Glacial erosion and pre-existing fracture networks collaborate to create the Acadia National Park landscape

Mt. Desert Island (MDI), Maine: Home to Acadia National Park (ANP)

Figure 2: Glacial Landforms of MDI

Figure 3 and 4: Remote Landscape Data

Figure 5. Field Outcrop Data

Figure 6: Faults and Fractures of Coastal Maine

Figure 7: Comparison to nearby islands

Figure 8: Zones of weakened bedrock

Mt. Desert Island and Acadia National Park

Mt. Desert Island (MDI), Maine: Home to Acadia National Park (ANP)

Methods:

Remote Data Collection: Using various remote data sets (lidi-based hillshade, slope, aspect maps) as well as georeferenced bedrock and surficial geologic maps, we identified bedrock fractures, linear landscape features, and glacial features of the MDI landscape. (Figures 2, 3, and 4)

Field Data Collection: We measured the orientation of prominent bedrock fractures at multiple locations on MDI. We collected a higher resolution fracture study long a N-S transect across Cadillac Mountain. (Figure 5)

Data Analysis/Interpretation: We compared the orientation of fractures, linear features, and glacial features of the MDI landscape. (Figures 2, 3, and 4)

Hypotheses:

Bedrock fracture and linear orientations measured both in the field and remotely are similar to regional patterns. (Figures 6, 7, and 8)

Conclusion/Future Work

We can predict where we might find unreported faults based on morphological indicators (zones of cliff recession) and seismically known fault locations. We have begun to map fault zones on MDI. (Figure 8)

References


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