

First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) Langley DAAC Data Set Document



Summary:

The First ISCCP Regional Experiments have been designed to improve data products and cloud/radiation parameterizations used in general circulation models (GCMs). Specifically, the goals of FIRE are (1) to improve basic understanding of the interaction of physical processes in determining life cycles of cirrus and marine stratocumulus systems and the radiative properties of these clouds during their life cycles and (2) to investigate the interrelationships between the ISCCP data, GCM parameterizations, and higher space and time resolution cloud data.

To-date, four intensive field-observation periods were planned and executed: a cirrus IFO (October 13-November 2, 1986); a marine stratocumulus IFO off the southwestern coast of California (June 29-July 20, 1987) a second cirrus IFO in southeastern Kansas (November 13-December 7, 1991); and a second marine stratocumulus IFO in the eastern North Atlantic Ocean (June 1-June 28, 1992). Each mission combined coordinated satellite, airborne, and surface observations with modeling studies to investigate the cloud properties and physical processes of the cloud system.

All data sets discussed in this document were produced by Colorado State University (CSU). These data sets are:

- FIRE_CI2_CSU_PRT6
- FIRE_CI2_CSU_SONDES
- FIRE_CI2_CSU_STN1
- FIRE_CI2_CSU_STN2
- FIRE_CI2_CSU_WNDPRFS

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1. Data Set Overview:

Data Set Identification:



FIRE_CI2_CSU_PRT6:	First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) PRT-6 Data (FIRE_CI2_CSU_PRT6)
FIRE_CI2_CSU_SONDES:	First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) Rawinsonde Data (FIRE_CI2_CSU_SONDES)
FIRE_CI2_CSU_STN1:	First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) Station 1 Data (FIRE_CI2_CSU_STN1)
FIRE_CI2_CSU_STN2:	First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) Station 2 Data (FIRE_CI2_CSU_STN2)
FIRE_CI2_CSU_WNDPRFS:	First ISCCP Regional Experiment (FIRE) Cirrus 2 Colorado State University (CSU) Wind Profiler Data (FIRE_CI2_CSU_WNDPRFS)

Data Set Introduction:

FIRE_CI2_CSU_PRT6

The Colorado State radiometer data set was produced by the Department of Atmospheric Sciences of CSU as part of the FIRE 2 Cirrus Intensive Field Observations (IFO) conducted in Coffeyville, Kansas. The CSU PRT-6 data were collected during the period from Nov. 18, 1991 (day 322) to Dec. 7, 1991 (day 341) at the Parsons KG&E Power Plant, Parsons, Kansas (37 deg. 18 min. N and 95 deg. 07 min. W). The PRT-6 is an all-purpose chopped bolometer. It was operated with a 2 degree field of view pointing vertically upward. The filter employed narrowed the spectral band to ranges from about 885 to 945 inverse centimeters (the infrared window region). The PRT-6 was not run in continuous mode. When operating, data were sampled every 5 seconds. Please note that there are temporal gaps in the data.

FIRE_CI2_CSU_SONDES

The CSU sonde data were generated in support of the FIRE 2 Cirrus observation field experiment held in Coffeyville, Kansas during the period from 13 Nov. to 06 Dec. 1991 at the Parsons KG&E Power Plant. The data were collected at 37 deg. 18 min. N and 95 deg. 07 min. W, with a vertical resolution usually of roughly 5-10 m. They were provided to allow a calculation of an approximate location of the sonde.

FIRE_CI2_CSU_STN1

The CSU Station 1 surface radiation data set was produced by the Atmospheric Sciences Division of CSU in support of the FIRE 2 Cirrus IFO conducted in Coffeyville, Kansas. CSU Station 1 point data were collected every 2 minutes for the period from Nov. 11, 1991 (day 315) to Dec. 8, 1991 (day 342) at the Parsons KG&E Power Plant Parsons, Kansas (37 deg. 18 min. N and 95 deg. 07 min. W). NOTE: The 2 minute values were instantaneous readings.

FIRE_CI2_CSU_STN2

The CSU Station 2 surface radiation data set was collected every 2 minutes for the period from Nov. 13, 1991 through Dec. 8, 1991 at the Tri-City Airport, Parsons, Kansas (37 deg. 20 min. N, 95 deg. 30 min. 30 sec. W.) NOTE: the 2 minute values were instantaneous readings.

FIRE_CI2_CSU_WNDPRFS

The CSU wind profiler data set was produced by the Department of Atmospheric Sciences of CSU as part of the FIRE 2 Cirrus Intensive Field Observations (IFO) conducted in Coffeyville, Kansas. The CSU wind profiler data were collected during the period from Nov. 12, 1991 to Dec. 7, 1991 at the Parsons KG&E Power Plant, Parsons, Kansas (37 deg. 18 min. N and 95 deg. 07 min. W).

Objective/Purpose:

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Summary of Parameters:

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Discussion:

...

Related Data Sets:

...

2. Investigator(s):

Investigator(s) Name and Title:

...



