TITLE: CAMP_NSCSSJ_TMEX_Alishan_20021001_20030331.stm.txt

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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Alishan | 23.51 | 120.80 | 2413 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

Format description:
http://www.eol.ucar.edu/projects/ceop/dm/documents/refdata_report/ceop_soils_format.html

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.

Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chengkung_20021001_20030331.stm.txt

CONTACT(S):

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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract

The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chengkung | 23.10 | 121.37 | 33.5 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chiayi_20021001_20030331.stm.txt

CONTACT(S):


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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chiayi | 23.50 | 120.42 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chutzehu_20021001_20030331.stm.txt

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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chutzehu | 25.16 | 121.54 | 607 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hengchun_20021001_20030331.stm.txt

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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hengchun | 22.00 | 120.74 | 22.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hsinchu_20021001_20030331.stm.txt

CONTACT(S):


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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hsinchu | 24.83 | 121.01 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable | Range | Units | Source Description |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hualien_20021001_20030331.stm.txt

CONTACT(S):

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| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |

DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract

The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hualien | 23.98 | 121.60 | 16.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Ilan_20021001_20030331.stm.txt

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| Tel.No. | +1-515-294-9874 | +1-886-3422-7151 ext. 65538 |
| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Ilan | 24.77 | 121.75 | 7.2 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Jiyuehtan_20021001_20030331.stm.txt

CONTACT(S):


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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Jiyuehtan | 23.88 | 120.90 | 1015 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable | Range | Units | Source Description |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Kaohsiung_20021001_20030331.stm.txt

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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Kaohsiung | 22.57 | 120.31 | 2.3 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Taichung_20021001_20030331.stm.txt

CONTACT(S):


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DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taichung | 24.15 | 120.68 | 84 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Taitung_20021001_20030331.stm.txt

CONTACT(S):


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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
03 August 2004

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The First half CEOP EOP-3 time period (01 October 2002 to 31 March 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taitung | 22.75 | 121.15 | 9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 4.0 QUALITY CONTROL PROCEDURES

PI performed visual checks on this data set.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.

J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Alishan_20030401_20030930.stm.txt

CONTACT(S):


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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Alishan | 23.51 | 120.80 | 2413 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermomater |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2003:
Variation of the East Asian summer monsoon rainfall.
J. Climate, (in review).

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chengkung_20030401_20030930.stm.txt

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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |

DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract

The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chengkung | 23.10 | 121.37 | 33.5 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
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J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chiayi_20030401_20030930.stm.txt

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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chiayi | 23.50 | 120.42 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Chutzehu_20030401_20030930.stm.txt

CONTACT(S):


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| Tel.No. | +1-515-294-9874 | +1-886-3422-7151 ext. 65538 |
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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chutzehu | 25.16 | 121.54 | 607 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

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J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hengchun_20030401_20030930.stm.txt

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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hengchun | 22.00 | 120.74 | 22.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hsinchu_20030401_20030930.stm.txt

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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hsinchu | 24.83 | 121.01 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable | Range | Units | Source Description |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Hualien_20030401_20030930.stm.txt

CONTACT(S):


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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hualien | 23.98 | 121.60 | 16.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

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## 8.0 REFERENCES:

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Diurnal variation of pressure heights: A vertical phase shift.
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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

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J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Ilan_20030401_20030930.stm.txt

CONTACT(S):


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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


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resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Ilan | 24.77 | 121.75 | 7.2 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

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## 8.0 REFERENCES:

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Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
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J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Jiyuehtan_20030401_20030930.stm.txt

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resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Jiyuehtan | 23.88 | 120.90 | 1015 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

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## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
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J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Kaohsiung_20030401_20030930.stm.txt

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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Kaohsiung | 22.57 | 120.31 | 2.3 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Taichung_20030401_20030930.stm.txt

CONTACT(S):


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| Tel.No. | +1-515-294-9874 | +1-886-3422-7151 ext. 65538 |
| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taichung | 24.15 | 120.68 | 84 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Taitung_20030401_20030930.stm.txt

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DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taitung | 22.75 | 121.15 | 9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Yushan_20030401_20030930.stm.txt

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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
24 January 2005

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the surface weather condition over Taiwan and on the global climate system have not been well explored. A mini-field experiment was designed and proposed to search for the

resolutions of these long-standing problems.

