2008 Fall Meeting
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Cite abstracts as **Author(s) (2008), Title, *Eos Trans. AGU, 89*(53), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was:
vollmer

HR: 1340h
AN: **T53A-1918**
TI: Quantification of Regional Exfoliation Joint Geometry in Acadia National Park, Maine
AU: * **Vollmer, F W**
EM: *vollmerf@newpaltz.edu*
AF: *State University of New York at New Paltz, Department of Geological Sciences, New Paltz, NY 12401,*
AB: Exfoliation domes are prominent features within mountain ranges, however the mechanics of their formation is not completely understood. Joints in these domes form curved sheets sub-parallel to topography. A complex causal relationship is suggested since joint curvature controls topography through erosion, while stresses associated with topography and erosion are likely factors in joint development. Pluton shape may also be a factor. To investigate these relationships, the orientations of joint surfaces were measured on Pemetic, Cadillac, and Dorr Mountains in Acadia National Park, Maine. The three adjacent mountains lie within the homogeneous Silurian Cadillac Mountain granite. In 2006 earthquake damage closed several trails in the park, making joint studies of current practical interest. A GPS unit was used to record UTM coordinates and elevation. Geometric analysis was done by calculating a grid of orientation matrixes from the data. An orientation field is calculated from the grid, and a shaded relief map is created by interpolating calculated light intensities. Orientation indexes can also be displayed, such as a point index of data variability. Results suggest that these mountains lie within one elongate exfoliation dome roughly centered on Cadillac Mountain. This dome may represent the pre-glacial topography. It does not represent the pluton extent. Additional work includes clarifying the temporal relations between steep joint sets and the shallower sheet joints, expanding and further quantifying regional joint geometries, and refinement of the analytic methods.
DE: 0530 Data presentation and visualization
DE: 5104 Fracture and flow
DE: 8010 Fractures and faults
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DE: 8094 Instruments and techniques
SC: Tectonophysics [T]
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