13th Education Symposium Poster

Meteorology in the US Virgin Islands:

Dr. David J Smith
Division of Science and Mathematics
University of the Virgin Islands

SCI 210 - *Introduction to Meteorology*

In conjunction with the American Meteorological Society's course *Online Weather Studies*, the Division of Science and Mathematics at the University of the Virgin offers SCI 210 - *Introduction to Meteorology*, for the fall of 2003 semester. The course has grown from 34 during its inaugural offering in the spring of 2003 to 47 this semester.

The course is conducted primarily as an asynchronous distant learning course, but includes a weekly one-hour tutorial on each campus. In addition to normal class learning techniques, students record and analyze local temperature and sky cover data. The director, primary professor and St. Thomas campus tutorial instructor is physicist Dr. Dave Smith. Computer Science professor and pilot Dr. Al Lewit conducts the tutorials on the St. Croix campus.

Meteorological Studies at UVI

The University of the Virgin Islands is an HBCU liberal arts institution with campuses on St. Thomas and St. Croix, with a total student population of approximately 3000. The Division of Science and Mathematics offers degrees in physics, chemistry, biology, marine biology, mathematics, and computer science. *Introduction to Meteorology* represents the first step in the development of a new program in meteorological studies.

In the summer of 2003, UVI submitted an infrastructure grant proposal to the NSF - EPSCoR program that included monies to establish programs in weather monitoring and weather modeling that can provide research opportunities for undergraduates. One of the long range goals is to provide specific mesoscale weather prediction for islands in the Caribbean. In September of 2003, UVI was informed that the NSF review panel had recommended that VI-EPSCoR be funded at a total of no more than $4 - $4.5 million over four years.

The meteorology section of the EPSCoR proposal was written by Dave Smith and supports a program to produce accurate mesoscale forecasts for small Caribbean islands using the well-established mesoscale modeling program called the Advanced Regional Prediction System (ARPS). The program was provided to UVI by the University of Oklahoma and was recently installed on UVI's Beowulf cluster. Dr. Smith is in the process of learning the system and incorporating local ground topology and upstream atmospheric conditions into the system. He will utilize the Geographic Information System (GIS) data available from UVI's Conservation Data Center (CDC). Operating in

collaboration with Dr. Marc Boumedine of the Computer Science faculty, UVI students will be trained in the use and modification of the ARPS program.

In addition to local topography information, the atmospheric conditions upwind must be known. These conditions may be estimated by real-time data and atmospheric predictions. Pertinent to the local weather modeling, atmospheric data is required from the regions of the eastern Atlantic Ocean and a wide region of the Caribbean Sea upwind of the forecast areas. Presently, nearly all of such data is satellite based. The Caribbean region has few ground-based weather stations. The few sophisticated NWS weather stations, such as the ASOS unit, are located only at major airports. It is part of the EPSCoR proposal to provide release time to prepare grant proposals to augment the ground based information by assembling low cost weather stations that can be delivered to local school systems on islands throughout the Caribbean. These weather stations will be easy to operate and maintain. They will provide surface information such as wind direction, wind speed, humidity and pressure. Training for students in maintenance, data retrieval and analysis of data for local purposes will be part of the dissemination process.