

# First ISCCP Regional Experiment (FIRE) Cirrus 2 Spectral Radiance Experiment (SPECTRE) SIRIS High Resolution Emission 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 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.

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\_CI2\_SPECT\_SIRIS data set.

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## 1. Data Set Overview:

### Data Set Identification:

**FIRE\_CI2\_SPECT\_SIRIS:**

First ISCCP Regional Experiment (FIRE) Cirrus 2 Spectral Radiance  
Experiment (SPECTRE) SIRIS High Resolution Emission Data  
(FIRE\_CI2\_SPECT\_SIRIS)



## Data Set Introduction:

SPECTRE/SIRIS high spectral resolution observations were obtained at Coffeyville, Kansas in November - December 1991. The SIRIS instrument has been previously flown for balloon-borne studies of stratospheric chemistry relevant to the ozone cycles. It is a modified version of a Bomem continuously scanning Fourier transform spectrometer, operating in emission mode. The following instrument parameters were applicable for the Coffeyville SPECTRE campaign. The field-of-view, 0.5 degrees full width at half-maximum, was directed towards the zenith, except for a day when limb were recorded. The highest emission-mode spectral resolution recorded during SPECTRE was taken by SIRIS 0.06 cm<sup>-1</sup>, apodized. Scan times varied from one to a few minutes, depending on the resolution. The instrument was run at ambient temperature, with the Si:Ga detectors at liquid helium (LHe) temperature. Data are limited by photon noise from the emission from the instrument and from the atmosphere itself. Therefore data were recorded with two different width bandpasses: 1) narrow bandpass cooled filters in channels 1-4, which reduces the background noise, yielding higher signal-to-noise; and 2) wide band in channel 5 for more complete spectral coverage.

It was the goal of SPECTRE to acquire clear-sky radiance spectra under a variety of temperature and water vapor conditions.

## Objective/Purpose:

...

## Summary of Parameters:

Radiance

## 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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## 3. Theory of Measurements:

...

## 4. Equipment:

### Sensor/Instrument Description:

### Collection Environment:



...

**Source/Platform:**

GROUND STATION

**Source/Platform Mission Objectives:**

...

**Key Variables:**

...

**Principles of Operation:**

...

**Sensor/Instrument Measurement Geometry:**

...

**Manufacturer of Sensor/Instrument:**

...

**Sensor/Instrument:**

SIRIS

**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_SPEC T_SIRIS	37.10	37.10	-95.35	-95.35

**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_SPEC_T_SIRIS	11-25-1991	12-07-1991

**Temporal Coverage Map:**

There are no maps available for these data sets.

**Temporal Resolution:**

...

**Data Characteristics:**

**Parameter/Variable:**

...

**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 format.

## 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:

...

### 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 to modify 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](mailto: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](mailto: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 dataset 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](mailto: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:

...

## 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

### Document Review Date:

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### Document ID:

...

### Citation:

...

### Document Curator:

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