

Rock glaciers, Lombardy, Italy, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Guglielmin, M., C. Smiraglia, N. Cannone, and C. Tellini 1998. *Rock glaciers, Lombardy, Italy, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.7265/skah-1797>. [Date Accessed].

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TABLE OF CONTENTS

1	DETAILED DATA DESCRIPTION.....	2
1.1	Coverage of data set.....	2
1.1.1	Study location:	2
1.1.2	Geographic extent - Describe the corners of the box representing data coverage:	2
1.1.3	Period of investigation - Years covered	2
1.2	File and Directory Structure.....	2
1.3	Current storage of data - Mark with X as many as are appropriate, or delete those that do not apply .	3
1.4	Datacenter (please give name of center)	4
2	REFERENCES AND RELATED PUBLICATIONS	4
3	CONTACTS AND ACKNOWLEDGMENTS	5
3.1	Details of Principal Investigators:	5
3.2	Organization:	5
4	DOCUMENT INFORMATION.....	6
4.1	Publication Date	6
4.2	Date Last Updated.....	6

Notice: This data set was first published on the [1998 CAPS CD](#).

The text for this document was taken unchanged from that CD.

1 DETAILED DATA DESCRIPTION

1.1 Coverage of data set

1.1.1 Study location:

Lombardia Regione, Central Italian Alps.

1.1.2 Geographic extent - Describe the corners of the box representing data coverage:

Northwestern latitude: 46.5 N

Northwestern longitude: 9.3 E

Southeastern latitude: 45.833 N

Southeastern longitude: 10.5 E

1.1.3 Period of investigation - Years covered

Inventory of rock glaciers 1987, 1997

1.2 File and Directory Structure

The Lombardia is one of the regions in which Italy is divided from administrative point of view. In this region is comprised the more eastern part of Italian sector of the Lepontine Alps and a large part of the Rhaetian Alps. The highest point of this part of the Alps is Bernina Peak (4052 m a.s.l.) There are 305 glaciers and the total glaciated area is about 113 of sq. km. The glaciers are more widespread in the northeastern part of the region (Ortles-Cevedale Group). In this region have been identified 498 rock glaciers that have been classified according their degree of morphological activity in active (92, 18%), doubt (94, 19%), complex (27, 5%) and inactive (285, 58%). After the first works carried out in the mid 1920s by Nangeroni , at the end of 1987 started the work for the rock glaciers inventory. This inventory has been carried out by the analysis of color aerial photographs at 1:20.000 scale. In addition, for the approximately 10% of the land forms identified a geomorphological survey in the field was completed.

Since 1989 in Lombardy region, and, in particular, in Upper Valtellina (Sondrio), were carried out some geophysical investigations to define the geometry of the permafrost bodies included in rock glaciers (Guglielmin et Alii, 1994; Guglielmin, 1997) and some BTS (Bottom temperature of winter snow cover) measurements to map the permafrost occurrence (Guglielmin & Tellini, 1992, 1994).

The rock glacier inventory of the Alps has been carried out with the same criteria used for the Italian Alps rock glaciers inventory.

The following parameters of each rock glacier were measured:

1. Location (geographic coordinates also respect the official italian cartography).
2. Activity (active/inactive/complex and of uncertain activity).
3. Size (length, width), m.
4. Square, m².
5. Orientation.
6. Mean slope of the landform (i)
7. Maximum elevation of the landform , m a.s.l.
8. Minimum elevation of the front, m a.s.l.
9. Geomorphological location (cirque, slope, valley bottom, furrow)
10. Lithology of the area that feeds the rock glacier (metamorphic, carbonate, volcanic, plutonic and other rocks)
11. Relationships with glacial bodies (glaciers, glacierets, snow banks, morainic landforms)
12. Relationships with the vegetation (above or below the tree line and continuous meadows line).
13. Description of the main surficial geomorphologic elements (meandering ridges and furrows, conical pits and so on).

The areas with the higher density of rock glaciers are located in the inner valleys of the Valtellina and in some valleys of the northward aspect of the Orobian Alps.

The lowest altitude of the active rock glaciers ranges from 2850 to 2150 m a.s.l, with a mean value of 2537 m a.s.l while the same value for inactive ones is of 2108 m a.s.l..

1.3 Current storage of data - Mark with X as many as are appropriate, or delete those that do not apply

Table 1. Current Data Storage

CD ROM	
Paper	X
Spreadsheet	
Wordprocessor file(s)	
Database	X

1.4 Datacenter (please give name of center)

Home address of Mauro Guglielmin
Via Matteotti, 22 20035 Lissone (MI) Italy,
e-mail : cannone.guglielmin@galactica.it

Are your data at risk of being lost? Yes or No *** Yes ***

2 REFERENCES AND RELATED PUBLICATIONS

CALDERONI G., GUGLIELMIN M., LOZEJ A. e TELLINI C. (1993): Researches on rock glaciers in the Italian central Alps (Valtellina, Sondrio, Italia), Proceedings of VI Int. Conf. on Permafrost, Beijing, 1, 72-77.

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3 CONTACTS AND ACKNOWLEDGMENTS

3.1 Details of Principal Investigators:

1. Mauro Guglielmin
2. Claudio Smiraglia
3. Nicoletta Cannone
4. Claudio Tellini

3.2 Organization:

1. Home address: Via G. Matteotti, 22, 20035, Lissone, Mi, Italy;
Phone: +39 (2) 67655152;
Email: cannone.guglielmin@galactica.it
2. Dipartimento di Geologia , Università di Milano, Via Mangiagalli, 34 20100 milano
Phone +39 (2) 23698253

Fax +39 (2) 70638261

Email:

3. Dipartimento di Ecologia del Territorio e degli Ambienti Terrestri,

Università di Pavia, Via Sant'Epifanio, 14 27100 Pavia

+39 (382) 504311

Fax: +39 (382) 34240;

Email: cannone.guglielmin@galactica.it

4. Dipartimento di Geologia, Paleontologia e Geografia, viale delle Scienze,

78 43100 Parma

Phone: +39 (521) 905317

Fax: +7 (521) 905305

Email:

4 DOCUMENT INFORMATION

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