



International Civil Aviation Organization

**SEVENTEENTH MEETING OF THE METEOROLOGY  
SUB-GROUP (MET SG/17) OF APANPIRG**

Bangkok, Thailand, 13 – 16 May 2013

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**Agenda Item 10: Other MET issues (e.g., QMS, Competency & Training)**

**TOTAL OBSERVING CONCEPT FOR THE TAF**

(Presented by United States)

**SUMMARY**

This paper provides an overview of how States may utilize additional observing parameters to keep a TAF under continuous review in the event of missing or incomplete METARs. The goal being to safely increase availability of the TAF for the user community.

**1. Introduction**

1.1 Annex 3 – *Meteorological Service for International Air Navigation* provides the following for maintaining the TAF: “Meteorological offices preparing TAF shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly”; and “TAFs that cannot be kept under continuous review shall be cancelled”. Annex 3 also states that: “*Note.— Guidance on methods to keep TAF under continuous review is given in Chapter 3 of the Manual of Aeronautical Meteorological Practice (Doc 8896)*”.

1.2 Doc 8896 provides guidance on “continuous review”. TAFs should be kept under continuous review to enable the issuance of amendments as necessary. Annex 3 **does not explicitly require that complete METAR should be available to maintain such a review** (although many States do stipulate in their national regulations that METAR are required for this purpose). **It is recommended that other sources of meteorological information be used in absence of full METAR, e.g. weather radar data, observations from automatic weather stations, satellite images, etc.** TAF that cannot be kept under continuous review must be cancelled. So how can an aerodrome meteorological office utilize additional observational resources to keep a TAF valid under continuous review?

1.3 The purpose of this IP is to share with other States on how the United States has a practice that allows for maintaining the TAF even if there are elements missing in the METAR or should the METAR not be available for extraordinary reasons.

## 2. Discussion

2.1 With more and more automated observing platforms around the world, the reliance on a METAR only for keeping a TAF under review should be re-visited. For example when catastrophic events occur or simple communication issues arise, a METAR may not be available. How can we continue to keep that TAF under continuous review and therefore provide the airlines a quality TAF during these occasions?

2.2 Improving Satellite and modelling has moved to the forefront of decision assistance for the forecaster. Now forecasters may have additional assets, like access to web cams, high resolution modelling, satellite with fog and dust capabilities etc. With this in mind, the U.S. has been using a philosophy known as the *Total Observing Concept* (TOC) to try to achieve a balance between utilizing additional observational platforms and modelling data to enhance the continuous review of a TAF. And in particular, applying this philosophy to occasions when a METAR or portion of a METAR is not available. Below are some examples on why States might consider additional observational methods, rather than just a METAR.

- Catastrophic events - During the aftermath of Hurricane Katrina that affected the southern portion of the U.S. in 2005, many METARS in several U.S. states were missing due to no power, damaged and/or down communication lines. Forecasters that had coverage for those TAF sites utilized the TOC philosophy to keep TAFs under continuous review, thus aiding emergency responders, the Airlines and other aviation assets the ability to plan and operate.
- Software glitches - A newer ceilometer was installed at several airports, yet when a software issue was discovered, the new ceilometers were taken off line. Through several weeks of VFR weather, the meteorological office was able to employ the TOC and keep several TAFs valid via satellite and other surrounding data including model data. Typical occurrence of IFR weather for this time period was less than 10% of the time. To have cancelled the TAF for a week (or more) when the only issue was the missing ceilometer during VFR weather would have been very difficult for the user community.
- Web Cams and validating the METAR- Alaska has installed nearly 200 weather cameras; most at airports that already have automated weather platforms. These web cams provide the forecaster the ability to validate what the automated METAR platform is reporting. Why? Because the automated platforms do not always paint the true picture of reality with respect to what is happening at an airport. Example: Observation indicating a 600 foot ceiling, with visibility ranging from 3 to 6 miles with fog. Bottom line: IFR due to the ceiling. Satellite imagery indicates only SCT-BKN mid and high clouds. Weather camera confirms the observation of mid/high clouds with unrestricted visibility. It also shows one small patch, 1 Octa and no more, of stratus directly over the sensor. A current pilot report at the location also confirmed the field was VFR with only a small patch of fog/stratus. The meteorological office did not amend the TAF to show the IFR ceiling or reduced visibility. Bottom line: the automated observation alone did not represent the conditions at this airport.

2.3 Despite the TOC philosophy, it's understood there are times where the Ceiling and Visibility cannot be adequately defined by other observational platforms and therefore needs to be cancelled. However depending the on the weather regime and synoptic pattern, use of the TOC concept can allow States to extend dramatically the use of the TAF by keeping it under review via other methods.

**3. Conclusion**

3.1 While the METAR is considered the principal source of information to maintain the validity of the TAF it is not necessarily the only means to achieve this objective. The U.S. has instituted a practice that provides flexibility to the forecaster to maintain the validity of the TAF to support the end user; that being the operator. Furthermore, the implementation of this practice was done in coordination and consultation with NWS unions who needed to agree with this procedure but also in conjunction with U.S. operators who own the risk of operations to ensure the safety of flight.

3.2 It is the aim of this paper to share information with States that there are options available to maintain the TAF even when there is missing information in the METAR, but this practice has to be carefully thought out with regard to the resources available in each State and the skill level of the forecasters to use alternative sources of information to maintain the TAF under various scenarios.

**4. Action by the Meeting**

4.1 The meeting is invited to note the information contained in this paper.

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