

**Twenty Ninth Meeting of the
Informal South Pacific ATS Co-ordinating Group
(ISPACG/29)**

**Santiago, Chile
2-6 March 2015**

MINUTES

Mr. Fernando González, General Director of DASA (Aeronautical Services Airport Direction) welcomed the ISPACG delegations. In the last 10 years, Dirección General de Aeronáutica Civil (DGAC) Chile has made great progress toward data link, ADS-C, monitoring and control, RNAV/RNP, new technology, coordinated Dynamic Airborne Reroute Procedure (DARP) and moved toward safe, efficient and ecologically friendly to the environment operations. Mr. González expressed his commitment to achieve higher standards and integrated operating procedures and airspace. Mr. González wished the delegations a productive and successful meeting.

Tim Boyle, Airways New Zealand (ACNZ) thanked Mr. González for hosting the meeting in a beautiful country, and appreciated the progress DGAC Chile made in aviation safety and efficiency. ISPACG's purpose is to facilitate the optimum provision of air traffic services in the South Pacific region, through the development and near term implementation of improvement to air traffic service (ATS) operational procedures. ISPACG has achieved safety, efficiency, and collaboration among the ANSPs and industries. The Planning Team meeting and the FIT meeting had been successful; and the next 2.5 days, ISPACG would make great achievements as well.

1. Opening Remarks

ISPACG Co-Chairs Karen Chiodini, Federal Aviation Administration (FAA) and Tim Boyle, Airways New Zealand (ACNZ) welcomed the ISPACG delegation and thanked DGAC Chile for hosting ISPACG/29.

Administrative and housekeeping matters were conveyed, and delegates were invited to introduce themselves to the meeting.

The draft Agenda was reviewed, WP-01 v.5 Agenda

2. Updates from States

2.1 Dirección General de Aeronáutica Civil de Chile (DGAC) Chile

Enrique Valenzuela presented the DGAC future works information for improving operational safety and reducing environmental impact due to the fast growing demand of airspace users.

Since 2013, DGAC has moved toward the concept of "Seamless Airspace". He presented the Oceanic Area Control Center (ACC) jurisdiction to cover Flight Information Regions (FIR) in Pascua, Antofagasta, Puerto Montt, and Punta Arenas. In 2013, 1st quarter, radar service

was implemented in the Oceanic Control Center, expanding their jurisdiction area to airways UL302 and UL780. In 2014, 2nd quarter, Easter Island FIR upper airspace was declared as RNP10, reducing lateral separation between UPR routes, ATS routes and a combination of 50NM lateral and longitudinal.

In 2014, 3rd quarter, planned to start a technical test between Santiago and Tahiti, but it was delayed due to software compatibility issues. Once Air Traffic Services Interfacility Communication (AIDC) is fully implemented, trial will begin to allow initiated DARPs, and the roadmap will be delivered in 1st quarter 2016.

In 2015, 2nd to 4th quarter, feasibility studies and checks for the implementation of RNP4 in Easter Island FIR will be determined, as well as the reduction of lateral and longitudinal separations to 30 Nautical Mile (NM).

DGAC invited the meeting to support their effort for implementation of systems and procedures to move toward the concept of Seamless Airspace.

2.2 Service d'Etat de l'Aviation Civile en Polynesie Francaise (SEAC-PF)

Joel Laulan presented an update on DARP, ADS-B, AIDC with Chile and LOAs on harmonization.

- DARP: Software simulation test, communication with Airlines, and communication with adjacent FIRs
- ADS-B: 5 ADS-B receivers in 2015 phase 1
- AIDC: AIDC protocol is in use to coordinate flights between NTTT and KZAK and NZZO FIR, the operation with the Chile FIR should be homogeneously similar to other FIRs. AIDC test manual to provide tests between SEACPF and the Chile FIR has been published. Next test is planned for mid-March 2015
- LOAs on harmonization:
 - NCRG: January 16, 2015
 - NZZO: September 18, 2014
 - KZAK: December 1, 2014
 - SCEL: draft, awaiting for AIDC tests
 - SEGU: draft

Olivier Cougouil provided an update on data link performance in Tahiti FIR. Using the guidance material in the Global Operational Data Link Document (GOLD), the objective of this project is to observe the performance and to ensure that the safety objectives of communication infrastructure are met.

He presented the performance charts from 2014 to January 2015 including Controller Pilot Data Link Communication (CPDLC), ADS-C downlink latency per month and ADS-C downlink latency per aircraft.

2.3 Airports Fiji Limited (AFL)

Ivan Wong presented ADS-B implementation in Fiji.

Current status of ADS-B stage 1: Improve situation awareness; procedural approach and aerodrome controllers are able to view display of aircraft activity, Oceanic Area (OCA)

controllers already have a plan view display by virtue of the AuroraAurora automation system. Surveillance is achieved by CAAF mandate. All Fijian registered aircraft are required to have transponders; Mode-S ES transponder is preferred. For non-Fijian registered aircraft that are arriving and departing Nadi, MLAT surveillance is used in parallel with ADS-B. This permits surveillance of aircraft that have Mode A/ transponder. Subsequent migration will occur towards the primary use of an ADS-B system only. Aurora is already operational in the OCA environment. This serves as a testing ground for system reliability, controller familiarity, training requirements and adaptation.

There are no changes to existing air traffic management (ATM) procedures; no change in airspace design, no change to pilot position reporting requirements; airspace structure including controlled airspace and its boundaries remains the same; no change to duty or job descriptions in Fiji Managers Aviation Training (MATS).

