

# First ISCCP Regional Experiment (FIRE) Cirrus 1 NASA ER-2 Radiance Langley DAAC Data Set Document



## Summary:

The First ISCCP Regional Experiments (FIRE) 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 provides information for the FIRE\_C11\_ER2\_RAD data set.

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## 1. Data Set Overview:

### Data Set Identification:

FIRE\_C11\_ER2\_RAD:

First ISCCP Regional Experiment (FIRE) Cirrus 1 NASA ER-2  
Radiance Data Set Document (FIRE\_C11\_ER2\_RAD)

### Data Set Introduction:



Project FIRE (First ISCCP Regional Experiment) is a U.S. cloud climatology research program to validate and improve ISCCP (International Satellite Cloud Climatology Project) data products and cloud/radiation parameterizations used in general circulation models (GCMs).

The primary emphasis of FIRE is the study of marine stratocumulus and cirrus cloud systems. These two cloud types were selected because of their recognized importance for global climate and their scientific appeal for many members of the scientific community.

### **Objective/Purpose:**

The objective of FIRE is to investigate the cloud properties and physical processes of the cloud systems using combined and coordinated satellite, airborne, and surface observations with modeling studies.

The goals of FIRE are (1) to improve the 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.

### **Summary of Parameters:**

Brightness Temperature  
Radiance  
Solar Radiation

### **Discussion:**

...

### **Related Data Sets:**

...

## **2. Investigator(s):**

### **Investigator(s) Name and Title:**

Francisco Valero  
NASA Ames Research Center  
Moffett Field, California

### **Title of Investigation:**

First ISCCP Regional Experiment (FIRE)

### **Contact Information:**

Francisco Valero  
NASA Ames Research Center  
Moffett Field, CA 94035  
Telephone:  
FAX:  
E-mail:

## **3. Theory of Measurements:**

...

## **4. Equipment:**

### **Sensor/Instrument Description:**

### **Collection Environment:**

...



**Source/Platform:**

NASA ER2

**Source/Platform Mission Objectives:**

...

**Key Variables:**

Brightness Temperature  
Radiance  
Solar Radiation

**Principles of Operation:**

...

**Sensor/Instrument Measurement Geometry:**

...

**Manufacturer of Sensor/Instrument:**

...

**Sensor/Instrument:**

Radiometer

**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_CI1_ER2_RAD	39.80	48.00	-100.00	-88.33

#### Spatial Coverage Map:

There are no maps available for this data set.

#### Spatial Resolution:

16.6 Degree Full Conical FOV

#### Projection:

...

#### Grid Description:

...

#### Temporal Characteristics:

##### Temporal Coverage:

Data Set Name	Begin Date	End Date
FIRE_CI1_ER2_RAD	10-13-1986	11-02-1986

#### Temporal Coverage Map:

There are no maps available for this data set.

#### Temporal Resolution:

0.5 Hertz

#### Data Characteristics:

##### Parameter/Variable:

This data set contains 22 binary data files.

All records and parameters within this data set have been defined, including their minimum and maximum values, in the header file.

In the header file, the record name is the same for both records that are defined. Both records are declared as having 32 bytes. The first record declared only uses 28 bytes and the other four bytes are padded with zeroes. In the second record, only 8 bytes are defined and the last twenty bytes are padded with zeroes. The first record that is listed in the header file starts with .004 and following that file is the second record in file .005. This continues throughout all of the data files. The DAAC recommends that when you are testing/using these data, please break up the header file to have only one record defined in the file that you plan to work with (since same record name). Just make sure that all files with the even ending number (in the original file name) use the first record and all files with the odd ending file number (in the original file name) use the second record.

The fill value number that we have been working with is the maximum 4-byte integer word size of 2147483647.

The ASCII header record in each data record file was set to 160 bytes.

A few GMT dates located within the ASCII header record in every binary data file had blanks instead of zeroes within the dates.

There were no problems with values being out of the minimum/maximum range.



**Variable Description/Definition:**

...

**Unit of Measurement:**

...

**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](#).

**Data Format:**

The data are in native binary data format (Standard Data Format, SDF).

## **9. Data Manipulations:**

**Formulae:**

**Derivation Techniques and Algorithms:**

...

**Data Processing Sequence:**

**Processing Steps:**

...

**Processing Changes:**

...

**Calculations:**

**Special Corrections/Adjustments:**

...

**Calculated Variables:**

...

**Graphs and Plots:**

Images are not available for this data set.

## **10. Errors:**

**Sources of Error:**

...



## Quality Assessment:

### Data Validation by Source:

...

### Confidence Level/Accuracy Judgement:

...

### Measurement Error for Parameters:

...

### Additional Quality Assessments:

...

### Data Verification by Data Center:

The Langley DAAC performs an inspection process on this data received by the data producer via ftp. The DAAC checks to see if the transfer of the data completed and were delivered in their entirety. An inspection software was developed by the DAAC to see if the code was able to read every granule. The code also checks to see if every parameter of data falls within the ranges which are included in the granule. This same code extracts the metadata required for ingesting the data into the IMS. If any discrepancies are found, the data producer is contacted. The discrepancies are corrected before the data are archived at the DAAC.

## 11. Notes:

### Limitations of the Data:

...

### Known Problems with the Data:

...

### Usage Guidance:

...

### Any Other Relevant Information about the Study:

...

## 12. Application of the Data Set:

...

## 13. Future Modifications and Plans:

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

## 14. Software:

### Software Description:

Sample read software are available.

### 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](mailto:support-asdc@earthdata.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](mailto:support-asdc@earthdata.nasa.gov)

### **Procedures for Obtaining Data:**

The data are available from the [Langley Data Center web site](#).

### **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 for this data set.

## **17. References:**

Sorlie, S., February 1993. "Langley DAAC Handbook." NASA Langley Research Center, Hampton, Virginia.

## **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:**

August 15, 1997; November 24, 1997; July 1999

### **Document Review Date:**

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### **Document ID:**

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### **Citation:**

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### **Document Curator:**

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