SnT 2025 CTBT: SCIENCE AND TECHNOLOGY CONFERENCE
8 SEPTEMBER ONLINE DAY
9 TO 12 SEPTEMBER AT HOFBURG PALACE, VIENNA & ONLINE

NEMOS - A software framework to simulate the response from nuclear explosion detection networks

LIGHTNING TALK

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- We present a software framework (NEMOS) used to simulate the response of multi-technology sensor networks to nuclear explosions and other nuclear events.
- NEMOS can be used in network design to estimate detection, location and characterization capability. It simulates the response from seismic- and infrasound sensors, as well as several types of radionuclide sensors (GM-tubes, NaI, aerosol, and xenon).
- We exemplify the capability using a fictitious network in Sweden.

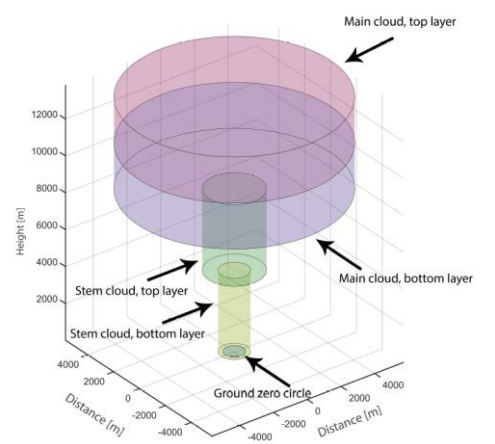
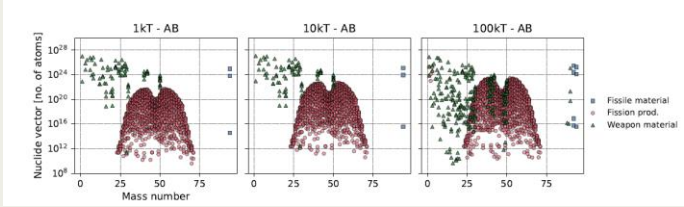


Figure 9: Illustration of the main sections of a mushroom cloud as modelled by NWSWAMP for an 80 kt bomb with 50% fission that explodes on the ground surface. A base surge cloud only appears for underground explosions which is not the case here.



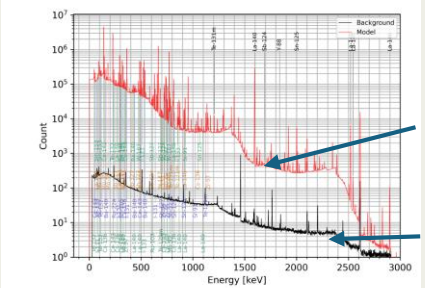
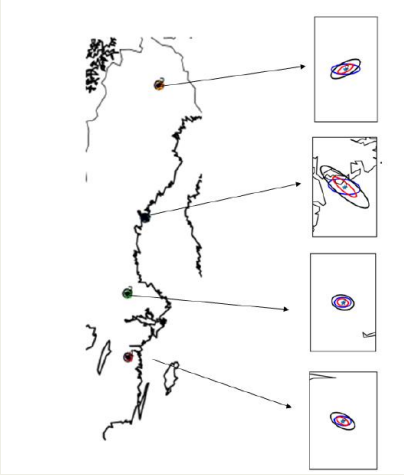


Figure 20: Example of an energy spectrum and the corresponding background energy spectrum produced by the HPGe aerosol model. Peaks identified by UniSAMPO that are also on the list of CTBT-relevant nuclides are marked.

Spectrum caused by simulated nuclear explosion.

Background



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