

Preliminary Report
Tropical Storm Ignacio
17-19 August 1997

Edward N. Rappaport
National Hurricane Center
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a. Synoptic History

Tropical Storm Ignacio formed from a large area of disturbed weather that persisted well west of mainland Mexico from 14-16 August. Dvorak-technique satellite analyses were made on at least three different centers of activity within the weather system during that period. The disturbance that became Ignacio was first analyzed early on the 16th, several hundred miles to the southwest of the southern tip of Baja California. By 1800 UTC on the 16th, convective bands had developed there and they were turning cyclonically around a mid-level cloud-system center. Animation of visible satellite pictures indicated that low clouds were not as well organized at that time, and their motion did not appear to describe a closed circulation. The system continued to become better organized, however, and it is estimated that it became a tropical depression at 0000 UTC on the 17th, about 450 n mi to the southwest of Cabo San Lucas (Table 1 and Fig. 1).

The genesis occurred to the northwest of the area where most eastern North Pacific tropical cyclones form, just south of that basin's sharp gradient in sea-surface temperatures. It was also to the south of a mid-level to upper-level low centered offshore of southern California. A trough trailed southwestward from the low and the steering currents associated with the low and trough moved the tropical cyclone toward the northwest and then the north at 10 to 15 knots from the 17th through the 19th.

The most intense burst of deep convection near the cyclone's center occurred early on the 17th and intensity estimates from the NOAA Tropical Analysis and Forecast Branch (TAFB) reached 35 knots at 1200 UTC that day. This is the time that the system is analyzed as having become Tropical Storm Ignacio.

The strengthening trend was short-lived. Ignacio moved over much cooler waters and encountered southerly shear. In that environment, deep convection was sustained only intermittently in the northwest quadrant, where low-level convergence was strongest, and Ignacio weakened back to a tropical depression early on the 18th.

Satellite pictures indicated a rejuvenation of cold cloud tops, mostly in the cyclone's northern semicircle on the 19th. This development was likely induced by baroclinic processes,

occurring over relatively cool waters where a mid-latitude trough was approaching from the northwest. These observations form the basis for designating the system as extratropical at 1200 UTC on the 19th. The extratropical low dissipated near the south-central California coast about 24 hours later.

Clouds and precipitation associated with the remnant circulation aloft moved northward on the 19th and 20th, through northern California, Oregon, Washington and southern British Columbia. On the 20th, this moisture was incorporated into the eastern part of a large offshore extratropical cyclone associated with the remnant of Hurricane Guillermo.

b. Meteorological Statistics

Table 1 lists the post-storm "best track" data for Ignacio. Figures 2 and 3 show the hurricane's estimated central pressure and maximum one-minute wind speed, respectively, versus time and the associated satellite data. Position and intensity estimates from satellite pictures were provided by the Air Force Global Weather Center (AFGWC), TAFB and NOAA Synoptic Analysis Branch (SAB). ERS-2 data was helpful in the analysis of the cyclone's surface circulation.

There were no observations of tropical storm force winds at surface sites.

Rainfall totals were generally 0.5-1.25 inches over coastal areas of central California, with a maximum of 2.17 inches recorded at Three Peaks, in the coast range about 100 n mi south of San Francisco. Such rains are rare events in the summer months in California. About 1 inch of rain fell in San Francisco and that was more than had previously occurred there for the entire month of August since records began in 1850.

c. Casualty and Damage Statistics

There were no reports of casualties or damages. Thunderstorms were apparently responsible for some power outages in central California.

d. Forecast and Warning Critique

While the few NHC track and intensity forecasts for Ignacio were good, the system was a not a tropical storm long enough to allow for a meaningful quantitative evaluation of forecast accuracy.

Coastal watches and warnings were neither issued nor necessary.

