FINAL REPORT

UNIDATA COMMUNITY EQUIPTMENT GRANT

An Upgrade of the Meteorological Laboratory in Support of Education, Research, and Broader Participation in the Unidata Community

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The funding from Unidata for this project helped improve the research and educational capabilities at the School of Marine and Atmospheric Sciences at Stony Brook University by upgrading the Local Data Manager (LDM) server and an 11-seat meteorological laboratory. The following equipment was installed:

- One (1) Poweredge T420 Dell server with dual quad-core Xeon (2.4 GHz) processors, 48 Gb RAM, 2-500 Gb SATA hard disk drives for system operations and programs and 6-3Tb SATA hard disk drives for storage, both running RAID-5. The LDM has been installed and a variety of tasks are run on this server, such as data ingestion via the LDM, decoding, plotting, archiving, and IO tasks to the other machines in the lab.
- Twelve (12) Dell OptiPlex 9010 minitower machines (64-bit) have been installed that each have 8 GB of RAM, 2 1-Tb hard drives, and a 21-inch flat screen monitor. Students use eleven of these workstations during their classroom synoptic and forecasting labs, while the 12th machine is at the instructor podium for projection of the weather graphics on a big screen in the front of the room.
- The open source RAMADDA repositories has been setup for ensemble, field data, and regional climate model runs in order to support various research projects, such as a Collaborative Research and Technology (CSTAR) project between Stony Brook and several National Weather Service offices and operational centers on the topic of ensemble forecasting.
- The department cost share for this project was used to obtain a mounted camera Creative Labs Live! Cam Connect 1080 HD Webcam and new Viewsonic PJD6553W HDMI DLP projector. This has allowed weather discussions to be shared remotely with our collaborators using Adobe Connect software, and the new projector has provide more resolution to display weather graphics.

The 11-seat meteorological laboratory supports a wide variety of educational activities, including 5 undergraduate atmospheric and marine classes and two graduate classes. Several of these classes apply various dynamical and physical principles to the analysis and prediction of the atmosphere. The laboratories and in-class weather discussions include extensive practice in forecasting and diagnosis of synoptic and convective systems use a variety of Unidata software in a Linux (CentOS) environment: GEMPAK (garp, ntrans, and nmap) and the Integrated Data Viewer (IDV). Figure 1 shows some

students using the new lab computers during a sophomore-level synoptic class. The previous lab computers were several years old, and therefore did not have the memory or disk space to run newer Unidata applications, such as IDV, but now IDV is very popular in the lab (Fig. 2).

The additional disk space and RAMADDA in this lab has been a great way for instructors and students to provide an electronic media for posting and uploading homework assignments and lab projects. For example, in the senior forecasting class, the students run the workstation Weather Research and Forecasting (WRF), and can share output for the case studies using RAMADDA. With the expected 2014 beta release of AWIPS-II, we plan to use this software in the lab, and it will help those students interested in the National Weather Service.

There are also weekly weather discussions on Fridays in the meteorological laboratory during the fall and spring semesters led by faculty and graduate students. We installed a camera in the lab for this project, such that the New York City Forecast office can join the weather discussions using Adobe Connect (Figs. 3 and 4).

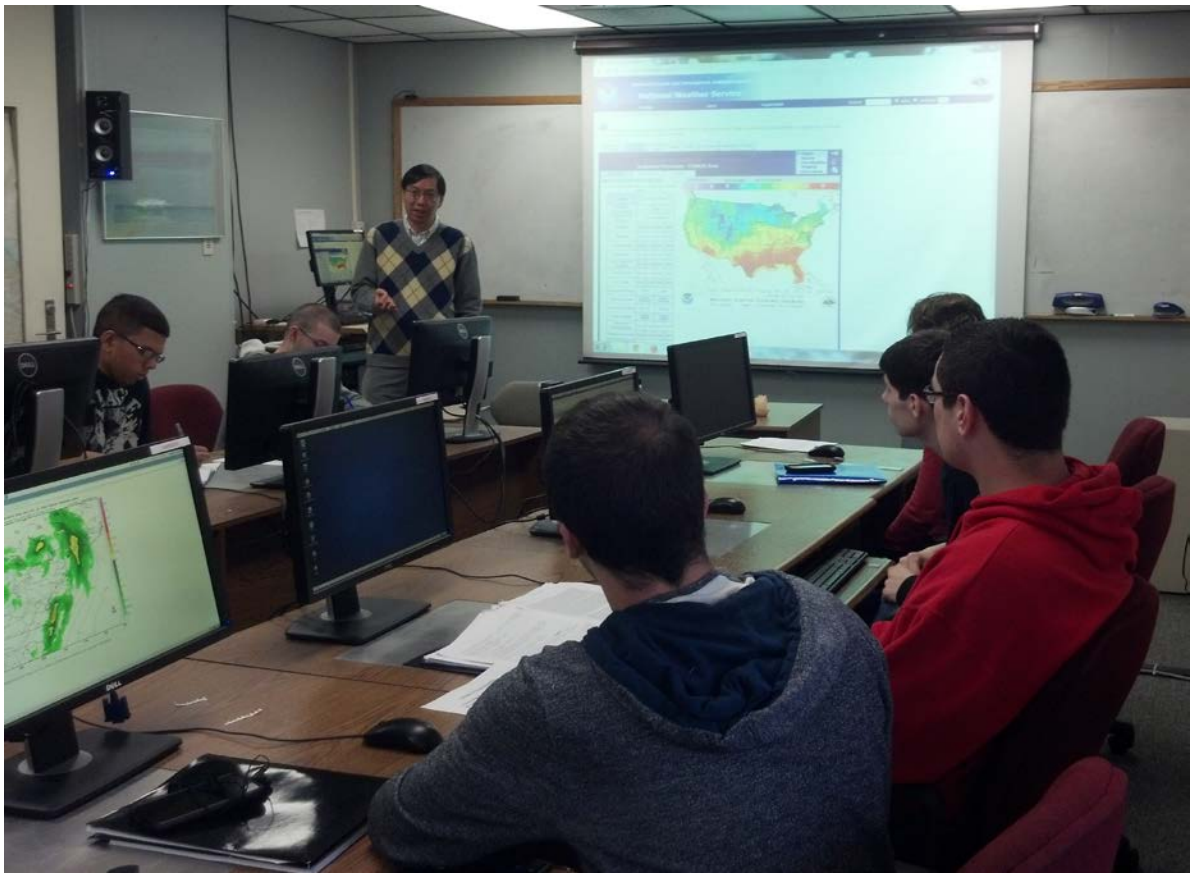

Figure 1. The meteorology laboratory showing several of the new computers.

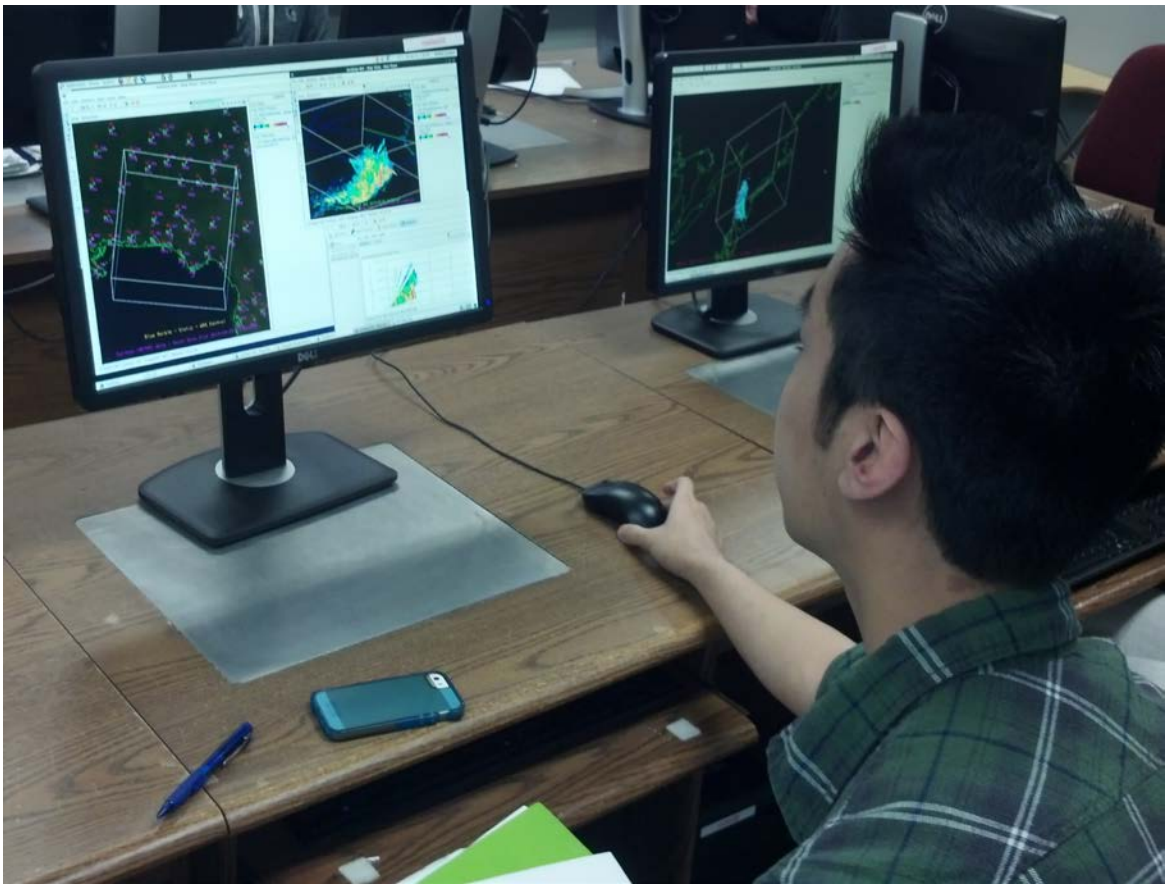

Figure 2. A student using the IDV software in the new computer weather lab.

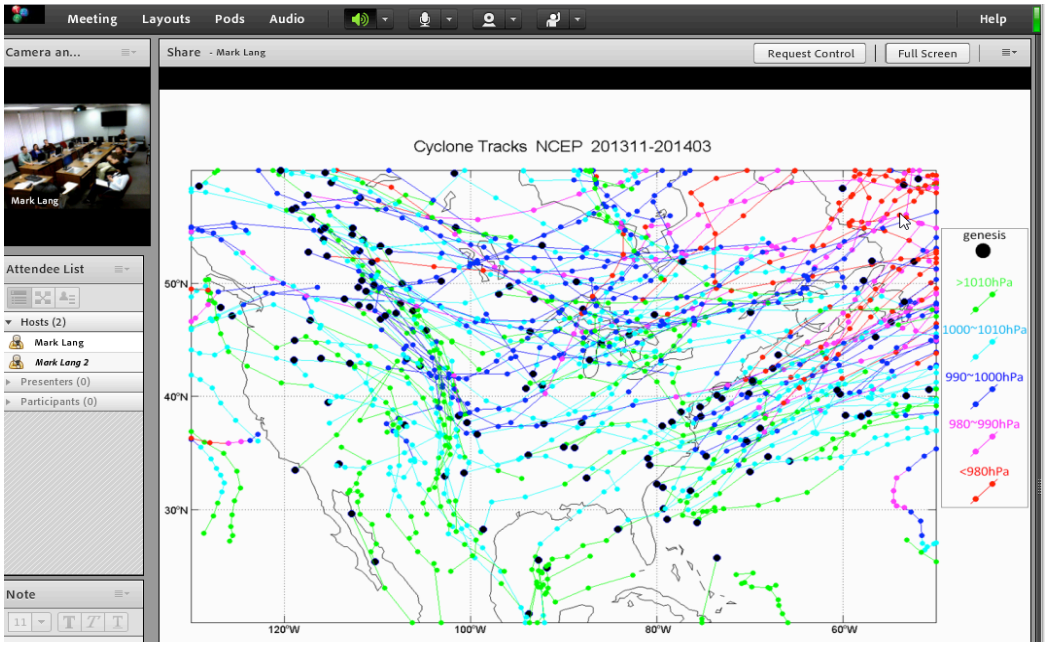

Figure 3. Screenshot of the online interactive Friday weather discussions (4:30 pm EDT during Spring semester).

Figure 4. NWS forecasters at Upton, NY (KOKX) participating in the online Stony Brook Friday weather discussion on 14 March 2014.