

Alkanes and alkenones as proxies of sedimentary organic matter source and distribution: A 100 year high resolution record from mudbelts in the southern continental shelf of Brazil

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To assess the origin, distribution and changes in organic matter deposition on the southern continental shelf of Brazil, nine high-resolution cores were collected from mudbelts along the middle continental shelf, between 25 and 33 °S. The evaluation of molecular biomarkers showed to be very useful in understanding the distribution and variation in the contribution of terrigenous organic matter to the mudbelt region in southern Brazil. The n-alkanes results indicated the predominance of terrigenous sources. The similarity among most cores indicated a predominant source for terrigenous organic matter, related to the La Plata River outflow, which remained relatively stable over the last 100 years. The latitudinal gradient in sea surface temperature (SST) values, calculated from alkenones concentration is related to the transport of cold water from the southern region, such as Sub-Antarctic Shelf Water and the La Plata River Plume, presenting lower temperatures in the southern region of the study area and an increase towards the north. The presence of the Subtropical Shelf Front, although visible from SST results, did not influence the deposition of terrigenous organic matter. The two cores collected near the region of Itajaí, in Santa Catarina, differed significantly from the others, and presented the most expressive variations over time. Such differences are related to the greater influence of local sources for this region, especially the fluvial input from the Itajaí-Açu River, that presented variations related to changes in the rainfall regime and to the anthropic impact in the Itajaí Valley region.