

50-years meteo-glaciological change of Toll glacier in Bennett Island, DeLong Archipelago, Siberian Arctic

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Rapid environmental change is seen in DeLong Archipelago, Siberian Arctic which is one of the areas of extensive warming on the Earth. To quantitate glaciological change since 1980s, the climate, mass balance, and ELA of Toll glacier in Bennett Island were analyzed. Air temperature was increasing and solid precipitation was decreasing since 1960s, especially after 2000. Hence, cumulative mass balance of Toll glacier is in negative trend since 1960s and reached to ca. -20m w.e. until 2000, which is one of the largest changes in the arctic. The warming trend is correlated with mass balance decrease of glaciers and sea ice distribution in the Siberian Arctic. ELA of Toll glacier may reach at 380m, which is the top of the ice cap, in 2020s. These changes are much larger than in west Russian Arctic.

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