Documentation: Fiji MATS made reference to electronics strip, Fiji MATS legitimized the use of the ASD situational awareness only in aerodrome control, approach control and area control.

There are no changes to licensing; all controllers, area and approach remain procedural controllers. There is no relocation of operational positions, current workstation location and airspace responsibilities remain the same.

Regarding training; a course for aerodrome equipment and approach controllers was conducted to ensure familiarity with keyboard, mouse, commands that required to interface with the Aurora system; ensure the current flight progress manipulative processes are efficient for the Aurora system; and consider those actions specifically to aerodrome and approach control. Procedural controllers remain focused on the core task of providing procedural control. Controllers read information accurately off a screen to confirm a procedural separation is in place or has been established; facilitate situational awareness updates and traffic flow in real time; constant monitoring of the screen is not required. Aerodrome controllers remain focused on maintaining a constant watch on all operations on and in the vicinity of the aerodrome as a primary task and read information accurately off a screen to facilitate situation awareness and update traffic flow in real time.

The benefits of Stage 1 significantly improved situation awareness by controllers. This will mean that conflict start and end times will be significantly more precise; improved efficiency of airspace utilization; significantly improved traffic flow by graphical presentation; positional information is timely, accurate and able to be acted upon with greater efficiency; possible reductions in workload; and improved search and rescue facilitation.

Stage 2, the objectives are training and licensing of controllers to a surveillance rating standard. At the end of this stage an area surveillance rating will be issued at the same time under the auspices of having an approach surveillance rating.

Regarding training and licensing for Stage 2, which is subject to CAAF endorsement to allow “first-of-type rating” conducted outside the “live” operational environment; improve current training system functionality to assure CAAF of the fidelity of the training processes. AFL

procurement activities include work on a final plan that is ongoing and expected to be in place by the end of 2017 or during the first quarter of 2018.

Surveillance service will be able to provide sequencing to Nadi, perform the functions of area surveillance within the confines of the current Nadi Sector (CTA), vector for separation and/or sequencing for Nausori arrivals/departures only and is limited because Nausori CTR upper limit remains at 9,500 ft. Nausori approach remains procedural, Nadi Sector remains the same and there is limited airspace for vectoring for separation, and sequencing.

Regarding licensing; present to CAAF a case for issuing surveillance ratings based on the fidelity of the training system.

For documentation, local questions relating to validating an Approach Surveillance Rating at Nadi is required, position description is required in FMATS and FIS location.

Some of the benefits of Stage 2 includes surveillance licensing process started, the process of monitoring the ASD (surveillance responsibility) is more in line with the presence of the screen in the prime work space (human factors); vectoring for sequencing and the application of a minimum 5 NM separation facilitates enhanced efficiency of airspace utilization; if the extended Area Sector CTA is established at the same time (airspace change) then the greatest benefit of this Stage is the solving of conflicts in the vicinity of NEMAL & Savusavu with surveillance.

Stage 3 is required if controllers have been rated and validated for surveillance insufficiently at the beginning of Stage 2. This could occur if no surveillance rated controller(s) (e.g. radar rated controllers) are available to be imported to Fiji to provide the initial 'seed' and integrity of the Aurora simulator does not reach the standard required for credit towards the 180 hours ICAO requirement for initial issue of a surveillance rating, outside the "live" operational environment.

If the revised domestic airspace has not been introduced at Stage 2 then Stage 3 would apply. Establish an Area Sector to the East that will provide extended Area surveillance, sequencing into NFNA, FIS responsibilities within Vanua Sector, currently undertaken by the Local Flight Information Services Officer, or as determined otherwise by a safety assessment.

Regarding licensing, the stage is dependent on numbers only, therefore there are no "first of type" rating and validation issues. These have been addressed in stage 2.

Documentation may include; the boundary between Nadi & Nausori sectors that may need to move to the East; no approach surveillance at NFNA; Nausori TWR controllers remain responsible for Nausori approach, no change to existing procedures and responsibilities.

2.4 Airservices Australia (AsA)

Michael Snell provided an overview of the Airservices organization. It is a Government-owned organization with 4,000 employees, responsible for 11% of the world's airspace with 4 million aircraft movements. The air traffic services has 2 major centers in Brisbane and Melbourne, 4 remote terminal control units, 28 towers and aviation rescue and firefighting services.

Some of Airservices operational challenges are maintaining safety, managing demand and capacity across the network, minimizing environmental impacts, and developing future capability including workforce and infrastructure.

Airservices regional focus including safe air transport links with Australia, reduced incidents at our airspace boundaries, harmonized and efficient ATS that maximise value for customers, and strong and collaborative relationships with their neighbours.

Some of Airservices recent activities include ADS-B mandates and data sharing, supporting AIDC trials and implementation of RNP airspace, and operation “Skysafe”.

Airservices future activities include significant capital expenditure program for towers, replacement radars, new Aviation Rescue and Fire Fighting (ARFF) services and vehicle replacements. Future airspace system includes parallel runways at Brisbane, Melbourne, Perth and a new airport in the Sydney basin. Over the next 2 to 3 years, TCU consolidations are Adelaide into Melbourne and Cairns into Brisbane. Future service delivery includes an organizational transformation program that includes a new ATM platform known as OneSKY Australia. This is a joint activity with the Department of Defence.

2.5 Airways New Zealand (ACNZ)

Paul Radford provided an update from Airways New Zealand.

High Frequency (HF) hardware life cycle replacement: Rohde Schwarz was selected as a supplier for transmitters, receivers and antennae replacement. Transmitters include 4 x 2kw Volmet/Metfax and 2 x 4kw HF Voice and TCI Multimode Spiral Antennae. Hardware replacement is in parallel with an upgrade to air-ground operators “air-log” interface and their Remote Control System (RCS) with the transmitters. The completion date for the project is by February 2016.

