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Recent geochemical compositional patterns and their subrecent (0-400 yr) variability for sediments from the SW Adriatic Sea and the Gulf of Taranto (S. Italy)

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To improve our understanding of causes and consequence of climate and environmental change on decadal to millennial time scales more comprehension is needed on the underlying processes. The Mediterranean lies between low and mid-latitudes and is influenced by both the monsoonal and NAO climate systems making it a key area for paleoclimatic investigations. Continuous, high resolution sedimentary paleo climatic archives permit us to study in sufficient resolution the required time scale.
Archives like these can be found atthe Gulf of Taranto (39N46;17E54). Previous studies indicate continuous sedimentation and high accumulation rates with low disturbance from bioturbation (e.g Castagnoli, 2002) permitting high resolution investigations. Carbonate contents, thermolumuniscense, oxygen and carbonate isotopes (Castagnoli,1996) and sea surface temperatures (Versteegh,2007) all display compositional cycles at frequencies known from solar cycles. The origin and processes related to these variations, however, remain unclear. Here a study is presented in which the composition and distribution patterns for recent surface sediments in this area are compared and calibrated with recent environmental factors. For this study the first centimeter of 47 multicores has been sampled and analyzed... Results are used for a paleoclimatic reconstruction of the last few hundred years using multicore NU-04-MC. . NU04-MCwas retrieved from the Gulf of Taranto and contains finely laminated sediments. Preliminary dating resulted in an estimated age of 400 years for the 380 mm core depth. Every 2.5 mm was sampled and analyzed. Correlations found for the surface sediments are used to explain the variability within the core. First results of the core NU-04-MC show increasing trends of some elements know as anthropogenic indicators together with an increase in Ba/Al ratios from a depth of 100 mm towards the recent. Increased Ba/Al ratio's can be indicative for an increase of primary productivity but could also indicate a different source for clay minerals (Reitz,2004). The timing of the increase in a variety of elements including Ba, however, suggests an anthropogenic origin.
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