DIATOMS ASSEMBLAGES AT WEDDELL AND BELLINGSHAUSEN SEAS, MARGUERITTE BAY AND GERLACHE STRAIT DURING AUSTRAL SUMMER OF 2001 AND 2002

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Abstract: Diatoms species were identified in surface waters from three different regions of the Antarctic Peninsula. Taxonomic identification was made through scanning electron microscopy and light microscopy. A total of forty-seven taxa of diatoms were identified. The species *Minidiscus chilensis* and *Thalassiosira oceanica* were reported for the first time in Antarctic waters.

Qualitative composition of phytoplankton in Antarctic waters presents many interesting features. Distinct biogeographical zones can be identified by phytoplankton species. Furthermore, qualitative studies are helpful in the comprehension of size structure of the phytoplankton community from Southern Ocean and lead to questions like nanoflagellate versus diatom dominance, which has implications on the carbon fluxes through water column. This study constitutes an attempt to make a taxonomic survey of diatoms from three different regions in the Antarctic Peninsula.

Original data presented here were collected during the XIX and XX Brazilian Antarctic cruises both conducted in mid summer of 2001 and 2002, respectively. The XIX expedition covered the northwestern area of the Weddell Sea and the XX expedition covered Bellingshausen Sea, Margueritte Bay and Gerlache Strait (Figure 1).

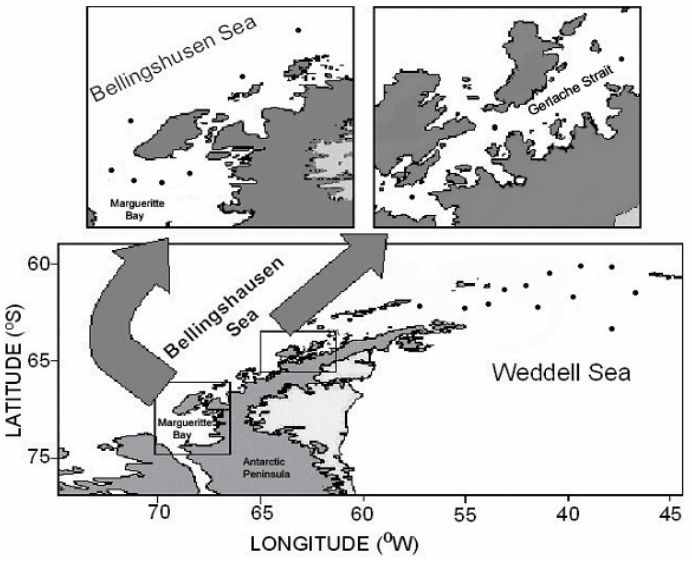

Figure 1: Location of sampling stations.

Water samples were collected at surface water through 5 L Niskin bottles mounted on a CTD rosette on board the Brazilian RV *Ary Rongel*. For electron microscopy, 50 mL of water was filtered through Nuclepore polycarbonate filters of 1 µm pore-size. For inverted microscopy, aliquots of 100 mL were preserved in 4% formalin (final concentration). Scanning electron microscopy was employed for samples of both cruises while light microscopy was used only for samples from the XX Brazilian Antarctic expedition.

A total of forty-seven taxa of diatoms were identified, including seven generic taxa and forty species. Most of the data presented here have been often cited as important components of diatom flora from Antarctic ecosystem.

The local phytoplankton community consisted of cosmopolitan, bipolar, and southern cold-water species. However, the species *Minidiscus chilensis* and and *Thalassiosira oceanica* were reported for the first time in Antarctic waters.

Bellingshausen Sea presented the highest richness (30 taxa found) followed by Margueritte Bay (28 taxa), Gerlache Strait (27 taxa) and Weddell Sea (14 taxa). The species *Actinocyclus* sp.; *Grammatophora* sp.; *Lioloma* sp. and *Thalassiotrix antarctica* were limited to Bellingshausen Sea. *Asteromphalus hookeri*; *Leptocylindrus* sp.; *Licmophora* sp. and *Proboscia alata* were constrained to Margueritte Bay. *Banquisia belgicae*; *Chaetoceros criophilus*; *Chaetoceros dichaeta*; *Nitzchia longissima*; *Rhizosolenia chunii*; *R. curvata*; and *R. setigera* were identified only in the Gerlache Strait and *Fragilariopsis sublinearis* and *Thalassiosira gracilis* were restricted to Weddell Sea. The genus *Chaetoceros*, *Pseudo-nitzchia*, *Thalassiosira*, and the species *Fragilariopsis cylindrus* were observed in all studied areas.

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