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SCANNING PAN-ARCTIC SNOW CONDITIONS OF FREEZING AND MELTING FOR ANALYZING REGIONAL AND INTERANNUAL CHANGES, AND APPLICATION TO FIELD OBSERVATION PLANNING

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Snow and ice research group in GRENE Arctic project monitored snow conditions stationery at many super sites and also at mobile observation sites. Japanese GRENE Arctic Climate Change Research Project “Rapid Change of the Arctic Climate System and its Global Influences” expanded observation sites in the Arctic regions. The number of observation sites exceed 60 sites. The main observation areas are, North America, Siberia, Scandinavia and Greenland. The field data were available for comparison, and the satellite observation data was often useful for pre-survey and near-real time monitoring of field conditions.

This study overviews snow and related ground conditions at all major observation sites of GRENE Arctic project by using the satellite microwave data. Satellite microwave data of SSM/I, AMSR-E and AMSR2 are available for observing snow cover, melting, and ground freezing. This study extracted daily microwave data for satellite observation periods and analyzed snow conditions. JAXA’s satellite snow and ice observation data Archive (JASMES) data is available for comparison. The project aims also work interdisciplinary, so the snow/snow free conditions are important information to the terrestrial ecosystem after snow season. This study discusses inter-seasonal connections of cryosphere and forest/tundra areas conditions.