

## 2014 Radioxenon Observations at International Monitoring System Stations – Comparison with the 2014 Baseline

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Normal operational releases of radioxenon make the discrimination between radioxenon detections from civil nuclear applications and from nuclear testing a very complex task.

The objective for the short to medium term is to develop algorithms and tools that facilitate the understanding of the background. The longer term vision is to eventually develop robust methodologies for explaining to what extent radioxenon detections at International Monitoring System (IMS) stations can be explained based on the impact of civil sources. In this regard, observed radioxenon activity concentrations at the IMS noble gas sites in 2014 have been further reviewed. The update involved offline reprocessing of the spectral data from all beta-gamma coincidence based systems using the new configuration of net count calculation (NCC), which reduced the rate of false positives of Xe-131m, Xe-133m and Xe-135. This presentation compiles achieved results for observations at IMS stations. The statistical analysis of simulated vs. observed data is repeated and compared with the 2014 baseline that was set in a previous published study (Gueibe et al., 2017). In addition, the new dataset has the potential to be used in other research areas, such as radioxenon isotopic ratio studies.

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### Promotional text

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### Oral preference format

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Analysis of Radionuclide Monitoring Data