

A. INTRODUCTION

Tropical Storm Keith, a late season storm, was the fourth named tropical cyclone of the season to affect the Caribbean. Forming in the central Caribbean, Keith nearly reached hurricane strength as it passed over the northeastern tip of the Yucatan Peninsula on 21 November. Keith then became only the second (Floyd '87) late-season tropical cyclone to strike the southwest Florida coast since Tropical Storm Jenny in October of 1969. After crossing the Florida peninsula, Keith accelerated to the northeast and became a major north Atlantic extratropical storm. Table 1 lists the six hourly positions for the best track and Figure 1 shows the plotted best track.

B. SYNOPTIC HISTORY

Based upon satellite imagery and upper-air soundings, the system that became Tropical Storm Keith moved westward off the African coast on 05 November as a tropical wave. The system moved through the Lesser Antilles on 12 November and slowed as it continued westward into the Caribbean. A large well-defined 200-millibar anticyclone covered the Caribbean and provided an excellent outflow mechanism for the budding tropical cyclone. On 17 November, ship reports confirmed that a cyclonic circulation seen in the animation of satellite imagery was indeed on the surface, and tropical depression advisories were initiated.

The poorly-organized depression moved slowly westward. On 18 November, satellite imagery revealed a diffuse center removed from the deep convection. However, synoptic and upper-air data from the western Caribbean indicated the environment surrounding the depression had become more supportive for development to occur. By 20 November, deep convection had developed close to the center of circulation, and the depression began to move toward the northwest around 10 knots in response to pressure falls created by an eastward moving trough over the Gulf of Mexico.

As the depression moved toward the northwest, gradual strengthening occurred; and based upon satellite estimates, the depression was upgraded to Tropical Storm Keith at 1600 UTC on the 20th. However, in retrospect, the system probably reached tropical storm strength by 0600 UTC. Figures 2 and 3 indicate the changes in pressure and wind speed with time for Tropical Storm Keith.

The upper-level trough, which had turned Keith to the northwest, had moved rapidly northeastward by the 21st and failed to capture Keith. As a result, the storm slowed its forward speed as it crossed the extreme northeast tip of the Yucatan Peninsula. Keith turned northward and then northeastward into the wake of a trailing frontal trough that extended northeastward across the central Florida peninsula by the morning of 21 November.

Keith maintained tropical storm strength as it crossed central Florida, with the center moving onshore in the vicinity of Sarasota near 0700 UTC on 23 November and exiting just north of Melbourne near 1500 UTC. The storm then accelerated rapidly toward the northeast under the influence of strong upper flow which surrounded an extremely large upper-level low centered near Newfoundland. Keith lost its tropical characteristics on the 24th while passing to the north of Bermuda. On the 26th, Keith became an intense north Atlantic extratropical storm with sustained hurricane-force winds while located well to the east of the Canadian Maritime Provinces.

C. METEOROLOGICAL/HYDROLOGICAL STATISTICS

Tropical Storm Keith strengthened to near hurricane force as it approached the northeast tip of the Yucatan Peninsula. The ship XCMH located just west of Cozumel reported wind gusts to 80 knots and a surface pressure of 985 millibars on the 21st between 0000 and 0600 UTC (see table 5). A second ship in Puerto Morelos recorded sustained winds of 60 knots with a gust to 80 knots. Numerous reports from Cozumel indicated continuous lightning and torrential rain occurred during the time of maximum winds.

Keith weakened slightly as its center passed over the extreme northeastern tip of the Yucatan Peninsula. Due to increasing westerly shear and entrainment of cooler drier air from north of the frontal trough into the storm's circulation it never regained its former strength. Keith's central pressure remained near 993 millibars on the 22nd as the storm made a turn toward the northeast. By the time the storm made landfall on the Florida west coast near Sarasota most of the deep convection had been sheared to the north of the center.

The central pressure at landfall was near 995 millibars* and the maximum sustained winds were near 55 knots with gusts to 70 knots. However, the 70-knot gust was recorded at an elevation of 250 feet above the ground. Table 2 contains a list of selected meteorological observations from the storm. Two tornadoes were reported in St. Petersburg at 0532 and 0550 UTC, a few hours prior to the center of Keith making landfall.

A maximum rainfall amount of slightly more than eleven inches was recorded in Largo, Florida, with several other amounts in the nine- to ten-inch range just to the north of the point of landfall. Elsewhere to the north of the storm's track across the state amounts ranged from four to seven inches. Rainfall to the south of the track was generally less than one-half inch. Table 3 contains a list of some of the extreme amounts of rainfall data for the storm.

* Figure 4 is a time series graph depicting various meteorological variables from a "C MAN" station located on the Florida west coast near Venice. Courtesy of the National Data Buoy Center, Bay St. Louis, MS.

Storm surge data indicated a maximum surge of nearly six feet occurred at isolated locations from the point of landfall to as far south as the Fort Myers area. The storm surge observed was generally in the range of three to four feet. Little if any surge was experienced north of the point of landfall and a minimal surge (one to two feet) occurred along the northeast Florida and Georgia coasts. Table 4 contains a summary of known storm surge data.

