

Interactive comment on “Arctic aquatic graminoid tundra responses to nutrient availability” by Christian G. Andresen and Vanessa L. Lougheed

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“Arctic aquatic graminoid tundra responses to nutrient availability”

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This study investigates the impact of nutrient availability of emergent tundra plants, specifically the two dominant species *Carex aquatilis* and *Arctophila fulva*, in communities on the coastal plain of Alaska. This study is timely and important to the field of climate change because it investigates the role of nutrient availability on these wet tundra communities and how shifts in nutrient levels can alter ecosystem productivity.

I would like to thank the authors for the submission of this manuscript for publication and the high quality of both the study and the manuscript. The manuscript is very well

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written and conclusions are sound. The study is well designed and justified. I would like to make suggestions and get clarification on just a few specific points below.

Lines 105-107: The sentence “The ACP is dominated. . .” needs citation

Lines 165-166, 172, 187, 200: For several sampling methodologies you refer to previous studies but it would be good to provide at least a sentence or two briefly describe the methods so that the reader has more of an specific idea without looking up each reference.

Lines 170-177: It would be worth noting whether there was standing water present in plots scanned with the Jaz spectrometer. If water was present did the authors make any corrections for the presence of surface water that may have altered the plot reflectance values before calculating NDVI?

Line 187: Were the phenocams facing straight down on the plots, similar to the measurement field of the Jaz? Or were they pointed out across the landscape? These are the details that would be helpful for a reader

Lines 205-206: Did the authors collect any data on the density of vegetation within each biomass and reflectance sampled plot? Some of the NDVI values seem very high and some representation of canopy and ground cover data might help explain this.

Figure 5: The legends and plots within the PCAs would be more intuitive if the shapes for each plot were consistent for each site type

Lines 325-326: It is unclear here what studies cited show a Ca increase between 1970 and 2013. It appears that the authors are citing Chapin 1980 for this point.

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