

Les risques volcaniques

Surveillance, prévision et
prévention

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www.lave-volcans.com/bardintzeff.html

www.geoforum.fr/bardintzeff.php

<http://44.svt.free.fr/jpg/bardintzeff.htm>

[www.futura-sciences.com/fr/scientifique/t/terre/d/
bardintzeff_80/](http://www.futura-sciences.com/fr/scientifique/t/terre/d/bardintzeff_80/)

[http://planeto.geol.u-psud.fr/Jacques-Marie-
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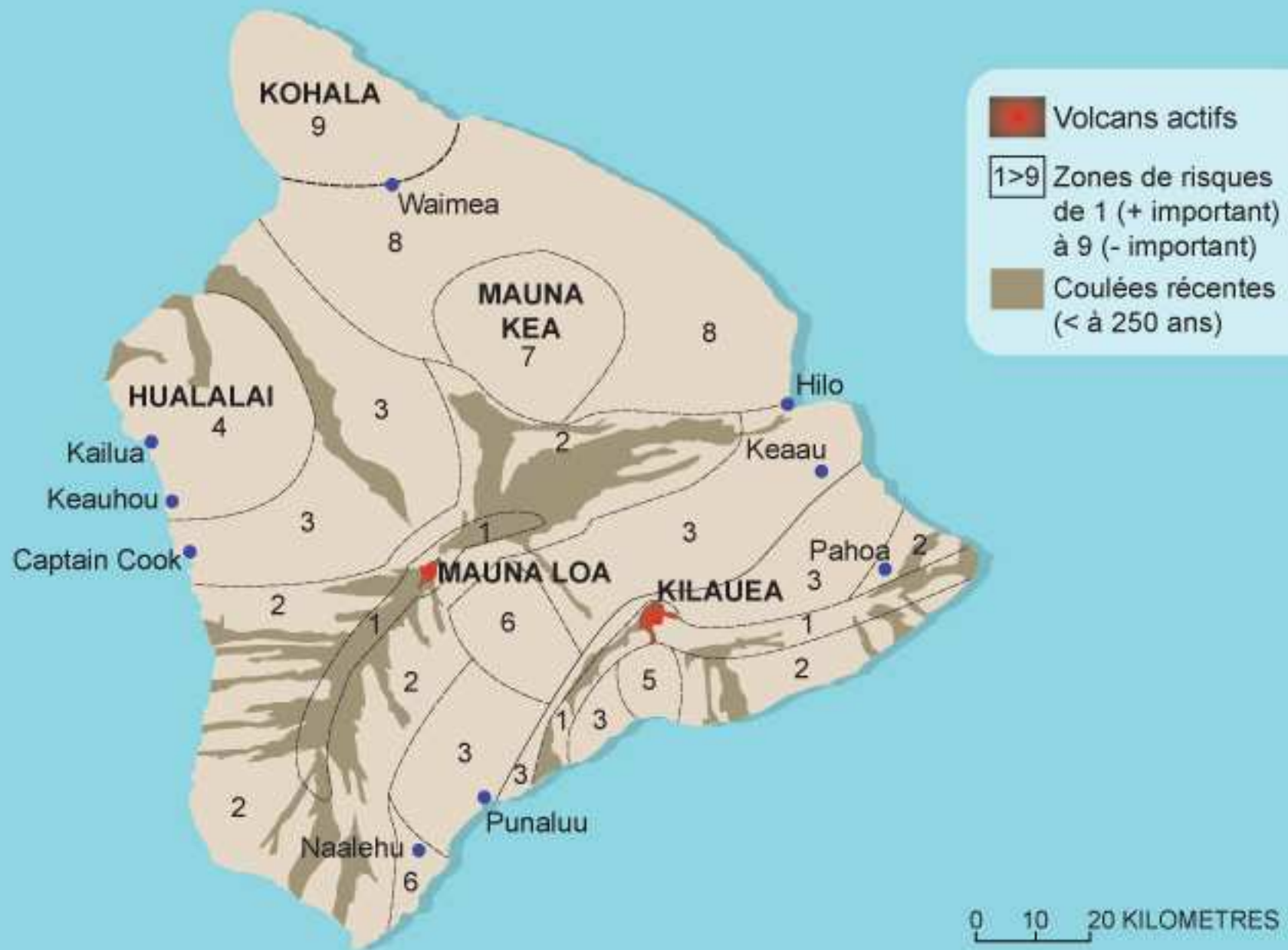




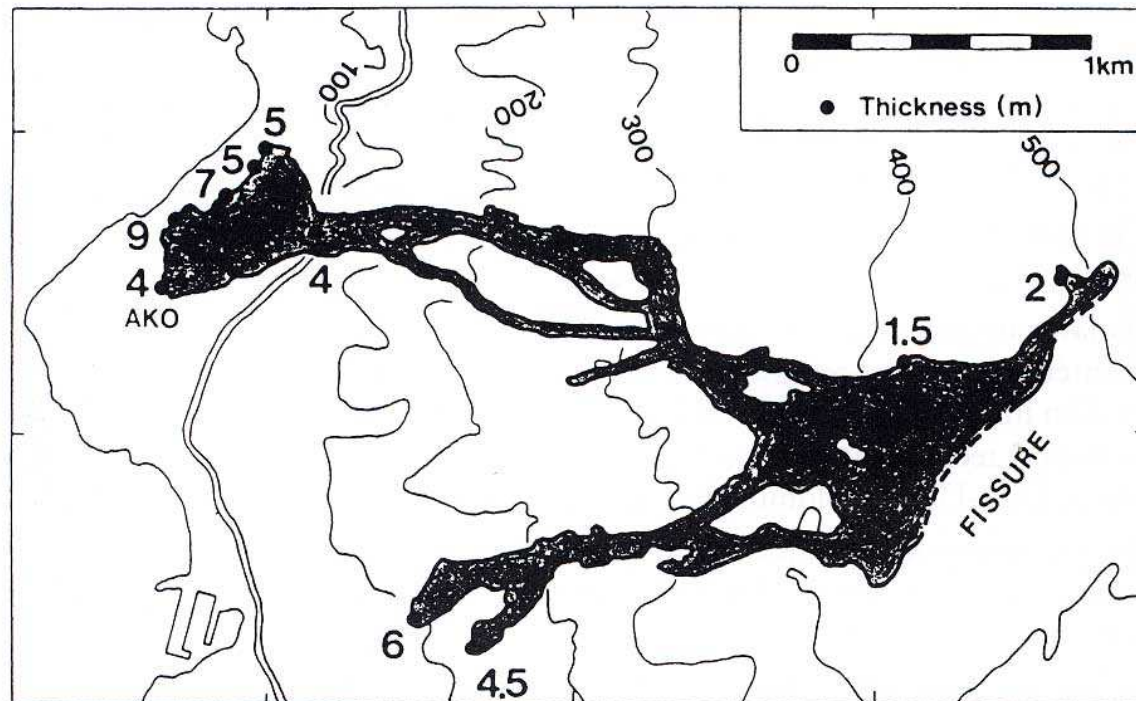
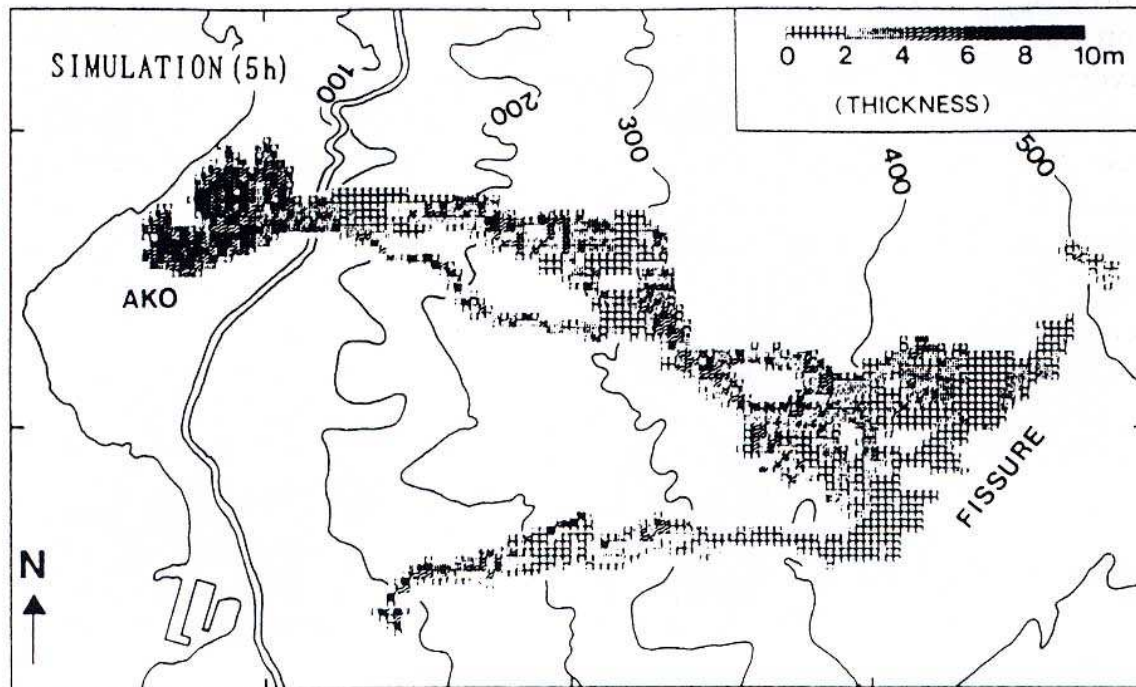




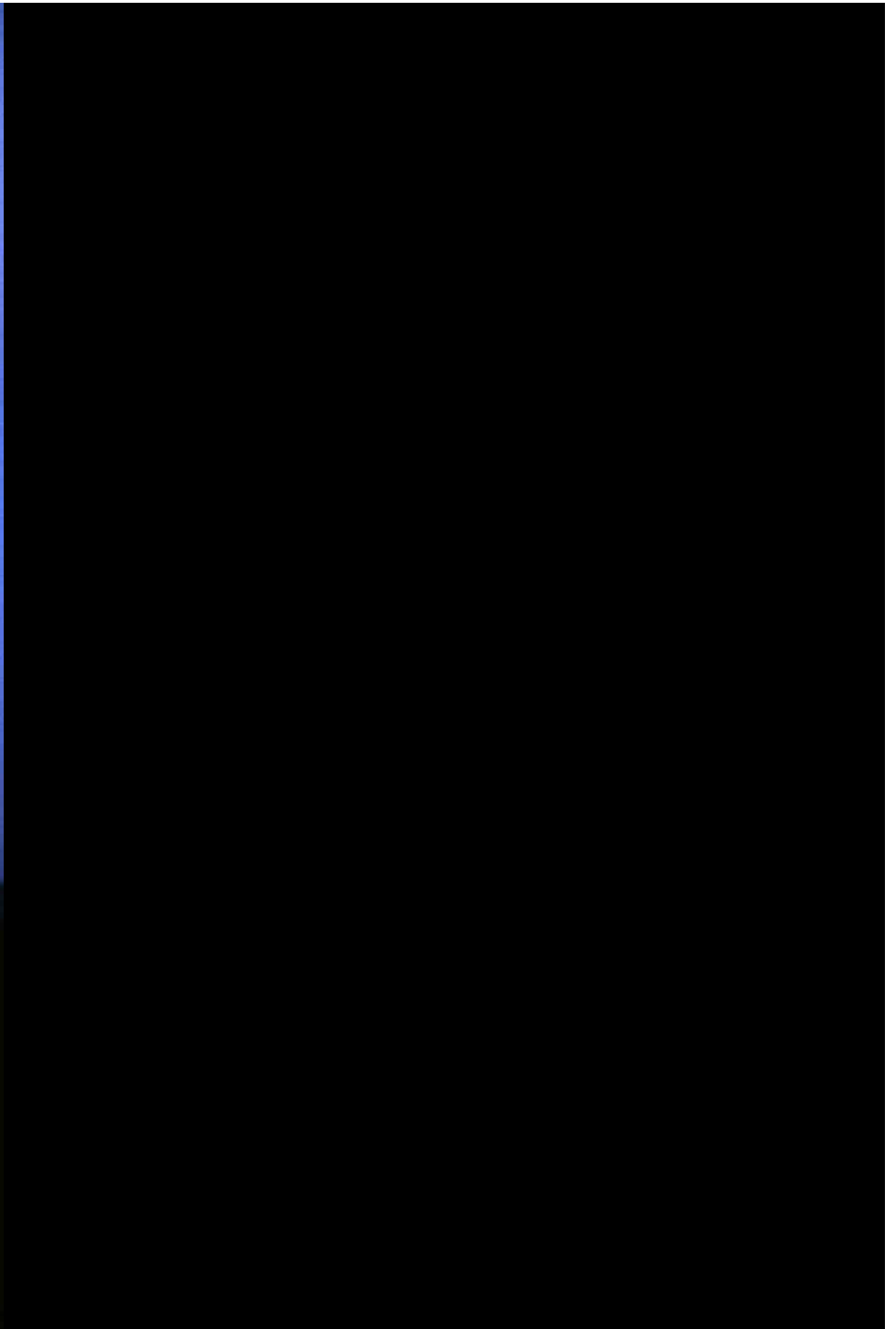
Carte des risques des coulées dans l'île d'Hilo à Hawaiï

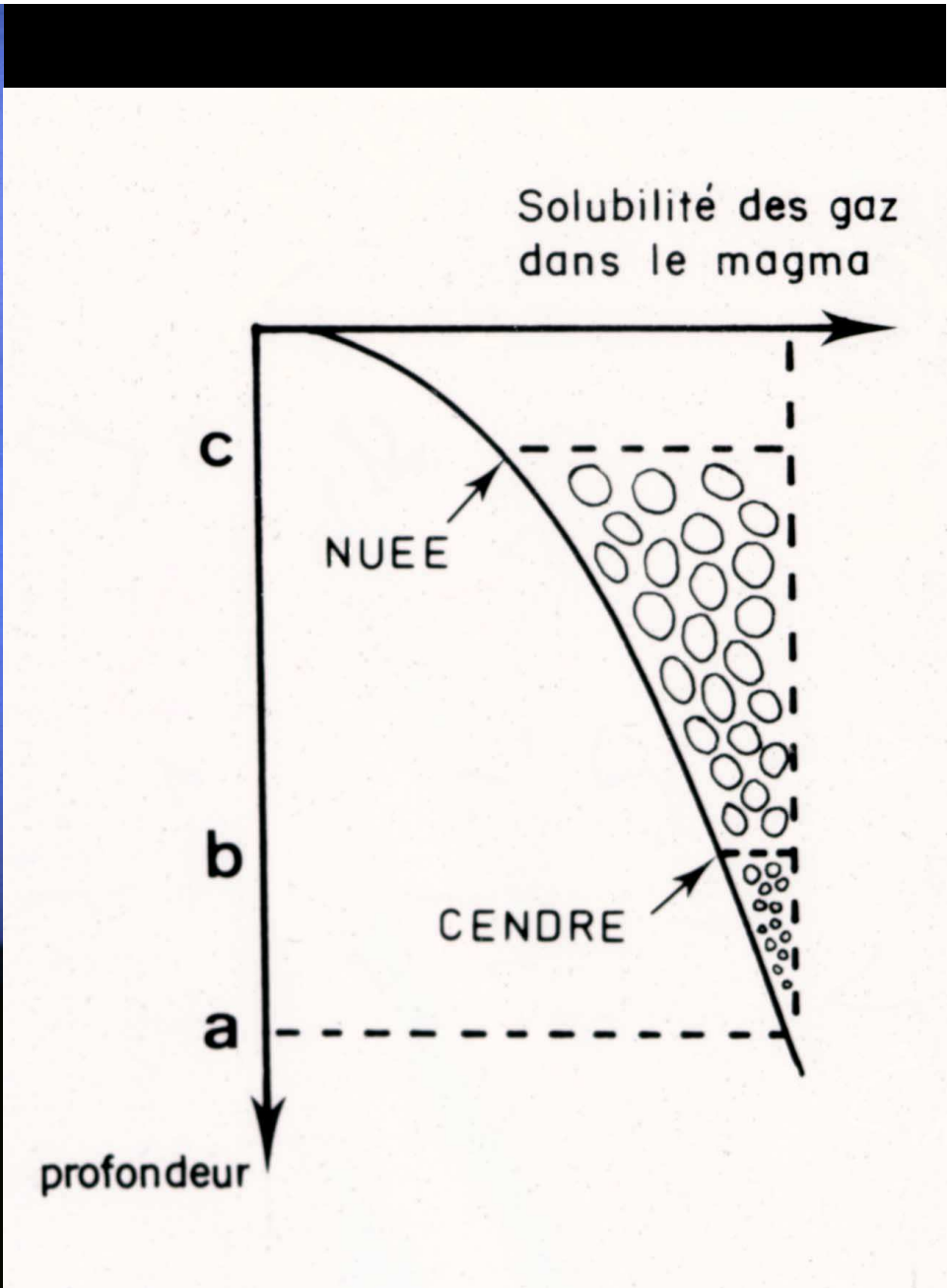


Mullineaux et al., 1987



Ishiara et al., 1990





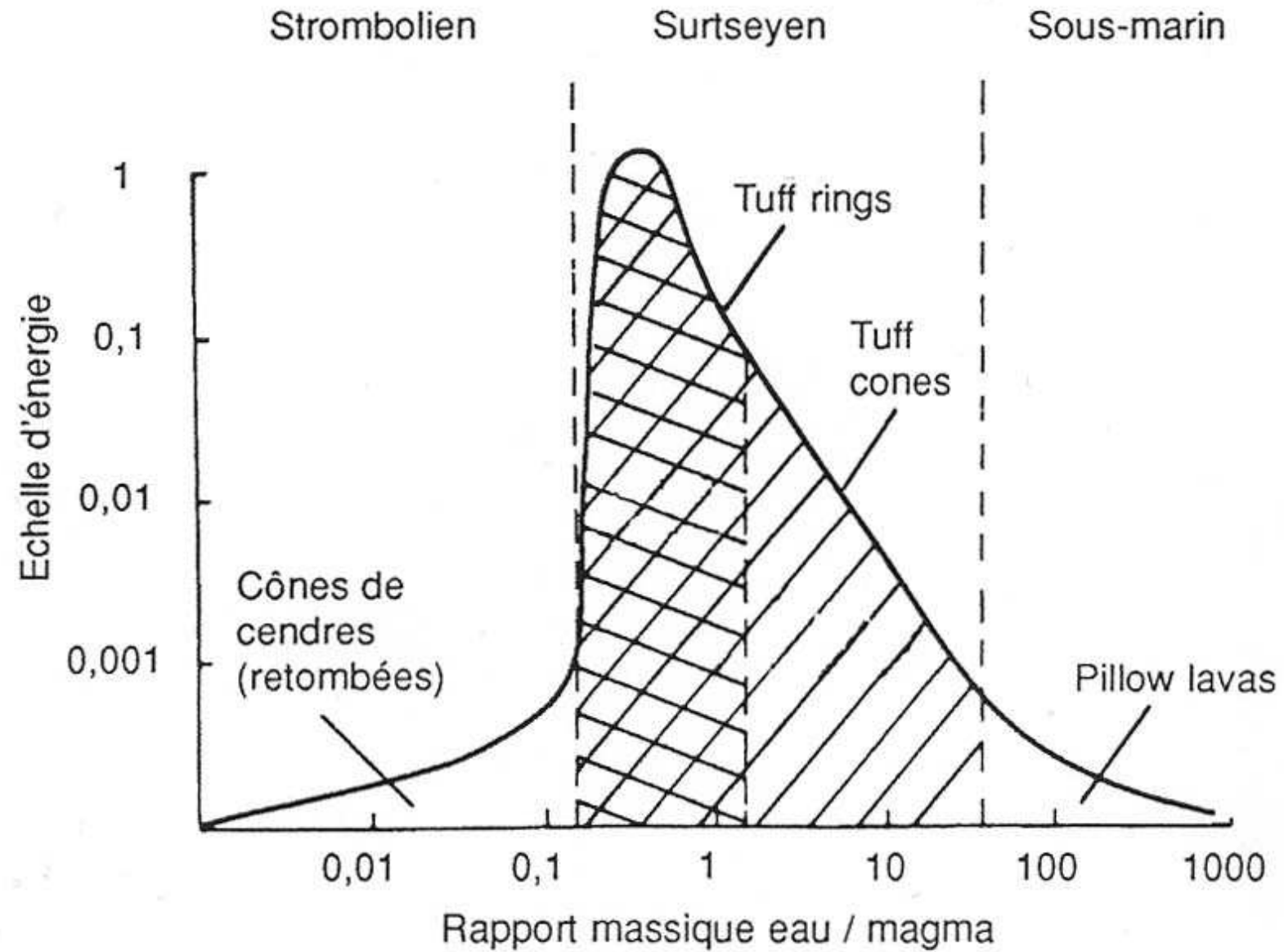












Wohletz et McQueen







colonnes
éruptives



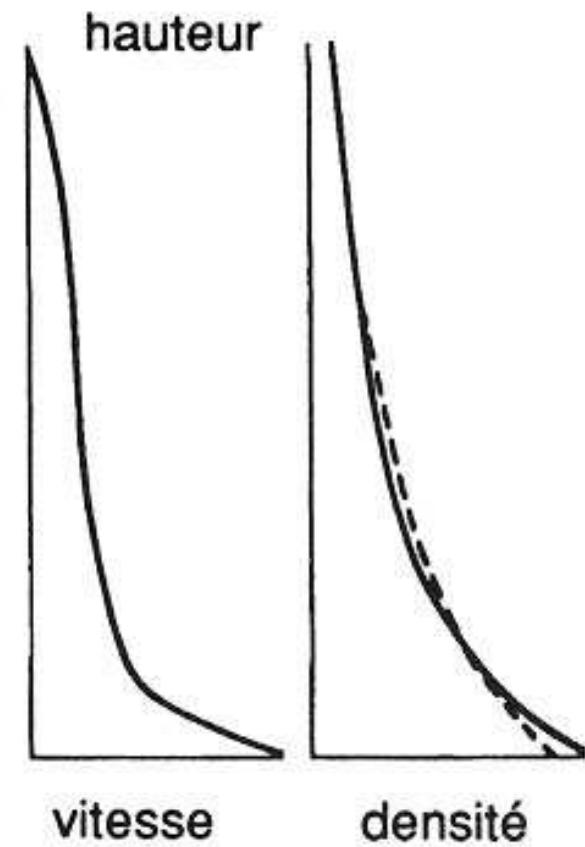
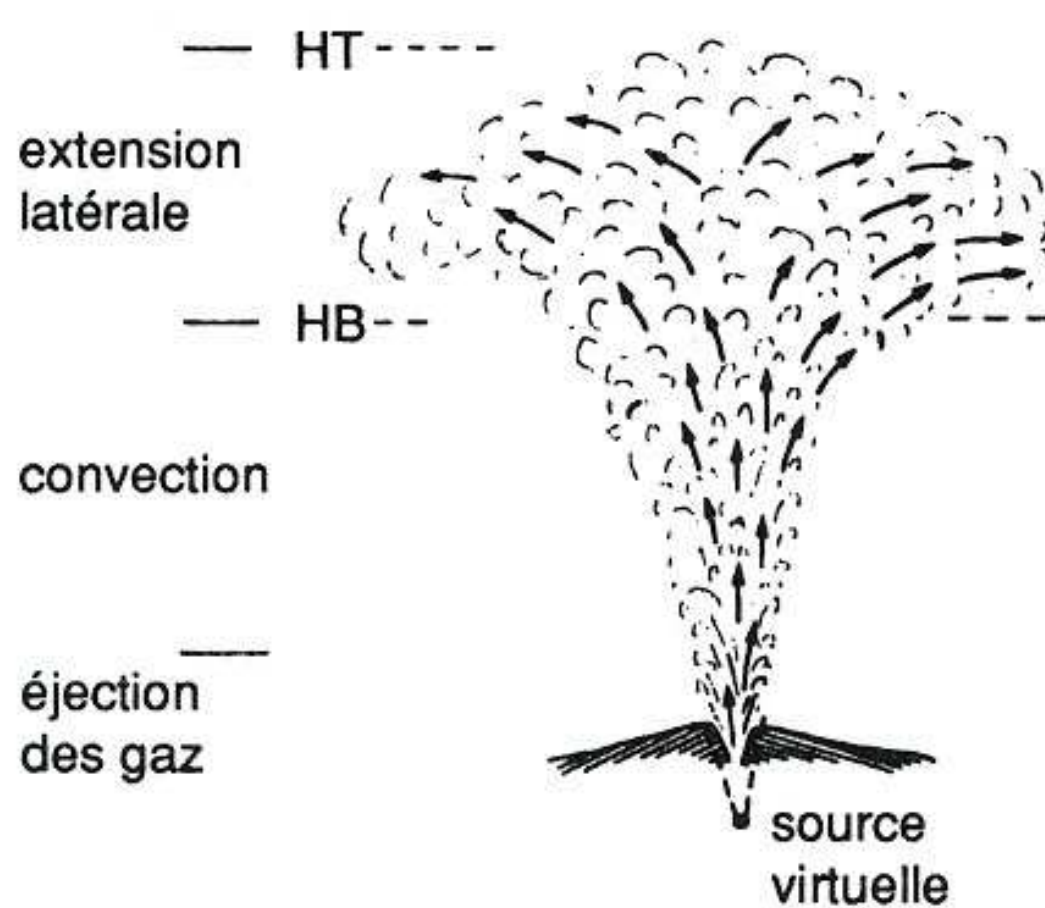
Éruption plinienne

