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Meteorological Instruction Software

Spinoff 1990; p. 68-69; NASA-NP-138
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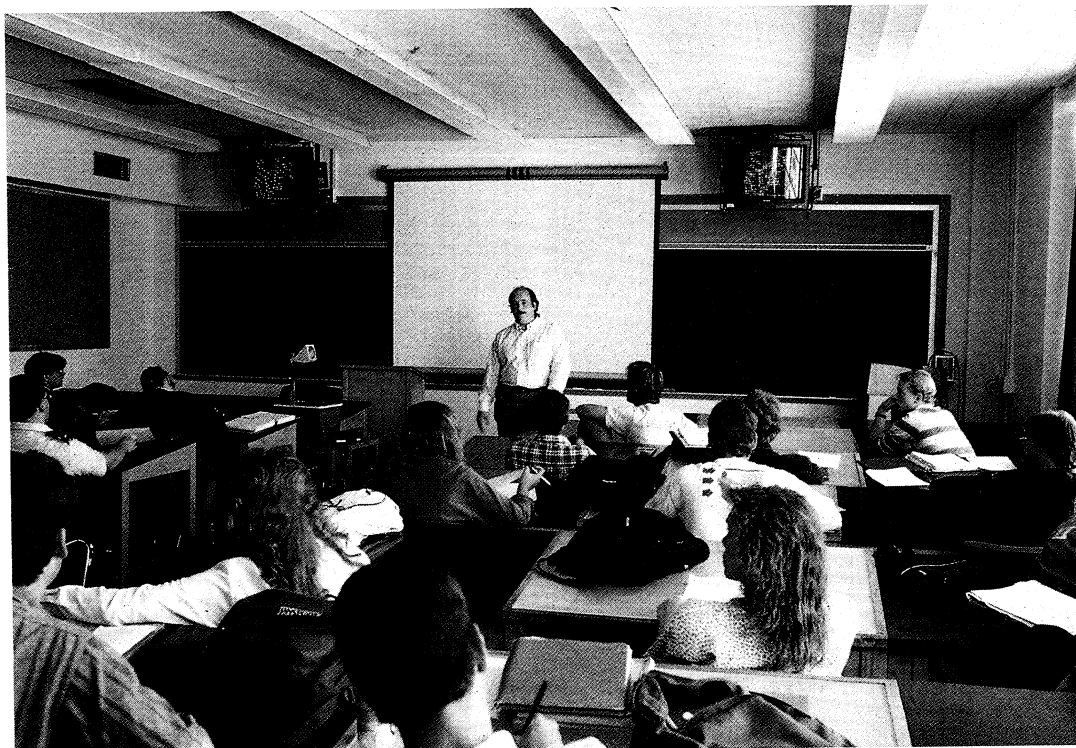


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Meteorological Instruction Software



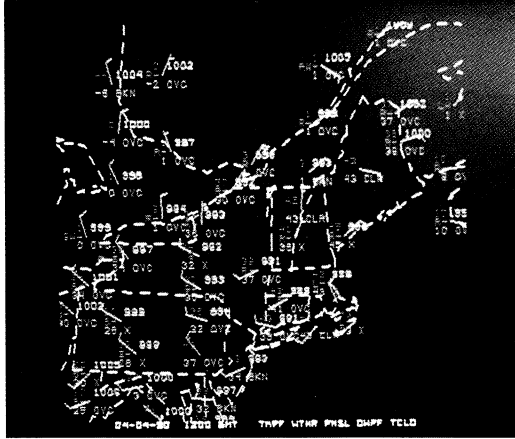
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A major challenge to university professors is conveying the relevance of classroom studies to real world matters. At Florida State University, Tallahassee, Florida and the Naval Postgraduate School, Monterey, California meteorology students have an unusual opportunity to apply theoretical studies to current weather phenomena, even prepare forecasts and see how their predictions stand up. The tool that makes this innovative instructional program possible is GEMPAK, an interactive, user-friendly computer program that provides meteorology students such current weather information as temperature, humidity, winds and atmospheric pressure, and also offers a powerful analysis and graphics capability. GEMPAK was developed as a general purpose meteorological display package by Goddard Space Flight Center.

