



SUMMARY OF DISCUSSIONS

FIRST UNASSIGNED HIGH SEAS AIRSPACE

SPECIAL COORDINATION MEETING (SCM/1)

Lima, Peru, 22 to 24 July 2019

1 GENERAL

1.1 The First Unassigned High Seas Airspace Special Coordination Meeting (SCM/1) was formed in response to the signs of interest and proposals for the provision of services and facilities to optimize airspace management with regard to the unassigned high seas airspace located in the Pacific Ocean. Since this airspace does not fall within any of the ICAO Regions, it has been concluded that a special coordination meeting between the States immediately adjacent to the airspace, as well as relevant stakeholders, would facilitate any necessary coordination, and allow information to be shared on anticipated traffic flows.

1.2 The meeting was moderated by Mr. Mike Boyd, International Civil Aviation Organization (ICAO) Technical Officer, Airspace Management and Optimization, Air Navigation Bureau with the assistance of Mr. Fernando Hermoza, ATM/SAR Regional Officer, South American (SAM) Office, Mr. Leonard Wicks, ATM/SAR Regional Officer, Asia and Pacific (APAC) Office, and Mr. Eddian Mendez, ATM/SAR Regional Officer, North American, Central American and Caribbean (NACC) Office. Also supported by Mrs. Mayda Avila CNS Regional Officer of NACC, Mr. Roberto Sosa ANS/SAFETY Regional Officer and Mr. Francisco Almeida CNS Regional Officer of SAM.

1.3 The meeting was attended by 36 participants from five States (Chile, Ecuador, France, Peru and United States) and two International Organization (COCESNA and IATA). The list of participants is provided in **Attachment A**.

2 OPENING REMARKS

2.1 Mr. Fabio Rabbani, ICAO Regional Director, South American Office, opened the meeting, thanking all present for their willingness to participate in the spirit of trust and cooperation. Mr. Rabbani reminded the meeting that ICAO was a consensus based organization, and highlighted the technical nature of the meeting. SCM/1 participants were encouraged to discuss minimum operational and technical requirements for ATS and SAR provision in the unassigned high seas airspace as the ground basis for the future development of an amendment to the Regional Air Navigation Plan(s) concerned to ensure that the currently unassigned airspace was delegated in accordance with the applicable provisions, to provide the desired benefits to the States and society in general. The meeting was also reminded that the SCM/1 represented a preliminary stage of the process to develop a proposed amendment, and respectful, open-minded discussions would be to facilitate the desired outcome through consultation.

Mr. Rabbani highlighted the great opportunity presented by this meeting, for the establishment of expected levels of services in the currently unassigned airspace, which would also result in the improvement of the services provided in the adjacent FIRs.

2.2 Mr. Fernando Hermoza then addressed the meeting, noting, with appreciation, the high level of participation. He introduced the members of the head table: Mr. Mike Boyd, Mr. Leonard Wicks and Mr. Eddian Mendez. Mr. Hermoza then thanked the participants for providing the various working and information papers by the due dates, and noted that all papers were available (Spanish – English versions) on the SCM/1 website to facilitate review by participants and stakeholders, in the link;

<https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2019-SCM1>

2.3 The SCM/1 attendee from Peru offered a warm welcome to all SCM/1 attendees, and encouraged all to take the opportunity to try the cuisine and avail themselves of the many attractions Lima had to offer.

AGENDA ITEM 1: APPROVAL OF PROPOSED AGENDA

2.4 The meeting approved the draft agenda provided in WP/01, regarding the allocation and order of the working and information papers as follows, and was advised that upon completion of the presentation of all papers, the Secretariat would provide further presentations of operational and technical aspects based on those papers in a summarized manner, considering that detailed contents are maintained in the portal (see paragraph 2.2.):

Agenda item 1:	Approval of proposed agenda <i>WP/01</i>
Agenda item 2:	ICAO provisions and policy concerning establishment of authority and the process for the amendment of regional air navigation plans (ANP) <i>WP/02 and WP/05</i>
Agenda item 3:	Determination of services and facilities 3a: Airspace users outline <i>WP/03 + IP02</i> 3b: Potential solutions <i>WP/04, WP/06, WP/07, WP/08, WP/09, WP/10, IP/01</i> <i>+ Collated Traffic Flow PPT and CNS / ATM Capabilities table</i>
Agenda item 4:	Any other business

Note: A full list of Working and Information papers is provided as Attachment B.

3 AGENDA ITEM 2: ICAO PROVISIONS AND POLICY CONCERNING ESTABLISHMENT OF AUTHORITY AND THE PROCESS FOR THE AMENDMENT OF REGIONAL AIR NAVIGATION PLANS (ANP)

WP/02 - ICAO PROVISIONS, POLICY AND GUIDANCE MATERIAL ON THE DELEGATION OF AIRSPACE OVER THE HIGH SEAS

3.1 WP/02 was presented by the Secretariat, and provided the meeting with information on the main ICAO provisions, policy and guidance material that apply to the delegation of airspace over the high seas, and the delineation of ATS airspace boundaries.

3.2 The SCM/1 meeting reviewed the content of WP/02, and, noting the emphasis on an operational and technical focus, discussed the extent that the ICAO provisions, policy and guidance material that applied to the delegation of airspace over the high seas. The meeting was reminded by one participant of the unfortunate event in recent years relating to MH370, and agreed that air traffic service provision via FIR allocation, and also SAR service provision via SRR allocation benefited greatly from a collaborative approach between States.

3.3 The meeting noted specifically that, while search and rescue regions should be coincident with FIRs, more important was the coordination to effectively support search and rescue operations. It was also reiterated that a SAR Region (SRR) allocation did not mean that the State concerned had to provide all SAR services within that region. The meeting noted that Annex 12 was clear that SAR responses were expected to be assisted by cross-SRR boundary SAR units (SRUs) as required, subject to cooperative agreements.

3.4 The meeting also noted the reference to the *Air Traffic Services Planning Manual* (Doc 9426), which highlighted that the delegation of the airspace should be based, *inter alia*, on the ability of selected provider States to furnish the required services without undue efforts.

3.5 The meeting agreed that these considerations applicable to the delineation of ATS airspace boundaries would necessarily influence the discussions of the SCM/1.

3.6 The meeting noted that while the SCM/1 is part of the technical pre-consultation discussion that would support the process for the delegation of the airspace, the intention is not to formally agree on the assignment of the airspace in one meeting, but to establish a collaborative dialogue that facilitates an understanding of the established ICAO provision, policy and guidelines for the delegation of the airspace.

3.7 Consequently, the meeting agreed that the provisions detailed in WP/02 would be applied, as necessary, when developing proposal(s) for amendment to the applicable regional air navigation plan(s).

WP/05 - ICAO PROCEDURE FOR THE AMENDMENT OF REGIONAL AIR NAVIGATION PLAN(S)

3.8 WP/05 was presented by the Secretariat, and provided the meeting with information on the structure and content of regional air navigation plans and its amendment procedures approved by the ICAO Council.

3.9 The meeting reviewed and discussed the content of WP/05, and the attachments, noting the applicable eANP volumes for flight information regions (FIRs), major traffic flows and the ATS route

network. It was clarified that eANPs replaced and reproduced all relevant information previously contained within the old, hard copy, air navigation plans, such as Doc 8733, *Air Navigation Plan — Caribbean and South American Regions*. Moreover, it was noted that the development of coordinate-based description [in accordance with the requirements of the ICAO Council as part of the eANP for the first time] was only able to be conducted through the Proposal for Amendment (PfA) process, in order to update the relevant ANP Table.

3.10 In reviewing the procedure for the amendment of ANPs, the meeting noted that the Assembly had resolved that regional plans should be revised when it becomes apparent that they were no longer consistent with current and foreseen requirements of international civil aviation (Section 2 General Criteria). Cognizant of the working papers submitted to the meeting (specifically WP/03 by IATA) the meeting agreed that there was cause to develop an amendment to the regional plan(s) as appropriate, to delegate the, currently, unassigned high seas airspace – (as depicted in Figure 1.

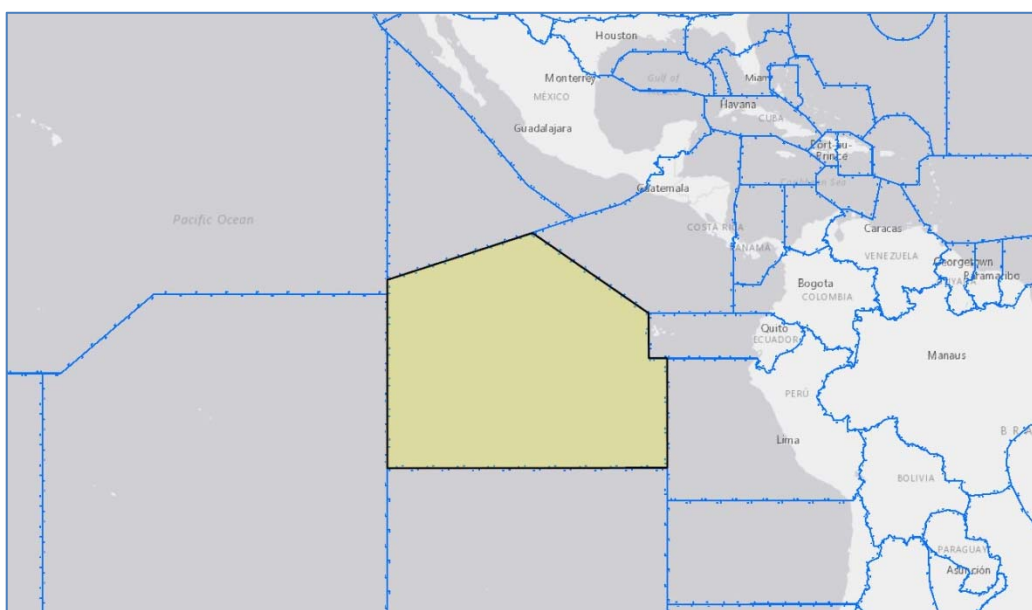


FIGURE-1: UNASSIGNED AIRSPACE

3.11 The meeting further agreed that, as the unassigned airspace was at the interface between the ICAO APAC and CAR/SAM regions, it was likely that more than one eANP would be affected.

3.12 Noting that it is unusual for a State to propose an amendment to a regional plan if that State is not within the region covered by that eANP, the meeting clarified that the SCM/1 meeting represented preliminary discussions, in advance of proposals to amend the applicable eANP(s), and was in keeping with the intent of prior consultation as encouraged by the procedure to amend ANPs.

3.13 The meeting was advised, by the Secretariat that previously the ANPs had merely indicated FIR boundaries in chart form, however the eANPs included a table of FIRs and associated boundaries defined by coordinates. The meeting was also reminded that the new table and the eANPs were the only official reliable repository for FIRS boundary information. It was noted that the amendment proposal(s) associated with the unassigned airspace would, by necessity, involve detailed latitude and longitude coordinates.

3.14 The meeting noted that a clear understanding, of the requirements of the amendment procedure, associated with the provisions related to the delegation of high seas airspace, would provide a much clearer path towards the development of the correct proposals. It was emphasized that collaboration would be key

to delivering appropriate levels of service within the unassigned airspace. The meeting was informed of one local example of such mature levels of collaboration, where a clear operational concept was identified, and provided the foundation of the collaborative solution to facilitate a seamless service across State borders.

3.15 The meeting noted that it was crucial to develop a clear operational concept, based on the provision of a seamless air traffic service with the current levels of ATS in the Pacific airspace throughout the No FIR airspace. Moreover, the meeting discussed the need for Mazatlan FIR (Mexico), and for that matter any adjacent FIR which currently had class G (uncontrolled) upper airspace to be upgraded to class A airspace in oceanic areas, to ensure the same level of seamless services to aircraft.

3.16 Consequently, the meeting agreed that proposals for amendment to all e-ANPs affected should be developed in consultation initially with States and International Organizations represented at the SCM/1 meeting (consistent with Section 5.1 of the amendment procedure), and then circulated to an appropriate, wider list of recipient States and International Organizations.

3.17 The meeting noted that Section 5.9 of the amendment procedure allowed for proposals for the amendment of Volume I of the regional plan to be initiated by the Secretary General, provided that the State or States whose facilities will be affected have expressed their concurrence with this process.

