| **MISSION PLAN** | | | |
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| **FLIGHT ID** | 20230920I1 | **STORM** | AL15/Nigel |
| **MISSION ID** | WC15A | **TAIL NUMBER** | NOAA 43 |
| **TASKING** | HRD | **PLANNED PATTERN** | Mod. Figure-4 |
| **MISSION SUMMARY** | | | |
| **TAKEOFF [UTC]** | 1348 | **LANDING [UTC]** | 2110 |
| **TAKEOFF LOCATION** | TXKF | **LANDING LOCATION** | TXKF |
| **FLIGHT TIME** | 7.4 | **BLOCK TIME** | 7.6 |
| **TOTAL REAL-TIME RADAR ANALYSES**  **(Transmitted)** | 3 (3) | **TOTAL DROPSONDES Deployed (Transmitted)** | 13 (13) regular sondes,  10 (10) IR sondes, 12 Skyfora stream sondes |
| **OCEAN EXPENDABLES (Type)** | 10 (8) AXBTs | **sUAS (Type)** | Altius-600 (launch failed) |
| **APHEX EXPERIMENTS / MODULES** | RICO SUAVE  Tail Doppler Radar Dual-PRF in Hurricanes Experiment  Stratiform Spiral Module (SSM) | | |
| **HRD CREW MANIFEST** | | | |
| **LPS ONBOARD** | Alaka | **LPS GROUND** | Hazelton/Dunion |
| **TDR ONBOARD** | Alaka | **TDR GROUND** | Reasor |
| **ASPEN ONBOARD** | Sippel | **ASPEN GROUND** | n/a |
| **NESDIS SCIENTISTS** | n/a | | |
| **GUESTS (Affiliation)** | Cione (HRD), Wadler (ERAU), Dana (Area-I), Patrick (Area-I), Kim (Skyfora) | | |
| **AOC CREW MANIFEST** | | | |
| **PILOTS** | Rannenberg/Palmer/Keith | | |
| **NAVIGATOR** | Miller | | |
| **FLIGHT ENGINEERS** | Darby/Tyson | | |
| **FLIGHT DIRECTOR** | Kalen/Lundry | | |
| **DATA TECHNICIAN** | Richards | | |
| **AVAPS** | Wernecke/Underwood | | |

| **PRE-FLIGHT** | |
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| **Flight Plan** |  |
| **Expendable Distribution** | *15 sondes (4 turn, 4 midpoints, 2 centers, 4 RMW), 1 MP spiral*  *10 AXBTs*  *Altius on first center pass* |
| **Preflight Weather Briefing** | *Nigel looks somewhat less organized than yesterday, with some erosion of the core (possibly due to dry air).* |
| **Instrument Notes** | *Instruments appear to be working normally* |

| **IN-FLIGHT** | |
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| **Time [UTC]** | **Event** |
| 1348 | Take-off from TXKF |
| 1418 | Altius Pre-Launch Checklist simulation |
| 1427 | Altius Launch Execution Checklist simulation |
| 1445 | LPS confirmed that TDR is up and display looks good |
| 1458 | We removed BTs from the midpoint drops. They are all Ch. 12 and the EP/MP are too close together. The BTs were moved to later endpoints (on passes 3 & 4) |
| 1507 | The 2nd pass will start in the NW |
| 1536 | The band that we are about to intercept has echo tops up to 10 km with an anvil stretching overhead. Consistent for this outer band |
| 1537 | IP1 (S), IR sonde 1, Stream sonde 1, BT 1 |
| 1545 | Nothing much ahead of us. Eyewall appears to be open to the south and southeast |
| 1547 | Midpoint S, Regular Sonde 1 |
| 1551 | RMW (S), stream sonde 1, reg. sonde 2 |
| 1602 | Unfortunately, the Altius safety is not releasing properly so it can not be launched |
| 1602 | Center 1, IR sonde 2, Stream sonde 3, BT 2 |
| 1608 | RMW (N) reg. sonde 3 |
| 1620 | EP1 (N), IR sonde 3, Stream sonde 4, BT 3  Skipped midpoint - too close to RMW |
| 1638 | No Altius launch |
| 1639 | IP2 (NW), IR sonde 4, BT 4 |
| 1656 | 8 stream sondes were intended for rapid launch at this RMW (W), but they couldn't get the system ready in time so we are only doing a regular sonde at this RMW and will try the stream sonde 8-pack on a different RMW |
| 1657 | RMW (W) reg. sonde 4 |
| 1703 | center, IR sonde 5, reg. sonde 5, BT 5 |
| 1713 | RMW (SE), reg sonde 6 |
| 1718 | MP (SE), reg. sonde 7 |
| 1727 | EP2 (SW), IR sonde 6, BT 6 |
| 1728 | Coordinating for dual TDR legs |
| 1759 | After we reach the center, both planes will repo to set up the orthogonal pass targeting the N eyewall |
| 1800 | IP3 (NE), IR sonde 7, BT 7 |
| 1809 | 8 Stream sondes released rapidly in the NE RMW (# 5-12) |
| 1810 | RMW (NE), reg. sonde 8 |
| 1816 | Center, IR sonde 8, reg. sonde 9, BT 8 |
| 1824 | RMW (E), reg. sonde 10 |
| 1838 | Planning to turn W to do dual TDR coordination |
| 1838 | IP4, IR sonde 9, BT 9 |
| 1846 | RMW (E), reg. sonde 11 |
| 1851 | center-ish (N of true center), reg. sonde 12 |
| 1908 | Dual-TDR coordination went well this time. Great coordination: 43 was in the eye while 42 was in the N eyewall and then 42 was in the eye while 43 was in the W eyewall. Two-for-one! |
| 1904 | RMW (W), reg. sonde 13 |
| 1913 | EP4 (W), IR sonde 10, BT 10 |
| 1915 | Canceled the microphysics spiral because not enough fuel to deviate to a stratiform region to our north. |
| 2110 | Land at TXKF |
|  | << INSERT ADDITIONAL ROW AS NEEDED >> |

| **POST-FLIGHT** | |
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| **Mission Summary** | *The ground radar support noted that this is not an ideal case for the two-plane TDR comparison .*  *After some early coordination challenges, we were able to get a successful dual-TDR pass between N42 and N43 on the final legs.*  *Nigel appeared to have grown larger since yesterday’s flight, but the peak wind had come down despite the pressure remaining steady.* |
| **Actual Standard Pattern Flown** | *Butterfly pattern with some additional legs for dual-TDR coordination* |
| **APHEX Experiments / Modules Flown** | *Coordination between NOAA42 and NOAA43 for a two-plane mission for calibration/validation.* |
| **Plain Language Summary** | 1. *We flew a successful mission into Hurricane Nigel as the storm was starting to recurve over the North Atlantic.* 2. *This mission had a successful coordination between NOAA42 and NOAA43 to compare radar data for better calibration and interpretation of TDR wind data in future flights.* |
| **Instrument Notes** | *Instruments worked OK for the most part. The sUAS launch did not work. Issue with WSRA for first part of flight that resulted in data dropouts. Problem was resolved about ⅔ of the way through the flight.* |
| **Final Mission Track** |  |