

1998092741-LPS

On-Board Lead Project Scientist Check List

Date 9/21/98 Aircraft 42RF Flight ID 980921H

Georges

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>P. Black</u>	Flight Director	<u>Stan Cyrulak</u>
Cloud Physics		Pilots	<u>Phillipsbone, Taggart, Kunk</u>
Radar	<u>J. Gamache</u>	Navigator	<u>D. Rothman</u>
Workstation	<u>P. Leighton</u>	Systems Engineer	<u>J. Ross</u>
<del>SCAT/VSPR</del>		Data Technician	
<del>Photographer/Observer</del>	<u>Dyan Costafanija</u>	Electronics Technician	<u>J. Barr</u>
<del>GPS Sonde</del>	<u>S. Aberson</u>	Other	
<del>Omegasonde</del>			
AXBT/AXCP/Guest			

Take-Off: 12/16/72 Location: Barbados

Landing: \_\_\_\_\_ Location: \_\_\_\_\_ Number of Eye Penetrations: \_\_\_\_\_

B. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>21/09Z</u>	<u>17°24'</u>	<u>63.00</u>	<u>964</u>	<u>92</u>
<u>21/1103Z</u>	<u>17°27'</u>	<u>63°28'</u>	<u>964</u>	<u>93</u>
<u>21/15Z</u>	<u>17.7</u>	<u>64.3</u>		

C. Mission Briefing:

Butterfly pattern in storm, 4 legs - 60mi each,  
then parted synoptic flow N of storm  
on way back to Miami

## **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.

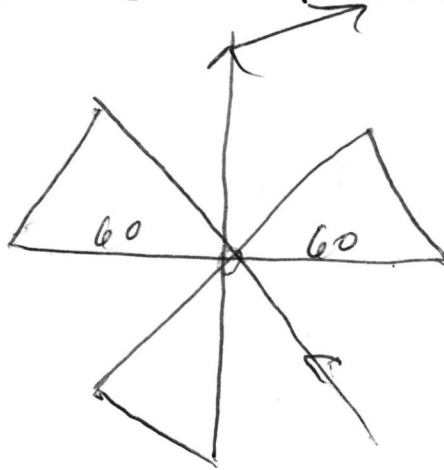
D. Equipment Status (Up, Down, Not Available, Not Used)

Equipment	Pre-Flight	In-Flight	Post-Flight
Aircraft	right wheel prob - 1 hr delay		
Radar/LF	✓		
Radar/TA (Doppler)	✓		
Cloud Physics	FSSP wind broken		
Data System	✓		
Omegasondes	✓		
AXBT/AXCP	—		
Workstation	✓		
Videography	✓		

REMARKS:

AOC Rept video from last flight on  
43RF

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



E (II) Actual Flight Pattern

1

Lead Project Scientist Event Log

Date \_\_\_\_\_ Flight 980921H LPS P Black

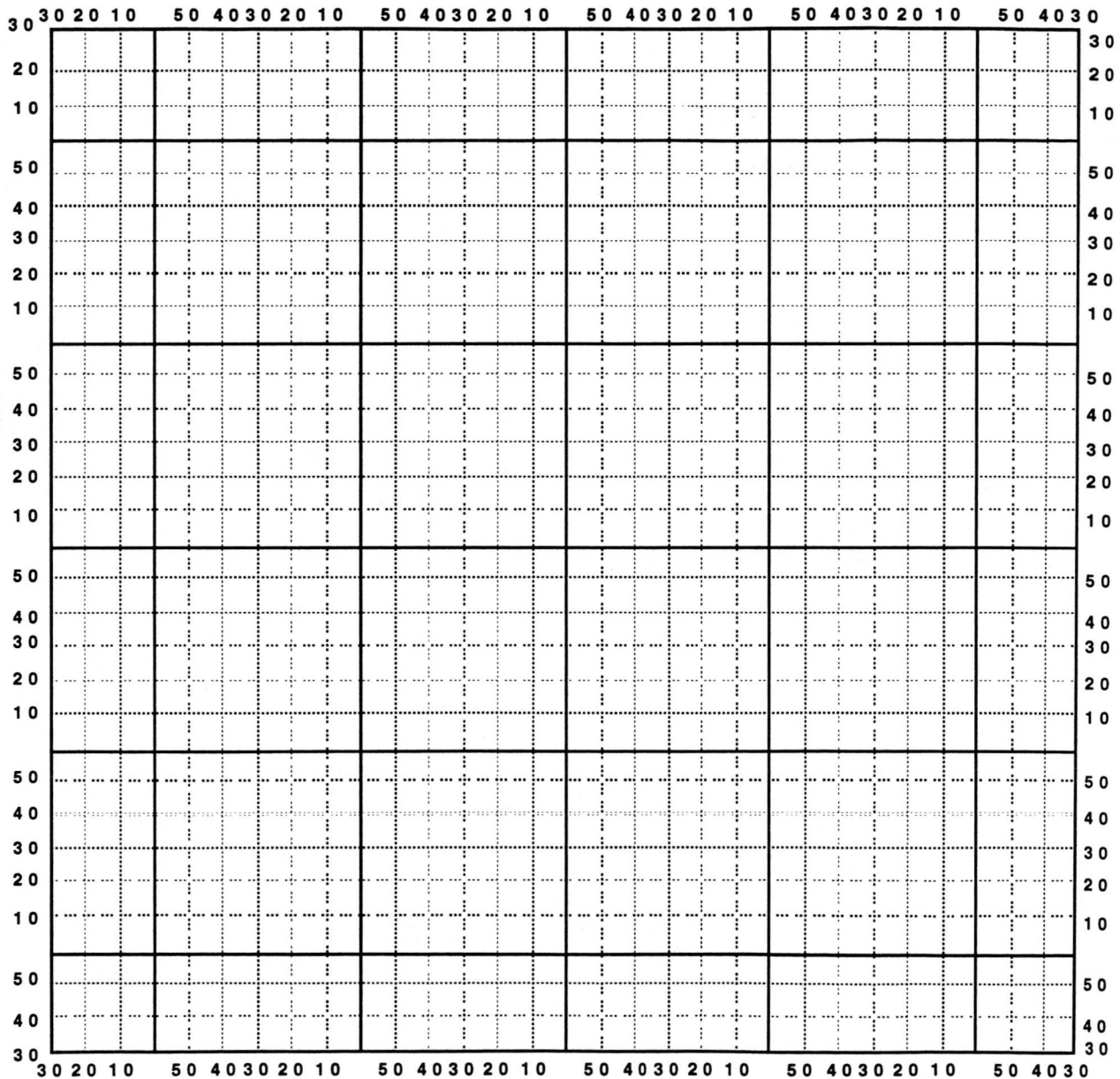
1706 start vsDR

Time	Event	Position	Comments
1714	4-5 thin rain bands on east + SE side with 20 mi spacing		
	NASA DC-8 + ER-2 will be here from 17-19Z		
	AF at 10K ft from 18Z-00Z		
172840	descent from 16K to 15K		- 120 mi out
172900	Drop #1	1633 6324	no data - report AVAPS
1738	Drop #2	1704 6353	80 mi SE
			AVAPS rebated - good data
1720	NASA	1754 6446	
1740	NASA Asst	16N 063	
174930	Drop #3	1742 6434	inside SE eyewall
1754		1757 6454	eye center, VMAX = 65kt
	930mb: 441-15 from sonde		
	eye dia ~ 35 mi on radar		
1759		1801 6513	inside NW eyewall
			VMAX = 65kt
1809		1832 6544	turn pt #2
181135	Drop #4	1828 6539	
1820		1750 6541	turn pt #3
1824	VMAX = 77kt	1749 6522	
182540	→		

# Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

Date \_\_\_\_\_ Flight ID \_\_\_\_\_ LPS \_\_\_\_\_.



