Clim. Past Discuss., 8, C1731–C1735, 2012
www.clim-past-discuss.net/8/C1731/2012/

Climate of the Past Discussions

Interactive comment on "Vegetation dynamics in the Northeastern Mediterranean region during the past 23 000 yr: insight from a new pollen record from the Sea of Marmara (core MD01-2430)" *by* V. Valsecchi et al.

V. Valsecchi et al.

verushka.valsecchi@univ-montp2.fr

Received and published: 27 September 2012

We would like to thank referee 2 for comments and questions which will allow an improvement of the manuscript. The most critical point is the section 3.2 (Methods / Pollen analysis) and consequently the reliability of some of our results and interpretations. Here we have split the issues in 5 points:

1. Lycopodium was not included in the pollen sum as you might see in Figure1. In order to have pollen concentration estimates with less than $\pm$ 5% error we apply the

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

same criteria that Finsinger and Tinner (2005) used for microcharcoal and counted a minimum of 200 objects which is the sum of Lycopodium and terrestrial pollen grains. This "sum" was never used to calculate the pollen sum but only to assure a fair ratio between counted pollen and Lycopodium and therefore accurate (sensu Finsinger and Tinner, 2005) concentration estimates.

2. Following (Maher, 1981) we have calculated the confidence intervals for the pollen percentages of all the different taxa. In Figure 2 we present only some examples, which clearly show that our changes in pollen percentages are reliable. Indeed changes in AP% during late glacial and YD are significant, as well as forest setbacks 2 (5.5. cal ka) and 3 (2.1 cal ka); we agree that we might reconsider the forest setback 1. Although forest retreat at 5.5 cal ka is based only on one pollen samples we cannot deny that the shift in AP and Quercus deciduous pollen percentages is remarkable and moreover this corresponds to a clear decrease in SST.

3. As it is stated on page 4189 from line 25: 'temperate pollen types is: all trees and shrubs excluding Pinus, Hippophaë, Quercus evergreen type, Olea, Phillyrea, Cistus and Pistacia, Ephedra distachya, E. fragilis'. We have not included Ephedra and Hippophaë in the group of temperate taxa as stated by referee 2.

4. A better explanation on what is happening during the forest retreats will be included in the manuscript. We will highlight that the forest setback 2 as evidenced by the increase in Poaceae and Chenopodiaceae pollen percentages at expenses of Quercus deciduous type, lasted few hundred years, from 5.7 to 5.3 cal ka. The forest setback 1 instead lasted longer, 2.5-1.7 cal ka, and to a decrease in temperate and Mediterranean pollen types corresponded an increase of Sanguisorba minor (subspecies minor), Asteraceae, Cichorioideae and Artemisia.

5. High-resolution pollen analysis was applied during the glacial and Holocene periods and, as pointed by the referee 2, this was not the case for the YD and lateglacial. Therefore the sentence on page 4185, lines 14-15, will be modified accordingly. In-

CPD
8, C1731–C1735, 2012

deed, it is always better to have a high sample resolution. However, this won't change our conclusions on an early Holocene reforestation.

6. On page 4200, line 1-3: 'On the basis of the pollen-anthropogenic approach (Behre, 1981) we can attest that our pollen diagram does not show clear traces of human activities during the early Holocene'. As indicated by the referee 2 higher pollen counts than those we performed will highlight the presence of rare taxa, indicating human activities earlier in the Holocene. In our pollen diagram anthropogenic pollen indicators (e.g. Cerealia type, Chenopodiaceae, Cichorioideae) are present during the entire Holocene. However, changes in abundances are only clearly visible since ca. 2.5 cal ka (Figure 6). The additional counting will not modify our original conclusion. We will rephrase the sentence accordingly.

Minor comments will be included in the manuscript.

REFERENCES

Behre, K.-E.: The interpretation of anthropogenic indicators in pollen diagrams., Pollen et Spores, 23, 225-245, 1981.

Finsinger, W., Tinner, W.: Minimum count sums for charcoal-concentration estimates in pollen slides: reliability and potential errors, Holocene, 15, 293-297, 2005.

Maher, L.J.: Nomograms for computing 0.95 confidence limits of pollen data, Rev Palaeobot Palyno, 32, 153-191, 1981.

Interactive comment on Clim. Past Discuss., 8, 4183, 2012.

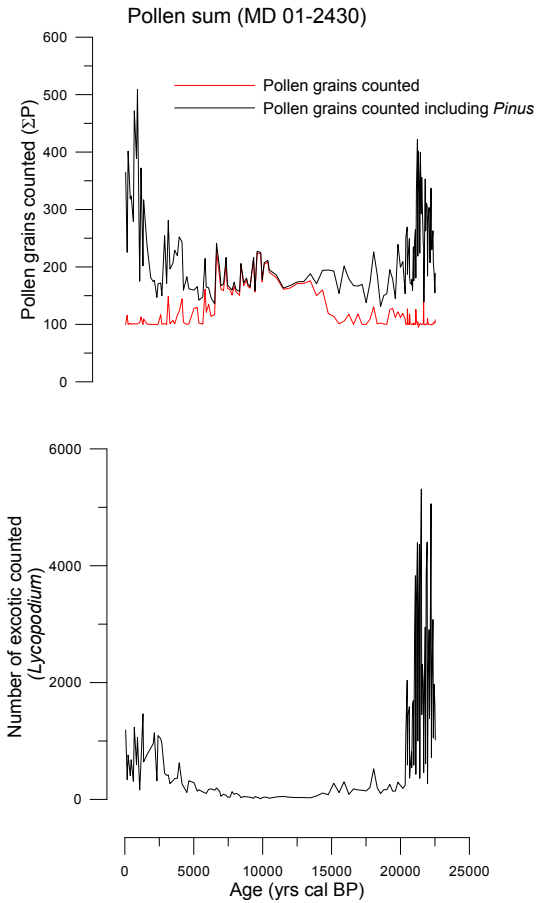

Fig. 1. Pollen sum (core MD 01-2430)

CPD
8, C1731–C1735, 2012

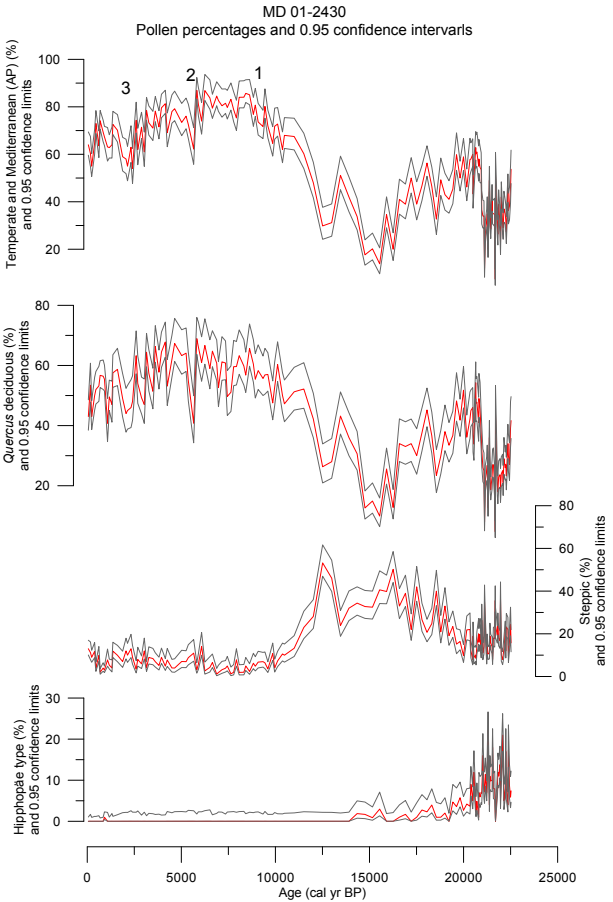

Fig. 2. Pollen percentages of selected taxa and 0.95 confidence intervals (core MD 01-2430)

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper