

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Field Investigation of Permafrost Distribution along Trail Ridge Road, Rocky Mountain National Park, CO

**Discipline:** Natural  
**Type of Project:** Research  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** University of Colorado, Boulder  
**Effective Dates:** 5/1/2008 - 9/30/2010  
**Funding Amount:** \$10,712

**Investigators and Agency Representative:**

NPS Contact: Cheri Yost, Park Ranger, Rocky Mountain National Park, 1000 Highway 36, Estes Park, CO 80517, phone: 970-586-1394, [cheri\\_yost@nps.gov](mailto:cheri_yost@nps.gov)

Investigator: Jason Janke, Institute of Arctic and Alpine Research, University of Colorado, Campus Box 450, Boulder, CO 80309-0450, phone: 303-556-3072, [Jason.Janke@colorado.edu](mailto:Jason.Janke@colorado.edu)

**Project Abstract:** Permafrost, or ground that remains frozen for at least 2 consecutive years, is an important indicator of climatic change. With 21<sup>st</sup> century warming, ice-rich permafrost could melt, increasing the occurrence of subsidence or other mass movement. In turn, this could have a significant effect on infrastructure. The objective of this project is to establish a soil temperature monitoring program along Trail Ridge Road to determine current permafrost extent and areas that may be sensitive to future warming. Temperature data loggers will be installed at approximately 30 locations at depths of 0.10 and 1.0 m. Diurnal, seasonal, and annual temperatures will be analyzed to detect change and to determine relationships with soil properties, vegetation, and other land cover characteristics.

**Outcomes with Completion Dates:**

- An approved research permit (application due 15 May 2008) and corresponding Investigator's Annual Reports (due by March 15 each year).
- Quarterly progress reports due July 31, October 31, December 31, and March 31.
- Final report, with photos and GIS products due 30 November 2009

**Keywords:** Rocky Mountain National Park, University of Colorado at Boulder, permafrost, soil temperature, climate change, Trail Ridge Road