Tropical Cyclone Report
Tropical Storm Gil (EP102007)
29 August -2 September 2007
Lixion A. Avila

National Hurricane Center
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Gil was a short-lived tropical cyclone that spent its lifetime over water.

## a. Synoptic History

A vigorous tropical wave left the west coast of Senegal, Africa, on 16 August. The wave had a large amplitude, abundant convection, and pressure falls on the order of 6 mb in 24 hours. The wave moved westward over the tropical Atlantic for several days maintaining its large envelope and intermittent thunderstorm activity. The wave became less distinct on the 21st when it interacted with a large upper-level trough centered over the eastern Caribbean Sea. The wave continued westward across the Caribbean Sea and Central America, and the northern portion of the wave spawned a weak low pressure area in the Bay of Campeche on 26 August. However, most of the convective activity associated with the southern portion of the wave continued westward over Mexico.

The wave emerged over the eastern North Pacific on 27 August, and the shower activity became concentrated just south of Cabo Corrientes, Mexico. The system continued westward and became better organized as it developed additional thunderstorms with a few convective bands. It is estimated that a tropical depression formed at 1200 UTC 29 August about 240 n mi south-southeast of the southern tip of Baja California, and it became a tropical storm six hours later. The center of Gil was located on the northeastern edge of the convection due to strong northeasterly shear, which inhibited further intensification. The cyclone's peak winds reached only 40 knots and a minimum pressure of 1001 mb at 1200 UTC 30 August. Thereafter, gradual weakening occurred due to both shear and cooler waters. Gil became a westward-moving remnant low at 1800 UTC 2 September and dissipated later that day.

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.

## b. Meteorological Statistics

Observations in Gil (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 data from polar-orbiting satellites were useful in tracking Gil, in

particular to determine that the center was partially removed from the convection. The 40-knot peak intensity estimate for Gil was based on a QuikSCAT pass around 1300 UTC 30 August.

c. Casualty and Damage Statistics

There are no reports of casualties or damage associated with Gil.

d. Forecast and Warning Critique

The description of the disturbance from which Gil originated was included in Tropical Weather Outlook (TWO) products beginning on 26 August. The possibility of tropical cyclone formation was included in the TWO issued at 1700 UTC 28 August, about 19 h prior to genesis.

Average official track errors (with the number of cases in parentheses) for Gil were 25 (15), 43 (13), 67 (11), 86 (9) and 104 (5) n mi for the 12, 24, 36, 48 and 72 h forecasts, respectively. These errors are below the average official track errors for the 5-yr period 2002-2006 of 33, 57, 79, 99, and 140 n mi, respectively. Table 2 displays the forecast track model statistics and shows a comparison with the official forecast errors and the 5-year official mean errors.

Average official intensity errors were 3, 5, 7, 7, and 1 kt for the 12, 24, 36, 48 and 72h forecasts, respectively. The long-term average official intensity errors are 6, 11, 15, 17, 19, and 19 kt for the same 5-yr period. Table 3 includes the forecast intensity model statistics as well as the average official intensity forecast errors and the 5-year official mean errors.

No watches or warnings were required for Gil.

Table 1. Best track for Tropical Storm Gil, 29 August - 2 September 2007.

| Date/Time (UTC) | Latitude (°N) | Longitude (°W) | Pressure (mb) | Wind Speed (kt) | Stage |
|---|---|---|---|---|---|
| 29 / 1200 | 19.4 | 109.0 | 1004 | 30 | tropical depression |
| 29 / 1800 | 19.5 | 110.0 | 1003 | 35 | tropical storm |
| 30 / 0000 | 19.4 | 111.2 | 1003 | 35 | " |
| 30 / 0600 | 19.2 | 112.2 | 1003 | 40 | " |
| 30 / 1200 | 19.2 | 113.1 | 1001 | 40 | " |
| 30 / 1800 | 19.2 | 114.0 | 1002 | 40 | " |
| 31 / 0000 | 19.1 | 114.9 | 1002 | 40 | " |
| 31 / 0600 | 19.0 | 115.9 | 1003 | 35 | " |
| 31 / 1200 | 18.8 | 116.9 | 1004 | 35 | " |
| 31 / 1800 | 18.7 | 117.8 | 1005 | 35 | " |
| 01 / 0000 | 18.6 | 118.6 | 1005 | 30 | tropical depression |
| 01 / 0600 | 18.6 | 119.5 | 1005 | 30 | " |
| 01 / 1200 | 18.8 | 120.3 | 1005 | 25 | " |
| 01 / 1800 | 19.0 | 121.2 | 1005 | 25 | " |
| 02 / 0000 | 19.2 | 122.1 | 1005 | 25 | " |
| 02 / 0600 | 19.4 | 122.9 | 1005 | 25 | " |
| 02 / 1200 | 19.6 | 123.7 | 1006 | 25 | " |
| 02 / 1800 | 20.0 | 123.9 | 1007 | 20 | low |
| 03 / 0000 | 20.3 | 124.2 | 1008 | 20 | " |
| 03 / 0600 | | | | | dissipated |
| 30 / 1200 | 19.2 | 113.1 | 1001 | 40 | minimum pressure |

Table. 2. Preliminary forecast evaluation (heterogeneous sample) for Tropical Storm Gil, 29 August -2 September 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, but does not include the extratropical stage, if any.

| Forecast Technique | Forecast Period (h) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 12 | 24 | 36 | 48 | 72 | 96 | 120 |
| CLP5 | 28 (15) | 50 (13) | **66 (11)** | 88 ( 9) | 179 ( 5) | 335 ( 1) | |
| GFNI | 28 (13) | 46 (11) | **66 ( 9)** | **79 ( 7)** | **90 ( 2)** | | |
| GFDI | 36 (15) | 65 (13) | 103 (11) | 132 ( 9) | 169 ( 4) | | |
| GFSI | 46 (15) | 80 (13) | 102 (11) | 113 ( 9) | 169 ( 5) | | |
| AEMI | 29 (15) | 44 (13) | **56 (11)** | **78 ( 9)** | 139 ( 5) | | |
| NGPI | 25 (15) | **31 (11)** | **41 ( 9)** | **64 ( 7)** | 148 ( 3) | | |
| UKMI | 36 (14) | 61 (12) | 79 (10) | 96 ( 8) | 131 ( 4) | | |
| BAMD | 56 (15) | 115 (13) | 189 (11) | 265 ( 9) | 443 ( 5) | 490 ( 1) | |
| BAMM | 56 (15) | 116 (13) | 191 (11) | 272 ( 9) | 447 ( 5) | 465 ( 1) | |
| BAMS | 48 (15) | 96 (13) | 154 (11) | 214 ( 9) | 343 ( 5) | 380 ( 1) | |
| CONU | 27 (15) | **41 (13)** | **56 (11)** | 71 ( 9) | 105 ( 4) | | |
| GUNA | 26 (14) | **41 (11)** | **66 ( 9)** | 86 ( 7) | 146 ( 3) | | |
| FSSE | 33 ( 9) | 66 ( 9) | 94 ( 8) | 109 ( 6) | | | |
| OFCL | 25 (15) | 43 (13) | 67 (11) | 86 ( 9) | 104 ( 5) | | |
| 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 Gil, 29 August- 2 September 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, but does not include the extratropical stage, if any.

| Forecast Technique | Forecast Period (h) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 12 | 24 | 36 | 48 | 72 | 96 | 120 |
| SHF5 | 3.5 (15) | 5.9 (13) | 11.5 (11) | 13.9 ( 9) | 23.6 ( 5) | 25.0 ( 1) | |
| GHMI | 6.8 (15) | 12.7 (13) | 17.5 (11) | 17.1 ( 9) | 6.0 ( 4) | | |
| SHIP | 3.4 (15) | 6.3 (13) | 10.9 (11) | 14.4 ( 9) | 13.0 ( 5) | | |
| DSHP | 3.4 (15) | 6.3 (13) | 10.9 (11) | 14.4 ( 9) | 13.0 ( 5) | | |
| FSSE | 4.7 ( 9) | 6.2 ( 9) | 10.3 ( 8) | 10.3 ( 6) | | | |
| ICON | 4.9 (15) | 7.8 (13) | 10.5 (11) | 11.4 ( 9) | 2.5 ( 4) | | |
| OFCL | 3.0 (15) | 4.6 (13) | 6.8 (11) | 6.7 ( 9) | 1.0 ( 5) | | |
| NHC Official (2002-2006 mean) | 6.3 (1349) | 11.0 (1192) | 14.6 (1039) | 16.9 (896) | 18.9 (655) | 18.5 (465) | |

