

Tropical Cyclone Report
Tropical Storm Hilda
9-13 August 2003

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a. Synoptic History

Hilda developed from a tropical wave that moved off the coast of Africa 27 July, and moved westward across the tropical Atlantic and the Caribbean Sea accompanied by intermittent convection. The wave began to develop persistent thunderstorm activity on 5 August when it was in the eastern Pacific a few hundred miles south of the Gulf of Tehuantepec.. The shower activity gradually increased in organization as the system moved westward and became a tropical depression about 600 n mi south of Cabo San Lucas on the southern tip of Baja California. The depression had a fairly impressive upper-level outflow over the western semicircle but the outflow was inhibited elsewhere by strong easterly shear. There was only limited intensification due to shear. The tropical cyclone reached its maximum intensity of 35 knots and a minimum pressure of 1004 mb at 0600 UTC 10 August. Thereafter, Hilda moved on a general west-northwestward track and encountered cooler waters and westerly shear. As a weakening cyclone, Hilda moved westward, steered by the low level-flow and dissipated by 1800 UTC 13 August.

The “best track” chart of the tropical cyclone’s path is given in Fig. 1, with the wind and pressure histories shown in Figs. 2 and 3, respectively. The best track positions and intensities are listed in Table 1.

b. Meteorological Statistics

Observations in Hilda (Figs. 2 and 3) include satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB), the Satellite Analysis Branch (SAB) and the U. S. Air Force Weather Agency (AFWA).

Hilda was barely a tropical storm. While the cyclone was over warm waters, it was first affected by easterly shear resulting in an exposed center. Later on, westerly shear and cold waters caused Hilda to dissipate.

c. Casualty and Damage Statistics

There were no reports of damage or casualties associated with Hilda.

d. Forecast and Warning Critique

Average official track errors for Hilda were 48, 86, 103, 120, 138, and 220, n mi for the 12, 24, 36, 48, 72, and 96 h forecasts, respectively¹. The average errors for the 10-yr period of 1993-2002² are 39, 72, 103, 131, 186 and 197 n mi, respectively. The performance of the available track models is given in Table 2. Note that the advective medium and shallow BAM models were better than the official forecast from the 12 through the 48 h periods. This was probably related to the fact that Hilda was weaker than forecast and it was steered by the low- to mid- level flow. Because the Navy NGPS model was not available at all times, the model consensus GUNA and GUNS was limited to one case.

Average official intensity errors were 4, 6, 14, 21, 32 and 30 kt for the 12, 24, 36, 48, 72, 96 h forecasts, respectively. For comparison, the average official intensity errors over the 10-yr period 1993-2002² are 6, 11, 15, 17, 20, and 18 kt, respectively. Because the shear was expected to decrease, strengthening was indicated in the official forecast. The shear never relaxed and Hilda only reached 35 kt.

There were no watches and warnings associated with Hilda.

¹ All forecast verifications in this report include the depression stage of the cyclone. National Hurricane Center verifications presented in these reports prior to 2003 did not include the depression stage.

² Errors given for the 96 and 120 h periods are averages over the two-year period 2001-2.

Table 1. Best track for Tropical Storm Hilda, 9-13 August 2003.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
09 / 0600	13.5	111.1	1007	25	tropical depression
09 / 1200	13.8	112.4	1006	30	"
09 / 1800	14.1	113.6	1005	30	"
10 / 0000	14.5	114.8	1005	35	tropical storm
10 / 0600	14.9	115.8	1004	35	"
10 / 1200	15.5	116.8	1005	35	"
10 / 1800	16.1	117.9	1005	35	"
11 / 0000	16.8	119.1	1005	35	"
11 / 0600	17.4	120.3	1005	35	"
11 / 1200	17.9	121.5	1005	35	"
11 / 1800	18.6	123.2	1006	30	tropical depression
12 / 0000	18.4	124.7	1007	30	"
12 / 0600	18.4	126.1	1007	30	"
12 / 1200	18.4	127.3	1009	30	"
12 / 1800	18.4	128.4	1009	25	"
13 / 0000	18.4	129.3	1009	25	"
13 / 0600	18.4	129.9	1009	25	"
13 / 1200	18.4	130.5	1009	25	"
13 / 1800					dissipated
10 / 0600	14.9	115.8	1004	35	minimum pressure

Table 2. Preliminary forecast evaluation (heterogeneous sample) for Hilda, 9-13 August 2003. Forecast errors (n mi) are followed by the number of forecasts in parentheses. Errors smaller than the NHC official forecast are shown in bold-face type. Verification includes the depression stage.

Forecast Technique	Forecast Period (h)					
	12	24	36	48	72	96
CLP5	51 (16)	100 (14)	150 (12)	188 (10)	152 (6)	176 (2)
GFDI	50 (16)	91 (14)	130 (12)	171 (9)	218 (5)	304 (1)
GFDL	57 (16)	93 (14)	122 (12)	160 (9)	217 (5)	208 (1)
LBAR	40 (16)	70 (14)	104 (12)	116 (10)	185 (6)	446 (2)
AVNI	53 (15)	100 (13)	130 (11)	158 (9)	231 (5)	239 (1)
AVNO	43 (16)	75 (14)	111 (12)	129 (10)	197 (6)	223 (2)
AEMI	50 (12)	89 (10)	121 (9)	128 (7)	117 (4)	
BAMD	50 (16)	89 (14)	124 (12)	145 (10)	123 (6)	191 (2)
BAMM	40 (16)	67 (14)	88 (12)	98 (10)	92 (6)	305 (2)
BAMS	45 (16)	72 (14)	88 (12)	92 (10)	131 (6)	426 (2)
NGPI	23 (1)					
NGPS	27 (2)					
UKMI	71 (14)	156 (12)	305 (10)	519 (8)	42 (2)	
UKM	78 (8)	111 (7)	186 (6)	344 (5)	256 (2)	44 (1)
GUNS	26 (1)					
GUNA	39 (1)					
OFCL	49 (16)	85 (14)	106 (12)	116 (10)	138 (6)	220 (2)

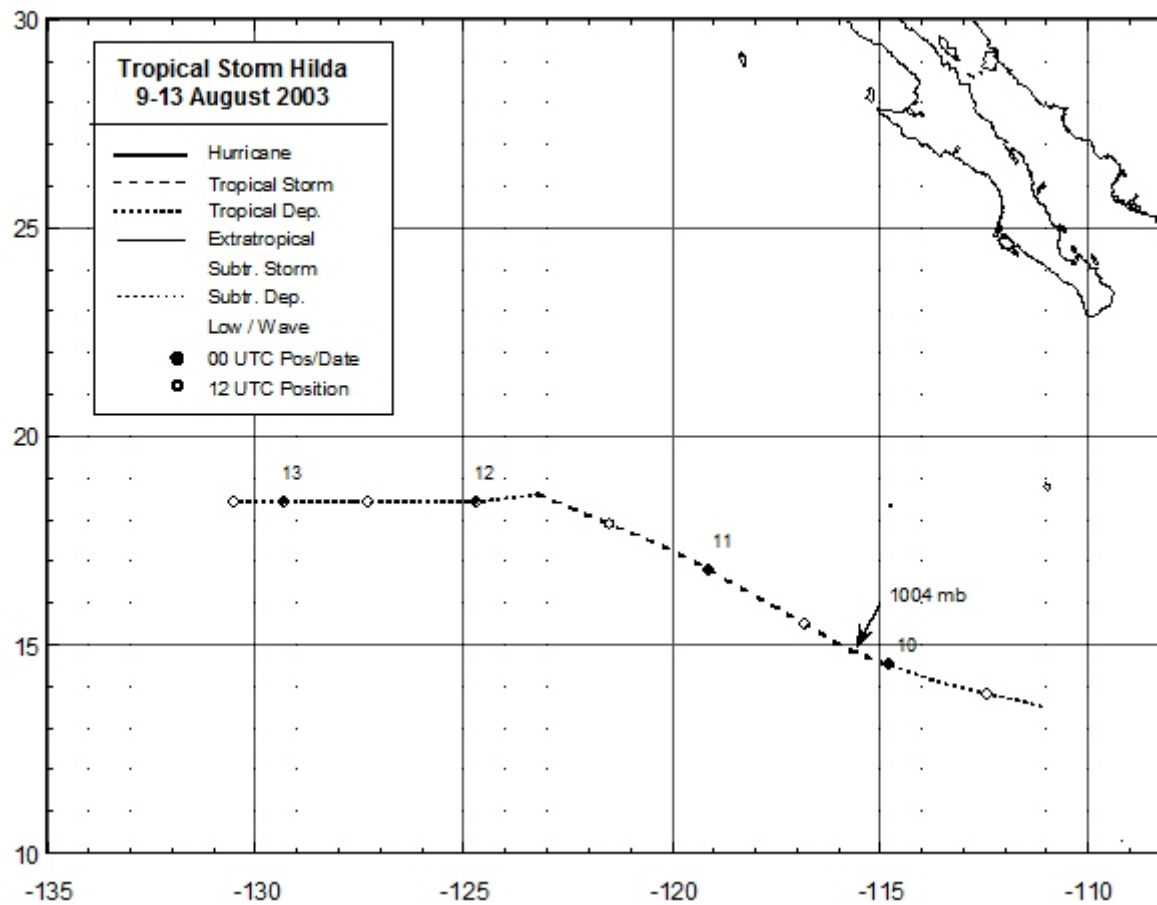


Figure 1. Best track positions for Tropical Storm Hilda, 9-13 August 2003.

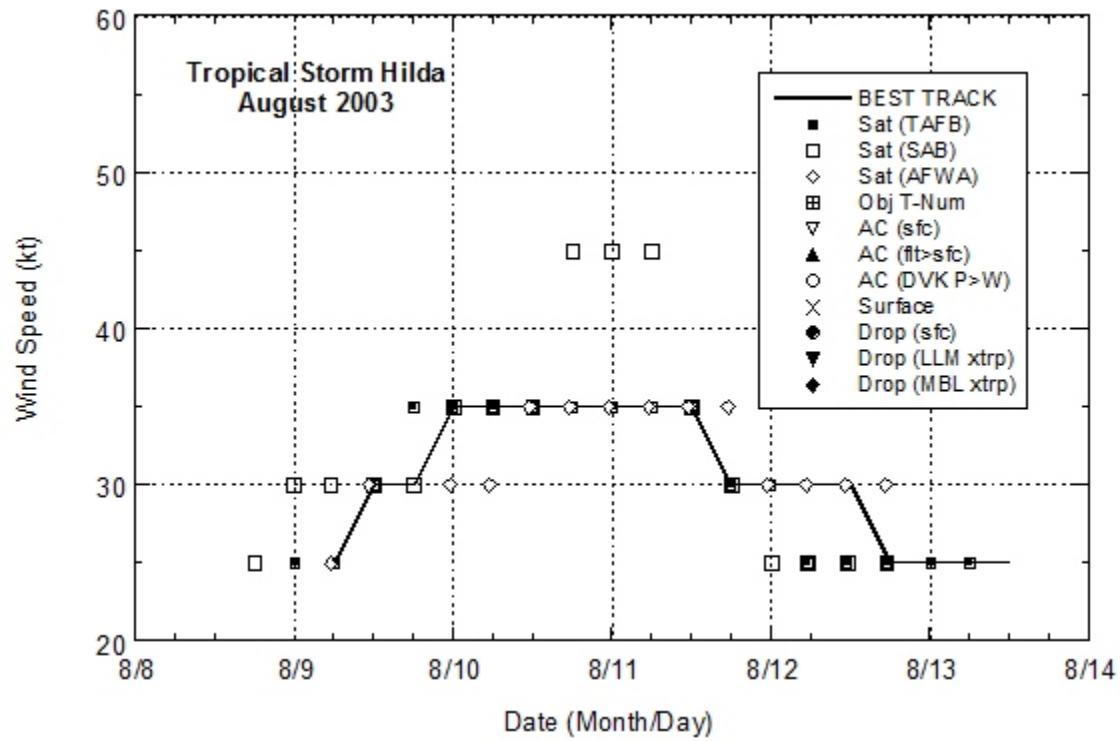


Figure 2. Best track maximum sustained surface wind speed curve for Tropical Hilda, 9-13 August 2003.

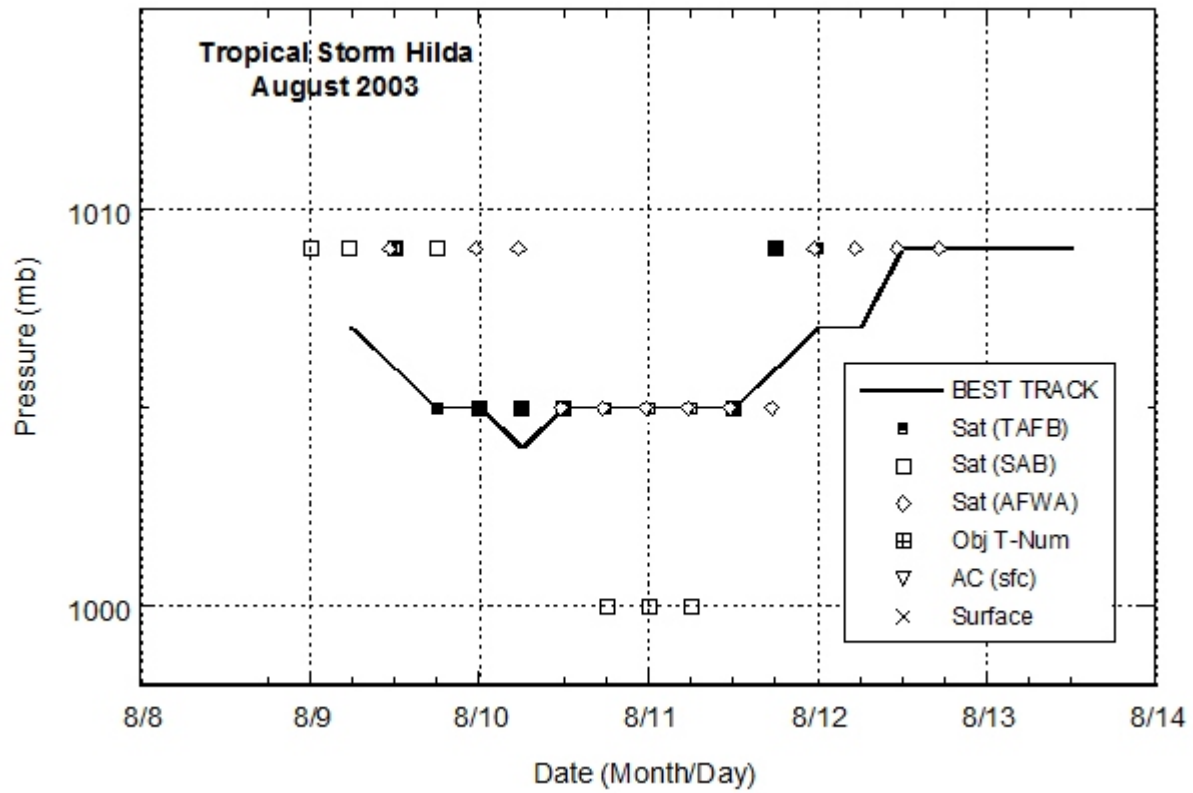


Figure 3. Best track minimum central pressure curve for Tropical Storm Hilda, 9-13 August 2003.