

line 45: I'm not sure I understand why the PCP influence was deleted here. Is it because it won't strongly affect d18O? In that case, please specify that this sentence refers to d18O (instead of "isotopic composition"). If not, please clarify.

I think the best way is add it again with additional sentence

"The isotopic composition of dripping waters can also be modified inside the soil and in the epikarst zone by evaporation and priori calcite precipitation (PCP; Baker et al., 2019). However, PCP affects more the $\delta^{13}\text{C}$ value."

line 51: I would again remove the references for records from Lebanon and Israel here since they do not technically belong to Europe.

Those two references have been removed from paragraph about European records.

line 67: "However, in the past, the local climate was more continental during colder and drier glacial periods and more transitional at warmer interglacial periods" this sentence needs a reference.

It has been fixed.

line 230: "The $\delta^{18}\text{O}$ records in the regions, where the aridity index is lower than 0.65 reflects stronger influence of evaporation." This sentence is irrelevant here, please delete.

This sentence has been removed.

line 230 and following: I was wondering if the more arid climate of the glacial could really result in evaporation, if temperatures are also lower. Maybe the author could indicate whether temperature or aridity would likely be the dominant factor over glacial-interglacial cycles.

The main factor in the long time scale is a temperature. However, in short time scale the influence of humidity/aridity can affect the main temperature signal. I agree that at the low temperature conditions the evaporation is low. However, even during episodes of glacial conditions the DSC located at ca. 48 N latitude was affected by quite high insolation, especially during the continental summer. However, it is impossible to tell basing on data presented here, how the real impact could be. I modified the end of this paragraph.

I put the sentence about the importance of temperature and aridity in case of DSC at the end of the whole paragraph

line 242: I think a statement that links back to the DCS is needed after the discussion of the other European records. It should highlight again what the temperature signal of d18O in DCS speleothems means (temperature effect on precipitation isotopes). Also highlight the temperature influence on calcite precipitation (-0.18 permil/°C after Tremaine et al., 2011) and how that compares to the precipitation gradient (0.36 permil/°C). The net effect is therefore smaller than the precipitation effect.

I add the summarizing stamen at the end of this paragraph.

"According to all the facts listed above it can be assumed that, in the long time scale, the temperature effect on atmospheric precipitation should be the main factor shaping the $\delta^{18}\text{O}$ value of the DSC stalagmites. The whole temperature effect on $\delta^{18}\text{O}$ value of speleothem calcite is lower than presently observed $\delta^{18}\text{O}$ temperature gradient of precipitation (0.36 ‰/°C; Holko et al 2012) due to the opposite temperature effect on calcite crystallisation (-0.18 ‰/°C). Therefore, the expected net effect should be ca 0.18 ‰/°C. However, in the short time scale the main temperature effect can be changed by humidity/aridity effects like it was described in case of Bourgeois–Delaunay Cave (Couchoud et al., 2009)."

”

line 245: Carbon is also sourced from the atmosphere.

That is true. I modified that sentence “ *CO₂ from a soil source can reflect the changes in the isotopic composition of atmospheric CO₂ and additionally is enriched in ¹²C due to biological activity. Due to that fact a well-developed soil cover results in a lower $\delta^{13}\text{C}$ value*”

line 284 and following: I wonder if there is a chance that the anomalous $d^{13}C$ and trace element values are related to the presence of micrite and reflecting anomalous growth at the base of the stalagmite. I would be cautious with the climatic interpretation of the base of the stalagmite.

It is important topic and in my opinion, it may be possible explanation for the episode around 105 ka, when all listed proxies react in the same way. The situation at the base of stalagmite is different the oxygen react in a different way than carbon. However this very short pick directly around 140 ka is similar and can be raised by similar effect I added the sentence about that.

line 337: Please again add a statement that clarifies how the DCS record is interpreted in this period. What are the possible explanations for the discrepancy between global (warm) and regional (cool) climate conditions?

It has been clarified at the end of that paragraph.