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NOAA TECHNICAL MEMORANDUM NWS NHC 43

ANNUAL DATA AND VERIFICATION TABULATION
EASTERN PACIFIC TROPICAL CYCLONES 1988

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Coral Gables, Florida
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2883

UNITED STATES
DEPARTMENT OF COMMERCE
Robert A. Mosbacher, Secretary

National Oceanic and Atmospheric Administration
William E. Evans
Under Secretary and Administrator

National Weather Service
Elbert W. Friday
Assistant Administrator



INTRODUCTION

This is the First report by the National Hurricane Center (NHC) of a continuing annual series to provide a source of summarized data on Eastern Pacific tropical cyclones. It will not duplicate the narrative overview of the hurricane season or the description of individual storms, which will continue to be published in the Monthly Weather Review. In addition to data supplied by the National Weather Service, materials have been furnished by the NOAA Tropical Satellite and Analysis Center of NHC, and the CARCAH (Chief Aerial Reconnaissance Coordination, all Hurricanes).

OBJECTIVE FORECAST TECHNIQUES

The following tropical cyclone prediction models were used at the National Hurricane Center for forecasting motion on an operational basis:

1. EPSANBAR (Sanders and Burpee, 1968). A filtered barotropic model using input data derived from the 1000 to 100 mb pressure weighted winds.
2. EPHC81 A statistical-dynamical model.
3. EPCL84 A simulated-analog model based on persistence and climatology.
4. EPANALOG85 (Jarrell, Mauck, and Renard, 1975). An analog model.
5. EPSS87 A statistical-synoptical model

In addition, operational forecasts of tropical cyclone intensity changes in knots at 12-hourly intervals out to 72 hours are generated by a program named SHIFOR (Statistical Hurricane Intensity Forecasts). Generation of the forecast equations was done by multiple screening regression technique using historical tropical cyclone data as input. Results over the past several years have shown that SHIFOR and official intensity forecasts have comparable skill scores.

The National Hurricane Center uses the above models as guidance in the formulation of its forecasts. The hurricane forecaster also makes extensive use of analysis and prognoses produced by NMC and TSAC (Tropical Satellite and Analysis Center) in Miami.

VERIFICATION

Verification statistics for the 1988 season are shown in Table 1. The initial position error in Table 1 is the difference between the operational initial position and that determined during post analysis (best track position). The forecast displacement error is the vector difference between the forecast displacement and the actual displacement computed from the best-track positions.

DATA SUMMARIES

A summary of the 1988 Eastern Pacific tropical cyclone statistics is given in Table 2. Tracks of the 1988 storms and hurricanes are shown in figure 1.

The best track, initial, and forecast positions for the 1988 systems are in Table 3, along with initial position and forecast errors, and average errors.

Table 4 lists all center fix positions and intensity evaluations used operationally at the National Hurricane Center during the 1988 season. Fixes are in chronological order, and include those obtained by aerial reconnaissance penetrations, satellite (Miami TSAC), and land-based radar. The legend precedes the initial table.

Graphs of the lowest central pressure versus time for the 1988 named tropical cyclones are shown in Figure 2.

ACKNOWLEDGEMENTS

Main contributors were Miles Lawrence, who computed the verification statistics and Joan David, who drafted the track chart and pressure/time graphs.

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- Sanders, F., and R. W. Burpee, 1968: "Experiments in Barotropic Hurricane Track Forecasting," Journal of Applied Meteorology, Vol. 7, No. 3, pp. 313-323.

LIST OF FIGURES, TABLES, AND APPENDICES

Figure 1. Tracks of 1988 tropical cyclones

Figure 2. Lowest pressure vs. time, 1988 tropical cyclones.

Figure 3. Daily satellite photographs of 1988 tropical cyclones.

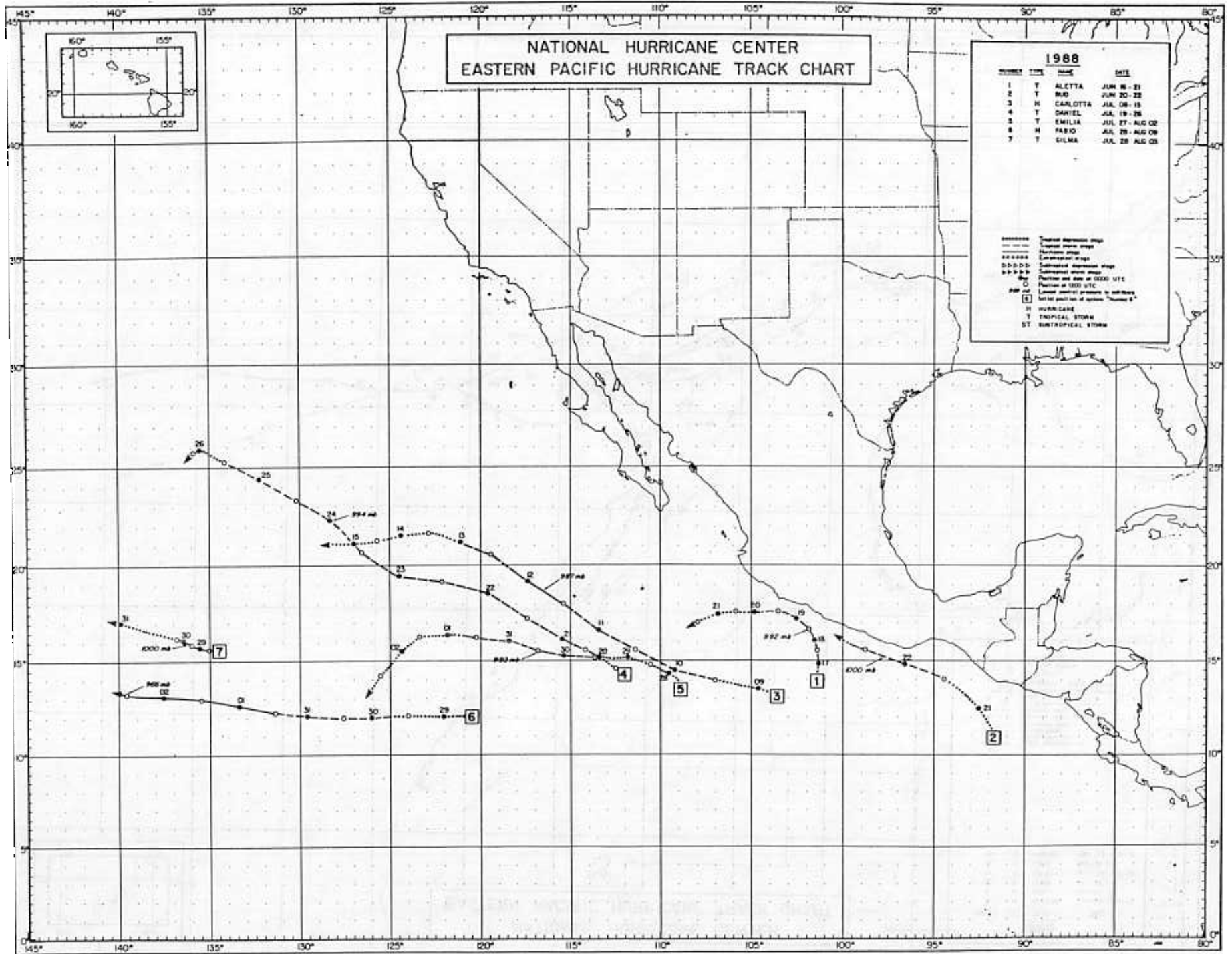
Table 1. Verification of 1988 tropical storm and hurricane forecasts.
Figures in parentheses are the number of cases.

Table 2. Summary of 1988 tropical cyclone statistics

Table 3a. Best track, initial and forecast positions, initial position
error and forecast errors for 1988 tropical cyclones.

Table 3b. Best track forecast windspeed verification for 1988 tropical
cyclones.

Table 4. Center fix positions and intensity evaluations for 1988
cyclones.



NATIONAL HURRICANE CENTER EASTERN PACIFIC HURRICANE TRACK CHART

1988

NUMBER	TYPE	NAME	DATE
8	H	HECTOR	JUL 30 - AUG 09
9	H	IVA	AUG 06 - 13
10	T	JOHN	AUG 16 - 21
11	H	KRISTY	AUG 29 - SEP 06
12	H	LANE	SEP 21 - 30
13	T	MIRIAM	OCT 23 - NOV 02

----- Tropical depression stage
 --- Tropical storm stage
 - - - - - Hurricane stage
 - - - - - Extratropical stage
 D D D D D Subtropical depression stage
 D D D D D Subtropical storm stage
 (Number and date at 1200 UTC)
 (Number at 1200 UTC)
 (Lower center pressure in mb)
 (Initial position of system "Name")
 H HURRICANE
 T TROPICAL STORM
 ST SUBTROPICAL STORM

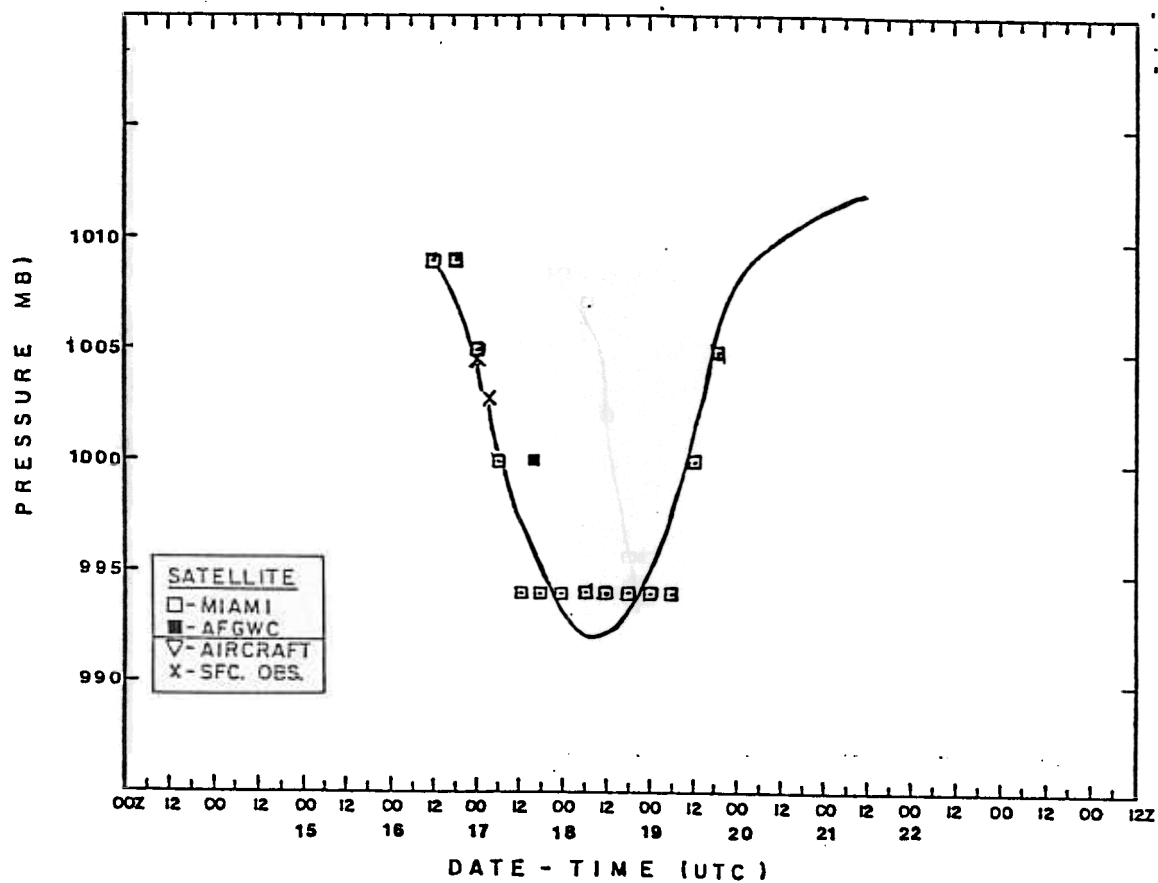


Fig. 2. "Best track" minimum pressure curve for Tropical Storm Aletta, 16-21 June 1988.

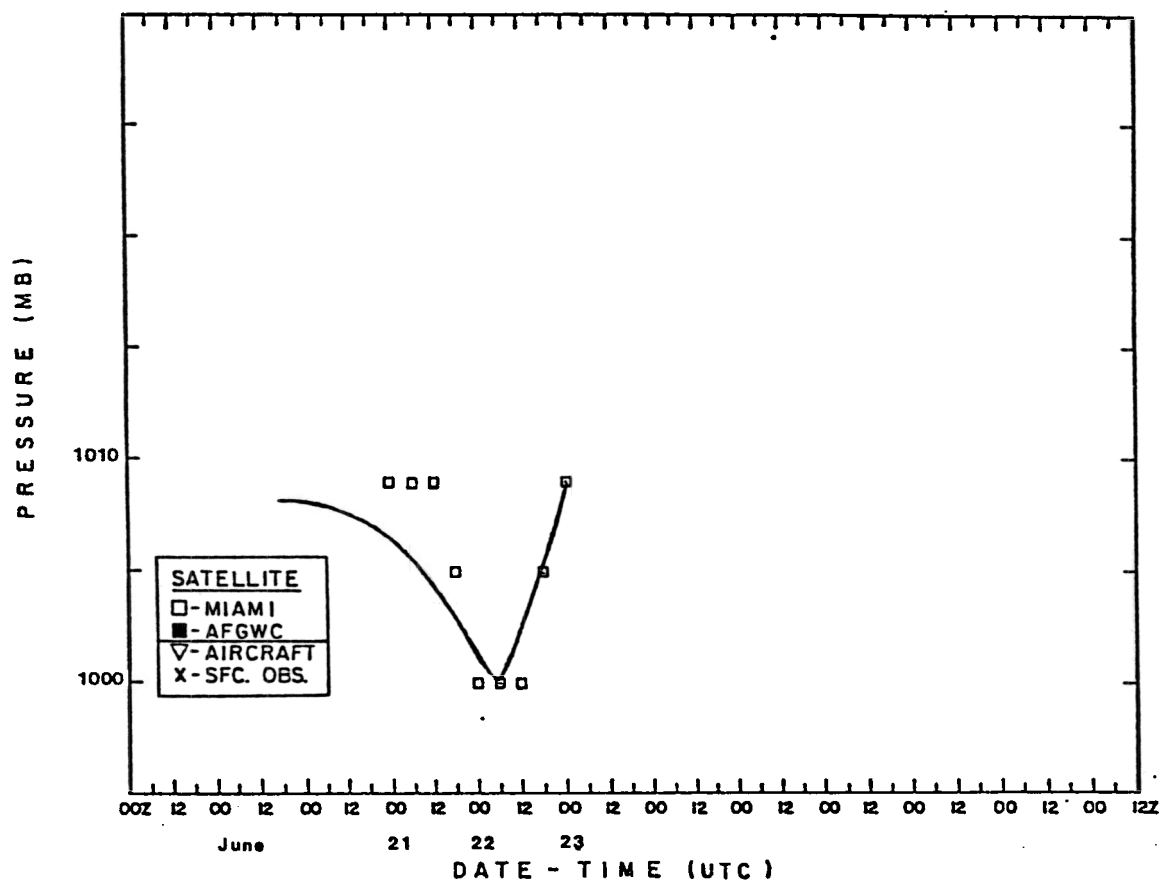


Fig. 2. Minimum central pressure for Tropical Storm Bud, 20-22 June 1988.

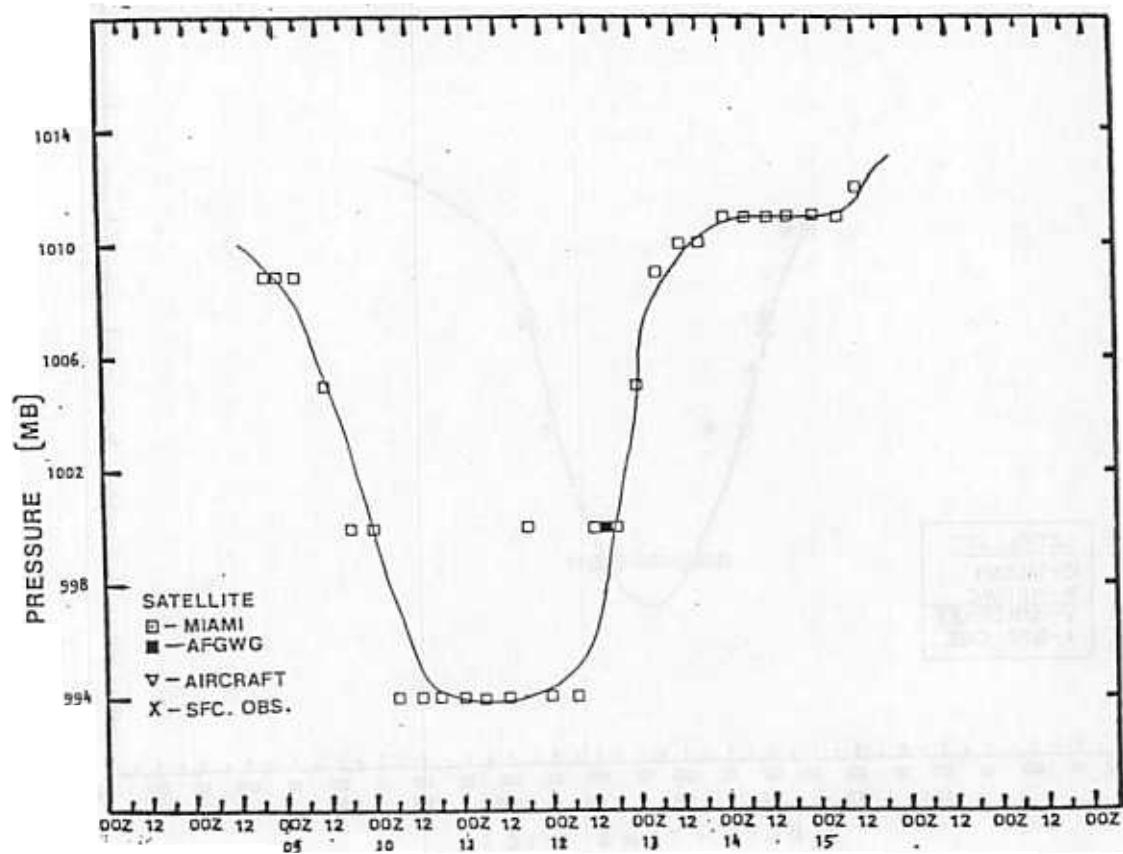
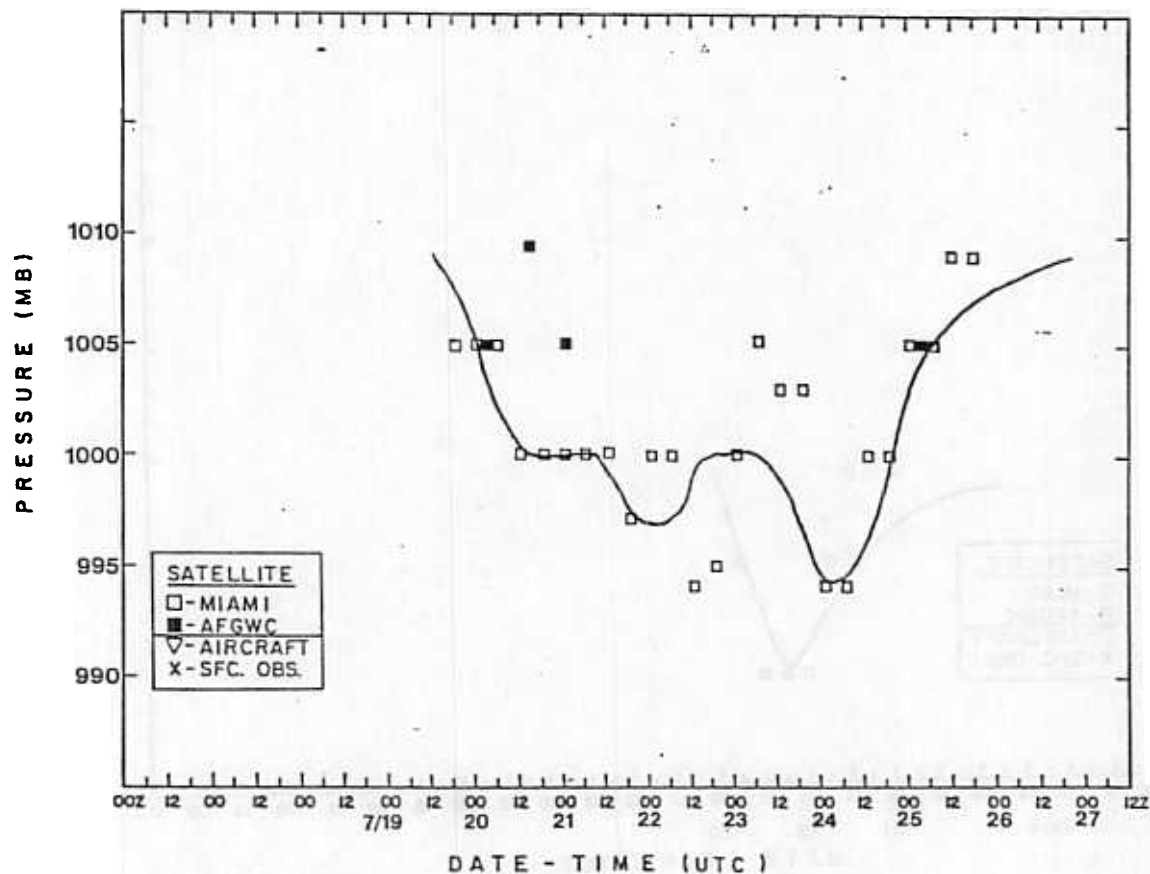


Fig. 2. Minimum central pressure for Tropical Storm Carlotta, 8-15 July 1988.



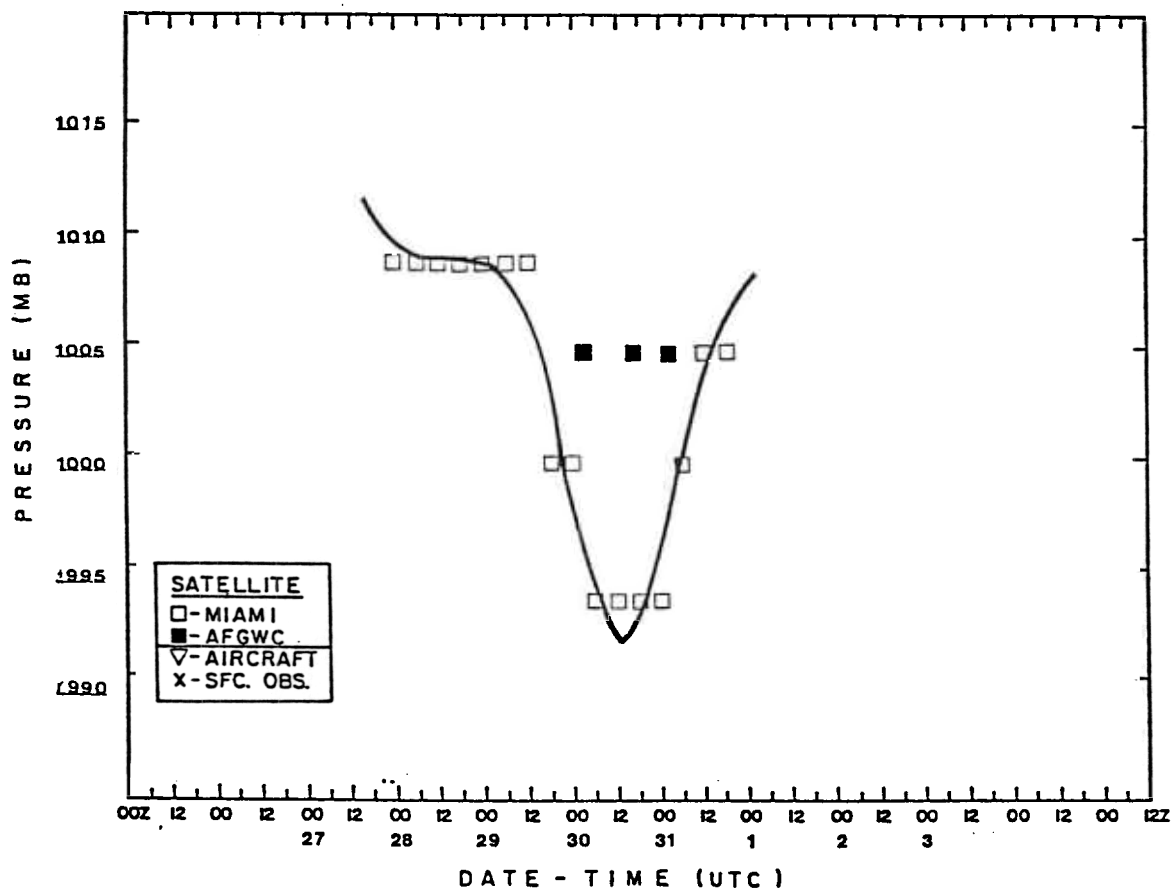


Fig. 2. Best track minimum central pressure curve for Tropical Storm Emilia, 27 July-2 August, 1988.

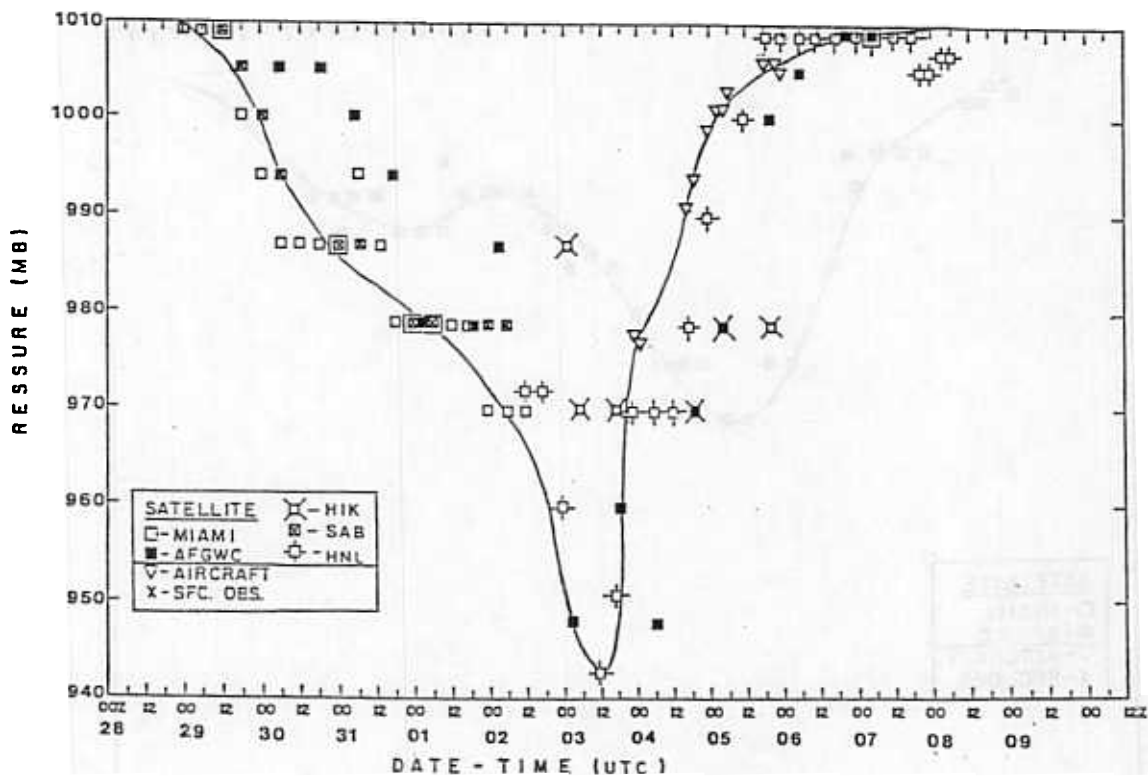
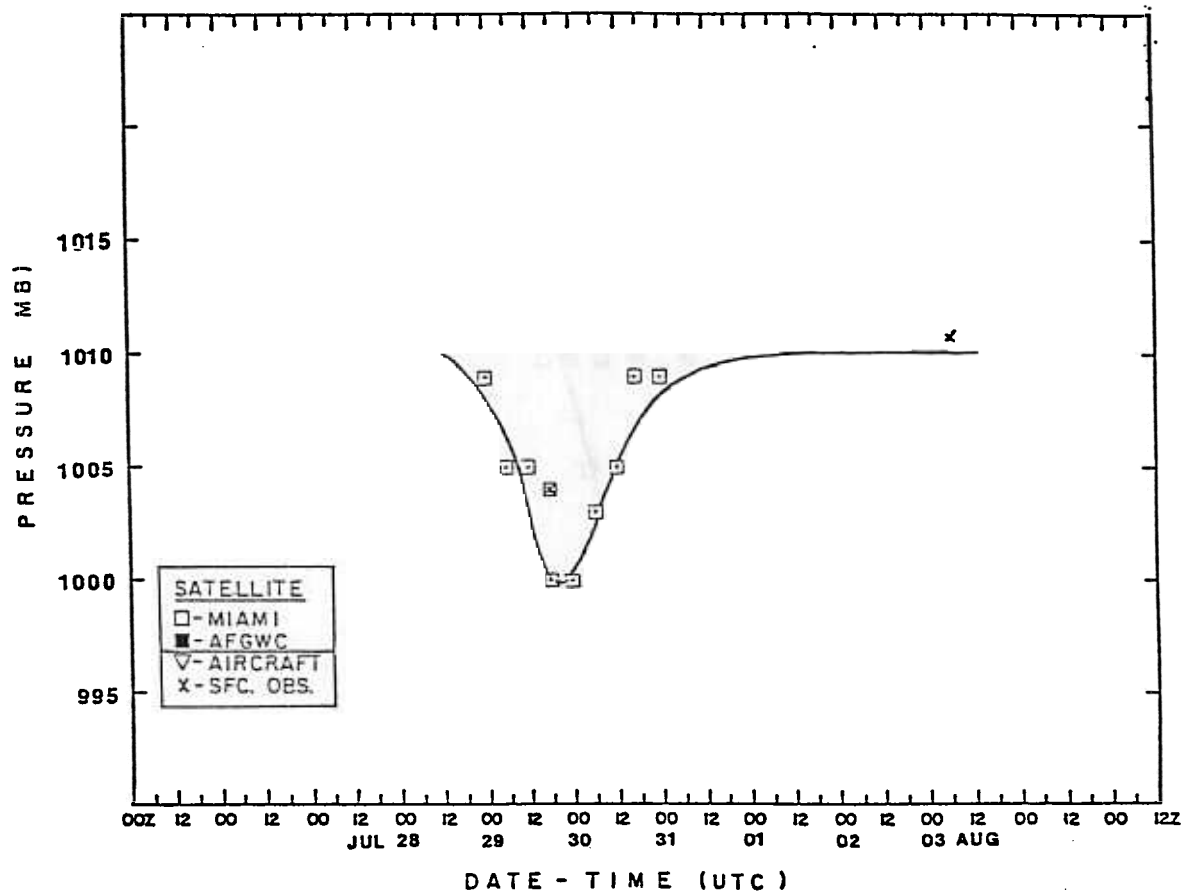


Fig. 2. Best track minimum central pressure curve for Hurricane Fabio, 28 July-9 August, 1988.



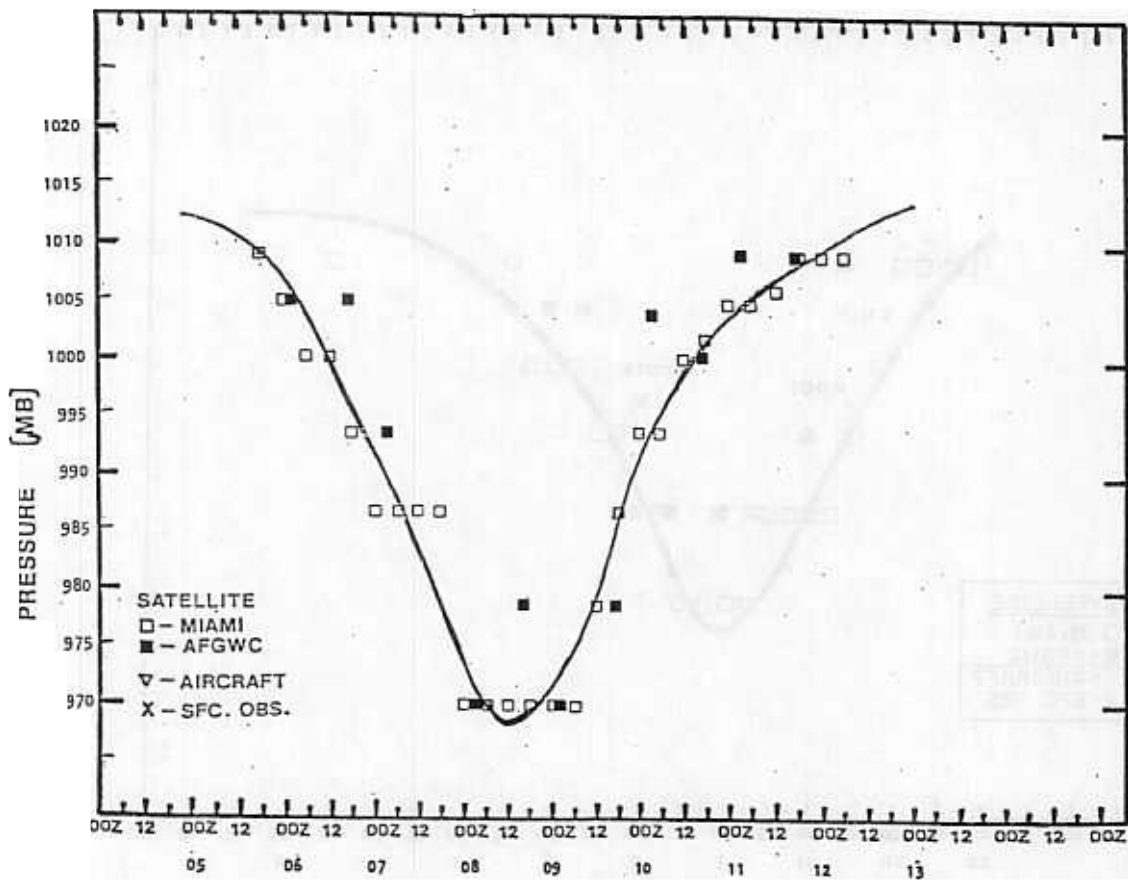


Fig. 2. Best track minimum central pressure curve for Hurricane Iva, 5-13 August, 1988.

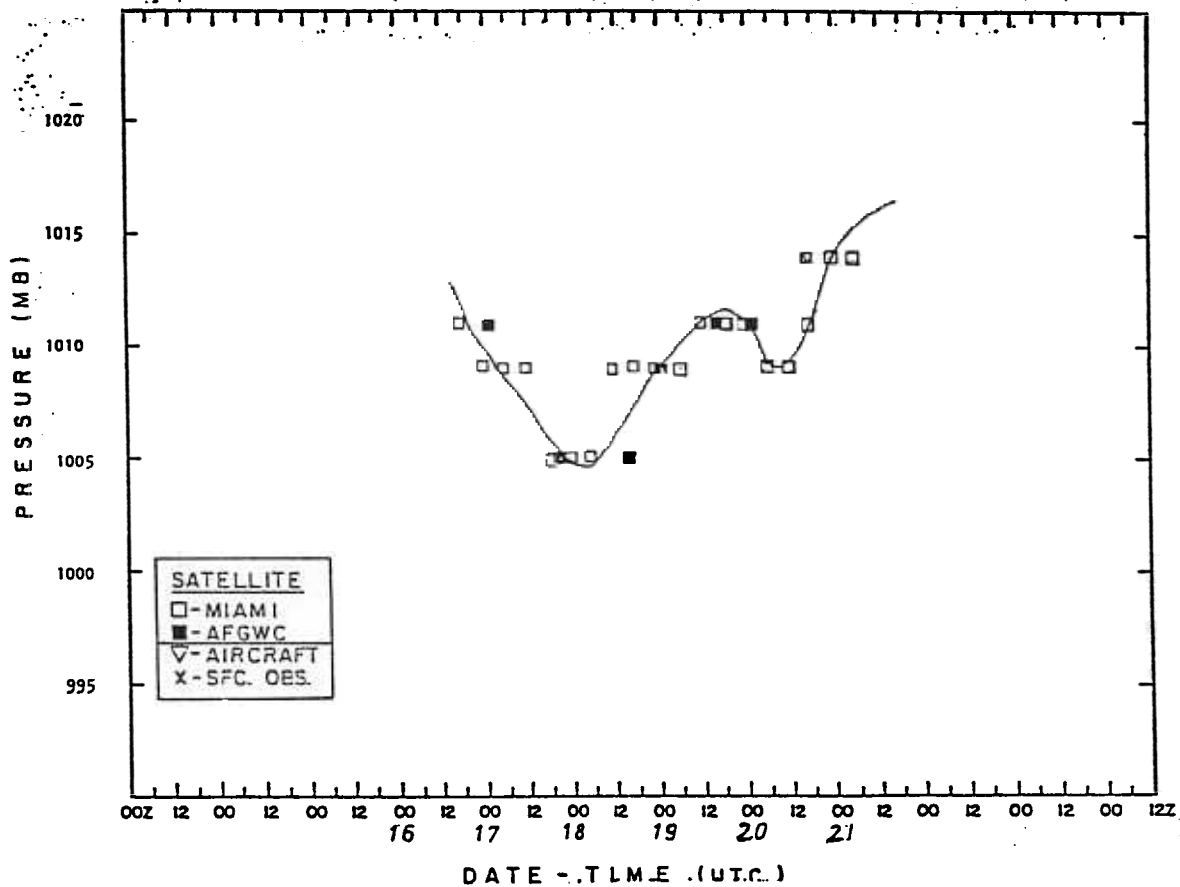


Fig. 2. Best track minimum central pressure curve for Tropical Storm John, 16-21 August, 1988.

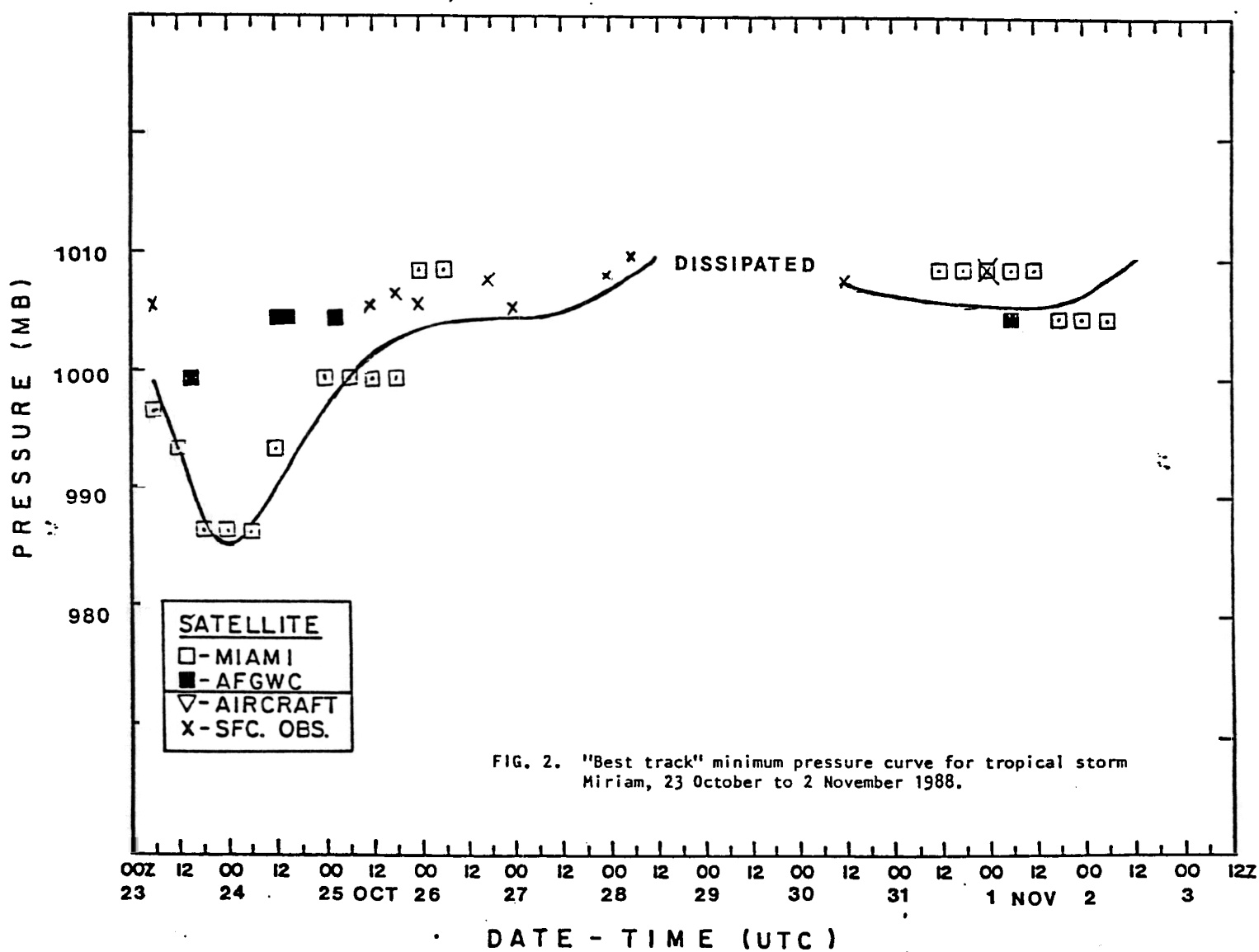
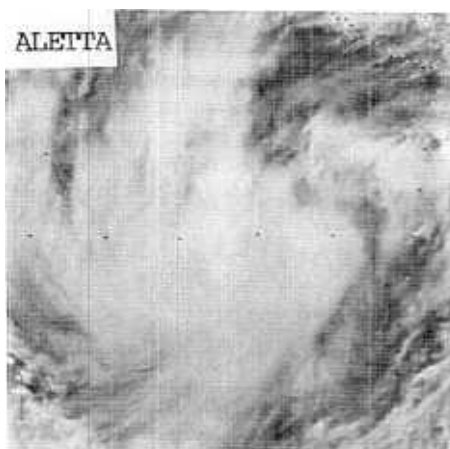
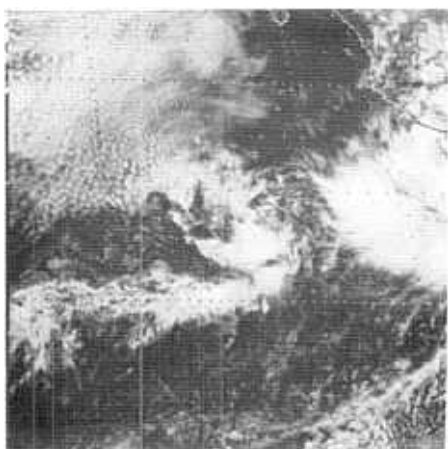


Figure 3. Daily satellite photographs of 1988 Eastern Pacific cyclones.



