

Director's Report

Unidata Policy Committee Meeting

14 May 2012

Arlington, VA

Mohan Ramamurthy
Unidata Program Center
UCAR Community Programs
Boulder, CO

Staffing

- The UPC is now fully staffed.
- With the recent hirings, now there are 25 staff members working at the UPC.
- The current staff count is one more than our average staff size before 2010.
- Some of the new hires have 2-year term appointments since core funding can only support about 20 staff.
- **Must seek additional funding to retain everyone after their term appointment.**

New Staff Member: Marcos Hermida

- Marcos Hermida joined the UPC software development staff at the end of January.
- Marcos comes to Unidata from MeteoGalicia, the regional meteorology agency for Galicia, Spain.
- Marcos has two Bachelor's Degrees
 - Mathematics, and
 - Software Engineering
- He is working primarily in the THREDDS group.



New Staff Member: Ward Fisher

- In March, Unidata hired Ward Fisher to replace Ed Hartnett's position in the netCDF group;
- Ward has an M.S. in Computer Science from Colorado State University;
- He has 12 years of work experience in image processing, data compression techniques, algorithm design, and support for scientific and software engineering.
 - He is comfortable writing cross-platform software in both Unix-like and Windows environments
- Ward's initial focus will be helping to improve netCDF support for Windows platforms.



New Staff Member: Lansing Madry

- In April, Unidata hired William (Lansing) Madry, with funding from the OPULS Project, a joint project between Unidata and OPeNDAP;
- Lansing has a B.S. in Music (Piano) and Physics, and a Ph. D. in Atmospheric Sciences from University of Colorado;
- He has previously worked at Precision Wind, Bucknell University, and Rally Software.
- He will be working on THREDDS and related efforts in support of the OPULS project.

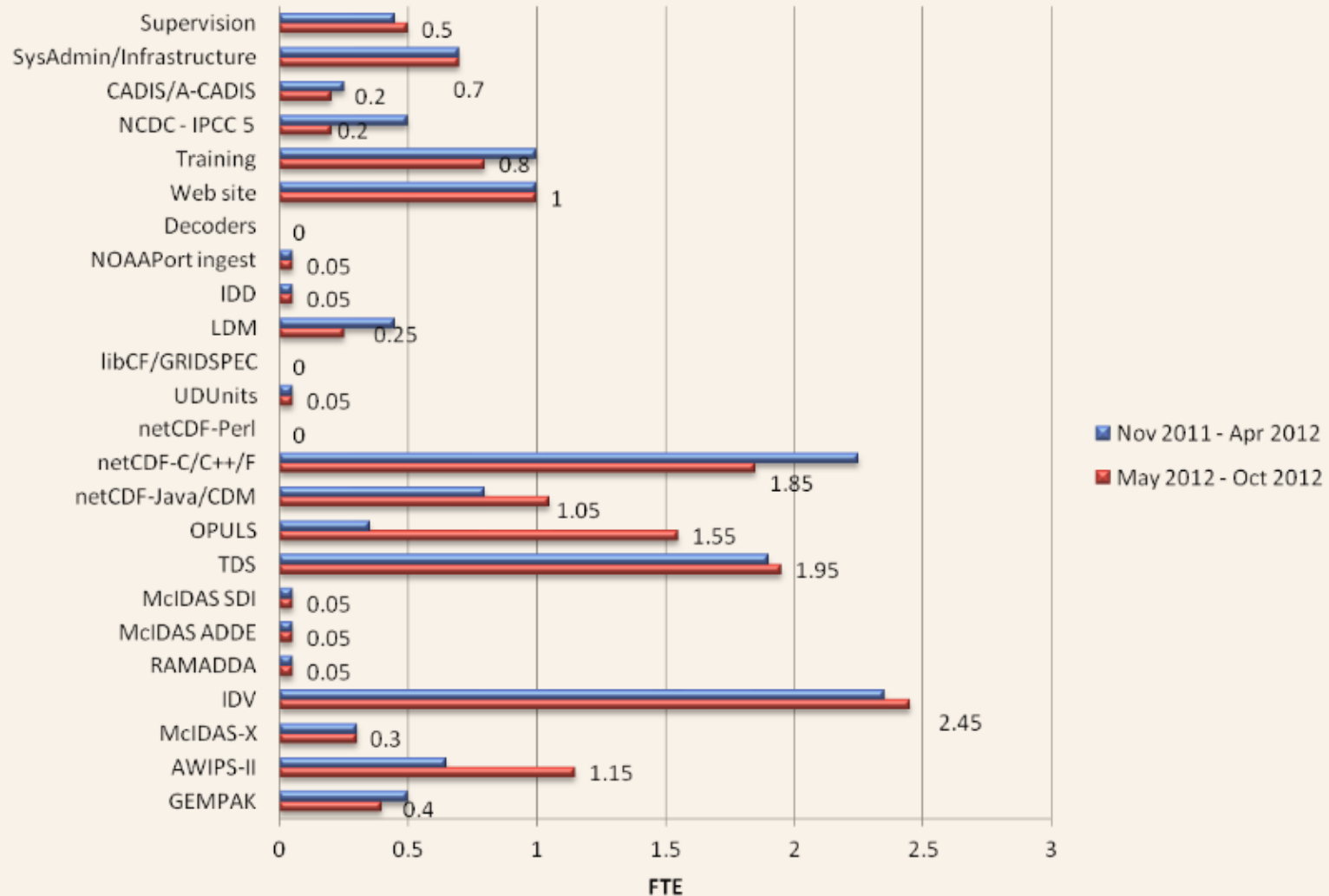


New Staff Member: Jack Swope

- In April, the UPC hired Jack Swope to work in the System Administration area;
- Jack has an M. S. degree in Database Systems Development and a B. S. in Agricultural Education;
- He worked for VMware Inc. for about five years as Sr. Technical Operations Engineer, and KonicaMinolta Systems Lab for nearly four years.
- He will be working with Mike in supporting the system administration needs of the program.



Software Engineer FTE per Unidata Product (current and anticipated for next 6 months)



DeSouza Award

- The Russell L. DeSouza Award honors "individuals whose energy, expertise, and active involvement enable the Unidata Program to better serve the geosciences."
- David is being honored for his many contributions over the years, and explicitly for helping education and research communities gain access to real-time NLDN lightning data.

The award is very well deserved!
Congratulations to David!



New UCAR President

- Dr. Thomas Bogdan took over as President of UCAR on January 9, 2012.
- Tom has been holding a series of town hall meetings with NCAR, UCP, and F&A programs.
- He is primarily focusing on external relations, increasing NCAR's visibility, and raising money. He is also keen on developing a "One-NCAR" concept.
- He is hiring two high-level staffers (a Chief of Staff and a Senior Advisor to President help him with his communication and in developing strategy for enhancing interactions with key Washington decision-makers).



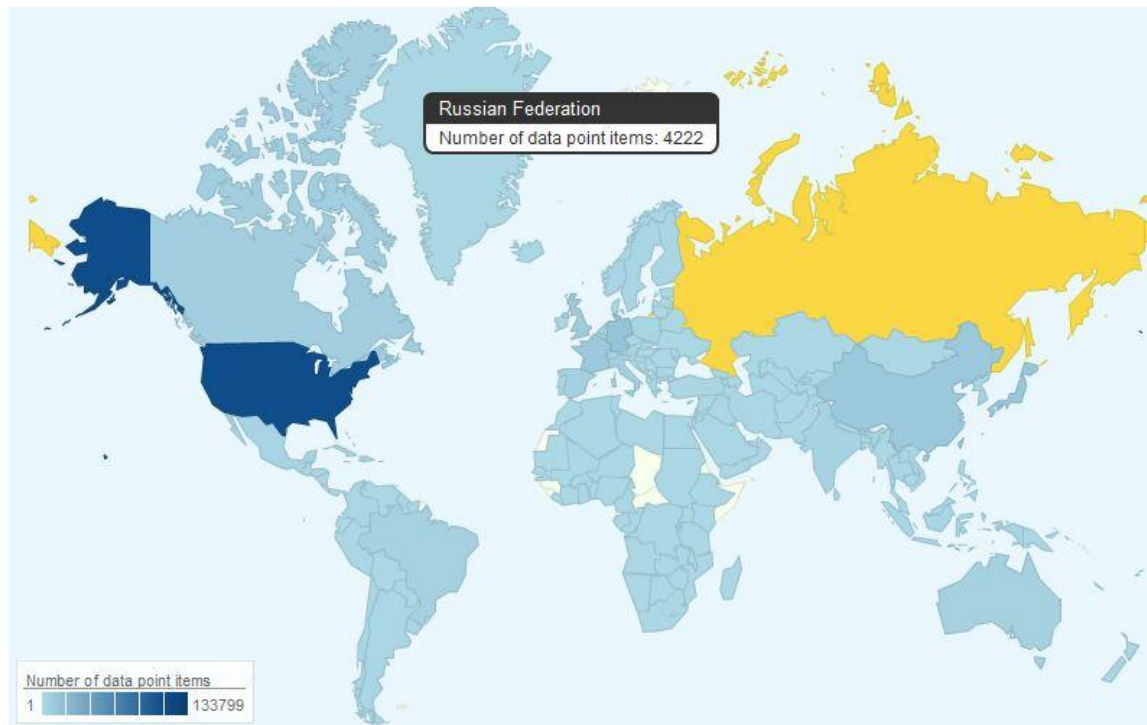
Composite Map of Unidata Users

According to the latest estimates, the Unidata community now includes over 40,000 users in 2400 academic institutions in 210 countries.

Unidata's Outreach

Data gathered from mailing list rosters, package downloads, workshop attendance, website registration, support requests and TDS access. These data are considered data point items. 310407 items of data points used (resolved hosts). 33682 points of data unused (unresolved hosts, .COM, etc.)

