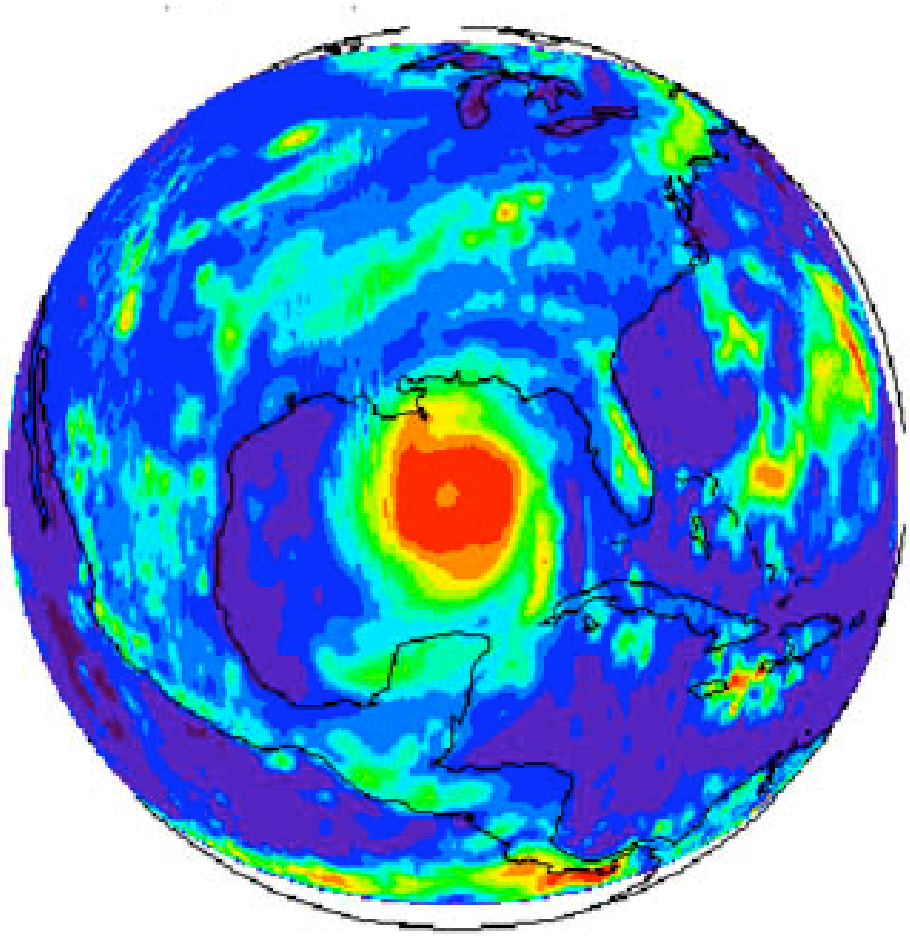
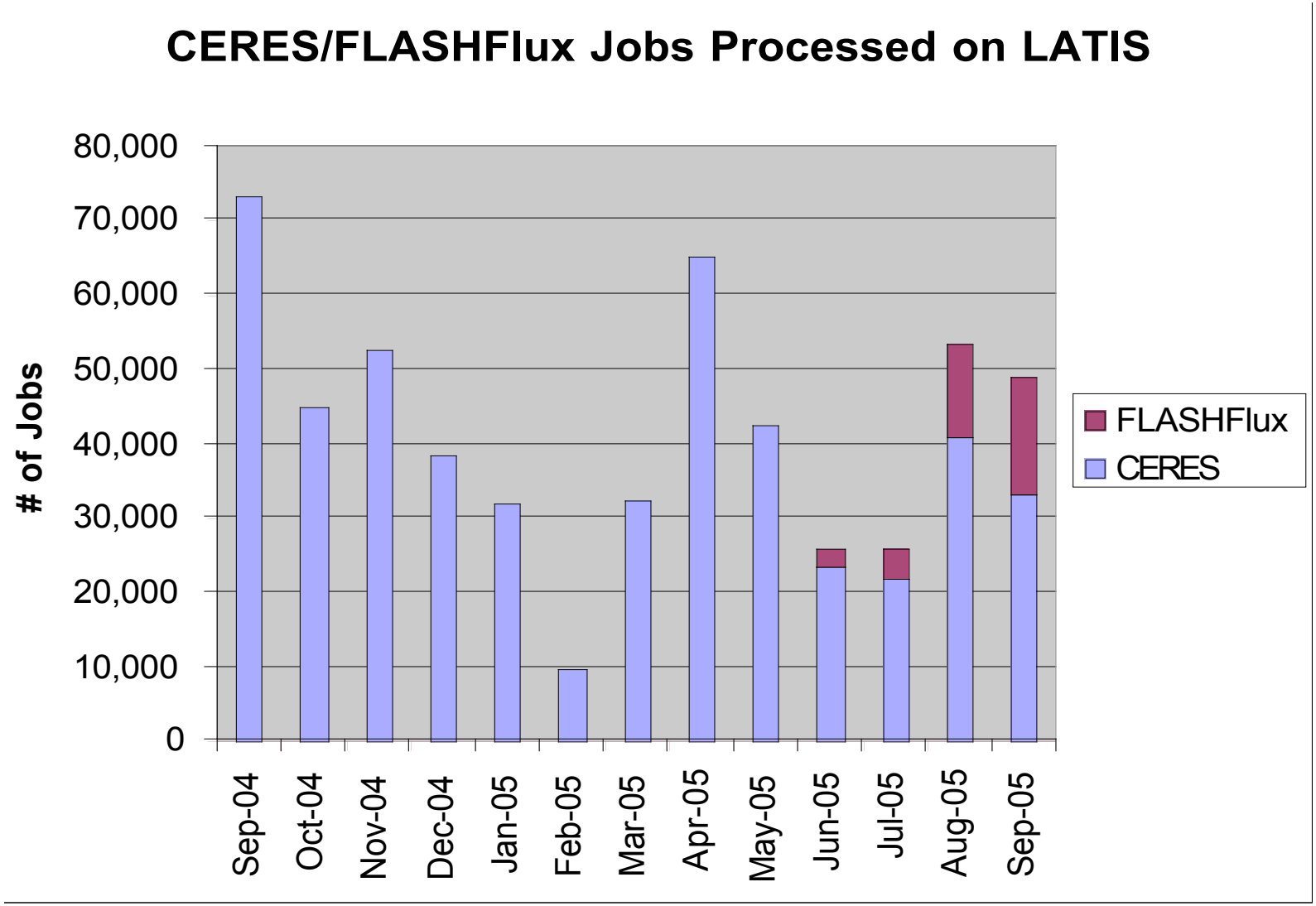
Atmospheric Sciences Data Center

