

El Niño and La Niña

The terms “El Niño” and “La Niña” refer to deviations from “typical” wind and ocean conditions (chiefly, but not only, in the Pacific region) that produce noticeable, but temporary, changes in weather in many parts of the world.

Assignment: Visit the Web site “All About El Niño” (first entry on the course Web site under Links/Oceanography) for definitions, graphics, animations, etc.

Some key terms

Trade winds (LT p. 347-348 for figure and brief definition)

Upwelling (LT p. 258 for brief explanation; also see “All About El Niño” Web site)

Sea-surface temperature (SST) (measured by satellites)

Some key concepts

In “normal” conditions, the eastern trade winds drag warm tropical water westward into the western Pacific (near Asia and Australia). This allows upwelling of cold, nutrient-rich deep water along the coast of South America. Marine life and the fishing industry thrive.

In El Niño (EN) conditions, the eastern trade winds are weaker than normal (or reversed). Thus, warm water doesn't clear out of the eastern Pacific, and the SST there rises by up to 6°C (11°F). Cold-water upwelling doesn't occur, fishing industry suffers, and many parts of the world experience short-term weather changes.

In La Niña (LN) conditions, the east trade winds are stronger than normal, and cold water rises and spreads in the eastern Pacific. This, too, produces short-term weather changes worldwide.