Estimation of fluvial incision rates based on artificial channel modification “Kawa-mawashi” in Boso Hills, Central Japan

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Fluvial incision is a basic factor of basin landscape evolution as well as lateral erosion and recession of water fall. Quantification of incision processes, therefore, are helpful in order to unravel geomorphic processes of basin. In this study, we estimated incision rates using some artificial abandoned channels constructed by “Kawa-mawashi” since the Edo period. The incision rates are estimated from a set of height (H) and period (T) since construction age of “Kawa-mawashi”. The height (H) is the difference of height between the present and the abandoned riverbeds. We selected eight channels having a drainage area of 4 ~ 32 km^2. Bedrocks of those channels are composed of sedimentary rocks from the Neogene to the Quaternary period. Results show the incision rate of 0.7 ~ 22.1 (average rate: 5.8) mm/y. It suggests that the incision rate is controlled by hydrologic condition and bedrock characteristic.

Keywords: incision rate, bedrock channel, artificial channel modification, abandoned channel