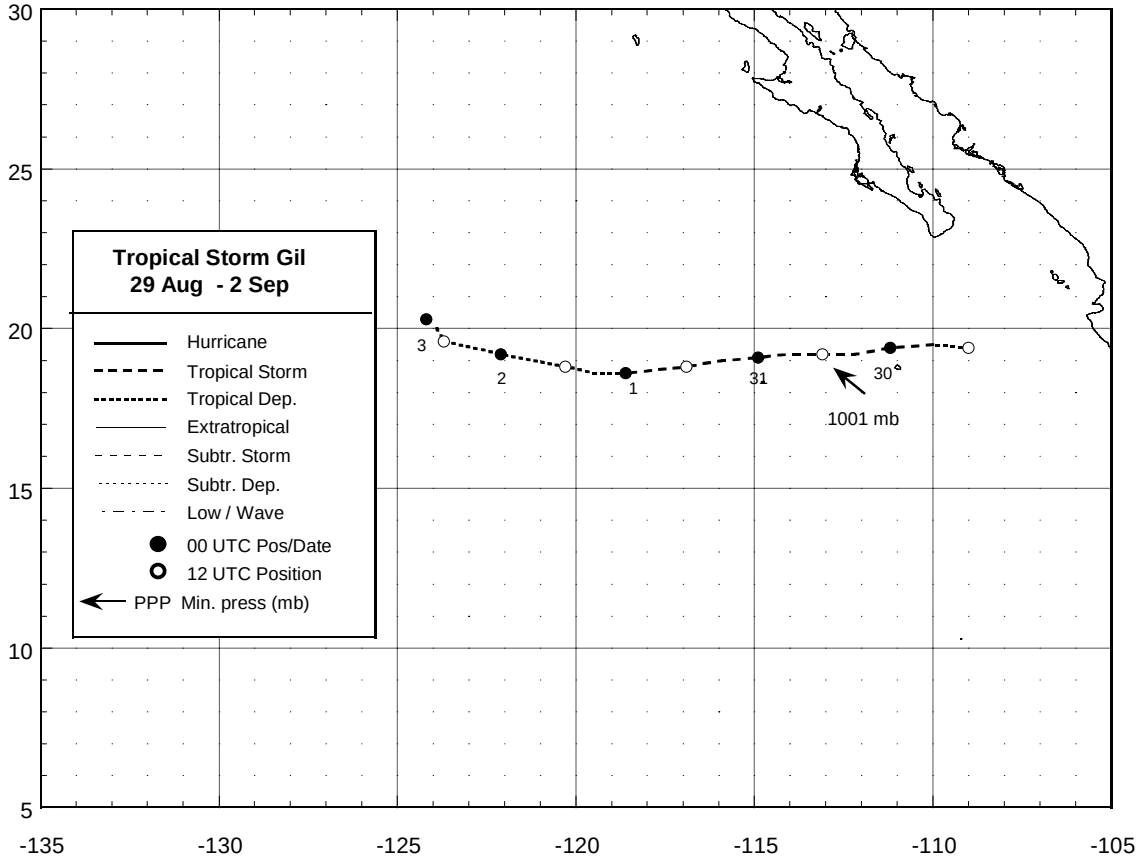


Figure 1. Best track positions for Tropical Storm Gil, 29 August -2 September 2007.

