



Isotopic record in a shallow-water Mediterranean core: natural climate variability during the last 2200 years

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We present a high-resolution record of foraminiferal $\delta^{18}\text{O}$ from a Central-Mediterranean sediment core that covers the last two millennia. The record was analyzed using advanced spectral methods and shows highly significant oscillatory components with periods of roughly 600, 350, 200, 125 and 11 years. Comparisons with the spectra of composite temperature-proxy series over the last millennium reveal that the $\delta^{18}\text{O}$ oscillations in this record are temperature-driven to a large extent. The record's good correlation with Northern Hemisphere temperatures over the last millennium allows us to extend the latter back to 200 B.C. The extended temperature-proxy record so obtained provides a continuous and homogeneous baseline of natural climate variability over the last 2200 years. It shows a deep minimum at about 0 A.D., as well as a maximum at the Medieval Optimum and a much shallower local minimum at the Little Ice Age. We have found substantial confirmation for the deep temperature minimum around 0 A.D. in several records from North Atlantic sediment cores. Moreover, we show that the contribution of natural climate variability to the global temperature rise in the industrial era is 50% or more.