19980919HH_LPS

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 AOC 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 AOC 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 AOC flight director 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 AOC flight director.]

____ 4. Obtain a copy of the 10-s flight listing from the AOC 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.

____ 7. Prepare written mission summary.

On-Board Lead Project Scientist Check List

Date 19/9/98 **Aircraft** N42RF **Flight ID** 980919H

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Aberson	Flight Director	Czyzyk
Cloud Physics		Pilots	Phillipsborn / Toggart / Heuld
Radar	Gamache	Navigator	Rathbun
Workstation	Leighton	Systems Engineer	Boles
Photographer (SCAT/VSDR	Popstefanija	Data Technician	Barr
Omegasonde	Aberson/Gamache	Electronics Technician	Rogers
AXBT/AXCP	P Black	Other	

Take-Off: _____ **Location:** _____ **Landing:** _____ **Location:** _____

B. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

C. Mission Briefing:

Problems with 43 flight track due to different position of storm. Added eye pass and shaved east and northwest. 42 loaded with less fuel on expectation of other HRD scientist

D. Equipment Status

Equipment	Pre-Flight	In-Flight	Post-Flight
Aircraft			
Radar/LF			
Radar/TA (Doppler)			
Cloud Physics			
Data System			
Omegasondes			
AXBT/AXCP			
Workstation			
Photography			

REMARKS:

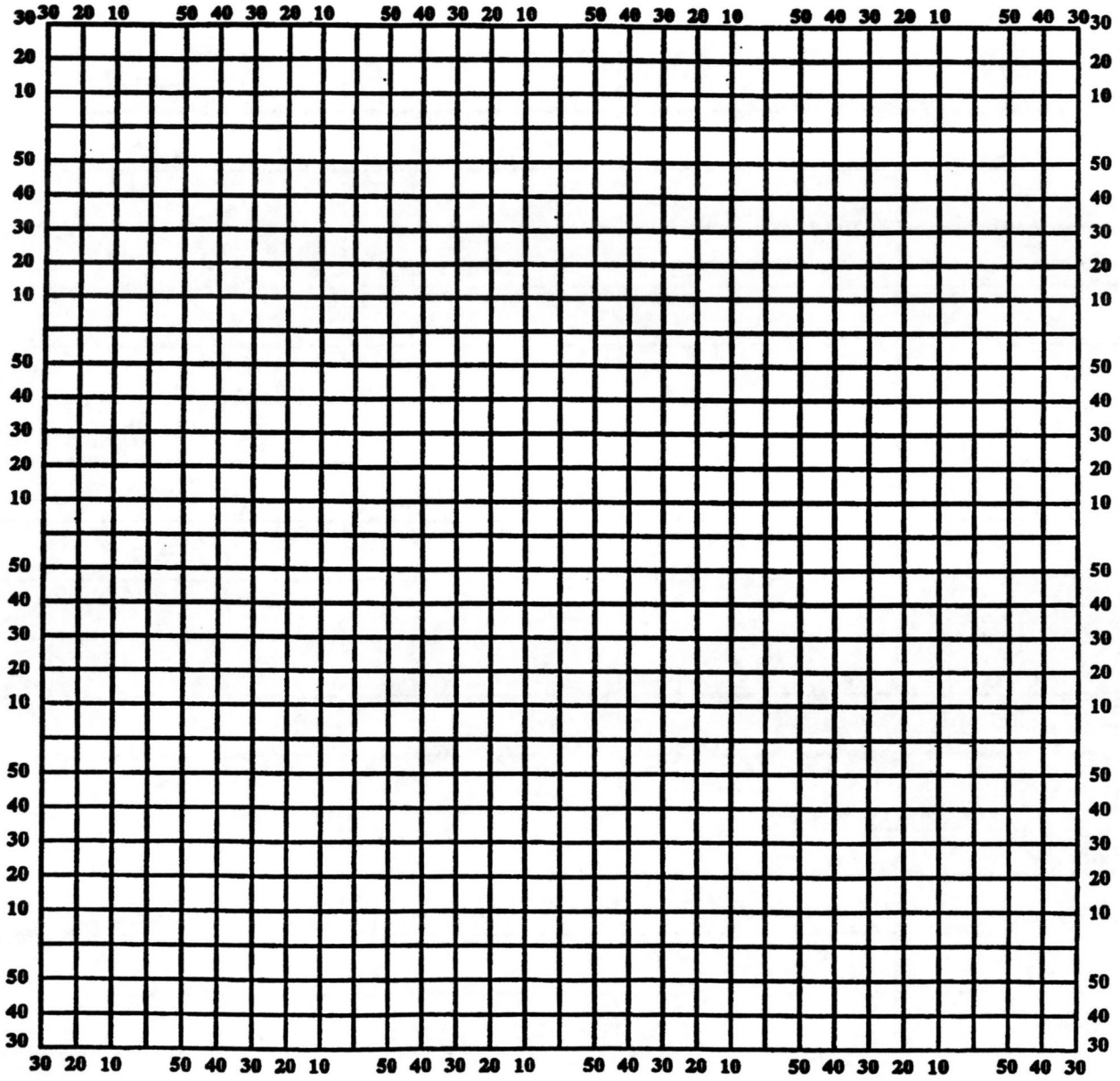
E. **(I) Proposed Flight Pattern** (sketch or designate by number)

E. **(II) Actual Flight Pattern**

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

Date _____ Aircraft _____ Observer _____



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

Lead Project Scientist Event Log

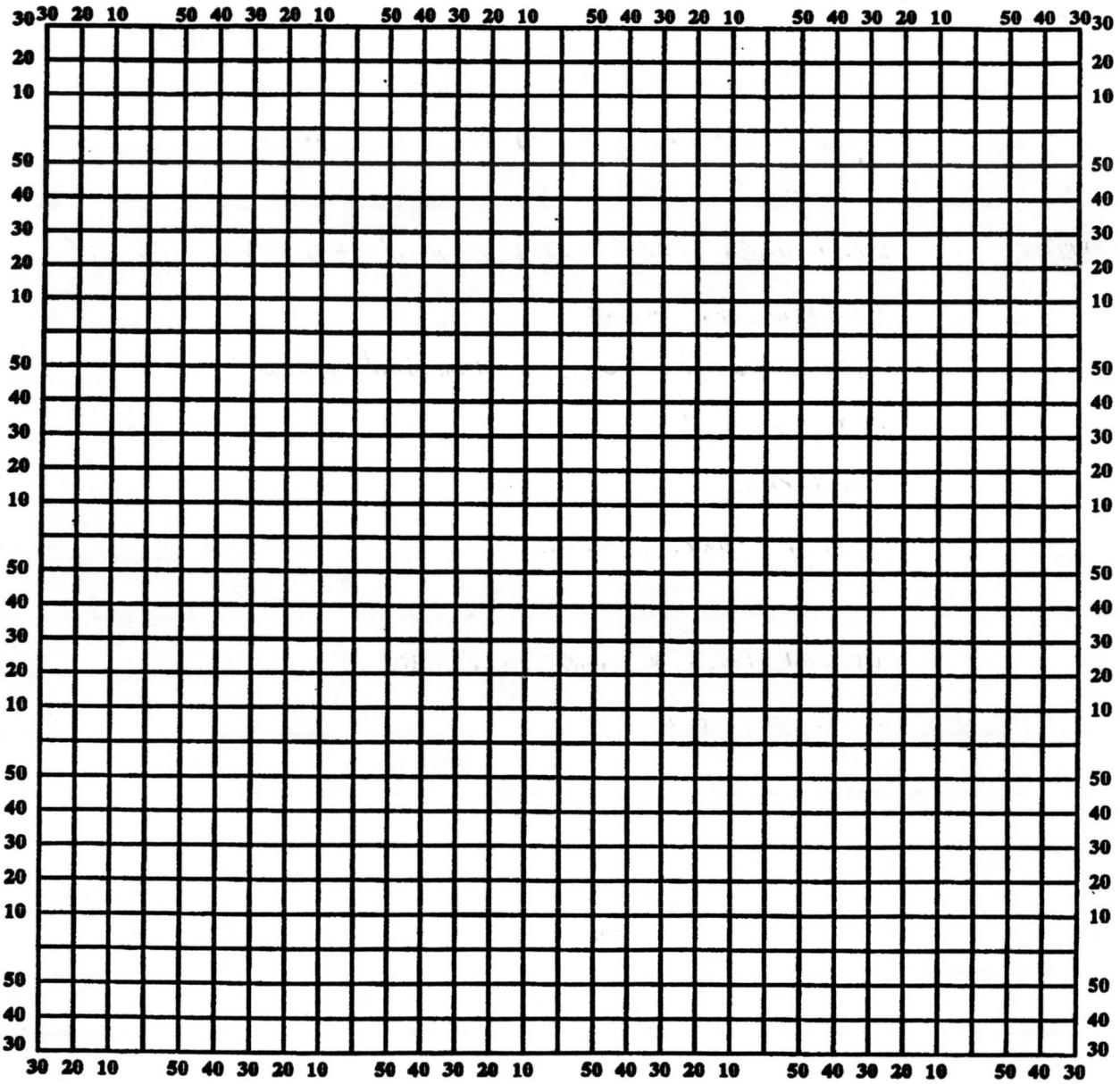
Date 19/9/98 **Flight** 980919H **LPS** Aberson

