

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Processing and analysis of historical snow-water equivalent (SWE) data

Discipline: Natural

Type of Project: Technical Assistance

Funding Agency: National Park Service

Other Partners/Cooperators: Montana State University

Effective Dates: 7/8/2005 - 3/1/2006

Funding Amount: \$7,050.00

Investigators and Agency Representative:

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Project Abstract:

The National Park Service (NPS) is beginning to prepare a long-term plan for managing winter recreational use in Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway. Preparation of this plan will allow the NPS to complete a long-term analysis of the environmental impacts of winter use in the parks. The NPS expects that this long-term analysis will culminate with a permanent decision about winter use in the parks and intends to complete the Environmental Impact Statement (EIS) process and issue new regulations (if necessary) prior to the start of the 2007-2008 winter season.

One component necessary to conduct this long-term analysis is additional snow pack and snow-cover data and analysis to inform our understanding of how snow depths in the parks relate to potential winter opening and spring closure dates for oversnow vehicle (OSV) travel.

Additionally, the compilation of these data may contribute to future snow modeling efforts within the parks.

Snow-water equivalent (SWE) data is available from several relevant sites, some of which have historical data to the mid-1940's. This analysis will be presented in text, table and graph formats. Once completed, individual station data and analyses shall be submitted to Mike Yochim for review, rather than compiling the data for submission only with the final report. Data and analyses from the Madison area are to be completed and submitted as a priority. Temperature information shall be submitted in both degrees Fahrenheit and degrees Celsius. Measurements shall be submitted in both English and metric formats.

Outcomes with Completion Dates:

1. For each site, the following are to be produced:

*A table listing SWE data for the recording duration of each site.

*Graphs depicting the trend over time in tasks 2Ai, 2Aii, 2Aiii, 2Aiv, 2Av, and 2Avi, with the five-year moving average and best-fit line shown on such graphs.

In addition, for the Norris and West Yellowstone snow course sites, tables and graphs similar to those listed in 2Ai, 2Aii, 2Aiii, 2Aiv, 2Av, and 2Avi shall be produced.

2. Temperature and precipitation data will be used to identify mid-winter rain events and warm-weather events. Warm-weather events are defined as periods of 3 or more consecutive nights when nighttime temperature minimums approach 30 degrees Fahrenheit. Primary months of interest are January-February. Primary area of interest is Madison, West, Old Faithful and Norris.

3. Respond to peer review comments either directly, or by incorporating appropriate changes to the report.

4. Final report

Keywords: snowpack, climate, SWE, historical data, Yellowstone National Park, Grand Teton NP, John D. Rockefeller Memorial Parkway, Montana State University

For Administrative Use Only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: