

**OUTCOMES OF RECENT WMO TC, RA AND OTHER MEETINGS/EVENTS,
INCLUDING ICAO AND IATA**

(Submitted by the WMO Secretariat)

Summary and Purpose of Document

This document provides an outline of items considered to be of direct or indirect relevance to the Commission arising from recent sessions of WMO technical commissions and regional associations as well as global meetings/events and related collaboration with ICAO and IATA.

ACTION PROPOSED

The Management Group (MG) is invited to:

- (1) review the outcomes of recent WMO technical commission and regional association sessions as well as global meetings/events and related collaboration with ICAO and IATA;
 - (2) note where follow-up is required by the CAeM or its subsidiary bodies;
 - (3) offer comment and/or strategic direction in respect of (1) and (2) above.
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1. WMO TECHNICAL COMMISSIONS AND REGIONAL ASSOCIATIONS

CIMO-17 (Commission for Instruments and Methods of Observation)

1.1 The seventeenth session of the Commission for Instruments and Methods of Observations (CIMO-17) was held in Amsterdam, Netherlands from 12 to 16 October 2018. It was preceded by a Technical Conference (TECO).

1.2 CIMO-17 adopted 9 resolutions, 36 decisions and 13 recommendations addressing topics that included the future working structure of the Commission, WMO governance reform, gender equality and the empowerment of women, instrument and laboratory inter-comparisons, WMO Information System 2.0, collaboration with the Global Framework for Climate Services, automatic weather station specifications, marine observations, a common WMO-ISO standard on weather radars, and the WMO quality management framework.

1.3 Annex 2 to Resolution 6 (CIMO-17), *Working structure of the Commission for Instruments and Methods of Observation*, noted the relevance of the Inter-programme Expert Team on Aircraft-based Observations (IPET-ABO). According to Annex 2 of the resolution "*This joint CBS-CIMO IPET is governed and coordinated by CBS, in collaboration with CIMO. The membership of IPET-ABO has already been established accordingly by CBS, in consultation with CIMO. This IPET is consequently not strictly part of the CIMO working structure, though it conduct tasks relevant to CIMO*". Recommendation 12 (CIMO-17) recommended the continuation of IPET-ABO. Decision 5 (CIMO-17) requested the CIMO Management Group to collaborate with the CBS Management Group on prioritising the activities and establishing the work plan of IPET-ABO.

1.4 The Annex to Decision 6 (CIMO-17), *Measurement quality classifications for surface observing stations on land*, noted the (four) levels of a 'measurement quality classification scheme', wherein 'synoptic or controlled aeronautical stations' are cited as examples in Class B: *Measurement has a wider uncertainty interval than class A. Maintenance and calibration are organized to sustain this measurement uncertainty in the field and over time.*

1.5 Decision 14 (CIMO-14) addressed aeronautical meteorology specifically. It requested the president of CIMO to consult with the president of CAeM to ensure appropriate and necessary coordination and collaboration on meteorological instruments and methods of observation in support of international air navigation.

1.6 Recommendation 4 (CIMO-17), *Title and structure of the Guide to Meteorological Instruments and Methods of Observation (WMO-No. 8)*, endorsed a decision of the CIMO Management Group to change the title of the CIMO Guide to 'Guide to Instruments and Methods of Observation' and to divide the CIMO Guide into volume instead of parts. In addition, Recommendation 5 (CIMO-17) concerned the publication and translation of the *Guide to Instruments and Methods of Observation (WMO-No. 8)*, 2018 Edition.

1.7 The abridged final report (Part I) and progress report (Part II) of CIMO-17 is [available here](#) as WMO-No. 1227.

1.8 The WMO Secretariat of the AEM Division and president of CAeM did not attend the session.

RA V-17 (SW Pacific)

1.9 The seventeenth session of the Regional Association V (RA V-17) (South-West Pacific), took place in Nuku'alofa, Tonga from 15 to 17 October 2018. It was preceded by a Regional Conference (RECO).

1.10 RA V-17 formulated two resolutions and one decision concerning aeronautical meteorological service provision in RA V as follows (provisional numbering):

- (1) Resolution 3.2(1)/1 concerned scientific research and development in aeronautical meteorology. This resolution noted the outcomes of the CAeM/CAS/CBS AeroMetSci-2017 and urged members, with the assistance of the president of RA V, the RA V Management Group and the president of CAeM, to apply the outcomes of the conference with a view to accelerating the transition from scientific research into meteorological operations.
- (2) Resolution 3.2(1)/2 concerned the global and regional landscape of aeronautical meteorological service provision. This resolution noted the outcomes of the CAeM global survey in 2016/17 and urged members, with the assistance of the president of RA V, the RA V Management Group and the president of CAeM, to analyse the outcomes, determine the implications, and to supply updated information on national practices to the CAeM by 2020 initially and at regular intervals thereafter. In addition, this resolution requested the Secretary-General to make available the global survey results summarized at a regional level and to organize a regional conference on the future of aeronautical meteorological service provision.
- (3) Decision 3.2(1)/1 concerned regional activities in aeronautical meteorology. This resolution requested the RA V Management Group to review the outcomes of the CAeM-16 session and TECO, including the priority themes identified, in order to align the regional activities and priorities with these outcomes.

1.11 The abridged final report (Part I) and progress report (Part II) RA V-17 are, at time of writing, under development and will [available here](#) as WMO-No. 1226.

1.12 The WMO Secretariat of the AEM Division and president of CAeM did not attend the session.

RA III-17 (South America)

1.13 The seventeenth session of the Regional Association III (RA III-17) (South America), took place in Santiago, Chile from 21 to 23 November 2018. It was preceded by a Regional Conference (RECO).

1.14 RA III-17 formulated two resolutions (3.1(7)/1 and 3.1(7)/2) and one decision (3.1(7)/1) concerning aeronautical meteorological service provision in RA III. Essentially, these outcomes are directly comparable with those outcomes of the RA V-17 session referenced above. The only difference between the RA III-17 outcomes and the RA V-17 outcomes was that the RA III-17 session did not request the Secretary-General to make available the global survey results summarized at a regional level nor to organize a regional conference on the future of aeronautical meteorological service provision. Otherwise, the outcomes were essentially the same.

1.15 The abridged final report (Part I) and progress report (Part II) RA III-17 are, at time of writing, under development and will [available here](#) as WMO-No. 1228.

1.16 The WMO Secretariat of the AEM Division and president of CAeM did not attend the session.

RA I African Conference on Meteorology for Aviation (ACMA-2018)

1.17 In response to Resolution 2 (RA I-16), the Government of Senegal and WMO organized a 2018 African Conference on Meteorology for Aviation (ACMA-2018). The Conference was held in Saly Portudal (near Dakar), Senegal from 28 to 30 November 2018. The Conference was attended by approximately 150 delegates from 49 Members of WMO in RA I (Africa), 3 Members of WMO RA VI (Europe), 3 international organizations and 5 private sector industry companies.

1.18 The main objective of ACMA-2018 was to raise the awareness among Members of WMO RA I concerning:

- (1) Current and future developments in Africa towards more efficient organization of the air traffic in the Region and the related institutional and technological changes with impacts on the provision of aeronautical meteorological services;
- (2) Major outcomes of the 2014 ICAO/WMO conjoint meeting, consistent with the evolving ICAO GANP and ASBU methodology, which will require adjustment of existing or new business models for service delivery, including a shift from product-centric to data- or information-centric service provision, regionalization and globalization; and
- (3) New technology to achieve performance improvements in the light of multinational or regional air traffic management modernization programmes, new concepts and systems (for example, system-wide information management).

1.19 The president of CAeM and the WMO Secretariat of the AEM Division were directly involved, with others, in the convening of the conference.

1.20 The conference formulated 5 recommendations and one statement which will be submitted for endorsement at the RA I-17 session taking place in Cairo, Egypt from 21 to 13 February 2019.

1.21 A conference website containing all presentation materials, the programme and the outcomes (recommendations and statement) is available at URL:

<https://www.wmo.int/aemp/acma-2018>

2. ICAO

METP (Meteorology Panel)

2.1 The ICAO Meteorology Panel (METP) convened twice in 2018: METP/3 was held on 26 and 27 April 2018 while METP/4 was held from 10 to 14 September 2018. Both meetings were held in Montreal, Canada.

2.2 METP/3 solely addressed the space weather work stream. More specifically, it reviewed the outcomes of site assessments and audits of prospective space weather information providers conducted by WMO at the request of ICAO. The Panel formulated a recommendation to the Air Navigation Commission in this regard.

2.3 METP/4 meanwhile addressed all topics (work streams) under the auspices of the Panel, including PANS-MET (re)introduction, releases of radioactive material, regional

hazardous weather advisory concept, space weather advisory information, volcanic sulphur dioxide, IWXXM requirements and documentation, MET-SWIM Plan, operation of the IAVW, WAFS and SADIS, and cost recovery and governance matters. The Panel formulated a total of 37 recommendations and 11 decision. 13 of the 37 recommendations contained draft material for inclusion in Amendment 79 to Annex 3 with intended applicability in November 2020 (or later for some embedded SARPs).

2.4 The final reports of METP/3 and METP/4 are available via the [ICAO Secure Portal](#) (restricted access).

2.5 The WMO Secretariat of the AEM Division attended both METP meetings in 2018 assisted at METP/3 by Lt. Col. Daniele Biron (Team Leader of TT-AVI of WMO IPT-SWeISS) and at METP/4 by the president of CAeM.

2.6 At the conclusion of the METP/4 meeting, a METP Management Group meeting was convened to discuss the outcomes of the meeting and to coordinate next steps.

2.7 All of the activities being addressed by the METP (and its working groups – see next) are of direct relevance to WMO and its Members.

2.8 As illustrated by the remarks above and below (2.9 onwards), the work programme of the METP and its subsidiary working groups is expansive. In numerous instances experts are involved who contribute to the work of ICAO (through METP or other panels) *and* to the work of WMO (through CAeM or other technical commissions).

2.9 Through Recommendation 2 (CAeM-16) as well as the outcomes of a bilateral meeting between the WMO Secretary-General and the ICAO Secretary General (April 2017), WMO has been tasked to seek opportunities to further improve the efficiency and effectiveness in its cooperation with ICAO, including the development of more effective working relationships and/or methods of cooperation for respective expert bodies and the elimination of any existing duplication or redundancy that may exist. The CAeM Management Group is strongly encouraged to initiate a dialogue with the METP Management Group in this regard. WMO Constituent Bodies Reform must be seen as an opportunity to forge closer working arrangements between WMO and ICAO, including at the technical level.

METP Working Groups

2.10 In 2018, the following METP Working Groups were convened (in chronological order):

- (1) WG-MOG addressing the operation and development of the Secure Aviation Data Information System (SADIS) and World Area Forecast System (WAFS) was held in Frankfurt, Germany from 10 to 13 April 2018. The WMO Secretariat did not attend these meetings.
- (2) WG-MIE addressing IWXXM requirements and documentation, a MET-SWIM Plan and general support and coordination needs was held in Boulder CO, United States of America from 1 to 4 May 2018. The WMO Secretariat of the WIS Branch attended this meeting.
- (3) WG-MISD addressing space weather, releases of radioactive material and regional hazardous weather advisory concept, WG-MRI addressing PANS-MET, GANP update and MET support to ATM, and WG-MCRGG addressing a White Paper on future aeronautical meteorological information services, cost recovery and governance matters were held in Washington DC, United States of America from 7 to 11 May 2018. The WMO Secretariat of the AEM Division attended these

meetings assisted by, for the RRM part, Mr. Rene Servranckx (Co-chair of WMO ET-ETA).

- (4) WG-MOG addressing the operation and development of the International Airways Volcano Watch (IAVW) and WG-MISD addressing volcanic sulphur dioxide were held in Wellington, New Zealand from 12 to 14 November 2018. These meetings immediately followed a conjoint session of the WMO VAAC BP and WMO//IUGG VASAG. The WMO Secretariat of the AEM Division attended these meetings assisted by the president of CAeM.

2.11 All of the forgoing ICAO METP WGs meetings formulated actions and decisions that directly fed to METP/4 (September 2018) and/or to future meetings of the WG.

2.12 A joint WG-MIE and WG-MRI workshop on future meteorological requirements was also convened from 26 to 28 November 2018 in Brussels, Belgium. The WMO Secretariat of the WIS Branch attended this workshop.

2.13 A WG-MCRGG meeting due to be held back-to-back with METP/4 was postponed at the last minute due to the overrunning of the METP/4. This has been rescheduled now for 21 (afternoon) and 22 February 2019 in Melbourne, immediately following a WG-MISD meeting.

2.14 The METP WGs continue, to a greater or lesser extent, to coordinate their activities during the intersessional periods through regular email exchanges and periodic (usually quarterly) tele/videoconferences.

AN-Conf/13 (Thirteenth Air Navigation Conference)

2.15 ICAO's Thirteenth Air Navigation Conference (AN-Conf/13) was held in Montreal, Canada from 9 to 19 October 2018. The theme of the conference was '*From Development to Implementation*' intended to encompass implementation of operational improvements (such as technology, operational concepts and roadmaps) from the conceptual phase until deployment.

2.16 The WMO Secretariat was unable to attend AN-Conf/13 due to a conflict of commitments and resource constraints.

2.17 Aeronautical meteorology was addressed by the AN-Conf/13 under Agenda Item 2 – *Enabling the global air navigation system*. In this regard, the Conference formulated four recommendations as follows (provisional numbering):

- (1) Recommendation 2.3/1 on the future provision of aeronautical meteorological service;
- (2) Recommendation 2.3/2 on the further development of IWXXM for the exchange of aeronautical meteorological information;
- (3) Recommendation 2.3/3 on the provision of space weather information service meeting the operational needs of users; and
- (4) Recommendation 2.3/4 on the development of cost recovery mechanisms for the provision of aeronautical meteorological information.

It is worthwhile to note that WMO was cited as a coordinating body in respect of Recommendations 2.3/2 to 2.3/4 inclusive. It is unfortunate however the WMO was not cited as a coordinating body in respect of Recommendation 2.3/1, despite references within the clauses of the recommendation to ensuring "sufficient capacity and expertise

to progress the work on the development of provisions related to aeronautical meteorology, including the foreseen impact on international air navigation due to climate change”, and the development of “implementation assistance, including guidance material [...]”.

2.18 In the context of the next (sixth) edition of the ICAO Global Air Navigation Plan (GANP), the Conference, under Agenda Item 1, formulated several recommendations to progress its development, including an agreement to migrate the GANP to a web-based platform and agreement with a proposed multilayer structure.

2.19 All recommendations stemming from AN-Conf/13 will be submitted for approval by the ICAO Council for subsequent endorsement by the 40th Session of the ICAO Assembly in September/October 2019.

2.20 All materials associated with AN-Conf/13, including working documentation and draft report materials, are available at URL:

<https://www.icao.int/Meetings/anconf13/>

Other ICAO-related matters

2.21 CAEP (Committee on Aviation Environmental Protection)

2.21.1. At the last CAeM-MG meeting in January 2018, the Management Group formulated Action A12-2018 requesting the ICAO Secretariat to assist in establishing the status of WMO’s membership of the ICAO Committee on Aviation Environmental Protection (CAEP). In addition, Recommendation 2 (CAeM-16) noted, inter alia, a need to ensure WMO’s contribution to the CAEP and its working groups.

2.21.2. In January 2019, ICAO confirmed that WMO had *lost* its observer status in CAEP in 2012 owing to a lack of participation.

2.21.3. In light of this situation, on 10 January 2019, the WMO Secretariat (AEM Division) immediately initiated an internal request for official correspondence to be sent from the WMO Secretary-General to the ICAO Secretary General seeking a reinstatement of WMO as an observer on the CAEP. However, this internal request was *declined* by the Office of the Assistant Secretary-General of WMO. Therefore, no exchange of letters between WMO and ICAO has taken place regarding WMO’s membership of CAEP and the matter is currently not being actively pursued.

2.21.4. As a consequence, WMO continues to play no role in the activities of the ICAO CAEP and its subsidiary structures and has no visibility of the activities being pursued by the CAEP in the context of aviation’s impact on the environment and the climate change and variability impacts on aviation. Notwithstanding, it is understood that a CAEP/11 meeting is taking place from 4 to 15 February 2019 in Montreal. The discussions and outcomes are, however, unknown to the WMO Secretariat given the prevailing situation.

2.22 AEP-ANSEP (Airport Economics Panel/Air Navigation Services Economics Panel)

2.22.1. WMO has recently reconfirmed its Observer status on ICAO’s joint Airport Economics Panel-Air Navigation Services Economics Panel (AEP/ANSEP). For the past several years there had been ambiguity in this regard.

2.22.2. Under the direction of the Air Transport Committee (ATC) of the ICAO Council, the AEP-ANSEP is charged with undertaking activities concerning, inter alia,

ICAO's policies on airport and air navigation services (ANS) charges and the improvement of guidance on the economics and management of airports and ANS.

2.22.3. There is evidently a strong association of the work of ICAO on ANS service charging mechanisms, including cost recovery for aeronautical meteorological service provision, and the work of WMO/CAeM in this regard.

2.22.4. An AEP-ANSEP/7 meeting will be taking place from 26 to 28 March 2019 in Montreal. At time of writing, the WMO Secretariat is determining the feasibility to attend the meeting.

3. IATA

FOSTF (Flight Operations Support Task Force)

3.1 As reported to the CAeM-16 session, for the past several years the WMO Secretariat has been contributing, in an expert capacity, to the work of an IATA Flight Operations Support Task Force (FOSTF). The FOSTF convenes typically once or twice per year, reports to an IATA Flight Operations Group (FOG), and offers airline representatives (IATA Members), air navigation service providers and others concerned (including public and private aeronautical meteorological service providers and WMO) the opportunity to discuss a range of aeronautical meteorology-specific matters, particularly those being addressed by the ICAO METP, in order to help IATA formulate position statements for METP and other groups.

3.2 The WMO Secretariat of the AEM Division was unable to attend FOSTF/4 in February 2018 due to a conflict of commitments and resource constraints.

3.3 The next (fifth) meeting of the FOSTF will take place in Dallas, United States of America on 5 and 6 March 2019. The meeting will address, inter alia, aircraft engine durability and susceptibility to sand, dust, volcanic ash and sulphur dioxide in the atmosphere, IWXXM developments, and progress on volcanic ash, space weather, regional hazardous weather advisory concept, WAFS and RRM issues.

3.4 A further (sixth) meeting of the FOSTF is likely to take place in October 2019 in Montreal, Canada [subject to confirmation].

ACTG (Accident Classification Technical Group)

3.5 As reported to the CAeM-16 session, WMO Secretariat recently initiated dialogue with an IATA Accident Classification Technical Group (ACTG). The ACTG convenes typically once or twice per year, reports to an IATA Safety Group (SG), and is tasked with reviewing and analysing aviation accidents, identifying contributing factors, determining trends and areas of concern relating to operational safety, and developing prevention strategies.

3.6 Annual IATA Safety Reports ([available here](#)) demonstrate that weather/meteorological conditions and the unnecessary penetration of aircraft into adverse or hazardous weather continue to be a significant threat and often one of the main contributing factors in aviation incidents and accidents on the ground and in the air, including runway excursions/overruns, loss of control in-flight (LOC-I) and controlled flight into terrain (CFIT). This is a recurring and, more recently, growing theme in IATA Safety Reports.

3.7 The WMO Secretariat of the AEM Division attended the January 2019 meeting of the ACTG which took place at the IATA regional office in Singapore. The meeting reviewed approximately 50 accidents involving the commercial airliner fleet during Q3

and Q4 2018 and revisited approximately 25 accidents that occurred in Q1 and Q2 2018. Some but not all accidents in 2018 resulted in a loss of life – either to some or all of those on board or to people on the ground at the time of the accident

3.8 A majority of the 2018 accidents occurred at or proximal to airports, especially in the approach/landing phase and the taxi/take-off phase. A minority of accidents occurred during the enroute phase of flight. While this has been apparent for many years, statistics from the work of the ACTG is now showing that 'the weather factor' is a recently growing trend in aviation accidents and is why, in particular, WMO sought to get directly involved in the work of IATA, in the interest of improving aviation safety and operational performance.

3.9 Based on the work of ACTG during the January 2019 meeting, the weather/meteorological conditions featured in 3 out of the top 6 contributing factors of accidents in 2018 – specifically, gusty winds/wind shear, thunderstorms and poor visibility/instrument meteorological conditions (IMC). Gear/tyre events, ground events and maintenance events took the other 3 places in the top 6. The unnecessary penetration by flight crew into (adverse) weather accounted for about 1 in 8 accidents.

3.10 It was commented by several experts during the ACTG meeting that there continues to be parts of the world, especially the developing world, where the flight crew is not receiving regular or reliable weather information for their origin, enroute and/or destination airports, often due to a breakdown in communication between the Met provider, ATC and the airline operator/flight crew. In addition, several experts shared a view that over recent years, based on their operational flying experiences, they believe the weather has become more extreme, more variable. This could, of course, be as a consequence of climate change.

3.11 Improved WMO dialogue with IATA in all these respects is intended to better quantify the weather threat and contributing factors with a view to seeking opportunities to further improve aeronautical meteorological service provision and, of course, aviation's safety performance.

3.12 The IATA Safety Report for 2018 will be published in April 2019 [here](#). The WMO Secretariat has been requested to actively contribute to the finalization of that report.

3.13 The next meeting of the ACTG will take place in Istanbul, Turkey from 10 to 12 June 2019. Since this directly coincides with the timing of Cg-18, the WMO Secretariat of the AEM Division will be unable attend.

Other IATA-related matters

3.14 IATA-WMO collaboration on AMDAR

3.14.1. WMO continues to work with IATA on a proposed formulation of arrangements and programmatic structures in which they will potentially collaborate on the future expansion and enhancement of the AMDAR (Aircraft Meteorological Data Relay) programme.

3.14.2. Following the recommendation of CBS, in June 2018 the Executive Council (EC-70) established a WMO Task Team on the IATA-WMO Collaboration on AMDAR (TT-IWCA) to coordinate, together with IATA, the further refinement and finalisation of the Concept of Operations, Terms of Reference and an Implementation Plan for the WMO-IATA Collaborative AMDAR Programme (WICAP), along with the proposed formulation of a related decision for WMO Congress. This work has now, at time of writing, reached a very mature stage and it is intended that a review process for the finalised documentation will be undertaken by the relevant WMO presidents of technical

commissions and regional associations, among others, ahead of its final approval and submission to Congress by the WMO President by end-February to early-March 2019.

3.14.3. Under the Concept of Operations, the organization and operation of a number of aspects of the AMDAR programme will become more centralized, including the establishment of requirements for data, the establishment of agreements between NMHS and airline partners, the processing of AMDAR data and the sharing of costs and infrastructure at the WMO regional level. IATA would play a key role in promoting and facilitating participation in the programme by the aviation industry based on an improved business case and understanding of the benefits to aeronautical meteorology and to aviation.

3.14.4. The Terms of Reference and principles will establish policy ensuring continued provision of data on the WMO Information System (WIS) and its use by all WMO Members for their operational purposes, while acknowledging retention of ownership of the data by airlines.

3.14.5. The Implementation Plan outlines a process and series of activities under which the RAs will establish the required regional coordinating and operational entities, and a financial framework to resource both regional and global programmatic operations and data communications, with a phased implementation over the next 5 years.

3.14.6. The WICAP will have the primary aim to expand and enhance the AMDAR programme, particularly in data-sparse areas and with extension of the coverage of turbulence and water vapour measurement. Based on meeting requirements for a minimal global coverage, this would be expected to lead to at least a doubling of the current airline participation of 40 airlines over the medium to longer term.
