TITLE

CAMP_SiberiaTundra_Tiksi_20021001_20030331.twr

CONTACT

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DATE OF THIS DOCUMENT

13 April 2004

1. 0 DATASET OVERVIEW

1.1 Introduction

Objectives
The goal of the GAME-Siberia project is to clarify the characteristics and processes of water accumulation and transfer and their relation with the energy cycle, in the atmosphere-land surface interface of cold environments from the seasonal to the inter-annual time scale. This study will contribute to one of the primary GAME objectives

- To understand multi-scale interactions in the energy and hydrologic cycles in the Asian Monsoon Region

and one scientific objective

- To assess the impact of monsoon variability on the regional hydrologic cycle.

The objectives of tundra study subgroup include:

1. Develop seasonal and inter-annual variation of one-dimensional energy and water vapor fluxes over tundra.
2. Characterize the water balance components in these tundra watersheds.
3. Determine the areal distribution of ground surface properties.

1.2 Time period covered by the data

Start: 1 October 2002, 00:00
End: 31 March 2003, 23:00

1.3 Temporal characteristics of the data

All parameters are recoded every hour.

This data set includes observations of:
At 1 m height: station pressure, air temperature, dew point, relative humidity, and specific humidity.
At 2 m height: station pressure, air temperature, dew point, relative humidity, specific humidity, and wind speed.
At 4 m height: station pressure, air temperature, dew point, relative humidity, specific humidity, and wind speed.
At 10 m height: station pressure, air temperature, dew point, relative humidity, specific humidity, wind speed, wind direction, U wind component and V wind component.

1.4 Physical location of the measurement

Latitude : 71.617 N
Longitude: 128.750E
Elevation: 38.0m a.s.l.

1.5 Data source

Original data provided by the Frontier Observational Research System for Global Change (FORSGC), Japan Marine Science and Technology Center (JAMSTEC) under the research collaboration with Japan Science and Technology Agency (JST).

1.6 WWW address references

Website: http://www.hyarc.nagoya-u.ac.jp/game/siberia/tundra/home.html

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Air Temperature	HMP-45D	VAISALA
Relative Humidity	HMP-45D	VAISALA
Wind Speed	AC860	Makino
Wind Direction	VR236	Makino
Air pressure	ANALOG BAROMETER PTB101	VAISALA

2.3 Instrumentation specification

StationPressure(1.5m) : Air Pressureat the 1.5m height (hPa)
AirTemperature(10m) : Air Temperature at the 10m height (deg.C)
AirTemperature(4m) : Air Temperature at the 4m height (deg.C)

AirTemperature(2m) : Air Temperature at the 2m height (deg.C)
AirTemperature(1m) : Air Temperature at the 1m height (deg.C)
RelativeHumidity(10m) : Relative Humidity at the 10m height (%)
RelativeHumidity(4m) : Relative Humidity at the 4m height (%)
RelativeHumidity(2m) : Relative Humidity at the 2m height (%)
RelativeHumidity(1m) : Relative Humidity at the 1m height (%)
WS(10m) : Wind Speed at the 10m height (m/s)
WS(4m) : Wind Speed at the 4m height (m/s)
WS(2m) : Wind Speed at the 2m height (m/s)
WD(10m) : Wind Direction at the 10m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower twice every year, in spring and autumn. Then, data are sent to Japan, where they are processed.

3.2 Description of derived parameters and processing techniques used

Temperature, relative humidity is instantaneous values. Atmospheric pressure is averaged over the previous hour. Wind speed and direction are the *resulting* average speed and direction over the previous hour (calculated by the datalogger by means of data recorded every 5 seconds): this to minimize data unreliability due to sudden gusts.

And the four parameters indicated below were computed by using “CEOP Derived Parameter Equations : http://www.joss.ucar.edu/ghp/ceopdm/refdata_report/eqns.html” . also put the data flag “I”,

Dew Point Temperature (10m) were computed by using (Bolton 1980):

es = 6.112 * exp((17.67 * T)/(T + 243.5));
e = es * (RH/100.0);
Td = log(e/6.112)*243.5/(17.67-log(e/6.112));
where:
T = temperature in deg C;
es = saturation vapor pressure in mb;
e = vapor pressure in mb;
RH = Relative Humidity in percent;
Td = dew point in deg C

Specific Humidity (10m) were computed by using (Bolton 1980):

e = 6.112*exp((17.67*Td)/(Td + 243.5));
q = (0.622 * e)/(p - (0.378 * e));
where:
e = vapor pressure in mb;
Td = dew point in deg C;
p = surface pressure in mb;
q = specific humidity in kg/kg.

U,V Components (10m) were computed by using (GEMPAK):

U = -sin(direction) * wind_speed;
V = -cos(direction) * wind_speed;

3.3 Data format

These data are in the CEOP EOP-3 data format agreed to by the CEOP Scientific Steering Committee. This format is described in detail as part of the CEOP Reference Site Data Set Procedures Report which is available at the following URL:
http://www.eol.ucar.edu/projects/ceop/dm/documents/refdata_report/ceop_met_tower_format.html

4.0 QUALITY CONTROL PROCEDURES

For all parameters, the data has been visually checked, looking for extremely and unusual low/high values and/or periods with constant values thorough the CAMP Quality Control Web Interface.
The quality control flags follow the CEOP data flag definition document.

4.2. UCAR/JOSS Quality Control Procedures

UCAR/JOSS conducted two primary quality assurance/control procedures on the reference site data. First the data has been evaluated by a detailed QA algorithm that verifies the format is correct, examines any QC flags, and conducts basic checks on data values. Second, JOSS conducts a manual inspection of time series plots of each parameter.

5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

6.0 DATA REMARKS

6.1 PI's assessment of the data

6.1.1 Instruments problems

None.

6.1.2 Quality issues

6.2 Missing data periods

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of the research collaboration between Frontier Observational Research System for Global Change (FORSGC), Japan Marine Science and Technology Center (JAMSTEC) and Japan

Science and Technology Agency (JST), financially supported by the Japanese Ministry of Education, Science and Culture.

8.0 REFERENCES

Ohata,T., Fukushima,Y. 1999. Progress of GAME-Siberia 1997-98. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p1 – 5.

Kodama,Y. 1999. The outline of the field observation in Tundra Region in 1998. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p7 – 12.

Ishii,Y., Kodama,Y., Sato,N., Nakamura,R., Nomura,M. 1999. Summertime Water Balance in a Siberian Tundra Basin. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p13 – 16.

Hinzman,L., Kodama,Y. 1999. Hydrologic Modeling Analyses in GAME/Siberia. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p17 – 24.

Nomura,M., Kodama,Y., Nakamura,R. 1999. Heat balance of snowpack in early snowmelt season in Siberia tundra. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p25 – 26.

Kodama,Y., Sato,N., Yabuki,H., Ishii,Y. 1999. Seasonal Change in the Heat Fluxes over Siberian Tundra. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p27 – 34.

Mizoguchi,M., Watanabe,K., Fukumura,K., Kiyosawa,H. 1999. Spatial Distribution of Active Layer on a Hillslope in Siberian Tundra. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p35 – 36.

Watanabe,K., Mizoguchi,M. 1999. Pit Observations of Active Layer in Tundra Wetland Near Tiksi, Siberia. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p37 – 42.

Sato,T., Hayasaka,Y., Kodama,Y. 1999. Perspective of spatial distribution patterns and frequency of cryospheric vascular plants of tundra in micro scales at Tiksi, northernmost Sakha (Yakutia). GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p43 – 48.

Hayasaka,Y., Kanda,H., Sato,T. 1999. Distribution patterns of bryophytes in micro-scales of tundra in relation to water levels. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p49 – 52.

Kiyosawa,H., Mizoguchi,M. 1999. Soil Temperature Analysis of Active Layer in Siberian Tundra. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p53 – 54.

TITLE

CAMP_SiberiaTundra_Tiksi_20030401_20030930.twr.doc

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DATE OF THIS DOCUMENT

20 January 2005

1. 0 DATASET OVERVIEW

1.7 Introduction

Objectives
The goal of the GAME-Siberia project is to clarify the characteristics and processes of water accumulation and transfer and their relation with the energy cycle, in the atmosphere-land surface interface of cold environments from the seasonal to the inter-annual time scale. This study will contribute to one of the primary GAME objectives

- To understand multi-scale interactions in the energy and hydrologic cycles in the Asian Monsoon Region

and one scientific objective

- To assess the impact of monsoon variability on the regional hydrologic cycle.

The objectives of tundra study subgroup include:

1. Develop seasonal and inter-annual variation of one-dimensional energy and water vapor fluxes over tundra.
2. Characterize the water balance components in these tundra watersheds.
3. Determine the areal distribution of ground surface properties.

1.8 Time period covered by the data

Start: 1 April 2003, 00:00
End: 30 September 2003, 23:00

1.9 Temporal characteristics of the data

All parameters are recoded every hour.

1.10 Physical location of the measurement

Latitude : 71.617 N
Longitude: 128.750E
Elevation: 38.0m a.s.l.
Landscape : Tundra (moss and sedge)
Canopy height : Moss : Thickness of maximun 20cm, sedge : less than 30cm
Soil Characteristics: clayey silt

1.11 Data source

Original data provided by the Institute of Observational Research for Global Change (IORGC), Independent Administrative Institution Japan Agency for Marine-Earth Science and Technology (JAMSTEC) financially supported by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).

1.12 WWW address references

Website: http://www.hyarc.nagoya-u.ac.jp/game/siberia/tundra/home.html

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Air Temperature	HMP-45D	VAISALA
Relative Humidity	HMP-45D	VAISALA
Wind Speed	AC860	Makino
Wind Direction	VR236	Makino
Air pressure	ANALOG BAROMETER PTB101	VAISALA

2.4 Instrumentation specification

StationPressure(1.5m) : Air Pressureat the 1.5m height (hPa)
AirTemperature(10m) : Air Temperature at the 10m height (deg.C)
AirTemperature(4m) : Air Temperature at the 4m height (deg.C)
AirTemperature(2m) : Air Temperature at the 2m height (deg.C)
AirTemperature(1m) : Air Temperature at the 1m height (deg.C)
RelativeHumidity(10m) : Relative Humidity at the 10m height (%)
RelativeHumidity(4m) : Relative Humidity at the 4m height (%)

RelativeHumidity(2m) : Relative Humidity at the 2m height (%)
RelativeHumidity(1m) : Relative Humidity at the 1m height (%)
WS(10m) : Wind Speed at the 10m height (m/s)
WS(4m) : Wind Speed at the 4m height (m/s)
WS(2m) : Wind Speed at the 2m height (m/s)
WD(10m) : Wind Direction at the 10m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower twice every year, in spring and autumn. Then, data are sent to Japan, where they are processed.

3.2 Description of derived parameters and processing techniques used

Temperature, relative humidity is instantaneous values. Atmospheric pressure is averaged over the previous hour. Wind speed and direction are the *resulting* average speed and direction over the previous hour (calculated by the datalogger by means of data recorded every 5 seconds): this to minimize data unreliability due to sudden gusts.

And the four parameters indicated below were computed by using “CEOP Derived Parameter Equations : http://www.joss.ucar.edu/ghp/ceopdm/refdata_report/eqns.html” . also put the data flag “I”,

Dew Point Temperature (10m) were computed by using (Bolton 1980):

```
es = 6.112 * exp((17.67 * T)/(T + 243.5));
e = es * (RH/100.0);
Td = log(e/6.112)*243.5/(17.67-log(e/6.112));
 where:
   T = temperature in deg C;
   es = saturation vapor pressure in mb;
   e = vapor pressure in mb;
   RH = Relative Humidity in percent;
   Td = dew point in deg C
```

Specific Humidity (10m) were computed by using (Bolton 1980):

```
e = 6.112*exp((17.67*Td)/(Td + 243.5));
q = (0.622 * e)/(p - (0.378 * e));
 where:
   e = vapor pressure in mb;
   Td = dew point in deg C;
   p = surface pressure in mb;
   q = specific humidity in kg/kg.
```

U,V Components (10m) were computed by using (GEMPAK):

```
U = -sin(direction) * wind_speed;
V = -cos(direction) * wind_speed;
```

4.0 QUALITY CONTROL PROCEDURES

For all parameters, the data has been visually checked, looking for extremely and unusual low/high values and/or periods with constant values thorough the CAMP Quality Control Web Interface.
The quality control flags follow the CEOP data flag definition document.

5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

6.0 DATA REMARKS

6.1 PI's assessment of the data

6.1.1 Instruments problems

None.

6.1.2 Quality issues

6.2 Missing data periods

There are missing data periods from 2003/09/30 16:00:00 to 2003/09/30 23:00:00

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of the Institute of Observational Research for Global Chang (IORGC), Independent Administrative Institution Japan Agency for Marine-Earth Science and Technology (JAMSTEC), financially supported by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).

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DATE OF THIS DOCUMENT

16 May 2006

1. 0 DATASET OVERVIEW

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3. Determine the areal distribution of ground surface properties.

1.14 Time period covered by the data

Start: 1 October 2003, 00:00
End: 31 March 2004, 23:00

1.15 Temporal characteristics of the data

All parameters are recoded every hour.

1.16 Physical location of the measurement

Latitude : 71.617 N
Longitude: 128.750E
Elevation: 38.0m a.s.l.

1.17 Data source

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RelativeHumidity(4m) : Relative Humidity at the 4m height (%)
RelativeHumidity(2m) : Relative Humidity at the 2m height (%)
RelativeHumidity(1m) : Relative Humidity at the 1m height (%)
WS(10m) : Wind Speed at the 10m height (m/s)
WS(4m) : Wind Speed at the 4m height (m/s)
WS(2m) : Wind Speed at the 2m height (m/s)

WD(10m) : Wind Direction at the 10m height (deg.)

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U,V Components (10m) were computed by using (GEMPAK):

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4.0 QUALITY CONTROL PROCEDURES

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The quality control flags follow the CEOP data flag definition document.

5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

6.0 DATA REMARKS

6.1 PI's assessment of the data

6.1.1 Instruments problems

None.

6.1.2 Quality issues

6.2 Missing data periods

The missing data period are listed in chapter 9.0.

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of the research collaboration between Frontier Observational Research System for Global Change (FORSGC), Japan Marine Science and Technology Center (JAMSTEC) and Japan Science and Technology Agency (JST), financially supported by the Japanese Ministry of Education, Science and Culture.

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Kiyosawa,H., Mizoguchi,M. 1999. Soil Temperature Analysis of Active Layer in Siberian Tundra. GAME Publication No.14 Activity Report of GAME-Siberia, 1998, p53 – 54.

9.0 Missing Data Periods

File Name : CAMP_SiberiaTundra_Tiksi_20031001_20040331.twr
Data Period : 2003/10/01 00:00 - 2004/03/31 23:00

Station Pressure (1.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Station Pressure (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Station Pressure (4.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Station Pressure (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Air Temperature (1.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Air Temperature (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Air Temperature (4.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Air Temperature (10.00m)

2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Dew Point Temperature (1.00m)
2003/10/01 00:00
2003/11/14 03:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Dew Point Temperature (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Dew Point Temperature (4.00m)
2003/10/01 00:00
2004/02/15 02:00 - 2004/02/15 08:00 (7)
2004/02/16 02:00 - 2004/02/16 08:00 (7)
2004/02/17 02:00 - 2004/02/17 08:00 (7)
2004/02/18 03:00 - 2004/02/18 06:00 (4)
2004/02/19 05:00 - 2004/02/19 08:00 (4)
2004/02/20 04:00 - 2004/02/20 09:00 (6)
2004/02/21 04:00 - 2004/02/21 08:00 (5)
2004/02/23 03:00 - 2004/02/23 07:00 (5)
2004/02/24 01:00 - 2004/02/24 08:00 (8)
2004/02/25 02:00 - 2004/02/25 08:00 (7)
2004/02/26 00:00 - 2004/02/26 08:00 (9)
2004/03/01 00:00 - 2004/03/31 23:00 (744)

Dew Point Temperature (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Relative Humidity (1.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Relative Humidity (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Relative Humidity (4.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Relative Humidity (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Specific Humidity (1.00m)
2003/10/01 00:00
2003/11/14 03:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Specific Humidity (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Specific Humidity (4.00m)
2003/10/01 00:00
2004/02/15 02:00 - 2004/02/15 08:00 (7)
2004/02/16 02:00 - 2004/02/16 08:00 (7)
2004/02/17 02:00 - 2004/02/17 08:00 (7)
2004/02/18 03:00 - 2004/02/18 06:00 (4)
2004/02/19 05:00 - 2004/02/19 08:00 (4)
2004/02/20 04:00 - 2004/02/20 09:00 (6)
2004/02/21 04:00 - 2004/02/21 08:00 (5)
2004/02/23 03:00 - 2004/02/23 07:00 (5)
2004/02/24 01:00 - 2004/02/24 08:00 (8)
2004/02/25 02:00 - 2004/02/25 08:00 (7)
2004/02/26 00:00 - 2004/02/26 08:00 (9)
2004/03/01 00:00 - 2004/03/31 23:00 (744)

Specific Humidity (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Wind Speed (1.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

Wind Speed (2.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Wind Speed (4.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Wind Speed (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

Wind Direction (1.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

Wind Direction (2.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

Wind Direction (4.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

Wind Direction (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

U Wind Component (1.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

U Wind Component (2.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

U Wind Component (4.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

U Wind Component (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

V Wind Component (1.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

V Wind Component (2.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

V Wind Component (4.00m)
2003/10/01 00:00 - 2004/03/31 23:00 (ALL)

V Wind Component (10.00m)
2003/10/01 00:00
2004/03/31 16:00 - 2004/03/31 23:00 (8)

TITLE

CAMP_SiberiaTundra_Tiksi_20040401_20041231.twr

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DATE OF THIS DOCUMENT

18 July 2006

1. 0 DATASET OVERVIEW

1.1 Introduction

Objectives
The goal of the GAME-Siberia project is to clarify the characteristics and processes of water accumulation and transfer and their relation with the energy cycle, in the atmosphere-land surface interface of cold environments from the seasonal to the inter-annual time scale. This study will contribute to one of the primary GAME objectives

- To understand multi-scale interactions in the energy and hydrologic cycles in the Asian Monsoon Region

and one scientific objective

- To assess the impact of monsoon variability on the regional hydrologic cycle.

The objectives of tundra study subgroup include:

4. Develop seasonal and inter-annual variation of one-dimensional energy and water vapor fluxes over tundra.
5. Characterize the water balance components in these tundra watersheds.
6. Determine the areal distribution of ground surface properties.

1.2 Time period covered by the data

Start: 1 April 2004, 00:00
End: 31 December 2004, 23:00

1.3 Temporal characteristics of the data

All parameters are recoded every hour.

1.4 Physical location of the measurement

Latitude : 71.617 N
Longitude: 128.750E
Elevation: 38.0m a.s.l.

1.5 Data source

Original data provided by the Frontier Observational Research System for Global Change (FORSGC), Japan Marine Science and Technology Center (JAMSTEC) under the research collaboration with Japan Science and Technology Agency (JST).

1.6 WWW address references

Website: http://www.hyarc.nagoya-u.ac.jp/game/siberia/tundra/home.html

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Air Temperature	HMP-45D	VAISALA
Relative Humidity	HMP-45D	VAISALA
Wind Speed	AC860	Makino
Wind Direction	VR236	Makino
Air pressure	ANALOG BAROMETER PTB101	VAISALA

2.3 Instrumentation specification

StationPressure(1.5m) : Air Pressureat the 1.5m height (hPa)
AirTemperature(10m) : Air Temperature at the 10m height (deg.C)
AirTemperature(4m) : Air Temperature at the 4m height (deg.C)
AirTemperature(2m) : Air Temperature at the 2m height (deg.C)
AirTemperature(1m) : Air Temperature at the 1m height (deg.C)
RelativeHumidity(10m) : Relative Humidity at the 10m height (%)
RelativeHumidity(4m) : Relative Humidity at the 4m height (%)
RelativeHumidity(2m) : Relative Humidity at the 2m height (%)
RelativeHumidity(1m) : Relative Humidity at the 1m height (%)
WS(10m) : Wind Speed at the 10m height (m/s)
WS(4m) : Wind Speed at the 4m height (m/s)
WS(2m) : Wind Speed at the 2m height (m/s)

WD(10m) : Wind Direction at the 10m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower twice every year, in spring and autumn. Then, data are sent to Japan, where they are processed.

3.2 Description of derived parameters and processing techniques used

Temperature, relative humidity is instantaneous values. Atmospheric pressure is averaged over the previous hour. Wind speed and direction are the *resulting* average speed and direction over the previous hour (calculated by the datalogger by means of data recorded every 5 seconds): this to minimize data unreliability due to sudden gusts.

And the four parameters indicated below were computed by using “CEOP Derived Parameter Equations : http://www.joss.ucar.edu/ghp/ceopdm/refdata_report/eqns.html” . also put the data flag “I”,

Dew Point Temperature (10m) were computed by using (Bolton 1980):

es = 6.112 * exp((17.67 * T)/(T + 243.5));
e = es * (RH/100.0);
Td = log(e/6.112)*243.5/(17.67-log(e/6.112));
where:
T = temperature in deg C;
es = saturation vapor pressure in mb;
e = vapor pressure in mb;
RH = Relative Humidity in percent;
Td = dew point in deg C

Specific Humidity (10m) were computed by using (Bolton 1980):

e = 6.112*exp((17.67*Td)/(Td + 243.5));
q = (0.622 * e)/(p - (0.378 * e));
where:
e = vapor pressure in mb;
Td = dew point in deg C;
p = surface pressure in mb;
q = specific humidity in kg/kg.

U,V Components (10m) were computed by using (GEMPAK):

U = -sin(direction) * wind_speed;
V = -cos(direction) * wind_speed;

4.0 QUALITY CONTROL PROCEDURES

For all parameters, the data has been visually checked, looking for extremely and unusual low/high values and/or periods with constant values thorough the CAMP Quality Control Web Interface.

The quality control flags follow the CEOP data flag definition document.

5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

6.0 DATA REMARKS

6.1 PI's assessment of the data

6.1.1 Instruments problems

None.

6.1.2 Quality issues

6.2 Missing data periods

The missing data period are listed in chapter 9.0.

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of the research collaboration between Frontier Observational Research System for Global Change (FORSGC), Japan Marine Science and Technology Center (JAMSTEC) and Japan Science and Technology Agency (JST), financially supported by the Japanese Ministry of Education, Science and Culture.

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9.0 Missing Data Periods

File Name : CAMP_SiberiaTundra_Tiksi_20040401_20041231.twr
Data Period : 2004/04/01 00:00 - 2004/12/31 23:00

Dew Point Temperature (1.00m)
2004/12/09 08:00
2004/12/09 22:00
2004/12/22 05:00 - 2004/12/22 06:00 (2)

Dew Point Temperature (4.00m)
2004/04/01 00:00 - 2004/06/04 11:00 (1548)
2004/06/24 00:00 - 2004/06/29 23:00 (144)
2004/07/02 12:00 - 2004/07/06 14:00 (99)
2004/07/07 17:00 - 2004/07/10 23:00 (79)
2004/07/20 20:00 - 2004/07/21 11:00 (16)

Specific Humidity (1.00m)
2004/06/07 07:00
2004/12/09 08:00
2004/12/09 22:00
2004/12/22 05:00 - 2004/12/22 06:00 (2)

Specific Humidity (2.00m)
2004/06/07 07:00

Specific Humidity (4.00m)
2004/04/01 00:00 - 2004/06/04 11:00 (1548)
2004/06/07 07:00
2004/06/24 00:00 - 2004/06/29 23:00 (144)
2004/07/02 12:00 - 2004/07/06 14:00 (99)
2004/07/07 17:00 - 2004/07/10 23:00 (79)
2004/07/20 20:00 - 2004/07/21 11:00 (16)

Specific Humidity (10.00m)
2004/06/07 07:00

Wind Speed (4.00m)
2004/06/07 06:00 - 2004/09/10 01:00 (2276)

V Wind Component (10.00m)
No missing data. 2004/03/31 16:00 - 2004/03/31 23:00 (8)