

• EXPLORATION FESTIVAL •

Organisation Breiðdalssetur & its contribution to exploration

23. október 2016

Húsavík

Christa M. Feucht: Executive manager and geologist

Martin Gasser: Curator and geologist



BREIÐDALSETUR

MÁLVÍSINDI – JARÐFRÆÐI – SAGAN
RESEARCH AND HERITAGE CENTRE



Breiðdalssetur

Promoting & supporting innovative research and educational activities

- Geology and heritage of G.P.L. Walker (1926-2005), world famous geologist and father of modern volcanology
- Linguistics and heritage of local Stefán Einarsson (1897-1972), US-professor in linguistics
- Local history

Museum

Overview

- 1. Organisation Breiðdalssetur
- 2. Geology, G.P.L. Walker & geological exploration
- 3. Cave exploration (speleology)



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1. Organisation Breiðdalssetur

- Non-profit organisation, run with grants by the ministry of education, since 2008.



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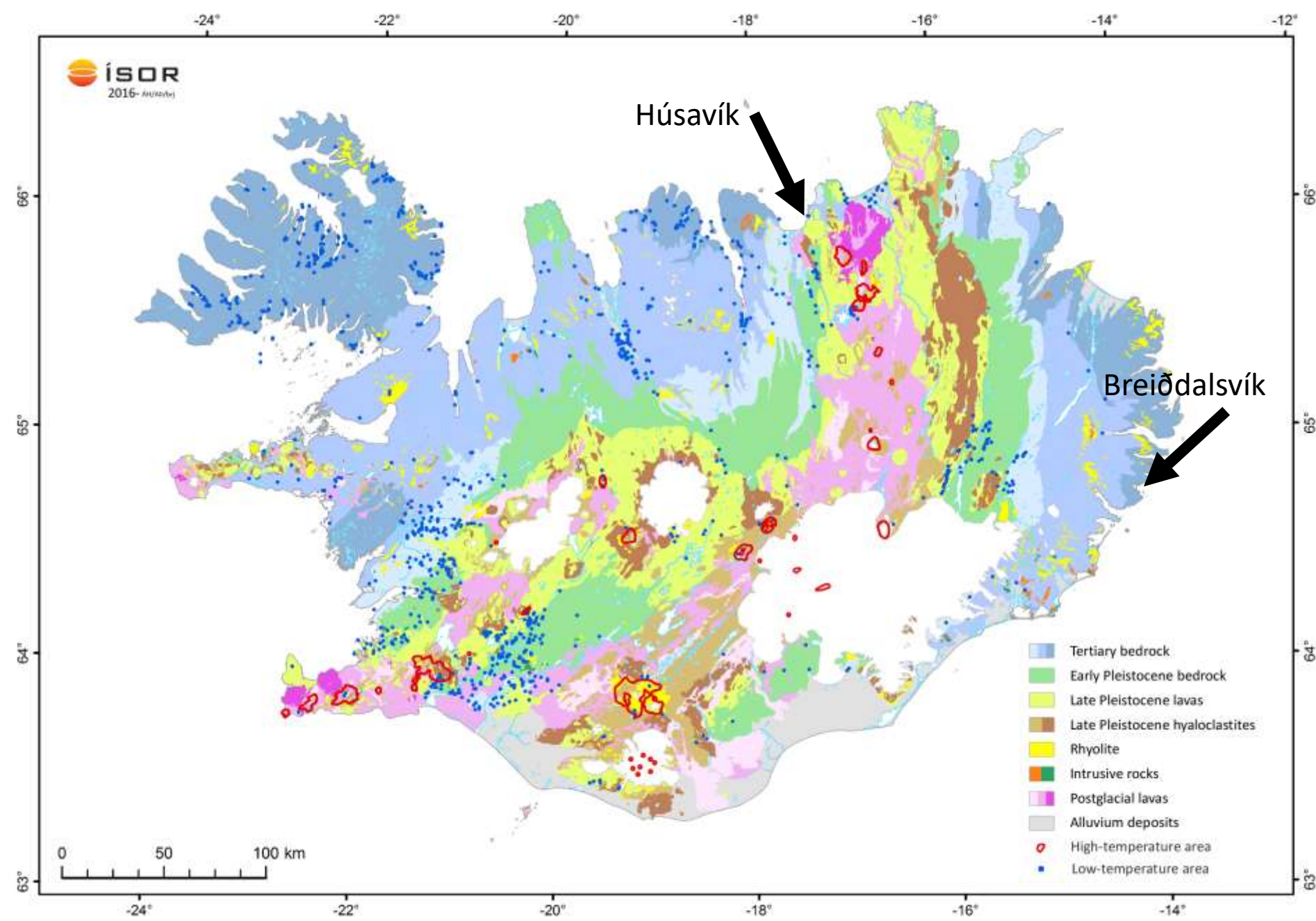


Breiðdalsvík, 150 inhabitants, East fjords



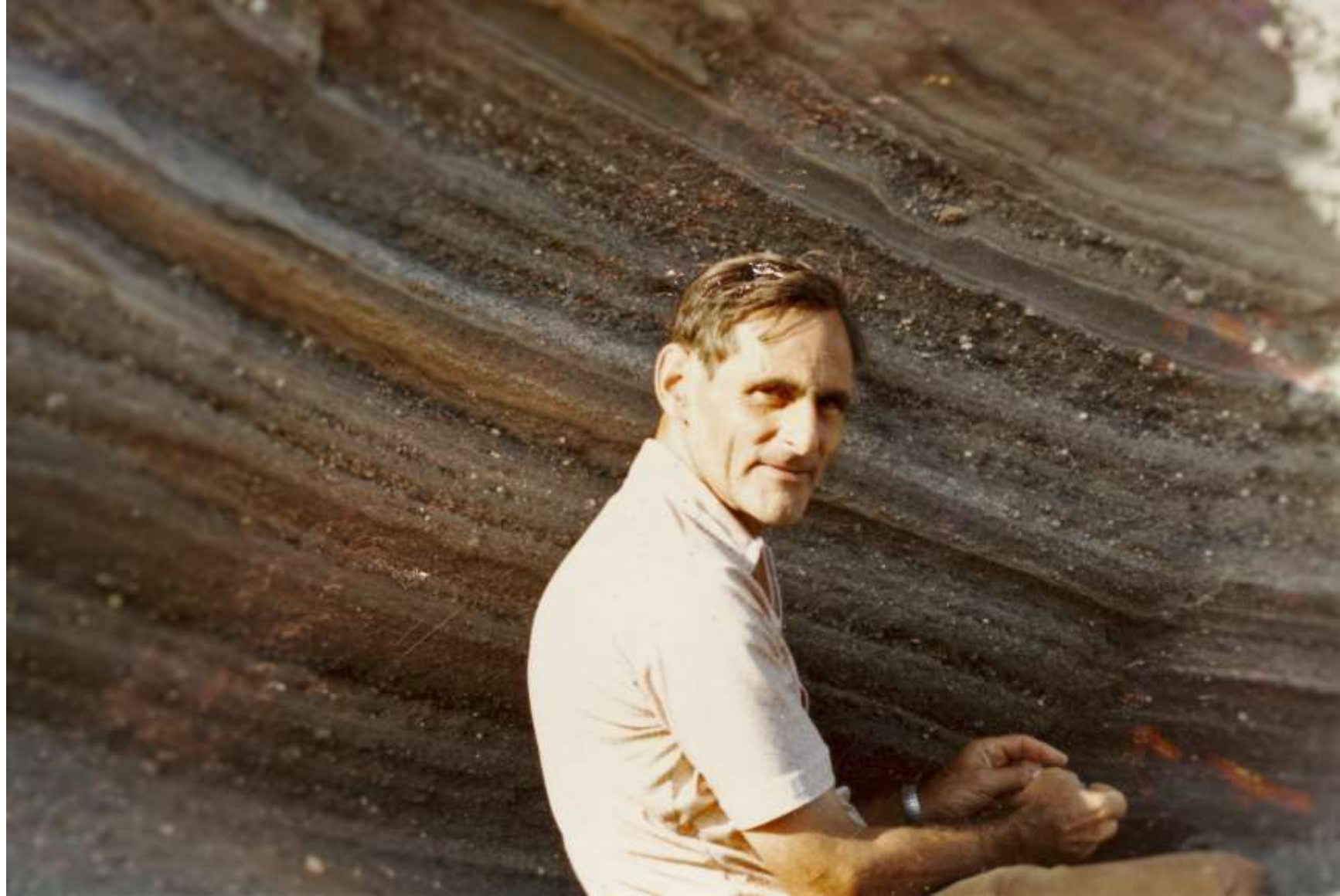
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Breiðdalsvík on a geological map of Iceland



2. G.P. L. Walker (1926-2005) & his geological Exploration

G.P.L. Walker
world famous
geologist and
father of modern
volcanology.
Legacy is part of
Breiðdalssetur.



