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**CONTROL ID:** 1190715**TITLE:** Siberian regional features of climate global change. Recent observations and modeling

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PRESENTATION TYPE: Assigned by Committee (Oral or Poster) [Invited]**CURRENT SECTION/FOCUS GROUP:** Global Environmental Change (GC)**CURRENT SESSION:** GC16. Regional Climate Impacts 7. Environmental, Socio-economic and Climatic Changes in Northern Eurasia and their Feedbacks to the Global Earth System: The Role of Remote Sensing and Integrative Studies**AUTHORS (FIRST NAME, LAST NAME):** Vladimir Krupchatnikov^{1, 2}, Evgeny P Gordov⁴, Michael V Kabanov⁴, Vasily N Lykosov³, Yuliya Martynova¹, Victor Stepanenko⁵, Tamara Shulgina⁴**INSTITUTIONS (ALL):** 1. Siberian research hydrometeorology institute, Novosibirsk, Russian Federation.

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SPONSOR NAME: Vladimir Krupchatnikov**ABSTRACT BODY:**

Abstract

Dynamics of the climate, surface hydrology and vegetation of Northern Eurasia under the conditions of global climate changes is studied using recent observations and coupled climatic models. Special attention is paid to circulation regime changes that seem most likely to play a significant role in Northern Eurasia/Arctic Climate System, particularly of Russian's Eurasia and to feedbacks between regional climate and the terrestrial surface hydrology and vegetation.

In particular, results of a comparative analysis of a multiyear time series for average seasonal and annual surface temperatures in Siberia are discussed. Analysis of the average annual temperature time series has revealed a number of stable periodicities in the observed changes and statistically significant correlation of these periodicities with the planetary indices such as North Atlantic Oscillations, Southern Oscillations (in the Pacific Ocean). Relevant feedbacks are assessed and analyzed for some parameters of the atmosphere and surface hydrology. The role of the regional biosphere (including the surface air layer, the vegetation layer, soil, and hydrosphere) in the dynamics of the climate of the 21st century is also studied. Dynamics of bioclimatic indices that influence structure and functioning of vegetation cover are reviewed as well. The indices based on surface air temperature and precipitation retrieved from the ECMWF and APHRODITE Reanalysis, whose datasets are the closest to the observational data pattern. Analysis shows significant positive trends of growing season length accompanied by statistically significant increase of sum of the growing degree day temperatures and precipitation over the south of West Siberia. It might lead to an increase of vegetation productivity in this region. Some outcomes from modeling the regional terrestrial carbon and hydrological cycles are also discussed.

Still many important impacts of climate change on regional environment can not be quantified due to multiple environmental and other human factors coming into play and additional study is required to better understand both the impacts and generated by those feedbacks to the Earth system.

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INDEX TERMS: [0429] BIOGEOSCIENCES / Climate dynamics.

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