



## Effect of decontamination on sediment discharge from mountain stream to river and cesium transfer in Yamakiya district

**Fumiaki Makino**, Yuichi Onda, Keisuke Taniguchi, Mitbaa Slim, Yoshifumi Wakiyama, Syohei Kozuka, Hiroaki Kato, and Sho Iwagami

Center for research in isotopes and environmental dynamics, University of Tsukuba, Tsukuba, Japan  
(happyhippy59@ezweb.ne.jp)

After the accident of the Fukushima nuclear power plant, decontamination works had been conducted from 2013 to 2017 in the area of heavily contamination by fallout radionuclides. Although decontamination is conducive to decrease the air dose rate, associated disturbances of soil, such as scraping, reversal tillage, and soil dressing. These decontamination works, in turn, could increase the sediment discharge to downstream, but no studies are available on the effect of the decontamination in upstream headwaters that affects sediment discharge in rivers. Furthermore, decontamination has been carried out in the target area, the Yamakiya area, from 2013, and decontamination has been completed in the spring of 2016, decontamination work has been completed in 2017, and the residents have been returned. The sediment runoff due to human activities can be different from the sediment runoff due to decontamination.

The purpose of this study was to study the relationship between sediment dynamics and Cs dynamics due to decontamination, and the changes in sediment dynamics due to the return of residents. Observations and historical data were analyzed at Iboishi mountain in the forest and the middle stream of Kuchibuto. We have been monitoring suspended sediment Cs-137 concentration, water runoff, and suspended sediment runoff since 2014 at the middle point of the Kuchibuto River and since 2013 at Mt.Iboishi. The slope of the approximation line was compared with the LQ curve for comparison of the amount of sediment runoff. In the middle of the Kuchibuto river, it was 1.54 in 2014, 2.28 in 2015, 2.12 in 2016, 0.164 in 2017, and 0.189 in 2018. At Iboishi mountain in the forest, it was 1.72 in 2014, 0.947 in 2015, 1.39 in 2016, 0.219 in 2017, and 1.15 in 2018. The same tendency was shown in the slopes of the LQ curves in the middle part of the Kuchibuto river and the Iboishi mountain in the forest area. The Cs concentration was high until November 2015, but since then, the Cs concentration has decreased. These results suggest that the increased sediment discharge due to decontamination of the forest area affected the sediment discharge in the middle stream of the Kuchibuto River.