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Title	Meteorological Data Report at Chaivo, Northern Sakhalin, September 2000 - November 2001
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Citation	低温科学. 物理篇. 資料集, 60, 55-68
Issue Date	2002-03-29
Doc URL	http://hdl.handle.net/2115/18832
Type	bulletin (article)
File Information	60_p55-68.pdf

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Meteorological Data Report at Chaivo, Northern Sakhalin, September 2000 – November 2001 *,**

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(Received January 2002)

Abstract: Observations of meteorological and sea-ice variables were carried out at Chaivo, northern Sakhalin during the period from September 2000 to November 2001, 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 and surface temperatures, humidity and solar radiation were summarized in this report.

要旨:「日本・ロシア両国によるオホーツク海・サハリン沖海氷の共同調査」の一環として、北サハリンのチャイボで、気象及び海氷の観測調査を2000年9月から2001年11月まで実施した。本報告では、オホーツク海とチャイボ湾とを結ぶクレイエ海峡に面する気象観測所で収集した風速、気温、表面温度、湿度、日射量等の観測資料を提示する。

Key words: Meteorological variables, Sea ice, Chaivo, Northern Sakhalin, Sea of Okhotsk
キーワード: 気象要素、海氷、チャイボ、北サハリン、オホーツク海

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** 北海道大学低温科学研究所 流氷研究施設 研究報告 第167号

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 September 2000 to November 2001 to characterize atmospheric variables and sea-ice formation in northern Sakhalin throughout all the year round. Time series of air and surface radiative temperatures, 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 (Figs. 2 and 3) are shown in this report. Prior to this study, field experiments of meteorological and sea-ice studies had been carried out at the Chaivo Research Station since 1992, 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 this project were reported in Shirasawa *et al.* (1994, 1996, 1998 and 2000).

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 has been 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). Two radiative temperature sensors (Tasco Co., Ltd.) were also installed at the edge of the shore near the station (Fig. 3). One sensor being faced to the sea surface to measure the surface temperature, the other was faced to the sky to measure the diffuse sky temperature.

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. 4. The maximum air temperature was observed at about 26°C at mid-August 2001, and the minimum temperature was about –31°C on 9 January 2001. The relatively stronger wind at about 17 m/s was observed at mid-October 2001. Wind roses for each month for October 2000 and March through July 2001 are shown in Fig. 5, since the wind direction sensor was malfunctioned during the periods from November 2000 through February 2001 and from 9 August to 12 October 2001.

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. Special thanks are due to Eriko Uematsu for her 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.

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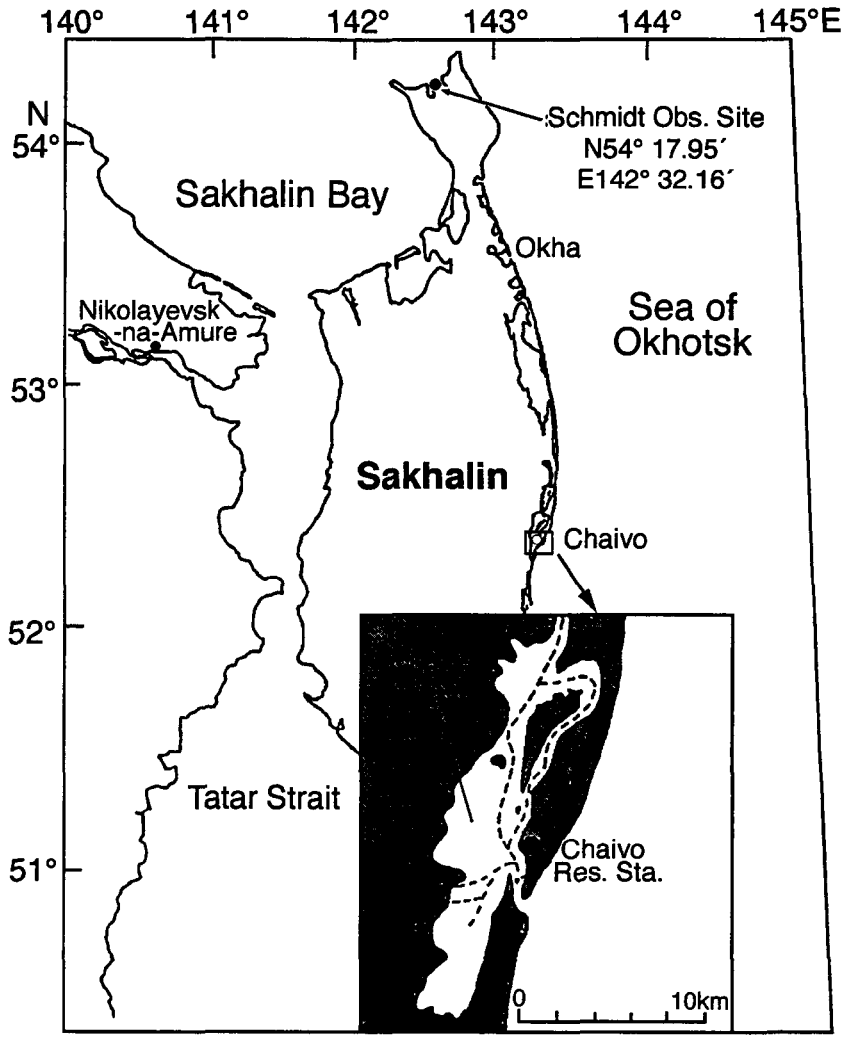


Fig. 1 Study area.

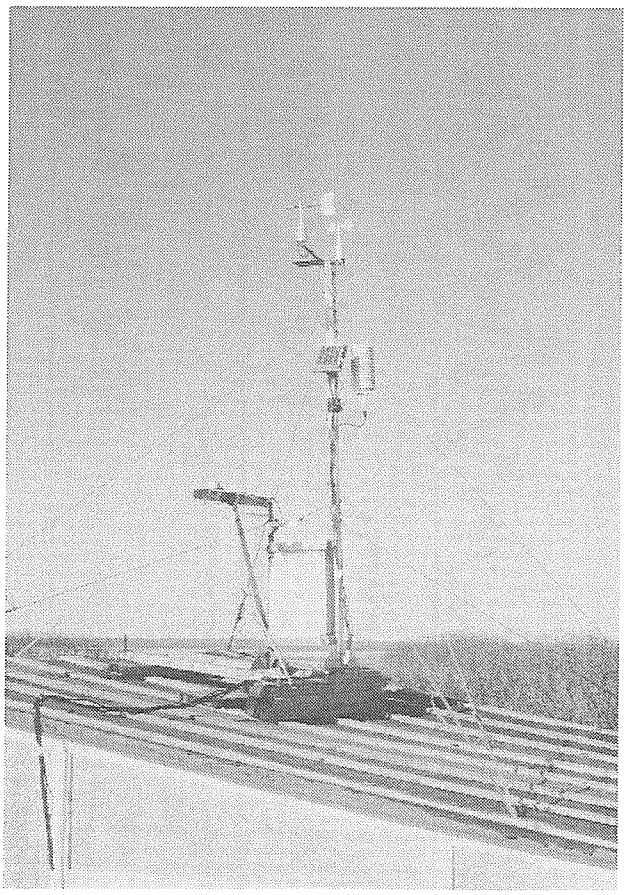


Fig. 2 An automatic weather station installed at Chaivo Research Station.

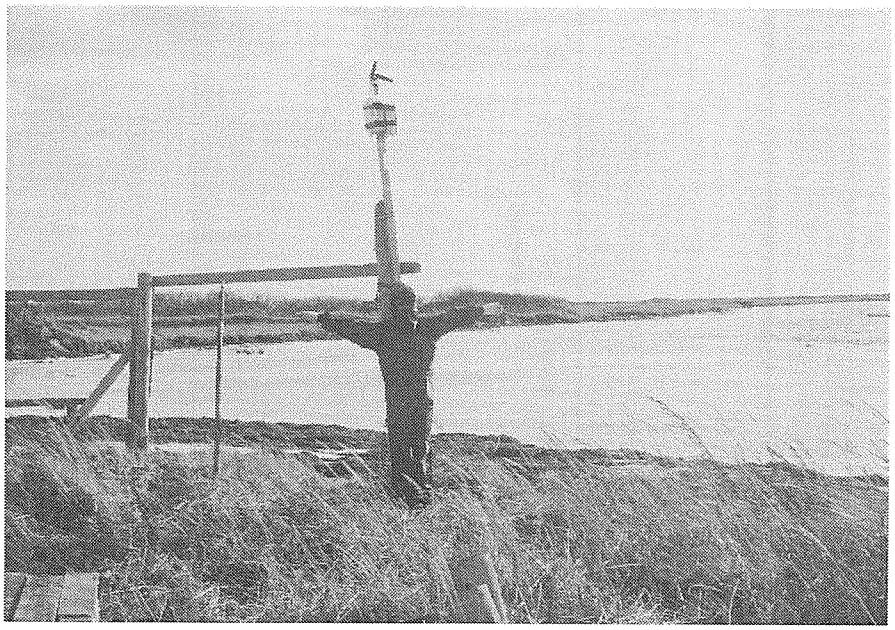


Fig. 3 Surface radiative temperature sensors installed at the edge of the shore at Kleye Strait near Chaivo Research Station.

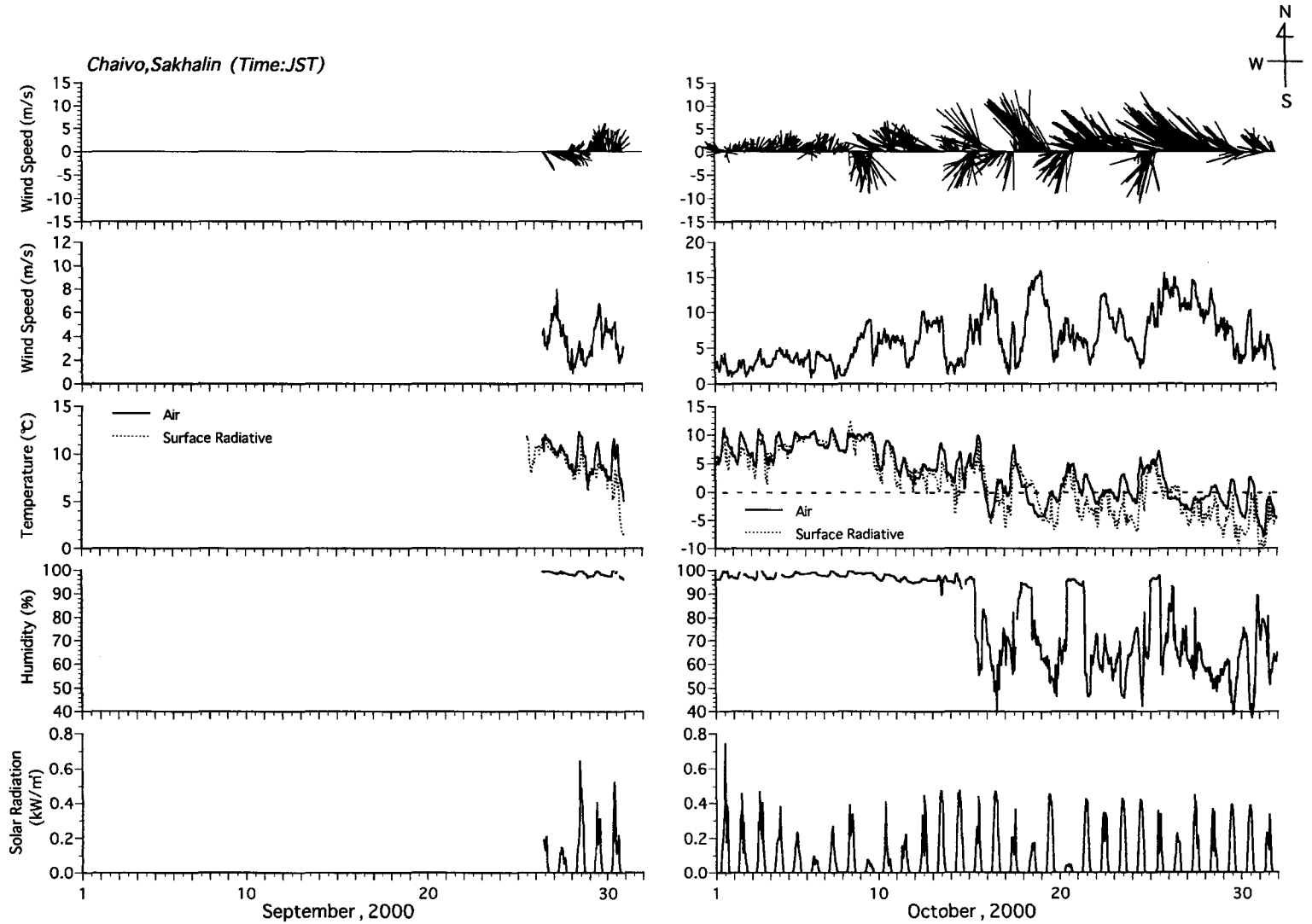
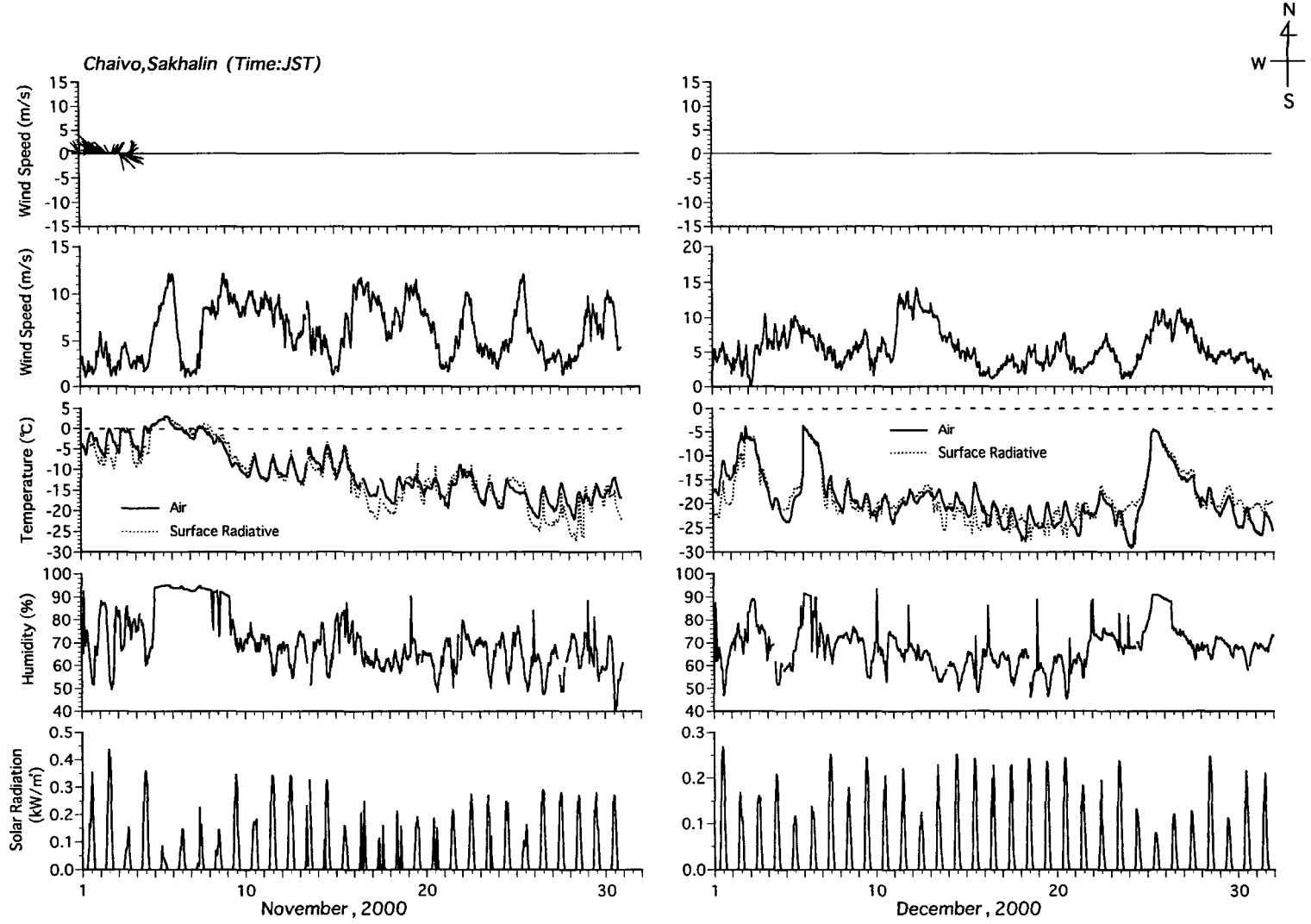
