

SJSU Unidata Equipment Proposal

Final Report

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The San Jose State University Department of Meteorology and Climate Science operates a meteorological data center that is primarily for the use of staff and students at SJSU. Both faculty and students use the center for education (classwork) and research (senior and graduate student thesis research, faculty research). Data ingested from external sources, including UNIDATA, the University of Albany and the National Climatic Data Center, are analyzed, and used both for presentation and for the initialization of numerical weather prediction and climate models. After the data are analyzed or the model simulations are complete, results can be displayed online (and on the department electronic map wall – see below!)

The objective of our original proposal was to purchase a new server capable of handling all our meteorological data processing needs, and to establish an electronic map wall. The new server was designed to communicate with UNIDATA, replacing our suite of several older, smaller servers that were running the Local Data Manager (LDM). We planned to install the THREDDS Data Server (TDS) on the new server, install RAMADDA, and install the electronic map wall which would display data processed by the server. We were awarded funds to buy the new server, but were denied funding for the map wall.

The purpose of the new server (Titan, named *before* Oak Ridge chose the same name!!) was to consolidate all LDM operations onto one machine with enough capacity to meet the present and future demands of our users. Previously, the LDM had been running on three outdated machines that had neither the CPU nor disk storage capability to meet those demands. Current users include everyone in the department (faculty and students), but we are also the primary feed for The Naval Research Laboratory in Monterey, CA, the School of Fisheries and Ocean Sciences at the University of Alaska, Fairbanks, and the Pacific Gas and Electric company in Northern California. We also provide backup service to the University of Arizona, to Stanford University and to both the Naval Postgraduate School and Fleet Numerical Meteorology and Oceanography Center in Monterey, CA.

With the funds allocated we purchased a Dell PowerEdge T610 with dual 6-core Intel Xeon 2.66GHz processors and with 16 Gigabytes (GB) Random Access Memory. The chassis for the new machine has 8 slots for external hard drives. We purchased 6 drives for data storage and 2 drives for the operating system. The total amount spent was \$6074.25.

The TDS has been installed on Titan. For security purposes, the TDS is installed behind a firewall, and current use is restricted to users with access to the department's computers. We continue to investigate using RAMADDA. Once we are confident in the security of that system, we will open the system to outside users.

The department emphasizes weather analysis and forecasting in its undergraduate meteorology program. Although there were not funds to create an electronic map wall through this proposal, we have since been able to obtain sufficient funds for a minimal installation through other sources. The map wall has eight displays back by four computers, as shown in the photo below. Staff and students can examine weather products freely available from outside sources, as well as products generated in-house using GEMPAK with the LDM data stream. The TDS allows us to display modeling results generated in the department by faculty and students. For example, Dr. Sen Chiao and his students create and display WRF simulations for a variety of domains, and Dr. Craig Clements and his students generate and display fire weather simulations.

Overall, the new server with LDM and TDS installed has greatly increased our data handling capabilities. Moving the LDM to one system and installing TDS has simplified the data acquisition process and made the processes more stable. We continue to provide data to the outside users. Together with the map wall, those capabilities benefit research and student education.



The SJSU electronic weather map wall. Photo courtesy of Henry Bartholomew, SJSU.