

Director's Report

Unidata Policy Committee Meeting

14 May 2013

College Park, MD

Mohan Ramamurthy
Unidata Program Center
UCAR Community Programs
Boulder, CO

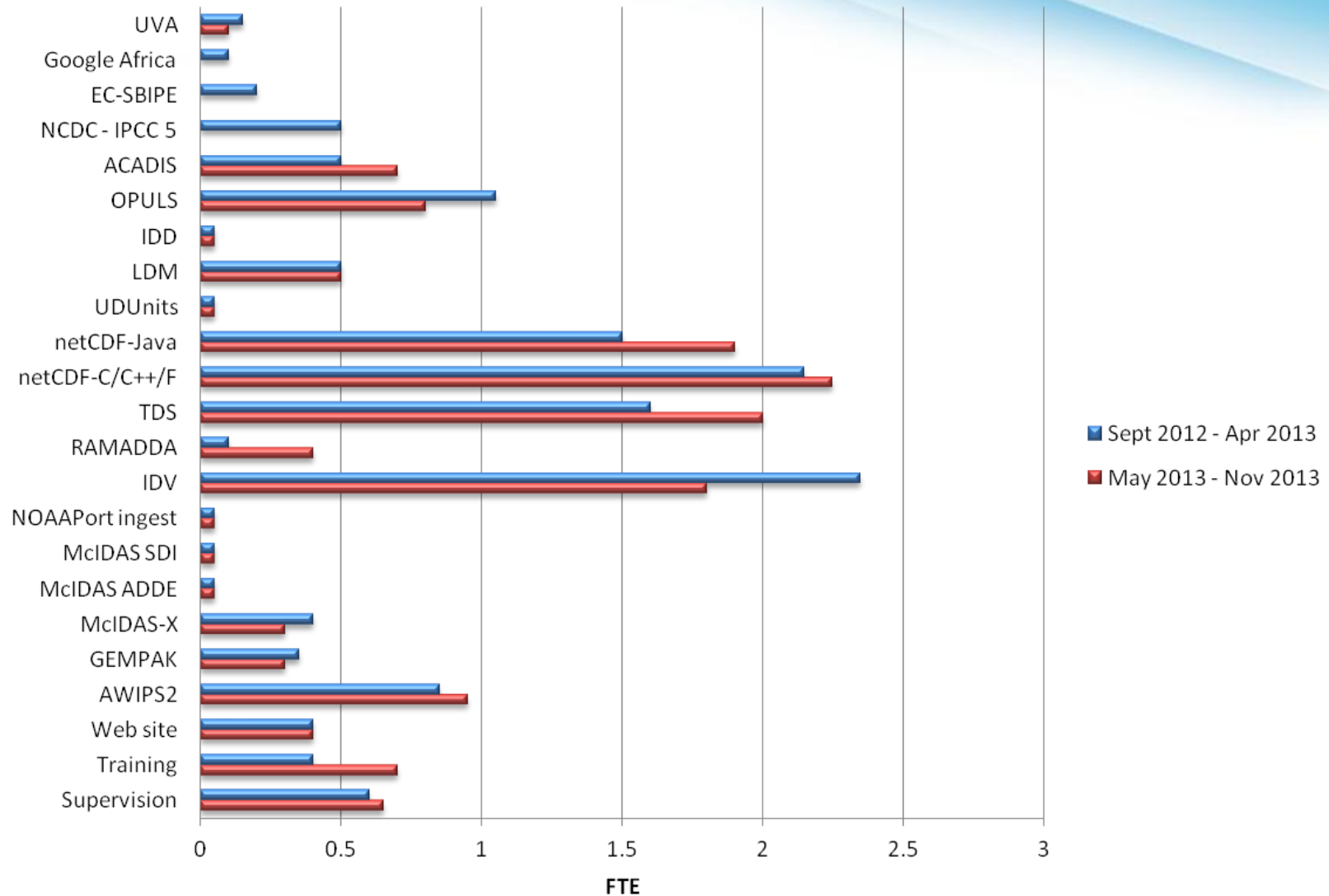
- Dr. Emily CoBabe-Ammann was appointed the new Director of UCAR Community Programs. Emily's first day at UCAR was April 15.
- Emily brings a wide range of experience in leadership, strategic planning, and development, with an emphasis on the educational components of science organizations.
- She has spent the last three years running her own consultancy for science education development and management, where she has provided strategic support to such organizations as NASA, the Center for Science Education at University of California, Berkeley, the Lunar and Planetary Institute, and Southwest Research Institute. Emily has served as the education lead for NASA's Juno mission and led the development of NASA's Lunar Science Education Vision.
- Previously, Emily spent seven years at the University of Colorado's Laboratory for Atmospheric and Space Physics where she headed the Office of Communication and Outreach.
- Emily earned a Ph.D. in Earth and Planetary Sciences from Harvard University in 1991. Her undergraduate degree is from the Department of Geology and Geophysics at the University of Wisconsin–Madison.



