**REVIEW OF EXPERT TEAM WORK PLAN PROGRESS**

**AND STATUS OF FOLLOW-UP TO ACTIONS FROM THE LAST MEETING**

**ET-ISA work plan and action item status**

*(Submitted by the ET-ISA Co-Chairs)*

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| **Summary and Purpose of Document**  This document provides a progress report on the ET-ISA work plan as well as the status of follow-up of actions assigned to ET-ISA arising from the last joint meeting (ET-ASC/ET-ISA/1 held 30 March to 1 April 2015). Key activities were in the involvement of several ET-ISA core members into the ICAO Meteorology Panel working groups, in the preparation of the forthcoming WMO Aeronautical Meteorology Scientific Conference, in the monitoring of MET services requirements stemming from national or regional programmes for ATM modernization, and in the support to implementation of MET information exchange under SWIM by WMO members. |

**ACTION PROPOSED**

The meeting is invited to note the information contained in this document and to use it in the further development of the ET-ISA work plan, including the interactions of the expert team with other expert teams/working groups on the WMO and ICAO side.

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1. **EXECUTIVE SUMMARY** (to be included in the final report)

1.1 The meeting was apprised that since the last joint meeting of ET-ASC and ET-ISA, held 30 March to 1 April 2015, the Expert Team for Information and Services for Aviation (ET-ISA) had mainly focussed on its contribution to the ICAO Meteorology Panel working groups (METP WGs), especially those for the development of concept of operations, roadmaps and implementation guidance on the MET components of the aviation system block upgrades (ASBU) methodology and on the transition to system wide information management (SWIM) and implementation of the ICAO meteorological information exchange model (IWXXM).

1.2 The meeting noted that some ET-ISA experts, as advisors in the METP WGs and work streams, contributed to the improvement of the description of the B1-AMET ASBU module for terminal area aspects and that they would continue to provide input for the ASBU framework update in preparation of the next major update of the ICAO Global Air Navigation Plan (GANP). The expertise from the ET-ISA was also currently required in the reviewing process undertaken by the METP WG-MRO (Meteorological Requirements and Integration) of functional and preliminary performance requirements for future MET information in support of the Global Air Traffic Management Operational Concept (GATMOC), as well as linked to specific modules of the GANP/ASBU’s performance improvement areas.

1.3 In addition, the meeting was informed that ET-ISA team experts had also been involved in several WMO or ICAO groups on MET information exchange under SWIM (definition of the IWXXM, guidance for the implementation of exchange of OPMET data) and on SWIM (including standards and policies development). Furthermore, through a periodic CAeM Newsletter, ET-ISA members advised the CAeM community on the availability of first versions of guidance material for the implementation of IWXXM and exchange of OPMET data, and on the coordination with WMO CBS groups about possible connection between SWIM and the WIS.

1. **ET-ISA WORK PLAN PROGRESS SINCE THE LAST MEETING**

***Development of relevant background material, methodology and implementation guidance on the MET components of the ASBU (WPA)***

2.1 Since March 2015, several ET-ISA members have been contributing to the development of background material (CONOPS, roadmaps) on the Met components of the ASBU, through their participation as advisors in the ICAO MET Panel’s WG, especially the WG for Met Requirements and Integration (MRI), the WG for Met Information Service Development (MISD) and the WG for Met Operations (MOG). After providing comments and additions to the TBO concept document and its appendices on Met capabilities, the team has not been requested for further additions by the WG-MRI Rapporteur. In October 2016, at its 2nd meeting, the MET Panel endorsed the recommendation for a request to the ANC to urge ICAO to publish this Concept, newly named the “*Concept for the integration of meteorological information for ATM*”, as a matter of priority. When it would be officially published, the updating and revision process might be different from what it has been up to now, with some consequences on the related ET-ISA activity to foresee.

