UNIL | Université de Lausanne

Faculty of Geosciences and the Environment
Institute of Earth Surface Dynamics

UNIL is a leading international teaching and research institution, with over 5,000 employees and 17,000 students split between its Dorigny campus, CHUV and Epalinges. As an employer, UNIL encourages excellence, individual recognition and responsibility, and here invites applications for a

Post-doctoral position in the development of a luminescence paleothermometry method

Start date	01.04.2022 (flexible)
Duration	Four years
Percentage time	100%
Place of work	Lausanne Mouline (Géopolis)

A four-year fully-funded post-doctoral position is available in the Institute of Earth Surface Dynamics (IDyST) at the University of Lausanne, focussing on experimental and modelling work to further develop and apply a paleothermometry method based on luminescence of bedrock quartz and feldspar. The SNSF-funded project will use a combination of luminescence signals with different thermal sensitivity to derive histories of absolute surface air temperatures since the last glacial maximum. Field sites are located across Europe and Africa.

Initial experiments and modelling results have demonstrated the capability of feldspar thermoluminescence in conjunction with inverse modelling to be used for reconstruction of bedrock temperatures across the Holocene and beyond. The current project aims at achieving a substantially higher accuracy and precision of the method through protocol optimisation and hence intense methodological research into luminescence sensitivity change, spectral composition of luminescence signals and the exploitation of a range of signals with intermediate thermal stability. The suitability of developed routines will be cross-checked against samples with known thermal history. Finally, the aim is to better quantify the offset between bedrock temperature and surface air temperature in various settings. The project will be supported by collaboration partners both at the University of Lausanne and outside Switzerland. The successful candidate will join the ICE group in the Institute of Earth Surface Dynamics which specialises in pairing empirical data with numerical modelling in the development of novel geochronological techniques for understanding paleoenvironment and landscape evolution. More information about the group can be found here: https://wp.unil.ch/ice/. The Faculty of Geosciences and the Environment at the University of Lausanne offers both state-of-the-art luminescence research and super-computing facilities.

Desired profile

- Doctoral degree in geography/geology/earth science, physics/chemistry or mathematics.
- Strong background in luminescence research and experience in numerical modelling.
- Excellent command of written and spoken English. Working knowledge of French is not necessary, but would be advantageous.
- Interest in developing new analytical/numerical approaches.

Description of responsibilities

100% of the engagement will be dedicated to fundamental research in luminescence methodology, protocol development and modelling. There will be the opportunity to gain experience in PhD supervision.

Application documents

- Motivation letter
- Curriculum vitae
- Copy of university degree certificates and transcripts of marks awarded
- Electronic version of most relevant research output (e.g., scientific publication)
- Contact information for two professional references

Application documents must be uploaded as a single PDF file at the career portal of UNIL (https://www.unil.ch/carrieres/en/home/menuinst/emplois.html).
Any questions can be directed to PD Dr. Christoph Schmidt (christoph.schmidt@unil.ch) or to Prof. Dr. Georgina King (georgina.king@unil.ch).

Application deadline

20 November 2021