NAM/CAR/SAM/AIDC

INTERNATIONAL CIVIL AVIATION ORGANIZATION

REGIONAL PROJECT RLA/06/901

Meeting of Implementation of AIDC in the NAM/CAR/SAM Region

(Lima, Perú, 16 to 20 April 2018)

FINAL REPORT

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HISTORY OF THE MEETING

ii-1 VENUE AND DURATION OF THE MEETING

The Meeting of Implementation of AIDC (ATS data communication between facilities) in the NAM/CAR/SAM Region was held at the premises of the ICAO South American Regional Office, in Lima, Peru, from 16 to 20 April 2018.

ii-2 OPENING CEREMONY

Mr. Oscar Quesada, Deputy Regional Director of the ICAO South American Regional Office, welcomed the participants, and after highlighting the issues to be discussed and wishing them success in their discussions, inaugurated the Meeting.

ii-3 WORKING LANGUAGES

The working languages of the Meeting were Spanish and English.

ii-4 AGENDA

The following agenda was adopted:

Agenda Item 1:	Follow-up to the performance of AIDC operation and results of the AIDC interconnection trials between the NAM/CAR/SAM Regions
Agenda Item 2:	Review to the action plans for the implementation of the AIDC interconnection in the NAM/CAR/SAM Regions
Agenda Item 3:	Analysis to the availability and errors of flight plans in the NAM/CAR/SAM Regions
Agenda Item 4:	Seminar session on the FF-ICE concept
Agenda Item 5:	Other businesses

ii-5 ATTENDANCE AND ORGANISATION

The Meeting was attended by 18 States of the NAM, CAR and SAM Region with as well as International Organizations and Industry with a total of 58 participants, including the ICAO experts. The list of participants is shown in page iii-1.

Mr. Jorge Zúñiga acted as President of the Meeting and Mr. Fernando Cassó acted as Vice President. The Meeting had two Secretaries, Mr. Fernando Hermoza, ATM/SAR Regional Officer of the SAM Office and Mrs. Mayda Ávila, CNS Regional Specialist of the NACC Office. It was assisted by Mr. Roberto Sosa, ANS/SAFETY Regional Officer of the SAM Office and the professional support of Mr. Onofrio Smarrelli, CNS Expert.

ii-6 LIST OF RECOMMENDATIONS

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Agenda Item 1: Follow-up to the performance of AIDC operation and results of AIDC interconnection trials between the NAM/CAR/SAM Regions

1.1 Under this agenda item, the following working papers were presented:

- ✓ WP/02 – *Follow-Up to the performance of the AIDC operation in the SAM Region* (presented by the Secretariat)
- ✓ WP/03 - *Follow-up on the performance of the AIDC operation in the NAM/CAR Regions* (presented by the Secretariat)
- ✓ WP/08 – *Evolution of the United States automated data Exchange interface within the NACC Region – 2018 Update* (presented by the United States of America)
- ✓ WP/11 – *Lessons learned in AIDC management over AMHS* (presented by Cuba)
- ✓ WP/12 - *AIDC Update Kingston Jamaica* (presented by Jamaica – English only)

1.2 The Meeting took note that, in the SAM Region, a process had been started in 2009 for the implementation of the interconnection of ATM automated systems between adjacent ACCs, the objective of which was to:

- Allow for automated transfer of flight plans between adjacent ATC centres through AIDC.
- Allow for the exchange of surveillance data (mainly radar) in areas of common interest.

1.3 The Meeting took note of the activities carried out to support the implementation of the interconnection of automated systems, especially the drafting of the following documents, which can be found in the following website:

https://www.icao.int/SAM/Pages/eDocumentsDisplay.aspx?area=CNS

- Interface Control Document (ICD) for ATS inter-facility data communications.
- Interface Control System Document (SICD).
- Initial plan for regional interconnection of automated systems in ACCs.
- Preliminary document on automated systems requirements (SSS).
- Memorandum of understanding for the implementation of the interconnection of automated systems between two States having adjacent ACCs.
- Guide for AIDC implementation through the interconnection of automated centres.

1.4 Likewise, the Meeting was informed of the conduction in the SAM Region of courses on the use of Asterix protocols to support the implementation of radar data exchange, on-site practical AIDC courses in Chile, Peru, Ecuador, Colombia, Panama and Paraguay, and several surveillance and AIDC seminars.

1.5 In this regard, and thanks to the activities carried out, some SAM States had prepared and signed memorandums of understanding (MOU) for the interconnection of automated systems.

1.6 Regarding effective implementation of the interconnection of automated systems, the Meeting took note that little progress had been made to date. There was only radar data exchange between Argentina and Uruguay, and radar exchange tests had been conducted between Venezuela-Brazil, Argentina-Chile and Argentina-Paraguay. Regarding the transfer of flight plan data through AIDC, it was in the operational phase in the ACCs of Brazil and Chile, and in the pre-operational phase in many of the States of the Region.

1.7 The delegates of the participating SAM States informed of the status of implementation of AIDC, shown in Appendix A to this agenda item. The Meeting also updated the requirements for the implementation of the ground-ground data interconnection (AIDC) and the estimated dates for its operational implementation, as well as the AIDC focal points, which are shown in Appendix B and C to this agenda item, respectively.

1.8 The Meeting took note that several States had implemented AIDC with adjacent States. However, most of them had been in the pre-operational phase for three years. In this regard, the Meeting urged that they proceed to migrate to the operational phase of the AIDC, especially those States that have completed the training to their controllers and updated the letters of operational agreement in a way that stipulate the AIDC as the main way of ATS coordination.

1.9 The Secretariat informed of the work carried out by the GREPECAS GTE scrutiny group, which had identified AIDC implementation as one of the factors that contributed to the reduction of LHDs, with a positive impact on safety. Likewise, the GTE noted that critical points had been identified in the Region, and to which close attention should be paid, such as coordination between Curacao-Dominican Republic and COCESNA-Ecuador. Therefore, AIDC implementation should be a priority for these States.

1.10 The Meeting took note of GREPECAS Conclusion 18/15 on the implementation of the AIDC service between adjacent automated centres, calling for the adoption at least of the Version 3.0 of the AIDC/ASIA PAC protocol, as the base document for AIDC interconnections of adjacent control centres between the CAR and SAM Regions, and the implementation of interconnections in SAM States. Likewise, it called for the CAR Region and those States adjacent to the United States to use protocol NAM/ICD version E or higher as the basis for their implementation. The Meeting noted that there are other versions after 3.0 of the ASIA/PAC, which may be applicable if their compatibility is verified. **Appendix D** to this part of the report presents the differences between the automated NAM/ICD and ASIA/PAC protocols.

1.11 Reference documents for these protocols are posted at:

https://www.icao.int/NACC/Pages/regional-group-AIDC.aspx

1.12 The NAM/CAR Regions, based on their experience, had identified a series of weaknesses during AIDC implementation, as well as post-implementation issues that made it difficult for the protocol to work 100%, mainly:

Pre - implementation:

- Need for a better definition of the requirements of the Air Traffic Control Systems.
- Need to improve the training of personnel responsible for the integration, configuration and operation of automated channels.
- Weaknesses in the integration and connection between ATC control centres of different suppliers.
- Delivery of AIDC and NAM/ICD messages through AFTN and AMHS Systems.

Post – implementation:

- Maintenance of the ATC Systems database.
- The need to extend the training programme to the personnel responsible for maintaining the communications infrastructure and maintenance of the systems.
- Need to strengthen, evaluate and implement a procedure for continuous improvement in operational control procedures.
- Finally, the negative impact that the errors in the information of the flight plans produces in the automation and the operational risk added to it.

1.13 Through this working paper, Cuba informed of the lessons learned in terms of permanently monitoring AMHS traffic, establishing maximum times between messages. It was noted that every AMHS system should be updated with AMC (Eurocontrol) data in accordance with AIRAC cycles.

Status of NAM/CAR States

1.14 Cuba provided an update to the status of implementation of the NAM/ICD protocol with adjacent States, reporting the percentages of effectiveness of the connection. It noted that its ATC system was being updated and would be ready in 2019 to make the transition to class II connections with those States with which it currently had class I, and that it was in the process of implementing the NAM/ICD protocol class I with Jamaica.

1.15 The United States noted the need to use the NAM/ICD as the operational protocol. However, according to GREPECAS/18, both the NAM/ICD and the ASIA/PAC will be the protocols to be used in the CAR/SAM States, based on their operations.

1.16 Jamaica informed that a new software had been installed in the ATC HMI system provided by Thales, and which operated with both the NAM/ICD and ASIA/PAC versions. The installation of the system had been completed and tests were being carried out with Cuba, COCESNA and Colombia, it was also indicated that they have already completed the radar data exchange tests with COCESNA and that the AIDC tests with Cuba are scheduled to be completed by the end of 2018.. Jamaica highlighted the importance of sharing information on the best practices of manufacturers.

1.17 Mexico informed of the status of automation, currently using NAM/ICD class I with Cuba, United States, and the COCESNA ACC. Its plans did not contemplate the upgrading of its operations to class II in the short term with the aforementioned States and organisation, nor AIDC connection with Guatemala and Belize.

1.18 The Dominican Republic informed of the activities carried out for the operational start-up of its ATC system and of tests conducted for AIDC implementation. The Dominican Republic noted that it had used the NAM/ICD protocol and that the software had to be adjusted in order to follow the implementation phases of this protocol with the United States. It highlighted the need for internal testing of systems and for more flexibility in the use of messages so that adjacent States could have the possibility of using any set of messages they deemed necessary. The system will be ready for testing at the beginning of 2019.

1.19 COCESNA explained that the NAM/ICD channel with the State of Cuba is currently operational, and that the AIDC channels with Mérida (Mexico), Nicaragua, El Salvador, Guatemala, Panama and Guayaquil (Ecuador) are pre-operational, reporting the percentages of effectiveness of the connection. In addition, they described their planning for the connection with Costa Rica and Belize by the end of 2018. It was indicated that it has no connection with Colombia and that the connection with Belize, Costa Rica and Jamaica is planned for the end of 2018 and with Honduras by the end of 2019, when the ATC system of Honduras is ready.

1.20 The Secretariat invited the providers that had implemented ATC systems to share the lessons learned and the weaknesses identified in regional AIDC implementation. The providers presented the lessons learned, and common regional problems were identified that affected proper implementation of this functionality.

1.21 All providers identified the following regional difficulties:

a) Lack of clear system requirements.
b) System protocol documentation, since providers had different interpretations thereof.
c) Unclear semantics and lack of real technical/operational requirements by the States.
d) Incorrect database configuration.
e) Lack of properly trained personnel to fulfil system analyst functions.
f) Lack of standardisation.

1.22 In this regard, the Meeting agreed to request all the providers to prepare a joint document with their recommendations (Indra Systems, Thales, ATECH) for the Region, in order to avoid errors and promote AIDC implementation. The aforementioned document is contained in Appendix E to this part of the report. The concepts set forth by the manufacturers are summarised in the following paragraphs.

1.23 The Secretariat would consult with the ICAO APAC Regional Office about the comments received from system providers about the ICD document generated in that Region, the interpretation of mandatory and optional messages, and mandatory and optional message fields, in order to coordinate opportunities for improvement with said Regional Ofice, taking into account that the ASIA/PAC was a protocol used worldwide.

Indra Systems

1.24 Indra Systems explained its experience with the implementation of the upgrade. It explained that its AIRCON 2100 system could handle both protocols, NAM/ICD and ASIA/PAC. Indra Systems noted that it had 7 systems currently installed in Central America and was installing 2 more in Panama and 1 in Bahamas, as well as 14 ACC/APP and 7 APP systems in South America.

1.25 The Meeting discussed the problems faced by States for AIDC implementation and the concern that AIDC was not put into operation after the commissioning of ATC systems.

1.26 Indra Systems indicated that system interconnection had been affected by semantic issues, since there was no clear definition of system requirements, in addition to lack of standardisation among them.

1.27 Indra Systems explained that there was no clear philosophy as to the use of mandatory fields in ICD protocol documents. The parameters were another problem, since States did not clearly define the operational and technical requirements for the interconnection. And, finally, other factors such as links, ownership, human factors, and regulation, affected final implementation of AIDC.

