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# Difference in supended transports of the Ishikari and Tokachi Rivers affected by seasonal precipitaion varability

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Most of rivers in Japan are rapid rivers characterized by steep riverbed and strong ability for erosion. Rapid rivers can transport a large amount of materials to the ocean in spite of their small size, especially, on the high discharge events. Japanese Islands are situated under the influence of the east Asian summer monsoon which brings a lot of rain by frontal activity and typhoon. Northern part of Japan is also characterized by heavy snow in winter that is brought by very moist cold air mass from the east Asian winter monsoon wind passing on the warm current in the Japan Sea. The snow melt water in spring also promotes another high discharge event there. Thus, the rivers in Hokkaido, a northern island of Japan, are characterized by two seasonal discharge events both of which are controlled by the east Asian monsoon climate. Such condition of rivers in Hokkaido enables us to examine the relationship between discharge events and abilities of material transport under control of monsoon climate.

During high discharge (flooding) event promoted by typhoon rain, the Tokachi river exhibited highly erosive feature where the concentration of suspended materials was proportional to a square of water discharge. A single flooding event could transport more than half of total transport of suspended matter in a year. These case studies suggests the significance of turbulence of flow on suspension transport, which controls the total amount of materials transported to the ocean.

Snow melt discharge event occurs more gently than peaky flooding event promoted by heavy rain, but the duration is long lasting for two months. In the case of Ishikari River, suspended matter is dominantly transported during snow melt season, which is different from the case of the Tokachi River. This is because the concentration of suspended matter of the Ishikari River is approximately linearly proportional to the water discharge. Though the significance of high discharge events for suspension transport is common for small rivers in Japan, it is still difficult to distinguish snow melt event from heavy rain event. We need to be careful to interpret the reconstructed riverine flux as winter signal or summer one.

Keywords: river, suspension transport, precipitation, monsoon, Ishikari River, Tokachi River