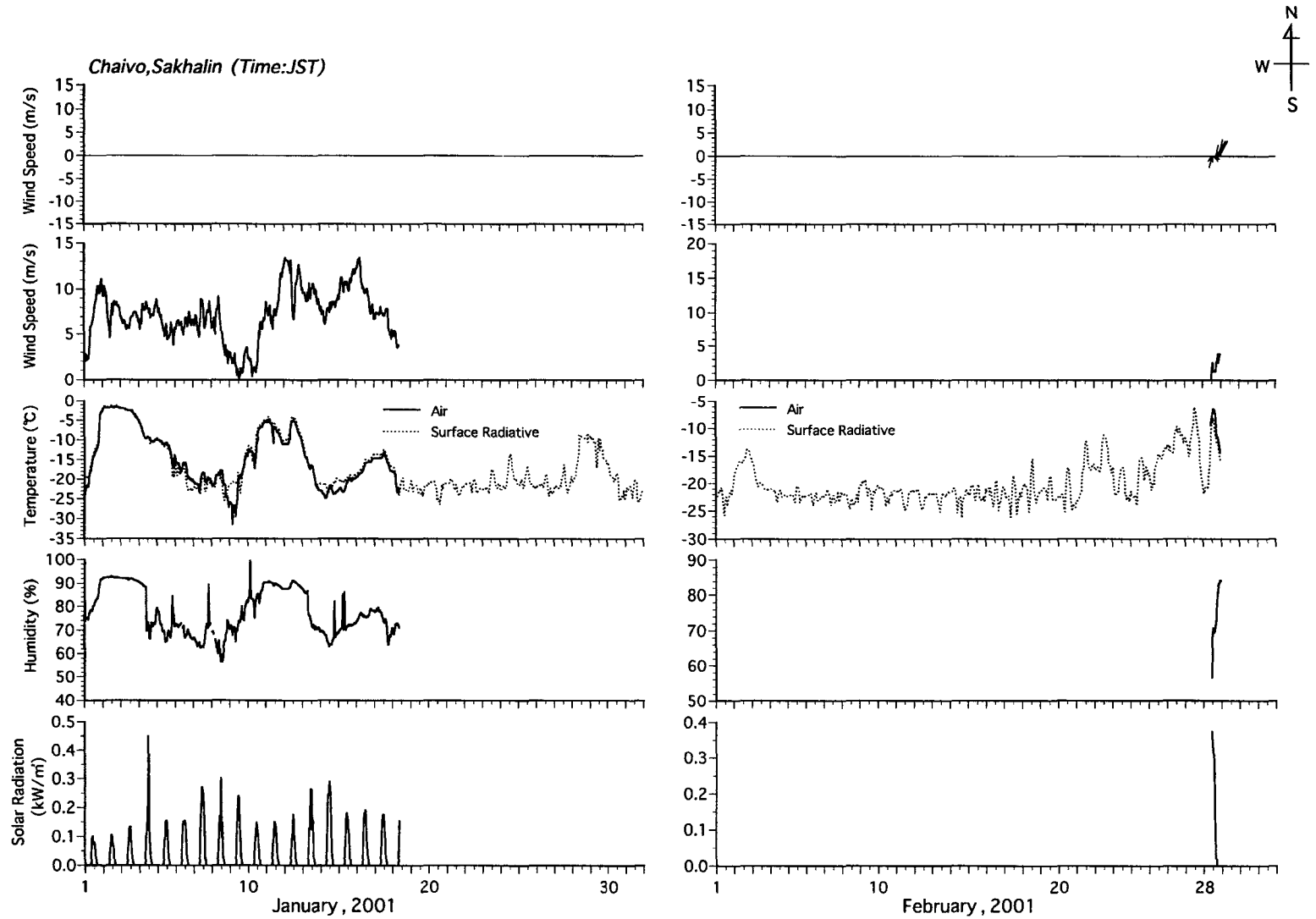
