Tropical Cyclone Report
Tropical Storm Erick
(EP082007)
31 July-2 August 2007

Eric S. Blake
National Hurricane Center
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Tropical Storm Erick was a short-lived tropical cyclone that moved westward over the open waters of the eastern North Pacific Ocean.

a. Synoptic History

The tropical wave that eventually led to the formation of Erick departed western Africa on 16 July. Associated convection was limited to the ITCZ for the next several days, then diminished on 19 July. The wave passed through the Lesser Antilles on 22 July with some deep convection, but thunderstorm activity remained disorganized for the next several days. The system moved across Central America on 25 July, and a weak low pressure area formed along the wave axis on 28 July in the eastern Pacific. Easterly wind shear, however, prevented development of the low for a few days as associated deep convection remained well west of the low. Early on 31 July, thunderstorms formed closer to the center of the low, and it is estimated that the system gained enough organization to be classified as a tropical depression at 1200 UTC that day, located about 925 n mi southwest of the southern tip of Baja California. 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.

Despite easterly shear, the depression intensified into a tropical storm early on 1 August, but reached a peak intensity of only 35 kt. The easterly shear never relented, and Erick weakened to a tropical depression at 0000 UTC 2 August, while located about 1175 n mi west-southwest of the southern tip of Baja California. Overnight microwave and QuikScat images indicated that the surface low lost its well-defined circulation as it became elongated from northeast to southwest. The depression degenerated into a tropical wave by 0600 UTC 2 August, and its remnants continued moving westward. A weak low reformed within the wave on 3 August before entering the central North Pacific basin early on 4 August. The low dissipated several hundred miles southwest of the Hawaiian Islands on 8 August.

b. Meteorological Statistics

Observations in Erick (Figs. 2 and 3) include satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB) and the Satellite Analysis Branch (SAB). Microwave satellite imagery from NOAA polar-orbiting satellites, the NASA Tropical Rainfall Measuring Mission (TRMM), the NASA QuikScat, and Defense Meteorological Satellite Program (DMSP) satellites were also useful in tracking Erick. The 35 kt estimated peak intensity of Erick is based on a blend of objective and subjective Dvorak satellite classifications.

c. Casualty and Damage Statistics

There were no reports of casualties or damages associated with Erick.

d. Forecast and Warning Critique

The tropical wave that eventually spawned Erick was mentioned in the Tropical Weather Outlooks for about two and a half days prior to genesis. The timing of the genesis of the system was not well-anticipated, however, and the system became a tropical cyclone earlier than expected. In fact, the Tropical Weather Outlook products did not mention the possibility of a tropical cyclone forming prior to the time of genesis in the final best track.

A verification of official and guidance model track forecasts is given in Table 4. Average official track errors for Erick were 26 and 49 n mi for the 12 and 24 h forecasts, respectively. These errors are lower than the average long-term official track errors of 33 and 57 n mi for the 12 and 24 h forecast periods (Table 2). However, the numbers of forecasts verified were only four at 12 h and two at 24 h. The GFDI model provided the best guidance during the period, while the NGPI had a poor performance.

Average official intensity errors were 2.5 and 5 kt for the 12 and 24 h forecasts, respectively. For comparison, the average long-term official intensity errors are 6.3 and 11 kt, respectively. The official forecast errors were better than average, but on a rather small number of cases (Table 3). Despite these statistics, it would be incorrect to consider Erick to have been a well-forecast tropical cyclone, however. In addition to forming without warning, it also dissipated unexpectedly.

Table 1. Best track for Tropical Storm Erick, 31 July-2 August 2007.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
31 / 1200	12.9	122.5	1008	25	tropical depression
31 / 1800	12.9	123.4	1007	30	"
01 / 0000	13.0	124.2	1005	35	tropical storm
01 / 0600	13.0	124.9	1004	35	"
01 / 1200	13.1	125.7	1005	35	"
01 / 1800	13.2	126.7	1005	35	"
02 / 0000	13.3	127.7	1006	30	tropical depression
02 / 0600	-	-	-	-	dissipated
01 / 0600	13.0	124.9	1004	35	minimum pressure

Table 2. Preliminary track forecast evaluation (heterogeneous sample) for Tropical Storm Erick, 31 July-2 August 2007. 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	120
CLP5	39 (5)	71 (3)	88 (1)				
GFNI	43 (1)						
GFDI	**22 (3)**	**29 (1)**					
GFSI	47 (5)	88 (3)	147 (1)				
AEMI	37 (5)	**43 (3)**	32 (1)				
NGPI	69 (3)	144 (2)	246 (1)				
BAMD	37 (5)	72 (3)	64 (1)				
BAMM	41 (5)	79 (3)	93 (1)				
BAMS	30 (5)	59 (3)	59 (1)				
CONU	44 (5)	90 (3)	188 (1)				
GUNA	29 (1)						
FSSE	**20 (2)**						
OFCL	26 (4)	49 (2)					
NHC Official (2002-2006 mean)	33 (1349)	57 (1192)	79 (1039)	99 (897)	140 (655)	188 (465)	233 (311)

Table 3. Preliminary intensity forecast evaluation (heterogeneous sample) for Tropical Storm Erick, 31 July-2 August 2007. Forecast errors (kt) 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	120
SHF5	4.6 (5)	6.7 (3)	7.0 (1)				
GHMI	4.7 (3)	**4.0 (1)**					
DSHP	4.0 (5)	5.0 (3)	5.0 (1)				
FSSE	6.0 (2)						
ICON	4.3 (3)	5.0 (1)					
OFCL	2.5 (4)	5.0 (2)					
NHC Official (2002-2006 mean)	6.3 (1349)	11.0 (1192)	14.6 (1039)	16.9 (896)	18.9 (655)	18.5 (465)	19.3 (311)