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

### Lead Project Scientist Event Log

Date \_\_\_\_\_

Flight \_\_\_\_\_

LPS Blech

Time	Event	Position	Comments
182940		1750 6457	eye center
			up against east side eyewall
1839	NASA 817	973 80 NW	
		mb 60M <del>W</del>	
	Lead AF	972 mb 75 <del>kt</del> W	
	42RF	75 kt W side	
		eye on track 22Z	
1843	Drop #5	1757 6400	E pt 50 mi
1854		1815 6435	80 kt outer band
			30 mi NE center
1858	lightning		
1859	Drop #6	1800 6452	NE eyewall
		rapid desc, inside	VMAX = 80 kt
1903		1750 6505	eye center
190832		1733 6522	SW eyewall
			VMAX = 75 kt
			VMAX = 85 kt at 850mb for last drop
191740	Drop #7	1704 6541	SW trough
			strongest winds at 15737Kft are W & NW of center
			strongest winds at 925mb are on SE + E side
1924		1653 6510	S pt, turning N

0110Z  
ETA  
@pi Locker

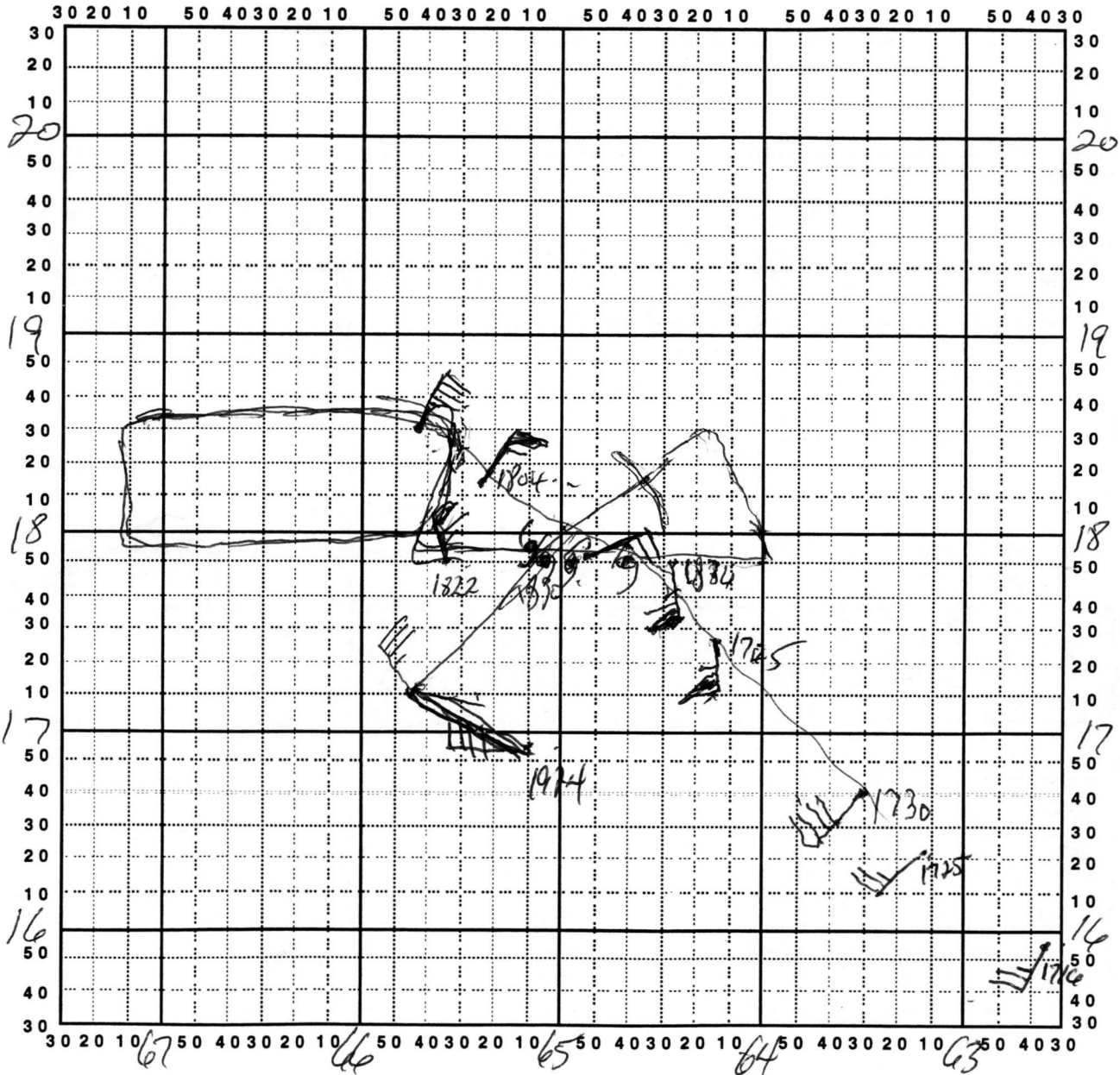




# Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

Date \_\_\_\_\_ Flight ID 2809214 LPS P Black



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



**Mission Summary**  
980921H Aircraft 42RF  
**Hurricane Georges Inner Core Structure at Landfall (Puerto Rico)**  
**and Partial Synoptic Flow**

Scientific Crew (42RF)

Lead Scientist	P. Black
Radar	J. Gamache
Workstation	P. Leighton
GPS sonde scientist	S. Aberson
CSCAT/VSDR	I. Popstefanija

*Mission Briefing:*

This flight was part of a 5-plane inner core structure and synoptic-flow mission to drop GPS sondes in the environment around a weakening hurricane as it made landfall on Puerto Rico (beginning with the eye over St. Croix). Inner core aircraft were one WP-3D (42RF) at 15 kft, the NASA DC-8 at 37 kft and an AFRES WC-130 at 10 kft. This mission dropped 20 GPS sondes- 10 in the inner core (5 in the eyewall) and 10 in the environment north and northwest of the storm.. No AXBTs were dropped. The flight was flown at max altitude 500-450 mb, except for the iron cross pattern in the inner core which was flown at 550 mb. The purpose of the flight was to provide improved initial conditions for track models and to discern the inner core structure of a weakening hurricane.

