

ACG034-06

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## Water discharge, sediment load and chemical flux by the Yukon River, Alaska, and their dispersion into the Bering Sea

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Time series of fluxes of water, sediment, nutrient, POC and DOC were obtained in the Yukon river basin in the ice-covered, snowmelt, glacier-melt periods of 2008 and 2009. Here, the observed and simulated results in the Tanana river basin, a sub-basin of the Yukon River, are discussed. 5.6 % of the Tanana river basin is covered by glaciers and the others by forests, wetlands and bare lands with discontinuous permafrost. The sediment runoff analyses by the tank model with the sediment rating curves revealed the followings; in the glacier-melt period of June ? September, (1) the total Tanana River discharge is composed of 28-46 % glacier-melt discharge and the other rainfall runoffs, and (2) the total Tanana River sediment load is occupied by 71% of sediment load from the glacierized regions and 29% of fluvial resuspension of glacial deposits in or around the river channels, and (3) the total POC flux of the Tanana River is explained by 10 - 11 % of the POC flux from the glacierized regions, 8-20 % of the POC flux from the non-glacierized regions, and 70 -79 % of fluvial resuspension in or around the river channels. The marine observations off the Yukon Delta revealed that the sediment-coagulating water from the Yukon River plunges at near a transition point of gentle to steep bottom slopes. The plunging point corresponds to a boundary of the sediment plume off the delta front, separating the plume into the inner and outer areas.

Keywords: Yukon River, Bering Sea, snowmelt, glacier-melt, sediment, POC