Report to the Association of HydroMeteorological Equipment Industry, HMEI

from the

JOINT MEETING:
CBS EXPERT TEAM ON AIRCRAFT BASED OBSERVATIONS
(Second Session)

AND

AMDAR PANEL
(Thirteenth Session)

GENEVA, SWITZERLAND, 5-7 OCTOBER 2010

Bryce L. Ford
SpectraSensors, Inc.

INTRODUCTION: The Joint Meeting of the Second Session of the CBS Expert Team on Aircraft Observations, CBS ET-AIR, and the Thirteenth Session of the AMDAR Panel was held at WMO in Geneva, Oct 5-7, 2010. The meeting was opened by Dr Wenjian ZHANG, WMO Director of Observing and Information Systems, chaired by Mr. Frank Grooters, KNMI, and facilitated by the WMO AMDAR Technical Coordinator Mr. Michael Berechree. Delegates were present from Australia, Canada, China, Finland, France, Germany, India, Mexico, The Netherlands, Norway, The Russian Federation, Sweden, UK, USA, with representative from IATA and HMEI also present. The full list of participants will be available in the Final WMO Report. The HMEI representative for this meeting was Bryce L. Ford from SpectraSensors.

For the agenda and documents submitted by Panel/ET members please reference the WMO website: http://www.wmo.int/pages/prog/www/OSY/Meetings/AMDAR-Panel-13/DocPlan.html

The Final Report from the meeting is currently being compiled by WMO and upon completion it will be made available on the WMO website: http://www.wmo.int/amdar/AMDARReports.html

Joint Meeting of the Second Session of the CBS Expert Team on Aircraft Observations, CBS ET-AIR, and the Thirteenth Session of the AMDAR Panel - Geneva, Oct 5-7, 2010

OPENING OF THE MEETING

The meeting was opened with a welcome from the Director of the Observing and Information Systems Department, Dr. Wenjian Zhang. Dr Zhang reviewed significant developments related to CBS since the last Joint Meeting. He also noted that AMDAR plays an important role in the promotion of WIGOS as it moves towards implementation.

Following Dr Zhang's remarks, Mr. Frank Grooters, Chairperson of the AMDAR Panel and ET-AIR, welcomed all participants to the Joint Meeting. He highlighted the most important topics which the meeting was expected to address, including the future development work of the WIGOS Pilot Project for AMDAR, the development of a standard AMDAR software specification, the ongoing issues related to the quality of AMDAR observations, and the development of suitable water vapor sensors. Mr. Grooters requested comments on the agenda, and receiving none all agreed to accept the agenda as written.

GENERAL AMDAR STATUS

The volume of AMDAR observations disseminated on GTS now averages between 220,000 and 230,000 per day. The Panel will continue to focus on developing closer ties with aircraft manufactures and related industries to help develop a standardized software solution for AMDAR for all aircraft types. Those organizations will include the Airlines Electronic Engineers Committee (AEEC), Radio Technical Commission for Aeronautics (RTCA)/European Organization for Civil Aviation Equipment (EUROCAE). It is expected that reports on the performance of the WVSS-II water vapor sensor should be completed by the USA AMDAR Programmes in late 2010. Additional reports on WVSS-II performance from USA and European based research aircraft should be available in the 1st half of 2011.

A new leader is necessary for the project of Coordination of AMDAR national and regional programmes. Mr Stewart Taylor has indicated his willingness to take this role for the project on Improvement in Data Exchange and Quality Control but would require the of Terms of Reference before approval can be sought from UK Met Office.

The Chairman noted that to date the AMDAR WIGOS Pilot Project, is proving to be a success. This project is designed to examine ways to improve the practices that impact on AMDAR data collection, processing, archiving and dissemination.

The Joint Meeting noted that given the advances in AMDAR over recent years, there are numerous updates required to several documents, including AMDAR Flyers, the AMDAR Reference Manual, and the ARINC 620 Specification. All agreed that it is extremely important that an AMDAR Manual be developed which focuses on benefits to the airline industry. The Chairman is developing a description of work which shall lead to a manual especially written for the airline industry. It shall give an overview and a motivation for airlines to take part in AMDAR.

Following the agreement by the AMDAR Panel to establish the North African and Western Asian Pilot Project the Moroccan Meteorological Service has expressed their interest in establishing a National AMDAR Programme and have agreed on undertaking the role of Project Leader for the new North African and Western Asian Pilot Project (NAWA PP).

The WMO AMDAR Technical Coordinator, Mr. Michael Berechree, has announced his intent to return to Australia at the end of October, 2010. Posting for a new Technical Coordinator will take place soon within WMO.

REPORT ON AMDAR PANEL SUB-GROUPS

Reports were provided from the Science and Technical Sub-Group as well as the Training Sub-Group. Detailed reports are available in the full WMO Meeting Report.

- Report on activities by the Science and Technical Sub-Group (STSG)

The STSG covered topics including updates to the AMDAR Manual with Focus on Benefits to the Airline Industry, the quality control of AMDAR observations of Wind, Temperature, Altimetry, Position; new observations from AMDAR to include Humidity, Turbulence, Icing, Air Chemistry, and optimization of AMDAR operations, various impact studies, interfaces, and planning for future technologies in AMDAR.

- Report on activities by the Training Sub-Group (TrSG)

The Coordinator of the TrSG reported on the current and proposed AMDAR training activities and the use of AMDAR data in the USA Distance Learning Aviation Course (DLAC2), Producing Customer-Focused TAFs. Topics included AMDAR use in wind shear detection, and winter weather forecasting, and determining atmospheric stability with focus on convective inhibition.

A number of case studies have been developed by U.S. NWS, that demonstrate how AMDAR data can be used to improve terminal forecasts in Mexico. Stewart Taylor (E-AMDAR/UK Met Office) had also provided several AMDAR training presentations to the TrSG for distribution that were developed and presented within the Met Office.

The future of the TrSG was discussed and how it should include an outreach component that would aim to benefit operational and developing AMDAR Programs. It was agreed that the TrSG would become the Training and Outreach Sub-Group" (TrOSG). It was agreed that this new aspect for the TrOSG would focus on outreach to operational forecasters inside NMHSs and outreach to airlines with benefits of AMDAR participation.

STATUS REPORTS ON NATIONAL AND REGIONAL PROGRAMMES

Status reports submitted from established and emerging programs may be found at the WMO website: http://www.wmo.int/pages/prog/www/OSY/Meetings/AMDAR-Panel-13/DocPlan.html

- **Established AMDAR Programmes**

Reports were provided by the national delegations present from established AMDAR programs, including: Australia, Canada, China, E-AMDAR, France, Germany, The Netherlands, United Kingdom, and United States. All reports are available online at the WMO website listed above.

Reports were reviewed from the national delegations of established AMDAR programs that were not present, including: Hong Kong China, Japan, New Zealand, Republic of Korea, and South Africa. All reports are available online at the WMO website listed above.

- **New, emerging and potential AMDAR Programmes**

Reports were provided by the national delegations present from emerging AMDAR programs, including: India, Mexico, and The Russian Federation

Reports were reviewed from the national delegations of emerging AMDAR programs that were not present, including: ASECNA, and Kenya.

PROGRESS ACHIEVED ON THE AMDAR WIGOS PILOT PROJECT

The status was presented regarding the validation of the standardized BUFR Template for AMDAR, the future of the intercomparison of the water vapor sensor on European and USA based research aircraft, the quality management of AMDAR data as well as the

development and potential implementation of Aircraft Metadata on one European based AMDAR airline. It was agreed that the key issues previously identified by the Ad-Hoc Steering Group on the WIGOS Pilot Project for AMDAR still require further attention. That includes the standardization of AMDAR BUFR code, the essential updates to the AMDAR Reference Manual and the Standardization of AMDAR Software to be included under the WIGOS Structure.