*Mission Synopsis*

The flight departed Grantly Adams Barbados at 1615 UTC, 21 Sept and landed at 0115 UTC, 22 Sept. The flight legs were oriented SE - NW, W-E, NE-SW AND S-N. Maximum flight-level wind in the inner core was 80 kt at 550 mb, 114 kt at the 925 mb level from dropsonde. Minimum central pressure was 971 mb and the eye diameter was 30 nm. Storm motion was 285° at 13 kt.

Numerous small bands were encountered during the approach to the storm from the SE, bands extending outward over 150 nm. five thin bands every 20 nm were observed. The eyewall extended from the S to NE quadrants, open to the NW and N. Peak flight level winds were in the W and NE quadrants. Eyewall sondes and EVTD Doppler wind data showed a much stronger circulation below 849 mb than at higher levels. The EVTD Doppler based hodograph showed nearly a 20 kt northerly shear from 10 to 5 km. This may have caused the dramatic weakening over the past day. The CSCAT/VSDR worked flawlessly, recording vertical wind profile data along each leg, showing the low level wind max.

St Croix was in the eye when we arrived. During the flight, the eye approached and made landfall on the SE coast of Puerto Rico. The initial leg was designed to be a radial on the San Juan WSR-88D. The NASA DC-8 flew a butterfly pattern commencing with a NW to SE leg. They reached their SE point as 42RF reached its IP at the SE point.

*Evaluation:*

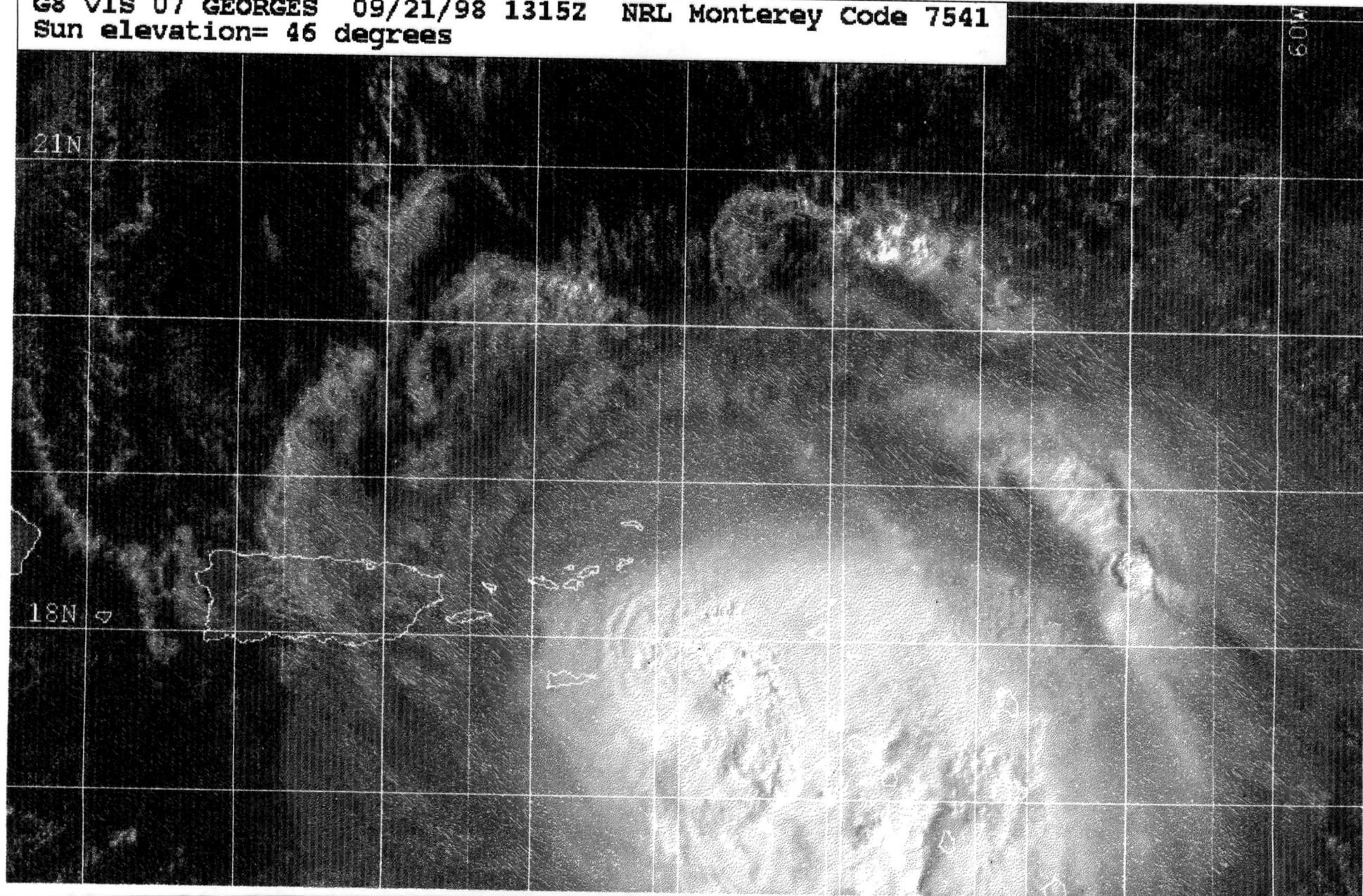
This flight is part of a 5-plane synoptic flow experiment for determining the environmental flow structure of the atmosphere around a weakening, landfalling TC while also determining the inner core structure.