Staffing

- Robb Kambic, one of the software engineers, re-located to Florida last summer and left Unidata in Fall 2012. Now, he is working for Unidata on an hourly basis.
- Tina Campbell left Unidata in March to take a position with a consulting firm.
 - A search is underway for a replacement.
- Linda Miller transitioned into part-time (50%) status in early January.
- Unidata is hiring a student intern to work at the UPC this summer. The project to which he will be assigned is still unknown.

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



Users Workshop Article

2012 Unidata Users Workshop Navigating Earth System Science Data

Steven M. Lazarus¹, Jennifer M. Collins, Martin A. Baxter, Anne Case Hanks,
Thomas M. Whittaker, Kevin R. Tyle, Stefan F. Cécelski,
Bart Geerts, AND Mohan K. Ramamurthy

Bulletin of the American Meteorological Society

October 2012



AMERICAN
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SOCIETY

Bulletin of the American Meteorological Society

EARLY ONLINE RELEASE

This is a preliminary PDF of the author-produced manuscript that has been peer-reviewed and accepted for publication. Since it is being posted so soon after acceptance, it has not yet been copyedited, formatted, or processed by AMS Publications. This preliminary version of the manuscript may be downloaded, distributed, and cited, but please be aware that there will be visual differences and possibly some content differences between this version and the final published version.

The DOI for this manuscript is doi: 10.1175/BAMS-D-12-00214.1

Congratulations to the Users Committee in bringing the working summary publication to a successful completion in *BAMS*, and Steve for his leadership on it!

Russell L. DeSouza Award

National Organization Honors UW's Oolman

By Laramie Live Staff March 25, 2013 10:55

PM



University of Wyoming researcher Larry Oolman developed a website that is an international source for weather information. (UW Photo)

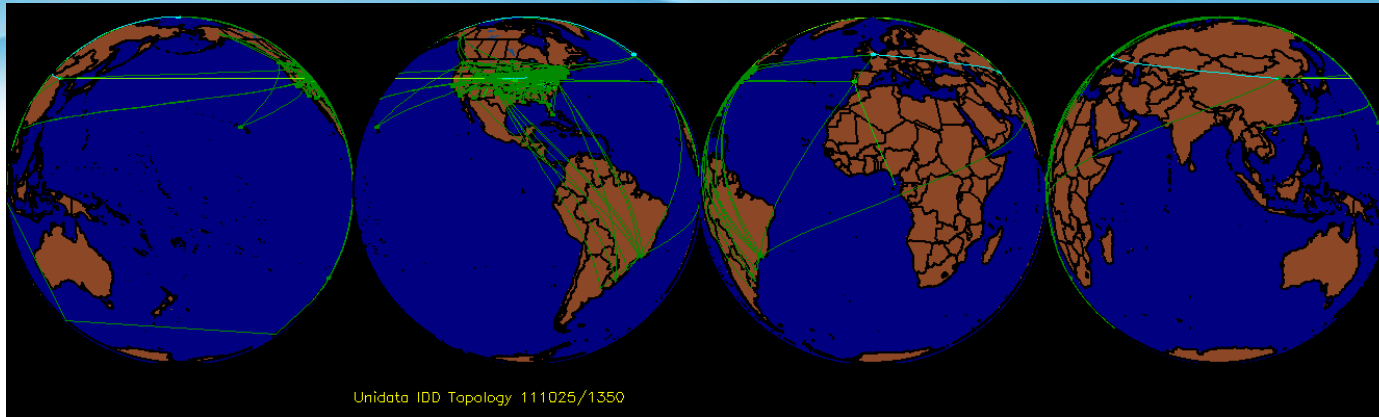
Larry Oolman, a University of Wyoming researcher who single-handedly developed a website that has become a popular weather information source for meteorologists worldwide, has received an award from a national data-sharing research and educational organization.

He received the University Corporation for Atmospheric Research (UCAR) Unidata community's Russell L. DeSouza Award. The award "honors individuals whose energy, expertise and active involvement enable the Unidata Program to better serve geoscience. Honorees personify Unidata's ideal of a community that shares data, software and ideas through computing and networking technologies."

"Among your many contributions is the weather data site, <http://weather.uwyo.edu>, which has grown to 130,000 requests serving 2 to 4 TB of data to over 2,500 unique computers are provided daily. Over a month, requests originate from nearly 100 countries. Your service to the community through active participation on Unidata's Users Committee and the summer triennial workshops has also been notable, for sure."

Proposal Development

- ✓ The next core-funding proposal will be submitted in late May.
- ✓ Title: “Unidata 2018: Transforming Geoscience through Innovative Data Services”
- ✓ The development of the new 5-year proposal is progressing well. It is a major undertaking that takes considerable team effort and involvement of many on the staff.
- ✓ The proposal will be twenty-five pages long (we will receive an exemption from the usual 15-page limit).
- ✓ It will build upon the new Strategic Plan that was created in early 2012, emphasizing the enhancement capabilities in the five ongoing areas.
 - ❖ Data Services; Software and Tools; User Support and Training; Community Services; Cyberinfrastructure Leadership;
- ✓ The plan/roadmap is being informed by the many discussions at Unidata’s governing committee meetings as well as the input we have received from the several surveys we have conducted recently.
- ✓ In addition, the proposal will well present a new vision for the future on how many of the current and new capabilities will be advanced and provided in the future through a broad array of services.



- ❖ About 520 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 680 downstream connections. **Average data output: ~13 TB/day or 1.1 Gbps! Peak rate exceeds 2.2 Gbps!**
- ❖ Data input to the cluster is ~12.5 GB/hr because of WSR 88-D Dual-polarization upgrades and the addition of more model output to CONDUIT.
- ❖ **WSR 88-D Level II and CONDUIT remain the top two data streams based on volume.**

- NetCDF now includes [portability to the Windows Visual Studio](#) development environment, a new alternative to previous autoconf-based distributions, which are still supported.
- The Windows porting work has significantly improved netCDF interoperability and led to fewer requests for support for help building netCDF from source on Windows platforms, now that pre-built libraries and executables for the latest version are available.
- Work is continuing to incorporate successful features of netCDF-Java into C-based libraries.

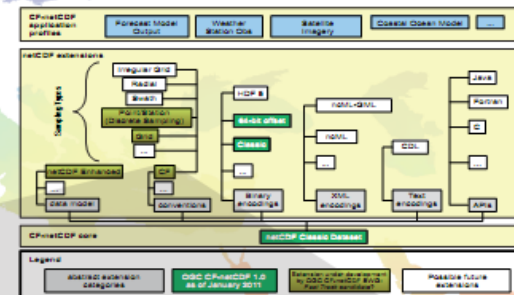
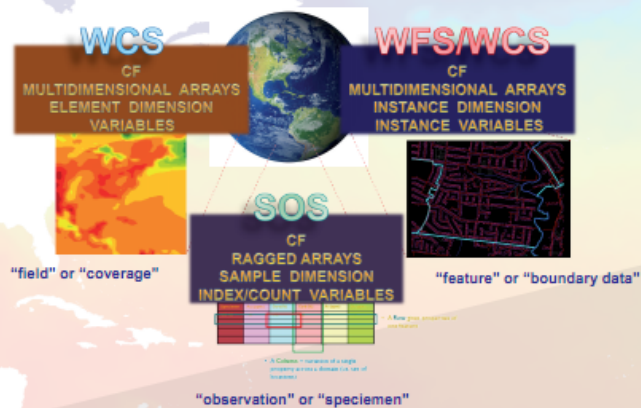
- A Data Format Transformation Service
- Efforts so far have been based on the needs of the Advanced Cooperative Arctic Data and Information Service community, but there is a great deal of interest in a service like that from other communities/projects (e.g, IEDA, JPL, and CUAHSI)
- Conversion of simple datalogger output (in a User Defined ASCII format or spreadsheet format, such as .xls or .xlsx) into Standard, self-describing, machine-independent data format (netCDF) files that are compliant with the CF specification.
- Short term plans: a) Expand the number of input and output formats for conversion, including the output of a Standard Layout ASCII format and a spreadsheet based standard layout; b) Create an API, with guidance from the ACADIS group, for data publishing from ρζητα to various data portals.
- There is a white paper on this effort, linked to the meeting agenda.

OGC & netCDF

The OGC CF-netCDF specification: towards a common data model for feature, coverage and specimen data

S. Nativi (1), B. Domenico (2)
 (1) ESSI Lab of the National Research Council of Italy - Institute of Atmospheric Pollution (IIA-CNR), (2) Unidata, Program Center, University Corporation for Atmospheric Research, Unidata, Boulder, United States
 stefano.nativi@cnr.it, ben@unidata.ucar.edu

A Unique Data Model for Three Views



Visit the OGC network Common Data Form (netCDF) standards suite

CF-netCDF Data Model extension became an OGC Standard since the 14th of February 2013

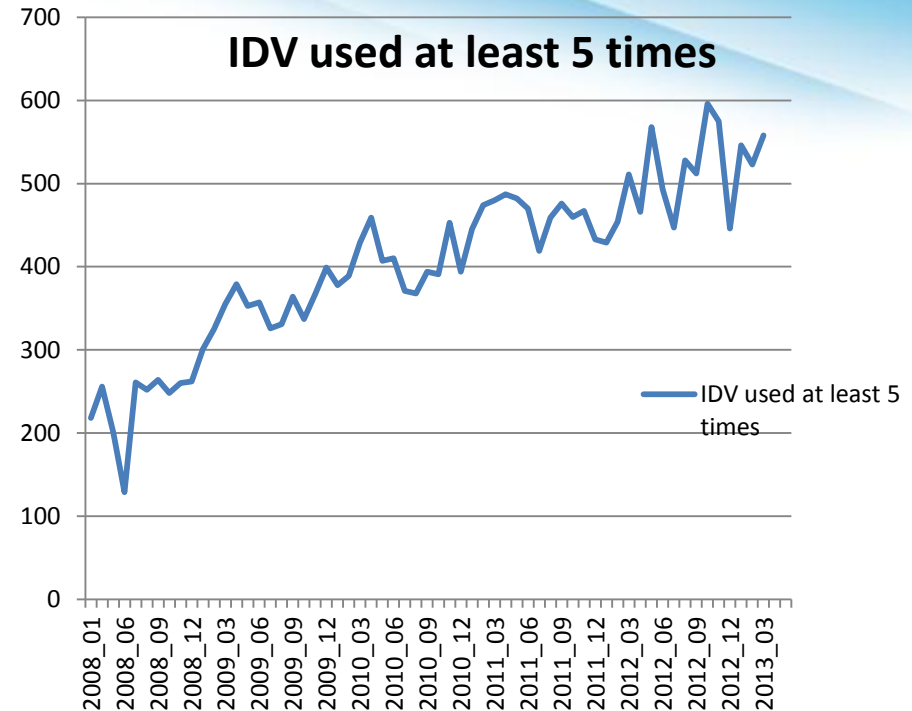


Download the Standard

Integrated Data Viewer

❖ IDV version 4.0u1 was released at the end of March.

- Uses netCDF-Java 4.3 library
- A minor upgrade of Java 6
- Supports Grid Trajectory (both forward and backward) Display
- Added a user interface to change the frequency of the contour labels
- Incorporates a new WMS server with USGS Shaded Relief Map



- Unidata is continuing to receive major releases of AWIPS II, including source code and Eclipse development environment, from the National Weather Service. Current version is 13.2.1.
- The UPC has successfully increased the number of threads available for each decoder (threads run in parallel with each other) for high-volume feeds.
- The UPC is preparing to release AWIPS II to the broad community by the end of 2013. The installable RPM package will be released separately from the development environment (ADE) and source code. Source code will be available via a github repository.



- AWIPS II beta-users community is slowly growing. In addition to Texas A&M, University of Albany, Penn State, and Iowa State have received the latest AWIPS II software (v13.2.1). **More universities will be added to this list this summer.**
- Much of the work has involved installation and configuration of the EDEX.

- The UCP was offered AWIPS II System Administration training at the Kansas City Training Center last summer.
 - Many complexities arose, due to training geared toward operational forecasters ;
 - Discussions with Jim Poole, head of KC training, NWS headquarters, and others led to conducting the first off-site training course aimed at unique participants like Unidata and COMET;
- Course was held last week (8-12 April) in Boulder at COMET;
- It was a comprehensive training, even though the training emphasis was changed and length of class was shortened from two weeks to one;
- Five UPC staff participated in the training. They found it valuable and enlightening in a



Special thanks to Jim Poole for coordinating the the training and Randy Scupbach, Dennis Blondin, and Wes Craven for adapting for our folks.

Unidata Community Composition

Affiliation Type	Number of Sites
EDUs, COMC, UCAR Institutions	2518
GOV Institutions	297
ORG Institutions	957
MIL Institutions	43
RLAB Institutions	82
Unidentified COM domains ⁺	5379
Unidentified NET domains ⁺	2205
Miscellaneous domains I was unable to determine an affiliation type ⁺	4890
Unresolved IP address networks	12443
Total # of separate entities:	28814



EarthCube

[main](#) [my page](#) [members](#) [groups](#) [blogs](#) [background reading](#) [charrette](#)

- Unidata is continued to be quite actively involved in the EarthCube effort.
- We contributed to four of the early EAGER-funded projects: Web Services, Cross-domain Interoperability, Brokering, and Governance.
- We are also partnering with others on EarthCube Governance, RCN, and 5 Building Blocks proposals.
- Organized an EarthCube Domain Workshop to seek input from the the mesoscale modeling, data assimilation, and ensemble prediction community.

Shaping the Development of EarthCube to Enable Advances in Data Assimilation and Ensemble Prediction

Organizers: Mohan Ramamurthy, Fuqing Zhang, and Russ Schumacher
17-18 December 2012, Boulder CO

There were 72 participants from Academia, NOAA, NCEP, NCAR, and the Private Sector;

Recommendations

- A pilot project on coordinated, distributed national ensemble prediction that involves universities that are interested in participating.
- Develop a prototype system that links data sets and assimilation and prediction systems together, involving the most used projects.
- Create a concrete plan for greater coordination of ongoing and future programs and facilities, developing a next-generation testbed facility to advance the science.
- Organize meetings to leverage and expand communication, and enhance data sharing, and facilitate sustained interactions.
- Entrain undergraduate and graduate students into research and educational activities related to “big data.”

Unidata Regional Workshop at San Jose State University

05 February 2013



The Department of Meteorology and Climate Science at San José State University will sponsor a Unidata Regional Workshop March 14-15, 2013. The workshop will focus on how large datasets are accessed, organized, and interpreted under the use of free-and-open

sharing of Earth System data.

From the [workshop announcement](#):

The workshop will provide introductory and advanced training in the use of Unidata's Integrated Data Viewer (IDV), Unidata's Repository for Archiving, Managing and Accessing Diverse Data (RAMADDA), and other Unidata data and tools.

There will be a combination of plenary sessions, break-out sessions, and hands-on/demonstrations. Attendees will have the opportunity to discuss their specific needs and challenges with the Unidata staff.

Sessions

Thursday, March 14

Morning Session, 8:30am-12:00pm

Introduction to the IDV

This hands-on session will cover installation and basic use of the Integrated Data Viewer (IDV). Attendees will learn how to access and display gridded, satellite, radar (Level II and Level III), surface, and upper air data.

Thursday, March 14

Afternoon Session, 1:15pm-5:00pm

Introduction to IDV, continued: "Use of Unidata Services in the Classroom"

This hands-on session will focus on active use of IDV and other applications in the classroom. Topics on customization will cover setting user preferences, creating custom color tables, and setting parameter defaults.

Friday, March 15

Morning Session, 8:30am-12:00pm

Advanced IDV

This hands-on session will cover the diagnostic capabilities of the IDV and how to customize it. Attendees will learn how to use the system formulas, create their own custom formulas, and how to use the Jython interface for more complex diagnostics.

Friday, March 15

Afternoon Session, 1:15pm-5:00pm



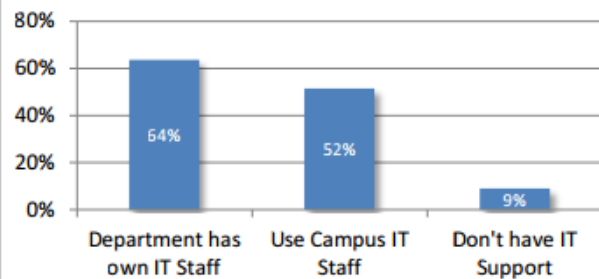
2013 AMS Annual Meeting



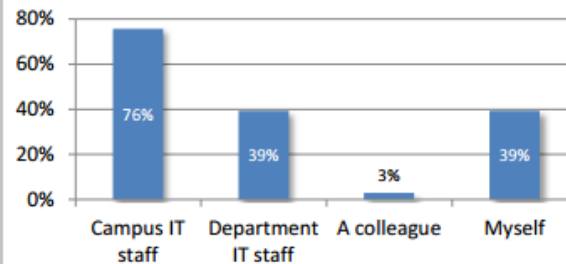
- **Unidata had a booth at the 2013 AMS Annual Meeting in Austin.**
- **In addition, we had a table at the AMS Career Fair at Student Conference.**
- **There was a great deal of interest in Unidata products and services.**
- **AWIPS II was featured prominently in the Unidata booth.**
- **Attendees had a chance to see demos of both the IDV and AWIPS II.**

- Recently, the UPC surveyed members of the Unidata academic community to form a picture of the Information Technology / Computing Infrastructure situation in Unidata member university departments.
- An invitation to participate was sent to roughly 1100 e-mail addresses on Unidata's 'educommunity' mailing list.
- In total, we received 33 responses to the invitation.

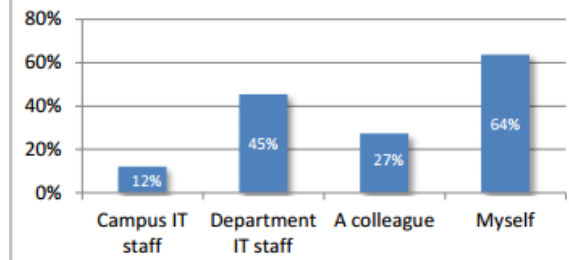
Department IT Resources



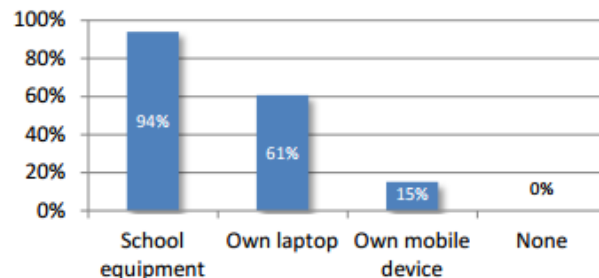
Desktop Computing Support



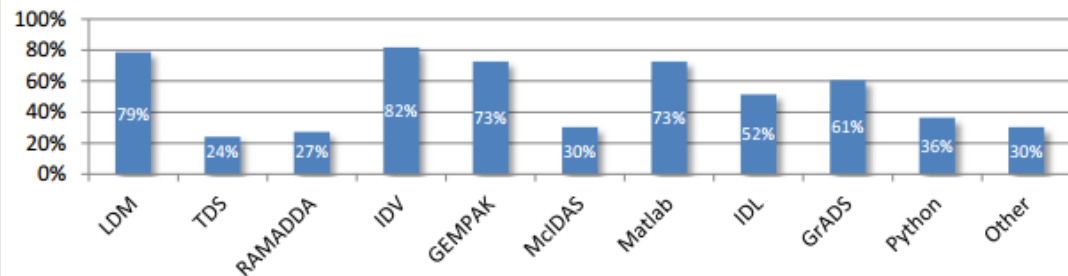
Data Infrastructure Support



Lab / Classroom Use



Scientific Computing Technologies in Use



- The UPC surveyed a cross-section of the Unidata academic community (21 universities) to understand how Unidata software and data services are being used by scientists and educators.
- Of the professors contacted, 13 provided some input. Responses to many of these questions were more anecdotal than rigorous.
- A total of more than 500 masters and PhD students made use of Unidata software and data services. Of these, the large majority (roughly 80% of students and postdocs) make use of data stored in Unidata's netCDF data format.
- Use of data supplied via Unidata technologies is also nearly ubiquitous in the respondents' departments, with 11 of 13 reporting local use of LDM/IDD, and 5 of 13 reporting use of either the TDS or RAMADDA to access data.
- *“As is becoming widely known, the students today seem almost “wired-by-birth”. They expect to interact with data in a visual manner, and to do so in a very fast and intuitive manner. While traditional means of science education must not be cast away due to current trends, programs such as Unidata must lead the students, not merely attempt to follow them.”*
- *“The era of the meteorological computer lab may be coming to an end. Students are bringing iPads to class to take notes. They look at meteorological analyses and data on everything from their phones to desktop computers. They were born in the cloud and the idea of having to go to a lab to analyze the weather seems arcane to them.”*

Community Equipment Awards

- Over the past ten years, Unidata has made 64 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.**
- **We received 12 proposals this year.**
 - **There is a great deal of interest in AWIPS II deployment.**
- **The review panel met after the Users Committee meeting and made recommendations to fund six proposals.**
- **Award notifications will be made by the end of May or early June, and announced to the community after all of the awards have been made.**

2013 Unidata Training Workshop

July 24 - August 8, 2013



The Unidata Program Center is pleased to announce its 2013 Software Training Workshop. The workshop features our display and analysis packages GEMPAK and the IDV, data access and management tools, the Local Data Manager (LDM), the Network Common Data Form (netCDF), and the THREDDS Data Server (TDS).

Unidata's training workshops are developed and presented by the software developers and support staff for each package, so you can be sure to get your questions answered.

[Register Now](#)



Workshop Dates

July 23	netCDF for Developers	netCDF homepage	Class Description
July 24	THREDDS Data Server (TDS) - Using Python to Access Data	THREDDS homepage	Class Description
July 25 - 26	THREDDS Data Server (TDS) - Configuration and Administration	THREDDS homepage	Class Description
July 29-31	GEMPAK with an Introduction to AWIPS-II	GEMPAK homepage	Class Description
August 1-2	LDM	LDM homepage	Class Description
August 5-8	IDV with RAMADDA	IDV homepage	Class Description

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

Spread the word among your colleagues.

State of the Program: A Snapshot

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

Questions?