Thirty-First Meeting of the
Informal South Pacific Air Traffic Services
Coordinating Group

Record of Meeting

6-9 March 2017
Honolulu, Hawaii

1. Opening Remarks

ISPACG Co-chair Harrie Copeland, Federal Aviation Administration (FAA) and Allan London, Airways New Zealand (ACNZ) opened the meeting and thanked the delegates for their attendance. Heather Hemdal, Director, Air Traffic Services, FAA, welcomed the delegates to Hawaii. She expressed the value of friendships with partners and hoped for good and robust discussions. She also noted that exciting new technologies are improving airspace in the South pacific.

Housekeeping and administrative matters were addressed. The draft Agenda was reviewed and accepted by the meeting. The Performance Based Communication and Surveillance (PCBS) workshop had been held on 6 March and the FIT on 7 March. The Agenda was published on the ISPACG website as WP-01.

2. Updates from States

2.1 Airservices Australia

Adam Watkin informed the meeting that Airservices is undergoing a restructure and staff reductions.

Adam noted that the main project at the moment was re-establishing Air Traffic Services Inter-Facility Data Communications (AIDC) with Indonesia and that was not going too well.

2.2 Service d'Etat de l'Aviation Civile en Polynesie Francaise (SEAC-PF) (IP/03)

Joel Laulan (SEAC-PF) advised that the DARP project conducted a trial from 1 June to 31 August with designated flights from Air New Zealand and Qantas, ANZ28/29 and QFA7/8 but is anticipated to be available to all users by late 2017. Four DARP requests were received with unsuccessful applications. Thales provided a fix to the bug causing the issue in December 2016, with expected implementation from mid-March 2017. A new trial period will be determined after that.

Automatic Dependent Surveillance-Broadcast (ADS-B)/Very High Frequency (VHF) implementation and extension in New Caledonia, French Guiana and Reunion Islands will be carried out as part of the modernization plan. ADS-B stations are planned to be installed at five remote sites in July 2017 and seven more, coupled with VHF extensions, in 2018. Radar decommissioning is anticipated in 2024. Notice of ADS-B mandates is planned to be published in March 2017; 1 January 2019, DO 260 and above will be mandatory for all aircraft above Flight Level (FL) and 1 January 2022, DO 260 and above will be mandatory for all aircraft in Tahiti airspace.

SEAC-PF worked well with Google Loon's California Operations room for the balloon that landed in the middle of the ocean. There was no issue because there was no air traffic at the time.

Flooding occurred at Tahiti International Airport, over a 24 to 30-hour period, when the runway was closed, requiring aircraft to be diverted to New Zealand and Los Angeles. An Air France aircraft had to be diverted to Rarotonga. There is a need for international coordination for bad weather or runway closure occurrences. Easter Island is a potential alternative.

Graham Rennie, Qantas asked whether there are any forecasts for tides and severe weather that could flood the runway. Joel Laulan responded that the airport is not equipped with meteorological (MET) radar, just satellite, so it is difficult to make predictions or prevent

runway flooding. They advised traffic in flight of conditions at the airport.

2.3 Airports Fiji Limited (AFL)

Provided the following Fiji status.

Traffic – There has been an increase of international flights mainly from our neighbors from Australia and New Zealand

SITA Outages – There were a number of outages last year due to fiber optic damages experienced by the local communications provider TFL. Discussions have taken place with TFL for redundant links. The outages have resulted in increased controller workloads.

Weather deviations – There have been some requests for weather deviations of 200 nautical miles (NM) which AFL's system is not able to approve. Its system can go as far 128 NM, in such cases exceeding this distance, the pilot is requested to ask for a re-route using the appropriate CPDLC templates that would make AFL's work easier in terms of its response via CPDLC.

Waypoints issues – Some waypoints are not adapted in the system, resulting in some problems downstream with neighbors, ASA and Airways. This has been rectified and adaptations were made recently.

Staffing rollout – This is on track for surveillance rollout in 2018. AFL has currently increased numbers in the Aerodrome/Approach controller rankings with more making the ranks at the end of November 2017. This is where AFL's focus is for release of staff for surveillance training. Fiji is also geared up for Oceanic Control Training in April 2017.

UPR – Published in Fiji AIP; however, internet link to website page is yet to be delivered for the ISPACG Website.

ADSC Contract rate – Contract rate has been amended T 14min in the Oceanic AURORA System.

Major projects commencing 2017

- AERDROME

Nadi VCS

Voice recorder and Taptool

- COMMUNICATION

Voice/Data Multiplexer

VHF Radio

HF Radio Antenna

AFTN/AMHS Upgrade

- NAVIGATION

ILS/DME

PBN

- AIR TRAFFIC & AIRSPACE MANAGEMENT

Airspace Design

- AIM

Aim system

SWIM

PBCS – AFL should be receiving its script for the conversion of SAR data to CSV files by the 4 April and generating appropriate graphs on RSP and RCP requirements using the GPAT Tool.

In conclusion, 2017 and onwards will be a very busy period for AFL. The ISPACG request for Fiji to host ISPACG/ 32 is still under discussion and Fiji will respond once a decision is made in the coming weeks.

2.4 Direccion General de Aeronautica de Chile (DGAC)

DGAC did not attend the meeting.

2.5 Airways New Zealand (ACNZ)

Paul Radford provided an update of the ATM replacement project, where ACNZ is replacing both its ATM systems – Skyline for domestic and OCS for oceanic. ANCZ signed a contract with Leidos to replace these two systems with a single system for domestic and oceanic air traffic. Skyline will be replaced first, with domestic transition planned for the third quarter of 2020, and then OCS, with oceanic transition planned for the second quarter of 2021. Currently, software enhancements are being made to the OCS before software development resources are committed to the ATM replacement system.

ANCZ has signed a three year collaboration agreement with Aireon to evaluate the benefits of space-based ADS-B.

ACNZ's high frequency (HF) transmitter and receiver replacement is complete. Upgrade to air-ground HF operators "air-log" interface and their Remote Control System (RCS) for HF transmitters and receivers is in the final stages of acceptance testing. Transition is expected in the third quarter of 2017.

Commercial launches of Rocket Labs electron rocket are planned to begin in 2017 from the east coast of New Zealand's North Island.

2.6 Papua New Guinea Air Services Limited (PNG ASL)

Phil Irvine, (PNG ASL) provided an update on NuiSky, formerly called PNG ADS-B MLAT ATM System (PAMAS) project. Progress with PAMAS was stalled in late 2015 during acceptance testing when the system vendor, Comsoft, declared itself insolvent. Thales (TopSky) is the new software provider. While one year was lost as a result of the Comsoft issue, time has been made up in the intervening time.
Transition to the new system will be as follows: Enroute sectors by end 2017; Approach/Tower by Q2 2018; Flight Service post APEC 2018. The first duplicated ADS-B receivers installed - providing data for evaluation and testing, while the remaining sites are planned to be installed through 2017 – early 2018. ADS-B coverage is better than what was expected, and with a 300-mile coverage, they are seeing into Australia's airspace. ANCZ however might need to move some ADS-B receivers to get rid of shielding. With regard to communications, the remaining VHF sites are expected by mid-2018 and new HF by mid-2018.

The next steps:

- Establish SITA link May 2017
- AIDC Testing July 2017
- ADS-B Data Sharing August 2017
- ADS-C/CPDLC testing by end 2017

2.7 Federal Aviation Administration (FAA)

Dustin Byerly, (FAA) informed the meeting that the Automated procedure approved for ITP and CDP use occurred in September of 2016. In November 2016 there was an update to the PANS-ATM, Doc 4444 included the ADS-C CDP. Graphs of CDP and ITP use were presented. Dustin Byerly discussed oceanic equipage and separation standards and how RNP-4 and FANS improves efficiency.

Dustin Byerly reported that overall, 18 of 22 PACOTS tracks have been replaced with User Preferred Routes (UPR). Newer Composite aircraft climb above most traffic on PACOTS routes. Anchorage ARTCC started a High Level UPR Trial allowing aircraft at or above F380 by 180E can UPR up to NIPPI or OMOTO. Oakland has published the guidelines for a High Level UPR Trial as an alternative to westbound PACOTS to NOPAC. The trial will have an indefinite lifespan.

