PRELIMINARY REPORT
Tropical Storm Dean
28 July-3 August 1995

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a. Synoptic History

Tropical Storm Dean developed from a broad quasi-stationary middle-level trough extending from the northeastern Gulf of Mexico through Florida. On the 27th of July, a weak cyclonic circulation was indicated by buoy reports in the eastern Gulf of Mexico accompanied by surface pressure falls of about 2.5 mb in 24 hours. At that time, satellite images showed that the thunderstorm activity was disorganized but the upper-level outflow was beginning to become established. On the 28th, animation of high resolution visible satellite images clearly showed a low-level cyclonic rotation. Based on that information and on surface reports, it is estimated that Tropical Depression Four formed about 300 n mi southeast of New Orleans at 1800 UTC July 28.

A reconnaissance plane was dispatched to the area and located a circulation center of 1008 mb minimum pressure. The maximum flight-level (1500 ft) wind was 32 knots. The depression moved slowly toward the west to west-northwest around a well-established mid-level high pressure ridge located over the central U.S., with no significant change in strength. The depression was under continuous reconnaissance surveillance and, during the time between the last fix at 1712 UTC 30 July of mission number 5 and the first fix of mission number 6 at 2142 UTC 30 July, the pressure dropped from 1005 mb to 999 mb and the flight-level (1500 ft) winds increased from 40 to 50 knots. Using this data, it is estimated that the depression became Tropical Storm Dean at 1800 UTC 30 July about 60 n mi from the upper Texas coast. The center of Dean crossed the coast near Freeport, Texas a few hours later. Tropical cyclones have occasionally intensified just prior to making landfall in that area.

Dean weakened to tropical depression status shortly after landfall and continued on a northwestward track through Texas. The depression became nearly stationary for about 24 to 36 hours over the northwest portion of the state producing heavy rainfall. It dissipated at 0000 UTC August 3 as it merged with a frontal zone.

Dean'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 reconnaissance aircraft data, satellite intensity estimates from the National Hurricane Center, the Satellite Analysis Branch (SAB) and the Air Force Global Weather Central (AFGWC). There were no reports of tropical storm force winds (1-min sustained) from surface land stations. The highest observed wind was a 44-knot gust reported by Galveston Scholes Field at 2115 UTC 30 July. The storm tide rose and covered the road along highway 82 between Johnsons Bayou and Holly Beach in Cameron Parish, Louisiana. Minor storm surge flooding of highway 87 occurred on the 30th.

There were two tornadoes associated with Dean. The first occurred in Galveston County at High Island around 2330 UTC and the second touched down just southeast of Anahua near 0300 UTC. Table 2 includes some of the most significant rainfall totals received so far associated with Dean.

c. Casualty and Damage Statistics

There were no reports of injuries or deaths associated with Dean. However, rainfall was a problem causing near $500,000 in damage. Evacuation of 20 families was necessary in Chambers County due to rainfall flooding. Data were provided by local weather service forecast offices.

d. Forecast and Warning Critique

Since the tropical cyclone was forecast to reach tropical storm strength before landfall, a tropical storm warning was issued for the Gulf of Mexico coast from Intracoastal City, Louisiana to Corpus Christi, Texas at 0300 UTC 30 July. The warning was issued 23 hours before landfall and discontinued at 0300 UTC 31 July.

Dean was a tropical storm for less than 12 hours, so there were practically no cases from which to verify official forecasts.

Figure Captions:

Fig. 1. Best track positions for Tropical Storm Dean, 27 July - 3 August 1995.

Fig. 2. Best track one-minute surface wind speed curve for Tropical Storm Dean.

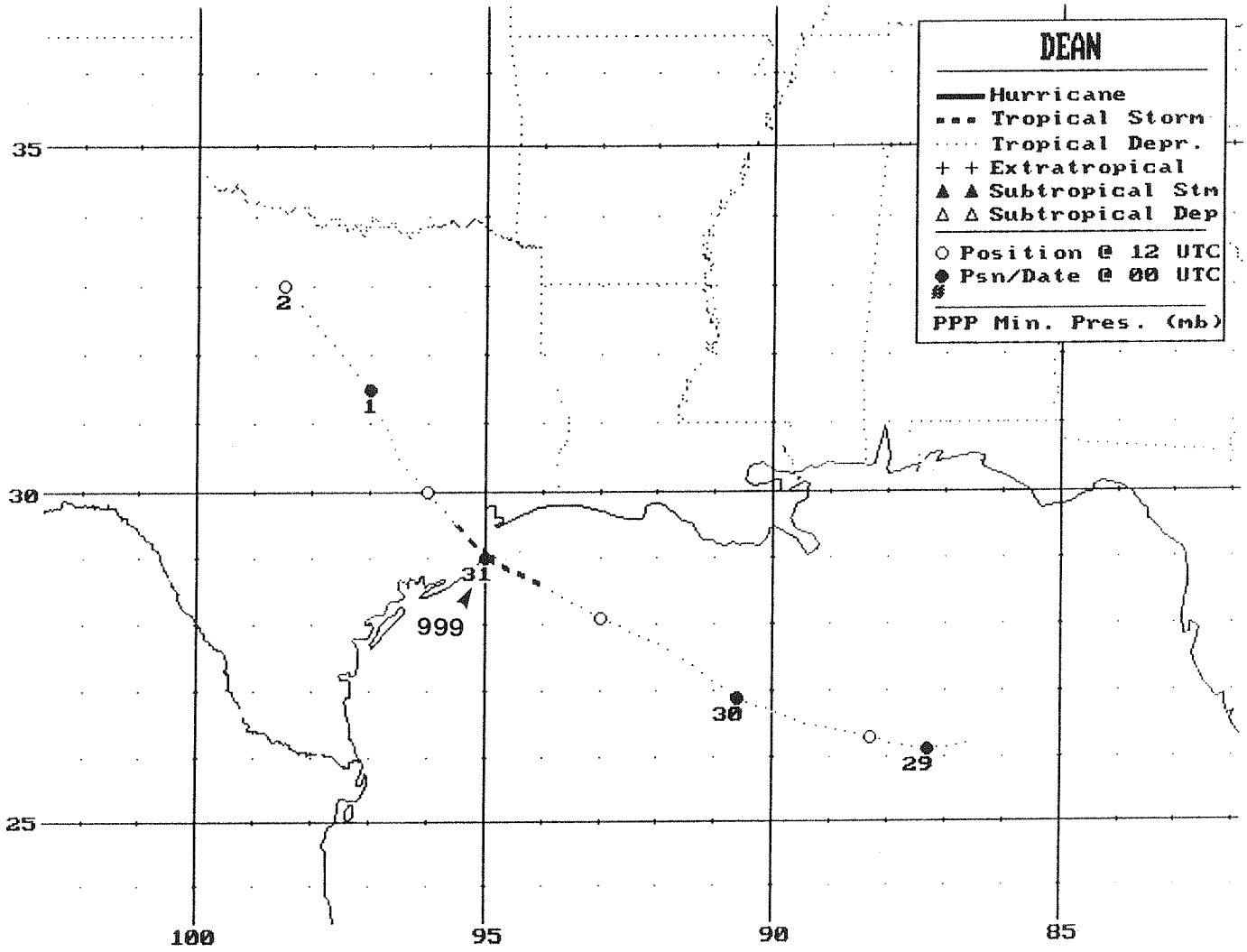
Fig. 3. Best track minimum central pressure curve for Tropical Storm Dean. Pressure after landfall based on surface analysis.

Table 1. Preliminary best track, Tropical Storm Dean, 27 July - 3 August, 1995

Date/Time (UTC)	Position Lat.(°N)	Lon. (°W)	Pressure (mb)	Wind Speed (kt)	Stage
28/1800	26.2	86.6	1009	25	Tropical Depression
29/0000	26.1	87.3	1008	30	" "
0600	26.2	87.9	1008	30	" "
1200	26.3	88.3	1008	30	" "
1800	26.5	89.4	1007	30	" "
30/0000	26.9	90.6	1007	30	" "
0600	27.6	91.7	1006	30	" "
1200	28.1	93.0	1005	30	" "
1800	28.6	94.0	1003	35	Tropical Storm
31/0000	29.0	95.0	999	40	" "
0600	29.5	95.5	1002	30	Tropical Depression
1200	30.0	96.0	1003	25	" "
1800	30.5	96.5	1003	20	" "
1/0000	31.5	97.0	1004	20	" "
0600	32.0	97.5	1004	20	" "
1200	33.0	98.5	1004	20	" "
1800	33.0	98.5	1004	20	" "
2/0000	33.0	98.5	1004	20	" "
0600	33.0	98.5	1004	20	" "
1200	33.0	98.5	1004	20	" "
1800	33.0	98.5	1004	20	" "
3/0000					dissipated
31/0000	29.0	95.0	999	40	Minimum Pressure
31/0200	29.2	95.3	999	40	Landfall near Freeport Texas

Table 2. Selected rainfall accumulations (inches) associated with Dean.

Location	Total	Location	Total	Location	Total	Location	Total
Louisiana							
LCH Airport	0.77						
Texas							
Monroe City	16.78						
Vernon	14.00	Anahuac	9.80	Dayton	8.00	New Waverly	6.65
Hunstville	5.00	Tarkington Praire	5.00	Cleveland	4.25	Shepherd	3.25
Wolf Creek Park	2.80	Point Blank	2.90	Caney Creek	2.60	New Caney	2.44
Jasper	2.50						



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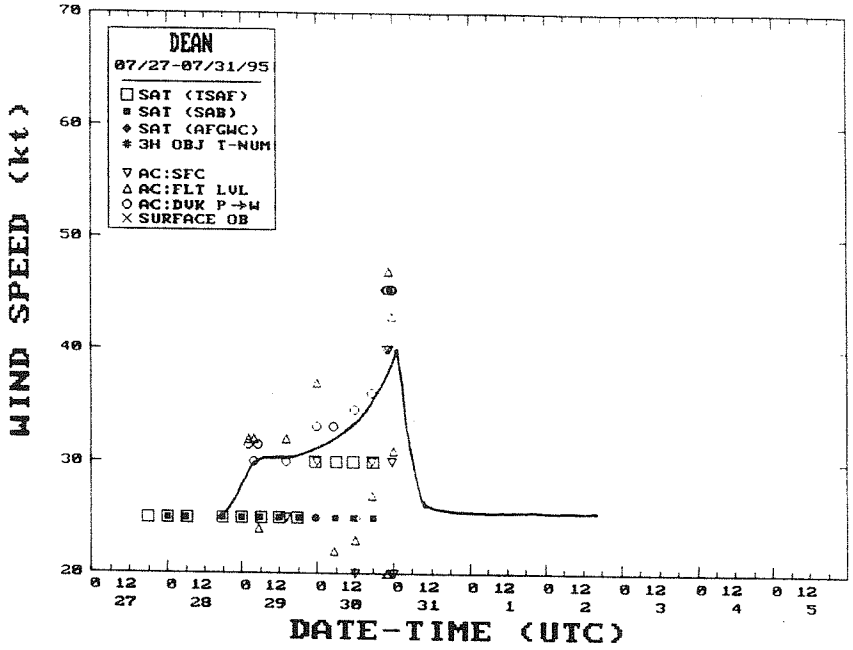
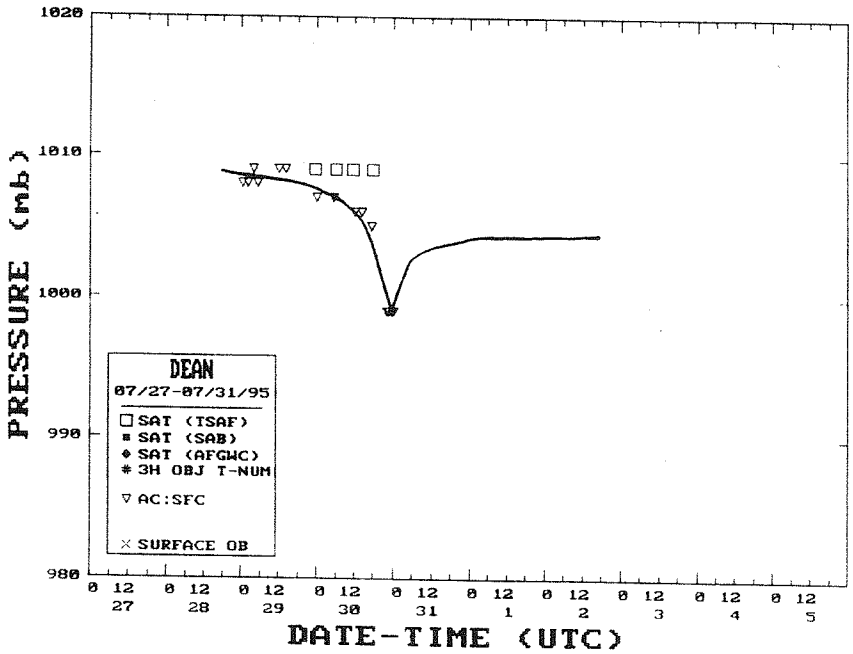


Fig. 2. Best track one-minute surface wind speed curve for Tropical Storm Dean.



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