

First ISCCP Regional Experiment (FIRE) Cloud Lidar System 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.

This document provides information for the following data sets.

- FIRE_AX_ER2_LIDAR
- FIRE_MS_ER2_LIDAR
- FIRE_CI2_ER2_LIDAR

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1. Data Set Overview:

Data Set Identification:

FIRE_AX_ER2_LIDAR:

First ISCCP Regional Experiment (FIRE) Atlantic Stratocumulus Transition Experiment (ASTEX) NASA ER-2 Cloud Lidar System Data

FIRE_MS_ER2_LIDAR:

First ISCCP Regional Experiment (FIRE) Marine Stratocumulus NASA ER-2 Cloud Lidar System Data

FIRE_CI2_ER2_LIDAR:

First ISCCP Regional Experiment (FIRE) Cirrus 2 NASA ER-2 Cloud Lidar System Data



Data Set Introduction:

FIRE_AX_ER2_LIDAR

The development of parameterizations requires an understanding of the processes that generate, maintain, and dissipate boundary layer clouds. This development is currently impeded by lack of understanding of the transition from stratocumulus clouds to trade cumulus clouds and the factors that control cloud type and amount in the boundary layer. ASTEX was designed to address key issues related to stratocumulus to trade cumulus transition and mode selection. ASTEX involved intensive measurements from several platforms operating from June 1-28, 1992 in the area of the Azores and Madeira Islands. The purpose was to study how the transition and mode selection are effected by 1) cloud-top entrainment instability, 2) diurnal decoupling and clearing due to solar absorption, 3) patchy drizzle and a transition to horizontally inhomogeneous clouds through decoupling, 4) mesoscale variability in cloud thickness and associated mesoscale circulations, and 5) episodic strong subsidence lowering the inversion below the LCL. Detailed descriptions of the scientific goals of ASTEX are in the FIRE Phase II: Research plan (1989) and in the ASTEX Operations Plan (1992).

The Cloud Lidar System (CLS) instrument was flown aboard the NASA ER-2 airplane. This instrument was used to determine cloud altitudes. Information pertaining to the number of cloud layers detected; the heights of the boundaries for up to 5 cloud layers; geo-physical location information; and time were recorded.

Four channels of data were recorded. The first channel recorded wavelengths at 532 nanometers in the parallel plane. The second channel recorded wavelengths of 532 nanometers in the perpendicular plane. The third channel recorded wavelengths of 1064 nanometers total. The fourth channel was a linear amplifier which received the digitized signal from one of the three previously mentioned CLS detectors.

The data are organized so that there is a single header record for the file. This header record is followed by a series of pairs of records. The first record of each pair contains the CLS calibrated data and the second record of the pair contains the CLS analyzed data.

FIRE_MS_ER2_LIDAR

This data set contains cloud top height and ground height calculations from the NASA ER-2 Cloud Lidar System (CLS). These data were collected during the FIRE Marine Stratocumulus experiment in June and July 1987 off the southwest coast of California. The parameters collected included time, position, and plane height. Undetected cloud tops and ground heights are signified by values of -9.9 after decoding.

FIRE_CI2_ER2_LIDAR

This data set contains cloud top height and ground height calculations from the NASA ER-2 Cloud Lidar System (CLS). These data were collected during the FIRE Cirrus II experiment conducted in southeastern Kansas in November and December 1991.

Objective/Purpose:

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:

Clouds
Ground Height

Discussion:

...

Related Data Sets:

...

2. Investigator(s):

Investigator(s) Name and Title:

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Title of Investigation:

First ISCCP Regional Experiment (FIRE)

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3. Theory of Measurements:

...

4. Equipment:**Sensor/Instrument Description:****Collection Environment:**

...

Source/Platform:

NASA ER2

Source/Platform Mission Objectives:

...



Key Variables:

Clouds
Ground Height

Principles of Operation:

...

Sensor/Instrument Measurement Geometry:

...

Manufacturer of Sensor/Instrument:

...