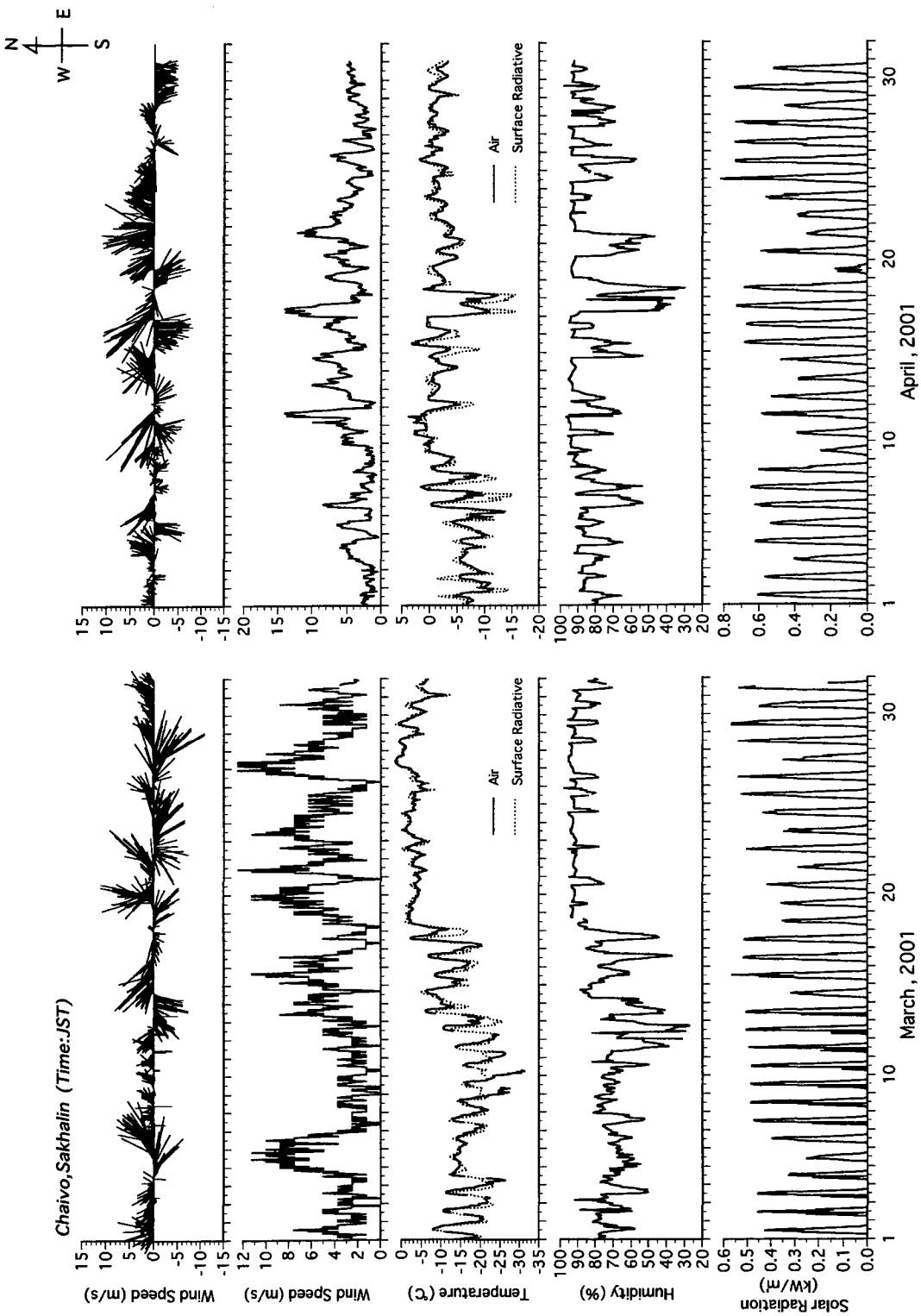
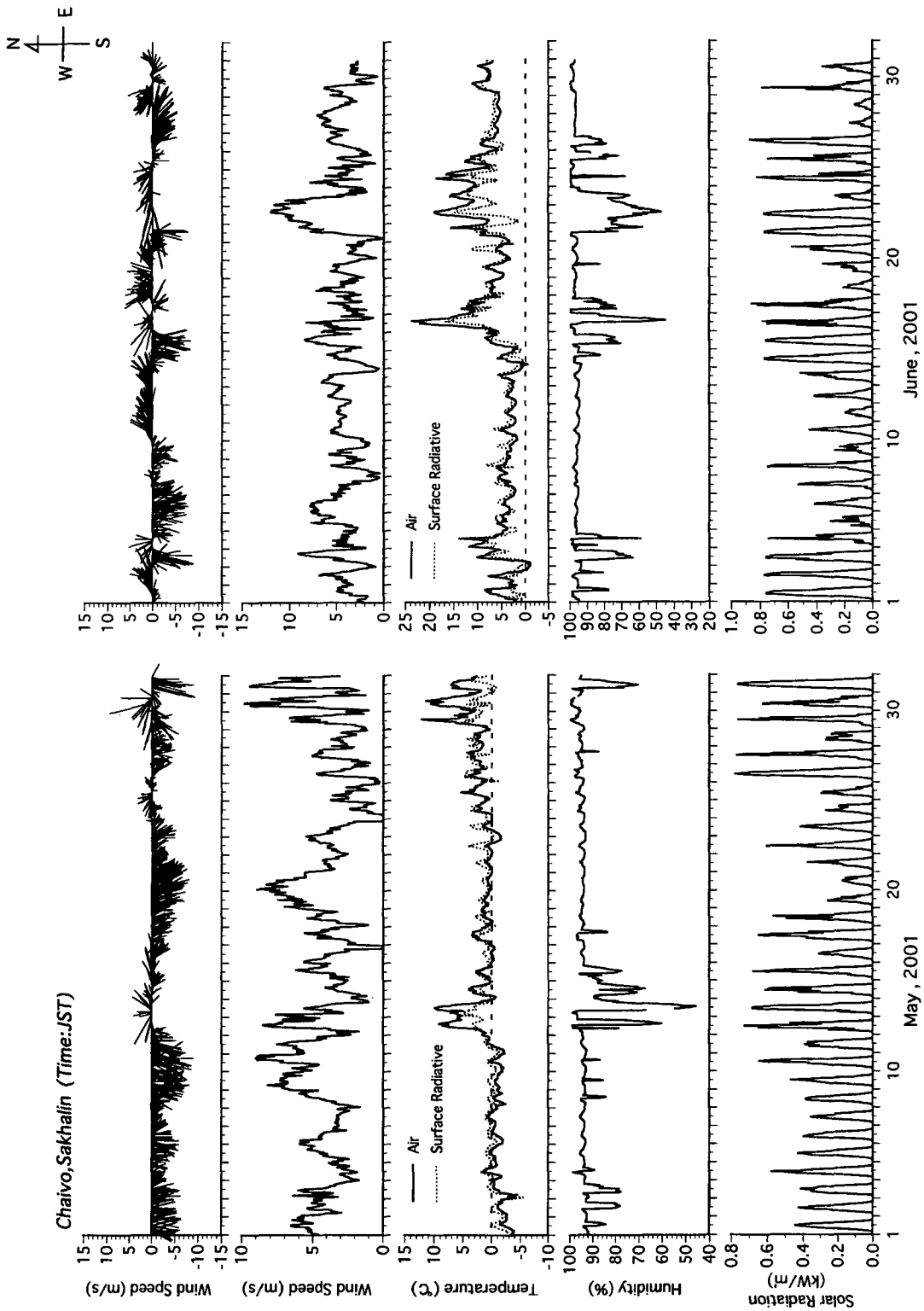


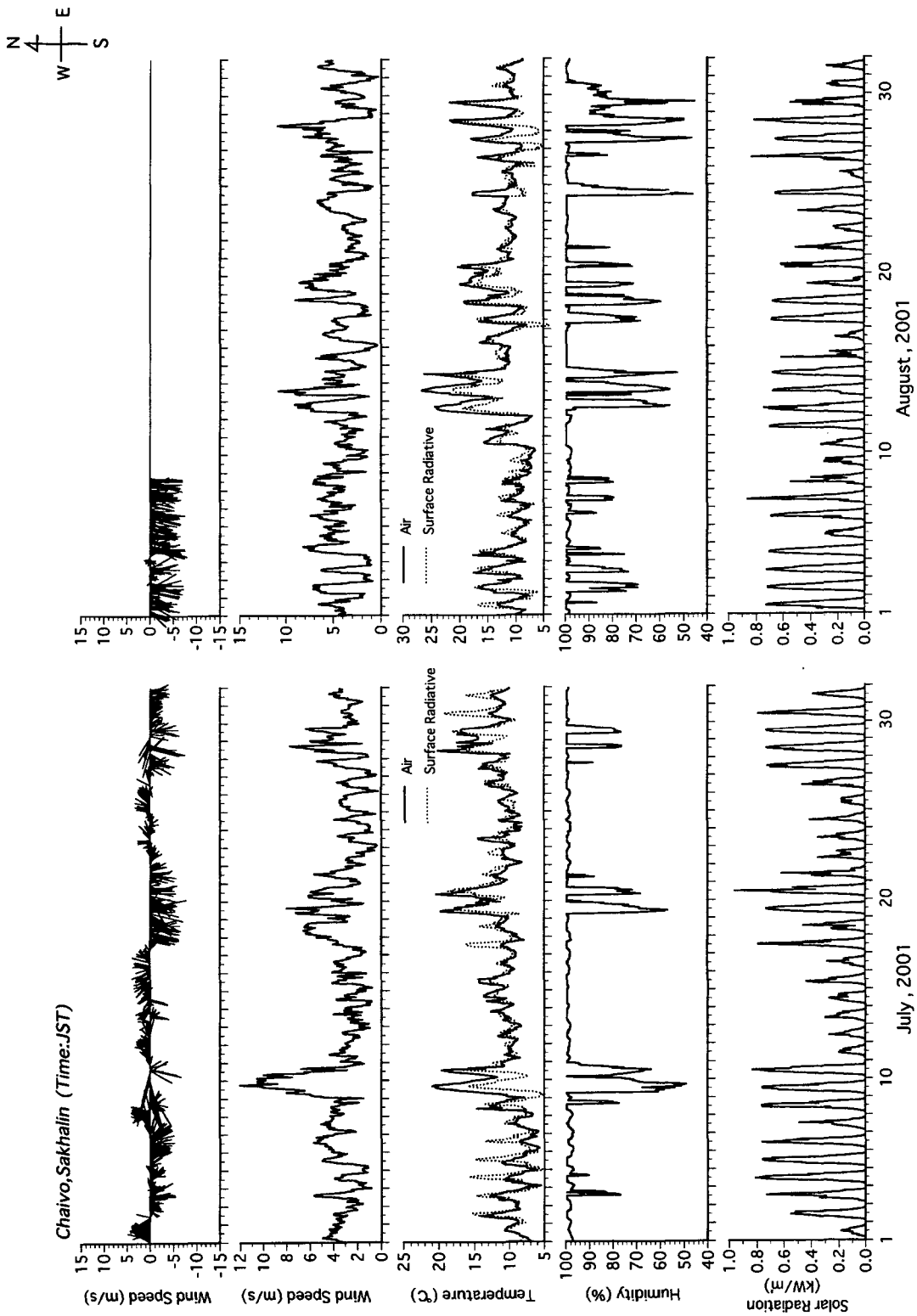
Fig. 4 Daily values of air and surface temperatures, humidity, wind speed and incoming radiation during the period from September 2000 to November 2001 at Chaivo Research Station.

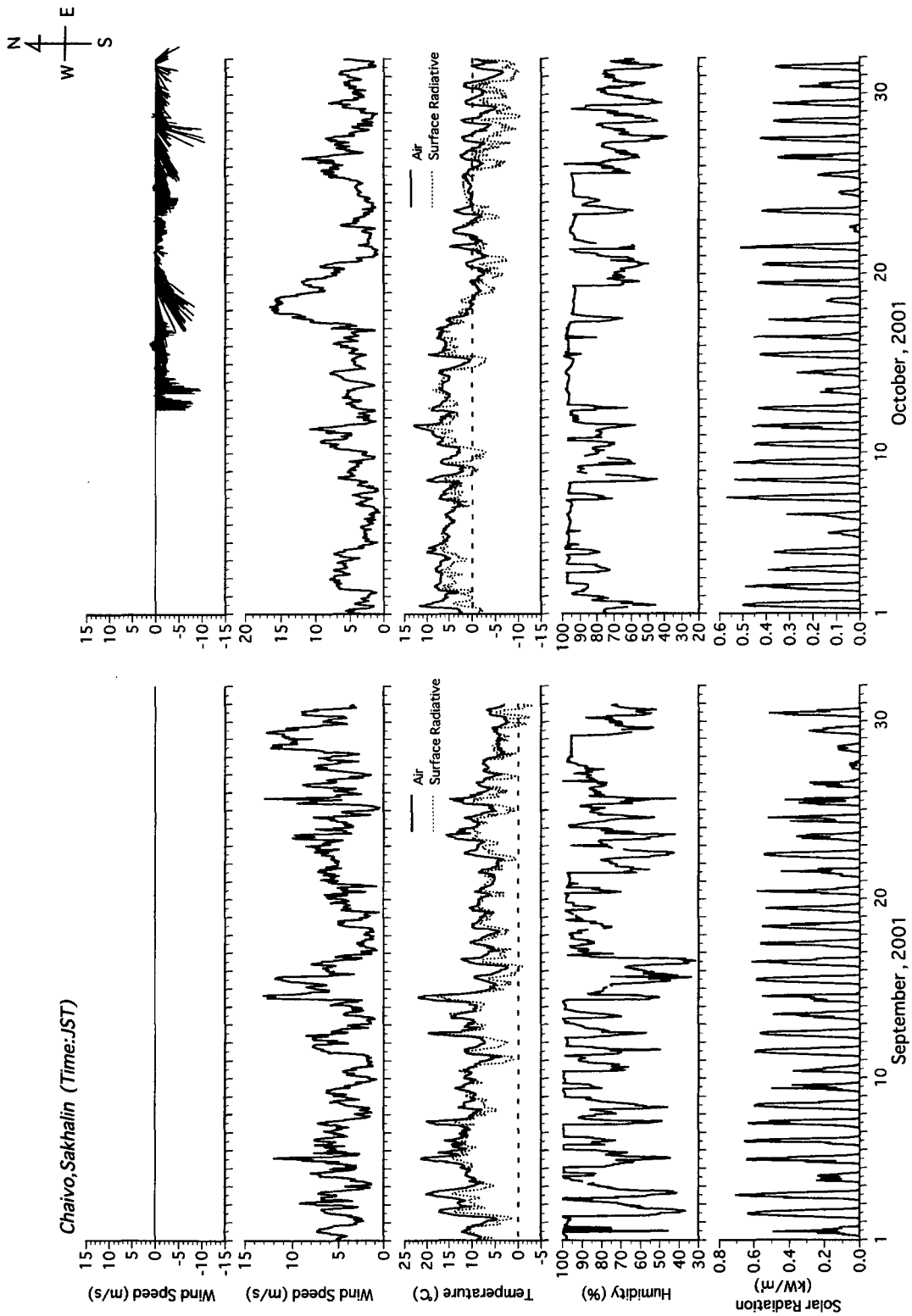

Chaivo,Sakhalin (Time:JST)
N
W
E
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (℃)
Humidity (%)
Solar Radiation (kW/m²)
Air
Surface Radiative
November, 2000
December, 2000

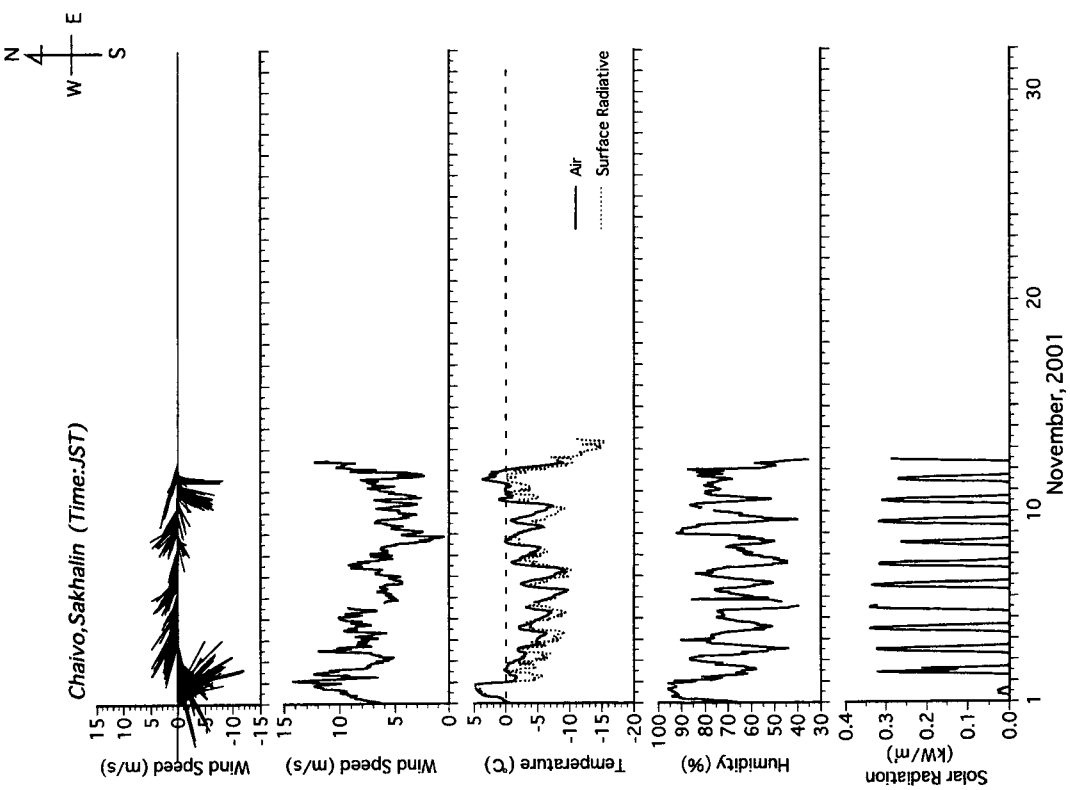

Chaivo,Sakhalin (Time:JST)
N
W
E
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (℃)
Humidity (%)
Solar Radiation (kW/m²)
Air
Surface Radiative
January, 2001
February, 2001


Chaivo,Sakhalin (Time:JST)
N
E
W
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (°C)
Air
Surface Radiative
Humidity (%)
Solar Radiation (kW/m²)
March, 2001
April, 2001


Chaivo,Sakhalin (Time:JST)
N
W
E
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (℃)
Air
Surface Radiative
Humidity (%)
Solar Radiation (kW/m)
May , 2001
June , 2001


Chaivo,Sakhalin (Time:JST)
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (°C)
Air
Surface Radiative
Humidity (%)
Solar Radiation (kW/m)
July, 2001
August, 2001
N
E
S
W


Chaivo,Sakhalin (Time:JST)
N
W
E
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (°C)
Air
Surface Radiative
Humidity (%)
Solar Radiation (kW/m)
September , 2001
October , 2001


Chaivo,Sakhalin (Time:JST)
N
W
E
S
Wind Speed (m/s)
Wind Speed (m/s)
Temperature (°C)
Air
Surface Radiative
Humidity (%)
Solar Radiation (kW/m²)
November, 2001

Chaivo Sakhalin, 2000 - 2001

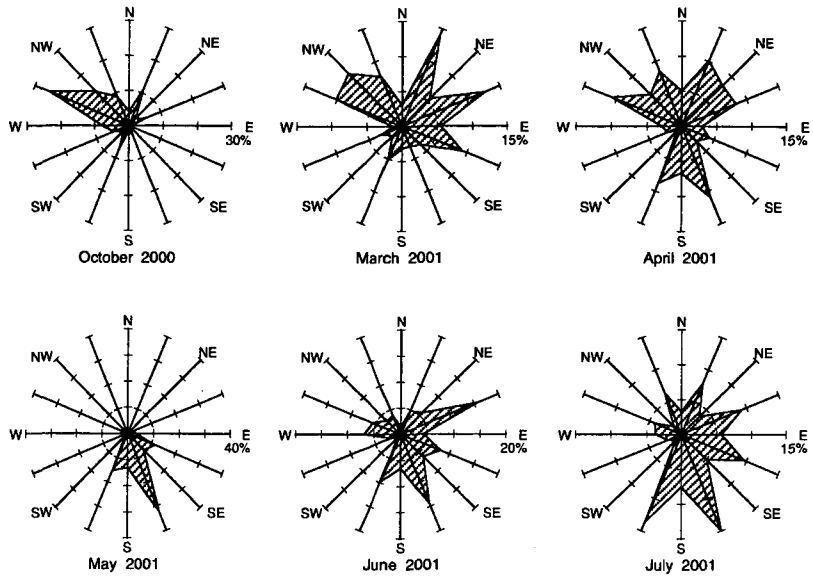


Fig. 5 Wind roses for each month for October 2000 and March through July 2001 at Chaivo Research Station.