

The characteristics of sediment load from a coastal forested drainage basin and their agents (2)

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Some of the five coastal lagoons in the Tokachi region of southeastern Hokkaido, open a few times per year to the Pacific Ocean. The openings affects water quality and deposits in the marine coastal region by discharging the lagoon water offshore. The Oikamanai River is a main river flowing into the Oikamanai Lagoon. The river basin is almost forested (ca. 88 % in area), from which the discharge and sediment load build up the ecosystem of the lagoon and its back marsh. In order to explore how the suspended sediment discharges into the Oikamanai Lagoon, we obtained hourly time series of discharge, Q (m³/s), and suspended sediment concentration, C (mg/L), in the upper Oikamanai River. As a result, it was found that, following the sediment availability (sediment amount to be eroded), the precedent type (peak C temporally precedes peak Q), synchronous type (two peaks synchronously appear) and antecedent type (peak Q precedes peak C) appear on the Q vs. C diagrams for sequential rain-fall runoffs. The river-suspended sediment often originates from the river channels and/or basin slope. Hence, In order to judge the criterion for sediment erosion in the river channel and basin slope, the extended Shields diagram was applied to lognormal subpopulations separated for cumulative grain size distributions of river-bed sediment and basin soils.

Keywords: forested catchment, sediment load, precedent tyep, antecedent type, land collapse