Tropical Cyclogenesis Experiment

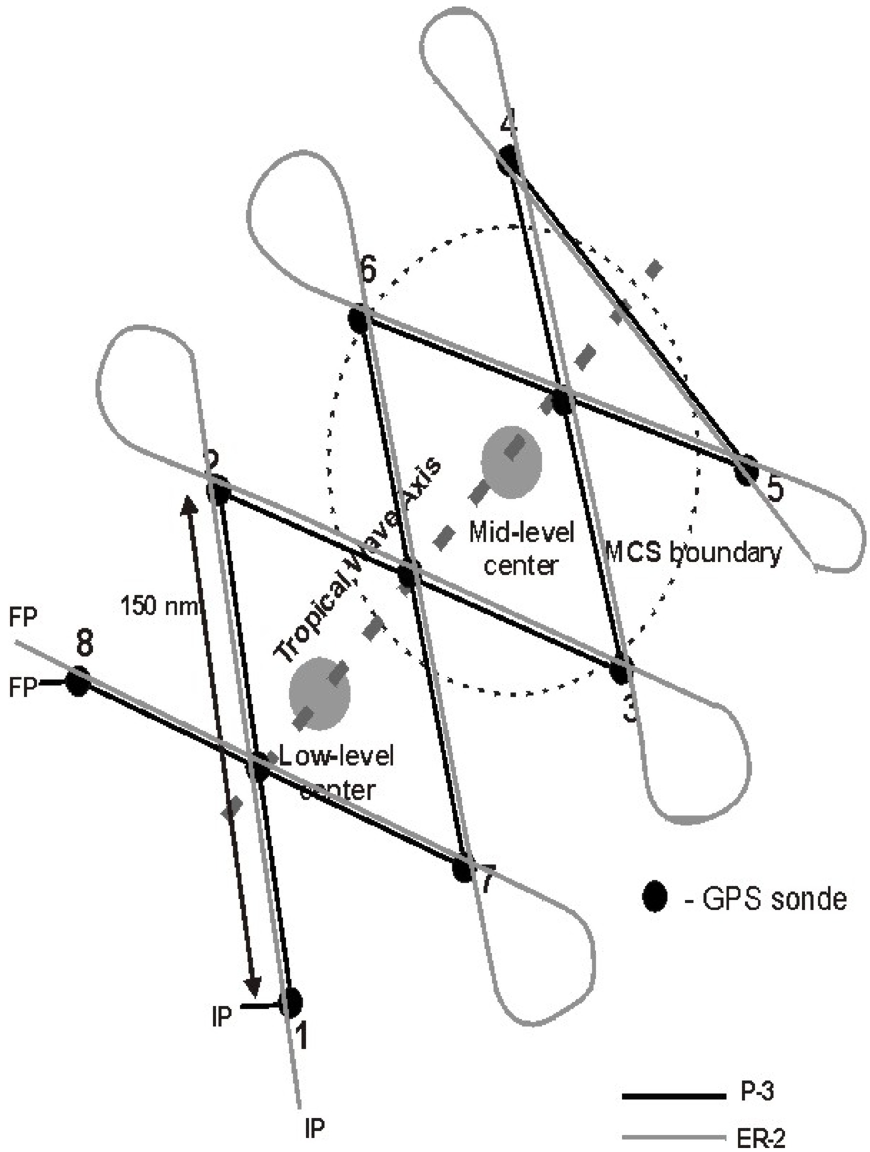

Figure 1. P-3 Vortex survey pattern – Diamond pattern

- Note 1: True airspeed calibration is required.
- Note 2. The pattern is flown with respect to the wave axis, typically inclined at 30-40° from N, or relative to circulation or vorticity centers.
- Note 3. Length of pattern (axis parallel to wave axis) should cover both low- and mid-level vortices, leg lengths range from 150 – 200 nm (275-375 km).
- Note 4. Fly 1-2-3-4-5-6-7-8 at 14,000 ft (4 km) altitude, dropping sondes at all locations denoted by black circles.
- Note 5. Set airborne Doppler radar to scan F/AST on all legs.

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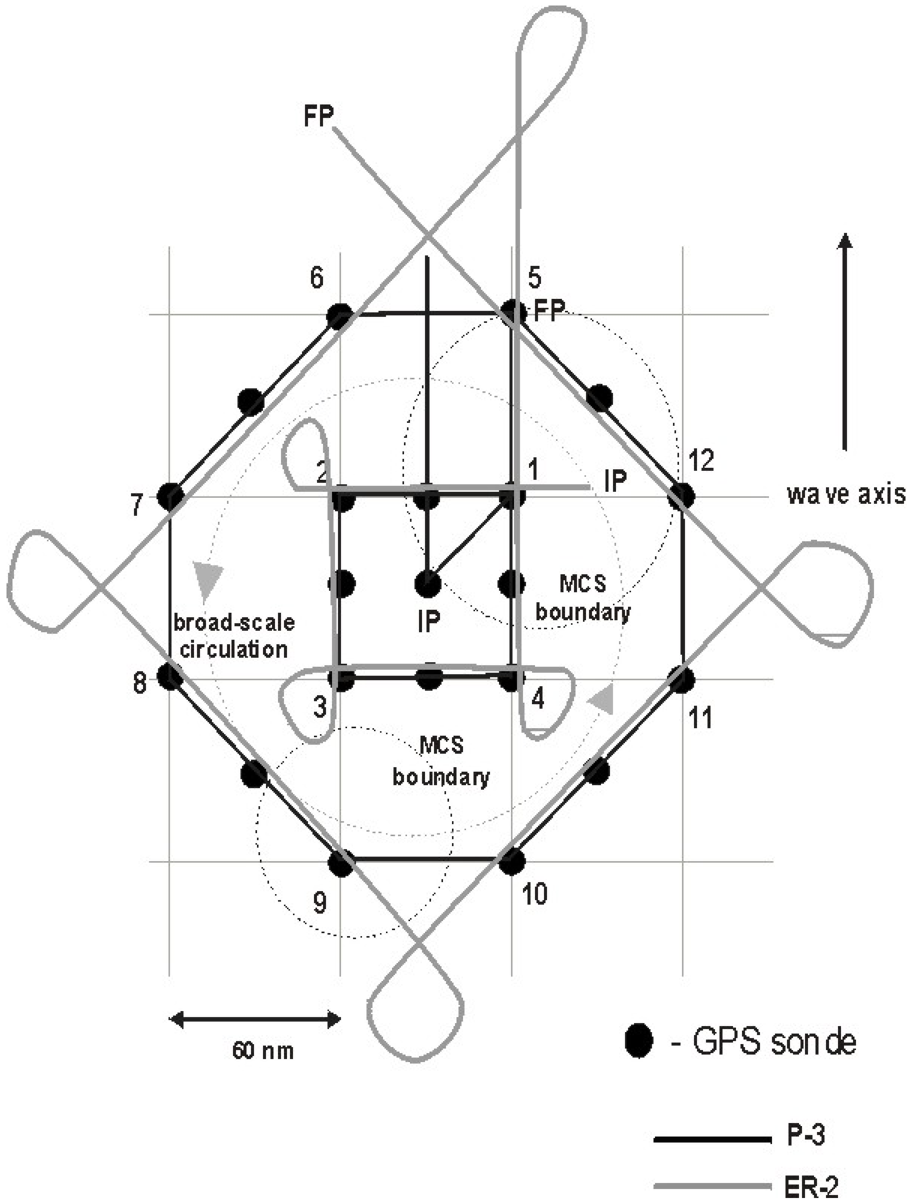

Figure 2. P-3 Vortex survey pattern – Square-spiral pattern

- Note 1. True airspeed calibration is required.
- Note 2. The pattern is flown with respect to the wave axis, typically inclined at 30-40° from N, or relative to circulation or vorticity centers.
- Note 3. Drop sondes at all numbered points. Drops at intermediate points can be omitted if sonde supply is insufficient.
- Note 4. The spacing between the outer spiral and inner box (nominally set to 60 nm (111 km)) can be increased or decreased depending on the size of the disturbance.
- Note 5. Fly 1-2-3-4-5-6-7-8-9-10-11-12 at 14,000 ft (4.0 km) altitude.
- Note 6. Set airborne Doppler radar to scan F/AST on all legs.

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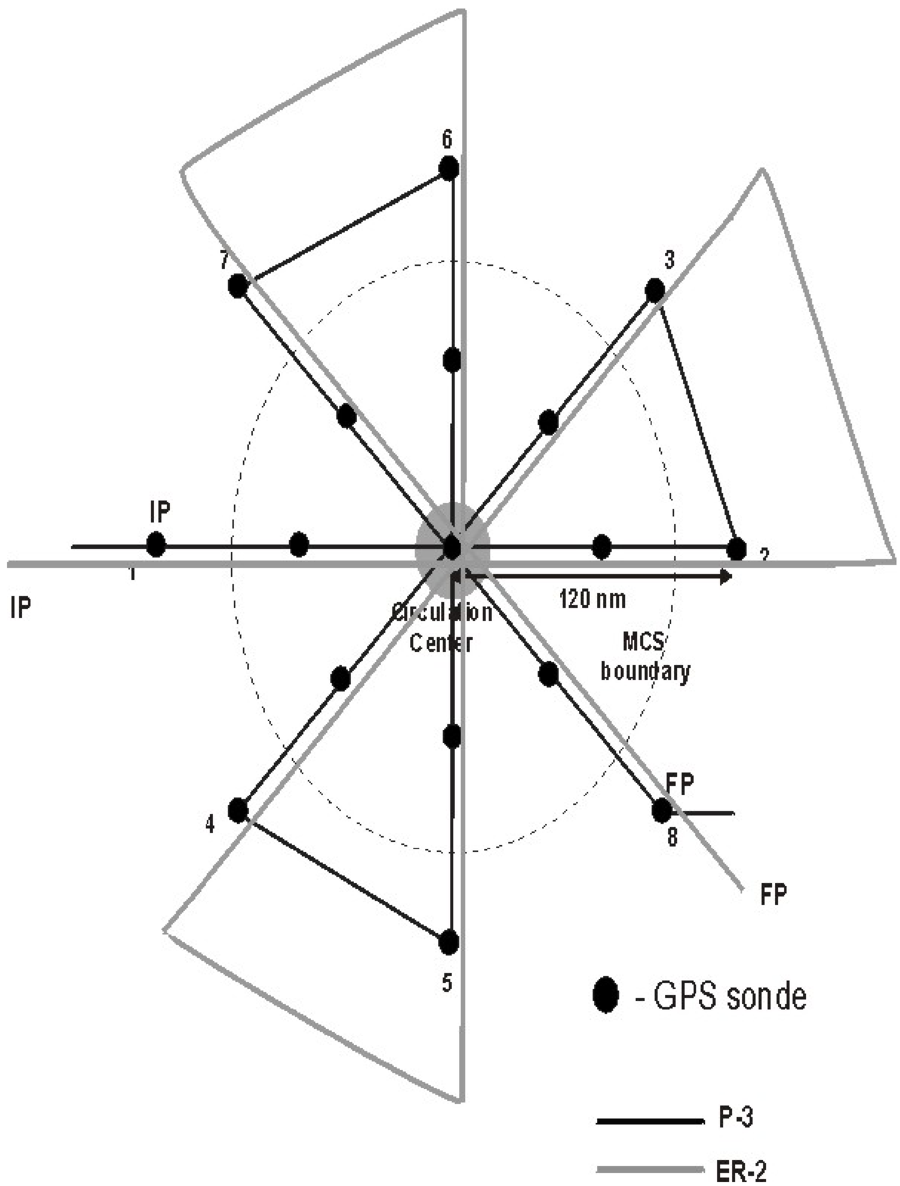

Figure 3a. P-3 Rotating Figure-4 pattern – 8 leg

- Note 1: True airspeed calibration is required.
- Note 2. The pattern may be entered along any compass heading.
- Note 3. Fly 1-2-3-4-5-6-7-8 at 14,000 ft altitude, 60-120 nm (111-225 km) leg length.
- Note 4 Set airborne Doppler radar to scan F/AST on all legs except for portions of those legs coordinated with NASA ER-2.

