

Tropical Cyclone Report  
Tropical Storm Gilma  
(EP082006)  
1-3 August 2006

Michelle Mainelli  
National Hurricane Center  
23 August 2006

Gilma was a short-lived tropical storm that remained over the open waters of the eastern North Pacific Ocean.

a. Synoptic History

Gilma developed from a tropical wave that moved off the west coast of Africa on 17 July. The wave moved across the Atlantic Ocean and Caribbean Sea with no signs of development. It entered into the eastern North Pacific Ocean on 25 July. The wave began showing signs of organization on 29 July when the first Dvorak satellite classification took place. Convection waxed and waned for several days while the convection slowly improved in organization under marginally favorable upper-level winds. By 0000 UTC on 1 August, the system had acquired enough deep convection and sufficient organization to be considered a 30-kt tropical depression about 360 n mi southwest of Acapulco, Mexico.

The “best track” chart of the tropical cyclone’s path is given in Figure 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 moderate easterly shear, convection developed close to the center which resulted in some strengthening and the tropical depression became Tropical Storm Gilma at 1200 UTC 1 August. Throughout its lifetime, Gilma moved on a west-northwestward track along the southern periphery of a mid-level ridge located over northwestern Mexico and Baja California. Despite several bursts of deep convection close to the circulation center, persistent easterly shear prevented further intensification. By 0600 UTC 2 August, the low-level center became completely exposed and Gilma weakened to a tropical depression. Gilma degenerated to a remnant low at 0000 UTC 4 August about 375 n mi west-southwest of Manzanillo, Mexico. The remnant low lasted for another 24 hours before dissipating on 5 August about 325 n mi south-southwest of the southern tip of Baja California.

b. Meteorological Statistics

Observations in Gilma (Figs. 2 and 3) were limited to satellite observations. No ships or buoys provided data from within the circulation of the cyclone. The satellite observations include geostationary 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). 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 was also useful in locating the low-level center of Gilma.

c. Casualty and Damage Statistics

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

d. Forecast and Warning Critique

The potential development of Gilma was introduced into the Tropical Weather Outlook (TWO) on 29 July, about 60 h prior to genesis. However, it was only indicated that the system had the potential to become a depression about 6 h prior to genesis.

Since Gilma was a tropical cyclone for only 66 h, there were relatively few forecasts to verify. A verification of official and track guidance model forecasts through 48 h is given in Table 2. Average official track errors for Gilma were 28, 53, 84, and 137 n mi for the 12, 24, 36, and 48 h forecasts, respectively. The number of forecasts ranged from ten at 12 h to four at 48 h. These errors are comparable to the average long-term official track errors at 12, 24, and 36 h (Table 2). However, the errors are greater than the average long-term official track errors at 48 h for the limited number of forecasts. The GUNA model consensus had the lowest track errors through 36 hours.

Average official intensity errors were 2, 8, 15, and 24 kt at 12, 24, 36, and 48 h respectively. For comparison, the average long-term official intensity errors are 6, 11, 14, and 17 kt, respectively. Even though a majority of the global models continued to weaken or dissipate Gilma within three days, official intensity forecasts anticipated the cyclone to slowly intensify expecting that the shear would lessen. This was the primary reason for some intensity errors exceeding the average errors.

No coastal watches or warnings were issued or required for Gilma.

Table 1. Best track for Tropical Storm Gilma, 1-3 August.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
01 / 0000	12.8	103.8	1009	30	tropical depression
01 / 0600	13.3	104.4	1007	30	"
01 / 1200	13.8	105.0	1005	35	tropical storm
01 / 1800	14.2	105.4	1004	35	"
02 / 0000	14.5	105.7	1004	35	"
02 / 0600	14.8	106.1	1005	30	tropical depression
02 / 1200	15.0	106.5	1005	30	"
02 / 1800	15.1	107.0	1005	30	"
03 / 0000	15.2	107.5	1006	30	"
03 / 0600	15.3	108.1	1006	25	"
03 / 1200	15.4	108.8	1006	25	"
03 / 1800	15.7	109.6	1007	25	"
04 / 0000	16.2	110.2	1008	20	remnant low
04 / 0600	16.9	110.8	1008	20	"
04 / 1200	17.4	111.3	1008	20	"
04 / 1800	17.7	111.7	1008	20	"
05 / 0000	17.8	112.2	1009	20	"
05 / 0600					dissipated
02 / 0000	14.2	105.4	1004	35	minimum pressure

Table 2. Preliminary track forecast evaluation (heterogeneous sample) for Tropical Storm Gilma, 1-3 August. 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. Output from the \* models was unavailable at forecast time.

