2019 NOAA/AOML/HRD Hurricane Field Program - IFEX

GENESIS STAGE EXPERIMENT
Flight Pattern Descriptions

Experiment/Module: Pouch Evolution during Genesis Experiment

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Requirements: Pre-genesis disturbances (pre-TDs), including NHC-designated "Invests"

Genesis Stage Science Objective(s) Addressed:

1) To investigate the importance of the pouch, including the shear sheath, which tends to indicate a tropical storm, and its relationship to a low-level circulation and organized deep convection within the pouch [*IFEX Goal 3*]

P-3 Pattern 1:

What to Target: The wave-pouch exhibiting scattered convective activity without much organized convective activity. This would the ideal mission investigating the wave pouch, until the center is defined.

When to Target: Every 12 h

Pattern: Standard Lawnmower; extend east-west legs an additional degree longitude (~5 deg. longitude total)

Flight altitude: 20,000 kft

Leg length or radii: 300 n mi (555 km) east-west legs (modified from standard)

Estimated in-pattern flight duration: ~ 5 h

Expendable distribution: Modify standard dropsonde locations for Lawnmower by having 6 drops equally spaced on each east-west leg (~1 deg. spacing) for 24 total drops in the Lawnmower; also 3 drops, one every 1 deg., inbound prior to arrival at IP and heading outbound after exiting the pattern.

Instrumentation Notes: None

P-3 Pattern 2:

What to Target: The wave-pouch of the disturbance, when the center is better defined

When to Target: Every 12 h [*optimal*] or 24 h [*minimal*]

Pattern: Standard Square-spiral

Flight altitude: 20,000 kft

Leg length or radii: N/A

Estimated in-pattern flight duration: ~ 5 h 50 min

Expendable distribution: Modify standard dropsonde locations for the Square-spiral by having a dropsonde at ~1 deg. spacing, for 26 total drops in square-spiral; also 3 drops, one every 1 deg., prior to arrival at IP and after exiting the pattern.

Instrumentation Notes: None

G-IV Pattern 1:

What to Target: The wave-pouch exhibiting scattered convective activity without much organized convective activity. This would the ideal mission investigating the wave pouch, until the center is defined.

When to Target: Every 12 h [*optimal*] or 24 h [*minimal*]

Pattern: Standard Lawnmower; extend east-west legs an additional degree longitude (~5 deg. longitude total)

Flight altitude: 40–45 kft

Leg length or radii: 300 n mi (555 km) east-west legs (modified from standard)

Estimated in-pattern flight duration: ~ 3 h

Expendable distribution: Modify standard dropsonde locations for Lawnmower by having 6 drops equally spaced on each east-west leg (~1 deg. spacing) for 24 total drops in the Lawnmower; also 3 drops, one every 1 deg., inbound prior to arrival at IP and heading outbound after exiting the pattern.

Instrumentation Notes: None

G-IV Pattern 2:

What to Target: The wave-pouch of the disturbance, when the center is better defined

When to Target: Every 12 h [*optimal*] or 24 h [*minimal*]

Pattern: Standard Square-spiral

Flight altitude: 40–45 kft

Leg length or radii: N/A

Estimated in-pattern flight duration: ~ 3 h 20 min

Expendable distribution: Modify standard dropsonde locations for the Square-spiral by having a dropsonde at ~1 deg. spacing, for 26 total drops in square-spiral; also 3 drops, one every 1 deg., prior to arrival at IP and after exiting the pattern.

Instrumentation Notes: None