

T2.2-P05. Atmospheric Transport Modelling confining possible origin of East-Asian radionuclide detections in May 2010

Remarkable activity concentrations of Ba/La-140 occurred at IMS radionuclide stations JPP37 (Okinawa) and RUP58 (Ussurysk) mid of May 2010. In those days also an elevated Xe-133 level was measured at JPX38 (Takasaki). Additional regional measurements of radionuclides were reported in the press. The radionuclide analysis gives evidence for the presence of a nuclear fission source between 10 and 12 May. Backward Atmospheric Transport Modelling (ATM) with HYSPLIT driven by 0.2° ECMWF meteorological data for the IMS samples indicates that, assuming a single source, a wide range of source regions is possible including the Korean Peninsula, the Sea of Japan (East Sea), and parts of China and Russia. Forward modelling for various source hypotheses complements this picture. Further confinement of the possible source location can be provided by atmospheric backtracking for the assumed sampling periods of the reported regional xenon measurements. New studies indicate a very weak seismic event at the DPRK test site on early 12 May 2010. Forward ATM for a pulse release caused by this event shows good agreement with the observed radionuclide signature. Nevertheless, the underlying nuclear fission scenario remains quite unclear and speculative even if assuming a connection between the waveform and the radionuclide event.

Primary author: ROSS, Jens Ole (Federal Institute for Geosciences and Natural Resources (BGR))

Presenter: ROSS, Jens Ole (Federal Institute for Geosciences and Natural Resources (BGR))

Track Classification: 2. Events and their characterization