Proposal to
2009 UNIDATA Equipment Awards Program

"Update Equipment, Sharing of New Dataset, and Outreach to Underrepresented
Populations"

From
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"Update Equipment, Sharing of New Dataset, and Outreach to Underrepresented Populations"

Meteorology Department, Lyndon State College, VT

Project Summary
The funding from UNIDATA will be used to purchase additional computers to fully populate our two new main teaching classrooms with consistent student workstations.

Project Description
<u>Background</u>
The Lyndon State College (LSC) and Meteorology Department (MET) has several initiatives underway: moving to occupy the entire top floor (the highest point and best sky viewing on campus!) of a new LSC building in August 2009, implementation of new expanded degree curriculum in September 2009, new recruitment emphasis on underserved student populations, and continued growth of the department's Institute of Applied Meteorology (LIAM).

The new building greatly enlarges the department's education and research space and facilities, including doubling of the number of computers in the department network.

The new curriculum incorporates the new UCAR/AMS/NSF emphases in meteorology, including space weather, weather risk assessment, climate change, interdisciplinary outreach, and a department name change (when approved by LSC later this spring, it also includes a department name change from Meteorology to Atmospheric Sciences).

The college's recruiting emphasis is on students who are the first in their family to attend college and who are from modest income families. This effort has been bolstered by the recent receipt of a $800K grant (over 5 years) from the Nellie Mae Educational Foundation for specialized student academic support programs. In that context, we note that at LSC this large group of underserved students is about 40% of LSC's student body and greatly overlaps with the small number of LSC students who are in the underrepresented groups that UNIDATA wishes to serve better with its 2009 UNIDATA Equipment Grants.

The department's relatively new (June 2006) LIAM program is designed to increase student acceptance into graduate school and into the job market by providing them with research and work-world experience prior to graduation. The institute has received a steady stream of external contracts, including a large contract to provide the VT Agency of Transportation (VT-AOT) with short-term forecasts for weather conditions on the state's highway system. These student

generated forecasts are disseminated to highway road crews and highway rest areas to enhance the state's snow removal operations and the travel safety of the state's residents and tourists. That contract also includes LSC-MET Department acquisition of all real time VT-OAT data from all roadside sensors (currently 8, 60 when installation in complete).

Proposed Project
Unfortunately, one impact in VT of the recent downturn in the nation's economic situation is recent and unexpected reduced funding for equipment in our new building. One result of that reduction is that only two-thirds (25) of the computers in the expanded department's computer network containing our two main computerized teaching classrooms/laboratories will have new upgraded computers. The other one-third of the computers (13) in these two classrooms will be dissimilar and consist of the 3-year old machines that we would move with us from our present building into the new building.

We propose to use UNIDATA funding for 13 additional new computers so our two most important groups of machines in the two main teaching classroom/laboratories will have mutually consistent machines. This common identity of computers will enhance the ease and effectiveness of teaching, learning, maintenance, and general student usage across our two most frequently used meteorology classrooms. The new computers will all have a dual-core processor, with 4GB RAM, and dual LCD displays.

The new department network also consists of nine computers in a student work room, four computers in a faculty/student research room, two current small clusters (8 node and 32 node, both of which can be networked with the other 38 computers in the two classrooms for additional speed and efficiency), and three current servers (one of which is beyond its service period).

We will be seeking other funding this fall for the "match" the remaining machines in the faculty/student research room and the student work room. We are seeking UNIDATA funds now because we consider the research and work rooms match to be less of a priority than having consistent student workstations in our two main teaching classrooms/laboratories at the time of occupancy.

Into this matched upgrade in the classrooms/laboratories, we will incorporate the upcoming IDV software update (we currently use Version 2.6) with our current IDD and LDM software. Additionally, we will add THREDDS software and start serving our VT-AOT highway weather data to the UNIDATA community. We will also start serving out the forecasts we currently run on our in-house WRF model in support of our VT-AOT roadway forecasting effort. This produces hourly forecasts at 4-km resolution for the State of VT and adjourning areas of the northeastern US and southeastern Canada. In addition, to help support these two "sharing" efforts, we will use our department's small allotment of the institution's

meager state support (16% of college budget) to purchase a new server to replace the one that is now beyond its service period.

The State of Vermont has had little success in attracting underrepresented populations. Two fully updated and consistent computerized teaching classrooms/laboratories would ensure that the department can more effectively recruit and better train the underserved and underrepresented students who the college is now attracting and who take our courses (three large classes for non-majors and a full slate of courses for majors).

If this proposal is funded, we would be happy to host a UNIDATA workshop in our new building using our new facilities at a mutually agreeable date.

Budget
From UNIDATA:
New computers (13 @ $1500 each)   19.5K

Matching From LSC & MET Department:
New computers 25 @ $1500 each) $37.5K
New server   5.0K
In-kind (ATM faculty and IT staff work)*   25.0K
In-direct**   3.9K
Sub-total $71.4K

Total $90.9K

*LSC-MET Department faculty and IT staff will supervise equipment and infrastructure selection and perform hardware and software installation, de-bugging, and configuration.
**LSC will donate institutional in-direct cost allowance (20% of requested funding).

Project Milestones
If funded, we will purchase the 13 computers when the money is released to us. They will be imaged in June, and installed and made operational by late August, in time for the start of fall classes.

The new building is scheduled for completion in early August and for occupancy in mid-August. As of this writing, building construction is on-time (and on-budget). The college is very closely overseeing this progress to ensure completion by the contractual deadlines because classrooms, laboratories, and office for three academic departments will be housed in this building and fall classes have been schedule in it.