Table 1. Track of Tropical Storm Ignacio, 17-19 August 1997.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
17/0000	18.7	117.9	1008	25	Trop. Depression
0600	19.6	118.7	1006	30	" "
1200	20.4	119.4	1005	35	Tropical Storm
1800	21.2	120.1	1006	35	" "
18/0000	22.1	120.7	1006	35	" "
0600	23.2	121.2	1007	30	Trop. Depression
1200	24.5	121.6	1008	30	" "
1800	25.9	121.8	1008	25	" "
19/0000	27.2	121.8	1009	25	" "
0600	28.6	121.9	1009	25	" "
1200	30.0	121.8	1010	25	Extratropical
1800	31.7	121.7	1010	20	" "
20/0000	33.3	121.6	1010	20	" "
0600	35.0	121.5	1012	20	" "
1200					Dissipated
17/1200	20.4	119.4	1005	35	Minimum Pressure

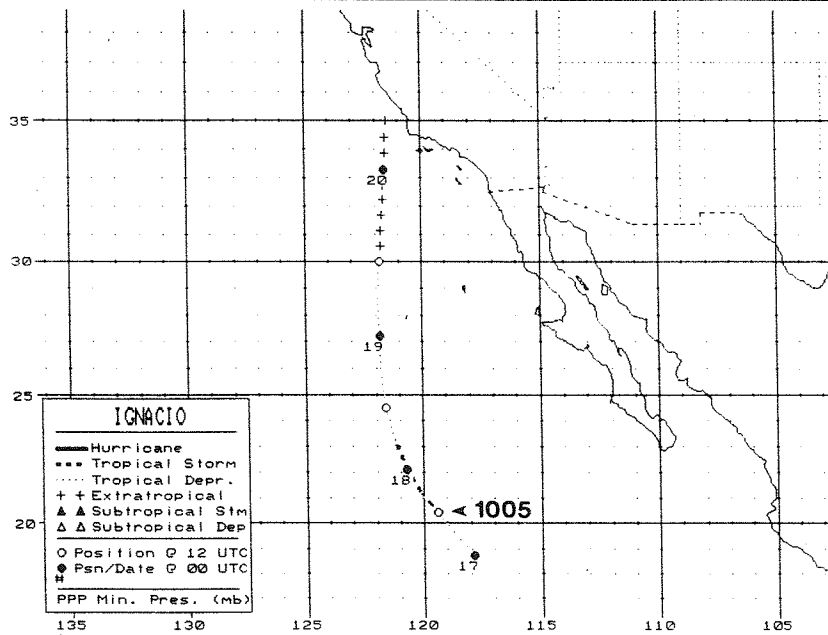


Figure 1. Best track positions for Tropical Storm Ignacio.

