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Last Name of PRESENTING Author Efimov  
Middle Name or initials of PRESENTING Author  
First Name of PRESENTING Author Vasili

Country of PRESENTING Author Russia

Institution, organization or general address Lomonosov Moscow State University, Faculty of Geography, Department of Land Hydrology

Theme

- Theme 1: Design, Optimization and Implementation of the Observing System

Author list (in order) Efimov, Vasili\*; Chalov, Sergey; Magritskiy, Dmitrii; Shkolny, Daniil; Tsyplenkov, Anatolii; Efimova Liudmila

Poster title (brief) An assesment of water, sediment and chemical flow of largest Siberian rivers

Abstract - text box

Rivers play a central role in the chemical and geochemical cycles in the Arctic. They transfer water, heat, biota, organic and chemical substances, forming lithodynamic flow of continental matter. Determining the flux of substances transported through the system is essential to understand the dynamics of the basin. However, it is difficult, due to chemical heterogeneity of substances at different hydrological conditions. As far as they are located within the Arctic - a region that is experiencing the most rapid and greatest magnitude of warming on Earth - the differences in substance flows become greater every year.

This work provides the results of annual monitoring observations of water, suspended and bottom sediments flows and their chemical composition in the river mouths of the largest Siberian rivers (Ob, Yenisei, Lena and Kolyma). The results of our work make it possible to make an assumption of water and chemical flows of this rivers into the Arctic Ocean. The use of a new sampling technique throughout the river section and the use of modern Acoustic Doppler Current Profiler (ADCP) acquisitions with sediment depth profile sampling methods provide a unique detailed view of the flow of matter. The sampling campaigns were carried out in summer high and low water periods and in winter period with a 4-day discrete time, which made it possible to identify even micro-scale processes. As a result, the short time intensive transformations of the water chemical composition were identified, associated with both natural and anthropogenic processes (such as mining or discharges of polluted water).

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