ATMOSPHERIC SCIENCE DATA CENTER STATUS

John Kusterer

Head, ASDC

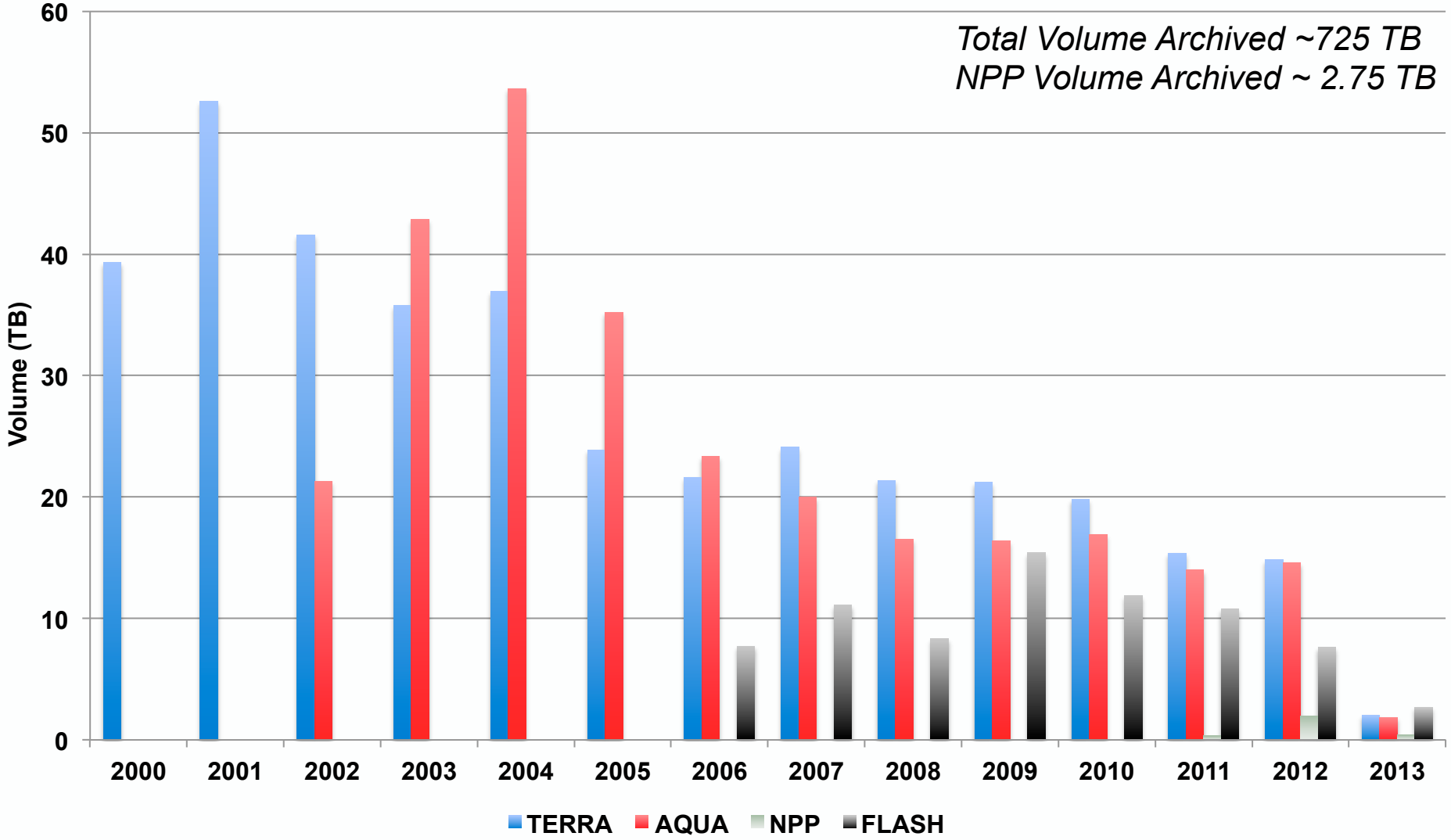
CERES Science Team Meeting

May 9, 2013

CERES USER METRICS

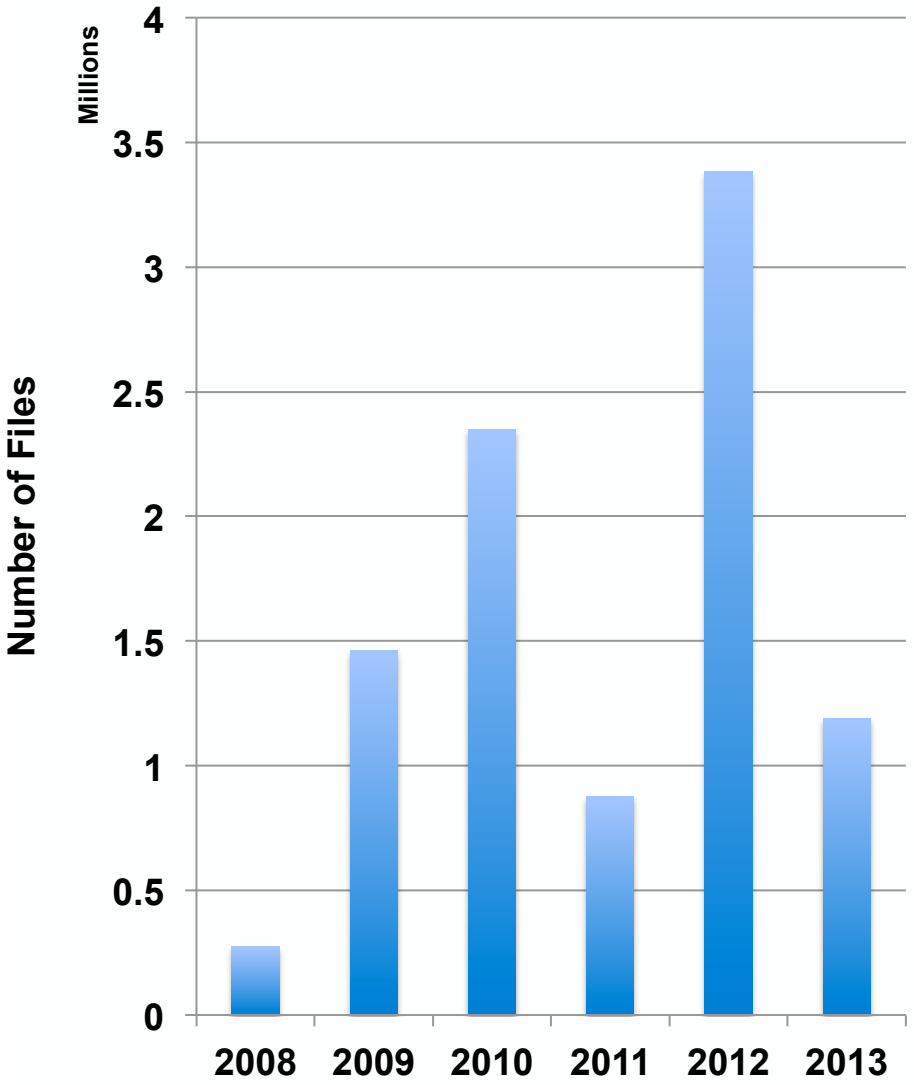
CERES and FLASHFlux Archive Volume

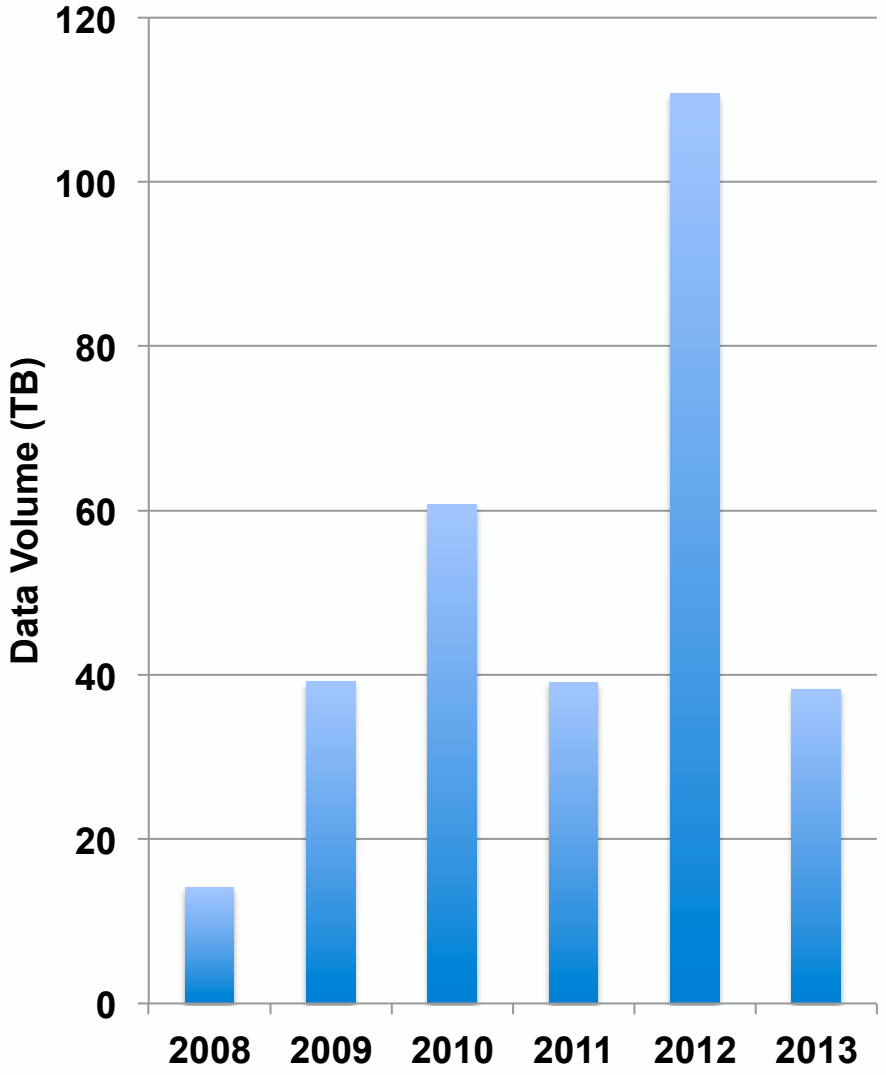
By Data Date through March 2013



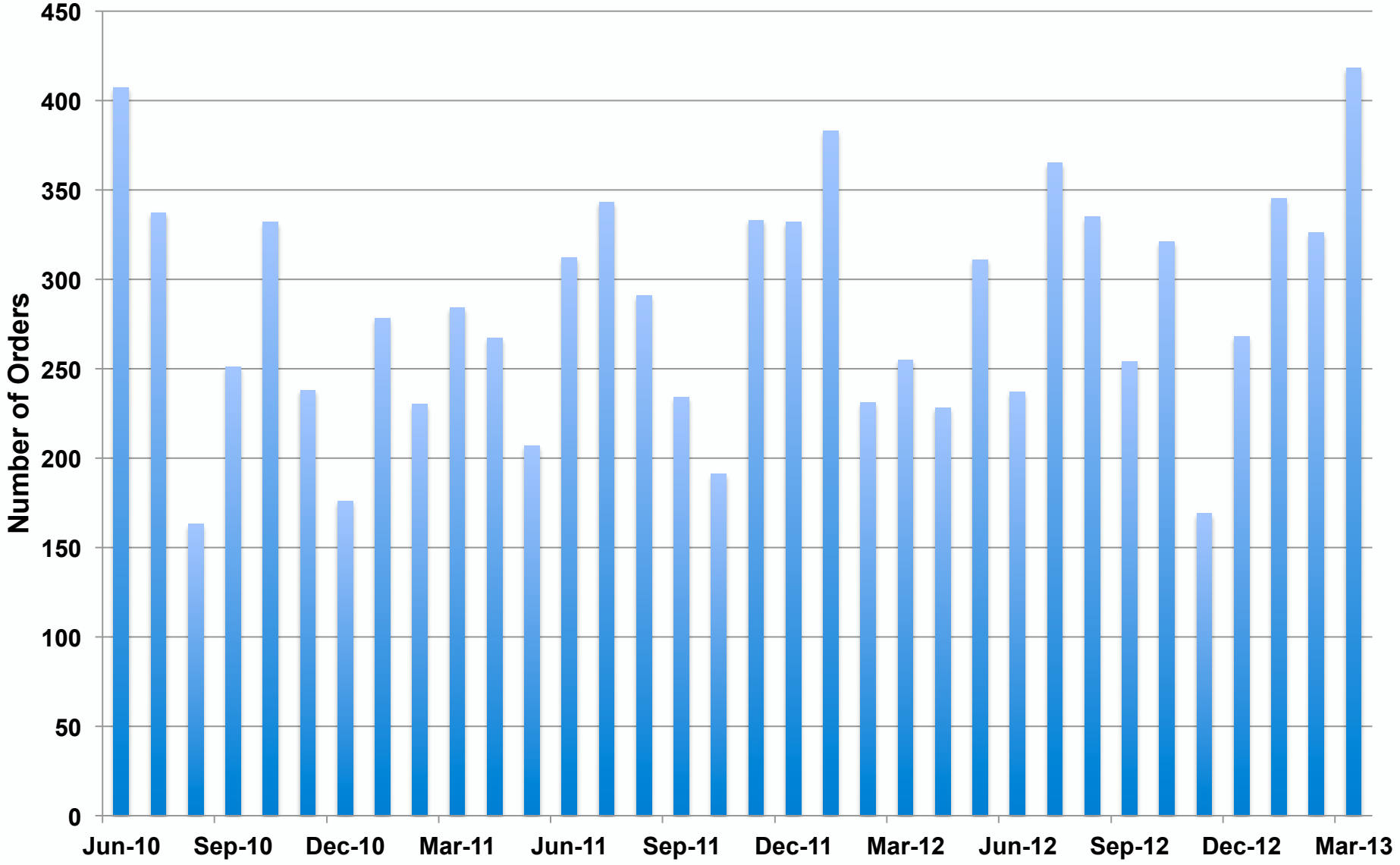
CERES Ancillary Data Archived

(September 2008 – March 2013)

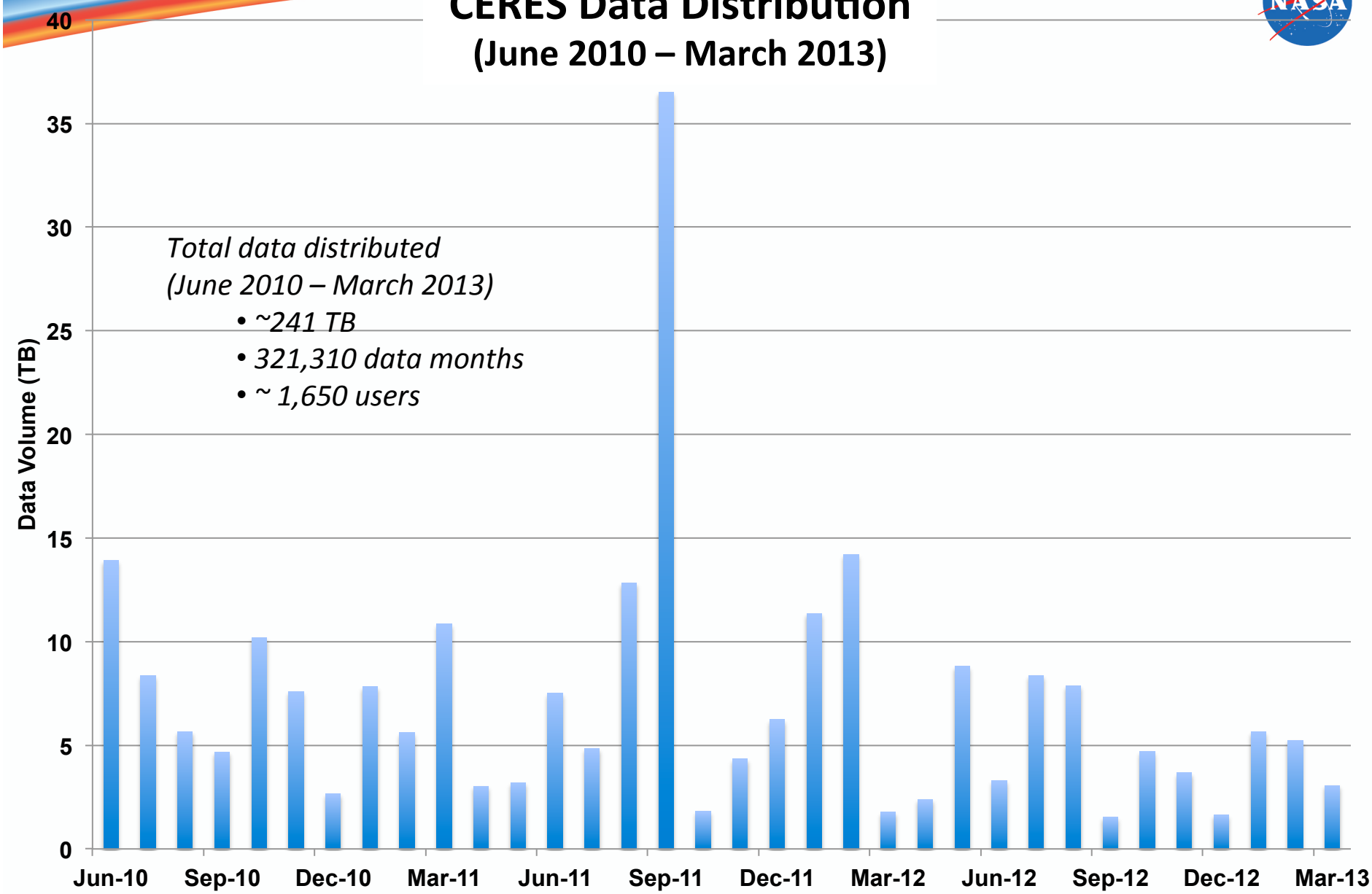




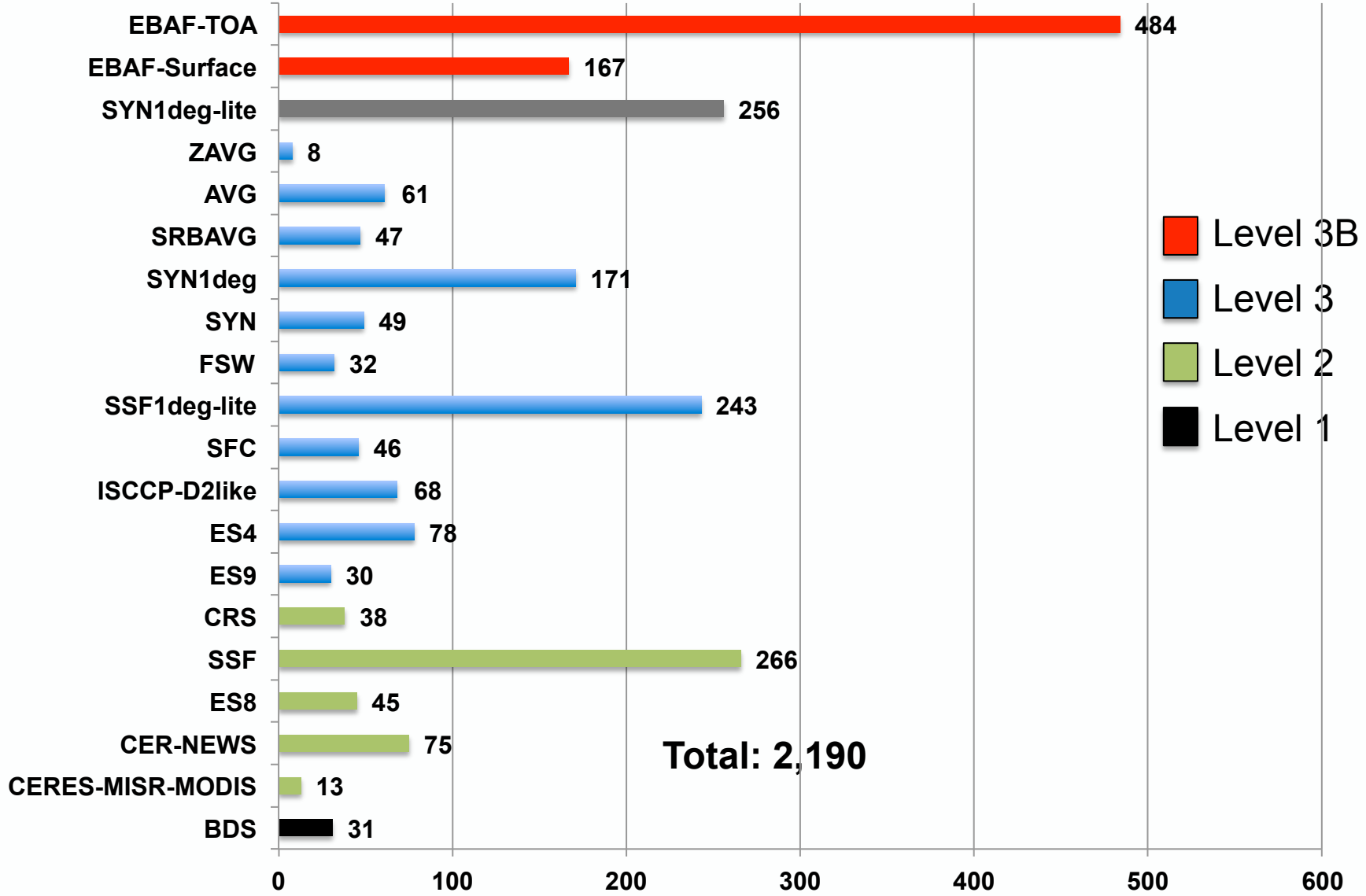
CERES Data Orders
(June 2010 – March 2013)



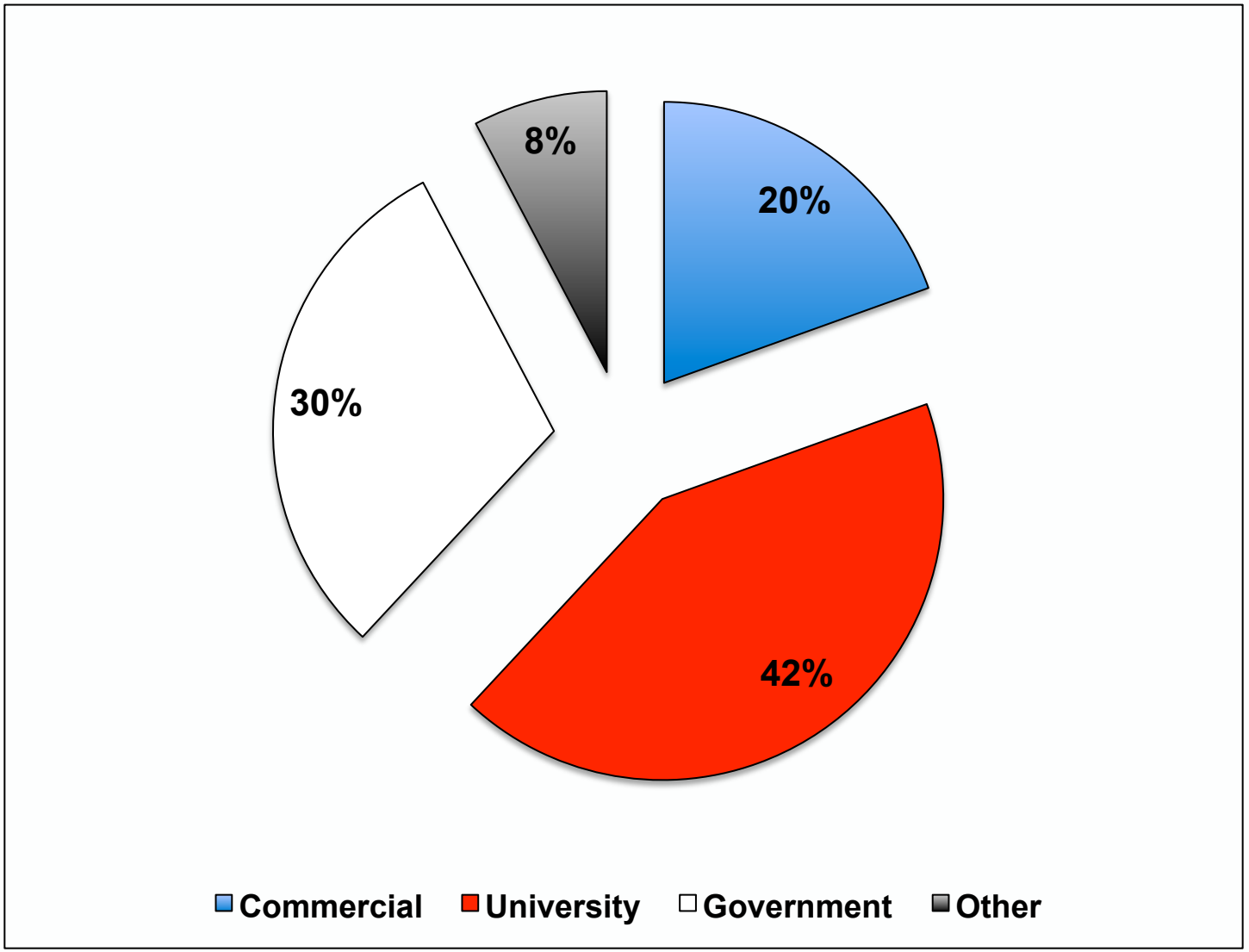
CERES Data Distribution
(June 2010 – March 2013)



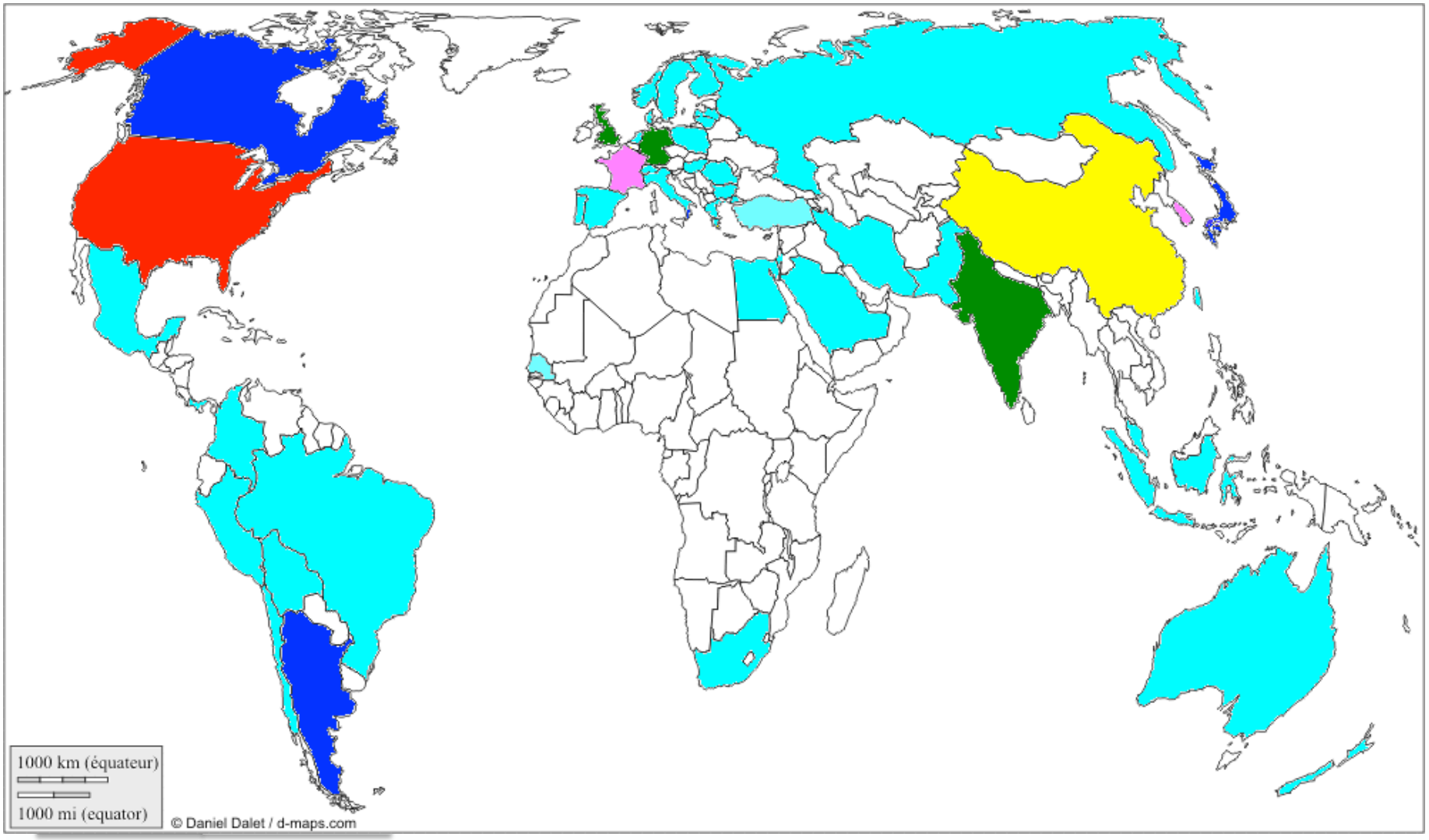
Number of Users by Product (*June 2010 – March 2013*)



User Affiliations



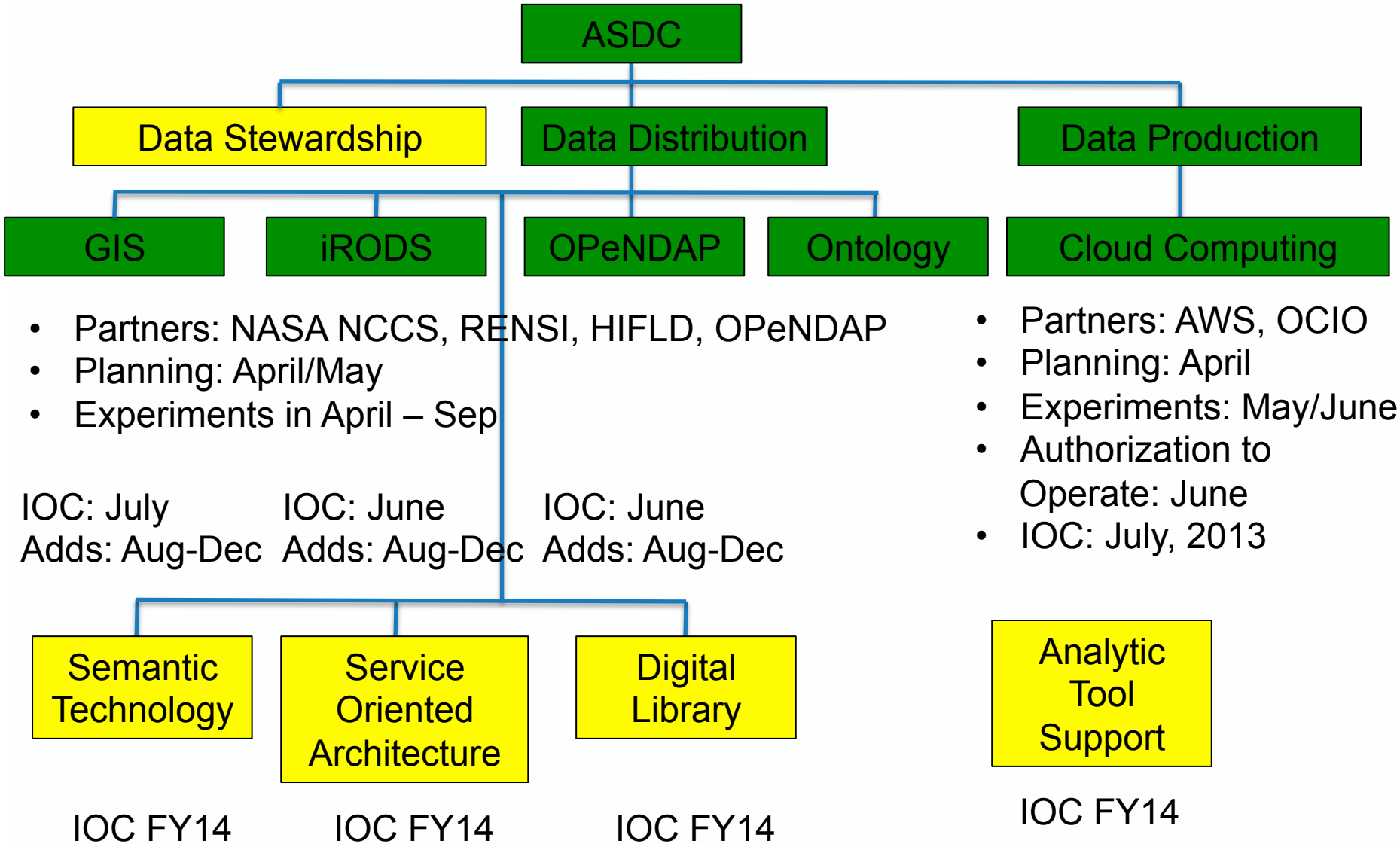
Users by Country (June 2010 – March 2013)



