

Monitoring lava flows in Iceland



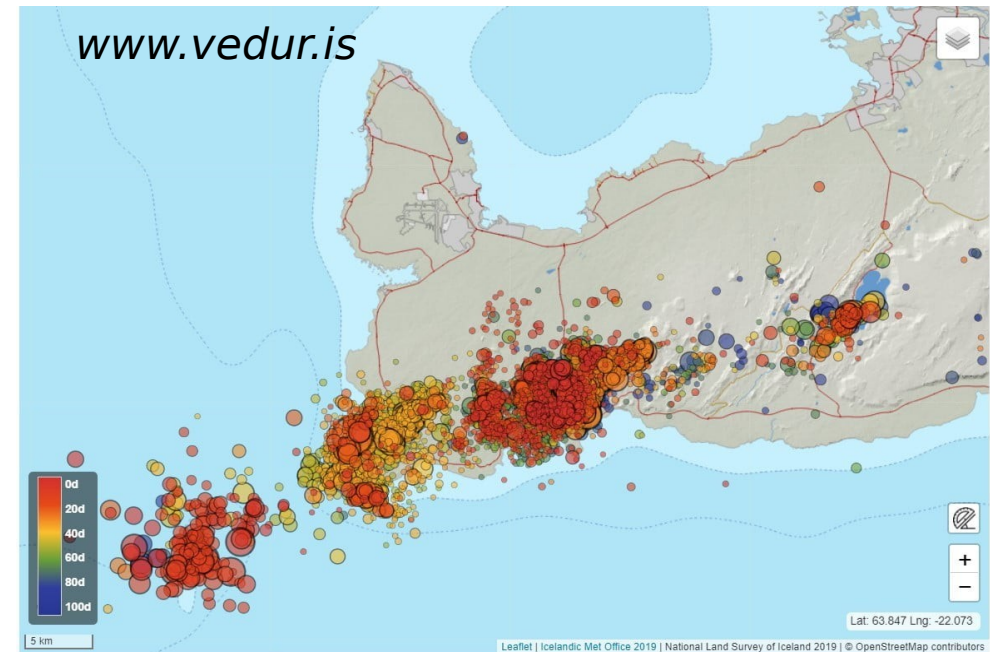
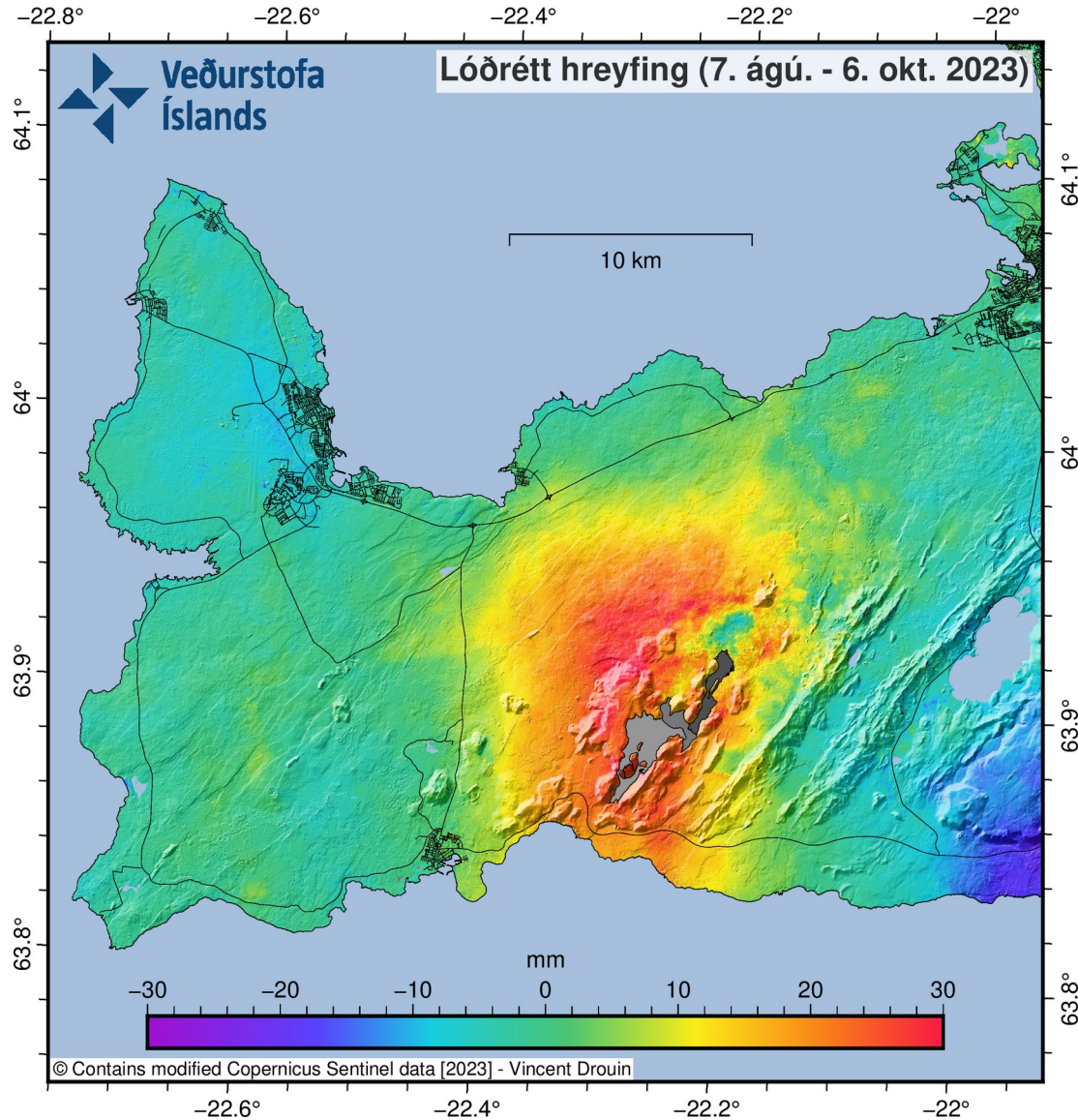
Natural Science
Institute of Iceland



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Reykjanes Fires: What happened so far





Geldingadalir

182 days | 4.9 km² | 0.15 km³



Meradalir

18 days | 1.3 km² | 0.011 km³



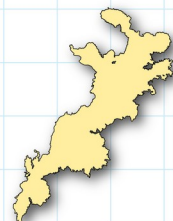
Litli-Hrútur

26 days | 1.5 km² | 0.015 km³



Sundhnúksíggar I

2½ days | 3.4 km² | 0.012 km³



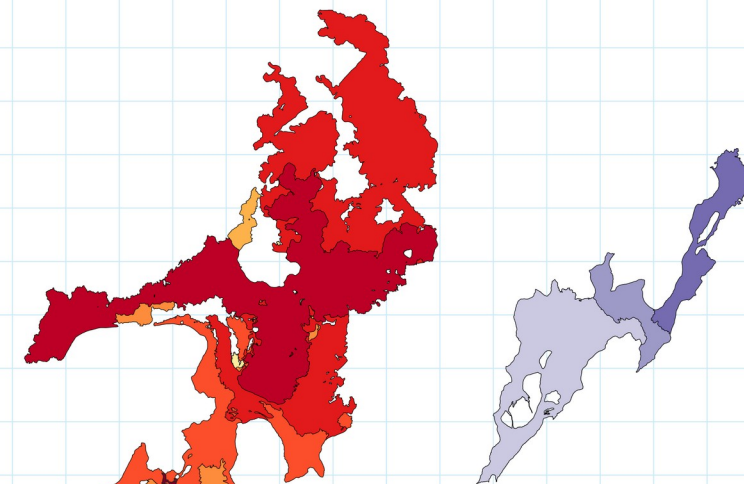
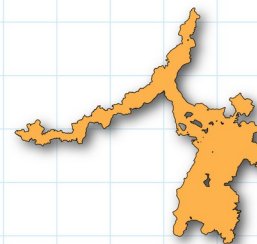
Sundhnúksíggar II

2 days | 0.7 km² | 0.002 km³



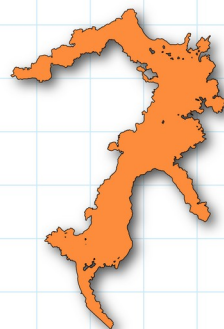
Sundhnúksíggar III

1 day | 4.0 km² | 0.013 km³



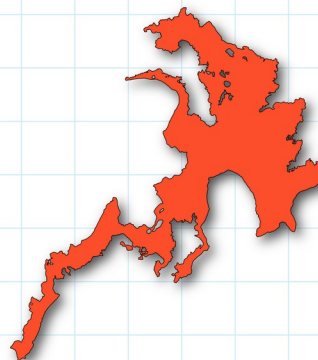
Sundhnúksíggar IV

53 days | 6.2 km² | 0.035 km³



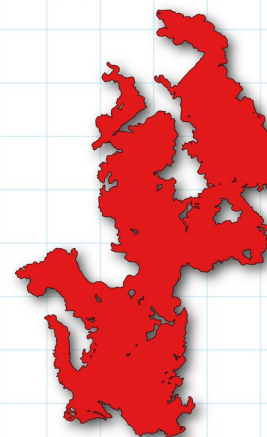
Sundhnúksíggar V

24 days | 9.3 km² | 0.045 km³



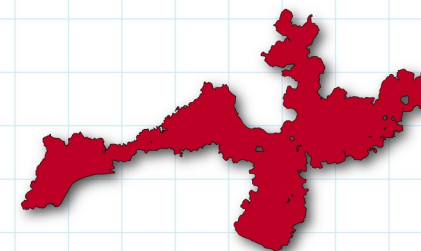
Sundhnúksíggar VI

13 days | 15.8 km² | 0.061 km³



Sundhnúksíggar VII

19 days | 9.0 km² | 0.049 km³



Sundhnúksíggar VIII

¼ day | 0.2 km² | 0.0004 km³

- preliminary results -



2 km

Ragnar H. Prastarson

Eldgos við Sundhnúksgíga

16. júlí 2025 ~05:00 - gróf staðsetning gossprungu

Map made by Ragnar H. Þrastarson

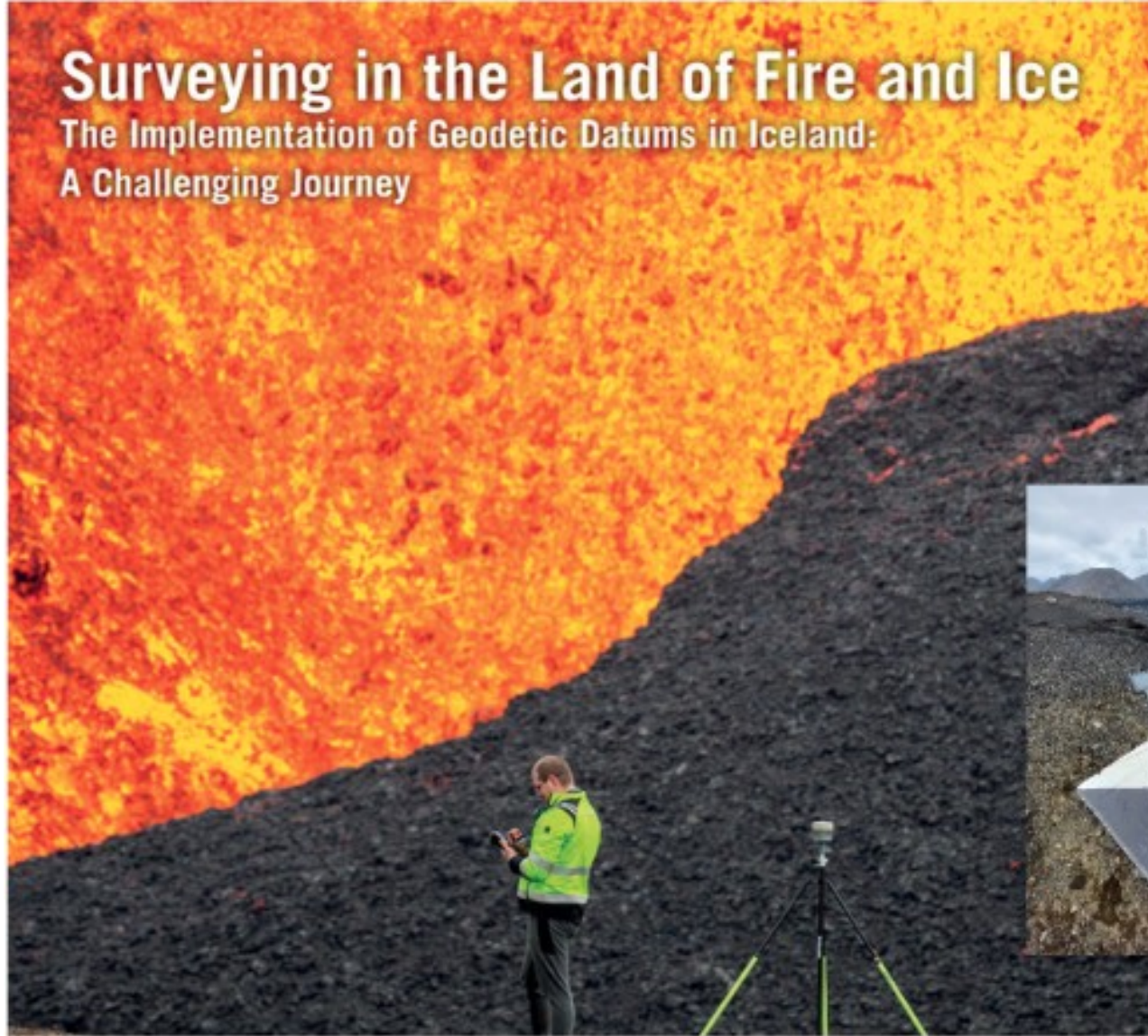


0 1 km



Surveying in the Land of Fire and Ice

The Implementation of Geodetic Datums in Iceland:
A Challenging Journey



PREDICTING THE FUTURE BY MAPPING THE PAST

3D POINT CLOUD AEROTRIANGULATION FOR SMART CITY RECONSTRUCTION

INNOVATION DRIVES THE CONTINUOUS EVOLUTION OF DATA VISUALIZATION



14.1.2024



8.2.2024

Challenges

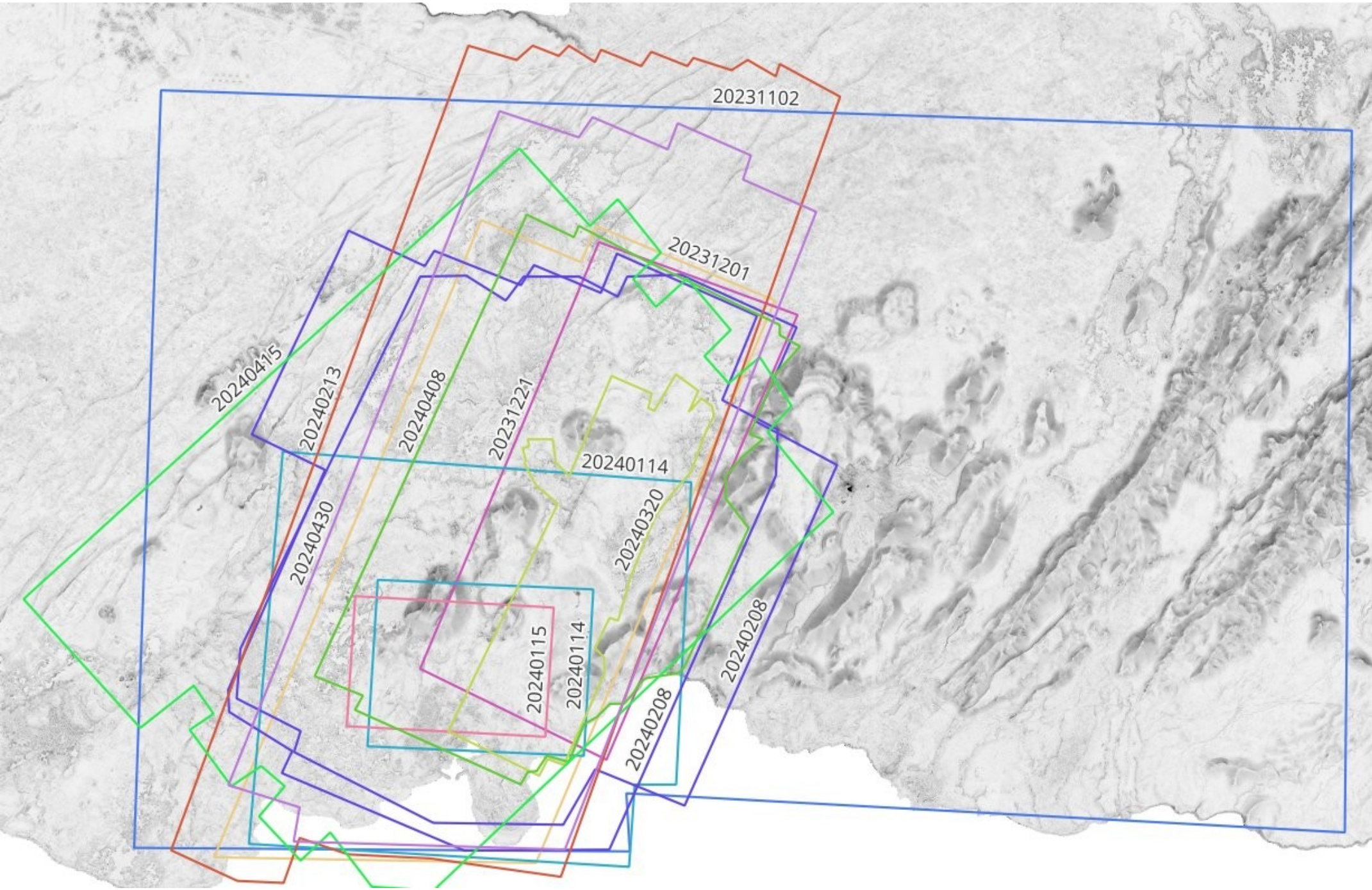
- Eruption plume
- Cloud cover
- Weather
- Loss of GCPs
- Air traffic
- Land movements

