07/21/02

FC:

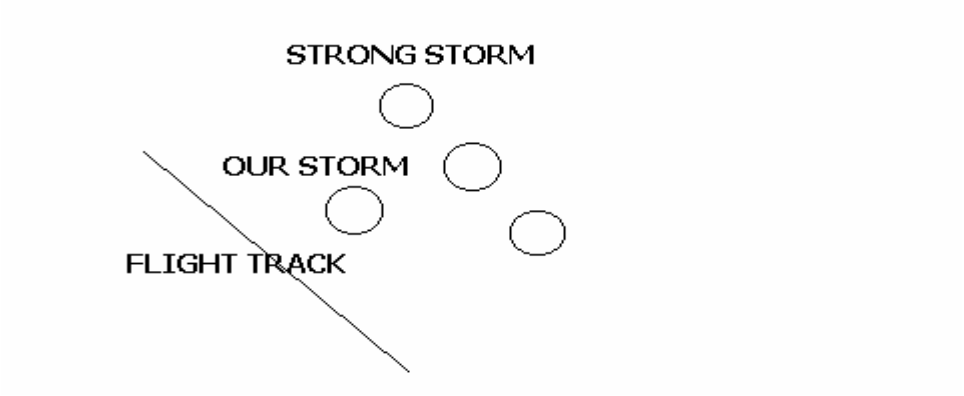
Summary: The forecast for today calls for the earliest convective development along the west coast. Deeper easterly flow should put most of the intense convective activity along the west coast today. The forecast calls for drier air and advection of east coast anvils over the western part of the state, however, possibly suppressing west coast convection until later in the afternoon.

Aircraft: P3, WB-57F, Citation, Twin Otter, Proteus

Log:

1656:	Take-off
	Fly to Ft Myers
	ELDORA off
1724:	Pass some growing convection along the coast – looks very good around Ft Myers
1731:	Nice cell
	High reflectivity ~ 55dBZ
1734:	Turn
1740:	Short leg east bound
	Too much stuff
	Turn back towards coast
	Same system 1740 to 1914
	Good looking line 1740 to 1759
1741:	Back on staight leg
1743:	Straight leg
1746:	Nice convection
	Tops ~ 10km
	Run along the coast
1756:	aft BWER
1759:	Turn around
	Coordinated with high flyers
1801:	Back on track along coast
	Convection on seabreeze front
1804:	Nice well defined core
	Tops ~ 11km
1810:	Turn around
1811:	Back on straight leg
1822:	Turn around
	Convection weaker
1831:	Turn around
1833:	Level again
1840:	Ready to turn
1842:	Turn around
	Flying now under anvil of the system
	Getting lifecycle of cloud
1851:	Turn around
	Mostly anvil
1902:	Turn around
	Mostly anvil with weak convection feeding it
1912:	Turn around
	Most convection dead
1914:	Back on track

Same system 1740 to 1914 – now dead
1927: ELDORA down
1930: ELDORA up
1931: Lineup for new cells
1938: Lined up on line
Good pass from 1938 to 1947
1942: Start getting good stuff
Vertical core
1947: Turn around
1949: Back on reverse heading
Tops ~ 16+km
Good convection from 1949 to 1955
1955: Turn around
1957: Turned around
Tops ~ 12-13km, refdlectivity ~ 55dBZ
2004: Turned around
2006: Reverse heading – 85°
High reflectivity core ~ 50+dBZ, tops ~ 12km
2012: Reverse heading
2014: Back on reverse heading
Convection we are working is just ahead of a very intense line



We are seeing anvil from both storms – will be difficult to distinguish
Reflecitivities above bright band ~ 20-30dBZ
No more deep hard core
Storm mostly dead
Coordination with high flyers
2026: Try to sneak in behind original storm to get good look at both
We hope lines are long enough
2050: ELDORA down
2105: Turn radar on – ATC problem
2121: ELDORA down
2132: Turn radar back on
Work storm just inland from the coast
2136: On track for storm
Strange second trip in cloud
There must be a strong line in the middle of the peninsula
Persistant second trip – fore and aft radars
Nice leg from 2136 to 2144
2141: Tops ~ 15-16km
Hard core
2144: Turn around
2145: Back on reverse heading

	Core weaker at this point
	Nice storms at western ground site
2200:	Tops ~ 17km
2204:	Intercomparison
	Storm over the Gulf
2216:	ATC problems
	Try to maneuver initial position for strong line
2242:	Positioned for line again – will work from here
	Second trip return
2243:	Aft radar picks up sun
2246:	Back on reverse heading
	Too much convection all over – too difficult to analyze
	RTB
2317:	Land
	2 cell lifecycles with high flyers
	Nice day

Mission Reports:

Citation: The Citation started off flying two legs (one at 25 kft and one at 27 kft) near an anvil base and northwest of the western ground site. They then executed a spiral ascent from 27 to 35 kft, which got them out of the anvil layer (although there were still clouds above). They were then oriented by N-POL onto NE-SW oriented legs coordinated with the other aircraft. They flew multiple legs, moving down at altitudes of 35, 33, and 31 kft (the last leg was at about the base of the anvil). They then continued those legs, stepping back up to 35 kft. The cirrus anvil was dying out by the end of this procession, so they got a pretty good sampling of the entire lifetime of the anvil. This anvil was observed to have a downward sloping base to the east, but probably a top at a fairly uniform altitude. They finally aligned for the intercomparison with the WB-57F and got to their waypoint in thick, optically uniform cloud. They then returned to base.

Twin Otter: The Twin Otter had a single flight today, with a take-off at 1713Z. They flew out at 2 kft in order to conduct some particle sampling on a track north toward Naples. West of the western ground site, they carried out a spiral ascent from 100 ft to 10 kft, getting into low cloud layers a couple of times. They then flew several legs at various altitudes, sampling the convective region inflow on the west side of the cell in the Naples area. One notable observation during this period was an enhanced layer of particles between 4 and 8 kft (possibly Saharan dust). The end of the flight involved some legs flown under the anvils generated from the convection, which could provide some useful radiation measurements. The Twin Otter returned to base at 2135Z.

Proteus: The Proteus took off just after the WB-57F and flew the same flight track as the other aircraft at cruise altitude.

WB-57F: The WB-57F take-off was at 1802Z. During their initial ascent, they flew to 51 kft. The tropopause was at 48.6 kft (cold point at 49.8 kft). They flew several descending legs west of Naples and over the Gulf, getting good read-outs on the CAPS instrument, indicating clouds. During these legs, they saw their own contrail above them on several occasions. On one leg, they got into a cloud with a top at 46 kft and flew at 45 kft before being redirected by N-POL. They attempted to fly at 39 kft to coordinate with the Citation at that altitude, but were directed by Air Traffic Control to remain at 41 kft. They were still well-aligned with the Citation during this leg, and got good clouds at this altitude. They finally executed a climb to max altitude at 58 kft and did a box maneuver before returning home at 2343Z.

P-3: The P-3 took off at 1656Z. They flew in coordination with the other aircraft from 1740Z to 1930Z, studying the full anvil life cycle described in the Citation and WB-57F summaries. From 1938Z to

2050Z, they studied another intense convective cell north of Ft. Myers. From 2144Z to 2216Z they underflew the Citation/WB-57F coordinated line. The aircraft landed at 2317Z.

Summary: Convective activity blew up near Naples and Ft. Myers around 1730Z and over land parallel to the east coast around 1930Z. Anvils streamed off to the SW and slightly south of the western ground site. This was an excellent opportunity for the aircraft to sample the entire lifecycle of the convectively generated anvils. The ER-2 did not fly because of ongoing repairs on the flap system.

