

**Chronology for
PROGRAM FOR REGIONAL OBSERVING AND FORECASTING SERVICES
(PROFS)**

- S 1979 - Program for Regional Observing and Forecasting Services (PROFS) formed
- S 1981 - PROFS received guidance from a "Troika," consisting of the Directors of the National Weather Service (NWS), National Environmental Satellite, Data, and Information Service (NESDIS), and Environmental Research laboratories (ERL).
- S Summer 1981 - PROFS staff had grown to about 40. A computer system had been installed which permitted the real-time acquisition and storage of radar reflectivity data (from NWS radars at Limon, Colorado, and Cheyenne, Wyoming), weather satellite visible and infrared images (through a Colorado State University link), and a mesoscale network of automated surface stations measuring conventional meteorological parameters. This system was operated daily during the 1981 convective storm season to obtain a data set for a displaced-real-time forecaster evaluation exercise which took place in late 1981.
- S Summer 1982 - First real-time forecast exercise conducted. PROFS implemented three forecast stations, two in PROFS and one at the Weather Service Forecast Office (WSFO) in Denver. One PROFS forecast station consisted of an advanced workstation with sophisticated image and graphics display capabilities (Reynolds, 1983). The other was a "typical" NWS forecaster station with AFOS graphics, a Kavouras radar display, and satellite Unifax prints. The WSFO forecast station was identical to the advanced workstation implemented in the PROFS Forecast Office. Data sources were identical to those in 1981.
- S Summer 1983 - Real-time forecast exercise conducted. PROFS added the real-time capability to handle limited amounts of Doppler radar reflectivity and velocity data, rapid-scan satellite image data, Profiler data, and additional local network data from a lightning detection system and an array of automatic stream-level and rainfall gauges.
- S 1984 - Profiler Technology Transfer Group (PTTG) was formed
- S 1984 - In FY 1984 PROFS entered its second phase. While the first phase was largely consumed with building a capability, the second phase was primarily oriented toward use of the capability. PROFS management defined two major areas in this second phase: (1) forecasting research and development, which included a test program and joint research efforts with other ERL Laboratories, and (2) technology transfer, which included working directly with operational programs such as NWS' s AWIPS-90, NESDIS' s VAS, and NEXRAD.
- S April 1984 - PROFS conducted its first cool-season forecasting experiment from February

through April 1984. The late winter of 1984 was unusually devoid of downslope wind events, but 11 snow events were forecast and documented in real time and recorded on disk for later review. The objectives of the exercise were to try out an updated version of the PROFS workstation, including about 20 new interactive applications programs; to introduce PROFS meteorologists to winter weather and to learn some mesoscale characteristics of wintertime phenomena; and to develop the logistics for conducting a wintertime forecasting experiment, complete with entering and scoring forecasts.

- S June 1984 - PROFS installed an advanced forecast workstation, supported by a PROFS VAX-11/150, at the FAA's Air Route Traffic Control Center in Longmont, Colorado.
- S October 1984 - PROFS added a new branch, Experimental Forecast Systems to coordinate the development and installation of the PROFS workstation that will go into the Denver Weather Service Forecast Office for the real-time 1986 exercise.
- S October 1984 - In FY 1985, PROFS underwent organizational changes with the formation of two new branches. A portion of the Science Branch of the Exploratory Development Group was detached to form the separate Analysis and Prediction branch, dedicated to the development of a Mesoscale Analysis and Prediction System and the support of the FAA's Central Weather Processor program. The new Experimental Forecast Systems branch was formed to concentrate on the development of products and applications for the PROFS advanced forecasting workstation.
- S Summer 1985 - Real-time summer forecasting exercise was conducted. An enhanced workstation with advanced capabilities developed at PROFS was made available to forecasters from the operational and research communities. Weather forecasts were recorded and verified by chase teams to be scored for accuracy and reliability, and the data collected during the exercise were stored for future use. An important occurrence during the exercise was the Cheyenne flood of August 1, 1985, which resulted in widespread damage and loss of life. With the help of the PROFS workstation and advanced data sets, exercise forecasters were able to predict the severity of the storm, and the data collected during the storm will prove extremely valuable to severe storm prediction research.
- S Sept 1995 - The PROFS Visitor Program arranged visits for approximately 100 visitors each month. Many of these visitors come from abroad, including a delegation from the People's Republic of China who stayed for one month, short-term visitors from as far away as Australia and Zimbabwe, television crew from Japan, and the Special Assistant to the Director of Civil Aviation of Spain.
- S 1986 - The Denver AWIPS-90 Risk Reduction and Requirements Evaluation (DAR3E) project was the most important project in FY 1986. Personnel from each branch of PROFS participated in the planning, design, implementation, and support of the advanced interactive forecaster workstation installed at the Denver Weather Service Forecast Office (WSFO) to provide NWS with an evaluation of many functional capabilities planned for the AWIPS-90 system.