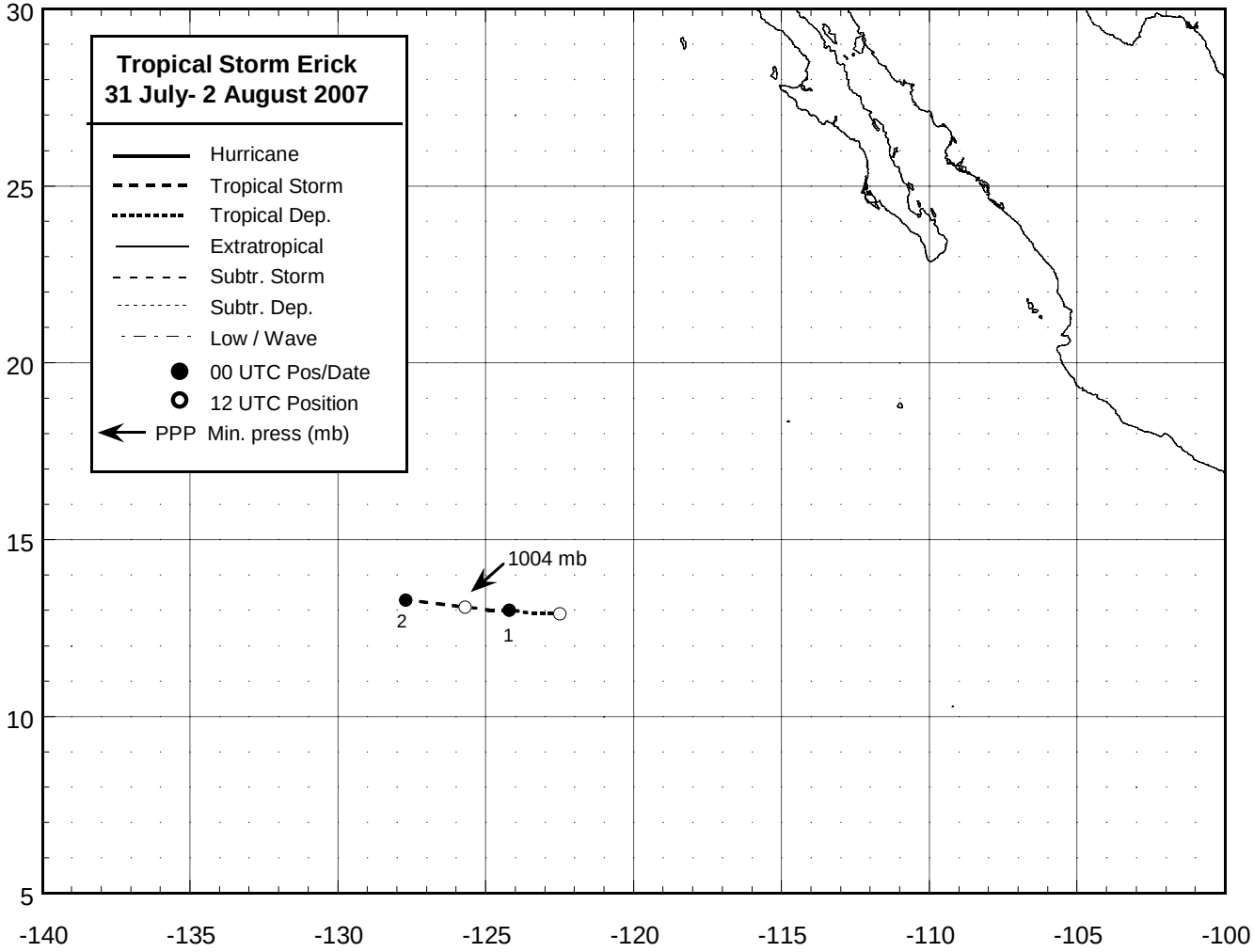

Figure 1. Best track positions for Tropical Storm Erick, 31 July-2 August 2007.

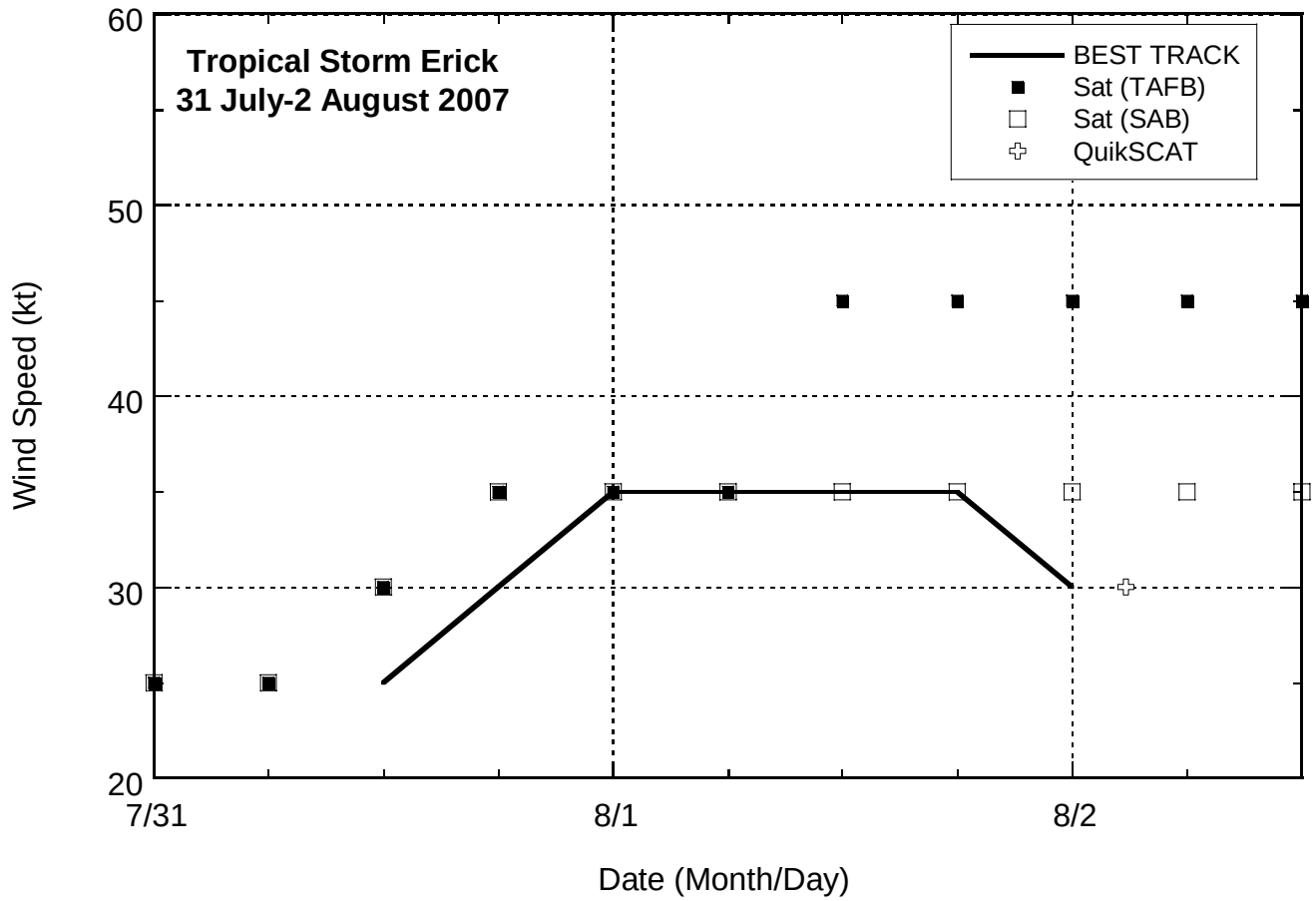

Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Erick, 31 July-2 August 2007.

