

Curriculum Vitae – Christophe Lambiel

Name : Christophe Lambiel

Place and date of birth: Geneva, October 1st 1973

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Languages: French, English, German

Formation and Diploma

1988 – 1993 : Swiss maturity, type C (scientific) in Sion High school (Lycée-Collège cantonal des Creusets)

1994 – 1999 : Licence ès Lettres at the University of Lausanne, Switzerland (Bachelor of Arts). Subjects : Geography, Geology, Computer sciences and Mathematic methods

1998 : Postgraduate course on natural hazards in the Alps (CUSO).

2003 : Postgraduate course on geomorphological landscapes (CUSO).

2001 – 2006 : PhD Thesis, Faculty of Geosciences and Environment, University of Lausanne, Switzerland.

Professional experience

2000 : Collaborator in the forestry engineer office Patrick Chevrier SA.

2001 – 2002 : Collaborator at Microgis SA (geomatics office).

2000 – 2005 : Graduate assistant for Prof. Jörg Winistörfer, Institute of Geography, University of Lausanne.

Since 2001 : Representative for PERMOS (Permafrost Monitoring Switzerland) at the University of Lausanne. Member of the scientific committee since 2010.

2006 – 2010 : Assistant Lecturer (Maître-assistant), Institute of Geography, University of Lausanne.

Since 2010 : Lecturer (Maître d'enseignement et de recherche), Institute of Geography, University of Lausanne.

Lectures: mountain periglacial environments, alpine geomorphology, geomorphological mapping, excursions, field work organisation, direction of Master diploma, direction of PhD Thesis.

Research fields

Applications:

- Alpine geomorphology
- Permafrost mapping and modelling

- Study and monitoring of creeping mountain permafrost landforms (rock glaciers, moraines)
- Thermal and geoelectrical monitoring of alpine permafrost
- Permafrost-related processes understanding
- Mass movement and natural hazards studies (debris flows, landslides)

Methods:

- Geoelectrical and seismic methods
- Thermal methods (BTS, continuous logging at the surface and in boreholes)
- Differential GPS
- Digital photogrammetry
- Terrestrial laser scanning (Lidar)
- Space-borne synthetic aperture radar interferometry (InSAR)
- Field and GIS geomorphological mapping

Main projects and mandates

- 2005 : Mandate for the Swiss Federal Office for Water and Geology, in collaboration with R. Delaloye (Uni. Fribourg) and R. Lugon (IUKB): *ESA SLAM project, phase 2, Bas-Valais. Validation of InSar data in permafrost zone.*
- 2007 : Mandate for the canton of Vaud (Switzerland), in collaboration with R. Delaloye (Uni. Fribourg) and E. Bardou (Uni. Lausanne): *Permafrost-Vaud. Etat des lieux de la distribution du pergélisol et du risque périglaciaire dans le canton de Vaud.*
- 2007 – 2008 : Mandate for the canton of Valais (Switzerland), in collaboration with R. Delaloye (Uni. Fribourg) and R. Lugon (IUKB): *InSAR Haut-Valais, Inventaire des mouvements de terrain par analyse de signaux d'interférométrie radar satellitaire (période 1993-2000).*
- 2008 – 2011 : Co-applicant for the FNS project *Distribution and structure of permafrost in alpine talus slope* (200021-119854).
- 2010 : Mandate for the Swiss Federal Office for the Environment, in collaboration with R. Delaloye (Uni. Fribourg). *PERMANET - Permafrost Data Inventory. Contribution from Universities of Fribourg and Lausanne.*
- 2011 - 2014 : Co-applicant for the Sinergia FNS project *The Evolution of Mountain Permafrost in Switzerland* (CRSII2_136279/1)
- 2011 - 2015 : Mandate for the canton of Valais and the municipality of Evolène (Switzerland), in coll. with S. Lane (Uni. Lausanne) and R. Delaloye (Uni. Fribourg) : *Observatoire du Val d'Hérens – Géomorphologie : Glaciers rocheux – marges proglaciaires – mouvements de versant.*
- 2012 : Mandate for the municipality of Bagnes (Switzerland). *Production of a permafrost map for the municipality.*
- 2012 : Mandate for the Swiss Federal Office for the Environment. *Validation of InSAR-detected landslides in high mountain by GPS data.*

Reviewer of scientific articles for the following journals

Geomorphology, Geografiska Annaler: Series A, Physical Geography, Permafrost and Periglacial Processes, Natural Hazards and Earth System Sciences, Proceedings of International Permafrost Conferences, Collection Edytem.

Publications

Complete list of publications available at <http://mesoscopie.unil.ch/clambiel/>

Peer-reviewed articles

- Barboux C., Delaloye R., Lambiel C. (submitted, accepted). Inventorying slope movements in Alpine environment using DInSAR. *Earth Surface Processes and Landforms*.
- Bosson, J.-B., Lambiel, C., Deline, P., Gardent, M., Bodin, X., Schoeneich, P., Baron, L. (submitted, in review). Ground ice occurrence in high-mountain proglacial areas since the Little Ice Age and its influence on geomorphic dynamics: the case of Rognes and Pierre Ronde proglacial areas (Mont Blanc range, France). *Earth Surface Processes and Landforms*.
- Lambiel C., Scapozza C. (to be submitted next December). Mountain permafrost discontinuity. Examples from the western Swiss Alps. *The Cryosphere*.
- Ravanel L., Lambiel C., Oppikofer T., Jaboyedoff M. (submitted, accepted). Terrestrial laserscanning monitoring of a highly vulnerable moraine at the Gentianes Pass (2894 m a.s.l., Valais Alps, Switzerland). *Arctic, Antarctic and Alpine Research*.
- Scapozza C., Conedera M., Bozzini C., Mari S., Lambiel C. (submitted, accepted). Multi-temporal rock glacier kinematics in the Southern Swiss Alps. *Earth Surface Processes and Landforms*.
- Scapozza C., Lambiel C., Baron L. (submitted, in review). Borehole logging in alpine periglacial talus slopes (Valais, Swiss Alps). *Permafrost and Periglacial Processes*.
- Vittoz P., Dvorak C.-A., Lambiel C., Delaloye R., Morard S., Stoffel M. (to be submitted next December). Dendrogeomorphological analysis of dwarf spruces in cold talus slopes (Dreveneuse, Valais Prealps). *Arctic, Antarctic and Alpine Research*.
- Ravanel L., Deline P., Lambiel. (2013). Instability of a highly vulnerable high alpine rock ridge: the lower Arête des Cosmiques (Mont Blanc massif, France). *Geografiska Annaler: Series A, Physical Geography*. 95, 51–66. doi:10.1111/geoa.12000
- Reynard E., Lambiel C., Lane S.N. (2012). Climate change and integrated analysis of mountain geomorphological systems. *Geographica Helvetica. Global change, globalization and Swiss geography*, 67(1-2) : 5-14.
- Scapozza C., Lambiel C., Baron L., Marescot L., Reynard E. (2011). Internal structure and permafrost distribution in two alpine periglacial talus slopes, Valais, Swiss Alps. *Geomorphology*, 132 : 208–221. Doi : 10.1016/j.geomorph.2011.05.010
- Scapozza C., Lambiel C., Gex P., Reynard E. (2011). Prospection géophysique multi-méthodes du pergélisol alpin dans le sud des Alpes suisses. *Géomorphologie: relief, processus, environnement*, 1/2011: 15-32.
- Delaloye R., Lambiel C., Gärtner-Roer I. (2010). Overview of rock glacier kinematics research in the Swiss Alps. Seasonal rhythm, interannual variations and trends over several decades. *Geographica Helvetica*, 65(2): 135-145.
- Morard S., Delaloye R., Lambiel C. (2010). Pluriannual thermal behavior of low elevation cold talus slopes (western Switzerland). *Geographica Helvetica*, 65(2) : 124-134.
- Scapozza C., Lambiel C., Reynard E., Fallot J.M., Antognin M., Schoeneich P. (2010). Radiocarbon dating of fossil wood remains buried by the Piancabella rockglacier, Blenio Valley (Ticino, Southern Swiss Alps): implications for rockglacier, treeline and climate history. *Permafrost and Periglacial Processes*, 21: 90-96.
- Theler D., Reynard E., Lambiel C., Bardou E. (2010). The contribution of geomorphological mapping to sediment transfer evaluation in small alpine

- catchments. *Geomorphology*, 124: 113-123. doi: 10.1016/j.geomorph.2010.03.006
- Lambiel C., Bardou E., Delaloye R., Schuetz P., Schoeneich P. (2009). Extension spatiale du pergélisol dans les Alpes vaudoises; implication pour la dynamique sédimentaire locale. *Bulletin de la Société vaudoise des sciences naturelles*, 91.4, 407-424. ISSN 0037- 9603.
- Delaloye R., Perruchoud E., Avian M., Kaufmann V., Bodin X., Hausmann H., Ikeda A., Käb A., Kellerer-Pirklbauer A., Krainer K., Lambiel C., Mihajlovic D., Staub B., Roer I., Thibert, E. (2008). Recent interannual variations of rockglaciers creep in the European Alps. *Proceedings of the Ninth International Conference on Permafrost, Fairbanks, Alaska, June 2008*, 343-348.
- Lambiel C., Pieracci K. (2008). Permafrost distribution in talus slopes located within the alpine periglacial belt (Swiss Alps). *Permafrost and Periglacial Processes*, 19: 293-304.
- Lambiel C., Delaloye R., Strozzi T., Lugon R., Raetzo H. (2008). ERS InSAR for detecting the rock glacier activity, *Proceedings of the Ninth International Conference on Permafrost, Fairbanks, Alaska, June 2008*, 1019-1025.
- Pieracci K., Lambiel C., Reynard E. (2008). Distribution et caractéristiques du pergélisol dans les éboulis calcaires de haute altitude (Hautes Alpes Calcaires, VS, Suisse), *Géomorphologie: relief, processus, environnement*, 2, 87-98.
- Roer I., Avian M., Delaloye R., Lambiel C., Haerberli W., Käb A., Kaufmann V. (2008). Observations and considerations on collapsing active rockglaciers in the Alps. *Proceedings of the Ninth International Conference on Permafrost, Fairbanks, Alaska, June 2008*, 1505-1510.
- Scapozza C., Gex P., Lambiel C., Reynard E. (2008). Contribution of Self-potential (SP) in the study of alpine periglacial landforms and hydrology: examples from the Southern Swiss Alps, *Proceedings of the Ninth International Conference on Permafrost, Fairbanks, Alaska, June 2008*, 1583-1588.

Book contributions

- Lambiel C., Delaloye R., Roer I. (2011). Creep. In: *Encyclopedia of Snow, Ice and Glaciers*. Singh V.P., Singh P., Haritashya U.K. (Eds.). Part 3, Pages 163-165.
- Delaloye R., Lambiel C. (2008). Typology of vertical electrical sounding for permafrost/ground ice investigation in the forefields of small alpine glaciers. In: *Applied Geophysics in Periglacial Environments*. Cambridge, Hauck C. Kneisel C., 101-108.

Other pertinent publications

- Barboux C., Delaloye R., Lambiel C., Strozzi T., Collet C., Raetzo H. (2013). Surveying the activity of landslides and rock glaciers above the tree line with InSAR. In: Graf, C. (ed) *Mattertal - ein Tal in Bewegung*. Jahrestagung der Schweizerischen Geomorphologischen Gesellschaft 29. Juni - 1. Juli 2011, St. Niklaus, Birmensdorf, Eidg. Forschungsanstalt WSL. 7-19.
- Deluigi N., Lambiel C. (2013). PERMAL: a machine learning approach for alpine permafrost distribution modeling. In: Graf, C. (ed) *Mattertal - ein Tal in Bewegung*. Jahrestagung der Schweizerischen Geomorphologischen Gesellschaft 29. Juni - 1. Juli 2011, St. Niklaus, Birmensdorf, Eidg. Forschungsanstalt WSL. 47-62.
- Scapozza C., Lambiel C. (2013). Structure interne et répartition du pergélisol dans l'éboulis « à galets » de Tsaté-Moiry (VS). In: Graf, C. (ed) *Mattertal - ein Tal in Bewegung*. Jahrestagung der Schweizerischen Geomorphologischen Gesellschaft

29. Juni - 1. Juli 2011, St. Niklaus, Birmensdorf, Eidg. Forschungsanstalt WSL. 33-45.
- Barboux C., Delaloye R., Strozzi T., Lambiel C., Collet C., Raetzo H. (2012). Monitoring active rock glaciers in the western Swiss Alps: challenges of Differential SAR Interferometry and solutions to estimate annual and seasonal displacement rates. *Proceedings of the 2012 IGARSS conference, Munich*.
- Ravanel L. Lambiel C. (2012) Evolution récente de la moraine des Gentianes (2894 m, Valais, Suisse). Un cas de réajustement paraglacière ? *Environnements périglaciaires*, N° 18.
- Dvorak C.-A., Lambiel C., Soffel M. (2011). Etude dendroécologique des épicéas nains. Etude de cas dans la combe de Dreveneuse (Valais, Suisse). In Lambiel, C., Reynard, E. et Scapozza, C., *La géomorphologie alpine: entre patrimoine et contrainte. Actes du colloque de la Société Suisse de Géomorphologie, 3-5 septembre 2009, Olivone* : Institut de Géographie de l'Université de Lausanne. 113-126.
- Lambiel C. (2011). Le glacier rocheux déstabilisé de Tsaté-Moiry (VS) : caractéristiques morphologiques et vitesses de déplacement. In Lambiel, C., Reynard, E. et Scapozza, C., *La géomorphologie alpine: entre patrimoine et contrainte. Actes du colloque de la Société Suisse de Géomorphologie, 3-5 septembre 2009, Olivone* : Institut de Géographie de l'Université de Lausanne. 211-224.
- Lambiel, C., Reynard, E., Scapozza, C. (Éds) (2011). *La géomorphologie alpine : entre patrimoine et contrainte. Actes du colloque de la Société Suisse de Géomorphologie, 3-5 septembre 2009, Olivone*. 273 p.
- Ramelli G., Scapozza C., Mari S. et Lambiel C. (2011). Structure interne et dynamique des glaciers rocheux du massif de la Cima di Gana Bianca, Val Blenio (Tessin). In Lambiel, C., Reynard, E. et Scapozza, C., *La géomorphologie alpine: entre patrimoine et contrainte. Actes du colloque de la Société Suisse de Géomorphologie, 3-5 septembre 2009, Olivone* : Institut de Géographie de l'Université de Lausanne. 177-193.
- Scapozza C., Lambiel C. et Reynard E. (2011). Datation relative de formes périglaciaires alpines à l'aide de la méthode paléogéographique et du marteau de Schmidt. In Lambiel, C., Reynard, E. et Scapozza, C., *La géomorphologie alpine: entre patrimoine et contrainte. Actes du colloque de la Société Suisse de Géomorphologie, 3-5 septembre 2009, Olivone* : Institut de Géographie de l'Université de Lausanne. 127-143.
- Delaloye R., Strozzi T., Lambiel C., Mari S., Stocker A., Techel f., Raetzo H. (2010) The contribution of InSAR data to the early detection of potentially hazardous active rock glaciers in mountain areas. *Proceedings ESA Living Planet Symposium, Bergen, Norway, June 28 - July 2 2010*.
- Delaloye R., Strozzi T., Lambiel C., Perruchoud E. (2008). Landslide-like development of rockglaciers detected with ERS-1/2 SAR interferometry. *Proceedings ESA FRINGE Symposium 2007*.
- Lambiel C., Schuetz P. (2008). Ground characteristics and deformation of a frozen moraine affected by tourist infrastructures (Col des Gentianes, Valais). *Klimaveränderungen auf der Spur*. Studien des Europäischen Tourismus Instituts an der Academia Engiadina, Samedan. 5, 110-122.
- Lambiel C., Baron L. (2008). Two-dimensional geoelectrical monitoring in an alpine frozen moraine. *Proceed. 9th Int. Conf. Permafrost, Fairbanks 2008*, Extended Abstracts Volume, 161-162.
- Pieracci K., Lambiel C. (2008). Le permafrost dans le complexe éboulis - glacier rocheux du Basse au Grand Chavalard (Massif de la Dent de Morcles, Valais, Suisse). *Klimaveränderungen auf der Spur*. Studien des Europäischen Tourismus Instituts an der Academia Engiadina, Samedan. 5, 57-67.

- Riff F., Lambiel C., Oppikofer T. (2008). Contribution of Terrestrial Laser Scanning for Studying the Creep of Mountain Permafrost. *Proceed. 9th Int. Conf. Permafrost, Fairbanks 2008*, Extended Abstracts Volume, 255-256.
- Scapozza C., Lambiel C., Reynard E., Antognini M., Schoeneich P. (2008). 14C Age of Fossil Wood Remains Buried by an Inactive Rockglacier, *Proceed. 9th Int. Conf. Permafrost, Fairbanks 2008*, Extended Abstracts Volume, 269-271.
- Scapozza C., Lambiel C., Reynard E. (2008). Glaciers rocheux et distribution régionale du pergélisol discontinu dans les Alpes Tessinoises orientales (Suisse). *Klimaveränderungen auf der Spur*. Studien des Europäischen Tourismus Instituts an der Academia Engiadina, Samedan. 5, 79-92.