Forecast Technique	Forecast Period (h)			
	12	24	36	48
CLP5	29 (10)	63 (8)	102 (6)	<b>129 (4)</b>
GFNI	45 (6)	55 (3)	91 (2)	
GFDI	26 (10)	50 (8)	<b>69 (6)</b>	<b>91 (4)</b>
GFDL*	<b>22 (10)</b>	<b>39 (8)</b>	<b>65 (6)</b>	<b>55 (4)</b>
GFDN*	37 (7)	77 (4)	106 (2)	187 (1)
GFSI	41 (9)	85 (6)	149 (4)	244 (2)
GFSO*	60 (10)	87 (8)	155 (5)	233 (3)
AEMI	33 (10)	74 (8)	125 (6)	195 (4)
NGPI	25 (6)	<b>29 (4)</b>	<b>37 (2)</b>	
NGPS*	33 (7)	<b>47 (5)</b>	<b>48 (3)</b>	<b>62 (1)</b>
UKMI	<b>19 (5)</b>	<b>49 (3)</b>	90 (1)	
UKM*	31 (4)	52 (2)	101 (1)	
BAMD	52 (10)	113 (8)	186 (6)	282 (4)
BAMM	31 (10)	64 (8)	110 (6)	176 (4)
BAMS	32 (10)	64 (8)	111 (6)	169 (4)
CONU	<b>18 (9)</b>	<b>35 (6)</b>	<b>71 (4)</b>	162 (2)
GUNA	<b>13 (5)</b>	<b>25 (3)</b>	<b>38 (1)</b>	
FSSE	<b>19 (6)</b>	<b>41 (6)</b>	<b>69 (4)</b>	<b>116 (2)</b>
OFCL	25 (10)	50 (8)	86 (6)	142 (4)
NHC Official (2001-2005 mean)	35 (1300)	60 (1152)	83 (1009)	103 (877)

Table 3. Preliminary intensity forecast evaluation (heterogeneous sample) for Tropical Storm Gilma, 1-3 August. 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
SHF5	8 (10)	18 ( 8)	27 ( 6)	37 ( 4)
GFDI	4 (10)	<b>5 ( 8)</b>	<b>4 ( 6)</b>	<b>3 ( 4)</b>
GFDL	11 (10)	10 ( 8)	<b>13 ( 6)</b>	<b>11 ( 4)</b>
SHIP	4 (10)	8 ( 8)	<b>12 ( 6)</b>	<b>19 ( 4)</b>
DSHP	4 (10)	8 ( 8)	<b>12 ( 6)</b>	<b>19 ( 4)</b>
FSSE	5 ( 6)	9 ( 6)	16 ( 4)	<b>20 ( 2)</b>
ICON	4 (10)	<b>5 ( 8)</b>	<b>7 ( 6)</b>	<b>10 ( 4)</b>
OFCL	3 (10)	8 ( 8)	16 (6)	25 ( 4)
NHC Official (2001-2005 mean)	6.2 (1300)	10.8 (1152)	14.3 (1009)	16.5 (876)

