Office
Czech Hydrometeorological institute



Integrated Warning Service System (IWSS) at Czech Hydrometeorological Institute (CHMI)

CHMI's warning service is a component of Integrated Rescue System of Czech Republic which supplies issuing of warning information for the territory of Czech Republic from both meteorological and hydrological risks point of view. The main purpose of this system is to inform and warn authorities, media, people and other users of hydrometeorological data about probability of dangerous weather and protection of human lives and property. This service is carrying out by meteorological and hydrological forecasting sections (Central and Regional Forecasting Offices) of CHMI in cooperation with Military Weather Service of Army of Czech Republic using concept of Integrated Warning Service System. Basic component of IWSS is warning information. Outputs from IWSS are available in ASCII, XML and newly in CAP (Common Alert Protocol) formats immediately after their issuing. Special text information is sending to Integrated Rescue Service, Military Weather Service, local authorities, catchment organizations, media and others. Warning information is given to web site of CHMI www.chmi.cz in graphical and tabular format. Notifying message for many users is prepared and distributed automatically by email when warning information is issued. SMS information is also prepared for some users. It is also important to educate authorities, media and other users for better understanding of warning information.



Mr. Jaroslav Šmid
Deputy Director
National Security Authority



Welcome Speech



Mr. Jindřich Štáštka, Msc.
Satellite Department,
Czech Hydrometeorological Institute



Satellite Data in the Czech Hydrometeorological Institut

Satellite data used in the Czech Hydrometeorological Institute are an important part of a weather forecast and products based on these data are also provided to the Armed Forces of the Czech Republic. In this presentation, we focus on a whole process of receiving and processing of satellite data before final products are distributed to users. In addition, we mention future trends in satellite meteorology and future meteorological satellites and instruments.



COL (Ret.) Assoc. Prof. Václav Talhofer Dipl. Eng.
Department of Military Geography and Meteorology
University of Defence



Model of Cross-Country Movement Verification: Case Study

One of the fundamental tactical activities is maneuver, which is provided on the terrain. Maneuverability is mainly limited by terrain, its components and current conditions. Reliable geospatial information enables to support decision-making of commanders including maneuvers planning. Geographic information systems allow modelling of an influence of the individual terrain components on movement of military vehicles depending on their technical and tactical characteristics. The quality of data sources and used models is necessary to consider in such as modelling. The Department of Military Geography and Meteorology at the University of Defence in Brno is focusing its research to this domain. The case study deals with verification of complex models of the Cross-Country Movement that were created using standard digital geographic data for typical vehicles being used in the Czech Army.

Co-authors: Mr. Marian RYBANSKÝ, Mr. Alois HOFMANN, Mr. Martin HUBÁČEK, Mrs. Šárka HOŠKOVÁ-MAYEROVÁ



Mr. Pavel Václavovic M.Sc.
Geodetic Observatory Pecný
Research Institute of Geodesy, Topography and Cartography



17 Years of Precise GNSS Tropospheric Products and Services from Geodetic Observatory Pecný

Co-presentation with Mr. Jan DOUŠA

Geodetic Observatory Pecný (GOP) has a long-term experience in developing and estimating precise tropospheric parameters using data from GNSS permanent stations, in particular under the limited timelines of near real time. For more than 17 years, the GOP Zenith Total Delay (ZTD) product has contributed to various projects in Europe (COST-716, TOUGH, E-GVAP, GNSS4SWEC, EUREF, IGS) with over a decade flowing via the meteorological observation exchange network to end users worldwide. Currently, the GOP regional and global ZTD products are routinely assimilated in Météo France and UK MetOffice and exploited in other meteorological institutions. During the period, GOP has extended the list of tropospheric products and activities towards a variety of solutions covering all different temporal, spatial, and qualitative scales. The tropospheric products are thus provided from several regional European networks as well as from a global one. The products update ranges from the re-processing activities to the near real-time and real-time generation. The solutions consist of various parameterizations - standard (ZTD only) and advanced (ZTD, horizontal gradients, slant delays) and uses multi-GNSS data and high-resolution parameter sampling. Our recent activities have focused on the software development. We have installed the in-house GOP-TropNET system (<http://www.pecny.cz/joomla25/index.php/trop-net>) at several institutions in support of establishing new E-GVAP analyses centres for near real-time troposphere solutions. We have completed the development of in-house G-Nut/Tefnut software (<http://www.pecny.cz/joomla25/index.php/gnss/sw/tefnut>) for real-time troposphere monitoring with support of all GNSS constellations (GPS, GLONASS, Galileo, BeiDou) and all possible parameters (ZTD, tropospheric horizontal gradients and slant delays). Finally, we are developing a powerful system, GOP-TropDB (<http://www.pecny.cz/joomla25/index.php/gop-tropdb>), for the evaluation of tropospheric parameters gained from different observation techniques which is planned for serving a wide community in the framework of the International GNSS Service (IGS) in future. The presentation will give a summary over these developments and achieved results.



prof. František Vejražka
Faculty of Electrical Engineering, Department of Radioelectronics
Czech Technical University in Prague



Radio Position Determination – Satellite Methods and Opportunity Signals

The radio position determination has been until recently mainly a part of navigation of aircraft and ships. Arrival of satellite methods together with electronics developments and miniaturization have made it serviceable in many sectors of human life. However a permanent desire to have more and more precise position in any case has caused that many new problems have arisen: measured position under a vegetation canopy is not precise enough similarly as in urban canyons, indoor position determination is difficult and insufficiently accurate, etc. The small intensity of radio signals, a change of direction of their arrival by surrounding object are main reasons – so called hard conditions - of this state.

We can improve position determination by support with special signals produced by the reference stations. Their possibilities are limited, too.

But there are in the air even other signals which have potential possibility to serve for position determination. Their common property is the wide frequency band thanks which they can be used for distance measurement and thus for positioning. Such signals are produced by DVB-T, LTE transmitters e.g. The next advantage of these sources is high level of received signals. We call such signals as opportunity ones.

We can be a provider of navigation systems, too and produce own ranging signals of parameters required for precision position determination in hard condition.

Our contribution deals with the opportunity signals and the methods for hard conditions.

GEOMETOC Programme

Wednesday, 19 October 2016		PVA EXPO Praha, Hall 2
09:00 - 17:00	Registration	
12:45 - 13:15	Poster Sessions	
13:30 - 14:20	Workshop Opening and Welcome Speeches	
	Introductory Remarks and Welcome Speech - COL Jan CÍREK - GEOMETOC Chairman; Chief of Hydrometeorological Service, General Staff, Czech Armed Forces, CZE	
	Welcome Speech - Mr. Kamil RUDOLECKÝ - Deputy Minister of Transport, CZE	
	Welcome Speech - Mr. Jaroslav ŠMÍD - Deputy Director, National Security Authority, CZE	
	Welcome Speech - Mr. Václav DVOŘÁK - Director, Czech Hydrometeorological Institute, CZE	
14:20 - 17:00	DESIGNATED GEOSPATIAL INFORMATION FOR STATE SECURITY FORCES AND ORGANIZATIONS Moderated by: Mr. Václav MISÍK - Deputy Chief of Cabinet, Deputy Chief of International Relations National Security Authority, CZE	
14:20 - 14:30	Introductory Remarks - COL (Ret.) Václav TALHOFER - Vice-chairman GEOMETOC, Department of Military Geography and Meteorology, University of Defence, CZE	
14:30 - 14:50	Selected Challenges and Trends in the Field of Geoinformatics Mr. Wolfgang REINHARDT - University of the Bundeswehr, Muenchen, Chair of Geoinformatics, DE	
14:50 - 15:10	Civil-military Cooperation in Geospatial Information in the Czech Republic Mr. Karel BRÁZDIL - Director of Land Survey Office, CZE	
15:10 - 15:30	Coffee Break & Networking	
15:30 - 15:50	Spatial Data Integration and Multidimensional Databases for Czech Crime Prevention Mr. Jiří HORÁK - Czech Association for Geoinformation (CAGI), Vice-President; VSB - Technical University of Ostrava, CZE	
15:50 - 16:10	Vector Geospatial Databases in the Czech Armed Forces MAJ Jan MATULA - Standardization Coordinator, Office of Military Geography and Hydrometeorology, CZE	
16:10 - 16:30	Cloud Based Geospatial Exploitation Silver Partner presentation Stand No. 454	
16:30 - 16:50	Avalanche Risk Assessment: A Case Study of Gyong Sector Siachen Pakistan Mr. Hamid ASHRAF - School of Mining Engineering, University of the Witwatersrand, Johannesburg, PAK	
16:50 - 17:00	Session Closing Remarks - COL (Ret.) Václav TALHOFER - Vice-chairman GEOMETOC, Department of Military Geography and Meteorology, University of Defence, CZE	

Thursday, 20 October 2016		PVA EXPO Praha, Hall 2
08:30 - 16:45	Registration	
09:00 - 09:15	Poster Sessions	
09:30 - 11:50	GEOSPATIAL SUPPORT TO NATIONAL DEFENCE AND CRISIS MANAGEMENT Moderated by: Mr. Václav MISÍK - Deputy Chief of Cabinet, Deputy Chief of International Relations National Security Authority, CZE	
09:30 - 09:40	Introductory Remarks - COL Vladimír KOVAŘÍK - Vice-chairman GEOMETOC, Head of Department of Military Geography and Meteorology, University of Defence, CZE	
09:40 - 10:00	The Geospatial Services of the EU Satellite Centre to Support the EU External Action in the CFSP/ESDP Field Mr. Pascal LEGAI - Director of the European Union Satellite Centre, EU	
10:00 - 10:20	Specifics of the Thematic Map Production at a Strategic Command Level COL Vladimír KOVAŘÍK - The Head of the Department of Military Geography and Meteorology, University of Defence, CZE	
10:20 - 10:40	Enhanced Disaster Preparedness by Multi-Actor Cross-Organizational Information Infrastructures Mr. Horst KREMERS - Chairman CODATA German National Committee for the Committee on Data for Science and Technology of ICSU, DEU	
10:40 - 11:00	Coffee Break & Networking	
11:00 - 11:20	Model of Cross-Country Movement Verification: Case Study COL (Ret.) Václav TALHOFER - Department of Military Geography and Meteorology, University of Defence, CZE	
11:20 - 11:40	Flash Flood Risk Assessment Using Weather Radar Mr. Petr RAPANT - Institute of Geoinformatics, Faculty of Mining and Geology, VSB - Technical University of Ostrava, CZE	
11:40 - 11:50	Session Closing Remarks - COL Vladimír KOVAŘÍK - Vice-chairman GEOMETOC; Head of Department of Military Geography and Meteorology, University of Defence, CZE	
11:50 - 12:50	Lunch Break & Networking	
12:20 - 12:40	Poster Sessions	
12:50 - 16:45	MODERN TRENDS IN THE HYDROLOGICAL AND METEOROLOGICAL SUPPORT OF ARMED FORCES AND GOVERNMENT PERFORMANCE Moderated by: Mr. Václav MISÍK - Deputy Chief of Cabinet, Deputy Chief of International Relations National Security Authority, CZE	
12:50 - 13:00	Introductory Remarks - LTC Josef NOVOTNÝ - Vice-chairman GEOMETOC, Deputy Head of Department of Military Geography and Meteorology, University of Defence, CZE	
13:00 - 13:20	The Necessary Cooperation on Safety between Civil and Military Aviation MG (ret) Denis KOEHL - Senior Military Advisor, EASA	

GEOMETOC Programme

13:20 - 13:40	Mobile Hydrometeorological Support of Foreign Deployment 1LT Helena HOLEČKOVÁ - Officer and Synoptist at Hydrometeorological Mobile Station, Office of Military Geography and Hydrometeorology, CZE
13:40 - 14:00	The Importance of Accurate Measurement in Soundings Operations Industry presentation - Mr. Aki LIJLA - Regional Manager, VAISALA Stand No. 304
14:00 - 14:20	Teaching of Meteorology at the University of Defense LTC Josef NOVOTNÝ - Vice-chairman GEOMETOC, Deputy Head of Department of Military Geography and Meteorology, University of Defence, CZE
14:20 - 14:40	Weather Phenomena Warning in the Czech Television from 1997 to Nowadays Ms. Tatána MÍKOVÁ - Head of the Weather Department, Czech Television, CZE
14:40 - 15:00	Coffee Break & Networking
15:00 - 15:15	Understanding the Flood Risk: Has 20 Years of Experience Led to Turn from Disaster Management to Culture of Risk Management, Prevention and Preparedness? Mr. Jan DANĚLKA - Deputy Director, Head of Hydrology Division, Czech Hydrometeorological Institute, CZE
15:15 - 15:30	Seamless Weather Forecast by the ALADIN System Mrs. Radmila BROŽKOVÁ - Head of Numerical Weather Prediction Department of the Czech Hydrometeorological Institute, CZE
15:30 - 15:45	CZRAD - the Modern Dual Polarization Czech Weather Radar Network Mr. Petr NOVÁK - Head of Radar Department, Czech Hydrometeorological Institute, CZE
15:45 - 15:55	Break
15:55 - 16:10	Satellite Data in the Czech Hydrometeorological Institute Mr. Jindřich ŠTÁSTKA - Satellite Department, Czech Hydrometeorological Institute, CZE
16:10 - 16:25	Integrated Warning Service System (IWSS) at Czech Hydrometeorological Institute Mr. Marjan SANDEV - Head of Central Forecasting Office, Czech Hydrometeorological Institute, CZE
16:25 - 16:35	Panel Discussion LTC Josef NOVOTNÝ - Vice-chairman GEOMETOC, Deputy Head of Department of Military Geography and Meteorology, University of Defence, CZE Mr. Radim TOLASZ - Head of Climate Change Department, Czech Hydrometeorological Institute, CZE
16:35 - 16:45	Session Closing Remarks - LTC Josef NOVOTNÝ - Vice-chairman GEOMETOC; Deputy Head of Department of Military Geography and Meteorology, University of Defence, CZE



Friday, 21 October 2016 PVA EXPO Praha, Hall 2

08:30 - 12:50	Registration
08:45 - 09:15	Poster Sessions
09:30 - 12:50	GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) FUTURE CHALLENGES AND OPPORTUNITIES Moderated by: Mr. Václav MISÍK - Deputy Chief of Cabinet, Deputy Chief of International Relations National Security Authority, CZE
09:30 - 09:40	Introductory Remarks - Mr. Radovan KLÍMA - GEOMETOC Vice-chairman, Competent PRS Authority, National Security Authority, CZE
09:40 - 10:00	Facing the New Era of Widespread Attacks on GNSS Mr. Tomáš ROSA - External Consultant to National Security Authority, CZE
10:00 - 10:20	GNSS Vulnerabilities and Potential Solutions Mr. Mark DUMVILLE - General Manager, Nottingham Scientific Ltd., GBR
10:20 - 10:40	Using Multiple GNSS Constellations in Satellite Navigation MAJ Jiří HUBICKA - Chief of GNSS Department, Office of Military Geography and Hydrometeorology, CZE
10:40 - 11:00	Coffee Break & Networking
11:00 - 11:20	Radio Position Determination – Satellite Methods and Opportunity Signals prof. František VEJRAŽKA - Faculty of Electrical Engineering, Czech Technical University in Prague, CZE
11:20 - 11:40	GPS PPS and GALILEO PRS Mr. Miroslav KURIDZA - GNSS / GALILEO Advisor (DE MoD Sub-structure), DEU
11:40 - 12:00	Implementation of the Galileo Public Regulated Service in the Czech Republic Mr. Radovan KLÍMA - GEOMETOC Vice-chairman; Competent PRS Authority, National Security Authority, CZE
12:00 - 12:20	17 Years of Precise GNSS Tropospheric Products and Services from Geodetic Observatory Pecny Mr. Jan DOUŠA - Geodetic Observatory Pecny of the Research Institute of Geodesy, Topography and Cartography, CZE Mr. Pavel VACLAVOVIC - Geodetic Observatory Pecny of the Research Institute of Geodesy, Topography and Cartography, CZE
12:20 - 12:40	Implementation of GNSS Technology to Practical Geodesy - Coordinate System S-JTSK/05 prof. Jan KOSTELECKÝ - Faculty of Mining and Geology, VŠB Technical University of Ostrava, CZE Mr. Karel RADĚJ - Director of the Research Institute of Geodesy, Topography and Cartography, CZE
12:40 - 12:45	Session Closing Remarks - Mr. Radovan KLÍMA - GEOMETOC Vice-chairman, Competent PRS Authority, National Security Authority, CZE
12:45 - 12:50	Workshop Closing Remarks - COL Jan ČÍREK - GEOMETOC Chairman; Chief of Hydrometeorological Service, General Staff, Czech Armed Forces, CZE
12:50 - 13:30	Lunch & Networking

GEOMETOC Poster Sessions

Geospatial, Hydrometeorological and GNSS Workshop (GEOMETOC)

GEOMETOC: Poster presenters to be present (Time noted / recommended in programme): 19OCT : 12:45-13:15 / 20OCT : 09:00 - 09:15; 12:20 - 12:40 / 21OCT : 08:45 - 09:15



The Czech Provincial Reconstruction Team served in the Afghan Province of Logar - Lessons Learned - Topic TBC
Mr. Petr KAVKA - Czech Technical University In Prague, CZE

The contribution presents selected examples of structures, which was build during the tenure of PRT in Logar province. Development assistance in the midst of war under the protection of armed forces does have a number of disadvantages, but sometimes it is the only stable and efficient option. An example of linking civilian experts and military forces may be just the Czech PRT in Logar province. Once during the first year they managed to promote small hydro-technical structures and establish long-term strategy in the water management next to the "traditional" reconstruction projects such as schools and hospitals. Major problem is a lacking of the input data (rainfall, flow, temperature, evaporation), on the basis of which it was possible to simply decide on the appropriateness. Hydrological study was carried out on selected river basin by PRT and hydrological measurements began.



The Modeling of the Terrain Passability of Military Vehicles
Mr. Martin BUREŠ - Student, Department of Military Geography and Meteorology, University of Defence, CZE
Co-authors: Ms. Lucie ALMAŠIOVÁ - Department of Military Geography and Meteorology, University of Defence, CZE
Ms. Marie BRĚNOVÁ - Department of Military Geography and Meteorology, University of Defence, CZE
Mr. Filip DOHNAL - Department of Military Geography and Meteorology, University of Defence, CZE

Passability belongs to the basic requirements of the military vehicles. Operational planning (both military and civilian), especially with regards to emergency service, needs to be able to determine best route possible. For this purpose it is of utmost importance to analyse terrain passability, optimal route and in best case scenario to predict relocation time. State-of-the-art computing technology and software led by geographical informational systems (GIS) enables fast and thorough terrain passability analysis. An obstacle for terrain passability assessment with GIS is mostly the creation of suitable tool for modeling - whether those are databases, mathematical equations or combining different aspects in one functional tool. The verification of the model is only possible by real test and by comparing the results of those tests with the modeled situation. The results of modeling and their verification are subjects of published poster.

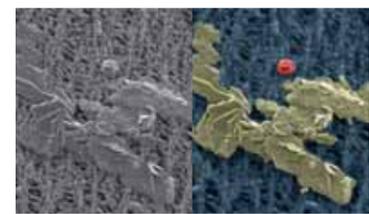


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Czech Hydrometeorological Institute (CHMI) is to serve as the Czech Republic's central government institution for the fields of air quality, hydrology, water quality, climatology and meteorology, performing this function as an objective specialised service provided preferentially for state administration. CHMI establishes and operates national monitoring and observation networks for monitoring of qualitative and quantitative conditions of the atmosphere, including the ozone layer, and the hydrosphere and the causes leading to their pollution or deterioration.



- According to the Charter of the Czech Hydrometeorological Institute its main activities include:
- Provision of the civil service in its fields of expertise in a rational, efficient and economical manner;
 - Establishment and operation of the national monitoring and observing networks for monitoring the qualitative and quantitative conditions of the atmosphere and hydrosphere and sources resulting in pollution or harmful effects;
 - Professional evaluation of the results of observation, measurements and monitoring, following the principles of the EU legislation;



In line with its Charter, the CHMI is organised as a multidisciplinary institution with close interdisciplinary links and cooperation.



CHMI conducts expert analysis of the obtained measurements, creates and manages databases, provides forecasts and warnings, implements and coordinates scientific research activities. CHMI has an extensive experience in international cooperation especially regarding monitoring of air quality, ozone layer (implementation of the Montreal Protocol) as well as hydrological and meteorological services. CHMI as national weather service provider cooperates with the international meteorological community within the official structure of the World Meteorological Organization and other functional groupings (EUMETNET, ECMWF, FC LACE or Aladin Consortium). CHMI contributes to the collection and sharing of data, shares the capacity development especially in the field of numerical modelling and weather forecast. Climatological database (CLIDATA) developed by the CHMI is currently being used in 36 countries on 4 continents and regular trainings are taking place in the Czech Republic and abroad.

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Monitoring deformations of buildings and their technologies using the measuring system developed at the Research Institute of Geodesy, Topography and Cartography

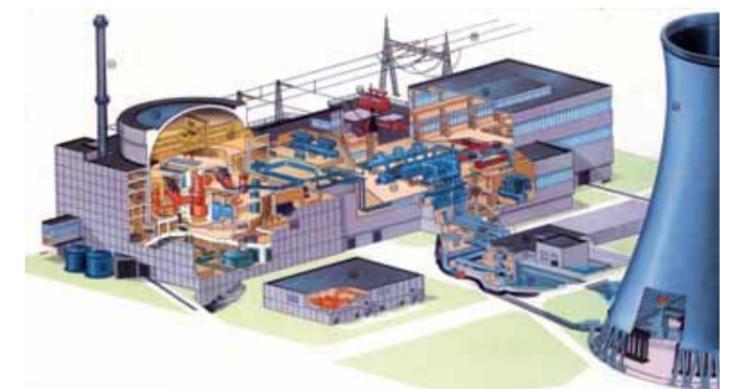


HYNI measuring system is designed for continuous monitoring of vertical displacement of constructions and technological parts of strategic facilities, including power plants. On-line monitoring of objects is performed in real time with immediate output of numerical and graphical evaluated measured results.

The principal advantage of automated measuring system is virtually continuous measurement without operator intervention, high accuracy of deformation measurement, independent measurement of environmental characteristics, independence of the measurement at different temperatures of inspected facility and ultimately lower costs compared with the costs of applying conventional technologies.



HYNI Measurement sensors



Scheme of a nuclear power plant where HYNI sensors are used on baseplates and TG technologies

Some of the specifications of measuring system sensors:

Dimensions: height = 270 mm, width = 205mm, depth = 275 mm

Weight of sensor (including liquid): 13 kg Power supply: 18 - 30 V, 0.5 A

Measuring range: 10 - 90 mm Communication: RS-485

Temperature measurement range: +5 to + 50°C (liquid no. 1), - 20 to + 50 ° C (liquid no. 2)

Sensor resolution: 0,001 mm

Elevation measurement accuracy : 0.05 mm

Contacts in the Czech Republic

Research Institute of Geodesy, Topography and Cartography (VUGTK, v. v. i.):

Tel.: +420 226 802 302, Fax: +420 284 890 056 E-mail: vugtk@vugtk.cz, www.vugtk.cz

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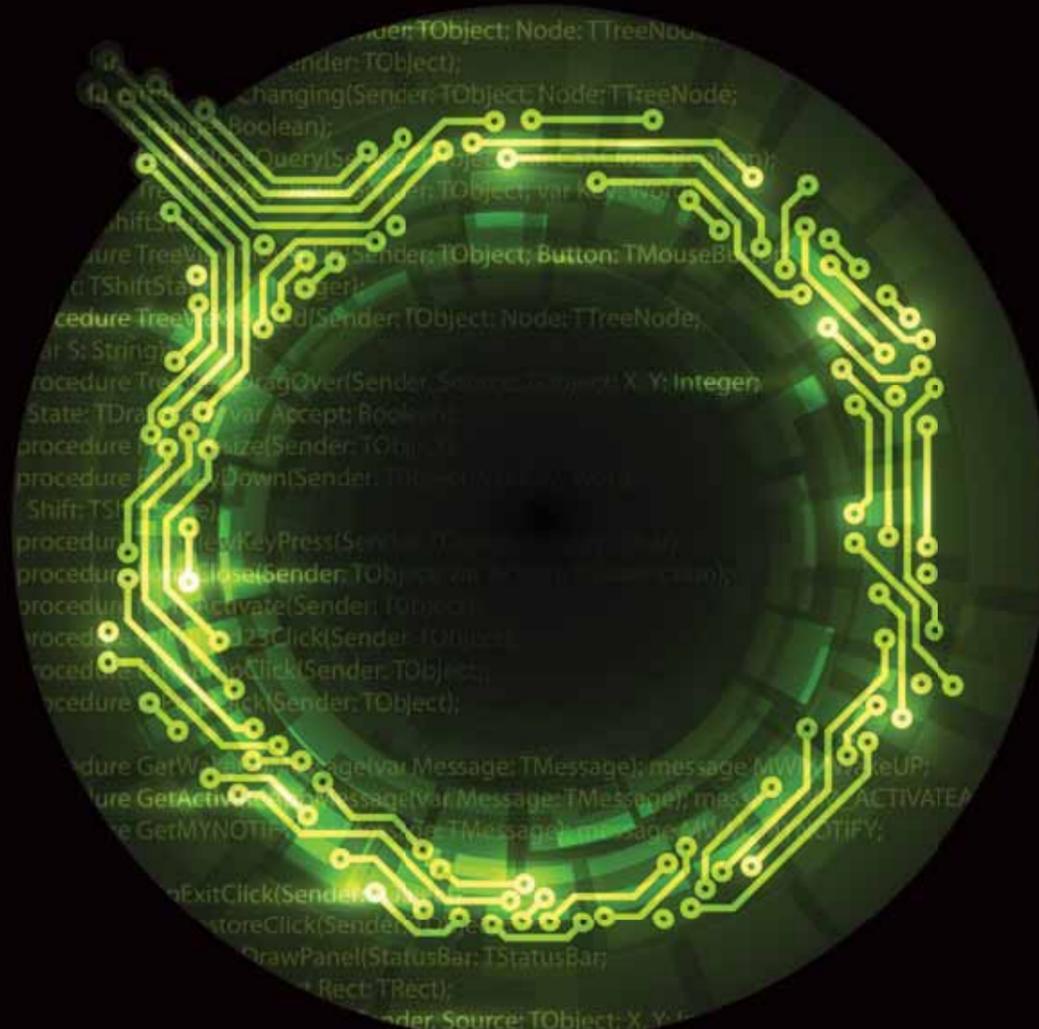
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Programme Committee – in alphabetical order



Mr. Jaroslav BURČÍK
Director
ITU Centre of Excellence for Cyber Security, Czech Technical University



BGen. Lubomír GACKO
Chief of the Operations Support Staff,
General Staff of the Armed Forces of the Slovak Republic



Col. Lubomír GORELČÍK
Chief CIS Branch
J6 of General Staff of the Slovak Republic



Assoc. Prof. Marcel HARAĀAL
Vice-rector, Armed Forces Academy, Slovakia



LtCol. Petr HRŮZA
University of Defence, Czech Republic



Mr. Petr Jirásek Chairman
AFCEA Czech Cyber Security Working Group



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Chief of Military Office
Military Office of the President of the Republic and Castle Guard, Czech Republic



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Rector
Academy of the Police Force in Bratislava



Mr. Tomáš MŮLLER
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Member, Management Committee for Information Society ICT UNIE
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Mr. Vladimír ROHEL
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National Cyber Security Centre, Czech Republic



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Rector
Police Academy Prague



MG Erich Staudacher Deputy
Director
Bundeswehr Planning Office



LtCol. (Ret.) Josef STRELEC
Honorary President, AFCEA Czech chapter



Assoc. BGen. Miloš SVOBODA
Deputy Director, Fire Rescue Service, Czech Republic



MGen. (Ret.) Klaus-Peter TRECHE
General Manager, AFCEA Europe, Germany



Mr. Josef VESELÝ, Ph.D.
Security Director, Ministry of Interior, Czech Republic



Gen. (Ret.) Mieczyslaw Bieniek
Security & Defense Advisor

Opening speech



COL Dr. Miroslav Brvnišan, Ph.D.
Assistant Professor, Department of Public Administration and Crisis Management
Police Academy in Bratislava

Opening speech



Mr. Adrian Demeter
Cyber Security Advisor
Deloitte, Czech Republic

Cybersecurity Trends and Opportunities
Red Teaming: Military Past and Cyber Future moderator



Mr. Chris Folk
Director of the National Protection and Response Division
Homeland Security Systems Engineering and Development Institute (HSSEDI)

Opening speech



Mr. Dany Gagnon
Executive Risk Management Advisor
IBM Security Business Unit CEE

Understand organizations' objectives and approach and IBM's Point of View on Cloud Security



Mr. Milan Habrcetl
Account Manager Security Sales
Cisco Systems, Inc.

New trends in Cybersecurity Protection – vision of completeness



Mr. Terry Halvorsen
Chief Information Officer
U.S. Department of Defense

Hybrid Warfare & Cyber Threats – Cross Atlantic collaborative challenges



Future of Cyber Conference CYBER TRENDS Speakers – in alphabetical order



COL Rastislav Janota
Director of Information Security and Electronic Signature Department
National Security Authority



Cyber Security in the Slovak Republic – Current State and Trends



Mr. Petr Jirásek
Chairman
AFCEA Czech Cyber Security Working Group



Welcome speech and Closing remarks



Mr. Zdeněk Jiříček
National Technology Officer
Microsoft



Cloud Computing panelist



LtCol. (Ret.) Robert Kosla
Director Public Safety
Microsoft Central and Eastern Europe HQ



Cloud Security Advantage
Cyber Threat intelligence and Information Protection - Workshop Moderator



Mr. Lukáš Kypus
Head of Training
CyberGym Europe



The role of human factor in cyber-defense and how to handle?



MG Ludwig Leinhos
Director Activation Staff of the Cyber Information Domain Service
Ministry of Defence



Cyber- and Information Domain Service - A new approach for the German Federal Armed Force



net.pointers is a company primarily focused on providing IT security and complimentary professional services, covering DDoS protection, perimeter security and data loss protection, detection. Especially when talking about data loss protection time is a crucial factor and we believe in choosing the best tool for the job, which is why we decided to partner with Fidelis Cybersecurity and use their technology which is trusted by many agencies such as IBM, Microsoft, MetLife, Apple and U.S. Air Force. As the cyber security field is always changing, the old approach of static defence mechanisms is losing its effectivity, so in order to keep up with the attackers, defenders have to adopt more offensive stance themselves. This is evident in recent news such as cyber attack on Ukraine, CIA director John Brennan warning about Russian hackers with exceptional skills and soon after that Russian hackers attacking the World Anti- Doping Agency and successfully retrieving information about american athletes. The SCADA systems are still very popular target as is evident from recent attack on water treatment facilities in the US in order to increase levels of chlorine to dangerous levels.

To combat this passive approach is replaced with more active oriented search for zero-day breaches and custom crafted malware. Analysis of new and unknown threats is done through sandboxing in separate hardware, the analysis result is then reported back to the device that sent it to take appropriate action. To provide all this functionality multiple devices are often needed, administrators have to monitor multitude of console outputs and prioritize among large amounts of alerts

generated by every tool. The time of an administrator or security engineer is a very valuable resource that needs to be utilized as efficiently as possible, this is a fact of which we at net.pointers are very aware. Fidelis enables easier overview of all events on the network, if perhaps an event is classified as harmful, the tool enables us to look backwards in time to check if the same event has ever occurred before and further investigate the stations involved. This is indeed time consuming and requires substantial experience in security, not every business can afford to have a dedicated engineer for this task. We are prepared to offer the expertise of our engineers to help solve issues that may arise.

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Network as a Security Sensor and Enforcer

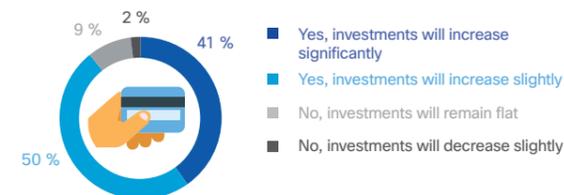
Network security monitoring plays a significant role in today's cyber-security landscape. According to research by Enterprise Strategy Group, 80% of surveyed cybersecurity professionals perceive network security monitoring as a critical component of their overall security strategy.

If used properly, network security monitoring can have a drastic effect on security, offering clues to understand network traffic flows both internally and externally and enabling querying for proactive detection of suspicious behaviour.

Network security monitoring is becoming more difficult, though, due to an overall increase in network traffic as well as an increase in malware volume.

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Mr. Michael Lotas
Cyber Security Architect
net.pointers



Creating the Right Haystack to Find the Needle(s)



prof. Dr. Holger Mey
Vice President Advanced Concepts
Airbus Defence and Space



Does Technology Win Wars



Mr. Tomáš Müller
President
AFCEA Czech Chapter



Welcome speech and Closing remarks



Mr. Dušan Navrátil
Director
National Security Authority



Critical Information Infrastructure protection in the Czech Republic



Col. Paulo Viegas Nunes
Project Manager
NATO Multinational Smart Defence Project on Cyber Defence Education & Training



Mr. Chris Stace
Head of Unit Information Superiority
European Defence Agency



Cyber threats and trends, EDA mission and projects
EDA Workshop Main Speaker



Mr. Ondřej Štáhlavský
Regional Director for CEE
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Current security threats and vulnerabilities



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Future of Cyber Conference CYBER TRENDS Speakers – in alphabetical order



Mr. Miroslav Tůma
Cyber Security Director
Ministry of Interior



Cloud Computing Strategy of the Czech Republic and recent plans and projects' initiatives
Cloud Computing panelist



Mr. Tomáš Vobruba
Security Architect
AEC



I know, that I know nothing



prof. Jiří Voříšek
Vice president, Professor Emeritus, Professor
Czech Association for Systems Integration, Prague University of Economics, Paneuropean University Bratislava



Conference Opening speech
Cloud Computing workshop moderator



Mr. Graham Walker
Senior Product Manager; Scientist
Allied Telesis



Practical solutions for Cloud Security



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Naším klientům nabízíme strategické poradenství v oblasti budování účinné kybernetické obrany se zohledněním jejich aktuální situace a možností. V rámci definice strategie zohledňujeme všechny faktory - lidský činitel, technologické hledisko a soulad s normativy a zákony. Soustředíme se na odhalení rizikových oblastí, které jsou specifické pro vaši činnost a které jsou potenciálním terčem novodobých praktik útočníků. Následně zajišťujeme dohled nad realizací této strategie ve vaší společnosti. Nosnými kroky strategie je realizace praktických „hands-on“ tréninkových programů pro vaše zaměstnance. Na ně navazují naše konzultační služby tak, aby došlo k hladkému přenesení zkušeností získaných v tréninku do reálné praxe. V rámci strategie aktivně pracujeme s lidským faktorem působícím v rizikových oblastech činnosti organizace. Mezi tyto oblasti patří zejména provoz a dohled informačních a bezpečnostních systémů. U průmyslových podniků pak provoz průmyslových zařízení (SCADA systémy). Vždy se snažíme vzdělávat a trénovat i vedení společnosti, které je zodpovědné za strategická rozhodnutí při minimalizaci škod a ztrát způsobených kybernetickými incidenty.

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Future of Cyber Conference Programme

Thursday, 20 October 2016		Entrance Hall VH1, ROOM 1
09:00	Welcome speech - Mr. Tomáš Müller, President, AFCEA Czech Chapter, Czech Republic	
09:05 - 11:10 Workshop Opening and Welcome Speeches		
09:05	Moderator, Opening speech - Mr. Chris Folk, Director of the National Protection and Response Division, Homeland Security Systems Engineering and Development Institute (HSSEDI), USA	
9:20	Cyber threats and trends, EDA mission and projects Mr. Chris Stace, Head of Unit Information Superiority, EDA, United Kingdom	
9:45	Cybersecurity Trends and Opportunities Mr. Adrian Demeter, Cyber Security Advisor, Deloitte, Czech Republic	
10:10	I know, that I know nothing. Mr. Tomáš Vobruba, Security Architect, AEC, Czech Republic	
10:30	Creating the Right Haystack to Find the Needle(s) Mr. Michael Lotas, Cyber Security Architect, net.pointers, USA	
10:50	Discussion, Q & A	
11:10 - 12:00 Break		
12:00-14:30 CII Protection & Cyber Education		
12:00	Moderator, Opening speech - Col. (Ret.) Dr. Miroslav Brvnišťan, Assistant Professor, Department of Public Administration and Crisis Management, Police Academy in Bratislava, Slovakia	
12:05	Critical Information Infrastructure protection in the Czech Republic Mr. Dušan Navrátil, Director, Czech National Security Authority, Czech Republic	
12:35	Cyber Security in the Slovak Republic – Current State and Trends Col. Rastislav Janota, Director of Information Security and Electronic Signature Department, National Security Authority, Slovakia	
12:55	NATO Multinational Smart Defence Project on Cyber Defence Education & Training Col. Paulo Viegas Nunes, Project Manager, NATO Multinational Smart Defence Project on Cyber Defence Education & Training, Portugal	
13:15	The role of human factor in cyber-defense and how to handle? Mr. Lukáš Kypus, Head of Training, CyberGym Europe, Czech Republic	
13:35	Current security threats and vulnerabilities Mr. Ondřej Štáhlavský, Regional Director for CEE, Fortinet, Czech Republic	
13:55	Q & A	
14:10	Closing remarks - Mr. Petr Jirásek, Chairman, AFCEA Czech Cyber, Security Working Group, Czech Republic	

Friday, 21 October 2016		Entrance Hall VH1, ROOM 1
9:00	Welcome speech - Mr. Petr Jirásek, Chairman, AFCEA Czech Cyber Security Working Group, Czech Republic	
09:05 - 11:45 Cyber/Hybrid Warfare		
9:05	Moderator, Opening speech - Gen. (Ret.) Mieczyslaw Bieniek, Security & Defense Advisor, Poland	
9:15	Moderator, Does Technology Win Wars prof. Holger Mey, Vice president Advanced Concepts Airbus Defence and Space, Germany	
9:40	Cyber- and Information Domain Service - A new approach for the German Federal Armed Force MG Ludwig Leinhos, Director Activation Staff of the Cyber Information Domain Service, Ministry of Defence, Germany	
10:10	Hybrid Warfare & Cyber Threats – Cross Atlantic collaborative challenges Mr. Terry Halvorsen, Chief Information Officer, U.S. Department of Defense, USA	
10:40	Discussion, Q & A	
11:00 - 11:45 Break		
11:45-14:30 Cloud Security		
11:45	Moderator, Opening speech - prof. Jiří Voříšek, Vice president, Professor Emeritus, Professor; Czech Association for Systems Integration, Prague University of Economics, Paneuropean University Bratislava	
11:55	Cloud Computing Strategy of the Czech Republic and recent plans and projects' initiatives Mr. Miroslav Tůma, Cyber Security Director, Ministry of Interior, Czech Republic	
12:25	Cloud Security Advantage LtCol. (Ret.) Robert Kosla, Microsoft CEE Director Public Safety, Microsoft, Poland	
12:50	Understand organizations' objectives and approach and IBM's Point of View on Cloud Security Mr. Dany Gagnon, Executive Risk Management, Adviso IBM Security Business Unit CEE, Canada	
13:10	New trends in Cybersecurity Protection – vision of completeness Mr. Milan Habrceřil, Account Manager, Security sales, Cisco Systems, Inc., Czech Republic	
13:30	Security implications of Edge Computing Mr. Graham Walker, Senior Product Manager; Scientist Allied Telesis, New Zealand	
13:50	Q & A	
14:10	Closing remarks - Mr. Tomáš Müller, President, AFCEA Czech Chapter, Czech Republic	

Future of Cyber Workshops CYBER TRENDS Speakers – in alphabetical order



Mr. Roman Cinkais
Director IT Consulting & QA

Wincor Nixdorf, Ltd.

Innovative biometric solutions



Mr. Ari Davies
Head of Red Teaming Operations

Deloitte

Red Teaming: Military Past and Cyber Future panelist



Mr. Adrian Demeter
Cyber Security Advisor

Deloitte, Czech Republic

Cybersecurity Trends and Opportunities
Red Teaming: Military Past and Cyber Future moderator



Mr. Jan Dienstbier
Technical Supervisor of Platform KYBEZ

Gordic

Cyber Security vs. Internet of Everything moderator



Mrs. Zuzana Duračinská
Security Analyst

CZ.NIC, cz domain registry

Cyber Threat intelligence and Information Protection Workshop Speaker



Dr. Jiří Hynek
President

Defence and Security Industry Association of the Czech Republic



Mr. Peter Jankovský
Chief Technology Officer

Axenta

Critical Information Infrastructure Protection panelist



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Future of Cyber Workshops CYBER TRENDS Speakers – in alphabetical order



Mr. Petr Jirásek
Chairman

AFCEA Czech Cyber Security Working Group
Welcome speech and Closing remarks



LtCol. (Ret.) Robert Kosla
Director Public Safety
Microsoft Central and Eastern Europe HQ

Cloud Security Advantage
Cyber Threat intelligence and Information Protection - Workshop Moderator



Assoc. Prof. Tomáš Pitner
Scientific Director

Masaryk University; CERIT Science Park
Critical Information Infrastructure Protection panelist



Mr. Jaromír Řezáč
Chief Executive Officer

Gordic
Cyber Security vs. Internet of Everything panelist



Mr. Vladimír Rohel
Director

National Center of Cyber Security
Cyber Threat intelligence and Information Protection Workshop Speaker
Cloud Computing panelist



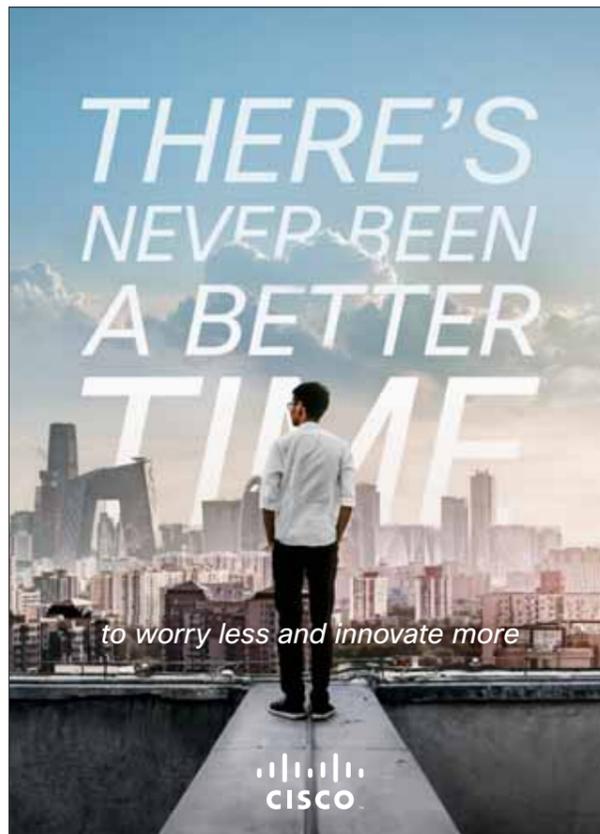
Mr. Jindřich Šavel
CSO

Novicom
Critical Information Infrastructure Protection panelist



Mr. Jiří Sedláček
CEO

Network Security Monitoring Cluster
Critical Information Infrastructure Protection moderator



Future of Cyber Workshops CYBER TRENDS Speakers – in alphabetical order



Mr. Jan Seidl
Cyber Security Expert
Deloitte



Red Teaming: Military Past and Cyber Future panelist
Discussion topics on post-quantum cryptography or blockchain



Mr. Jaroslav Šmíd
Deputy Director
NSA Czech Republic



FCCWS: Cyber Threat intelligence and Information Protection Workshop Speaker
Geospatial, Hydrometeorological and GNSS Workshop Welcome Speech



Mr. Chris Stace
Head of Unit Information Superiority
European Defence Agency



Cyber threats and trends, EDA mission and projects
EDA Workshop Main Speaker



Mr. Miroslav Tůma
Cyber Security Director
Ministry of Interior



Cloud Computing Strategy of the Czech Republic and recent plans and projects' initiatives
Cloud Computing panelist



Mr. Lukáš Vondráček
Director
Elat



Critical Information Infrastructure Protection panelist



prof. Jiří Voříšek
Vice president, Professor Emeritus, Professor



Czech Association for Systems Integration, Prague University of Economics, Paneuropean University Bratislava
Conference Opening speech
Cloud Computing workshop moderator



Air Commodore (Ret.) Bruce Wynn OBE
Cyber Security Expert
Member of AFCEA International Cyber Committee



Cyber Defence OR Protecting the Business
Risk versus Threats - Defend versus Detect - Prevent versus Permit : What should YOU do about it?
moderator & main speaker

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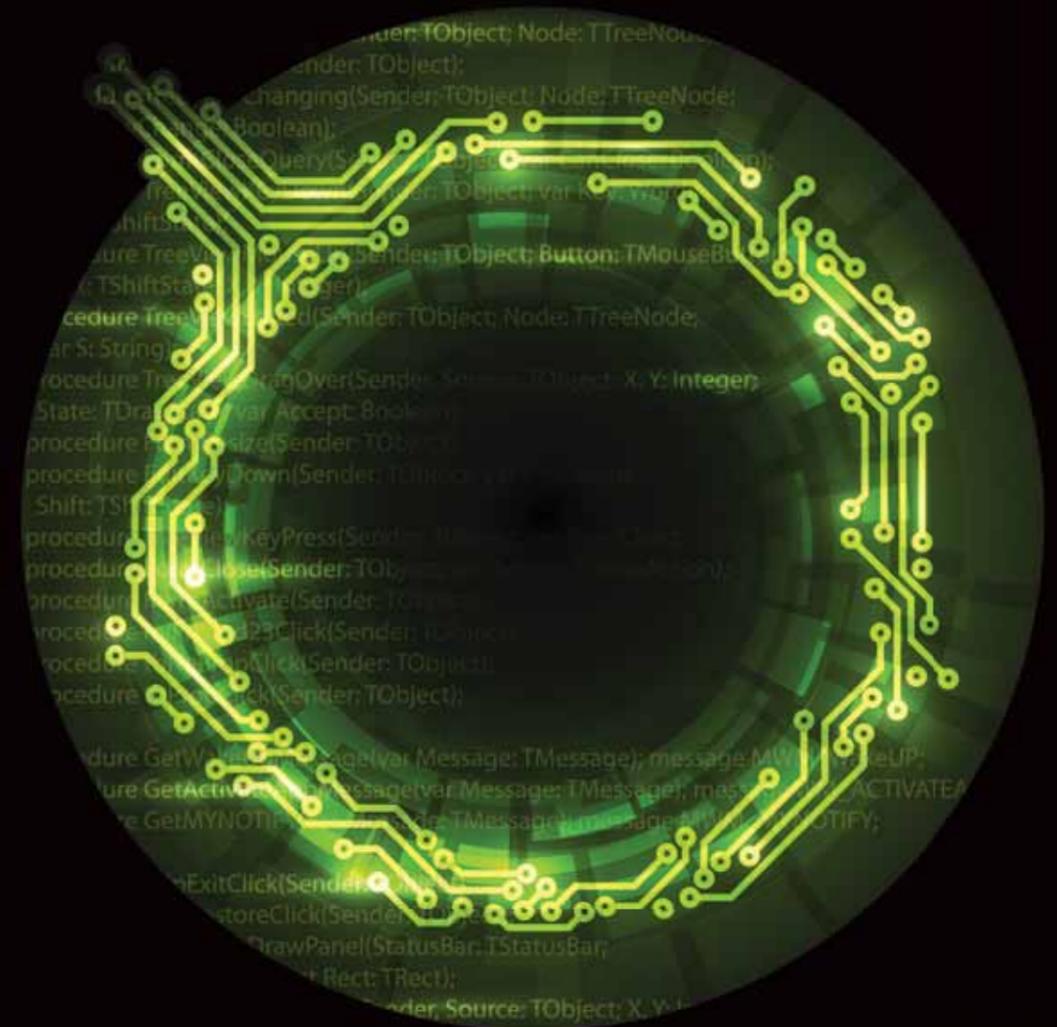
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Future of Cyber Workshops CYBER TRENDS Programme



Workshops Programm

Thursday, 20 October 2016

15:00 - 16:15 ROOM 3, Entrance Hall 2, Cyber Pavilion	Critical Information Infrastructure Protection NSM Cluster Workshop <i>Moderator:</i> Mr. Jiří Sedláček, CEO, Network Security Monitoring Cluster, Czech Republic <i>Panelists:</i> Assoc. Prof. Tomáš Pitner, Masaryk University; CERIT Science Park, Czech Republic Mr. Peter Jankovský, Axenta, Czech Republic Mr. Jindřich Šavel, Novicom, Czech Republic Mr. Lukáš Vondráček, ELAT, Czech Republic
15:00 - 16:15 ROOM 2, Entrance Hall VH1	EDA mission and projects How to do business with EDA? EDA Workshop Mr. Chris Stace, Head of Unit Information Superiority, EDA, United Kingdom <i>Main Speaker</i>
15:00 - 16:15 ROOM 1, Entrance Hall VH1	CYBER THREAT INTELLIGENCE and INFORMATION PROTECTION - Threat analysis automation and Threat intelligence sharing, context of the EU NIS Directive - Risk-based approach and Information Protection in the new threats landscape / mobility age <i>Moderator:</i> LtCol. (Ret.) Robert Kosla, Microsoft CEE Director Public Safety, Poland <i>Panelists:</i> Mrs. Zuzana Duračinská, CZ.NIC, Slovakia Mr. Jaroslav Šmíd, National Security Authority, Czech Republic Mr. Vladimír Rohel, National Center of Cyber Security, Czech Republic
16:30 - 17:45 ROOM 1, Entrance Hall VH1	Cyber Defence OR Protecting the Business <i>Risk versus Threats - Defend versus Detect - Prevent versus Permit : What should YOU do about it?</i> Air Commodore (Ret.) Bruce Wynn, OBE, Cyber Security Expert, Member of AFCEA International Cyber Committee, United Kingdom <i>Moderator & Main Speaker</i>
16:30 - 17:45 ROOM 2, Entrance Hall VH1	Cyber security vs. Internet of Everything <i>Moderator:</i> Mr. Jan Dienstbier, Technical Supervisor of Platform KYBEZ, Gordic, Czech Republic <i>Panelist:</i> Mr. Jaromír Řezáč, Chief Executive Officer, Gordic, Czech Republic Mr. Jiří Hynek, President, Defence and Security Industry Association, Czech Republic
16:30 - 17:45 ROOM 3, Entrance Hall 2, Cyber Pavilion	Innovative Biometric Solutions <i>Speaker:</i> Mr. Roman Cinkais, Director IT Consulting & QA, Diebold Nixdorf, Czech Republic



Workshops Programme

Friday, 21 October 2016

15:00 - 16:15 ROOM 1, Entrance Hall VH1	Cloud Computing <i>Moderator:</i> prof. Jiří Voříšek, Vice president, Professor Emeritus, Professor; Czech Association for Systems Integration, Prague University of Economics, Paneuropean University Bratislava, Czech Republic <i>Panelists:</i> Mr. Miroslav Tůma, Ministry of Interior, Czech Republic Mr. Vladimír Rohel, National Center of Cyber Security, Czech Republic Mr. Zdeněk Jiříček, National Technology Officer, Microsoft, Czech Republic
15:00 - 16:15 ROOM 2, Entrance Hall VH1	Red Teaming: Military Past and Cyber Future <i>Moderator:</i> Mr. Adrian Demeter, Cyber Security Advisor, Deloitte, Czech Republic <i>Panelists:</i> Mr. Ari Davies, Deloitte, Netherlands Mr. Jan Seidl, Deloitte, Czech Republic

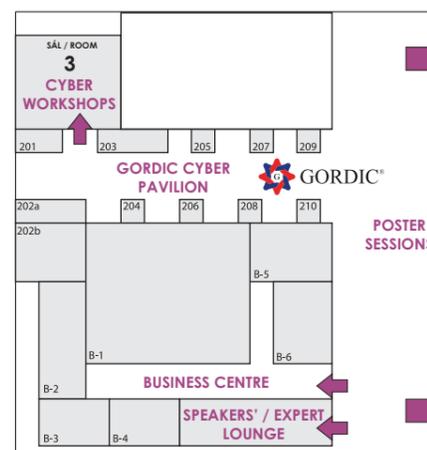
Gordic Cyber Pavilion

Cyber Defence Simulations
19 - 21 October 2016

AFCEA - Stand of Cyber Defence Simulations:

- Cyber attacks on web servers and scenarios of possible protections
- Ransomware attacks and protection against them
19 October 10:30; 10:45; 11:30; 11:45;
13:45; 14:30; 14:45; 15:45
20 October 11:30; 12:30; 13:30; 14:40
21 October 11:30; 12:30; 13:30; 14:40
- AFCEA; Ministry of the Interior of the Czech Republic; Computer Incident Response Capability Technical Center of MoD of the Czech Republic; National Cyber Security Centre; University of Defence; Police Academy of the Czech Republic

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19 - 21 October 2016



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17 - 21 October 2016

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