

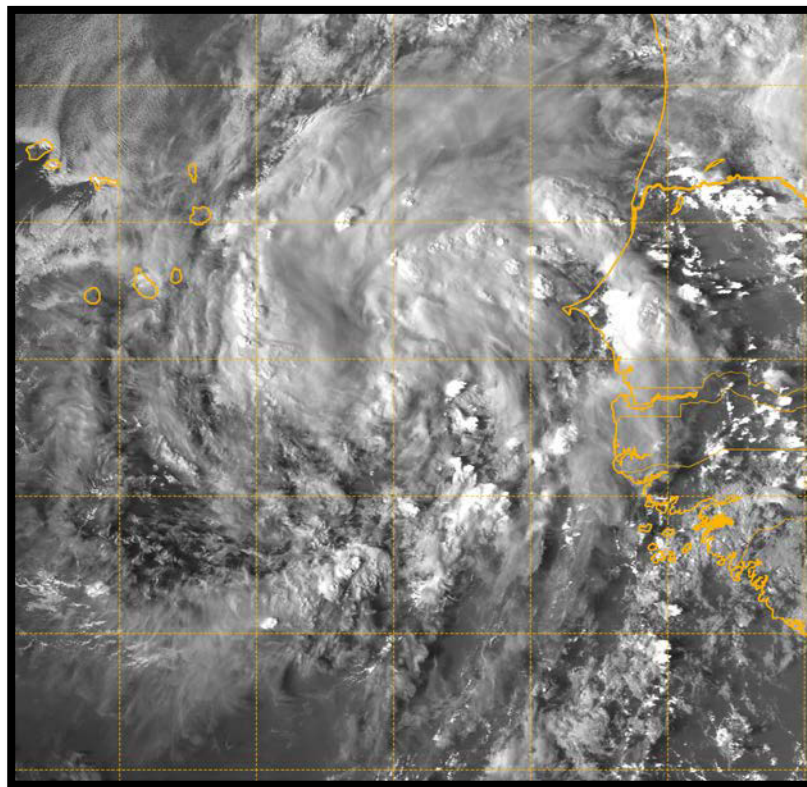


NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

TROPICAL DEPRESSION FIFTEEN (AL152019)

14–16 October 2019

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National Hurricane Center
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VISIBLE SATELLITE IMAGE AT 1800 UTC 14 OCTOBER 2019 OF TROPICAL DEPRESSION FIFTEEN BETWEEN THE WEST COAST OF AFRICA AND THE CABO VERDE ISLANDS. IMAGE COURTESY OF THE NAVAL RESEARCH LABORATORY.

Tropical Depression Fifteen was a short-lived cyclone that formed between the west coast of Africa and the Cabo Verde Islands. It encountered an unfavorable environment and quickly dissipated near those islands.

Tropical Depression Fifteen

14–16 OCTOBER 2019

SYNOPTIC HISTORY

A vigorous late-season tropical wave moved off the west coast of Africa on 13 October. The wave was accompanied by a broad area of low pressure and a circular mass of deep convection with signs of cyclonic rotation. The disturbance was producing strong gusty winds before genesis in the northern semicircle of the circulation. The broad low separated from the parent wave and moved very slowly toward the northwest, while the wave continued westward across the tropical Atlantic. The thunderstorm activity associated with the low did not increase significantly, but it became better organized while a surface circulation developed. It is estimated that a 30-kt tropical depression formed at 1200 UTC 14 October about 300 n mi southeast of the Cabo Verde Islands. 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 depression was best organized at its moment of formation. It then moved toward the northwest, and the center passed between Sal and Boa Vista in the Cabo Verde Islands during 15 and early 16 October. By then, the depression had encountered a hostile environment of high shear and dry air, and most of the shower activity was displaced to the northeast of the center, which was rapidly losing definition. The depression degenerated into a broad area of low pressure by 0600 UTC 16 October and then was steered by the low-level trade winds toward the west-northwest and west. The remnant low developed a few intermittent patches of convection until dissipation occurred by 1800 UTC 17 October.

METEOROLOGICAL STATISTICS

Observations in Tropical Depression Fifteen (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 and Satellite Consensus (SATCON) estimates from the 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 the diagnosis of the depression.

The depression’s peak intensity of 30 kt was primarily based on data from various ASCAT passes during its short life.

Since the depression was sheared with all the weather well to the northeast of the center during its track near the Cabo Verde Islands, no significant weather was reported on those islands.

CASUALTY AND DAMAGE STATISTICS

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

FORECAST AND WARNING CRITIQUE

The genesis of Tropical Depression Fifteen was fairly well forecast for a system that was still well inland over western Africa when it was introduced in the Tropical Weather Outlook (TWO) at 0600 UTC 11 October with a low (<40%) chance of formation in 5 days. Once the wave emerged off the coast at 1800 UTC 13 October, the chance of formation in the 2-day portion of the TWO increased to medium (40%–60%). However, a high chance of formation (> 60%) was assigned only 6 h before genesis. It is interesting to note that most of the global models depicted a strong tropical wave moving off the coast of Africa and predicted genesis several days before the depression formed.

Due to the depression's short existence, there were only a few verifying forecasts. Therefore, a comprehensive verification of official and guidance track and intensity forecast errors is not provided. The NHC track forecasts had average errors of 35.4 and 45.7 n mi at 12 and 24 h, respectively. Although these errors are higher than the past 5-yr averages, they are still lower than the climatology and persistent errors (OCD5). On the other hand, the NHC intensity errors of 2.5 and 7.5 kt at 12 and 24 h, respectively, were higher than climatology. NHC forecast intensification that did not materialize.

No coastal watches or warnings were issued in association with Tropical Depression Fifteen.



Table 1. Best track for Tropical Depression Fifteen 14–16 October 2019.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
14 / 1200	12.6	19.3	1006	30	tropical depression
14 / 1800	13.3	20.0	1006	30	"
15 / 0000	14.2	20.4	1006	30	"
15 / 0600	15.0	21.0	1006	30	"
15 / 1200	15.7	21.7	1006	30	"
15 / 1800	16.3	22.6	1007	30	"
16 / 0000	17.0	23.4	1009	30	"
16 / 0600	17.6	24.4	1009	25	low
16 / 1200	18.2	25.4	1009	25	"
16 / 1800	18.7	26.8	1009	25	"
17 / 0000	19.2	28.3	1009	25	"
17 / 0600	19.5	29.8	1009	25	"
17 / 1200	19.3	31.0	1009	25	"
17 / 1800					dissipated
14 / 1200	12.6	19.3	1006	30	maximum winds 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%)	36	84
Medium (40%-60%)	18	24
High (>60%)	6	18

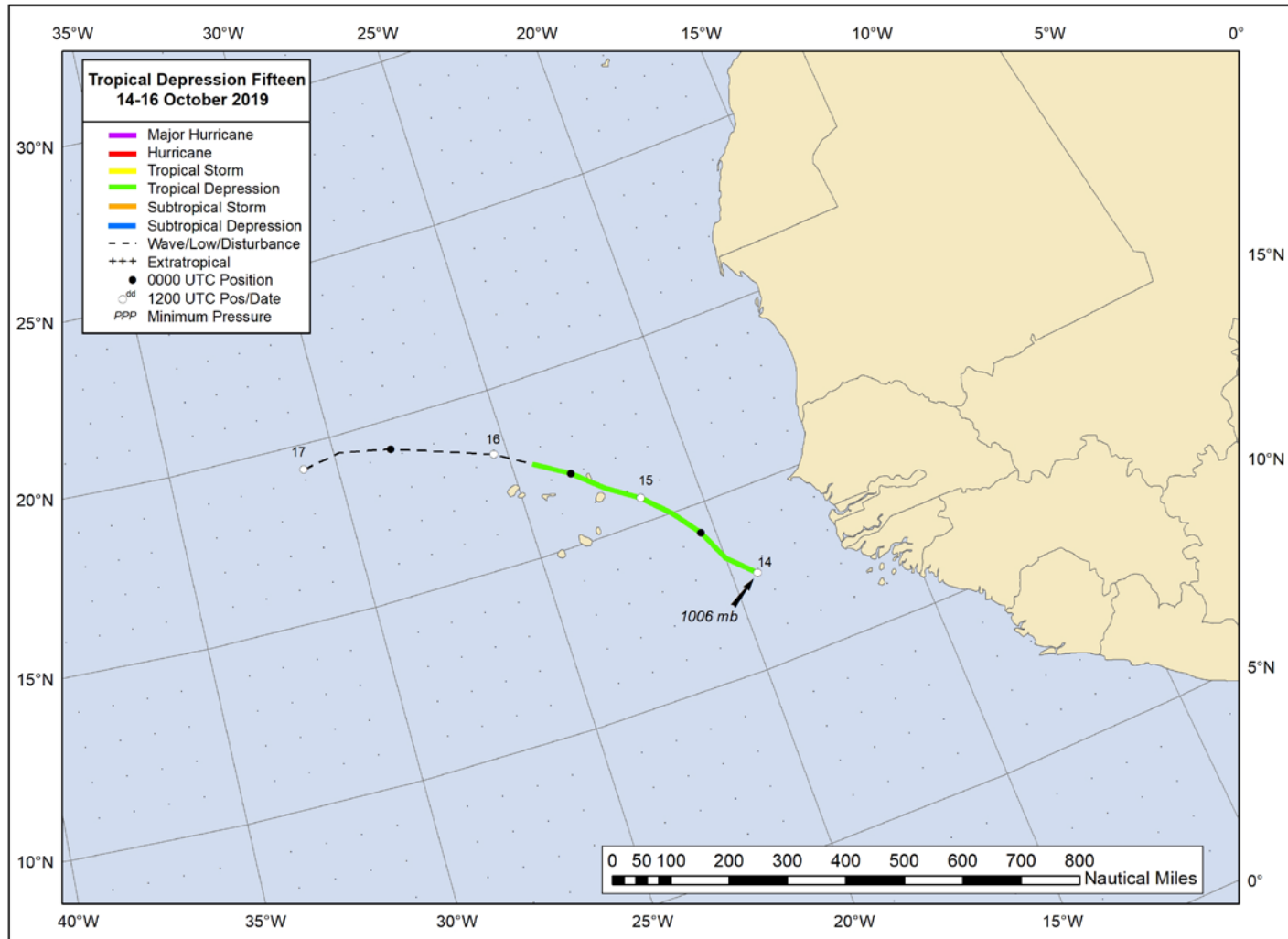


Figure 1. Best track positions for Tropical Depression Fifteen, 14–16 October 2019.

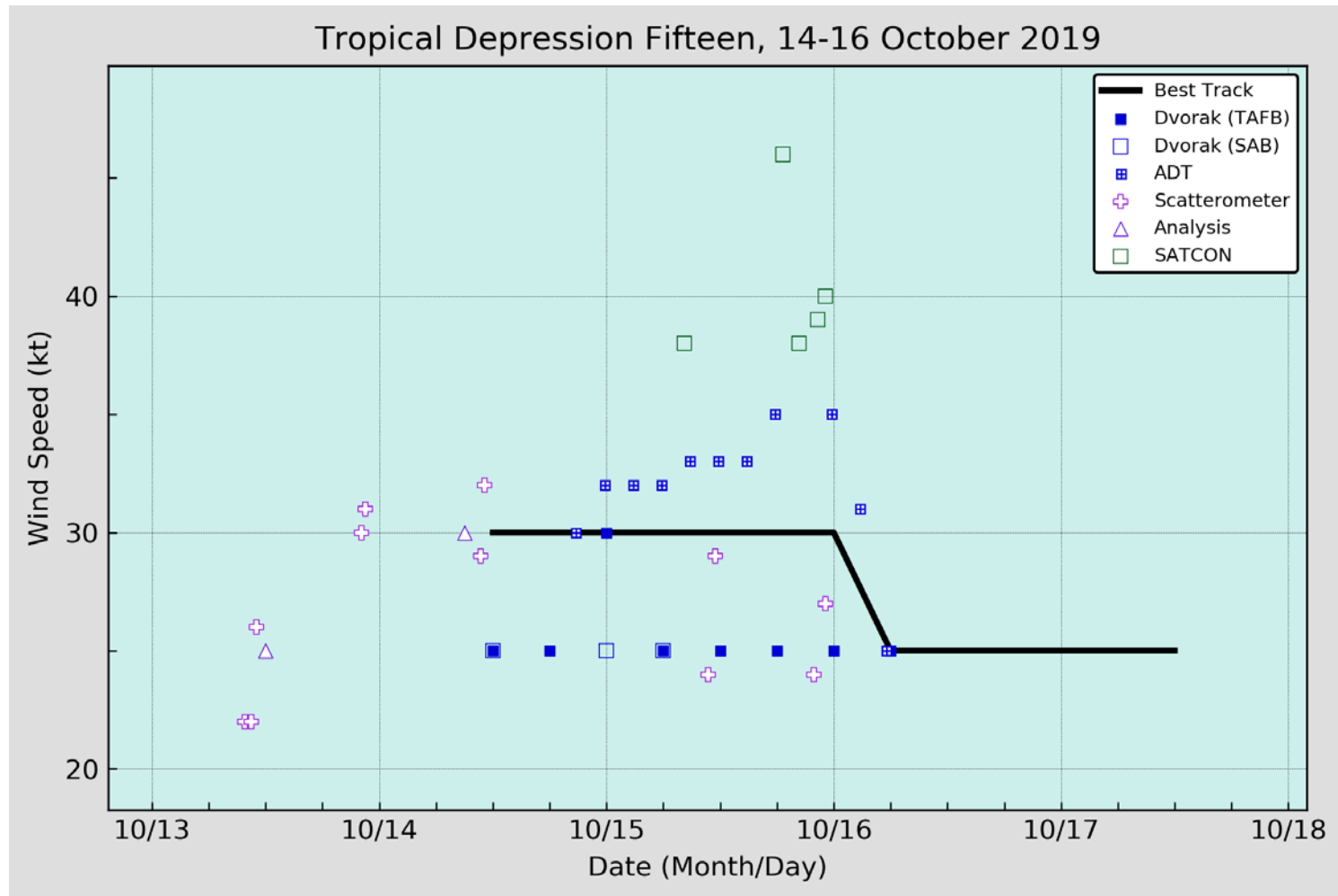


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Depression Fifteen, 14–16 October 2019. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. Dashed vertical lines correspond to 0000 UTC.

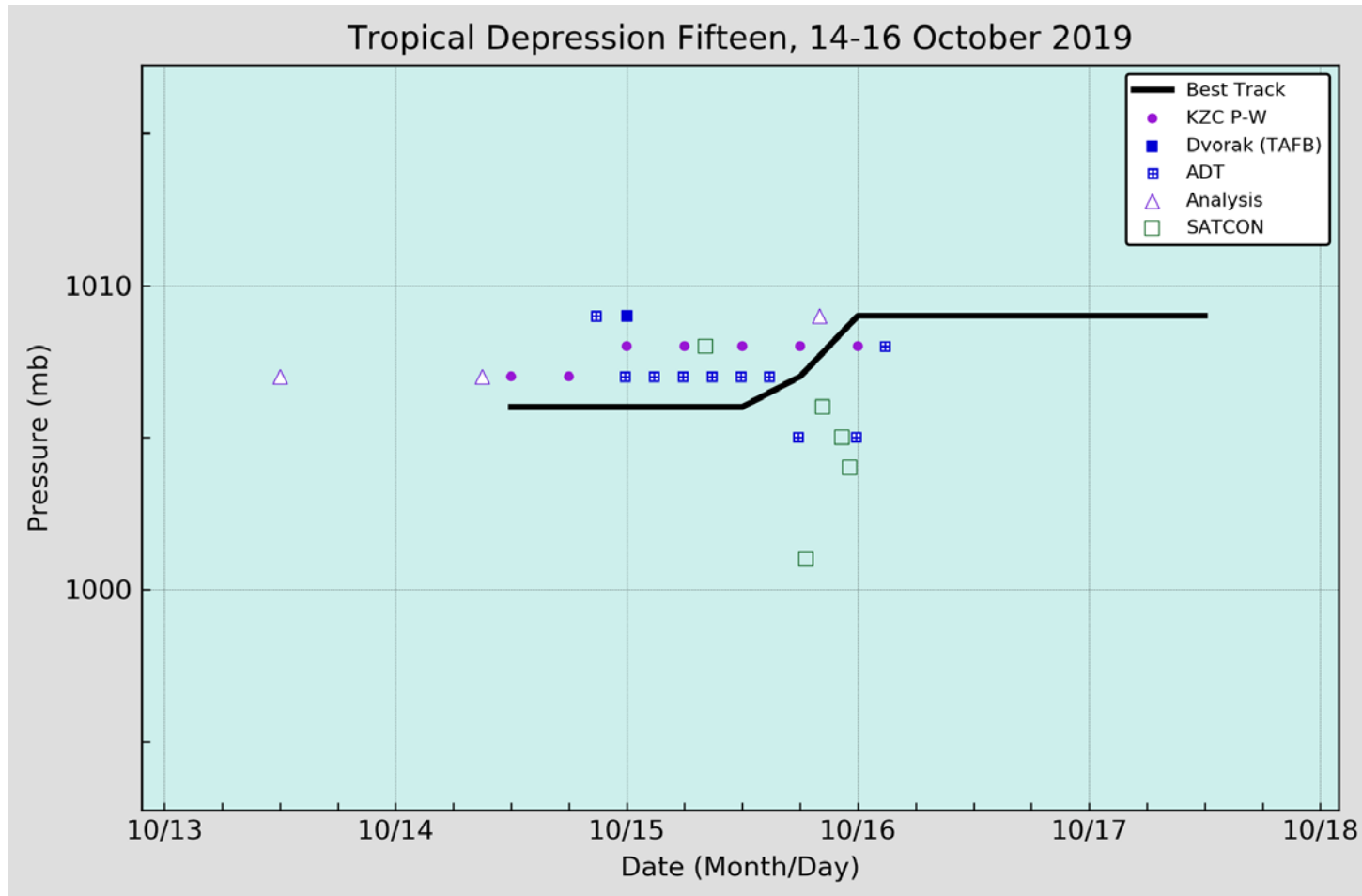


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Depression Fifteen, 14–16 October 2019. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC.