Geophysical Research Abstracts
Vol. 20, EGU2018-9968, 2018
EGU General Assembly 2018

The use of CMIP5 for the Barents and Kara seas coastal dynamics factors evolution assessment in the 20th an 21st century

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The Barents and Kara seas coastal dynamics thermal factor projections for the 21st century based on CMIP5 are discussed.
Arctic coasts are in continuous variations and it is hydrometeorological factors that are affecting on retreat rate. The dynamics of Arctic seashore and underwater slope composed of dispersive permafrost ground is determined by waves and wave currents action coupled to thermal abrasion, which are active during ice-free period. Hydrometeorological stress (forcing) - the combined wave and thermal action together with ice and sea level conditions - is analyzed through air thawing and freezing indexes (year sum of daily positive and negative temperatures), wind velocity and directions frequency, ice-free period duration and wave energy flux. Within climate change, the hydrometeorological stress at the Arctic coast is changing together with coastal retreat rate.
In this work we focus on thermal factor. Previously we discussed that in the Barents-Kara region it experienced decadal fluctuations in XXth century [1,2]. The highest thermal forcing to Arctic coasts is observed in 1950-60 (contrary to what one may expect in the Arctic warming of the 1930-40th). Aiming to retrace the thermal action evolution in XXIst century we used CMIP5 projections.
7 models from CMIP5 were compared to observation data and CRU4.1 samples. Ensemble of models coarsely resembles local climate of Marresalya (Yamal Peninsula) and it is difficult to rely on the presented projections, so here we consider CMIP5 data as initial approximation.
Thus, by monitoring thawing index, we can say that it lies in corridor of 600-650 degrees until 1960, sags below 600 in the 1960s and is constantly climbing upwards from the 1970s, predictably doubling in the 2070s. This means that the thermal forcing to the Barents-Kara coasts is going to double to the end of XXIst century provoking the increase of retreat rates. It may be critical to some coasts with low ice content: if permafrost totally melts the only abrasion coastal dynamics factor is active.
The work was executed with the support of the Russian Science Foundation (project № 14-37-00038).

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