

Landform changes and flood condition in the upper reaches of the River Azusa, central Japan

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The upper reaches of the River Azusa in central Japan is a braided gravel-bed river running down Japan Alps. They are characterized by frequent landform changes occurring in the riverbed. This study aims to clarify geomorphic processes of the landform changes of the riverbed using geomorphological maps and images of the observation site. The maps were made by surveying in every year from 2007 to 2012. The images were taken with interval shooting cameras at intervals of 10 to 30 minutes in daytime from July to October in 2011 and from June to October in 2012. Major landform changes, such as channel migrations, occurred in 2009, 2010 and 2011. No major landform change occurred during the working periods of the interval shooting cameras. The surveying for the geomorphological maps were carried out in August and October in every year. During the period only small change of landforms was recognized. They occurred in severe heavy rain events more than 120 millimeters per day during the snowmelt flooding season in April and May and/or the rainy season in June and July. In 4 July 2011 water level became higher caused by 50 millimeters per day rainfall. Although on 20 September 2011 more than 140 millimeters per day rainfall was recorded, water level does not rise bankfull stage and only slight landform changes take place. Based on the analysis of geomorphological maps and the profile of the cross section of the riverbed, channel migrations were not caused by lateral shifting of the channels. Burying former channels and excavation of new channels caused channel migrations and/or channel pattern changes on the riverbed.

Keywords: gravel-bed river, landform change, geomorphic process, geomorphological map, River Azusa, Kamikochi