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Lena River Ice Regime and its Recent Change (Abstract)

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Observation records show significant climate change in the Siberian regions over the past decades, *i.e.* considerable winter warming particularly in northern Siberia ; precipitation increase in winter and fall seasons ; snow depth increase over northern central Siberia ; increase of ground temperature and thawing of permafrost.

Hydrology response of the watershed systems to climate change in Siberia and other northern regions is a key issue in understanding of the atmosphere-land interactions of the high latitudes. Examination and documentation of changes in the major northern river basins are also important to studies of global change, regional water resources and distribution of ecosystems. Based on the preliminary and on-going analysis of the monthly streamflow and ice records of past 40-50 years, this presentation describes the seasonal regime of river ice condition (thickness) and its change for the Lena river basin. This study did not find significant change in annual total discharge, summer discharge or daily peak flow. However, noticeable changes in hydrological conditions in winter season were identified, these include an increase of winter discharge at the outlet of the watersheds, and thinning of the river ice-cover in the Lena river basin. These changes may indicate a seasonal regime shift due to recent climate warming over the Siberian regions. Further efforts are needed to identify the changes in hydrological regimes in different sub-basins of the watershed, and to examine the inter-annual variation of monthly discharge/river ice and their responses to climate factors (such as temperature, precipitation, winter snowcover, and soil moisture conditions).