

Interactive comment on “Late Holocene climate

**variability in the southwestern Mediterranean
region:**

**an integrated marine and terrestrial geochemical
approach” by C. Martín-Puertas et al.**

Anonymous Referee #2

Received and published: 25 October 2010

This is a nice paper with good use of geochemical proxies to compare onshore and offshore records of climate change in the western Mediterranean and resulting comparisons with the eastern Mediterranean and Africa. I recommend publication of the paper following further discussion of some of the points below; 3 Methodology: why are most elements plotted as ratios against Al? Given that Al also changes downcore (Martin-Puertas et al., in press, JoPL) this needs to be justified and/or explained in more detail. 4.1 Alboran Sea proxies: I’m not sure the resolution, of the Zr/Al data set

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in particular, is sufficient to fully support your claim of a change in relationship between this and the Mg/Al data set at 2750 BP, although there is clear evidence of change in environment in Zonar lake at this time and all proxies suggest a more arid phase, I wouldn't discount the Mg/Al data as a possible precipitation proxy prior to 2750 BP. 5 Chronology: it is interesting to see Pb used to compare the two records. I wonder if the peak in Pb after 500 BP is additional evidence of core disturbance as discussed in section 6, or potentially a change in sedimentation rate? There also appears to be quite a close relationship between Rb record from Zonar lake and the Pb record, which causes slight concern as to the origin of the Pb in the core. 7 Climate changes: there is important discussion here about the spatial differences in Mediterranean hydroclimate in the Holocene (see also Roberts et al., 2008, QSR 27, 2426–2441) and a move away from simple explanations relating to cool/wet, warm/dry. Figure 4: Why does Mg/Al stop at 2750BP, presumably as not considered a precipitation proxy prior to then (see above). I would leave the Alboran Sea record complete to 4000 BP for comparison with the other records, but understand the Zonar lake record starting here given it was not a lake during the mid Holocene arid interval. Does the solid red line on the figure relate to this also? Figure 5: Please define both lines from the Multizta et al reference.

Interactive comment on Clim. Past Discuss., 6, 1655, 2010.

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