

Icelandic Volcanoes Geohazard Supersite and FUTUREVOLC: role of interferometric synthetic aperture radar to identify renewed unrest and track magma movement beneath the most active volcanoes in Iceland

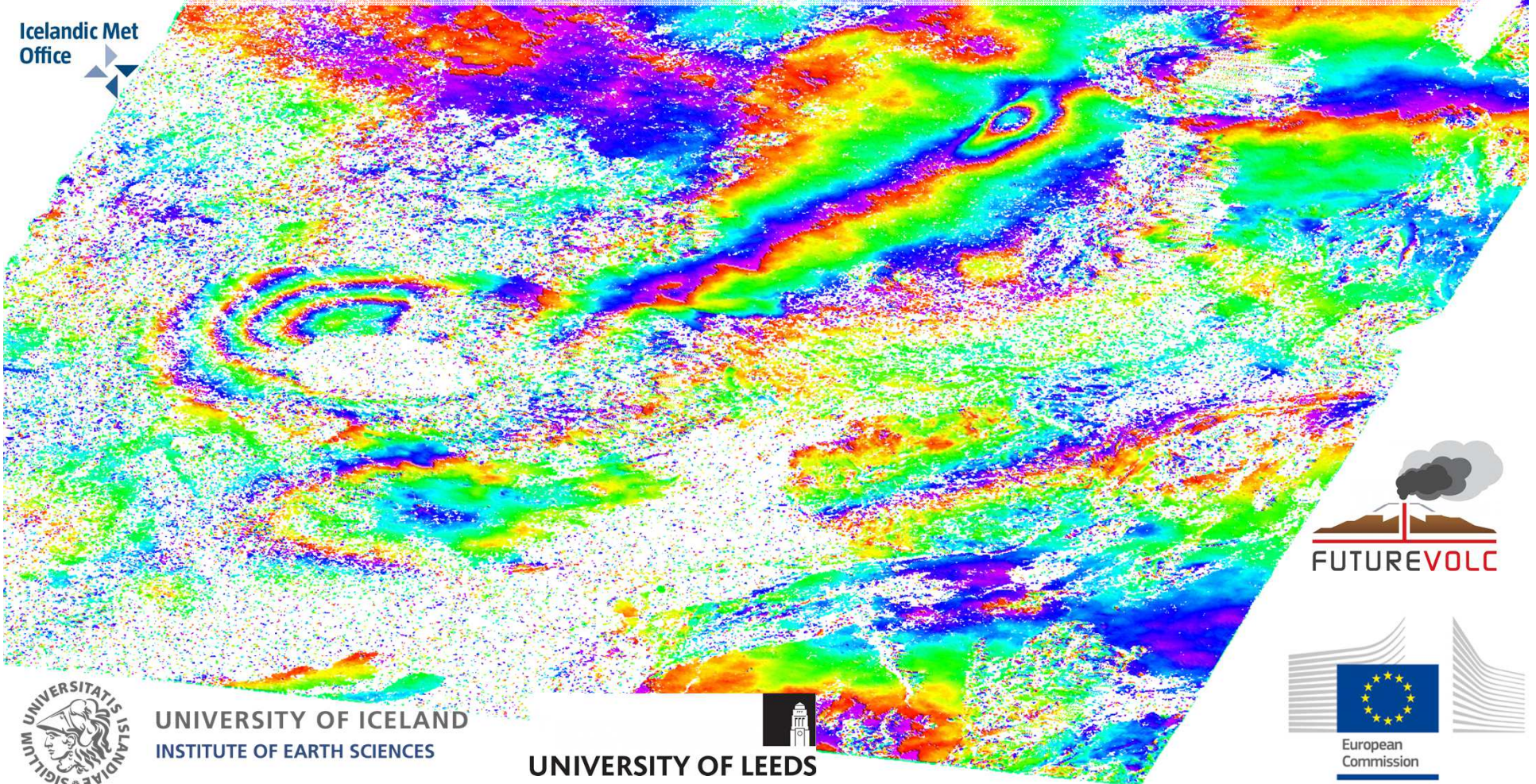
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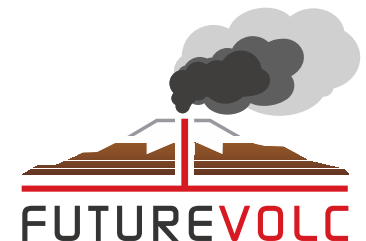


