

Preliminary Report
Hurricane Boris
27 June - 01 July 1996

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BORIS WAS A HURRICANE THAT MADE LANDFALL ON THE SOUTH COAST OF MEXICO WITH 80-KNOT WINDS BETWEEN ACAPULCO AND LAZARO CARDENAS. THE HURRICANE CAUSED AN ESTIMATED FIVE DEATHS.

a. Synoptic History

Boris could have originated from a tropical wave that moved from Africa to the eastern Atlantic Ocean on 8 June and crossed Central America on 23 June. This is based on continuity, as the wave was very poorly defined on satellite imagery for many days.

The first signs of a low-level circulation on satellite imagery appeared on the 26th, centered about 250 n mi south of the Gulf of Tehuantepec. The system became a tropical depression on the 27th when convective banding increased around the center. The track of Boris begins at this time as indicated in Table 1 and in Fig. 1. The tropical cyclone moved northwestward at 8 to 10 knots for the next two days and strengthened from 25 knots to 80 knots during a 36-hour period, with a ragged eye appearing on satellite imagery just before landfall at 1800 UTC on the 29th. The center crossed the south coast of Mexico midway between Lazaro Cardenas and Acapulco.

Boris quickly weakened to a depression and turned southwestward in response to a building ridge to its north. The system was disrupted by the mountainous terrain of Mexico and dissipated on the 1 July after moving back over water just south of Puerta Vallarta.

b. Meteorological Statistics

Figures 2 and 3 show curves, as a function of time, of minimum sea-level pressure and maximum one-minute surface wind speed, respectively, as well as the data on which they are based. As is the case for most eastern Pacific tropical cyclones, only satellite data was available to estimate the intensity.

Table 2 lists ship encounters with 34-knot wind speeds or higher. The ship **ELSC2** reported an estimated wind of 72 knots at 0000 UTC on the 29th. However, a reflectivity patterns from the Acapulco radar indicated that the ship was outside of the deepest convection and the wind speed in the official track in Table 1 is estimated to be 55 knots at the time of the above ship report.

The only significant surface wind observation available is an east wind of 40 knots sustained and gusts to 48 knots from Acapulco at 1145 UTC on the 29th. This was the time of closest

approach of the center to Acapulco and the center was 60 n mi southwest of the city at this time. The heaviest rainfall occurred in the state of Guerrero and ranged to a maximum value of 11.16 inches at Coyuga de Benitez, located on the coast just west of Acapulco.

c. Casualty and Damage Statistics

A report from an amateur radio operator indicates one death at Tecpan, near the landfall location. The El Financiero newspaper reports at least three other persons drowned near Tecpan and another five fishermen are missing. An Associated Press report states that a child was killed in Acapulco when a roof collapsed. So the total death estimate is five.

It was reported that the San Jeronimo River caused flood damage to 40 percent of the municipality of Coyuca, affecting at least 5000 people. Countless homes were also washed away at Tecpan.

d. Forecast and Warning Critique

Boris was of tropical storm or hurricane strength for only 48 hours and there were eight official forecasts issued during this time. Only two 36-hour forecasts verified and none verified at 48 or 72 hours. The few forecasts that verified were generally good, with errors ranging to an average of 101 n mi at 36 hours.

A tropical storm warning was issued at 1500 UTC on the 28th, from Puerto Escondido to Manzanillo and a hurricane warning was issued at 2100 UTC from Punta Maldonado to Manzanillo. Landfall occurred 27 hours after the tropical storm warning was issued and 21 hours after the hurricane warning was issued.

Figure Captions:

Fig. 1. Track of Hurricane Boris, 27 June - 01 July 1996.

Fig. 2. Curve of minimum central sea-level pressure versus time.

Fig. 3. Curve of maximum one-minute wind speed versus time.

Table 1. Best track, Hurricane Boris, 27 June - 01 July, 1996

Date/Time (UTC)	Position		Pressure (mb)	Wind Speed (kt)	Stage
	Lat. (°N)	Lon. (°W)			
27/0000	12.7	94.4	1010	25	Tropical depression
0600	12.8	95.0	1010	25	“
1200	12.8	95.5	1009	25	“
1800	12.7	96.1	1009	25	“
28/0000	13.0	96.9	1008	25	“
0600	13.5	97.7	1007	30	“
1200	14.0	98.4	1006	35	Tropical Storm
1800	14.6	99.0	1002	40	“
29/0000	15.2	99.6	995	55	“
0600	15.9	100.2	987	65	Hurricane
1200	16.6	100.8	979	80	“
1800	17.6	101.5	980	80	“
30/0000	18.7	102.2	990	65	“
0600	19.5	102.9	1000	45	Tropical Storm
1200	19.8	103.7	1004	30	Tropical Depression
1800	19.5	104.5	1005	30	“
01/0000	19.0	105.1	1006	25	“
0600	18.8	105.4	1007	25	“
1200	19.0	105.6	1007	25	“
1800					Dissipated
29/1200	16.6	100.8	979	80	minimum pressure
29/1800	17.6	101.5	980	80	landfall midway between Lazaro Cardenas and Acapulco, Mexico

Table 2. Ship reports of 34 knots or higher wind speed, associated with Hurricane Boris, June 1996.

date/time (UTC)	ship name	latitude (°N)	longitude (°W)	wind dir/speed (knots)	pressure (mb)
29/0000	ELSC2	16.2	99.8	070/72 ¹	1000.5
29/0300	ELSC2	16.2	99.7	070/60 ¹	998.0
29/1200	CHIQUITA BARU	16.4	99.3	160/34	1007.5
29/1800	DKGPK	15.4	102.0	100/35	1007.2

¹ Estimated wind speed

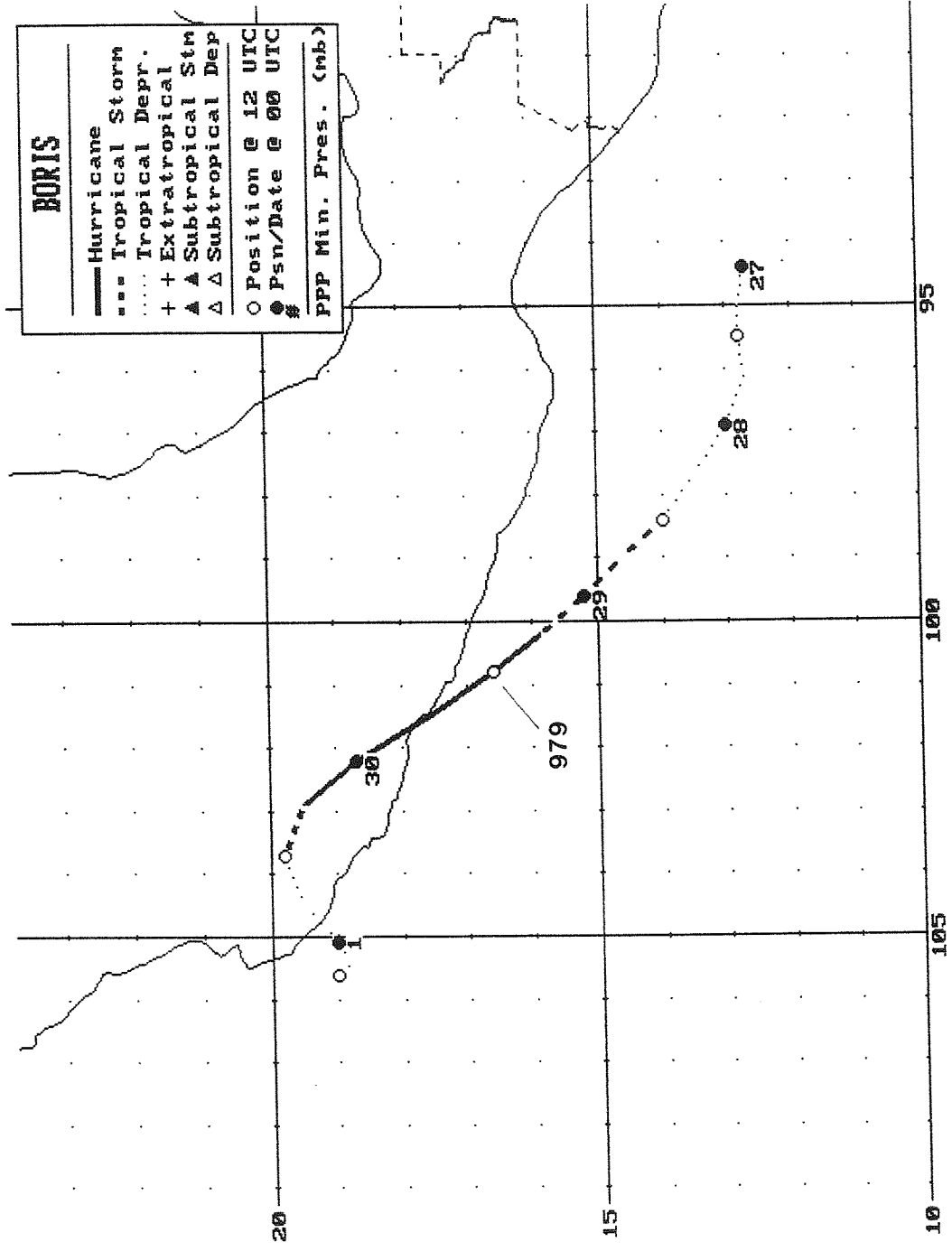


Fig. 1. Track of Hurricane Boris, 27 June - 01 July 1996

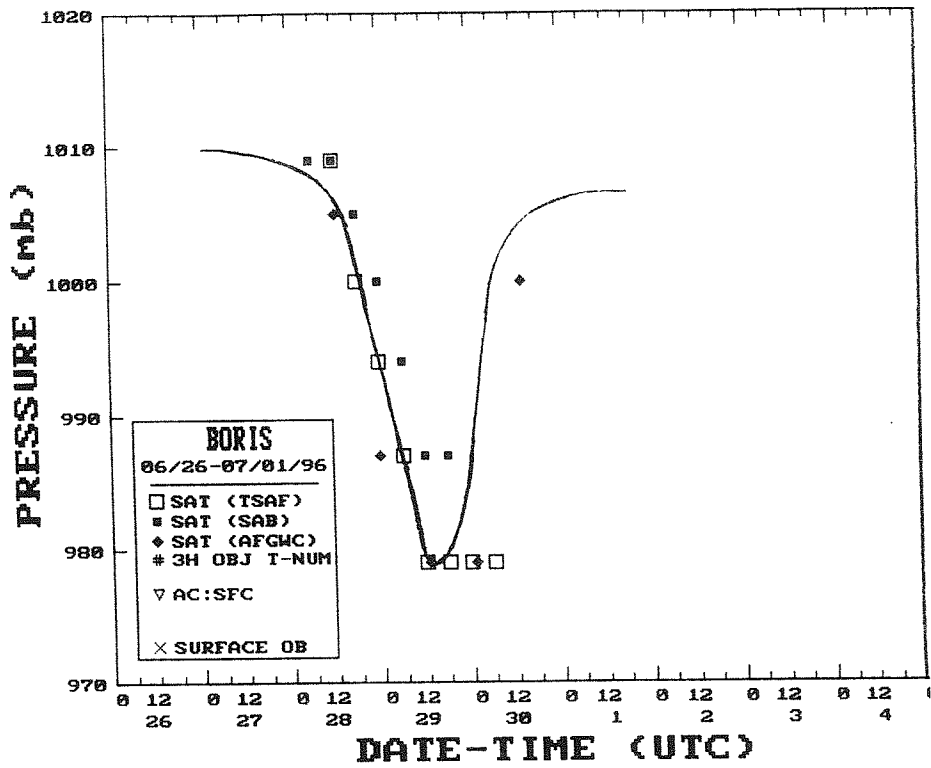


Fig. 2. Curve of minimum central sea-level pressure versus time for Hurricane Boris

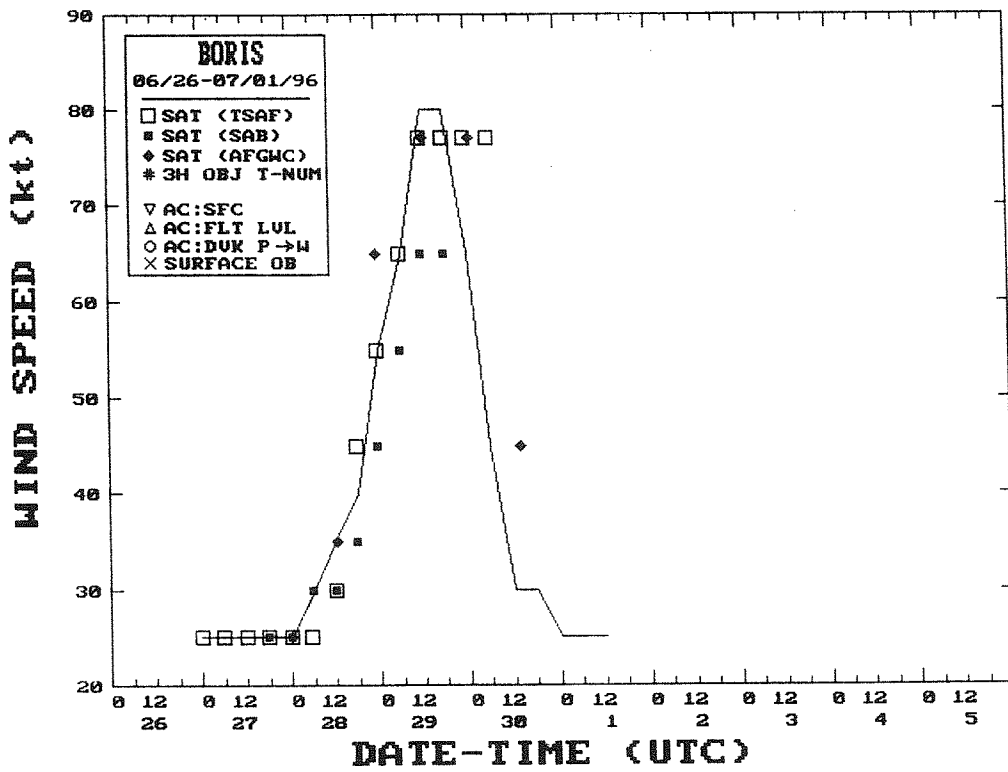


Fig. 3. Curve of maximum one-minute wind speed versus time for Hurricane Boris