

Tropical Cyclone Report
Tropical Storm Blanca
17-22 June 2003

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Blanca spent its lifetime meandering not far from its point of origin near the southwestern coast of Mexico.

a. Synoptic History

Disturbed weather persisted south of the coast of Mexico for several days with no signs of tropical cyclone formation. Then, a well-organized tropical wave, which had crossed Central America 12 June, moved westward and interacted with the pre-existing disturbance. The shower activity became concentrated and a tropical depression formed at 0000 UTC 17 June. The cyclone reached tropical storm status by 1200 UTC on the same day. Blanca was embedded within a weak steering flow and first moved very slowly on a westward track, reaching its maximum intensity of 50 knots and a minimum pressure of 997 mb at 1800 UTC 18 June. Thereafter, Blanca drifted toward the west-southwest and began to weaken gradually due to a strong shear from the southeast. It then began to meander, producing intermittent bursts of convection. It became a remnant low by 1200 UTC 22 June that drifted eastward for a day and a half and then moved west-northwestward until dissipation by 1800 UTC on the 24th.

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.

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), the Satellite Analysis Branch (SAB) and the U. S. Air Force Weather Agency (AFWA).

Blanca was characterized by its well-defined but largely convective-free low-level circulation as depicted in Figure 4. During Blanca’s peak intensity, satellite images showed a ring of convection surrounding the circulation center which resembled an eye feature. However, the system never developed a true eye. The peak intensity is a blend of the wind estimates from the three agencies.

c. Casualty and Damage Statistics

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

d. Forecast and Warning Critique

Average official track errors for Blanca were 28, 55, 80, 108, 174, 215, and 265 n mi for the 12, 24, 36, 48, 72, 96, and 120 h forecasts, respectively¹. The average errors for the 10-yr period of 1993-2002² are 39, 72, 103, 131, 186, 197, and 223 n mi, respectively. The performance of the available track models is given in Table 2. Note that the consensus (GUNA) was one the best performers.

Average official intensity errors were 4, 9, 12, 14, 19, 16 and 3 kt for the 12, 24, 36, 48, 72, 96, and 120 h forecasts, respectively. For comparison, the average official intensity errors over the 10-yr period 1993-2002² are 6, 11, 15, 17, 20, 18, and 19 kt, respectively.

There were no watches and warnings associated with Blanca. However, due to the cyclone's proximity to the coast of Mexico and the rainfall potential, public advisories were initially issued.

¹ All forecast verifications in this report include the depression stage of the cyclone. National Hurricane Center verifications presented in these reports prior to 2003 did not include the depression stage.

² Errors given for the 96 and 120 h periods are averages over the two-year period 2001-2.

Table 1. Best track for Tropical Storm Blanca, 17-22 June 2003.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
17 / 0000	15.9	103.2	1007	25	tropical depression
17 / 0600	16.2	103.3	1006	30	"
17 / 1200	16.4	103.4	1004	30	"
17 / 1800	16.5	103.5	1001	35	tropical storm
18 / 0000	16.6	103.6	1000	45	"
18 / 0600	16.7	103.8	1000	45	"
18 / 1200	16.7	104.0	1000	45	"
18 / 1800	16.7	104.3	997	50	"
19 / 0000	16.6	104.5	998	45	"
19 / 0600	16.5	104.6	1000	45	"
19 / 1200	16.4	104.7	1000	45	"
19 / 1800	16.1	104.9	1000	45	"
20 / 0000	15.9	105.1	1002	40	"
20 / 0600	15.7	105.4	1004	35	"
20 / 1200	15.6	105.7	1004	35	"
20 / 1800	15.5	106.0	1006	30	tropical depression
21 / 0000	15.3	106.3	1006	25	"
21 / 0600	15.4	106.2	1007	25	"
21 / 1200	15.5	106.1	1008	25	"
21 / 1800	15.5	106.0	1008	25	"
22 / 0000	15.6	105.7	1009	25	"
22 / 0600	15.7	105.2	1010	25	"
22 / 1200	15.8	104.9	1009	20	low
22 / 1800	15.9	104.5	1009	20	"
23 / 0000	16.0	104.1	1009	20	"

23 / 0600	16.1	103.9	1009	20	"
23 / 1200	16.2	103.8	1009	20	"
23 / 1800	16.4	103.7	1009	20	"
24 / 0000	16.6	103.6	1009	20	"
24 / 0600	17.1	103.8	1009	20	"
24 / 1200	17.5	104.3	1008	20	"
24 / 1800					dissipated
18 / 1800	16.7	104.3	997	50	minimum pressure

Table 2. Preliminary forecast evaluation (heterogeneous sample) for Blanca, 17-22 June 2003. Forecast errors (n mi) are followed by the number of forecasts in parentheses. Errors smaller than the NHC official forecast are shown in bold-face type. Verification includes the depression stage, but does not include the extratropical stage, if any.

