USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002AK1B

Title: Investigation of Immiscible Fluid Movement Through Frozen Porous Media

Project Type: Research

Focus Categories: Toxic Substances

Keywords: petroleum, frozen soil

Start Date: 03/01/2002

End Date: 02/08/2003

Federal Funds: $18,473

Non-Federal Matching Funds: $16,517

Congressional District: Alaska

Principal Investigators:
David L.Barnes
University of Alaska, Fairbanks

Yuri Shur
University of Alaska

Abstract

An adequate understanding of the physical and chemical processes controlling the movement of spilled petroleum products through seasonally or permanently frozen soils is required to adequately protect the quality of Alaska's environment. The permeability of frozen soil to petroleum is most likely controlled by several factors including, soil particle size, moisture content (frozen and unfrozen), and the microstructure of the soil. How these properties impact the permeability is not well known. The objective of this proposal is to characterize these properties and how they influence the soils permeability to a petroleum product. This objective will be accomplished by retrieving core samples testing their permeability to petroleum and analyzing the soil characteristics.