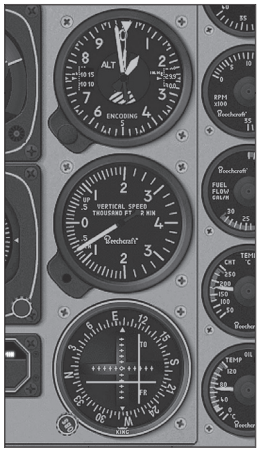
Volume 22 Number 1
January 2006

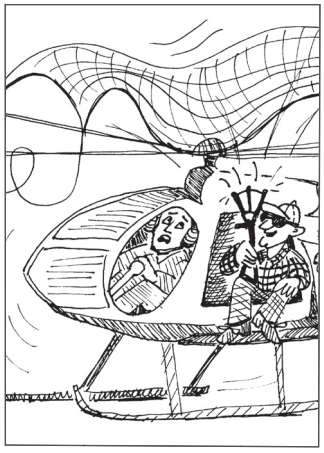
IFR

The Magazine for the Accomplished Pilot

What do I push now ... page 6



Night quiz ... page 12



Uh-oh ... page 14

THE END OF AIRMETS

AIRMETs and Area Forecasts are going the way of the A-N radio range, and their replacements don't require No-Doz to use.

by Scott C. Dennstaedt

Ever feel guilty that you don't read every line of the Area Forecast (FA) for your route? Fly in the clouds without guilt this coming winter. The FAA and the National Weather Service (NWS) will be phasing out Airmen's Meteorological Advisory (AIRMET) Sierra, Tango, and Zulu as well as the FA starting early 2006.

The AIRMET and the FA will be replaced once the new Graphical Forecast for Aviation (GFA) and the International Civil Aviation Organization (ICAO) General Aviation Meteorological Information (GAMET) become operational. The exact dates are yet to be announced.

Is this just a new name for an old product? Yes and no. There will be some new and improved stuff; however, the same data will still continue to exist with new rules, terminology, and format (both graphical and textual). If you are a graphically inclined person — and most of us are — I think you'll like the new GFA.

See the Difference

Visualizing the extent of AIRMETs, SIGMETs, and Convective SIGMETs is easier if you use the Aviation Weather Center (AWC) Aviation Digital Data Service (ADDS) AIRMETs and SIGMETs Java tool (http://adds.aviationweather.gov/airmets/java/). While it is nice to have AIRMETs graphically depicted on your computer or even on your cockpit display, the AIRMET and area forecast still have some shortcomings.

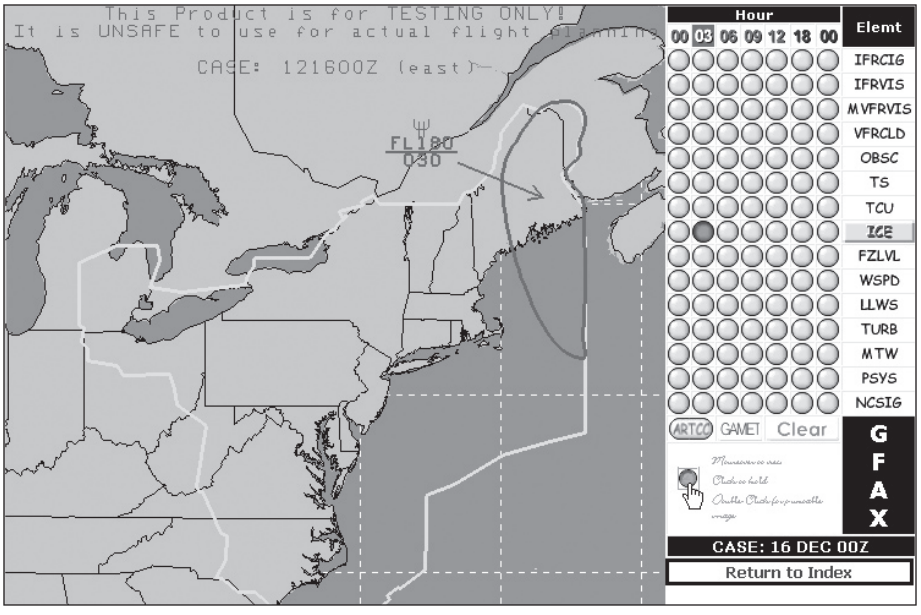
Here's what drives a pilot crazy: AIRMETs affect an area of at least 3000 square miles.

To review, the Area Forecast is an overview of weather conditions that could impact aviation operations. The FA comes out three times a day and contains a 12-hour forecast of VFR clouds and weather conditions. A six-hour categorical outlook for VFR, MVFR or IFR conditions follows the 12-hour forecast. The FA and AIRMET Sierra are used by pilots for en route weather and to determine forecasts for airports that do not have a terminal aerodrome forecast (TAF) issued.

The AIRMET provides notice of significant weather phenomena, issued as scheduled products, for icing and freezing level; turbulence, strong surface winds and low-level wind shear; and mountain obscuration or conditions requiring IFR. Significant weather described in the AIRMET must be at lower intensities that do not meet SIGMET criteria, such as moderate but not severe icing.

Here's what drives a pilot crazy: AIRMETs must affect or be forecast to affect an area of at least 3000 square miles at any one time. If the AIRMET covers a large area, it is highly likely that only a small portion of this total area would be affected at any one time during the six-hour period in which the AIRMET is in effect.

The NWS considers the FA and AIRMET as a "time-smear" forecast. That is, the AIRMET is a temporal and spatial smear that offers no precise guidance about where the adverse weather is at any given time. A time-smear forecast penalizes pilots by assuming that a specific weather condition is valid throughout the entire forecast period and throughout



Right: *Look for GFAs and GAMETs on the Aviation Digital Data Service (ADDS) with options to show individual elements (icing, turbulence, mountain waves, etc.) from zero to 24 hours in the future. This three-hour snapshot shows the potential for moderate icing from 3,000 feet to 18,000 feet over east-central Maine and coastal waters.*

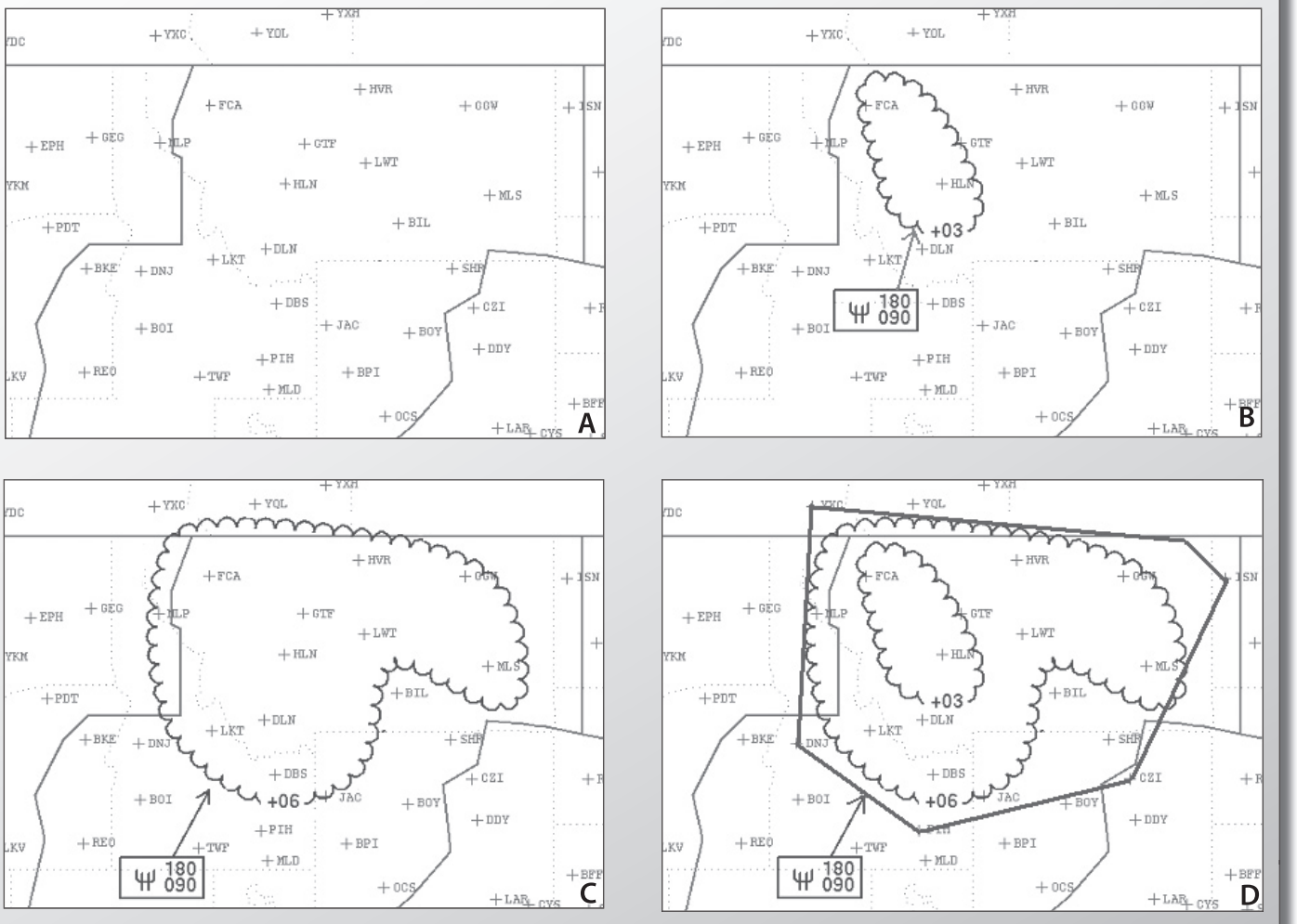
THE GFA AND RELIEF FROM AIRMET ZULU

Below are three GFA snapshots depicting potential icing conditions over western Montana.

The first snapshot (A) is the zero-hour forecast with no GFA forecast for icing, since no icing exists at that time. The next snapshot (B) at three hours shows the development of a mature area of moderate icing in western Montana. Snapshot (C) at six hours shows the mature area has grown to include most of Montana and northeastern Idaho.

The last image (D) shows the area delineated by the traditional AIRMET for this same six-hour period. For comparison, the precise GFA forecasts are shown inside the traditional AIRMET area. As you can see, the AIRMET is a temporal and spatial smear that offers no precise information about where the icing is at a given time.

While the GFA snapshots are more representative of the actual atmosphere, the textual GAMET will still provide a time-smeared forecast covering the same six-hour period as the AIRMET.



the entire forecast area. Finally, FAs and AIRMETs often use very broad-brush terms, which ultimately gives the pilot a great deal of apprehension and uncertainty, especially associated with AIRMET Zulu (icing) in the winter.

What about SIGMETs and Convective SIGMETs? For now, they will continue to stick around, as is. The SIGMET will be incorporated into the new products. The Convective SIGMET, on the other hand, is too ephemeral for a GFA or GAMET.

Behold the GFA

I'm for any product that shifts away from the traditional text-based paradigm. The GFA is primarily a graphical product and the GAMET is its textual sidekick. The GFA will be issued eight times a day or every three hours (0000 UTC, 0300 UTC, 0600 UTC, etc.). Each forecast will contain seven snapshots extending from 0-24 hours valid at three-hour intervals. The complete GFA covers a 24-hour period over the contiguous 48 United States and adjacent coastal waters. Vertically, it measures from

the surface up to and including 45,000 feet (FL450).

