



INTERNATIONAL CIVIL AVIATION ORGANIZATION
AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP
FOURTEENTH MEETING (APIRG/14)
(Yaoundé, Cameroon, 23-27 June 2003)

Agenda Item 4: Air Navigation Issues
CNS/ATM Planning/Implementation

Update on the IATA RNAV (GNSS) procedures
development and implementation projects in Africa

(Presented by the International Air Transport Association – IATA)

INFORMATION PAPER

SUMMARY

The information paper presents an update on the IATA RNAV (GNSS) Procedures Development and Implementation Projects in Africa. An Information Paper describing these projects was presented at the APIRG/13 meeting.

1. Background

1.1 The Global Positioning System (GPS), the first component of the Global Navigation Satellite Systems (GNSS), is being progressively used throughout the world to overcome many of the limitations of today's air navigation infrastructure. With its accurate, seamless, all-weather three-dimensional coverage, GNSS offers a satellite navigation service that satisfies many of the requirements of air operators and regulators. With growing use of GNSS, air navigation service providers will be able to optimise airspace and procedure design to provide more efficient flight tracks to operators.

1.2 IATA has in recent years encouraged the development of practical Area Navigation (RNAV) GNSS applications as part of the transition toward CNS/ATM. In addition requests have been received from time to time from airlines to encourage development of RNAV (GNSS) procedures, especially at aerodromes with limited navigation infrastructure.

2. Specific Projects in the AFI Region

2.1 In response to the above, IATA established a RNAV (GNSS) Procedures Development and Implementation Programme, aimed at assisting States in the design and implementation of RNAV (GNSS) Procedures. The programme includes:

- WGS-84 Surveys;
- Development of RNAV (GNSS) non-precision approach procedures (LNAV and LNAV/VNAV);
- Development of RNAV (GNSS) standard instrument arrival (STARs) and departure (SIDs) procedures;
- Modification of airspace structure design to meet RNAV (GNSS) requirements;
- Development and preparation for publication of all relevant charts;

- Flight verification of the RNAV (GNSS) procedures;
- Drafting of National RNAV (GNSS) legislation and regulations;
- Training seminars / workshops;
- Implementation assistance.

2.2 The Southern African Development Community (SADC), comprising 14 ICAO contracting States, was identified as a prime region for the development of these procedures. An agreement was reached with the SADC Member States and the Project started in January of 2001. This was later extended to include Cape Verde, Kenya and lately Uganda. In all, the project included 37 airports and the design of 296 procedures in line with ICAO criteria.

2.3 Partnerships were established with several organisations to ensure successful completion of RNAV (GNSS) Development and Implementation Projects: ICAO provided guidance through their HQ and Regional Offices; the Federal Aviation Administration (FAA) supported the IATA effort and provided flight verification at no cost for these particular projects; the US National Imagery and Mapping Agency (NIMA) also completed quality assurance for all WGS-84 survey work at no cost for these particular projects; member airlines fully supported the Projects and agreed to an add-on charge to recover relevant costs (procedure design, training, etc.); and States supported RNAV (GNSS) projects and signed agreements with IATA to implement these procedures.

3. Progress Report – Workshops / Additional Material / Training

3.1 An independent review of the initial procedures and charts revealed that these did not meet the stringent quality parameters set by IATA. This resulted in the decision to proceed with an in-depth review, which resulted with a delay with the initial implementation schedule. Similarly, assessment of the training requirement at the State level revealed that IATA should put in more effort than initially planned. Additional training for ATC staff is now planned.

3.2 Since August 2002, the following workshops have been held with stakeholders to address implementation issues.

- A three-day implementation workshop was held in September 2002 in Kenya with ATS providers of Seychelles, Tanzania, Kenya, and IATA, ISI and other stakeholders.
- A similar implementation workshop was held in November 2002 in Zambia with ATS providers of Zambia, Botswana, Zimbabwe, Malawi, and IATA, ISI, and regional airlines.
- Meetings with airspace users took place in Europe in October and December 2002.

3.3 Another workshop (possibly two) with the remaining SADC States, Cape Verde and Uganda will be organised in 2003.

3.4 The following material is also being provided to assist the States in implementing the procedures:

- ATC familiarisation guide for RNAV (GNSS) operations based on ICAO guidance material;
- RNAV (GNSS) phraseology based on ICAO guidance material;
- Checklist of ATC items to consider when introducing RNAV (GNSS) operations;
- Aeronautical Information Circulars (AICs) for RNAV (GNSS) operations based on ICAO guidance material; and
- Air traffic controller and pilot feedback forms for operational evaluation.

3.5 A number of implementation scenarios were discussed at the above-mentioned implementation workshops. The one favoured is to conduct an operational evaluation phase following the implementation of the procedures with a view to validate their full operational application. This will allow the aviation community (pilots, air traffic controllers, etc.) to gain progressive experience on RNAV (GNSS) operations. Aircraft operators would be given advance notification of the operational evaluations of the new procedures. During the operational evaluation phase, feedback on the usability of the procedures will be obtained. With any necessary amendments, the procedures

should be fully operational soon thereafter. It is foreseeable that operational evaluations will start by July 2003.

4. Improved Communication Channels

4.1 Close communication is being maintained with all stakeholders. To further improve this, a dedicated IATA RNAV (GNSS) web site has been developed to facilitate the exchange of information. The site is located at (<http://www.iata.org/whip/rnav>). Any participating stakeholders can obtain access by registering on line.

5. Conclusion

5.1 IATA is committed to work with AFI States, ATS providers and airspace users to foster application of RNAV (GNSS) in the region; an important component of this effort is the development of RNAV (GNSS) procedures and training.

5.2 The first batch of RNAV (GNSS) procedures will be progressively implemented throughout 2003. Discussions are now underway with other States for similar projects and we expect the programme to be further expended once the users become more familiar with the benefits of RNAV (GNSS) operations.

5.3 Any States not part of this initial effort is invited to contact IATA so that the programme can be expended to the whole AFI region as soon as possible.

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