

## Floodplain dynamics and Flood History of in the Upper Azusa River Valley, Central Japan

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The River Azusa is a mountain river with gravel bed channel originated from the Mt. Yarigatake. The upper reaches of the River Azusa, Kamikochi region, have a 500m-wide valley floor which consists of floodplains with dense riparian forests. The forests have been destroyed repeatedly caused by major channel migrations of the River Azusa. Recent channel migration occurred around 1905, about 100 years ago. After that event flood water and sediments flow into the floodplain at intervals and the floodplain micro-landforms, which have caused variety of riparian vegetation, have been created. This study aims to reconstruct the flood history and to illustrate floodplain dynamics after the last major channel migration. Micro-landform mapping and landform structure analysis of the floodplain were used for discussions of floodplain dynamics. To reconstruct the flood history germination ages and layers were examined using dendrochronological technique for pioneer trees in the riparian forests.

The riparian forest consists of four types of vegetations, elm-fir forest, larch forest, mature pioneer forest and young pioneer forest. The elm-fir forest was established several hundred yeas ago as the riparian forest beside the former channel of the River Azusa. About 100 years ago the former channel was abandoned because of the channel migration. Consequently pioneer trees, the mature pioneer forest and the larch forest, germinated simultaneously on the former channel course. Germination ages of the mature pioneer forest and the larch forest become older downstream along the former channel. Although the age of the larch trees which stand near the upper end of the former channel is about 85 years, those of the pioneer trees which stand in the central part of this channel is about 100 years. These show that after the channel migration sediment inflow into the former channel from the upper end continued for one or two decades. Near the upper end flood water and boulders rush into the floodplain and as a result clear lobes including boulders, like debris flow lobes, were formed there. After 85 years ago flood water and sediments ran down through the ditches which extend parallel direction to the former channel on the floodplain. Those flow destroyed the vegetation along the ditches repeatedly. The germination ages of the younger pioneer trees along the ditches show the flood event years, middle 1930's and middle 1940's. During those events sediment floods from the ditches caused small lobes along the ditches. The construction and extension of a small embankment between the present channel and the floodplain in 1970's cause the change in flood process. From the lower end of the embankment flood sediments including boulders rushed into the floodplain and formed the clear lobes. The events intensely destroyed the vegetation along the present channel.