Processing, archiving, and distributing Earth Science data

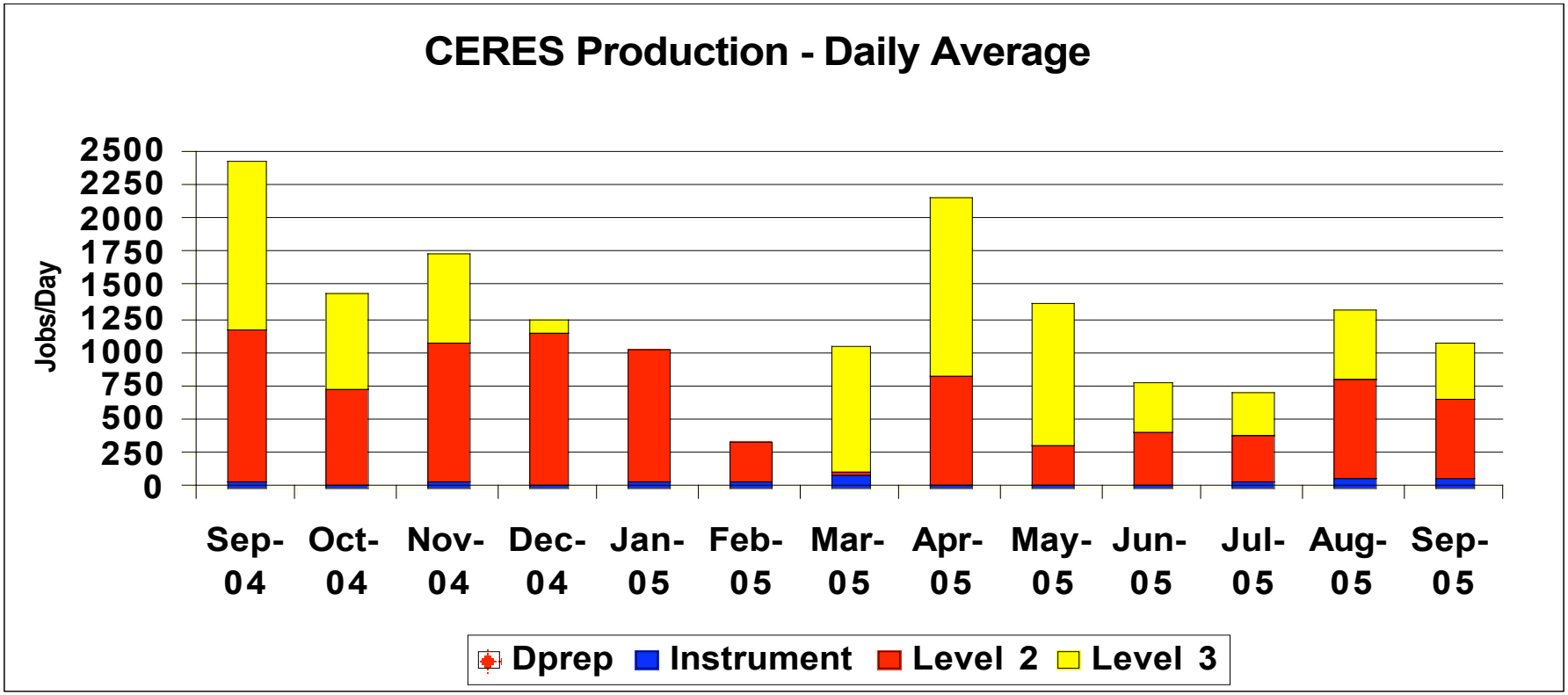


Edward A. Kizer

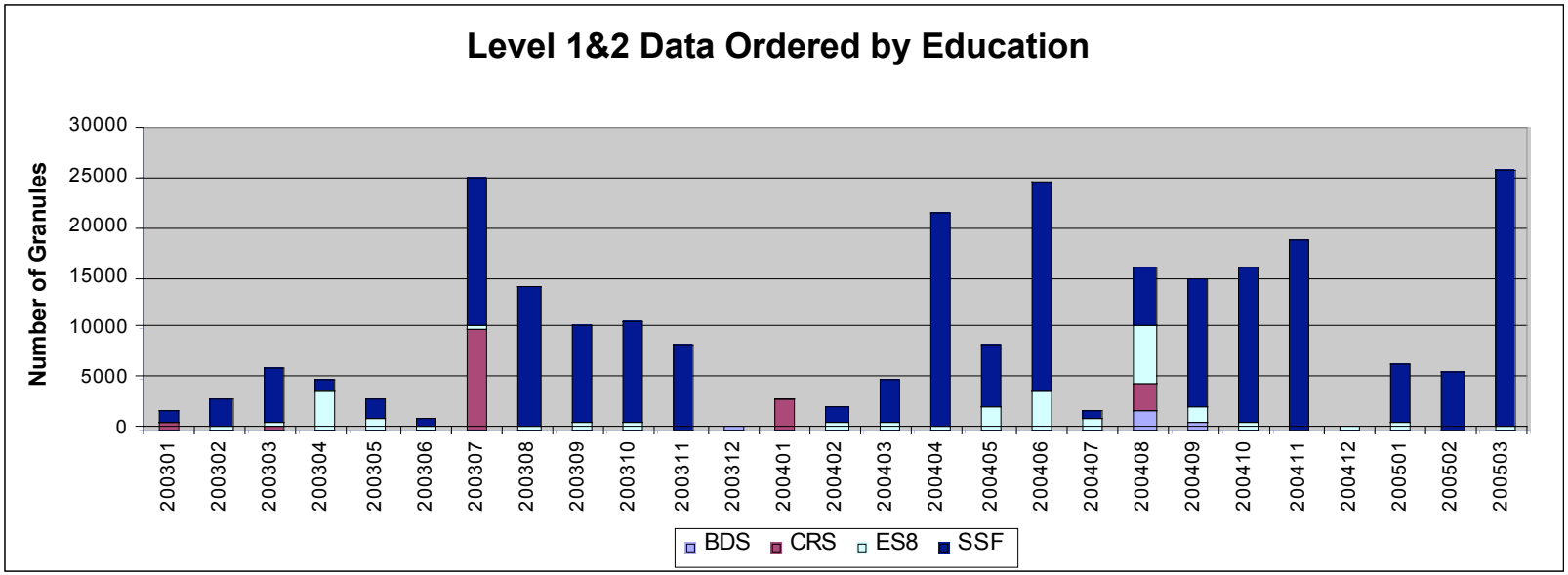
CERES Science Team
November 1-3, 2005


CERES/FLASHFlux Jobs Processed on LATIS
# of Jobs
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Sep-04
Oct-04
Nov-04
Dec-04
Jan-05
Feb-05
Mar-05
Apr-05
May-05
Jun-05
Jul-05
Aug-05
Sep-05
FLASHFlux
CERES

11/1/2005


CERES Production - Daily Average
Jobs/Day
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
Sep-04
Oct-04
Nov-04
Dec-04
Jan-05
Feb-05
Mar-05
Apr-05
May-05
Jun-05
Jul-05
Aug-05
Sep-05
Dprep
Instrument
Level 2
Level 3

11/1/2005


Level 1&2 Data Ordered by Education
Number of Granules
30000
25000
20000
15000
10000
5000
0
200301
200302
200303
200304
200305
200306
200307
200308
200309
200310
200311
200312
200401
200402
200403
200404
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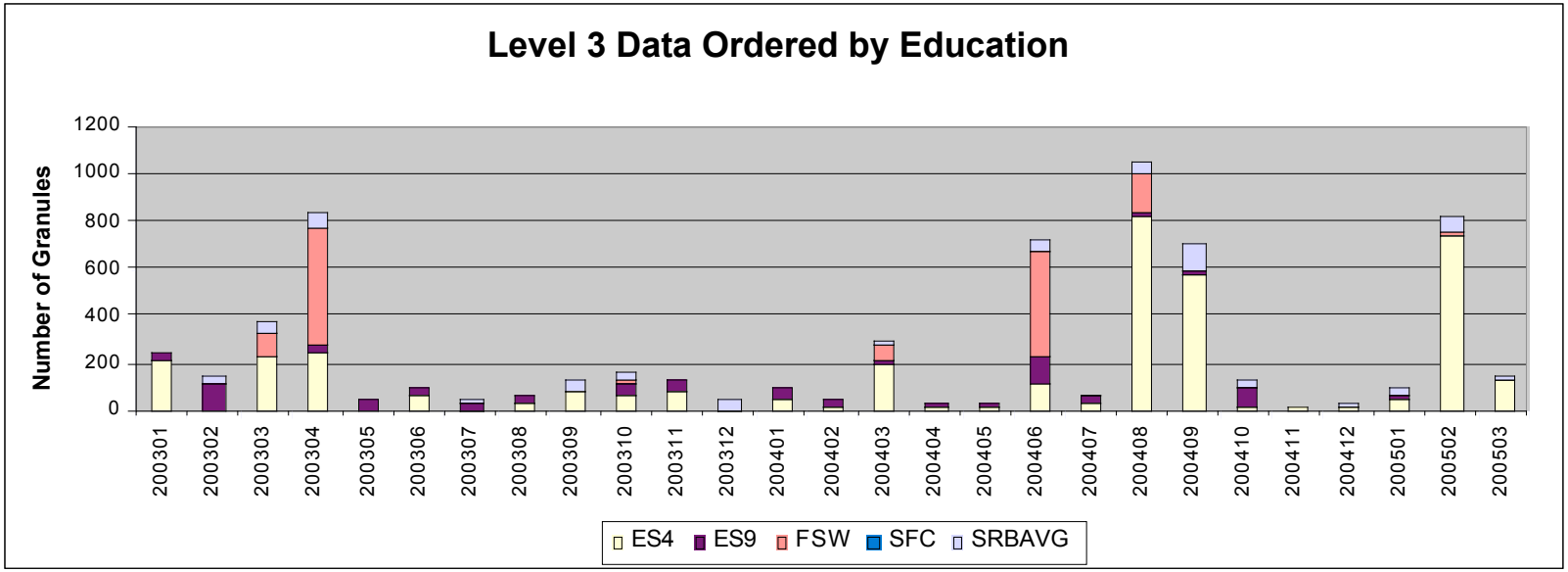
200501
200502
200503
BDS
CRS
ES8
SSF


