| **MISSION PLAN** | | | |
| --- | --- | --- | --- |
| **2FLIGHT ID** | 20240705H1 | **STORM** | AL02 / Beryl |
| **MISSION ID** | 2202A | **TAIL NUMBER** | NOAA-42 |
| **TASKING** | NHC/EMC TDR | **PLANNED PATTERN** | Butterfly |
| **MISSION SUMMARY** | | | |
| **TAKEOFF [UTC]** | 1957 | **LANDING [UTC]** |  |
| **TAKEOFF LOCATION** | Lakeland | **LANDING LOCATION** | Lakeland |
| **FLIGHT TIME** | Fractional hr, Takeoff to Landing Time | **BLOCK TIME** | Get from onboard LPS or Flight Director |
| **TOTAL REAL-TIME RADAR ANALYSES**  **(Transmitted)** | 3 | **TOTAL DROPSONDES Deployed (Transmitted)** | 11 |
| **OCEAN EXPENDABLES (Type)** | N/A | **sUAS (Type)** | N/A |
| **APHEX EXPERIMENTS / MODULES** | Exact name of the Experiment in the HFP Plan; identify relevant experiments / module even if not a research tasking | | |
| **HRD CREW MANIFEST** | | | |
| **LPS ONBOARD** | Aberson | **LPS GROUND** | Hazelton |
| **TDR ONBOARD** | Aberson | **TDR GROUND** | Alvey |
| **ASPEN ONBOARD** | None | **ASPEN GROUND** | Kaplan, Dunion |
| **NESDIS SCIENTISTS** | None | | |
| **GUESTS (Affiliation)** | None | | |
| **AOC CREW MANIFEST** | | | |
| **PILOTS** | Copare, Palmer, Ellis | | |
| **NAVIGATOR** | Utama | | |
| **FLIGHT ENGINEERS** | Stokes, Dittoe | | |
| **FLIGHT DIRECTOR** | Zawislak, Englert | | |
| **DATA TECHNICIAN** | McCalister | | |
| **AVAPS** | Katz | | |

| **PRE-FLIGHT** | |
| --- | --- |
| **Flight Plan** |  |
| **Expendable Distribution** | *Endpoints, midpoints, centers. Modify as needed for land.* |
| **Preflight Weather Briefing** | *Beryl is emerging off the Yucatan Peninsula tonight. The core has definitely been eroded after passage over land, although outflow is healthy and the MLC still appears intact.*  *There is some dry air to the west, associated with an upper low. It remains to be seen if this will work its way into the core.* |
| **Instrument Notes** | *We are switching to the minisondes tonight.* |

| **IN-FLIGHT** | |
| --- | --- |
| **Time [UTC]** | **Event** |
| 1957 | Take off from KLAL |
| 2132 | Descending to IP |
| 2157 | Drop 1 IP N |
| 2211 | Drop 2 MP N |
| 2212 | Noticing some of the SFMR HDOBs are zeroing out |
| 2222 | Drop 3 Center |
| 2223 | Looks like the center is right on the coast |
| 2253 | First jobfile sent, turning downwind |
| 2328 | Center sonde 4 |
| 2336 | First TDR analysis shows notable S-N tilt |
| 2341 | Midpoint sonde 5 |
| 2352 | Endpoint NW sonde 6 |
| 0012 | Endpoint SW Sonde 7 (IP) |
| 0024 | Midpoint SW Sonde 8 |
| 0037 | Center sonde 9 |
| 0046 | Worth noting that the SSTs just off the Yucatan are cooler - once the center moves over the warmer water, it may have an easier time re-firing convection. |
| 0050 | MP NE Sonde 10 |
| 0100 | EP NE Sonde 11 |
| 0111 | Science complete, leaving TDR on to paint a strong band. |
| 0127 |  |
| 0142 | Final radar analysis |
|  |  |
|  |  |

| **POST-FLIGHT** | |
| --- | --- |
| **Mission Summary** | *We flew a successful butterfly pattern into Tropical Storm Beryl in the Gulf of Mexico, as it emerged off the Yucatan Peninsula.*  *The storm had become significantly tilted and weakened by the combination of dry air, shear, and interaction with land, with TDR analyses suggesting S-N tilt. All of the strong winds were on the N side of the circulation.*  *Models suggest the tilt should reduce over the next 24-36h, but there are some discrepancies in how quickly the title reduces and how much dry air is entrained into the circulation.* |
| **Actual Standard Pattern Flown** | *Butterfly* |
| **APHEX Experiments / Modules Flown** | *N/A* |
| **Plain Language Summary** | *We flew a TDR mission into now TS Beryl as it came off the Yucatan Peninsula. The system was notably weaker due to land interaction, and the vortex was tilted with height due to wind shear.* |
| **Instrument Notes** | *The SFMR HDOBS still appeared to zero out at times.* |
| **Final Mission Track** |  |