Keith weakened only slightly to 999 millibars as it crossed the central Florida peninsula and immediately began to accelerate toward the northeast as it emerged into the Atlantic waters. By the time Keith passed within 125 nautical miles north of Bermuda, it had already lost most of its tropical characteristics. Bermuda reported a maximum sustained wind of 40 knots from the southwest and a peak gust of 69 knots from the northwest behind a cold frontal passage in the wake of the now-extratropical storm.

Extratropical Storm Keith accelerated to a forward speed of nearly 45 knots on the 25th as it raced northeastward toward a large Newfoundland low. On the 26th, in combination with the Newfoundland low, the central pressure of the extratropical storm deepened to 945 millibars. Several ships in the area reported sustained winds of 60 to 65 knots (see Table 5).

D. CASUALTY and DAMAGE STATISTICS

There were no reported deaths due to Tropical Storm Keith.

Total damage estimates in Florida were near three million dollars, most of which can be attributed to storm surge action along the immediate west coast. Lee County officials estimated total damages for Lee county alone would be near one million five hundred thousand dollars. Inland away from the immediate coast, damage was mostly in the form of isolated fresh-water flooding, power outages and downed trees.

No casualty or damage information was received from Mexico. Flooding in western Cuba did considerable damage to the tobacco and vegetable crops but no dollar figures were available.

E. CRITIQUE

Initially, all models forecast the system to continue toward the west. Finally, at 0000 UTC on the 19th, Hurrell forecast the depression to turn northwestward through the Yucatan Channel. All the other models kept the system moving westward into Central America until 1200 UTC on the 20th. However, even then, the QLM insisted on a westward trek into the Bay of Campeche. The QLM model had one excellent forecast at 1200 UTC on the 22nd. But none of the models initially indicated the rapid acceleration that occurred on the 24th and 25th.

The NHC forecasters did an excellent job in predicting Keith would remain a storm as it approached the Florida west coast. Also the posted warnings, though a bit short-fused on the Yucatan Peninsula, covered the coastal areas nicely and never varied. Table 6 contains a summary of all issued watches and warnings for Tropical Storm Keith. As Keith approached the west Florida coast, confusion arose as to the exact location of the broad poorly defined center and precisely where it would cross the coast. In retrospect, we probably should have spent more time talking about the poorly defined center and how tropical storm conditions would extend along most of the southwest coast south of the center, especially concerning the storm surge.

Table 1. Preliminary Best Track, Tropical Storm Keith, 17-24 November 1988

<u>DATE</u>	<u>TIME</u> (UTC)	<u>POSITION</u>		<u>PRESSURE</u> (mb)	<u>WIND</u> (kt)	<u>STAGE</u>
		<u>Latitude</u>	<u>Longitude</u>			
11/17	1800	14.9	74.3	1008	30	Trop Dep.
11/18	0000	15.0	75.5	1008	30	"
	0600	15.0	76.5	1008	30	"
	1200	15.0	77.7	1008	30	"
	1800	15.0	79.0	1008	30	"
11/19	0000	15.0	79.9	1007	30	"
	0600	15.1	80.4	1007	30	"
	1200	15.2	81.2	1007	30	"
	1800	15.5	81.8	1006	30	"
11/20	0000	15.8	82.6	1005	30	"
	0600	16.3	83.4	1004	35	Trop Storm
	1200	17.8	84.5	1002	40	"
	1800	19.1	85.4	997	45	"
11/21	0000	19.8	86.1	985	60	"
	0600	20.7	86.6	993	60	"
	1200	21.8	87.0	993	60	"
	1800	22.4	87.2	990	60	"
11/22	0000	23.1	87.0	993	60	"
	0600	23.8	86.8	995	55	"
	1200	24.4	86.2	995	55	"
	1800	25.5	85.1	993	55	"
11/23	0000	26.5	84.2	994	55	"
	0600	27.3	82.8	995	55	"
	1200	27.9	81.3	999	35	"
	1800	28.9	79.8	998	40	"
11/24	0000	29.7	77.7	995	50	"
	0600	31.0	75.2	992	55	"
	1200	32.5	70.5	990	60	"
	1800	34.0	66.0	985	55	Extratropical
11/25	0000	36.0	60.0	982	50	"
	0600	39.0	54.0	976	50	"
	1200	40.0	49.0	964	50	"
	1800	44.0	45.0	960	55	"

Table 1. Continued Preliminary Best Track, Keith 17-24 September 1988

<u>DATE</u>	<u>TIME</u> (UTC)	<u>POSITION</u>		<u>PRESSURE</u> (mb)	<u>WIND</u> (kt)	<u>STAGE</u>
		<u>Latitude</u>	<u>Longitude</u>			
11/26	0000	48.0	43.0	950	65	Extratropical
	0600	52.0	42.0	945	65	"
	1200	52.5	44.0	945	65	"
	1800	52.0	46.0	950	65	"

Minimum pressure Maximum winds Time Position during tropical status:
 985 mbs 60 kts 21/0000 19.8N 86.1W

Landfall:	Position	Time	Pressure	Wind
	21.2N 86.8W	21/0800	993 mbs	60 kts.
	27.3N 82.6W	23/0700	995 mbs	55 kts.