1.28 There was a need for a regional proposal to standardise software versions, the creation of a programme to improve the competence and knowledge of analysts in the region, and the generation of joint parameter-setting methodologies and best practices. Indra Systems recommended that providers be required to use a joint methodology for defining standards, to develop agreements and systems for testing with adjacent centres, or apply a common implementation strategy.

THALES

1.29 Thales provided an overview of its experience with AIDC implementation and other functions of its TopSky-ATC system. It noted that it complied with both protocols, NAM/ICD and ASIA/PAC, and that it had systems installed in Aruba, Bolivia, Chile, Colombia, Dominican Republic, Jamaica, Mexico, Panama, and Sint Maarten.

1.30 Regarding the experience of Thales with AIDC implementation, it noted that lessons learned had revealed many weaknesses that needed to be solved, such as:

- In places, the specifications were interpreted differently by different vendors
- Implementation could differ from the specifications
- Thales would like to establish a closer working relationship with ICAO in the different Regions
- An AIDC test platform was not always available;
    - Thales recommended AIDC testing to be performed on a test platform
- Systems purchased with AIDC Implementation planned beyond system warranty/support;
    - AIDC settings were uncertain at the time the system was purchased
    - AIDC tests with adjacent FIRs not planned (and hence not performed) during SAT whilst our engineers are on site
    - Given the complexity of AIDC settings, a support agreement with Thales was recommended
- Thales was not always kept informed of planned AIDC trials;
    - If testing performed whilst our engineer is on-site, we can quickly investigate any issues and quickly adjust the configuration
    - If Thales is informed of intended AIDC trials, we can be ready to provide remote support
    - Results of trials (success/failures) are not always reported to Thales

Finally, Thales invited all to work together to achieve a successful AIDC implementation.

ATECH

1.31 The representative of ATECH presented information on ATS message flow in Brazil and AIDC implementation in Sagitario (ATM automation system). Likewise, he described the AIDC reporting, coordination and transfer stages in the Sagitario system.

1.32 In turn, IATA presented the case of different FIRs, and the means used for delivering flight plans. It was noted that the AIDC was the basis for future operational implementations, including the standardisation of air traffic control procedures in the different areas, the reduction of fuel consumption, and the reduction of operational costs.

1.33 Based on the above, the Meeting formulated the following recommendations:

RECOMMENDATION AIDC/1.- Increase efforts to complete AIDC operational implementation

That NAM/CAR/SAM States, taking into account the information provided by the GREPECAS GTE that shows the significant contribution of AIDC to the reduction of LHDs, increase their AIDC implementation efforts, aiming at the operational implementation of AIC systems. Likewise, that States, through their task forces, promote the exchange of lessons learned regarding AIDC implementation.

RECOMMENDATION AIDC/2.- Consider the recommendations of manufacturers and States regarding AIDC implementation

That NAM/CAR/SAM States examine and use as a reference the document containing the integrated recommendations made at the Meeting by Indra Systems, Thales, and ATECH, which is shown in Appendix D of the Meeting Report, as well as the weaknesses identified by the regional AIDC implementation working groups, with a view to expediting and coordinating the implementation of AIDC interconnections.

RECOMMENDATION AIDC/3.- List of AMHS staff

That the NAM/CAR/SAM States update the contact information of the AMHS technicians of their States/FIRs to have an updated version of the AMHS technical management contact list and that the ICAO NAM/CAR and SAM Offices ensure that this information is available on their WEB pages with the aim of obtaining an updated version to coordinate, as soon as possible, any necessary action with those centers with which messaging is exchanged and traffic is permanently monitored, establishing maximum time between consecutive messages processed, as well as how to check permanently reports of non-delivery reports (NDR) generated by messaging systems, mainly those that are not related to unknown addresses.

Appendix A

STATUS OF IMPLEMENTATION OF AIDC IN SAM STATES

APPENDIX A

STATUS OF IMPLEMENTATION OF AIDC IN SAM STATES

Argentina

At national level, the AIDC between the ACC of Córdoba and the ACC of Ezeiza was in the pre-operational phase since 2015, and the letter of operational agreement between these ACCs was amended to introduce the operational use of AIDC as primary means. AIDC training for the controllers of the ACCs of Comodoro Rivadavia, Mendoza and Resistencia had been completed in late September 2017.

AIDC was expected to be operational between national ACCs by the second half of 2018. It was estimated that AIDC would be operational with adjacent regional ACCs by 2019.

Bolivia

It was expected that automation of ATM systems at the main ATS units in Bolivia would become operational by 2019. The automated ATM systems to be installed were Thales Topsky. Once the automation in ATS facilities was operational, Bolivia would start coordinating with the ACCs of adjacent States to conduct AIDC tests.

Brazil

In the first quarter of 2018, the SAGITARIO entered into operation at the Atlantic ACC. The AIDC was also implemented operationally between the Atlantic ACC with the Recife ACC and the Atlantic ACC with the Amazonian ACC. Thus, Brazil has the AIDC in place and in operation among all its national ACCs, only is pending the AIDC between the Atlantic ACC and the Curitiba ACC that would come into operation during the first semester of 2018. In 2017, Brazil had published a national document for the dissemination of AIDC operation, CIRCEA 100-75 - *"AIDC Operation in ATS units"*.

Chile

At national level, the AIDC connection between the Punta Arenas ACC and the ACC Puerto Montt and between the Iquique ACC and the Antofagasta APP had been implemented since mid-2017. AIDC positive tests had been carried out between the Iquique ACC and the Córdoba ACC and with the Lima ACC. There were expected to become operational for the period 2018-2019.

Colombia

The AIDC interconnections implemented at national (Bogota ACC - Barranquilla ACC) and intraregional (Bogota ACC - Guayaquil ACC, Bogota ACC - Lima ACC and Bogota ACC –Panama ACC) level were in pre-operational phase since late 2015. The letters of operational agreement between the aforementioned ACCs had been revised to introduce the use of AIDC as primary means. The amendment of the letter of operational agreement between the Bogotá ACC and the Lima ACC was signed in November of 2016. The aforementioned AIDC connections were expected to become operational by the end of the first semester of 2018.

Ecuador

At national level, the AIDC between the Guayaquil ACC and the Quito APP became operational in February 2017, for which an amendment to the letter of operational agreement had been signed on 1 February 2017 to introduce AIDC as primary means. AIDC positive tests had been carried out between the Guayaquil ACC and the Manta APP and Shell in late 2017. They were expected to become operational by the end of the first semester of 2018.

At the regional level, the AIDC was pre-operational since August 2015 between the Guayaquil ACC and the Lima ACC and between the Guayaquil ACC and the Bogotá ACC. The letters of operational agreement between these ACCs had been amended with the introduction of AIDC as primary means. They were expected to become operational by the end of the first semester of 2018.

Positive operational tests had been carried out between the Guayaquil ACC and CENAMER during the first quarter of 2017, expecting it to become operational in 2018.

French Guiana

Implementation of AIDC with the ACCs of adjacent States was scheduled for the period 2018-2019. In mid-2017, a new ATM automation system, which included AIDC, had been installed at the Cayenne ACC.

Guyana

The implementation of AIDC with the ACCs of adjacent States was scheduled for the period 2018-2019. To date, Guyana has no AIDC.

Panama

Regarding the progress in Panama, after the software update by Thales company to the automated system TopSky-ATC in July 2017, the problem of congestion in the flight plan processor has been solved. On behalf of Panama we are making small adjustments to the system to improve coordination between other adjacent centers.

Following this line, the Civil Aviation Authority of Panama is also migrating to the AMHS total connection, since currently the TopSky-ATC system works through the AFTN network. Once the tests under AMHS have been completed, it is expected to resume the pre-operational phases with CENAMER. Through the AFTN connection, we succeeded with the AIDC coordination with CENAMER, although with Bogota and Barranquilla tests were achieved, the tests carried out showed insufficient results, which did not allow to measure the success of the same.

Operationally, in August of 2017, recurrent courses were provided to the personnel of the control center in Panama for the management of the AIDC system, and in January 2018 a training was also carried out in the database of the Top Sky system to maintain a more dedicated staff that is constantly updating the database to improve the process of the AIDC system. It is important to mention that discussions have been held with the AIDC managers of CENAMER, Bogotá and Kingston to begin the establishment of the respective Letters of Agreement between the adjacent centers.

It is expected that, for the last quarter of 2018, once under full AMHS connection, the pre-operational phases will be resumed between CENAMER, Bogota and Barranquilla, and the operational phase can start in the second quarter of 2019.

It should be mentioned that with Rio Negro control, Medellin control has not been tested so far.

Paraguay

The Paraguayan state is still with the outdated FDP, for that reason we have only reached to do Technical tests with Resistance and Curitiba where the connections between the mentioned ACCs were successfully established, but not the coordination for errors in the system. Currently, the State is launching the call for bids for the purchase of a new ATM System, and taking into account the period of time that the process will take, it is estimated that for the first quarter of 2020 the ATM System will be available to continue with the tests that were postponed.

Peru

AIDC between the Lima ACC and the Guayaquil ACC and the Bogotá ACC was in the pre-operational phase since August 2015. In this regard, the letters of operational agreement had been amended with the introduction of AIDC as primary means. The upgrading of the automated ATM system of the Lima ACC, which had started in March 2017, had been completed in late 2017. With this upgrade, the Lima ACC was expected to have an operational AIDC with the Guayaquil ACC, the Bogotá ACC and the ACC of Iquique by the end of the first semester of 2018.

Suriname

AIDC implementation with the ACCs of adjacent States was foreseen for the period 2018-2019. At present, Suriname had no AIDC.

Uruguay

AIDC implementation with ACCs of adjacent States was foreseen for the period 2018-2019.

Venezuela

AIDC implementation with ACCs of adjacent States was foreseen for the end of 2019. At present, Venezuela had no AIDC. It was noted that the new ATM automation system bought from ATECH of Brazil (Sagitario system) would become operational by the end of the first quarter of 2019. Once the automated system had been installed and commissioned, Venezuela would start the implementation of the AIDC interconnection with adjacent States.

Appendix B

(AIDC) GROUND-GROUND DATA INTERCONNECTION LEVEL REQUIREMENTS IN THE SAM REGION

APPENDIX B

(AIDC) GROUND-GROUND DATA INTERCONNECTION LEVEL REQUIREMENTS IN THE SAM REGION

ARGENTINA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels *				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
CORDOBA (AUT. INDRA AIRCON2100) (2007)	IQUIQUE	XI			X	Positive AIDC tests - March 2016 As a result of the tests, the transmission speed has to be incremented from 2400 to 9600 bit/sec AIDC foreseen to be operational at the end of the second semester of 2019.
	LA PAZ	XI			X	AIDC foreseen for period - 2019 -2020
	EZEIZA	XI			XI	AIDC in pre-operational phase since December 2015. Operational phase foreseen by the second semester of 2018
	MENDOZA	XI			X	AIDC pre-operational phase by the second semester of 2018
	RESISTENCIA	XI			X	AIDC pre-operational phase by the second semester of 2018
RESISTENCIA (AUT. INDRA AIRCON2100) (May 2016)	ASUNCION	XI			X	Positive AIDC tests were conducted in 2015 between Ezeiza and Asuncion. Tests between Resistencia and Asuncion were conducted in the end of 2016. AIDC foreseen to be operational by the first semester of 2019.
	CORDOBA	XI			X	AIDC pre-operational by the second semester of 2018
	CURITIBA	XI			X	AIDC foreseen by the first semester of 2019
	EZEIZA	XI			X	AIDC pre-operational by the second semester of 2018
	MONTEVIDEO	XI			X	AIDC foreseen by the first

						semester of 2019
EZEIZA (AUT. INDRA AIRCON2100) (2007)	COMODORO RIVADAVIA	XI			X	AIDC pre-operational by the second semester of 2018
	MENDOZA	XI			X	AIDC pre-operational by the second semester of 2018
	PUERTO MONTT	XI			X	AIDC by the first semester of 2019
	CORDOBA	XI			XI	AIDC in pre-operational phase since December 2015. Operational phase foreseen by the second semester of 2018
	RESISTENCIA	XI			X	AIDC pre-operational by the second semester of 2018
	JOHANNESBURG	XI			X	AIDC tests foreseen by the second semester of 2017
	MONTEVIDEO	XI			X	AIDC foreseen by the first semester of 2019
MENDOZA (AUT INDRA AIRCON2100) (May 2016)	EZEIZA	XI			X	AIDC pre-operational by the first semester of 2018
	SANTIAGO	XI			X	AIDC foreseen for 2019
	CORDOBA	XI			X	AIDC pre-operational by the second semester of 2018
COMODORO RIVADAVIA (AUT INDRA AIRCON2100) (June 2016)	EZEIZA	XI			X	AIDC pre-operational by the first semester of 2018
	PUNTA ARENAS	XI			X	AIDC by the end of the second semester of 2018
	PUERTO MONTT	XI			X	AIDC by the end of the second semester of 2018

