Director's Report

Unidata Policy Committee Meeting

16 May 2005

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Boulder, CO

Community Services

- UPC staff was involved in the organization of special sessions at the AGU, AMS, and EGU meetings;
  - AGU: A special focus session on *Cyberinfrastructure for Earth Systems Science*, December 13-17, 2004, San Francisco, CA
    - Conveners: Linda Miller, Ben Domenico, and others
    - 32 abstracts were received
  - EGU: *Earth Systems Science Data Access, Distribution and use for Education and Research,* Vienna, Austria, 24 - 29 April 2005
    - Conveners: Ellen Cutrim, Stefano Nativi, Linda Miller, and Mohan Ramamurthy;
    - 18 papers were presented in the session;

A total of 15 papers were authored by UPC staff

DLESE Data Services Workshop

April 18-20, Breckenridge, CO

- Lead Organizers: Tamara Ledley, TERC, and Ben Domenico, Unidata
  - Meeting arrangements and logistics handled by Sandra Petrie
- Theme: Earth system science, with particular attention on the Water Cycle and Human Impacts on the system
- The workshop provided an opportunity for curriculum developers, data providers, tool developers, scientists, and educators to interact with one another in a variety of sessions, all working toward the goal of facilitating the use of data in education;
  - There were 75 participants, evenly divided among the above groups and broken into 12 teams (CUAHSI, EarthScope, LEAD, IRIS, MBARI, NASA, etc.);
  - Each team worked on a data-rich educational module in the form of an Earth Exploration Toolbook chapter; they will continue their work until the chapters are completed;
  - A report entitled "Facilitating the Use of Data in Education" will be developed using information from the workshop.

"I was blown away by the Breckenridge workshop. Data Services is one part of DLESE that is really doing integration of research and education. It is engaging the mainstream geoscience research community in producing high-quality educational resources. From the GEO point of view, this could not be more important. I told Tamara [Ledley] that, although DLESE is going to be in flux over the next few months (just how is not yet clear), I will do all I can to preserve and hopefully expand this activity. Good work, Ben."

Mike Mayhew, NSF/GEO

You can always tell that it is a serious workshop when people are doing the wave (as in a S-wave)

Russel L. DeSouza Award

- This award honors "individuals whose energy, expertise, and active involvement enable the Unidata Program to better serve the geosciences." Honorees personify Unidata's ideal of a community that shares data, software, and ideas through computing and networking technologies.
  - The 2005 award was presented to Mary DesJardins, during the AMS Annual meeting.

Mary's significant leadership in architecture, development, and support of the General Meteorological PacKage (GEMPAK) over a period of two decades has been instrumental in facilitating meteorological research and education at some 200 academic institutions throughout the world;

Her sustained contribution led to GEMPAK's becoming one of the preeminent software packages for meterological data analysis and display.

Unidata Seminars

- In response to community requests, the UPC is now providing live and archived webcasts of seminars. A few comments:
  - “Very nice, it was great to see this presentation, thanks.”
  - “I was sorry to have missed John [Caron]'s talk, but the video + ppt was almost as good as being there!”

Equipment Awards 2005

- For a third year, Equipment Award solicitation was announced to the community;
- We received 24 proposals, totaling $465,548 (with UCAR overhead); One from an international university;
- Available amount:$100K;
- Seven proposals are being funded;
- The success rate in this round was significantly lower than in previous years;
- In the future, will have find ways to manage community expectations with more targeted solicitations;

Improved Performance of Real-time Data Flows

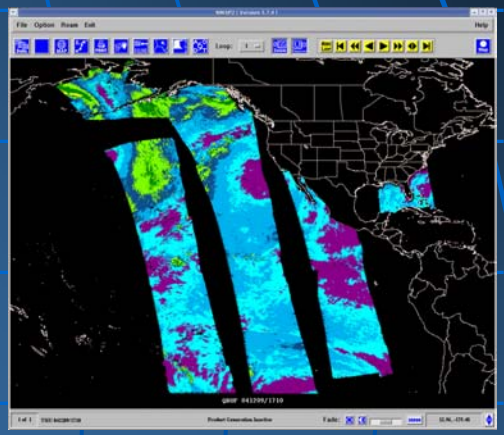
- About 240 machines in 135 network domains are running LDM-6 and reporting real time statistics in the IDD.
  - The average hourly volume of data flowing through the IDD has increased to about 2.5 Gigabytes, with a maximum rate of approximately 4 Gigabytes.
- 59 hosts at 33 domains are now receiving high-resolution model data via the CONDUIT stream.
- 22 universities, 8 research labs, and 63 hosts in 43 unique domains are receiving WSR-88D Level II data for use in education and research.

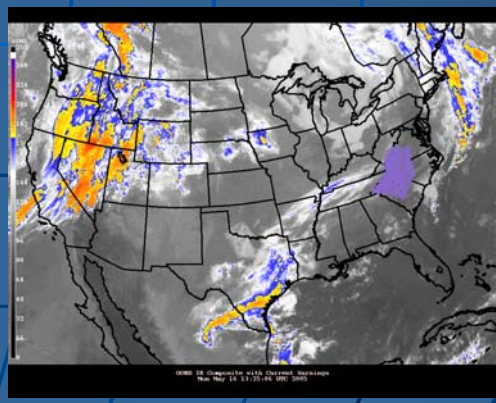
Unidata's reach is now global.

There are IDD sites in South America, Europe, and Asia that receive real-time data via the IDD.

Software Development and Usage

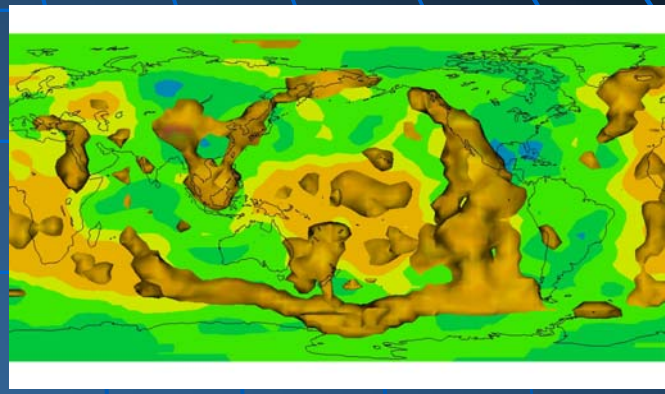
- GEMPAK: A new release of GEMPAK, 5.8.1, was made to the community in April. There have been 450 downloads from unique users for this release;
- McIDAS Version 2004, released last July, had downloads from 86 unique sites; in comparison, there have been downloads from 105 unique sites for McIDAS 2003;
- LDM 6.3.0 extends the LDM to work in a cluster environment; Stress testing indicates that a Dell PowerEdge 2850 machine running Fedora Linux can relay an average of 120 Mbps (~1.2 TB/day) to some 220 downstream clients, with peak rates exceeding 250 Mbps;
- NetCDF: Released netCDF-3.6.0-p1 in February 2005. The latest software improves large file support, Windows compatibility, ease of installation, and performance using the Fortran-90 interface. Made binary releases of netCDF-3.6.0-p1 for 12 platforms, including a Windows DLL.
- As a result of our collaborations with ESRI, this summer's release of ArcGIS 9.2 will support accessing netCDF data that follows specified georeferencing conventions.



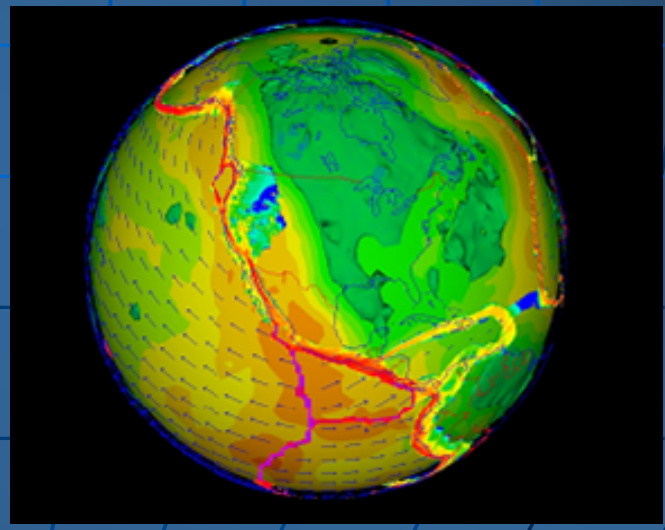


Integrated Data Viewer

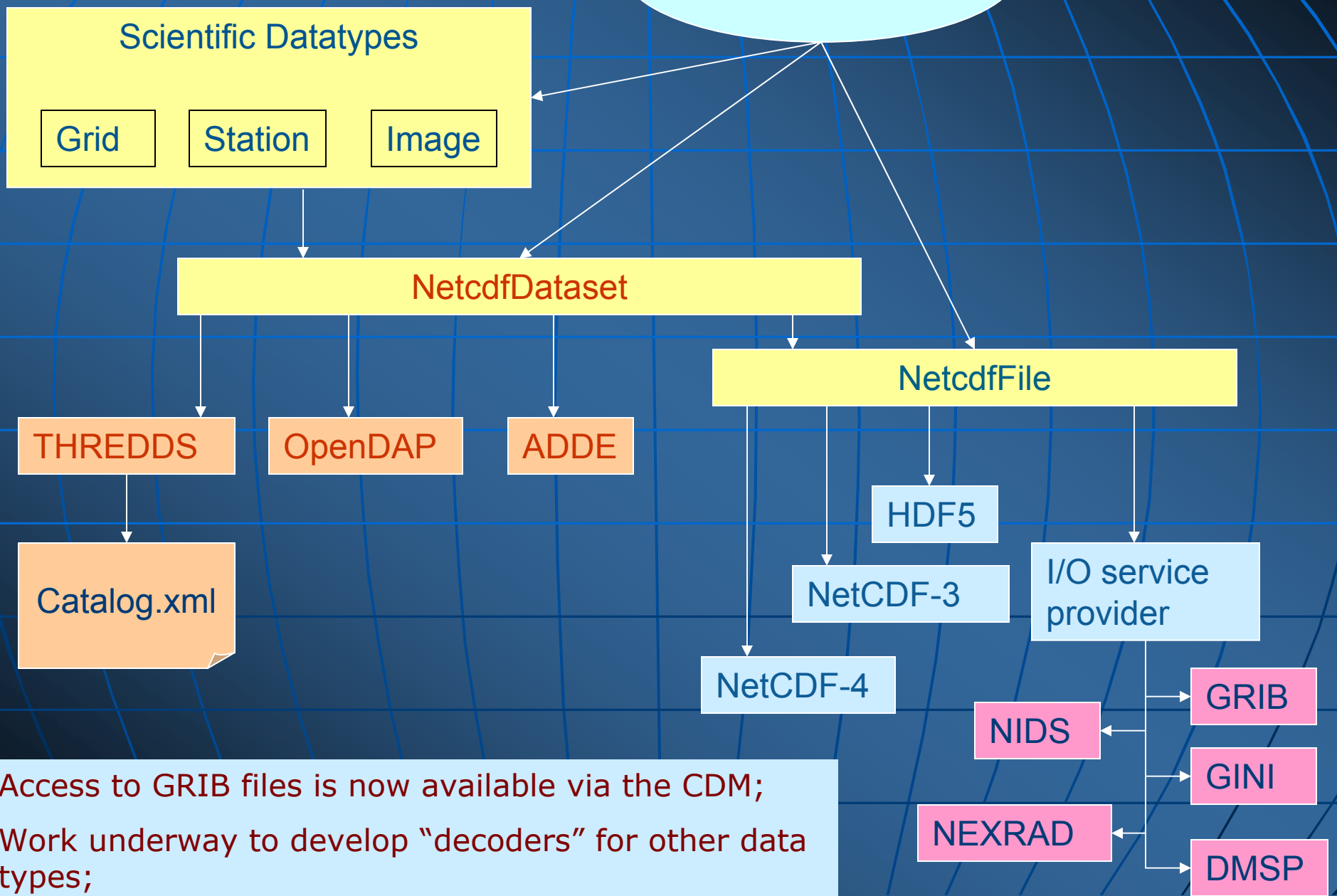
- A new beta release, v 1.2b2, was made in March 2005;
- Many new features added in the last two releases; A few highlights are:
  - New underlying netCDF Java package
  - GRIB and GRIB2 support
  - Support for WRF output
  - Web Map Server (WMS) Access



- The IDV is now being used by the earth sciences community in the GEON ITR project, along with netCDF and OPeNDAP;
- The IDV was used in the Rain In Cumulus over the Ocean field project.
  - The IDV was extended to support 3-dimensional real-time displays consisting of high resolution satellite data, S-Pol radar data, aircraft track/state data from the three aircraft and Mobile GLASS soundings.



Common Data Model

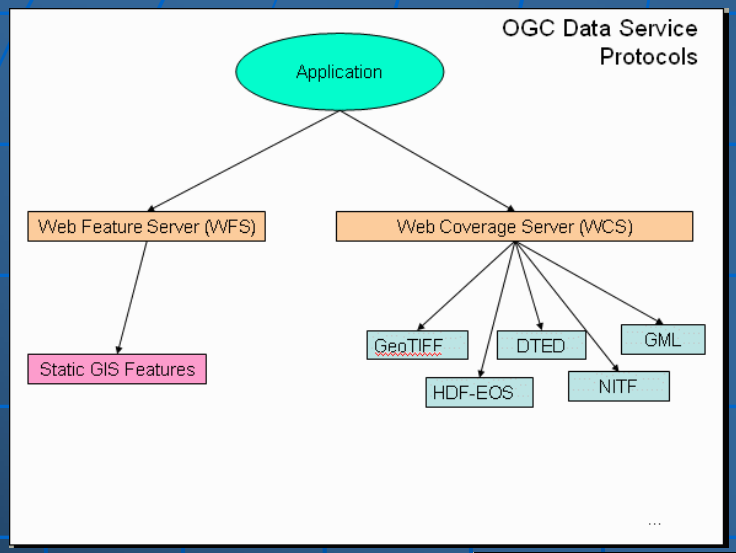


Access to GRIB files is now available via the CDM;

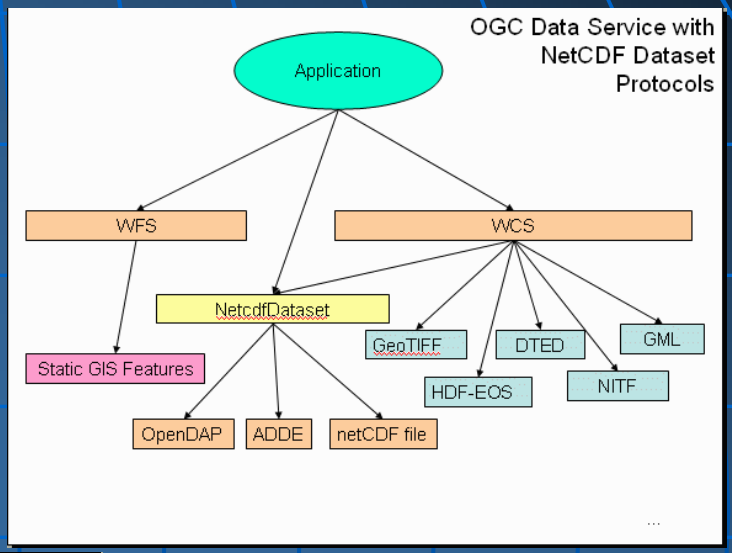
Work underway to develop "decoders" for other data types;

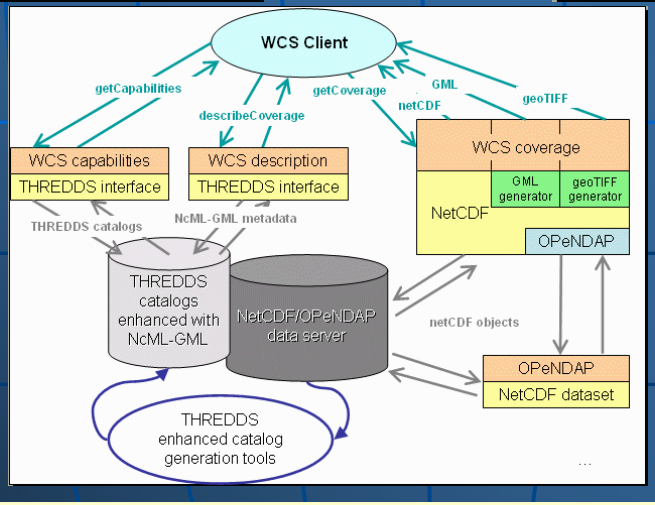
OGC Interoperability Experiment Proposed

Currently supported WCS formats



Proposed extension





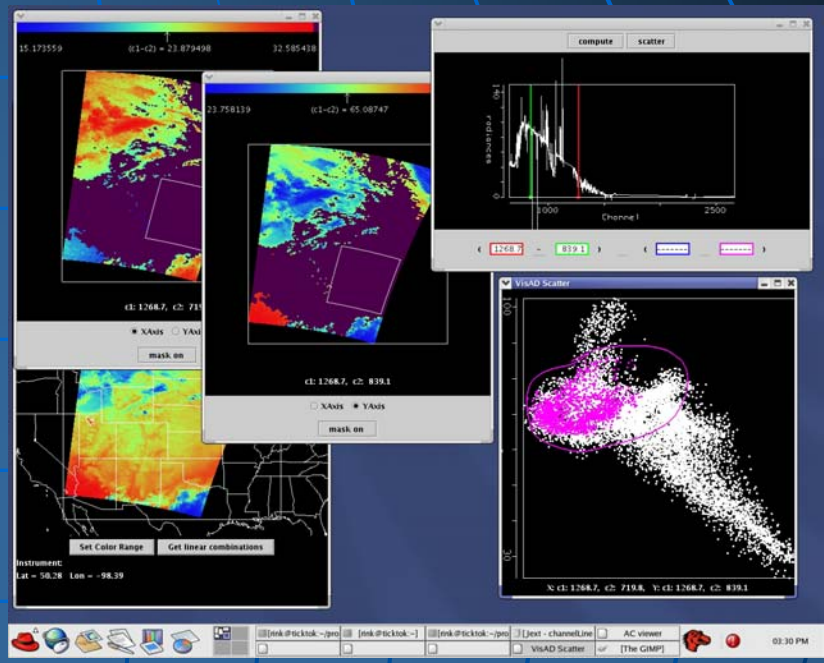
Build a WCS Gateway to netCDF datasets;

Will provide access to THREDDS-integrated services;

Goal: To add OGC Web Services access to THREDDS datasets as a way to bridge between the GIS and geoscience communities.

McIDAS-V

- Space Science and Engineering Center/University of Wisconsin-Madison will transition McIDAS into a package that is based on the Unidata IDV and VisAD
- See "The next generation of McIDAS: A look toward the future" by T H Achtor, T M Whittaker, D A Santek, AGU Fall Meeting, 2004.
- An important consideration for McIDAS-V: Visualization of hyperspectral data, which will be important with GOES-R

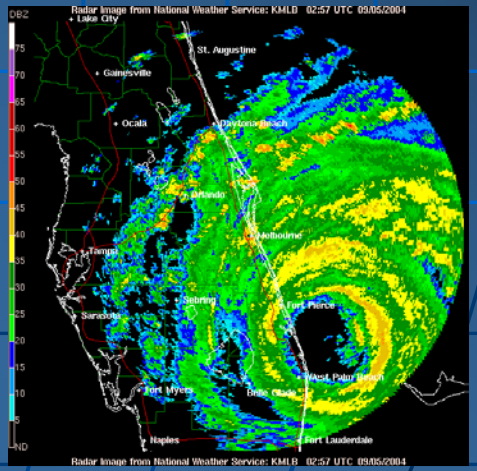


The McIDAS transition at SSEC will have important implications for the Unidata community;

This is on the agenda for the joint session tomorrow;

LEAD Update

- Progress has been made in designing the overall architecture and schema for metadata.
- The LEAD team is getting ready for the NSF site review on July 21-22, 2005.
- Installed WRF on the Unidata LEAD testbed and configured it to run twice daily;
- Generating THREDDS catalogs and serving the output files via OPeNDAP;
- A test decoder web service is now running on the testbed, under Globus, to convert Eta Grib output into netCDF;
- The LEAD team is currently developing service wrappers for ADAS (data assimilation) and WRF (prediction) components and will have it ready by end of the summer;
- Completing support for WRF netCDF & GRIB data in the IDV;

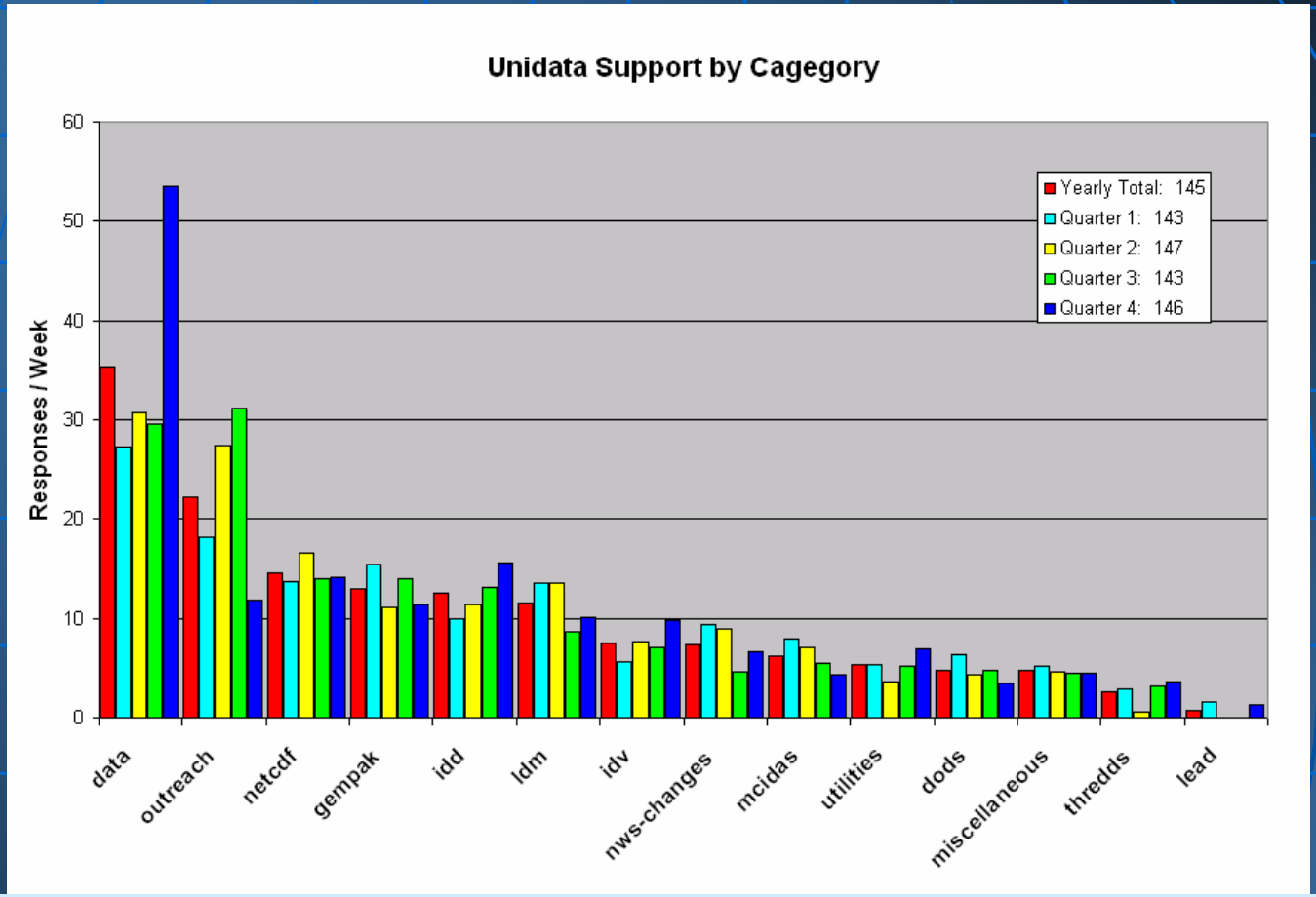


NOAAPort Expansion

- NOAAPort has transitioned to using Digital Video Broadcast – Satellite (DVB-S) technology to deliver high volumes of data to the field;
- New DVB-S technology is scalable to meet data requirements using a single demodulator (up to 43 Mbits/s per demodulator);
- Unidata is working with the community to transition sites to DVB-S; Our solution allows sites to integrate data received via DVB-S reception with IDD data.

"The Policy Committee recognizes Unidata's obligation to make available the results of its software development and system solutions not only to the academic community, but also to the wider community, including government and commercial institutions. The Policy Committee recommends that the Unidata Program Center continue to make its software freely and openly available (to the extent that this does not impact Unidata's mission to support academic institutions and with appropriate indemnification from liability) to realize the benefits of open source development on behalf of the Unidata Community."

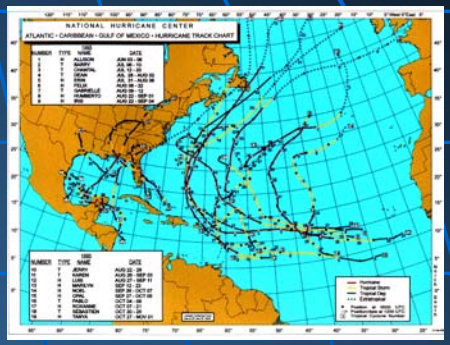
Email Support Load

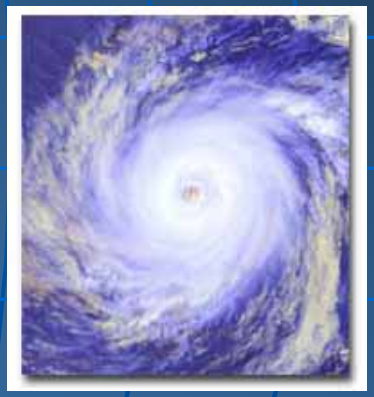


- The total support load at the UPC remains steady.
- The Support Task Force has been investigating promising web-based packages that address the various support issues/needs of community members and developers alike. Two potential solutions have been tested in-house (eSupport and RequestTracker)
- We anticipate rolling out one of these packages within the next couple of months as a featured service of the website.

Proposal Activity

- An unsolicited proposal to NASA, "Implementing a Common Data Model for NetCDF-4, HDF5, and OPeNDAP" was submitted and full funding received.
  - PI: Russ Rew
  - The award will support 0.75 FTE during the next year to continue improving interoperability among netCDF, HDF5, and OPeNDAP by implementing the scientific data layer of a "Common Data Model" in C.
- Unidata (Ben) is collaborating on a proposal to NASA's ROSES/ACCESS program.
  - PI: Prof. Liping Di, George Mason University
  - Unidata role: To build software for a WCS gateway to netCDF data, enhancing access NASA datasets
- We are considering a proposal to NSF's Dynamic Data Drive Application Systems solicitation;
  - Unidata and University of Texas are collaborators
  - Topic: Application of DDDAS for on-demand, real-time prediction of flooding associated with landfalling hurricanes;
  - Will leverage and extend systems developed in LEAD and TeraGrid Flood Modeling Science Gateway projects;





State of the Program: A Snapshot

- Community relations : Green
- Data Flows : Green
- Software Development : Yellow
- Collaborations : Green
- Staffing : Green
- Support : Green
- FY05 Finances : Green

The longer term budget picture is not as green, as funding for THREDDS and netCDF-HDF merger projects are coming to a close. More information in Joanne's budget presentation.