- S 1986 - PROFS continued to provide support for the Center Weather Service Unit at the FAA's Denver Air Route Traffic Control Center (ARTCC) by installing a new forecaster workstation and upgrading the data communications system between ARTCC and PROFS.
- S 1986 - For NEXRAD, PROFS coded and tested more algorithms to be used in the new national Doppler weather radar system.
- S 1986 - PROFS staff actively participated in the exchange of information in the environmental science community with the publication of more than 40 articles, reports, and papers concerning PROFS activities and research during FY 1986
- S 1987 - The Denver AWIPS-90 Risk Reduction and Requirements Evaluation (DAR3E) project developed in FY 1986 became operational at the Denver NWS Forecast Office.
- S 1987 - PROFS began the Weather Forecast Program featuring daily weather discussions for all interested parties.
- S 1987 - The ST.O.R.M. (Stormscale Operational and Research Meteorology) Education and Research System was designed to support the education and research communities, and workstations were installed temporarily at the National Severe Storms Laboratory in Norman, OK, at Colorado State University in Fort Collins, and at NCAR in Boulder, CO.
- S 1987 - Automated aircraft pilot reports were added to the PROFS Exploratory Development Facility data set.
- S 1987 - Development of a polar-orbiting satellite data-ingest capability began.
- S 1987 - PROFS assisted NWS and the National Environmental Satellite, Data, and Information Service (NESDIS) in defining functions and specifications for information streams for AWIPS-90 and the NOAAPORT data communications program.
- S 1988 - During FY 1988, in cooperation with National Ocean Service, PROFS developed the Interactive Marine Analysis and Forecast System (IMAFS). The IMAFS workstation was demonstrated to a large number of marine scientists and was very well received.
- S 1988 - In support of the National Weather Service (NWS) Advanced Weather Interactive Processing System for the 1990s (AWIPS-90) program, PROFS continued to supply data to and operate the Denver A WIPS-90 Risk Reduction and Requirements Evaluation (DAR3E-I) workstation at the Denver NWS Forecast Office. New Doppler radar and hydrologic products were introduced to the DAR3E-1 workstation that improved severe weather forecasting. The AWIPS/NOAAPORT Interface Control Document describing the interfaces necessary for exchanging meteorological products was completed and submitted to the NWS.

- S 1988 - The Local Analysis and Prediction System (LAPS) became functional and was used to generate a number of application products on the meso-beta scale. Rigorous validation of the LAPS analyses was performed using independent observations.
- S 1988 - On a larger scale, the Mesoscale Analysis and Prediction System (MAPS) employing real-time conventional and asynoptic data and isentropic coordinates has been placed into operation. The uses of both three-hour cycle times and isentropic surfaces represent significant firsts in mesoscale analysis.
- S 1988 - PROFS continued its extensive support of researchers within and outside of ERL by distributing real-time and retrospective data and products. For example, PROFS deployed a workstation to support the National Center for Atmospheric Research (NCAR) Terminal Doppler Weather Radar experiment. The daily weather briefings using the PROFS workstation continued during the year with the enthusiastic participation of researchers from several ERL laboratories, NCAR, and the NWS.
- S 1988 - The unique development work at PROFS continued to draw numerous visitors from other government agencies, educational institutions, private industry, the media, and the general public. On the average, 60 individuals, many of them from foreign countries, visited PROFS each month and received briefings, consultations, and other information.
- S 1988 - The results of PROFS' work were reported in 4 refereed publications, and 19 papers were presented by PROFS staff at various conferences.
- October 1989 - Forecast Systems Laboratory (FSL) was formed