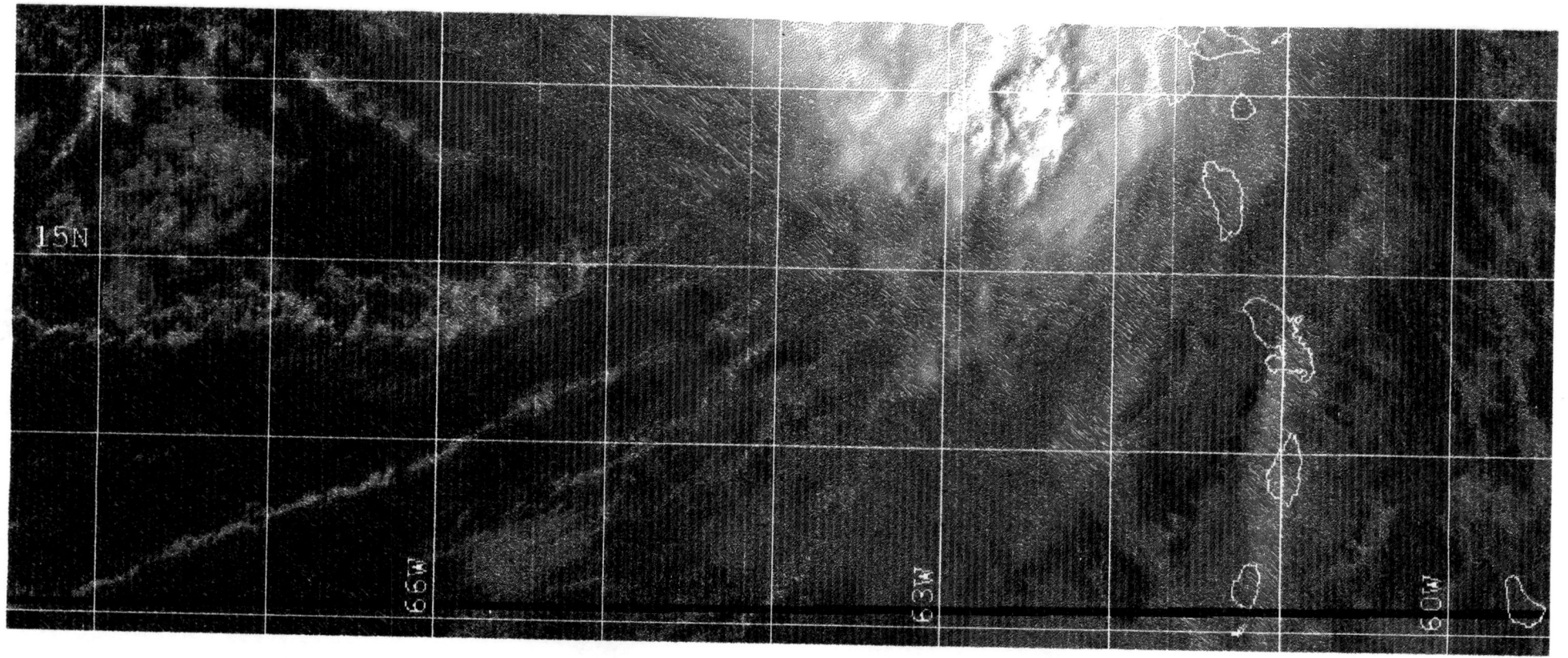
*Problems:*

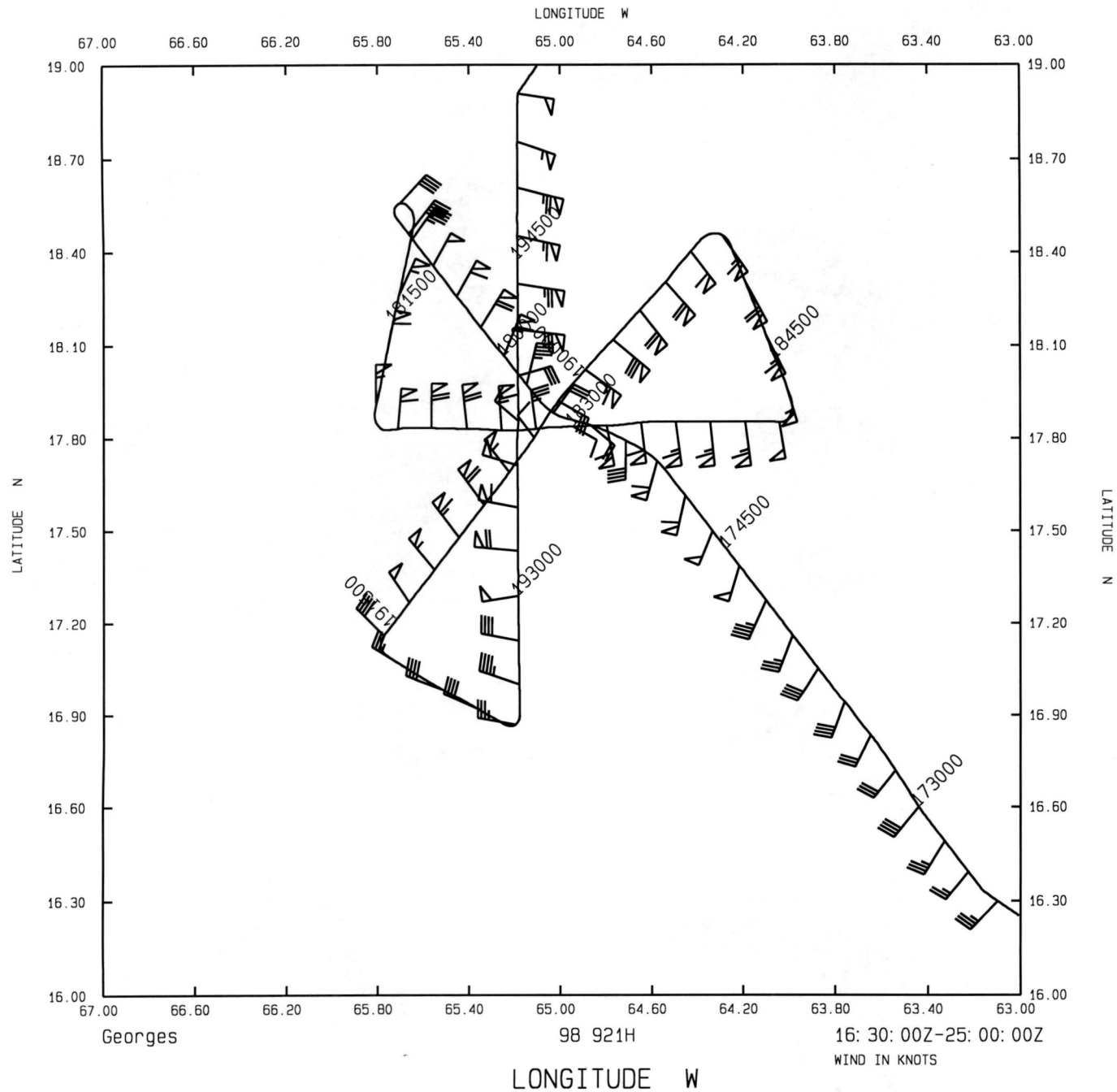
All systems functioned nominally.

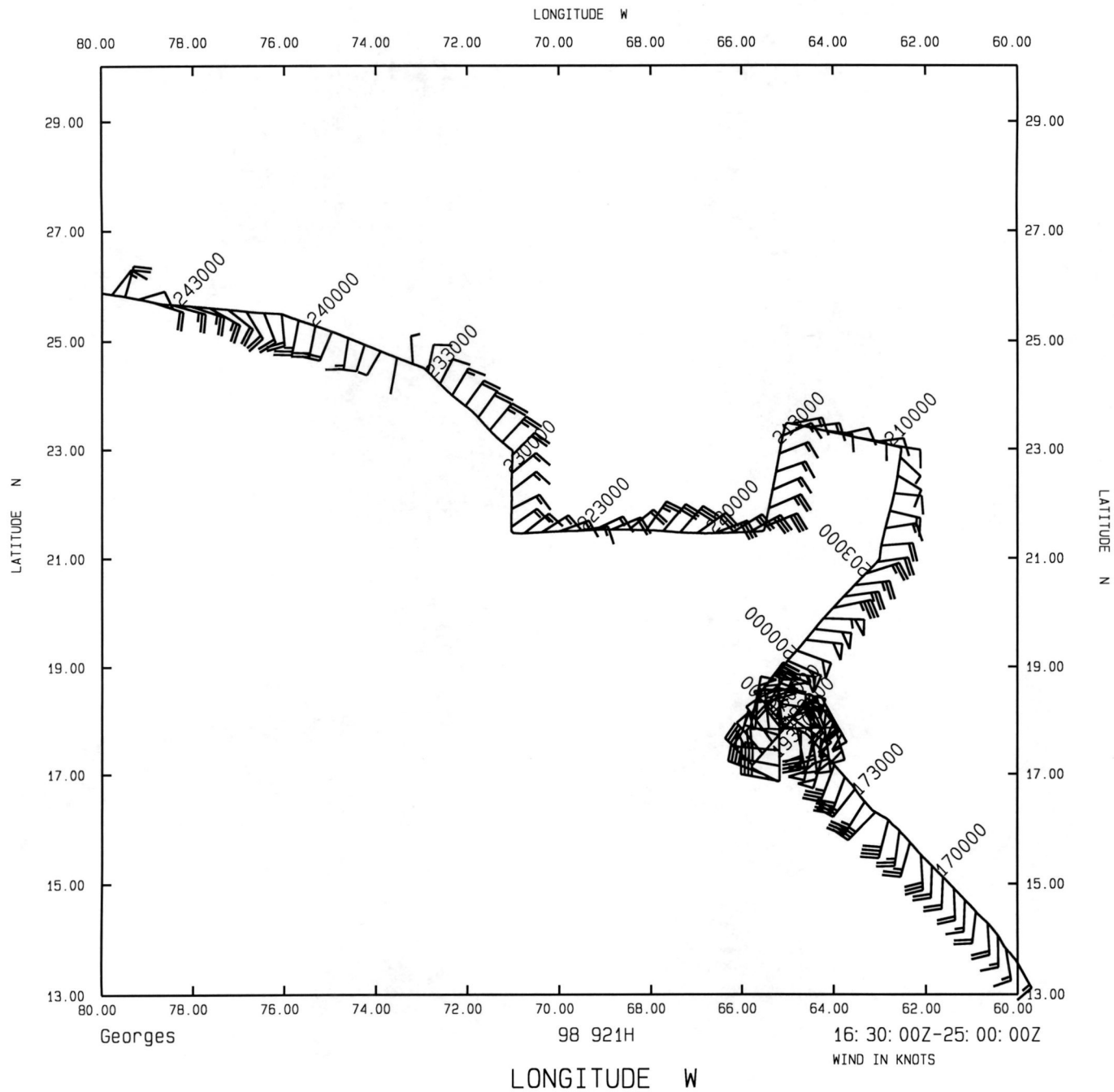
Peter G. Black

G8 VIS 07 GEORGES 09/21/98 1315Z NRL Monterey Code 7541  
Sun elevation= 46 degrees

