

**WORLD METEOROLOGICAL ORGANIZATION**

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CIMO/TT-AO-1/Doc. 3.11

**COMMISSION FOR INSTRUMENTS AND METHODS OF  
OBSERVATION**

(11.II.2014)

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**TASK TEAM ON AIRCRAFT-BASED OBSERVATIONS  
(TT-AO)  
Session 1**

ITEM: 3.11

Geneva, Switzerland, 18-20 February 2014

Original: ENGLISH ONLY

## **REPORTS ON PROGRESS & STATUS OF WORK PROGRAMME**

### **Development of a Standard for AMDAR Data Optimisation**

(Submitted by the Secretariat)

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#### **Summary and purpose of document**

To provide the session with a summary of the requirements and scope of the Task Team work plan activity to develop a WMO general standard for functional requirements of an AMDAR Data Optimisation System (TT-AO Work Plan Task 12).

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#### **ACTION PROPOSED**

The Meeting is invited to note the information in the document and discuss possible approaches to undertaking the task.

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**References:** 1. [TT-AO Work Plan, Version 2013.1A](#)

## DEVELOPMENT OF A STANDARD FOR AMDAR DATA OPTIMISATION

### Introduction

While the development of a standard or guideline for a general specification of requirements for an AMDAR Data Optimisation System (ADOS) is not considered an urgent or high priority activity of the task team, it would certainly be a valued and useful addition to the Aircraft-Based Observations Programme (ABOP) AMDAR Resources<sup>1</sup>. This activity is associated with Task 12 of the Task Team Work Plan and is currently without a task leader.

### Background on AMDAR Data Optimisation

Some limited information on the process of AMDAR data optimization and the systems that are used operationally is provided on the WMO AMDAR website<sup>2</sup>.

At the current time, ADOS are operational as a component of the E-AMDAR programme and the Australia AMDAR programme. The E-AMDAR ADOS is essentially a collection of systems (Flight Selection Systems) that together provide an optimization functionality, although the primary system is the E-ADOS system – for more information, see the relevant article in the WMO AMDAR and ABO Newsletter Volume 5<sup>3</sup>. E-ADOS is considered to be the primary E-AMDAR optimization system and was developed and is operated by Lufthansa Systems. E-ADOS is based on and integrated with the LIDO flight planning system.

The Australian ADOS is a Bureau of Meteorology (Australia) in-house specified and owned system developed by an Australian avionics company under contract with the Bureau. It is based on ACARS standard Type B message protocols whereby flight triggers rely on the reception of standard OOOI (Out Off On In) messaging. The ARINC OpCenter MET Module that provides an optimization function for the Ezyjet component of the E-AMDAR programme is also based on similar principles.

### Requirements for a Standard for an AMDAR Data Optimisation System

It is expected that existing and future new AMDAR programmes will increasingly require optimization function to support coverage improvement and communications cost reduction. Given that data redundancy levels can be as high as 50% to 75% for average to larger AMDAR programmes (e.g. fleets of 30 aircraft and above) and the communications costs of such programmes are of the order of 100Ks per annum, optimization will be critical to WMO Members. Additionally, given that the ABOP is currently putting in place a strategy and plan for expansion of the aircraft-based observations programme and the AMDAR observing system, the requirement for such a specification will increase.

A specification of requirements for an ADOS would require the following elements:

- 1) An introductory description of the WMO AMDAR observing system and the Aircraft-Based Observations programme.
- 2) A detailed technical description of an ADOS and the general expected components and requirements based to some extent on existing systems.
- 3) A detailed specification of functional requirements.
- 4) Supporting information and diagrams.

### Suggested Approach to the Task

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<sup>1</sup> See : [http://www.wmo.int/pages/prog/www/GOS/ABO/AMDAR/resources/index\\_en.html#amdar\\_stds](http://www.wmo.int/pages/prog/www/GOS/ABO/AMDAR/resources/index_en.html#amdar_stds)

<sup>2</sup> See : [http://www.wmo.int/pages/prog/www/GOS/ABO/AMDAR/AMDAR\\_System.html#data\\_opt](http://www.wmo.int/pages/prog/www/GOS/ABO/AMDAR/AMDAR_System.html#data_opt)

<sup>3</sup> See : <https://sites.google.com/a/wmo.int/amdar-news-and-events/newsletters/volume-5-april-2013#TOC-EUMETNET--AMDAR-Optimisation---Flight-Selection-Systems>

It is recommended that the following approach to undertaking this task is adopted:

- 1) TT-AO to appoint a new Lead for this task (12) and update the work plan accordingly.
  - 2) A work team to be assigned to the task to assist the Lead.
  - 3) The task might adopt the following sub-tasks as a basis for producing a task-plan:
    - a. Approach operational AMDAR programmes (E-AMDAR and the Bureau) regarding the obtaining and use of existing ADOS specifications as a basis for developing an generalized initial draft specification (Task Lead, commence Q2 2014, deliver Q4 2014).
    - b. Work team to review and revise. (Task Work Team, commence Q4 2014, deliver Q2 2015)
    - c. TT-AO and CBS/ET-ABO to revise and finalise approval (commence Q2 2015, deliver Q3 2015)
    - d. Publish as CIMO IOM Report (Secretariat, commence Q3 2015, deliver Q3 2015).
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