**21. Extratropical Transition Experiment**

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**Mission Description:** The mission is designed to monitor interactions between the TC and the midlatitude circulation. The ideal storm will be a poleward-moving hurricane that is offshore the United States mid-Atlantic coastline. The optimal mission is designed to examine the TC core and the TC/midlatitude interface. Aircraft will participate in staggered (12-hly) missions until out of range, because of the possible rapid changes in structure.

**P-3 Module 1**

**What to Target:** Two specific targets are to be sampled during each mission, the TC itself, and the interface between the TC and the environmental flow.

**When to Target:** The systems will be sampled every 12 h from the time it begins the transition to an extratropical cyclone to the time it is out of range of the aircraft, or the system dissipates.

**Pattern:** The patterns would likely be non-standard patterns. At least two passes through the center of the TC will be completed during the mission, though they need not be consecutive. The P-3 will fly as high as possible to avoid hazards such as convective icing. Legs should be of equal length, except that they can be shortened to the south of the storm center if necessary to save time, or shortened due to land.

If extra time is available, important interactions between the midlatitude jet stream and the outflow from the TC occur. This region will be investigated by releasing dropwindsondes every ~120 n mi during this part of the pattern.

**Flight altitude:** as high as safely possible.

**Leg length or radii:** Leg lengths depend on the size of the transitioning system. They should be of equal length, but can be shortened to the south, or due to land.

**Estimated in-pattern flight duration:** 8 h

**Expendable distribution:** 10 dropwindsondes, 10 AXBTs. During passes through the center, dropwindsondes will be deployed at each turn point and at evenly spaced intervals along each leg with optimal spacing near 90 n mi. AXBTs will be deployed at each turn point and at the midpoint of each leg only in the northern semicircle from the cyclone center.

**Instrumentation Notes:** Due to a trapped-fetch phenomenon, the ocean surface wave heights can reach extreme levels ahead of a TC undergoing ET. Therefore, primary importance for the WP-3D in the northeast quadrant of the TC will be the scanning radar altimeter (WSRA) to observe the ocean surface wave spectra, if available. Flight level will be chosen to accommodate this instrument.

**G-IV Module 1**

**What to Target:** Two specific targets are to be sampled during each mission, the TC itself, and the interface between the TC and the environmental flow.

**When to Target:** The systems will be sampled every 12 h from the time it begins the transition to an extratropical cyclone to the time it is out of range of the aircraft, or the system dissipates.

**Pattern:** The patterns would likely be non-standard patterns. At least two passes through the center of the TC will be completed during the mission, though they need not be consecutive. Legs should be of equal length, except that they can be shortened to the south of the storm center if necessary to save time, or shortened due to land.

Ahead of the TC, important interactions between the midlatitude jet stream and the outflow from the TC occur.

**Flight altitude:** at altitude

**Leg length or radii:** Leg lengths depend on the size of the transitioning system. They should be of equal length, but can be shortened to the south, or due to land.

**Estimated in-pattern flight duration:** 8 h

**Expendable distribution:** ~20 dropwindsondes. During passes through the center, dropwindsondes will be deployed at each turn point and at evenly spaced intervals along each leg with optimal spacing near 90 n mi. At the TC-environment interface, dropwindsondes l be released every ~120 n mi.

**Instrumentation Notes:** None