



*International Civil Aviation Organization*

**Fourteenth Meeting of the APIRG Air Traffic Management/Aeronautical Information Management/Search and Rescue Sub-Group  
(ATM/AIM/SAR SG/14)**

*(Dakar, Senegal - from 11 to 14 May 2015)*

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**Agenda Item 5: Identification & Developments of projects based on ASBUs Block 0 & Regional performance objectives**

**5.3 IIM Projects**

**PROMULGATION OF AIS CHANGES THAT IMPACT GLOBAL DATABASES AND CHARTS**

*(Presented by IATA)*

**SUMMARY**

Late publication of aeronautical data (not in compliance of the requirement as per ICAO Annex 15) can result in serious flight safety issues for both airline operators and ATC. Flight deck and ground systems as well as other aeronautical information/references depend on the accuracy and on-time provision of aeronautical information (AIRAC adherence). This issue becomes even more critical in enhanced PBN airport and airspace environments.

Action by the meeting is at paragraph 3.

**REFERENCES**

- ICAO Annex 15 Chapter 6
- ICAO Doc 8126
- ICAO Doc 9613 PBN Manual
- RTCA DO-200A

**1. INTRODUCTION**

1.1 The Civil Aviation environment undergoes constant changes: Airspace structures and Routes are revised, more and more RNAV-procedures are implemented, revised and/or withdrawn, Navigation Aids change, SIDs and STARs are amended, Runway and Taxiway information change. It is critical for safety, flight operational efficiency, and coordination reasons that all “Airmen” (i.e. Pilots, ATC, ATM, etc.) as well as system tools (i.e. FMS Navigation database, Flight Planning System, Charts) together share the same data set available at the same time. The ICAO AIRAC system (as per ICAO Annex 15) has been implemented for ‘operational significant (airspace) changes’.

1.2 Today's aviation industry relies heavily on the accuracy of the information in automated databases for their day to day operation. This includes various systems and applications, where data accuracy and integrity is a fundamental requirement.

1.3 It is recognised that for safety reasons flight operations, Air Traffic Control (ATC) and ATM depend extensively on the provision of timely, relevant, accurate, and quality assured information. The consequences of late provision of aeronautical information can result in serious flight safety issues for both airline operators and ATC. It is imperative that any operational changes impacting the wider aviation community which require the updating of databases, needs to be communicated well in advance of the change taking effect. This is typically implemented by an 'AIP AIRAC Amendment'.

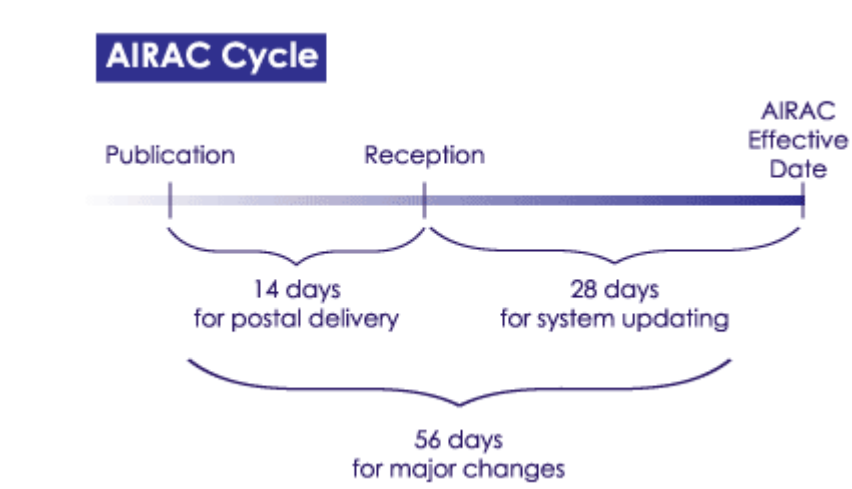
1.4 Many flight safety cases are related to non-compliance of ICAO requirements for provision of significant changes in the aviation infrastructure in a timely manner (i.e. adherence to the AIRAC cycle). It is essential, for both efficiency and safety, that Pilots, Air Traffic Controllers, Air Traffic Flow Managers, Flight Management Systems, Aviation Charts, ATM Systems, Aircraft Performance Applications, Flight Planning Systems and systems for the calculation of depressurisation and drift-down strategies all have the same quality controlled data set.