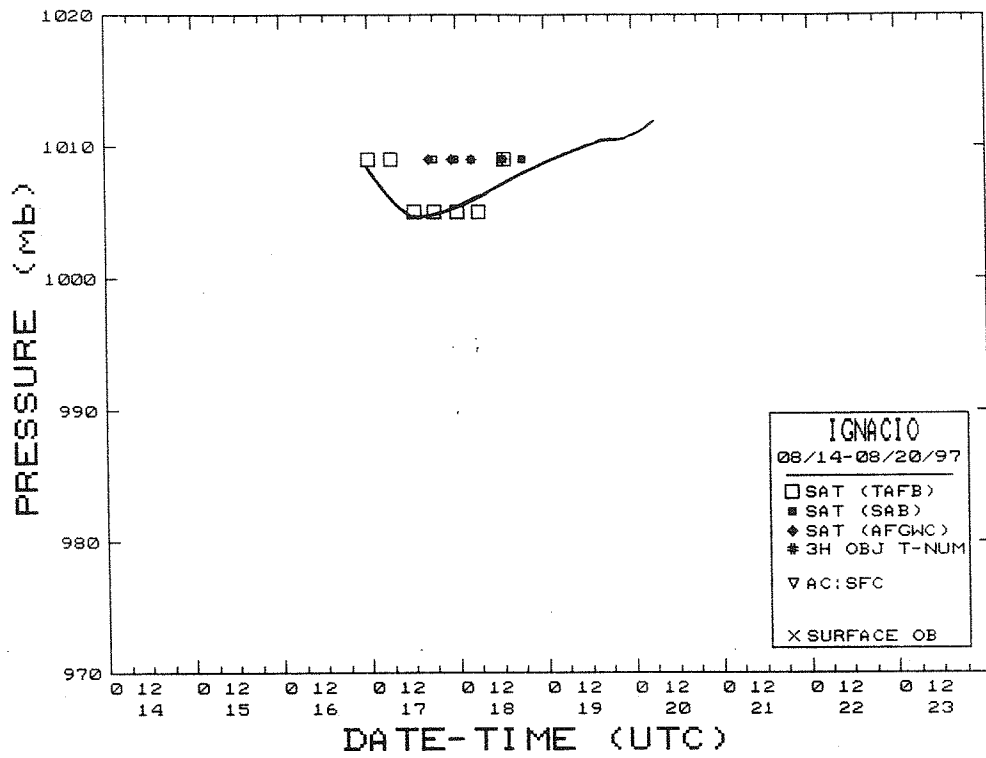


Figure 2. Best track central pressure curve for Tropical Storm Ignacio.

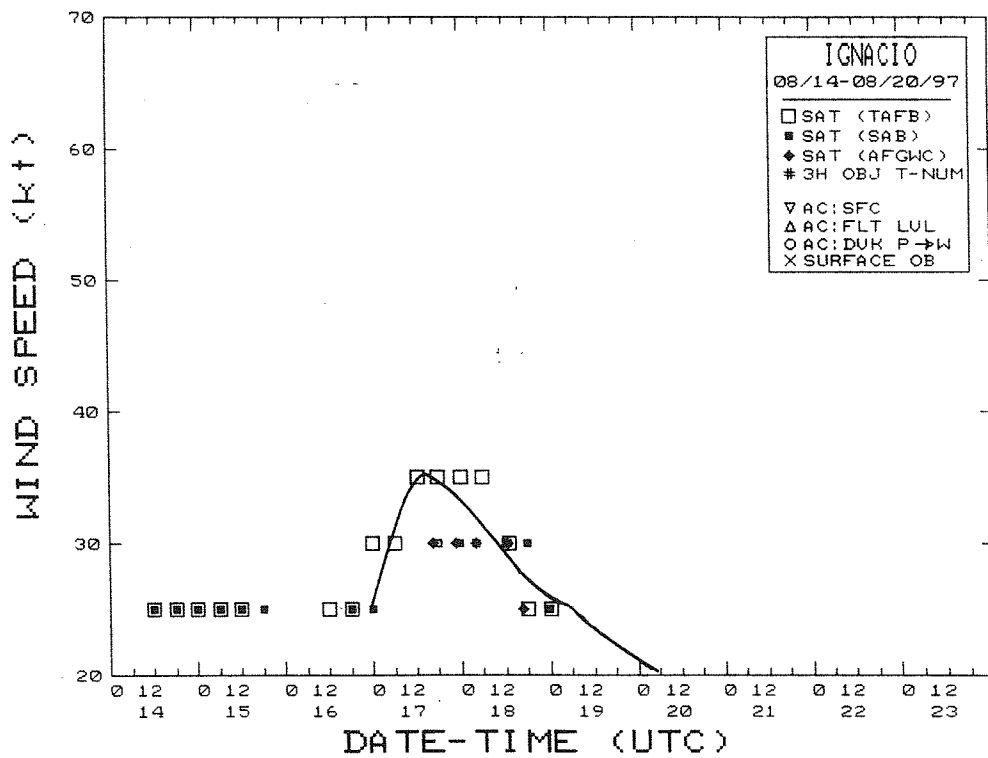


Figure 3. As in Fig. 2, except for maximum one-minute wind speed.