1.2 Time period covered by the data

The Latter half CEOP EOP-3 time period (01 April 2003 to 30 September 2003).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Yushan | 23.49 | 120.95 | 3845 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00m depth.

## 3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB, where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

TITLE: CAMP_NSCSSJ_TMEX_Alishan_20031001_20041231.stm.txt

CONTACT(S):


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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Alishan | 23.51 | 120.80 | 2413 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermomater |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2003:
Variation of the East Asian summer monsoon rainfall.
J. Climate, (in review).

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Alishan_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Chengkung_20031001_20041231.stm.txt

CONTACT(S):


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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chengkung | 23.10 | 121.37 | 33.5 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Chengkung_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Chiayi_20031001_20041231.stm.txt

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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |

DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract

The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chiayi | 23.50 | 120.42 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
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J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Chiayi_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Chutzehu_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
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| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
| Tel.No. | +1-515-294-9874 | +1-886-3422-7151 ext. 65538 |
| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Chutzehu | 25.16 | 121.54 | 607 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
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## 8.0 REFERENCES:

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J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
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J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Chutzehu_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Hengchun_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
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| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hengchun | 22.00 | 120.74 | 22.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

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An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

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J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Hengchun_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    2003/12/31 13:00

Soil Temperature (-0.20m)
    2003/12/31 13:00

Soil Temperature (-0.10m)
    2003/12/31 13:00

Soil Temperature (-0.05m)
    2003/12/31 13:00

Soil Temperature (0.00m)
    2003/12/31 13:00

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Hsinchu_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hsinchu | 24.83 | 121.01 | 26.9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

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Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Hsinchu_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Hualien_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


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surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Hualien | 23.98 | 121.60 | 16.1 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
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J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

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File Name   : CAMP_NSCSSJ_TMEX_Hualien_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Ilan_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


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surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Ilan | 24.77 | 121.75 | 7.2 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
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## 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
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## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

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Seasonal variation of rainfall in Taiwan.
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J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Ilan_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    2004/07/21 13:00 - 2004/07/22 06:00 (3)

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Jiyuehtan_20031001_20041231.stm.txt

CONTACT(S):


| Contact 1 | Contact 2 |
|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
| Tel.No. | +1-515-294-9874 | +1-886-3422-7151 ext. 65538 |
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| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Jiyuehtan | 23.88 | 120.90 | 1015 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

Chen, Tsing-Chang, Ming-Cheng Yen, and Siegfried Schubert, 2001:
Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Jiyuehtan_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Kaohsiung_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Kaohsiung | 22.57 | 120.31 | 2.3 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

## 8.0 REFERENCES:

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Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
An East-Asian cold surge: Case study.
Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Kaohsiung_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Taichung_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
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| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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| Fax.No. | +1-515-294-2619 | +1-886-3422-3283 |
| E-mail. | tmchen@iastate.edu | tyenmc@atm.ncu.edu.tw |


DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taichung | 24.15 | 120.68 | 84 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
Ministry of Transportation and Communications of Taiwan.

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Diurnal variation of pressure heights: A vertical phase shift.
J. Climate, Vol. 14, No. 17, 3793-3797.

Chen, Tsing-Chang, Ming-Cheng Yen, Wan-Ru Huang, and William A. Gallus, Jr., 2002:
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Mon. Wea. Rev., 130, 2271-2290.

Chen, Tsing-Chang, Shu-Yu Wang, Wan-Ru Huang, and Ming-Cheng Yen,, 2004:
Variation of the East Asian summer monsoon rainfall.
J. Climate, 17, 744-762.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
Inter. J. Climatol., 20, 803-809.

Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Taichung_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Taitung_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Taitung | 22.75 | 121.15 | 9 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00, 0.05, 0.10, 0.20, 0.30 depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
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Mon. Wea. Rev., 130, 2271-2290.

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Yen, Ming-Cheng, and Tsing-Chang Chen, 2000:
Seasonal variation of rainfall in Taiwan.
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Taitung_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (-0.30m)
    No missing data.

Soil Temperature (-0.20m)
    No missing data.

Soil Temperature (-0.10m)
    No missing data.

Soil Temperature (-0.05m)
    No missing data.

Soil Temperature (0.00m)
    No missing data.

Soil Moisture (-0.30m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.20m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.10m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (-0.05m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)

TITLE: CAMP_NSCSSJ_TMEX_Yushan_20031001_20041231.stm.txt

CONTACT(S):


| | Contact 1 | Contact 2 |
|---|---|---|
| Name | Tsing-Chang (Mike) Chen | Ming-Cheng Yen |
| Address | Depertment of Geological and Atmospheric Sciences<br>Iowa State University<br>3010 Agronomy Hall<br>Ames, IA 50011, USA | Depertment of Atmospheric Sciences<br>National Central University<br>Chung-Li 32054,<br>Taiwan |
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DATE OF THIS DOCUMENT
09 June 2006

1.0 DATA SET OVERVIEW:

1.1 Introduction or abstract


The winter weather system that affects Taiwan and its vicinity is characterized by the long rainy season over northern-northeastern Taiwan and frequent occurrence of cold surges, cold fronts and shallow Taiwan perturbations within the context of the East-Asian winter monsoon circulation. Since the Winter Monsoon Experiment (WMONEX), the causes of the long rainy season and formation of the Taiwan front and shallow perturbation have not been disclosed, and possible impacts of cold surges on the

surface weather condition over Taiwan and on the global climate system have not been
well explored. A mini-field experiment was designed and proposed to search for the
resolutions of these long-standing problems.

1.2 Time period covered by the data

The Full CEOP EOP-4 time period (01 October 2003 to 31 December 2004).

1.3 Temporal characteristics of the data
All parameters are recoded every 1 hour.

1.4 Physical location (including lat/lon/elev) of the measurement or platform

| Station name | Latitude decimal | Longitude decimal | Alt (m) | Measurement interval |
|---|---|---|---|---|
| Yushan | 23.49 | 120.95 | 3845 | 3 times / day |

1.5 Data source if applicable (e.g. for operational data include agency)

Original data provided by CWB (Central Weather Bureau) of Taiwan.

1.6 Any World Wide Web address references

http://tmex.atm.ncu.edu.tw/

2.0 INSTRUMENTATION DESCRIPTION:

Table : AWS Type of Data.

| Parameter/Variable Description | Range | Units | Source |
|---|---|---|---|
| Soil temperature | -50 - 50 | degC | thermometer |

Soil temperature at 0.00m depth.

3.0 DATA COLLECTION AND PROCESSING:

Data are downloaded from the AWS monthly. Then, data are sent to CWB,
where they are processed.

## 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.

## 5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

## 6.0 DATA REMARKS:

### 6.1 Missing data periods

The missin data periods are listed in chapter 9.0

## 7.0 REFERENCE REQUIREMENTS:

Original data was collected and is provided by CWB of Taiwan, funded by
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Diurnal variation of pressure heights: A vertical phase shift.
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Seasonal variation of rainfall in Taiwan.
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Yen, Ming-Cheng, and Tsing-Chang Chen, 2002:
A revisit of the tropical-midlatitude interaction in East Asia caused by cold surges.
J. Meteor. Soc. Japan, 80, 1115-1128.

## 9.0 MISSING DATA PERIODS

---

File Name   : CAMP_NSCSSJ_TMEX_Yushan_20031001_20041231.stm
Data Period : 2003/10/01 06:00 - 2004/12/31 21:00
---

Soil Temperature (0.00m)
    2003/11/26 13:00

Soil Moisture (0.00m)
    2003/10/01 06:00 - 2004/12/31 21:00 (ALL)