Weather to Fly

National Weather Service Winter 2008-09

Introducing the New Weather to Fly Newsletter

Beth McNulty, Managing Editor, Aviation Services Branch

The *Weather to Fly* newsletter is being revived as a forum for aviation forecasters to share news of local achievements, summaries of technical tools and food for thought. I'll publish the newsletter whenever I have at least three short articles. If a single article will be as long as the usual three normally planned for newsletter, then I may elect to publish the one article alone. Some stories will originate from the Aviation Services Branch; the rest will be from you in the field.

The intent of the new *Weather to Fly* is to provide a *brief* look at aviation activities around the NWS. This newsletter will provide news about aviation weather, including the scientific advances, but not the actual scientific papers. Please provide links to supporting information when appropriate.

Weather to Fly is an internal publication for NWS staff only, providing a place to review ideas not ready for external users. I welcome articles that meet the following criteria:

- **Short:** 500 words, or less, in length; if you really need more, or the topic is complex, contact me for assistance
- **Mostly text:** No, or very limited, illustrations
- **Active:** Start with the subject
- **News:** Answers who, what, when, where, why and how. ♋

An Example of CWSU to WFO Collaboration

By Scott Birch, Western Region RAM

Each CWSU now has access to chat software: either 1-2Planet or another regionally supplied program, to improve aviation forecast collaboration between WFOs and CWSUs. This software if making a difference. Here's one recent example. During the week of October 6, forecast collaboration between the aviation meteorologist in WFO Salt Lake City and the meteorologist in CWSU Salt Lake City allowed staff to send a confident and consistent message to the FAA air traffic control tower. The air traffic control tower in Salt Lake City was able to avoid delays based on the NWS forecast. The IEMChat log from the event is excerpted below.

(8:52:24 AM) **zlc_cwsu:** Good morning SLC....do you think we'll stiffen up from the NW next 30min?
(8:54:35 AM) **WFO slc4:** Hi CWSU....I think we will continue out of the northwest, but I don't think it will get too much stronger until late morning.
(8:57:44 AM) **WFOslc4:** CWSU...TAF AMD coming out shortly.
(8:57:51 AM) **zlc_cwsu:** k....talked w/flow and traffic is good to switch between now and 1530. Tower is set up south currently...so a call to the tower may be beneficial to show our confidence that NW flow will persist and increase in a few hours. Thoughts?
(8:58:13 AM) **zlc_cwsu:** 10-4 on the TAF AMD
(8:58:48 AM) **WFO slc4:** CWSU...will coord w/ tower and let them know we're on same page.
(8:58:58 AM) **zlc_cwsu:** 10-4...thanks!

(9:08:14 AM) WFO slc7 [**nwsslc7@iemchat.com/Home**] entered the room.
(9:12:24 AM) **zlc_cwsu:** Thanks for the coord assistance.....with the NW orientation flow was able to talk with ZDV and cut down quite a few non-reportable delays (i.e., <15min). Flow just came over to pass on thanks, it helped them a lot. ♋

Localized Aviation MOS Program (LAMP) and NWS Aviation Forecasters

By Beth McNulty, Aviation Services Branch

Statistics for GFS LAMP became available on the Aviation Stats-on Demand page in early July 2008. A key point to remember when evaluating LAMP performance is that model guidance for operational impact by flight category affects only the initial forecast and the FM groups in the TAF. In contrast, aviation forecasters, in addition to providing the initial and FM groups, add TEMPO and PROB30 groups to the TAF.

A check of national and regional statistics since July 2008 shows that GFS LAMP guidance outperforms GFS MOS guidance, partly because LAMP refines MOS, as indicated by the name. For the first 6 hours of a TAF, LAMP statistics vary by approximately 5-7 percent from GFS MOS and forecasters. The GFS MOS statistics are usually 8-12 percent below the forecasters.

In a recent nationwide survey of TAF forecast periods valid from TAF +12 hours to TAF + 24 to 30 hours, model guidance for TAFs generally outperformed the forecasters. In VFR conditions, guidance outperformed forecasters by only 2-3 percent; however, for IFR conditions, all guidance performed 4 to 7 percent better than forecasters. This difference is why we concentrate on the early hours of the TAF—that's where we have the most effect. ♋

Aggressive and Creative Verification Ideas

By Beth McNulty, Aviation Services Branch

As the concept of a seamless National Airspace System (NAS) develops, it becomes critical to have consistent, meteorologically sound forecasts from the surface to the highest flight levels and horizontally across forecast regions.

One way to ensure NWS produces the highest quality, consistent aviation forecast product is through aggressive and creative verification. The scope of any Aviation verification program must range from the ground (TAF) to the highest flight levels (AIRMET/SIGMET). The idea is to verify the forecasts for the total airspace, unifying the results.

Verification programs look at forecast accuracy, precision and impact on the user. Present verification methods use a POD/FAR scheme (Stats-on-Demand), impacts (WITI), or a form of lead time. These methods typically tell the meteorologist how well they're interpreting the atmosphere, with little concern for the good forecast that has a big (not necessarily adverse) impact on the user. WITI is first generation attempt to include the user in the verification plan. Lead time verification is a first-generation attempt to determine, and verify, a continuous interval during which a forecast is issued, allowing for gradual refinement as the valid period becomes closer.

Your ideas are needed for the next generation of verification. The basic requirement is ease of use. It should be simple enough that a non-statistician can interpret the results. It should also be relevant to the scope of the aviation program. For example, what would a 4-D spiral verification system look like, and how would it evaluate aviation weather elements? Please send in your ideas for second-generation verification systems. ♋