



Our ref.: 24486/2017/WDS/AMSC-2017

13 July 2017

Annex: 1 (available in English only)

Subject: First Announcement and Call for Abstracts for the WMO Aeronautical Meteorology Scientific Conference (AMSC-2017)

Action required: To distribute the announcement to interested parties and to submit abstracts of papers via the conference website **not later than 1 September 2017**

Dear Sir/Madam,

I am pleased to inform you that the World Meteorological Organization (WMO) is organizing, under the auspices of the Commission for Aeronautical Meteorology (CAeM), the Commission for Atmospheric Sciences (CAS) and the Commission for Basic Systems (CBS), the Aeronautical Meteorology Scientific Conference (AMSC-2017).

At the kind invitation of the French government, the conference will be hosted by Météo-France at the Centre International de Conférences in Toulouse, France from 6 to 10 November 2017. The conference will be conducted in English only. The conference website is: <http://www.meteo.fr/cic/meetings/2017/aerometsci/>

The theme of the Conference is:

***“Aviation, weather and climate: Scientific research and development for future aeronautical meteorological services in a changing atmospheric environment.”***

The objective of this event is to provide an overview of the current state-of-the-art and foreseen advances in meteorological science and technology needed to underpin the changing global aviation industry, in line with the ICAO Global Air Navigation Plan (GANP) and its Aviation System Block Upgrades (ASBU) methodology. It is expected that this unique event will stimulate special research focus on high impact weather affecting safety and efficiency of the aviation and will foster rapid transition from research to operations. In addition, the event is intended to raise the awareness of the potential impacts of climate change and variability on aviation operations now and into the future. Further information is provided in the Concept Note in Annex (also available on the conference website).

To: Permanent Representatives (or Directors of Meteorological or Hydrometeorological Services) of Members of WMO  
 International Civil Aviation Organization (ICAO)  
 International Air Transport Association (IATA)  
 Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar (ASECNA)  
 International Federation of Air Line Pilots' Associations (IFALPA)  
 Civil Air Navigation Services Organisation (CANSO)  
 European Organisation for the Safety of Air Navigation (EUROCONTROL)

cc: Presidents and vice-presidents of technical commissions  
 Presidents of regional associations

The intended audience includes scientists and researchers working in aeronautical meteorological observations, forecasts and warnings; service providers (e.g., National Meteorological Services and other designated providers); users of aeronautical meteorological services; relevant international organizations; national and regional air traffic management modernization programmes; manufacturing industry.

The conference will comprise a blend of plenary keynote presentations, research papers, national and regional case studies and panel discussions. A poster session will also take place. The sessions themes include:

- Opening addresses and keynotes
- Session 1 – Science and technology underpinning aeronautical meteorological observations, forecasts, advisories and warnings
- Session 2 – Integration, use cases, fitness for purpose and service delivery
- Session 3 – Impacts of climate change and variability on aviation and associated science requirements.

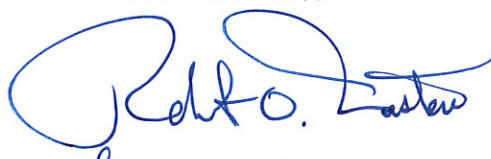
Registration for the Conference should be done online at:  
<http://www.meteo.fr/cic/meetings/2017/aerometsci/registration.html>. WMO would consider providing limited financial support to cover travel and/or subsistence allowance for young scientists and participants from developing countries, with preference to those who are selected to present papers or posters. A request for financial support should be clearly indicated at the time of registration.

With this first announcement, I would like to invite the submission of abstracts of papers and posters by completing the Abstract Submission Form which is available via the [conference website](#) **before 1 September 2017**. A scientific committee will select papers for oral presentations and poster displays taking into account the abstracts received.

Queries to WMO Secretariat concerning information about the Conference should be addressed to Mr Dimitar Ivanov, Chief Aeronautical Meteorology Division ([divanov@wmo.int](mailto:divanov@wmo.int)) or Mr Paolo Ruti, Chief, World Weather Research Division ([pruti@wmo.int](mailto:pruti@wmo.int)); and concerning the local organization of the Conference – to Ms Stéphanie Desbios, Météo-France Met Services for Aviation ([stephanie.desbios@meteo.fr](mailto:stephanie.desbios@meteo.fr)).

I should be grateful if you would make this announcement widely known within your respective Service and other relevant organizations engaged in research or service provision in the field of aeronautical meteorology in your country.

Yours faithfully,



(P. Taalas)  
Secretary-General

**WMO AERONAUTICAL METEOROLOGY SCIENTIFIC CONFERENCE  
(AMSC-2017)**

**TOULOUSE, FRANCE  
6-10 November 2017**

**CONCEPT NOTE**

**1. BACKGROUND AND RATIONALE**

1.1 The seventeenth WMO Congress (Cg-17, 2015) established an Aviation Research Demonstration project (AvRDP) and endorsed the engagement of WMO, in close collaboration with ICAO, in supporting the meteorological components of ICAO's Global Air Navigation Plan (GANP) and its Aviation Systems Block Upgrades (ASBU) methodology. The Executive Council at its sixty-eighth session (EC-68, 2016) agreed with general principles (see Appendix) for extended research activities coordinated by WMO, building on the progress of the current AvRDP and taking into consideration the envisaged performance improvements in the ASBU blocks with focus on transfer of the results into operational practice. EC-68 also endorsed the organizing of a WMO scientific event (conference or symposium or workshop) in 2017 with broad participation of research, operation and user communities, with the objective to identify needs and plan the research activities during the ASBU Block 1 and Block 2 timeframe.

1.2 In the context of the foregoing, there is an identified need for WMO to lead a consolidated scientific evaluation of the present and future meteorological capabilities required to support the current and foreseen aeronautical requirements stemming from the GANP and ASBU methodology, in particular ICAO's vision of a globally interoperable, harmonized air traffic management (ATM) system.

1.3 WMO is also committed to assist ICAO in determining the potential impacts of climate change and variability on aviation.

1.4 The WMO scientific conference will be a cross-cutting collaborative endeavour involving the Commission for Aeronautical Meteorology (CAeM), the Commission for Atmospheric Sciences (CAS), and the Commission for Basic Systems (CBS) in areas including aviation meteorological observations and data processing, forecasting and warnings, advanced methods of service delivery. Changing atmosphere regimes affecting extreme weather frequency and severity, as well as potential long-term impacts of climate change and variability on aviation will also be in the scope of the event.

**2. OBJECTIVE AND THEME**

2.1 With broad participation from research, operations and user communities, the objective of the conference is to identify needs and expectations over the next 10-15 of scientific research activities consistent with the planned global and regional industry changes.

2.2 The conference will embrace and strengthen community partnerships that already exist at a national and sub-regional level and will establish new partnerships fostering regional and global collaboration.

2.3 The theme (working title) of the conference will be:

*"Aviation, weather and climate: Scientific research and development for future aeronautical meteorological services in a changing atmospheric environment."*

### 3. EXPECTED OUTCOME AND OUTPUTS

3.1 The expected outcome of the conference will be a common vision for scientific research and development activities over the next 10-15 years aligned with the evolving needs and expectations of international civil aviation together with an increased awareness of the potential impacts of climate change and variability on aviation operations now and into the future.

3.2 Outputs of the conference will include a set of recommendations and a Conference Statement to guide scientific/research strategies in support of future aeronautical meteorological service provision. The proceedings of the Conference will be published as a WMO Publication (comprising full scientific articles/presentations) to ensure outreach to interested communities and stakeholders.

### 4. STAKEHOLDERS AND PARTNERS

A broad suite of scientific research partners, aviation stakeholders and other parties are expected to express interest in and support the event as follows:

- (a) WMO Member States and Territories, Technical Commissions and Regional Associations;
- (b) Scientific research institutes, universities and other academia;
- (c) International aviation organizations/associations such as ICAO, IATA, IFALPA, IFATCA and CANSO and others from the international aviation industry;
- (d) National or regional ATM modernization programmes including SESAR (Europe), NextGen (USA) and CARATS (Japan);
- (e) Meteorological instrumentation systems, data processing and display providers; and
- (f) Public and private meteorological service providers serving aviation.

### 5. FORMAT AND RESPONSIBILITIES

5.1 The conference will comprise a blend of plenary keynote presentations, national and regional case studies and panel discussions, taking into account leading scientific/academic research and aviation/industry best practices and developments. A poster session will also take place.

5.2 The basic programme structure for the conference will focus on:

- (a) Science underpinning aeronautical meteorological observations, forecasts, advisories and warnings through:
  - (i) Enhanced global meteorological information for flight planning and en-route operations;
  - (ii) Enhanced 4-dimensional information for meteorological hazards of any type, including the further development and integration of advisory and warning systems that serve aviation; and
  - (iii) Enhanced high-resolution 4-dimensional meteorological information for airport and terminal area operations;

- (b) Integration, use cases, fitness for purpose and service delivery through:
  - (i) Integration of meteorological information into the future globally interoperable, harmonized air traffic management (ATM) system enabled by system-wide information management (SWIM);
  - (ii) Availability of meteorological information to support collaborative decision making (CDM) and trajectory-based operations (TBO);
  - (iii) Meteorological information/data representation and service delivery for enhanced situational awareness and decision-making support for strategic, pre-tactical and tactical ATM decision time horizons – from “immediate” (0-20 minutes) to hours and several days ahead;
- (c) Impacts of climate change and variability on aviation and associated science requirements.

