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WHAT IS COMET?

You have probably noticed this new acronym showing up periodically in the last year or so, and may have also gathered that it has something to do with training. This Technical Attachment will describe what COMET is, who it is for, what its goals are, who runs it, how it will achieve its objectives, and where it is.

COMET stands for Cooperative Program for Operational Meteorology, Education, and Training. One clue that it is not part of the NWS is that the acronym is a word that can be found in the dictionary, which is usually a clear indication that the research community is involved. In fact, COMET is within the National Center for Atmospheric Research (NCAR), which itself is part of the University Corporation for Atmospheric Research (UCAR). However, the NWS is a sponsoring agency, along with the Air Weather Service, the Naval Weather Service, and NOAA's Environmental Research Labs. A key part of the acronym is "Cooperative".

What Are the Goals of COMET?

Since there are many cooperating agencies along with the university community involved in COMET, there are a number of broad goals. The sponsors of COMET who are responsible for operational forecasting want to ensure that they are in a position to fully exploit the capabilities of the new observation, communication, and data analysis systems now being developed and installed. To do this, the forecasters must be able to effectively use the new tools and apply the latest research results in order to practice state-of-the-science meteorology. This is especially true for the practice of mesoscale meteorology, since in the past, the operational data sets generally have not truly been of sufficient spatial and temporal resolution to support mesoscale analysis and forecasting.

On the other hand, the academic and research sponsors of COMET require access to the new mesoscale observations and advanced computer capabilities in order to conduct research and also to teach their students, many of whom eventually are employed by the operational sponsors. There has not been much interaction between the operational and research communities in the recent past. One reason has been the lack of access to operational data sets and capabilities by the research community.

COMET is meant to bridge the gap. It must provide the operational weather services with a way for their forecasters to have access to the latest applied research results. It must also facilitate greater interaction between the operational and research communities by getting forecasters more involved in research and the science, in general, and at the same time encourage researchers to take a greater interest in operational forecast problems.

What and Where is COMET?

The COMET Center is located in Boulder, Colorado. The physical space for the Center is nearly complete (as of late January 1990). COMET will consist of basically two parts; a residence program and a distance learning program.

The residence program will involve forecasters spending time at the Center. The forecasters who go to the Center will generally be the Science and Operations Officers (SOO). The residence course will be four to six weeks in length and concentrate on increasing and updating the participant's knowledge of mesoscale meteorology. An additional goal is to provide participants with the background and contacts that will enable them to engage in applied research. The students in the residence program will work on PROFS-type workstations at the Center, using advanced data sets such as Doppler radar, profilers, mesonets, and gridded model data. The intent is to link theory and application as closely as possible by using the data sets in a displaced real-time mode.

The permanent COMET staff will be quite small, probably less than 10 people. The instructors for the residence class will be local and visiting scientists and university faculty. This approach is being taken to take advantage of the expertise that exists in the research community. It allows for transfer of knowledge and results from the cutting edge of the science directly to operational forecasters. At the same time, instructors are exposed to operational forecast problems through interaction with the students.

The distance learning program is responsible for producing Computer Based Learning (CBL) modules to be used at forecast offices and universities. The technology being employed for the CBLs is based on interactive video. This medium has the potential to be a high-impact learning tool that will allow a forecaster to work one-on-one with the new data sets to learn advanced mesoscale concepts. We have all seen training material designed to do this before, with less than impressive results. If done well, interactive video can be different. Again, the COMET staff will rely on visiting scientists to serve as the subject matter experts for the content of the CBLs. The actual module design and production will be done by experts in instructional design at various cooperating universities and the Air Force Academy.

Current Status

Advisory boards consisting of persons from the university, research, and operational communities were formed to direct COMET. Two working groups have been meeting periodically for the last nine months to formalize the curricula for the residence program and also to specify the design of the residence workstation. The workstation design has now been specified, and PROFS is now developing it. The curricula has been outlined and a meeting of the working group is scheduled this month (February).

Dr. William Bonner, currently director of NMC, will become the full-time director of COMET beginning April 1, 1990.

The first two distance learning CBL modules are currently in design, with completion scheduled for the end of the year. Module one will be on fundamental Doppler radar interpretation. Module two will cover principles of convective initiation, focusing on mesoscale boundary collisions as seen in Doppler radar data, and satellite imagery. The three operational sponsors have begun the procurement process for the systems required to display the CBL modules at field offices. These will be 386 based PCs with video disks and CDROMs. The first systems should be operational and placed in the field in 1991.

The NWS is only one of a number of sponsoring agencies to COMET, but considerable resources are being allocated to this effort. Upper-level management considers training and education an essential component of the modernization and COMET is one of the methods being employed to accomplish this goal.