2.2 The appendices on Met capabilities of the “*Concept for the integration of meteorological information for ATM*” document were based on the demonstration documentation on current and foreseeable MET capabilities for Met services in support of ATM, with a focus on the terminal area, which was developed by the former CAeM ET-M&M. The ET-ISA work plan includes a task for updating this documentation with generic examples and with information on performance of those capabilities. This activity was launched during the last teleconference of the group on 31 March 2017 and, at time of writing, remains on-going.

2.3 Moreover, the ICAO WG-MRI at it second meeting agreed to coordinate with the ET-ISA members (as advisors in the WG) on functional and performance requirements of MET information and services to support selected ASBU Block 1 Met modules. On 23 March 2017, the WG-MRI task leader for the development of these requirements requested the support and inputs from group members, in order to review and comment a draft of those requirements, with the intention to prepare a Study Note for the next WG-MRI’s meeting planned in July 2017. The ET-ISA then agreed to launch this reviewing activity at its last teleconference, activity that is now on-going.

2.4 In 2016, one of the ET-ISA co-chairs contributed to the description improvement on terminal area aspects of ASBU Block 1 Met module (B1-AMET) with a proposal of a new description text. This proposal for a revised description was submitted to the second METP and endorsed. In the meantime, ICAO launched an ASBU framework update process, as the technical part of the whole GANP reviewing activity, with the objective of providing consolidated input for the next major GANP update and set up a dedicated team named the ASBU Panel Project Team (ASBU-PPT). One of the ET-ISA co-chairs has been nominated as ASBU-PPT member. As the ET-ISA members could assist in this activity which would be performed mainly in 2017, a new activity has been added in the team work programme.

2.5 Within this ICAO framework, modules from the ASBU methodology such as AMET, SWIM, ACDM, TBO and others have been classified as operational threads or as information threads that may support the previous ones. AMET is one of the information threads. At the last ASBU-PPT meeting in early May 2017, almost all operational threads were reviewed in order to advance and, if possible, finalize the description of the thread (detailed elements), to identify the dependencies on other threads (such as meteorology) and the enablers, and to draft the performance analysis part, as included in the template of each thread description.

2.6 Information threads, such as meteorology, were also reviewed in such a way that relevant information threads’ elements possessing dependencies with operational threads be easily identified. In this objective, METP experts conducted an intensive restructuring and rewording activity of the AMET thread template. The new AMET thread template now includes a list of elements for Blocks 0 and 1. In each element’s description, detailed MET products and information requirements are listed. Each other operational thread would then be allowed to identify the MET requirements their implementation is dependent on.

2.7 Team members as advisors in the ICAO METP WG were also assisting in the development of other relevant roadmaps and concepts of operation (ConOps), especially those for the WAFS, for Space Weather, and for Release of Radioactive Materials. The development of documentation for the Regional Hazardous Weather Advisory Centre (RHWAC) was efficiently performed by several team members as advisors in the WG-MISD RHWAC work stream, but this work was put on stand-by with the introduction by the WG-MISD Rapporteur and aviation users representatives, of a new concept “International Aviation Hazard Watch (IAHW)” that would define a new phenomenon-based globally-consistent warning system, based on draft proposals made by the Service Definition Team on Meteorological Information (SDT-MI) of WG-MISD as part of the METP Panel Requirement Development Process, e.g. user needs analysis, capability assessment and ConOps. ET-ISA members as advisors in the WG-MISD would still assist in the development of the documentation related to this new concept in the next months and would assist in identifying the foreseen consequences on WMO members’ aviation services that this new concept may have.

2.8 At teleconference on 31 March 2017, the ET-ISA discussed issues related to the Concept of Operations (ConOps) for the WAFS and its associated Roadmap. Whereas this ConOps intended to address needs of several users, the team members noted firstly that operations of some of these users are not under the scope of the WAFS and secondly that the future WAFS provisions would not fulfil some of these users' needs. Moreover and within the same logic, some clarification were needed on the process for the definition of requirements for MET services to aviation within the MET Panel and its working groups. The team then agreed that a Study Note gathering and presenting these issues should be drafted with the intention to submit it for the next ICAO MET Panel Working Group on Meteorological Requirements and Integration (WG-MRI) to be held in Montreal in July.

2.9 The ET-ISA co-chairs have also been highly involved in the preparation of the WMO CAeM/CAS/CBS Aeronautical Meteorology Scientific Conference (AeroMetSci-2017), as members of the Organizing Committee (OC), and in collaboration with the ET-ASC and with the WDS/AeM Secretariat. This conference is going to be hosted by Météo-France, at its Centre International de Conférences in Toulouse, France, from 6 to 10 November 2017. Logistical and budget considerations are addressed by the host representative and the WMO Secretariat. The OC agreed on the provisional programme and scientific topics that would be presented during the conference and is currently establishing the Scientific Committee that would then finalize the detailed programme for the event and contact foreseen presenters. Those would be from science and research organizations (academia, universities, national research institutes, etc.), from the aviation community (airlines, ATM, airport management, etc.) and from the industry. Information on AeroMetSci-2017 is also provided in [Doc. 7](https://www.wmo.int/aemp/sites/default/files/d07_upcoming-events_et-asc-isa-2.docx).

***Current and future MET capabilities to support requirements of GANP and ASBU (WPB)***

2.10 The large-scale projects such as SESAR, NextGen and CARATS have developed functional and performance requirements for new Met Information and Services. Some of these new services would be implemented in a near future, for instance through deployment projects. The gathering activity of functional and performance requirements of these new services is on-going, with some inputs from the SESAR programme already available. The co-chairs in coordination with the WMO Secretariat (AEM Division) may be able to organize the repository of this information into WMO web facilities. Information is expected from the NextGen programme or the broader new ATM modernization programme in the USA that may encompass NextGen, from the CARATS programme, from the ‘OneSky’ project in Australia and from any other project for Met support to ATM.

***Performance metrics and validation methodologies for new or enhanced MET information and services (WPC)***

2.11 Due to the work load associated with ICAO MET Panel WGs, this work package C of the ET-ISA work plan about performance metrics and validation methodologies has made no progress up to now. The results of the AvRDP project and the gathering activity of performance information for the current and foreseen Met capabilities (see §2.2 & 2.3) should be the grounding of the tasks under this WPC, which would be performed in 2017 and 2018. Coordination with the ET-ASC is also needed.

***SWIM MET data standards and policies; implementation of MET information exchange under SWIM by WMO Members (WPD)***

2.12 Since March 2015, the WMO CBS TT-AvXML developed and published several releases of the MET information exchange model, IWXXM, and associated XML/GML schemas for OPMET data. The latest one was the release IWXXM2.1, which was endorsed by the 69th Session of the WMO Executive Council on 17 May 2017. This recent release includes several improvements for existing schemas (TAF, SIGMET) as well as the new schemas for TCA, VAA and AIRMET messages. The TT\-AvXML is also preparing the next version of IWXXM3.0, with one of the objectives being to accommodate the new requirements needed for the introduction of Space Weather services.

2.13 However, some ET-ISA and TT-AvXML members have noted that predominantly efforts for the development of provisions to enable the inclusion of aeronautical meteorological information in the future SWIM environment are focussed on the translation of pre-existing OPMET information from TAC into IWXXM-compliant XML/GML format. Then concerns were expressed that without a significant change to the approach adopted by ICAO for this inclusion, the continued development and implementation of IWXXM could become increasingly expensive, inefficient and ultimately unsustainable – particularly but not exclusively as the meteorological ‘product set’ expands. An ad-hoc, informal virtual meeting was conducted to discuss this issue, involving experts from ET-ISA and TT-AvXML. This small informal group noted that a Study Note was already expected to be submitted for the next ICAO WG-MIE meeting to be held in July 2017, with the objective to present the need to adopt a clearer strategy on future digital data/information exchange under the SWIM that would be more information-centric than product-centric as it is today.

2.14 The coordination with the CBS groups was strengthened in 2016 by the establishment of a new Inter-Commission Task Team on the WMO Information System (ICTT-WIS), under IPAG-ISS, which membership was composed of representatives of the WMO Technical Commissions. The ICTT-WIS proposed to establish another Task Team, under ICT-ISS, to address information management and governance issues; the establishment of this new team called TT-IM was to be approved by the CBS at its 16th Session (23-26 November 2016). The ICTT-WIS recommended participation in the TT-IM by experts from Technical Commissions. Consequently, if approved by the CBS-16, the ET-ISA or the CAeM Management Group would be asked to nominate a representative of the CAeM community for this team, and a new activity would be added to the ET-ISA work programme.

2.15 On the ICAO side, apart from the METP WG-MIE activities and deliverables (see §2.14), the ET-ISA noted several events related to the SWIM and/or to the IWXXM, the most recent being an ICAO IWXXM implementation workshop in the EUR region held on 17 and 18 May 2017. Such events aim at communicating and raising awareness of ICAO contracting States and aviation industry about SWIM (including standards and policies development) and about implementation of MET information exchange under SWIM. In this regard, the ET-ISA is currently collecting and gathering information on the status of implementation of MET information exchange under SWIM, in States, and on trials and testing.

2.16 At its second meeting in October 2016, the Met Panel was informed by the WG-MIE about several documents which had been developed regarding SWIM and IWXXM: the Plan for Meteorology in System Wide Information Management (SWIM) to be considered as complementary to the introduction of the Manual on System Wide Information Management (Doc 10039), the Roadmap for Meteorology in System Wide Information Management (SWIM) (initial version 1.0 developed by the WG-MIE), and the Guidelines for the Implementation of OPMET Data Exchange using IWXXM (draft version 1.0) whose intention is to describe the activities relating to the transition of intra- and inter-regional operational meteorological (OPMET) data exchange in the 2016 to 2020 timeframe. ET-ISA experts plan to contribute to the development of guidance materials on the implementation of IWXXM, based on this WG-MIE documentation. This activity would be started according to the WG-MIE timeline.

2.17 The ET-ISA communicated on the implementation of Met information exchange under SWIM, on the IWXXM and on documentation available to assist WMO members through the CAeM Newsletter’s first edition published in February 2017.

**3. STATUS OF ET-ISA ACTIONS ARISING FROM THE LAST MEETING**

**3.1 List of actions agreed by ET-ISA during the ET-ASC/ET-ISA/1 joint meeting (30 March to 1 April 2015, Toulouse)**

1/1 Organize 2nd teleconference: **complete**

1/2 Update the ET-ISA work plan according to ET-ISA/1 discussion, and ICAO MET Panel’s 1st meeting outcomes and WG job cards and work programmes: **complete**. Refer to INF.2.2 Updated ET-ISA work programme.

1/3 Provide input to the METP meeting in regards of job card on ATM requirements: **complete**

1/4 Provide input to the Appendices A and B of the TBO concept document: **complete**

1/5 Adding example(s) of verification methodology to the TBO concept document: **cancelled**. No further information to be added to the TBO document was requested by the ICAO WG-MRI Rapporteur.

1/6 Input to the METP meeting in regards of future availability of AMHS: **complete**

1/7 WP to the METP regarding issues with XML: **complete**

1/8 Information about Australian new ATM system “One Sky”: information provided by Michael Berechree on December 2016, **to be updated as necessary**.

1/9 Update contents on the legacy ET’s web-site : **on-going** activity. Refer to INF.2.2 Updated ET-ISA work programme.

1/10 Use of Yammer as a sharing platform for ET-ISA members: Not implemented, **to be discussed again** at ET-ISA/2.

**3.2 Updated ET-ISA work plan**

3.2.1 The updated ET-ISA work plan is provided in [INF. 3](file:///S:\AEM\ETs\ET-ASC\2nd%20meeting\DOCS\FINAL_DOCS\inf03_latest-et-isa-work-plan_et-asc-isa-2.docx).

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