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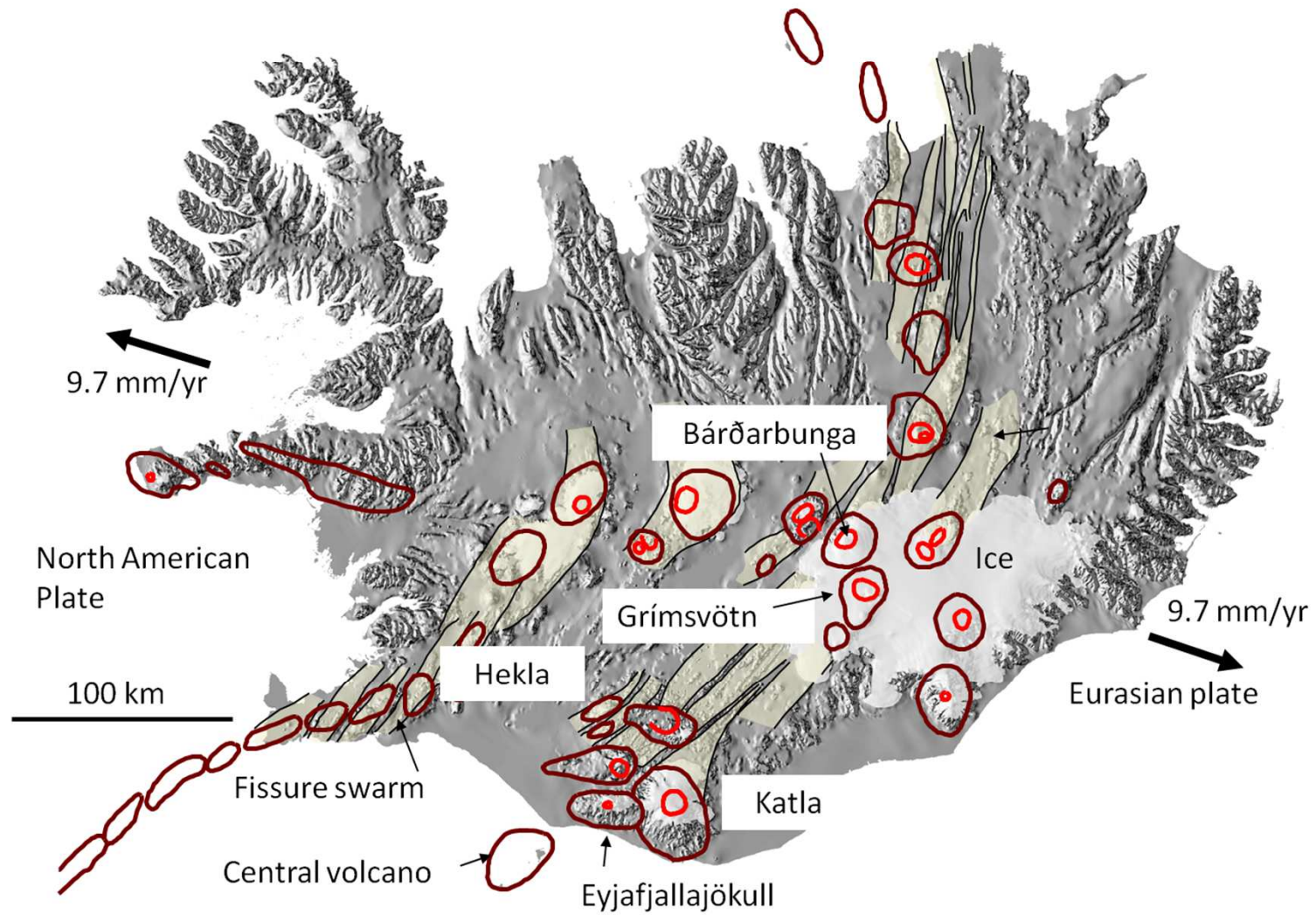


FUTUREVOLC – A European volcanological supersite in Iceland: a monitoring system and network for the future

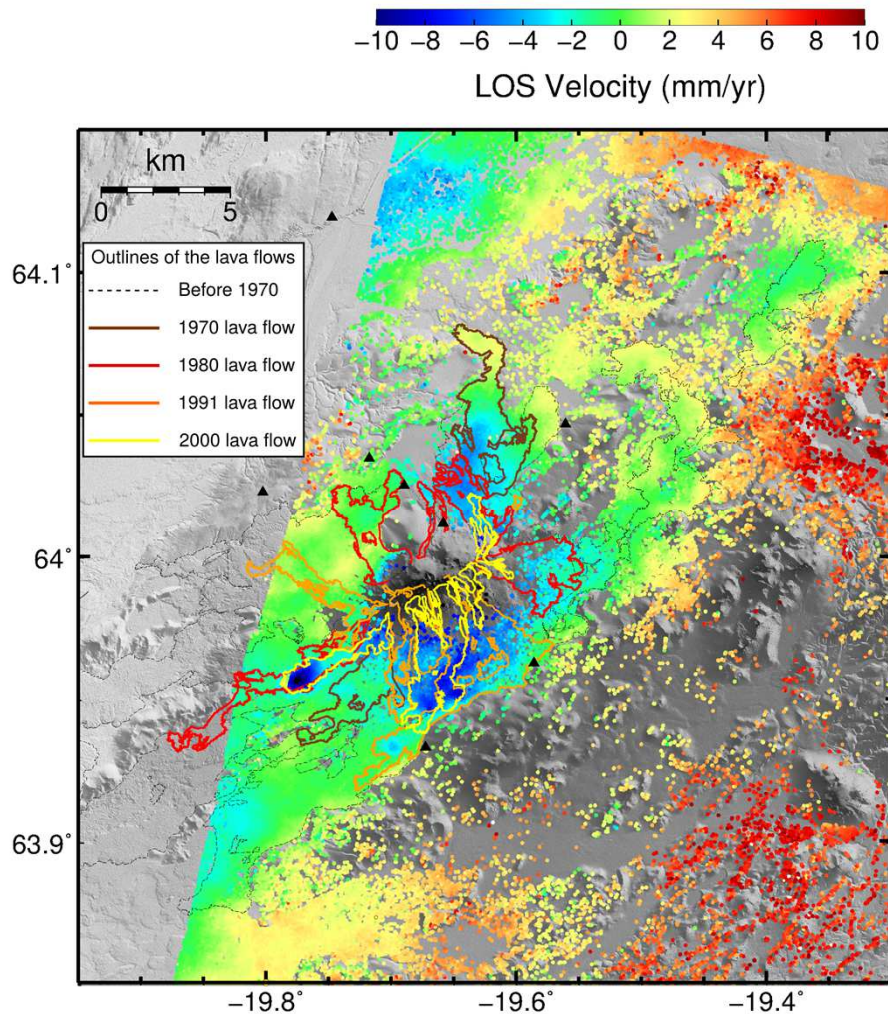
- European collaboration comprising 26 partners aimed at long term volcano monitoring
- Primary objectives:
 - Establish an integrated volcanological monitoring procedure
 - Develop new methods to evaluate volcanic crises
 - Increase scientific understanding of magmatic processes
 - Improve delivery of relevant information to civil protection and authorities



Iceland: Volcanic systems and primary target volcanoes for monitoring



Hekla volcano



Mean line-of-sight velocities at Hekla using PS-InSAR interferograms from a descending CSK track, covering the period July 2011 - August 2014.



Photo credit: Sigurjón Sindrason, 2000

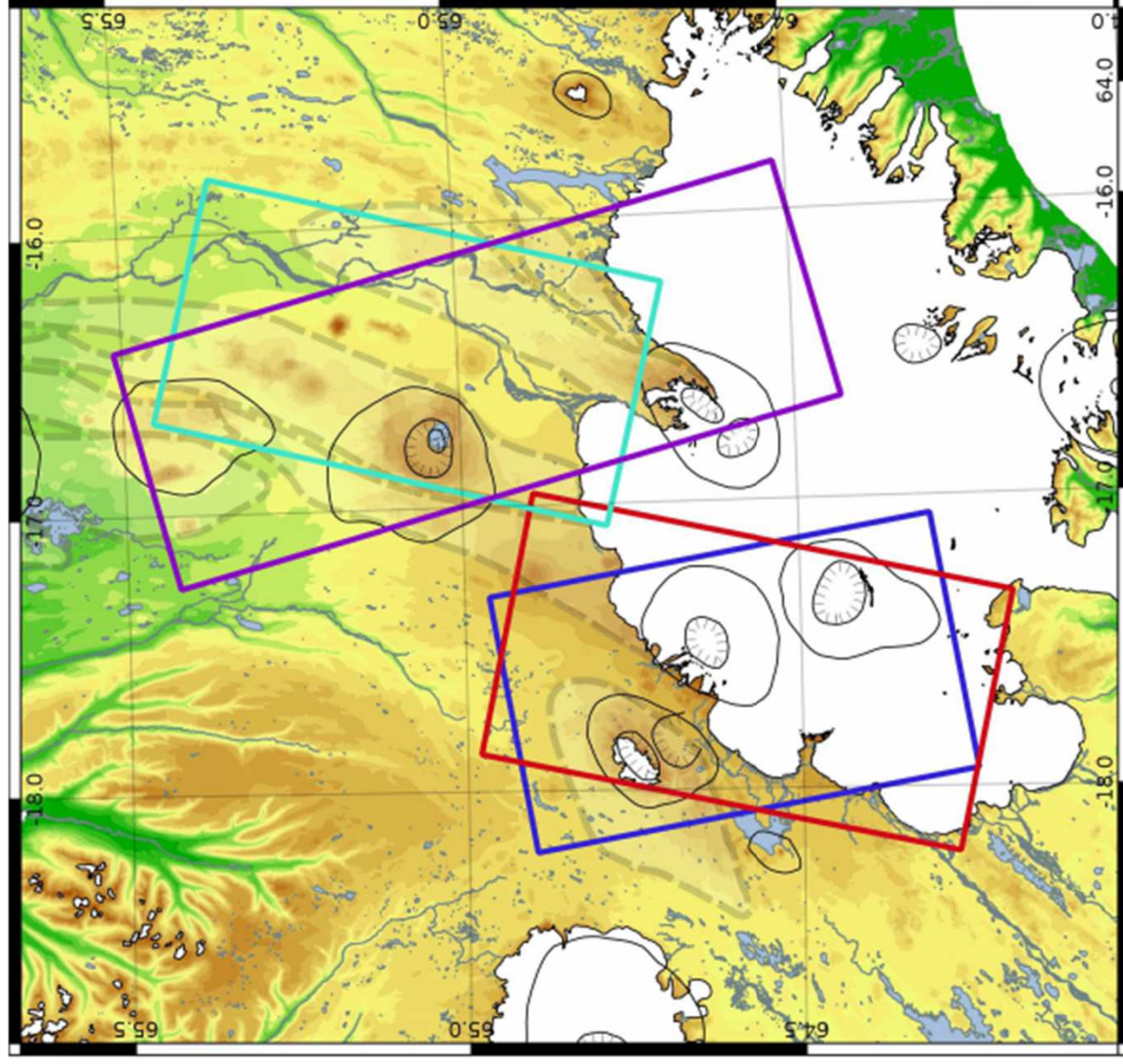
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Bárðarbunga: Ongoing eruption

- Recent unrest and activity at the Bárðarbunga volcano, was initially identified by the onset of an intense earthquake swarm on the 16th August 2014 and displacement on several continuous GPS sites
- As part of CEOS Icelandic Supersite Initiative, the Italian Space Agency (ASI) re-tasked CSK satellites in July 2014 at the request of staff at the University of Iceland to commence acquiring both ascending and descending images every 16 days over Bárðarbunga volcano and also over Askja volcano extending south to the tip of the Vatnajökull ice cap
- TSX images were also being acquired in the vicinity of Askja volcano and the northern edge of the Vatnajökull glacier and delivered under the German Space Agency (DLR) Icelandic Supersite User Agreement
- On the 29th August 2014, a small fissure opened up at Holuhraun. The eruption lasted only a few hours, but was followed on 31st August by the onset of a fissure eruption
- New article: Sigmundsson et al., 2014. Segmented lateral dyke growth in a rifting event at Bárðarbunga volcanic system, Iceland, *Nature*, doi:10.1038/nature14111

CSK 2761

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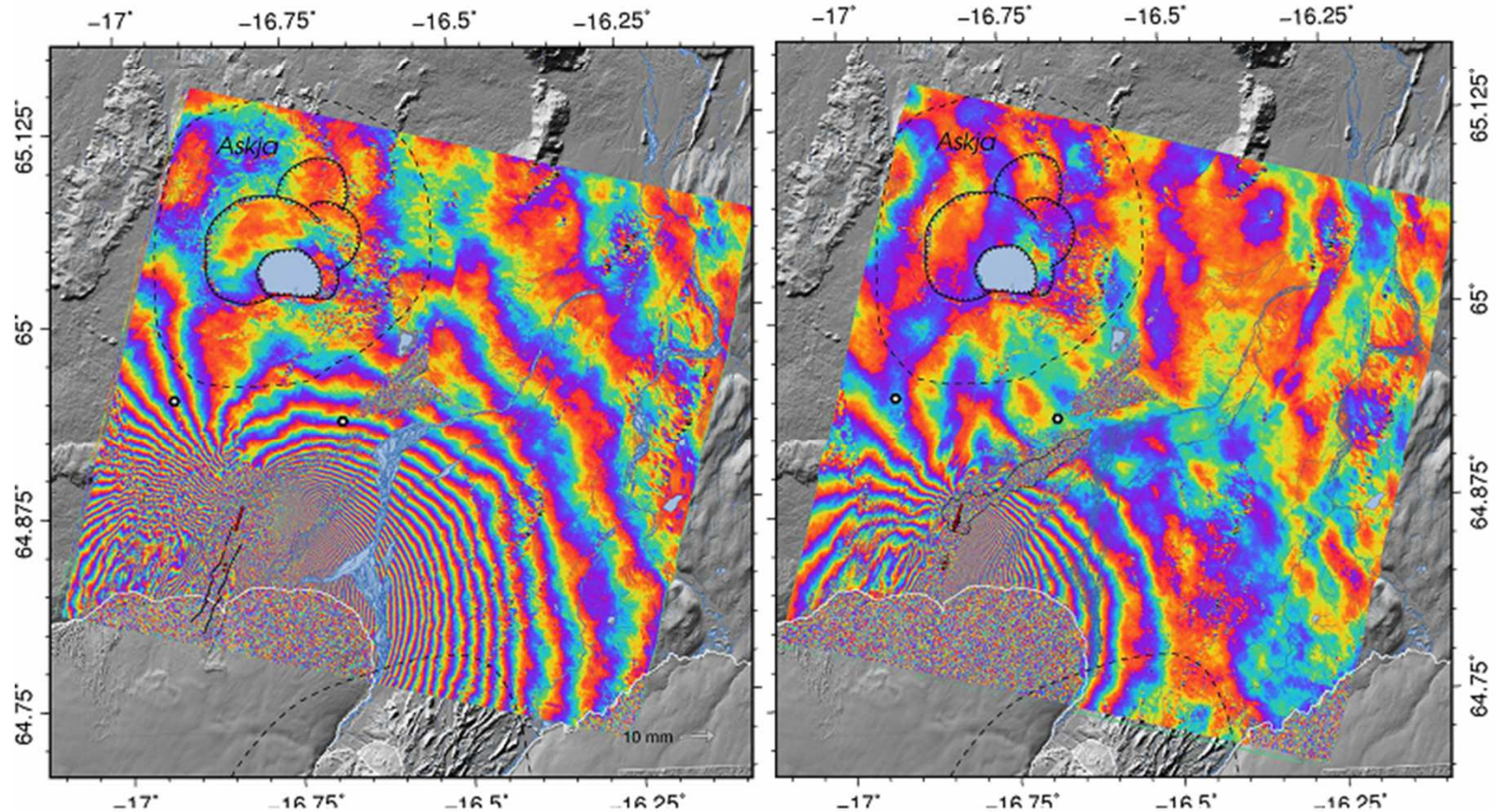
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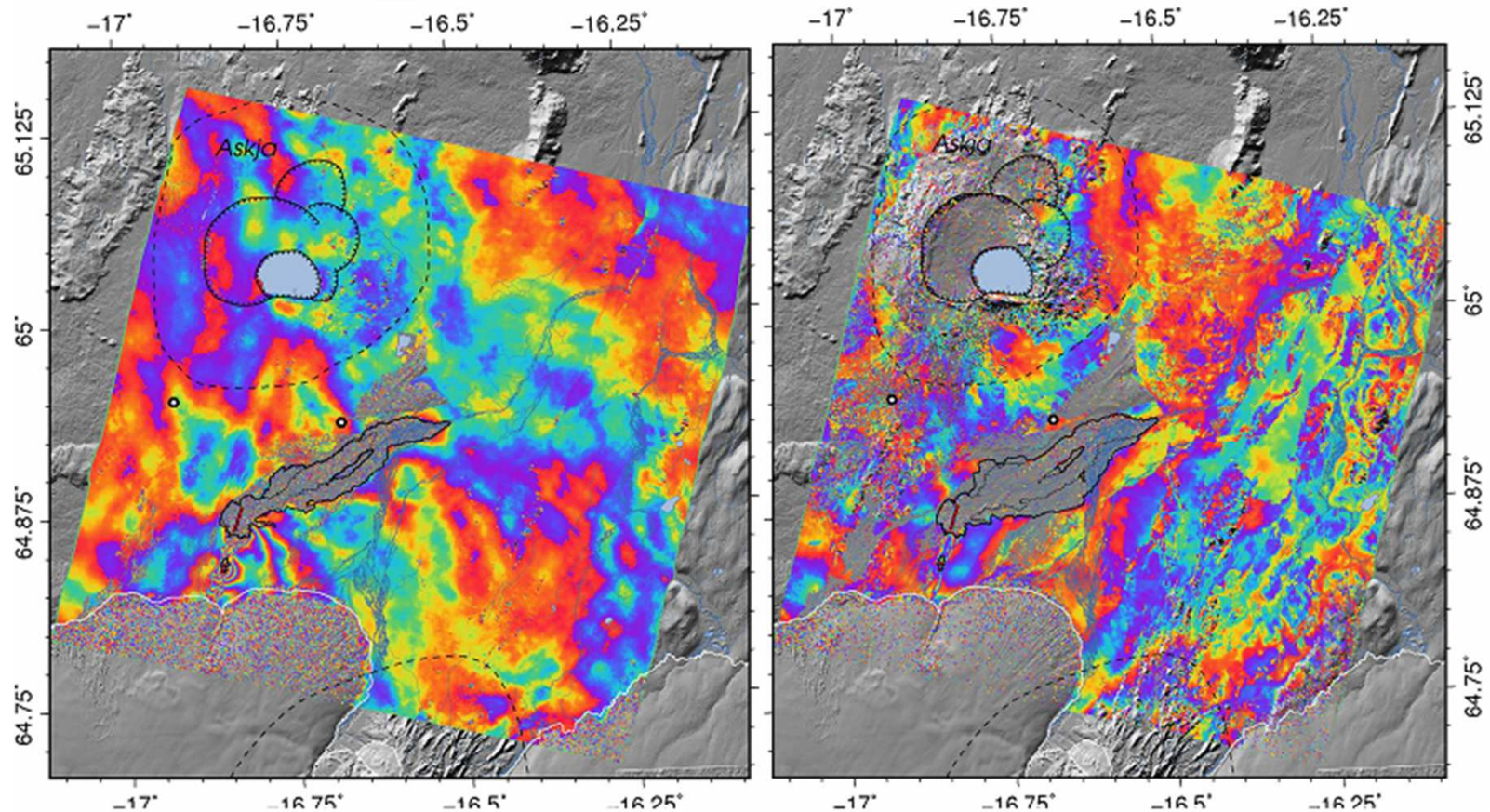
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InSAR over Holuhraun