Figure captions:

Figure 1. Best Track of Tropical Storm Keith, 17-24 November 1988.

Figure 2. Central pressure versus time for Tropical Storm Keith, 17-24 November 1988.

Figure 3. Wind versus time for Tropical Storm Keith, 17-24 November 1988.

Figure 4. Time series plot depicting various meteorological variables from a C-MAN station located on the west coast of Florida near Venice. Courtesy of the National Data Buoy Center, Bay St. Louis, MS.

KEITH

- Tropical depression stage
- Tropical storm stage
- Hurricane stage
- +++++ Extratropical stage
- ▽▽▽▽ Subtropical depression stage
- ▽▽▽▽ Subtropical storm stage
- Position and date at 0000 GMT
- Position at 1200 GMT
- 985 mb Lowest central pressure in millibars
- 6 Initial position of cyclone "Number 6"
- H HURRICANE
- T TROPICAL STORM
- ST SUBTROPICAL STORM

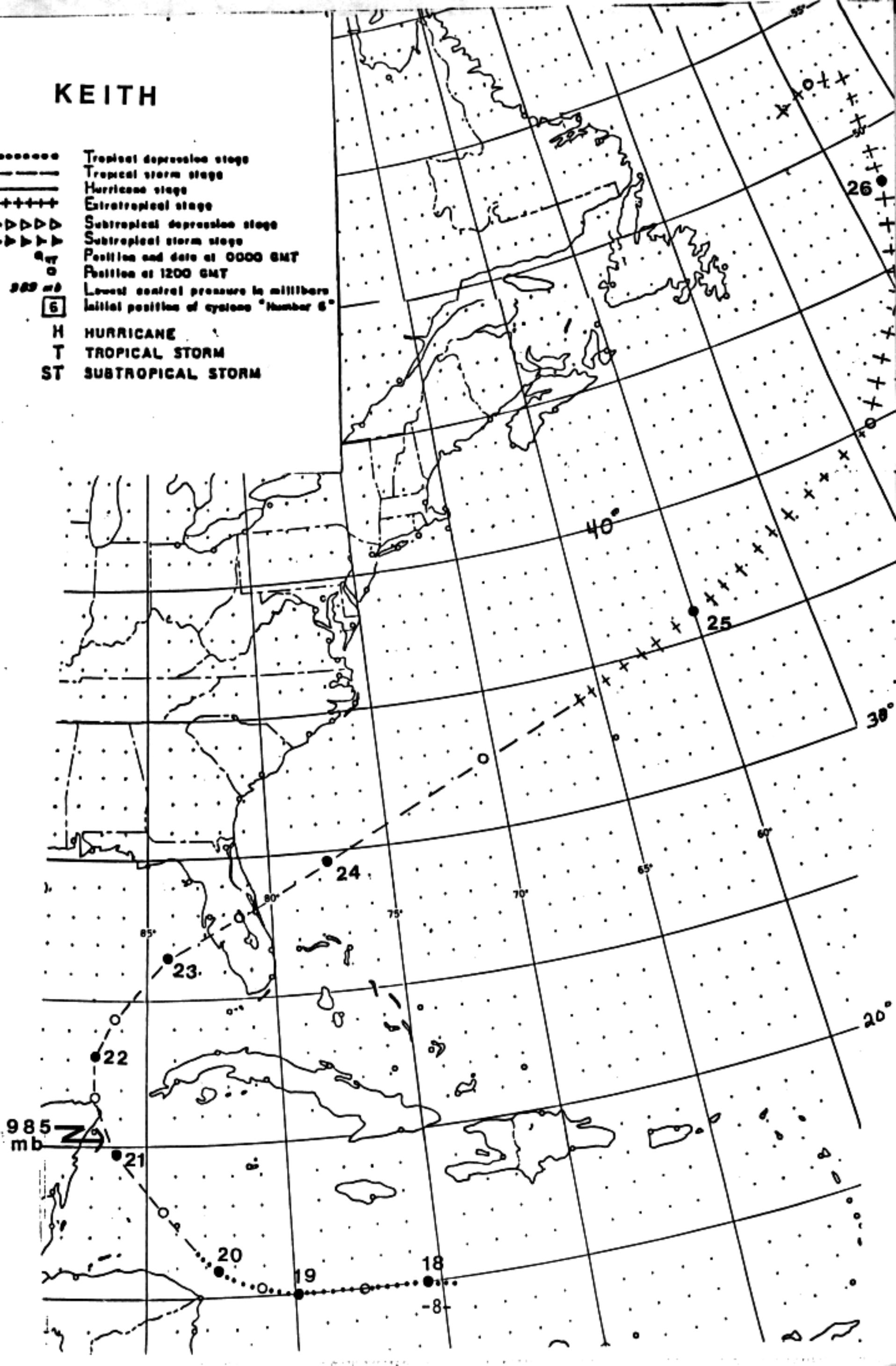


Table 2. Selected Meteorological and Hydrological Statistics for Tropical Storm Keith... November 1988.