5.3 A scientific committee will assist WMO with the selection of oral presentations and poster displays for the conference taking into consideration the abstracts received. In addition, an organizing committee will assist WMO to oversee logistics and outreach for the event including dates/duration, location and host, funding, sponsorship and exhibiting as appropriate, hospitality, agenda and programme schedule, invitations, communications and other related publicity.

---

Appendix

## APPENDIX

### Annex to Decision 44 (EC-68)

#### RESEARCH AND DEVELOPMENT FOR FUTURE AVIATION METEOROLOGICAL SERVICES ENVISAGED IN THE ICAO GANP AND ASBU (General principles)

1. Alignment with ASBU time blocks and planned performance improvements
  - (a) AvMET research should be planned in accordance with the ASBU time blocks, as follows<sup>1</sup>:
    - Block 0 - 2013-2018
    - Block 1 - 2018-2023
    - Block 2 - 2023-2028
    - Block 3 - 2028+
  - (b) Research should be focused on the four performance improvement areas defined by the ASBU:
    - Airport Operations
    - Globally Interoperable Systems and Data
    - Optimum Capacity and Flexible Flights
    - Efficient Flight Path
2. Areas of research. The planning of future projects should consider the already established ASBU MET modules and contribute to achieving the planned outcomes.

The following areas of research activities should be considered:

- (a) Improved observations, forecasting and warnings:
    - Enhanced global MET data – further development of the WAFS
    - Enhanced 4-dimensional information for meteorological hazards of any type – further development and integration of warning and advisory systems
    - Enhanced high resolution 4-dimensional MET information for airports and terminal areas
  - (b) Integration, use cases, fitness for purpose, delivery:
    - Integration of MET information in the digital information management through the ICAO System-Wide Information Management (SWIM)
    - MET information to support collaborative decision making (CDM)
    - MET information to support trajectory-based operations (TBO)
    - MET information representation and delivery for enhanced situational awareness and decision making support to different ATM decision horizons – from “immediate” (0-20 minutes) to several days ahead
  - (c) Climate change impacts on aviation industry.
3. Coordination between technical commissions and WMO Programmes
    - (a) Research activities should be planned in close coordination between CAeM, CAS and CBS. Other Commissions like CCI should be involved in some specific activities;

---

<sup>1</sup> Subsequent to Decision 44 (EC-68), the ICAO 39<sup>th</sup> General Assembly endorsed revised ASBU time blocks in the fifth edition (2016) of the ICAO Global Air Navigation Plan. Consequently, the ASBU time blocks are now: Block 0 (2013 to 2018), Block 1 (2019 to 2024), Block 2 (2025-2030) and Block 3 (2031 onwards).

- (b) Technical commissions should participate through their relevant expert subsidiary bodies whose work programmes should be aligned with the agreed inter-commission tasks and projects;
- (c) The overall coordination of the aviation-oriented research and development projects should be done by the AeMP. Support to such projects should be provided by relevant Programmes, such as WWRP, GAW, WIGOS, WIS, GDPFS, WCRP.

#### 4. External coordination and partnership

- (a) Research and development activities on enhanced meteorological information and services in support of the future ATM are being conducted by many research institutions, consortia and private companies. Large scale ATM projects (NextGen (USA), SESAR (Europe), CARATS (Japan), etc.) include comprehensive research programmes with substantial funding. A number of Members' NMHSs are engaged in such projects. The current WMO AvRDP and future projects on MET support to GANP and ASBU performance improvement areas should be well coordinated with existing research efforts and partnerships with ICAO, other relevant organizations and stakeholders should be fostered;
- (b) Engagement of service providers and stakeholders should be sought in order to ensure the "fitness for purpose" and accelerate the transfer from research to operations;
- (c) Research and development of systems to improve nowcasting for aviation purposes should be of such a nature that developing countries can also benefit from this initiative to enhance aviation safety in areas where highly sophisticated instruments and computer resources are not always available.

#### 5. Format of project activities and funding

- (a) WMO research projects should be based mostly on voluntary cooperation between WMO Members and their NMHSs or other aeronautical meteorological service providers (AMSP), and relevant research institutions. Jointly planned research activities and information sharing are among the main drivers that would bring collective benefits;
- (b) WMO Secretariat should facilitate the research activities through secretarial support, in particular organization of project events, editing and publishing project outcomes, communication and outreach;
- (c) WMO should also play an important role in organizing dedicated scientific events that would demonstrate the importance of the coordinated research and development for the enhancement of the MET information and services to aviation that would bring the desired benefits to the aviation safety, efficiency and regulatory, and address the related environmental issues;
- (d) In view of (c) above, a dedicated scientific WMO event should be organized in coordination with relevant partners, preferably in 2017, to ensure the appropriate WMO positioning in the global research activities related to aeronautical meteorology during the time period of ASBU Block 1 and Block 2 (2018-2028);
- (e) Funding of research activities through the WMO regular budget would not be sufficient, therefore, appropriate resource mobilization actions should be envisaged.