

## PRELIMINARY REPORT

Hurricane Bill  
11-13 July 1997

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Bill became the first hurricane of the 1997 season. It spent its brief life over waters the north Atlantic Ocean.

### a. Synoptic History

Bill developed from a large upper-level low that separated from the mid-oceanic trough northeast of Puerto Rico. On 7 July, satellite images indicate that cloudiness and showers associated with the upper-level low began to increase and although surface pressures were quite high north of Puerto Rico there was a small perturbation of the wind field and a trough at the surface. A low pressure center formed from the trough just east of the Bahamas and moved toward the west-northwest. The upper-level low moved southwestward into the Caribbean Sea resulting in a decrease in the wind shear over the surface low. The first indications that a tropical depression might be forming was a 24-hour pressure drop of near 3 mb in the eastern Bahamas as the area of low pressure approached. Convection then gradually became organized and it is estimated that a tropical depression formed near 0600 UTC 11 July. By then, the tropical cyclone was already moving northeastward ahead of a cold front located over the eastern United States. The system reached tropical storm status by 1200 UTC on the same day.

A reconnaissance plane was dispatched to the area early on 11 July and measured 45-knots at 700 feet to the southeast of the center. The minimum surface pressure was 1013 mb, which is not very low for a tropical cyclone but environmental pressures were also high. The prevailing pressure gradient would support tropical storm force winds.

Bill continued moving toward the northeast about 20 to 25 knots and reached cool waters. An eye was depicted on high resolution visible images at 1300 UTC 12 July, suggesting that Bill reached hurricane strength in spite of the cool waters. A special Dvorak classification from the Tropical Analysis and Forecast Branch (TAFB) indicated that Bill reached its peak intensity of 65 knots at 1500 UTC 12 July. The minimum pressure estimated at that time was 986 mb. Thereafter, Bill became absorbed by a frontal system and was no longer identifiable by 0600 UTC 13 July.

Bill's track is shown in Fig. 1. Table 1 is a listing, at

six-hourly intervals, of the best-track position, estimated minimum central pressure and maximum 1-minute surface wind speed.

#### **b. Meteorological Statistics**

The best track pressure and wind curves as a function of time are shown in Fig. 2 and 3 and are based on reconnaissance and surface observations, satellite intensity estimates from TAFB, the Satellite Analysis Branch (SAB) and the Air Force Global Weather Center (AFGWC). The latter reported an intermittent eye feature as early as 0415 UTC 12 July.

#### **c. Casualty and Damage Statistics**

There are no reports of casualties or damage associated with Bill.

#### **d. Forecast and Warning Critique**

Bill was never forecast to become a hurricane mainly because it was expected to move over cool waters. Neither SHIPS97 nor SHIFOR indicated that Bill would reach hurricane strength.

Bill was a short-lived storm and there were only a few official track forecasts. The official forecast errors (5 forecasts) at 12 hours were 66 n mi and reached 303 n mi at 36 hours (1 forecast). These numbers are high in comparison to the long-term mean but in general the largest errors occur when systems are embedded in the westerlies and accelerating like Bill. The CLIPER error at 36 hours was 451 n mi

Since most of the tropical storm force winds were to the east of the center of Bill and the storm was forecast to pass not too far from Bermuda, a tropical storm warning was issued for Bermuda at 1600 UTC 11 July. It was discontinued at 0300 UTC 12 July after the storm passed by the island. Bermuda did not report tropical storm force winds.

#### **Figure Captions:**

Fig. 1. Best track positions for Hurricane Bill, 11 - 13 July 1997.

Fig. 2. Best track one-minute surface wind speed curve for Hurricane Bill.

Fig. 3. Best track minimum central pressure curve for Hurricane Bill

Table 1. Best track, Hurricane Bill, 11-13 July, 1997

Date/Time (UTC)	Position		Pressure (mb)	Wind Speed (kt)	Stage
	Lat. (°N)	Lon. (°W)			
11/0600	30.4	69.9	1014	30	tropical depression
1200	31.8	68.9	1013	40	tropical storm
1800	33.1	67.6	1010	45	"
12/0000	34.7	65.8	1005	50	"
0600	36.3	63.6	995	60	"
1200	37.9	61.1	987	65	hurricane
1800	39.6	58.4	987	65	"
13/0000	41.6	55.4	990	60	tropical storm
0600	44.0	53.0			absorbed by a front
12/1500	38.8	60.0	986	65	minimum pressure

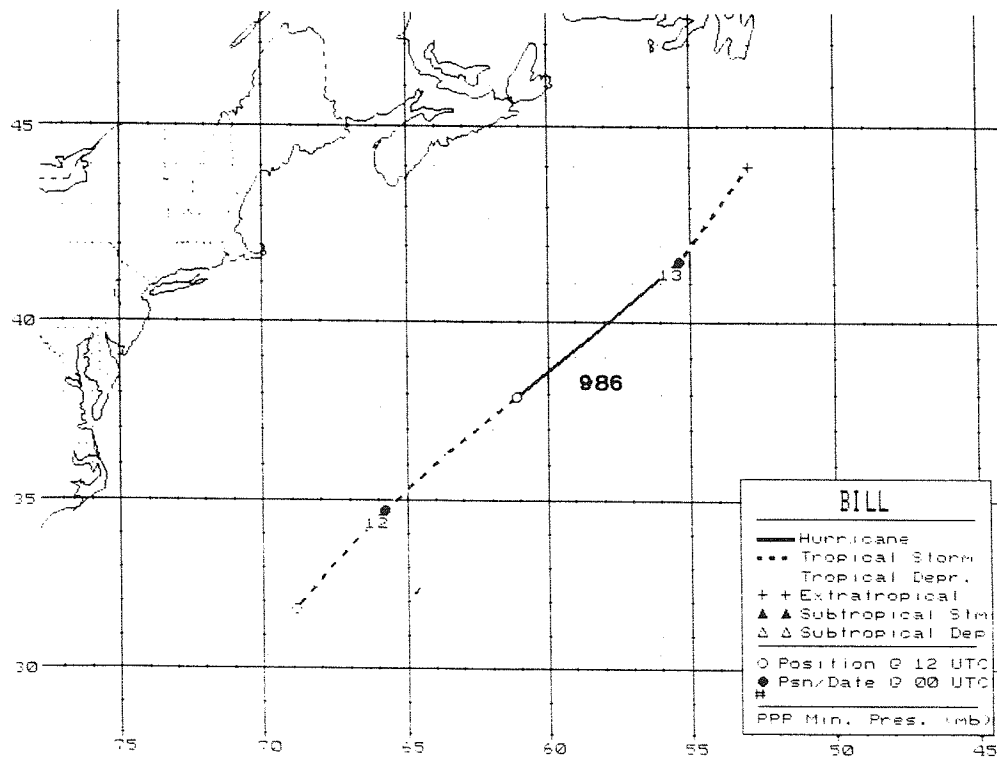


Fig. 1. Best track positions for Hurricane Bill, 11 - 13 July 1997.

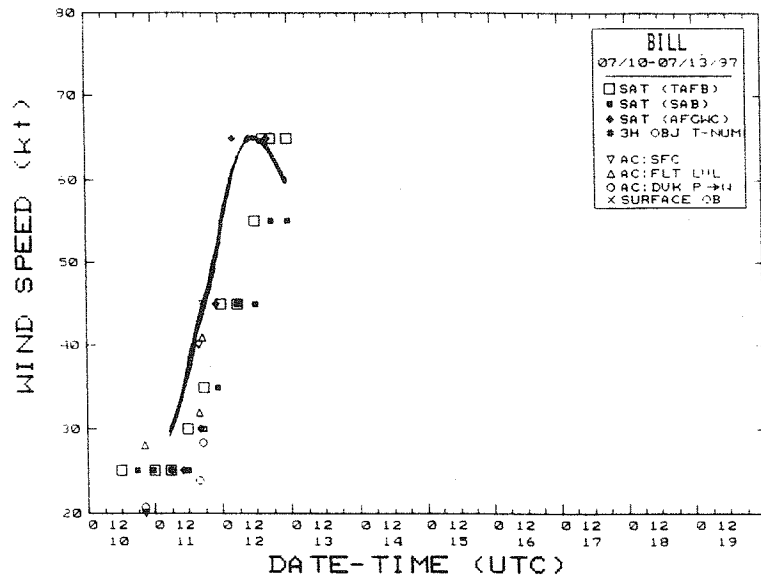


Fig. 2. Best track one-minute surface wind speed curve for Hurricane Bill.

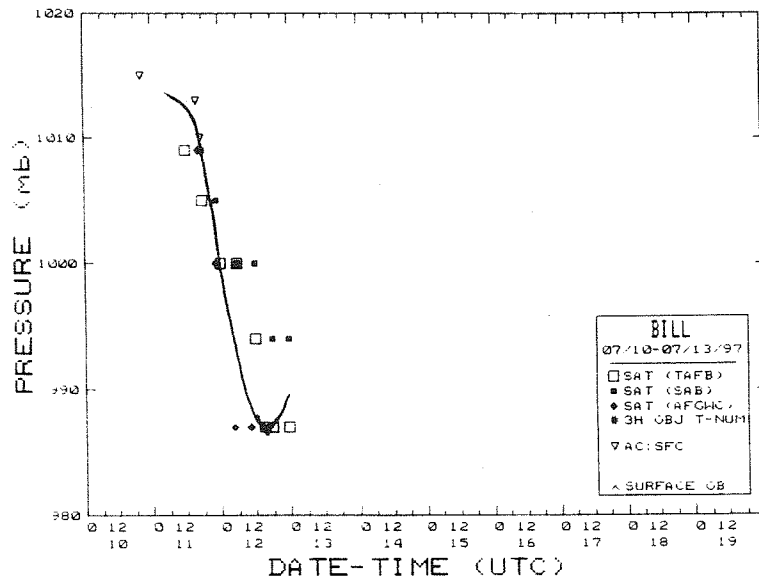


Fig. 3. Best track minimum central pressure curve for Hurricane Bill