

19980820I1-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 20/8/98 Aircraft N43RF Flight ID 980820 I

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Aberson</u>	Flight Director	<u>Jack Parrish</u>
Cloud Physics	<u>Itself</u>	Pilots	<u>McKim, Tennesen,</u>
Radar	<u>Gamache</u>	Navigator	<u>Kozak</u> ^{Kenul}
Workstation	<u>Dodge</u>	Systems Engineer	<u>Roles</u>
Photographer		Data Technician	<u>Lynch</u>
Omegasonde	<u>Aberson/Gamache/Dodge</u>	Electronics Technician	
AXBT/AXCP	<u>x</u>	Other AVAPS	<u>Jeff Smith, Roles</u>

Take-Off: 17:37 Location: ST CROIX Landing: 03:30 Location: Bermuda

B. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

C. Mission Briefing:

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:

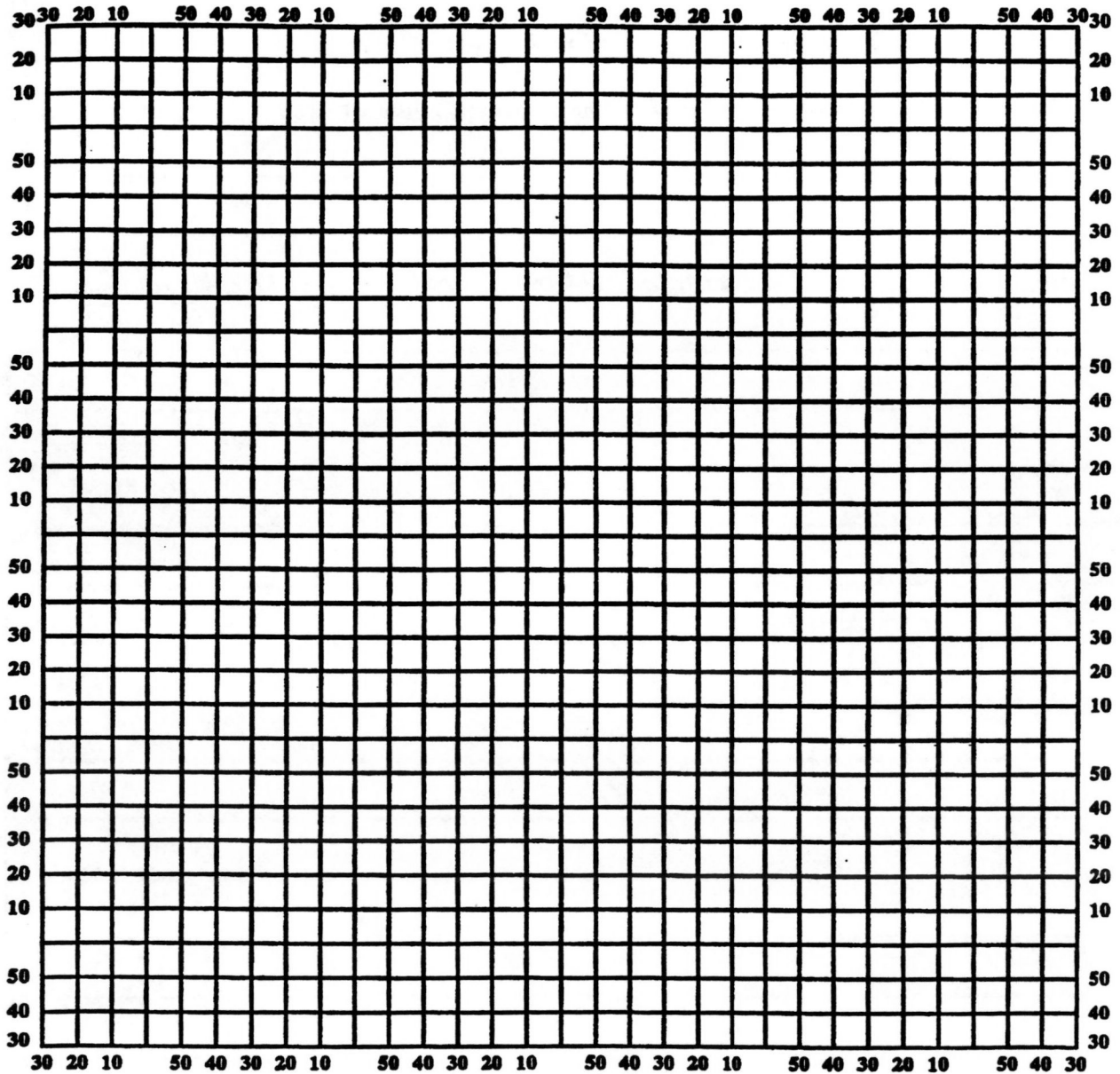
E (I) Proposed Flight Pattern (sketch or designate by number)

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 20/8/98

Flight 980820I

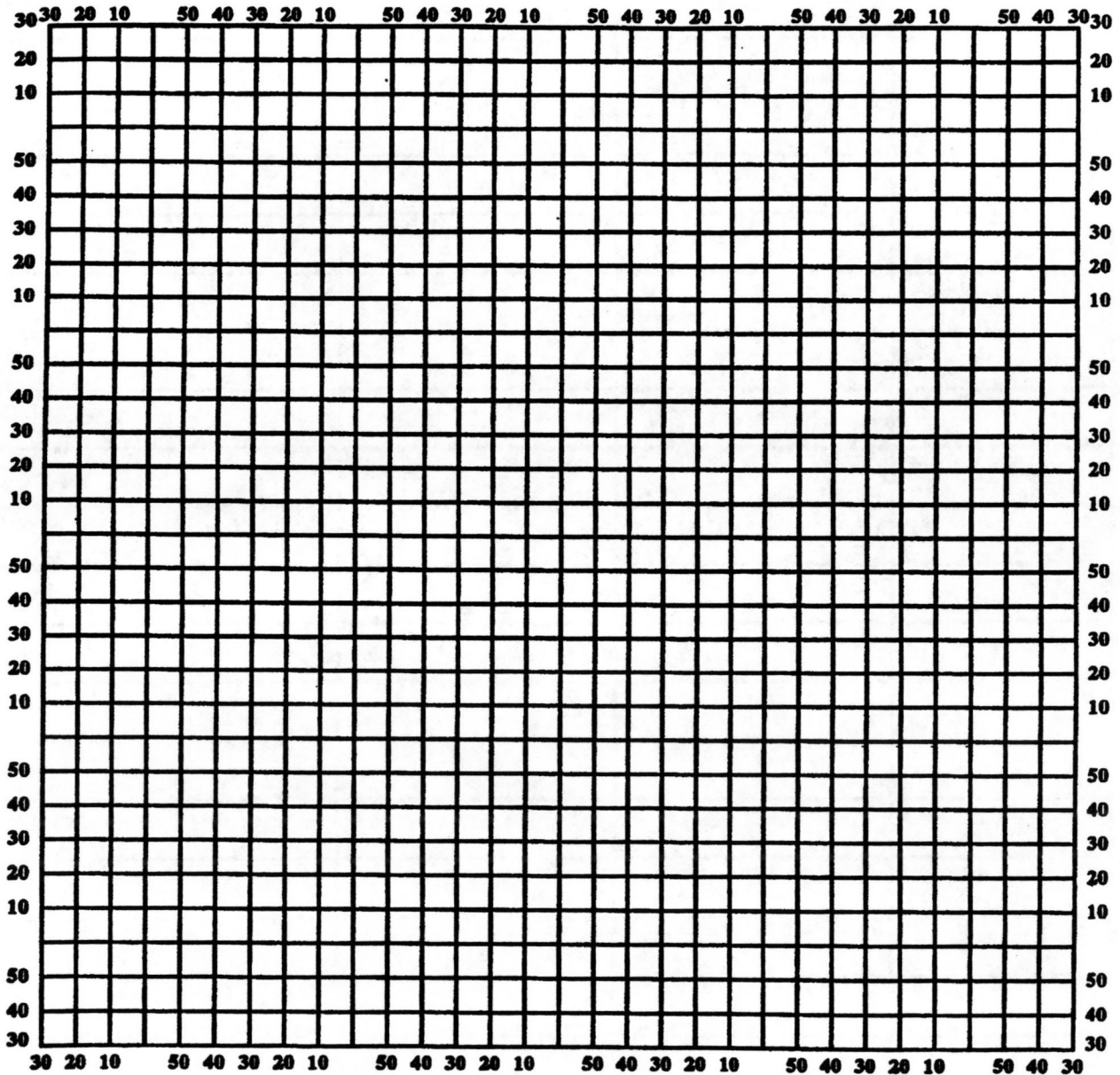
LPS Abersom

Time	Event	Position	Comments
17:37	Takeoff	St Croix	
17:50	Radar up, cloud physics coming up, workstation working		
18:00	AVAPS & Workstation do not have same time. Only supersuser can change it		
	Offset is ^{m:hh} +3:18 later on workstation than AVAPS. Could not reach Jameson 49.		
18:45	AVAPS & workstation not communicating		Terry Lynch checking
19:00	Shutting down and rebooting workstation. Communication confirmed getting back to workstation		
19:50	Reached Joe by phone. Pete Dodge communicating		
19:14, 19:36	Dropped sondes, worked upon AVAPS computer		
20:08	Checked that workstation is getting radar data		
20:30	Swapped wires in workstation, problem fixed.		First three sondes (2-4) sent via avaps)
20:10	Flaw through convection associated with wave.		Some signal in sonde #2
20:40	Jack Parrish notified that remainder of track has been approved.		
21:06	Into front		
	Uneventful flight. Plane ascended as per plan.		Air traffic control forced
	ascent to 7963m off New Jersey. Beautiful sunset in very dry		
	air.		
02:21	Last drop. Remainder of flight uneventful		save some convection on
	southeastward leg in to Bermuda.		

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 _____ Flight _____ LPS _____

[illegible]

Lead Project Scientist Event Log

Date _____ Flight _____ LPS _____

[illegible]

Date _____

Flight _____

LPS _____

[illegible]

Mission Summary

Bonnie

980820I Aircraft 43RF

Scientific Crew (43RF):

Lead Project Scientist:	Sim Aberson
Radar Scientists:	Peter Dodge and John Gamache
Dropwindsonde Scientists:	Peter Dodge and John Gamache
Workstation Scientist:	Peter Dodge

Mission Briefing:

Tropical Storm Bonnie named during the flight based upon Air Force aircraft reconnaissance to the east of the northern Leeward Islands, moving westward at 22 kn toward the northern Virgin Islands. As a result, the Tropical Prediction Center tasked the Gulfstream-IV aircraft for a synoptic surveillance mission to help better determine the future track of Bonnie. Data from the two P3 aircraft were to supplement the data from the G-IV.

A tropical wave, which had previously shown signs of development, is located near 73W. The main deep-layer synoptic features (Fig. 1) are the subtropical ridge north of Bonnie extending westward toward the coast of Florida. Another anti-cyclone cell is located over the southeastern US further to the north, with a break in the ridge between the two. A strong mid- to upper-level trough is located just off the northeastern US coast to the northeast of this break. This trough had already brought unseasonably cold weather to the northeastern US, with frost reported in a number of locations the evening before.

NCEP ensemble perturbations (Fig. 2) show a large and complex area of forecast uncertainty in the north Atlantic to the west and north of Bonnie. One target corresponds to Bonnie itself, another to the deep-layer trough and jet entrance just off the US east coast, and to the subtropical ridge between these two features. The flight tracks (Fig. 3) were drawn to sample these features.

Mission synopsis:

The flight of N43RF was due to sample the westernmost regions of interest through the Bahamas, then northward along the US east coast and back south to recover in Bermuda. The first sonde was delayed due to problems with the workstation/AVAPS communication. The workstation was unable to hear dropwindsonde data started on the AVAPS. Jeff Smith, AVAPS operator, noted that the dropwindsondes could be worked up on the AVAPS computer, much in the manner of the Air Force, and sent out that way, while the workstation was examined. The remainder of the dropwindsondes were dropped, with only one wind failure later in the mission, and this dropwindsonde was replaced. The first three dropwindsondes were worked up on the AVAPS computer, which limited the ability to do quality control, though the data were carefully checked before being sent out.

A call was placed to Joe Griffin in his office at AOML, and he and Peter Dodge discussed the problem. Despite earlier tests showing that the wiring was not a problem, a wire was switched, and the problem was corrected. The remainder of the dropwindsondes were worked up on the workstation by either Peter Dodge or John Gamache.

A second, minor problem on the workstation was the time. The time on the workstation was 3 minutes and 18 seconds faster than that on the AVAPS system, which corresponded to the time on the aircraft system. We were unable to fix this problem without the system password, but this did not seem to cause a problem in working up the dropwindsondes.

The second dropwindsonde was dropped near the axis of the tropical wave preceding Bonnie, just before an area of convection. The heights were lower than reported in surrounding sondes.

The next interesting feature was passage into the dry air behind the surface front off the US east coast. The front was preceded by a large area of convection. Flight level winds shifted from south southeasterly to northeasterly, without ever getting a westward component, suggesting a narrow shear zone. Then the western ridge cell became evident.

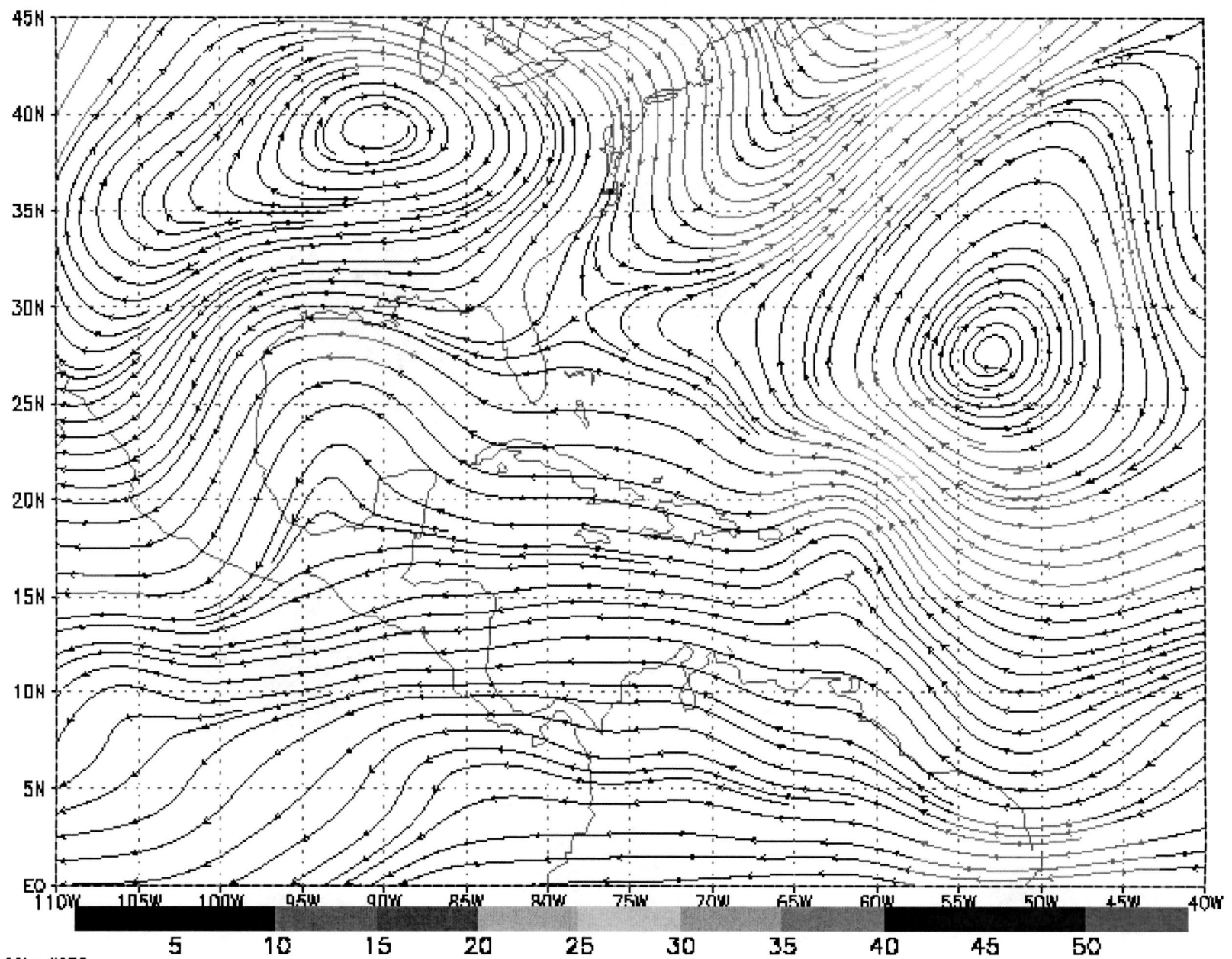
The air behind the front was very dry, with humidities as low as 0.1%. One sonde had a dewpoint at 700 hPa of -66.8, which is believable given the same sampling with both humidity sensors, and near-duplication with nearby dropwindsondes. Just below this, a stratocumulus deck was evident, due to instability from the cold air moving over the warm waters near or over the Gulf Stream. Some of the sondes reported superadiabatic lapse rates just below the inversion representing the dry, subsiding air.

The last few dropwindsondes were to be on the east side of a forecast cutoff low at 400 and 500 hPa. However, we never experienced southeasterly winds, though the data suggest more of a strong shear line than a cutoff. This may represent missing this particular target for the targeting experiment, though if the lows were truly not closed, this will not be a problem. The strong shear zone noted in the northbound legs suggest that this may be the case. Convection returned during the last leg southward into Bermuda, representing the transition back through the strong frontal zone. Strong southwesterly winds suggest a very strong trough that may in fact pick Bonnie up into the westerlies before reaching the Bahamas. The evening's model runs will tell the story.

The flight was beautified by a spectacular sunset in the very dry air above the stratocumulus deck.

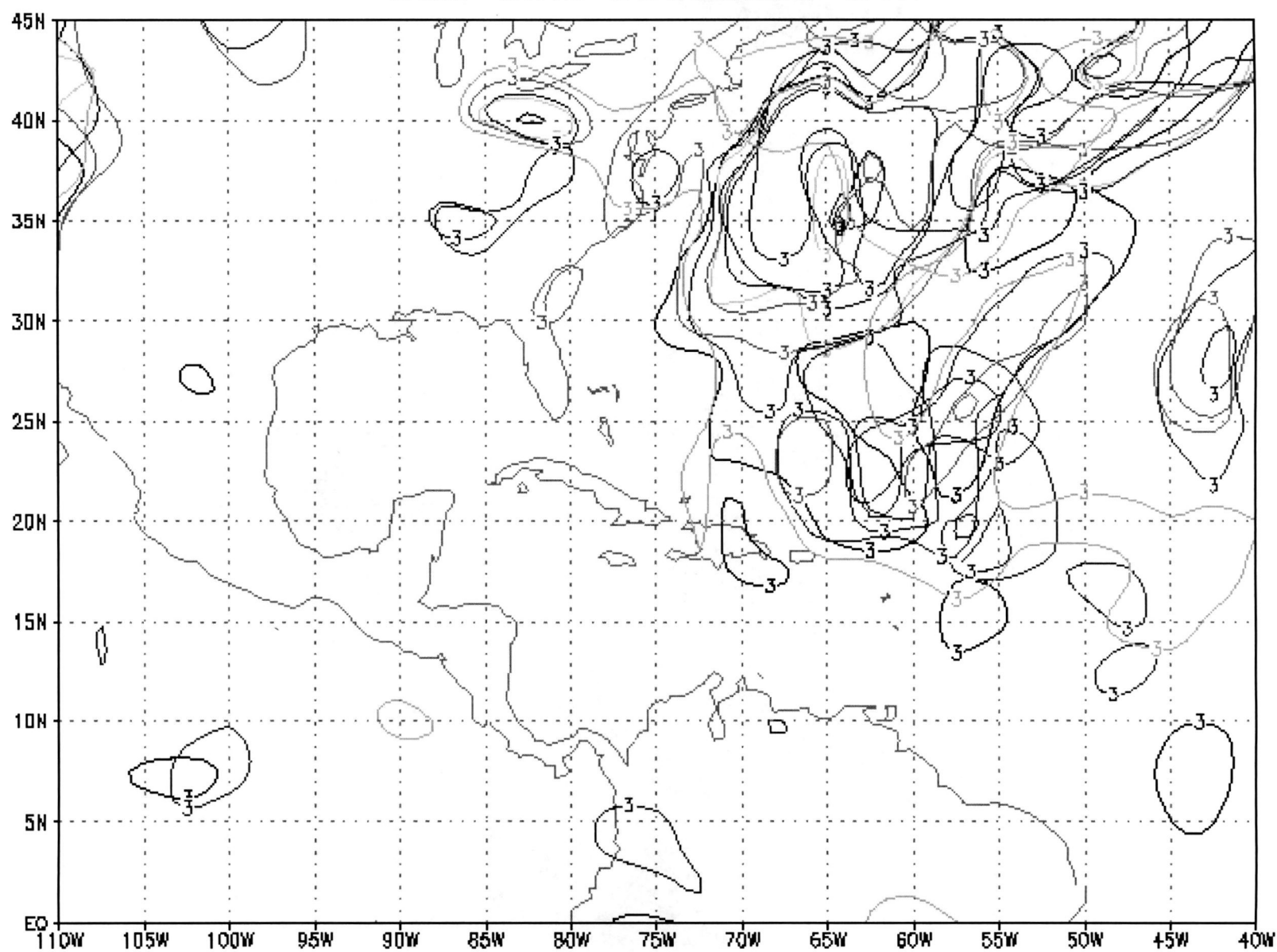
Sim Aberson
9 September 1998

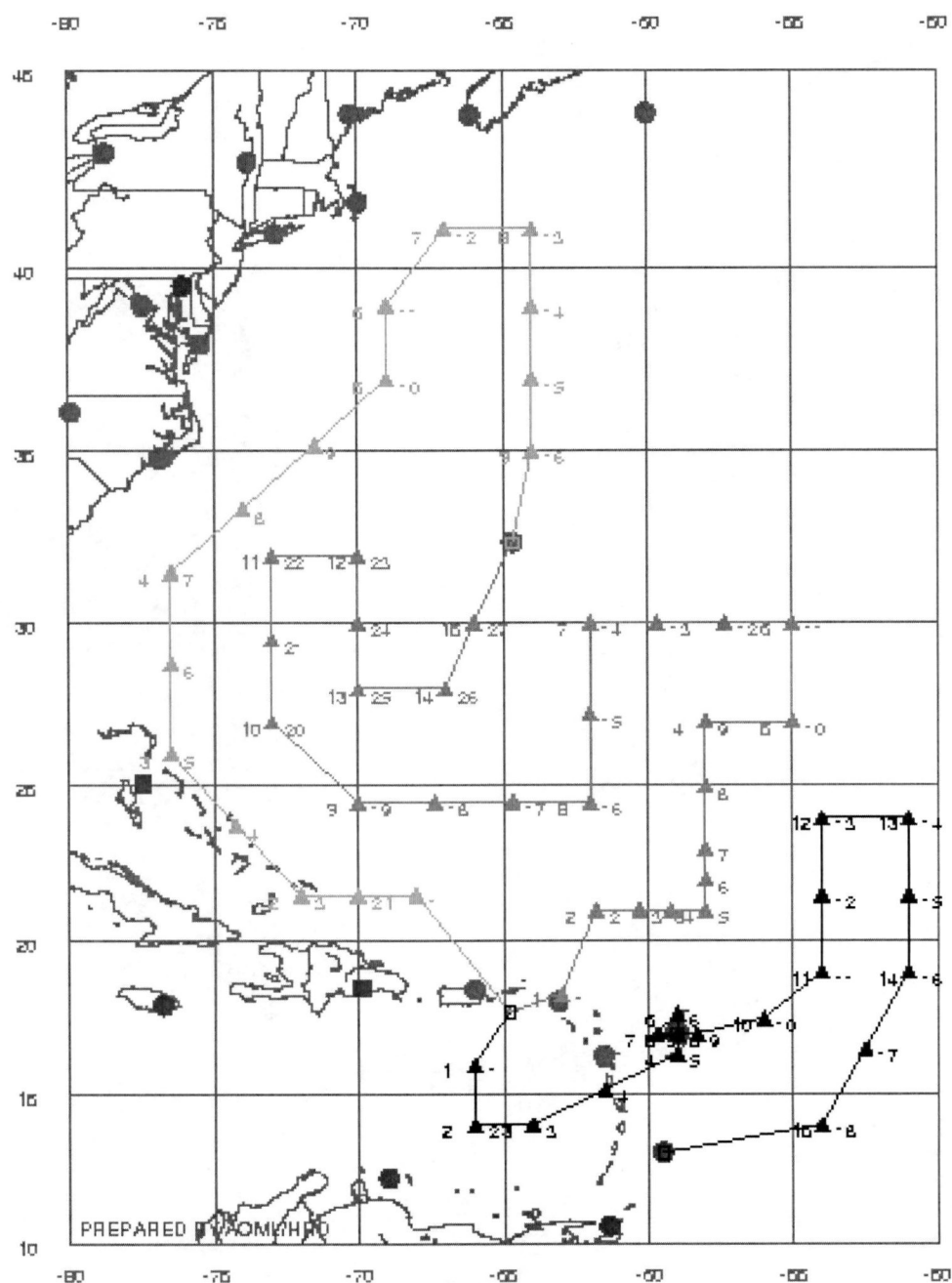
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GrADS: COLA/IGES