Time	Event	Position	Comments
175220	Takeoff	Barbados	
	Drops on dropwindsonde log		
1728Z	AF fix 15.4N 53.4W	949 mb 117kt flt level moving WNW	
1900Z	Georgo visible on edge of radar		
1910Z	Drop #2 failed after 1.5 minutes Decided not to back-up. Non-critical		
1920Z	146 kt flight level from AF		
1913Z	AF fix 15.5 N 53.8 W	944 mb 146 kt flight level	305/15 between two fixes
1934Z	NOAA43 fix, last contact		
1936Z	Up to 18,000 feet		
1945Z	Cut corners for time. Storm further north, so moved E-W legs north to avoid holes		
1939Z	radar down		
1957Z	NOAA43 fix 15.6 54.0, north eyewall turbulent, spectacular view		
2001Z	Turn to shave last corner		
2019Z	Up to 19,000 ft		
2021Z	15 31 54 03 15.6 54.0 W 2021Z NOAA 43 fix		
2030Z	AF call-difficult	943 mb 145 kt flt level, 135 kt 80 ms⁻¹ low level	
2045Z	finally got AF call	Good VTDs 160 kt up sonde 160 kt at surface Sending composite on time. 50 mi radial legs. 10 mi RMW	
2057Z turn	turn N	Can do 40 nmi legs if needed.	
2109Z	Up to 20,000 feet		
2201Z	Turn W		
2223Z	Turn SW		

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

Date _____ Aircraft _____ Observer _____



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

Lead Project Scientist Event Log

Date 19/9/98 **Flight** 980919H **LPS** Aberson

Time	Event	Position	Comments
2253Z	Turn to S		
2257Z	Radar down		
2304Z	Drop/BT combo in wake of George.		SST = 28.1
2315Z HF with 43	~~15.7~~ 84 KNW 125kt forecast		
Further turn	sonde log	145k flight level SE quadrant. Little	
	back into eye. Pearl Leighton temper tantrum		
	eye flt level T 9°C greater than outside eyewall		
	Extremely hectic in storm, no time to move		
	Great radar representation		
	Sondes 122kt @ 10nm		
	165kt @ 66nm 939mb		
	all sondes sent by time we landed		
~0230Z	Land in Barbados		

Lead Project Scientist Event Log

Date ____________________ Flight ____________________ LPS ____________________

Time	Event	Position	Comments

Lead Project Scientist Event Log

Date ______________________ Flight ____________________ LPS ____________________

Time	Event	Position	Comments

Mission Summary
Georges
980919h Aircraft N42RF

Scientific Crew

Lead Project Scientist:	Sim Aberson
Dropwindsonde Scientists:	Sim Aberson, John Gamache
Radar Scientist:	John Gamache
Workstation Scientist:	Paul Leighton
CSCAT/VSDR Scientists:	Peter Black, Ivan Popstefanija
AXBT Scientist:	Peter Black

Mission Briefing:

Hurricane Georges rapidly intensifying just east of the Leward Islands, moving westward at about 18 kt (Fig. 1). The subtropical ridge extends east to west across the entire basin between 20N and 25N, suggesting a continuing westerly motion for the storm. The upper-level cold low located near Hispaniola could allow for a more west-northwestward turn. A vorticity maximum near Bermuda is not expected to influence the track or Georges. Due to the rapid motion, George was expected to impact the U. S. Virgin Islands and Puerto Rico at around 24 h, so the G-IV was tasked to fly a mission, and the two P3 aircraft participated in a three-plane synoptic flow experiment. during its scheduled ferry flight to St. Croix.

Ensemble perturbations (Fig. 2) suggest that the main areas of uncertainty in this forecast coincide with Georges itself, with the subtropical ridge axis to the north of Georges, and with the cold low near Hispaniola. The G-IV also sampled the vorticity maximum near Bermuda (Fig 3.).

Mission synopsis:

Due to the slowed motion of Georges, the pattern for N43RF was far too long, so the pre-flight planning included modifying the flight pattern to ensure that targets were reached and that a figure 4 was completed in the center of the hurricane to anchor the analyses. This allowed for a third penetration into the eye of Georges, in which it was decided that the plane would circle to get visual footage of the eyewall structure.

The flight path of N42RF was modified slightly to fill in gaps left by modification to the other P-3's flight path. As a result, there was sufficient time for N43RF also to make three pentrations.