Forecast Technique	Forecast Period (h)						
	12	24	36	48	72	96	120
CLP5	40 (20)	92 (18)	163 (16)	239 (14)	434 (10)	590 (6)	801 (2)
GFNI	26 (18)	50 (16)	70 (14)	87 (12)	121 (8)		
GFDI	29 (16)	60 (15)	85 (13)	91 (11)	107 (4)	164 (1)	
GFDL	29 (19)	51 (17)	77 (13)	92 (12)	80 (5)	141 (1)	
AVNI	29 (15)	60 (15)	91 (14)	113 (12)	175 (8)	274 (4)	
AVNO	40 (18)	62 (15)	88 (14)	119 (13)	162 (9)	292 (5)	407 (1)
AEMI	25 (14)	47 (12)	65 (11)	58 (9)	120 (6)		
BAMD	88 (20)	173 (18)	258 (16)	341 (14)	501 (10)	647 (6)	778 (2)
BAMM	64 (20)	125 (18)	187 (16)	246 (14)	389 (10)	535 (6)	724 (2)
BAMS	55 (20)	109 (18)	165 (16)	218 (14)	357 (10)	491 (6)	672 (2)
NGPI	38 (19)	77 (17)	107 (15)	130 (13)	155 (8)	196 (4)	275 (2)
NGPS	38 (19)	78 (17)	117 (14)	145 (12)	180 (7)	239 (3)	
UKMI	28 (19)	54 (17)	80 (15)	97 (13)	170 (5)	199 (2)	311 (1)
UKM	68 (10)	84 (9)	104 (8)	121 (7)	180 (3)	251 (1)	359 (1)
GUNS	27 (16)	52 (15)	75 (13)	92 (11)	156 (2)		
GUNA	23 (14)	45 (14)	68 (13)	81 (11)	143 (2)		
OFCL	28 (20)	55 (18)	80 (16)	108 (14)	174 (10)	215 (6)	265 (2)
NHC Official (1993-2002 mean)	39 (2864)	72 (2595)	103 (2314)	131 (2050)	186 (1603)	197 (210)	223 (143)

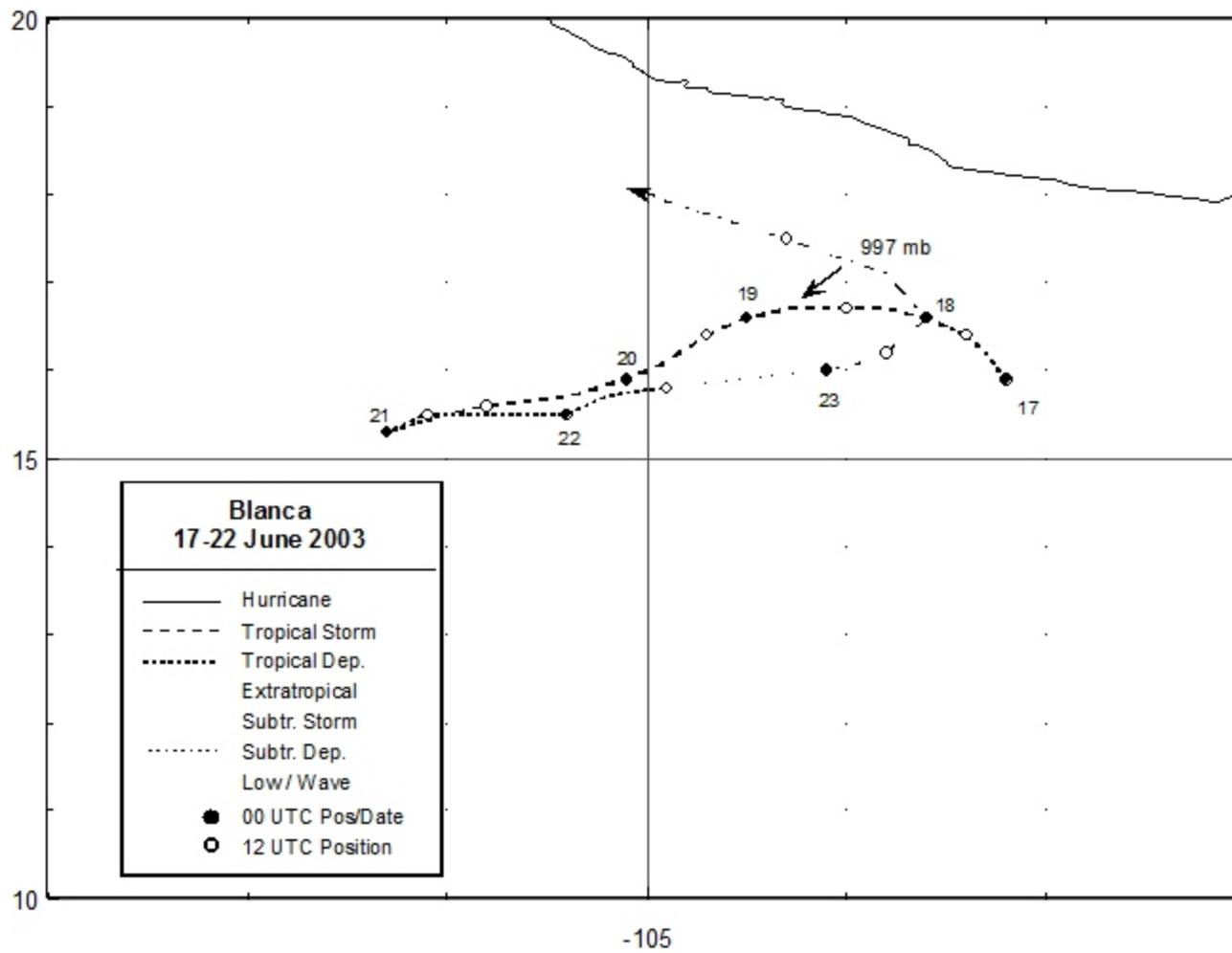


Figure 1. Best track positions for Tropical Storm Blanca, 17-22 June 2003.

