

Preliminary Report
Tropical Storm Hilda
10 - 15 August 1997

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a. Synoptic History

Hilda may be traced back to a tropical wave that departed western Africa on 26 July. Although the wave did spawn a cluster of convection northeast of Puerto Rico on 31 July, this system generally remained rather nondescript during its passage over the Atlantic basin during the ensuing week or so, and then across Central America on 3-4 August. Convection associated with the wave increased to the southwest of the Gulf of Tehuantepec on 5 July. Meteorologists at the Tropical Analysis and Forecast Branch (TAFB) began to track the center of the weather system on satellite images on 7 August. The cloud pattern became decidedly better-organized on the 9th, as convection became more consolidated and curved cloud bands were readily discernible. Qualitative evaluation of satellite imagery suggested that the system became Tropical Depression Ten around 0000 UTC 10 August, about 920 n mi south-southwest of the southern tip of Baja California. The six-hourly best track positions and intensities for this cyclone are listed in Table 1.

Figure 1 shows the overall track of the tropical cyclone. Initially the depression moved northward, but it soon turned toward the northwest and west, before eventually settling on a west-northwestward heading at 7 to 14 knots. Throughout much of its existence, this tropical cyclone was under the influence of a mid- to upper-tropospheric cyclone located 5 to 10 degrees to its northwest to west. From the 10th to the 12th of August, the tropical cyclone was apparently steered around this feature. Strong vertical shear, produced by southwesterly flow associated with the mid- to upper-level cyclone, prevented the system from intensifying until around 1800 UTC 11 August, when the shearing relaxed enough to allow the depression to strengthen into a tropical storm. Hilda reached its peak intensity of 45 knots about 12 hours later, and maintained more or less the same strength for 24 hours. Thereafter, southerly shearing increased as the abovementioned upper cyclone's influence again became dominant, and Hilda began to weaken gradually. Because the upper cyclone moved west-northwestward essentially in tandem with Hilda, winds over the tropical cyclone remained unfavorable for re-intensification. The system decreased below tropical storm strength by early on the 14th, and it dissipated around 0600 on the 15th.

b. Meteorological Statistics

As is so often the case for eastern Pacific storms, *in situ* observations were absent for Hilda, and satellite images were the sole data source. Figures 2 and 3 depict the curves of minimum central sea-level pressure and maximum one-minute average "surface" (10 meters above ground level) wind speed, respectively, as a function of time. Also plotted are the observations on which the curves are based, consisting of Dvorak-technique estimates from the TAFB, the Synoptic Analysis Branch (SAB), and the U.S. Air Force Global Weather Center (AFGWC) using geostationary and polar-orbiting satellite imagery.

c. Casualty and Damage Statistics

No reports of casualties or damage associated with Hilda have been received at the National Hurricane Center.

d. Forecast and Warning Critique

Since Hilda was a tropical storm for less than 72 hours, the number of forecasts to verify was small and the average errors are probably not meaningful. Nonetheless, the mean official forecast errors were 30 n mi at 12 hr (8 cases), 33 n mi at 24 hr (6 cases), 60 n mi at 36 hr (4 cases), and 59 n mi at 48 hr (2 cases). These are considerably smaller errors than the long-term averages. The average official forecast errors were, in general, lower than those for the various track prediction models.

In general, the intensity of Hilda was overforecast. This was primarily because the official forecasts allowed for the possibility that the shearing effect from the nearby upper-level low would lessen.

Watches and/or warnings for land areas were not required for Hilda.

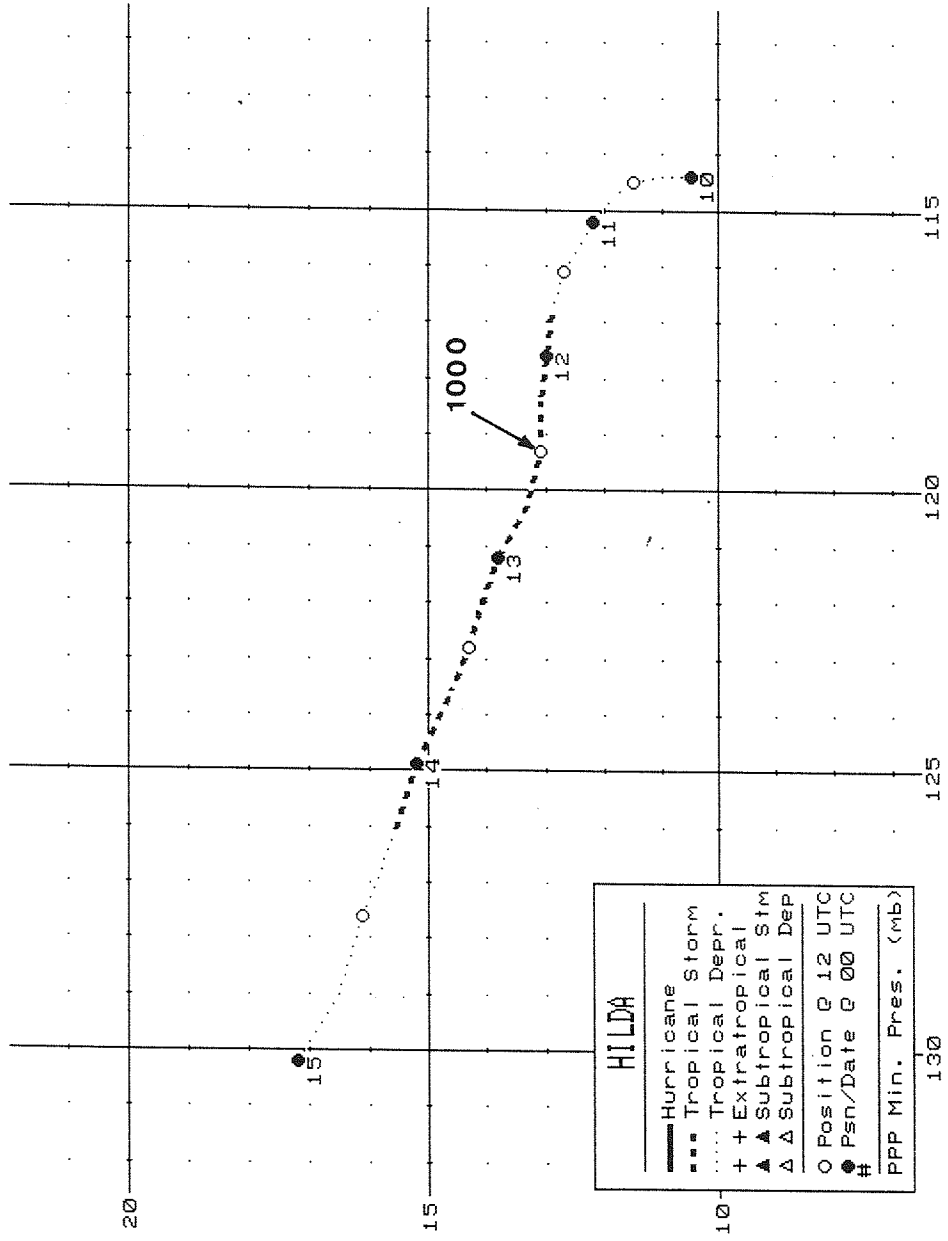


Figure 1. Best track positions for Tropical Storm Hilda, 10-15 August, 1997.

Table 1. Best track, Tropical Storm Hilda, 10 -15 August 1997.

Date/Time (UTC)	Position		Pressure (mb)	Wind Speed (kt)	Stage
	Lat. (°N)	Lon. (°W)			
10/0000	10.5	114.4	1007	30	tropical depression
0600	11.0	114.4	1005	30	“
1200	11.5	114.5	1005	30	“
1800	11.9	114.8	1005	30	“
11/0000	12.2	115.2	1005	30	“
0600	12.4	115.6	1005	30	“
1200	12.7	116.1	1005	30	“
1800	12.9	116.8	1005	35	tropical storm
12/0000	13.0	117.6	1004	40	“
0600	13.1	118.4	1002	45	“
1200	13.1	119.3	1000	45	“
1800	13.3	120.3	1000	45	“
13/0000	13.8	121.2	1001	45	“
0600	14.1	122.1	1001	45	“
1200	14.3	122.8	1002	40	“
1800	14.6	123.6	1003	40	“
14/0000	15.2	124.9	1004	35	“
0600	15.6	126.2	1004	30	tropical depression
1200	16.1	127.6	1005	30	“
1800	16.5	129.0	1006	25	“
15/0000	17.2	130.2	1007	25	“
15/0600					dissipated

12/1200	13.1	119.3	1000	45	minimum pressure
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