P4.5 DLAC2 - TRAINING FORECASTERS TO BETTER SERVE OUR AVIATION CUSTOMERS

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1. INTRODUCTION

Training of National Weather Service (NWS) aviation forecasters has been revitalized by the introduction of the Distance Learning Aviation Course (DLAC) series. This project, sponsored by NWS, is being designed and developed by the Cooperative Program for Operational Meteorology, Education and Training (COMET). The first offering in the series, DLAC1, was completed in 2003. This course focuses on fog and stratus forecasting and consists of 10 separate lessons, or modules. In early 2005, COMET completed an individual training module which deals with the operations of the National Airspace System (NAS). The second multi-part DLAC course, currently under development, is intended to help forecasters improve their terminal aerodrome forecasts (TAFs).

The cornerstone of DLAC training is the "blended" method of instruction. This combination of self-paced and instructor-led learning modules is facilitated from COMET for convenience and efficiency. This approach ensures flexibility for students to take the course during their routine work schedules, yet provides sufficient structure to motivate them to complete the training.

Students must formally register for DLAC in order to participate in the teletraining sessions. As many as 10 locations may participate remotely in each session.

After a specified time period, the entire course is converted to a Web-based format and made available in asynchronous form to allow for the largest number of students possible and to minimize the resources required to deliver the training. At a future time, if the need and resources dictate, synchronous teletraining may be reinstated.

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2. DLAC1

TAFs of ceilings and visibilities play an important role in the safety and efficiency of aviation operations. NWS has identified improvement of these forecasts as a critical need. The first course in the DLAC series, entitled *Forecasting Fog and Low Stratus for Aviation Operations*, was developed to fill this need. The purpose of DLAC1 is to enhance forecaster understanding of the physical processes of fog behavior and how to best utilize state-of-the-art tools geared to improving fog and low stratus forecasts. An important aspect of this training is to acquaint forecasters with the impacts of their forecasts on aviation operations. This is key in producing TAFs that can be better utilized by the aviation community to improve aviation safety. To date, more than 500 NWS students have completed the course.

The DLAC1 training consists of 10 self-paced modules, three of which were previously live teletraining sessions:

- Fog/Stratus Forecast Approaches:
- Radiation Fog
- Synoptic Weather Considerations
- Local Influences of Fog and Low Stratus
- Assessing Climatology in Fog/Stratus Forecasting
- Applying Diagnostic and Forecast Tools
- Case study: New England Fog Event
- Customer Impacts
- Writing Effective TAFs
- Case Study: Northern Plains Cold-Air Outbreak Event

After completing each module, forecasters are quizzed in the NWS learning management system. This allows their progress to be recorded as part of their individual professional development plan.

Although the course is intended primarily for NWS and military forecasters who produce TAFs, most of the content is useful to those who wish to understand the behavior fog and stratus. For non-NWS students, the course is available at no charge from the COMET MetEd Website (http://www.meted.ucar.edu), and completion certificates are also available to non-NWS students who register to take quizzes in the MetEd system

(http://www.meted.ucar.edu/registration/index.php).

3. NAS TRAINING MODULE

In 2004, NWS leadership directed that training be developed to help Center Weather Service Unit (CWSU) meteorologists improve their service in support of the NAS by gaining an understanding of weather impacts on all phases of flight and an appreciation of how their products and services influence air traffic management. The result is a module entitled *The Impact of Weather on Air Traffic Management*. This course examines the impact of weather on the NAS and how forecasts help the Federal Aviation Administration's (FAA) decision-making process. The module also provides tips on establishing a good professional relationship with this important partner, understanding their language, and preparing weather briefings that will give them the needed information.

One of the unique aspects of this module is that it provides the framework for a larger exercise to develop a station Weather Impacts Playbook, a supplement to the Station Duty Manual. Throughout the module, the student is directed to compile information related to aviation forecasting in their particular area and about their local FAA customer. The information collected by the CWSU meteorologists is then synthesized into the Weather Impacts Playbook, which then becomes an important tool in training new forecasters.

As with DLAC1, *The Impact of Weather on Air Traffic Management* provides interesting information for anyone interested in how the FAA manages air traffic and how weather impacts the complex set of systems, procedures, facilities, aircraft and people that comprise the NAS. This module is also available to non-NWS students at no charge on MetEd (http://www.meted.ucar.edu/nas/index.htm), and there is also an associated quiz that allows students to earn a completion certificate.

4. DLAC2

One of the more noteworthy aspects of the creation of this module was the formation of a team of aviation weather experts to facilitate the course development with COMET. This team concept was used with the air traffic management module with great success. It was natural to carry this approach to the next DLAC effort, DLAC2, entitled *Writing Effective Terminal Forecasts*.

Along with Tom Dulong, meteorologist, and Vickie Johnson, instructional designer, of the COMET aviation team, the DLAC2 team is comprised of representatives from the NWS, military, Canada, and Australia:

- Dan Cobb (NWS WFO/Caribou, ME) – team leader
- Rich Mamrosh (NWS WFO/Green Bay, WI)
- Chip West (NWS CWSU/Atlanta, GA)
- Jeff Tongue (NWS WFO/ Upton, NY)
- Al Fisher (NWS WFO/Romeoville, IL);
- Warren Rodie (NWS CWSU/Longmont, CO)
- Calvin Naegelin (AFWA)
- Roland Wilson (AFWA)
- Otis Lester (Navy)
- Kent Johnson (Meteorological Service of Canada)
- James Caust (Bureau of Meteorology, Australia).

DLAC training places a high value on user impacts, so this approach will be folded into the TAF course. To gain the user perspective during the design and development of the training, the following individuals have served as consultants to the DLAC2 team:

- Tom Fahey (Northwest Airlines)
- Rick Curtis (Southwest Airlines)
- Troy Meis (Frontier Airlines)
- Tim Spangler (COMET and GA pilot)
- Dan Gudgel (Certified Flight Instructor and commercial pilot)
- John Jarboe (FAA Academy Examiner and pilot)
- Tony Giambrone (FAA).

The breadth of the team's consultant base will help ensure the aviation weather customer will be well-represented in DLAC2 development.

The DLAC2 team held its kickoff meeting on June 7-9, 2005 at the COMET facilities in Boulder, Colorado. The highlight of this meeting was a customer focus discussion featuring the team consultants from the user community. Presentations on TAF writing by NWS and the Meteorological Service of Canada also helped the team's brainstorming activities regarding course objectives and development strategies.

From this meeting, the team validated course objectives, identified specific topics and exercise examples, and developed a comprehensive course outline. Team coordination is done primarily through scheduled telcons where individual assignments can

be discussed, as well as issues and problems resolved.

DLAC1 was released when the entire course was completed. Early on, the DLAC2 team recognized the importance and value of making training available to NWS forecasters as quickly as possible. To this end, the team has decided to release the course incrementally, as each module is completed during the approximately two-year total development cycle. Currently the plans are to develop four lessons covering the following topics:

- The process of writing effective terminal forecasts
- Tools for terminal forecasting
- Resolving difficult terminal forecast issues
- The future of aviation forecasting

Each of the first three modules will include a set of exercises for different weather phenomena (convective, fog/stratus, winter weather and non-convective wind) in which the forecaster can apply the concepts and techniques learned. Cases from the military, Canada and Australia will also be collected so that the DLAC2 course can be adapted for the needs of these special audiences.

5. FUTURE PLANS

DLAC2 will be the next in a planned series of aviation training courses. The final component of the course is currently scheduled for release in February 2008. With the workload of delivering the live teletraining portions of the course, COMET will not begin designing and developing DLAC3 – *Convective Forecasting* until February 2008. The delivery date for the completed course is scheduled for December 2009. The schedule would be revised should an incremental release strategy be employed. Next in queue, DLAC4 will cover local aviation weather hazards forecasting with a planned release in March 2013.