**June 30, 2016 – OSU UAS Flight Field**

UTC = local time + 5 hrs

Flights conducted at the OSU UAS Flite Field

Front

Back

Windsonde 733

Windsonde 740

Windsonde 742

Windsonde 737

All Windsondes located under the rotors and shielded by small PVC pipes (not in contact). See pictures below.

Flight 1 (Iris+)

Battery Number: 7

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 10:44:52 UTC

Left 3m hover: 10:45:16 UTC

Reached 100m: 10:46:09 UTC

Reached 200m: 10:47:06 UTC

Reached 300m: 10:48:21 UTC

Started decent: 10:48:30 UTC

Landed: 10:53:53 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 300m. We will take off and hover at 3m to aspirate the sensors and stabilize readings. The mission to 300m had an assent speed of 2.5m/s and a decent speed of 1.5m/s. We landed by activating the RTL once the copter had stabilized at 10m. The entire flight was flown autonomously.

Flight 2 (Iris+)

Battery Number: 8

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 10:59:24 UTC

Left 3m hover: 10:59:48 UTC

Reached 100m: --------- UTC

Reached 200m: --------- UTC

Reached 300m: --------- UTC

Started decent: --------- UTC

Landed: 11:02:05 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 300m. We will take off and hover at 3m to aspirate the sensors and stabilize readings. The mission to 300m had an assent speed of 2.5m/s and a decent speed of 1.5m/s. The entire flight was flown autonomously.

We had to abort the flight early on because of a dented prop that was causing excessive vibrations.

Flight 3 (Iris+)

Battery Number: 9

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 11:09:29 UTC

Left 3m hover: 11:09:54 UTC

Reached 100m: --------- UTC

Reached 200m: --------- UTC

Reached 300m: --------- UTC

Started decent: 11:10:37 UTC

Landed: 11:11:42 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 300m. We will take off and hover at 3m to aspirate the sensors and stabilize readings. The mission to 300m had an assent speed of 2.5m/s and a decent speed of 1.5m/s. We landed by activating the RTL once the copter had stabilized at 10m. The entire flight was flown autonomously.

We had to abort the flight early on because of a vibration error. We attempted to fix it by duct taping the hatch closed.

Flight 4 (Iris+)

Battery Number: 9

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 11:13:49 UTC

Landed: 11:15:25 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 20m. To asses the integrity of our hot fix of the hatch. The repair did not solve the issue and we had to land in order to swap out the hatches.

Flight 5 (Iris+)

Battery Number: 1

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 11:46:23 UTC

Left 5m hover: 11:46:48 UTC

Reached 100m: 11:47:40 UTC

Reached 200m: ---------- UTC

Reached 300m: ---------- UTC

Started decent: 11:48:47 UTC

Landed: 11:51:05 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 300m. We will take off and hover at 5m to aspirate the sensors and stabilize readings. The mission to 300m had an assent speed of 2.5m/s and a decent speed of 1.5m/s. The entire flight was flown autonomously.

Vibration error forced us to abort early again

Flight 6 (Iris+)

Battery Number: 1

Windsondes: 740, 737, 733 & 742

Start Battery: 12.4 V

Start Direction: 10° N

Ascent Start: 11:59:33 UTC

Left 5m hover: 12:00:02 UTC

Reached 100m: ---------- UTC

Reached 200m: ---------- UTC

Reached 300m: ---------- UTC

Max Height: 70m

Started decent: 12:01:27 UTC

Landed: 12:02:04 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 300m. We will take off and hover at 5m to aspirate the sensors and stabilize readings. The mission to 300m had an assent speed of 2.5m/s and a decent speed of 1.5m/s. The entire flight was flown autonomously.

Vibration error forced us to abort early again

Flight 7 (Iris+)

Battery Number: 2

Start Battery: 12.0 V

Start Direction: 100° E

Ascent Start: 12:16:13 UTC

Max Height: 195m

Landed: 12:21:05 UTC

End Battery: 11.7 V

Remarks: The flight plan was to fly to 50m. To see if removing the sensors helped fix the vibe issue. It did not really do anything.

Flight 8 (Iris+)

Battery Number: 2

Start Battery: 11.7 V

Start Direction: 100° E

Ascent Start: 12:45:40 UTC

Max Height: 185m

Landed: 12:49:34 UTC

End Battery: 11.3 V

Remarks: The flight plan was to fly to 50m. To see if securing the once broken leg would solve any issues. It did not.

Flight 9 (Solo)

Battery Number: 1

Start Battery: 86%

Start Direction: 100° E

Ascent 1 Start: 12:59:24 UTC

Max Height: 13:00:33UTC

Landed: 13:01:41 UTC

Ascent 2 Start: 13:01:51 UTC

Max Height: 13:03:00UTC

Landed: 13:04:11 UTC

Ascent 3 Start: 13:04:22 UTC

Max Height: 13:05:31UTC

Landed: 13:06:41 UTC

Ascent 4 Start: 13:06:50 UTC

Max Height: 13:07:58 UTC

Landed: 13:09:09 UTC

End Battery: 33%

Remarks: Plan is to fly to 120m and down. We will fly to 120m at full throttle and come down by hitting the RTL button. We will do this four times.

Flight 10 (Solo)

Battery Number: 2

Start Battery: 86%

Start Direction: 100° E

Ascent 1 Start: 13:14:05 UTC

Max Height: 13:15:10

Landed: 13:16:22 UTC

Ascent 2 Start: 13:16:30 UTC

Max Height: 13:17: 38 UTC

Landed: 13:18:50 UTC

Ascent 3 Start: 13:18:59 UTC

Max Height: 13:20:07 UTC

Landed: 13:21:16 UTC

Ascent 4 Start: 13:21:27 UTC

Max Height: 13:22:35 UTC

Landed: 13:23:46 UTC

End Battery: 33%

Remarks: Plan is to fly to 120m and down. We will fly to 120m at full throttle and come down by hitting the RTL button. We will do this four times.

Flight 11 (Iris+)

Battery Number: 3

Start Battery: 12.4 V

Start Direction: 100° E

Ascent Start: 13:43:21 UTC

Max Height: 195m

Landed: 13:43:51 UTC

End Battery: 11.7 V

Remarks: The flight plan was to fly to 100m with peg legs to see if the long legs were causing vibration and EKF issues. Conclusion: We still have issues. This requires more investigation.