NOAA TECHNICAL MEMORANDUM NWS NHC 35

ANNUAL DATA AND VERIFICATION TABULATION ATLANTIC TROPICAL CYCLONES 1986

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UNITED STATES DEPARTMENT OF COMMERCE
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National Oceanic and Atmospheric Administration
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National Weather Service
Richard E. Hallgren, Director

INTRODUCTION

This is the Thirteenth report of an annual series prepared by the National Hurricane Center (NHC) to provide a source of summarized data on Atlantic 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). This report also includes Probability Forecasts issued with advisories on landfalling United States tropical storms and hurricanes (Appendix B).

OBJECTIVE FORECAST TECHNIQUES

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

1. NHC-67 (Miller, Hill, Chase, 1968). A stepwise screening regression model using predictors derived from the current and 24-hour old 1000, 700, and 500 mb data, including persistence during the early forecast periods.

2. SANBAR (Sanders and Burpee, 1968). A filtered barotropic model using input data derived from the 1000 to 100 mb pressure weighted winds. The model requires use of "bogus" data in data-void areas. The system was modified by Pike (1972) so that the initial wind field near the storm would conform to the current storm motion.

3. HURRAN (Hope and Neumann, 1970). An analog system using as a data base the tracks of all Atlantic tropical storms and hurricanes dating back to 1886.

4. CLIPER (Neumann, 1972). Stepwise multiple screening regression using the predictors derived from climatology and persistence.

5. NHC-72 (Neumann, Hope, Miller, 1972). A modified stepwise multiple screening regression system which combines the NHC-67 concept and CLIPER system into a single model.

6. NHC-73 (Neumann and Lawrence, 1973). Similar in concept to the NHC-72 except it also uses the "perfect prog" and MOS (model output statistics) methods to introduce NMC (National Meteorological Center) numerical prognostic data into the prediction equations.

7. NMC MFM MODEL (Hovermale, 1975). A ten-level baroclinic model which uses a moving fine mesh (MFM) grid nested within the coarser NMC fixed grid primitive equation (PE) 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 Forcasts). Generation of the forecast equations was done by multiple screening regression techniques 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 analyses and prognoses produced by NMC and TSAC (Tropical Satellite and Analysis Center) in Miami.

VERIFICATION

Verification statistics for the 1986 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 displacment computed from best-track positions. Landfall prediction errors for the official forecasts are given in Tables 2a and 2b. These are defined as the distance from the predicted landfall point, made 24 hours prior to actual landfall, to the actual landfall point. In cases where a storm either crossed an island or made landfall when predicted to remain offshore, the error was designated as the distance from the landfall point to the nearest point on the forecast track.

Tropical cyclone warning lead times for United States landfalling storms are given in Table 3a. A summary of warning lead times 1970-1986 for hurricanes only and for both tropical storms and hurricanes is given in Table 3b. The length of time between the issuance of the warnings and the time that the center crossed the coast, as determined from the "best track", was taken as the warning lead time. A more complete discussion of the verification of tropical cyclone warning lead times can be found in 1977 Annual Data and Verification Tabulation (Lawrence, Hebert, and Staff, 1979).

DATA SUMMARIES

A summary of 1986 North Atlantic tropical cyclone statistics is given in Table 4. Tracks of 1986 named storms are shown in Figure 1.

The best track, initial, and forecast positions for the 1986 storms are in Table 5, along with initial position and forecast errors, and storm average errors.

Table 6 lists all center fix positions and intensity evaluations used operationally at the National Hurricane Center during the 1986 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.

Supplementary Vortex Data Messages are given in Table 7. A diagram of the paths flown in obtaining these Data Messages is given in Figure 2. The symbolic code for interpreting the Data Messages is given in Appendix A.

Table 8 is an aerial reconnaissance summary for the 1986 season

Graphs of the lowest central pressure versus time for the 1986 named tropical cyclones are shown in Figure 4.

Table 9 gives the probability forecasts issued for the 1986 land-falling United States storms and hurricanes.

ACKNOWLEDGEMENTS

Main contributors were: Mr. Miles Lawrence, who computed the verification statistics; Ms. Joan David, who drafted the track chart and pressure/time graphs; and Mrs. Pamela Johnson, who typed the manuscript.

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LIST OF FIGURES, TABLES, AND APPENDICES

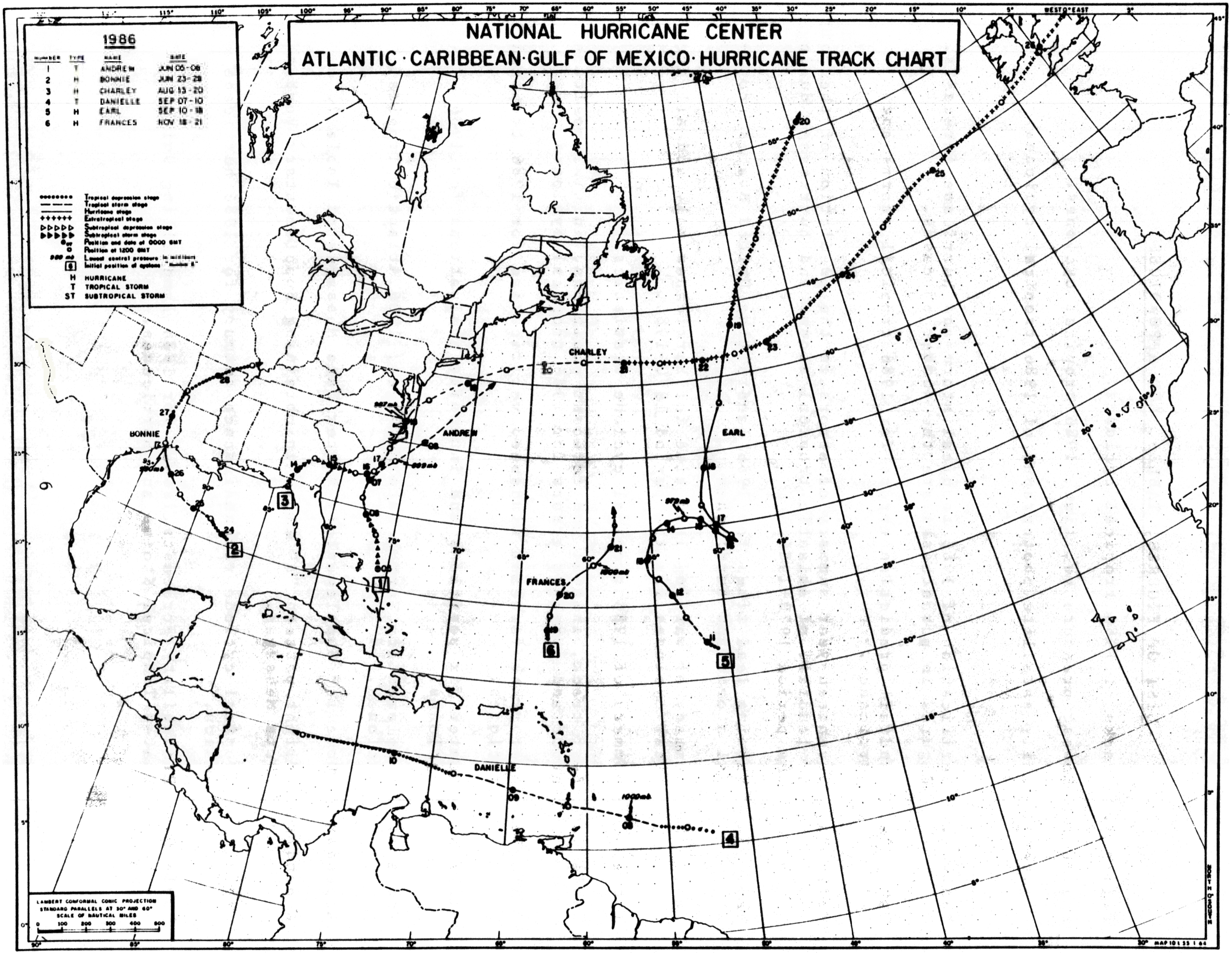
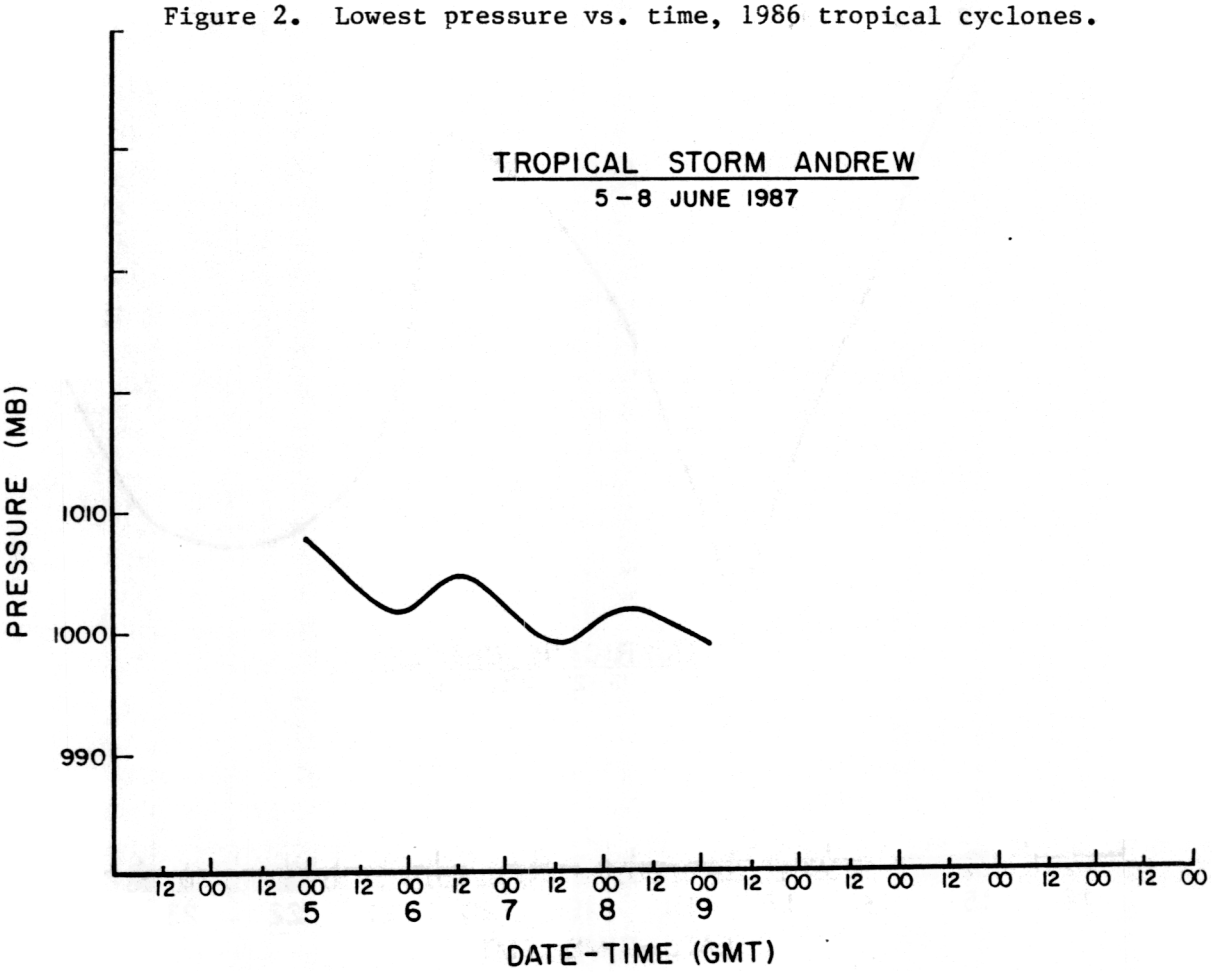
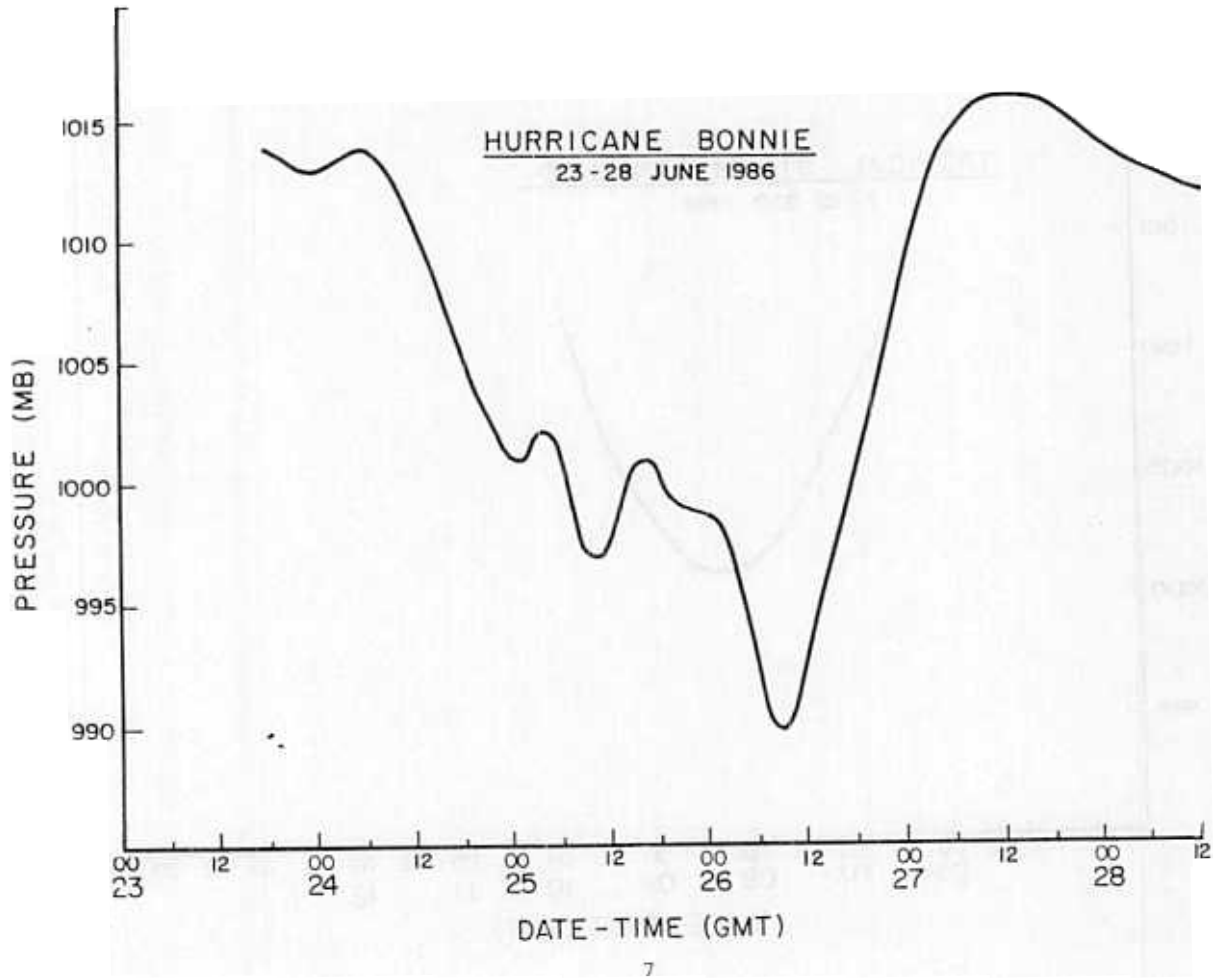

NATIONAL HURRICANE CENTER
ATLANTIC·CARIBBEAN·GULF OF MEXICO·HURRICANE TRACK CHART
1986
1 T ANDREW JUN 05-08
2 H BONNIE JUN 23-28
3 H CHARLEY AUG 13-20
4 T DANIELLE SEP 07-10
5 H EARL SEP 10-18
6 H FRANCES NOV 18-21
Tropical depression stage
Tropical storm stage
Hurricane stage
Extratropical stage
Subtropical depression stage
Subtropical storm stage
Position and date of 0000 GMT
Position at 1200 GMT
Lowest central pressure
Initial position of cyclone
H HURRICANE
T TROPICAL STORM
ST SUBTROPICAL STORM
CHARLEY
BONNIE
ANDREW
EARL
FRANCES
DANIELLE
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS AT 30° AND 60°
SCALE OF NAUTICAL MILES

Figure 2. Lowest pressure vs. time, 1986 tropical cyclones.





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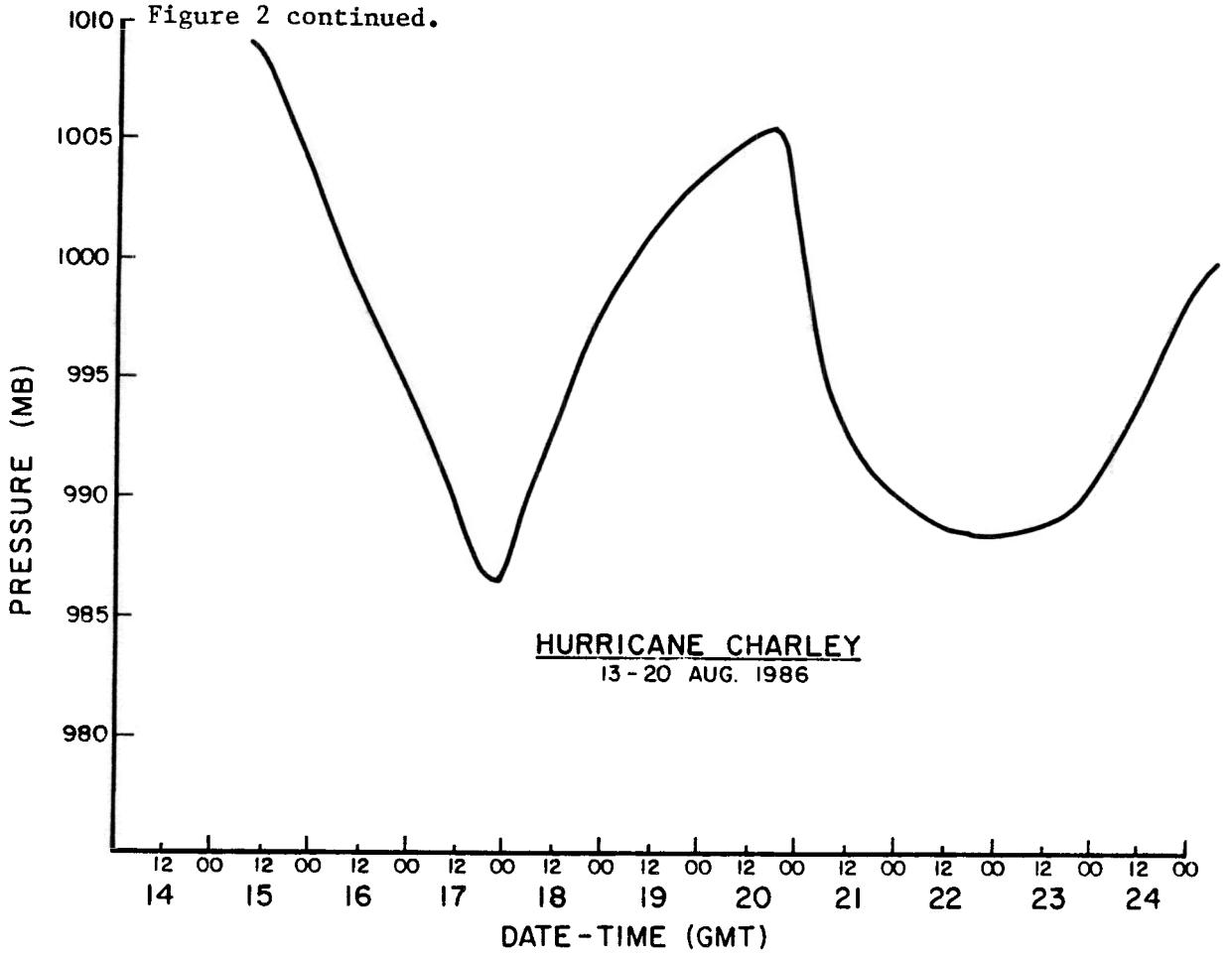
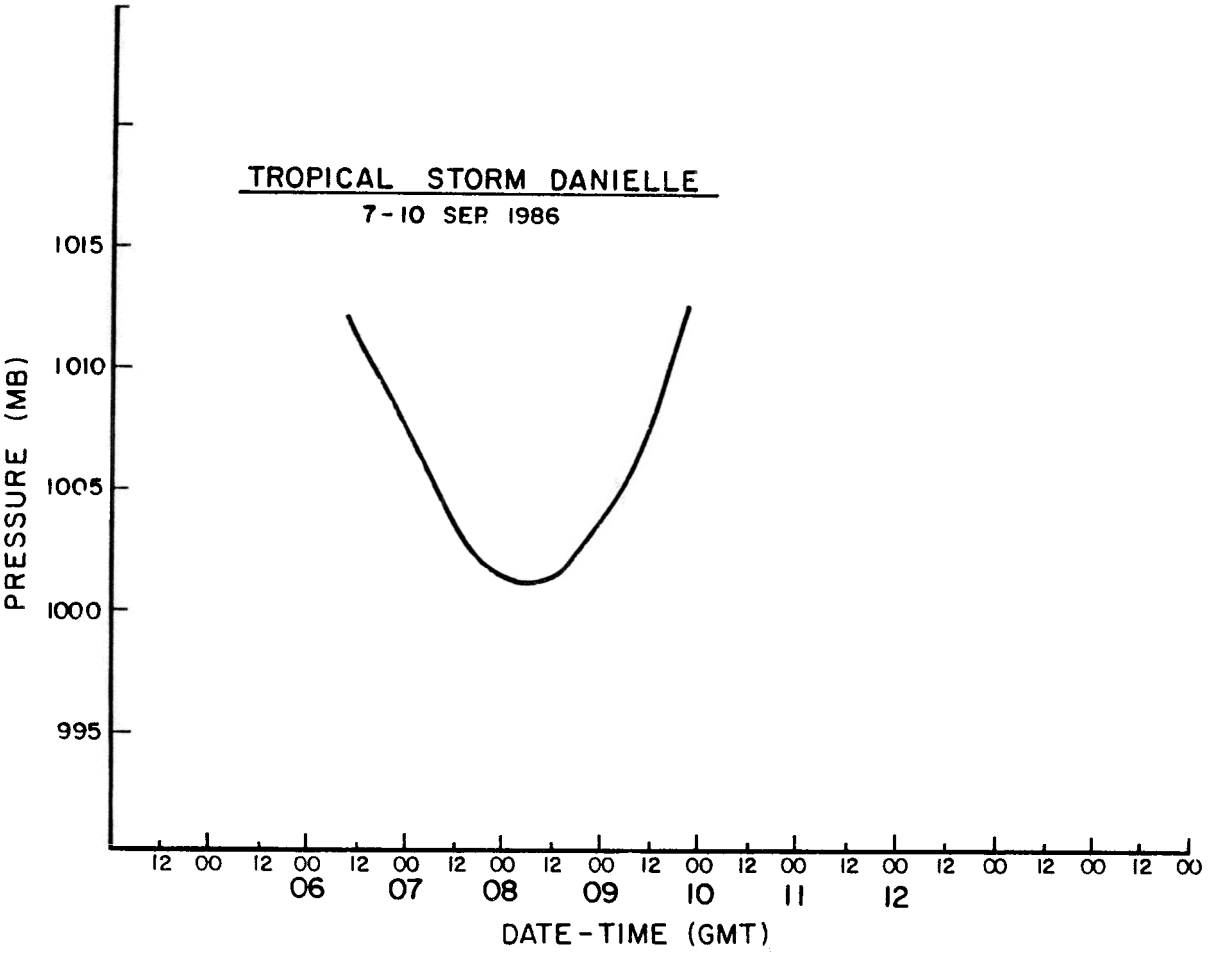
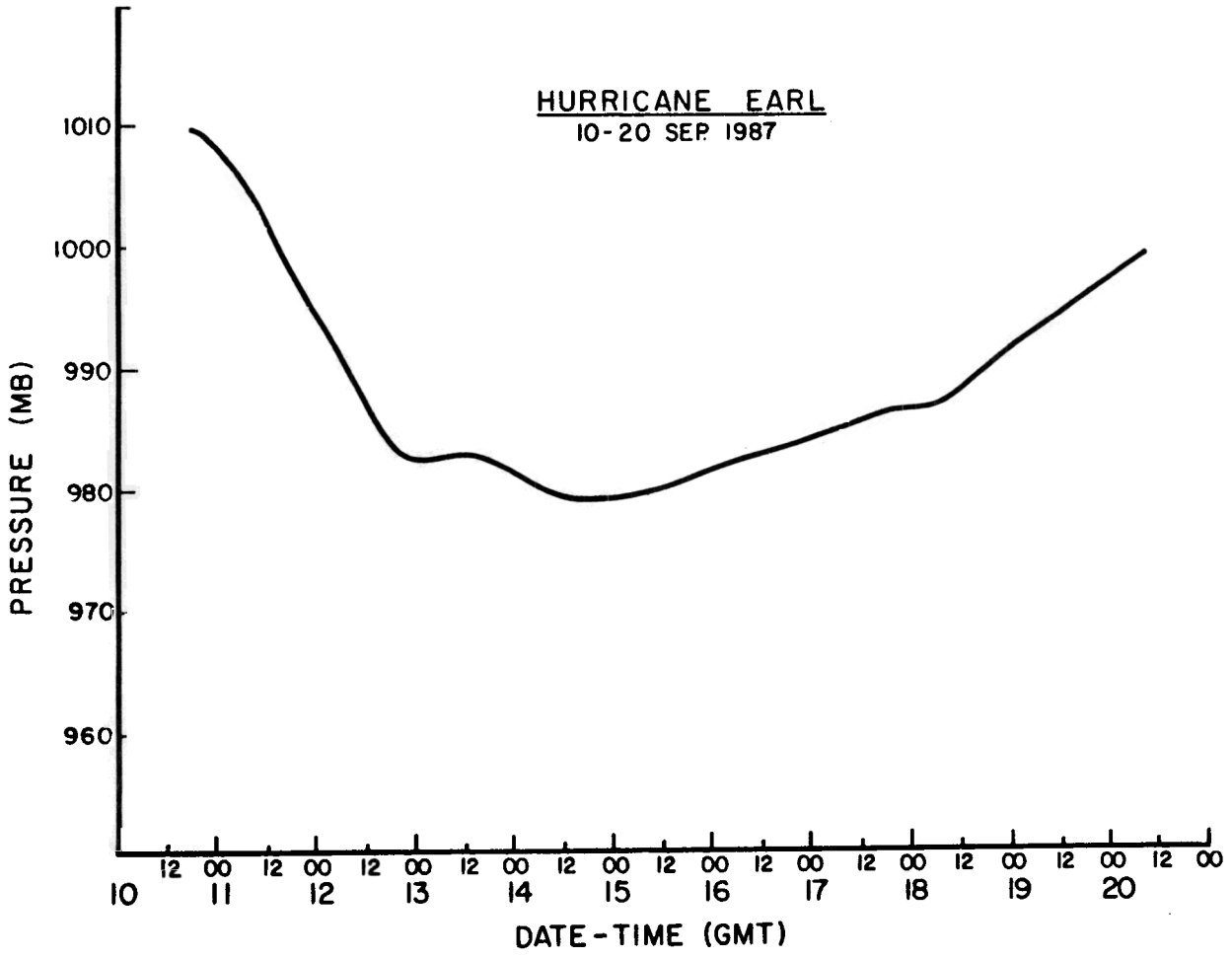





HURRICANE EARL
10-20 SEP 1987
PRESSURE (MB)
1010
1000
990
980
970
960
12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00 12 00
10 11 12 13 14 15 16 17 18 19 20
DATE-TIME (GMT)

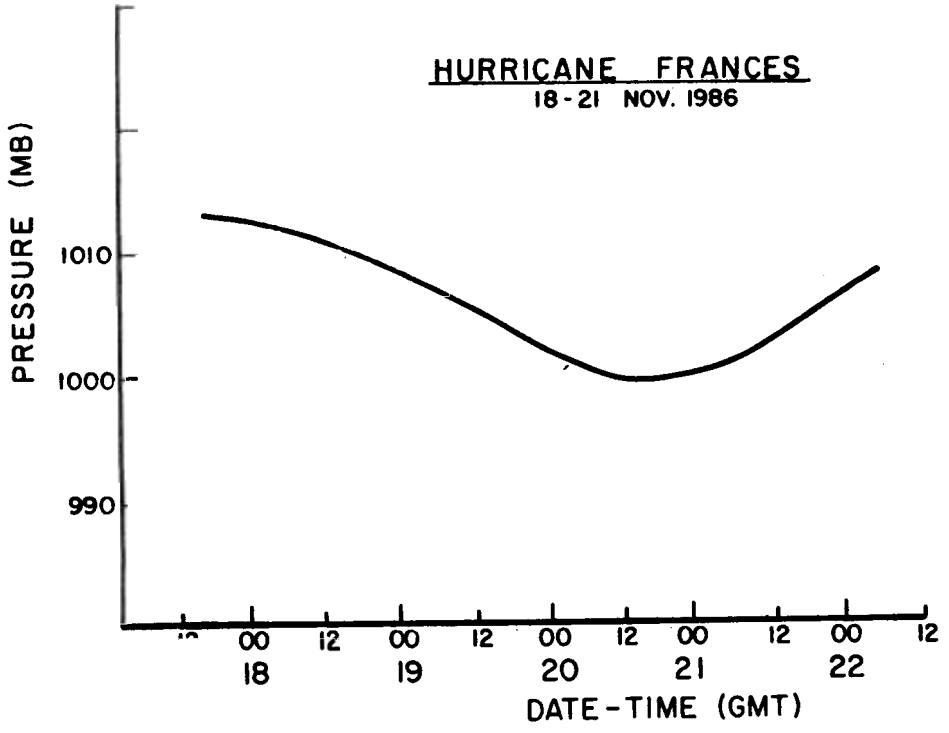

HURRICANE FRANCES
18-21 NOV. 1986
PRESSURE (MB)
1010
1000
990
00 12 00 12 00 12 00 12 00 12 00 12
18 19 20 21 22
DATE-TIME (GMT)

Figure 3. Daily satellite photographs of 1986 tropical cyclones.

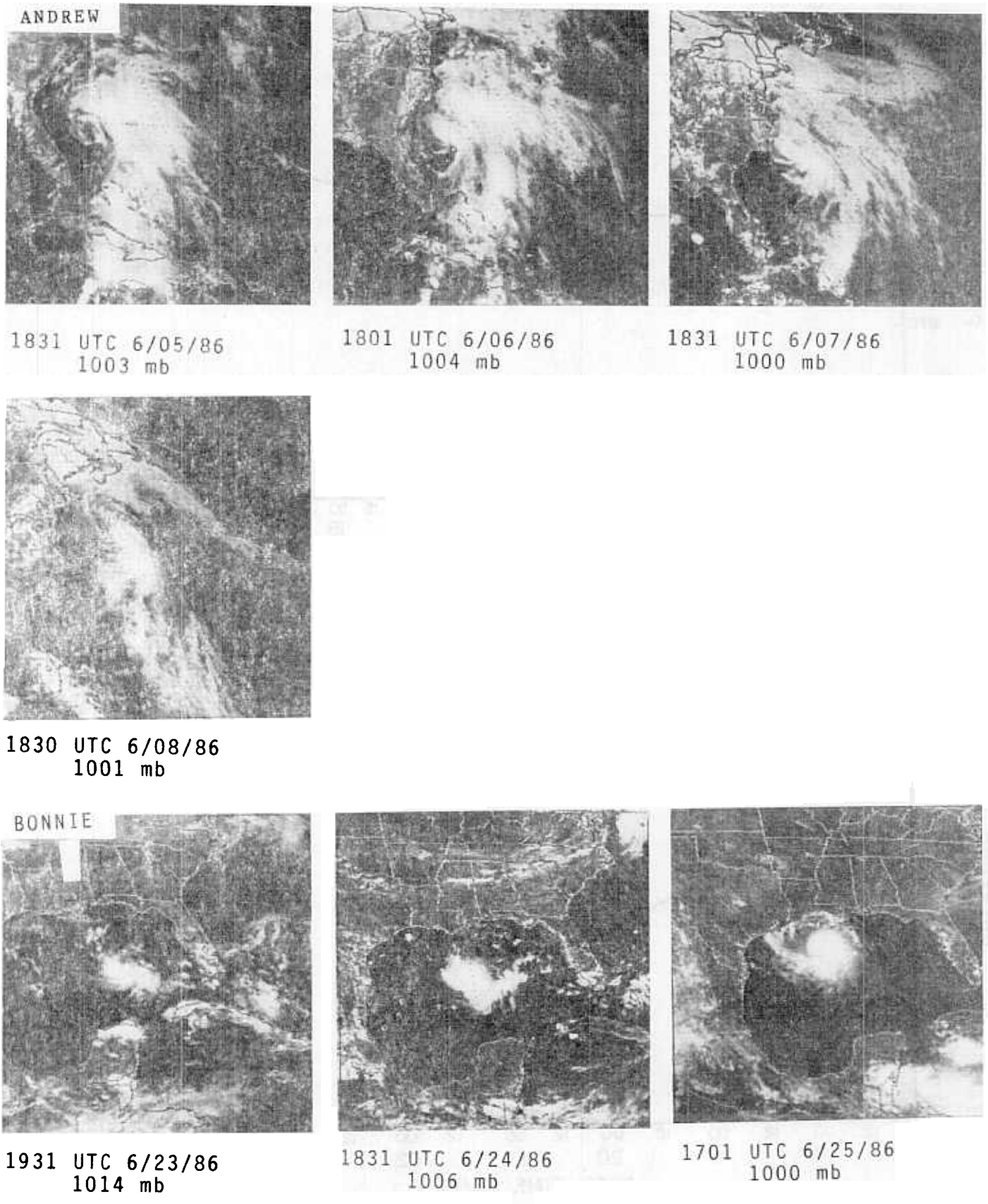
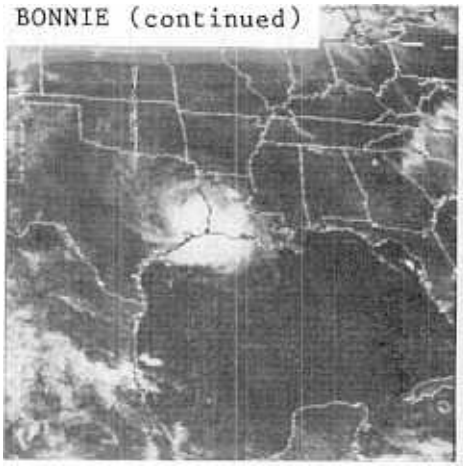


Figure 3. continued

BONNIE (continued)



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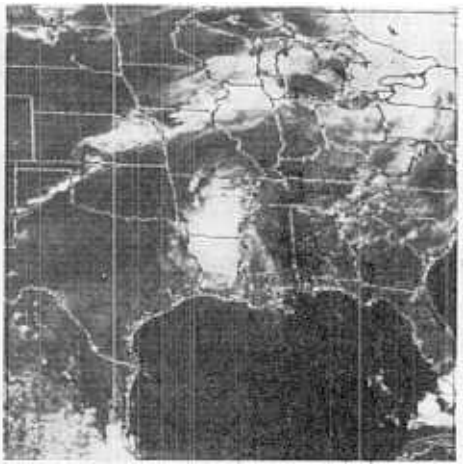

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CHARLEY

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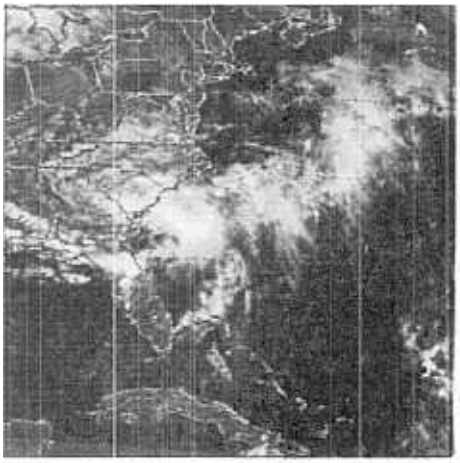

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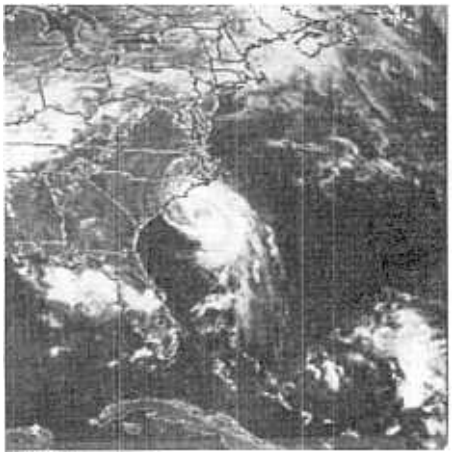

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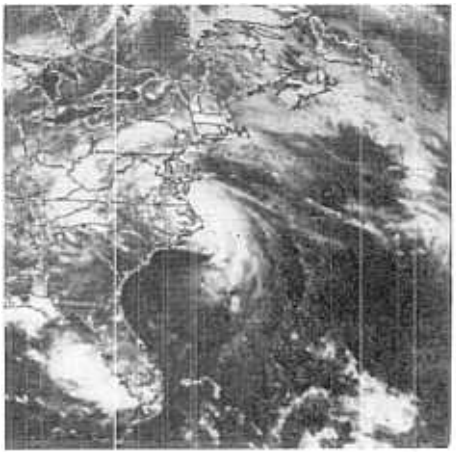

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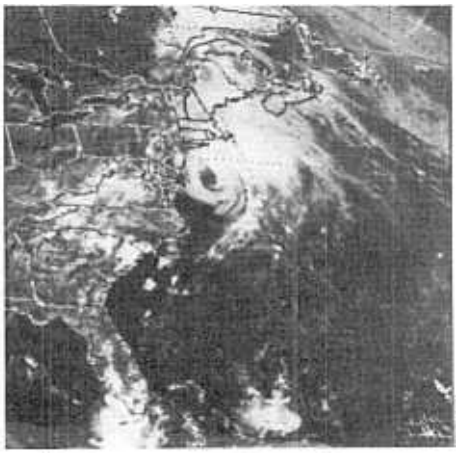

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Figure 3 cont nued

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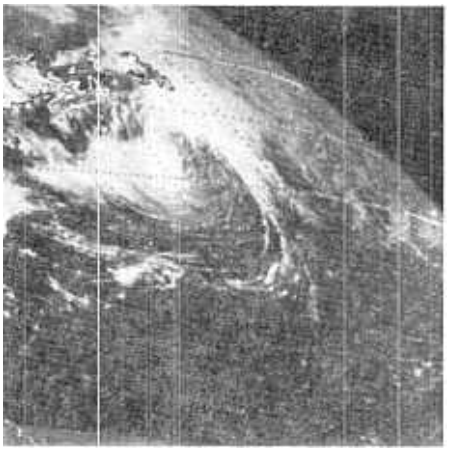

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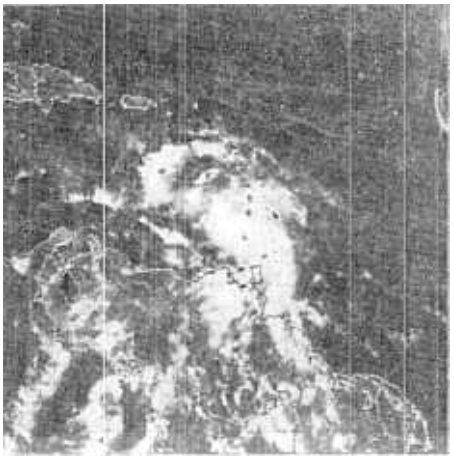

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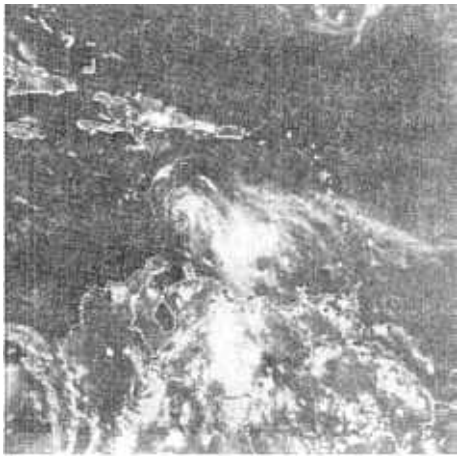

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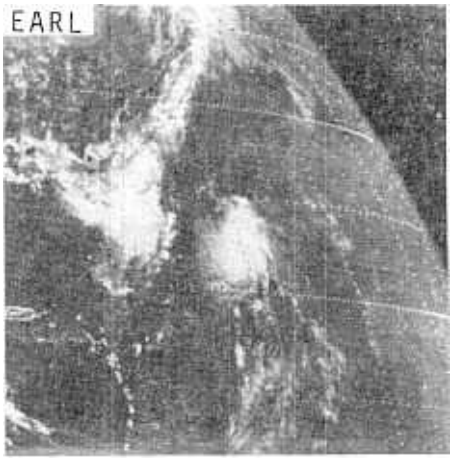

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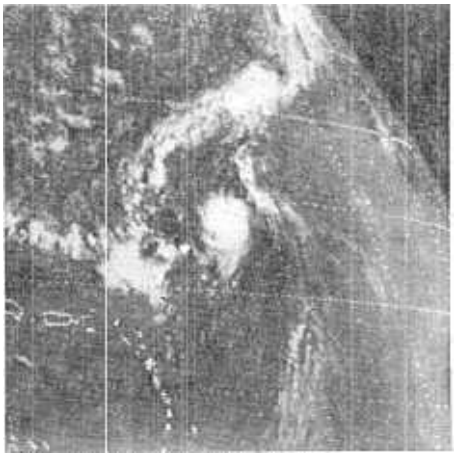

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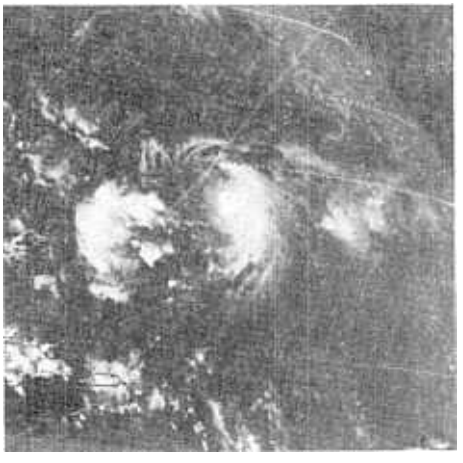

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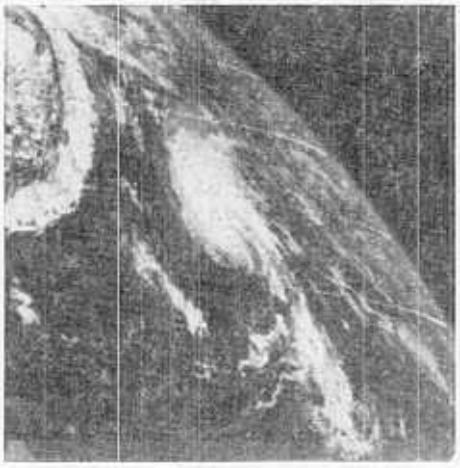

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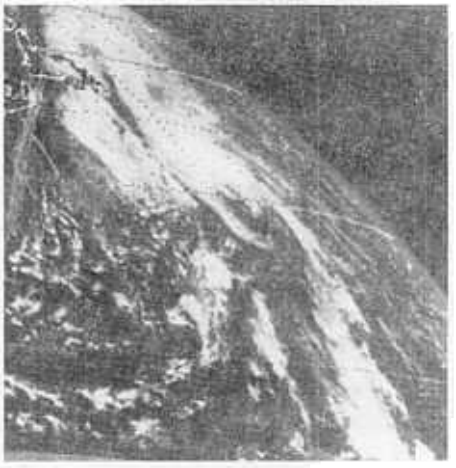

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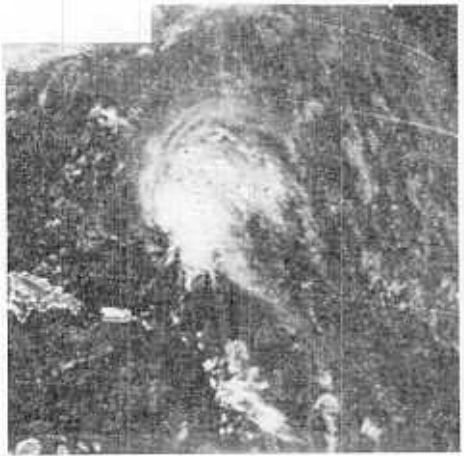

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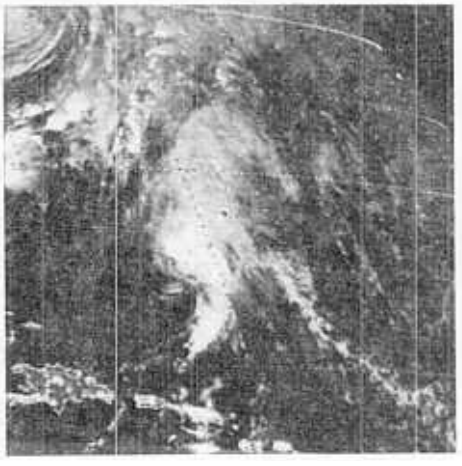

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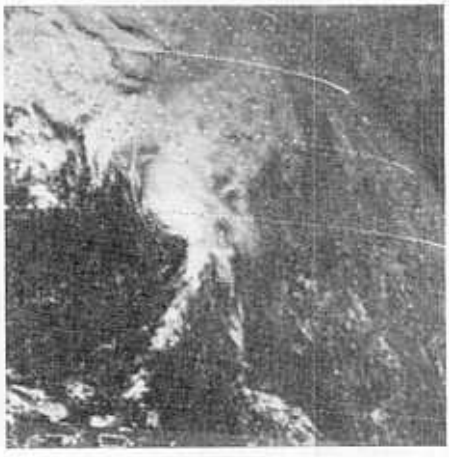

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Table 1. Verification of 1986 tropical storm and hurricane forecasts.

	forecast period (hours)				
model	0	12	24	48	72
Official	20	56	111	241	388
(no. of cases)	(73)	(73)	(61)	(37)	(24)
NHC67	20	58	110	330	604
	(73)	(73)	(61)	(37)	(24)
NHC72	20	55	107	225	385
	(73)	(73)	(61)	(37)	(24)
HURRAN	18	58	134	301	536
	(25)	(25)	(20)	(10)	(9)
CLIPER	20	61	123	258	385
	(73)	(73)	(61)	(37)	(24)
NHC73	17	54	106	236	435
	(35)	(35)	(29)	(17)	(11)
SANBAR	17	57	97	251	411
	(35)	(35)	(27)	(16)	(11)
MFM	16	64	123	266	365
	(25)	(25)	(20)	(9)	(6)

Table 2a. Landfall prediction errors for 1986 tropical storms and hurricanes.

Following is a list of landfall prediction errors for tropical storms and hurricanes during 1986. Each error represents the distance (in nautical miles) from the predicted landfall point determined from the "Official" forecast issued 24 hours prior to the actual landfall pointdetermined from the Best Track. Only tropical storms and hurricanes are included. In some cases the storm crossed an island when predicted to pass offshore. In such cases the perpendicular distance from the landfall point to the forecast track is taken as the landfall prediction error.

Storm Name	Category at Landfall	Date/Time(Z) of Landfall	Landfall Forecast Error (n.m.)	Location and remarks
Bonnie	Hurricane	6/26/1000Z	40	Near Port Arthur, TX.
Charley	Hurricane	8/17/1400Z	*	Near Cape Lookout, NC.

* No landfall forecast made 24 hours prior to landfall

Table 2b. Seventeen-year summary of errors (n.mi.) in the prediction of landfall points for Atlantic tropical storms and hurricanes during the period of 1970-1986.

	United States Landfalls	All Landfalls
1986 Mean 24 Hour Landfall Prediction Error (number of cases)	40 (02)	40 (02)
17 year average 1970-1986	53 (35)	55 (70)

Table 3a. Tropical cyclone warning lead time of 1986 United States Landfalling tropical storms and hurricanes.

Storm Name	Category at Landfall	Date/Time (Z) of Landfall	Location of landfall	Type and Time (Z) of Warnings Issued for Point of Landfall	Warning Lead Time (hours)
ANDREW	(No U.S. Landfall)				
BONNIE	Hurricane	6/26/10Z	Near Port Arthur,TX.	Gale Warnings, Port O'Connor,TX. to mouth of Miss. River. 6/25/16Z.	22
				Hurricane Warnings, West of Morgan City, LA. to Freeport, TX.	16
CHARLEY	Hurricane	8/17/14Z	Cape Lookout, NC.	Gale Warnings, Bouge Inlet, NC. to Oregon Inlet, NC. 8/16/22Z	16
				Hurricane Warnings, Bouge Inlet, NC. to Oregon Inlet, NC. 8/17/10Z	04
				Gale Warnings, Bouge Inlet, NC. to Topsail Beach, NC. 8/17/10Z.	04
		8/17/22Z	Kitty Hawk, NC.	Gale Warnings, Oregon Inlet, NC. to Virginia Beach, VA. 8/17/10Z.	12
				Hurricane Warning, Oregon Inlet, NC. to Virginia Beach, VA. 8/17/14Z.	08
				Gale Warnings, Virginia Beach, VA. to Fenwick Island, MD./DE. 8/17/14Z.	08
				Hurricane Warnings, Virginia Beach, VA. to Fenwick Island, MD./DE. 8/17/20Z.	Offshore
				Gale Warnings, Fenwick Island, MD./DE. to Chatham, MA. 8/17/22Z.	Offshore
				Hurricane Warnings, Fenwick Island, MD./DE. to Sandy Hook, NJ. 8/18/02Z.	Offshore
DANIELLE	(No U.S Landfall)				
EARL	(No U.S Landfall)				
FRANCES	(No U.S Landfall)				

Table 3b. Average warning lead times for all tropical storms and hurricanes and for hurricanes alone, which made landfall on the mainland of the United states during 1986 and during the 17-year period of 1970-1986.

	All Tropical Storms and Hurricanes		All Hurricanes	
	1986	1970-1986	1986	1970-1986
Average Lead Time (hours)	14	25	11	27
(number of cases)	(2)	(41)	(2)	(21)

Table 4. Summary of North Atlantic Tropical Cyclones Statistics, 1986

Cyclone Number	Name	Class.[1]	Dates[2]	Maximum Sustained Wind (kt)	Lowest Press. (mb)	U.S. Damage ($millions)	Deaths
1	Andrew	T	6/05-6/08	45	999		1
2	Bonnie	H	6/23-6/28	75	990	2	3
3	Charley	H	8/13-8/20	70	987	15	5
4	Danielle	T	9/07-9/10	50	1000		
5	Earl	H	9/10-9/18	90			
6	Frances	H	11/18-11/21	75	1000		

1 T: tropical storm, wind speed 34 - 63 kt.
H: hurricane, wind speed 64 kt or higher.
ST: subtropical storm, wind speed 34 - 63 kt.

2 Dates begin at 0000 UTC and are for tropical and subtropical cyclone stages.

Table 5a. Best tracks, initial and forecast positions, initial position error and forecast errors 1986 tropical cyclones.

OFFICIAL FORECASTS ANDREW JUN 06-JUN 08 1986

DATE/TIME GMT	BEST TRACK LAT.	LONG.	OPERATIONAL POSITION ERROR LAT.	LONG.	NM	12HR FORECAST * LAT.	LONG.	ERROR NM	24HR FORECAST LAT.	LONG.	ERROR NM	36HR FORECAST LAT.	LONG.	ERROR NM	48HR FORECAST LAT.	LONG.	ERROR NM	72HR FORECAST LAT.	LONG.	ERROR NM
060612	[illegible]		31.1	78.0	24	32.0	75.0	20	33.5	77.5	30				35.5	74.0	221	37.0	69.0	
060618	31.4	77.9	31.0	78.2	24	33.0	75.0	56	35.5	77.5	122				35.5	74.0		37.0	69.0	
060700	31.9	77.8	31.4	77.8	30	34.5	75.0	24	36.5	75.0	50				36.0	72.0		37.5	68.0	
060706	32.8	76.9	32.6	76.9	15	33.6	74.8	42	34.7	72.3	96				38.5	66.0		44.0	56.0	
060712	33.9	76.0	33.5	76.0	9	34.6	74.0	18	36.0	73.0	118				40.0	64.0		43.0	52.0	
060718	34.9	75.0	34.1	75.1	12	36.4	72.6	43	37.0	72.5					40.5	62.5		45.5	50.0	
060800	35.2	73.9	35.1	73.7	11	36.5	71.0	78	38.0	67.0					41.0	59.0				
060806	36.3	72.7	36.2	72.8		38.5	70.5		41.5	66.0					44.0	51.0				
060812	37.9	71.0	38.0	71.7		43.0	68.5													
MEAN VECTOR ERRORS(NM)					17			41			94			0			221			0
NUMBER OF CASES					7			7			5			0			1			0

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OFFICIAL FORECASTS BONNIE JUN 24-JUN 26 1986

DATE/TIME GMT	BEST TRACK LAT.	LONG.	OPERATIONAL POSITION ERROR LAT.	LONG.	NM	12HR FORECAST LAT.	LONG.	ERROR NM	24HR FORECAST LAT.	LONG.	ERROR NM	36HR FORECAST LAT.	LONG.	ERROR NM	48HR FORECAST LAT.	LONG.	ERROR NM	72HR FORECAST LAT.	LONG.	ERROR NM
062418	26.9	89.5	26.6	89.2	3	27.0	90.7	44	27.0	91.5	73				29.0	93.0	144	30.5	94.5	
062500	28.7	90.3	28.7	90.1	[illegible]	[illegible]			[illegible]						[illegible]					
062506	29.6	91.0	29.9	91.1	[illegible]	[illegible]		51	25.9	95.[illegible]					32.0	97.[illegible]				
062512	29.5	91.7	29.4	91.5	13	[illegible].0	93.[illegible]	23	29.[illegible]	94.[illegible]	91				35.0	96.[illegible]				
062518	29.2	92.2	29.6	92.2	[illegible]	[illegible]			[illegible]		111				[illegible]					
062600	29.2	92.9	29.6	92.9	[illegible]	29.3	94.[illegible]		31.[illegible]	94.[illegible]						93.0				
062606	29.0	93.7	29.0	93.9	5	31.2	94.[illegible]		34.[illegible]	94.[illegible]										
062612	29.9	94.3	30.0	94.2		33.0	94.5													
062618	30.9	94.7	31.0	94.4																
MEAN VECTOR ERRORS(NM)					5			34			80			0			144			0
NUMBER OF CASES					7			7			5			0			1			0

* Note: Forecast errors are adjusted for the initial position error

Table 5a continued.

OFFICIAL FORECASTS — CHARLEY AUG 15-AUG 19 1986

DATE/TIME GMT	BEST TRACK LAT.	LONG.	OPERATIONAL POSITION ERROR LAT.	LONG.	NM	12HR FORECAST LAT.	LONG.	ERROR NM	24HR FORECAST LAT.	LONG.	ERROR NM	36HR FORECAST LAT.	LONG.	ERROR NM	48HR FORECAST LAT.	LONG.	ERROR NM	72HR FORECAST LAT.	LONG.	ERROR NM
081518	32.2	73.5	32.0	74.0	33	32.0	78.0	32	32.0	78.0	69				32.0	78.0	223	32.0	78.0	499
081800	32.3	75.1	32.3	76.0	5	32.5	78.0	25	32.5	78.0	65				32.5	78.0	265	32.5	78.0	554
081806	32.4	77.9	32.4	78.0	5	33.5	78.0	34	32.5	78.0	87				33.0	77.0	276	34.0	76.0	502
081812	32.8	77.3	32.5	77.5	7	33.5	77.5	47	32.5	77.5	119				33.0	77.0	339	34.0	76.0	577
081818	32.9	77.4	33.0	77.5	7	33.5	77.0	12	34.0	76.5	90				34.5	75.5	306	36.0	74.0	498
081900	33.2	77.1	33.3	77.2	7	34.0	76.5	31	34.7	75.9	114				36.0	74.5	231	39.0	71.0	
081906	33.7	76.7	33.5	77.0	7	34.7	75.8	43	35.5	75.5	122				36.0	73.0	198			
081712	34.4	76.6	34.2	76.7	12	36.2	75.5	20	38.0	75.5	61				41.0	73.0	245	44.0	67.0	
081718	35.4	76.2	35.4	76.3	7	37.5	75.7	26	39.5	74.5	93				42.0	71.0	236	45.0	65.0	
081800	36.2	75.8	36.7	75.9	12	38.5	74.5	15	40.0	72.5	69				42.5	67.0		45.0	58.0	
081806	37.4	75.2	37.4	75.3	14	39.0	74.0	51	40.5	73.0	116				42.5	67.0		45.0	58.0	
081812	38.6	74.1	38.5	74.2	7	39.5	73.0	47	40.5	73.0	113				42.0	65.0		43.0	55.0	
081818	39.3	72.5	39.3	72.3	9	40.5	69.5	16	41.0	66.0	18				41.0	61.0		40.0	58.0	
081900	39.7	70.9	39.7	71.0	4	41.0	67.0	27	41.5	63.0					40.0	59.0		39.0	56.0	
081906	40.4	69.1	40.4	69.1	0	41.0	65.0	40	41.5	62.0										
081912	40.9	67.5	40.7	67.2		41.5	63.5		41.5	60.0										
081918	41.3	65.3	41.7	65.5		42.3	61.5		42.0	57.5										
MEAN VECTOR ERRORS(NM)								32			93			0			295			527
NUMBER OF CASES					15			15			13			0			9			5

OFFICIAL FORECAST — DANIELLI SEP 07-SEP 09 1986

DATE/TIME GMT	BEST TRACK LAT.	LONG.	OPERATIONAL POSITION ERROR LAT.	LONG.	NM	12HR FORECAST LAT.	LONG.	ERROR NM	24HR FORECAST LAT.	LONG.	ERROR NM	36HR FORECAST LAT.	LONG.	ERROR NM	48HR FORECAST LAT.	LONG.	ERROR NM	72HR FORECAST LAT.	LONG.	ERROR NM
090718	11.2	55.3	11.0	53.0	19	12.0	60.0	23	13.0	64.0	48				14.0	70.0		15.0	76.0	
090800	11.3	57.5	11.3	57.6	30	12.0	61.8	29	12.5	66.0	63				13.5	73.0		15.0	78.5	
090806	12.2	54.4	11.8	55.1	23	13.3	59.2	34	15.0	67.0	92				14.5	74.0		16.5	79.5	
090812	12.5	61.2	12.5	61.0	11	13.5	65.2	24	14.0	63.5	11				15.5	75.0		17.5	80.0	
090818	13.0	63.0	13.3	63.3	21	14.3	67.2	31	15.5	71.5					17.0	79.0		18.0	85.0	
090900	13.4	64.8	13.5	64.5	5	14.5	69.5	11	15.0	72.5					16.5	79.5		21.0	86.0	
090906	13.8	66.5	14.0	66.5		14.7	70.2		15.5	74.0					17.5	81.0		22.0	86.0	
090912	14.0	68.5	13.5	68.2		14.0	72.5		14.5	75.0					16.0	81.0		20.0	85.0	
MEAN VECTOR ERRORS(NM)					19			26			45			0			0			0
NUMBER OF CASES														0			0			0

Table 5a continued.

OFFICIAL FORECASTS [illegible] SEP 11-SEP 18 1986

DATE/TIME GMT	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	OPERATIONAL POSITION ERROR NM	12HR FORECAST LAT.	12HR FORECAST LONG.	12HR ERROR NM	24HR FORECAST LAT.	24HR FORECAST LONG.	24HR ERROR NM	36HR FORECAST LAT.	36HR FORECAST LONG.	36HR ERROR NM	48HR FORECAST LAT.	48HR FORECAST LONG.	48HR ERROR NM	72HR FORECAST LAT.	72HR FORECAST LONG.	72HR ERROR NM
091106	23.2	53.3	23.3	53.9	35	24.1	56.0	31	25.0	53.0	141				27.5	60.0	134	30.0	60.0	276
091112	24.1	52.7	24.0	53.0	5	24.3	54.3	47	28.0	55.0	78				30.0	55.5	44	31.5	55.0	141
091118	25.0	53.4	25.0	53.1	14	27.5	54.5	75	29.3	54.5	141				31.0	51.0	70	31.5	50.0	39
091200	25.6	53.1	25.5	54.3	27	27.5	56.0	33	29.5	55.0	51				31.0	55.0	50	32.0	53.0	119
091206	25.3	54.3	25.0	54.7	2	27.0	55.0	12	33.5	56.0	13				31.0	55.0	31	32.0	53.0	172
091212	26.0	[illegible]	26.3	55.0	13	29.1	55.1	21	30.0	58.3	73				31.3	54.2	107	33.0	51.0	207
091218	27.2	55.4	27.2	55.5	12	28.5	56.1	51	30.2	57.5	142				32.5	56.0	234	35.0	51.0	336
091300	[illegible]	[illegible]	[illegible]	[illegible]	15	30.5	56.0	25	31.5	54.5	165				[illegible]	[illegible]	261	36.0	53.0	425
091306	28.3	55.3	28.3	55.7	32	29.3	53.0	30	32.5	53.0	132				33.0	54.0	260	35.0	48.0	410
091312	29.3	54.3	29.7	54.3	13	30.3	54.2	23	32.2	53.5	104				34.0	51.5	253	36.0	46.0	426
091318	30.1	54.7	30.3	54.2	5	31.7	54.0	35	33.3	53.0	123				34.5	47.0	313	35.0	45.0	390
091400	30.4	53.3	31.0	54.0	37	32.1	52.5	34	33.5	51.0	120				34.0	47.0	286	35.0	42.0	489
091406	30.5	53.1	31.0	53.0	30	31.0	51.0	31	31.0	49.0	32				31.0	45.5	135	31.0	42.0	421
091412	30.6	52.4	30.0	52.0	23	31.0	52.5	37	31.7	47.0	91				31.0	45.5	193	31.0	42.0	436
091418	30.6	51.7	30.7	51.5	23	30.7	53.0	31	30.7	42.5	35				30.7	45.5	194	31.0	42.5	422
091500	30.4	51.1	30.6	51.0	13	30.5	49.5	43	30.5	43.0	50				30.5	49.0	128	31.0	43.0	415
091506	30.0	50.5	30.4	50.5	21	29.4	49.5	13	29.3	46.5	31				29.5	47.0	175	30.5	44.0	439
091512	27.8	50.1	29.7	50.5	12	29.0	49.0	13	29.3	43.5	53				29.5	47.0	243	31.0	46.0	462
091518	29.5	49.0	29.3	48.0	21	28.5	47.5	61	30.0	45.3	137				32.0	43.0	245	34.0	44.0	450
091600	29.0	49.0	29.0	49.0	3	28.5	44.0	59	29.0	47.0	150				31.0	40.0	236	34.0	44.0	
091606	29.7	48.5	29.5	[illegible]	13	29.5	47.0	115	30.0	46.0	219				31.5	44.5	356	34.0	42.0	
091612	29.1	49.7	30.0	49.0	13	30.5	45.0	127	31.0	43.0	234				30.0	44.0	534	33.0	40.0	
091618	29.3	49.5	29.5	49.1	5	30.5	49.0	79	31.0	43.5	151				34.0	46.0	431	37.0	44.0	
091700	29.3	49.3	30.0	49.5	3	31.0	50.5	31	31.5	53.0	32				36.0	43.0		41.0	43.0	
091706	30.0	50.3	30.5	49.7	27	31.2	50.5	79	33.0	51.0	134				38.0	43.0		44.0	45.0	
091712	31.4	50.7	31.9	51.1	31	34.0	52.0	72	37.5	50.5	116				45.5	44.5				
091718	32.6	50.7	33.0	52.4	38	35.5	48.5	35	40.0	42.0	100				48.0	33.0				
091800	34.0	50.4	35.0	50.0	53	39.0	49.0	49	43.0	47.0					51.0	39.0				
091806	35.0	49.6	37.0	49.5	50	43.0	47.5	63	51.0	47.0										
091812	38.0	48.4	39.0	47.5		45.0	45.0		52.0	42.0										
091818	41.0	47.3	40.2	47.7		45.5	45.5		52.0	43.0										

	OPERATIONAL POSITION ERROR	12HR	24HR	36HR	48HR	72HR
MEAN VECTOR ERRORS(NM)	26	51	118	0	228	344
NUMBER OF CASES	29	29	27	0	23	19

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OFFICIAL FORECASTS FRANCES NOV 19-NOV 21 1986

DATE/TIME GMT	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	OPERATIONAL POSITION ERROR NM	12HR FORECAST LAT.	12HR FORECAST LONG.	12HR ERROR NM	24HR FORECAST LAT.	24HR FORECAST LONG.	24HR ERROR NM	36HR FORECAST LAT.	36HR FORECAST LONG.	36HR ERROR NM	48HR FORECAST LAT.	48HR FORECAST LONG.	48HR ERROR NM	72HR FORECAST LAT.	72HR FORECAST LONG.	72HR ERROR NM
111906	23.7	60.7	24.3	63.3	22	26.5	63.0	77	28.5	63.0	111				32.0	61.0	179	36.0	53.0	
111912	24.4	62.3	25.1	62.7	42	27.0	62.5	34	29.0	61.5	99				32.0	57.0	74	35.0	50.0	
111918	24.5	62.7	25.5	62.5	35	25.5	61.5	65	25.0	60.5	118				31.0	56.0	92	34.5	49.0	
112000	25.5	62.1	[illegible]	[illegible]	13	[illegible]	[illegible]	97	[illegible]	[illegible]	132				31.0	53.0		38.0	45.0	
112006	27.0	61.0	25.1	62.1	35	27.3	61.3	107	28.5	61.5	127				32.0	59.0		37.5	46.5	
112012	27.3	59.5	27.6	59.3	15	29.5	55.5	31	29.5	54.5	150				33.0	50.0		40.0	43.0	
112018	28.5	55.7	28.4	58.5	7	29.7	55.5	71	31.0	55.0	144				36.0	51.0		42.0	40.0	
112100	29.1	55.2	27.4	57.0	50	31.0	55.0	104	33.0	53.0					39.0	48.0		46.0	40.0	
112106	29.7	55.0	30.0	55.5	61	33.0	56.5	92	32.5	53.0										
112112	30.4	57.7	33.3	56.2		31.3	57.5		33.3	55.5										
112118	31.1	57.7																		

	OPERATIONAL POSITION ERROR	12HR	24HR	36HR	48HR	72HR
MEAN VECTOR ERRORS(NM)	40	83	132	0	115	0
NUMBER OF CASES	9	7	7	0	3	0

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1986 SUMMARY FOR OFFICIAL	PSN.ERR	12HR	24HR	36HR	48HR	72HR
AVERAGE ERROR FOR ALL STORMS	20	47	104	0	233	382
NUMBER OF CASES	72	73	51	0	37	24

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Table 5b. Best Track Hurricane Andrew 10-20 September 1986
with 12/24/48/72 hour forecast windspeed verification.

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (MB)	WIND (KT)	FORECAST WINDSPEED ERROR IN KNOTS* 12	24	48	72
6/05	0000	26.2	75.8	1007	30				
	0600	27.4	76.0	1006	30				
	1200	28.4	76.4	1005	30				
	1800	29.1	77.0	1003	30				
	0000	29.7	77.5	1002	35	-05	00	00	
	0600	30.2	77.8	1003	40	-10	-10	-20	
	1200	30.7	78.0	1005	45	-10	-05	00	
	1800	31.4	77.9	1004	45	-10	-10	00	
6/07	0000	31.9	77.8	1003	45	-10	-10		
"	0600	32.8	76.9	1001	45	-05	-05		
"	1200	33.6	76.0	999	45	-05	00		
"	1800	34.3	75.0	1000	45	-05	00		
6/08	0000	35.2	73.9	1002	45	-05			
"	0600	36.3	72.7	1002	45	+05			
"	1200	37.9	71.0	1002	40				
"	1800	39.6	68.9	1001	35				

Best Track - Hurricane Bonnie - June 1986 with
12/24/48/72 hour forecast windspeed verification.

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (mb)	WIND kt	FORECAST WINDSPEED ERROR IN KNOT 12	24	48	72
8/23	1800	25.6	87.2	1014	25	+05	00	-15	+25
8/24	0000	25.7	87.8	1013	25	00	-05	-20	+30
	0600	26.0	88.4	1014	25	-10	-10	-25	+35
	1200	26.4	88.9	1011	30	00	-05	-05	+45
	1800	26.6	89.5	1006	40	-05	-15	+25	+15
8/25	0000	26.7	90.3	1001	45	+10	+10	+15	
	0600	26.8	91.0	1002	50	-05	-05	00	
	1200	27.2	91.7	997	55	00	+10	+05	
	1800	27.7	92.2	1001	65	00	+50	+10	
	0000	28.2	92.9	999	70	+05	+10		
	0600	29.0	93.7	995	75	00	00		
	1200	29.9	94.3	992	65	+05	+05		
	1800	30.9	94.7	1000	35	00	00		
	0000	31.8	94.7	1009	30				
	0600	32.8	94.7	1015	25				
	1200	33.9	94.3	1016	20				
	1800	34.8	93.5	1016	20				
8/28	0000	35.6	92.5	1014	15				
	0600	36.5	91.3	1013	10				
	1200	37.2	90.0	1012	10				

* Forecast wind speed error is computed by subtracting actual wind speed from the forecast wind speed.

Table 5b (continued). BEST TRACK - HURRICANE CHARLEY - AUGUST 1986 with 12/24/48/72 hour forecast windspeed verification.

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (MB)	WIND (KT)	FORECAST WINDSPEED ERROR IN KNOTS 12	24	48	72
8/13	1200	30.1	84.0	1009	10				
"	1800	30.8	84.0	1012	10				
8/14	0000	31.4	83.6	1013	10				
"	0600	32.0	83.1	1014	10				
"	1200	32.5	82.5	1015	10				
"	1800	32.4	82.0	1015	10				
8/15	0000	32.3	81.2	1013	15				
"	0600	32.3	80.0	1013	15				
"	1200	32.2	79.0	1009	30				
"	1800	32.2	78.5	1007	35	+15	+10	00	+10
8/16	0000	32.3	78.1	1004	40	+10	+05	-05	+15
"	0600	32.4	77.9	1002	40	00	-05	00	+20
"	1200	32.6	77.6	999	45	-05	-10	+05	+25
"	1800	32.9	77.4	997	50	-05	00	+10	+25
8/17	0000	33.2	77.1	995	55	00	00	+20	+20
"	0600	33.7	76.9	993	60	00	-05	-15	
"	1200	34.4	76.6	991	65	-05	+05	+20	+25
"	1800	35.4	76.2	988	65	00	+05	+20	+25
8/18	0000	36.5	75.8	987	70	+05	00	+10	+05
"	0600	37.4	75.2	990	65	00	00	+05	00
"	1200	38.2	74.1	992	60	00	+05	00	-15
"	1800	39.0	72.6	994	60	-05	-15	-15	-20
8/19	0000	39.7	70.9	997	55	-10	-10	-15	-20
"	0600	40.4	69.1	999	50	00	00	-05	
"	1200	40.9	67.5	1000	45	00	-05		
"	1800	41.3	65.8	1002	45	-05	-10		
8/20	0000	41.5	64.0	1003	40				
"	0600	41.6	62.5	1004	40				
"	1200	41.7	60.2	1005	40				
"	1800	41.7	58.4	1005	40				
8/21	0000	41.6	56.6	1000	40				
"	0600	41.5	54.8	997	40				
	1200	41.4	53.2	992	40				
	1800	41.3	51.2	991	45				
8/22	0000	41.3	49.4	990	45				
	0600	41.3	47.6	989	45				
	1200	41.4	46.2	989	45				
	1800	41.5	44.8	989	45				
8/23	0000	41.8	43.2	988	45				
"	0600	42.3	41.6	989	45				
"	1200	43.0	39.6	989	45				
"	1800	43.9	37.2	989	45				

Table 5b (continued). BEST TRACK - Tropical Storm Danielle - 7 to 10 Sept 1986.
with 12/24/48/72 hour forecast windspeed verification

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (MB)	WIND (KT)	FORECAST WINDSPEED ERROR IN KNOTS 12	24	48	72
9/7	0600	10.5	52.0	1008	25	+05	+05	+10	+15
"	1200	11.0	54.0	1005	30	+15	+05	00	+20
"	1800	11.2	55.8	1003	35	+05	+05	+20	
9/8	0000	11.8	57.5	1000	45	+05	+15	+35	
"	0600	12.2	59.4	1000	50	00	+15	+35	
"	1200	12.5	61.2	1002	50	+05	+20	+35	
"	1800	13.0	63.0	1002	50	+10	+20		
9/9	0000	13.4	64.8	1004	45	+15	+30		
"	0600	13.8	66.5	1006	40	+25	+35		
"	1200	14.0	68.5	1008	35	+15	+25		
"	1800	14.5	70.5	1010	30	00			
9/10	0000	14.8	72.5	1012	30	00			
"	0600	14.9	75.5	1012	30				
"	1200	14.8	78.5	1013	30				

Table 5b (continued). Best Track Hurricane Earl 10-20 September 1986 with 12/24/48/72 hour forecast windspeed verification.

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (MB)	WIND (KT)	FORECAST WINDSPEED ERROR IN KNOTS 12	24	48	72
9/10	1800	21.8	50.8	1010	30	-10	-25	-35	-35
9/11	0000	22.4	51.6	1009	35	-25	-40	-45	-35
"	0600	23.2	52.3	1006	45	-35	-40	-45	-35
"	1200	24.1	52.9	1002	55	-45	-50	-55	-55
"	1800	25.0	53.4	999	70	-25	-25	-30	-40
9/12	0000	25.6	53.8	996	75	-20	-25	-30	-40
"	0600	26.3	54.3	993	80	-25	-25	-30	-40
"	1200	26.8	54.8	988	85	-20	-25	-25	-40
	1800	27.2	55.4	985	90	-20	-20	-25	-30
9/13	0000	28.1	55.5	983	90	-10	-05	-10	-05
"	0600	28.8	55.3	983	90	-20	-25	-25	-15
"	1200	29.5	54.9	983	90	-15	-20	-25	-15
"	1800	30.1	54.7	983	90	-10	-15	-15	-10
9/14	0000	30.4	53.8	982	90	-10	-15	-10	-10
"	0600	30.5	53.1	980	90	-15	-20	-15	-10
"	1200	30.6	52.4	979	90	-10	-15	-10	-15
"	1800	30.6	51.7	979	90	-15	-15	-15	-20
9/15	0000	30.4	51.1	980	90	-10	-05	-05	-05
"	0600	30.0	50.6	980	90	-05	-05	-05	00
"	1200	29.6	50.1	981	90	00	00	-05	00
"	1800	29.2	49.6	982	85	-05	-05	-05	-05
9/16	0000	29.0	49.0	983	80	00	-05	-05	00
"	0600	28.7	48.5	983	80	-05	-05	-05	-10
"	1200	29.1	48.9	984	75	-05	-05	-05	-05
	1800	29.5	49.3	984	75	-05	-05	-05	-05
9/17	0000	29.9	49.9	985	75	-05	-10	-05	-10
"	0600	30.6	50.3	985	70	-05	-05	-05	
"	1200	31.4	50.9	986	70	-05	00	-05	
"	1800	32.6	50.7	986	70	00	00	-05	
9/18	0000	34.0	50.4	987	70	00	+05	-05	
"	0600	36.0	49.6	988	65	00	00		
"	1200	38.3	48.4	989	65	+05	+05		
"	1800	41.0	47.5	990	65	-10	-10		
9/19	0000	43.5	46.3	992	60	-05	-10		
"	0600	46.2	44.8	993	60	00			
"	1200	49.0	42.0	995	55	-05			
"	1800	52.0	39.5	996	55				
9/20	0000	56.0	34.0	997	55				

Table 5b (continued). Best Track Hurricane Frances 18-21 November 1986 with 12/24/48/72 hour forecast windspeed verification.

DATE	TIME (UTC)	POSITION LATITUDE	POSITION LONGITUDE	PRESSURE (MB)	WIND (KT)	FORECAST WINDSPEED ERROR IN KNOTS 12	24	48	72
11/18	1800	22.8	62.8	1009	30	00	-10	-30	00
11/19	0000	23.5	62.9	1008	30	-05	-15	-25	
"	0600	23.9	62.9	1007	35	-15	-25	-20	
"	1200	24.4	62.8	1006	40	-20	-30	-10	
"	1800	24.8	62.7	1004	50	-15	-25	+05	
11/20	0000	25.8	62.1	1002	55	-20	-15		
"	0600	27.0	61.0	1001	65	-25	-15		
"	1200	27.8	59.6	1000	75	-05	+05		
"	1800	28.5	58.7	1000	75	00	+15		
11/21	0000	29.1	58.2	1001	70	+10			
"	0600	29.7	58.0	1002	65	+20			
"	1200	30.4	57.9	1003	55				
"	1800	31.1	57.9	1005	45				

LEGEND FOR TABLE 6

OBSERVATIONAL UNIT

Reconnaissance

AF = Air Force

NOAA = National Oceanographic and Atmospheric Administration

Satellite

GOES-6 = Geostationary Operational Environmental Satellite

Radar

National Weather Service Radar:

GLS-R = Galveston, TX.
LCH-R = Lake Charles, LA.
CHS-R = Charleston, SC.
ILM-R = Wilmington, NC.
HAT-R = Cape Hatteras, NC

RESOLUTION

Reconnaissance

Navigational Accuracy/Meteorological Accuracy (NM). (Example 5/5)

Satellite

Classification confidence*, location and confidence**, visable 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 = classificition confidence 2, location confidence 5 infrared picture with 8 kilometer resolution.)

Table 6. Center Fix positions and intensity evaluations for 1986 Tropical Cyclones.

CENTER FIXES

TROPICAL STORM ANDREW 4-8 JUNE 1986

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.)	CHARACTERISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
01	04	1230	24.9	75.7	30								GOES 6	2,5 VIS 1	
02	04	1800	25.0	75.7	30								GOES 6	2,5 VIS 1	
03	05	0000	25.2	76.0	25								GOES 6	2,5 IR 8	
04	05	0600	27.5	75.7	30								GOES 6	2,5 IR 8	
05	05	1200	28.6	76.2	30								GOES 6	2,5 VIS 1	
06	05	1800	29.1	77.0	30								GOES 6	2,5 VIS 1	
07	05	2238	29.5	77.5	25	30	1002		21	22			AF	5/5	457M
08	06	0000	29.6	77.3	35		1005						GOES 6	2,5 IR 8	
09	06	0128	30.0	77.5		34	1003		21	21			AF	5/5	457M
10	06	0600	30.3	70.0	35		1005						GOES 6	2,3 IR 8	
11	06	1141	31.1	78.0	20	22	1005		22	22			AF	3/3	457M
12	06	1200	31.1	77.9	35		1005						GOES 6	2,3 VIS 1	
13	06	1340	30.9	78.1	20	21	1005		22	22			AF	3/3	457M
14	06	1523	30.9	78.0	40	45	1006		23	23			AF	3/3	457M
15	06	1800	30.9	78.0	35		1005						GOES 6	2,3 VIS 1	
16	07	0000	31.9	77.7	45		1000						GOES 6	2,3 IR 8	
17	07	0013	31.4	77.9	20	15	1004		24	24			AF	5/8	457M
18	07	0242	32.6	77.1			1002						AF		
19	07	0510	32.8	76.8		49	1003		22	23			AF	5/5	457M
20	07	0600	32.6	76.4	45		1000						GOES 6	2,5 IR 8	
21	07	1130	33.1	76.1								psbl center	HAT-R		
22	07	1154	33.7	76.2	35	19	1002		22	23			AF	5/5	457M
23	07	1200	33.8	76.0	45		1000						GOES 6	2,5 VIS 1	
24	07	1225	33.2	75.8								psbl center	HAT-R		
25	07	1300	33.5	75.7								psbl center	HAT-R		
26	07	1325	33.5	75.7								psbl center	HAT-R		
27	07	1416	33.7	75.7	20	26	999						AF		
28	07	1425	33.6	75.2								psbl center	HAT-R		
29	07	1500	33.8	75.3	45		1000						GOES 6	2,5 VIS 1	
30	07	1525	33.4	75.5								psbl center	HAT-R		

CENTER FIXES

TROPICAL STORM ANDREW (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	07	1526	33.8	75.3								psbl center	ILM-R		
32	07	1702	34.0	75.2	35	39	1000		22	22			AF	5/3	457M
33	07	1725	33.6	75.1								psbl center	HAT-R		
34	07	1800	34.2	74.9	45		1000						GOES 6	2,3 VIS 1	
35	07	2025	34.0	74.6								psbl center	HAT-R		
36	08	0000	35.0	73.8	45		1000						GOES 6	2,3 IR 8	
37	08	0001	35.1	73.7	15	19	1002		24	21			AF	4/5	457M
38	08	0233	35.6	73.2		24	1002						AF		
39	08	0502	36.2	73.0		48	1003		21	21			AF	3/5	457M
40	08	0600	36.2	76.5	45		1000						GOES 6	2,5 IR 8	
41	08	1200	37.6	70.0	45		1000						GOES 6	2,5 VIS 1	
42	08	1230	38.2	71.7	20	24	1002		22	22			AF	5/10	457M
43	08	1507	39.5	71.8	15	19	1003						AF		700MB
44	08	1800	39.6	68.9	35		1005						GOES 6	2,5 VIS 1	

CENTER FIXES

HURRICANE BONNIE 22-26 JUNE 1986

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	LON.			MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTERISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
01	22	1800	26.5	85.0									GOES 6	-,3 VIS 1	
02	23	0000	26.3	85.2									GOES 6	-,5 IR 8	
03	23	0600	26.2	85.5									GOES 6	-,5 IR 8	
04	23	1200	25.5	86.3									GOES 6	-,5 VIS 1	
05	23	1800	25.6	87.1	25								GOES 6	2,6 VIS 1	
06	24	0000	25.6	87.9	25								GOES 6	2,3 IR 8	
07	24	0600	25.7	88.6	25								GOES 6	2,3 IR 8	
08	24	1200	26.1	89.1	30		1009						GOES 6	2,3 VIS 1	
09	24	1510	26.6	89.2	50	48	1009		23	25	C05	calm cntr	AF	5/3	457M
10	24	1750	26.8	89.5	40	30	1006		23	25	C03	calm cntr	AF	5/3	457M
11	24	1800	26.4	89.5	35		1005						GOES 6	2,3 VIS 1	
12	24	1951	26.8	89.7	35	30	1004						AF		
13	24	2104	26.8	89.8	30	20	1006		24	25			AF	5/3	457M
14	24	2319	26.7	90.2	30	34	1003		23	25			AF	3/3	457M
15	25	0000	26.5	90.2	45		1000						GOES 6	2,3 VIS 1	
16	25	0128	26.8	9053	55	58	1001						AF		
17	25	0327	26.8	90.9		37	1002		23	26			AF	3/3	457M
18	25	0543	26.9	91.1		25	1002		24	26			AF	3/3	457M
19	25	0600	26.8	91.1	45		1000						GOES 6	2,3 IR 8	
20	25	0828	27.0	91.5		27	999		24	24			AF	5/5	457M
21	25	1106	27.3	91.6		51	997		22	25			AF	5/5	457M
22	25	1200	27.8	91.7	50		997						GOES 6	2,5 VIS 1	
23	25	1414	27.4	91.9	55	68	999		22	27	E21/27		AF	5/5	457M
24	25	1730	27.5	92.1	60	52	1001		13	17	C25		AF		850MB
25	25	1800	27.5	92.0	65		987						GOES 6	1,3 VIS 1	
26	25	1907	27.7	92.3							18	psbl center	LCH-R		
27	25	1925	27.7	92.3								well defined	GLS-R		
28	25	1930	27.7	92.3							18	psbl center	LCH-R		
29	25	1945	27.7	92.2	80	60	999		19	19	C20	clsd wall	AF	4/3	850MB
30	25	2000	27.8	92.4							15	psbl center	LCH-R		

CENTER FIXES

HU ANE BO

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 AL
	25	2025	27.8	92.3								well defined	GLS-R		
	25	2033	27.8	92.4							15	psbl cntr	LCH-R		
	25	2100	28.0	92.3	65		987						GOES 6	1,3 VIS 1	
	25	2103	28.0	92.4							12	psbl cntr	LCH-R		
	25	2105	27.9	92.4	50	50	999		17	18	C20	closed wall	AF	4/3	OM
	25	2110	27.8	92.6							12	eye good	GLS-R		
	25	2125	28.0	92.5							12	psbl center	LCH-R		
38	25	2130	27.7	92.7							10	eye fair	GLS-R		
	25	2200	28.0	92.6							12	eye good	LCH-R		
	25	2210	28.0	92.8							12	eye good	GLS-R		
	25	2229	28.0	92.8							12	eye fair	GLS-R		
	25	2230	27.9	92.7							12	eye good	LCH-R		
	25	2301	28.1	92.5	65	39	999		18	19	E05/25/20	closed wall	AF	4/3	OMB
44	25	2305	28.8	92.7							15	eye good	LCH-R		
	25	2310	28.2	92.6							12	eye fair	GLS-R		
46	25	2325	28.2	92.8							15	eye good	LCH-R		
	25	2330	28.2	92.7							15	eye good	GLS-R		
	26	0000	28.3	92.7	65		987						GOES 6	1,3 VIS 1	
	26	0002	28.2	92.8							12	eye good	LCH-R		
50	26	0005	28.2	92.8							10	eye good	GLS-R		
	26	0025	28.2	92.9							15	eye good	LCH-R		
	26	0030	28.2	92.9							10	eye good	GLS-R		
	26	0100	28.4	92.9							12	eye good	LCH-R		
	26	0105	28.3	92.9							10	eye good	GLS-R		
	26	0125	28.4	93.0							12	eye good	LCH-R		
	26	0130	28.4	93.0							10	eye good	GLS-R		
	26	0202	28.5	93.1							10	eye good	LCH-R		
58	26	0209	28.4	93.0							08	eye good	GLS-R		
	26	0225	28.6	93.2							10	eye good	LCH-R		
60	26	0228	28.5	93.1							10	eye good	GLS-R		

CENTER FIXES

HURRICANE BONNIE (continued)

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	LON.	)	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.
61	26	0300	28.6	93.3						08	eye good	LCH-R		
62	26	0300	28.7	93.1	65	987						GOES 6	1,3 IR 8	
63	26	0305	28.6	93.3	50	998		24	26	C25	open west	NOAA	4/4	457M
64	26	0329	28.5	93.3						10	eye good	GLS-R		
65	26	0330	28.6	93.3						10	eye good	LCH-R		
66	26	0400	28.7	93.5						08	eye fair	LCH-R		
67	26	0405	28.7	93.4						05	eye good	GLS-R		
68	26	0425	28.8	93.5						08	eye good	LCH-R		
69	26	0430	28.8	93.5	70	997		23	25	C20	open sw	NOAA	5/5	457M
70	26	0500	28.9	93.7						14	eye fair	LCH-R		
71	26	0505	28.8	93.5						08	eye good	GLS-R		
72	26	0525	28.9	93.8						13	eye fair	LCH-R		
73	26	0532	28.8	93.8						10	eye good	LCH-R		
74	26	0558	29.0	93.8	73	995		23	27	E10/25/18	open west	NOAA	3/4	457M
75	26	0600	29.0	93.8						12	eye good	LCH-R		
76	26	0600	28.9	93.8	65	987						GOES 6	1,3 IR 8	
77	26	0605	28.9	93.8						05	eye good	GLS-R6		
78	26	0625	29.1	93.8						12	eye good	LCH-R		
79	26	0700	29.2	93.9						12	eye good	LCH-R		
80	26	0708	29.2	93.9						10	eye good	GLS-R		
81	26	0725	29.2	93.9						12	eye good	LCH-R		
82	26	0730	29.2	94.0						08	eye good	GLS-R		
83	26	0800	29.3	94.0						12	eye good	LCH-R		
84	26	0802	29.3	94.0							eye good	GLS-R		
85	26	0815	29.3	94.0	51	992		25	25	C15	closed	AF	1/5	457M
86	26	0825	29.3	94.0						14	eye good	LCHS-R		
87	26	0826	29.3	94.0							eye good	GLS-R		
88	26	0900	29.5	94.0						14	eye good	LCH-R		
89	26	0900	29.4	94.0	65	987						GOES 6	1,3 IR 8	
90	26	0902	29.4	94.0						10	eye good	GLS-R		
91	26	0925	29.5	94.0						14	eye good	LCH-R		

CENTER FIXES

HURRICANE BONNIE (continued)

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
92	26	0925	30.0	94.1							10	eye good	GLS-R		
93	26	0959	29.6	94.1							14	eye good	LCH-R		
94	26	1002	29.6	94.1							09	eye good	GLS-R		
95	26	1025	29.7	94.1							15	eye good	LCH-R		
96	26	1033	29.7	94.2								eye good	GLS-R		
97	26	1059	29.7	94.2							14	eye good	LCH-R		
98	26	1125	29.8	94.2							15	eye good	LCH-R		
99	26	1130	29.9	94.1							08	eye poor	GLS-R		
100	26	1200	29.8	94.2							15	eye good	LCH-R		
101	26	1200	29.7	94.5									GOES 6	-,5 VIS 1	
102	26	1203	29.8	94.2							08	eye good	GLS-R		
103	26	1225	29.9	94.2							15	eye good	LCH-R		
104	26	1230	29.9	94.3							08	eye poor	GLS-R		
105	26	1259	30.0	94.2							14	eye good	LCH-R		
106	26	1304	30.0	94.2							09	eye good	GLS-R		
107	26	1330	30.0	94.4							09	eye poor	GLS-R		
108	26	1332	30.2	94.3							08	eye fair	LCH-R		
109	26	1359	30.2	94.3							10	eye good	LCH-R		
110	26	1430	30.3	94.5							10	eye poor	GLS-R		
111	26	1432	30.3	94.4							10	eye good	LCH-R		
112	26	1500	30.5	94.5									GOES 6	-,3 VIS 1	
113	26	1503	30.3	94.5							10	eye good	LCH-R		
114	26	1533	30.4	94.5							05	eye poor	GLS-R		
115	26	1539	30.4	94.5							05	psbl eye	LCH-R		
116	26	1604	30.5	94.6							05	eye poor	GLS-R		
117	26	1730	30.8	94.7							10	eye poor	GLS-R		
118	26	1800	30.9	94.6									GOES 6	-,5 VIS 1	
119	26	1830	30.8	94.6							10	psbl cntr	GLS-R		

CENTER FIXES

HURRICANE CHARLEY 15-20 AUGUST 1986

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS		RESOLUTION	ACFT ALT.
01	15	1300	32.0	79.0	25								GOES 6	2,5 VIS 1	
02	15	1800	32.1	78.0	30		1009						GOES 6	2,5 VIS 1	
03	15	1900	32.0	78.3	44	22	1007		24	25			NOAA	5/15	457M
04	15	1934	31.7	78.5							60	psbl center	CHS-R		
05	15	2010	31.7	78.5							60	psbl center	CHS-R		
06	15	2030	31.7	78.6							70	psbl center	CHS-R		
07	15	2104	32.4	77.0	40	42	1005		22	24		poorly def.	NOAA	5/5	457M
08	15	2313	32.9	78.0								psbl center	ILM-R		
09	15	2325	32.0	78.3							85	psbl center	CHS-R		
10	15	2332	32.6	77.9								psbl center	ILM-R		
11	15	2340	32.5	78.2	35	46	1002		23	27		poorly def.	NOAA	15/15	
12	16	0000	32.3	78.1	35		1005						GOES 6	2,5 IR 8	
13	16	0008	32.1	77.8							60	psbl center	CHS-R		
14	16	0027	32.6	77.8								psbl center	ILM-R		
15	16	0030	32.1	77.7							45	psbl center	CHS-R		
16	16	0110	32.7	77.8								psbl eye	ILM-R		
17	16	0110	32.3	77.8							40	psbl center	CHS-R		
18	16	0130	32.3	77.7							40	psbl center	CHS-R		
19	16	0135	32.9	77.8								psbl eye	ILM-R		
20	16	0203	32.6	77.8								psbl eye	ILM-R		
21	16	0206	32.1	77.9							30	psbl center	CHS-R		
22	16	0230	32.2	77.9							30	psbl center	CHS-R		
23	16	0233	32.6	77.8								psbl eye	ILM-R		
24	16	0306	32.1	78.0							30	psbl center	CHS-R		
25	16	0308	32.9	77.8								psbl eye	ILM-R		
26	16	0334	32.3	77.8							20	psbl center	CHS-R		
27	16	0433	32.3	77.8							15	psbl center	CHS-R		
28	16	0532	32.4	78.0							25	eye fair	CHS-R		
29	16	0600	32.5	78.0	35		1005						GOES 6	2,5 IR 8	
30	16	0623	32.4	78.0		40	1001		23	24		poorly def.	NOAA	5/5	457M

CENTER FIXES

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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 AL'
	16	0625	32.4	77.8								psbl center	ILM-R		
	16	0630	32.4	78.0							25	eye fair	CHS-R		
	16	0700	32.4	77.9							30	psbl center	ILM-R		
	16	0705	32.4	78.1							25		CHS-R		
	16	0725	32.4	77.8							30	psbl center	ILM-R		
	16	0730	32.4	77.9		36	1002						NOAA		
	16	0731	32.4	78.0							25		CHS-R		
38	16	0755	32.4	77.8							40	psbl center	ILM-R		
	16	0805	32.4	78.0							25		CHS-R		
	16	0825	32.3	77.9							35	psbl center	ILM-R		
	16	0830	32.4	78.0							35	psbl center	CHS-R		
	16	0856	32.4	77.8		42	999		23		24	poorly def.	NOAA	5/3	
	16	0900	32.3	77.8							40	psbl center	ILM-R		
44	16	0925	32.3	77.9							35	psbl center	ILM-R		
	16	1000	32.4	78.0							35	psbl center	CHS-R		
	16	1001	32.3	77.8							40	psbl center	ILM-R		
	16	1030	32.5	77.9							40	psbl center	CHS-R		
48	16	1058	32.4	77.7							40	psbl center	ILM-R		
	16	1125	32.4	77.7							40	center good	ILM-R		
	16	1130	32.5	77.7							45	psbl center	CHS-R		
	16	1145	32.5	77.6	35	30	998		23	24	C20	poorly def.	AF	4/3	
	16	1200	32.6	77.5	35		1005						GOES 6	2,3 VIS 1	
	16	1226	32.6	77.6							40	psbl center	CHS-R		
	16	1230	32.3	77.6							35	center poor	ILM-R		
	16	1330	32.6	77.5							40	psbl center	CHS-R		
56	16	1330	32.3	77.7							40	psbl center	ILM-R		
	16	1337	32.6	77.5	35	34	999						AF		
	16	1405	32.6	77.6							40	psbl center	ILM-R		
	16	1428	32.7	77.4							40	psbl center	CHS-R		
60	16	1430	32.6	77.6							30	psbl center	ILM-R		

CENTER FIXES

HURRICANE CHAR

FIX	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
	16	1500	32.8	77.5	35		1005						GOES 6	2,3 VIS 1	
	16	1505	32.8	77.4							30	psbl center	ILM-R		
	16	1519	32.7	77.5	35	19	999		23	24	C20	poorly def.	AF	4/3	
	16	1530	32.7	77.6							40	center poor	CHS-R		
	16	1530	32.8	77.4							30	psbl center	ILM-R		
	16	1630	32.8	77.4							30	psbl center	ILM-R		
	16	1705	32.9	77.4							30	center poor	ILM-R		
	16	1711	32.8	77.5	35	33	998		23	23	C25	poorly def.	AF	4/3	
	16	1800	32.9	77.4	55		994						GOES 6	2,3 VIS 1	
	16	1830	32.7	77.4							20	psbl center	ILM-R		
	16	2015	32.8	77.3							18	psbl center	ILM-R		
	16	2100	32.9	77.3	55		994						GOES 6	1,3 VIS 1	
	16	2102	33.0	77.2	45	45	998		24	24			NOAA	5/5	
	16	2103	32.9	77.1							10	psbl center	ILM-R		
	16	2215	32.9	77.3							18	psbl center	ILM-R		
	16	2307	33.0	77.2							30	psbl center	ILM-R		
	16	2325	32.9	77.2							34	psbl center	ILM-R		
	16	2349	33.3	77.2	70	65	997		22	25			NOAA	5/5	
	17	0000	33.2	77.1	55		994						GOES 6	1,3 IR 8	
80	17	0014	33.0	76.9							E30/50		ILM-R		
	17	0032	33.0	76.9							E30/45		ILM-R		
	17	0116	33.3	76.9							42		ILM-R		
	17	0134	33.3	76.9							40		ILM-R		
84	17	0205	33.4	77.0							40		ILM-R		
	17	0234	33.4	76.9							40		ILM-R		
86	17	0242	33.4	77.0		60	998		23	24	C40	eye poor	NOAA	5/5	
	17	0256	33.4	76.9							E40/35		ILM-R		
	17	0300	33.4	76.9	65		987						GOES 6	2,3 IR 8	
	17	0312	33.4	76.9							E40/30		ILM-R		
90	17	0330	33.4	76.9							E40/30		ILM-R		

