

IAEA Training Workshop on Radiological Mapping Using Mobile Instrumentation in Seibersdorf, Austria, 9-13 October 2023 (EVT2103399)

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Radiation mapping is the process of measuring and mapping the radiation intensity distribution throughout the target area. Data collected from this process is used to construct radiation map, which is useful to visualised the radiation distribution and identify the position of hotspots. This process is relevant for various applications, such as in post-emergency response to identify the location of contaminated area, or for safety inspections in plant / facility occupational safety assessments or environmental monitoring.

The International Atomic Energy Agency (IAEA) has conducted a training workshop on Radiological Mapping Using Mobile Instrumentation on 9th to 13th October 2023 in the Nuclear Science and Instrumentation Laboratory in Seibersdorf, Austria. The workshop was attended by 13 participants from Malaysia, Greece, Brazil, Thailand, Italy, Canada, Sweden, Morocco, Egypt, Jordan, Saudi Arabia and Norway. The aim of this workshop is to share new knowledge in the field of radiological mapping using mobile technologies and to provide a practical demonstration of the capabilities of ground and air systems in real field conditions.



All the experts and participants with the Orpheus Robot by BRNO Technical University, used to demonstrate the UGV technology.

The five-day workshop comprehensively covers both the theoretical and practical aspects of radiological mapping operations. The lectures commence with an exploration of fundamental scenarios in radiological mapping, accompanied by an introduction to the R-Markdown tool. This tool facilitates post-data processing, enabling participants to visualize both raw and interpolated data on Google Earth maps.

Participants are then familiarized with four types of mobile instrumentation, including backpack radiation detectors, unmanned aerial vehicle (UAV) based technology, carborne technology and unmanned ground vehicle (UGV) based technology. The workshop also delves into the concept of photogrammetry for radiological mapping. Moreover, the session includes an introduction to the InterSpec software, designed for gamma spectroscopy and radionuclide identification.

The practical segment of the workshop involves field exercises for each technology, allowing participants to gain hands-on experience with the tools and actively participate in source-searching missions. This hands-on approach enhances the participants' understanding and proficiency in utilizing the various instruments discussed during the workshop.



Field exercise with BRD technology where the participants were instructed to scan an outdoor field to locate the source position.



The UAV technology utilizes quadcopter with plastic scintillation detector to quickly scan a large area where the mapping data and progress can be monitored from a safe location.



Carborne technology demonstrations.

In conclusion, the IAEA's workshop on Radiological Mapping Using Mobile Instruments provided a valuable opportunity for international collaboration and knowledge sharing. Participants not only learned about the latest advancements in radiological mapping but also gained practical skills. Participating in international workshops is a valuable opportunity to update our knowledge and be better prepared for unforeseen radiological emergencies. These experiences contribute to a safer global environment by fostering international collaboration and progress.