

Tropical storms in southern California are rare events, but they can cause significant impacts. This poster looks at Tropical Storm Hilary (2023), Tropical Storm Nora (1997) and the Long Beach Tropical Storm (El Cordonazo) from 1939. Tropical Storm Hilary dropped heavy rain over southern California. The potential impacts of Hilary prompted the National Hurricane Center to issue a Tropical Storm Warning for a portion of the coast of southern California. Tropical Storm Nora caused several hundred million dollars in damage to agriculture. The Long Beach Tropical Storm is thought to have caused 93 fatalities and two million dollars in damage in 1939.

Both Hilary and Nora intensified to major hurricanes over the Eastern North Pacific. The Long Beach Tropical Storm in 1939 was a hurricane until it weakened just before landfall on the California coast. Hilary and Nora made landfall in Baja California and weakened before moving north over the Southwest U.S. Cut off lows associated with upper level troughs west of the U.S. steered both Hilary and Nora northward toward southern California. The upper level troughs also caused the vertical wind shear to increase while Hilary and Nora were moving toward the north.

The Sea Surface Temperatures (SSTs) warmed quickly in the central and eastern Equatorial Pacific Ocean during the months prior to Hilary, Nora and the Long Beach Tropical Storm. A strong El Nino began in 2023, 1997, and 1939. Warmer than normal SSTs may have contributed to the persistence of the three tropical storms as they moved farther north.