

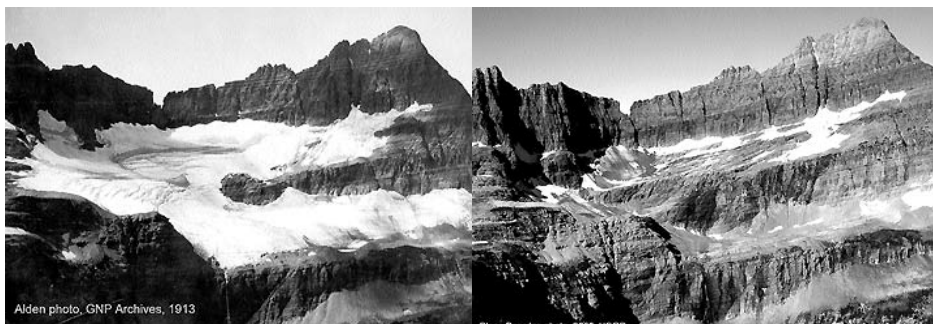
INTRODUCTION

The Toyota USA Foundation, Spatial Sci, The University of Montana, and The Montana Association of Geographic Professionals (MAGIP) are pleased to announce the first annual **Montana GIS in Schools Competition** for middle and high school students. The title for this year's competition is **Montana's Changing Snow Pack and What it Means for your Community**.

COMPETITION CHALLENGE

It is the year 2050 and, as predicted, an increase in average global temperature has resulted in widespread melting of the polar icecaps. The nation's coastal areas are struggling with rising sea levels. At the same time, the country's interior is facing a different set of challenges. Variation in temperature and precipitation patterns has dramatically altered the winter snow pack. What might this mean for you and your community? Should you or your community be worried? Maybe conditions are so favorable that large numbers of people will relocate to Montana?

Glacier Rephotography in Glacier National Park, Montana



Alden photo, GNP Archives, 1913

W.C. ALDEN/GNP Archives 1913

Blaise Reardon photo, 2005, USGS

Blaise Reardon Photo, USGS 2005

PROJECT GUIDELINES

Using the competition challenge, each participant (individual or team) will prepare a GIS-based project to address the change(s) facing his or her community as a result of an altered winter snow pack. The GIS project must include:

- 1) At least one Arc View layout image (but not more than three) that makes a unique contribution to understanding and addressing the community's changing climate and landscape as a result of an altered winter snow pack. Layouts should be free of clutter, confusing colors or symbols, and use clear, direct captions and titles.
- 2) A written summary which includes the elements outlined below:

Written Summary Elements

Expected Changes

In one or two sentences describe the change(s) expected for your community.

Data

Describe the data used, including sources, and how the data helped understand and address the change(s) facing your community. Projects should draw from a combination of at least three geographic and attribute data.

Geospatial Tools

Describe any geospatial tools used to address the change(s) under investigation.

Findings

What are your conclusions? How did you arrive at them? Are there any limitations to your analysis? What decisions should your community and the state of Montana make based on your analysis? Provide one new question you now have about climate change that you would like to answer using GIS.

Solutions

Outline one or more changes that your community can make to address the findings you have made in your report.

PROJECT SUPPORT

Each participating teacher will receive a copy of Tom Brokaw's 2 hour Discovery Channel special on global warming entitled *Global Warming: What you need to know*. The Discovery Channel special presents an array of international experts discussing the current realities of global warming and the future of the planet, featuring Dr. James Hansen, Chief, NASA Institute for Space Studies; Dr. Michael Oppenheimer, Professor of Geosciences and International Affairs, Princeton University; and Dr. Stephen Pacala, Professor and Director of Graduate Studies, Ecology and Evolutionary Biology, Princeton University. Viewers learn global warming fundamentals (evidence for global warming and causes of global warming), explore expected global warming impacts, and examine solutions that can slow global warming.

Another very useful video to consider showing students is the recently released documentary, *An Inconvenient Truth*.

Resources available on the Spatial Sci website:

- Introductory climate change fundamentals powerpoint
- List of questions scientists are asking about climate change
- Spatial data set of Montana's climate
- Links to global warming online resources
- List of MAGIP professionals near you

SUBMISSIONS AND JUDGING

All resources for the competition will be made available February 1, 2007. GIS Project submissions must be **postmarked by March 10th, 2007**. Competition submissions should be submitted on CD rom to the address below:

**Spatial Sci
P.O. Box 4872
Missoula, MT 59806**

All submissions must include:

1. A completed Competition Entry Form
2. Arc View Layout (s)
3. Written Summary

Judging will be carried out by GIS professionals who are members of the Montana Association of Geographic Information Professionals. Judges will evaluate the quality and clarity of the written account and the merits of the spatial and analytical project components.

Specifically, judges will be looking at how well GIS projects used:

1. Geographically referenced data about Montana and climate change;
2. GIS to analyze data;
3. GIS to effectively present data; and,
4. GIS to understand and predict the role climate change will play in the future state of Montana communities.

Written summaries will be judged on the quality of:

5. Reasoning used to make climate change predictions based on evidence from current climate change data;
6. Findings that demonstrate an understanding of climate change science and trends; and,
7. Writing Mechanics (paragraphs, punctuation, grammar, and spelling).

WINNERS AND PRIZES

The intention of the Montana GIS in Schools competition is to promote and support effective teaching and learning of GIS. The teacher submitting the winning school entry will be awarded a travel and registration grant to the 2007 Intermountain GIS Conference held April 2, 2007 – April 6, 2007 at the Tamarack Lodge in Donnelly, Idaho. The winning student or student team will receive a scholarship cash award. Announcements of the winners will be made available March 25th, 2007, via the Spatial Sci website (www.spatialsci.com).