

**North American GLORIA Project**  
**(Global Observation Research Initiative in Alpine Environments)**  
GLORIA International: [http://www.gloria.ac.at/res/gloria\\_home/](http://www.gloria.ac.at/res/gloria_home/)

**Point of Departure for Working Group Discussion**  
**MTNCLIM 2005**

High mountain ecosystems are sensitive to climate variability and prone to be early indicators of effects that will ripple through distant ecosystems. The *Global Observation Research Initiative in Alpine Environments* (GLORIA) is an international research project, headquartered in Vienna, whose goal is to assess long-term impacts of climate change on vegetation in alpine environments worldwide. Standardized protocols direct selection of each node in the network, called a target region, which consists of a set of four geographically proximal mountain summits at elevations extending from treeline up to the nival zone. GLORIA's multi-summit approach capitalizes on the comparability afforded by highly standardized monitoring protocols and the fact that alpine environments are similar and widely distributed worldwide. GLORIA specifies a rigorous mapping and sampling design for data collection, site documentation, and data archiving, with re-measurement intervals of five years.

Whereas over 30 target regions have been installed in six continents through the international program, prior to 2004 none was completed in North America. In cooperation with the Consortium for Integrated Climate Research in Western Mountains (CIRMOUNT), three GLORIA target regions were completed by September 2004, one in the Sierra Nevada, California, one in the White Mountains, California, and one in Glacier National Park, Montana. As the goals of GLORIA and CIRMOUNT overlap, CIRMOUNT is making a primary effort to motivate installation of new target regions and development of a dense network of GLORIA sites in western North America.

CIRMOUNT will move toward this goal by identifying high-priority areas in western North America to fill the network; contacting and assisting potential leaders of new target regions; assisting in site selection; botanical expertise, equipment sharing; protocol clarification; budget estimation; archiving; data analysis; and coordinating integrated analysis among regions. A set of webpages on the forthcoming CIRMOUNT website will provide useful information for those anticipating and completing GLORIA installations. Fundraising may be leveraged with CIRMOUNT's collaboration. As more sites are installed and early baseline data compiled, CIRMOUNT would sponsor focal workshops for comparing and integrating results and conclusions about effects of elevation and climate on alpine flora. CIRMOUNT will also encourage extended research opportunities at each region under the GLORIA "Master Station" approach.

With the MTNCLIM working group, we hope to spread the word about the North American GLORIA project, provide information on how to get started, identify new collaborators, and promote new installations in summer 2005. We anticipate participation at MTNCLIM 2005 by several scientists who have proposed new target regions this year.

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