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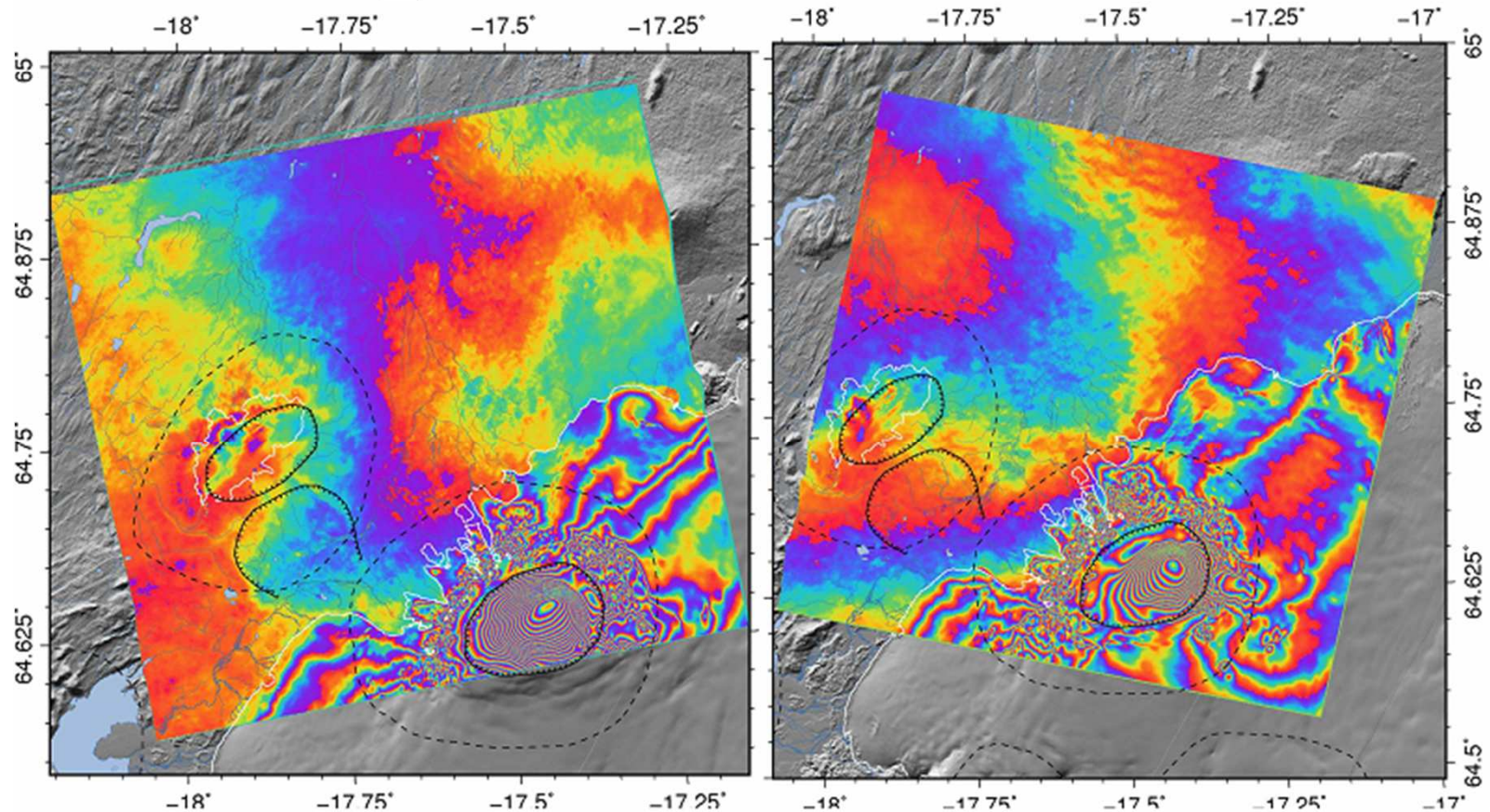
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1-day Barðarbunga

