AIRS V5 Processing Status & Data Services @ GES DISC

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Special Thanks:
Evan Manning, Ed Olsen, Steve Friedman on the AIRS Science Team.

Outline

- **Version 5 Processing Status**
  - V5.0 Reprocessing
  - V5.2 AIRS+AMSU Processing
  - Status of Level-3 Support Products
- **Mirador v1.21 (what's new)**
  - Time Line Display
  - Data Download Methods
  - Descriptive Filenames Option
- **Data Services**
  - New Data Subsetting Services
  - Level-2 Swath Data Format Conversion: HDFEOS → netCDF
  - Level-3 Visualization and Analysis: Giovanni v3.0.6
  - Near-Real-Time Visualization Products

V5 Processing: v5.0 reprocessing

Summary Statistics:

- Started in 07/2007 and was completed in 02/2008. **100% processed & archived**.
- Average rate of processing is approximately 16x.
- The reprocessing period consisted of 2166 days (~ 6 years).

Challenges Faced:

- Recover Level-0 data from data provider (#1 reason for any delay).
- Added IR-only into the mix (5/31/2007 → present).
- Hardware issues.

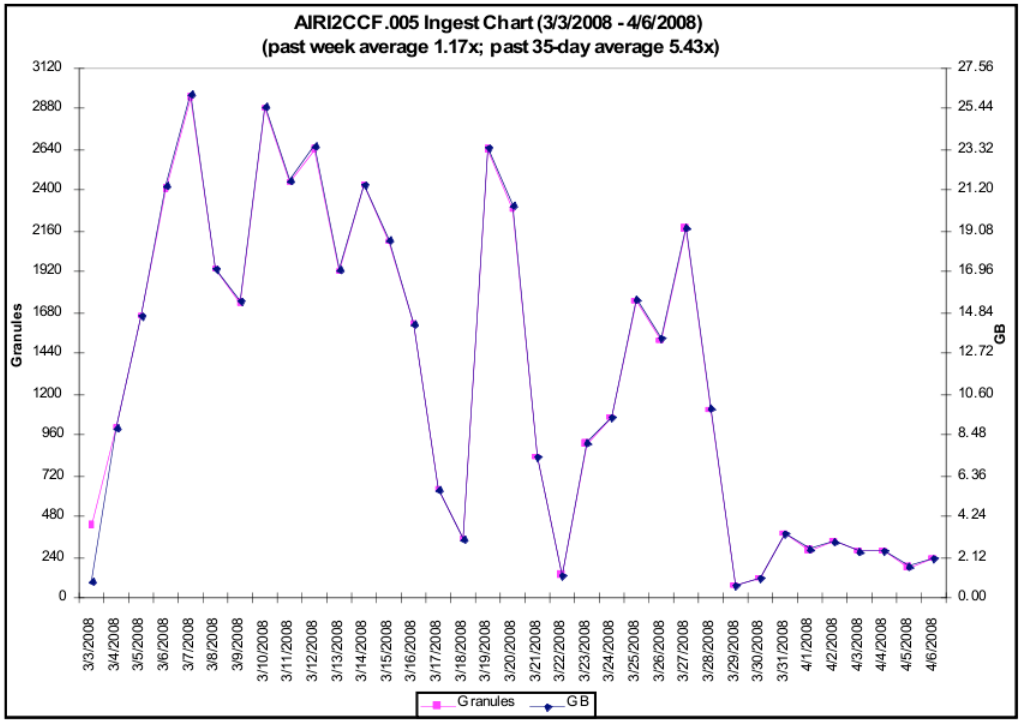
V5 Processing: v5.2 reprocessing

Summary Statistics:

- Start: 3/04/2008
  Finish: 3/31/2008
  100% processed & archived.

- Averaged approximately 6x processing speed.

- Processed 152 days worth of data, from 10/1/2007 → .



V5 Processing: L3 Support Product

- The AIRS 5.0 L3 Support Product processing covers 8/31/2002 through 9/30/2007 or 61 months.

- The AIRS 5.0 L3 support processing started on 2/29/2008 and has been running in the background at a very low x-rate due to the AIRS V5.2 processing taking higher priority. Now have dedicated resources and can increase the x-rate to 60x.

- Have completed **60%** as of 4/14/2008. Only year 2004 and 2005 are left to do.

- Have offered several data transfer options to Dr. Joel Susskind's group.

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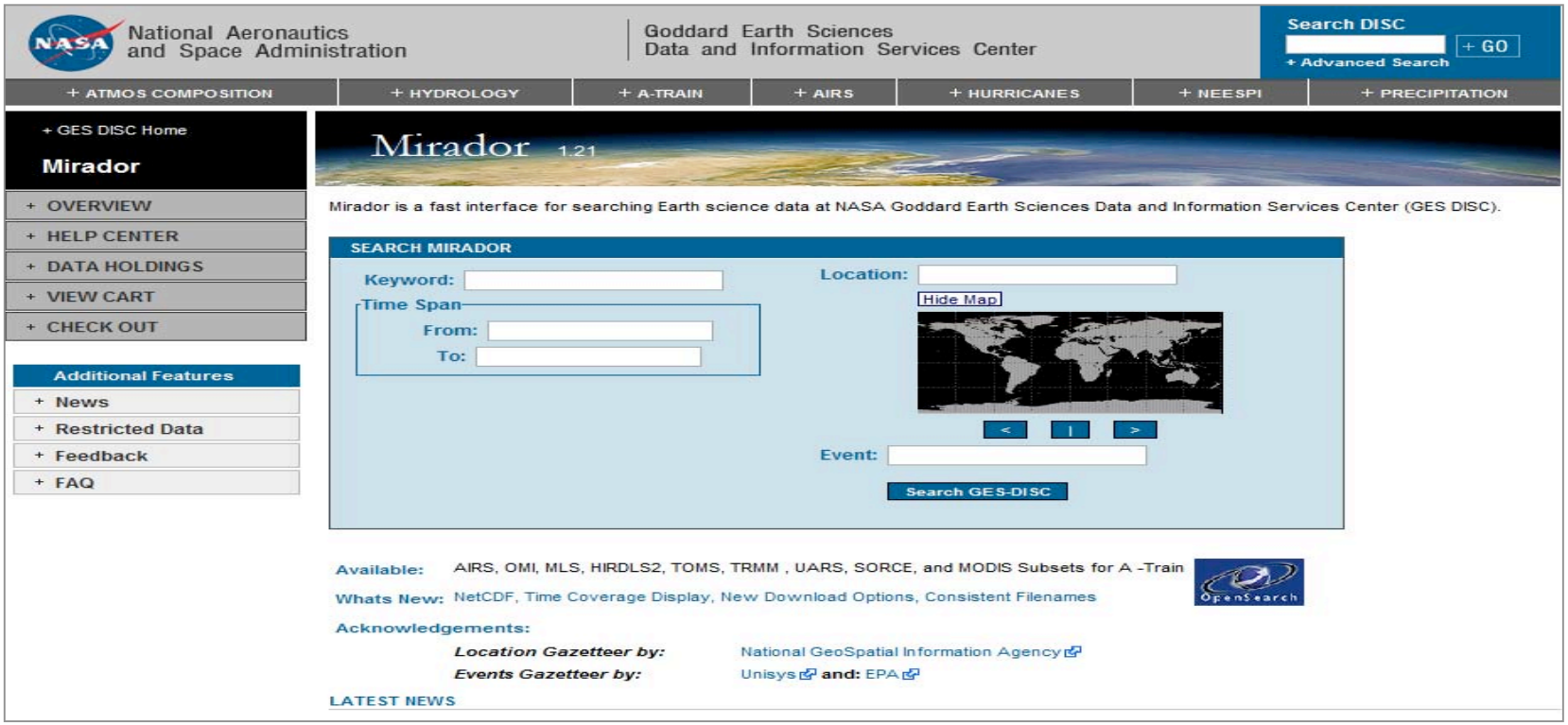
Mirador: What's New?

The keyword-based search interface for searching GES DISC data holdings

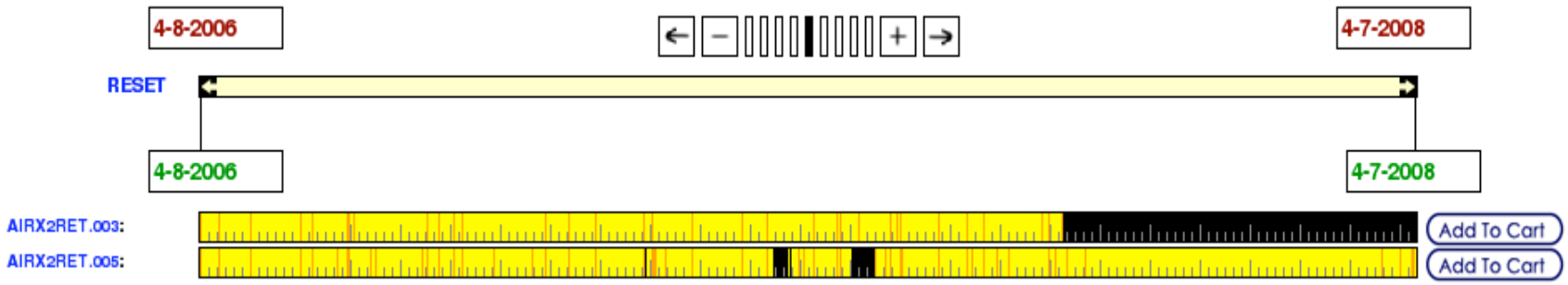


Front Page http://mirador.gsfc.nasa.gov

Mirador: 1/Time Line Display

Page 2

Mirador: 1/Time Line Display



Color Keys:

- **YELLOW** = days with complete data (granule count = 240)
- **ORANGE** = days with incomplete data (granule count < 240)
- **BLACK** = complete missing (granule count = 0)

Mirador: 2/Data Download Methods

JDataDownloader

URL List for Wget

FTP Batch Script

On The Fly Tar

DownThemAll

CHECKOUT - CHOOSE A DOWNLOAD OPTION:

JAVA-BASED DOWNLOADER

Jar file: 20080412031404_S4paDownloadManager.jar [Download]

JDataDownloader is a platform independent HTTP and FTP client. Its main function is the data transfer between a remote and a local computer. By default it runs in graphical mode. Optionally, it can be run in a non-interactive mode. In the graphical mode, the user can monitor the progress of the data transfer and control, pause, and resume the data transfer. It requires the Java 1.4.2 or higher be installed on the user's computer.
Check whether Java is installed on your computer.

URL LIST FOR USE WITH HTTP CLIENTS (WGET, CURL ETC.,)

[Download Data only] [Download XML only] [Download DATA and XML]

FTP BATCH SCRIPT

[Download Data only] [Download XML only] [Download DATA and XML]

Instructions for running script:

On SGI or Linux platforms, run: ftp -p -n script
On DOS, SunOS or Windows/Mac platforms, run: ftp -n -s:script

ON THE FLY TAR

[Download from airscal2u.ecs.nasa.gov] If your download from airscal2u.ecs.nasa.gov is interrupted, please follow this link to restart it.

On The Fly TAR allows the user to download all of the files staged on each server to a single tar file on the user's local machine. it. Please note that On The Fly TAR is not available for serviced (netcdf,subsetted) data.

DOWNTHEMALL

DownThemALL is a Firefox download manager plugin which is fast, reliable and easy to use.

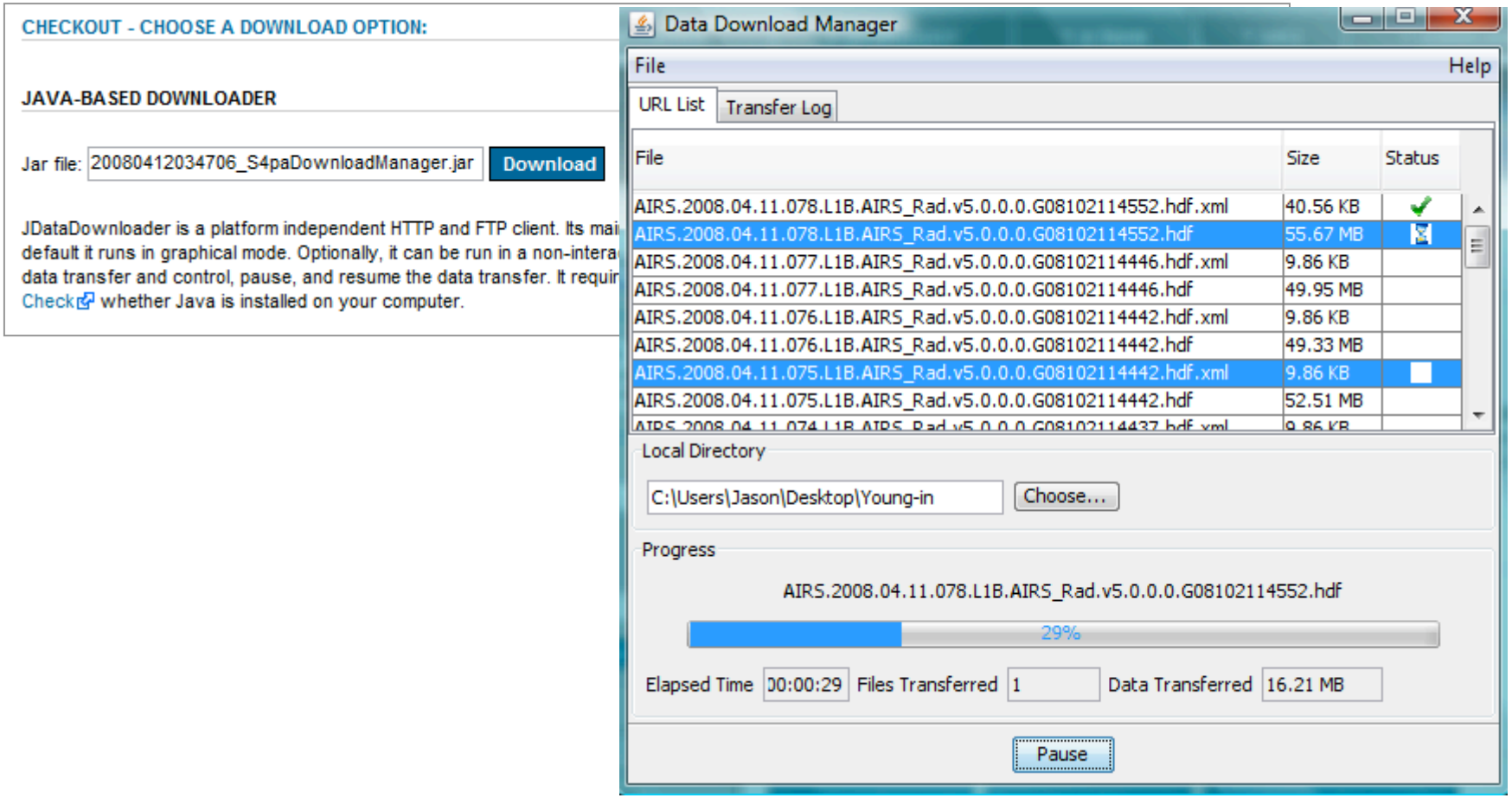
Get it here downTHEMall!

Mirador: 2/Data Download Methods

Methods	Descriptions	Comments
JDataDownloader	Platform independent HTTP and FTP GUI client, written in Java.	Best for Windows and Mac platform. Requires Java 1.4.2 or higher. Available for both plain data download and serviced download*.
FTP Batch Script	Contains FTP instructions to be piped into FTP program.	Available wherever FTP is supported. Different command line options for different platforms.
URL List for *Wget*	URL list for non-interactive GNU HTTP/FTP downloader (v1.11.1 or higher).	Best for Linux platform. Available for both plain data download and serviced download*. *Wget* is not installed by default on Windows and Mac.
On-the-fly tar	download all selected data as a single tar file.	Not available for serviced requests.
DownThemAll	Download manager, an add-on to Firefox browser.	Best suited for users who are experts on this.

* Serviced Data Download: subsetting or data format conversion service is requested.

