

Tropical Cyclone Report
Tropical Storm Guillermo
7-12 August 2003

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Guillermo moved westward over the tropical eastern North Pacific Ocean and degenerated to a remnant low just before entering the central Pacific tropical cyclone basin.

a. Synoptic History

Guillermo developed from a tropical wave that moved into the Atlantic from the African coast on 22 July and crossed into the eastern North Pacific on 1 August. On 4 August, when the wave axis was south of Baja California, the amplitude of the wave as well as associated convective activity increased noticeably, and the system received its first Dvorak classification. Surface analyses indicate the development of a weak surface low on 6 August. By late on 6 August convection associated with the low became isolated from the larger-scale wave, and the surface circulation associated with the low became better defined. It is estimated that a tropical depression formed at 0600 UTC 7 August, about 525 n mi southwest of Cabo San Lucas, Mexico.

The “best track” chart of Guillermo'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. Guillermo formed to the south of a low- to mid-level ridge that built westward and strengthened over the following few days, and this kept the tropical cyclone on a basically westward track throughout its lifetime. Under light southerly shear initially, the depression became better organized and reached tropical storm strength by 0000 UTC 8 August about 550 n mi southwest of Cabo San Lucas. Guillermo's maximum winds of 50 kt and minimum pressure of 997 mb were reached at 1800 UTC 8 August and maintained for nearly 24 h. However, Guillermo was soon affected by the upper-level easterly outflow from Tropical Depression Eight-E (Hilda), which was located about 600 n mi east of Guillermo. Guillermo's convection became disrupted and the cyclone began to weaken on 9 August. Continuing westward, Guillermo weakened to a tropical depression on 11 August. The shear then shifted to westerly and Guillermo's convection diminished on 12 August, when the cyclone degenerated to a remnant low about 1750 n mi west of Cabo San Lucas. The remnant low then moved into the central Pacific basin before dissipating the following day.

b. Meteorological Statistics

Observations in Guillermo (Figs. 2 and 3) were largely limited to 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). Scatterometer data also were used in the preparation of the cyclone's best track. There were no ship reports of winds of

tropical storm force associated with Guillermo.

c. Casualty and Damage Statistics

Guillermo was a marine event and there were no reports of damage or casualties.

d. Forecast and Warning Critique

Average official track errors (with the number of cases in parentheses) for Guillermo were 34 (19), 57 (17), 78 (15), 90 (13), 143 (9), 217 (5), and 227 (1) n mi for the 12, 24, 36, 48, 72, 96, and 120 h forecasts, respectively¹. These errors are mostly lower than average official track errors for the 10-yr period 1993-2002 (39, 72, 103, 131, 186, 197, and 223 n mi, respectively²).

Average official intensity errors were 4, 8, 14, 18, 19, 16, and 10 kt for the 12, 24, 36, 48, 72, 96, and 120 h forecasts, respectively. For comparison, the average official intensity errors over the 10-yr period 1993-2002 are 6, 11, 15, 17, 20, 18, and 19 kt, respectively. The intensity forecasts generally had a positive bias, having not anticipated the negative influence of the developing tropical cyclone to the east of Guillermo.

No watches or warnings were associated with Guillermo.

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 Guillermo, 7-12 August 2003.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
07 / 0600	16.0	115.7	1009	25	tropical depression
07 / 1200	16.3	116.1	1009	25	"
07 / 1800	16.5	116.6	1007	30	"
08 / 0000	16.6	117.2	1003	40	tropical storm
08 / 0600	16.6	117.8	1002	40	"
08 / 1200	16.5	118.5	1000	45	"
08 / 1800	16.1	119.2	997	50	"
09 / 0000	15.9	120.0	997	50	"
09 / 0600	15.8	121.0	997	50	"
09 / 1200	15.7	122.2	998	50	"
09 / 1800	15.5	123.4	999	45	"
10 / 0000	15.4	124.6	1000	45	"
10 / 0600	15.4	125.8	1000	45	"
10 / 1200	15.5	126.9	1002	40	"
10 / 1800	15.5	128.0	1004	35	"
11 / 0000	15.6	129.3	1005	35	"
11 / 0600	15.7	130.6	1005	35	"
11 / 1200	15.9	132.0	1006	30	tropical depression
11 / 1800	16.2	133.5	1007	30	"
12 / 0000	16.3	135.0	1007	30	"
12 / 0600	16.3	136.5	1007	30	"
12 / 1200	16.3	138.2	1007	30	"
12 / 1800	16.3	139.8	1008	25	remnant low
13 / 0000	16.1	141.5	1009	25	"
13 / 0600					dissipated
08 / 1800	16.1	119.2	997	50	minimum pressure

