

# ***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.***

## **Anonymous Referee #1**

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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 region 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  $d_{18}O$  by integrating physiological mechanism and correlation between the  $d_{18}O$  and  $d_2H$ . 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

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the reorganization (see lines 69-84 as example), although not bad in its current state, would certainly strengthen the value of the paper.

Special comments are as follow. ĩAñ 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. ĩAñ 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” ĩAñ Lines 46-49, to my knowledge, any method cannot reserve low-frequency climatic signals of tree-ring width/density fully. ĩAñ Line 65 delete “summer” ĩAñ Lines 67-68, cite studies with long tree-ring d18O chronology in Asia, such as Liu et al., 2017 ĩAñ Lines 69-84 describe methods on cellulose extraction and removing age trends. It’s better to move them in Section 2. ĩAñ Line 94, hundreds of rings

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