LOCATION	STRONGEST WINDS (KT)		MIN PRESS. DATE/TIME	RAINFALL (IN)		STORM TOTAL
	DATE/TIME	SUSTD PEAK		DATE	24 HRS	
<u>Florida</u>						
New Port Richey		---/44 60				5.00
Tampa (WSCMO)	23/0550Z	010/27 41	29.55 (1000.7) 23/0720Z	4.48 22/23		
Macdill (AFB)	23/0655Z	020/55 60				
Avon Park (Aux AFB)			29.49 (998.6) 23/1055Z			
St. Petersburg			29.50 (999.0) 23/0740Z			
Television Station WTVT (Svr Wx Net)						
Tampa (Leep)	23/0615Z	---/-- 70*				
Safety Harbor (McKnight)	23/0615Z	---/-- 65				10.00
Fetherston 3 1/2 mi SSW of Sun City Cntr	23/0800Z	---/-- 50	29.53 (1000.0) 23/0800Z			2.25
Brandon (Brophy)			29.51 (999.3) 23/0800Z			4.45
Venice			29.38 (995.0) 23/0705Z			
5 miles south of Osprey			29.45 (997.3) 23/0710Z			
Indian Rocks Beach (Terry Nixon)	23/0559Z	---/35 47	29.47 (998.0) 23/0557Z			
Fort Myers (Page Field)	23/0645Z	---/-- 46	29.49 (998.6) 23/0300Z			0.43
Bradenton	23/0500Z	---/45 --				
Naples	23/0250Z	200/38 61				
Naples (Court House)	23/05-06Z	---/45 60				
Flamingo	22/2150Z	180/27 --				

* Observation point was 250 feet above the ground.

Table 2 continued... Selected Meteorological and Hydrological Statistics for Tropical Storm Keith... November 1988.

<u>LOCATION</u>	<u>STRONGEST WINDS (KT)</u>			<u>MIN PRESS.</u>	<u>RAINFALL (IN)</u>	<u>STORM TOTAL</u>
	<u>DATE/TIME</u>	<u>SUSTD</u>	<u>PEAK</u>	<u>DATE/TIME</u>	<u>DATE 24 HRS</u>	
Key West (WSO)	22/1445Z	180/27	33	29.81 (1009.5) 22/2050z & 23/0850Z		0.19
Boca Chica (NAS)	23/0255Z	270/32	42	29.81 (1009.5) 23/0855Z		
West Palm Beach (WSO)	23/1321Z	180/27	41	29.66 (1004.4) 23/1235Z	0.05/23	0.05
Vero Beach	23/1138Z	---/--	37			0.27
Melbourne	23/0022Z	140/25	44			
Rockledge		---/--	35			
Kennedy Space Cntr	23/0955Z	---/--	33			
Daytona Beach (WSO)	23/0939Z	090/27	36	29.62 (1003.1) 23/1010Z		5.89
Georgia						
Savannah Light Tower	23/1000Z	020/29	—	30.33 (1015.2) 23/1800Z		
Bermuda	24/1920z	220/40	69	29.16 (987.5) 24/2055Z		

Table 3. Miscellaneous Rainfall Observations (inches) From Tropical Storm Keith

<u>LOCATION</u>	<u>DATE/24 HOUR AMOUNT</u>	<u>STORM TOTAL</u>
<u>CUBA</u>		
Nueva Gerona		10.00
La Fe		6.00
Punta del Este		9.00
<u>FLORIDA</u>		
St. Leo (Pasco County) Co-op Obsvr	22/23 9.26	10.25
Television Station WTVT Tampa (Severe Weather Network)		
SW Largo (Jenkins)		11.10
Largo (Gardner)		11.00
NW Clearwater (Shuttleworth)		10.50
Safety Harbor (Schultz)		10.00
NW St. Pete (Reynolds)		1.50
Sarasota		0.33
Bushnell		5.50
LeCanto		3.10
Wauchula		1.50
Titusville		7.71
Port Orange		6.51
Orlando	22/23 5.87	
West Palm Beach	22/23 0.05	
Miami	22/23 0.02	

Table 4. Miscellaneous Maximum Tide Reports From Tropical Storm Keith

<u>LOCATION</u>	<u>TIDES (FEET)</u>
Ballast Point	0.9 abv nrm1
Sarasota	4.5 abv msl
Bradenton	6.0 abv nrm1
Charlotte	5.5 abv msl
Fort Myers	4 to 6 abv nrm1
Daytona Beach	1 to 2 abv nrm1
Ft. Pulaski, Ga	1.5 abv

Table 5. Selected ship reports from Tropical Storm Keith. Wind direction is in degrees, speed in knots and pressure in millibars. All reports after 21 November occurred after Keith became extratropical.

DATE/TIME (UTC)	REPORTING SHIP	POSITION		WIND DIR/SPEED+GUSTS	PRESSURE
		LATITUDE	LONGITUDE		
21/00-06	XCMH	Just west of Cozumel		---/-- 80	985.0
21/06-08	unknown	Puerto Morelos		---/60 80	
22/1800	ABKC	24.9	84.5	190/54	994.6
25/1200	4XIL	37.7	50.2	190/55	972.0
25/1200	PJUM	36.5	49.5	190/55	983.0
25/1200	IBKL	34.8	48.8	180/53	988.0
25/1800	SQDA	46.6	43.9	070/50	971.0
25/1800	GBQE	39.5	39.8	230/56	1018.0
25/1800	XCSG	40.3	41.9	180/60	978.5
25/1800	OXFB	45.5	42.7	140/52	964.0
26/0000	C6CS9	49.2	40.5	090/60	968.0
26/0000	ATZS	44.4	41.5	180/52	958.7
26/0000	UNRK	42.8	49.9	340/50	957.5
26/0600	C6CS9	49.3	42.7	180/60	945.0
26/0600	KNDB	49.7	41.0	200/55	947.6
26/0600	WPVD	46.8	39.8	220/60	973.0
26/1200	C6CS9	49.3	43.2	230/63	964.0
26/1200	KNDB	49.4	40.5	200/65	968.0
26/1200	JCLL	49.0	40.0	220/57	974.2
26/1800	C6CS9	49.3	43.1	220/55	972.0

Table 6. Summary of Tropical Storm Keith Warnings.

<u>DATE/TIME</u> <u>(UTC)</u>	<u>ACTION</u>	<u>LOCATION</u>
19/2200	Government of Honduras issued a Tropical Storm Watch for...	Swan Island.
20/0230	Government of Honduras issued a Tropical Storm Warning for...	Swan Island.
	Government of Honduras issued a Tropical Storm Watch for...	Northwest coast of Honduras including offshore islands of Guanaja...Roatan and Utila.
20/1000	Government of Belize issued a Tropical Storm Watch for...	Belize coastline.
201600	Government of Mexico issued a Tropical Storm Watch for...	East coast of the Yucatan Peninsula.
	Discontinued all warnings and watches for...	Swan Island and Honduras.
	Tropical storm conditions will spread over...	Western Cuba tonight and Monday.
20/2200	Government of Mexico issued Tropical Storm Warnings and a Hurricane Watch for...	Northern Yucatan Peninsula from Felipe Carrillo Puerto north and westward to Progreso,
	Tropical Storm and possible Hurricane conditions will spread over....	western Cuba tonight and Monday.
	Discontinue all warnings and watches for...	Belize.
21/0700	Discontinue possible hurricane conditions...	western Cuba.

Table 6. Summary of Tropical Storm Keith Warnings...continued...

<u>DATE/TIME</u> <u>(UTC)</u>	<u>ACTION</u>	<u>LOCATION</u>
21/1300	Discontinue Tropical Storm conditions over...	western Cuba.
21/1900	Discontinue all warnings...	Yucatan Peninsula.
22/1000	Tropical Warnings in effect for...	Florida west coast from Cape Sable to Cedar Key.
22/1600	Tropical Storm Watch in effect for...	Jupiter Inlet to Savannah.
22/2200	Tropical Storm Warnings in effect for	Jupiter Inlet to Savannah.
23/1600	All warnings discontinued for...	Florida and Georgia coasts.
24/1600	Tropical Storm force winds to 50 mph expected...	Bermuda.

Table 7. Probabilities continued....

Advisory Date/Time.... Probability Through...	20/11AM 23/7AM		20/5PM 23/1PM		20/11PM 23/7PM
MWCG 193N 814W	2	MUCM 214N 779W	2	MWCG 193N 814W	2
MUCM 214N 779W	3	MUCF 221N 805W	6	MUCM 214N 779W	3
MUCF 221N 805W	7	MUSN 216N 826W	8	MUCF 221N 805W	6
MUSN 216N 826W	13	MUHA 230N 824W	15	MUSN 216N 826W	8
MUHA 230N 824W	16	MUAN 219N 850W	47	MUHA 230N 824W	12
MUAN 219N 850W	48	MMCZ 205N 869W	70	MUAN 219N 850W	24
MYSM 241N 745W	4	MYSM 241N 745W	4	MMCZ 205N 869W	80
MYEG 235N 758W	4	MYEG 235N 758W	4	MZBZ 175N 883W	2
MYAK 241N 776W	7	MYAK 241N 776W	7		
MYNN 251N 775W	9	MYNN 251N 775W	9	MYSM 241N 745W	3
MYGF 266N 787W	13	MYGF 266N 787W	14	MYEG 235N 758W	3
MMMD 210N 897W	4	MMMD 210N 897W	2	MYAK 241N 776W	6
MARATHON FL	15	BERMUDA	3	MYNN 251N 775W	7
MIAMI FL	15	MARATHON FL	16	MYGF 266N 787W	10
W PALM BEACH FL	15	MIAMI FL	16	MMMD 210N 897W	13
FT PIERCE FL	15	W PALM BEACH FL	17	MARATHON FL	12
COCOA BEACH FL	14	FT PIERCE FL	17	MIAMI FL	12
DAYTONA BEACH FL	13	COCOA BEACH FL	17	W PALM BEACH FL	12
JACKSONVILLE FL	10	DAYTONA BEACH FL	15	FT PIERCE FL	12
SAVANNAH GA	7	JACKSONVILLE FL	11	COCOA BEACH FL	12
CHARLESTON SC	7	SAVANNAH GA	8	DAYTONA BEACH FL	11
MYRTLE BEACH SC	6	CHARLESTON SC	7	JACKSONVILLE FL	9
WILMINGTON NC	5	MYRTLE BEACH SC	7	SAVANNAH GA	7
MOREHEAD CITY NC	5	WILMINGTON NC	6	CHARLESTON SC	5
CAPE HATTERAS NC	4	MOREHEAD CITY NC	6	MYRTLE BEACH SC	4
KEY WEST FL	17	CAPE HATTERAS NC	5	WILMINGTON NC	4
MARCO ISLAND FL	18	NORFOLK VA	3	MOREHEAD CITY NC	3
FT MYERS FL	17	OCEAN CITY MD	2	CAPE HATTERAS NC	3
VENICE FL	17	KEY WEST FL	18	KEY WEST FL	13
TAMPA FL	15	MARCO ISLAND FL	20	MARCO ISLAND FL	14
CEDAR KEY FL	12	FT MYERS FL	21	FT MYERS FL	14
ST MARKS FL	8	VENICE FL	21	VENICE FL	14
APALACHICOLA FL	8	TAMPA FL	18	TAMPA FL	13
PANAMA CITY FL	7	CEDAR KEY FL	14	CEDAR KEY FL	11
PENSACOLA FL	4	ST MARKS FL	8	ST MARKS FL	9
MOBILE AL	2	APALACHICOLA FL	8	APALACHICOLA FL	9
GULFPORT MS	2	PANAMA CITY FL	6	PANAMA CITY FL	8
BURAS LA	2	PENSACOLA FL	3	PENSACOLA FL	5
GULF 29N 85W	10	MOBILE AL	2	MOBILE AL	4
GULF 29N 87W	6	GULF 29N 85W	10	GULFPORT MS	3
GULF 28N 89W	4	GULF 29N 87W	6	BURAS LA	4
		GULF 28N 89W	3	NEW ORLEANS LA	3
				GULF 29N 85W	11
				GULF 29N 87W	8
				GULF 28N 89W	7
				GULF 28N 91W	4
				GULF 28N 93W	2

Table 7. Probabilities continued....

Advisory Date/Time.... Probability Through...	21/5AM 24/1AM		21/11AM 24/7AM		21/5PM 24/1PM
24.5N 87.6W	30	MWCG 193N 814W	2	MWCG 193N 814W	2
26.5N 85.0W	15	MUCH 214N 779W	2	MUCH 214N 779W	3
MUCF 221N 805W	4	MUCF 221N 805W	6	MUCF 221N 805W	5
MUSN 216N 826W	6	MUSN 216N 826W	7	MUSN 216N 826W	6
MUHA 230N 824W	8	MUHA 230N 824W	11	MUHA 230N 824W	9
MUAN 219N 850W	18	MUAN 219N 850W	23	MUAN 219N 850W	8
MYAK 241N 776W	3	MMCZ 205N 869W	10	MMCZ 205N 869W	4
MYNN 251N 775W	4	MZBZ 175N 883W	2	MYSM 241N 745W	3
MYGF 266N 787W	6	MYSM 241N 745W	2	MYEG 235N 758W	4
MMVR 192N 961W	2	MYEG 235N 758W	3	MYAK 241N 776W	6
MMFR 185N 926W	3	MYAK 241N 776W	5	MYNN 251N 775W	7
MMMD 210N 897W	12	MYNN 251N 775W	6	MYGF 266N 787W	11
MARATHON FL	8	MYGF 266N 787W	9	MMMD 210N 897W	4
MIAMI FL	8	MMFR 185N 926W	2	MARATHON FL	11
W PALM BEACH FL	8	MMMD 210N 897W	7	MIAMI FL	12
FT PIERCE FL	8	MARATHON FL	11	KEY WEST FL	12
COCOA BEACH FL	9	MIAMI FL	11	MARCO ISLAND FL	14
DAYTONA BEACH FL	8	KEY WEST FL	13	FT MYERS FL	15
NNNN		MARCO ISLAND FL	14	VENICE FL	16
		FT MYERS FL	14	TAMPA FL	16
		VENICE FL	15	CEDAR KEY FL	15
		TAMPA FL	14	ST MARKS FL	12
		CEDAR KEY FL	12	APALACHICOLA FL	13
		ST MARKS FL	10	PANAMA CITY FL	12
		APALACHICOLA FL	11	PENSACOLA FL	8
		PANAMA CITY FL	9	MOBILE AL	5
		PENSACOLA FL	7	GULFPORT MS	5
		MOBILE AL	5	BURAS LA	7
		GULFPORT MS	5	NEW ORLEANS LA	4
		BURAS LA	6	NEW IBERIA LA	2
		NEW ORLEANS LA	4	GULF 29N 85W	16
		NEW IBERIA LA	3	GULF 29N 87W	14
		GULF 29N 85W	12	GULF 28N 89W	13
		GULF 29N 87W	11	GULF 28N 91W	6
		GULF 28N 89W	10	GULF 28N 93W	2
		GULF 28N 91W	6		
		GULF 28N 93W	3		
		GULF 25N 96W	2		

Table 7. Probabilities continued....

Advisory Date/Time....	21/11PM	22/5AM	22/11AM
Probability Through...	24/7PM	25/1AM	25/7AM
MWCG 193N 814W	2	MUHA 230N 824W	6
MUCH 214N 779W	4	MYMM 224N 730W	2
MUCF 221N 805W	8	MYSM 241N 745W	6
MUSN 216N 826W	9	MYEG 235N 758W	5
MUHA 230N 824W	14	MYAK 241N 776W	7
MUAN 219N 850W	16	MYNN 251N 775W	10
MMCZ 205N 869W	4	MYGF 266N 787W	18
MYMM 224N 730W	2	BERMUDA	6
MYSM 241N 745W	6	MARATHON FL	14
MYEG 235N 758W	6	MIAMI FL	18
MYAK 241N 776W	9	W PALM BEACH FL	21
MYNN 251N 775W	11	FT PIERCE FL	23
MYGF 266N 787W	14	COCOA BEACH FL	24
MMMD 210N 897W	3	DAYTONA BEACH FL	21
MARATHON FL	16	JACKSONVILLE FL	15
MIAMI FL	16	SAVANNAH GA	8
W PALM BEACH FL	16	CHARLESTON SC	7
FT PIERCE FL	16	MYRTLE BEACH SC	6
COCOA BEACH FL	15	WILMINGTON NC	6
DAYTONA BEACH FL	13	MOREHEAD CITY NC	6
JACKSONVILLE FL	10	CAPE HATTERAS NC	6
KEY WEST FL	17	NORFOLK VA	3
MARCO ISLAND FL	19	OCEAN CITY MD	2
FT MYERS FL	18	KEY WEST FL	15
VENICE FL	18	MARCO ISLAND FL	25
TAMPA FL	16	FT MYERS FL	28
CEDAR KEY FL	12	VENICE FL	32
ST MARKS FL	8	TAMPA FL	28
APALACHICOLA FL	8	CEDAR KEY FL	21
PANAMA CITY FL	7	ST MARKS FL	10
PENSACOLA FL	4	APALACHICOLA FL	10
MOBILE AL	3	PANAMA CITY FL	7
GULF 29N 85W	10	PENSACOLA FL	2
GULF 29N 87W	7	GULF 29N 85W	15
GULF 28N 89W	4	GULF 29N 87W	5
		GULF 28N 89W	2
		MYMM 224N 730W	2
		MYSM 241N 745W	5
		MYEG 235N 758W	4
		MYAK 241N 776W	6
		MYNN 251N 775W	9
		MYGF 266N 787W	16
		BERMUDA	7
		MARATHON FL	12
		MIAMI FL	17
		W PALM BEACH FL	21
		FT PIERCE FL	24
		COCOA BEACH FL	26
		DAYTONA BEACH FL	23
		JACKSONVILLE FL	15
		SAVANNAH GA	9
		CHARLESTON SC	9
		MYRTLE BEACH SC	8
		WILMINGTON NC	7
		MOREHEAD CITY NC	7
		CAPE HATTERAS NC	7
		NORFOLK VA	4
		OCEAN CITY MD	2
		KEY WEST FL	12
		MARCO ISLAND FL	27
		FT MYERS FL	33
		VENICE FL	40
		TAMPA FL	35
		CEDAR KEY FL	23
		ST MARKS FL	10
		APALACHICOLA FL	10
		PANAMA CITY FL	6
		PENSACOLA FL	2
		GULF 29N 85W	16
		GULF 29N 87W	4

Table 7. Probabilities continued....

Advisory Date/Time....	22/5PM	22/11PM	23/5AM		
Probability Through...	25/1PM	25/7PM	26/1AM		
MUCH 214N 779W	2	MYGF 266N 787W	7	28.2N 79.9W	62
MUCF 221N 805W	2	BERMUDA	11	BERMUDA	12
MUHA 230N 824W	3	MIAMI FL	4	MIAMI FL	15
MBJT 215N 712W	2	W PALM BEACH FL	10	W PALM BEACH FL	49
MYMM 224N 730W	3	FT PIERCE FL	26	FT PIERCE FL	70
MYSM 241N 745W	7	COCOA BEACH FL	47	COCOA BEACH FL	69
MYEG 235N 758W	5	DAYTONA BEACH FL	57	DAYTONA BEACH FL	38
MYAK 241N 776W	7	JACKSONVILLE FL	39	JACKSONVILLE FL	5
MYNN 251N 775W	12	SAVANNAH GA	13	SAVANNAH GA	2
MYGF 266N 787W	25	CHARLESTON SC	11		
BERMUDA	10	MYRTLE BEACH SC	9		
MARATHON FL	14	WILMINGTON NC	8		
MIAMI FL	27	MOREHEAD CITY NC	9		
W PALM BEACH FL	35	CAPE HATTERAS NC	8		
FT PIERCE FL	39	NORFOLK VA	3		
COCOA BEACH FL	36	MARCO ISLAND FL	8		
DAYTONA BEACH FL	24	FT MYERS FL	30		
JACKSONVILLE FL	10	VENICE FL	75		
SAVANNAH GA	4	TAMPA FL	75		
CHARLESTON SC	4	CEDAR KEY FL	61		
MYRTLE BEACH SC	4	ST MARKS FL	10		
WILMINGTON NC	3	APALACHICOLA FL	5		
MOREHEAD CITY NC	4	PANAMA CITY FL	2		
CAPE HATTERAS NC	4	GULF 29N 85W	10		
NORFOLK VA	2				
KEY WEST FL	13				
MARCO ISLAND FL	48				
FT MYERS FL	56				
VENICE FL	60				
TAMPA FL	42				
CEDAR KEY FL	18				
ST MARKS FL	3				
APALACHICOLA FL	3				
PANAMA CITY FL	2				
GULF 29N 85W	4				

