International Civil Aviation Organization

NINTH MEETING OF THE COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND METEOROLOGY SUB-GROUP OF APANPIRG (CNS/MET SG/9)

Bangkok, Thailand, 11–15 July 2005

Agenda Item 12: MET support for operations at aerodromes and terminal areas

MET OBSERVATIONS AND REPORTS – ISSUES ADDRESSED BY AMOSSG

(Presented by Australia)

SUMMARY

This paper provides discussion on some of the issues addressed by the AMOSSG.

1. Background

1.1 The Aerodrome Meteorological Observing Systems Study Group (AMOSSG) met in April 2005 progressing a range of issues which have been considered by the CNS/MET SG in previous meetings. This paper discusses these issues. The discussion has been provided by the Australian member of the AMOSSG.

1.2 A full report of the meeting is available at -
http://www.icao.int/anb/SG/AMOSSG/

2. Discussion

2.1 Aerodrome boundary definition.

2.1.1 The MET Divisional Meeting (2002) in its Recommendation 2/3 e) referred thedefinition of the term “vicinity” back to AMOSSG because it considered that the use of the aerodrome reference point in the proposed definition could cause confusion at some aerodromes where this point had not been necessarily positioned centrally. This could have given rise to parts of the aerodrome being considered as within the definition of vicinity, particularly at larger aerodromes.

2.1.2 The AMOSSG/4 Meeting agreed that the benefits of increased clarity provided by the more complex definition were outweighed by the likely difficulties that would be experienced by pilots in interpretation where the definition would vary from one aerodrome to another.

2.1.3 One modification to the draft definition suggested by the group was to use “approximately 8 km” instead of “8 km” in order to cater for those large aerodromes where parts of the aerodrome were more than that distance from the aerodrome reference point.

2.1.4 The meeting agreed that the use of the term “approximately” should be taken to allow flexibility in the interpretation of what constituted the aerodrome boundaries in regard to meteorological observations and particularly for those aerodromes with complex terrain in its immediate surroundings.

2.1.5 The following amendment to Annex 3 was drafted:

> 4.4.2.5 **Recommendation.**— *In local routine and special reports and in METAR and SPECI ,the relevant intensity or, as appropriate, the proximity to the aerodrome of the reported present weather phenomena should be indicated as follows:*
> . . .
> *Vicinity VC*
> — ~~*Not at the aerodrome but not further away than approximately 8 km from the aerodrome perimeter —*~~*Between approximately 8 and 16 km of the aerodrome reference point and used only in METAR and SPECI with DS, SS, FG, FC, SH, PO, BLDU, BLSA, BLSN, TS and VA when not reported under 4.4.2.4.*

2.2 The use of automatic observing systems during non-operational and operational hours at international aerodromes.

2.2.1 The MET Divisional Meeting (2002) invited ICAO, in consultation with WMO to re-evaluate the requirements for present weather and recent weather taking into account the capacity of automatic systems. It also invited ICAO, in consultation with WMO to study the expansion of the use of automatic systems to include operational hours including the new concept of the “required level of meteorological services”.

2.2.2 It was recognized that the only significant shortfall of fully automatic systems in fulfilling the requirements of Annex 3 was in the reporting of certain present and recent weather elements. The need to specify a minimum requirement for reporting could be accommodated by upgrading to a Standard a subset of safety critical present weather elements to ensure that any use of fully automatic observing systems gave priority to those elements with the highest importance.

2.2.3 The group agreed that this minimum set should consist of the identification of precipitation and freezing precipitation (including intensity), fog, freezing fog and thunderstorms (including thunderstorms in the vicinity) and that the concept of the required level of service would be difficult to specify on a global basis as such requirements would likely vary significantly between States.

2.2.4 The group concluded that the use of fully automatic systems should be allowed during operational hours as determined by the MET authority to provide METAR/SPECI in consultation with users, i.e. the aerodromes for which it would be acceptable to use fully automatic observing systems during operational hours should be selected by the MET authority in consultation with the users concerned.

2.2.5 It was also noted that the use of fully automated observing systems to provide local reports would need further consideration and that the introduction of fully automatic observing systems might not be a suitable alternative to human observers in some regions. It was accepted that whilst the proposed changes to Annex 3 would enable States to make use of such systems it was not expected that their use would become a requirement and that States would maintain the option of using human observers for the foreseeable future.

2.3 SPECI requirement when half-hourly METAR are issued.

2.3.1 The Air Navigation Commission had noted that the practice described in the *Air Navigation Plan — European Region*, *Air Navigation Plan — European Region*, Volume I — *Basic ANP* (Doc 7754) that waived the requirement to disseminate SPECI when half-hourly METAR were disseminated was not in accordance with the provisions of Annex 3. It had been agreed by the Commission that this discrepancy should be resolved either by developing provisions in Annex 3 to incorporate or to cancel the European practice.

2.3.2 The group agreed that the current European practice had been in operation for many years without any significant operational, or safety, problems being generated. Furthermore, it was emphasized that the removal of the requirement for SPECI would not affect the requirement for the issuance of local special reports to be used by aircraft landing and taking off for operational decision-making. Therefore, the group agreed that, for the above reasons the most appropriate solution would be to incorporate the current European practice into Annex 3.

2.4 Alignment of TAF amendment criteria with the criteria used for the issuance of SPECIs.

2.4.1 The MET Divisional Meeting had invited ICAO, in consultation with WMO and user organizations, to consider the need for harmonizing the criteria for issuance of SPECI and those for including change groups in TAF.

2.4.2 AMOSSG/4 Meeting had agreed that there was an operational need to harmonize these two sets of criteria but had recognized that it was the SPECI criteria that represented the operational requirements.

2.4.3 The changes consisted of more detailed criteria for wind speed and visibility. The group also agreed that a requirement should be included in the SPECI criteria for the development or dissipation of cumulonimbus clouds which was a requirement for a change group in TAF. It was also agreed that no change should be made to the criteria in TAF relating to visibility as the values given coincided to this in SPECI for visibility for the higher values and RVR for the lower values.

2.4.4 The appropriate amendment to Annex 3 as part of draft Amendment 74 is:

2.3 Criteria for issuance of local special reports

. . .

2.3.2 **Recommendation**.— *SPECI should be issued whenever changes in accordance with the following criteria occur:*

. . .

g) when the onset, cessation or change in intensity of any of the following weather phenomena or combinations thereof occurs:
— freezing precipitation
— moderate or heavy precipitation (including showers thereof)
— thunderstorm (with precipitation)
— duststorm
— sandstorm;

h) when the onset or cessation of any of the following weather phenomena or combinations thereof occurs:
—- ice crystals
— freezing fog

— low drifting dust, sand or snow
— blowing dust, sand or snow
— thunderstorm (~~with or~~ without precipitation)
— squall
— funnel cloud (tornado or waterspout);

j) when the amount of a cloud layer below 450 m (1 500 ft) changes:

1) from ~~SKC~~ NSC, FEW or SCT to BKN or OVC; or

2) from BKN or OVC to ~~SKC~~ NSC, FEW or SCT; and

k) when cumulonimbus clouds develop or dissipate;

~~k~~ l) when the sky is obscured and the vertical visibility is improving and changes to or passes through one or more of the following values, or when the vertical visibility is deteriorating and passes through one or more of the following values: 30, 60, 150 or 300 m (100, 200, 500 or 1 000 ft).; and

m) any other criteria based on local aerodrome operating minima, as agreed between the meteorological authority and the operators.

Note.— Agreements for other criteria based on local aerodrome operating minima are tobe considered in parallel with agreements for similar criteria for the use of change groups and the amendment of TAF given in Appendix 5, 1.3.1 i).

1.3 Use of change groups

1.3.1 **Recommendation.**— *The criteria used for the inclusion of change groups in TAF or for the amendment of TAF should be based on the following:*

a) when the mean surface wind direction is forecast to change by 60 degrees or more, the mean speed before and/or after the change being 20 km/h (10 kt) or more;

b) when the mean surface wind speed is forecast to change by 20 km/h (10 kt) or more;

c) when the variation from the mean surface wind speed (gusts) is forecast to increase by 20 km/h (10 kt) or more, the mean speed before and/or after the change being 30 km/h (15 kt) or more;

;

~~d~~g) when the onset or cessation of any of the following weather phenomena or combinations thereof are forecast to begin or end:
— ice crystals
— freezing fog
— low drifting dust, sand or snow
— blowing dust, sand or snow
— thunderstorm (with or without precipitation)
— squall

— funnel cloud (tornado or waterspout);

~~f~~i) when the amount of a layer or mass of cloud below 450 m (1 500 ft) is forecast to change:
1) from ~~SKC~~ NSC, FEW or SCT to BKN or OVC; or
2) from BKN or OVC to ~~SKC~~ NSC, FEW or SCT;

~~g~~j) when cumulonimbus clouds area forecast to develop or dissipate;

i) any other criteria based on local aerodrome operating minima, as agreed between the meteorological authority and the operators.

Note.— Agreements for other criteria based on local aerodrome operating minima are to be considered in parallel with agreements for similar criteria for the issuance of SPECI given in Appendix 3,2.3.2 m)

2.5 TAF – validity periods, 30 hours and short term

2.5.1 The group was asked to consider a review of the Annex 3 provisions on the issuance and validity time for aerodrome forecasts (TAF) in order to meet new operational requirements for very long haul flights.

2.5.2 The group agreed to a requirement for the introduction of 30-hour TAF to be issued every 6 hours as a part of draft Amendment 74 to Annex 3. The proposed amendment includes the date in all appropriate time groups.

2.5.3 The group also determined there was no requirement for the issuance of more than one TAF at a particular aerodrome, i.e. an aerodrome should not have more than one valid TAF in operation at any one time. However, it was also noted that some problems had arisen for users with TAFs issued using a long lead time which effectively cancelled the previous TAF before the validity period of the new TAF had passed. Technically this left the aerodrome without a valid forecast until such time that the new TAF became valid.

2.5.4 The group agreed that a TAF should not be not cancelled by the issuance of a new TAF until the validity period of the new TAF had been reached. The group also agreed that there should be standard issuance times at 0000, 0600, 1200 and 1800 UTC for TAF of 12 hours duration or longer and additional issuance times of 0300, 0900, 1500 and 2100 UTC for TAF less than 12 hours.

2.5.5 With regard to minimum forecast period the group agreed the period of 9 hours should be removed to allow flexibility for States wishing to issue TAF for a short period eg. prior to the overnight closure of the aerodrome.

2.5.6 An appropriate amendment to Annex 3 as a part of draft Amendment 74 is as follows:

6.2.6 **Recommendation.**— *The period of validity of a routine TAF should be ~~not less than 9 hours nor~~ more than ~~24~~30 hours; th~~is~~e period of validity should be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours should be issued every 3 hours ~~and~~ at 0000, 0300,0600, 0900, 1200, 1500, 1800 and 2100 UTC. ~~Those~~ Routine TAF valid for 12 to ~~24~~30 hours should be issued every 6 hours at 0000, 0600, 1200 and 1800 UTC.*

6.2.7 Meteorological offices shall not issue more than one TAF covering the same period of validity.

3. Action

3.1 The meeting is invited to note the information provided in this paper.

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