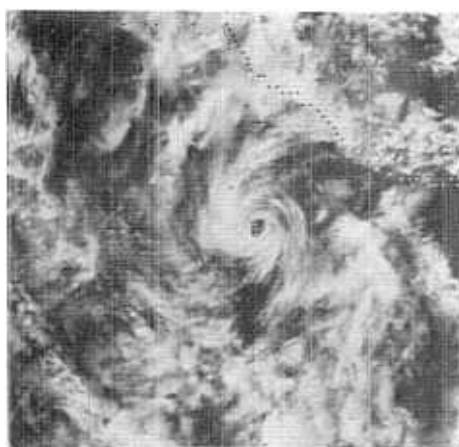
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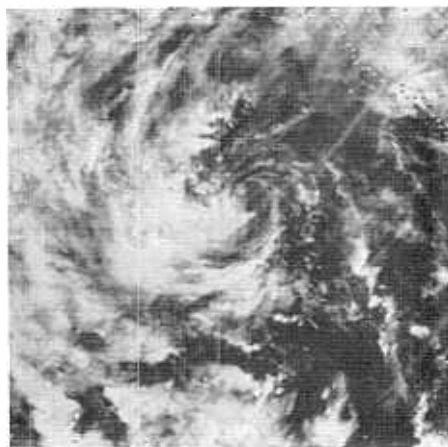
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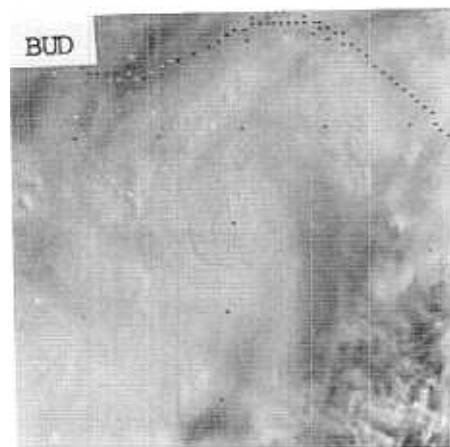
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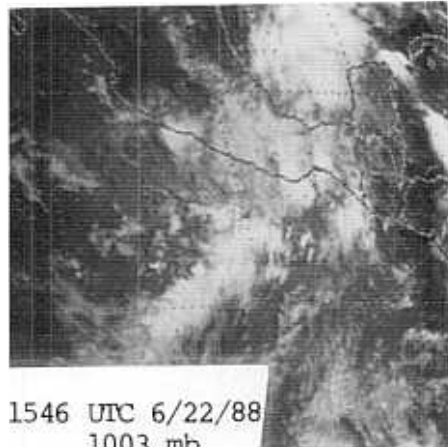
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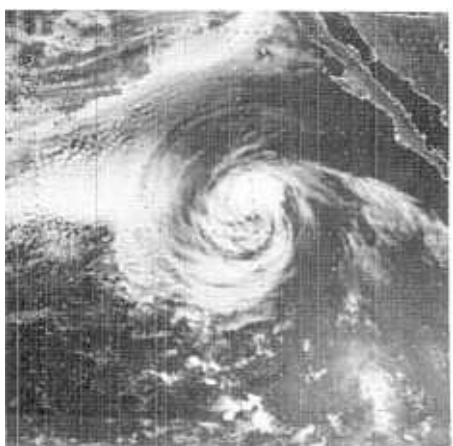
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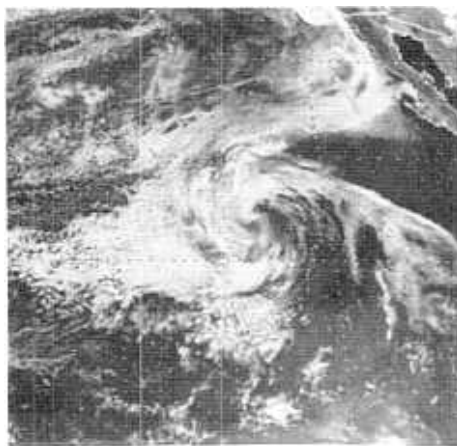
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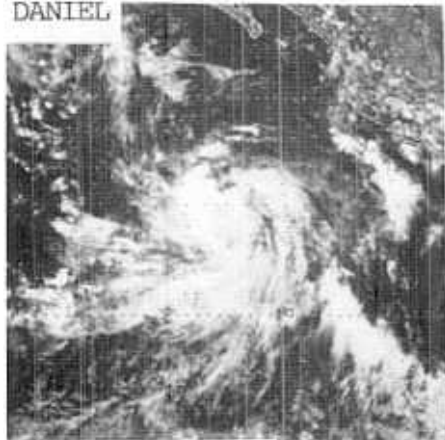


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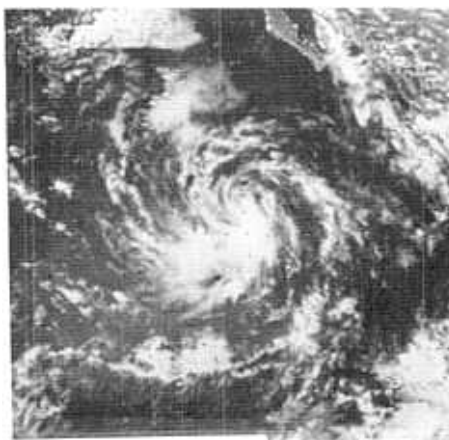


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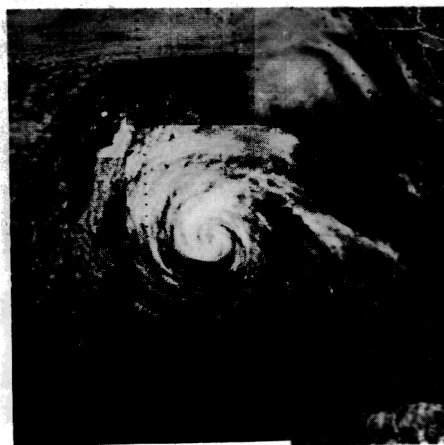
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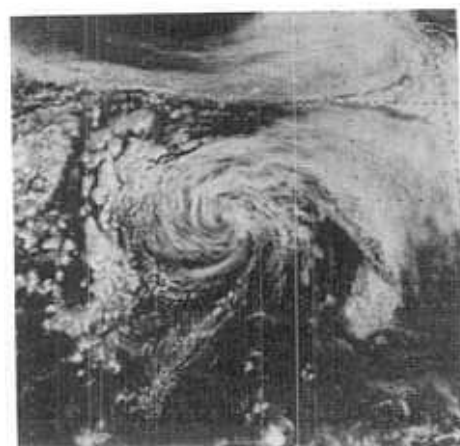
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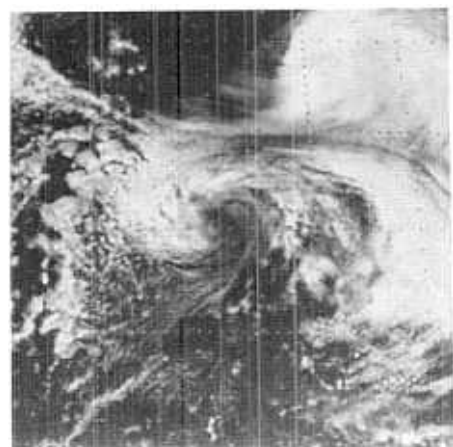
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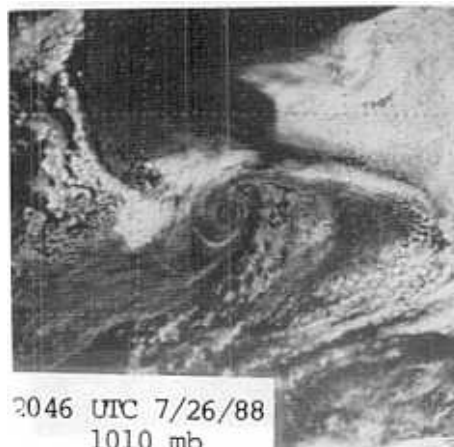
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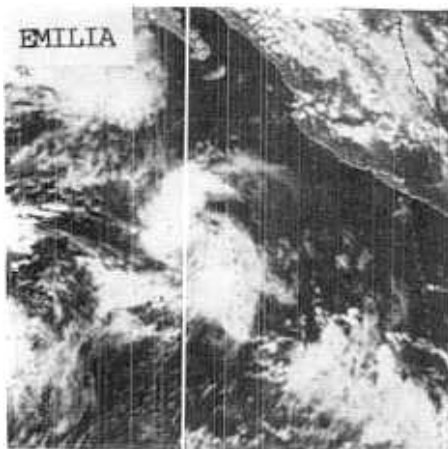
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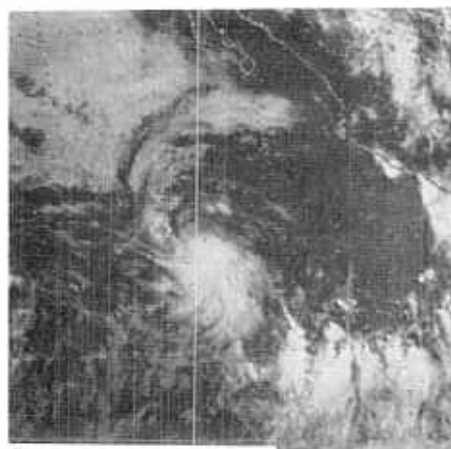
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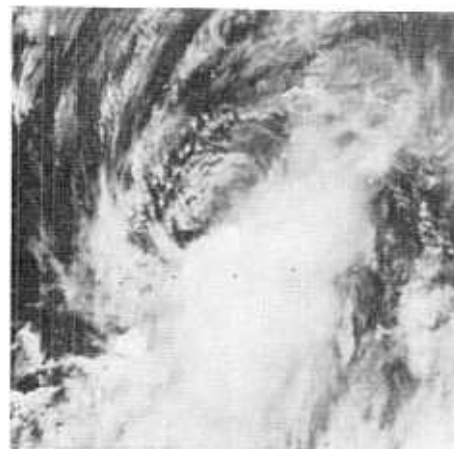
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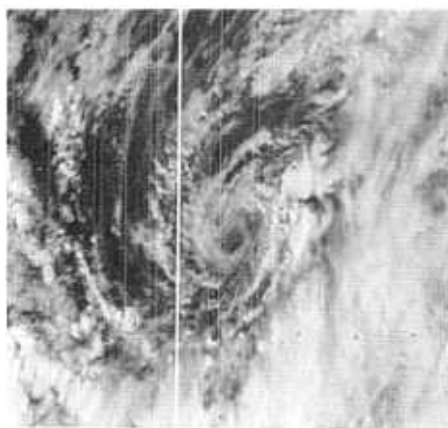
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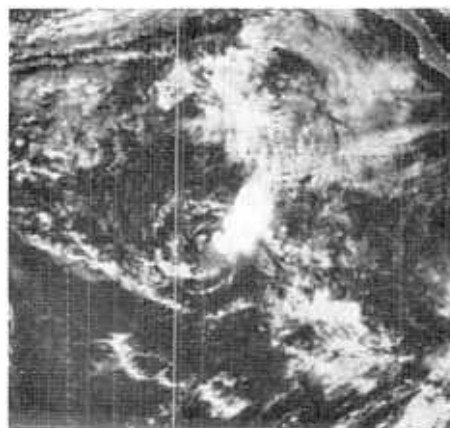
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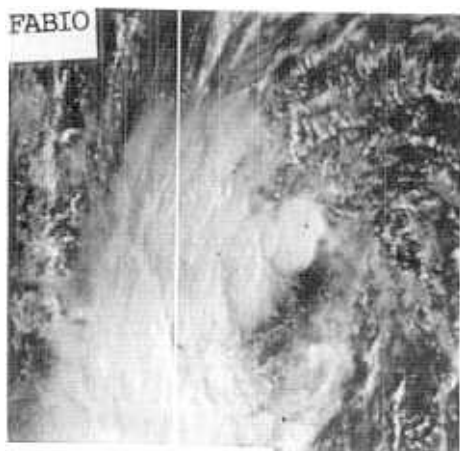
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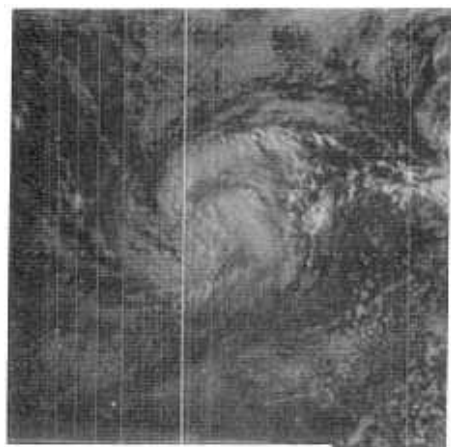
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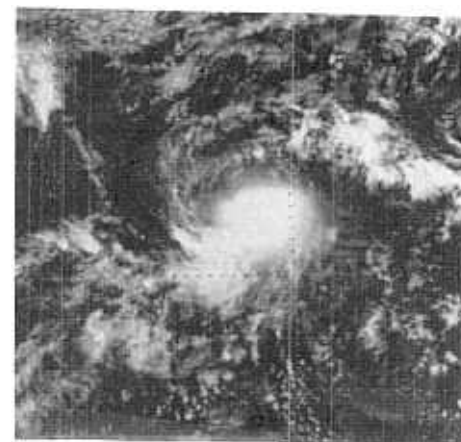
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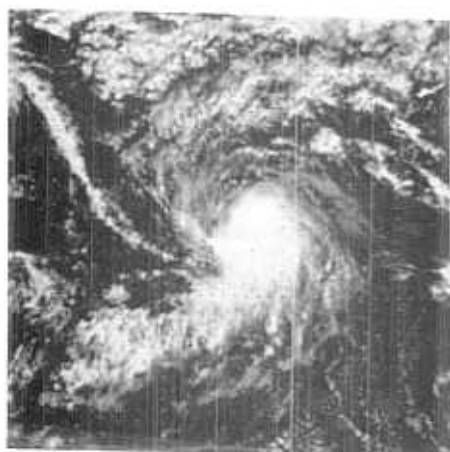
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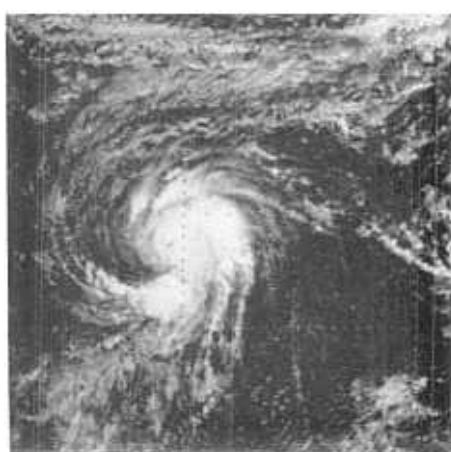
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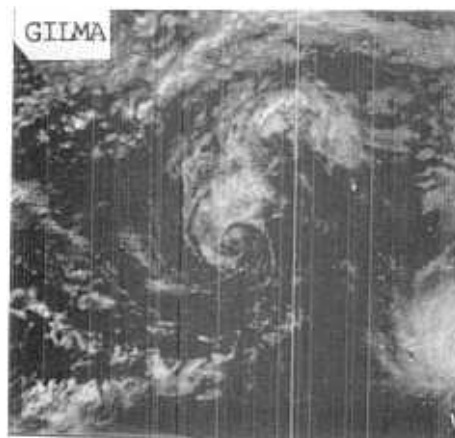
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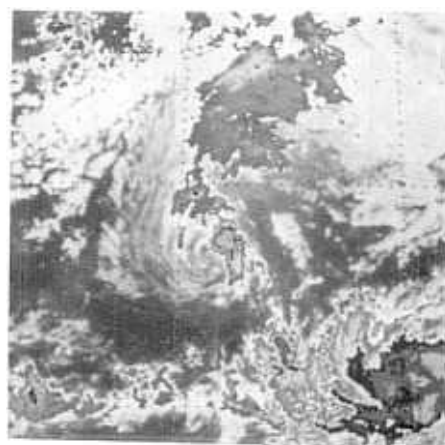
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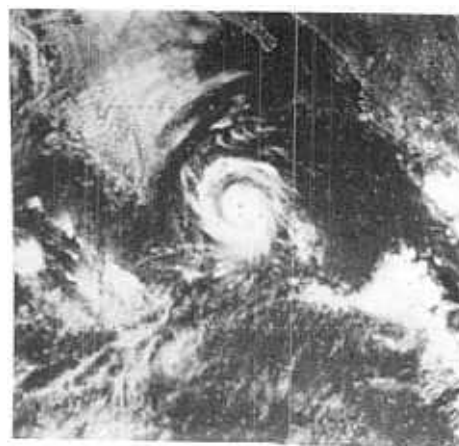
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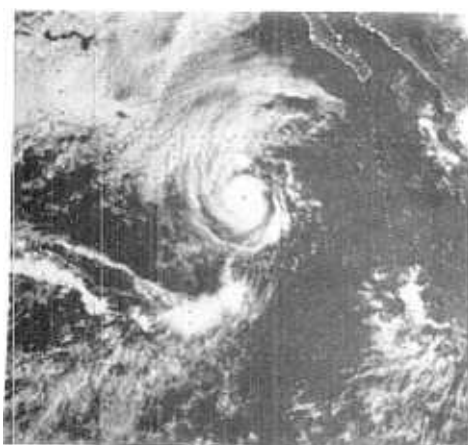
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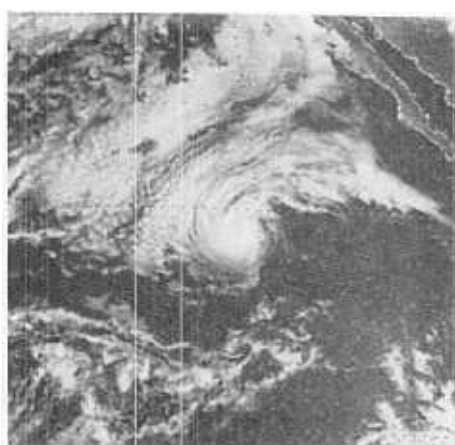
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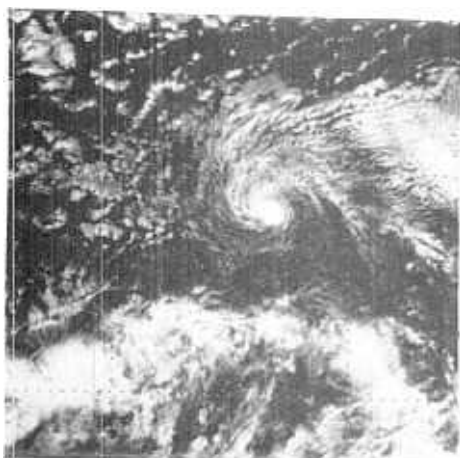
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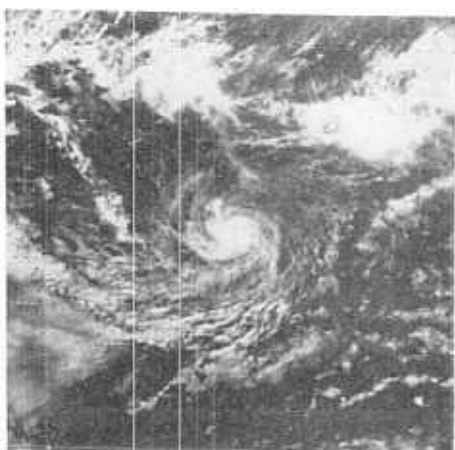
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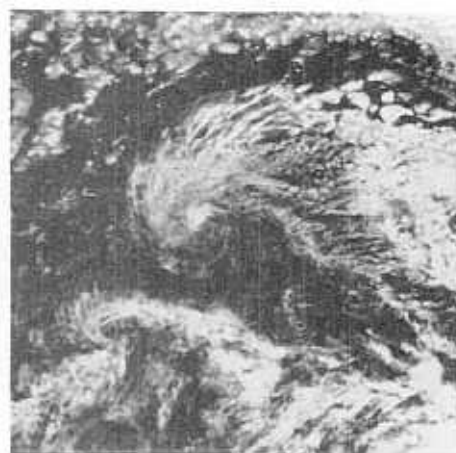
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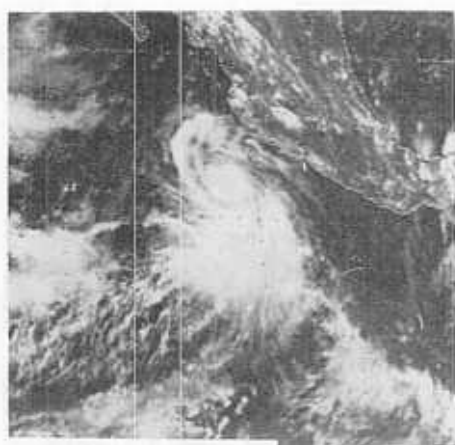
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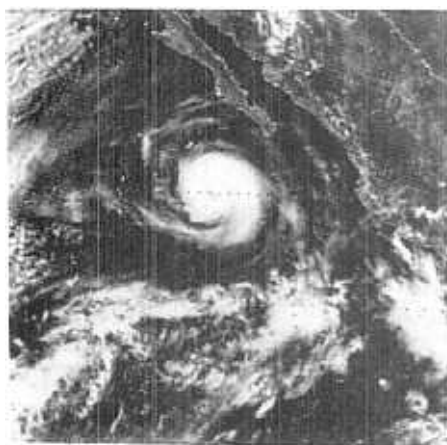
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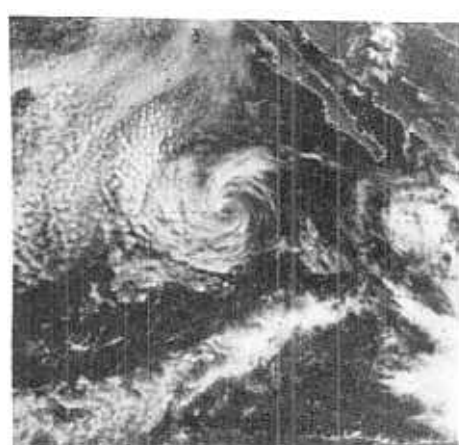
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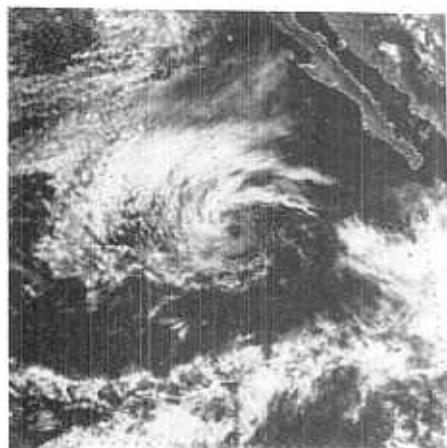
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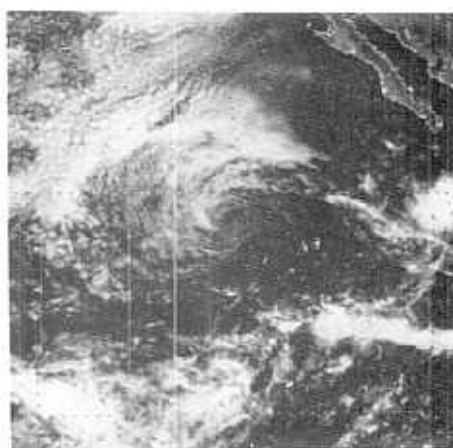
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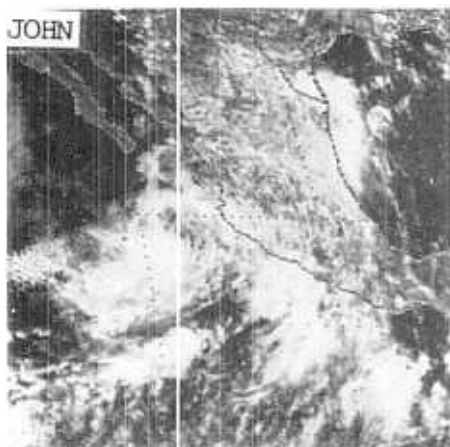
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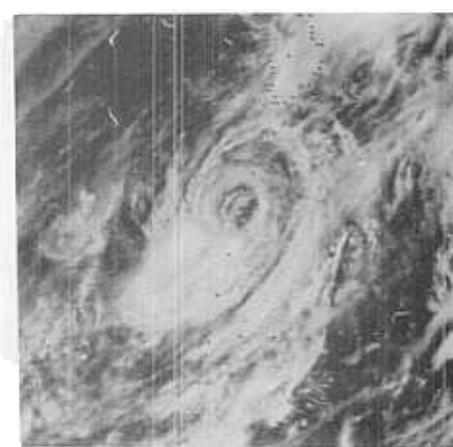
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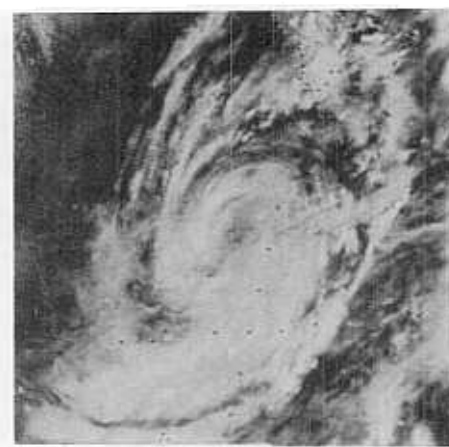
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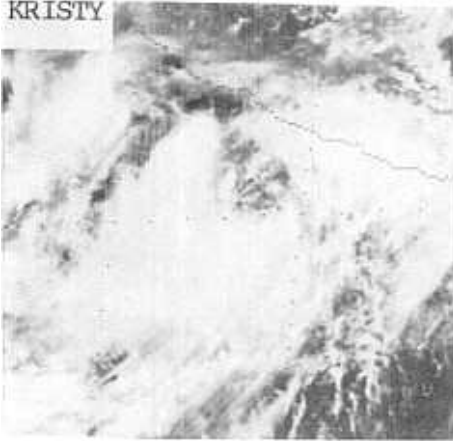


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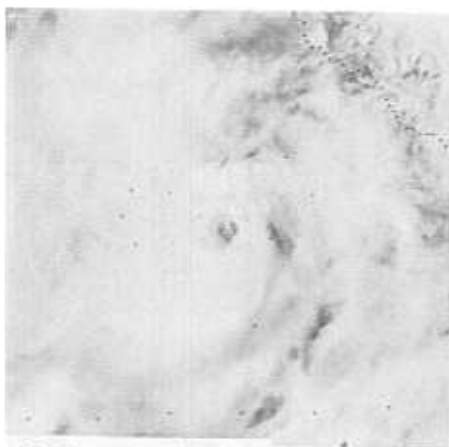


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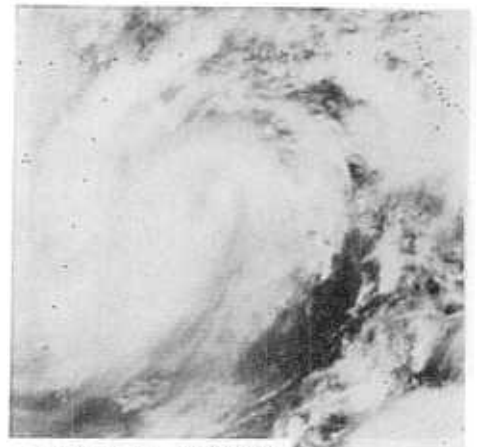
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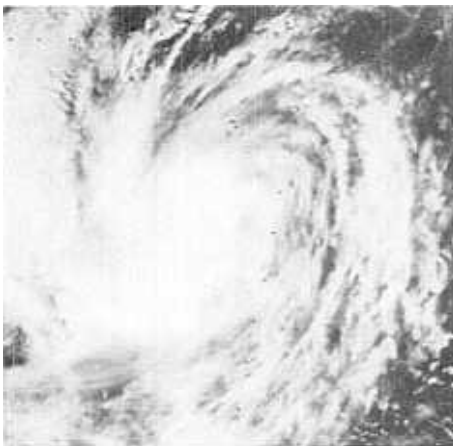
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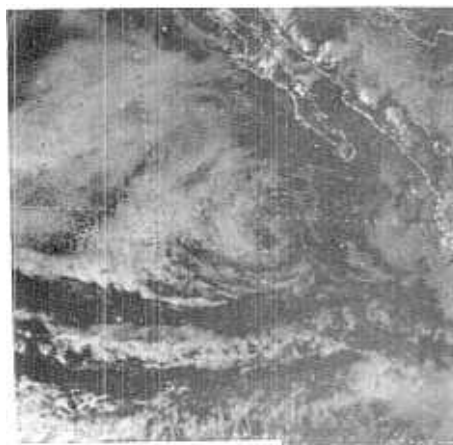
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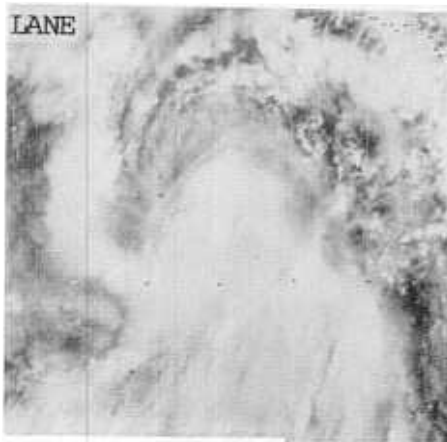
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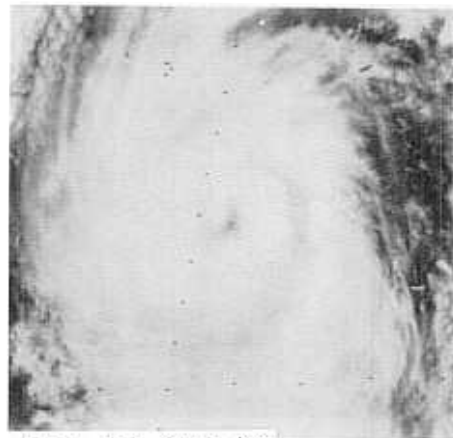
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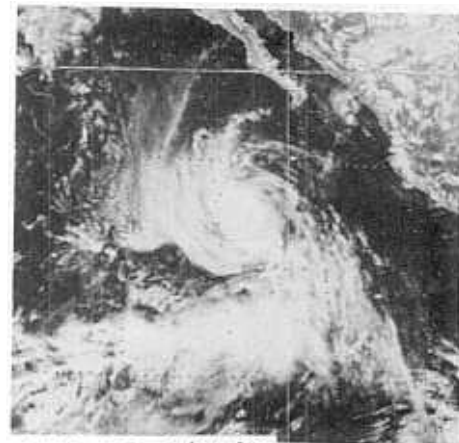
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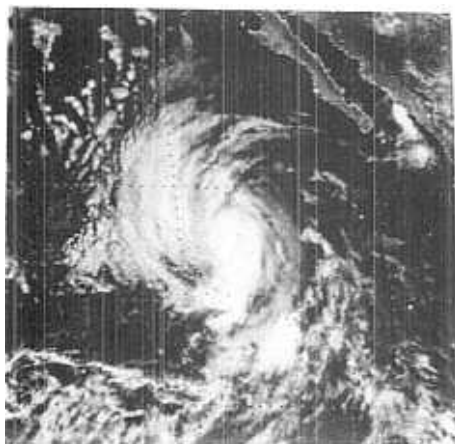
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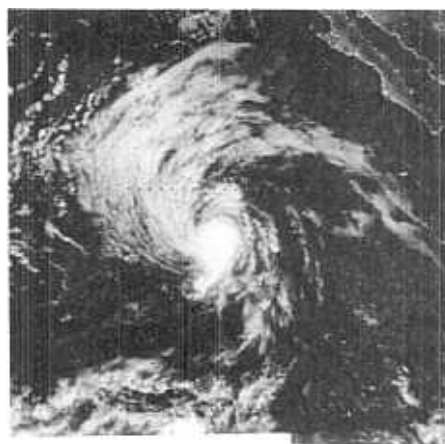
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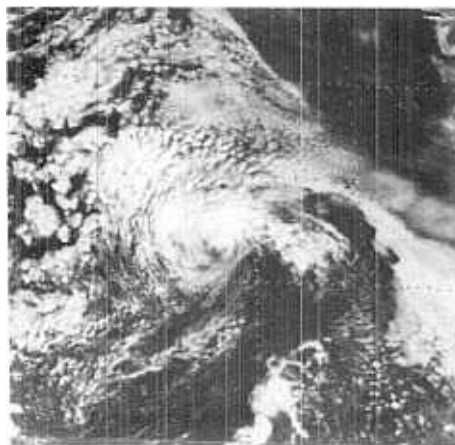
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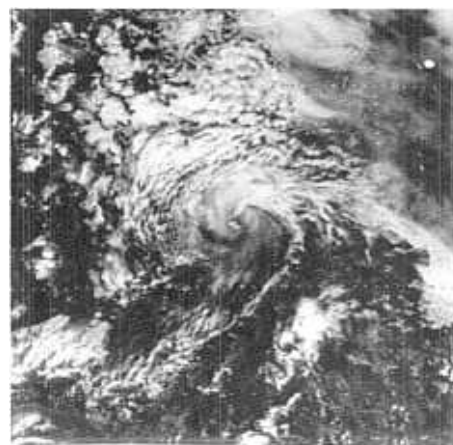
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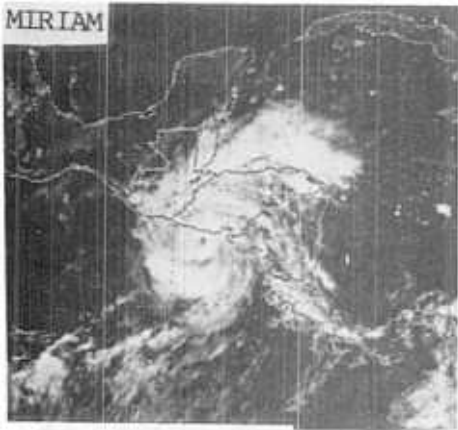
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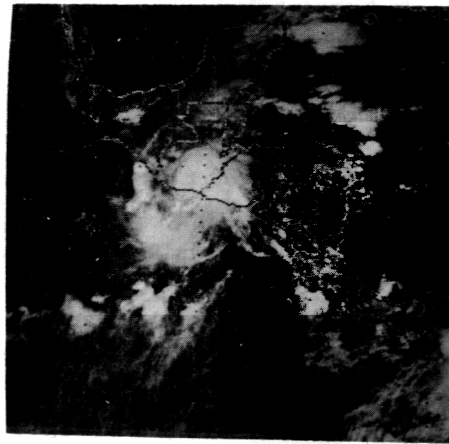
2146 UTC 9/28/88
1008



2046 UTC 9/29/88
1014 mb



1901 UTC 10/23/88
988 mb



1601 UTC 10/24/88
993 mb



1701 UTC 10/25/88
1003 mb



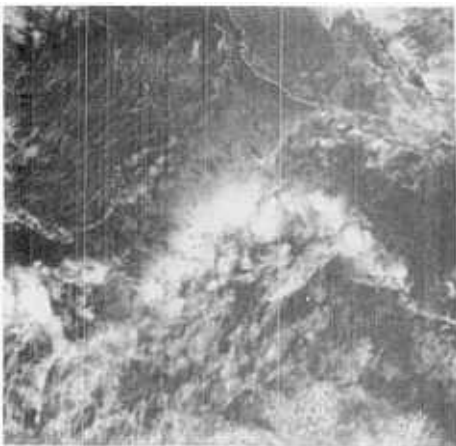
1501 UTC 10/26/88
1005 mb



1501 UTC 10/27/88
1006 mb



1646 UTC 10/28/88
1010 mb



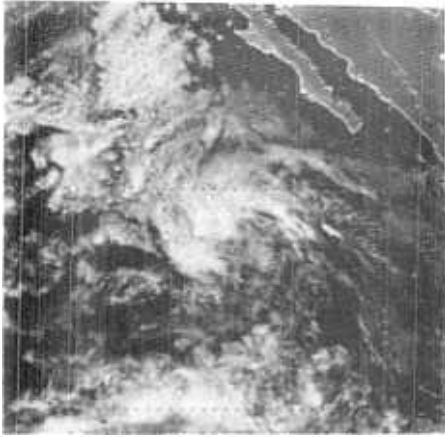
1746 UTC 10/29/88
1010 mb



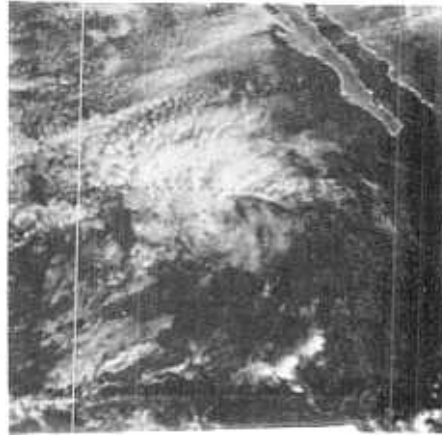
2046 UTC 10/30/88
1007 mb



1846 UTC 10/31/88
1006 mb



2146 UTC 11/01/88
1006 mb



1846 UTC 11/02/88
1010 mb

Table 1. Verification of 1988 tropical storm and hurricane forecasts.
Track model forecast errors (average in nautical miles), eastern Pacific, 1988

model	forecast period (hours)					
	0	12	24	36	48	72
Official (number of cases)	20 (175)	45 (175)	75 (150)	103 (128)	138 (108)	176 (74)
BAM	68 (38)	76 (38)	69 (35)	109 (33)	140 (29)	215 (24)
EPCL84	22 (170)	47 (170)	78 (147)	109 (123)	138 (103)	180 (69)
EPAN85	21 (168)	46 (168)	77 (145)	110 (124)	141 (105)	191 (71)
EPSS87	22 (171)	45 (171)	73 (148)	103 (126)	131 (106)	182 (72)
SANBAR	18 (72)	52 (72)	96 (61)	144 (52)	193 (46)	299 (32)
EPHC81	20 (77)	43 (77)	71 (67)	109 (57)	141 (49)	183 (32)

TABLE 2. 1988 Eastern North Pacific hurricane season statistics

number	name	class*	dates**	maximum sustained wind ms^{-1} (kt)
1	Aletta	T	16-21 Jun	31 (60)
2	Bud	T	20-22 Jun	23 (45)
3	Carlotta	H	08-15 Jul	34
4	Daniel	T	19-26 July	28
5	Emilia	T	27 Jul-02 Aug	31
6	Fabio	H	28 Jul-09 Aug	62 (120)
7	Gilma	T	28 Jul-03 Aug	23
8	Hector	H	30 Jul-09 Aug	64 (125)
9	Iva	H	05-13 Aug	46 (90)
10	John	T	16-21 Aug	18 (35)
11	Kristy	H	29 Aug-06 Sep	41
12	Lane	H	21-30 Sep	46
13	Miriam	T	23-02 Nov	31

* T: tropical storm, wind speed $18-32 \text{ ms}^{-1}$ (34-63 kt).
H: hurricane, wind speed 33 ms^{-1} (64 kt) or higher.

