Purdue Equipment Award Report

Matt Huber and Jeff Trapp, Purdue University

This report was submitted to fulfill the contractual requirement for all Unidata Equipment Award recipients to submit an article for publication describing their use of the funds awarded to them.

Editor's Note

In April 2004, Purdue University entered into a unique partnership with the NOAA National Weather Service (NWS) to become one of three top-level distributors of WSR-88D Level II radar data. As a top-level distributor, Purdue accepts a real-time feed from all WSR-88Ds via Unidata’s Local Data Manager (LDM) software, and then makes the Level II data available to any interested user on a cost-recovery basis, without restriction on its use. This service helps enhance the availability and dissemination of NWS data, in accordance with the National Research Council's "Fair Weather" recommendations.

Purdue's involvement in this program is possible because of a strong alliance between the Department of Earth and Atmospheric Sciences (EAS) and the central Purdue Information Technology organization (ITaP), and also because a significant allocation of internal funds for computer hardware and personnel support. To date, our main obligation has been to provide a stable stream of data to three downstream university partners. However, consistent with Purdue's teaching and engagement mission, we are now also seeking ways to disseminate the data to other users, and also to make more effective use of it locally.

For the purpose of providing broad weather data access (internal and external to Purdue), the EAS departmental weather-data server in 2005—a Dell Optiplex GX260, with a single 2.8 GHz processor and 1 GB memory—was simply inadequate. Hence, our Unidata Community Equipment request was for new computer hardware to ingest, process, and disseminate weather data, particularly Level II radar data.

Purchased Equipment

Upon securing matching funds from Purdue, we were able to purchase a Dell PowerEdge 2850, configured with dual Intel Xeon 3.6 GHz processors and 4 GB memory. This included a 4x300GB RAID 5, dramatically enhancing our capacity for local, short-term data storage. For example, we now have the capability to receive the full suite of Level III radar products, the CONDUIT model feed, and high-resolution satellite images from the NIMAGE data feed. It also allows for the possibility of receiving other data that might become available in the next few years.

Pilot project

Enabled with our new computer hardware, we conducted a weather-data dissemination pilot project. Our idea was to enlist the help of EAS students and find ways to add value to weather radar images that could be served to the community. The main participants were senior-level students in the Weather Analysis and Forecasting course. The agreed-upon task for the forecast/briefing team of the day was to identify a radar-observed feature
of interest, and then write a short narrative to accompany the relevant images. The narratives, which were meant to be appropriate for the non-meteorologist, typically contained descriptions of storm type and structure, bright bands, ground clutter, etc., and also attempted to relate these to other meteorological conditions, as possible. A simple, menu-driven and web-based form was developed by our LDM manager, Ben Cotton, for this project. With this form, the team was able to choose any WSR-88D site, elevation angle, and field, and have the corresponding image generated by a GEMPAK script. An example of one team’s narrative is shown below:

This pilot project served as a unique educational experience for Purdue EAS students, affording them: invaluable experience in relating their growing knowledge of atmospheric science to the non-meteorologist; ample opportunity to hone their written communication skills; and the sense of responsibility that comes with the commitment to deliver a product in a timely manner. We hope to continue this project and are now working with the EAS outreach coordinator to identify middle and high schools that can provide feedback.

Additional benefits of new equipment

The traditional needs of weather data in EAS classrooms have and will continue to benefit from the new weather-data server. The server now provides EAS faculty with the capacity to fully integrate the Unidata stream into all laboratory courses and into appropriate research projects.

This display is an example of an Purdue University educational radar image. It shows lake-effect snow in Cleveland, Ohio created with GEMPAK using NEXRAD Level II radar data.
Welcome Ginger

Unidata welcomes the newest member of our Administrative team, Ginger Emery. Before coming to Unidata as an Administrative Assistant, Ginger worked in the UCAR Finance department as a Financial Assistant. She has extensive administrative experience including event and meeting planning.

Ginger will be coordinating all travel arrangements handled by the Unidata Program Center, and many of you will come into contact with her in that capacity. So introduce yourselves and say hello. We are happy to have her here in the Program Center.

Software Updates

Like crocus popping up in late-winter gardens, new software releases are springing up all over the Program Center. Since the first of the year, six development groups announced new releases.

**GEMPAK**: A new GEMPAK release, 5.10.1, is now available. Here is a list of new features that and download information.

**IDV**: IDV 2.1 is now available for download. A few of the new 2.1 release features include level subsetting for grids, improved KML/KMZ support, a plugin creator for customization, and performance enhancements. Please see the release notes for a complete list of new features.

**LDM**: New LDM release LDM 6.5.1 is now available for download. For more information about this release, see the LDM 6.5.1 home page.

**McIDAS**: Addendum v.2006f release includes direct support for PNG-compressed imagery in the IDD UNIWISC and FNEXRAD datastreams.

**netCDF**: The Unidata NetCDF crew is pleased to announce the release of a new version of netCDF: 3.6.2. This new version includes more documentation, example programs, improved performance, support for shared libraries, additional configuration options, and some changes to the C++ API, as well as some bug fixes. For a more detailed list of changes, see the RELEASE_NOTES which accompany the netCDF distribution.

**THREDDS**: New THREDDS Data Server (TDS), Version 3.14 has recently been released. This release contains many bug fixes and feature enhancements. Developers strongly recommend that you upgrade to it as soon as possible. This version of the TDS can be run under java 1.4.2+, but future versions of the TDS will require Java 1.5+. We will also discontinue support for catalog version 0.6 in the future.