



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** WY1901

**Title:** Testing of Hydrologic Models for Estimating Streamflow in Mountainous Areas of Wyoming

**Focus Categories:** Hydrology, Water Quantity

**Keywords:** Model studies, Hydrologic models, Surface drainage, Base flow, Instream flow, Mountain streams

**Start Date:** 03/01/2001

**End Date:** 02/28/2002

**Federal Funds:** \$18,430

**Non-Federal Matching Funds:** \$52,225

**Congressional District:** 1

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**Abstract**

Streamflows in mountainous areas of Wyoming are receiving increased interest in their role as a source for allocation water. This is a major source of water for non-consumptive instream flow rights and numerous consumptive water rights located within and downstream of the high mountain basins of Wyoming. To properly plan for and manage this remote resource, there needs to be a way to determine the yearly cycle, of volume and time of year, that the water is available,

The ideal situation for planning and management of this water resource is to have long-term data available from an existing gage for the stream in question. However, economic and physical constraints prevent the installation and operation of gages at many mountain sites especially in the winter. When a gage is not available, then streamflow estimates are used. The primary purpose of this project is to determine and document the accuracy of the available methods for estimating streamflow values in the mountains of Wyoming. Of particular interest are winter flows, which are sometime difficult to obtain. The secondary purpose of this project is to review the possibilities of using emerging technologies such as remote analysis using Geographic Information Systems (GIS), that may help in the determination of the basin's properties. In the process of this research, all opportunities will be taken to provide training and practical experience to as many students and professionals as possible.