TITLE

CAMP_Tibet_Amdo-SMTMS_20021001_20030331.stm

CONTACT

Nozomu Hirose
Depertment of Civil Engneering, University of Tokyo
7-3-1 Hongo,Bunkyoku, Tokyo,113-8656 Japan
Phone: +81-3-5841-6107
Fax : +81-3-5841-6130
Email: hirose@hydra.t.u-tokyo.ac.jp

Toshio Koike
Depertment of Civil Engneering, University of Tokyo
7-3-1 Hongo,Bunkyoku, Tokyo,113-8656 Japan
Phone: +81-3-5841-6106
Fax : +81-3-5841-6130
Email: tkoike@hydra.t.u-tokyo.ac.jp

DATE OF THIS DOCUMENT

02 Sep. 2004

1. 0 DATASET OVERVIEW

1.1 Introduction

To clarify the energy and water cycle in the Tibetan Plateau, it is important to understand the profile of the soil moisture content and surface temperature.
The purpose of SMTMS (Soil Moisture and Temperature Measurement System) observation is to monitor these values and develop the land surface process models and satellite-based soil moisture retrieval methods.

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.

1.4 Physical location of the measurement

Latitude : 32.24096 N
Longitude : 91.624925 E
Elevation : 4695.2 m a.s.l.

Landscape : Bare land (with the thin weed-like plant)
Canopy height : Less than 5cm.
Soil Characteristics: Silt loam

1.5 Data source

1.6 Website address references

http://monsoon.t.u-tokyo.ac.jp/camp/tibets/

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Soil Temperature	Pt100	Datamark
Soil Moisture	Trime EZ	Imko

2.3 Instrumentation specification

Soil Temp_4cm : Soil Temperature at the 4cm depth (deg.C)
Soil Temp_20cm : Soil Temperature at the 20cm depth (deg.C)
Soil Temp_40cm : Soil Temperature at the 40cm depth (deg.C)
Soil Temp_60cm : Soil Temperature at the 60m depth (deg.C)
Soil Temp_80cm : Soil Temperature at the 80cm depth (deg.C)
Soil Temp_100cm : Soil Temperature at the 100cm depth (deg.C)
Soil Temp_130cm : Soil Temperature at the 130cm depth (deg.C)
Soil Temp_160cm : Soil Temperature at the 160cm depth (deg.C)
Soil Temp_200cm : Soil Temperature at the 200cm depth (deg.C)
Soil Temp_279cm : Soil Temperature at the 279cm depth (deg.C)
Soil Moist_4cm : Soil Moisture at the 4cm depth (%)
Soil Moist_20cm : Soil Moisture at the 20cm depth (%)
Soil Moist_60cm : Soil Moisture at the 60cm depth (%)
Soil Moist_100cm : Soil Moisture at the 100cm depth (%)
Soil Moist_160cm : Soil Moisture at the 160cm depth (%)
Soil Moist_258cm : Soil Moisture at the 258cm depth (%)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the SMTMS twice a year. Then, data are sent to Tokyo, where they are processed.

3.2 Description of derived parameters and processing techniques used

Soil moisture and temperature are measured by using Trime MUX and Pt100 sensor.

Trime MUX is applied to TDR(Time Domein Reflectmetry) method. The principle of the TDR is based on measuring the propagation time of an electromagnetic pulse along measuring pins in the sample. The propagation time depends on the humidity content of the medium to be measured.

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

None

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of GAME/CAMP Tibet Scientific and Technological Research Project, funded by the Ministry of Education, Culture, Sports, Science and Technology; the Japan Science and Technology Agency; the Frontier Research System for Global Change; the Japan Aerospace Exploration Agency; the Chinese Academy of Sciences; and the Chinese Academy of Meteorological Sciences.

8.0 REFERENCES

N. Hirose, T. Koike, and H. Ishidaira, 2002: Study on Spatially Averaged Evaporation under Soil Moisture Heterogeneity Affected by Permafrost Micro-topography. JMSJ, Vol.80. pp191-203.

N. Hirose and T. Koike, 2001: The effect of the soil moisture heterogeneity on the spatially averaged evaporation at the permafrost plain area in Tibetan Plateau, Proceedings of the Fifth International Study Conference on GEWEX in Asia and GAME, 655-660.

T. Koike, N. Hirose, H. Ishidaira, Y. Ding, Y. Shen, S. Wang, B. Ye and M. Yang, 2001b: Hydrological Variability in the Tibetan Permafrost, Proc. of the 2nd International Workshop on TIPEX/GAME-Tibet, Kunming, China.

