

Interactive comment on “Reconstruction of multi-millennial summer climate variations in central Japan by integrating tree-ring cellulose oxygen and hydrogen isotope ratios” by Takeshi Nakatsuka et al.

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We will present our responses to the referee#1's comment (RC1) one by one in the following order. (1) comments from Referees, (2) author's response, (3) author's changes in manuscript.

(1) A nice paper. This manuscript presents two very long tree-ring stable isotopes (oxygen and hydrogen) series by measuring 67 different kind of wood samples, including living tree, archaeological wood and buried logs, over central Japan, a pretty remote re-

C1

gion from which such information is novel. An important innovation of this manuscript is the authors created a novel method to remove age trend in tree-ring d18O by integrating physiological mechanism and correlation between the d18O and d2H. The manuscript, which I believe to have already reviewed by top journals, and is almost mature to be published. Still, however, some points should be solved, and a general revision of the reorganization (see lines 69-84 as example), although not bad in its current state, would certainly strengthen the value of the paper. (2) Thank you very much for your deep understanding and high evaluation for our paper. (3) We will revise our paper according to your comments below.

Special comments are as follow.

(1) Title could be simplified, which may make general readers impressive. For example, A 2600-year summer climate reconstruction in central Japan by integrating tree-ring stable oxygen and hydrogen isotopes. (2) Thank you for your comment. (3) We will revise the title as you recommended.

(1) Lines 25-26, change “living old trees, excavated archeological wood, old architectural wood, and naturally buried logs” to “living trees, archeological wood and buried logs” (2) Thank you for your comment. (3) According to your comment, we will simplify the description of wood types.

(1) Lines 46-49, to my knowledge, any method cannot reserve low-frequency climatic signals of tree-ring width/density fully. (2) Thank you for your suggestion. (3) We will modify the sentence according to your suggestion.

(1) Line 65 delete “summer” (2) Thank you for your comment. (3) We will delete “summer”.

(1) Lines 67-68, cite studies with long tree-ring d18O chronology in Asia, such as Liu et al., 2017 (2) Thank you for your comment. (3) We will cite the paper of Liu et al. (2017) here.

C2

(1) Lines 69-84 describe methods on cellulose extraction and removing age trends. It's better to move them in Section 2. (2) Thank you for your suggestion. (3) We will move most part of them to Section 2 and leave only essential idea here.

(1) Line 94, hundreds of rings (2) Thank you for your comment. (3) We will modify the word according to your suggestion.

That is all. Thank you for your comments.

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