Unidata 2008: Shaping the Future of Data Use in the Geosciences

Funding Agency: NSF-ATM
Total Request: $22.8M
Amount to Unidata: $22.8M
Period of Performance: 2004-2008
Unidata PIs: Ramamurthy
Collaborators: -
Status: Submitted January 14, 2004. Pending.

UPC Role:
Unidata Core Funding

Abstract:
We live in an era of an unprecedented volume of data from diverse sources, multidisciplinary analysis and synthesis, and active, learner-centered education. This proposal seeks funding to build on the strengths and successes of the Unidata program with an enhanced focus on the application of cutting-edge technologies and tools for a broad community of scientists and educators, with the overarching goal of transforming geoscience education and research. The proposed endeavors emphasize providing data and a rich set of tools, services, and collaborative activities that will enable the community to advance scientific exploration and learning. The goals, objectives, and activities in this proposal are based on national science, technology, and education trends, as well as community concerns and needs.

Collaborative Project: DLESE Data Services: Facilitating the Development and Effective Use of Earth System Science Data in Education

Funding Agency: NSF-HER
Total Request: $734,232.00
Amount to Unidata: $188,566.00
Period of Performance: 2004-2007
Unidata PIs: Domenico
Collaborators: Ledley (TERC), Mike Taber (UNC)
Status: Submitted: Awaiting Response

UPC Role:
3 Community Workshops, Unidata Plans Year 2. Focus of workshops is interconnectivity of Data to DLESE using THREDDS technologies. Unidata Staff will plan technical portion of workshops (all).

Abstract:
The DLESE Data Services activity will hold four-day workshops each year to bring together Earth science data providers, data access and analysis tool developers, and educational resource developers to facilitate and support interaction of these groups and to assure that the resulting technology and educational resources are brought to DLESE.

Merging the NetCDF and HDF5 Libraries to Achieve Gains in Performance and Interoperability

Funding Agency: NASA NRA
Total Request: $699,193.00
Amount to Unidata: $421,564.00
Period of Performance: 5/1/03 - 4/30/05
Unidata PIs: Rew
Collaborators: Michael Folk, NCSA/UIUC
Status: Submitted 11/6/02

UPC Role:
The proposal is to develop a netCDF interface for HDF5 data, providing netCDF users and applications with the benefits of parallel I/O, larger datasets, and packed data types. The collaboration between Unidata and NCSA will create and deploy software that will preserve the desirable common characteristics of netCDF and HDF5 while taking advantage of their separate strengths: the widespread use and simplicity of netCDF and the generality and performance of HDF5.

Abstract:
The proposal will merge Unidata's netCDF and NCSA's HDF5, two widely-used scientific data access libraries. Users of netCDF in numerical models will benefit from support for packed data, large datasets, and parallel I/O, all of which are available with HDF5. Users of HDF5 will benefit from the availability of a simpler high-level interface suitable for array-oriented scientific data, wider use of the HDF5 data format, and the wealth of netCDF software for data management, analysis and visualization that has evolved among the large netCDF user community. The overall goal of this collaborative development project is to create and deploy software that will preserve the desirable common characteristics of netCDF and HDF5 while taking advantage of their separate strengths: the widespread use and simplicity of netCDF and the generality and performance of HDF5.

Unidata Equipment Awards

Funding Agency: NSF-ATM
Total Request: $100,000.00
Amount to Unidata: $100,000.00
Period of Performance: Annual Award
Unidata PIs: Domenico
Collaborators: -
Status: Submitted: Verbal Notification of Funding Given

UPC Role:
Unidata is taking over administration of these awards from NSF.

Abstract:
Unidata's mission is facilitating research and education in the atmospheric and related sciences. Its community comprises a significant number of research and teaching departments in colleges and universities throughout North America (WMO Region IV). The Unidata Equipment Grants Program, formerly administered by the National Science Foundation (NSF), has promoted growth of the Unidata community and has helped departments throughout this community use Unidata data and software. Because the NSF can no longer administer the grants process, the Unidata Program Center proposes to assume this function.

Toward the future of hazardous spill response in U.S. navigable waters--integrating NASA environmental assets with NOAA hazardous materials response.

Funding Agency: NASA/REASON
Total Request: $4,126,261.00
Amount to Unidata: $174,154.00
Period of Performance: 6/01/2002-5/31/2007
Unidata PIs: Domenico
Collaborators: Steve Hankin, C.J. Beegle, PMEL. NOAA/NOS/ORR/Hazmat
Status: Submitted November 22, 2002

UPC Role:
Provide OpenDAP support

Abstract:
For U.S. disaster management, under the National Contingency Plan, NOAA Hazardous Materials Response (HAZMAT) is responsible for Scientific Support Coordination. During emergency response, time is one key to success, and the best science is the other. This proposal will expand an existing network connection between NOAA/HAZMAT spill trajectory models and outside nowcast/forecast circulation models running around the country (e.g. Chesapeake Bay, New York Harbor, Galveston Bay and Tampa Bay). The expansion will increase the regions covered by funding the sponsoring agencies (NOAA and Texas A&M) to use NASA satellite products to extend their models further offshore to the coastal shelf. The proposal will also fund building the connection between circulation models developed by NASA/JPL and HAZMAT. Research will be funded to address calculating error estimates in nowcast/forecast models to allow HAZMAT to derive an error bound on trajectory products based on nowcast/forecast model circulation fields similarly to HAZMAT's models used in house. Finally, this network will be leveraged for earth science education. Educators and emergency responders share similar issues when bringing outside science into their own environments: ease of access, intuitive interface and reliable connection. The network created in this proposal will also be designed with educators in mind with appropriate support, tools and curricula produced.

Unidata Users Committee Workshop: Expanding Horizons Using Environmental Data and Model Output

Funding Agency: NSF-ATM
COMET
Total Request: $93000 (68K NSF, 25K COMET)
Amount to Unidata: $93,000.00
Period of Performance: 3/1/03 - 9/30/03
Unidata PIs: Ramamurthy
Collaborators: COMET
Status: Submitted 2/10/03

UPC Role:
Unidata's Role is to Plan the workshop in conjunction with COMET and Unidata Users Committee

Abstract:
The next Unidata workshop: "Expanding Horizons Using Environmental Data for Education, Research, and Decision Making," planned for the week of 23-27 June 2003, will provide hands-on sessions and lectures demonstrating the uses of Unidata supported software and data (in particular the IDV) and GIS technologies from leading instructors and practitioners in the geophysical sciences, public safety, and public policy communities. This workshop, coinciding with the 20th anniversary of Unidata's conception, will highlight Unidata's historical contributions to the atmospheric sciences community and will lay out a vision of Unidata's future in the broader geosciences. Towards this end, the Committee is recruiting community members whose use of Unidata products represents the highest level of skill and innovation to act as workshop session leaders. The Committee is recruiting session leaders who have demonstrated excellence in applications of non-Unidata supported software to multi-disciplinary geophysically relevant problems. This proposal seeks funding to provide support for speaker travel to the workshop, support for lodging of the participants, and for the rental or purchase of the necessary computer hardware and software during this workshop.

NASA REASON/CAN - Rhode Island: A Thematic Data Portal to Satellite-Derived Ocean Surface Properties: Discovery and Access

Funding Agency: NASA REASON
Total Request: $5,197,949.00
Amount to Unidata: $408,055.00
Period of Performance: 6/1/2003 - 5/30/2008
Unidata PIs: Domenico
Collaborators: University of Rhode Island, Peter Cornillon (we are subaward to)
Status: Submitted 11/26/02

UPC Role:
Provide OpenDAP support

Abstract:
The Unidata Program Center will provide support for users and for core development work on the OPeNDAP software. The University Corporation for Atmospheric Research's (UCAR) Unidata Program annually reaches tens of thousands of university students, educators, operations personnel, and researchers at more than 150 participating organizations.

Linked Environments for Atmospheric Discovery

Funding Agency: NSF-ITR
Total Request: $14,946,098.00
Amount to Unidata: $2,499,345.00
Period of Performance: 2003-2008
Unidata PIs: Ramamurthy
Collaborators: IU, UIUC, Oklahoma, UAH, Millersville, Howard
Status: In Preparation
Due 3/21

UPC Role:
The UPC will be involved in related IT research as well as the development of grid and web-services, including the adaptation of the netCDF, LDM, IDV and THREDDS to Grid environments.

Abstract:
To meet the pressing need for a national IT cyberinfrastructure in the atmospheric sciences, particularly one that can be interfaced with those of other relevant disciplines such as biology, ecology, the solid Earth sciences, and physics, the proposed activity will address fundamental IT research challenges to create an integrated, scalable framework -- known as Linked Environments for Atmospheric Discovery (LEAD; http://lead.ou.edu) -- for use in accessing, preparing, assimilating, predicting, managing, mining/analyzing, and displaying a broad array of meteorological and related data independent of format and physical location. LEAD will create a series of interconnected, heterogeneous virtual IT "Grid environments" These Web-based environments will provide a complete framework within which users can identify, obtain, and work with observational and user-generated data in a distributed setting where the problem being addressed, the relevant data, and the computational resources can change with time and be dependent upon or control one another. In this model, the Grid workflow infrastructure will autonomously compute scheduling constraints, dynamically acquire resources, recover from errors and adapt to changing plans. A set of Integrated Grid and Web Services Test Beds will be developed for simulating and designing this dynamic Grid infrastructure.

Unidata Proposal "Mug Shots"

THREDDS Proposal II

Funding Agency: NSF/NSDL
Total Request: $1,000,000.00
Amount to Unidata: $1,000,000.00
Period of Performance: 2004-2006
Unidata PIs: Domenico
Collaborators: TBD
Status: In Preparation Due 4/12/03

UPC Role:
Expansion of current THREDDS work and integration with GIS and GRID systems

Abstract:
Not yet available.