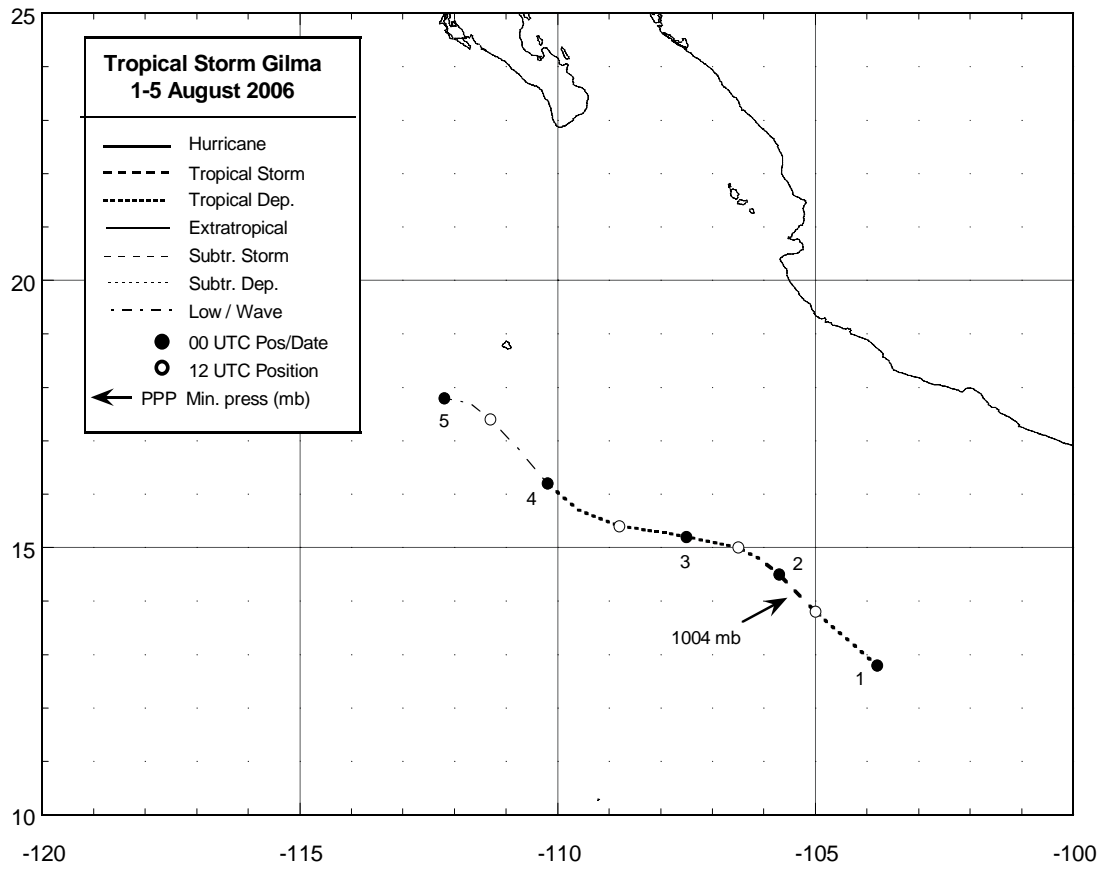


Figure 1. Best track positions for Tropical Storm Gilma, 1-3 August, 2006.

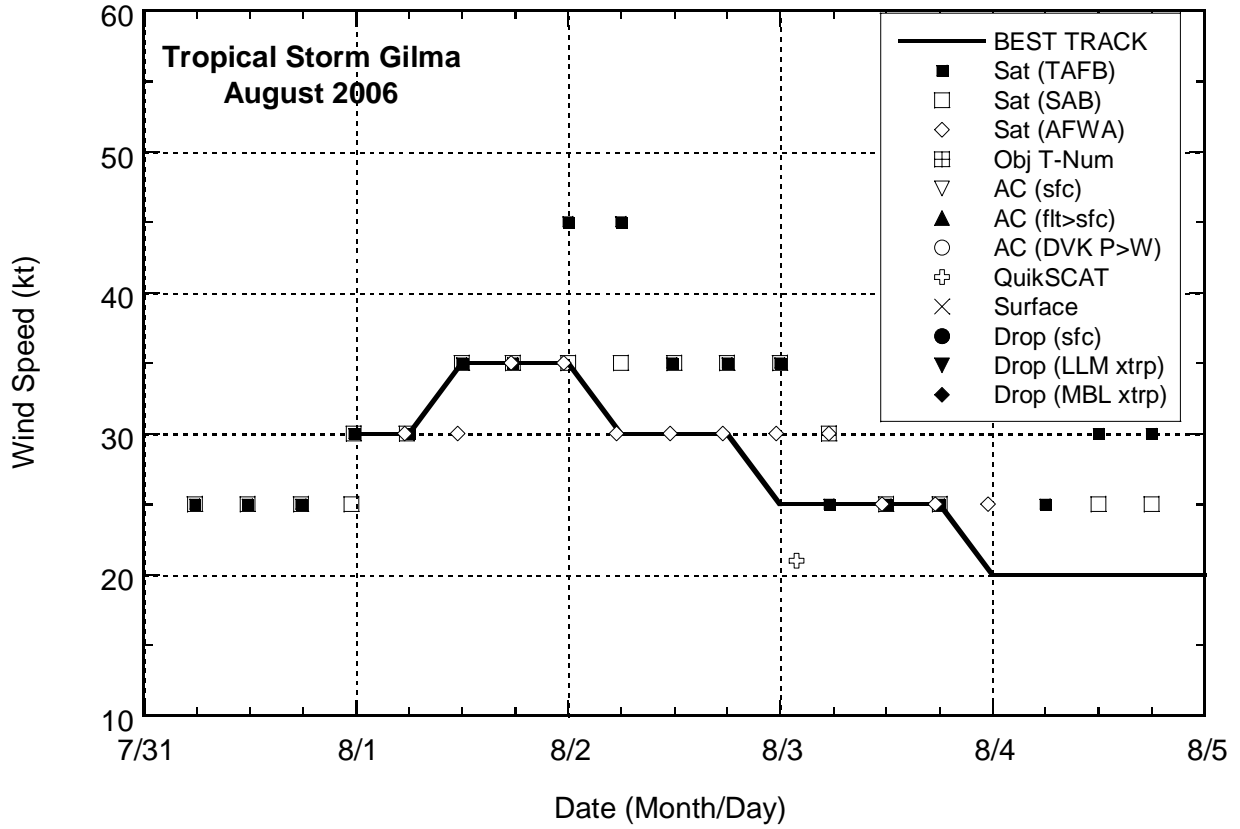


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Gilma, 1-3 August.

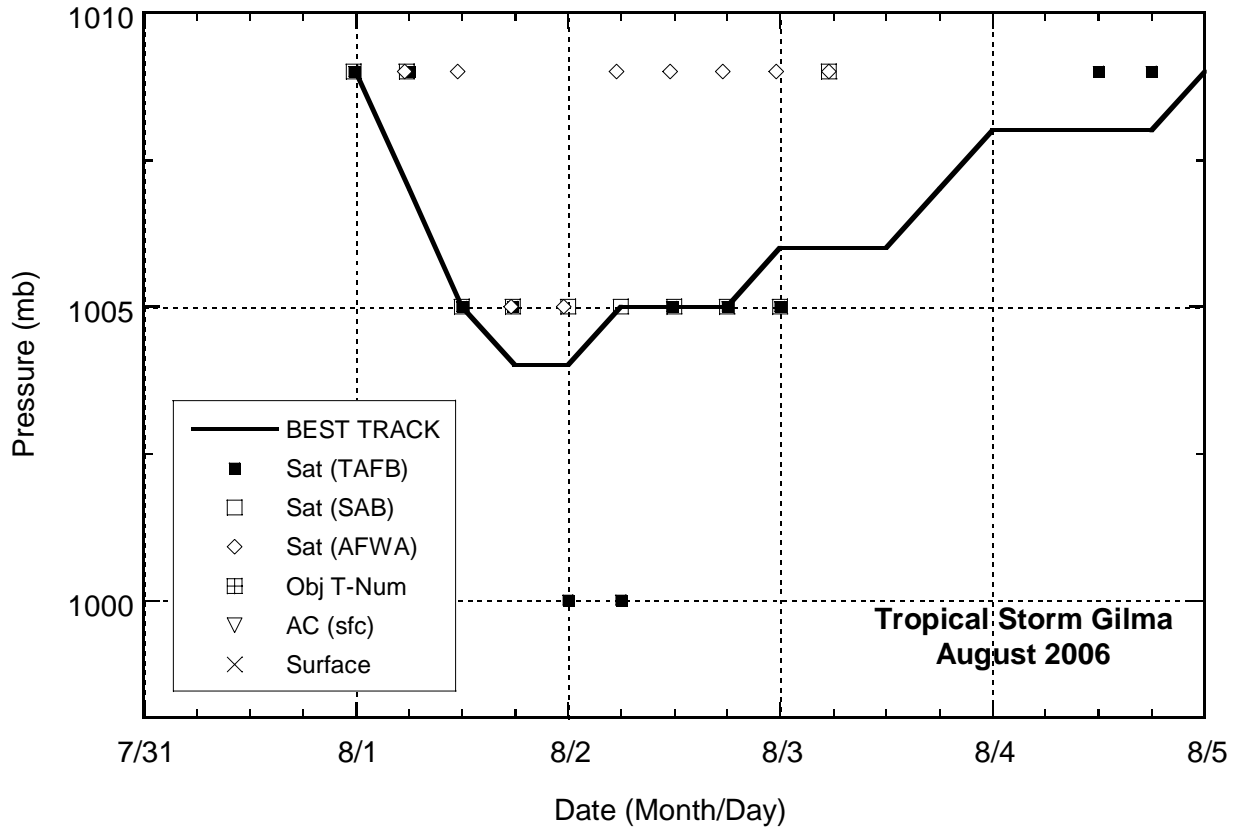


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Gilma, 1-3 August.