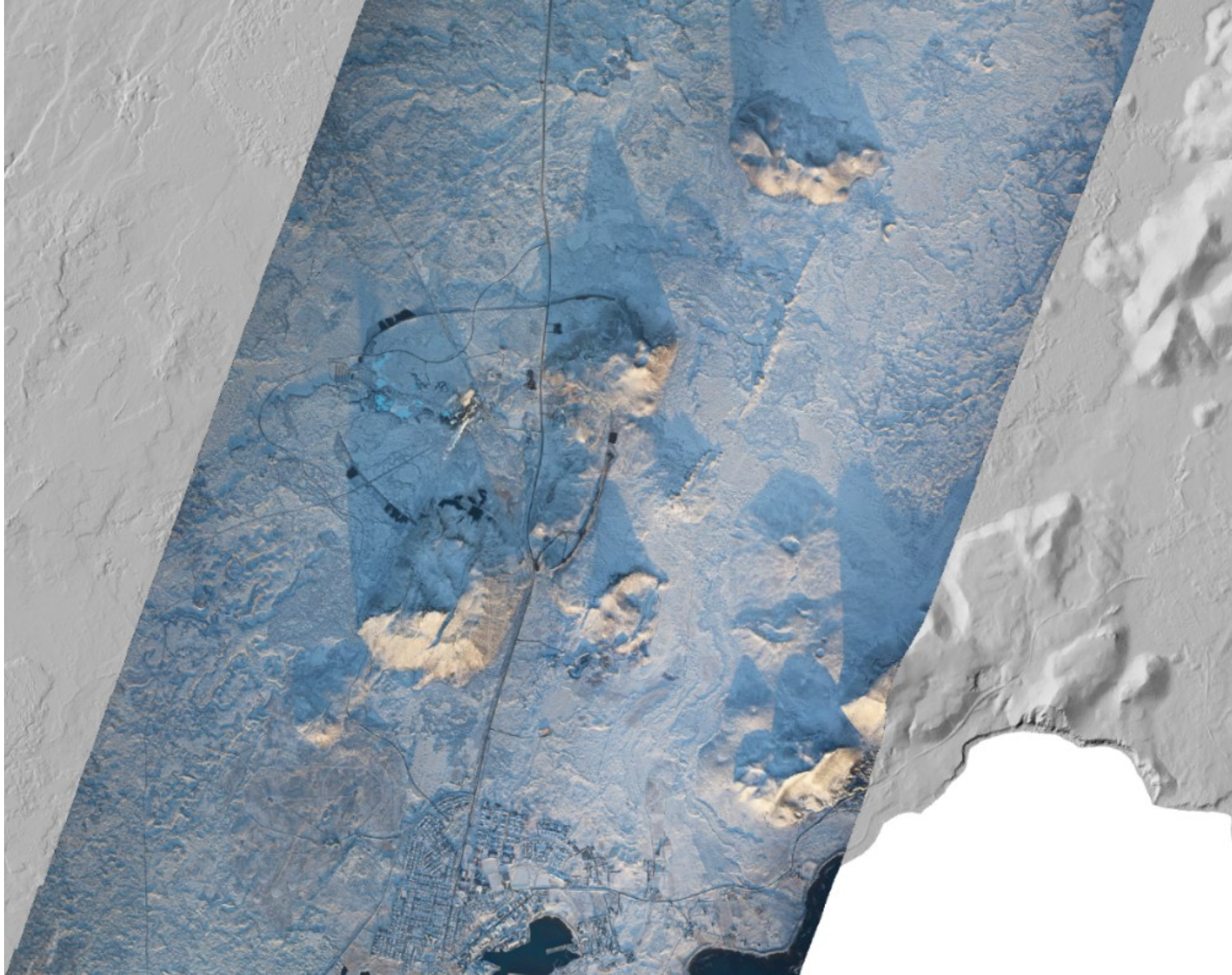


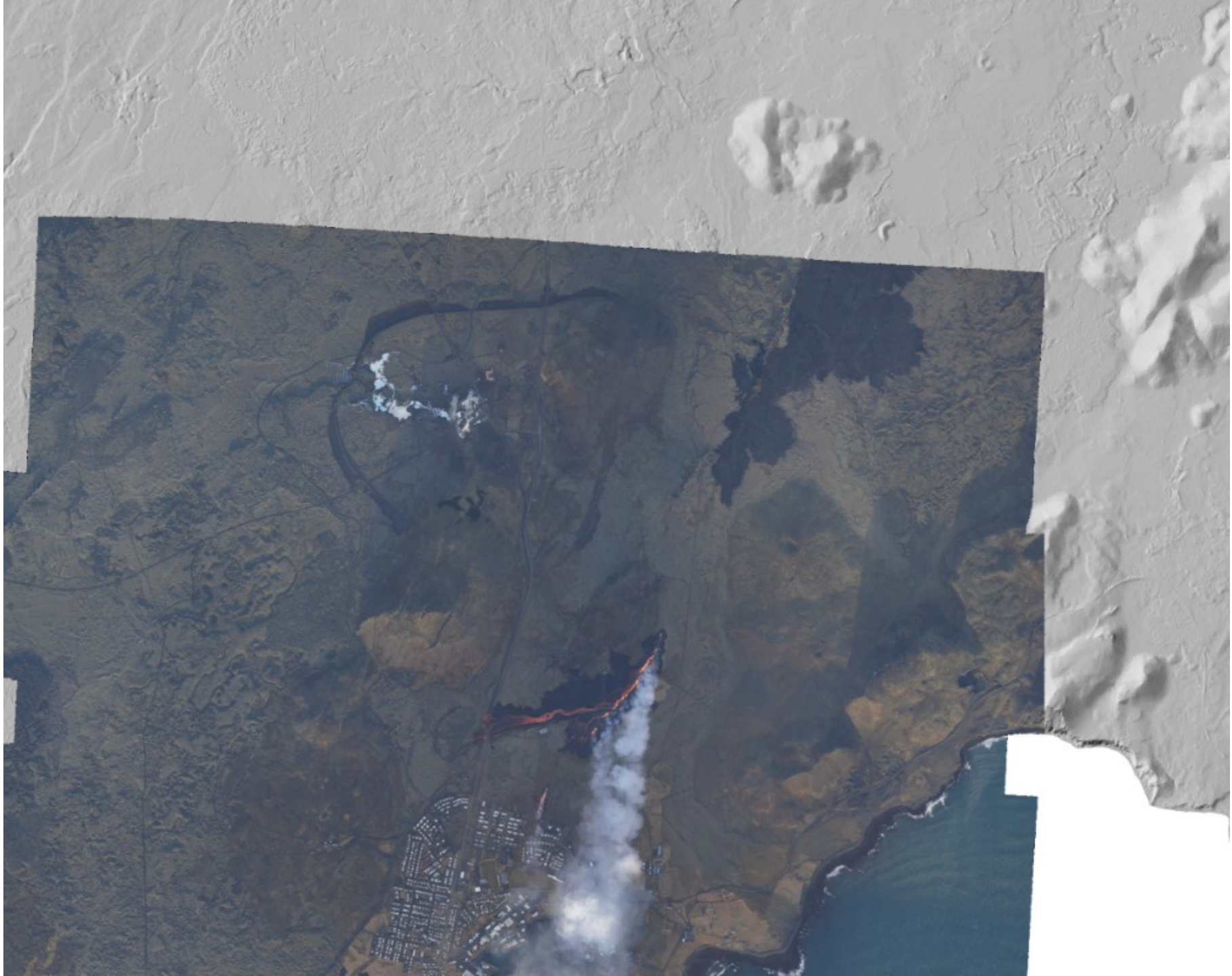
Data collected

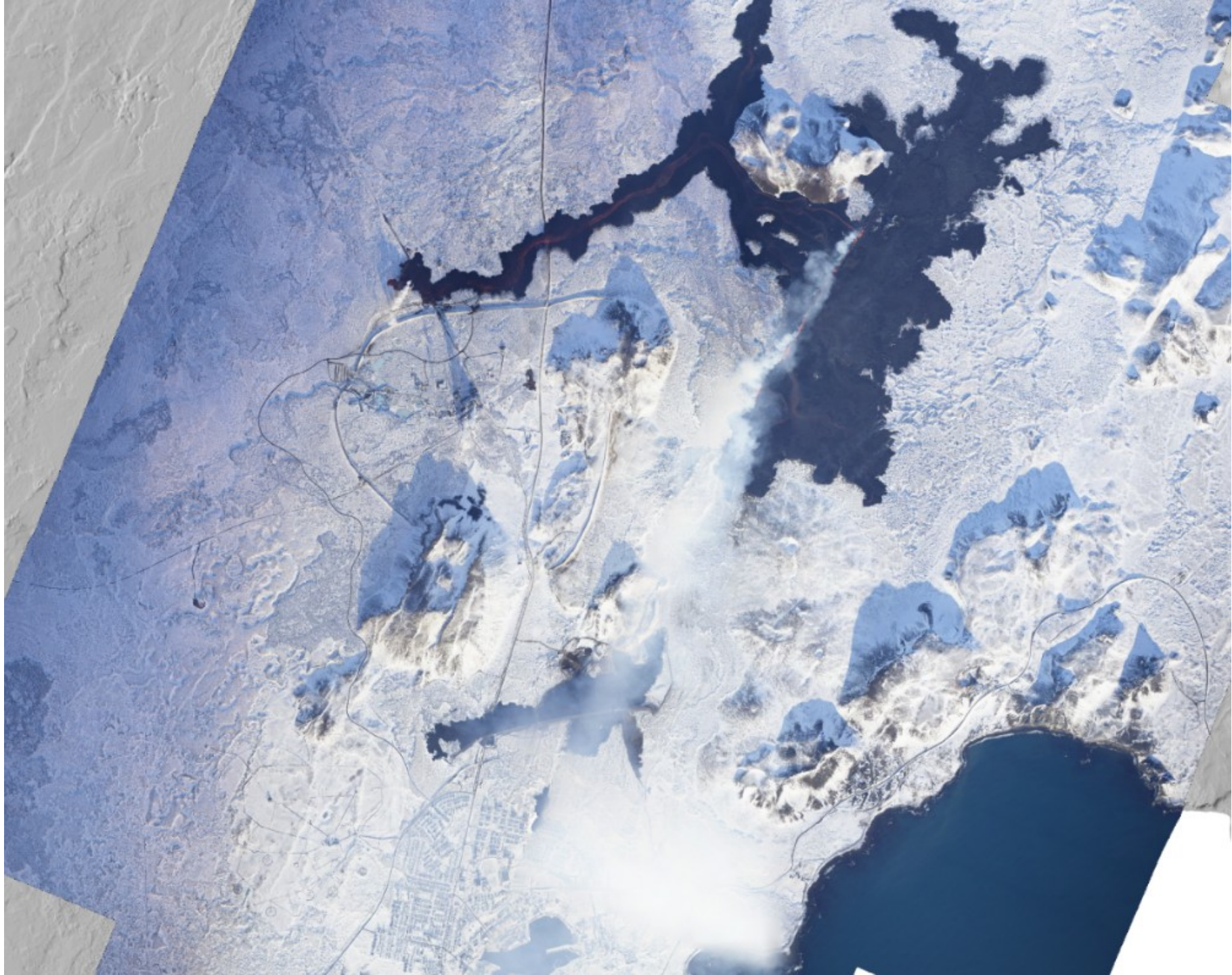
2.11.2023
1.13.2023
14.1.2024, 13:50
14.1.2024, 16:15
15.1.2024
8.2.2024, 13:00
8.2.2024, 17:00
13.2.2024
17.2.2024
20.3.2024
8.4.2024
15.4.2024
30.4.2024
29.5.2024
30.9.2024
23.11.2024
28.11.2024
1.4.2025
13.6.2025

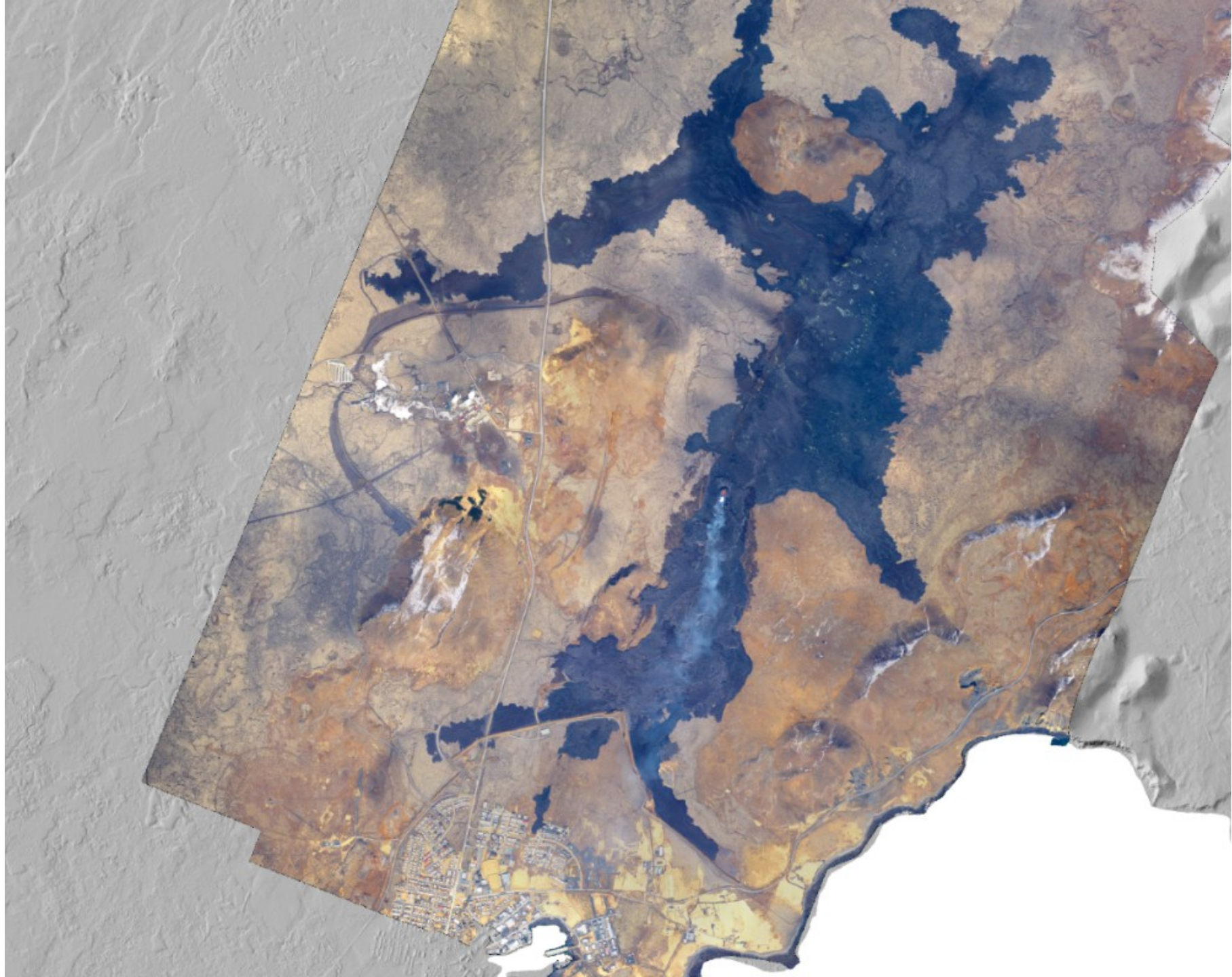
Total:
25 flying hr
3000 km²



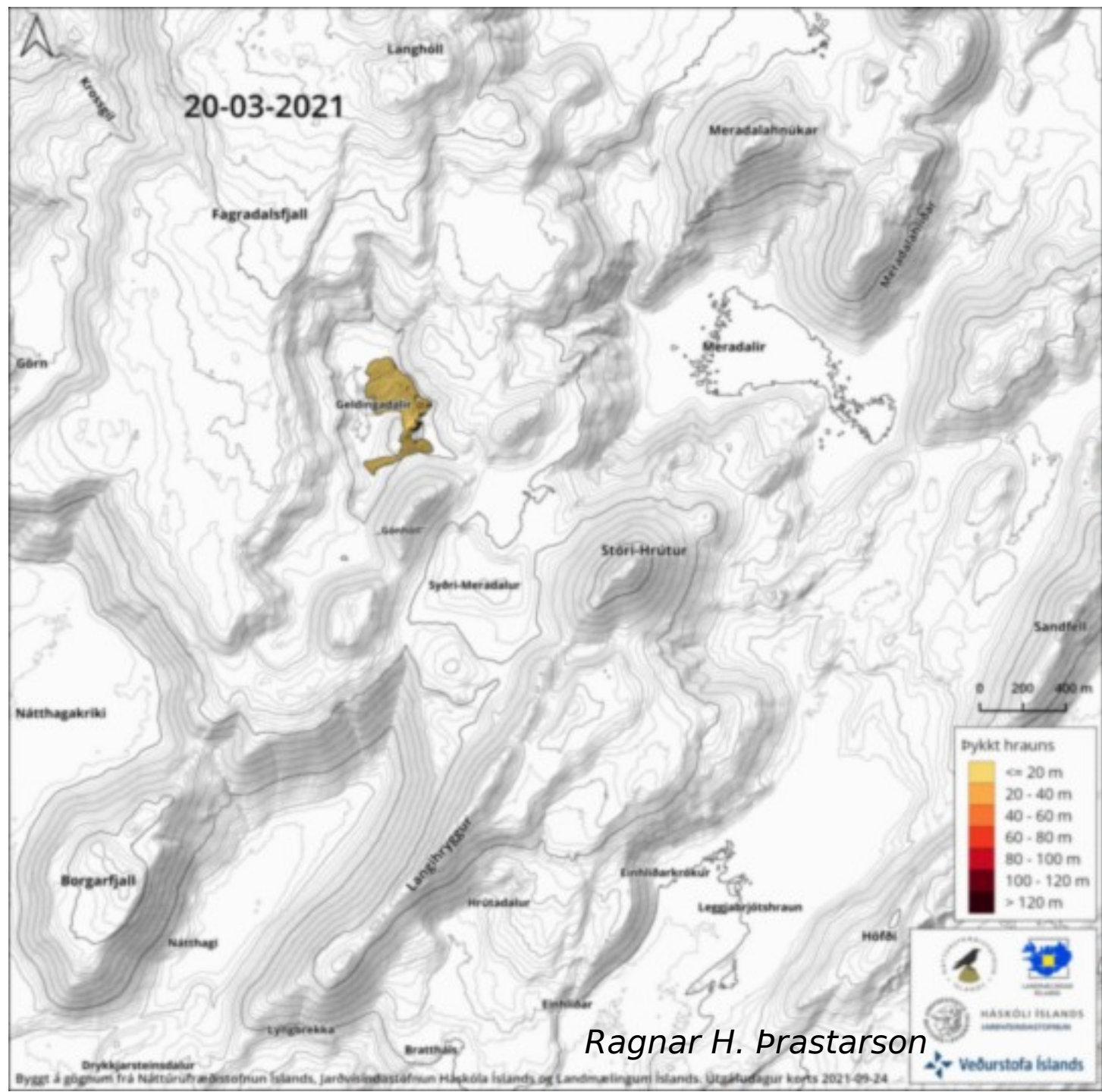




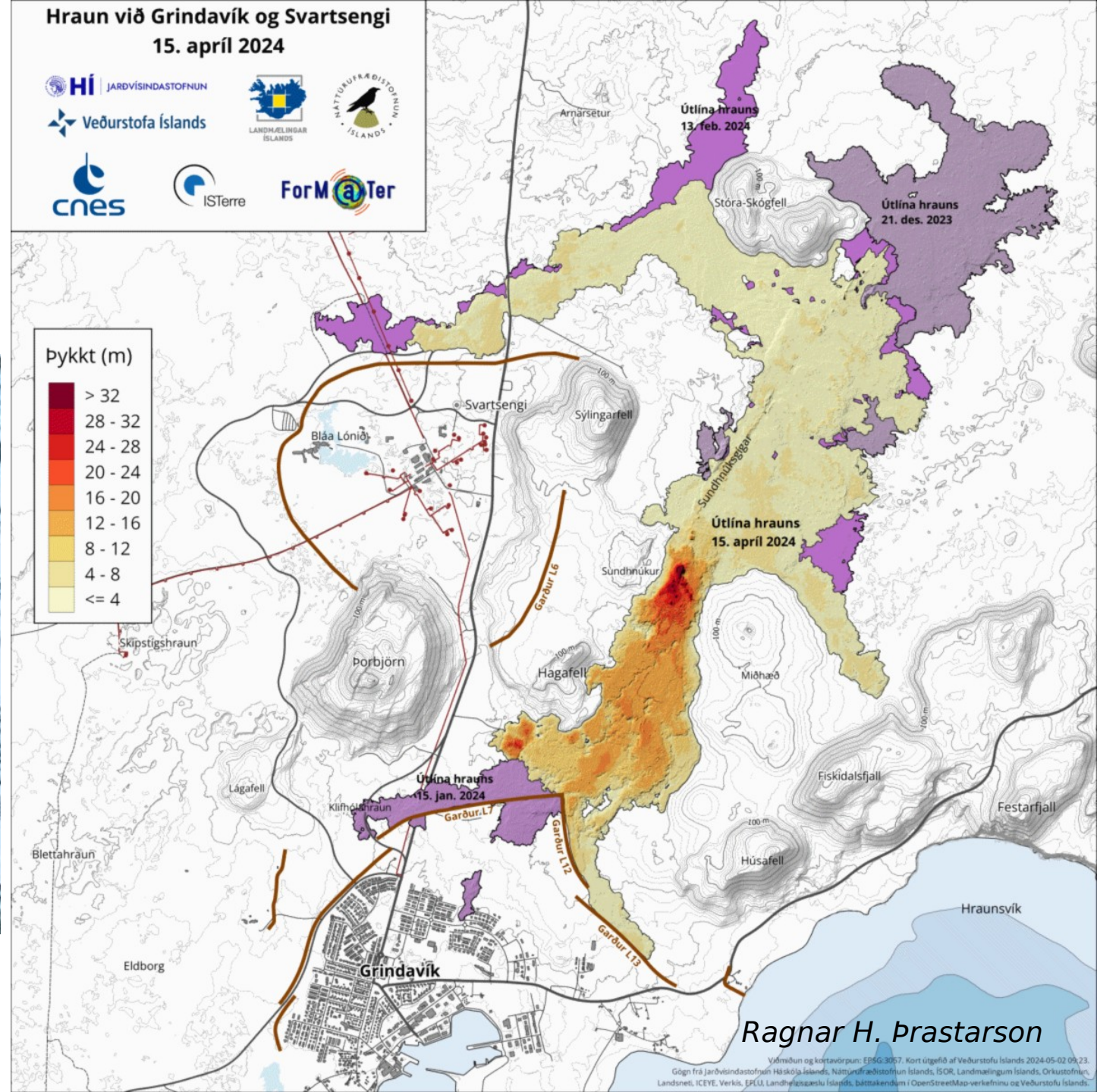




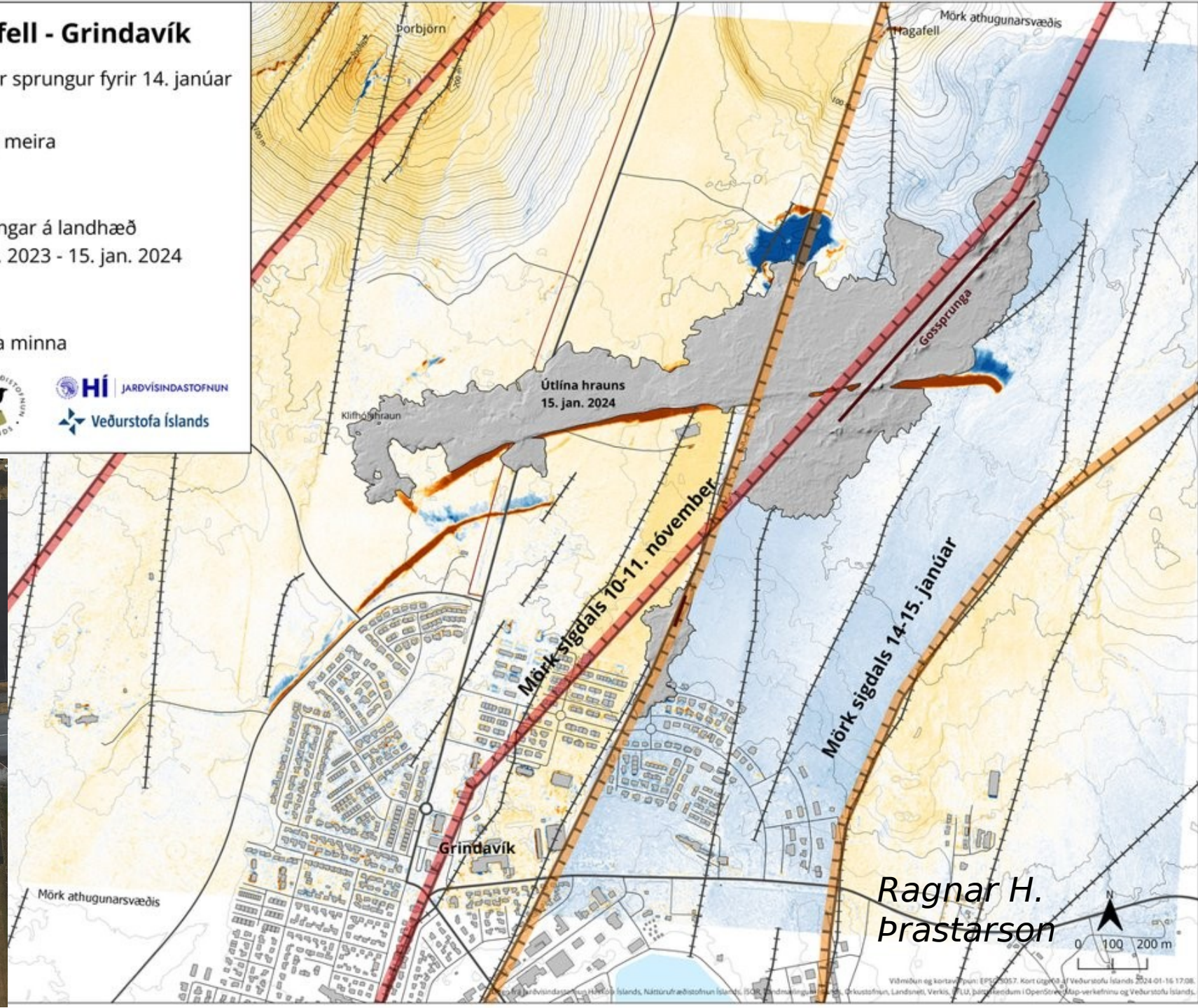
Lava thickness: Fagradalsfjall 2021



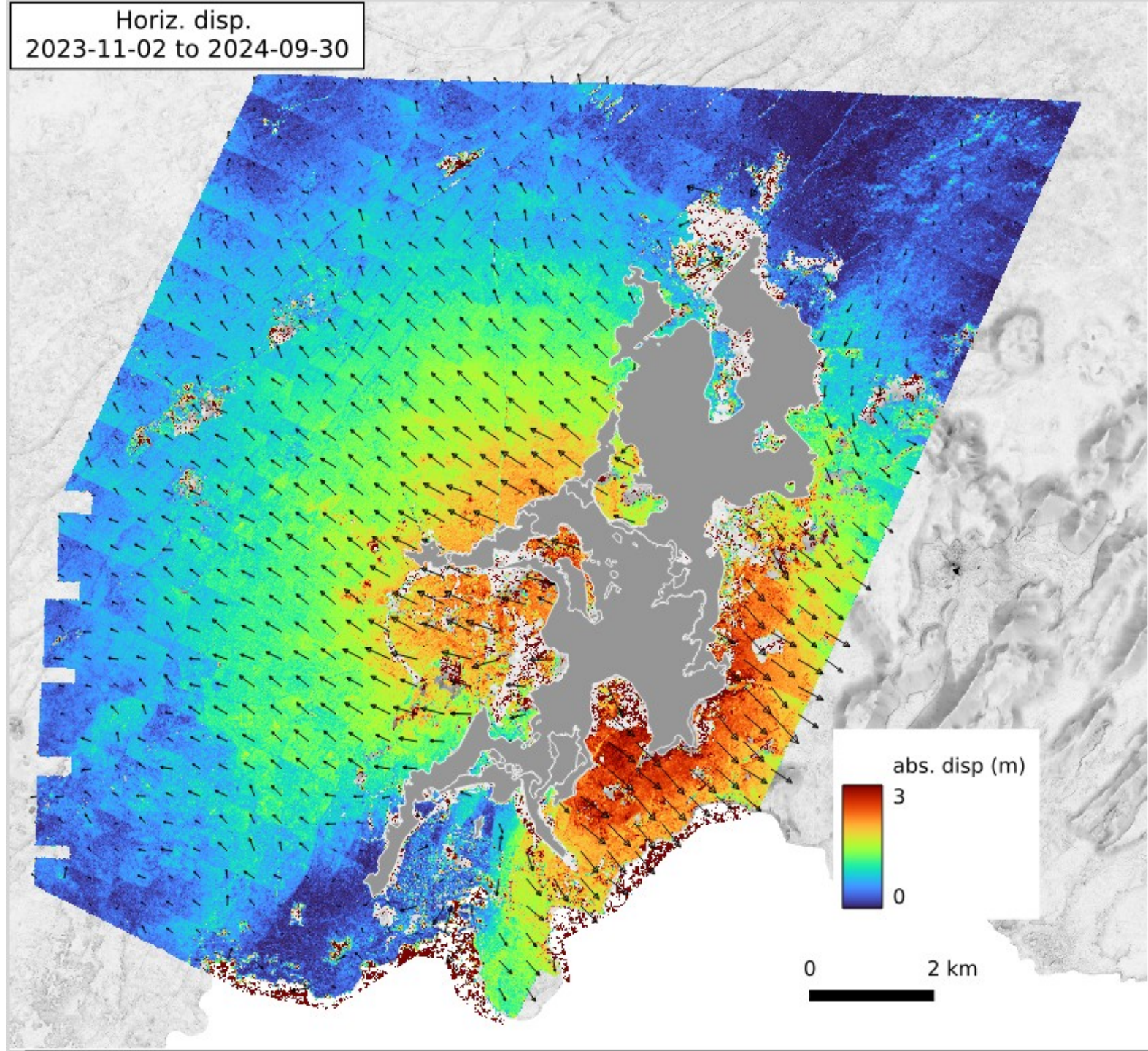
Lava thickness: Sundhnjúksgígar 2023-present



