Sea Ice Pattern – Heterogeneity Quantification

# 1. Introduction

Intro

Questions:

1. Does using landscape ecology quantification methods
2. How do these different quantification methods compare to simply knowing the ice fraction?

Hypothesis: The metrics that attempt to show patch data will be more likely to not be linearly correlated with ice fraction in any significant way.

# 2. Methods and Data

Checklist from *Landscape Ecology in Theory And Practice* (Turner and Gardner 2015)

1. What are the scientific or management questions motivating the study?
2. What qualities of spatial pattern are of most interest, and why (i.e., what is the ecological rationale)?
3. How do you expect these qualities to change over time, differ among study areas, or affect processes of interest?
4. Which metrics are potential indicators of the spatial qualities you wish to quantify? Which metrics should be computed for the landscape as a whole, or by cover type, or for individual patches?
5. What spatial data are needed to answer the questions (and are these data available)? Are categorical or continuous data better suited for answering the questions? For categorical data, what classification scheme is appropriate, given the objectives of the study?
6. For analyses involving more than one study area or time period, are scales and classification schemes consistent across datasets?
7. What is the accuracy of the spatial data? Is error in the input data likely to affect the numerical results of the analysis? Are the source data and classification methods consistent when using results to compare landscapes?
8. How is each metric calculated (i.e., what is the equation)? What is its potential range (i.e., minimum and maximum value)? Is it a normalized, or are the values unconstrained? What are the units?
9. What is the correlation structure among the metrics computed in your analysis? (Provide the descriptive statistics of the distributions of each metric, and always check the correlation structure among metrics in your own study by inspecting scatter plots and calculating correlation coefficients!) What is the most parsimonious set of metrics that answers the questions?
10. What method will be used to determine whether metrics (or comparisons made through time or among landscapes) are significant both statistically and ecologically? How will the values, differences or trends of the metrics be interpreted ecologically?

Different metrics and when to use them

The data used

# 3. Results and Analysis

Here are the results

# 4. Conclusions

Here are the conclusions