1.5 One of the main reasons for AIRAC non-adherence is the lack of awareness among the data originators, AIS and regulators of the importance of compliance with the AIRAC cycle dates and the possible consequences of the failure for the late provision of information after the cycle cut-off dates.

## 2. DISCUSSION

2.1 AIRAC stands for Aeronautical Information Regulation And Control and originates from the ICAO Annex 15 - Aeronautical Information Services (AIS) documents and defines a series of common dates and an associated standard aeronautical information publication procedure for States (ICAO Annex 15 refers).

2.2 In brief it defines that in all instances, information provided under the AIRAC system shall be published and distributed by the AIS unit at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date. Whenever major changes are planned and where additional notice is desirable and practicable, a publication date of at least 56 days in advance of the effective date should be used.



2.3 Stakeholders must be aware, that in many cases a clarification/verification process has to be initiated with the data originator (AIS) to sort out and solve potential data errors or

discrepancies with the strong aim to have discrepancies resolved before the cut-off dates of the appropriate systems. This period of the clarification process is an additional reason for the requirement to deliver the aeronautical information at least 42 days prior to the AIRAC effective date.

2.4 It has to be noted that despite the statement in ICAO AIS manual (DOC8126) that if the publication is received late then “the recipient will report this to the originating AIS. It is the duty of the originating AIS to investigate the reason for the delay and take remedial action as required.” and to implement measures to prevent a reoccurrence.

2.5 Different systems and data components require to set-up ‘freeze dates’, i.e. dates from which data can no longer be processed or changed (e.g. FMS coding period, data packing, chart printing etc. etc.) Because of the different freeze dates there is, in the case of a late publication, a chance that different end-users could be utilizing different versions or content of the aeronautical information.



2.6 It is to be noted that the data originated at an aerodrome has to go through at least 5 individual units to get to the end-product in an aircraft FMS Navigation database.

2.7 Data differences and discrepancies may require a manual case by case intervention, which may result in an event that is neither expected nor foreseen in the operational environment. – When extracting AIP data, Data Service Providers work as per the requirements published in the RTCA DO-200A (“Standard for Processing of Aeronautical Data”) that defines the criticality of accurate data processing. As an example, processing of critical data such as RWY thresholds or RWY Holding Positions require an integrity value of  $1 \times 10^{-8}$ , which can be ‘translated’ into an error tolerance of a maximum 1 error in a 100 million data records– This is significantly beyond human capability – especially under the pressures of an operational environment. In other words, it is highly probable that the continued safe flight and landing of an aircraft would be severely at risk when using corrupted (or incorrect) critical aeronautical data. Such occurrences can create an unsafe environment for a flight of which could lead to a catastrophic event. Airline operators or flight crews should not be placed in such environment due to aeronautical data not being provided or published in a timely manner per ICAO Annex 15.

2.8 The situation of non-accurate/non-existing information in the FMS Navigation Database becomes even more sensitive in an enhanced PBN airport/airspace environment, when a manual processing of data is no longer allowed/supported. Quality assured data should therefore only be extracted from the database in their entirety. Furthermore, the creation of new waypoints by manual entry of latitude and longitude or rho/theta values into the FMS may not be permitted.

2.9 Provision of aeronautical data on time and in close cooperation and coordination between Data Originator, the AIS/AIM office, Commercial Data Providers and the Airlines is therefore mission critical.

2.10 Non-AIRAC Adherence and data integrity issues are persisting issues in the AFI Region.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

a) urge States to:

- i. Review AIS processes including SOP/SLA /QA
- ii. investigate the reasons for the delay in the publication of aeronautical information of operational significance; and
- iii. take necessary measures for the adherence of their AIS to the AIRAC procedures; and

b) agree on necessary follow-up action, in coordination with APIRG and its AIM Sub-Group.

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