Director’s Report

Unidata Users Committee Meeting

10 April 2008
Boulder, CO

Mohan Ramamurthy
Unidata Program Center
UCAR Office of Programs
Boulder, CO
Unidata 2013 Proposal

Unidata 2013: A Transformative Community Facility for the Atmospheric and Related Sciences

Six focus areas:

1. Broadening Participation
2. Advancing data services
3. Developing and deploying useful tools
4. Enhancing user support services
5. Providing cyberinfrastructure leadership
6. Promoting diversity
Use of Unidata in Graduate Research

<table>
<thead>
<tr>
<th>Academic Institution</th>
<th>MS/PhD Candidates</th>
<th>Data/Tools/Services</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida State-Ruscher</td>
<td>79/25</td>
<td>100%/50% Tools</td>
<td>104</td>
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<tr>
<td>U. of Hawaii-Businger</td>
<td>26/11</td>
<td>Products/services</td>
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<tr>
<td>Iowa State-Gallus</td>
<td>9</td>
<td>Data/Tools</td>
<td>9</td>
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<td>U. of Missouri-Lupo</td>
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<td>Products</td>
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<td>NCSU-Lackmann</td>
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<td>Data/Tools</td>
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<td>Univ. of OK-Carr., Laufersweiler</td>
<td>60/15</td>
<td>Data/Tools/Services</td>
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<td>St. Louis U-Graves</td>
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<td>SUNYA-Bosart</td>
<td>6</td>
<td>Data/Tools</td>
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<td>Texas A&amp;M-Nielsen-Gammon</td>
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<td>Data/Tools</td>
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<td>Univ. of Wash-Mass</td>
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<td>Data/Tools</td>
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<td>Data/Tools</td>
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<td>Univ. of Wyo-Geerts, Oolman</td>
<td>18/9</td>
<td>Data/tools</td>
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</table>
This award honors individuals whose energy, expertise, and active involvement enable the Unidata Program to better serve the geosciences.

Dr. Mark Laufersweiler, University of Oklahoma, will receive the 2008 DeSouza Award.

Mark was recognized for efforts and contributions through the years that truly reflect the goals and ideals of the Unidata program.

His advocacy on behalf of Unidata tools and data, and his entrainment of dozens of students through that advocacy have provided a robust cadre of new Unidata community members.
David Fulker Receives the Cleveland Abbe Award

Rich Clark Receives the Teaching Excellence Award
Former Unidata director, Dave Fulker, has been appointed Unidata Director Emeritus, with approval from the UCAR Board of Trustees.

Emeritus status is bestowed on people who have provided sustained leadership and impact on the UCAR organization.

It clearly fits Dave who has served in various capacities within UCAR for over 38 years, including 18 years as the founding director of Unidata. Dave retired in 2005 and has continued to offer his time unselfishly to UCAR.
Staffing Changes

- Steve Chiswell, who provided excellent support for GEMPAK and CONDUIT, left Unidata in January to pursue his scientific interests.
  - A nationwide search for a new person was conducted, but the position remains unfilled at this time.
  - UPC is exploring other options to cover GEMPAK support and the upcoming transition of NAWIPS to AWIPS2. In the meantime, Don, Tom Y. and Jeff W. will continue to provide GEMPAK support.

- Dr. Dennis Heimbigner joined UPC in January as a netCDF developer to work on a new NSF-funded project for improving netCDF and OPeNDAP integration.
  - Dennis comes to Unidata from the University of Colorado, where he was involved in research on security, distributed systems, and databases.
The number of sites participating in the IDD continues its steady growth. As of yesterday, 467 hosts in 241 unique network domains were running LDM-6 and reporting real time statistics.

COSMIC Radio Occultation data is now flowing to universities via the LDM.
- Nine universities already signed up to receive the data using the LDM
- Steven Businger: “We are actively working to assimilate the new COSMIC data stream over the data-poor N. Pacific. Once we have some results from that effort, I will share them with you (and COSMIC). This is an important development and I am grateful to Unidata for spearheading it.”
New Data Streams

- Real-time distribution of USPLN lightning data is in the offing, thanks to efforts spearheaded by Chris Herbster.
- UPC in discussions with CUAHSI & USGS to access and distribute stream gauge data in near real-time.
- UPC in discussions with GALEON team and EPA to access and distribute air-quality data in real-time.
NetCDF-4, the next major upgrade to netCDF, uses the HDF5 format to read and write files through the netCDF API. Benefits include compression, parallel I/O, multiple unlimited dimensions, etc.

