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Data Report.

Meteorological Data Report at Chaivo, northern Sakhalin, August 1995 - August 1998 *

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Abstract: Observations of meteorological and sea-ice variables were carried out at Chaivo, northern Sakhalin during the period from August 1995 to August 1998, as part of the Japan-Russia cooperative research project "Sea Ice Studies off the Okhotsk Sea Coast of Sakhalin". Time series data of wind, air temperature, humidity and solar radiation were summarized in this report.

Key words: Meteorological variables, sea ice, Chaivo, northern Sakhalin, Sea of Okhotsk

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I. Introduction

As part of the Japan-Russia cooperative research project, "Sea Ice Studies off the Okhotsk Sea Coast of Sakhalin", observations of meteorological and sea-ice variables were carried out at Chaivo, northern Sakhalin (Fig. 1) during the period from August 1995 to August 1998 to characterize atmospheric variables and sea-ice formation in northern Sakhalin throughout all the year round. Time series of air temperature, humidity, wind speed and direction and radiation obtained at an automatic weather station of the Chaivo Research Station, located near the shore of Kleye Strait (Fig. 1) are shown in this report. Prior to this study, field experiments of meteorological and sea-ice studies were carried out on the landfast sea-ice at Kleye Strait during the winters of 1992 to 1995, as part of the Japan-Russia cooperative research project, "Sea Ice Studies off the Okhotsk Sea Coast of Sakhalin". Some of the meteorological variables and sea-ice characteristics obtained from those four-year field experiments were reported in Shirasawa et al. (1994 and 1996).

II. Meteorological variables at Chaivo Research Station

The Chaivo Research Station (52°21.50'N, 143°11.93'E) is located near the shore of Kleye Strait, which links Chaivo Bay to the Sea of Okhotsk (Fig. 1). The Chaivo Research Station is operated all the year round by the Sakhalin Oil and Gas Institute. An automatic weather station (Data Logger SQ-1201, Grant Instruments Ltd.) was installed on the roof of Chaivo Research Station about 6 m high from the ground in order to obtain general meteorological variables such as air temperature, humidity, wind speed and direction and radiation through all the year round (Fig. 2).

Time series records of air temperature at 1 m height from the roof of Chaivo Research Station (at 7 m high from the ground), humidity at 1 m height, wind speed and direction at 2.1 m height, and radiation at 0.85 m height are shown in Fig. 3. The maximum air temperature was observed at about 28°C in early July 1998, and the minimum temperature was about -36°C in early January 1998. The relatively stronger wind at about 25 m/s was observed at the beginning of December 1997. Windroses for each month are shown in Fig. 4, indicating that the predominant wind directions were WNW during November through March and S during the summer.

In this report all time is used in the Japanese Standard Time (JST). The wind direction is used in reference to the magnetic north, which is deviated 14° from the true north. The threshold value of wind speed is used as 0.3 m/s.
Acknowledgements. We wish to thank all staff at the Chaivo Research Station for their assistance and effort in the field and laboratory. We would also like to express our thanks to staff members of the lighthouse at Chaivo for their help in the field. Special thanks are due to Keiko Ishikawa, Eriko Uematsu and Miyako Yamatani for their assistance in data processing and drawing. Funding for this work was partly obtained from the Japanese Ministry of Education, Science and Culture (Monbusho) through grant-in-aid for the International Scientific Research Program "Sea Ice Studies off the Okhotsk Sea Coast of Sakhalin, Japan-Russia Cooperative Research" (No. 04041013) and through the Sea Ice Research Laboratory's Overseas Field Work Program.

References


Fig. 1  Study area.

Fig. 2  An automatic weather station installed at Chaivo Research Station.
Fig. 3 Daily values of air temperature, humidity, wind speed and incoming radiation during the period from August 1995 to August 1998 at Chaivo Research Station.
Chaivo, Sakhalin

Wind Speed (m/s)

Air Temperature (°C)

Humidity (%)

Solar Radiation (kW·m⁻²)

October 1995

November 1995
Chaivo, Sakhalin

- Wind Speed (m/s)
- Wind Speed (m/s)
- Air Temperature (°C)
- Humidity (%)
- Solar Radiation (kW·m⁻²)

December 1995

January 1996
Chaivo, Sakhalin

Meteorological Data at Chaivo

Wind Speed (m/s)

Wind Speed (m/s)

Air Temperature (°C)

Humidity (%)

Solar Radiation (W/m²)

December 1996

January 1997
Chaivo, Sakhalin

Graphs showing wind speed (m/s), air temperature (°C), humidity (%), and solar radiation (W/m²) from July to August 1998.
Fig. 4  Windroses for each month during the period from August 1995 to August 1998 at Chaivo Research Station.