

Interactive comment on “7300 years of vegetation history and climate for NW Malta: a Holocene perspective” by B. Gambin et al.

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CPD Reply to Reviewer 3 (L. SADORI)

Firstly we would like to express our gratitude to the reviewer for the positive feedback and constructive comments on our manuscript. Our response is outlined below:

1) I totally agree with the other reviewers in saying that in such environment it is not correct trying to establish a detailed chronology for the whole record. In the pollen diagram I would prefer to see radiocarbon dates instead of a chronological scale that could be a source of inaccuracies, due to rapid changes in sedimentation rates. I also ask to add a column with lithology before the depth scale. If you decide to keep this chronological interpretation, please be more clear in saying it was just a trial.

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Answer: Yes, we agree that the chronology must be treated with caution, although there is good correlation between cores BM2 and BM1. Reworking processes in low-energy river environments such as these tend to be low. To overcome reservoir problems we have dated charcoal and short-lived plant material. Changes in sedimentation rates will essentially be mediated by shifts in fluvial sediment supply (climate or human-induced erosion episodes). In this paper, our interpretations are based on a chronological time scale established according to four radiocarbon dates. As stated above, we assume that the sedimentation rate in the intervals between dating points have remained relatively constant. However, we do not and cannot exclude the possibility that in some depths, some changes in sedimentation rate may have occurred leading to slightly different ages for the observed environmental changes. Although radiocarbon dates may be a more prudent manner of representing the data, it renders inter-site comparisons extremely difficult. In the paper, we will stress the issues regarding the chronological data. Nonetheless, we believe that plotting the data against time is the clearest and most effective means of data representation.

2) The bibliography used is quite accurate, but in my opinion the authors could also consider these articles, most of which were recently published:

Florenzano et al. 2015. Are Cichorieae an indicator of open habitats and pastoralism in current and past vegetation studies? *Plant Biosyst.* 149, 154-165. Mercuri, 2014. Genesis and evolution of the cultural landscape in central Mediterranean: the ‘where, when and how’ through the palynological approach. *Landsc. Ecol.* 29, 1799-1810. Mercuri et al. 2013. Olea, Juglans and Castanea: the OJC group as pollen evidence of the development of human-induced environments in the Italian peninsula. *Quat. Int.* 303, 24-42. Mercuri et al. 2015. Pollen and macroremains from Holocene archaeological sites: a dataset for the understanding of the biocultural diversity of the Italian landscape. *Rev. Palaeobot. Palynol.* 218, 250-326. Sadori et al. 2015. Climate driven past fires in central Sicily. *Plant Biosyst.* 149, 166-173. Sadori et al. 2015. Climate, environment and society in southern Italy during the last 2000 years. A review

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of the environmental, historical and archaeological evidence. *Quaternary Science Reviews*, doi:10.1016/j.quascirev.2015.09.020 Zanchetta et al. 2013. The transition from natural to anthropogenic-dominated environmental change in Italy and the surrounding regions since the Neolithic. *Quat. Int.* 303, 1-9. Zielhofer, Faust, 2008. Mid and Late Holocene fluvial chronology of Tunisia. *Quat. Sci. Rev.* 27, 580-588.

Answer: Thank you pointing out these important additional references, they will be included into the relevant areas within our updated manuscript.

3) The authors have to add citation for: Lago Battaglia (mentioned in the text) Caroli, Caldara, 2007. Vegetation history of Lago Battaglia (Eastern Gargano coast, Apulia Italy) during the middle-late Holocene. *Veg. Hist. Archaeobot* 16, 317-327.

Answer: Thank you, this oversight will be corrected.

Furthermore, the minor typographic errors noted in our manuscript on the supplementary PDF will be arranged.

Interactive comment on *Clim. Past Discuss.*, 11, 4505, 2015.