OBJECTIVES: To achieve a deeper understanding of the surface dynamics of volcanic processes at oceanic spreading ridges, applying paleomagnetic and anisotropy of magnetic susceptibility studies to determine flow direction and vent sources for specific volcanic deposits where structural field evidence is available (Neogene outcrops, Eastern Iceland).

ACTIVITY 1: FIELDWORK (EASTERN ICELAND):
A total of 215 cores were drilled, individually oriented, and retrieved from 24 sites: 3 lava flows (3), obsidian and aphric basalt groups (7-5), other basalt flows (1), ashes (2) and a redbed sedimentary unit (1).

METHODLOGY: Anisotropy of magnetic susceptibility (AMS): Directions of the principal axes (K1 > K2 > K3) of the AMS ellipsoid are related with their petrofabric, recording magmatic dynamics. Paleomagnetism: Remanence in sections-preserved rocks well-characterize polarity stratigraphy of the volcanic pile, tectonic dislocations, and the geomagnetic-field features in the past.

ACTIVITY 2: Paleomagnetic laboratory (UCM, Spain):
AMS magmatic flow indicators are congruent with the available volcanologic observations in SK tuff (NE directed), and provide new clues in BJ tuff (NW directed), whose eruptive source is unknown so far.

Publications:

Further collaboration/ projects:
On-going (project-related) AMS, paleomagnetic and volcanological research. Guiding of Icelandic & Spanish students (related-) research. No funds yet.

PREVIOUS EXPERIENCE IN THE NILS PROGRAM:
TROND H. TORSVIK (t.h.torsvik@geo.uio.no) & DOUWE J.J. VAN HINSBERGEN (now at D.J.J.vanHinsbergen@uu.nl)
20 weeks – stay at the Centre for Physics of Geological Processes (PGP), Faculty of Mathematics and Natural Sciences, University of Oslo

Research lines:
Paleomagnetism applied to global-to-local plate tectonic reconstructions and paleogeographies combined with lithospheric and mantle dynamics.

Publications:

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