

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2021-454

Anonymous Referee #1

Referee comment on "Implications of variations in stream specific conductivity for estimating baseflow using chemical mass balance and calibrated hydrograph techniques" by Ian Cartwright, Hydrol. Earth Syst. Sci. Discuss.,
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General comments:

This manuscript discusses in detail the influence of the fluctuation of the streamflow conductivity of the four basins in southern Australia on the separation results of the conductivity mass balance method, and also discusses the influence of the correction effect of the filtering method and the sliding minima method. In my opinion, the content of this manuscript is meaningful. It will help researchers analyze the differences between different baseflow separation results, and can guide the correction between different separation methods. I think this manuscript can be published after appropriate revisions. Since my mother tongue is not English, I did not comment on grammar, etc. Below are some of my suggestions.

Specific comments:

1) Line 32. "that that" may be repeated.

2) Lines 37-39. "Some of these components ... much older." I think the meaning of this sentence may be inaccurate. It should be the infiltration of recent or ancient rainfall.

3) Line 141. " SC_b is based on the SC of the river during low flows using two methods for estimating SC_b were used." This sentence is confusing, please modify it.

4) Lines 183-184. It is feasible to adopt the recommended value of recession coefficients. However, the recession coefficients of different watersheds are likely to have certain differences, and it can be easily determined through recession analysis. So I suggest you determine it through recession analysis.

5) Line 195, Figure 2. Lack of legend for baseflow conductivity.

6) Line 230, Figure 4. The legend for points and lines is missing.

7) Line 247, Figure 5. The legend for the dots in different colors is missing.