Least-Cost Analysis of the Occurrence of Obsidian at Archaeological Sites in the Washakie Wilderness, Wyoming

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Anthropology
Hunter-gatherer Mobility

• Where do people go?

• How do they move?

• How far do they move?
Research Questions

How did prehistoric hunter-gatherers move through mountainous areas?

Are there patterns of movement between sites?
How do you source?

• Volcanic eruptions have chemical “signature”
  
  • Yttrium (Y) / Strontium (SR) ratio
  
  • Zirconium (ZR) / Niobium (NB) ratio
Greybull River Sustainable Landscape Ecology (GRSLE)

• Surface artifacts from forest fires
Methods

Gathered data from field
Obsidian was later sourced

Elevation data
from NRCS
Methods continued

- Create cost rasters

- Create least-cost path
  - Focus on two sources:
    - Obsidian Cliff (OC)
    - Teton Pass (TP)
Obsidian Cliff Least-Cost Path
Possible error from data?
Trade/Major Route?

Upper route or Lower Route?
Results

• Path runs along lower elevations, which is expected

• General overlap between source and destination
  • Major routes?
  • Potential for connection of routes between sources and destination

• Overlap result of multiple occupations? Or multiple groups at meeting?
Further Research

• Need to survey areas to test validity of least-cost model

• Incorporate Python for remaining artifacts

• Incorporate this data into larger predictive model