Final Report on the 2004 Unidata Equipment Grant awarded to San Jose State University: Deploying the Integrated Data Viewer (IDV) and Improving Internet Data Distribution (IDD) Capabilities

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Project Summary

The Department of Meteorology at San Jose State University (SJSU) has been an active participant in the Unidata community for many years. The addition of new hardware made possible by the Unidata Equipment Grant has greatly enhanced our capabilities, both in teaching and in community participation. We replaced the 12 outdated personal computers in our synoptic lab with modern workstations. This has allowed us to deploy and test the Integrated Data Viewer (IDV) in a lab environment and enjoy improved performance of Gempak. In addition, as part of this grant we have upgraded our existing Internet Data Distribution (IDD) ingest server to a level where it can serve as a robust and reliable relay node. This has allowed us to feed data to the Naval Research Lab in Monterey and to the University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. We also provide backup IDD service to the University of Arizona, Stanford, FNMOC, and the Naval Postgraduate School in Monterey.

Equipment Purchased

The 12 workstations were purchased in June, 2004. They include AMD 2.3 Ghz processors, 1 GB of RAM, 40 GB hard disks, and 19 inch CRT monitors. In order to provide the most flexibility, the machines were configured as dual boot with Windows XP and Fedora Linux. These machines account for all of our synoptic lab workstations and have been a great value for the cost.

The IDD ingest and relay machine was also purchased in June, 2004. It is a dual Xeon 2.4 Ghz Server with 3 GB RAM and four 250 GB SATA drives configured as Raid 5. This machine was purchased at a time when inexpensive 64 bit chips and operating systems were just beginning to hit the street. In hindsight it would have been more prudent to spend a little more money and get a 64 bit machine with a little more RAM. As the IDD feed continues to grow, increased RAM is essential for a most effective IDD relay node.

Use of Unidata Tools and Impact on Coursework

The new workstations have allowed us to use the IDV in Metr 61, Introduction to Meteorology for Majors, primarily as a tool to explore atmospheric structure and phenomena. The IDV is also used in Metr 163, Remote Sensing, to visual and analyze Level II radar data. The senior level synoptic lab course, Metr 171, still uses Gempak as the primary visualization and analysis tool, but the IDV is making some inroads, especially in helping visualize frontal surfaces in 3-D. The new IDD ingest machine has allowed us to receive all of the level II radar data.

Increased Community Interaction
The Unidata equipment grant has enabled us to deploy the IDV on our synoptic lab workstations here at SJSU, and this has inspired Mike Voss to join the IDV Steering Committee. Mike Voss also attended the Summer 2005 IDV workshop to gain more insight into how the IDV can be used in research and education. Mike Voss also continues to be a member of the Unidata User Committee.

The new IDD ingest server has allowed us to participate more fully in the IDD by becoming a relay node. This has allowed us to feed data to the Naval Research Lab in Monterey and to the University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. We also provide backup IDD service to the University of Arizona, Stanford University, FNMOC, and the Naval Postgraduate School in Monterey. SJSU is also willing an able to feed other sites requesting data.

Metr 163, Remote Sensing: student Kyle Lerman analyses a severe thunderstorm over Sacramento using the IDV and Level II radar data.

Synoptic Lab: meteorology students analyze current weather while using the new workstations.