



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002WY2B

Title: Testing of hydrologic models for estimating streamflow in mountainous areas of Wyoming

Project Type: Research

Focus Categories: Hydrology, Models, Water Quantity

Keywords: Mountain streams, Instream flow, Base flow, Hydrologic models, Model studies, Data Analysis

Start Date: 03/01/2002

End Date: 02/28/2003

Federal Funds: \$17,970

Non-Federal Matching Funds: \$58,377

Congressional District: 1

Principal Investigators:

Bruce R. Brinkman
University of Wyoming

Lawrence M. Ostresh
University of Wyoming

Hugh W. Lowham
University of Wyoming

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.