

Manuscript by Morison et al., 2017

In general Authors have meticulously addressed all my major concerns and manuscript has improved considerably. I still feel that the text is a little difficult to follow at times, particularly with the amount of details introduced in large tables; but since the goal of the study is to describe variability of ponds chemistry as a function of changing hydrological conditions then perhaps this level of details is necessary.

For your notice, it seems to me that Bello and Smith, 1990 (who you refer to as describing mixing/stratification patterns in your study ponds) do not show that these water bodies are not diurnally stratified; they discuss heat exchange and assume complete mixing by wind action. I am, however, not concerned anymore about this issue knowing that these ponds are less than 50 cm deep. Stratification, if any, will be short-lasting...

What concerns me really is how representative are such shallow ephemeric ponds to the general pond population in the area? Some other studies (e.g., Wolfe et al., 2011) have shown that ponds such as these studied here can disappear completely in a dry years.

While I appreciate high resolution sampling and efforts taken to capture changes in chemistry I am not convinced how novel are these findings... Water bodies that are so shallow and small will be intuitively very strongly affected by rainfalls, either through dilution or enrichment effects (in certain compounds delivered from the catchment). Novelty would arise if rainfall patterns in the studied area are subject to interannual variability (as they surely are) and this variability leads to higher/lower biogeochemical processing in studied ponds. On the other hand, I understand the necessity to start discussion about effects of short-term meteorological forcing on chemistry of shallow water bodies in the Arctic (Cortés et al. 2017).

This said, manuscript would really benefit from trimming toward being more process and less detail oriented.

Reading through I found several typos (few examples in the detailed comments) as well as odd sentences that should be corrected before final processing of this draft.

Detailed comments|:

In the Abstract you say:

Across all ponds, temporal variability (across the season and within a single rain event) exceeded spatial variability (variation among ponds) in concentrations of several major species (Cl^- , SO_4^{2-} , K^+ , Ca^{2+} , Na^+).

And in the Results you say:

Spatial deviations did not significantly exceed temporal deviations for any chemical species

Which one of these statements is correct?

Results

There were few exceptions to this manual classification,

Replace "manual" by "general"

Discussion

In contrast, and campaigns that may be more temporally coarse but spatially intensive are applicable for larger, less chemodynamic lakes and ponds, in which total water inputs and outputs represent a much smaller proportion of the total volume.

This sentence needs revision, for example.

Table 4 bold/underline the exceptions, not italicized (not evident)

Tables general look better with thin border lines