BRAZIL						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
AMAZÓNICO (MANAUS) AUTO. SAGITARIO ATECH	BRASILIA	XI			XI	AIDC implemented June 2016
	BOGOTÁ	XI			X	AIDC operational foreseen by first semester 2018
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019
	CURITIBA	XI			XI	AIDC implemented July 2016
	GEORGETOWN	XI			X	AIDC foreseen for period 2018-2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020

	LIMA	XI			X	AIDC foreseen second semester 2018
	MAIQUETIA	XI	X		X	AIDC foreseen for period 2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2018-2019
	RECIFE	XI			X	AIDC implemented since 2 May 2016
	ATLÂNTICO	XI			X	Second semester 2018
BRASILIA AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			XI	AIDC implemented June 2016
	CURITIBA	XI			XI	AIDC implemented July 2016
	RECIFE	XI			XI	AIDC implemented June 2016
CURITIBA AUTO. SAGITARIO ATECH	AMAZONICO	XI			XI	AIDC implemented July 2016
	ASUNCION	XI			X	AIDC foreseen second semester 2018
	BRASÍLIA	XI			Xi	AIDC implemented July 2016
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	MONTEVIDEO	XI			X	AIDC foreseen for the first semester of 2018
	RECIFE	XI			XI	AIDC implemented July 2016
	RESISTÊNCIA	XI			X	AIDC foreseen by the first semester of 2018
	ATLÂNTICO	XI			X	Implemented on the first quarter of 2018
RECIFE AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			XI	AIDC Implemented on 2 May 2016
	BRASÍLIA	XI			XI	AIDC implemented June 2016
	CURITIBA	XI			XI	AIDC implemented July 2016
	ATLÂNTICO	XI			X	Implemented on the first quarter of 2018
ATLÁNTICO AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			X	Second Semester 2018
	CURITIBA	XI			X	Implemented on the first quarter of 2018
	DAKAR	XI			X	AIDC TBD
	JOHANNESBURG	XI			X	AIDC TBD
	LUANDA	XI			X	AIDC TBD
	MONTEVIDEO	XI			X	AIDC foreseen for period 2018-2019
	RECIFE	XI			X	Implemented on the first quarter of 2018

	CAYENNE	XI			X	AIDC foreseen for period 2018-2019

BOLIVIA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
LA PAZ (MANUAL)	AMAZÔNICO	XI			X	AIDC foreseen for period 2019 -2020
	ASUNCION	XI			X	AIDC foreseen for period 2019 -2020
	CURITIBA	XI			X	AIDC foreseen for period 2019 -2020
	CORDOBA	XI			X	AIDC foreseen for period 2019 -2020
	LIMA	XI			X	AIDC foreseen for period 2019 -2020
	IQUIQUE	XI			X	AIDC foreseen for period 2019 -2020

CHILE						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
SANTIAGO (AUTO THALES TOPSKY)	IQUIQUE	XI			X	AIDC foreseen for period 2018-2019
	LIMA	XI			X	AIDC foreseen for period 2018-2019
	MENDOZA	XI			X	AIDC foreseen for period 2018-2019
	PUERTO MONTT	XI			X	AIDC foreseen for period 2018-2019
IQUIQUE (AUTO INDRA AIRCON 2100)	CORDOBA	XI			X	Positive AIDC tests - March 2016. Tests results indicate the requirement of increase transmission speed from 2400 to 9600 bit/sec. AIDC operational foreseen by the first semester of 2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	LIMA	XI			X	Positive AIDC tests conducted in February 2016. AIDC foreseen to be

						operational by the first semester of 2018
PUERTO MONTT (INDRA AUTOMATED)	SANTIAGO	XI			X	AIDC foreseen for period 2018-2019
	PUNTA ARENAS	XI			X	AIDC operational since mid-2017
	EZEIZA	XI			X	AIDC by the first semester of 2019
	COMODORO RIVADAVIA	XI			X	AIDC by the second semester of 2018
PUNTA ARENAS (INDRA AUTOMATED)	PUERTO MONTT	XI			X	AIDC operational since mid-2017
	COMODORO RIVADAVIA	XI			X	AIDC by the second semester of 2018

COLOMBIA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
BOGOTÁ (AUTO INDRA AIRCON 2100)	AMAZÔNICO	XI			X	AIDC operational foreseen first semester 2018
	CENAMER	XI			X	AIDC foreseen for period 2018-2019
	GUAYAQUIL	XI			XI	Positive AIDC tests conducted AIDC in pre-operational phase (August 2015). Implementation foreseen first semester 2018.
	LIMA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational (August 2015) Operational letter of agreement incorporating AIDC was signed on November 2016 Operational phase foreseen first semester 2018
	MAIQUETIA	XI			X	AIDC foreseen for period 2018-2019
	PANAMA	XI			X	Positive AIDC tests conducted. AIDC foreseen to be operational by first semester 2018.
	BARRANQUILLA	XI			XI	AIDC pre-operational

						(March 2016)
BARRANQUILLA (AUTO INDRA AIRCON 2100)	MAIQUETIA	XI			X	AIDC foreseen for period 2018-2019
	PANAMA	XI			X	Positive AIDC tests conducted. AIDC foreseen to be operational by first semester 2018.
	BOGOTA	XI			XI	AIDC pre-operational (March 2016)
	KINGSTON	XI			X	AIDC TBD
	CURAÇAO	XI			X	AIDC TBD
APP Rio Negro (AIRCON 2100)	PANAMA	XI			X	Tests on first semester 2018
APP Cali (AIRCON 2100)	PANAMA	XI			X	Tests on first semester 2018

ECUADOR						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
GUAYAQUIL AUTO INDRA AIRCON 2100	BOGOTA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational (August 2015) implementation foreseen first semester 2018
	LIMA				XI	AIDC operational implementation (31 March 2016) Migrated to pre-operational phase since Nov 2016. Resume to operational phase foreseen for first semester 2018.
	CENAMER	XI			X	Positive AIDC tests conducted. AIDC foreseen for period 2018-2019

FRENCH GUIANA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
CAYENNE	AMAZÔNICO	XI			X	AIDC foreseen for period

AUTO ADACEL AIDC not installed						2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2017-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	DAKAR	XI			X	AIDC foreseen for period 2018-2019
	ATLANTICO	XI			X	AIDC foreseen for period 2018-2019

GUYANA						
ACC	ACC ADJ	Flight plan Interconnection levels				Comments
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
GEORGETOWN AUTO INTELCAN AIDC not installed	AMAZONICO	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	MAIQUETIA	XI			X	AIDC foreseen for period 2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2018-2019

PANAMA						
ACC	ACC ADJ	Flight plan Interconnection levels				Comments
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
PANAMA (AUTO THALES)	BOGOTA	XI			X	Still in pre-operational phase. It is required to coordinate letters of agreement based on AIDC. The operational phase of the AMHS connection is foreseen and the tests carried out
	BARRANQUILLA	XI			X	Still in pre-operational phase. It is required to coordinate letters of agreement based on AIDC. The operational phase of the AMHS connection is foreseen and the tests carried out.

	CENAMER	XI			X	Positive AIDC tests have been performed under the AFTN network. The pre-operational phase will now be resumed under the AMHS network.
	APP CALI	XI			X	Tests on second semester 2019.
	APP RIO NEGRO	XI			X	Tests on second semester 2019.
	KINGSTON	XI			X	Waiting for Kingston Control to start with pre operational phase

PARAGUAY						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
ASUNCION AUTO AIRCON 2100 INDRA	CURITIBA	XI			X	AIDC foreseen for second semester 2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	RESISTENCIA	XI			X	Positive AIDC tests conducted in 2015 between Ezeiza and Asuncion. Tests between Resistencia and Asuncion were conducted in late 2016. AIDC foreseen to be operational by the first semester 2019.

PERU						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
LIMA AUTO AIRCON 2100 INDRA	AMAZONICO	XI			X	AIDC foreseen to be operational by second semester 2018
	BOGOTA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational phase (August 2015). Amendment to the

						operational agreement including the AIDC signed in November 2016. Operational phase foreseen first semester 2018
	SANTIAGO	XI			X	AIDC foreseen for period 2018-2019
	IQUIQUE	XI			X	Positive AIDC tests conducted in February 2016. AIDC foreseen to be operational by the first semester of 2018.
	GUAYAQUIL	XI			XI	AIDC operational (31 March 2016) migrated to pre-operational phase on November 2016. Expected to resume operational phase on the first semester 2018.
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020

SURINAME						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
PARAMARIBO (AUTO INTELCAN) AIDC not installed	AMAZÓNICO	XI			X	AIDC foreseen for period 2018-2019
	GEORGETOWN	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019

URUGUAY						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
MONTEVIDEO (AUTO INDRA AIRCON2100)	CURITIBA	XI			X	AIDC foreseen by first semester 2018
	EZEIZA	XI			X	AIDC foreseen by the first semester 2019
	RESISTENCIA	XI			X	AIDC foreseen by first semester 2019
	ATLANTICO	XI			X	AIDC foreseen for period

						2018-2019
	JOHANNESBURG	X			X	AIDC TBD

VENEZUELA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
MAIQUETIA (AUTO ATECH X4000) AIDC not installed	AMAZONICO	XI	XI		X	AIDC foreseen for period 2018-2019
	BOGOTA	XI			X	AIDC foreseen for period 2018-2019
	BARRANQUILLA	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC TBD
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019
	CURAZAO	XI			X	AIDC TBD
	SAN JUAN	XI			X	AIDC TBD

*** X PLANNED**
***XI IMPLEMENTED AND IN PRE-OPERATIONAL OR OPERATIONAL PHASE**

Appendix C

NATIONAL FOCAL POINTS IN SAM REGION

APPENDIX C / APÉNDICE C

NATIONAL FOCAL POINTS IN SAM REGION / PUNTOS FOCALES NACIONALES EN REGIÓN SAM

IMPLEMENTATION OF INTERCONNECTION OF AUTOMATED SYSTEMS / IMPLANTACIÓN INTERCONEXIÓN SISTEMAS AUTOMATIZADOS

STATE/ ESTADO	ADMINISTRATION / ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
ARGENTINA	EANA	Javier Schenk	Gerente CNS EANA	Cel (54911) 5848 6936	Jschenk@eana.com.ar
		Osvaldo Oscar Godoy	Jefe ANS Subregional Ezeiza	(5411) 4480 2309 Cel (54911) 2883 6444	ogodoy@eana.com.ar
		Daniel Coria	Coordinador nacional sistema automatizados	Cel (54911) 3594 2686	dcoria@eana.com.ar
		Mario Correa	Jefe sistemas automatizados ATS	(5411) 4320 3955 Cel (54911) 5460 9199	mccorrea@eana.com.ar
	ANAC	Diego Agüero	Técnico automatización	(5411) 5941 3000 Ext.69-128 Cel (54911) 2258 7836	daguero@anac.gob.ar
BOLIVIA	DGAC	Jaime Yuri Álvarez Miranda	Jefe Unidad CNS	(5912) 2444450 Ext. 2651	jalvarez@dgac.gob.bo
BRAZIL/ BRASIL	DECEA	Luiz Antonio dos Santos	Asesor ATM	(5521) 2101 6088	luizantoniolas@decea.gov.br
		Murilo Loureiro	Asesor sistemas automatizados	(5521) 2101 6658	loureiromal@decea.gov.br
		Rochelly de Miranda Correa -	Especialista ATC – SUBDEPARTAMENTO DE OPERAÇÕES (SDOP)	(5521) 21016197	rochellyrmc@decea.gov.br

