Please find below our responses to the comments by the Reviewer. Referee comments are shown in black. Authors replies are in blue

[General Comments]: The manuscript "Soil moisture and precipitation intensity control the transit time distribution of quick flow in a flashy headwater catchment"(ID: hess-2024-359) mainly introduces the influences of both soil moisture and precipitation intensity on transit times, and highlights the rule of precipitation intensity in rapid mobilization of young water using the StorAge Selection (SAS) functions and measured stable isotope data. This work is interesting and significant for the solute-transport model and developing effective water management strategies. But some minor mistakes in this manuscript are found. Therefore, the article, at current states, needs to be a minor revision, which may be worth publishing for this journal. The following is my comments for further improving the quality of this manuscript.

We are grateful to the reviewer for taking the time to read the manuscript and for the positive evaluation of our work.

[Specific comments]: 1) The authors calculated the mean and maximum percentage of streamflow fractions for transit times T<7 days, T<90 days, 7<T<90 days, and 90<T<365 days. It is significance for transit times at watershed scales, can you attempt to analyze the rainfall-runoff event in hourly intervals with T<1 day? It is importance to understanding the flood hydrograph.

We appreciate the reviewer's suggestion to analyze transit times at an hourly resolution (i.e., for T < 1 day) to capture the flood hydrograph better. In principle, this would indeed offer valuable insights into sub-daily dynamics. However, our tracer dataset does not currently support modeling at an hourly time step due to its sampling resolution. Nonetheless, we acknowledge the importance of understanding very short transit times, particularly for flood events. To address this point, we propose to include a summary of the fraction of streamflow with T < 2 days in our results. This can serve as a proxy for the 1-day threshold within the constraints of our data. Additionally, we will discuss in the manuscript how event-based hydrograph separation methods could complement our approach to further elucidate rapid flow pathways during intense rainfall events.

2) The saturated hydraulic conductivity Ks data should be added to understand the runoff generations.

We understand this comment. We will add the saturated hydraulic conductivity (Ks) information to the study site description section

3) The 4.5 Part-Implications and limitations should be concise.

We agree with the reviewer's suggestion. We will revise Section 4.5 to present the implications and limitations of our study in a concise manner, focusing on the key take-home

messages, practical benefits for hydrological modeling, and clear acknowledgment of the main constraints in our approach.

4) The “conclusion” should be “Conclusions”?

We agree. We will change this to “Conclusions”