



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

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AIRS Science Team Meeting February 21-23, 2001



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



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GES DAAC Support Elements











Monthly ocean chlorophyll and NDVI from SeaWiFS



Gulf Stream as seen by CZCS sensor

Global Biosphere



- Triana

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







GPCP Annual Mean Precipitation 1988 -1998



Hurricane Mitch as seen by TRMM

Hydrology

Rainfall Climatologies Combined Satellite/Gauge Rainfall TRMM TRMM Field Experiments

Green -future missionRed -current missionBlack -closed data set







Air Parcel Trajectories computed using Data Assimilation

Atmospheric Dynamics





TOVS 1000 MB Monthly Mean Specific Humidity

Green -future missionRed-current missionBlack-closed data set







Relationship between stratospheric Chlorine Monoxide and Ozone



Antarctic Ozone Hole 9/25/99 as seen by TOMS 3/26/2001

Atmospheric Chemistry

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

Green -future missionRed-current missionBlack-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)







Field Experiment Support Example 🎧







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EOSDIS Ancillary Data Support









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

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



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





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AIRS Data Subsetter



--- Extract metadata and fields from an AIRS file

	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
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)	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;
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On-the-fly Subsetting





On-the-fly Subsetting									
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Data Parameter Search







Data Parameter Search







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)





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HDF Data Access Tools

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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 ploting, format conversion, and many other sophisticated tasks. It was designed by <u>Laboratoire d'Optique Atmosphérique</u>, 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 (<u>sphinx@loa.univ-lille1.fr</u>).

The <u>SciSpy</u> Browser from Fortner <u>Software(TM)</u> 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

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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 <u>visualization</u> 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. <u>Documentation</u> on geoview is available. <u>Examples</u> on how to extract different cloud masks from MOD35 are also given.

Geographic Information System

Software is currently being evaluated and tested.

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BACKUPS



Data Selection Example (Local UI)









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Data Selection Example (Local UI)



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Data Selection Example (Local UI)



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Three independent Product Generation Executives (PGEs), one each for AIRS/VIS, AMSU-A, and HSB, execute at the DAAC to ingest Level 0 data to produce Level 1A geolocated science data counts and engineering parameters in HDF swath format.

Data Products	Description	Begin Date	End Date	Number of Items	Average Item Size(Kb)
L1A-HSB	L1A HSB data	2001-01-13 21:00:00	2001-09-15 21:00:00	14	46313
AMSU-A L1A	L1A AMSU-A data	2001-09-13 21:00:00	2001-09-14 21:00:00	5	46313
LIA-AIRS	L1A HSB data	2001-09-13 21:00:00	2001-09-14 21:00:00	5	46313
LIA-VIS	L1A HSB data	2001-09-13 21:00:00	2001-09-14 21:00:00	5	46313



Goddard DAAC Help Desk: 301-614-5224 or 1-800-257-6151 daacuso@gsfc.nasa.go	v
Web Curator: Peggy Eaton <u>peaton@daac.gsfc.nasa.gov</u>	
Author: Atmospheric Dynamics Data Support Team <u>atmdyn-dst@daac.gsfc.nasa.gov</u>	
NASA Official: Steve Kempler, DAAC Manager <u>kempler@daac.gsfc.nasa.gov</u>	
Last updated: 2001-02-16 15:56:27	
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HSB L1A Science Footprints -	Netscape							
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Each link in the Year column below takes you to a calendar where you will be able to make your temporal selection.

Year	Begin Date	End Date	Number of Items	Average Item Size (kB)
2001	2001-01-13 21:00:00	2001-09-15 21:00:00	14	46313

Cancel Order Submit Order Send Comments

HELP



Goddard DAAC Help Desk: 301-614-5224 or 1-800-257-6151 -- <u>daacuso@gsfc.nasa.gov</u> Web Curator: Peggy Eaton -- <u>peaton@daac.gsfc.nasa.gov</u> Author: Atmospheric Dynamics Data Support Team -- <u>atmdyn-dst@daac.gsfc.nasa.gov</u> NASA Official: Steve Kempler, DAAC Manager -- <u>kempler@daac.gsfc.nasa.gov</u> Last updated: 2001-02-16 14:47:12

Review Order

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