
[EJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG38]Science in the Arctic Region

convener:Shun Tsutaki(The University of Tokyo), NAOYA KANNA(Arctic Research Center, Hokkaido University), Shunsuke Tei(北海道大学 北極域研究センター, 共同), Tetsu Nakamura(Faculty of Environmental Earth Science, Hokkaido University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The Arctic and circumpolar region is the key area for the study of global change because the anthropogenic impact is projected to be the largest in this area due to the complicated feedback processes of the nature. A number of international and interdisciplinary research projects have been conducted for the studies on the land-atmosphere-ocean system. In order to understand the feedback processes occurring in the Arctic and to project the global warming in the future, we need to establish the intense observational network and to exchange the knowledge and information by combining the different scientific communities under the common interest of the Arctic. The objectives of this session are 1) to exchange our knowledge on the observational facts and integrated modelling and 2) to deepen our understanding on wide range of natural sciences related to the Arctic and the circumpolar region. Studies on humanities, social sciences, and interdisciplinary fields are also welcomed.

[ACG38-P06]Recent ten years of rapid coastal retreat in the Baydaratskaya Bay region of Kara Sea, Western Siberia

V. S. Isaev¹, A. V. Koshurnikov¹, A. Pogorelov¹, R. M. Amangurov¹, O. Podchasov¹, D. O. Sergeev², S. N. Buldovich¹, D. M. Aleksyutina³, *A. Kioka⁴ (1.Department of Geocryology, Faculty of Geology, Lomonosov Moscow State University, 2.Institute of Geoecology, Russian Academy of Science, 3.Department of Cryolithology and Glaciology, Faculty of Geography, Lomonosov Moscow State University, 4.Institut für Geologie, Leopold-Franzens-Universität Innsbruck)

Keywords:Permafrost coast, coastal retreat, Kara Sea

Recent years of climate change in the Arctic have known to influence significant increase in rates of the proximal coastal erosion. Yet, little is known about how the erosion of permafrost coasts is subject to the surrounding environments. The Kara Sea coast in Western Siberia is least studied in the permafrost coasts, while the Kara Sea hosts more than 25% of the total length of Arctic coasts. In particular, detailed investigations in the Baydaratskaya bay area of Kara Sea are important because the major pipeline system transporting gases from the Yamal peninsula to Europe is crossing the bay. Here, we report rates of coastal retreat in the Baydaratskaya bay during 2005--2016, examined through integration of GPS mapping, geothermal measurements, drone images, and satellite images. In the Baydaratskaya bay area, a rapid retreat rate of more than 3 m per year on average over the studied duration is found, which is higher than previously observed in the Kara Sea region. Preliminary analyses suggest that this high rate is associated with active erosion predominantly due to storm/wind activities and a recent temperature rise over the studied period. This may lead to greater quantities of near-shore sediments and organic carbon flowing into the ocean.