

Tropical Cyclone Report
Tropical Storm Lorenzo
27-31 October 2001

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Lorenzo was a short-lived tropical storm with winds to 35 knots over the central north Atlantic Ocean.

a. Synoptic History

Lorenzo originated from a tropical upper tropospheric trough that had persisted over the eastern North Atlantic Ocean. On 26 October, a low-level circulation developed beneath this trough. On the next day, organized convection was sufficient to identify the system as a tropical depression, centered about 750 n mi south-southwest of the westernmost Azores. The "best track" of the tropical cyclone begins at 1200 UTC on the 27th. A map of the best track positions is shown in Fig. 1 and six-hour center positions, wind speeds, and central pressures are listed in Table 1. Time series curves of best track wind speed and pressure are shown in Figs. 2 and 3.

The depression moved westward, steered by a deep-layer ridge located to its north. It gradually turned northward on the 30th, as a strong trough in the westerlies and frontal zone approached from the west. The low-level center was mostly exposed to the west of the convection until this turn when some deep convection flared up near the center. The depression is estimated to have strengthened to Tropical Storm Lorenzo early on the 30th. Lorenzo merged with the approaching frontal zone on the 31st, while located about 600 n mi west of the westernmost Azores.

b. Meteorological statistics

Satellite data is the primary basis for the best track values of maximum 1-minute surface wind speed and minimum central surface pressure. The satellite intensity estimates are plotted in Figs. 2 and 3. In addition, a Quikscat pass on the 30th showed uncontaminated wind speeds to 35 knots. The ship 3ESP7 reported winds from 37 to 43 knots on the 28th and 29th, as it moved near the depression. However, this ship is estimated to have a positive wind speed bias of 23 knots, based on a comparison with other ship reports by the Marine Prediction Center.

c. Casualty and damage statistics

No deaths or damages are attributed to Lorenzo.

d. Forecast and warning critique

Lorenzo was a tropical storm for 30 hours and only four 12-hour forecasts and two 24-hour forecasts were verified. The few official track forecasts verified had track errors somewhat larger than the previous ten-year average official errors. The few official intensity errors were smaller than the previous ten-year averages.

Table 1. Best track for Tropical Storm Lorenzo, 27-31 October 2001.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (Millibar)	Wind Speed (kt)	Stage
27 /1200	27.2	34.9	1010	30	tropical depression
27 /1800	27.5	36.1	1009	30	“
28 /0000	27.5	37.4	1009	30	“
28 /0600	27.5	38.7	1009	30	“
28 /1200	27.5	39.8	1009	30	“
28 /1800	27.5	41.0	1009	30	“
29 /0000	27.2	41.3	1009	30	“
29 /0600	27.7	41.9	1009	30	“
29 /1200	27.8	42.7	1009	30	“
29 /1800	28.0	43.7	1009	30	“
30 /0000	28.5	44.6	1007	35	tropical storm
30 /0600	29.4	45.5	1007	35	“
30 /1200	30.9	45.6	1007	35	“
30 /1800	32.8	46.0	1008	35	“
31 /0000	34.9	44.9	1008	35	“
31 /0600	37.4	43.1	1008	35	“
31 /1200	merged with frontal system				
30 /0000	28.5	44.6	1007	35	minimum pressure

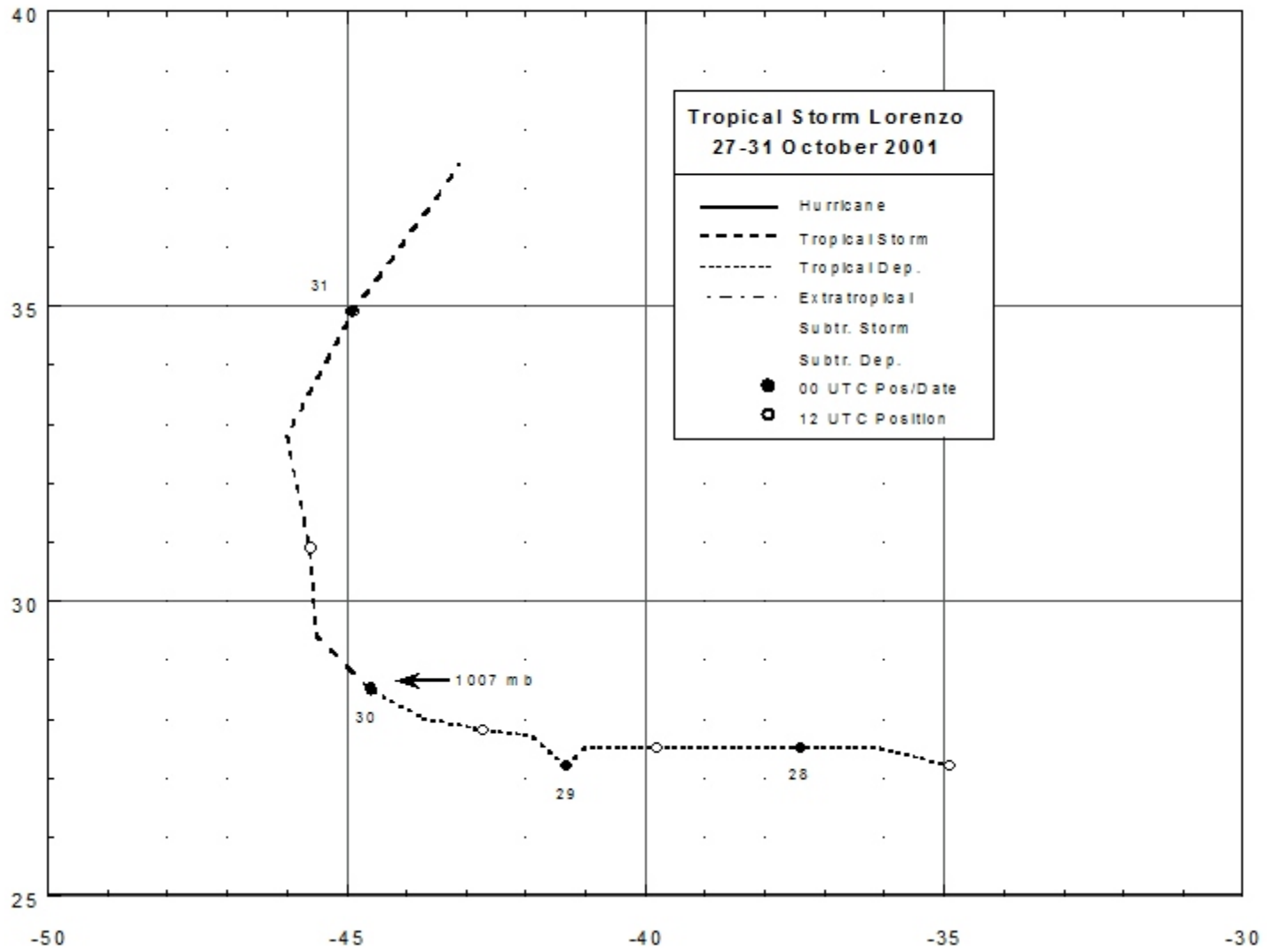


Figure 1. Best track positions for Tropical Storm Lorenzo, 27-31 October 2001.

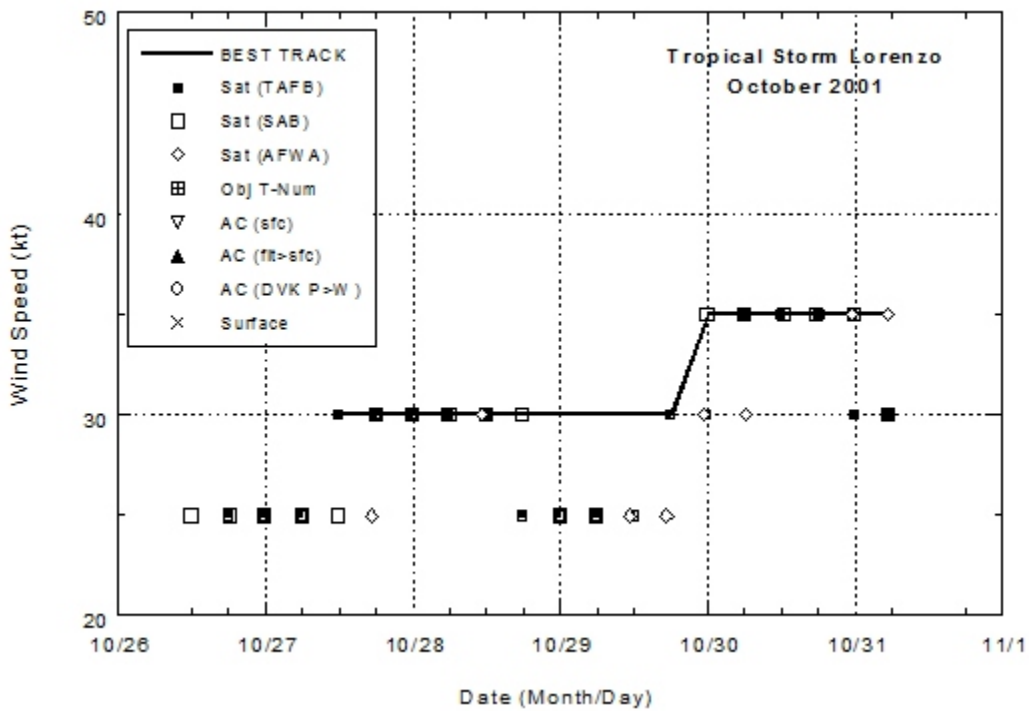


Figure 2. Best track maximum sustained surface wind speed curve for Tropical Storm Lorenzo, 27-31 October 2001, and the observations on which the best track curve is based.

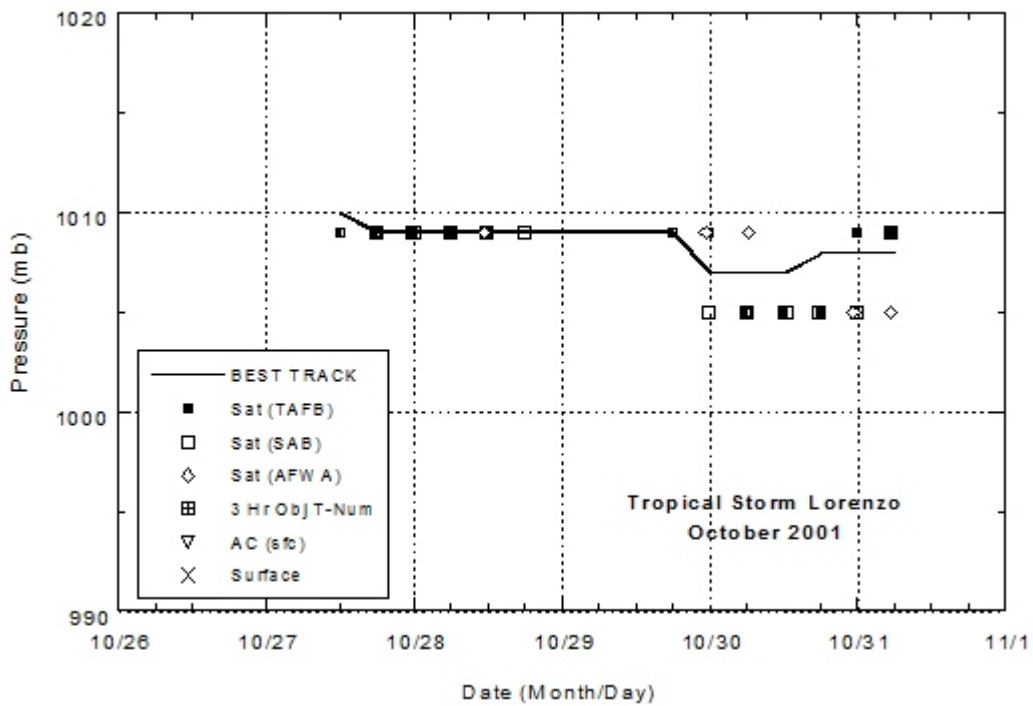


Figure 3. Best track minimum central pressure curve for Tropical Storm Lorenzo, 27-31 October 2001, and the observations on which the best track curve is based.