



NASA Report to Unidata Policy Committee 2007-03-12

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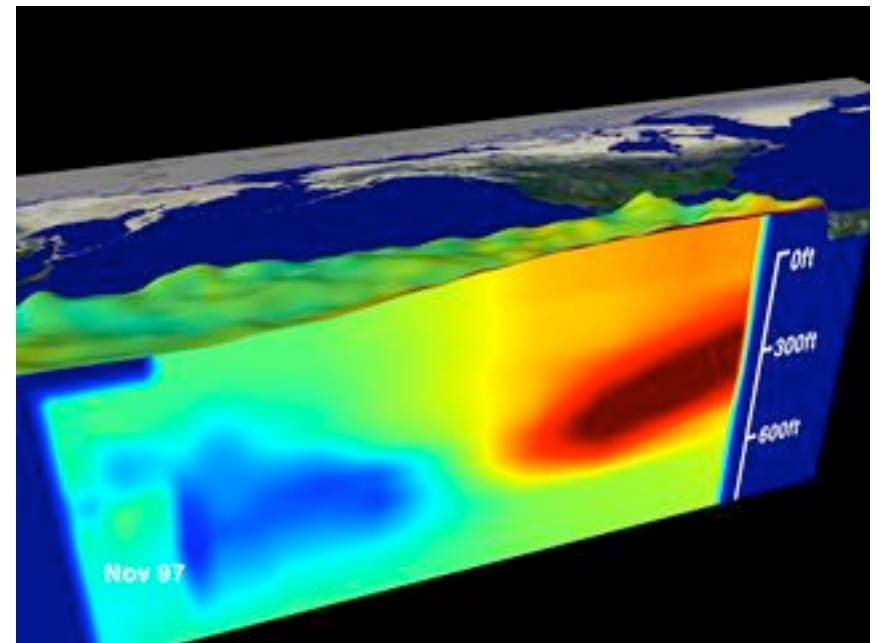


Image: <http://svs.gsfc.nasa.gov/vis/a000000/a002600/a002628/>



New NASA rep: Jeff de La Beaujardière

- ❑ **PhD CU Boulder 1990 (Astrophysics)**
- ❑ **Computer Scientist in NASA GSFC Earth Sciences Division**
- ❑ **Focus: Standards-based access to geospatial data and visualizations, including remote sensing observations and simulation results**
- ❑ **Editor, OGC Web Map Service / ISO 19128**
- ❑ **Ex-Portal Manager for e-gov Geospatial One-Stop**
- ❑ **Previous work on Digital Earth & GLOBE**



NASA/Unidata Relationship

❑ **NASA and Unidata communities have much in common**

- Large collections of scientific data about the Earth
- A need to manage, distribute and access this geospatial information
- A desire to transition to from traditional tape/ftp/local disk approach to modern service-oriented architectures
- Lack of interoperability given diverse standards, practices and proprietary implementations

❑ **Preliminary Representation Strategy:**

- Seek out NASA users of Unidata tools, formats and data
- Report adoption problems and successes to Unidata PC
- Communicate NASA-specific needs to Unidata PC
- Communicate Unidata PC news to NASA stakeholders
- Promote use of relevant Unidata products within NASA
- Make sure Unidata is aware of NASA funding opportunities
- Promote links to NASA WMS & other data sources from IDV, etc.



Unidata Usage at NASA

- ❑ **First cut at finding Unidata stakeholders at NASA**
- ❑ ***Preliminary Summary***
- ❑ ***Informal, non-exhaustive search***
- ❑ **Some examples of NASA projects that utilize Unidata software, formats or protocols on following slides**
 - OPeNDAP: found 7 so far
 - NetCDF: found 5 so far
 - THREDDS: 1
 - GEMPAK: 1
 - UDUNITS: 1



OPeNDAP

☐ Goddard Earth Sciences Data and Information Services Center (GES DISC)

- Rainfall, solar irradiance, humidity, temperature, ozone, aerosols, atmospheric chemistry (AIRS, TOMS, TRMM and others)
- Mostly HDF4 (HDF-EOS)
- OGC WMS getting data as needed via OPeNDAP
- <http://daac.gsfc.nasa.gov/services/dods/>

