

## Environmental diversity due to geomorphic processes in the floodplain in Kamikochi, the upper Azusa River, central Japan

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The floodplain of the upper reaches of the River Azusa has major vegetation diversity due to the environmental diversity. This study aims to clarify processes of the environmental diversity on the floodplain. For this purpose the flood history were reconstructed and the geomorphic processes are discussed on a floodplain with riparian forest. The field site is located in the Japan Alps where is one of the most geomorphologically active areas in Japan. Elevation of the valley floor and the divides is 1550m and 2300-3000m a.s.l., respectively. Channel slope is 1.3 %. Maximum diameter of riverbed sediments is about 50cm.

The floodplain is covered with dense riparian forest with pioneer plants. There are thick unconsolidated deposits more than tens of meters below the valley floor. Debris is frequently supplied from high mountains and many steep slope small alluvial fans are formed on the floodplain at the mouths of the tributaries.

Micro-landform mapping was performed based on surveying and landform structure analysis was used for clarifying geomorphic processes on the floodplain and floodplain dynamics. Flood history and vegetation dynamics was derived from analysis of surface sediments, germination age analysis of riparian trees using dendrochronological technique.

The results are as follows; (1) There are many lobes and small ditches on the floodplain. Major lobes are found alongside the present channel. On the other hand small lobes distributed alongside the small ditches. (2) Sediments on the floodplain have repeatedly buried the roots of the older trees. (3) Flood sediments flowed downward through the ditches and were overflowed on the floodplain. The vegetation along the ditches was destroyed and/or buried. (4) After the sedimentation on the floodplain new pioneer vegetation was established.

Generally floodwater from the river channel onto the floodplain flows across the floodplain. In this case, intensity of geomorphic processes decreases according to the distance from the river channel causing decrease of disturbance intensity. In the floodplain in Kamikochi the dominant sedimentation process, however, is not lateral flooding, but longitudinal flooding. This causes a mosaic distribution of micro landforms in the floodplain. This also shows that intensity of geomorphic process has little relation to the distance from the present channel. A mosaic pattern of micro landforms and disturbance intensity in the floodplain accounts for great diversity of environment. After the construction of embankments sedimentation caused by flood has occurred alongside of the river channel. Constructed embankment reduces the chances of disturbance to vegetation in inner part of the floodplain. That will cause a decrease in environmental diversity and vegetation diversity will be also diminished.