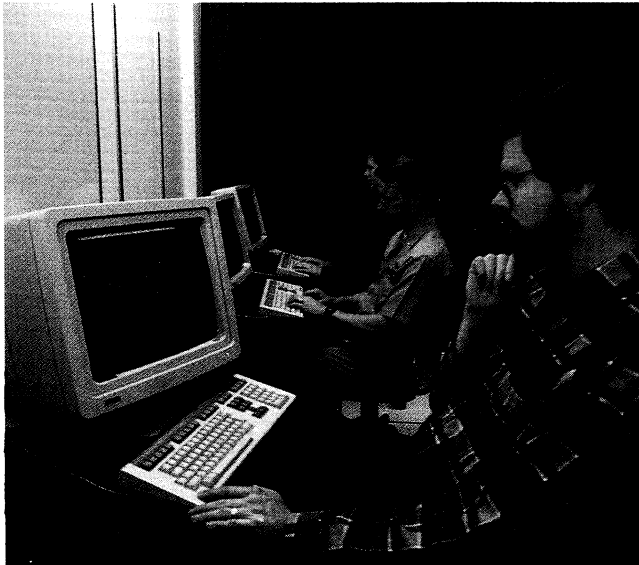
"GEMPAK is an exciting tool for all academic levels—from general education students to upper level meteorology classes," says Florida

State Assistant Professor of Meteorology Dr. Paul Ruscher, who uses GEMPAK displays as visual aids to supplement his lectures (above). GEMPAK can display data quickly in both conventional and non-traditional ways (right center), allowing students to view multiple perspectives of the complex three-dimensional atmospheric structure. This helps them understand some of the data limitations that constrain professional weather forecasters.

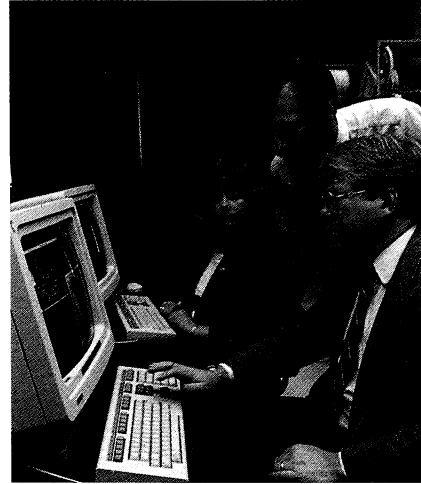
With GEMPAK, mathematical equations come alive as students do homework and laboratory assignments on the weather events happening around them. Since GEMPAK provides data on a "today" basis, each homework assignment is new, not something given the previous year's students. In addition, data from interesting past weather events can be accessed for instruction about different meteorological situations. With GEMPAK, the challenging task of managing and manipulating different data sets and displaying



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USN Photo by Mitch Nichols



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the results in a readily understandable manner is a lot less formidable.

GEMPAK was supplied to Florida State by the Computer Software Management and Information Center (COSMIC)[®]. Located at the University of Georgia, COSMIC is NASA's mechanism for making available to private sector and government customers computer programs originally developed for government use that can be adapted to secondary applications at a fraction of the cost of a new program.

At the Naval Postgraduate School, students are now using electronically-managed environmental data in the classroom. The School's Departments of Meteorology and Oceanography have developed the Interactive Digital Environment Analysis (IDEA) Laboratory, which employs micro- and mini-computers to combine and display real-time satellite and other data that students employ in laboratory assignments and thesis research. At left, Professor Wendell Nuss

(foreground) is using an IDEA Lab workstation for meteorological study.

"The IDEA Lab has been called the classroom of the future," says Dr. Carlyle H. Wash, Professor of Meteorology, "because five to 10 years from now this capability will be a basic requirement of any oceanography or meteorology department." Above, Dr. Wash is preparing an instructional program with the help of Mary Jordan and Craig Motell.

Until recently done with hard copy maps, satellite photos, light tables and grease pencils, the difficult task of combining meteorological and oceanographic data from many sources, processing it and presenting the results in convenient form has been made "considerably more tractable," according to Dr. Wash, by use of minicomputer workstations to process the information and electronic displays to present it in graphic image formats.

GEMPAK is the IDEA Lab's general purpose display package; the IDEA image processing package is a modified version of NASA's Device Management System. Bringing the graphic and image processing packages together is still another NASA product, the Transportable Application Executive (TAE), which acts as a general purpose user interface and gives a single entry point to all of the display applications available in the IDEA Lab.

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