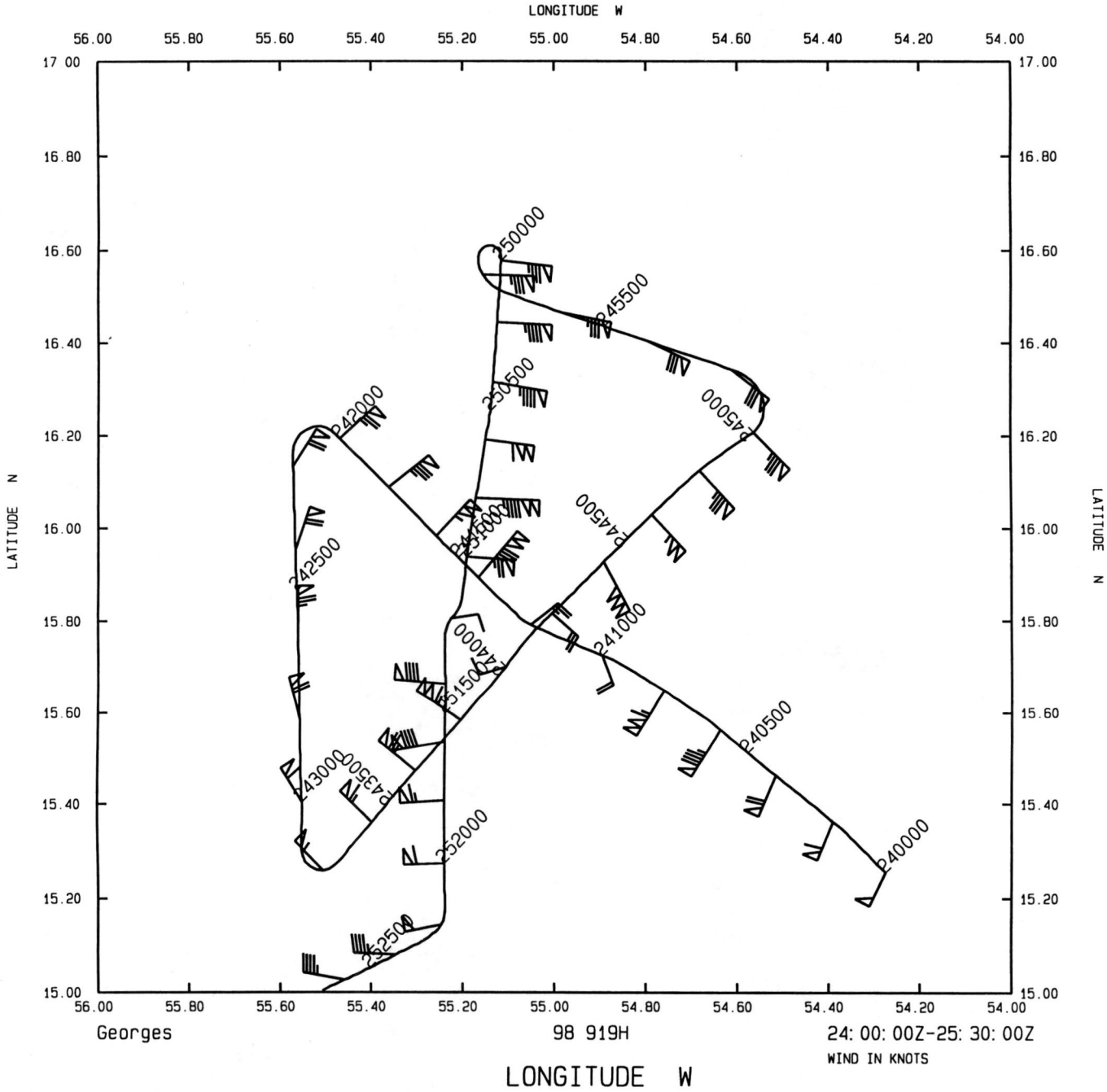
The early part of the flight was uneventful except for some very strong convection noted off the coast of Brazil both visually and on radar. This is the furthest east the P3s have flown for hurricane work.

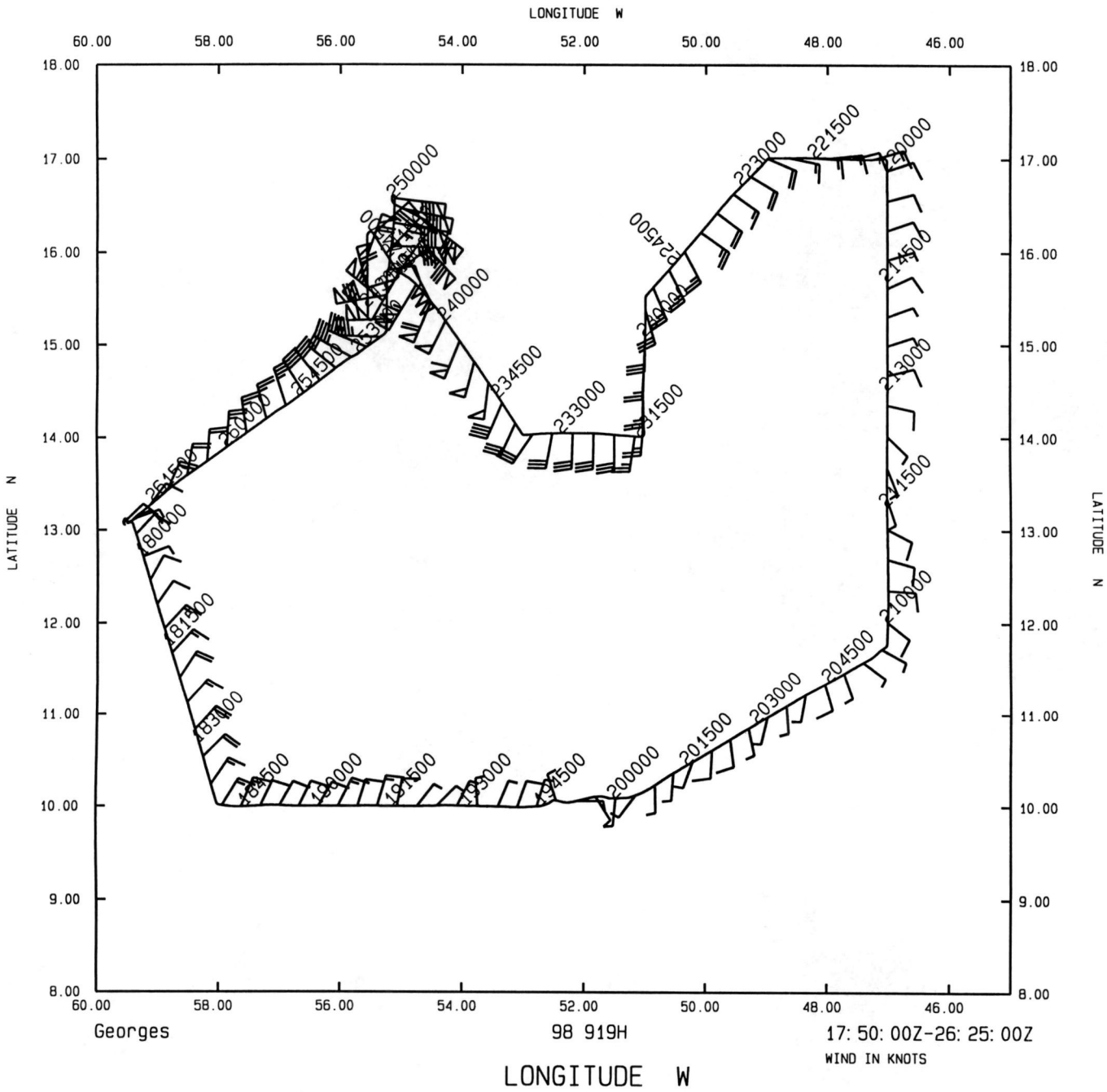
Peter Black suggested that we make a drop/AXBT combo as we flew over the wake of Georges. SST was found to be 28.1C, so we may have missed the wake, or it was not as strong as expected.

