19950827I1_LPS

Mission Summary

950827I Iris (NOAA-43RF)
Tropical Cyclogenesis Experiment

Scientific Crew:

Lead Project Scientist	Willoughby
Radar Scientist	Marks
Dropwindsonde Scientists	Franklin
Workstation	Griffin, Leighton

Planning:

N43RF's flight on 27AUG95 was part of a two-plane genesis (actually regenesis) mission in tropical storm, formerly hurricane, Iris. The melting level was unusually low so we operated at the 570 mb isobaric level where we still encountered some ice at temperatures only a degree or so above 0°C. The planned flight track was a figure four with the legs oriented along the cardinal compass directions and diagonal legs in the southeast and northwest quadrants. Intended ODW drops were at the ends of the radial legs and at the center of the southeast diagonal. The forecast center point used in flight planning was 15.5° N and 62.5° W.

Operations:

We left Barbados at 1603 UT on 27AUG95 and headed northwest toward the forecast center position. In flight we received a revised position for the center 16.1° N 62.1° W and redirected our course toward that point. At 1706 UT, we found the center at 16.8° N, 62.8° W. The strongest winds were about 40 kt 15 nmi east of the center. As we approached that position a depression in the undercast containing a well-marked low-level circulation center as indicated by streaks of stratocumulus. Although we were under an anvil, only the north quadrant of the depression evidenced convection in the form of a rainshaft and some cloud extending from the undercast to the anvil. The radar showed a disorganized cluster of cells around the center with no indication of an eye. From the center we continued east of the center along 17.7° N to 56.5° W, beyond the boundary of the convection in the southwesterly flow, where we dispensed a dropsonde and turned onto the southwestward (upwind) diagonal leg that ended at 12.5° N 61.5° W. On this leg--which was characterized by abundant, but not notably vigorous convection in southerly flow--we dispensed an ODW at the midpoint, near Barbados, and at the endpoint. From the southernmost point we turned north toward the center, which we reached at 2049 UT near 17.3° N, 61.7° W, continued to the north point 21.5° N, 61.5° W, deployed a dropsonde, and turned toward the southwest. The radar showed a narrow band of convection arcing from the north around the east side and extending far south from the center. Because of clearance problems we were not able to go as far to the west as we had planned. The westernmost point and final dropsonde was at 17.8° N, 64.2° W, not yet in the dry air on the west side of Iris. The final leg of the pattern was eastward to the center, reached at 2319 UT near 17.5° N, 62.0° W. During the approach to the center, we encountered 45 kt winds 20 nmi out on the east side. As we departed toward SSE, we observed 55 kt winds 40 nmi from the center. The convection had wrapped around the center to enclose an area of lower reflectivity that suggested an eye. From the center we flew southeastward to landing at Barbados at 0036 on 28 August.

Equipment:

The aircraft, instrumentation, and dropsondes worked superbly.

Critique:

This mission was designed for developing tropical waves. The purpose of the flight was to examine Iris' dissipation, but in the event it proved to be a useful baseline for subsequent flights that documented Iris' recovery of hurricane strength. The big disappointment was the inability to fly far enough to the west to place the westernmost point in dry air outside the circulation.

Willoughby

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15 September 1995

To: F. D. Marks

From: H. E. Willoughby

Subject: Flight 950827I (Iris)

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E.2 Lead Project Scientist (On-Board)

E.2.1 Preflight

_____ 1. Participate in general mission briefing.

_____ 2. Determine specific mission and flight requirements for assigned aircraft.

_____ 3. Determine from CARCAH or field program director whether aircraft has operational fix responsibility and discuss with OAO flight director/meteorologist and CARCAH unless briefed otherwise by field program director.

_____ 4. Contact HRD members of crew to:

a. Assure availability for mission.
b. Arrange ground transportation schedule when deployed.
c. Determine equipment status.

_____ 5. Meet with OAO flight crew at least 90 minutes before takeoff, provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.