4 AGENDA ITEM 3: DETERMINATION OF SERVICES AND FACILITIES
3A: AIRSPACE USERS OUTLINE
3B: POTENTIAL SOLUTIONS

WP/03 - AIRSPACE USERS REQUEST FOR ASSIGNMENT OF CURRENTLY UNASSIGNED HIGH SEAS AIRSPACE AND THE SUBSEQUENT PROVISION OF AIR TRAFFIC CONTROL SERVICES

4.1 IATA, presented a request by airspace users for the assignment of currently unassigned high seas airspace located in the Pacific Ocean and the subsequent provision of air traffic control (ATC) services to facilitate ultra-long-range flights.

4.2 The meeting considered the information in WP/03, noting the development of ultra-long-range aircraft types operating on user preferred routes (UPRs) and often dynamic airborne rerouting procedure (DARP), through the Auckland, Tahiti and Oakland FIRs.

4.3 The meeting agreed that the likely traffic flows (Figures 2, 3, 4 and 5), provided operational and technical information that should be taken into account when developing any amendment proposals.

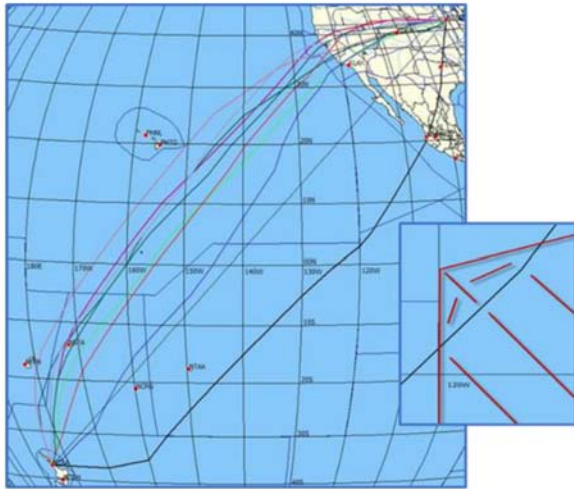


Figure 2. Auckland – Houston – Auckland flow

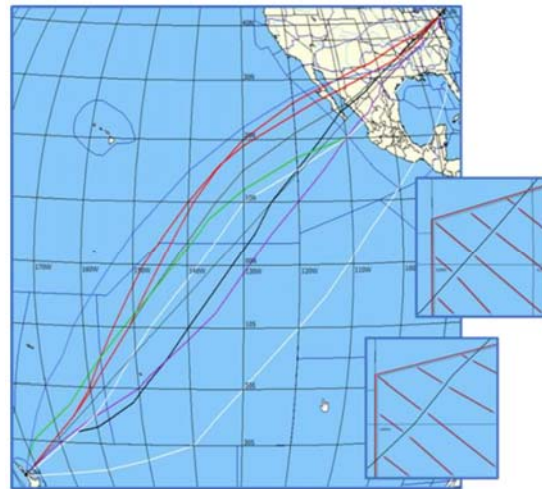


Figure 3. Auckland – New York flow

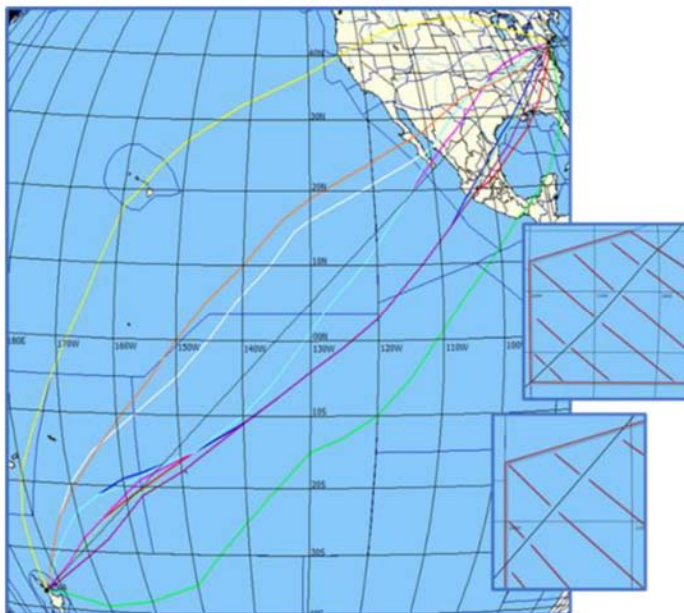


Figure 4. New York – Auckland flow

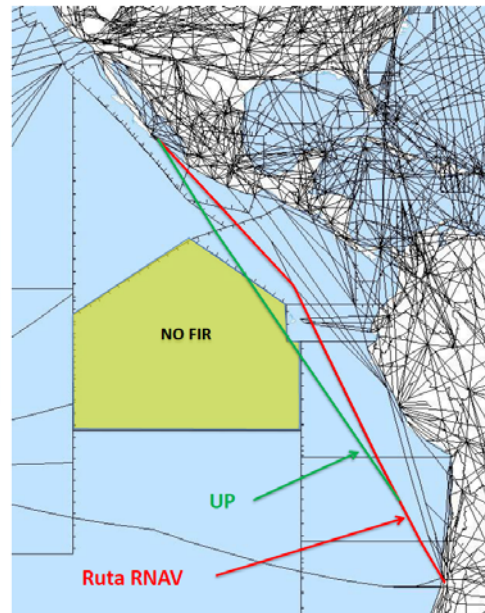


Figure 5. Los Angeles (KLAX) and Mexico City (MMMX) – Santiago flow

4.4 The meeting specifically noted the list of “key considerations” as follows:

- The airspace is classified Class A;
- PBCS performance-based horizontal separations are available;
- To the greatest extent possible the airspace assignment is aligned with current oceanic ATC service delivery capabilities in the Pacific to facilitate seamless operations and maximize utilization of the sophisticated flight planning and avionics capabilities of the aircraft fleet that will primarily use this airspace, i.e. key efficiency enablers such as UPRs and DARPs are available;
- Any proposal for the delegation of airspace or segmenting of the unassigned airspace must be in compliance with A38-12

- ADS-C [and Space-Based ADS-B (SB ADS-B) as an option or a complementary service, dependent on the airspace concerned] and CPDLC and SATVOICE are utilized for surveillance and communications in remote airspace not served by ground-based radar and Very High Frequency (VHF) respectively;
- AIDC is utilized for ATC coordination;
- Existing capabilities are utilized where possible to minimize costs, i.e. to avoid unnecessary and costly infrastructure duplication it is preferred that existing CNS/ATM capabilities are used by an ANSP in an expanded contiguous airspace volume, rather than having new capabilities developed/procured;
- SAR services are provided in the normal manner;
- The Asia-Pacific Seamless ATM Plan's provisions are incorporated into service delivery and future planning.

