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Progress over 2014 baseline on the match between observations and simulations of radioxenon concentrations at IMS stations

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 on 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 determining to what extent radioxenon detections at International Monitoring System (IMS) stations can be explained based on the impact of civil sources. The 2014 baseline is updated in two ways. On one hand, the radioxenon emission inventory has been updated. On the other hand, observed radioxenon activity concentrations at the IMS noble gas sites have been further reviewed. The update involves offline reprocessing of the spectral data using a new NCC configuration. The potential xenon contribution from civil sources was estimated using the output of Atmospheric Transport Modelling (ATM) so called source-receptor-sensitivity (SRS) fields. The presentation compiles achieved results for simulated concentration estimates and 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 previously published study.

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