



AERODROME METEOROLOGICAL OBSERVATION AND FORECAST STUDY GROUP (AMOFSG)

TENTH MEETING

Montréal, 17 to 19 June 2013

SUMMARY OF DISCUSSIONS

1. HISTORICAL

1.1 The tenth meeting of the Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG) was held at the Headquarters of the International Civil Aviation Organization (ICAO) in Montréal, Canada, 17 to 19 June 2013.

1.2 The meeting was opened by Mr. Greg Brock, Chief of the Meteorology Section of the Air Navigation Bureau of ICAO, who extended a warm welcome to all the participants. Mr. Brock emphasized that this tenth meeting of the AMOFSG was likely to be the last of the group prior to the convening of an ICAO Meteorology (MET) Divisional Meeting in July 2014, to be held in part conjointly with the Fifteenth Session of the World Meteorological Organization (WMO) Commission for Aeronautical Meteorology (CAeM-XV). For this reason, Mr. Brock underlined the need for the group to work efficiently during its three days of deliberations, with a strong emphasis placed on determining whether proposals arising from each of the topics to be addressed were of sufficient maturity so as to reduce or eliminate entirely the need for significant further work and/or a meeting ahead of the MET Divisional Meeting.

1.3 The names and contact details of the participants are listed in **Appendix A**. Mr. Bill Maynard was elected Chairman of the meeting. The meeting was served by the Acting Secretary of the AMOFSG, Mr. Greg Brock, Chief, Meteorology Section.

1.4 The meeting considered the following agenda items:

Agenda Item 1: Opening of the meeting;

Agenda Item 2: Election of Chairman;

Agenda Item 3: Adoption of working arrangements;

Agenda Item 4: Adoption of the agenda;

Agenda Item 5: Aerodrome observations;

Agenda Item 6: Forecasting at the aerodrome and in the terminal area and ATIS requirements;

Agenda Item 7: Deliverables;

Agenda Item 8: Any other business; and

Agenda Item 9: Closure of the meeting.

1.5 A list of study notes and information papers issued for the meeting is given in **Appendix B**.

2. **AGENDA ITEMS 1 TO 4: OPENING OF THE MEETING;
ELECTION OF CHAIRMAN; ADOPTION OF WORKING
ARRANGEMENTS; ADOPTION OF THE AGENDA**

2.1 These items are covered under Section 1: Historical.

3. **AGENDA ITEM 5: AERODROME OBSERVATIONS**

3.1 **General considerations**

3.1.1 The group recalled that it had formulated Actions Agreed 9/1 and 9/4 concerning proposed amendments to Annex 3 – *Meteorological Service for International Air Navigation* pertaining to the requirements for meteorological information by operators and the naming and location of meteorological offices, respectively. The group was pleased to learn that the Air Navigation Commission (ANC) had considered these two proposals during its review of draft Amendment 76 to Annex 3.

3.1.2 The group further recalled that it formulated Actions Agreed 9/2 and 9/3 concerning the development of ICAO and WMO guidance, respectively, supporting the siting and operation of meteorological instruments at aerodromes. The group was apprised that, as yet, it had not proven possible to undertake the required follow-up of these two actions due to their reliance on the outcomes of a reorganization of the WMO Integrated Global Observing System (WIGOS) programme of the World Meteorological Organization (WMO), and taking into account that WMO and the International Organization for Standardization (ISO) were undertaking the development of a joint initiative with respect to meteorological observing standards. Accordingly, the group agreed that Actions Agreed 9/2 and 9/3 should remain open pending further information in this regard, preferably by 31 January 2014 in time for the MET Divisional Meeting.

3.1.3 In respect of general matters related to aerodrome observations, the group considered three items under this agenda item, namely:

- a) the requirement for and use of unidentified precipitation (UP) in present weather reporting;
- b) missing values in local routine and special reports and METAR and SPECI; and

- c) selected criteria applicable to local routine and special reports and METAR and SPECI.

3.1.4 Concerning the requirement for and use of unidentified precipitation (UP) in present weather reporting, the group was informed that the Air Navigation Commission, during the fourth meeting of its 191st Session, when considering the final review of proposed amendment to Annex 3 (Amendment 76) as it pertained to the reporting of UP, had noted that the AMOFSG would be tasked to study the removal of the option to report UP in aerodrome observations in light of comments received in response to a proposed amendment to Appendix 3, Table A3-1 as it related to the present weather element of the template for local routine and special reports. A view had been expressed in response to State letter AN 10/1-12/8 that the continued use of UP was in contrast to the proposed amendment to Annex 3, 4.6.4.1, which had eliminated the words “and/or its vicinity” in the Standard as it related to the observation and reporting of present weather occurring at the aerodrome.

3.1.5 The group considered this matter with a view to determining the need to retain UP in present weather reporting, especially in the context of precipitation identification by automatic observing systems. In this regard, the group recalled that Annex 3, Appendix 3, 4.4.2.4 recommends that in automated local routine and special reports and METAR and SPECI, in addition to the precipitation types listed under 4.4.2.3 a), the abbreviation UP should be used for unidentified precipitation when the type of precipitation cannot be identified by the automatic observing system. A similar and related recommendation exists in Annex 3, Appendix 3, 4.8.1.3. Consequently, the group agreed that the abbreviation UP should be retained in Annex 3 provisions, in particular given the recommendation that automatic observing systems should report unidentified precipitation when the type of precipitation cannot be identified.

3.1.6 With regard to missing values in local routine and special reports and METAR and SPECI, the group recalled that Annex 3 recommends that *solidi (/)* should be used when the cloud type cannot be observed by an automatic observing system, and that when cumulonimbus clouds or towering cumulus clouds are detected by the automatic observing system and the cloud amount and the height of cloud base cannot be observed, the cloud amount and the height of cloud base should be replaced by *solidi* (Annex 3, Appendix 3, 4.5.4.5 a) and c) refers). Furthermore, Amendment 76 to Annex 3 recommends that in automated local routine and special reports and METAR and SPECI the present weather should be replaced by “//” when the present weather cannot be observed by the automatic observing system due to a temporary failure of the system/sensor (Annex 3, Appendix 3, 4.4.2.9 refers).

3.1.7 Taking note that Annex 3 does not make an explicit reference to the reporting of “missing values” beyond those outlined in 3.1.6 above, the group nevertheless gave due considerations on the need to report missing values in instances of a temporary failure of an automated observing system and/or its sensors. Moreover, the need to ensure that reports generated through the use of such automated observing systems would not be rejected downstream due to the presence of missing values represented by *solidi*. The group felt that this was particularly relevant given the impending transition to digital data representation of meteorological information supporting the future system-wide information management (SWIM) environment.

3.1.8 Notwithstanding the Annex 3 provisions that require, *inter alia*, a State to ensure that at its aeronautical meteorological stations its instruments and all their indicators are functioning correctly (Annex 3, 4.1.4 refers), and that States should therefore have sufficient backup capabilities in the event of a partial or total failure of an automated observing system, the group concurred that the “missing values” issue warranted particular attention in the context of a temporary failure of an automated observing system. The group affirmed that it was essential that an absolute minimum set of meteorological parameters included in local routine and special reports and METAR and SPECI must be available throughout the entire period of operation of the aerodrome and that a persistent failure, rather than a

temporary failure, to provide one or more meteorological parameter in the aerodrome observations/reports – specifically one or more of surface wind, visibility, runway visual range, present weather, clouds, air temperature and dew-point temperature and atmospheric pressure – would compromise an aerodrome’s ability to operate safely and efficiently.

3.1.9 Noting that, in the context of reports generated by fully automated observing systems, WMO Publication No. 306, Manual on Codes, Volume I.1 Part A – Alphanumeric Codes, requires that “[...] *The ICAO requirement is that all the specified elements shall be reported. However, if any element cannot be observed, the group in which it would have been encoded shall be replaced by the appropriate number of solidi. [...]*”, the group concurred that it was necessary to develop appropriate guidance in the *Manual on Automatic Meteorological Observing Systems at Aerodromes* (Doc 9837) that would align with this practice. Having completed its consideration on this issue, the group formulated the following action agreed accordingly:

Action Agreed 10/1 — Guidance on the representation of “missing values” in reports generated by an automated observing system due to a temporary failure

That, the **Secretary** develop appropriate guidance for inclusion in the *Manual on Automatic Meteorological Observing Systems at Aerodromes* (Doc 9837) which describes that in the event of a temporary failure of an automated observing system at an aerodrome that the meteorological parameter(s) that cannot be reported should be encoded using the appropriate number of solidi in the local routine and special reports and METAR and SPECI, in keeping with WMO Publication No. 306, Manual on Codes, Volume I.1 Part A – Alphanumeric Codes.

