



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 19: Any other business

AIS/AIM AUTOMATION IN INDIA

(Presented by India)

SUMMARY

This information paper presents the initiative from India in implementing automation to improve the overall capability in Aeronautical Information Service through establishing an Integrated AIS/AIM System to manage aeronautical data chain processes involved in designing to publication stages of Aeronautical Information Publication products including Aeronautical Maps/Charts and Circulars.

1. Introduction

1.1 Current and future ATM systems demand accurate and reliable data by way of considerably higher quality Aeronautical Information. ICAO Annex 15 therefore impresses on high priority needs to implement Quality Management System in Aeronautical Information Service to ensure that required information is provided with adequate quality, accuracy and timeliness. In support of achieving compliance to these needs and to address quality of service implementation, automation in AIS was taken up by India as early in the year 2000 at its International NOTAM offices of Delhi, Mumbai, Kolkata and Chennai.

1.2 A similar initiative in this direction has been carried out to establish an Integrated AIS/AIM Automation System to strengthen the existing system for designing and publication of AIP products, AIC and Aeronautical Charts. The new system will bring in quality checks on the production processes of AIP products through harmonization of data chain management from origination to publication stages.

2. AIS/AIM Automation System

2.1 The installed system is an integrated computer network, based on AICM/AIXM concepts, to assist and support the workflow of AIS office using a common database of aeronautical information, from which the data can be exploited, to produce automated document outputs such as AIP and its amendments/Supplements, aeronautical charts, Aeronautical Information Circulars. Specific security policy related to access and authentication for different users are configured to ensure highest level of data quality and integrity to meet international safety requirements.

2.2 The Central Database of the system hosts all information common to civil aviation like FIRs, Aerodromes, NAV facilities, maps, rules etc., and NOTAM related to them. Various units of AIS can access this database through their connected workstations using specific application tools that foresees desired functional requirements of the respective units. Major features of these application tools are:

- **Aeronautical Data Management**

To allow management of aeronautical data through customized database to support data manipulation including insert/extract/update information and aeronautical spatial features (with their attributes). The module is also capable of storing and cataloguing all the produced documents, charts and templates for operational needs.

- ***Airspace/Procedure Design Management***

To allow flight procedure designers to create, visualize, check and modify 3-D flight procedures and 3-D airspace elements for conventional non precision/precision, RNAV, GBAS, SBAS, VNAV flight procedures. The tool is also capable in designing the Air routes respecting the lateral separation and obstruction verification for MEA/MEL computation, Aerodrome surfaces construction and evaluation considering terrain and human made obstacles.

- ***Aeronautical Chart Maintenance***

This tool provides automatic extraction and charts symbolization according to the release cycles by retrieving aeronautical data stored in the central database using the CAD/GIS engines. The module supports true temporality while capturing all Meta data regarding the changes that users worked on the data. Rollbacks and producing of charts according to past releases are also achieved through this tool.

- ***AIP production/publication Management***

A publishing tool that temporally extracts information from central database and automatically generates ICAO aeronautical publication products such as an AIP, AIP Amendment or AIP Supplement for the current cycle based on pre-defined rules and document templates. Charts or other graphic objects inclusion is also automatically treated. The module is capable of producing HTML or XML output to obtain a web-based AIP or an eAIP version.

- ***Navigation Aids Performance Assessment related to designed Instrument Flight Procedures***

An analysis tool devoted to inspecting the radio electrical features of installed navaids and model the real propagation phenomena found in airport scenario where signals (VOR, DME, ILS, ATC Radar) interfere with artificial or natural obstructions. This tool also shares the ATS and terrain information with the instrument flight procedure design tool to simulate the parameters that are typically inspected during commissioning or periodical flight checks as described in ICAO Annex 10 and Doc. 8071.

3. Implementation Status

3.1 The new system is currently under initial operation to produce latest AIP document after completion of Site Acceptance Testing and the training on the system to operating personnel.

4. Action by the Meeting

4.1 The meeting is invited to take note of the efforts and progress made by India in updating the current AIS in India and to establish and implement the AIS automation system in accordance with ICAO standard and recommended practices.
