

Solid Earth Discuss., community comment CC1
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Comment on se-2021-115

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Community comment on "Thermal equation of state of the main minerals of eclogite: Constraining the density evolution of eclogite during the delamination process in Tibet" by Zhilin Ye et al., Solid Earth Discuss., <https://doi.org/10.5194/se-2021-115-CC1>, 2022

Ye et al. conducted high P-T XRD measurements on major minerals in eclogite materials, and derived thermal EoS for each mineral. With experimental results, they modeled density profile of eclogite along certain geotherm in Tibet. The modeled results were further applied to constrain delamination process in Tibet region. The experimental method is valid. Data look to be of high quality. The modeling is reasonable. The implication is sound. These new results should be published, and Solid Earth is an appropriate journal for it. I only have a few minor comments for authors to consider:

- I suggest adding one figure in the main text to show representative XRD patterns at high P-T for each mineral: both single-crystal 2d raw pattern and integrated 1d pattern. These can help to tell the quality of the crystals and experimental data at high P-T.
- Figure 4 can be removed to supporting materials because all data sets are from literatures.
- need to define abbreviations. e.g. line 149: UHPM
- It is always necessary to provide uncertainties in the thermodynamic model. What are propagated/estimated standard deviations of high P-T densities for individual eclogite components and eclogite assemblages? They should provide error bars in Figures 5 to 7.