



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2004AK29B

**Title:** Infiltration in Coarse Soil and Formation of Infiltration Ice

**Project Type:** Research

**Focus Categories:** Climatological Processes, Geomorphological Processes, Hydrology

**Keywords:** drainage, seasonally frozen soils, permafrost, infiltration, infiltration ice

**Start Date:** 03/01/2004

**End Date:** 03/01/2005

**Federal Funds:** \$25,000

**Non-Federal Matching Funds:** \$10,586

**Congressional District:**

**Principal Investigators:**

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### **Abstract**

Little is known about the infiltration characteristics in a frozen soil. As melt water is added to frozen soil, either through a freezing rain event or through snow melt, the pore space characteristics change in the soil. Direct results of changing pore space in a porous media are changes in the ability of water to drain through the soil and for air to displace out of the pores. The purpose of this study is to characterize the changing pore space with addition of water to frozen coarse soils. Laboratory column tests will be performed to measure the amount of water that drains through frozen soil. Columns will be sacrificed and sliced after each addition of water to a series of frozen columns to visually characterize the structure of the accumulating pore ice and the change in the pore space. Results from this study have direct impact on such important and interesting topics as understanding recharge of aquifers, waste management in cold climates, controlling and restoring contaminated frozen soils, spring weakening of roads and airfields in cold climates, and the formation of rock glaciers.