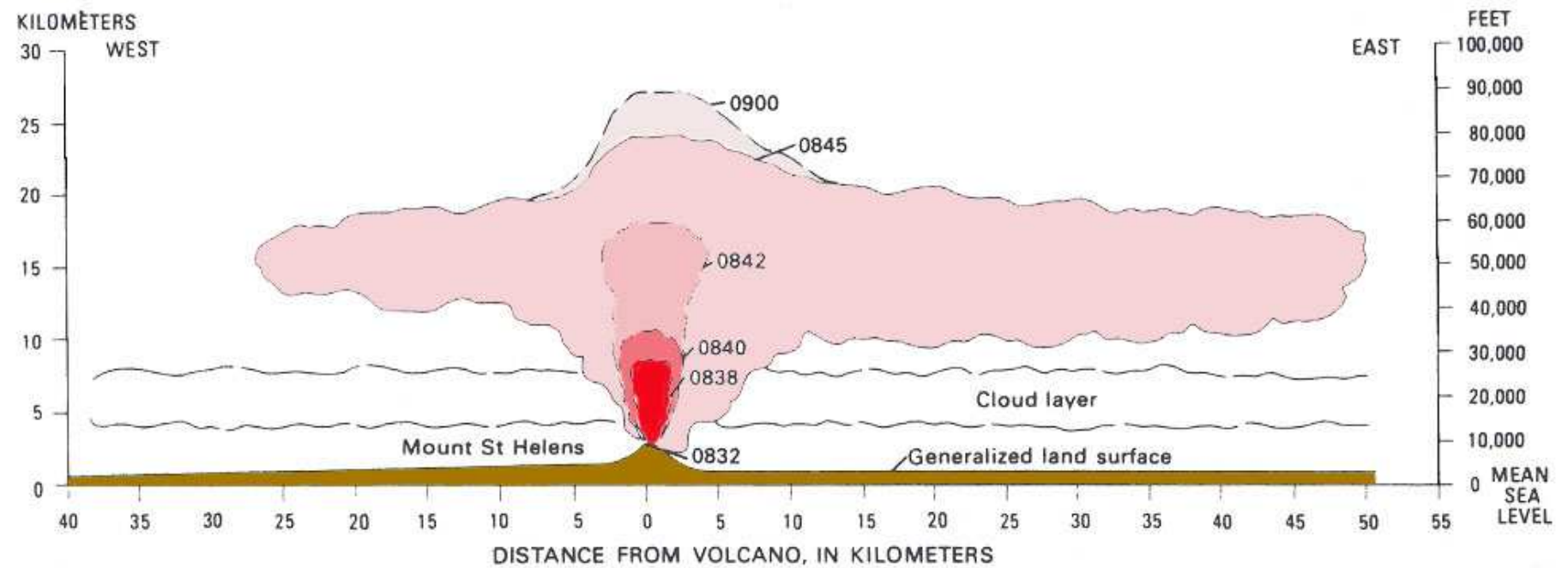
10 à 50 km

Panache
en champignon

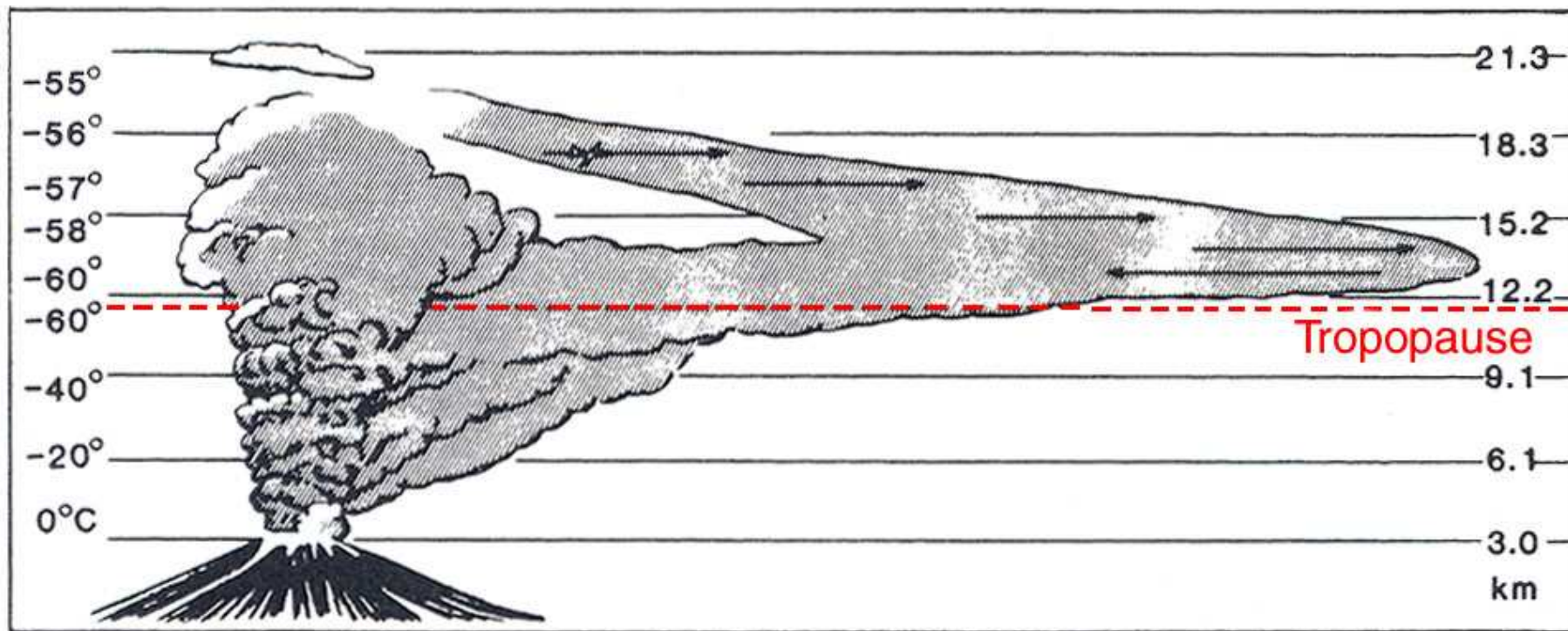
Cendres + pierres ponce





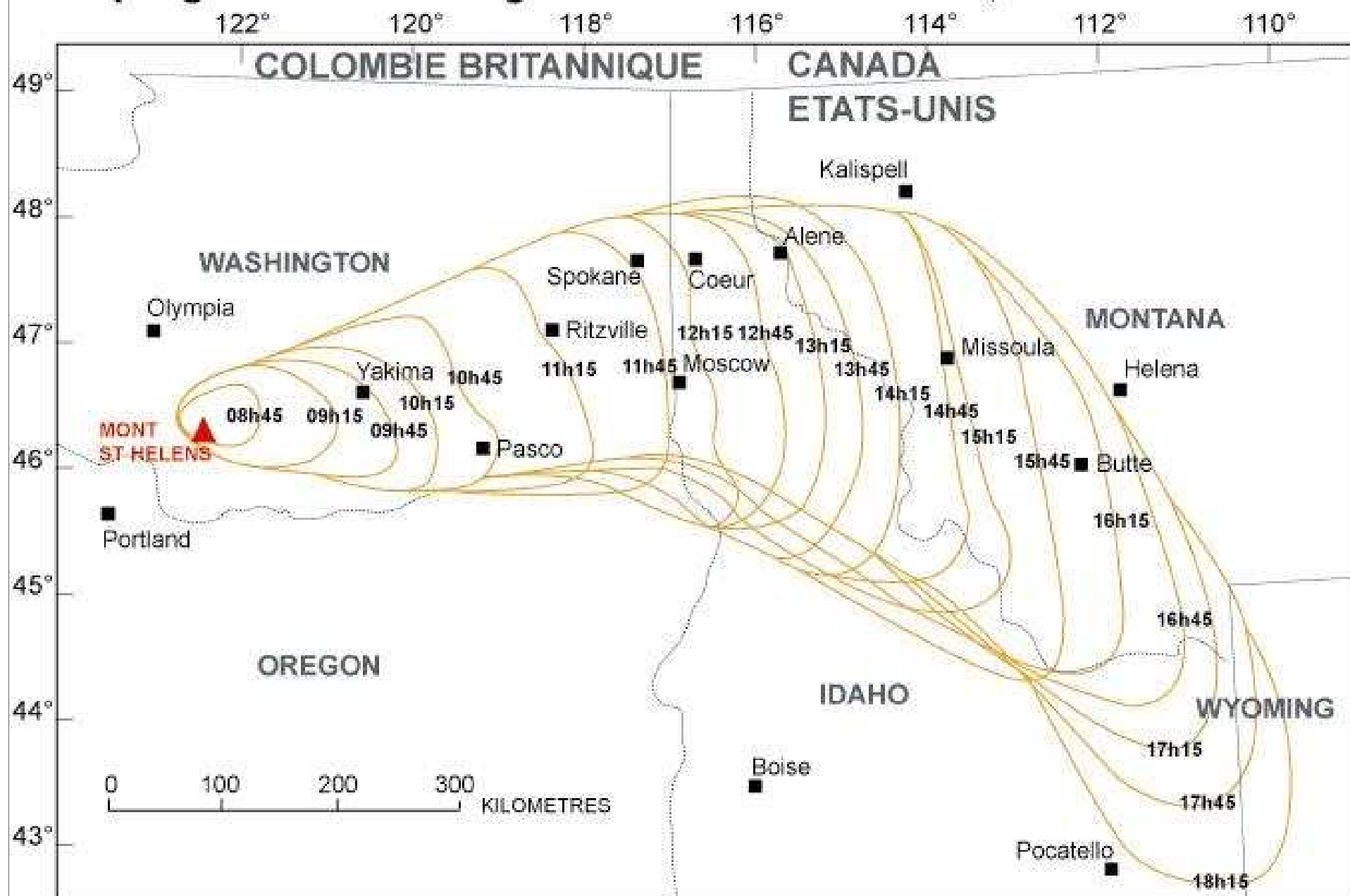


Sarna-Wojcicki et al.