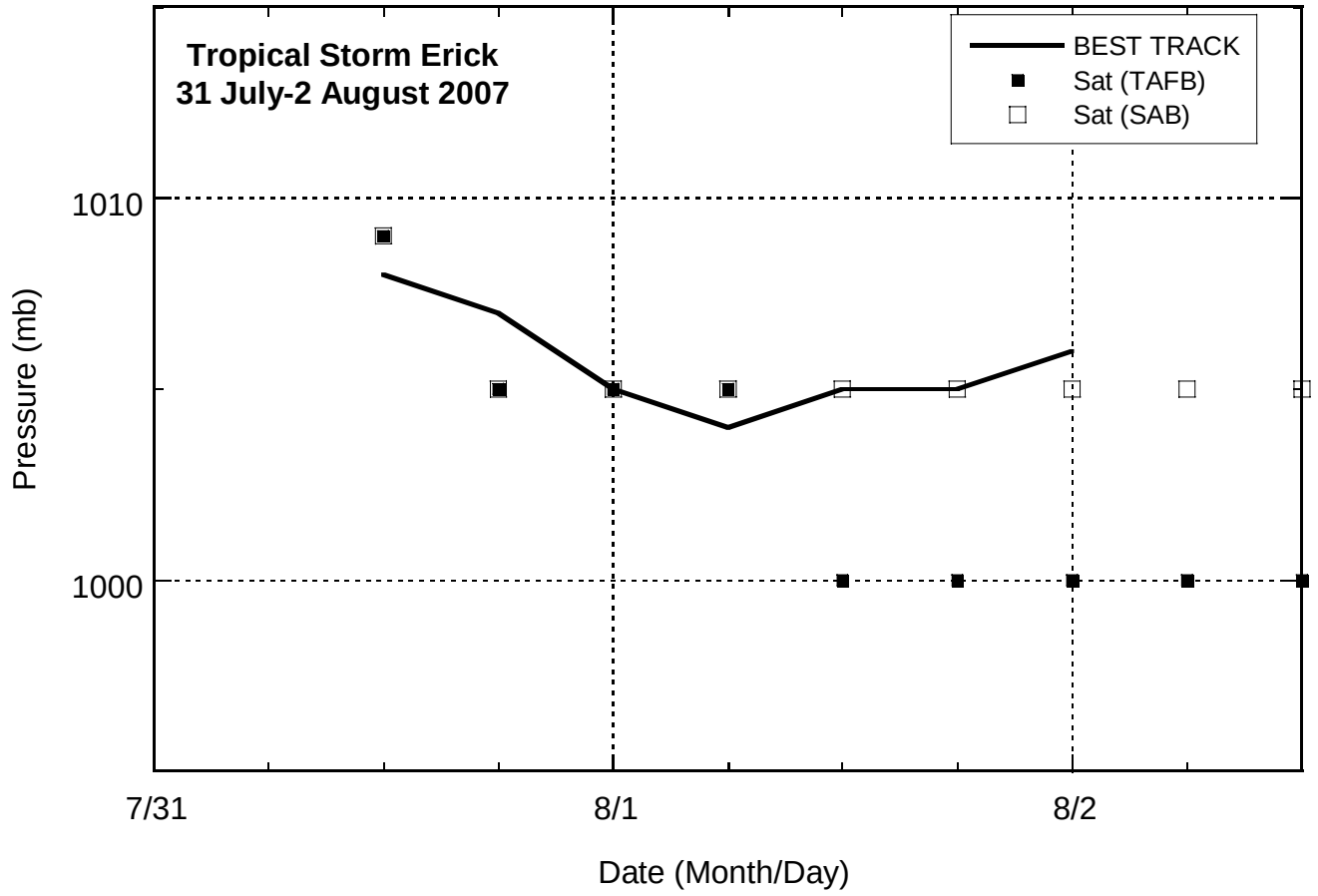

Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Erick, 31 July-2 August 2007.