REPORT ON THE UNIDATA EQUIPMENT GRANT TO THE UNIVERSITY OF SOUTH FLORIDA

Arlene Laing and Mark Hafen

On behalf of the
Department of Geography
University of South Florida
Tampa, Florida

Students in the Department of Geography at the University of South Florida are engaged in learning about many aspects of urban and coastal environments. As a small department, we are dependent on the Unidata program for access to the necessary geophysical data and tools to help our students learn about the atmospheric and related sciences. We are grateful to the National Science Foundation (NSF) for our first Unidata equipment grant which allowed us to establish a meteorology laboratory in 2000. However, as the Unidata tools became more advanced, the USF equipment became more outdated and incompatible with the new software. In order to utilize the Unidata Integrated Data Viewer (IDV) and newer features of environmental visualization software, it was necessary to replace the old Pentium III PCs with faster, more efficient, and larger capacity computers.With the funds from the Unidata Equipment Grant issued in September 2003, we were able to replace nine of our 11 workstations in November 2003. The installation and testing was completed during December 2003 just in time for the start of the Spring 2004 semester.

In the Spring 2004 semester, the meteorology laboratory was used for exercises in Climatology (MET 4002C). Here are two examples:

- The first lab was designed to use the Unidata IDV so that students could see the relationship between changing pressure and precipitation events over the U.S., as well as to see the movement of a Rossby wave in the subpolar jet stream. *Mean sea level pressure* and *total precipitation* data over North America from February 7, 2004 were used. The data provided a ten-frame "video" that showed the Rossby wave progression and the related changes in pressure and precipitation.

  Students then used the software's *data probe* to measure mean sea level pressure and precipitation at a given location (latitude/longitude), near Boston, MA. After collecting these data, students plotted a simple graph of the change over time in mean sea level pressure, identified the mean sea level pressure at the time of highest precipitation, and identified the trends over time of the two data sets.

- The second lab did not use the Unidata IDV, but did require use of the laboratory computers. The goal of the laboratory exercise was for students to use statistical data to identify long-term trends related to temperature at the Vostock station, 78E 27' S, 106E 52' E, in the central ice plateau of East Antarctica, and to correlate these with evidence of global climate change. The data were obtained from the website http://www.antarctica.ac.uk/met/gjma/. *Gnumeric* software was used to create worksheets, compute simple statistical data (measures of central tendency, minima, and maxima), and to create graphs of the data for the students to interpret.

In addition to having an impact on undergraduate education, the laboratory also serves as a resource for graduate students. For example, in Fall 2004 graduate students in a special Hazards course, to study the impact of Hurricane Charley, are able to use the data collected in the meteorology laboratory. The use of the computers in non-synoptic meteorology course is achieving one of the goals of the Unidata Program Center, which to support an ever-broadening community.