

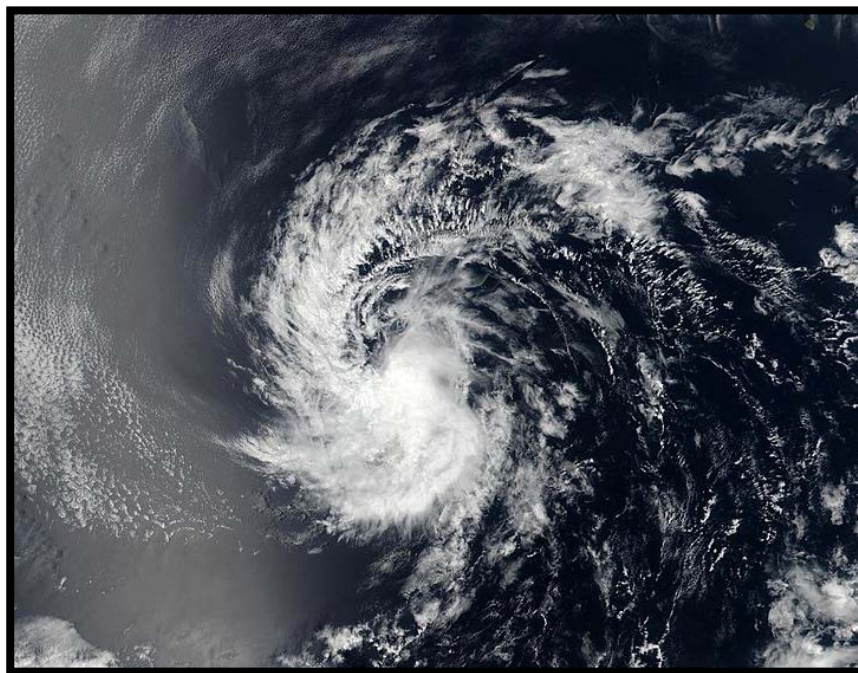


NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

TROPICAL DEPRESSION ONE-E (EP012020)

25–26 April 2020

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National Hurricane Center
30 June 2020



NASA MODIS/AQUA VISIBLE IMAGE OF TROPICAL DEPRESSION ONE-E AT 2115 UTC 25 APRIL 2020

Tropical Depression One-E developed before the official start of the eastern North Pacific hurricane season and was the earliest formation of a tropical cyclone in the basin since the satellite era began in 1966. The depression only lasted for about a day over the central part of the basin and did not affect land.

Tropical Depression One-E

25–26 APRIL 2020

SYNOPTIC HISTORY

The origin of Tropical Depression One-E appears to be a disturbance that developed within the Intertropical Convergence Zone (ITCZ) several hundred miles south of the coasts of El Salvador and Guatemala on 17 April during the passage of a convectively-coupled Kelvin wave. The area of disturbed weather moved westward and remained embedded within the ITCZ for the next several days, with showers and thunderstorms waxing and waning near the trough axis. Satellite data indicate that the system developed a well-defined center and sufficiently organized deep convection by 0600 UTC 25 April to mark the formation of a tropical depression. At the time of genesis, the depression was located over the central portion of the basin about 700 n mi southwest of the southern tip of the Baja California peninsula. The “best track” chart of the tropical depression’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 tropical depression generally moved northwestward along the southwest side of a low- to mid-level ridge during its lifetime. Deep convection was most organized near the center and in a curved band on the west side (cover image) for much of 25 April, but a combination of dry air in the nearby environment and increasing westerly vertical wind shear caused the cyclone to lose organization shortly after 0000 UTC 26 April. The depression moved over progressively cooler sea surface temperatures that day, which in combination with the hostile atmospheric environment resulted in the loss of all of its deep convection. The depression degenerated into a remnant low by 1200 UTC 26 April about 800 n mi southwest of the southern tip of the Baja California peninsula. The remnant low turned toward the west by early 27 April, and opened into a trough by 1800 UTC that day.

METEOROLOGICAL STATISTICS

Observations in Tropical Depression One-E (Figs. 2 and 3) include subjective satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB). 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

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.



(DMSP) satellites, among others, were also useful in constructing the best track of Tropical Depression One-E.

The maximum intensity of the cyclone is estimated to be 30 kt based on a blend of Dvorak intensity estimates from TAFB and ASCAT data.

CASUALTY AND DAMAGE STATISTICS

There were no reports of damage or casualties associated with Tropical Depression One-E.

FORECAST AND WARNING CRITIQUE

The genesis of Tropical Depression One-E was somewhat anticipated, but the lead times were shorter than average. Table 2 provides the number of hours in advance of formation associated with the first NHC Special Tropical Weather Outlook (TWO) forecast in each likelihood category. A Special TWO was first issued on the morning of 23 April, 40 h before genesis occurred, giving the system a medium (40–60%) chance of tropical cyclone formation during the next five days. The 48-h chance of formation was eventually raised to high (>60%) 17 h before genesis.

Due to the depression's short existence, there were only two verifying 12-h forecasts. Thus, a comprehensive verification of official and guidance track and intensity forecast errors is not provided. The two official 12-h forecasts had a mean track error of 21.3 n mi and a mean intensity error of 0.0 kt. These compare to the mean 12-h official track and intensity errors for the previous 5-yr period (2015–2019) of 21.8 n mi and 6.0 kt, respectively.



Table 1. Best track for Tropical Depression One-E, 25–26 April 2020.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
25 / 0600	13.5	115.5	1006	30	tropical depression
25 / 1200	13.8	116.0	1006	30	"
25 / 1800	14.2	116.6	1006	30	"
26 / 0000	14.6	117.2	1006	30	"
26 / 0600	15.0	117.8	1006	30	"
26 / 1200	15.5	118.5	1007	25	low
26 / 1800	16.0	119.1	1007	25	"
27 / 0000	16.4	119.9	1008	25	"
27 / 0600	16.6	120.8	1009	25	"
27 / 1200	16.8	121.8	1010	25	"
27 / 1800					dissipated
25 / 0600	13.5	115.5	1006	30	maximum wind and minimum pressure

Table 2. Number of hours in advance of formation associated with the first NHC Special 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%)	40	-
Medium (40%-60%)	30	40
High (>60%)	17	17

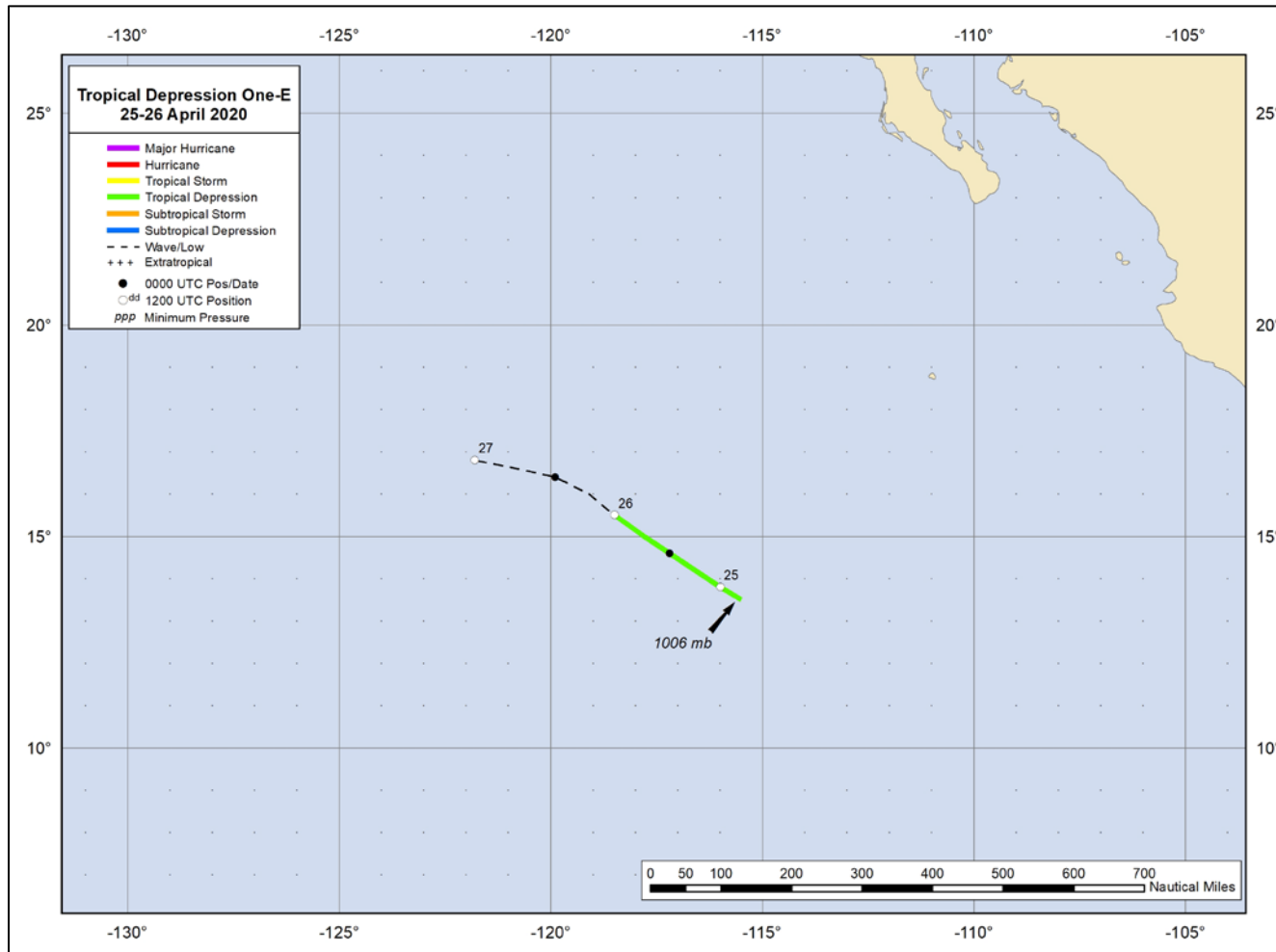


Figure 1. Best track positions for Tropical Depression One-E, 25–26 April 2020.

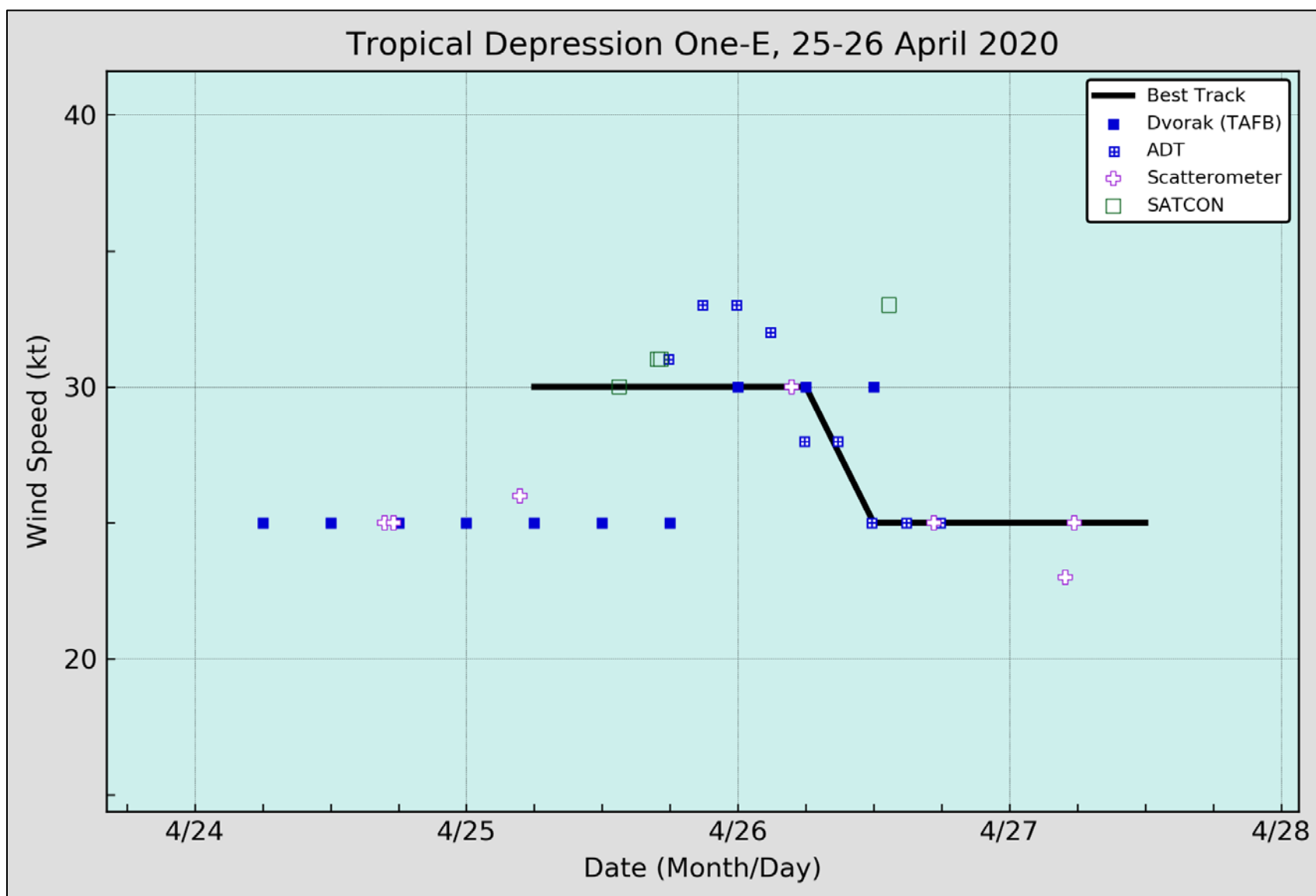


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Depression One-E, 25–26 April 2020. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.

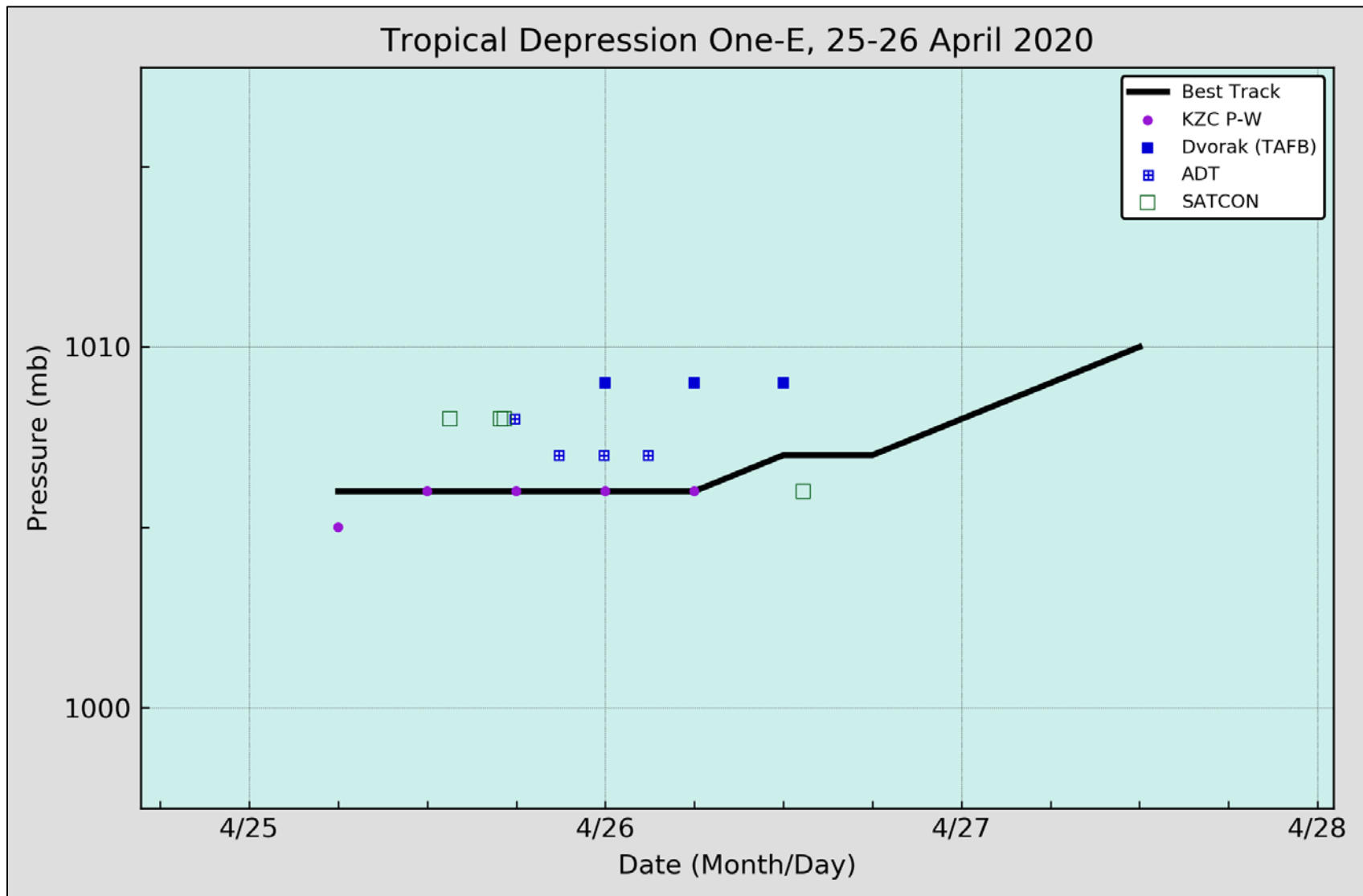


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Depression One-E, 25–26 April 2020. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC.