

Verification of incision rate estimation based on the geomorphological history of river terraces in Kaligandaki, Nepal

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The Himalaya is the highest mountains of the world. To estimate long-term (1 ~100 kyers) uplift history of the Himalaya, erosion rates of the incised river have been used with presuppose of dynamic equilibrium between tectonics and aggradations. This estimation is based on the correlations of the river terraces, however, depositional processes of the terraces usually have not been described in detail.

The Kaligandaki is the one of the longest river across the Nepal Himalaya. The long-term uplift history of the Himaraya has been estimated from the distribution of Holocene and Pleistocene terraces along the Kaligandaki river. In this study, we carried out the detailed geomorphological and sedimentological survey at the upper and middle part of the Kaligandaki River to verify the correlations of the river terraces. The fluvial terraces at the upper part of the Kaligandaki river is thought to be originated to the local sediment supply from three phases of the glacial events, although the middle part of the terraces are fluvial sediment. This indicates that correlations of the river terraces along the Kaligandaki river is not suitable for the estimations of incision rate and uplift history of the Himalaya.

Keywords: Himaraya, Geomorphology, Kaligandaki, Fluvial terrace