

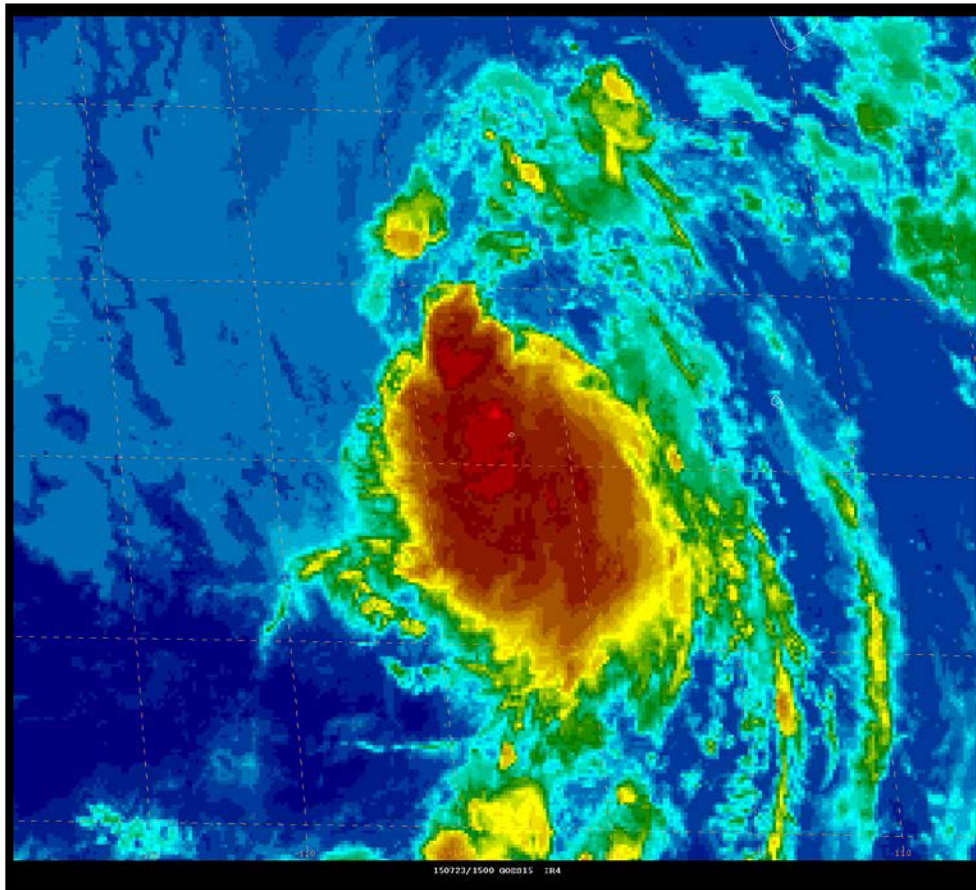


NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

TROPICAL STORM FELICIA (EP072015)

23 – 24 JULY 2015

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National Hurricane Center
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NOAA GOES-15 INFRARED SATELLITE IMAGE OF TROPICAL STORM FELICIA AT 1500 UTC 23 JULY 2015.

Felicia was a short-lived tropical storm over the eastern North Pacific Ocean that did not affect land.

Tropical Storm Felicia

23 – 24 JULY 2015

SYNOPTIC HISTORY

The origin of Felicia can be traced back to a tropical wave that departed the west coast of Africa on 7 July. The wave moved westward at 15 to 20 kt across the Atlantic Ocean with no significant thunderstorm activity, and it reached the Caribbean Sea about a week later. The wave crossed Central America and moved into the eastern North Pacific Ocean on 16 July. Cloudiness and showers gradually increased along the wave axis during the next few days while it moved south of Mexico, and a broad and elongated area of low pressure formed in association with the wave late on 19 July several hundred n mi south-southwest of Manzanillo, Mexico. Deep convection waxed and waned over the next few days, likely due to northeasterly shear. Satellite data indicated that the circulation of the low became well defined around 1200 UTC 22 July and deep convection developed sufficient organization to declare the system a tropical depression by 0600 UTC 23 July, when it was located about 375 n mi southwest of the southern tip of the Baja California peninsula. 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 1¹.

