

## monitoring as crucial part of the CTBTO verification regime: overview, status and challenges

*Wednesday 21 June 2023 14:00 (30 minutes)*

The CTBTO operates a worldwide network based on four complementary verification methods to detect any sign of a nuclear explosion conducted anywhere – underground, underwater or in the atmosphere. The radionuclide technology is the only one that can confirm whether an event is indicative of a potential nuclear test.

The four CTBT-relevant radionuclides are fission products. They are measured by stations equipped with noble gas capabilities and play a crucial role when determining whether an event is of CTBT-relevance. Specific measurement systems have been designed in the past decades to match the needs of the network using state-of-the-art technologies. In parallel, tailored analysis methods have been developed and implemented by the International Data Centre to make radionuclide measurement data more and more relevant for CTBT-purposes.

This is a complex task, as a highly variable radionuclide background produced by civil nuclear facilities is likely to interfere with the potential signal of a nuclear explosion, making the identification of CTBT-specific events a challenging task.

This work intends to provide an overview of 15 years radionuclide monitoring by the CTBTO. Current challenges are also presented, together with the potential of further advancing knowledge and understanding of the radionuclide background.

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### Promotional text

This presentation intends to review 15 years of progress in the monitoring of radionuclides, as part of the verification regime of the CTBTO, as well as the current challenges.

### Oral preference format

in-person

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