_____ 6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami or FGOC at remote recovery location).

E.2.2 In-Flight

_____ 1. Confirm from OAO flight director/meteorologist that satellite data link is operative (information).

_____ 2. Confirm camera mode of operation.

_____ 3. Confirm data recording rate.

_____ 4. Complete Form E-2.

E.2.3 Postflight

_____ 1. Debrief scientific crew.

_____ 2. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to the appropriate HRD operations center (MGOC or FGOC).

_____ 3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the OAO flight director.]

_____ 4. Obtain a copy of the 10-s flight listing from the OAO flight director. Turn in with completed forms.

_____ 5. Determine next mission status, if any, and brief crews as necessary.

_____ 6. Notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted and arrange for any further coordination required.

Form E-2
Page 1 of 5

On-Board Lead Project Scientist Check List

Date 27AUG95 Aircraft N43RF Flight ID 950927I

IRIS

A. Participants

HRD		OAO	
Function	Participant	Function	Participant
Lead Proj. Sci.	WILLOUGHBY	Flight Director	DAMIANO
Cloud Physics		Pilots	KENNEDY/PLAYER
Radar	MARKS GRIFFIN	Navigator	
Doppler		Sys. Engr.	LYNCH
Photographer		Data Tech.	
Omegasonde	FRANKLIN	El. Tech.	
AXBT/AXCP		Other	
OBSERVER	RK SMITH		

Take-Off	Location	Landing	Location
	BAR		

B. Past and Forecast Storm Locations

Date/Time	Latitude	Longitude	MSLP	Max. Wind
27/1800	15.5	62.5	FCST	
27/1900	16-09	62-09	1002	45

C. Mission Briefing

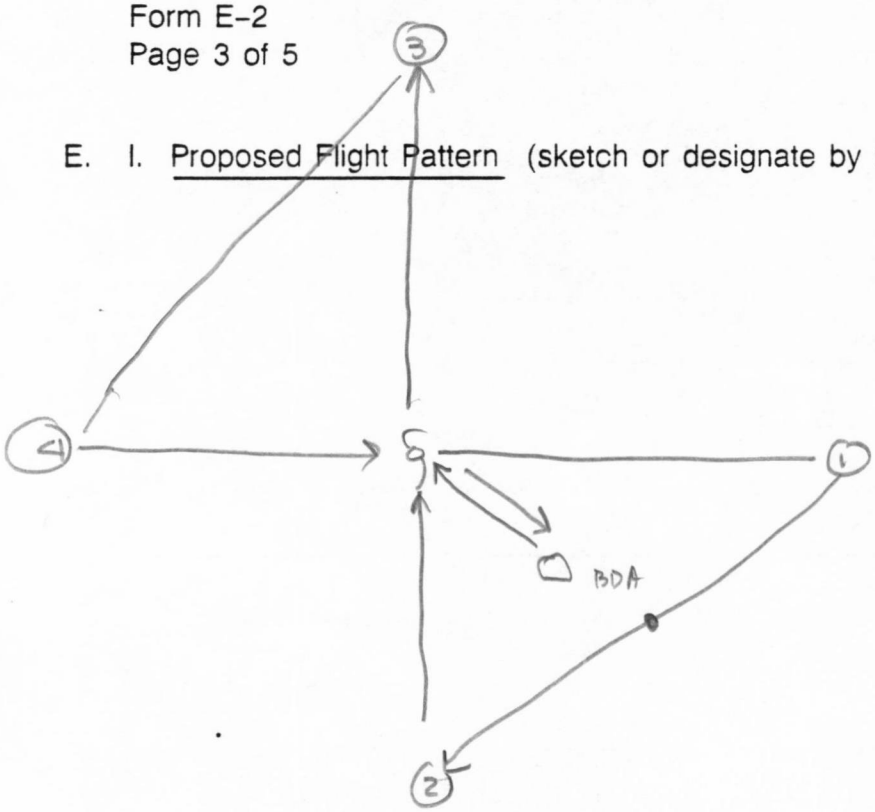
FLY GIANT FIG 4 AS SHOWN DROPS AT TURNS, CENTER OF SE DIAGONAL, MAYBE CENTER. RECOVER BARBADOS

D. Equipment Status

Equipment	Pre-Flight	In-Flight	Post-Flight
Aircraft	↑	↑	↑
Radar	↑	↑	↑
Cloud physics	↑	↑	↑
Data system	↑	↑	↑
Omegasondes	↑	↑	↑
AXBT/AXCP	NO:3		
Doppler	↑	↑	↑
Photography	↑	↑	↑

REMARKS:

E. I. Proposed Flight Pattern (sketch or designate by number)

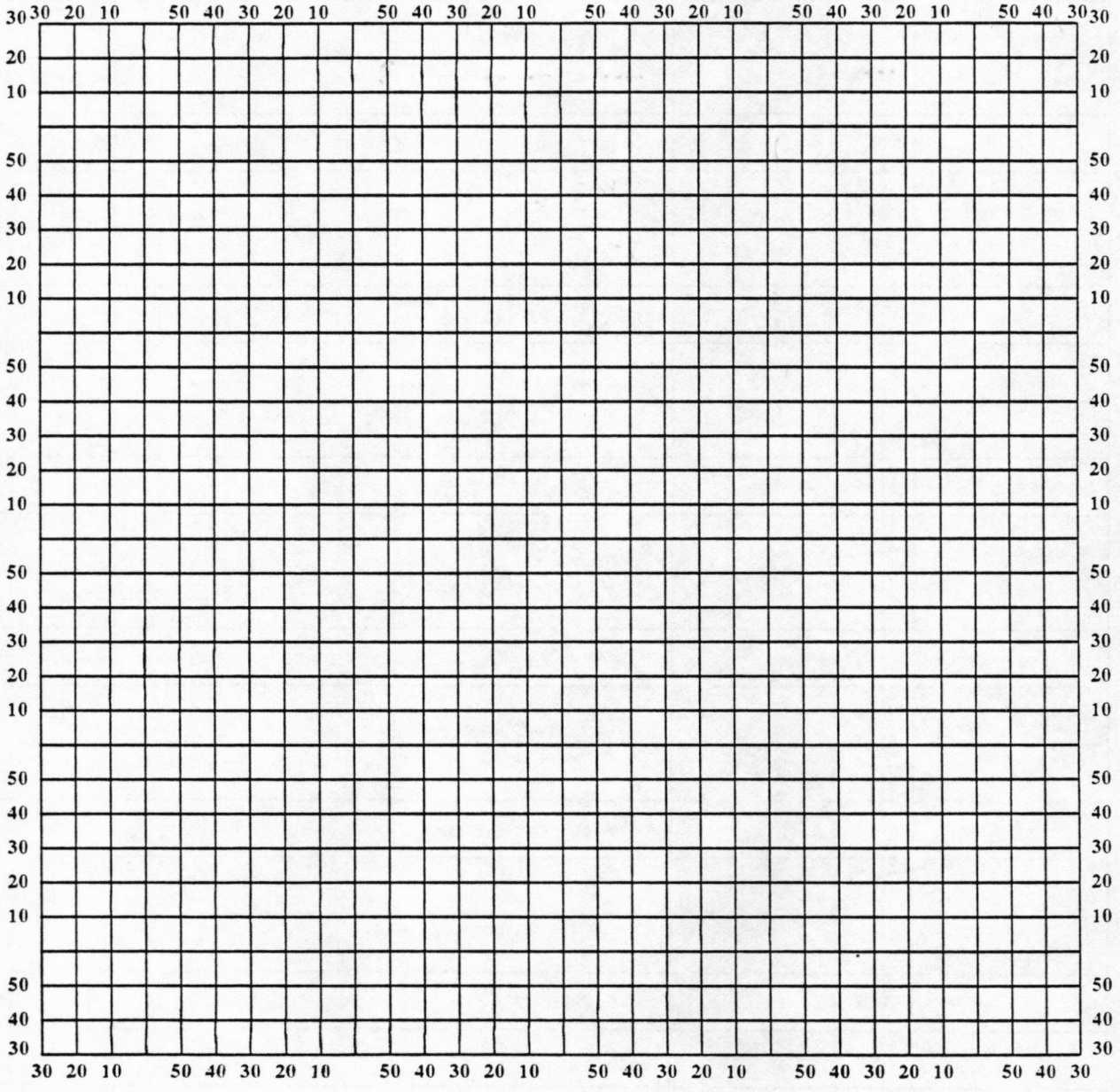


E. II. Actual Flight Pattern

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes of ϕ and λ.

Date_____ Longitude _____ Observer _____



Note: Label full degrees according to location of flight area.

Lead Project Scientist Event Log

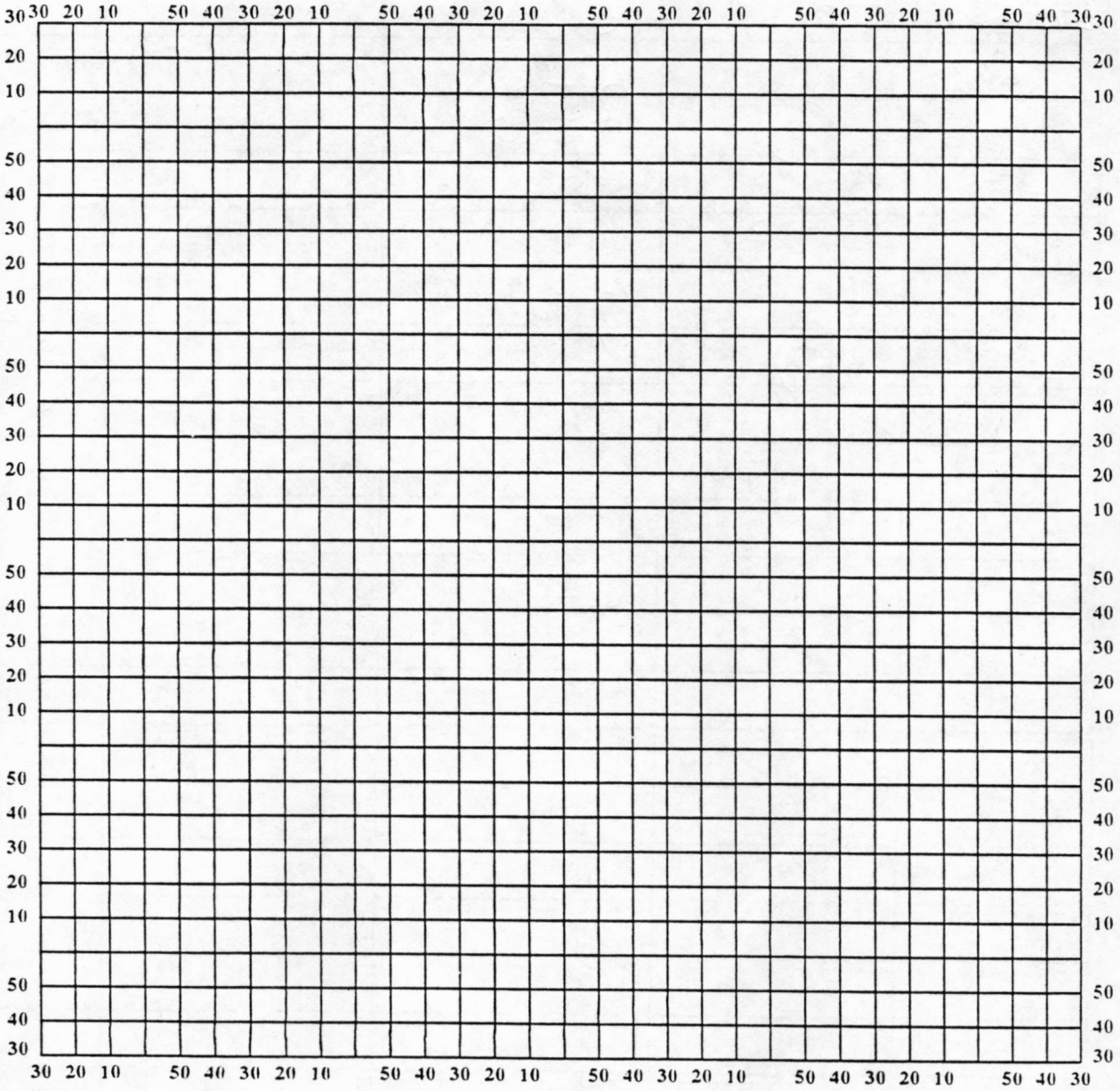
Date ________________ Flight ________________ LPS ________________

Time	Event	Position	Comments

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes of ϕ and λ.

Date_____ Longitude _____ Observer _____



Note: Label full degrees according to location of flight area.

Form E-2
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Lead Project Scientist Event Log

Date 27 AUG 95 Flight 950827I LPS WILLOUGHBY

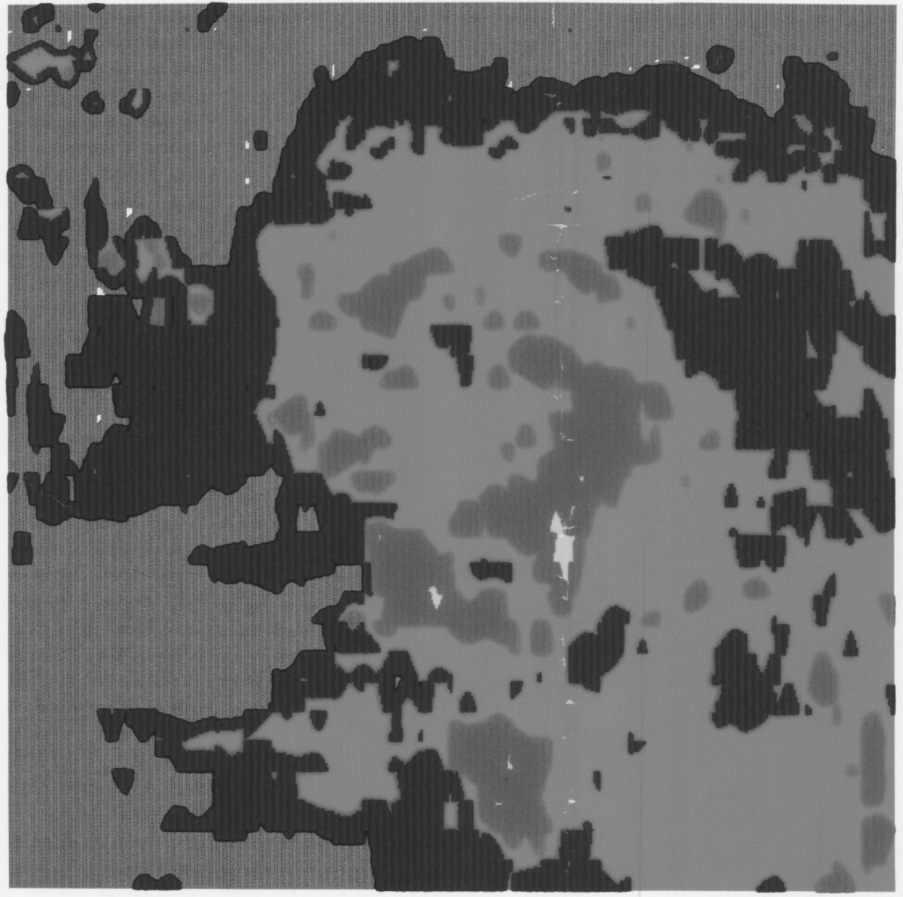
Time	Event	Position	Comments
27/1603	TO	BDA	
1630	"	14-48 61-00	WIND 250/20
1706	G	16-48 61-48	TRAK 040 → (1)
1817	DROP 1 AT 1618 (1)	16-45 56-30	OUTSIDE BOUNDARY OF CONVECTION TRAK 230 → (2)
1906	DROP 2 (2)	13-58 59-09	NEAR BDA
1946	DROP 3 (3)	12-31 61-30	TRAK N → G
2049	G	17-20 61-40	MISSED G TO E
2144	DROP 4 (4)	21-30 61-30	TURN SW → (5)
2240	CLEARENCE PROBLEMS!		
2244	TURN E G DROP 5	17-48 69-14	
2319	G	17-33 62-01	HEAD FOR ADAMS BDA
0036	RECOVER	BDA	8h 36m

GOOD!

GOOD!

GOOD!