Flight Paths & Focus: 162859 232109, rf09

Line 1: 171500 193500 NNW-SSE orientation, Naples Ft Myers area along west coast
sea-breeze front, convective-anvil lifecycle, anvil to SW and south of western ground site
coordination w/other aircraft
Quality: Good

Part 1: 171500 193500

leg_1.1.1:	171500 173500	some growing convection
leg_1.1.2:	174240 180050	good leg, run along the coast
leg_1.1.3:	180100 181050	well defined core
leg_1.1.4:	181100 182200	convection weaker
leg_1.1.5:	182250 183220	
leg_1.1.6:	183240 184120	getting anvil
leg_1.1.7:	184140 185200	under anvil
leg_1.1.8:	185200 190210	anvil, weak convection
leg_1.1.9:	190240 191250	
leg_1.1.10:	191300 192330	detached anvil
leg_1.1.11:	192340 193500	

Line 2: 193800 211430 north of Ft Myers along west coast, further north from Line 1
convective-anvil system
coordination w/other aircraft
can see 2 storms – go between
Quality: Excellent

Part 1: 193800 202230 NWW-SEE orientation
convection

leg_2.1.1:	193840 194800	good pass, vertical core
leg_2.1.2:	194850 195630	good convection
leg_2.1.3:	195730 200500	some anvil
leg_2.1.4:	200530 201320	see both storms
leg_2.1.5:	201350 202220	

Part 2: 202500 203930 loop
go between 2 storms

leg_2.2.1:	202450 203920	between 2 storms

Part 3: 204000 211430 N-S orientation
try to still see 2 storms

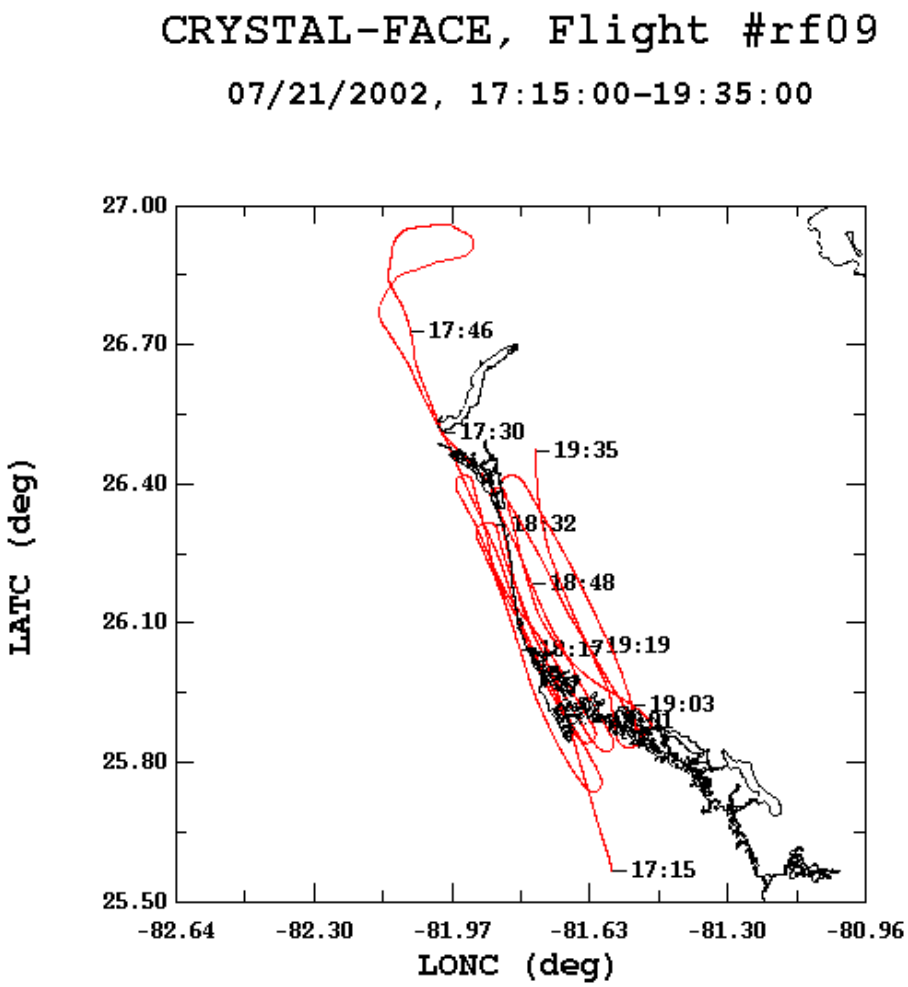
leg_2.3.1:	204020 205150	longer leg, ELDORA down
leg_2.3.2:	205250 205900	shorter leg, ELDORA down – no sweeps
leg_2.3.3:	210050 210500	shorter leg, ELDORA down – no sweeps
leg_2.3.4:	210530 211800	longer leg

