

Seasonal variation of radioactive cesium concentrations in the atmosphere after the FDNPP accident

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In March, 2011, a large amounts of radioactive nuclides were released by the accident of Fukushima Daiichi Nuclear Power Plant (FDNPP). Radioactive cesium isotopes such as ¹³⁴Cs and ¹³⁷Cs are one of the most significant nuclides in the problem of radioactivity contamination in the nuclear accident due to the large released amounts and their long half-lives. In fact, the radioactivities of these nuclides have still been detected from environmental samples such as soil, atmosphere, seawater and so on. Our group has been collecting aerosol samples in the atmosphere soon after the accident and measuring the radioactivities in these samples mainly in the eastern area of Japan; Fukushima city in Fukushima prefecture, Hitachi city in Ibaraki prefecture and Marumori town in Miyagi prefecture.

Aerosols were collected on quartz fiber filter using high-volume air sampler. Radioactivities were determined by high-purity germanium detectors from counts of gamma-rays from ¹³⁴Cs (604 keV) and ¹³⁷Cs (661 keV). From 5 year continuous observation, seasonal variation of radioactive cesium concentrations in the atmosphere has been investigated. For example, Fig. 1 shows the time variation of ¹³⁷Cs concentration in Fukushima city. The details will be discussed in the presentation.

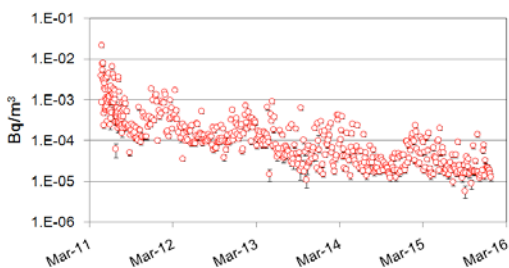


Figure 1: Seasonal variation of ¹³⁷Cs concentration in Fukushima city