Nanogranite Inclusions: New Window into the Partial Melting of the Deep Earth´s Crust

Fact Sheet

Project Information

NANOGRANITES

Grant agreement ID: 654606

Project website

DOI
10.3030/654606

Project terminated on 2 August 2018

EC signature date
5 November 2015

Start date
1 November 2016

End date
30 November 2019

Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 250 518,60

EU contribution
€ 250 518,60

Coordinated by
UNIVERSITA DEGLI STUDI DI PADOVA
Italy

Objective

"Despite its critical influence on the generation and differentiation of the Earth´s continental crust, much uncertainty exists yet on the composition of primary silicate melts produced by the anatexis of crustal materials. This is due to the absence of an accurate method to obtain these primary melt compositions, as common approximations such as leucosomes, experiments and thermodynamic modeling, are associated with numerous problems. A recent breakthrough on our knowledge on

this issue has been the discovery of melt inclusion in anatectic migmatites. These melt inclusions, referred as ""nanogranites"", have been surprisingly preserved upon the slow cooling of anatectic rocks at depth, and record the process of melting of lower crust or subducting crustal material. Nanogranites open for the first time a completely new window into the birth of crustal melts, and will provide a breakthrough toward our understanding of the generation and differentiation of the Earth´s crust. This project will provide the composition of nanogranites from a variety of crustal lithologies (metapelites, metagraywackes, metagabbros), geodynamic scenarios (lower crust, subduction zones, continental arcs) and ages (30 to 100 Ma), and their implications on the growth and differentiation of the continental crust. This will be done by conducting high-pressure piston cylinder remelting experiments on migmatites hosting nanogranites, by charactering the experimental run products by state-of-the-art analytical techniques, and by developing thermodynamic and geochemical models based on the composition of the analyzed migmatites and nanogranites. The project will be conducted at the Australian National University (outgoing host institution, Canberra, Australia), hosting a world-class experimental laboratory and state-of-the-art analytical equipment; and at the Università di Padova (return host institution, Padova, Italy), equipped with first-class analytical techniques."

Fields of science (EuroSciVoc)

natural sciences > earth and related environmental sciences > geology > **lithology**

natural sciences > earth and related environmental sciences > geology > seismology > **plate tectonics**

engineering and technology > **materials engineering**

Keywords

Nanogranites | melt inclusions | crustal anatexis | continental crust | intracrustal differentiation | experimental petrology | geochemistry | geochemical modeling | thermodynamic modeling | kinetics

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2014-GF - Marie Skłodowska-Curie Individual Fellowships (IF-GF)

Call for proposal

H2020-MSCA-IF-2014

See other projects for this call

Funding Scheme

MSCA-IF - Marie Skłodowska-Curie Individual Fellowships (IF)

Coordinator

UNIVERSITA DEGLI STUDI DI PADOVA

Net EU contribution

€ 250 518,60

Total cost

€ 250 518,60

Address

VIA 8 FEBBRAIO 2
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Italy

Region

Nord-Est > Veneto > Padova

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Partners (1)

PARTNER

THE AUSTRALIAN NATIONAL UNIVERSITY

Australia

Net EU contribution

€ 0,00

Address

LIVERSIDGE STREET 1 BUILDING 67C
0200 Canberra

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 166 380,00

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