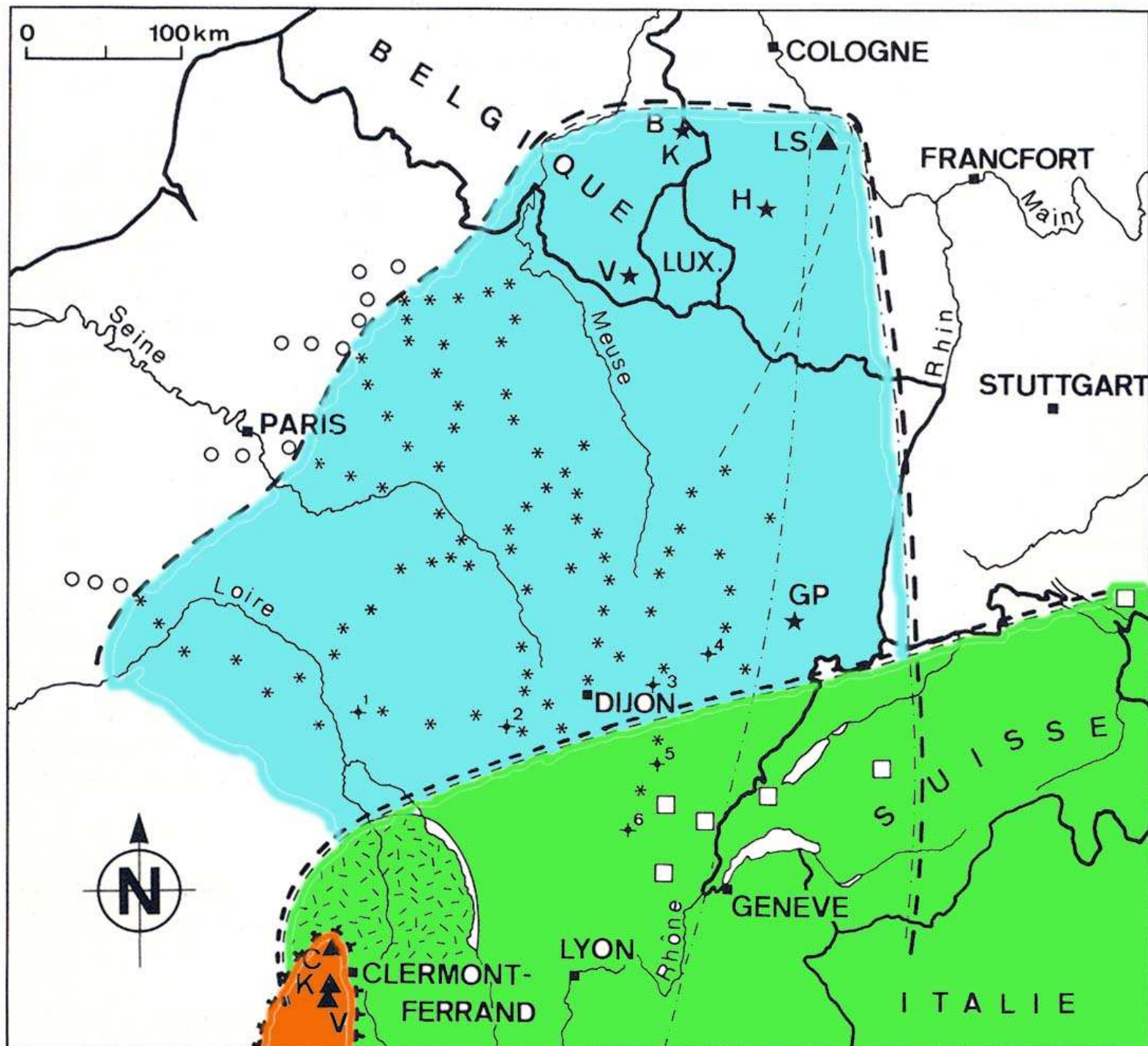


Danielsen, 1981

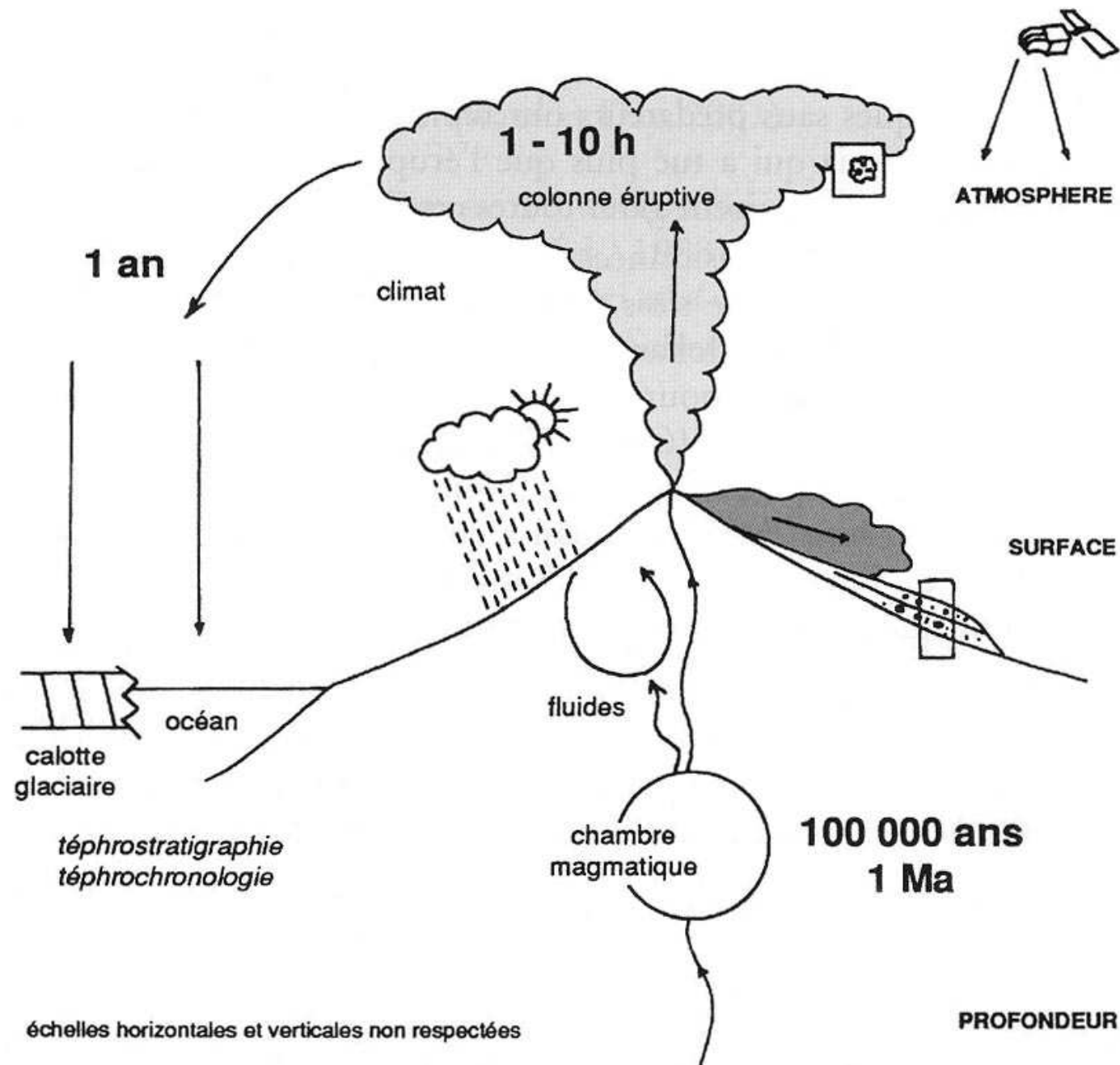
La progression du nuage du Mont Saint Helens, le 18 Mai 1980



