

RELATIVE DATING PARAMETERS ON THE ICICLE CREEK MORAINES

We have provided you background information regarding the numerical chronology for the Late Pleistocene moraine sequence within the Icicle Creek drainage, located near Leavenworth, WA (Porter and Swanson, 2008). Prior to the advent of cosmogenic isotope dating techniques, glacial deposits were difficult to date because of the rarity of datable materials directly related to the timing of deposition. Prior to the late 1980's most glacial chronologies were based on relative weathering parameters of till boulders, soils within the till matrix, or the moraine morphology itself. In today's field exercise, we will measure several of these weathering parameters on three to four moraines to determine how weathering properties of till boulders, soil profiles and moraine morphology change over time. You will work in groups of 2-3 students and be responsible to record your own data. The class will measure boulder frequency counts, surface weathering properties of till boulders and slope morphology of the proximal and distal slopes of the respective moraines. We will also describe soil development properties in exposed road cuts on the different aged moraines. We learn about these relative dating techniques in the field and later in lecture. You can refer to Burke and Birkeland's (1979) and Swanson *et al.*'s (1993) papers on relative dating and soil development parameters for further background. The papers have been uploaded onto my web site for your review.

RESEARCH ASSIGNMENT

Each group will collect field data from the moraine sites we will be assessing. Each group will hand in a written report of their findings. This report should include an abstract, introduction (including, literature review and research objectives), research

results, conclusions and bibliography (Citation should use the journal *Quaternary Research's* format). The report should be no more than 12-15 pages, including, maps, tables, figures and photos. The report will be due on Friday December 11th. Please include a list of names and summary paragraph outlining the contribution of each group member for this research project.