

Preliminary Report
Hurricane Blas
22 - 30 June 1998

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a. Synoptic History

Blas may be traced back to a tropical wave that emerged from the west coast of Africa on 8 June. Although the wave did spawn intermittent clusters of convection, this system generally remained rather nondescript during its passage over the Atlantic Ocean and Caribbean Sea. Cloudiness and convection increased off the Pacific coast of Central America on 19 June. The first satellite classifications were received on 20 June. Convective banding increased as a broad cyclonic circulation became established. The "best track" indicates that a tropical depression formed from the disturbance near 0000 UTC 22 June while centered about 500 n mi south of the Gulf of Tehuantepec (Fig. 1 and Table 1). During the first few days of its existence, the tropical cyclone moved generally northwestward to west-northwestward near 10 knots in response to deep-layer-mean steering. This track roughly paralleled the southwest coast of Mexico, with the center remaining 250 to 300 n mi offshore.

Deep convection became concentrated near the circulation center and the depression strengthened into Tropical Storm Blas at 1200 UTC 22 June while centered about 350 n mi south of Puerto Angel, Mexico. Convective banding increased and Blas became a hurricane at 1800 UTC 23 June while centered about 300 n mi south-southwest of Acapulco, Mexico. As the upper-level outflow became well established, Blas intensified with an eye appearing in satellite imagery on 24 June. Strengthening continued and it is estimated that Blas reached its peak intensity of 120 knot one-minute surface winds and 943 mb minimum central pressure near 0600 UTC 25 June while centered about 500 n mi south-southeast of the southern tip of Baja California. The eye remained visible for a few more days, although cloud-top temperatures surrounding the eye gradually warmed.

A deep-layer-mean ridge to the north turned Blas toward a more westward track by 26 June. This movement persisted through the remainder of the tropical cyclone's life. Blas moved over cooler water and weakened to a tropical storm by 1200 UTC 28 June while centered about 700 n mi west-southwest of the southern tip of Baja

California. The cyclone weakened to a tropical depression at 0000 UTC 30 June and was considered dissipated by 1 July although a low-level cloud swirl continued westward for several more days, passing a few hundred miles south of the Hawaiian Islands on 5 July .

b. Meteorological Statistics

Figures 2 and 3 show the curves of minimum central pressure and maximum one-minute wind speed, respectively, versus time, along with the observations on which they are based. As usual for an eastern Pacific tropical cyclone, satellites provided the primary source of observational data. Dvorak technique location and intensity estimates from the satellite data were produced by the Air Force Weather Agency (AFGWC), the NOAA Synoptic Analysis Branch (SAB) and the NOAA Tropical Analysis and Forecast Branch (TAFB). Objective Dvorak T numbers ranged from 6.0 (115 knots) to 7.0 (140 knots) between 0000 and 0600 UTC 25 June. The highest 3-hour average objective Dvorak T numbers were also at these times and is the basis for estimating the peak intensity near 0600 UTC on this day. A new objective technique developed by the University of Wisconsin consistently estimated the intensity at approximately 125 knots (Dvorak Current Intensity number 6.4) from 0315 to 1900 UTC 25 June. Although this new scheme shows promise, it will not be used to replace the more subjective technique used operationally until further tests are done with ground truth.

c. Casualty and Damage Statistics

The Associated Press attributed four deaths in the Mexican state of Michoacan to Blas. Three boys and their grandmother living in a wood and cardboard home in the village of El Chaparro were killed in a hillside. At the time the deaths occurred, late on 23 June, the center of Blas was passing more than 250 n mi offshore and satellite pictures showed that the main cloud shield of the hurricane was offshore as well. Therefore, the National Hurricane Center (NHC) is not considering these deaths to be a direct effect of the hurricane. There were no other reports of casualties or damage from Blas received at the NHC.

d. Forecast and Warning Critique

The NHC average official track forecast errors for Blas (excluding the tropical

depression stage) were 29 (28 cases), 50 (26 cases), 72 (24 cases), 93 (22 cases) and 131 n mi (18 cases), respectively, for the 12-, 24-, 36-, 48- and 72-hour forecast periods. These were all lower than the 1988-1997 average errors. The NHC average official track forecast errors were lower than the averages from all of the operationally available track prediction models.

The NHC official intensity forecasts showed a distinct negative bias (i.e., intensity was underestimated). The largest intensity forecast error occurred on the initial advisory. The 72-hour forecast from this advisory that verified near the time of maximum intensity was 40 knots too low.

Watches and warnings were neither issued nor necessary for Blas.

Table 1. Best track, Hurricane Blas, 22 - 30 June 1998.

