



# The NATO Science for Peace and Security Programme

SPS e-flier – E.Maduike/ S.Michaelis

May 2010

## CANADA

### Cooperative Activities under the SPS Programme

Since NATO began offering science cooperation to partners in 1992, Canadian scientists and experts have had leading roles in 913 activities, and more joined various cooperative activities as participants.

Today, NATO science activities enable close collaboration on the two key priorities of **defence**

**against terrorism** and **countering other threats to security** and are managed under the Science for Peace and Security (SPS) Programme. SPS activities contribute to NATO's strategic objective of partnership, helping to connect scientists and experts from NATO countries with their counterparts from Partner and Mediterranean Dialogue countries through workshops, training courses, team collaborations and multi-year projects.



Copyright © StockXchange

All activities supported by the SPS Programme are approved by NATO nations on the basis of consensus.

### Examples of Activities

On 21 June to 2 July 2010 an Advanced Studies Institute, entitled “**Quantum Information Processing and Quantum Cryptography**” is scheduled to take place in Montreal, Canada. The main goal of this event is to disseminate knowledge of the relatively new interdisciplinary science of quantum information processing (QIP), which comprises quantum cryptography, quantum information and quantum computation. The importance of QIP on physics and computer science is important and growing and also fits with the three NATO objectives of computer terrorism countermeasures, information security and non-traditional threats to security. [ref 983892]

Researchers from Canada, the United States, Italy, Greece, and Turkey are cooperating with the three Caucasus countries – Armenia, Azerbaijan and Georgia – to develop a system for “**Caucasus Seismic Emergency Response**”. The project will update a regional seismic network

by adding additional instrumentation and recording equipment. The network will allow communication of earthquake data among Data Acquisition Centres in each of the Caucasus countries. Strong motion instruments and ground penetrating radar will be used at selected sites to assess the technical condition and vulnerability of buildings and critical structures, and international field investigation in selected areas will be organized. The project co-directors have made contact with end-users including national departments of urbanization and construction, nature protection, emergency structures in Armenia, Azerbaijan and Georgia. [ref 983284]

Beginning in October 2005, scientists from Canada, Italy, Romania and Spain have worked to develop a procedure for “**Photocatalytic Decontamination of Neurotoxic and Vesicant Compounds**”, to be used in the clean-up of land and materials exposed to chemical weapons, in

circumstances where incineration or collection of spills would not be possible. In October 2008, a team from the NBC Defence and Ecology Research Centre of the Romanian Ministry of Defence demonstrated two new techniques for decontamination of chemical warfare agents using photocatalysts as a powder and as an aqueous suspension. The techniques employed during the demonstration to decompose sulphur mustard use only natural chemicals and solar radiation and leave behind only innocuous gaseous oxide compounds. The techniques are environmentally friendly and safe for sensitive equipment, infrastructure and humans.

[ref 981476]

Nile River through “**Real-Time Water Quality Warning and Communication**”. They set out to develop a capability to detect and predict changes in water quantity, quality and suitability for drinking, irrigation, livestock, aquatic life and recreation. The plan is to establish a four-station Real-Time Water Quality Monitoring Network, complemented by an automated weather station with a command centre on the Nile River. In parallel, an Egyptian Water Quality Index will be developed to evaluate all water bodies in Egypt. The Ministry of Water Resources and Irrigation in Cairo is expected to use the network to monitor environmental threats to the Nile River in real-time and to take

appropriate mitigating measures to minimize environmental, economic and social impacts.

[ref 982630]



(photo courtesy of project co-directors)

Experts from the NBC Defence and Ecology Research Centre of the Romanian MOD apply photocatalysts to a soil sample contaminated with hazardous CWA. During the demonstration, which was conducted in a training area of the Romanian Army, sulphur mustard was applied in small droplets onto earth, rubber, clay, metal and plastic samples, simulating contamination of land, vehicles and equipment. The samples were then treated with the heterogeneous photocatalysts and exposed to the sunlight.

Beginning in July 2007, specialists from Canada and Egypt have cooperated on a project to manage the water resources of the

In addition to NATO-funded activities, the SPS Programme facilitates the development of nationally funded activities, such as the long-standing series of international technical meetings entitled “**Air Pollution Modeling and Its Application**”, led by Canada. These have been managed specifically to track current developments in the science and application of air pollution modeling and enables an important for exchange of ideas which spans the Atlantic. Newly developed models presented at these meetings often become commercial, regulatory and policy-making tools. The mix of developmental and applied work encouraged by this activity has a positive influence on environmental management and regulation worldwide. [ref 982232]