

Contribution of atmospheric Cs-137 concentration fluctuation and bioaerosol in Tsukuba, Ibaraki, 2013

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Some of the radioactive materials released into the atmosphere by the Fukushima Daiichi Nuclear Power Plant accident in 2011 also flew to the northern part of the Kanto and deposited. At the Meteorological Research Institute in Tsukuba, Ibaraki, a small amount of radioactive material is detected from the collected atmospheric aerosol, a few years after the nuclear accident. Immediately after the nuclear accident, radioactive material was transported by direct transport from Fukushima, but in 2013 when the influence of direct transportation decreased, it is considered that Cs-137 once deposited around Tsukuba was scattered again.

In Namie Town, Fukushima, it is known that aerosol of biogenic origin was scattered in the summer, and from the observation of the scanning electron microscope (SEM) and the optical microscope, we found that the aerosol of this biological origin is fungi and spores like mushrooms and molds. Moreover, when this sample analyze DNA, many of them are basidiomycetes and ascomycetes. So it is considered that these spores are supplying Cs - 137 to the atmosphere, and it has been suggested that the bioaerosol contributes greatly to the re-scattering of radioactive materials.

Atmospheric aerosol in Tsukuba was thought to have scattered many carbonaceous aerosols such as black carbon. SEM and optical microscope analysis of air samples which radioactive materials are detected in trace amounts collected in Tsukuba in 2013, however, it has large amount of bioaerosol. So we consider whether scattering of Cs-137 concentrate is due to bioaerosol.

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