** Dates begin at 0000 UTC and include tropical depression stage.

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ANALYTICAL REPORTS (V4)

MINISTER OF DEFENSES

MEAN VECTOR ERROR(S) (VN)
NUMBER OF CASES

OFFICIAL FORECASTS

EMILIA JUL 20-JUL 31 1988

DATE/TIME GMT	BEST TRACK		OPERATIONAL POSITION ERROR		12HR FORECAST LAT. LONG. ERROR NM		24HR FORECAST LAT. LONG. ERROR NM		36HR FORECAST LAT. LONG. ERROR NM		43HR FORECAST LAT. LONG. ERROR NM		72HR FORECAST LAT. LONG. ERROR NM																	
	LAT.	LONG.	LAT.	LONG.	LAT.	LONG.	LAT.	LONG.	LAT.	LONG.	LAT.	LONG.	LAT.	LONG.																
072012	15.41	113.6	15.01	114.3	23	15.31	114.5	70	15.11	116.0	76	16.01	118.0	116	15.51	120.0	42	17.01	123.5	5										
072913	15.21	114.3	15.01	114.3	3	15.61	115.9	11	16.01	117.5	13	16.51	119.5	133	17.01	121.0	36	17.01	123.0	0										
073800	15.00	115.4	15.01	115.3	11	15.11	117.0	W	15.11	113.8	37	15.01	120.5	33	15.01	122.5	0	17.01	126.0	0										
074700	14.50	116.3	15.01	116.3	15	15.01	117.0	W	15.11	113.0	60	15.11	120.0	59	15.21	122.5	0	16.01	124.0	0										
075601	14.50	117.9	15.01	118.9	5	15.41	118.5	W	15.11	113.0	37	15.11	121.0	W	15.01	123.5	0	17.01	127.0	0										
080501	14.50	117.7	15.01	117.5	13	15.61	117.2	W	15.11	113.0	23	16.01	122.0	W	16.51	124.0	0	17.01	129.0	0										
081400	14.50	118.4	15.01	118.4	W	16.21	121.2	W	16.01	113.0	W	16.01	123.0	W	16.51	125.0	0	17.01	131.0	0										
082300	14.50	119.4	15.01	118.4	11	16.41	121.1	W	16.01	113.0	18	16.01	123.0	W	17.01	125.0	0	17.01	132.0	0										
083200	14.50	120.0	15.01	119.0	W	16.41	121.0	W	16.01	113.0	W	16.01	123.0	W	17.01	125.0	0	17.01	133.0	0										
075113	16.31	121.0	15.21	121.2		16.41	122.9		16.51	124.5		16.31	125.5		17.01	128.0		17.01	131.5											
MEAN VECTOR ERRORS (NM)					11	24					42					38					39					0				
NUMBER OF CASES					3	3					6					4					2					0				

~~OFFICIAL FORECASTS~~

Fazio

JUL 20-AJG 12 1988

OFFICIAL FORECASTS

GILMA

JUL 20-JUL 30 1988

DATE/TIME	BEST TRACK LAT. LONG.	OPERATIONAL POSITION LAT. LONG.	12HR FORECAST		24HR FORECAST		36HR FORECAST		48HR FORECAST		72HR FORECAST	
			ERROR NM	LAT. LONG.	ERROR NM	LAT. LONG.	ERROR NM	LAT. LONG.	ERROR NM	LAT. LONG.	ERROR NM	LAT. LONG.
272913	15.9136.2	17.2136.2	112	12.0135.4	61	20.0137.0	136	21.0137.5		22.0138.5		22.5140.5
273000	15.0135.4	15.2135.5	13	15.4137.6		15.4137.6		16.5138.5				
273003	15.0135.5	15.2136.5	11	16.4137.1	54	15.3137.7		16.5138.5				
273012	15.1135.3	15.3137.3		16.5138.4		16.5139.4						
273018	15.5138.0	15.5138.5		17.8140.4		17.5142.5		18.0144.5				
MEAN VECTOR ERRORS(NM)			43	42	136	0	0	0	0	0	0	
NUMBER OF CASES			3	3	1	0	0	0	0	0	0	

[illegible]

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30  MEAN VECTOR ERRORS (VM)
    NUMBER OF CASES
```

13

354

41
30

33

212

121
22

OFFICIAL FORECASTS

IV.

AUG 26-416 11 190

[illegible]

MEAN VECTOR ERRORS (NM)	NUMBER OF CASES
1.0	1
2.0	1
3.0	1
4.0	1
5.0	1
6.0	1
7.0	1
8.0	1
9.0	1
10.0	1
11.0	1
12.0	1
13.0	1
14.0	1
15.0	1
16.0	1
17.0	1
18.0	1
19.0	1
20.0	1
21.0	1
22.0	1
23.0	1
24.0	1
25.0	1
26.0	1
27.0	1
28.0	1
29.0	1
30.0	1
31.0	1
32.0	1
33.0	1
34.0	1
35.0	1
36.0	1
37.0	1
38.0	1
39.0	1
40.0	1
41.0	1
42.0	1
43.0	1
44.0	1
45.0	1
46.0	1
47.0	1
48.0	1
49.0	1
50.0	1
51.0	1
52.0	1
53.0	1
54.0	1
55.0	1
56.0	1
57.0	1
58.0	1
59.0	1
60.0	1
61.0	1
62.0	1
63.0	1
64.0	1
65.0	1
66.0	1
67.0	1
68.0	1
69.0	1
70.0	1
71.0	1
72.0	1
73.0	1
74.0	1
75.0	1
76.0	1
77.0	1
78.0	1
79.0	1
80.0	1
81.0	1
82.0	1
83.0	1
84.0	1
85.0	1
86.0	1
87.0	1
88.0	1
89.0	1
90.0	1
91.0	1
92.0	1
93.0	1
94.0	1
95.0	1
96.0	1
97.0	1
98.0	1
99.0	1
100.0	1

25
-21

44
2193
13153
17

176
18

$$\begin{array}{r} 239 \\ 11 \end{array}$$

C

CHN AUG 7 13 1988

VERIFICATION OF OFFICIAL MAY WIND FORECASTS

INITIAL	12HR	24HR	36HR	48HR	72HR
---------	------	------	------	------	------

[illegible]

MEAN ERRORS (KTS)	-7.3	-3.5	.2	4.2	3.3	.0
MEAN ABSOLUTE ERROR (KTS)	7.3	5.7	5.7	5.0	5.7	.0
STANDARD ERROR (KTS)	2.5	3.3	3.2	3.2	10.4	.0

VERIFICATION OF OFFICIAL MAY WIND FORECASTS

2025-01-28 10:00:00

2417A	1242	3447	7543	43H3	77H3
-------	------	------	------	------	------

1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
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54	54	54	54	54
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64	64	64	64	64
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68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
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92	92	92	92	92
93	93	93	93	93
94	94	94	94	94
95	95	95	95	95
96	96	96	96	96
97	97	97	97	97
98	98	98	98	98
99	99	99	99	99
100	100	100	100	100

344163Y: 27-90-340

MEAN ERRORS (KFS)	-3.3	-1.7	-5.2	.0	.0	.0
MEAN ABSOLUTE ERROR (KFS)	3.3	5.0	5.0	.0	.0	.0
STANDARD ERROR (KFS)	2.9	5.3	.0	.0	.0	.0
NUMBER OF CASES	3	3	1	0	0	0

VERIFICATION OF OFFICIAL MAX WIND FORECASTS

E430BS(KTS) FOR STOPY CAR-OTTA

INITIAL	12HR	24HR	36HR	48HR	72HR
1	1	1	1	1	1
2	1	1	1	1	1
3	1	1	1	1	1
4	1	1	1	1	1
5	1	1	1	1	1
6	1	1	1	1	1
7	1	1	1	1	1
8	1	1	1	1	1
9	1	1	1	1	1
10	1	1	1	1	1
11	1	1	1	1	1
12	1	1	1	1	1
13	1	1	1	1	1
14	1	1	1	1	1
15	1	1	1	1	1
16	1	1	1	1	1
17	1	1	1	1	1
18	1	1	1	1	1
19	1	1	1	1	1
20	1	1	1	1	1
21	1	1	1	1	1
22	1	1	1	1	1
23	1	1	1	1	1
24	1	1	1	1	1
25	1	1	1	1	1
26	1	1	1	1	1
27	1	1	1	1	1
28	1	1	1	1	1
29	1	1	1	1	1
30	1	1	1	1	1
31	1	1	1	1	1
32	1	1	1	1	1
33	1	1	1	1	1
34	1	1	1	1	1
35	1	1	1	1	1
36	1	1	1	1	1
37	1	1	1	1	1
38	1	1	1	1	1
39	1	1	1	1	1
40	1	1	1	1	1
41	1	1	1	1	1
42	1	1	1	1	1
43	1	1	1	1	1
44	1	1	1	1	1
45	1	1	1	1	1
46	1	1	1	1	1
47	1	1	1	1	1
48	1	1	1	1	1
49	1	1	1	1	1
50	1	1	1	1	1
51	1	1	1	1	1
52	1	1	1	1	1
53	1	1	1	1	1
54	1	1	1	1	1
55	1	1	1	1	1
56	1	1	1	1	1
57	1	1	1	1	1
58	1	1	1	1	1
59	1	1	1	1	1
60	1	1	1	1	1
61	1	1	1	1	1
62	1	1	1	1	1
63	1	1	1	1	1
64	1	1	1	1	1
65	1	1	1	1	1
66	1	1	1	1	1
67	1	1	1	1	1
68	1	1	1	1	1
69	1	1	1	1	1
70	1	1	1	1	1
71	1	1	1	1	1
72	1	1	1	1	1
73	1	1	1	1	1
74	1	1	1	1	1
75	1	1	1	1	1
76	1	1	1	1	1
77	1	1	1	1	1
78	1	1	1	1	1
79	1	1	1	1	1
80	1	1	1	1	1
81	1	1	1	1	1

[illegible]

: STORM CAR_DTT

MEAN ERRORS (KTS)					
MEAN ABSOLUTE ERROR (KTS)	1.5	4.6	1	1	
STANDARD ERROR (KTS)					
NUMBER OF CASES					

~~ERRORS(KT3) FOR STORM DANIEL~~

[illegible]

AV EP	(ITS)		.7	2.4	6			
AV 4306L JFE 89999	(CPS)		7.1	4.3	7.4	7.4	10.0	10.9
		Z	2	2	6.2	7.7	10.5	13.2
			2	1	12	12	15	12

ERRORS(KTS) FOR STORM EMI-IA

[illegible]

~~SUMMARY: STORM ENI-IA~~

MEAN ERRORS (KFS)	-7.5	-5.3	-2.5	5.0	12.5	0
MEAN ABSOLUTE ERROR (KFS)	7.5	8.8	7.5	7.5	12.5	0
STANDARD ERROR (KFS)	6.5	8.3	9.4	7.1	3.5	0
NUMBER OF CASES	3	3	3	4	2	

INVESTIGATION OF THE EFFECTS OF AEROSOLIZED BACTERIAL VACCINES ON THE RESPIRATORY SYSTEM OF MICE.

Address	Operation	Value	Comment
0000	ROM	0000	0000
0001	ROM	0001	0001
0002	ROM	0002	0002
0003	ROM	0003	0003
0004	ROM	0004	0004
0005	ROM	0005	0005
0006	ROM	0006	0006
0007	ROM	0007	0007
0008	ROM	0008	0008
0009	ROM	0009	0009
000A	ROM	000A	000A
000B	ROM	000B	000B
000C	ROM	000C	000C
000D	ROM	000D	000D
000E	ROM	000E	000E
000F	ROM	000F	000F
0010	ROM	0010	0010
0011	ROM	0011	0011
0012	ROM	0012	0012
0013	ROM	0013	0013
0014	ROM	0014	0014
0015	ROM	0015	0015
0016	ROM	0016	0016
0017	ROM	0017	0017
0018	ROM	0018	0018
0019	ROM	0019	0019
001A	ROM	001A	001A
001B	ROM	001B	001B
001C	ROM	001C	001C
001D	ROM	001D	001D
001E	ROM	001E	001E
001F	ROM	001F	001F
0020	ROM	0020	0020
0021	ROM	0021	0021
0022	ROM	0022	0022
0023	ROM	0023	0023
0024	ROM	0024	0024
0025	ROM	0025	0025
0026	ROM	0026	0026
0027	ROM	0027	0027
0028	ROM	0028	0028
0029	ROM	0029	0029
002A	ROM	002A	002A
002B	ROM	002B	002B
002C	ROM	002C	002C
002D	ROM	002D	002D
002E	ROM	002E	002E
002F	ROM	002F	002F
0030	ROM	0030	0030
0031	ROM	0031	0031
0032	ROM	0032	0032
0033	ROM	0033	0033
0034	ROM	0034	0034
0035	ROM	0035	0035
0036	ROM	0036	0036
0037	ROM	0037	0037
0038	ROM	0038	0038
0039	ROM	0039	0039
003A	ROM	003A	003A
003B	ROM	003B	003B
003C	ROM	003C	003C
003D	ROM	003D	003D
003E	ROM	003E	003E
003F	ROM	003F	003F
0040	ROM	0040	0040
0041	ROM	0041	0041
0042	ROM	0042	0042
0043	ROM	0043	0043
0044	ROM	0044	0044
0045	ROM	0045	0045
0046	ROM	0046	0046
0047	ROM	0047	0047
0048	ROM	0048	0048
0049	ROM	0049	0049
004A	ROM	004A	004A
004B	ROM	004B	004B
004C	ROM	004C	004C
004D	ROM	004D	004D
004E	ROM	004E	004E
004F	ROM	004F	004F
0050	ROM	0050	0050
0051	ROM	0051	0051
0052	ROM	0052	0052
0053	ROM	0053	0053
0054	ROM	0054	0054
0055	ROM	0055	0055
0056	ROM	0056	0056
0057	ROM	0057	0057
0058	ROM	0058	0058
0059	ROM	0059	0059
005A	ROM	005A	005A
005B	ROM	005B	005B

התאחדות המורים

334	335	336	337	338	339	340
334	335	336	337	338	339	340
334	335	336	337	338	339	340
334	335	336	337	338	339	340
334	335	336	337	338	339	340

[illegible]

ERRORS/LKTS - PD - SFD - 5.1.4

[illegible]

MARY: STORM

MEAN ERRORS (C)	-1.0	-3.0	-2.0	-1.0	-1.0	-1.0
MEAN ABSOLUTE ERROR (C)						
STANDARD ERROR (CTS)	3.3	7.5	3.3	3.3	3.3	3.3
NUMBER OF CASES	6	4	3	3	3	3

[illegible]

SUMMARY: STOR HECTOR

MEAN ERRORS (KFS)	-2	-3.6	-8.7	-13.3	-21.3	-21.7
ABSOLUTE ERROR (KFS)	3.2	7.5	4.	23.1	27.2	23.9
STANDARD ERROR (KFS)	3.3	3.3	3.1	3.1	2.4	2.6
NUMBER OF CASES	33	33	31	33	27	23

★ ★ ★ ★ ★

ERRORS KTS FOR STORM

	INITIAL	12HR	24HR	36HR	48HR	72HR
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

2025 (6 5

7. 3.6 3.5 .9 4.3 2.3

MEAN ABSOLUTE ERROR (KFS)

2 0

STANDARD ERROR (NUMBER OF CASES)

4.4	9.5	12.7	16.5	19.3	20.6
21	21	17	17	15	11

第 1 页 共 1 页

VERIFICATION OF OFFICIAL MAX WIND FORECAST

~~ERRORS(KTS) FOR STORM JOHN~~

FORECAST MADE FROM	031718Z	DA
FORECAST MADE FROM	031300Z	DA
FORECAST MADE FROM	031300Z	DA

SUMMARY: STORM JOHN

MEAN ERRORS (KFS)

0.2 5.0 0.2 0.1 0.1 0.1

ERROR (KTS)

0.0	5.0	1.0	1.0	1.0
-----	-----	-----	-----	-----

STANDARD ERROR (CTS)
NUMBER OF CASES

•) •) •) •) •) •)

~~~~~

ERRORS(KTS) FOR STORM CRITERIA

1634: 5123

0 = 100:0 - MAX WIND 100 51

~~CONFIDENTIAL FOR STORM - AM~~

~~SUMMARY: STORM - AN-~~

[illegible]

Table 3b. continued.

SUMMARY: ALL 12 STORMS

|                           | INITIAL | 12HR | 24HR | 36HR | 48HR | 72HR |
|---------------------------|---------|------|------|------|------|------|
| MEAN ERRORS (KTS)         | -2.1    | -2.7 | -3.4 | -4.5 | -5.0 | -2.7 |
| MEAN ABSOLUTE ERROR (KTS) | 3.2     | 5.5  | 10.2 | 13.3 | 16.1 | 17.5 |
| STANDARD ERROR (KTS)      | 5.3     | 3.5  | 13.5 | 17.3 | 20.2 | 21.1 |
| NUMBER OF CASES           | 173     | 173  | 167  | 135  | 103  | 75   |



LEGEND FOR TABLE 4.

OBSERVATIONAL UNIT

Satellite

GOES-6 = Geostationary Operational Environmental Satellite

RESOLUTION

Satellite

Classification confidence\*, location and confidence\*\*, visible or infrared resolution (km).

- \* 1 =completely certain as to current intensity number used.
- 2 =tends to vary up and down by 1/2 T or S number.
- 3 =might vary up or down by one T or S number, or more.

- \*\*1 =well defined eye with certain picture registration.
- 2 =well defined eye with uncertain picture registration.
- 3 =well defined circulation center with certain picture registration.
- 4 =well defined circulation center with uncertain picture registration.
- 5 =poorly defined circulation center with certain picture registration.
- 6 =poorly defined circulation center with uncertain picture registration

(Example-1,1, Vsbl,1 = classification confidence 1, location confidence 1, visible picture with 1 kilometer resolution.)

(Example-2,5, IR 8 = classification confidence 2, location confidence 5, infrared picture with 8 kilometer resolution.)

Table 4. Center Fix positions and intensity evaluations for 1988 Tropical Cyclones.

CENTER FIXES

## TROPICAL STORM ALETTA 17-21 JUNE 1988

| FIX NO. | DATE | TIME (UTC) | POSITION<br>LAT. ION. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|---------|------|------------|-----------------------|--------------------------------|--------------------|-----------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01      | 17   | 0000       | 15.2 101.4            | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,- VIS 1  |               |
| 02      | 17   | 0530       | 15.8 102.6            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 8  |               |
| 03      | 17   | 1200       | 15.5 103.0            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 04      | 17   | 1637       | 15.9 102.5            | 45                             | 1000               |                       |                   |                                   |                      | SIX DMSP     |            |               |
| 05      | 17   | 1800       | 15.8 102.1            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 06      | 18   | 0000       | 15.7 101.8            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 07      | 18   | 0530       | 15.9 102.1            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 08      | 18   | 1200       | 16.3 102.7            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 1   |               |
| 09      | 18   | 1500       | 16.7 103.4            |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 VIS 1  |               |
| 10      | 18   | 1800       | 16.7 101.8            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 11      | 19   | 0000       | 17.0 102.3            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 1,3 VIS 1  |               |
| 12      | 19   | 0530       | 17.2 103.7            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 13      | 19   | 1200       | 17.4 104.1            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 14      | 19   | 1500       | 17.5 103.8            |                                |                    |                       |                   |                                   |                      | GOES 7       | -, - VIS 1 |               |
| 15      | 19   | 1800       | 17.5 104.2            | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 16      | 20   | 0000       | 17.5 105.0            |                                |                    |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 17      | 20   | 0439       | 17.8 105.5            | 25                             |                    |                       |                   |                                   |                      | FIV DMSP     |            |               |
| 18      | 20   | 0530       | 17.3 106.8            |                                |                    |                       |                   |                                   |                      | GOES 7       | -,3 IR 8   |               |
| 19      | 20   | 1200       | 17.5 106.3            |                                |                    |                       |                   |                                   |                      | GOES 7       | -, -       |               |
| 20      | 20   | 1800       | 17.5 106.4            |                                |                    |                       |                   |                                   |                      | GOES 7       | -, - VIS 1 |               |
| 21      | 21   | 0000       | 17.3 107.5            |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 VIS 1  |               |
| 22      | 21   | 1200       | 16.5 108.0            |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 IR 4   |               |

CENTER FIXES

TROPICAL STORM BUD 21-23 JUNE 1988

| FIX<br>NO. | DATE | TIME<br>(UTC) | POSITION<br>LAT. LON. | MAX WIND (KT)<br>SFC. FLT. LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|------------|------|---------------|-----------------------|---------------------------------|--------------------|-----------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01         | 21   | 0000          | 12.0 93.5             |                                 |                    |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 02         | 21   | 0600          | 13.6 93.1             | 30                              | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 03         | 21   | 1200          | 13.6 93.5             | 30                              | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 04         | 21   | 1800          | 14.4 95.3             | 35                              | 1005               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 8  |               |
| 05         | 22   | 0000          | 14.5 95.9             | 45                              | 1000               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 06         | 22   | 0600          | 14.9 97.2             | 45                              | 1000               |                       |                   |                                   |                      | GOES 7       | -,- IR 8   |               |
| 07         | 22   | 1200          | 15.6 97.9             | 45                              | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 08         | 22   | 1800          | 16.0 100.0            | 35                              | 1005               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 09         | 23   | 0000          | 16.6 99.8             | 30                              | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 10         | 23   | 1620          | 17.0 101.4            | 25                              |                    |                       |                   |                                   |                      | SIX/DMSP     |            |               |