Date/Time (UTC)	Position		Pressure (mb)	Wind Speed (kt)	Stage
	Lat. (°N)	Lon. (°W)			
22/0000	8.0	94.5	1007	25	tropical depression
0600	8.9	95.2	1006	30	“
1200	9.7	96.0	1005	35	tropical storm
1800	10.4	96.9	1000	45	“
23/0000	10.9	97.8	997	50	“
0600	11.2	98.8	994	55	“
1200	11.6	99.8	991	60	“
1800	12.2	101.0	987	65	hurricane
24/0000	12.8	102.2	977	80	“
0600	13.3	103.3	970	90	“
1200	13.8	104.2	960	100	“
1800	14.3	105.1	956	105	“
25/0000	14.8	106.0	948	115	“
0600	15.3	106.8	943	120	“
1200	15.8	107.7	946	115	“
1800	16.3	108.6	948	115	“
26/0000	16.8	109.6	952	110	“
0600	17.1	110.6	956	105	“
1200	17.3	111.7	960	100	“
1800	17.5	112.8	970	90	“
27/0000	17.6	113.9	974	85	“
0600	17.7	115.1	977	80	“
1200	17.8	116.3	979	75	“
1800	17.9	117.6	981	75	“
28/0000	17.9	118.8	984	70	“
0600	17.8	119.9	987	65	“
1200	17.9	120.9	990	60	tropical storm
1800	18.0	122.0	992	60	“
29/0000	18.1	123.0	994	55	“
0600	18.2	124.2	1000	45	“
1200	18.2	125.4	1002	40	“
1800	18.2	126.6	1005	35	“
30/0000	18.2	127.8	1006	30	tropical depression
0600	18.2	129.1	1007	30	“
1200	18.1	130.5	1008	25	“
1800	18.0	131.8	1009	20	“
1/0000					dissipated

25/0600	15.3	106.8	943	120	minimum pressure
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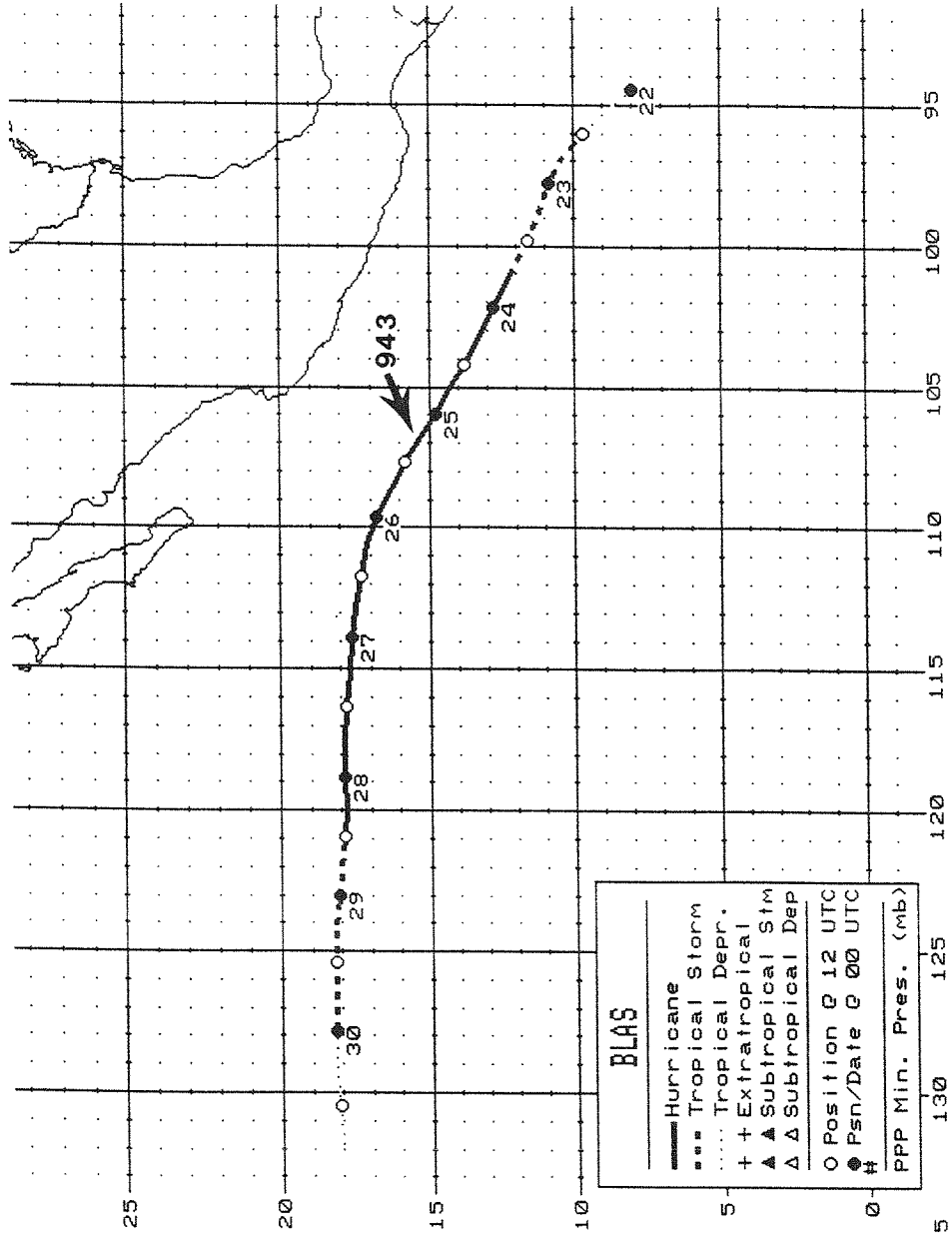


Figure 1. Best track positions for Hurricane Blas, 22 - 30 June 1998.

