



## **Climate variability in the Gulf of Lions (Western Mediterranean Sea) over the last 2 thousand years**

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We present a new high-resolution of Sea Surface Temperature (SSTs) over the last 2000 years obtained from alkenones preserved in the core KSGC31 retrieved in the mud belt from the Gulf of Lions. This record represents a continuous and undisturbed sediment timeseries documenting climate variability at a temporal resolution of  $\sim 10$  years from 0 to 1905 AD. SST values calculated from the unsaturation index of C37 alkenones range from 15 to 18 °C (mean value =  $16.5^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ ). They rise from  $\sim 950$  AD and remain warm till about 1300-1350°C AD that broadly coincides with the Medieval Climate Anomaly (MCA). Then, they declined till the late 1500's marking the onset of an outstanding warm period of several decades with values similar to those of the MCA and Roman warm Period. After a sharp decrease ending this warm spell  $\sim 1700$  yrs AD, SSTs gradually rise again ( $\sim 1^{\circ}\text{C}/100$  yrs) over the last three centuries. This record differs from published data in the North Atlantic that indicate cooling over the last two millennia. We suggest that the Mediterranean recent warming reflects feedbacks from the vegetation and land use around the basin through albedo changes.