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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.

REFERENCES

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- Leftwich, P.W., 1981: A Statistical-Dynamical Model for Prediction of Tropical Cyclone Motion in the Eastern North Pacific Ocean. NOAA Technical Memorandum NWS WR-169, U.S. Department of Commerce, National Weather Service, Western Region.
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- Pike, A. C., 1972: "Improved Barotropic Hurricane Track Prediction by Adjustment of the Initial Wind Field," NOAA Technical Memorandum NWS SR-66, 16 pp.
- 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.

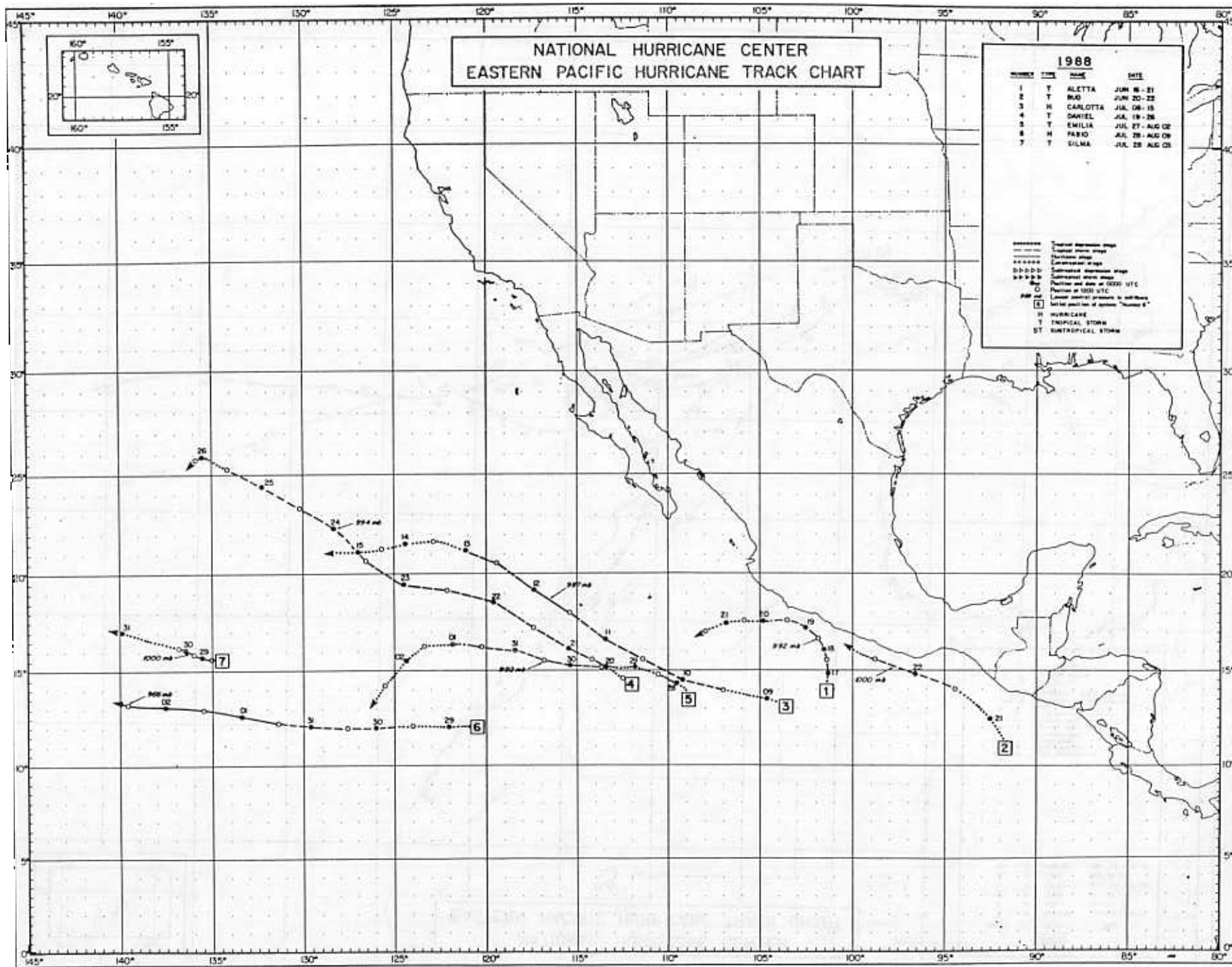
Table 1. Verification of 1988 tropical storm and hurricane forecasts.
Figures in parentheses are the number of cases.

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
 (X) Position and date at 1200 UTC
 (X) Position at 1200 UTC
 (X) Lower center pressure in mb (inches Hg)
 (X) Initial position of system "Name 1"
 H HURRICANE
 T TROPICAL STORM
 ST SUBTROPICAL STORM

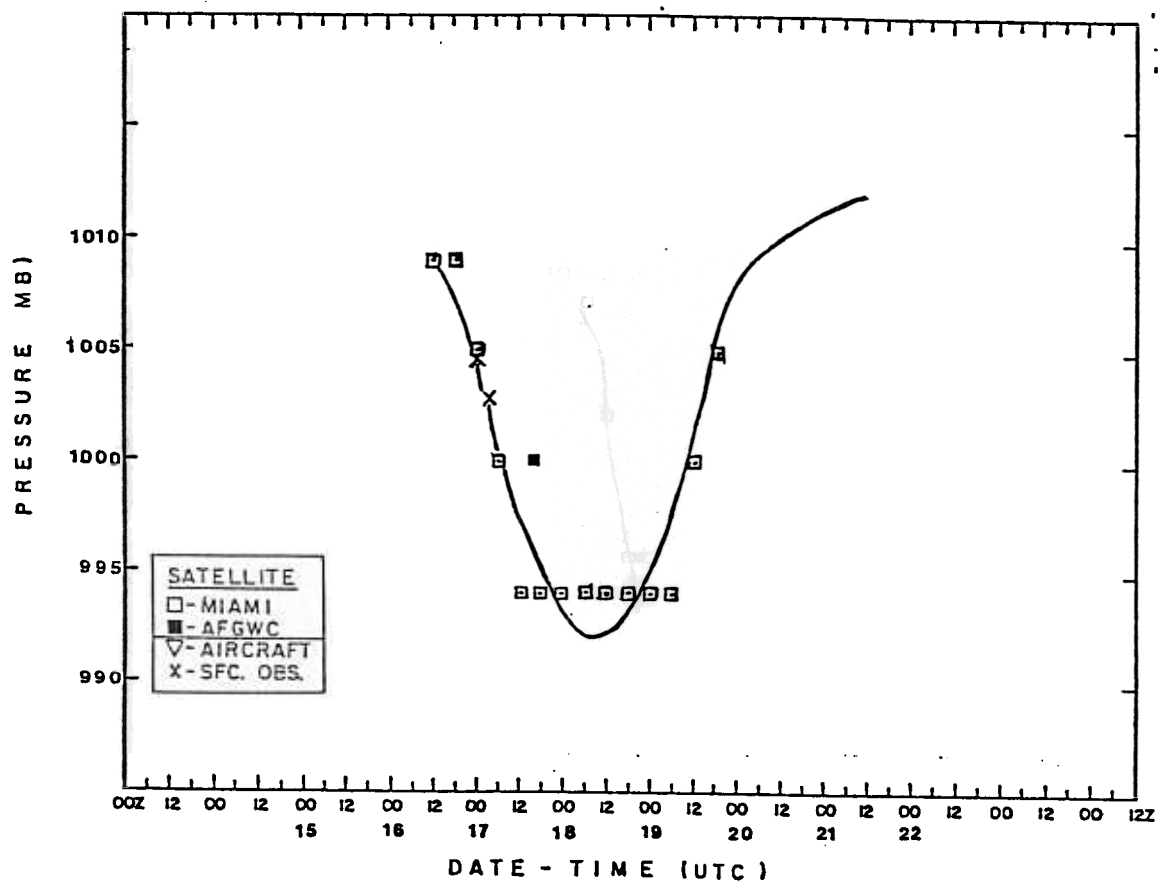


Fig. 2. "Best track" minimum pressure curve for Tropical Storm Aletta, 16-21 June 1988.

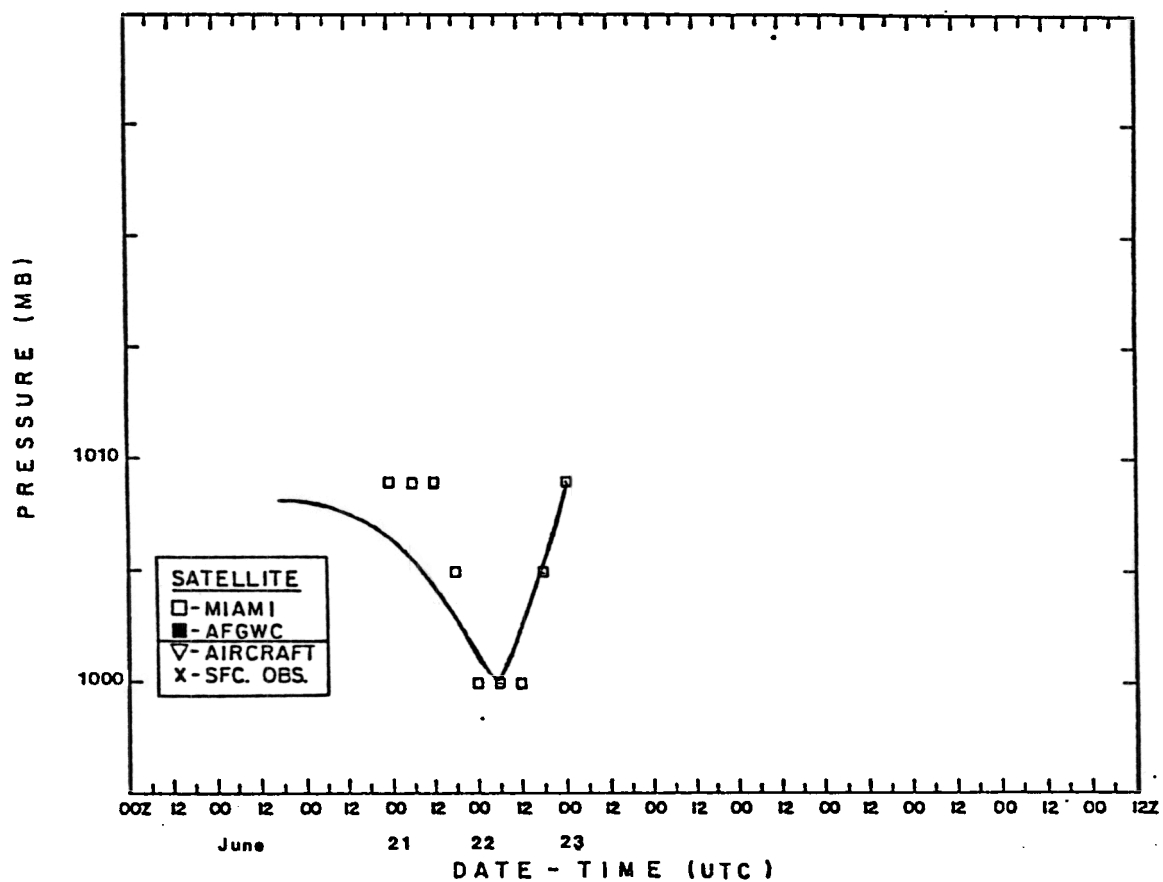


Fig. 2. Minimum central pressure for Tropical Storm Bud, 20-22 June 1988.

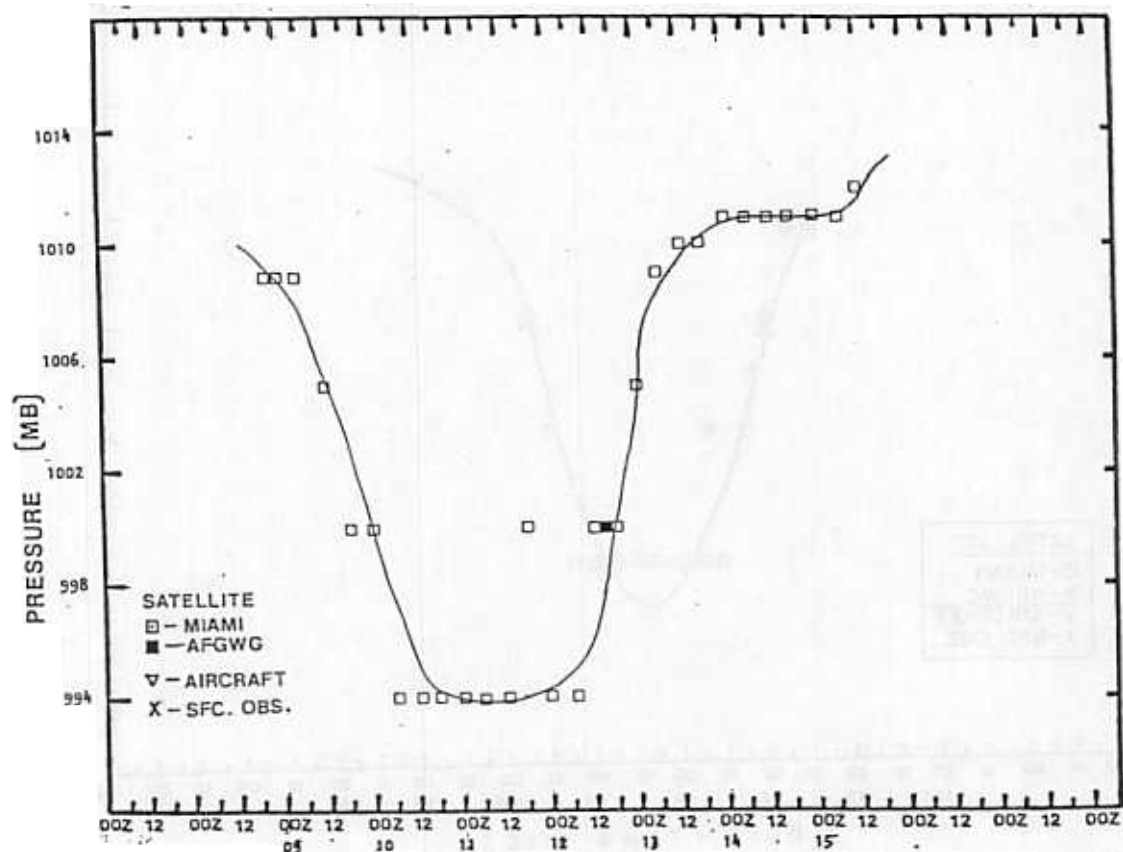
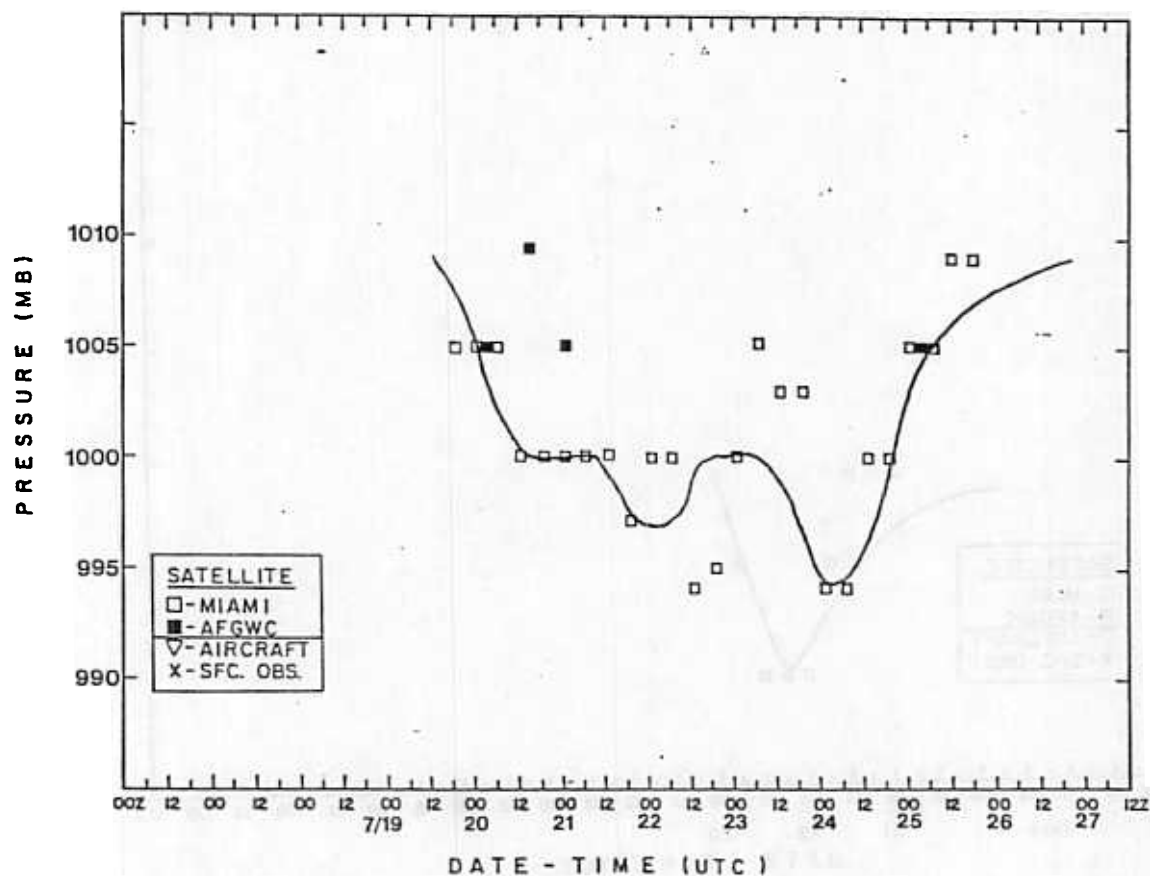


Fig. 2. Minimum central pressure for Tropical Storm Carlotta, 8-15 July 1988.



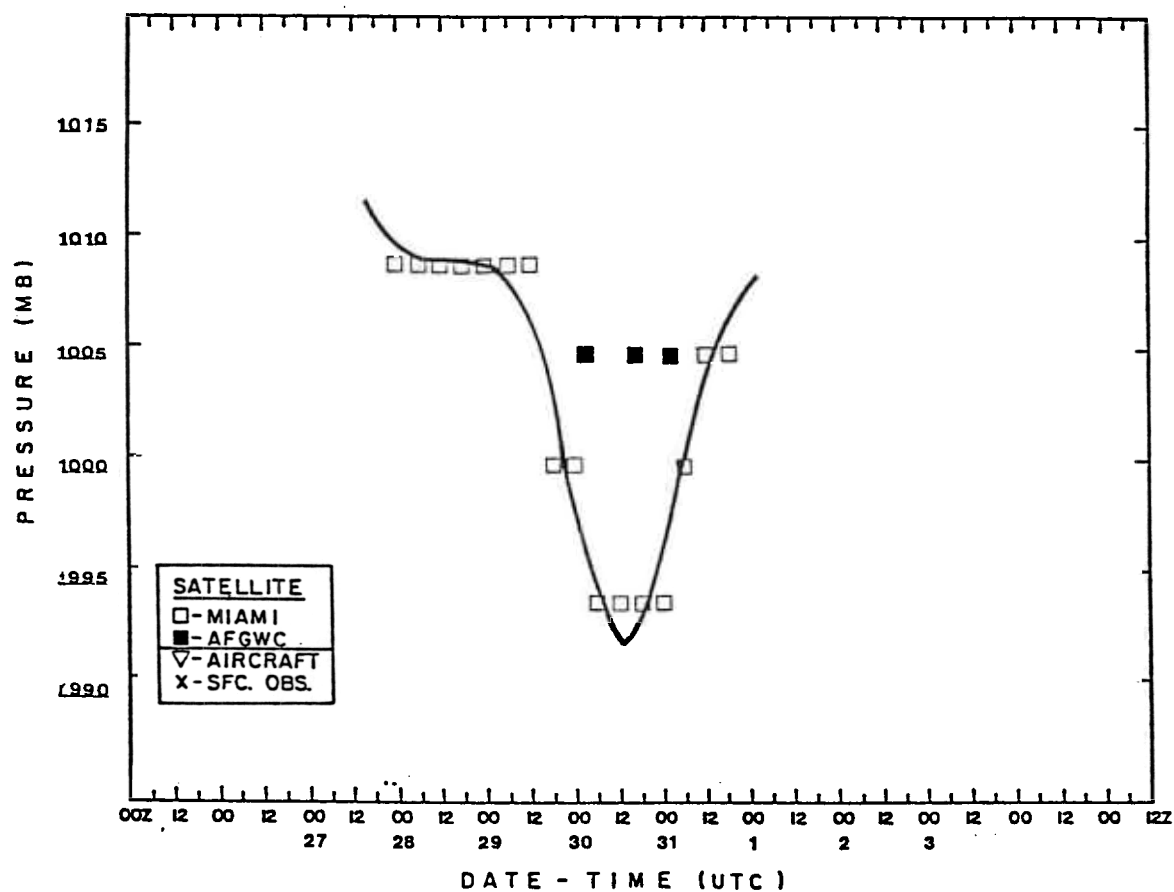


Fig. 2. Best track minimum central pressure curve for Tropical Storm Emilia, 27 July-2 August, 1988.

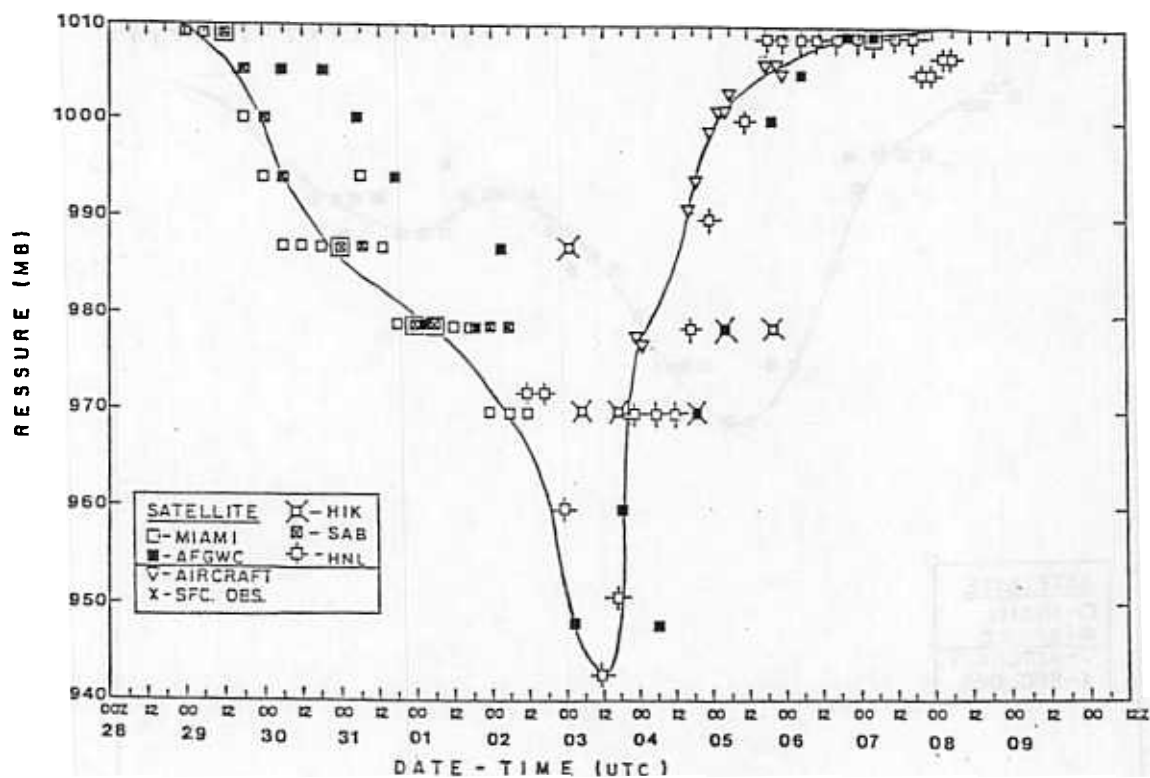


Fig. 2. Best track minimum central pressure curve for Hurricane Fabio, 28 July-9 August, 1988.

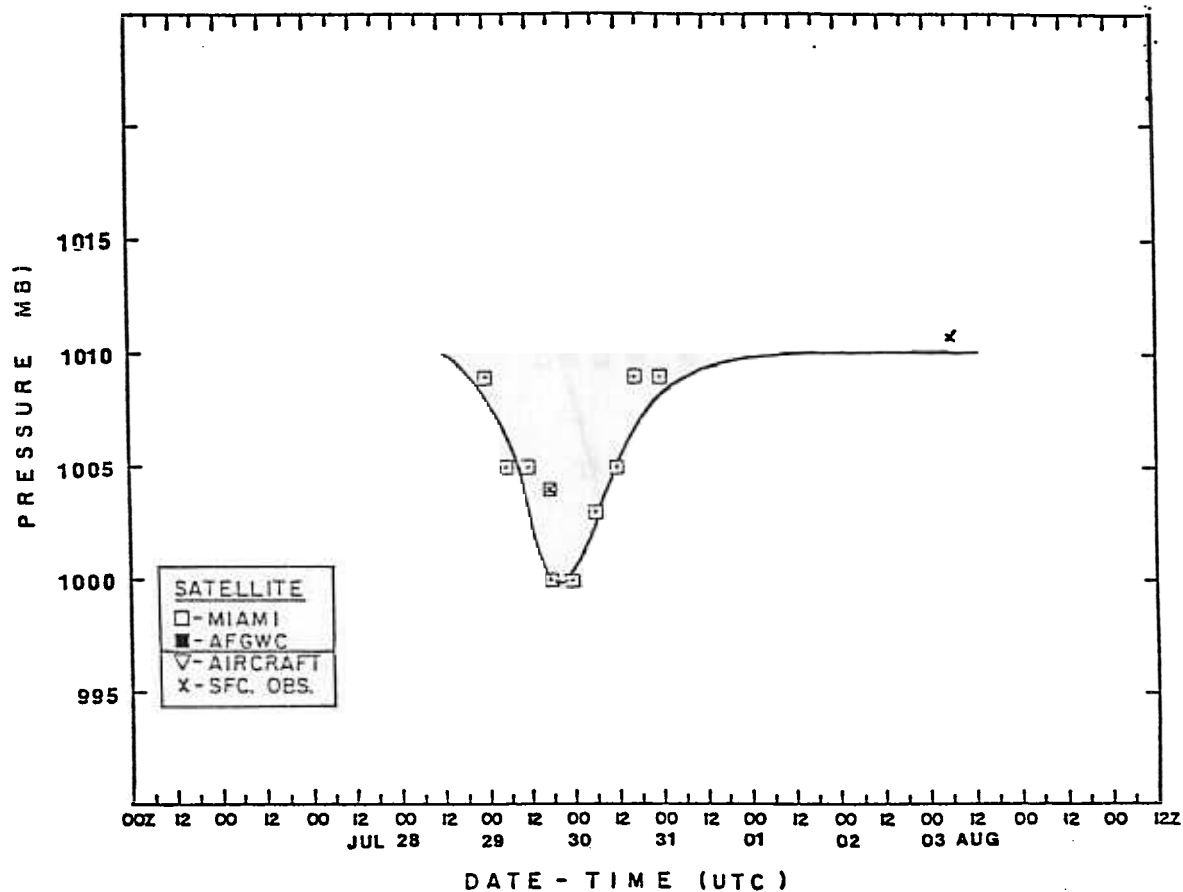


Fig. 2. Best track minimum central pressure curve for Tropical Storm Gilma, 28 July-3 August, 1988.