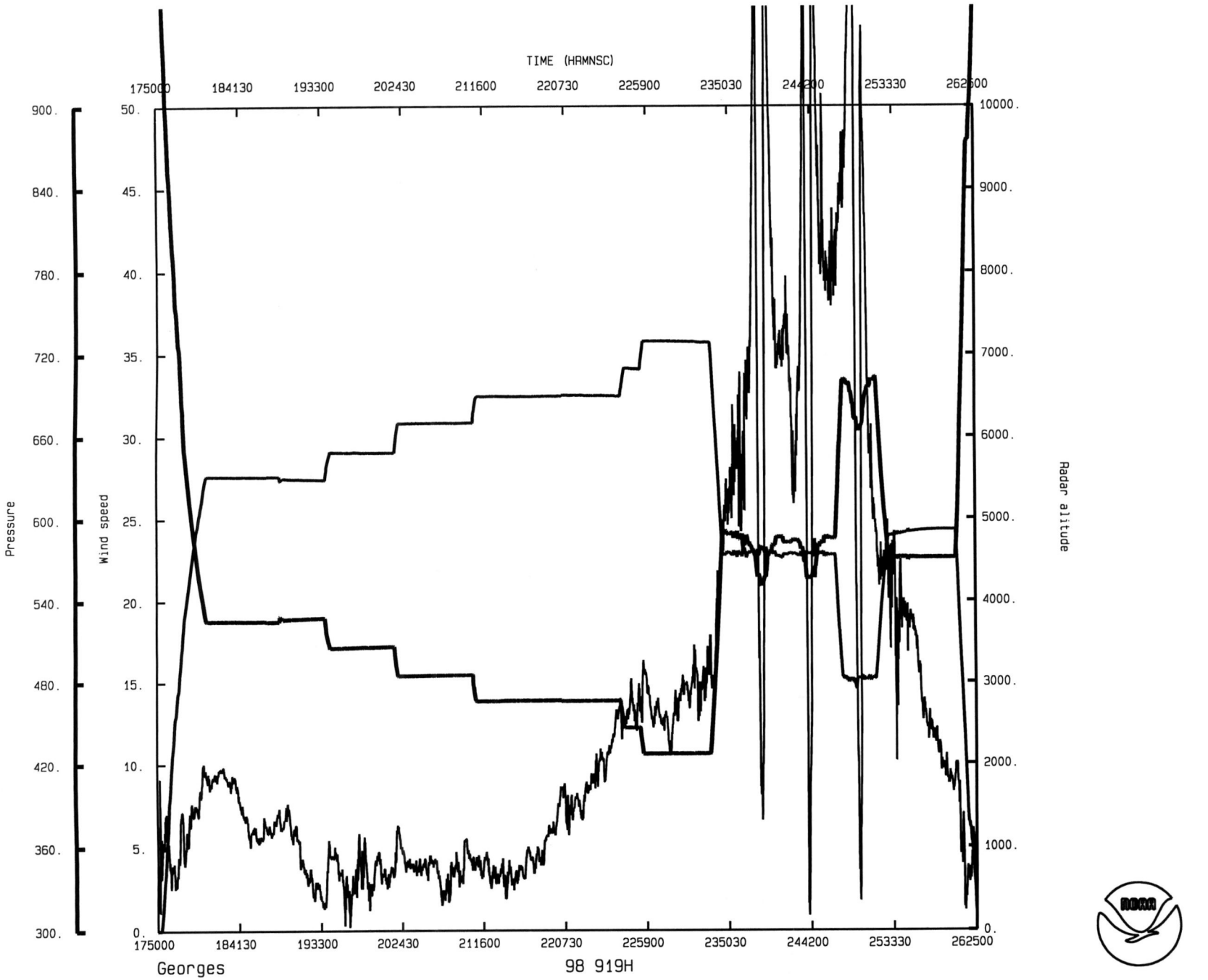
In the storm itself, most of the sondes failed near the surface in high wind situations. One sonde reported winds of 165 kt at 66 m above the surface. Lowest pressure was found to be 939 hPa. Radar composites and VTDs were sent out, as were all sondes by the time we landed. The penetrations were made at night with a new moon, so no visible information was obtained.

For the third pass, CARCAH requested a fix from 10,000 feet due to mechanical failure on the AFRES plane.

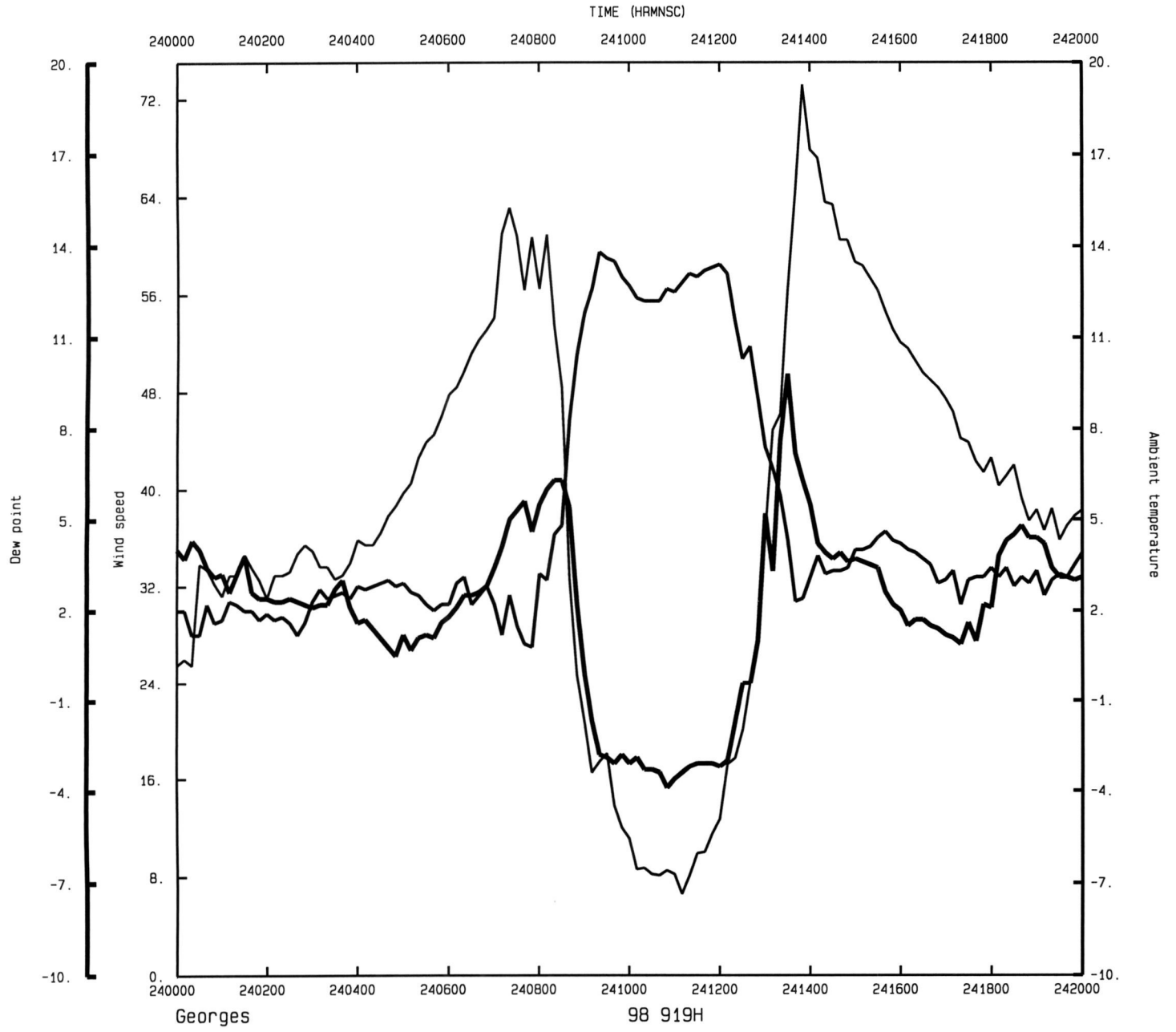
Sim Aberson


LONGITUDE W
56.00 55.80 55.60 55.40 55.20 55.00 54.80 54.60 54.40 54.20 54.00
17.00 16.80 16.60 16.40 16.20 16.00 15.80 15.60 15.40 15.20 15.00
LATITUDE N
250000
245500
250500
245000
242000
245000
241500
242500
241000
244000
240500
243500
243000
240000
252000
252500
Georges
98 919H
24: 00: 00Z-25: 30: 00Z
WIND IN KNOTS
LONGITUDE W

