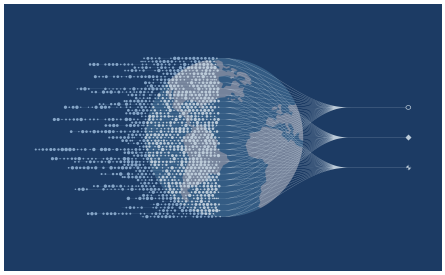

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-DCC method to determine radio-isotopes quantities in fall-out

Development of nuclear devices tends to take place in secrecy, without sharing specification of technical details. Tests are generally performed underground and unannounced. Seismics will announce a detonation and give an approximate location and time. One of the challenges of CTBTO is the reverse engineering of the specs of the nuclear device itself. After some containment time, noble gases will inevitably be set free and be detected by sampling stations. A key role in the source term estimation process is played by the ratios of the noble gases. These ratios provide a fingerprint of the material used in the device. In this presentation, we address this issue with the recently developed 'cocktail-DCC method'. For modeling the fall-out we use this tool, where nuclear decay and atmospheric dispersion are mathematically separated. This is done without loss of nuclide information at any time after detonation faster and in higher accuracy than before. We determine the change of radioisotope ratios over time for a set of reference source terms. Model results are compared with measured values. This contributes to an accurate estimate of the initial composition and yield of the device.

E-mail

michiel.de.bode@rivm.nl

In-person or online preference

Primary authors: Dr VAN DIJK, Arjan; Dr KLOOSTERMAN, Astrid; BODE, Michiel (National Institute for Public Health and the Environment (RIVM), The Netherlands); BRANDHOFF, Puck

Presenter: BODE, Michiel (National Institute for Public Health and the Environment (RIVM), The Netherlands)

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