Title of Investigation:

First ISCCP Regional Experiment (FIRE)

Contact Information:

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Email: JDAVIS@TRUENO.ATMOS.COLOSTATE.EDU

3. Theory of Measurements:

...

4. Equipment:

Sensor/Instrument Description:

Collection Environment:

...

Source/Platform:

FIRE_CI2_CSU_PRT6	GROUND STATION
FIRE_CI2_CSU_SONDES	GROUND STATION
FIRE_CI2_CSU_STN1	GROUND STATION
FIRE_CI2_CSU_STN2	GROUND STATION
FIRE_CI2_CSU_WNDPRFS	GROUND STATION

Source/Platform Mission Objectives:

...

Key Variables:

FIRE_CI2_CSU_PRT6	Brightness Temperature
FIRE_CI2_CSU_SONDES	Geopotential Height Humidity Pressure Temperature
FIRE_CI2_CSU_STN1	Humidity Irradiance Temperature Wind Direction Wind Speed
FIRE_CI2_CSU_STN2	Humidity Irradiance Temperature Wind Direction Wind Speed
FIRE_CI2_CSU_WNDPRFS	Ground Height Wind Speed



Principles of Operation:

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Sensor/Instrument Measurement Geometry:

...

Manufacturer of Sensor/Instrument:

...

Sensor/Instrument:

FIRE_CI2_CSU_PRT6	PRT-6
FIRE_CI2_CSU_SONDES	RAWINSONDE
FIRE_CI2_CSU_STN1	207 PROBE PYRANOMETER PYRGEOMETER PYRHELIOMETER WIND SENSOR
FIRE_CI2_CSU_STN2	207 PROBE PYRANOMETER PYRGEOMETER WIND SENSOR
FIRE_CI2_CSU_WNDPRFS	WIND PROFILER

Calibration:

Specifications:

...

Tolerance:

...

Frequency of Calibration:

...

Other Calibration Information:

...

5. Data Acquisition Methods:

...

6. Observations:

Data Notes:

...

Field Notes:

...

7. Data Description:

Spatial Characteristics:



Spatial Coverage:

Data Set Name	Min Lat	Max Lat	Min Lon	Max Lon
FIRE_CI2_CSU_PRT6	37.18	37.18	-95.07	-95.07
FIRE_CI2_CSU_SONDES	37.06	37.06	-95.07	-95.07
FIRE_CI2_CSU_STN1	37.18	37.18	-95.07	-95.07
FIRE_CI2_CSU_STN2	37.33	37.33	-95.50	-95.50
FIRE_CI2_CSU_WNDPRFS	37.18	37.18	-95.07	-95.07

Spatial Coverage Map:

There are no maps available for these data sets.

Spatial Resolution:

...

Projection:

...

Grid Description:

...

Temporal Characteristics:

Temporal Coverage:

Data Set Name	Begin Date	End Date
FIRE_CI2_CSU_PRT6	11-18-1991	12-07-1991
FIRE_CI2_CSU_SONDES	11-13-1991	12-06-1991
FIRE_CI2_CSU_STN1	11-11-1991	12-08-1991
FIRE_CI2_CSU_STN2	11-13-1991	12-08-1991
FIRE_CI2_CSU_WNDPRFS	11-12-1991	12-07-1991

Temporal Coverage Map:

There are no maps available for these data sets.

Temporal Resolution:

CSU sondes data set includes 16 granules. Each is named ci2_par_yymmdd. Each granule has one or multiple ASCII data files with the name "yymmdd.hhMM", where yy is the year, mm the month (only 11 and 12 are valid), dd the day, and hhMM the hour and minute when the data were collected. Data points with values of -9999 are considered bad.

Data Characteristics:

Parameter/Variable:

FIRE_CI2_CSU_PRT6



There are four variables in a record; variables are separated by white space(s). These variables with units and estimated precision (in units) are listed in order below.

MVariable Name	Precision	Min	Max
julian day (UTC)	0.0001157	1	365
hour-minute (UTC)	1	0	2359
second (UTC)	0.1	0	59.9
equivalent brightness temperature (K)	1	150	300

FIRE_CI2_CSU_SONDES

Variable Name	Precision	Min	Max
julian day (UTC)	0.0001157	1	365
hour (UTC)	1	0	23
minute (UTC)	1	0	59
second (UTC)	0.01	0	59.99
geopotential height (km)	0.01	0	50
pressure (mb)	1	5	1050
temperature (K)	0.5	183	323
relative humidity (%)	3	5	100
azimuth angle (deg)	0.5	0	360
elevation angle (deg)	0.5	-90	90

FIRE_CI2_CSU_STN1

A total of 19 variables in a record; variables are separated by white space(s). These variables with units and estimated precision (in units) are listed in order below.

Variable Name	Precision	Min	Max
time (fraction of julian day, UTC)	0.0001157	1	365
wind speed (m/s)	0.5	0	100
wind direction (degrees)	5.0	0	360
temperature (C)	0.2	-40	40
relative humidity (%)	5.0	0	100
solar total irradiance (W/m2)	5.0	0	1500
near infrared irradiance (W/m2)	5.0	0	1500
infrared irradiance (W/m2)	5.0	0	600
dome temperature (K)	0.2	233	313
sink temperature (K)	0.2	233	313
direct solar - yellow filter (W/m2) [20 sec]	5.0	0	1500
direct solar - red filter (W/m2) [43 sec]	5.0	0	1500
direct solar - dark red filter (W/m2) [67 sec]	5.0	0	1500
direct solar - no filter (W/m2) [90 sec]	5.0	0	1500
direct solar - no filter	5.0	0	1500



(W/m2) [20 sec]			
direct solar - no filter	5.0	0	1500
(W/m2) [43 sec]			
direct solar - no filter	5.0	0	1500
(W/m2) [67 sec]			
direct solar - no filter	5.0	0	1500
(W/m2) [90 sec]			
hour-minute (hhmm UTC)	0.16667	0	240

NOTE: Variables 14 and 18 have the same name. The data producer explained as follows: There were two pyrhemometers tracking the sun; one had a filter wheel and the other did not. The two identical variables are different because they come from 2 different pyrhemometers though they are measuring the same thing at the same time. The second variable is the non-filtered pyrhemometer.

FIRE_CI2_CSU_STN2

A total of 11 variables in a record; variables are separated by white space(s). These variables with units and estimated precision (in units) are listed in order below.

Variable Name	Precision	Min	Max
time (fraction of julian day, UTC)	0.0001157	0	367
wind speed (m/s)	0.5	0	100
wind direction (degrees)	5.0	0	360
temperature (C)	0.2	-40	40
relative humidity (%)	5.0	0	100
solar total irradiance (W/m2)	5.0	0	1500
near infrared irradiance (W/m2)	5.0	0	1500
infrared irradiance (W/m2)	5.0	0	600
dome temperature (K)	0.2	233	313
sink temperature (K)	0.2	233	313
hour-minute (hhmm UTC)	0.16667	0	2400

FIRE_CI2_CSU_WINDPRFS

There are four variables in the data; variables are separated by white spaces. The Fortran format for the data variables is: (I2,F7.3,2F10.3). These variables with units and estimated precision (in units) are listed in order below.

Variable Name	Precision	Min	Max
minute	1	0	59
height (km above MSL)	n/a	n/a	n/a
u-wind (m/s)	n/a	n/a	n/a
v-wind (m/s)	n/a	n/a	n/a

Variable Description/Definition:

See above.

Unit of Measurement:

See above.

Data Source:

See above.



Data Range:

See above.

Sample Data Record:

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8. Data Organization:**Data Granularity:**

A general description of data granularity as it applies to the IMS appears in the [EOSDIS Glossary](#).

Data Format:

All data are in ASCII format.

9. Data Manipulations:**Formulae:****Derivation Techniques and Algorithms:**

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Data Processing Sequence:**Processing Steps:**

...

Processing Changes:

...

Calculations:**Special Corrections/Adjustments:**

...

Calculated Variables:

...

Graphs and Plots:

There are no graphs or plots available for these browse images.

10. Errors:**Sources of Error:**

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Quality Assessment:**Data Validation by Source:**

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Confidence Level/Accuracy Judgement:

...

Measurement Error for Parameters:

...

Additional Quality Assessments:

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Data Verification by Data Center:

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11. Notes:

Limitations of the Data:

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Known Problems with the Data:

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Usage Guidance:

...

Any Other Relevant Information about the Study:

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12. Application of the Data Set:

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13. Future Modifications and Plans:

There are no plans for future modifications of these data sets.

14. Software:

Software Description:

There are sample read software available for these data sets.

Software Access:

The software can be obtained through the Langley DAAC. Please refer to the contact information below. The software can also be obtained at the same time the user is ordering these data sets.

15. Data Access:

Contact Information:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov
URL: <http://eosweb.larc.nasa.gov>

Data Center Identification:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D



Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov
URL: <http://eosweb.larc.nasa.gov>

Procedures for Obtaining Data:

The Langley DAAC Information Management System (IMS) is an on-line system that features a graphical user interface (GUI) that allows to query the Langley DAAC data set holdings, to view pre-generated browse products, and to order specific data products. Users may also request data by letter, telephone, electronic mail (INTERNET), or personal visit.

The Langley DAAC User and Data Services (UDS) staff provides technical and operational support for users ordering data. The Langley DAAC Handbook is available in a postscript file through the IMS for users who want detailed information about the Langley DAAC holdings. Users may also obtain a copy by contacting:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov
URL: <http://eosweb.larc.nasa.gov>

Data Center Status/Plans:

The Langley DAAC will continue to archive this data. There are no plans to reprocess.

16. Output Products and Availability:

There are no output products available at this time.

17. References:

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18. Glossary of Terms:

[EOSDIS Glossary.](#)

19. List of Acronyms:

NASA - National Aeronautics Space Administration
URL - Uniform Resource Locator

[EOSDIS Acronyms.](#)

20. Document Information:

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