

## Transfer of HT in Environment

Tsuyoshi MASUDA, Masaru NAGAI, Hideki KAKIUCHI  
*Department of Radioecology*

### Abstract

Discharged HT from nuclear fuel reprocessing plants is oxidized to HTO by soil microbes, and then transferred to the soil water. However, the deposition velocities of HT onto soils in Aomori Prefecture where such a reprocessing plant is located in Rokkasho-village is not clear. Therefore, we measured HT deposition velocities in upland fields of the village. The obtained values ( $1.7 \times 10^{-4} - 2.0 \times 10^{-4} \text{ m s}^{-1}$ ) were within the range of the reported values in the literature ( $1 \times 10^{-5} - 1.3 \times 10^{-3} \text{ m s}^{-1}$ ). In addition, we developed a simple system to evaluate HT deposition onto various soil types found in Aomori Prefecture using  $\text{D}_2$  as a tracer. The values obtained by the system ( $2.4 \times 10^{-4} - 4.4 \times 10^{-4} \text{ m s}^{-1}$ ) were also comparable to the reported values.

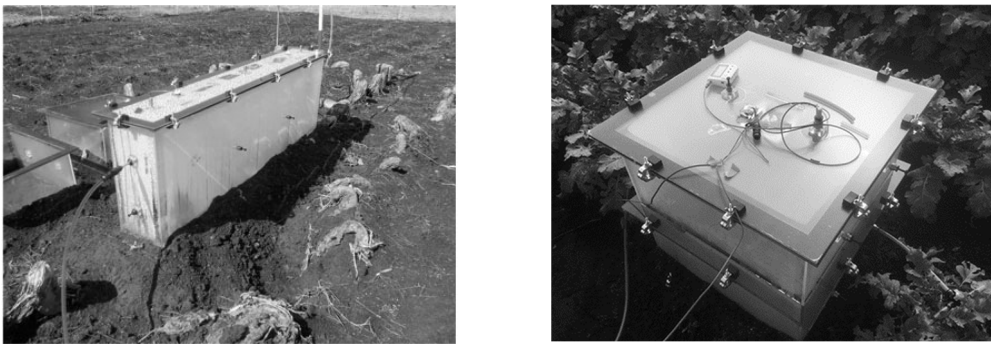


Fig.1 Photos of the experimental chambers. A, ventilated chamber. B, closed chamber.

Table 1 Deposition velocities of HT in upland andosols.

Chamber type	Date	HT deposition velocity ( $\text{m s}^{-1}$ )
Ventilated	1/14-1/21	$1.7 \times 10^{-4}$
Ventilated	1/22-1/29	$2.0 \times 10^{-4}$
Ventilated	2/1-2/8	$1.9 \times 10^{-4}$

Table 2 Deposition velocities of  $\text{D}_2$  in upland andosols.

Chamber type	Date	$\text{D}_2$ deposition velocity ( $\text{m s}^{-1}$ )
Closed	10/20	$4.4 \pm 0.7 \times 10^{-4}$
Closed	11/13	$2.4 \pm 0.8 \times 10^{-4}$
Closed	12/2	$2.9 \pm 0.3 \times 10^{-4}$