

19870922I-LPS

E.2 Lead Project Scientist (On-board)

E.2.1 Preflight

We
have
fix

- ☒ 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. Determine next mission status, if any, and brief crews as necessary.

_____ 5. Notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted and arrange for any further coordination required.

On-Board Lead Project Scientist Checklist

Emily

Date 09/22/87

Aircraft 43RF

Flight ID 870922J1

A. Participants

HRD		OAO	
Function	Participant	Function	Participant
Lead Proj Sci	<u>Markes</u>	Flight Direc	<u>Masters</u>
Cloud Physics	<u>Dorst</u>	Pilots	<u>Gunnoc/Myers</u>
Radar	<u>Dodge/Kaplan</u>	Navigator	<u>Secretan</u>
Doppler	<u>Gamache</u>	Sys Engr	<u>Jarri/Schnicker Ricci</u>
Photographer	<u>—</u>	Data Tech	<u>Goldstein</u>
Omegasonde	<u>—</u>	El Tech	<u>Jarri/Schnicker</u>
AXBT/AXCP	<u>—</u>	Other	<u>—</u>

Take-Off	Location	Landing	Location
<u>9/22</u>	<u>STU</u>		<u>STU</u>

B. Past and Forecast Storm Locations

Date/Time	Latitude	Longitude	MSLP	Max Wind
<u>9/22 06Z</u>	<u>15°13"</u>	<u>66°32"</u>	<u>980</u>	<u>100 kts</u>
<u>9/22 10Z</u>	<u>15°30"</u>	<u>67°30"</u>	<u>—</u>	<u>—</u>
<u>9/22 1218Z</u>	<u>15°55"</u>	<u>67°45"</u>	<u>972 mb</u>	<u>105 kts</u>
<u>9/22 1752</u>	<u>16°12'</u>	<u>68°22"</u>	<u>970 mb</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

C. Mission Briefing

eyewall water budget option 1 p 13-15 in ops
plan 43RF at 10000' doing equilateral triangle
Only wrinkle is will do 60nm legs to N of G for NHC

D. Equipment Status

<u>Equipment</u>	<u>#tapes</u>	<u>Pre-Flt</u>	<u>In-Flt</u>	<u>Post-Flt</u>
Aircraft	10	✓	✓	✓
Radar	10	✓	✓	✓
Cloud Physics	36	✓	✓	✓
Data System	1 slow	✓	✓	✓
Omegasondes	—	—	—	—
AXBT/AXCP	—	—	—	—
Doppler	24	✓	✓	✓
Photography		✓	✓ until dark	✓
_____		_____	_____	_____
_____		_____	_____	_____

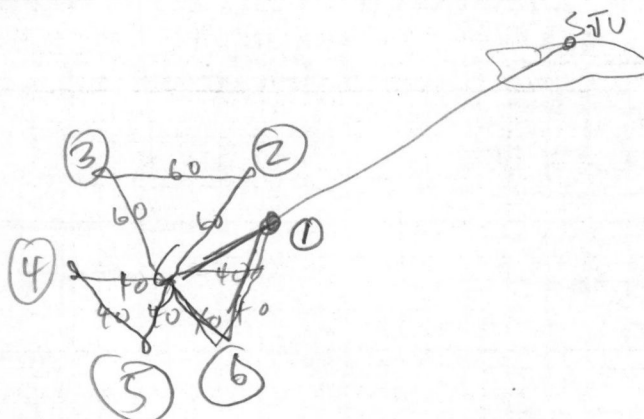
DSC and
DMTR problems
1st half of ft.

REMARKS:

radar reflectivity recording system problems
1535 - 1840 Z (I think the data is OK)
(1st complete) tape drive 1 was up and down
circuit) during this time.
radar tapes appeared to last
longer than usual.

stratiform pattern went well
after 1845Z radars worked fine.

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



II. Actual Flight Pattern

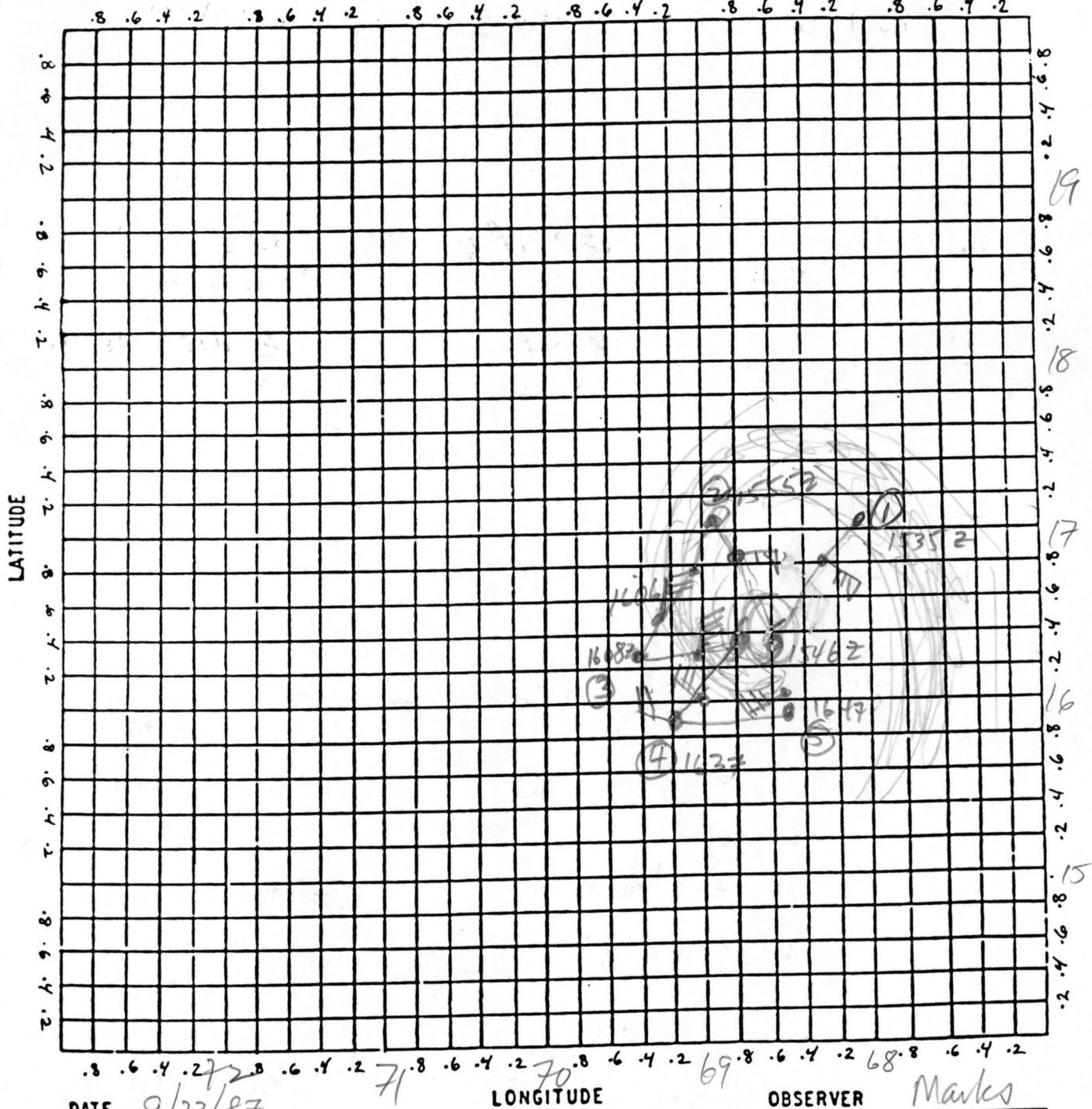
1 complete circuit 1535-1727 Z
 part of another circuit NW of G 1727-1844 Z
 stratiform pattern 1917-1954 NW of G
 (CP 290°/39nm)
 2nd complete circuit 1957-2139
 had to break last leg into eye
 because of severe V in eye wall
 2139-2148 boxed e of G climbed to 15 kft.
 2205-2231 did Δ NNE of center with
 G penetration at 15 kft.
9 penetrations total

WS in 6/3²

HURRICANE RECCO PLOTTING CHART

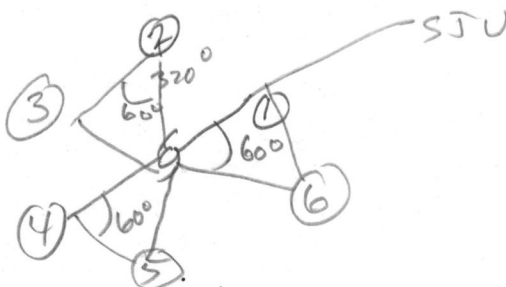
TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ

③



NOTE: Label full degrees according to location of flight area

1541 eye (weak open) to ESE



152
16° 12' 11"
68° 20' 00"

①

Date 22 Sept 1987

Flight Emily 870922I1

LPS Markus

Lead Project Scientist Event Log

9 penetrations

Time	Event	Position	Comments
TO	1455.39	18° 26.7' 65° 59.7'	STU
	1530		talk to PW will do 1st leg 360°
①	1535.00	17° 5.1' 68° 15.9'	track 210° 1st leg a
4540	switch DMTR1	DMTR1 having problems	700mb press att. AFing
6	1546.00	16° 24.5' 68° 35'	trk 320° 117 Kts 966mb
②	1555.25	17° 3.5' 68° 54'	trk 210° 160Z trk 225°
	descend to 10KRA	42 overshoot center went S and turn around	to account for 400Z the storm
③	1608.17	16° 20.7' 69° 25.5'	trk 085° to 6
	DMTR1 tape holder loose	maybe problem	? if so use DMTR2 only
6	1620.21	16° 28.8' 68° 41.4'	968mb 95Kts heavy precip
1632	radar problem on 42	not recording	trk 214° graupel in eye wall
④	1633.20	15° 52' 69° 22'	trk 90° in clear SW
	1637	trk 090°	trk 270 for few mi to adjust for more mid 95
⑤	1647.48	15° 55.7' 68° 29.1'	turn SSE of center
	1656	42RF radar up	trk 340° to 6
6	1700.00	16° 35' 68° 48'	trk 089° eye clear overhead
	42RF radar program crashing	960mb	end roll #1 (Sim)
①	1727.41	17° 33' 68° 23'	our radar system having problem
	ASDL radar sent @ 1736Z		60nm leg. TK 215°
6	1744	16° 44' 68° 58'	trk 330° 130kts graupel in eye wall

ODW 958mb

inside turn

1746

Surface Center tucked up on WNW side N eye wall

Surface

1747 lightning

1747Z

290 60 350

(2)

Date 9/22/87 Flight 870922FI LPS Markus

Lead Project Scientist Event Log

Time	Event	Position	Comments
(2) 1801		17°37'N 69°31"	60nm leg.
(3) 181419		16°51'N 70°18"	trk 91° 60nm leg.
183045	grapple	w eyewall straight to G	lightning 1829Z, 1830Z
6 183330		16°54'N 69°06"	trk 210° clear overhead.
	1837 ka boom!!		958mb ODW 962mb
(4) 1840 Z			loiter to clean up plane check radar
strafing pattern 1900Z		talk to PW head for pt. bearing 290°/50nm from G	
start 191745		16°52'N 70°3.9'	CP 290° 39nm from G
CP 192522		17°16'N 70°0"	at CP - Tacan 7nm away
turn 193300		17°46.5'N 69°55"	turn to W side
turn 194245		17°14'N 70°18.5"	turn to G ODW 960mb
1953	at CP head for G	(17°16'N 69°43")	Tacan 7nm separation
6 1957		17°11'N 69°23"	inside turn small G
		140kts	trk 350° 957mb SFMR
(2) 200811		17°51'N 69°25"	trk 245
(3) 202051		17°28'N 70°18"	trk 106° to G

42
pies
centered
on
3150

57164
35

3

Date 9/22/87 Flight Emily 670922J1 LPS Markus

Lead Project Scientist Event Log

202235 grapple

203030 lightning

Time	Event	Position	Comments
9	203400	17°18" 69°28"	958 m/s ± 27 m/s ⁻¹ 203320
	203737 grapple		trk 230° to ④ 120 kts
④	2045:30	16°53" 70°7.4"	trk 110° to ⑤
⑤	2056 00	16°45.6" 69°24.2"	trk 355° to 9
9	2107	17°25" 69°34"	trk 110° to ⑥
	Very rough -21.5=U on this leg. turb. so		
⑥	2119	17°5" 65°58"	trk 355 to ① strong way
	re-roll our pattern we'll to wedgies		
	outside the 9 on the east side of the 9		
①	2131	18°6" 69°8.4"	turn to track 220°
①'	2139	17°44.7" 69°24"	trk 180°
			climbing to 15K ft.
⑥'	214819	17°18" 69°17"	trk 110° to ⑥
	at 15K ft. 42RF 17°26" 69°42" 21542 958		
⑥	215445	17°7" 68°59.5"	trk 355° to ①
①	220528	18° 4.7" 69°17"	trk 230° to 9
			fix 42RF 17°30" 69°40"

Storm
315/20 kts

9" 6"

15K ft.

Lead Project Scientist Event Log

15 kPa

~~21:01~~

2102 hdg into eye & HDG 348

2105 1721' 69° 31'

959mB

52 ms SFMR MAX INBOUND

2108 HDG 122 out thru eye good down
but SFMR 42 ms only

2110 pretty bumpy - ~~be~~ ended

Date _____ Flight _____ LPS _____

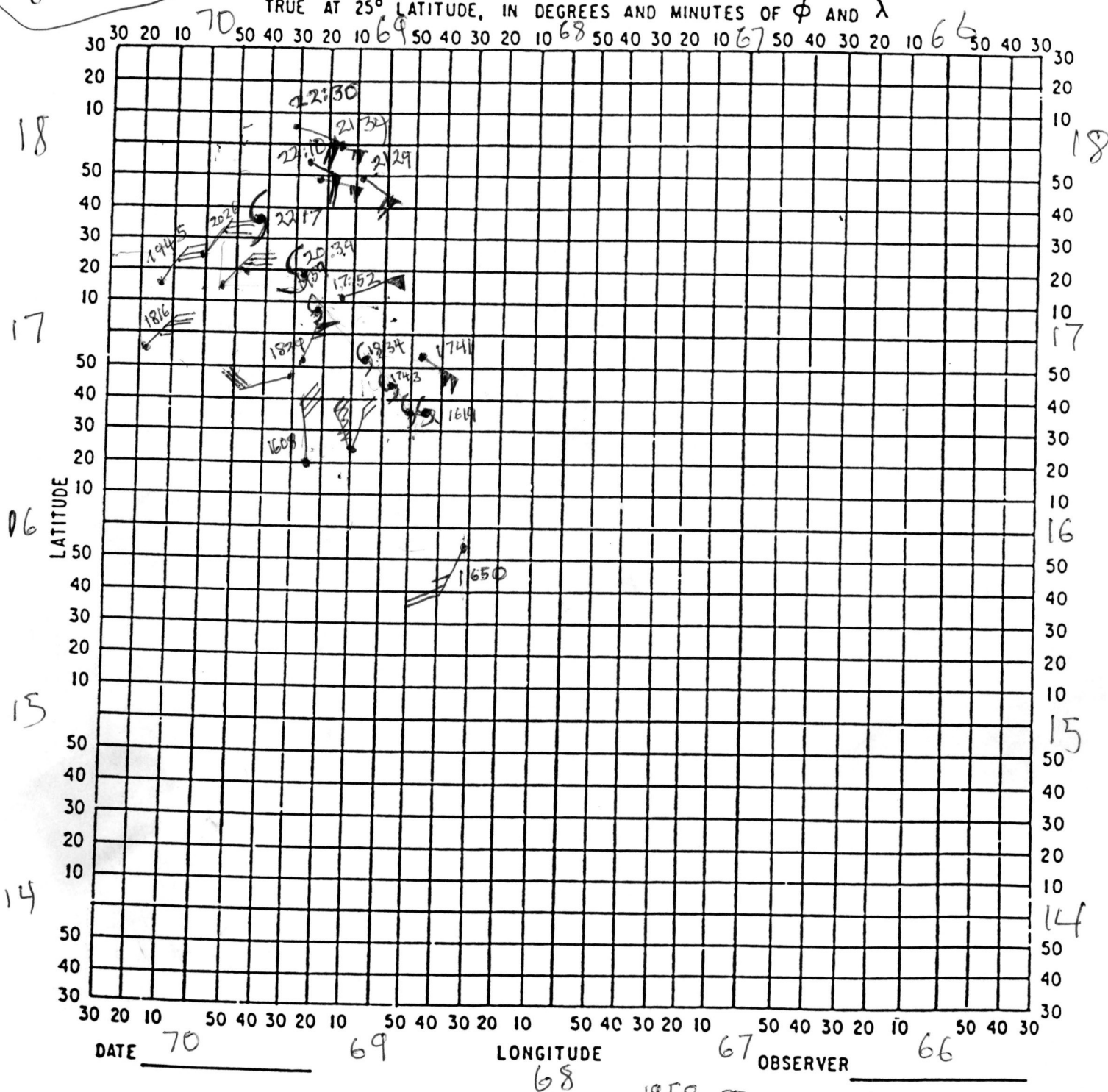
Lead Project Scientist Event Log

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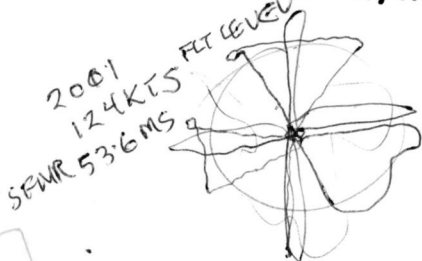
HURRICANE RECCO PLOTTING CHART

TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ

870922I1



NOTE: Label full degrees according to location of flight area



1829

1744 60.2 m/s SFMR
1747 958 mb ODW drop
1831 960 on ODW drop

1958 57 m/s SFMR

12.0 42.4
132 49.3

17:43 958 mb

1832 959 mb 958 mb at 1800

1837 MASSIVE BUMP

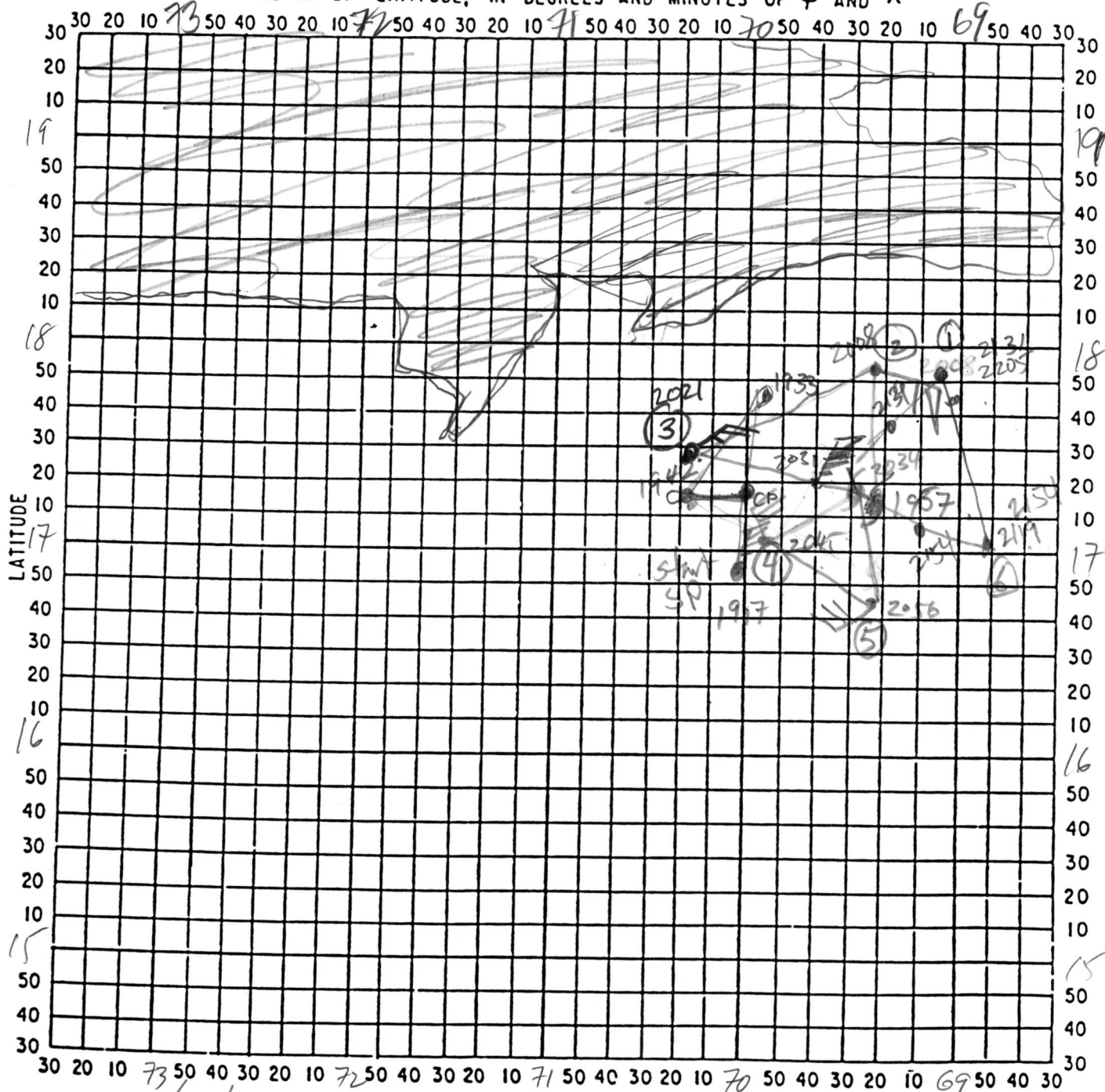
TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ



Strat form
pattern (3)

HURRICANE RECCO PLOTTING CHART

TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ



DATE 9/22/87 Emily

LONGITUDE

OBSERVER Marks

NOTE: Label full degrees according to location of flight area

001CHMT2:

TTAA00 KNHC 220955
HURRICANE EMILY MARINE ADVISORY NUMBER 8
NATIONAL WEATHER SERVICE MIAMI FL
1000Z TUE SEP 22 1987

HURRICANE WARNINGS ARE IN EFFECT FOR THE SOUTH COAST OF THE
DOMINICAN REPUBLIC FROM SANTO DOMINGO WESTWARD AND FOR THE SOUTH
COAST OF HAITI INCLUDING THE ENTIRE SOUTHWESTERN PENINSULA.

HURRICANE CENTER LOCATED NEAR 15.5N 67.5W AT 22/1000Z.
POSITION ACCURATE WITHIN 20 MILES BASED ON AF RECON
AT 0558Z AND SATELLITE.

PRESENT MOVEMENT TOWARDS THE WEST NORTHWEST OR 290 DEGREES AT 18 KT.

DIAMETER OF EYE 18 NM.
MAX SUSTAINED WINDS 75 KT WITH GUSTS TO 90 KT.
RADIUS OF 64 KT WINDS 25NE 25NW.
RADIUS OF 50 KT WINDS 75NE 50SE 25SW 75NW.
RADIUS OF 34 KT WINDS 125NE 100SE 75SW 125NW.
RADIUS OF 12 FT SEAS OR HIGHER 125NE 100SE 75SW 125NW.
REPEAT CENTER LOCATED AT 15.5N 67.5W AT 22/1000Z.

FORECAST VALID 22/1800Z 16.6N 69.8W.
MAX SUSTAINED WINDS 80 KT WITH GUSTS TO 95 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 25SW 75NW.
RADIUS OF 34 KT WINDS 125NE 100SE 75SW 125NW.

FORECAST VALID 23/0600Z 18.5N 72.5W.
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 100 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 50SW 75NW.
RADIUS OF 34 KT WINDS 125NE 100SE 100SW 125NW.

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 15.5N 67.5W.

EXTENDED OUTLOOK...NOTICE...CONFIDENCE IN THE
FORECAST POSITIONS DECREASES AS THE TIME INTERVAL OF
THE FORECAST PERIOD INCREASES AND THE EXTENDED OUTLOOK
POSITIONS SHOULD BE USED ONLY FOR GUIDANCE PURPOSES.

OUTLOOK VALID 24/0600Z 21.5N 75.0W.
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 100 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 50SW 75NW.
OUTLOOK VALID 25/0600Z 25.0N 75.0W.
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 100 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 50SW 75NW.
NEXT ADVISORY AT 22/1600Z.

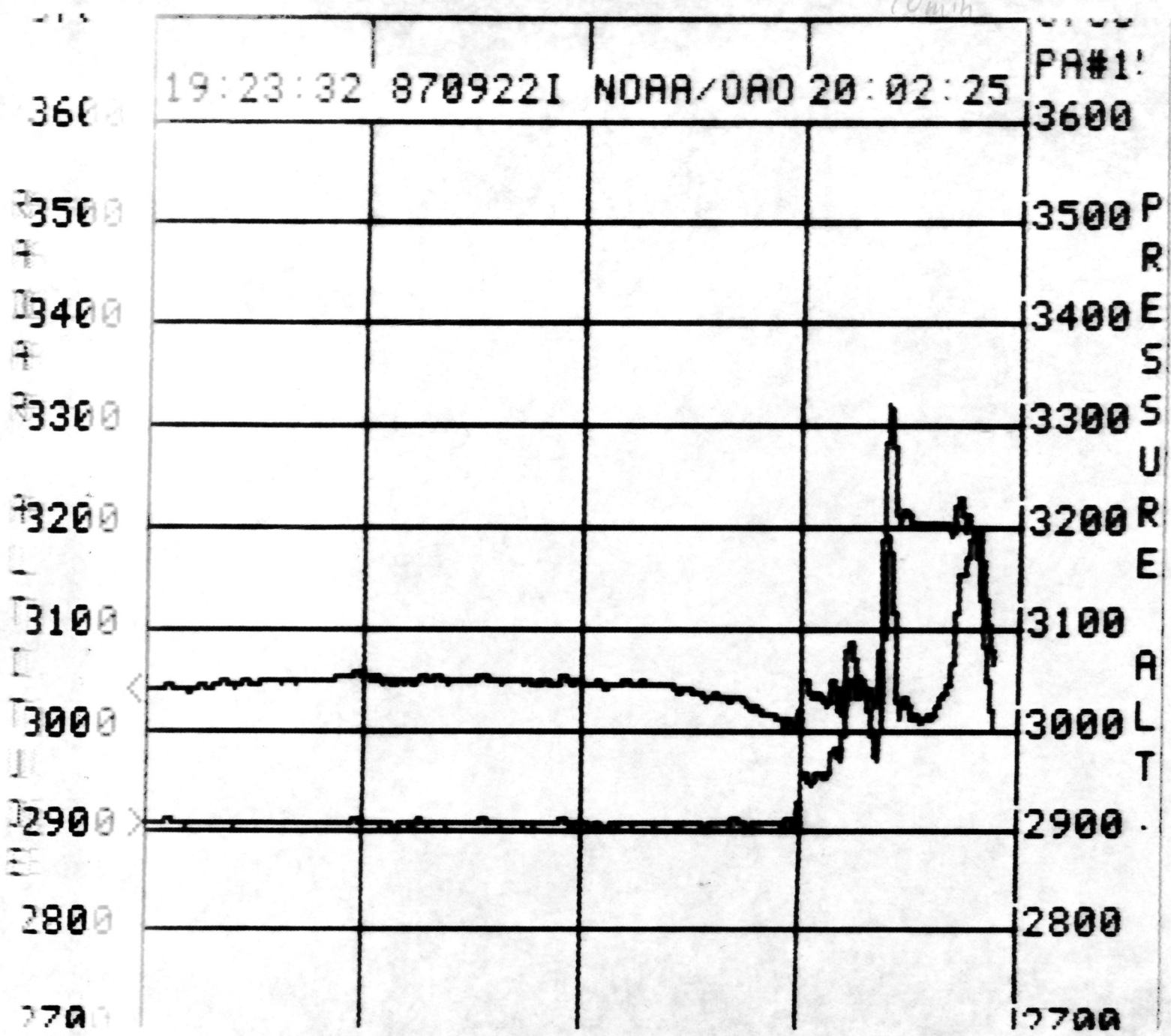
ADVISORY NUMBER 8 HURRICANE EMILY PROBABILITIES
FOR GUIDANCE IN HURRICANE PROTECTION PLANNING
BY GOVERNMENT AND DISASTER OFFICIALS

CHANCES OF CENTER OF EMILY PASSING WITHIN 65 MILES OF
LISTED LOCATIONS THROUGH 2 AM AST FRI SEP 25 1987

CHANCES EXPRESSED IN PER CENT...TIMES AST

		ADDITIONAL PROBABILITIES				
COASTAL	THRU	2 AM WED	2 PM WED	2 AM THU	TOTAL	
LOCATIONS	2 AM WED	THRU	THRU	THRU	THRU	
		2 PM WED	2 AM THU	2 AM FRI		

10min



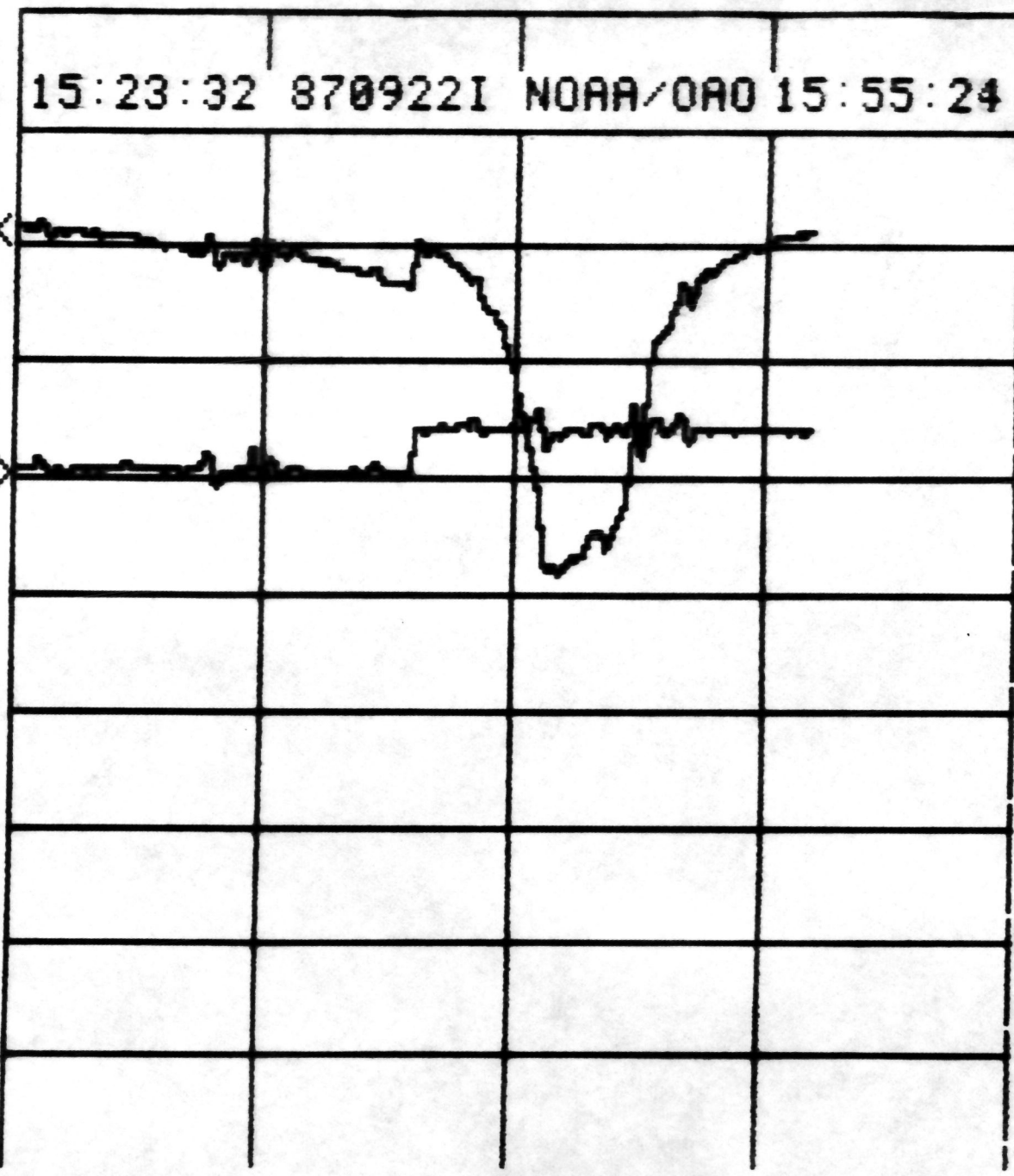
700
800
900
000
100
200
300
400
500
600

15:23:32 870922I NOAA/OAO 15:55:24

PA#1!
3600
3500
3400
3300
3200
3100
3000
2900
2800
2700

P
R
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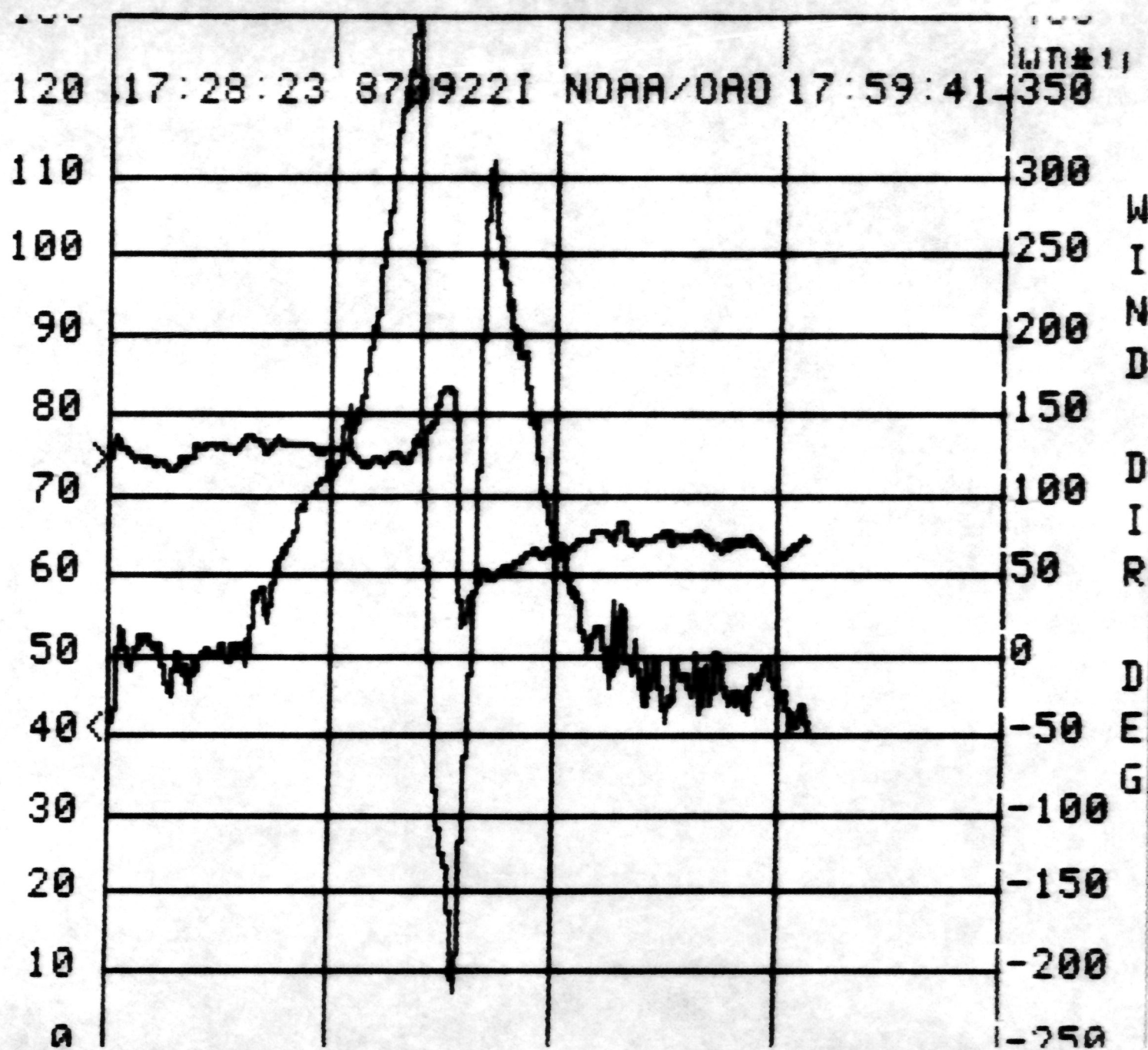
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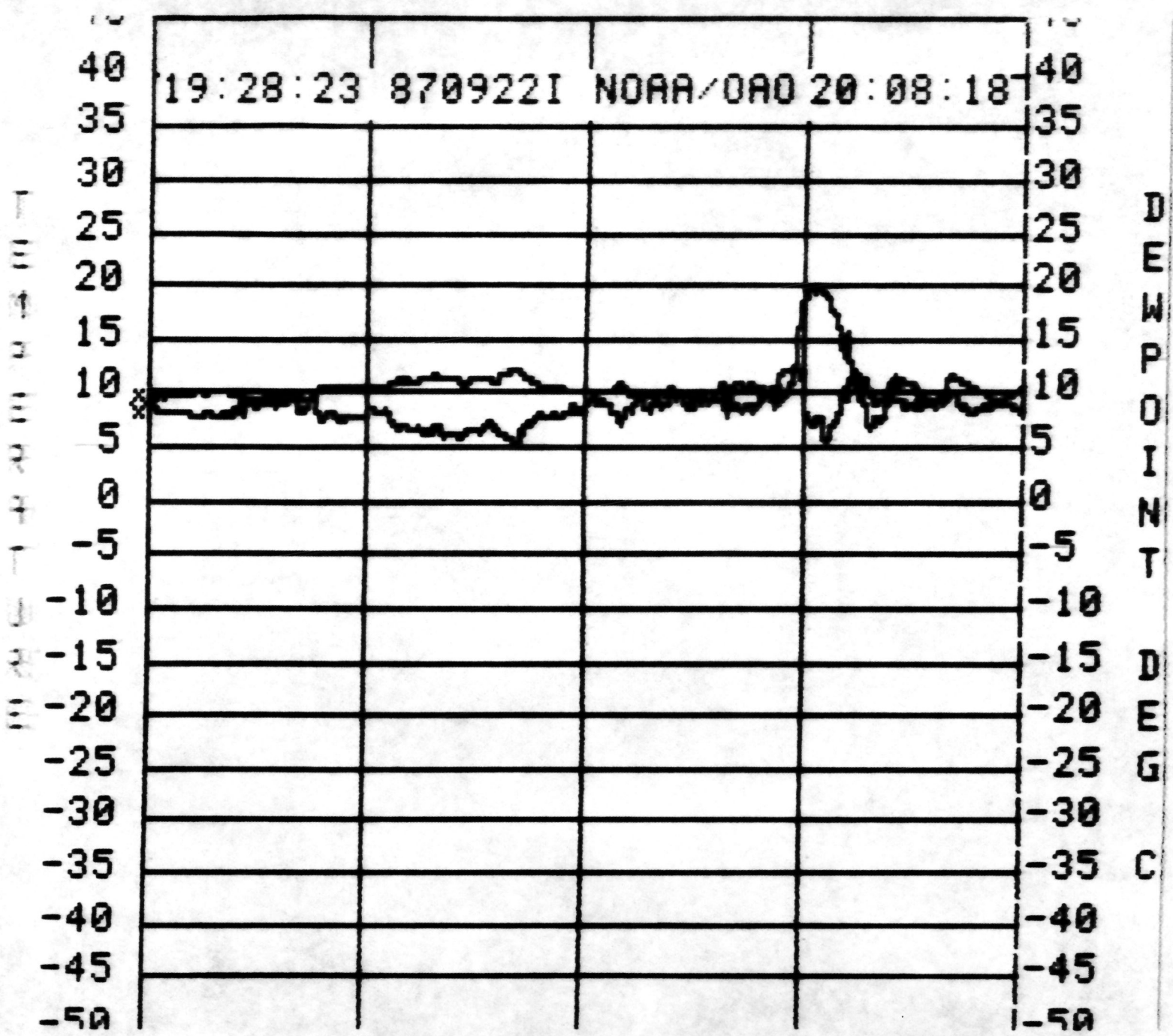


Cp tapes 36 ~~11~~ left

Dop 24

Rad. 10





72.0 71.0 70.0 69.0 68.0 67

14:45:24 870922I 0A0/FTRK 17:57:53

20.0

19.0

18.0

17.0

16.0

HETP

HDSO

