

Mesoscale primary production and bio-optical variability off Antofagasta (23-24° S) during the transition to El Niño 1997-1998

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The spatial variability of primary production (PP), chlorophyll-a (Chl-a) and the photosynthetic parameters were studied off Antofagasta, Chile (23-24° S, 70-72° W) during austral summer and winter. Between cruises (January and July 1997), significant changes occurred in the water column, including higher temperatures in the euphotic zone (Zeu) deepening of thermocline below Zeu, an increase of oxygen concentration and the intrusion of Subtropical Waters with potential limitation of nutrients. These strong physical anomalies due to the transition period of El Niño 1997-1998 appeared in this study area during March 1997. During the July cruise, the El Niño event 1997-1998 was in the middle of its development (IOS-2). The hypothesis that chlorophyll-a concentrations and primary production differ significantly in the coastal areas in the Antofagasta region due to year-round coastal upwelling was tested in this study. Photosynthesis versus irradiance (P-E) experiments were performed daily,