DLM wind 98082000 24h





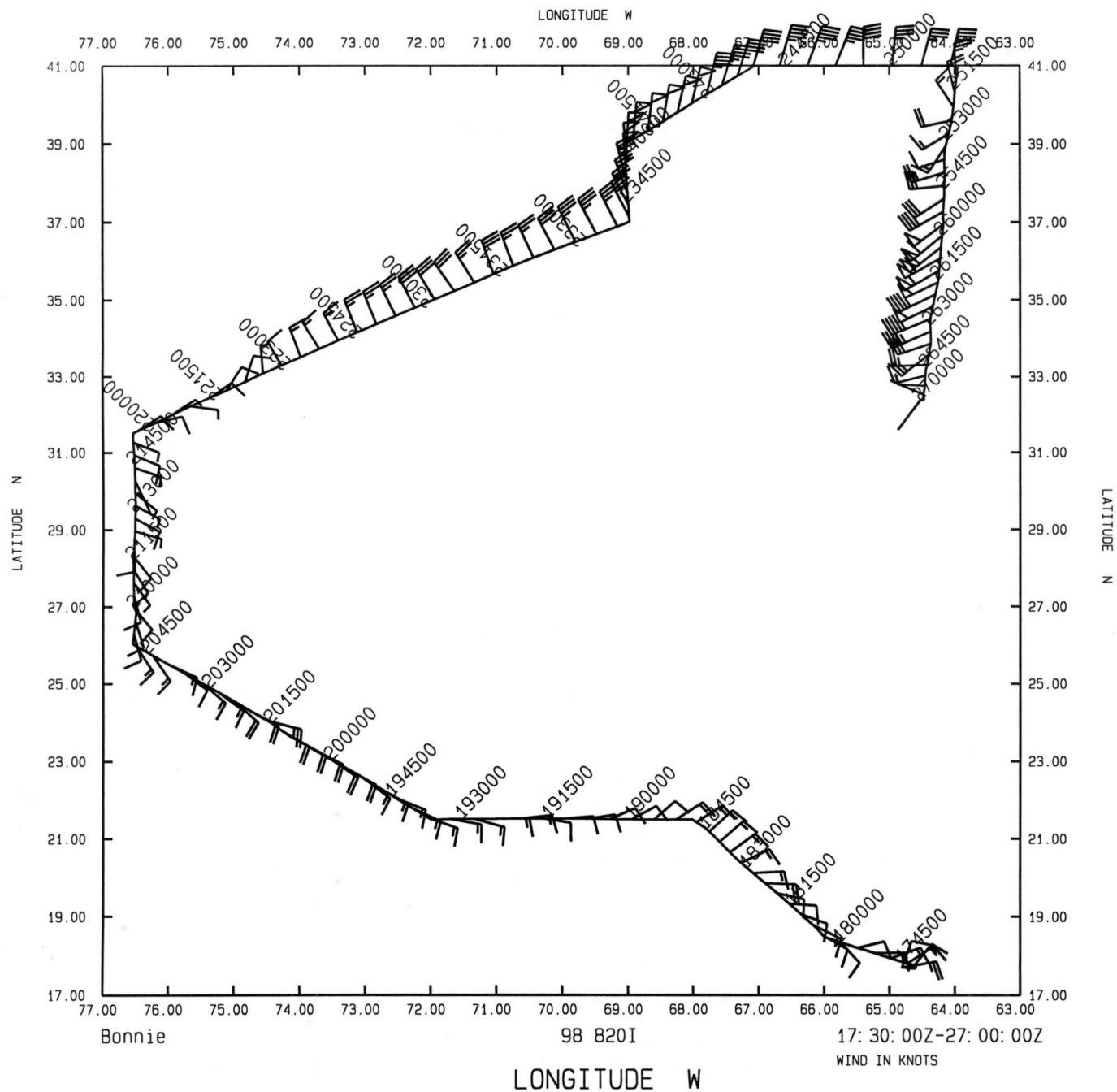
FLIGHT TRACKS BONNIE

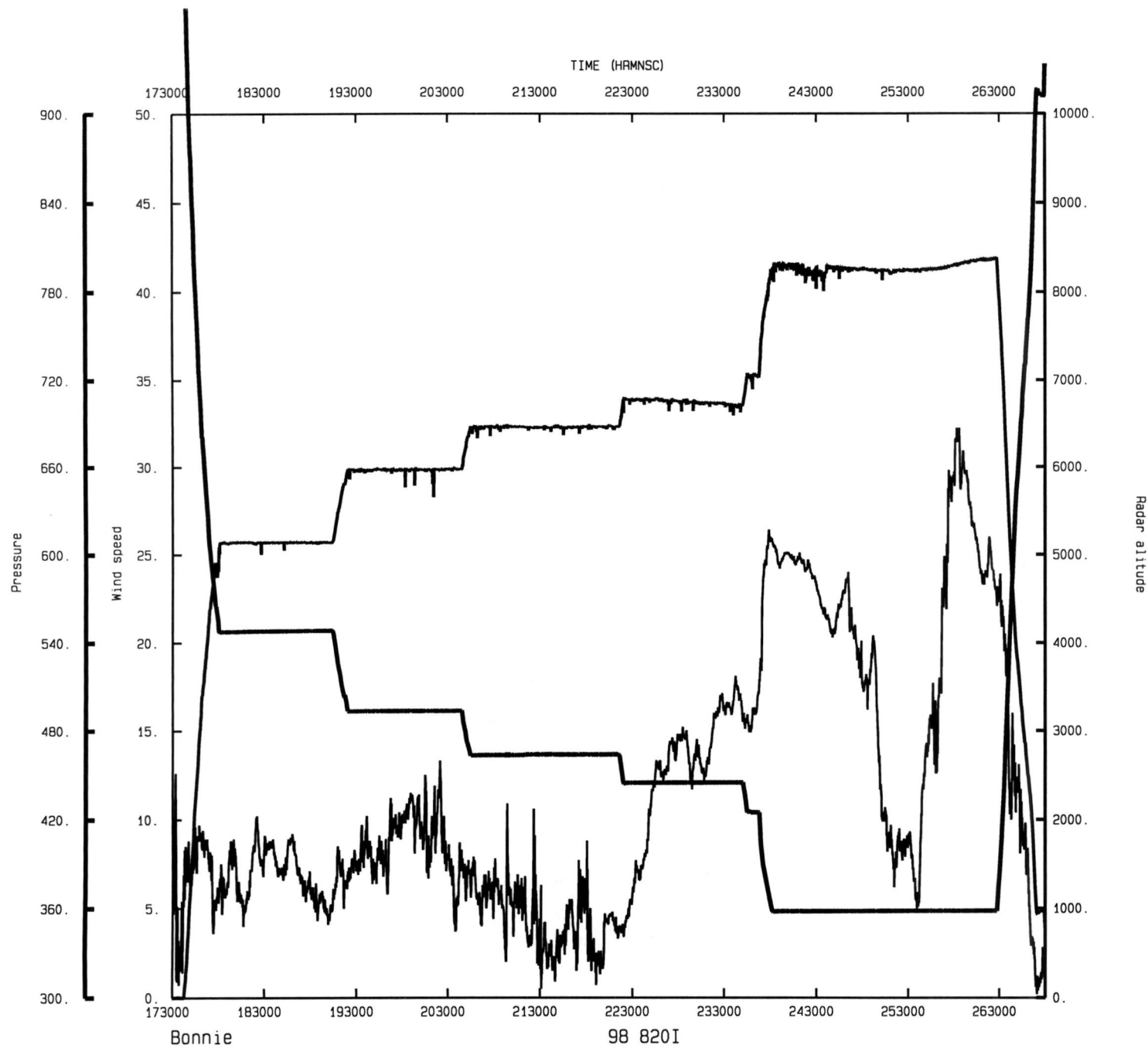
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880820p.11k
880820hp.11k

RAWINSONDES 8807

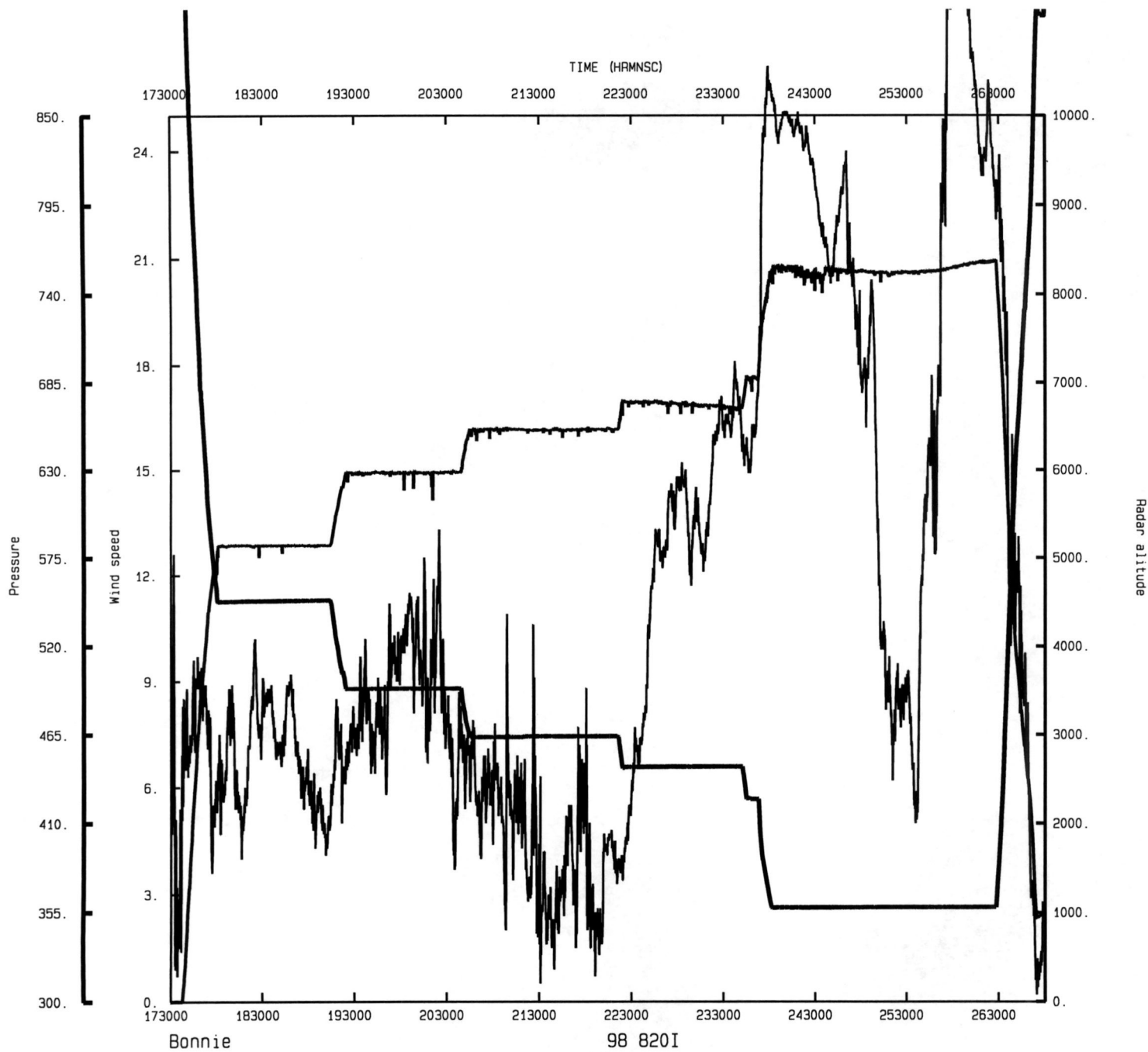
Regular
12Z only
00Z only
Infrequent
Infrequent - 00Z
Infrequent - 12Z

