

Authors Response to Referee 1:

Referee comments are in *italics*, Author responses are in blue.

General comment

The manuscript has been substantially revised, implementing my comments and the ones by the other reviewers, and I believe that this extra work by the authors has significantly improved the manuscript. I have only a few minor comments listed below.

Minor comments and technical corrections

10. Inferences on what? Please specify.

Reply: Revised to “While some inferences on the storage and release of water can be...”

44. Give examples and references.

Reply: Examples and references added to text. “(e.g., old water contributions to streamflow, macropore flow and complex subsurface streamflow generation (McGlynn et al., 2002); fill and spill hypothesis (Tromp-van Meerveld and McDonnell, 2006); hillslope-stream connectivity (Jencso et al., 2009)).”

72. I’m not a native speaker but I think that “have” should be “has”.

Reply: Revised as suggested.

178. Can you include one/two more recent references here? I’m sure there are some.

Reply: Reference added “Williams et al., 2009”

201-205. Are seeps mostly active during snowmelt or after rainy events? Do they reflect stream dynamics or their discharge is relatively stable through the snow-free period? I think that a slightly more detailed discussion on the representativeness of these seeps is important to corroborate the results.

Reply: Elaborated in text. “25 visible seeps were identified which ranged in duration and magnitude of their contributions to streamflow. Some seeps were only active during the snowmelt season and recession period, reflecting streamflow dynamics. Other seeps were relatively stable throughout the entire snow-free period or throughout the winter baseflow period.”

240-246. I appreciate that this part has been considered and included in this version of the manuscript. However, I suggest considering moving these lines in the Discussion and focus here more on what you have done that on what you have not done and why. This will streamline this section avoiding pre-introducing, without really explaining, methods such as TVR and LDA.

Reply: This section has been moved to the Discussion and revised to:

“The inability to run the unmixing routine (stream water fell outside the bounds of the source water) also hindered the use of some tracer selection methods. Other studies have often used the selection criteria presented in Barthold et al. (2011) but the unmixing routine is required for this method. Rather, the TVR and LDA have been presented as effective parameters to subjectively determine if tracers are included in the analysis and if sources are well separated or grouped appropriately, respectively (Pulley et al., 2015; Pulley and Collins, 2018; and others – see comprehensive review in Collins et al., 2017).”

252-255. This is a weird way to report an equation. Please, write in in mathematical terms.

Reply: Revised as suggested. “TVR was calculated using the following equation for each tracer and compared between each source group pair:

$$\frac{\tilde{x}_{max} - \tilde{x}_{min}}{\tilde{x}_{min}} \times 100$$

mean (CV_{source 1}, CV_{source 2})

where \tilde{x}_{max} is the maximum median tracer concentration of either source group, \tilde{x}_{min} is the minimum median tracer concentration of either source group, and CV is the coefficient of variation (Pulley et al., 2015; Pulley and Collins, 2018).

287. Please add the p-value.

Reply: Revised to “(Pearson’s $r > 0.5$, $p < 0.05$)”

338. I suggest replacing “separation” with “difference”.

Reply: Revised as suggested.

351 but also 404 and 422. These titles are identical and potentially confusing. Please, elaborate them better putting them in the context of each section.

Reply: Revised to reflect “source water” or “stream water” sub-sections.

373 (caption of Fig. 4). “R” should be “r” (also for consistency with line 287).

Reply: Revised as suggested.

Table 2. I suggest including average discharge with its standard deviation for both years and both subcatchments.

Reply: Revised as suggested.

457. CV of which parameter? Please, specify.

Revised to “The CV of source water tracer concentrations...”

Fig. 12. Use more contrasting colours for the symbols.

Reply: Revised as suggested.