4.5 The meeting also noted that the requirements of airspace users and the principles and provisions of *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) should be given due consideration when ATC service delivery plans are developed.

4.6 Clarification was offered on the application of UPRs and dynamic airborne rerouting procedures (DARPs), with the meeting being advised that the current implementation in the APAC region required a great deal of experience, which was not simply a matter of installing datalink services such as CPDLC. The system relied on ATM data processing system tools such as conflict probes and also necessitated specialised training and a robust monitoring programme such as used in APAC to monitor performance in accordance with Annex 11 and Annex 6, and the GOLD. These programmes were described as being conducted in APAC by the ANSP and monitored by the State regulator, FANS Implementation Teams (FITs), and the Regional Airspace Safety Monitoring and Advisory Group (RASMAAG). It was understood that there was no equivalent monitoring process conducted by the non-APAC States in the meeting for datalink services.

4.7 The meeting noted that the associated requirements with such service provision would need to be borne in mind when considering the airspace, and the necessity for seamless provision of service, i.e. aircraft should transit from one airspace to another without degradation of service, for example a consistency of separation minima applied.

4.8 The meeting was also reminded of the regulatory oversight requirements for the implementation of PBCS (performance based communication and surveillance separations), notably the associated requirements for States, ANSPs, and regional monitoring agencies (RMAs) such as CARSAMMA necessitated an entire infrastructure of training, equipment, and regulatory assessment.

4.9 IATA offered clarification with regard to the expected air traffic flows and loadings, indicating that the details in WP/03 was based on a survey of member airlines most likely to utilize the airspace. It was highlighted that flight plan modeling indicates that for any particular city pair that might transit the airspace on a UPR, the maximum usage would likely not exceed 25% of flights, dependent upon wind conditions. This meant that it was expected that this airspace would have a low volume of expected air traffic, but would be of significant benefit when UPRs favoured its use. Therefore, it was emphasized that a fixed route structure in such airspace would not be desirable.

4.10 The meeting was reminded, of the benefits of increased connectivity transitioning the unassigned airspace, and that this was linked to ICAO No Country Left Behind initiative.

IP/02 NO FIR AIRSPACE IN THE PACIFIC OCEAN

4.11 IP/02 was prepared by LATAM airlines and previously presented at the Nineteenth Workshop/Meeting of the SAM Implementation Group), noting specifically the proposed UPR for Los Angeles (KLAX) and Mexico City (MMMX) – Santiago, Chile. It was agreed that this likely traffic flow should also be taken into account.

4.12 It was highlighted that IP/02 provided a consideration of benefits purely for LATAM airlines, however similar and additional benefit would also be provided to other airlines if the preferred traffic flows could be accommodated.

WP/04 NON-ASSIGNED AIRSPACE AT HIGH SEAS

4.13 WP/04 was presented by Corporación Centroamericana de Servicios de Navegación Aérea (COCESNA) on behalf of Costa Rica, Belize, El Salvador, Guatemala, Honduras and Nicaragua. The working paper presented information regarding the current and future technical and operational capabilities of COCESNA to facilitate the provision of Air Traffic services in the non-assigned airspace over the Pacific Ocean.

4.14 COCESNA described its proposed implementation of the Performance Based Communication and Surveillance (PBCS) concept, the anticipated early use of new technology (such as the space-based ADS-B) for both surveillance redundancy purposes and also to facilitate ATS provision to aircraft that may not be FANS 1A equipped, such as military aircraft, and the use of mature technology such as ADS-C and CPDLC.

4.15 In this context, COCESNA exposed its technical and operational capabilities, and expressed its readiness to provide services in the unassigned airspace.

4.16 The meeting noted, with appreciation, the significant services COCESNA provided in the Central American area, specifically as an example of the benefits achieved in cooperative service provision.

WP/06 EXPERIENCE OF TAHITI ACC IN THE PROVISION OF OCEANIC AIR TRAFFIC SERVICES

4.17 WP/06 was presented by France using a PowerPoint presentation, which summarized the longstanding experience of Tahiti ACC in the provision of oceanic air traffic services, based in particular on CPDLC and ADS-C technologies.

4.18 France confirmed its willingness to work on the best ways to implement safe, seamless and cost efficient services within the unassigned airspace located next to the eastern boundary of Tahiti FIR, in particular by making best use of already available capabilities. The meeting noted the cooperative operational service provision between French Polynesia and the United States, including the facilitation of DARPs across the contiguous boundaries.

4.19 It was also noted that France supported use of the PBCS concept within Class A airspace by FANS1/A equipped aircraft, meeting RCP 240 and RSP180 standards. The use of technologies such as ADS-C and CPDLC communications, had allowed benefits such as more efficient 50 NM longitudinal and lateral separation standards.

4.20 In noting the CNS/ATM and SAR capabilities of France (Tahiti FIR), the meeting also recalled the advantages of a seamless level of service provision throughout and across airspace surrounding the NO FIR.

4.21 The meeting also noted, with appreciation, the high level of support and cooperation between Tahiti and Ecuador on the implementation of ATS route UN789.

WP/07 AIR NAVIGATION SERVICES IN UNASSIGNED HIGH SEAS AIRSPACE

4.22 WP/07 presented by Peru, described the current CNS/ATM capability of Peru, as well as future plans for a potential provision of air traffic, alerting and SAR services in the unassigned high seas airspace named NO FIR.

4.23 The meeting noted the strong legislative foundation, as well as its Flight Information Service and Alerting Service capabilities, also the current and expected CNS framework to facilitate such services, specifically in the oceanic portion of the Lima FIR.

4.24 Peru expressed its readiness to provide services, both ATS and SAR, in any portion of the unassigned airspace, as necessary.

WP/08 ROADMAP FOR UNASSIGNED HIGH SEAS AIRSPACE

4.25 WP/08 was presented by Ecuador. The Paper provided a roadmap for CNS/ATM implementation, in order to connect the SAM and APAC Regions through the implementation of modern technologies . In addition, the paper discussed Ecuador's readiness to provide air navigation services in the "UNASSIGNED" OCEANIC FIR in the South Pacific, west of the Galapagos Archipelago, island territory of Ecuador.

4.26 The meeting noted the development and implementation by Ecuador of the ATS route UN789, providing inter-regional connectivity between Manta International Airport (SEMT) and Tahiti International Airport (NTAA).

