

Implications of changing El Niño patterns for biological dynamics in the tropical Pacific ocean

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El Niño events have significant effects on biological production, air-sea CO₂ exchange and ecosystem structure in the tropical Pacific. Since the 1990s there has been an apparent shift of the El Niño maximum sea-surface temperature (SST) warm anomaly from the eastern to the central equatorial Pacific. A decade of satellite observations of sea level, SST and phytoplankton chlorophyll-a (Chl-a) shows significant changes in Chl-a, new production and total primary production in the tropical Pacific during central Pacific (CP) El Niño events relative to classical El Niño events. Such events could occur more frequently under projected global warming, so the central Pacific may experience even lower biological productivity which may be partly offset by an increase in the eastern Pacific.