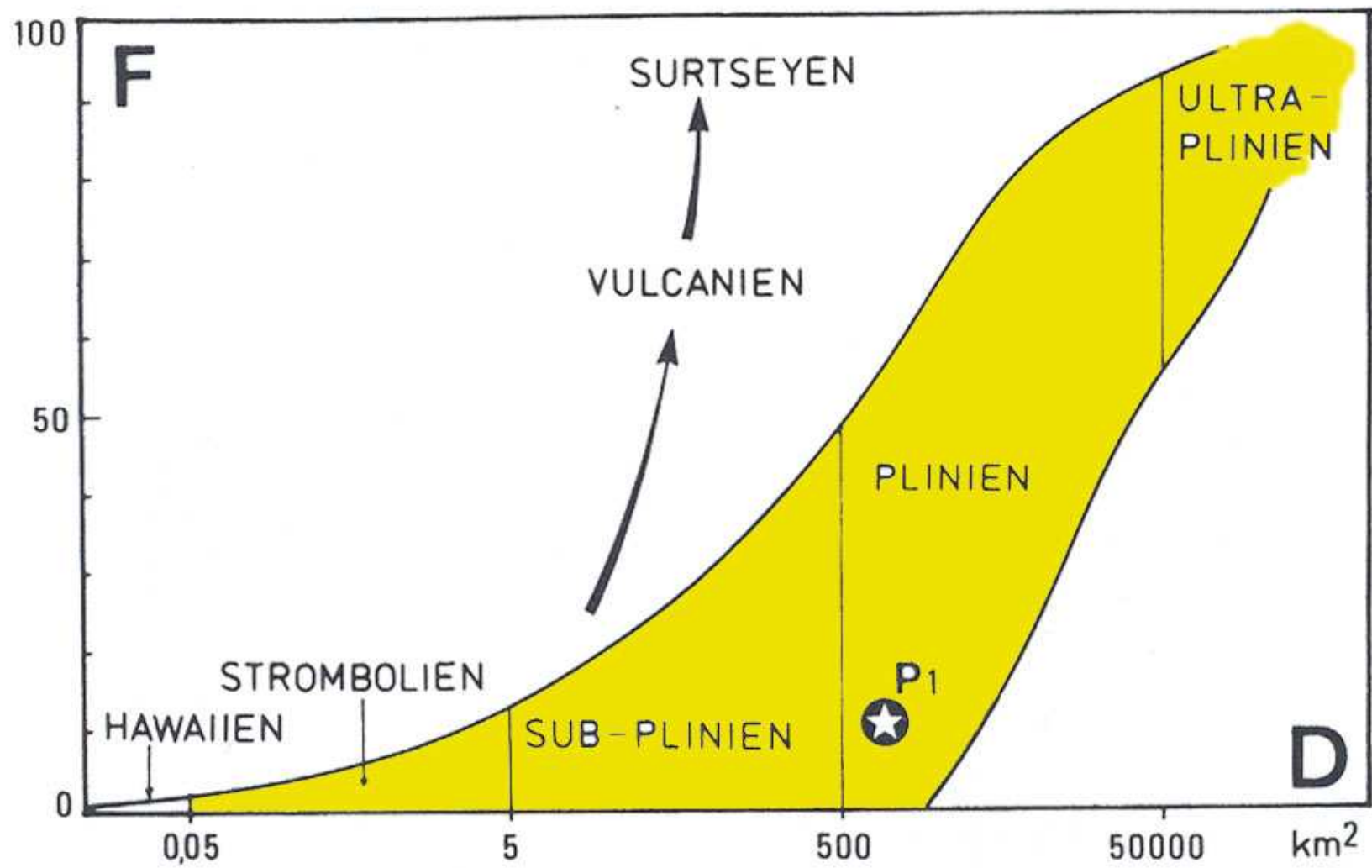
Source : D'après Sama-Wojcicki et al., 1981



Juvigné
et al.



Bardintzeff,
1993, 2011

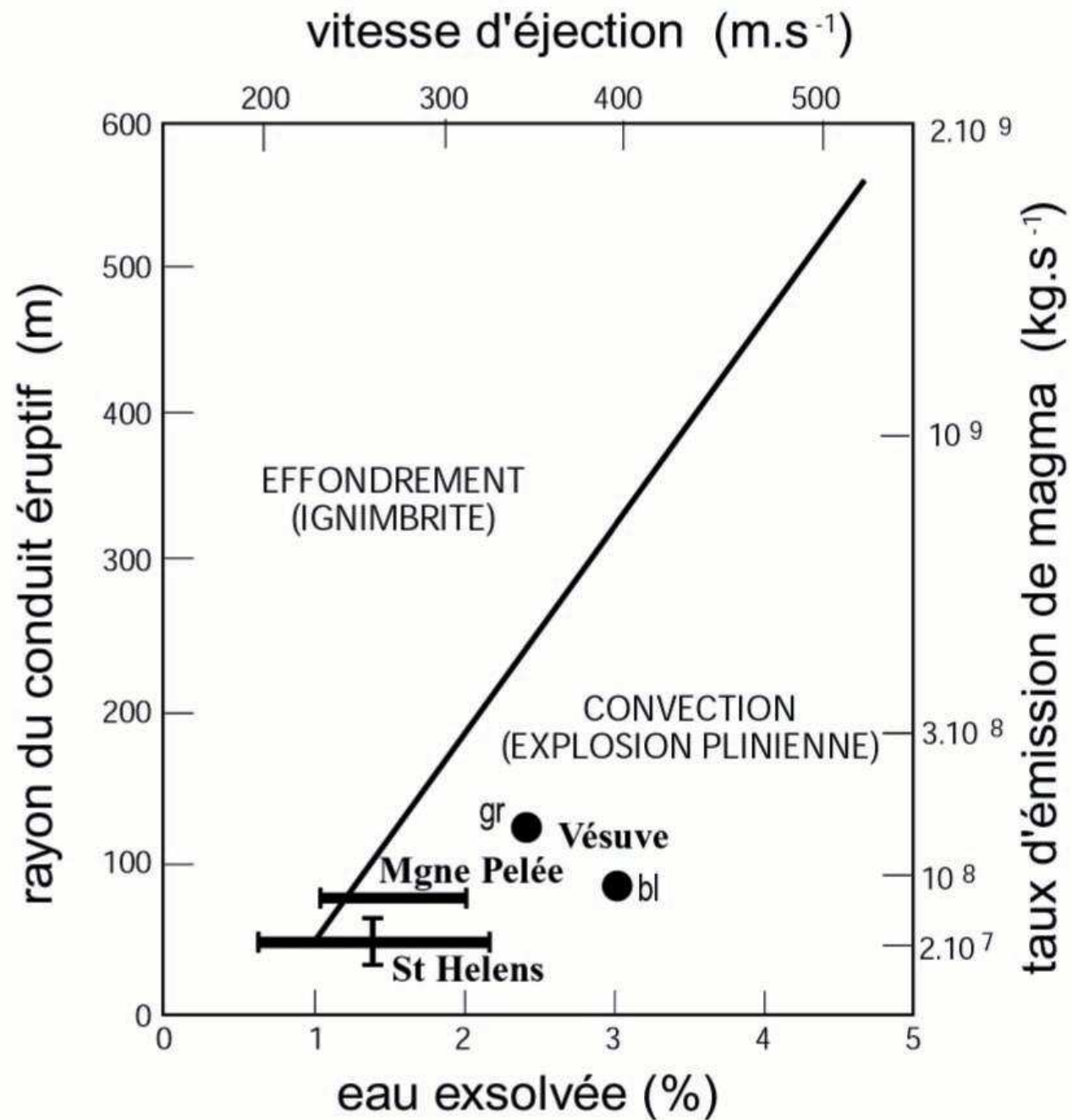


Échelle d'intensité des éruptions volcaniques

VEI (Volcanic Explosivity Index)

Newhall et Self

VEI	description	hauteur panache	volume	type	fréquence	exemple
0	non-explosive	< 100 m	1000s m ³	hawaïen	jour	Kilauea
1	« gentille »	100m-1km	10000s m ³	strombolien	jour	Stromboli
2	explosive	1-5 km	1000000s m ³	vulcanien	semaine	Galeras 1992
3	« sévère »	3-15 km	0,01s km ³	vulcanien	année	Nevado del Ruiz 1985
4	cataclysmale	10-25 km	0,1s km ³	sub-plinien	10s ans	Galunggung 1982
5	paroxysmale	> 25 km	1 km ³	plinien	100s ans	St. Helens 1980
6	colossale	> 25 km	10s km ³	plinien	100s ans	Krakatoa 1883
7	super colossale	> 25 km	100s km ³	ultra-plinien	1000s ans	Tambora 1815
8	méga colossale	> 25 km	1000s km ³	ultra-plinien	10000s ans	Yellowstone 2 Ma



Wilson et al.



R. Hoblitt, USGS



Éruption péléenne

Dôme

Explosion du dôme



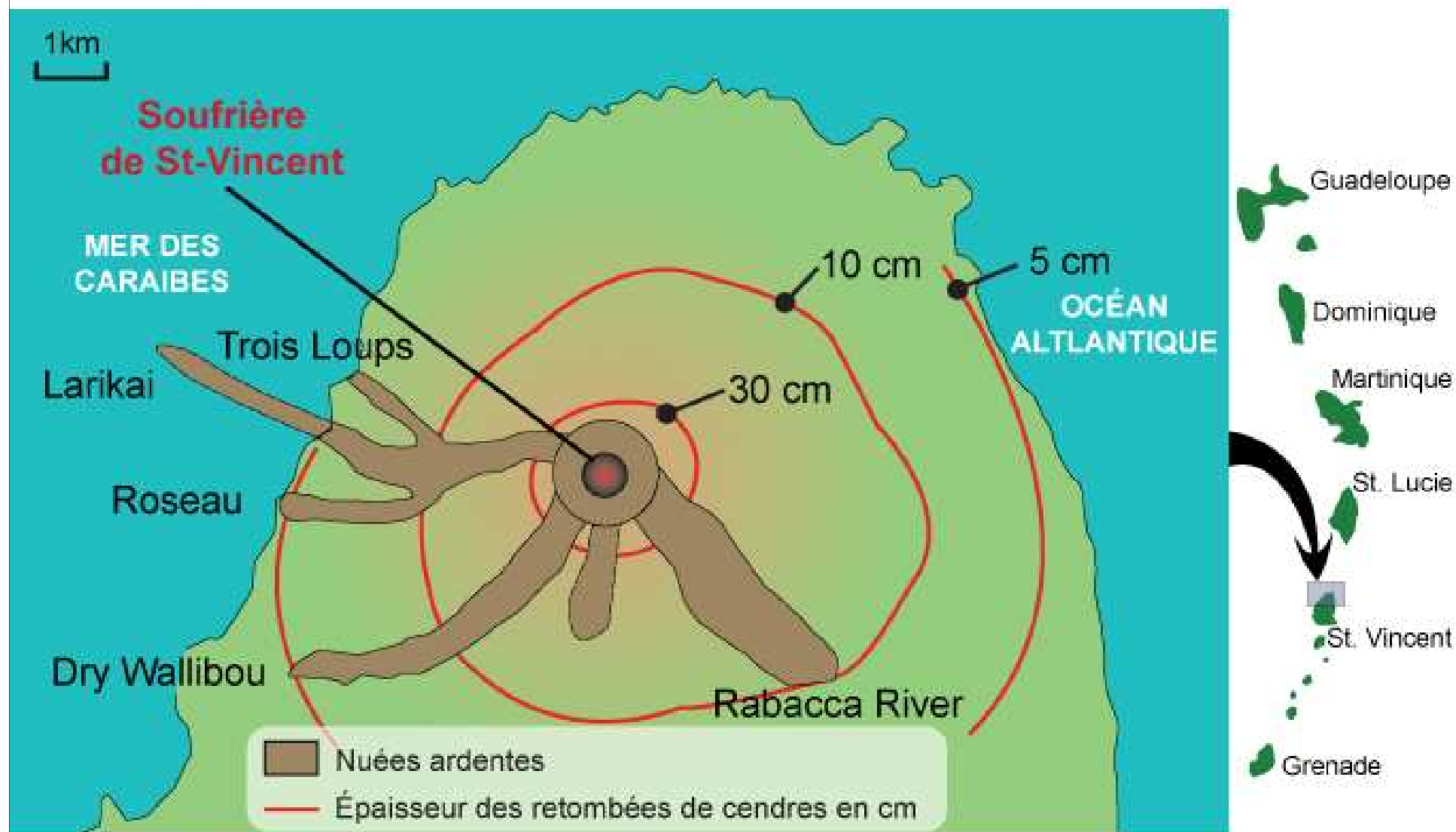






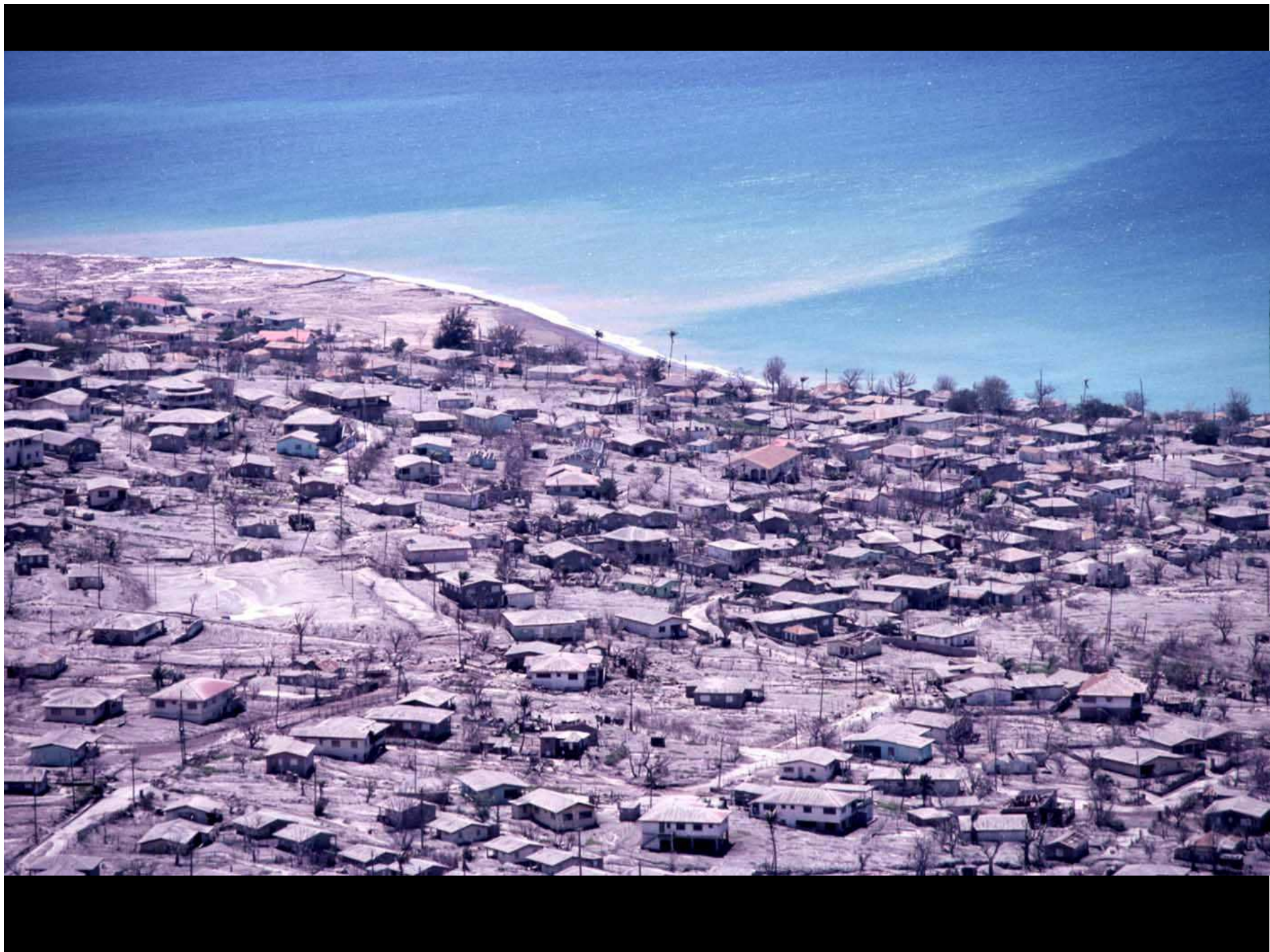


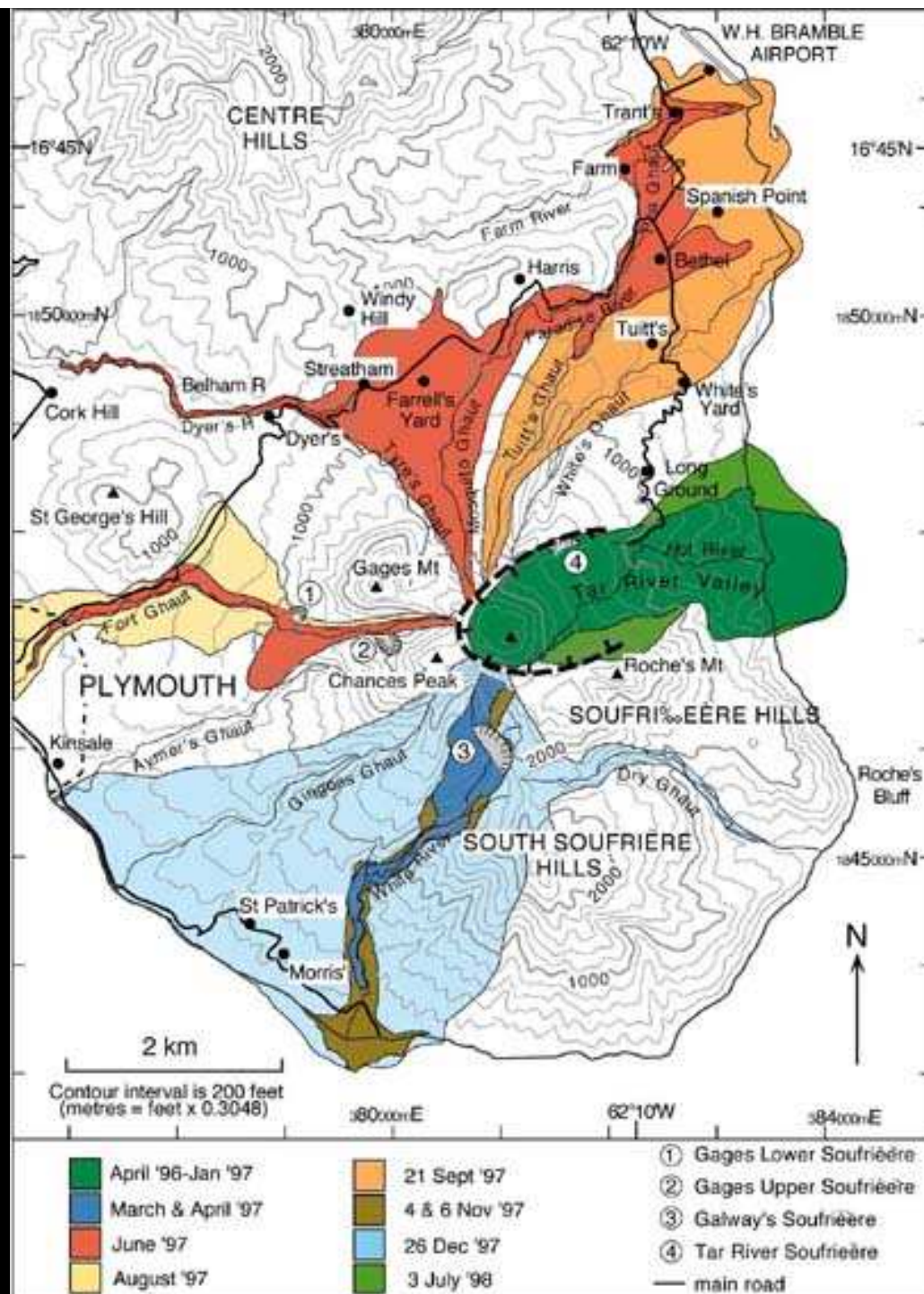
L'extention des dépôts de l'éruption de la Soufrière de Saint-Vincent, en Avril-Mai 1979



