

## Evaluation of radioactivity resuspension by dust emission using a size-resolved 1-D vertical model in Namie, Fukushima

ISHIZUKA, Masahide<sup>1</sup> ; MIKAMI, Masao<sup>2\*</sup> ; TANAKA, Yasuhito<sup>2</sup> ; IGARASHI, Yasuhito<sup>2</sup> ; KITA, Kazuyuki<sup>3</sup> ; YAMADA, Yutaka<sup>4</sup> ; YOSHIDA, Naohiro<sup>5</sup> ; TOYOTA, Sakae<sup>5</sup> ; SATO, Yukihiko<sup>6</sup> ; TAKAHASHI, Yoshio<sup>7</sup> ; NINOMIYA, Kazuhiko<sup>8</sup> ; SHINOHARA, Atsushi<sup>8</sup>

<sup>1</sup>Kagawa University, <sup>2</sup>Meteorological Research Institute, <sup>3</sup>Ibaraki University, <sup>4</sup>RIKEN, <sup>5</sup>Tokyo Institute of Technology, <sup>6</sup>Tsukuba University, <sup>7</sup>Hiroshima University, <sup>8</sup>Osaka University

Radioactive materials released into the atmosphere by the Fukushima Daiichi Nuclear Power Plant Accident in March 2011 were deposited over a wider area. Those materials adhered to the soil particles (dust particles) and its resuspension by strong winds is apprehensive about as secondary emissions. We have proposed a size-resolved, one-dimensional resuspension scheme to calculate the concentration of radioactivity in the atmosphere, in the last annual meeting. The results underscore the importance of taking into account soil texture when calculating the concentrations of resuspended, size-resolved atmospheric radioactivity. However, various assumptions were incorporated into both the scheme and evaluation conditions. In this study, we made analyses of soil particle size distribution and soil radioactivity at a school ground in Tsushima District, Namie Town, Fukushima, which was heavily polluted by the accident. The model results were compared with in situ observational data of the size spectrum of atmospheric radioactivity. We validated the applicability of the scheme and the behavior of resuspended radioactive aerosols.

Keywords: Secondary emission, Radioactive aerosol, Dust, Fukushima accident