

07/23/02

FC:

Report: All aircraft suppressed day – hoping for late take-off

Summary: The forecast called for redeveloping maritime convection NE of Florida, with cloud tops getting to 12 to 14 km. We expected suppressed convection over the peninsula, with some late sea-breeze cells developing over the west coast.

Aircraft: All

Log:

1831: Take-off
1836: ELDORA on
Flying at 6000ft
1858: Approach small convective cloud
25 40N 81 30W (D) 26 54N 80 42W (F) 26 06N 81W (G)
1905: Turn on holding pattern next to cells
Small convective cell tops ~ 7-8km
1908: Reverse track
1914: Turn too quickly
1918: ELDORA off to fix problem
1919: ELDORA up
1925: Turned around
1927: Nice looking small cell
Tops ~ 10-11km
1929: Turn around
1930: Back on track
Cell smaller at this stage
1947: Weak cells on the coast
Strong deep convection
1952: Turn
Two strong cells along the coast
1956: Back on track but halfway up the line
2000: Turn around
2002: Lined up well
2009: Turn back
2010: Back on line
2013: Strong convection
2018: Turn around
2020: Turn around
Convection quite weak at this stage
2030: Turn around
2032: Small intense isolated cell
Tops ~ 14-15km
2041: Turn around
Few isolated cells
2042: Back in line
2048: Turn radar off to cool it down
Radar lasted 2 hours
2056: ELDORA up
2103: Turn around

2107: Very small intense cell
Convection small and isolated
2124: Past small isolated cell at D – other aircraft worked as well
2126: Back on reverse heading
Looking for sound in fuselodge
2142: NCAR play with radar
RTB
Flying under anvil on the way home
2210: ELDORA off
2212: Land

Mission Reports:

Citation: The Citation took off at 1852Z. The crew flew toward the western ground site at about 30 kft and began running NE-SW legs, ascending to 37 kft and sampling light anvils on the north end of the track. They gradually descended to 29 kft and then spiraled up over the western site to 37 kft, sampling some good clouds on the ascent. Later they spiraled down to 24 kft, at which point the cloud system began breaking up and they returned to base.

ER-2: The recent problem with the ER-2 flaps appears to be fixed now. The ER-2 initially flew a TRMM overpass over the eastern ground site and off the east coast of the peninsula. Most of the remainder of the flight was spent along NE-SW-oriented legs that passed over the western ground site near the south end, and over Lake Okeechobee and near the east coast on the north end. Six dropsondes were launched through a variety of cloud conditions. One notable observation was a significant gravity-wave event over a cumulonimbus cloud near the lake.

P-3: The P-3 took off about 1830Z and flew some NE-SW legs north of the western ground site (in the Ft. Myers area). They later flew some legs oriented NW-SE just off the west coast in the Ft. Myers area. Some aircraft issues brought them back to base around 2200Z.

Proteus: The Proteus took off at 1816Z and flew over the eastern ground site for the TRMM overpass. They lined up on the NE-SW line over the western ground site for the remainder of the flight, in coordination with the high fliers. En route to KWNAF, they flew over the Gulf to the NW of Key West and then landed about 0000Z.

Twin Otter: The Twin Otter took off at 1929Z. They took off flying almost due north toward the western ground site at 5 kft. They descended to 3 kft (below cloud base) and then climbed back up to 4 kft (just in cloud base) near the western ground site. The remainder of the flight was essentially NE-SW-oriented legs centered over the western ground site. Several legs were flown at 5 and 7 kft, followed by a series of legs at 11.5 kft nominally designated for radiation experiments. The Twin Otter returned to base at 2353Z. There were some instrument difficulties associated with heat build-up in the plane while sitting on the tarmac awaiting its late departure time.

WB-57F: The WB-57F took off at 1832Z and passed over the eastern ground site and off the east coast for the TRMM overpass. The remainder of the flight was spent on NE-SW-oriented legs passing over the western ground site. The south end of the flight was SW of the western site over the Gulf; the north end was over Lake Okeechobee. A number of altitudes were sampled on the various legs, and there were many brief encounters with their own contrail. The tropopause was described to be “very round” on this flight, and there was a significant gradient in the tropopause height between about 45 and 51 kft. The WB-57F returned to base at 0017Z.

Summary: The initial plan to sample the maritime convection was scrapped almost immediately after take off, as the maritime system NE of Florida never really got up-to-speed. The high-flying aircraft made early traverses to the east of the peninsula for a TRMM overpass. For the remainder of the mission,

the ER-2, WB-57F, Proteus, Citation, and Twin Otter flew NE-SW-oriented legs over the western ground site, sampling outflow cirrus from convection near Lake Okeechobee. The P-3 was flying to the north of the rest of the planes, in the Ft. Myers area. This flight should provide useful *in situ* measurements for remote-sensing cloud retrieval algorithm development.

Flight Paths & Focus: 180433 221628, rf10

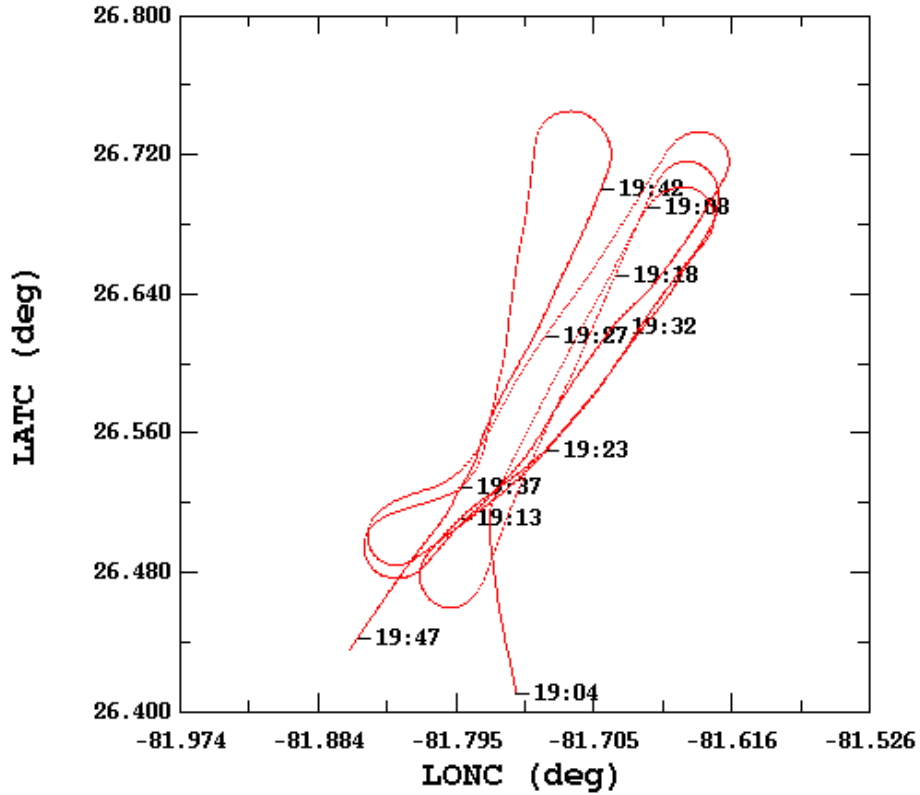
Line 1: 190400 194700 NNE-SSW orientation, north of western ground site Ft Myers area along west coast
marine convection
no coordination
nothing significant
short legs, not much
Quality: Ok/Bad


Part 1: 190400 194700
leg_1.1.1: 190300 190900
leg_1.1.2: 190930 191420
leg_1.1.3: 191450 192030 ELDORA down
leg_1.1.4: 192050 192500 not much
leg_1.1.5: 192550 193000
leg_1.1.6: 193050 193540 nice small cell
leg_1.1.7: 193710 194100
leg_1.1.8: 194140 194700

Line 2: 194630 215820 NW-SE orientation, off west coast Ft Myers area
marine convection-anvil system
no coordination
Quality: Good

Part 1: 194630 215820
leg_2.1.1: 194840 195250 not good lineup
leg_2.1.2: 195450 200030 not good lineup
leg_2.1.3: 200100 200930 good lineup
leg_2.1.4: 201000 201930
leg_2.1.5: 201950 203030 detached anvil
leg_2.1.6: 203050 204150
leg_2.1.7: 204220 205200 ELDORA down
leg_2.1.8: 205300 210410 ELDORA down
leg_2.1.9: 210450 212510 lengthen leg to south between 9-10
leg_2.1.10: 212550 214250 strange loop in leg
leg_2.1.11: 214300 215800 bent leg

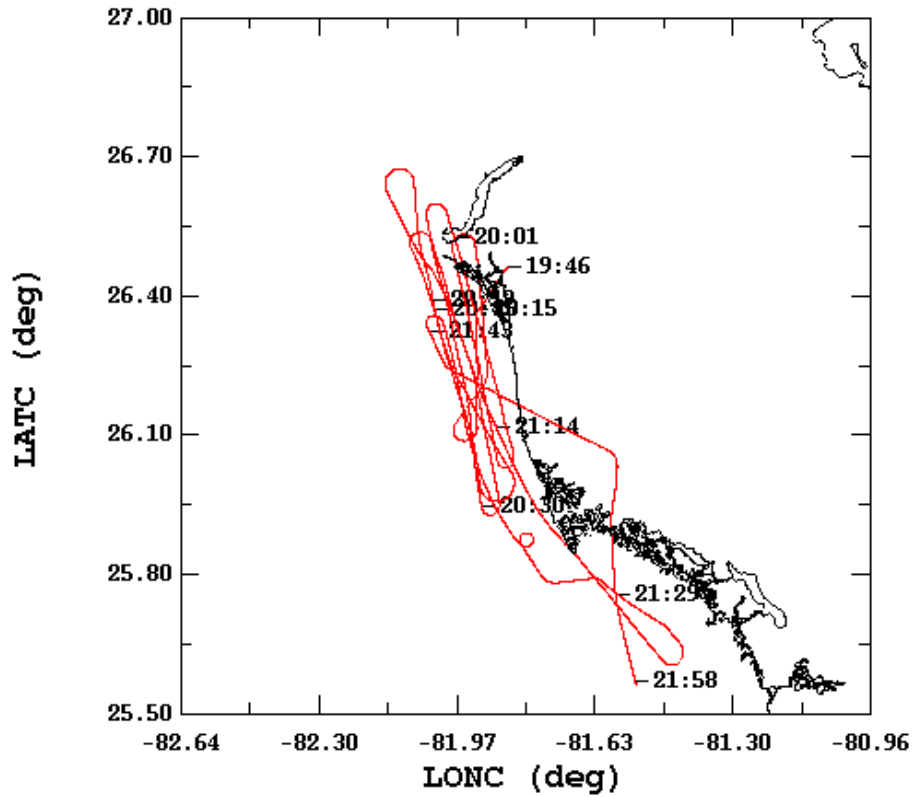
CRYSTAL-FACE, Flight #rf10
07/23/2002, 19:04:00-19:47:00



| | | | | | |
|---|---------------------|--------|-------|--------|--------|
|  | LATC (deg), 1 s/sec | mean | sigma | min | max |
| | LONC (deg), 1 s/sec | 26.59 | 0.08 | 26.41 | 26.74 |
| | | -81.74 | 0.06 | -81.86 | -81.62 |

CRYSTAL-FACE, Flight #rf10

07/23/2002, 19:46:30-21:58:20



| | mean | sigma | min | max |
|-----------------------|--------|-------|--------|--------|
| — LATC (deg), 1 s/sec | 26.17 | 0.25 | 25.56 | 26.67 |
| — LONC (deg), 1 s/sec | -81.88 | 0.15 | -82.14 | -81.42 |