UNIVERSITÉ
DE GENÈVE
FACULTÉ DES SCIENCES

DÉPARTEMENT DE MINERALOGIE

PhD position in isotope geochemistry/geochronology
Insights into radio-isotopic systematics by calibration against astronomical time

The department of Mineralogy, Section of Earth Sciences, University of Geneva, has a vacancy for a PhD doctoral project. This position is part of the Marie Curie Initial Trainings Network GTSnext funded under the 7th Framework Program. The goals of the network are 1) to substantially improve the accuracy, precision, resolution and stability of the Geological Time Scale for the last 100 Myr through the integration and intercalibration of state-of-the-art numerical dating techniques and 2) to train young geochronologists as specialists in these techniques.

Contents of the research
We intend to date late Neogene volcanic ash layers from the Mediterranean using high-precision single-zircon U-Pb techniques. Radio-isotopic dating of such young ash layers also offers excellent opportunities for gaining insight into zircon isotope systematics via their independent calibration by astronomical tuning. An outcome of this synergy will be the development of astronomically and U-Pb calibrated standards for $^{40}Ar/^{39}Ar$ geochronology. The cross-calibration between the different methods will also yield information about the fundamental problem of potential residence times of zircon in silicate melts, and on the effects of intermediate daughter isotope disequilibria during crystallization.

Tasks
In the present project, we will obtain precise and accurate U-Pb age constraints on astronomically tuned and $^{40}Ar/^{39}Ar$ -dated volcanic ash beds.

- High-precision U-Pb dating of zircon from late Miocene ash layers in astronomically tuned, land-based marine sections in the Mediterranean, such as the tephras from the Melilla peninsula of NE Morocco or elsewhere in the Mediterranean area
- Quantifying differences between zircon U-Pb ages and existing $^{40}Ar/^{39}Ar$ radioisotopic and astronomical ages.
- Quantifying the pre-eruptive residence time of zircon in the silicate melts while reconstructing the age of ash deposition.
- Investigating the effect of intermediate daughter product disequilibria in zircon. (i.e. ^{230}Th deficiency and ^{231}Pa excess in zircon)
- Quantifying trace element partitioning and intermediate daughter disequilibrium via chemical anaylsis of melt inclusions in zircon.

Requirements
Successful applicants for this position must comply with the following selection criteria: (1) MSc degree in Earth Sciences or equivalent giving access to post-graduate research study; (2) Less than 4 years research experience after completion of Diploma/Masters degree; (3) PhD has not previously been awarded.

Recruitment procedure
One central recruitment for all positions will be held on January 19. and 20., 2009 at the Vrije Universiteit Amsterdam, the Netherlands. The appointment will have to be filled at latest by 1 September 2009). A second round of recruitment will be organized in spring 2009 if no suitable candidates are found in the first recruitment procedure.

Rue des Maraîchers 13, CH-1205 Genève
Urs.Schaltegger@terre.unige.ch
tél. 022 379 66 38 - Fax 022 379 32 10
www.unige.ch/sciences/terre/mineral

Salary
Remuneration is in accordance with the regulations of the Marie Curie ITN and the University of Geneva and is 47'102 Euros per year (paid in Swiss Francs), including the mobility costs. EU regulated benefits apply. The duration of the PhD project is of 36 months.

Application
Written applications must include a curriculum vitae, a statement of your research interests, the names and addresses of 2 references, and should be sent to the project leader Prof. Urs Schaltegger with a copy to the Faculty of Geosciences - Personnel Department, PO Box 80115, 3508 TC Utrecht, The Netherlands or submitted by e-mail to urs.schaltegger@unige.ch and cc : to peno@geo.uu.nl. Deadline for applications is December 1., 2008, however, positions stay open until filled.
We particularly encourage applications from women candidates. In case of equal qualifications, preference will be given to disabled applicants. Interested candidates are encouraged to apply for several projects within GTSnext, indicating their project preference.

Additional information
Further information about the project can be obtained from Prof. Urs Schaltegger (Urs.Schaltegger@unige.ch)

More informations on….
GTSnext can be found at:
http://www.earthtime-eu.eu/Earthtime_Europe/Recruiting.html
the Marie Curie Programme can be found at:
http://ec.europa.eu/research/mariecurieactions/index.htm
the Isotope Geochemistry group at University of Geneva can be found at:
http://www.unige.ch/sciences/terre/mineral/isotopes/min_isotopes.html