P1.4 INTERACTIVE FORECAST PREPARATION SYSTEM TRAINING IN THE NATIONAL WEATHER SERVICE

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1. INTRODUCTION

The National Weather Service (NWS) has begun implementation of a software system that allows graphical editing of forecasts based on model and observed data. The new software system is known as Interactive Forecast Preparation System (IFPS) and contains two major parts. One part is a grid editor that allows graphical depiction of weather variables while the other contains climatology and product formatting programs in an effort to automate most product formatting and generation tasks. This new, more graphical, forecasting approach opens many favorable opportunities to improve service but also presents implementation and rapid improvement challenges.

The National Oceanic and Atmospheric Administration (NOAA)/Forecast Systems Lab (FSL) developed a project to produce rapid prototype software which could be used for grid editing. Traditional workshops were held to help get the NWS field offices acquainted with installing and configuring the software at the Warning and Forecast Offices (WFOs).

2. FORMING A PROFESSIONAL DEVELOPMENT SERIES

A team of forecasters and managers from local, regional, and national NWS offices met to define the training required by the new IFPS grid-based forecasting system. An IFPS Professional Development Series (PDS) (Lamos, 1997) was established to describe the areas where training is and will be needed. The PDS describes the scope of needed training and forms a curriculum into which courses and other instructional components can be mapped.

Using several discovery and grouping techniques, the IFPS training was grouped into eight major topic areas.

These topics are:

1) Vision,
2) Operator Interface,
3) Forecast Methodology,
4) Collaboration,
5) Operations Management,
6) Local Applications,
7) Focal Point Duties,

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8) Applications of IFPS Techniques.

Each topic area, also called a Professional Competency Unit (PCU), consists of four basic sections. The first section is "Description of Job Duty Competency to be Achieved." This is a general goal for that topic area. The second section is titled "Description of Need" and discusses the motivation(s) for the training. The third section of the PCU describes specific job task skills and knowledge. These skills and knowledge items are related to the fourth and final section which contains descriptions and links to training materials called Instructional Components (ICs). The instructional components then address specific job tasks, skills and knowledge. There are also instructional components that may be listed by more than one PDS if appropriate. For instance, a training module on marine forecasting may be applicable to both the marine forecasting PDS and the IFPS PDS.

3. RAPID DEVELOPMENT AND DEPLOYMENT

While the overall graphical forecasting effort has been in a development and prototype phase for a few years, there is a significant amount of evolution occurring rapidly as the field offices begin using the software and transitioning creation of products from a manual typing to a grid-driven product generation process.

Much of the initial effort in deployment was directed at installation and configuration issues. Training topics were addressed in a series of classes and workshops for IFPS focal points and via E-mail list servers. The classes provided a mechanism for "hands-on" learning while the list servers allowed the focal points to interact and share information. This knowledge sharing was and is an important aspect of successful implementation and evolution of a rapidly evolving software deployment. The rapid development and deployment concept was broadened to the whole IFPS program in an effort called the Rapid Alpha Project. This involves an initial set of forecast offices that identifies any conflicts or issues in new software builds before they are deployed nationwide.

Training is also developed from these earlier releases as new configuration items, capabilities or functionality are added or changed. An important part of the training for rapid development and deployment is to use different training modes based on the material.

4. TRAINING MODES FOR RAPID UPDATES

While the training venues have been classes and workshops initially, the training team is using distance learning techniques and software developed by Whittaker (Whittaker, 1999) as part of the Virtual Institute for Satellite Integration and Training (VISIT). Initial distance learning activities have involved communicating the reasons and motivations for such a significant change in the NWS forecasting process. This initial training was made available via several delivery methods to address concerns related to access, time management, and uniform availability.

The modes used include presentation slides with documentation, web-based training modules, teletraining, E-mail list servers, web-based discussion forums, and recorded presentations with audio. In addition, many of the materials developed for documentation and training, are used locally and customized for on-station or on-the-job training. We expect to accelerate and prioritize training in order to follow the evolution of the software and field practices as they are developed and fielded. In addition, the implementation of the National Digital Forecast Database (NDFD) will also require training and customization of the IFPS software.

5. CONCLUDING REMARKS

One of the main challenges in developing and delivering training for this major change in NWS operations has been the rapid development process. The NWS Meteorological Development Laboratory and the NOAA Forecast Systems Lab are producing software updates at a rapid pace to provide incremental development steps but produce a flexible and adaptable grid-editing software package that will meet the needs of operational forecasters. With regard to the training activities, the NWS also seeks to provide a foundation of material which can then be augmented by several modes of training to include WWW modules, teletraining, recorded presentations, and documentation.

Significant interaction with NWS WFOs takes place during the development of and during these training sessions. We look forward to continuing those

interactions. The IFPS team also plans to help coordinate training developed at WFOs and regional headquarters to assist in the expansion of distance learning efforts. The software used for the recorded and teletraining versions of these presentations and briefings is evolving to meet the needs of the IFPS training environment.

The IFPS training and professional development materials and activities are available via the training team's WWW pages located at http://www.nwstc.noaa.gov/nwstrn/ifps_met.htm These pages link to the PDS, instructional components, e-mail lists and other valuable learning resources for IFPS and the NDFD.

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14. REFERENCES

Lamos, J., 1997: Operational Forecasters' Professional Development Series. Cooperative program for Operational Meteorological Education and Training Process Definition Committee. Boulder, CO. http://www.comet.ucar.edu/pds/PDS_V3.htm

Whittaker, Thomas M., 1999: VISITVIEW- A Collaborative Distance Learning Tool for the Virtual Institute for Satellite Integration Training (VISIT). Preprints 15th IIPS, Dallas, Texas, AMS.