Google Loon is working towards a new launch program in May 2015, the numbers are unknown. Google is developing a new generation balloon. Airways New Zealand has developed a message set to facilitate balloon management in the Auckland Oceanic FIR. KuangChi Science is launching 2 test balloons in April/May 2015 with 200kg payload operating around 80,000ft. NASA is launching a balloon in March operating around 110,000ft. The initial launch has a test payload capable of 2 tons.

Air Traffic Management replacement; Airways operates two ATM systems: OCS Oceanic Operations which were operational in 2000 and Skyline Domestic Operations operational in 2003.

Airways is investigating options for ATM system replacement which may include a single ATM system for both Oceanic and Domestic operations. The RFI is expected to select vendors in 2015. New Auckland Standard Instrument Departures (SID) will be introduced in April 2015 to improve efficiency.

2.6 Papua New Guinea Air Services Limited (PNGASL)

Phil Irvine presented the update on their modernization program; which includes a broad system upgrade involving Comsoft Prisma ATM system, MLAT, ADS-B surveillance, Mode-S radar and VHF/HF communication.

ATM system includes modified Comsoft Prisma System, ADS-C/CPDLC, AIDC version 3, MTCB and a simulator capable of disaster recovery.

Timeline for ATM system: initial ATS training for instructors/procedures developers has been completed; basic training/procedures development simulator has established in early April; expect installation of integrated simulators by August 2015; AIDC trials by early 2016; Transition to the new system through 2016; expecting the transition to be completed by mid-2017.

Multi-Lateration will be installed at 8 Sites in Port Moresby Terminal Area. The original plan is to backup current SSR at the end of its life due to the aging domestic fleet unable to equip with ADS-B.

For Radar, the original program specification did not include SSR. It is now planning replacement of current SSR with Mode S.

ADS-B will be installed at six duplicated sites. Site location selection is based on best coverage, security and power supply. ADS-B is expected to have coverage of 30,000 ft. Initial discussions have begun with Brisbane and Makassar regarding data sharing agreements. Expect to commence data sharing trials by early 2016.

VHF upgrade will have new duplicated IP equipment at existing sites plus 4 additional sites. The first phase is underway and expects completion by October 2015. The second phase is by early 2016. HF upgrade covers two separate HF TX/RX sites. VSAT has two separate VSAT systems to provide communication and surveillance connectivity.

2.7 Federal Aviation Administration (FAA)

Dustin Byerly provided an update on Oakland Air Route Traffic Control Center (ARTCC) webpage, ADS-C Climb/Descend Procedure (CDP), ADS-B In-Trail Procedure (ITP), DARP usage, User Preferred Routes (UPR), boundary changes with Anchorage ARTCC, charts of ZOA flights and equipment utilization, 2014 island departure delays, space based ADS-B surveillance and tailored arrival clearances.

KSFO tailored arrivals; a new RNAV Standard Terminal Arrival (STAR) is being developed to mirror the KSFO Pacific 2 Tailored Arrival. The PIRAT1 STAR would provide an Optimized Profile Descent for non-FANS aircraft. The target date for implementation is December 2015.

The FAA is working to establish an AIDC connection between Oakland and Mazatlán by March of 2015. Mazatlán announced that they are working to convert their Class G Airspace to Controlled Airspace.

In the event of an Ash Plume, teleconference with international dispatchers is necessary to reach Agreement on the affected airspace. When there is no agreement on affected airspace but credible evidence exists that the Pacific Organized Track System (PACOTS) will be affected by the Ash Plume, the PACOTS will be moved so that they are clear of the Ash Plume. This is a more conservative approach that keeps aircraft clear of volcanic ash. Operators that have

completed their SMS analysis and determined that there is no risk could flight plan a route through the affected area. ATC would give advisories as required.

ICAO Annex 2 3.6.2.2:

c) Change in time estimate: if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 2 minutes from that notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of air navigation regional agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.

FAA requires reporting of Oceanic Navigation Errors:

- Gross Navigation Error is 25nm or more.
- Aircraft on different route than ATC.
- Height Error is 300 feet or more.
- Pacific Time errors of more than 3 minutes.

Oceanic Error Reports are forwarded to FAA Flight Standards and the FAA Technical Center for airspace safety calculations. Oakland ARTCC has automated Time Error tracking and reporting.

Oakland Center is implementing 2 new routes with Port Moresby and Australia between Guam and Australia.

2.8 Civil Aviation Bureau Japan (JCAB)

Seiji Fukami provided an update from JCAB.

Fukuoka FIR location and traffic flow, 1 FIR, 1 ATMC, 4 ACCs, Oceanic ATC by ATMC, 5 sectors. Average flight count per day is 4,306. This includes 2,418 domestic flights, 1,182 international flights and 706 over flights. An update was also given on Eastbound PACOTS, Westbound PACOTS, UPR, DARP, reduced separation minima, FANS 1/A equipage, and the Performance Based Communication and Surveillance (PBCS) schedule.

Oceanic Conflict Detection and Assistance Processor (OCAP) - detect predicted conflicts several hours in advance between aircraft/aircraft, or between aircraft/restricted airspace, manage the procedure to avoid conflicts, and assistance to avoid conflicts by OCAP has been utilized at Air Traffic Management Center since 27 February, 2014. The procedures to avoid the conflicts provided by OCAP include changing altitude, assigning mach number, and route change.

