

## Distribution of $^{129}\text{I}$ in the environment released from the FDNPP accident and estimation of $^{131}\text{I}/^{129}\text{I}$ ratio

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Radioiodine is one of the most important radionuclides released from the Fukushima-Daiichi Nuclear Power Plant (FDNPP) accident.  $^{131}\text{I}$  (half-life: 8 d) has a short half life time. Because of the difficulty of measuring  $^{131}\text{I}$  at this time, it is expected to estimate  $^{131}\text{I}$  precipitation from  $^{129}\text{I}$  (half-life:  $1.57 \times 10^7$  y) with the long half-life in the surface soil. We have measured  $^{129}\text{I}$  concentrations in the surface soil at Fukushima.  $^{129}\text{I}/^{127}\text{I}$  ratios were measured by accelerator mass spectrometry (AMS) at the MALT, the University of Tokyo (Matsuzaki et al., 2007). Stable iodine of  $^{127}\text{I}$  was determined by inductively coupled plasma mass spectrometry (ICP-MS). We already got a result that the average  $^{129}\text{I}$  concentration was  $(2.74 \pm 1.35) \times 10^8$  atoms/g prior to the FDNPP accident as  $^{129}\text{I}$  background at Fukushima. After the accident, average isotopic ratio of  $^{131}\text{I}/^{129}\text{I}$  at Fukushima is estimated to  $(4.02 \pm 0.81) \times 10^{-2}$  as at March 11, 2011. The results of calculation about  $^{131}\text{I}/^{129}\text{I}$  ratio made by the ORIGEN2 code are  $3.18 \times 10^{-2}$  for the Unit 1,  $4.57 \times 10^{-2}$  for the Unit 2 and  $4.81 \times 10^{-2}$  for the Unit 3 (Nishihara et al., 2012). In this presentation, we report the distribution of  $^{129}\text{I}$  in terrestrial environment at Fukushima and  $^{131}\text{I}/^{129}\text{I}$  ratios by region.

Keywords: FDNPP accident, Radioiodine,  $^{131}\text{I}/^{129}\text{I}$ , AMS