3.1.10 With regard to selected criteria applicable to local routine and special reports and METAR and SPECI, noting that Amendment 76 to Annex 3 introduces an amendment to Attachment C in this regard, the group concurred that further improvement to Attachment C was necessary as it pertains to time averaging and, more specifically, to the references to footnotes 7 and 8 within the surface wind criteria. Having considered the proposal, and having agreed that Attachment C warranted improvement, the group formulated the following action agreed accordingly:

RSPP Action Agreed 10/2 — Updating of Annex 3 relating to the application of time averaging criteria used in aerodrome local reports

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* concerning the application of time averaging criteria used in local routine reports and local special reports, as provided at **Appendix C** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

3.1.11 The group recalled that at its last meeting (AMOFSG/9) it had discussed matters relating to the naming and location of meteorological offices in Annex 3 (AMOFSG/9 Summary of Discussions, 3.1.9 refers) and that, through the formulation of Action Agreed 9/4, a draft amendment to Annex 3 was prepared to provide much needed clarity throughout the Annex.

3.1.12 The group was aware that Annex 3, Chapter 1 (Definitions) provides definitions for a range of meteorological offices and centres that provide meteorological service to international air navigation. Specifically, Annex 3 provides definitions for aerodrome meteorological office, meteorological office, tropical cyclone advisory centre, volcanic ash advisory centre and world area forecast centre. However, the group noted that, at present, a definition for a meteorological watch office did not yet exist in Annex 3, Chapter 1 despite the fact that meteorological watch offices were referred to extensively in Annex 3 and, to a lesser extent, in several other Annexes to the Convention on International Civil Aviation. Therefore, the group considered whether it was necessary to define the designation and function of a meteorological watch office (MWO) in Annex 3, Chapter 1 (Definitions).

3.1.13 The group concurred that it was necessary to introduce a definition for a MWO given, in particular, its extensive reference in Annex 3. In giving due consideration of the scope of the definition, including the intention of the term “specified en-route weather phenomena”, the group recognized that MWOs were required to issue SIGMET information for specified en-route weather phenomena (such as thunderstorm, icing and turbulence) as well as for other phenomena in the atmosphere (such as a volcanic ash cloud and a radioactive cloud). Consequently, whilst addressing a proposed definition for an MWO, the group discussed the scope of the existing definition of SIGMET information and agreed that the definition should be amended so that it aligned with the current requirement for MWOs to issue SIGMET information for specified en-route weather and other phenomena in the atmosphere. In the context of AIRMET information, for which a MWO would also be responsible for issuing on the basis of regional air navigation agreement, the group concurred that the existing definition of AIRMET information was sufficient since MWOs were only required to issue AIRMET information for specified en-route weather phenomena.

3.1.14 Having concluded its necessary consideration of a new definition for a MWO and an amended definition for SIGMET information, including a necessary consequential amendment to Annex 3, 7.1.1, the group formulated the following action agreed accordingly:

RSPP Action Agreed 10/3 — Updating of Annex 3 relating to meteorological watch offices and SIGMET information

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* that introduces a definition for a meteorological watch office and amends the definition of SIGMET information, as provided at **Appendix D** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

3.2 Wind reporting

3.2.1 In respect of wind reporting at the aerodrome, the group recalled that it had formulated Actions Agreed 9/7 and 9/11 concerning proposed amendments to Annex 3 pertaining to the reporting of gusts in local special reports and SPECI and the time-averaging period for evaluating gusts in local reports, respectively. The group was pleased to learn that the Air Navigation Commission had considered these two proposals during its review of draft Amendment 76 to Annex 3.

3.2.2 In respect of Action Agreed 9/8 formulated at the last meeting relating to the development of guidance and/or provisions to enable a more appropriate calculation of crosswind and tailwind components, the group noted that the ad hoc group (WG/1) has not yet been able to provide a report in this regard for the group’s consideration.

3.2.3 Nevertheless, the group was pleased to note additional information relating to the provision of crosswind and tailwind information that may assist WG/1 in this regard. In particular, the group noted the impact of crosswinds and tailwinds on aircraft and airport performance, the limitations of wind data provided today, a crosswind and headwind/tailwind component algorithm (with worked examples), aircraft and airport operational limits, and the effects of the wind data provided on operational limits. In these respects, the group considered a range of mitigating actions to overcome the exposure of an aircraft to unexpected crosswind and tailwind conditions, whether the provision of the actual crosswind for the runway should be provided to the flight crew in addition to surface wind speed and direction (thereby avoiding any miscalculation) and the viability of including gust information in the calculation of crosswind and tailwind.

3.2.4 The group noted that, due to the natural variability of the wind flow, it would be difficult to prevent all incidents associated with excessive crosswinds and tailwinds – the latter of which were of particular concern due to their association with runway excursion incidents and accidents at aerodromes. It was noted that additional pilot training may be required compared to the training already provided for crosswind events. The group reflected that the current ICAO provisions relating to the reporting of surface wind, and variations and gusts thereof, permitted a potentially large range of tolerance before the requirement for a special report would be triggered, and therefore that the potential to exceed the crosswind and tailwind tolerance (i.e. maxima) of an aircraft could exist based on the current Annex 3 provisions.

3.2.5 Being cognizant that such issues were important yet complex, as well as being long-standing, the group expressed a need to identify whether there was a clear user requirement for crosswind and headwind/tailwind information, including for gusts, to be introduced into local routine and special reports, particularly given the increasing use of more dynamic, real-time displays of wind information (including crosswind and headwind/tailwind information) available to air traffic controllers which could be conveyed, in real-time, to the pilot in command.

3.2.6 In a related matter, the group recalled that it had formulated Action Agreed 9/9 at its last meeting concerning the presentation of a statement from the AMOFSG to the thirteenth meeting of the Operations Panel Working Group of the Whole (WG/WHL/OPSP) suggesting that a modified version of a *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) amendment proposal (developed by the AMOFSG) be considered by the OPSP as well as seeking OPSP support and assistance in the development of ICAO provisions and/or guidance relating to the calculation of crosswind and tailwind components, including gusts. In this regard, the group was pleased to learn that the Secretary had brought the issues identified to the attention of the WG/WHL/OPSP as requested, and that the WG/WHL/OPSP had agreed to accommodate the considerations of the AMOFSG. Notwithstanding these positive developments, the group expressed some concern that it was nevertheless still rather unclear as to the continued interest of the OPSP in such matters, since no approaches had since been made to the AMOFSG for advice or input.

3.2.7 Taking the foregoing into account, the group concurred that it would be necessary to again consult, through the Secretariat, with the Operations Panel (OPSP) and additionally with the Aerodromes Panel (AP) on the user requirement for crosswind and headwind/tailwind information to be introduced into local routine and special reports. The group considered that the OPSP would likely have a vested interest in these matters given the recent coordination alluded to in 3.2.6 and that the AP would likely have a vested interest in view of the relevance of crosswinds and tailwinds in runway excursion incidents and accidents, and in the context of aerodrome design and obstacle induced turbulence.

3.2.8 The group agreed that, upon receiving affirmation from the OPSP and the AP that there was a requirement for such information to be provided by aerodrome meteorological offices, that it would then proceed with the development of a plan with which ICAO provisions and/or guidance pertaining to the meteorological capabilities to fulfil the user requirement could be established; but that until such time, it would be difficult to progress this issue. The group formulated the following action agreed accordingly:

Action Agreed 10/4 — User requirement for the reporting of crosswind and headwind/tailwind information, including for gusts, at aerodromes in local routine and special reports

That:

- a) the **Secretary** consult with the Operations Panel (OPSP) and the Aerodromes Panel (AP) on the user requirement for crosswind and headwind/tailwind information, including for gusts, to be introduced into local routine and special reports, and provide a report to the group by 31 July 2013; and
- b) upon completion of a) and on the basis that there is a user requirement identified, ad hoc group (WG/1) consisting of **Colin (Rapporteur), Hans-Rudi, Jan and PW** undertake the development of a plan for the establishment of ICAO provisions and/or guidance pertaining to the provision of crosswind and headwind/tailwind information, including for gusts, at aerodromes as described, and provide a report to the Secretary by 30 September 2013 for subsequent endorsement by the group through correspondence by 31 October 2013 so that the plan may be forwarded, as necessary, by the **Secretary** to the Meteorology Divisional Meeting in July 2014.

3.2.9 In respect of Action Agreed 9/10 formulated at the last meeting relating to the development of brief guidance material on the criteria used for obstacle induced wind disturbances to assist States in the planning of buildings at aerodromes, the group was pleased to note that Jan and PW had provided the requested draft guidance to the Secretariat for inclusion in the *Manual of Aeronautical Meteorological Practice* (Doc 8896).

3.3 **Visibility and RVR reporting**

3.3.1 In respect of visibility and runway visual range (RVR) reporting at the aerodrome, the group recalled that it had formulated Actions Agreed 9/12, 9/13, 9/15, 9/16 and 9/18 concerning proposed amendments to Annex 3 pertaining the following respectively:

- a) assessment height for runway visual range;
- b) SPECI criteria for runway visual range;
- c) use of the terms runway visual range and RVR;

- d) reporting of variations in RVR; and
- e) correction to editorial omissions.

In each of these five respects, the group was pleased to learn that the Air Navigation Commission had considered the proposals during its review of draft Amendment 76 to Annex 3.

3.3.2 The group further recalled that it formulated Action Agreed 9/14 concerning the development of guidance on the reporting of marked discontinuities in runway visual range (RVR) for inclusion in the *Manual of Runway Visual Range Observing and Reporting Practices* (Doc 9328). In this regard, the group was pleased to note that Michel and Jarmo, with the assistance of Hong Kong, China, had provided the requested draft guidance to the Secretariat for onward inclusion in Doc 9328.

3.3.3 In respect of Action Agreed 9/17 formulated at the last meeting concerning an investigation of the operating minima suggested in the *Manual of All-Weather Operations* (Doc 9365), the group was pleased to learn that the Secretary had undertaken the requested investigation, in coordination with the OPSP, and that Doc 9365 would be addressed accordingly.

3.3.4 In other matters relating to visibility and RVR reporting at the aerodrome, the group discussed the following matters:

- a) an inconsistency between visibility and a converted meteorological visibility (CMV) used in Doc 9365;
- b) the reporting of RVR in instances where there is rapidly varying visibility; and
- c) challenges posed in the use of runway light settings for RVR calculations.

3.3.5 In respect of an inconsistency between visibility and a converted meteorological visibility (CMV) used in Doc 9365, the group recalled that Annex 3, Chapter 1 (Definitions) provides a necessary definition of visibility for aeronautical purposes. In this regard, Annex 3 considers the presence of lights in the vicinity of 1,000 candelas. The group noted that the Third Edition (2013) of Doc 9365 contained a conversion of the reported (meteorological) visibility into a CMV, and that CMV was intended to be used as an equivalent to RVR when RVR was not available. However, the group considered that the conversion table used in Doc 9365 (specifically Table E-1) was not consistent with the definition of visibility based on 1,000 candelas, and was instead consistent with a visibility represented by meteorological optical range (MOR), which could lead to flight safety issues. Having given the matter the necessary consideration, the group formulate the following action agreed accordingly:

Action Agreed 10/5 — Identified inconsistency between visibility and a converted meteorological visibility in Doc 9365

That, the **Secretary** again bring to the attention of the Flight Operations Panel (OPSP) an identified inconsistency between the *Manual of All-Weather Operations* (Doc 9365) conversion of the reported visibility to an equivalent runway visual range/converted meteorological visibility (RVR/CMV) and the Annex 3 – *Meteorological Service for International Air Navigation* definition of visibility (for aeronautical purposes), with a view to aligning Doc 9365 guidance, including Table E-1 (*Conversion of*

meteorological visibility to RVR/CMV), with Annex 3 provisions in this regard.

3.3.6 In respect of the reporting of RVR in instances where there is rapidly varying visibility, the group recalled that Annex 3, Appendix 3, 4.3.6.6 provides a recommended practice relating to variations in RVR during the 10-minute period immediately preceding the observation when instrumented systems are used for the assessment of RVR in METAR and SPECI. Moreover, the group recalled that at its last meeting (AMOFSG/9) it had considered matters pertaining to the reporting of variations in RVR, in particular when SPECI are reported (AMOFSG/9 Summary of Discussions, 3.1.30, and Action Agreed 9/16 refer). Specifically, the group had agreed at AMOFSG/9 that the reporting of variations in RVR was redundant since any significant variations would already be captured by the use of a tendency, and that the reporting of variations was complex and likely to be confusing to the user. Based on a proposal stemming from AMOFSG/9, Amendment 76 to Annex 3 (applicable 14 November 2013) had consequently removed the requirement to report RVR variations.

3.3.7 In light of the views expressed at the last meeting, the group therefore gave careful consideration of a proposal to report (re-introduce) a minimum RVR value in METAR and SPECI *in addition to* the 10-minute average RVR and tendency, in instances where the visibility at the aerodrome was subject to rapid change, such as in the presence of fog or precipitation.

3.3.8 In view of the intended use of local routine and special reports and METAR and SPECI, the group, including user representatives, concluded that there was no requirement to report a minimum RVR value in METAR and SPECI *in addition to* the 10-minute average RVR and tendency, particularly given the local reporting options that would be available at the aerodrome (Annex 3, Appendix 3, 3.2.2 refers). Accordingly, the group agreed not to pursue this matter further.

3.3.9 In respect of challenges posed in the use of runway light settings for RVR calculations, the group considered that Annex 3 provisions (specifically Annex 3, Appendix 3, 4.3.5) and related guidance contained in Doc 9328 offered different interpretations of how runway light setting information should be used in the assessment of RVR. The group considered whether the Annex 3, Appendix 3, 4.3.5 provision should be brought into line with the guidance contained in Doc 9328, 6.5.6 in this regard, since it was considered that Doc 9328 offered a more suitable description of how runway light setting information should be used in the assessment of RVR in today's operating environment when compared with the referred Annex 3 provision.

3.3.10 Having given the matter the necessary consideration, including whether there existed an education and training issue in the context of how RVR is to be assessed under different runway light setting/intensity configurations, the group concurred that it was necessary to bring Annex 3, Appendix 3, 4.3.5 into alignment with Doc 9328. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/6 — Updating of Annex 3 relating to runway light intensity used in RVR assessment

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* concerning the runway light intensity used in runway visual range assessment, as provided at **Appendix E** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

3.4 Recent and present weather reporting

3.4.1 In respect of recent and present weather reporting, the group recalled that it had formulated Actions Agreed 9/20, 9/21, 9/22, 9/23 and 9/25 concerning proposed amendments to Annex 3 pertaining the following respectively:

- a) the need for reporting recent weather in local reports and METAR/SPECI where local special reports and SPECI are issued;
- b) criteria for moderate and heavy sandstorm/duststorm;
- c) the reporting of present weather by automatic observing systems;
- d) the inclusion of significant wave height in the supplementary information of METAR/SPECI; and
- e) the removal of “ice crystals” as a present weather element.

In each of these five respects, the group pleased to learn that the Air Navigation Commission had considered the proposals during its review of draft Amendment 76 to Annex 3.

3.4.2 The group further recalled that it had formulated Action Agreed 9/19 concerning the provision of a report on reporting issues encountered in Japan associated with volcanic ash and its deposition at aerodromes, with a view to assisting the Runway Friction Task Force (FTF) (of the Aerodromes Panel) in the follow-up of this issue associated with runway contamination.

3.4.3 The group recalled that the fifth meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/5, 15 to 19 March 2010, Lima), had noted that the AMOFSG was expected to consider the need to include a new present weather descriptor for volcanic ash fall out and recent volcanic ash fall out descriptor in METAR and SPECI and, if needed, a runway state group that enables volcanic ash deposition to be reported in METAR and SPECI as supplementary information (IAVWOPSG/5 Report, 5.2.4 refers). The group further recalled that as part of Amendment 75 to Annex 3 (applicable November 2010), volcanic ash deposition was introduced as one of the phenomena for which an aerodrome warning should be issued and also that Amendment 36 to Annex 15 — *Aeronautical Information Services* (applicable November 2010) had introduced a requirement for volcanic ash deposition to be reported in a NOTAM message (Annex 15, 5.1.1.1 refers).

3.4.4 The group reviewed a necessary report which had been prepared outlining the current observation procedures employed by the Japan Meteorological Agency (JMA) when volcanic ash has fallen or is falling at the aerodrome. The group noted that the report on experiences in Japan highlighted several observational and operational challenges – such as the difficulties that may be encountered at night to determine volcanic ash deposition, especially when viewing may be obscured by meteorological cloud, and the influence of deposited volcanic ash on aircraft operations and system performance. Additionally, the group was apprised of volcanic ash dispersion chart forecast information that the JMA provides on an experimental basis to domestic airlines for certain volcanoes. The intention of this experimental information was to aid air traffic controllers and airline dispatchers, as well as flight crew, in their decision making process, particularly in the context of hazard mitigation and the risk of encountering volcanic ash at and around aerodromes.

3.4.5 In view of the foregoing, the group gave careful consideration as to possible next steps in the (meteorological) reporting of volcanic ash deposition at aerodromes prior to the development of ICAO provisions and/or guidance.

3.4.6 Notwithstanding the potential benefit for users to be gained from knowing when volcanic ash is depositing and/or has recently deposited at the aerodrome, through the use of a suitably assigned present and/or recent weather group, the group did not reach a consensus that such recent and present weather groups should be introduced, in particular given the observational challenges that exist (as highlighted in the report by Japan), the available NOTAM reporting requirements, and given that other meteorological phenomena such as snow and hail may lead to accumulations on the aerodrome (and consequently potentially hazardous conditions on the runway) but that they do not have equivalent recent and present weather deposition identifiers apart from in the context of the runway state group (snow, ice, etc.).

3.4.7 Appreciating the hazards posed by volcanic ash deposition on runways and taxiways to continued safe operations at the aerodrome, the group concurred that a fuller consideration of the need to introduce a runway state group as supplementary information in METAR and SPECI relating to volcanic ash deposition was necessary. In this regard, the group requested that clarification be sought from the FTF as to whether volcanic ash deposition was part of the FTF's on-going consideration of runway contaminant reporting and whether or not the FTF considered that a new runway state group in METAR and SPECI for volcanic ash deposition was warranted. The group formulated the following action agreed accordingly:

Action Agreed 10/7 — Need for the reporting of volcanic ash deposition as supplementary information in METAR and SPECI

That:

- a) the **Secretary** consult with the Runway Friction Task Force (FTF) of the Aerodromes Panel (AP) on the need for the reporting of volcanic ash deposition as supplementary information METAR and SPECI, and provide a report to the group by 31 July 2013; and
- b) upon completion of a) and on the basis that there is a user requirement identified, ad hoc group (WG/2) consisting of **Colin (Rapporteur), Hans-Rudi, Jun, Peter, Steve** undertake the development of a plan for the establishment of ICAO provisions and/or guidance pertaining to the provision of volcanic ash deposition reporting at aerodromes as described, and provide a report to the Secretary by 30 September 2013 for subsequent endorsement by the group through correspondence by 31 October 2013 so that at the plan may be forwarded, as necessary, by the **Secretary** to the Meteorology Divisional Meeting in July 2014.

3.4.8 In respect of Action Agreed 9/26 formulated at the last meeting concerning the establishment of user requirements for the reporting of intermittent precipitation and showers, the group

was pleased to learn that an ad hoc group (WG/2) had necessarily prepared a report which addressed the following four options:

- 1) continue to report showers (SH) in manual and automated reports based on classical interpretation;
- 2) continue to report SH in manual and automated reports but with the latter based on a new definition of ‘intermittent’;
- 3) remove the requirements to report SH in automated reports; and
- 4) remove the requirement to report SH entirely.

3.4.9 The group noted that, having considered the advantages and disadvantages of each of the four options, the WG/2 had reached unanimous support for Option 3 – i.e. that the requirement to report showers (SH) in automated reports should be removed. There were a number of reasons for this view, primarily including a recognition that the classical definition of showers was not widely achievable for use in automated reports and a perceived lack of value to report SH on a definition of “intermittent precipitation”.

3.4.10 The group was apprised that from an industry perspective, whilst the characteristic of precipitation remained valuable to know in terms of the convective nature of the sky, there was a recognition that some automated observing systems could not readily detect specific cloud types and that the algorithms used by such systems tended to characterize the precipitation according to whether the precipitation was continuous or intermittent (the latter promoting the use of SH).

3.4.11 On this basis, and notwithstanding expected future advances in the technical capabilities of automated observing systems, the group, including the International Air Transport Association (IATA) and the International Federation of Airline Pilots’ Associations (IFALPA), concurred that, at the present time, the definition of SH as intermittent precipitation in automated reports (rather than the classical definition) was not realistic and that the requirement should therefore be removed from automated reports entirely from Annex 3 when showers cannot be determined based upon a method that takes account of the presence of convective cloud. The group noted that the *Manual on Automatic Meteorological Observing Systems at Aerodromes* (Doc 9837) would require consequential attention in this regard. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/8 — Updating of Annex 3 relating to the reporting of showers in automated local routine and special reports and METAR and SPECI

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* concerning the reporting of showers in automated local routine and special reports and METAR and SPECI whereby when showers cannot be determined based upon a method that takes account of the presence of convective cloud, the precipitation should not be characterized by showers (SH), as provided at **Appendix F** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

3.4.12 In respect of Action Agreed 9/27 formulated at the last meeting concerning the development of brief guidance material on the reporting of undetected cloud where thunderstorms are detected in the vicinity by an automatic observing system at the aerodrome, the group noted that the follow-up was pending but that the requested draft guidance was expected to be provided to the Secretariat by 31 July 2013 for inclusion in Doc 9837.

3.4.13 In other matters relating to recent and present weather reporting at the aerodrome, the group considered a list of applicable combinations of recent and present weather codes – in terms of the type and characteristic and qualified with respect to intensity – which could be used in local routine and special reports, METAR/SPECI and (for present weather codes only) TAF as contained in Annex 3. Noting the forthcoming applicability of Amendment 76 to Annex 3 which enables the exchange of METAR/SPECI and TAF (as well as SIGMET) in a digital form by States in a position to do so, the group concurred that the list is essential in the development and quality control (including validation) of, in particular, METAR/SPECI and TAF in a digital form using XML/GML.

3.4.14 The group undertook a review of a list of applicable combinations of recent and present weather codes, including an assessment of their accuracy. The group agreed that the current listing was of sufficient accuracy to be incorporated into the on-going work of the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT) and the World Meteorological Organization (WMO) Task Team on Aviation XML (TT-Av-XML), but that there would be a need to consider the maintenance of such a listing going forwards through existing working mechanisms, and to examine which present weather codes can actually be observed operationally (in a manual sense and an automated sense).

3.4.15 Having completed its review, the group formulated the following action agreed accordingly:

Action Agreed 10/9 — List of defined recent and present weather code combinations

That, the list of defined recent and present weather code combinations, as provided at **Appendix G** to this Summary of Discussions, be forwarded by the **Secretary** to the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT) and the World Meteorological Organization (WMO) Task Team on Aviation XML (TT-Av-XML) by 30 June 2013 so that they may be incorporated in the development of specifications/schema for METAR/SPECI and TAF in a digital form using XML/GML.

3.4.16 In addition to the foregoing, the review of the list of applicable combinations of recent weather revealed an error in Annex 3, Appendix 3, Table A3-1 (*Template for the local routine (MET REPORT) and local special (SPECIAL) reports*) and Table A3-2 (*Template for METAR and SPECI*). By applying strictly the principle that only one weather phenomena is permissible per recent weather group (up to a maximum of three recent weather groups) in the supplementary information of local routine and special reports and METAR and SPECI, it was noted that Tables A3-1 and A3-2 currently include the combination “RERASN” which was not allowed. The group agreed that Tables A3-1 and A3-2 should be amended accordingly. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/10 — Updating of Annex 3 relating to recent weather in local routine and special reports and METAR and SPECI

That, the **Secretary** develop a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* concerning Table A3-1 and Table A3-2 that ensures that only one weather phenomena is represented per recent weather group in the supplementary information of local routine and special reports and METAR and SPECI, and provide a report to the group by 30 September 2013 for subsequent endorsement, as appropriate, through correspondence by 31 October 2013 so that the proposal can be forwarded, as necessary, by the **Secretary** as part of draft Amendment 77 to Annex 3.

3.5 Cloud reporting

3.5.1 In respect of cloud reporting at the aerodrome, the group recalled that it formulated Actions Agreed 9/6, 9/28 and 9/29 concerning proposed amendments to Annex 3 pertaining the following issues respectively:

- a) the reporting domain for the reporting of cloud in local reports;
- b) the formatting of cloud information in local reports and METAR/SPECI; and
- c) the updates of the footnotes in Tables A3-1 and A3-2 of Annex 3.

In each of these three respects, the group was pleased to learn that the Air Navigation Commission had considered the proposals during its review of draft Amendment 76 to Annex 3.

3.5.2 The group further recalled that it had formulated Action Agreed 9/5 concerning the development of guidance material on the use and benefits of an array of ceilometers at aerodromes. In this regard, the group was apprised that following a review of current best practices there was only really a need to concentrate the development of the guidance for those instances where the terrain proximal to the aerodrome was non-uniform – e.g. an aerodrome surrounded on some or all sides by mountainous terrain – since the degree of consistency between automated and human observations was lower in these instances when compared with aerodrome surrounded by more uniform terrain. The group noted that the referred guidance was accordingly expected to be developed at the earliest opportunity so that it could be provided to the Secretariat for inclusion in Doc 8896 and/or Doc 9837.

3.5.3 In respect of Action Agreed 9/24 formulated at the last meeting concerning the provision of reports from members of the group on the operational requirements for the reporting of vertical visibility in local routine and special reports and METAR/SPECI, the group was pleased to learn that several reports had been developed for the consideration of the group. The reports addressed the users requirement for vertical visibility in METAR/SPECI, the (lack of an) operational requirement for vertical visibility reporting in France and Australia, and the operational considerations with respect to vertical visibility reporting during weather events such as fog and snow.

3.5.4 Concerning the users perspective, the group noted that IATA did not have any objection to the elimination of the requirement for vertical visibility reporting *provided that* the information in the form of a cloud base as a decision height was provided in combination with overcast (OVC) and the appropriate height in terms of vertical visibility is applied – e.g. VV005 would be reported instead as OVC005. This view was supported by IFALPA. The group noted that operational experiences in several States (members of the group) had resulted in the use of an equivalent height of cloud base as an alternative to vertical visibility, which was consistent with the users expressed position.

3.5.5 Appreciating that the reporting of vertical visibility by a human observer was difficult due to the lack of a vertical visual reference and that there was not a clear and unambiguous definition of vertical visibility that could be used for an automated meteorological observing system (such as a ceilometer), the group gave careful consideration as to whether vertical visibility in local routine and special reports and METAR/SPECI should be eliminated, taking into account that the users required information to support a decision height determination. The group did not reach a consensus on this issue. Notwithstanding the views expressed in support of the removal of the requirement for vertical visibility reporting, concern was equally expressed insofar as the potential to introduce misleading information through the use of, for example, OVC005 as a replacement for VV005.

3.5.6 Noting that comprehensive comparison studies on vertical visibility with respect to cloud base and present weather (such as fog) had identified that further improvements were necessary, especially with respect to the enhancement of automated meteorological observing systems and their associated algorithms and with respect to the quality of manual observations of vertical visibility through training, the group concurred that it would be desirable to look to improve the guidance related to the reporting of vertical visibility. Moreover, the group recalled that Annex 3, 4.6.5 requires, *inter alia*, that when the sky is obscured – i.e. when the cloud base cannot be determined – the vertical visibility is required to be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. It was also noted that the any potential future replacement of vertical visibility (VVnnn) by an overcast cloud amount (OVCnnn) would have implications for the production of aerodrome forecasts (TAF).

3.5.7 In view of the foregoing, the group formulated the following action agreed accordingly:

Action Agreed 10/11 — Guidance on the reporting of vertical visibility

That, the **Secretary** improve the guidance contained in the *Manual of Aeronautical Meteorological Practice* (Doc 8896) and the *Manual on Automatic Meteorological Observing Systems at Aerodromes* (Doc 9837), as necessary, relating to the reporting of vertical visibility in local routine and special reports and METAR and SPECI.

3.5.8 In other matters relating to cloud reporting at the aerodrome, the group considered the siting of ceilometers at aerodromes. The group recalled that Amendment 76 to Annex 3, applicable on 14 November 2013, amended the recommended practice at 4.6.5.2 such that cloud observations for local routine and special reports should be representative of the runway threshold(s) in use instead of the approach area. Moreover, Annex 3, Appendix 3, 4.5.1 (unchanged through Amendment 76) recommended that when instrumented systems are used for the measurement of the cloud amount and the height of cloud base, representative observations should be obtained by the use of sensors appropriately sited, and that for local routine and special reports, in the case of aerodromes with precision approach runways, sensors for cloud amount and height of cloud base should be sited to give the best practicable

indications of these parameters at the middle marker site of the instrument landing system or, at aerodromes where a middle marker beacon is not used, at a distance of 900 to 1 200 m (3 000 to 4 000 ft) from the landing threshold at the approach end of the runway.

3.5.9 The group appreciated that an increasing number of aerodromes no longer have a middle marker, and that the area of land located 900 m to 1200 m from the landing threshold may, in some instances, be beyond the aerodrome boundary making a ceilometer installation impracticable or very costly in these instances. Moreover, the group was informed that some aerodromes were reportedly wishing to have more flexibility in the siting of ceilometers. The group concurred that the siting of the ceilometer needs to be determined such that the ceilometer measurements were representative for the landing threshold.

3.5.10 Taking the foregoing into account, the group concurred that Annex 3, Appendix 3, 4.5.1 concerning the siting of instrumented systems and sensors used for the measurement of the cloud amount and the height of cloud base at the aerodrome merited amendment. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/12 — Updating of Annex 3 relating to the siting of instrumented systems used for the measurement of cloud amount and height of cloud base at aerodromes

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* concerning the siting of instrumented systems used for the measurement of the cloud amount and the height of the cloud base at aerodromes, as provided at **Appendix H** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

4. AGENDA ITEM 6: FORECASTING AT THE AERODROME AND IN THE TERMINAL AREA AND ATIS REQUIREMENTS

4.1 Forecasting at the aerodrome and in the terminal area

4.1.1 The group recalled that it had formulated Actions Agreed 9/31 and 9/34 concerning proposed amendments to Annex 3 – *Meteorological Service for International Air Navigation* pertaining to the issuance of TAF less than one hour before its period of validity commences and the optional issuance of take-off forecasts respectively. The group was pleased to learn that the Air Navigation Commission had considered these two proposals during its review of draft Amendment 76 to Annex 3.

4.1.2 The group further recalled that it had formulated Action Agreed 9/30 concerning a review of guidance on the continuous monitoring of TAF in the *Manual of Aeronautical Meteorological Practice* (Doc 8896) in view of determining the need for updates thereto, as necessary. In this regard, the group was pleased to learn that an ad hoc group (WG/3) had prepared a necessary report which detailed the national practices employed by several States (members of the group) to keep a TAF under continuous review. In this regard, the group noted that the WG/3 did not reach a consensus with respect to the need to revise the associated guidance contained in Doc 8896. The group took note of this position and concurred that no further action was required in this respect at the present time.

4.1.3 In respect of Action Agreed 9/32 formulated at the last meeting concerning the development of brief guidance material for inclusion in Doc 8896 on the period of validity of an amended TAF, the group pleased to learn that the Secretariat was intending to include such guidance in the forthcoming edition of Doc 8896.

4.1.4 In respect of Action Agreed 9/33 formulated at the last meeting concerning a report on progress made during foreseen trials of trend forecasts in the Netherlands, including details on user requirements, the group was apprised that there was a lack of progress. The group accordingly agreed that Action Agreed 9/33 could be closed due to a lack of progress.

4.1.5 In respect of Action Agreed 9/38 formulated at the last meeting concerning guidance on the provision of winds aloft information, the group was pleased to learn that the Secretary ensured that guidance material developed in the EUR Region in this regard was placed on the AMOFSG website in November 2011.

4.2 ATIS requirements

4.2.1 The group recalled that it had formulated Action Agreed 9/37 concerning an assessment of Annex 11 – *Air Traffic Services* regarding ATIS. In this regard, the group noted that the requested assessment had not yet been undertaken by the Secretariat in view of an intention to undertake a more all-encompassing review of Annex 11 provisions and *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) procedures in the context of evolving Annex 3 provisions relating to air traffic services units and air traffic management requirements for meteorological information.

4.2.2 No other items relating to ATIS requirements were proposed for the consideration of the group.

4.3 Other related considerations

4.3.1 The group recalled that it had formulated Action Agreed 9/35 concerning the development of guidance material related to the representation of midnight in meteorological products. In this regard, the group was pleased to learn that the Secretariat was intending to include such guidance in the forthcoming edition of Doc 8896.

4.3.2 In a related matter, taking into account that Annex 5 – *Units of Measurement to be used in Air and Ground Operations*, Attachment E, paragraph 3 (Presentation of time) states:

3.2 Hours should be represented by two digits from 00 to 23 in the 24-hour timekeeping system and may be followed either by decimal fractions of an hour or by minutes and seconds. [...]

The group considered whether Annex 3 should be accordingly aligned with Annex 5 as it relates to the representation of midnight in aerodrome forecasts (TAF). The group noted that the a change to represent midnight as “00” in TAF in place of “24” (e.g. “1700” in place of “1624”) would only concern Annex 3, Appendix 5, Table A5-1 (Template for TAF) and the accompanying Example A5-1 (TAF) and Example A5-2 (Cancellation of TAF) and that there would be no need to amend other provisions contained of Annex 3 since midnight in the notation “24” was not expressed.

4.3.3 Notwithstanding that there may be a cost associated with aligning the representation of midnight in meteorological products (including TAF) from “24” notation to “00” notation, the group underlined that it was essential that Annex 3 provisions aligned with Annex 5 in this regard, particularly in light of the transition to digital information exchange in the future SWIM environment where it would be vital that the representation of the date/time group and other parameters and qualifiers in meteorological information was consistent with the other forms of aeronautical information and, more specifically, consistent with Annex 5.

4.3.4 Having considered this proposal, taking into account the guidance to be included in Doc 8896 concerning the representation of midnight in aeronautical meteorological products and noting that only Annex 3, Appendix 5 would be required to align with Annex 5, the group formulated the following action agreed accordingly:

RSPP Action Agreed 10/13 — Updating of Annex 3 relating to the representation of midnight in TAF

That, a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* whereby midnight is represented in TAF using “00” notation rather than “24” notation, ensuring consistency with Annex 5 – *Units of Measurement to be used in Air and Ground Operations*, Attachment E, paragraph 3 (Presentation of time), as provided at **Appendix I** to this Summary of Discussions, be forwarded by the **Secretary** as part of draft Amendment 77 to Annex 3.

4.3.5 The group further recalled that it had formulated Action Agreed 9/36 concerning the formation of a project team relating to meteorological aeronautical requirements and information exchange. In this regard, the group was pleased to note that a Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT) had been formed in late 2011 and had since been engaged in assisting the Secretariat in the principle matters described – those relating to aeronautical meteorological requirements of air traffic management and meteorological information exchange in digital form.

4.3.6 In other matters, the group considered the need to upgrade several recommended practices within Annex 3 to the status of Standards, in view of determining whether global commonality could be achieved with certain provisions. Specifically, the group considered the need to upgrade Annex 3 provisions as they relate to the demonstration of compliance of a quality system applied by an audit (Chapter 2, 2.2.7), the agreement between the air traffic service authorities and meteorological authorities (Chapter 4, 4.2), observations and reports of volcanic activity (Chapter 4, 4.8), the reporting of clouds in local routine and special reports and in METAR and SPECI (Appendix 3, 4.5.4.3), and cloud and change groups in aerodrome forecasts (TAF) (Appendix 5, 1.2.4 and 1.3.3 to 1.3.6 inclusive).

4.3.7 An exchange of views was expressed during the consideration of these proposals, and the group agreed that more thorough consideration was necessary through the formation of an ad-hoc group. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/14 — Updating of Annex 3 relating to meteorological service provisions

That:

- a) an ad hoc group (WG/3) consisting of **Bill (Rapporteur), Colin, Steve, Sue, Jun, Dennis** undertake a review of the following Annex 3 – *Meteorological Service for International Air Navigation* provisions in view of determining which, if any, warrant upgrading from a recommended practice to a Standard:

- 1) Chapter 2, 2.2.7 (2.2.6 in the 18th Edition of Annex 3);
- 2) Chapter 4, 4.2;
- 3) Chapter 4, 4.8;
- 4) Appendix 3, 4.5.4.3; and
- 5) Appendix 5, 1.2.4 and 1.3.3 to 1.3.6 inclusive;

and provide a report accordingly to the Secretary by 30 September 2013;

and,

- b) if required, the **Secretary** prepare a proposal to modify Annex 3 for subsequent endorsement of the group, as appropriate, through correspondence by 31 October 2013 so that the proposal can be forwarded, as necessary, by the **Secretary** as part of draft Amendment 77 to Annex 3.

4.3.8 Closely related to the above considerations, the group supported a call for a longer term holistic review of all the provisions in Annex 3 that may warrant upgrading from recommended practices to Standards, in view of fostering a more globally harmonized, standardized approach to meteorological service provision to international air navigation. The group concurred that whilst the provisions as described in 4.3.6 above may, in some instances, warrant upgrading in full or in part to the status of a Standard in the short to medium term, in the longer term the handling of such aspects should not be done in isolation and that a holistic approach would prove beneficial for meteorological service providers and users alike.

4.3.9 The group gave due consideration of some “emerging issues” in the context of meteorological service provision, such as the on-going maintenance of traditional meteorological products (for example, TAF) in light of the emergence of new forms of meteorological data representation in the future SWIM environment. The group concurred that in the future information-rich environment of SWIM, how traditional meteorological products such as TAF are provided and used going forwards would likely change, and that this would bring with it evolving training needs – both on the part of the meteorological service provider and on the part of the user.

4.3.10 The group reflected that having quality-assured meteorological information in the future SWIM environment would be of the utmost importance, to enable the users to have the assurance that the meteorological information that they are using for decision support has attained at least a minimum level of quality. The group briefly discussed whether meteorological service provision may, at some point, need to accommodate safety management system principles; however, the group felt that this required further reflection.

5. **AGENDA ITEM 7: DELIVERABLES**

5.1 The group noted that the work programme of the group, in the form of deliverables, would be updated, as necessary, by the Secretary upon the conclusion of the meeting so that it corresponds with the progress made by the group during the meeting in respect of each deliverable.

5.2 Noting that, since the last meeting, deliverables AMOFSG/9 and AMOFSG/10 were now part of the on-going work of the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT), the group appreciate that these two specific tasks would be deleted from the work programme of the AMOFSG.

5.3 The group recalled further that the work programme represented a “snapshot” since it was being kept up-to-date by the Secretary to reflect the progress made by the group and action taken by the Air Navigation Commission, and that it was available on the AMOFSG website¹.

6. **AGENDA ITEM 8: ANY OTHER BUSINESS**

6.1 **Required transit times of meteorological information**

6.1.1 The group was informed that at the Fifty-Fourth Meeting of the European Air Navigation Planning Group (EANPG/54, 3 to 6 December 2013, Paris), the EANPG had formulated Conclusion 54/29 concerning the need to undertake a review of the required transit times of meteorological information.

6.1.2 The group was aware that Annex 3 – *Meteorological Service for International Air Navigation*, Appendix 10 provides the necessary technical specifications related to requirements for and use of communications. In particular, Appendix 10, 1.1 provides a recommended practice with respect to the required transit times of meteorological information.

6.1.3 The group was apprised that the EANPG, during its consideration of MET-related issues arising from the Meteorology Sub-Group, had considered that the Annex 3 required transit times pertaining to METAR, SPECI, trend forecast and TAF of “less than 5 minutes” for transmission between 0-900 km (500NM) and “less than 10 minutes” for transmission more than 900 km (500NM) were obsolete given today’s communications capabilities and infrastructure. The EANPG had therefore requested that a review of the required transit times be undertaken.

6.1.4 The group concurred that the transit times recommended in Annex 3, Appendix 10, 1.1. were worthy of review, particularly in light of the recent advances in communication infrastructure in many parts of the world, such as the ATS message handling system (AMHS) as the successor to the aeronautical fixed telecommunications network (AFTN). In addition, given that the implementation of a

¹ <http://www.icao.int/safety/meteorology/amofsg/>

properly-organized quality system for meteorological service provision was now a requirement within Annex 3 (since November 2012 as part of Amendment 75), the group concurred that having appropriate transit times to reflect the realities of today's communications infrastructure was now all the more important, since meteorological service providers would be expected to demonstrate their compliance with such transit time requirements through the conducting of an audit.

6.1.5 In view of the foregoing, the group formulated the following action agreed accordingly:

RSPP Action Agreed 10/15 — Updating of Annex 3 relating to the required transit times for meteorological information

That:

- a) an ad hoc group (WG/4) consisting of **Bill (Rapporteur), Colin, Steve, Peter, Jun, Dennis** undertake a review of Annex 3 – *Meteorological Service for International Air Navigation*, Appendix 10, 1.1 relating to the required transit times of meteorological information in view of determining whether the provision requires modification, including upgrading to a Standard, and provide a report to the **Secretary** by 30 September 2013; and
- b) if required, the **Secretary** prepare a proposal to modify Annex 3 for subsequent endorsement of the group, as appropriate, through correspondence by 31 October 2013 so that the proposal can be forwarded, as necessary, by the **Secretary** as part of draft Amendment 77 to Annex 3.

6.2 Terminology in Annex 3

6.2.1 The group recalled that at its last meeting (AMOFSG/9) it had discussed matters relating to the naming and location of meteorological offices in Annex 3 (AMOFSG/9 Summary of Discussions, 3.1.9 refers) and that through the formulation of Action Agreed 9/4 a draft amendment to Annex 3 was prepared to provide much needed clarity throughout the Annex.

6.2.2 On a related theme, the group was aware that, in a number of instances, Annex 3 refers to provisions that are, for example, “*subject to regional air navigation agreement*” or “*as determined by the meteorological authority in consultation with users*”. Indeed, Annex 3 contains a number of terms used to describe what may otherwise be intended to convey the same or very similar meaning. Terms such as “*subject to*”, “*in accordance with*”, “*as/be/so determined by*”, “*on the basis of*”, “*designated by*” and “*when/if required by*” are frequently used throughout Annex 3, when potentially just one or two of the variants would suffice.

6.2.3 The group concurred that having such a range of terms could potentially lead to misinterpretation or misapplication of the provisions themselves, especially where they are intended to convey the same meaning, and that it would be desirable to determine whether a smaller number of terms, applied consistently throughout Annex 3, would be practicable. Since Annex 3 was translated into all (six) official languages of the Organization, the group appreciated that ensuring consistency in the terminology used was important. The group formulated the following action agreed accordingly:

RSPP Action Agreed 10/16 — Updating of Annex 3 relating to terminology

That, the **Secretary** in coordination with **Dennis** (on behalf of MARIE-PT) develop a proposal to modify Annex 3 – *Meteorological Service for International Air Navigation* that aligns, to the extent practicable, the terminology used to describe provisions that are subject to an agreement between two or more parties or subject to a designation, and provide a report to the group by 30 September 2013 for subsequent endorsement, as appropriate, of the group through correspondence by 31 October 2013 so that the proposal may then be forwarded, as necessary, by the **Secretary** as part of draft Amendment 77 to Annex 3.

6.3 No other items were addressed under any other business.

7. AGENDA ITEM 9: CLOSURE OF THE MEETING

7.1 The Acting Secretary, Mr. Brock, and Chair, Mr. Maynard, extended a warm word of thanks to the participants for the efficient and effective manner in which they had progressed their work during the meeting.

7.2 The meeting closed at 1230 hours on Wednesday 19 June 2013.

APPENDIX A
LIST OF PARTICIPANTS

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APPENDIX B

LIST OF DOCUMENTATION

Study Notes

Doc No.	Presented by	Title	Agenda Item
SN 1	Secretary	Provisional agenda	4
SN 2	Secretary	Tasks relating to aerodrome observations	5
SN 3	Secretary	Tasks relating to forecasting at the aerodrome and in the terminal area and ATIS requirements	6
SN 4	Secretary	Work programme of the aerodrome meteorological observation and forecast study group (AMOFSG)	7
SN 5	HU Jai-mei	Reporting of runway visual range	5
SN 6	IATA	Requirements for vertical visibility	5
SN 7	Colin Hord, Rapporteur	Report from the ad-hoc working group 2: Establish the user requirements for the reporting of intermittent precipitation and showers	5
SN 8	Colin Hord, Rapporteur	Review the guidance in Doc 8896: Continuous monitoring of TAF - AMOFSG Ad Hoc Team (WG/3)	6
SN 9	Michel Leroy	Vertical visibility in France	5
SN 10	Michel Leroy	Missing values in METAR/SPECI and local reports	5
SN 11	Michel Leroy	Inconsistency between visibility and CMV, a converted meteorological visibility	5
SN 12	Michel Leroy	Siting of ceilometers	5
SN 13	Colin Hord	Definition of a meteorological watch office	5
SN 14	Colin Hord	The provision of crosswind and tailwind information	5
SN 15	Colin Hord	Proposed changes to ICAO Annex 3, Attachment C	5
SN 16	Colin Hord	List of applicable present weather codes	5
SN 17	Jarmo Pilli	Runway light setting usage in RVR calculation	5
SN 18	Bill Maynard	Representation of midnight in TAF	6
SN 19	Bill Maynard	Proposals for new Standards	6
SN 20	Bill Maynard	The future of TAF	6
SN 21	Jarmo Pilli	Aspects of vertical visibility (VV)	5
SN 22	Sue O'Rourke	Vertical visibility in Australia	5
SN 23	Jun Ryuzaki	Reporting of volcanic ash in METAR/SPECI	5
SN 24	Secretary	Miscellaneous issues related to the provision of meteorological service for international air navigation	8

Information Papers

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IP 1	Secretary	Arrangements for the meeting	3
IP 2	Jarmo Pilli	Distribution and use of runway visual range information	5
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3	IP/1
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6	SN/3, SN/8, SN/18, SN/19, SN/20
7	SN/4
8	SN/24

APPENDIX C

DRAFT AMENDMENT TO ANNEX 3 —
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ATTACHMENT C. SELECTED CRITERIA APPLICABLE TO
AERODROME REPORTS

(The guidance in this table relates to Chapter 4 and Appendix 3.)