Parameter setting includes steps in the procedures, way to avoid conflict, range of changing altitude, distance from departure airport and distance to destination airport. OCAP records data as statistic data. Person in charge of Oceanic Air Traffic Control Data Processing System (ODP) system sets the parameter of OCAP while referring to the statistic data for optimizing the order of the procedures.

2.9 CAA Singapore (CAAS)

Chin Lin Kwek gave an overview of Singapore ATC.

- Singapore FIR covers 245,000 square NM (840,000 square Km), and air traffic movements in FY 2013 was 661,000.

- Air traffic flows; approach control sectors; RNAV SIDs and STARs; and Changi flow management were also presented.
- LORADS III Features: Advanced ATC automation features, enhanced decision-making tools, and several layers of safety nets
- LORADS III Redundancy: Many levels of redundancy to ensure uninterrupted ATC services; built-in redundancies, multiple networks, duplicated servers; bypass processing for key servers e.g. flight data processing, SNAP; Immediate Back-Up on hot standby; other back-up modes; separate power sources.
- He also presented information on SATCC Area and Approach Control Centers; enhanced ATC Workstations; advanced Java-based HM; paperless environment; improved workflow with new HMI; communications and surveillance; area control sectors; extending ADS-B & VHF communications coverage.
- Phase 1 of South China Sea ADS-B Collaboration Project: Singapore's collaboration with Indonesia and Viet Nam has enhanced ATC service on routes L642 and M771.

6.2 – IP07 – Dynamic Airborne Reroute Procedure (DARP) Automation

Boeing presented the operational concept and preliminary results of research being conducted by Boeing and Air New Zealand in automation of the existing DARP. Boeing and Air New Zealand have been conducting research and development on an automation system called Optimal Conflict-Evasive Airborne Reroute Notification System (OCEANS) to reduce airline workload associated with a number of these processes and to encourage the adoption of DARP. The plan is to achieve live flight trials in 2015.

Preliminary results have validated that OCEANS can provide multiple fuel saving reroute opportunities during a 12-hour flight at a significantly faster rate than is possible with a manual process. The OCEANS graphical interface allows an airline dispatcher to review, analyse, and accept (or reject) an OCEANS computed reroute advisory with the click of a few buttons. Further flight trials are due to start in March 2015 to validate reroute benefits, to exercise end to end testing of OCEANS with flight planner and flight crew in the loop. During this time Air New Zealand will be using OCEANS as its DARP tool, replacing its current manual procedures to create routes.

3. Review Relevant Work Conducted Since ISPACG/27

3.1 Update on ICAO

IP-13 Michael Lam, FAA, provided an update on the Second ICAO High-Level Safety Conference which took place from 2 to 5 February 2015 at ICAO Headquarters, in Montréal, Canada. The conference provided the international civil aviation community the opportunity to build consensus, obtain commitments and formulate recommendations deemed necessary for the effective and efficient progress of key aviation safety activities. The conference covered three major themes: 1. Review of the current aviation and safety situation, the future approach to manage aviation safety, and ways to facilitate increased regional cooperation. 2. Acknowledgement by ICAO, States, and other aviation stakeholders of important advancements in aviation safety and efficiency, a continuation of safety goals. 3. Agreement on the need to further improve aviation safety, including the reduction of the number of accidents and fatalities, and to support safety management principles and processes. Conclusions and recommendations from the ICAO high level safety conference were also provided.

For Asia Pacific Region, the Regional Safety Group Asia/Pacific (RASG-APAC) was established to support the establishment and operation of performance-based safety system in the APAC region and the implementation of the Global Aviation Safety Plan (GASP). RASG-APAC will deliver two APAC annual safety reports, APAC regional safety priorities and targets; safety tools to be used by States and industry; foreign air operator surveillance database; and safety seminars/workshops for States in the region aimed at providing implementation assistance on RASG.

IP-12 Michael Lam, FAA, also reported on the APAC Region Contingency Task Force established by ICAO APAC regional office to develop guidance material to assist States in the composition and coordination of local, bilateral and regional contingency plans for the continuity of air traffic services. The contingency plans have been broken down into three categories of service loss: A – Airspace Safe, but Restricted or No Air Traffic Services (loss of ATM capabilities); B – Airspace Not Safe (volcanic ash, nuclear incident, military activity); and C – Airspace Not Available (pandemic, national security – normally a political decision). The contingency plan has three levels: 1 – Domestic (no impact outside FIR); 2 – Inter-State (involving two or more States and/or FIRs); 3 – Sub-Regional/Regional (large scale plans that provide continuity of service through and/or around large volumes of airspace where a degraded situation occurs). The Regional Plan and guidance is expected to be finalized at the fifth meeting of the TF in June, 2015. The ATS Contingency Routes and the Air Traffic Contingency Plan template were provided for reference.

3.2 Report on ISPACG/PT15

Please see **Attachment C** “ISPACG Planning Team Meeting 17” minutes of the meeting from Allan London, Airways NZ.

Please see **Attachment D** “ISPACG Planning Team Open Action Items” from Allan London, Airways NZ.

3.3 Report on FIT/21

Please see **Attachment E** “FANS Interoperability Team Meeting (FIT/21)” minutes of the meeting from Brad Cornell, Boeing.

