GES DAAC Data Support for AIRS/AMSU/HSB Instrument Data Sets

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GES DAAC Mission

The GES DAACs mission is to maximize the investment benefit of the Earth Science Enterprise by providing data and services that enable people to fully realize the scientific, educational, and application potential of global climate data.

In Short...

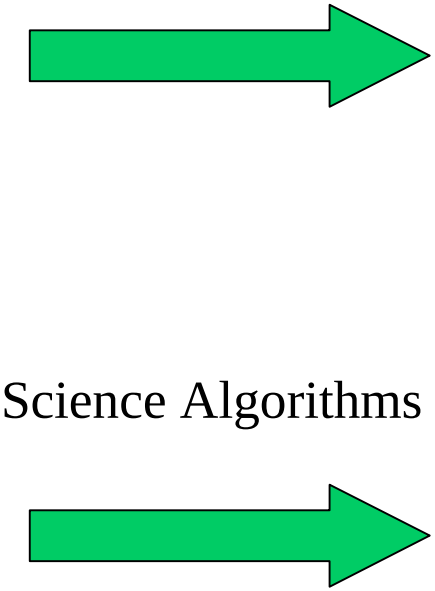
The GES DAACs mission is to:

ENABLE EARTH SCIENCE

GES DAAC Data Flow

Data from science processing facility or science teams

Science Algorithms



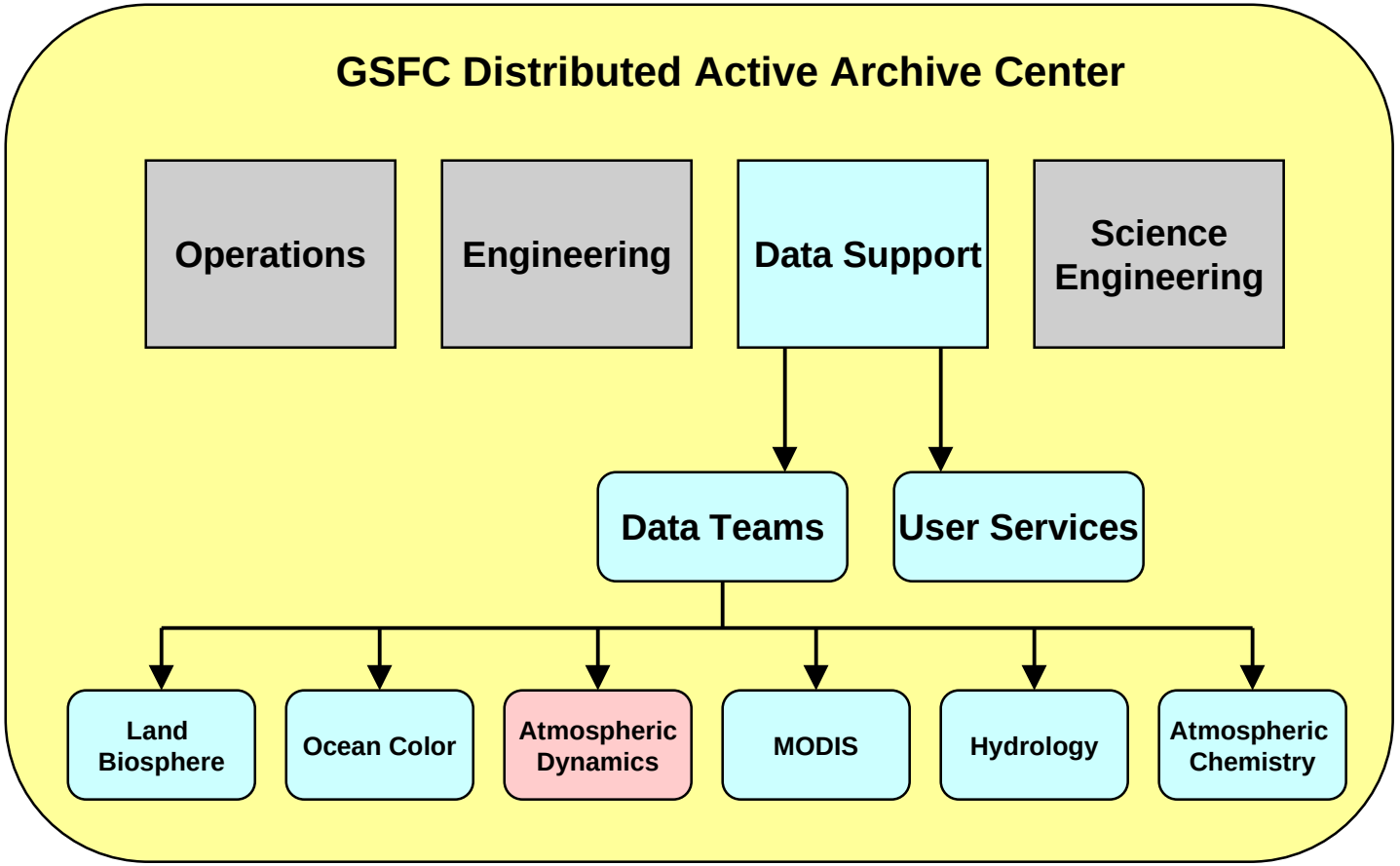
Version 0 (V0)
- Developed and implemented in-house
- Services most GES DAAC data originating prior to 1998

Version 1 (V1)
- Developed and implemented in-house
- Services TRMM data archive and distribution (Starting November, 1997)

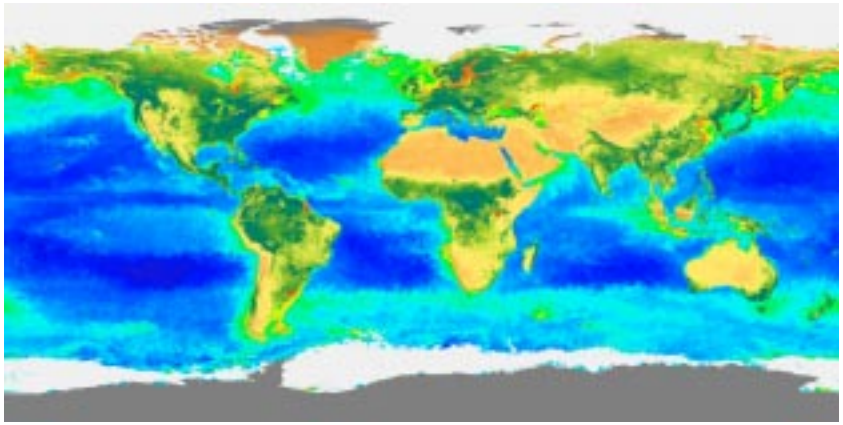
Version 2 (V2) - EOSDIS (ECS)
- Developed and implemented by ESDIS
- Services Terra MODIS data archive and distribution, lower level data production
- Will service Aqua and Aura data sets

Data and Information to science, application,and education users

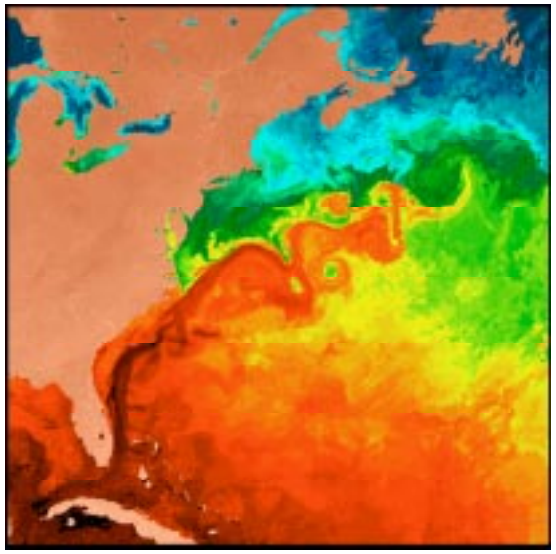
GES DAAC Support Elements



GES DAAC Science Disciplines



Monthly ocean chlorophyll and NDVI from SeaWiFS



Gulf Stream as seen by CZCS sensor

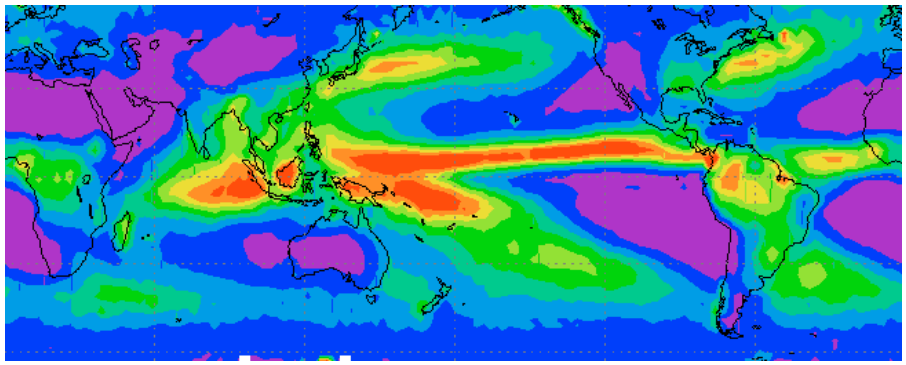
Global Biosphere

Ocean Color
- **CZCS**
- **SeaWiFS**
- **MODIS**

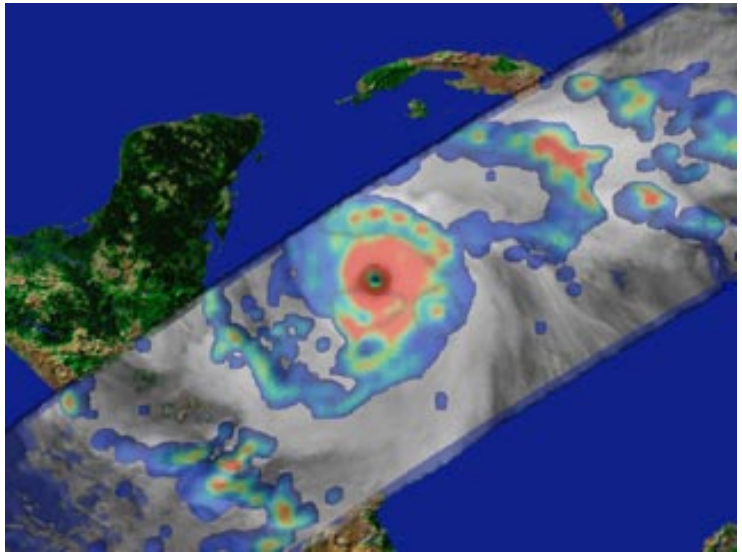
Land Biosphere
- **AVHRR Pathfinder**
- **Triana**