STATE/ ESTADO	ADMINISTRATION / ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
COLOMBIA	UAEAC	Harlen Mejía	Jefe de Aeronavegación		harlen.mejia@aerocivil.gov.co
		Mauricio Ferrer	Especialista ATM sistemas automatizados		mauricio.ferrer@aerocivil.gov.co
		Pedro Alejandro Velasco	Jefe Grupo de Vigilancia Aeronáutica	(57) 31 7656 7203	pedro.velasco@aerocivil.gov.co
CHILE	DGAC	Pedro Pastrian	Especialista radar y sistemas automatizados	(562)2 836 4005 (56) 981571040	ppastrian@dgac.gob.cl
		Christian Vergara	Especialista comunicaciones	(562) 2836-4005 (56) 998886452	cvergara@dgac.gob.cl
		Gustavo Cáceres Moraga	Controlador Tránsito Aéreo Ofc. Operaciones ACCS	(56) 991581853 (562) 28364018	gcaceres@dgac.gob.cl
ECUADOR	DAC	Juan Poalasín	Controlador ACC Guayaquil Radar	(593) 2947400 ext 2130 (593) 998318034	juan.poalasin@aviacioncivil.gob.ec
		Jorge Zúñiga	Programación FDP y coordinaciones	(593) 2947400 ext 4520 +593 993067547	jorge.zuniga@aviacioncivil.gob.ec
		Eugenio Espinoza	Controlador ACC Guayaquil Radar	(593) 981269823	eugenio.espinoza@aviacioncivil.gob.ec
		Boris Argudo	Analista AIS	(593) 2947400 ext 2130	boris.argudo@aviacioncivil.gob.ec
GUYANA					
GUYANA FRANCESA / FRENCH GUIANA	Service de la Navigation Aérienne aux Antilles-Guyane (SNA-AG)	Michel Areno	Head French Guiana ACC	(594) 6944 55617	michel.areno@aviation-civile.gouv.fr

STATE/ ESTADO	ADMINISTRATION / ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
PANAMA	Autoridad Aeronáutica Civil (AAC)	Mario Antonio Facey Howard	Especialista radar y sistemas automatizados	(507) 315 9852/65	mfacey@aeronautica.gob.pa
		Bernabé Rodríguez Martínez	Controlador de Tránsito Aéreo de Aérea Radar	(507) 315 9850/52 / 66610967	bernaber@aeronautica.gob.pa
		Euclides De La Cruz	Supervisor del Departamento de Vigilancia	(507) 315 9845	ecruz@aeronautica.gob.pa
		Moises Mela	Controlador Tránsito Aéreo Panama ACC	(507) 315 9850/52 (507) 662 94270	mmela@aeronautica.gob.pa
		Bernabé Rodríguez	Controlador Tránsito Aéreo Panamá ACC	(507) 315 9850/52 (507) 666 10967	bernaber@aeronautica.gob.pa
		Arístides Villarreal	Gerente de estación de servicio de vuelo Tocumen	(507) 238 2603 (507) 621 81043	avillarreal@aeronautica.gob.pa
PARAGUAY	DINAC	Digno Nelson Cardozo González	Técnico Especialista en Radar y Sistemas Automatizados	(595) 217585016 Cel (595) 961779106	nechicar@gmail.com
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Appendix D

DIFFERENCES BETWEEN THE AUTOMATED NAM/ICD AND ASIA/PAC PROTOCOLS

APPENDIX D

Differences between the automated NAM/ICD and ASIA/PAC protocols

Phases	NAM	Additional Information
First phase	NAM ICD automation is Class 1 which exchanges active flight plans using a CPL message	
Second phase	The second phase of the automation is Class 2 which adds the following capabilities: a) Exchange of Filed Flight Plan (FPL) and Estimate (EST) messages. b) Modification of a CPL or of a FPL that was activated by an EST message (MOD). c) Modification of FPL messages (CHG).	**Flight Data Coordination** A Class 2 interface adds the following capabilities to a Class 1 interface: a) Modification of a CPL or FPL that was activated by an EST message (MOD). b) Exchange of Filed Flight Plan (FPL) and Estimate (EST) messages. c) Cancellation of a previously sent FPL or CPL (CNL). d) Modification of FPLs (CHG). e) General Information (MIS) capability.
		Interface Management Class 2 Interface Management adds the following capabilities: a) Logical Rejection Messages (LRM). b) Interface management (IRQ, IRS, TRQ, TRS, ASM). When implemented between two ATSUs, the messages which make up the interface management message set are selected by bilateral agreement based on operational need.
Logical Acknowledgement Message (LAM) The Logical Acknowledgement Message (LAM) signifies that a message was received correctly. During Class 1, each system must determine if a message was rejected or lost, or if the interface failed by timing-out receipt of an LAM for each message sent. During the Class 2 phase, the Logical Rejection Message (LRM) provides the reason a message was rejected.		
Third Phase	The third phase of the automation is Class 3 which adds the following capabilities: a) Radar Handoff b) Radar Pointout	
Phases	**AIDC**	**Additional Information**
First/Second and Third Phase	**Implemented at the same time**	

ASIA/PAC AIDC Messages

Core	Opt	Message Class	Message
X		Notification	ABI (Advance Boundary Information)
X		Coordination	CPL (Current Flight Plan)
X			EST (Coordination Estimate)
X			MAC (Coordination Cancellation)
	X		PAC (Preactivation)
X			CDN (Coordination)
X			ACP (Acceptance)
X			REJ (Rejection)
	X		TRU (Track Update)
X		Transfer of Control	TOC (Transfer of Control)
X			AOC (Assumption of Control)
X		General Information	EMG (Emergency)
X			MIS (Miscellaneous)
	X		TDM (Track Definition Message)
X		Application Management	LAM (Logical Acknowledgement
X			LRM (Logical Rejection Message)
	X		ASM (Application Status Monitor)
	X		FAN (FANS Application Message)
	X		FCN (FANS Completion Notification)
	X	Surveillance Data Transfer	ADS (Surveillance ADS-C)

Appendix E

INTEGRATED RECOMMENDATIONS FROM INDRA SYSTEMS, THALES AND ATECH

APPENDIX E

INTEGRATED RECOMMENDATIONS FROM INDRA SYSTEMS, THALES AND ATECH

Recommendations for the implementation of AIDC in the latest generation systems of suppliers:

- Indra Systems SA and ATECH recommend that Brazil establish a work plan in conjunction with Colombia and Peru in order to coordinate tests as of mid-July 2018 when the new ATECH system is implemented in the Amazonian FIR, which has latest software version "SAGITARIO" and which has among its improvements the management capacity of FPL2012 and the latest implementations in the AIDC protocol. Currently the Indra Systems of Colombia and Peru have technical support and guarantee. -

- According to our experience, we consider that the new software versions of the systems contemplate all the necessary parameters for the correct coordination of the systems with the AIDC protocol. If any State considers that some parameter should be implemented in the future, it can make its consultation or suggestion so that the suppliers can indicate if they have this possibility or if it can be implemented as per request within a new contract.

- Indra Systems SA will study in the short term two lines of work to be presented to ICAO.
    - o Will study improvement formulas for the training of qualified personnel in their systems.
    - o Proposal for homologation of systems to a common target

Recommendations before bidding:

- Clearly define the protocol, version to be used, and establish in the specification the level of coordination with which it should communicate with each adjacent state.
- It is recommended to specify in the specifications any operational case that is considered to be implemented.

Short-term recommendations for states:

- That all states have systems with FPL2012 capacity.
- Have specific contracts of support and guarantee for the AIDC operational implementation.

Recommendations to ICAO for the prior validation of a system:

- It is recommended that ICAO develop a semantic validation tool for different protocols and versions that allows providers to validate their systems autonomously.
- Incorporate technical and operational courses to the working meetings of the states.

For the certification of technicians:

- It is recommended that technicians have continuous training. These courses of refreshment should be oriented mainly to the operation staff of the systems that will in turn give greater support to the controllers.
- It is recommended that technicians be more involved in operational and conceptual aspects of the operation of an ATC system.
- Theoretical-practical exam in specific operating systems in the country or control center.
- Theoretical-practical exam of the working mode of the installed system (supplier application).

Recommendations to ICAO regarding queries from system suppliers:

- The NACC and SAM Offices should designate a focal point to respond to clarification requests regarding ICD specifications from the system suppliers. ICAO clarifications should be distributed to all providers of AIDC systems.

Agenda Item 2: Review of the action plans for the implementation of the AIDC interconnection in the NAM/CAR/SAM Regions

2.1 Under this agenda item, the following working papers were discussed:

- ✓ WP/04 – *Activity Plan for AIDC interconnection between adjacent ACCs of the SAM Region (*presented by the Secretariat)
- ✓ WP/05 - *Activity Plan for AIDC interconnection between adjacent ACCs of the NAM/CAR Region* (presented by the Secretariat)

2.2 Regarding the SAM Region, the Meeting took note that the Eleventh Meeting of the Coordination Committee of Project RLA/06/901 (RCC/11), when analysing the activities of Project RLA/06/901 to be held in 2018, agreed to hold the Fourth Meeting of Implementation of AIDC in Lima, Peru on 16-20 April, granting 2 fellowships for each member State of Project RLA/06/901, and a practical AIDC course for ATS controllers of the Maiquetía ACC and technical support staff in ATM automation systems of the Maiquetía ACC.

2.3 The Meeting was informed that consideration had been given to holding the Fourth Meeting of Implementation of AIDC in the SAM Region in conjunction with the NAM/CAR Regions in order to deal with inter-regional AIDC implementation aspects. In this sense, the Fourth Meeting was part of this Meeting of Implementation of AIDC (data communications between ATS facilities) in the NAM/CAR/SAM Regions.

2.4 The Meeting considered that, given that the new ATM automation centre of the Maiquetía ACC would be operational on the first quarter of 2019, the AIDC practical course scheduled for 26-30 November 2018 in Venezuela would be delivered in April 2019, by experts of the SAM States. This type of courses had been delivered since 2015 in Chile, Ecuador, Colombia, Panama, Paraguay, Peru and Uruguay.

2.5 The Meeting updated the plan of activities for the implementation of the AIDC interconnection, which is shown in Appendix A to this agenda item.

2.6 Following up on the implementation plan of the NAM/CAR Region, work has been carried out on the implementation of the AIDC, work led by the AIDC working group, part of the ANI/WG of the NAM/CAR region, whose work and progress are in the web page of the ICAO NACC Office:

https://www.icao.int/NACC/Pages/regional-group-AIDC.aspx

2.7 Appendix B to this agenda item contains the tasks of the AID Group of GREPECAS Project C for the CAR Region.

2.8 The Meeting deemed it necessary to coordinate the activities of the NAM/CAR AIDC working group with those of its SAM counterpart, in order to verify the use of optional and mandatory fields in AIDC messaging, with a view to standardising the use of these messages and give system providers standard requirements for regional development and implementation of ATS systems.

2.9 It was noted that GREPECAS/18 contemplated the execution of the following activities:

a. That States capable of implementing AIDC update their implementation plans and deliver them to the corresponding ICAO Offices by 30 August 2018.
b. That regional measures to minimise the occurrence of flight plan errors be adopted in each State before December 2018.

In this regard, States were reminded of the importance of fulfilling the aforementioned activities within the established timelines.