4. Review Open Action Items (Appendix A)

AI 17-11 Air Traffic Service Inter-Facility Data Communications (AIDC)

IP-14: Harrie Copeland, FAA, reported on the ICAO Inter-Regional AIDC Task Force (IRAIDCTF) and the harmonization effort for a global Pan-Regional AIDC document. The Pan-Regional (NAT and APAC) Interface Control Document for ATS Interfacility Data Communications (PAN AIDC ICD) was finished in November 2014 and accepted by the Asia Pacific Air Navigation Planning and Implementation Management Group (APANPIRG) in late 2014 and by the North Atlantic Systems Planning Group (NAT SPG) in early 2015. The Operational Datalink Panel (OPLINKP) has recommended that the PAN AIDC ICD be included in their future work toward creating global AIDC guidance material. Item CLOSED.

WP-6: Michael Snell, Airservices Australia, provided an AIDC update.

Current Flight Plan (CPL) messages are being used by YBBB to acquit boundary coordination with NZZO and NFFF. Coordination Negotiation (CDN) messages continue to be used to revise coordination for eastbound flights from YBBB to NZZO, due to Eurocat software problems the receipt of westbound CDN messages from NZZO had to be cancelled indefinitely in January 2015. A number of test AIDC messages have been received from VCCF as part of a test programme with YMMM. Analysis of AIDC message responses detected 19 occurrences of delays of greater than 45 seconds. A summary of AIDC performance and message statistics for AIDC messages sent and received by YBBB during the monitoring period was provided. Airservices invited States to consider conducting AIDC analysis to identify messaging interoperability issues with adjoining ATS Units.

AI 21-5 Sharing of Operational Data

Paul Radford, ACNZ, clarified the intent for this action item and the group recommended to close this action item. Item CLOSED

AI 25-1 RNP-4 Equipage

IP-15 Dustin Byerly, FAA, updated on lost fuel savings due to lack of RNP-4 and FANS-1A equipage. In May 2012, 51% of aircraft in the Oakland CTA were FANS-1A equipped, but only 30% of aircraft flight planned RNP 4 equipage. Some operators do not flight plan RNP 4 because of the extra cost associated with more frequent ADS-C reports. In July 2014 there were 6 operators in the Oakland FIR who used FANS-1A equipment but failed to flight plan RNP4. Two of the operators account for 82 percent of the FANS-1A/Non-RNP4 aircraft in the Oakland FIR. Oakland ARTCC conducted a study to place a value on the extra fuel burn that is caused by aircraft operating at altitudes below their optimum altitude due to lack of RNP 4 and FANS equipment. The FAA felt this analysis would help operators recognize the potential savings with RNP 4 and FANS equipage. He noted that the traffic growth in the Pacific saw an increase of almost 43% since July 2009. The Oakland Oceanic FIR experienced an average of around 715 flights per day. With more aircraft in the Pacific airspace, there is more competition for optimum altitude assignments. He invited the meeting to recognize the benefits of RNP 4 and FANS equipment. Consider certifying FANS equipped aircraft as RNP 4; and consider equipping aircraft with satellite FANS and RNP 4 certification.

AI 25-2 Speed Variation Concern

WP-5 Dennis Addison, FAA, facilitated a discussion with ANSPs and proposed a Speed Change NOTAM as follow:

- *In order to maintain ATC separation spacing, aircrews are required to use the following procedures in the KZAK FIR. A pilot must inform ATS each time the cruising mach number varies or is expected to vary by a value equal to or greater than 0.02 mach*
- *The mach number at FIR entry, or*
- *Any subsequent speed change notified to ATC in flight.*

The group agreed to a 6 month test trial and will re-evaluate. ANSPs agreed to harmonize, and issue the NOTAM by 15 April, 2015 at midnight UTC.

AI 25-3 Central Reporting Agency (CRA) Website

Paul Radford reported on the CRA website and explained that the timeline for the update had been extended due to resourcing issues. He outlined the main objectives of the upgrade program and explained it was necessary to future-proof the website for all users. All ISPACG delegates are asked to encourage others in the region to register on the CRA website.

AI 27-1 SATCOM Voice Capability in Flight Plan

AI 27-2 SATCOM Voice Capabilities in AIP

IP-03 Tom Kraft, FAA, talked to IP-03 and presented “Satellite Voice (SATVOICE) Capability”.

In Sep/Nov 2012 APANPIRG and NAT SPG adopted SATVOICE Guidance Material (SVGGM) developed by the IRSVTF. In June 2013 APANPIRG revised AMS strategy to expand the scope to include SATVOICE, advanced communication technology within PBCS framework and involve all stakeholders to take account of benefits and costs.

ICAO Global Air Navigation Plan included SATVOICE preparation in Block 1 (2018 – 2023) and Block 2 (2023 – 2028) timeframes and foresees SATVOICE will replace HF voice communication, Block 3 (beyond 2028) timeframe. ICAO OPLINKP and FAA-sponsored PARC CWG are contributing to the planning and implementation of global SATVOICE services.

OPLINKP Work Program items completed by the panel including HLSC2010 High Level Safety Conference; ICAO Annex-PANS provisions for DLIC, CPDLC and ADS-C; ICAO Annex-PANS provisions for PBCS; ICAO Annex-PANS provisions for SATVOICE; ICAO Manuals Doc [GOLD], Doc [SVOM] and Doc 9869 (PBCS Manual). OPLINKP schedule includes completed deliverables agreed at OPLINKP/2 in October 2014; ICAO publishes Manuals by first half of 2015; and ICAO approves Annexes-PANS amendments by November 2016. OPLINKP SATVOICE Annex provisions were also presented.

ICAO Annex-PANS SATVOICE provisions promote harmonization of services, procedures, systems, equipment and capabilities supporting ATS & AOC. SATVOICE capability includes complement CPDLC and ADS-C; support MMEL and MEL; complement HF voice in poor HF propagation conditions, provide DCPC for intervention (e.g. complements ADS-B where no VHF and/or aircraft not CPDLC/ADS-C capable); and it is required for extended diversion time operations (EDTO) also referred to as ETOPS beyond 180 minutes.

SATVOICE could eliminate potential need to implement additional HF selective calling system (SELCAL) codes. Aircraft manufacturers will need to decide when to offer HF voice equipment as optional rather than basic on newer aircraft models. ICAO Annex-PANS SATVOICE provisions ensure a globally standardized and cost-effective approach and support the use of different commercial satellite companies and network service providers within a common architecture. SATVOICE Operations Manual based on “inter-regional” SVGGM adopted by APANPIRG and NAT SPG, developed by IRSVTF, changes mostly of editorial nature and to align with ICAO Annex-PANS provisions and expect publication of Doc by mid-2015.

SATVOICE Annex-PANS provisions and Doc SVOM are currently under review and coordination by the Secretariat. ANC is expected to approve action to distribute State letter for review and comment between April and August and Doc SVOM will be provided to the ANC and with the State letter as supporting material.

Performance-Based Operations Aviation Rulemaking Committee (PARC) Communications Working Group (CWG) SATVOICE project and the SATVOICE Tiger Team status, flight plan data, Flight Plan 2012 compliance reports, FAA SATVOICE Master Minimum Equipment List (MMEL) HF policy, and FAA policy PL-106 were presented.

Challenges for SATVOICE include MMEL policy depending on a reliable infrastructure; infrastructure may need to be upgraded for MMEL; Ground-to-air calls to aircraft logged onto Multifunction Transport Satellite (MTSAT) are possible only using dedicated lines, such as Fukuoka ATC, or by obtaining a SATVOICE service account with SITA; no access via RC SATVOICE service account. ICAO should develop policies and guidance on the assignment and management of short codes for ARTCCs, aeronautical stations and possibly AOC and operators wanting to use Iridium SATVOICE capability as LRCS may need to upgrade their fleets.

Action Item:

-The FAA will provide an update at the ISPACG-30 meeting; ICAO State Letter will be issued soon.

-Encourage States and operators to file SATCOM voice equipage in the flight plan. Suggest States to update status on SATVOICE at the next ISPACG meeting.

AI 27-3 New ICAO Flight Plan Format

There is no progress or status update on flight plan format. Presently, we did not receive necessary guidance by ICAO on this issue. Karen Chiodini updated the meeting on the informal request to ICAO on this issue. We will provide an update at the next ISPACG meeting.

AI 28-1 ADS-B Flight Plan Clarification

CLOSED

AI 28-2 Central ADS-B Flight Plan Clarification

Karen Chiodini reported that the US FAA will provide funding for CRA by March 2015 and the service is for 5 years.

Item CLOSED

5. Review Work Programmes

5.1 ATM Contingency Plan

This item was deleted since the paper was presented as part of the ICAO update.

Tim Boyle commented on attachment A of the paper; a graphical representation of the ATS contingency routes; did not show routes to New Zealand and Australia.

5.2 Report on Communication Failure Coordinating Group (CFCG)

The CFCG has not met last year, so there is no status update.

5.3 Seamless Airspace Chart

There is no update on the Pacific FIR Seamless Airspace Chart.

5.1.1 Surveillance

No Update

5.1.2 ADS-B ITP

No Update

5.1.3 ADS-C CDP

IP-11/IP-01 ADS-C CDP Update

Harrie Copeland, FAA, reported that implementation of the ADS-C CDP automation will benefit ADS-C equipped aircraft; non-equipped aircraft will continue to receive the current level of service. New York, Oakland and Anchorage oceanic airspace will receive the software update in January 2016. The projected initial operating capability of the automated ADS-C CDP procedure is June 2016. The SASP WG meeting conducted a final review of the PANS-ATM proposal for amendment. The Circular and the impact statement concluded that all work has been completed and that the separation standard is ready for presentation to the ANC for approval. It is anticipated that, pending approval, the standard will be applicable in November 2016. Attachment A, ICAO Circular ADS-C CDP was provided.

5.1.4 Dynamic Airborne Route Procedures (DARP)

IP-04 DARP

Graham Rennie, Qantas, reported on the expansion of routine DARP in the Pacific. DARP was introduced for the QF28 B744 SCL – SYD in December 2014. The QFA8 A380 DFW – SYD DARP commenced on Monday 23rd February, 2015. This first phase is expected to be fully implemented by end of July, 2015 and is applicable to southbound flights. This will be extended to northbound flights during late 2015. Once fully implemented, QANTAS will have the ability to DARP up to 13 times per day on Pacific flights. Qantas has the aim to perform multiple DARP on Pacific flights so this number will increase. Action: ANSPs to review the routes. Fiji, Tahiti to investigate if it is possible to expand DARP.

5.4 Seamless Airspace in Chile (DGAC) expansion of DARP

Enrique Valenzuela, DGAC, provided an update on seamless airspace in Chile and the expansion of DARP. DGAC is working on the seamless airspace expansion of DARP and scheduled tests with Tahiti and New Zealand the week of March 9, 2015.

5.5 Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) Update (IP-09)

Michael Lam, FAA, reported on the ASPIRE update on behalf of the ASPIRE Partnership. The ASPIRE Partners have established the ASPIRE-Daily program to identify the most efficient city-pair routes in the region where best practices with demonstrated and proven success in the reduction of greenhouse gasses are available on a daily basis. The partners have engaged IATA to collaborate on the assessment and validation of the ASPIRE Daily best practices, city pair nominations and ratings. Since January 2011, the ASPIRE Daily

program has validated and published 24 city pairs. The two most recent validated routes connect Honolulu with Auckland and have brought in Hawaiian Airlines as a participating airline partner for the first time. The ASPIRE partners are seeking to expand the ASPIRE partnership by encouraging airlines and/or ANSPs who share our environmental values to become ASPIRE partners by contacting the ASPIRE Chair, Mr. Kuah Kong Beng of CAAS, at kuah_kong_beng@caas.gov.sg. The ASPIRE Partnership has published an ASPIRE Annual Report in December 2014 and it is available on the ASPIRE website at <http://www.aspire-green.com>. The next ASPIRE conference which was planned for 7-9 April 2015 has been postponed until 2016.

Tim Boyle expressed an idea that the next ASPIRE meeting could be held in conjunction with the ISPACG/30 meeting.

5.6 Balloon Operations – Google, NASA and Kuang Chi (IP-09)

Google Loon is working towards a new launch program in May 2015, the numbers are unknown. Google is developing a new generation balloon. Airways New Zealand has developed a message set to facilitate balloon management in NZSO. KuangChi Science is launching 2 test balloons in April/May 2015 with 200kg payload operating around 80,000ft. NASA is launching a balloon in March operating around 110,000ft. The initial launch has a test payload capable of 2 tons.

6. Other Business

6.1 Boeing 787 Ice Crystal Icing Avoidance (IP-05/IP-06)

Gene Cameron, United Airlines, presented **IP-05** on Boeing 787 Ice Crystal Icing Avoidance. The Boeing 787 aircraft with GENx-1B engines are susceptible to High Altitude Ice Crystals (HAIC). In order to prevent loss of thrust the FAA had issued an Emergency AD in November 2013 with several restrictions. These restrictions included the possible descent from normal cruising altitude to below FL300, or a lateral deviation to avoid possible significant weather by at least 50nm. These restrictions could have a significant effect on the United Airlines Boeing 787 operations between Los Angeles and Melbourne Australia, in addition to adding some complexity to the air traffic management within the FIRs that the 787 was flying. In February 2015, the FAA granted some relief from these restrictions based on some software changes to the Electronic Engine Control of 787s. The information provided was to provide controller awareness to possible weather deviation actions by United Boeing 787 aircraft and the United Airlines Boeing 787 Pilot Bulletin was attached to the paper.

Gene Cameron, United Airlines, also presented **IP-06** on Boeing 787 Ice Crystal Icing Update Policy. The policy covers the flight planning and ice crystal icing avoidance procedures.

6.2 Dynamic Airborne Reroute Procedure (DARP) Automation

This agenda item was presented on the first day of the meeting.

6.3 Space Weather and Its Impacts to aviation.

Joe Kunches, Astra, presented IP-8, Space Weather and Its Impacts on Aviation. Joe showed the solar flare video. North Polar flying matured and prospered in the decade starting in late '90s. Solar activity also grew in the maximum phase of Solar Cycle 23. Solar Cycle 24 began January 2009. Compared to Cycle 23, the current Cycle 24 has been very weak. There

are suggestions that the next Cycle, Cycle 25, will be even less eruptive. Weak solar activity means more galactic radiation at aircraft altitudes.

Ionospheric disturbances often occur in concert with geomagnetic disturbances. The reflection of VHF signals will occur on occasion during strong geomagnetic storms. Radiation storms can cause extended periods of HF blackout at higher latitudes. Over 100 hours of HF blackout in the Antarctic during the “Halloween Storms” of 2003. The onset of these storms is difficult to predict, but once they begin, forecasters can predict the duration with some accuracy.

Radiation storms can quickly follow the onset of a large solar flare. In Jan 2005, X7 flare began at 20/0636 UT and peaked at 20/0701 UT. The Intense >100 MeV radiation storm peaked at 20/0710 UT. This storm was short-lived, but did exceed the FAA Solar Radiation Alert at Flight Altitudes for about 1.5 hours.

Recent impact to WAAS system: An Ionospheric Storm began on 2/27/14. The Satellite Operations Specialists were alerted at the WAAS O&M by a Significant Event 757 at 2120 Zulu. LPV and LPV200 service has not been available in Eastern Alaska and Northeastern CONUS. At times, North Central CONUS and all of Alaska have lost LPV and LPV200 Service.

Space weather and its impacts to aviation communications and navigation performance is the prime issue. Space weather has been benign lately, but disruptive activity still occurring.

6.4 Implement Partial/Half Degree Waypoints in UPR airspace

This agenda item was deleted.

6.5 Performance Based Communications and Surveillance (PBCS)

Paul Radford, Airways New Zealand, presented WP-7, PBCS implementation.

OPLINKP have completed proposals for amendment to Annex and PANS incorporating PBCS and also completed a significant rewrite of Doc 9869 which has been re-named as the PBCS Manual. Following on from PBCS workshops in Bangkok in 2013 APANPIRG agreed Conclusion 24/33 that requires APANPIRG sub-groups include in their work program and implementation initiatives consideration of the required communication performance (RCP) and required surveillance performance (RSP) framework.

A list of the main PBCS relevant amendments to annex and PANS was provided. A summary of changes of the following documents was provided: Annex 6 - Aircraft Operations, Part I, Chapter 7; Annex 11 – Air Traffic Services Chapter 2; Annex 11 – Air Traffic Services Chapter 3; Annex 11 – Air Traffic Services Chapter 6; and Annex 15 – AIS.

For PANS-ATM, a summary of changes to Chapter 4 – General provisions for ATS, Appendix 2 – Flight Plan, and Annex 15 – AIS was also provided.

The meeting is invited to note the proposed changes for Annex and PANS-ATM regarding PBCS, agree for a need for an ISPACG PBCS implementation plan and allocate resources to draft and maintain the plan.

Paul will contact ANSPs and the airlines the week of March 16 to organize a team to work on the PBCS implementation. The results of this work will be presented to the Regional Airspace Safety Monitoring and Advisory Group and APANPIRG.

6.6 Contingency Planning Task Force Update

This agenda item was presented as part of ICAO update.

6.7 RNP2/GNSS Lateral Separation

Dustin Byerly, FAA, discussed the potential for operational use of ICAO Doc 4444 RNP2/GNSS lateral separation standards (WP-4).

On November 13, 2014 the 15th Edition, 6th amendment of ICAO Doc 4444 became effective. New RNP 2/GNSS separation standards were created by the 6th amendment.

Some of the new standard requires direct controller-pilot VHF communication, which is not available in the Oakland Oceanic FIR. It also provides a new 20nm lateral separation standard which is most applicable in Oceanic airspaces. The standard requires RNP 2 or a GNSS equipage for the separation to be applied. Upon review of the flight planned equipage in the Oakland Oceanic FIR, it was found that 95% of the flight plans contained a "G" in field 10a of the FPL. With such a high level of equipage, it is likely that aircraft would be properly equipped if the traffic scenario presented itself for application. Additionally, there would not be a requirement for aircraft to invest in new capabilities to be eligible for the separation standard.

The use of lateral offsets to climb an aircraft through blocking traffic could provide an operational advantage to Oceanic Control. The use of GNSS 20nm lateral for island arrivals and departures to climb/descend through the altitudes of each other would provide a significant benefit to island arrivals and departures. The FAA will take into consideration the data equipage data and conduct analysis to evaluate the RNP2/GNSS climb/descend procedure for implementation in the oceanic airspace which FAA provides service.

6.8 Global Tracking Trial, IP-16

Michael Snell, Airservices Australia, reported a trial to determine the effectiveness of increasing ADS-C periodic reporting to monitor flights through non-surveillance airspace.

Airservices has worked closely with satellite communications company Inmarsat, to trial a form of Global Tracking that uses existing aircraft equipment. The Global Tracking Trial enhances surveillance by increasing the frequency of ADS-C periodic reporting rates in non-surveillance airspace. The default reporting rate in these areas is currently 30 minutes and, in the initial stages of the trial, this is being manually updated by the controller to 10 minutes. To assist with the feasibility of the trial, Inmarsat will provide one free position report every 15 minutes. The trial was introduced into Brisbane FIR with participation limited to Qantas and Virgin Australia. Performance data from the trial will be monitored and outcomes discussed with industry partners and the global aviation community.

Airservices expects to continue with the trial until global standards for aircraft tracking are finalised. The next stages of the trial will see all aircraft that are equipped with ADS-C

technology automatically begin reporting their position more frequently to air traffic control centres in Australian airspace.

6.9 Managing Google Balloon Operation in NZZO FIR

Tim Boyle, Airways New Zealand, showed a short video on the Google Loon project and provided information on a message set that is being implemented between Google Operations and Airways New Zealand to manage Google Balloon operations in the NZZO FIR. Google and Airways will exchange messages via the Amazon Simple Queue service. Google Loon operations will be responsible for notifying OCS operations of any Loon balloon that is expected to enter the Auckland Oceanic CTA in descent from its float altitude. Only Loons expected to enter the CTA will be notified. The message format used for messages will be based on existing ICAO formats defined in ICAO PANS-ATM Doc 4444 to facilitate processing by OCS and minimise software development.

DGAC Chile shared their issues with the balloons in their airspace. The FAA is preparing a letter to ICAO Montreal expressing their concerns about Google Loon and request for guidance. New Zealand will submit a paper on balloon issues to APANPIRG in May 2015.

7. Review & Establish Terms of Reference for Working Groups and Task Forces

Tim Boyle reviewed the purpose and the principle of the ISPACG and the working groups and proudly confirmed that the ISPACG group has been successful in working together to maintain and enhance the level of safety; harmonize ATS procedures; and cooperate with industry and service providers to provide safety, efficiency for the region.

8. Closing Remarks

Tim Boyle announced that the next ISPACG meeting will be hosted by Airservices Australia in Brisbane. Tim reviewed the purpose of the ISPACG and impressed with the achievement that the group made in the last 29 years. Gene Cameron suggested that the ISPACG/30 should be held in Sydney due to easy access location.

Tim expressed his appreciation for his co-chair, Karen Chiodini for her experience and contribution to the ISPACG. Harrie Copeland from the FAA will be the co-chair for ISPACG/30.

Karen Chiodini (ISPACG Co-chair) thanked the ISPACG group for great cooperation in Pacific Region.

Tim Boyle (ISPACG Co-chair) thanked DGAC Chile team for hosting ISPACG/29. The support had been exceptional. Tim thanked the ANSPs, industries and airlines for their cooperation and contribution.

Tim thanked Michael Lam for working as the Secretariat for the ISPACG/29 meeting.

Tim also thanked the DGAC staff who worked tirelessly behind the scene to make this meeting successful and presented two flower bouquets to Ms. Fernanda Pinto Godoy and Ms. Patricia De Andraca for their wonderful support.

Meeting closed.



Attachments:

Attachment A	Open Action Items
Attachment B	Participation List
Attachment C	ISPACG Planning Team Meeting-17 minutes
Attachment D	ISPACG Planning Team Open Action Items
Attachment E	FANS Interoperability Team Meeting (FIT/21) minutes