

Transport Modelling for Radionuclide Monitoring after the Nuclear Tests of the DPRK on 6 January and 9 September 2016

The International Monitoring System (IMS) developed by the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) is a global system of monitoring stations, using four complementary technologies: seismic, hydroacoustic, infrasound and radionuclide. The radionuclide network comprises 80 stations, of which more than 60 are certified. The aim of radionuclide stations is a global monitoring of radioactive aerosols, radioactive noble gases and atmospheric transport modelling (ATM). To investigate the transport of radionuclide emissions, the Provisional Technical Secretariat (PTS) operates an Atmospheric Transport Modelling (ATM) system based on the Lagrangian Particle Dispersion Model FLEXPART. The air mass trajectory provides a “link” between a radionuclide release and a detection confirmed by radionuclide measurements. The aim of this study is to demonstrate the application of ATM to investigate the episodes of elevated levels of radioxenon observed by IMS stations after the fourth and fifth nuclear tests, announced by the Democratic People’s Republic of Korea (DPRK) at the Punggye-ri Nuclear Test Site on 6 January and 9 September 2016.

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