

AFPS Quarterly Report (95Q1)

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AFPS Quarterly Report FY95 Q1: October - December 1994

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The FSL AFPS Team

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1. Introduction

The Enhanced Forecaster Tools Branch of the Forecast Systems Laboratory (FSL) Modernization Division and some of the staff of the NWS Office of Systems Development Techniques Development Laboratory (TDL) are jointly developing the AWIPS Forecast Preparation System (AFPS).

Most of this report covers FSL work. Except in the TDL Activities section (based on information provided by Matt Peroutka of TDL), the use of "we" below refers to FSL staff.

The current focus of AFPS work is the Level 1c prototype. This will be the first "complete" version of the AFPS graphical forecast editor (GFE). With the addition of TDL initialization and text-generation software, it will be used during WFO-Advanced forecast exercises later in 1995.

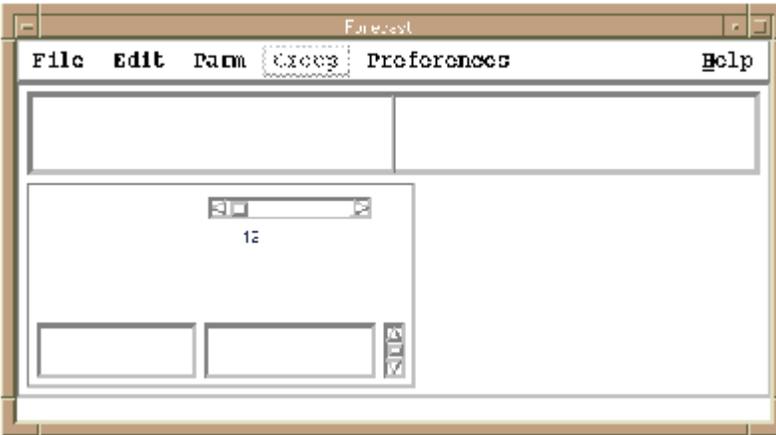
2. Accomplishments

Our attention turned in earnest this quarter to the detailed design and implementation of the forecaster worksheet, arguably the most significant component of AFPS. To date, AFPS prototypes have been limited to just a few weather elements. Without the worksheet, it is impossible to accommodate the full range of elements necessary to support WFO operations -- there simply is not enough room on the screen for the menus. The worksheet requirement was recognized from the start of AFPS work (as far back as 1991, when AFPS was known as "GRAF").

As noted in last quarter's report, the design effort to add the worksheet concept to the GFE was extensive -- nearly 20 person-weeks were spent doing a very detailed design of these modules (Mathewson, LeFebvre, Mayer). The payoff is that implementation required significantly less time than developers expected; actual coding became almost a "cookbook" operation (entire programmer staff).

By the end of the quarter, worksheet coding was nearly complete. A partial implementation is

shown here (Mayer),



and a prototype of the worksheet time scale is here (Longstaff).



Also during this quarter, the new database and network routines were completed, and the database initialization interface nearly so (Bacco, Romberg, LeFebvre, Mathewson). The latter is needed for TDL to be able to initialize the AFPS database with MOS-derived grids.

Other activities:

- ◆ Development and off-line testing of interpolation algorithms is finished. The work this quarter concentrated on weather areas, with particular attention paid to the problems of overlapping areas and boundaries (Wier). This has yet to be incorporated in the GFE.
- ◆ We had hoped to have completed the redesign of the graphical editors (to work with the worksheets), but had to postpone that work to complete the TDL database interface. We did review the editor requirements, and will start the design early in the next quarter (Mathewson, LeFebvre).
- ◆ FSL and TDL worked together to plan and schedule initialization and text-generation development necessary to support the WFO-Advanced exercises (Mathewson, Wakefield). We expect the forecasters participating in the August convective exercise to use AFPS to generate public and agriculture forecasts, and will add aviation terminal forecasts for the October/November WFO emulation exercise.
- ◆ Initial cloud display concepts were developed (Wier).
- ◆ In November, the enhanced version of the Level 1b AFPS prototype (dubbed Level 1b') was completed and set aside to be available for demonstrations and for use at the AMS conferences in Dallas. This version was also installed in December as part of the initial WFO-Advanced complement.
- ◆ Database-creation software was developed (LeFebvre), providing the framework for the Level 1c prototype to initialize a database on the fly, a key requirement for operational use of AFPS.

