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soil measurements in Sweden of radioxenon and radioargon

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The most important indicators for an underground nuclear explosion during a CTBT on-site inspection are the radioactive xenon isotopes 131mXe, 133Xe and 133mXe and the radioactive argon isotope 37Ar. Knowledge of how these isotopes vary and potentially correlate in different types of soil is essential to be able to discriminate between the natural background and a signal from a nuclear explosion.
A series of measurements has been performed at different depths within a limited area in the region of Kvarntorp (Sweden), a location with known elevated uranium content in the ground. To investigate variations of the naturally occurring noble gas concentration in sub soil gas over time and at different depths sub soil sample collection was carried out over a period of two weeks. The analytical results from the collected samples will be discussed in relation to radon levels, soil uranium content and environmental parameters such as the meteorological conditions.

Promotional text

Radioactive noble gases are important indicators of a underground nuclear explosion. To investigate variations of the naturally occurring noble gas concentration in sub soil gas over time sub soil sample collection was carried out over a period of two weeks.

Primary authors: Mr ALDENER, Mattias (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr FRITIOFF, Tomas (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr AXELSSON, Anders (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr ELMGREN, Klas (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Ms KARLKVIST, Lindsay (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr KASTLANDER, Johan (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Ms SODERSTROM, Catharina (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr OLSSON, Henrik (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr RINGBOM, Anders (Swedish Defence Research Agency (FOI),Stockholm, Sweden); Mr PURTSCHERT, Roland (University of Bern, Switzerland)

Presenter: Mr ALDENER, Mattias (Swedish Defence Research Agency (FOI),Stockholm, Sweden)

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