Line 3: 213540 215630 NW-SE orientation, just inland from coast
convection-anvil system
coordination w/Citation WB-57F
Quality: Good

Part 1: 213540 215630

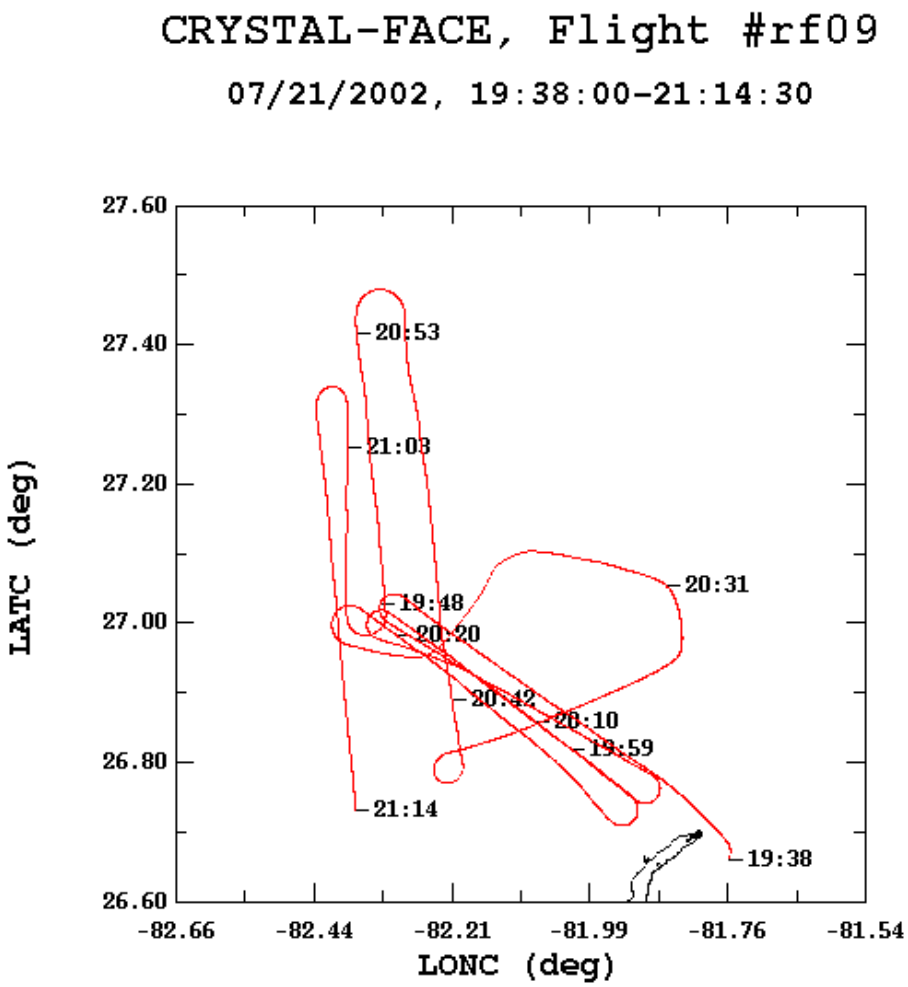
leg_3.1.1:	213550 214440	nice leg, hard core
leg_3.1.2:	214530 215540	weaker core
leg_3.1.3:	215530 220040	

0721 Line 1



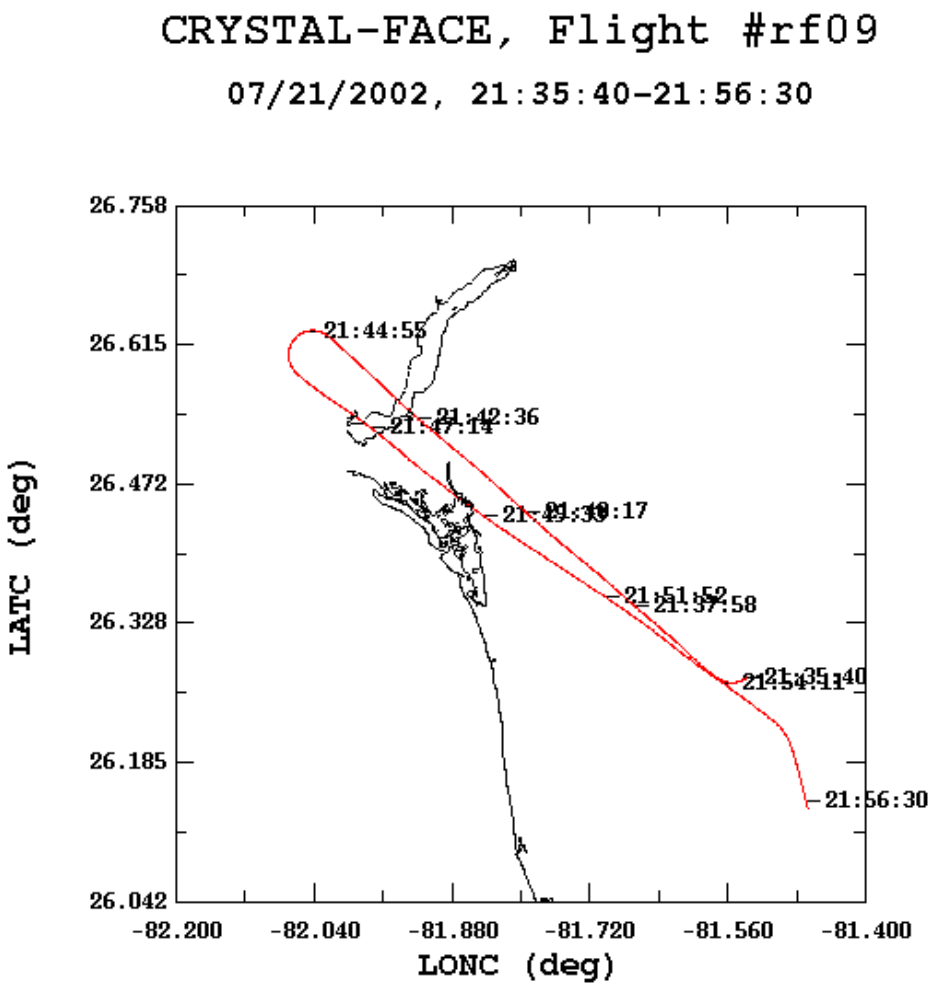
	mean	sigma	min	max
LATC (deg), 1 s/sec	26.19	0.30	25.56	26.96
LONC (deg), 1 s/sec	-81.78	0.15	-82.14	-81.48

0721 Line 2



	mean	sigma	min	max
LATC (deg), 1 s/sec	26.98	0.18	26.66	27.48
LONC (deg), 1 s/sec	-82.18	0.17	-82.43	-81.76

0721 Line 3



	mean	sigma	min	max
LATC (deg), 1 s/sec	26.41	0.13	26.13	26.63
LONC (deg), 1 s/sec	-81.78	0.17	-82.07	-81.47