**9. G-IV SFMR Validation Module**

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**Mission Description:** Sample the wind speed and rain rate from the G-IV SFMR in coordination with the P-3 SFMR.

**G-IV Module 1**

**What to Target:** Sample various wind and rain regions within a tropical cyclone, including light (< 20 m/s), moderate (20-33 m/s), and strong wind speed regions (> 33 m/s). This strategy will depend on the strength of the TC.

**When to Target:** Because this module depends more on aircraft coordination rather than a specific storm structure or environmental variable, any point in the TC development is acceptable. Various radial and azimuthal positions are desirable, depending on the structure of the TC and limitations of the aircraft. The P-3 and G-IV need to be traveling on the same heading for ~20-25 nmi on either side of the module center point. We would also prefer the G-IV fly at the lower end of its allowable operating speed to provide more time of overflight with the P-3.

**Pattern:** Preferred G-IV Circumnavigation (either hexagon or octagon). Most other patterns are acceptable as well as long as they can overlap with the P-3 for a short period.

**Flight altitude:** 40-45 kft

**Leg length or radii:** Maximum of ~60 nmi, centered on location where the G-IV is directly above the P-3

**Estimated in-pattern flight duration:** ~6-10 minutes for each overlap

**Expendable distribution:** None.

**Instrumentation Notes:** Use the standard SFMR instrument set-up

**P-3 Module 1**

**What to Target:** Same as G-IV Module 1.

**When to Target:** Select a point along a portion of the flight pattern (whether part of the circumnavigation ring, a downwind leg, or inbound/outbound radial pass) for the G-IV to match. The P-3 and G-IV need to be traveling on the same heading for ~20-25 nmi on either side of the module center point.

**Pattern:** P-3 Circumnavigation is preferred to more easily match G-IV. Other patterns are acceptable as long as a small portion of the pattern can overlap with the G-IV.

**Flight altitude:** 10-12 kft

**Leg length or radii:** Maximum of ~45 nmi, centered on location where the G-IV is directly above the P-3

**Estimated in-pattern flight duration:** ~ 6-10 minutes for each overlap

**Expendable distribution:** 1 dropsonde at module center when G-IV directly above the P-3 (required); 2 additional dropsondes at ~10 nmi on either side of the center point (optional).

**Instrumentation Notes:** Use standard SFMR set-up. Also, ensure that the upward looking SFMR is working and collecting data.