

The Global Observation Research Initiative in Alpine Environments (GLORIA; [www.gloria.ac.at](http://www.gloria.ac.at) <<http://www.gloria.ac.at/>>) aims to establish and maintain a site-based network for the long-term surveillance of climate change impacts on fragile alpine ecosystems and its biodiversity in high mountain systems around the world. Through resurveys at intervals of 5 to 10 years, changes in species cover and composition can be directly linked to continuously measured /in situ /temperature series. Commencing at the turn of the millennium in 18 European mountain regions, the network currently comprises more than 50 teams working in 70 mountain regions distributed over five continents. The installation of additional sites yet is much in progress, in the Americas and Asia in particular. The internationally standardized methodology and the rapidly growing number of observation sites build the foundation for a global indicator on warming-induced losses of biodiversity in alpine environments. Such an indicator, based on changes in species cover of vascular plants across Europe, currently is in development. By every repeated cycle of resurvey, the alpine plants/climate change indicator will gain in diagnostic significance. An effective indicator is of relevance for both in-depth studies on the ecological processes as well for helping to guide implementation measures on conserving the biodiversity and ecosystem services in high mountain regions.