

Annual channel migration and its causes on the riverbed of the upper Azusa River, central Japan

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This study aims to discuss the processes of river channel migration occurred in the 2009 Bai-u rainy season in the upper Azusa River, central Japan. We made geomorphological maps in August 2008 and in August 2009. Using these maps migration of the main channel is recognized.

Although we already pointed out that channel migration occurred during the Bai-u rainy season which experienced extreme rain events of more than 120mm rainfall per a day, in 2009 season channel migration occurred without such a heavy rain event. During that period rain continued 19 days and total amount of rainfall was 387.5mm. This shows large amount of rainfall also causes channel migration without an extreme rain event. Using cross sections of the riverbed, depth of water during flood regime is estimated. Because the floodplain was less affected by flood water during that period, water level did not exceed the height of the floodplain. Relative height between floodplain and riverbed where new channel was to be formed was less than 1m. This shows the maximum depth of water was less than 1m. This did not give enough tractive force to carry out the large boulders on the riverbed to form a new channel. On the 2008 geomorphological map, small, shallow and short ditches had been recognised on the riverbed where newer channel was to be formed. In the flood regime waters seeped from the heads and the sides of the ditches. This process widened, deepened and elongated the ditches. Finally these ditches connected each other and a large ditch was formed. When water of the main channel flew into the ditches, the channel migrated at a burst.

Keywords: channel migration, micro-landform, riverbed, geomorphic process, Azusa River, Kamikochi