Origin, spatial and temporal variation of polycyclic aromatic hydrocarbons stored in the southern brazillian continental shelf mudbelts

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Mudbelts are elongated mud deposits scattered parallel to the bathymetric contours of most continental shelfs. They can be great sedimentary archives to the holocenic variations of the introdution of contaminants in the oceans. To evaluate the orgin, latitudinal and temporal variations of the polycyclic aromatic hydrocarbons (PAHs) accumulated in the mudbelts located in the brazilian southern continental shelf (BSCS), 5 "short" (<50cm) sediment cores were collect along the BSCS mubelts. Three cores were collected in a transect in front of Tijucas Bay and 2 in front of Itajaí Bay.

Total PAHs concentrations varied between 65.71 and 313.93 ng g^{-1} dry weight. The highest concentrations were observed in the cores collected closer to Itajaí Bay, where an naval and auto industrial zone and the second largest port in container handinling in Brasil are located. The dominance of high molecular weight PAHs and isomer ratio results suggest the predominance of combustion derived PAHs throughout all cores. Total PAHs concentrations increase towards the top of all cores, with the exception of the core located closer to Tijucas Bay. The increase of pyrogenic PAHs concentrations along the cores could be related to the coal mining industry established in the 20's near Criciuma (SC). Until de late 80's, the coal was used in thermoeletric power plants and in the local metalurgic insutry. By the 90's, the coal industry went into decline when gorvernment subsidies decreased and coal started being imported. This decline may be observed in the 2 cores located near Tijucas Bay, in which Total PAHs concentrations decreased around that time.

PAHs composition in the BSCS mudbelts are probably a complex mixture of mud-adsorbed PAHs being carried by the local continental riverine discharge and of PAHs being introduced via atmospheric deposition and brought by the ocean circulation. Futher studies regarding the orign of the mudbelt's organic matter can help to better elucidate the main sources of PAHs for the area.