Agenda Item 5: Operational implementation of new ATM automated systems and integration of the existing systems

FOLLOW-UP TO ACTIONS TO MITIGATE FLIGHT PLAN ERRORS AND DUPLICATION/MULTIPLICITY IN THE SAM REGION

(Presented by the Secretariat)

SUMMARY

This working paper presents information on the action taken in the SAM Region to mitigate flight plan errors, as well as their duplication and multiplicity.

References:

- Report of the Meeting on implementation of AIDC in the NAM/CAR/SAM Regions (Lima, Peru, 16-20 April 2018)
- Report of the Third AIDC implementation meeting (AIDC/3 – 24-26 April 2017)
- Report of the Second AIDC implementation meeting (AIDC/2 – 21-23 September 2016)
- Report of the Eighteenth meeting/workshop of the SAM Implementation Group (SAM/IG/18 - Lima, Peru, 17-21 October 2016)
- Report of the Twentieth meeting/workshop of the SAM Implementation Group (SAM/IG/20 - Lima, Peru, 16-20 October 2017)
- Summary of AIDC implementation follow-up teleconferences (14/12/2017 and 26/01/2018)

ICAO strategic objectives:	*A – Safety* *C – Air navigation capacity and efficiency*

1. Background

1.1 At the second AIDC implementation meeting (AIDC/2), the AIDC group identified possible sources of errors in flight planning, and formulated recommendations to mitigate flight plan errors, duplication and multiplicity. It also presented a guide to avoid errors in FPLs and ATS messages. The list of sources of error and recommendations appears in the final report of the AIDC/2 meeting, posted on:

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

1.2 The SAM/IG/18 meeting reviewed and approved the guide to avoid errors in FPLs and ATS messages, prepared by the AIDC group.

1.3 The SAM/IG/19 meeting considered that, in order to implement procedures to mitigate the duplication/multiplicity of scheduled commercial flight plans, States should establish AFTN address XXXXZPZX as the only address to receive flight plans, corresponding to the ARO/AIS offices. Accordingly, it formulated Conclusion SAMIG/19-2 – *Implementation of procedures to mitigate*

duplication/multiplicity of scheduled commercial flight plans.

2 Discussion

2.1 Regarding the action taken to mitigate errors and duplication/multiplicity of flight plans since the Third AIDC implementation meeting, a description is provided below of:

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

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

2.2 Regarding progress made in the implementation of automated systems for FPL 2012, Bolivia has begun the implementation of an ATM automation project at the La Paz, Cochabamba, Santa Cruz and Trinidad ATS units, called CIDACTA. The automated system to be installed at said ATS units is from Thales, model TopSky-ATC, and is scheduled for completion in 2019.

2.3 Likewise, Brazil reported that, by the end of the first quarter of 2018, FPL 2012 was already being automatically processed at the FDPs of the Brasilia and Curitiba ACCs, thus eliminating the converters at those centres. The remaining ACCs are to be updated by the end of 2018.

2.4 Peru also completed by late 2017 the modernisation of the automated system at the Lima ACC (AIRCON 2100 of INDRA), which, among other improvements, corrects the limitations in the number of characters in box 10 of the FPL 2012 form.

2.5 Finally, Venezuela reported that they 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 FPL 2012 converter.

2.6 Based on the analysis of the status of implementation of automated systems in the SAM Region, in compliance with Amendment 1 to Edition 15 of Doc 4444 (FPL2012), so far, out of the total ACCs in the SAM Region (27), 74% has updated the flight data processors (FDP), 15% continues using convertors, and the remaining continue applying the manual solution because the automated systems installed in the ACCs are not compliant with FPL 2012 or automated systems are absent. Regarding implementation of AMHS/AFTN terminals with FPL 2012 templates capable of detecting errors in their completion, 67% of the States already have them. **Appendix A** contains an updated table on the status of implementation of automation, in compliance with amendment 1 to Edition 75 of Doc 4444.

Analysis of flight plan errors and duplication in the SAM Region

Argentina

2.7 Understanding that proper implementation must start with the generation of information to feed ATM systems, studies and analyses of the results of erroneous AIDC coordination samples were conducted, showing a reduction from 30% to 14% in coordination errors between the initial study and December 2017.

2.8 Out of these coordination errors, 50% involved issues in the flight plan, including absence from the system and duplicates. Consequently, measures were taken to give more flexibility to flight plan filing, considering that the service provider cannot modify flight plans filed by general aviation.