Appendix A

PLAN OF ACTIVITIES FOR THE IMPLEMENTATION OF THE AIDC INTERCONNECTION BETWEEN ADJACENTS ACCs

APPENDIX A

PLAN OF ACTIVITIES FOR THE IMPLEMENTATION OF THE AIDC INTERCONNECTION BETWEEN ADJACENTS ACCs

Activity	Start	End	Responsible	Status
1. **Establishment of initial activities for completing the technical implementation of AIDC**	**10/10/14**	**16/10/14**	**ICAO**	**Completed** The initial plan of activities for AIDC implementation is scheduled for 2015. The plan of activities contemplates the conduction of AIDC courses for air traffic controllers working at ACCs and the operational implementation of AIDC between adjacent ACCs. These activities will be conducted in Chile, Colombia, Ecuador and Peru. Interconnection tests between the Lima and Bogota ACCs were added to the list shown in paragraph 1.1.1.
1.1 Based on the results of AIDC tests conducted from February 2014 to June 2014, the technical documentation of the automated systems installed in the Region, and the SAM AIDC implementation guide, develop: 1.1.1 Plan of activities to complete technical feasibility tests for AIDC interconnection between: Santiago ACC - Lima ACC Guayaquil ACC - Lima ACC Bogota ACC - Guayaquil ACC 1.1.2 Contents of AIDC course for ATS controllers and programmers of AIDC automated system databases, to be conducted in Chile, Colombia, Ecuador and Peru.	10/10/14	16/10/14	ICAO	
2. Review of activities at the SAM/IG/14 meeting	**09/10/14**	**13/11/14**	**ICAO and SAM/IG group**	**Completed** The SAM/14 reviewed and approved the plan of activities for AIDC implementation
2.1 Submission of the plan of activities and contents of the AIDC course at the SAM/IG/14 meeting	09/10/14	13/11/14	ICAO	
2.2 Review and approval for submission at the Eighth Coordination Meeting of Project RLA/06/901	09/10/14	13/11/14	SAM/IG	
3. Approval of activities by the RCC/8 meeting	**25/02/15**	**27/02/15**	**RLA/06/901 member States**	**Completed** The RCC/8 meeting held in Lima on 25-27 February 2015 approved the activities for initial implementation of
3.1 Submission of activities, with their respective cost, for approval.	25/02/15	27/02/15	RLA/06/901 member States	

Activity	Start	End	Responsible	Status
				AIDC interconnection in Chile, Colombia, Ecuador and Peru.
4. Search and selection of experts	**24/11/14**	**28/01/15**	**ICAO**	**Completed** For the performance of the initial activities, three SAM experts with experience in database programming and operation of ACC automated systems were selected: **Rubén Silva of Argentina, Mauricio Ferrer of Colombia, and Jorge Merino of Peru**.
4.1 Search and selection of 4 experts from SAM States participating in Project RLA/06/901, with experience in the installation, operation and programming of AIDC databases, to perform the activities listed in item 1.	24/11/14	28/01/15	ICAO	
5. Missions to complete AIDC interconnection between States that started tests during the first semester of 2014	**06/04/15**	**01/05/15**	**3 automation experts ICAO**	**Completed** Missions were conducted for training purposes and to complete tests for AIDC interconnection and operation in Chile, Peru, Ecuador and Colombia.
5.1 Mission to Santiago de Chile	06/04/15	10/04/15	3 automation experts ICAO	**Completed** Implementation of AIDC activities at the Santiago ACC • AIDC practical course AIDC interconnection tests between: *Santiago ACC and Lima ACC*
5.1.1 Complete AIDC technical implementation between the Santiago and Lima ACCs	06/04/15	10/04/15	3 automation experts ICAO	**Completed** Two-way communication was established in the AIDC interconnection tests between the Thales Top sky system of the Santiago ACC and the INDRA Aircon 2100 of the
5.1.2 Conduct AIDC course for ATS personnel of the Santiago ACC	06/04/15	10/04/15		

Activity	Start	End	Responsible	Status
				Lima ACC. The operational tests did not have positive results due to the AIDC limitations in the Santiago ACC. The practical course on AIDC and database programming was conducted, providing training to 16 controllers of the Santiago ACC and 2 aeronautical technicians.
5.2 Mission to Lima:	13/04/15	17/04/15	3 automation experts	**Completed** Implementation of AIDC activities in the Lima ACC • AIDC practical course • AIDC interconnection tests between: *Lima ACC - Santiago ACC* *Lima ACC - Guayaquil ACC* *Lima ACC - Bogota ACC*
5.2.1 Conduct AIDC course for ATS personnel of the Lima ACC	13/04/15	17/04/15	3 Automation experts ICAO	**Completed** The practical course on AIDC and database programming was conducted, providing training to 44 controllers of the Lima ACC.
5.2.2 Complete AIDC tests between the Lima ACC and the Guayaquil ACC	13/04/15	17/04/15		**Completed** AIDC tests between the Lima and Guayaquil ACCs were successfully conducted.
5.2.3 Complete AIDC tests between the Lima ACC and the Bogota ACC	13/04/15	17/04/15		**Completed** AIDC tests between the Lima and Bogota ACCs were successfully conducted.

Activity	Start	End	Responsible	Status
5.3 Mission to Guayaquil	20/04/15	24/04/15	3 Automation experts of the SAM Region	**Completed** Implementation of AIDC activities at the Guayaquil ACC • Practical course on AIDC • AIDC interconnection tests and pre-operational implementation: Guayaquil ACC - Lima ACC Guayaquil ACC- Bogota ACC
5.3.1 Complete AIDC technical implementation between the Guayaquil ACC and the Lima ACC	20/04/15	24/04/15	3 automation experts of the SAM Region	**Completed** AIDC technical interconnection was completed, currently in the pre-operational phase.
5.3.2 Complete AIDC technical implementation between the Guayaquil ACC and the Bogota ACC	20/04/15	24/04/15		**Completed** AIDC technical interconnection was completed, currently in the pre-operational phase
5.3.3 Conduct AIDC course for ATS personnel of the Guayaquil ACC	20/04/15	24/04/15		**Completed** The practical course on AIDC and database programming was conducted, providing training to 31 controllers of the Guayaquil ACC.
5.4 ***Mission to Bogota***	**27/04/15**	**01/05/15**	**3 automation experts**	**Completed** Implementation of AIDC activities in the Bogota ACC • Practical course on AIDC • AIDC interconnection tests and pre-operational

Activity	Start	End	Responsible	Status
				implementation: *Guayaquil ACC - Lima ACC* *Guayaquil ACC - Bogota ACC*
5.4.1 Complete AIDC technical implementation between the Bogota ACC and the Guayaquil ACC	27/04/15	01/05/15	3 automation experts of the SAM Region	**Completed** The AIDC technical interconnection was completed, currently in pre-operational phase
5.4.2 Complete AIDC technical implementation between the Bogota ACC and the Lima ACC	27/04/15	01/05/15		**Completed** The AIDC technical interconnection was completed, currently in pre-operational phase
6. First meeting of the AIDC operational implementation working group during the SAMIG/15 meeting	**11/05/15**	**15/05/15**	**RLA/06/901 member States**	**Completed.** As a result of AIDC technical implementation, the SAM/IG/15 established a group of activities to migrate from the pre-operational phase to the operational between the ACC Bogota, Guayaquil and Lima. Additionally, the AIDC messages to be used were defined.
6.1 It is proposed that, as a matter of priority, the SAM/IG/15 meeting do the follow-up of AIDC implementation. Accordingly, the AIDC operational implementation working group will hold its first meeting.	11/05/15	15/05/15	RLA/06/901 member States	
7. AIDC operational implementation **ACC Guayaquil ACC Lima** **ACC Bogota ACC Guayaquil** **ACC Lima ACC Bogota** **ACC Lima ACC Santiago**	**18/05/15**	**31/12/18**	**Involved States**	
7.1 Definition of the parameters of the AIDC database for the to AID operational interconnection between Colombia, Ecuador and Peru	25/05/15	29/05/15	Involved States	**Completed.**

Activity	Start	End	Responsible	Status
7.2 Amend letter of operational agreement to include the AIDC for the coordination between the ACC Lima with AAC Bogota, ACC Bogota with ACC Guayaquil and ACC Lima with ACC Guayaquil	15/06/15	30/06/18	Involved States	**Valid.** Letter of operational agreement between the ACC Guayaquil and ACC Lima was amendent and signed. (Oct 2015). On Nov 2016, final review and sign of letter of operational agreement between ACC Lima and ACC Bogota was completed. Pending amendment of letter of agreement between ACC Bogota and ACC Guayaquil.
7.3 Teleconferences to coordinate and follow-up the migration from the AIDC pre-operational phase to the operational for Colombia, Ecuador and Peru	June 2014	Monthly Tele-conferences at the beginning of each month until end 2018 depending on the progress, telecon-ference will be conducted upon needs	Involved States ICAO	**Valid.** Teleconferences are been carried out on monthly basis since June 2014. On 2016 teleconferences were conducted on: 19 January 23 May 19 February 3 June 18 March 6 September On 2017 teleconferences were held on March 2, June 28, August 24 and December 14. On 2018 one teleconference was held on January 26.
7.4 Complete courses for the ACC Lima and Guayaquil, Bogotá ATS staff as well as staff ARO/AISe	18/05/15	30/12/17	Involved States	**Completed.**
7.5 Preoperational and operational Implementation of AIDC Guayaquil ACC - Lima ACC	18/05/15	31/12/17	States involved	**Valid.** Letter of operational agreement with corrections on

Activity	Start	End	Responsible	Status
Bogota ACC - Guayaquil ACC Lima ACC - Bogota ACC Lima ACC – Santiago ACC*				AIDC between ACC Colombia, Ecuador, Panama and Peru were amended (October 2015). Letter of operational agreement between AAC Lima and Guayaquil with the inclusion of AIDC was signed on 23 October 2015. Letter came into force on 31 March 2016. Establishing of a pre-operational period completing the ATS staff training. Operational implementation. AIDC between ACC Lima - ACC Guayaquil in operational phase from August 3, 2015, became operative on 31 March 2016. AIDC operations interrupted on September 2016 due to AIRCON 2100 system problems in Lima ACC. Automated system of Lima was completed by the end of 2017. The AIDC between the ACC Bogota and the ACC Lima and ACC Guayaquil is still in pre-operational phase since May,

Activity	Start	End	Responsible	Status
				2015. * The AIDC operational implementation between the ACC Lima and ACC Santiago has postponed in view of the delay in the modernization of the ACC Santiago automated Center (2017-2019).
8. Other AIDC implementations **Bogota ACC - Panama ACC** **Ezeiza ACC - Montevideo ACC** **Resistencia ACC - Asunción ACC** **Curitiba ACC – Resistencia ACC** **Iquique ACC – Lima ACC** **Cordoba ACC – Iquique ACC** **Amazonico ACC – Bogota ACC** **Amazonico ACC – Lima ACC** **Asuncion ACC – Curitiba ACC**	18/05/15	31/12/18	States involved	
8.1 Definition of parameters of the AIDC database for the operational interconnection of the AIDC		29/12/16	States involved	**Valid** Defined for AIDC between: Bogota ACC-Panama ACC, Iquique ACC-Cordoba ACC and Resistencia ACC-Asuncion ACC.
8.2 Amendment of letter of operational agreement to include the AIDC for coordination between ACCs.		30/06/18	States involved	**Valid**
8.3 Carry out teleconferences for coordination and follow-up to the migration from the AIDC pre-operational to operational fase		Monthly tele-conferences at the begining of each month	States involved ICAO	**Valid** Teleconferences conducted 19 January 23 May 19 February 3 June 18 March 6 September

Activity	Start	End	Responsible	Status
		until the end of 2018 Depending on the progress tele-conferences will be conducted upon need		For 2017 teleconferences are foreseen for March, (made on 3 March) July, September and December.
8.4 Practical courses addressed to the ATS AIS CNS personnel of the ACC involved, interconnection AIDC		30/11/16	States involved OACI	**Completed** AIDC Course (Panamá 22 -26 June) 2015 AIDC Course (Paraguay 28 November to 2 December 2016).
8.5 Conduction of AIDC interconnection test between adjacents ACCs		30/12/17	States involved	**Valid** Successful AIDC interconnection tests between Bogota and Panama. (June 2015). Tests will continue during 2017 in view of the improvement made in the automated system of Panama ACC. AIDC tests Iquique ACC and Lima ACC were successfully conducted on December 2015 and continued until the end of 2017. AIDC tests Iquique ACC and

Activity	Start	End	Responsible	Status
				Cordoba ACC were made in February 2016 with positive results but the ABI message. Tests will continue one end-2017 since Argentina reported that AIDC domestic operations will be completed first. AIDC tests Amazonico ACC and Lima ACC were conducted on the second semester of 2018 with problems with ABI messages at the beginning which were overcome by the Company Atech. Tests will continue on first semester 2018. AIDC tests Ezeiza ACC and Montevideo ACC (first semester 2018). AIDC tests Asuncion ACC and Resistencia ACC were made during the week of 28 November 2016 and will restart at the beginning of 2020. AIDC tests Curitiba ACC and Resistencia ACC (end of the second semester 2017). AIDC tests Curitiba ACC and

Activity	Start	End	Responsible	Status
				Asuncion ACC (first semester 2017). AIDC tests Bogota AAC and Amazonico ACC (First semester 2018)
8.6 Implantation of pre-operational and operational AIDC		31/12/17	States involved	**Valid** AIDC between Bogota ACC and Panama ACC is in pre-operational phase since October 2015. Operational phase foreseen by the end of the second semester 2019. AIDC between Ezeiza ACC and Montevideo ACC in pre-operational phase foreseen by june 2018 and in operational phase by the end of the second semester 2019. AIDC between Asuncion ACC and Resistencia ACC in pre-operational phase and operational by the end of first semester 2019. AIDC between Iquique ACC and Lima ACC will be in pre-operational phase on May 2018 and operational phase on the end of first semester 2018.

