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The new Inventory of Italian Glaciers: Present knowledge, applied methods and preliminary results

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A new Glacier Inventory is an indispensable requirement in Italy due to the importance of evaluating the present glacier coverage and the recent changes driven by climate. Furthermore Alpine glaciers represent a not negligible water and touristic resource then to manage and promote them is needed to know their distribution, size and features.
The first Italian Glacier Inventory dates back to 1959-1962. It was compiled by the Italian Glaciological Committee (CGI) in cooperation with the National Research Council (CNR); this first inventory was mainly based on field data coupled with photographs (acquired on the field) and high resolution maps. The Italian glaciation resulted to be spread into 754 ice bodies which altogether were covering 525 km2. Moreover in the Eighties a new inventory was compiled to insert Italian data into the World Glacier Inventory (WGI); aerial photos taken at the end of the Seventies (and in some cases affected by a high and not negligible snow coverage) were used as the main source of data. No other national inventory were compiled after that period. Nevertheless during the last decade the largest part of the Italian Alpine regions have produced regional and local glacier inventories which in several cases are also available and queried through web sites and web GIS application.
The actual need is now to obtain a complete, homogeneous and contemporary picture of the Italian Glaciation which encompasses the already available regional and local data and all the new updated information coming from new sources of data (e.g.: orthophotos, satellite imagines, etc..).
The challenge was accepted by the University of Milan, the EvK2CNR Committee and the Italian Glaciological Committee who, with the sponsorship of Levissima Spa, are presently working to compile the new updated Italian Glacier Inventory.
The first project step is to produce a unique homogeneous glacier database including glacier boundary and surface area and the main fundamental glacier features (following the well-known guidelines of the World Glacier Monitoring Service summarized by Paul et al., 2010). The identification of the Italian glacier bodies and the evaluation of glacier area and main features are performed by analysing aerial orthophotos acquired in the time frame 2007-2012 (pixel size 0.5 m).
Moreover the data base will be improved and updated also analysing regional data and by processing and analysing high resolution satellite imagines acquired on the last 2 years. In Lombardy the analysis of the 2007 orthophotos permitted to evaluate a glacier coverage of about 90 km2 of area. This value is about the 75% of the glacier surface area reported for Lombardy glaciers in the Italian Inventory compiled by CGI-CNR in the 1959-62.