

Niels Giroud

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Date of birth: 15.06.1979

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Nationality: Swiss

Experience

Geochemist at Iceland GeoSurvey (2006–2008)

- Interpretation of geochemical data for geothermal exploration
- Modeling of geothermal aquifer fluid composition
- Fluid quality surveying for geothermal power plants
- Sampling of high-temperature and low-temperature geothermal fluids, as well as cold groundwaters
- Use of various analytical techniques for gases (gas chromatography, mass-spectrometry, titration)
- Quality control for a methane production plant

Assistant at the Geology department, University of Lausanne, Switzerland (2000–2002)

- Field lecturer for undergraduate students in tectonics and stratigraphy
- Assistant for geological map designing using vectorial drawing software

Education

Ph.D., Geochemistry, University of Iceland, Reykjavik, Iceland (2008)

- Gas-mineral equilibria in high-temperature geothermal systems
- Behavior of some toxic components in geothermal fluids, mainly Arsenic and Boron
- Formation of a vapor-cap on top of a water-dominated high-temperature geothermal reservoir
- New analytical techniques for dissolved carbon determinations in natural water; sampling and carbonate carbon titration, and analysis on IC and ICP
- Noble gases used as tracers in geothermal waters

M.Sc., Earth Sciences, University of Lausanne, Switzerland (2002)

- Geological study of a metamorphosed ophiolitic complex in the French Alps, involving three months of field work (geological mapping, stratigraphical and tectonical study), and various analytical techniques (U/Pb dating on LA-ICP-MS, Electron Microprobe, Electron Scanning Microscope, XRF, polarized light microscope)

Computer knowledge

- Experienced with the WATCH speciation program
- Familiarity with Linux, PC, and Macintosh environments
- Familiarity with the common office tools (OpenOffice, MSOffice, Latex), Graphic software (Gimp, Illustrator, Photoshop), and plotting software
- Basic knowledge in HTML language

Other skills and interests

- Languages: French (native), English (fluent), Dutch (second mother tongue, good understanding and talking), German (good), Icelandic (basic), Scandinavian languages (basic reading)
- Interests: Photography, Mountaineering and hiking (several jobs as mountain guide for children and teenagers), Traveling

List of publications

PhD thesis

- **Giroud, N.** (2008) A Chemical Study of Arsenic, Boron and Gases in High-Temperature Geothermal Fluids in Iceland. PhD thesis, University of Iceland, Reykjavk, Iceland, 110 pp., ISBN 978-9979-70-479-9
Pdf file: http://www.nielsgiroud.com/GiroudN-PhD_thesis.pdf

Articles and abstracts

- **Giroud, N.**, and Arnórsson, S., in prep., Processes influencing As, B and Cl concentrations in fluids of volcanic geothermal systems in Iceland.
- **Giroud, N.**, and Arnórsson, S., in prep., Gas-mineral equilibria in five Icelandic high-temperature geothermal systems.
- **Giroud, N.**, Arnórsson, S., and Bjarnason, J.Ö., in prep., Formation of a vapor-cap subsequent to production in the Svartsengi geothermal field, Iceland.
- **Giroud, N.**, and Arnórsson, S. (2005) Estimation of Long-Term CO₂ and H₂S release during operation of Geothermal Power. Proceedings, World Geothermal Congress 2005, Antalya, Turkey.
- Stefánsson, A., Gunnarsson, I., and **Giroud, N.** (2007) New Methods for the direct determination of dissolved inorganic and total carbon in natural waters by Reagent-Free Ion Chromatography (RF-IC) and Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES). *Analytical Chimica Acta* **582**, 69–74
- Arnórsson, S., Bjarnason, J.Ö., **Giroud, N.**, Gunnarsson, I., and Stefánsson, A. (2006) Sampling and analysis of geothermal fluids. *Geofluids* **6**, 203–216
- **Giroud, N.**, and Arnórsson, S. (2004) Formation of the steam-cap in the geothermal reservoir of Svartsengi, Reykjanes peninsula, Iceland. Abstract, Geoscience Society of Iceland, Spring Meeting 2004.
- Masson, H., Bussy, F., Eichenberger, M., **Giroud, N.**, Meilhac, C., Presniakov, S. (2008) Early Carboniferous age of the Versoyen ophiolites and consequences: non-existence of a “Valais ocean” (Lower Penninic, western Alps) *Bulletin de la Société Géologique de France* **179**, 337–355
- Bussy, F., Eichenberger, M., **Giroud, N.**, Masson, H., Meilhac, C. and Presniakov, S. (2005) Early Carboniferous age of the Versoyen magmatism and consequences : non-existence of a “Valais ocean” in the Western Alps. Proceedings, 3rd Swiss Geoscience Meeting, Zürich, Switzerland.

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