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WORKING PAPER

FIRST UNASSIGNED HIGH SEAS AIRSPACE SPECIAL COORDINATION MEETING (SCM/1)

Lima, Peru, 22 to 24 July 2019

Agenda Item 3: Determination of services and facilities
3a: Airspace user outline
3b: Potential solutions

ROADMAP FOR UNASSIGNED HIGH SEAS AIRSPACE

(Presented by Ecuador)

SUMMARY

This working paper presents the roadmap developed by Ecuador during CNS/ATM implementation, pursuant to the ICAO Air Navigation Plan, in order to connect the SAM-APAC Regions through the implementation of modern CNS technologies and *take on the provision of air navigation services in the "UNASSIGNED" OCEANIC FIR* in the South Pacific, west of the Galapagos Archipelago, island territory of Ecuador.

1. Background

1.1. The International Civil Aviation Organization (ICAO), when recalling the creation of the Organization, stated "Global air transport – driver of sustainable economic, social and cultural development". This statement and the resolutions of the 36th and 37th Sessions of the Assembly on air navigation and connectivity lead Ecuador to focus its efforts ever since on the development of national plans to improve its CNS/ATM systems, airport infrastructure, and implement new technologies.

1.2. Applying a renovated policy, Ecuador joined the Regional Safety Oversight Cooperation System (SRVSOP), and renewed a Service Management Agreement (MSA) with the ICAO TCB, which allowed for close and joint work with ICAO on the attainment of the strategic objectives of the Organization.

1.3. The civil aviation authority of Ecuador (DAC) established national macro-objectives in line with the strategies of the Organization that are captured, *inter alia,* in the Global Air Navigation Plan, the creation of PBN (performance-based navigation) routes, the implementation of new operational aircraft tracking systems (GNSS) and other technical aspects that ICAO has urged States to implement. This has enabled a common, harmonised airspace with a high level of safety.

1.4. The representation of Ecuador to ICAO, working together with the Air Navigation Bureau (ANB), the Air Navigation Commission (ANC) and the ICAO South American (SAM) Regional Office, and subsequent to the aforementioned 36th Session of the Assembly, developed a roadmap with

specific objectives for RNP, RNAV optimisation, APAC-SAM connectivity, and management of the "unassigned" flight information region. This would allow for a comprehensive development of global air navigation, furthering safety, connectivity, aviation growth, and economic development of the States.

2. **Roadmap developed by Ecuador for obtaining the "unassigned" FIR**

2.1. The roadmap is summarised in the following macro-objectives:

a) *Objective 1*.- Connectivity between the Latin American Region (CAR/SAM) and the Asia-Pacific Region (APAC).

b) *Objective 2*.- The Integrated ATC simulator training centre to support, *inter alia,* increased ATM capacity, training of ATC technical personnel at all air traffic management levels, aerodrome control, approach, radar control, focusing on modern airspace dynamics.

c) *Objective 3*.- Modernisation of both continental and island (Galapagos islands) airport infrastructure.

d) *Objective 4*.- Provision and optimisation of national CNS capabilities, focusing on connectivity through new RNAV/RNP and oceanic routes, ADS-B technology, and management of the "unassigned" FIR in the South Pacific.

e) *Objective 5*,- Modernisation and improvement of continental and insular SAR capacity of Ecuador, allowing for a comprehensive management of oceanic routes.

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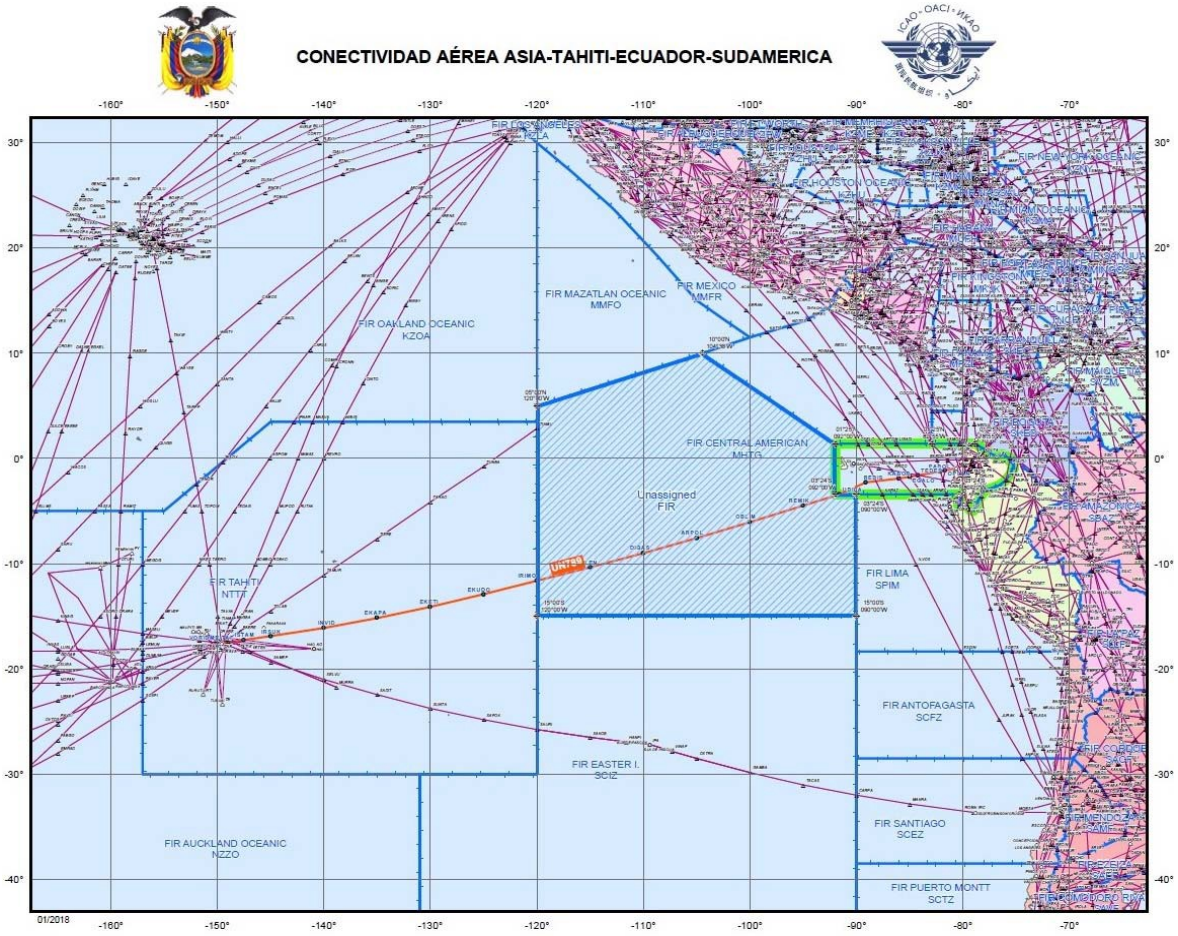
2.2. **Objective 1** - CAR/SAM-ASIA/PAC connectivity. Ecuador designed, prepared and managed the airway connecting the Asia-Pacific Region with the South American Region, that is, from Tahiti (French Polynesia) – Tahiti International Airport (NTAA), to Ecuador – Manta International Airport (SEMT) on the northwest coast of Ecuador, the westernmost point of South America facing ASIA.

2.3. CONNECTIVITY DEFINED BY ECUADOR IN THE SOUTH PACIFIC



2.4. On 1 November 2012, the ICAO Council approved amendment "ICAO CAR/SAM Air Navigation Plan (Serial No CAR/SAM 12/04-ATM) and ASIA/PAC Air Navigation Plan (Serial No APAC 12/18-ATS)", which meant the approval of **Oceanic airway UN789** developed by Ecuador.

2.5. After the respective two AIRAC cycles, the airway was published by the aeronautical authorities of Ecuador and Tahiti (France) in the corresponding aeronautical information publications (AIPs). At present, the airway is available for aircraft operators.

2.6. Accordingly, with the oceanic connectivity established between the CAR/SAM and ASIA/PAC Regions, Ecuador created the first oceanic airway that crosses the FIR still "unassigned" by ICAO and, thus, substantiated its pursuit of the objectives set forth for the implementation of CNS, SAR and other technical aspects required for the aforementioned FIR.

2.7. **<u>Objective 2</u>** – ***Integrated ATC simulator training centre***. The civil aviation authority of Ecuador (DAC), with the technical support of ICAO, focused on the development of human resources, especially on CNS/ATM technical capacity building. To this end, through the ICAO TCB, it obtained a high-technology integrated ATC simulator system, with the corresponding construction of modern facilities for its operation.

2.8. Based on the above, and pursuant to the 90.25% effective implementation achieved by Ecuador following the USOAP-CMA audit, Ecuador has implemented modern CNS and air navigation processes based on the new concepts of ATM airspace and performance-based navigation (PBN). Likewise, work continues, *inter alia,* on safe implementation of RVSM in controlled airspace, the implementation of RNAV-RNP routes and GNSS localising capabilities.

2.9. INTEGRATED ATC SIMULATOR TRAINING CENTRE

2.10. **<u>Objective 3</u> – Modernisation of both continental and insular (Galapagos Islands) airport infrastructure**

2.11. Ecuador has 4 international airports in continental territory and 2 airports in its insular territory (Galapagos Islands). Regarding the former, the Quito International Airport was inaugurated on 20 February 2013 in completely new facilities, and the Guayaquil International Airport was acknowledged as service quality leader in Latin America and the Caribbean in the 2-5 million passenger category.

2.12. The ICAO Council, the Air Navigation Bureau and the ICAO Regional Office in Lima, during their official visit to Ecuador in 2017, were able to witness the operational capacity of its airport infrastructure, air navigation services and, especially, the two airports in the Galapagos Archipelago, one in *Isla de San Cristóbal* and the other, the Ecological Airport of Isla Baltra, known as the ***first ecological airport of the world, with full technological and CNS capabilities.*** The controlled airspace of the insular territory of Ecuador merges with the "unassigned" FIR region.

2.13. ***Objective 4*** - **Provision and optimisation of national CNS capabilities**

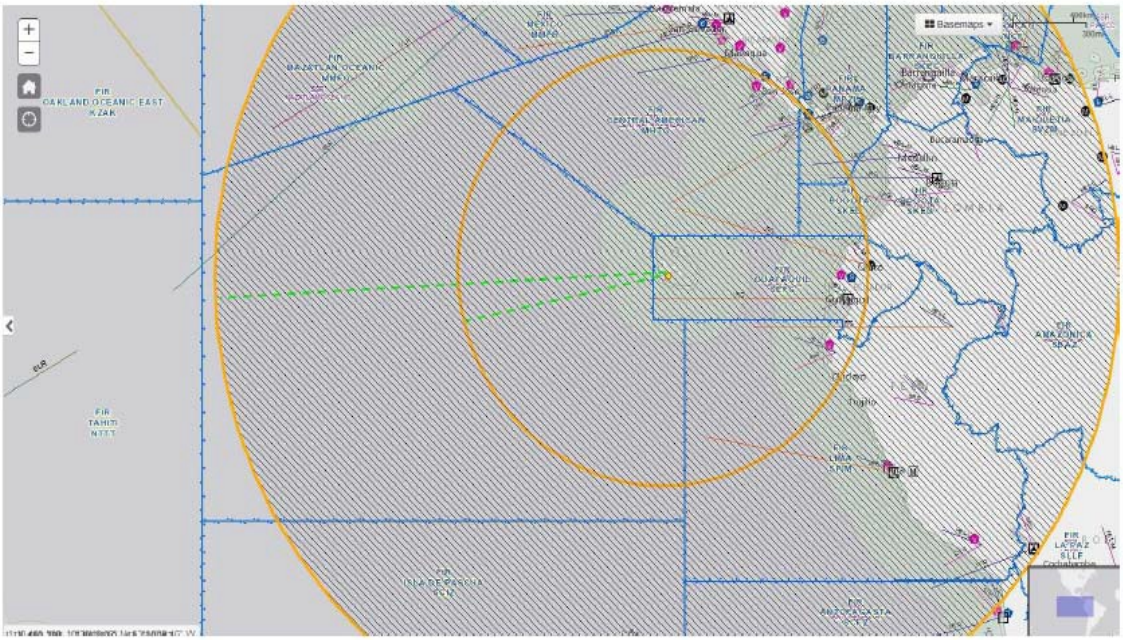
2.14. Ecuador launched the modernisation of its air navigation system with emphasis on connectivity, through new RNAV/RNP and oceanic routes, ADS-B technology and performance-based navigation (PBN). In a separate working paper, Ecuador presents the details of ADS-B capabilities and its roadmap for assignment by ICAO of surveillance over the "unassigned" FIR in the South Pacific.

2.15. ***Objective 5*** - **Modernisation and improvement of continental and insular SAR capacity of Ecuador**

2.16. Ecuador established a SAR base of operations on the Galapagos Archipelago to provide operational search and rescue capabilities over the vast airspace of the unassigned FIR. The range of SAR operations is illustrated below. SAR capabilities of Ecuador are described in a separate working paper.

2.17. RANGE OF SAR COVERAGE FROM THE GALAPAGOS ISLANDS

GALAPAGOS SEARCH AND RESCUE LONG RANGE OPERATIONS



3. Conclusion

3.1. Based on the satisfactory achievement of its national objectives and the progress described in this working paper, in line with the ICAO Global Air Navigation Plan, Ecuador ***filed in October 2017 the official request to ICAO*** to be granted the provision of flight information services in the unassigned FIR, taking into account the availability of the technical capabilities required by ICAO.

3.2. In view of the work described above and the geographical position of the Galapagos Islands in the middle of the unassigned FIR, where Ecuador has established a ***Sub-centre for integrated SAR operations***, and taking into account that the Galapagos Archipelago "Enchanted Islands" were declared a World Heritage Site by UNESCO, the Government of Ecuador has requested ICAO that this "unassigned" FIR be designated **FIR GALAPAGOS OCEANIC.**

4. Suggested Action

4.1. The Meeting is invited to:

a) Take note of the modernisation of the insular airports of Ecuador that support oceanic operations in the South Pacific;

b) take note of the roadmap developed by Ecuador for modernising its CNS/ATM/SAR systems and the objectives attained for the assignment by ICAO of the "unassigned" FIR in the South Pacific; and

c) take note of, and approve, the request to designate the unassigned FIR as Galapagos Oceanic FIR.

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