

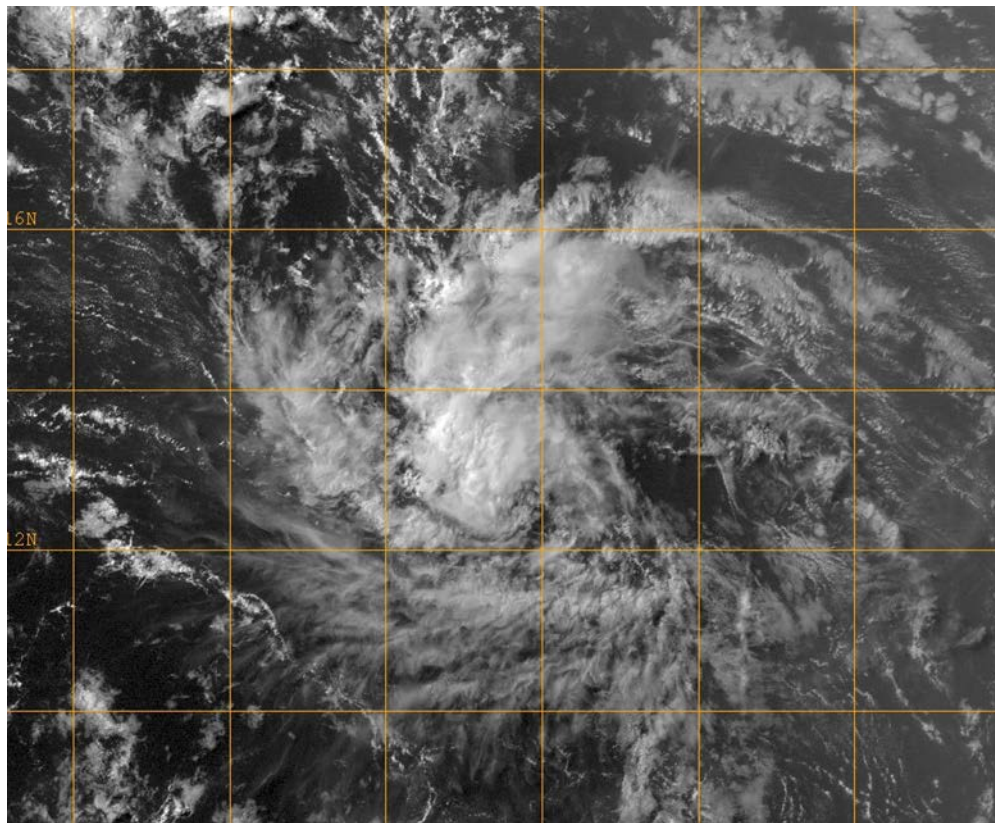


# NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

## TROPICAL DEPRESSION FOUR (AL042017)

5 –7 July 2017

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VISIBLE SATELLITE IMAGE OF TROPICAL DEPRESSION FOUR AT 1915 UTC 6 JULY 2017.

Tropical Depression Four was a short-lived cyclone which formed from a tropical wave east of the Lesser Antilles and dissipated before it reached those islands.

# Tropical Depression FOUR

5 –7 JULY 2017

## SYNOPTIC HISTORY

A tropical wave exited the west coast of Africa on 1 July, accompanied by mid-level cyclonic rotation and moderate thunderstorm activity. The wave moved westward across the tropical Atlantic for the next several days while the shower activity gradually acquired organization around a broad low pressure area. The convection became concentrated early on 5 July while a low-level circulation began to form to the east of the thunderstorm activity. It is estimated that a tropical depression formed at 1800 UTC 5 July with maximum winds of 25 kt. The depression was embedded in a dry, hostile environment and it was moving westward toward an area of high wind shear. By 1800 UTC 7 July, most of the convection had weakened and the system degenerated into a tropical wave well east of the Lesser Antilles. The wave continued westward for the next several days, producing intermittent patches of disorganized convection. The “best track” chart of the tropical cyclone’s path is given in Fig. 1, and the best track positions and intensities are listed in Table 1<sup>1</sup>.

## METEOROLOGICAL STATISTICS

Observations in Tropical Depression Four (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). 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 Tropical Depression Four. Both ASCAT and buoy data suggest that the maximum sustained winds were never higher than 25 kt.

## CASUALTY AND DAMAGE STATISTICS

There were no reports of damage or casualties associated with Tropical Depression Four.

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<sup>1</sup> 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 *bt* directory, while previous years’ data are located in the *archive* directory.



## FORECAST AND WARNING CRITIQUE

The potential for tropical cyclone development was first mentioned in the Tropical Weather Outlook (TWO) at 0600 UTC 27 June, a little less than 7 days before formation (Table 2). However, the system was removed from the TWO on the 28<sup>th</sup> and then reintroduced at 1200 UTC 1 July. A high probability of formation in 48 h was indicated 36 hours before genesis occurred.

A verification of NHC official track forecasts for Tropical Depression Four is given in Table 3. Given the short life span of the depression, there were only 5 NHC forecasts that verified at 12 h and only 3 and 1 at 24 h and 36 h, respectively. The small number of cases precludes any meaningful verification.

A verification of NHC official intensity forecasts for Tropical Depression Four is given in Table 4.

There were no coastal watches and warnings issued in association with Tropical Depression Four.



Table 1. Best track for Tropical Depression Four, 5–7 July 2017.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
05 / 1200	11.8	35.9	1010	20	low
05 / 1800	12.0	37.1	1010	25	tropical depression
06 / 0000	12.4	38.6	1010	25	"
06 / 0600	12.8	40.3	1010	25	"
06 / 1200	13.3	42.2	1009	25	"
06 / 1800	13.8	44.1	1010	25	"
07 / 0000	14.3	46.0	1011	25	"
07 / 0600	14.8	47.9	1011	25	"
07 / 1200	15.4	49.7	1011	25	"
07 / 1800					dissipated
06 / 1200	13.3	42.2	1009	25	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%)	96	156
Medium (40%-60%)	42	96
High (>60%)	36	60

Table 3. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Depression Four. 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	76.4	85.6	127.9				
OCD5	115.5	209.2	329.9				
Forecasts	5	3	1				
OFCL (2012-16)	24.9	39.6	54.0	71.3	105.8	155.4	208.9
OCD5 (2012-16)	47.3	103.9	167.8	230.3	343.1	442.6	531.0



Table 4. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Depression Four. 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	3.0	<b>5.0</b>	<b>5.0</b>				
OCD5	2.2	6.0	10.0				
Forecasts	5	3	1				
OFCL (2012-16)	5.5	8.2	10.5	12.0	13.4	14.0	14.5
OCD5 (2012-16)	7.1	10.5	13.0	15.1	17.4	18.2	20.6

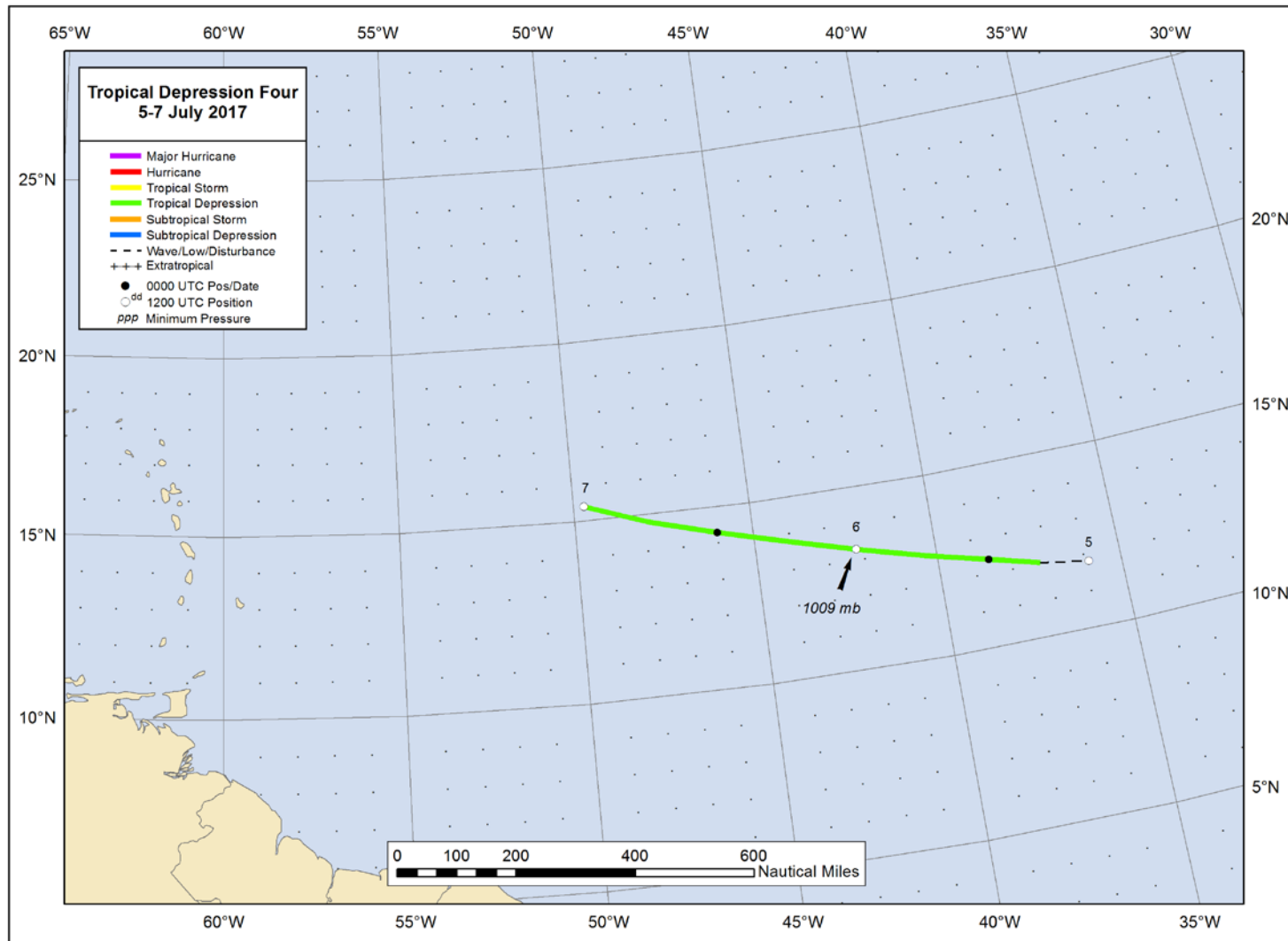


Figure 1. Best track positions for Tropical Depression Four, 5–7 July 2017.

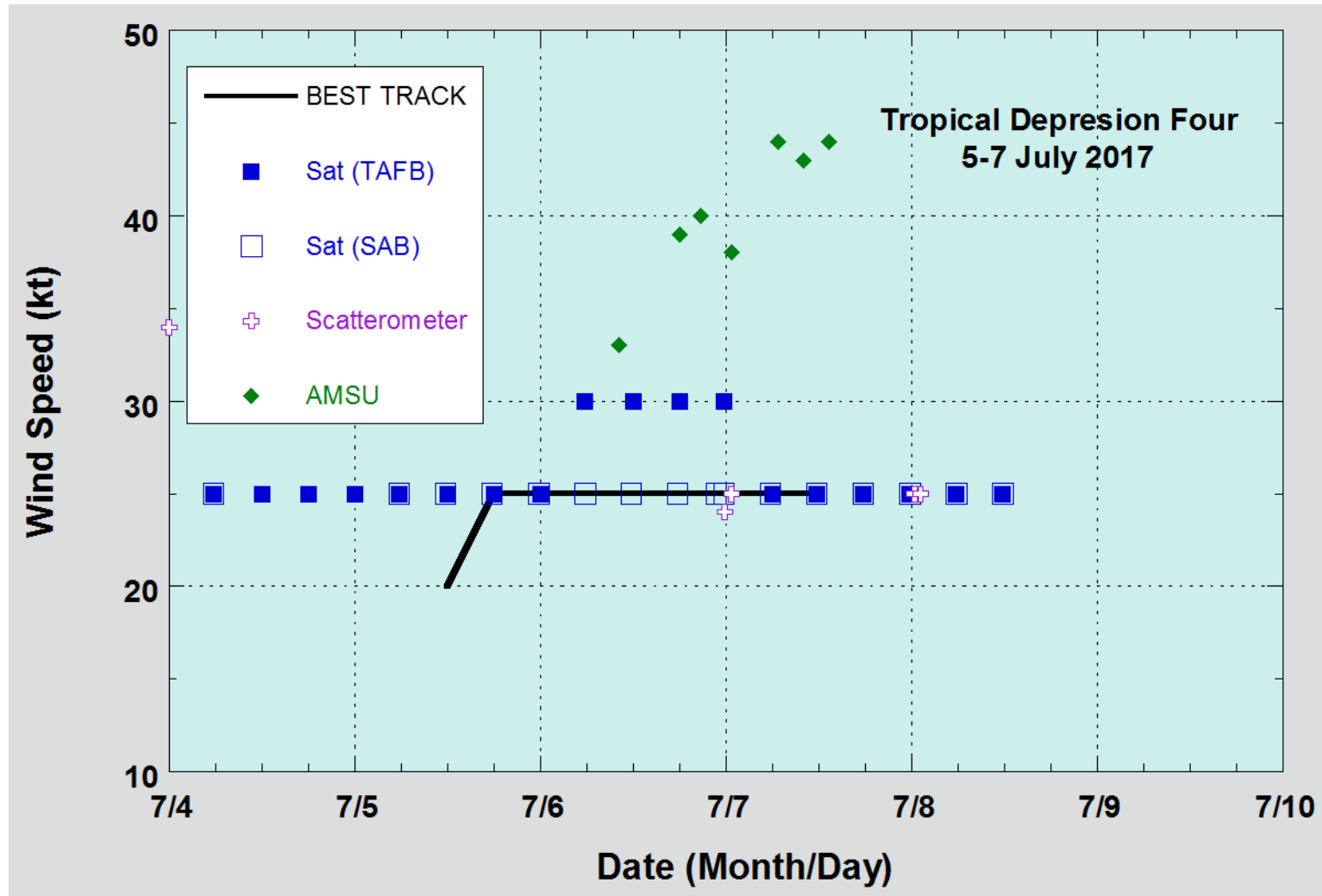


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Depression Four, 5–7 July 2017. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.



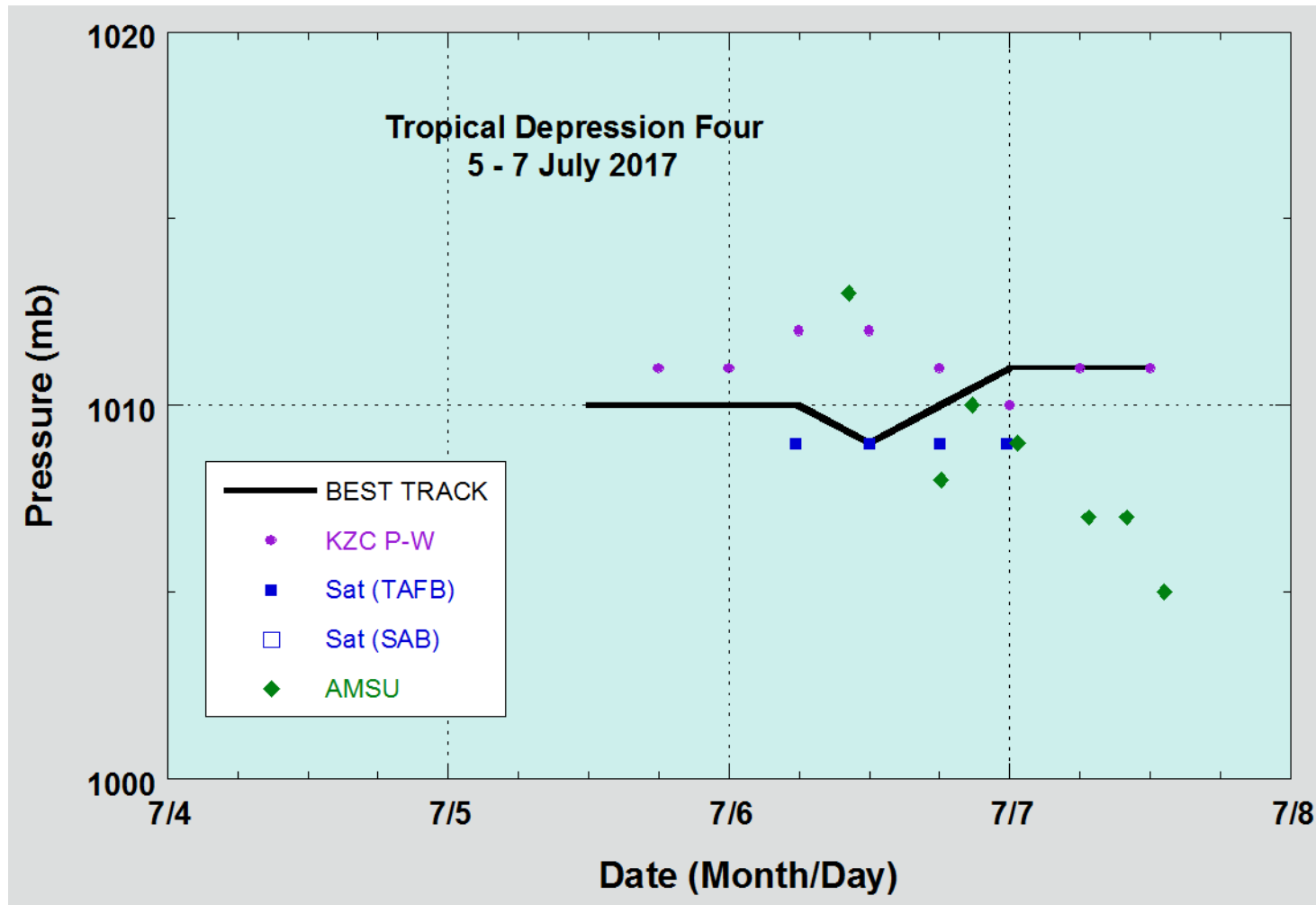


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Depression Four, 5–7 July 2017. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC.