

Glacier environment in DeLong islands, Siberian arctic

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There are many glaciers in Russian arctic. De Long Islands in Siberian arctic are composed of three islands and 50 % of the area is covered by glaciers (Kadota et al., in prep). Bennett Island, one of DeLong Islands, is of 30km long and 10km wide. There are three icecaps on the island. The altitude of each icecap is 384m, 426m and 200m, respectively (World Atlas of Snow and Ice Resources). Mass balance of Toll glacier, which is the largest glacier in Bennett Island, in 1986/87 was -0.303 m w.e. (Verkulich et al., 1992) and during 1956-1972 was -0.10 w.e. (Jania and Hagen, 1996). Glacier area shrinkage revealed by satellite images are 20 % in 1951-2010 for Bennett Island and 40-50% for the other two islands in De Long Islands (Yabuki, personal communication).

Meteorological observation is continued at Ostrov Kotelnj (76.0N, 137.9E) in New Siberian Island since 1937. Air temperature in 1960s was lowest since 1930's. The warming in 1990s was rapid and the warming trend is continued after 2000.

Siberian arctic is the area where the largest sea-ice-area change was seen. Although the sea ice came across to the continent even in September until 1996, sea ice in September was apart far from the coast since 2004. In 2007, in which the sea ice was in minimum, most of Siberian arctic was free from sea ice except for a small part. Southern most position of sea ice in September is plotted for the range of 135-155 East during 1979-2010 with SSMI data. The southern-most position was correlated to annual and monthly mean temperature in September.

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