

Application of source detective system for a Fukushima accident

Some radionuclides were detected in monitoring stations in Korea from a Fukushima accident occurred in March 2011. In particular, the maximum concentrations of I-131 and Cs-137 were shown on the 6th and 7th of April at Gunsan and Busan in Korea, respectively. A source detective system has been applied to investigate the transport pathway of radionuclides measured in the air sampling in Korea from the Fukushima accident. A source detective system is composed of trajectory, atmospheric dispersion, and source term estimation models. Six stations measured in Korea were used to estimate pathway of radionuclide from the Fukushima in the early of April. From the simulations, radionuclides released into the air from the Fukushima were transported directly from from April 4 to April 8. In overall, I-131 and Cs-137 reached Korea after travelling around the world due to the westerly winds from Fukushima, but some of the I-131 and Cs-137 entered the Korean Peninsula directly owing to the variations of wind during the 4th through the 8th of April. A source detective system can be used as good tools to detect unknown source regions and release rates of radionuclides released into the air from covert nuclear activities and accidents.

Primary author: SUH, Kyung-Suk (Korea Atomic Energy Research Institute)

Presenter: SUH, Kyung-Suk (Korea Atomic Energy Research Institute)

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