

Modeling river sediment load from a coastal forested catchment

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A considerable portion of suspended sediment discharging into the Pacific Ocean annually is contributed by forested catchments. It is important to find out the sediment source in such forested catchments. Here, we explored how sediment load occurs by rainfall and snowmelt runoff in the forested (ca 90% area) Oikamanai river basin, Tokachi, Hokkaido. Grain size and mineralogy of catchment soil and stream sediment, survey techniques, and turbidimeters provide the information that can be used to determine the sources of sediment. In this study we used semi-distributed model like ArcSWAT 2009 to find out the sediment source in the forested Oikamanai river catchments, Hokkaido, Japan by simulating sediment-load time series. This catchment is connected to the Oikamanai Lagoon opening sporadically to the Pacific Ocean. Hence, the sediment-load simulation is important to understand the sedimentation, water quality and ecosystem in the lagoon and the marine offshore region.

Keywords: forested catchment, sediment load, modelling, coastal lagoon

Spatial variation of nutrients and its controlling factors in the Hiuchi-Nada

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In order to confirm the spatial variation of nutrients and its controlling factors in the enclosed coastal bay, seawater, river water, groundwater, and seafloor sediment were collected and analyzed nutrient properties in the Hiuchi-Nada, central part of Seto Inland Sea.

The results suggest that the supply sources of nutrients are different in the central, western and eastern part of the bay. The central area was significantly influenced by river water discharge, while the western area was possibly influenced by submarine groundwater discharge. On the other hands, nutrient dissolution from seafloor sediment would be the important source in the eastern area.

The heat budget of a sporadically open coastal lagoon

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The five coastal lagoons in the Tokachi region of southeaster Hokkaido open several times per year to the Pacific Ocean. The lagoons drain more than 96 % water by the openings. In this presentation, the heat budget of the Oikamanai Lagoon, one of the lagoons, was estimated for some periods of closed and non-rainfall conditions. The water budget then estimated indicates that the river water input is balance by the groundwater output. As a result, a seasonal variation of the latent heat flux by evaporation from the lagoon surface appears to control the whole heat budget.

Keywords: coastal lagoon, sporadical opening, heat budget