Date: 6/22/12
Location: ACRC
Aircraft: Thor, Odin
Pilot: Arion Mangio
Flights: 3 Thor, 1 Odin

Weather
Sunny, variable wind, temps around 75F. METAR KANE 221545Z 29010KT 10SM FEW045 24/14 A3003

Andrei, Arion, Ramin, Tim, and Will arrived at ACRC at 9:30am to fly on a calm morning. The weather started off fair, and a gusty breeze picked up over the next few hours. All flight ops ran smoothly. There were three main objectives for this flight test. First, Will's baseline controller was to be validated using different doublet patterns. Second, Will's altitude holding controller was to be tested using straight & level, and altitude step inputs. Finally, the trainer aircraft, Odin, that Tim and Arion worked on was to be flight tested to make sure it works correctly.

The first flight (47) was for Will's baseline controller validation with Thor using varying doublet patterns in the pitch and roll axes. This flight was used to compare to simulation data for the same inputs. This flight was completely closed-loop. The data looked very good, so an additional flight test was not needed. The software used for this flight was

branches/WayPointTrack/Software/FlightCode rev 851

The second flight (48) was for testing Will's altitude tracking controller. The first five runs were straight & level tracking. The second five runs consisted of two separate 4 second, 30 degree phi pulses (constant rate turns). The data shows that the airplane seems to be tracking altitude, however, the runs weren't long enough to be able to see if it was truly being tracked. The software used for this flight was

branches/WayPointTrack/Software/FlightCode rev 852

Flight 49 was a follow up to the previous flight. It consisted of five straight & level extended time flights followed by three 7 meter positive altitude steps, and three 7 meter negative altitude steps. After looking at the data, it seems that altitude is being tracked, however longer runs will have to be executed to be able to tell for sure. The software used for this flight was

branches/WayPointTrack/Software/FlightCode rev 853

Thor Flight 47

Rx data: A104, L064, F024, H000

Flight 48 was dedicated to testing Will's altitude tracking controller, as well as a low pass filter on the altitude signal (the filtered signal is stored under variable name 'aos_cmd', and an initial altitude snapshot, stored under the name 'aoa_cmd'.

Thor Flight 48

Rx data: A031, L028, F003, H000

Flight 49 was dedicated to allowing longer run times for straight & level flight, and tracking altitude steps.

Thor Flight 49

Rx data: A100, L112, F004, H000