WMO OMM

World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
世界气象组织

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

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Annexe: 1 (disponible en anglais seulement)

Objet: Conférence scientifique de l'OMM sur la météorologie aéronautique: première annonce et invitation à présenter des communications

Suite à donner: Diffuser l'annonce auprès des intéressés et présenter les résumés des communications envisagées via le site Web de la conférence le **1er septembre 2017 au plus tard**

Madame, Monsieur,

J'ai le plaisir de vous informer que l'OMM organise la conférence mentionnée en objet sous les auspices de la Commission de météorologie aéronautique (CMAé), de la Commission des sciences de l'atmosphère (CSA) et de la Commission des systèmes de base (CSB).

À l'aimable invitation du gouvernement français, la conférence sera accueillie par Météo-France au Centre international de conférences de Toulouse, France, du 6 au 10 novembre 2017. Elle se déroulera en anglais uniquement. Le site de la conférence peut être consulté à l'adresse http://www.meteo.fr/cic/meetings/2017/aerometsci/.

Le thème de la conférence est le suivant:

***«Aéronautique, météorologie et climat: recherche et développements scientifiques pour les services de météorologie aéronautique du futur dans un environnement atmosphérique en évolution»***.

Cette conférence vise à faire le point sur les dernières avancées dans le domaine des sciences et techniques météorologiques et les progrès à réaliser pour soutenir les évolutions de l'aéronautique au plan mondial, conformément au Plan mondial de navigation aérienne de l'OACI et à la méthode de mise à niveau par blocs du système de l'aviation (ASBU). Cet événement unique devrait encourager les recherches sur les conséquences qu'ont les conditions météorologiques à fort impact sur la sûreté aéronautique et faciliter le passage rapide de la recherche à l'exploitation. De plus, il est attendu que cet événement sensibilise aux incidences éventuelles du changement climatique et de la variabilité du climat sur les activités aéronautiques, maintenant et à l'avenir. Vous trouverez de plus amples informations dans la note de synthèse ci-jointe (ainsi que sur le site Web de la conférence).

Aux: Représentants permanents (ou directeurs des Services météorologiques ou hydrométéorologiques) des Membres de l'OMM
Organisation de l'aviation civile internationale (OACI)
Association du transport aérien international (IATA)
Agence pour la sécurité de la navigation aérienne en Afrique et à Madagascar (ASECNA)
Fédération internationale des associations de pilotes de ligne (IFALPA)
Civil Air Navigation Services Organisation (CANSO)
Organisation européenne pour la sécurité de la navigation aérienne (EUROCONTROL)

cc: Présidents et vice-présidents des commissions techniques
Présidents des conseils régionaux

La conférence s'adresse aux scientifiques et chercheurs œuvrant dans le domaine des observations, prévisions et alertes relatives à la météorologie aéronautique; aux prestataires de service (tels que les Services météorologiques nationaux et d'autres prestataires désignés); aux utilisateurs des services de météorologie aéronautique; aux organisations internationales compétentes; aux programmes nationaux et régionaux de modernisation de la gestion du trafic aérien; et à l'industrie manufacturière.

Elle associera exposés liminaires en plénière, documents de recherche, études de cas nationales et régionales, tables rondes et présentation d'affiches. Les séances porteront sur les thèmes suivants:

- Allocutions d'ouverture et discours liminaires
- Séance 1 – La science et la technologie au service des observations, prévisions, alertes et avis relatifs à la météorologie aéronautique
- Séance 2 – Intégration, cas d'utilisation, adéquation à l'usage et prestation de services
- Séance 3 – Incidences du changement climatique et de la variabilité du climat sur le secteur aéronautique et exigences scientifiques en rapport

L'inscription pour la conférence se fait en ligne à l'adresse http://www.meteo.fr/cic/meetings/2017/aerometsci/registration.html. L'OMM envisagera de fournir un soutien financier limité pour couvrir les frais de voyage et/ou de subsistance de jeunes scientifiques et de participants de pays en développement, en accordant la priorité à ceux qui ont été choisis pour présenter des communications ou des affiches. Il est nécessaire de présenter clairement la demande d'assistance financière au moment de l'enregistrement.

Je vous invite via cette première annonce à présenter des résumés de communications et d'affiches en remplissant le formulaire prévu à cet effet sur le site Web de la conférence avant le **1er septembre 2017**. Un comité scientifique sélectionnera les communications qui feront l'objet d'un exposé oral ou d'un affichage en tenant compte des résumés reçus.

Pour toute question sur la conférence à l'intention du Secrétariat de l'OMM, veuillez contacter M. Dimitar Ivanov, Chef de la Division de la météorologie aéronautique (divanov@wmo.int) ou M. Paolo Ruti, Chef de la Division de la recherche sur la prévision du temps (pruti@wmo.int) et pour les questions concernant l'organisation de la conférence sur place, Mme Stéphanie Desbios, des services météorologiques pour l'aéronautique de Météo-France (stephanie.desbios@meteo.fr).

Je vous serais reconnaissant de bien vouloir assurer une large diffusion de la présente annonce au sein de votre Service et des organismes nationaux de recherche ou de prestation de services dans le domaine de la météorologie aéronautique.

Veuillez agréer, Madame, Monsieur, l'expression de ma considération distinguée.

pour (P. Taalas)
Secrétaire général

**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 potenmtial 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.

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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[1]:
   - 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 CCl should be involved in some specific activities;

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[1] Subsequent to Decision 44 (EC-68), the ICAO 39th 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.

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