The depression strengthened slightly and became a tropical storm 6 h later while moving northwestward, steered by the flow on the southwestern periphery of a subtropical ridge. Felicia only maintained that intensity for a few hours, after which north-northwesterly shear and dry air caused the storm to begin weakening. Felicia became a tropical depression around 0000 UTC 24 July when it neared cooler waters. The cyclone lost all of its deep convection and degenerated to a remnant low around 1800 UTC that day about 475 n mi west of the southern tip of the Baja California peninsula. The remnant low slowed and gradually turned westward and then southwestward during the next few days within the low-level trade wind flow. The weak low opened into a trough by 0000 UTC 28 July about 950 n mi west of the southern tip of the Baja California peninsula.

METEOROLOGICAL STATISTICS

Observations in Felicia (Figs. 2 and 3) include subjective satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB) and the Satellite Analysis Branch (SAB), and objective Advanced Dvorak Technique (ADT) estimates from the

¹ A digital record of the complete best track, including wind radii, can be found on line at <ftp://ftp.nhc.noaa.gov/atcf>. Data for the current year’s storms are located in the *btk* directory, while previous years’ data are located in the *archive* directory.

Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Global Precipitation Mission (GPM), the European Space Agency's Advanced Scatterometer (ASCAT), and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Felicia.

The estimated 35-kt peak intensity of Felicia is based on T2.5 (35-kt) Dvorak satellite intensity estimates from TAFB and SAB.

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

CASUALTY AND DAMAGE STATISTICS

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

FORECAST AND WARNING CRITIQUE

The genesis of Felicia was predicted well in advance, although genesis did not occur as quickly as was anticipated (Table 2). The system that became Felicia was introduced into the Tropical Weather Outlook (TWO) with a low (< 40 %) chance of formation during the next 5 days 156 h before genesis, and it was included in the 48-h TWO 114 h before formation. The probability reached the high category (> 60% chance of formation) 120 h before genesis in the 5-day TWO and 90 h before formation in the 48-h TWO. Although the genesis forecasts turned out to be overly aggressive, it should be noted that Felicia was close to genesis a day or two before formation actually occurred.

A verification of NHC official track and intensity forecasts for Felicia is given in Tables 3 and 4, respectively. Official forecast track errors were similar to the mean official errors for the previous 5-yr period. Official forecast intensity errors were lower than the mean official errors for the previous 5-yr period for a small number of forecasts. A verification of the available guidance is not shown because of the very small sample.

There were no coastal watches or warnings associated with Felicia.



Table 1. Best track for Tropical Storm Felicia, 23-24 July 2015.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
22 / 1200	15.9	113.4	1006	30	low
22 / 1800	16.3	113.4	1006	30	"
23 / 0000	16.9	113.5	1006	30	"
23 / 0600	17.8	113.8	1005	30	tropical depression
23 / 1200	18.6	114.5	1004	35	tropical storm
23 / 1800	19.3	115.3	1004	35	"
24 / 0000	20.1	116.1	1005	30	tropical depression
24 / 0600	20.8	116.8	1006	30	"
24 / 1200	21.6	117.6	1006	30	"
24 / 1800	22.3	118.5	1007	25	low
25 / 0000	22.9	119.5	1008	25	"
25 / 0600	23.4	120.5	1009	20	"
25 / 1200	23.8	121.4	1009	20	"
25 / 1800	24.2	122.3	1010	20	"
26 / 0000	24.5	123.1	1010	20	"
26 / 0600	24.6	123.8	1011	20	"
26 / 1200	24.6	124.3	1011	20	"
26 / 1800	24.6	124.8	1012	20	"
27 / 0000	24.5	125.3	1012	20	"
27 / 0600	24.4	125.8	1012	20	"
27 / 1200	24.2	126.2	1012	20	"
27 / 1800	23.9	126.7	1012	20	"
28 / 0000					dissipated
23 / 1200	18.6	114.5	1004	35	maximum wind and minimum pressure



Table 2. Number of hours in advance of formation associated with the first NHC Tropical Weather Outlook forecast in the indicated likelihood category. Note that the timings for the “Low” category do not include forecasts of a 0% chance of genesis.

	Hours Before Genesis	
	48-Hour Outlook	120-Hour Outlook
Low (<40%)	114	156
Medium (40%-60%)	102	132
High (>60%)	90	120



Table 3. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Felicia. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	19.1	39.2					
OCD5	30.5	88.3					
Forecasts	4	2					
OFCL (2010-14)	23.4	36.4					
OCD5 (2010-14)	36.6	74.2					

Table 4. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Felicia. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	3.8	2.5					
OCD5	5.3	4.5					
Forecasts	4	2					
OFCL (2010-14)	5.9	9.8					
OCD5 (2010-14)	7.7	12.8					

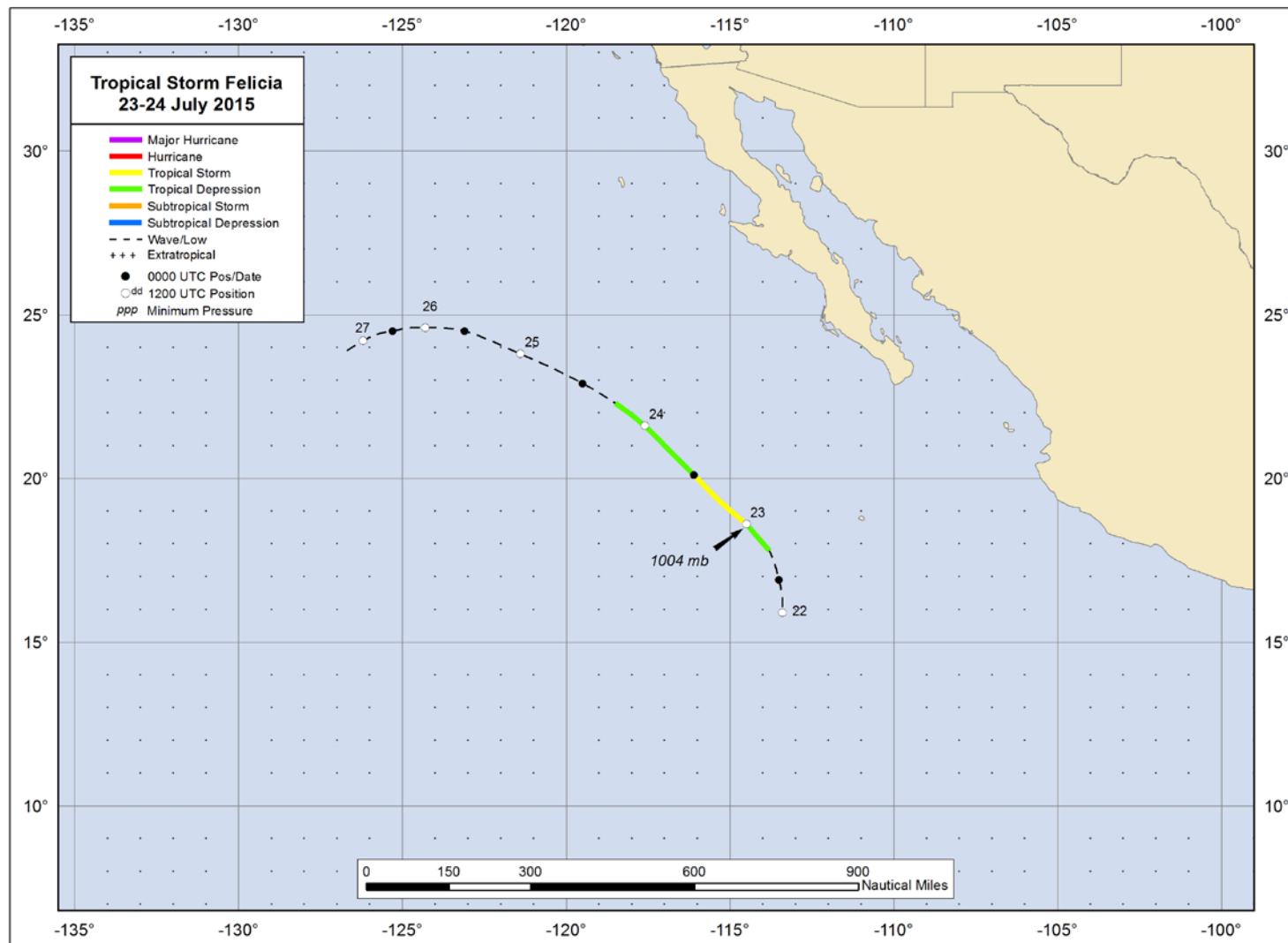


Figure 1. Best track positions for Tropical Storm Felicia, 23-24 July 2015.

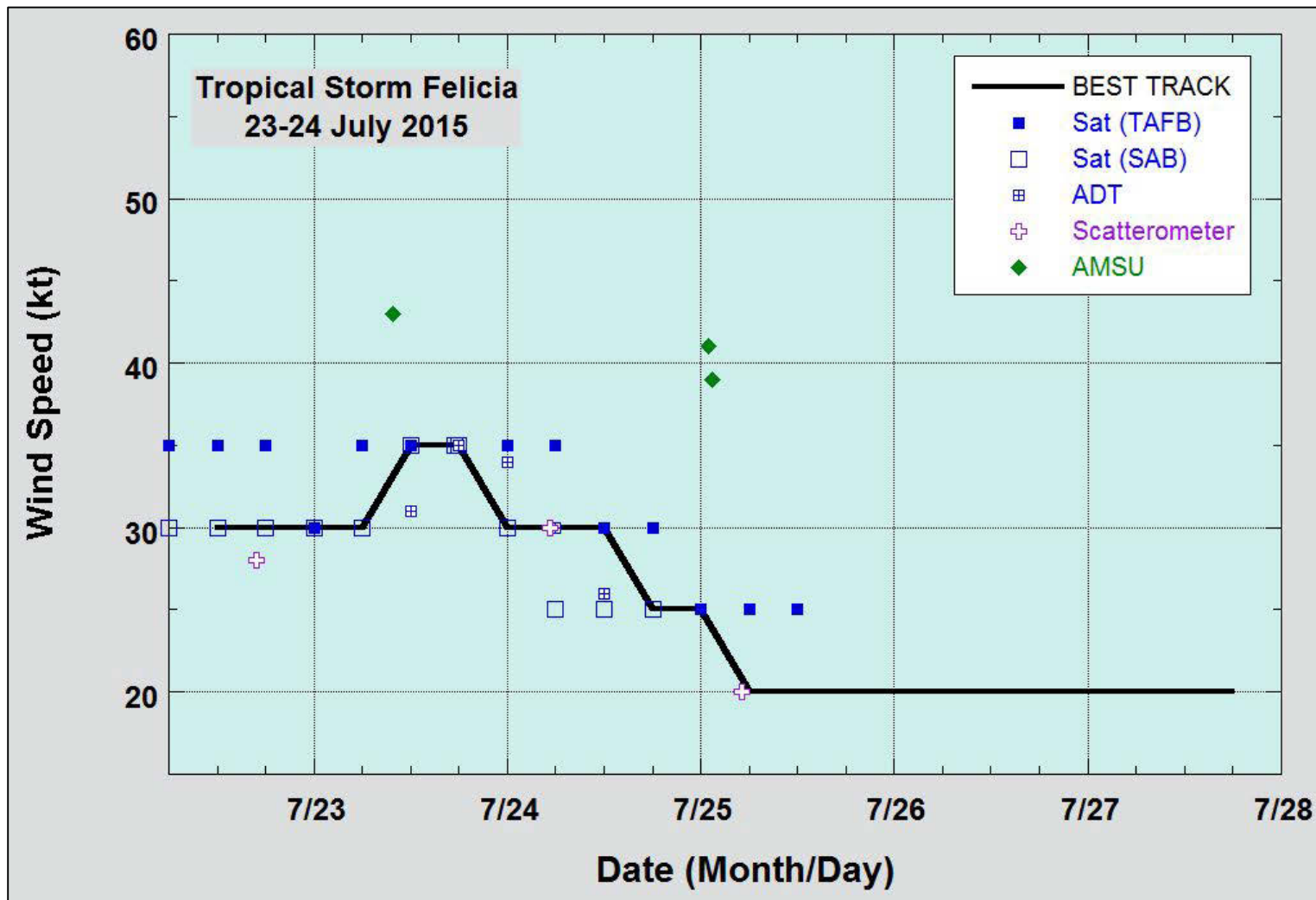


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Felicia, 23-24 July 2015. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.

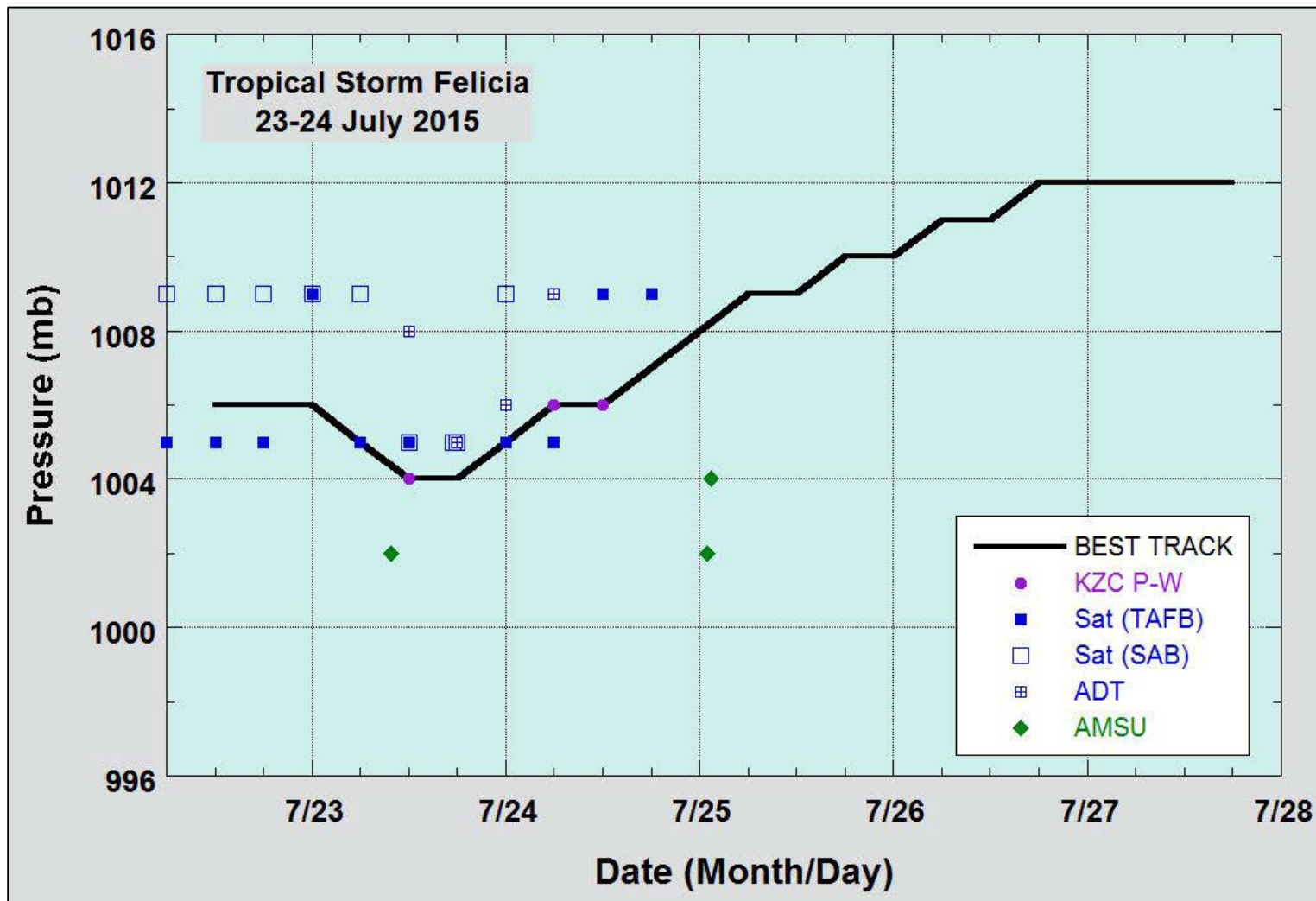


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Felicia, 23-24 July 2015. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC.