SOILS INDICATORS OF ENVIRONMENTAL CHANGE, THIDRIKSVALLAVATN, NORTHWEST ICELAND

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Lake sediments contain long, continuous records of watershed change, providing we understand the processes involved. Several lakes in Iceland show intriguing geochemical cycles thought to be related to climate (Doner, 2009) but the mechanism for this linkage is unclear. To address this uncertainty, and better understand the relationship between terrestrial productivity and weathering, we've examined soils in northwest Iceland.

In 2012, we collected soils in seven lake-to-upland transects within Thidriksvallavatn's watershed, with one, 50 x 50 cm soil pit per transect. In each pit, we measured soil color, horizon development and magnetic susceptibility, and collected samples at 1 cm intervals. Throughout the study area we found distinct black layers separated by lighter brown and gray soils. The bottom of each pit, about 1 meter below the surface, has dominantly grey-colored clays that appear to be products of *in-situ* weathering of the basaltic bedrock.

Pit 5D and 7D have north- and south-facing slopes, respectively. From these, we examined smear slides, measured particle-size, mass and frequency-dependent magnetic susceptibility, and carbon content. Radiocarbon dates on the bulk, humic acid and plant macro-fossil fractions are underway. Our results indicate that the black layers are associated with peak amounts of total organic matter and significantly lower magnetic values. Gray layers have lower organic content and higher magnetic values. Brown layers are composed of organic-rich peats. Once received, the dates will be used to create an age model and allow us to link soil changes to known events, such as the Little Ice Age mini-glaciation.