☐ JPL Physical Oceanography DAAC (PO.DAAC)

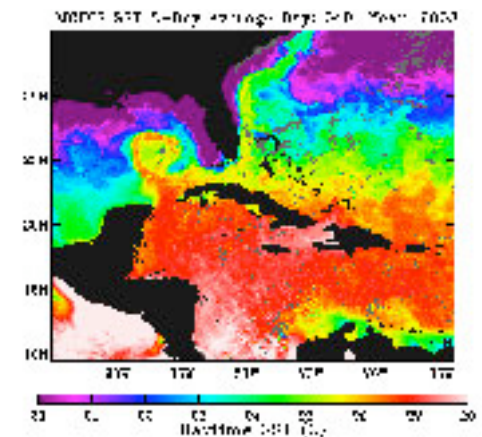
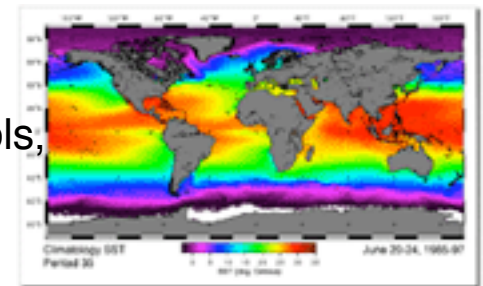
- Ocean winds, SST, SSH, atmospheric moisture datasets
- <http://dods.jpl.nasa.gov/>

☐ JPL ECCO Ocean Data Assimilation

- ECCO = Estimating the Circulation and Climate of the Ocean
- <http://ecco.jpl.nasa.gov/external/>

☐ Modeling and Analysis Program (MAP) Portal

- OPeNDAP server (GDS) in beta-test
- <http://map.nasa.gov/>



Source: <http://podaac.jpl.nasa.gov/sst/>



OPeNDAP (cont'd)

❑ UAH/NASA Global Hydrology & Climate Center (GHCC) Data Pool

- Passive Microwave data products (AMSU-A, SSM/I, TMI)
- <http://datapool.nsstc.nasa.gov/opensdap.html>

❑ GSFC Coordinated Data Analysis Web (CDAWeb)

- Space physics data
- CDF, not NetCDF
- <http://cdaweb.gsfc.nasa.gov/>

❑ GMU/NASA OPeNDAP/OGC Gateway

- NASA-funded proposal now underway
- Allow DAP client to access data on OGC WCS
- Provide WCS reprojection & interpolation services to DAP users
- Allow OGC clients to discover data in THREDDS servers

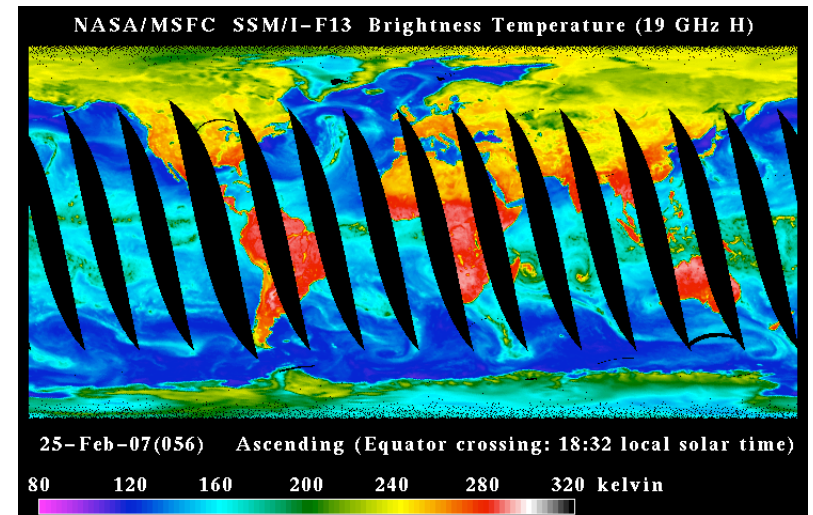


Image: <http://datapool.nsstc.nasa.gov/browse/ssmiBTSbrowse.html>



NetCDF

❑ Giovanni (GES-DISC Interactive Online Visualization ANd aNalysis Infrastructure)

- Supports NetCDF and other formats
- Web-based front-end to GrADS; Data slicing and plotting
- <http://daac.gsfc.nasa.gov/techlab/giovanni/>

❑ Panoply NetCDF Viewer

- NASA Goddard Institute for Space Studies (NYC)
- Java-based interactive tool; Data slicing and plotting
- <http://www.giss.nasa.gov/tools/panoply/>

❑ JPL Physical Oceanography DAAC (PO.DAAC)

- Sea-surface temperature and height in NetCDF
- <http://podaac.jpl.nasa.gov/products/product172.html>

❑ Halogen Occultation Experiment (HALOE)

- Offers data in NetCDF
- <http://haloedata.larc.nasa.gov/>

❑ Modeling and Analysis Program (MAP) Portal

- netCDF option from WMS ("pseudo-WCS")

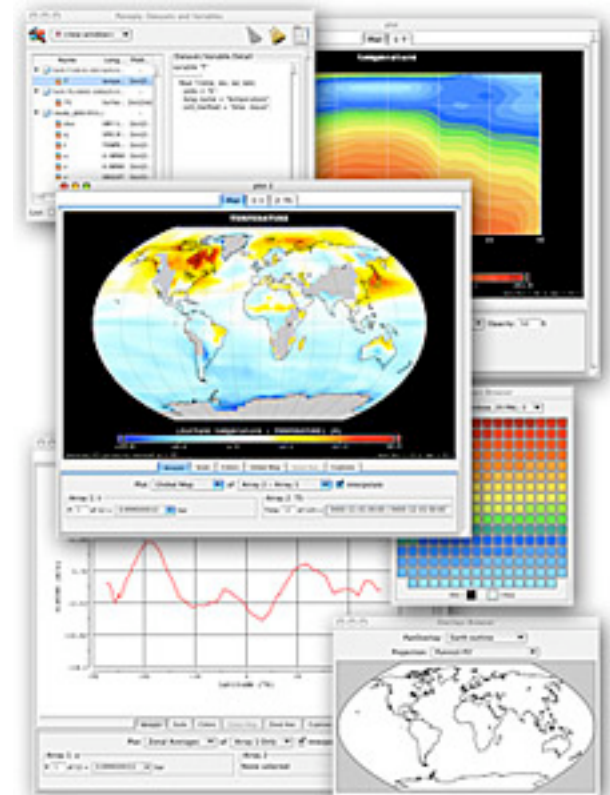


Image: <http://www.giss.nasa.gov/tools/panoply/>



Other Unidata Products

❑ THREDDS

- Global Change Master Directory (GCMD)
 - Harvests metadata from THREDDS
 - Augments its own catalog with other information
 - <http://gcmd.nasa.gov/>

❑ GEMPAK

- GSFC Mesoscale Atmospheric Processes Branch
 - <http://atmospheres.gsfc.nasa.gov/meso/>

❑ UDUNITS

- NASA Center for Computational Sciences
 - Offers UDUNITS among tools on its high-end computing platforms
 - http://nccs.nasa.gov/halem_software_tools.html



Informal List of Possible Issues

- ❑ **"Not-invented-here" syndrome**
- ❑ **IDV link to specialized NASA SVS WMS**
- ❑ **THREDDS support for HDF4**
- ❑ **OPeNDAP support for Geogrid call on HDF4 (i.e., subset data by latitude/longitude box rather than by grid coordinates)?**
- ❑ **Security assurance for production systems**



NASA ROSES 2007

- ❑ **Umbrella for solicitations in multiple areas**
- ❑ **<http://nspires.nasaprs.com/>**
- ❑ **Of possible relevance (pre/final due dates):**
 - A.20. Decision Support through Earth Science Research Results (2007-03-15/2007-05-25)
 - A.22. Advancing Collaborative Connections for Earth System Science (2007-03-15/2007-06-01)
 - A.15. Accelerating Operational Use of Research Data (2007-07-06/2007-09-18)
 - E.2. Applied Information Systems Research (t.b.d)
- ❑ **Not solicited in 2007:**
 - A.24. Advanced Information Systems Technology
 - A.23. Making Earth System Data Records for Use in Research Environments
 - + various particular science domains