Results Question 2

Oxidation reduction potential: measure of ability to undergo oxidation or reduction.

Dissolved Oxygen (DO%): dissolved oxygen in the surface water.

Expected: Higher DO%, redox potential, and lower pH in hummocks (water features) and grasses and trees (vegetation communities) compared with other groups.

Expected: Spatial variation among all indicators.

Methods

• Measurements taken at 105 points grouped into 21 nodes across a subalpine wetland averaging 14484 elevation in the Rocky Mountains, CO
• Surface characteristics grouped by water features and plant community type.
• Measured biogeochemical indicators: Oxidation Reduction Potential (ORP), dissolved oxygen (DO %) and pH in surface or subsurface water (if needed)
• Peak snowmelt

Results Question 1

• Some spatial pairing observed in the middle of the wetland.
• There was no overall difference between the input and output.
• Results indicate that there was more similarity in the values of these biogeochemical indicators across space than I originally expected. Likely, other factors are important for determining variation in biogeochemical processes, like carbon content and nutrient pools.

Results Question 2

• Water:
  DO% is significantly higher in flood than in hummock (p < 0.05) However, there is no significant difference between DO in flooded and hummock areas.
  No significant difference of ORP values between flooded and hummock areas, *(p=0.619)*

• Vegetation:
  Similar patterns in the DO and ORP among vegetation features, however there was no statistically significant difference between the variables
  * No significant difference in pH between features

Suggested Future Work

• Hydrological mapping to track input and export flows.
• Measuring the nutrient pool concentrations
• Study of the rates of biogeochemical processes

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Laura Rea, Dana Stamo, Alicia Christensen, LTER-funding-(DEB – 1637686), Rebecca Batchelor

Introduction

Wetlands can disproportionately influence the water quality and nutrient cycling of their surroundings landscapes. Variation in the arrangement of natural physical features of the landscape can influence a wetland’s function and lead to differences in rates of biogeochemical processes. I studied an subalpine wetland with variation in surface characteristics to determine how those characteristics influence environmental conditions (i.e., dissolved oxygen, redox potential (ORP), and pH) that affect biogeochemical processes.