Dustin Byerly also discussed oceanic contingency plans, CEP route structure, commercial space, DARPS, and Tailored Arrivals

2.8 Civil Aviation Bureau Japan (JCAB)

Hiroyuki Takata, (JCAB) reported that domestic flights were full and international flights, especially from China and South East Asia, were up 10% on an annual basis. Traffic is up in the Pacific.

PBCS implementation is on track and should be complete by 29 March 2018.

JCAB is worried about China and Korea, where there is no oceanic airspace. There is a difference between air traffic in North Pacific and South Pacific and it is important that there is harmonization between the two.

2.9 Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM)

SENEAM did not attend the meeting.

2.10 Airline Updates

United Airlines – Gene Cameron reported that United's Boeing 747-400's are going into retirement. United appreciates what was done with the 747's.

Qantas – Graham Rennie stated that the new long range aircraft has changed the dynamic of air travel; it is now point to point and back. We are likely to see new city pairs appearing. It is an expanding market, with the desire for increased efficiency of air traffic management. Graham Rennie raised a concern with Santiago now requiring reporting points every 10 degrees in the ocean. Allan London said he would take up the issue with Santiago and also inquire whether Santiago could construct a new route to allow DARPs eastbound.

3. Review Relevant Work Conducted Since ISPACG/30

3.1 Update on ICAO (IP-20)

Braks Etta provided a summary of ICAO Asia Pacific (APAC) activities that are pertinent to ISPACG.

Performance Based Navigation (PBN) - ICAO APAC held a PBN Go Team Stakeholders meeting on 24 January 2017, to address why 45% of the Asia Pacific States have failed to

meet ICAO implementation targets. PBN Go Teams would diagnose why the PBN implementation progress is slow, and provide specific guidance to the visited States to address the identified issues. Lao, Indonesia, and India were recorded as potential PBN Go Team visit sites.

ICAO Remotely Piloted Aircraft System (RPAS) Workshop - The ICAO RPAS was held from November 21-23, 2016 in Bangkok, Thailand. The objective of the workshop was for ICAO Headquarters to share its ongoing work on development of the international regulatory framework through Standards and Recommended Practices (SARPs) as well as procedures and guidance material contained in ICAO Document 10019, *Manual on Remotely Piloted Aircraft Systems (RPAS).*

Alpha-Numeric Call Signs – ICAO APAC propose in 2017 that the Asia/Region makes greater use of alphanumeric call signs to mitigate the possibility of confusion between same or similar call signs in radiotelephony.

Implementation of New STAR/SIDs Phraseologies – Effective 10 November 2016, States are required to use the new Standard Instrument Departures (SIDs) and Standard Arrival Routes (STARs) phraseologies.

The First Meeting of the ICAO Asia Pacific UAS Task Force (AUAS-TF1) will be held from April 3-5, in Bangkok, Thailand.

The First Meeting of the SWIM Task Force (SWIM TF/1) will be held from May 10-12, in Bangkok, Thailand

3.2 Report on FIT/24

Brad Cornell, Boeing provided an update on the FIT/24 meeting. The FIT/24 minutes will be published on the ISPACG website.

Feedback from the operators noted continuing benefits from DARP with the usual issues of managing the increase in workload for ground staff and that there had been an increase of traffic and several new FANS operators in most FIRs since the last meeting. Some ANSPs will be transitioning to new ground automation systems in the next two to three years.

It was noted that some operators are not following the GOLD procedures. The meeting suggested sending correspondence to the operators highlighting relevant sections in the GOLD.

3.3 Report on PBCS Workshop

Paul Radford, ANCZ, moderated the workshop and provided a summary draft for participants to review. The final summary of the workshop is attached.

4. Review Open Action Items

ISPACG PT/19 Action Items

4.1 See ISPACG PT/19 Open Actions (attached)

ISPACG/30 Appendix A

4.2 AI 25-2 Speed Variation Concern (WP/05)

The majority of FANS-1A aircraft using Oakland airspace are now planning RNP4.