Activity	Start	End	Responsible	Status
				AIDC between Iquique ACC and Cordoba ACC in pre-operational phase and will be on operational phase by the end of first semester 2019. AIDC between Curitiba ACC and Resistencia ACC in pre-operational and operational phases by the first semester 2019. AIDC between Amazonico ACC and Lima pre-operational phase on second semester 2018. AIDC between Amazonico ACC and Bogota ACC foreseen operational phase by the end of first semester 2018. AIDC between Asunccion ACC and Curitiba ACC operation phase foreseen by second semester 2021.
9. Workshop/Seminars on implementation of ATM automation	**22/09/15**	**31/12/19**		

Activity	Start	End	Responsible	Status
9.1 Workshop/Seminars on implementation of ATM automation	22/09/15	23/10/15		**Completed** NAM/CAR/SAM Workshop held in Panama from 22 to 25 September 2015. The implementation of interregional AIDC interconnections was analysed.
9.2 Workshops/Seminars on AIDC implementation		June 2019	**ICAO**	**Valid**.
10. Second meeting of the AIDC operational implementation working group during SAMIG/16	**19/10/15**	**23/10/15**	**ICAO**	**Completed**
10.1 It is proposed, as a matter of priority, the SAM/IG/16 meeting do the follow-up of AIDC implementation. Accordingly, the second meeting of the AIDC operational implementation working group will be held.	19/10/15	23/10/15	ICAO	**Completed** Follow-up was made on the operational implementation and programming of activities for operational implementation in 2016.
11. **AIDC Implementation meetings 2018-2020**	**01/01/18**	**31/12/20**	**Involved States ICAO**	**Valid**
11.1 Implementation of remaining AIDC interconnections at inter-regional level (Chart CNS II-3 – Plan of ATS voice circuits of the CAR/SAM Air Navigation Regional Plan Volume II eANP) and 8 inter-regional distributed as follows: Colombia (Barranquilla-Kingston, Barranquilla-Curazao and Bogota-CENAMER), Ecuador (Guayquil-CENAMER) and Venezuela (Maiquetia-Piarco, Josefa Camejo – Aruba and Maiquetia-San Juan).	01/01/17	31/12/19	Involved States ICAO	**Valid**
11.2 Inter-regional AIDC interconnections between SAM and AFI Regions: Argentina (1), Brazil (2), French Guiana (1) and Uruguay (1)	01/01/17	31/12/20	Involved States ICAO	**Valid**
12. **Introduction of FF ICE concept**	**18/04/17**	**31/12/19**		
12.1 Analysis of the application of B1-FICE Module in the Region: Increasing interoperability, efficiency and capability	18/04/18	31/12/2019	SAM Region States and	Valid

Activity	Start	End	Responsible	Status
through FF ICE. First stage of application before exit.			ICAO	
13. **Monitoring to the AIDC interconnection implementation**	**2015**	**2020**	**ICAO**	
13.1 **AIDC Implementation Meeting** ✓ First AIDC Implementation Meeting ✓ Second AIDC Implementation Meeting ✓ Third AIDC Implementation Meeting ✓ Fourth AIDC Implementation Meeting ✓ Fifth AIDC Implementation Meeting ✓ Sixth AIDC Implementation Meeting	March 2016	September 2020	ICAO	**Valid** AIDC/1 (Lima, Peru, 28-30 March 2016) AIDC/2 (Lima, Peru, 21-23 September 2016) AIDC/3 (Lima, Peru, 24-26 April 2017) Approved by RCC/10 AIDC/4 (Lima, Peru, 16-20 April 2018) AIDC/5 (Lima, Peru, September 2019) AIDC/6 (Lima, Peru, September 2020)

Appendix B

TASKS OF THE AIDC GROUP WITHIN C GREPECAS PROJECT FOR THE CAR REGION

APPENDIX B

TASKS OF THE AIDC GROUP WITHIN C GREPECAS PROJECT FOR THE CAR REGION

CAR Region	PROJECT DESCRIPTION	DP N° C	
Programme	**Title of the Project**	**Start**	**End**
AUTOMATION AND ATM SITUATIONAL AWARENESS (ICAO programme coordinator: Mayda Avila)	**AUTOMATION AND IMPROVED ATM SITUATIONAL AWARENESS IN THE CAR REGION** Project coordinator: Carlos M. Jimenez (Cuba) Fernando Casso (Dominican Rep.) Dulce Rose (Estados unidos) Experts contributing to the project: Carlos Miguel Jiménez, Jorge Centella y Julio Cesar Mejía (Dominican Rep.) Dulce Rose (Estados Unidos) Jenny Lee/COCESNA ANI/WG	October 2011	June 2019
Objectives	Based on the of the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) regional performance objectives: 1. Support NAM/CAR States with implementation of automated systems and interconnection at a regional level		
Scope	The project contemplates the assessment and identification of the main levels of automation, production of guides for use of existing capabilities, proposed improvements to automation levels to enhance operations and safety, development of studies and guidelines for automation and operational use of capabilities to attain these situational awareness improvements, supporting implementation of different applications such as common display of traffic, common display of meteorological conditions, and communications in general.		
Metrics	• Number of States/ANSPs participating in regional automation tests • Number of States/ANSPs implementing ATC automation functionalities between systems • Complete proposals and guidance material for the reduction of operational errors with before and after effective date of implementation guides for the CAR/NAM Region • Number of States/ANSPs reporting a reduction of incidents resulting from implementing improvements in electronic ground and air alerts • Number of States/ANSPs adopting the ADS-B data using the Guide developed		
Goals	This Project is expected to support States with operational improvement resulting from the implementation of ATM automation systems: • NAM/CAR RPBANIP ASBU-ASUR Targets • NAM/CAR RPBANIP ASBU-SNET Targets • NAM/CAR RPBANIP ASBU-FICE AIDC Target		

CAR Region	PROJECT DESCRIPTION	DP N° C	
Programme	**Title of the Project**	**Start**	**End**
Strategy	• Project activities will be coordinated and executed amongst project members, the project coordinator, and the programme coordinator mainly through teleconferences and meetings held from time to time in accordance with work programme activities. • The project coordinator will coordinate, as necessary, requirements of other projects and information from the NAM/CAR implementation working group with the programme coordinator. Additional experts will be included based on tasks and specialised work to be conducted.		
Justification	With the emergence of new technologies in ATM automated systems, as well as the standardization of communication protocols, data exchange in ATS units is actually viable in different ways. Available protocols in systems such as OLDI and AIDC allow ATS units to establish automated coordination, improving operational reliability and procedural effectiveness. Likewise, the standardization in processing surveillance data in ASTERIX format allows easy radar data exchange between FIRs. These automated exchanges will result in a significant reduction of ATS incident rates and operational errors. Improving situational awareness facilitates coordination, improves efficiency and safety, and ensures that the different members of the ATM community have the same information when adopting decisions collaboratively.		
Related projects	This project is related to Programme D Project (ATN and its ground-ground and air-ground applications)		

Project Deliverables	Relationship with the regional performance-Objectives (RPO)	Responsible Party	Status of Implementation[1]	Date of Delivery	Comments
Proposals or guidelines for improving the operation and performance of flight plan data processing system	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Jenny Lee COCESNA Fernando Casso República Dominicana		December 2018	In accordance with the activities of the TF AIDC
Implementation of the regional flight plan errors plan	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Fernando Casso Dominican Republic		December 2018	In accordance with the activities of the TF AIDC
Implementation of the flight plan rejection message standardization for the Region	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Jenny Lee COCESNA Fernando Casso Dominican Republic Victor Machado Cuba Dan Evans Estados Unidos		December 2018	In accordance with the activities of the TF AIDC
Monitor the AIDC implementation plan in each State that has the capacity to use this facility	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Jenny Lee COCESNA Fernando Casso Dominican Republic		December 2018	Jenny Lee for Central America Fernando Casso for the Caribbean
Guidance for the use of AIDC in order to reduce coordination errors.	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Fernando Casso Dominican Republic		December 2018	Date adjusted to TF AIDC
Resources needed	• Designation of experts for the execution of the deliverables • Implement required facilities that allow interconnection of automated systems according to the established dates in the elaborated and signed MoU, respectively.				

Agenda Item 3: Analysis to the availability and errors of flight plans in the NAM/CAR/SAM Regions

3.1 Under this agenda item, the following working papers were presented:

- ✓ WP/06 – *Monitoring of actions to mitigate the errors and the duplicity/multiplicity of flight plans in the SAM Region (*presented by the Secretariat)
- ✓ WP/07 – *Follow-Up of actions on error mitigation and the duplicity/multiplicity of flight plans in the NAM/CAR Region (*presented by the Secretariat*)*
- ✓ WP/09 – *Standardization of flight plans rejecting messages in the Region* (presented by the Rapporteur of the ANI/WG AIDC Task Force)
- ✓ WP/10 – Flight plan errors statistics, NAM/CAR Region (presented by the Rapporteur of the ANI/WG AIDC Task Force)
- ✓ WP/11 – *Lessons learned in AIDC management over AMHS* (presented by Cuba)

SAM Region

3.2 The Meeting took note that the SAM AIDC group had identified possible sources of errors in flight plans, and had formulated recommendations to mitigate errors, as well as multiplicity/duplication in flight plans. Likewise, it had prepared a guide to avoid errors in FPLs and ATS messages. The list of sources of errors and recommendations are presented in the final AIDC/2 report that can be found on the following website:

https://www.icao.int/SAM/Pages/ES/MeetingsDocumentation_ES.aspx?m=2016-AIDC2.

3.3 The guide to avoid errors in FPLs and ATS messages prepared by the AIDC group is contained in Appendix A to this agenda item (see Appendix A to WP/06).

3.4 Likewise, the Meeting took note that the SAM/IG/19 meeting had considered that, in order to implement procedures for reducing the duplicity/multiplicity of scheduled commercial flight plans, States should establish AFTN address XXXXZPZX as the sole address for receiving flight plans corresponding to the ARO / AIS Offices. Conclusion SAMIG/19-2 - *Implementation of the procedure for the mitigation of duplicity/multiplicity of regular commercial flight plans* was formulated in this regard.

3.5 Regarding progress made in activities to mitigate flight plan errors and duplication/multiplicity, the Meeting updated activities corresponding to:

- *Follow-up to the implementation of automated systems for FPL 2012*
- *Analysis of flight plan errors and duplication in the SAM Region*

Follow-up to the implementation of automated systems for FPL 2012

3.6 Regarding the status of implementation of automated systems for FPL 2012, Bolivia had started the implementation of an ATM automation project in the ATS units of La Paz, Cochabamba, Santa Cruz and Trinidad called CIDACTA. The automated system to be installed in these ATS units was Thales TopSky-ATC, scheduled to be completed by 2019.