Mirador: 2/Data Download Methods



Mirador: 2/Data Download Methods

URL List File for Wget:

```
ftp://airscal2u.ecs.nasa.gov/ftp/data/s4pa///Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.078.L1B.AIRS_Rad.v5.0.0.0.G08104113835.hdf
ftp://airscal2u.ecs.nasa.gov/ftp/data/s4pa///Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.077.L1B.AIRS_Rad.v5.0.0.0.G08104113835.hdf
ftp://airscal2u.ecs.nasa.gov/ftp/data/s4pa///Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.076.L1B.AIRS_Rad.v5.0.0.0.G08104113834.hdf
ftp://airscal2u.ecs.nasa.gov/ftp/data/s4pa///Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.075.L1B.AIRS_Rad.v5.0.0.0.G08104113844.hdf
ftp://airscal2u.ecs.nasa.gov/ftp/data/s4pa///Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.074.L1B.AIRS_Rad.v5.0.0.0.G08104113830.hdf
```

To run: wget -i *yourUrlListFilename*

FTP Batch Download Script;

```
verbose open airscal2u.ecs.nasa.gov
user anonymous user@somehost.com
bin
get /ftp/data/s4pa/Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.078.L1B.AIRS_Rad.v5.0.0.0.G08104113835.hdf AIRS.2008.04.13.078.L1B.AIRS_Rad.v5.0.0.0.G
get /ftp/data/s4pa/Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.077.L1B.AIRS_Rad.v5.0.0.0.G08104113835.hdf AIRS.2008.04.13.077.L1B.AIRS_Rad.v5.0.0.0.G
get /ftp/data/s4pa/Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.076.L1B.AIRS_Rad.v5.0.0.0.G08104113834.hdf AIRS.2008.04.13.076.L1B.AIRS_Rad.v5.0.0.0.G
get /ftp/data/s4pa/Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.075.L1B.AIRS_Rad.v5.0.0.0.G08104113844.hdf AIRS.2008.04.13.075.L1B.AIRS_Rad.v5.0.0.0.G
get /ftp/data/s4pa/Aqua_AIRS_Level1/AIRIBRAD.005//2008/104/AIRS.2008.04.13.074.L1B.AIRS_Rad.v5.0.0.0.G08104113830.hdf AIRS.2008.04.13.074.L1B.AIRS_Rad.v5.0.0.0.G
close
```

To run on Linux: ftp –p –n < *yourScriptFilename*
To run on Windows: ftp –n –s:*yourScriptFilename*

Mirador: 3/Descriptive Filenames

Motivation:

Different instrument team uses different file naming conventions. It can be unwieldy when scientists want to do intercomparisons, data fusions on data products from heterogeneous sources. A unifying file naming convention helps.

Descriptive Name Parts:

instrumentPlatform.dataContent.YYYY.MO.DD.HHMMSS**Z**.**v**vvv.format

Some Examples:

Original: AIRS.2008.01.02.240.L1B.AIRS_Rad.v5.0.0.0.G08003211635.hdf
Descriptive: AIRS.AirsIrRadiances.2008.01.02.235925Z.v005.hdf

Original: AIRS.2008.04.07.090.L2.RetStd.v5.2.2.0.G08099092812.hdf
Descriptive: AIRS.StandardProduct.2008.04.07.085925Z.v005.hdf

Original: OMI-Aura_L2-OMDOAO3_2008m0102t2236-o18446_v003-2008m0109t004412.he5
Descriptive: OMI.OzoneTotalColumnDOASmethod.2008.01.02.223645Z.v003.he5

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AIRS Services: 1/Subsetting

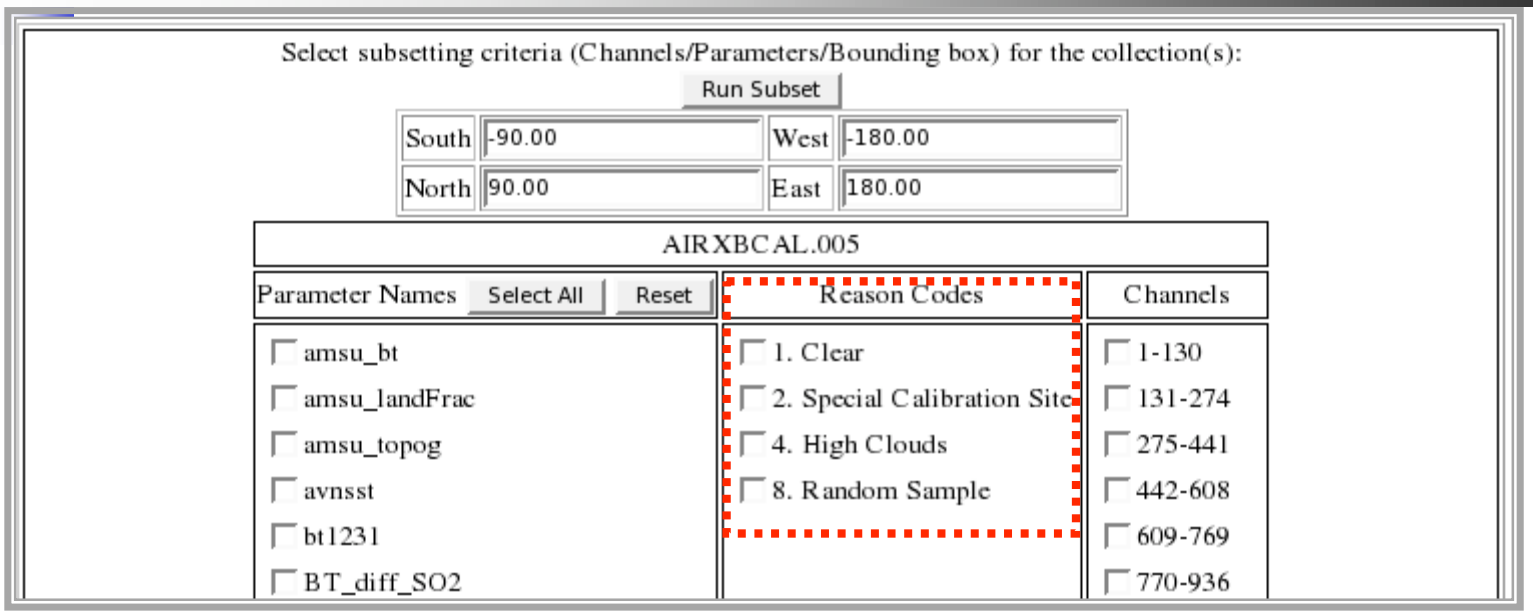
Significant infrastructural changes. It is now HTTP-based, which uses robust FTP server and replaces the antiquated, no-longer maintained WU-FTPD protocol.

Service URL in a Wget Download Script:

http://airspar1u.ecs.nasa.gov/daac-bin/OTF/HTTP_services.cgi?
FILENAME=%2Fdata%2Fs4pa%2FAqua_AIRS_Level2%2FAIRXBCAL.005%2F2008%2F056%2FAIRS.2008.02.25.L1B.Cal_Subset.v5.0.16.0.G08059230803.hdf&REASON=1&**BBOX**=-90%2C-180%2C90%2C180
&**LABEL**=AIRS.2008.02.25.L1B.SUBXCAL.v5.0.16.0.G08059230803.hdf
&**SHORTNAME**=AIRXBCAL&**SERVICE**=SUBSET_AIRS_L1L2
&VERSION=1&**LAYERS**=_____wM
&**VARIABLES**=radiances%2Creason

- FILENAME = original input file pathname on our system
- LABEL = output filename your will get
- BBOX = geographic subsetting criteria (bounding box)
- SHORTNAME = ESDT name
- SERVICE = service provided
- VARIABLES = variables of interest
- LAYERS = selected layers (channels), base-64-encoded bitstring

AIRS Services: 1/Subsetting



New offerings for the AIRXBCAL subsetting:

[Spatial bounding box] [Parameters] [IR channels] [Reason Code(s)]

AIRS Services: 2/HDFEOS→netCDF

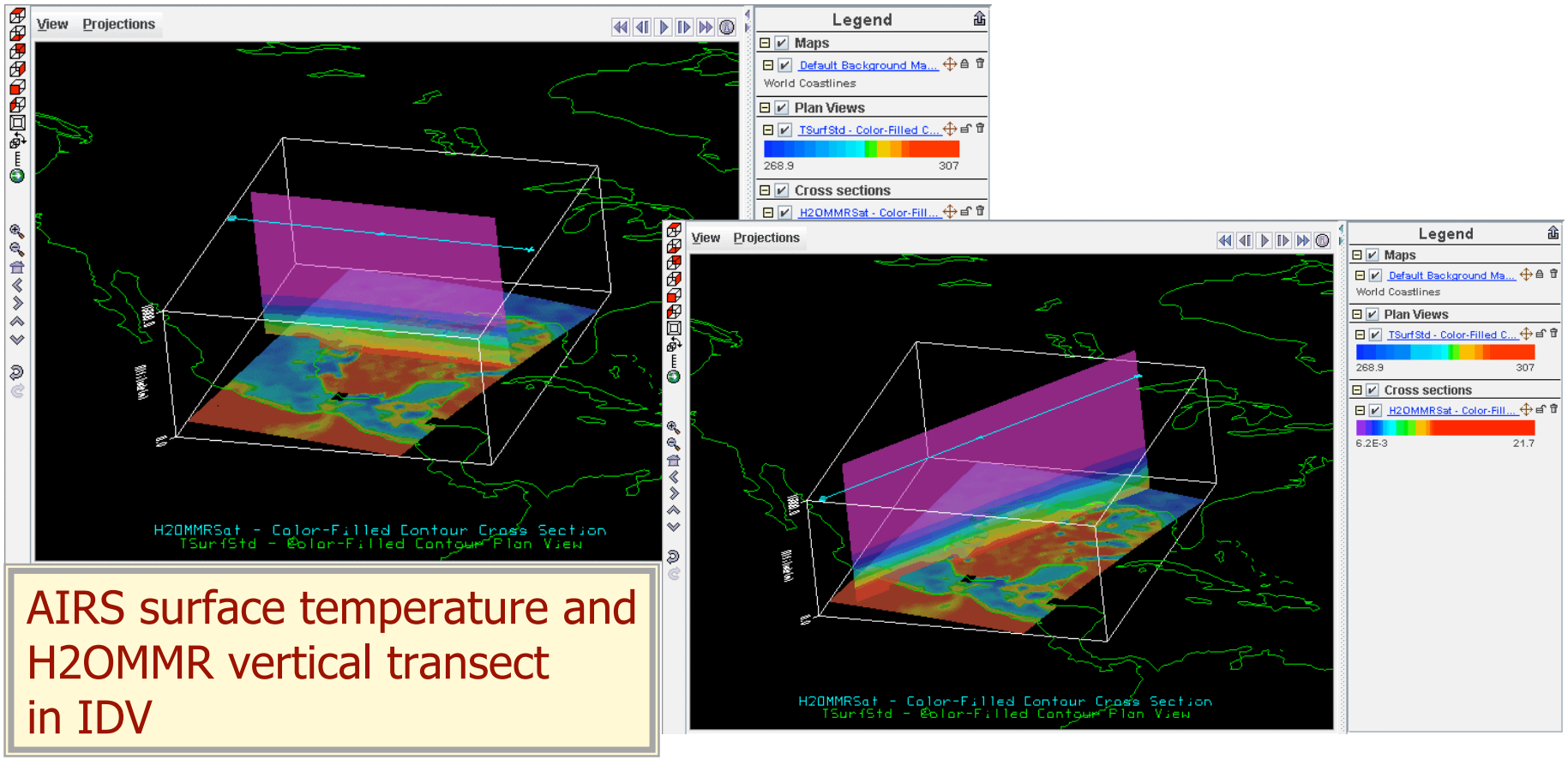
HDFEOS to netCDF CF-1 converter now works with AIRS Level-2 standard and support products (swath type).

- Large group of users use netCDF, especially the modeling community.

- CF-1 convention allows visualization platforms or applications (Grads, Ferret and IDV) to understand data without you doing too much.

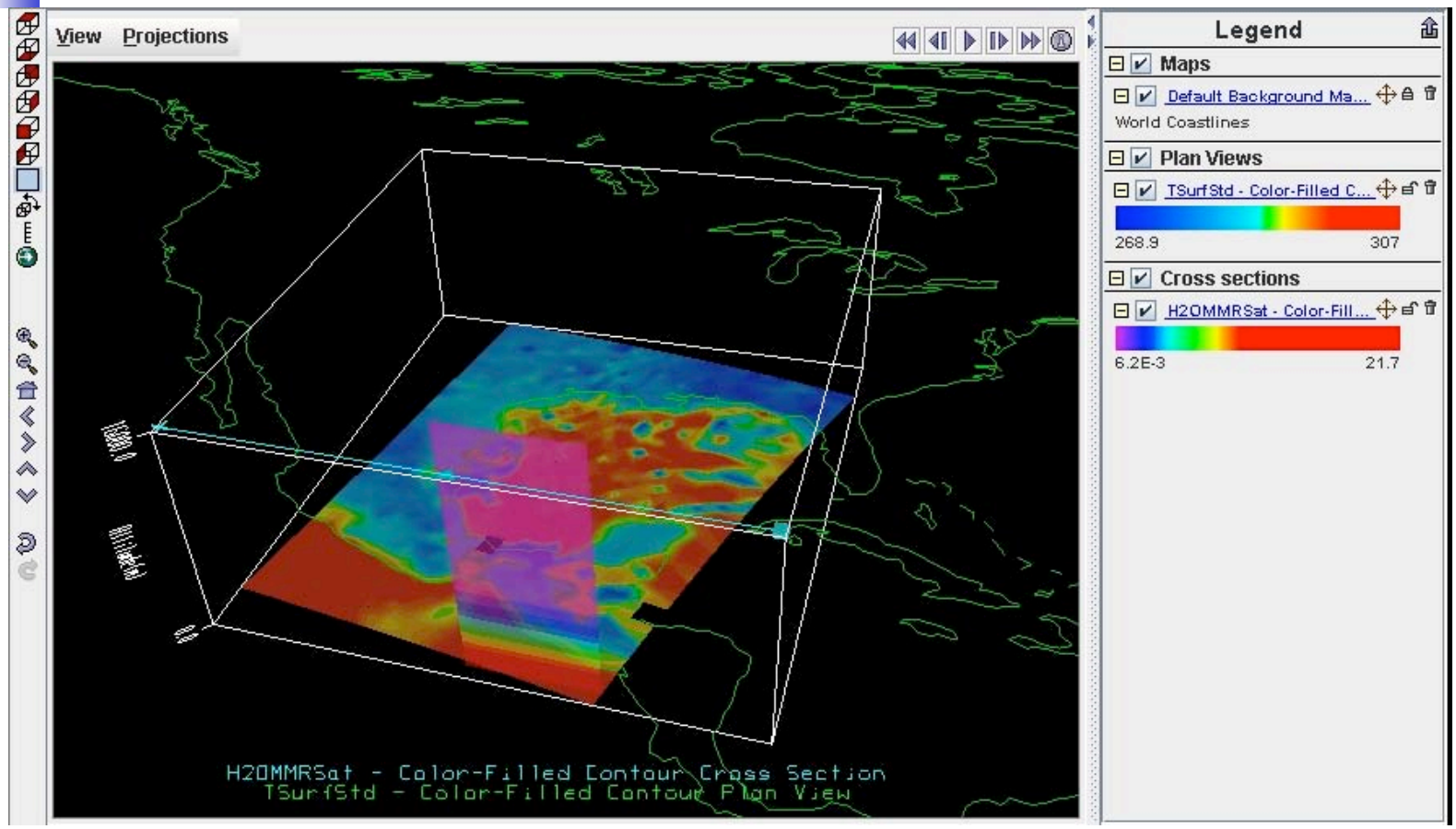
  - http://www.unidata.ucar.edu/software/idv/
  - http://ferret.pmel.noaa.gov/Ferret/home
  - http://www.iges.org/grads/

AIRS Services: 2/HDFEOS→netCDF

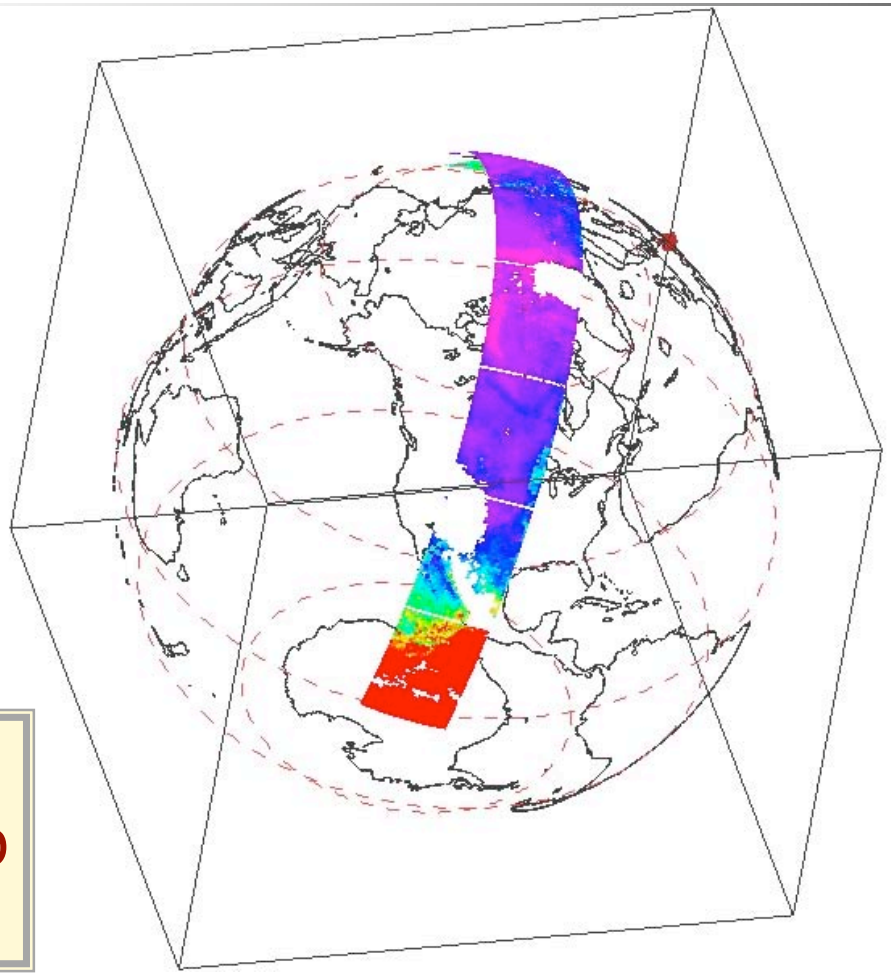


AIRS surface temperature and H2OMMR vertical transect in IDV

AIRS Services: 2/HDFEOS→netCDF

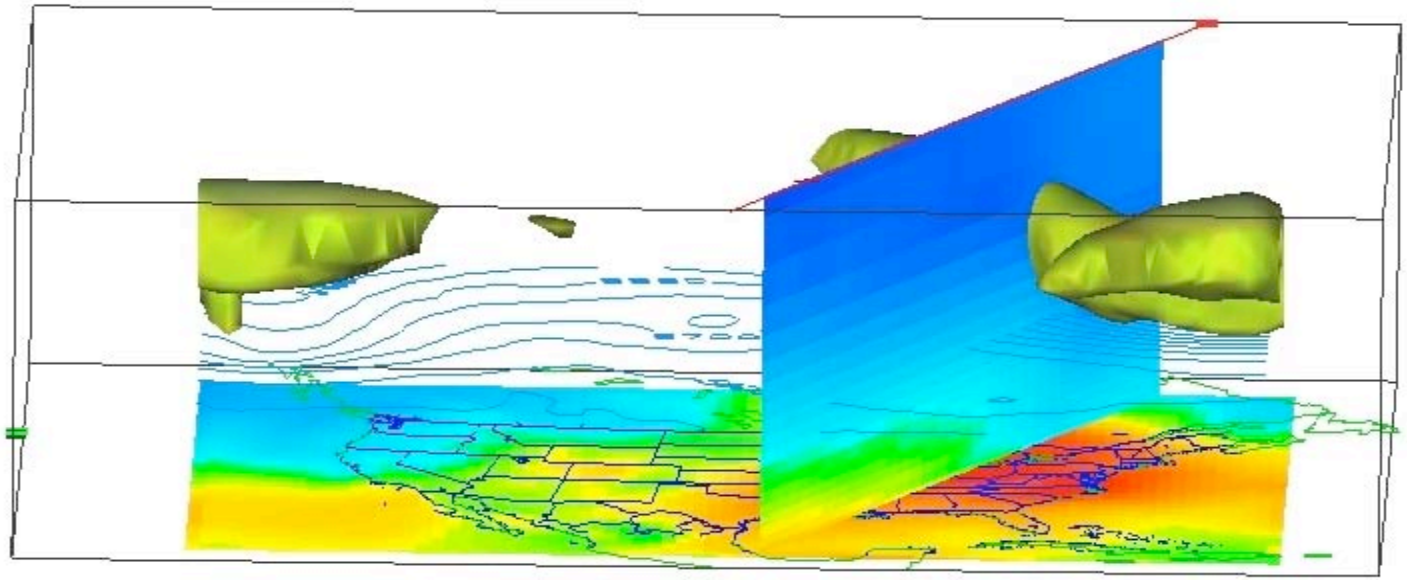


AIRS Services: 2/HDFEOS→netCDF



AIRS H2OMMR @ 925 mb Strip in IDV

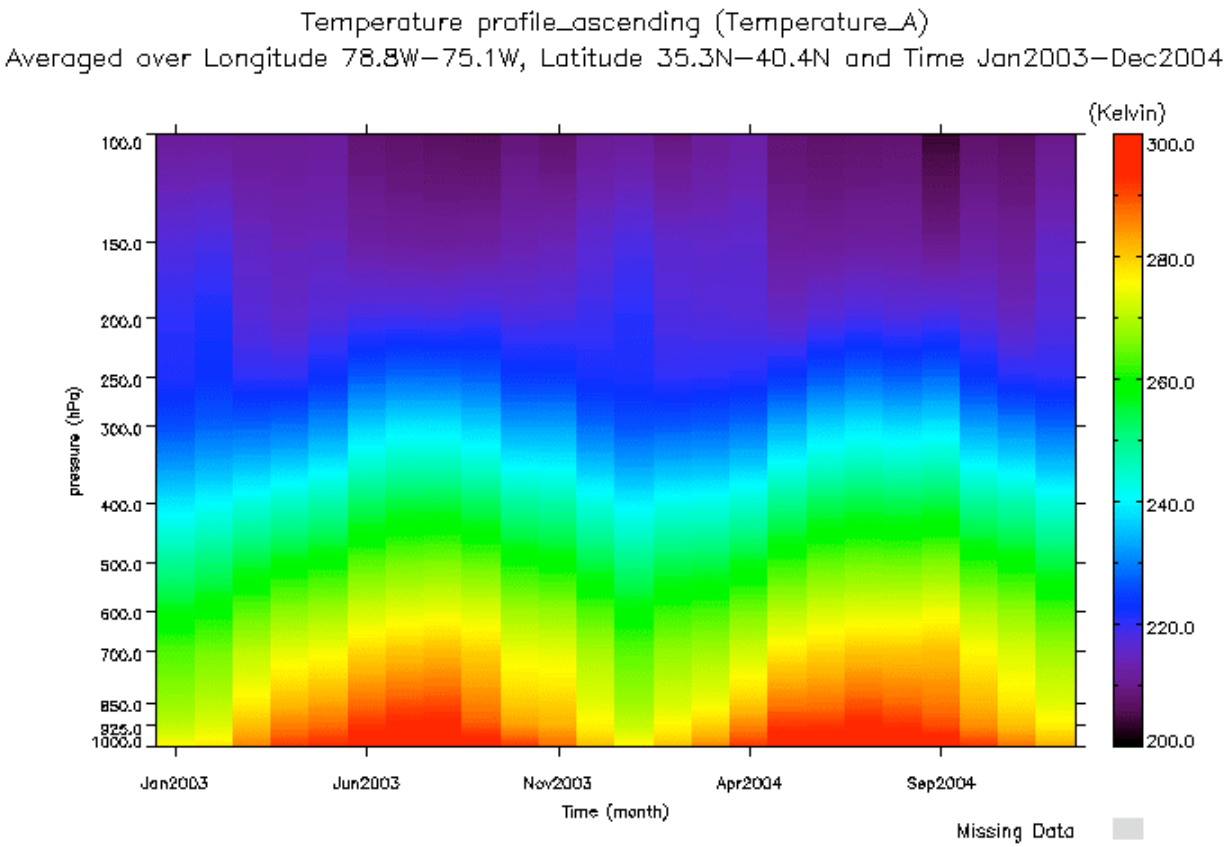
AIRS Services: 2/HDFEOS→netCDF



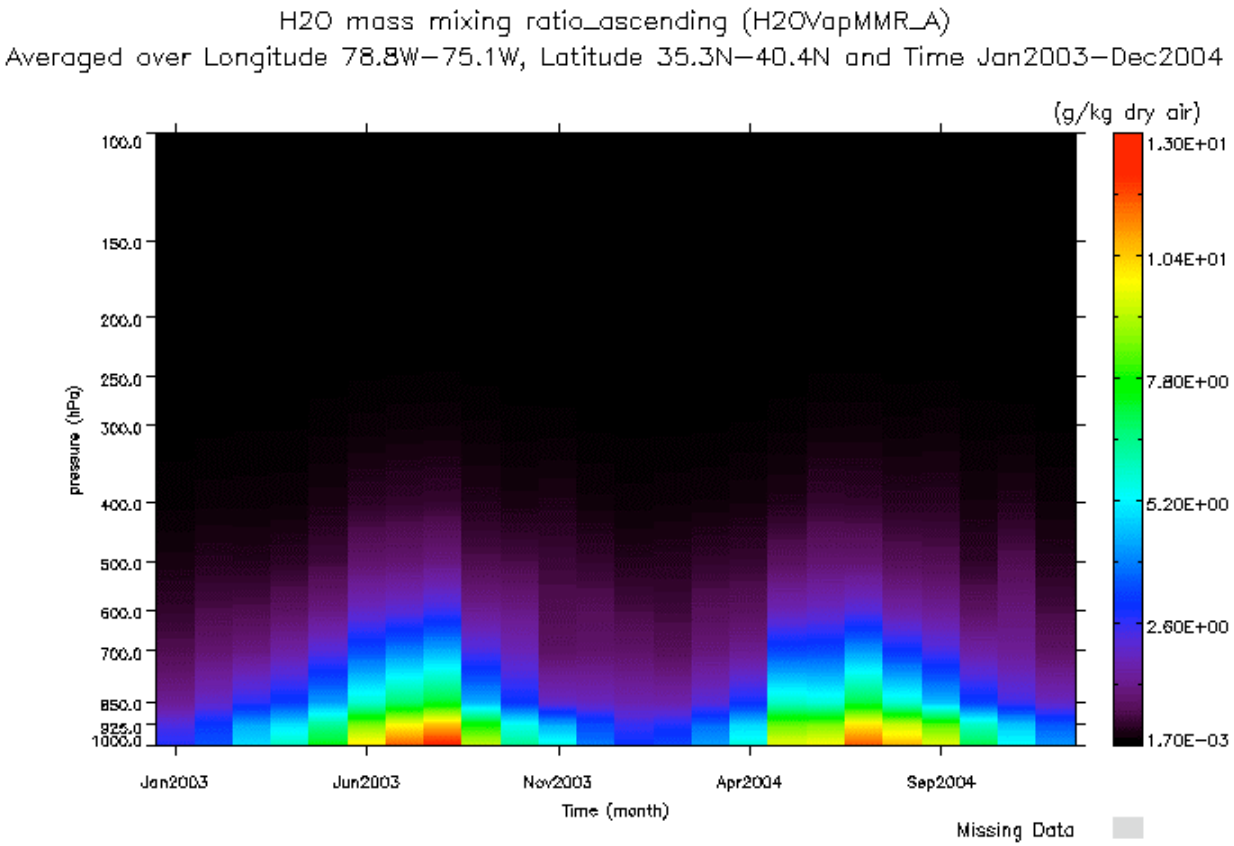
AIRS Services: 3/Giovanni 3.0.6

- New Services for 3-D parameters:
  - Longitude-Pressure Cross-section
  - Latitude-Pressure Cross-section
  - Time-Pressure Cross-section
  - Vertical Profile Plot
- KMZ Output for Google Earth.
- WMS (maps) and WCS (data) Services if you want to bypass GUI altogether.
- Coming soon:
  - Climate Statistics and Anomalies
  - Model Data: MERRA

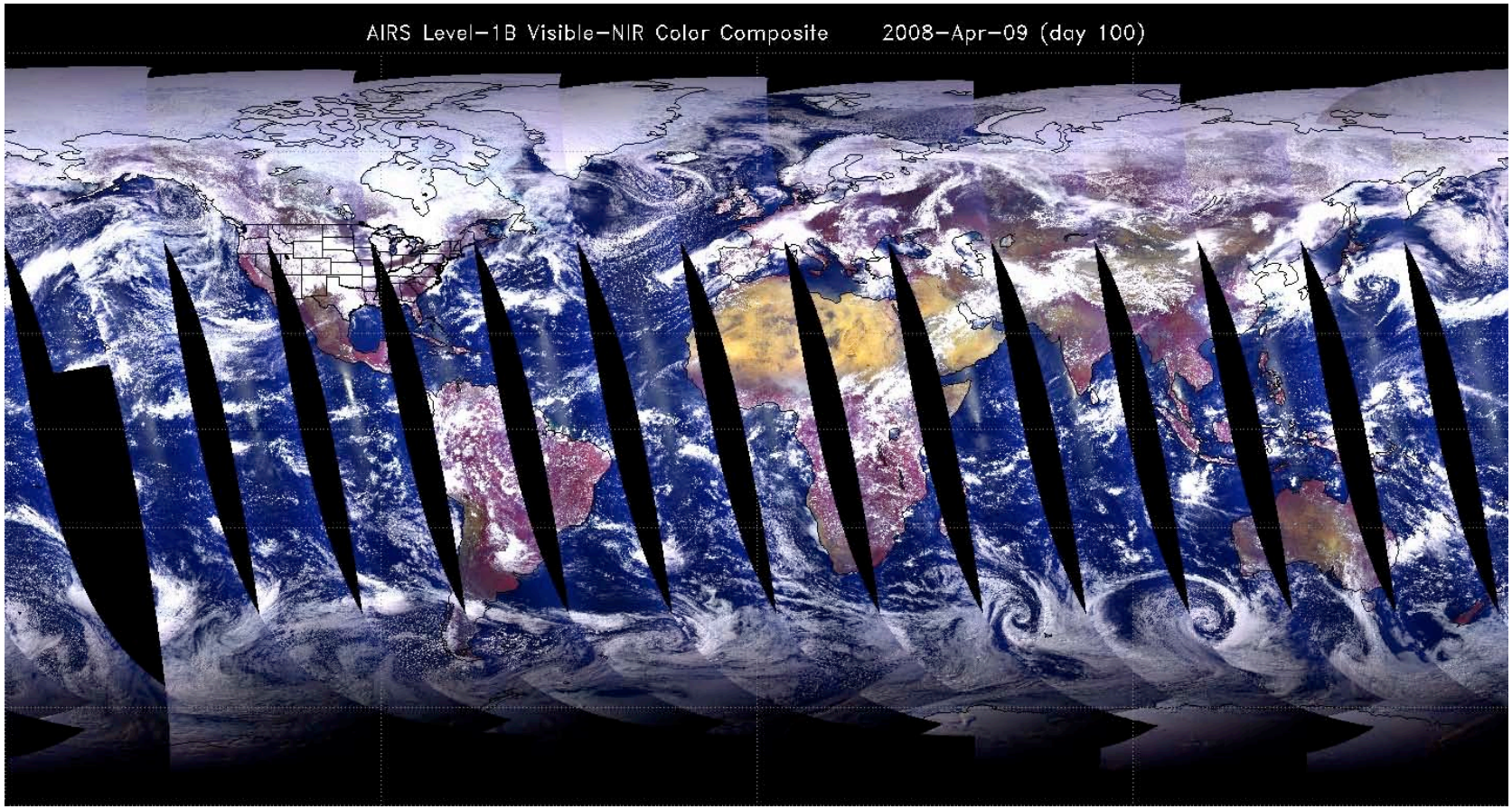
AIRS Services: 3/Giovanni 3.0.6



AIRS Services: 3/Giovanni 3.0.6



AIRS Services: 4/NRT Browse



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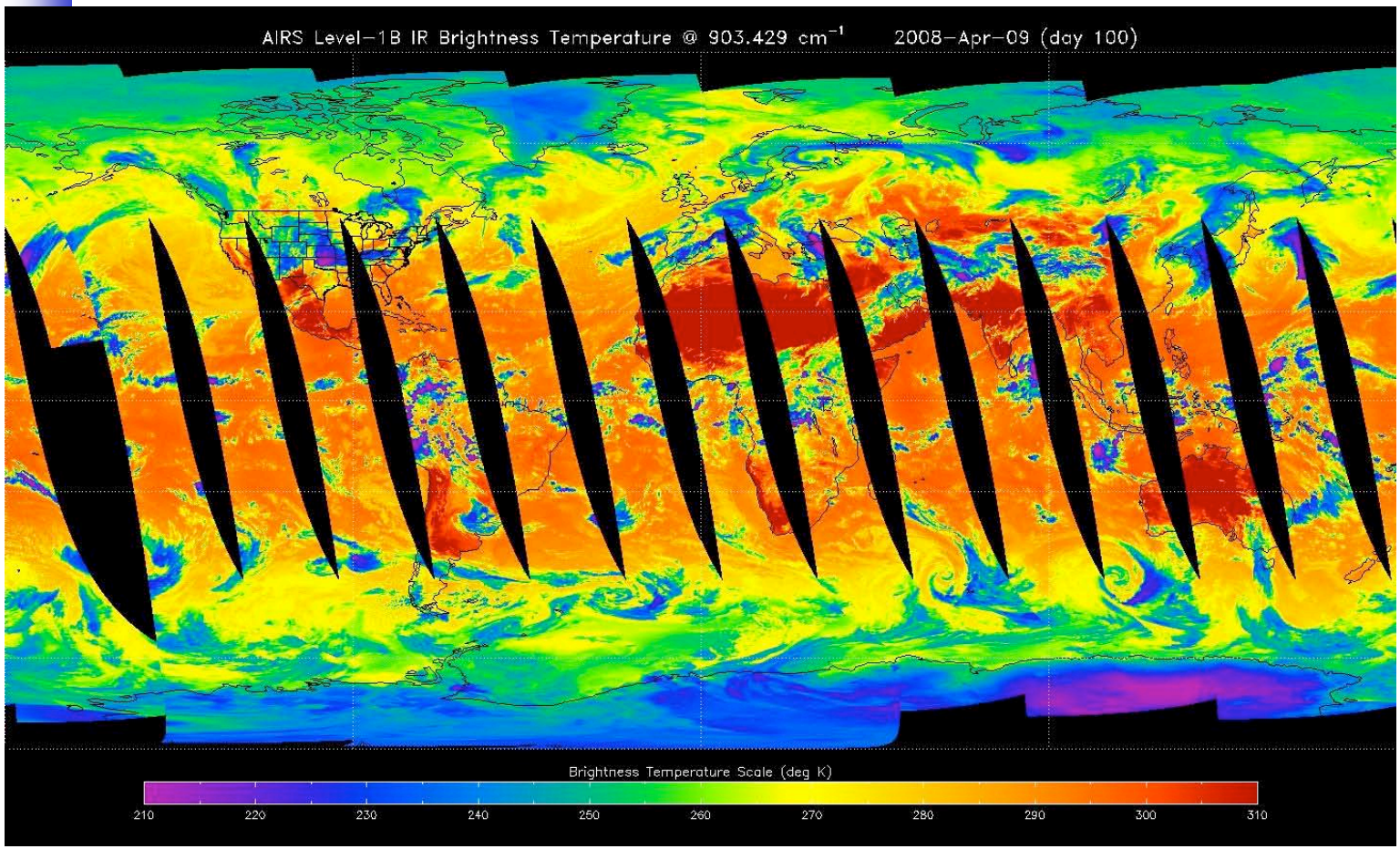


AIRS Services: 4/NRT Browse

ftp://airscal1u.ecs.nasa.gov/data/global_browse/Aqua/AIRS/

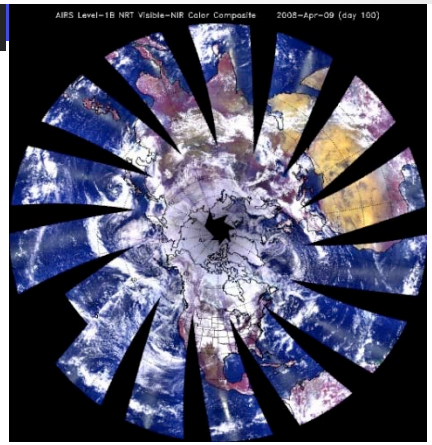
- Brand new gridding engine to place swath points onto a grid. The same gridding algorithm works for both Level-1B and Level-2 data.

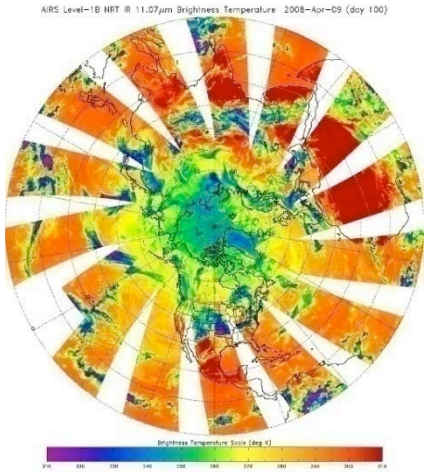
- Switched input data source to Near-Real-Time feed. Images are available within 1 hour (at most) after a product file is produced.

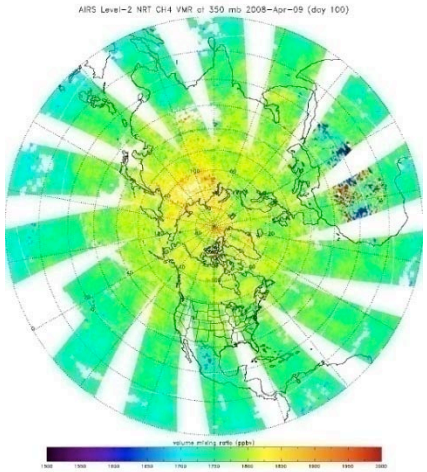
- Completely scalable from regional to global by changing the grid definition (North, South, East, West, ΔLat, ΔLon).

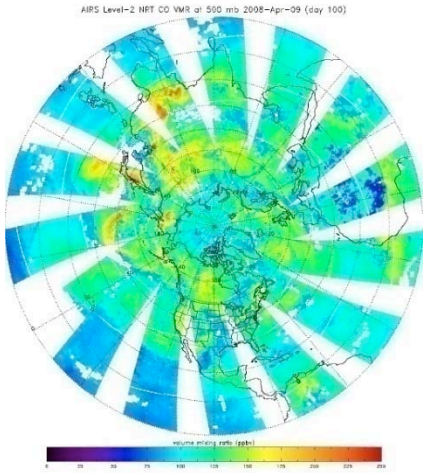
- Gridding and Plotting are decoupled. Provide extra flexibility, e.g. be able to plot the same gridded data on various map projections, or to rescale the color scale. Allows us to quickly respond to user requests.

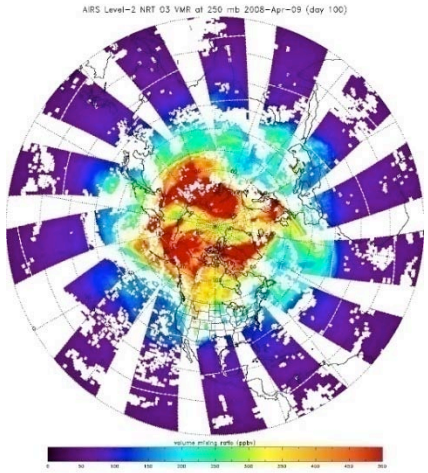
AIRS Services: 4/NRT Browse



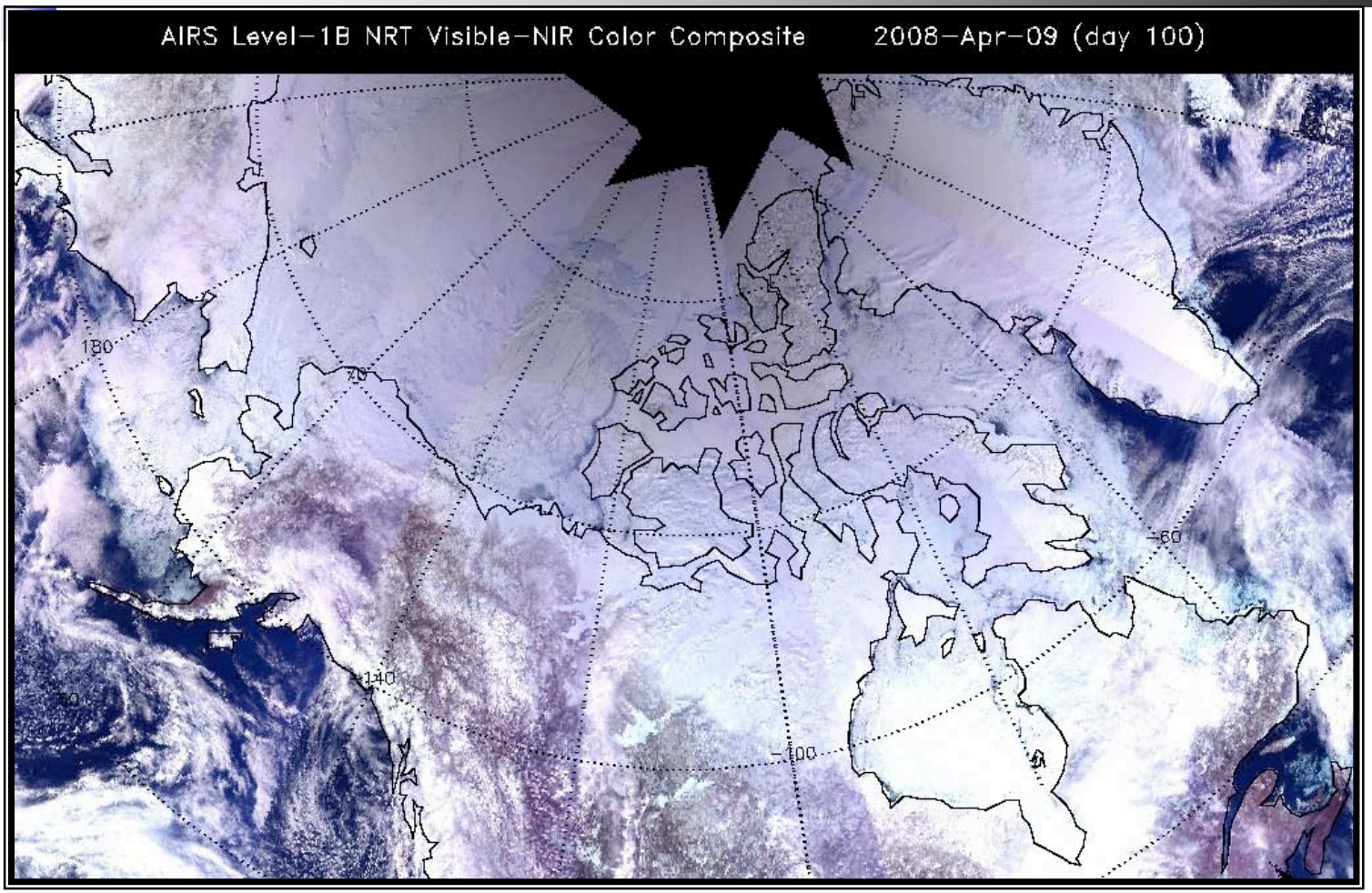




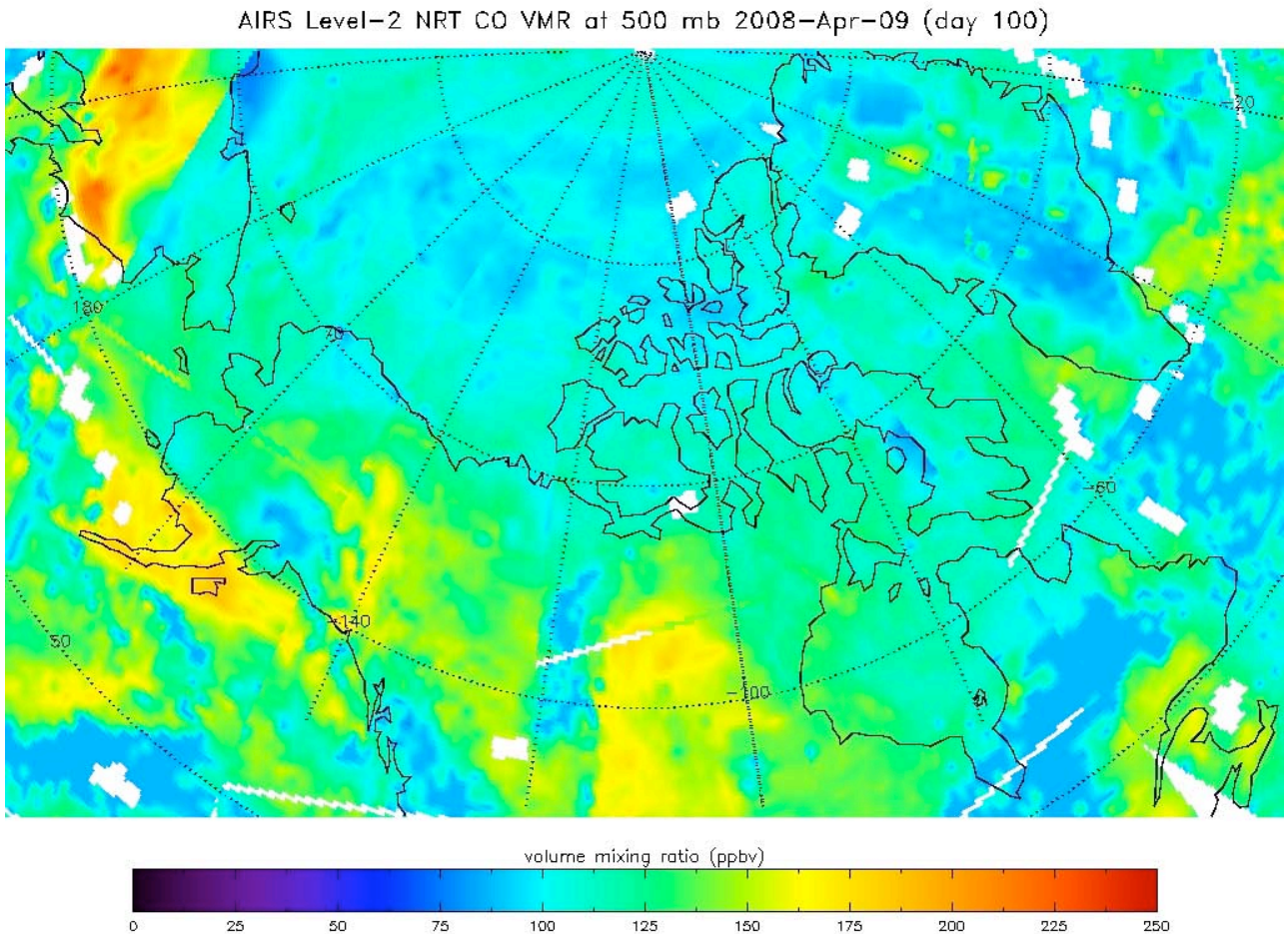




AIRS Services: 4/NRT Browse



AIRS Services: 4/NRT Browse



Contact Information

For assistance, please use this contact information:

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Voice: 301-614-5224
Fax: 301-614-5268

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Greenbelt, Maryland 20771, U.S.A