**EARLY STAGE EXPERIMENT**
*Flight Pattern Description*

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**Experiment/Module:** TDR Dual-PRF in Tropical Cyclones Module

**Investigator(s):** Paul Reasor and John Gamache

**Requirements:** TD, TS, Category 1

**Early Stage Science Objective(s) Addressed:**

1) Test new (or improved) technologies with the potential to fill gaps, both spatially and temporally, in the existing suite of airborne measurements in early stage TCs. These measurements include improved three-dimensional representation of the TC wind field, more spatially dense thermodynamic sampling of the boundary layer, and more accurate measurements of ocean surface winds [*APHEX Goal 2*]

**P-3 Pattern #1**

**What to Target:** Tropical cyclone maximum wind region

**When to Target:** Greater than 50% coverage of scatterers within a standard TDR swath [*maximum distance from the flight track to the swath edge is 27 n mi (50 km)*].

**Pattern:** Any standard P-3 pattern with inbound-outbound radial legs. The P-3 flies a short pass through the center of a tropical cyclone. Ideally, execute a single-PRF leg along the same azimuth just before or after a dual-PRF radial leg.

**Flight altitude:** 8-12 kft

**Leg length or radii:** Inbound-outbound radial legs out to 40-50 n mi (75-90 km)

**Estimated in-pattern flight duration:** 0.5-1 h

**Expendable distribution:** No expendables are required.

**Instrumentation Notes:** TDR task settings should be set to utilize 3:2 ratio dual-PRF (2775 and 1850 Hz) during the module. This will extend the Nyquist velocity from 22 m/s to approximately 44 m/s. The primary dual-PRF task should have all other settings be the standard HRD task settings. A couple variations with SQI threshold lower than 0.48 may also be considered (e.g., 0 and 0.3). No TDR products will be transmitted during the module.