

Tropical Cyclone Report
Hurricane Dalila
21 - 28 July 2001

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Dalila moved along the Pacific coast of Mexico for several days, but its center remained 100 n mi offshore. Dalila briefly reached hurricane strength. Some flash flooding in the province of Chiapas is attributed to Dalila's rainfall.

a. Synoptic history

Dalila's origin is a tropical wave that moved westward from Africa and over the eastern tropical Atlantic Ocean on 10 July. It crossed northern South America and Central America on the 15th through 17th accompanied by vigorous thunderstorm activity, and then entered the Pacific basin on the 18th as an organized area of disturbed weather.

Early on the 21st, the system acquired a low-level circulation and became Tropical Depression Five-E, about 250 n mi south of the Gulf of Tehuantepec. Moving west-northwestward, it became Tropical Storm Dalila with 35-kt winds 12 hours later. The track of Dalila is plotted in Fig. 1, and Table 1 lists the best track six-hour positions, maximum one-minute wind speed, and minimum central surface pressure.

Dalila's track was toward the west-northwest at forward speeds between 5 and 15 kt. The direction of motion was rather steady, varying between 285 and 300 degrees heading. This is attributed to a persistent subtropical ridge of high pressure located north of the cyclone. The center reached its point of closest approach to the coast of Mexico between Acapulco and Manzanillo on the 22nd and 23rd, when it came within about 100 n mi of the coast.

With warm sea surface temperatures and minimal vertical shear, the winds increased from 35 to 60 kt between the 22nd and 23rd. The wind speed briefly reached an estimated 65 kt on the 24th. Dalila was a hurricane for only a few hours and then remained at 55 kt until early on the 27th. The storm passed directly over Socorro Island on the 25th. By the 27th, most of the associated deep convection dissipated as the storm moved over colder water. Reduced to a swirl of low clouds, Dalila dissipated as a tropical cyclone on the 28th, while located about 650 n mi west of the southern tip of Baja California.

b. Meteorological statistics

All of the observations used to track Dalila and to determine its wind speed and pressure were satellite-based. The observations are plotted in Figs. 2 and 3, which also show the best track wind and pressure curves.

The best track peak intensity of 65 kt at 1200 UTC on the 24th is plotted in Fig. 2, and listed in Table 1. Dvorak intensity estimates during this time were as high as 77 kt. These estimates were based on night-time infrared images which showed a cold central dense overcast (CDO) cloud pattern located over what was presumed to be an embedded center.

In contrast to the Dvorak technique, SSM/I and TRMM passes show a low-level center partially exposed to the northeast of the CDO, rather than embedded within. Visible images several hours later also do not support an embedded center. Intensity (pressure) estimates from the Advanced Microwave Sounding System (AMSU) (Not plotted in Fig. 3) give a lowest pressure of 992 mb on the 25th.

c. Casualty and damage statistics

An Associated Press report stated that heavy rains associated with Dalila caused flash flooding that damaged dozens of homes on the Chiapas coast.

d. Forecast and warning critique

Official track errors are very small, increasing from 30 n mi at 12 hours to 120 n mi at 72 hours for 11 cases. The average official 72-hour error is 185 n mi for the previous 10 years. Intensity errors range from 4 kt at 12 hours up to 17 knots at 48 hours, then decrease to 15 knots at 72 hours. These errors are also below the previous 10-year averages (18 kt at 48 hours and 21 kt at 72 hours).

Because of Dalila's rather close approach to the coast, the Government of Mexico issued various watches and warnings. These are listed in Table 2.

Table 1. Best track for Hurricane Dalila, 21-28 July 2001.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
21 / 0000	11.3	93.8	1007	30	tropical depression
21 / 0600	11.9	94.9	1006	30	"
21 / 1200	12.4	96.0	1004	35	tropical storm
21 / 1800	13.0	97.0	1001	40	"
22 / 0000	13.6	98.2	997	50	"
22 / 0600	14.2	99.4	994	55	"
22 / 1200	14.8	100.7	994	55	"
22 / 1800	15.5	102.1	994	55	"
23 / 0000	16.1	103.4	994	55	"
23 / 0600	16.7	104.5	994	55	"
23 / 1200	17.2	105.6	994	55	"
23 / 1800	17.5	106.4	994	55	"
24 / 0000	17.7	107.3	990	60	"
24 / 0600	18.0	108.1	988	60	"
24 / 1200	18.2	109.0	987	65	hurricane
24 / 1800	18.4	109.8	988	60	tropical storm
25 / 0000	18.6	110.5	989	60	"
25 / 0600	18.8	111.1	990	55	"
25 / 1200	19.0	111.6	990	55	"
25 / 1800	19.1	112.2	990	55	"
26 / 0000	19.3	112.8	990	55	"
26 / 0600	19.5	113.4	990	55	"
26 / 1200	19.7	114.0	990	55	"
26 / 1800	19.9	114.7	990	55	"
27 / 0000	20.1	115.5	990	55	"
27 / 0600	20.4	116.3	992	50	"
27 / 1200	20.7	117.1	994	45	"

Table 1. (continued)

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
27 / 1800	21.1	117.9	996	40	"
28 / 0000	21.5	118.9	999	35	"
28 / 0600	22.0	119.9	1003	30	tropical depression
28 / 1200	22.4	121.1	1007	25	"
28 / 1800					dissipated
24 / 1200	18.2	109.0	982	65	minimum pressure

Table 2. Watch and warning summary for Hurricane Dalila, July 2001.

Date/time (UTC)	Action	Location
21/1500	tropical storm watch	Puerto Angel to Acapulco
22/0300	tropical storm warning	Punta Maldonado to Lazaro Cardenas
22/0300	hurricane watch	west of Lazaro Cardenas to Manzanillo
22/0300	tropical storm watch discontinued	east of Punta Maldonado
22/0900	tropical storm warning and hurricane watch discontinued	Acapulco eastward
22/0900	tropical storm warning	extended from Punta Maldonado to Punta San Telmo
23/0300	all watches and warnings discontinued	

