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INGE Assets Put at Stake Through Enhanced Xenon Background Concentrations Released from Medical and Industrial Isotope Production Facilities as Shown by Atmospheric Transport Modelling

Interpretation and understanding of radio-xenon daily sampled within the International Monitoring System demands for an atmospheric transport modelling (ATM) system that delivers the source attribution to the isotopic concentrations measured. Typical Xe-133 releases from medical and industrial isotope production (MIPs) facilities notably contribute to a great part of the regularly measured civil background and challenge any Xe-133 event categorization scheme for distinguishing CTBT relevant from any other xenon releases.

In-line with the deliberations of the 2009 and 2011 WOSMIP workshops, this presentation shall serve as an impulse to discussions on feasible ways to provide data specifying the temporal variability of the xenon emissions from MIPs, including their potential benefits for the provider (e.g. knowledge transfer on remote safeguarding). It will also provide an overview on the counter-measures at hand to the PTS in the field of ATM aided bogus event screening. Obviously these measures are limited, and the prospect of increasing backgrounds of key nuclides Xe-131m and Xe-133 limiting their use similar to Kr-85 should motivate for the most suitable solution: A best possible mitigation of anthropogenic radio-xenon releases with special emphasis on MIPs, for example by applying best practices in Mo-99 production.

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