



**THE FORTY-EIGHTH MEETING OF THE
INFORMAL PACIFIC ATC COORDINATING GROUP
(IPACG/48)**

**THE THIRTY-FIFTH MEETING OF THE
FANS INTEROPERABILITY TEAM (FIT/35)**

(Des Moines, Washington, USA, 26 September 2023)

Agenda Item 4: Any Other Business

Considering of HF Datalink usage in the Oceanic Control Airspace of Fukuoka FIR

(Presented by IFALPA)

SUMMARY

The disruption of the SATCOM CPDLC in the Pacific region due to the malfunction of the INMARSAT satellite prevented a number of aircrafts from communicating properly with the ATC in April 2023. As a result, this may potentially jeopardize the safety of the flights over the area. To prevent this situation from reoccurring, IFALPA requests that consideration be given to making HF Datalink available in the Fukuoka (FUK) Oceanic Controlled Airspace.

1. Introduction

1.1. Currently, the following air traffic communication systems are available in the oceanic control airspace worldwide;

- Satellite Communication (SATCOM) INMARSAT
- Satellite Communication (SATCOM) IRIDIUM
- Satellite Voice (SAT VOICE)
- HF Data Link (HFDL)
- HF Voice

1.2. Of these, SATCOM INMARSAT, HF Voice, and SAT VOICE (Emergency only) systems are available in the FUK Oceanic Controlled Airspace.

2. The Fact

2.1. SATCOM CPDLC system disruption occurred due to the Inmarsat satellite malfunction from 0750 JST on April 17, 2023 (2250 UTC on April 16) to 0410 JST on April 19, 2023 (1910 UTC on April 18), mainly in the Western Pacific region.

2.2. As the result, the normal 30 NM (23 NM for aircraft subject to PBCS) longitudinal separation in the oceanic control area of the FUK Oceanic Controlled Airspace was expanded to a 10-minute interval, maintaining safe intervals as normal air traffic control procedure.

2.3. The separation between aircrafts was maintained at 10 minutes, but the communications officers were overloaded with work and did not obtain location information from aircraft or communicate control approvals in a timely manner.

2.4. HF voice communications did not retain enough capacity to cover the current air traffic, resulting in excess capacity. As a result, there were many cases where altitude changes and route changes (WX Deviation) from pilots could not be implemented.

2.5. This situation not only made proper fuel management impossible, but also meant that it was no longer possible to avoid the effects of turbulence and cumulus clouds, which greatly compromised aircraft safety.

3. Discussion

3.1. It is obvious that ICAO required periodic ADS-C information every 15 minutes was not implemented due to the satellite malfunction.

3.2. HF voice communication system in the FUK Oceanic Control Airspace does not have an adequate backup functions and needs to be reconstructed immediately.

3.3. HF Datalink (HFDL) is commonly used as a backup system for SATCOM in major oceanic control airspace (Pacific, Atlantic, and Polar regions) except FUK FIR.

3.4. HFDL evaluation tests were conducted in the Fukuoka Oceanic Control Airspace around 2010, but HFDL failed to meet the criteria due to the low number of frequencies used and the small number of Ground Stations (only Guam).

3.5. Subsequent environmental improvements, including the installation of an additional Ground Station for HFDL in South Korea in 2019, have now been shown to improve the effectiveness of HFDL in the Western Pacific region.

3.6. In this situation, it is desirable to introduce HFDL as a backup system for SATCOM in the FUK Oceanic Control Airspace as soon as possible.

3.7. HFDL is the best backup system for SATCOM in that it maintains adequate capacity for HF voice communications and can also provide ADS-C information.

3.8. HFDL is expected to be able to demonstrate its capabilities to a great extent, as many of the aircraft that perform oceanic flights have HFDL capabilities, and inexpensive system modifications could make HFDL available to aircraft such as B777s (this information comes from the HFDL supplier).

3.9. HFDL is positioned as a SATCOM backup system and cannot be used to shorten the longitudinal separation (from 30NM to PBCS 23NM).

3.10. The introduction of HFDL in the Fukuoka Oceanic Control Airspace will achieve system multiplexing of CPDLC functions, which is expected to contribute to improved aircraft safety in the area.

4. Conclusion

- 4.1. The meeting is invited to note the information provided.