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A Modeling Tool for Source Characterization

Information regarding the source of radionuclides detected in the atmosphere can be obtained by comparing the observed activity concentrations and their ratios to those expected from various types of sources. Nuclear explosions with various fuels as well as reactors and irradiation facilities all yield different inventories of radionuclides, and the signatures finally observed are also dependent on factors such as radioactive decay, chemical fractionation and selective release of the originally produced inventories. This poster will present an initial version of a tool used by the Swedish NDC to model the activity of selected radionuclides produced as a function of time for fission source scenarios defined by e.g. type of source, release timing and fraction of gaseous radioactivity released. The tool, which is under continuous development, is used to compare measured data to source hypotheses both stand-alone and as a generator of model data for the Seicon data fusion tool also developed by the Swedish NDC.

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