Reply on RC3
Arial J. Shogren et al.

Shogren et al. represent a valuable dataset consisting of water chemistry across six watersheds in northern Alaska. The authors have already addressed all previous reviewer’s concerns.

We thank the reviewer for their careful consideration.

Here, I have only one comment regarding the measurement of “the spatial stability” for your consideration: As shown in Eq.3, Spearman’s rho was used to assess the correlation between $rg_x$ and $rg_y$, and $ggx$ is the rank correlation of sub-catchments? Is this correct? Moreover, the significance test should be given for Figure 9.

Though we are not sure which variable $ggx$ refers to here, we realize that the lack of detail was confusing. We have amended the text as follows: Where $rg_x$ is the rank of subcatchments at the time of synoptic sampling, $rg_y$ is the rank of the long-term flow weighted concentrations, while $\sigma_{rgx}$ and $\sigma_{rgy}$ represent the standard deviations of the rank variables.

Further, we have added indication of $r_s$ significance in a revised Figure 9, as suggested.