Item Closed

4.3 AI 25-2 Speed Variation Concern (WP-05)

Over the entire 2016 year, Oakland Air Route Traffic Control Center (ARTCC) analyzed the first 10 days of every month to study how many unannounced speed changes were taking place in the KZAK FIR. The total number of unannounced speed changes for 2016 was 1289. Proposed working together with ANSPs to eliminate unannounced speed changes and recommended to the regulatory bodies of each Pacific ANSP to publish a Safety Alerts for Operators (SAFO) or equivalent that highlights to operators the important safety implications of unannounced speed changes. The meeting agreed that the data can be identified (versus de-identified) in regard to unannounced speed changes.

Item Open

4.4 AI 25-3 Central Reporting Agency (CRA) website

Christine Falk reported that the SASP is trying to develop global separation standards. FAA has been providing data on weather deviations to SASP. Christine Falk also discussed the need for vertical events monitoring in the Pacific and South Pacific

Item Open

4.5 AI 27-2 SATCOM Voice Capabilities in AIP (IP/06)

Jim Meadows informed the meeting participants of updates the FAA is making to the U.S. Aeronautical Information Publication (AIP) regarding Satellite Voice (SATVOICE). The FAA undertook a review of the SATVOICE information in the US AIP which prompted the removal of outdated information, the direct-dial numbers, and the inclusion of the SATVOICE "short codes" which ensure the use of "safety switching" (see ICAO Doc 10038). The review also prompted the clarification that portable SATVOICE devices are not allowed to be used for normal and routine air traffic control (ATC) communications.

Brad Cornell asked whether HF can be used at any time. Jim Meadows said HF could be used if other means of communication are not accurate, but it is not the primary means of communication. In response to a question, Jim Meadows stated that if an aircraft is using CPDLC, it can use HF or SATCOM i.e. one does not have to go to HF first.

Item Open (due to discussions on the action).

4.6 AI 27-3 New ICAO Flight Plan Format

ISPACG is awaiting advice from ICAO on the correct use of wake turbulence category, J, and a better way to plan RNP 2 without using RMK. No update

Item Open

5. Review Work Programs

5.1 United States Domestic NAS Processing of Foreign Aircraft Identification with a Numeric as the First Character (IP-04)

Jim Meadows provided information on an issue that the FAA has encountered with regard to

its domestic automation systems and the system's inability to process aircraft identifications (AID) that have a numerical character as the first character in the AID.

The short-term mitigation to this issue is the development of clear requirements and consistent guidance for FAA air traffic facilities for amending the subject AIDs, as outlined in the attached FAA Order. This order shall remain in place until a long-term automation solution is implemented which allows the system to accept an AID with a numeric as the first character.

Adam Watkin asked what information was used to log on to the aircraft. Jim Meadows explained that log-on was used for call numbers. One has to amend to successfully log on. ATC has National Airspace (NAS) flight plan and international flight plan data. FAA's Advanced Technologies and Oceanic Procedures (ATOP) oceanic system will accept AIDs that have a numerical character as the first character in the AID.

5.2 **Pilot Reports - PIREPS** (IP-05)

Mark Shepherd reported that Air New Zealand engaged with MetService New Zealand to develop an ACARS communications page which allows pilots to easily report weather of significance to MetService, ATC and our own Flight Dispatch flight watch desk in plain language. Air New Zealand has conducted trials on the initial release with Airways New Zealand, and as a result changed the FIR filtering method.

The PIREP can be distributed by either email or AFTN, and recipients can elect which reports to receive. As an example, MetService requests reports of nil turbulence in areas where SIGMETS have been issued, which should assist in more accurate SIGMET forecasting. In response to a question, Mark Shepherd stated this PIREP is a stand-alone system.

5.3 **Volcanic Ash Exercise - VOLKAM Update** (IP-08)

Dustin Byerly reported that the Volcanic Ash Exercises Steering Group for the far Eastern part of the EUR Region (EUR (EAST) VOLCEX/SG) planned and conducted a volcanic ash exercise called VOLKAM16 that simulated a volcano eruption of Karpinsky (Northern Kurile Islands) from 2200 Coordinated Universal Time (UTC) on 21 April 2016 to 0130 UTC on 22 April 2016.

The corresponding debrief meeting took place in Paris on 11 May 2016 in order to develop recommendations for improving the response in future real volcanic ash events, as well as for future exercises. A total of eight recommendations were formulated by the debrief meeting which were documented in the summary of discussions and posted on the ICAO Portal under group EEVOLCEXSG, subtitle VOLKAM16.

Steven Smith (American Airlines) remarked that one of the biggest challenges is coordinating a large re-route amongst multiple ANSPs once an event, such as volcanic ash, occurs. Harrie Copeland stated that one of the actions of the Planning Team (PT) was guidance material, resulting in the following ISPACG action.

Action: *Develop a best practice critical events list for the South Pacific.*

6. Other Business

6.1 Google Loon

Leonard Bouygues, Google Loon, gave a presentation on the Google Loon project. He informed the group that two out of three people in the world do not have access to Internet

and that the Google Loon balloons are like mobile cell towers, with the capability of providing Internet where there is not service today. Leonard Bouygues described in detail the structure, safety, launch, and landing of the balloons.

Graham Rennie asked how the balloons manage in the equatorial regions where there is severe weather. Leonard Bouygues responded that at FL 670, the balloons are above much of the weather and also, they can see storms developing a day in advance and move the balloons if necessary.

Gene Cameron, United Airlines, asked about reported close encounters with aircraft. Leonard Bouygues said this was due to aircraft not following ATC instructions. In response to a question on whether the balloons have Traffic Collision Avoidance System (TCAS), Leonard Bouygues responded that there was no TCAS as part of the balloon or its payload.

Leonard Bouygues explained that it takes one and one half hours to ascend to FL 670 and forty-five minutes to one hour to descend. Google Loon is working on releasing gas faster for a quicker descent. Heather Hemdal asked how long the balloons remain afloat. Leonard Bouygues responded that balloons are afloat for 150-200 days.

In response to a question as to where the balloons are brought down, Leonard Bouygues said they usually bring the balloons down in recovery areas like Peru, South Africa, Kenya, or the United States. Christine Falk asked what other areas were the balloons landed and kept. Leonard Bouygues said testing is on-going in South America, especially Peru and Brazil. Christine Falk asked how ATC can protect balloons if they are cut off. Leonard Bouygues said they can steer the balloons, with algorithms to bring the balloons close to recovery zones.

Holly King, FAA, noted that the FAA plans to build an airspace reservation and update system into its oceanic automation system, ATOP, to keep track of these balloons. Dustin Byerly praised the good job in coordination between FAA and Google Loon with emergency cut-downs.

Heather Hemdal ask what a full constellation of balloons would be. Leonard Bouygues responded that it depends on the region and the winds available. If a balloon can stay in one place, then fewer balloons are required. A full constellation is about 200 balloons. Jim Meadows asked whether as one balloon is brought down, another is launched. Leonard Bouygues explained that all launches are from Puerto Rico and then 20 days to get to replace them. Dustin Byerly asked whether the balloons' service area changes. Leonard Bouygues said the communications technology to allow this is still experimental, but they are testing new designs and configurations that poke and test the balloons.

Adam Watkin asked how the balloons come down. Leonard Bouygues explained that there is an open hole at the top of the balloon, which provides a gradual descent of 1500feet/minute. A deployed parachute further reduces descent speed to 100 feet/minute. Adam Watkin asked Holly King how the FAA handles the balloon launches and descents. Holly King said it depends on when and where the activity is occurring. There are updates as the balloon moves and the longest window so far is 90 minutes. It is not an exact science. ATC can always ask that the balloon movement be delayed.

Allan London informed the meeting that ICAO issued guidelines for addressing balloons in 2012. New Zealand treats request as one would an aircraft. If the balloon is in an uncontrolled descent, then aircraft will be rerouted around the balloon if possible or issued essential traffic. It is different for each ANSP. Adam Watkin asked whether there were any limitations when dealing with coordination. Paul Radford responded that there cannot be a flight plan; there is just a reservation based on information provided by Google. A 15-minute update is required and separation standards are applied to the reservation. They have one or two problems. Also, with the 15 plus minute window, a lot of airspace is taken up. Allan London noted that an incident with lost communications closed a large section of the Tasman Sea. Leonard Bouygues responded that there are two independent satellite communication systems and rigorous testing of the antennas before launch.

In conclusion, Leonard Bouygues said the project is still an experiment and it has not

provided internet service yet.

6.2 Weather Deviation - Discussions (WP-07)

Gene Cameron presented weather deviation requests and the expectations of pilots and controllers. He provided a recent publication to pilots, by United Airlines Flight Operations, explaining the impact of large weather deviation requests, and discussions with Airways New Zealand on issues associated with pilot weather deviation requests. The intent of the presented paper, he said, is to discuss both pilot and controller process in dealing with weather deviation requests. Gene Cameron gave an example when United asked for a plus/minus 200 NM, ATC told the pilot to reroute through CPDLC, which is not practiced by United.

Joel Laulan said SEAC-PF has asked Thales for help to improve the software to address flight plan changes. Adam Watkin confirmed that pilots are requesting deviations and not using them. Also, Adam Watkin said ANCZ did not want pilots making incremental distance deviation requests. He said that with banking, there are not only lateral increases, but longitudinal increases too. There is not a limitation of 120 NM and one can increase up to 150 NM – Maybe a common method to address this is required. He said some operators do not know how to request one side only deviations. Jim Meadows reported that the FAA is planning to send data scenarios, including data from un-cleared weather deviations, from the William J. Hughes Technical Center, Atlantic City, to the Separation and Airspace Safety Panel (SASP). We are getting to the point where ATC cannot give weather deviation. We also need to examine data where aircrew deviate without a clearance, where flight crew has asked and been given an, "Unable".

Jean-Francious Bousquie, Airbus, stated that there are devices in the Flight Management System (FMS) that help the crew manage weather deviations. This could ease the handling of weather deviation.

Action: Crew training, including visuals, in use of appropriate on-board information.

Adam Watkin raised an issue that pilots have asked for offset on either side, whereas offset is not a deviation. Dustin Byerly gave an example of an aircraft with CPDLC and ADS-C asked for deviation and received, "Unable", then turned off ADS-C and deviated. In conclusion, Stephen Smith, American, believes if pilots are given the configuration information, they can talk to each other and resolve the issue.

6.3 Weather Deviations (Airway NZ) (WP-12)

Allan London informed the meeting that Auckland Oceanic is seeing an increasing number of block clearance requests and large weather deviations either side of track, that are not being utilized by crew, but are having an effect on aircraft receiving timely clearances to avoid weather.

Allan London requested the meeting note the following for weather deviations:

a) The effect large scale weather deviations have on surrounding traffic.
b) Encourage 'best practice' in the determination of the size and direction of any weather deviation request.
c) Encourage revising weather deviation clearances when crews are aware that the current deviation clearance limit is not required.
d) Remind crew to cancel the weather deviation by reporting "Back on Route" when there is no immediate need for the deviation.

6.4 FANS Problem Solution Tracker (IP-07)

Julia Fuller provided information about a Future Air Navigation System (FANS) Problem

Solution Tracker under development by the North Atlantic (NAT) Technology and Interoperability Group (TIG) at the direction of the NAT Implementation Management Group (IMG). The document contains all issues provided by the Airbus and Boeing Data Link Monitoring Agency (DLMA). Julia Fuller proposed that the tracker be kept on the ISPACG website. Paul Radford stated this was a good idea and that he had tried before to host this, but there were no resources to keep it up. He does not mind it on the CRA website, but there are no resources for its upkeep. Jean-Francious Bousquie, Airbus, said in the North Atlantic (NAT), they resolved to maintain the tracker. He proposed that South Pacific information be provided to the NAT, which will maintain the tracker, and the South Pacific use this updated tracker information.

6.5 Monitoring Agency Activities in South Pacific Airspace (WP-04)

Christine Falk informed the meeting participants that the Pacific Approvals Registry and Monitoring Organization (PARMO) is both a Regional Monitoring Agency (RMA) and Enroute Monitoring Agency (EMA) in the ICAO Asia and Pacific Region. She provided a summary of activities related to the safety monitoring reports produced by PARMO. Christine Falk noted that a number of South Pacific Flight Information Regions (FIRs) are not currently covered by an EMA.

The South Pacific FIRs not currently covered by an EMA are:

- Auckland FIR
- Nadi FIR
- Tahiti FIR

In conclusion, Christine Falk recommended that ISPACG ensures these FIRs are covered by an EMA.

6.6 Asia Pacific Common Regional Virtual Private Network (CRV) and PASNet (IP-09)

Hoang Tran, FAA, provided a briefing on the Asia-Pacific aeronautical network for Asia-Pacific and Middle East ICAO Members, the "Common AeRonautical Virtual (CRV) Network

The CRV is expected to accomplish the following:

- Reduce telecommunication costs in most cases (to be confirmed by local CBA)
- Enable integration in the aeronautical infrastructure and enhanced services (GANP, regional objectives)
- Enhance information security
- Provide a standardized interface for AFS (instead of multiple protocols, some of which are obsolescent)
- Rationalize coordination for network management and enhancement
- Respond to Air Traffic requirements in a timely and standardized manner

6.7 South Pacific AFS Network Replacement (SPANR) Proposal (IP-10)

Hoang Tran, FAA, briefed the meeting participants on the replacement network for voice and data communications between Members - Fiji, Papua New Guinea, Australia, New Zealand, and the United States - by allowing all participants on the network the opportunity to establish communications with each other. Telecommunication costs will be minimized as countries will only need a small number of connections to a far-reaching network, rather than individual connections to each neighboring state.

6.8 **Aireon Space Based ADS-B Collaboration Agreement** (IP-17)

Paul Radford reported that Aireon is deploying a global, space-based air traffic surveillance system for ADS-B equipped aircraft. It will provide real-time ADS-B surveillance to oceanic, polar and remote regions, as well as augment existing ground-based systems. Airways New Zealand has signed an agreement with Aireon to evaluate the use of Space Based ADS–B to improve air traffic management services in oceanic airspace. Under the three-year agreement Airways New Zealand will explore Aireon's capability by validating concepts under controlled conditions and assessing the benefits that this technology could deliver.

6.9 **Rocket Launches** (IP-18)

Allan London provided information on the operational procedures in place for the commercial launch of rockets from the east coast of New Zealand's north Island. Rocket labs electron rocket is 16 meters high, 1.2 meters in diameter and designed to carry a payload of 150 kilograms (kg) to a 500 kilometers (km) sun-synchronous orbit. Rocket Lab (RL) plans to launch its first Electron rocket into orbit between 5 January and 21 June, from their launch complex on the Mahia Peninsula, which is situated on the eastern most part of the north island.

David Willis, CAA New Zealand, pointed out that the dimensions of the hazard areas are provided by the rocket company. Allan London added that Airways NZ used to add a 50 NM buffer area around hazard area, but this is no longer needed. In response to a question on how the coordination worked, Allan London explained that the rocket launching company is required to notify adjacent FIRs if the launch will also impact their airspace (e.g. Tahiti FIR).

6.10 **Commercial Space (Presentation)**

Dustin Byerly described how Oakland Center accommodates commercial space operations in its airspace. Oakland Center requires the airspace reservation data 30 days prior to the recovery and or launch.

Tahiti asked whether the US has the same concerns on the east coast. Dustin Byerly responded that there are differences between the east and west coast. Oakland Center has shared lessons learned with New York Center and hopes this will help with similar operations on the east coast.

David Wills mentioned that New Zealand does not see many launches, but does see many returns. Allan London asked whether the number of returns has impacted operations as well (not only launches). Allan has seen returns that go across FIR boundaries and require coordination. Oakland Center has not had to coordinate with another FIR yet on a return. New Zealand also asked about large danger areas affected by launches near airways with lots of traffic. Oakland Center responded that they expect this coordination activity to increase in the future and that communication is key.

American Airlines asked whether Mazatlan is still involved with these activities. Dustin Byerly responded that the uncontrolled area of Mazatlan FIR is impacted, but that airspace is not busy. Dustin Byerly stressed the importance of DoD and commercial space have their missions to accomplish, as well as the airline operators. Oakland Center will continue to work with all parties to ensure the airspace remains safe and all parties can complete their missions.

6.11 **Leidos Innovation Corporation awarded contract to supply a new ATM system for New Zealand** (IP-19)

Paul Radford reported that Airways New Zealand has signed a contract with Leidos Innovations Corporation to implement a new Air Traffic Management (ATM) system in New Zealand Domestic and Oceanic Airspace.

6.12 **Surfing Aircraft Vortices for Energy** ($AVE)

Richard Copeland, USAF, provided information on a combined research effort between Boeing, Air Mobility Command (AMC) and Air Force Research Laboratory (AFRL). The project is an automated capability to fly a trail aircraft in the wake updraft of its preceding aircraft.

Hiroyuki Takata, JCAB, asked that this briefing be presented at the next IPACG meeting.

6.13 Principles of boundary coordination

Paul Radford mentioned that the problem is in the software and it is not expected to be fixed any time soon. New Zealand has similar issues with Tahiti and Oakland Center, as well as Nadi. New Zealand manages the situation as it presents itself – New Zealand asks airlines not to flight plan through short boundary FIR areas.

Adam London suggested that examples could be created so that the software could handle these situations. Allan London stated that tracks change every day making it difficult to standard any sort of guidance material. NZAIP says to avoid filing within 50 NM of FIR boundary. The issue exists everywhere there is a common boundary. AIDC task force is to improve the guidance material as the action from this paper.

Discussion between AFL, AsA and ACNZ were taken off line.

6.14 Space Radiation

Joe Kunches, Space Weather Consultant, provided a briefing on space radiation. He stated that the biggest threat in the next five years is radiation to satellites, aircraft, and crew. Joe Kunches summarized the briefing below:

- Two primary components
- Cosmic Rays
- Steady but variable w/solar cycle
- Solar Radiation Storms
- Rare, highly variable, and can be intense
- Earth's natural defenses
- Magnetic field shields Earth
- Makes calculations very complex
- Geomagnetic Latitude dependent
- Geomagnetic activity can expand poles
- Atmosphere acts as target and as shield
- Radiation strongly dependent upon altitude

Gene Cameron said this was good information and should be conveyed to the Cross Polar Working Group in May. Joe Kunches acknowledged that polar routes are the most affected.

6.15 AIDC performance between YBBB and WAAF

Adam Watkin reported that AIDC messaging had previously been trialed between YBBB and WAAF a number of years ago (ISPACG/25 IP10 refers). After a period of trial, the decision was made to discontinue the exchange of ABIs due to poor performance (numerous "time out" warnings), and concerns regarding the route information in ABI messages received by YBBB. In more recent times, the data adaptation for the airspace south of Indonesia (i.e. waypoints and routes) held by Makassar has been updated and as a result of discussions at AUSINDO/34, the exchange of ABIs was re-implemented in early February 2017.

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

7.1 None have been formed since the last meeting.

8. Closing Remarks

8.1 Arrangements for ISPACG/32

Fiji is slated to host ISPACG/ 32; this is still under discussion and Fiji will respond once a decision is made in the coming weeks.

8.2 Closing Remarks

Harrie Copeland (FAA) thanked his Co-chair, Allan London (Airways NZ), for his experience and contribution to the ISPACG. Harrie thanked all the members for their great cooperation and collaboration in the Pacific Region. Harrie also thanked Braks Etta for working as the Secretariat for the ISPACG/31 meeting.

Allan London gave a big thanks to the FAA for hosting ISPACG/31 in Hawaii. Allan thanked the ANSPs, regulators, industry partners, airlines, and IATA for attending. Finally, Allan gave a heartfelt thank you to Paul Radford. Paul would be retiring from the group and Allan wanted to extend his appreciation to Paul for his contributions over the many years in ISPACG, ICAO and datalink working groups.