

to Radioiodine Ratios in Emissions from Nuclear Power Plants

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For the purpose of monitoring for compliance with the Comprehensive Nuclear-Test-Ban Treaty (CTBT), the International Monitoring System (IMS) includes 80 sites with particulate radionuclide samplers, 40 of which also have a noble gas sensor system. The coincidence of radioiodine and radioxenon observations at the co-located systems may offer an opportunity for event screening. This study gains knowledge of typical radioxenon to radioiodine ratios of releases from nuclear power plants (NPPs) and compares these ratios with the signatures that may indicate a nuclear explosion. The study presented here builds on the previous publication about the radioxenon emission inventory from NPPs for the calendar year 2014. The radioiodine emissions of the same reactors will be retrieved, and the distribution of the ratios established for the atomic masses of 131, 133 and 135 as well as for the most frequently observed isotopes of these two elements, namely Xe-133/131I. The purpose of this presentation is to investigate whether these radioxenon to radioiodine ratios can be used for screening methods and to enhance understanding of the impact of known sources on the IMS background observations.

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Promotional text

Typical radioxenon to radioiodine ratios of releases from nuclear power plants (NPPs) are established and compared with the signatures that may indicate a nuclear explosion. The results may be used for screening of samples at co-located particulate and noble gas systems.

Oral preference format

in-person

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