

Date: 12/06/11
Location: ACRC
Aircraft: GPS FASER
Pilot: Arion Mangio & James Rosenthal
Flights: 2 FASER

Weather

Sunny, light southerly winds, temps around 17F.
METAR KANE 061645Z 22006KT 7SM BKN019 M08/M11 A3033=

We took FASER to ACRC to gather flight data with the 15 state nav filter (using a Crescent GPS) and get data on the elevator/rudder position sensors. We completed 2 flights. This was also the first flight with the single threaded flight code. Note the saved IMU data DOES NOT have any biases subtracted. GPS did not lock until very end of FASER flight 3.

The controller used for all flights was the baseline controller.

Software used was [trunk/Software/FlightCode rev 734](#)

FASER Flight 03: baseline controller, Three pitch doublets only. (guidance/doublet_theta3.c) 15 state EKF nav filter (see issue 2). No GPS lock until very end of the flight, so this data set has limited use.

FASER Flight 04: baseline controller, Three pitch doublets only. (guidance/doublet_theta3.c) 15 state EKF nav filter run post flight (see issue 2). Good GPS performance.

Issues

1. GPS took a long time to lock. Could be because this receiver hasn't been used in several years and need to get the full ephemeris data, but this shouldn't have taken more than 10 minutes.
2. EKF code had a bug that prevented the NAV filter from doing a measurement update. Fixed in rev 735.

Flight Data Analysis

- Elevator and rudder position data look too noisy to be useful. Alpha-beta isn't much better. Seems ADC is working poorly. Noted periodic noise burst on ADC signals.

Back to [Flight Reports](#)