International Civil Aviation Organization

MIDANPIRG AIM Sub-Group

Second Meeting (AIM SG/2)
(Kish Island, Iran, 31 August-2 September 2015)

Agenda Item 4: Performance Framework for AIM implementation in the MID Region

TIMELINESS OF THE PROMULGATION OF AIS CHANGES THAT IMPACT GLOBAL DATABASES AND CHARTS

(Presented by IATA)

SUMMARY

Late publication of aeronautical data (not in compliance to the requirement as per ICAO Annex 15) can result in serious flight safety issues for both airline operators and ATC. Cockpit and ground systems as well as other aeronautical information/references depend on the accuracy and on-time provision of aeronautical information (AIRAC adherence). This topic 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 Aeronautical 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changes: Airspace structures and Routes are revised, more and more RNAV procedures are implemented, revised and/or withdrawn, Navigation Aids change, SIDs and STARs are amended, Runway and Taxiway information change.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 essential 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) all 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 integrity is a fundamental requirement.

1.3 It is recognised that for flight 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 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 require the updating of databases and need to be communicated well in advance prior to the change taking effect – this is typically used by the instrument of an 'AIP AIRAC Amendment'.

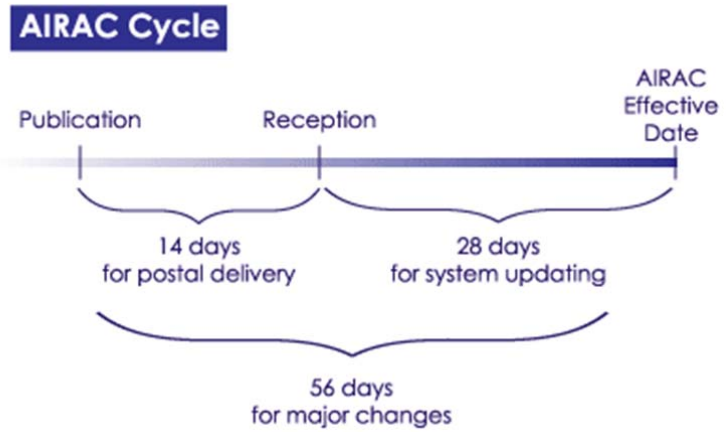
1.4 Many flight safety cases are related to the non-compliance to ICAO requirements for provision of significant changes in the aviation infrastructure in timely manner (i.e. adherence to AIRAC). It is essential, for both efficiency and safety, that Pilots, Air Traffic Controllers, Air Traffic Flow Managers, 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 major reasons for AIRAC non-adherence in the States is the lack of awareness among the data originators, AIS and regulators of the importance of compliance to AIRAC and the possible consequences of the failure that result of the late provision of information after cut-off dates.

2. DISCUSSION

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

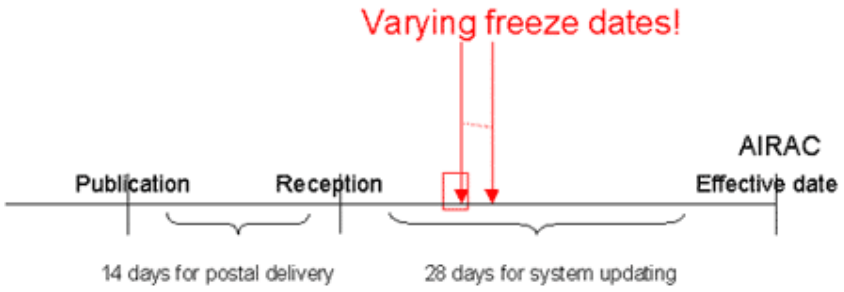
2.2 In brief it defines that in all instances, information provided under the AIRAC system shall be published and distributed by the AIS unit at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date. Whenever major changes 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 a further 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 measure 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, an increased chance that different end-users find themselves with different versions or content of the aeronautical information.



2.6 The data originated at an aerodrome has to go through at least 5 individual units to get to the end-product in an aircraft.

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 1×10^{-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 that the continued safe flight and landing of an aircraft would be severely at risk when using corrupted (or incorrect) critical data. This even has the potential to lead to a catastrophe. – A pilot should not be placed in such a corner just because aeronautical data were not published or provided on time.

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 be only 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 FMC may even not be permitted any longer.

2.9 Provision of aeronautical data on time and 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 is an on-going issue in the ICAO MID Region – even in the current AIRAC cycle #1503 we have experienced examples of late short-notice ATS-Route changes/publications.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a. note the information provided in this paper;

b. continuously monitor AIRAC Adherence within the ICAO MID Region;

c. encourage each originating AIS to investigate the reason for the delay and to take remedial action as required;

d. encourage each ANSP to monitor information relating to customer perception as to whether the organization has met customer requirements;

e. encourage States, who have not done so, to take all necessary measures to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage (receive and/or originate, collect or assemble, edit, format, publish/store and distribute aeronautical information/data) and take remedial action as required.

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