

Final Exam

Glacial Geomorphology

Erosional Processes

1. (2pts) Name the two ways glaciers erode the bed.
2. (6pts) Explain abrasion. Use the equation for abrasion to frame your answer.
3. (5pts) Do thicker glaciers abrade more than thinner glaciers? Explain your answer.
4. (2pts) The tools in the ice abrade along with the bedrock so the tools must be replenished for the glacier to erode over its entire base. What is the source of the tools? Explain.
5. (5pts) Explain how plucking occurs at a step in the bedrock.
6. (6pts) How does a U-shaped valley form? Be specific to demonstrate your knowledge of glacier flow and erosion.

12. (4pts) Describe a drumlin and its possible formation processes

13. (4pts) How do drumlins differ from mega-scale glacial lineations?

14. (4pts) What are eskers and how are they formed? How can you identify an esker on the landscape?

15. (4pts) So-called glaciotectionic deformation can occur around the termini of glaciers. Briefly describe this process (its cause and consequences) and what conditions favor the development of these features?

16. (5pts) Cirques: a.) describe a cirque basin, b) and briefly summarize the process of formation, and c) where are the closest cirques to Portland?

17. (4pts) What is an ice stream, AND, what is the glacial geologic evidence for the former presence of an ice stream on the landscape?

18. (4pts) What is the depositional environment in front of a warm calving tidewater glacier? That is, if you could swim down to the marine floor, what characteristics would you use to describe the sedimentary environment? You are far enough away from the glacier such that you are away from the subaqueous outwash fan.