



## **Laminae in Holocene sediments from the southern Gulf of California: Its origin and paleoclimatic and paleoceanographic implication.**

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Alfonso Basin in the Bay of La Paz contains a sedimentary record ideal for paleo-climate studies because regional -and global- scale climate signals are preserved in its laminated sediments. A sequence of these sediments is analyzed in order to investigate on its origin and reconstruct the climatic and oceanographic variability during Holocene from the southern Gulf of California. In this context, microfossils, geochemical and magnetic mineral are used like proxies.

The sequence consists of alternating multi year laminae of different shades of olive gray.<sup>14</sup>C AMS dating performed on three core intervals determine the model age for the last 8000 cal yrs B.P. Sedimentation rate is about  $0.3 \pm 0.04$  mm/yr, which results in an average 11.2 years for the dark-light laminae. Light laminae represent biogenic input and predominantly contain quartz and calcite minerals. The dark laminae contain terrigenous material, dominated by clay and quartz.

Conditions relatively warmer and drier than today occurred from  $\sim 7800$  to 2700 cal yr B.P., promoting the intensification of evaporation processes and, consequently, the prevalence of the Gulf of California Water in the basin. These conditions correlate with strong droughts in the Mid-Holocene throughout the Americas. The Mid-Holocene “Warm Period” occurred roughly from 5900 to 5000 cal yr B.P., consistent to global pattern. It is suggested a warm scenario and the dominance of the Equatorial Surface Water in the basin from  $\sim 2700$  to 800 cal yr B.P. A climatic signal at  $\sim 1100$  cal yr B.P. is consistent with the “Medieval Warm Period”. Five cooling events are recognized and correlated to global events.