



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

Estimates of Students using Unidata Data and Tools for Master's and PhD Thesis
2003-2008

Academic Institution	MS/PhD Candidates	Data/Tools/Services	Total
Florida State-Ruscher	79/25	100%Data/50% Tools	104
U of Hawaii-Businger	26/11	Products/services	37
Iowa State-Gallus	9	Data/Tools	9
U of Missouri-Lupo	27/6	Products	33
NCSU-Lackmann	34	Data/Tools	34
Univ of OK-Carr, Laufersweiler	60/15	Data/Tools/Services	75
St Louis U-Graves	10/8	Data/Tools	18
SUNYA-Bosart	6	Data/Tools	6
Texas A&M-Nielsen-Gammon	6/3	Data/Tools	9
Univ of Utah-Steenburgh	15/4	Data/Tools	19
Univ of Wash-Mass	75	Data/Tools	75
Univ of Wisc-Madison-Martin	40	Data/Tools	40
Univ of Wyo-Geerts, Oolman	18/9	Data/tools	27



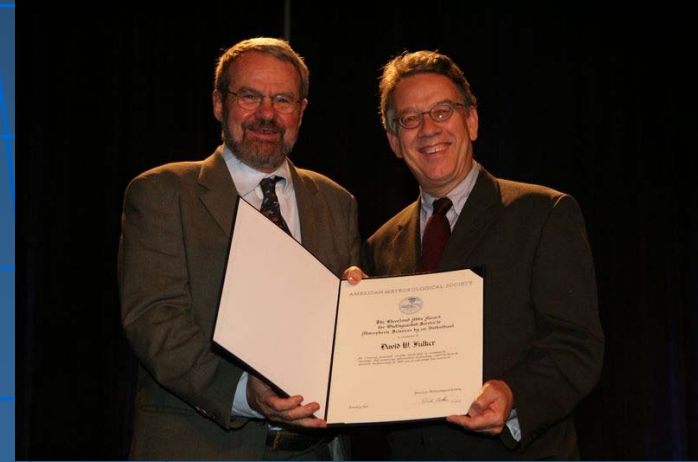
2008 DeSouza Award

- ❖ 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.





Unidata & 2008 AMS Awards



David Fulker Receives the Cleveland Abbe Award



Rich Clark Receives the Teaching Excellence Award



Dave Fulker, Director Emeritus

- 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.





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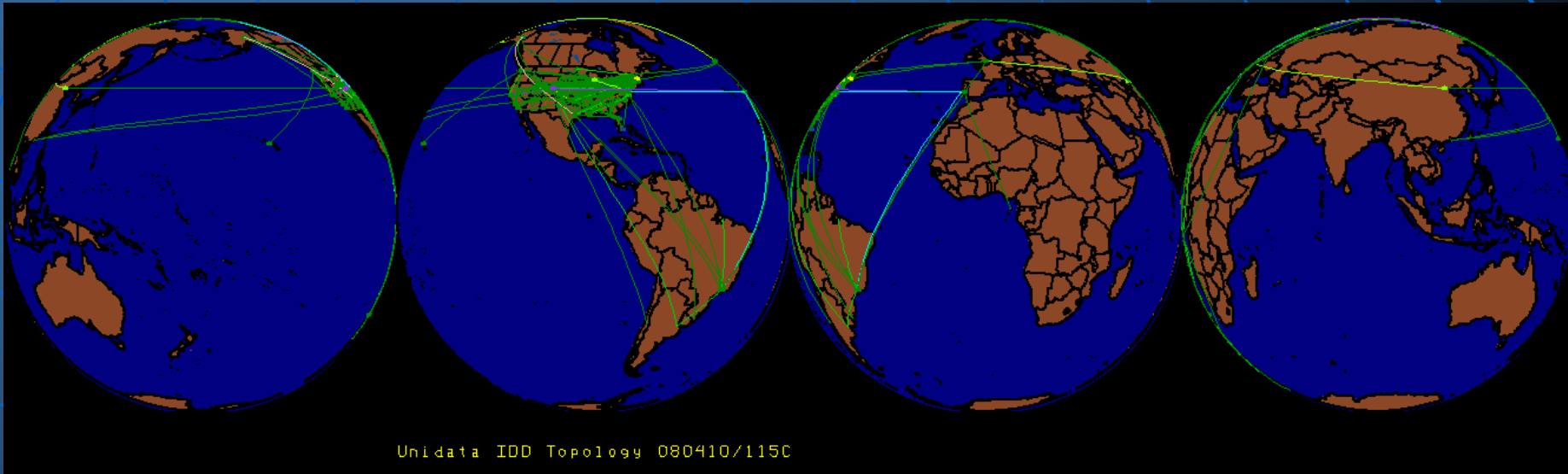
Staffing Changes

- 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





Data Flows



- ❖ 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."



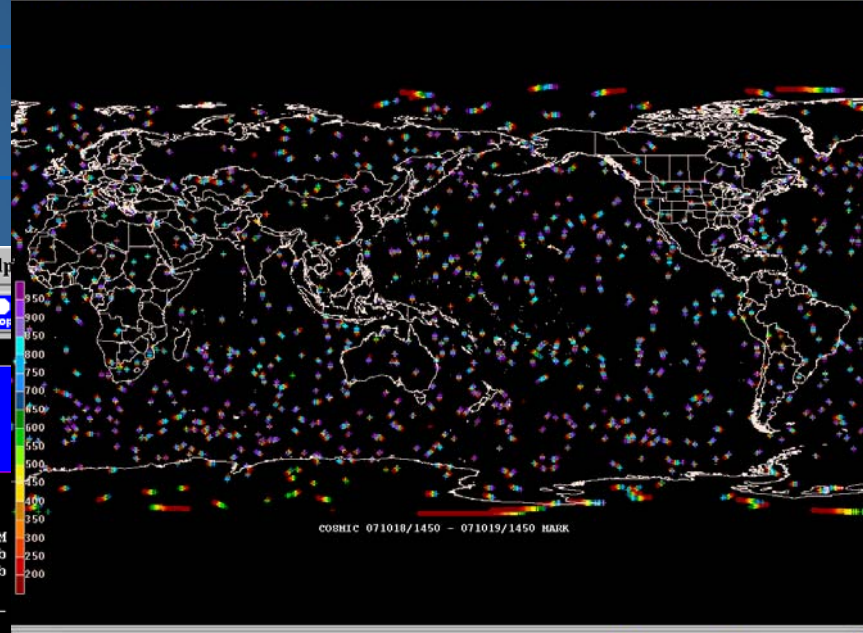
COSMIC Data Visualization using GEMPAK

uni data

File Option Room Exit Help

Loop: 1

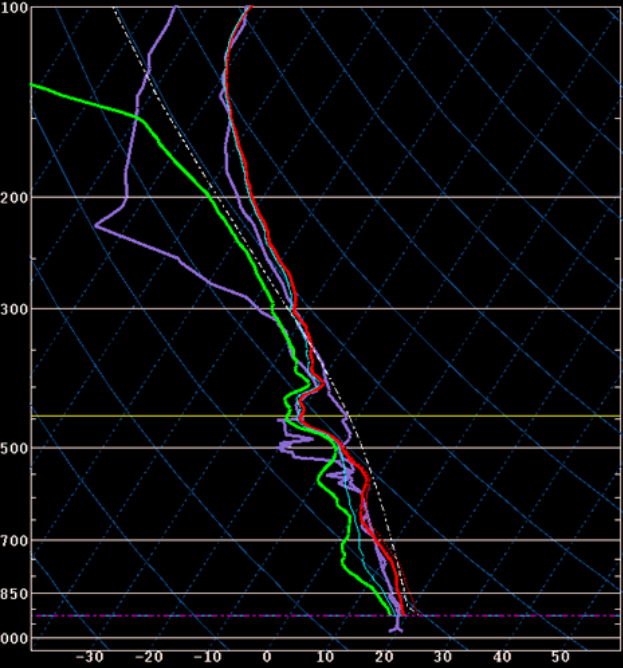
Start Stop



1 of 1 FRI 071019/1450 Product Generation Inactive Fade: 29.59, 88.17

File Load Options Help

Lat 34.99 Lon -81.46 071019/1430-071019/1459 COSMIC



PARCEL DATA

*** MOST UNSTABLE PARCEL ***

LPL: 920mb 19C/17C 67F/63F

CAPE = 637 J/Kg LI (500mb) = M
 BFZL = 131 J/Kg LImix = -8C / 451mb
 CINH = -34 J/Kg Cap = 1c / 889mb

LEVEL	PRES	HGT (AGL)	TEMP
LCL	890mb	968ft	
LFC	749mb	5758ft	11C
EL	344mb	25582ft	-26C
MPL	187mb	39253ft	

THERMODYNAMIC DATA

----- AVAILABLE MOISTURE -----

P. Water = 1.25 in Mean RH = 1 %
 Mean W = 11.6 g/Kg Mean LRH = 73 %
 Top of Moist Lyr = M / M

----- CONDITIONAL INSTABILITY -----

700-500mb Lapse Rate = 16 C / 6.1 C/km
 850-500mb Lapse Rate = 27 C / 6.2 C/km

----- MISC PARAMETERS -----

Total Totals = 47 K-Index = 33
 SWEAT Index = M Max Temp = 80F
 ThetaE Diff = 12C Conv Temp = 73F
 WBZ level = 10120ft FGZ level = 11358ft

Hodograph	RESET	PARCEL	NEXT PAGE
INSET	INTERP	Overlay: ON	SHOW TEXT

-3.5C 686mb 3287m
 25.7F 10779ft
 8-300.3K 4.3g/kg 8-286.6K



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.



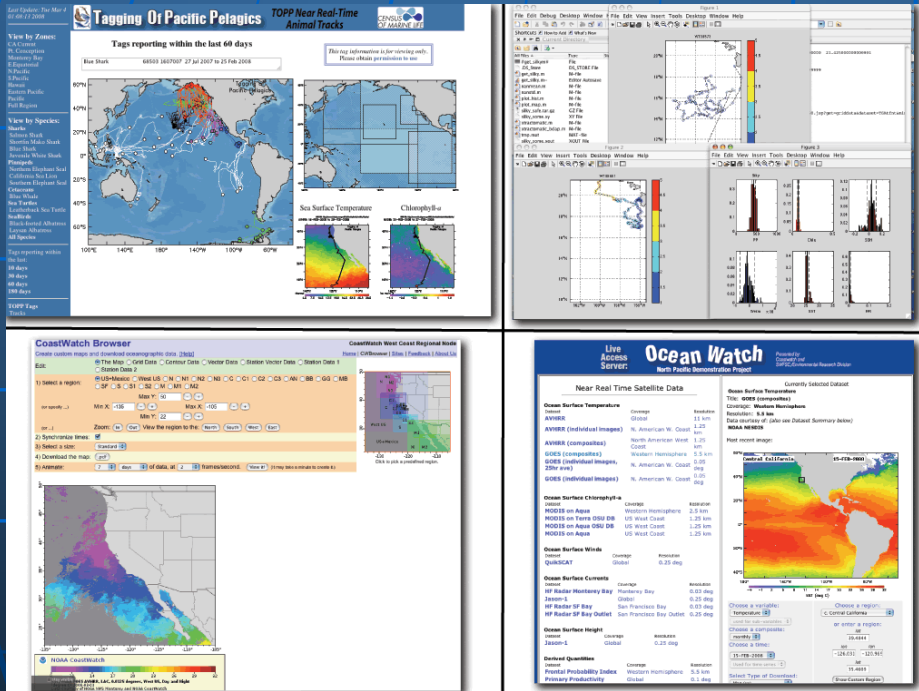
NetCDF

- 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."



The THREDDS Data Server (TDS) lies at the heart of many of ERD data services. Clockwise from left: The Tagging of Pacific Pelagics (TOPP) home page that tracks tagged animals in relation to their environment; a Matlab program written by Dave Foley that displays the environment seen by a tagged animal along its track; the Coastwatch/ERD Oceanwatch Browser; the browser used at the West Coast Node of Coastwatch.



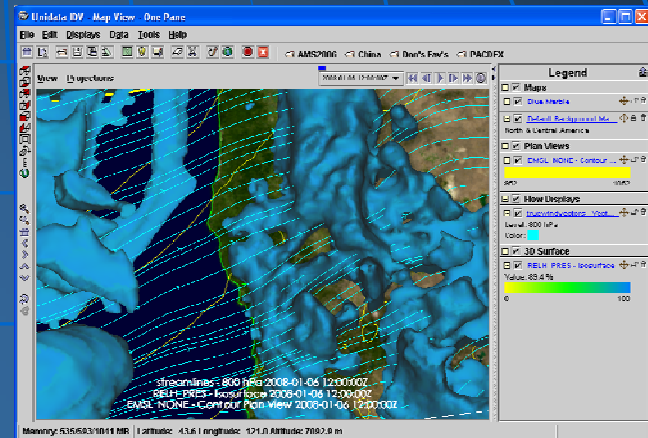
RAMADDA

Repository for **A**rchiving, **M**anaging and **A**ccessing **D**iverse **D**Ata)

- 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



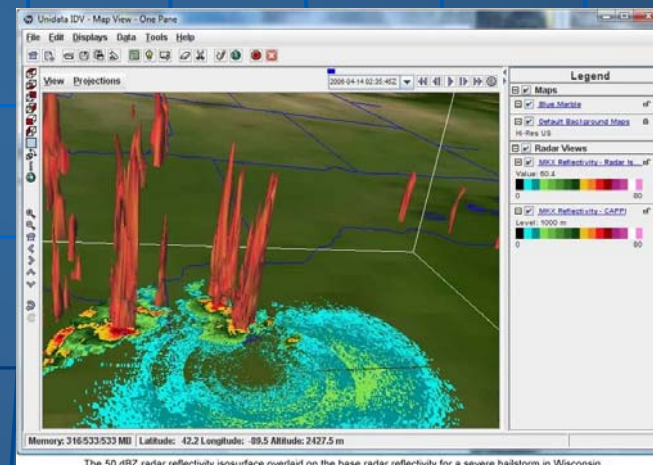
Regional WRF forecast of recent west coast storm in IDV from GEMPAK grids

IDV Use at U. Wisconsin



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- 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.

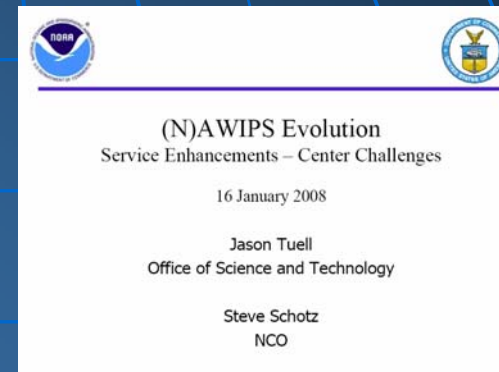
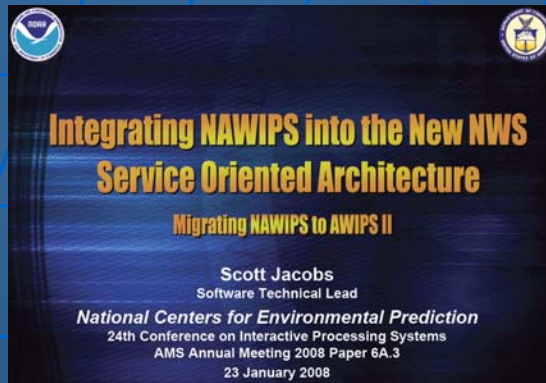


"Overall, our experiences with the IDV in the classroom have been very positive, and student evaluations have consistently credited the IDV as being a crucial, exciting, and practical component of the course."