1-10 | 11-25 | 26-35 | 30-40 | 115 | >500

PLANNED DATA ACCESS IMPROVEMENTS

ASDC Areas of Modernization



Precision Ontology

- Focus on the differences among instruments, algorithms and the resulting measurements
  - Validation with Instrument Team
  - Feeds into “Enterprise Vocabulary”
  - Needed to support semantic technology applications
- Access to ontology being integrated into all ASDC interfaces, including parameter ordering in EOSWEB and machine-to-machine services
- Similar to ordering a refrigerator from Home Depot

LaRC Cloud Computing Scenarios

- ASDC Data Product Re-processing
  - Current approach: Buy extra hardware
  - Bursty behavior
  - High Data Throughput
- Individual Principal Investigator on-demand computing
  - Current approach: Buy small sets of hardware
  - Low duty cycle, infrequent usage
- New Mission Science Data Processing
  - Current approach: Buy dedicated or shared assets
  - Pre-launch mission processing runs out warranty
  - Compatibility with owned systems permits conversion when load warrants

LaRC Cloud Computing Scenarios

- Suborbital Missions
  - Current approach: Buy dedicated assets to take into field
  - Largely used only during field campaign (Bursty)
  - Remote Access is often difficult due to lack of connectivity
- Foreign National short-term Visitors and remote partners
  - Current approach: NIA or company provisioning and Duplicate Data
  - Irregular visitors, local hardware is often inadequate
  - Permit their sponsor to buy time Public Cloud without NASA participation
    - Permit NASA funded option depending on agreement with sponsor
  - NASA makes public data available to their cloud instance
  - Continue collaboration on non-NASA assets after they return home

ASDC EOSWEB RE-DESIGN EFFORT

eosweb.larc.nasa.gov

EOSWEB Re-design Effort

Goal

- Deploy a web site that provides users with an “easy to use” interface that provides
  - Data information
  - Data ordering
  - Tools/Services
  - Easy access to external sites
- Improve the sustainability and maintainability by ASDC staff and science content providers
- Modernize ASDC site using current technologies
- Collaborate with stakeholders to ensure we are meeting the needs of our user community (instrument scientists, modelers, decision makers)

EOSWEB Re-design Effort

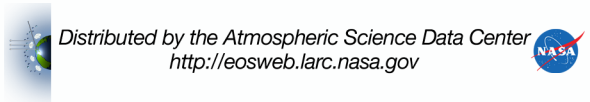
Status

- New web pages promoted to production on April 8, 2013
  - Drupal 7 is used for Content Management System – modular and easier to maintain
  - Aggressive effort to solicit and incorporate feedback successful
    - Investigated and Incorporated features and best practices from ESDIS, other DAACs, and other modern sources and technologies
    - ASDC User Working Group heavily engaged in providing input
    - Project teams invited to provide feedback that feedback received was successfully dispositioned
    - GIBS study results addressed in EOSWEB design
- Enhancements continue to be incorporated into website

EOSWEB Re-design Effort

Documentation Management

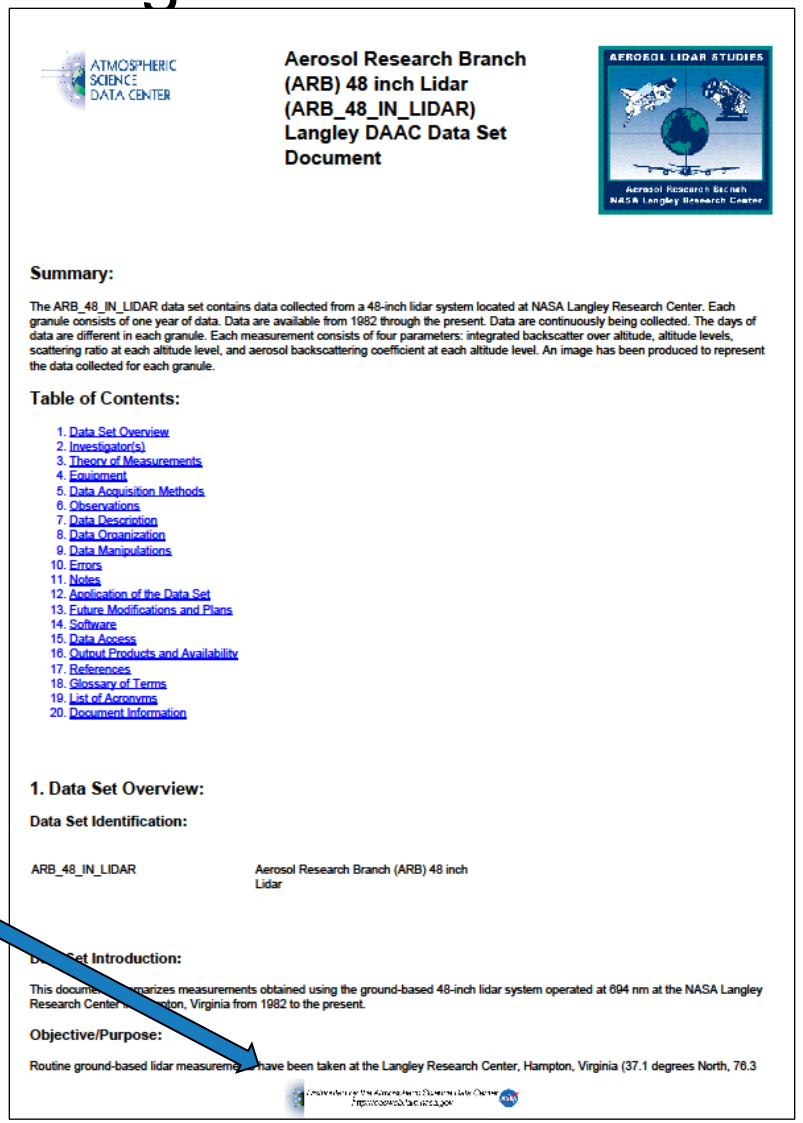
- Purpose
  - Improve process and integrity related posting data quality summaries, project guides, data products catalog
  - Improve lineage of documentation on ASDC website
- After a time allowed for comments, new process email sent Monday, May 6, 2013
  - Encouraging complete documents to be sent in pdf
    - Can send in MS Word and we'll convert to pdf
  - Small graphic to be inserted at the bottom of pdf documents



- Feedback, suggestions on the EOSWEB Re-design should be sent to the link at bottom of the EOSWEB pages

EOSWEB Re-design Effort

Graphic should be minimally invasive



ATMOSPHERIC SCIENCE DATA CENTER

Aerosol Research Branch (ARB) 48 inch Lidar (ARB_48_IN_LIDAR) Langley DAAC Data Set Document

AEROSOL LIDAR STUDIES

Aerosol Research Branch NASA Langley Research Center

Summary:

The ARB_48_IN_LIDAR data set contains data collected from a 48-inch lidar system located at NASA Langley Research Center. Each granule consists of one year of data. Data are available from 1982 through the present. Data are continuously being collected. The days of data are different in each granule. Each measurement consists of four parameters: integrated backscatter over altitude, altitude levels, scattering ratio at each altitude level, and aerosol backscattering coefficient at each altitude level. An image has been produced to represent the data collected for each granule.

Table of Contents:

1. Data Set Overview
2. Investigator(s)
3. Theory of Measurements
4. Equipment
5. Data Acquisition Methods
6. Observations
7. Data Description
8. Data Organization
9. Data Manipulations
10. Errors
11. Notes
12. Application of the Data Set
13. Future Modifications and Plans
14. Software
15. Data Access
16. Output Products and Availability
17. References
18. Glossary of Terms
19. List of Acronyms
20. Document Information

1. Data Set Overview:

Data Set Identification:

ARB_48_IN_LIDAR — Aerosol Research Branch (ARB) 48 inch Lidar

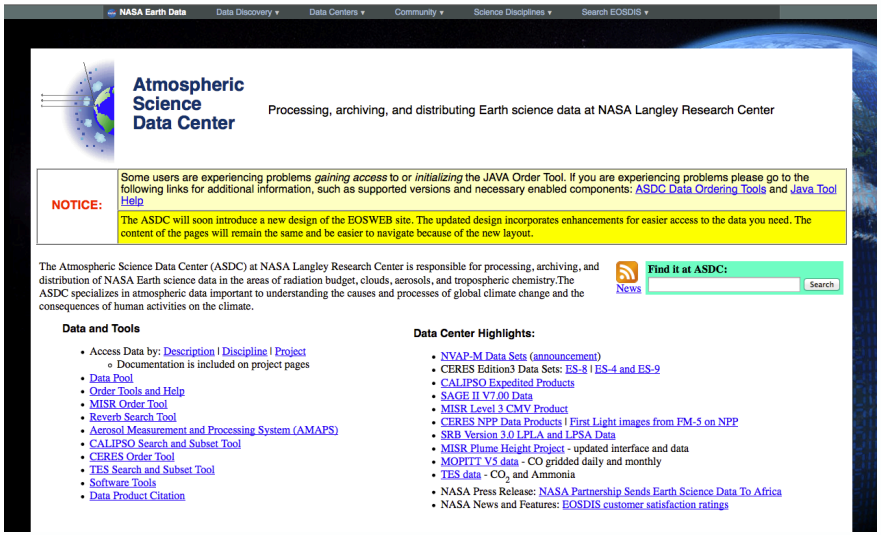
Data Set Introduction:

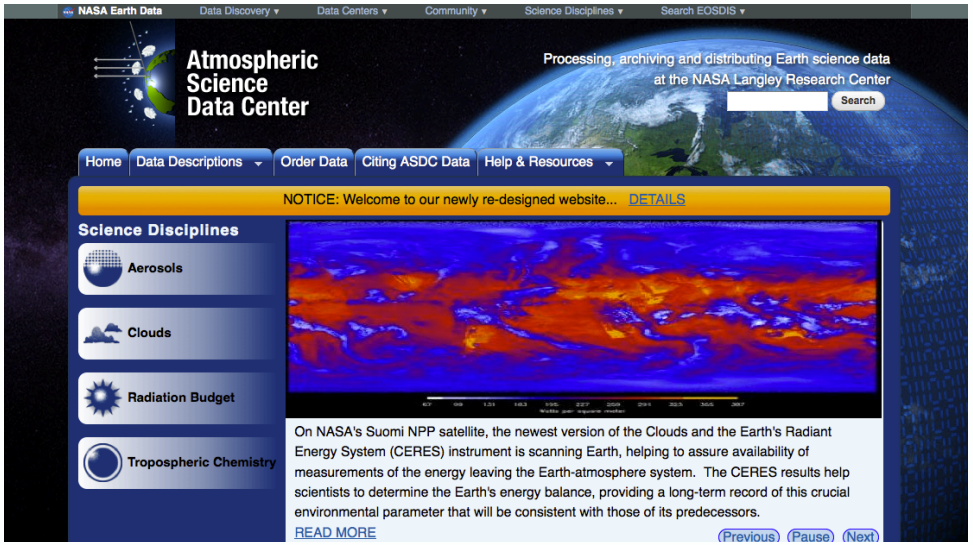
This document summarizes measurements obtained using the ground-based 48-inch lidar system operated at 694 nm at the NASA Langley Research Center in Hampton, Virginia from 1982 to the present.

Objective/Purpose:

Routine ground-based lidar measurements have been taken at the Langley Research Center, Hampton, Virginia (37.1 degrees North, 76.3

EOSWEB Re-design Effort

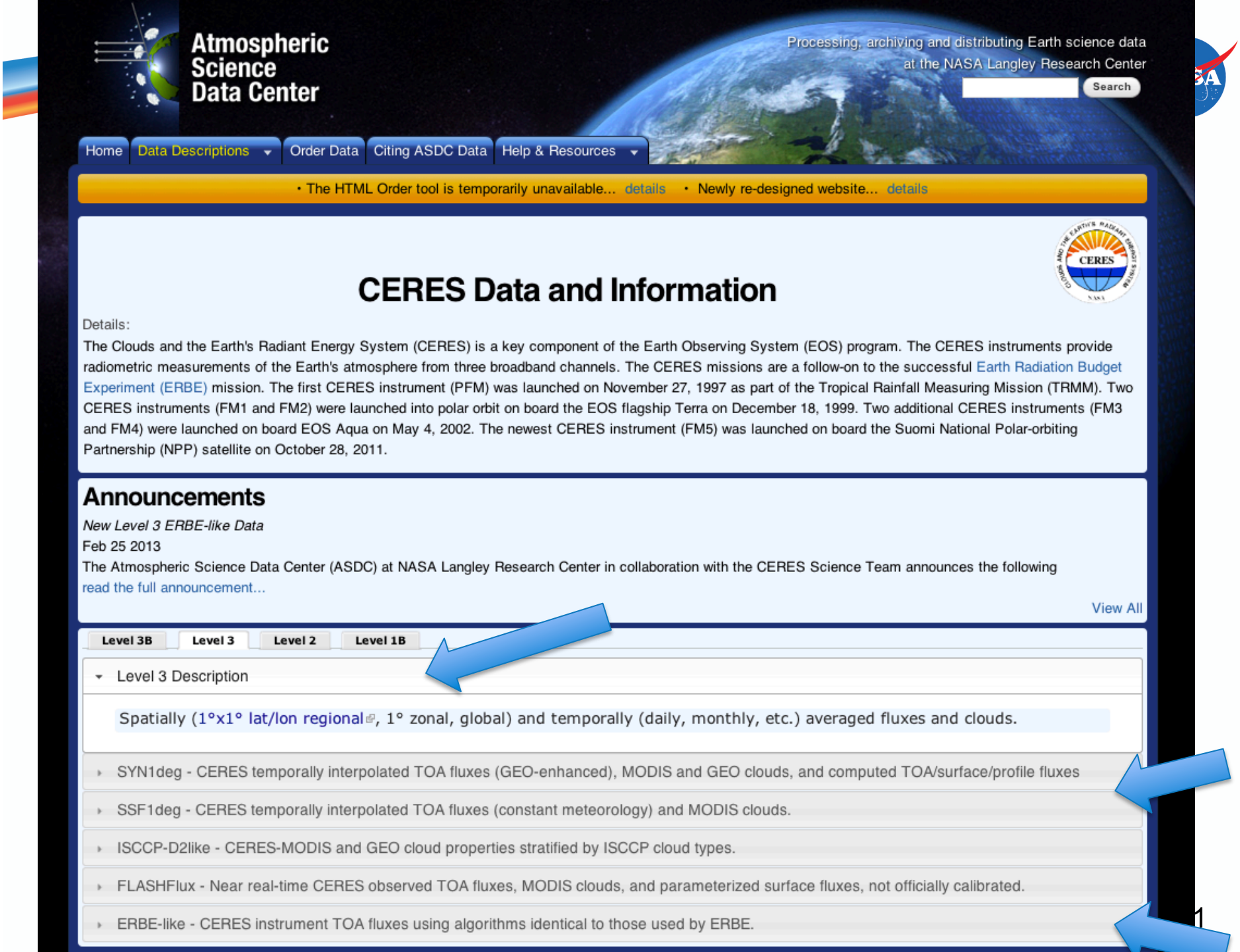




Old site

New site

http://eosweb.larc.nasa.gov


Atmospheric Science Data Center
Processing, archiving and distributing Earth science data at the NASA Langley Research Center
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Data Descriptions
Order Data
Citing ASDC Data
Help & Resources
• The HTML Order tool is temporarily unavailable... details • Newly re-designed website... details
CERES Data and Information
Details:
The Clouds and the Earth's Radiant Energy System (CERES) is a key component of the Earth Observing System (EOS) program. The CERES instruments provide radiometric measurements of the Earth's atmosphere from three broadband channels. The CERES missions are a follow-on to the successful Earth Radiation Budget Experiment (ERBE) mission. The first CERES instrument (PFM) was launched on November 27, 1997 as part of the Tropical Rainfall Measuring Mission (TRMM). Two CERES instruments (FM1 and FM2) were launched into polar orbit on board the EOS flagship Terra on December 18, 1999. Two additional CERES instruments (FM3 and FM4) were launched on board EOS Aqua on May 4, 2002. The newest CERES instrument (FM5) was launched on board the Suomi National Polar-orbiting Partnership (NPP) satellite on October 28, 2011.
Announcements
New Level 3 ERBE-like Data
Feb 25 2013
The Atmospheric Science Data Center (ASDC) at NASA Langley Research Center in collaboration with the CERES Science Team announces the following
read the full announcement...
View All
Level 3B
Level 3
Level 2
Level 1B
Level 3 Description
Spatially (1°x1° lat/lon regional, 1° zonal, global) and temporally (daily, monthly, etc.) averaged fluxes and clouds.
SYN1deg - CERES temporally interpolated TOA fluxes (GEO-enhanced), MODIS and GEO clouds, and computed TOA/surface/profile fluxes
SSF1deg - CERES temporally interpolated TOA fluxes (constant meteorology) and MODIS clouds.
ISCCP-D2like - CERES-MODIS and GEO cloud properties stratified by ISCCP cloud types.
FLASHFlux - Near real-time CERES observed TOA fluxes, MODIS clouds, and parameterized surface fluxes, not officially calibrated.
ERBE-like - CERES instrument TOA fluxes using algorithms identical to those used by ERBE.

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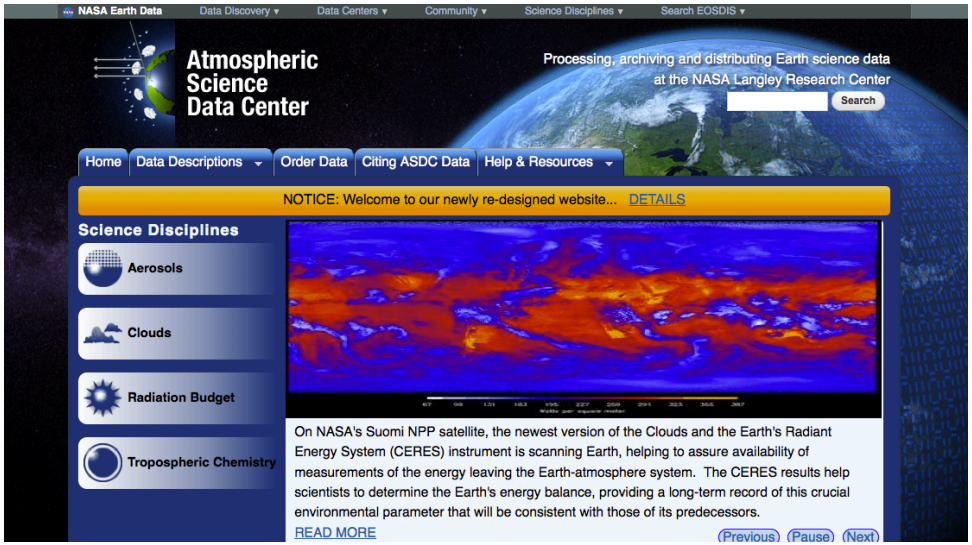
CER_SYN1deg-Month_Terra-Aqua-MODIS_Edition3A
Project Title: CERES
Discipline: Clouds
Radiation Budget
Version: Edition 3A
Level: L3
Platform: Terra, Aqua
Spatial Coverage: (-90, 90)(-180,180)
Spatial Resolution: Regional, Zonal, Global
Temporal Coverage: Jul 2002 - Nov 2011
Temporal Resolution: Monthly
File Format: HDF
Order Data: Reverb: Month_Terra-Aqua-MODIS_Edition3A
Subset/Visualization Tool: CERES Order Tool
Quality Summary: SYN1deg Ed3A Quality Summary
Browse Images
Parameters
Order Data
Read Software
Product Information
Documentation
TOA Fluxes (observed and computed)
Surface Fluxes (computed)
In-Atmospheric Fluxes (computed)
Cloud Parameters (MODIS & GEO)
Aerosols (MODIS & MATCH)
Auxiliary Data (GMAO GEOS)

EOSWEB Re-design Effort

walkthrough



http://eosweb.larc.nasa.gov

Conclusion

- The ASDC continues to robustly support CERES ingest, archive, production, and distribution
- New data access methods being explored
  - “Get users the data the way they want it”
  - Potentially expand user community of CERES data
  - Learning more about cloud computing
- New EOSWEB pages released improving users’ experience
  - Should experience improved look and feel and easier navigation
  - “Distributed by” logo should be minimally invasive and help with document lineage