3.7 Likewise, Brazil reported that in the FDPs of the ACCs in Brasilia and Curitiba at the end of the first quarter of 2018 the FPL 2012 was already processed automatically, thus eliminating the converters in these centers. The other ACCs will be updated until the end of 2018.

3.8 Peru informed that, in late 2017, it had completed the upgrading of the automated system of the Lima ACC (INDRA AIRCON 2100), which, among other improvements, corrected the limitations in the number of characters in item 10 of the FPL 2012 format.

3.9 Finally, Venezuela expected to have a new automated system at the Maiquetía ACC by the end of the first quarter of 2019 in order to eliminate the FPL2012 converter.

3.10 The analysis of the status of implementation of automated systems in the SAM Region in accordance with Amendment 1 to Edition 15 of Doc 4444 (FPL2012) showed that, to date, of all the ACCs of the SAM Region (27), 67% had upgraded the flight plan processors (FDPs), 22% still used converters, and the rest continued with the manual solution since the automated systems installed in the ACCs did not comply with FPL 2012 or did not have automated systems. 67% of the States had implemented AMHS/AFTN terminals with FPL 2012 templates capable of detecting flight plan errors.

3.11 Appendix B contains an updated table showing the status of implementation of automation pursuant to amendment 1 to Doc 4444, Edition 75.

3.12 The Meeting felt that, in view of the progress made by the NAM/CAR Task Force on the development of flight plan error statistics, which are presented further on in this part of the report, this type of statistical activities should be entrusted to the SAM AIDC implementation group. The Meeting agreed to begin these tasks and inter-regional coordination as needed to hold a first teleconference between the NAM/CAR Group and the SAM Group, no later than the second half of June 2018.

Analysis of flight plan errors and duplication in the SAM region

Argentina

3.13 It was understood that, for automation to be properly implemented, it had to begin with the generation of information to be fed into ATM systems. Accordingly, an analysis was performed of the results of a sample of AIDC erroneous coordination events, showing a reduction from 30% to 14% in December 2017 of failed coordination events.

3.14 Out of failed coordination events, 50% were due to problems with the flight plans, including those that were missing in the system or duplicated. Accordingly, arrangements were made to give more flexibility to the filing flight plans, so that the service provider would not have able to modify flight plans filed by general aviation.

3.15 The action taken included:

1. Commercial aviation operating scheduled flights in Argentina, as well as general aviation, were convened to a meeting in February 2018 to let them know of an orderly and gradual migration from paper flight plan filing to a digital format.

2. Companies were invited to sign agreements. So far, the only one that had done it was Aerolíneas Argentinas, which had expressed its intention to continue using the LIDO system provided by SITA to this end, initially via AFTN link and then via AMHS link.

As a contingency to this system, EANA offered to implement an AMHS terminal at the premises of this airline.

3. Internal regulations were modified so that users with the technical capability of sending the FPL from a remote dispatch centre could sign agreements with EANA SE and ANAC.

4. Regarding general aviation, a website was to be implemented for the electronic filing of flight plans until such time when it was definitively implemented. Four flight plan management centres with current technology had been envisaged to receive FPLs by email so that the AIS/COM operators themselves may load them into the system.

5. In order to avoid flight plan duplication, it was foreseen that those being filed electronically would no longer go directly to the control centres but rather to the ARO/AIS offices.

6. All control centres had positions dedicated to the repair of flight plans, with operators working on a continuous basis.

7. In parallel, they were in the process of acquiring a module to offer users an Internet platform for safe and validated reception of the flight plan form.

8. Training was being provided to ARO/AIS personnel at the (5) ACCs for the flight plan repair position. In this regard, flight plan repair positions were being moved from ATM systems to ARO/AIS offices.

9. Finally, AMHS system templates would be updated for validation in accordance with Doc 4444 Edition 2012.

Brazil

3.16 It was informed that by the end of 2018, the centralization of all flight plans in the CGNA (Aeronautical Navigation Management Center) would come into operation through the SIGMA system - Integrated System of Management of Air Movements

Chile

3.17 Contact has been made with airlines to minimize errors in the generation of flight plans, the structure of internal routing is being revised to avoid multiplicity of flight plans and the study for the implementation of the national center for the reception of flight plans has begun.

Colombia

3.18 Meetings had been held with aircraft operators (Avianca, LATAM, Spirit, Viva Colombia, Iberia) in October 2017 on procedures for filing flight plans at the international AIS offices rather than directly at the ACCs, in order to avoid flight plan duplication.

Ecuador

3.19 Ecuador informed that a meeting had been held on 22 February 2018 with airline representatives to let them know about the forthcoming adoption of a single national address for receiving flight plans, which would become operational in August 2018.

Panama

3.20 It was noted that the updating of the ATM automation system of the Panama ACC had been completed.

Paraguay

3.21 The receipt of duplicate flight plans continues, an operational instruction was made for personnel in charge of FPL repair, regarding the treatment of duplicate FPLs. Discussions were held with some airlines dispatchers operating in Paraguay, regarding the sending of duplicate FPLs, especially with the departing flights from airports in the country, in which only those issued by the ARO offices are considered valid and they reported that they would communicate the situation to their bases. So far, it continues receiving duplicate FPLs. There are also problems of lack of FPL in some cases, especially in overflights.

Peru

3.22 Regarding the implementation of procedures to mitigate the duplication/multiplicity of regular, commercial flight plans in SAM States, Peru had already implemented them since late July 2017. In this regard, aeronautical information circular AIC/05/2017 had been drafted.

3.23 It was noted that on 14 December 2017, at 15:00 hours, JETBLUE representatives had visited the Aeronautical Information Office, and the first letter of agreement had been signed to begin flight plan transmission via AMHS to the single address SPIMZPZX on 16 December 2017. To date, 7 letters of agreement had been signed with different airlines. Appendix C (see Appendix C to WP/06) to this agenda item contains a copy of the letter of agreement signed with JETBLUE.

Uruguay

3.24 There is no information on the implementation of Conclusion SAMIG/19-2.

Venezuela

3.25 Venezuela had in pre-operational mode a centralized, automated IDS flight plan management system that reduce errors when filing flight plans. This system is located in the ARO Office of Maiquetía. Conclusion SAMIG/19-2 was expected to be completed by the first trimester of 2019.

Other information

3.26 Bolivia, Guyana, French Guiana and Suriname did not present any progress in the implementation of Conclusion SAMIG/19-2.

NAM CAR Region

3.27 The NAM/CAR Region, based on AIDC implementation follow-up information and lessons learned from implementations carried out by States in this Region, identified that flight plans showed many inconsistencies and errors originating in all NAM/CAR/SAM States and airlines. These errors represented a safety issue for States that had implemented AIDC, since flight plans were the primary source for the automation process. The status of implementation in the NAM/CAR Regions is analysed in the corresponding working paper.

3.28 It had been noted that flight plan automation and management errors were not only associated to flight plan information errors but also to other factors, such as non-compliance with ICAO standards concerning flight plan (Doc 4444), database information inconsistencies (including names of procedures, fixes, airways, aircraft information), lack of integrity in the information published in AIP or weakness in the process of the amendment and application of the AIRAC calendar, among others.

3.29 In the case of ATC control centre databases, weaknesses in proper flight plan management had been found, since system databases were not up to date. Consequently, the base information for information management differed from information being received from an adjacent control centre and the airline.

3.30 Inconsistencies in the information of the various boxes of the flight plan had been identified, the main deficiency being errors or absence of information in boxes 10 and 18.

3.31 In recent years, the FPL Monitoring Group had been collecting flight plan statistics to measure progress in error mitigation. Recognising that the most common error by far was flight plan duplication, since 2015, the group had been focusing more on this type of error.

3.32 At the beginning, data collection for flight plan statistics was carried out for one or two weeks, exhaustively collecting all the errors that had occurred during that period of time. This methodology represented a significant workload, even more so in States with large traffic volumes. Therefore, the methodology now being applied was to take a flight plan data sample for one or two hours each day during a week. It also included data on the total number of flight plans processed during the sampling period, thus providing a common basis for comparison with other periods, and establish the difference in traffic volume between FIRs.

3.33 In the CAR/SAM, some statistics of the last data collection can be found. Based on these, the following was obtained:

a) The percentage of error with respect to the number of correct flight plans was 11%, a rather high rate.

b) Duplicated flight plans account for 41% of reported errors.

c) Between users (airlines) and service providers, some errors were generated mainly by the former (*e.g.* box 18 not in sequential order) and others by the latter (*e.g.* invalid aircraft model), but in general, errors were on both sides.

d) Analysing originating addresses that generated most errors, they corresponded to service providers and users alike, as well as online services. In general, flight plan duplication prevailed. However, there were others that were equally frequent (inclusion of SPL information, inconsistent SID or STAR designation, flight plan not belonging to the FIR).

e) The above is an overview. If done by FIR, a difference can be seen among the most common errors for each originating address.

3.34 Mexico summarised the activities carried out by the NAM/CAR erroneous flight plan monitoring group, as well as the results obtained from this work. A summary of flight plan error management and percentages obtained from measurements made by Mexico was presented.

3.35 According to the analysis conducted by Mexico, the following types of errors generated by airlines were found: retransmission of FPL with no changes; the airlines retransmits the FPL with changes, without using the CHG message; the ATS unit retransmits the FPL, but the airline has already sent the FPL and the ATS unit was not notified.

3.36 Mexico mentioned that flight plan errors due to wrong semantics and/or incorrect syntax were the second cause of rejection. For example: not following the form completion order, information on the aircraft and airspace structure, as well as RNAV and RNP specifications.

3.37 In addition to the aforementioned problems, Mexico highlighted that human factors played an important role in the generation and completion of flight plans. Therefore, it was absolutely necessary to have an on-going, customised training programme that involved all stakeholders, such as system programmers, dispatch officers, pilots and top management.

3.38 Regarding the upgrading of flight planning in North America, Central America and the Caribbean, the United States mentioned the analyses and conclusions on flight plan errors since 2009 and the activities carried out since 2014 by the ANI/WG, AIDC/TF.

3.39 The United States noted that flight plan errors had a negative impact on efficiency and safety, in addition to adding to the controller's workload. Some of the flight plan errors identified were: inconsistent PBN information, different versions of the flight plan for the same operation, erroneous information about the aircraft type. The United States also noted that about 31% of flights coming from South America were rejected by the United States.

3.40 The United States also mentioned the problems resulting from flight plan modification by the controller, starting with work overload, since controllers must talk to pilots in order to make the respective changes, and the resulting safety problems.

3.41 It was suggested that aeronautical information management (AIM), flight plan (FPL) management of errors and air traffic services, ATS inter-facility data communications (AIDC) could be summarised in the "One Flight, One Flight Plan" philosophy to identify flight plan errors, correct these errors, and reduce problems associated to the filing of multiple flight plans. This had been recognised as an international issued that was adversely affecting the quality of data received and processed by ATC automation systems.

3.42 COCESNA, through the CENAMER air traffic control centre, received flight plans from every aircraft leaving from, arriving to, or overflying the airspace that FIR. Not all flight plans were correct and personnel were available 24/365 to repair flight plans. In 2016, COCESNA developed an application called Flight plan validation, whose purpose was to filter each flight plan addressed to CENAMER Control. The measure was implemented to mitigate flight plan problems for statistical purposes and to increase safety. Based on its requirements, COCESNA had developed software to validate and reject flight plans, which was 90% implemented.

3.43 COCESNA noted that the assessment made from August 2017 to March 2018 of flight plans containing errors had given the following results: Honduras 2.74%, Guatemala 4.27%, Belize 1.62%, El Salvador 1.28%, Costa Rica 1.76%, Nicaragua 2.20%.

3.44 Duplicated FPLs accounted for 60% of errors for the NAM/CAR Region and, in the case of the SAM Region, duplicate flight plans accounted for 70%. This meant that of all the messages generated by both Regions, more than 60% involved a duplicate FPL.

3.45 Based on the above, the Secretariat recommended that Cuba, United States, Mexico and COCESNA standardise the information of reject messages in the system.

3.46 Regarding FDP flight plan management, Indra Systems explained how its FDP system managed flight plan information and that it was used by the system to calculate paths by combining ATC database information. It was also noted that flight plan information was also used for the operation of predictive alarms of the system. Emphasis was placed on the importance for ATC system databases to be up to date so that system calculations could be as realistic as possible.

3.47 Thales presented an overview of the FDP, with a general description of TopSky-ATC functions and the flight data processing management function. The flight data processing function of Thales integrates SSR code, SID and STAR management with calculation of the operational profile. There was another operational function related to FPL information.

3.48 Following the creation and modification of the flight plan, the following action was carried out:

- Semantic checks of input data
- Checks against the list of records with connection to the ground (if configures)
- Syntax verification of input data (only for messages received)
- Syntax according to FPL2012 or before
- Validation of route field
- Verification of RNP compatibility for route, equipment and other information (PBN element)
- Retrieval of route related to the FIR/UIR
- Calculation of profile, estimated times, associated route, sectors crossed
- Determination of flight plan attributes, such as DEP/ARR/overflight/domestic, military, SSR code family, IFR/VFR/MIXT, RNP certification status

If an error was detected, the original information was stored in a message queue for manual processing. Flight plan fields were modifiable according to flight plan stages.

3.49 In the presentation on the “flight plan delivery process” made by IATA, together with DELTA, JetBlue and American Airlines, the Meeting was requested to address the following aspects:

a) Taking into account that different flight plan delivery processes are applied for FIRs (paper, WebFPL, RPL and direct delivery), IATA requested States to expedite reception of flight plans generated by airline operation centres in order to profit from technical, operational and information security advantages of airlines.
b) Arrange for the use of FPL item 19, supplementary information, in accordance with ICAO Doc 4444. Automate the obtaining or fast feedback of the supplementary information in cases that are required, by the ATS and other interested parties.
c) Exclude the requirement of filling in alternate aerodrome data in the flight plan, pursuant to the option set forth in Annex 6 for airlines of the Unites States that have been so authorised by their authority. This measure optimises fuel management by the airlines. When operating the aircraft with less reserve fuel, the flight is optimised and CO2 emissions are reduced in benefit of the environment.
d) Feedback procedure allowing all airlines to receive a message acknowledging the information and FPL they are sending.

3.50 Mention was made of several States and organisations that had implemented automated rejection messages for erroneous flight plans: COCESNA, Cuba, Mexico, and United States, which were based on reject error listings of the NAM/ICD protocol and on flight plan regulations. Each tool sends different messages for the same flight plan error, due to lack of standardisation of flight plan confirmation and rejection messages. In this sense, the Meeting discussed the need to standardise messages in order to standardise this information and make assessment and monitoring more effective.

3.51 A survey had also been conducted among the FIRs of the Region to obtain information, *inter alia,* on rejection messages and thus determine the capacity of States to generate this type of messages. Only seven responses had been received, so the result was not representative. However, it was noted that a format was mainly used that started with the "REJ" message type. In this same survey, Jamaica reported using these message types, in addition to the aforementioned.

3.52 IATA had conducted an independent study related to the procedures used by States for flight plan processing. An extract of this study, focusing on NAM/CAR FIRs, is contained in Appendix D to this part of the report (see the Appendix to WP/09). A large variety of procedures may be noted, including the capability of generating rejection messages (designated with the letter F). The ones mentioned before were also observed.

3.53 In this regard, the Meeting formulated the following recommendations:

RECOMMENDATION AIDC/4.- Measures to optimise flight plan management

That NAM/CAR/SAM States, in coordination with IATA, and taking into account that airlines have automated the production of their operational flight plans, expedite reception of ATS flight plans generated by airline operation centres for transmission to the FPL reception unit designated by each State. Likewise, that States consider the benefits in terms of CO2 reduction and assign high priority to removing the requirement to fill in the alternate aerodrome in the FPL of departure to airports in the United States, for airlines of that State that have been approved by their authority.

RECOMMENDATION AIDC/5.- ATC database configuration

That NAM/CAR/SAM States apply mechanisms to validate and verify the information contained in the databases of their control centres and aeronautical messaging systems, taking into account AIP current data, ICAO standards, and changes to information addressing, in accordance with AMC tables, in order to allow systems to properly manage their security alarms and properly validate flight plans.

RECOMMENDATION AIDC/6.- Measures on aeronautical information for the mitigation of errors in flight plans and support for automation

That the NAM/CAR/SAM States, without prejudice to the national regulations for compliance with Annex 15 and Doc. 8126, establish activities that guarantee that the relevant aeronautical information of the State is available to users involved in the preparation of flight plans and/or in the management of automated ATS systems, and that said States, when planning amendments in the aeronautical information, carry out coordination and communications as soon as possible with the other States and users involved.

RECOMMENDATION AIDC/7.- Data base of the technical characteristics (performance) of the aircraft

That ICAO complete the information already available on the ICAO website (https://www.icao.int/publications/DOC8643/Pages/Search.aspx) with the necessary characteristics to possess the integrated and validated information of the technical characteristics of the aircraft (performance) that would allow the States to perform the correct configuration of the databases of their ATC systems, since this information is essential for the systems to perform the correct calculation of the trajectory of the aircraft, that they operate correctly the alerts of prediction/avoid conflicts (Safety nets), as well as impel the correct operation of the AIDC and of the based tracks on flight plan and performance of the aircraft.

Appendix A

GUIDE TO AVOID ERRORS IN FPLS AND ASSOCIATED ATS MESSAGES

(see Appendix A to WP/06)

Appendix B

STATUS OF THE AUTOMATION IMPLEMENTATION TO GIVE EFFECT TO THE AMENDMENT TO THE FLIGHT PLAN FORMAT

APPENDIX B / APÉNDICE B

STATUS OF THE AUTOMATION IMPLEMENTATION TO GIVE EFFECT TO THE AMENDMENT TO THE FLIGHT PLAN FORMAT /

ESTADO DE IMPLANTACION DE LA AUTOMATIZACIÓN PARA DAR CUMPLIMIENTO DE LA ENMIENDA EN EL FORMATO DEL PLAN DE VUELO

STATE/ ESTADO	ACC	AFTN/AMHS (Template FPL 2012)	FDP /FPL2012
Argentina	Comodoro Rivadavia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016
	Cordoba	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
	Ezeiza	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
	Mendoza	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016
	Resistencia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016
Bolivia	Cochabamba /La Paz	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Manual It is foreseen by the end of 2019 an ATM automated system compatible with FPL/12 in the new Cochabamba ACC and La Paz ACC (back up) / Se tiene previsto para finales del 2019 un sistema automatizado ATM compatible con el FPL/12 en el nuevo ACC de Cochabamba y La Paz. ACC (respaldo)

STATE/ ESTADO	ACC	AFTN/AMHS (Template FPL 2012)	FDP /FPL2012
Brazil / Brasil	Amazónico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado (use of converter) / (uso de convertidor centralizado) An update in Sagitario ATM automated system (from ATECH Brazil) which includes the new FPL/12 flight plan format to deactivate the centralized inverter was implemented sat the end of the first quarter of 2018 in the ACC of Brasilia, Curitiba In the rest of the ACCs the deactivation of the converters are expected by the end of 2018Para finales del tercer trimestre del 2018 se actualizó el Sagitario (sistema automatizado ATM de Brasil de la empresa ATECH) que incluye el nuevo formato de plan de vuelo FPL/12 y se desactivó el convertidor centralizado en los ACCs de Brasilia y Curitiba .La desactivación de los conversores en los restantes ACCs está previsto para finales del 2018
	Atlántico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	
	Brasilia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	
	Curitiba	Implemented (AMHS terminal) / Implantado (terminal AMHS)	
	Recife	Implemented (AMHS terminal) / Implantado (terminal AMHS)	

STATE/ ESTADO	ACC	AFTN/AMHS (Template FPL 2012)	FDP /FPL2012
Chile	Iquique	Not implemented (AFTN terminal) / No Implantado (terminal AFTN)	Automated /Automatizado
	Punta Arenas	Not implemented (AFTN terminal) / No Implantado (terminal AFTN)	Automatizado /
	Puerto Montt	Not implemented (AFTN terminal) / No Implantado (terminal AFTN)	Automated /Automatizado
	Santiago	Not implemented (AFTN terminal) / No Implantado (terminal AFTN)	Automated/Automatizado
	Santiago Oceanico	Not implemented (AFTN terminal) / No Implantado (terminal AFTN)	Automated/Automatizado
Colombia	Barranquilla	Not implemented (AMHS terminal) No implantado (terminal AMHS)	Automated /Automatizado
	Bogotá	Not implemented (AMHS terminal) No implantado (terminal AMHS)	Automated /Automatizado
Ecuador	Guayaquil	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado
French Guiana (France) Guyana Francesa (Francia)	Rochambeau	No Implemented (AMHS terminal) / No Implantado (terminal AMHS)	Automated / Automatizado
Guyana	Timehri	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
Panama	Panama	Implemented / implantado (AMHS terminal))	Automated /Automatizado
Paraguay	Asunción	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Manual Automated at the first quarter of 2020 / Será automatizado primer trimestres del 2020

STATE/ ESTADO	ACC	AFTN/AMHS (Template FPL 2012)	FDP /FPL2012
Peru	Lima	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Update automation system made at the end of third quarter 2017/ Actualización Sistema automatizado realizado a finales del tercer trimester del 2017
Suriname/Surinam	Paramaribo	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated (out of service, working manually) / Automatizado (fuera de servicio, trabajando manualmente)
Uruguay	Montevideo	Implemented (AMHS terminal) / Implantado(terminal AMHS)	Automated / Automatizado
Venezuela	Maiquetia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado (use of converter) / (uso de convertidor) By the first quarter 2019 it is foreseen a new automation system in Maiquetía ACC/ Para primer trimestre 2019 se estima operación del nuevo sistema automatizado del ACC de Maiquetía

Appendix C

OPERATIONAL LETTER OF AGREEMENT BETWEEN AIS/ARO OFFICE AND JETBLUE AIRLINE

(see Appendix C to WP/06)

Appendix D

FLIGHT PLANS PROCESSING PROCEDURES
REGIONS NAM/CAR

(see Appendix to WP/09)

Agenda Item 4: Seminar session on the FF-ICE concept

4.1 The Meeting took note of the objective of the concept of flight and flow information for the cooperative environment (FF-ICE) which first phase of implementation is expected from 2019 (Block 1 of the Global Air Navigation Plan - GANP, B1 FICE).

4.2 The FF-ICE is developed to support the migration to the future ATM System foreseen in the Global ATM Operational Concept. While significant benefits are expected, the transition from the current flight planning system to a future FF-ICE will have operational implications on the processes and systems of all participants in the creation, dissemination and processing of FF-ICE information.

4.3 The Meeting considered that in view of the great changes that the implementation of the FF-ICE would generate, it would be necessary to carry out major events on the FF-ICE in order to support the States and the aeronautical community involved in the management of the flight plans and flows in the migration to the implementation of this concept.

4.4 Likewise, the Meeting considered that in view of the fact that the FF-ICE is based on the digitalization of information and the exchange of information, as well as the use of modern digital communications networks, States are required to reinforce migration activities towards these new environments, implementing national IP networks, completing the AIDC implementation and the implementation of data digitization (AIS, MET). In these digital environments it is important to take note of their vulnerability to cyber threats which will increase in the coming years, therefore, it is important that States initiate the preparation of plans to face this potential threat.

4.5 In accordance with the aforesaid, the Meeting made the following recommendation;

RECOMMENDATION AIDC/8.- Activities for the implementation of FF ICE and Cybersecurity

Taking into account the future impact involved in the implementation of the FF ICE, that the NAM/CAR/SAM States complete the implementation activities of the AIDC, the digitization of the aeronautical information and the exchange thereof, as well as the implementation of the networks digital IP. Also, analyze the impact of cyber threats in these digital environments in all areas of air navigation, and participate actively in meetings, seminars and workshops of ICAO on this subject, in order to achieve the required harmonization and maintain necessary operational security.

Agenda Ítem 5: Other business

5.1 No working papers were presented under this agenda item.