4.27 The Meeting also noted the subsequent objectives, and progress towards completion, of the roadmap by Ecuador; the Integrated ATC simulator training centre; modernisation of both continental and island airport infrastructure, Provision and optimisation of national CNS capabilities, and Modernisation and improvement of continental and insular SAR capacity.

WP/09 UNASSIGNED HIGH SEAS AIRSPACE

4.28 WP/09 was presented by Ecuador, which presented the technical proposal in support of the request submitted to ICAO in October 2017 that suggested that Ecuador be invited to provide air navigation services (ANS) within the unassigned high seas airspace located in the South Pacific.

4.29 The meeting recalled that any delegation of the un-assigned airspace would necessitate an amendment proposal for the affected regional air navigation plan(s), and endorsed the consultative process being carried out by ICAO, including the facilitation of the SCM/1 meeting.

4.30 The meeting noted the example of a UPR that had been proposed by LATAM Airlines. It was confirmed by LATAM Airlines that the line on the map was intended to represent a UPR not a fixed ATS route, as an indication of possible traffic flows, and therefore necessitated consideration when developing an amendment proposal based on operational and technical considerations.

4.31 The meeting also noted the proposed flow to provide connectivity between Hawaii and Guayaquil (Figure 6) which, if implemented, would require consideration. IATA remarked that the ideal operational concept, with regard to routing was the use of UPRs, was not the traditional fixed ATS Route.

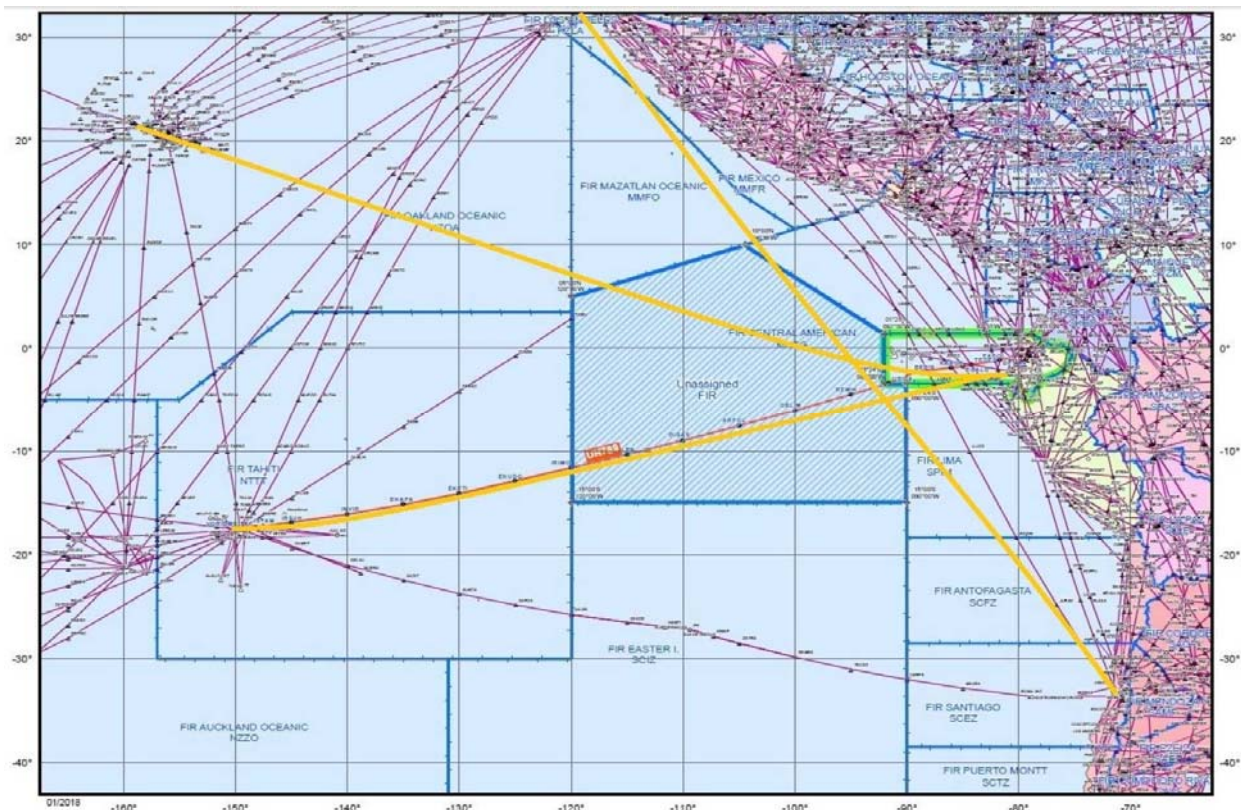


Figure 6. Theoretical ATS route between Hawaii and Guayaquil

4.32 The meeting reviewed the Analysis section of WP/09, agreeing with the outline of services required. The importance of a seamless provision of services was re-emphasized, with the meeting noting that air traffic transiting through the NO FIR from APAC would expect UPR and DARP capability, and the same or better separation minima. Consequently, the meeting endorsed the need to clarify the operation concept.

4.33 The Secretariat drew the attention of the meeting to the very positive benefits of the discussions, namely; the increased levels of knowledge and understanding of all the implementation considerations, the positive approach towards system wide improvements, the benefits of user consultation when undertaking such upgrades, and, with specific regard to WP09, the desire of Ecuador to undertake improvements to the level of service provision. A note of caution was sounded with regard to the need to carefully consider cost, not just to the State but any cost that might be passed on to the airspace users in terms of charges.

4.34 The meeting was reminded that, concomitant with any new equipment such as CPDLC, there was the need to provide training and stronger monitoring systems. Therefore, States were urged to factor this into any cost considerations.

4.35 The meeting noted the satellite based ADS-B surveillance data capabilities of one particular provider, noting also that this provider will provide data under contract, if sought, to the authorized ANSP for the unassigned airspace. The meeting was also advised of other possible surveillance data (SB ADS-B) service providers, and considered the comparative benefits of such surveillance, with respect to all airspace users. Ecuador confirmed that any decision must take into account the needs and capabilities (in terms of equipage levels) of the airspace users, and further confirmed, with respect to surveillance, that the firm intention to implement ADS-C relied upon a provision of service by Ecuador within the NO FIR. It was also confirmed that, similarly, the implementation of CPDLC would take account of any airspace delegation to Ecuador as well as fleet capabilities.

