Geochronology Discuss.,
https://doi.org/10.5194/gchron-2020-26-RC1, 2020

Interactive comment on "Novel method for determining ^{234}U-^{238}U ages of Devils Hole 2 cave calcite" *by* Xianglei Li et al.

Anonymous Referee #1

Received and published: 15 September 2020

General Comments: This is an interesting and excellent study that uses the correlation observed between the cave calcite δ234Ui and stable isotopes in the core from Devis Hole 2 to establish a multilinear model for prediction of the δ234Ui. This model allows the authors to predict much precisely a value of δ234Ui and thus to improve the precision of 234U-238U dating method. Major Comments: 1) It lacks a figure in the MS to show the δ234Ui, δ18O and δ13C time-series. 2) For the regression analysis, the authors split the observed δ234Ui into three groups according to the age range and the precision. However, it will be better to find a weighting method, which can help to take into account all of the observed values of δ234Ui over the past 590 ka. 3) The figure 3 shows the variability of the residual and δ18O versus 230Th age, but its significance was poorly explained. Minor Comments: 1) It will be better to add some

information about the relationship between U-concentration and δ234Ui in the results. 2) It is difficult to identify the difference in precision between the 234U ages and the 230Th ages from the figure 4. It will be better to provide some detailed comparisons of the two dating ages in terms of precision. 3) In the conclusions, the authors should acknowledge that the conclusions are based on the regression analysis of the δ234Ui, δ18O and δ13C datasets over the past 309 ka, but not over the past 590 ka.

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