Total: 210 countries



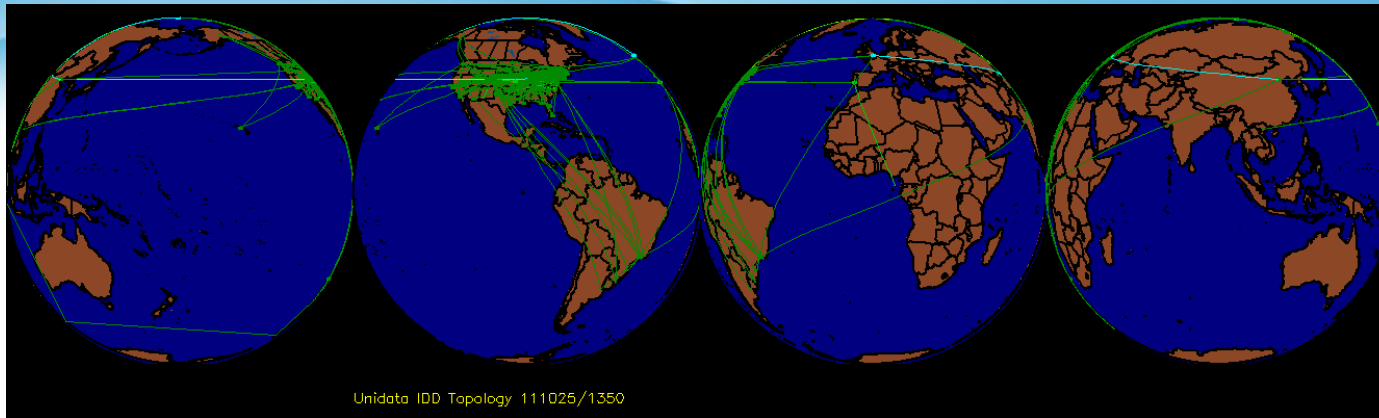
Note: The map above is interactive - move your mouse over a country to see the data.

Strategic Plan

Unidata 2020: Geoscience at the Speed of Thought *through accelerated data discovery, access, analysis, and visualization.*

Mission: To transform the geosciences community, research, and education by providing innovative data services and tools.

- *The plan was formally adopted by the Policy Committee in early January;*
- *Work is in progress to create an action/implementation plan;*
- *These plans will become the basis of the next 5-year proposal, which will be submitted in early 2013.*



- ❖ About 500 machines at ~230 sites are running LDM-6 and reporting real time statistics. These numbers have not changed much in the past 4-5 years, but the volume data ingested keeps growing. Many organizations are using the LDM but not reporting stats.
- ❖ UPC's IDD Cluster relays data to about 650 downstream connections. **Average data output: 9.3 TB/day or 855 Mbps! Peak rate exceeds 1.75 Gbps!**
- ❖ Data input to the cluster has increased to ~9.0 GB/hr because of WSR 88-D Dual-polarization upgrades and the addition of Fire Weather Grids to CONDUIT.
- ❖ **CONDUIT and WSR 88-D Level II remain the top two data streams based on volume.**
- ❖ Six server nodes operating in the UCAR co-location facility in FL-2

Model Updates

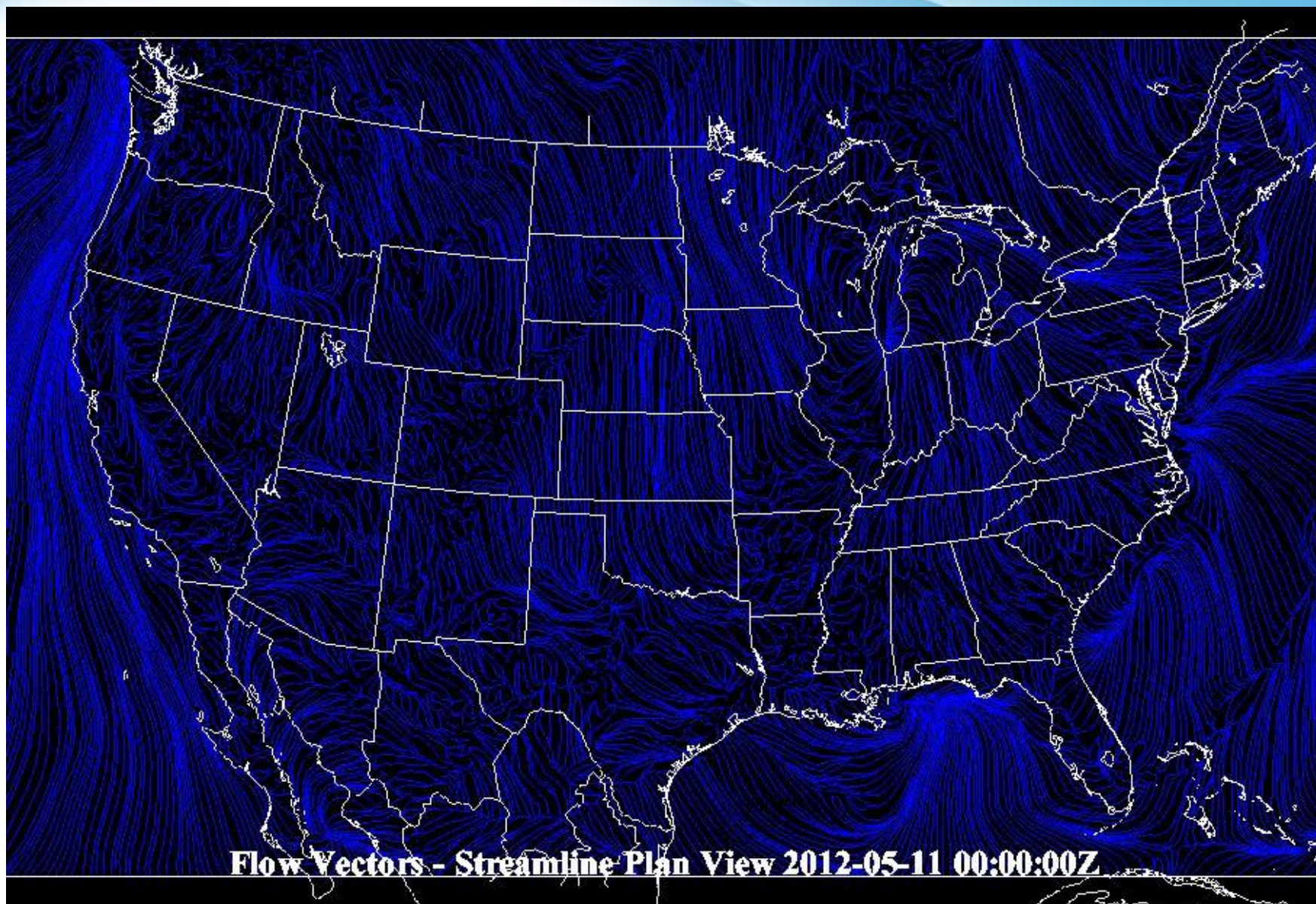
Rapid Refresh (RAP)

- The next-generation hourly-updated replacement for the RUC implementation occurred at 12z on 1 May 2012.
- It uses a configuration of the WRF model at 13 km horizontal resolution, with ARW core with generally RUC-like physics (Grell-G3 convection, Thompson/NCAR microphysics, RRTM longwave radiation, Goddard shortwave radiation, MYJ turbulent mixing, RUC-Smirnova land-surface model)

High-Resolution Rapid Refresh (HRRR)

- The HRRR is an *experimental* real-time 3-km resolution, hourly updated, cloud-resolving atmospheric model, initialized by DFI-fields from the 13km radar-enhanced [Rapid Refresh](#) (ESRL version, not NCEP version)
- HRRR is run at NOAA/ESRL/GSD as a real-time demonstration.
- The UPC is now receiving HRRR 2D fields (surface and other fields).
- The UPC will begin distributing 2D HRRR data to interested universities.

HRRR Flow Vectors



Data Access/Distribution Volumes

Data Access Protocol	Data Volume (Yearly)
OPeNDAP	8.24 Tbytes
Web Coverage Service (WCS)	0.16 Tbytes
Web Map Service (WMS)	30.5 Gbytes
FTP	3.99 Tbytes
NetCDF Subset Service	0.72 Tbytes
ADDE on Motherlode	14.4 Tbytes (estimate)
ADDE GOES-East	12.0 Tbytes
ADDE GOES-West	9.60 Tbytes
ADDE GOES-South	6.24 Tbytes (820 users)
TOTAL	~55.4 Tbytes
Data ingested into IDD	78.8 Tbytes (estimate)
Data relayed to 650 downstream sites	Approx. 3.4 Petabytes!



Development Infrastructure

- Moving source code to **GitHub**: CDM/TDS, IDV, LDM, VisAD(planned?)
- Standardizing build system and dependency management with **Maven**: CDM/TDS, VisAD, IDV (planned?)
- Standardizing automatic build/test (continuous integration) systems on **Jenkins**: CDM/TDS, netCDF-C (planned)
- JIRA/Redmine for task management and bug tracking
- Decommissioned old build platforms: IRIX, OSF, HP-UX. AIX not decommissioned, looking for replacement system.

Increased cross-project planning including multi-project efforts, and agile development via scrums and sprints.

Software and System Projects

Added by Elban.Davis, last edited by Elban.Davis on Mar 07, 2012 (view change)

Underway

Project	Team	Estimated Effort	Sprint/Iteration Planning
CDM/TDS Maven-ization and Testing Refactor	John, Ethan, Marcos, Sean	2wk	See below

Upcoming

Project	Team	Estimated Effort	Sprint/Iteration Planning
CDM/TDS/IDV: 4.3 - Point Data - Subset global data across seam	John, Ethan, Marcos, Yuan, Julien, Sean	1wk + 2wk + 4wk	See below
VMware-based Unidata-in-a-Box	Mike Tom, Steve, Michael	2 weeks	See below
iRODS Evaluation	John, Ethan, Russ	2 weeks	See below
AWIPS2 Development: evaluate plugin architecture; try reading data through CDM	Michael, Steve, John, Dennis, Yuan, Ethan, Jeff	? weeks	See Below
netCDF and Udonits using Fortran 2003 C interoperability features	Steve, Russ, Dennis, Sean	? weeks	See below
THREDDS Catalog API rewrite/redesign	Ethan, John, Marcos (Roland)	? weeks	See below

Future/Possible

Project	Team	Estimated Effort	Sprint/Iteration Planning
CONDUIT: RUC to RR switch	Tom, Jeff, ?		
More eyes on ADDE	Tom, ?		
More eyes on NOAAPort ingest system	Tom, Mike, ?		
More eyes on Support infrastructure	Tom, ?		
Port LDM to Java with C to Java bytecode compiler/translator	Dennis and ?		
YumRPM (depends on how Unidata-in-a-Box goes?)			

Sprint/Iteration Planning

CDM/TDS Maven-ization and Testing Refactor

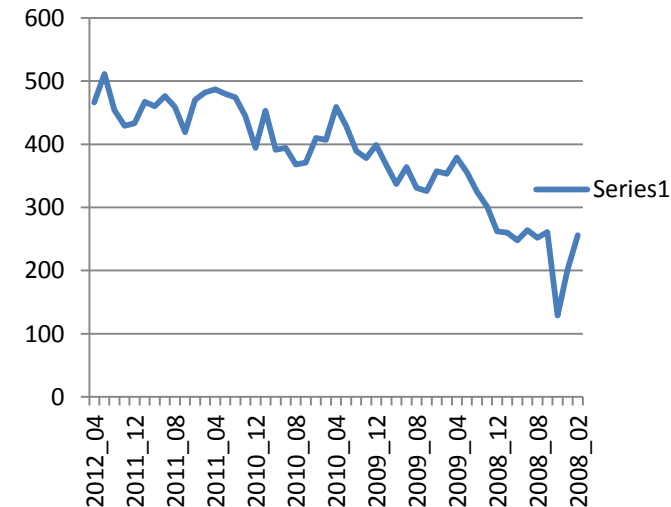
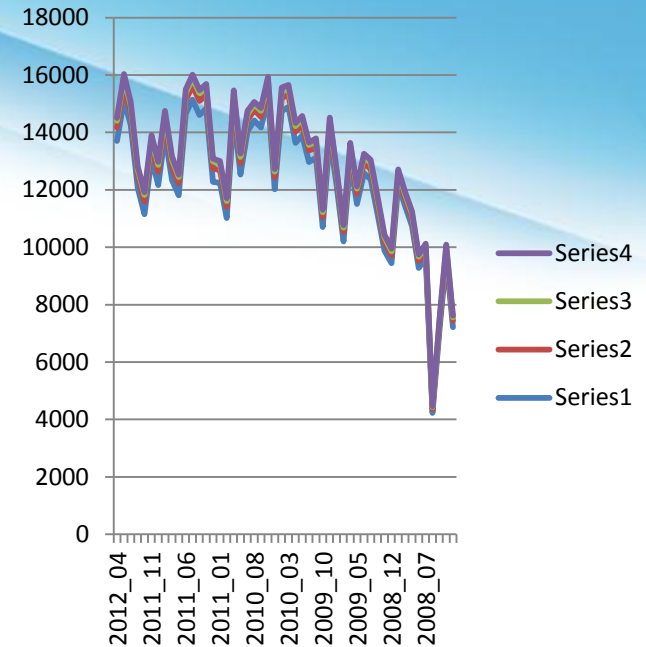
Sprint/Iteration Focus	Estimated Time	Scheduled Start Date
Update Maven with Integration Testing split	2wk	27 Feb 2012
Split existing unit/integration tests	1wk	12 March 2012



- CDM (netCDF-Java) 4.2.30 is the current release; 4.3.10 alpha release is out.
 - Cleaned up several modules, including GRIB, OPeNDAP, and VisAD-based IOSPs
 - Complete rewrite of GRIB-1 and GRIB-2 IOSPs
 - Update of certain tables (BUFR, GRIB, etc.) from WMO and NCEP
 - New code to handle GRIB collections can scale up to large collections of files, first application is NOMAD's CFSR dataset.
 - Improved calendar handling, e.g., 360-day years for climate data.
 - Improved integration with nclSO.
- **CDM Source Code**
 - Source code repository now publicly available on GitHub
 - Build and dependency management switched to Maven.
 - Improved IOSP registry drop-in pluggability
- **netCDF-C: Version 4.2 of the C-based netCDF software was released in March, the first new release in 10 months**

Integrated Data Viewer

- ❖ IDV version 3.0u2 was released in February.
 - A number of new features and capabilities added
- Additional New Development
 - Enhanced support for ensemble output (multivariable probabilities)
 - Time matching of displays
 - ADDE-like chooser for satellite image previews
 - Axis scale and labeling interface
- ❖ Other activities
 - The IDV and McIDAS-V teams held a two day meeting in Madison, Wisconsin last November for the purpose of strengthening the collaboration between the two projects.
 - A two-day IDV-focused regional workshop was held in the California University of Pennsylvania on February 16 and 17.
 - The IDV project has officially moved to GitHub as a fully open source project. [IDV-Github](#)
 - The IDV team will conduct a tutorial session at the WRF workshop in coming June; expecting 40 to 50 participants; it will focus on displaying and analyzing the WRF model output.
 - [Trajectory](#) displays are being added to the IDV.



GEMPAK & McIDAS-X

- No major updates to NAWIPS/GEMPAK since the 6.4.0 release in October 2011. **Recall that GARP support was discontinued at that time.**
- Minor updates to the package have included:
 - increased grid size limit for nex2gini composites;
 - increased maximum number of records for bound file creation program SHPCV;
 - corrections to the NIDS selection dialog in NMAP2.
- Major data tables are provided as individual downloads.
- OpenMotif 2.3.3 tarball with edits specific to OS X is provided for download from the Unidata website.

Working with SSEC MUG team to standardize enhancements for NEXRAD Level III Dual Polarization products.



- Unidata is receiving major releases of AWIPS II, including source code and Eclipse development environment, from NWS and NCEP.
- UPC staff visited the Boulder WFO to assess the progress of AWIPS II deployment and get a demonstration of its capabilities.
- **Saw a side-by-side demonstration of AWIPS and AWIPS II (D2D, NSHARP, and GFE).**
- **The WFO's AWIPS II package is further along than NCEP's.**
- Testing by the Boulder WFO has revealed some issues — many related to topography-dependent analysis — that didn't come out in the Omaha WFO's testing.
- **The 64-bit EDEX server will be available in Winter 2012-13.**

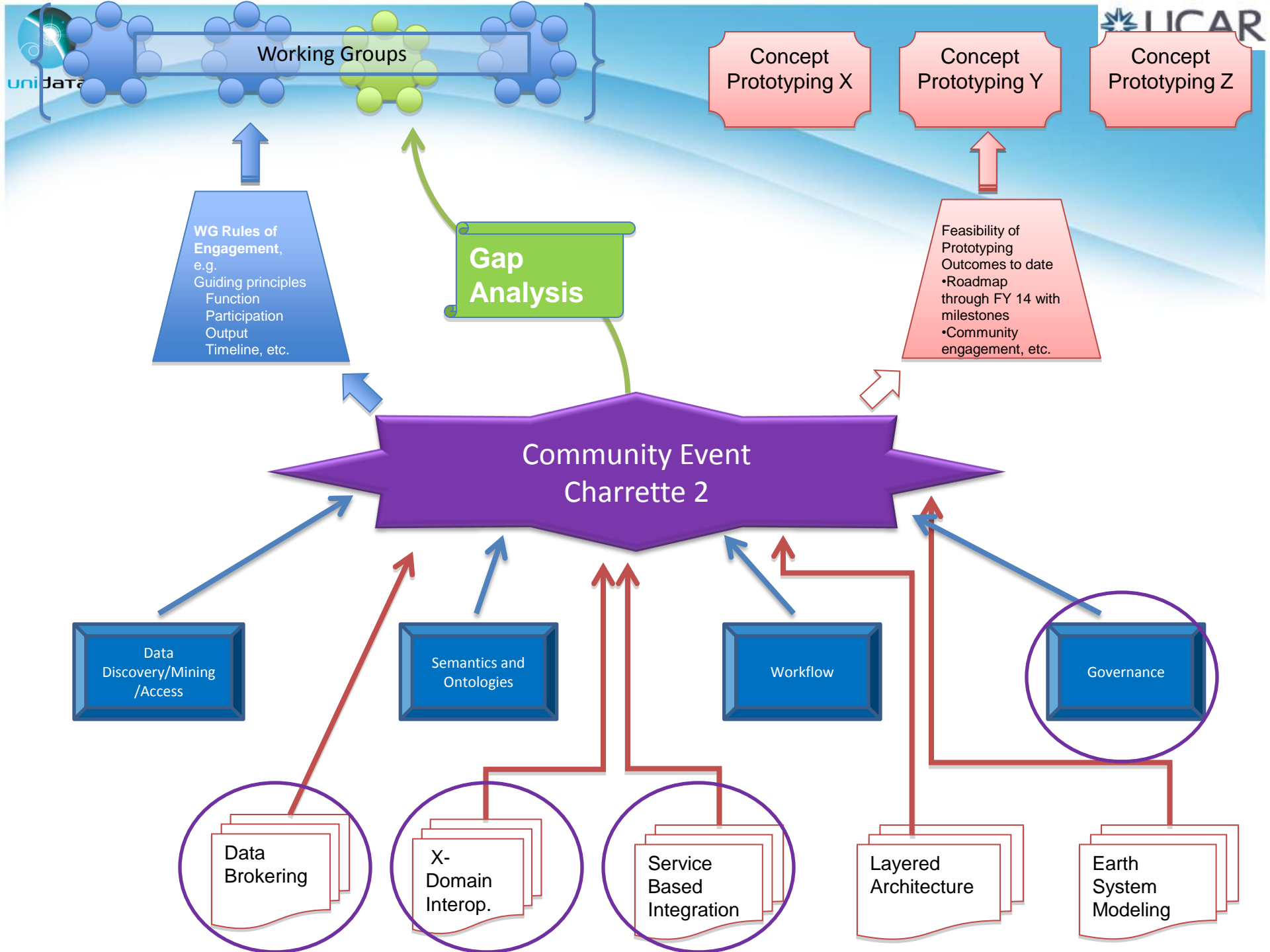
- **Michael James and Jeff Weber attended AWIPS II training for forecasters , which was held in February at NCEP.**
- **AWIPS II beta-users in the community are slowly being entrained. Texas A&M is the first site.**
- **Expanded documentation, based on Raytheon's work, has been developed for the community.**



EarthCube

main my page members groups blogs background reading charrette

- There are many developments since the last meeting.
- 111 white papers were submitted before the November charrette, which was held at Herndon, VA.
- An announcement of opportunities for NSF EAGER awards was issued in December.
- 60 Expressions of Interest pre-proposals were submitted.
- About 10 EAGER Awards have been made in Round 1.
- A second announcement of opportunity for EAGER awards was issued in February, with a closing date of 2 April.
- Lots of information available at
 - <http://earthcube.ning.com>



Regional Workshop

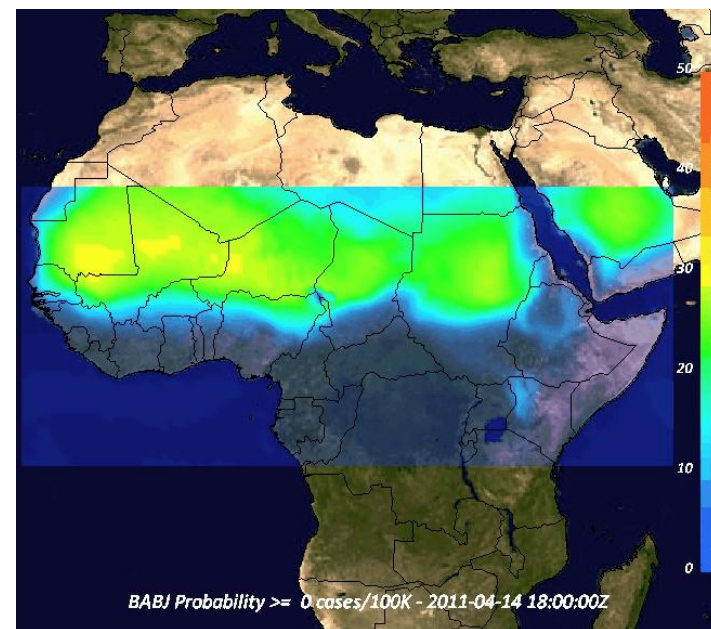
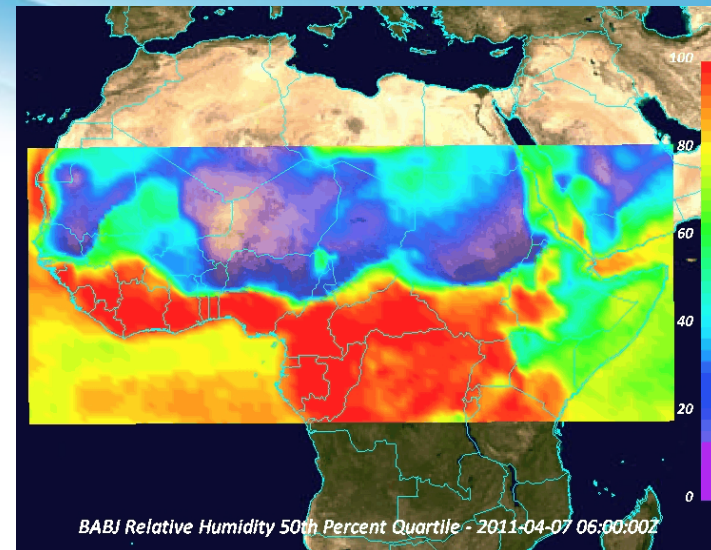
- Yuan Ho and Tom Yoksas conducted a two-day workshop at California University of Pennsylvania on 16-17 February.
- Workshop was attended by CUP faculty and students, and decision makers in the area.
- There is great deal of interest in the greater use of the IDV and RAMADDA at the university.
- **We welcome your thoughts on other potential venues for future regional workshops.**



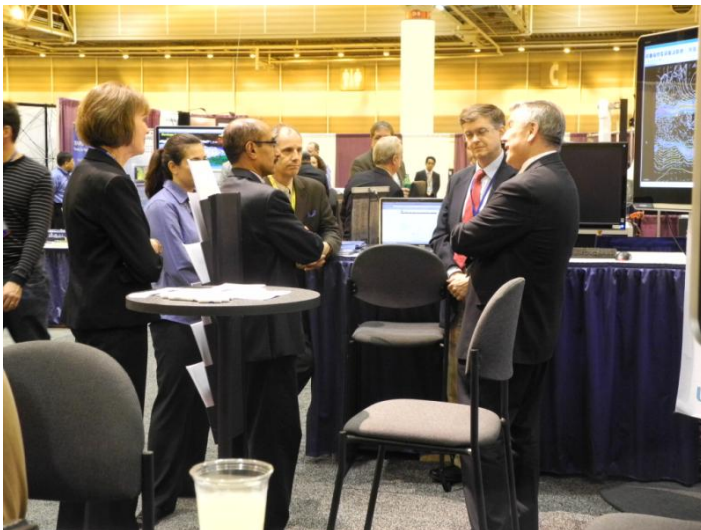
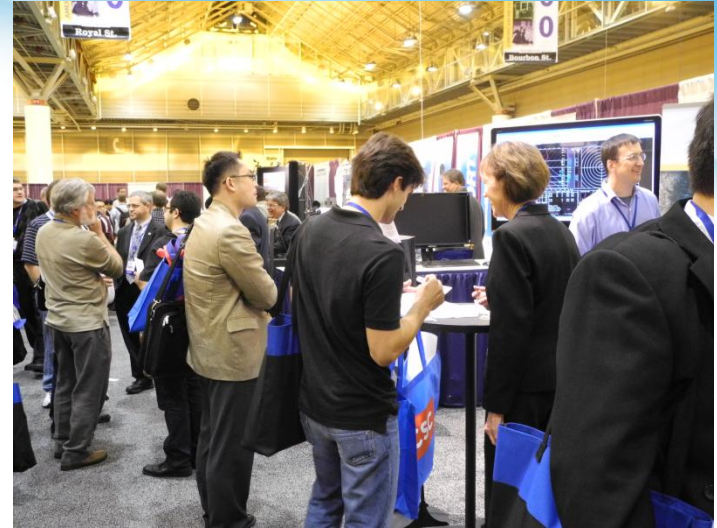
- The workshop funding proposal was submitted in January.
 - A recommendation on the proposal has been made.
- Planning of the logistics and the creation of the agenda are in progress.
- Workshop will be held 9-13 July at the Mesa Lab.
- A workshop website, including a registration area, is ready to go online.
- We encourage Polcomm members to participate.



- A 3-year Google.org funded project under the UCAR Africa Initiative.
- The IDV is being used to generate displays of forecast relative humidity that is created using TIGGE ensemble data from ECMWF.
- The IDV displays include:
 - Areal distribution of the 50% quartile for RH (i.e., each point in the RH field has a 50% probability).
 - Probe timeseries plots of QC25, QC50, and QC75 fields for in a select set of countries in the meningitis belt. The locations for the plots are determined by meningitis cases that are reported by each country.
- These products are stored as animated GIFs and made available through RAMADDA on motherlode.
- **Next step: Transfer this capability to ACMAD in Niamey, Niger.**



AMS Annual Meeting Participation



- **Given the high-level of interest AWIPS II and IDV, we will be participating in the 2013 AMS Annual Meeting in Austin, Texas.**
- **In addition, Unidata will have a booth at the NWA meeting in Madison, WI in October.**

Community Equipment Awards

- Over the past nine years, Unidata has made 61 equipment awards and given about \$1M to various universities.
- This year special consideration was given to proposals that:
 - **Plan to share their data by installing THREDDS and RAMADDA servers.**
 - **Install, test , and provide feedback on *prototype* AWIPS II/EDEX servers.**
- An RFP was issued on late December, 2011, with a March 9 submission deadline.
- **We received five proposals this year. The review panel met after the Users Committee meeting and recommended funding of three proposals:**
 - **Iowa State University**
 - **University of Wisconsin-Milwaukee**
 - **Valparaiso University**
- **We would like your ideas for increasing the number of proposals that are submitted.**

2012 Unidata Training Workshop

October 22 - November 7, 2012

Workshop Dates

Workshop Dates	Workshop Title	Homepage	Class Description
October 22-24	THREDDS Data Server (TDS)	THREDDS homepage	Class Description
October 25-26	netCDF	netCDF homepage	Class Description
October 29-November 1	IDV with RAMADDA	IDV homepage	Class Description
November 1-2	LDM	LDM homepage	Class Description
November 5-7	GEMPAK with an Introduction to AWIPS-II	GEMPAK homepage	Class Description

We do not currently have a McIDAS session scheduled. However if you are interested in attending one, please contact Tina Campbell at campbell@unidata.ucar.edu, and if we have enough interest, we will schedule one.



Spread the word among your colleagues.

- The FL4 remodel work is underway.
- Like the Anthes Building, FL4 will be another “green” building using energy from solar arrays and a geothermal system.
- Anticipated completion date: 13 June, 2012



Staff won't be able to come to work between 14 and 17 June. (Other than Mike and Co. that will help move and set up the computers.)

State of the Program: A Snapshot

- Community relations : Green
- Data flows : Green
- Software development : Yellow
- Support : Green
- Collaborations : Green
- Staffing : Green
- Finances : Green

Questions?