CENTER FIXES

HURRICANE CHARLEY (continued)

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS	OBS. UNIT	RESOLUTION	ACFT ALT.
91	17	0400	33.4	76.9							35		ILM-R		
92	17	0430	33.4	76.9							35		ILM-R		
93	17	0430	33.6	76.1							E30/40	center fair	HAT-R		
94	17	0505	33.7	77.1							30	center fair	HAT-R		
95	17	0525	33.8	77.1							E30/40	eye fair	HAT-R		
96	17	0527	33.6	76.9		44	995		19	20	C40	closed	AF	3/2	850MB
97	17	0530	33.5	76.9							30		ILM-R		
98	17	0600	33.8	76.8							30		ILM-R		
99	17	0600	33.8	76.5	65		987						GOES 6	2,3 IR 8	
100	17	0605	33.9	77.0							E30/40	eye fair	HAT-R		
101	17	0630	33.8	77.0							E30/40	center fair	HAT-R		
102	17	0630	33.9	76.9							20		ILM-R		
103	17	0700	33.9	76.9							20		ILM-R		
104	17	0700	33.8	77.1							30	center fair	HAT-R		
105	17	0725	33.9	77.0							30	center fair	HAT-R		
106	17	0733	33.9	76.8							20		ILM-R		
107	17	0800	33.9	76.9							30		ILM-R		
108	17	0805	34.0	76.1							35	center fair	HAT-R		
109	17	0806	33.8	76.8	35		993		21	21	C35	closed	AF	3/2	850MB
110	17	0825	33.9	76.9							30		ILM-R		
111	17	0825	33.9	77.0							30	center fair	HAT-R		
112	17	0900	33.9	76.9							35	center fair	HAT-R		
113	17	0900	33.9	76.5	65		987						GOES 6	2,3 IR 8	
114	17	0901	33.9	76.8							30		ILM-R		
115	17	0925	33.9	76.8							E30/40	center fair	HAT-R		
116	17	0959	34.0	76.7							40		ILM-R		
117	17	1025	34.1	76.6							40		ILM-R		
118	17	1025	34.1	76.8							30	center fair	HAT-R		
119	17	1100	34.3	76.5	65		987						GOES 6	2,3 IR 8	
120	17	1100	34.2	76.5							40	center good	ILM-R		

CENTER FIXES

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FIX	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
	17	1100	34.1	76.7							E30/40	center fair	HAT-R		
	17	1108	34.3	76.7		53	992		21	21	E04/50/40	closed	AF	3/2	
	17	1125	34.1	76.7							30	eye fair	HAT-R		
	17	1126	34.2	76.5							30	eye good	ILM-R		
	17	1203	34.3	76.4							30	eye good	ILM-R		
	17	1225	34.2	76.6							30	eye fair	HAT-R		
	17	1230	34.4	76.3							30	eye good	ILM-R		
	17	1245	34.3	76.5							25	eye fair	HAT-R		
	17	1300	34.5	76.3							25	eye fair	HAT-R		
	17	1306	34.4	76.3								eye fair	ILM-R		
	17	1325	34.5	76.3							20	eye fair	HAT-R		
	17	1330	34.5	76.3								eye fair	ILM-R		
	17	1345	34.5	76.3							20	eye fair	HAT-R		
	17	1400	34.5	76.3							18	eye good	HAT-R		
	17	1400	34.2	76.3							E35/15	eye fair	ILM-R		
	17	1425	34.6	76.3							12	eye good	HAT-R		
	17	1430	34.7	76.2								eye fair	ILM-R		
	17	1445	34.8	76.1							10	eye good	HAT-R		
	17	1500	35.0	76.1							E35/15		ILM-R		
	17	1500	35.0	76.1	65		987						GOES 6	2,3 VIS 1	
	17	1500	35.0	76.4	45	42	990			20	E01/30/20	closed	AF	1/3	850M
	17	1505	34.9	76.1							10	eye good	HAT-R		
	17	1525	35.1	76.1							10	eye good	HAT-R		
	17	1530	35.1	76.1							20		ILM-R		
	17	1545	35.1	76.2							08	eye good	HAT-R		
46	17	1610	35.3	75.9							06	eye good	HAT-R		
	17	1630	35.2	76.2							05	eye good	HAT-R		
	17	1630	35.3	76.2							20		ILM-R		
	17	1700	35.4	76.2							25		ILM-R		
150	17	1700	35.2	76.3							12	eye good	HAT-R		

CENTER FIXES

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FIX	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
	17	1712	35.3	76.3	75	55	989			20	C30	closed	AF	1/5	0M
	17	1730	35.4	76.2							25		ILM-R		
	17	1730	35.4	76.2							10	eye good	HAT-R		
	17	1800	35.5	76.1							12	eye good	HAT-R		
	17	1800	35.4	75.8	77		979						GOES 6	2,1 VIS 1	
	17	1800	35.6	76.1							25		ILM-R		
	17	1830	35.6	76.0							25		ILM-R		
	17	1830	35.6	76.2							10	eye good	HAT-R		
	17	1855	35.7	76.1							20	eye good	HAT-R		
	17	1900	35.7	76.0							20		ILM-R		
	17	1930	35.8	76.0							20		ILM-R		
	17	1930	35.8	75.9							15	eye good	HAT-R		
	17	1936	35.8	76.2	50	60			18	19	C30	poorly def.	AF	1/5	
	17	2000	35.9	76.0							15	eye fair	HAT-R		
	17	2030	36.0	76.1							18	eye fair	HAT-R		
	17	2035	36.0	76.0							30		ILM-R		
	17	2055	35.9	76.0							15	eye good	HAT-R		
	17	2100	36.0	75.7	65		987						GOES 6	2,1 VIS 1	
	17	2110	36.1	76.1	50	59	987			19			AF	1/5	
	17	2130	36.1	75.9							12	eye good	HAT-R		
	17	2155	36.3	74.8							08	eye good	HAT-R		
	17	2230	36.3	75.8							10	eye good	HAT-R		
	17	2255	36.4	75.8							17	eye fair	HAT-R		
	17	2330	36.7	76.0							40	eye fair	HAT-R		
	17	2355	36.6	76.0							45	eye fair	HAT-R		
	18	0000	36.4	75.5	65		987						GOES 6	2,5 IR 8	
	18	0008	36.6	75.8		52	987		17	19			AF	5/3	0M
	18	0026	36.6	75.9							50	eye fair	HAT-R		
	18	0201	36.8	75.7		63	988		16	20			AF	5/3	0M
180	18	0300	37.3	74.8	65		987						GOES 6	2,5 IR 8	

CENTER FIXES

HURRICANE CHARLEY (continued)

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
	18	0313	36.9	75.5		49	987		18	20			AF	5/3	850MB
	18	0502	37.3	75.4		66	989		17	18			AF	5/3	850MB
	18	0600	37.5	74.8	65		987						GOES 6	2,5 IR 8	
	18	0855	37.9	74.7		52	991		17	17			AF	6/5	850MB
	18	0900	37.9	74.7	65		987						GOES 6	2,5 IR 8	
	18	1200	38.1	74.0	55		994						GOES 6	2,3 VIS 1	
	18	1500	38.3	73.3	45		1000						GOES 6	2,3 VIS 1	
	18	1707	38.8	72.9		41	994		17	19			AF	3/3	850MB
	18	1800	38.8	72.5									GOES 6	-,3 VIS 1	
	18	1844	39.1	72.3	45	39	994		17	19			AF	3/3	850MB
	18	1936	39.3	72.0		28	994						AF		850MB
	18	2100	39.4	71.9									GOES 6	-,3 VIS 1	
	18	2120	39.5	71.5		25	995		17	19			AF	5/3	850MB
	18	2332	39.7	71.1		35	996		17	20			AF	5/3	850MB
	19	0000	39.7	70.9									GOES 6	-,5 IR 8	
	19	0303	40.0	69.9		66	999		18	19			AF	3/5	850MB
	19	0506	40.3	69.3		48	999		17	17			AF	3/5	850MB
	19	0600	40.4	69.2									GOES 6	-,5 IR 8	
	19	1200	40.7	67.2									GOES 6	-,5 VIS 1	
	19	1800	41.7	65.6									GOES 6	-,5 VIS 1	
	20	0000	40.0	63.7									GOES 6	-,5 IR 8	

CENTER FIXES

TROPICAL STORM DANIELLE 3-10 SEPTEMBER 1986

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.)		OBS. UNIT	RESOLUTION	ACFT. ALT.
01	03	0600	08.8	28.5	25								METEOSAT	2,5 IR 8	
02	03	1200	09.1	29.0	35		1005						METEOSAT	2,5 VIS 1	
03	03	1800	09.2	29.8	35		1005						METEOSAT	3,5 IR 8	
04	03	2100	09.2	29.8	35		1005						METEOSAT	2,5 IR 8	
05	04	0600	09.2	34.2	25								METEOSAT	2,5 IR 8	
06	04	1200	09.7	35.1	25								GOES 6	2,5 VIS 1	
07	04	1800	09.3	37.1	25								GOES 6	2,5 VIS 1	
08	05	0000	09.3	37.1	25								GOES 6	2,5 IR 8	
09	05	0600	10.3	38.1	25								GOES 6	2,5 IR 8	
10	05	1200	09.7	40.4	25								GOES 6	2,5 VIS 1	
11	05	1800	09.8	40.8	25								GOES 6	2,5 VIS 1	
12	06	0000	09.8	41.8	25								GOES 6	2,5 IR 8	
13	06	0500	09.6	42.5	25								GOES 6	-,5 IR 8	
14	06	1200	09.5	45.5	25								GOES 6	2,5 VIS 1	
15	06	1800	09.5	47.8	30		1009						GOES 6	2,5 VIS 1	
16	07	0000	09.5	49.0	30		1009						GOES 6	2,5 IR 8	
17	07	0500	11.9	51.0	35		1005						GOES 6	2,5 IR 8	
18	07	1200	11.0	54.0	35		1005						GOES 6	2,5 VIS 1	
19	07	1800	11.0	56.0	40		1003						GOES 6	2,5 VIS 1	
20	08	0000	11.3	57.6	45		1000						GOES 6	2,3 IR 8	
21	08	0300	11.6	58.1	45		1000						GOES 6	2,3 IR 8	
22	08	0500	11.7	58.8	45		1000						GOES 6	3,5 IR 8	
23	08	0900	12.0	59.8	55		994						GOES 6	3,5 IR 8	
24	08	1200	12.9	61.0	55		994						GOES 6	3,5 VIS 1	
25	08	1353	13.0	62.1	40	35	1004		23	25			AF	3/3	457M
26	08	1800	13.0	63.0	55		994						GOES 6	3,5 VIS 1	
27	08	1805	13.3	63.2	50	49	1006		25	25			AF	2/15	457M
28	08	2028	12.9	63.3	40	48	1008						AF	2/10	457M
29	08	2100	13.4	63.8	45		1000						GOES 6	2,3 VIS 1	
30	08	2312	13.4	64.5		47	1003		26	26			AF	2/5	457M

CENTER FIXES

TROPICAL STORM DANIELLE (continued)

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
31	09	0000	13.3	64.4	45		1000						GOES 6	2,3 IR 8	
32	09	0500	13.4	64.8	45		1000						GOES 6	2,5 IR 8	
33	09	0610	13.2	66.7		33	1006		25	25			AF	3/3	457M
34	09	1152	13.5	68.1	45	46	1009		25	25			AF	3/8	457M
35	09	1200	13.4	67.7	45		1000						GOES 6	2,5 VIS 1	
36	09	1500	14.2	68.8	45		1000						GOES 6	2,3 VIS 1	
37	09	1800	14.5	70.1	45		1000						GOES 6	3,3 VIS 1	
38	10	0000	15.0	72.2	35		1005						GOES 6	2,3 IR 8	
39	10	0500	14.9	75.3	30		1009						GOES 6	3,7 IR 8	
40	10	1200	14.6	78.7	25								GOES 6	2,3 VIS 1	
41	10	1800	14.3	80.9									GOES 6	-,5 VIS 1	

CENTER FIXES

HURRICANE EARL 10-19 SEPTEMBER 1986

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.)	CHARACTERISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
01	10	1200	20.5	49.5	25								GOES 6	3,5 VIS 1	
02	10	1800	21.6	50.6	30		1009						GOES 6	3,5 VIS 1	
03	11	0000	22.7	52.6	30		1009						GOES 6	2,6 IR 8	
04	11	0500	23.6	54.2	30		1009						GOES 6	3,5 IR 8	
05	11	1200	24.3	52.7	30		1009						GOES 6	2,3 VIS 1	
06	11	1800	25.0	53.1	35		1005						GOES 6	2,3 VIS 1	
07	11	1947	25.3	53.4	75	75	998		24	26	C10	closed	AF	3/1	457M
08	11	2239	25.6	54.0		67	997		24	25	C08	closed	AF	3/1	457M
09	12	0000	25.6	54.3	45		1000						GOES 6	2,2 IR 8	
10	12	0500	25.8	54.4	55		994						GOES 6	2,5 IR 8	
11	12	1200	26.8	55.0	65		987						GOES 6	2,3 VIS 1	
12	12	1800	27.1	54.8	65		987						GOES 6	2,3 VIS 1	
13	12	2045	27.4	55.2	50	46	983	1280	17	21			AF	2/2	850MB
14	12	2305	28.0	55.5	80	66	983	1285	18	22	E09/25/10	open se	AF	2/2	850MB
15	13	0000	28.1	55.2	84		974						GOES 6	2,3 IR 8	
16	13	0500	28.2	55.6	84		974						GOES 6	2,5 IR 8	
17	13	1200	29.7	54.8	77		979						GOES 6	2,3 VIS 1	
18	13	1800	30.2	54.7	77		979						GOES 6	2,3 VIS 1	
19	13	1838	30.2	54.7	100	90	983		22	24	C25	open w	NOAA	1/1	457M
20	14	0000	30.5	53.7	83		975						GOES 6	2,3 IR 8	
21	14	0500	30.6	52.9	83		975						GOES 6	2,3 IR 8	
22	14	1200	30.6	52.0	77		979						GOES 6	2,3 VIS 1	
23	14	1800	30.9	51.5	77		979						GOES 6	2,3 VIS 1	
24	15	0000	30.5	50.0	77		979						GOES 6	1,5 IR 8	
25	15	0500	30.2	50.6	77		979						GOES 6	2,5 IR 8	
26	15	1200	29.5	50.3	77		979						GOES 6	2,3 VIS 1	
27	15	1730	29.3	49.2	77		979						GOES 6	2,3 VIS 1	
28	16	0000	29.0	49.0	77		979						GOES 6	1,5 IR 8	
29	16	0500	28.8	48.6	77		979						GOES 6	2,5 IR 8	
30	16	1200	28.9	49.0	77		979						GOES 6	2,5 VIS 1	

CENTER FIXES

HU **EA**RL

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	16	1800	29.6	49.3	77		979						GOES 6	2,5 VIS 1	
32	17	0000	29.9	49.9	65		987						GOES 6	1,5 IR 8	
33	17	0500	30.3	49.9	65		987						GOES 6	2,5 IR 8	
34	17	1200	31.9	51.1	65		987						GOES 6	2,5 VIS 1	
35	17	1800	33.2	50.3	65		987						GOES 6	2,5 VIS 1	
36	18	0000	35.0	50.0	65		987						GOES 6	2,5 IR 8	
37	18	0500	36.5	49.5	65		987						GOES 6	2,3 IR 8	
38	18	1200	39.8	47.6	65		987						GOES 6	2,3 VIS 1	
39	18	1800	40.8	47.7	45		1000						GOES 6	2,3 VIS 1	
40	19	0000	43.2	45.8	55								GOES 6	2,5 IR 8	
41	19	0500	45.5	44.0	45								GOES 6	2,5 IR 8	
42	19	1200	49.0	42.0	45								GOES 6	2,5 VIS 1	
43	19	1800	52.0	39.5	55								GOES 6	2,5 VIS 1	
44	19	2100	54.0	34.0	50								GOES 6	3,5 IR 8	

CENTER FIXES

HURRICANE FRANCES 17-22 NOVEMBER 1986

FIX NO.	DATE	TIME (UTC)	POSITION LAT.	POSITION LON.	MAX WIND (KT) SFC.	MAX WIND (KT) FLT.LVL.	MIN. PRES. (MB)	MIN. 700MB HT.(M)	TEMP. C OUT	TEMP. C IN	EYE C=CIR.DIA. E=ELIP.(N.MI.)	CHARACTER-ISTICS	OBS. UNIT	RESOLUTION	ACFT. ALT.
	17	1800	20.2	61.4									GOES 6	-,5 VIS 1	
	18	0000	20.5	61.5	25								GOES 6	2,5 IR 8	
	18	0600	20.8	61.7	25								GOES 6	2,5 IR 8	
	18	1200	21.3	62.1	25								GOES 6	2,2 VIS 1	
	18	1800	22.9	62.7	30		1009						GOES 6	2,3 VIS 1	
	19	0000	23.2	62.8	35		1005						GOES 6	2,5 IR 8	
	19	0600	24.3	63.1	35		1005						GOES 6	2,5 IR 8	
	19	1200	25.1	62.9	35		1005						GOES 6	2,5 VIS 1	
	19	1500	25.1	62.5	45		1000						GOES 6	2,5 VIS 1	
	19	1726	24.9	62.6	50	48	1004		23	26			AF	3/5	457M
	19	1800	25.2	62.5	50		997						GOES 6	2,3 VIS 1	
	20	0000	25.6	62.2	50		997						GOES 6	2,5 IR 8	
	20	0600	26.1	62.1	50		997						GOES 6	2,5 IR 8	
	20	1200	26.7	61.4	50		997						GOES 6	2,5 VIS 1	
	20	1225	27.8	59.3	50	51	1000		22	23	C35	closed	AF	2/3	457M
	20	1300	28.0	59.2	55		994						GOES 6	2,1 VIS 1	
	20	1440	28.1	59.1	75	75	1000						AF		457M
	20	1500	28.2	58.9	71		983						GOES 6	2,1 VIS 1	
	20	1700	28.4	58.6	71		983						GOES 6	2,1 VIS 1	
	21	0000	29.4	57.3	71		983						GOES 6	2,5 IR 8	
	21	0600	29.8	56.2	71		983						GOES 6	2,5 IR 8	
	21	1200	30.3	56.2	65		987						GOES 6	2,5 VIS 1	
	21	1800	31.3	57.9	65		987						GOES 6	2,3 VIS 1	
	22	0600	33.5	55.5	45		1000						GOES 6	2,6 IR 8	

Table 7. Supplementary vortex data messages, 1986 tropical cyclones.

```
ZCZC WBC339
URNT14 KMIA 052345
AF967 01XX INVEST OB 10 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01296 10772 10003 12120 23011
 02296 20770 10004 22120 19010
 03297 30768 30004 32120 15040
 04298 40765 40005 42120 16015
 05295 50761 50007 52120 15023
 06296 60758 60007 62120 16026
 07297 70755 70009 72020 15025
 MF297 M0768 MF040
OBS 01 AT 2249Z OBS 07 AT 2326Z
OBS 07 SFC WND 17025
REMARKS 294 775 002
OUTBOUND EAST FROM CENTER, NUMEROUS THUNDERSTORMS
40NM105NM EAST OF CENTER;
ZCZC WBC358
URNT14 KMIA 060205
AF967 01XX INVEST OB 14 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01315 10776 10008 12019 08020
 02313 20775 20008 22119 08019
 03310 30775 30007 32119 09025
 04308 40775 40007 42119 07029
 05306 50776 50005 52119 07034
 06303 60775 60004 62120 08025
 07301 70775 70003 72120 06008
 MF306 M0776 MF034
OBS 01 AT 0055Z OBS 07 AT 0125Z
 OBS 07 SFC WND /////
REMARKS 300 775 003
LAST REPORT OBS 01 THRU 14 TO KMIA ETA KBIX 06/0500Z;
  URNT14 KMIA 061240
  AF866 0201 CYCLONE OB 05 KMIA
  SUPPLEMENTARY VORTEX DATA MESSAGE
  01310 10777 10004 12222 26017
  02311 20775 20008 22222 17028
  03312 30772 30008 32222 16034
  04312 40768 40009 42221 16028
  05311 50764 50010 52221 16023
  06311 60762 60010 62221 17018
  07310 70760 70010 72221 18027
  MF312 M0772 MF034
  OBS 01 AT 1155Z OBS 07 AT 1226Z
  OBS 07 SFC WND 18027
  REMARKS 311 780 005
  OB 01 SFC WIND 24015
  CNTR APPEARS ELONGATED TO NE WITH SLP 1004MB 18NM E OF DETAILED
  VORTEX CENTER REPORT;
ZCZC WBC437
URNT14 KMIA 061440
AF866 0201 CYCLONE OB 08 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01328 10780 10011 12221 06020
 02326 20780 20010 22221 06024
 03323 30780 30010 32221 06021
 04320 40780 40009 42221 07013
 05318 50780 50009 52222 04013
 06315 60780 60008 62221 08019
 07313 70780 70006 72221 08021
 MF326 M0780 MF024
OBS 01 AT 1306Z OBS 07 AT 1333Z
OBS 01 SFC WND 07020
01307 10781 10005 12222 30012
 02304 20780 20007 22222 29011
 03302 30780 30007 32222 27017
 40299 40780 40008 42222 27015
 05297 50780 50009 52221 28011
 06294 60780 60009 62321 29016
 07292 70780 70009 72322 31011
 MF302 M0780 MF017
OBS 01 AT 1354Z OBS 07 AT 1419Z
OBS 07 SFC WND 29010
REMARKS 309 781 005;
URNT14 KMIA 061630
AF866 0201 CYCLONE OB 11 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01310 10764 10010 12221 15043
 02309 20766 20009 22221 15045
 03310 30769 30008 32121 16045
 04310 40772 40007 42321 17031
 05310 50775 50006 52222 17023
 06309 60777 60006 62222 18010
 MF310 M0769 MF045
OBS 01 AT 1458Z OBS 06 AT 1523Z OBS 06 SFC WND 16035
 01309 10783 10006 12222 02011
 02308 20786 20007 22321 02023
 03308 30789 30008 32322 02018
 04308 40792 40008 42322 02018
 05309 50795 50009 52321 02021
 06309 60798 60010 62222 02021
 07309 70800 70010 72221 03022
 MF308 M0786 MF023
OBS 01 AT 1535Z OBS 07 AT 1607Z OBS 06 SFC WND 01020
 REMARKS 309 780 006
 AREA OF HVY CONVECTION BTWN 60110 E OF CNTR. STRONGEST WINDS
 APPEAR TO BE ASSOCIATED WITH THIS HEAVIER CONVECTION. LAST REPO
 OBS 0111 TO KMIA. ETA KBIX 06/1800Z;
```

Table 7 continued.

```
URNT14 KMIA 070119
AF977 0301 ANDREW OB 03 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01310 10800 10008 12320 36016
 02310 20797 20007 22320 35008
 03309 30793 30007 32321 34013
 04309 40791 40007 42321 35018
 05309 50787 50006 52321 33017
 06310 60785 60005 62421 32017
 07312 70782 70005 72421 35022
 MF312 M0782 MF022
OBS 01 AT 2338Z OBS 07 AT 0005Z OBS 07 SFC WND 36015
 01315 10777 10005 12321 22005
 02315 20774 20005 22321 23006
 03315 30771 30005 32321 23029
 04315 40767 40006 42321 21031
 05315 50764 50007 52221 20035
 06316 60762 60007 62220 18041
 07317 70759 70008 72220 19031
 MF316 M0762 MF041
OBS 01 AT 0033Z OBS 07 AT 0100Z OBS 07 SFC WND /////
 REMARKS 314 779 004
SCT TRW 45 TO 105 NM EAST OF CENTER
MAX FL WND NOTED NEAR CONVECTION;

 URNT14 KMIA 070400
 AF977 0301 ANDREW OB 06 KMIA
  SUPPLEMENTARY VORTEX DATA MESSAGE
 01332 10780 10007 12220 04013
  02329 20780 20006 22220 06017
  03327 30779 30005 32321 02018
 04325 40777 40005 42321 01018
 05323 50775 50004 52321 32020
 06324 60772 60002 62321 30023
 MF324 M0772 MF023
 OBS 01 AT 0215Z OBS 06 AT 0240Z
 01325 10771 10004 12321 23023
 02322 20771 20005 22221 24021
 03320 30771 30006 32221 25012
 04317 40771 40007 42221 24012
 05315 50771 50008 52221 21021
  06312 60770 60008 62220 21030
 07310 70770 70009 72219 23023
 MF312 M0770 MF030
 OBS 01 AT 0306Z OBS 07 AT 0336Z
 REMARKS 326 771 002;


URNT14 KMIA 070613
AF977 0301 ANDREW OB 09 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01333 10745 10011 12120 18036
 02333 20748 20010 22120 18049
03333 30752 30009 32120 17042
 04333 40755 40008 42221 17041
05333 50758 50008 52221 16043
 06332 60760 60006 62221 16035
07332 70763 70005 72221 14031
MF333 M0748 MF049
OBS 01 AT 0430Z OBS 07 AT 0500Z OBS 01 SFC WND /////
 01326 10768 10004 12321 29010
02328 20770 20004 22221 34010
03328 30773 30005 32221 01020
04328 40776 40006 42221 33017
 05328 50779 50006 52221 33018
 06328 60782 60007 62221 34017
 07328 70785 70007 72220 33018
08327 80789 80008 82120 36011
MF328 M0773 MF020
OBS 01 AT 0520Z OBS 08 AT 0558Z OBS 08 SFC WND /////
REMARKS 328 768 003
LAST REPORT OBS 0109 TO KMIA ETA KBIX AT 07/0755Z;

URNT14 KMIA 071310
AF967 0401 ANDREW OB 03 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01335 10780 10007 12020 32017
 02336 20776 20007 22120 31015
 03336 30775 30006 32120 29018
 04337 40772 40005 42220 32018
 05338 50769 50005 52319 34007
 06339 60767 60004 62321 34009
 MF338 M0767 MF019
OBS 01 AT 1110Z OBS 06 AT 1135Z OBS 01 SFC WND 330
 01337 10759 10002 12221 17026
 02337 20754 20003 22220 18032
 03337 30750 30005 32120 16025
 04337 40747 40007 42020 16030
 05338 50745 50007 52120 16031
 06338 60742 60008 62120 17035
 07339 70739 70009 72120 17033
 MF338 M0742 MF035
OBS 01 AT 1212Z OBS 07 AT 1254Z OBS 07 SFC WND 170
 REMARKS 337 762 002;

        URNT14 KMIA 071543
        AF967 0401 ANDREW OB 06 KMIA
        SUPPLEMENTARY VORTEX DATA MESSAGE
        01359 10755 10008 12220 13018
         02357 20755 20008 22220 13014
        03355 30755 30007 32220 11023
         04352 40756 40007 42220 10018
         05349 50756 50006 52220 12018
        06347 60756 60005 62220 10026
        07345 70756 70004 72220 10020
        08341 80757 80002 82221 08017
        09338 90757 90000 92221 10013
         MF347 M0756 MF026
        OBS 01 AT 1332Z OBS 09 AT 1415Z
        OBS 01 SFC WND 10005
        01335 10756 10001 12220 28039
         02333 20756 20004 22220 26034
         03331 30756 30005 32320 26030
        04328 40757 40006 42220 27016
         05325 50758 50008 52220 28022
        06323 60758 60009 62320 27017
         07320 70758 70009 72220 26022
         MF335 M0756 MF039
        OBS 01 AT 1444Z OBS 07 AT 1516Z
        OBS 07 SFC WND 27020
        REMARKS 337 757 999
```

Table 7 continued.

```
URNT14 KMIA 071800 COR
AF967 0401 ANDREW OB 09 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01337 10731 10010 12020 17039
02337 20734 20009 22020 16039
03337 30737 30009 32120 15039
04337 40740 40007 42120 16032
05337 50743 50006 52120 17039
06337 60747 60005 62120 16032
07337 70750 70002 72220 21020
MF337 M0743 MF039
OBS 01 AT 1616Z OBS 07 AT 1646Z
OBS 01 SFC WND 16035
01340 10755 10004 12221 35011
02340 20758 20004 22221 01016
03/// 3//// 3//// 3//// /////
04340 40764 40006 42220 34018
05339 50767 50006 52220 34012
06340 60770 60007 62320 34009
07/// 7//// 7//// 7//// /////
MF340 M0764 MF018
OBS 01 AT 1717Z OBS 07 AT 1739Z
OBS 07 SFC WND 99005
REMARKS 340 751 000
LAST REPORT OBS 01 THRU 09 TO KMIA
ETA KBIX 07/2000Z;

URNT14 KMIA 080115
AF866 0501 ANDREW CB 03 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01348 10761 10007 12420 30017
02348 20757 20007 22320 31018
03348 30754 30006 32220 33011
04348 40751 40006 42220 32019
05348 50748 50005 52121 34016
06348 60744 60004 62221 29009
MF348 M0751 MF019
OBS 01 AT 2301Z OBS 06 AT 2327Z
OBS 01 SFC WND 99005
01351 10734 10004 12121 16037
02351 20730 20005 22121 17042
03352 30727 30007 32121 17037
04351 40724 40008 42120 19044
05351 50721 50009 52121 19043
06351 60718 60010 62121 18051
07352 70715 70010 72121 17056
MF352 M0715 MF056
OBS 01 AT 0030Z OBS 07 AT 0104Z
OBS 07 SFC WND /////
REMARKS 351 737 002
OCNL IGT TO MDT TB AND NUMEROUS RAIN BANDS OUTBOUND;

URNT14 KMIA 080628
AF866 0501 ANDREW OB 09 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01363 10713 10009 12020 17048
02363 20715 20008 22120 16037
03363 30717 30006 32121 17043
04362 40721 40005 42121 17035
05362 50723 50004 52121 17028
06362 60727 60003 62121 18013
MF363 M0713 MF048
OBS 01 AT 0434Z OBS 06 AT 0458Z
OBS 01 SFC WND /////
01361 10733 10005 12020 33015
02361 20736 20005 22121 02010
03361 30739 30006 32120 36014
04361 40742 40007 42120 34015
05361 50745 50007 52120 32009
06361 60748 60007 62120 32011
07361 70751 70007 72020 30009
MF361 M0733 MF015
OBS 01 AT 0520Z OBS 07 AT 0555Z
OBS 07 SFC WND /////
REMARKS 362 730 003
HEAVY NE RAINBAND 90 NM TO 110 NM EAST OF CNTR
LAST REPORT OBS 01 THRU 09 TO KMIA. ETA KBIX 08/0900Z;

URNT14 KMIA 081320 COR
AF977 0601 ANDREW OB 04 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01367 10728 10006 12220 29024
02369 20727 20005 22220 29022
03370 30726 30005 32220 29018
04372 40725 40004 42221 29010
05373 50724 50004 52221 30019
06374 60723 60004 62221 31020
07376 70721 70003 72221 31018
08379 80717 80002 82221 30020
MF367 M0728 MF024
OBS 01 AT 1135Z OBS 08 AT 1204Z
OBS 01 SFC WND 27020
01385 10716 10002 12221 03004
02387 20717 20002 22120 02005
03389 30717 30003 32120 10004
04392 40717 40003 42120 12007
05394 50716 50003 52120 12010
06397 60716 60004 62120 12010
07399 70717 70004 72120 13011
MF399 M0717 MF011
OBS 01 AT 1239Z OBS 07 AT 1305Z
OBS 07 SFC WND 14010
REMARKS 382 717 002;

URNT14 KMIA 081605
AF977 0601 ANDREW OB 07 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01390 10739 10004 12120 99005
02390 20737 20004 22220 99005
03390 30733 30004 32220 35011
04390 40728 40004 42220 35012
05390 50726 50004 52220 34019
06390 60724 60003 62220 35008
07390 70722 70003 72221 33008
MF390 M0726 MF019
OBS 01 AT 1421Z OBS 07 AT 1443Z
OBS 01 SFC WND 99005
01395 10714 10003 12221 18010
02395 20711 20003 22221 17007
03395 30707 30003 32220 14015
04396 40705 40003 42220 13009
05395 50701 50003 52220 12017
06395 60698 60003 62220 13018
07395 70695 70003 72220 13020
MF395 M0695 MF020
OBS 01 AT 1523Z OBS 07 AT 1549Z
OBS 07 SFC WND 14015
REMARKS 395 717 003;
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Table 7 continued

```
URNT14 KMIA 241543 COR
AF866 0102 BONNIE OB 05 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01278 10900 10011 12424 05022
 02275 20999 20014 22424 03018
 03272 30998 30013 32525 06026
 04270 40997 40013 42323 05011
 05267 50995 50012 52323 01020
 06265 60992 60010 62323 33018
 MF272 M0998 MF026
OBS 01 AT 1410Z OBS 06 AT 1428Z
 OBS 01 SFC WND 06010
01264 10892 10012 12121 21045
 02262 20892 20014 22121 23035
 03259 30891 30015 32121 23027
 04256 40892 40015 42121 25029
 05254 50892 50016 52320 25022
 06251 60892 60016 62220 24021
 07249 70891 70016 72220 27016
 MF264 M0892 MF045
OBS 01 AT 1547Z OBS 07 AT 1620Z
OBS 07 SFC WND 29010
REMARKS 266 892 009
OBSUNS 0104 TRANSMITTED AS AF866 0102 CYCLONE
 COR'D FOR FORMAT ERROR:
URNT14 KMIA 241850
AF866 0102 BONNIE OB 09 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01267 10872 10017 12320 19010
 02267 20875 20017 22320 19010
 03267 30877 30016 32320 19017
 04267 40880 40016 42321 18017
 05268 50883 50015 52321 19025
 06269 60886 60014 62220 19027
 07269 70890 70011 72321 16030
 MF269 M0890 MF030
OBS 01 AT 1705Z OBS 07 AT 1737Z
 OBS 01 SFC WND 17010
01269 10897 10010 12322 36030
 02268 20900 20012 22321 36027
 03268 30903 30013 32420 02024
 04268 40906 40013 52321 01017
 05268 50909 50014 52421 03014
 06268 60911 60014 62521 35018
 07269 70914 70014 72521 36017
 MF268 M0897 MF030
OBS 01 AT 1905Z OBS 07 AT 1832Z
OBS 07 SFC WND 33010
REMARKS 269 895 006:
URNT14 KMIA 242043
AF866 0102 BONNIE OB 12 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01252 10899 10015 12121 26010
02255 20898 20015 22119 24024
03258 30898 30014 32121 23029
04261 40898 40013 42121 23030
05262 50899 50012 52423 24019
06266 60901 60010 62424 33017
07267 70899 70008 72424 34026
MF261 M0898 MF030
OBS 01 AT 1913Z OBS 07 AT 1941Z
OBS 01 SFC WND 30010
01270 10897 10008 12424 10017
02272 20897 20010 22322 08025
03275 30897 30012 32321 07020
04278 40897 40013 42321 07025
05280 50897 50014 52321 09021
06282 60897 60014 62421 10020
07285 70897 70014 72321 10024
MF278 M0897 MF025
OBS 01 AT 2004Z OBS 07 AT 2032Z
OBS 07 SFC WND 19015
REMARKS 268 897 004:
URNT14 KMIA 242210
AF866 0102 BONNIE OB 14 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01271 10897 10009 12321 14035
02273 20894 20012 22322 13021
03275 30893 30013 32322 14018
04277 40891 40013 42321 12019
05279 50890 50014 52421 16020
06281 60889 60014 62421 10015
07284 70887 70014 72421 11019
MF271 M0897 MF035
OBS 01 AT 2120Z OBS 07 AT 2148Z
OBS 01 SFC WND 10010
REMARKS 269 898 006
MAX WND BAND EXTENTS 15NM35NM OUT FROM CTR
WND 30KT40KTS
LAST REPORT OBS 0114 TO KMIA ETA KBIX 24/2230Z:
URNT14 KMIA 250015
AF964 0202 BONNIE OB 03 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01289 10901 10014 12323 09019
 02285 20901 20013 22424 09024
 03282 30900 30013 32424 09025
 04280 40900 40013 42424 09031
 05277 50900 50012 52424 11033
06275 60901 60011 62323 11034
 07270 70902 70007 72424 07026
 MF275 M0901 MF034
OBS 01 AT 2243Z OBS 07 AT 2311Z
 OBS 01 SFC WND 08015
01265 10902 10006 12323 25029
 02264 20901 20008 22222 22041
 03262 30902 30010 32222 21026
04257 40902 40012 42222 23019
 05255 50903 50013 52222 23011
06253 60902 60013 62323 25006
07250 70902 70014 72424 24007
 MF264 M0901 MF041
OBS 01 AT 2327Z OBS 07 AT 0003Z
OBS 07 SFC WND 99005
REMARKS 267 902 003
SFC WND 55KT FROM 10NM20NM S OF CTR UNDER CONVECTION
 SUSPECT DOPPLER ATTENTUATION FOR MOST OUTBOUND FL WNDS
URNT14 KMIA 250221
AF964 0202 BONNIE OB 06 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01268 10883 10015 12424 15011
02268 20896 20014 22424 16016
03268 30888 30013 32424 15016
 04268 40891 40013 42424 17024
05268 50894 50013 52323 17028
 06269 60896 60012 62323 17032
 07268 70900 70009 72323 18041
 08268 80902 80005 82323 17058
MF268 M0902 MF058
OBS 01 AT 0051Z OBS 08 AT 0122Z
OBS 01 SFC WND 16015
01268 10907 10005 12525 30029
02268 20910 20008 22525 35022
 03268 30913 30009 32525 35020
04267 40917 40010 42626 34019
05268 50918 50011 52626 35011
06268 60922 60012 62626 36010
07268 70925 70012 72727 34012
MF268 M0907 MF029
OBS 01 AT 0135Z OBS 07 AT 0208Z
OBS 07 SFC WND /////
REMARKS 268 905 001:
```

Table 7 continued

```
URNT14 KMIA 250451
AF964 0202 BONNIE OB 10 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01252 10905 10015 12525 21008
 02253 20905 20015 22424 20011
 03256 30904 30014 32424 20021
 04259 40905 40013 42323 19035
 05260 50904 50012 52323 19037
 06263 60905 60011 62323 19037
 07265 70908 70008 72525 23024
 MF263 M0905 MF037
OBS 01 AT 0251Z OBS 07 AT 0320Z
 OBS 01 SFC WND /////
01271 10909 10006 12525 10026
 02274 20909 20009 22323 09026
 03277 30910 30012 32424 07021
 04279 40910 40013 42424 10021
 05281 50910 50013 52424 09023
 06283 60910 60014 62424 09025
 07285 70909 70015 72424 08016
 MF271 M0909 MF026
OBS 01 AT 0405Z OBS 07 AT 0433Z
OBS 07 SFC WND /////
REMARKS 269 909 992;

URNT12 KMIA 250640
AF964 0202 BONNIE OB 13 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01269 10928 10014 12525 02011
02269 20925 20013 22525 36013
03267 30923 30012 32525 34015
04267 40920 40011 42525 34015
05267 50917 50010 52424 30022
06267 60914 60008 62424 31025
MF267 M0914 MF025
OBS 01 AT 0515Z OBS 06 AT 0536Z
OBS 01 SFC WND /////
01271 10908 10007 12323 14056
02271 20906 20010 22323 16044
03269 30903 30012 32323 15037
04269 40900 40013 42423 16030
05269 50898 50014 52424 16031
06269 60894 60015 62323 16027
07269 70892 70015 72323 15017
MF271 M0900 MF056
OBS 01 AT 0547Z OBS 07 AT 0621Z
OBS 07 SFC WND /////
REMARKS 269 911 992
LAST REPORT OBS 01 THRU 13 TO KMIA. ETA KBIX 25/0725Z.
URNT14 KMIA 251109
AF554 0202 BONNIE OB 04 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01270 10931 10014 12422 /////
 02269 20929 20012 22420 32013
 03267 30927 30011 32421 34012
 04265 40923 40012 42422 27017
 05268 50919 50010 52422 30024
 06270 60917 60008 62322 32027
 07272 70915 70001 72423 35027
 MF270 M0917 MF027
OBS 01 AT 0751Z OBS 07 AT 0828Z
OBS 01 SFC WND /////
01273 10912 10006 12222 14047
 02274 20909 20009 22222 15043
 03274 30907 30011 32221 16046
 04272 40904 40013 42220 18037
 05271 50901 50014 52319 18026
 06269 60897 60015 62320 19034
 07271 70895 70014 72321 17027
 MF273 M0910 MF047
OBS 07 SFC WND /////
REMARKS 270 915 999;

URNT14 KMIA 251308 COR
AF554 0302 BONNIE OB 07 COR KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01286 10915 10014 12321 09023
 02285 20916 20013 22321 09021
 03282 30916 30013 32321 10026
 04280 40916 40011 42321 10023
 05277 50917 50010 52221 06035
 06275 60917 60006 62222 03036
 MF275 M0917 MF036
OBS 01 AT 0707Z OBS 06 AT 1053Z
 OBS 01 SFC WND /////
01268 10907 10013 12121 19031
 02265 20908 20014 22221 18026
 03264 30910 30014 32322 19014
 04262 40911 40014 42321 20016
 05260 50913 50015 52419 19023
 06257 60915 60014 62421 18026
 07255 70915 70015 72521 18020
 MF268 M0907 MF031
OBS 01 AT 1159Z OBS 07 AT 1233Z
OBS 07 SFC WND 17010
REMARKS 273 916 997 MAX SUSTAINED SURFACE WINDS 13060 DRCTN F
 CENTER 080 AT 20 MILES;

URNT14 KMIA 251556
AF554 0202 BONNIE OB 09 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01270 10896 10016 12420 20027
 02270 20898 20016 22417 19026
 03270 30901 30015 32419 18038
 04270 40904 40015 42321 17034
 05271 50907 50015 52221 20029
 06271 60910 60013 62121 20045
 07272 70912 70012 72221 20059
 08273 80915 80008 82020 16068
 MF273 M0915 MF068
 OBS 01 AT 1316Z OBS 08 AT 1352Z
 OBS 01 SFC WND 20010
 01274 10920 10003 12526 32021
 02275 20924 20009 22221 34029
 03275 30926 30013 32221 36024
 04275 40930 40013 42222 36016
 05275 50933 50014 52421 02016
 06275 60936 60014 62423 02009
 07275 70938 70015 72423 02010
 MF275 M0924 MF029
 OBS 01 AT 1439Z OBS 07 AT 1511Z
 OBS 07 SFC WND 04015
 REMARKS 274 919 999;
```

Table 7 continued.

```
URNT14 KMIA 251846 COR
AF967 0402 BONNIE OB 04 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01293 10920 12552 11611 09030
02290 20920 22542 21510 09028
03287 30920 32539 31610 10031
04285 40920 42533 41611 09028
05283 50920 52524 51611 10030
06280 60920 62510 61413 09036
07276 70920 72423 71913 07052
MF276 M0920 MF052
OBS 01 AT 1634Z OBS 07 AT 1719Z
OBS 01 SFC WND 09020
01272 10921 12433 11414 28035
02271 20921 22517 21414 29024
03267 30922 32529 31414 27028
04264 40922 42535 41413 27028
05263 50921 52539 51513 25027
06261 60921 62550 61511 26025
07260 70921 72551 71511 26025
MF264 M0922 MF028
OBS 01 AT 1810Z OBS 07 AT 1836Z
OBS 07 SFC WND 27015
REMARKS 275 921 142;
URNT14 KMIA 251846 COR 02
AF967 0402 BONNIE OB 07 COR 02 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01276 10903 12547 11510 17030
02277 20906 22540 21515 18037
03277 30908 32533 31410 18034
04277 40911 42527 41512 17046
05277 50913 52521 51613 17041
06277 60916 62490 61908 17048
07277 70920 72466 71512 18060
MF277 M0920 MF060
OBS 01 AT 1914Z OBS 07 AT 2020Z
OBS 01 SFC WND 16015
01276 10925 12464 11710 33045
02276 20927 22493 21810 33030
03277 30930 32504 31809 32022
04277 40933 42521 41612 34015
05277 50936 52521 51613 35015
MF276 M0925 MF045
OBS 01 AT 1945Z OBS 05 AT 2020Z
OBS 05 SFC WND 33015
REMARKS 277 922 141;

URNT14 KMIA 252218
AF967 0402 BONNIE OB 10 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01268 10924 12523 11610 26022
02271 20923 22511 21710 23025
03274 30923 32497 31515 25040
04276 40924 42469 41613 24056
MF276 M0924 MF056
OBS 01 AT 2043Z OBS 04 AT 2058Z
OBS 01 SFC WND /////
01281 10924 12449 11810 11054
02284 20924 2//// 2//// 11032
03286 20924 32505 31613 11030
04289 40924 42521 41514 11035
05292 50924 52529 51611 11037
06294 60924 62526 61612 10034
07297 70924 72530 71613 10025
MF281 M0924 MF054
OBS 01 AT 2120Z OBS 07 AT 2143Z
OBS 07 SFC WND 10015
REMARKS 279 924 141;
URNT14 KMIA 252351
AF967 0402 BONNIE OB 14 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01282 10943 12520 11711 01013
02282 20942 22520 21612 36020
03282 30940 32511 31610 36022
04282 40936 42508 41610 36027
05282 50934 52505 51611 36029
06282 60929 62481 61712 01039
07281 70927 72444 71813 35037
MF282 M0929 MF039
OBS 01 AT 2217Z OBS 07 AT 2244Z
OBS 01 SFC WND 01010
01281 10921 12462 11615 19037
02281 20920 22505 21809 21040
03281 30916 32517 31515 19031
04280 40915 42528 41613 18025
05281 50912 5//// 5//// 18030
06281 60911 62529 61510 18030
07283 70907 72535 71510 21020
MF281 M0920 MF040
OBS 01 AT 2317Z OBS 07 AT 2338Z
OBS 07 SFC WND 17015
REMARKS 281 925 141
LAST REPORT OBS 0114 TO KMIA
ETA KBIX 26/0015Z;
URNT14 KMIA 260930
AF985 0602 BONNIE OB 04 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01298 10921 10016 12423 16037
02294 20924 20015 22523 15035
03293 30926 30014 32322 16026
04293 40930 40012 42322 16038
05291 50933 50012 52222 14018
06291 60936 60009 62322 18051
07292 70939 70993 72525 10011
MF291 M0936 MF051
OBS 01 AT 0728Z OBS 07 AT 0759Z
OBS 01 SFC WND /////
01292 10942 10006 12323 29043
02290 20943 20010 22423 31022
03288 30947 30012 32323 35006
04288 40951 40012 42423 31007
05288 50953 50012 52422 31009
06287 60955 60012 62422 34012
07286 70956 70012 72422 35007
MF292 M0942 MF043
OBS 01 AT 0842Z OBS 07 AT 0913Z
OBS 07 SFC WND /////
REMARKS 293 940 992
DOPPLER ATTENUATED LTNG 4 NMI E [illegible]
URNT14 KMIA 261122 COR
AF985 0602 BONNIE OB 07 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01276 10939 10014 12423 20042
02281 20940 20012 22423 20042
03283 30942 30012 32424 21030
04287 40943 40011 42423 22030
05289 50945 50011 52323 25022
MF281 M0940 MF042
OBS 01 AT 0951Z OBS 05 AT 1011Z
OBS 01 SFC WND /////
01293 10939 10009 12323 24043
02293 20935 20013 22220 19045
03294 30933 30014 32318 20052
04294 40930 40014 42322 20038
05294 50927 50015 52423 21027
06292 60923 60015 62423 15032
MF294 M0933 MF052
OBS 01 AT 1026Z OBS 06 AT 1053Z
OBS 07 SFC WND /////
REMARKS 297 945 992
51 N EDGE OF EYE INLAND, FQT LTNG EAST OF EYE
OB CORRECTED FOR REMARKS;
```

Table 7 continued.