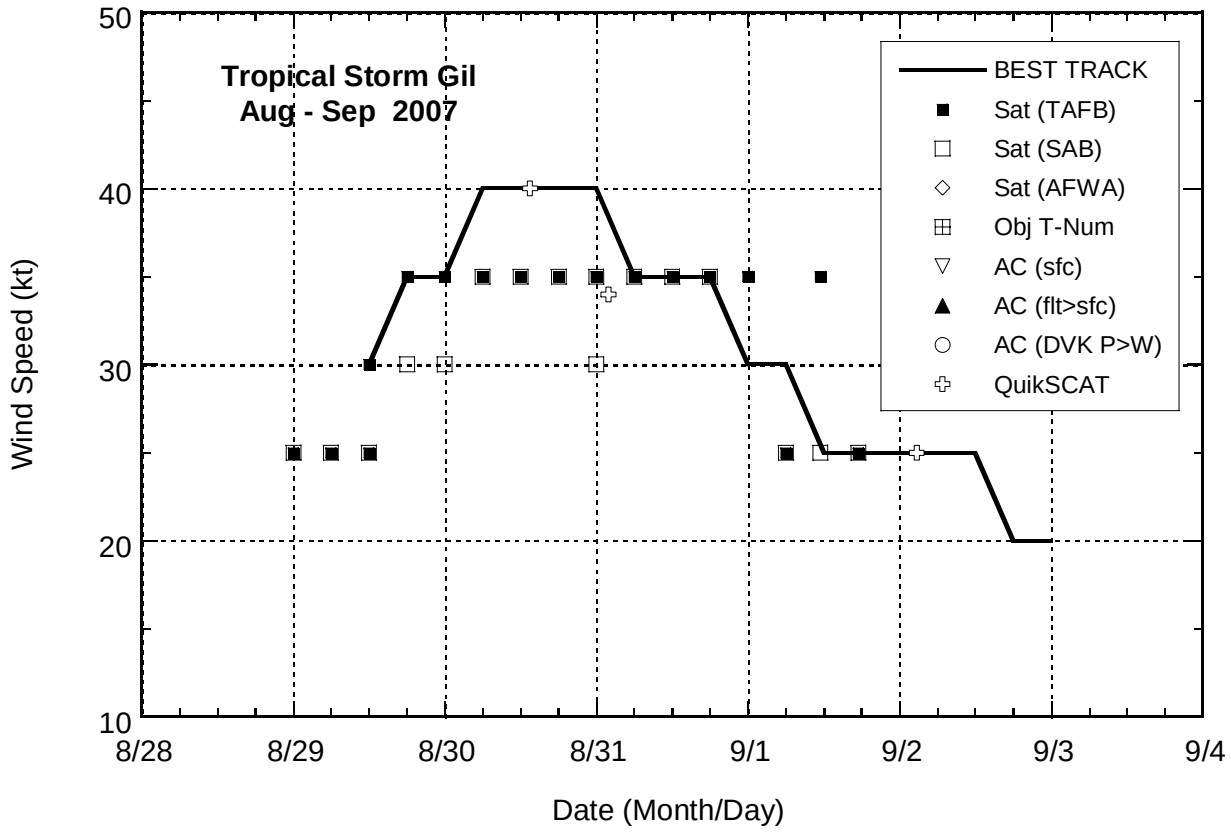


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Gil, 29 August -2 September 2007.

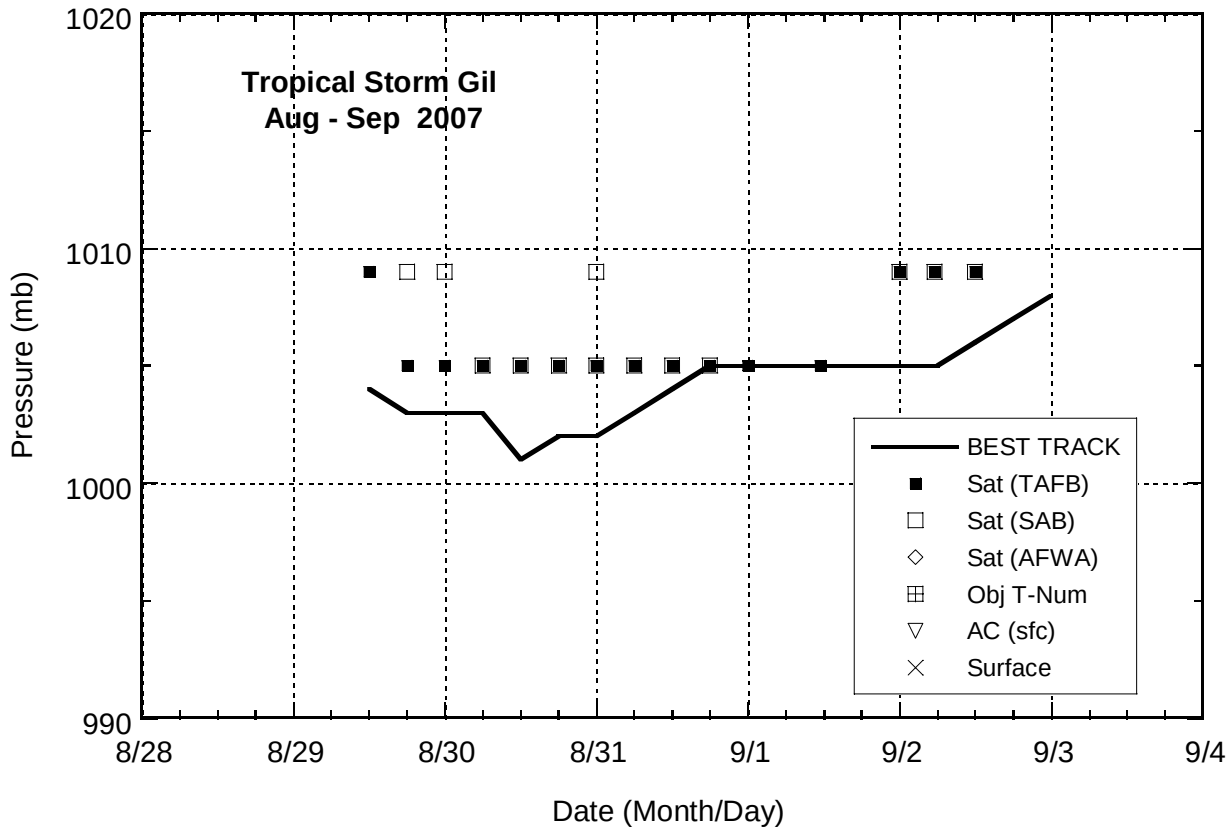


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Gil, 29 August -2 September 2007.