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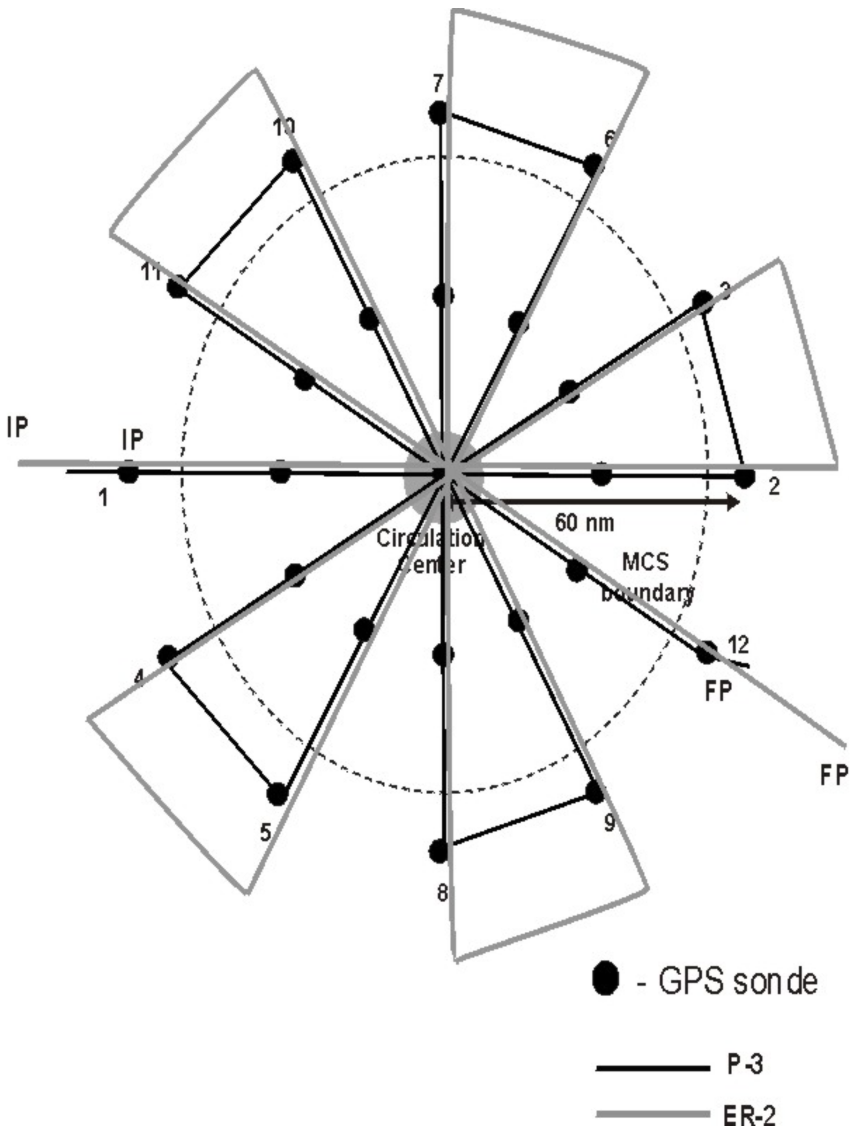

Figure 3b. P-3 Rotating Figure-4 pattern – 12 leg

- Note 1: True airspeed calibration is required.
- Note 2. The pattern may be entered along any compass heading.
- Note 3. Fly 1-2-3-4-5-6-7-8-9-10-11-12 at 14,000 ft altitude, 60-120 nm (111-225 km) leg length.
- Note 4 Set airborne Doppler radar to scan F/AST on all legs except for portions of those legs coordinated with NASA ER-2.