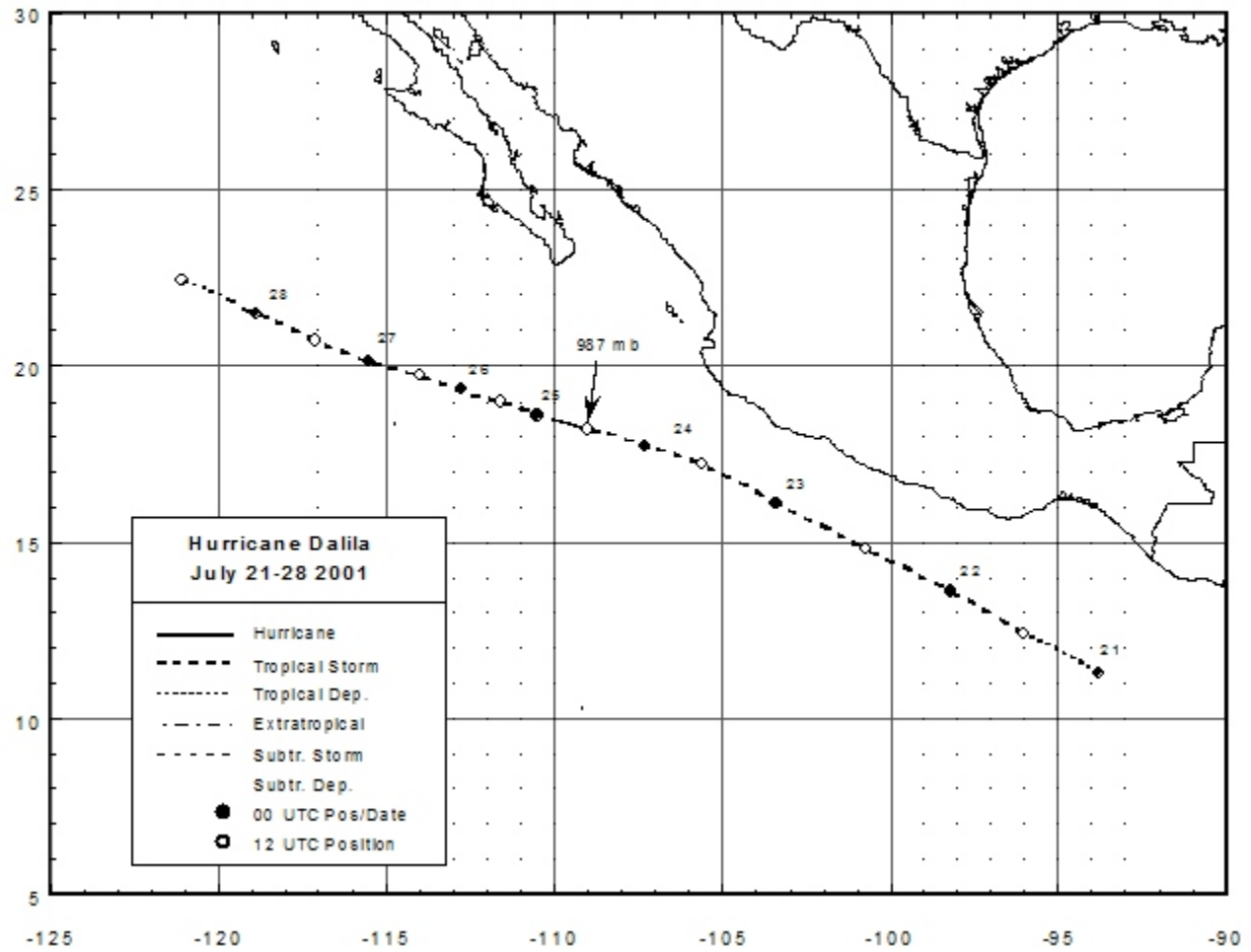


Fig. 1. Best track map for Hurricane Dalila, 21-28 July 2001.

