TITLE

CAMP_Tongyu_Grassland_20021001_20030331.twr

CONTACT

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DATE OF THIS DOCUMENT

27 Aug. 2004

1. 0 DATASET OVERVIEW

1.1 <u>Introduction</u>

The field experiment of energy and mass exchange process between the land and atmosphere in semi-arid area, northeast china.

Objectives
Based on the observation data to analysis the facts and mechanisms of the water and heat flux transfer in the ecosystem in semiarid areas.
By comparing the different transfer process over different land surface, we study the effects of the land use on the aridification in the north of China.

1.2 <u>Time period covered by the data</u>

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

1.3 <u>Temporal characteristics of the data</u>

All parameters are recoded every 30 minutes.

1.4 <u>Physical location of the measurement</u>

Latitude   : 44.416 N

Longitude : 122.867 E
Elevation : 184.0m a.s.l.
Landscape : The degraded grassland
Canopy height : Less than 10 cm (in the winter period less than 5 cm)
Soil Characteristics: salina soil,meadow soil, light chernozem

1.5 Data source

Original data was provided by the Chinese Academy of Sciences (CAS).

1.6 WWW address references

None

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Station Pressure	CS105	TEXAS ELECT
Air Temperature	HMP	VAISALA
Specific Humidity	45C_L	VAISALA
Wind Speed	034A_L,	Met One
Wind Direction	014A_L	Met One

2.3 Instrumentation specification

Station Pressure (1.5m)   : Station Pressure at the 1.5 m height (hPa)
Air Temperature (17.05m)   : Air Temperature at the 17.05m height (deg.C)
Air Temperature (12.45m)   : Air Temperature at the 12.45m height (deg.C)
Air Temperature (7.95m)   : Air Temperature at the 7.95m height (deg.C)
Air Temperature (3.95m)   : Air Temperature at the 3.95m height (deg.C)
Air Temperature (1.35m)   : Air Temperature at the 1.35m height (deg.C)
Specific Humidity (17.05m) : Specific Humidity at the 17.05m height (g/kg)
Specific Humidity (12.45m) : Specific Humidity at the 12.45m height (g/kg)
Specific Humidity (7.95m)   : Specific Humidity at the 7.95m height (g/kg)
Specific Humidity (3.95m)   : Specific Humidity at the 3.95m height (g/kg)
Specific Humidity (1.35m)   : Specific Humidity at the 1.35m height (g/kg)
Wind Speed (17.46m)   : Wind Speed at the 17.46m height (m/s)
Wind Speed (12.86m)   : Wind Speed at the 12.86m height (m/s)
Wind Speed (8.36m)   : Wind Speed at the 8.36m height (m/s)
Wind Speed (4.36m)   : Wind Speed at the 4.36m height (m/s)
Wind Speed (1.76m)   : Wind Speed at the 1.76m height (m/s)
Wind Direction (17.46m)   : Wind Direction at the 17.46m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower once each month. Then, data are sent to Beijing, where they are processed.

3.2 Description of derived parameters and processing techniques used

Air Temperature and specific humidity is instantaneous values. Wind speed and direction are the average over the previous 30 minutes.

And the Two 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",

U,V Components 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
    There are four missing periods indicated below;

        2002/10/01 00:00 - 2002/10/16 03:00,
        2002/10/20 04:00 - 2002/10/21 04:00
        2002/11/03 09:00 - 2002/11/04 03:00
        2003/02/09 03:00 - 2003/02/12 06:30
        2003/03/31 16:30 - 2003/03/31 23:30

7.0 REFERENCE REQUIREMENTS

These data was collected and is provided "Predictive Study of Aridification in Northern China in association with Life-supporting Environment Changes" projects funded by National Key Basic Research Development Program G1999043404.

8.0 REFERENCES

None.

TITLE

CAMP_Tongyu_Grassland_20030401_20030930.twr.doc

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Email: huizhil@mail.iap.ac.cn

DATE OF THIS DOCUMENT

14 Jan. 2005

1. 0 DATASET OVERVIEW

1.7 <u>Introduction</u>

The field experiment of energy and mass exchange process between the land and atmosphere in semi-arid area, northeast china.

Objectives
Based on the observation data to analysis the facts and mechanisms of the water and heat flux transfer in the ecosystem in semiarid areas.
By comparing the different transfer process over different land surface, we study the effects of the land use on the aridification in the north of China.

1.8 <u>Time period covered by the data</u>

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

1.9 <u>Temporal characteristics of the data</u>

All parameters are recoded every 30 minutes.

1.10 <u>Physical location of the measurement</u>

Latitude   : 44.416 N

Longitude   : 122.867 E
Elevation   : 184.0m a.s.l.
Landscape   : The degraded grassland
Canopy height   : Less than 10 cm (in the winter period less than 5 cm)
Soil Characteristics: salina soil,meadow soil, light chernozem

1.11   Data source

Original data was provided by the Chinese Academy of Sciences (CAS).

1.12   WWW address references

None

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Station Pressure	CS105	TEXAS ELECT
Air Temperature	HMP	VAISALA
Specific Humidity	45C_L	VAISALA
Wind Speed	034A_L,	Met One
Wind Direction	014A_L	Met One

2.4 Instrumentation specification

Station Pressure (1.5m)   : Station Pressure at the 1.5 m height (hPa)
Air Temperature (17.05m)   : Air Temperature at the 17.05m height (deg.C)
Air Temperature (12.45m)   : Air Temperature at the 12.45m height (deg.C)
Air Temperature (7.95m)   : Air Temperature at the 7.95m height (deg.C)
Air Temperature (3.95m)   : Air Temperature at the 3.95m height (deg.C)
Air Temperature (1.35m)   : Air Temperature at the 1.35m height (deg.C)
Specific Humidity (17.05m)   : Specific Humidity at the 17.05m height (g/kg)
Specific Humidity (12.45m)   : Specific Humidity at the 12.45m height (g/kg)
Specific Humidity (7.95m)   : Specific Humidity at the 7.95m height (g/kg)
Specific Humidity (3.95m)   : Specific Humidity at the 3.95m height (g/kg)
Specific Humidity (1.35m)   : Specific Humidity at the 1.35m height (g/kg)
Wind Speed (17.46m)   : Wind Speed at the 17.46m height (m/s)
Wind Speed (12.86m)   : Wind Speed at the 12.86m height (m/s)
Wind Speed (8.36m)   : Wind Speed at the 8.36m height (m/s)
Wind Speed (4.36m)   : Wind Speed at the 4.36m height (m/s)
Wind Speed (1.76m)   : Wind Speed at the 1.76m height (m/s)
Wind Direction (17.46m)   : Wind Direction at the 17.46m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 <u>Description of data collection</u>

Data are downloaded from the Tower once each month. Then, data are sent to Beijing, where they are processed.

3.2 <u>Description of derived parameters and processing techniques used</u>

Air Temperature and specific humidity is instantaneous values. Wind speed and direction are the average over the previous 30 minutes.

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",

U,V Components were computed by using (GEMPAK):
   U = -sin(direction) * wind_speed;
   V = -cos(direction) * wind_speed;

Compute Dew Point Temperature (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

Compute the Specific Humidity (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.

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 four missing periods indicated below;

2003/04/13 07:00	-	2003/04/15 16:30
2003/04/17 07:00	-	2003/04/17 13:30
2003/04/19 04:00	-	2003/05/14 06:00
2003/09/30 16:00	-	2003/09/30 23:30

7.0 REFERENCE REQUIREMENTS

These data was collected and is provided "Predictive Study of Aridification in Northern China in association with Life-supporting Environment Changes" projects funded by National Key Basic Research Development Program G1999043404.

8.0 REFERENCES

None.

TITLE

CAMP_Tongyu_Grassland_20031001_20040331.twr

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DATE OF THIS DOCUMENT

18 May. 2006

1. 0 DATASET OVERVIEW

1.13 Introduction

The field experiment of energy and mass exchange process between the land and atmosphere in semi-arid area, northeast china.

Objectives
Based on the observation data to analysis the facts and mechanisms of the water and heat flux transfer in the ecosystem in semiarid areas.
By comparing the different transfer process over different land surface, we study the effects of the land use on the aridification in the north of China.

1.14 Time period covered by the data

Start: 1 October 2003, 00:00
End: 31 March 2004, 23:30

1.15 Temporal characteristics of the data

All parameters are recoded every 30 minutes.

1.16 Physical location of the measurement

Latitude   :   44.416 N
Longitude   : 122.867 E
Elevation   : 184.0m a.s.l.
Landscape   : The degraded grassland
Canopy height   : Less than 10 cm (in the winter period less than 5 cm)
Soil Characteristics: salina soil,meadow soil, light chernozem

1.17 Data source

Original data was provided by the Chinese Academy of Sciences (CAS).

1.18 WWW address references

None

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Station Pressure	CS105	TEXAS ELECT
Air Temperature	HMP	VAISALA
Specific Humidity	45C_L	VAISALA

Wind Speed	034A_L,	Met One
Wind Direction	014A_L	Met One

2.5 Instrumentation specification

Station Pressure (1.5m)   : Station Pressure at the 1.5 m height (hPa)
Air Temperature (17.05m)   : Air Temperature at the 17.05m height (deg.C)
Air Temperature (12.45m)   : Air Temperature at the 12.45m height (deg.C)
Air Temperature (7.95m)   : Air Temperature at the 7.95m height (deg.C)
Air Temperature (3.95m)   : Air Temperature at the 3.95m height (deg.C)
Air Temperature (1.35m)   : Air Temperature at the 1.35m height (deg.C)
Specific Humidity (17.05m) : Specific Humidity at the 17.05m height (g/kg)
Specific Humidity (12.45m) : Specific Humidity at the 12.45m height (g/kg)
Specific Humidity (7.95m)   : Specific Humidity at the 7.95m height (g/kg)
Specific Humidity (3.95m)   : Specific Humidity at the 3.95m height (g/kg)
Specific Humidity (1.35m)   : Specific Humidity at the 1.35m height (g/kg)
Wind Speed (17.46m)   : Wind Speed at the 17.46m height (m/s)
Wind Speed (12.86m)   : Wind Speed at the 12.86m height (m/s)
Wind Speed (8.36m)   : Wind Speed at the 8.36m height (m/s)
Wind Speed (4.36m)   : Wind Speed at the 4.36m height (m/s)
Wind Speed (1.76m)   : Wind Speed at the 1.76m height (m/s)
Wind Direction (17.46m)   : Wind Direction at the 17.46m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower once each month. Then, data are sent to Beijing, where they are processed.

3.2 Description of derived parameters and processing techniques used

Air Temperature and specific humidity is instantaneous values. Wind speed and direction are the average over the previous 30 minutes.

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   U = -sin(direction) * wind_speed;
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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

Compute the Specific Humidity (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.

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 <u>PI's assessment of the data</u>

6.1.1 <u>Instruments problems</u>

None.

6.1.2 <u>Quality issues</u>

6.2 <u>Missing data periods</u>

   The missing data period are listed in chapter 9.0.

7.0 REFERENCE REQUIREMENTS

8.0 REFERENCES

None.

9.0 Missing Data Periods

```
------------------------------------------------------------
File Name   : CAMP_Tongyu_Grassland_20031001_20040331.twr
Data Period : 2003/10/01 00:00 - 2004/03/31 23:30
------------------------------------------------------------
```

Station Pressure (1.35m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (1.76m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (3.95m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (4.36m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (7.95m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (8.36m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (12.45m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (12.86m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (17.05m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Station Pressure (17.46m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (1.35m)
  2004/01/13 06:30 - 2004/01/31 15:30 (883)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (1.76m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Air Temperature (3.95m)
  2003/10/20 07:30
  2003/10/29 08:00
  2003/12/10 07:00
  2003/12/30 04:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (4.36m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Air Temperature (7.95m)
  2003/10/20 07:30
  2003/12/08 08:30
  2003/12/09 08:00
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (8.36m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Air Temperature (12.45m)
  2003/12/09 07:30
  2004/03/08 08:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (12.86m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Air Temperature (17.05m)
  2003/12/09 08:00
  2004/01/21 07:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Air Temperature (17.46m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Dew Point Temperature (1.35m)
  2004/01/13 06:30 - 2004/01/31 15:30 (883)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Dew Point Temperature (1.76m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Dew Point Temperature (3.95m)
  2003/10/20 07:30
  2003/10/29 08:00
  2003/11/19 07:30
  2003/12/10 07:00
  2003/12/30 04:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Dew Point Temperature (4.36m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Dew Point Temperature (7.95m)
  2003/10/20 07:30
  2003/12/08 08:30
  2003/12/09 08:00
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Dew Point Temperature (8.36m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Dew Point Temperature (12.45m)
  2003/10/20 03:30
  2003/10/20 07:30
  2003/12/09 07:30
  2004/03/08 08:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Dew Point Temperature (12.86m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Dew Point Temperature (17.05m)
  2003/10/22 08:00
  2003/12/09 08:00
  2004/01/21 07:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Dew Point Temperature (17.46m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Relative Humidity (1.35m)
  2004/01/13 06:30 - 2004/01/31 15:30 (883)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Relative Humidity (1.76m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Relative Humidity (3.95m)
  2003/11/19 07:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Relative Humidity (4.36m)
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Relative Humidity (7.95m)
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  2003/10/20 03:30
  2003/10/20 07:30
  2003/12/09 07:30
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Specific Humidity (1.35m)
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  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Specific Humidity (3.95m)
  2003/10/20 07:30
  2003/10/29 08:00
  2003/11/19 07:30
  2003/12/10 07:00
  2003/12/30 04:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Specific Humidity (4.36m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

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Specific Humidity (12.86m)
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Specific Humidity (17.05m)
  2003/10/22 08:00
  2003/12/09 08:00
  2004/01/21 07:30
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Specific Humidity (17.46m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (1.35m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (1.76m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Wind Speed (3.95m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (4.36m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Wind Speed (7.95m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (8.36m)
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Wind Speed (12.45m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (12.86m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Wind Speed (17.05m)
  2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Speed (17.46m)
  2004/03/31 16:00 - 2004/03/31 23:30 (16)

Wind Direction (1.35m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (1.76m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (3.95m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (4.36m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (7.95m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (8.36m)
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2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (17.05m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

Wind Direction (17.46m)
2004/03/31 16:00 - 2004/03/31 23:30 (16)

U Wind Component (1.35m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (1.76m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (3.95m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (4.36m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (7.95m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (8.36m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (12.45m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (12.86m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (17.05m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

U Wind Component (17.46m)
2004/03/31 16:00 - 2004/03/31 23:30 (16)

V Wind Component (1.35m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

V Wind Component (1.76m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

V Wind Component (3.95m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

V Wind Component (4.36m)
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V Wind Component (12.86m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

V Wind Component (17.05m)
2003/10/01 00:00 - 2004/03/31 23:30 (ALL)

V Wind Component (17.46m)
2004/03/31 16:00 - 2004/03/31 23:30 (16)

TITLE

CAMP_Tongyu_Grassland_20040401_20041231.twr

CONTACT

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DATE OF THIS DOCUMENT

29 Jun. 2006

1. 0 DATASET OVERVIEW

1.19   Introduction

The field experiment of energy and mass exchange process between the land and atmosphere in semi-arid area, northeast china.

Objectives
Based on the observation data to analysis the facts and mechanisms of the water and heat flux transfer in the ecosystem in semiarid areas.
By comparing the different transfer process over different land surface, we study the effects of the land use on the aridification in the north of China.

1.20   Time period covered by the data

Start: 1 April 2004, 00:00
End: 31 December 2004, 23:30

1.21   Temporal characteristics of the data

All parameters are recoded every 30 minutes.

1.22   Physical location of the measurement

Latitude   :   44.416 N
Longitude   : 122.867 E
Elevation   : 184.0m a.s.l.
Landscape   : The degraded grassland
Canopy height   : Less than 10 cm (in the winter period less than 5 cm)
Soil Characteristics: salina soil,meadow soil, light chernozem

1.23   Data source

Original data was provided by the Chinese Academy of Sciences (CAS).

1.24 WWW address references

None

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on several heights.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Station Pressure	CS105	TEXAS ELECT
Air Temperature	HMP	VAISALA
Specific Humidity	45C_L	VAISALA
Wind Speed	034A_L,	Met One
Wind Direction	014A_L	Met One

2.6 Instrumentation specification

Station Pressure (1.5m)   : Station Pressure at the 1.5 m height (hPa)
Air Temperature (17.05m)   : Air Temperature at the 17.05m height (deg.C)
Air Temperature (12.45m)   : Air Temperature at the 12.45m height (deg.C)
Air Temperature (7.95m)   : Air Temperature at the 7.95m height (deg.C)
Air Temperature (3.95m)   : Air Temperature at the 3.95m height (deg.C)
Air Temperature (1.35m)   : Air Temperature at the 1.35m height (deg.C)
Specific Humidity (17.05m) : Specific Humidity at the 17.05m height (g/kg)
Specific Humidity (12.45m) : Specific Humidity at the 12.45m height (g/kg)
Specific Humidity (7.95m)   : Specific Humidity at the 7.95m height (g/kg)
Specific Humidity (3.95m)   : Specific Humidity at the 3.95m height (g/kg)
Specific Humidity (1.35m)   : Specific Humidity at the 1.35m height (g/kg)
Wind Speed (17.46m)   : Wind Speed at the 17.46m height (m/s)
Wind Speed (12.86m)   : Wind Speed at the 12.86m height (m/s)
Wind Speed (8.36m)   : Wind Speed at the 8.36m height (m/s)
Wind Speed (4.36m)   : Wind Speed at the 4.36m height (m/s)
Wind Speed (1.76m)   : Wind Speed at the 1.76m height (m/s)
Wind Direction (17.46m)   : Wind Direction at the 17.46m height (deg.)