Sensor/Instrument:

LIDAR

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:**

<u>Data Set Name</u>	<u>Min Lat</u>	<u>Max Lat</u>	<u>Min Lon</u>	<u>Max Lon</u>
FIRE_AX_ER2_L IDAR	30.56	39.90	-27.53	-15.41
FIRE_MS_ER2_ LIDAR	30.30	39.86	-124.97	-118.37
FIRE_CI2_ER2_	27.00	38.00	-99.00	-90.00



LIDAR

Spatial Coverage Map:

...

Spatial Resolution:

75m Vertical

Projection:

...

Grid Description:

...

Temporal Characteristics:

Temporal Coverage:

<u>Data Set Name</u>	<u>Begin Date</u>	<u>End Date</u>
FIRE_AX_ER2_LIDAR	06-02-1992	06-23-1992
FIRE_MS_ER2_LIDAR	07-08-1987	07-18-1987
FIRE_CI2_ER2_LIDAR	11-24-1991	12-07-1991

Temporal Coverage Map:

...

Temporal Resolution:

FIRE_AX_ER2_LIDAR: 1 second
FIRE_MS_ER2_LIDAR: 2 to 4 hours
FIRE_CI2_ER2_LIDAR: 1 second

Data Characteristics:

Parameter/Variable:

FIRE_AX_ER2_LIDAR

A total of eleven data files were created with data recorded between the periods of June 2, 1992 through June 23, 1992.

VARIABLES:

- FILE HEADER RECORD:
 - CLS DATA START TIME(UT)
 - CLS DATA END TIME(UT)
 - ER2 SORTIE START JULDAY(UT)
 - ER2 SORTIE END JULDAY(UT)
 - ER2 SORTIE NUMBER
 - DETECTOR NUMBER IN CHANNEL 1 POSITION
 - DETECTOR NUMBER IN CHANNEL 2 POSITION
 - DETECTOR NUMBER IN CHANNEL 3 POSITION
 - DETECTOR NUMBER IN CHANNEL 4(LINEAR AMP)
 - PRODUCTION DATE&TIME
 - FLIGHT NUMBER
 - CALENDAR/JULIAN DATE
 - SENSOR PACKAGE
 - AREA COVERED



- AIRCRAFT #
- MISSION SCIENTIST

- SENSOR DATA:
 - SENSOR TYPE
 - SENSOR ID #
 - QUALITY
 - REMARKS

- ANALYZED CLS DATA PRODUCTS INCLUDED ON THIS TAPE:
 - NUMBER OF CLOUD LAYERS;
 - BOUNDARIES FOR UP TO FIVE LAYERS;
 - EARTH'S SURFACE DETECTION FLAG.

- CLS CALIBRATED SIGNAL HEADER:
 - NAVIGATION SERIAL NUMBER
 - AM OR PM INDICATOR
 - TIME STATUS
 - JULIAN DATE
 - TIME OF DAY
 - LATITUDE IN 1/100 DEGREE
 - LONGITUDE IN 1/100 DEGREE
 - NORTH SOUTH SPEED IN 1/10 KNOTS
 - EAST WEST SPEED IN 1/10 KNOTS
 - TRUE HEADING IN 1/100 DEGREES
 - GROUND SPEED IN 1/10 KNOTS
 - TOTAL TEMPERATURE (CELSIUS)
 - ER2 ALTITUDE IN FEET
 - TRUE AIR SPEED IN 1/10 KNOTS
 - ER2 PITCH IN 1/100 DEGREES
 - ER2 ROLL IN 1/100 DEGREES
 - 15 CLS ENGINEERING VALUES
 - 1064NM SHOT ENERGY
 - POD ROLL IN 1/100 DEGREES
 - POD PITCH IN 1/100 DEGREES
 - SHOT NUMBER
 - 532NUM ENERGY
 - CLS OPERATIONS FLAGS
 - INVALID SHOT AVERAGE - ONE VALUE PER CHANNEL
 - AVERAGED PRETRIGGER SIGNALS
 - AVERAGED BACKGROUND SIGNALS
 - 1665 Values per channel for AVERAGED CLS Backscatter

- CLS ANALYZED DATA RECORD
 - time in hours, UT from ER2 INS
 - decimal latitude; to 1/100 degree;INS
 - decimal longitude;1/100 degree;INS
 - ER2 pressure altitude;1/100 kms. INS
 - ER2 aircraft roll; 1/100 degrees, INS
 - Number of cloud layers detected;<=5~
 - Ground detection flag;1=TRUE;0=FALSE
 - top and bottom of detected layer 1
 - top and bottom of detected layer 2
 - occasional annotation of time,hhmmss
 - time in hours;matches time UT from ER2 INS above
 - top and bottom of detected layer 3
 - top and bottom of detected layer 4
 - top and bottom of detected layer 5
 - departure of height of earth's surface from 0

FIRE_MS_ER2_LIDAR

Data unavailable at this time.

FIRE_CI2_ER2_LIDAR



Data unavailable at this time.

Variable Description/Definition:

See above.

Unit of Measurement:

See above.

Data Source:

...

Data Range:

...

Sample Data Record:

FIRE_AX_ER2_LIDAR

```
***** CLS DATA FILE HEADER RECORD *****
095942      = CLS DATA START TIME(UT)
103220      = CLS DATA END TIME(UT)
   154      = ER2 SORTIE START JULDAY(UT)
   154      = ER2 SORTIE END JULDAY(UT)
  92102     = ER2 SORTIE NUMBER
    2      = DETECTOR NUMBER IN CHANNEL 1 POSITION
    1      = DETECTOR NUMBER IN CHANNEL 2 POSITION
    3      = DETECTOR NUMBER IN CHANNEL 3 POSITION
    1      = DETECTOR NUMBER IN CHANNEL 4(LINEAR AMP)
AT GSFC;PRODUCTION DATE&TIME->02/27/94 14:13:02.37
FLIGHT NUMBER      92102
CALENDAR/JULIAN DATE: 02 JUNE 1992/154
SENSOR PACKAGE:    MODIS-N AIRBORNE SIMULATOR(MAS)
                   RADIATION MEASUREMENT SYSTEM(RAMS)
                   CLOUD LIDAR SYSTEM(CLS)
                   EO CAMERA(EOC)
AREA COVERED:     N35.65->N37.07;W23.53->W22.12
AIRCRAFT #:       709
MISSION SCIENTIST: DR. DOUG JOHNSON
                   SENSOR DATA
SENSOR TYPE        SENSOR ID #      QUALITY    REMARKS
MAS                108             EXCEPTIONALLY GOOD SATURATION 0.875&3.73
                   CLIPPING 0.66 &8.56
RAMS               112             NO DATA    DATA SYSTEM FAILED
CLS                113             WEAK SIGNAL ALIGNMENT PROBLEMS
                   PERMIT ONLY CLOUD TOP
                   ALTITUDE DETERMINATION.
EOC                WORKED          SOME SATURATION ALL
                   CHANNELS;50M RESOLUTION
ANALYZED CLS DATA PRODUCTS INCLUDED ON THIS TAPE:
NUMBER OF CLOUD LAYERS;BOUNDARIES FOR UP TO FIVE LAYERS;
EARTH'S SURFACE DETECTION FLAG.
```

***** CLS Calibrated Signal Header Info RECORD #2*****

```
2 = NAVIGATION SERIAL NUMBER
0 = AM OR PM INDICATOR
0 = TIME STATUS
154 = JULIAN DATE
95946 = TIME OF DAY
3569 = LATITUDE IN 1/100 DEGREE
-2296 = LONGITUDE IN 1/100 DEGREE
3947 = NORTH SOUTH SPEED IN 1/10 KNOTS
1173 = EAST WEST SPEED IN 1/10 KNOTS
1554 = TRUE HEADING IN 1/100 DEGREES
```

4118 = GROUND SPEED IN 1/10 KNOTS
 -10000 = TOTAL TEMPERATURE (CELSIUS)
 64731 = ER2 ALTITUDE IN FEET
 4062 = TRUE AIR SPEED IN 1/10 KNOTS
 7 = ER2 PITCH IN 1/100 DEGREES
 -40 = ER2 ROLL IN 1/100 DEGREES
 ===== 15 CLS ENGINEERING VALUES =====
 770 1022 1038 9 1228
 10 1520 -1526 146 1372
 626 564 566 -4 576
 196 = 1064NM SHOT ENERGY
 0 = POD ROLL IN 1/100 DEGREES
 0 = POD PITCH IN 1/100 DEGREES
 51 = SHOT NUMBER
 413 = 532NUM ENERGY
 255 = CLS OPERATIONS FLAGS
 ===== INVALID SHOT AVERAGE - ONE VALUE PER CHANNEL =====
 1 1 1 3
 ===== AVERAGED PRETRIGGER SIGNALS =====
 1.5079E-03 6.3016E-03 8.7147E+00 -2.0640E-03
 ===== AVERAGED BACKGROUND SIGNALS =====
 2.1436E-03 7.1894E-03 8.4650E-04 -2.4116E-03

 ===== 1665 Values per channel for AVERAGED CLS Backscatter =====

index	CHANNEL 1				
0	8.4308E-04	4.9380E-03	-1.8858E-03	-9.2203E-04	-1.6869E-04
5	-7.0689E-05	-7.3354E-04	-1.5062E-03	-4.9332E-04	-1.7197E-03
10	4.3103E-04	-1.2211E-03	-1.2180E-03	-2.7291E-03	-1.5963E-03
15	-1.7299E-03	-1.5739E-03	-1.3503E-03	-8.2801E-04	-1.3640E-03
20	-1.1796E-03	1.7261E-03	-2.5359E-04	-4.7111E-04	-6.9147E-04
25	-1.1439E-03	1.4621E-03	-1.7648E-03	-1.1713E-03	-4.6966E-04
30	-2.9315E-04	2.4222E-03	-3.1640E-04	-2.6955E-03	-4.3762E-04
35	-2.5573E-04	3.7569E-03	-1.9315E-03	-2.2198E-03	-1.2983E-03
40	8.2592E-04	-9.8094E-04	-2.5618E-03	5.6668E-03	-1.8927E-03
45	-4.6350E-04	-1.2301E-03	8.0708E-04	-8.6965E-04	-1.0384E-03
50	3.5790E-04	-8.7837E-04	-1.9121E-04	-1.7694E-03	-2.1647E-03
55	-5.9363E-04	4.3800E-04	-8.0856E-04	2.2112E-03	-5.0229E-04
60	4.5192E-04	1.6861E-03	3.6659E+00	7.9257E-01	1.9313E-06
65	1.3506E-06	1.3193E-06	2.0267E-06	2.2749E-06	1.9432E-06
70	1.7160E-06	1.7641E-06	1.1562E-06	8.9084E-07	7.3870E-07
75	7.7091E-07	6.8146E-07	4.7499E-07	3.8507E-07	2.5030E-07
80	9.2536E-08	6.4713E-08	4.5407E-07	7.6855E-07	8.7231E-07
85	1.5438E-07	-1.3749E-07	2.6332E-07	2.8895E-08	1.9981E-07
90	5.8701E-07	2.6149E-07	-7.3537E-08	5.0027E-07	9.(757)1E-07
95	1.7742E-06	1.0962E-06	-5.2195E-07	-5.3693E-08	-4.5350E-07
100	6.9151E-07	1.5196E-06	2.7034E-06	1.1420E-07	-1.3669E-06
105	-1.1489E-06	-1.2951E-06	-5.5098E-07	-1.1753E-06	5.8224E-06
110	1.4193E-06	-2.9824E-06	-1.7593E-06	2.3439E-07	5.9709E-06
115	-3.0982E-06	9.2011E-07	-1.3485E-06	-1.5668E-06	-3.3970E-06
120	-6.4501E-07	-3.4807E-06	4.8599E-07	-2.4012E-06	-2.8381E-06
125	-9.6922E-07	3.4280E-06	-3.0530E-06	-5.3922E-06	-1.8217E-06
130	-2.3135E-06	1.1714E-05	2.1356E-06	-3.8874E-06	9.7178E-06
135	-5.6492E-07	-2.7451E-09	1.6640E-06	5.7706E-06	5.9947E-07
140	2.0663E-05	-9.9076E-07	-6.8950E-06	-2.0694E-06	3.3072E-06
145	3.1594E-06	-6.0740E-06	-4.7849E-06	-4.0602E-06	2.8084E-06
150	1.0944E-05	-6.0829E-06	-6.6539E-06	-2.9714E-06	-9.0946E-06
155	-1.0596E-05	9.4806E-07	-2.7105E-06	1.9314E-06	7.7806E-06
160	-4.1664E-06	-1.3356E-05	-1.2165E-05	-8.5381E-06	-1.0928E-05
165	-7.0657E-06	-1.4182E-05	6.9555E-08	-5.9716E-06	3.9491E-06
170	3.7063E-06	-1.2573E-05	-1.1847E-05	-3.5396E-06	-6.0093E-06
175	-8.0495E-06	1.1982E-05	9.0137E-07	-1.1016E-05	-4.5098E-06
180	-1.2460E-05	1.2585E-05	-1.4777E-05	-3.6335E-06	-1.7896E-06
185	-3.7081E-06	-4.0561E-06	-1.3619E-05	-1.8157E-05	-1.4535E-05
190	-1.4287E-05	4.1082E-06	-6.3165E-06	3.8872E-06	-8.4186E-06
195	-5.8436E-06	-1.6460E-05	-6.2806E-06	3.5157E-06	1.9352E-05
200	-1.5219E-05	-2.3023E-05	-5.3937E-06	5.3888E-07	-2.6825E-05
205	-1.3987E-05	2.4602E-05	-4.5829E-06	-2.2262E-05	-1.8864E-05
210	-5.5770E-06	-1.7436E-05	-2.4343E-05	-1.9523E-05	-2.3250E-05

