



New and regenerated primary production in an Antarctic coastal embayment, Marguerite Bay

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The climate of the western Antarctic Peninsula is changing more rapidly than anywhere else in the Southern Hemisphere. Marguerite Bay (67° 50'S 68° 10'N) is a highly productive coastal area in this region and has been the location of the British Antarctic Survey's long-term Rothera biogeochemical Time Series (RaTS) since February 1997. This time series has shown high chlorophyll *a* concentrations typically reaching ca. 20 mg m⁻³ in surface waters during the short ice-free austral summer. Growth is not iron limited in this region due to supply from the sediments in contrast to Southern Ocean HNLC areas.

Results from samples taken during the 2005-06 austral summer (December - March) at the RaTS site will be presented from a study which added to the routine baseline measurements (e.g. dissolved inorganic nitrate, ammonium, phosphate, silicate and chlorophyll *a*). Our measurements include a more detailed investigation of nutrient standing stock and dissolved Fe concentrations in addition to primary, new and productivity rates which allowed water-column integrated production to be estimated in the euphotic zone. Primary productivity rates remained high during the sampling period with an average of ca. 5 gC m⁻² d⁻¹. In addition the contribution of new primary production dominated for the whole sampling period with new production >50% driving high export from the euphotic zone.