2.9 The following lessons were taken into account:

a) In February 2018, the commercial aviation industry that operated scheduled flights in Argentina, together with general aviation, were summoned for a meeting to inform about the orderly and gradual migration from paper-based flight plan filing to a digital format.

b) Companies were invited to sign agreements. So far, the only one that has done it is Aerolíneas Argentinas, that expressed its intention to continue using the LIDO system provided by SITA to this purpose, initially through AFTN links and shortly after through AMHS links. As a means of contingency, EANA offered to implement an AMHS terminal at the premises of said airline.

c) Internal regulations were modified so that users technical capable of filing the FPL from a remote dispatch centre could sign an agreement with EANA SE and ANAC.

d) Regarding general aviation, there are plans to implement a website to electronically submit flight plans. Until the definitive implementation of such website, 4 flight plan management centres are to be created using existing technology, where FPLs will be received by e-mail so that AIS/COM operators themselves may load them to the system.

e) In order to avoid flight plan duplication, it has been foreseen that flight plans entered electronically will no longer go directly to control centres but rather to the ARO/AIS offices.

f) All control centres have positions for flight plan repair, with operators working full time.

g) In parallel, a module is being acquired to provide users an Internet platform where flight plan forms may be received in a safe and validated manner.

h) At present, ARO/AIS personnel are being trained at the ACCs (5) to repair flight plans. In this sense, flight plan repair positions are being transferred from ATS systems to ARO/AIS offices.

i) Finally, AMHS system templates will be updated, so that validation will be performed in accordance with Doc 4444 Edition 2012.

Brazil

2.10 By the end of 2018, all flight plans will be centralised at the CGNA (Air Navigation Management Centre) through SIGMA – Integrated aircraft movement management system.

Chile

2.11 Chile has contacted airlines to minimise errors when generating flight plans. The internal addressing structure is being reviewed to avoid flight plan multiplicity, and a study has started for the implementation of the national centre for receiving flight plans.

Colombia

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

Ecuador

2.13 On 22 February 2018, a meeting was held with airline representatives to inform them of the forthcoming adoption of a single national address for receiving flight plans, effective August 2018.

Panama

2.14 The updating of the ATM automation system of the Panama ACC was completed.

Paraguay

2.15 Paraguay continues to receive duplicated flight plans. Operational training on how to handle duplicate FPLs was provided to the personnel in charge of FPL repair. Conversations were held with airline dispatch offices that operated in Paraguay regarding the delivery of duplicate FPLs, especially for flights leaving from the airports of the country, explaining that only those issued by the ARO offices were considered as valid. The participants would convey this information to their offices. Duplicate FPLs continue to be received. There are also cases of absence of FPLs, especially for overflights.

Peru

2.16 Regarding the implementation of procedures to mitigate duplication/multiplicity of scheduled commercial flight plans in SAM States, Peru already complied in late July 2017. In this regard, aeronautical information circular AIC/05/2017 was issued.

2.17 On 14 December 2017, at 15:00 hours, the representatives of JETBLUE were received at the aeronautical information office, where the first letter of agreement was signed to start transmitting flight plans *via* AMHS through the single address SPIMZPZX on 16 December 2017. To date, 7 letters of agreement have been signed with different airlines.

Venezuela

2.19 Venezuela has implemented, on a pre-operational basis, an IDS centralised automated system to process flight plans, which reduces filing errors. This system is located at the ARO office of Maiquetía. It is expected that Conclusion SAMIG/19-2 will be implemented by the first quarter of 2019.

Other information

2.20 Bolivia, Guyana, French Guiana, Suriname, and Uruguay do not show any progress regarding compliance with Conclusion SAMIG/19-2. It is expected that information on progress will be provided at the SAM IG/21 meeting.

2.21 The meeting on the implementation of AIDC in the NAM/CAR/SAM Regions formulated some recommendations to support regional activities to mitigate flight plan errors. These recommendations are contained in **Appendix B** to this working paper.

3 Suggested action

3.1 The Meeting is invited to:

a) take note of the information contained in this working paper;

b) analyse the follow-up to the action taken to mitigate flight plan errors and duplication in the SAM Region, as stated in section 2 and in the appendices to this working paper; and

c) discuss any other matter it may deem appropriate.

****

APPENDIX A / APÉNDICE A

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 de 2019 un sistema automatizado ATM compatible con el FPL/12 en el nuevo ACC de Cochabamba y La Paz ACC (respaldo)
Brazil / Brasil	Amazónico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado (use of converter) / (uso de convertidor centralizado)

STATE/ ESTADO	ACC	AFTN/AMHS (Template FPL 2012)	FDP /FPL2012
	Atlántico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	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 2018 / Para 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 de 2018
	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 trimestre de 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 B

RECCOMENDATIONS FORMULATED DURING THE MEETING OF IMPLEMENTATION OF AIDC IN THE NAM/CAR/SAM REGION TO METIGATE ERRORS IN FLIGHT PLANS

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.

****