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Cloudiness and long-wave radiation in the Central Arctic

Vasilii Kustov, Alexander Makshtas, and Petr Bogorodskii
Arctic and Antarctic Research Institute, St. Petersburg, Russian Federation (kustov@aari.ru)

Over sea ice in winter cloudiness, surface-layer air temperature, and incoming long-wave radiation are closely coupled. We use archived data from the Russian North Pole drifting stations to investigate this coupling. During observations at the Russian drifting stations “North Pole” (NP-35: 2007 – 2008; NP-36: 2008 – 2009; NP-37: 2010 – 2011; NP-38: 2011-2012; NP-39: 2012 – 2013; NP-40: 2013 - 2014) the datasets of atmospheric measurements: standard meteorological data, the data of height, type and quantity of cloudiness, as well as the data of upward and downward longwave radiation were created.
The results of validation longwave radiation parametrizations based on the joint analyses of cloudiness data from visual and instrumental observations and the data of downward longwave radiation are presented. The results of comparison cloudiness and incoming longwave radiation from ERA Interim reanalysis with the results of in situ measurements are shown.