NATIONAL HURRICANE CENTER
TROPICAL CYCLONE REPORT

TROPICAL STORM PRISCILLA

(EP162013)

14 – 16 October 2013

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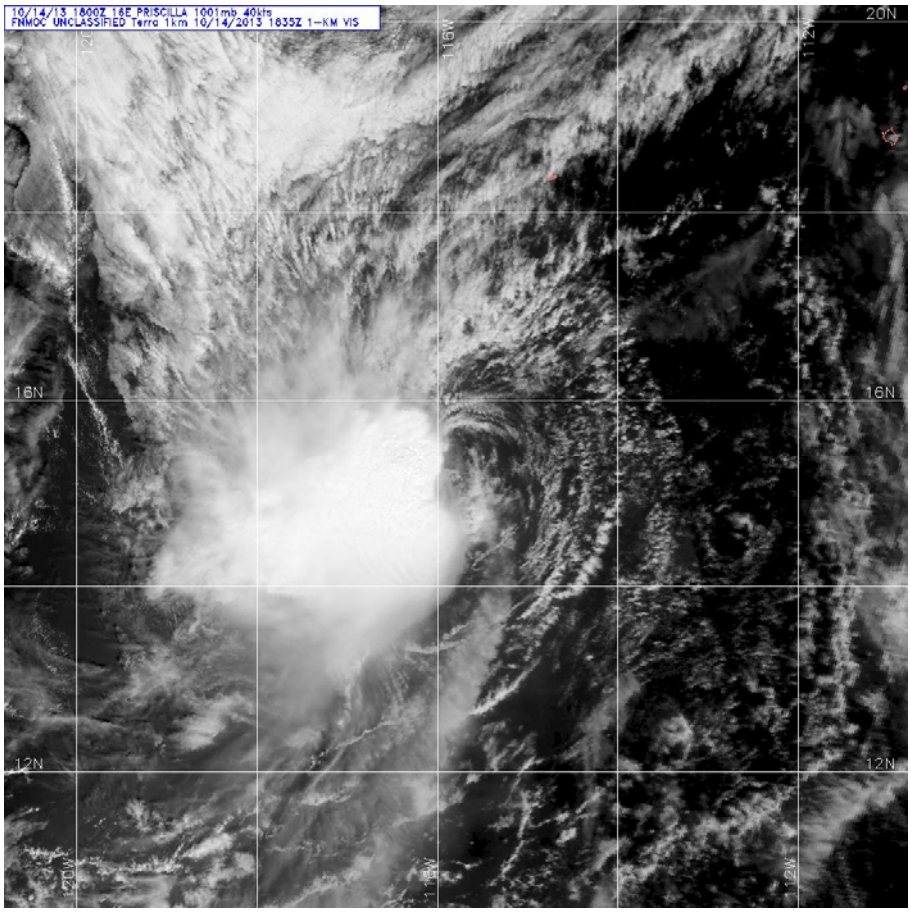

MODIS VISIBLE IMAGE OF TROPICAL STORM PRISCILLA FROM THE TERRA SATELLITE AT 1635 UTC 14 OCTOBER. IMAGE COURTESY OF NASA AND NRL MONTEREY.

Priscilla was a short-lived tropical storm that had no reported impacts.

Tropical Storm Priscilla

14 – 16 OCTOBER 2013

SYNOPTIC HISTORY

Priscilla formed from a convective cluster that developed along the Intertropical Convergence Zone (ITCZ) south-southwest of the Baja California peninsula on 7-8 October. The system may have been related to a tropical wave that emerged from the coast of Africa on 16 September and spawned Atlantic Tropical Storm Karen on 3 October. However, the portion of this wave that moved into the eastern Pacific was very weak, and it is unclear how much of a role it played in the genesis of Priscilla. The disturbance moved little during the next several days as it became embedded in a large-scale low-level circulation in the ITCZ. A second disturbance to the east moved to within a few hundred n mi of the Priscilla precursor system on 10-11 October, and this became Tropical Storm Octave on 12-13 October. Despite moderate vertical wind shear caused by the proximity of Octave, the original western disturbance showed increased organization on 12-13 October, and it is estimated that a tropical depression formed around 0000 UTC 14 October about 705 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].

The depression moved north-northeastward and northward along the western side of a mid-level ridge over Mexico. Scatterometer data showed that the cyclone strengthened into a tropical storm a few hours after genesis, and it reached an estimated peak intensity of 40 kt later on 14 October. Subsequently, a combination of motion over decreasing sea surface temperatures and continued shear stopped development and caused Priscilla to weaken. The cyclone turned west-northwestward on 15 October, and late that day it weakened to a tropical depression. Convection dissipated on 16 October, and the system degenerated to a remnant low around 1800 UTC that day while centered about 620 n mi west-southwest of the southern tip of the Baja California peninsula. The remnant low turned westward on 17 October and continued this motion until it dissipated late the next day.

METEOROLOGICAL STATISTICS

Observations in Priscilla (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

[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.

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 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 Priscilla.

There were no surface reports of tropical-storm-force winds from Priscilla.

CASUALTY AND DAMAGE STATISTICS

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

FORECAST AND WARNING CRITIQUE

The genesis of Priscilla was poorly forecast. The system was first mentioned in the Tropical Weather Outlook (TWO) only 24 h prior to genesis, at which time it was give a low (less than 30%) chance of development in both the short (48 h or less) and medium (120 h or less) ranges. This was raised to a medium (30-50%) chance (6 h before genesis, and to a high (greater than 50%) chance in a Special TWO about 2 h before genesis. The poor genesis forecasts resulted from the belief that the proximity of the disturbance to Tropical Storm Octave would prevent development. The lead time provided for each genesis likelihood category, beginning with the time that the system was introduced into the TWO, is given in the table below.

	Hours Before Genesis	
	48-Hour Outlook	**120-Hour Outlook**
Low (<30%)	24	24
Medium (30%-50%)	6	6
High (>50%)	2	2

A verification of NHC official track forecasts for Priscilla is given in Table 2a. Official forecast track errors were lower than the mean official errors for the previous 5-yr period for 12-36 h, and greater than the previous 5-yr errors at 48 h. A homogeneous comparison of the official track errors with selected guidance models is given in Table 2b. Several of the track forecast guidance models had lower errors than the official forecasts, although the number of forecasts is small. The variable consensus model TVCE had the best overall performance.

A verification of NHC official intensity forecasts for Priscilla is given in Table 3a. Official forecast intensity errors were again lower than the mean official errors for the previous 5-yr period for 12-36 h, and greater than the previous 5-yr errors at 48 h. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 3b. While the number of forecasts is again small, most of the intensity guidance had lower errors than the official forecasts from 24-48 h. While the official forecasts correctly anticipated limited strengthening followed by weakening and a quick demise of the cyclone, they had a positive bias due to Priscilla strengthening less than forecast.

Coastal watches and warnings were not necessary for Priscilla.

Table 1. Best track for Tropical Storm Priscilla, 14 – 16 October 2013.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
13 / 1200	12.5	116.8	1005	25	low
13 / 1800	12.5	116.7	1005	25	"
14 / 0000	12.7	116.2	1003	30	tropical depression
14 / 0600	13.7	115.8	1002	35	tropical storm
14 / 1200	14.7	115.6	1001	40	"
14 / 1800	15.4	115.7	1001	40	"
15 / 0000	16.1	115.8	1003	35	"
15 / 0600	16.9	115.9	1004	35	"
15 / 1200	17.3	116.3	1004	35	"
15 / 1800	17.5	117.0	1005	30	tropical depression
16 / 0000	17.6	117.7	1006	30	"
16 / 0600	17.8	118.4	1006	30	"
16 / 1200	18.1	119.2	1007	30	"
16 / 1800	18.5	120.0	1008	25	low
17 / 0000	19.0	120.7	1008	25	"
17 / 0600	19.2	121.6	1009	25	"
17 / 1200	19.1	122.6	1009	25	"
17 / 1800	18.9	123.5	1009	25	"
18 / 0000	18.8	124.2	1009	25	"
18 / 0600	18.7	124.9	1009	20	"
18 / 1200	18.6	125.4	1009	20	"
18 / 1800					dissipated
14 / 1200	14.7	115.6	1001	40	maximum winds and minimum pressure

Table 2a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Priscilla, 14 – 16 October 2013. 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	**21.5**	**26.3**	**51.6**	126.8			
OCD5	16.2	105.5	175.6	248.7			
Forecasts	8	6	4	2			
OFCL (2008-12)	27.0	43.1	57.8	71.9			
OCD5 (2008-12)	37.4	73.0	114.9	158.3			

Table 2b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Tropical Storm Priscilla, 14 – 16 October 2013. 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 2a due to the homogeneity requirement.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	20.4	22.3	30.6	78.4			
OCD5	43.0	117.8	191.9	292.3			
GFSI	**19.0**	27.7	41.0	**61.1**			
GHMI	26.2	46.0	93.8	117.0			
HWFI	28.4	39.8	**19.9**	**48.3**			
EMXI	25.6	28.1	**13.4**	**20.9**			
CMCI	39.7	93.8	194.0	239.6			
TVCE	**20.1**	25.4	**26.3**	**55.8**			
FSSE	**19.6**	**20.1**	31.1	83.5			
AEMI	**19.3**	27.8	52.8	107.3			
BAMS	30.2	50.9	53.3	117.5			
BAMM	29.3	67.7	101.4	170.1			
BAMD	47.2	87.0	104.0	121.2			
Forecasts	5	5	3	1			

Table 3a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Priscilla, 14 – 16 October 2013. 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	**2.5**	**7.5**	**12.5**	15.0			
OCD5	4.6	8.3	11.5	15.0			
Forecasts	8	6	4	2			
OFCL (2008-12)	6.3	10.5	13.4	14.5			
OCD5 (2008-12)	7.6	12.5	16.5	18.8			

Table 3b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Tropical Storm Priscilla, 14 – 16 October 2013. 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	4.0	7.0	11.7	20.0			
OCD5	6.0	7.4	**9.0**	**11.0**			
HWFI	**3.6**	**5.0**	12.7	36.0			
GHMI	4.6	**4.2**	**11.0**	**12.0**			
DSHP	5.4	**6.0**	**10.0**	**17.0**			
LGEM	5.8	**6.0**	**10.0**	**15.0**			
ICON	5.0	**5.4**	**10.7**	25.0			
IVCN	5.0	**5.4**	**10.7**	25.0			
FSSE	5.8	8.4	15.7	26.0			
Forecasts	5	5	3	1			

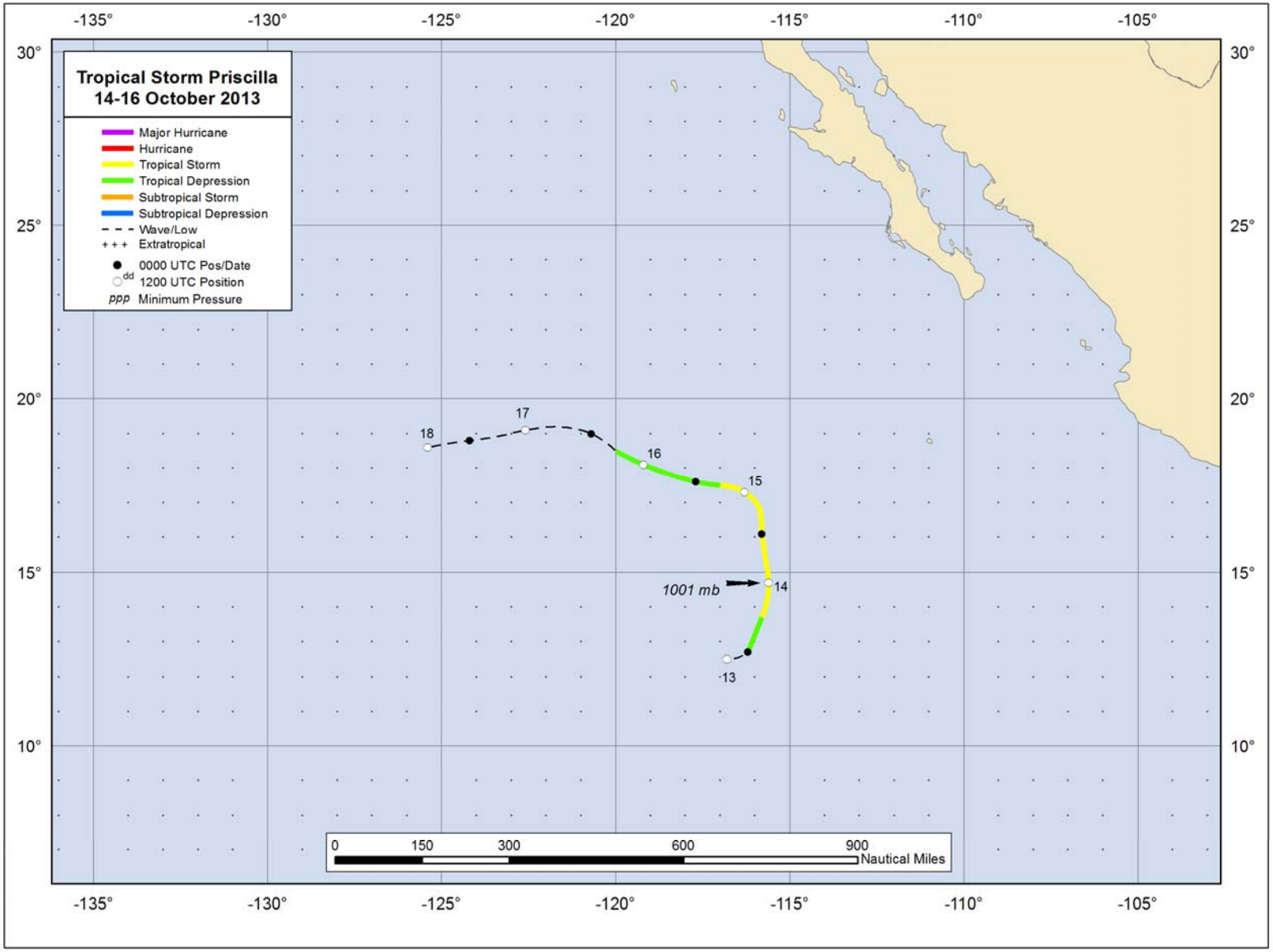

Figure 1. Best track positions for Tropical Storm Priscilla, 14 – 16 October 2013.

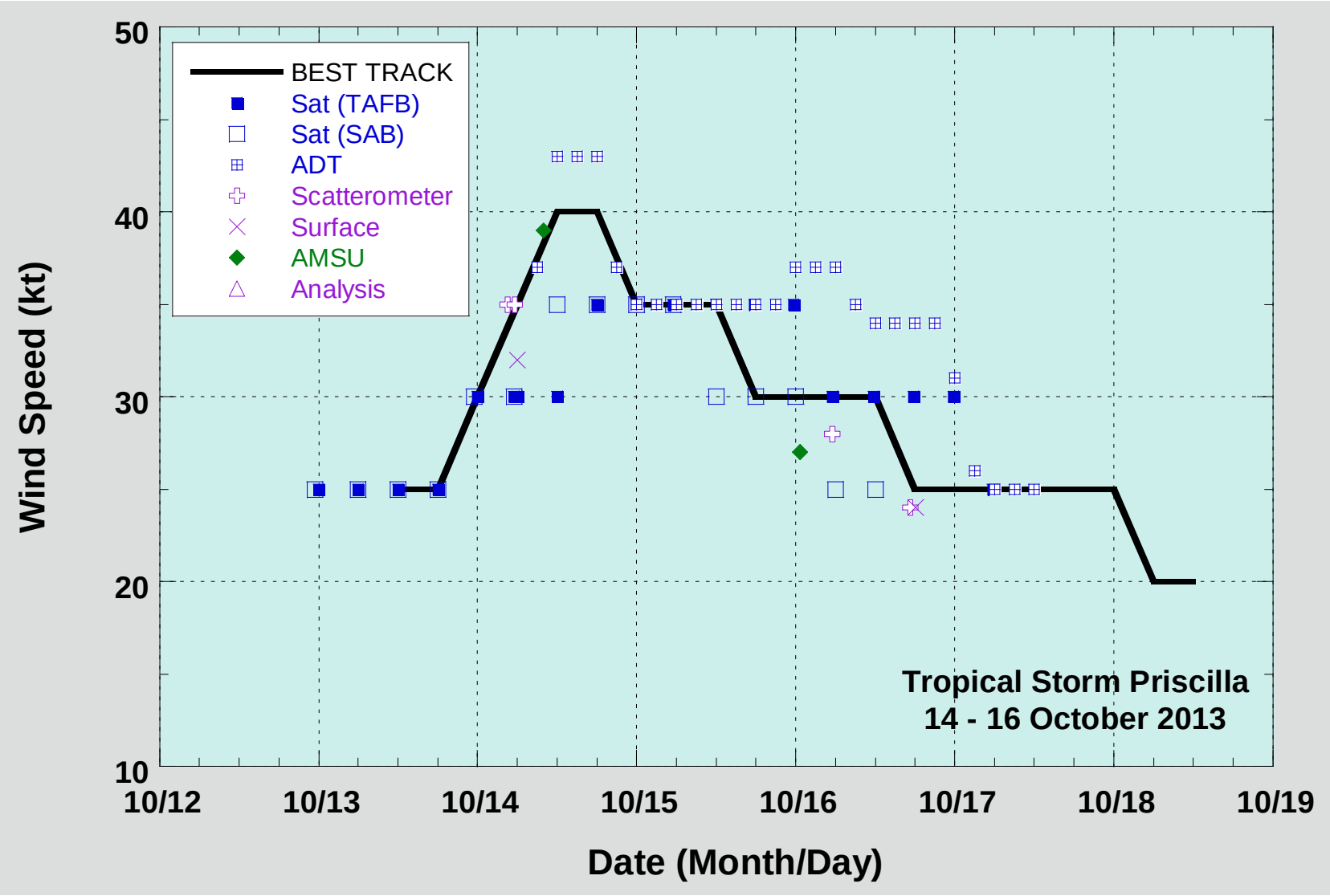

Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Priscilla, 14 – 16 October 2013. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.

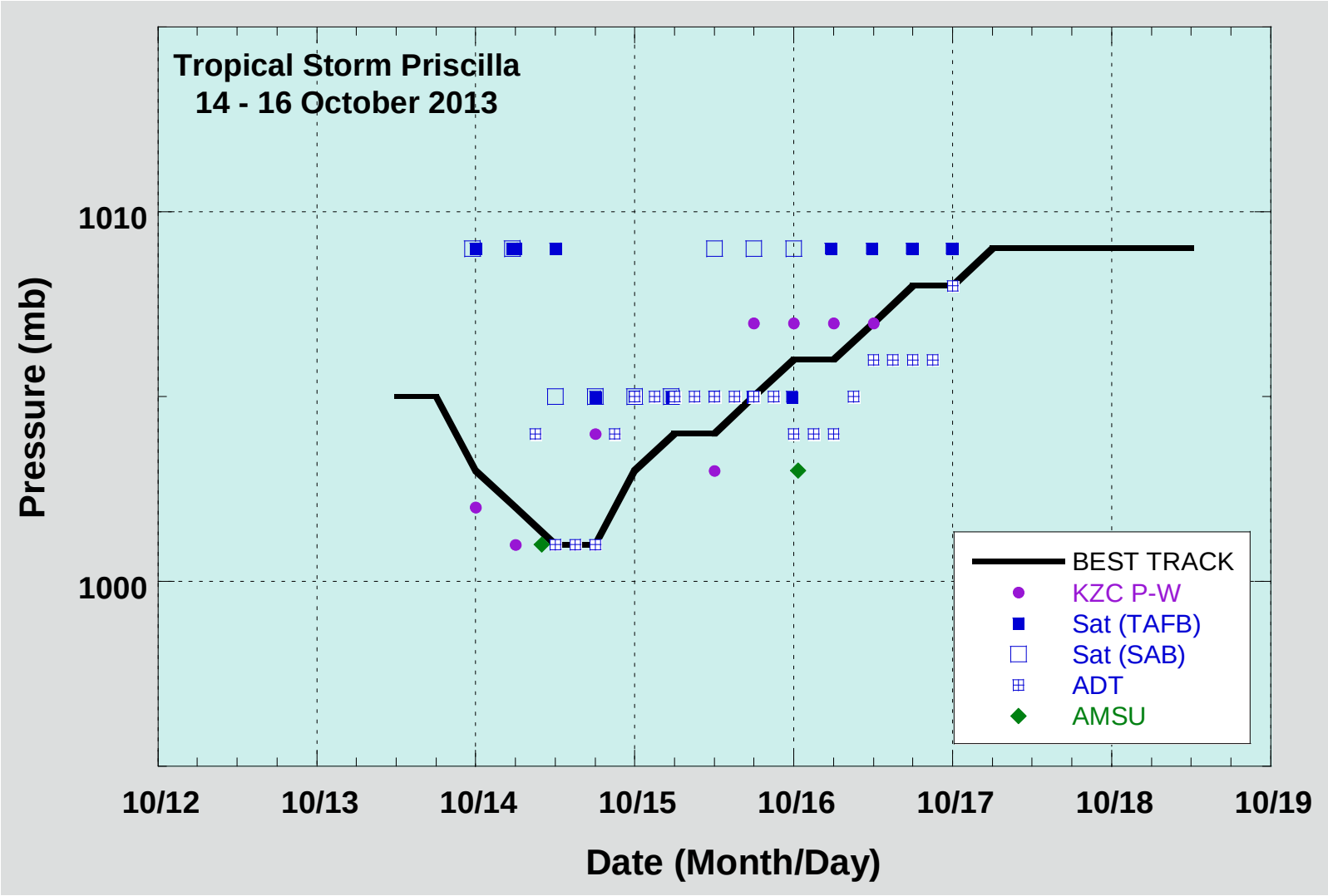

Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Priscilla, 14 – 16 October 2013. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. AMSU intensity estimates are from the Cooperative Institute for 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.