

Geosci. Model Dev. Discuss., community comment CC1
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Comment on gmd-2021-275

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Community comment on "A new snow module improves predictions of the isotope-enabled MAIDENiso forest growth model" by Ignacio Hermoso de Mendoza et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-275-CC1>, 2021

Snow has important influence on the hydrology and ecology. However, snow-related processes are difficult to investigate. Within this study, the authors added a new snow module to the isotope-enabled MAIDENiso forest growth model, which markedly improved the predications skills for tree-ring oxygen isotopes and spring discharge for two sites in Canada. The topic of this manuscript is very interesting and suitable for the readership of this journal. It is very refreshing to see such achievement in the MAIENiso. In my view, the updated MAIENiso will greatly improve our understanding about the ecological and hydrological impact of snow. I suggest to accept this manuscript after minor comments. Detailed comments are as follows:

- Line 30, in the introduction, the authors had summarized snow-related studies from the North America. I suggest to add snow-related studies in the Karakoram and Himalayas (e.g., Huang et al., 2019; Zhu et al., 2021, <https://doi.org/10.1016/j.epsl.2018.11.002>, <https://doi.org/10.1007/s00382-021-05736-6>)
- Line 220, I am wondering the climatic signals of tree-ring oxygen isotopes. As shown by Field et al. (2021), tree-ring oxygen isotopes from Tungsten is a proxy of spring-summer temperature. How about the tree-ring oxygen isotopes from Caniapiscau? Do tree-ring oxygen isotopes from Caniapiscau also indicate temperature? Would it possible for the authors to add some discussions about the climatic signals in tree-ring oxygen isotopes in the manuscript?
- Lines 392-394, could the authors quantify the contributions of leaf enrichment due to transpiration and source water on tree-ring oxygen isotopes?
- Line 496, the species Latin names for the species should be italic. Please check other part of the manuscript.
- In Line 411, "4.4 Implications for future studies". It is better to extent the current study to other high-mountains regions (e.g., Alps, Himalayas, Andes Mountains) in the future.