▲ DROP LOCATIONS

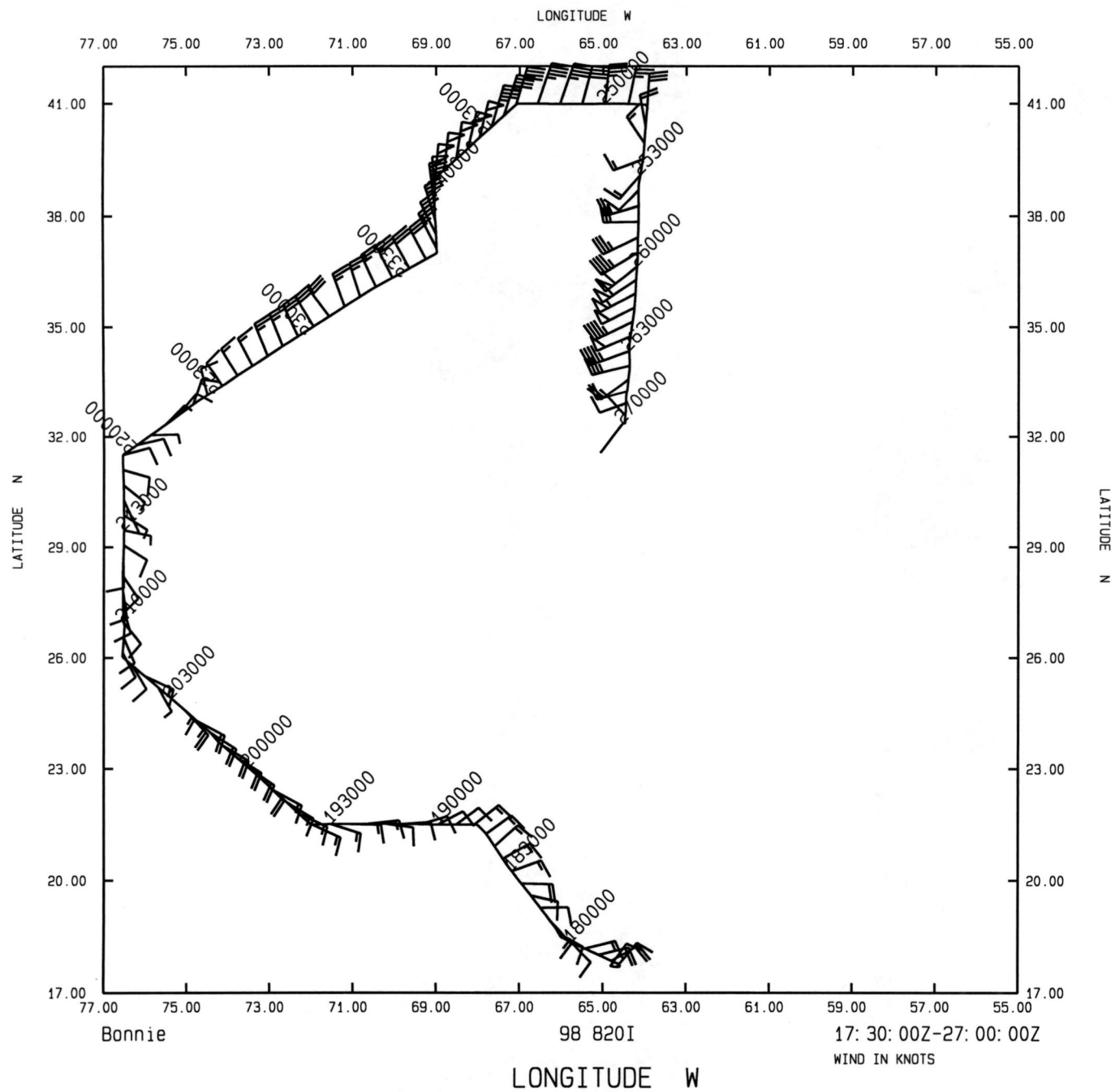


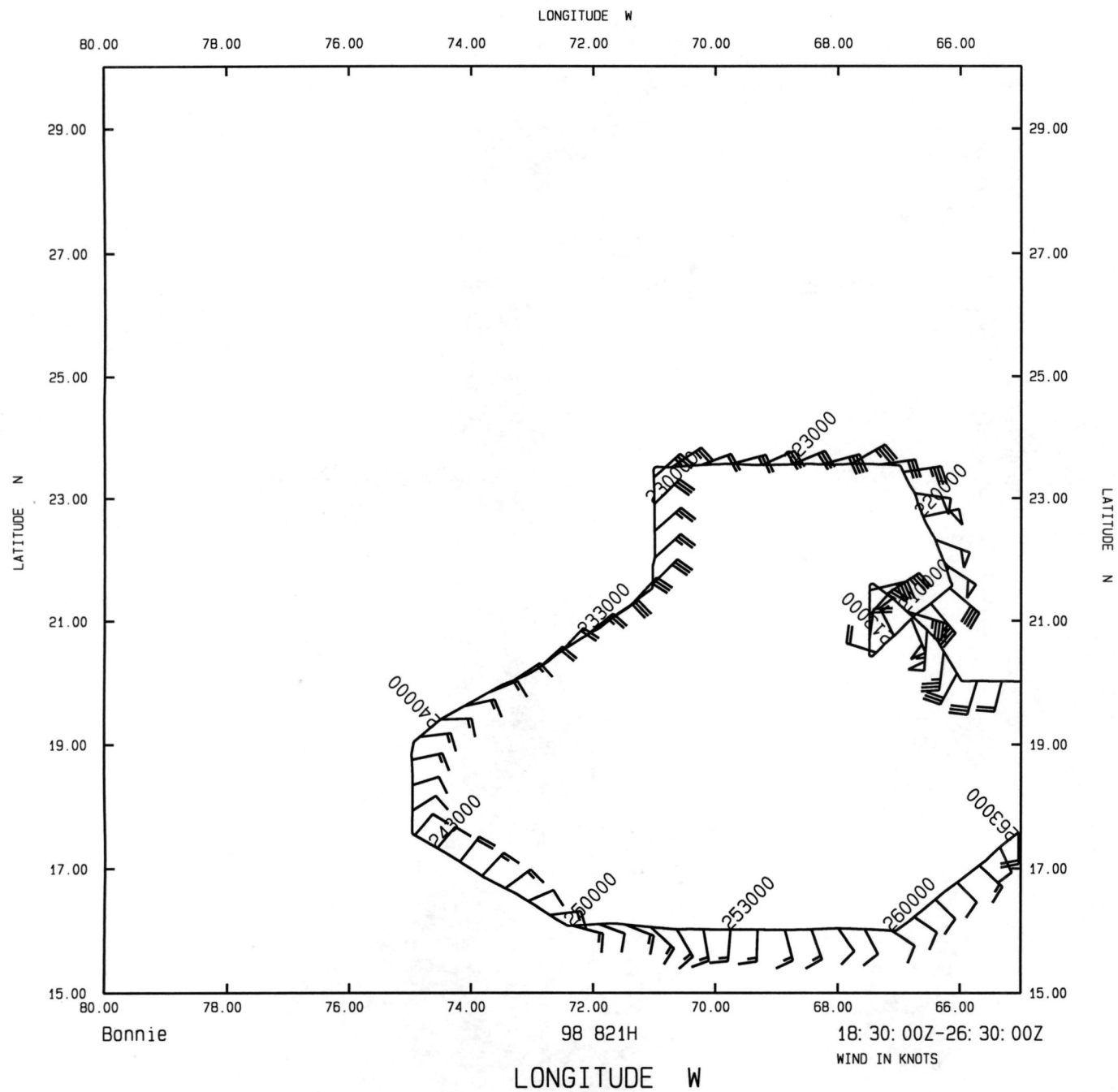


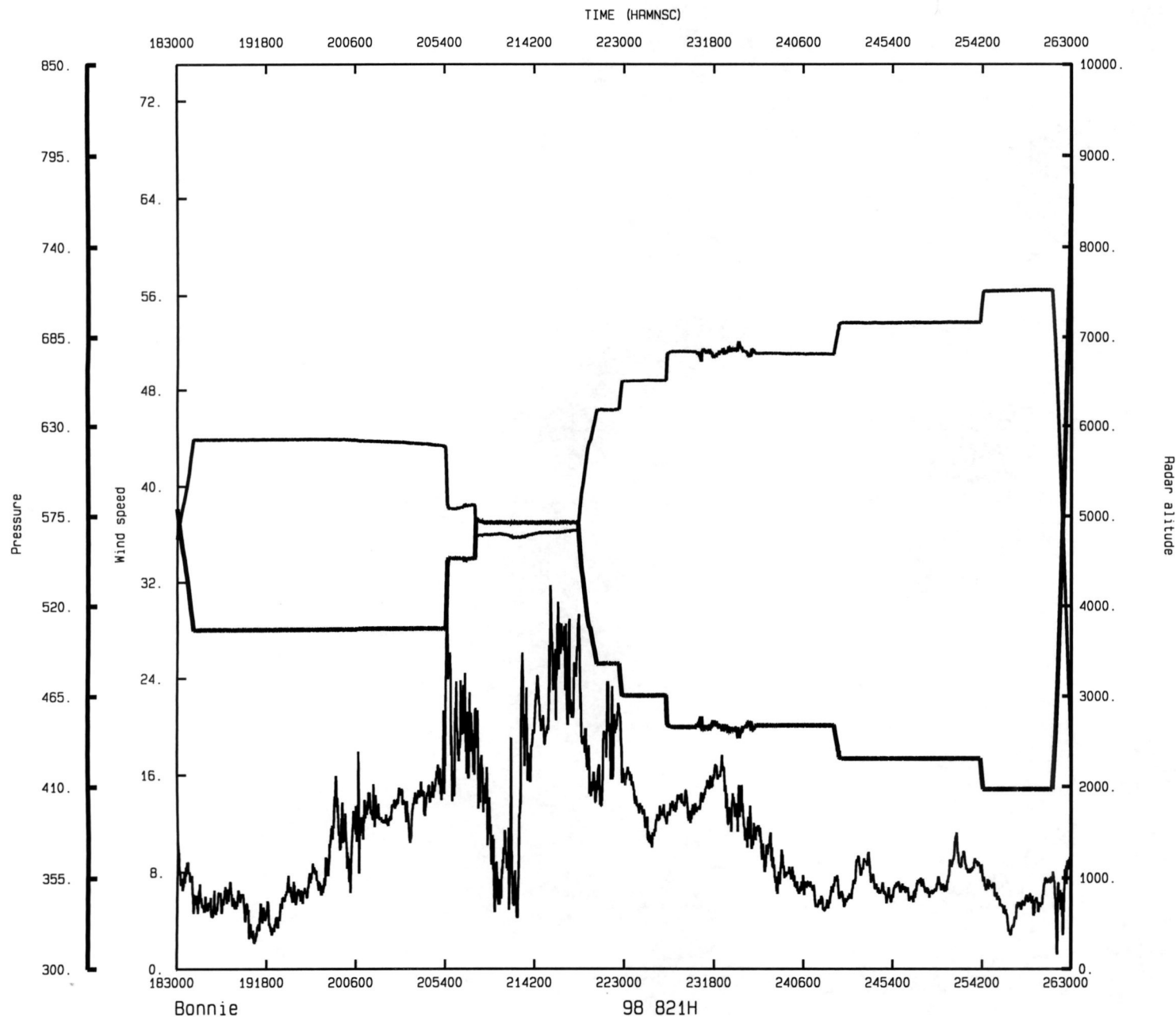
NOAA/HRD



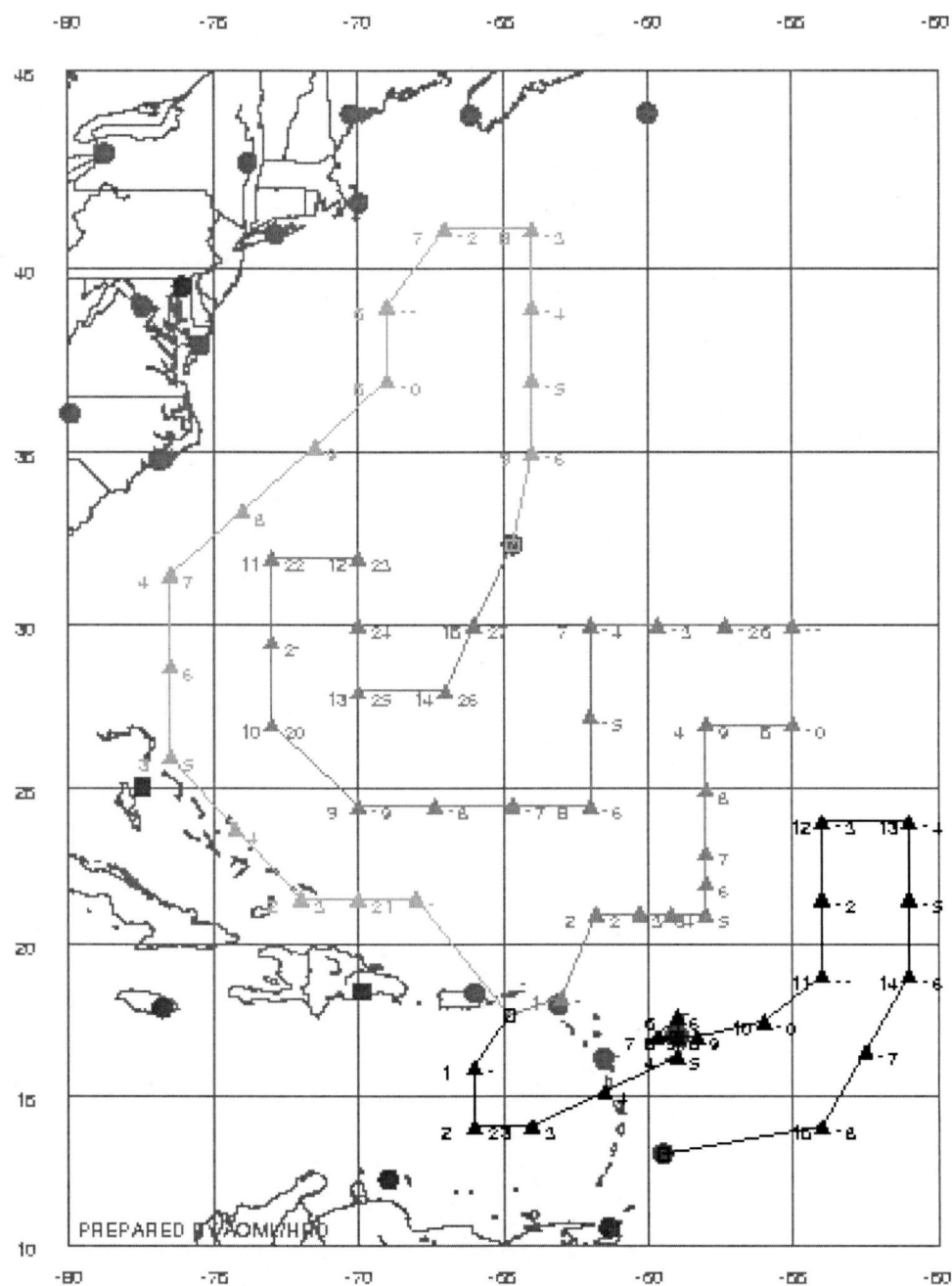
NOAA/HRD



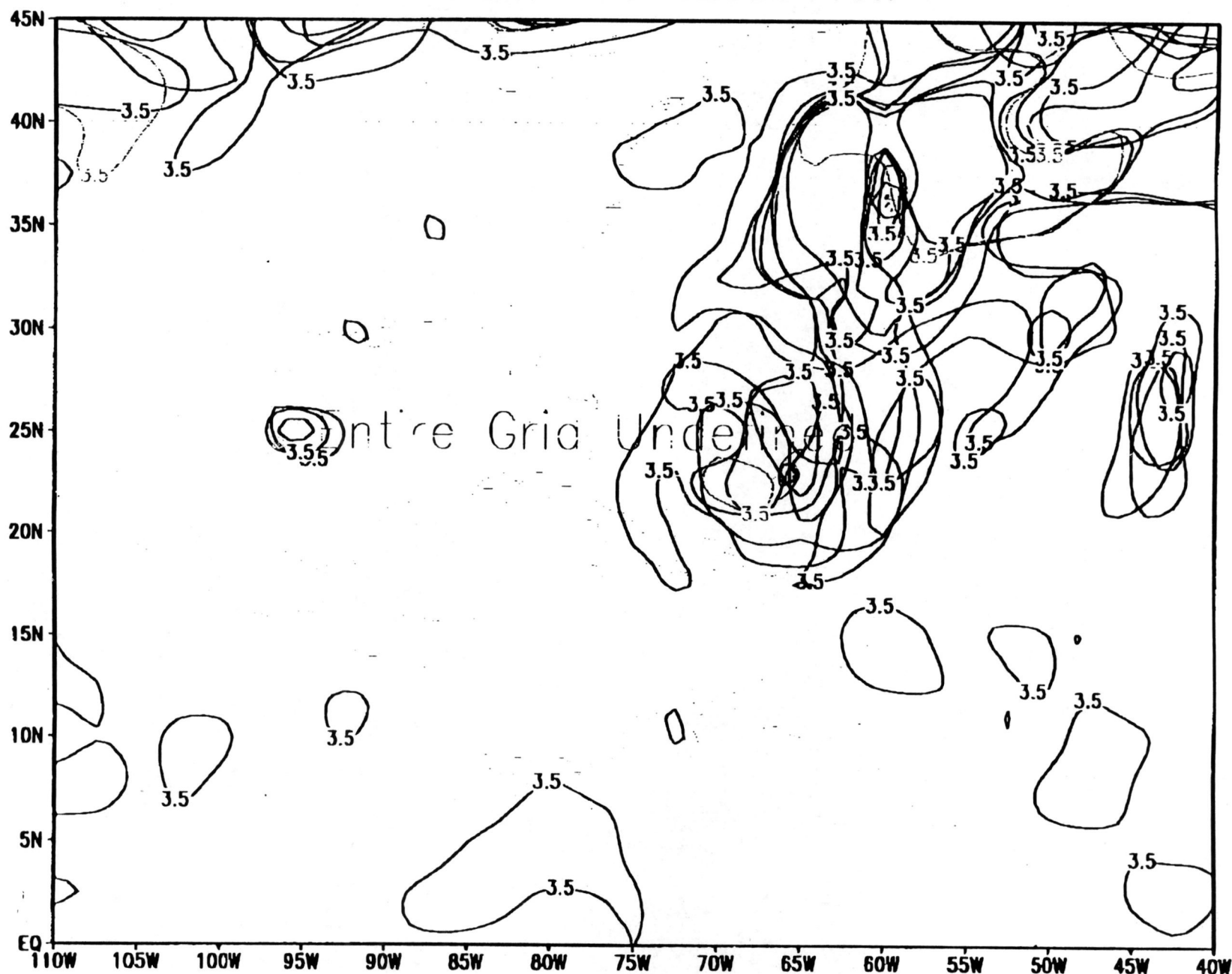




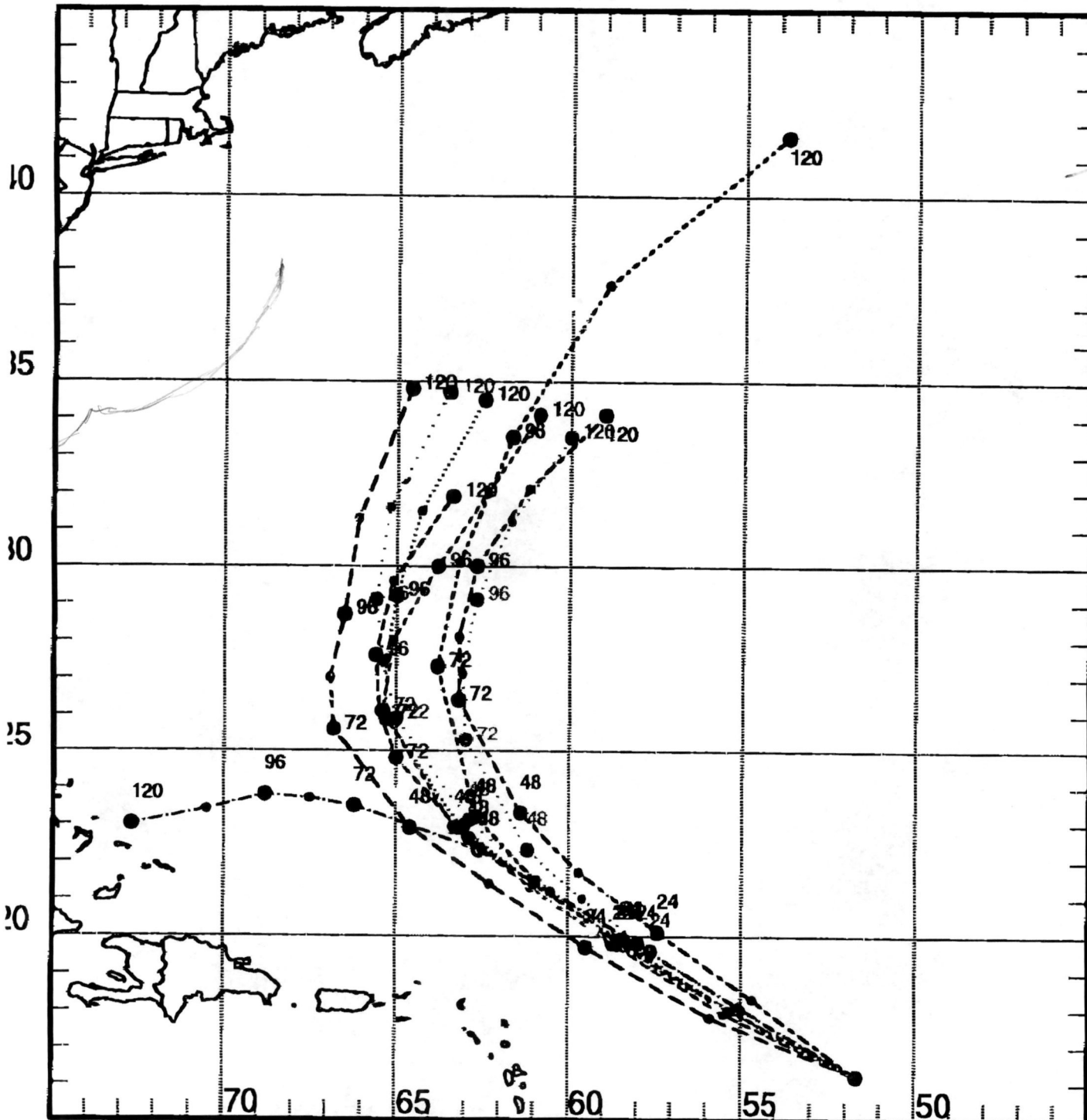
NOAA/HRD



DLM wind 98082000 48h



Targets: Around storm 6°N, 6°E, 6°S, 8-9°W
 Anticyclone cell 27.5°N 75°W is shortwave 32.5°N 72.5°W
 Shortwave trough 35°N 62.5°W 50 in all direction



HURRICANE RESEARCH
DIVISION AOML/NOAA

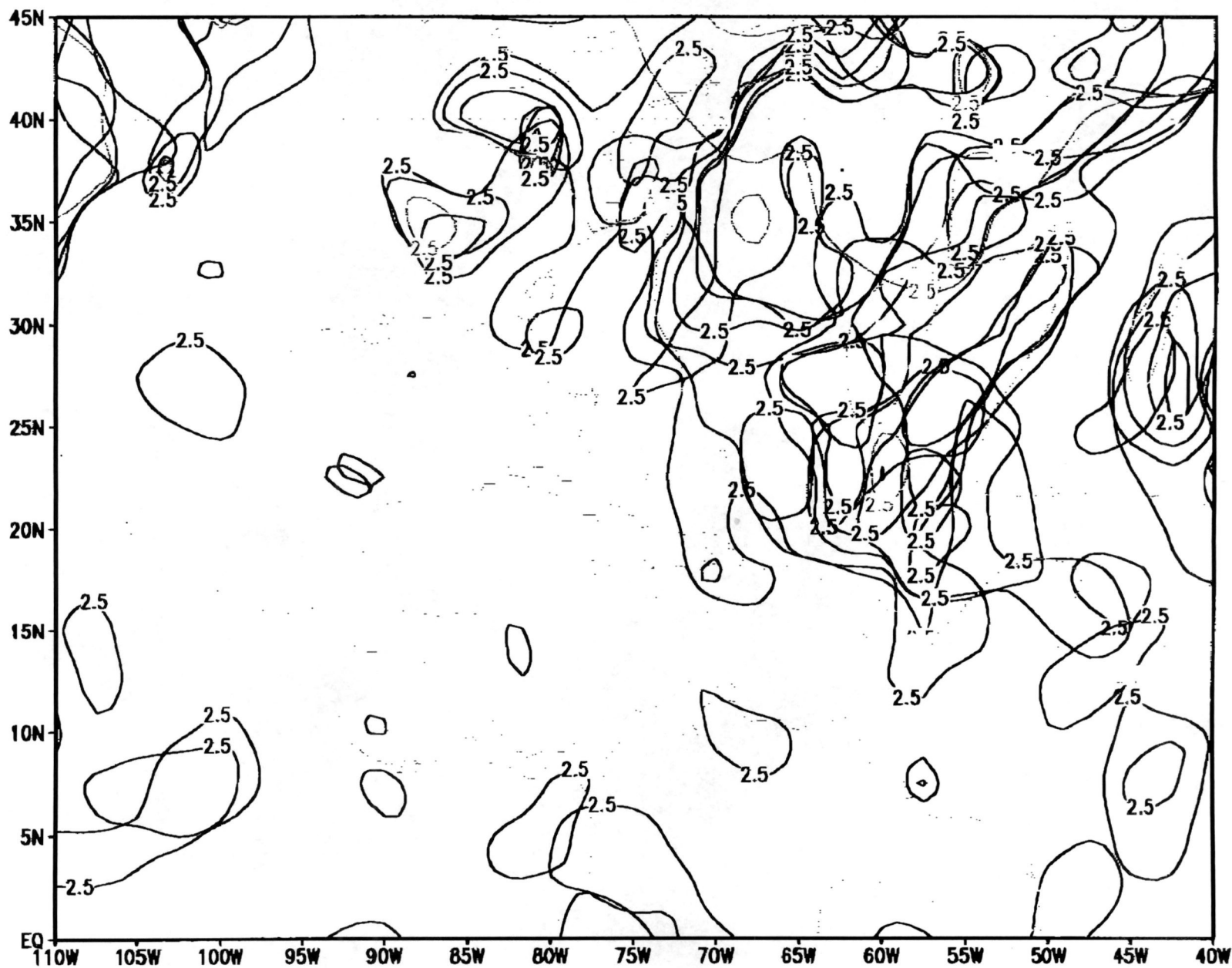
BILL *Bonnie*

8/20/98 00 UTC

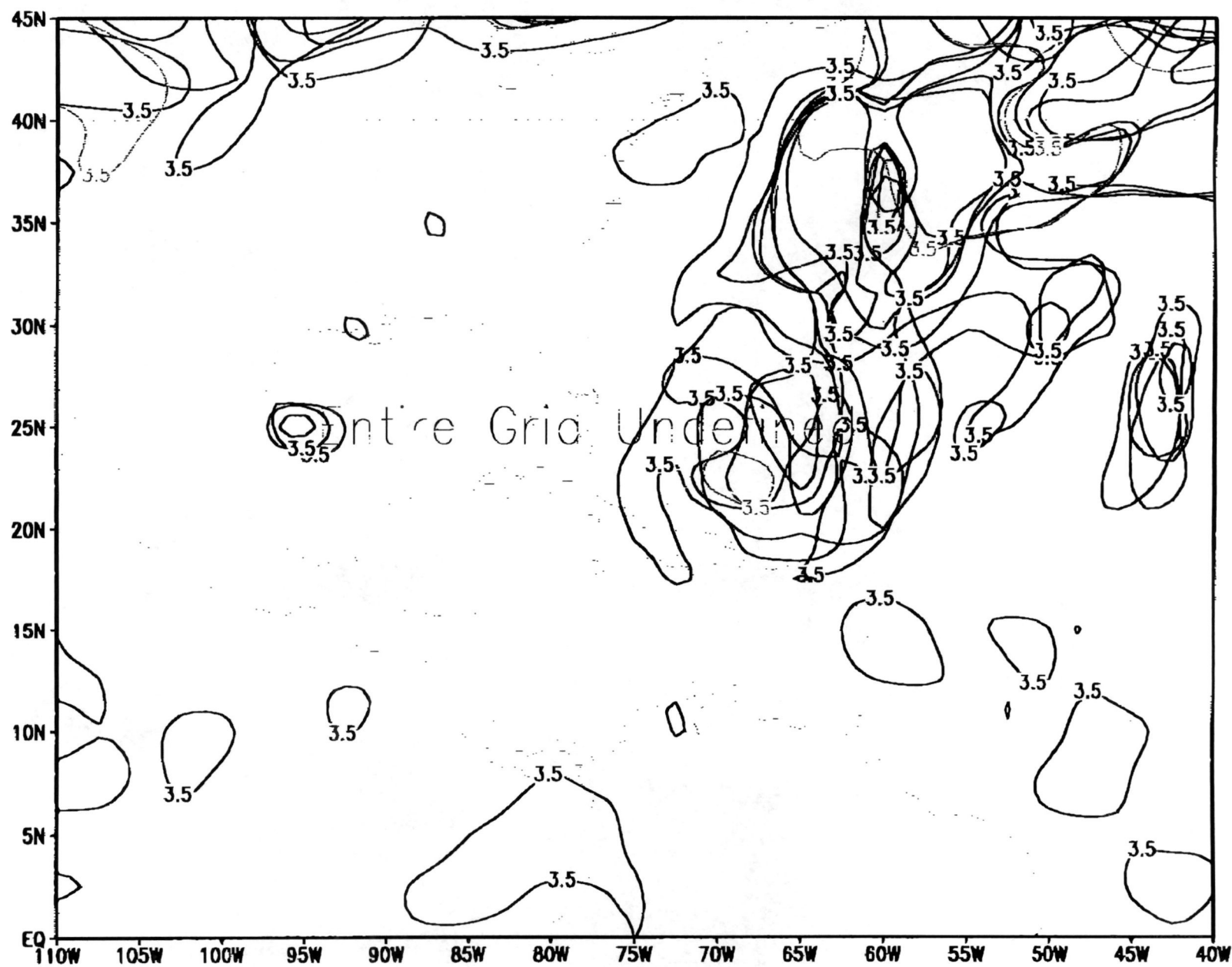
- | | |
|------|-------------|
| BAN1 | -----●----- |
| BAN2 | -----●----- |
| BAP1 | -----●----- |
| BAP2 | -----●----- |
| BAN3 | -----●----- |
| BAN4 | -----●----- |
| | |
| BAP4 |●..... |
| BAP5 |●..... |
| BAC0 |●..... |

PLOTTED AT LOCAL TIME
09:49:03 20-AUG-98

DLM wind 98082000 24h

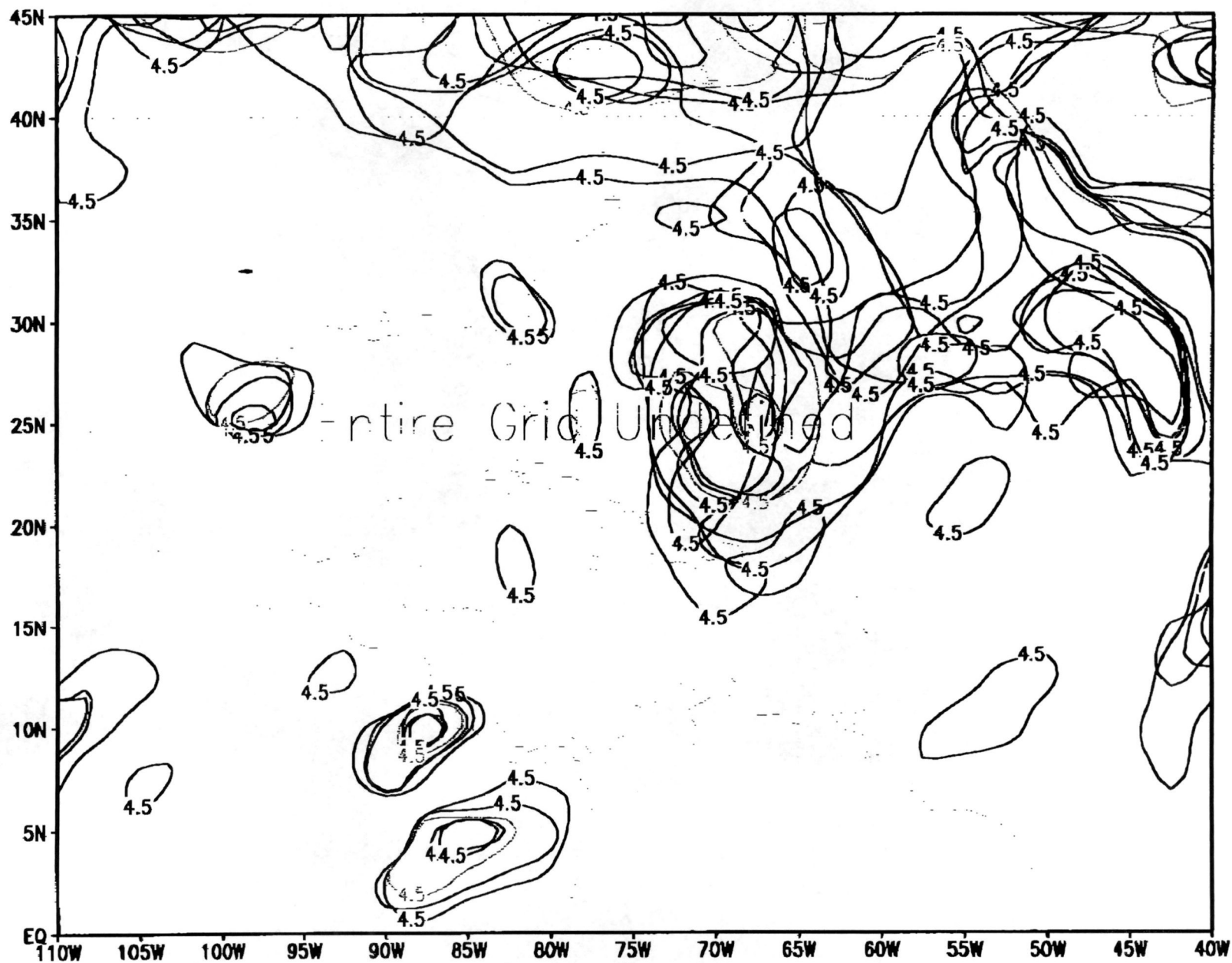


DLM wind 98082000 48h

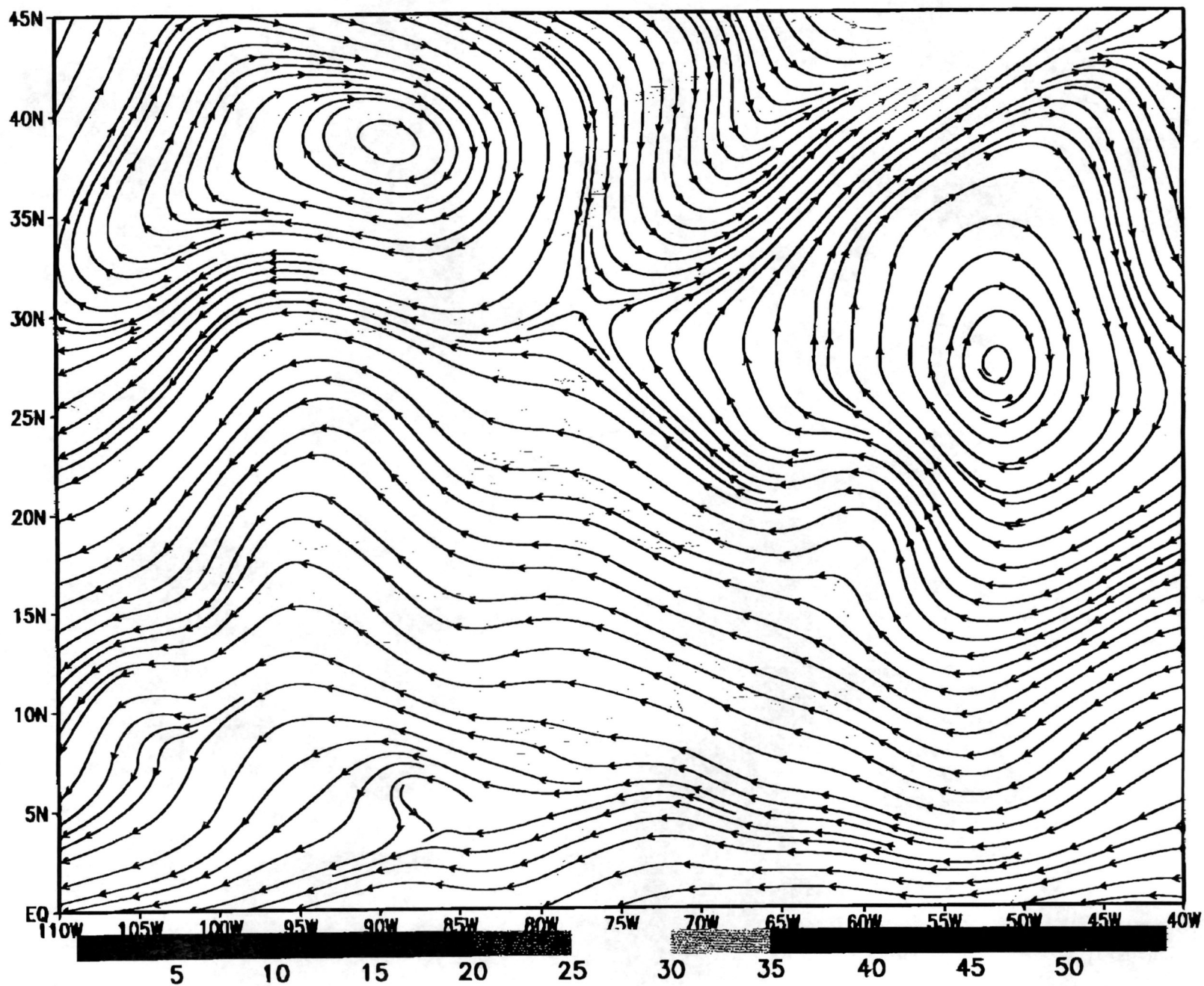


GRADS: COLA/IGES

DLM wind 98082000 72h

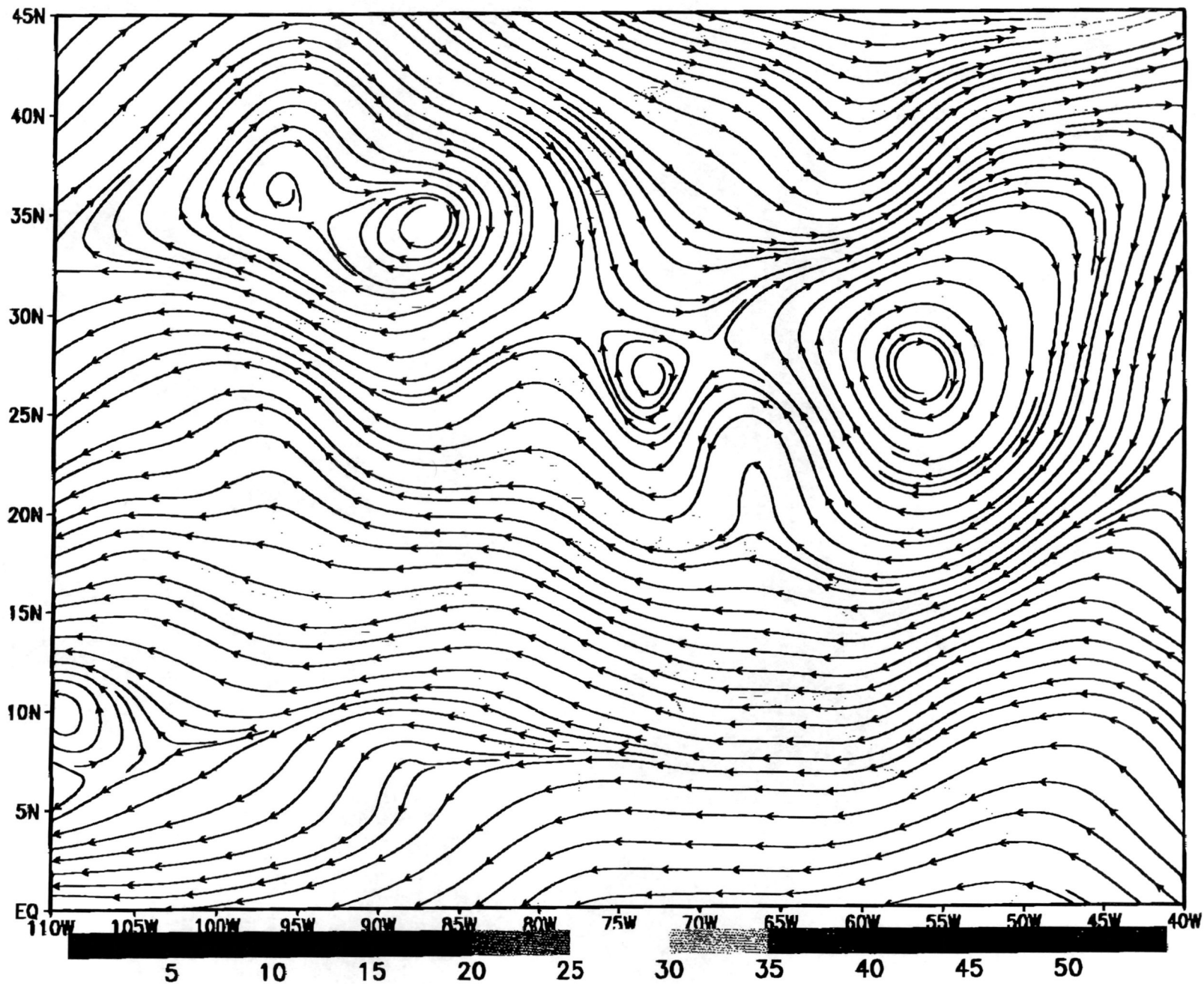


DLM wind 98082000 24h T126



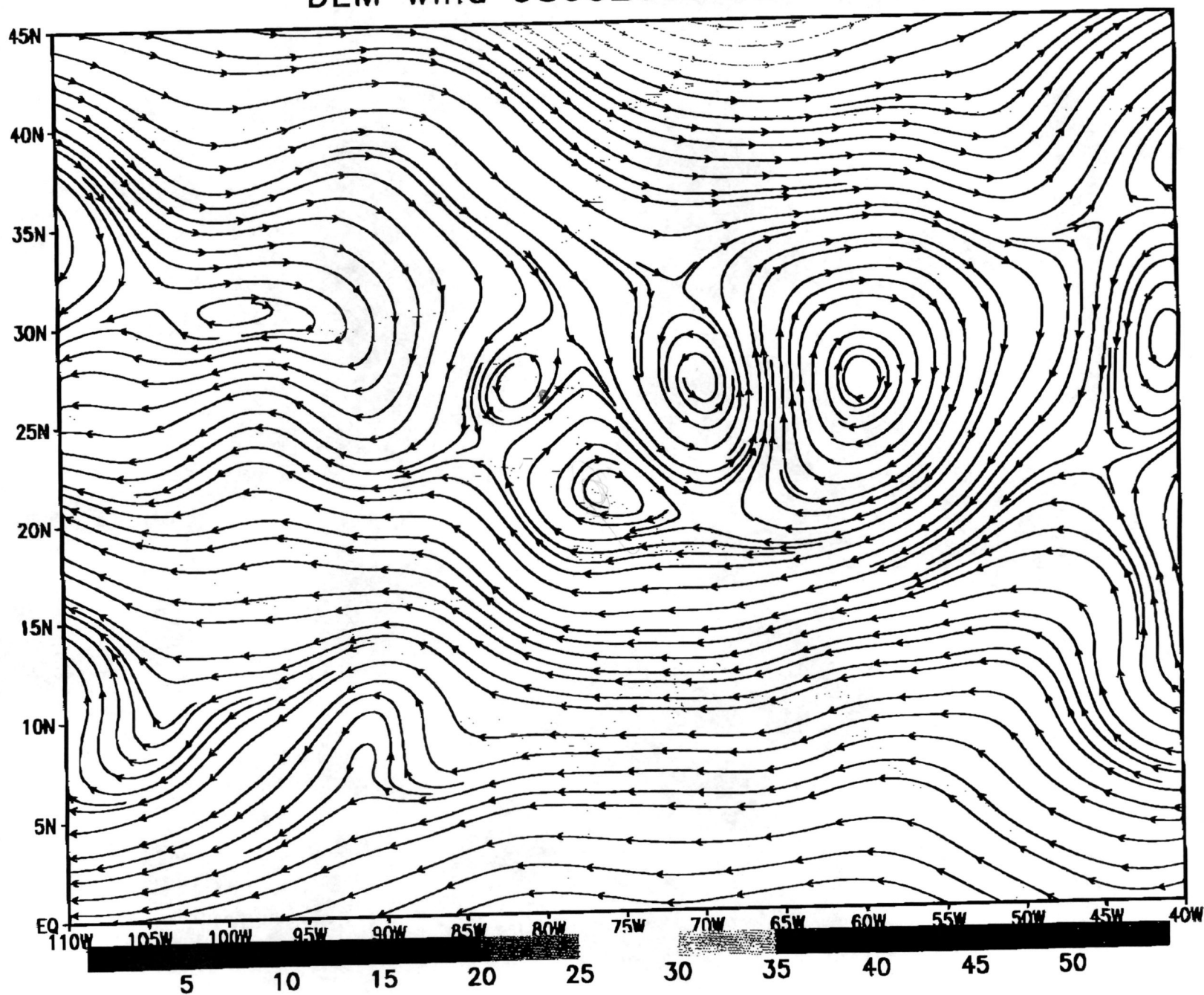
GRADS: COLA/IGES

DLM wind 98082000 48h T126



GRADS: COLA/IGES

DLM wind 98082000 72h T126



GrADS: COLA/IGES



HURRICANE RESEARCH DIVISION

U.S. DEPARTMENT OF COMMERCE, NOAA
ATLANTIC OCEANOGRAPHIC &
METEOROLOGICAL LABORATORY
4301 RICKENBACKER CAUSEWAY
MIAMI, FL 33149-1026

Facsimile Cover Sheet

DATE: 8/20/98 TIME: 11:15 AM

FROM: John Kaplan
TELEPHONE: (305) 361-4400
FAX: (305) 361-4402

TO: Dr. Frank Markes
TELEPHONE:
FAX: (340) 712-5932

Number of pages transmitted (including cover sheet) _____

REMARKS:

Please give this to Dr. Frank Markes
as soon as possible.

