

Tropical Cyclone Report
Tropical Storm Felicia
17-23 July 2003

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Tropical Storm Felicia moved uneventfully through the eastern north Pacific.

a. Synoptic History

Felicia formed from a tropical wave that moved westward from the coast of Africa on 4 July. The wave crossed Central America on 12 July and passed south of the Gulf of Tehuantepec on 14 July. At that time, convection began to increase in coverage and organization, and the first satellite intensity estimates were made the next day. Convection further increased in organization on 17 July, and it is estimated that a tropical depression formed about 315 n mi south of Manzanillo, Mexico near 1800 UTC. The “best track” chart of Felicia’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.

Felicia became a tropical storm early on 18 July and reached a peak intensity of 45 kt later that day. After that, vertical wind shear caused gradual weakening, with Felicia becoming a depression again on 20 July. During that time, the cyclone moved generally westward, followed by a west-northwestward turn on 21 July. Felicia continued slow weakening, and it weakened to a remnant low on 23 July. The low crossed into the central Pacific basin later that day and dissipated on 24 July about 600 n mi east of the Hawaiian Islands.

b. Meteorological Statistics

Observations in Felicia (Figs. 2 and 3) include 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 the NASA Tropical Rainfall Measuring Mission (TRMM) and the Defense Meteorological Satellite Program (DMSP) satellites was also useful in tracking Felicia.

There were no ship reports of winds of tropical storm force associated with Felicia.

c. Casualty and Damage Statistics

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

d. Forecast and Warning Critique

Average official track errors (with the number of cases in parentheses) for Felicia were 37 (20), 53 (18), 74 (16), 112 (14), 188 (10), 195 (6), and 142 (2) n mi for the 12, 24, 36, 48, 72, 96, and 120 h forecasts, respectively¹. These errors are lower than the average official track errors for the 10-yr period 1993-2002² (39, 72, 103, 131, 186, 197, and 223 n mi, respectively). These errors were also lower than the errors for the Climatology-Persistence method (40, 71, 110, 160, 225, 382, and 637 n mi, respectively) indicating that the forecasts had skill relative to that measure.

Average official intensity errors were 3, 6, 7, 10, 9, 8, and 5 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 average intensity errors for Climatology-Persistence were 3, 5, 9, 12, 20, 22, and 21 kt, respectively.

No watches or warnings were issued for Felicia.

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 Felicia, 17-23 July 2003.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
17 / 1800	14.0	105.3	1009	25	tropical depression
18 / 0000	14.3	107.0	1008	30	"
18 / 0600	14.6	108.7	1005	35	tropical storm
18 / 1200	14.9	110.1	1000	45	"
18 / 1800	15.2	111.6	1002	40	"
19 / 0000	15.3	113.2	1002	40	"
19 / 0600	15.4	114.7	1002	40	"
19 / 1200	15.5	116.1	1003	40	"
19 / 1800	15.5	117.6	1005	35	"
20 / 0000	15.4	119.2	1006	35	"
20 / 0600	15.2	120.7	1008	30	tropical depression
20 / 1200	15.2	121.7	1009	30	"
20 / 1800	15.2	122.6	1009	30	"
21 / 0000	15.4	123.6	1009	30	"
21 / 0600	15.6	124.8	1009	30	"
21 / 1200	15.8	126.2	1009	30	"
21 / 1800	15.9	127.7	1009	30	"
22 / 0000	16.1	129.1	1009	30	"
22 / 0600	16.4	130.3	1010	25	"
22 / 1200	16.7	131.4	1010	25	"
22 / 1800	17.1	132.8	1010	25	"
23 / 0000	17.5	134.5	1010	25	"
23 / 0600	17.6	136.1	1010	25	"
23 / 1200	17.6	137.6	1010	20	remnant low
23 / 1800	17.7	139.0	1010	20	"
24 / 0000	17.8	140.5	1010	20	"
24 / 0600	17.9	142.4	1010	20	"
24 / 1200	18.0	144.5	1010	20	"
24 / 1800					dissipated
18 / 1200	14.9	110.1	1000	45	minimum pressure