215	2.0634E-05	4.1271E-05	-2.0886E-05	-1.5191E-05	-2.1839E-05
220	-1.0214E-06	-1.0045E-05	-2.0888E-05	-6.5506E-06	-4.0048E-06
225	-2.7174E-05	-1.0142E-05	-1.5732E-05	-3.0361E-05	-1.1393E-05
230	3.1280E-06	-7.5394E-06	-1.7234E-05	-1.8442E-05	-2.0434E-05
235	-1.5801E-05	-1.4953E-05	7.8887E-05	-3.3444E-05	8.6990E-05
240	-8.8889E-06	-2.7069E-05	1.0629E-05	-7.2874E-06	1.9270E-06
245	-1.5051E-05	-4.9463E-05	-2.7933E-05	1.3301E-05	-5.6810E-06
250	-1.8606E-05	-4.1800E-06	-1.8105E-05	-1.3600E-05	4.6313E-06
255	-2.6505E-05	-3.2467E-05	2.1468E-05	-3.7909E-05	2.7085E-05
260	-1.9979E-05	-3.4796E-05	1.9242E-04	-3.5594E-07	-4.2271E-06
265	6.4794E-05	9.1040E-05	-1.5312E-05	-4.8284E-05	-5.6349E-05
270	-2.6996E-05	1.0016E-06	1.0560E-04	-2.8930E-05	-1.8952E-05
275	3.4756E-05	1.7509E-05	1.1452E-05	-3.5840E-05	-1.5587E-05
280	-7.5106E-06	8.1624E-06	-1.0149E-06	-1.9356E-05	-1.5971E-06
285	-2.6091E-05	-8.8995E-06	-5.9448E-05	-2.1184E-05	-3.8538E-05
290	-2.1214E-05	-3.3533E-06	9.4075E-06	2.2999E-05	-4.5330E-05
295	-4.0557E-05	-5.1667E-06	1.6824E-05	1.9417E-05	-5.2358E-05
300	-6.0930E-05	-2.9224E-05	1.3564E-05	-2.9933E-05	6.1289E-05
305	3.2062E-05	9.4140E-05	8.7187E-06	5.9726E-05	-1.5002E-05
310	6.4009E-06	2.2933E-05	-4.3785E-05	2.9638E-05	-2.4256E-05
315	-2.1405E-06	3.2407E-05	-7.5623E-05	-1.0362E-05	1.9735E-04
320	1.7905E-04	8.0901E-05	-4.6560E-05	-5.4270E-05	-1.9203E-05
325	-5.2978E-05	-6.9381E-05	2.4344E-06	-1.3679E-05	-4.7783E-05
330	-9.6690E-05	-1.6299E-05	-2.2005E-05	-3.4395E-05	-4.1816E-05
335	-5.4112E-05	5.7234E-05	5.1191E-05	-9.2931E-05	-1.4586E-05

