

WORLD METEOROLOGICAL ORGANIZATION

Workshop on Aircraft Observing System Data
Management/Doc. 3.3

**WMO AMDAR PANEL WORKSHOP ON AIRCRAFT
OBSERVING SYSTEM DATA MANAGEMENT**

(1.VI.2012)

(GENEVA, SWITZERLAND, 5-8 JUNE 2012)

ITEM: 3.3

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USER REQUIREMENTS FOR THE AO DM FRAMEWORK

International AO Data and Metadata Archival Requirements

(Submitted by Brad Ballish, NOAA, USA)

SUMMARY AND PURPOSE OF DOCUMENT

Provides an outline of issues associated with International
Aircraft Observations Data and Metadata Archival Requirements

ACTION PROPOSED

1. The Workshop is invited to note the information contained in the document.
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BACKGROUND

There are a number of major issues related to aircraft metadata:

1. Aircraft types, the airline and sensor types are expected to be important
 - a. For US aircraft types, NCEP uses http://registry.faa.gov/aircraftinquiry/NNum_Inquiry.aspx . Try typing in 397SW for tail-number N397SW and 350UP for tail-number N350UP.
 - i. This website gives the aircraft type and possibly the engine type and some registration dates, but no information on sensor types or locations or time smoothing of observations.
 - ii. This website is time consuming because we often have roughly 50 new aircraft in a month and one can't easily extract information on multiple aircraft with one simple entry.
 - iii. Some US airlines do not want to give out the airline information, but we can share the aircraft type as a function of the encrypted tail-number.
 - iv. Some other countries such as Japan do not want to share aircraft type information – Can a WMO edict help?
2. Other details such as time smoothing of observations, reporting rates, and data output formats can be important.
 - a. NCEP was given information on different models of Rosemont temperature sensors for United Airlines aircraft, but we could not find any evidence that this mattered.
 - b. Some small aircraft could be using magnetic navigation, which can lead to inaccurate winds in polar-regions.
3. The history of the many minor and serious problems with aircraft data is metadata that is in danger of being lost as experts like us retire without documenting and recording this information.
 - a. These records are very important for climate analyses of the past.
 - b. These past examples can be very good tests of our current QC systems, since many similar new problems will occur in the future.
 - c. What agency can undertake keeping these records and will the records be accessible?
 - d. We probably need a system for reporting problems.
 - e. Maybe a contractor with state-of-the-art QC codes can carefully investigate aircraft problems over the years and document them.
 - f. These past examples include:
 - i. Many aircraft that develop an excessive temperature bias for a period of time.
 - ii. Many aircraft with stuck data problems for a time period.
 - iii. Many aircraft with occasional location errors.
 - iv. Southwest and Alaskan aircraft data with systematic small location errors concerning decimal versus minutes.
 - v. South African and Australian aircraft with numerous groups of reports with locations errors.
 - vi. European aircraft reported locations bouncing off the Equator
 - vii. Old aircraft reports being resent as current.
 - viii. An old problem with some US MDCRS units where the temperatures stuck

at -9.0 degrees sometime during ascent.

- ix. New Chinese AMDAR data with the winds in the wrong units.
 - x. European aircraft with temperatures that are one tenth of the correct value.
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