- Release planned for June 2008 (delayed by HDF5 v1.8 availability)

- NOAA has recently announced that all GOES-R Level 2 and Level 2+ products will be made available in netCDF-4 format. This is a significant development!
Use of netCDF & TDS at NOAA's Environmental Research Division

- The ERD TDS serves 10 TB of data
- Roy Mendelssohn: “In short, our data services are built upon the formats and tools that have been and are being developed at Unidata.”
Repository for Archiving, Managing and Accessing Diverse Data

- A is a new effort, spearheaded by Jeff McWhirter, began in December 2007.
- It complements and dovetails with the THREDDS Data Repository effort.
- The goal of this project is:
  - To provide an open and extensible data repository framework/server. RAMADDA is Java-based and uses a relational database as its underlying metadata storage facility. It has been designed to run both stand-alone as well as running under a Tomcat server.
  - To manage and provide access to an IDD/LDM real time archive.
  - To provide a rich environment to support end users in publishing, organizing and sharing data and other information - a "youtube or flickr for data". Use case:
    - Use case: Next-generation, community-centric case studies
  - Embedded in end-user clients (e.g., the Integrated Data Viewer) to provide a richer level of data access services for local disk-based data holdings.
  - Capabilities for supporting field projects during and after the project.
Integrated Data Viewer

- IDV use continues to grow. It now has users in nearly 200 institutions.
- IDV Version 2.4 was released in December 2007
  - Support for reading GEMPAK grids
  - Many GEMPAK grid diagnostics implemented
  - Support for WSR-88D super-resolution Level III data
IDV Use at U. Wisconsin

- Using IDV in an Undergraduate Radar and Satellite Meteorology Course
  - Mark Kulie, Steve Ackerman, and Ralf Bennartz
  - A semester-long radar and satellite IDV-centric curriculum is being developed via IDV bundles that can be utilized in future semesters and shared with other interested instructors.

“Overall, our experiences with the IDV in the classroom have been very positive, and student evaluations have consistently credited the IDV as being a crucial, exciting, and practical component of the course.”
Active development of the current NAWIPS/GEMPAK system will cease in Summer 2008. After that, only routine maintenance (bug fixes, table/map updates as necessary) will occur.

Existing and new NAWIPS development resources will be moved to the AWIPS2 migration.

Deployment of NAWIPS functionality in AWIPS2 is planned to be completed in FY11.

Unidata is working closely with NCEP in tracking AWIPS2 development.
Collaborations with Shanghai Typhoon Institute

- STI and Unidata will collaborate to design and develop a Tropical Cyclone version of the IDV (TC-IDV)
  - TC-IDV will enhance capabilities of the IDV (diagnostic and visualization functions)
  - Provide an integrated system for TC research and operations
  - Unidata will provide support, training, modifications to IDV framework
  - IDV provided to STI under LPGL
A CONDUIT Meeting was held on 23 January 2008 during the AMS Annual Meeting in New Orleans, attended by Unidata staff and people from NCEP, NWS, and one person representing the private sector.

The meeting was NOT well attended by the university community;

**Action item 1:** Ask the Unidata Users Committee to take on the responsibility of polling the community for CONDUIT data set input, including deletion of data sets not being used, and addition of new data sets desired for research and education.

**Action item 2:** Generate usage metrics to enable NCEP, NWS, and Unidata to continue providing the service to the community.

Number of sites receiving CONDUIT data: 117
LEAD Workshop at AMS

“AMS Workshop on Linked Environments for Atmospheric Discovery (LEAD): An Emergent Information Technology Environment for On-Demand, Dynamically Adaptive Interaction with Weather for Research and Education”

- 11 Participants:
  - Mined Katrina radar data
  - Ran WRF over a domain of their choice

- Positive Reactions: “This is more straightforward and extremely helpful”, “I attended a 1 week workshop for WRF and you in 4 hours replace all the work”, “It is fairly easy for me”, “before was more complicated”, “Dynamic, explanatory”, “excellent, it was easier, this makes such use accessible and meaningful for students”, “A little more difficult, but much more customizable” and “It is comprehensive in setting. It makes it more practical and easier to get to the answer/solution”.

- Concerns: scalability, reliability and robustness, complexity

- Missing desired functionality: model configuration capability, search over other data holdings, help resources

- Workshop survey results available from the LEAD status report.
CADIS: The Cooperative Arctic Data and Information Service

- Provide end-to-end data services for NSF IPY AON projects, including a Data Portal for the PIs
- Prototype data discovery, ingest and distribution capabilities
- Emphasis on developing a unified metadata standard that is interoperable with ISO, IPY and other international conventions
- Build a consensus dataset format that will allow one to locate, display, subset, publish, and analyze related AON network data
Unidata Regional Workshop at Plymouth State University
Lead: Brendon Hoch

Unidata Regional Workshop
hosted by
Plymouth State University
Judd Gregg Meteorology Institute
Boyd Science Center
Plymouth, NH
May 18-20, 2008

This 2½ day workshop will allow for hands on instruction with Integrated Data Viewer (IDV) software. Participants will be a mixture of university faculty and students, research scientists, K-12 teachers, and other interested individuals from across the New England region. Representatives from Unidata will be onsite to provide tutorials on IDV and to discuss other Unidata projects and initiatives.
2008 Community Equipment Awards

- A solicitation was issued to the community in January and advertised at the AMS Annual Meeting
- We received only four proposals

**Themes:**

- Further the use of Unidata tools and systems (e.g., THREDDS, NetCDF, IDV, GIS connections) to support education and research on various aspects of climate (e.g., diagnostics, change and impacts), including upgrades to existing classroom and laboratory equipment or procurement of new computers to support climate studies.
- Enhance participation and advancement of underrepresented populations in Community and Baccalaureate colleges and minority serving institution.

- The review panel met yesterday to rank and recommend awards;
  - Award notifications will be made soon.
State of the Program: A Snapshot

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

Questions?