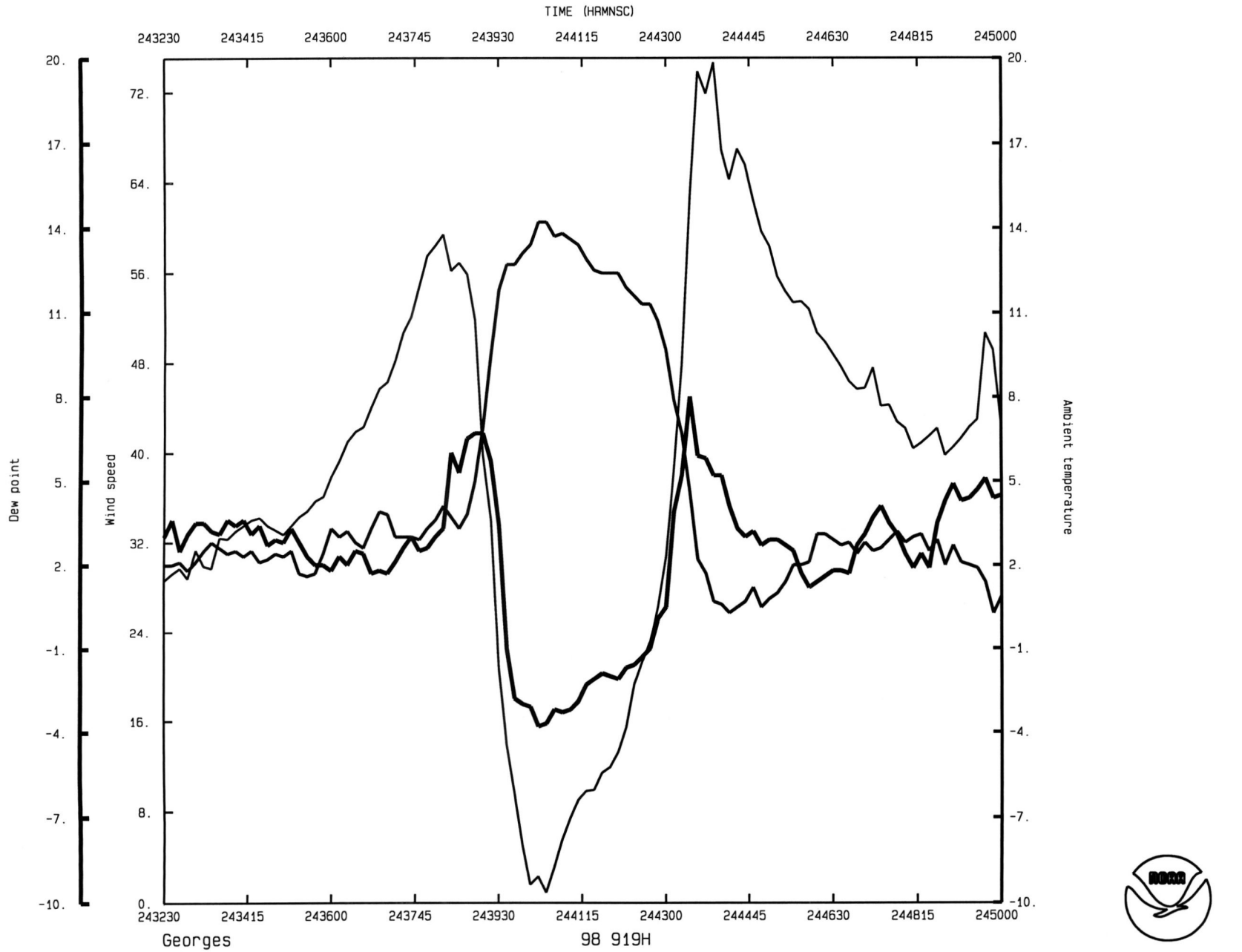

LONGITUDE W
60.00
58.00
56.00
54.00
52.00
50.00
48.00
46.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
LATITUDE N
250000
240000
234500
233000
231500
224500
223000
221500
220000
214500
213000
211500
210000
204500
203000
201500
200000
194500
193000
191500
190000
184500
183000
181500
180000
264500
260000
255000
Georges
98 919H
17: 50: 00Z-26: 25: 00Z
WIND IN KNOTS
LONGITUDE W


TIME (HRMNSC)
175000
184130
193300
202430
211600
220730
225900
235030
244200
253330
262500
Pressure
900.
840.
780.
720.
660.
600.
540.
480.
420.
360.
300.
Wind speed
50.
45.
40.
35.
30.
25.
20.
15.
10.
5.
0.
Radar altitude
10000.
9000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
Georges
98 919H
TIME (HRMNSC)

