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

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Poster title (brief) Monitoring of coastal retreat in south-west Baydaratskaya Bay, Kara Sea

Abstract - text box

Coastal retreat is a large-scale phenomenon. Arctic coastline has thousands of kilometers. The Kara Sea occupies more than 25% of the total Arctic coastline. The retreat rates are quite high (1-2 m / year) for the Kara Sea coasts [Isaev, 2019]. Various methods exist in world theory and practice of modeling and predicting coastal dynamics. The main problem for modeling is the lack of necessary data. In this connection was established monitoring test site in south-west Baydaratskaya Bay. We study coastal dynamics along a 4-km stretch of permafrost and sea-ice-affected coastline. Monitoring at this site has been carried out since 2013. As a result, the following data were obtained:

- 1) Meteorological characteristics (air temperature, wind speed and direction, precipitation)
- 2) Several wells have been drilled, where thermal strings are installed to measure soil temperature.
- 3) The physical, mechanical and thermal properties of soils at this site are determined
- 4) Geophysical surveys to determine the distribution of frozen soils
- 5) Annual monitoring of coastal erosion is carried out using handheld differential GPS mapping and satellite imagery. In the last two years, the measurement has been a LIDAR, which allowed us to more accurately determine the nature of the coastal retreat.

Comprehensive study development of coastal destruction processes, as well as identifying the contribution of various factors to the development of these processes, will make it possible to further use the obtained data to calibrate various models of coastal dynamics that cannot be implemented without knowledge of the input parameters required for modeling.

Reference

Isaev, V. S., Koshurnikov, A. V., Pogorelov, A. A., Amangurov, R. M., Podchasov, O. V., Buldovich, S. N., Aleksyutina, D., Grishakina, E. A., and Kioka, A. Cliff retreat of permafrost coast in the southwest baydaratskaya bay of kara sea during 2005–2016. *Permafrost and Periglacial Processes*, 30 (2019), 35–47.