· **TITLE**

CAMP_Tibet_Amdo-SMTMS_20030401_20030904.stm

CONTACT

Nozomu Hirose
Depertment of Civil Engneering, University of Tokyo
7-3-1 Hongo,Bunkyoku, Tokyo,113-8656 Japan
Phone: +81-3-5841-6107
Fax : +81-3-5841-6130
Email: hirose@hydra.t.u-tokyo.ac.jp

Toshio Koike
Depertment of Civil Engneering, University of Tokyo
7-3-1 Hongo,Bunkyoku, Tokyo,113-8656 Japan
Phone: +81-3-5841-6106
Fax : +81-3-5841-6130
Email: tkoike@hydra.t.u-tokyo.ac.jp

DATE OF THIS DOCUMENT

20 Apr. 2005

1. 0 DATASET OVERVIEW

1.7 Introduction

To clarify the energy and water cycle in the Tibetan Plateau, it is important to understand the profile of the soil moisture content and surface temperature.
The purpose of SMTMS (Soil Moisture and Temperature Measurement System) observation is to monitor these values and develop the land surface process models and satellite-based soil moisture retrieval methods.

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 : 32.24096 N
Longitude : 91.624925 E
Elevation : 4695.2 m a.s.l.

Landscape : Bare land (with the thin weed-like plant)
Canopy height : Less than 5cm.
Soil Characteristics: Silt loam

1.11 Data source

1.12 Website address references

http://monsoon.t.u-tokyo.ac.jp/camp/tibets/

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Soil Temperature	Pt100	Datamark
Soil Moisture	Trime EZ	Imko

2.4 Instrumentation specification

Soil Temp_4cm : Soil Temperature at the 4cm depth (deg.C)
Soil Temp_20cm : Soil Temperature at the 20cm depth (deg.C)
Soil Temp_40cm : Soil Temperature at the 40cm depth (deg.C)
Soil Temp_60cm : Soil Temperature at the 60m depth (deg.C)
Soil Temp_80cm : Soil Temperature at the 80cm depth (deg.C)
Soil Temp_100cm : Soil Temperature at the 100cm depth (deg.C)
Soil Temp_130cm : Soil Temperature at the 130cm depth (deg.C)
Soil Temp_160cm : Soil Temperature at the 160cm depth (deg.C)
Soil Temp_200cm : Soil Temperature at the 200cm depth (deg.C)
Soil Temp_279cm : Soil Temperature at the 279cm depth (deg.C)
Soil Moist_4cm : Soil Moisture at the 4cm depth (%)
Soil Moist_20cm : Soil Moisture at the 20cm depth (%)
Soil Moist_60cm : Soil Moisture at the 60cm depth (%)
Soil Moist_100cm : Soil Moisture at the 100cm depth (%)
Soil Moist_160cm : Soil Moisture at the 160cm depth (%)
Soil Moist_258cm : Soil Moisture at the 258cm depth (%)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the SMTMS twice a year. Then, data are sent to Tokyo, where they are processed.

3.2 Description of derived parameters and processing techniques used

Soil moisture and temperature are measured by using Trime MUX and Pt100 sensor.

Trime MUX is applied to TDR(Time Domein Reflectmetry) method. The principle of the TDR is based on measuring the propagation time of an electromagnetic pulse along measuring pins in the sample. The propagation time depends on the humidity content of the medium to be measured.

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

None

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of GAME/CAMP Tibet Scientific and Technological Research Project, funded by the Ministry of Education, Culture, Sports, Science and Technology; the Japan Science and Technology Agency; the Frontier Research System for Global Change; the Japan Aerospace Exploration Agency; the Chinese Academy of Sciences; and the Chinese Academy of Meteorological Sciences.

8.0 REFERENCES

N. Hirose, T. Koike, and H. Ishidaira, 2002: Study on Spatially Averaged Evaporation under Soil Moisture Heterogeneity Affected by Permafrost Micro-topography. JMSJ, Vol.80. pp191-203.

N. Hirose and T. Koike, 2001: The effect of the soil moisture heterogeneity on the spatially averaged evaporation at the permafrost plain area in Tibetan Plateau, Proceedings of the Fifth International Study Conference on GEWEX in Asia and GAME, 655-660.

T. Koike, N. Hirose, H. Ishidaira, Y. Ding, Y. Shen, S. Wang, B. Ye and M. Yang, 2001b: Hydrological Variability in the Tibetan Permafrost, Proc. of the 2nd International Workshop on TIPEX/GAME-Tibet, Kunming, China.