CENTER FIXES

HURRICANE CARLOTTA 08-15 July 1988

| FIX NO. | DATE | TIME (UTC) | POSITION<br>LAT. LON. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|---------|------|------------|-----------------------|--------------------------------|--------------------|-----------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01      | 08   | 0000       |                       |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 VIS 1  |               |
| 02      | 08   | 0600       |                       |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 IR 8   |               |
| 03      | 08   | 1200       |                       |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 IR 8   |               |
| 04      | 08   | 1500       |                       | 25                             |                    |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 05      | 08   | 1800       |                       | 30                             | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 06      | 09   | 0000       |                       | 30                             | 1009               |                       |                   |                                   |                      | GOES 7       | 2,3 IR 8   |               |
| 07      | 09   | 0300       |                       | 30                             | 1009               |                       |                   |                                   |                      | GOES 7       | 1,5 IR 8   |               |
| 08      | 09   | 0600       |                       | 30                             | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 09      | 09   | 1200       |                       | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 10      | 09   | 1500       |                       | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 11      | 09   | 1800       |                       | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 12      | 10   | 0000       |                       | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 13      | 10   | 0600       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 14      | 10   | 1200       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 15      | 10   | 1500       |                       |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 VIS 1  |               |
| 16      | 10   | 1800       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 17      | 11   | 0000       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 18      | 11   | 0600       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 19      | 11   | 1200       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 20      | 11   | 1500       |                       |                                |                    |                       |                   |                                   |                      | GOES 7       | -,5 VIS 1  |               |
| 21      | 11   | 1800       |                       | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 22      | 12   | 0000       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 23      | 12   | 0600       |                       | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 24      | 12   | 1200       |                       | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 25      | 12   | 1650       |                       | 45                             | 1000               |                       |                   |                                   |                      | FIV/DMSP     |            |               |
| 26      | 12   | 1800       |                       | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 27      | 13   | 0000       |                       | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,3 IR 8   |               |
| 28      | 13   | 0600       |                       | 30                             | 1009               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 29      | 13   | 1200       |                       | 25                             |                    |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 30      | 13   | 1800       |                       |                                |                    |                       |                   |                                   |                      | GOES 6       | -,5 VIS 1  |               |

CENTER FIXES

Hurricane CARLOTTA (continued)

| FIX NO. | DATE | TIME (UTC) | POSITION<br>LAT. LON. | MAX WIND (KT) |          | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C |    | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|-----------------------|---------------|----------|--------------------|-----------------------|---------|----|-----------------------------------|----------------------|-----------|------------|------------|
|         |      |            |                       | SFC.          | FLT.LVL. |                    |                       | OUT     | IN |                                   |                      |           |            |            |
| 31      | 14   | 0000       | 21.6 124.3            |               |          |                    |                       |         |    |                                   |                      | GOES 7    | -,3 VIS 1  |            |
| 32      | 14   | 0600       | 21.0 125.0            |               |          |                    |                       |         |    |                                   |                      | GOES 6    | -,5 IR 8   |            |
| 33      | 14   | 1200       | 21.8 127.4            |               |          |                    |                       |         |    |                                   |                      | GOES 6    | -,5 IR 8   |            |
| 34      | 14   | 1500       | 21.0 126.5            |               |          |                    |                       |         |    |                                   |                      | GOES 7    | -,5 VIS 1  |            |
| 35      | 14   | 1800       | 21.5 126.2            |               |          |                    |                       |         |    |                                   |                      | GOES 7    | -,5 VIS 1  |            |
| 36      | 15   | 0000       | 21.0 127.1            |               |          |                    |                       |         |    |                                   |                      | GOES 7    | -,3 VIS 1  |            |
| 37      | 15   | 0600       | 21.0 127.6            |               |          |                    |                       |         |    |                                   |                      | GOES 6    | -,5 IR 8   |            |
| 38      | 15   | 1200       | 21.0 128.2            |               |          |                    |                       |         |    |                                   |                      | GOES 6    | -,5 IR 8   |            |

Post season analysis of the satellite data indicates that Carlotta reached minimal hurricane strength (65 KTS) at 11/1200Z and maintained minimal hurricane status until 12/0000Z on the 12th.

CENTER FIXES

TROPICAL STORM DANIEL 19-26 July 1988

| FIX NO. | DATE | TIME (UTC) | POSITION<br>LAT. LON. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|---------|------|------------|-----------------------|--------------------------------|--------------------|-----------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01      | 19   | 0000       | 14.2 111.1            |                                |                    |                       |                   |                                   |                      | GOES 6       | -,5 VIS 1  |               |
| 02      | 19   | 0600       | 13.4 112.1            | 25                             |                    |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 03      | 19   | 1200       | 13.6 112.3            | 25                             |                    |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 04      | 19   | 1613       | 15.7 112.9            | 25                             |                    |                       |                   |                                   |                      | FIV/DMSF     |            |               |
| 05      | 19   | 1800       | 15.0 113.1            | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 06      | 20   | 0000       | 15.0 113.2            | 35                             | 1005               |                       |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
| 07      | 20   | 0242       | 15.6 112.9            | 35                             | 1005               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
| 08      | 20   | 0600       | 15.7 113.6            | 35                             | 1005               |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 09      | 20   | 0900       | 14.9 114.1            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,3 IR 8   |               |
| 10      | 20   | 1200       | 15.0 114.3            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 11      | 20   | 1735       | 16.3 115.0            | 30                             | 1009               |                       |                   |                                   |                      | FIV/DMSF     |            |               |
| 12      | 20   | 1800       | 15.7 114.7            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 VIS 1  |               |
| 13      | 21   | 0000       | 16.0 115.4            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 14      | 21   | 0230       | 16.1 115.5            | 35                             | 1005               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
| 15      | 21   | 0600       | 16.0 116.5            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 16      | 21   | 1200       | 17.0 117.4            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 17      | 21   | 1800       | 17.6 118.6            | 50                             | 997                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 18      | 22   | 0000       | 18.6 119.5            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
| 19      | 22   | 0600       | 19.0 120.7            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,3 IR 8   |               |
| 20      | 22   | 1200       | 19.0 122.3            | 40                             | 1003               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 21      | 22   | 1800       | 19.2 123.3            | 40                             | 1003               |                       |                   |                                   |                      | GOES 7       | 1,3 VIS 1  |               |
| 22      | 23   | 0000       | 19.4 124.4            | 45                             | 1000               |                       |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
| 23      | 23   | 0600       | 19.7 125.5            | 35                             | 1005               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 24      | 23   | 1200       | 20.2 126.2            | 40                             | 1003               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 25      | 23   | 1800       | 21.6 127.1            | 40                             | 1003               |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 26      | 24   | 0000       | 22.3 128.3            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 27      | 24   | 0600       | 22.6 129.3            | 55                             | 994                |                       |                   |                                   |                      | GOES 7       | 3,5 IR 8   |               |
| 28      | 24   | 1200       | 23.3 130.6            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 29      | 24   | 1800       | 23.7 131.1            | 45                             | 1000               |                       |                   |                                   |                      | GOES 7       | 1,3 VIS 1  |               |
| 30      | 24   | 2100       | 24.1 131.6            |                                |                    |                       |                   |                                   |                      | GOES 6       | -,2 VIS 1  |               |

CENTER FIXES

OPIC: DANIEL (continued)

| FIX | DATE |      | POSITION |       | MAX WIND (KT) |          | MIN.<br>700MB | TEMP. C |    | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ALT. |
|-----|------|------|----------|-------|---------------|----------|---------------|---------|----|-----------------------------------|----------------------|--------------|------------|------|
|     |      |      | LAT.     | Lon.  | SFC.          | FLT.IVL. |               | OUT     | IN |                                   |                      |              |            |      |
| 31  | 25   | 0000 | 24.4     | 132.1 | 35            |          | 1005          |         |    |                                   |                      | GOES 7       | 2,2 VIS 1  |      |
| 32  | 25   | 0300 | 24.7     | 131.9 |               |          |               |         |    |                                   |                      | GOES 6       | -,5 IR 8   |      |
| 33  | 25   | 0322 | 24.5     | 132.5 | 35            |          |               |         |    |                                   |                      | FOR/IMSP     |            |      |
| 34  | 25   | 0600 | 25.0     | 133.5 | 35            |          |               |         |    |                                   |                      | GOES 7       | 3,5 IR 8   |      |
| 35  | 25   | 1200 | 25.3     | 134.2 | 30            |          |               |         |    |                                   |                      | GOES 6       | 2,5 IR 8   |      |
| 36  | 25   | 1800 | 25.7     | 134.9 | 30            |          |               |         |    |                                   |                      | GOES 6       | 2,5 VIS 1  |      |
| 37  | 26   | 0000 | 25.8     | 135.0 |               |          |               |         |    |                                   |                      | GOES 6       | -,3 VIS 1  |      |
| 38  | 26   | 0600 | 26.3     | 134.2 |               |          |               |         |    |                                   |                      | GOES 7       | -,5 IR 8   |      |
| 39  | 26   | 1200 | 26.3     | 135.7 |               |          |               |         |    |                                   |                      | GOES 6       | -,5 IR 8   |      |



CENTER FIXES

TROPICAL STORM EMILIA 27 July - 02 August 1988

| FIX | DATE | TIME | POSITION<br>LAT. LON. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES.<br>(MB) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|-----|------|------|-----------------------|--------------------------------|--------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01  | 27   | 1500 | 13.5 108.1            | 25                             |                    |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 02  | 27   | 1800 | 13.7 108.6            | 25                             |                    |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 03  | 28   | 0000 | 14.3 109.5            | 30                             | 1009               |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 04  | 28   | 0600 | 14.3 110.1            | 30                             | 1009               |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 05  | 28   | 1200 | 14.6 110.7            | 30                             | 1009               |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 06  | 28   | 1638 | 15.7 111.5            | 25                             |                    |                   |                                   |                      | FIV/DMSP     |            |               |
| 07  | 28   | 1800 | 14.9 111.2            | 30                             | 1009               |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 08  | 28   | 2100 | 15.2 111.6            |                                |                    |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 09  | 29   | 0000 | 15.0 111.8            | 30                             | 1009               |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 10  | 29   | 0232 | 14.6 113.3            | 25                             |                    |                   |                                   |                      | FIV/DMSP     |            |               |
| 11  | 29   | 0300 | 15.1 112.1            |                                |                    |                   |                                   |                      | GOES 6       | 2,5 IR 4   |               |
| 12  | 29   | 0600 | 15.0 112.6            | 30                             | 1009               |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 13  | 29   | 1200 | 15.0 114.0            | 30                             | 1009               |                   |                                   |                      | GOES 6       | 2,5 IR 4   |               |
| 14  | 29   | 1800 | 15.3 114.3            | 45                             | 1000               |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 15  | 30   | 0000 | 15.0 115.3            | 45                             | 1000               |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
| 16  | 30   | 0220 | 14.3 115.1            | 35                             | 1005               |                   |                                   |                      | SIX/DMSP     |            |               |
| 17  | 30   | 0600 | 14.9 115.1            | 55                             | 994                |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 18  | 30   | 1245 | 15.5 116.9            | 55                             | 994                |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 19  | 30   | 1715 | 15.6 117.4            | 55                             | 994                |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 20  | 30   | 1740 | 15.4 117.1            | 35                             | 1005               |                   |                                   |                      | SIX/DMSP     |            |               |
| 21  | 31   | 0000 | 16.0 118.4            | 55                             | 994                |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 22  | 31   | 0208 | 16.2 118.7            | 35                             | 1005               |                   |                                   |                      | FOR/DMSP     |            |               |
| 23  | 31   | 0600 | 16.2 119.7            | 45                             | 1000               |                   |                                   |                      | GOES 7       | 2,3 IR 8   |               |
| 24  | 31   | 1215 | 16.1 120.2            | 45                             | 1000               |                   |                                   |                      | GOES 6       | 2,5 IR 4   |               |
| 25  | 31   | 1715 | 16.1 121.2            | 35                             | 1005               |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
| 26  | 31   | 1720 | 16.2 121.2            | 25                             |                    |                   |                                   |                      | 3 /DMSP      |            |               |
| 27  | 01   | 0000 | 16.2 121.9            |                                |                    |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 28  | 01   | 0155 | 16.3 122.1            | 25                             |                    |                   |                                   |                      | SIX/DMSP     |            |               |
| 29  | 01   | 0600 | 16.2 122.6            |                                |                    |                   |                                   |                      | GOES 6       | 2,5 IR 4   |               |
| 30  | 01   | 1145 | 16.5 123.3            |                                |                    |                   |                                   |                      | GOES 6       | 2,3 IR 1   |               |
| 31  | 01   | 1700 | 15.4 123.2            | 25                             |                    |                   |                                   |                      | FOR/DMSP     |            |               |

CENTER FIXES

TROPICAL STORM EMILIA (continued)

| FIX NO. | DATE | TIME (GMT) | POSITION LAT. LON. | MAX WIND (KT) SFC. FLT. LVL. | MIN. PRES. (MB) | MIN. 700MB HT. (M) | EYE C=CIR.DIA. E=ELIP. (N.MI.) | CHARACTER-ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|--------------------|------------------------------|-----------------|--------------------|--------------------------------|------------------|-----------|------------|------------|
| 32      | 01   | 1715       | 16.0 124.1         |                              |                 |                    |                                |                  | GOES 7    | -,3 VIS 1  |            |
| 33      | 02   | 0000       | 15.2 124.2         |                              |                 |                    |                                |                  | GOES 7    | -, - VIS 1 |            |
| 34      | 02   | 0325       | 15.0 124.3         |                              |                 |                    |                                |                  | SIX/DMSP  |            |            |
| 35      | 02   | 0600       | 15.0 124.6         |                              |                 |                    |                                |                  | GOES 6    | -,5 IR 8   |            |
| 36      | 02   | 1145       | 14.0 125.3         |                              |                 |                    |                                |                  | GOES 6    | -,3 IR 8   |            |
| 37      | 02   | 1715       | 13.5 126.1         |                              |                 |                    |                                |                  | GOES 7    | -,5 VIS 1  |            |

CENTER FIXES

HURRICANE FABIO 28 July - 09 August 1988

| FIX | DATE                                          | TIME<br>(UTC) | POSIT<br>LAT. | MAX V<br>SFC. | MIN.<br>PRES | MIN.<br>700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|-----|-----------------------------------------------|---------------|---------------|---------------|--------------|--------------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
| 01  | 28                                            | 1500          | 11.9 120.4    |               |              |                          |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 02  | 28                                            | 1800          | 12.1 120.9    |               |              |                          |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 03  | 28                                            | 2100          | 12.3 121.3    |               |              |                          |                   |                                   |                      | GOES 6       | -,2 VIS 1  |               |
| 04  | 29                                            | 0000          | 11.7 121.0    | 30            | 1009         |                          |                   |                                   |                      | GOES 6       | 2,5 VIS 4  |               |
| 05  | 29                                            | 0300          | 11.7 121.4    |               |              |                          |                   |                                   |                      | GOES 6       | -,5 IR 8   |               |
| 06  | 29                                            | 0600          | 11.7 121.4    | 30            |              |                          |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 07  | 29                                            | 1200          | 12.2 123.0    | 30            |              |                          |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 08  | 29                                            | 1800          | 11.8 124.6    | 25            |              |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 09  | 29                                            | 1800          | 13.2 124.5    | 45            | 1000         |                          |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 10  | 30                                            | 0000          | 11.5 125.9    | 55            | 994          |                          |                   |                                   |                      | GOES 6       | 2,- VIS 1  |               |
| 11  | 30                                            | 0220          | 12.4 126.5    | 35            | 1005         |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 12  | 30                                            | 0600          | 11.6 126.7    | 65            | 987          |                          |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 13  | 30                                            | 1215          | 11.9 127.7    | 65            | 987          |                          |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 14  | 30                                            | 1740          | 11.9 128.6    | 35            | 1005         |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 15  | 30                                            | 1745          | 11.9 128.9    | 65            | 987          |                          |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
| 16  | 31                                            | 0000          | 11.9 130.2    | 65            | 987          |                          |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 17  | 31                                            | 0350          | 11.8 130.9    | 45            | 1000         |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 18  | 31                                            | 0600          | 12.0 130.3    | 55            | 994          |                          |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 19  | 31                                            | 1245          | 12.5 130.9    | 65            | 987          |                          |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
| 20  | 31                                            | 1720          | 12.7 131.6    | 55            | 994          |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 21  | 31                                            | 1816          | 12.2 132.5    | 77            | 979          |                          |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 22  | 01                                            | 0000          | 12.6 133.2    | 77            | 979          |                          |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 23  | 01                                            | 0337          | 13.0 133.3    | 77            | 979          |                          |                   |                                   |                      | TWO/DMSP     |            |               |
| 24  | 01                                            | 0600          | 12.7 134.1    | 77            | 979          |                          |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 25  | 01                                            | 1145          | 12.9 135.7    | 77            | 979          |                          |                   |                                   |                      | GOES 6       | 1,5 IR 1   |               |
| 26  | 01                                            | 1745          | 12.9 136.1    | 77            | 979          |                          |                   |                                   |                      | GOES 6       | 1,5 VIS 1  |               |
| 27  | 01                                            | 1842          | 13.1 136.2    | 77            | 979          |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 28  | 02                                            | 0000          | 13.1 137.6    | 90            | 970          |                          |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
| 29  | 02                                            | 0325          | 13.2 138.2    | 65            | 987          |                          |                   |                                   |                      | SIX/DMSP     |            |               |
| 30  | 02                                            | 0600          | 12.8 138.5    | 90            | 970          |                          |                   |                                   |                      | GOES 6       | 2,3 IR 8   |               |
| 31  | 02                                            | 1145          | 13.2 139.6    | 90            | 970          |                          |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
| 32  | ----- ENTERED THE CENTRAL PACIFIC BASIN ----- |               |               |               |              |                          |                   |                                   |                      |              |            |               |

## CENTER FIXES

TROPICAL STORM GILMA 28 July - 03 August 1988

[illegible]



CENTER FIXES

HURRICANE HECTOR 31 July - 09 August 1988

| FIX | DATE | TIME | POSITION<br>LAT. ION. | SFC.  | FLT. LVL. | MIN.<br>PRES.<br>(MB) | MIN.<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR. DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|-----|------|------|-----------------------|-------|-----------|-----------------------|-----------------|-------------------|------------------------------------|----------------------|--------------|------------|---------------|
| 01  | 30   |      | 11.3 98.6             | 25    |           |                       |                 |                   |                                    |                      | SIX/DMSP     |            |               |
| 02  | 31   |      | 11.4 99.4             | 25    |           |                       |                 |                   |                                    |                      | GOES 7       | 2,3 VIS 1  |               |
| 03  | 31   |      | 11.2 100.4            | 25    |           |                       |                 |                   |                                    |                      | SIX/DMSP     |            |               |
| 04  | 31   |      | 11.5 101.9            | 30-35 |           | 1007                  |                 |                   |                                    |                      | GOES 7       | 3,5 IR 8   |               |
| 05  | 31   |      | 11.9 103.0            | 30    |           | 1009                  |                 |                   |                                    |                      | GOES 7       | 2,5 IR 8   |               |
| 06  | 31   |      | 12.3 103.5            | 35    |           | 1005                  |                 |                   |                                    |                      | FIV/DMSP     |            |               |
| 07  | 31   |      | 12.1 104.3            | 35    |           | 1005                  |                 |                   |                                    |                      | GOES 7       | 2,5 VIS 1  |               |
| 08  | 01   |      | 13.0 104.8            | 45    |           | 1000                  |                 |                   |                                    |                      | GOES 7       | 2,3 VIS 1  |               |
| 09  | 01   |      | 13.4 105.4            | 35    |           | 1005                  |                 |                   |                                    |                      | SIX/DMSP     |            |               |
| 10  | 01   |      | 13.1 106.2            | 55    |           | 994                   |                 |                   |                                    |                      | GOES 6       | 2,3 IR 8   |               |
| 11  | 01   |      | 13.9 107.5            | 55    |           | 994                   |                 |                   |                                    |                      | GOES 7       | 1,5 IR 8   |               |
| 12  | 01   |      | 14.2 108.4            | 55    |           | 994                   |                 |                   |                                    |                      | FIV/DMSP     |            |               |
| 13  | 01   |      | 14.1 108.6            | 55    |           | 994                   |                 |                   |                                    |                      | GOES 7       | 2,3 VIS 1  |               |
| 14  | 02   |      | 14.6 110.0            | 65    |           | 987                   |                 |                   |                                    |                      | GOES 7       | 2,3 VIS 1  |               |
| 15  | 02   |      | 14.8 110.1            | 55    |           | 994                   |                 |                   |                                    |                      | SIX/DMSP     |            |               |
| 16  | 02   |      | 14.5 111.0            | 90    |           | 970                   |                 |                   |                                    |                      | GOES 6       | 1,1 IR 8   |               |
| 17  | 02   |      | 15.0 112.2            | 102   |           | 960                   |                 |                   |                                    |                      | GOES 7       | 1,1 IR 8   |               |
| 18  | 02   |      | 15.4 113.0            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 7       | 1,1 IR 8   |               |
| 19  | 03   |      | 16.1 114.2            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 7       | 2,1 VIS 1  |               |
| 20  | 03   |      | 16.2 114.5            | 115   |           | 948                   |                 |                   |                                    |                      | ONE/DMSP     |            |               |
| 21  | 03   |      | 16.3 115.2            | 127   |           | 935                   |                 |                   |                                    |                      | GOES 6       | 1,1 IR 8   |               |
| 22  | 03   |      | 16.8 116.2            | 127   |           | 935                   |                 |                   |                                    |                      | GOES 7       | 2,1 IR 8   |               |
| 23  | 03   |      | 17.0 117.2            | 115   |           | 948                   |                 |                   |                                    |                      | ONE/DMSP     |            |               |
| 24  | 03   |      | 17.1 117.1            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 7       | 1,1 IR 8   |               |
| 25  | 04   |      | 17.7 118.0            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 6       | 1,3 VIS 1  |               |
| 26  | 04   |      | 17.9 118.2            | 115   |           | 948                   |                 |                   |                                    |                      | TWO/DMSP     |            |               |
| 27  | 04   |      | 18.0 118.9            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 6       | 1,3 IR 8   |               |
| 28  | 04   |      | 18.6 119.9            | 115   |           | 948                   |                 |                   |                                    |                      | GOES 6       | 2,2 IR 8   |               |
| 29  | 04   |      | 18.7 120.4            |       |           |                       |                 |                   |                                    |                      | GOES 6       | -2, IR 8   |               |
| 30  | 04   |      | 18.9 121.0            | 90    |           | 970                   |                 |                   |                                    |                      | TWO/DMSP     |            |               |

