



High resolution organic walled dinoflagellate cyst records of last millennium in Eastern Mediterranean

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The apparent rise in global temperature during the second half of the last century continues to fuel world-wide discussions about the causes and effects of global climate change. Although it is obvious that human activity influences the natural system, large uncertainties remain about to what extent human activity is responsible for the current climate change. This is partly due to our poor understanding of the exact magnitude and effects of natural climate forcing mechanisms. One way to enlarge this understanding is to compare climatic and environmental change prior to the human-induced increase in greenhouse gasses with those of the last 100 years. For this, long, continuous, well dated, high temporal resolution records have to be studied covering both pre-industrial and industrial climate change. To date, such records are extremely rare but recently unique sediment cores have been recovered from both the Golfo di Taranto (Eastern Mediterranean) that fulfil these requirements.

Within this paper we will present the first results of high detailed study on this material by presenting a reconstruction of environmental change of the last 100 years. Based on the variability in the organic dinoflagellate cyst associations of multicore GeoB 10709-5 (39° 45.39' N, 17° 53.57' E, water depth 172.3m), we reconstruct short term climatic steered cyclic changes in Po-river discharge and discharge of the local eastern Italian rivers. Apart from this, the variation in cyst associations reflects short term changes in upper water temperatures and bottom water oxygen concentrations. Comparison with literature derived information of planctic foraminifera derived oxygen isotope data and of the alkenone based sea surface temperature record of the last 1000 years of the same location, we will start a discussion about the possible mechanisms behind the observed short term eastern Mediterranean climate perturbations.