



**World Meteorological Organization**

**WMO Integrated Global Observing System**

**AMDAR Workshop for West Asia**

**4 November, 2016**

**Abu Dhabi, United Arab Emirates**



**WORKSHOP REPORT**

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## WORKSHOP SUMMARY

### 1. Workshop Opening

The WMO WIGOS/AMDAR Workshop for West Asia was held on 4 November 2016 at the Grand Millennium Al Wahda Hotel in Abu Dhabi, United Arab Emirates, at the kind invitation of the United Arab Emirates and hosted by the National Centre for Meteorology & Seismology (NCMS).

The workshop was opened by Mr Mohamed Al Ebri on behalf of the Director-General of the NCMS and PR of UAE, Mr Abdullah Ahmed Al Mandoos, welcoming all participants to the workshop and to Abu Dhabi. Mr Al Ebri acknowledged the success of the WMO AMDAR observing system and that its development in West Asia should be a priority for the region, particularly given the importance of aviation to both the UAE and the Gulf Countries.

Mr Dean Lockett of the WMO Secretariat also welcomed all participants to the workshop thanking in particular Mr Mandoos and NCMS for hosting the event, all speakers and presenters, and, in particular, Mr Jaser Rabadi and Ms Kaltham Mangoosh for their excellent support, coordination and management of the event in Abu Dhabi. Mr Lockett emphasised the importance of this workshop given that the region was currently a data-sparse area for aircraft-based observations and that the Air Transport Industry would be expected to benefit considerably from the development of new AMDAR programs with national and regional partner airlines.

The List of Participants in the workshop are provided within [Annex II](#).

### 2. Workshop Programme

The workshop programme consisted of a series of presentations by WMO Member NMHS representatives and other experts, interspersed with periods of open discussion and questions. In particular:

- Mr Frank Grooters, Chair of the WMO Commission for Basic Systems, Expert Team on Aircraft-Based Observing Systems, presented a brief history of aircraft-based observations leading to the development of the WMO AMDAR observing system in the late 1980s. Mr Grooters then described the basic operation and status of the AMDAR observing system and the WMO programme under which it was managed and maintained at the international level.
- Mr Dean Lockett, WMO Secretariat, made two presentations to the workshop, the first describing the impacts and benefits of AMDAR data and the second setting out the requirements for implementation and operation of national AMDAR programmes in cooperation with partner airlines.
- During the afternoon session, Mr Mohamed Al Ebri made a presentation to the workshop on the expected benefits to both the region and to the UAE that a UAE national AMDAR programme would deliver. Mr Al Ebri informed the workshop that the NCMS was already receiving and processing more than 200 aircraft-based vertical profile per day from Etihad Airbus aircraft either ascending or descending into Abu Dhabi. These data were relayed from the aircraft either once the aircraft has touched down or once they reached around 50 nm distance after ascent. The NCMS had created an application to process and analyse these data with a wind shear alert built in. The data are also being assimilated into the NCMS WRF NWP model and been shown to impact positively on the forecast products. NCMS is undertaking discussions with Emirates Airlines and Fly Dubai regarding the possibility to contribute to this program.

- Mr Hans-Rudi Sonnabend, Lufthansa Systems, provided a presentation to the workshop on the development and operation of the Lufthansa AMDAR programme as a contribution to the EUMETNET E-AMDAR programme since 1999. In addition to contributing to improved weather forecasts from service providers including national meteorological services, Lufthansa also benefited from AMDAR data more directly through its use in flight dispatch in-flight information for pilots. These benefits had been demonstrated through a project funded by the European Commission over 1998-99. One particular important conclusion is that: **AMDAR supports the calculation of more accurate flight routes and required fuel due to more precise wind and temperature forecasts for aviation.**

The presentations made during the workshop will be available for a limited period of time online at the Google Drive folder below:

<https://drive.google.com/open?id=0BzDPKbZAaW6XaW05cHYtS2thVFU>

The Workshop Programme is provided within [Annex I](#).

### 3. Issues, Outcomes and Actions

During Session 4 of the workshop, Mr Grooters provided the workshop participants with a presentation on the opportunities and potential within WMO the region to further develop the AMDAR program and increase the availability of aircraft-based observations in support of both the meteorological and aviation communities. Mr Grooters outlined the key target airlines for recruitment in the region that had been highlighted by the [WMO study on AMDAR Coverage & Targeting for Future Airline Recruitment](#) and showed examples of current regular flights operated by several national airlines in the Region, which were potentially capable of providing AMDAR data and would cover a large part of the data sparse area in Western Asia. Mr Grooters urged Member participants to collaborate with their national airlines towards the development of new AMDAR programmes in the region and, if possible, to work together in the region to realise efficiencies through international collaboration and cooperation. Mr Grooters also urged Member participants to assist WMO in the coordination of the Aircraft-Based Observations Programme (ABOP), through endeavours to foster regional collaboration through the WMO Regional Association II.

The following key issues, outcomes and actions were highlighted.

- It was agreed that development of AMDAR programmes in West Asia should be a high priority for Member National Meteorological and Hydrological Services (NMHSs) and the aviation industry.
- It was agreed that there were many advantages to countries in the region collaborating towards the development of a regional AMDAR programme so as to ensure optimal coverage and also take advantage of possible efficiencies in relation to aspects such as:
  - A centralised approach to AMDAR data processing with 1 or 2 centres only responsible for processing data generated in the region – this might even be put into effect through the mechanism of Regional WIGOS Centres;
  - Requirement for optimization (i.e. controlled production of data to reduce redundant data production), since the airlines concerned operate a large number of aircraft of differing types, capable for implementing AMDAR Onboard Software (AOS);
  - A collaborative approach to planning to ensure that aircraft fleets are equipped so as to provide optimal coverage within the region and also outside the region; and

- Minimising and sharing infrastructure and data communications costs.
- The workshop agreed that the Gulf Cooperation Council (GCC) might be an appropriate forum in which to promote and bring together meteorological and aviation representatives to promote development of AMDAR in the region.

### **Actions**

1. Mr Ayman Ghulam, Saudi Arabia, undertook to lead the regional approach to AMDAR development in West Asia and to investigate the use of the GCC forum to promote the programme.
2. The workshop Member participants agreed to increase efforts to collaborate with their national airlines towards the development of new AMDAR programmes in West Asia.
3. The workshop Member participants agreed to provide support for the development of the Aircraft-Based Observations Program Regional Implementation Plan for Region II through the WMO Regional Association II.
4. UAE to investigate the possibility to transmit the Eithad Airlines aircraft-based observations on the GTS in BUFR format.

### **4. Close of the Workshop**

Following the completion of the programme of presentations and discussions, Mr Grooters again thanked the National Centre for Meteorology & Seismology for hosting the event and for the generous hospitality provided to all participants. Mr Al Ebri provided the closing address to the workshop on behalf of the Director-General of NCMS thanking all participants and presenters.

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**ANNEX I – WORKSHOP PROGRAMME**

Friday, 4 November

08:30 – 09:00	<i>Registration</i>	
<b>Session 1</b> (Chair: Mr Mohamed Al Ebri)		Speaker
09:00 – 09:10	Welcome remarks, Director-General of the National Centre for Meteorology & Seismology, PR of UAE	Mr Mohamed Al Ebri
09:10 – 09:20	Statement by the Representative of WMO Secretary-General	Mr Dean Lockett
09:20 – 09:30	Working and Practical Arrangements	Host
09:30 – 10:00	History of Aircraft-Based Observations and AMDAR	Mr Frank Grooters
10:00 – 10:30	Description and Status of the AMDAR Observing System	Mr Frank Grooters
10:30 – 10:50	<i>Coffee/Tea Break</i>	
<b>Session 2</b> (Chair: Mr Frank Grooters)		Speaker
10:50 – 11:20	Data Impacts and Benefits of Aircraft-Based Observations	Mr Dean Lockett
11:20 – 12:00	Programme Requirements and Implementation	Mr Dean Lockett
12:00 – 12:30	Questions and discussion	Mr Frank Grooters
12:30 – 14:00	<i>Lunch Break</i>	
<b>Session 3</b> (Chair: Mr Dean Lockett)		Speaker
14:00 – 14:30	Regional & National Benefits of AMDAR - Meteorological Data from Airplane	Mr Mohamed Al Ebri
14:30 – 15:00	Airline Perspective of AMDAR	Mr Hans-Rudi Sonnabend, Lufthansa Systems
15:00 – 15:30	Questions and discussion	Mr Frank Grooters
15:30 – 16:00	<i>Coffee/Tea Break</i>	
<b>Session 4</b> (Chair: Mr Dean Lockett)		Speaker
16:00 – 16:45	Regional Opportunities for AMDAR Development	Mr Frank Grooters
16:45 – 17:30	Panel discussion and feedback from participants	Mr Frank Grooters, NMHS Representatives
17:30	<i>Workshop Close</i>	

## ANNEX II – LIST OF PARTICIPANTS

### WMO Invited Experts and WMO Secretariat Representatives

Name	Country, Organisation	Email
Frank Grooters	Bilthoven, Netherlands	<a href="mailto:fgrooters@gmail.com">fgrooters@gmail.com</a>
Hans-Rudi Sonnabend	Germany, Lufthansa Systems	<a href="mailto:hans-rudi.sonnabend@lhsystems.com">hans-rudi.sonnabend@lhsystems.com</a>
Dean Lockett	Switzerland, WMO	<a href="mailto:dlockett@wmo.int">dlockett@wmo.int</a>
Luis Nunes	Switzerland, WMO	<a href="mailto:lnunes@wmo.int">lnunes@wmo.int</a>

### WMO Invited Regional Participants

Participant	Country	Email
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Mohamed Al Ebri	United Arab Emirates	<a href="mailto:malabri@ncms.ae">malabri@ncms.ae</a>
Mr Chen Yongqing	China, (Co-coordinator RA II EG-WIGOS)	<a href="mailto:chenyq@cma.gov.cn">chenyq@cma.gov.cn</a>

### Aviation Industry Participants

Participant	Country, Organisation	Email
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Geoff Hounsell	UAE, Vice President, Flight Operations Support Servicers and ATM, Emirates	<a href="mailto:Geoff.hounsell@emirates.com">Geoff.hounsell@emirates.com</a>

### Workshop Organisation

Dr. Jaser Rabadi, Advisor, International Affairs, NCMS, Abu Dhabi, UAE, [JRabadi@ncms.ae](mailto:JRabadi@ncms.ae)

Ms. Kaltham Mangoosh, Local Focal Point, International Affairs, NCMS, Abu Dhabi, UAE, [kmangoosh@ncms.ae](mailto:kmangoosh@ncms.ae)

Mrs. Shamsa Al Muhairy, Administrative Assistant, Support Services and Customer Services Department NCMS, Abu Dhabi, UAE, [SAIMuhairy@ncms.ae](mailto:SAIMuhairy@ncms.ae)