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# TEST OF COMET COMPUTER BASED LEARNING AT WSFO TOPEKA

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As part of the development of new technologies (WSR-88D, AWIPS, ASOS, etc.) for the NWS meteorologist, a massive training effort must also be undertaken. Better methods of monitoring the atmosphere and detecting storms have spawned a more complete knowledge of meteorological processes. This too must be conveyed to the operational forecaster in a convenient manner.

To facilitate the flow of this technical information, UCAR (University Corporation for Atmospheric Research) through COMET (Cooperative Program for Operational Meteorology, Education and Training) is developing Computer Based Learning (CBL) modules for field deployment within the NWS beginning later this year. WSFO Topeka is one of two NWS sites (along with WSO Melbourne, Florida, and three military posts) designated to evaluate the first two modules for computer bugs and potential acceptance in an operational environment. While our experiences here are incomplete at this writing (mid September), we would like to share some of our impressions of the system and how it fits into the operational field setting.

The CBL is designed to be interactive and "user friendly." It is composed of a 386 level computer (340 mb hard drive) with mouse, video disc player, small speakers and headphone set. Three drives for 5 and 3 1/2 inch discs and CD use are located on the main computer box. Module materials are stored on both the hard disc and large video discs.

Two modules are currently being tested, "Workshop on Doppler Radar Interpretation" and "Boundary Detection and Convection Initiation." A third, "Heavy Precipitation and Flash Flood Forecasting," is under active development.

For the operational forecaster to derive maximum benefit from CBL, it must be "user friendly," fit into time restraints of a shift worker, and provide clear, accurate, and concise information. To simulate the real world as much as possible, we have located the CBL test area adjacent to the forecast area. Given the opportunity, a forecaster can slip over to the unit and work for 30-45 minutes while still in close proximity to his/her work station and primary duties. Audio from the lessons can be eliminated by using the headphone set.

The software combines the quality graphics of the old "NEXRAD Tutorial" series (on an oversized VGA monitor), video tape presentations, and hands-on mouse interaction with the luxury of going at one's own pace. Each module begins with introductions and menu selections. Some menu items may not be accessed until earlier material is covered. Experts in various aspects of the material make audio and video presentations. Other voice-overs are also included.

The programs are advanced by icons initiated by the mouse. Individual lessons take an average 30-60 minutes. One can exit then re-enter the program where one left off by use of a "bookmark" feature (denoted as "QUIT" in the programs). This allows users in an operational environment to come and go as time allows, or return much later. It also allows retention of scores from various quizzes posed during the course of the presentation. Individuals are recorded by Social Security number and name. Unfortunately this feature, especially the score keeping, did not work flawlessly.

A major component in helping to understand the material is the Conceptual Model and Tutorial icons available on most screen displays. These have proven to be the source of essential basic information which is needed to complete each lesson. They are usually audio/video presentations similar to training videos already in the field. Interaction with the program is often in the form of answering questions and annotating on radar or satellite displays. One is asked, for example, to find boundaries on radar velocity and/or reflectivity displays by drawing with the mouse or using a water based pen. Displays can be looped (at varying speeds), stepped through or toggled between velocity and reflectivity images. These options allow good flexibility in analyzing case material.

If this system were perfect, it would have needed to be tested. A number of software bugs have been identified and others will likely surface. Many of these involve inability to access small portions of individual lessons, system hangs and similar internal workings. Physical display of the material is generally good but a few images, mostly radar, are of poorer quality making interpretation difficult. Apparently some of these image problems have been video disc processing related. There are also some minor technical disagreement with a few of the interpretive answers. All told though, the material is well presented physically and of a sufficient level technically to be valuable to the operational forecaster.

From our limited experience here at Topeka, it is evident that CBL will revolutionize "in house" training for the NWS and other subscribers. Almost by necessity the initial subject matter concentrates on doppler interpretation and Plains weather. Later modules (through 1996) are scheduled to cover a wide range of topics including NWP, aviation hazards, hydrologic concerns, and marine forecasting. Other areas which may be well to consider are mountain, tropical, and fire weather meteorology. For the current time though the CBL offers a new and exciting interactive medium which allows the professional

meteorologist to access the latest information on atmospheric research and technical expertise. As an added bonus, the CBL computer will be available for on-station research!