

Vertical profile of dissolved ^{137}Cs concentrations of soil water in Fukushima after Fukushima Dai-ichi Nuclear Power Plant accident

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Soil water samples were sampled and dissolved ^{137}Cs concentrations were measured at four sites with different land use (meadow land, pasture land, and young/mature cedar forest) in Yamakiya District, located ~35 km northwest of Fukushima Dai-ichi Nuclear Power Plant (FDNPP) from July 2011 to October 2012. Meadow land and pasture land are not covered by any kind of trees and therefore there might no input of ^{137}Cs by throughfall. At young/mature cedar forest, ^{137}Cs input by throughfall was expected. Rainfall at meadow land, pasture land and throughfall at young/mature coniferous forest were also sampled and dissolved ^{137}Cs concentrations were measured. Soil water samples were collected by suction lysimeters in three different depths at each site (depth of 0.1, 0.3 and 0.5 m at meadow land and young/mature cedar forest; depth of 0.1, 0.2 and 0.3 m at pasture land). The dissolved ^{137}Cs concentration was analyzed by Germanium Gamma ray detector.

dissolved ^{137}Cs concentrations of soil water showed high value of 0.011-2.5 Bq/L around July to August 2011, whereas dissolved ^{137}Cs concentrations of throughfall were 47-450 Bq/L during that period. The declining trend of dissolved ^{137}Cs concentrations of soil water seems to be similar with that of stream water. Where the dissolved ^{137}Cs concentrations of stream water declined in a two-component exponential model [1]. The k_i factor of declining trend of dissolved ^{137}Cs concentrations of soil water showed good correlation with Radiocesium interception potential (RIP) factor reported in the same site [2].

[1] Iwagami et al. (2015) *Journal of Environmental Radioactivity*. (in press). [2] Takahashi et al. (2015) *Journal of Environmental Radioactivity*. **139**, 351-361.