WORLD METEOROLOGICAL ORGANIZATION

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COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMME AREA GROUP
ON INTEGRATED OBSERVING SYSTEMS

02.IX.2013

EXPERT TEAM ON AIRCRAFT-BASED OBSERVING SYSTEMS

ITEM: 5.2.4

FIRST SESSION

Original: ENGLISH

Geneva, Switzerland, 10-13 September, 2013

STATUS & PROGRESS ON ET-ABO WORK PLAN TASKS 2013-14

TRAINING & OUTREACH

ABO & AMDAR Benefits Documentation

(*Submitted by the Secretariat)*

SUMMARY AND PURPOSE OF DOCUMENT

To provide the Session with a summary and the status of various activities to develop benefits material and documentation in support of the Aircraft-Based Observations Programme.

ACTION PROPOSED

The Session is invited to note and discuss the information provided in the document.

References

1. ET-ABO Work Plan

ABO & AMDAR BENEFITS DOCUMENTATION

Background

1. The work plan of ET-ABO has two tasks specifically aimed at the development of information and material that will describe the benefits and impact of aircraft-based observations (ABO), including AMDAR data.

2. The first of these is Task 18, Papers on Impact of AMDAR Data, which is discussed in detail under item 5.2.4.2. It is expected that the results of this work, being undertaken by consultant, Dr Ralph Petersen under a WMO Special Services Agreement (SSA), will provide significant input to, and references for, two other benefits documents that are being compiled.

Study and Document on Benefits of AMDAR to the Airline Industry (Task 19)

3. The second of these is Task 19, AMDAR Impacts and Benefits document for Aviation, which has been an ongoing task for several years. From the AMDAR Panel 14th Session:

   The Joint Meeting was informed that the Special Service Agreement (SSA) that had been put in place for the production of the AMDAR Manual on Benefits [of AMDAR] to the Airline Industry had been terminated in July 2011 due to the ill health of the contractor and, as a result, his inability to undertake and complete the work. Several possibilities for progressing this work were discussed and it was agreed that the need to compile benefits material for both the aviation industry and NMHSs on the benefits of involvement in the AMDAR Programme and its extension for water vapor measurement was a high priority.

4. This task has been progressed by the ET-ABO Leadership during 2013. The original Description of Work for the task was revised and updated and is provided within Annex I of this document.

5. The request for Expression of Interest (EoI) for undertaking this work was made in July 2013 and 3 strong candidates have responded and submitted EoIs. After the first round of assessment by ET-ABO Leadership and the Secretariat, a clear selection was not able to be made by the assessment panel and the candidates have since been requested to each submit additional information. It is expected that the final assessment will be concluded by the end of September and the SSA award for commencement in October 2013.

The Benefits of Aircraft Meteorological Data Relay (AMDAR) Data to Meteorology and Aviation

6. While Task 19 has the specific requirement to address and provide benefits to aviation from the aviation perspective and as determined and/or endorsed by aviation, there exists an additional requirement to develop material that identifies the benefits of ABO from a meteorological Data User perspective. The resulting document or documents would be expected to be useful for the development of business cases by both NMHSs and airlines for prospective AMDAR programme developments.

7. This 3rd task, which has not yet been incorporated into the ET-ABO Work Plan, is also considered a high priority and has already been commenced. In July 2013, a first draft was produced by the Secretariat based on existing material and circulated to ET-ABO, TT-AO and operational programme managers to comment initially on the structure and proposed content. Based on this feedback, a 2nd draft has been produced and is provided as INF.5.2.4.1 of the Document Plan.

8. **It is recommended** that the task to develop the document, The Benefits of Aircraft Meteorological Data Relay (AMDAR) Data to Meteorology and Aviation, is incorporated into the

ET-ABO Work Plan and the team determines the timeline and resource requirements to complete the task.

Annex I

World Meteorological Organization

Aircraft-Based Observations Program

Description of Work

STUDY AND DOCUMENT ON: BENEFITS OF AMDAR TO THE AIRLINE INDUSTRY

Motivation:

The benefits of AMDAR to the meteorological community for improvement to the quality of meteorological analyses and forecasts are well known and widely accepted. Evidence of the value of the data is well documented in NWP impact studies, articles in meteorological journals and operational case studies.

As the continued operation and expansion of the Global AMDAR Program depends heavily on cooperation with and support from the airline industry, there is an urgent requirement to develop a business case document containing collected and researched evidence to demonstrate the benefits of AMDAR to the airline industry. While one of the primary focuses of this document will be the positive impact that AMDAR has on the improved quality of meteorological support and services to airlines, ATC/ATM, FAAs/CAAs and airports, it will furthermore address issues of concern and relevance in the areas of airline operations, economy, safety and the environment. Some of this information is available in existing airline documents and reviews describing events in which the use of AMDAR data has been beneficial. Other information and material can be sought and obtained from relevant contacts in the airline industry with experience of AMDAR.

The document should also reflect clearly the contribution of the airline to the public good in participation in the AMDAR Program, in particular by making a direct contribution to improving the quality of weather forecasting products and services resulting in more accurate and timely predictions, alerts and warnings to the general public in the case of severe weather events and disaster relief efforts.

Contact between the AMDAR community and the airline industry currently are becoming more frequent and more intensive, with the aim to stengthen and expand the ties as partners in the Global AMDAR Program. Important developments with considerable financial implications for the AMDAR Program are expected in the near future (water vapour capability, implementation of the AOSFRS - AMDAR Onboard Software Functional Requirements Specification). It is important that the case is made and demonstrated that AMDAR Program operation, maintenance and expansion is and will be beneficial to both the aviation and meteorological communities and, therefore, the financial burden for its development and operation should be borne by both as benefiting collaborators and partners.

The resulting document will become a key business case tool to be used by WMO Members to promote the AMDAR Program and to convince potential airline partners of the benefits of AMDAR to the aviation industry and to airline operations.

Task (Description of Work):

The Consultant will, under the general and specific terms of a WMO Special Services Agreement and in consultation with and under guidance from the WMO Scientific Officer (Aircraft and

Remotely-sensed Observations) and other WMO Commission for Basic System experts, compile the document: *Benefits of AMDAR to the Airline Industry*.

The Consultant will research, seek, analyse, summarise and compile published and unpublished articles, reviews, impact studies, comments and other relevant information showing the use of AMDAR data which resulted in a benefit to the airline and other industry stakeholders. The examples should encompass the scope of airline industry activities and operations, including (but not limited to) AMDAR benefits and impact on:

- weather services to aviation,
- flight operations (efficiencies and cost savings),
- flight and passenger safety (e.g. improved warning against icing, turbulence, etc)
- fuel economy (e.g. CDA, economical selection of de-icing),
- impact of aviation to the environment (e.g., noise reduction, Green Approach/CDA, CO2 reduction, avoidance of contrails),
- ATC/ATM operations (flight plan optimization),
- FAA/CAA operations (if applicable, CAAs are not everywhere directly involved),
- airport operations (runway use/directions, terminal allocation) and
- the positive impact on the quality of aeronautical meteorological service provided (improvement in TAFs, models, optimization of forecasts/skill).

It may be necessary and beneficial to the process of researching and compiling the deliverable to interview and collect comments, reviews, information and documents from:

- (Chief-)Pilots and dispatchers as they are the direct users/beneficiaries of the data within the airlines.
- Airport operations managers; and,
- Air Traffic Management contacts;

Deliverables

1. Monthly progress reports to be made to the WMO Secretariat; and
2. Document that can immediately be published and used by the AMDAR Program as a business case tool.

Timeline and Milestones:

It is expected the SSA will form a contractual agreement between WMO and the Consultant for the production of the Deliverable over a total period of 6 months and should constitute 3 months of full time work, at the WMO Professional Level 3 (approximately).

The following milestones would be expected:

1. Document outline with full scope, summary of content and description of research to be undertaken: delivery after 2 months (payment of 20% of total remuneration)
2. First draft of document: delivery after 5 months (payment of 20% of total remuneration)
3. Final draft of document: delivery at end of contract (payment of balance of total remuneration)
