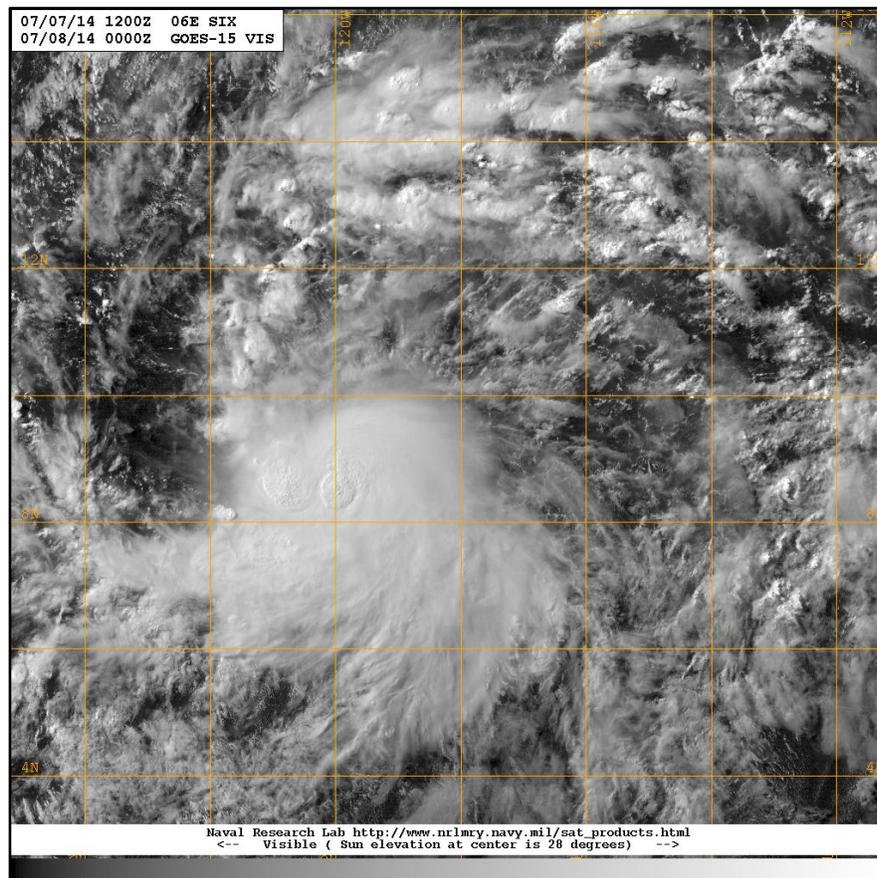# NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

TROPICAL STORM FAUSTO
(EP062014)
7 – 9 July 2014

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National Hurricane Center
31 August 2014

NOAA GOES-15 VISIBLE SATELLITE IMAGE AT 0000 UTC 8 JULY 2014 OF TROPICAL STORM FAUSTO. IMAGE COURTESY OF THE NAVAL RESEARCH LAB.

Fausto was a short-lived tropical storm that remained far from land during its life cycle.

Tropical Storm Fausto

7 – 9 JULY 2014

SYNOPTIC HISTORY

The genesis of Fausto appears to be associated with a tropical wave that moved off the west coast of Africa on 22 June. An area of disturbed weather formed along the leading edge of the wave a couple of days later, but it weakened when it reached the Caribbean Sea on 27 June. The low amplitude wave entered the east Pacific basin on 30 June, and remained relatively inactive for the next few days while it moved westward to the south of Central America and southern Mexico. On 4 July, showers and thunderstorms increased near the wave, likely aided by an eastward-moving convectively coupled Kelvin wave. An area of low pressure formed along the wave axis around 0600 UTC 6 June, when it was located about 750 n mi south-southwest of the southern tip of the Baja California peninsula. Shower and thunderstorm activity gradually became organized, and the low became a tropical depression by 1200 UTC 7 July about 950 n mi south-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 1[1].

Shortly after genesis, deep convection increased in intensity and consolidated near the center, and the system strengthened to a tropical storm with an intensity of 40 kt just 6 h after formation. The storm maintained its 40-kt intensity for about 18 h while it moved westward on the south side of a subtropical ridge. Deep convection began losing organization around 1200 UTC 8 July, likely due to the ingestion of dry air, and Fausto started to weaken. The cyclone weakened to a tropical depression by 0000 UTC 9 July while moving quickly west-northwestward. Scatterometer data indicated that Fausto's circulation was losing definition early on 9 July, and the system degenerated into a trough of low pressure before 1200 UTC that day.   The remnant trough continued westward within the Intertropical Convergence Zone (ITCZ) and moved south of the Hawaiian Islands about a week later.

METEOROLOGICAL STATISTICS

Observations in Tropical Storm Fausto (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 Cooperative Institute for Meteorological Satellite Studies/University of

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[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.

Wisconsin-Madison.   Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Tropical Rainfall Measuring Mission (TRMM), 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 Fausto.

The estimated peak intensity of 40 kt is based on two ASCAT passes around 1800 UTC 7 July that indicated winds of 35 to 38 kt.   Another ASCAT pass around 0500 UTC 8 July contained maximum winds of 37 kt.

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

CASUALTY AND DAMAGE STATISTICS

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

FORECAST AND WARNING CRITIQUE

Post-analysis of satellite data suggests that Fausto formed about 12 h before it was operationally assessed to have occurred.   This adjustment was based on the increase in convection near the center shortly after 1200 UTC 7 July and the 1800 UTC ASCAT data.   The genesis of Fausto was not well predicted.   The potential for tropical cyclone formation was introduced in the Tropical Weather Outlook issued at 0600 UTC 3 July, a little more than 4 days before genesis.   The system was assessed to have a medium chance (30 to 50%) of development in the 5-day forecast period at 1800 UTC 3 July, but the probability was dropped to the low category (< 30%) 12 h later.   The probability of development remained in the low category until the cyclone formed.   Table 2 indicates how far in advance of genesis the NHC official genesis forecasts first reached the indicated likelihood categories.

A verification of NHC official track forecasts for Fausto is given in Table 3a.   Only 5, 3, and 1 official forecasts verified at 12, 24, and 36 h, respectively.   The official track errors were generally lower than the mean official errors for the previous 5-yr period for this small sample.   A homogeneous comparison of the official track errors with selected guidance models is given in Table 3b.

A verification of NHC official intensity forecasts for Fausto is given in Table 4a.   Official forecast intensity errors were much greater than the mean official errors for the previous 5-yr period.   A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 4b.   The large errors in the official forecast and much of the guidance were due to a high bias.   Although sea surface temperatures were warm and the vertical shear was generally light, the cyclone did not strengthen as anticipated likely due to dry stable air and the cyclone's interaction with the ITCZ.

There were no watches or warnings associated with Fausto.

Table 1.   Best track for Tropical Storm Fausto, 7-9 July 2014.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
06 / 0600	10.8	113.0	1008	20	low
06 / 1200	10.7	114.0	1008	20	"
06 / 1800	10.5	115.1	1008	20	"
07 / 0000	10.1	116.1	1007	25	"
07 / 0600	9.7	117.1	1007	25	"
07 / 1200	9.5	118.1	1006	30	tropical depression
07 / 1800	9.4	119.2	1004	40	tropical storm
08 / 0000	9.4	120.3	1004	40	"
08 / 0600	9.4	121.5	1004	40	"
08 / 1200	9.6	122.8	1005	35	"
08 / 1800	10.0	124.1	1005	35	"
09 / 0000	10.6	125.5	1006	30	tropical depression
09 / 0600	11.3	127.0	1007	25	"
09 / 1200					dissipated
07 / 1800	9.4	119.2	1004	40	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 (<30%)	30	102
Medium (30%-50%)	-	90
High (>50%)	-	-

Table 3a.   NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Fausto. 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	30.4	**34.9**	**36.0**				
OCD5	36.8	67.8	109.5				
Forecasts	5	3	1				
OFCL (2009-13)	25.7	41.4	55.0	68.6	97.8	134.2	167.1
OCD5 (2009-13)	37.2	74.8	118.0	162.5	249.4	332.6	413.3

Table 3b.　　Homogeneous comparison of selected track forecast guidance models (in n mi) for Tropical Storm Fausto. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 3a due to the homogeneity requirement.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	27.6	52.4					
OCD5	36.2	81.8					
TCLP	39.0	97.4					
GFSI	28.2	**48.5**					
GHMI	28.4	82.1					
HWFI	**25.2**	**44.3**					
NGXI	**20.7**	**52.3**					
EMXI	46.8	69.4					
AEMI	29.0	**34.5**					
TVCE	28.6	**50.5**					
LBAR	**24.4**	**30.2**					
BAMD	41.3	86.0					
BAMM	28.7	60.2					
BAMS	29.8	**46.7**					
Forecasts	3	2					

Table 4a.   NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Fausto. 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	10.0	18.3	25.0				
OCD5	13.0	23.3	38.0				
Forecasts	5	3	1				
OFCL (2009-13)	6.1	10.4	13.4	14.5	15.0	16.4	16.1
OCD5 (2009-13)	7.7	12.7	16.4	18.8	20.5	20.3	20.8

Table 4b.   Homogeneous comparison of selected intensity forecast guidance models (in kt) for Tropical Storm Fausto. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 4a due to the homogeneity requirement.

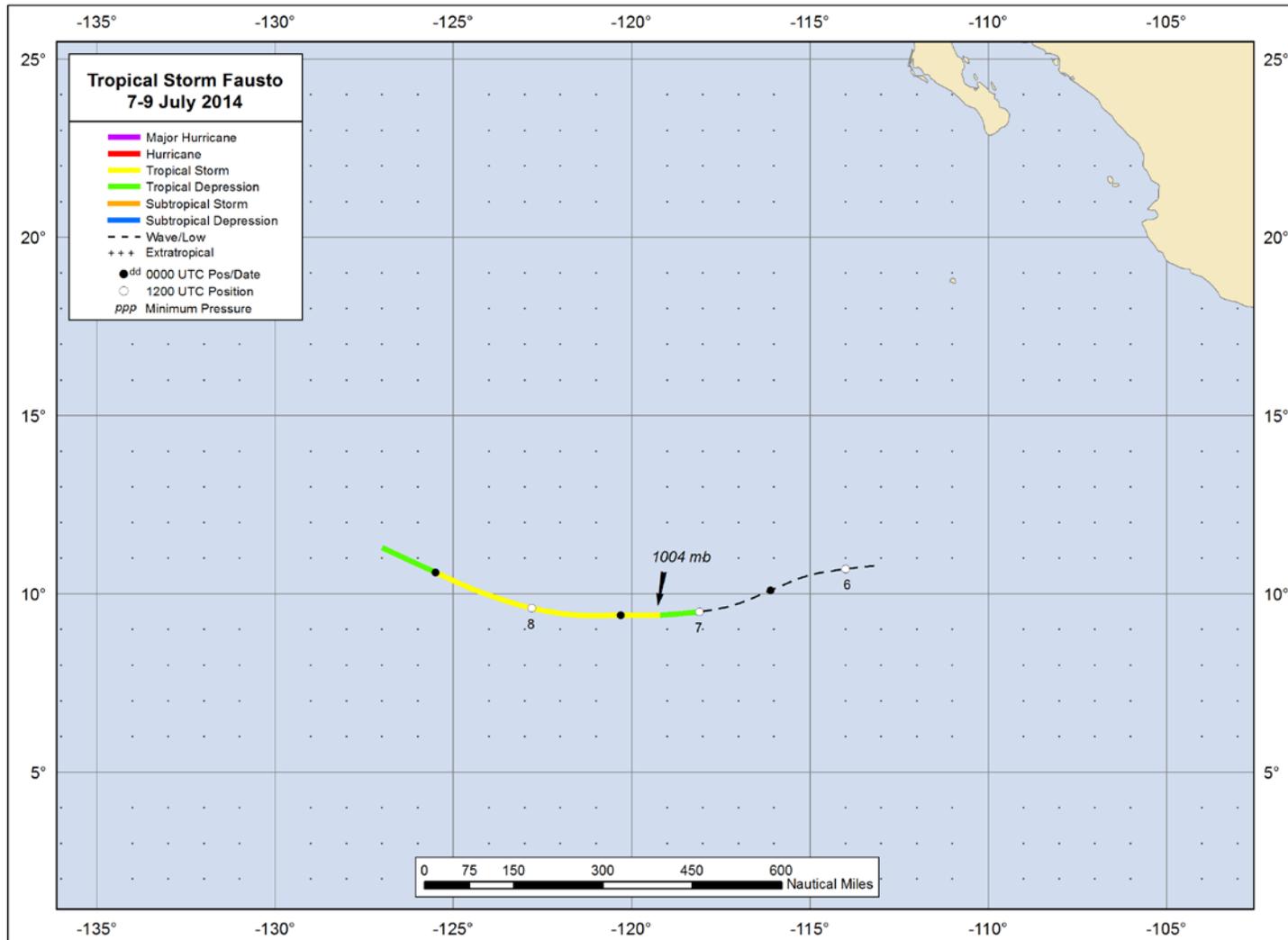| Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	11.7	22.5					
OCD5	13.0	24.5					
TCLP	**9.0**	**16.0**					
GHMI	**10.0**	**13.0**					
HWFI	13.7	26.5					
DSHP	**9.3**	**22.0**					
LGEM	**8.7**	**18.0**					
IVCN	**11.0**	**20.0**					
GFSI	**5.3**	**9.0**					
EMXI	**2.7**	**7.0**					
Forecasts	3	2					

Figure 1.   Best track positions for Tropical Storm Fausto, 7-9 July 2014.
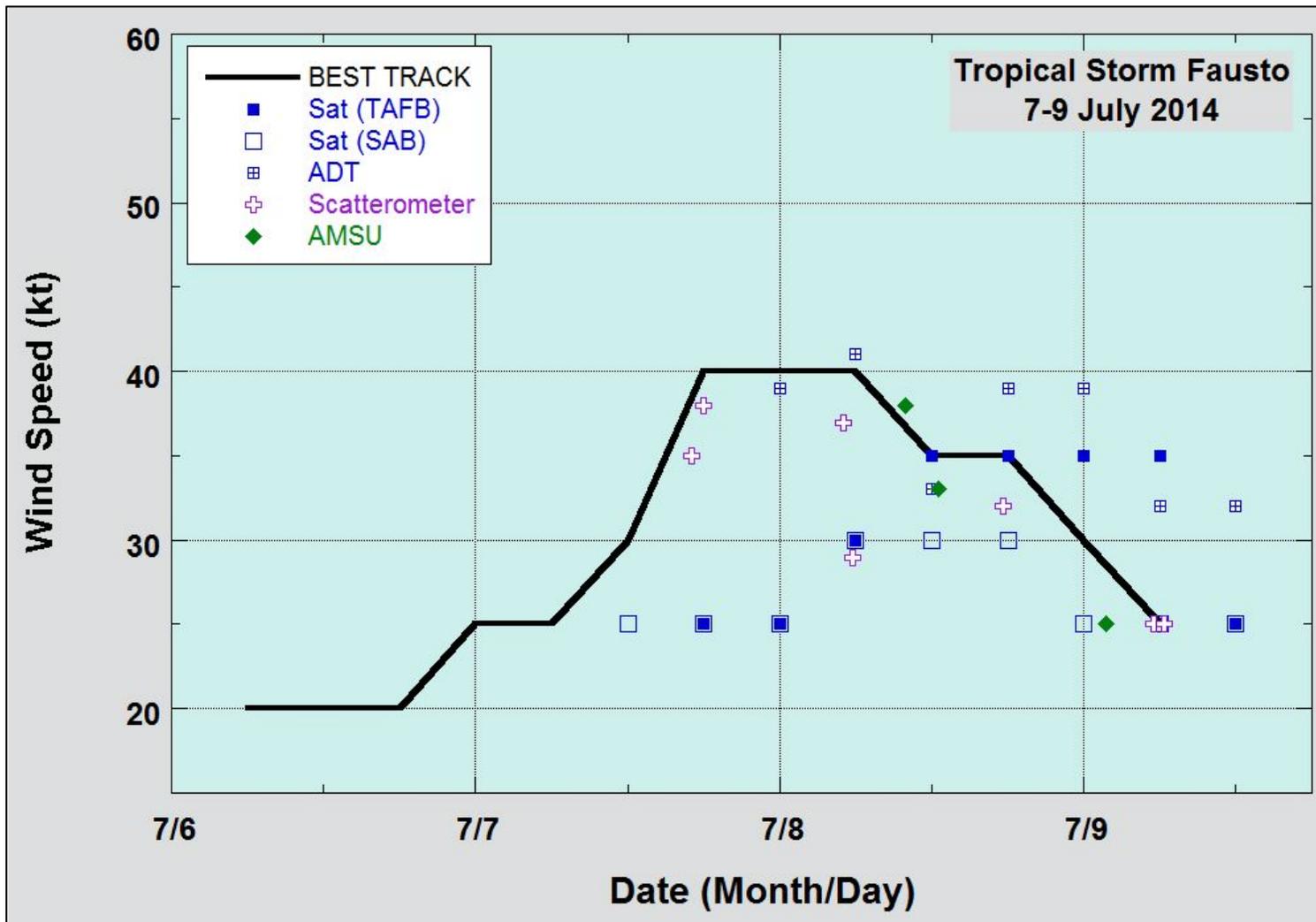
Figure 2.   Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Fausto, 7-9 July 2014.   Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique.   Dashed vertical lines correspond to 0000 UTC.
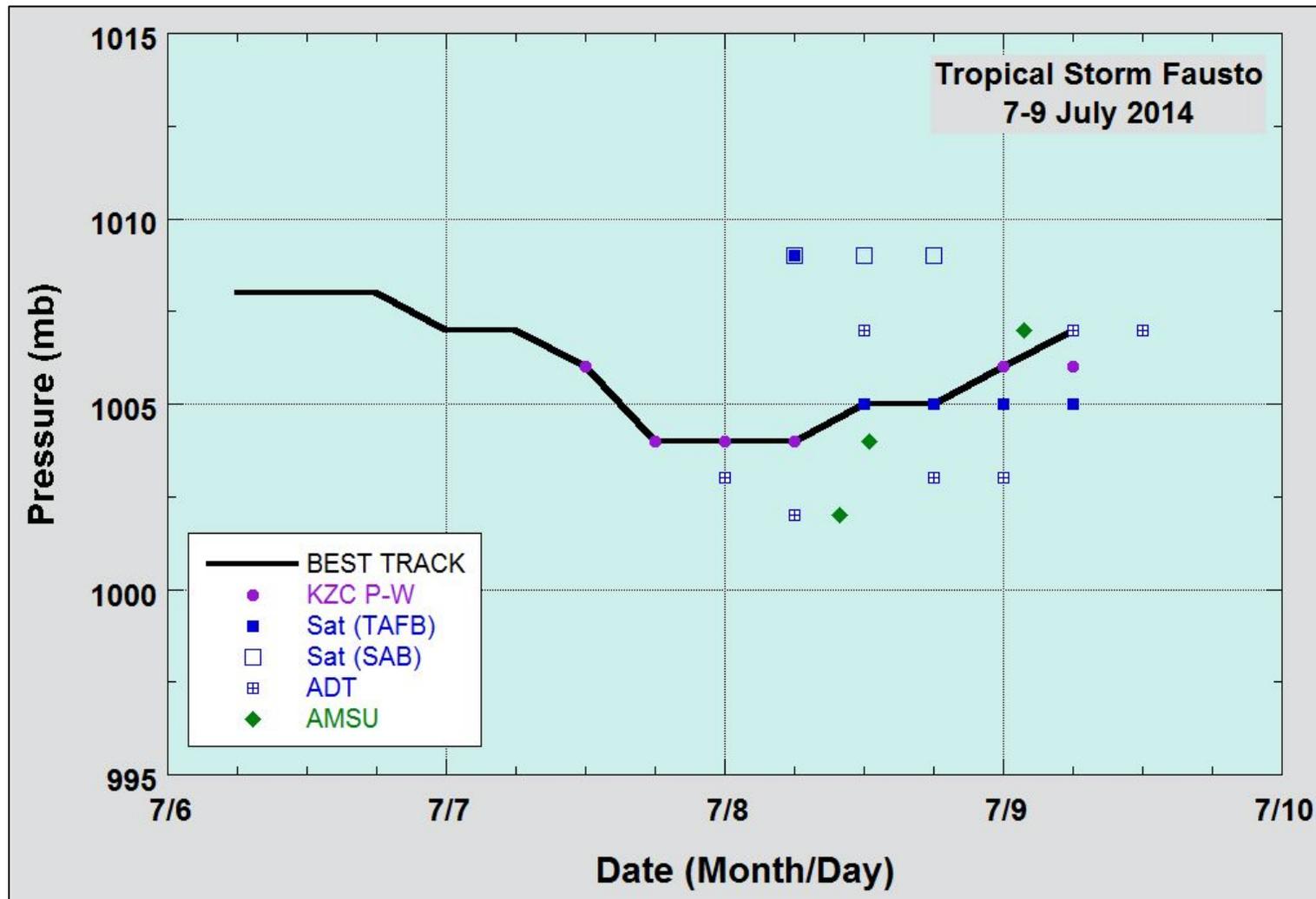
Figure 3.   Selected pressure observations and best track minimum central pressure curve for Tropical Storm Fausto, 7-9 July 2014. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for Meteorological 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.