CENTER FIXES

HURRICANE HECTOR (continued)

| FIX NO.                                       | DATE | TIME (UTC) | POSITION LAT. LON. | MAX WIND (KT) SFC. FLT. LVL. | MIN. PRES. (MB) | MIN. 700MB HT. (M) | TEMP. C OUT IN | EYE C=CIR. DIA. E=ELIP. (N.MI.) | CHARACTER-ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|-----------------------------------------------|------|------------|--------------------|------------------------------|-----------------|--------------------|----------------|---------------------------------|------------------|-----------|------------|------------|
| 31                                            | 04   | 1800       | 18.9 121.0         | 90                           | 970             |                    |                |                                 |                  |           |            |            |
| 32                                            | 05   | 0000       | 18.9 122.0         | 85                           | 973             |                    |                |                                 |                  | GOES 6    | 2,2 VIS 1  |            |
| 33                                            | 05   | 0247       | 19.0 122.4         | 90                           | 970             |                    |                |                                 |                  | GOES 6    | 2,3 VIS 1  |            |
| 34                                            | 05   | 0600       | 19.2 123.2         | 77                           | 979             |                    |                |                                 |                  | TWO/DMSP  |            |            |
| 35                                            | 05   | 1200       | 18.9 123.9         | 77                           | 979             |                    |                |                                 |                  | GOES 6    | 2,3 IR 8   |            |
| 36                                            | 05   | 1723       | 18.8 124.8         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,3 IR 8   |            |
| 37                                            | 05   | 1800       | 18.8 124.9         | 65                           | 987             |                    |                |                                 |                  | SIX/DMSP  |            |            |
| 38                                            | 06   | 0000       | 18.9 125.9         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,3 VIS 1  |            |
| 39                                            | 06   | 0235       | 18.5 126.3         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,3 VIS 1  |            |
| 40                                            | 06   | 0600       | 18.6 126.8         | 65                           | 987             |                    |                |                                 |                  | TWO/DMSP  |            |            |
| 41                                            | 06   | 1200       | 18.5 127.8         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,1 IR 8   |            |
| 42                                            | 06   | 1703       | 18.3 128.3         | 55                           | 994             |                    |                |                                 |                  | GOES 6    | 2,3 IR 8   |            |
| 43                                            | 06   | 1800       | 18.6 128.6         | 77                           | 979             |                    |                |                                 |                  | SIX/DMSP  |            |            |
| 44                                            | 07   | 0000       | 18.4 129.7         | 77                           | 979             |                    |                |                                 |                  | GOES 7    | 2,1 IR 8   |            |
| 45                                            | 07   | 0222       | 18.3 130.9         | 77                           | 979             |                    |                |                                 |                  | GOES 6    | 1,3 VIS 1  |            |
| 46                                            | 07   | 0515       | 18.4 130.8         | 77                           | 979             |                    |                |                                 |                  | TWO/DMSP  |            |            |
| 47                                            | 07   | 1146       | 18.4 132.0         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,1 IR 8   |            |
| 48                                            | 07   | 1800       | 18.2 133.1         | 65                           | 987             |                    |                |                                 |                  | GOES 6    | 2,3 IR 8   |            |
| 49                                            | 08   | 0000       | 18.0 134.7         | 65                           | 987             |                    |                |                                 |                  | GOES 7    | 2,3 VIS 1  |            |
| 50                                            | 08   | 0352       | 18.3 135.5         | 35                           | 1005            |                    |                |                                 |                  | GOES 7    | 2,3 VIS 1  |            |
| 51                                            | 08   | 0615       | 17.6 136.0         | 65                           | 987             |                    |                |                                 |                  | SIX/DMSP  |            |            |
| 52                                            | 08   | 1200       | 17.8 137.5         | 55                           | 994             |                    |                |                                 |                  | GOES 6    | 2,5 IR 8   |            |
| 53                                            | 08   | 1800       | 18.4 138.5         | 45                           | 1000            |                    |                |                                 |                  | GOES 7    | 2,3 IR 8   |            |
| 54                                            | 08   | 1805       | 18.3 138.4         | 35                           | 1005            |                    |                |                                 |                  | GOES 7    | 2,3 VIS 1  |            |
| 55                                            | 09   | 0000       | 18.6 140.0         | 35                           | 1005            |                    |                |                                 |                  | FOR/DMSP  |            |            |
|                                               |      |            |                    |                              |                 |                    |                |                                 |                  | GOES 6    | 2,3 VIS 1  |            |
| ----- ENTERED THE CENTRAL PACIFIC BASIN ----- |      |            |                    |                              |                 |                    |                |                                 |                  |           |            |            |
|                                               |      |            |                    |                              |                 |                    |                |                                 |                  |           |            |            |
|                                               |      |            |                    |                              |                 |                    |                |                                 |                  |           |            |            |

CENTER FIXES

HURRICANE IVA 05 - 13 August 1988

| FIX | DATE | TIME<br>(UTC) | POSIT<br>LAT. | MAX WIND (KT<br>SFC. FLT | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) |  | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|-----|------|---------------|---------------|--------------------------|--------------------|-----------------------|-------------------|-----------------------------------|--|--------------|------------|---------------|
| 01  | 04   |               | 13.4 94.8     | 25                       |                    |                       |                   |                                   |  | GOES 7       | 2,2 VIS 1  |               |
| 02  | 05   |               | 13.1 96.3     | 25                       |                    |                       |                   |                                   |  | GOES 7       | 2,5 VIS 1  |               |
| 03  | 05   |               | 13.5 98.1     | 25                       |                    |                       |                   |                                   |  | GOES 7       | 2,5 IR 8   |               |
| 04  | 05   |               | 13.8 99.9     | 25                       |                    |                       |                   |                                   |  | GOES 7       | 2,5 IR 8   |               |
| 05  | 05   |               | 14.2 101.2    | 25                       |                    |                       |                   |                                   |  | SIX/DMSF     |            |               |
| 06  | 05   |               | 14.4 101.1    | 30                       | 1009               |                       |                   |                                   |  | GOES 7       | 2,5 VIS 1  |               |
| 07  | 06   |               | 15.0 101.8    | 35                       |                    |                       |                   |                                   |  | GOES 7       |            |               |
| 08  | 06   |               | 14.7 102.8    | 35                       | 1005               |                       |                   |                                   |  | SIX/DMSF     |            |               |
| 09  | 06   |               | 15.2 103.2    | 45                       | 1000               |                       |                   |                                   |  | GOES 7       | 2,5 IR 8   |               |
| 10  | 06   |               | 15.2 105.5    | 45                       | 1000               |                       |                   |                                   |  | GOES 7       | 2,5 IR 8   |               |
| 11  | 06   |               | 16.1 106.2    | 35                       | 1005               |                       |                   |                                   |  | SIX/DMSF     |            |               |
| 12  | 06   |               | 16.5 106.1    | 55                       | 994                |                       |                   |                                   |  | GOES 7       | 2,3 VIS 1  |               |
| 13  | 07   |               | 16.5 107.1    | 65                       | 987                |                       |                   |                                   |  | GOES 6       | 1,3 VIS 1  |               |
| 14  | 07   |               | 16.3 107.5    | 55                       | 994                |                       |                   |                                   |  | FIV/DMSF     |            |               |
| 15  | 07   |               | 16.7 108.4    | 65                       | 987                |                       |                   |                                   |  | GOES 7       | 2,3 IR 8   |               |
| 16  | 07   |               | 17.2 109.1    | 65                       | 987                |                       |                   |                                   |  | GOES 7       | 2,3 IR 8   |               |
| 17  | 07   |               | 17.6 109.9    | 65                       | 987                |                       |                   |                                   |  | GOES 7       | 2,5 VIS 1  |               |
| 18  | 08   |               | 18.1 110.5    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,3 VIS 1  |               |
| 19  | 08   |               | 18.1 110.7    | 90                       | 970                |                       |                   |                                   |  | ONE/DMSF     |            |               |
| 20  | 08   |               | 18.8 111.7    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,1 IR 8   |               |
| 21  | 08   |               | 19.2 112.5    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,3 IR 8   |               |
| 22  | 08   |               | 19.8 112.9    | 77                       | 979                |                       |                   |                                   |  | ONE/DMSF     |            |               |
| 23  | 08   |               | 20.1 113.3    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,1 VIS 1  |               |
| 24  | 09   |               | 20.4 114.2    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,3 VIS 1  |               |
| 25  | 09   |               | 20.3 114.6    | 90                       | 970                |                       |                   |                                   |  | FIV/DMSF     |            |               |
| 26  | 09   |               | 20.7 115.3    | 90                       | 970                |                       |                   |                                   |  | GOES 7       | 2,1 IR 8   |               |
| 27  | 09   |               | 20.9 116.9    | 77                       | 979                |                       |                   |                                   |  | GOES 6       | 2,3 IR 8   |               |
| 28  | 09   |               | 20.9 116.9    | 77                       | 979                |                       |                   |                                   |  | SIX/DMSF     |            |               |
| 29  | 09   |               | 20.9 117.4    | 65                       | 987                |                       |                   |                                   |  | GOES 6       | 2,5 VIS 1  |               |
| 30  | 10   |               | 20.8 117.8    | 55                       | 994                |                       |                   |                                   |  | GOES 6       | 2,5 VIS 1  |               |



CENTER FIXES

HURRICANE IVA      inued)

| FIX NO. | DATE | TIME (UTC) | POSIT LAT. | MAX WIND (KT) |          | MIN. PRES. (MB) | MIN. FLT. LVL. | P. C | OUT | IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|------------|---------------|----------|-----------------|----------------|------|-----|----|-----------------------------------|----------------------|-----------|------------|------------|
|         |      |            |            | SFC.          | FLT.LVL. |                 |                |      |     |    |                                   |                      |           |            |            |
| 31      | 10   | 0145       | 21.6 117.9 | 30            |          | 1009            |                |      |     |    |                                   |                      | FIV/DMSP  |            |            |
| 32      | 10   | 0545       | 20.0 118.0 | 55            |          | 994             |                |      |     |    |                                   |                      | GOES 6    | 2,5 IR 8   |            |
| 33      | 10   | 1200       | 20.1 118.3 | 45            |          | 1000            |                |      |     |    |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 34      | 10   | 1725       | 20.9 119.8 | 45            |          | 1000            |                |      |     |    |                                   |                      | TRE/DMSP  |            |            |
| 35      | 10   | 1800       | 20.1 118.2 | 40-45         |          | 1002            |                |      |     |    |                                   |                      | GOES 7    | 1,3 VIS 1  |            |
| 36      | 11   | 0000       | 20.1 118.3 | 35            |          | 1005            |                |      |     |    |                                   |                      | GOES 7    | 2,3 VIS 1  |            |
| 37      | 11   | 0315       | 20.1 119.7 | 30            |          | 1009            |                |      |     |    |                                   |                      | SIX/DMSP  |            |            |
| 38      | 11   | 0600       | 19.8 118.7 | 35            |          | 1005            |                |      |     |    |                                   |                      | GOES 6    | 2,5 IR 8   |            |
| 39      | 11   | 0900       | 19.7 118.9 |               |          |                 |                |      |     |    |                                   |                      | GOES 6    | -,5 IR 8   |            |
| 40      | 11   | 1200       | 19.0 119.1 | 35            |          | 1005            |                |      |     |    |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 41      | 11   | 1706       | 19.4 119.5 | 30            |          | 1009            |                |      |     |    |                                   |                      | TRE/DMSP  |            |            |
| 42      | 11   | 1800       | 19.5 119.6 | 30            |          | 1009            |                |      |     |    |                                   |                      | GOES 7    | 2,3 VIS 1  |            |
| 43      | 12   | 0000       | 19.4 119.8 | 30            |          | 1009            |                |      |     |    |                                   |                      | GOES 7    | 3,3 IR 1   |            |
| 44      | 12   | 0302       | 19.6 119.8 | 25            |          |                 |                |      |     |    |                                   |                      | TRE/DMSP  |            |            |
| 45      | 12   | 0600       | 19.2 120.0 | 25            |          | 1009            |                |      |     |    |                                   |                      | GOES 7    | -, - IR 1  |            |
| 46      | 12   | 1200       | 18.5 120.5 | 25            |          |                 |                |      |     |    |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 47      | 12   | 1800       | 18.7 121.2 | 20-25         |          |                 |                |      |     |    |                                   |                      | GOES 7    | 1,3 VIS 1  |            |
| 48      | 13   | 0000       | 18.4 121.5 |               |          |                 |                |      |     |    |                                   |                      | GOES 6    | -,3 VIS 1  |            |
| 49      | 13   | 0250       | 18.2 121.5 |               |          |                 |                |      |     |    |                                   |                      | FOR/DMSP  |            |            |
| 50      | 13   | 0600       | 18.2 122.2 |               |          |                 |                |      |     |    |                                   |                      | GOES 6    | -,5 IR 8   |            |
| 51      | 13   | 1200       | 17.5 122.5 |               |          |                 |                |      |     |    |                                   |                      | GOES 7    | -,5 IR 8   |            |
| 52      | 13   | 1800       | 17.6 122.8 |               |          |                 |                |      |     |    |                                   |                      | GOES 7    | -,3 VIS 1  |            |
| 53      | 13   | 1807       | 17.6 122.8 |               |          |                 |                |      |     |    |                                   |                      | SIX/DMSP  |            |            |



CENTER FIXES

TROPICAL STORM JOHN 16 - 21 August 1988

| FIX NO. | DATE | TIME (UTC) | POSITION LAT. LON. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES. (MB) | MIN. 700MB HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|--------------------|--------------------------------|-----------------|--------------------|-------------------|-----------------------------------|----------------------|-----------|------------|------------|
| 01      | 16   | 1500       | 16.3 106.0         | 25                             |                 |                    |                   |                                   |                      | GOES 6    | 2,5 VIS 1  |            |
| 02      | 16   | 1708       | 17.5 105.4         | 25                             |                 |                    |                   |                                   |                      | FIV/DMSP  |            |            |
| 03      | 16   | 1800       | 17.3 106.0         | 25                             |                 |                    |                   |                                   |                      | GOES 6    | 2,3 VIS 1  |            |
| 04      | 17   | 0000       | 18.1 106.1         | 30                             |                 |                    |                   |                                   |                      | GOES 6    | 2,5 IR 8   |            |
| 05      | 17   | 0200       | 18.2 106.6         | 25                             |                 |                    |                   |                                   |                      | FIV/DMSP  |            |            |
| 06      | 17   | 0600       | 18.1 107.2         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 07      | 17   | 1200       | 18.7 108.0         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 08      | 17   | 1648       | 18.6 108.7         | 35                             | 1005            |                    |                   |                                   |                      | SIX/DMSP  |            |            |
| 09      | 17   | 1800       | 18.8 107.5         | 35                             | 1005            |                    |                   |                                   |                      | GOES 6    | 2,5 VIS 1  |            |
| 10      | 18   | 0000       | 19.4 108.1         | 35                             | 1005            |                    |                   |                                   |                      | GOES 6    | 2,3 VIS 1  |            |
| 11      | 18   | 0600       | 19.3 109.2         | 35                             | 1005            |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 12      | 18   | 1200       | 20.3 109.5         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 13      | 18   | 1628       | 21.5 109.7         | 30                             | 1009            |                    |                   |                                   |                      | SIX/DMSP  |            |            |
| 14      | 18   | 1800       | 21.5 109.8         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,3 VIS 1  |            |
| 15      | 19   | 0000       | 21.6 110.5         | 25                             |                 |                    |                   |                                   |                      | GOES 7    | 2,2 VIS 1  |            |
| 16      | 19   | 0135       | 21.8 110.4         | 30                             | 1009            |                    |                   |                                   |                      | FIV/DMSP  |            |            |
| 17      | 19   | 0600       | 22.0 110.6         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 18      | 19   | 1200       | 22.2 111.2         | 25                             |                 |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 19      | 19   | 1609       | 21.1 110.6         | 25                             |                 |                    |                   |                                   |                      | TRE/DMSP  |            |            |
| 20      | 19   | 1800       | 21.1 110.7         | 25                             |                 |                    |                   |                                   |                      | GOES 6    | 2,3 VIS 1  |            |
| 21      | 20   | 0000       | 21.2 110.5         |                                |                 |                    |                   |                                   |                      | GOES 7    | -,2 VIS 1  |            |
| 22      | 20   | 0123       | 21.4 110.5         | 25                             |                 |                    |                   |                                   |                      | FIV/DMSP  |            |            |
| 23      | 20   | 0600       | 21.0 111.0         | 25                             |                 |                    |                   |                                   |                      | GOES 7    | 2,5 IR 8   |            |
| 24      | 20   | 1215       | 21.0 110.0         | 30                             | 1009            |                    |                   |                                   |                      | GOES 6    | 2,5 IR 8   |            |
| 25      | 20   | 1549       | 21.6 110.0         | 25                             |                 |                    |                   |                                   |                      | FIV/DMSP  |            |            |
| 26      | 20   | 1745       | 22.4 109.6         | 30                             | 1009            |                    |                   |                                   |                      | GOES 7    | 2,5 VIS 1  |            |
| 27      | 21   | 0000       | 22.3 110.3         |                                |                 |                    |                   |                                   |                      | GOES 7    | -,5 VIS 1  |            |
| 28      | 21   | 0600       | 22.6 110.7         |                                |                 |                    |                   |                                   |                      | GOES 6    | -,5 IR 4   |            |

CENTER FIXES

hurricane KRISTY

29 August - 06 September 1988

| FIX | DATE | POSITION<br>LAT. LON. | MAX WIND (KT)<br>SFC. FLT.LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | EYE C=CIR.DIA. | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|-----|------|-----------------------|--------------------------------|--------------------|-----------------------|----------------|----------------------|--------------|------------|---------------|
| 01  | 29   | 14.5 102.5            |                                |                    |                       |                |                      |              | - ,5 VIS 1 |               |
| 02  | 29   | 14.2 99.8             | 30                             | 1009               |                       |                |                      |              | 2,5 IR 8   |               |
| 03  | 29   | 14.7 99.7             | 30                             | 1009               |                       |                |                      |              | 2,5 IR 8   |               |
| 04  | 29   | 15.0 101.0            | 30                             | 1009               |                       |                |                      |              | 2,5 VIS 1  |               |
| 05  | 30   | 15.7 102.2            | 30                             | 1009               |                       |                |                      |              | 2,5 VIS 1  |               |
| 06  | 30   | 16.1 103.6            | 45                             | 1000               |                       |                |                      |              | 2,3 IR 8   |               |
| 07  | 30   | 16.3 104.6            | 55                             | 994                |                       |                |                      |              | 2,3 IR 8   |               |
| 08  | 30   | 16.8 105.0            | 30                             | 1009               |                       |                |                      |              |            |               |
| 09  | 30   | 17.2 105.3            | 65                             | 987                |                       |                |                      |              | 2,3 VIS 1  |               |
| 10  | 31   | 17.5 106.0            | 65                             | 987                |                       |                |                      |              | 2,3 VIS 1  |               |
| 11  | 31   | 17.4 106.2            | 55                             | 994                |                       |                |                      |              |            |               |
| 12  | 31   | 17.8 107.0            | 65                             | 987                |                       |                |                      |              | 1,1 IR 8   |               |
| 13  | 31   | 18.2 108.0            | 65                             | 987                |                       |                |                      |              | 2,5 IR 8   |               |
| 14  | 31   | 18.3 108.3            | 65                             | 987                |                       |                |                      |              |            |               |
| 15  | 31   | 18.3 108.4            | 77                             | 979                |                       |                |                      |              | 2,3 VIS 1  |               |
| 16  | 01   | 18.4 109.5            | 77                             | 979                |                       |                |                      |              | 1,1 IR 8   |               |
| 17  | 01   | 18.3 109.7            | 65                             | 987                |                       |                |                      |              |            |               |
| 18  | 01   | 18.5 110.2            | 77                             | 979                |                       |                |                      |              | 2,3 IR 8   |               |
| 19  | 01   | 18.3 110.6            | 77                             | 979                |                       |                |                      |              | 2,3 IR 8   |               |
| 20  | 01   | 17.7 110.9            | 65                             | 987                |                       |                |                      |              |            |               |
| 21  | 01   | 17.6 111.0            | 65                             | 987                |                       |                |                      |              |            |               |
| 22  | 02   | 17.7 111.0            | 55                             | 994                |                       |                |                      |              | 2,1 VIS 1  |               |
| 23  | 02   | 18.2 111.1            | 65                             | 987                |                       |                |                      |              |            |               |
| 24  | 02   | 18.0 111.8            | 55                             | 994                |                       |                |                      |              | 2,5 IR 8   |               |
| 25  | 02   | 17.8 112.4            | 55                             | 994                |                       |                |                      |              | 2,5 IR 8   |               |
| 26  | 02   | 18.2 112.4            | 35                             | 1005               |                       |                |                      |              |            |               |
| 27  | 02   | 18.2 112.8            | 45                             | 1000               |                       |                |                      |              | 2,3 VIS 1  |               |
| 28  | 03   | 18.3 113.2            | 45                             | 1000               |                       |                |                      |              | 2,1 VIS 1  |               |
| 29  | 03   | 18.5 113.3            | 35                             | 1005               |                       |                |                      |              |            |               |
| 30  | 03   | 18.6 113.4            | 45                             | 1000               |                       |                |                      |              | 2,3 IR 8   |               |

