

Dyke-propagation paths: the movement of magma from the source to the surface

Supervisor(s): Agust Gudmundsson

Project Description:

Under what mechanical conditions does a magma chamber rupture and inject a dyke? And what conditions determine the fate of the injected dyke? Does the dyke become arrested and never reach the surface, does it change into a sill, or does it eventually reach the surface to supply magma to an eruption?

Here we approach these questions through:

- a. Compilation of field data on dyke paths, arrested dykes, and feeder dykes.
- b. Adding new field observations to these data.
- c. Making numerical models as to the likely dyke paths in heterogeneous and anisotropic crustal segments/volcanoes.
- d. Making probabilistic models as to the likelihood of a dyke injected during an unrest period in a volcano of a given type reaching the surface.

References:

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Numerical modelling of dykes deflected into sills to form a magma chamber.
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Becerril, L., Galindo, I., Gudmundsson, A., Morales, J.M., 2013.
Depth of origin of magma in eruptions.
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Geshi, N., Kusumoto, S., Gudmundsson, A., 2010. The geometric difference between non-feeders and feeder dikes.
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Please contact the Postgraduate Programmes Co-ordinator, if you have additional questions about the department or application procedures (email: pgadmin@es.rhul.ac.uk ; fax: 01784-471780; tel: 01784-443581).

Applicants are requested to send an additional copy of their CV directly to the lead supervisor of the project in which they are interested. Please also contact the supervisor if you have any questions about the project itself