Here's an example. Assume a GFA is issued at 1200 UTC. It will be valid from 1200 UTC through 1200 UTC the following day. The seven snapshots will be valid at 1200 UTC (zero-hour), 1500 UTC (three-hour), 1800 UTC (six-hour), 2100 UTC (nine-hour), 0000 UTC (12-hour), 0300 UTC (15-hour), 0600 UTC (18-hour) and 1200 UTC (24-hour). Such logical issuance times means it's easy to know the relative age of each forecast.

Snapshots

Each GFA snapshot delineates adverse weather elements precisely in time and space. A text product such as an AIRMET is a six-hour time-smear forecast for adverse weather. Consequently, the AIRMET must emphasize the most conservative weather condition during that six-hour forecast window and provides no precise guidance where the adverse weather is occurring at any given time. The GFA snapshots can depict how adverse weather elements may move or grow with time and space, including the development and dissipation of these areas.

Will forecasters enlarge these smaller snapshot areas to be on the conservative side? There's nothing preventing a forecaster from creating a large adverse element within one of these snapshots. My guess, however, is that forecasters will give it their best shot and take some meteorological risk to give pilots a better perspective on where and when the adverse weather will occur. After all, the purpose of the product is to eliminate the spatial- and time-smear that frustrates pilots.

The GAMET

The GAMET is not a new product. Our friends abroad have used this product for many years. The GAMET is strictly a text product based on the GFA. It will include all of the information currently provided in the FA as well as the AIRMET. Once the GFA is finished, the GAMET will be automatically generated. The GAMET covers a six-hour period from the first three GFA snapshots. In other words, the GAMET is a time-smear product valid from the beginning of the first snapshot out to six hours. By definition, it will lose the resolution found in the GFA. Like it or not, this conforms to the ICAO practices of the GAMET.

Similar to the ICAO GAMET, the U.S. GAMET will have two sections. Section one will contain all of the information currently described by the AIRMETs. Section two will contain all of the information currently described by the FA.

Just like the introduction of any new forecast product, the GFA and GAMET will undergo a detailed review by the FAA before they are made operational for pilots. They will likely appear in experimental form on the ADDS Web site during this trial period. Samples of previous exercises are already available on the experimental AWC Web site.

Stay tuned. I am sure the new products will generate a few more future articles. Meanwhile, the time-smear FA and AIRMET — and the associated frustration and uncertainty — will be part of your preflight briefing.

Scott Dennstaedt is a meteorologist and CFI. He can be reached at scott@chesavtraining.com.

DON'T WRITE OFF TEXT YET

The text-based GAMET will be valid for six hours and will be automatically generated from the zero-, three-, and six-hour GFA snapshots and will encapsulate all of the information included in the traditional AIRMET and Area Forecast (FA) products. If the GFA is updated or amended, the GAMET is automatically reissued.

Consequently, the AIRMET and Area Forecast will be discontinued. GFAs and GAMETs will contain forecasts for the following hazardous weather:

- Surface visibility (IFR or MVFR)
- Mountain obscuration
- Significant weather (thunderstorms, sand/dust storms)
- Significant clouds (IFR ceilings, towering cumulus)
- Other clouds below 18,000 feet
- Icing and freezing level
- Turbulence, mountain waves, and low-level wind shear
- Strong surface wind (30 knots or greater)
- Location of pressure centers, fronts, and movements
- Location of volcanic eruption

Boston ARTCC (KZBW)

```
KZBW GAMET VALID 160000/160600 KKCI-
BOSTON FIR BLW FL450...ME NH VT MA CT RI NY LO AND CSTL WTRS

SECN I
SFC VIS: ME NH VT AND CSTL WTRS..BLW 3SM SN N OF 20NNE
PLB TO 20S MPV TO 30W MLT TO 11OSE BGR LN.

MT OBSC: ME NH NY VT..BOUNDED BY 40N PQI TO 40W BGR TO 40N HNK TO
30N SYR TO 60S YOW.

SIG CLD: ME NH VT..00/03 CIG BLW 010 N OF 20NNE PLB TO 20S MPV TO
30WSW MLT TO 11OSE BGR LN.
ME..03/06 CIG BLW 010 N OF 40NW PQI TO 20ESE HUL LN.
```