4.36 It was noted, with regard to the ATS route UN789, that this had been developed in response to requests for connectivity, however for it to be truly useable, the NO FIR must become controlled airspace, in which an appropriate level of air traffic service is provided. Ecuador confirmed its readiness to collaborate with other SAM States and also with APAC States as necessary to achieve the desired connectivity, noting also the applicability of such connectivity in achieving the No Country Left Behind (NCLB) objectives of ICAO.

4.37 The meeting noted the previous discussions and consultation by Ecuador with ICAO regarding the No FIR. The Secretariat reiterated to the meeting that any change to an eANP could only be achieved using the formal proposal for amendment process.

4.38 Ecuador described the SAR capabilities implemented in Galapagos Island. With regard to cooperative provision of SAR services, and the World Heritage status, and associated ecological considerations of the Galapagos Islands, it was confirmed by Ecuador that these would not represent a barrier to SAR cooperation in the event of requiring other State SAR assets (such as aircraft) using the facilities located on the Galapagos Islands.

WP/10 SUMMARY OF AIR TRAFFIC SERVICE (ATS) CAPABILITIES WITHIN THE OAKLAND OCEANIC (KZAK) FLIGHT INFORMATION REGION

4.39 WP/10 was presented by the United States, and provided the meeting with advice on the provision of Air Traffic Services (ATS), by the Federal Aviation Administration (FAA), in the Oakland Oceanic (KZAK) Flight Information Region (FIR) adjacent to the unassigned airspace. The Working Paper outlined and described the FAA ATS capabilities within the KZAK FIR.

4.40 The meeting reviewed the content of WP10, and noted the level of ATS provision and CNS capabilities to support that service was commensurate with the ATS service level provision by France within the Tahiti FIR, noting also that Oakland ARTCC used both HF and CPDLC. Confidence was expressed that a harmonized view of necessary enhancements may be developed, to assist States with such things as a Roadmap to necessary improvement of service provision. To this end the capabilities of the FAA, and also other neighbouring service providers, was much appreciated by the meeting and as a guide for the future consideration by other states. One participant particularly expressed that this was a benefit of attending such coordination meetings as the SCM/1.

4.41 While acknowledging the will of States to improve their level of service provision, the enabling of UPRs, DARP and ADS-C CDP (as per paragraphs 2.9, 2.11 and 2.12 of WP/10) was cited by IATA as strong rationale for any proposals for amendment to facilitate service provision by an existing service

provider with extensive experience in advanced Oceanic control to provide services within the NO FIR. It was noted that this would offer the best service at the least cost by most capable provider, and also recalled that very little revenue would be generated by the NO FIR due to the comparatively low levels of traffic. The meeting was informed that the average margin for such long haul flights as would transit the NO FIR is on the order of US\$ 3-5 per passenger, so airlines were operating with very little return, while the average long haul flight that can have fuel costs that exceed US\$ 100,000. Therefore, even a modest increase can have significant impact, and unnecessary duplication could result in such an increase, particularly when existing capability exists in adjacent FIRs.

4.42 This position was noted by the meeting, however the ongoing need for states to improve service level and avail themselves of the resultant benefits of aviation to their economy, in line with the No Country Left Behind initiative, was also recalled.

4.43 The meeting also noted the experience of the FAA in transitioning airspace from uncontrolled to controlled airspace, in creating an Upper Control Area (UTA) in the Nauru FIR. It was agreed that advice from the FAA on this matter may be useful in the future

IP/01 CURRENT AND FORESEEN CNS/ATM CAPACITY OF DGAC – CHILE

4.44 IP/01 was presented by DGAC – Chile, and presented the current and foreseen CNS/ATM capacity of the Directorate General of Civil Aviation of Chile (DGAC). The meeting noted, with great satisfaction and appreciation, the current and planned CNS and ATM implementations by Chile, the consequent separation minima in use and the past and ongoing efforts to link the APAC and SAM regions. The meeting was reminded that the first flight to Easter Island was in 1951 and it was noted that the pace of development of service level by Chile had remained commensurate with the pace of airline growth. It was confirmed by Chile that the necessary preparation for implementation of PBCS separations was underway, with the intent to achieve this in 2020.

4.45 The meeting was subsequently urged to take note of the effort required, and the time it takes, to provide a certain level of service and cautioned that if costs are transferred to the users in a manner that outweighs the benefit of transiting the airspace, it may result in airlines avoiding the airspace.

4.46 The meeting also noted the engagement by Chile with other regional groups to maintain and enhance ATS provision within the Easter Island FIR and the delegated airspaces of the Antofagasta, Santiago, Puerto Montt and Punta Arenas FIRs, jointly called Santiago oceanic control area (OCA).

Summary of Operational and Technical Information

4.47 Following the presentation of the working and information papers under Agenda Item 3 (a & b), a presentation was provided by Secretariat that “collated” the traffic flow data from all relevant papers. The meeting provided improvements to the graphic and agreed that this provided the operational traffic flows to be considered when developing the proposal for amendment to the regional air navigation plan(s) – refer to figure 7 below.

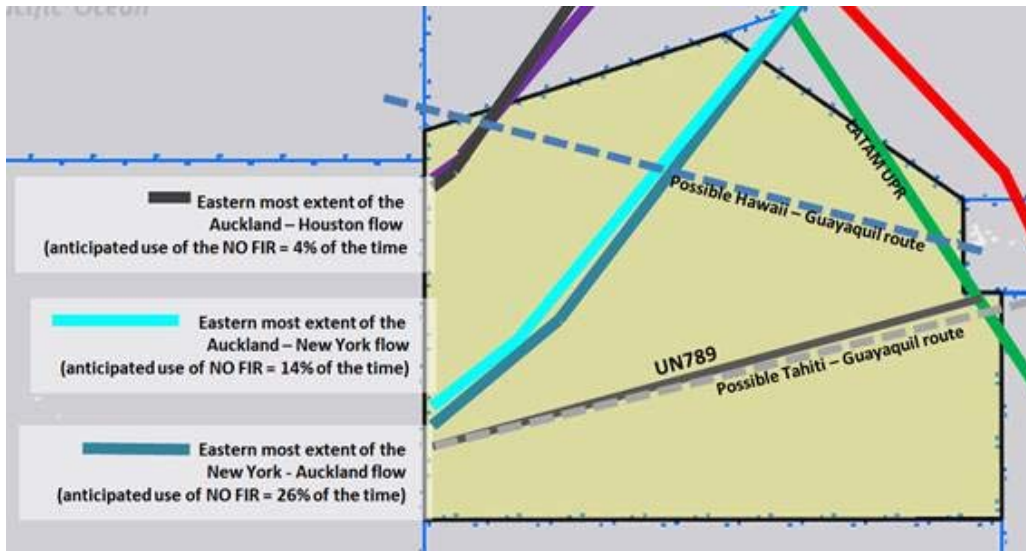


Figure 7. Potential Air traffic flows within the unassigned airspace

4.48 Additionally, the following table of CNS / ATM capabilities was compiled and confirmed by the meeting as a means of informing the technical considerations when developing the proposal for amendment to the regional air navigation plan(s).

Flight Information Region (FIR)	ATM/CNS Capabilities – current (in active use, ATC trained and using it) In Oceanic portions of the FIRs	Remote airspace ATM/CNS Capabilities - planned
CENTRAL AMERICAN FIR	<ul style="list-style-type: none"> • Class A • RNAV/RNP 10 • 50 NM lateral separation • 80 NM longitudinal separation • ADS-C: periodic 15 minutes contract and event contract • HF • CPDLC • AIDC • Current SDPS capable of integrating all sensors. 	<ul style="list-style-type: none"> • Satellite ADS-B building business and safety case, and doing CBA for use as complimentary surveillance by March 2020 (with ADS-C) (no additional charging in the near term). Contract to be signed with the service provider in August 2019. • Planned reduced long and lat separations to 30 NM / 30 NM. • Airspace restructuring project to implement RNP4 by Dec 2020. • SATVOICE 2021

EASTER ISLAND FIR	<ul style="list-style-type: none"> • Class A • RNAV/RNP 10: • 50 NM lateral separation • 80 NM longitudinal separation • ADS-C: periodic 600-second contract and a waypoint change event contract • CPDLC • UPR and DARP • Current SDPS capable of integrating all sensors. • HF 	<p>2020:</p> <ul style="list-style-type: none"> • RNP 4 • PBCS (RCP240 / RSP180) • Satellite ADS-B building business and safety case, and doing CBA for use as complimentary surveillance by March 2020 (with ADS-C) (no additional charging in the near term). Contract to be signed with the service provider. • AIDC for 2020
GUAYAQUIL FIR	<ul style="list-style-type: none"> • Class A/G (FL245 – UNL) • RNAV/RNP 10 • 50 NM lateral separation (in non-surveiled airspace, Oceanic) • 80 NM longitudinal separation (in non-surveiled airspace, Oceanic) • Current SDPS capable of integrating all sensors. • AIDC 	<ul style="list-style-type: none"> • Decisions taken to implement: <ul style="list-style-type: none"> • CPDLC with SATCOM backup. • Satellite ADS-B for 2020. • Transitioning to Class A <ul style="list-style-type: none"> • RNP4 for 2020 • ADS-C • Smaller separation minima under assessment in coordination with neighbouring FIRs
MAZATLAN FIR	<ul style="list-style-type: none"> • Class G • Unknown at this time 	
LIMA FIR	<ul style="list-style-type: none"> • Class A/G • 50 NM Lateral separation (applied as per regional agreement) • 80 NM longitudinal separation (applied as per regional agreement) • HF • AIDC • Current SDPS capable of integrating all sensors. 	<ul style="list-style-type: none"> • Transitioning to Class A • ADS-C conducting pre-operational tests, contract expected 2 August 2019 • CPDLC conducting pre-operational tests, contract expected 2 August 2019 • Satellite ADS-B, building business and safety case, and doing CBA for use as complimentary surveillance by March 2020 (with ADS-C) (no additional charging in the near term). Contract yet to be signed with the service provider.

<p>TAHITI FIR</p>	<ul style="list-style-type: none"> • Class A • RNAV/RNP 10 • 50 NM lateral separation • 50 NM longitudinal separation • PBCS (RCP240 / RSP180) • ADS-C • CPDLC • SATCOM • AIDC • UPR and DARP <p>Current SDPS capable of integrating all sensors.</p>	<ul style="list-style-type: none"> • RNP 4
<p>OAKLAND FIR</p>	<ul style="list-style-type: none"> • Class A • RNAV/RNP 4 and 10 • 50/30 NM lateral separation • 50/30 NM longitudinal separation • PBCS (RCP240 / RSP180) • ADS-C • CPDLC • SATCOM • AIDC • UPR and DARP • ADS-B ITP • ADS-C CDP 	<ul style="list-style-type: none"> • 23 NM Longitudinal sep (ADS-C 3.2 minute rep rate)

4.49 Lastly, and in consideration of the various calls for an indicative operational concept for the delegated airspace, the meeting discussed and agreed on a matrix of desired capabilities, to be completed by States post SCM/1.

4.50 The following Table is provided as a record of the discussions, however an **excel sheet version was distributed to States represented at the SCM/1, for completion and return by 1 September 2019.**

Operational Concept Matrix:

(To be provided to SCM/1 Attendees as an Excel sheet)

Please complete the following matrix, for the current (adjacent) FIR, and for the NO FIR (should services be provided by you).

Please also provide commentary/justification for your responses.

Return by 1st September 2019.

FIRs adjacent to the unassigned airspace		Airspace Class A	Surveillance		PBCS compliant (ANSP and Regulator for approvals)		CPDLC*	RNP2 or RNP4	AIDC**	Lateral and Longitudinal separation minima	Datalink and Performance Based Horizontal Separations monitored by a FIT and RMA	SATVOICE	UPR / DARP capable (see also next column)	ANS processing system (SDPS/FDPS) has conflict probe	BASIC SAR CAPABILITY			
			ADS-C	ADS-B	RCP240	RSP180									RCC or close aeronautical-maritime coordination established	Coordination of SAR organisation with neighbours	Sufficient skilled RCC/RSC staff	SAR personnel regularly trained and exercises conducted
<i>(Adjacent FIR name)</i>	Current capabilities																	
	Planned capabilities																	
NO FIR planned capabilities																		

* Integrated into the ATC work station

**ATM systems should enable AIDC (version 3 or later) between ATC units where transfers of control are conducted unless alternate means of automated communication of ATM system track and flight plan data are employed. As far as practicable, the following AIDC messages types should be implemented: Advanced Boundary Information (ABI); Coordinate Estimate (EST); Acceptance (ACP); Transfer of Control (TOC) and Assumption of Control (AOC).

