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**CONTROL ID:** 1207155**TITLE:** Transformation of Climate and River Regimes in Belarus during the Last Decades**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster)**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):** Irina Danilovich¹, Rigor S. Chekan¹**INSTITUTIONS (ALL):** 1. Republic Hydrometeorological Center of Belarus, Minsk, Belarus.**Title of Team:****SPONSOR NAME:** Pavel Groisman

ABSTRACT BODY: Climate changes which are characterized by various tendencies are evolving constantly. The confirmation of these changes is proved by the instrumental observations. At present, sufficiently long time series of observations of basic climatic characteristics have been gathered. These data allow estimations of regional peculiarities included within the global transformations of climate. Climate change influence all components of the environment and human activity. The river regime is one of the most sensitive with respect to climatic changes because it is deals with a change in precipitation and subsequent runoff. It concerns the regions where snow-rain supply of rivers prevails, and especially the territory of Belarus.

Long-term time series of climatic and hydrological characteristics are collected in Belarus. That has allowed estimating fluctuations of runoff. During the period of 1900-2010 in the river regime, it has been established that fluctuations of annual runoff occurred according to precipitation. The period of significant transformation of the hydrological regime of the rivers has been observed since 1970s.. The tendency of increase of low-flow winter runoff and reduction of the maximum discharges during spring floods is the main peculiarity of this period. It is connected with transformation of atmospheric processes and increases of occurrence of the westerlies in the atmosphere which affect Belarus with increases in thaw weather during the winter and spring seasons. Under these weather conditions winter floods occur, unstable ice phenomena are likely, and the spring flood runoff considerably decreases.

During the last four decades the peak (flood) discharges have considerably decreased within all river basins of Belarus. In comparison with the previous seven decades this reduction was by approximately 25% in the west, by 30% in the north, and by 50% in the east and the south of the country. During the study period the most significant change of the Belorussian climate was documented in the last (1988-2010) years when significant annual positive anomalies of the surface air temperature were observed with the largest anomalies being in the winter season. These climatic changes caused intra-annual redistribution in runoff. Winter season discharges have increased by 16 to 85% (on the small rivers by up to 155%) and maximum spring discharges (spring flood) decreased by 30-40%. Late onset and a general reduction of the ice period duration on the rivers, a reduction of the ice thickness, and changes of the dates of transition of the river water temperatures through characteristic thresholds were documented in these last two decades.

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INDEX TERMS: [1637] GLOBAL CHANGE / Regional climate change, [1807] HYDROLOGY / Climate

impacts, [1616] GLOBAL CHANGE / Climate variability.

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