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the Tower once each month. Then, data are sent to Beijing, where they are processed.

3.2 Description of derived parameters and processing techniques used

Air Temperature and specific humidity is instantaneous values. Wind speed and direction are the average over the previous 30 minutes.

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",

U,V Components were computed by using (GEMPAK):
 U = -sin(direction) * wind_speed;
 V = -cos(direction) * wind_speed;

Compute Dew Point Temperature (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

Compute the Specific Humidity (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.

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 <u>Quality issues</u>

6.2 <u>Missing data periods</u>

The missing data period are listed in chapter 9.0.

7.0 REFERENCE REQUIREMENTS

These data was collected and is provided "Aridification in Northern China in association with human being's adpatation" projects funded by National Key Basic Research Development Program G2006CB400501.

8.0 REFERENCES

None.

9.0 Missing Data Periods

```
-----------------------------------------------------------
File Name   : CAMP_Tongyu_Grassland_20040401_20041231.twr
Data Period : 2004/04/01 00:00 - 2004/12/31 23:30
-----------------------------------------------------------
```

Station Pressure (1.35m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (1.76m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (3.95m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (4.36m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (7.95m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (8.36m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (12.45m)

  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (12.86m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (17.05m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Station Pressure (17.46m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (1.35m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30
  2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (1.76m)
  2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Air Temperature (3.95m)
  2004/04/07 01:00 - 2004/04/07 03:30 (6)
  2004/04/11 02:30

2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Air Temperature (7.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (8.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Air Temperature (12.45m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (12.86m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Air Temperature (17.05m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Air Temperature (17.46m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Dew Point Temperature (1.35m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Dew Point Temperature (1.76m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Dew Point Temperature (3.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)
   2004/11/11 23:00 - 2004/11/11 23:30 (2)
   2004/12/14 22:30 - 2004/12/15 00:00 (4)

Dew Point Temperature (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Dew Point Temperature (7.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Dew Point Temperature (8.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Dew Point Temperature (12.45m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Dew Point Temperature (12.86m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Dew Point Temperature (17.05m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Dew Point Temperature (17.46m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Relative Humidity (1.35m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Relative Humidity (1.76m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Relative Humidity (3.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Relative Humidity (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Relative Humidity (7.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Relative Humidity (8.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Relative Humidity (12.45m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Relative Humidity (12.86m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Relative Humidity (17.05m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Relative Humidity (17.46m)

2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Specific Humidity (1.35m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Specific Humidity (1.76m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Specific Humidity (3.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)
   2004/11/11 23:00 - 2004/11/11 23:30 (2)
   2004/12/14 22:30 - 2004/12/15 00:00 (4)

Specific Humidity (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Specific Humidity (7.95m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
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Specific Humidity (8.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Specific Humidity (12.45m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Specific Humidity (12.86m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Specific Humidity (17.05m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Specific Humidity (17.46m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Speed (1.35m)
   2004/04/01 00:00 - 2004/12/31 23:30
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Wind Speed (1.76m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Wind Speed (3.95m)
   2004/04/01 00:00 - 2004/12/31 23:30

(ALL)

Wind Speed (4.36m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
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   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Wind Speed (7.95m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Speed (8.36m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Wind Speed (12.45m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Speed (12.86m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
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Wind Speed (17.05m)
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   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

Wind Direction (1.35m)
   2004/04/01 00:00 - 2004/12/31 23:30
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Wind Direction (1.76m)
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(ALL)

Wind Direction (3.95m)
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(ALL)

Wind Direction (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
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Wind Direction (7.95m)
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(ALL)

Wind Direction (8.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Direction (12.45m)
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(ALL)

Wind Direction (12.86m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Direction (17.05m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

Wind Direction (17.46m)
   2004/04/07 01:00 - 2004/04/07 03:30 (6)
   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)

U Wind Component (1.35m)
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(ALL)

U Wind Component (17.05m)
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(ALL)

U Wind Component (17.46m)
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   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)
   2004/11/01 00:00 - 2004/11/03 01:30
(100)

V Wind Component (1.35m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

V Wind Component (1.76m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

V Wind Component (3.95m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

V Wind Component (4.36m)
   2004/04/01 00:00 - 2004/12/31 23:30
(ALL)

V Wind Component (7.95m)
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(ALL)

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(ALL)

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(ALL)

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(ALL)

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(ALL)

V Wind Component (17.46m)
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   2004/04/11 02:30
   2004/05/24 03:00 - 2004/05/24 03:30 (2)
   2004/11/01 00:00 - 2004/11/03 01:30 (100)