

**40th Meeting
of the
Civil GPS Service Interface Committee**

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Fiji's use of GPS for Navigation and ADS-B

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- For many years GPS has formed a vital part of Fiji's aviation navigation system, both for international and domestic operations.
- In international operations,
 - Fiji provides air traffic services for a large volume of airspace, some 7.5 million square km, covering the air routes between USA and Australia
 - Since the FANS1 system was certificated for the B747-400 in 1995, aircraft have been flying through this airspace by day and by night using a combination of GPS and INS for navigation together with Satcom for ADS
 - Fiji provides the complementary ground systems
 - All this has resulted in great benefits for civil aviation
- In domestic operations (which are representative of much of Asia/Pacific), Fiji recognised in the early 1990's the benefits of using GPS for their air navigation
 - Fiji is made up of some 300 islands with 2 main airports and about 20 landing places
 - The domestic fleet consists of some 30 aircraft
 - Except for the main airports, navigation aids are few and difficult to provide and maintain
 - Many of the flights are long distance and over water, eg the flight from Nadi to Rotuma is more than 2 hours over water in a Banderrente aircraft where, without *GPS*, the en-route navigation would be by dead reckoning
 - Enormous benefits thus came from GPS, which has been authorised for en-route and cloud break operations since 1994
 - "GPS only" routes are in use between main airports
 - GPS-based Non-Precision Approaches have been designed to ICAO standards
 - Fiji is considering proceeding with ADS-B, based on GPS

- From the above, it can be appreciated that it is not so much the cost effective replacement of existing navaids that Fiji is looking for, but rather for GPS to continue to provide a navigation system where none can reasonably be provided by ground based systems.
- From the GPS provider we need:
 - The continuing provision of high quality navigation signals
 - The continuing provision of accurate NANU's, which are needed for flight despatch in much the same way as weather forecasts
- From the receiver manufacturers we need:
 - Receivers of the TSO C146 variety for small aircraft to provide, in particular, Fault Detection and Exclusion, SA off and the ability to receive ranging signals from GEO's
- We can then continue with the benefits of GPS for Navigation and ADS