

Aurora Australis JGOFS Cruises in the Southern Ocean

Cruise Summary: AU9706

Oceanographic measurements were conducted west and south of Tasmania between about 40°S and 55°S near 140°E in March 1998. This cruise was designed as a process study to compare and contrast the roles of the Subantarctic Zone and Polar Frontal region. A number of processes were investigated, including the relative contributions of the biological and solubility pumps to CO₂ in surface waters, the magnitude and controls on primary production, including the roles of iron and silicate; and the magnitude and controls on particulate carbon export to the deep sea. Water bottle samples were collected for the measurement of salinity, dissolved oxygen, nutrients, dissolved inorganic carbon, primary productivity, and biological parameters using a 24 bottle rosette sampler. Samples were taken using trace metal clean samplers for iron measurements, and pump samples were taken for particulates, as well as retrieval and redeployment of sediment traps. A special edition of the Journal of Geophysical Research (JGR 106, C12, 2001) contains the initial 16 published research papers resulting from this cruise

Fluorescence and PAR profiles were collected on CTD casts using a Sea Bird CTD and a Sea Tech fluorometer.

Data included in this JGOFS data report include CTD, nutrients, HPLC chlorophyll-a, photosynthetic parameters determined using a production vs irradiance technique, and modelled water column primary production along the SR3 transect. The fluorescence profiles from each station were converted to chlorophyll-a profiles using the discrete depth HPLC chlorophyll-a samples from the same station.