[EJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-AG Applied Geosciences

[M-AG33]Dynamics of radionuclides emitted from Fukuchima Dai-ichi Nuclear Power Plant in the environment

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Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The Great East Japan Earthquake caused the severe accident in TEPCO Fukushima dai-ichi nuclear power plant (FDNPP), leading to emission of huge amount of radionuclides to the environment. They have been transported and diffused by atmospheric motion, depositing them to soil and vegetation. Deposited radionuclides are dynamically shifted in the earth environment; atmosphere, soil, inland water, ocean, and ecosystem. To understand this dynamic shift in the environment and for the long-term prediction of the disaster by the radionuclides, investigation and discussion based on not only the earth sciences including ecology but also on the radiochemistry and other related sciences.

In this session, various efforts to understand the dynamic behavior of radionuclides emitted from FDNPP accident in the earth system as well as to predict their influences on the environment. It is expected that this session will offer a good opportunity to discuss radionuclides in the earth environment from wide aspect and to exchange information in various research fields.

[MAG33-P06]Radiocesium leaching through stemflow and branchflow from coniferous and deciduous trees following the Fukushima Dai-ichi Nuclear Power Plant accident

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Keywords:Radiocesium leaching, Stemflow, Branchflow, Coniferous and deciduous trees , Fukushima Dai-ichi Nuclear Power Plant accident

Fukushima Dai-ichi Nuclear Power Plant accident has released a massive amount of radiocesium into the forest ecosystem in the past 7 years ago. Thus, the initial fallout majorly intercepted and attached to the canopy, especially for evergreen forest such as cedar stands. However, for deciduous broad-leaved forest such as for oak stands, the major exposed were branches and stems since at the time of the accident the leaves had already fallen. Through precipitation events, radiocesium from the canopy has washed out to the branch and then channeled to the trunk via preferential pathways before deposited onto the forest floor time to time. Hence, this radiocesium leaching through stemflow and branchflow demonstrates an important component in the deposition and cycle process of radiocesium. As the deposition flux of radiocesium was enriched by stemflow generation per rainfall event, far less is known on which part of the forest stand, either at the canopy and/or trunk that contributing to this leaching process. Therefore, in this study, we investigated the relationship between radiocesium leaching and stemflow generation of the coniferous forest (young Japanese cedar trees) and mixed deciduous broad-leaved forest (Japanese oak trees). In more details, we also determined the different pathway of radiocesium leaching for branchflow through young and old foliage and for stemflow at the various height of canopy and trunk based on different collector setup.