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The mechanism of suspended sediment load from a forested drainage basin

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The sediment load of a river is related to the transport, erosion and deposition of nutrient and organic matter. Thus, up to date, many researchers have been exploring the relationship between sediment load and ecosystem. In order to clarify the mechanism of suspended sediment load, this study focused on the hysteresis between the time series of the discharge and suspended sediment concentration in the Oikamanai River, Tokachi, Hokkaido. As a result, the ”later type”, where a peak suspended sediment concentration precedes a peak discharge, and the ”simultaneous type”, where both the peaks appear simultaneously, were observed during rainfall runoffs of the Oikamanai River. The later type was observed in 2009 and 2010 with three rainfall runoffs of 8-10 m3/s, while the simultaneous type was seen in 2011 with small rainfall runoffs of less than 5 m3/s except for two typhoon events. The later type is possibly due to the soil erosion on the basin slope by throughflow, while the simultaneous type is probably caused by the erosion of sediment accumulated in the river channel during non-rainfalls.

Keywords: forested drainage basin, suspended sediment load, hysteresis, throughflow, typhoon event