5 Agenda item 4: Any other business

5.1 As a follow up to an item discussed under Agenda Item 3b, the following web link to the APAC SAR plan was provided by Secretariat (noting that this plan is being updated by November 2019):

<https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20SAR%20Plan%20V2.0.pdf>

5.2 Additionally, with regard another potential SB ADS-B provider mentioned during discussions under Agenda Item 3b, and, while reminding the meeting that ICAO does not endorse any specific potential service nor does ICAO verify that it will achieve what they say what they will achieve, the Secretariat provided a PDF of a presentation, for information, entitled: Space based ADS B using NANOSATS, which was uploaded to the SCM/1 website, for interested participants to review.

5.3 The meeting discussed the necessity for a second SCM meeting, acknowledging the benefit of the discussions held during SCM/1.

5.4 It was agreed that a second meeting (SCM/2) was necessary, with the meeting agreeing the date for SCM/2 could be determined via email coordination. It was noted that the maximum use of email coordination would facilitate information sharing ahead of the SCM/2, acknowledging the cost to all to attend such a face to face meeting.

5.5 The meeting then discussed the next steps towards the delegation of the unassigned airspace.

5.6 IATA proposed that, in the interests of a timely amendment to the affected eANPs, ICAO Secretariat would be the best placed to produce a draft airspace delegation proposal for discussion in SCM/2 (based on the completed operational concept matrix information from States, and in conjunction with all agreed information provided as part of the SCM/1 meeting).

5.7 The meeting also noted that, as the NO FIR was at the interface of APAC and CARSAM regions, it would be unusual for one State to propose an amendment to a regional plan that the state did not sit within. Therefore, a properly consulted, Secretariat proposal would offer an acceptable way forward.

5.8 The meeting was reminded that this was allowable under the eANP amendment process, as section 5.9 of the Amendment procedures:

Proposals for the amendment of Volume I of the regional plan may also be initiated by the Secretary General, through the Regional Office accredited to that State, provided that the State or States whose facilities will be affected have expressed their concurrence with the proposal.

5.9 The meeting agreed with the next step as proposed by IATA, noting that additional information at the SCM/2 meeting may impact any drafts.

5.10 Having concluded the work of the SCM/1 meeting, participants thanked the interpreters, and the SAM office for hosting the meeting. The meeting wished Peru a happy National Day, noting that it was the National Day of Peru on the 28th of July.

5.11 The SCM/1 meeting was closed by Mr. Fabio Rabbani, Regional Director of SAM Office, who offered his appreciation to all attendees, thanking them for the strong participation, and detailed working

papers.

5.12 Mr. Rabbani emphasized that this meeting, and any to follow, was part of collaboratively determining the best service possible, and offered that ICAO (the APAC, NACC and SAM offices, working as one together with headquarters), will work with the States to find way to build that best solution. Mr. Rabbani wished everyone a safe trip home, and the SCM/1 meeting was declared closed.

ATTACHMENT A

LIST OF PARTICIPANTS

CHILE

1. Juan Rojas
2. Marco Abarca

COCESNA

3. Gabriel Quirós
4. Roger Alberto Pérez
5. Víctor Andrade
6. Ernest Arzú

ECUADOR

7. Anyelo Patricio Acosta Arroyo
8. Enrique Bolívar Davalos Cardenas
9. Iván Arellano

UNITED STATES

10. Mike Polchert
11. Holly King
12. Claudio Bartolucci
13. Layne Carter

FRANCE (TAHITI)

14. Ravo Randria
15. Stephane Durand

PERÚ

16. Carlos Begazo Gallo
17. Carlos Bohórquez Castellanos
18. Paulo Vila Millones
19. Enrique Sarmiento Gamio
20. Eriko Mauricio Jaramillo
21. Jorge Raez
22. Miguel Angel Peña Castro
23. Jorge Mendieta Mendieta
24. Cristhian Fuentes Showing
25. José Alonso Yépez Castro
26. José Martí Gómez de la Torre
27. Víctor Cabello Arce
28. Dante Miguel Ballena Carrasco
29. Luis Campos
30. Luis Eduardo Zambrano
31. Luis Enrique Luna

IATA

32. Daniel Vaca
33. Blair Cowles
34. Mariela Valdes
35. Steve Kelly
36. Gene Cameron

ICAO

37. Mike Boyd
38. Len Wicks
39. Eddian Méndez
40. Mayda Avila
41. Fernando Hermoza
42. Francisco Almeida
43. Roberto Sosa

ATTACHMENT B**LIST OF WORKING AND INFORMATION PAPERS.**

WP or IP number	Title	Presented by
WP/01	AGENDA, SCHEDULE AND WORKING METHODS	Secretariat
WP/02	ICAO PROVISIONS, POLICY AND GUIDANCE MATERIAL ON THE DELEGATION OF AIRSPACE OVER THE HIGH SEAS	Secretariat
WP/03	AIRSPACE USERS REQUEST FOR ASSIGNMENT OF CURRENTLY UNASSIGNED HIGH SEAS AIRSPACE AND THE SUBSEQUENT PROVISION OF AIR TRAFFIC CONTROL SERVICES	IATA
WP/04	NON-ASSIGNED AIRSPACE AT HIGH SEAS	COCESNA
WP/05	ICAO PROCEDURE FOR THE AMENDMENT OF REGIONAL AIR NAVIGATION PLAN(S)	Secretariat
WP/06	EXPERIENCE OF TAHITI ACC IN THE PROVISION OF OCEANIC AIR TRAFFIC SERVICES	France
WP/07	AIR NAVIGATION SERVICES IN UNASSIGNED HIGH SEAS AIRSPACE	Peru
WP/08	ROADMAP FOR UNASSIGNED HIGH SEAS AIRSPACE	Ecuador
WP/09	UNASSIGNED HIGH SEAS AIRSPACE	Ecuador
WP/10	SUMMARY OF AIR TRAFFIC SERVICE (ATS) CAPABILITIES WITHIN THE OAKLAND OCEANIC (KZAK) FLIGHT INFORMATION REGION	United States
IP/01	CURRENT AND FORESEEN CNS/ATM CAPACITY OF DGAC - CHILE	Chile
IP/02	NO FIR AIRSPACE IN THE PACIFIC OCEAN	IATA (LATAM)