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Snowpack conditions by traverse surveys in Siberia and Alaska

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Siberia and Alaska face the Arctic Ocean, and are underlain by continuous and discontinuous permafrost. Snowpack conditions in this region are sensitive to a change in a climate. The snow surveys in Siberia and Alaska were carried out for clarifying the differences of snow-cover characteristics in Siberia and Alaska, for better understanding snow processes in the Arctic Climate System and for reducing the uncertainty of reliably estimating the amount of snow in the cryosphere. The observation items were the snow depth by a snow stick, the total snow weight by a cylindrical snow sampler with a cross-sectional area of 0.005-m2, the snow surface hardness by a push gauge, the type and size of snow particles by a snow grain size gauge, the altitude, latitude and longitude by a handy-type GPS.
The traverse line in the northern Alaska is set to the north of Fairbanks, extending over the Yukon River basin characterized by taiga and the North Slope characterized by tundra. That in Siberia is set to the south of Yakutsk in the Lena River basin characterized by taiga.
It was found that the type of the lower snow layer in Siberia and Alaska is composed of typical depth hoar. The total snow water equivalent in Siberia slightly increases with an increase in altitude. If the total snow water equivalent in Alaska is divided in the basin, similarly that in the Yukon River basin and in the North Slope slightly increases with an increase in altitude. The snow density of the North Slope, Alaska, is higher than that of the Yukon River basin in the same stage.
This presentation will describe the progress and present preliminary results of snow surveys in Siberia and Alaska. The snow surveys between Yakutsk and Oymiakon, Siberia, and between Fairbanks and Anchorage, Alaska, are planned in this winter. These snow survey data will enable us to carry out further analysis.

Keywords: snowpack, Siberia, Alaska