Figure II.30 Tropical storm and hurricane tracks during the 1997 Atlantic Hurricane Season. (NOAA/NHC, USA)

1	ST	—	Jun 1–2
2	T	Ana	Jun 30–Jul 4
3	H	Bill	Jul 11–13
4	T	Claudette	Jul 13–16
5	H	Danny	Jul 16–28
6	H	Erika	Sep 3–15
7	T	Fabian	Oct 4–8
8	T	Grace	Oct 16–17

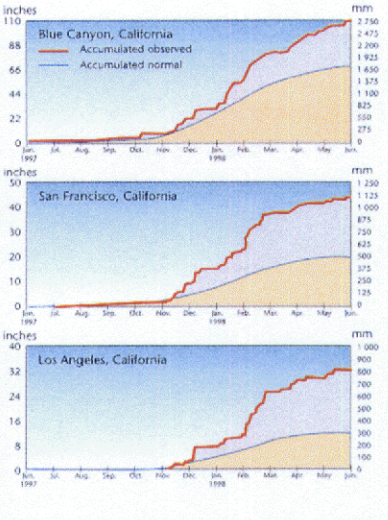

Figure II.32 Accumulated rainfall and excess over normal at three locations across California, USA: a) Blue Canyon; b) San Francisco; and c) Los Angeles. (NOAA/CPC, USA)

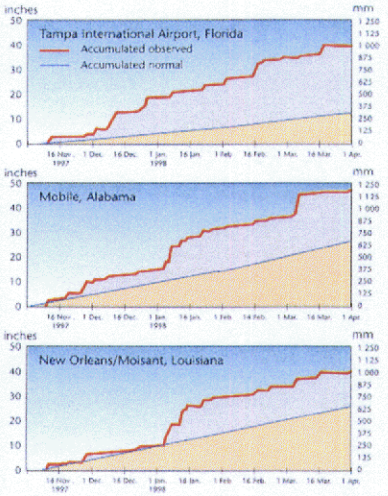

Figure II.33 Accumulated rainfall and excess over normal at three locations across southeastern United States: a) Tampa, Florida; b) Mobile, Alabama; and c) New Orleans, Louisiana. (NOAA/CPC, USA)

Louisiana and Florida. During the period, many locations across Florida and Louisiana received less than half of normal rainfall and broad sections of Texas and New Mexico received less than 25 per cent of normal precipitation. Extreme heat accompanied the dry conditions, which lasted into early summer, even though the El Niño conditions were then rapidly dissipating. The heat and drought in Florida contributed to extensive fires that burned nearly one-half million acres. The dryness across the southern United States was a dramatic change from the surplus precipitation observed in most of this region from late 1997 through early March 1998.

The abnormally warm coastal waters from Mexico to northern California had a major impact on marine life and fishing industries. The region includes the transition between the tropical and temperate eastern North Pacific Ocean — referred to as the Eastern Transitional North Pacific (ETNP). At the transition zone the highly variable conditions amplify the general problems of lack of knowledge about physical and biological mechanisms operating, and of lack of historical data and operational monitoring systems.

Even from the available data, however, it is clear that the environmental temperatures and the nutrient supply necessary for biological enrichment were altered during the El Niño event. Figure II.36 shows time series of sea surface temperatures at various locations along the ETNP coast. During the 1997–1998 El Niño event temperatures reached record high values at many locations. At least part of the change in temperature at the ETNP arises from the relaxation of wind that is the primary forcing agent for coastal upwelling.

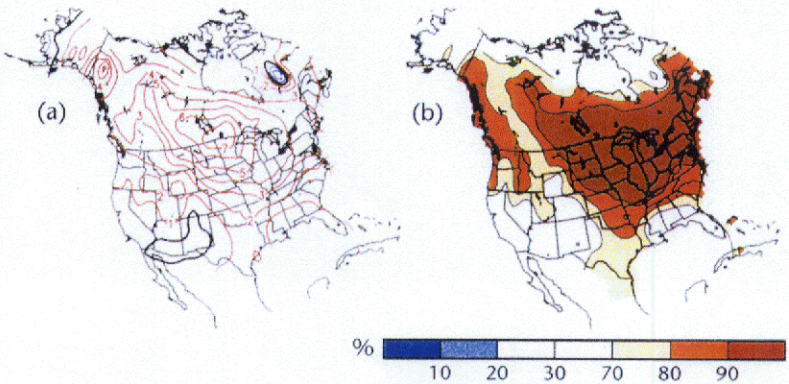

Figure II.34 a) Surface temperature anomalies [°C], and b) surface temperature expressed as percentiles of the normal (Gaussian) for December 1997–February 1998. Anomalies are departures from the 1961–90 base period means. (NOAA/CPC, USA)