



Agenda Item 2: Based on the ACG/7 meeting results, review of proposals for the GREPECAS/15 concerning the future treatment of ATM and CNS matters

SUPERVISION OF THE WORK PROGRAMME OF THE AUTOMATION TASK FORCE

(Presented by the Secretariat)

SUMMARY

This working paper presents information in order to carry out the Task ATM/CNS/5 of the ATM/CNS/SG Work Programme, concerning the Sub-Group's supervision in relation to the Automation Task Force work programme as well as the revision of the valid Conclusions concerning ATM Automation. Action by the Sub-Group is indicated in par. 3

References:

- GREPECAS/14 Meeting Report
- ATM/CNS/SG/5 Meeting Report

1. Introduction

1.1 During the ATM/CNS/SG/5 meeting the Sub-Group decided that the work of the Automation Task Force should be supervised by the Sub-Group (task ATM/CNS/5 refers). In this regard, and in order to carry out this activity during the ATM/CNS/SG/6 meeting without retaining the whole Sub-Group plenary in detriment of the Committees working time, it should consider to perform this task by an Ad-Hoc group to be conformed by the ATM and CNS committees members, who could go through the work programme of the Automation Task Force noting its implementation status. A decision should be taken based on the current deliverables available and future work to be developed by the Task Force.

2. Discussion

2.1 The Automation Task Force has not reported any advance to its work programme since the ATM/CNS/SG/5 meeting. For the analysis of the Sub-Group the Terms of reference (TORs), Work programme and Membership of the Automation Task Force is presented as **Appendix A**.

2.2 In order to facilitate the analysis of Appendix A by the meeting, the following comments are presented:

Task 1

2.2.1 The Interface Control Document (ICD) was presented for consideration to the GREPECAS/14 meeting. GREPECAS recommended its use in the CAR/SAM regions indicating its framework of applicability. In this regard, Conclusion 14/43 was formulated requesting States to implement interconnection of automated systems establishing bilateral/multilateral arrangements.

2.2.2 The ICD is a “live” document. In this regard, the same should be updated as necessary based on operational requirements and modern available technologies.

Task 2

2.2.3 As **Appendix B** it is presented the Regional Strategy for Integration of ATM automated Systems, the same was recommended by GREPECAS/12 Meeting (Conclusion 12/31 refers). It is intended that through this document the States/Territories/International organizations prepare an Action Plan considering bilateral/multilateral arrangements and the use of the recommended ICD. In this regard, the meeting should note that after the recommendation by GREPECAS/12 of the mentioned Strategy, States are preparing Action Plans in connection with the Conclusion 12/31. Concerning this matter, work was carried out within the activities of the RLA/98/003 technical cooperation project, mostly covering SAM States, and COCESNA. Likewise, through the activities done by the NACC/WG, the CAR States have agreed on the format of an Action Plan, and several activities on Flight Plan/Radar data sharing are ongoing (WP/18 of the CNS Committee refers). Since the mentioned Strategy considers the Global Air Navigation Plan, the Strategy should be considered as a “live” document to be updated accordingly.

Task 3

2.2.4 The RLA/98/003 Regional Technical cooperation project considering the Regional Strategy and the Regional ICD has performed a work that it is being documented in a Report not yet available. The results of this work are being presented in WP/11 to be considered by the CNS Committee. The work carried out is aimed at implementing the interconnection of ATM automated systems identifying the capabilities of each system in terms of technology, applications, interfaces so as to establish an interchange of Radar/Flight Plan data as well as AIDC communications following Phases II and III of the Regional Strategy. Once the project report be available, this material would be distributed to the CAR/SAM States. Likewise, and following GREPECAS Conclusion 14/44, the project developed the corresponding Action Plan for the implementation of data interchange among current selected automated ATM systems and made prevision for future expansion of the automation functions.

Task 4

2.2.5 The formulation of this task is very general and should be reformulated as necessary to present a more precise objective. In considering this matter, it should be noted that ATM systems have automated functions defined locally by the air navigation service provider (ANSP) and, beside these local functions, these ATM systems have standard automated functions and capabilities to perform interoperability with applications hosted in other ATM automated systems located in other States/FIRs. In this regard, Radar/Flight Plans data interchange and AIDC communications are currently available to be implemented and interoperate among ATM automated systems. International cooperation/coordination is required to define the interfaces to meet technical/operational requirements. Based on the above, the Task Force should work on these issues for the planning and implementation of these functionalities such as Radar/Flight data interchange and AIDC communications under the current Task 4, considering Phases II and III of the Regional Strategy.

Valid Conclusions on ATM automation

2.3 The valid conclusions regarding automation were formulated by the GREPECAS/14 meeting (Conclusions 14/43 y 14 /44) and are presented as **Appendix C**. The meeting should note that the same could be still considered as valid in the understanding that they are in process of implementation by the States. Regional Offices should provide follow-up and assistance as necessary.

3. Action Suggested

3.1 The meeting is invited to consider the information presented in this working paper in order to analyze the work programme of the Automation Task Force according the task ATM/CNS/5 assigned to the Sub-Group and consider the status of the Conclusions 14/43 y 14/44. For this purpose, the meeting may wish to establish an Ad-Hoc Group formed by members of the ATM and CNS Committees.

APPENDIX A

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE ATM AUTOMATION TASK FORCE

1. Terms of Reference

1.1 In accordance with the guidelines set by the ATM and CNS Committees of the GREPECAS ATM/CNS Subgroup, develop the assigned tasks in order to prepare CAR/SAM regional guidance material for the evolutionary implementation of ATM automation.

2. Work Programme

No.	Task	Priority	End Date
1	Review and update the Interface Control Document (ICD) for ATS Interfacility Data Communications for its use in the short and medium term in the CAR/SAM Regions.	A	30/11/06
2	Analyse and prepare proposals for updating the regional strategy for the evolutionary implementation of ATM automation in the CAR/SAM Regions according to the new ICAO Global Air Navigation Plan (Doc 9750) and other related initiatives.	A	30/11/06
3	Review and make recommendations on proposals from the RLA/98/003 or other Subregional groups pertaining to ATM automation.	A	30/06/07
4	Prepare general guidance material containing references on the ATM automation functions and its evolutionary improvement for ATS units.	A	30/06/07

3. Composition

Arrile Torino (Brazil), José Arturo García Torres (Colombia), Ramón Navarro (Cuba), José Luis Fernández Rosario (Dominican Republic), Roger Prudent (France), Marc Paulemon (Haiti), Sergio Valencia (México), Panama, Juan de Mata (Spain), C. Martin Cacioppo (United States), José Ramón Oyuela (COCESNA) and IFATCA.

Note: Composed by ATM and CNS experts.

4. Coordinator

Sergio Valencia (Mexico)

APPENDIX B**GUIDELINES FOR STRATEGY OPERATIONAL INTEGRATION OF THE
ATM AUTOMATED SYSTEMS OF THE CAR/SAM REGIONS**

Objective: Through a committed participation of the States, users and ATS providers of the CAR/SAM Regions,

- 1) to cooperate jointly in the integration of technologies for ATM automation, in accordance with ICAO guidelines available, considering the best regional and global alternatives;
- 2) develop a strategy for the integration of ATM automated systems with a safe, gradual, evolutionary and interoperable vision that facilitates the information exchange and the collaborative decision-making of all the components of the ATM system for a seamless, flexible, optimum and dynamic management of airspace and international aerodromes, and at the same time that it increases the required operational safety levels.
- 3) take into account the data processing and network environment, taking into consideration the use of ground and space segments for an interactive ATS information process, under the criteria of integrity, quality and real time.

FRAMEWORK

- a) identify homogeneous areas on the basis of traffic flows operating in the different airspace and international aerodromes;
- b) analyze the operational environment scenarios of the air traffic services currently provided and those that are planned;
- c) determine the scope, architecture design, characteristics and attributes of the operational requirements for the short-term integration of the current automated systems of the ATS units depending on the current provided service levels, as well as other operational requirements that respond to future expectations of the components of the ATM system, considering:
 - i) arranging the requirements in logical sequence, through the following stages.

Stage	Function
Stage I	- Flight plan processing (FDPS/Flight Data Processing System)
Stage II	- Radar data processing and ATS surveillance (RDPS/Radar Data Processing System, ADS and exchange of radar information); - Monoradar ; - Multiradar ; - Radar data sharing .
Stage III	- Automated digital communications (radar control transfer/automated traffic hand off, AIDC/CPDLC, etc.).
Stage IV	- Implementation of CDM (Collaborative Decision Making) for other ATM requirements (AOM [Airspace Organization and Management], CM [conflict management], DCB [Demand/Capacity Balancing], AO [Aerodrome Operation], TS [Traffic Synchronization], AUO [Airspace User Operation], ASDM [ATM Service Demand Management], AIS, Meteorology, Statistics, etc.);

NOTE: SAR should be taken into consideration in all the lower airspace stages.

- ii) identify the automation level required according to ATS functions defined in States' classification of airspace and international aerodromes, as follows:

ATS Operational functions required in the automated systems (ATC, FIS, SAR)							
APPLICABLE ATS FUNCTIONS	ATS Airspace						
	A	B	C	D	E	F	G
Identification							
Separation							
Navigation guide							
Surveillance							
Transfer							
Coordination							
Information of flight plans in real time							
Visualization of the geographical position of the aircraft (longitude, latitude, history)							
Statistical data of flight plans (past and forecasted information).							
Radar data processing system (RDPS)							
Flight data processing system (FDPS)							
ATS inter-facility data communications (AIDC)							
Controller-pilot data link communications (CPDLC)							
Flight profile information							

ATS Operational functions required in the automated systems (ATC, FIS, SAR)							
APPLICABLE ATS FUNCTIONS	ATS Airspace						
	A	B	C	D	E	F	G
(altitude, vertical speed, offset speed, predictive vector, turn angle, etc.)							
Automatic alerts (STCA, MSAW, DIAW, emergency, communication failure, unlawful interference, etc.)							
AIS Interface							
Meteorological information							

- iii) define the incoming and outgoing data, and functional interfaces data applicable to functions and sub-functions of the service;
 - iv) define from the highest to lowest level the functional decompositions for all the ATM components;
 - v) successively determine the different operational applications from the functional level or lowest interface to the upper interface;
 - vi) define the current and future operational applications needs;
 - vii) determine the short-term operational requirements; and
 - viii) determine the future operational requirements.
- d) determine the existing facilities and technological equipments in the CAR/SAM Regions, especially in adjacent States/Territories/Organizaitons, as well as the inter-operability technical requirements, data bases, equipped aircraft, software tools, etc., required that ease the integration of automated systems;
 - e) develop a cost-benefit analysis for the integrated implementation of ATM automated systems;
 - f) establish bilateral and multilateral agreements as appropriate, among States/Territories/International Organizations of adjacent airspace and regions for trials and the operational implementation/integration of ATS automated systems;
 - g) develop standards, procedures and guidance material required (as *the Interphase Control Document (ICD) for data communications and common coordination*

between ATM centres, based on ICAO SARPS) for the functional operation of ATS automated systems, including critical contingency cases, so as to serve as an aid to users;

- h) take the necessary measures for human resources training on a national and regional basis and allowing the facilitation of the implementation/integration of ATS automated systems;
- i) identify other potential benefits for the ATM community that may be obtained in the long-term; and
- j) document an action plan permitting the interoperable implementation of ATS automated systems.

APPENDIX C

GREPECAS/14 VALID CONCLUSIONS ON AUTOMATION

CONCLUSION 14/43 AGREEMENTS FOR ATM AUTOMATED SYSTEM INTERFACE

That CAR/SAM States/Territories/International Organizations:

- a) take into account technical feasibility studies and operational benefits, and coordinate the establishment of bilateral and multilateral agreements for the interface of automated systems between adjacent units;
- b) use guidance material specified as the “*Interface Control Document for Data Communications between ATS Units in the Caribbean and South American Regions (CAR/SAM ICD)*,” included in Appendix 4A to this part of the Report, keeping in mind that:
 - i) ICAO guidance material contained in said document is applicable at the regional level;
 - ii) material within the document that does not comply with ICAO guidelines should be used only as a reference and should be agreed to on a bilateral or multilateral basis as required; and
- c) the automated facilities that have another interface can use this advantage in order to link their systems under bilateral or multilateral agreements.

**CONCLUSION 14/44 ESTABLISHMENT OF AN ACTION PLAN FOR THE
INTERFACE OF ATM AUTOMATED SYSTEMS**

That CAR/SAM States/Territories/International Organizations formulate an action plan to interface ATM automated systems, which includes:

- a) the assignment of an expert as point-of-contact to carry out regional coordination for the interface of ATM automated systems;
- b) the analysis of the current service level provided by ATS automated systems, as well as requirements to satisfy future operational applications of the ATM community using the Table of ATS Operational Requirements for Automated Systems included in Appendix 4B to this part of the Report; and
- c) document the action plan and share best practices and experiences with other States/Territories/International Organizations, as required.
