

**54th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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**AGENDA ITEM 3: AVIATION SAFETY AND
AIR NAVIGATION**

**QUALITY AND TIMELINESS OF AERONAUTICAL
INFORMATION**

(Presented by the International Civil Aviation Organization)

SUMMARY

This paper discusses the ongoing issues of poor quality and timeliness of aeronautical information published in the Aeronautical Information Publication (AIP) and AIP Supplements issued by the Aeronautical Information Services (AIS) of Asia/Pacific States. It discusses the ramifications of poorly managed aeronautical information, and the need for Directors-General of Civil Aviation of the Asia/Pacific Region to ensure that all stakeholders in the aeronautical information service are required by regulation to comply with the Annexes to the Convention on International Civil Aviation, and that the AIS is appropriately organized and resourced to ensure the quality and timeliness of aeronautical information.

QUALITY AND TIMELINESS OF AERONAUTICAL INFORMATION

1. INTRODUCTION

1.1 Annex 15 – *Aeronautical Information Services* and Annex 4 *Aeronautical Charts* provide the standards and recommended practices for aeronautical information and charts published in the Aeronautical Information Publication (AIP) of each Contracting State.

1.2 Supported by the guidance material in ICAO Doc. 8126 – *AIS Manual*, Annex 15 details requirements for the quality management of aeronautical information and the timeliness of its promulgation in accordance with a pre-determined cycle.

1.3 There are continuing, concerning occurrences of Asia/Pacific Region States/Administrations failing to comply with the AIRAC cycle, and failing to develop and use quality management systems for aeronautical information.

2. DISCUSSION

Annex 15 Standards for the Quality and Timeliness of Aeronautical Information

2.1 Annex 15 Section 3.7 *Quality management system* states, *inter alia*:

3.7.1 Quality management systems shall be implemented and maintained encompassing all functions of an aeronautical information service. The execution of such quality management systems shall be made demonstrable for each function stage.

2.2 Annex 15 Section 3.7 provides further standards relating to: competencies of personnel; policies processes and procedures; assurances that aeronautical data and aeronautical information satisfy quality requirements for accuracy, resolution and integrity; compliance monitoring; and demonstration of compliance by audit.

2.3 Annex 15 Chapter 6 – *Aeronautical Information Regulation and Control (AIRAC)* provides the standards relating to the timeliness of publication and distribution of aeronautical information, stating that aeronautical information shall be distributed under the AIRAC system. The standards relating to the AIRAC system are supported by guidance material in Doc 8126.

Recent Examples of Poor Quality Management and Failure to Comply with AIRAC

2.4 Recent failures to comply with the AIRAC cycle, and the failure or absence of robust quality management processes, have included the following examples which in each case resulted in all aircraft using automated flight management systems (FMS) having incorrect navigational data:

- Amendment by Navigational Notice to Airmen (NOTAM) of instrument flight procedures promulgated in AIP SUP, less than one week before the effective date of the SUP

Potential root causes: Poor quality management processes, poor understanding of the requirements for and purpose of the AIRAC cycle, poor understanding of navigation system ramifications;

- Publication of changes to instrument flight procedure information in AIP SUP distributed only 13 days before its effective date, and AIS provider organization refusal to act when this serious safety issue was brought to their attention.

Potential root causes: Poor procedures for the submission, handling and publication of aeronautical information, poor understanding of safety ramifications of AIS, poor understanding of ATC, pilot and navigation system ramifications, poorly established mechanisms for coordination with and feedback from users and other stakeholders;

- Conflicting information in instrument flight procedure charts and associated tables, with urgent queries from aeronautical data service providers unanswered.

Potential root causes: Poor quality management, poor understanding of the ramifications of incorrect safety-critical data, poorly established mechanisms for coordination with user and other organizations).

- Amended waypoint coordinates promulgated in AIP SUP having errors, subsequently corrected by NOTAM but with confused and confusing follow-up advice conflicting with the NOTAM information then provided by the State AIS provider

Potential root causes: Poor quality management, poor internal coordination and understanding of the problem, inappropriate re-location of existing waypoint names.

2.5 Such examples are not uncommon. These and other examples of poor quality management have also highlighted cases where there is a lack of appropriate legislative and regulatory response to signatory States' obligations under the Chicago Convention, resulting in little or no obligation of stakeholder organizations such as airport operators, air navigation service providers, geo-spatial information agencies and military agencies to comply with the standards provided in Annex 15.

2.6 In each case of failure to comply with the AIRAC cycle or failure to ensure the quality of aeronautical information there is a serious risk of confusion on the flight deck, and between ATC and pilots. Other risks include *inter alia* the possibility of aircraft being physically unable to fly incorrectly published procedures, resulting in poor Air Traffic Management (ATM) outcomes and in the worst cases the risks of breakdown of separation and/or Controlled Flight Into Terrain (CFIT) due to incorrect or poorly managed data provided by the State AIS. Further risks include those related to ATC separation and coordination (ATS route and waypoint data in charts and ATM automation systems, ATC communication information in AIP) and aerodrome movements (runway, taxiway, apron, gate and obstacle data).

2.7 ATM organizations, airport operators, instrument flight procedure designers and all other originators and publishers of aeronautical data published in AIP must ensure that the minimum required advance notification of new or amended aeronautical information is provided to the AIS. The following APANPIRG Conclusion (APANPIRG/23, September 2012) refers:

Conclusion APANPIRG/23-8 – Annex 15 Promulgation Requirements Compliance

That, States should be urged to recognise the importance of Annex 15 compliance in respect of aeronautical data affected by major projects, by:

- a) establishing formal coordination between change originators and Aeronautical Information Service (AIS) units to ensure appropriate planning and that promulgation requirements were taken into account; and*

- b) *creating a mechanism to allow AIS personnel to decline requests that did not comply with Annex 15, except for urgent corrections, emergencies, and matters of national security.*

2.8 States must give full attention to the time limitations in Annex 15, illustrated in **Figure 1:**

- Information provided under the AIRAC system in paper copy form and/or as electronic media **shall reach recipients at least 28 days in advance of the AIRAC effective date.**
- Whenever major changes are planned and where advance notice is desirable and practicable, information provided in paper copy form and/or as electronic media should be distributed/made available at least **56 days** in advance of the effective date.
- The date in the AIRAC cycle which occurs between **21 December and 17 January** should be avoided as an effective date.

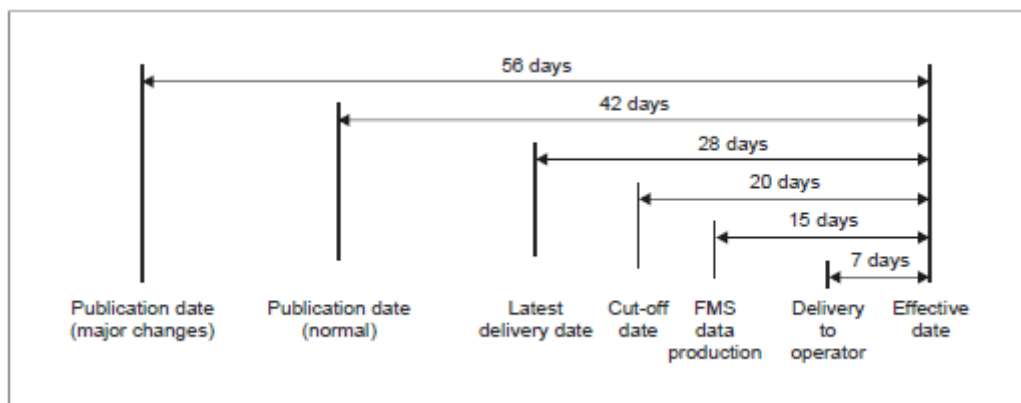


Figure 1: Processing Cycle for Airborne Navigation Databases (Source: Doc 8126 – AIS Manual)

2.9 While many States are investing in AIM systems in preparation for the future automated exchange of digital aeronautical data, many have failed to establish a robust aeronautical information service to support transition into the digital data environment. AIM systems and processes that are not supported by appropriate AIS quality management processes will continue to deliver unsafe, poor quality outcomes to users and present safety, legal and financial risks to both users and States.

Current APANPIRG ANS Deficiencies in the AIS Field

2.10 The latest List of ANS Deficiencies in the AIS field, as updated by the Twelfth Asia/Pacific Aeronautical Information Service – Aeronautical Information Management (AIM) Implementation Task Force (AAITF12, Bangkok, Thailand, 5 to 9 June 2017) includes the following deficiencies, each of which relating to Annex 15 and Annex 4 standards that have been in existence for many years:

- World Geodetic System 1984 (WGS-84) not implemented:
 - 12 States including Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cook Islands, Marshall Islands, Micronesia, Nauru, Palau, Samoa, Thailand, Vanuatu.
- AIP Format
 - 3 States including Cook Islands, Kiribati, Nauru.

▪ **AIS Quality Management System Not Implemented:**

- **23 States** including Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Cook Islands, Indonesia, Kiribati, Lao PDR, Maldives, Marshall Islands, Micronesia, Myanmar, Nauru, Nepal, Palau, Philippines, Samoa, Sri Lanka, Solomon Islands, Thailand, Timor Leste, Vanuatu.

2.11 The list of States having deficiencies recorded for failure to implement AIS quality management systems includes States that had reported to AAITF the full implementation of AIM transition steps P-03 – *AIRAC adherence monitoring* and P-17 – *Quality* and in some cases, P-01 – *Data quality monitoring*; P-02 – *Data integrity monitoring*, P-18 – *Agreements with data originators*.

ICAO Regional Follow-Up Actions on Quality Management and Timeliness Issues

2.12 The failure to implement quality management of aeronautical information has potentially severe safety and efficiency implications, and is a significant barrier to transition to AIM.

2.13 In all cases where evidence of significant failure of quality management processes is provided, the ICAO Regional Office will:

- Raise a new APANPIRG Air Navigation Service (ANS) Deficiency against the State concerned;
- Amend the Regional AIM Implementation Table to reflect that the State has not implemented AIRAC and quality management-related AIM transition steps.
- Formally notify the Director-General of Civil Aviation of the State.

2.14 The meeting is also invited to note that the issues discussed in this paper are intended to be presented at the Ministerial conference being planned for 2018.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) Take action to ensure States implement the necessary legislative, regulatory, organizational and resource support for the critical safety and efficiency requirement for quality management and timeliness of aeronautical information; and
- b) Ensure States take stronger actions on the APANPIRG Conclusions relating to Aeronautical Information Services, as agreed by State representatives at APANPIRG meetings;
- c) Urge States to review their AIM transition plan and ensure that they have fully implemented AIRAC and quality management-related AIM transition steps.

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