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Temporal evolution of sea surface temperatures in the coastal upwelling off North Africa

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This study presents new high-resolution reconstructions of sea surface temperatures (SSTs) obtained from alkenones off the coast of North West Africa between 19 °N and xx 27°N latitude. Sediment grain-size distributions were also generated to provide new information on the Moroccan and Mauritanian upwelling zone over the Industrial Era. Our data shows that over the past two centuries, SSTs gradually increased in the southernmost cores, while in the northernmost sites they show cooling. Changes in sea level pressure and temperature gradients between land and sea would have caused major changes in atmospheric circulation by disrupting and intensifying the system of North-East winds (Trade winds) and southwest Monsoon winds. With global warming, increase in the monsoon might be expected, causing the weakening easterly winds favorable to the formation of upwellings. Enhanced stratification of the water column would prevent upwelling to develop accounting for surface water warming with consequences on the ecosystems and fisheries.