Geophysical Research Abstracts
Vol. 15, EGU2013-14075, 2013
EGU General Assembly 2013

Emission, transport, deposition, and re-suspension of radionuclides from Fukushima Dai-ichi Nuclear Power Plant in the atmosphere – Overview of 2-year investigations in Japan

Kazuyuki Kita (1), Yasuhiro Igarashi (2), Naohiro Yoshida (3), and Teruyuki Nakajima (4)

(1) Ibaraki Universty, Mito, Japan (kita@mx.ibaraki.ac.jp), (2) Meteorological Research Institute, Tsukuba, Japan, (3) Tokyo institute of Technology, Yokohama, Japan, (4) University of Tokyo, Tokyo, Japan

Following a huge earthquake and tsunami in Eastern Japan on 11 March, 2011, the accident in Fukushima Dai-ichi Nuclear Power Plant (FDNPP) occurred to emit a large amount of artificial radionuclides to the environment. Soon after the FDNPP accident, many Japanese researchers, as well as researchers in other countries, started monitoring radionuclides in various environmental fields and/or model calculations to understand extent and magnitude of radioactive pollution. In this presentation, we overview these activities for the atmospheric radionuclides in Japan as followings:
1. Investigations to evaluate radionuclide emissions by explosions at FNDPP in March 2011 and to estimate the respiration dose of the radiation at this stage.
2. Investigations to evaluate atmospheric transport and deposition processes of atmospheric radionuclide to determine the extent of radionuclide pollution.
– Based on results of the regular and urgent monitoring results, as well as the mapping of the distribution of radionuclide s accumulated by the deposition to the ground, restoration of their time-dependent emission rates has been tried, and processes determining atmospheric concentration and deposition to the ground have been investigated by using the model calculations.

3. Monitoring of the atmospheric concentrations of radionuclide after the initial, surge phase of FNDPP accident.
4. Investigations to evaluate re-suspension of radionuclide from the ground, including the soil and the vegetation.
– Intensive monitoring of the atmospheric concentrations and deposition amount of radionuclide after the initial, surge phase of the accident enable us to evaluate emission history from FNDPP, atmospheric transport and deposition processes, chemical and physical characteristics of atmospheric radionuclide especially of radio cesium, and re-suspension processes which has become dominant process to supply radio cesium to the atmosphere recently.