William Shakespeare

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Bibliography #01

O'Neal, Michael A., Nicholas T. Legg, Brian Hanson, Daniel J. Morgan, and Allison Rothgeb
2013 Lichenometric Dating of Rock Surfaces in the Northern Cascade Range, USA. Geografiska Annaler Series A: Physical Geography 95(3):241-248.

In this article, the researchers are addressing the issue of how long rock surfaces have been exposed due to glacial retreat. This type of data would reveal environmental information about the area which can be applied to habitation patterns. To gather this data the researchers looked at the growth rate of lichen on rock surfaces to collect quantitative samples. In order to factor out some of the uncontrollable aspects of nature, they only measure lichen that is circular in pattern, away from trees and vegetation, and at specific altitudes. They used direct measurements that they collected sporadically over 10 years and indirect measurements that others collected 20-33 years ago. The diameter of the lichen is measured for growth over time.

To analyze the data, the researchers calculated the mean growths and weighted growths for disparity in the measure period. They produced multiple data sets comparing direct and indirect methods and combining the two to make sure the means were similar. They then plotted these on scatter charts to look for patterns in growth. They were thorough in testing validity and confidence with F tests and T tests. This allowed them to show their sample size was large enough and the margin of error acceptable. They also compared their growth curve to 5 other lichen growth curves from similar environments. They concluded that these methods were accurate for use in dating exposed surfaces to the 17th century. I found that this study seemed very solid in its testing of methods and analysis. One weakness I found is that they had a limited number of large lichen samples which have different growth patterns, but they acknowledge this. Another possible weakness is the precise environments where the data was collected. It seems that these curves cannot be transferred to different areas.