Thanks,
John Kaplan

Please call if you experience any transmission problems

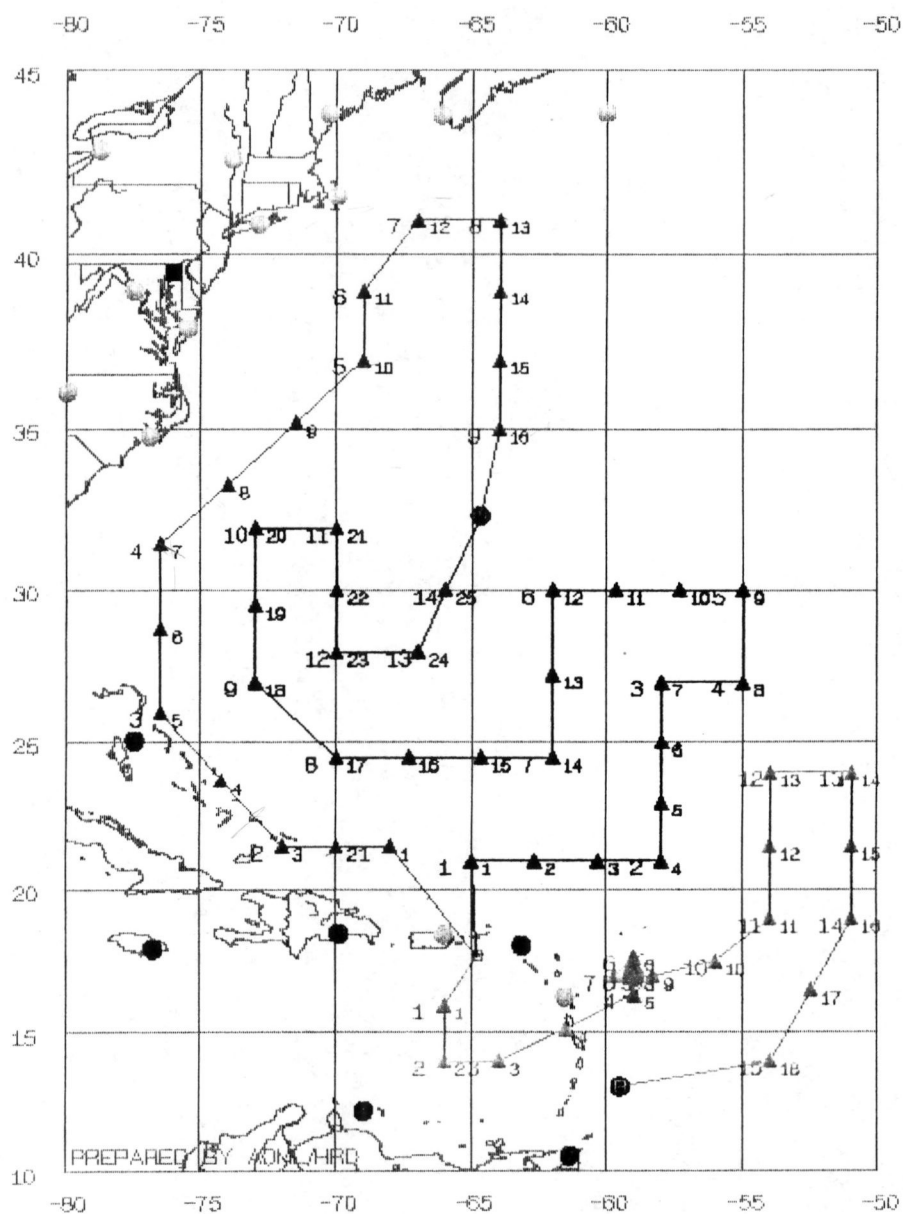
HURRICANE RESEARCH
DIVISION AOML/NOAA

ILL

8/20/98 00 UTC

AN1
AN2
AP1
AP2
AN3
AN4
AP4
AP5
AC0

NOTED AT LOCAL TIME
4903 20-AUG-98



FLIGHT TRACKS BONNIE

980820np3.ftk
980820ip.ftk
980820hp.ftk

RAWINSONDES 9804

Regular
12Z only
00Z only
Infrequent
Infrequent - 00Z
Infrequent - 12Z

▲ DROP LOCATIONS

18.7 60 217

4/9 St. Croix - Bermuda 3 plane synoptic

Aug 19 17:22 1998 /home/hrd/flight_tracks/track01.log Page 1

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HURRICANE SYNOPTIC SURVEILLANCE MISSION PLAN: BONNIE

Prepared by the Hurricane Research Division at 05:22:18 PM on 08/19/98.
File: /home/hrd/flight_tracks/980820np3.ftk

Aircraft: N49RF Altitude: FL410-450 Proposed takeoff: 20/1730Z

=====

TRACK DISTANCE TABLE (nm)

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#	LAT	LON	LEG	TOTAL	TIME
0	ST CROIX		0.	0.	0:00
1	21 00	65 00	199.	199.	0:37
2	21 00	58 00	393.	591.	1:30
3	27 00	58 00	361.	952.	2:19
4	27 00	55 00	161.	1113.	2:41
5	30 00	55 00	180.	1293.	3:06
6	30 00	62 00	364.	1657.	3:55
7	24 30	62 00	331.	1988.	4:40
8	24 30	70 00	438.	2426.	5:39
9	27 00	73 00	221.	2647.	6:09
10	32 00	73 00	301.	2947.	6:50
11	32 00	70 00	153.	3100.	7:11
12	28 00	70 00	240.	3341.	7:44
13	28 00	67 00	159.	3500.	8:05
14	30 00	66 00	131.	3631.	8:23
15	BERMUDA		157.	3788.	8:54

=====

49. St Proxa - Bermuda 3 plane Synoptic
Drops

Aug 19 17:22 1998 /home/hrd/flight_tracks/track01.log Page 2

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HURRICANE SYNOPTIC SURVEILLANCE MISSION PLAN: BONNIE

Prepared by the Hurricane Research Division at 05:22:18 PM on 08/19/98.
File: /home/hrd/flight_tracks/980820np3.ftk

Aircraft: N49RF Altitude: FL410-450 Proposed takeoff: 20/1730Z

=====

DROP LOCATIONS

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2	21 00	62 40	0:55
3	21 00	60 20	1:13
4	21 00	58 00	1:30
5	23 00	58 00	1:47
6	25 00	58 00	2:03
7	27 00	58 00	2:19
8	27 00	55 00	2:41
9	30 00	55 00	3:06
10	30 00	57 20	3:22
11	30 00	59 40	3:39
12	30 00	62 00	3:55
13	27 15	62 00	4:17
14	24 30	62 00	4:40
15	24 30	64 40	5:00
16	24 30	67 20	5:19
17	24 30	70 00	5:39
18	27 00	73 00	6:09
19	29 30	73 00	6:30
20	32 00	73 00	6:50
21	32 00	70 00	7:11
22	30 00	70 00	7:27
23	28 00	70 00	7:44
24	28 00	67 00	8:05
25	30 00	66 00	8:23

43 3 plane Synoptic
St. Croix - Bermuda

Aug 19 17:22 1998 /home/hrd/flight_tracks/track02.log Page 1

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HURRICANE SYNOPTIC SURVEILLANCE MISSION PLAN: BONNIE

Prepared by the Hurricane Research Division at 05:22:18 PM on 08/19/98.
File: /home/hrd/flight_tracks/980820ip.ftk

Aircraft: N43RF Altitude: FL180-250 Proposed takeoff: 20/1730Z

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TRACK DISTANCE TABLE (nm)

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2	21 30	72 00	224.	515.	1:57
3	26 00	76 30	367.	882.	3:12
4	31 30	76 30	331.	1212.	4:21
5	37 00	69 00	498.	1710.	6:04
6	39 00	69 00	120.	1830.	6:29
7	41 00	67 00	151.	1982.	7:00
8	41 00	64 00	136.	2118.	7:28
9	35 00	64 00	361.	2479.	8:43
10	BERMUDA		162.	2641.	9:26

42 3 Plane Synoptic
St. Croix - S - Barbados

Aug 19 17:22 1998 /home/hrd/flight_tracks/track03.log Page 1

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HURRICANE SYNOPTIC SURVEILLANCE MISSION PLAN: BONNIE

Prepared by the Hurricane Research Division at 05:22:19 PM on 08/19/98.
File: /home/hrd/flight_tracks/980820hp.ftk

Aircraft: N42RF Altitude: FL180-250 Proposed takeoff: 20/1730Z

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TRACK DISTANCE TABLE (nm)

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2	14 00	66 00	120.	244.	1:00
3	14 00	64 00	117.	360.	1:25
4S	16 20	59 00	322.	682.	2:31
5S	17 00	59 00	40.	722.	2:39
6S	17 40	59 00	40.	762.	2:48
7S	17 00	59 42	57.	819.	2:59
8S	17 00	59 00	40.	859.	3:08
9S	17 00	58 18	40.	899.	3:16
10	17 30	56 00	136.	1035.	3:44
11	19 00	54 00	145.	1180.	4:14
12	24 00	54 00	301.	1481.	5:16
13	24 00	51 00	165.	1645.	5:50
14	19 00	51 00	301.	1946.	6:53
15	14 00	54 00	347.	2292.	8:04
16	BARBADOS		326.	2618.	9:22

42 3 plane Synoptic
Drops St. Croix - S-Barbados

Aug 19 17:22 1998 /home/hrd/flight_tracks/track03.log Page 2

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HURRICANE SYNOPTIC SURVEILLANCE MISSION PLAN: BONNIE

Prepared by the Hurricane Research Division at 05:22:19 PM on 08/19/98.
File: /home/hrd/flight_tracks/980820hp.ftk

Aircraft: N42RF Altitude: FL180-250 Proposed takeoff: 20/1730Z

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DROP LOCATIONS

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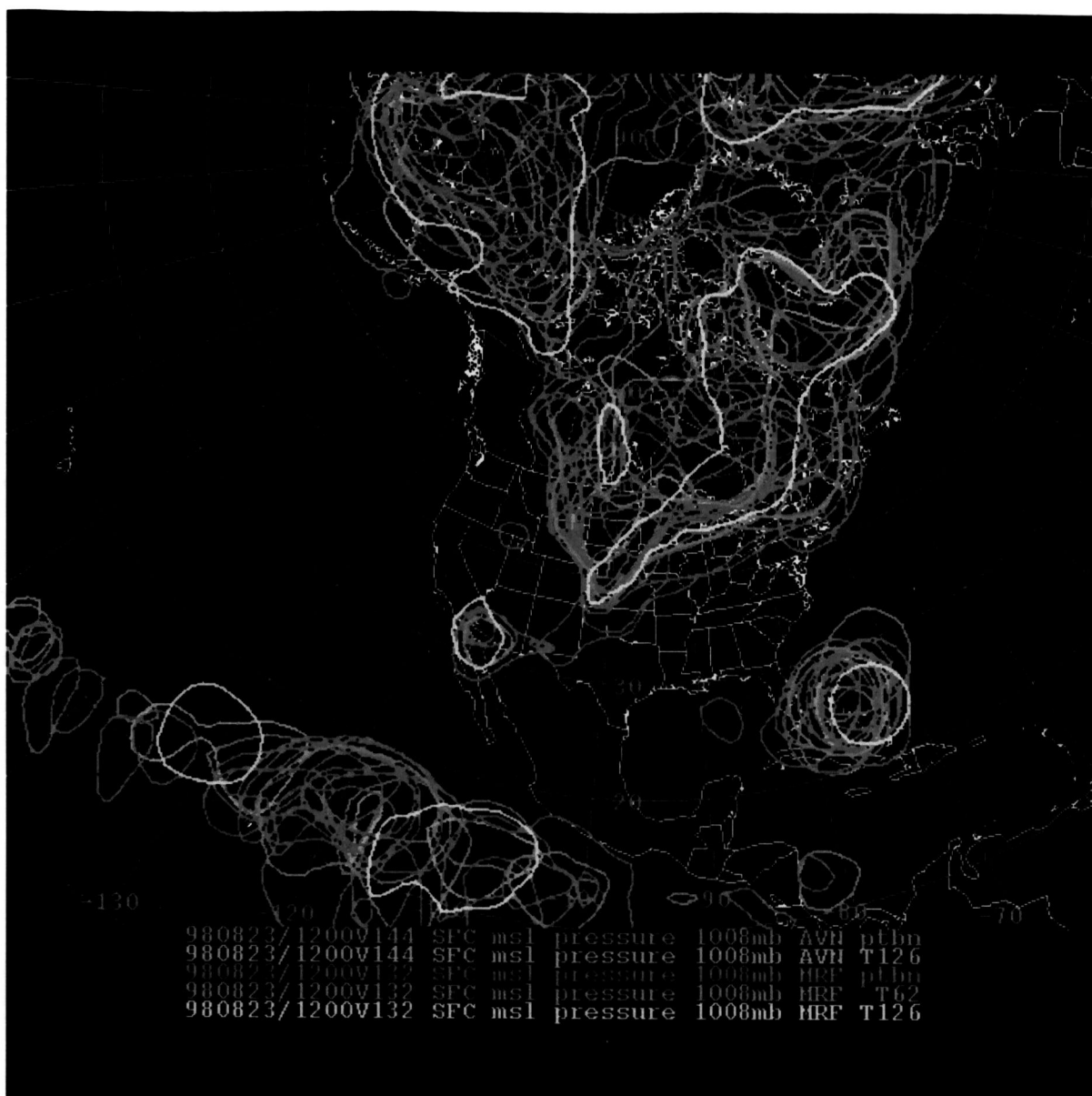
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3	14 00	64 00	1:25
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5S	16 20	59 00	2:31
6S	17 40	59 00	2:48
7S	17 00	59 42	2:59
8S	17 00	59 00	3:08
9S	17 00	58 18	3:16
10	17 30	56 00	3:44
11	19 00	54 00	4:14
12	21 30	54 00	4:45
13	24 00	54 00	5:16
14	24 00	51 00	5:50
15	21 30	51 00	6:22
16	19 00	51 00	6:53
17	16 30	52 30	7:28
18	14 00	54 00	8:04



NCEP Global Ensemble Forecast

start time 98081800, forecast hour 132, z 500mb = 5880m
 select next prev NEXT PREV product for same start and verifying times
 select next prev NEXT PREV contour for same start and verifying times
 verifying 24 hours earlier 24 hours later started at same time
 started 24 hours earlier 12 hours earlier 12 hours later 24 hours later verifying at same time
 started and verifying 24 hours earlier 24 hours later for same forecast length

[Return to menu](#)



NCEP Global Ensemble Forecast

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select next prev NEXT PREV contour for same start and verifying times

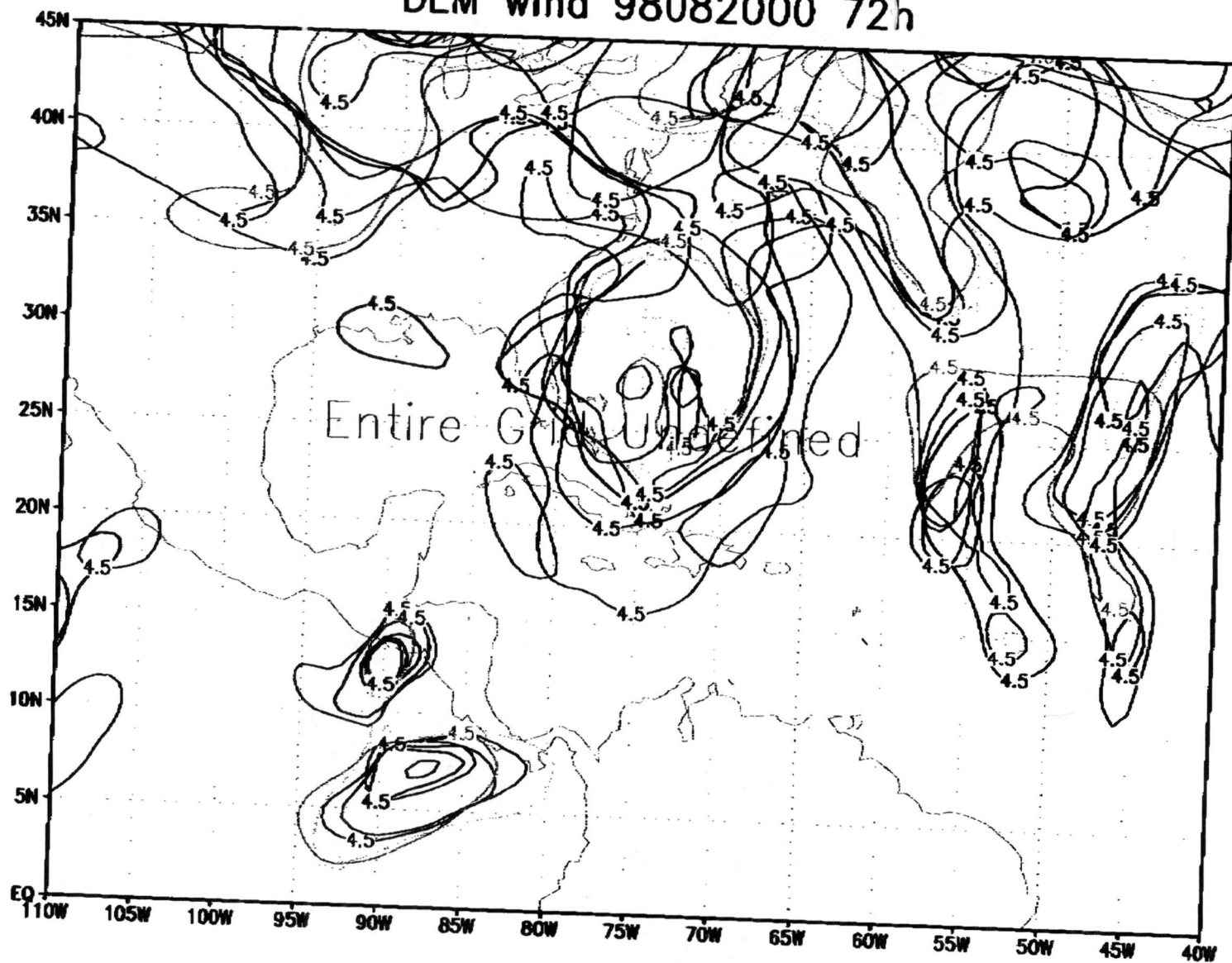
verifying 24 hours earlier 24 hours later started at same time

started 24 hours earlier 12 hours earlier 12 hours later 24 hours later verifying at same time

started and verifying 24 hours earlier 24 hours later for same forecast length

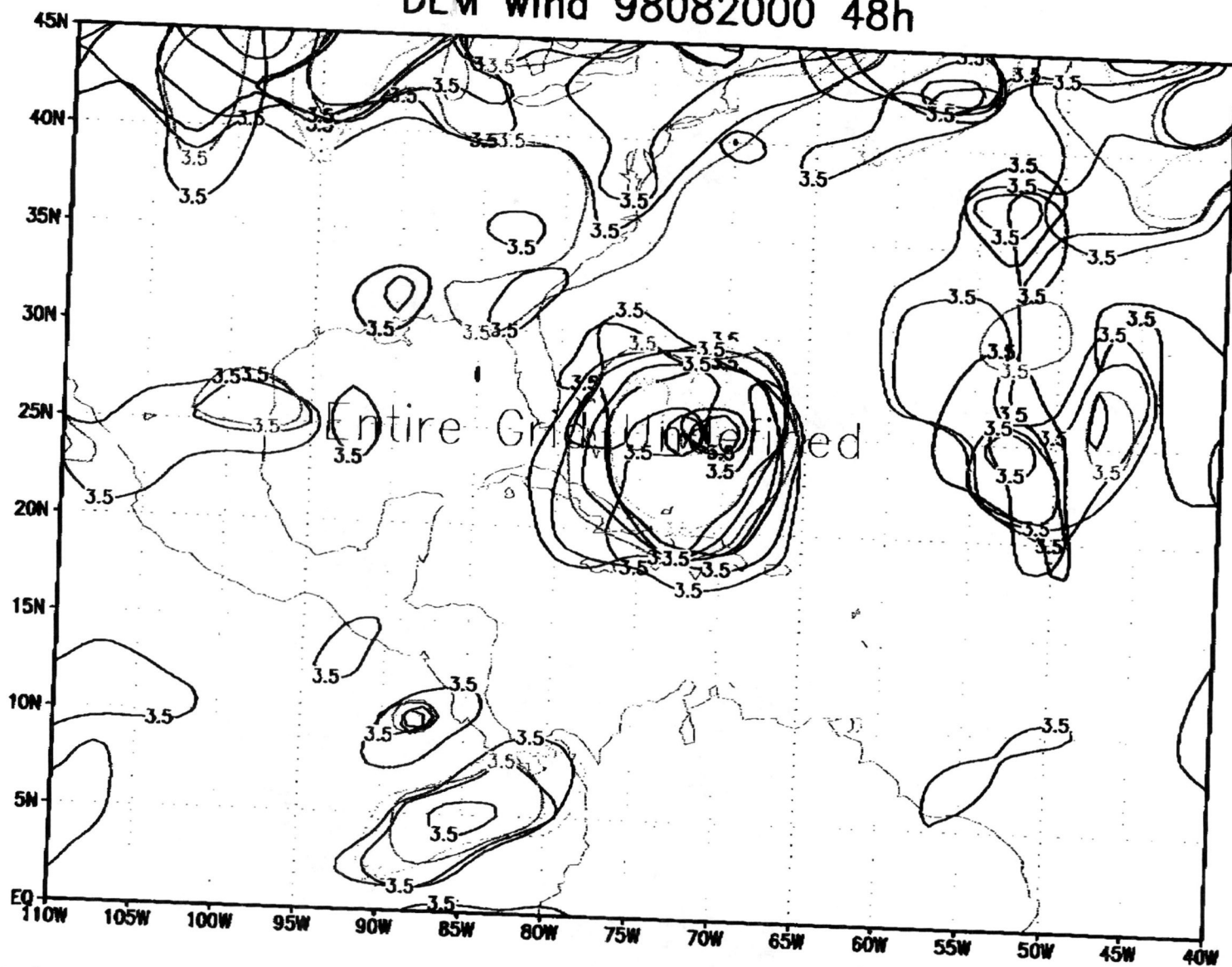
[Return to menu](#)

