

PRELIMINARY REPORT  
Hurricane Douglas  
29 July-6 August 1996

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Hurricane Cesar, from the Atlantic basin, crossed Central America and became Hurricane Douglas in the eastern North Pacific. Such a name change for tropical cyclones crossing from the Atlantic to the eastern North Pacific is based on a World Meteorological Organization regional agreement.

a. Synoptic History

Hurricane Cesar moved westward over Central America for about 18 hours and emerged into the Pacific with tropical storm strength. It was then designated Tropical Storm Douglas. Once centered over water, the tropical cyclone intensified rapidly and in about 12 hours reached hurricane status. Douglas continued moving on a general west and then west-northwest track around the periphery of a high pressure system over the western United States. On this track, Douglas reached its estimated maximum intensity of 115 knots and minimum pressure of 946 mb at 1200 UTC 1 August when located about 240 n mi south of the southern tip of Baja California. Objective T-numbers were oscillating around 6.3 on the Dvorak scale during that time. Thereafter, Douglas moved over cooler waters and a gradual weakening began. It was no longer a tropical depression by 0000 UTC 6 August. However, the remnants of Douglas, represented as a swirl of low clouds, moved westward for several more days.

Douglas's track is shown in Fig. 1. Table 1 is a listing, at six-hour intervals, of the "best-track" position, estimated minimum central pressure and maximum 1-minute surface wind speed.

b. Meteorological Statistics

The best track pressure and wind curves as a function of time shown in Figures 2 and 3 are based on satellite intensity estimates from the Tropical Analysis and Forecast Branch (TAFB), the

Satellite Analysis Branch (SAB) and the Air Force Global Weather Central (AFGWC). Douglas was upgraded to a hurricane based on observations from the vessel *Tritonhighway* which reported winds of 69 knots at 1500 UTC 29 July. The vessel was located just north of the center of the tropical cyclone. Table 2 contains ships reporting 34-knot winds or higher associated with Douglas.

#### c. Casualty and Damage Statistics

The damage associated with this tropical cyclone occurred over Central America and was attributed to Cesar.

#### d. Forecast and Warning Critique

Due to the large extent of tropical storm force winds associated with Douglas and its proximity to the south coast of Mexico, tropical storm watches and warnings were issued by the government of Mexico for portions of the coast. These watches and warnings are listed in Table 3.

The average official track forecast errors for Douglas were 30, 61, 80, 87 and 82 n mi at 12, 24, 36, 48 and 72 hours, respectively. These errors are much lower than the previous 10-year average errors at all periods.

#### Figure Captions:

Fig. 1. Best track positions for Hurricane Douglas, 29 July - 6 August 1996.

Fig. 2. Best track one-minute surface wind speed curve for Hurricane Douglas.

Fig. 3. Best track minimum central pressure curve for Hurricane Douglas.

Table 1. Preliminary best track, Hurricane Douglas, 29 July -6 August, 1996.

Date/time (UTC)	Position Lat. °N	Lon. °W	Pressure (mb)	Wind speed (kt)	Stage
29/0000	13.0	89.7	1004	35	TS
0600	13.1	91.6	1001	40	"
1200	13.3	93.4	987	65	H
1800	13.4	95.2	982	65	"
30/0000	13.6	96.9	980	70	"
0600	13.9	98.7	977	75	"
1200	14.3	100.4	975	80	"
1800	14.9	102.0	970	85	"
31/0000	15.5	103.4	968	90	"
0600	16.0	104.7	965	95	"
1200	16.5	105.9	960	100	"
1800	17.0	107.0	958	105	"
1/0000	17.6	108.0	952	115	"
0600	18.2	109.0	948	115	"
1200	18.9	110.0	946	115	"
1800	19.5	111.2	947	115	"
2/0000	20.0	112.6	948	115	"
0600	20.4	113.9	950	115	"
1200	20.6	115.4	955	110	"
1800	20.8	116.8	965	100	"
3/0000	20.9	118.1	970	80	"
0600	21.1	119.3	975	65	"
1200	21.1	120.3	980	60	TS
1800	21.2	121.3	988	55	"
4/0000	21.4	122.3	993	50	"
0600	21.6	123.2	995	45	"

1200	21.7	124.2	1000	40	“
1800	21.9	125.3	1003	35	“
5/0000	22.1	126.4	1005	30	TD
0600	22.3	127.5	1009	30	“
1200	22.4	128.7	1009	30	“
1800	22.5	129.9	1009	25	“
6/0000	22.5	130.0	1009	20	D

- \* Minimum pressure
- TD: Tropical Depression
- TS: Tropical Storm
- H: Hurricane
- D: Dissipating

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

date/time (UTC)	ship name	latitude °N	longitude °W	wind dir/speed knots	pressure (mb)
29/1500	<i>Tritonhighway</i>	13.5	94.3	060/69	1004.0
29/1800	<i>Tritonhighway</i>	13.9	94.0	120/50	1010.0
26/1800	<i>Chevron Colorado</i>	14.3	95.3	070/35	1006.8
30/1200	<i>Clifford Maersk</i>	16.2	99.6	120/46	1010.5
30/1500	<i>Clifford Maersk</i>	16.0	99.3	270/37	1011.1
30/1800	<i>Zim Iberia</i>	18.2	103.2	150/39	1010.0
31/0000	<i>SHIP*</i>	13.5	72.5	100/35	1010.0
31/1800	<i>Pacific Teal</i>	18.5	104.6	130/35	1012.7
31/1800	<i>Marine Ranger</i>	18.9	105.8	120/60	1010.0
31/2100	<i>Marine Ranger</i>	18.8	105.7	110/55	1012.0

\* name unknown

Table 3. Watch and warning summary, Hurricane Douglas, July-August 1996.

Date/time (UTC)	Action	Location
29/0300	tropical storm watch issued	South coast of Mexico from Puerto Madero to Acapulco.
29/1500	tropical storm watch discontinued	East of Salina Cruz.
29/1500	tropical storm warning issued	from Salina Cruz to Acapulco.
30/0300	tropical storm watch issued	From just west of Acapulco to Manzanillo.
30/0900	tropical storm warning/watch discontinued	from Salina Cruz to Manzanillo.

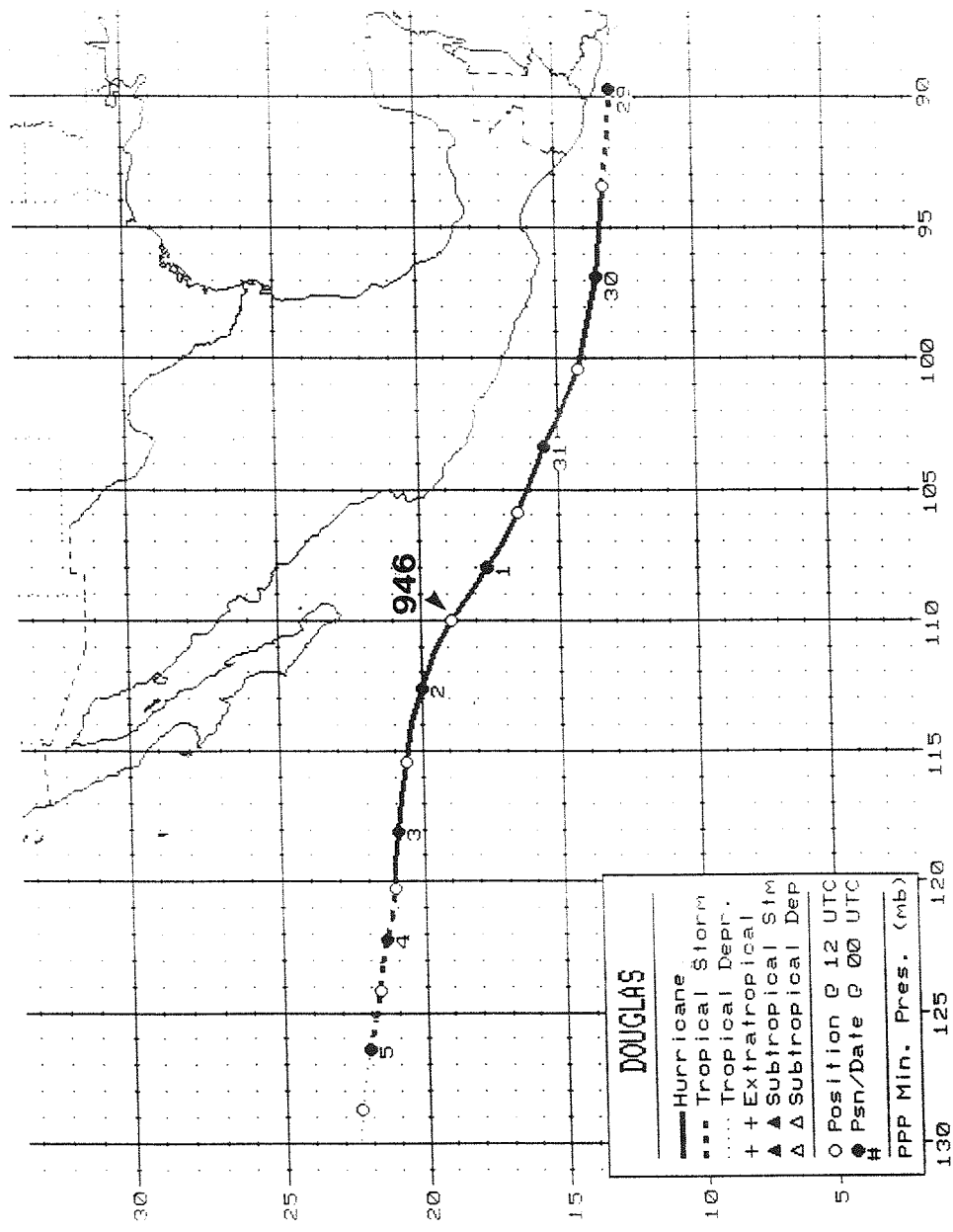


Fig. 1. Best track positions for Hurricane Douglas, 29 July - 6 August 1996.

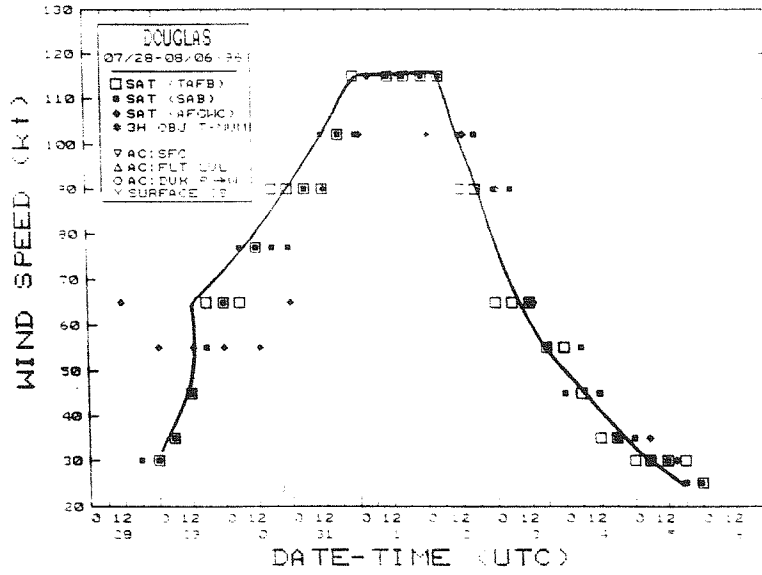


Fig. 2. Best track one-minute surface wind speed curve for Hurricane Douglas.

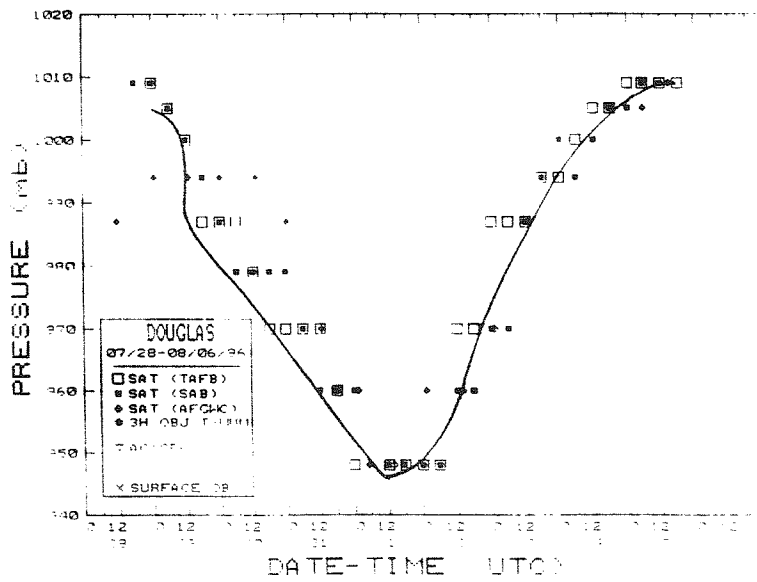


Fig. 3. Best track minimum central pressure curve for Hurricane Douglas.