AWIPS II and N-AWIPS Evolution

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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.

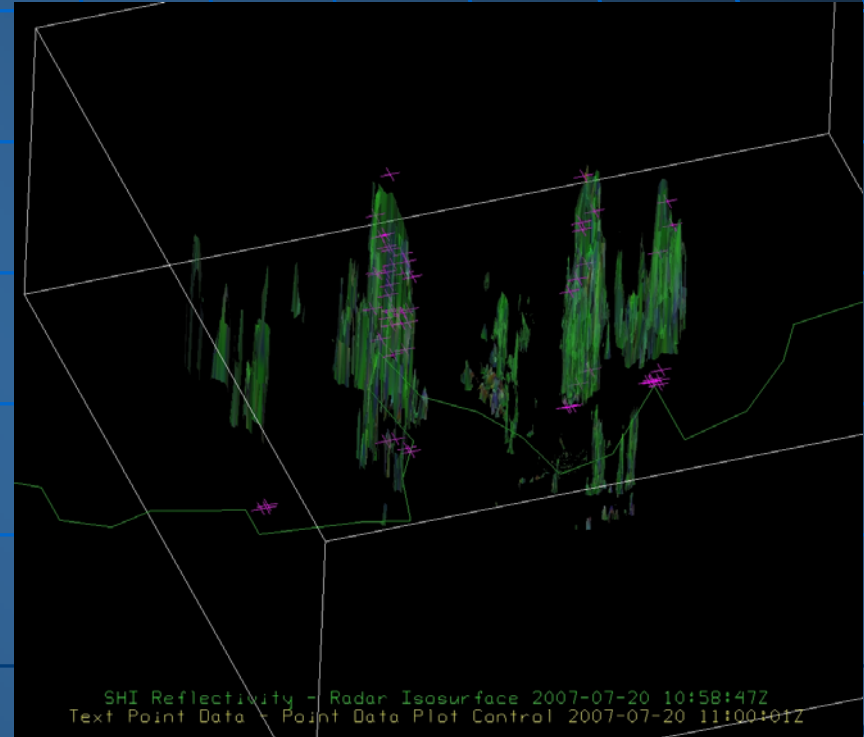
Deployment of NAWIPS functionality in AWIPS2 is planned to be completed in FY11

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





CONDUIT Update

- 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.



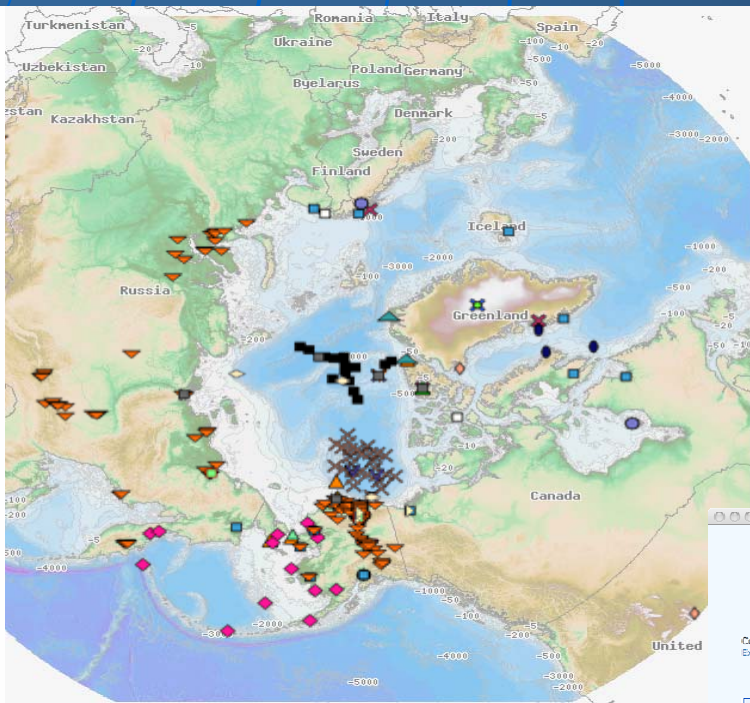
CADIS: The Cooperative Arctic Data and Information Service

- 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



AON Sites and Data Portal

- ▲ Rebecca Hoodgate
- Von Malden
- John Toole
- ▼ Mary-Louise Timmermans
- ▶ Matthew Sturm
- ◆ Timothy Stanton
- Gaius Shaver
- ▲ Peter Schlosser
- ▼ Vladimir Romanovsky
- ▼ Ignatius Rigor
- × Jacqueline Richter-Menge
- × Andrey Proshutinsky
- ◆ Steven Oberbauer
- James Morison
- ◆ Patricia Matrai
- Craig Lee
- Jack Kruse
- Douglas Kane
- ◆ Victoria Gofman
- Shari Gearheard
- ▲ Edwin Eloranta
- ▲ Hajo Eicken
- × Richard Collins
- ◆ Gernar Bernhard
- × Roger Bales



Map by Scot Loehrer

CADIS: Seasonal reflectance from SEASON plot controls

Cooperative Arctic Data and Information Service
of the ARCTIC OBSERVING NETWORK

CADIS **AON**

NCAR | U.S. | NSERC | CLIP Home | CADIS Home | My Account | Logout

Collections Hierarchy: CADIS Data Portal > Terrestrial Ecosystems > Study of Arctic Ecosystem Changes in the IPY using the International Tundra Experiment >

Seasonal reflectance from SEASON plot controls

PI: Steven F Oberbauer
EMAIL: oberbauer@fwiu.edu
AFFILIATION: Florida International University
NSF grant number: USJ2277

Summary: document seasonal patterns of plot reflectance (350-1100 nm) for correlation with visual observation of plant phenology and for comparison of historical NDVI from the same plots for which CO2 flux-NDVI relationships have been determined

Related Links: README file (data_file_archive_Reflect.doc)

Actions for this dataset

- [This Dataset](#)
- [Upload data file to this dataset](#)
- [Call metadata for this dataset](#)
- [Create new table\(s\) in this dataset](#)
- [Upload a README file to this dataset](#)
- [Help](#)
- [CADIS Documentation](#)

Show Additional Collection Information

Data Folders

[Rowhyperspectraldata](#) (Empty)

File-level access

You may either download a file by clicking on it (hyperlink in the first column, if available), or add files to your **Data Cart** to prepare a multi-files request.

1-1 of 1 datafile

start from file # 0 +1 and display 20 files per page (max:100) (NEW: optional filename match:)

My Data Cart: [Add selected files to Data Cart](#) | [Empty Data Cart](#) | [Go to Data Cart](#)

File	Metadata	Format	Type	Size	Add to Data Cart	OPeNDAP
1. reflectance20070607.xls				17408	<input type="checkbox"/> NCAR DISK	

NEW: Select All Files | NCAR DISK | Download All Files

1 1 of 1 datafile



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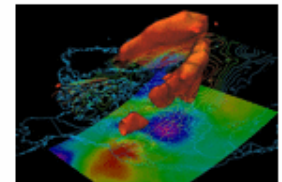
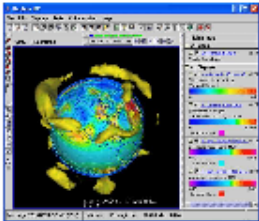
Unidata Regional Workshop at Plymouth State University Lead: Brendon Hoch



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

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- ❖ 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.



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State of the Program: A Snapshot

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

Questions?