----- and so on for a total of 1655 values for each of the four channels. -----

----- This is followed by the second record of the Calibrated Signal and Analyzed Data record pairs as shown below -----

***** CLS ANALYZED DATA RECORD #3 *****

9.9961 = time in hours, UT from ER2 INS
 35.69 = decimal latitude; to 1/100 degree;INS
 -22.96 =decimal longitude;1/100 degress;INS
 19.73 = ER2 pressure altitude;1/100 kms. INS
 -0.40 = ER2 aircraft rool; 1/100 degrees, INS
 2 = Number of cloud layers detected;<=5~
 0 = Ground detection flag;1=TRUE;0=FALSE
 14.990 14.885 = top and bottom of detected layer 1
 1.190 1.070 = top and bottom of detected layer 2
 095946 = occasional annotation of time,hhmmss
 9.9961 = time in hours;matches time UT from ER2 INS above
 -3.000 -3.000 = top and bottom of detected layer 3
 -3.000 -3.000 = top and bottom of detected layer 4
 -3.000 -3.000 = top and bottom of detected layer 5
 -9.900 = departure of height of earth's surface from 0

FIRE_MS_ER2_LIDAR

Data unavailable at this time.

FIRE_CI2_ER2_LIDAR

Data unavailable at this time.

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 these data sets.

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 data received by the data producer via ftp. The DAAC checks to see if the data transfer completed and the data were delivered in their entirety. An inspection software was developed by the DAAC to make sure every granule is readable. The code also checks to see if every data value falls within the range specified by the data producer. 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:

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Known Problems with the Data:

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Usage Guidance:

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Any Other Relevant Information about the Study:

...

12. Application of the Data Set:

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 to investigate the interrelationships between the ISCCP data, GCM parameterizations, and higher space and time resolution cloud data.

13. Future Modifications and Plans:

There are no plans to modify these data sets.

14. Software:

Software Description:

Sample read software are 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

Data Center Identification:

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NASA Langley Research Center
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Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov

Procedures for Obtaining Data:

The Langley DAAC provides multiple interfaces to access its data holdings. The graphical and character user interfaces allow users to search and order data; and web interfaces allow direct access to some data holdings for immediate downloading or placing media orders, for



searching the data holdings, and downloading electronically available holdings, and for ordering prepackaged CD-ROMs and videocassettes. All of these methods are easily obtained from the [Langley DAAC web site](#).

Data Center Status/Plans:

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

16. Output Products and Availability:

There are no output products available at this time.

17. References:

A Bibliography for the FIRE Project can be found on the [FIRE Home Page](#).

18. Glossary of Terms:

[EOSDIS Glossary](#).

19. List of Acronyms:

[EOSDIS Acronyms](#).

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