Level 3 Data Ordered by Education
Number of Granules
1200
1000
800
600
400
200
0
200301
200302
200303
200304
200305
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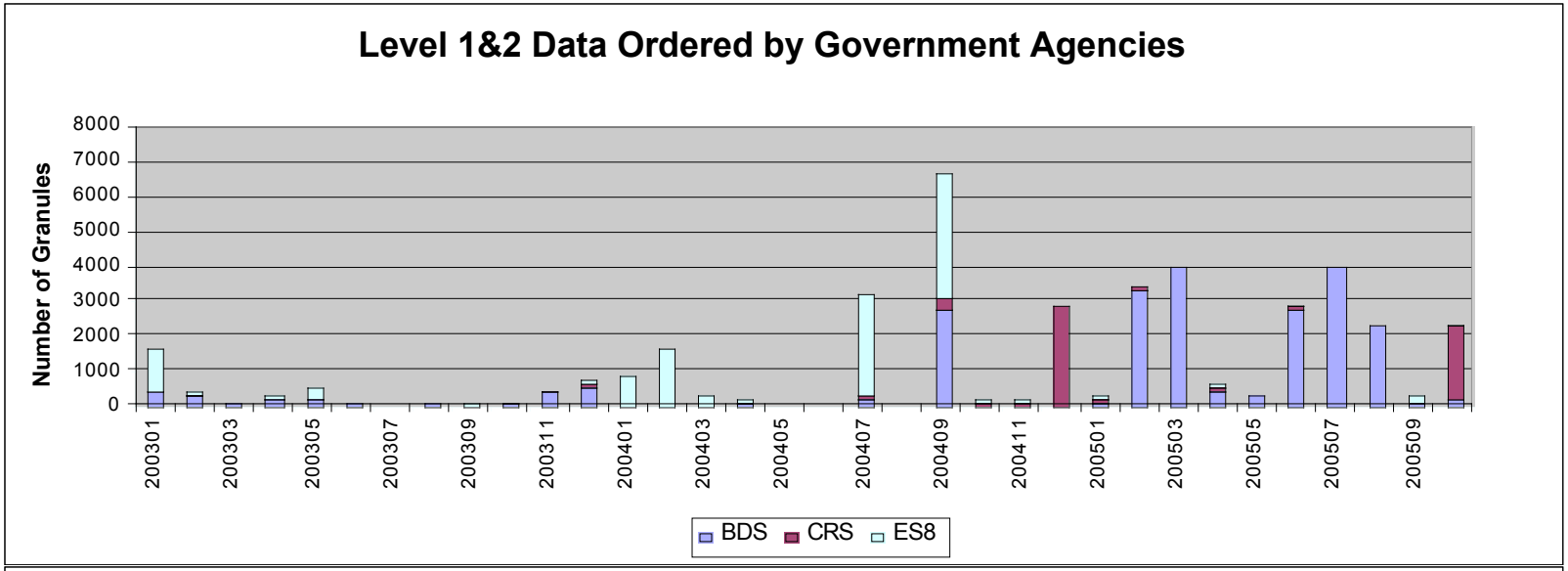
200307
200308
200309
200310
200311
200312
200401
200402
200403
200404
200405
200406
200407
200408
200409
200410
200411
200412
200501
200502
200503
ES4
ES9
FSW
SFC
SRBAVG

11/1/2005


Level 1&2 Data Ordered by Government Agencies
Number of Granules
8000
7000
6000
5000
4000
3000
2000
1000
0
200301
200303
200305
200307
200309
200311
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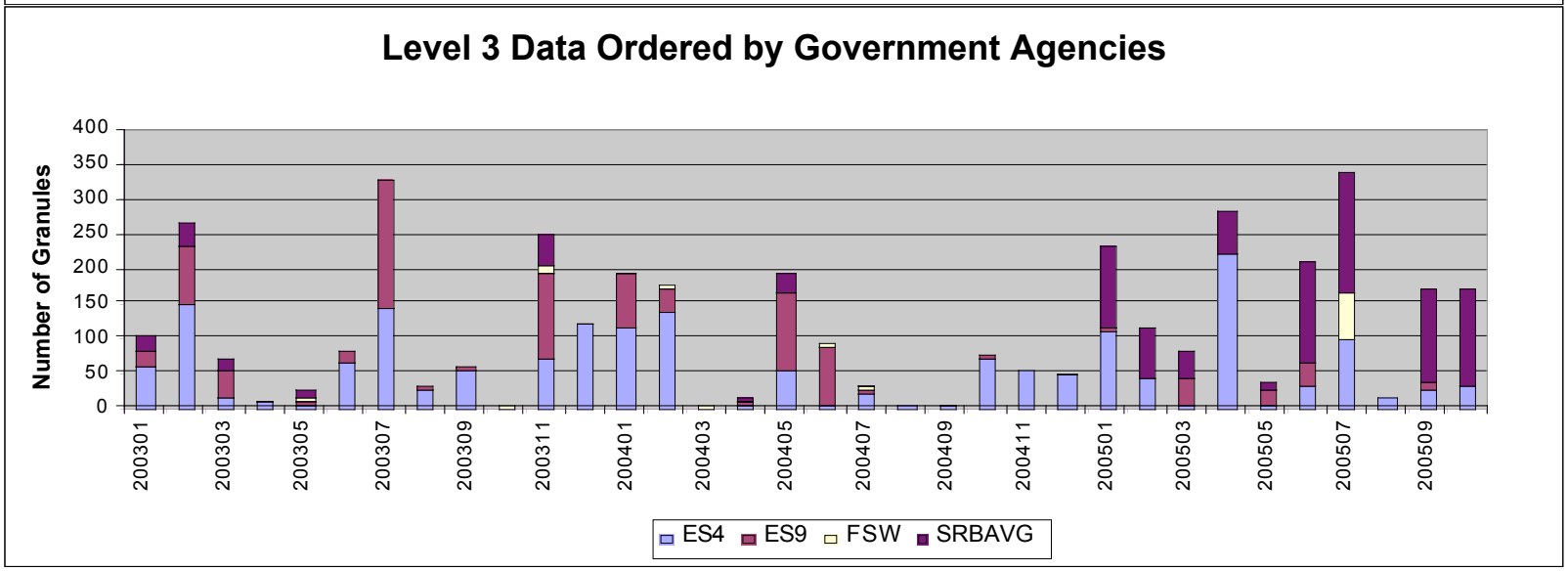
200507
200509
BDS
CRS
ES8


Level 3 Data Ordered by Government Agencies
Number of Granules
400
350
300
250
200
150
100
50
0
200301
200303
200305
200307
200309
200311
200401
200403
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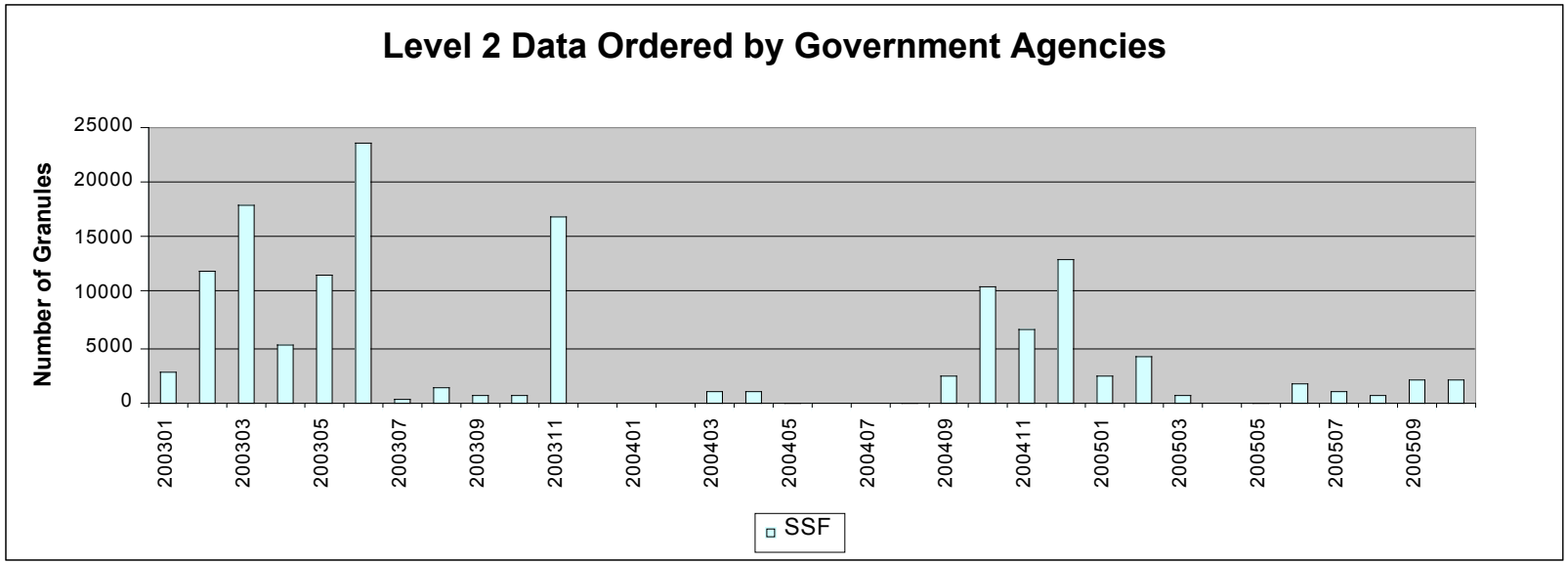
ES4
ES9
FSW
SRBAVG

11/1/2005


Level 2 Data Ordered by Government Agencies
Number of Granules
25000
20000
15000
10000
5000
0
200301
200303
200305
200307
200309
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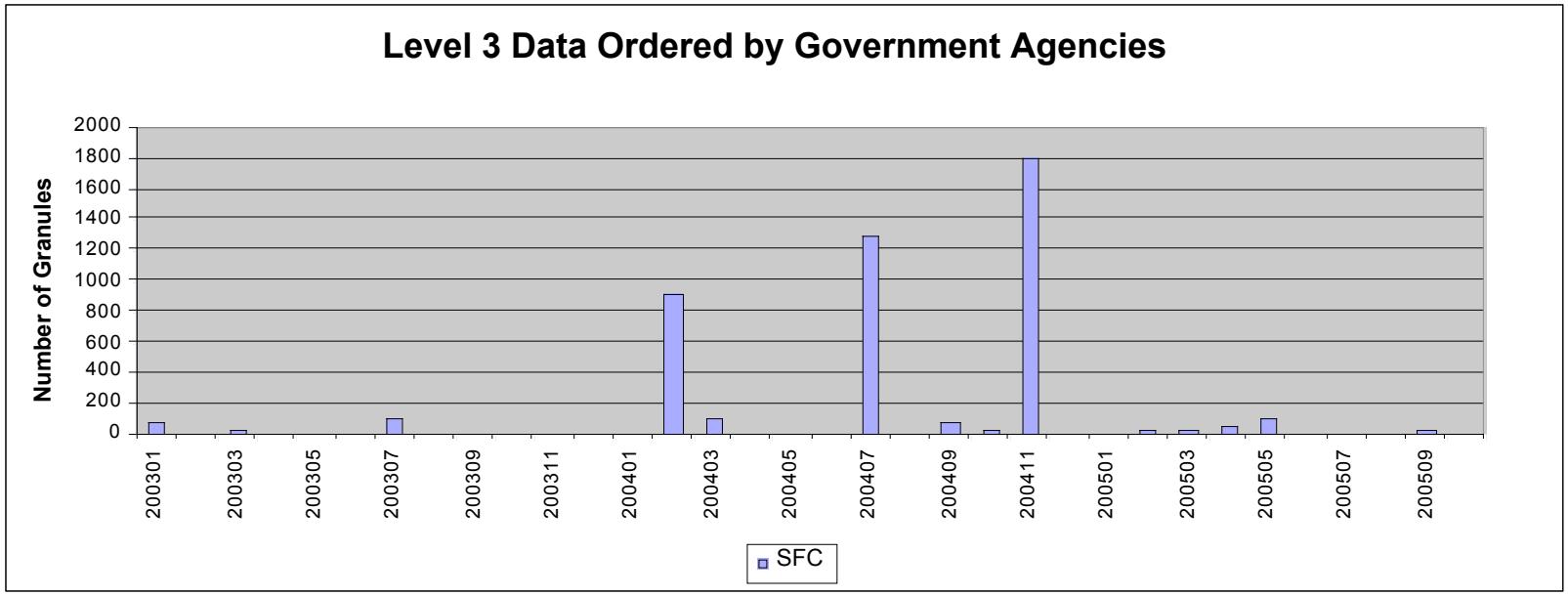
200503
200505
200507
200509
SSF


Level 3 Data Ordered by Government Agencies
Number of Granules
2000
1800
1600
1400
1200
1000
800
600
400
200
0
200301
200303
200305
200307
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200311
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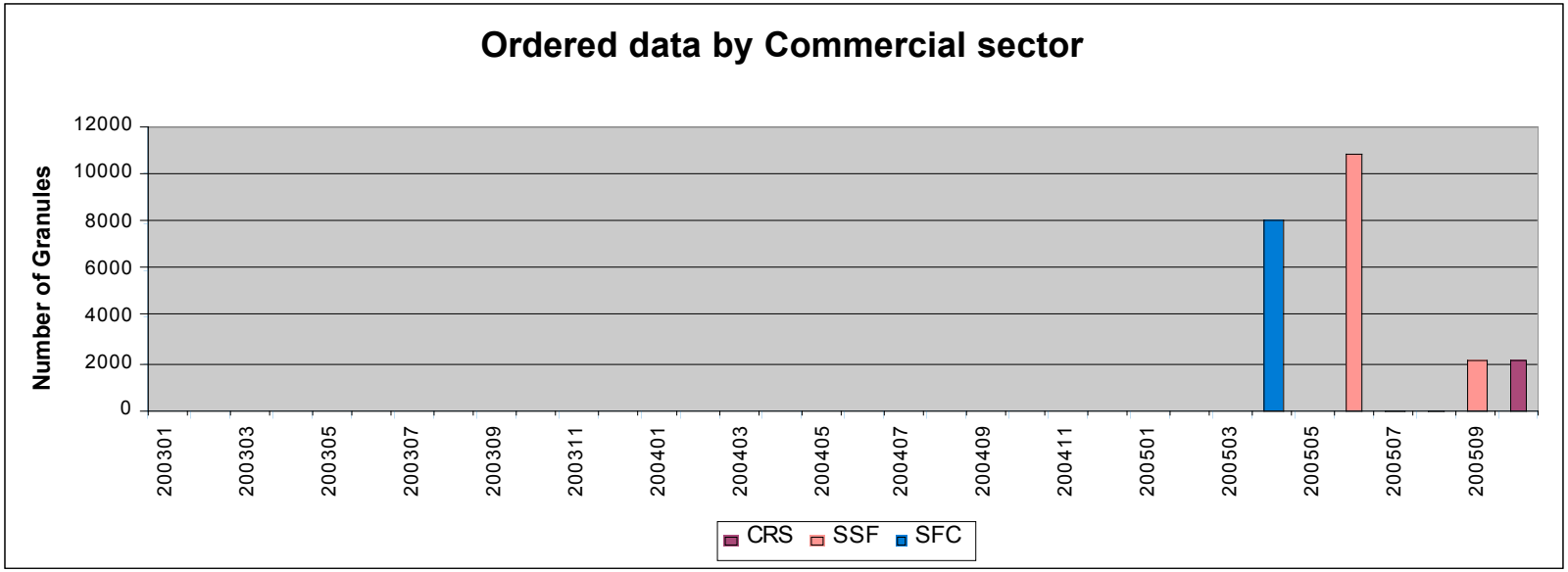
200405
200407
200409
200411
200501
200503
200505
200507
200509
SFC