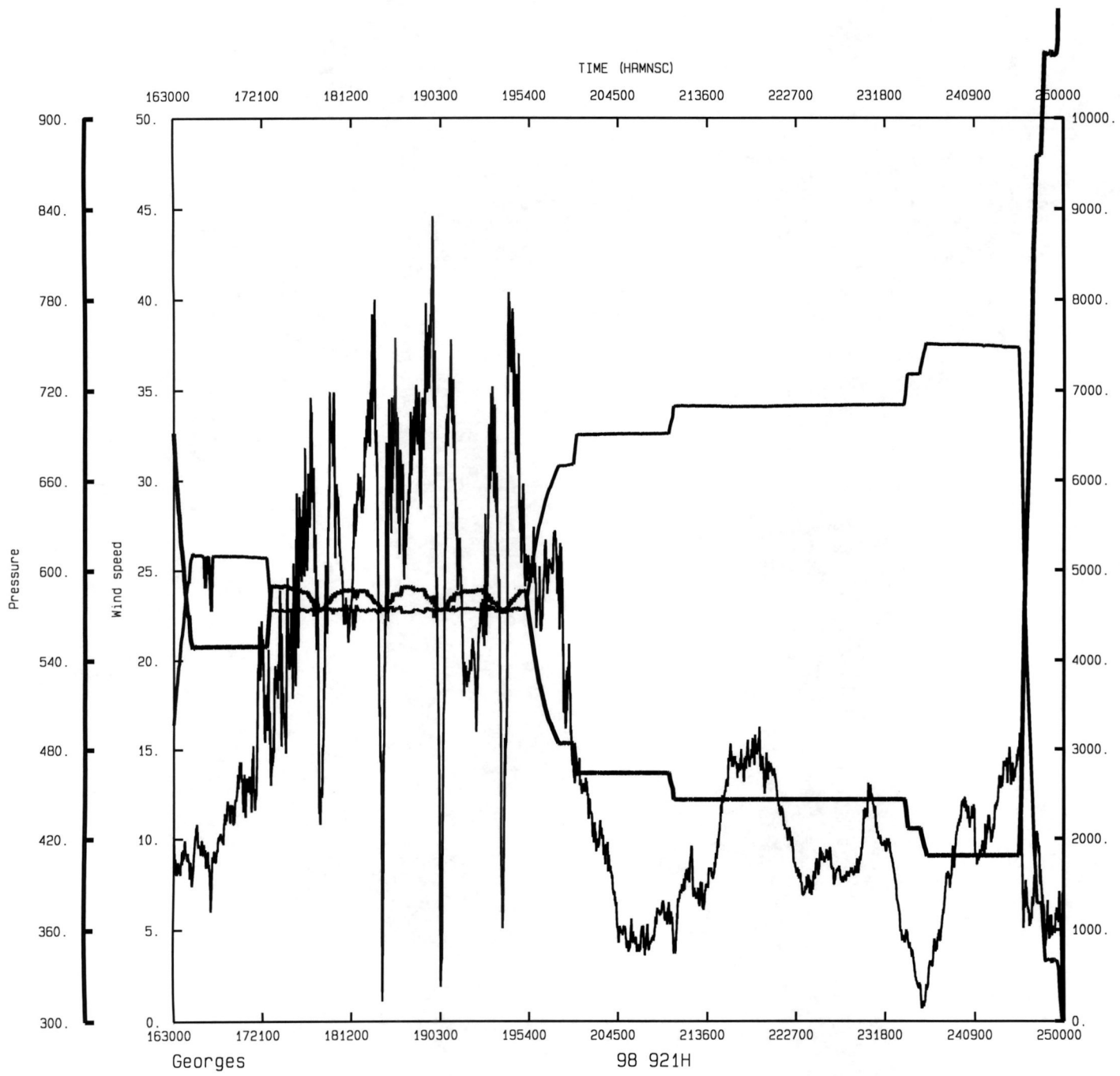








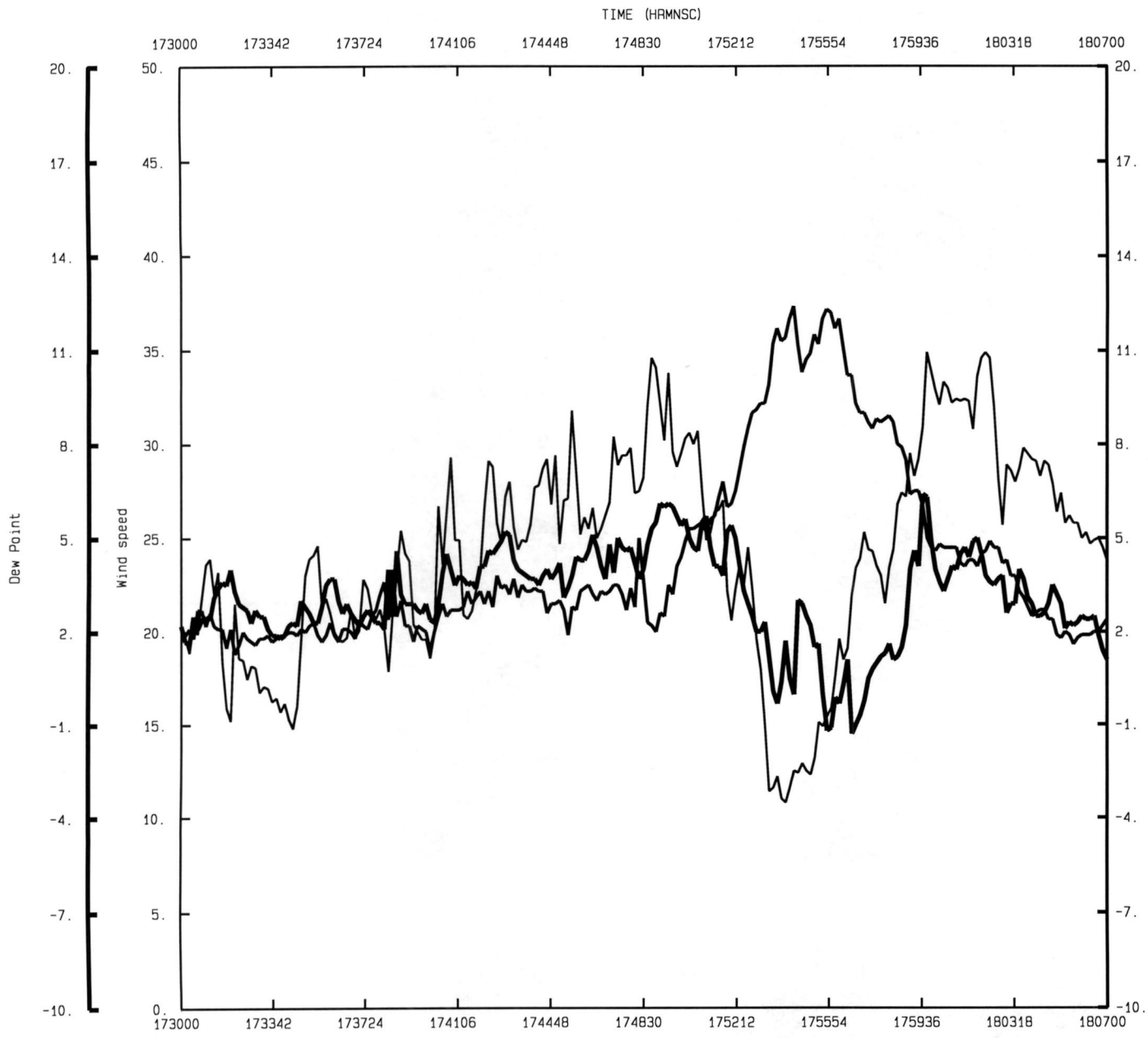




TIME (HRMNSC)



NOAA/HRD



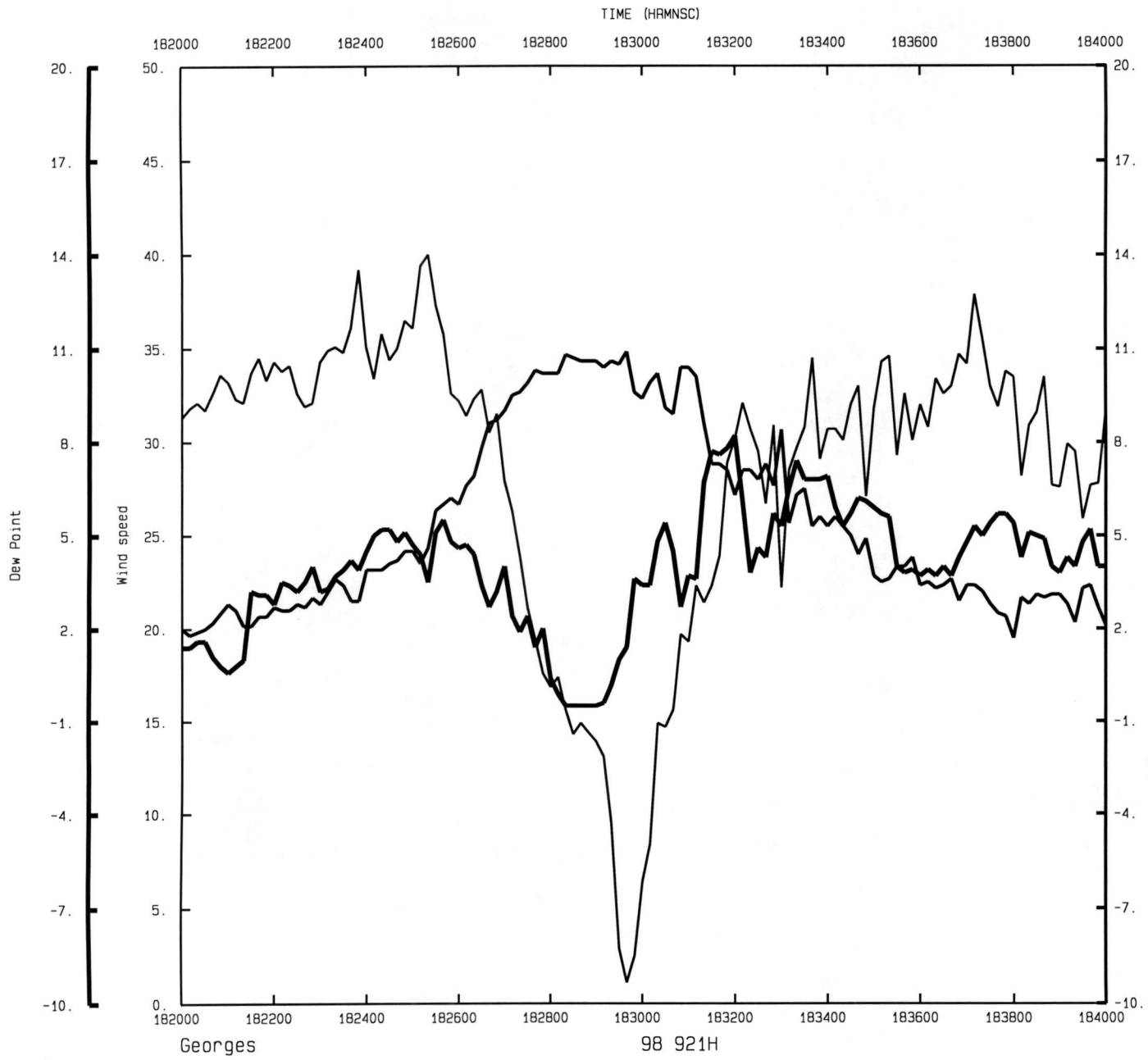
Georges

98 921H

TIME (HRMNSC)



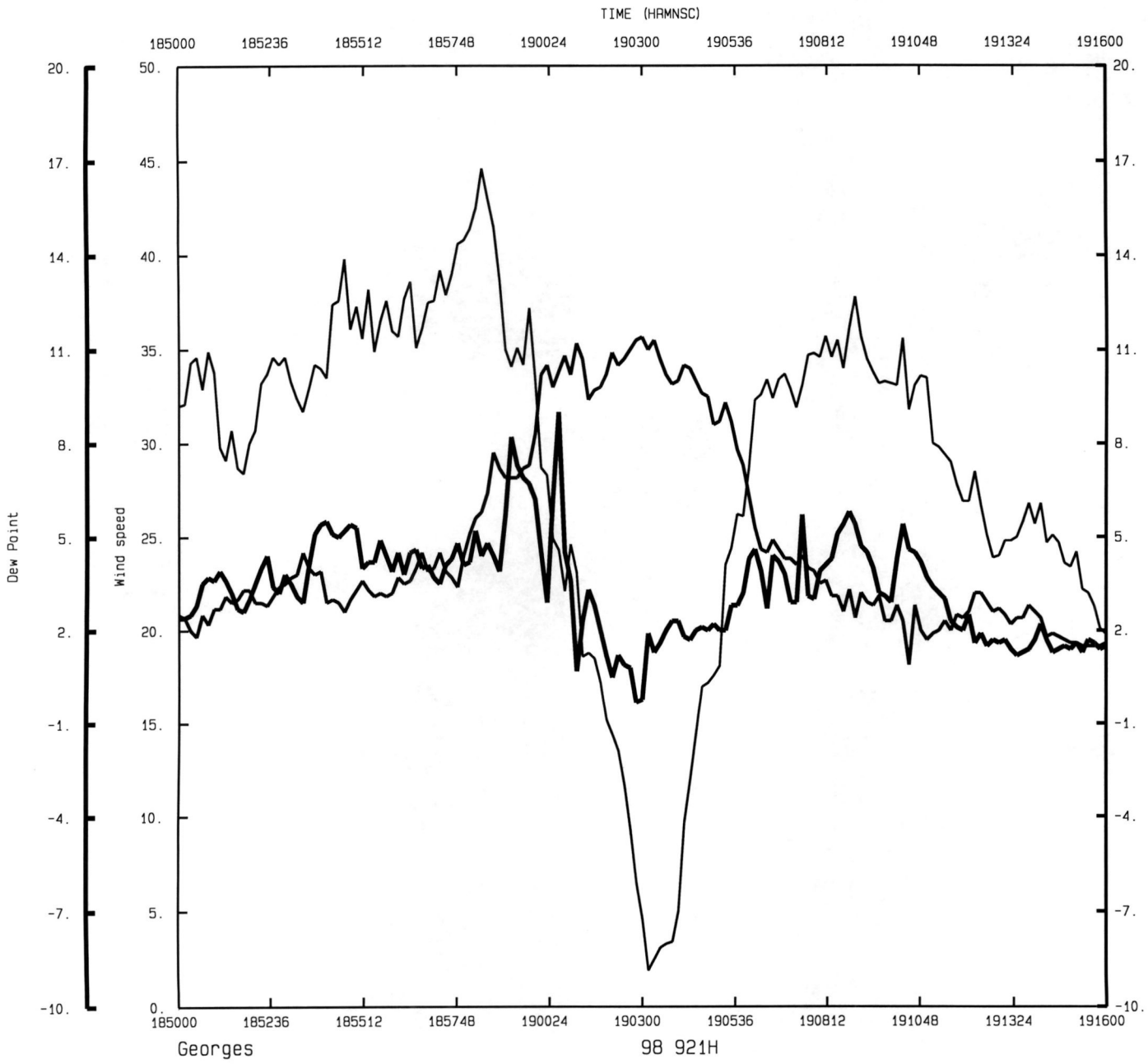
NOAA/HRD



TIME (HRMNSC)



