Cryosphere and climate

Contest

Source: Italian Glaciological Committee

The cryosphere is responding quickly and with great intensity to climate change:

- Mountain glacier shrinkage
- outcropping of rock walls and debris
- changes of the precipitation, temperature and hydrological regimes

are some of the main terrestrial indicators

Cryosphere and climate

Impacts

Ice falls

Superiore di Coolidge Glacier. A man in the yellow circle. Source CNR-IRPI

Rock avalanches

Thurwieser Peak. Source: J. Rozman

Lake outbursts

Rocciamelone Lake. Source: Protezione Civile Regione Piemonte

Debris flows

Mulinet Glacier. Source: G. Mortara

Cryosphere and climate

Research

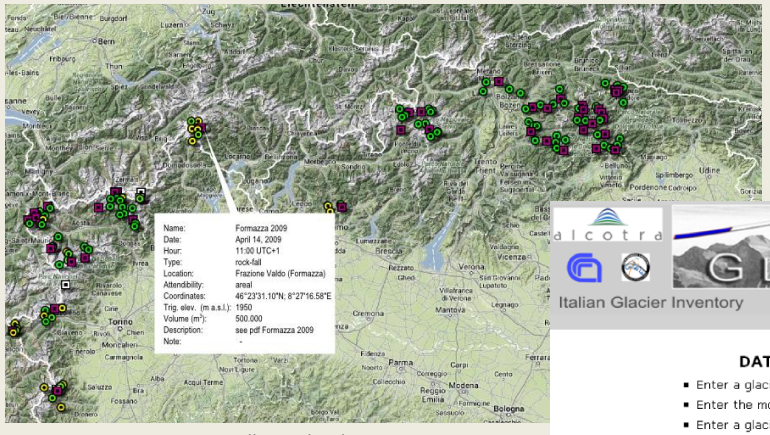
The GeoClimAlp research group of the CNR-IRPI, studies these aspects with particular reference to:

- Mountain glacier evolution in the last 150 years (post LIA)
- climatic triggers of slope instability at high-elevation sites
- Role of climate change in the morphogenesis of the glacial/periglacial areas

Glaciological surveys at the Breuil glaciers (La Thuile, AO).

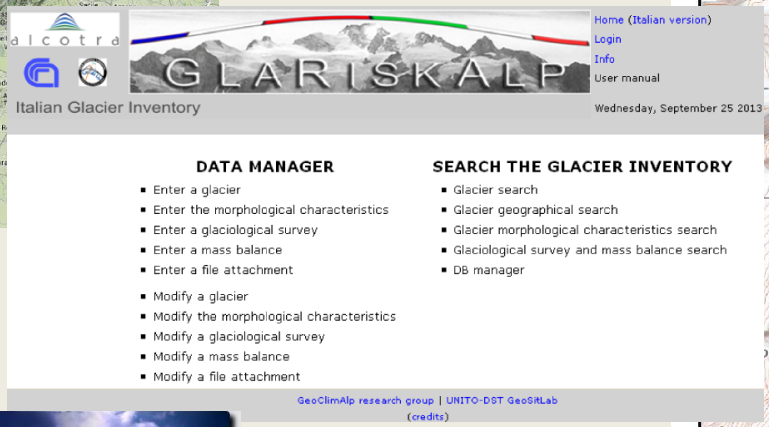
Cryosphere and climate

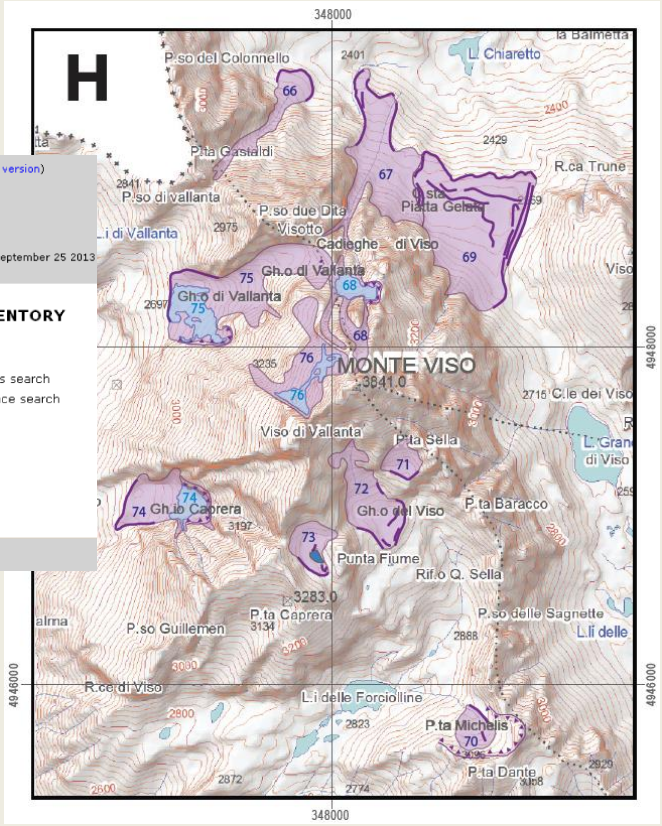
Products



Paranunzio R., Laio F., Nigrelli G., Chiarle M., Guzzetti F. (2014) - The impact of climatic factors on slope instability processes in permafrost areas: the case study of the Matterhorn (Northwestern Alps). EUCOP4 – 4th European Conference on Permafrost, 18-21 June 2014 - Évora, Portugal.

Nigrelli G., Chiarle., Nuzzi A., Perotti L., Torta G., Giardino M. (2013) - A web-based, relational database for studying glaciers in the Italian Alps. Computers & Geosciences, 51, 101-107.





Lucchesi S., Fioraso G., Bertotto S., Chiarle M. (2014) - Little Ice Age and contemporary glacier extent in the Western and South-Western Piedmont Alps (North-Western Italy). Journal of Maps, 10(3).

DATAGRALP - DATAbase for reconstructing the spatial-temporal evolution of the Glacial Resource in the Italian ALPs over the last 100 years in the Framework of the NextData Project of Interest.

marta.chiarle@irpi.cnr.it - guido.nigrelli@irpi.cnr.it - http://geoclimalp.irpi.cnr.it