2.1 The work of Dwivedi et al. studies travel times in the Marshall Gulch research catchment, Arizona, for a better understanding of flow paths and storage in a mountain catchment. This is done through a strong data set of stable isotopes and tritium. The paper is mostly well written. I like and appreciate the combination of tritium and stable isotopes, I believe that this is an important endeavor. However, the current manuscript has a range of serious limitations.

Our response: We acknowledge that some reorganization and restructuring of our paper is clearly warranted. As a roadmap forward, please see our response to comment # 1.2 from the first reviewer where we more clearly describe the novel contributions of our study. Therefore, in the revised version of our paper, we plan to reorganize the introduction section for better highlighting the research gaps. We further plan to use the revised introduction section to reorganize the other parts of the paper, e.g., methods, results, and discussion. Thank you for your suggestions.

2.3 Second, the methods are an issue. It is unclear why the methods are chosen. It feels like an application of a range of methods and see what comes out. I cannot find a clear strategy behind. Even more critical, by applying time invariant approaches for travel time
distributions, the paper methodology is lacking a decade behind recent developments in the field (see the wide range of work, even cited, on time variant TTD and SAS functions). The young water fraction is state of the art though, but here the work again suffers from the lack of clear strategy. In addition, stable isotopes and tritium tracers should ideally be used in a joint calibration to obtain a travel time consistent for the tritium and stable isotope observations (cf. Rodriguez et al., 2021). You might even be able to calibrate the multimodal age distributions of your travel time doing so – however, this is just speculation. Yet, his could be a really nice contribution to the field of TTDs.

Our response: Our aim was to apply the fraction of young water metric in conjunction with the mean transit time metric to improve scientific understanding of transient flow paths in high elevation mountain systems. That said, we respectfully disagree with the criticism that our methods are lagging behind recent developments in the field. Please see our response to comment # 1.2 from the first reviewer. We also highlight that Rodriguez et al. [2021] who used both stable water isotopes and tritium in jointly assessing a suitable TTD type, sampled both tracers under similar dynamic flow conditions, which contrasts our sampling conditions for tritium.

2.4 Overall, I think that the manuscript would need a very major rework to be publishable. This would include a full adaption of the methods to the state of the art. I have doubt that this can be done within a major revision.

Our response: Please see our responses to comments #1.1, 1.2, 2.2, and 2.3 above.

References