| **MISSION PLAN** | | | |
| --- | --- | --- | --- |
| **FLIGHT ID** | 20230908H1 | **STORM** | AL13/LEE |
| **MISSION ID** | 0513A | **TAIL NUMBER** | NOAA 42 |
| **TASKING** | NHC-EMC TDR | **PLANNED PATTERN** | Butterfly |
| **MISSION SUMMARY** | | | |
| **TAKEOFF [UTC]** | 2123 | **LANDING [UTC]** | 0452 |
| **TAKEOFF LOCATION** | St. Croix | **LANDING LOCATION** | St. Croix |
| **FLIGHT TIME** | 7.5 | **BLOCK TIME** | 7.7 |
| **TOTAL REAL-TIME RADAR ANALYSES**  **(Transmitted)** | 3 (3) | **TOTAL DROPSONDES Deployed (Transmitted)** | 32 (27) |
| **OCEAN EXPENDABLES (Type)** | 4 AXBTs | **sUAS (Type)** | n/a |
| **APHEX EXPERIMENTS / MODULES** | FLAIMS, Ocean Winds | | |
| **HRD CREW MANIFEST** | | | |
| **LPS ONBOARD** | Hazelton | **LPS GROUND** | None |
| **TDR ONBOARD** | Hazelton | **TDR GROUND** | Gamache |
| **ASPEN ONBOARD** | Sellwood | **ASPEN GROUND** |  |
| **NESDIS SCIENTISTS** | Chang, Sapp, Jelenak | | |
| **GUESTS (Affiliation)** | 2 Officials from the Government of the USVI | | |
| **AOC CREW MANIFEST** | | | |
| **PILOTS** | Doremus/Rannenberg/Palmer | | |
| **NAVIGATOR** | Hough/Schaeffer | | |
| **FLIGHT ENGINEERS** | Stokes/Gee | | |
| **FLIGHT DIRECTOR** | Zawislak/Parrish | | |
| **DATA TECHNICIAN** | McAlister | | |
| **AVAPS** | Waggoner/Santoni | | |

| **PRE-FLIGHT** | |
| --- | --- |
| **Flight Plan** | *We are flying a TDR butterfly pattern with the possibility of adding on legs for a FLAIMS module or NESDIS work.* |
| **Expendable Distribution** | *31 sondes, 4 BTs* |
| **Preflight Weather Briefing** | *Lee is a strong Category 4 hurricane, weakening slightly from earlier after dealing with some SW shear undercutting the outflow.*  *The storm appears to have a shrinking (collapsing?) inner eye that is becoming less apparent on geostationary satellite imagery.* |
| **Instrument Notes** | *The MMR location component is not working. We are planning to fly just with the nose radar for as long as the crew is comfortable.* |

| **IN-FLIGHT** | |
| --- | --- |
| **Time [UTC]** | **Event** |
| 2123 | Take-off from St. Croix |
| 2228 | *Descent to 8 kfts* |
| 2248 | IP From SW, Endpoint Sonde 1. Some dry air noted on this sonde. |
| 2300 | Midpoint Sonde 2 |
| 2306 | Small eye ahead of us on radar |
| 2312 | RMW Sonde 3 |
| 2313 | RMW Sonde 4 |
| 2313 | RMW Sonde 5 |
| 2316 | RMW Sonde 6 |
| 2317 | RMW Sonde 7 |
| 2318 | RMW Sonde 8 |
| 2329 | Midpoint Sonde 9 |
| 2340 | Endpoint Sonde 10 |
| 0000 |  |
| 0010 | Endpoint Sonde 11 |
| 0022 | Midpoint Sonde 12 |
| 0031 | RMW sonde 13 |
| 0031 | RMW sonde 14, lots of eyewall lightning |
| 0032 | RMW Sonde 15 |
| 0033 | RMW Sonde 16 |
| 0035 | Center Sonde 17, Combo Drop with BT  Inner eye has totally collapsed |
| 0037 | RMW Sonde 18 |
| 0040 |  |
| 0048 | Midpoint Sonde 19, 20 (Backup) |
| 0101 | Endpoint Sonde 21 |
| 0124 | Endpoint Sonde 22, inbound from SE |
| 0133 | Fascinating remnant of the inner eye ahead |
| 0137 | Midpoint Sondhe 23 |
| 0140 | Eyewall gone on S side |
| 0144 | RMW Sonde 24 S |
| 0145 | RMW Sonde 25 S |
| 0147 | RMW Sonde 26 S |
| 0148 | Center Sonde 27, Combo Drop, Eyewall lightning |
| 0149 | RMW Sonde 28 |
| 0149 | RMW Sonde 29 |
| 0149 | RMW Sonde 30 |
| 0201 | Midpoint Sonde 31, Combo Drop |
| 0209 | Preparing to do some extra NESDIS legs |
| 0217 | Starting inbound from NW for NESDIS legs |
| 0330 | Heading back west to STX |

| **POST-FLIGHT** | |
| --- | --- |
| **Mission Summary** | *We flew a successful EMC TDR mission in Major Hurricane Lee. The storm appeared to be weakening due to the combination of some southwesterly shear and perhaps an ongoing eyewall replacement cycle. During the flight the small inner eye basically collapsed.* |
| **Actual Standard Pattern Flown** | *Butterfly* |
| **APHEX Experiments / Modules Flown** | *[Linked to HFP Plan; fill in regardless of whether the mission was operationally or research tasked]* |
| **Plain Language Summary** | 1. *We flew a successful TDR mission into Hurricane Lee.* 2. *The storm was weakening somewhat unexpectedly during the mission.* |
| **Instrument Notes** | *The MMR directional/navigation components were not working correctly.* |
| **Final Mission Track** |  |