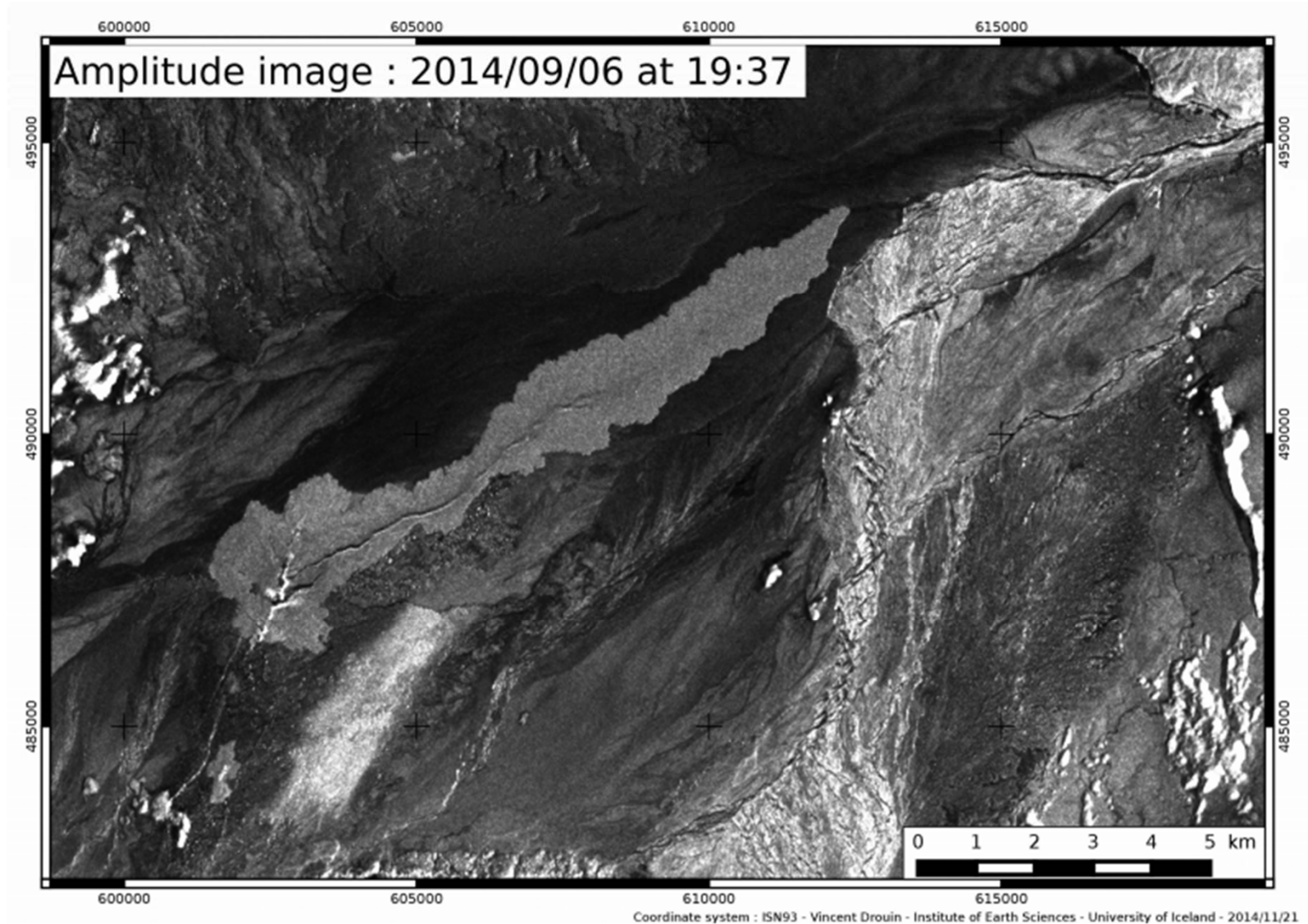
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Mapping the extent of the 2014 Holuhraun lava flows