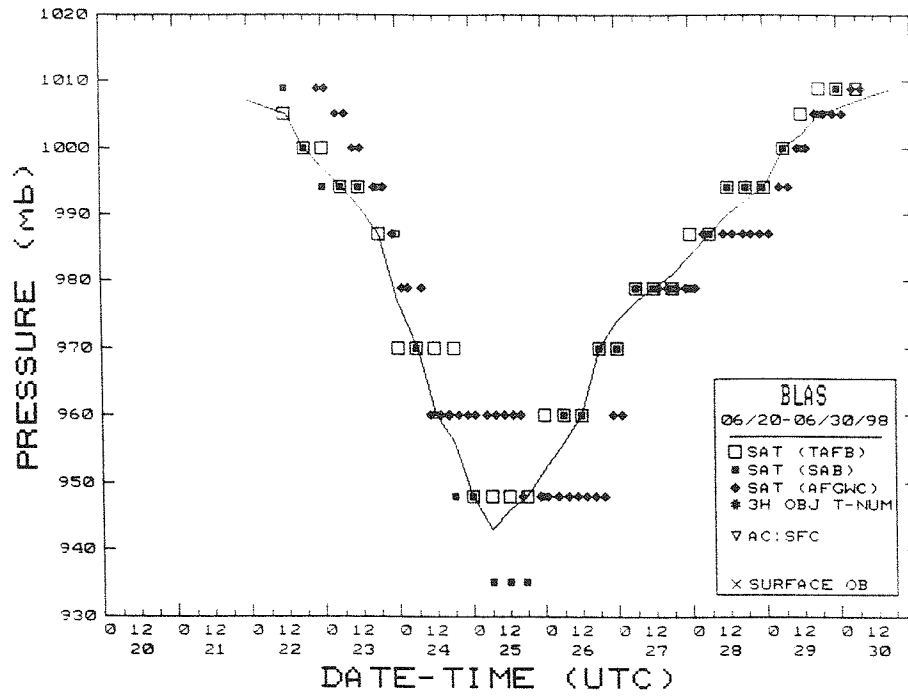


Figure 2. Best track minimum central pressure curve for Hurricane Blas.

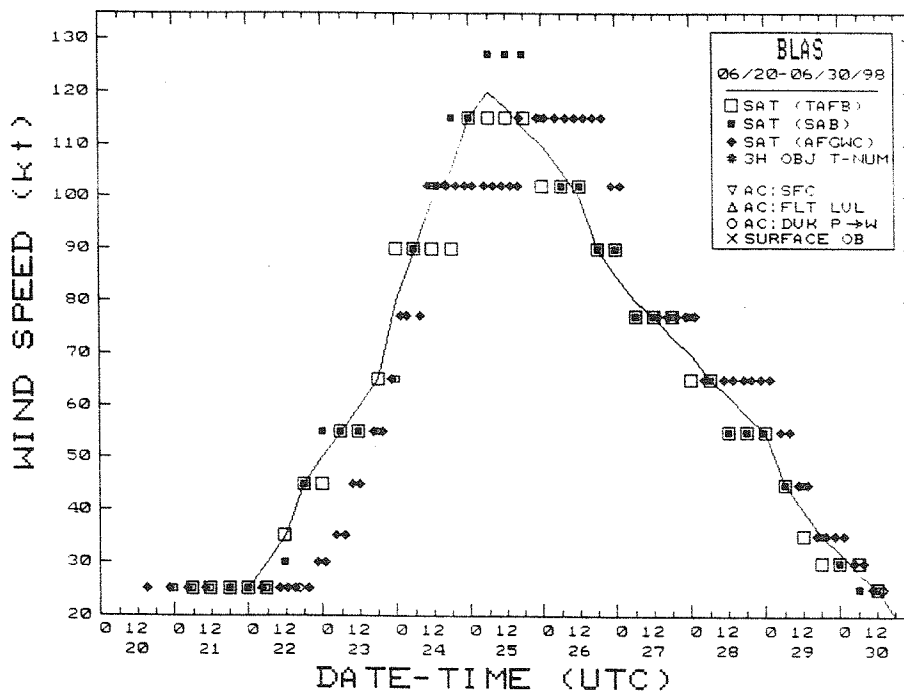


Figure 3. Best track maximum sustained wind speed curve for Hurricane Blas.