	Surface wind			
Specifications	Directional variations ³			Speed variations ³
	≥ 60° and < 180°		≥ 180°	Exceeding the mean speed by ≥ 5 m/s (10 kt)
	Mean speed			
	< 1.5 m/s (3 kt)	≥ 1.5 m/s (3 kt)		
Local routine and special report	2/10 min ⁷ VRB + 2 extreme directions ³	2/10 min ⁷ mean + 2 extreme directions ³	2 min VRB (no extremes) ⁸	10 min ⁸ Minimum and maximum speed
METAR/SPECI	10 min VRB (no extremes)	10 min mean + 2 extreme directions	10 min VRB (no extremes)	10 min ⁸ Maximum speed ⁸
Relevant reporting scales for all messages	Direction in three figures rounded off to the nearest 10 degrees (degrees 1 – 4 down, degrees 5 – 9 up)			Speed in 1 m/s or 1 kt Speed < 0.5 m/s (1 kt) indicated as CALM

...

Notes.—

...

3. Considered for the past 10 minutes (exception: if the 10-minute period includes a *marked discontinuity* (i.e. the direction changes $\geq 30^\circ$ with a speed ≥ 5 m/s or the speed changes ≥ 5 m/s lasting ≥ 2 minutes), only data after the discontinuity to be used).

...

7. Time averaging, for mean values and, if applicable, referring period for extreme values, indicated in the upper left-hand corner.
8. According to the *WMO Manual on Codes* (WMO-No. 306), Volume 1.1, Part A — Alphanumeric Codes, paragraph 15.5.5, “it is recommended that the wind measuring systems should be such that peak gusts should represent a three-second average”.

...

APPENDIX D

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PART I. CORE SARPs

...

CHAPTER 1. DEFINITIONS

Note.— The designation (RR) in these definitions indicates a definition which has been extracted from the Radio Regulations of the International Telecommunication Union (ITU) (see Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of Approved ICAO Policies (Doc 9718)).

1.1 Definitions

When the following terms are used in the Standards and Recommended Practices for Meteorological Service for International Air Navigation, they have the following meanings:

...

Editorial Note.— Insert the following new text.

Meteorological watch office (MWO). An office designated to provide information concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations within its specified area of responsibility.

End of new text.

...

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather **phenomena and other phenomena in the atmosphere which that** may affect the safety of aircraft operations.

...

**CHAPTER 7. SIGMET AND AIRMET INFORMATION,
AERODROME WARNINGS AND
WIND SHEAR WARNINGS AND ALERTS**

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 6.

7.1 SIGMET information

7.1.1 SIGMET information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather ~~phenomena, and other phenomena in the atmosphere which that~~ may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

...

APPENDIX E

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PART II. APPENDICES AND ATTACHMENTS

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APPENDIX 3. TECHNICAL SPECIFICATIONS RELATED TO
METEOROLOGICAL OBSERVATIONS AND REPORTS

(See Chapter 4 of this Annex.)

...

4. OBSERVING AND REPORTING OF
METEOROLOGICAL ELEMENTS

Introductory Note.— Selected criteria applicable to meteorological information referred to under 4.1 to 4.8 for inclusion in aerodrome reports are given in tabular form at Attachment C.

...

4.3 Runway Visual Range

...

4.3.5 Runway light intensity

Recommendation.— When instrumented systems are used for the assessment of runway visual range, computations should be made separately for each available runway. ~~Runway visual range should not be computed for a light intensity of 3 per cent or less of the maximum light intensity available on a runway.~~ For local routine and special reports, the light intensity to be used for the computation should be:

- a) for a runway with the lights switched on ~~and the light intensity of more than 3 per cent~~, the light intensity actually in use on that runway; ~~and~~
- b) ~~for a runway with the lights switched on and the light intensity of 3 per cent or less, the optimum light intensity that would be appropriate for operational use in the prevailing conditions; and~~
- ~~b)c)~~ for a runway with lights switched off (or at the lowest setting pending the resumption of operations), the optimum light intensity that would be appropriate for operational use in the prevailing conditions.

In METAR and SPECI, the runway visual range should be based on the maximum light intensity available on the runway.

Note.— Guidance on the conversion of instrumented readings into runway visual range is given at Attachment D.

...

APPENDIX F

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**APPENDIX 3. TECHNICAL SPECIFICATIONS RELATED TO
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**4. OBSERVING AND REPORTING OF
METEOROLOGICAL ELEMENTS**

Introductory Note.— Selected criteria applicable to meteorological information referred to under 4.1 to 4.8 for inclusion in aerodrome reports are given in tabular form at Attachment C.

...

4.4 Present weather

...

Editorial Note.— Insert the following new text.

4.4.2.7 Recommendation.— *In automated local routine and special reports and METAR and SPECI when showers (SH) referred to in 4.4.2.6 cannot be determined based upon a method that takes account of the presence of convective cloud, the precipitation should not be characterized by SH.*

End of new text.

Editorial Note.— Renumber subsequent paragraphs accordingly.

...

APPENDIX G

**LIST OF DEFINED RECENT AND PRESENT
WEATHER CODE COMBINATIONS**

G.1 List of defined recent weather code (REw'w') combinations

REBLSN
REDS
REDZ
REFC
REFZDZ
REFZRA
REFZUP
REPL
RERA
RESG
RESHRA
RESHSN
RESHGS
RESHGR
RESHUP
RESN
RESS
RETS
RETSGS
RETSGR
RETSRA
RETSSN
RETSUP
REUP
REVA

G.2 List of defined present weather code (w'w') combinations

Light precipitation:

-DZ	-RA	-SN	-SG	-PL	-UP
-DZRA	-RADZ	-SNDZ	-SGDZ	-PLDZ	
-DZSN	-RASN	-SNRA	-SGRA	-PLRA	
-DZSG	-RASG	-SNSG	-SGSN	-PLSN	
-DZPL	-RAPL	-SNPL	-SGPL	-PLSG	
-DZRASN	-DZSNRA	-RADZSN	-RASNDZ	-SNDZRA	-SNRADZ
-DZRASG	-DZSGRA	-RADZSG	-RASGDZ	-SGDZRA	-SGRADZ
-DZRAPL	-DZPLRA	-RADZPL	-RAPLDZ	-PLDZRA	-PLRADZ
-RASNSG	-RASGSN	-SNRASG	-SNSGRA	-SGRASN	-SGSNRA
-RASNPL	-RAPLSN	-SNRAPL	-SNPLRA	-PLRASN	-PLSNRA
-PLSNSG	-PLSGSN	-SNPLSG	-SNSGPL	-SGPLSN	-SGSNPL

Moderate precipitation:

DZ	RA	SN	SG	PL	UP
DZRA	RADZ	SNDZ	SGDZ	PLDZ	
DZSN	RASN	SNRA	SGRA	PLRA	
DZSG	RASG	SNSG	SGSN	PLSN	
DZPL	RAPL	SNPL	SGPL	PLSG	
DZRASN	DZSNRA	RADZSN	RASNDZ	SNDZRA	SNRADZ
DZRASG	DZSGRA	RADZSG	RASGDZ	SGDZRA	SGRADZ
DZRAPL	DZPLRA	RADZPL	RAPLDZ	PLDZRA	PLRADZ
RASNSG	RASGSN	SNRASG	SNSGRA	SGRASN	SGSNRA
RASNPL	RAPLSN	SNRAPL	SNPLRA	PLRASN	PLSNRA
PLSNSG	PLSGSN	SNPLSG	SNSGPL	SGPLSN	SGSNPL

Heavy precipitation:

+DZ	+RA	+SN	+SG	+PL	+UP
+DZRA	+RADZ	+SNDZ	+SGDZ	+PLDZ	
+DZSN	+RASN	+SNRA	+SGRA	+PLRA	
+DZSG	+RASG	+SNSG	+SGSN	+PLSN	
+DZPL	+RAPL	+SNPL	+SGPL	+PLSG	
+DZRASN	+DZSNRA	+RADZSN	+RASNDZ	+SNDZRA	+SNRADZ
+DZRASG	+DZSGRA	+RADZSG	+RASGDZ	+SGDZRA	+SGRADZ
+DZRAPL	+DZPLRA	+RADZPL	+RAPLDZ	+PLDZRA	+PLRADZ
+RASNSG	+RASGSN	+SNRASG	+SNSGRA	+SGRASN	+SGSNRA
+RASNPL	+RAPLSN	+SNRAPL	+SNPLRA	+PLRASN	+PLSNRA
+PLSNSG	+PLSGSN	+SNPLSG	+SNSGPL	+SGPLSN	+SGSNPL

Light showery precipitation:

-SHRA	-SHSN	-SHGR	-SHGS	-SHUP	
-SHRASN	-SHSNRA	-SHGRRA	-SHGSRA		
-SHRAGR	-SHSNGR	-SHGRSN	-SHGSSN		
-SHRAGS	-SHSNGS				
-SHRASNGR	-SHRAGRSN	-SHSNRAGR	-SHSNGRRA	-SHGRRASN	-SHGRSNRA
-SHRASNGS	-SHRAGSSN	-SHSNRAGS	-SHSNGSRA	-SHGSRASN	-SHGSSNRA

Moderate showery precipitation:

SHRA	SHSN	SHGR	SHGS	SHUP	
SHRASN	SHSNRA	SHGRRA	SHGSRA		
SHRAGR	SHSNGR	SHGRSN	SHGSSN		
SHRAGS	SHSNGS				
SHRASNGR	SHRAGRSN	SHSNRAGR	SHSNGRRA	SHGRRASN	SHGRSNRA
SHRASNGS	SHRAGSSN	SHSNRAGS	SHSNGSRA	SHGSRASN	SHGSSNRA

Heavy showery precipitation:

+SHRA	+SHSN	+SHGR	+SHGS	+SHUP	
+SHRASN	+SHSNRA	+SHGRRA	+SHGSRA		
+SHRAGR	+SHSNGR	+SHGRSN	+SHGSSN		
+SHRAGS	+SHSNGS				
+SHRASNGR	+SHRAGRSN	+SHSNRAGR	+SHSNGRRA	+SHGRRASN	+SHGRSNRA
+SHRASNGS	+SHRAGSSN	+SHSNRAGS	+SHSNGSRA	+SHGSRASN	+SHGSSNRA

Light thunderstorm precipitation:

-TSRA	-TSSN	-TSGR	-TSGS	-TSUP	
-TSRASN	-TSSNRA	-TSGRRA	-TSGSRA		
-TSRAGR	-TSSNGR	-TSGRSN	-TSGSSN		
-TSRAGS	-TSSNGS				
-TSRASNGR	-TSRAGRSN	-TSSNRAGR	-TSSNGRRA	-TSGRRASN	-TSGRSNRA
-TSRASNGS	-TSRAGSSN	-TSSNRAGS	-TSSNGSRA	-TSGSRASN	-TSGSSNRA

Moderate thunderstorm precipitation:

TSRA	TSSN	TSGR	TSGS	TSUP	
TSRASN	TSSNRA	TSGRRA	TSGSRA		
TSRAGR	TSSNGR	TSGRSN	TSGSSN		
TSRAGS	TSSNGS				
TSRASNGR	TSRAGRSN	TSSNRAGR	TSSNGRRA	TSGRRASN	TSGRSNRA
TSRASNGS	TSRAGSSN	TSSNRAGS	TSSNGSRA	TSGSRASN	TSGSSNRA

Heavy thunderstorm precipitation:

+TSRA	+TSSN	+TSGR	+TSGS	+TSUP	
+TSRASN	+TSSNRA	+TSGRRA	+TSGSRA		
+TSRAGR	+TSSNGR	+TSGRSN	+TSGSSN		
+TSRAGS	+TSSNGS				
+TSRASNGR	+TSRAGRSN	+TSSNRAGR	+TSSNGRRA	+TSGRRASN	+TSGRSNRA
+TSRASNGS	+TSRAGSSN	+TSSNRAGS	+TSSNGSRA	+TSGSRASN	+TSGSSNRA

Light freezing precipitation:

-FZDZ	-FZRA	-FZUP
-FZDZRA	-FZRADZ	

Moderate freezing precipitation:

FZDZ	FZRA	FZUP
FZDZRA	FZRADZ	

Heavy freezing precipitation:

+FZDZ	+FZRA	+FZUP
+FZDZRA	+FZRADZ	

Other combinations (without precipitation types):

DS	+DS	VCDS	
SS	+SS	VCSS	
FG	FC	PO	VA
VCFG	VCFC	VCPO	VCVA
TS	VCTS	VCSH	

VCBLSA	VCBLDU	VCBLSN		
BLSA	BLDU	BLSN		
DRSA	DRDU	DRSN		
SA	DU			
MIFG	PRFG	BCFG	FZFG	
BR	HZ	FU	SQ	IC

Notes:

- IC will become obsolete as of 14 November 2013 in view of its removal from the METAR/SPECI and TAF code as part of Amendment 76 to ICAO Annex 3;
- // will be an additional combination for indicating a missing w'w' group;

APPENDIX H

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PART II. APPENDICES AND ATTACHMENTS

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APPENDIX 3. TECHNICAL SPECIFICATIONS RELATED TO
METEOROLOGICAL OBSERVATIONS AND REPORTS

(See Chapter 4 of this Annex.)

...

4. OBSERVING AND REPORTING OF
METEOROLOGICAL ELEMENTS

Introductory Note.— Selected criteria applicable to meteorological information referred to under 4.1 to 4.8 for inclusion in aerodrome reports are given in tabular form at Attachment C.

...

4.5 Clouds

4.5.1 Siting

Recommendation.— When instrumented systems are used for the measurement of the cloud amount and the height of cloud base, representative observations should be obtained by the use of sensors appropriately sited. For local routine and special reports, in the case of aerodromes with precision approach runways, sensors for cloud amount and height of cloud base should be sited to give the best practicable indications of the cloud amount and height of cloud base ~~and cloud amount at the middle marker site of the instrument landing system or, at aerodromes where a middle marker beacon is not used, at a distance of threshold of the runway in use. For that purpose, a sensor should be installed at a distance of less than 900 to 1 200 m (3 000 to 4 000 ft) from before the landing threshold at the approach end of the runway.~~

Note.— ~~Specifications concerning the middle marker site of an instrument landing system are given in Annex 10, Volume I, Chapter 3 and at Attachment C, Table C-5.~~

...

APPENDIX I

**DRAFT AMENDMENT TO ANNEX 3 —
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...

PART II. APPENDICES AND ATTACHMENTS

...

**APPENDIX 5. TECHNICAL SPECIFICATIONS RELATED TO
FORECASTS**

(See Chapter 6 of this Annex.)

...

Table A5-1. Template for TAF

Key: M = inclusion mandatory, part of every message;
C = inclusion conditional, dependent on meteorological conditions or method of observation;
O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in TAF are shown in Table A5-4 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).

<i>Element as specified in Chapter 6</i>	<i>Detailed content</i>	<i>Template(s)</i>	<i>Examples</i>
...			
Days and period of validity of forecast (M)	Days and period of the validity of the forecast in UTC (M)	nmmn/nmmn	1606/1624-1700 0812/0918
...			

...

Example A5-1. TAF

TAF for YUDO (Donlon/International):*

TAF YUDO 160000Z 1606/16241700 13005MPS 9000 BKN020 BECMG 1606/1608 SCT015CB BKN020
TEMPO 1608/1612 17006G12MPS 1000 TSRA SCT010CB BKN020 FM161230 15004MPS 9999 BKN020

Meaning of the forecast:

TAF for Donlon/International* issued on the 16th of the month at 0000 UTC valid from 0600 UTC on the 16th of the month to 24000000 UTC on the 16th of the month; surface wind direction 130 degrees; wind speed 5 metres per second; visibility 9 kilometres, broken cloud at 600 metres; becoming between 0600 UTC and 0800 UTC on the 16th of the month, scattered cumulonimbus cloud at 450 metres and broken cloud at 600 metres; temporarily between 0800 UTC and 1200 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 6 metres per second gusting to 12 metres per second; visibility 1 000 metres in a thunderstorm with moderate rain, scattered cumulonimbus cloud at 300 metres and broken cloud at 600 metres; from 1230 UTC on the 16th of the month surface wind direction 150 degrees; wind speed 4 metres per second; visibility 10 kilometres or more; and broken cloud at 600 metres.

* Fictitious location

Note.— In this example, the primary units “metre per second” and “metre” were used for wind speed and height of cloud base, respectively. However, in accordance with Annex 5, the corresponding non-SI alternative units “knot” and “foot” may be used instead.

Example A5-2. Cancellation of TAF

Cancellation of TAF for YUDO (Donlon/International):*

TAF AMD YUDO 161500Z 1606/16241700 CNL

Meaning of the forecast:

Amended TAF for Donlon/International* issued on the 16th of the month at 1500 UTC cancelling the previously issued TAF valid from 0600 UTC on the 16th of the month to 24000000 UTC on the 16th of the month.

* Fictitious location

...

— END —