

International CBRNE Institute

# RISE'2019 CBRNE-MPPM

9 th International Workshop on  
Measurement, Prevention,  
Protection and Management of  
CBRNE Risks

01 April 2019 – International CBRNE  
Institute, Belgium



## BEMEKO

### PROGRAM

#### CBRNE CONTEXT – CBRNE RISKS – CBRNE CRISIS MANAGEMENT

#### ORAL PRESENTATIONS


09.30-10.00H	<b>WELCOME REGISTRATION</b>	
10.00-10.30H	<p><b>CBRN Mapping and Threat Assessment – OPCW Follow-Up</b></p> <p>CBRN Events Worldwide, 1990-2013</p>  <p><b>Number of Events per Country</b></p> <ul style="list-style-type: none"> <li>◆ 1 - 4</li> <li>◆ 5 - 10</li> <li>◆ 11 - 27</li> <li>◆ 28 - 51</li> <li>◆ 52 - 87</li> </ul> <p><b>START ►►►</b> Source: Profiles of Incidents Involving CBRN by Non-state actors dataset</p>	<p><b>Brig Gen e.r. Ioannis Galatas (CBRN KC Manager)</b> <i>Former Head of the Department of Asymmetric Threats at the Intelligence Analysis Branch, Joint Military Intelligence Service of the Hellenic National Defense General Staff in Athens</i></p> <p><b>Prof Em Yvan Baudoin (ICI/ER-KC Manager)</b> <i>Terrorists potentially have a wide range of available weapons, ranging from very simple to exceedingly complex: improvised CBE (Chemical, Biological, Explosive) devices now affect people in conflictual countries. Identification of suspected areas and after a CBRNE event has taken place, earlier identification of the CBRNE agent , assistance to the victims can mean the difference between life and death: UAV and UGV can assist the managers and interveners..</i></p>

10.30-11.00H	<b>Measurement activities of the Belgian Nuclear Research Centre (SCK•CEN) in the framework of the Federal Nuclear and Radiological Emergency Plan</b>	<b>Katrijn Vandersteen, Geert Olyslaegers, Johan Camps (Belgium)</b> <b>Belgian Nuclear Research Centre SCK•CEN, Institute for Health and Safety EHS, Crisis Management &amp; Decision Support Unit</b> <i>The aim of the Federal Nuclear and Radiological Emergency Plan (RD 01/03/2018) is to protect the Belgian territory and its population from nuclear and radiological threats, that require coordination on protection measures for man and the environment on a federal level by the crisis centre of the Federal Public Service (FPS) in Brussels</i>
11.00-11.30H	<b>Involvement of the Belgian Nuclear Research Centre (SCK•CEN) in EU CBRN Centre of Excellence Projects: 3 examples from Eastern Europe and Africa</b>	<b>Katrijn Vandersteen, Geert Olyslaegers, Christophe Gueibe, Johan Camps, Klaas van der Meer</b> <b>Belgian Nuclear Research Centre SCK•CEN, Institute for Environment, Health and Safety EHS, Crisis Management &amp; Decision Support Unit</b> <i>The European Union Chemical Biological Radiological and Nuclear Risk Mitigation Centres of Excellence Initiative (or EU CBRN CoE) was launched in response to the need to strengthen the institutional capacity of countries outside the European Union to mitigate CBRN risks. The three projects that are presented here have been implemented in the SEEE region, consisting of 9 countries in South East and Eastern Europe, and the ECA region, consisting of 12 countries in East and Central Africa.</i>
11.30-12.00H	<b>CBRN Dispersion Modeling in the Atmosphere</b>	<b>Yoshiyuki Nishio (Royal Military Academy, Von Karman Institute (Belgium), University of La Rochelle, France)</b> <i>In the context of a Chemical, Biological, Radiological and Nuclear (CBRN) application for the Belgian Defense, the current work is proposed to adapt a model to predict the dispersion of particles in the atmosphere</i>
12.00-12.30H	<b>Detecting Toxic Substances in Water by Chlorophyll Fluorescence</b>	<b>A. Delahaye<sup>1</sup>, D. Demey<sup>1</sup>, K. Perdaen<sup>2</sup>, W. Lanneau<sup>2</sup>, K. Lievens<sup>3</sup>, R. Weltens<sup>4</sup>, H. Desmet<sup>5</sup>, N. Vandekerckhove<sup>6</sup></b> 1 QinetiQ Space NV 2 MicroBiotests NV 3 Applitek NV 4 VITO 5 Witteveen+Bos Belgium NV 6 Truck & Tank Cleaning Tack NV <i>A fluorescence sensor is integrated in an industrial on-line analyser which allows a continuous monitoring of the effluent of an industrial waste water treatment plant</i>
12.30-13.30H	<b>STANDING LUNCH POSTERS – EXHIBITION</b>	

## CBRNE –ROBOTICS ASSISTANCE

13.30-14.00H	<b>Multispectral Object Detection for inspection robot</b>	<p><b>Karol Majec, Janusz Bedkowski, Andrzej Maslowski – NASK Poland</b></p> <p><i>In this work, an object detection system with RGB and infrared camera inputs is discussed. The system runs on a mobile robot entirely while performing the task of navigation, mapping and identification.</i></p>
14.00-14.30H	<b>An unmanned air vehicle for radioactive waste inspection.</b>	<p><b>L. Cantelli, D.C. Guastella, D. Longo, C.D. Melita, G. Muscato, S. Sparta, G. Sutura</b></p> <p><i>This work will present a design of a customized drone with a Geiger counter and a GPS-based position tracker installed. The drone is aimed to increase safety and therefore to limit the risks of human operators during inspections of waste considered potentially dangerous, as in the presence of orphan sources</i></p>
14.30-15.00H	<b>Explosive drones: How to deal with this new threat?</b>	<p><b>Dr Ir Geert De Cubber (Royal Military Academy, Belgium)</b></p> <p><i>As the commercial and recreative use of small unmanned aerial vehicles or drones is booming, so are the military and criminals starting to use these systems more and more. Due to improvements in flight stability, autonomy and payload capacity it becomes possible to equip these drones with explosive charges, making them threat agents where traditional response mechanisms have few answers against.</i></p>
15.00-15.30H	<b>Automated Nucleic Acid Based Bio-detection Module for UAV Platforms</b>	<p><b>Hüseyin Avni Öktem &amp; Zeynep Öktem (Nanobiz Technology Co, Ankara, Turkey)</b></p> <p><i>For un-ambiguous detection of biological Warfare agents (BWAs), nucleic acid amplification based techniques are suggested for bio-detection because of their sensitivity and specificity.</i></p>
15.30-17.00H	<b>POSTER Session</b>	

## POSTER SESSION – EXHIBITION - VIDEOS

10.00- 17.00H	<b>UAV and hyperspectral sensing</b>	<p><b>O.Mattmann (CEO- Hotzonesolutions The Netherlands)</b></p> <p><i>For identifying the agent, our partners can provide the capability for real-time, wide-area reconnaissance by using modular portable CBRNE sensors integrated in a tele-operated UAV. For radiation surveillance, the proposed sensor subsystem can be based on the integration of new miniaturized sensors for gamma radiation and a high efficiency neutron detector based on novel silicon technologies..</i></p>
10.00-17.00H	<b>UAV Industry Enhancements for C-IED and Landmine Clearance (VIDEO)</b>	<p><b>Matteo Baronio, (DRONEVOLT, Belgium)</b></p> <p><i>Hercules 20, Airshadow (Fully 3D Printed cost effective mini-UAV), PENSAR camera (Dual sensors computer vision system)</i></p> 
10.00-17.00H	<b>New Challenges posed by illegal Migrations in Croatia</b>	<p><b>Milan Bajić PhD, Ret.LTC , <a href="mailto:milan.bajic1@gmail.com">milan.bajic1@gmail.com</a> HCR-CTRO Scientific Council, Nikola Pavković M.S., Sanja Vakula , HCR-CTRO Croatia</b></p> <p><i>The migration of persons towards Europe produces new problems and challenges in many domains in several EU countries, while only in Croatia this phenomenon is linked with mine action. Croatia has border long 2374 km, whereas to Bosnia and Herzegovina 1011, 4 km, to Serbia 317,6 km and to Monte Negro 22,6 km. Although border police has helicopter for green border survey, only number of UAVs is solution for continuous surveillance of this EU green border.</i></p>
10.00-17.00H	<b>C-IED APT – Remote Controlled Area Preparation Tractor (VIDEO)</b>	<p><b>Matteo Zoppi, Andy Smith, Giovanni Polentes (University of Genoa, Italy, PIERRETRA Company)</b></p> <p><i>APT is technology that increases safety for deminers and makes the work much faster so helping the people who are trying to live amid post-conflict explosive hazards. A range of C-IED tools can be carried and powered, so allowing both robust and delicate procedures to be safely conducted</i></p>
10.00-17.00H	<b>CBRN Protective Systems (EXHIBITION-POSTER)</b>	<p><b>OUVRY - <a href="https://www.ouvry.com/en/media/">https://www.ouvry.com/en/media/</a></b></p>
10.00-17.00H	<b>Chemical Identification Made Easy and Efficient (EXHIBITION-POSTER)</b>	<p><b>SERSTECH <a href="https://serstech.com/">https://serstech.com/</a></b></p> <p><i>The Serstech 100 Indicator is a hand-held, small and light Raman spectrometer that can identify more than 14.000 substances. Customisable with fully validated and data-enriched libraries.</i></p>