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Climate of the Past Discussions

Interactive comment on "Tracking climate variability in the western Mediterranean during the Late Holocene: a multiproxy approach" *by* V. Nieto-Moreno et al.

Anonymous Referee #2

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The manuscript "Tracking climate variability. . .." by Nieto-Moreno et al., presents a high-quality paleoceanographic dataset from two gravity cores drilled in the Western Mediterranean Area and covering the last 4000 yrs. Statistical treatment of data is generally sound and offers a nice opportunity to explore climate/ocean dynamics in the Mediterranean basin during the late Holocene. However, I see a number of major concerns the authors should consider in their revision of the manuscript. In particular: 1. The proposed correlation between the two records is not convincing and the authors should provide more information and details to demonstrate the achieved age model and correlation between the two cores. A synthetic figure with radiocarbon ages and 210Pb profiles is needed to persuade the reader about that. 2. The discussion on

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climate/ocean dynamics of the Mediterranean during the studied interval is generally superficial and needs a significant improvement. The proposed dataset is important and the multi-proxy approach provides significant information to explore in more details and depth the evolution of the Mediterranean system during the studied interval. In its present form, the manuscript represents an important collection of data without an appropriate exploitation in terms of climate concepts. 3. Visual correlation between the two cores for the different proxy records should be discussed in more details mostly when proxy records show important differences. Actually, the geographic closeness of the two records contrasts with many different behaviours of element distributions in coeval intervals. This suggests an important dynamicity of the seafloor with associated problems of correlation between the two records. This should be considered and discussed in details by the authors. 4. Chapter 2 should be shortened and reduced to the essential concepts of Mediterranean circulation. Actually, many concepts are already reported in many papers the authors could simply refer in their manuscript. Also, chapter 3 could removed and basic concepts synthetized and reported in different part of the discussion. 5. The authors should give more details about REEs analysis (which elements did they analyse?) and try to explore the behaviour of the different elements once normalised to chondrites, PAAS, etc. I am not definitively convinced that umped together, REEs could offer a significant paleoceanographic proxy. A different response of the single elements to different environmental forcing (redox conditions, productivity, etc.) should be considered and explored in detail.

Interactive comment on Clim. Past Discuss., 7, 635, 2011.