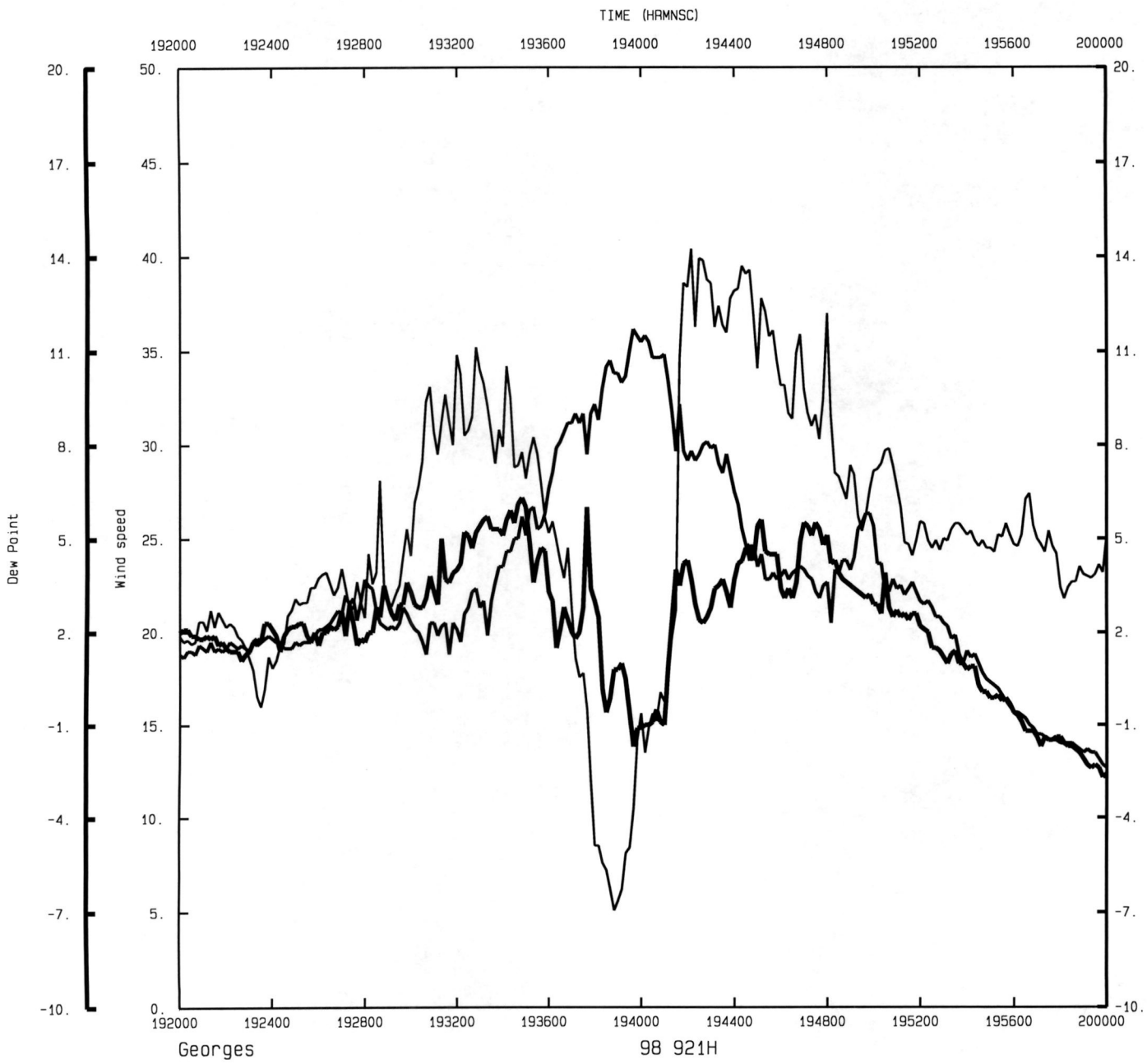
NOAA/HRD



TIME (HRMNSC)

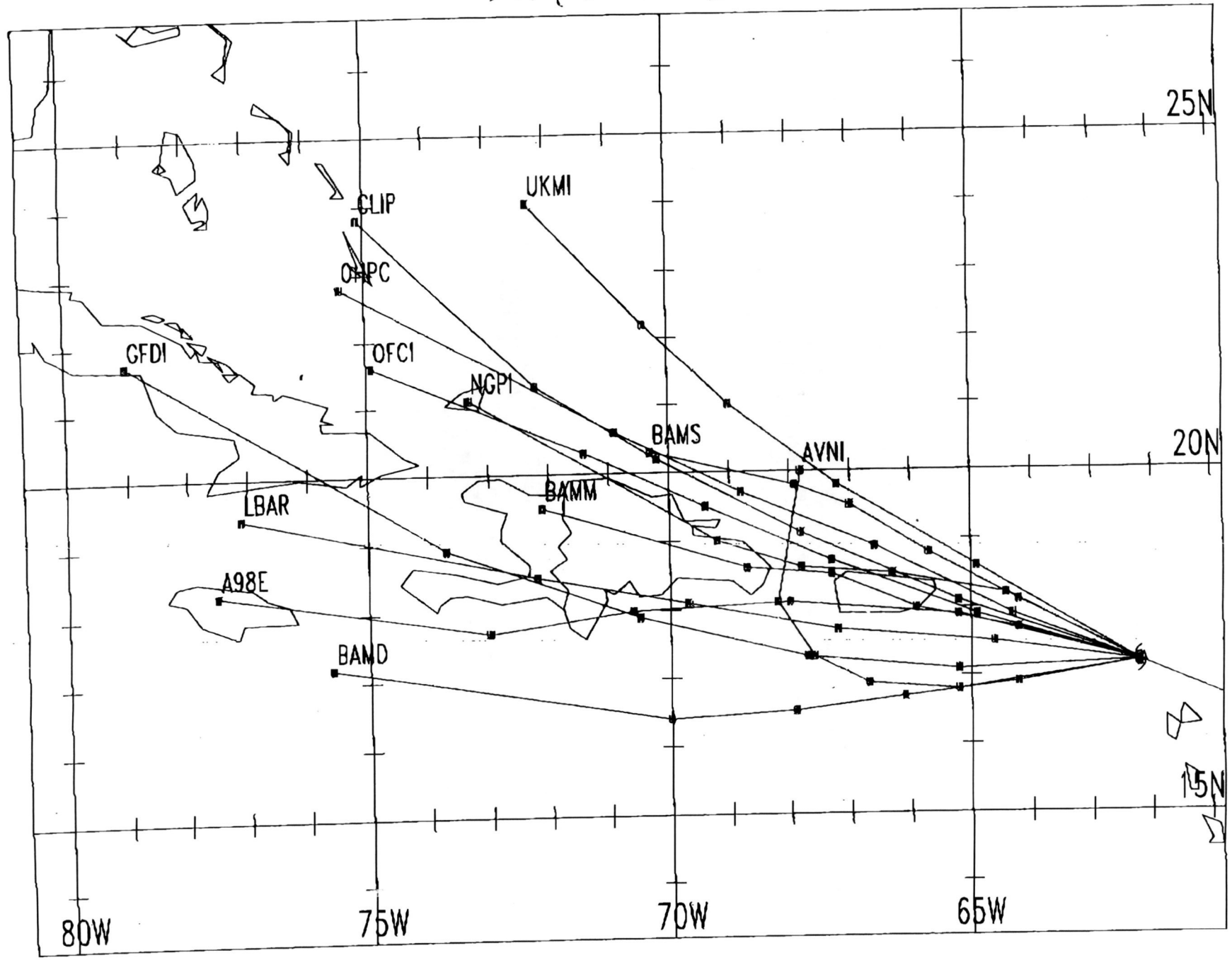


NOAA/HRD



NOAA/HRD

21/0600Z



ATTN MET-OFFICE Barbados  
21<sup>st</sup> Sept 1998

SOH>  
00  
AAT31 TAPA 211134  
METAR TAPA 2300Z 03020KT 8000 SCT015CB BKN035 BKN060 XX/XX Q1010=  
METAR TAPA 0000Z 03022KTG34KT 9999 SCT021 BKN040 BKN270 27/21 Q1007=  
METAR TAPA 0100Z 05024KTG42KT 8000 SCT020 BKN040 BKN270 27/23 Q1005=  
METAR TAPA 0200Z 04030KTG54KT 4000 SHRA FEW018CB SCT020 BKN040 27/24 Q0999=  
METAR TAPA 0300Z 05050KTG77KT 4000 SHRA FEW017CB BKN019 BKN040 26/22 Q0986=  
METAR TAPA 0400Z 09019KT 9999 SHRA BKN017CB BKN038 27/27 Q0702=  
METAR TAPA 0500Z 17060KTG98KT 9999 RA SCT017CB BKN038 XX/XX Q0975=  
METAR TAPA 0600Z 17054KTG89KT 2000 QXXXX=  
METAR TAPA 0700Z 16032KT 2000 RA BKN015CB SCT038 BKN060 XX/XX Q1002=  
METAR TAPA 0800Z NIL=  
METAR TAPA 0900Z 16040KTG59KT 2000 RA SCT013CB BKN035 BKN060=  
METAR TAPA 1000Z 17030KTG40KT 2000 RA SCT015CB BKN037 BKN060 XX/XX Q1010=  
METAR TAPA 1100Z 18020KTG32KT 6000 RA SCT015CB BKN035 BKN060 XX/XX Q1010=  
METAR TAPA 1200Z 17015KT 9999 RA SCT015 FEW018 OVC060 XX/XX Q1010=  
<ETX>

PLEASE TRANSMIT AS SOON AS POSSIBLE.

Regards

MET. OFFICE Antigua

~~fix~~