



HIGH PRODUCTIVITY IN THE SOUTHERN BRAZILIAN MARGIN DURING THE LAST GLACIAL

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The upwelling of cold and nutrient-rich waters in continental margins boosts the biological productivity and has a paramount role in the carbon cycle and the global climate system. In order to reconstruct the evolution in paleoproductivity at the southern Brazilian Margin (SBM) during the late Quaternary, we provide 50 ka-long records of the abundance of planktonic foraminifera *Globigerina bulloides* (typically associated with upwelling waters), and organic geochemical proxies (i.e. C/N ratio and $\delta^{13}\text{C}_{\text{org}}$) from piston core JPC-17 (27°41.839'S, 46°29.649'W, 1627 m). Enhanced abundance (10 – 16%) of *G. bulloides*, low C/N (6 – 12) and $\delta^{13}\text{C}_{\text{org}}$ (-19 – -21‰) indicate high marine productivity during the last glacial, associated to the outcropping of cold and nutrient-rich South Atlantic Central Waters (SACW). However, upwelling zones in the SBM were reduced during the last glacial due to the vigorous alongshore SW winds and the weak Brazil Current, being limited to short periods year-round. Rather than intense, we suggest that the outcrop of SACW with high dissolved silicic acid preformed in the Atlantic sector of the Southern Ocean (the “silicic acid leakage hypothesis”) may have favored diatom growth in the SBM during the last glacial. Diatoms are the main diet for *G. bulloides* that may have taken advantage of the increased food availability and colder waters to proliferate in the SBM during the last glacial. In contrast, reduced Si production and exportation from Southern Oceans during the Holocene may have hampered diatom production and *G. bulloides* (0–5%) proliferation leading to the modern oligotrophic conditions.

Keywords: Multiproxy; paleoceanography; glacial-interglacial.

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