

## Causal connection between denudational and depositional mechanism: an approach based on stream analysis at Eastern Yoro Mountains

\*Takashi OGAMI<sup>1</sup>

1.Faculty of Science and Engineering, Chuo University

The eastern side of Yoro Mountains presents steep landscape due to active uplifting and associated river incision. As the mountains faces low-lying Holocene river delta, sedimentary deposits yielded in the mountains form alluvial fans at eastern foot of the mountains. Many researchers have described topographic features of alluvial fans, and there are some general empirical agreements about them. For example, it is widely accepted that gradients of fan slope have negative correlation with catchment area. In the other hand, experimental miniature alluvial fans clarified that increase in sediment discharge and decrease in water discharge steepen fan slopes. To verify the effect of sediment discharge in real world, denudation rate of catchments or accumulation rate of alluvial fan should be obtained. Instead of directly measured denudation rates, hillslopes and relief ratio of catchment area were commonly used to discuss the relation. However, independency of denudation rate on hillslopes is reported in steep landscapes of "threshold slope". Likewise, relief ratio tends to have negative relation with catchment area, thus effect of increasing relief ratio is difficult to separate from that of decreasing catchment area. As another reference, channel steepness is defined based on stream-power incision model and is expected to have positive correlation with incision rate and rock strength. Incision rates of bedrock river, expressible as channel steepness, would control landscape denudation rate in steep mountains. Therefore, this presentation reports channel steepness of the eastern Yoro Mountains and discusses effect of the channel steepness on fan slopes.

Keywords: mountain river, threshold hillslope, denudation, chi plot, fan slope