Advisory Date/Time.... 24/11PM
Probability Through... 27/7PM

24/5AM
27/1AM

24/11AM
27/7AM

BERMUDA

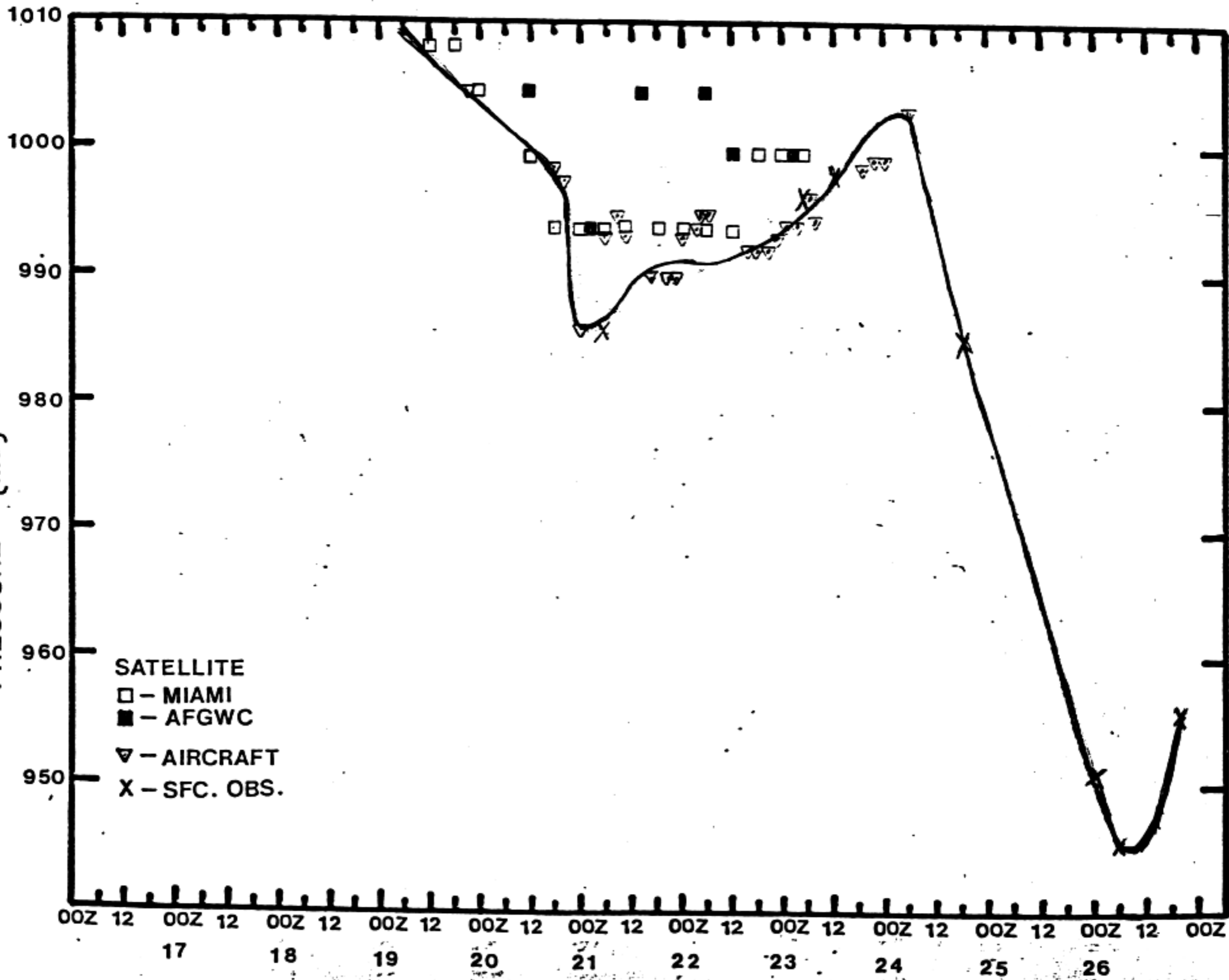
28

BERMUDA

20

BERMUDA
HIBERNIA OILFLD36
7

PRESSURE [MB]



"KEITH"
 TIME SERIES PLOT
 UENF1

BAR01 ———
 WSPD1 □- - -□
 GUST1 ○- - -○
 WDIR1 ◆- - -◆