In July 2010 the AMDAR Panel presented its future requirements for an upgrade to the ARINC-620 Standard to the Date Link (DLK) Systems Subcommittee in Montreal, Canada. Following this meeting a short meeting was conveyed in Geneva to discuss and develop the future requirements for an upgraded ARINC-620 Standard and a framework for a generic software specification for AMDAR. Refinements to the ARINC-620 standard should include a number of new meteorological parameters, based on the new AMDAR BUFR Template, and improve the current range of meteorological parameters.

It was agreed that the AMDAR Technical Coordinator will organize an additional meeting to discuss the outcomes and future development of the AMDAR WIGOS Pilot Project objectives.

IMPROVEMENT IN DATA EXCHANGE AND QUALITY CONTROL

It was agreed that the new role of Coordinator to the Project are sufficiently defined and will be outlined in the final report. The Project Leader, Stewart Taylor, has requested information on current Data Exchange and Quality Monitoring processes and procedures from ET-AIR/AMDAR Panel Members and Permanent Representatives. This information will be collated and used to implement a work package for the coming year. The Project Lead will provide a report on the data exchange at the next Joint Meeting. He will also continue to coordinate with the WMO Lead Centre for aircraft data monitoring.

AMDAR DATA POLICY

CBS has requested the ET-AIR to develop an AMDAR data policy. This will involve the analysis of the current status and requirements before a new AMDAR data policy can be presented to CBS. The latest version of the draft AMDAR data policy was reviewed. The main topics that this draft AMDAR Data Policy covers include data archiving, instrumentation metadata and quality control. ET-AIR Members, Axel Hoff and Dean Lockett, will oversee the further development of the draft data policy and forward on for further review.

IAGOS

Yvan Lemaitre presented the latest developments and the status of the IAGOS Project from the IAGOS-ERI annual meeting in September 2010, Geneva Switzerland. IAGOS is currently coordination with programmes, users, AMDAR and airlines as well as looking into the preparation for implementation of the new Research Infrastructure, the preparation of the operational basis and new technical developments. IAGOS real time transmission will use E-AMDAR ground facilities for real-time data acquisition and transmission to GTS.

The IAGOS is also coordinating with airframe manufactures in order to review the legal status of aircraft platforms in foreign countries with observing platforms. IAGOS will also look into the Emission Trading Scheme (ETS) framework as well as future of

MoUs (Memorandum of Understanding) involving airline, the owners of the Supplemental Type Certificates (STCs), and intellectual rights.

FUTURE GOVERNANCE OF THE AMDAR PROGRAMME

The transition of the AMDAR Panel into WMO structures is nearing completion with the successful transfer of the AMDAR Technical Coordinator's responsibility into WMO, the change of WMO Secretariat structural and organization that included the creation of a new Aircraft Observation Unit (AIR) within the Observing and Information Systems Department (OBS) and its Observing Systems Division (OSD). The AMDAR Technical Coordinator is the Secretariat lead for the Aircraft Observation Unit, with the responsibility for aircraft observations.

Following the CIMO Session in Helsinki Finland September 2010 a number of ET-AIR and AMDAR Panel experts were nominated and accepted into the working structure of CIMO. This includes Dr. Axel Hoff (with support of Jitze van der Meulen) in the new role of Theme Leader on Aircraft Measurements. The only remaining activities to achieve the full integration of AMDAR/Aircraft Observations, are the provision in the WMO Secretariat's regular budget for the AMDAR Technical Coordinator and full budgetary support for AMDAR activities.

CLEAN SKY PROJECT

The project Collaborative Meteo Concept Validation (COMET), under the European Clean Sky Programme, was successfully carried out together with French and German partners and in cooperation with Airbus. Yvan Lamaitre will endeavor to make appropriate information available to other AMDAR Panel Members with the aim that they may encourage their airlines to participate.

CLOSURE OF THE SESSION

The 14th Session of AMDAR Panel and 3rd Session of ET-AIR will be held in Canada tentative dates October 2011. The Joint Meeting was closed at 3:45 pm on Thursday, 7 October 2010.