



Recent improvements to the GLIMS Glacier Database and Future Directions

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Glaciers, being good indicators of the state of climate, are a widely distributed natural feature, making them best mapped and monitored through cooperative efforts in which local expertise and knowledge is combined with advanced technology such as satellite imaging. The Global Land Ice Measurements from Space (GLIMS) initiative has been using this approach to build a database of glacier information that includes outlines of glacier boundaries, snowlines, supraglacial lakes and rock debris, and other glacier attributes. The database currently holds information on 93000 glaciers, approximately half of the world's total. Data ingested into the GLIMS Glacier Database since January 1, 2010 include data from Alaska, Argentina, Northern Chile, New Zealand, and Austria. Data expected to be submitted in the near future to GLIMS include data from China (satellite-based), Nepal (satellite-based), as well as more data from the European Space Agency funded project "GlobGlacier" over the European Alps, Greenland, Norway, Western Himalaya, Baffin Island, west coast of Greenland, and Arctic Canadian islands.

We are working to improve our capacity for mapping glaciers efficiently by standardizing protocols and algorithms and by holding training workshops. A 2008 workshop held in Boulder, Colorado, USA resulted in specific recommendations for algorithms tailored to specific geomorphological conditions. Another workshop, held in Mendoza, Argentina in late 2010 focused on training South American researchers in remote sensing, image processing, and GPS field data acquisition techniques. Challenges remain in automatic mapping methods, for example for glaciers covered by rock debris, and working effectively with digital elevation models (DEMs).

Data already in the GLIMS Glacier Database are accessed regularly via Web interfaces by members of the scientific, education, media, and business communities. The visitation rate to <http://glims.org> has almost tripled since 2007, from 1000 to about 2800 visitors per month. We aim to continue adding more and more data to the data holdings, to make more explicit links to other glacier databases, and to improve user interfaces to allow the broadest possible use of this and other glacier-related databases.