GOOD



950827I1

IRIS

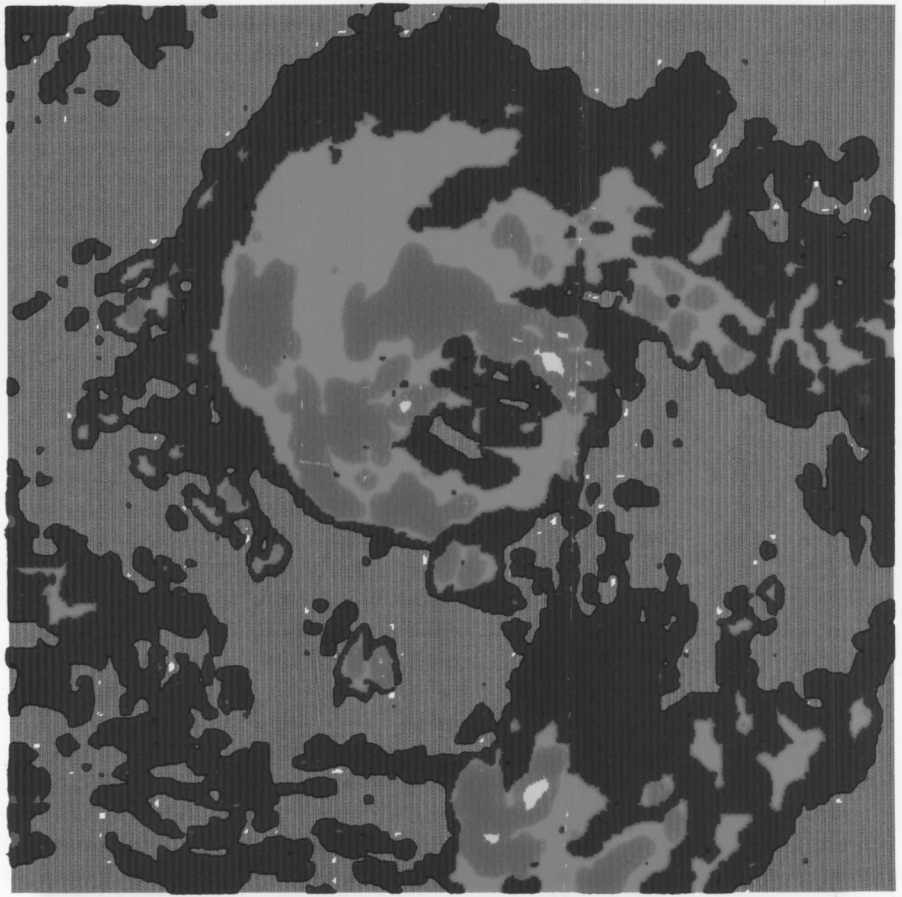
163447 Z to
172948 Z

48
41
35
28
21
15 Alt 4657 m

dBZ Slat 16.66 N
Slon 61.46 W

360 X 360 km

produced by
HRD / AOC



95082711

IRIS

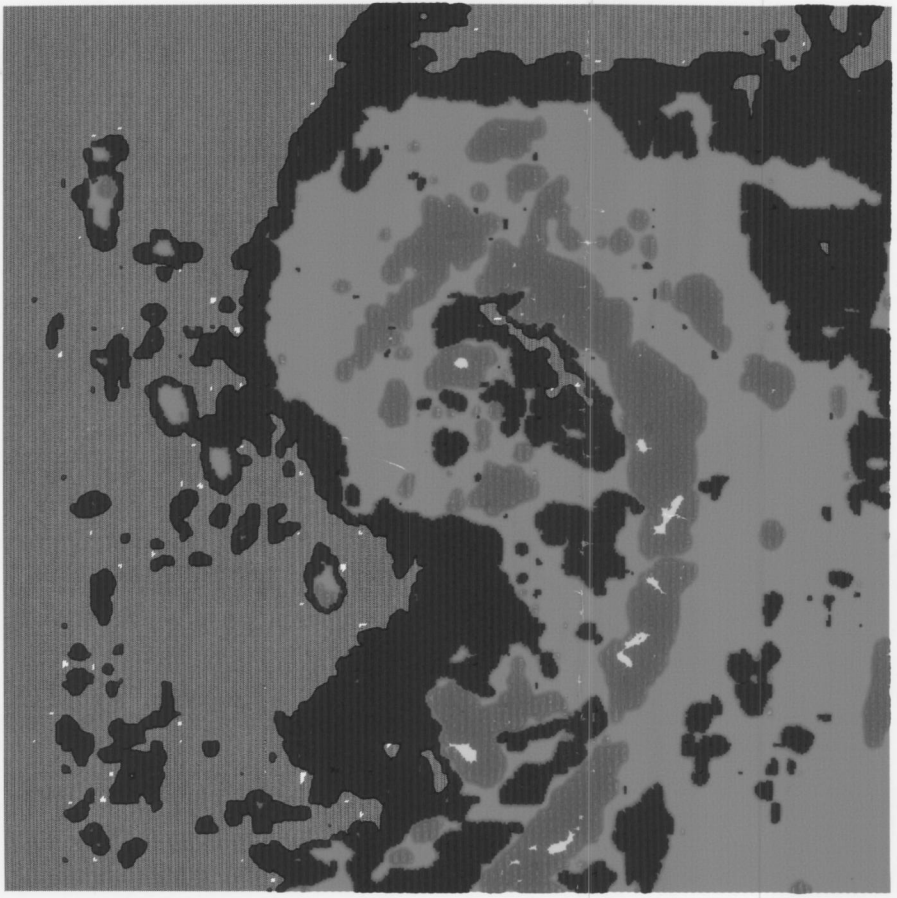
230234 Z to
232757 Z

48
41
35
28
21
15 Alt 4790 m

dBZ Slat 17.54 N
Slon 61.92 W

360 X 360 km

produced by
HRD / AOC



950827I1

IRIS

203114 Z to
210235 Z

48
41
35
28
21
15 Alt 4798 m

dBZ

Slat 17.30 N
Slon 61.74 W

360 X 360 km

produced by
HRD / AOC