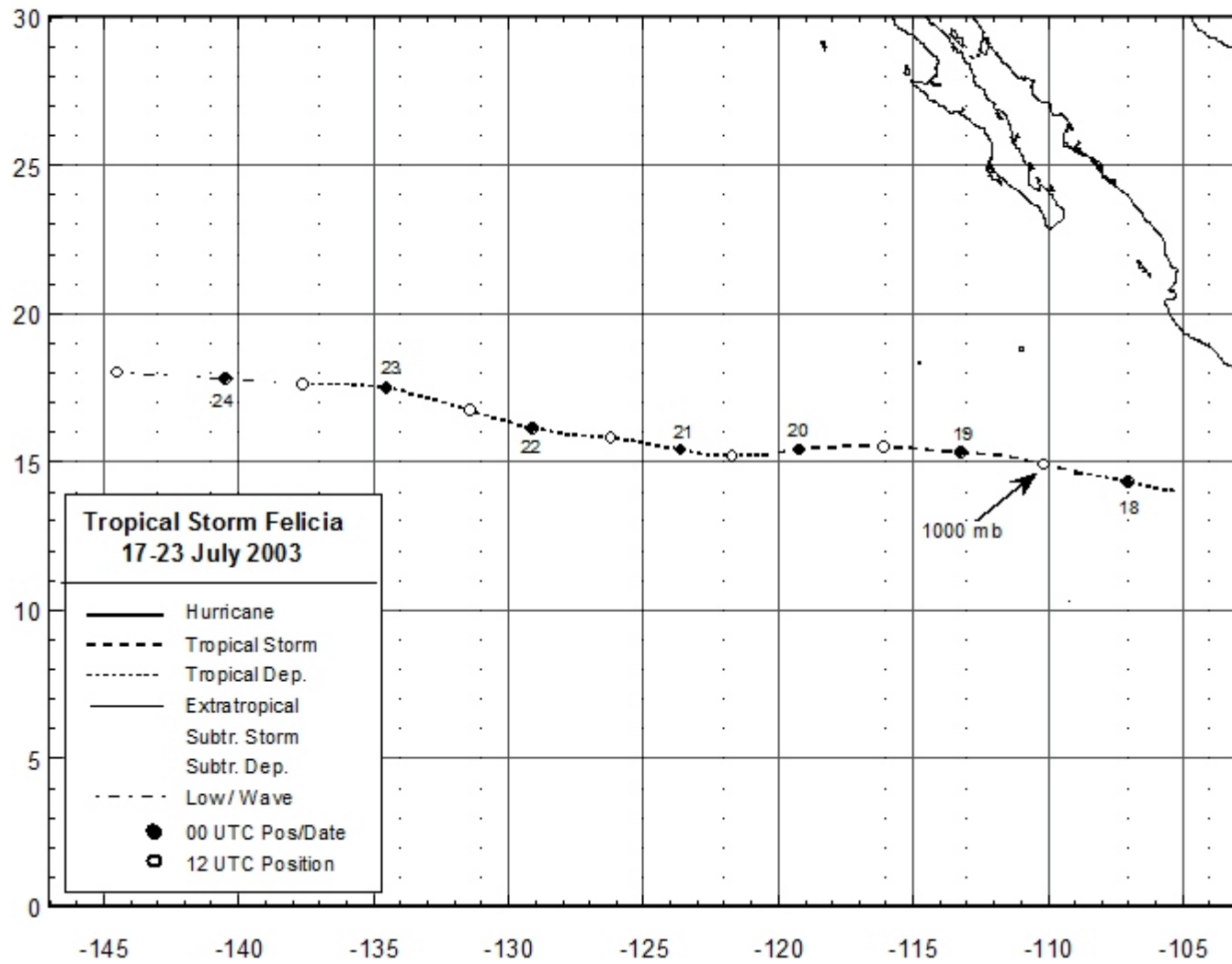


Figure 1. Best track positions for Tropical Storm Felicia, 17-23 July 2003.

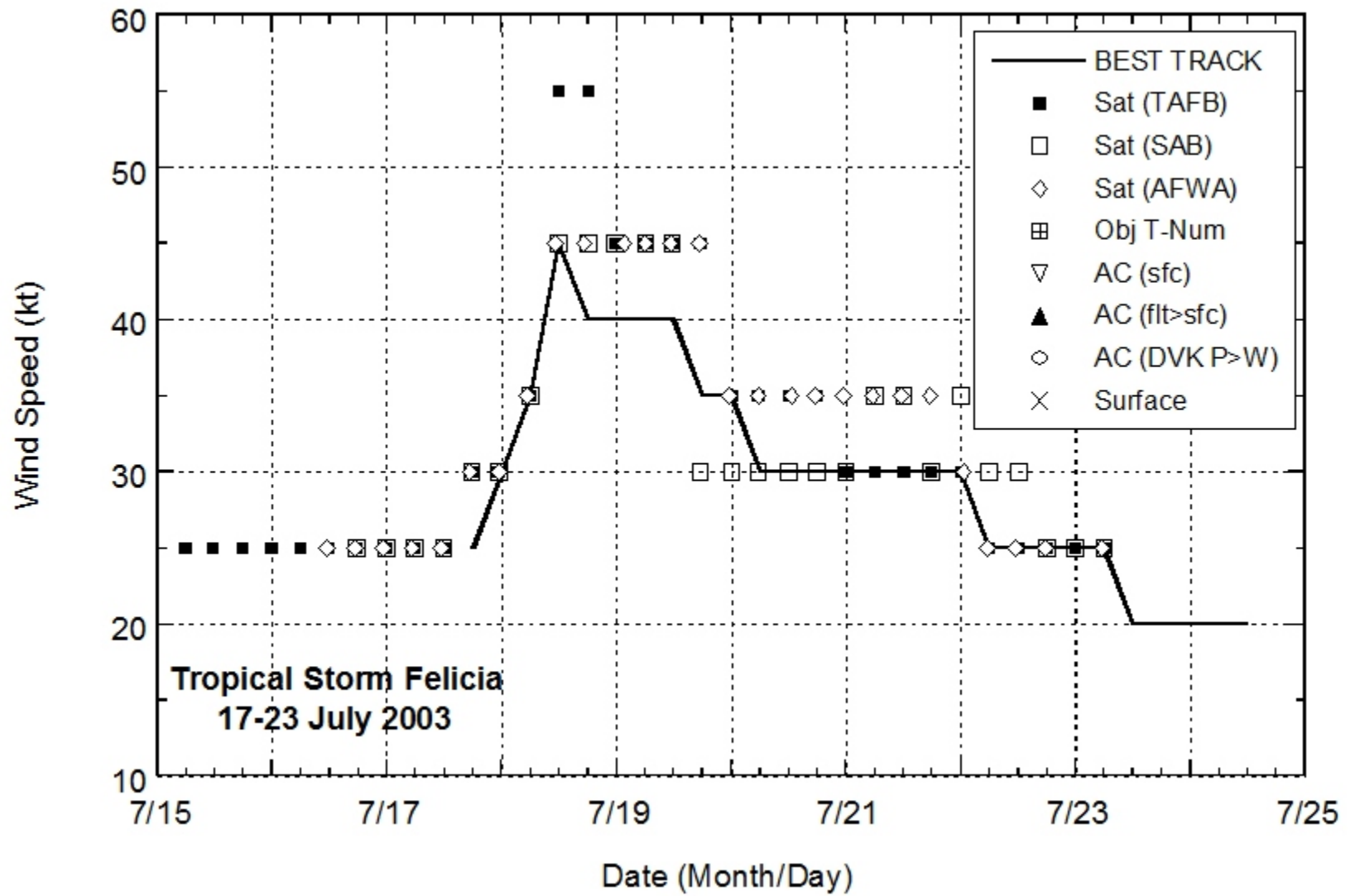


Figure 2. Selected wind estimates and best track maximum sustained surface wind speed curve for Tropical Storm Felicia, 17-23 July 2003.

