| **MISSION PLAN** | | | |
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| **FLIGHT ID** | 20240816I1 | **STORM** | AL052024/ERNESTO |
| **MISSION ID** | WD05A | **TAIL NUMBER** | NOAA-43 |
| **TASKING** | HRD | **PLANNED PATTERN** | Butterfly |
| **MISSION SUMMARY** | | | |
| **TAKEOFF [UTC]** | 1244 | **LANDING [UTC]** | 2007 |
| **TAKEOFF LOCATION** | Wilmington | **LANDING LOCATION** | Lakeland |
| **FLIGHT TIME** | 07:23 | **BLOCK TIME** |  |
| **TOTAL REAL-TIME RADAR ANALYSES**  **(Transmitted)** | 0 | **TOTAL DROPSONDES Deployed (Tx to GTS)** | 18 (17) |
| **OCEAN EXPENDABLES deployed (good)** | AOC AXBTs: 3 (0) | **sUAS (Type)** | 2 (S0) |
| **APHEX EXPERIMENTS / MODULES** | RICO SUAVE/sUAS & CHAOS | | |
| **HRD CREW MANIFEST** | | | |
| **LPS ONBOARD** | J. Zhang, Montgomery | **LPS GROUND** | Hazelton/Looney |
| **TDR ONBOARD** | n/a | **TDR GROUND** | n/a |
| **ASPEN ONBOARD** | n//a | **ASPEN GROUND** | Ko |
| **NESDIS SCIENTISTS** | n/a | | |
| **GUESTS (Affiliation)** | Mikal Montgomery , Jack Elston (Blackswift), Josh Fromm (Blackswift) | | |
| **AOC CREW MANIFEST** | | | |
| **PILOTS** | Abitbol (primary), Wood/Tarabehhi (co pilots) | | |
| **NAVIGATOR** | Schaefer | | |
| **FLIGHT ENGINEERS** | Stokes/Dihoc | | |
| **FLIGHT DIRECTOR** | Kalen | | |
| **DATA TECHNICIAN** | McAlister | | |
| **AVAPS** | Keller | | |

| **PRE-FLIGHT** | |
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| **Flight Plan** | *Butterfly pattern.* |
| **Expendable Distribution** | *15 sondes, 2 sUAS, 3 BTs* |
| **Preflight Weather Briefing** | *Ernesto is a bit sheared this morning, as a trough passes by to the north. It is approaching Bermuda as a Category 2 hurricane.* |
| **Instrument Notes** | *No issues.* |

| **IN-FLIGHT** | |
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| **Time [UTC]** | **Event** |
| 1244 | Take off from Wilmington |
| 1251 | Lev updated SD-1068 is near WP3 at 30.90363 N, 65.88236 W. Also, SD-1031 (further E) is at 31.16935 N, 64.57732 W |
| 1318 | Lev: SD-1068 is ~130 n mi from the center and is already into 7 m wave |
| 1320 | Dry run: S0 pre-launch checklist, went well |
| 1327 | Jun updated Joe Cione planned s0 flight patterns through Lev. 1st S0 will be launched in the center of first pass (1-2). 2nd S0 will be launched at 4 or 5. |
| 1410 | MW pass (a little old now) shows erosion of the core due to shear |
|  |  |
|  |  |
| 1435 | MMR Issues |
| 1437 | Sonde 1, endpoint west, IP |
| 1446 | Sonde 2, midpoint west |
| 1455 | UAS out, Sonde 3, RMW (ish), Combo |
| 1457 | Established comms with SUAS |
| 1500 | Sonde 4, center, combo drop (BT failed) |
| 1508 | S0 measured > 70 kt |
| 1508 | Sonde 5, RMW E |
| 1510 | Sonde 6 |
| 1515 | S0 measured 105 kt/120 kt |
| 1522 | Sonde 7, endpoint E |
| 1534 | S0 still at 60% battery |
| 1534 | Sonde 8, endpoint NE, inbound, splash 30 km from saildrone, measuring 32 kt winds |
| 1537 | Flight within 29 n mi of the saildrone |
| 1545 |  |
| 1544 | Sonde 9, midpoint NE |
| 1545 | S0 10 more min at 200 m, then 100m, then center fix |
| 1550 | Sonde 10, RMW NE |
| 1557 | Sonde 11, Center |
| 1610 | Sonde 12, midpoint SW |
| 1611 | Sonde 13, backup for midpoint SW |
| 1612 | S0 1 splashed, 8 m |
| 1617 | Sonde 14, endpoint SW |
| 1623 | S0 2 launched with sonde and BT  Sonde 15  BT failed (all failed today) |
| 1638 | Sonde 16, endpoint SE, inbound |
| 1639 | Bumpy SE side |
| 1647 | Sonde 17, midpoint SE |
| 1655 | S0 #2 measuring 90-95 kt winds |
| 1703 | Sonde 18, center |
| 1737 | Descending S0 #2 to 50 m to try center fix again |
| 1742 | Testing range of S0 #2 (at 50m now) and flying home |
| 1743 | S0 winds 15 kt now |
| 1745 | Lost comms with S0 |
|  | << INSERT ADDITIONAL ROW AS NEEDED >> |

| **POST-FLIGHT** | |
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| **Mission Summary** | *We flew a successful research pattern in Hurricane Ernesto in the SW Atlantic.*  *We did two successful sUAS deployments, one starting in the eyewall and circling most of it, and a second one in the inflow further out that spiraled into the eyewall.*  *We saw winds as high as 120 kt, and a gust to 139 kt.*  *The first S0 flew for 77 minutes, and the second for 80 minutes.*  *The storm was clearly feeling the effects of SW shear but was able to fire a little more convection towards the end and symmetrize a bit more.* |
| **Actual Standard Pattern Flown** | *Butterfly* |
| **APHEX Experiments / Modules Flown** | *RICO SUAVE/sUAS & CHAOS* |
| **Plain Language Summary** | 1. *We flew a successful research mission in Hurricane Ernesto that included the deployment of two uncrewed systems.* 2. *These sUAS sampled winds in the lowest part of the atmosphere where the P3 cannot navigate safely.* |
| **Instrument Notes** | *The MMR was in and out.* |
| **Final Mission Track** |  |