



## **Sediment balance from mountains to coasts in Japan: What is the cause of coastal erosion in the period from 1950 to 1990?**

Keiko Udo (1), Kohki Morita (1), Yuriko Takeda (1), and Yoshiyuki Yokoo (2)

(1) International Research Institute of Disaster Science, Tohoku University, 468-1 Aoba, Sendai, Japan (udo@irides.tohoku.ac.jp), (2) Faculty of Symbiotic Systems Science, Fukushima University, 1 Kanayagawa, Fukushima, Japan

Beaches have been eroded all over the world though they have important functions for disaster reduction, coastal environment and utilization. In Japan, beaches eroded significantly in the period from 1950s to 1990s and many researchers indicated that its major causes are sediment interruptions by erosion control at mountains and dam construction at rivers; however, those clear evidences are few (Yokoo and Udo, 2016). It is necessary to clear sediment balance in catchments from mountains, rivers, to the sea for better future coastal management. This study analyzed amounts of sediment yield, sediment deposits in check dams and dam reservoirs, and sediment digging in rivers at 77 catchments covering all over Japan.

The results show that half or all of the sediment yield was estimated to be lost before reaching the sea in the period from 1950 to 1990 in Japan. All these data used in this study cannot fully explain the sediment balance in the catchments; however, they revealed that the river digging could be one of the major factors which affected the beach erosion in the period, though its effect has not been indicated so far. Purpose of the river digging was rapid development of infrastructures all over Japan after the World War II. At present the river digging is limited to less than 10 million m<sup>3</sup>/year and its effect is considered to be insignificant compared to the sediment deposits in check dams and dam reservoirs, then the effects of the sediment deposits in the dams and further the sediment balance should be investigated for future management.