



Organic geochemical markers of sediment in a complex continental margin of the Southeastern Brazilian Coast

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Several geochemical proxies (carbon and nitrogen stable isotopes, aliphatic hydrocarbons (AHs), polycyclic aromatic hydrocarbons (PAH), steroids and alkenones) were used to characterize the sedimentary organic matter on surface sediment and cores collected off São Sebastião Island in the Southeastern Brazilian Continental Shelf. The aim of this characterization was to evaluate the potential export of terrigenous material to the ocean and the implications of this contribution in the marine productivity. The organic compounds were Soxhlet extracted and purified through an alumina column. AHs, steroids and alkenones analysis was carried out using a gas chromatograph equipped with flame ionization detector (GC-FID). The PAHs were quantitatively analyzed using a gas chromatograph coupled to a mass spectrometer (GC/MS). C and N isotopes (^{13}C and ^{15}N) were determined using an elemental analyzer coupled to an isotopic ratio mass spectrometer (EA/IRMS). AHs and natural steroids showed a slight increase in the input of C₄-derived plants to the slope. There are evidences that this terrigenous material was transported from distant areas by the main alongshore boundary currents. This is an indication that the terrestrial fraction of the organic matter deposited on the slope has a distinct origin when compared to shelf sediments. The presence of PAHs evidenced both the influence of anthropogenic material from the coast and a probable input of oil from the navigation in the studied area. Climatic and oceanographic variations along the time resulted in changes in the abundance and distribution of these organic compounds and stable isotopes over the sediment cores.