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Walker first came to East Iceland in 1954 to study Zeolites.
He discovered much more.
Field work every summer from 1954-1962.



Walker (right) and his students around 1960.

2. Geology: Flood basalts



Holuhraun- Bárðarbunga 2014 Eruption Flood basalt



2014 flood basalt eruption
Holuhraun, central Iceland



Breiðdalur Volcano

9 million
years old

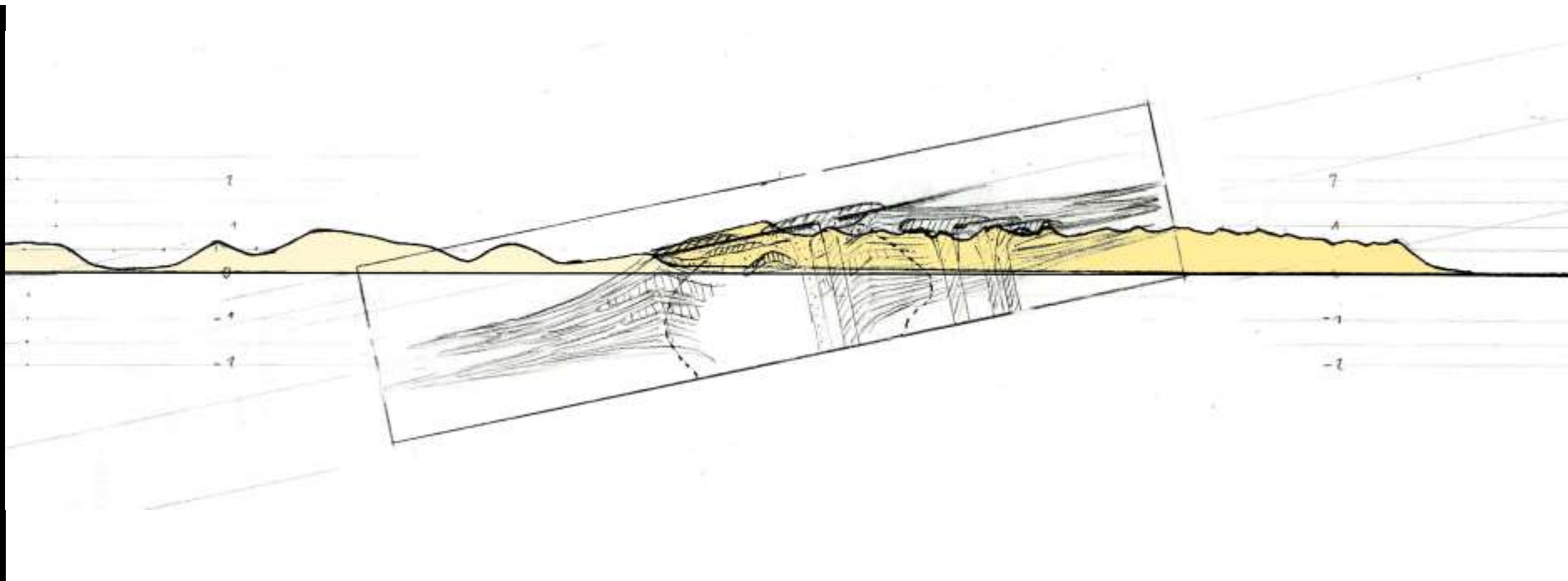


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Msc. Christa M.
Feucht, 2006
„Biogene
signatures in
tertiary basalts
of Breiðdalur
valley, Eastern
Iceland”



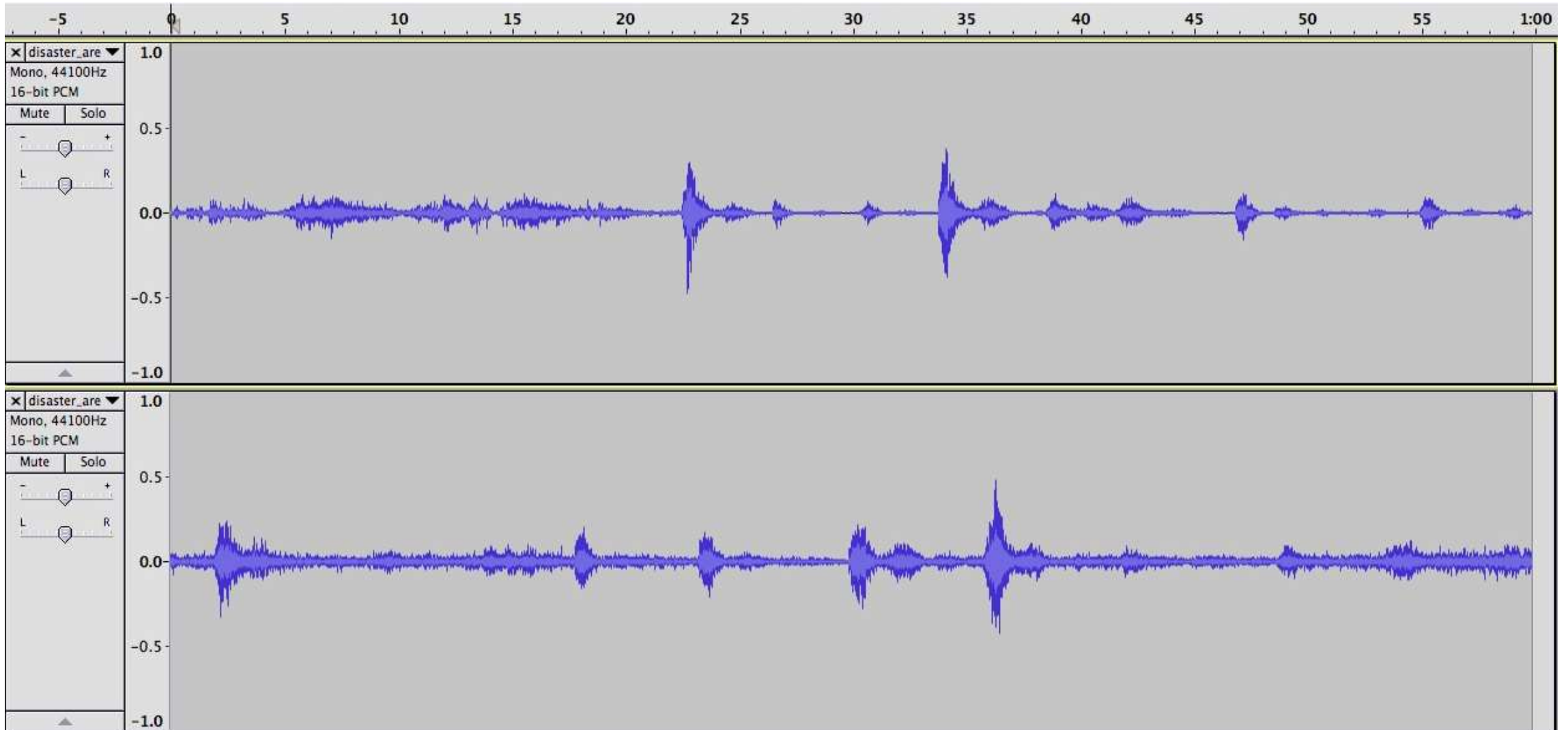
Picture width $\sim 100 \mu\text{m}$

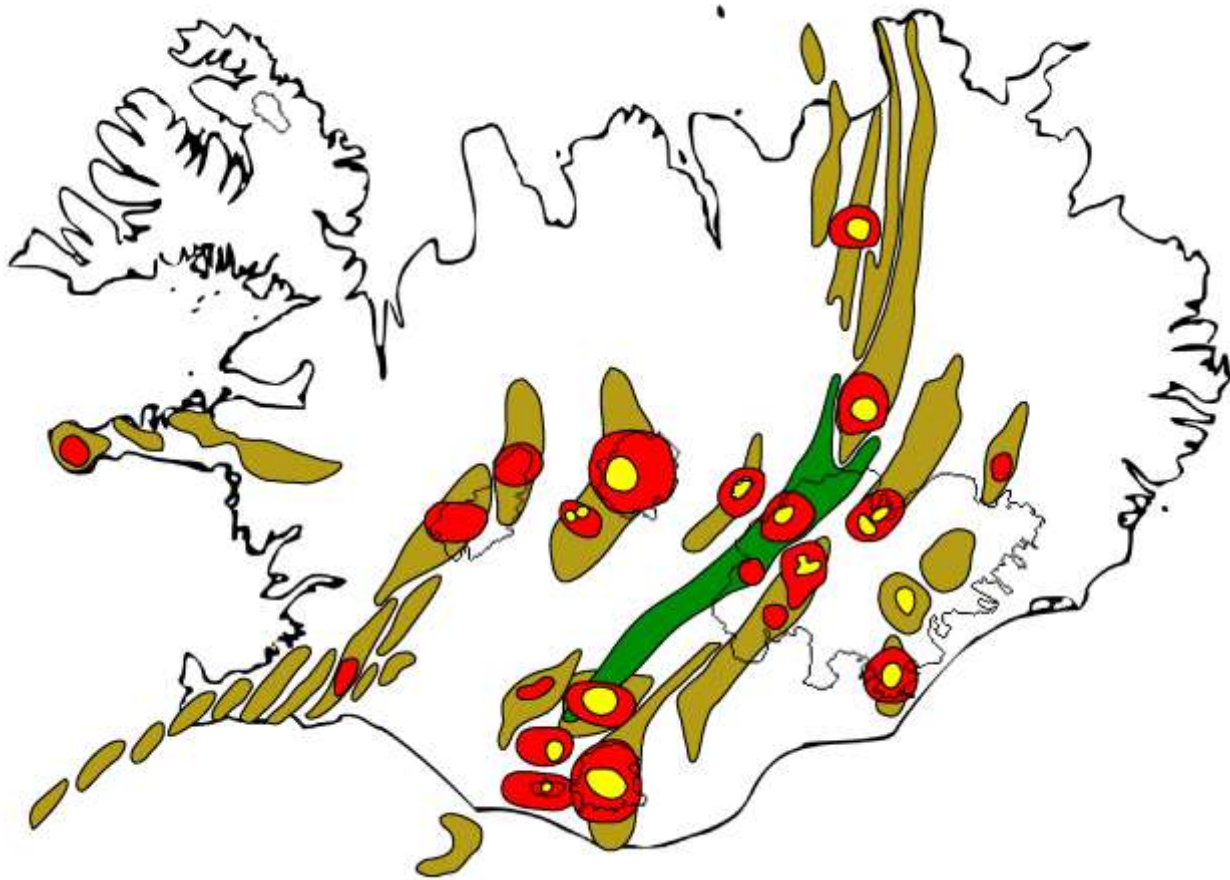


Eyjafjallajökull 2010 Central volcano

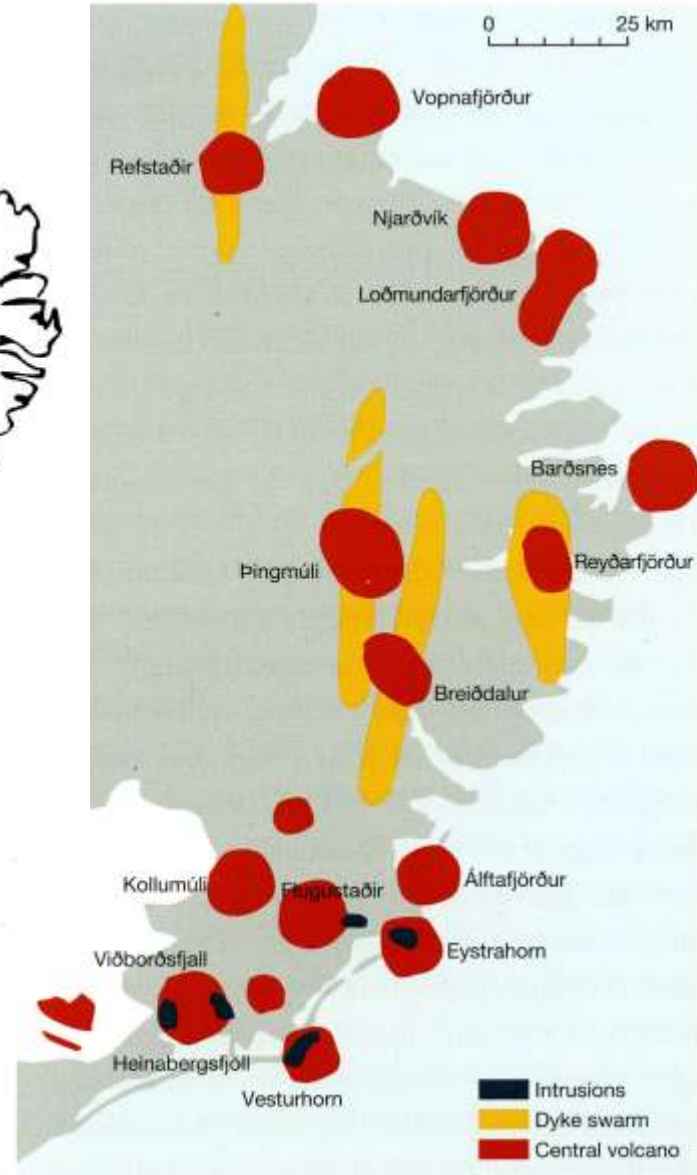


Eyjafjallajökull 2010 sound recordings





Active volcanic systems



Extinct volcanic systems, East Iceland

From Guðmundsson 2015

Walker, Iceland and Plate tectonics

Continental Drift hypothesis of Alfred Wegener in the 1920ies
Continents are moving???? No process known to explain the phenomena



Alfred Wegener
1880-1930



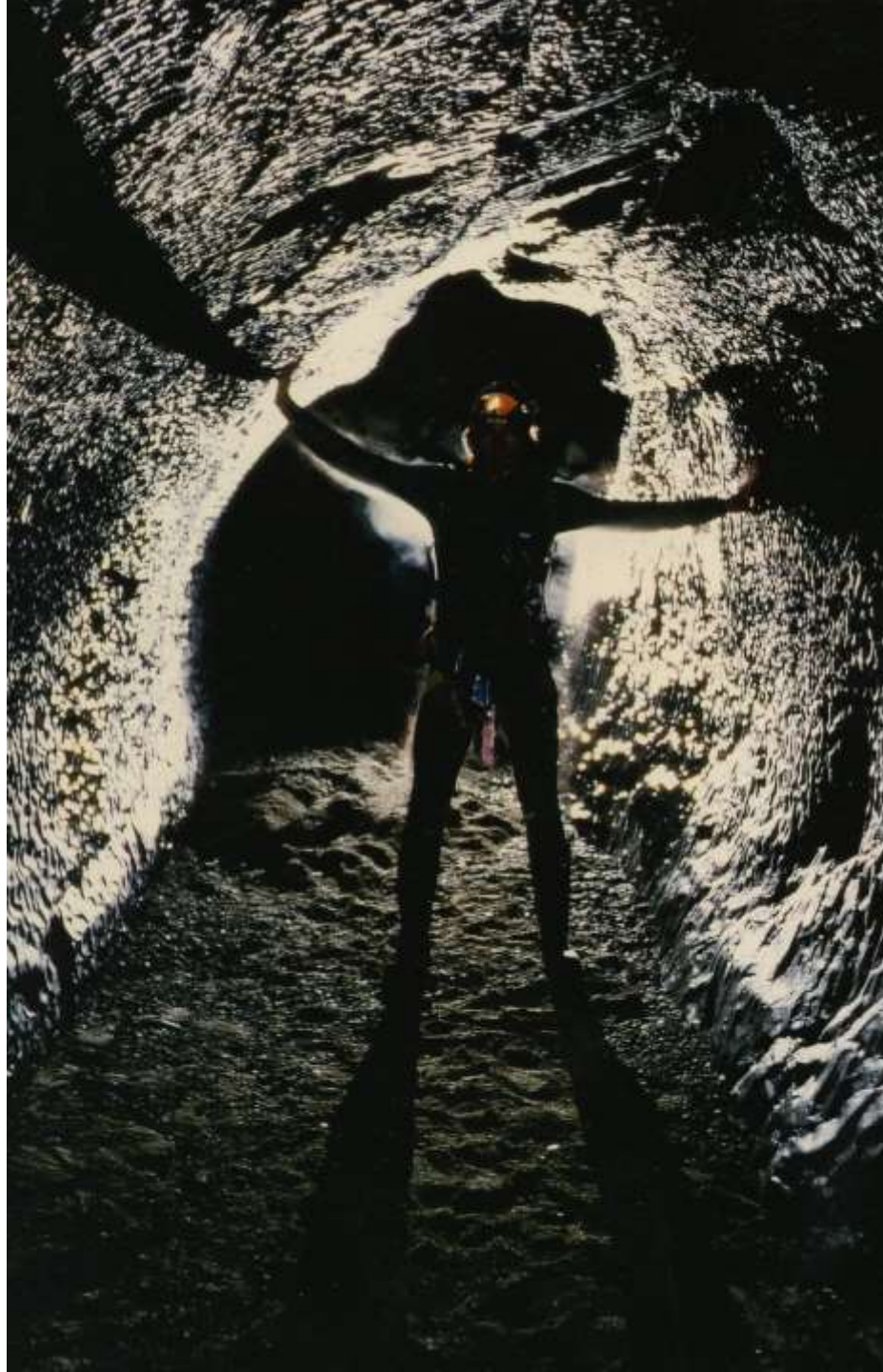
All that was needed: Dyke swarms, measuring tape & brain



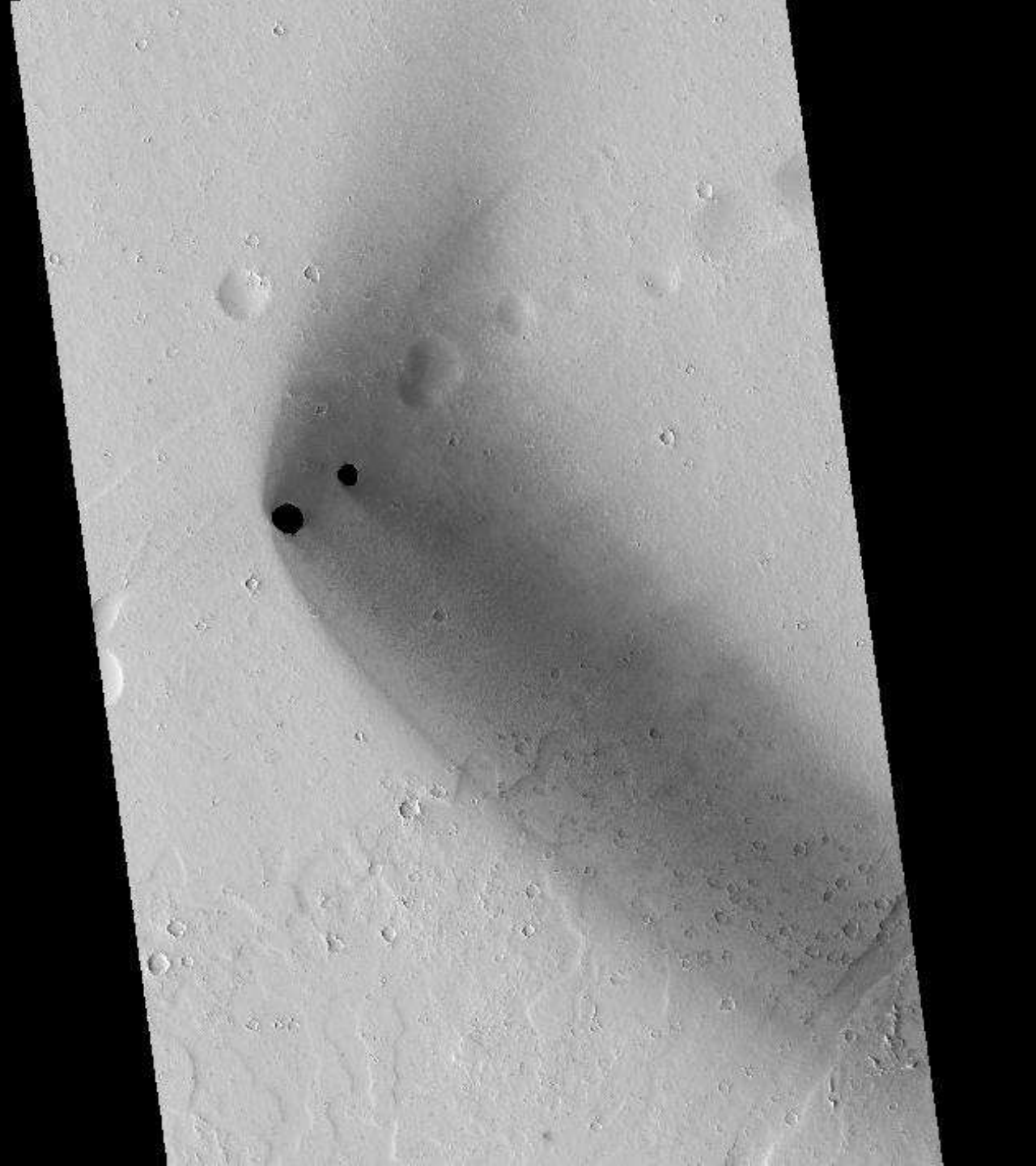
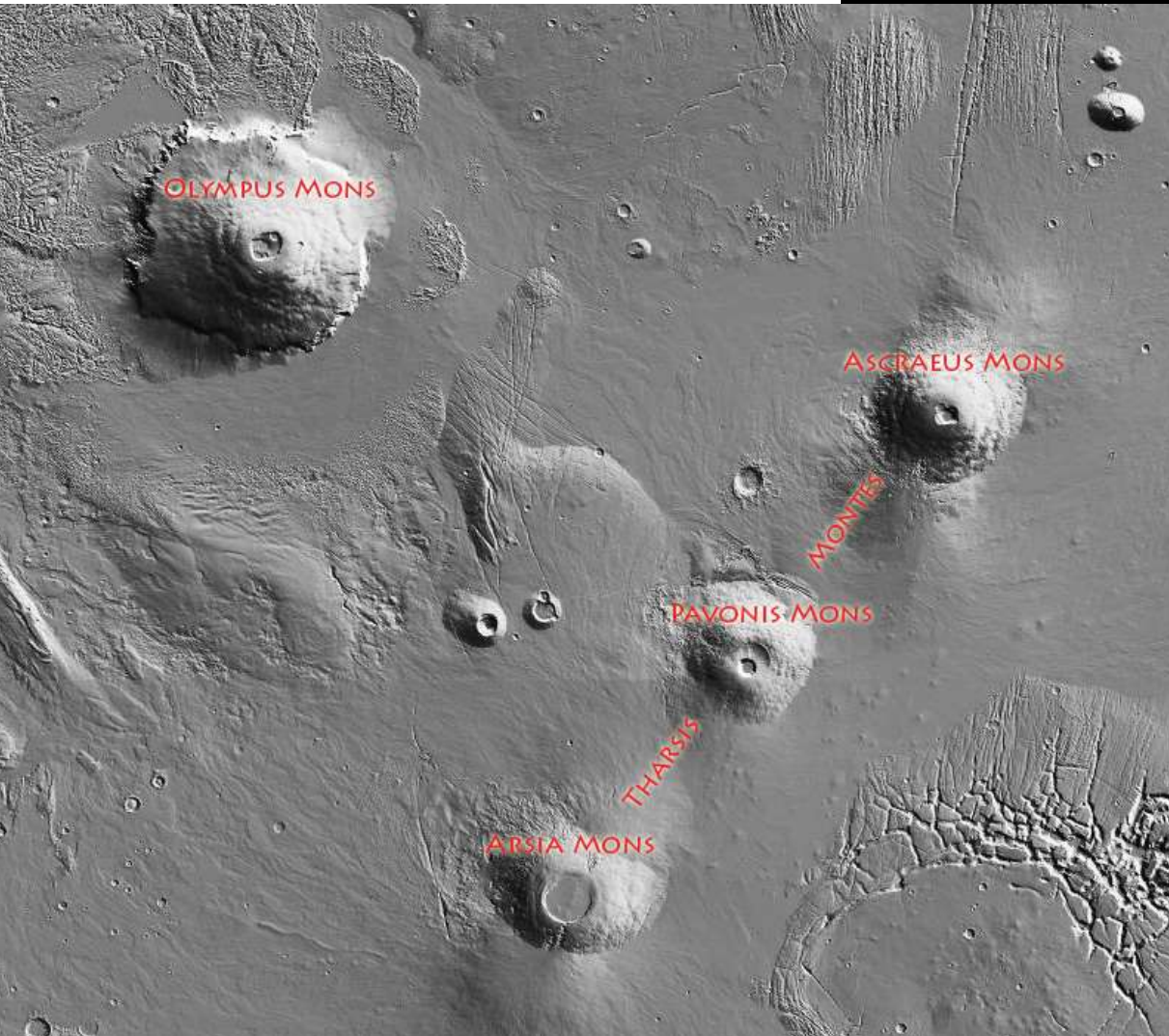
Meteorite search
Switzerland 2015
Twannberg meteorite
(iron II G)



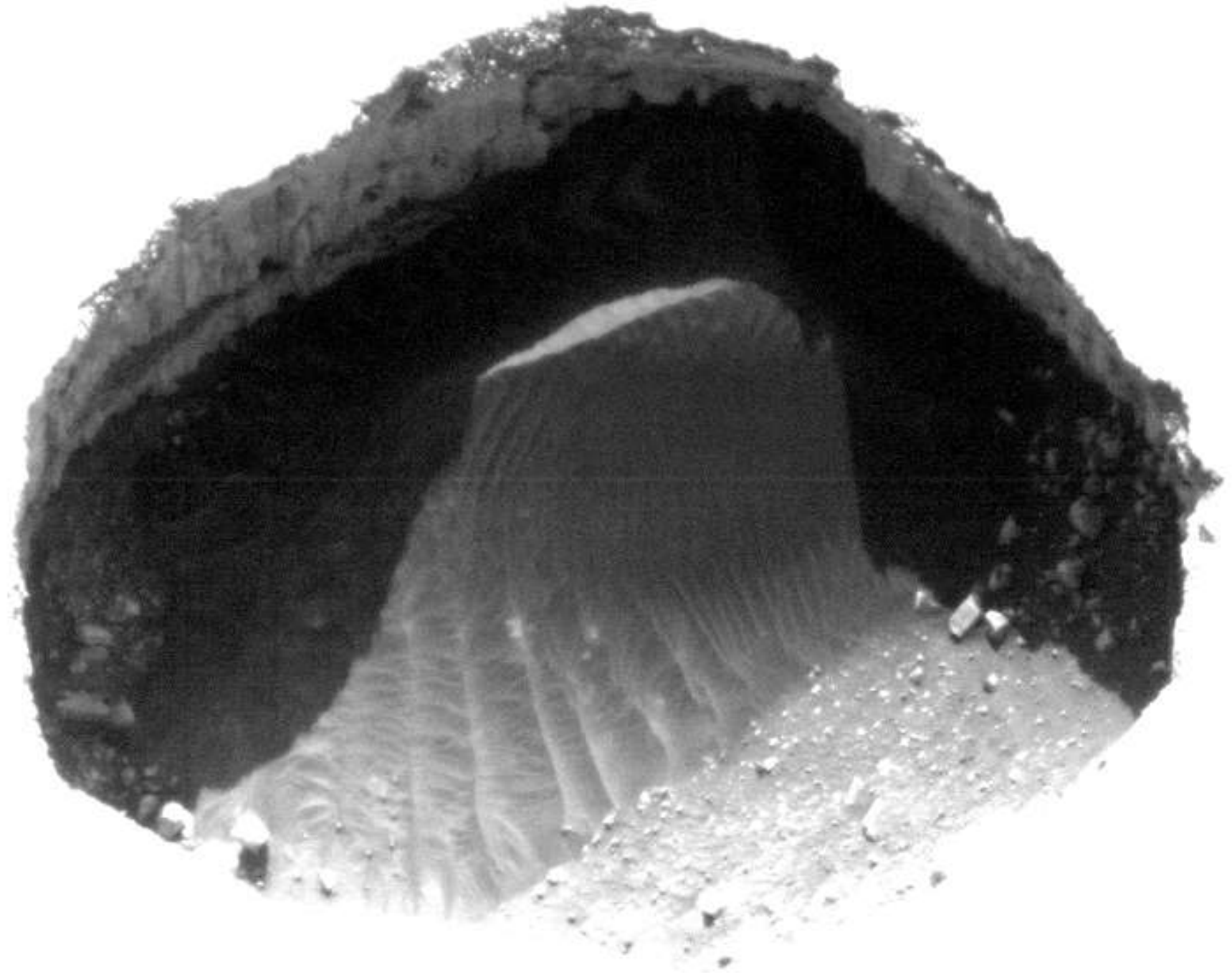
3. Cave exploration



Ascraeus Mons lava tubes, Mars



Mars lava tubes



Mars lava tubes

Picture removed due to copyright



Wood
Valley
Pit Crater,
Hawaii



Wood Valley Pit Crater, Hawaii



Wood Valley Pit Crater, Hawaii



Surtshellir
lava tube,
Iceland

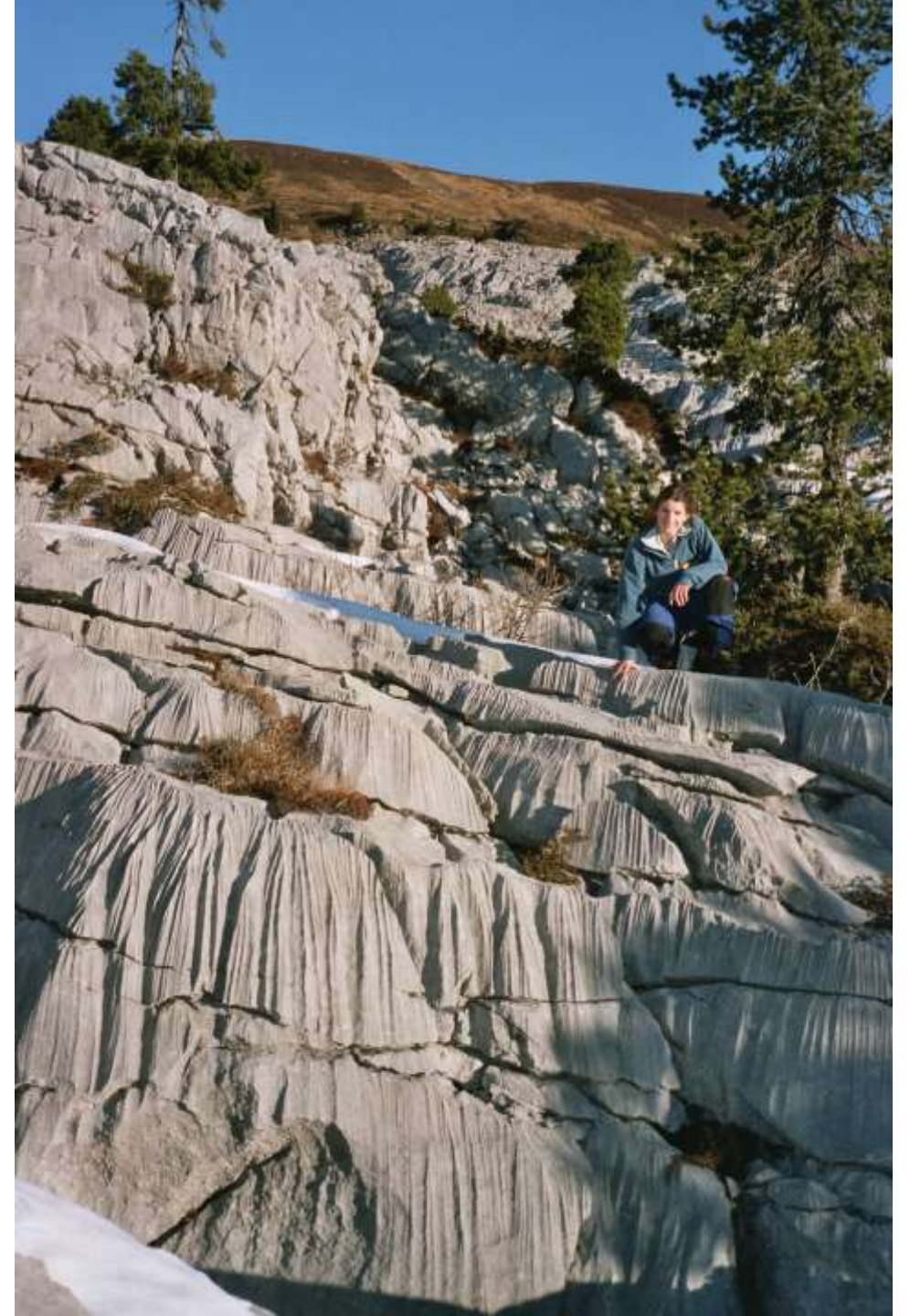


Raufarhólshellir

Lava tube



Cave exploration (speleology): Alpine Karst







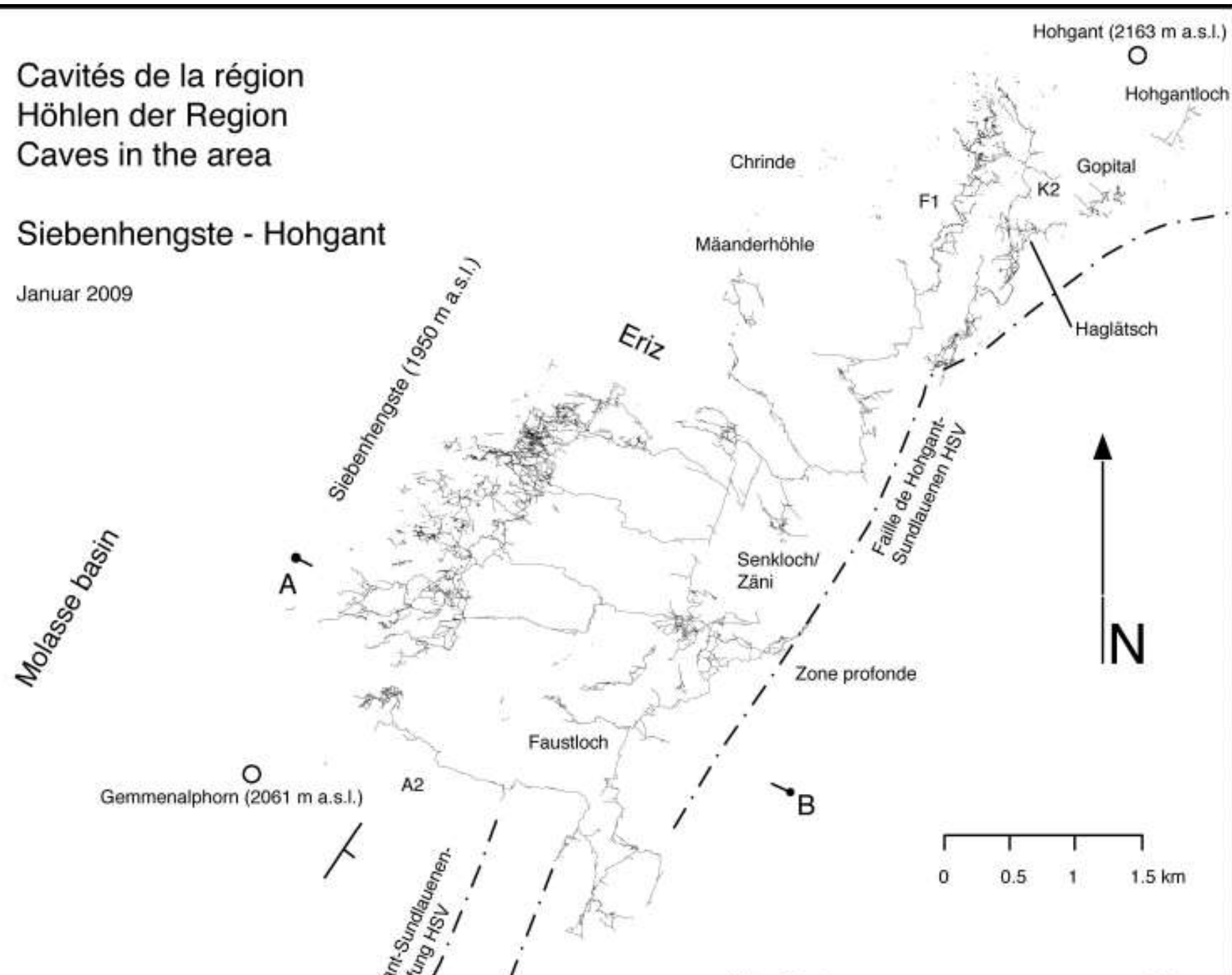




Cavités de la région
Höhlen der Region
Caves in the area

Siebenhengste - Hohgant

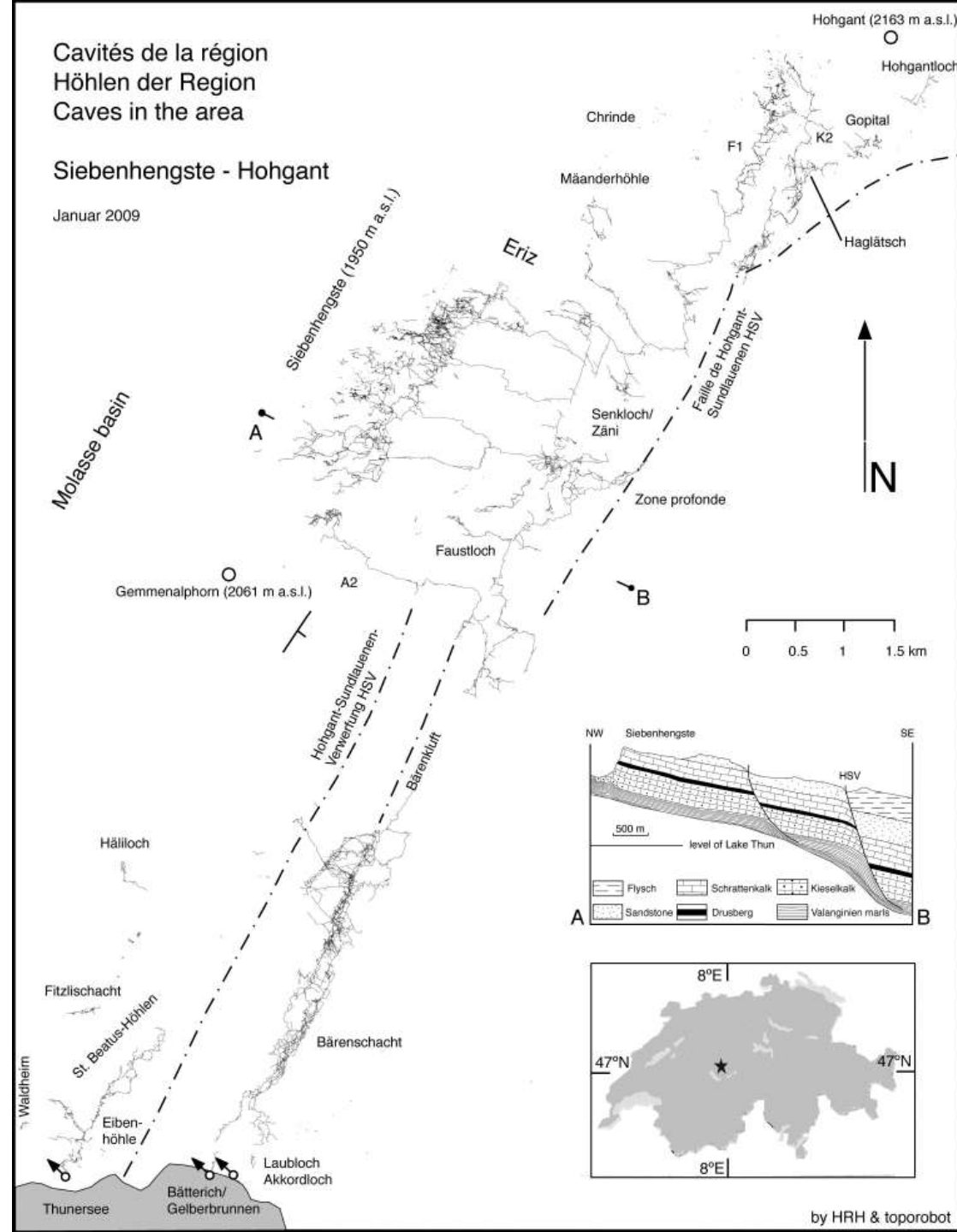
Januar 2009

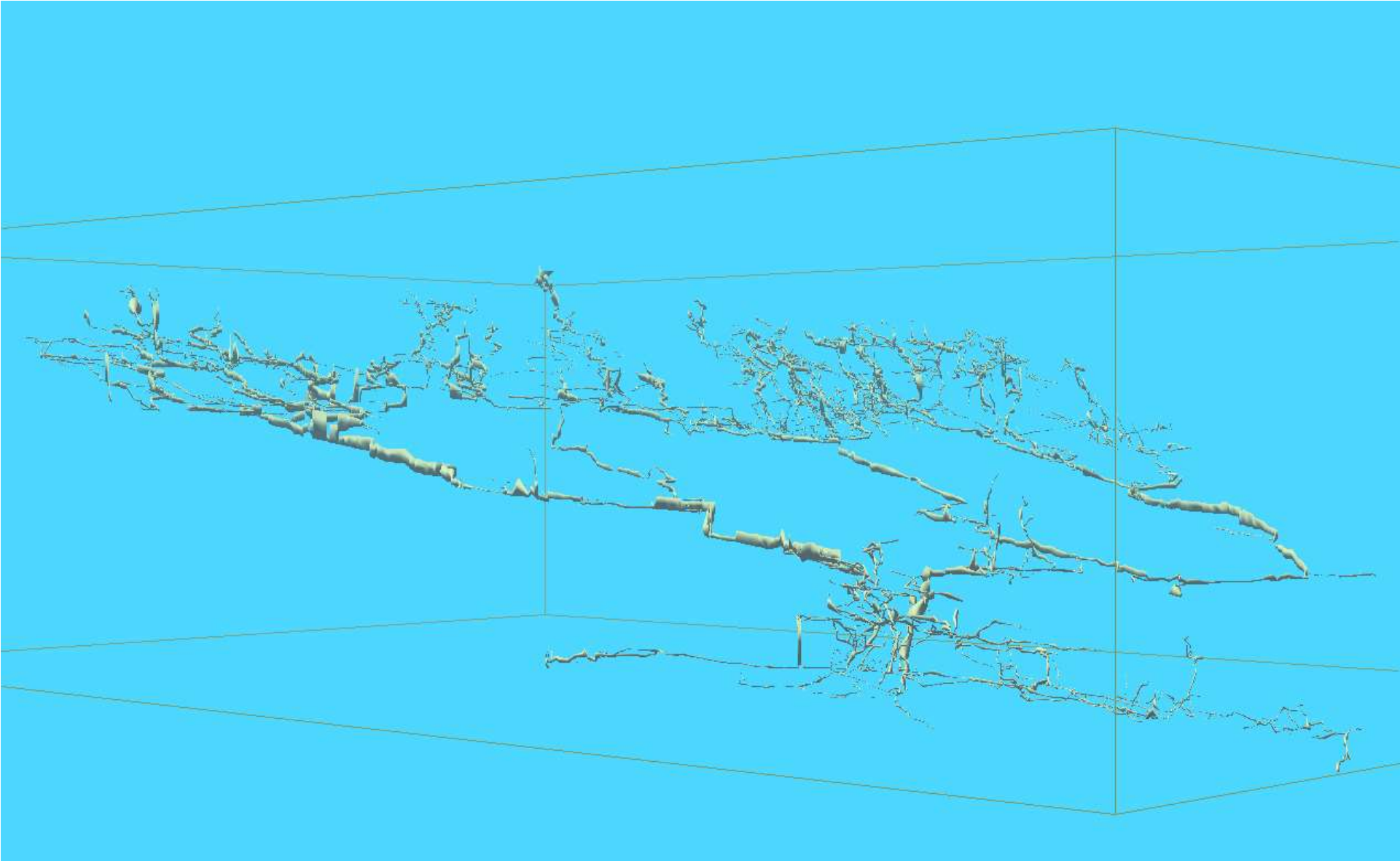


Cavités de la région Höhlen der Region Caves in the area

Siebenhengste - Hohgant

Januar 2009





...Réseau der Siebenhengste-Hohgant = 156 km, -1'340 m

Ice pits (moulins) Aletsch glacier, Switzerland



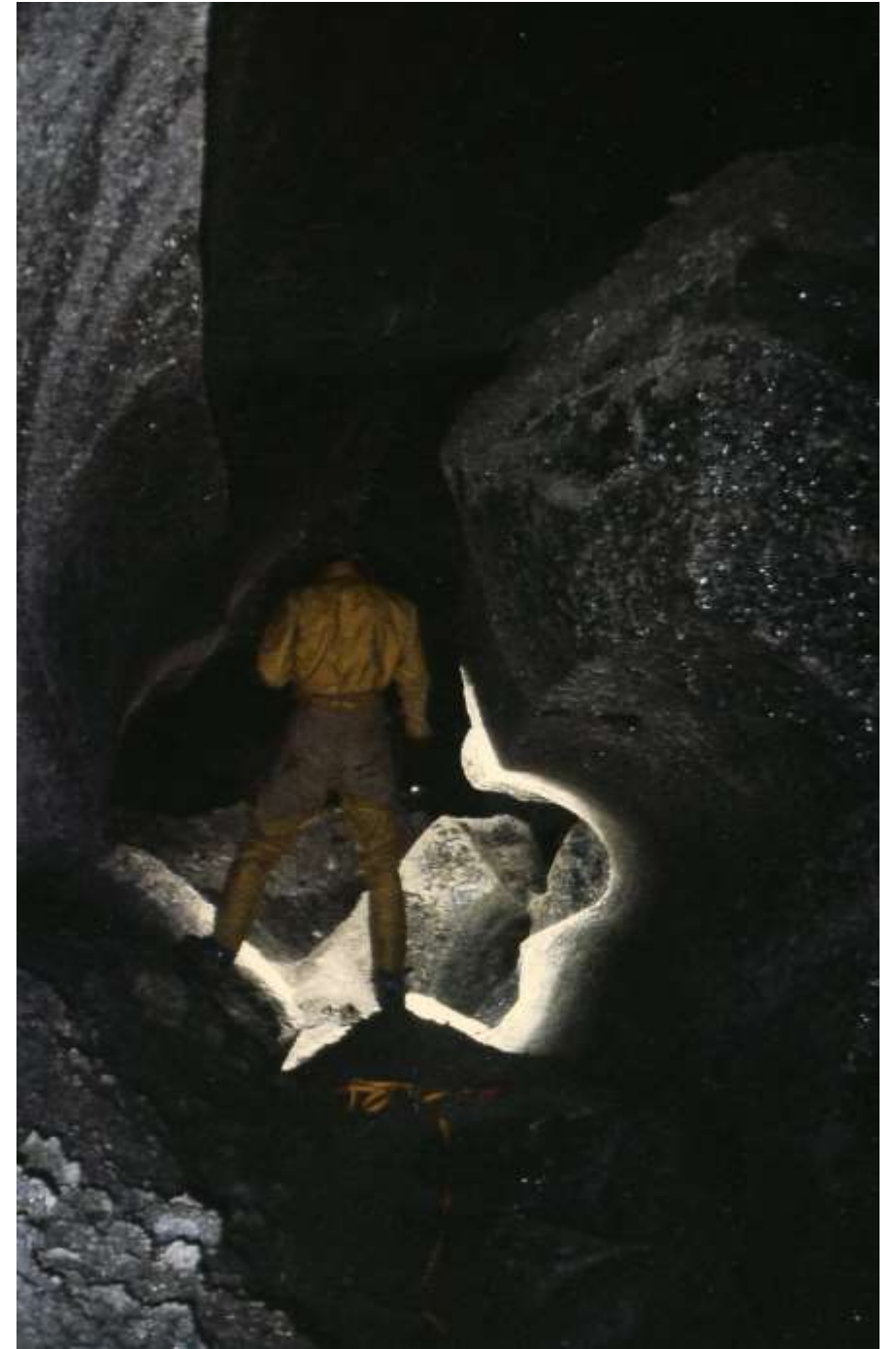
Ice pits (moulins) Aletsch glacier, Switzerland



Ice pits (moulins)
Aletsch glacier,
Switzerland



Ice caves Kyrgyzstan



Geothermal Ice caves Kverkfjöll, Vatnajökull Iceland



Geothermal Ice caves Kverkfjöll



Geothermal Ice caves Kverkfjöll



Geothermal Ice caves Kverkfjöll



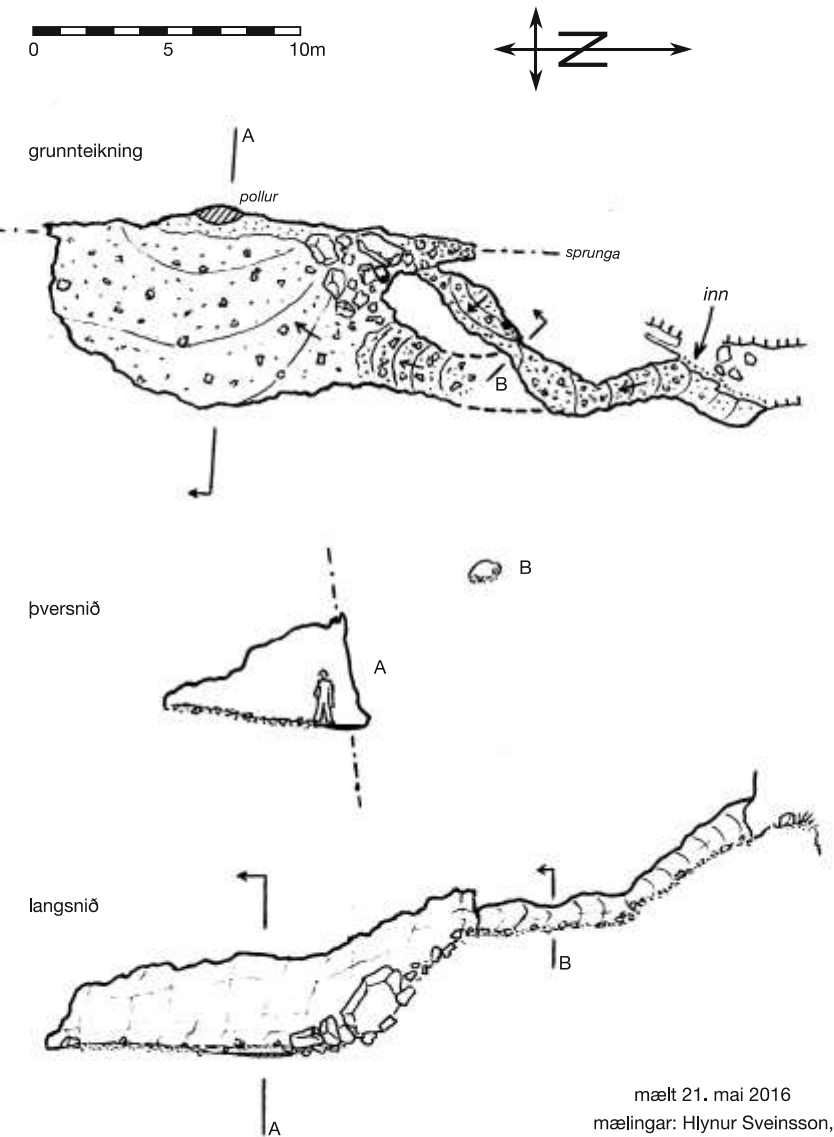
Skriðnahellir, Borgarfjörður Eystri



Skridnahellir, Borgarfjörður Eystri



Skriðnahellir

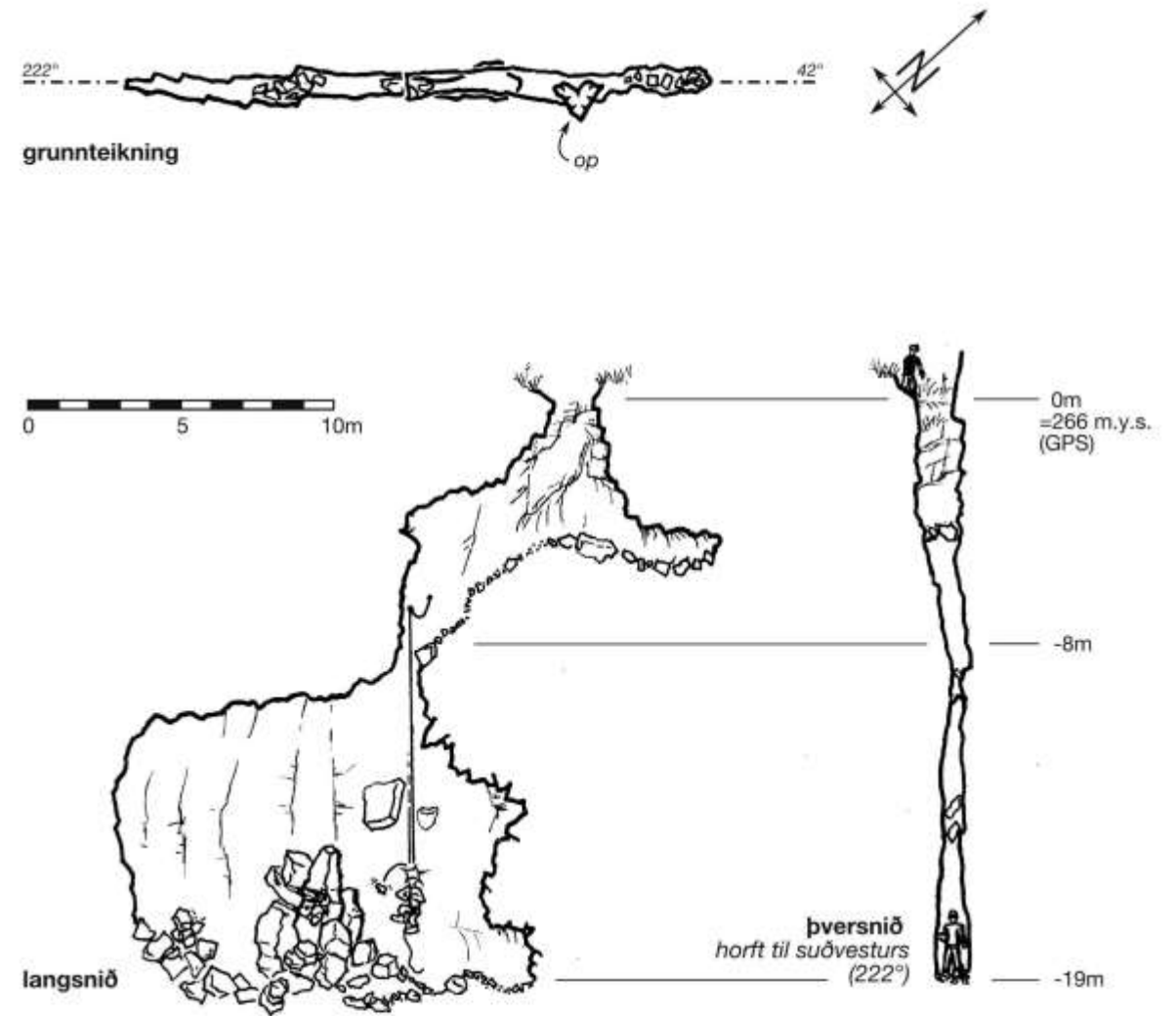


mælt 21. maí 2016
mælingar: Hlynur Sveinsson,
Martin Gasser
teikning: Martin Gasser
nákvæmni: BCRA 4B

Þjófahola, Álftafjörður



Þjófahola, Álftafjörður
Exploration, first (and
hopefully only) human to
reach the bottom in June 2016



mælt 5. júní 2016
mælingar: Bryndís Skúladóttir,
Andrés Skúlason,
Martin Gasser
teikning: Martin Gasser
nákvæmni: BCRA 4B



twin-engine Dornier flying boat



[Roald Amundsen and the 1925
North Pole Expedition](#)





Karl Feucht 1895-1955



Karl Feucht 1927-2013



Spitzbergen, 1925



Friedrichshafen 2013, with little Karl