

Clim. Past Discuss., referee comment RC2
<https://doi.org/10.5194/cp-2022-54-RC2>, 2022
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Comment on cp-2022-54

Anonymous Referee #2

Referee comment on "Climate changes during the Late Glacial in southern Europe: new insights based on pollen and brGDGTs of Lake Matese in Italy" by Mary Robles et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2022-54-RC2>, 2022

"Climate changes during the Lateglacial in South Europe: new insights based on pollen and brGDGTs of Lake Matese in Italy" by Mary Robles and colleagues is a nicely crafted paper that uses multiproxy techniques to reconstruct palaeoclimate conditions in southern Italy during the Late Glacial period. These records are compared and contrasted with other regional reconstructions. The discussion is rich and the figures are of good quality. I fully support the manuscript's publication in Climate of the Past.

Some minor suggestions

Lines 81-83: The chironomid-based synthesis of Heiri et al. (2014) suggests that temperature variations during the Lateglacial tend to be more pronounced in Western Europe (British Isles, Norway) than in Southwestern Europe, Central and Southeastern regions. Why?

Line 87: "cooler" is vague. How much cooler?

Line 89: Idem with “warmer”. It would be good to put some numbers on these statements.

Lines 125-126: “...for reconstruction environmental parameters.”

369 4.2 Age-depth model: There is no discussion on why there is such a marked offset between the radiocarbon and tephra chronologies. Given the disparity, this point needs to be addressed.

Figure 7: No error envelopes?

Lines 511-512: “...hypothesized that the dated organic matter may have originated from penetrating roots of plants growing during sedimentary Unit 5’s deposition (Fig. 4).” If there is evidence of bioturbation, could this not affect the different proxy reconstructions?

Line 694-695: “In Italy (Fig. 9), climate reconstructions do not show latitudinal

differences in terms of temperature.” Is it possible to make this statement given the different proxy reconstructions used at different latitudes? The authors could consider converting the different series in figure 9 into z-scores to test amplitudes and rates of

change on a common scale.