

El Nino and Climatic Variations

Periodically, the failure of the Eastern Trade Winds to develop in the eastern equatorial Pacific causes abnormal weather and climate, especially in Peru, as the Peruvian Current, an upwelling nutrient-rich system, gives way to a warm easterly flowing current. This extreme condition is called El Niño. Because of its strength and widespread effects on global weather patterns, the El Niño of 1982-83 has been labeled by some as the most remarkable climatic event of the century.^{1,2,3} Satellite-derived sea-surface temperatures will eventually allow scientists to monitor the development and extent of the change and lead to better understanding, and hence predictions, of El Niño conditions. New techniques of measuring sea-surface temperature from the National Oceanic and Atmospheric Administrations (NOAA) satellite sensors were inaugurated in November 1981 by the National Environmental Satellite Data and Information Service

¹MA Cane, "Oceanographic Events During El Niño" *Science* 222, 1983, pp 1189-1194.

²E M Rasmussen and J M Wallace, 'Meteorological Aspects of the El Niño Southern Oscillation,' *Science* 222, 1983, pp 1195-1202

³R. T Barber and F. P Chavez, 'Biological Consequences of El Niño,' *Science* 222, 1983 pp. 1203-1210

(NESDIS), The 1982-83 El Niño began to develop over the central equatorial Pacific during June and July 1982, but it did not reach the South American coast until September 1982.

Several excellent NOAA-7 images have enabled delineation of surface thermal patterns off the South American coast (figs. 5 and 6 in ch. 5). These temperature patterns agree with buoy temperatures and permit an integrated picture of this climatic anomaly. With extensive monitoring by satellites, bouys and ships, this, the most significant El Niño of modern times, has been documented, studied, and understood better than any other El Niño.

The 1982-83 El Niño has temporarily destroyed the lush fishing industry of Peru, thereby harming the economy of that nation. It also produced torrential rains in desert areas, triggering mudslides and floods; devastated the adobe housing of most of the rural inhabitants; and generally disrupted transportation. Abnormal rains related to El Niño patterns have also plagued Central America and California. The circulation patterns producing this El Niño have extended all around the world.