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TEMPORAL OBSERVATION OF HYDROCHEMICAL CONDITIONS IN THE ADMIRALTY BAY – KING GEORGE V ISLAND – ANTARCTICA (2002-2005)

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The Brazilian Antarctic Station is located at George V King Island, more exactly in the Martel Inlet at Admiralty Bay. This Bay has an important communication with the Bransfield strait and there are three inlets in the internal part of this bay, i.e., Ezcurra, Mackellar and Martel Inlets. In the central part of the Bay, the water column is deeper than the border part. In the interior of the Inlets, the circulation processes are restricts and the influence of the melting and the interaction with the sediment contribute to the hydrochemical conditions of the water and to the biogeochemical cycles in this special ecosystem. The PROANTAR, Brazilian Antarctic Project supported a research of the hydrochemical conditions in the water of Admiralty Bay during three consecutive summers (2002/2003, 2003/2004 and 2004/2005). Salinity was determined with a Beckman salinometer; pH with a radiometer pHmeter; dissolved oxygen was measured following Winkler method described in Grasshoff *et al*.,(1983) nutrients are determined following the methods described by the author cited. DON and PON were determined by photo-oxydation method with UV. During this study, temperature varied from -0.95 to 2.59 °C; salinity varied from 30.62 to 34.77 psu; pH varied between 7.72 and 8.38; dissolved oxygen varied from 1.86 to 9.53 mL/L. The nutrient analyses showed silicate concentrations between 5.68 to 139.67 µM; phosphate from 0.00 to 5.67 µM and N-ammonium from 0.00 to 11.74 µM; nitrite from 0.12 to 1.96 µM; nitrate from 10.07 to 44.93 µM. Organic components as urea, showed values between 0.00 to 1.84, and DON varied from 0.08 to 37.00 µM. There are some information of the components from biogeochemical cycles of nutrients and differences of behavior between the three summers observed, in function of the climate, melting and circulation process. In the summer 2003/2004, the water, in general, was hottest, saltiest and exposed to a minor terrestrial inputs in relation to the other periods studied. The annual differences observed in the Bay in function of the local dynamic and also in function of the global changes and large scale phenomenon.