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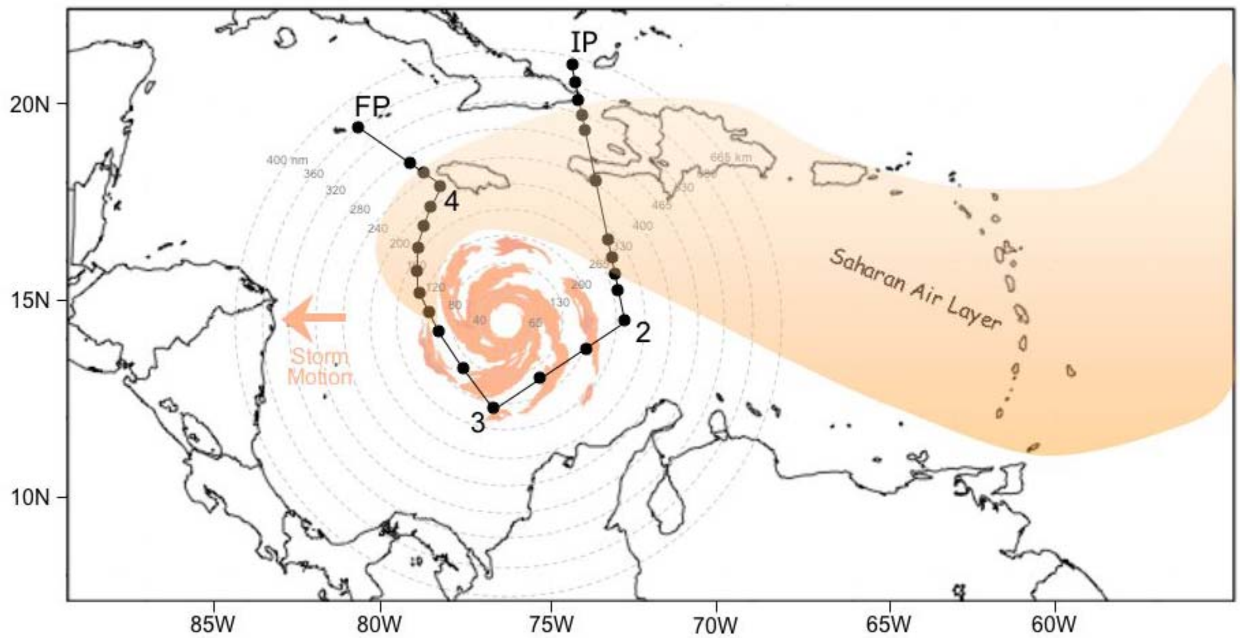

Figure 4. Sample G-IV flight track for a TC embedded in the SAL for most or all of its lifecycle.

- Note 1: During the ferry to the IP, the G-IV should climb to ~200 mb (~41,000 ft) as soon as possible and climb as feasible to maintain the highest altitude for the duration of the pattern.
- Note 2: In order to capture the SAL structure, particular attention should be paid to regions of high moisture gradients across its boundaries (IP-2 and 4-FP).
- Note 3: The TC's low-level circulation may race ahead of its mid-level convection due to the influence of the SAL's mid-level easterly jet.
- Note 4: The SAL's mid-level easterly jet (~20-45 kt at 700 mb/10,000 ft) may be evident from GPS dropwindsondes dropped near the SAL's southern boundary (IP-2).

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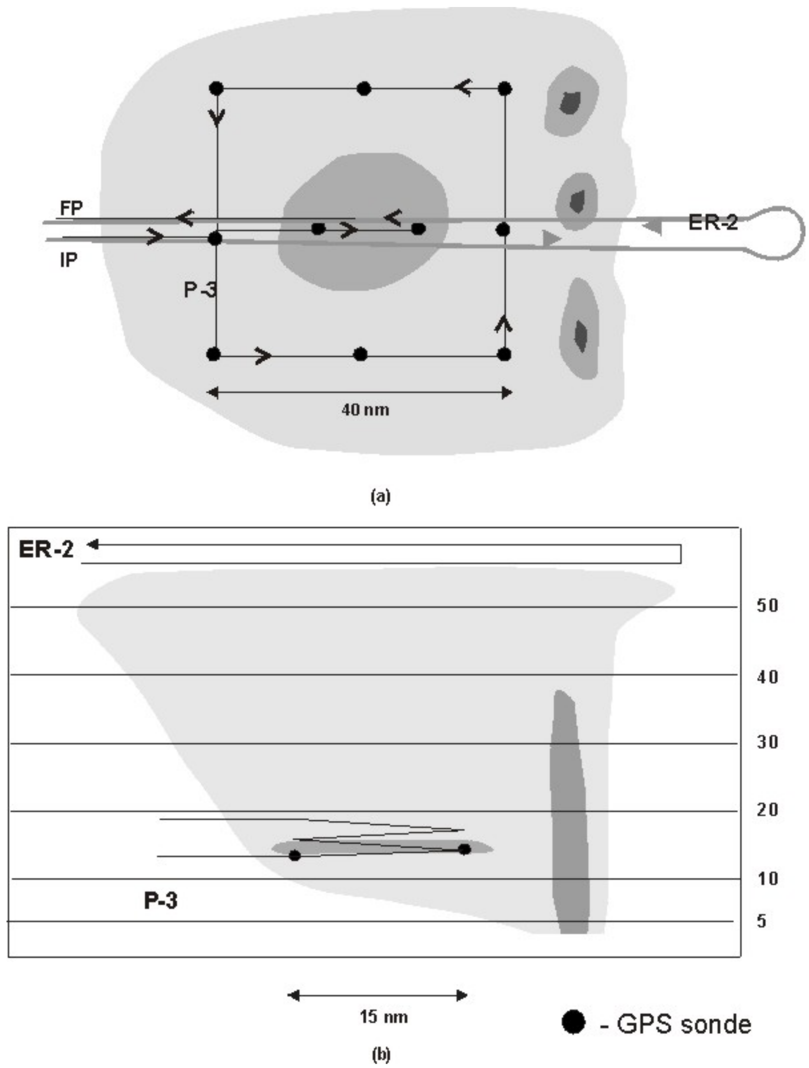

Figure 5. Microphysics module

- Note 1: True airspeed calibration is required.
- Note 2. The pattern may be entered along any compass heading.
- Note 3. The P-3 flies box survey pattern at 14 kft, airborne Doppler set to scan F/AST. Shading denotes reflectivity features; darker shading means higher reflectivity.
- Note 4. At completion of survey pattern, change airborne Doppler to continuous mode, if possible, and head into anvil. Complete series of slanted ascents, beginning at 14 kft and climbing 1 kft during each leg. Each leg not to exceed 15 nm. Stop ascents at 18 kft.
- Note 5: ER-2 flies butterfly pattern at altitude while P-3 conducts survey pattern, then flies leg back and forth aligned with P-3 during P-3 stepped ascents.

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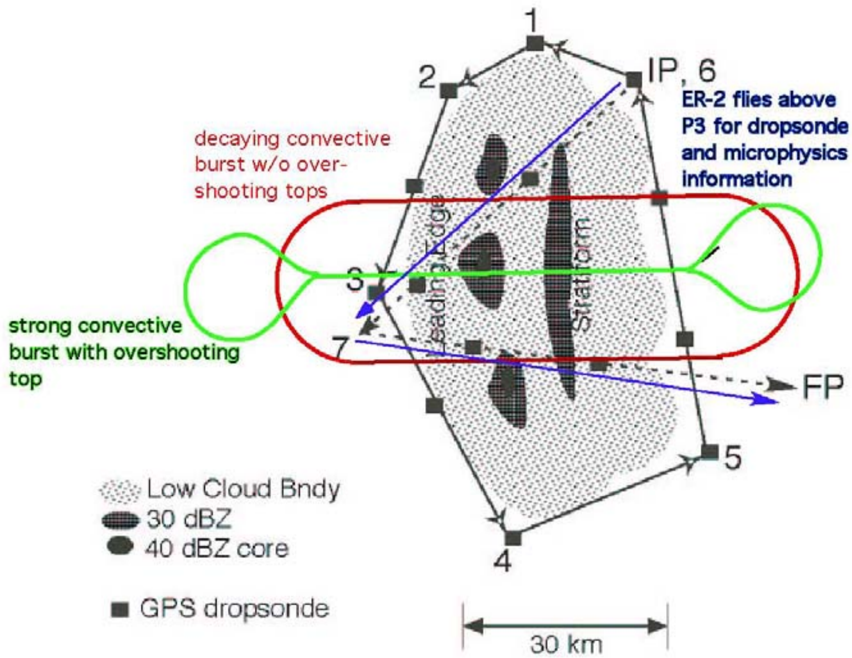

Note 1: Circumnavigation (IP-6) by single P3 at 14,000 ft.

Note 2: Convective crossing (6-7-FP) at xxxx ft.

Note 3: Repeat circumnavigation (time permitting) at low altitude (200-1000 ft.)

Note 4: No GPS sondes for low-altitude option

Figure 6. Convective Burst module