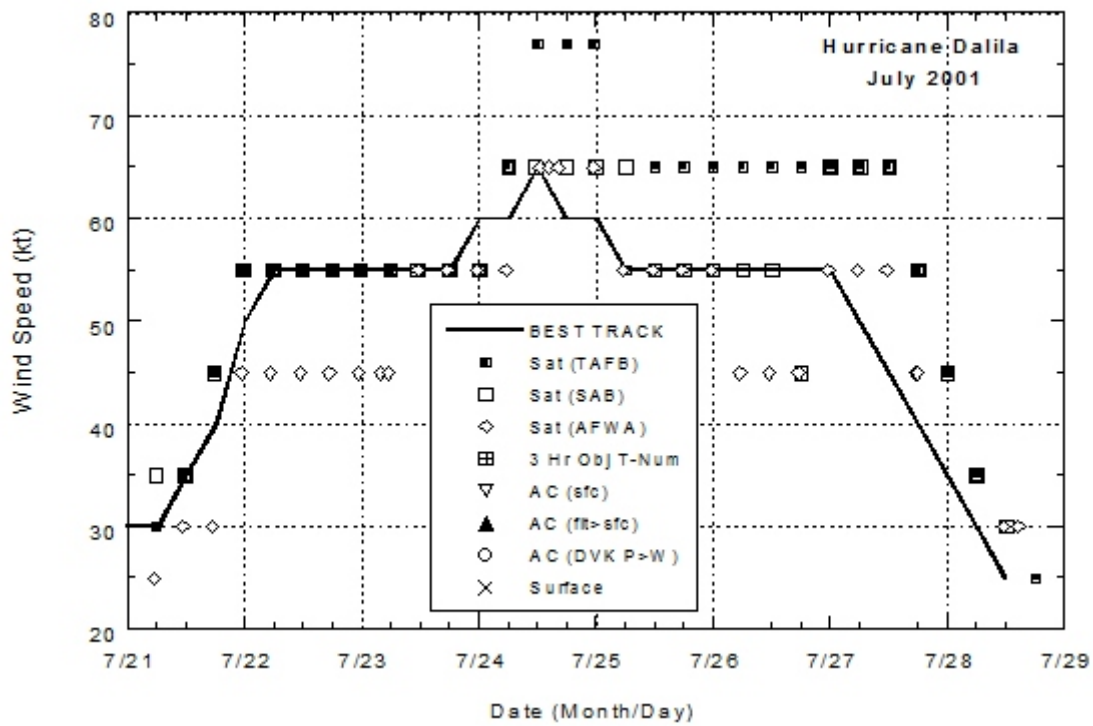


Fig. 2. Best track maximum 1-min surface wind speed curve for Hurricane Dalila, 21-28 July 2001.

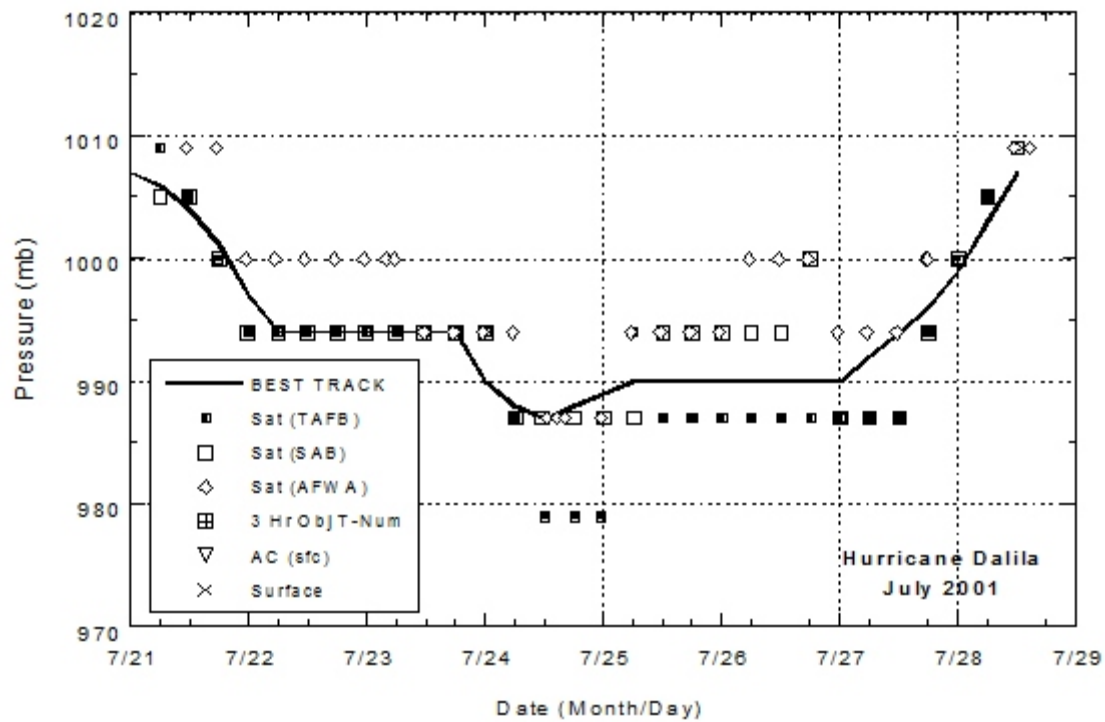


Fig. 3. Best track minimum surface pressure curve for Hurricane Dalila, 21-28 July 2001.