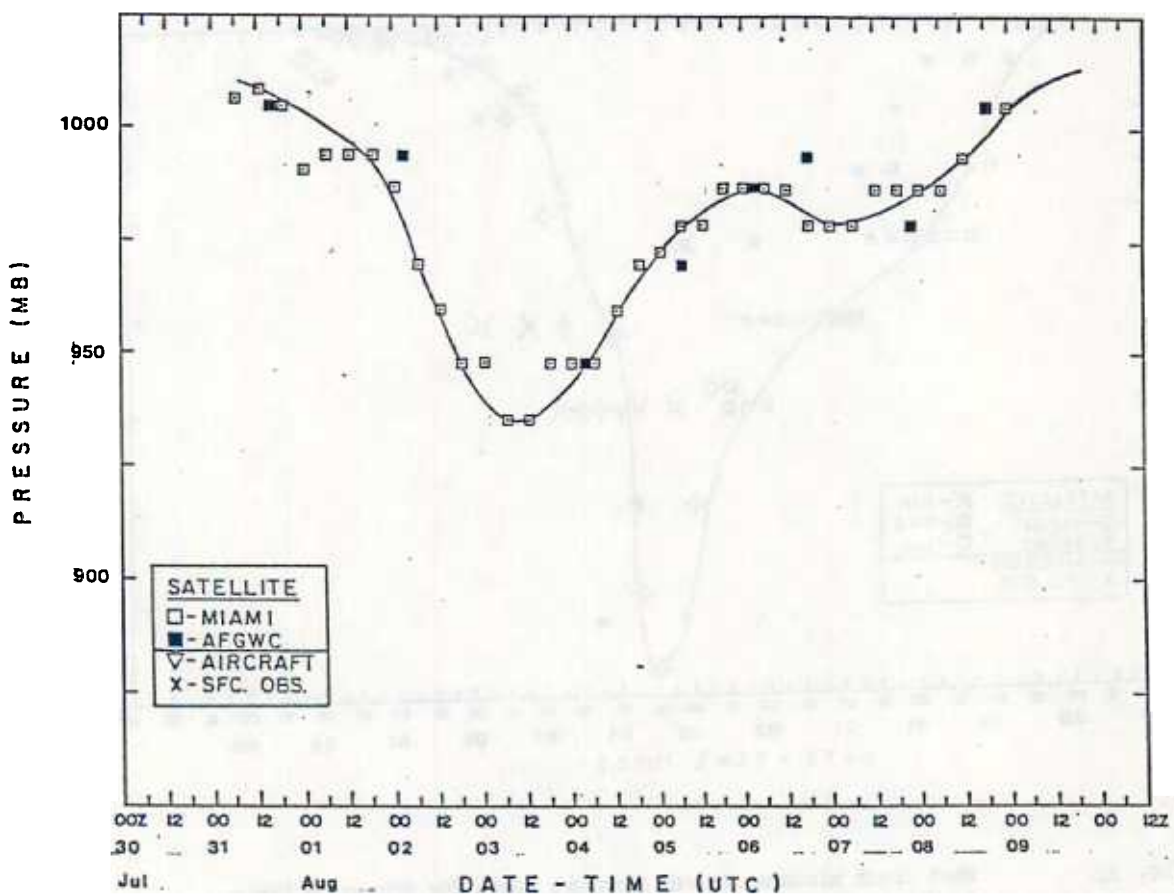


Fig. 2.: Best track minimum central pressure curve for Hurricane Hector, 31 July-9 August, 1988. 10

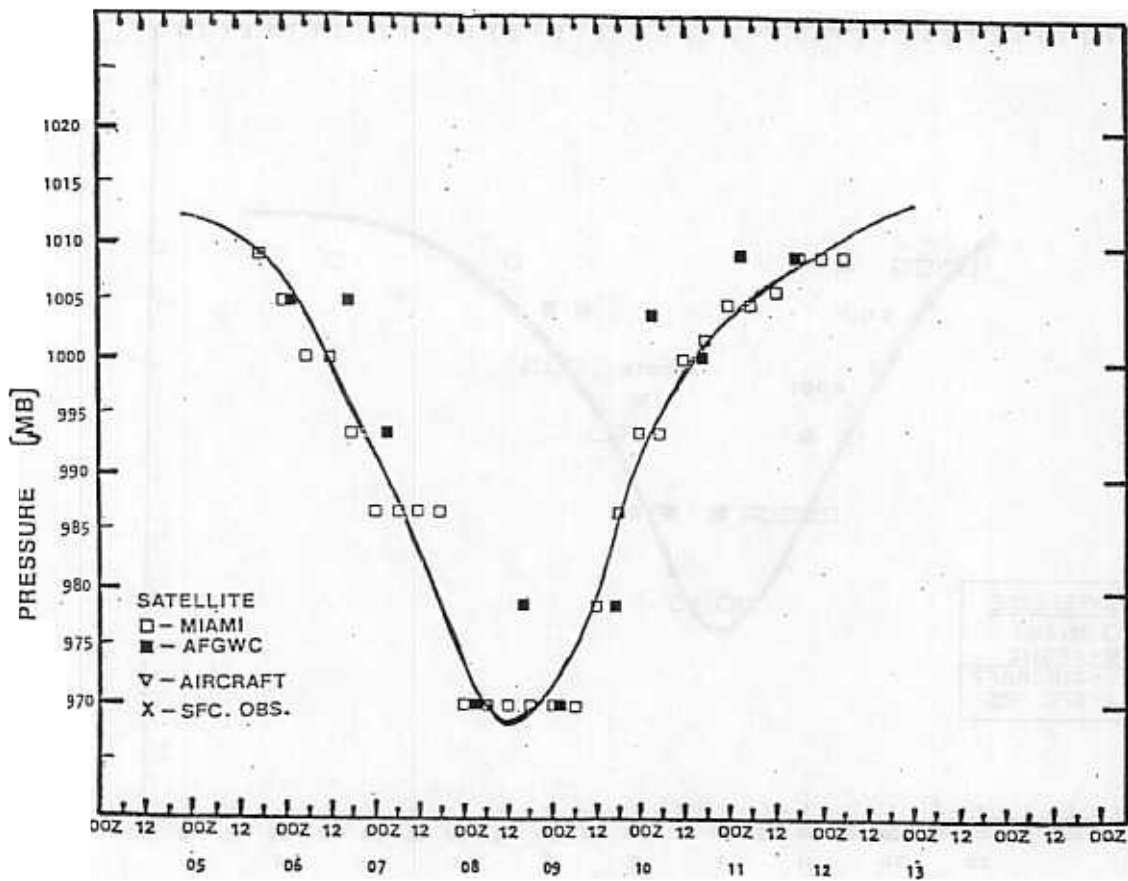


Fig. 2. Best track minimum central pressure curve for Hurricane Iva, 5-13 August, 1988.

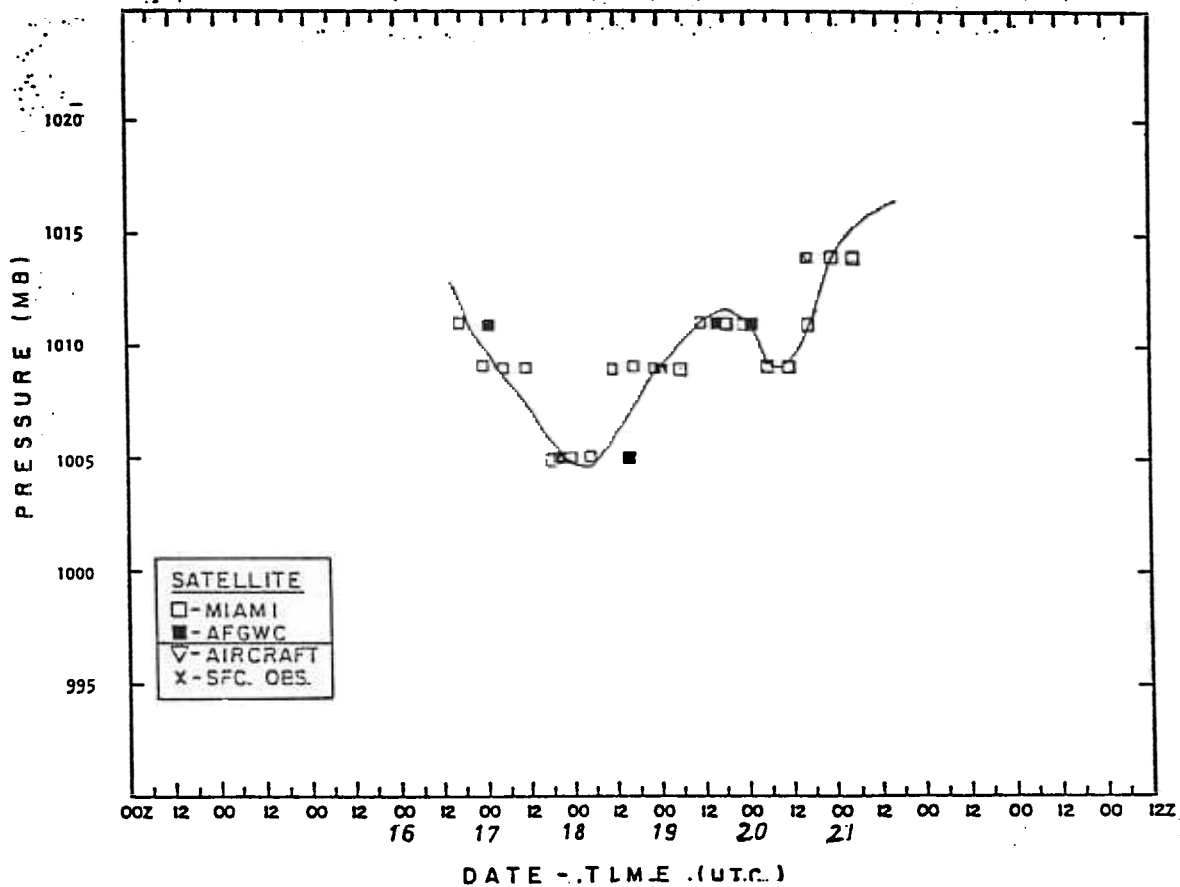


Fig. 2. Best track minimum central pressure curve for Tropical Storm John, 16-21 August, 1988.

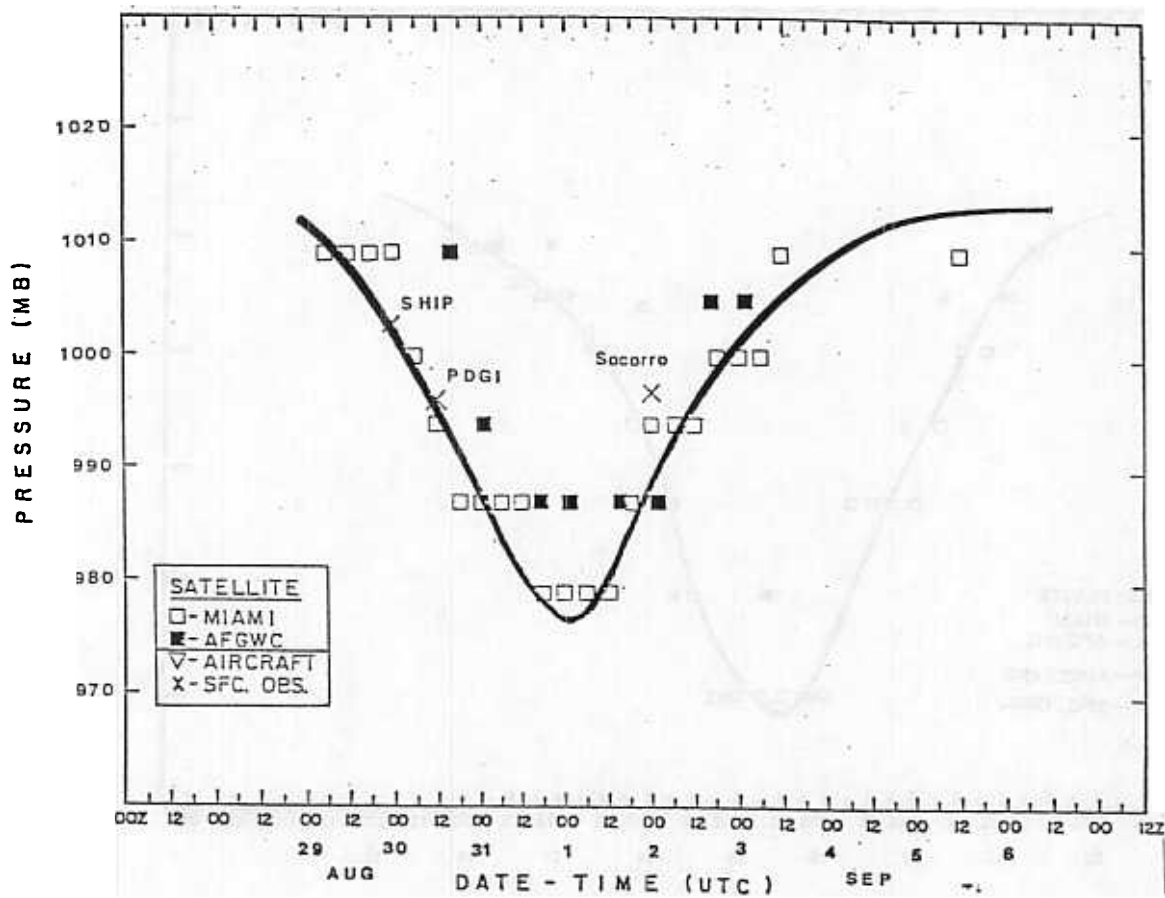


Fig. 2. Best track minimum central pressure curve for Tropical Storm Kristy, 29 August-6 September, 1988.

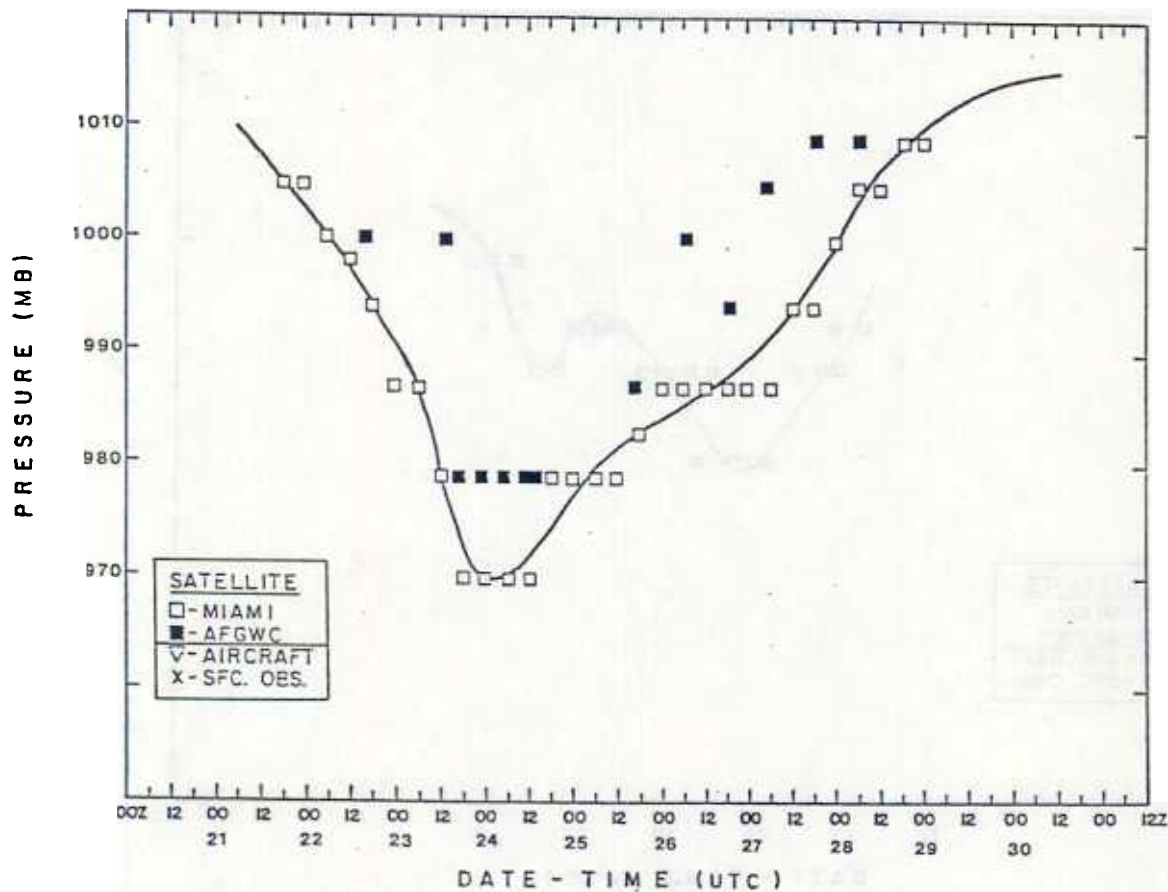


Fig. 2. Best track minimum central pressure curve for Hurricane Lane, 21-30 September, 1988.

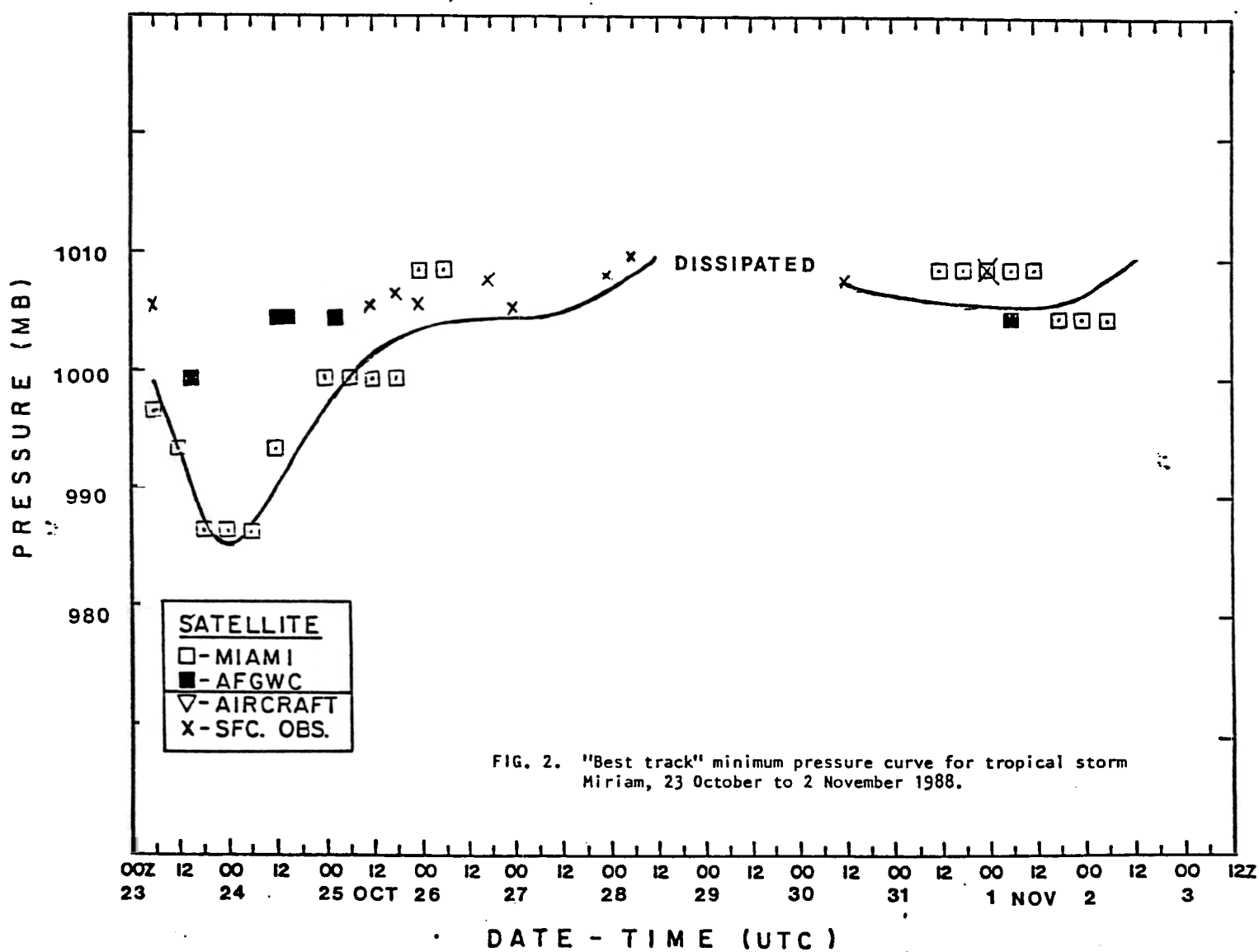
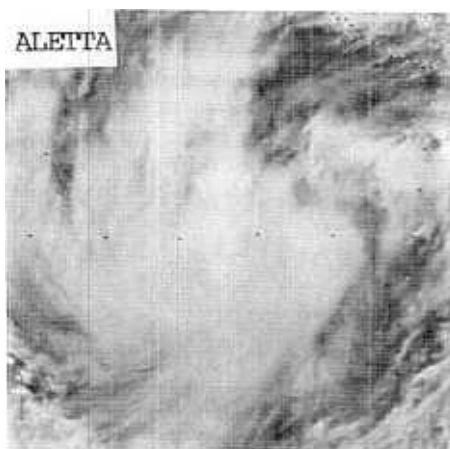
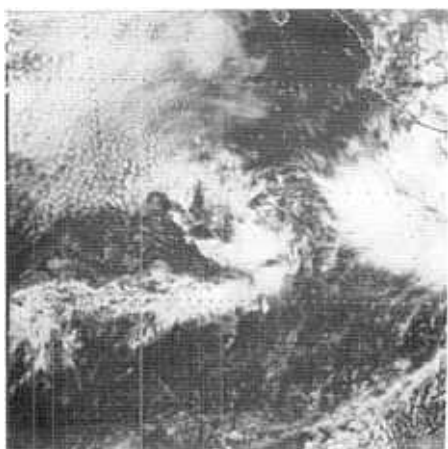


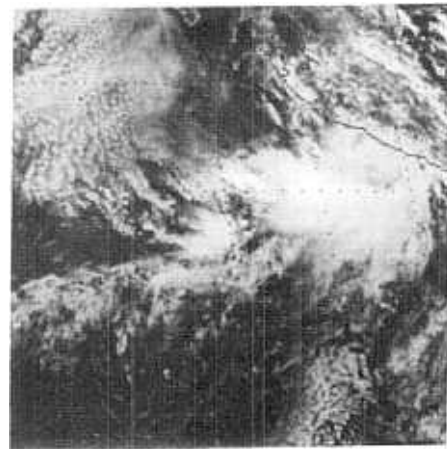
Figure 3. Daily satellite photographs of 1988 Eastern Pacific cyclones.



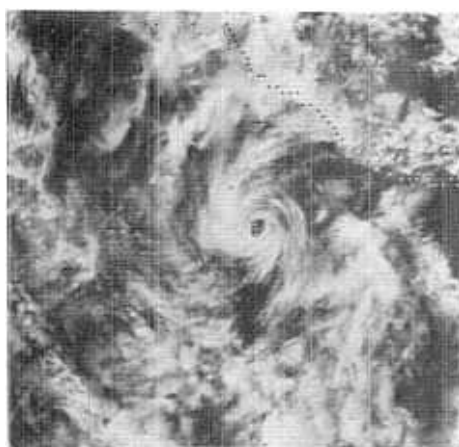
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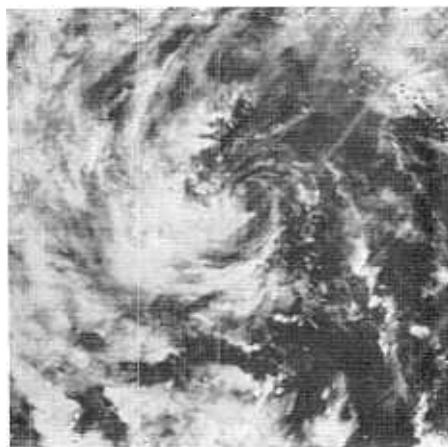
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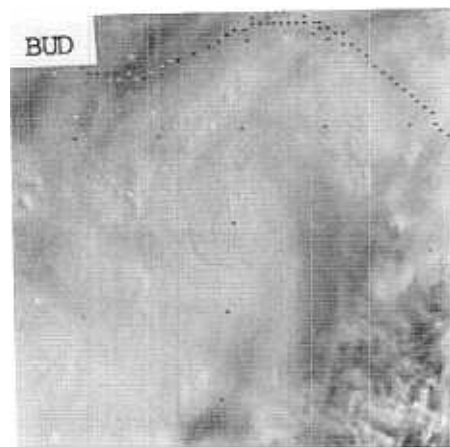
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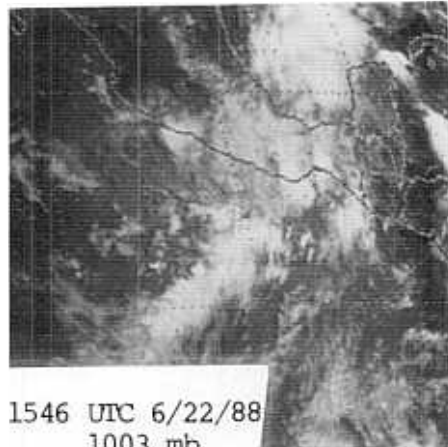
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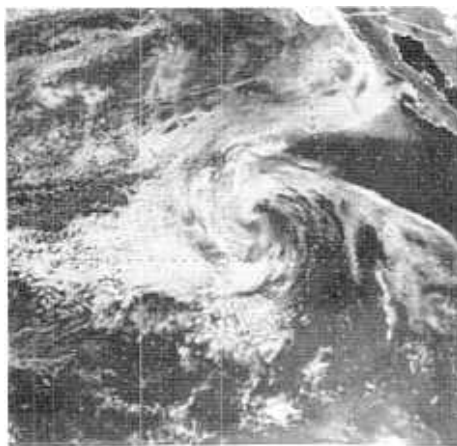
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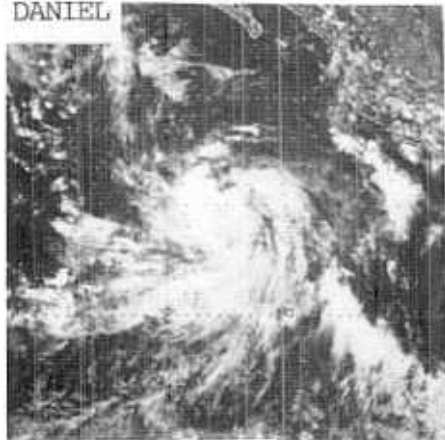


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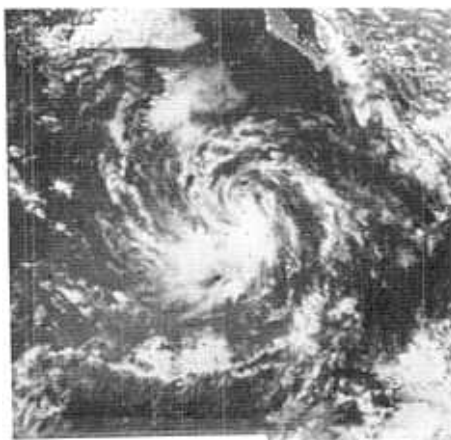


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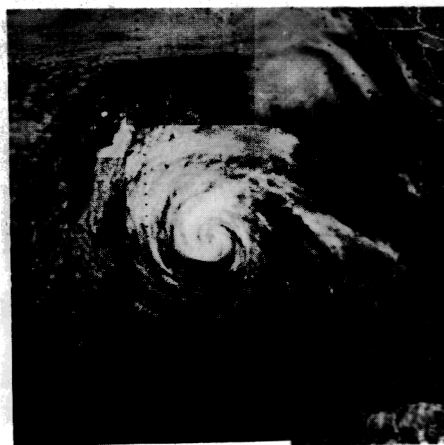
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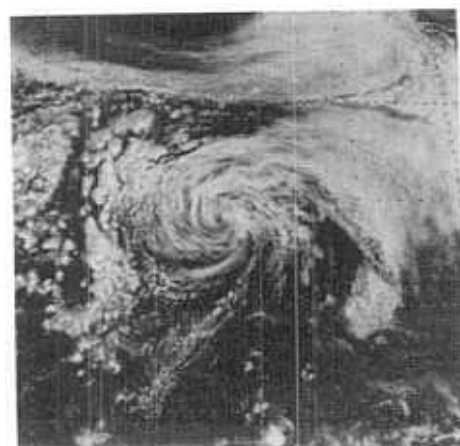
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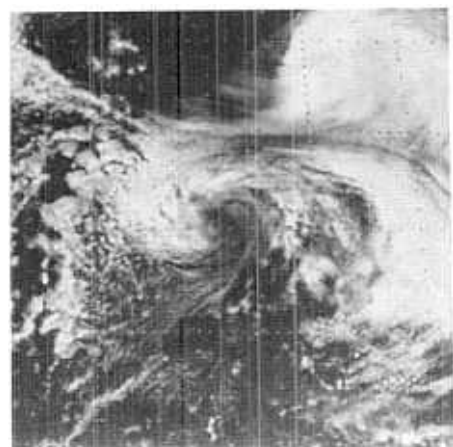
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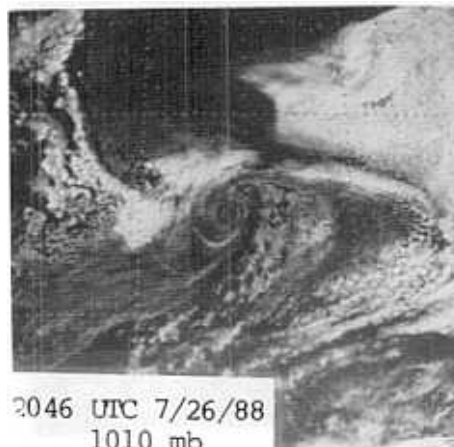
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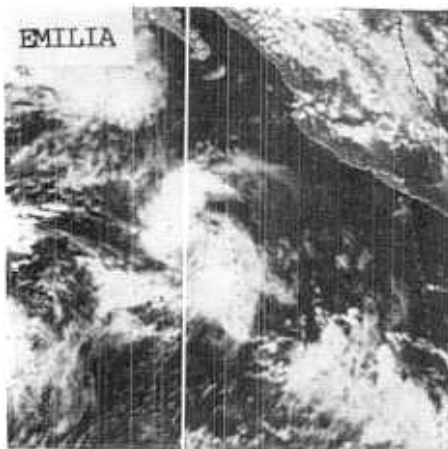
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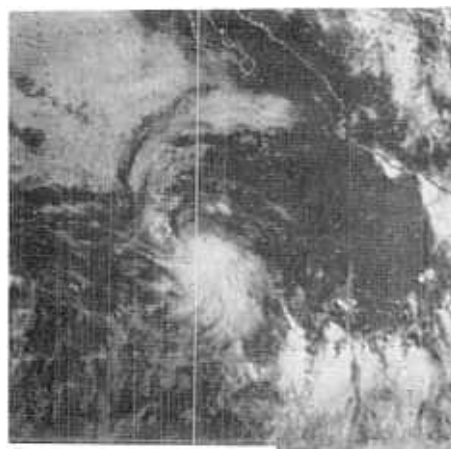
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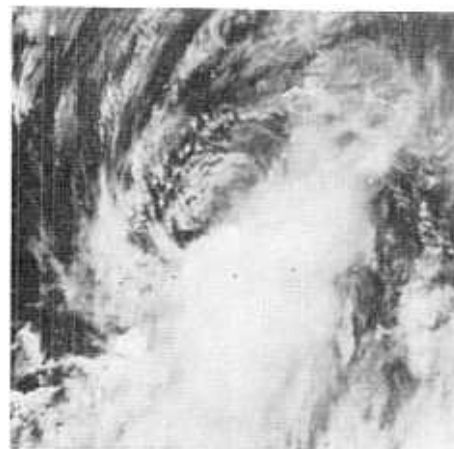
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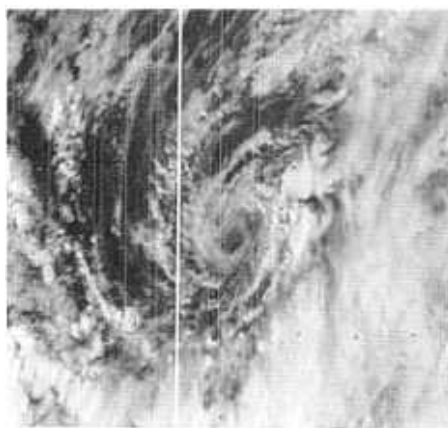
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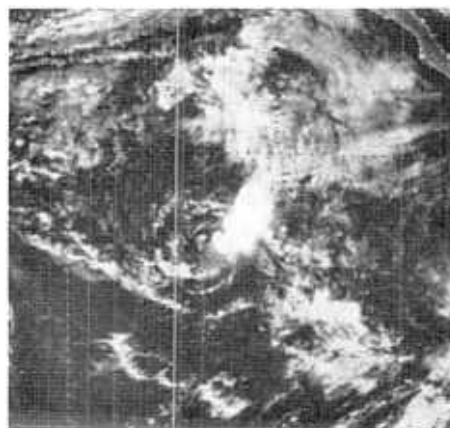
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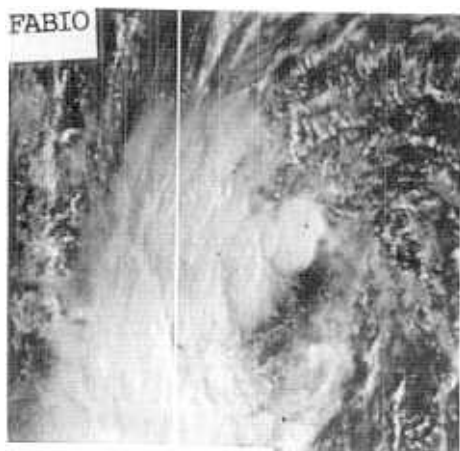
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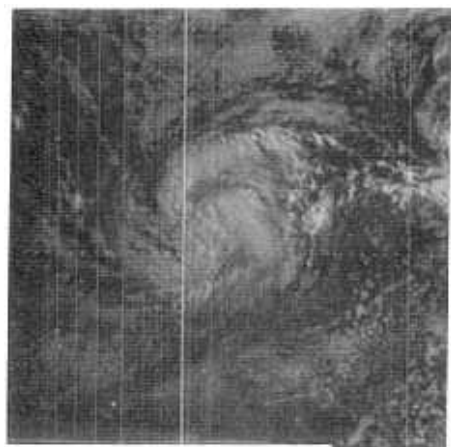
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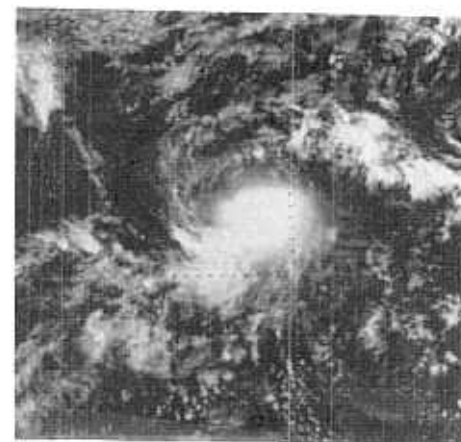
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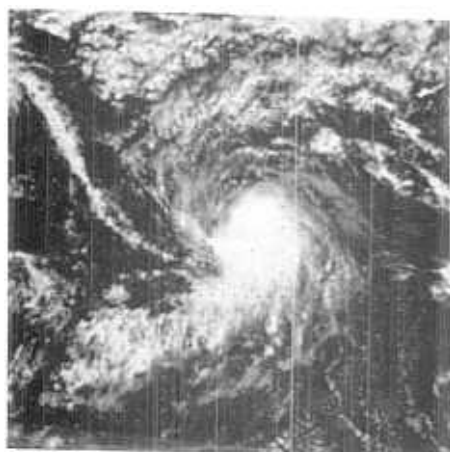
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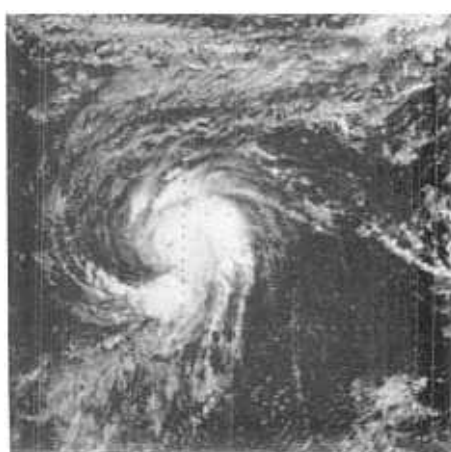
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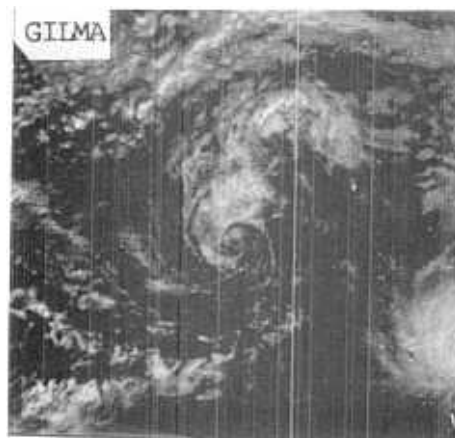
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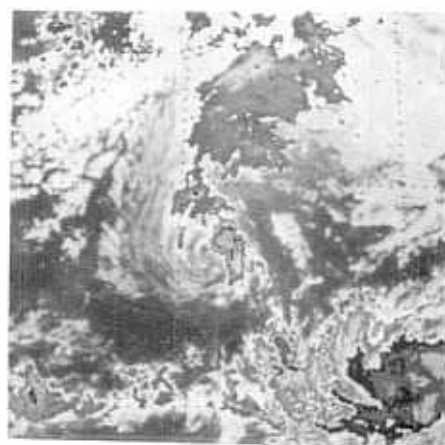
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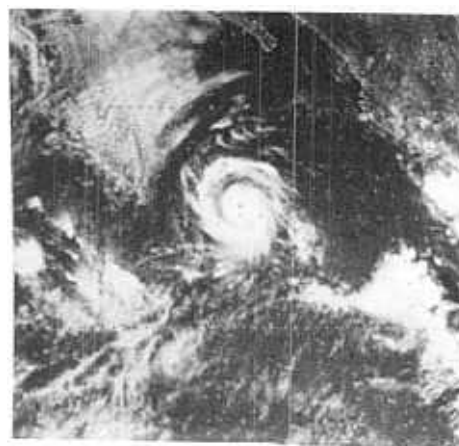
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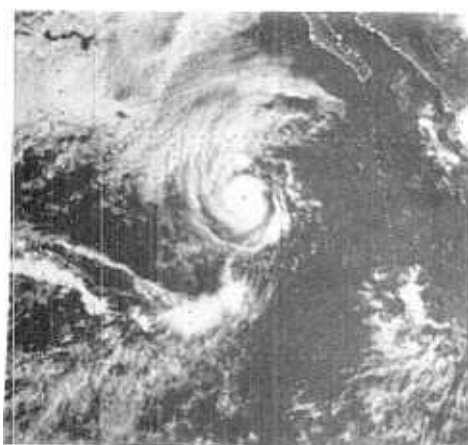
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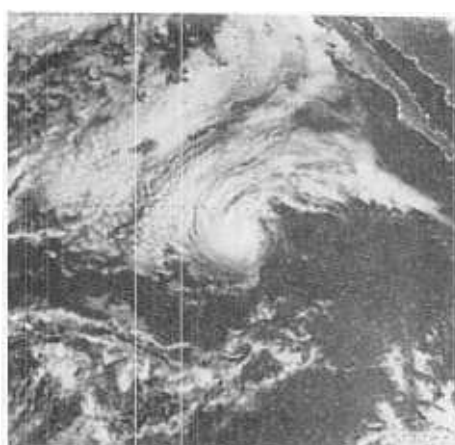
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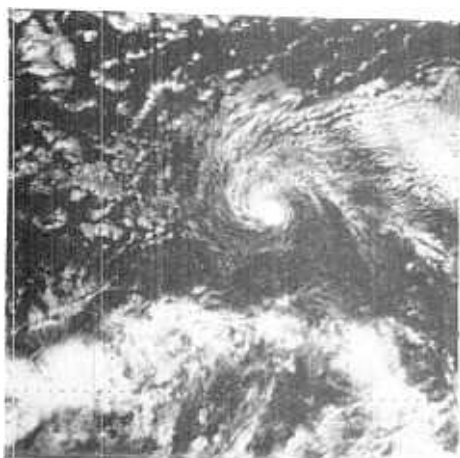
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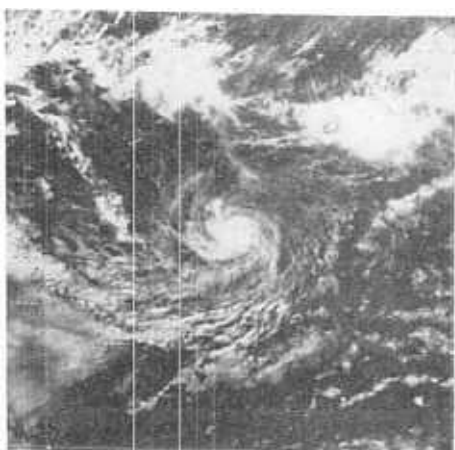
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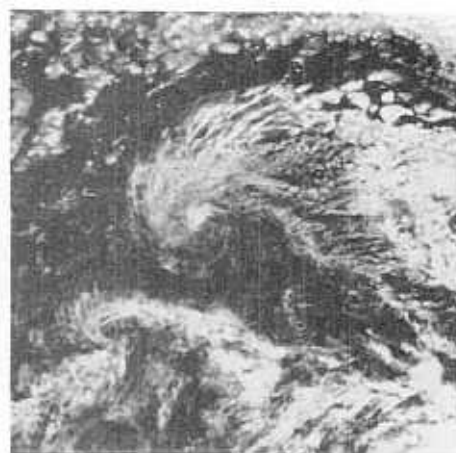
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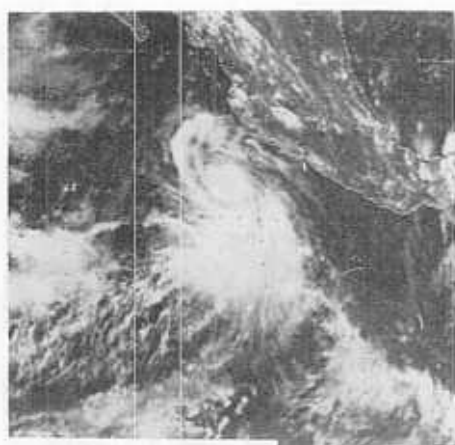
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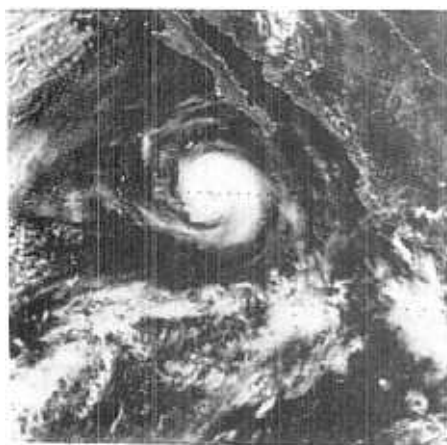
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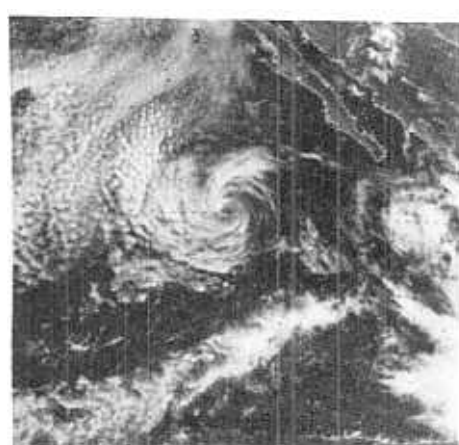
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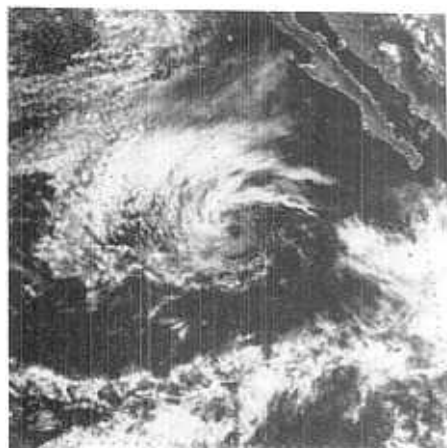
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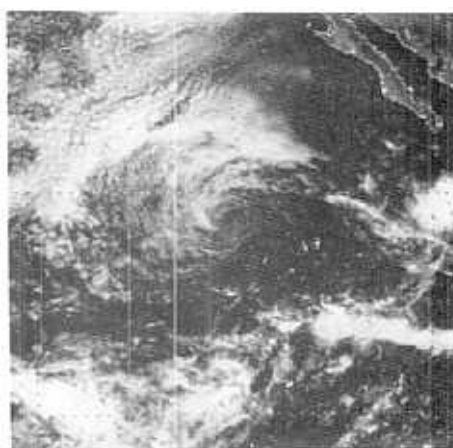
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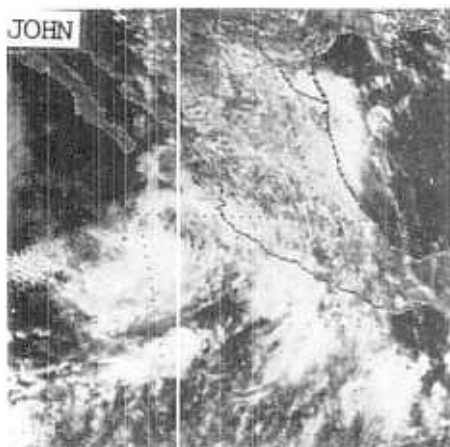
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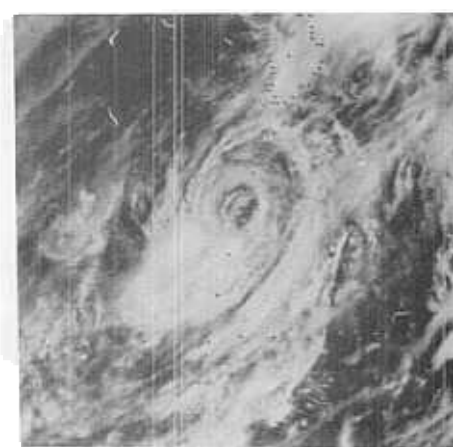
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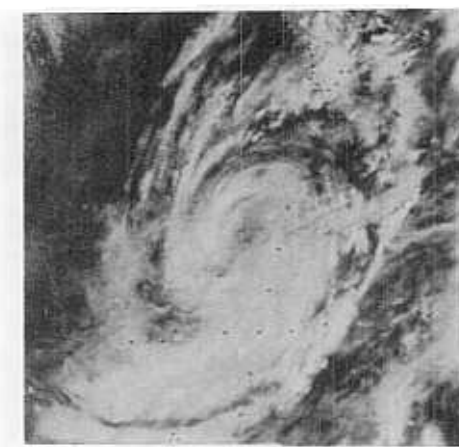
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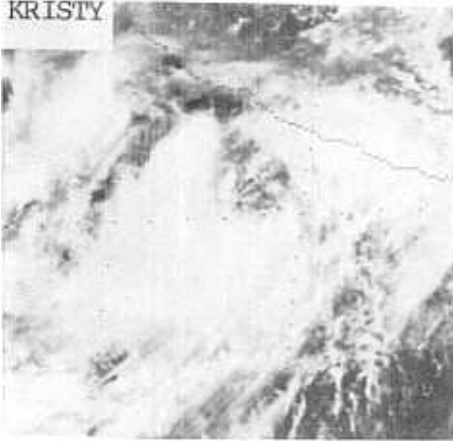


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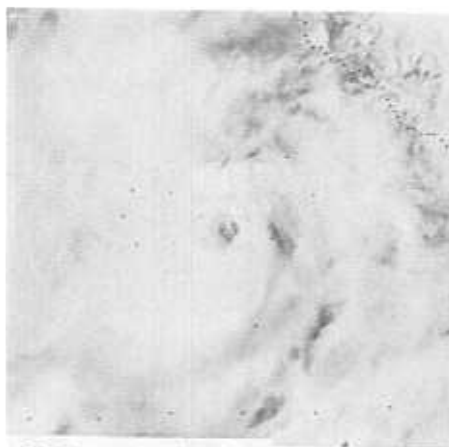


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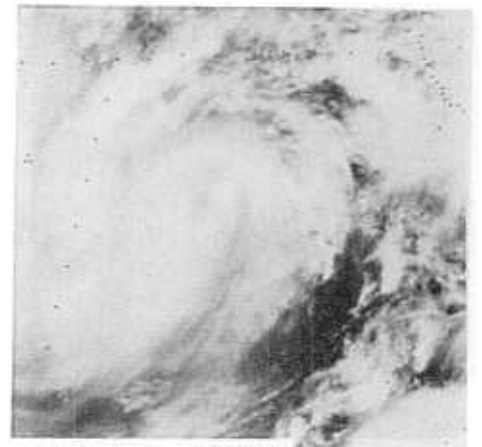
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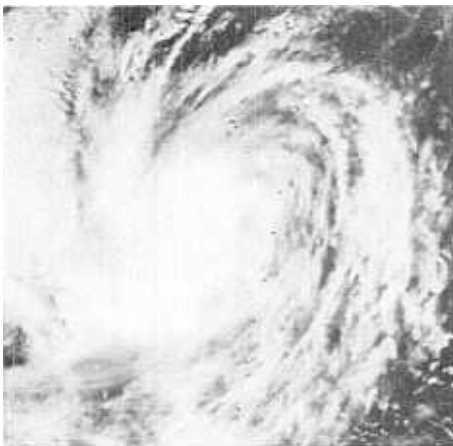
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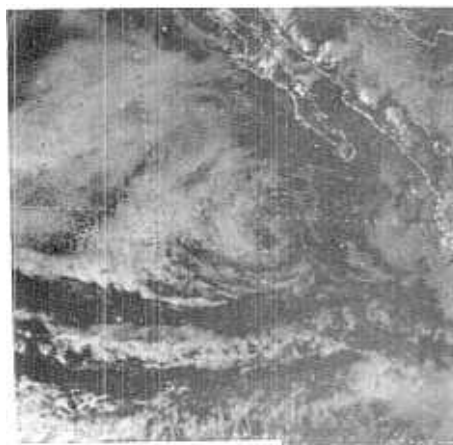
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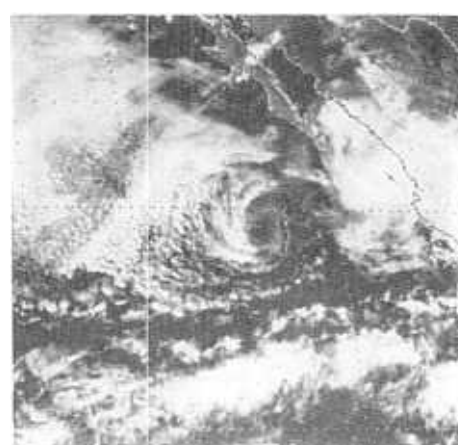
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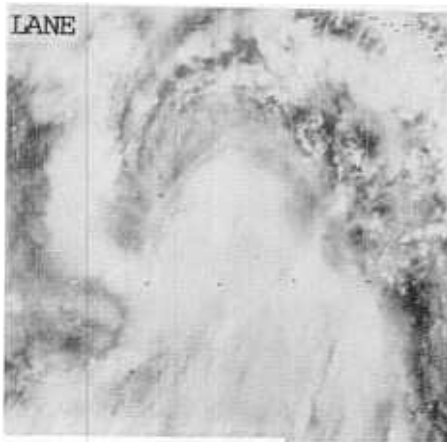
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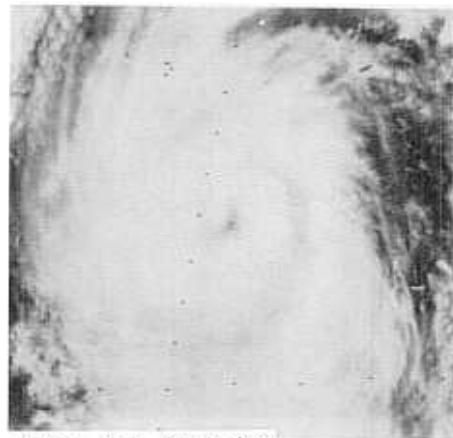
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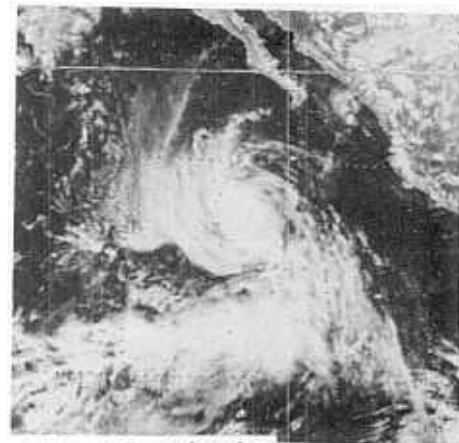
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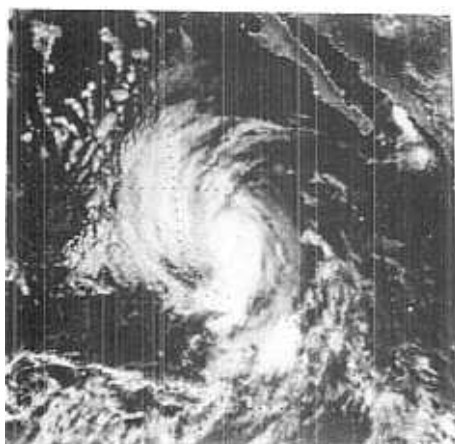
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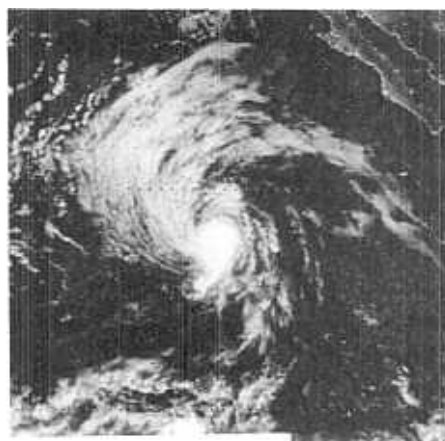
1931 UTC 9/23/88
974 mb



2046 UTC 9/24/88
974



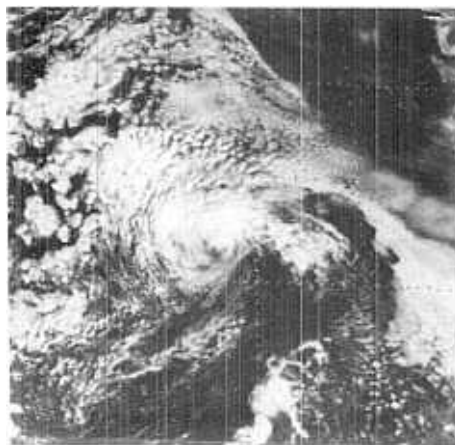
1746 UTC 9/25/88
983 mb



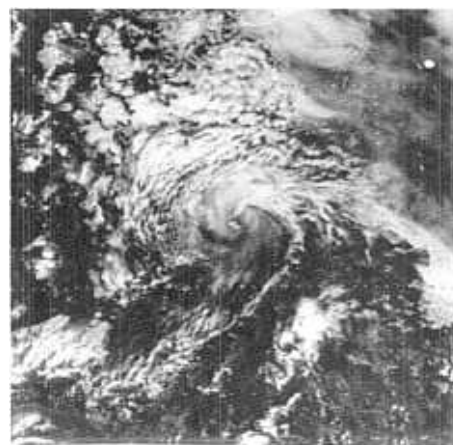
746 UTC 9/26/88
988



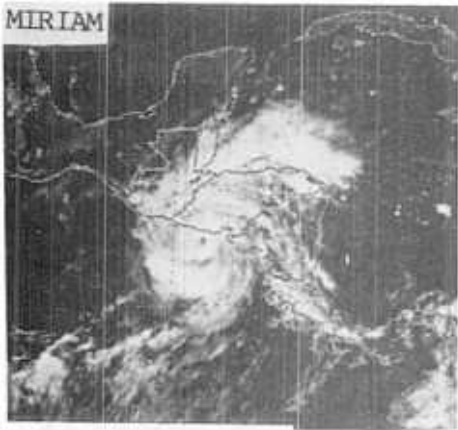
2046 UTC 9/27/88
988 mb



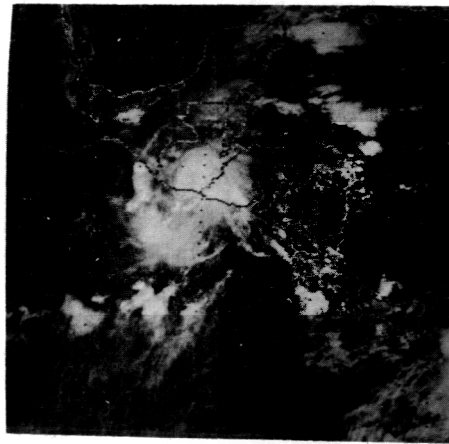
2146 UTC 9/28/88
1008



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



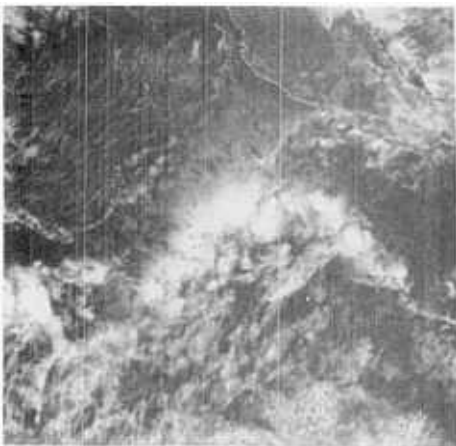
1501 UTC 10/26/88
1005 mb



1501 UTC 10/27/88
1006 mb



1646 UTC 10/28/88
1010 mb



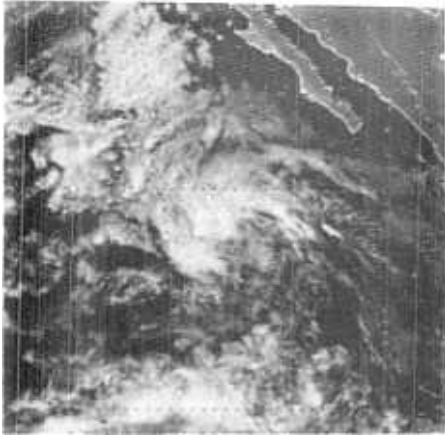
1746 UTC 10/29/88
1010 mb



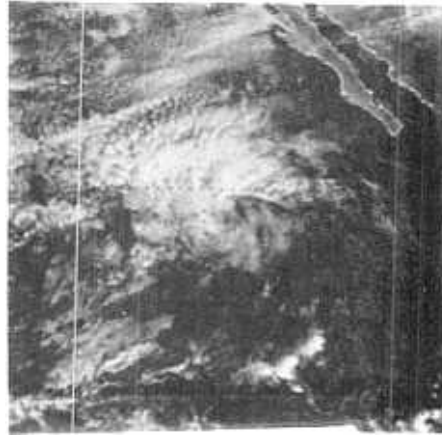
2046 UTC 10/30/88
1007 mb



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		16.51	118.0	76	
072013	15.42	114.3	15.01	114.3	3		15.61	117.9	11		16.51	119.5	133	
072014	15.43	115.4	15.01	115.3	11		15.11	117.0	NUM		15.01	120.5	336	
072015	15.44	116.3	15.01	116.3	15		15.01	117.0	NUM		15.11	121.0	59	
072016	15.45	117.4	15.01	116.9	5		15.41	117.5	NUM		15.31	121.5	NUM	
072017	15.46	117.7	15.01	117.5	13		15.61	117.2	NUM		15.31	122.0	NUM	
072018	15.47	118.2	15.01	118.2	11		16.21	121.2	NUM		16.31	122.5	NUM	
072019	15.48	119.4	15.01	118.8			16.41	121.1	NUM		16.31	123.0	NUM	
072020	15.49	120.5	15.01	120.5			16.41	121.6			16.31	123.5		
072021	15.50	121.5	15.01	121.5			16.51	122.5			16.31	124.5		
072022	15.51	122.5	15.01	122.5			16.51	123.5			16.31	125.5		
072023	15.52	123.5	15.01	123.5			16.51	124.5			16.31	126.5		
072024	15.53	124.5	15.01	124.5			16.51	125.5			16.31	127.5		
072025	15.54	125.5	15.01	125.5			16.51	126.5			16.31	128.5		
072026	15.55	126.5	15.01	126.5			16.51	127.5			16.31	129.5		
072027	15.56	127.5	15.01	127.5			16.51	128.5			16.31	130.5		
072028	15.57	128.5	15.01	128.5			16.51	129.5			16.31	131.5		
072029	15.58	129.5	15.01	129.5			16.51	130.5			16.31	132.5		
072030	15.59	130.5	15.01	130.5			16.51	131.5			16.31	133.5		
072031	15.60	131.5	15.01	131.5			16.51	132.5			16.31	134.5		
072032	15.61	132.5	15.01	132.5			16.51	133.5			16.31	135.5		
072033	15.62	133.5	15.01	133.5			16.51	134.5			16.31	136.5		
072034	15.63	134.5	15.01	134.5			16.51	135.5			16.31	137.5		
072035	15.64	135.5	15.01	135.5			16.51	136.5			16.31	138.5		
072036	15.65	136.5	15.01	136.5			16.51	137.5			16.31	139.5		
072037	15.66	137.5	15.01	137.5			16.51	138.5			16.31	140.5		
072038	15.67	138.5	15.01	138.5			16.51	139.5			16.31	141.5		
072039	15.68	139.5	15.01	139.5			16.51	140.5			16.31	142.5		
072040	15.69	140.5	15.01	140.5			16.51	141.5			16.31	143.5		
072041	15.70	141.5	15.01	141.5			16.51	142.5			16.31	144.5		
072042	15.71	142.5	15.01	142.5			16.51	143.5			16.31	145.5		
072043	15.72	143.5	15.01	143.5			16.51	144.5			16.31	146.5		
072044	15.73	144.5	15.01	144.5			16.51	145.5			16.31	147.5		
072045	15.74	145.5	15.01	145.5			16.51	146.5			16.31	148.5		
072046	15.75	146.5	15.01	146.5			16.51	147.5			16.31	149.5		
072047	15.76	147.5	15.01	147.5			16.51	148.5			16.31	150.5		
072048	15.77	148.5	15.01	148.5			16.51	149.5			16.31	151.5		
072049	15.78	149.5	15.01	149.5			16.51	150.5			16.31	152.5		
072050	15.79	150.5	15.01	150.5			16.51	151.5			16.31	153.5		
072051	15.80	151.5	15.01	151.5			16.51	152.5			16.31	154.5		
072052	15.81	152.5	15.01	152.5			16.51	153.5			16.31	155.5		
072053	15.82	153.5	15.01	153.5			16.51	154.5			16.31	156.5		
072054	15.83	154.5	15.01	154.5			16.51	155.5			16.31	157.5		
072055	15.84	155.5	15.01	155.5			16.51	156.5			16.31	158.5		
072056	15.85	156.5	15.01	156.5			16.51	157.5			16.31	159.5		
072057	15.86	157.5	15.01	157.5			16.51	158.5			16.31	160.5		
072058	15.87	158.5	15.01	158.5			16.51	159.5			16.31	161.5		
072059	15.88	159.5	15.01	159.5			16.51	160.5			16.31	162.5		
072100	15.89	160.5	15.01	160.5			16.51	161.5			16.31	163.5		
072101	15.90	161.5	15.01	161.5			16.51	162.5			16.31	164.5		
072102	15.91	162.5	15.01	162.5			16.51	163.5			16.31	165.5		
072103	15.92	163.5	15.01	163.5			16.51	164.5			16.31	166.5		
072104	15.93	164.5	15.01	164.5			16.51	165.5			16.31	167.5		
072105	15.94	165.5	15.01	165.5			16.51	166.5			16.31	168.5		
072106	15.95	166.5	15.01	166.5			16.51	167.5			16.31	169.5		
072107	15.96	167.5	15.01	167.5			16.51	168.5			16.31	170.5		
072108	15.97	168.5	15.01	168.5			16.51	169.5			16.31	171.5		
072109	15.98	169.5	15.01	169.5			16.51	170.5			16.31	172.5		
072110	15.99	170.5	15.01	170.5			16.51	171.5			16.31	173.5		
072111	16.00	171.5	15.01	171.5			16.51	172.5			16.31	174.5		
072112	16.01	172.5	15.01	172.5			16.51	173.5			16.31	175.5		
072113	16.02	173.5	15.01	173.5			16.51	174.5			16.31	176.5		
072114	16.03	174.5	15.01	174.5			16.51	175.5			16.31	177.5		
072115	16.04	175.5	15.01	175.5			16.51	176.5			16.31	178.5		
072116	16.05	176.5	15.01	176.5			16.51	177.5			16.31	179.5		
072117	16.06	177.5	15.01	177.5			16.51	178.5			16.31	180.5		
072118	16.07	178.5	15.01	178.5			16.51	179.5			16.31	181.5		
072119	16.08	179.5	15.01	179.5			16.51	180.5			16.31	182.5		
072120	16.09	180.5	15.01	180.5			16.51	181.5			16.31	183.5		
072121	16.10	181.5	15.01	181.5			16.51	182.5			16.31	184.5		
072122	16.11	182.5	15.01	182.5			16.51	183.5			16.31	185.5		
072123	16.12	183.5	15.01	183.5			16.51	184.5			16.31	186.5		
072124	16.13	184.5	15.01	184.5			16.51	185.5			16.31	187.5		
072125	16.14	185.5	15.01	185.5			16.51	186.5			16.31	188.5		
072126	16.15	186.5	15.01	186.5			16.51	187.5			16.31	189.5		
072127	16.16	187.5	15.01	187.5			16.51	188.5			16.31	190.5		
072128	16.17	188.5	15.01	188.5			16.51	189.5			16.31	191.5		
072129	16.18	189.5	15.01	189.5			16.51	190.5			16.31	192.5		
072130	16.19	190.5	15.01	190.5			16.51	191.5			16.31	193.5		
072131	16.20	191.5	15.01	191.5			16.51	192.5			16.31	194.5		
072132	16.21	192.5	15.01	192.5			16.51	193.5			16.31	195.5		
072133	16.22	193.5	15.01	193.5			16.51	194.5			16.31	196.5		
072134	16.23	194.5	15.01	194.5			16.51	195.5			16.31	197.5		
072135	16.24	195.5	15.01	195.5			16.51	196.5			16.31	198.5		
072136	16.25	196.5	15.01	196.5			16.51	197.5			16.31	199.5		
072137	16.26	197.5	15.01	197.5			16.51	198.5			16.31	200.5		
072138	16.27	198.5	15.01	198.5			16.51	199.5			16.31	201.5		
072139	16.28	199.5	15.01	199.5			16.51	200.5			16.31	202.5		
072140	16.29	200.5	15.01	200.5			16.51	201.5			16.31	203.5		
072141	16.30	201.5	15.01	201.5			16.51	202.5			16.31	204.5		
072142	16.31	202.5	15.01	202.5			16.51	203.5			16.31	205.5		
072143	16.32	203.5	15.01	203.5			16.51	204.5			16.31	206.5		
072144	16.33	204.5	15.01	204.5			16.51	205.5			16.31	207.5		
072145	16.34	205.5	15.01	205.5			16.51	206.5			16.31	208.5		
072146	16.35	206.5	15.01	206.5			16.51	207.5			16.31	209.5		
072147	16.36	207.5	15.01	207.5			16.51	208.5			16.31	210.5		
072148	16.37	208.5	15.01	208.5			16.51	209.5			16.31	211.5		
072149	16.38	209.5	15.01	209.5			16.51	210.5			16.31	212.5		
072150	16.39	210.5	15.01	210.5			16.51	211.5			16.31	213.5		
072151	16.40	211.5	15.01	211.5			16.51	212.5			16.31	214.5		
072152	16.41	212.5	15.01	212.5			16.51	213.5			16.31	215.5		
072153	16.42	213.5	15.01	213.5			16.51</							

Table 3a. continued.

OFFICIAL FORECASTS FASIO JUL 20-AJG 12 1988

DATE/TIME		BEST TRACK		POSITIONAL ERROR		12HR FORECAST		24HR FORECAST		36HR FORECAST		48HR FORECAST		72HR FORECAST	
LAT		LONG		NM		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.	
01	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
02	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
03	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
04	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
05	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
06	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
07	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
08	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
09	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
10	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
11	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
12	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
13	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
14	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
15	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
16	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
17	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
18	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
19	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
20	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
21	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
22	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
23	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
24	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
25	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
26	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
27	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
28	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
29	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
30	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00
31	00	10	00	0	0	1	00	1	00	1	00	1	00	1	00

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.
272413	15.9136.2	17.2136.2	112	19.0135.4	61	20.0137.0	136	21.0137.5		22.0138.5		22.5140.5
272500	15.0135.4	15.2135.0	13	16.3135.9		15.4137.6		16.5138.5				
273000	15.0135.3	15.2136.0	11	16.4137.1	54	16.5137.7		16.5138.5				
273012	15.1135.3	15.3137.0		16.5133.4		16.5139.4						
273015	15.5135.0	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	

DATE/TIME		BEST TRACK		POSITION		12HR FORECAST		24HR FORECAST		36HR FORECAST		48HR FORECAST		72HR FORECAST	
LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.		LAT. LONG.	
01	101	120	17	101	120	17	101	120	17	101	120	17	101	120	17
02	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
03	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
04	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
05	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
06	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
07	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
08	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
09	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
10	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
11	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
12	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
13	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
14	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
15	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
16	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
17	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
18	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
19	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
20	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
21	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
22	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
23	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
24	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101
25	101	120	17	101	120	101	120	101	120	101	120	101	120	101	120
26	120	17	101	120	17	120	17	120	17	120	17	120	17	120	17
27	17	101	120	17	101	17	101	17	101	17	101	17	101	17	101

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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
13

153
17

136
18
$$\begin{array}{r} 239 \\ 11 \end{array}$$

C

CHN AUG 7 13 1988

[illegible]

VERIFICATION OF OFFICIAL MAY WIND FORECASTS

~~222023(K73) FAR 3F3RM 4L2FF4~~[illegible]

SUMMARY: STORM ALBERTA

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

VERIFICATION OF OFFICIAL MAY WIND FORECASTS

27025(CT) FOR STRAIN AND

INITIAL	1243	2443	3643	4843	7243
11111111	11111111	11111111	11111111	11111111	11111111
22222222	22222222	22222222	22222222	22222222	22222222
33333333	33333333	33333333	33333333	33333333	33333333
44444444	44444444	44444444	44444444	44444444	44444444
55555555	55555555	55555555	55555555	55555555	55555555
66666666	66666666	66666666	66666666	66666666	66666666
77777777	77777777	77777777	77777777	77777777	77777777
88888888	88888888	88888888	88888888	88888888	88888888
99999999	99999999	99999999	99999999	99999999	99999999
00000000	00000000	00000000	00000000	00000000	00000000
11111111	11111111	11111111	11111111	11111111	11111111
22222222	22222222	22222222	22222222	22222222	22222222
33333333	33333333	33333333	33333333	33333333	33333333
44444444	44444444	44444444	44444444	44444444	44444444
55555555	55555555	55555555	55555555	55555555	55555555
66666666	66666666	66666666	66666666	66666666	66666666
77777777	77777777	77777777	77777777	77777777	77777777
88888888	88888888	88888888	88888888	88888888	88888888
99999999	99999999	99999999	99999999	99999999	99999999
00000000	00000000	00000000	00000000	00000000	00000000

अध्यायः अष्टमः

MEAN ERROR (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	5.8	.0	.0	.0	.0
NUMBER OF CASES	3	3	1	0	0	0

VERIFICATION OF OFFICIAL MAX WIND FORECASTS

ERRORS(KTS) FOR STOPY CAR-OTTA

[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]

AY 22	(CFS)	2	4	6	8	10	12
AY 4330L JFM 23200 (CFS)		7.1	6.3	7.4	7.4	10.0	10.9
		7	9	9	7	12	13
		2	1	12	7	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	

[illegible]

F03	AST	W4D	ROM	072	31	37	DATA	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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

中央 中央书记处 中央办公厅 中央组织部 中央宣传部 中央统战部 中央政法委员会 中央文献研究室 中央档案馆

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 (CFS)	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

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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 (K S

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

[illegible]

VERIFICATION OF OFFICIAL MAX WIND FORECASTS

~~ERRORS(NTS) FOR STORM JOHV~~

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

SUMMARY: STORM JOHN

MEAN ERRORS (KFS)

•.J 5.J .J .J .J .J

ERROR (KTS)

0.0	5.0	0.0	0.0	0.0	0.0
-----	-----	-----	-----	-----	-----

STANDARD ERROR (KTS)
NUMBER OF CASES

$$\frac{1}{1} \quad \frac{1}{1} \quad \frac{1}{2} \quad \frac{1}{2} \quad \frac{1}{2} \quad \frac{1}{2}$$
[illegible]

ERRORS(KTS) FOR STORM CRITERIA

KEY: 5733

0 = 100:0 - MAX WIND 100 51

~~REPORTS (KTS) FOR STORM - AM~~

~~SUMMARY: STORM -ANE~~

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	12.5	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 LAT. ION.	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.
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 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.
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 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.
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 LAT. LON.	MAX WIND (KT)		MIN. PRES. (MB)	MIN. 700MB HT. (M)	TEMP. C		EYE C=CIR.DIA. E=ELIP. (N.MI.)	CHARACTER- 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 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.
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. 700MB	TEMP. C		EYE C=CIR.DIA. E=ELIP. (N.MI.)	CHARACTER- ISTICS	OBS. 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 LAT. LON.	MAX WIND (KT) SFC. FLT.LVL.	MIN. PRES. (MB)	TEMP. C OUT IN	EYE C=CIR.DIA. E=ELIP. (N.MI.)	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. 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 (UTC)	POSIT LAT.	MAX V SFC.	MIN. PRES	MIN. 700MB HT. (M)	TEMP. C OUT IN	EYE C=CIR.DIA. E=ELIP. (N.MI.)	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. 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 LAT. ION.	SFC.	FLT. LVL.	MIN. PRES. (MB)	MIN. HT. (M)	TEMP. C OUT IN	EYE C=CIR. DIA. E=ELIP. (N.MI.)	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. 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 (UTC)	POSIT LAT.	MAX WIND (KT SFC. FLT	MIN. PRES. (MB)	MIN. 700MB HT. (M)	TEMP. C OUT IN	EYE C=CIR.DIA. E=ELIP. (N.MI.)	OBS. UNIT	RESOLUTION	ACFT. 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) SFC. FLT.LVL.	MIN. PRES. (MB)	MIN. (h... ..)	P. C OUT IN	EYE C=CIR.DIA. E=ELIP. (N.MI.)	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
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) 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.
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 LAT. LON.	MAX WIND (KT) SFC. FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT. (M)	EYE C=CIR.DIA.	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. 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- ISTICS	OBS.	RESOLUTION	ACFT. ALT.
			LON.	SFC.	FLT.LVL.	PRES. (MB)	700MB 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 LAT. LON.	SFC.	WIND (KT) 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.
	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 ION.		FLT. LVL.	HT. (M)	C IN	EYE C=CIR.DIA.	CHARACTER- ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
01	23	1459	12.7	88.0	45					FIV/ 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	