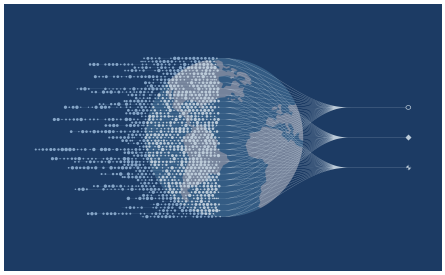

ID: **P3.6-700** Type: **E-poster**

20 years of Krypton-85 measurements revisited

Bundesamt für Strahlenschutz (BfS) has been operating a network with weekly air sample collection at up to 26 locations in Germany and worldwide, with sampling going back to 1973. The samples are analyzed for Kr-85 at the BfS Noble Gas laboratory in Freiburg which is accredited according to DIN EN ISO/IEC 17025. Large quantities of the radioactive noble gas Kr-85 are released into the atmosphere as a result of reprocessing of used nuclear fuels. Reprocessing started in the 1940s mainly to separate plutonium for military purposes and the monitoring of Kr-85 has been suggested as an indicator for clandestine plutonium production. However, emissions from civil reprocessing activities have created a significant background. We analyze the data from 2005-2024 with backward ATM for more than 10000 individual samples from about 10 stations. We discuss the possibility of distinguishing different emitters using the recent shutdown of the Sellafield nuclear reprocessing plants as an example.

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Session Classification: P3.6 Analysis of Radionuclide Monitoring Data

Track Classification: Theme 3. Monitoring and On-Site Inspection Technologies and Techniques: T3.6 Analysis of Radionuclide Monitoring Data