

Tropical Cyclone Report  
Tropical Storm Blanca  
(EP032009)  
6-9 July 2009

Richard J. Pasch  
National Hurricane Center  
23 November 2009

Blanca was a short-lived tropical storm that had no significant impact on land.

a. Synoptic History

Blanca's origin can be traced back to a tropical wave that moved off the west coast of Africa on 19 June. This system moved westward across the Atlantic basin through an environment of strong upper-level westerly winds and did not generate significant deep convection until after it entered the eastern North Pacific basin on 29 June. Showers and thunderstorms associated with the wave increased near the Gulf of Tehuantepec on 1 July; however, the organization of the system did not change much while it moved westward over the next few days. By 4 July, deep convection became more consolidated a couple hundred nautical miles to the south of Manzanillo, Mexico. There was also evidence of curved bands - prompting the initial Dvorak classifications of the system, which had likely evolved into a broad area of surface low pressure by that time. Additional slow development occurred over the next couple of days as the cloud pattern gradually became more organized. Around 0600 UTC 6 July, the system possessed enough convective organization and had a sufficiently well-defined low-level circulation to enable its designation as a tropical depression while centered about 380 n mi south of Cabo San Lucas, Mexico. 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<sup>1</sup>.

The flow on the south side of a broad, flat mid-level ridge steered the cyclone on a west-northwestward heading at a forward speed of 8 to 12 kt throughout its lifetime. About 6 h after forming, the system strengthened into a tropical storm. Later on 6 July the storm's cloud pattern continued to become a little better organized while embedded within an environment of low vertical wind shear, and Blanca is estimated to have reached its maximum intensity of 45 kt by 0000 UTC 7 July. However, the window of opportunity for this tropical cyclone to intensify was rather short. A little later that day, the storm began to pass over waters with sea surface temperatures below 27°C, and it began to gradually weaken. Deep convection associated with the system pulsated over the next couple of days as the slow overall decline in intensity continued. Blanca weakened into a tropical depression by 1200 UTC 8 July and degenerated into a remnant low pressure area by 0600 UTC 9 July, centered about 690 n mi west of Cabo San

---

<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 *brk* directory, while previous years' data are located in the *archive* directory.

Lucas. This system maintained a fairly well-defined low-level circulation as it turned toward the northwest, north-northwest and then north from 10 to 11 July. The circulation eventually spun down and dissipated over the open waters of the subtropical eastern North Pacific after 0600 UTC 12 July.

b. Meteorological Statistics

Observations in Blanca (Figs. 2 and 3) include 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, the NASA Tropical Rainfall Measuring Mission (TRMM), the NASA QuikSCAT, and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in tracking Blanca.

The 45-kt analyzed maximum intensity of Blanca was based on Dvorak intensity estimates from both TAFB and SAB. Advanced Microwave Sounding Unit (AMSU) intensity estimates from the Cooperative Institute for Meteorological Satellite Studies (CIMSS) suggested a higher intensity, but near-contemporaneous QuikSCAT intensity estimates indicated that the CIMSS AMSU estimates had a high bias for Blanca after maximum intensity was reached.

No ship reports of winds of tropical storm force associated with Blanca have been received.

c. Casualty and Damage Statistics

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

d. Forecast and Warning Critique

The area of disturbed weather that eventually developed into Blanca was introduced into the National Hurricane Center's (NHC's) Tropical Weather Outlook (TWO) at 1800 UTC 3 July, 60 h prior to genesis, with a low (less than 30%) probability of tropical cyclone formation. The formation probability was raised to medium (30-50%) 30 h before Blanca formed. A high (greater than 50%) probability was not indicated in the TWO prior to genesis.

A verification of NHC official track forecasts for Blanca is given in Table 2a. The mean official forecast track errors were comparable to the mean official errors for the previous five-year period. A homogeneous comparison of the official track errors with selected guidance models is given in Table 2b. In general, the official track errors were comparable to the best available guidance except at 48 h, although there are only three homogeneous cases at that forecast interval. The consensus guidance had fairly low errors, except at 48 hours. Among individual track models, the HWFI did quite well as did BAMD particularly at 48 h but, again, the number of cases at that forecast range was very small.

A verification of NHC official intensity forecasts for Blanca is given in Table 3a, where it can be seen that Blanca's intensity was rather well predicted. The official forecast intensity errors were significantly lower than the mean official errors for the previous five-year period. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 3b. The variable intensity model consensus, IVCN, was the best performer at 24 through 36 h and had lower errors than the official forecast at these forecast intervals. At 48 h, GHMI provided the best guidance and was also better than the official forecast. Interestingly, the normally reliable DSHP had the largest errors of all guidance models for 24 through 36 hours; however, there were not many cases in the sample at any of these forecast ranges.

Watches and warnings were neither required nor issued for Blanca.

Table 1. Best track for Tropical Storm Blanca, 6-9 July 2009.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
06 / 0600	16.7	111.0	1006	30	tropical depression
06 / 1200	17.1	111.7	1002	35	tropical storm
06 / 1800	17.6	112.5	1000	40	"
07 / 0000	18.0	113.4	998	45	"
07 / 0600	18.4	114.3	998	45	"
07 / 1200	18.9	115.2	999	40	"
07 / 1800	19.5	116.2	1000	40	"
08 / 0000	20.1	117.3	1001	40	"
08 / 0600	20.5	118.5	1004	35	"
08 / 1200	20.8	119.6	1005	30	tropical depression
08 / 1800	21.1	120.5	1007	25	"
09 / 0000	21.4	121.4	1007	25	"
09 / 0600	21.8	122.3	1007	25	low
09 / 1200	22.1	123.1	1007	25	"
09 / 1800	22.5	123.8	1007	25	"
10 / 0000	23.0	124.4	1007	25	"
10 / 0600	23.4	125.0	1006	30	"
10 / 1200	23.8	125.6	1006	30	"
10 / 1800	24.1	126.1	1007	30	"
11 / 0000	24.4	126.4	1008	25	"
11 / 0600	24.7	126.6	1010	25	"
11 / 1200	25.4	126.6	1010	25	"
11 / 1800	26.1	126.5	1010	20	"
12 / 0000	26.8	126.5	1010	20	"
12 / 0600	27.3	126.5	1010	20	"
12 / 1200					dissipated
07 / 0000	18.0	113.4	998	45	minimum pressure

Table 2a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Blanca, 6-9 July 2009. Mean errors for the five-year period 2004-8 are shown for comparison. Official errors that are smaller than the five-year means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	<b>27.4</b>	<b>50.5</b>	75.6	92.9			
OCD5	29.7	61.7	107.1	143.9			
Forecasts	10	8	6	4	0	0	0
OFCL (2004-8)	31.0	51.7	71.7	90.2	123.6	161.3	201.8
OCD5 (2004-8)	38.4	73.6	111.9	149.1	214.2	261.1	311.5

Table 2b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Tropical Storm Blanca, 6-9 July 2009. 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	25.2	47.6	73.5	101.9			
OCD5	25.9	55.7	103.6	142.9			
GFSI	41.6	90.9	150.6	212.0			
GHMI	44.4	76.0	110.2	171.4			
HWFI	29.0	53.7	<b>62.3</b>	<b>74.2</b>			
NGPI	25.3	47.9	91.0	149.3			
AEMI	36.2	78.6	121.8	164.3			
TVCN	25.2	<b>45.6</b>	<b>67.6</b>	111.8			
TVCC	<b>21.8</b>	<b>47.3</b>	<b>64.8</b>	117.2			
BAMD	27.2	48.5	<b>59.8</b>	<b>62.5</b>			
NAMI	32.5	68.0	127.3	147.1			
Forecasts	8	6	4	3	0	0	0

Table 3a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Blanca, 6-9 July 2009. Mean errors for the five-year period 2004-8 are shown for comparison. Official errors that are smaller than the five-year means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	<b>3.5</b>	<b>5.6</b>	<b>7.5</b>	<b>6.3</b>			
OCD5	3.9	5.1	8.8	10.5			
Forecasts	10	8	6	4	0	0	0
OFCL (2004-8)	6.2	10.2	13.3	15.1	17.7	19.0	18.8
OCD5 (2004-8)	7.1	11.5	14.7	16.8	18.9	20.3	20.2

Table 3b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Tropical Storm Blanca, 6-9 July 2009. 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	3.5	5.6	7.5	6.3			
OCD5	3.9	<b>5.1</b>	8.8	10.5			
HWFI	4.9	<b>4.9</b>	8.0	8.8			
GHMI	5.6	6.4	<b>6.5</b>	<b>3.5</b>			
DSHP	4.0	7.0	9.2	13.3			
LGEM	3.9	<b>5.1</b>	<b>6.7</b>	8.0			
IVCN	3.9	<b>3.4</b>	<b>5.0</b>	7.3			
Forecasts	10	8	6	4	0	0	0



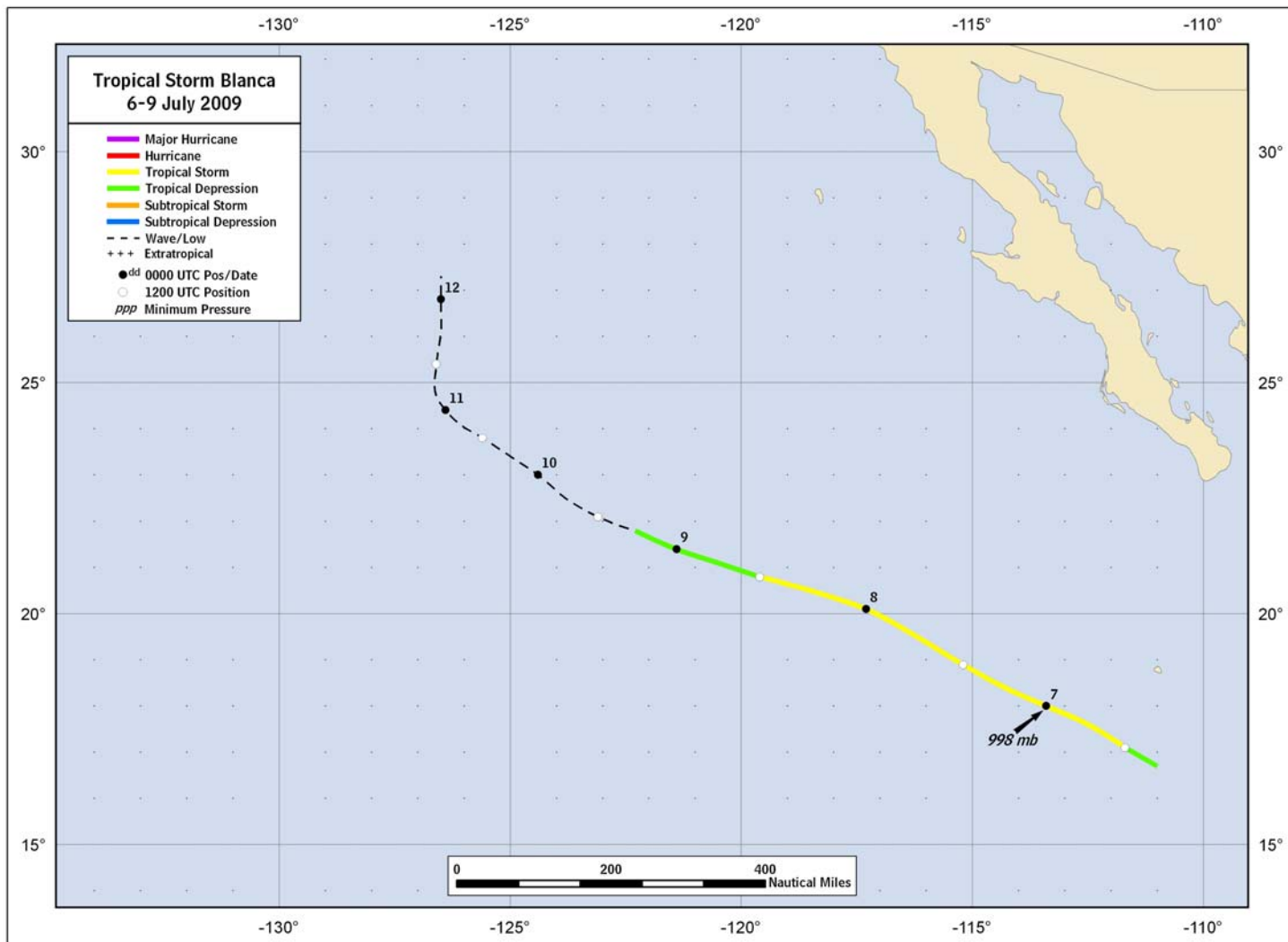


Figure 1. Best track positions for Tropical Storm Blanca, 6-9 July 2009.

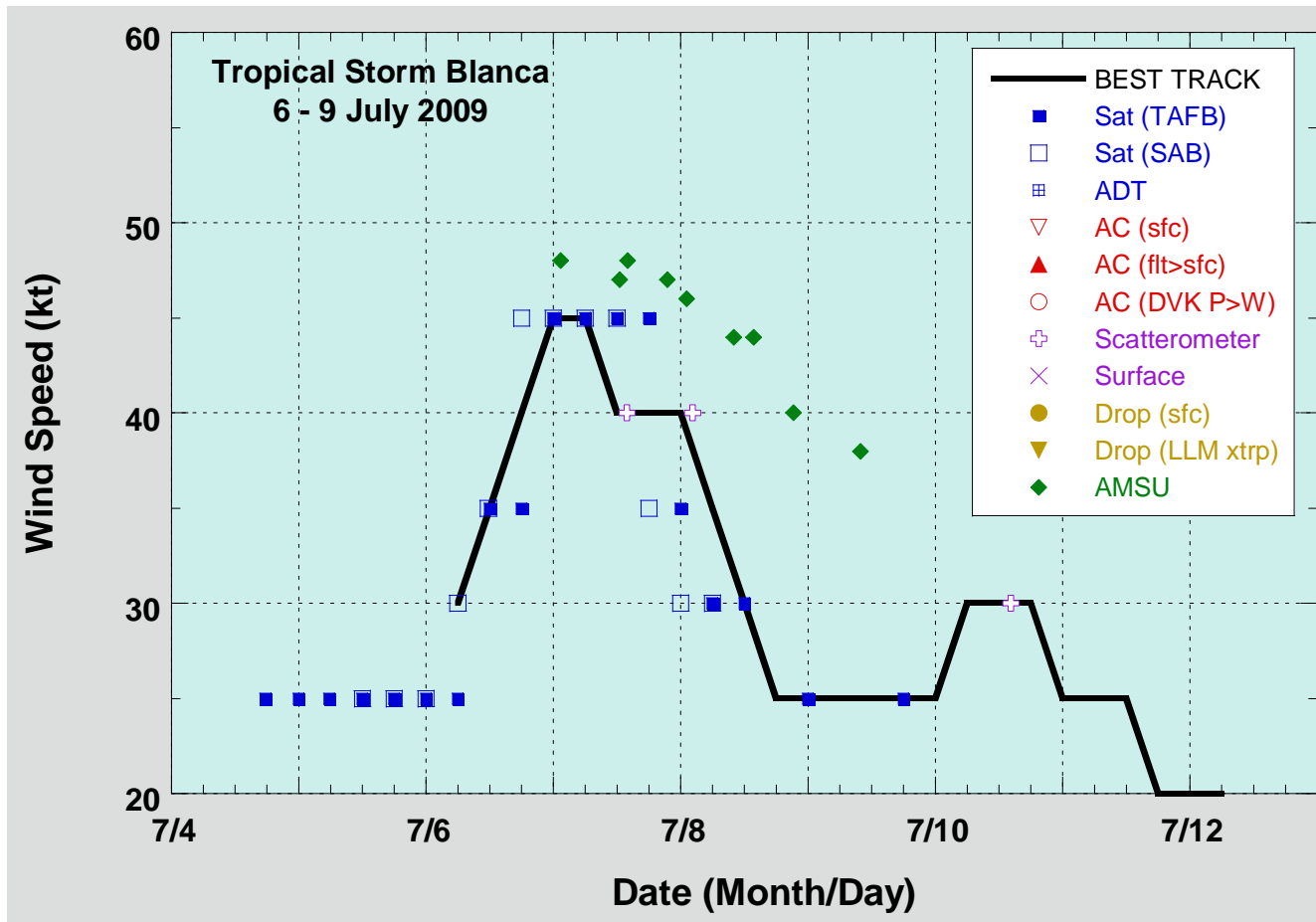


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Blanca, 6-9 July 2009. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.

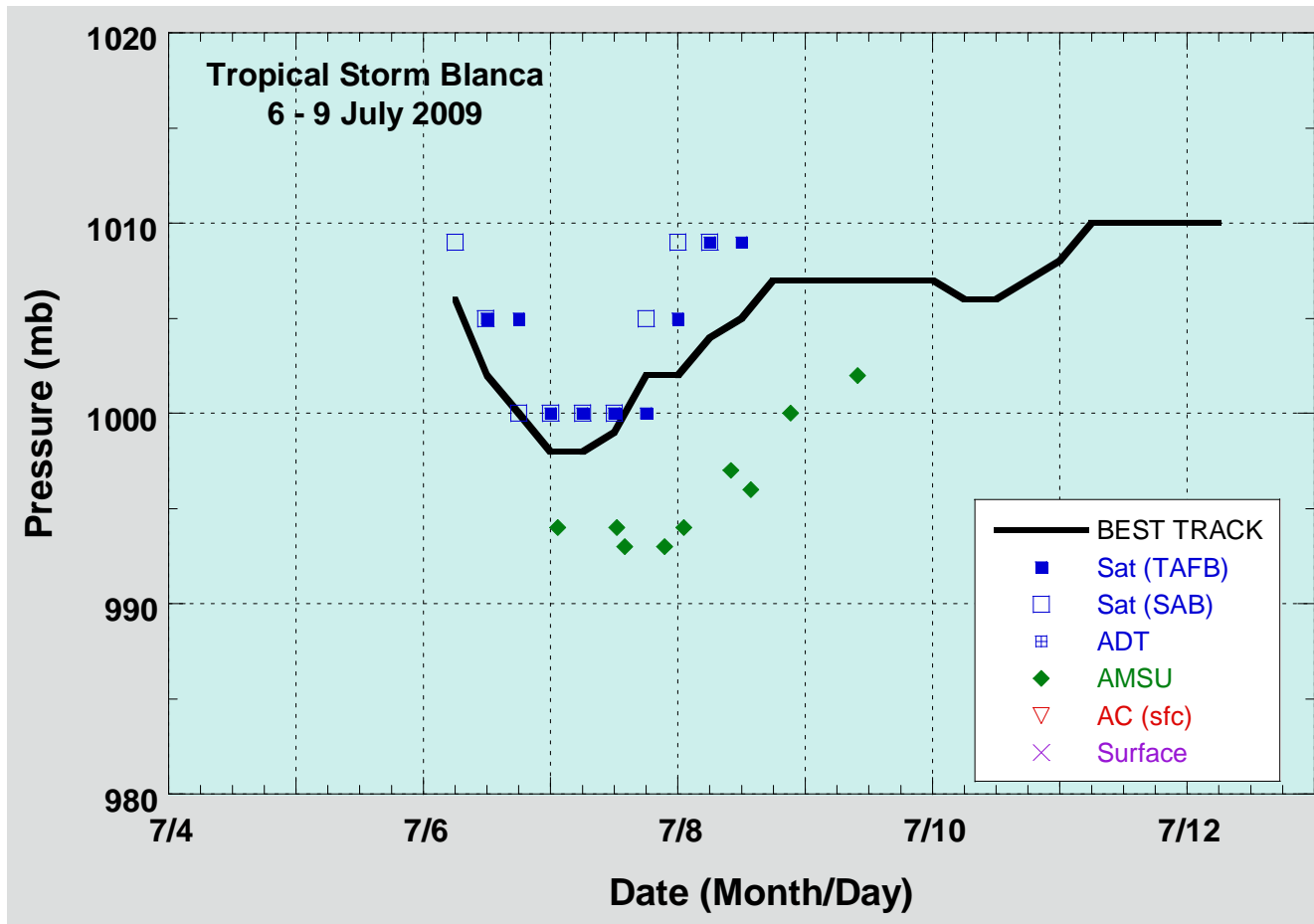


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Blanca, 6-9 July 2009. AMSU pressure estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Dashed vertical lines correspond to 0000 UTC.