

Evaluation of radioactivity resuspension by mineral dust particles from ground surface using a 1-D vertical model

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Radioactive materials released into the atmosphere by the Fukushima Daiichi Nuclear Power Plant Accident on March 2011 deposited onto various areas such as forest, paddy fields, and so on. The secondary emission of the radioactive materials by strong winds is not elucidated scientifically. This study focuses on the resuspension of the radioactive materials that had adsorbed with mineral dusts from the ground surface, and evaluates the atmospheric radioactivity concentration due to the re-suspended mineral aerosols at the school ground, where was heavily contaminated by the accident, using a 1-D vertical model. The model evaluation was conducted under different soil textures such as sand, loamy soil, silty clay loam and clay. The results were compared with the observation data of the continuously monitored radioactive aerosols at the Tsushima area in Namie town, Fukushima, which evaluated the parameters of the model.

Keywords: the Fukushima Accident, Radioactive aerosol, 1-D model, Resuspension, Mineral dust, Dust emission