3. Presentations/Visitors/Travel

Visitors:

- ◆ Ron McQueen and Todd Dankers of WSFO DEN visited for an overview on 18 Oct. With Ron departing for a new job in Las Vegas, Todd is our new AFPS contact at Denver.
 - ◆ In November, Tom LeFebvre and Joe Wakefield gave a briefing on AFPS development and an AFPS demonstration to a SOO class from the Cooperative Program for Operational Meteorology, Education, and Training (COMET).
 - ◆ Steve Gallagher (NWS), Michael House (NOAA), and Perry Finney (NOAA) were here 17 November. Their interest was in how FSL's AFPS work relates to AWIPS and complementary work being done by the NWS.
 - ◆ Tony Mostek of NMC stopped by for a brief update on AFPS development, 18 November.
 - ◆ We gave a demonstration to a group of visitors conducting an FSL Science Review on 12 December.
 - ◆ An NWS group including Mary Glackin, Denny Walts, George Smith, Naba Barkakati, Martha Buffum, and Dave Ruth visited 13 - 14 December to discuss FSL AWIPS work. Louis Uccellini joined the group for demonstrations and discussions on the 14th.
- EFT staff travel this quarter was limited to attendance at two conferences: Jennifer Longstaff and Corby Bacco attended the ACM Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA) in October, and Mark Mathewson and Bob Mayer went to C++ World in November.

4. TDL activities

TDL developers fielded the first UNIX version of the Interactive Computer Worded Forecast (ICWF) in Charleston, WV, making many initialization and formatting modules intended for AFPS available for field evaluation. Specifically, the programs which initialize grids from NGM MOS bulletins are being used operationally to support Charleston's QPF forecasting. TDL developers have also fielded programs which summarize data from grids into forecast areas (zones) as well as those which combine zones. Testing of initializing grids from MRF MOS is nearly complete.

The Charleston forecasters are also evaluating a number of product generation programs which will be useful in AFPS. The product list includes gridded forecasts (in GRIB), QPF averaged over river basins (in SHEF), Zone Forecasts, Coded Cities Forecasts, and special tabular forecasts.

Testing will soon begin to load initialized grids into the AFPS database.

In other development, the Agricultural Forecast formatter is under test. Designs are moving forward for local effect phrases and aviation products.

5. Plans for the next quarter

In this first quarter of calendar 1995, we will finish implementing the AFPS worksheet, and present it for discussion at a meeting of the AFPS Forecaster Working Group (AFWG) in March. This meeting will be held at NWS Headquarters in Silver Spring, providing an opportunity for TDL staff to meet AFWG members (including new Alaska Region representative Dick Hanas of WSFO ANC; we gratefully acknowledge the valuable contributions made by outgoing AR representative Kraig Gilkey of WSFO FAI).

Initial work on cloud displays will be completed; this issue will also be discussed at the AFWG meeting. Also on the agenda will be demonstrations of the new UNIX-based ICWF noted above.

By the end of the quarter, we should be nearly finished with the new graphical editors to be used with the worksheet. At that point, we will be prepared to use TDL's MOS initialization to create and edit an AFPS database.

We mentioned in the last report that we would be installing a new Hewlett-Packard server for our network. The server was not delivered until the end of December; it probably will be in service around mid-February.

Tom LeFebvre and Stuart Wier will travel to Dallas in January to present papers at the 11th IIPS conference, and to demonstrate the AFPS Level 1b' prototype. Copies of their papers were distributed with last quarter's report.

In May, the General Accounting Office visited FSL and TDL to discuss AFPS software development practices. Partly in response to their ensuing report, we have established a quality assurance position, which we expect to fill in February. This person will be in charge of configuration management, requirements and bug tracking, testing and integration, and reviews. We already have established a peer code review system for our Level 1c work.

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