

# Radiocesium does not leak from contaminated soil buried in paddy fields

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Radiocesium released from the Fukushima Daiichi Nuclear Power Station in March 2011 was accumulated in rice fields within 5 cm of the soil surface. In order to remove this radiocesium, the Japanese government carried out decontamination work to remove surface soil. For this reason, some rice fields in Iitate Village, Fukushima Prefecture, are piled up with flexible container bags filled with contaminated soil. On the other hand, based on the fact that radiocesium is fixed to clay minerals in soil, we have buried contaminated soil in a paddy field of farmer in Sasu area in Iitate village, and have been conducting rice cultivation tests every year. However, radiocesium may be released back into the environment. Therefore, in order to prove that radiocesium does not leak from the paddy field, soil radiation from the test paddy field has been measured since March 2015. As a result, soil radiation had a Gaussian distribution shape, and the depth of the radiation maximum remained almost unchanged for four years. (Fig.1) In addition, the maximum soil radiation decreased according to the theoretical curve taking into account the natural attenuation of Cs-134 and Cs-137. (Fig.2) The same tendency was observed in cattle pastures buried in non-decontaminated ridges in Matsuzuka area in Iitate. These results indicate that radiocesium is unlikely to leach from contaminated soil buried in paddy fields. This study provides technical guidance on the design and management of buried contaminated soil in piles of flexible containers.

Keywords: Radiocesium, soil radiation, paddy field, decontamination, leak, Fukushima

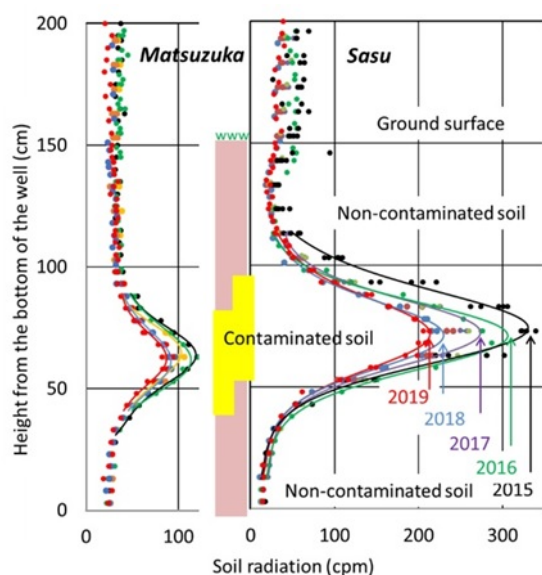


Fig.1 Profiles of soil radiation starting in March 2015

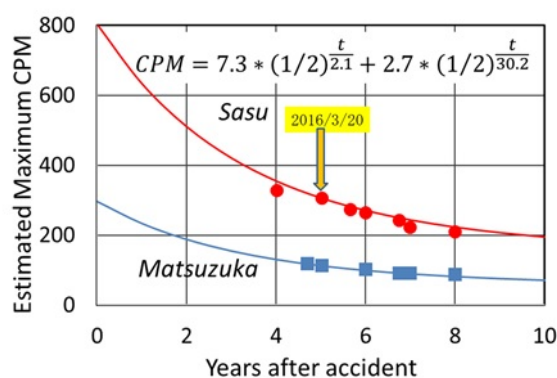


Fig.2 Estimation of radiation dose in soil