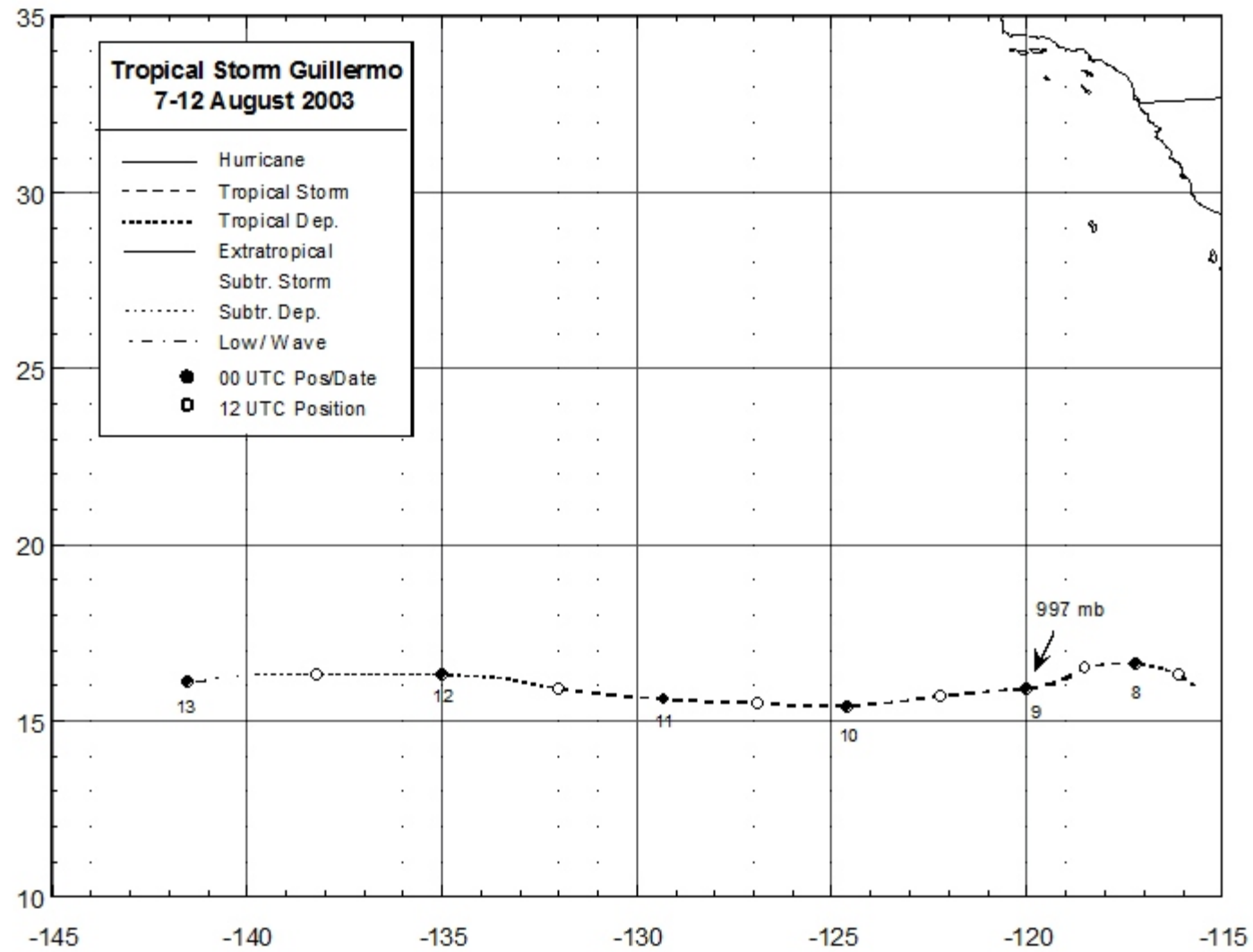


Figure 1. Best track positions for Tropical Storm Guillermo, 7-12 August 2003.