CENTER FIXES

HURRICANE KRISTY (continued)

| FIX NO. | DATE | TIME (GMT) | POSITION LAT. ION. | MAX WIND (KT) SFC. FLT. LVL. | MIN. PRES. (MB) | MIN. 700MB HT. (M) | TEMP. C IN OUT | EYE C=CIR.DIA. E=ELIP. (N.MI.) | CHARACTER-ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|--------------------|------------------------------|-----------------|--------------------|----------------|--------------------------------|------------------|-----------|------------|------------|
| 31      | 03   | 1200       | 18.7 113.8         | 30                           | 1009            |                    |                |                                |                  | GOES 6    | 5,3 IR 8   |            |
| 32      | 03   | 1616       | 18.9 114.4         | 25                           |                 |                    |                |                                |                  | TRE/DMSP  |            |            |
| 33      | 03   | 1800       | 18.6 114.5         | 25                           |                 |                    |                |                                |                  | GOES 6    | 2,3 VIS 1  |            |
| 34      | 04   | 0000       | 18.8 114.8         |                              |                 |                    |                |                                |                  | GOES 7    | -,3 VIS 1  |            |
| 35      | 04   | 0140       | 18.8 114.9         | 25                           |                 |                    |                |                                |                  | SIX/DMSP  |            |            |
| 36      | 04   | 0600       | 18.7 115.0         |                              |                 |                    |                |                                |                  | GOES 7    | -,5 IR 8   |            |
| 37      | 04   | 1200       | 18.8 114.8         | 25                           |                 |                    |                |                                |                  | GOES 7    | 2,3 IR 8   |            |
| 38      | 04   | 1738       | 18.9 115.1         | 25                           |                 |                    |                |                                |                  | TRE/DMSP  |            |            |
| 39      | 04   | 1800       | 18.6 115.2         | 25                           |                 |                    |                |                                |                  | GOES 7    | 2,3 VIS 1  |            |
| 40      | 05   | 0000       | 18.9 114.8         |                              |                 |                    |                |                                |                  | GOES 7    | -,3 VIS 1  |            |
| 41      | 05   | 0128       | 18.6 115.1         | 25                           |                 |                    |                |                                |                  | SIX/DMSP  |            |            |
| 42      | 05   | 1200       | 18.4 114.6         | 30                           |                 |                    |                |                                |                  | GOES 7    | 2,5 IR 8   |            |
| 43      | 05   | 1718       | 19.2 114.3         |                              |                 |                    |                |                                |                  | FIV/DMSP  |            |            |
| 44      | 05   | 1800       | 18.8 113.9         | 25                           |                 |                    |                |                                |                  | GOES 7    | 2,3 VIS 1  |            |
| 45      | 06   | 0000       | 18.7 113.4         |                              |                 |                    |                |                                |                  | GOES 7    | -,3 VIS 1  |            |
| 46      | 06   | 0600       | 19.0 113.0         |                              |                 |                    |                |                                |                  | GOES 7    | -,5 IR 8   |            |
| 47      | 06   | 1200       | 18.9 113.1         |                              |                 |                    |                |                                |                  | GOES 6    | -,5 IR 8   |            |

CENTER FIXES

HURRICANE LANE 21-30 SEPTEMBER 1988

| FIX | DATE | TIME | POSITION | MAX WIND (KT) |          | MIN.  | MIN.             | TEMP. C |    | EYE C=CIR.DIA.  | CHARACTER-<br>ISTICS | OBS.     | RESOLUTION | ACFT.<br>ALT. |
|-----|------|------|----------|---------------|----------|-------|------------------|---------|----|-----------------|----------------------|----------|------------|---------------|
|     |      |      | LON.     | SFC.          | FLT.LVL. | PRES. | 700MB<br>HT. (M) | OUT     | IN | E=ELIP. (N.MI.) |                      | UNIT     |            |               |
| 01  | 21   | 0000 |          |               |          |       |                  |         |    |                 |                      | GOES 7   | - ,5 VIS 1 |               |
| 02  | 21   | 0600 |          | 25            |          |       |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |
| 03  | 21   | 1200 |          | 25            |          |       |                  |         |    |                 |                      | GOES 6   | 2,5 IR 8   |               |
| 04  | 21   | 1524 |          | 25            |          |       |                  |         |    |                 |                      | SIX/DMSP |            |               |
| 05  | 21   | 1730 |          | 35            |          | 1005  |                  |         |    |                 |                      | GOES 7   | 2,5 VIS 1  |               |
| 06  | 22   | 0000 |          | 35            |          | 1005  |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 07  | 22   | 0405 |          | 25            |          |       |                  |         |    |                 |                      | SIX/DMSP |            |               |
| 08  | 22   | 0600 |          | 45            |          | 1000  |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |
| 09  | 22   | 1200 |          | 50            |          | 998   |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |
| 10  | 22   | 1646 |          | 45            |          | 1000  |                  |         |    |                 |                      | SIX/DMSP |            |               |
| 11  | 22   | 1800 |          | 55            |          | 994   |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 12  | 23   | 0000 |          | 65            |          | 987   |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 13  | 23   | 0600 |          | 65            |          | 987   |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |
| 14  | 23   | 1200 |          | 77            |          | 979   |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |
| 15  | 23   | 1353 |          | 45            |          | 1000  |                  |         |    |                 |                      | TWO/DMSP |            |               |
| 16  | 23   | 1626 |          | 77            |          | 979   |                  |         |    |                 |                      | ONE/DMSP |            |               |
| 17  | 23   | 1800 |          | 90            |          | 970   |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 18  | 23   | 2247 |          | 77            |          | 979   |                  |         |    |                 |                      | TWO/NOAA |            |               |
| 19  | 24   | 0000 |          | 90            |          | 970   |                  |         |    |                 |                      | GOES 6   | 1,1 VIS 1  |               |
| 20  | 24   | 0237 |          | 77            |          | 979   |                  |         |    |                 |                      | ONE/DMSP |            |               |
| 21  | 24   | 0507 |          | 77            |          | 979   |                  |         |    |                 |                      | ONE/DMSP |            |               |
| 22  | 24   | 0600 |          | 90            |          | 970   |                  |         |    |                 |                      | GOES 7   | 2, - IR 8  |               |
| 23  | 24   | 1133 |          | 77            |          | 979   |                  |         |    |                 |                      | SIX/NOAA |            |               |
| 24  | 24   | 1200 |          | 90            |          | 970   |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 25  | 24   | 1340 |          | 77            |          | 979   |                  |         |    |                 |                      | SIX/DMSP |            |               |
| 26  | 24   | 1606 |          | 77            |          | 979   |                  |         |    |                 |                      | ONE/DMSP |            |               |
| 27  | 24   | 1800 |          | 77            |          | 979   |                  |         |    |                 |                      | GOES 7   | 2,3 VIS 1  |               |
| 28  | 25   | 0000 |          | 77            |          | 979   |                  |         |    |                 |                      | GOES 6   | 2,3 VIS 1  |               |
| 29  | 25   | 0600 |          | 77            |          | 979   |                  |         |    |                 |                      | GOES 6   | 2,3 IR 8   |               |
| 30  | 25   | 1200 |          | 77            |          | 979   |                  |         |    |                 |                      | GOES 7   | 2,5 IR 8   |               |



CENTER FIXES

HURRICANE LANE (Continued)

| FIX NO. | DATE | TIME (UTC) | POSITION<br>LAT. LON. | SFC.  | WIND (KT)<br>FLT.LVL. | MIN. PRES.<br>(MB) | MIN. 700MB<br>HT. (M) | TEMP. C<br>OUT IN | EYE C=CIR.DIA.<br>E=ELIP. (N.MI.) | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|---------|------|------------|-----------------------|-------|-----------------------|--------------------|-----------------------|-------------------|-----------------------------------|----------------------|--------------|------------|---------------|
|         | 25   | 1728       | 17.6 117.2            | 65    |                       | 987                |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 25   | 1800       | 17.5 117.4            | 65-71 |                       | 983                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
|         | 26   | 0000       | 17.8 119.1            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
|         | 26   | 0600       | 17.6 120.0            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
|         | 26   | 0609       | 17.7 120.2            | 45    |                       | 1000               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 26   | 1200       | 17.6 120.9            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
|         | 26   | 1708       | 17.7 121.8            | 55    |                       | 994                |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 26   | 1800       | 17.8 121.9            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 7       | 2,3 VIS 1  |               |
|         | 27   | 0000       | 18.0 122.8            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 6       | 2,5 VIS 1  |               |
|         | 27   | 0549       | 18.8 123.3            | 35    |                       | 1005               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 27   | 0600       | 18.0 123.6            | 65    |                       | 987                |                       |                   |                                   |                      | GOES 6       | 2,3 IR 8   |               |
|         | 27   | 1200       | 18.7 124.3            | 55    |                       | 994                |                       |                   |                                   |                      | GOES 6       | 2,3 IR 8   |               |
|         | 27   | 1800       | 19.6 125.8            | 55    |                       | 994                |                       |                   |                                   |                      | GOES 6       | 1,3 VIS 1  |               |
|         | 27   | 1830       | 20.0 126.0            | 30    |                       | 1009               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 28   | 0000       | 20.1 127.2            | 45    |                       | 1000               |                       |                   |                                   |                      | GOES 6       | 2,2 VIS 1  |               |
|         | 28   | 0600       | 19.8 128.8            | 35    |                       | 1005               |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
|         | 28   | 0711       | 20.2 128.6            | 30    |                       | 1009               |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 28   | 1200       | 20.4 129.6            | 35    |                       | 1005               |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
|         | 28   | 1800       | 21.2 131.0            | 30    |                       | 1009               |                       |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
|         | 28   | 1810       | 20.9 131.2            | 25    |                       |                    |                       |                   |                                   |                      | FOR/DMSF     |            |               |
|         | 29   | 0000       | 21.5 132.3            | 25    |                       |                    |                       |                   |                                   |                      | GOES 6       | 2,3 VIS 1  |               |
|         | 29   | 0600       | 22.1 133.7            | 25    |                       |                    |                       |                   |                                   |                      | GOES 7       | 2,5 IR 8   |               |
|         | 29   | 0651       | 21.6 133.7            | 25    |                       |                    |                       |                   |                                   |                      | FOR/DMSF     |            |               |
|         | 29   | 1200       | 22.4 135.6            | 25    |                       |                    |                       |                   |                                   |                      | GOES 6       | 2,5 IR 8   |               |
|         | 29   | 1750       | 22.9 136.1            |       |                       |                    |                       |                   |                                   |                      | FOR/DMSF     |            |               |
|         | 29   | 1800       | 22.9 136.2            |       |                       |                    |                       |                   |                                   |                      | GOES 6       | - ,5 VIS 1 |               |
|         | 30   | 0030       | 23.1 137.2            |       |                       |                    |                       |                   |                                   |                      | GOES 6       | - ,3 VIS 1 |               |
|         | 30   | 0600       | 22.8 138.1            |       |                       |                    |                       |                   |                                   |                      | GOES 7       | - ,5 IR 8  |               |
|         | 30   | 0631       | 23.6 138.5            |       |                       |                    |                       |                   |                                   |                      | SIX/DMSF     |            |               |
|         | 30   | 1200       | 23.5 139.1            |       |                       |                    |                       |                   |                                   |                      | GOES 6       | - ,5 IR 8  |               |

C FIXES

TROPIC L S

23 SEPTEMBER - 02 NOVEMBER 1988

| FIX NO. | DATE | T    | TION<br>ION. |       | FLT. LVL. | HT. (M) | C<br>IN | EYE C=CIR.DIA. | CHARACTER-<br>ISTICS | OBS.<br>UNIT | RESOLUTION | ACFT.<br>ALT. |
|---------|------|------|--------------|-------|-----------|---------|---------|----------------|----------------------|--------------|------------|---------------|
| 01      | 23   | 1459 | 12.7         | 88.0  | 45        |         |         |                |                      | FIV/<br>GOES | 2,1 VIS 1  |               |
| 02      | 23   | 1800 | 12.8         | 88.5  | 65        |         |         |                |                      | FIV/NOAA     |            |               |
| 03      | 23   | 2222 | 12.8         | 88.9  | 45        |         |         |                |                      | SIX/DMSP     |            |               |
| 04      | 23   | 2347 | 13.1         | 89.1  | 45        |         |         |                |                      | GOES 7       | 2,1 IR 8   |               |
| 05      | 24   | 0000 | 13.1         | 89.5  | 65        |         |         |                |                      | GOES 7       |            |               |
| 06      | 24   | 0600 | 13.5         | 90.2  | 65        |         |         |                |                      | GOES 7       |            |               |
| 07      | 24   | 1200 | 12.9         | 90.3  | 55        |         |         |                |                      | FIV/DMSP     |            |               |
| 08      | 24   | 1232 | 13.3         | 90.8  | 35        |         |         |                |                      | FIV/DMSP     |            |               |
| 09      | 24   | 1439 | 13.7         | 90.9  | 35        |         |         |                |                      | GOES 7       |            |               |
| 10      | 24   | 1800 | 14.1         | 91.4  |           | 1000    |         |                |                      | GOES 7       |            |               |
| 11      | 25   | 0000 | 14.6         | 92.4  | 45        | 1005    |         |                |                      | GOES 7       | - ,5 IR 8  |               |
| 12      | 25   | 0320 | 14.3         | 93.7  | 35        | 1000    |         |                |                      | FIV/DMSP     |            |               |
| 13      | 25   | 0600 | 14.6         | 93.1  | 45        | 1000    |         |                |                      | GOES 7       |            |               |
| 14      | 25   | 1200 | 14.7         | 93.8  | 45        | 1000    |         |                |                      | GOES 7       | 2,5 IR 8   |               |
| 15      | 25   | 1800 | 13.6         | 94.0  | 45        | 1000    |         |                |                      | GOES 7       | 2,3 VIS 1  |               |
| 16      | 26   | 0000 | 13.3         | 94.7  | 30        | 1009    |         |                |                      | GOES 7       | 2,5 IR 8   |               |
| 17      | 26   | 0441 | — . —        | — . — | 35        | 1005    |         |                |                      | ---/DMSP     |            |               |
| 18      | 26   | 0600 | 13.5         | 95.2  | 30        | 1009    |         |                |                      | GOES 7       | IR 8       |               |
| 19      | 26   | 1200 | 13.3         | 95.5  |           |         |         |                |                      | GOES 7       | IR 8       |               |
| 20      | 26   | 1541 | 12.3         | 96.5  | 25        |         |         |                |                      | TRE/DMSP     |            |               |
| 21      | 26   | 1800 | 12.1         | 96.4  |           |         |         |                |                      | GOES 7       | - ,3 VIS 1 |               |
| 22      | 27   | 0000 | 11.8         | 96.8  |           |         |         |                |                      |              | - ,3 IR 8  |               |
| 23      | 27   | 0421 | 11.6         | 97.4  | 25        |         |         |                |                      |              | - IR 8     |               |
| 24      | 27   | 0600 | 11.9         | 97.7  |           |         |         |                |                      |              |            |               |
| 25      | 27   | 1521 | 11.6         | 97.7  | 25        |         |         |                |                      |              |            |               |
| 26      | 27   | 1800 | 11.8         | 97.8  |           |         |         |                |                      | GOES 7       | - ,5 VIS 1 |               |
| 27      | 28   | 0000 | 11.7         | 99.9  | 25        |         |         |                |                      | GOES 7       | 1,5 VIS 1  |               |
| 28      | 28   | 0402 | 12.1         | 99.3  | 25        |         |         |                |                      | FIV/DMSP     |            |               |
| 29      | 28   | 0600 | 12.0         | 100.0 |           |         |         |                |                      | GOES 7       | - , - IR 8 |               |
| 30      | 30   | 0000 | 12.1         | 108.0 |           |         |         |                |                      | GOES 6       | - ,5 VIS 1 |               |

CENTER FIXES

TROPICAL STORM MIRIAM (Continued)

| FIX NO. | DATE | TIME (UTC) | POSITION LAT. LON. | MAX WIND (KT) SFC. FLT.LVL. | MIN. PRES. (MB) | MIN. 700MB HT. (M) | TEMP. C OUT IN | EYE C=CIR.DIA. E=ELIP. (N.MI.) | CHARACTER-ISTICS | OBS. UNIT | RESOLUTION | ACFT. ALT. |
|---------|------|------------|--------------------|-----------------------------|-----------------|--------------------|----------------|--------------------------------|------------------|-----------|------------|------------|
| 31      | 30   | 1200       | 13.2 108.4         |                             |                 |                    |                |                                |                  | GOES 7    | 2,5 IR 8   |            |
| 32      | 30   | 1603       | 13.2 110.4         | 25                          |                 |                    |                |                                |                  | FIV/DMSP  |            |            |
| 33      | 30   | 1800       | 13.2 110.4         | 25                          |                 |                    |                |                                |                  | GOES 6    | 2,3 VIS 1  |            |
| 34      | 31   | 0000       | 14.0 111.5         | 25                          |                 |                    |                |                                |                  | GOES 7    | 2,5 — —    |            |
| 35      | 31   | 0444       | 14.2 111.1         | 25                          |                 |                    |                |                                |                  | FIV/DMSP  |            |            |
| 36      | 31   | 0600       | 14.4 112.5         | 25                          |                 |                    |                |                                |                  | GOES 7    | 2,5 IR 8   |            |
| 37      | 31   | 1200       | 15.0 113.3         | 30                          |                 |                    |                |                                |                  | GOES 7    | 2,5 IR 8   |            |
| 38      | 31   | 1724       | 15.9 112.8         | 35                          | 1005            |                    |                |                                |                  | FIV/DMSP  |            |            |
| 39      | 31   | 1800       | 15.9 113.7         | 30                          | 1009            |                    |                |                                |                  | GOES 7    | 2,3 VIS 1  |            |
| 40      | 01   | 0000       | 16.5 114.0         | 30                          | 1009            |                    |                |                                |                  | GOES 6    | 2,3 VIS 1  |            |
| 41      | 01   | 0600       | 16.9 114.8         | 30                          | 1009            |                    |                |                                |                  | GOES 6    | 2,5 IR 8   |            |
| 42      | 01   | 0605       | 17.3 113.8         | 35                          | 1005            |                    |                |                                |                  | FIV/DMSP  |            |            |
| 43      | 01   | 1200       | 17.6 115.8         | 30                          | 1009            |                    |                |                                |                  | GOES 6    | 2,3 IR 8   |            |
| 44      | 01   | 1705       | 18.1 116.3         | 35                          | 1005            |                    |                |                                |                  | FIV/DMSP  |            |            |
| 45      | 01   | 1800       | 17.9 117.1         | 35                          | 1005            |                    |                |                                |                  | GOES 6    | 2,3 VIS 1  |            |
| 46      | 02   | 0000       | 18.0 117.0         | 35                          | 1005            |                    |                |                                |                  | GOES 6    | 2,5 VIS 1  |            |
| 47      | 02   | 0545       | 18.4 118.9         | 35                          | 1005            |                    |                |                                |                  | TRE/DMSP  |            |            |
| 48      | 02   | 0600       | 18.0 117.4         | 35                          | 1005            |                    |                |                                |                  | GOES 7    | 2,5 IR 8   |            |
| 49      | 02   | 1200       | 18.4 117.9         | 25                          |                 |                    |                |                                |                  | GOES 6    | 2,5 IR 8   |            |
| 50      | 02   | 1645       | 19.0 119.4         | 25                          |                 |                    |                |                                |                  | FOR/DMSP  |            |            |
| 51      | 02   | 1800       | 18.7 119.1         |                             |                 |                    |                |                                |                  | GOES 6    | —,5 VIS 1  |            |