MIS003-04 :104 :5 26 15:20-15:40

Data set of physical snow parameters obtained by snow surveys in Siberia

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Snowpack conditions in Siberia are sensitive to a change in a climate because Siberia faces the Arctic Ocean and is underlain by discontinuous permafrost. The snow surveys in Siberia have been 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 traverse lines in Siberia were set to the south of Yakutsk for Neriungri and to the east of Yakutsk for Oymyakon. The snow depth using a sounding rod, the snow water equivalent using a cylindrical snow sampler with a cross-sectional area of 0.005-m2, the snow surface hardness using a push gauge, the snow type and size using a snow grain size gauge, the altitude, latitude and longitude using a handy-type GPS were measured. In addition, the maximum, the minimum, and the mean of the particle size of each snow layer were recorded, and the photograph of the snow particles of each snow layer and the snowpack view is saved. It was found that the types of the upper snow layer in Siberia are composed of decomposing and fragmented precipitation particles and faceted crystals and that of the lower snow layer is typically well-developed depth hoar. The snow water equivalents in Siberia slightly increase with an increase in altitude. The increase ratio of the snow water equivalent due to altitude in the east of Yakutsk for Oymyakon is smaller than that in the south of Yakutsk for Neriungri. This presentation will describe the progress and present preliminary results of snow surveys in Siberia, including this winter. The snow surveys in Siberia are continuously planned. These continuous snow survey data will enable us to further analyze and provide the in-situ date for calibration and validation of satellite observations and climate models.

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Keywords: snow survey, Siberia, snow depth, snow water equivalent, snow density, snow type