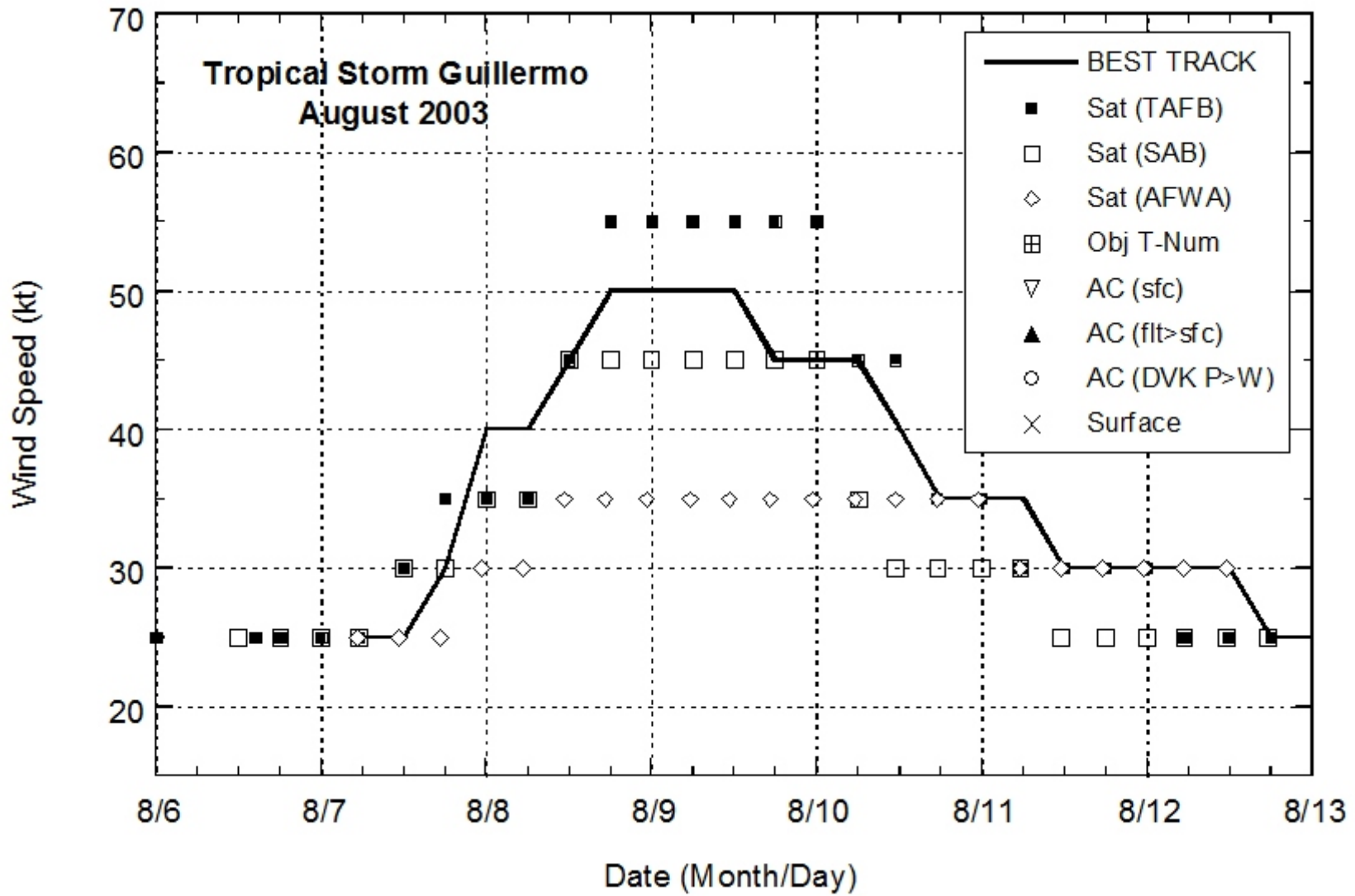


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Guillermo, 7-12 August 2003.

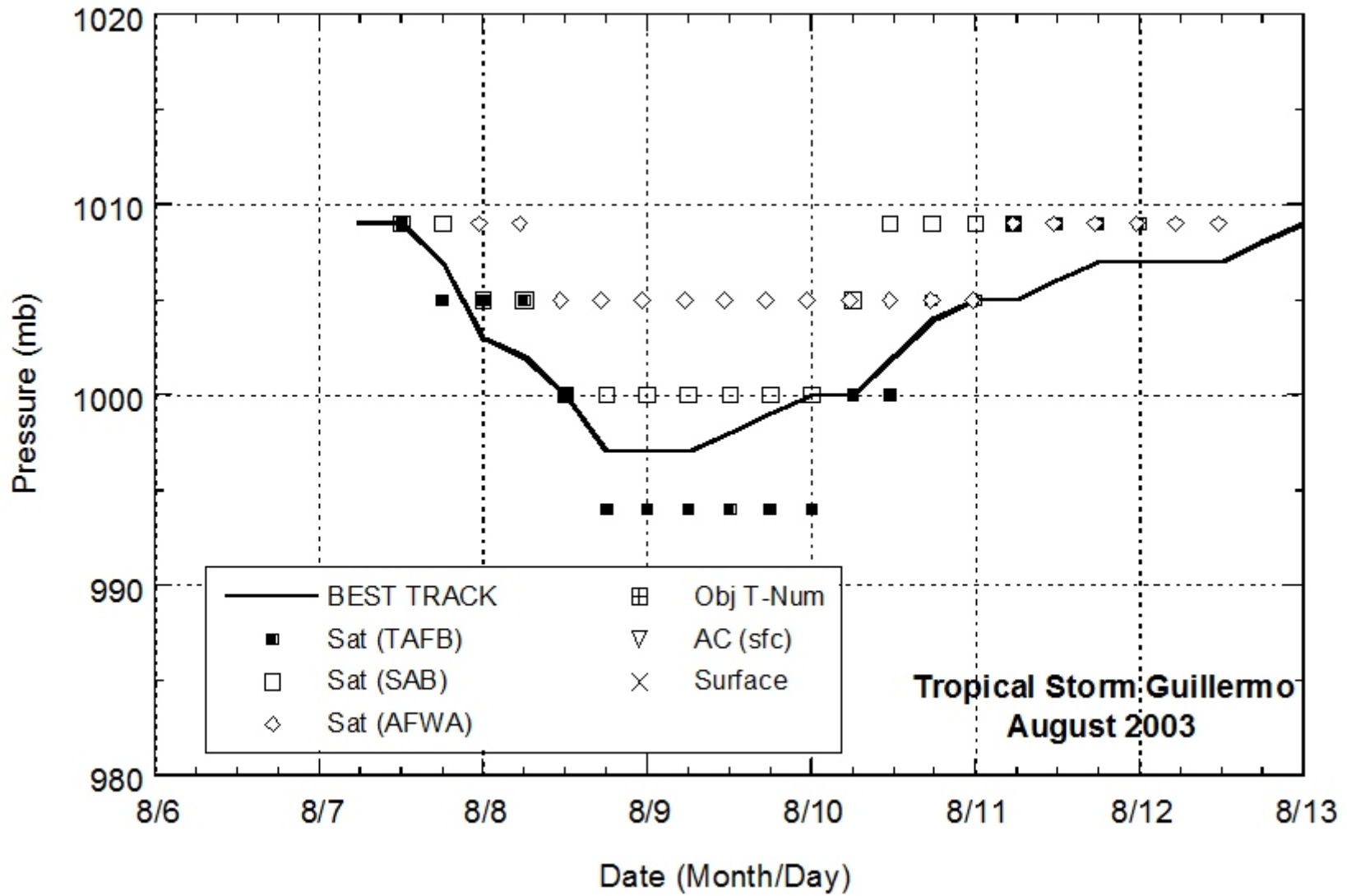


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Guillermo, 7-12 August 2003.