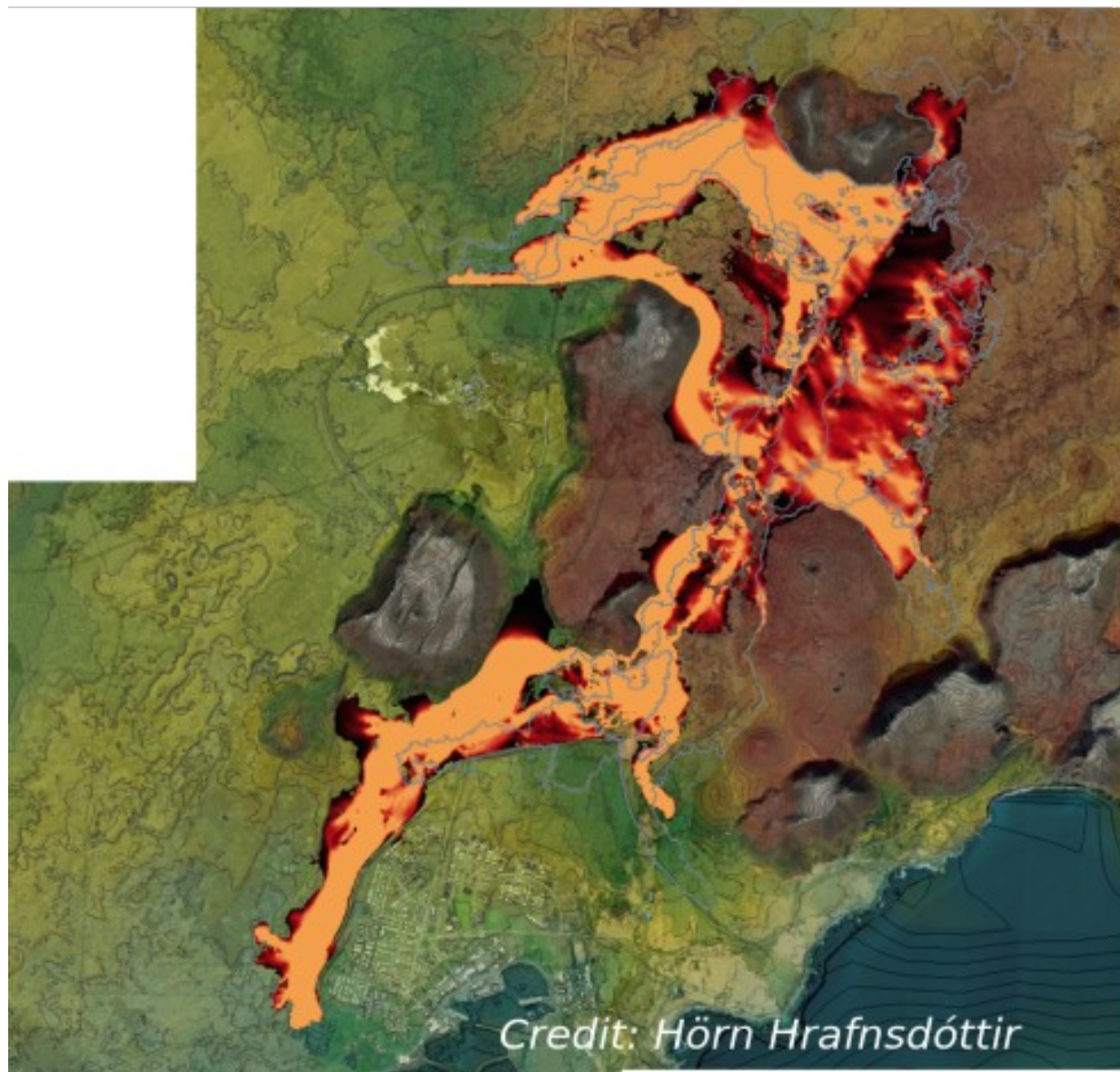
An aerial photograph showing a road intersection. A large pile of dark debris, likely a crushed vehicle, is located in the center of the intersection. The road has white lane markings and crosswalks. Surrounding the road are grassy areas and some buildings, including a large white building with a flat roof in the bottom right corner.