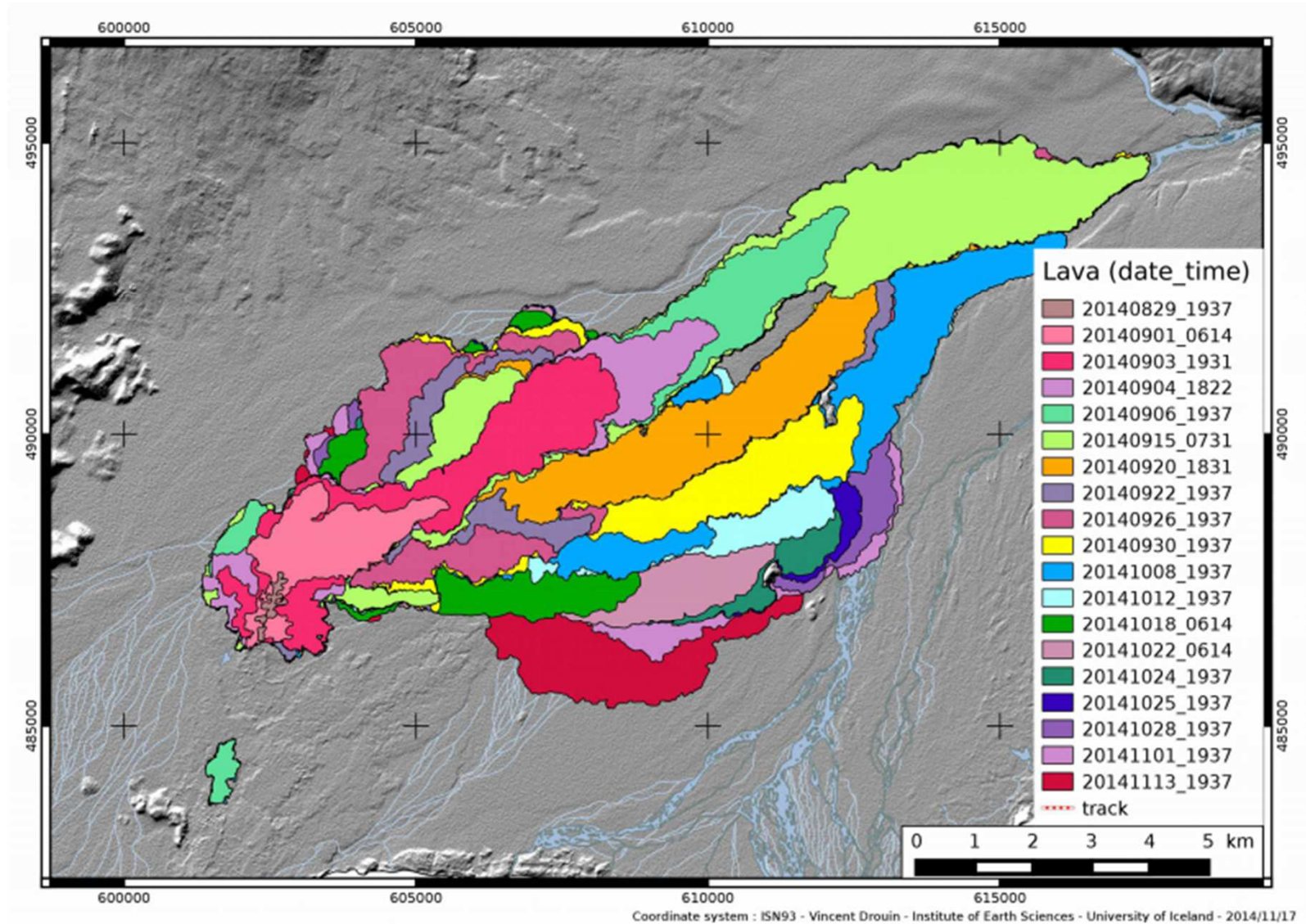
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Thank you to:

- CEOS and GSNL
- FUTUREVOLC partners and collaborators
- ASI, DLR, ESA and CSA
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Takk Fyrir!

Photo credit: M Parks