

## Response letter

### Respond to Anonymous Referee #1

Dear Authors,

Thanks for the revised manuscript. I am satisfied with the revisions, it is a lot clearer how and why you conducted the experiments.

I only have a few minor, mostly technical suggestions:

**Response:** Thank you for the careful review. We have addressed the technical issues; please see the point-to-point response below.

L. 93: D18O should not be affected by an H-exchange effect, should it?

**Response:** We have revised the sentence to read: “we hypothesized that the  $\Delta^2\text{H}$  is influenced by (i) an H-exchange effect, whereas both  $\Delta^2\text{H}$  and  $\Delta^{18}\text{O}$  are influenced by (ii) tissue AWA and (iii) evaporation and sublimation enrichments.”

L. 165: How long was the evaporation period in the sublimation + evaporation experiment? That is worth mentioning

**Response:** We mentioned in the text that in the sublimation + evaporation experiment, the samples were “extracted following a standard procedure (see 2.5)”. Therefore, the evaporation period was the period of water extraction, which was 2 hours. We have revised the sentence to: “different amounts of reference water (50–1200  $\mu\text{l}$  range as above) were added directly into the U-shaped water collection tubes (i.e., in the cold trap) of the CVD extraction system without sample material and then extracted for 2 h following a standard procedure.”

L. 196: what was the model, company, etc. of the vacuum pump?

**Response:** We have added the information of the vacuum pump at the end of this sentence: “vacuum pump (BS2212, Brook Crompton Ltd, Doncaster, UK)”.

L. 196-197: “The sample tubes were blocked by PP fiber filters (Nozzle protection filter, Socorex Isba SA, Ecublens, Switzerland) to avoid particles being drawn into the U-tubes with the extracted water or the vacuum pump.”

Can you be sure that these filters were not fractionating? Have you done any tests?

**Response:** Although we did not test that, we are confident that these filters do not fractionate water isotopes. Firstly, PP fiber is a linear structure based on the monomer  $\text{C}_n\text{H}_{2n}$ , it doesn't have oxygen atoms and therefore no -OH groups for exchanging with water. Secondly, we used these filters only when extracting water from the powder and pieces form materials, we didn't use the filters when extracting pure water, and similar patterns were found with and without using these filters. To be clearer, we have revised the sentence to “The sample tubes were additionally blocked by PP fiber filters (Nozzle protection filter, Socorex Isba SA, Ecublens, Switzerland) when water was extracted from powder/pieces of the selected materials to avoid particles being drawn into the U-tubes with the extracted water or the vacuum pump (BS2212, Brook Crompton Ltd, Doncaster, UK).”

L. 202: “was” instead of “were”

**Response:** Done.

L. 276: “has been” instead of “have been”

**Response:** Done.

L. 296: p values are given differently (small and capital letter) in the same sentence

**Response:** Done. All p values are given in small letters now.

L. 389-391: this is a repletion of what has been said before

**Response:** Thank you for pointing this out. We have deleted this sentence and revised the next sentence to read: “Our results also showed that the  $\Delta$  values obtained from the extraction of water at natural isotope abundance (Fig. 5a and c) are much smaller compared to those obtained from the extraction of the strongly depleted reference water (Fig. 2 and 3).”

## **Respond to Anonymous Referee #2**

All points in the revised manuscript were addressed and the revision is adequate according to my proposed changes. Results and discussion were improved, thus the clarity of the manuscript enhanced.

In the revised (trackchange) version I only found three minor technical corrections:

**Response:** Thank you for the careful review. We have addressed the technical issues; please see the point-to-point response below.

1. 302 “equilibrium” instead of “equilibration”

**Response:** Done.

1. 398 “Therefore, under these conditions...” instead of “...in these conditions”

**Response:** Done.

1. 409 “...explanation for the absence of...” instead “...explanation of the absence of...”

**Response:** Done.