

Tropical Cyclone Report
Tropical Storm Oscar
(AL152012)
3-5 October 2012

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Oscar was a short-lived tropical storm over the eastern Atlantic Ocean that did not affect land.

a. Synoptic History

The origin of Oscar can be traced to a tropical wave and an accompanying broad area of low pressure that departed the west coast of Africa on 28 September. The low pressure area remained poorly organized for the next few days as it moved westward across the eastern Atlantic Ocean. By early 2 October, however, satellite images and data from NOAA buoy 41026 indicate that a well-defined low pressure system had developed. Deep convection gradually increased later that day and became sufficiently organized for the cyclone to be classified a tropical depression by 0600 UTC 3 October, when it was centered about 900 n mi west of the Cape 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 best track positions and intensities are listed in Table 1¹.

After genesis the depression moved north-northwestward at about 15 kt between a mid-level ridge near the Cape Verde Islands and a mid- to upper-level low to the northeast of the Leeward Islands. Deep convection became more concentrated near and to the east of the center of the depression, and the cyclone strengthened to a tropical storm by 1800 UTC 3 October. After that time, strong shear began affecting Oscar, causing the low-level center to become exposed to the west of the deep convection. Although the cloud pattern was more asymmetric, convection had deepened to the east of the center and data from the European Space Agency’s Advanced Scatterometer (ASCAT) indicate that Oscar strengthened. Oscar reached its peak intensity of 45 kt by 1200 UTC 4 October when the system was located about 950 n mi west-northwest of the Cape Verde Islands. The storm then maintained its intensity for about another day as it turned northeastward and accelerated ahead of an approaching cold front. While moving northeastward, the circulation became elongated and satellite images and ASCAT data indicate that Oscar degenerated into a trough shortly after 1200 UTC 5 October. The remnant trough was absorbed by the cold front around 0000 UTC 6 October.

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 *bt* directory, while previous years’ data are located in the *archive* directory.

b. Meteorological Statistics

Observations in Oscar (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 Wisconsin-Madison. Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Tropical Rainfall Measuring Mission (TRMM), ASCAT, and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Oscar.

The 45-kt analyzed peak intensity of Oscar from 1200 UTC 4 October to 1200 UTC 5 October is based on three ASCAT passes, each with maximum winds of around 40 kt.

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

c. Casualty and Damage Statistics

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

d. Forecast and Warning Critique

The genesis of Oscar was well predicted. The tropical wave that developed into Oscar was introduced in the Tropical Weather Outlook with a low chance (< 30%) of development 60 h before genesis occurred. The probability was increased to the medium category (30-50%) 42 h prior to formation and the high category (>50%) 30 h before Oscar developed.

A verification of NHC official track forecasts for Oscar is given in Table 2a. Only 7, 5, 3, and 1 official forecasts verified at 12, 24, 36, and 48 h, respectively. The official forecast track errors were lower than the mean official errors for the previous 5-yr period. The NHC forecasts were particularly skillful in this case since the climatology-persistence baseline model (OCD5) had much larger errors than its 5-yr mean. A homogeneous comparison of the official track errors with selected guidance models is given in Table 2b. The GFS (GFSI) and ECMWF (EMXI) models were the best performers, and the only models that consistently beat the official forecast.

A verification of NHC official intensity forecasts for Oscar is given in Table 3a. Official forecast intensity errors were lower 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 3b. The OCD5 had very low errors for Oscar, indicating that it was easier than average to forecast the intensity of this tropical cyclone. In fact, OCD5 outperformed all of the intensity guidance.

There were no watches or warnings associated with Oscar.

Table 1. Best track for Tropical Storm Oscar, 3-5 October 2012.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
02 / 1200	12.4	38.0	1008	25	low
02 / 1800	13.6	38.7	1008	25	"
03 / 0000	15.0	39.6	1007	30	"
03 / 0600	16.3	40.5	1006	30	tropical depression
03 / 1200	17.4	41.2	1006	30	"
03 / 1800	18.2	41.8	1005	35	tropical storm
04 / 0000	18.9	42.1	1002	40	"
04 / 0600	19.5	42.2	1001	40	"
04 / 1200	20.2	42.0	998	45	"
04 / 1800	21.0	41.5	996	45	"
05 / 0000	21.8	40.6	995	45	"
05 / 0600	22.7	39.4	994	45	"
05 / 1200	23.5	37.8	994	45	"
05 / 1800					dissipated
05 / 0600	22.7	39.4	994	45	maximum wind minimum pressure

Table 2a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Oscar, 3-5 October 2012. Mean errors for the 5-yr period 2007-11 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 (Oscar)	21.8	36.7	58.7	61.5			
OCD5 (Oscar)	78.3	198.2	331.5	401.5			
Forecasts	7	5	3	1			
OFCL (2007-11)	30.4	48.4	65.9	83.1			
OCD5 (2007-11)	46.9	95.2	151.7	211.6			

Table 2b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Tropical Storm Oscar, 3-5 October 2012. 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	22.0	37.7	65.1				
OCD5	79.1	209.9	368.7				
GFSI	15.3	22.4	40.6				
GHMI	42.2	81.8	138.3				
HWFI	35.0	64.9	113.7				
EMXI	20.8	36.5	36.4				
CMCI	50.8	86.4	123.8				
AEMI	23.8	50.6	78.1				
TVCA	24.2	40.5	60.8				
LBAR	22.3	46.5	95.0				
BAMS	42.2	83.8	105.9				
BAMM	39.8	69.4	106.2				
BAMD	44.9	71.3	80.2				
Forecasts	6	4	2				

Table 3a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Oscar, 3-5 October 2012. Mean errors for the 5-yr period 2007-11 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 (Oscar)	5.0	7.0	6.7	5.0			
OCD5 (Oscar)	4.4	4.2	5.0	3.0			
Forecasts	7	5	3	1			
OFCL (2007-11)	7.1	10.8	13.0	15.0			
OCD5 (2007-11)	8.4	12.4	15.4	17.7			

Table 3b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Tropical Storm Oscar, 3-5 October 2012. 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	5.0	7.0	6.7	5.0			
OCD5	4.4	4.2	5.0	3.0			
GHMI	6.0	8.8	13.7	6.0			
HWFI	4.3	4.8	7.3	6.0			
DSHP	5.4	7.6	7.7	5.0			
LGEM	5.7	8.6	10.3	11.0			
ICON	5.0	6.8	9.7	7.0			
IVCN	5.0	6.8	9.7	7.0			
Forecasts	7	5	3	1			

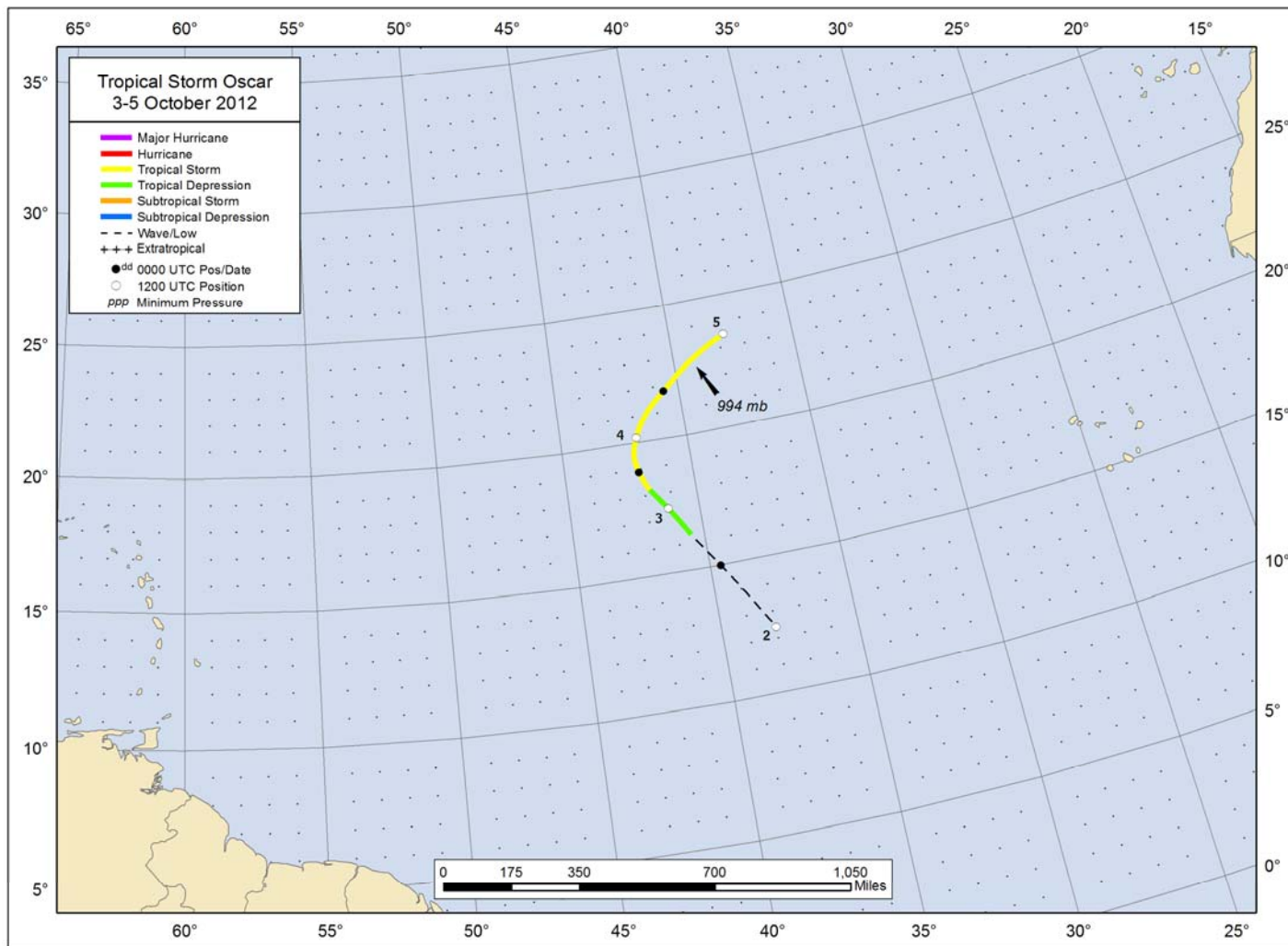


Figure 1. Best track positions for Tropical Storm Oscar, 3-5 October 2012.

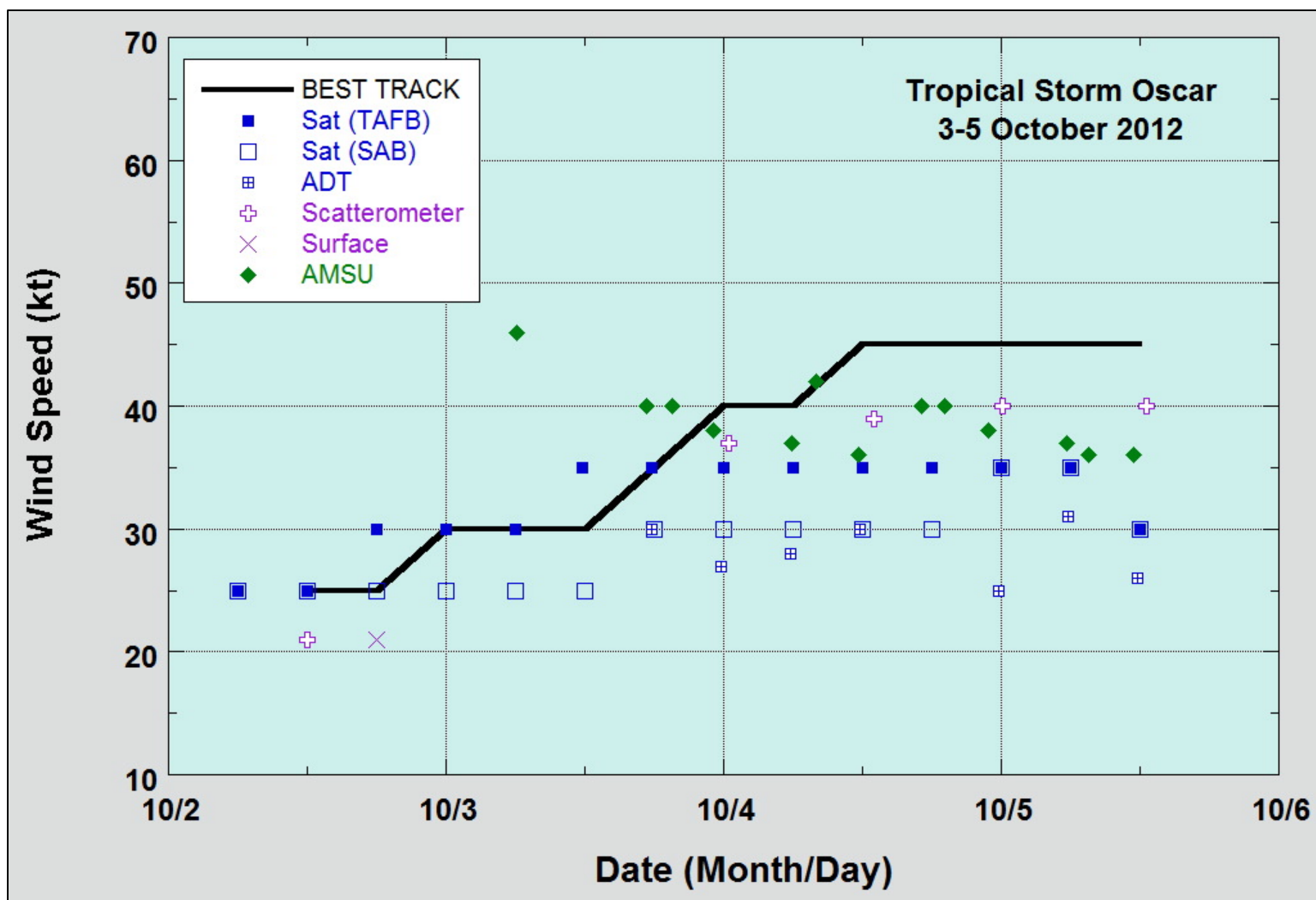


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Oscar, 3-5 October 2012. Advanced Dvorak Technique estimates represent CI numbers. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.

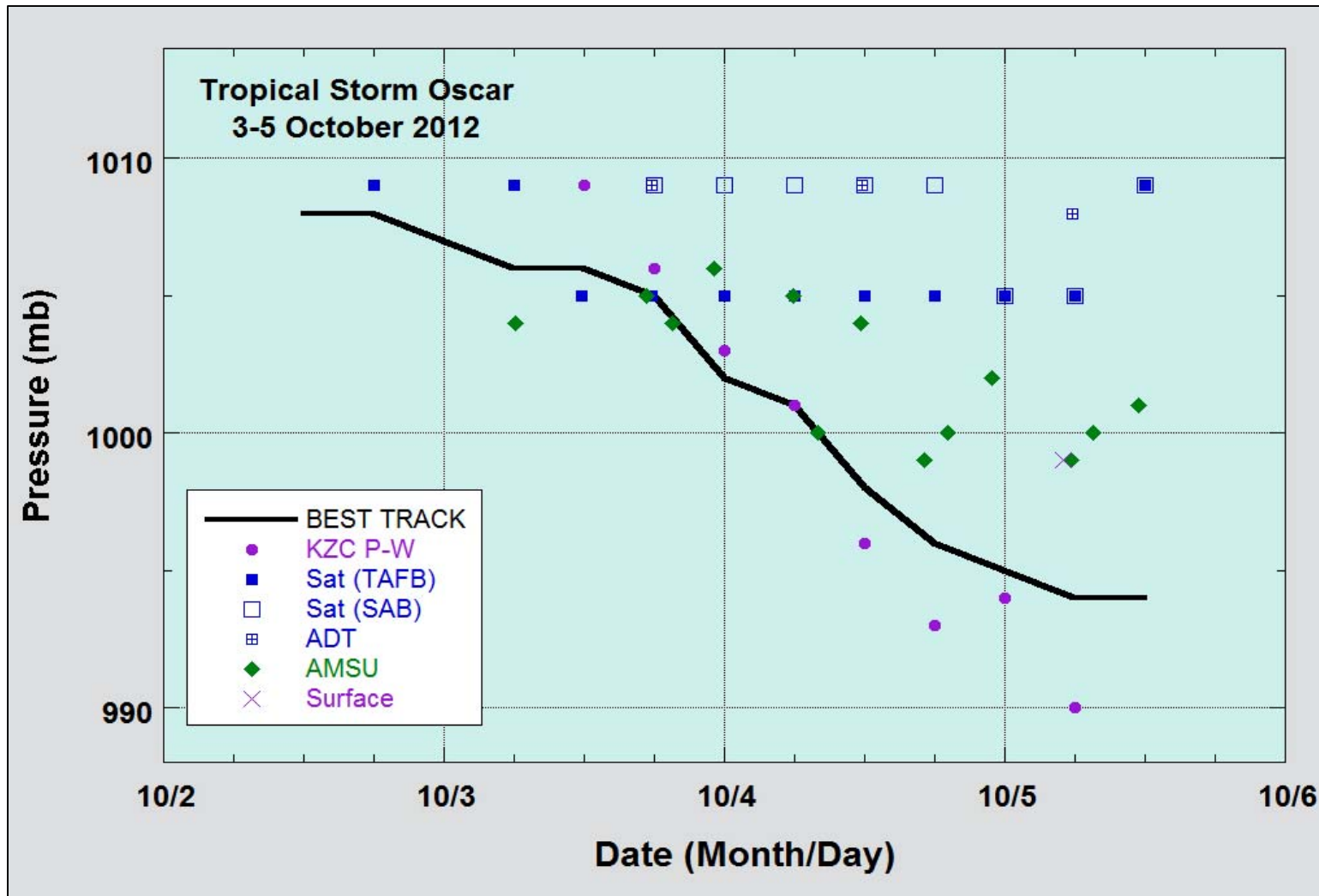


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Oscar, 3-5 October 2012. Advanced Dvorak Technique estimates represent CI numbers. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. The KZC P-W values are obtained by applying the Knaff-Zehr-Courtney pressure-wind relationship to the best track wind data. Dashed vertical lines correspond to 0000 UTC.