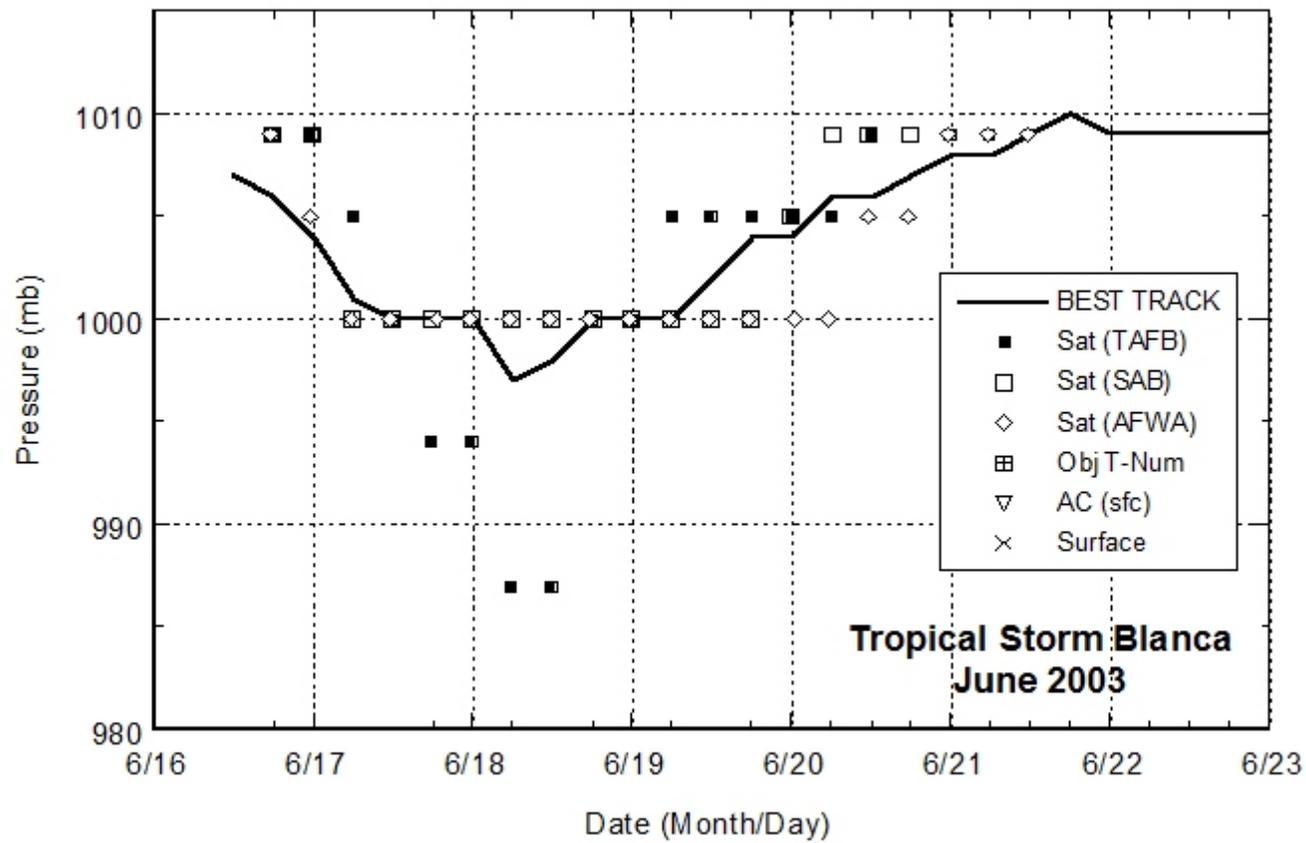


Figure 3. Best track minimum central pressure curve for Tropical Storm Blanca, 17-22 June 2003.

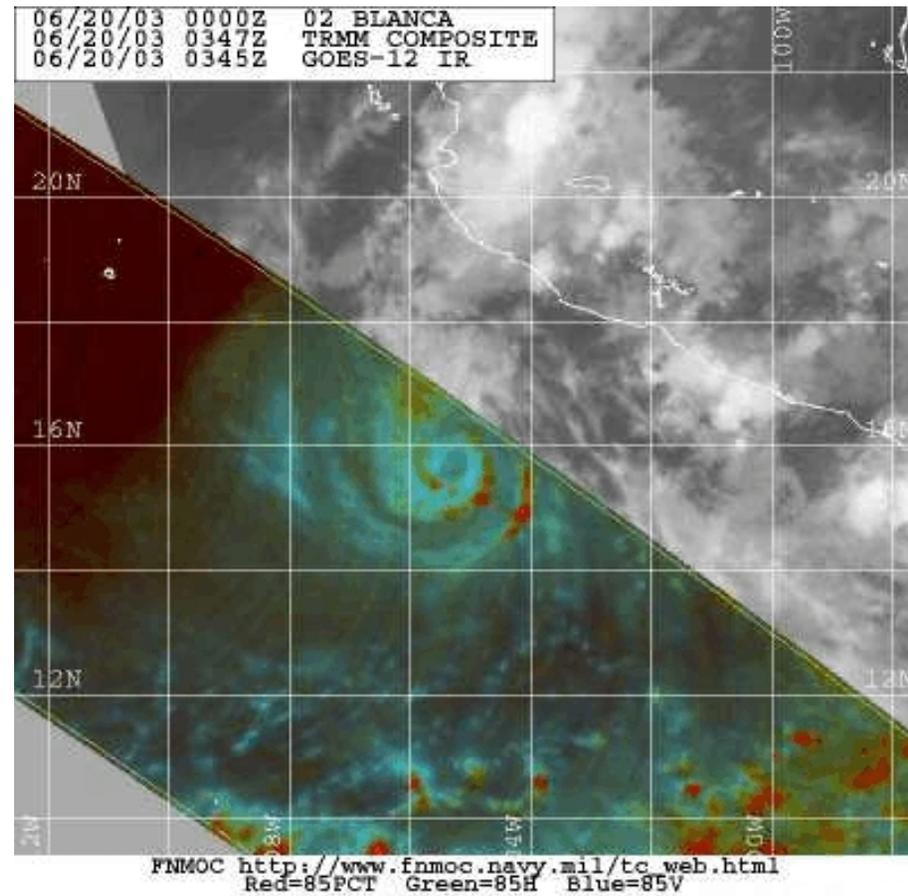


Figure 4. Tropical Rainfall Measurement Mission (TRMM) composite microwave data at 0347 UTC 20 June. The center of circulation was very well defined, but devoid of deep convection.