IAEA
International Atomic Energy Agency
Atoms for Peace and Development

T3.3-O2

International Radiation Monitoring Information System (IRMIS)

SnT 2019
CTBT: SCIENCE AND TECHNOLOGY CONFERENCE
24 TO 28 JUNE
HOFBURG PALACE, VIENNA, AUSTRIA

Sanjoy Mukhopadhyay
Incident and Emergency Centre (IEC)
International Atomic Energy Agency (IAEA)
Department of Nuclear Safety and Security

Incident and Emergency Centre (IEC)

"Effective national and global response capabilities are essential to minimize the impacts from nuclear and radiological incidents and emergencies and to build public trust in the safety and security of nuclear technology. The Agency's Incident and Emergency Centre (IEC) is the global focal point for international preparedness and response to nuclear and radiological safety or security related incidents."

Yukiya Amano
Director General of the IAEA

Incident and Emergency Centre (IEC)

Global focal point for emergency preparedness and response for nuclear and radiological emergencies irrespective of their cause, including coordination / provision of assistance upon request and "Custodian" of the Agency's Incident and Emergency System (IES)

IAEA

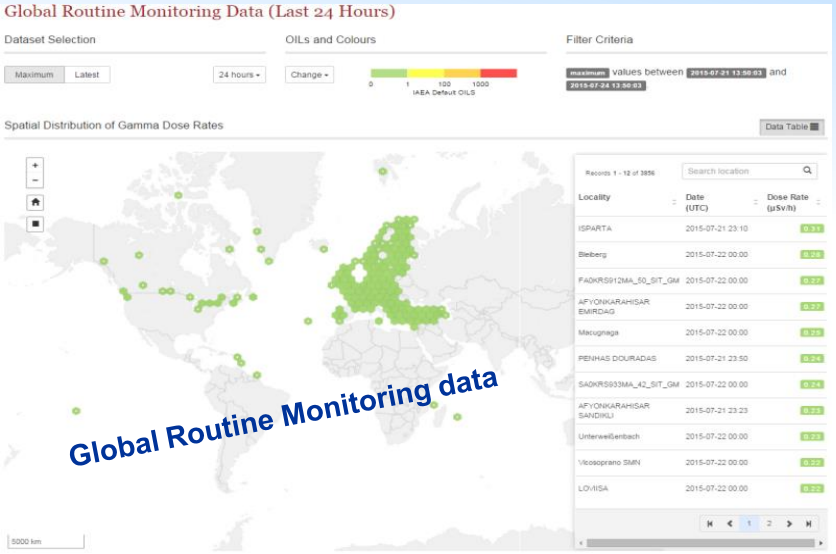
IEC
Incident and
Emergency Centre

IAEA's Roles and Responsibility in Response

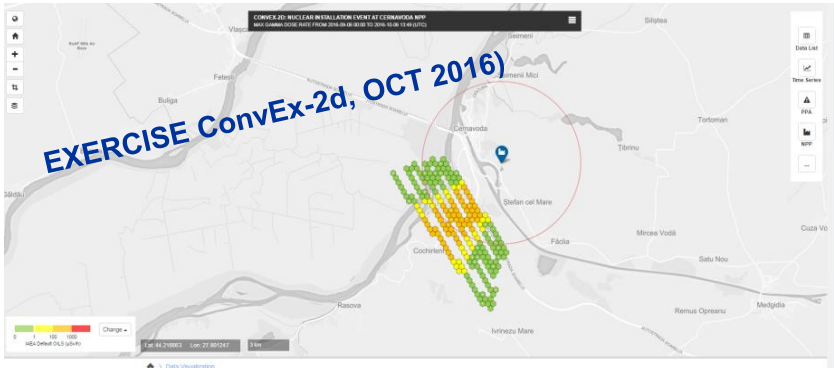
1. Notification and official information exchange
2. Provision of public information
3. Assessment of potential emergency consequences and prognosis of possible emergency progression
4. Provision of assistance on request
5. Coordination of inter-agency response

IRMIS – Main Features

- Supports implementation of the Convention on Early Notification of a Nuclear Accident
  - Provides a mechanism for the global exchange of large quantities of radiation monitoring data
  - Gamma Radiation dose rates, isotope specific ground deposition and air concentration from fixed monitoring stations
  - Results from radiation monitoring during an emergency
  - Data in Visualization page are color coded in terms of user defined Operational Intervention Levels (OILs) to assist in the decision making process to protect the public during an emergency



Global Routine Monitoring data

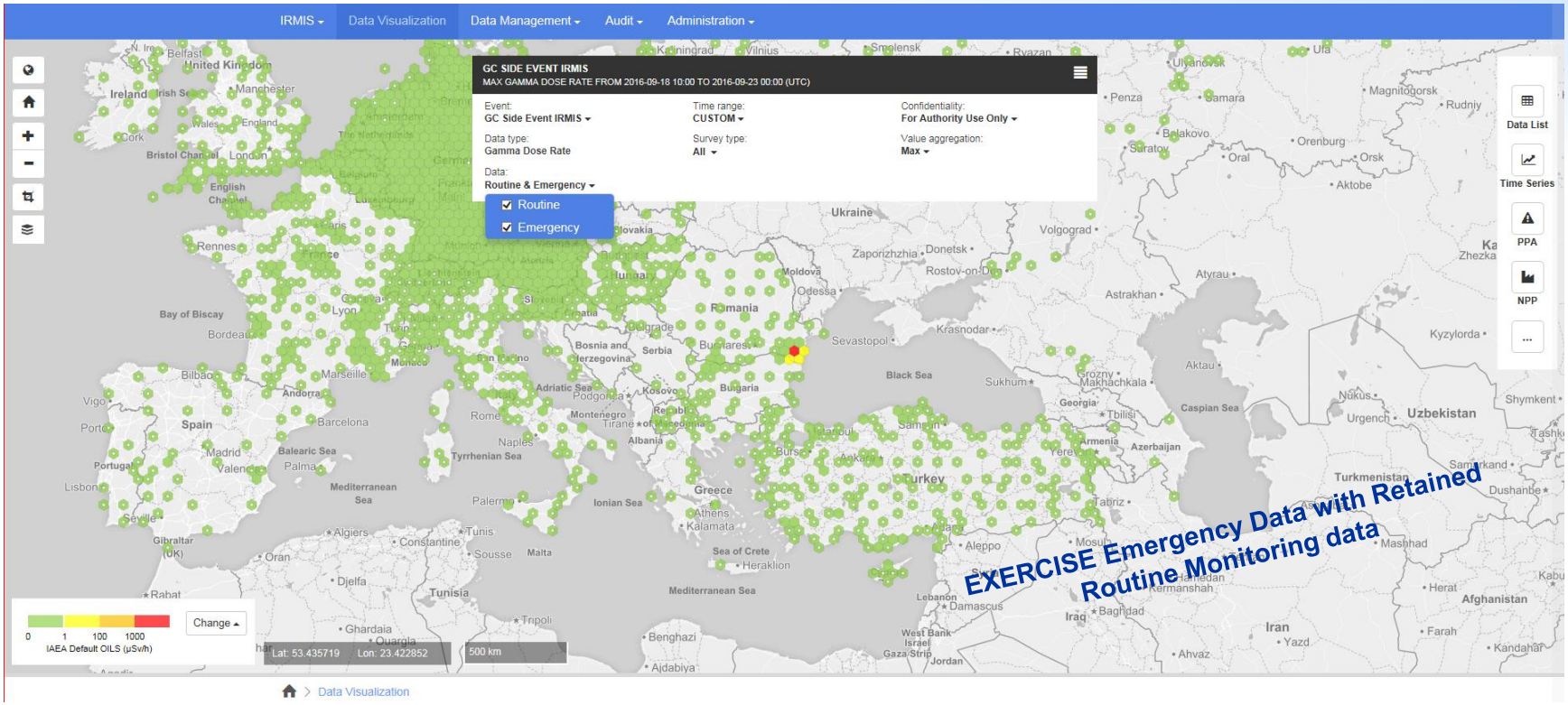


Emergency Monitoring Data

IRMIS Operational Intervention Levels (OILs) and colour palette

- Dose rate referenced to IAEA default OILs
- User defined OILs
- User defined colour palette

Routine and Emergency Data Visualization in IRMIS

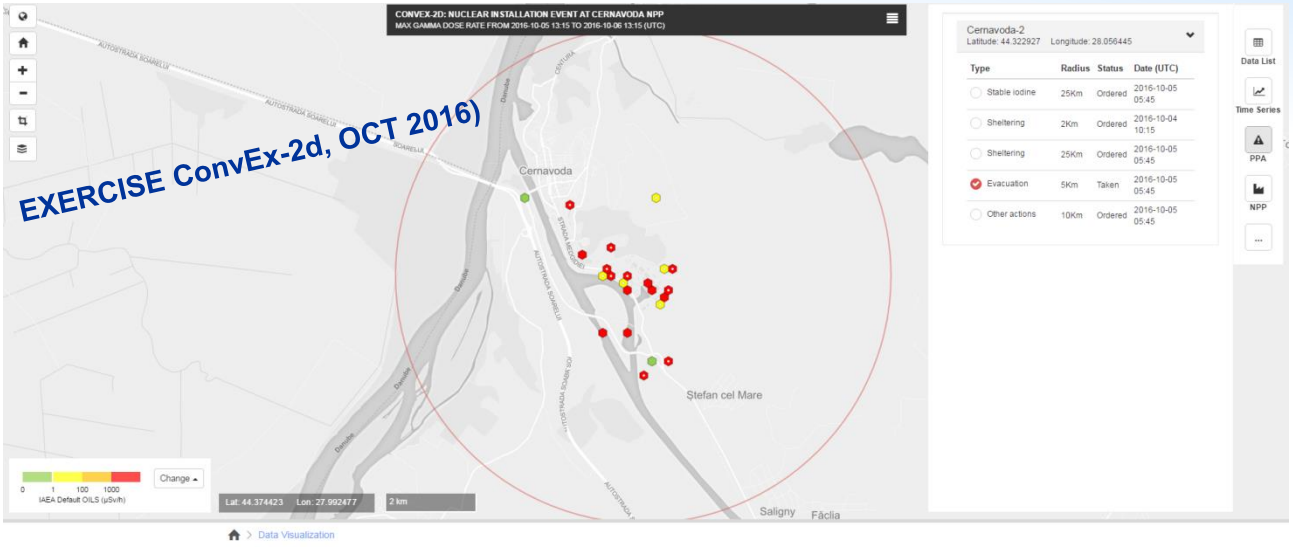


The radiological monitoring data in IRMIS are reported in one of two categories:

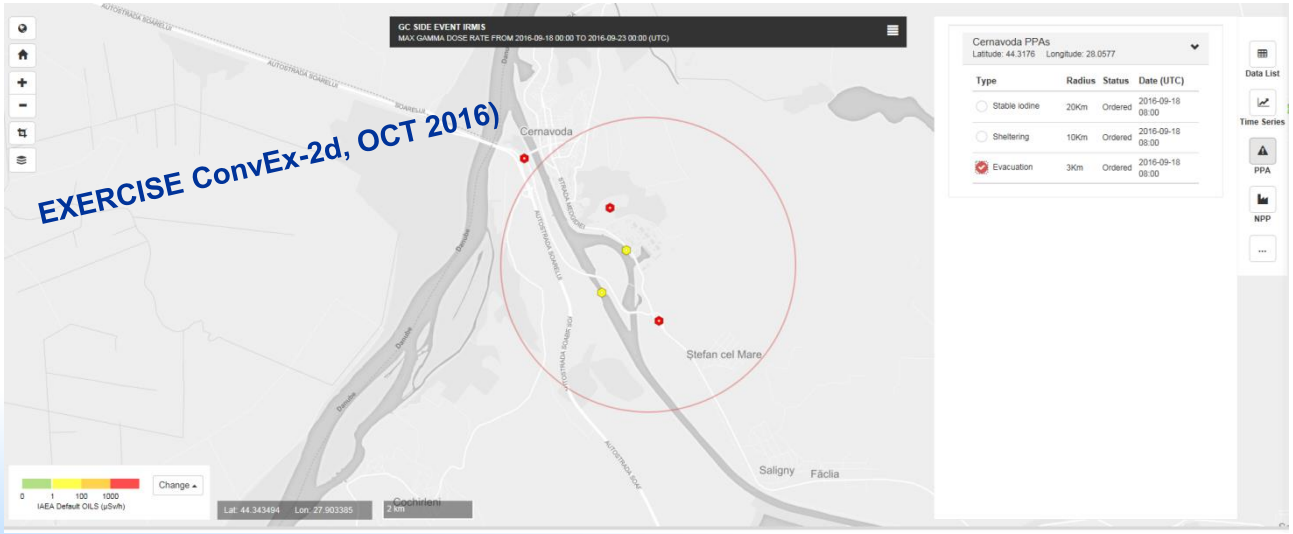
- 'Routine Data' in the form of radiation dose rates from fixed monitoring stations voluntarily reported by participating Member States; and/or
- 'Emergency Data' collected during a nuclear or radiological emergency

Two types of radiation monitoring data in IRMIS Data Visualization

IRMIS - A Decision Support Tool

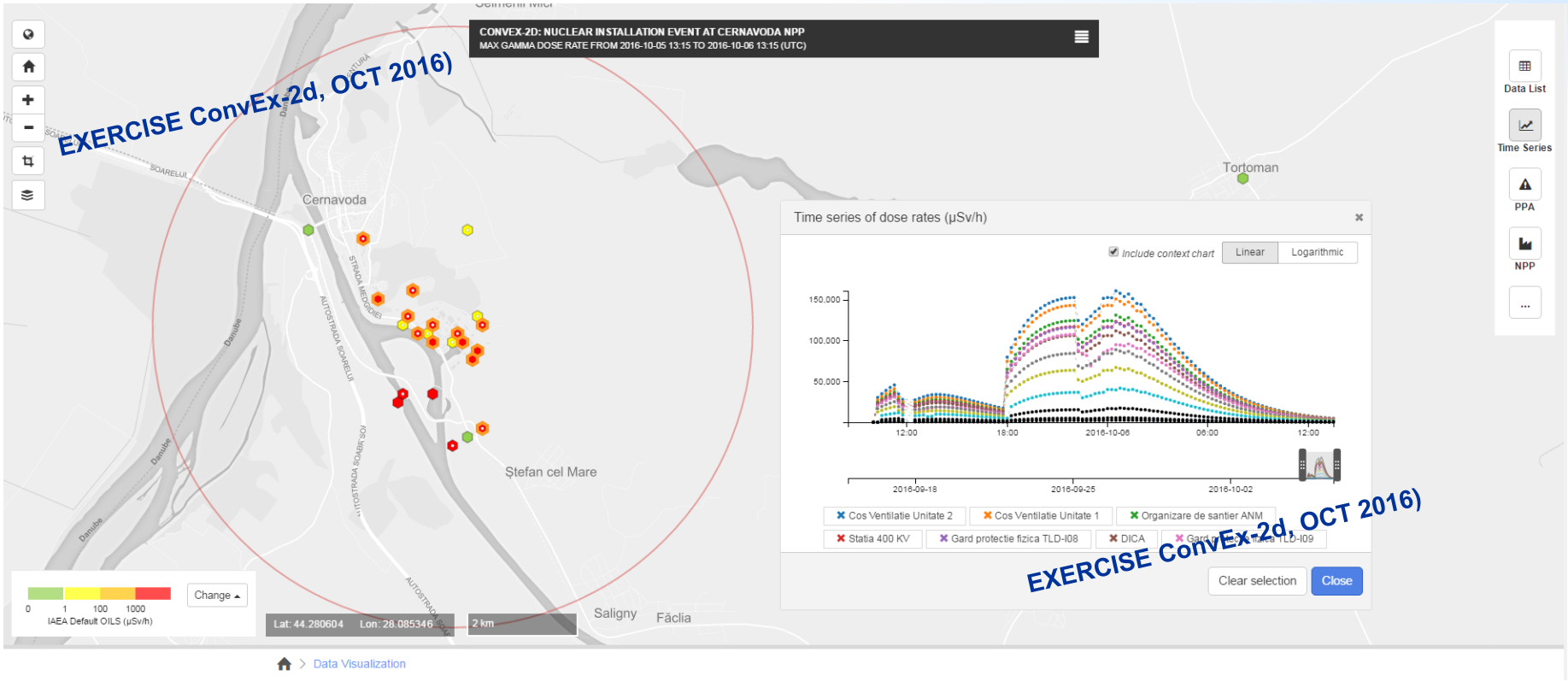


Evacuation zone encompasses all measured high dose rate stations



Evacuation zone does not encompass all measured high dose rate stations

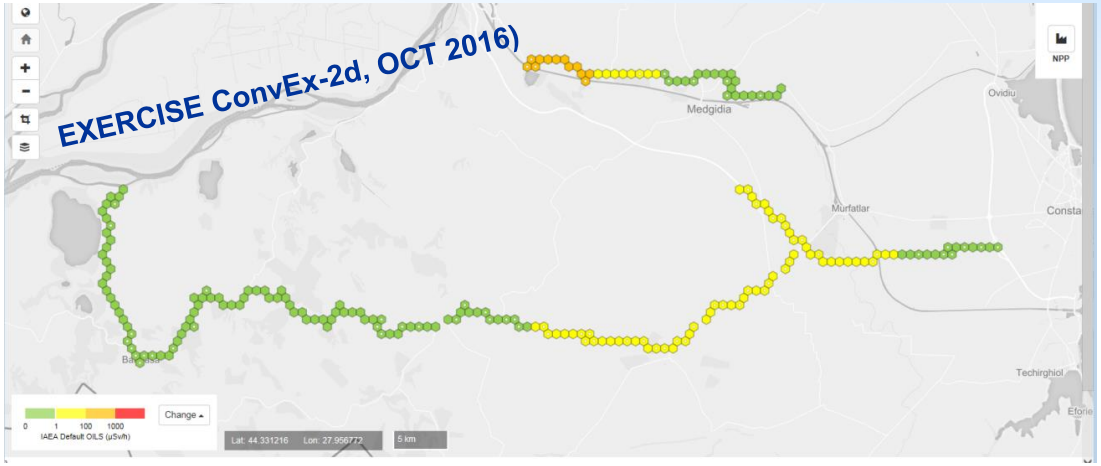
Time Series Analysis of fixed monitoring station dose rate data



Dose rate data from fixed monitoring stations consistent with release starting at 11:00 UTC (05-10-16), 18:00 UTC (05-10-16) and 22:15 UTC (05-10-16), width of each set of curves shows duration of release

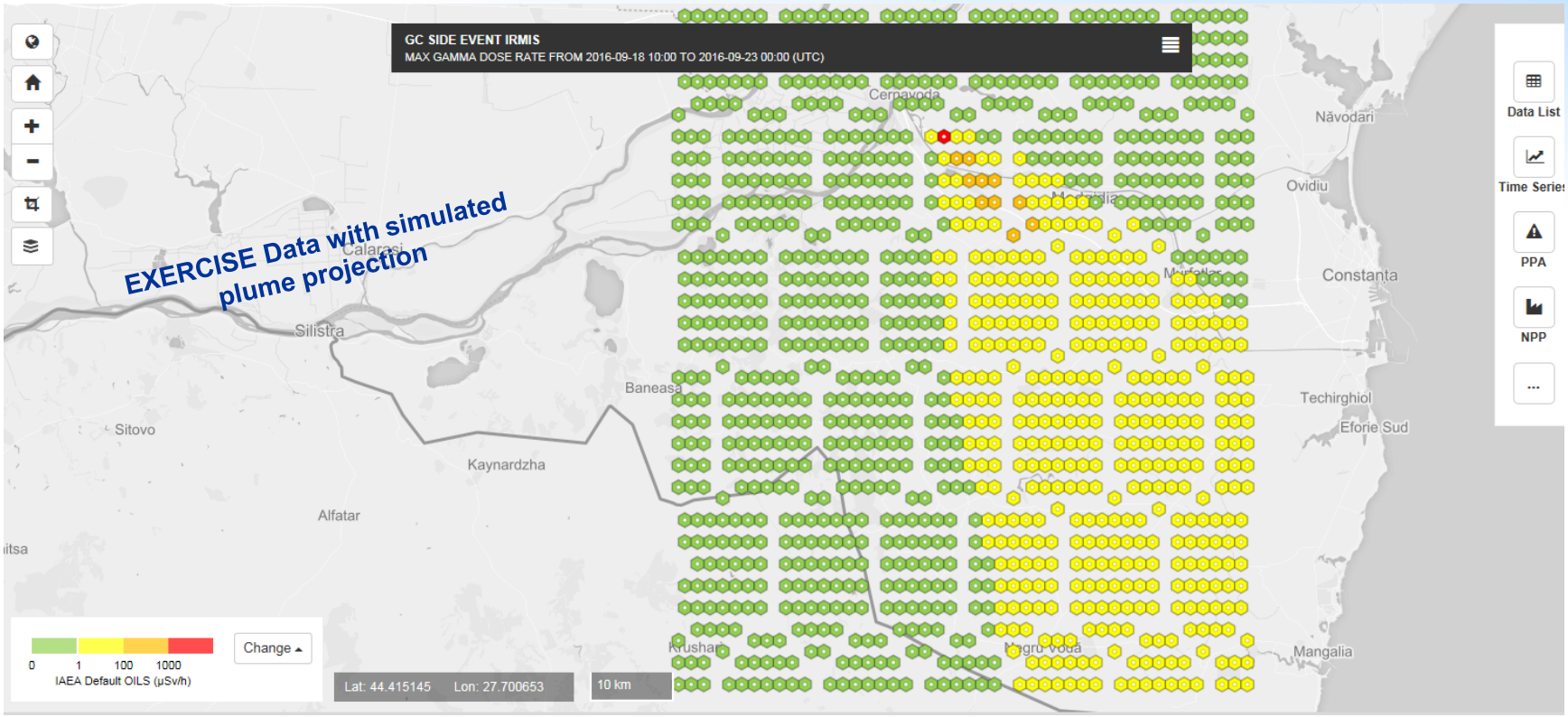
Types of Emergency monitoring data

- Temporary fixed station
- Mobile monitoring system (backpack, vehicle or aerial systems)
- Hand-held measurements



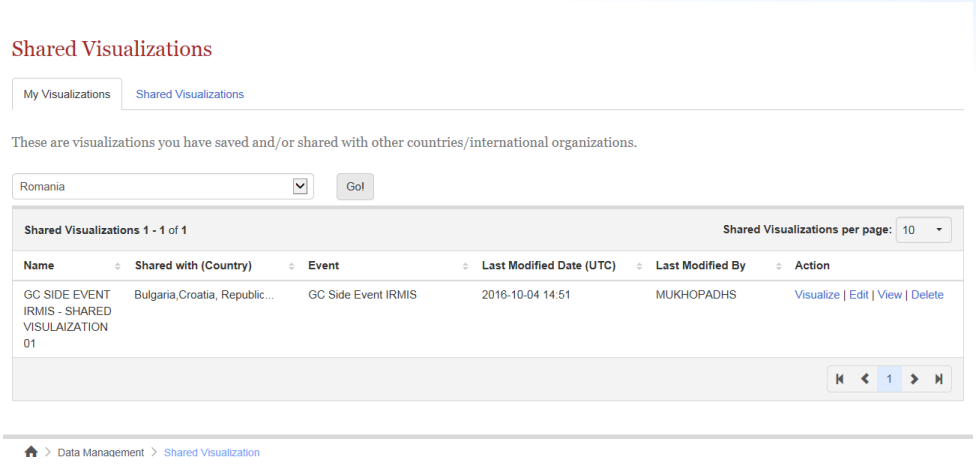
Example of visualization of Emergency radiation monitoring data from a vehicle borne dose rate measuring device. The data help to define and adjust other public protective actions (PPA).

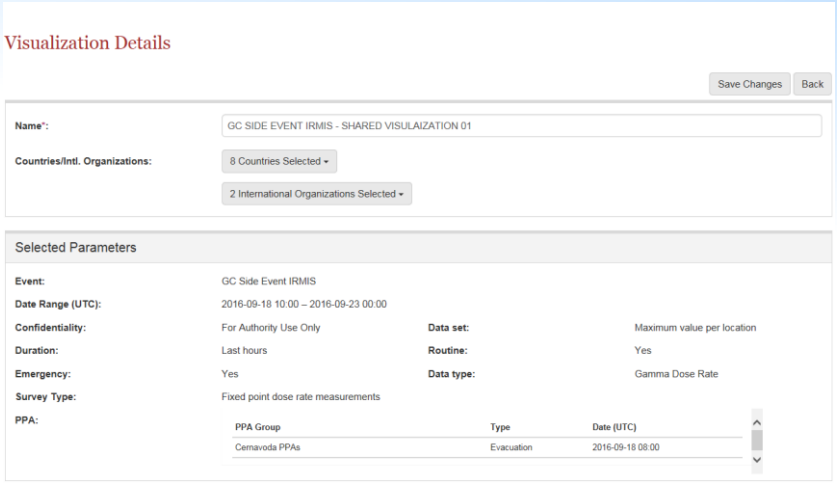
Aerial Monitoring Data

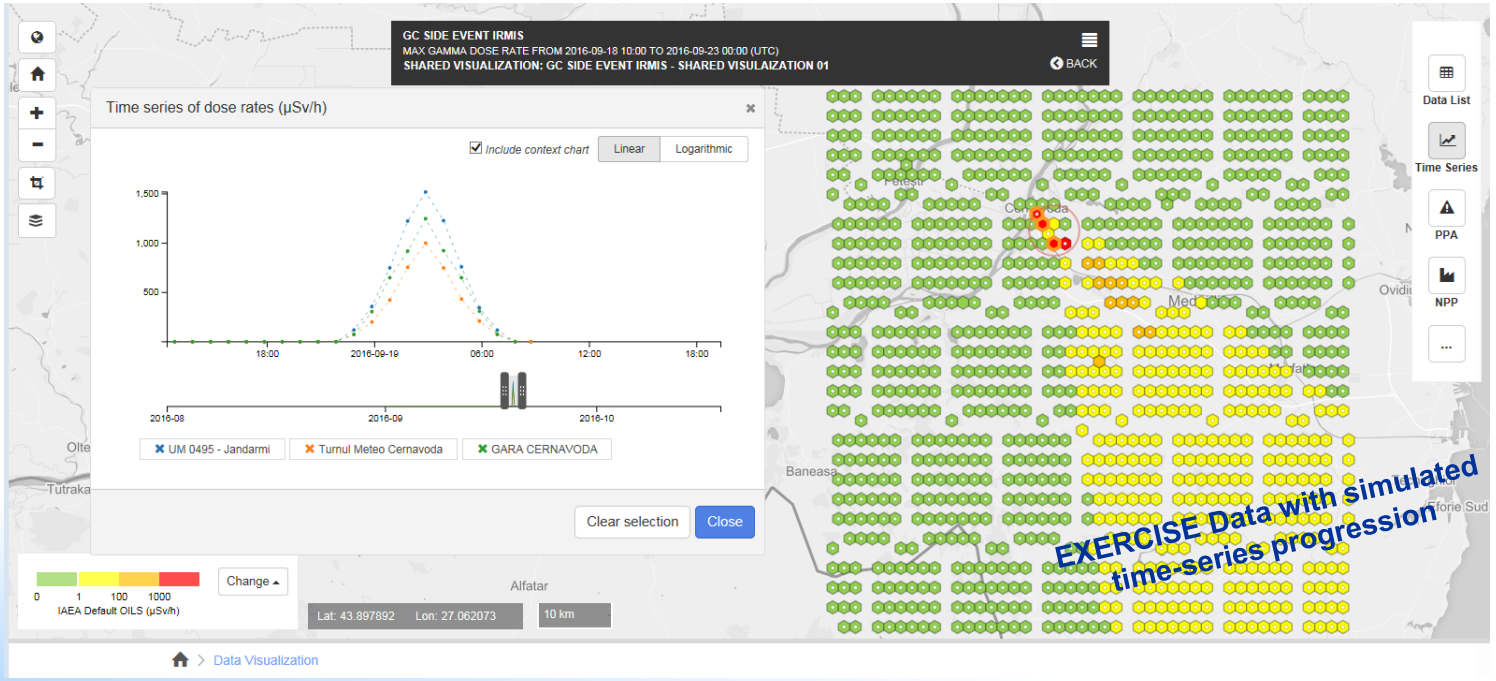


- Fast coverage of large areas
- Large stand off distance from radiation source ensuring radiation safety to the crew
- Can trace the radioactive material deposition from the plume – traces the plume trajectory
- Help define or adjust PPA

IRMIS Feature – Shared Visualization







Access to IRMIS; IRMIS instances

All Unified System for Information Exchange in Incidents and Emergencies (USIE) users are granted read-only access to IRMIS. In addition, IRMIS Data Providers endorsed by their country authorities and/or Permanent Mission to the IAEA may have read-only users registered in both USIE and IRMIS.

Authorized users may be given additional permissions to upload radiological monitoring data through the IRMIS website interface.

The public has no access to IRMIS.

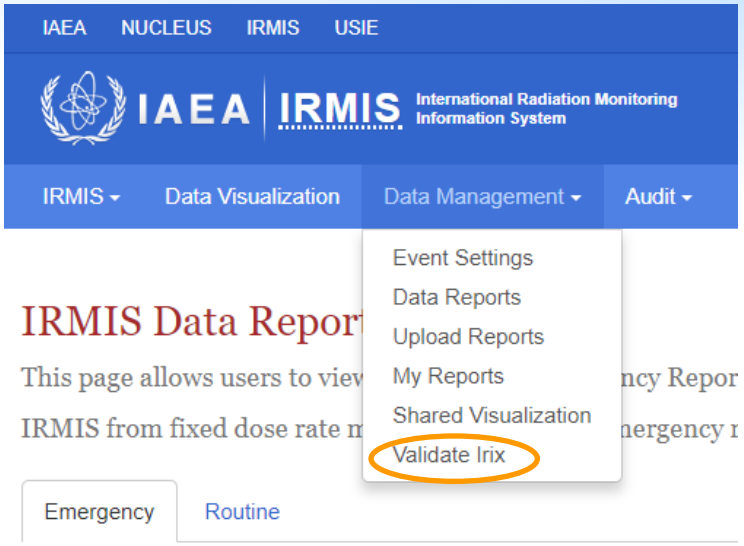
- IRMIS actual site – https:\\iec.iaea.org\irmis
- IRMIS training instance – https:\\iec.iaea.org\irmis-training
- IRMIS Exercise instance – https:\\iec.iaea.org\irmis-exercise

39 Member States are providing IRMIS Routine Monitoring Data

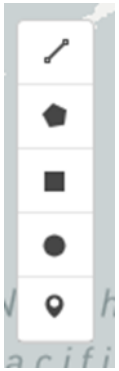
42 Member States established contact points or Data Providers for IRMIS

New IRMIS Features and Tools

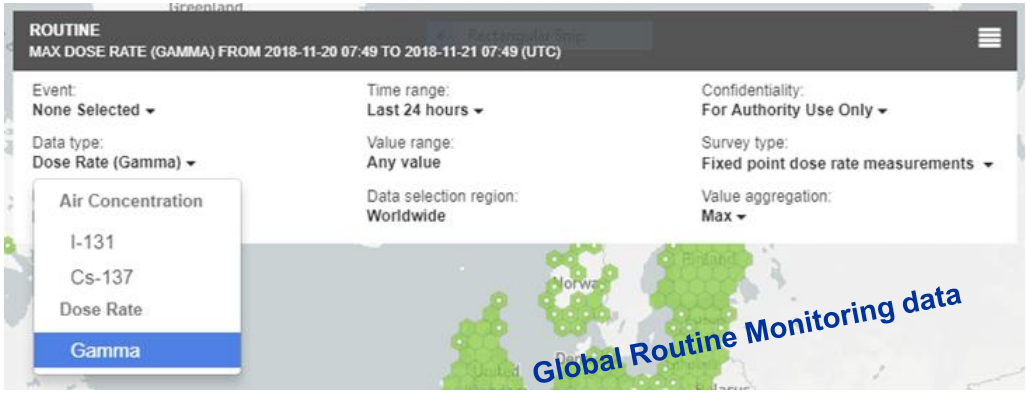
- Validation of user developed IRIX formatted data reports from IRMIS before submission from Data Management



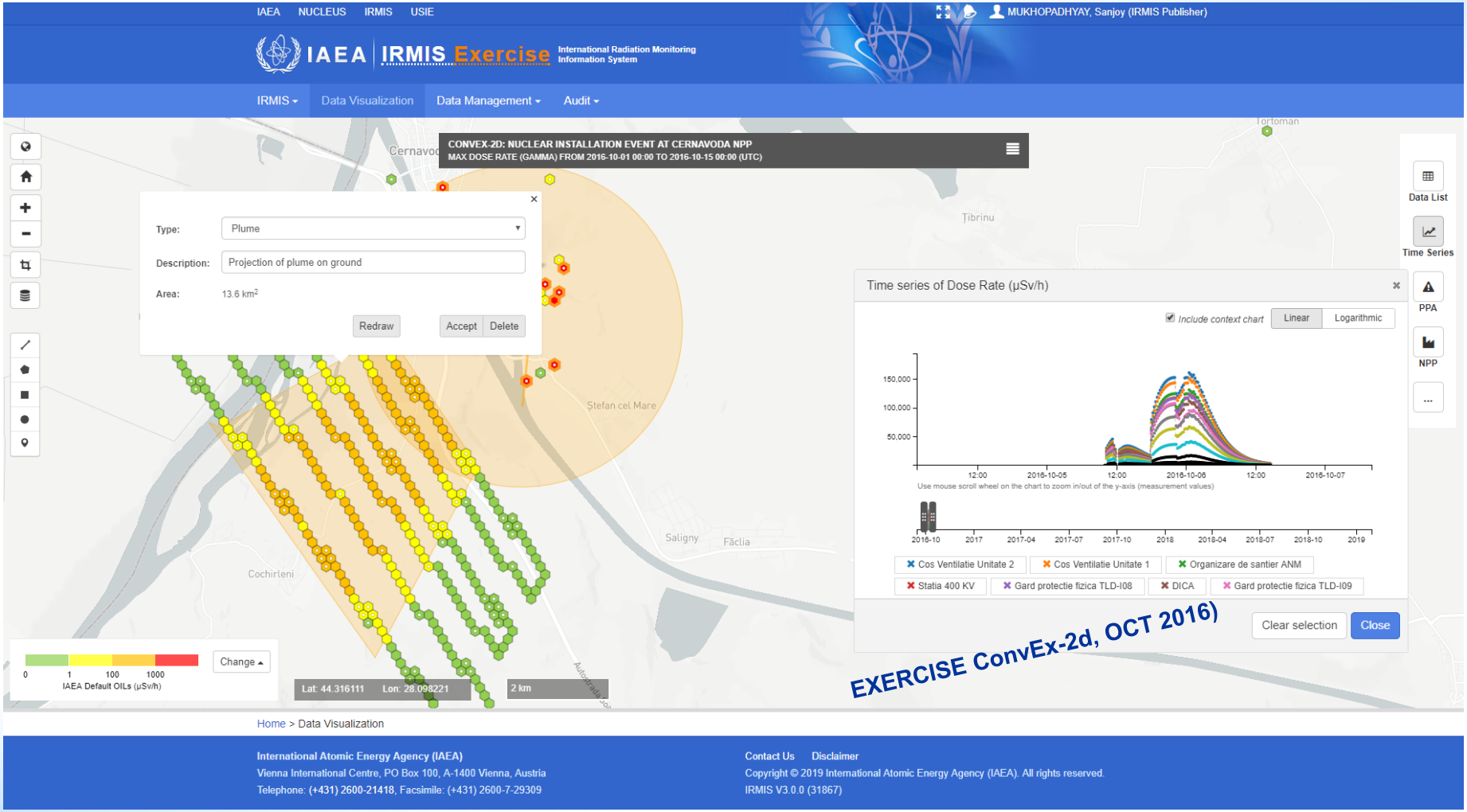
- Drawing Tools



- Environmental Monitoring Data
  - Air Concentration (Cs-137 & I-131)
  - Ground Deposition (Cs-137 & I-131)



Visualization Page with Drawing Tools Template



More information on IRMIS

- For further information, please contact the IAEA's Incident and Emergency Centre:

irmis.contact-point@iaea.org

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Thank you!