AERODROME METEOROLOGICAL OBSERVATION AND FORECAST
STUDY GROUP (AMOFSG)

TENTH MEETING

Montréal, 17 to 19 June 2013

Agenda Item 5: Aerodrome observations

TASKS RELATING TO AERODROME OBSERVATIONS

(Presented by the Secretary)

SUMMARY

This study note provides an overview of the tasks of the group that concern aerodrome observations, as well as a review of the actions taken since the last meeting of the group.

Draft amendment proposals to Annex 3 – Meteorological Service for International Air Navigation are provided for the consideration of the group as necessary.

1. INTRODUCTION

1.1 This study note (SN) summarizes the progress made regarding aerodrome observations since the ninth meeting of the Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG/9, 26 to 30 September 2011, Montréal) and provides suggested courses of actions, where necessary. In addition, taking into account the study notes prepared for and to be considered during the meeting, the group may wish to formulate new actions to direct its future work. However, the group will recall that it is expected to provide input, through the Secretariat, for an ICAO Meteorology (MET) Divisional Meeting to be held in part jointly with the Fifteenth Session of the World Meteorological Organization (WMO) Commission for Aeronautical Meteorology (CAeM) in July 2014. With this in mind, the group will need to decide whether its views are sufficiently mature on each topic so as to reduce or eliminate entirely the need for significant further work and/or meetings ahead of the MET Divisional Meeting.
2. DISCUSSION

2.1 General considerations

2.2 The group will recall that it 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 will be pleased to learn that the Air Navigation Commission (ANC) considered these two proposals during its review of draft Amendment 76 to Annex 3.

2.3 The group will further recall 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. In respect of Action Agreed 9/2, the group will note that Herbert and Michel have not yet been able to provide the requested (ICAO) draft guidance to the Secretariat for inclusion in the Manual on Automatic Meteorological Observing Systems at Aerodromes (Doc 9837). Therefore, the group may wish to agree either that Action Agreed 9/2 should remain open and that Herbert and Michel should endeavour to provide the draft guidance to the Secretariat by 31 July 2013 or that Action Agreed 9/2 should be closed due to a lack of progress. Similarly, in respect of Action Agreed 9/3, the group will note that Herbert has not yet been able to provide the requested report to the group on the development of WMO guidance that supports associated ICAO provisions. Therefore, the group may wish to agree either that Action Agreed 9/3 should remain open and that Herbert should endeavour to provide the report to the group, through correspondence, by 31 July 2013, or that Action Agreed 9/3 should be closed due to a lack of progress.

2.4 In respect general matters related to aerodrome observations, the group will be invited to consider three items under this agenda item, namely:

   a) the requirement for and use of unidentified precipitation (UP) in present weather reporting (arising from the Air Navigation Commissions final review of proposed amendment to Annex 3);

   b) missing values in local routine and special reports and METAR and SPECI (AMOFSG/10-SN/10 presented by Michel refers); and

   c) selected criteria applicable to local routine and special reports and METAR and SPECI (AMOFSG/10-SN/15 presented by Colin refers).

2.5 Concerning the requirement for and use of unidentified precipitation (UP) in present weather reporting, 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, 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 (Present weather). 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.

2.6 The group is therefore invited to consider 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 will recall 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 may wish to 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.

2.7 With regards to missing values in local routine and special reports and METAR and SPECI (AMOFSG/10-SN/10 presented by Michel refers), the group will recall 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 refers). Along a similar line, and in keeping with the considerations at 2.4 and 2.5 above, Annex 3 recommends that in automated local routine and special reports and METAR and SPECI, in addition to the precipitation types listed under Annex 3, Appendix 3, 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 (Annex 3, Appendix 3, 4.4.2.4 refers).

2.8 Annex 3 does not permit, either as a Standard or a recommended practice, the reporting of such “missing values” beyond those instances referred to in 2.6 above. Indeed, recalling that Annex 3, 4.1.4 requires, _inter alia_, a State to ensure that at its aeronautical meteorological stations its instruments and all their indicators are functioning correctly, the group may concur that it is essential that an absolute minimum set of meteorological parameters (included in local routine and special reports and METAR and SPECI) are available throughout the entire period of operation of the aerodrome, and that the failure to provide one or more meteorological parameter in the aerodrome observations/reports (specifically one or more of the following: 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.

2.9 To this end, notwithstanding the views expressed in AMOFSG/10-SN/10 to extend the application of “missing values” (e.g. solidi) to all other meteorological parameters which are included in the referred aerodrome observations, the group may wish to agree that in the interest of maintaining air navigation safety and efficiency, in particular at aerodromes, that the existing provisions in Annex 3 in this context are necessary and should be retained. Alternatively, the group may wish to consider the establishment of an ad hoc group to give the matter more in-depth consideration. In the event that the group decides to proceed with this alternative approach, the group should formulate an action agreed accordingly.

2.10 With regards to selected criteria applicable to local routine and special reports and METAR and SPECI (AMOFSG/10-SN/15 presented by Colin refers), noting that Amendment 76 to Annex 3 introduces an amendment to Attachment C in this regard, the group will be invited to consider whether further improvement to Attachment C is necessary as it pertains to time averaging (specifically footnotes 7 and 8 to Attachment C). Having considered the proposal, the group may wish to formulate the following action agreed accordingly:
RSPP  Action Agreed 10/.. — 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* that more clearly denotes the application of time averaging in local routine reports and local special reports, as provided at Appendix 1 to this Summary of Discussions, be forwarded by the Secretary as part of draft Amendment 77 to Annex 3.

2.11 The group will recall at its last meeting (AMOFSG/9) that it 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.

2.12 The group will be 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 will note that, at present, a definition for a meteorological watch office does not yet exist in Annex 3, Chapter 1, despite the fact that meteorological watch offices are 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 will be invited to consider it necessary to define the designation and function of a meteorological watch office (MWO) in Annex 3, Chapter 1 (Definitions) (AMOFSG/10-SN/13 presented by Colin refers).

2.13 The group may wish to give consideration as to whether the term “natural and other hazards” is necessary within the proposed definition contained in AMOFSG/10-SN/13, since Annex 3 does not make such a distinction. Indeed, in the context of SIGMET information for which an MWO would be responsible for issuing, the Annex 3 definition of SIGMET information simply states “…specified en-route weather phenomena which may affect the safety of aircraft operations”. The group may therefore wish to consider whether the definition for an MWO should simply be stated as:

**Meteorological Watch Office.** A meteorological watch office designated by regional air navigation agreement to provide information concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations within a specified area of responsibility.

2.14 Having given the matter the necessary consideration and having agreed to a proposed definition for a MWO, the group may wish to formulate the following action agreed accordingly:

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1 AMOFSG/10-SN/15 paragraph 2.2 or AMOFSG/10-SN/2 paragraph 2.12
RSPP Action Agreed 10/.. — Updating of Annex 3 to introduce a definition of a meteorological watch office

That, a proposal to modify Annex 3 – Meteorological Service for International Air Navigation that introduces a definition for a meteorological watch office, as provided at Appendix2.3 to this Summary of Discussions, be forwarded by the Secretary as part of draft Amendment 77 to Annex 3.

2.15 Wind reporting

2.16 In respect of wind reporting at the aerodrome, the group will recall that it 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 will be pleased to learn that the Air Navigation Commission considered these two proposals during its review of draft Amendment 76 to Annex 3.

2.17 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 will note that the ad hoc group (WG/1) has not yet been able to provide a report in this regard for the group’s consideration.

2.18 Nevertheless, the group will be invited to consider additional information relating to the provision of crosswind and tailwind information that may assist WG/1 in this regard (AMOFSG/10-SN/14 presented by Colin refers). In particular, the group will be invited to note 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 will be invited to consider 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.

2.19 Being cognizant that such issues are important yet complex, the group may wish to agree that further consideration of the issues highlighted should be conducted by an ad hoc group (potentially WG/1) so that mature proposals for amendment to ICAO provisions and/or guidance can be developed. As the group will appreciate, it would be unwise to attempt to introduce ICAO provisions and/or guidance in this respect that are not at a sufficient level of maturity. Moreover, the group may wish to agree that a strategy (road map) concerning the development of such ICAO provisions and/or guidance should be developed (by the ad hoc group) and submitted, through the Secretariat, to the Meteorology Divisional Meeting in July 2014.

2.20 In view of the foregoing, the group may wish to formulate the following action agreed accordingly:

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2 AMOFSG/10-SN/13 paragraph 2.2
Action Agreed 10/ — Strategy for the development of ICAO provisions and/or guidance pertaining to the provision and application of crosswind and headwind/tailwind information at aerodromes

That, an ad hoc group (WG/1) consisting of [...] undertake the development of a strategy (road map) for the development of ICAO provisions and/or guidance pertaining to the provision and application of crosswind and headwind/tailwind information at aerodromes, 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 strategy may then be forwarded, as necessary, by the Secretary to the Meteorology Divisional Meeting in July 2014.

2.21 The group will recall that it formulated Action Agreed 9/9 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 Operations Panel (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 will be pleased to learn that the Secretary 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.

2.22 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 will note that Jan and PW have not yet been able to provide the requested draft guidance to the Secretariat for inclusion in the Manual of Aeronautical Meteorological Practice (Doc 8896). Therefore, the group may wish to agree either that Action Agreed 9/10 should remain open and that Jan and PW should endeavour to provide the draft guidance to the Secretariat by 31 July 2013, or that Action Agreed 9/10 should be closed due to a lack of progress.

2.23 Visibility and RVR reporting

2.24 In respect of visibility and runway visual range (RVR) reporting at the aerodrome, the group will recall that it 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 will be pleased to learn that the Air Navigation Commission considered the proposals during its review of draft Amendment 76 to Annex 3.

2.25 The group will further recall 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 will be pleased to note that Michel and Jarmo, with the assistance of Hong Kong, China, provided the requested draft guidance to the Secretariat for onward inclusion in Doc 9328.

2.26 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 will be pleased to learn that the Secretary undertook the requested investigation, in coordination with the OPSP, and that Doc 9365 was to be addressed accordingly.

2.27 In other matters relating to visibility and RVR reporting at the aerodrome, the group will be invited to discuss the following matters:

a) an inconsistency between visibility and a converted meteorological visibility (CMV) used in Doc 9365 (AMOFSG/10-SN/11 presented by Michel refers);

b) the reporting of RVR in instances where there is rapidly varying visibility (AMOFSG/10-SN/5 presented by Jia-Mei refers); and

c) challenges posed in the use of runway light settings for RVR calculations (AMOFSG/10-SN/17 presented by Jarmo refers).

2.28 In respect of an inconsistency between visibility and a converted meteorological visibility (CMV) used in Doc 9365, the group will recall 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 will be invited to note that the Third Edition (2013) of Doc 9365 contains a conversion of the reported (meteorological) visibility into a CMV, and that CMV is intended to be used as an equivalent to RVR when RVR is not available. However, the group will be invited to consider that the conversion table used in Doc 9365 (specifically Table E-1) is not consistent with the definition of visibility based on 1,000 candelas, and is 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 may wish to formulate the following action agreed accordingly:

**Action Agreed 10/.. — 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.
2.29 In respect of the reporting of RVR in instances where there is rapidly varying visibility, the group will recall 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 will recall that at its last meeting (AMOFSG/9) it 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) consequently removes the requirement to report RVR variations.

2.30 In light of the views expressed at the last meeting, the group should therefore give appropriate consideration to the proposal (as contained in AMOFSG/10-SN/5) to report (re-introduce) a minimum RVR value in addition to the 10-minute average RVR and tendency, in instances where the visibility at the aerodrome is subject to rapid change, such as in the presence of fog or precipitation.

2.31 Having given the matter the necessary consideration and in the event that the group considers that it is necessary to report (re-introduce) a minimum RVR value, the group may wish to formulate the following action agreed accordingly:

RSPP Action Agreed 10/.. — Updating of Annex 3 relating to the reporting of a minimum RVR value

That, the Secretary develop a proposal to modify Annex 3 – Meteorological Service for International Air Navigation that enables the reporting of a minimum runway visual range (RVR) value in addition to the 10-minute average RVR and tendency, and provide a report to the group by 30 September 2013 for subsequent endorsement 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.

2.32 In respect of challenges posed in the use of runway light settings for RVR calculations, the group will be invited to consider that Annex 3 provisions (specifically Annex 3, Appendix 3, 4.3.5) and related guidance contained in Doc 9328 offer different interpretations of how runway light setting information should be used in the assessment of RVR. The group will be invited to consider 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. Having given the matter the necessary consideration, the group may wish to formulate the following action agreed accordingly:
RSPP  Action Agreed 10/.. — 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 Appendix3, to this Summary of Discussions, be forwarded by the Secretary as part of draft Amendment 77 to Annex 3.

2.33 Recent and present weather reporting

2.34 In respect of recent and present weather reporting, the group will recall that it 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 will be pleased to learn that the Air Navigation Commission considered the proposals during its review of draft Amendment 76 to Annex 3.

2.35 The group will further recall that it 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. In this regard, the group will be pleased to learn that Jun has prepared a report on the current observation procedures employed by the Japan Meteorological Agency (JMA) when volcanic ash has fallen or is falling at the aerodrome (AMOFSG/10-SN/23 presented by Jun refers). The group will note that the report on experiences in Japan highlights 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.

2.36 As historical relevance, the group may wish to recall that the fifth meeting of the International Airways Volcano Watch Operations Group (IAWOPSG/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 (IAWOPSG/5 Report, 5.2.4 refers). The group may wish to further recall

3 AMOFSG/10-SN/17 paragraph 3.1
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. Also, Amendment 36 to Annex 15 — *Aeronautical Information Services* (applicable November 2010), introduced a requirement for volcanic ash deposition to be reported in a NOTAM message (Annex 15, 5.1.1.1 refers).

2.37 Taking these historical considerations into account as well as the information provided by Jun in AMOFSG/10-SN/23, the group may wish to give 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. Such considerations may include the gathering of additional case studies to illustrate the experiences of States in the observing and reporting of volcanic ash deposition at the aerodrome, to assist the FTF in its on-going deliberations.

2.38 In view of the foregoing, the group may wish to formulate the following action agreed accordingly:

**RSPP**  
**Action Agreed 10/.. — Operational requirements for the reporting of volcanic ash deposition at aerodromes**

That, *Members* provide reports on the operational requirements in their respective State or from their respective user organization for the reporting of volcanic ash deposition at the aerodrome to the *Secretary* by 30 September 2013 with a view to assisting the Runway Friction Task Force (FTF) of the Aerodromes Panel and/or International Airways Volcano Watch Operations Group (IAVWOPSG), as appropriate.

2.39 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 will be pleased to learn that an ad hoc group (WG/2) has necessarily prepared a report (AMOFSG/10-SN/7 presented by WG/2 refers) which addresses the following four options:

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

2.40 The group will be invited to note that, having considered the advantages and disadvantages of each of the four options, the WG/2 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 is not widely achievable for use in automated reports and a perceived lack of value to report SH on a definition of “intermittent precipitation”. Having given the matter the necessary consideration, and on the basis that the group, including the International Air Transport Association (IATA), concurs with the opinion of the WG/2 that the requirement to report showers (SH) in automated reports should be removed as part of the next amendment to Annex 3, the group may wish to formulate the following action agreed accordingly:
RSPP  Action Agreed 10/.. — Updating of Annex 3 relating to the removal of the requirement to report 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 that removes the requirement for showers to be reported in automated local routine and special reports and METAR and SPECI, as provided at Appendix 4 to this Summary of Discussions, be forwarded by the Secretary as part of draft Amendment 77 to Annex 3.

2.41 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 will note that Michel has not yet been able to provide the requested draft guidance to the Secretariat for inclusion in Doc 9873. Therefore, the group may wish to agree either that Action Agreed 9/27 should remain open and that Michel should endeavour to provide the draft guidance to the Secretariat by 31 July 2013 or that Action Agreed 9/27 should be closed due to a lack of progress.

2.42 In other matters relating to recent and present weather reporting at the aerodrome, the group will be invited to consider a list of permissible combinations of present weather codes – in terms of the type and characteristic and qualified with respect to intensity – which can be used in local routine and special reports, METAR/SPECI and TAF (AMOFSG/10-SN/16 presented by Colin refers) 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 may wish to concur that the list will be useful in the development and quality control (including validation) of, in particular, METAR/SPECI and TAF in a digital form using XML/GML.

2.43 Having reviewed the list of permissible combinations of present weather codes presented in AMOFSG/10-SN/16, including an assessment of their accuracy, the group may wish to formulate the following action agreed accordingly:

**Action Agreed 10/.. — List of permissible present weather code combinations**

That, the list of permissible present weather code combinations, as provided at Appendix 5 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) to assist in the development of specifications/schema for METAR/SPECI and TAF in a digital form using XML/GML.

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4 AMOFSG/10-SN/7 paragraph 3.2.1
5 AMOFSG/10-SN/16, Appendix A
2.44 Cloud reporting

2.45 In respect of cloud reporting at the aerodrome, the group will recall 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 will be pleased to learn that the Air Navigation Commission considered the proposals during its review of draft Amendment 76 to Annex 3.

2.46 The group will further recall that it 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 will note that Herbert, Michel and Jarmo have not yet been able to provide the requested draft guidance to the Secretariat for inclusion in Doc 8896 and/or Doc 9837. Therefore, the group may wish to agree either that Action Agreed 9/5 should remain open and that Herbert, Michel and Jarmo should endeavour to provide the draft guidance to the Secretariat by 31 July 2013 or that Action Agreed 9/5 should be closed due to a lack of progress.

2.47 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 will be pleased to learn that several reports have been developed for the consideration of the group. The reports will address the users (airline operators) requirement for vertical visibility in METAR/SPECI (AMOFSG/10-SN/6 presented by Ashwin refers), the operational requirement for vertical visibility reporting in France and Australia (AMOFSG/10-SN/9 presented by Michel and AMOFSG/10-SN/22 presented by Sue refer), and the operational considerations with respect to vertical visibility reporting during weather events such as fog and snow (AMOFSG/10-SN/21 presented by Jarmo refers).

2.48 Concerning the users (airline operators) perspective, the group will note that IATA does 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 is 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. Taking into account that the reporting of vertical visibility by a human observer is difficult due to the lack of a vertical visual reference, that there is not a clear and unambiguous definition of vertical visibility that could be used for an automated meteorological observing system (such as a ceilometer) and that the reporting of a cloud amount and height of cloud base is commonly understood and consistently applied by service providers and users alike, the group will note that operational experiences in several States has resulted in the use of an equivalent height of cloud base as an alternative to vertical visibility, which is consistent with the user’s expressed position alluded to above. Furthermore, the group will be apprised that comprehensive comparison studies on vertical visibility with respect to cloud base and present weather (such as fog and snow) have identified that further improvements are 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.
2.49 In view of the foregoing, the group may wish to consider whether vertical visibility reporting should be removed from ICAO provisions for local routine reports, local special reports, METAR and SPECI and TAF provided that the overcast (OVC) cloud amount and height of cloud base is used instead. In the event that the group concurs with this proposal, the group may wish to formulate the following action agreed accordingly:

RSPP Action Agreed 10/.. — Updating of Annex 3 relating to the removal of the requirement to report vertical visibility in local routine and special reports, METAR, SPECI and TAF

That, the Secretary develop a proposal to modify Annex 3 – Meteorological Service for International Air Navigation that removes the requirement to report vertical visibility in local routine and special reports, METAR, SPECI and TAF provided that the overcast (OVC) cloud amount and height of cloud base is used instead, and provide a report to the group by 30 September 2013 for subsequent endorsement 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.

2.50 In other matters relating to cloud reporting at the aerodrome, the group will be invited to consider the siting of ceilometers at aerodromes (AMOFSG/10-SN/12 refers presented by Michel). The group will recall that Amendment 76 to Annex 3, applicable on 14 November 2013, amends 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) recommends 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. 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 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 900 to 1 200 m (3 000 to 4 000 ft) from the landing threshold at the approach end of the runway.

2.51 Taking into account the amendment to Annex 3, 4.6.5.2, as described, the group will be invited to consider whether the recommendation at 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 consequentially requires review and, as necessary, amendment. Alternatively, the group may wish to agree to retain the Annex 3, Chapter 4 and Appendix 3 provisions in this regard but that suitable guidance should be developed to support implementation.

2.52 Having given the matter the necessary consideration, the group may wish to formulate one of the following two actions agreed accordingly:

If the group concurs that Annex 3, Appendix 3, 4.5.1 should be amended so as to align with Standard at Annex 3, 4.6.5.2 (Amendment 76):
RSPP Action Agreed 10/.. — 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 6
.. to this Summary of Discussions, be forwarded by the Secretary
as part of draft Amendment 77 to Annex 3.

or, if the group concurs that guidance material should be developed to support the implementation of the

Action Agreed 10/.. — Guidance relating to the siting of
instrumented systems used for the measurement of cloud amount and
height of cloud base at aerodromes

That, the Secretary develop brief guidance for inclusion in the
Manual on Automatic Meteorological Observing Systems at
Aerodromes (Doc 9837) and/or the Manual of Aeronautical
Meteorological Practice (Doc 8896) concerning the siting of
instrumented systems used for the measurement of cloud amount
and height of cloud base at aerodromes, consistent with Annex 3 –
Meteorological Service for International Air Navigation (18th
Edition, July 2013), 4.6.5.2 and Appendix 3, 4.5.1 provisions.

3. ACTION BY THE AMOFSG

3.1 The AMOFSG is invited to:

a) note the information contained in this paper; and

b) decide on the draft actions proposed for the group’s consideration.

— END —

6 AMOFSG/10-SN/12 paragraph 3.2