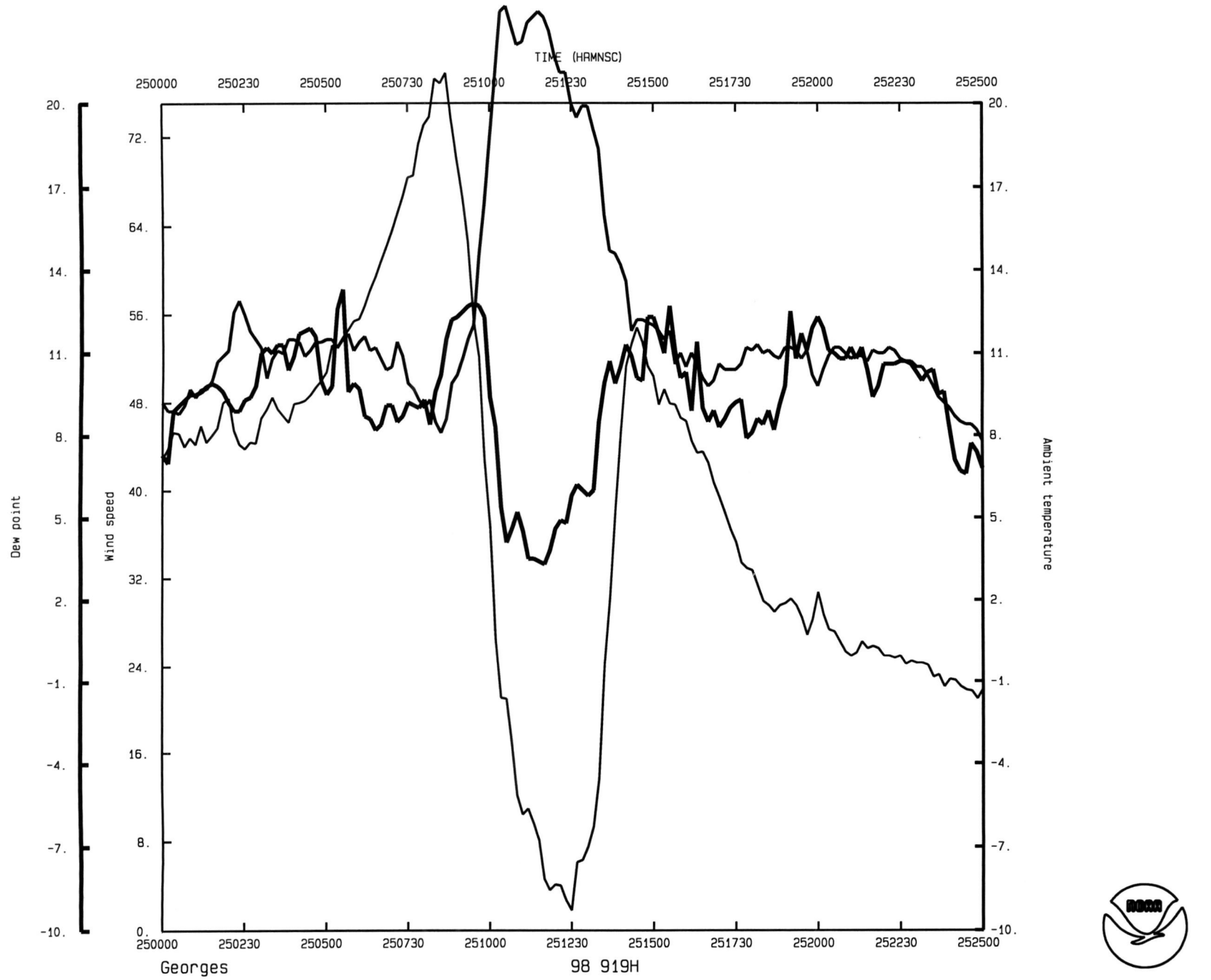
NOAA/HRD


TIME (HRMNSC)
240000
240200
240400
240600
240800
241000
241200
241400
241600
241800
242000
Dew point
20.
17.
14.
11.
8.
5.
2.
-1.
-4.
-7.
-10.
Wind speed
72.
64.
56.
48.
40.
32.
24.
16.
8.
0.
Ambient temperature
Georges
98 919H
TIME (HRMNSC)

NOAA/HRD


TIME (HRMNSC)
243230
243415
243600
243745
243930
244115
244300
244445
244630
244815
245000
Dew point
20.
17.
14.
11.
8.
5.
2.
-1.
-4.
-7.
-10.
Wind speed
72.
64.
56.
48.
40.
32.
24.
16.
8.
0.
Ambient temperature
Georges
98 919H
TIME (HRMNSC)

NOAA/HRD


TIME (HRMNSC)
250000
250230
250500
250730
251000
251230
251500
251730
252000
252230
252500
Dew point
20.
17.
14.
11.
8.
5.
2.
-1.
-4.
-7.
-10.
Wind speed
72.
64.
56.
48.
40.
32.
24.
16.
8.
0.
Ambient temperature
Georges
98 919H
TIME (HRMNSC)

NOAA/HRD