```
----
URNT14 KMIA 261247 COR
AF985 0602 BONNIE OB 08 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01292 10925 10014 12319 19048
02293 20927 20014 22321 17038
03293 30929 30014 32221 15039
04294 40932 40013 42221 16052
05296 50936 50010 52222 16035
MF295 M0940 MI071
OBS 01 AT 1057Z OBS 05 AT 1124Z
OBS 01 SFC WND /////
REMARKS 297 945 992 CNTNS MDT TO SVR TURBC ON WEST SIDE. MAX OBSVD
WND 20071 AT 29.5N 94.0W;
----
URNT14 KMIA 261251 COR
AF985 0602 BONNIE OB 09 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01293 10938 14520 11515 23048
02292 20934 22529 21515 23050
03294 30931 33175 31008 20031
04295 40928 43177 41008 19031
05295 50923 53196 50906 20028
06294 60917 63192 61006 20030
MF292 M0934 MI050
OBS 01 AT 1146Z OBS 06 AT 1222Z
OBS 07 SFC WND /////
REMARKS 297 945 500 ETA KBIX 26/1315Z. LAST REPORT OB 01 THRU 09
TO KMIA;
```

Table 7 continued.

```
URNT11 KMIA 161232
AF967 0504 CHARLEY OB 05 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01306 10777 10011 12420 26016
02309 20777 20009 22420 24023
03311 30777 30008 32420 24026
04314 40777 40007 42420 23030
05316 50777 50007 52220 23031
06319 60776 60005 62320 24030
07322 70777 70003 72420 29009
MF316 M0777 MF031
OBS 01 AT 1106Z OBS 07 AT 1135Z
OBS 01 SFC WND 26020
01327 10776 10004 12321 11008
02330 20776 20004 22320 11014
03332 30776 30007 32320 12019
04335 40776 40007 42420 09016
05337 50775 50008 52320 07021
06340 60775 60008 62220 08016
07342 70775 70010 72220 08016
MF337 M0775 MF021
OBS 01 AT 1152Z OBS 07 AT 1221Z
OBS 07 SFC WND 06020
REMARKS 325 776 998;

URNT14 KMIA 161428
AF967 0504 CHARLEY OB 08 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01325 10797 10010 12319 36020
02324 20793 20009 22219 33022
03324 30790 30010 32219 35020
04324 40787 40007 42320 33035
05324 50784 50006 52320 33034
06324 60781 60005 62320 32024
07325 70778 70003 72320 30017
MF324 M0784 MF034
OBS 01 AT 1304Z OBS 07 AT 1333Z
OBS 01 SFC WND 36020
01326 10772 10003 12321 18013
02328 20769 20005 22320 17028
03329 30765 30007 32219 19036
04329 40762 40009 42420 15021
05328 50759 50010 52319 18020
06326 60757 60010 62320 16020
07326 70754 70012 72320 15027
MF329 M0765 MF036
OBS 01 AT 1343Z OBS 07 AT 1414Z
OBS 07 SFC WND 16025
REMARKS 326 775 999 INBOUND LEG SFC GUST TO 45KT NEAR SHOWERS.
OUTBOUND LEG MAX SFC WND 40KT.
URNT14 KMIA 161506
AF967 0504 CHARLEY OB 11 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01342 10775 10010 12319 08032
02341 20776 20010 22318 07028
03338 30776 30009 32219 07032
04336 40776 40007 42319 08033
05333 50778 50006 52220 05028
06330 60778 60004 62221 03017
07328 70776 70002 72320 02019
MF336 M0776 MF033
OBS 01 AT 1451Z OBS 07 AT 1516Z
OBS 01 SFC WND 12030
01324 10774 10003 12320 30012
02324 20775 20004 22320 28011
03319 30775 30005 32320 24020
04317 40775 40008 42219 25025
05314 50774 50008 52320 24023
06311 60774 60009 62320 26021
07310 70773 70010 72419 24019
MF317 M0775 MF025
OBS 01 AT 1505Z OBS 07 AT 1554Z
OBS 07 SFC WND 25025
REMARKS 327 775 999=
  RR KCGF 151812
  URNT14 KMIA 161606
  AF967 0504 CHARLEY OB 14 KMIA
  SUPPLEMENTARY VORTEX DATA MESSAGE
  01327 10754 10010 12320 18031
  02328 20752 20010 22320 15031
  03328 30750 30008 32420 15026
  04329 40753 40007 42320 17029
  05329 50756 50006 52220 16033
  06329 60759 60004 62320 16024
  07328 70771 70002 72320 15025
  MF329 M0766 MF033
  OBS 01 AT 1635Z OBS 07 AT 1702Z
  OBS 01 SFC WND 17030
  01328 10777 10001 12321 36025
  02328 20780 20003 22320 34029
  03328 30784 30005 32220 36025
  04328 40786 40006 42319 35026
  05328 50789 50007 52319 36018
  06328 60792 60008 62419 34020
  07329 70795 70008 72419 35012
  MF328 M0780 MF029
  OBS 01 AT 1716Z OBS 07 AT 1743Z
  OBS 07 SFC WND 36010
  REMARKS 327 775 998 ETA KBIX 16/1930Z LAST REPORT OBS 01 THRU 14
  TO KMIA;

URNT14 KMIA 170707
AF969 0704 CHARLEY OB 03 KMIA
SUPPLEMENTARY VORTEX DATA MESSAG
01335 10789 12500 11912 32032
02335 20788 22486 21912 32029
03335 30785 32481 31912 33031
04335 40782 42479 41912 33044
05335 50779 52472 51714 33038
06335 60776 62438 61615 32020
07335 70773 72402 71917 31009
MF335 M0782 MF044
OBS 01 AT 0500Z OBS 07 AT 0529Z
OBS 01 SFC WND /////
01335 10765 12376 12015 22027
02335 20763 22436 21615 22059
03335 30759 32452 31615 29044
04335 40757 42454 41917 19033
05335 50753 52479 51715 19031
06335 60751 62491 61714 19047
07335 70748 72497 71911 19042
MF335 M0763 MF059
OBS 01 AT 0609Z OBS 07 AT 0635Z
OBS 07 SFC WND /////
REMARKS 326 749 ?71?

URNT14 KMIA 171016
AF969 0704 CHARLEY OB 06 KMIA
SUPPLEMENTARY VORTEX DATA MESSA
01345 10770 12499 11916 08031
02342 20769 22981 21816 06034
03340 30769 32959 32116 06035
MF340 M0769 MF035
OBS 01 AT 0711Z OBS 03 AT 0718Z
OBS 01 SFC WND /////
01336 10769 12395 11917 29047
02333 20768 22424 21715 29042
03331 30768 32432 31715 26043
04328 40768 42469 41813 28028
05326 50768 52471 51715 27031
06323 60767 62430 61714 27033
07320 70766 72494 71714 29016
MF336 M0769 MF047
OBS 01 AT 0857Z OBS 07 AT 0925
OBS 07 SFC WND /////
REMARKS 329 749 ?54?

URNT14 KMIA 171145
AF969 0704 CHARLEY OB 09 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01339 10747 12507 11615 19048
02339 20752 22469 21713 18040
03340 30755 32458 31814 18043
04340 40758 42434 41816 18047
05341 50763 52384 51716 18053
06341 60765 62352 62116 21021
MF341 M0763 MF053
OBS 01 AT 1014Z OBS 06 AT 1038Z OBS 01 SFC WND
REMARKS 343 767 135?
```

Table 7 Continued.

```
[illegible] 171613 COR
AF866 0804 CHARLEY OB 05 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01333 10755 10009 12423 23025
02336 20755 20009 22423 23042
03339 30755 30003 32423 24036
04341 40756 40002 42423 25034
05344 50757 50999 52323 26039
MF356 M0755 MF042
OBS 01 AT 1418Z OBS 05 AT 1438Z
OBS 01 SFC WND 26025
01350 10752 10991 12424 19031
02350 20754 20993 22424 17055
03351 30756 30001 32424 17044
04350 40752 40005 42222 16044
05350 50749 50906 52523 15042
06350 60745 60008 62222 14040
07350 70743 70009 72423 15040
MF350 M0754 MF055
OBS 01 AT 1519Z OBS 07 AT 1554Z
OBS 07 SFC WND 19025
REMARKS [illegible] 999;

URNT14 KMIA 171922
AF866 0804 CHARLEY OB 09 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01337 10759 10006 12423 23034
02341 20761 20005 22423 23039
03342 30761 30003 32423 22036
04345 40761 40001 42423 23042
05349 50761 50999 52423 24043
06350 60762 6//// 6//// 25042
MF349 M0761 MF043
OBS 01 AT 1645Z OBS 06 AT 1702Z
OBS 01 SFC WND 23020
01355 10757 10991 12524 18057
02360 20755 20000 22423 12047
03364 30755 30004 32423 12046
04366 40755 40005 42322 13043
05369 50755 50007 52523 12033
MF355 M0757 MF057
OBS 01 AT 1740Z OBS 05 AT 1807Z
OBS 05 SFC WND 15050
REMARKS [illegible] 999;

URNT14 KMIA 172045
AF866 0804 CHARLEY OB 11 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01355 10741 10007 12521 15041
02355 20743 20005 22522 15046
03356 30746 30003 32423 14047
04355 40750 40003 42423 18047
05354 50754 50999 52424 18048
06354 60756 60993 61818 22060
07356 70760 70988 71918 25032
MF354 M0756 MF060
OBS 01 AT 1857Z OBS 07 AT 1934Z
OBS 01 SFC WND 15035
01358 10751 10999 12423 18057
02360 20752 20000 22423 16059
03362 30753 30000 32323 13051
04365 40754 40001 42222 10048
05366 50755 50003 52322 10050
06369 60755 60004 62321 12048
07373 70755 70005 72321 13031
08375 80754 80006 82321 13037
MF360 M0752 MF059
OBS 01 AT 2002Z OBS 08 AT 2032Z
OBS 08 SFC WND 15025
REMARKS 359 742 999;

ZCZC WBC692
URNT14 KMIA 180100 COR 02
AF972 0904 CHARLEY OB 03 COR 02 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01352 10755 12437 11607 24038
02355 20755 22415 21704 24050
03358 30755 32391 31815 24052
04360 40756 42374 41814 25051
05362 05757 52335 51715 26046
06365 60758 62315 61913 26017
MF358 M0755 MF052
OBS 01 AT 2332Z OBS 06 AT 2352Z
OBS 01 SFC WND 26035
01369 10759 12358 11717 06032
02372 20759 22387 21717 08042
03374 30758 32422 317// 08051
04376 40755 42440 418// 10044
05378 50754 52458 517// 10046
06381 60751 62471 616// 11046
07382 70750 72480 716// 12038
MF374 M0758 MF051
OBS 01 AT 0012Z OBS 07 AT 0043Z
OBS 07 SFC WND N/A
REMARKS 366 757 313
HYGROMETER FAILED ON OUTBOUND LEG;

URNT14 KMIA 180220 COR
AF972 0904 CHARLEY OB 06 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01370 10735 12486 117// 17043
02370 20738 22474 216// 16054
03369 30741 32452 316// 18050
04369 40744 42428 418// 19063
05369 50747 52509 517// 18051
06369 60750 62372 616// 18053
07369 70753 72335 718// 18032
MF369 M0744 MF063
OBS 01 AT 0126Z OBS 07 AT 0151Z
OBS 01 SFC WND /////
REMARKS 368 757 321
UNABLE TO FLY WEST OUTBOUND LEG DUE PROXIMITY TO LAND

URNT14 KMIA 180430
AF972 0904 CHARLEY OB 08 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01352 10757 12461 117// 28033
02354 20757 22452 215// 24043
03356 30758 32439 317// 25049
04359 40758 42421 417// 26039
05362 50758 52405 518// 29030
06364 60757 62381 618// 30037
07366 70756 72347 718// 28037
MF356 M0758 MF049
OBS 01 AT 0238Z OBS 07 AT 0304Z
OBS 01 SFC WND /////
01371 10756 12324 118// 06015
02374 20755 22363 217// 10033
03376 30754 32393 316// 12039
04379 40753 42425 416// 12057
05381 50753 52442 516// 10051
06383 60751 62458 616// 09040
07385 70749 72470 715// 11041
MF379 M0753 MF057
OBS 01 AT 0318Z OBS 07 AT 0346Z
OBS 07 SFC WND /////
REMARKS 369 755 315;
```

Table 7 continued.

```
URNT14 KMIA 180600
AF972 0904 CHARLEY OB 11 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01374 10732 12479 115// 16052
 02373 20734 22456 216// 15050
 03374 30737 32436 315// 16066
 04374 40740 42428 416// 17043
 05374 50744 52404 517// 17047
 06374 60747 62385 617// 16044
 07374 70750 72358 717// 15032
 MF374 M0737 MF066
OBS 01 AT 0430Z OBS 07 AT 0454Z
OBS 01 SFC WND /////
 01371 10755 12326 119// 30021
 02369 20754 22349 219// 29023
 03367 30753 32375 319// 27042
 04364 40753 42400 418// 28035
 05362 50752 52426 518// 26031
 06359 60753 62441 618// 26030
 07347 70754 72452 717// 25030
 MF367 M0753 MF042
 OBS 01 AT 0516Z OBS 07 AT 0542Z
 OBS 07 SFC WND /////
 REMARKS 373 754 321
 LAST REPORT OBS 01 THRU 11 TO KMIA; ETA KBIX 18/0840Z;
```

```
URNT14 KMIA 190951
AF967 1004 CHARLEY OB 03 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01363 10750 12432 11612 25052
 02366 20749 22412 21712 24040
 03368 30750 32398 31612 25046
 04371 40750 42383 41712 27031
 05373 50751 52364 51713 29022
 06376 60750 62351 61713 31023
 MF363 M0750 MF052
OBS 01 AT 0825Z OBS 06 AT 0847Z
 OBS 01 SFC WND /////
01391 10746 12347 11613 99005
 02383 20745 22374 21514 10011
 03386 30744 32399 31413 10027
 04386 40743 42414 41311 10038
 05390 50741 52433 51310 09039
 06393 60740 62448 61312 08033
 07394 70739 72455 71311 06036
 MF390 M0741 MF039
OBS 01 AT 0911Z OBS 07 AT 0937Z
OBS 07 SFC WND /////
REMARKS 379 747 331
OUTBOUND HEADING 035 DEG DUE TO COASTLINE;
```

```
URNT14 KMIA 191828 COR
AF964 1104 CHARLEY OB 04 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01377 10750 12475 11511 35025
 02376 20745 22454 21513 34039
 03377 30743 32442 31513 34041
 04379 40740 42429 41713 32037
 05381 50738 52417 51913 32035
 06383 60735 62404 61913 29026
 07384 70733 72391 71914 31025
 MF377 M0743 MF041
OBS 01 AT 1402Z OBS 07 AT 1653Z
OBS 01 SFC WND 36025
01390 10718 12393 11715 19030
 02391 20717 22414 21615 19039
 03393 30713 32429 31615 19038
 04393 40711 42442 41713 18048
 05395 50709 52443 51716 21038
 06396 60705 62433 61616 /////
 MF393 M0711 MF048
OBS 01 AT 1732Z OBS 06 AT 1753Z
OBS 07 SFC WND /////
REMARKS 389 726 368
OUTBOUND LEG CNTNS IN CLOUD
CONVECTION EAST CNTR 39.3N 71.2W FLT LVL WND 17
COR FOR REMARKS;
```

```
URNT14 KMIA 181905 COR
AF964 1104 CHARLEY OB 08 COR KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01405 10722 12473 11412 08050
 02403 20723 22436 21412 07044
 03401 30723 32427 31513 09039
 04398 40722 42403 41616 11035
 05396 50723 52393 51716 08017
 06393 60723 62375 61716 05012
 MF405 M0722 MF050
OBS 01 AT 1817Z OBS 06 AT 1840Z
 OBS 01 SFC WND 06040
01389 10721 12376 11916 27014
 02389 20723 22379 21915 27028
 MF389 M0723 MF028
OBS 01 AT 1903Z OBS 02 AT 1911Z
 OBS 07 SFC WND /////
REMARKS 392 722 369
COR FOR REMARKS;
```

```
URNT14 KMIA 192047 COR
AF964 1104 CHARLEY OB 09 COR KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01392 10717 12378 11816 21025
 02393 20714 22396 21716 20030
 03394 30710 32408 31715 20039
 04395 40707 42421 41615 19054
 05395 50706 52430 51714 19058
 06395 60701 62439 61714 19054
 07396 70698 72451 71715 20065
 MF396 M0698 MF065
OBS 01 AT 1952Z OBS 07 AT 2020Z
 OBS 07 SFC WND /////
REMARKS 393 720 368
SFC WND 39.5N 70.6W 18050
FLT LVL WND 39.5N 70.3W 19062;
```

Table 7 continued

```
URNT14 KMIA 192300
AF964 1104 CHARLEY OB 12 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01400 10711 12411 11616 15025
 02398 20713 22395 21716 18017
 03396 30713 32385 31716 /////
 MF400 M0711 MF025
OBS 01 AT 2047Z OBS 03 AT 2054Z
OBS 01 SFC WND /////
01397 10712 12397 11715 21019
 02397 20708 22403 21715 19027
 03398 30705 32419 31715 19040
 04398 40701 42428 41713 19043
 05398 50697 52442 51813 19048
 06397 60695 62445 61814 21045
 07396 70693 72463 71714 19050
 MF396 M0693 MF050
OBS 01 AT 2135Z OBS 07 AT 2209Z
 OBS 07 SFC WND 18045
REMARKS 395 715 378;


URNT14 KMIA 192345
AF964 1104 CHARLEY OB 16 KMIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01408 10705 12448 11411 05035
 02406 20706 2//// 2//// /////
 03404 30707 32423 31514 09035
 04403 40708 42412 41614 11018
 05401 50711 52408 51715 11011
 06399 60713 62406 61715 16007
 MF404 M0707 MF035
OBS 01 AT 2242Z OBS 06 AT 2302Z
 OBS 01 SFC WND /////
REMARKS 396 711 388;


 URNT14 KMIA 190419
 AF969 1204 CHARLEY OB 04 KMIA
  SUPPLEMENTARY VORTEX DATA MESSAGE
 01399 10722 12476 11410 01044
  02398 20719 22460 21510 36037
  03398 30717 32454 31610 35044
  04398 40714 42436 41610 36066
  05397 50709 52417 51812 34012
  06397 60707 62411 61813 35020
  07397 70705 72408 71813 35011
  08399 80702 82408 81813 33018
  MF398 M0714 MF066
 OBS 01 AT 0226Z OBS 08 AT 0258Z
  OBS 01 SFC WND /////
 01400 10696 12411 11713 24013
  02400 20693 22420 21713 21022
  03400 30689 32426 31613 21030
  04400 40686 42432 41612 20039
  05400 50683 52439 51612 19049
  06401 60680 62451 61612 18056
  07400 70676 72460 71612 20046
  MF401 M0680 MF056
 OBS 01 AT 0320Z OBS 07 AT 0348Z
  OBS 01 SFC WND /////
 REMARKS 400 699 401
 EXTENSIVE CONVECTION FROM 55 NM TO 95 NM OUTBOU


  URNT14 KMIA 190600
  AF969 1204 CHARLEY OB 07 KMIA
  SUPPLEMENTARY VORTEX DATA MESSAG
  01416 10698 12448 11310 06048
  02414 20697 22436 21510 05043
  03410 30693 32426 31612 08011
  04409 40691 42423 41612 10006
  05408 50690 52420 51612 14016
  06406 60693 62414 61613 13011
  07405 70694 72411 71713 11009
  MF416 M0698 MF048
 OBS 01 AT 0430Z OBS 07 AT 0458Z
  OBS 01 SFC WND /////
 01400 10693 12404 11713 32013
  02397 20693 22410 21713 29020
  03394 30693 32417 31713 26035
  04392 40693 42420 41712 27028
  05389 50693 52426 51712 27031
  06387 60693 62435 61712 26036
  07385 70693 72444 71710 26052
  MF385 M0693 MF052
 OBS 01 AT 0514Z OBS 07 AT 0542Z
  OBS 01 SFC WND /////
 REMARKS 403 693 399
 INBD LEG ADJUSTED FOR COASTLINE;
```

Table 7 continued.

```
URNT14 KMIA 081510
AF967 0207 DANIELLE OB 13 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01132 10622 10007 12321 09071
 02135 20622 20009 22320 10046
 03137 30621 30011 32319 10035
 04139 40621 40012 42420 10038
 05143 50621 50012 52519 10032
 06145 60621 60012 62520 10030
 07147 70621 70013 72420 09026
 MF132 M0622 MF071
OBS 01 AT 1412Z OBS 07 AT 1443Z OBS 07 SFC WND 10025
 REMARKS 130 621 004
BAND OF STRONG WINDS 6080KTS BOTH AT FL AND SFC ON NORTH SIDE OF
CENTER FROM 1020 NM OUT. LAST REPORT OBS 0118 TO KMIA. ETA
MKPA 081535Z;

URNT14 KMIA 081908
AF972 0307 DANIELLE OB 04 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01148 10630 10012 12419 10023
 02146 20630 20011 22519 11024
03143 30630 30011 32519 11033
04140 40631 40010 42419 09035
 05138 50632 50009 52419 12040
06135 60632 60006 62520 10049
 MF135 M0632 MF049
OBS 01 AT 1720Z OBS 06 AT 1743Z
OBS 01 SFC WND 10030
01130 10632 10008 12521 15009
 02128 20631 20009 22621 21014
 03125 30632 30009 32521 16009
 04122 40632 40009 42621 26009
 05120 50632 50009 52621 25008
06119 60632 60009 62621 26007
 07115 07632 70009 72621 28008
 MF129 M0631 MF014
OBS 01 AT 1825Z OBS 07 AT 1856Z
OBS 07 SFC WND 99005
REMARKS:  133 632 006 RW FROM 30NM N TO 45NM S;

URNT14 KMIA 082135
AF972 0307 DANIELLE OB 07 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01133 10614 10011 12518 13030
02133 20616 20011 22517 13031
 03133 30619 30010 32518 13033
04133 40622 40010 42418 13032
05133 50624 50009 52418 13048
06133 60626 60009 62419 12037
07132 70630 70009 72419 10031
MF133 M0624 MF048
OBS 01 AT 1947Z OBS 07 AT 2015Z
OBS 01 SFC WND 13025
01129 10635 10008 12520 19014
02128 20638 20007 22620 99005
03128 30641 30007 32620 21011
 04128 40644 40008 42620 34007
05128 50646 50008 52620 36009
06128 60649 60008 62620 01016
07128 70651 70008 72620 02016
MF128 M0649 MF016
OBS 01 AT 2039Z OBS 07 AT 2111Z
OBS 07 SFC WND 36015
REMARKS 129 633 008;

URNT14 KMIA 090010
AF972 0307 DANIELLE OB 11 KMIA
SUPPLEMENTARY VORTEX DATA MESSA
01152 10641 10011 12620 11019
02149 20640 20010 22620 10025
 03147 30641 30010 32620 10029
 04144 40642 40010 42620 10033
 05142 50643 50009 52620 10043
 06139 60644 60008 62619 10047
 07135 70645 70003 72621 11043
 MF139 M0644 MF047
OBS 01 AT 2237Z OBS 07 AT 2309Z
OBS 01 SFC WND 09020
01133 10645 10006 12521 24011
 02130 20645 20008 22521 20011
 03127 30645 30008 32621 99005
 04125 40645 40008 42621 24008
 05123 50645 50009 52621 22008
 MF133 M0645 MF011
OBS 01 AT 2327Z OBS 05 AT 2347Z
OBS 05 SFC WND /////
REMARKS 134 645 003;

      MIAREPNT2
URNT14 KMIA 090715
AF866 0407 DANIELLE OB 06 KMIA
SUPPLEMENTARY VORTEX DATA MESSA
01160 10672 10012 12521 08034
02157 20673 20011 22523 07055
03155 30673 30011 32522 07022
04153 40672 40011 42520 06024
05151 50672 50010 52521 07025
06148 60671 60010 62521 07025
07145 70670 70009 72523 06023
08143 80668 80009 82523 06023
09141 90668 90008 92521 07033
MF157 M0673 MF055
OBS 01 AT 0518Z OBS 09 AT 0555Z
OBS 01 SFC WND /////
01130 10667 10007 12523 29015
02128 20667 20008 22523 28014
MF130 M0667 MF015
OBS 01 AT 0630Z OBS 02 AT 0635Z
OBS 02 SFC WND /////
REMARKS 132 667 007
WX RADAR INOP MISSION ABORTED

URNT14 KMIA 091325
AF972 0507 DANIELLE OB 05 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01159 10680 10013 12518 10031
02157 20680 20013 22518 08032
 03155 30680 30012 32518 08030
04152 40680 40012 42518 08038
05150 50679 50012 52518 08031
 06147 60679 60011 62518 09038
07144 70679 70011 72518 10038
 08142 80680 80010 82518 09046
 09139 90680 90010 92519 10041
MF142 M0680 MF046
OBS 01 AT 1052Z OBS 09 AT 1131Z OBS 01 SFC WND 09
 01131 10681 10011 12519 27006
02128 20679 20011 22519 27007
03126 30679 30011 32519 21009
04122 40678 40011 42520 12009
05120 50678 50011 52520 09008
06118 60678 60012 62520 11012
07116 70677 70012 72520 03005
MF122 M0678 MF009
OBS 01 AT 1230Z OBS 07 AT 1301Z OBS 07 SFC WND 99(
REMARKS 135 681 009;
```

Table 7 continued.

```
URNT14 KMIA 112123
AF866 0108 EARL OB 11 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01252 10534 10002 12323 25025
02251 20534 20006 22222 21030
03248 30534 30009 31919 24049
04245 40533 40010 42318 26032
05243 50534 50011 52322 28023
MF248 M0534 MF049
OBS 01 AT 2023Z OBS 05 AT 2046Z
OBS 05 SFC WND 27020
REMARKS 253 534 998
MAX OBSERVED SFC WND 23050
OBS 01 THRU 11 TRANSMITTED AS
AF866 0108 CYCLONE;
URNT14 KMIA 121355
AF866 0108 EARL OB 14 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01254 10515 10012 12423 14018
02254 20519 20012 22423 15031
03254 30521 30012 32424 16025
04254 40522 40012 42420 15029
05254 50525 50011 52311 17036
06254 60528 60010 62121 16040
07254 70531 70009 72120 17052
08254 80534 80007 82119 17067
09255 90536 90999 92423 20052
MF254 M0534 MF067
OBS 01 AT 2156Z OBS 09 AT 2234Z
OBS 01 SFC WND /////
01256 10542 10002 12422 36038
02256 20545 10006 22422 36025
03256 20548 30007 32421 02019
04256 40551 40009 42422 03020
05256 50553 50009 52422 04016
06256 60555 60010 62521 02020
07256 70558 70011 72421 06017
MF256 M0542 MF038
OBS 01 AT 2255Z OBS 07 AT 2324Z
OBS 07 SFC WIND /////
REMARKS 256 539 997;
URNT14 KMIA 121932
AF969 0208 EARL OB 09 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01256 10554 12515 11711 23028
02259 20554 22510 21714 22039
03261 30554 32501 31713 22035
04263 40556 42493 41713 23036
05266 50558 52486 51715 25030
MF259 M0554 MF039
OBS 01 AT 1757Z OBS 05 AT 1816Z
OBS 01 SFC WND 24030
01275 10559 12458 11715 34014
02277 20559 22464 21814 05035
03280 30559 32473 31714 07046
04282 40559 42489 41614 09041
05285 50559 52495 51614 09041
05285 50559 52495 51614 09037
06287 60559 62507 61613 10035
07290 70559 72516 71612 10036
MF280 M0559 MF046
OBS 01 AT 1847Z OBS 07 AT 1916Z
OBS 07 SFC WND 10030
REMARKS: 271 559 007;
```

```
URNT14 KMIA 122140 COR
AF969 0208 EARL OB 11 COR KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01273 10578 12518 11812 33004
02272 20574 22512 21814 32009
03273 30572 32506 31713 29013
04274 40569 42500 41713 30010
05275 50566 52497 51715 99005
06276 60564 62494 61714 35018
07276 70561 72476 71714 35028
MF276 M0561 MF028
OBS 01 AT 1957Z OBS 07 AT 2029Z
OBS 01 SFC WND 99005
01278 10549 12377 11815 17066
02278 20545 22454 21715 /////
03279 30543 32486 31513 17054
04279 40540 42507 51515 /////
05279 50537 52525 51514 17044
06278 60534 62530 61614 14022
07277 70532 72537 71713 13011
MF278 M0549 MF066
OBS 01 AT 2057Z OBS 07 AT 2126Z
OBS 07 SFC WND 13010
REMARKS 274 552 280 HEAVY PRECIP MDT TURB OUTBOUND LEG SFC WND
GUST TO 80 8NM EAST OF CENTER;

URNT14 KMIA 130017
AF969 0208 EARL OB 15 KMIA
SUPPLEMENTARY VORTEX DATA MESSAGE
01295 10553 12525 11610 11036
02292 20553 22509 21612 11042
03290 30554 32497 31513 09042
04285 40553 42485 41713 08050
05285 50555 52439 51814 07058
06282 60554 62384 61914 06065
MF282 M0554 MF065
OBS 01 AT 2233Z OBS 06 AT 2257Z
OBS 01 SFC WND /////
01277 10553 12374 11916 28065
02274 20554 22454 21715 29046
03272 30553 32484 31715 26046
04269 40553 42500 51813 27034
05269 50554 52511 51715 26032
06264 60554 62522 61712 25032
07262 70555 72525 71714 25027
MF277 M0553 MF065
OBS 01 AT 2317Z OBS 07 AT 2345Z
OBS 07 SFC WND /////
REMARKS 280 555 285;
```

Table 7 continued

```
URNT14 KNIA 201509
AF972 0209 FRANCES OB 11 KNIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
 01283 10572 10016 12217 15046
 02283 20573 20016 22218 14040
 03282 30575 30015 32218 14040
 04281 40576 40014 42318 15034
 05279 50583 50013 52316 14035
 06279 60584 60008 62117 18039
 07279 70585 70007 72117 19065
 MF279 M0589 MF075
OBS 01 AT 1404Z OBS 07 AT 1431Z OBS 01 SFC WND 16025
 REMARKS 281 591 000 SFC WND GRTR THAN 60KT FM 45NM E INBND TO CNTR;

URNT14 KNIA 201355
AF972 0209 FRANCES OB 08 KNIA
 SUPPLEMENTARY VORTEX DATA MESSAGE
01286 10615 10015 12217 05009
 02285 20615 20016 22214 03013
 03283 30615 30015 32216 03013
 04280 40615 40015 42215 36015
 05279 50612 50014 52215 35014
 06279 60609 60014 62216 34012
 07279 70607 70014 72216 01016
 08279 80603 80013 82116 01020
 09278 90601 90012 92217 01020
 10277 00595 00004 02217 01051
 MF277 M0595 MF051
OBS 01 AT 1137Z OBS 10 AT 1215Z OBS 01 SFC WND 06010
 01275 10592 10008 12119 25060
02273 20592 20010 22218 25065
 03271 30591 30014 32110 25040
 04268 40592 40014 42415 25030
 05264 50593 50015 52415 26026
 06264 60592 60015 62218 26026
 07262 70593 70016 72218 26030
 MF274 M0592 MF075
OBS 01 AT 1247Z OBS 07 AT 1318Z OBS 07 SFC WND 23020
 REMARKS 278 593 000 MAX SFC WND 25070 AT 27.4N 59.2W;
```

APPENDIX A.
Code for supplementary vortex data message.

SUPPLEMENTARY VORTEX DATA MESSAGE

MANOP HEADING *(completed by monitors only)*

UR ——— ——— 12 ——— ——— ——— ——— ——— ——— ——— ——— ——— ———

MISSION IDENTIFIER AND OBSERVATION NUMBER *(completed by flight meteorologist and monitor)*

AF ——— ——— ———

SUPPLEMENTARY VORTEX DATA MESSAGE

($L_a L_a L_a$)	($L_o L_o L_o L_o$)	(jHHH)	($TTT_d T_d$)	(ddfff)
01	1	1	1	
02	2	2	2	
03	3	3	3	
04	4	4	4	
05	5	5	5	
06	6	6	6	
07	7	7	7	
($L_a L_a L_a$) MF	($L_o L_o L_o L_o$) M	(fff) MF		

OBS 01 AT: ——— Z | OBS ——— AT ——— Z | OBS 01 SFC WND: ———

($L_a L_a L_a$)	($L_o L_o L_o L_o$)	(jHHH)	($TTT_d T_d$)	(ddfff)
01	1	1	1	
02	2	2	2	
03	3	3	3	
04	4	4	4	
05	5	5	5	
06	6	6	6	
07	7	7	7	
($L_a L_a L_a$) MF	($L_o L_o L_o L_o$) M	(fff) MF		

OBS 01 AT: ——— Z | OBS ——— AT ——— Z | OBS 07 SFC WND: ———

REMARKS *(end of message)*

PREPARED BY: | TRANSMISSION TIME:

LEGEND

01 INDICATOR FOR DATA COLLECTED APPROXIMATELY 105 NM FROM STORM CENTER (INBOUND) OR APPROXIMATELY 15 NM FROM CENTER (OUTBOUND)

OTHER INDICATORS (02/2, 03/3...) FOR DATA AT APPROXIMATELY 15 NM INTERVALS INBOUND OR OUTBOUND FROM STORM CENTER. INDICATORS MAY BE EXPANDED BEYOND 07 (08, 09....) AS NECESSARY AT APPROXIMATELY 15 NM INTERVALS.

MF = INDICATOR FOR MAXIMUM FLIGHT LEVEL WIND OBSERVED

fff = SPEED OF WIND IN KNOTS

dd = TRUE DIRECTION OF FLIGHT LEVEL WIND SPEED IN TENS OF DEGREES

$TTT_d T_d$ = TEMP/DEWPOINT IN DEGREES CELSIUS: ADD 50 FOR NEGATIVE VALUES

jHHH = PRESSURE HEIGHT DATA IN RECCO FORMAT

$L_o L_o L_o$ = LATITUDE IN DEGREES/TENTHS

$L_a L_a L_a L_a$ = LONGITUDE IN DEGREES/TENTHS

/ = DATA UNKNOWN/UNOBTAINABLE

SAMPLE MESSAGE

URNT 12 KMIA 241703
AF 966 0411 FREDERIC OB 14
SUPPLEMENTARY VORTEX DATA MESSAGE

01178	10899	13107	10908	36027
02177	20895	23100	20908	35042
03178	30891	33092	30807	36052
04177	40887	43088	40907	35070
05178	50883	53070	50908	36085
06178	60880	63000	61010	35108
07178	70877	73882	71211	35120
MF178	M0877	MF120		

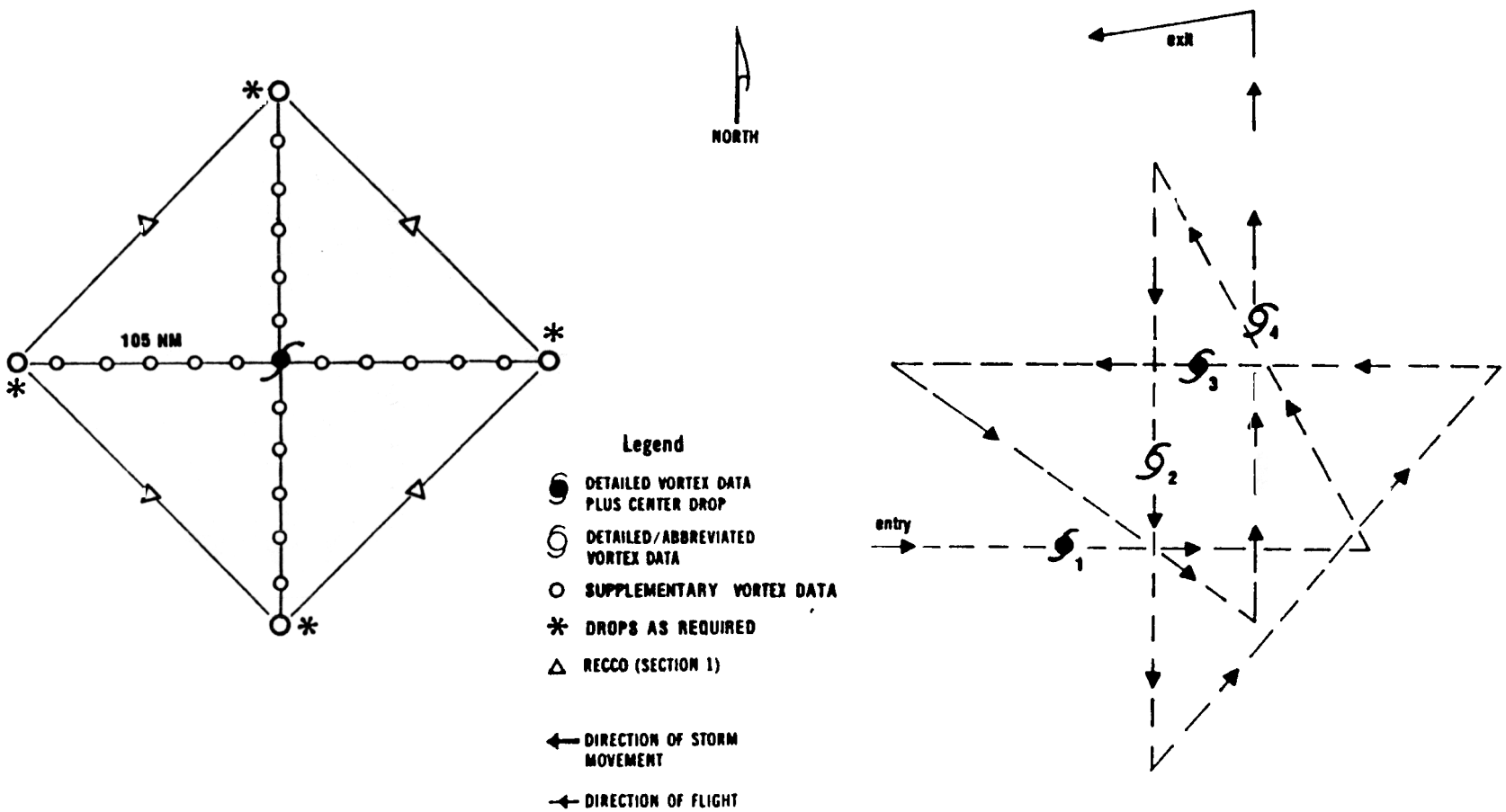
OBS 01 AT 1530Z OBS 07 AT 1600Z
OBS 01 SFC WND 36025

01177	10872	13000	11010	18120
02178	20868	23070	21009	17098
03178	30862	23088	30909	18080
04177	40858	43093	40908	17050
05177	50854	53102	50908	17048
06178	60850	63108	60905	18031
07177	70844	73114	70902	18025
MF177	M0872	MF120		

OBS 01 AT 1630Z OBS 07 AT 1700Z
OBS 07 SFC WIND 16025
REMARKS HEAVY RAIN OUTBOUND

☆ U. S. GPO 1985 - 564 - 006/20570

RECOMMENDED PATTERN "A" EXECUTION



APPENDIX B.
Flight pattern "A" flown in obtaining Supplementary Vortex Data Messages.

Table 8. Tropical cyclone Reconnaissance Summary for 1986.

1. Requirements Levied	Atlantic	Eastern Pacific	Central Pacific
TDs, Storms, Hurricanes	91	00	31
Invests	52	00	00
Total	143	00	31
cancellations	64	00	08
2. Requirements Accomplished			
53rd WRS (Cyclone/Invest)	05/03	0/0	17/00
815th WRS	51/06	0/0	06/00
OAO	11/01	0/0	00/00
Total	67/10	0/0	23/00
3. Missions Flown			
53th WRS	05	00	08
815th WRS	34	00	04
OAO	06	00	00
Total	45	00	12
4. Flying Time			
53rd WRS	36.9	00	105.5
815th WRS	356.4	00	119.5
OAO	60.0	00	00.0
Total	453.3	00	225.0

5. Observations

Horizontal..... 742 Vertical.....25

Table 9. Probability forecasts for 1986 landfalling U.S. tropical cyclones.

Chances in percent of Andrew passing within 65 miles of the listed locations by date and time(EDT)

Advisory number	2	3	4	5	6
Advisory Date/Time	06/2200	07/0430	07/1000	07/1600	07/2200
Probability thru	09/1800	10/0000	10/0600	10/1200	10/1800
Bermuda		5	4		
Ft Pierce FL	2				
Cocoa Beach FL	3	2			
Daytona Beach FL	4	2			
Jacksonville FL	5	3			
Savannah GA	10	15			
Charleston SC	21	17	2		
Myrtle Beach SC	28	14	3		
Wilmington NC	27	23	7	5	
Morehead City NC	24	30	20	29	12
Cape Hatteras NC	19	26	23	38	40
Norfolk VA	14	14	7	9	4
Ocean City MD	11	11	6	8	5
Atlantic City NJ	9	9	5	6	4
New York NY	7	7	5	5	4
Montauk Point NY	7	7	6	7	6
Providence RI	6	6	6	6	6
Nantucket MA	7	8	8	9	9
Hyannis MA	6	7	7	8	7
Boston MA	5	5	5	6	5
Portland ME	3	4	4	4	4
Bar Harbor ME	3	3	5	5	4
Eastport ME	2	3	5	5	5
St John NB	2	2	5	5	5
Moncton NB		2	5	5	4
Yarmouth NS		4	7	8	8
Halifax NS		3	8	8	8
Sable Island NS		3	9	10	10
Sydney NS		2	7	7	7
Eddy Point NS		2	7	7	7
Ptx Basques NFLD			5	5	5
Burgeo NFLD			6	5	5
Ile St Pierre			6	7	7
Cape Race NFLD			6	7	7
Hibernia OilfLd			4	5	6

Table 9 continued.

Chances of the center of Bonnie passing within 65 miles of the listed location by date and time (CDT) indicated. Probabilities in percent.

ADVISORY DATE/TIME	24/11AM	24/5PM	24/930PM	25/5AM	25/7AM	25/11AM	25/5PM	25/11PM	26/5AM
PROBABILITY THRU	27/7AM	27/1PM	27/7PM	28/1AM	28/1AM	28/7AM	28/1PM	28/7PM	29/1AM
Cedar Key, FL	2	3							
St Marks, FL	3	5							
Apalachicola, FL	4	6							
Panama City, FL	5	7							
Pensacola, FL	8	11		2			2	2	
Mobile, AL	9	13	3	3	2	3	4	4	
Gulfport, MS	11	5	4	4	3	4	6	5	
Buras, LA	15	21	7	4	4	5	7	4	
New Orleans, LA	14	19	9	7	6	9	11	8	
New Iberia, LA	16	19	14	14	14	21	23	27	12
Port Arthur, TX	15	16	18	22	22	31	32	60	97
Galveston, TX	16	15	22	30	31	35	32	50	73
Freeport, TX	15	14	22	31	31	30	25	32	29
Port O'Connor, TX	14	12	19	26	26	19	16	10	
Corpus Christi, TX	12	10	15	18	17	12	10	4	
Brownsville, TX	12	9	11	10	9	5	5		
Gulf 29N 85W	4	5							
Gulf 29N 87W	7	11							
Gulf 28N 89W	24	34	7	2		2	3		
Gulf 28N 91W	38	41	60	42	51	68	40	10	
Gulf 28N 93W	27	22	46	61	70	76	88	93	
Gulf 28N 95W	17	15	30	38	38	29	23	23	
Gulf 27N 96W	15	12	19	24	23	13	12	3	
Gulf 25N 96W	13	9	10	7	6	3	3		

Table 9 continued.

Chances of the center of Charley passing within 65 miles of the listed locations by date and time (EDT) indicated (probabilities in percent).

ADVISORY DATE/TIME	15/4PM	16/12AM	16/6AM	16/12PM	16/6PM	17/12AM	17/6AM
PROBABILITY THRU	18/2PM	18/8PM	19/2AM	19/8AM	19/2PM	19/8PM	20/2AM
Miami, FL	5	4	4	3	2	X	X
W. Palm Bch., FL	7	6	5	5	2	X	X
Ft. Pierce, FL	9	8	7	7	3	X	X
Coacoa Bch, FL	11	9	8	8	4	2	X
Daytona Bch, FL	13	11	10	10	6	3	X
Jacksonville, FL	14	13	12	11	7	4	X
Savannah, GA	16	16	15	14	10	7	6
Charleston, SC	22	23	23	19	14	10	9
Myrtle Bch, SC	21	29	29	24	24	18	18
Wilmington, NC	18	21	21	21	35	36	53
Morehead City, NC	15	17	18	18	33	47	75
Cape Hatteras, NC	13	14	15	15	22	30	42
Norfolk, VA	9	10	11	11	14	17	22
Ocean City, MD	6	7	8	8	11	13	14
Atlantic City, NJ	4	5	6	6	8	11	9
New York City, NY	3	3	4	4	6	9	6
Montauk Point, NY	2	3	3	3	6	9	4
Providence, RI	2	2	3	3	5	8	3
Nantucket, MA	2	2	3	3	5	8	2
Hyannis, MA	2	2	3	3	5	8	2
Boston, MA	X	X	2	2	4	7	2
Portland, ME	X	X	X	X	3	5	X
Bar Harbor, ME	X	X	X	X	2	4	X
Eastport, ME	X	X	X	X	2	4	X
St. John, NB	X	X	X	X	X	3	X
Moncton, NB	X	X	X	X	X	3	X
Yarmouth, NS	X	X	X	X	2	5	X
Halifax, NS	X	X	X	X	2	4	X
Sable Island, NS	X	X	X	X	X	3	X
Sydney, NS	X	X	X	X	X	2	X
Eddy Point, NS	X	X	X	X	X	2	X
Bermuda	2	2	2	2	3	2	X

X MEANS LESS THAN 2 PERCENT

Table 9 continued.

Chances of the center of Charley passing within 65 miles of the listed locations by date and time (EDT) indicated (probabilities in percent).

ADVISORY DATE/TIME	17/12PM	17/6PM	18/12AM	18/6AM	18/12PM	18/6PM
PROBABILITY THRU	20/8AM	20/2PM	20/8PM	21/2AM	21/8AM	21/2PM
Morehead City, NC	86	62	X	X	X	X
Cape Hatteras, NC	83	97	X	X	X	X
Norfolk, VA	43	73	X	X	X	X
Ocean City, MD	32	51	68	87	75	X
Atlantic City, NJ	22	35	42	49	40	X
New York City, NY	18	25	28	33	23	X
Montauk Point, NY	16	20	24	29	28	24
Providence, RI	15	18	21	24	22	16
Nantucket, MA	14	16	21	23	26	41
Hyannis, MA	14	16	20	22	23	28
Boston, MA	14	16	18	19	17	11
Portland, ME	12	14	14	14	12	6
Bar Harbor, ME	11	12	13	13	11	7
Eastport, ME	10	11	12	12	11	7
St. John, NB	9	11	12	12	10	7
Moncton, NB	8	9	10	10	9	6
Yarmouth, NS	10	12	14	14	14	13
Halifax, NS	8	10	12	12	12	11
Sable Island, NS	6	7	10	10	11	12
Sydney, NS	6	7	10	10	10	7
Eddy Point, NS	7	8	11	11	11	9
Pix Basques, NFLD	5	6	8	8	8	5
Burgeo, NFLD	4	5	8	8	8	5
Ile St. Pierre	4	5	8	8	9	6
Cape Race, NFLD	X	3	7	7	8	6
Hibernia Oilfield	X	X	4	4	5	4

X MEANS LESS THAN 2 PERCENT