Green - future mission
Red - current mission
Black - closed data set

GES DAAC Science Disciplines



GPCP Annual Mean Precipitation 1988 -1998



Hurricane Mitch as seen by TRMM

Hydrology

Rainfall Climatologies
Combined Satellite/Gauge Rainfall
TRMM
TRMM Field Experiments

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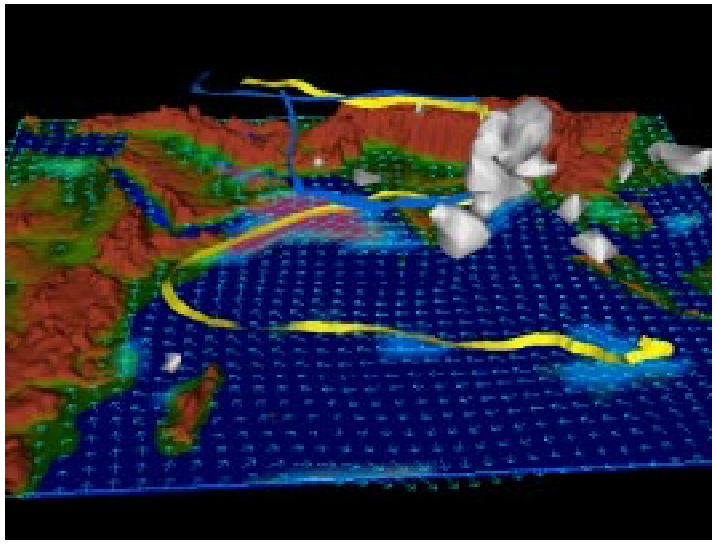
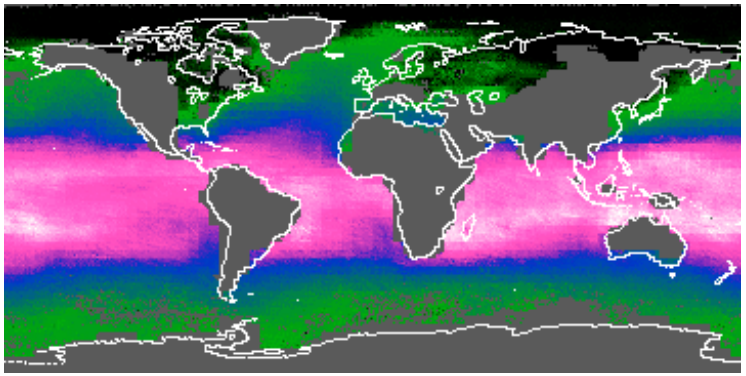
Red - current mission
Black - closed data set

GES DAAC Science Disciplines



Air Parcel Trajectories computed using Data Assimilation



TOVS 1000 MB Monthly Mean Specific Humidity

Atmospheric Dynamics

TOVS Pathfinder
Data Assimilation
MODIS
AIRS/AMSU/HSB

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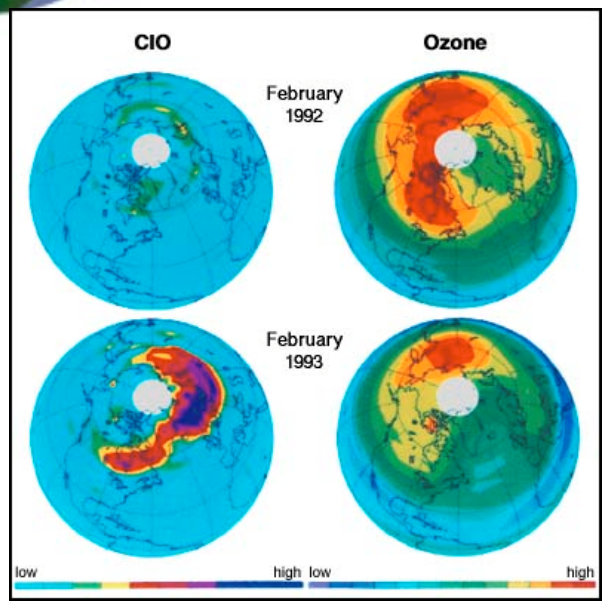
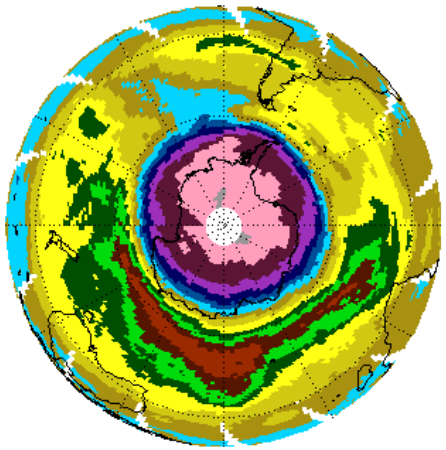
Red - current mission
Black - closed data set

GES DAAC Science Disciplines



Relationship between stratospheric Chlorine Monoxide and Ozone



Antarctic Ozone Hole 9/25/99 as seen by TOMS

Atmospheric Chemistry

Heritage TOMS
Heritage SBUV
EP-TOMS
QuikTOMS
Triana
UARS
AURA-HIRDLS
AURA-MLS
AURA-OMI

Green - future mission
Red - current mission
Black - closed data set

DAAC Data Support Services

Basic services include:

- User support via dedicated Atmospheric Dynamics Data Support Team
  - Data Team Lead Jianchun Qin: jcq@daac.gsfc.nasa.gov
  - Data Team email address: atmdyn-dst@daac.gsfc.nasa.gov
- Work with User Services group to answer user queries pertaining to access and use of data, set up user subscriptions, provide outreach services : daac_usg@gsfcsrvr4.gsfcmo.ecs.nasa.gov
- Monitor ingest of AIRS/AMSU/HSB science data products to ensure integrity of metadata and proper database population of attributes
- Work with DAAC Operations group to diagnose and resolve data ingest and data distribution problems reported by users
- Provide full suite of documentation (detailed guide, summary guide, readme)

DAAC Data Support Services

Basic services include (cont):

- Work with scientists/ESDIS/ECS on Earth Science Data Type (ESDT) definition to facilitate access of data by the larger user community
- Support EDG User Interface (export valids for new/updated ESDTs)
- Develop local DAAC data search-and-order capabilities (includes temporal, spatial, and parameter searching, filtering by attribute, etc)
- Provide comprehensive Web information site including overview, images, documentation, data product descriptions, data access entry points, data manipulation tools, related links and references , and science topics (see, for example, http://daac.gsfc.nasa.gov/CAMPAIGN_DOCS/OCDST/science_focus.html)

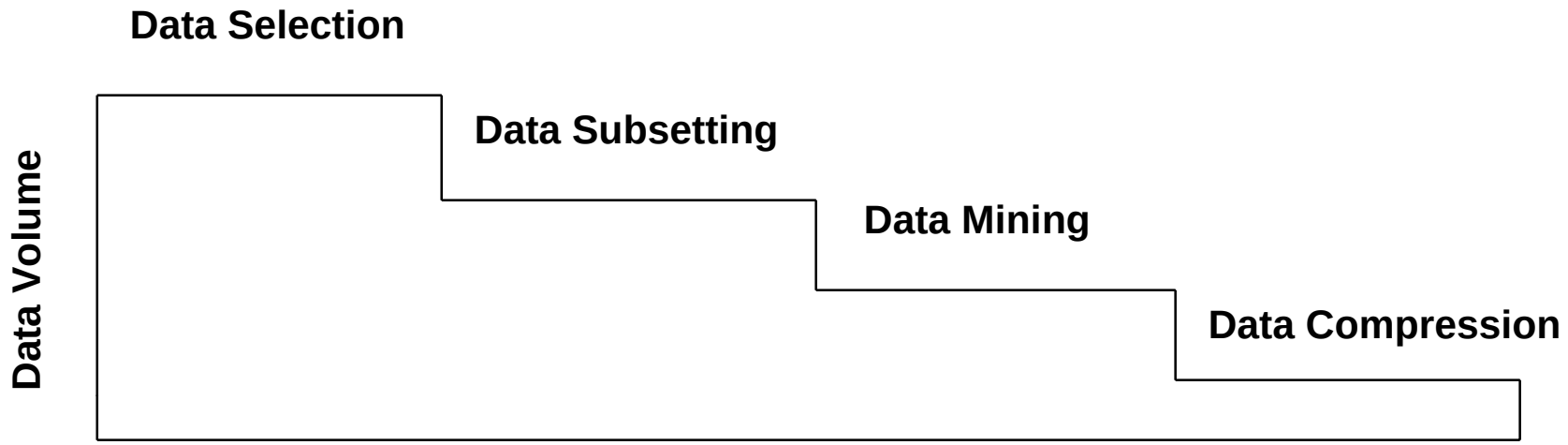
DAAC Data Support Services

Advanced services include:

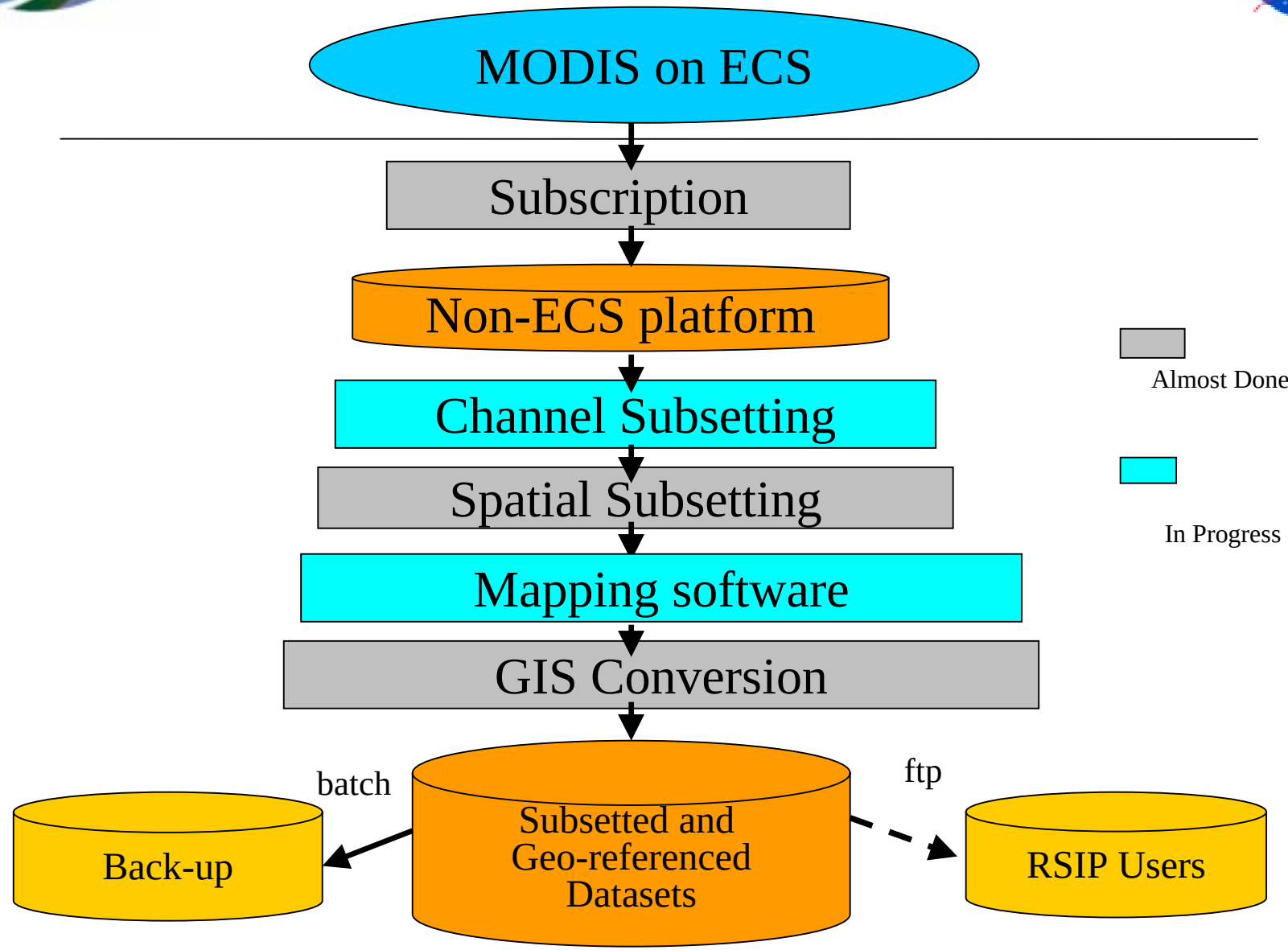
- Special product development (pre-cut subsets, GIS applications products)
- Special subsetting services including on-the-fly and on-demand subsetting by channel and by geographic region
- Provide NOAA/NCEP/NESDIS analysis and forecast products and satellite/in situ data via DAAC ancillary data server; provide tools for decoding data formats
- Provide online analysis and visualization tools for use with rolling archive of data products stored on anonymous FTP
- Support for field experiments
  - provide ancillary data on a 24x7 basis for mission planning
  - provide archive and distribution support for final campaign products

Data Reduction Techniques

- data selection (e.g., content-based search, filtering, browse)
- data subsetting (e.g., by time, by space, by parameter)
- data mining (algorithm integration, online analysis - GrADS, IDL)
- data compression (lossy and lossless)



MODIS Subsetting Example



Field Experiment Support Example

TRMM Field Experiment Ancillary Data Sets - Netscape

File Edit View Go Communicator Help

TRMM Campaigns

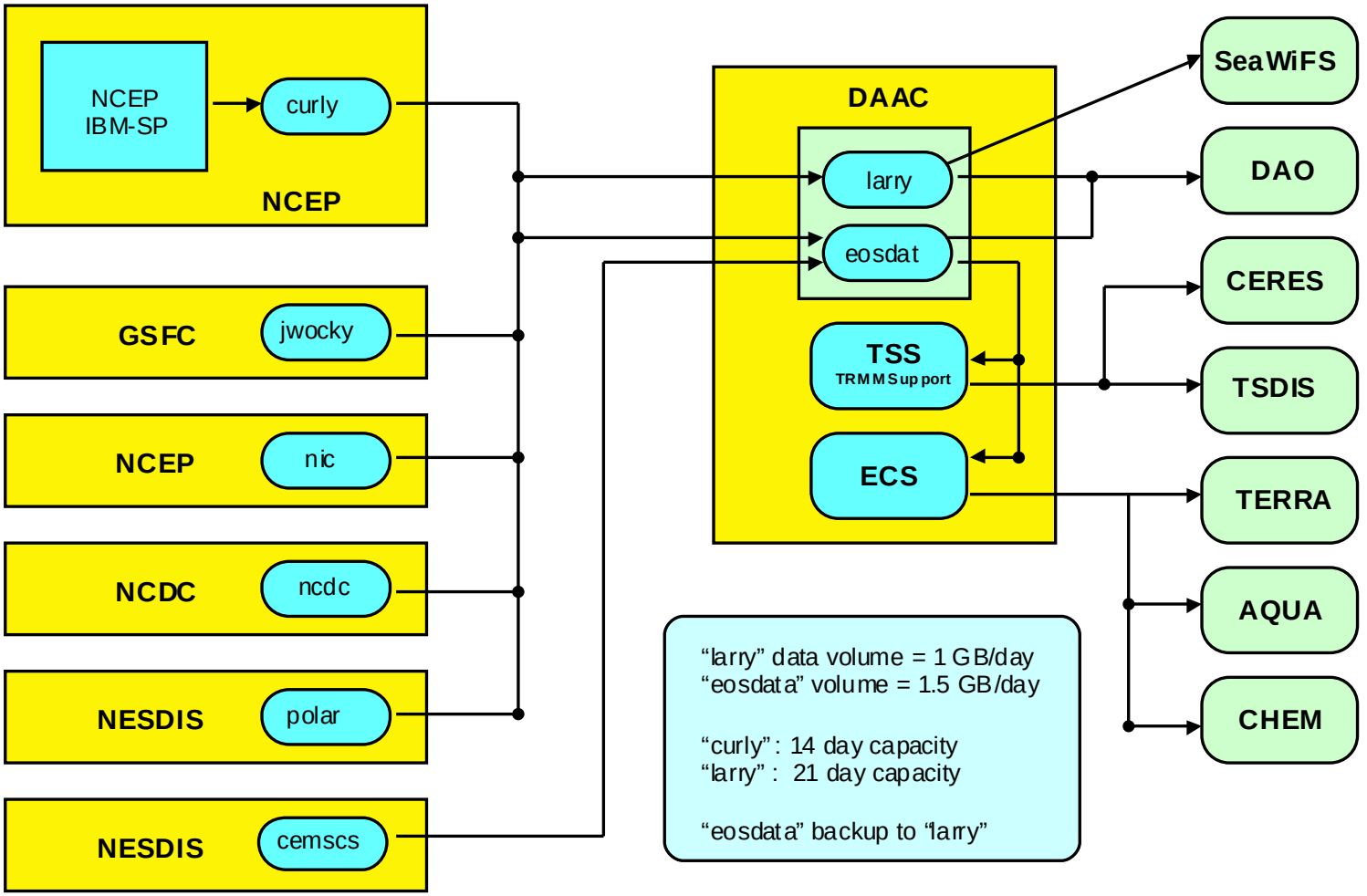
DAAC Home

TRMM Field Experiment Ancillary Data Sets Online at the Goddard DAAC

Satellite	Product	Campaigns				
		TEFLUN A	TEFLUN B	SCSMEX	TRMM/ LBA	KWAJEX
TRMM	Gridded Subsets	✓	✓	✓	❖	❖
	CSIs	✓	✓	✓	✓	❖
GOES-8 & 10	Full Set				❖	❖
	Regional Subset	✓	✓		✓	❖
GMS-5	5km			✓	✓	✓
Meteosat-7	5km 3-hourly full disk				✓	❖
SSMI	GPROF	✓	✓		✓	❖
	TB				✓	❖
TOVS	Gridded daily				✓	❖
AVHRR	8 km GAC NDVI+radiances				❖	
	OLR	✓	✓			
	SST	✓	✓	✓		
Model						
NCEP	4 x daily	✓	✓		❖	❖
Miscellaneous Products						
NDBC Buoy	Hourly, Meteorological data	✓	✓			
GPCP Combined	Monthly, Gridded 2.5x2.5 deg	✓	✓			
GPCC Gauge	Monthly, gridded, 1 x 1 deg	✓	✓			
CAMS Gauge	Monthly, gridded, .5 x .5 deg	✓	✓			

Document: Done

EOSDIS Ancillary Data Support



On-line Analysis Tools: OASIS

Data C

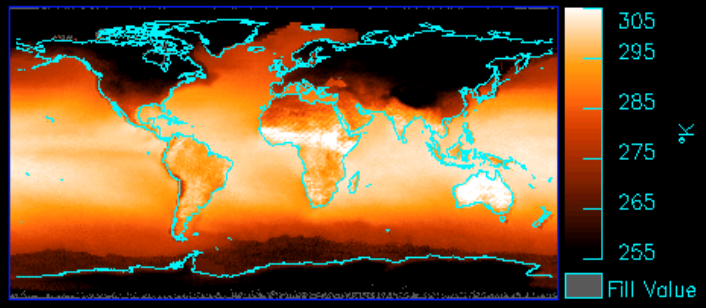
File E

Data View

Data Refresh

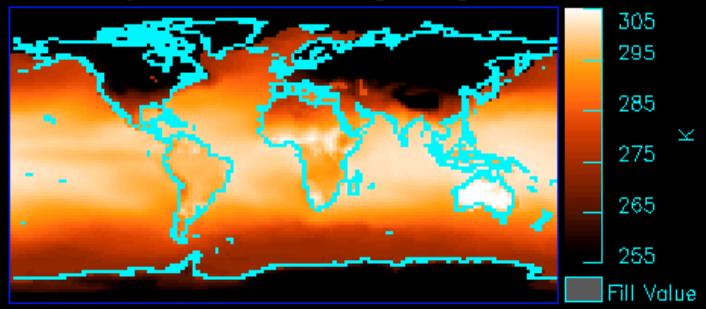
- x: TOVS Path A NOAA-9 Monthly Surface Skin Temperature for 01/1985

With Javascript enabled browser, clicking the image below starts animation.

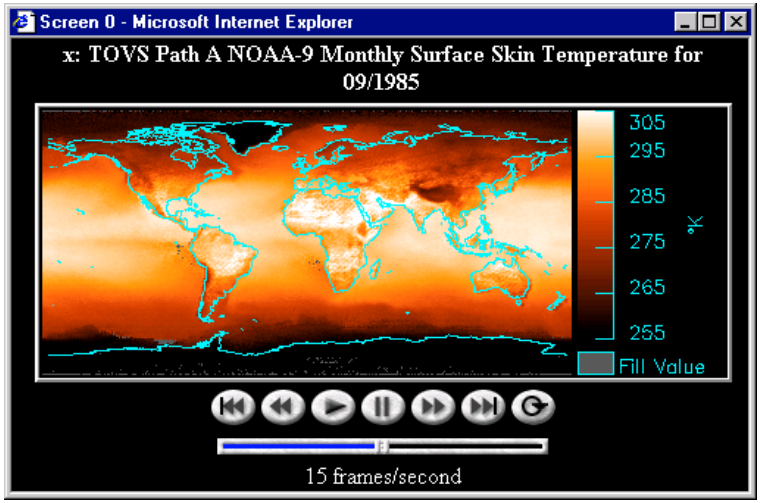


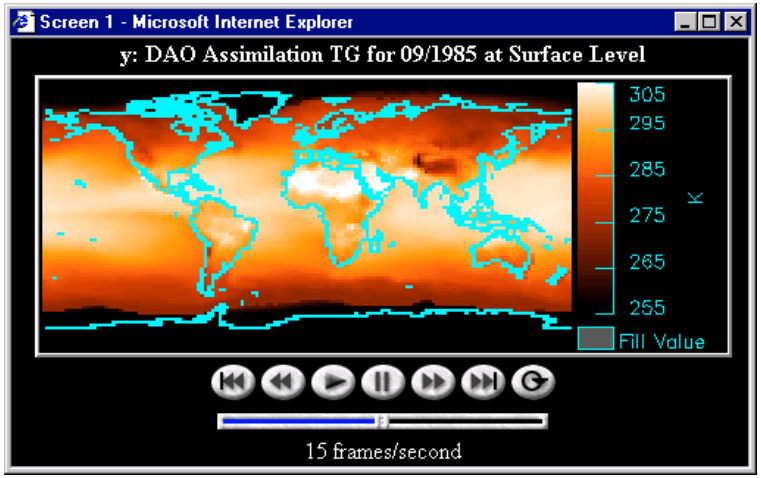
- y: DAO Assimilation TG for 01/1985 at Surface Level

With Javascript enabled browser, clicking the image below starts animation.



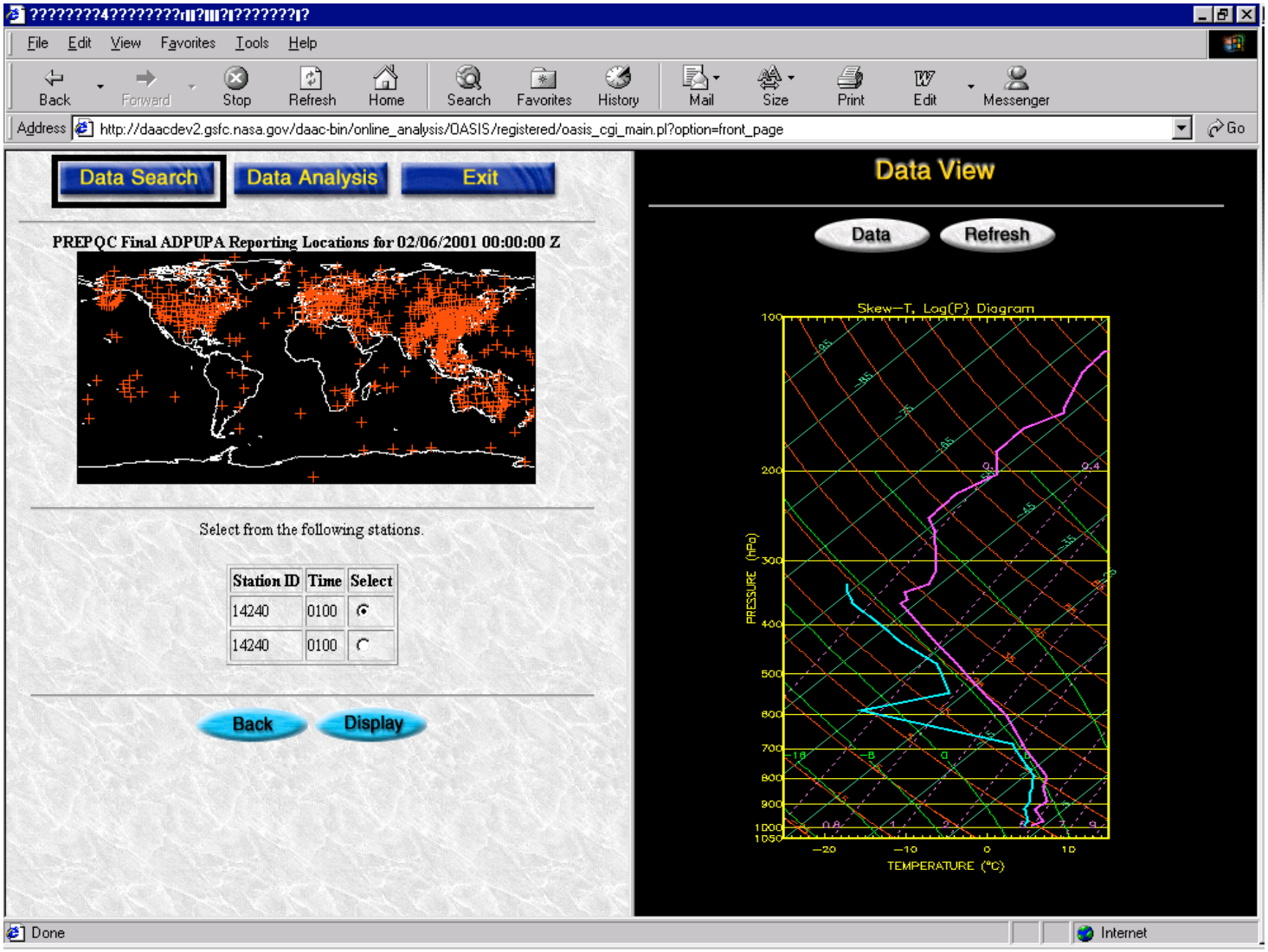
Left) Snap-shuts **Below) Time-serieses**





On-line Analysis Tools: OASIS

--- Upper Air Reports From the PREPQC File



AIRS Data Support Web Site at GES DAAC

Overview

Documentation

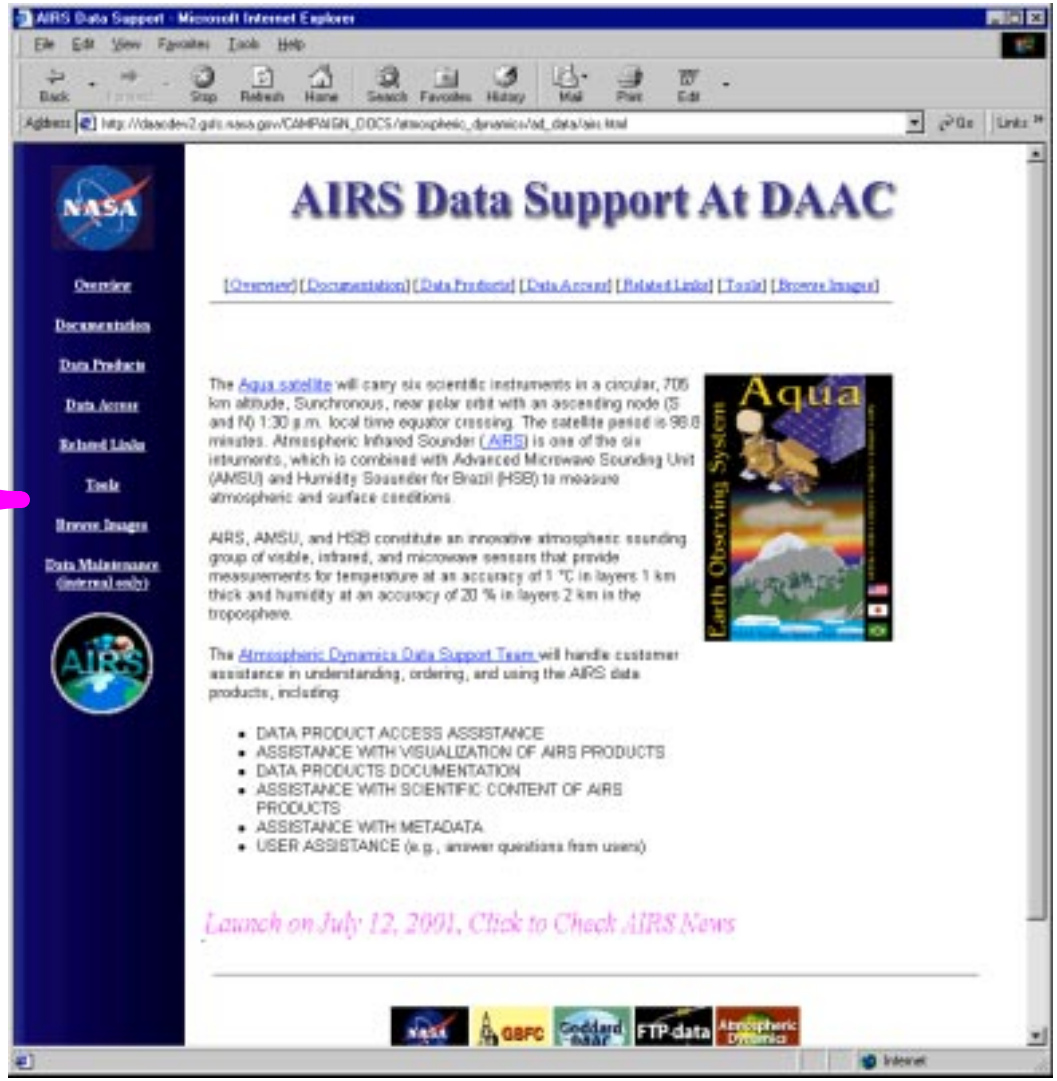
Data Products

Data Access

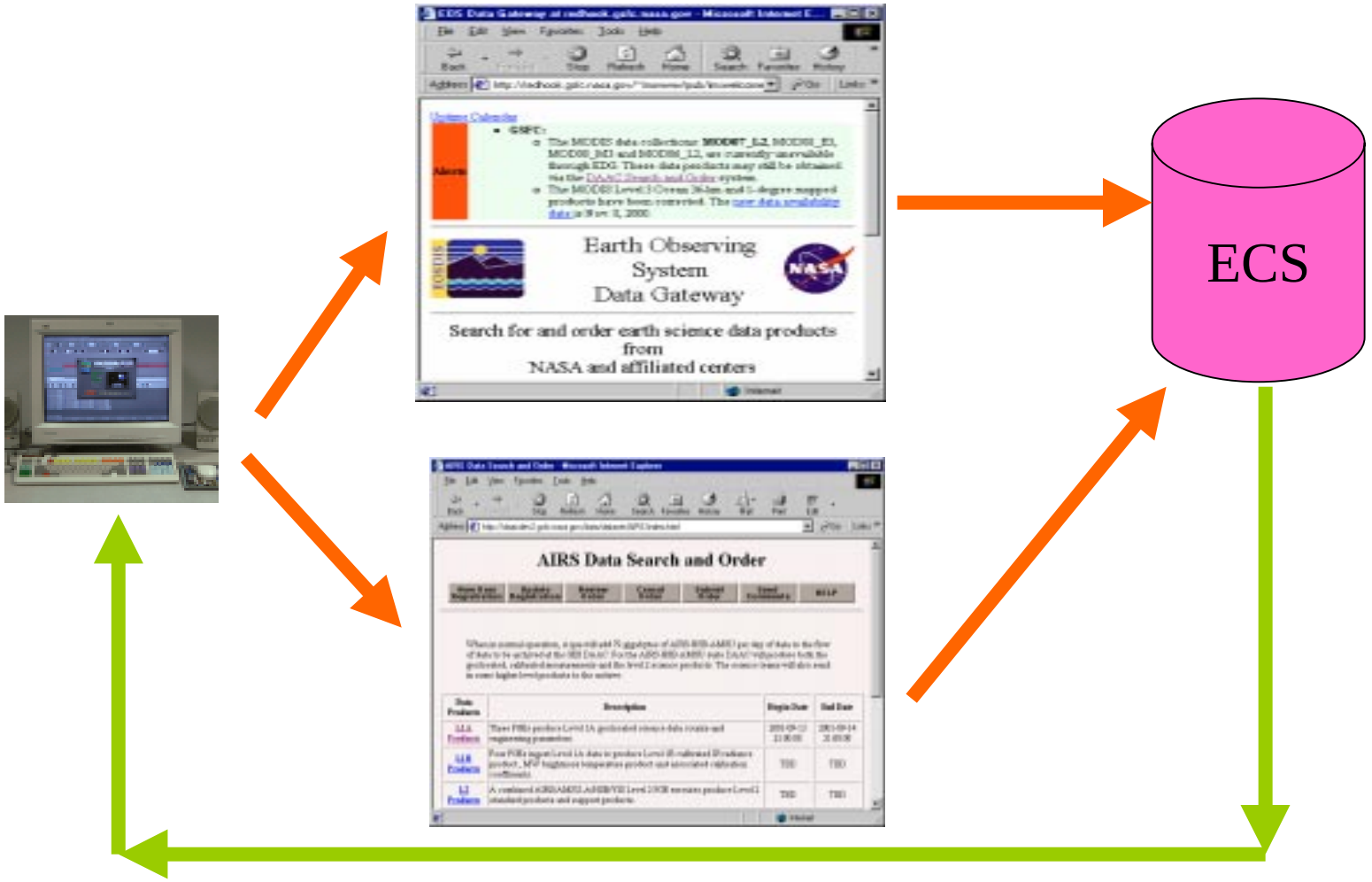
Related Links

Browse Images

Data Maintenance

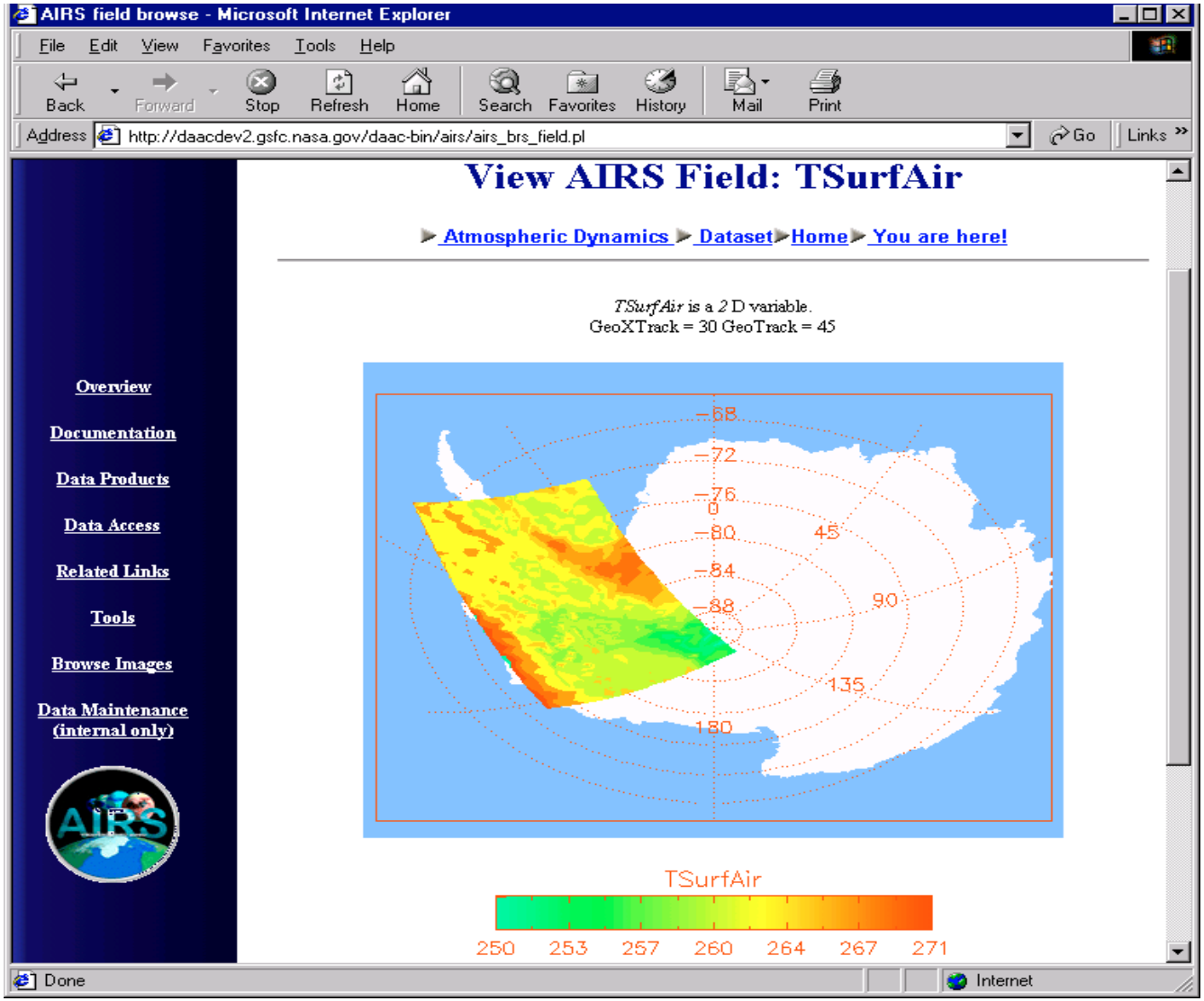


AIRS Data Access



AIRS Data Visualization

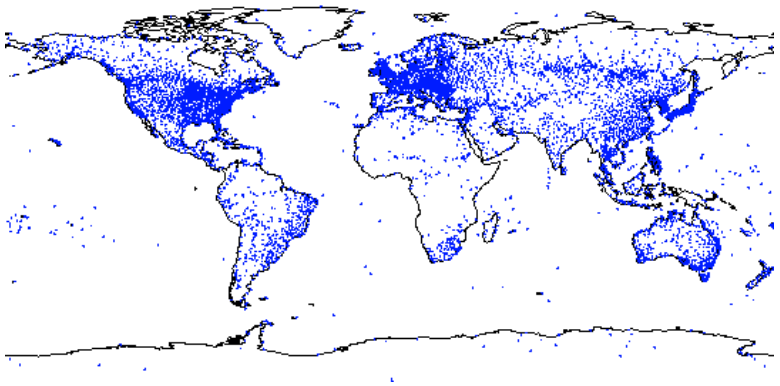
--- AIRS browse data fields: Level2 Surface Air Temperature in Kelvins



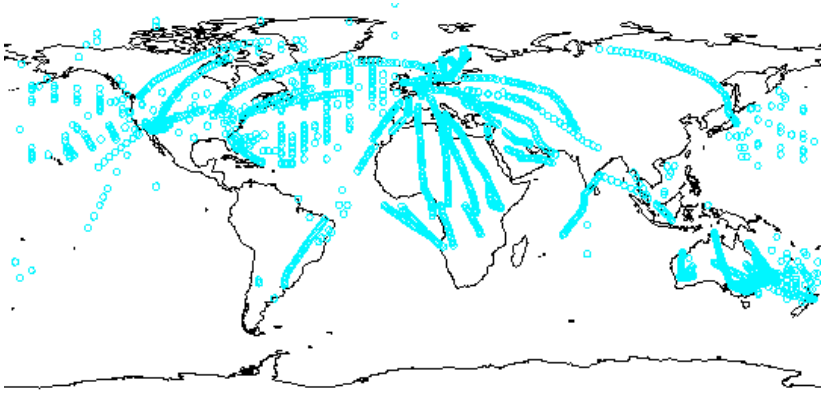
BUFR Data Support

--- Examples of Data Location Graph

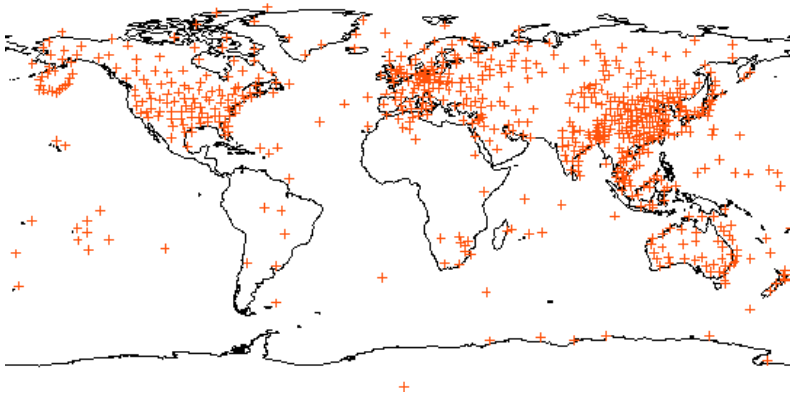
PREPQC FNL Surface Report Data Coverage 02/06/01 at 00Z



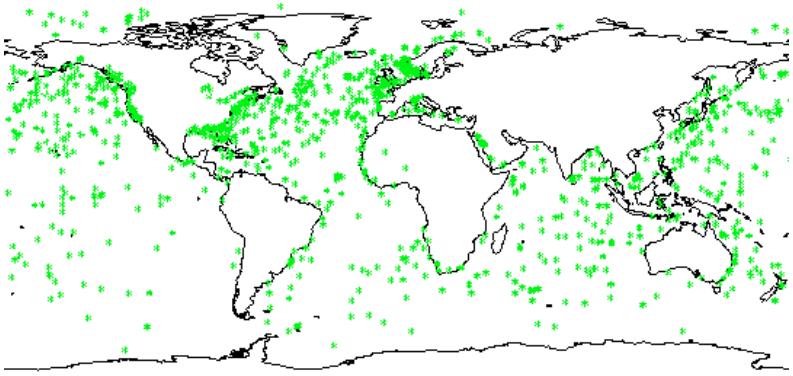
PREPQC FNL Aircraft Report Data Coverage 02/06/01 at 00Z



PREPQC FNL Upper Air Report Data Coverage 02/06/01 at 00Z



PREPQC FNL Ship Report Data Coverage02/06/01 at 00Z



3/26/2001

AIRS Data Subsetter

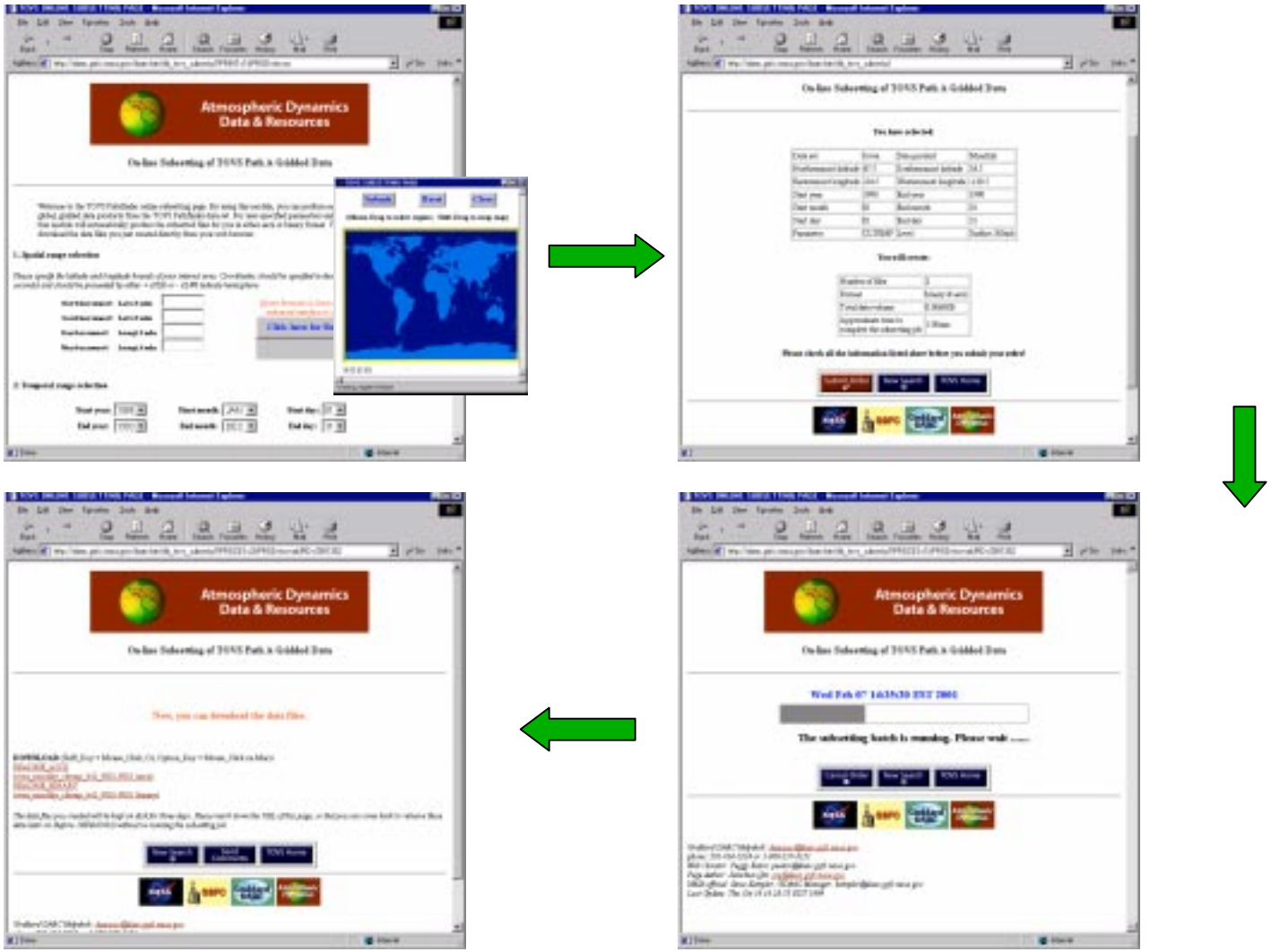
--- Extract metadata and fields from an AIRS file

Synopsis:
Usage: airsmeta -i input_file -o outfile -v option
Option:
-i HDF swath input file name(mandatory)
-o output file name, default is the standard output device
-v view field, global and swath attributes, dimension information
your options:
field, global, swath, dim, or all
(default option is all)

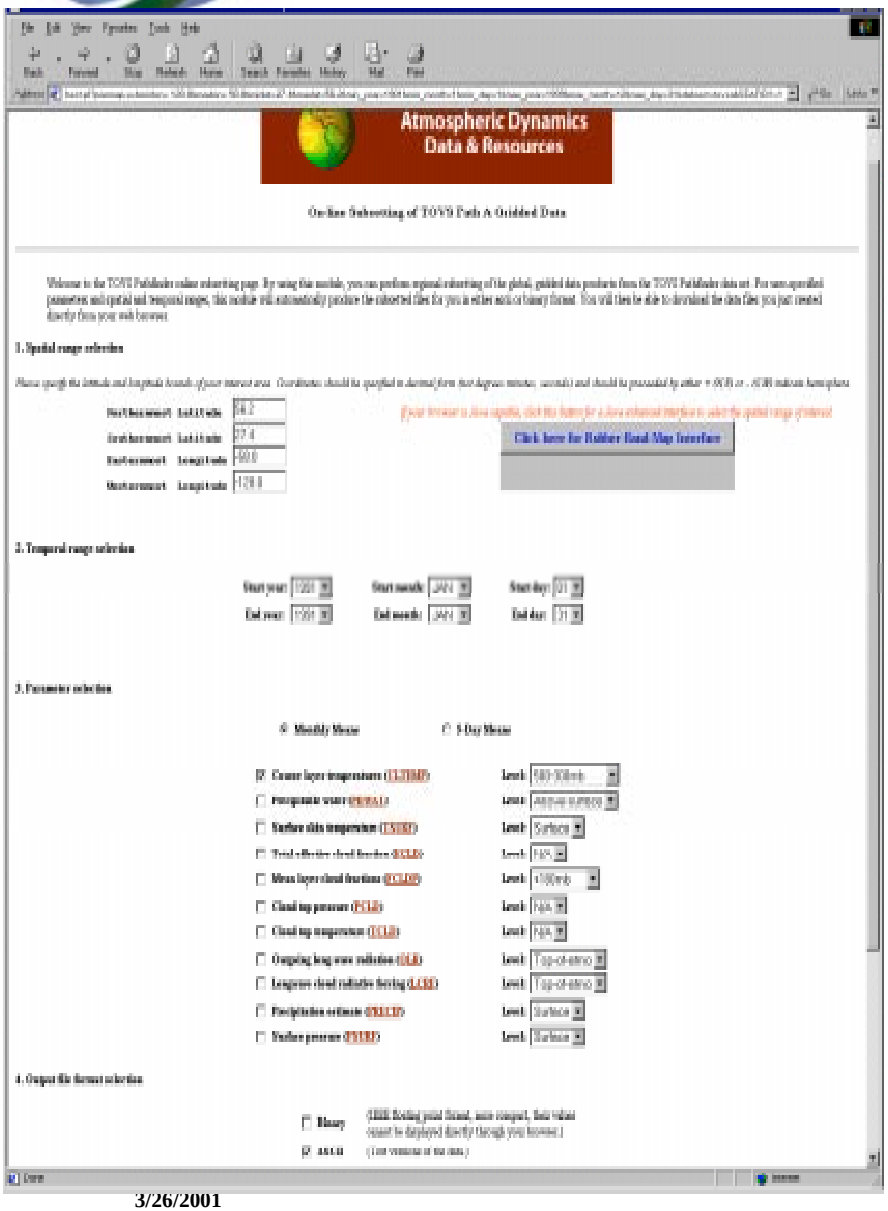
EXAMPLES: airsmeta -i test.hdf -o test.out -v all

```
daacdev2$ airsmeta -i test.hdf -v field
Input File: test.hdf
Swath Name: L2_Standard_atmospheric&surface_product
          ------FIELD INFORMATION-----------------
 field name(No.): Dimension name=dimension
    ---------------------------------------------------
    TSurfStd(36):  GeoTrack=3  GeoXTrack=30
     TSurfAir(37):  GeoTrack=3  GeoXTrack=30
      TAirStd(38):  GeoTrack=3  GeoXTrack=30  StdPressureLev
                    .
                    .
                    .
Look at a field(y/n)?
y
Enter a variable number:
37
TSurfAir   5
295.099518; 296.741302; 296.601288; 298.912445; 298.099884;
299.682343; 301.930939; 302.054443; 2
94.642029; 300.308258; 296.617950; 300.388275; 300.757935;
295.108826; 300.068665; 288.623230; 29
0.594910; 297.742859; 297.783966; 299.649384; 298.996735;
295.220093; 298.105316; 297.207092; 297
.453979; 295.406067; 297.471710; 297.787842; 295.201691;
290.589172; 302.036957; 297.046539; 300.
708069; 302.788757; 297.340759; 297.962158; 297.026428;
298.574890; 298.690399; 289.927094; 297.8
95630; 296.480530; 298.857056; 299.750244; 298.203674; 303.456482;
293.109467; 297.786804; 298.87
9303; 299.160736; 301.716614; 298.149719; 300.395660; 299.267639;
298.915924; 299.536133; 299.905
296.176727;
 Continue (c) or quit (q)?
```

On-the-fly Subsetting



On-the-fly Subsetting



Data Parameter Search

Data Parameter Search

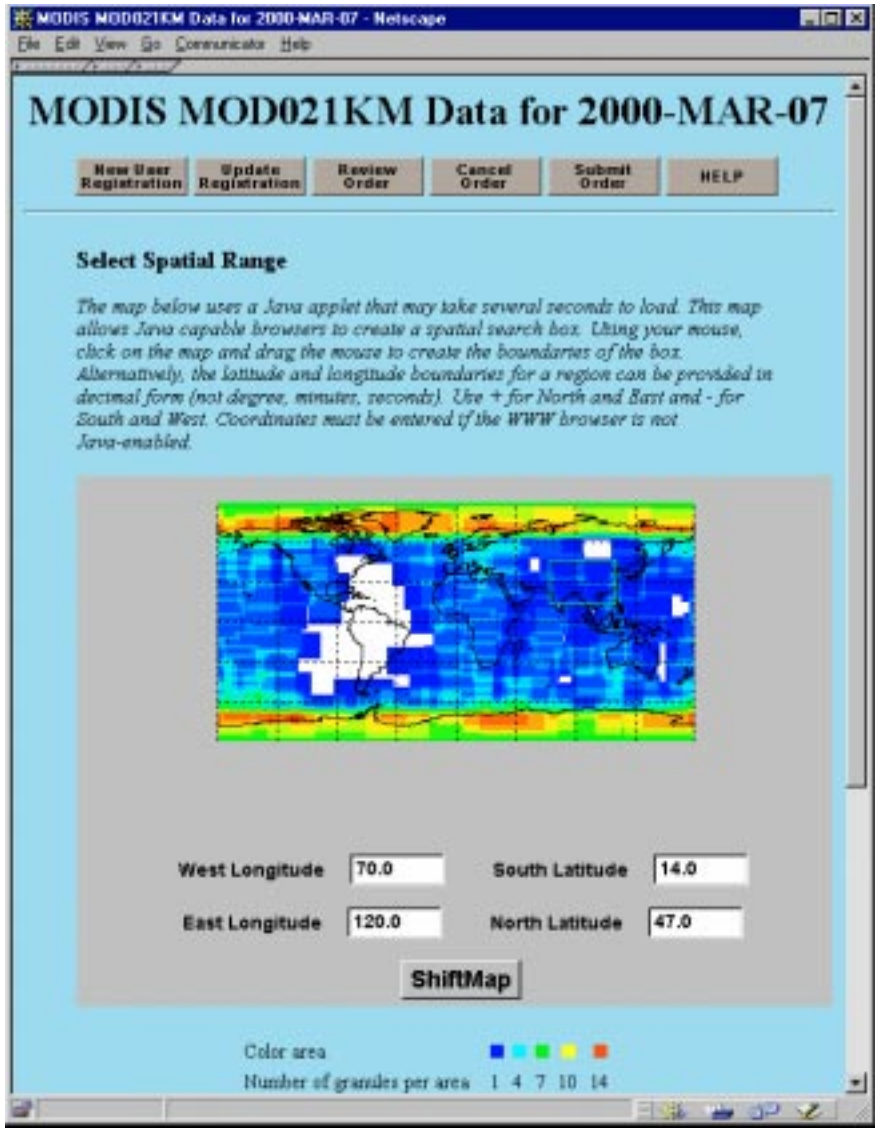
DAAC Data Access Methods

There are 3 ways to obtain data from the DAAC:

- WWW User Interface
  - Global EOS Data Gateway (EDG), URL http://eos.nasa.gov/imswelcome/
  - Local DAAC User Interface, URL http://eosdata.gsfc.nasa.gov
- Anonymous FTP at http://eosdata.gsfc.nasa.gov/CAMPAIGN_DOCS/FTP_SITE/ftp_site.html
- Subscriptions
  - Specified once and for all by user
  - User receives email for either push or pull operation

Data Selection Example (EDG)

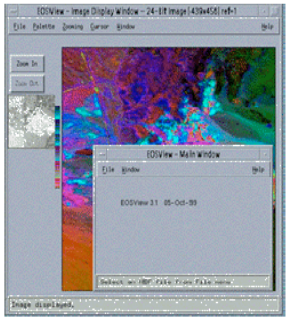
Data Selection Example (Local UI)



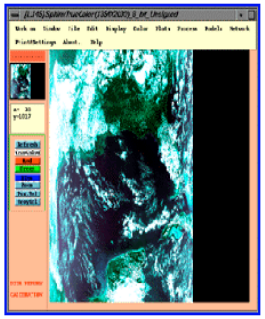
HDF Data Access Tools

File Edit View Go Communicator Help

Visualization

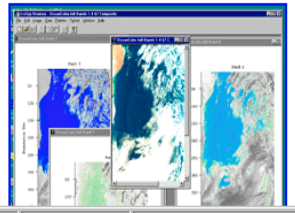


EOSView is a tool for examining, viewing and verifying HDF and HDF-EOS data files. This tool enables the user to view the contents of HDF files and individual objects by being able to read and display all metadata fields and data objects. Supported record types for viewing and display capability include images, Raster images, multidimensional arrays, text, tables, (Vdatas) and Vgroups. Attributes and annotations can also be viewed. EOSView was developed for various platforms for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS).



MSPHINX (MODIS Satellite Process Handling Images uNder Xwindow) is a freeware package for image analysis, data plotting, format conversion, and many other sophisticated tasks. It was designed by Laboratoire d'Optique Atmosphérique, a French planetary research institution. MSPHINX is a UNIX, menu-driven package that is easy to install and use.

If you encounter any problems with MSPHINX, please report them to the University of Lille (sphinx@loa.univ-lille1.fr).



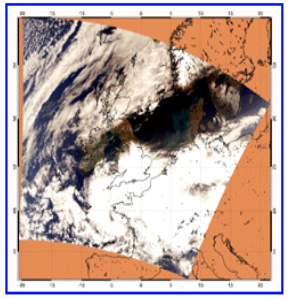
The SciSpy Browser from Fortner Software(TM) is a PC windows utility that allows you to examine scientific data by viewing the hierarchy and objects of a HDF file.

Objects that can be viewed within an HDF file include Scientific Datasets (up to 7-dimensions), Data Tables, Raster Images

Document: Done

File Edit View Go Communicator Help

WebWinds, the successor to LinkWinds, is an interactive science data visualization system developed by JPL NASA.
WebWinds is written in Java, is available for all major computer platforms, and is based on LinkWinds in that it inherits LinkWinds functionality.
Because it is written in Java, WebWinds is modular, allowing flexibility in tool construction and application. WebWinds is also largely platform and operating system independent so that it functions efficiently in today's heterogeneous environment.



geoview is an interactive IDL program to read Level 1B and Level 2 MODIS products, list SDS and their attributes, and show granule location on a world map. geoview is also a visualization tool. It can overlay the first three user-selected channels or other data layers, geolocate each one of them, and produce a mapped true color image. Documentation on geoview is available. Examples on how to extract different cloud masks from MOD35 are also given.

Geographic Information System

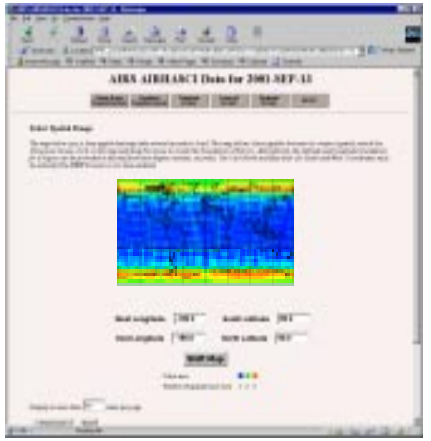
Software is currently being evaluated and tested.

Scientific

Document: Done

BACKUPS

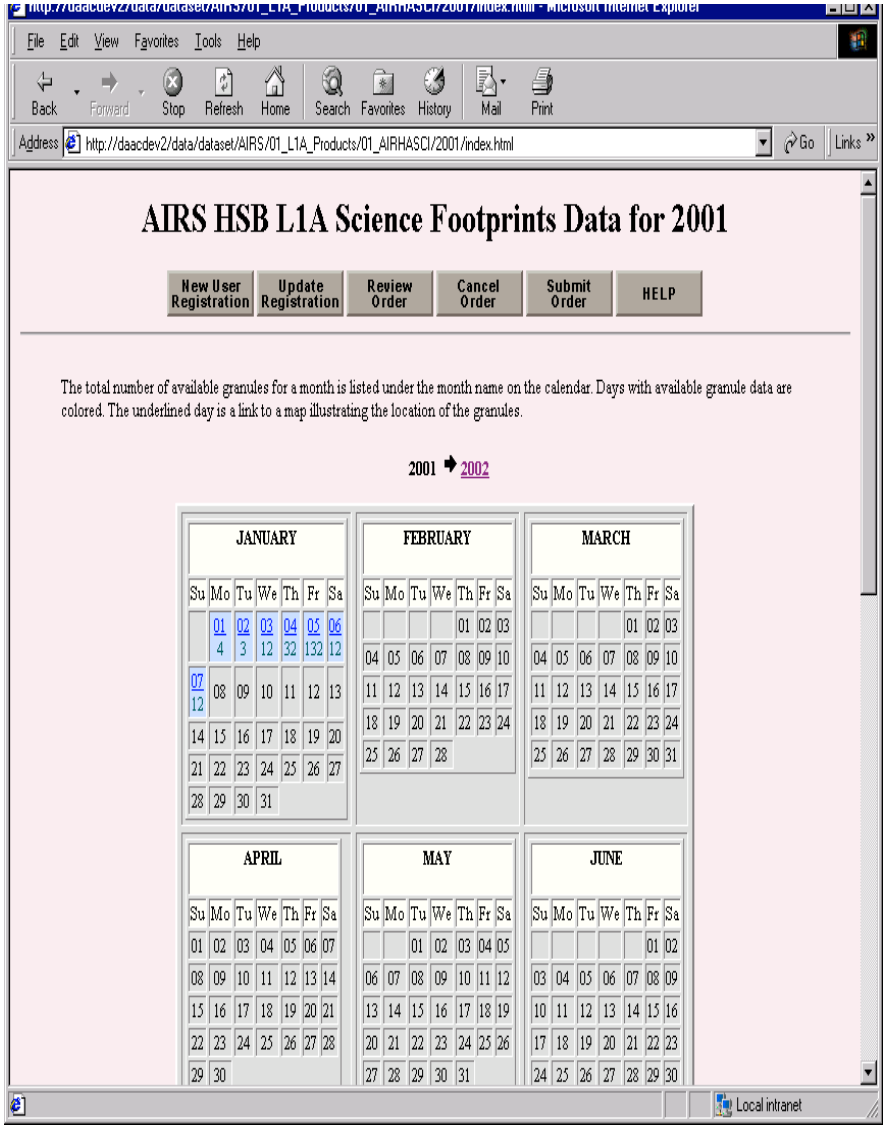
Data Selection Example (Local UI)

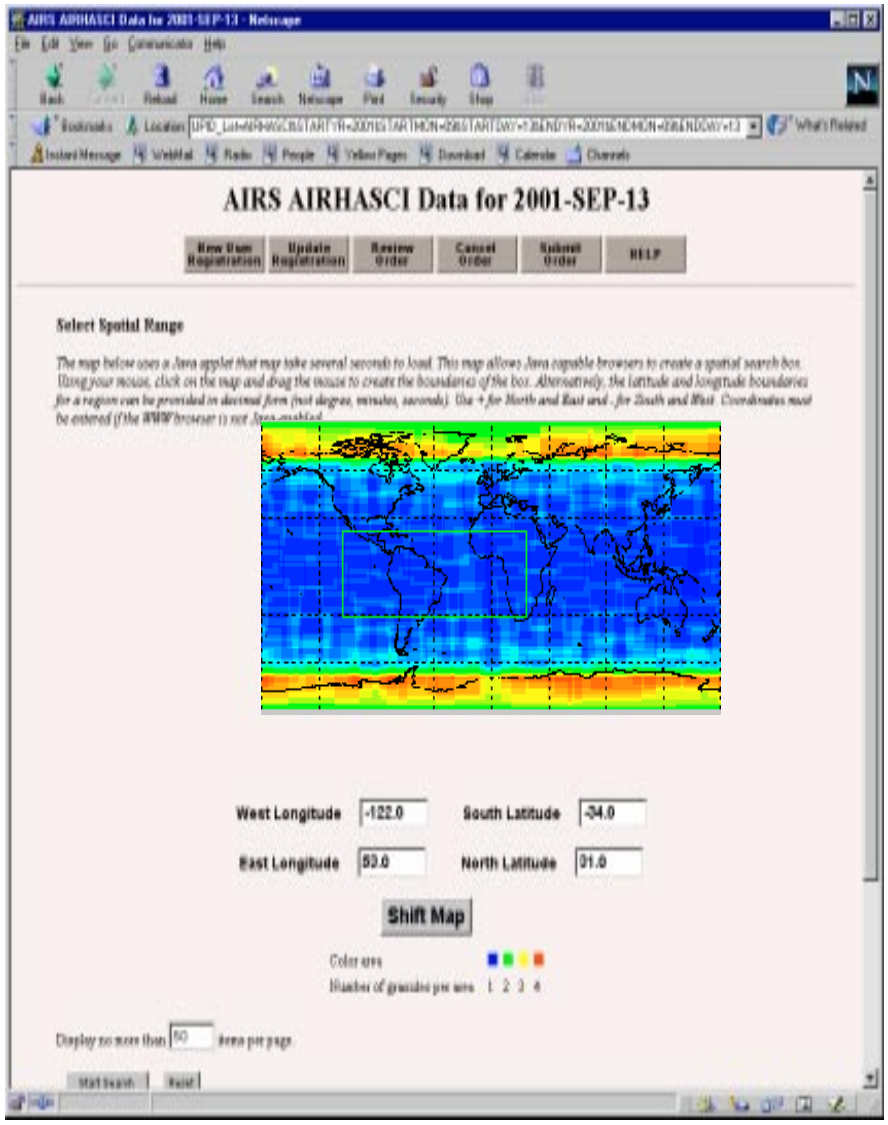


FT
P
CD
Tap
e

Data Selection Example (Local UI)

Data Selection Example (Local UI)





Data Selection Example (Local UI)