Horizontal displacements from feature-tracking between two orthos

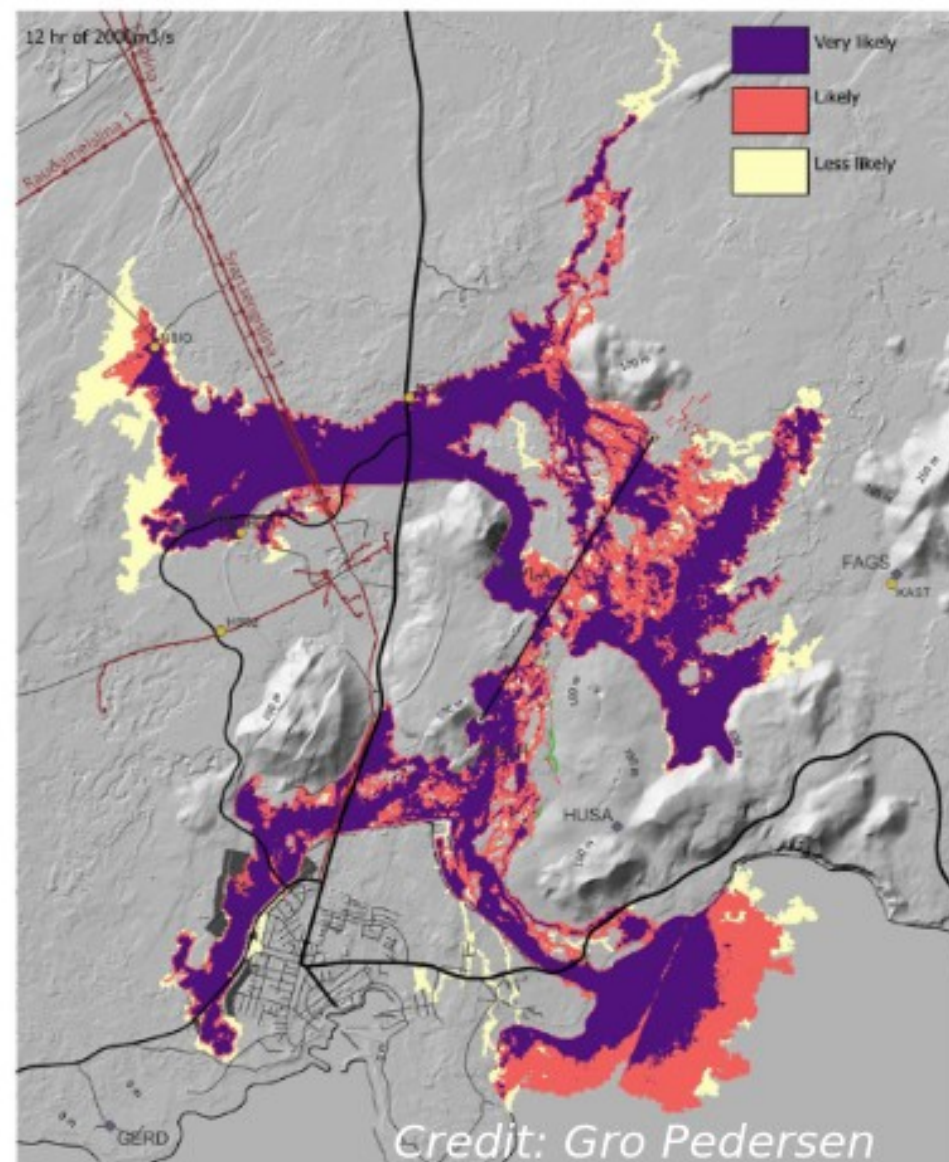


Lava flow simulations

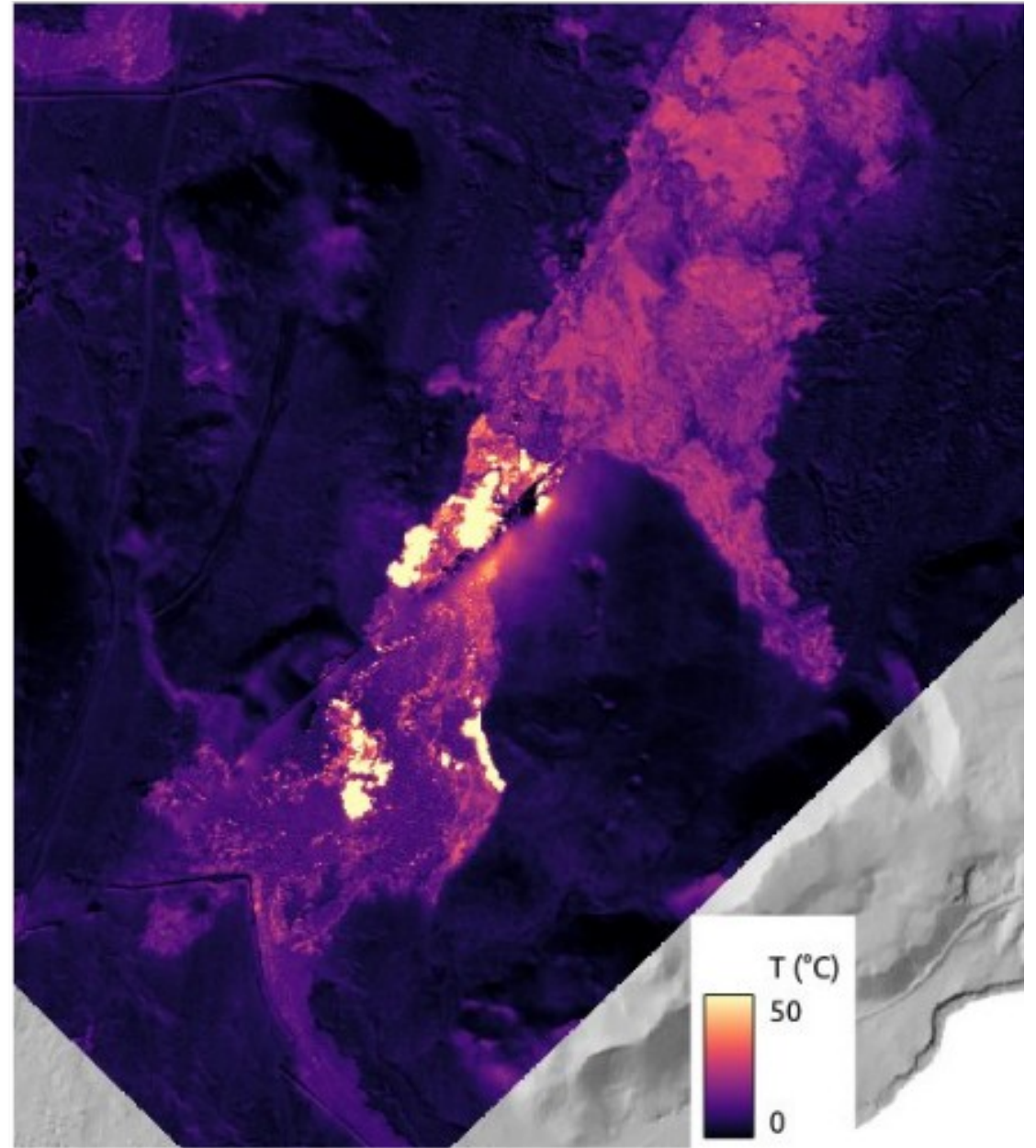
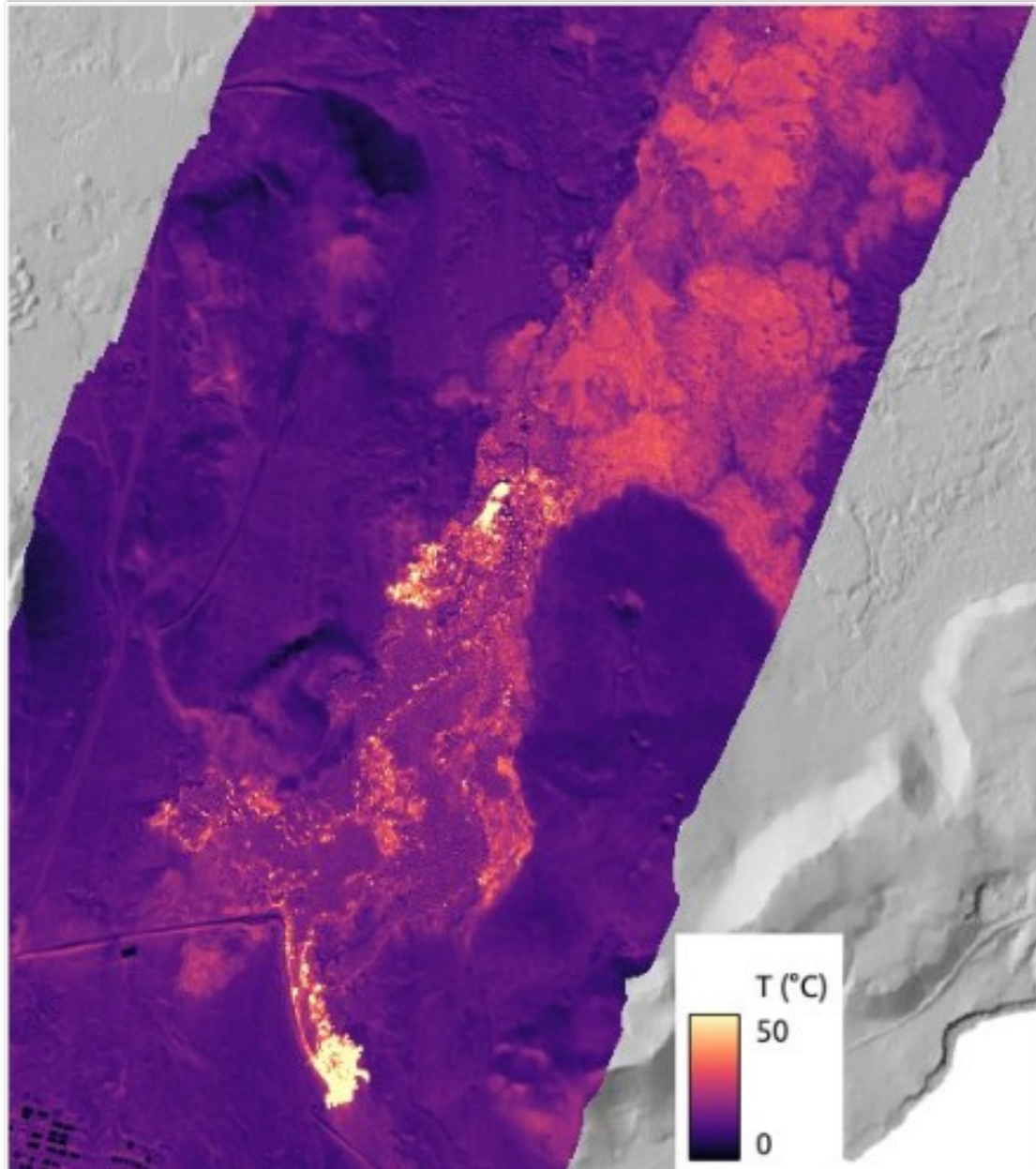


Lava flow simulation using MrLavaLoba code

Scenario based on parameters from Feb 8-9.
12 hr of 2000 m³/s uniform across the fissure, vents a rough estimates based on the situation at around 14-15 o'clock.



Thermal images



Thank you!

