

Name of research institute or organization:

**Institute of Geology & Institute of Geochemistry and Petrology,
ETH Zürich**

Title of project:

Altitude dependence of production rates of cosmogenic nuclides in artificial quartz targets

Project leader and team:

Dr. Florian Kober, project leader
Prof. Rainer Wieler, Prof. Chr. Schlüchter, Dr. P. Vermeesch

Project description:

The project aims to calibrate scaling models for Terrestrial Cosmogenic Nuclide (TCN) production rates derived from in situ produced cosmogenic ^3He and ^{21}Ne in artificial quartz targets exposed at mountain altitudes in the Swiss Alps. Based on initial results of a one-year exposure and irradiation experiment, the current effort is to extend the irradiation time, now accomplish with a period of 3 years. Specifically, this is performed in order to enhance data precision via higher nuclide concentrations accumulated over a longer time period and to better resolve solar cycle production influences. Targets were retrieved in September 2010 and are currently prepared for noble gas analysis.

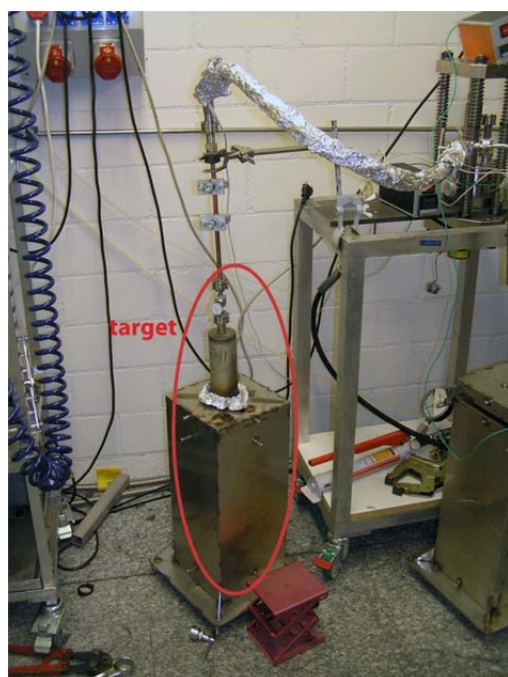


Fig.1. Target during degassing for first series of exposure (see Vermeesch et al. 2009) at the noble gas labs of ETH Zürich.



Fig.2. Target at Jungfrauoch Station, next to the neutron monitor equipment at the Sphinx.

Key words:

Scaling, Terrestrial Cosmogenic Nuclides, ^3He , ^{21}Ne

Internet data bases:

<http://www.geopetro.ethz.ch/research/isotope/noblegasgeochem>

<http://www.esd.ethz.ch/people/fkober>

Scientific publications and public outreach 2010:

Vermeesch, P., Baur, H., Heber, V., Kober, F., Oberholzer, P., Schaefer, J.M., Schlüchter, C., Strasky, S. and Wieler, R., Cosmogenic ^3He and ^{21}Ne measured in quartz targets after one year of exposure in the Swiss Alps. *Earth and Planet. Sci. Lett.*, **284**: 417-425, 2009.

doi:10.1016/j.epsl.2009.05.007

Address:

Institute of Geology, ETH Zürich

Earth Surface Dynamics Group

NO E31

Sonneggstr. 5

CH-8092 Zürich

Contacts:

Florian Kober

Tel.: ++41-+44-6320361

email: kober@erdw.ethz.ch

<http://www.esd.ethz.ch/people/fkober>