

First ISCCP Regional Experiment (FIRE) Cirrus 2 Mesoscale Analysis and Prediction System (MAPS) 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.

This document will provide information for the FIRE_CI2_MAPS data set.

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1. Data Set Overview:

Data Set Identification:

FIRE_CI2_MAPS:

First ISCCP Regional Experiment (FIRE) Cirrus 2 Mesoscale Analysis and Prediction System (MAPS) Data (FIRE_CI2_MAPS)



Data Set Introduction:

MAPS refers to both a data analysis system and a numerical forecast model developed by the National Oceanic and Atmospheric Administration (NOAA) Forecast Systems Laboratory (FSL). The analysis system combines profiler, ACARS, surface and radiosonde data with the previous 3 hour MAPS model forecast to generate an analysis every 3 hours. The parameters available are Pressure, Montgomery Streamfunction, Virtual Potential Temperature, Condensation Pressure, and Wind Speed.

Objective/Purpose:

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Summary of Parameters:

Montgomery Streamfunction
Pressure
Temperature
Wind Speed

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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Mail Stop 245-5
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3. Theory of Measurements:

...

4. Equipment:

Sensor/Instrument Description:

Collection Environment:

...

Source/Platform:

MODEL

Source/Platform Mission Objectives:

...



Key Variables:

Montgomery Streamfunction
Pressure
Temperature
Wind Speed

Principles of Operation:

...

Sensor/Instrument Measurement Geometry:

...

Manufacturer of Sensor/Instrument:

...

Sensor/Instrument:

ANALYSIS

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_MAPS	20.09	57.67	-136.46	-60.83



Spatial Coverage Map:

...

Spatial Resolution:

...

Projection:

...

Grid Description:

...

Temporal Characteristics:**Temporal Coverage:**

Data Set Name	Begin Date	End Date
FIRE_CI2_MAPS	11-12-1991	12-08-1991

Temporal Coverage Map:

...

Temporal Resolution:

...

Data Characteristics:**Parameter/Variable:**

Each MAPS data analysis file contains a sequence of two-dimensional horizontal fields for the 6 variables at the 25 vertical coordinates. The sequence for the vertical levels is: sigma = 1, 0.8, 0.6, 0.4, 0.2, 0.0, then virtual theta = 272, 280, 286, 292, 296, 300, 304, 308, 312, 316, 320, 325, 330, 335, 342, 350, 360, 380, and 410 K. These variables with units and the allowable min and max values are listed in order below.

Variable Name	Min	Max
Pressure (mb)	50	1500
Montgomery Streamfunction/g (m)	26000	4000
Virtual Potential	250	420
Temperature (Deg K)		
Condensation pressure (mb)	50	1400
U-Wind (m/s)	-120	120
V-Wind (m/s)	-120	120

Variable Description/Definition:

See above.

Unit of Measurement:

See above.



Data Source:

...

Data Range:

...

Sample Data Record:

...

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

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

Each MAPS analysis file contains 65250 lines and 7608900 bytes in ASCII format. The file naming convention for the MAPS analysis files is: ci2_maps_yymmdd_hh, where yy is the year, mm the month, dd the day, and hh the starting hour when the data were collected. Some of the MAPS data information files are listed below.

- data_catalog_maps - Verbose explanation of the MAPS data
- data_catalog_mapslatlon - Verbose explanation of the MAPS latlon file
- data_catalog_mapsterrain - Verbose explanation of the MAPS terrain file
- maps_extremes.list - List of min & max values (in integer values) for each variable in the MAPS data files
- mapsterrain.dat - The 2-D topography field describing the terrain height, which is not included in each MAPS data file
- mapsstat.dat - The statistical evaluation result of the MAPS analyses valid at 00Z and 12Z compared with NGM products, persistence and radiosonde data
- mapslatlon.dat - MAPS latitude and longitude data

MAPS uses an 81 (x direction) x 62 (y direction) horizontal Cartesian mesh with 60 km grid spacing on an Arakawa-A grid which has all variables defined at each grid node. The information for each horizontal field consists of a header line containing the name of the variable and the vertical coordinate, followed by 62 groups of 81 field values.

Each group of 81 field values represents one x direction row of grid node values, beginning with the southernmost row in the domain, and proceeding northward with succeeding groups. The 81 values are ordered from the west to the east edges of the grid domain, and are listed in the file using 13 numbers per line, with the last line in each group containing 3 values. There are 10 characters per field value, and each value is right-justified with 3 decimal digits following an explicit decimal point, as in Fortran f10.3 format. Hence, the very first field value will be the pressure on the sigma=1 surface at the southwest corner of the domain. The very last field value will be the V wind component on the virtual theta=410K surface at the northeast corner of the domain.

Data Format:

...

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

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Data Processing Sequence:**Processing Steps:**

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Processing Changes:

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Calculations:

Special Corrections/Adjustments:

...

Calculated Variables:

...

Graphs and Plots:

Browse image files are available for each data granule. These image files are in Hierarchical Data Format (HDF).

10. Errors:

Sources of Error:

...

Quality Assessment:

Data Validation by Source:

...

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:

Sample read software is available for this data set.

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 this data set.

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:

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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 browse images that provide additional information for each granule. The browse image files are written in Hierarchical Data Format (HDF). These files can be obtained through the Langley DAAC.



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:

Document Revision Date:

October 07, 1996; May 28, 1997; November 24, 1997

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Document ID:

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Citation:

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Document Curator:

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