11/1/2005


Ordered data by Commercial sector
Number of Granules
12000
10000
8000
6000
4000
2000
0
200301
200303
200305
200307
200309
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200401
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200405
200407
200409
200411
200501
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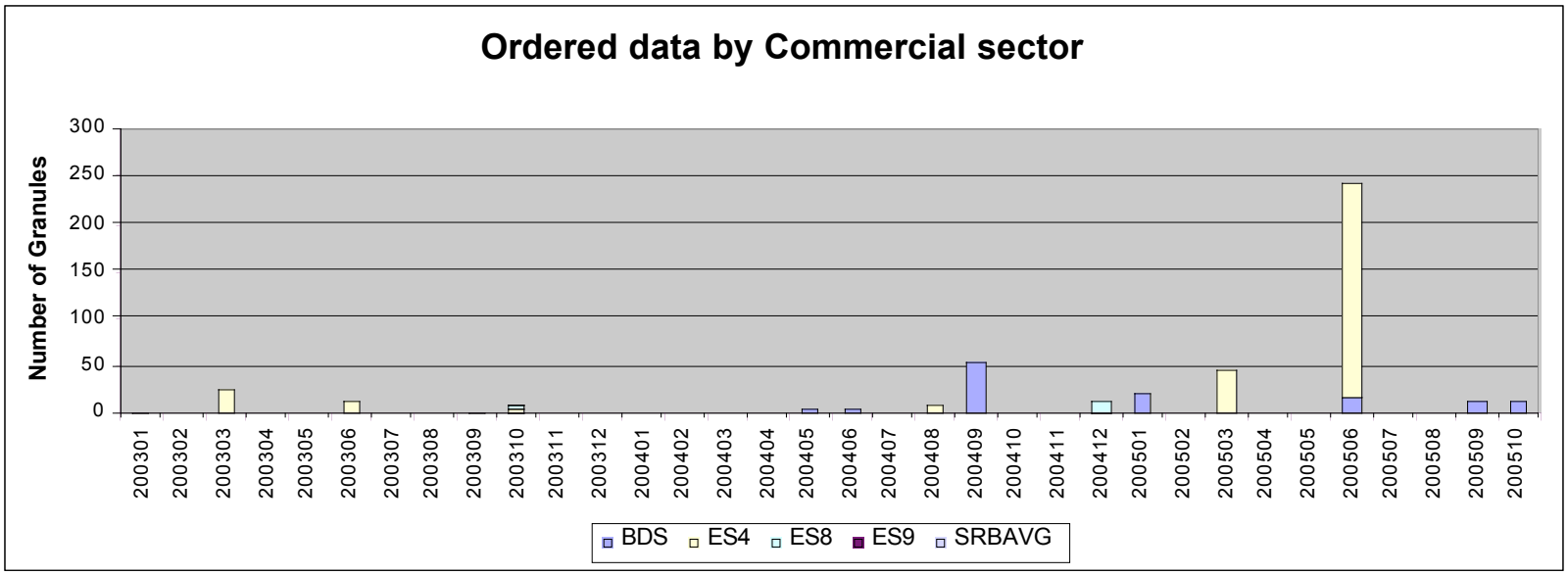
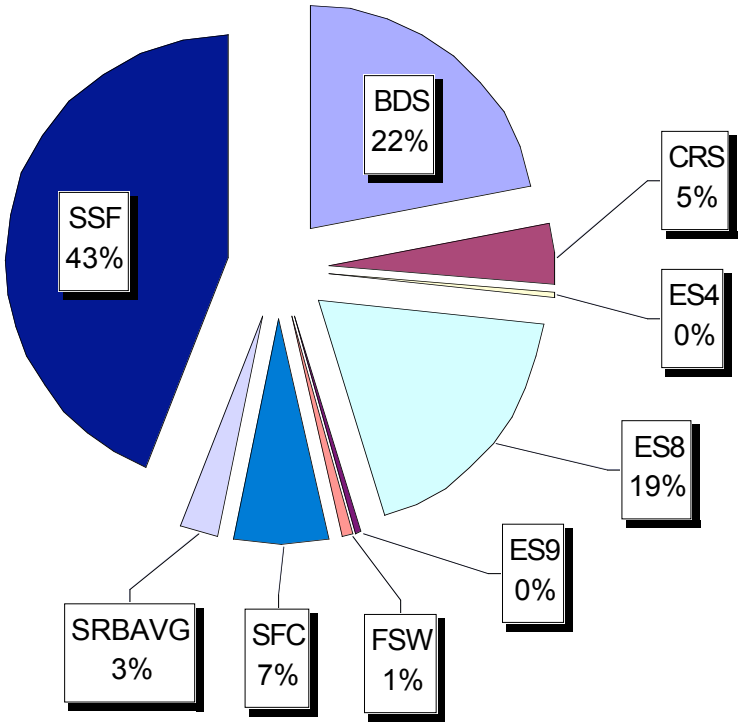
200507
200509
CRS
SSF
SFC


Ordered data by Commercial sector
Number of Granules
300
250
200
150
100
50
0
200301
200302
200303
200304
200305
200306
200307
200308
200309
200310
200311
200312
200401
200402
200403
200404
200405
200406
200407
200408
200409
200410
200411
200412
200501
200502
200503
200504
200505
200506
200507
200508
200509
200510
BDS
ES4
ES8
ES9
SRBAVG

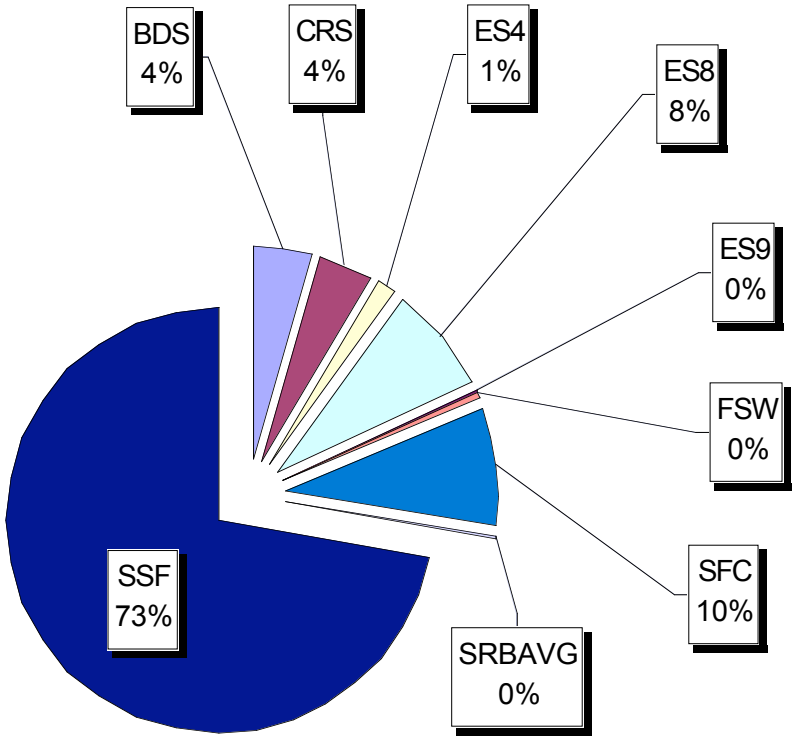
11/1/2005

Volume by Data Product



Jan 2003 to Present
Total # of Granules = 593,748
Total Volume = 57,115 GB

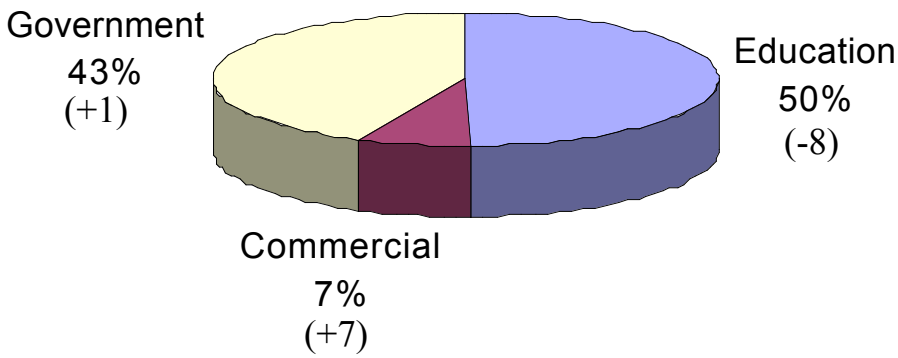
of Granules by Data Product



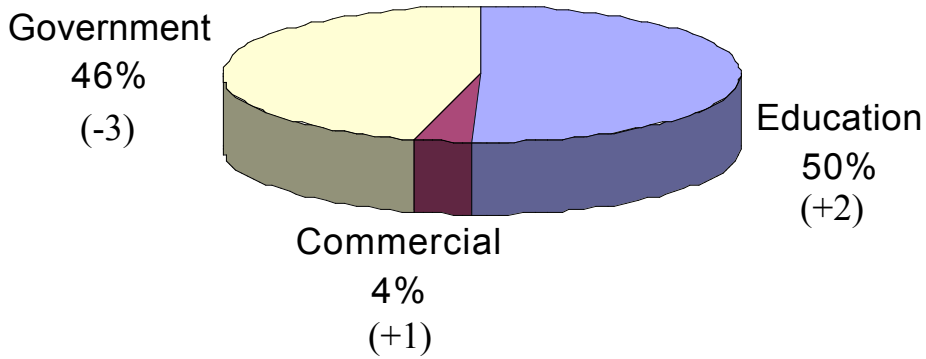
Jan 2003 to March 2005
Total # of Granules = 467,558
Total Volume = 44,093 GB

11/1/2005

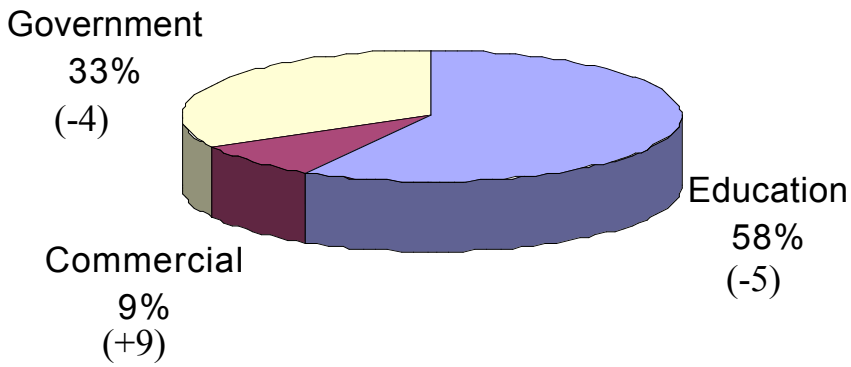
Size of Orders (2003-2005)



Number of Orders (2003-2005)



Number of Files (2003-2005)



11/1/2005

Documentation	Ordering Data	Tools and Images	Relevant Links
• Data Products Catalog • Collection Guides • Workshop Presentations (January 2003)	• Data Products Search • Subsetting Tips • Langley Web Ordering Tool • EOS Data Gateway (EDG) Locations • CERES Sampler CD-ROM (5 Volumes) • Processing and Data Flow Diagram (with temporal and spatial resolution information) 	• Instrument Operations • CERES Data Visualization Software (view_hdf) • Information on HDF • Outgoing Longwave Radiation Animation: 9 Mbytes | 15 Mbytes • Validation Graphics: ES-8 and ES-4 Validation Graphics • Browse Images • Visible Earth Images	• Join CERES News List • CERES Home Page • CERES Brochure (PDF) • CERES Aqua Home Page • CERES Terra Home Page • CERES TRMM Home Page • CERES ARM Validation Experiment • CERES/ARM/GEWEX Experiment • CERES/ARM Radiation Experiment • CERES Surface Properties • CLAMS Home Page • Earth Observatory Feature

Available Data Products
(includes links to Data Quality Summary, Description/Abstract, and Sample Software)

Level	CERES Data Product
Level 3 Data Sets (Monthly Averages)	ERBE-like Geographical Averages (ES-4)
	TOA/Surface Averages (SRBAVG)
	ERBE-like Regional Averages (ES-9)
	Gridded Single Satellite Fluxes and Clouds (FSW)
	Gridded TOA/Surface Fluxes and Clouds (SFC)
Level 2 Data Sets (Instantaneous unfiltered data) Subsetting Available	ERBE-like TOA Estimates (ES-8)
	TOA/Surface Fluxes and Clouds (SSF)
	Clouds and Radiative Swath (CRS)
Level 1B Data Sets (Instantaneous scanner data)	Instrument data (BDS)

ject Documents | Ordering Data | Available Data Sets | Tools and Images | Relevant Links

Includes Data Quality Summary, Description/Abstract, and Sample Software.

Level 3 Data Sets (Monthly Averages)

- ERBE-like Geographical Averages (ES-4)
- TOA/Surface Averages (SRBAVG)
- ERBE-like Regional Averages (ES-9)
- Gridded Single Satellite Fluxes and Clouds (FSW)
- Gridded TOA/Surface Fluxes and Clouds (SFC)

Level 2 Data Sets (Instantaneous unfiltered data) Subsetting Available

- ERBE-like TOA Estimates (ES-8)
- TOA/Surface Fluxes and Clouds (SSF)
- Clouds and Radiative Swath (CRS)

Level 1 Data Sets (Instantaneous scanner data)

- Instrument data (BDS)

Project Documents | Ordering Data | Available Data Sets | Tools and Images | Relevant Links

- Langley Web Ordering Tool
- EOS Data Gateway (EDG) Locations
- CERES Sampler CD-ROM (5 Volumes)
- Subsetting Instructions

NEW

- What CERES Product do I want?

- Processing and Data Flow Diagram with temporal and spatial resolution information

Project Documents | Ordering Data | Available Data Sets | Tools and Images | Relevant Links

Tools:

- CERES Data Visualization Software (view_hdf)
- Instrument Operations
- Information on HDF

Added IDL VM Version
(IDL license not needed)

Images:

- Outgoing Longwave Radiation Animation: 9 Mbytes | 15 Mbytes
- ES-8 and ES-4 Validation Graphics
- Browse Images
- Visible Earth
- Earth's Energy Budget Diagram

Langley ASDC -- CERES Level 3 Data Sets - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://eosweb.larc.nasa.gov/PRODOCS/ceres/level3_table.php?tab_select=2#tab_table Go Links

CERES Data Product	Frequency	Approximate File Size	Parameter List
ERBE-like Geographical Averages (ES-4)	1/Month	8.8 MB	ES-4
TOA/Surface Averages (SRBAVG)		963/1171 MB	SRBAVG
ERBE-like Regional Averages (ES-9)		72.4 MB	ES-9
Gridded Single Satellite Fluxes and Clouds (FSW)		644 MB	FSW
Gridded TOA/Surface Fluxes and Clouds (SFC)		325 MB	SFC

For convenience in ordering a specific CERES data product through the Langley Web Ordering Tool, select the Data Set Name in the tables below.

ES-4 | SRBAVG | ES-9 | FSW | SFC

Monthly TOA/Surface Averages (SRBAVG):
Monthly and monthly hourly regional, zonal, and global averages of the TOA and surface LW and SW fluxes and cloud parameters for each 1-degree equal-angle region.

Select Parameters: Clear-sky and All-sky TOA Fluxes, Surface (Radiative) Fluxes, OLR, Clear-sky and All-sky Albedo, Cloud Properties, Surface Types
Complete Parameter List

Documents: Collection Guide (PDF).

Spacecraft	Data Set Name (Select name to order)	Data Products Catalog	Sample Software	Temporal Coverage (Monthly)
TRMM (covers opened 12/27/1997)	CER_SRBAVG_TRMM-PFM-VIRS_Edition2B. Quality Summary.	DPC_SRBAVG_R3V2	Readme | Read Package (C).	01/1998 - 08/1998, 03/2000
Terra (covers opened 02/25/2000)	CER_SRBAVG_Terra-FM1-MODIS_Edition2C. CER_SRBAVG_Terra-FM2-MODIS_Edition2C. Quality Summary.	DPC_SRBAVG_R3V4	Readme | Read Package (C).	03/2000 - 02/2003

A Portable Document Format (PDF) reader (such as Adobe Acrobat Reader) is required to open and view PDF documents.

Internet

Langley ASDC -- CERES Level 2 Data Sets - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://dutchdraft.larc.nasa.gov/REVIEW/ceres/newfiles/dataset_tables/level2_table.php Go Links

CERES Data Product	Frequency	Approximate File Size	Parameter List
ERBE-like Geographical Averages(ES-4)	1/Month	8.8 MB	ES-4
TOA/Surface Averages (SRBAVG)		963/1171 MB	SRBAVG
ERBE-like Regional Averages (ES-9)		72.4 MB	ES-9
Gridded Single Satellite Fluxes and Clouds (FSW)		644 MB	FSW
Gridded TOA/Surface Fluxes and Clouds (SFC)		325 MB	SFC
ERBE-like TOA Estimates (ES-8)	1/Day	293 MB	ES-8
TOA/Surface Fluxes and Clouds (SSF)	1/Hour	60 MB	SSF
Clouds and Radiative Swath (CRS)		225 MB	CRS
Instrument data (BDS)	1/Day	500 MB	BDS

For convenience in ordering a specific CERES data product through the Langley Web Ordering Tool, select the Data Set Name in the tables below.

ES4 | SRBAVG | ES9 | FSW | SFC | ES-8 | SSF | CRS | BDS

Level 3 testData Products | Level 2 Data Products | Level 1

ERBE-like Monthly Geographic Averages (ES-4):
Monthly (Day), Monthly (Hour), Daily, and Hourly averages.

Select Parameters: Clear-sky and Total-sky Fluxes, Clear-sky and Total-sky Solar Incidence, and Clear-sky and Total-sky Albedo.
Complete Parameter List

Documents: Description/Abstract | Collection Guide (PDF).

Spacecraft	Data Set Name (Select name to order)	Data Products Catalog	Sample Software	Temporal Coverage (Monthly)
TRMM (covers opened	CER_ES4_TRMM-PFM_Edition2. Quality Summary. Validation Graphics.			01/1998 - 08/1998, 03/2000

Done Internet

ddress http://eosweb.larc.nasa.gov/PRODOCS/ceres/search/ceres_form.php Go

ATMOSPHERIC SCIENCES DATA CENTER

CERES Data Products Search

ASDC Home Page | CERES Data Products

What CERES Product Do I Want?

The following table offers the ability to list the CERES data products selected by Product Class, Temporal Resolution, Spatial Resolution and/or an Applicable Study. Select the desired buttons and "Submit" to display specific CERES data products that meet the desired search criteria. If no products meet your search criteria, please try with less buttons selected.

Product Class	(•) All available classes ( ) ERBE-like[1] ( ) CERES Simple[2] (TOA and Surface) ( ) CERES Complex[3] (TOA, Surface, and in Atmosphere) ( ) Instrument ( ) Special Products
Temporal Resolution	(•) All available temporal averages ( ) Instantaneous ( ) Hourly Averages ( ) 3 Hourly Averages ( ) Daily Averages ( ) Monthly Averages
Spatial Resolution	(•) All available spatial resolutions ( ) CERES Field of View (FOV) ( ) Gridded regional ( ) Zonally averaged ( ) Globally averaged
Applicable Studies	Study: All Available Studies

Submit Reset

Spatial Resolution	◉ All available spatial resolutions ○ CERES Field of View (FOV) ○ Gridded regional ○ Zonally averaged ○ Globally averaged
Applicable Studies	Study: All Available Studies
	Submit Reset

1. **ERBE Like:** Simplest processing mode. Unsophisticated cloud detection and angular directional models. Consistent with earlier ERBE processing to maintain consistency.
2. **CERES Simple:** Focus on Top-of-Atmophere (TOA) radiation, includes parameterized models for surface radiation estmation. Cloud detection using multi-spectral VIRS/MODIS imager. Vastly improved angular directional models allowing cloud property dependent anisotropy. Time-space averaging includes 1hourly geostationary radiance data to improve diurnal cycle modeling between CERES Flux measurements.
3. **CERES Complex:** Radiative transfer code used to model in atmosphere as well as surface fluxes. Treatment of clouds using VIRS/MODIS retrieved cloud properties, multi-constituent aerosols with satellite retrieved optical depths, scene and spectrally dependent surface boundary conditions. Time-space averaging using geostationary based cloud properties and grid scale radiative transfer.

Available Studies Drop List

Applicable Studies — Study: All Available Studies

- All Available Studies
- TOA flux only comparison
- Surface flux calculation with simple transfer model
- Flux calculation with simple transfer model
- In situ Flux comparison over particular region
- Comparison with GCMs
- Cloud and aerosol properties comparison
- Cloud and aerosol radiative forcing estimate or comparison with other estimate
- Comparison of radiation, aerosol and cloud properties with model other then GCM (ie. LES, CRM)
- Interpretation of radiation cloud and aerosol property variability
- Decadal study consistent with ERBE

1. **ERBE Like:** Simpl… RBE processing to mai…
2. **CERES Simple:** F… d detection using m… t anisotropy. Time-s… Flux measurements.
3. **CERES Complex:** … MODIS retrieved cloud properties, multi-constituent aerosols with satellite retrieved optical depths, scene and spectrally dependent surface boundary conditions. Time-space averaging using geostationary based cloud properties and grid scale radiative transfer.

Zonally Average Search results

Search Results: ES4 | SRBAVG | ZAVG

ERBE-like Monthly Geographical Averages (ES-4)

The ES-4 is one of the Clouds and the Earth's Radiant Energy System (CERES) science data archival products generated by the CERES ERBE-like Subsystem. It is written in HDF and is a monthly product that contains regional, zonal, and global spatial averages from instantaneous scanner estimates at the top-of-the Earth's atmosphere which are averaged hourly, daily, and monthly.

File Temporal Coverage: Daily, Hourly, Monthly
File Spatial Coverage: Globally averaged, Gridded regional, Zonally averaged
Applicable Studies: Decadal study consistent with ERBE
Documents: Description/Abstract
more details | order data

Monthly TOA/Surface Averages (SRBAVG)

The Monthly TOA/Surface Averages (SRBAVG) product contains monthly and monthly hourly regional, zonal, and global averages of the Top-of-the-Atmosphere (TOA) and surface LW and SW fluxes and the observed cloud conditions for each 1-degree equal-angle region.

File Temporal Coverage: Monthly
The CERES Team is also planning a daily average version of this product for 2006.
File Spatial Coverage: Globally averaged, Gridded regional, Zonally averaged
Applicable Studies: Angular dependent of radiance
Cloud and aerosol properties comparison
Cloud and aerosol radiative forcing estimate or comparison with other estimate
Comparison of radiation, aerosol and cloud properties with model other then GCM (ie. LES, CRM)
Comparison with GCMs
Instrument study
Interpretation of radiation cloud and aerosol property variability
Surface flux calculation with simple transfer model
TOA flux only comparison
Documents: Description/Abstract
more details | order data

Monthly Zonal and Global Radiative Fluxes and Clouds (ZAVG)

The Monthly Zonal and Global Radiative Fluxes and Clouds (ZAVG) product is a summary of zonal and global averages of the radiative fluxes and cloud properties, probably most suitable for inclusion in the Earth Observing System Data and Information System (EOSDIS) Information Management System (IMS) as a browse product. This product is the CERES equivalent to the zonal averages and global averages in the ERBE S-4 product.

File Temporal Coverage: Monthly
File Spatial Coverage: Zonally averaged
Applicable Studies: Cloud and aerosol radiative forcing estimate or comparison with other estimate
Comparison of radiation, aerosol and cloud properties with model other then GCM (ie. LES, CRM)
Comparison with GCMs
Interpretation of radiation cloud and aerosol property variability

*** Not yet available**

Address http://eosweb.larc.nasa.gov/HPDOCS/view_hdf.html Go

ATMOSPHERIC SCIENCES DATA CENTER

view_hdf: A Visualization and Analysis Tool for HDF Files

view_hdf is a visualization and analysis tool for accessing data stored in Hierarchical Data Format (HDF) and HDF-EOS files.

The view_hdf tool can select and subset variables from either Science Data Set (SDS) or vdata structures in any HDF file, render both two- and three-dimensional graphics, and plot geolocated data onto various world map projections. Other features include multiple variable plots, difference plots, and simple statistics. Plots can be saved in PostScript, encapsulated PostScript and GIF or sent directly to a printer. Filtered subsets and statistical results can be written to a file in ASCII format for use in other analysis programs.

The view_hdf tool is written in Interactive Data Language (IDL) and uses a graphical user interface to manipulate the data. It also makes use of a shared library written in C which is accessed from the IDL program. The tool was developed on a UNIX platform and has been ported to SGI IRIX, Sun Solaris, and Windows 2000. It should be portable to most platforms which support IDL, the HDF libraries, and a C compiler.

view_hdf was developed by the CERES Data Management Team at NASA Langley Research Center and is distributed by the NASA Langley Atmospheric Sciences Data Center.

Download Files:

Overview and Installation: view_hdf Version 4.0.4 README file (11989 bytes).

New

Download the IDL Virtual Machine Version:

- IDL Virtual Machine version:
  This version is computer and operating system independent. It is a pre-compiled software package that uses the IDL Virtual Machine, a free runtime version of IDL available from Research Systems, Inc.
  - zip file (8.2 MB)

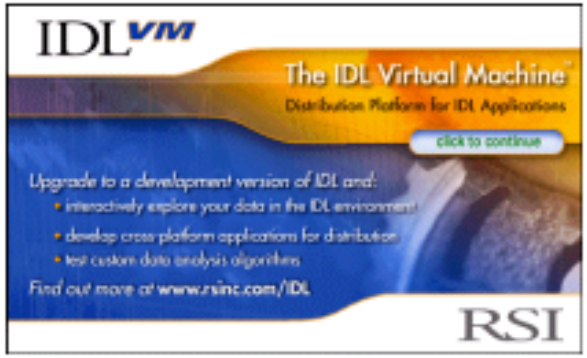
ASDC

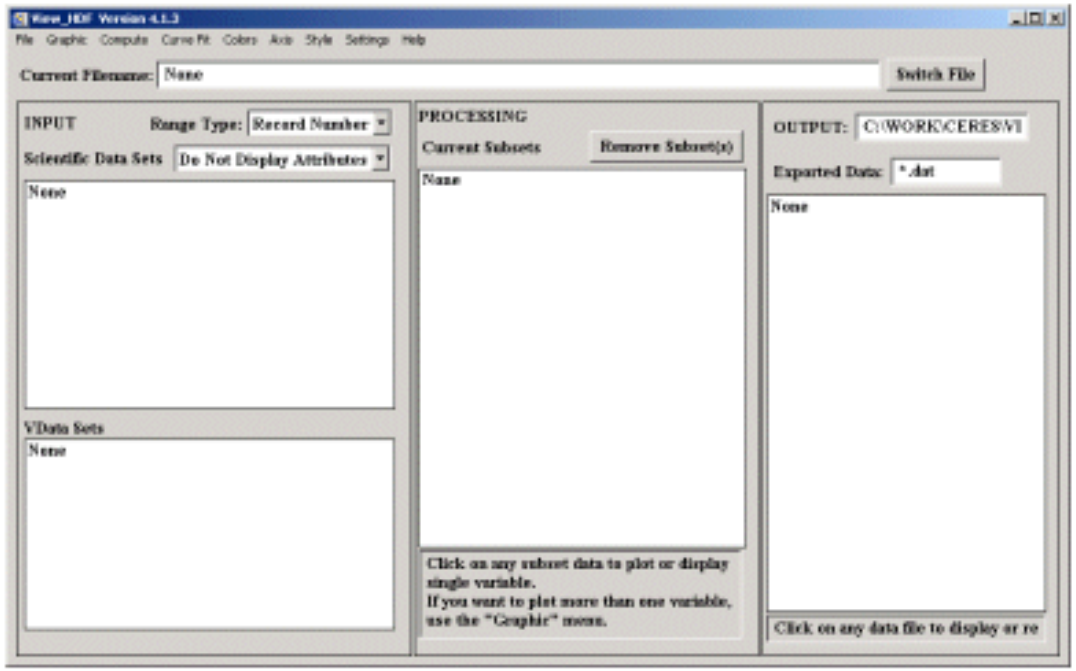
viewhdfvm_4.0.4.zip

RSI

IDL Virtual Machine 6.2.lnk

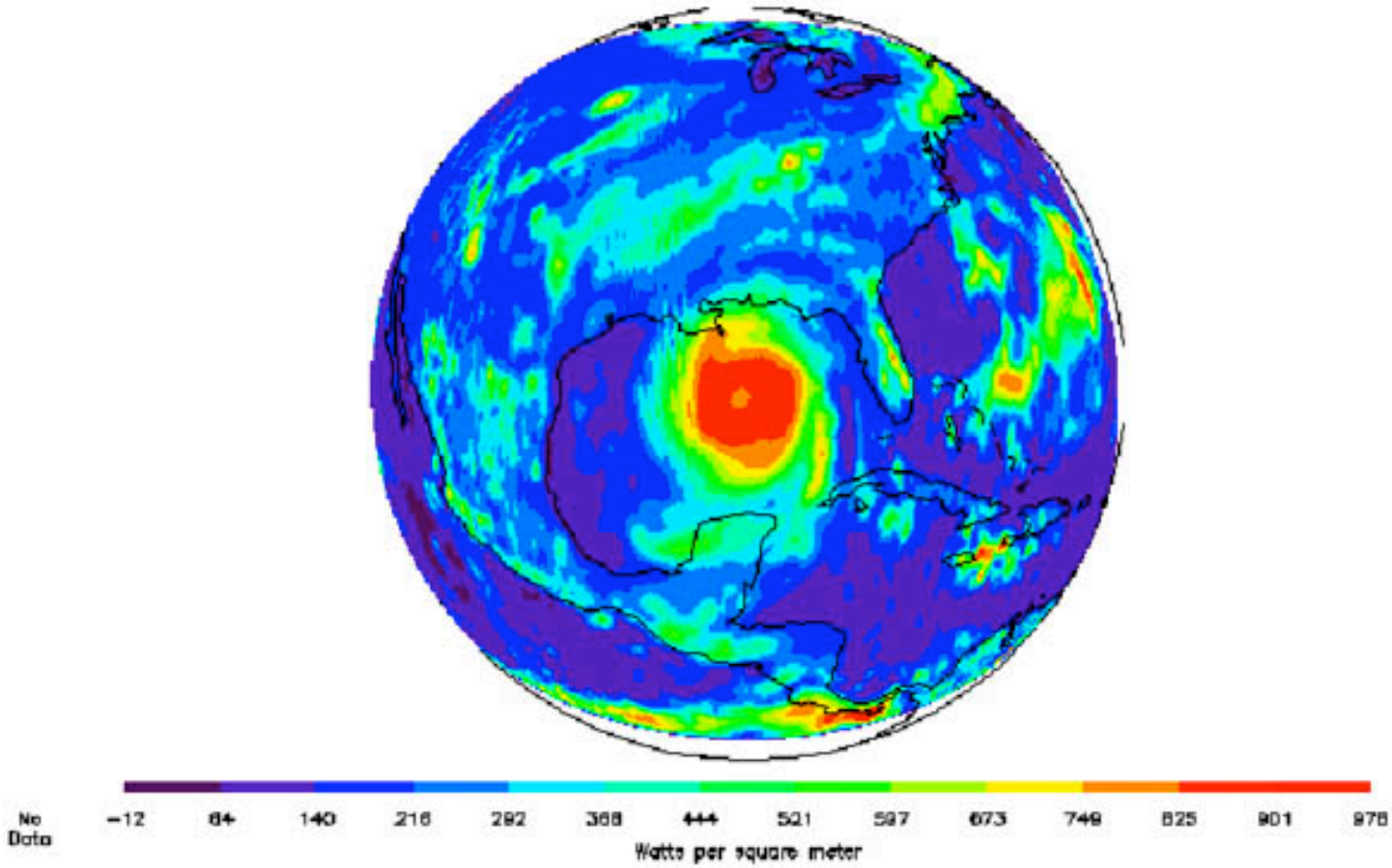
view_hdf_vm.sav





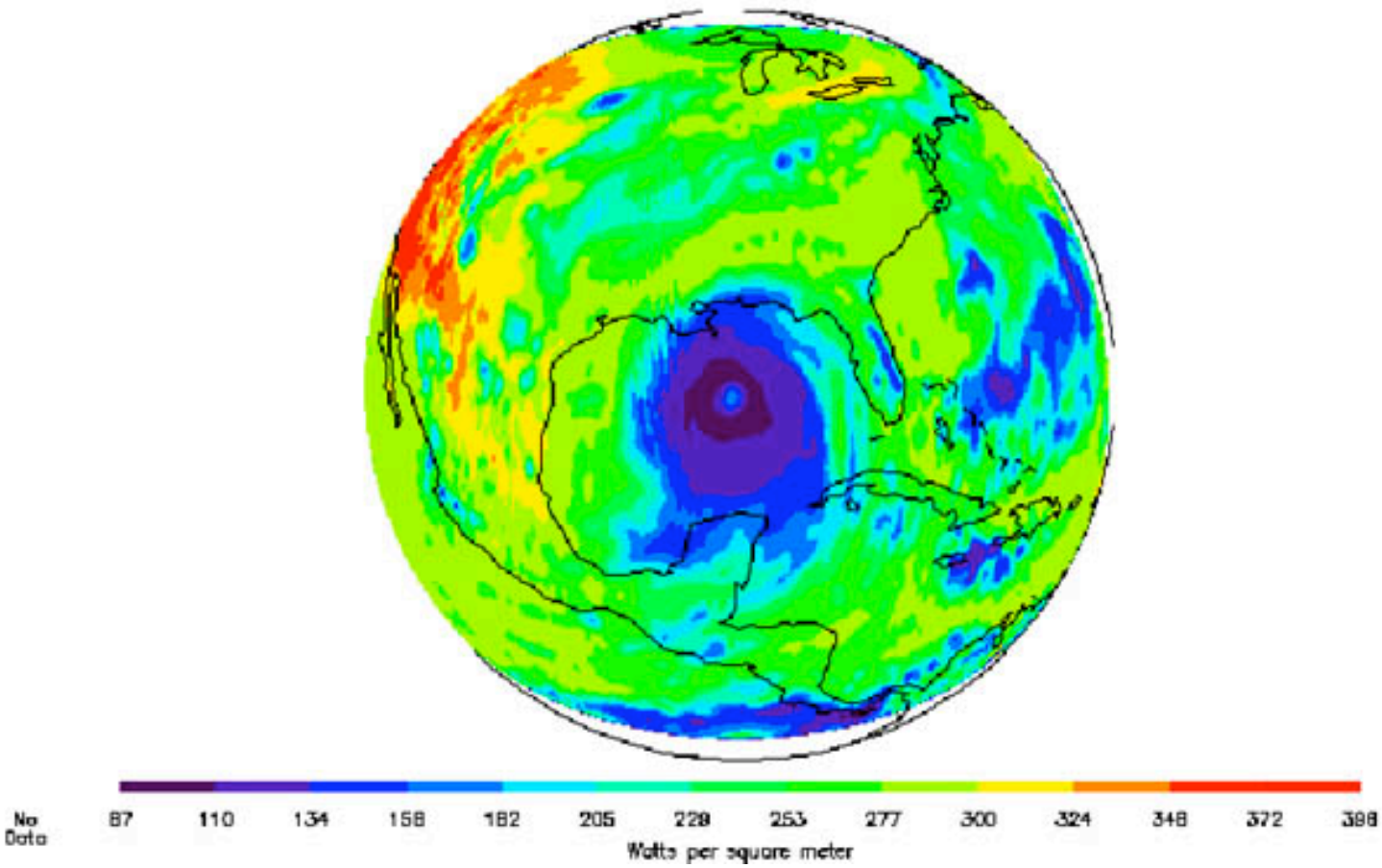
11/1/2005

Hurricane Katrina Aug 28, 2005
Aqua FM-3 LW TOA Flux



11/1/2005

Hurricane Katrina Aug 28, 2005
Aqua FM-3 SW TOA Flux



11/1/2005

Atmospheric Sciences Data Center

Processing, archiving, and distributing Earth Science data

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CERES Science Team Meeting
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