DLM wind 98082000 72h



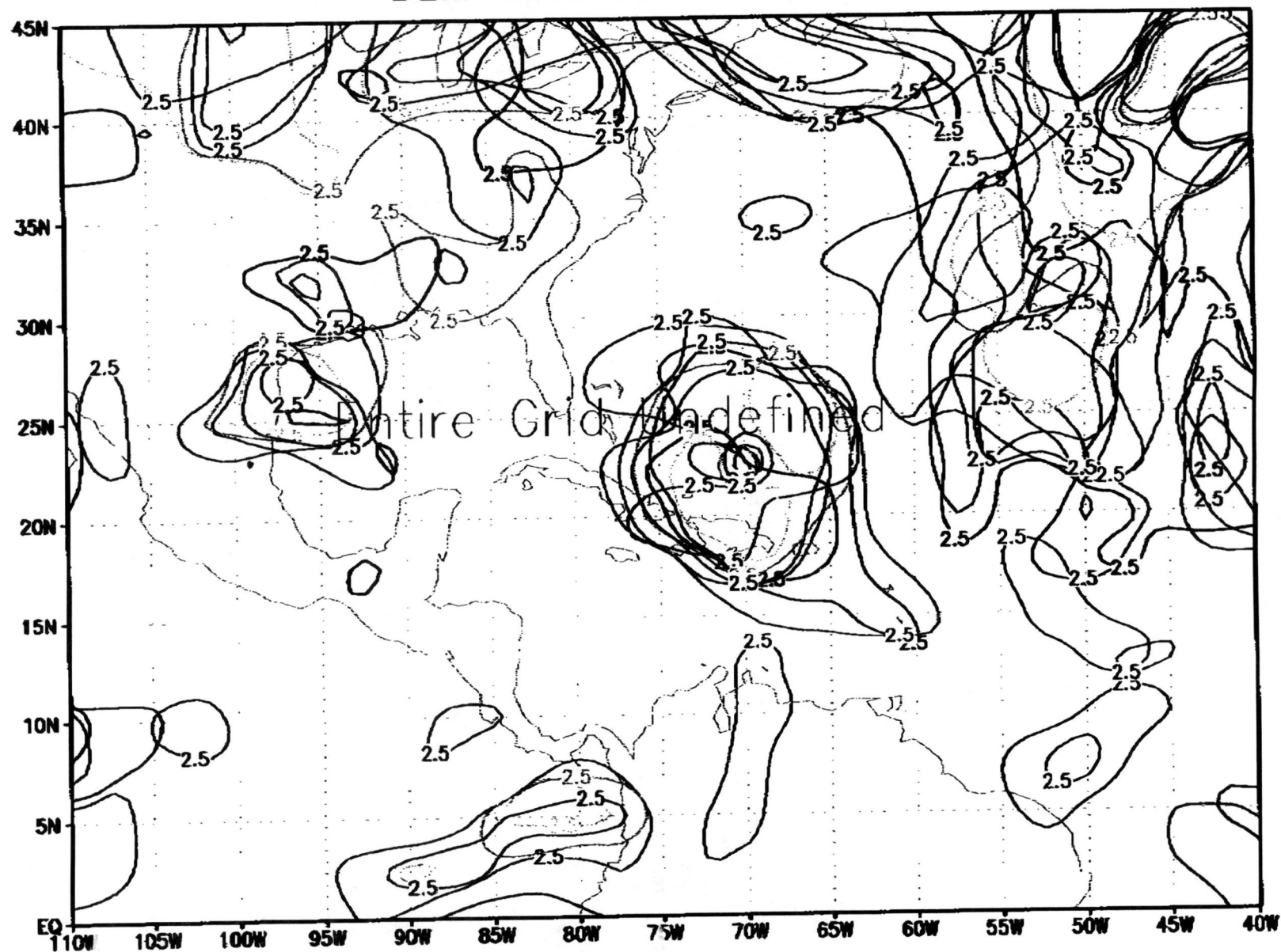
GRADS: COLA/IGES

DLM wind 98082000 48h

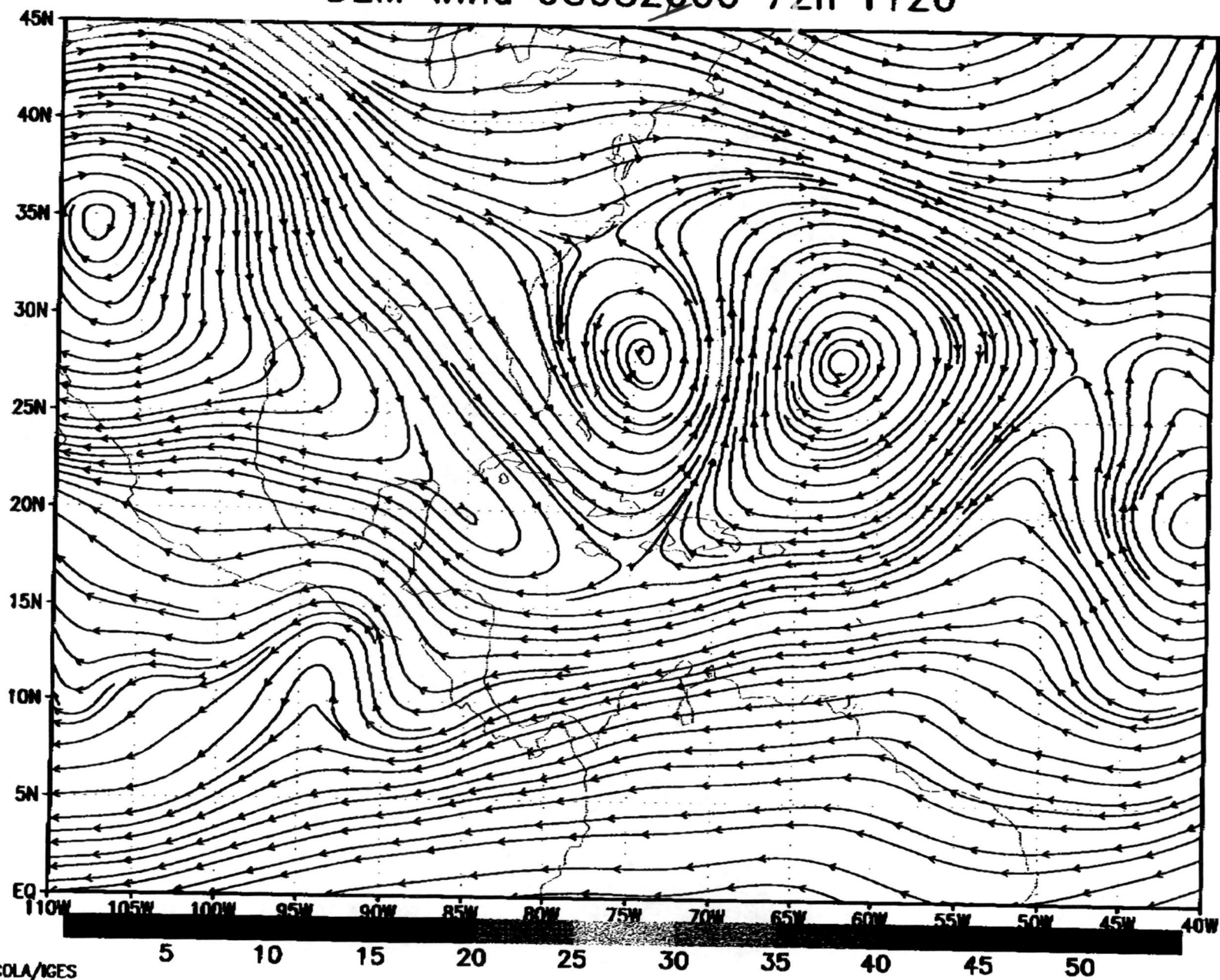


GRADS: COLA/IGES

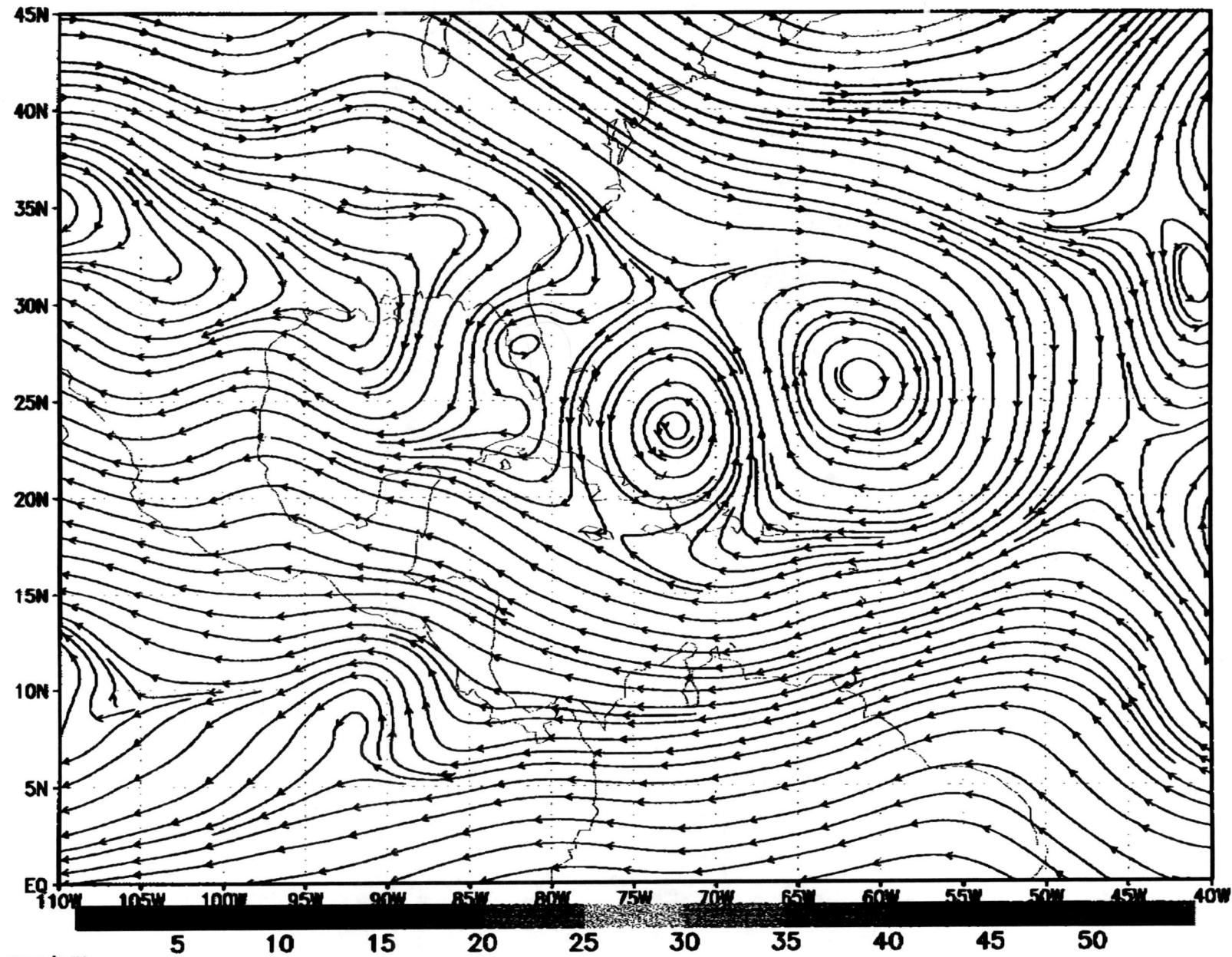
DLM wind 98082000 24h



DLM wind 98082000 72h T126

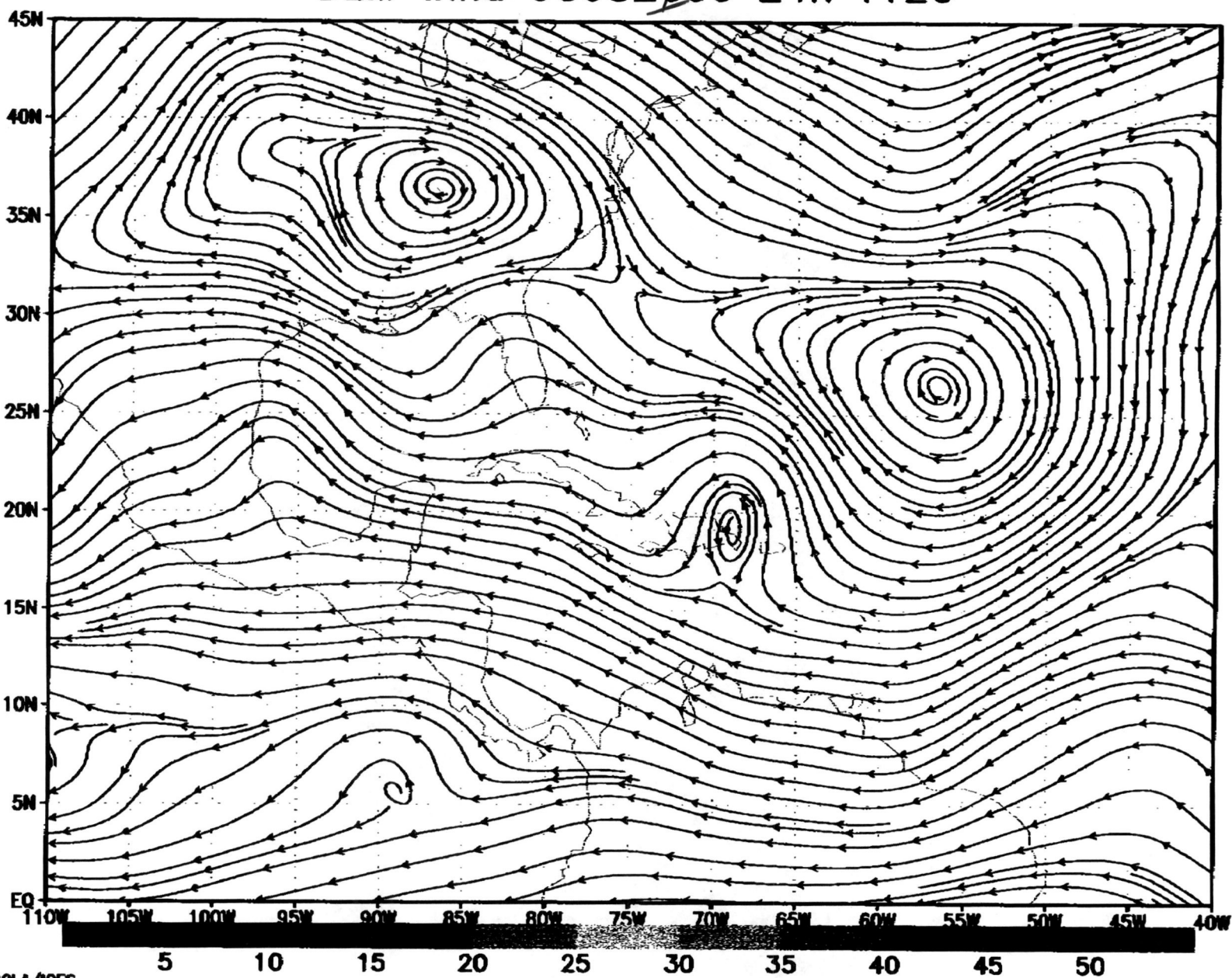


DLM wind 98082000 48h T126



GrADS: COLA/IGES

DLM wind 98082000 24h T126



GRADS: COLA/KTS

FRANK:

Here is the latest NHC Forecast
for T.S. Benny. The discussion
is not yet available.

21/15	19.8	65.4	55KT	MAXWENT 285°/15KT
22/00	20.4	67.6	55KT	
22/12	21.0	70.3	60KT	
23/00	22.0	72.5	65KT	
23/12	23.5	74.5	75KT	
24/12	26.5	76.5	85KT	

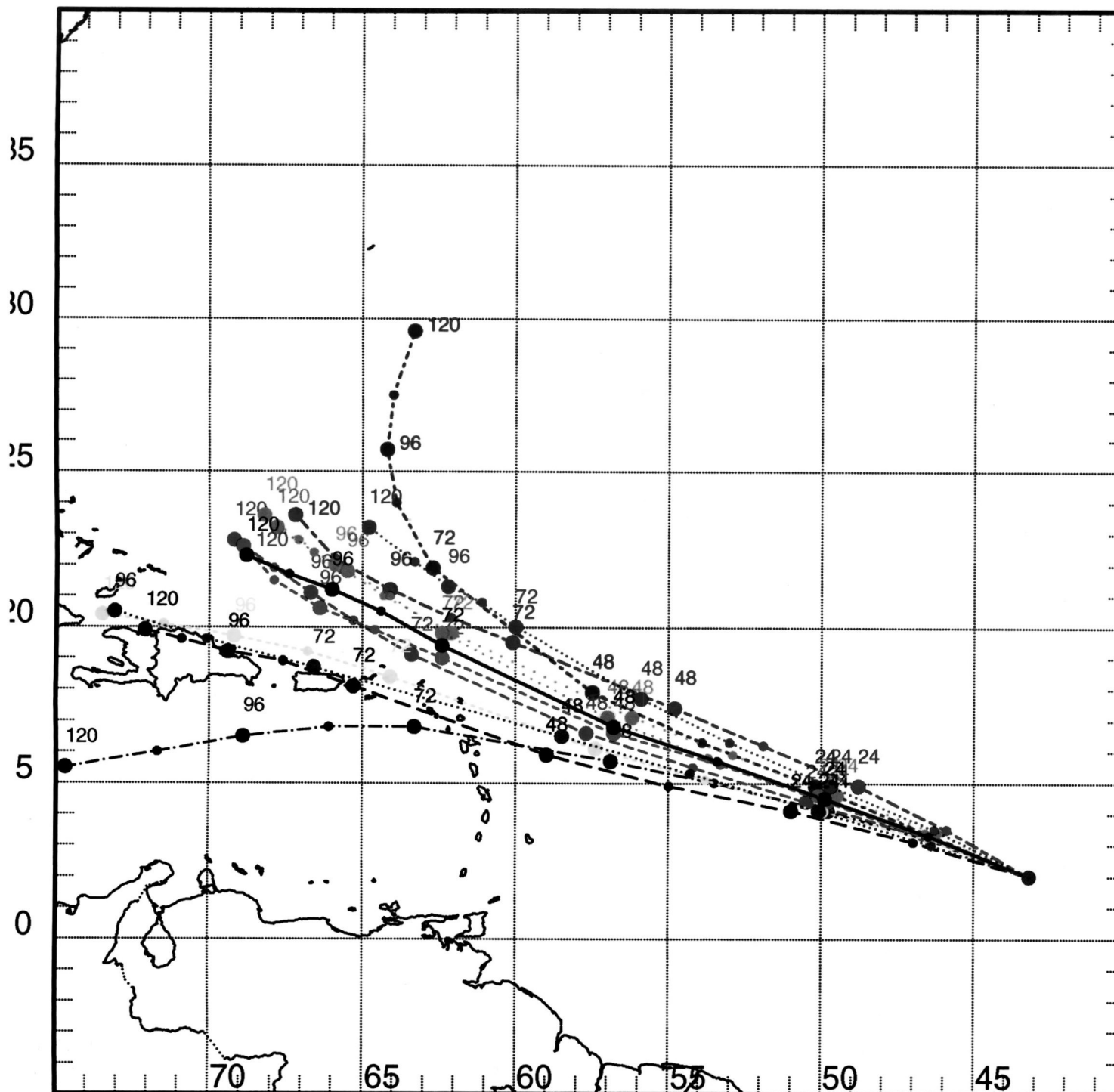
John

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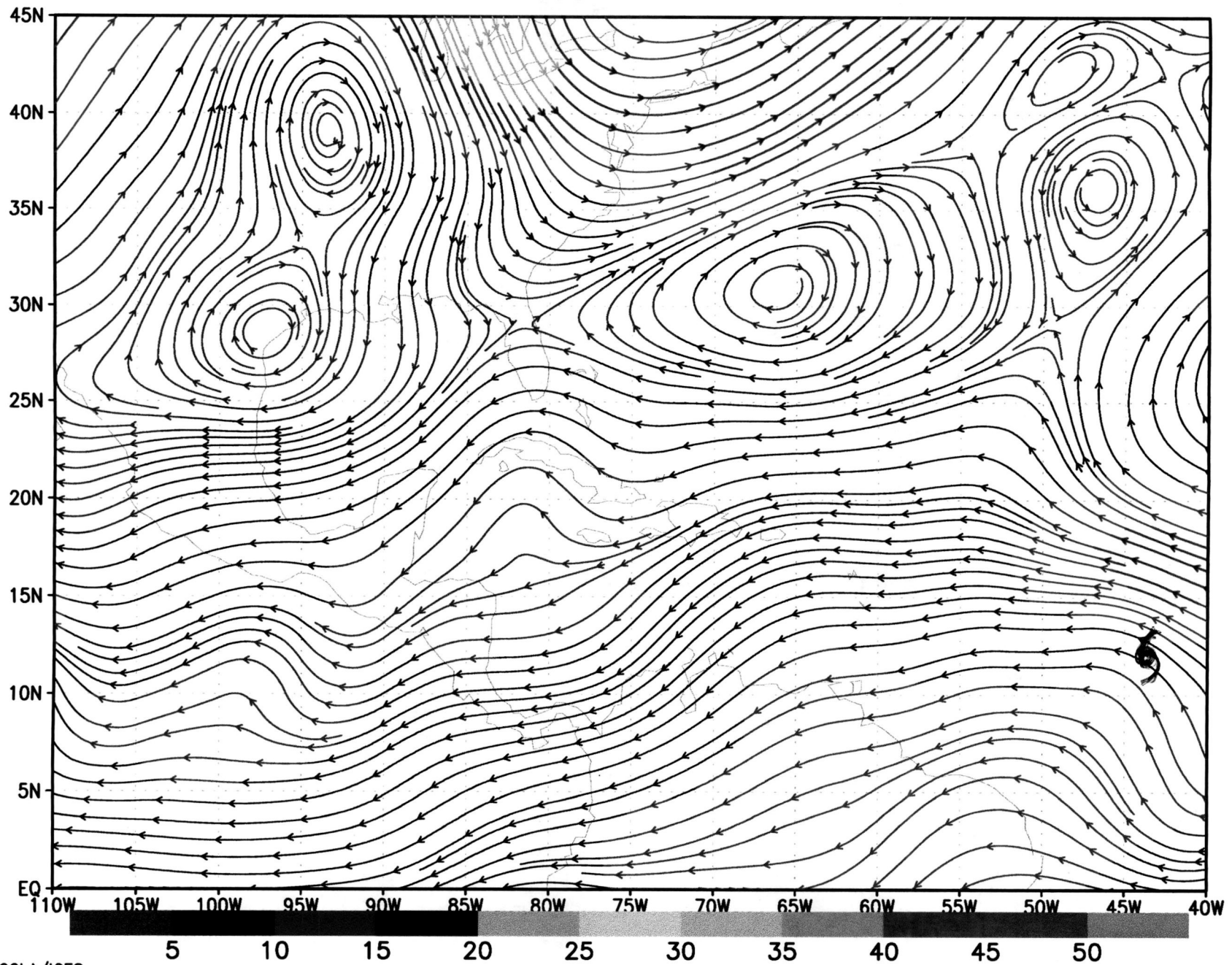
8/19/98 00 UTC

BAN1	-----●-----
BAN2	-----●-----
BAP1	-----●-----
BAP2	-----●-----
BAN3	-----●-----
BAN4	-----●-----
BAN5	-----●-----
BAP3	-----●-----
BAP4	-----●-----
BAP5	-----●-----
BAC0	-----●-----
VBMF	-----●-----

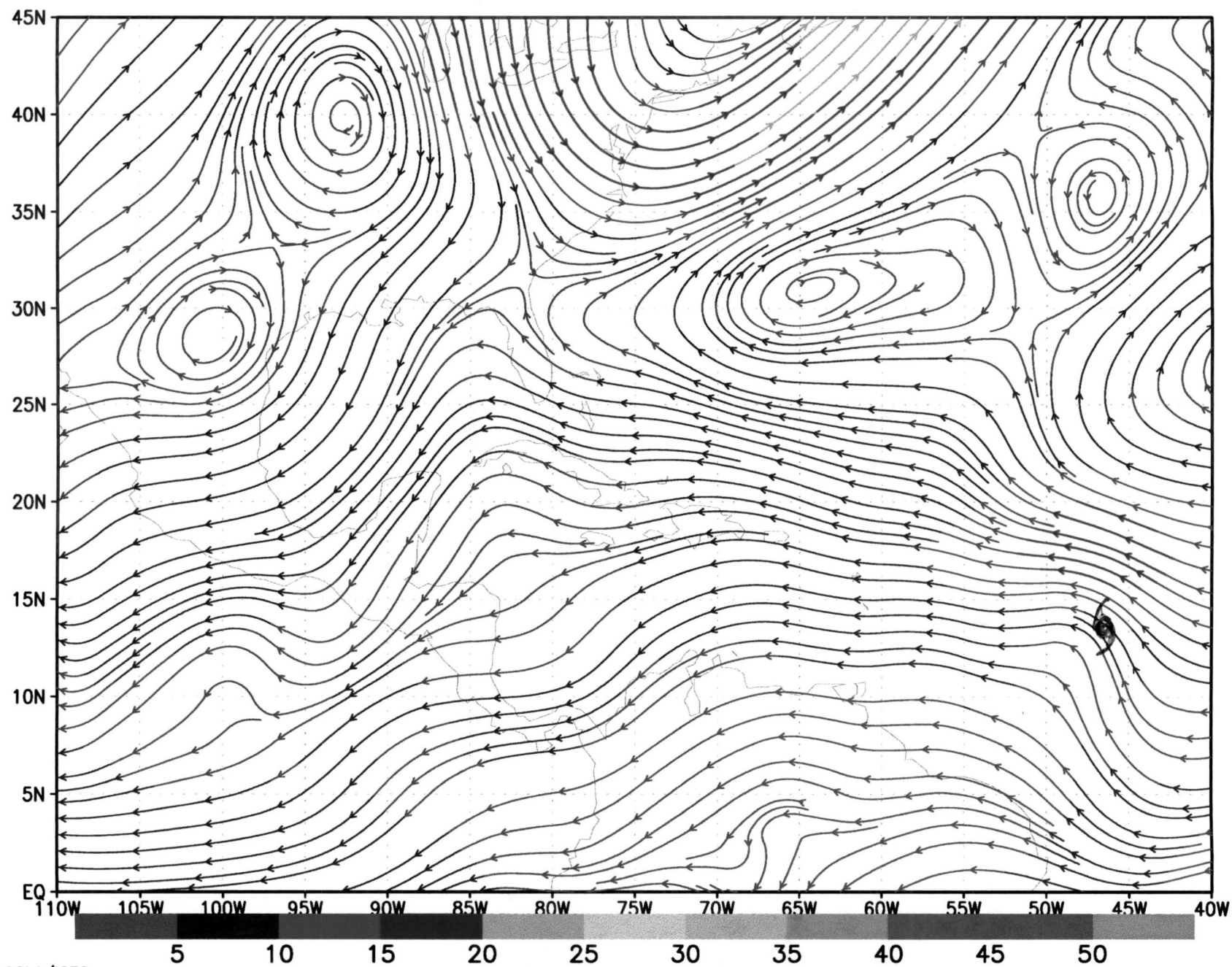


PLOTTED AT LOCAL TIME
09:33:48 19-AUG-98

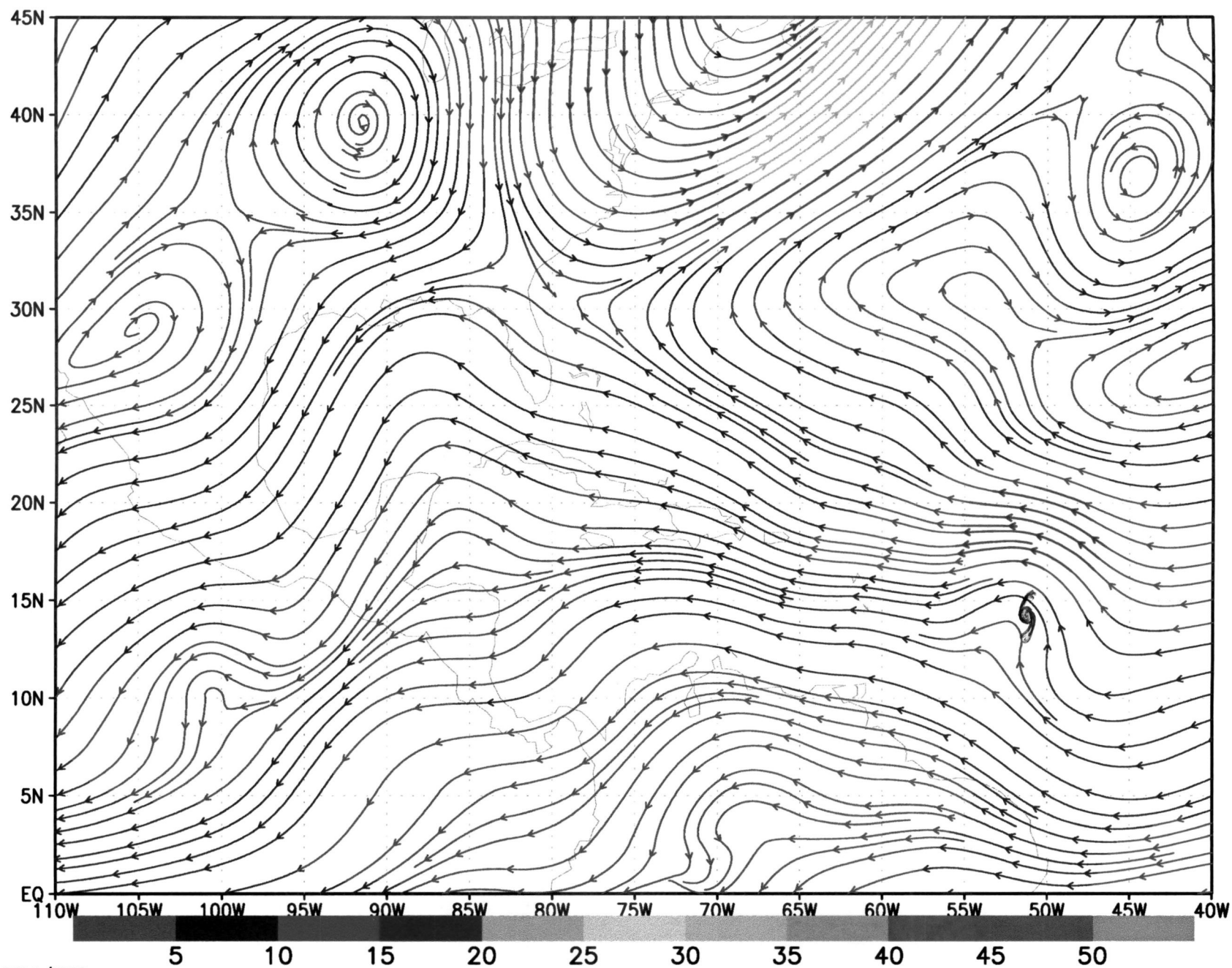
DLM wind 98081900 00h T126



DLM wind 98081900 12h T126

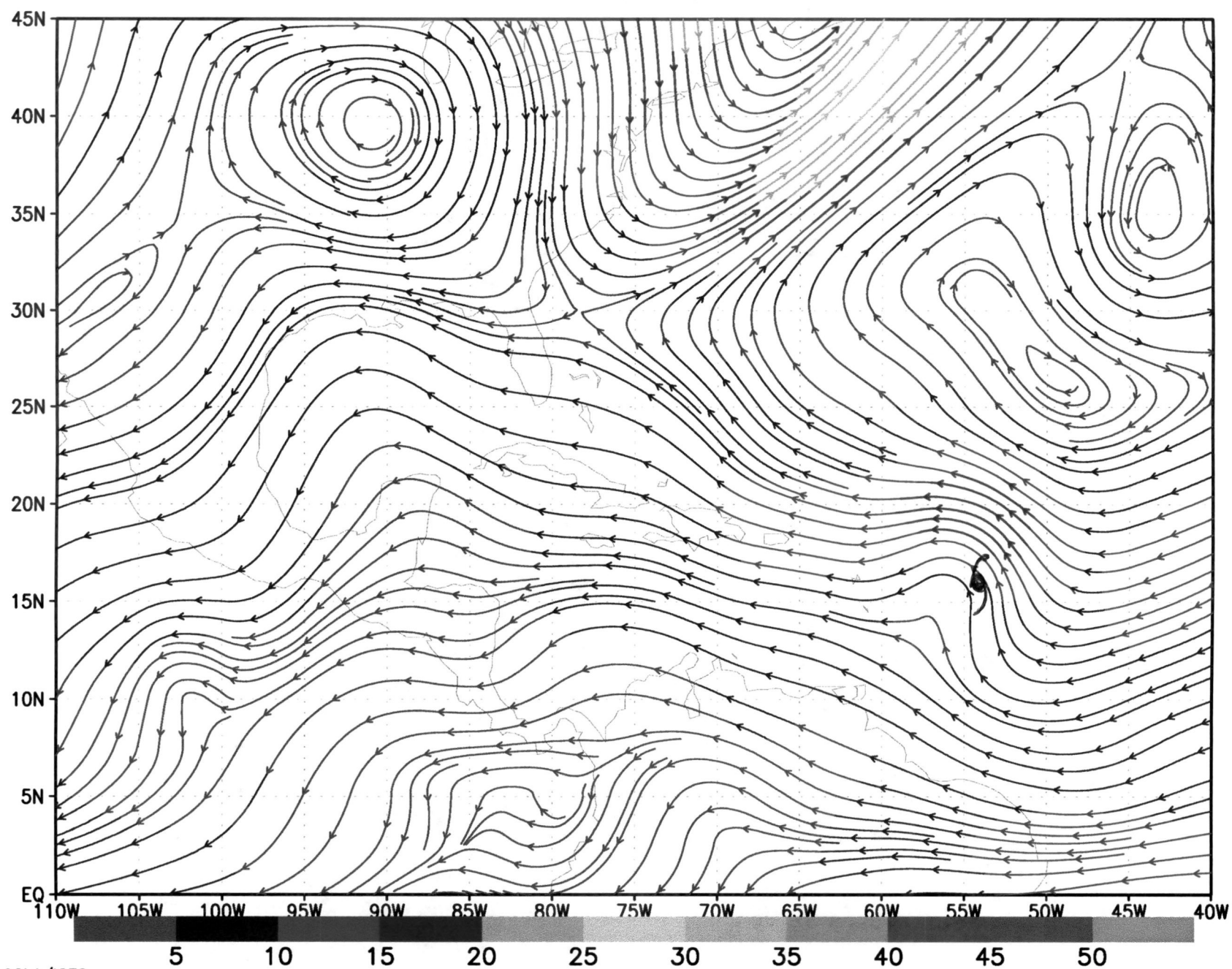


DLM wind 98081900 24h T126

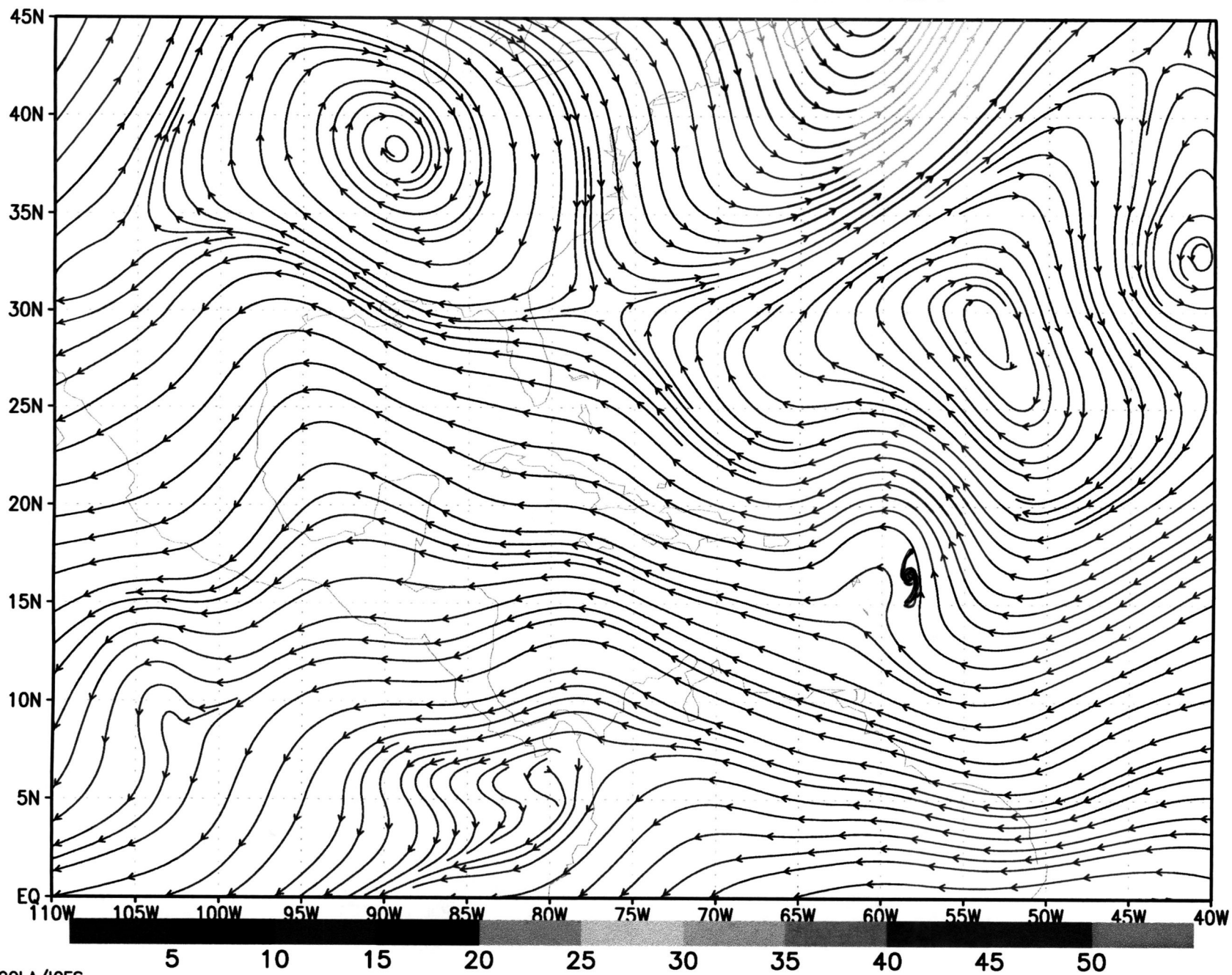


VICBAR
FORECAST

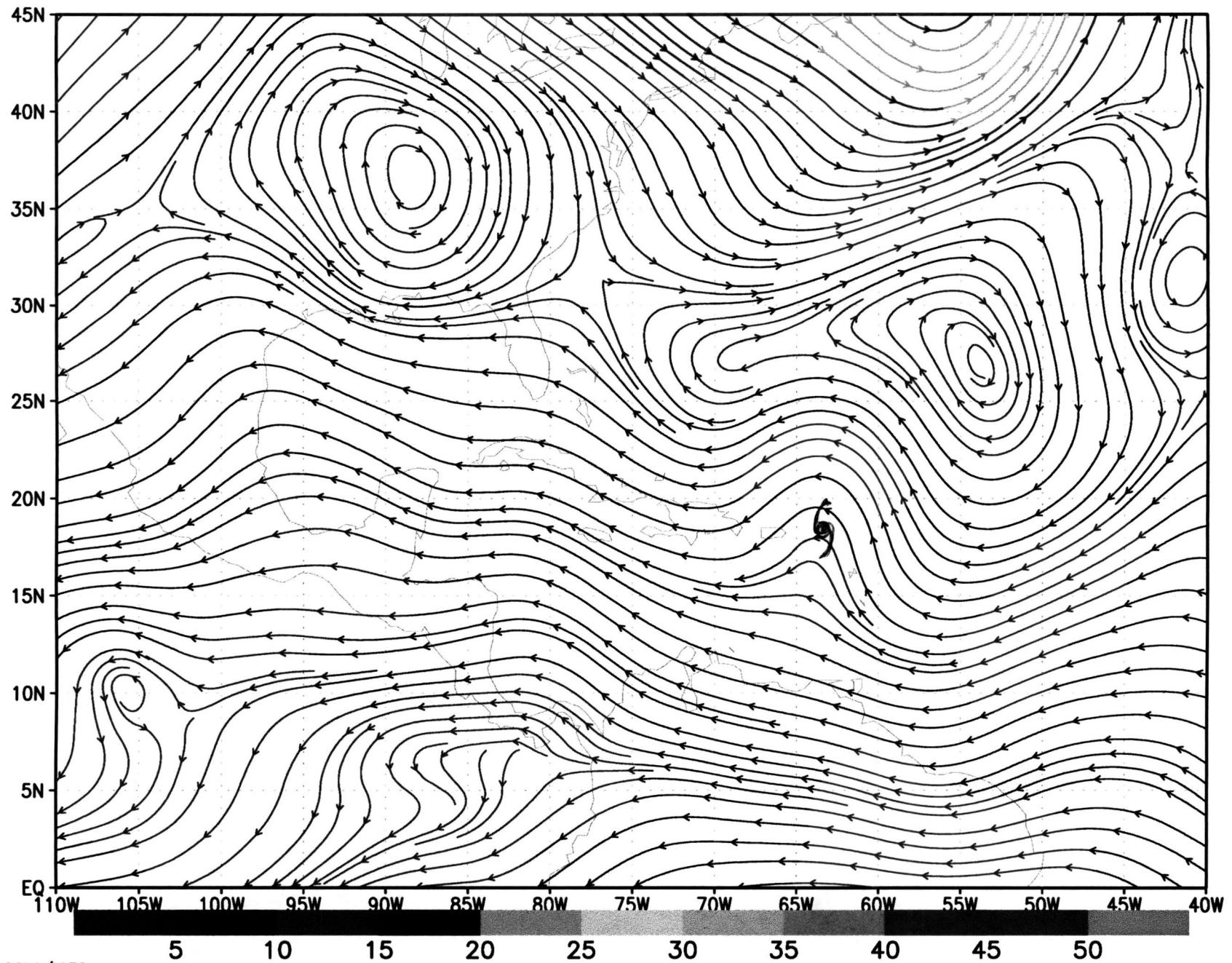
DLM wind 98081900 36h T126



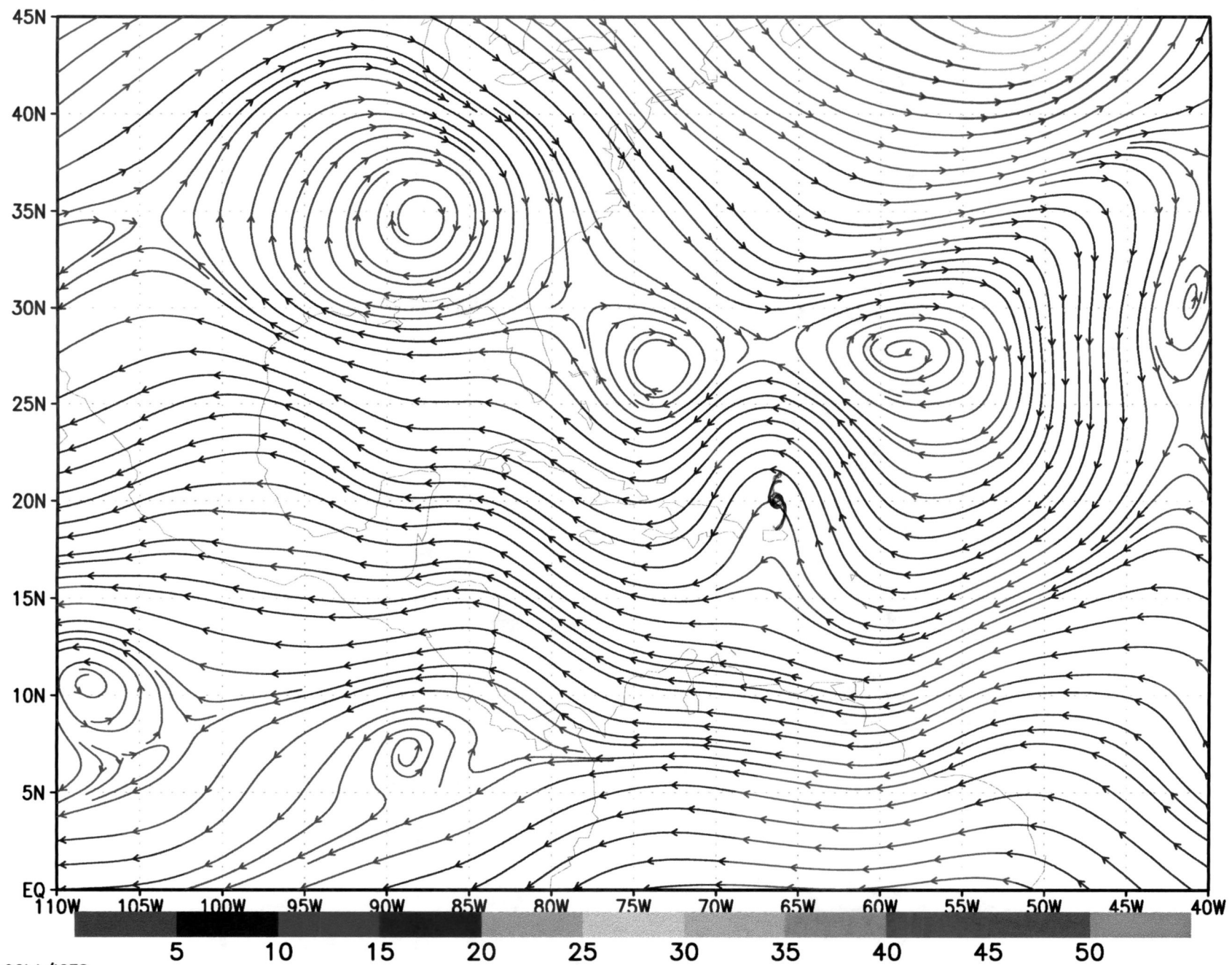
DLM wind 98081900 48h T126



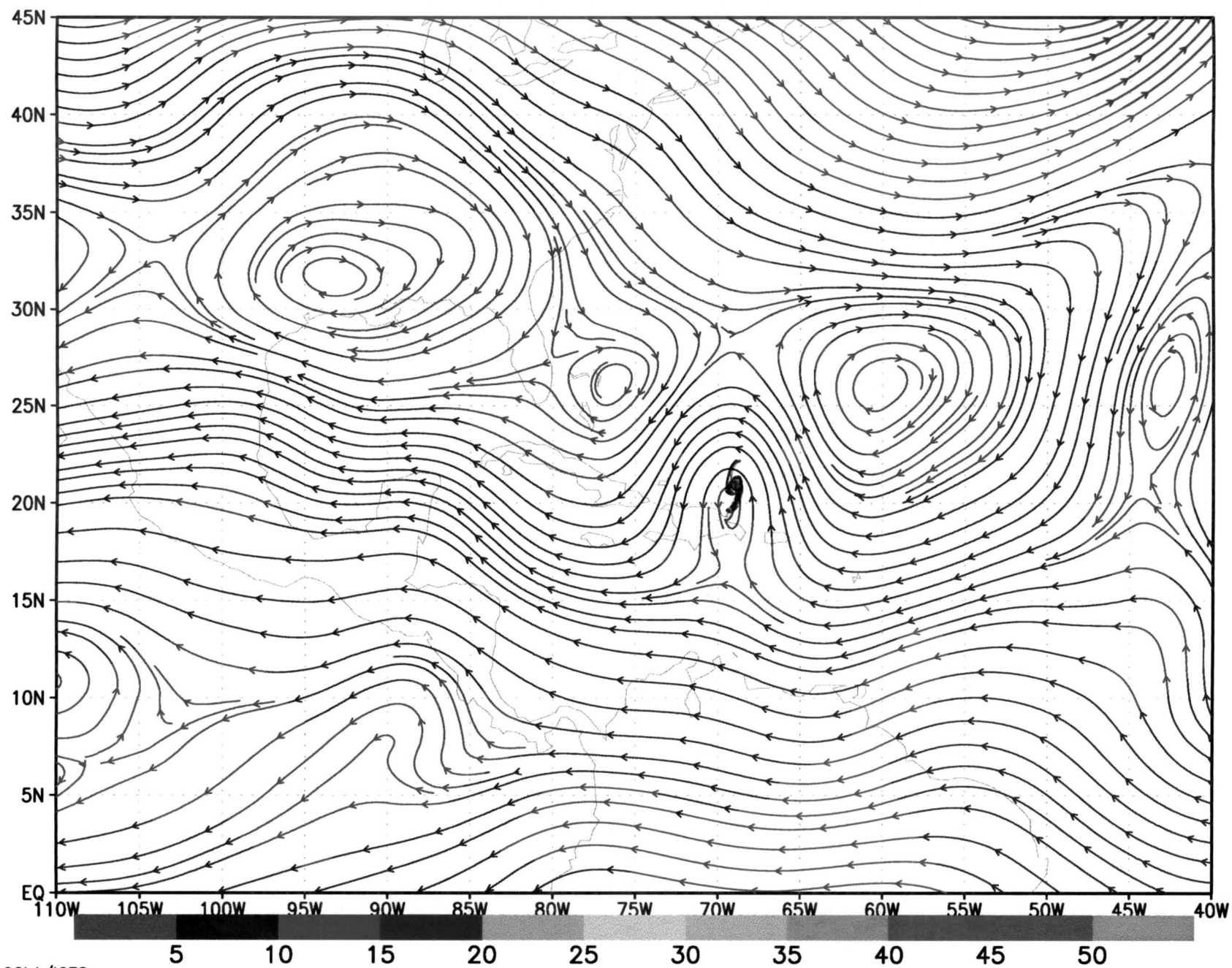
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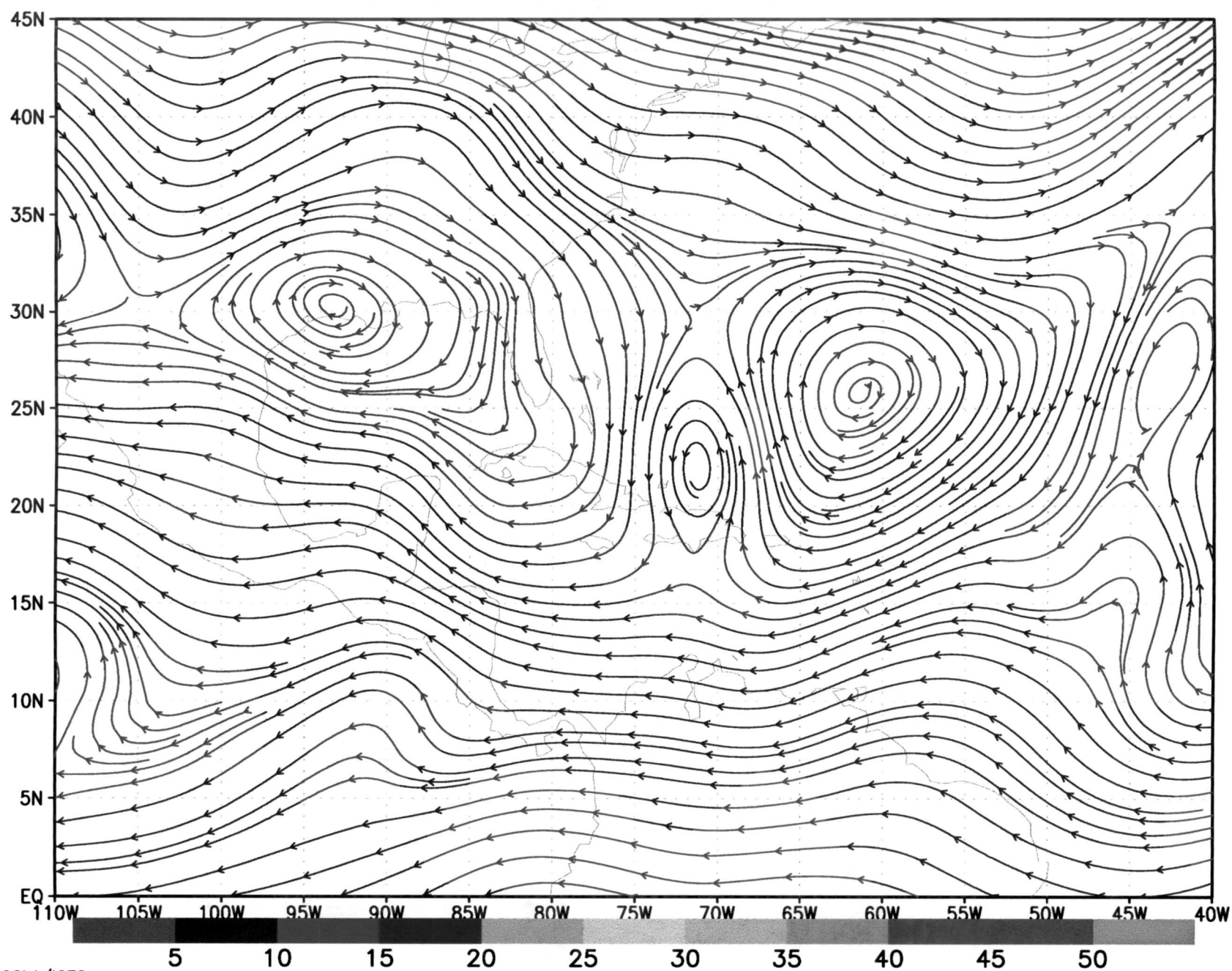
DLM wind 98081900 72h T126



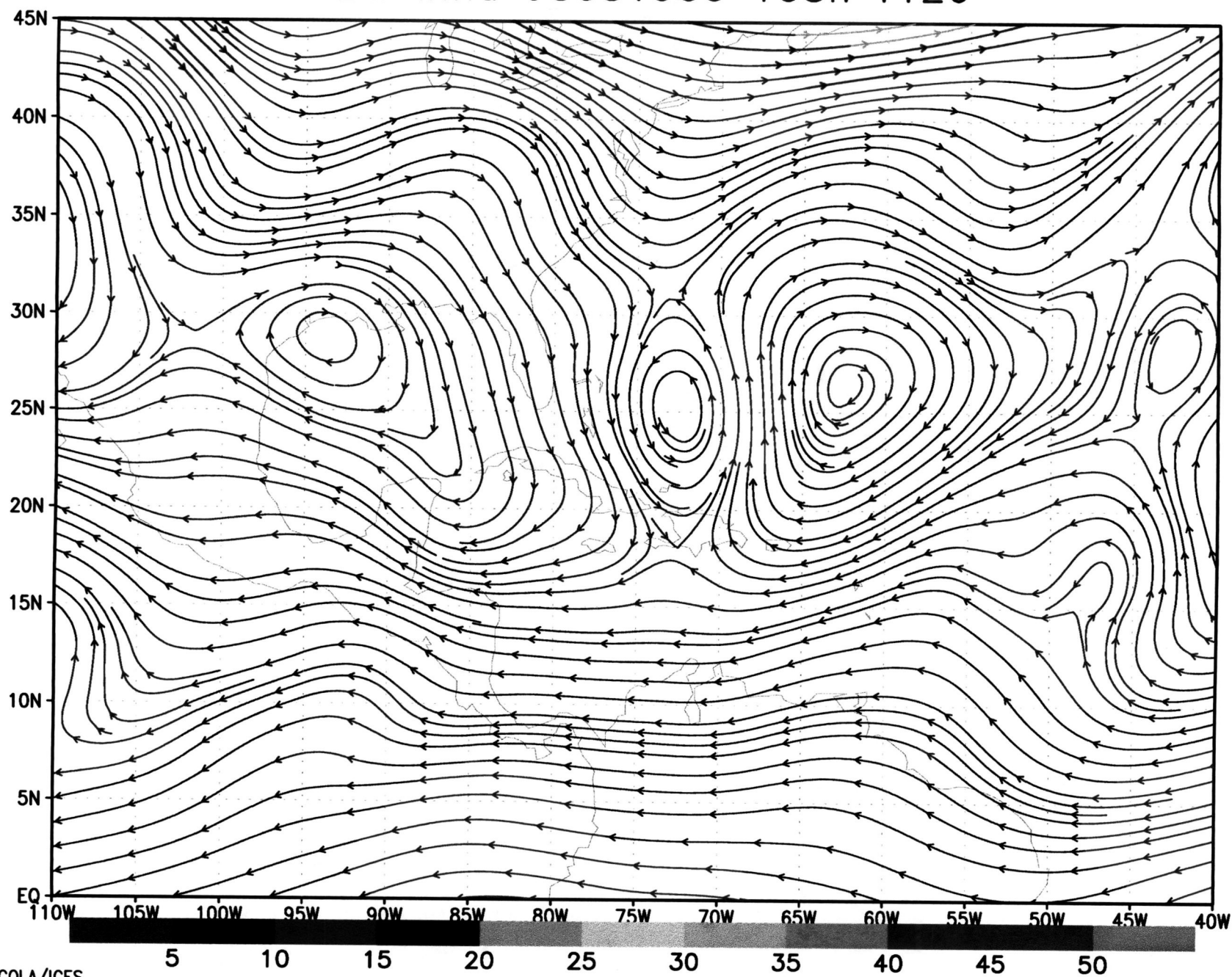
DLM wind 98081900 84h T126



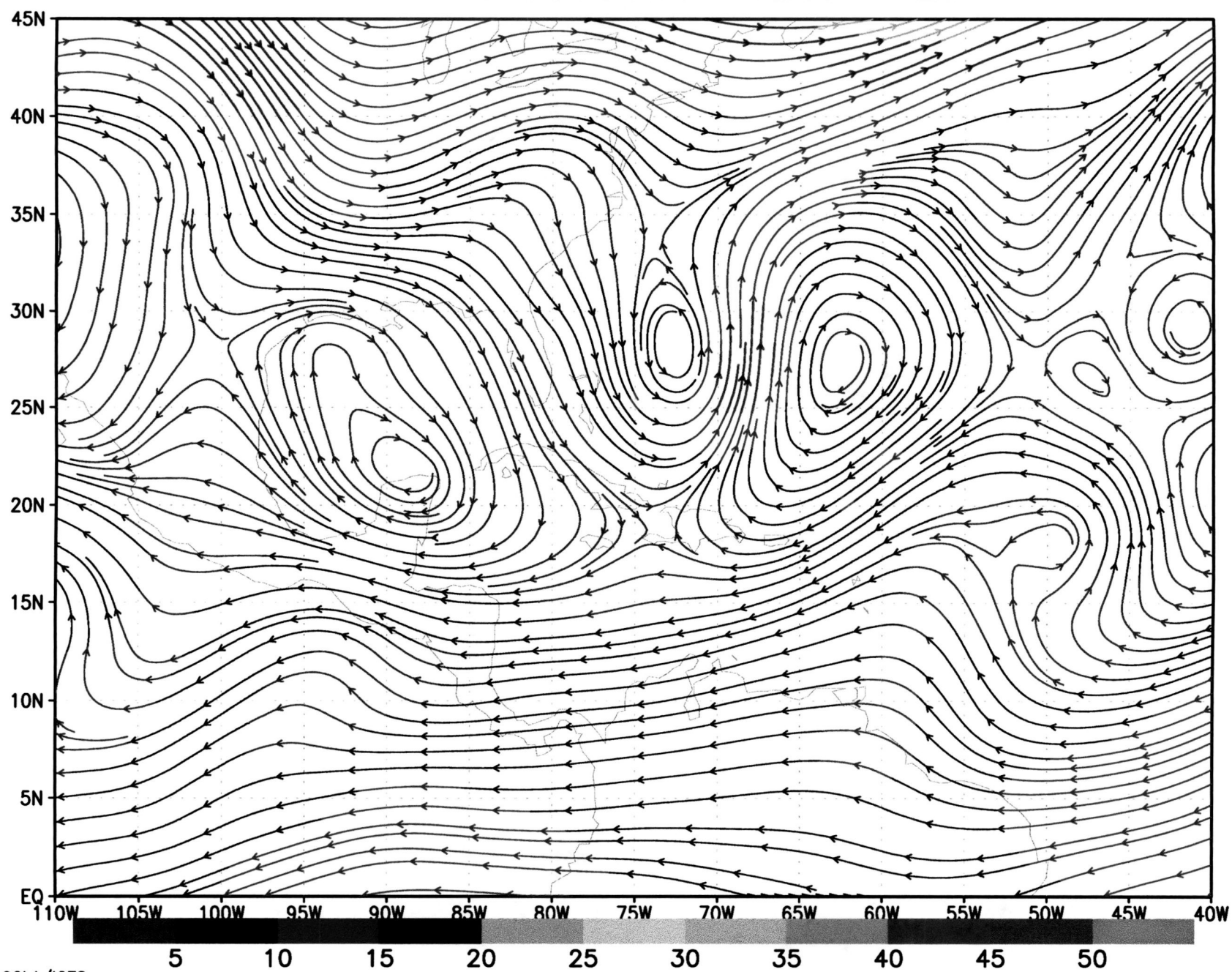
DLM wind 98081900 96h T126



DLM wind 98081900 108h T126



DLM wind 98081900 120h T126



 * TPC/HRD INTENSITY FORECAST (SHIPS) *
 * ATLANTIC VERSION *

08/19/98 12 UTC

TIME (HR)	0	12	24	36	48	60	72
MAXIMUM WIND (KTS)	25	32	44	54	63	71	74
FORECAST SHEAR (KTS)	7	12	3	9	15	N/A	N/A
FORECAST MO. FLUX (M/S/D)	0	0	N/A	N/A	N/A	N/A	N/A
SST ALONG TRACK (C)	28.9	28.5	28.8	28.9	29.0	29.1	29.1
POTENTIAL INTENSITY (KTS)	155	149	154	155	157	159	159
FORECAST 200 MB T (C)	-55.6	-55.5	-55.6	-55.6	-55.6	N/A	N/A
DISTANCE TO LAND (KM)	1083	1049	894	747	327	127	139
LATITUDE (DEG N)	13.2	14.6	15.9	17.4	18.4	19.7	20.9
LONGITUDE (DEG W)	47.2	50.8	54.6	58.7	62.6	66.1	69.5

STORM SPEED/HEADING (KTS/DEG) 17/290
 EAST/NORTH STORM MOTION COMPONENTS -15/ 6
 T-12 MAXIMUM WIND (KTS) 25

850 MB ENV. VORTICITY PARAMETER=	110.0	STD. DEV. FROM NORMAL:	1.7
200 MB ENV. DIVERG. PARAMETER=	38.0	STD. DEV. FROM NORMAL:	1.0
200 MB ZONAL WIND (KT)=	-17.5	STD. DEV. FROM NORMAL:	-1.9

INDIVIDUAL CONTRIBUTIONS TO INTENSITY CHANGE

	12	24	36	48	60	72
SAMPLE MEAN CHANGE	2.	3.	5.	6.	7.	8.
SST POTENTIAL	3.	8.	13.	18.	22.	23.
VERTICAL SHEAR	0.	1.	2.	3.	3.	2.
PERSISTENCE	-1.	-1.	-2.	-1.	-1.	-1.
200 MB ZONAL WIND	2.	5.	7.	9.	10.	9.
200 MB TEMP.	0.	0.	0.	0.	-1.	-1.
200 MB MOM. FLUX	0.	0.	-1.	-1.	-2.	-2.
850 MB ENV. VORT.	1.	2.	3.	4.	4.	3.
200 MB ENV. DIV.	1.	1.	1.	1.	1.	2.
DAYS FROM CLIM. PEAK	0.	0.	0.	0.	0.	0.
ZONAL STORM MOTION	-1.	-2.	-1.	0.	2.	5.
TOTAL CHANGE	7.	19.	29.	38.	46.	49.

SHFR and GFDL Forecasts 12 24 36 48 72 TIME (HR)

SHFR98081912 25 26 28 30 33

 * TPC/HRD INTENSITY FORECAST (SHIPS) *
 * ATLANTIC VERSION *

08/19/98 00 UTC

TIME (HR)	0	12	24	36	48	60	72
MAXIMUM WIND (KTS)	30	38	48	57	64	70	72
FORECAST SHEAR (KTS)	4	14	12	11	16	N/A	N/A
FORECAST MO. FLUX (M/S/D)	0	0	N/A	N/A	N/A	N/A	N/A
SST ALONG TRACK (C)	28.8	29.0	28.6	28.9	29.0	29.0	29.0
POTENTIAL INTENSITY (KTS)	154	157	151	155	157	157	157
FORECAST 200 MB T (C)	-55.4	-55.2	-55.4	-55.5	-55.5	N/A	N/A
DISTANCE TO LAND (KM)	1251	1108	1026	871	687	457	161
LATITUDE (DEG N)	12.0	12.9	14.1	15.0	16.4	17.8	19.2
LONGITUDE (DEG W)	43.2	46.4	50.1	54.2	58.3	61.4	64.5

STORM SPEED/HEADING (KTS/DEG) 15/280
 EAST/NORTH STORM MOTION COMPONENTS -14/ 3
 T-12 MAXIMUM WIND (KTS) 25

850 MB ENV. VORTICITY PARAMETER=	91.0	STD. DEV. FROM NORMAL:	1.3
200 MB ENV. DIVERG. PARAMETER=	23.0	STD. DEV. FROM NORMAL:	0.3
200 MB ZONAL WIND (KT)=	-15.6	STD. DEV. FROM NORMAL:	-1.8

INDIVIDUAL CONTRIBUTIONS TO INTENSITY CHANGE

	12	24	36	48	60	72
SAMPLE MEAN CHANGE	2.	3.	5.	6.	7.	8.
SST POTENTIAL	3.	8.	12.	17.	21.	22.
VERTICAL SHEAR	0.	0.	0.	0.	0.	0.
PERSISTENCE	1.	1.	1.	1.	1.	1.
200 MB ZONAL WIND	2.	5.	6.	9.	9.	9.
200 MB TEMP.	0.	-1.	-1.	-1.	-2.	-2.
200 MB MOM. FLUX	0.	0.	0.	-1.	-1.	-2.
850 MB ENV. VORT.	1.	2.	2.	3.	3.	2.
200 MB ENV. DIV.	0.	0.	0.	0.	0.	1.
DAYS FROM CLIM. PEAK	0.	0.	0.	0.	0.	0.
ZONAL STORM MOTION	-1.	-1.	-1.	0.	2.	4.
TOTAL CHANGE	8.	18.	27.	34.	40.	42.

SHFR and GFDL Forecasts	12	24	36	48	72	TIME (HR)
GFDL98081900	38	41	46	57	62	
SHFR98081900	33	35	37	39	41	

 * TPC/HRD INTENSITY FORECAST (SHIPS) *
 * ATLANTIC VERSION *

08/19/98 00 UTC

TIME (HR)	0	12	24	36	48	60	72
MAXIMUM WIND (KTS)	25	33	43	53	61	68	70
FORECAST SHEAR (KTS)	4	7	4	4	11	N/A	N/A
FORECAST MO. FLUX (M/S/D)	0	0	N/A	N/A	N/A	N/A	N/A
SST ALONG TRACK (C)	29.1	29.0	29.5	30.0	30.5	30.5	30.4
POTENTIAL INTENSITY (KTS)	159	157	165	165	165	165	165
FORECAST 200 MB T (C)	-55.5	-55.9	-55.9	-55.5	-55.1	N/A	N/A
DISTANCE TO LAND (KM)	88	11	31	21	-7	5	201
LATITUDE (DEG N)	19.3	19.4	20.1	21.2	22.2	23.3	24.3
LONGITUDE (DEG W)	66.3	69.2	72.3	75.6	78.7	81.7	84.7

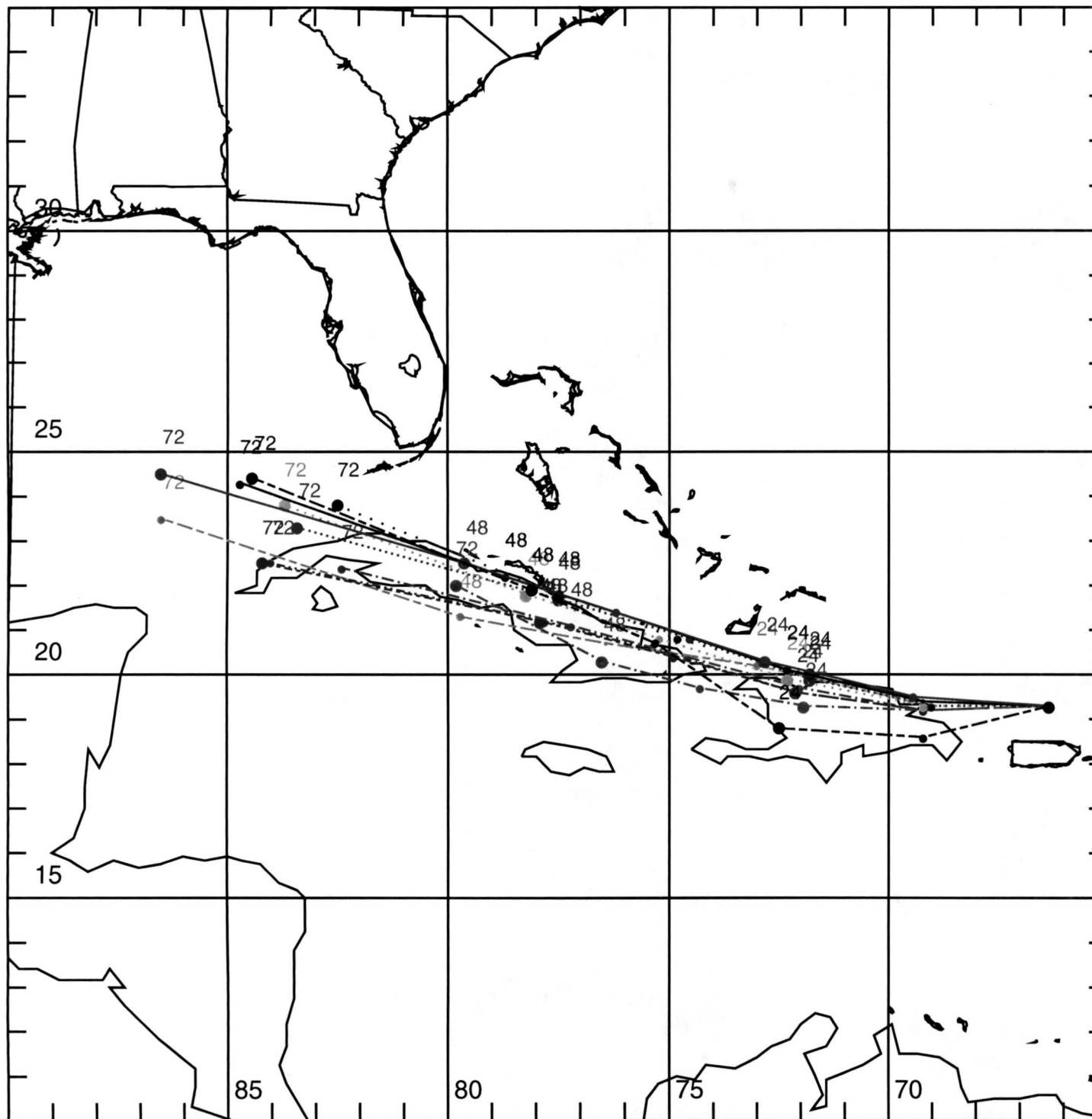
STORM SPEED/HEADING (KTS/DEG) 14/265
 EAST/NORTH STORM MOTION COMPONENTS -13/ 0
 T-12 MAXIMUM WIND (KTS) 20

850 MB ENV. VORTICITY PARAMETER=	-9.0	STD. DEV. FROM NORMAL:	-0.7
200 MB ENV. DIVERG. PARAMETER=	-2.0	STD. DEV. FROM NORMAL:	-0.9
200 MB ZONAL WIND (KT)=	-9.1	STD. DEV. FROM NORMAL:	-1.2

INDIVIDUAL CONTRIBUTIONS TO INTENSITY CHANGE

	12	24	36	48	60	72
SAMPLE MEAN CHANGE	2.	3.	5.	6.	7.	8.
SST POTENTIAL	3.	9.	14.	19.	24.	25.
VERTICAL SHEAR	2.	4.	6.	7.	8.	9.
PERSISTENCE	1.	1.	1.	1.	1.	1.
200 MB ZONAL WIND	1.	3.	4.	6.	6.	6.
200 MB TEMP.	0.	0.	0.	0.	-1.	-1.
200 MB MOM. FLUX	0.	0.	0.	-1.	-1.	-2.
850 MB ENV. VORT.	0.	-1.	-1.	-1.	-2.	-1.
200 MB ENV. DIV.	-1.	-1.	-1.	-1.	-1.	-2.
DAYS FROM CLIM. PEAK	0.	0.	0.	0.	0.	0.
ZONAL STORM MOTION	-1.	-1.	0.	0.	2.	4.
TOTAL CHANGE	8.	18.	28.	36.	43.	45.

SHFR and GFDL Forecasts	12	24	36	48	72	TIME (HR)
GFDL98081900	28	29	37	45	52	
SHFR98081900	28	32	35	39	41	
GFDO98081900	40	41	42	45	69	



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8/19/98 00 UTC

BAMD	●.....
BAMM	●.....
BAMS	●.....
VBAR	——●——
A90E	-----●-----
GFDL	-----●-----
CLIP	-----●-----
GFDO	-----●-----
A98E	-----●-----
A9UK	-----●-----
LBAR	——●——

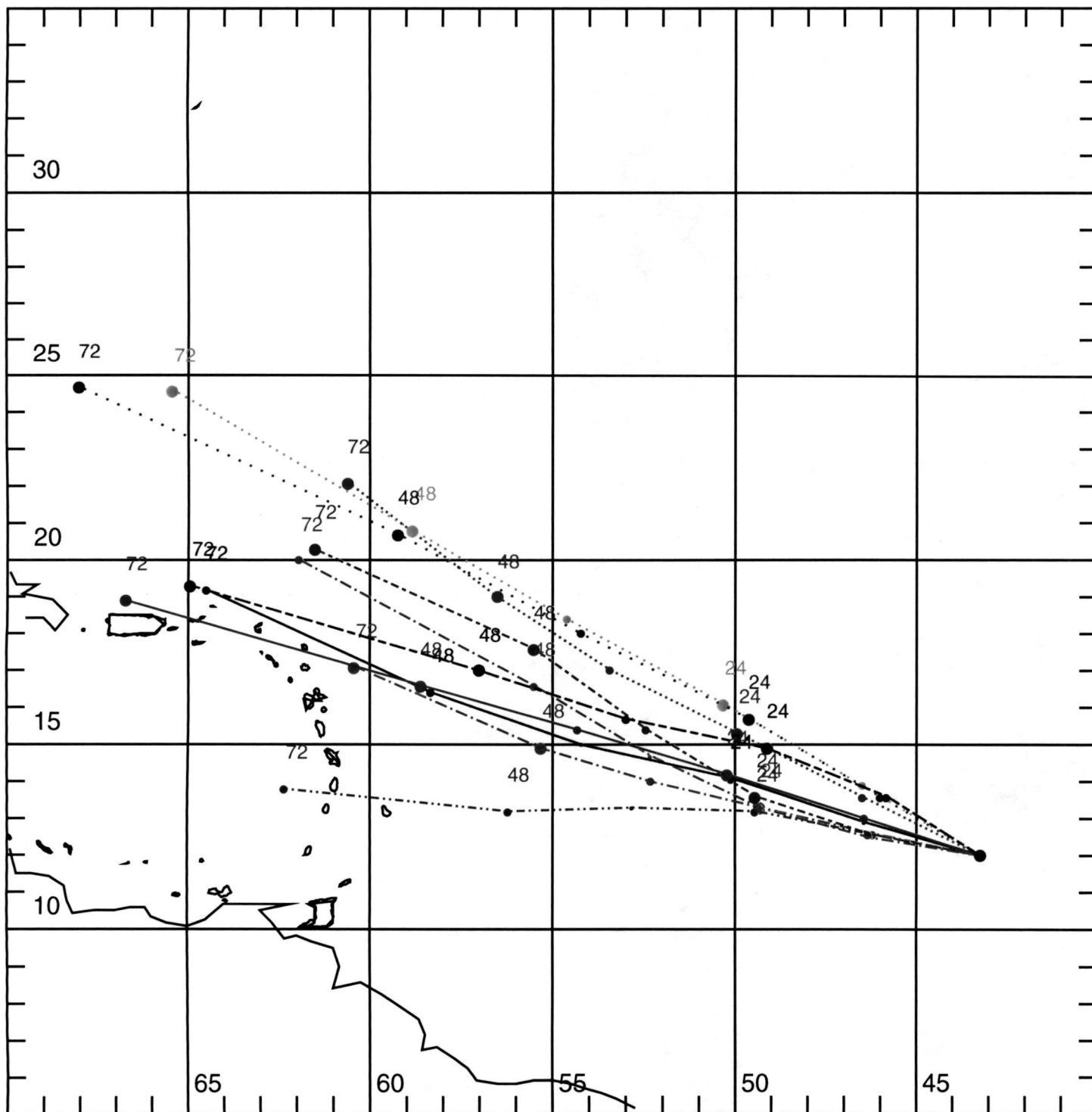
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06:07:21 19-AUG-98

HURRICANE RESEARCH
DIVISION AOML/NOAA

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8/19/98 00 UTC

BAMD	●.....
BAMM	●.....
BAMS	●.....
VBAR	——●——
A90E	-----●-----
GFDL	-----●-----
CLIP	-----●-----
A98E	●.....
A9UK	-----●-----
LBAR	——●——



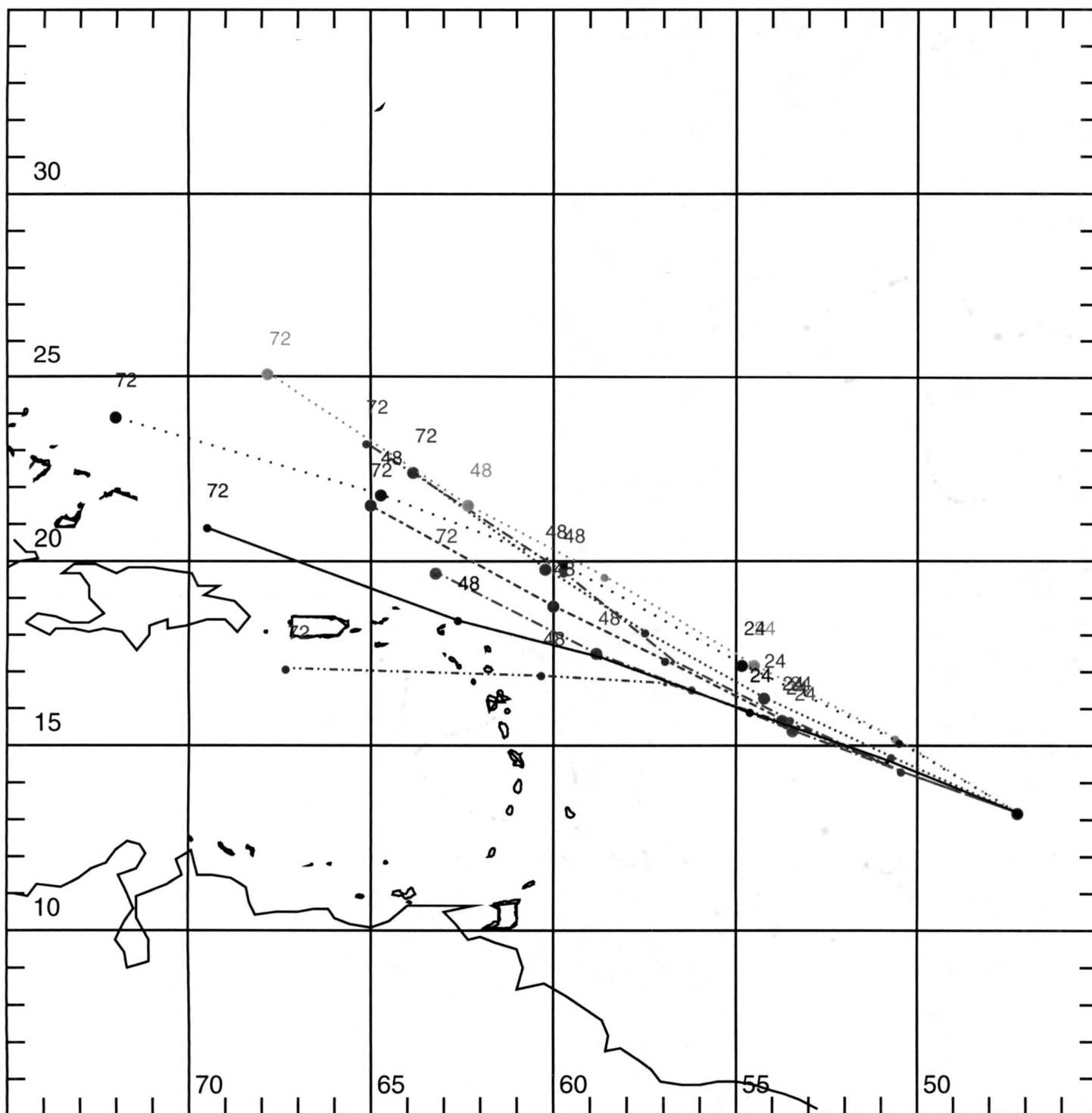
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HURRICANE RESEARCH
DIVISION AOML/NOAA

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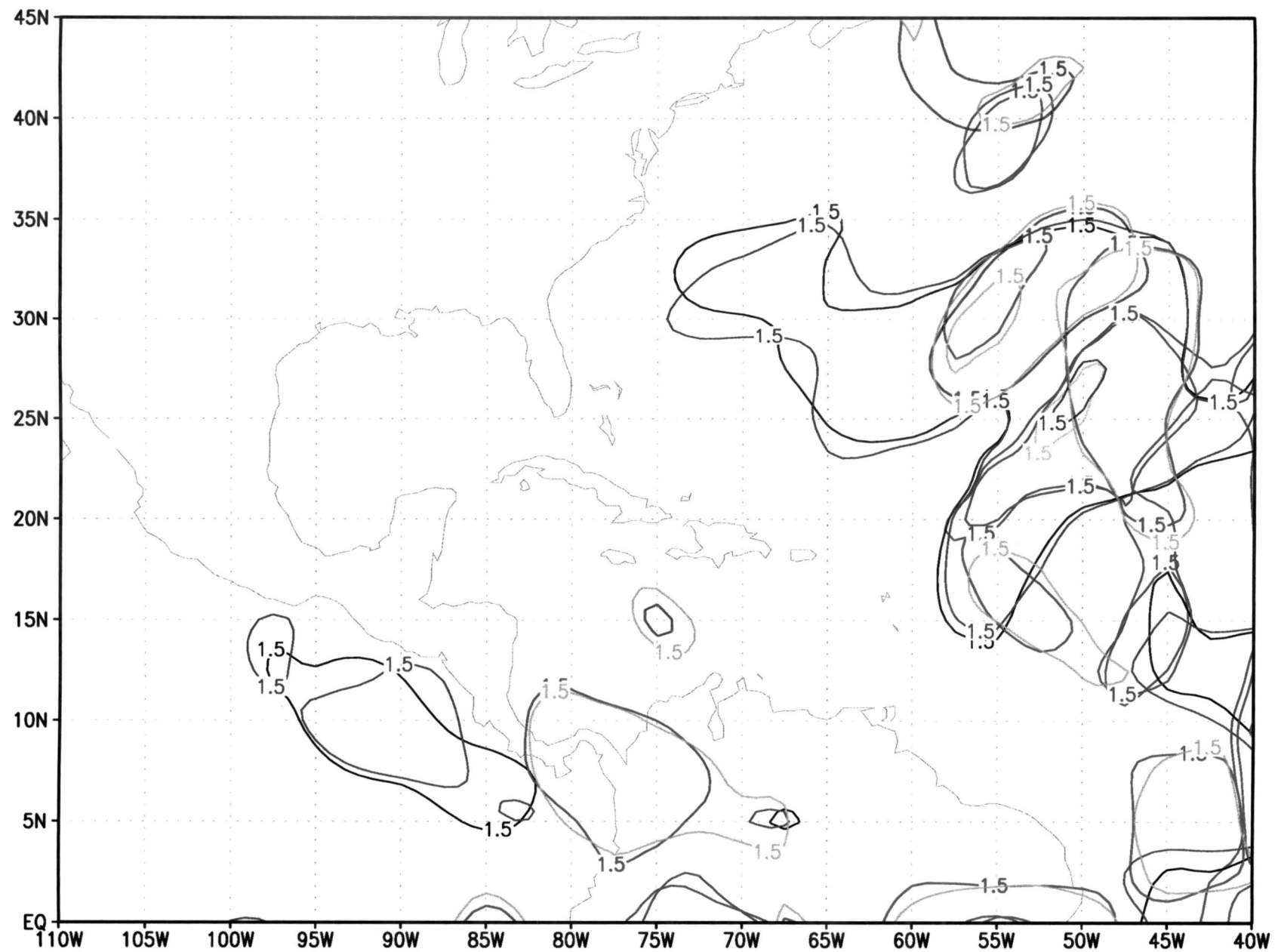
8/19/98 12 UTC

BAMD	●.....
BAMM	●.....
BAMS	●.....
A90E	-----●-----
CLIP	-----●-----
A98E	●.....
A9UK	-----●-----
LBAR	-----●-----

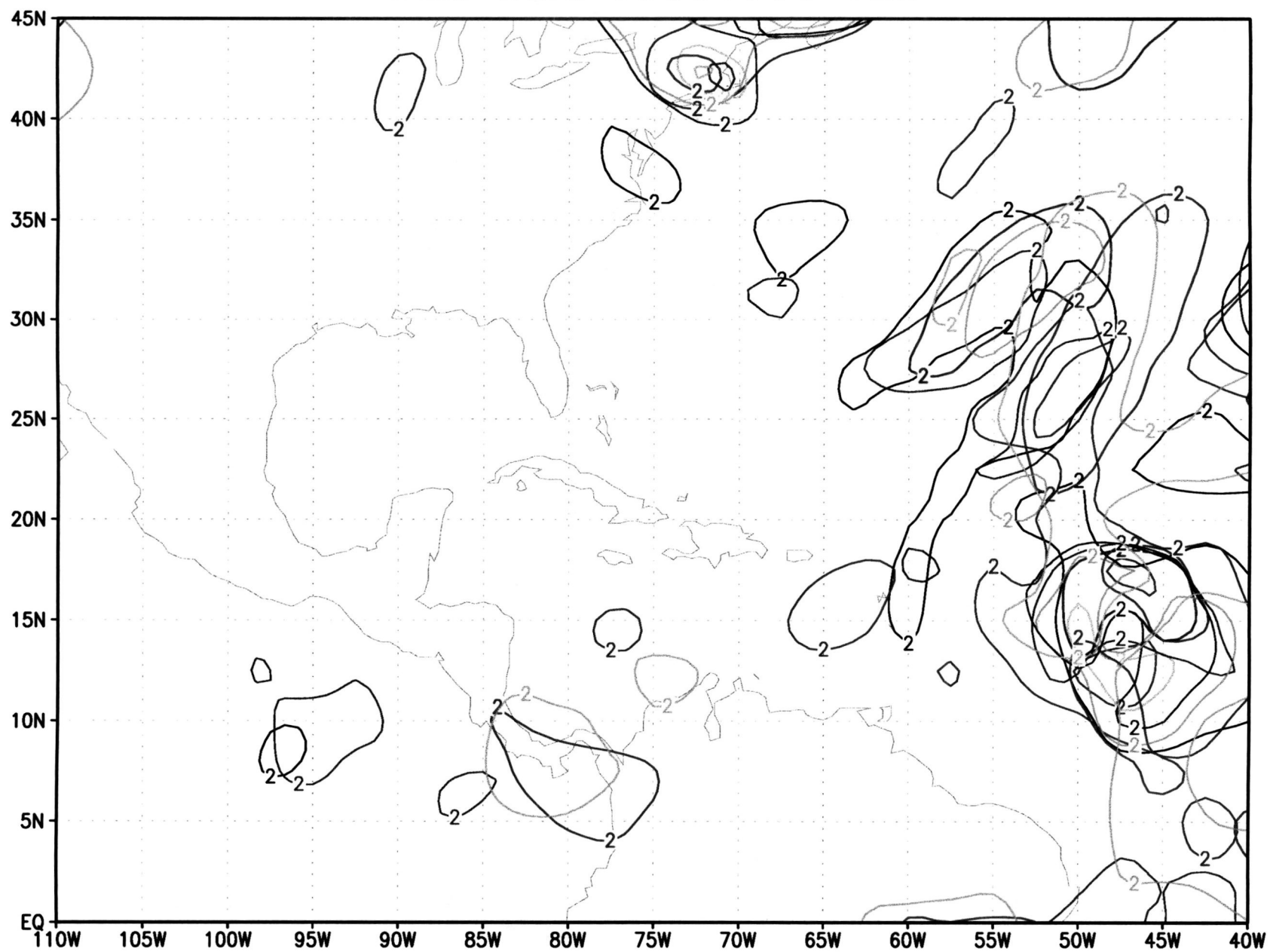


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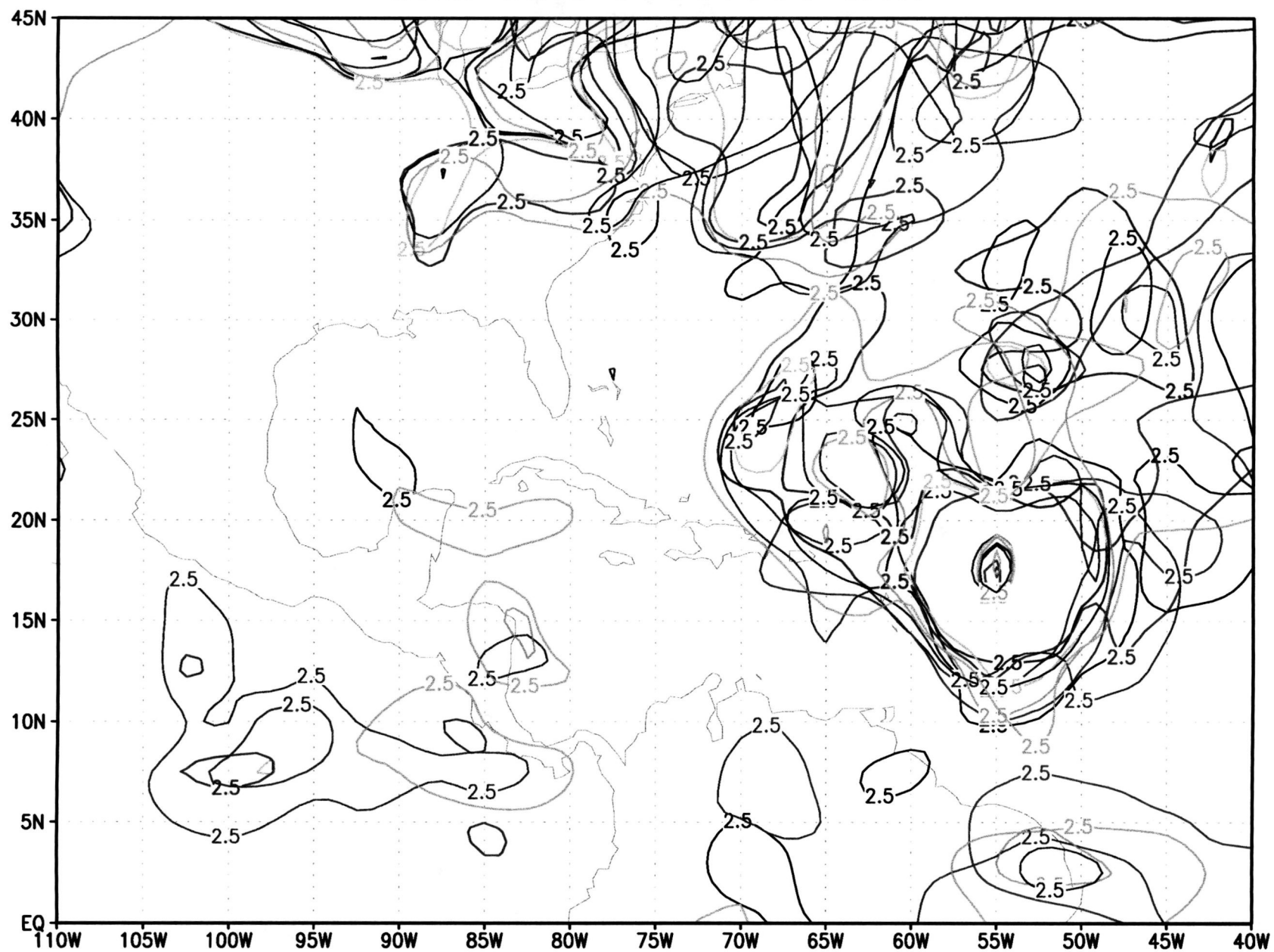
DLM wind 98081900 00h



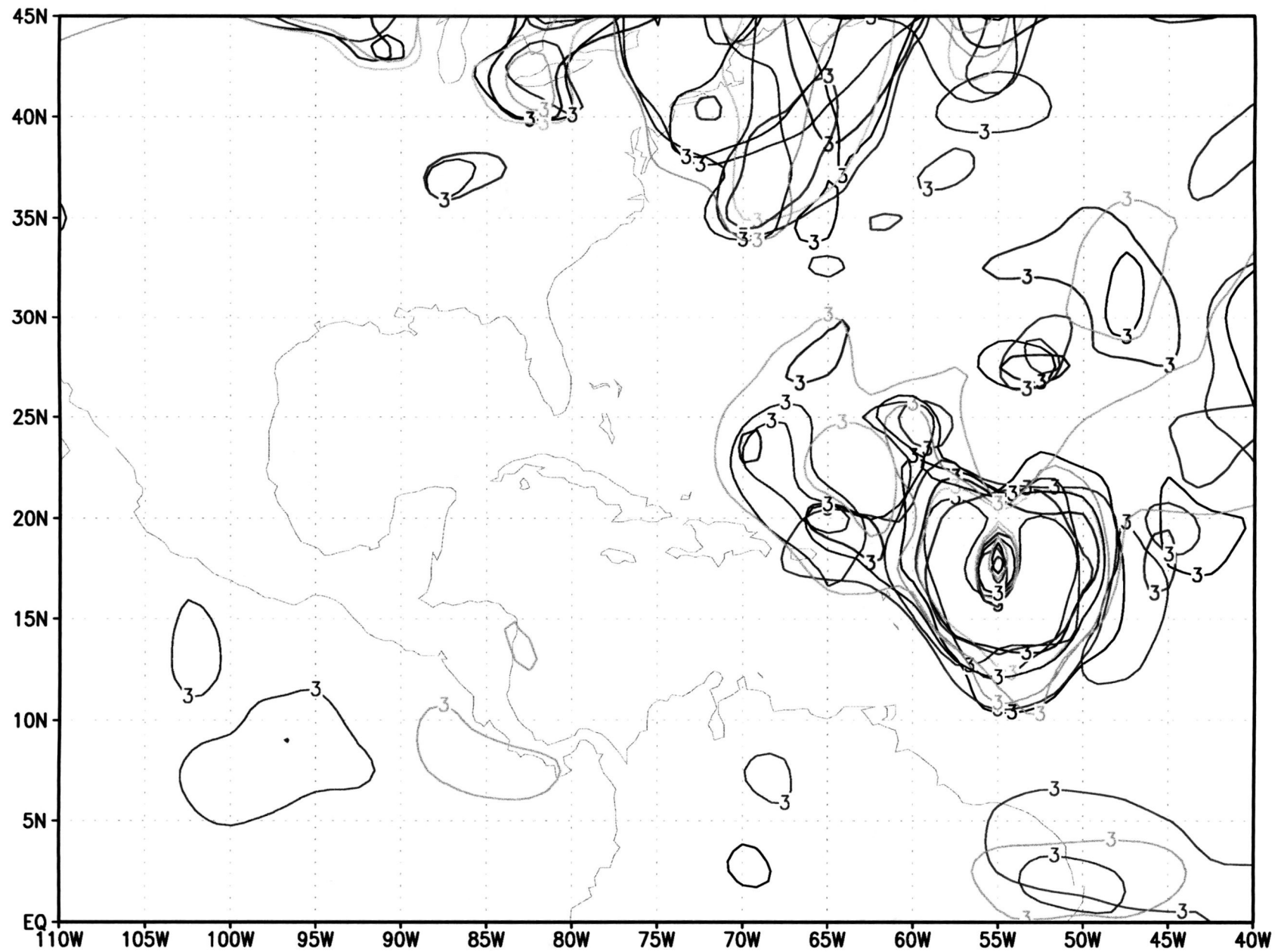
DLM wind 98081900 12h



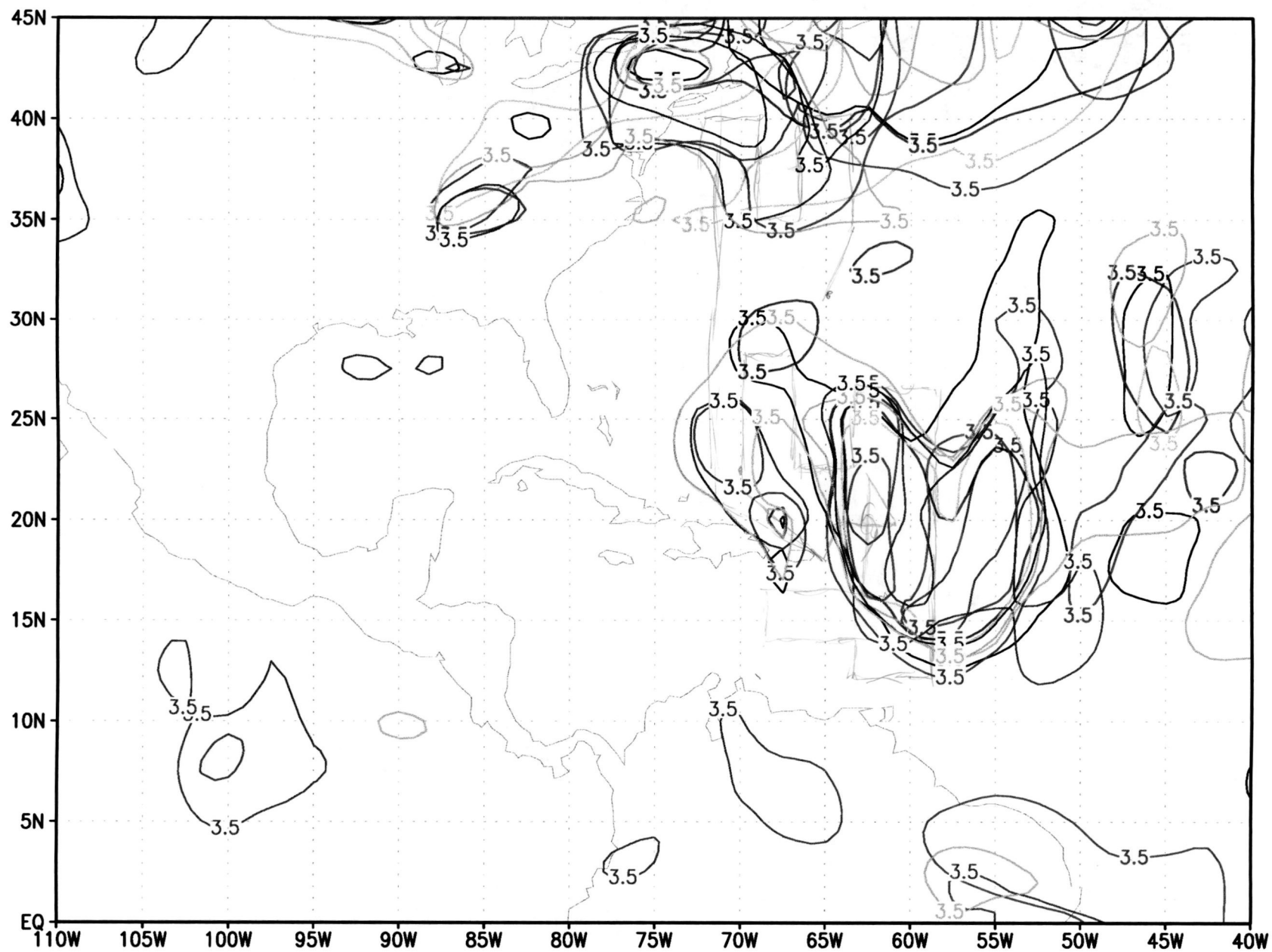
DLM wind 98081900 24h



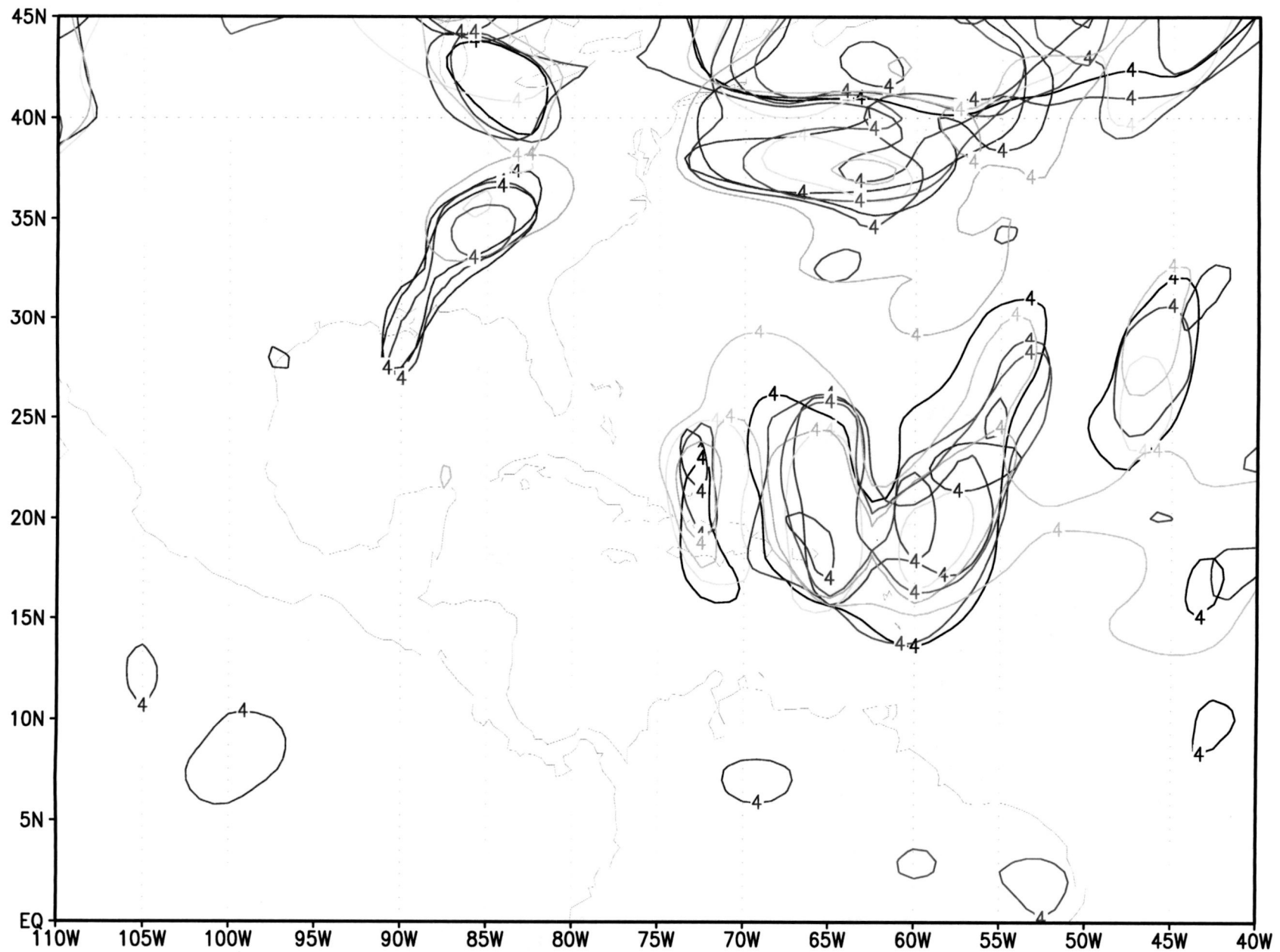
DLM wind 98081900 36h



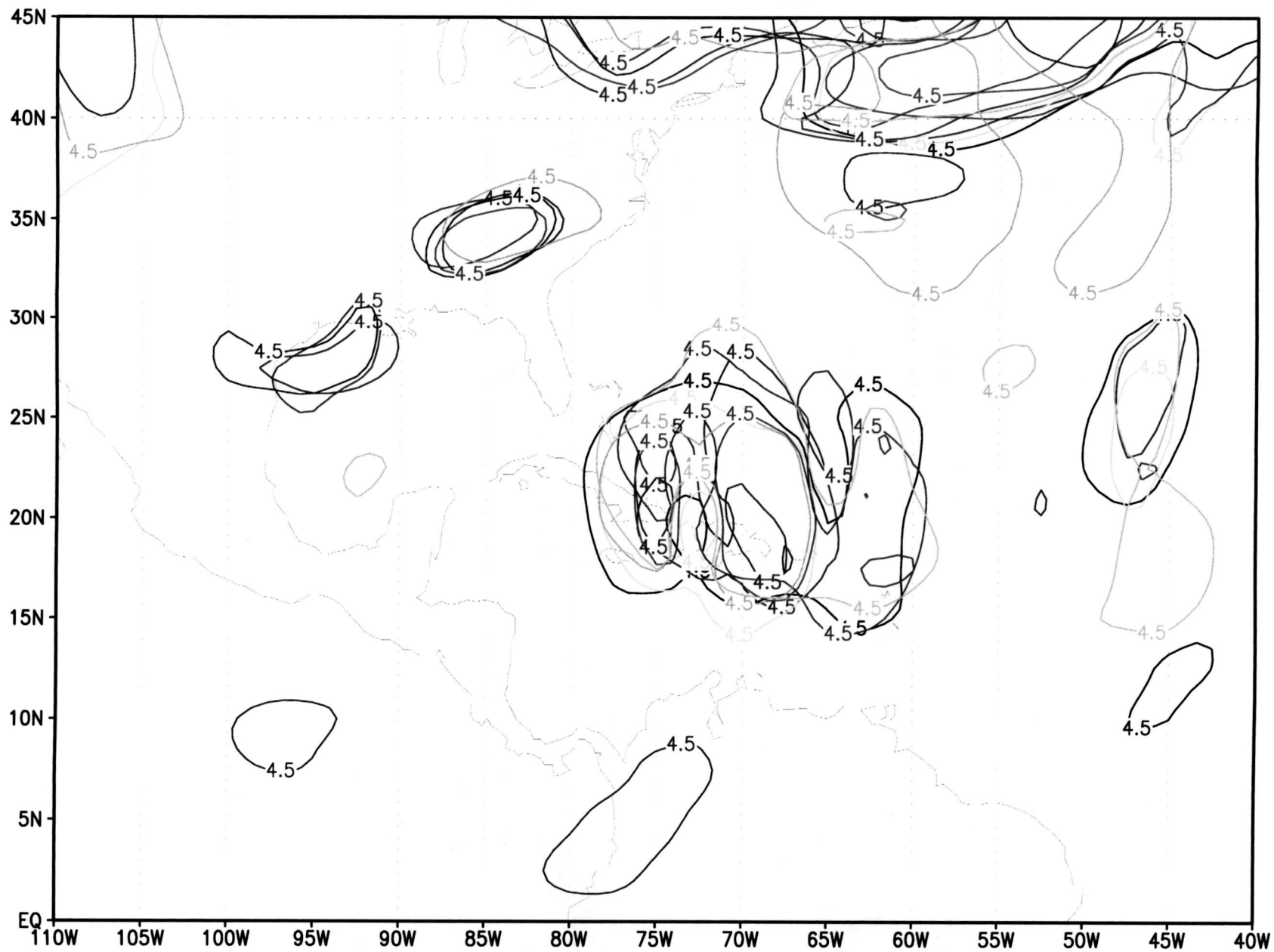
DLM wind 98081900 48h



DLM wind 98081900 60h



DLM wind 98081900 72h



12	13.0	46.4
24	14.1	50.1
36	15.3	54.3
48	16.5	58.5
60		
72	18.7	66.6
84	19.6	70.1
96	20.5	73.1

kohler

HEWLETT
PACKARD

Request: 4sidl-277 from surf.aoml.noaa.gov

Options: flist=' standard\ input:125731 '
Invalid Options: standard\ input:125731 '

Title: standard input

#####

surf

Fri Apr 18 14:25:41 EDT 1997

***** Option Summary *****
(see "man net_lj4x" for details)

auto (default), postscript, pcl, hpgl2, hpgl2_p, raw, relay
manual, tray1, tray2, tray3
legal, letter, A4, exec, ledger/11x17, com10
yb, nb bin1, bin2
dpi# simplex, duplex, hduplex
2up, 2+, 4up (hpux only) portrait, landscape
color, gray
ascii, text econo# (#=on/off)