

Relationships between rainfall, fluctuation of water level and landform changes 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 gravel-bed braided river flowing down the Northern Japan Alps. In this reaches landforms of the riverbed change yearly or once a couple of years. This study aims to clarify the relationships between rainfall, water level fluctuation and landform changes. The observation using interval shooting cameras has carried out since July, 2011. These have taken the images of the riverbed and recorded the conditions in every 15 or 20 minutes. The results are as follows. Despite relatively large drainage basin rainfall-runoff response is quite fast. About 30 minutes after the start of a rainfall the water level began to rise. The amount of the water level rise to the rainfall was different when the rainfall event occurred. During the Baiu rainy season the relatively less rainfall caused larger water level rise than after the end of the Baiu. Only one major landform change event was recorded during the observation. It occurred on 19 June, 2013. The heavy rain recorded 166 mm of the daily rainfall caused bankfull discharge, which was about 1 meter water level rise. These relationships between rainfall, water level rise and landform changes was caused by the geomorphological characteristics of the Kamikochi valley, which has thick gravel deposits more than several tens of meters and their water storage characteristics.

Keywords: rainfall-runoff, water level fluctuation, landform change, interval shooting camera, upper Azusa River, Kamikochi