D'après Bardintzeff et Boudon, 1979

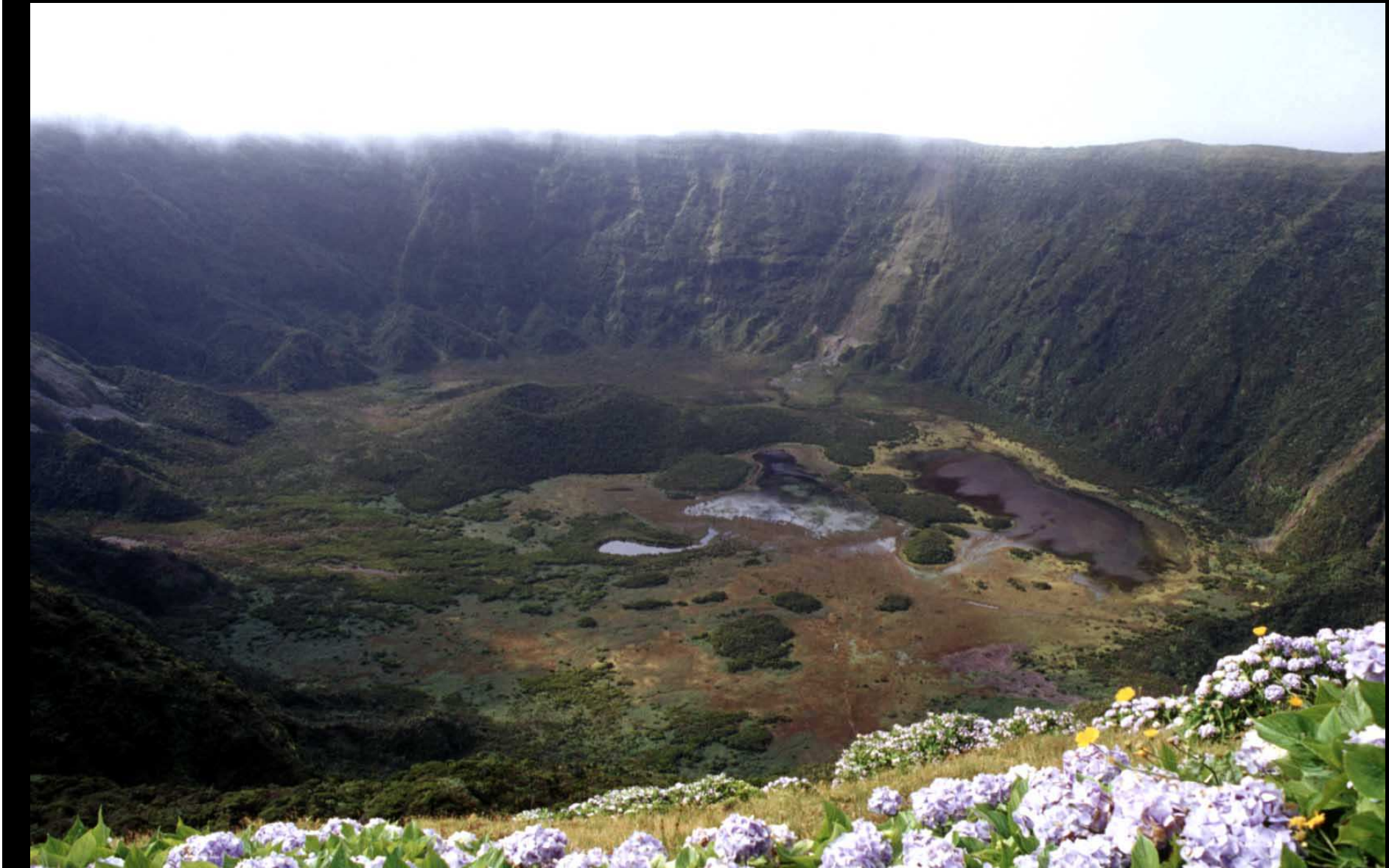






Cole et al., 2002

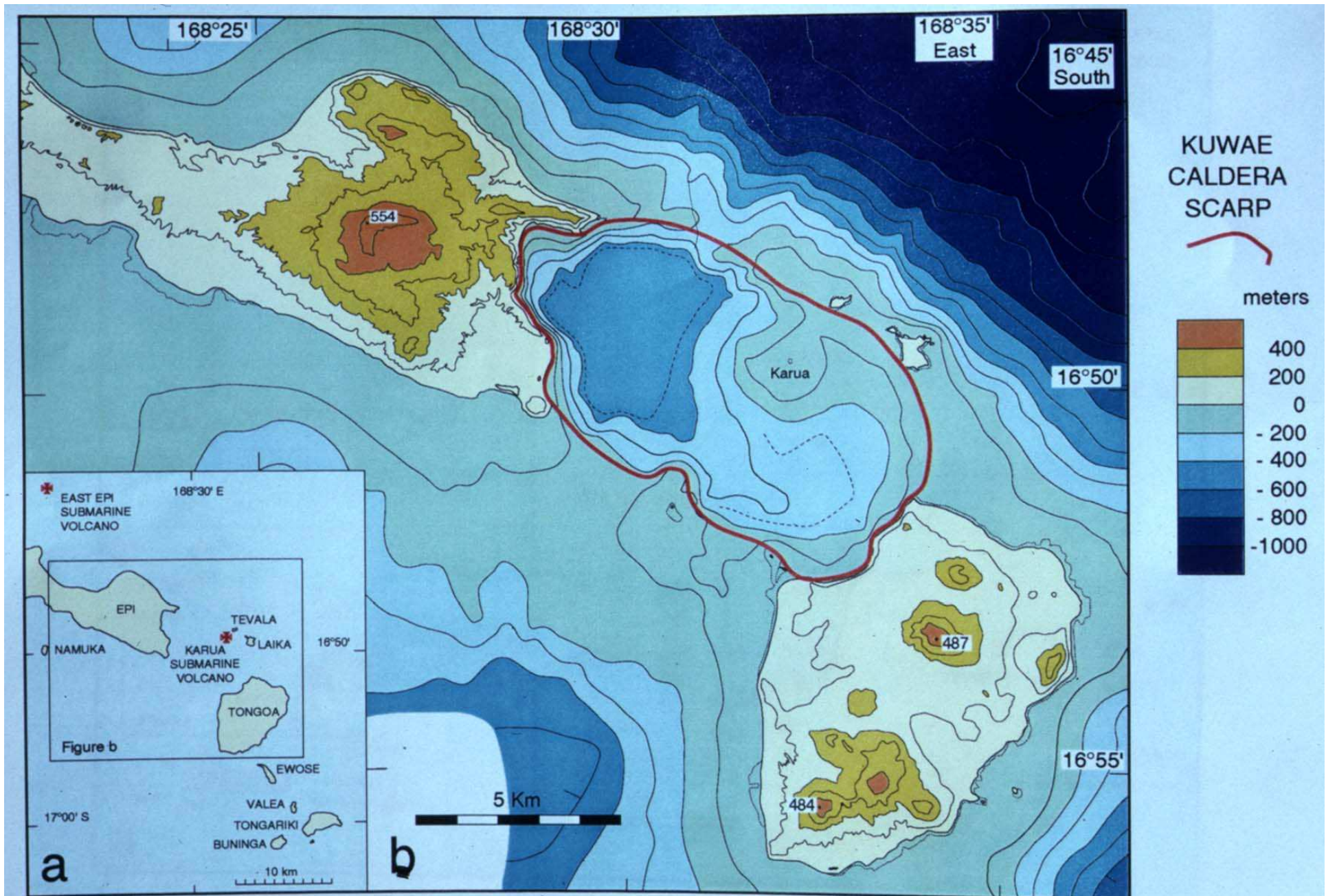
caldeiras



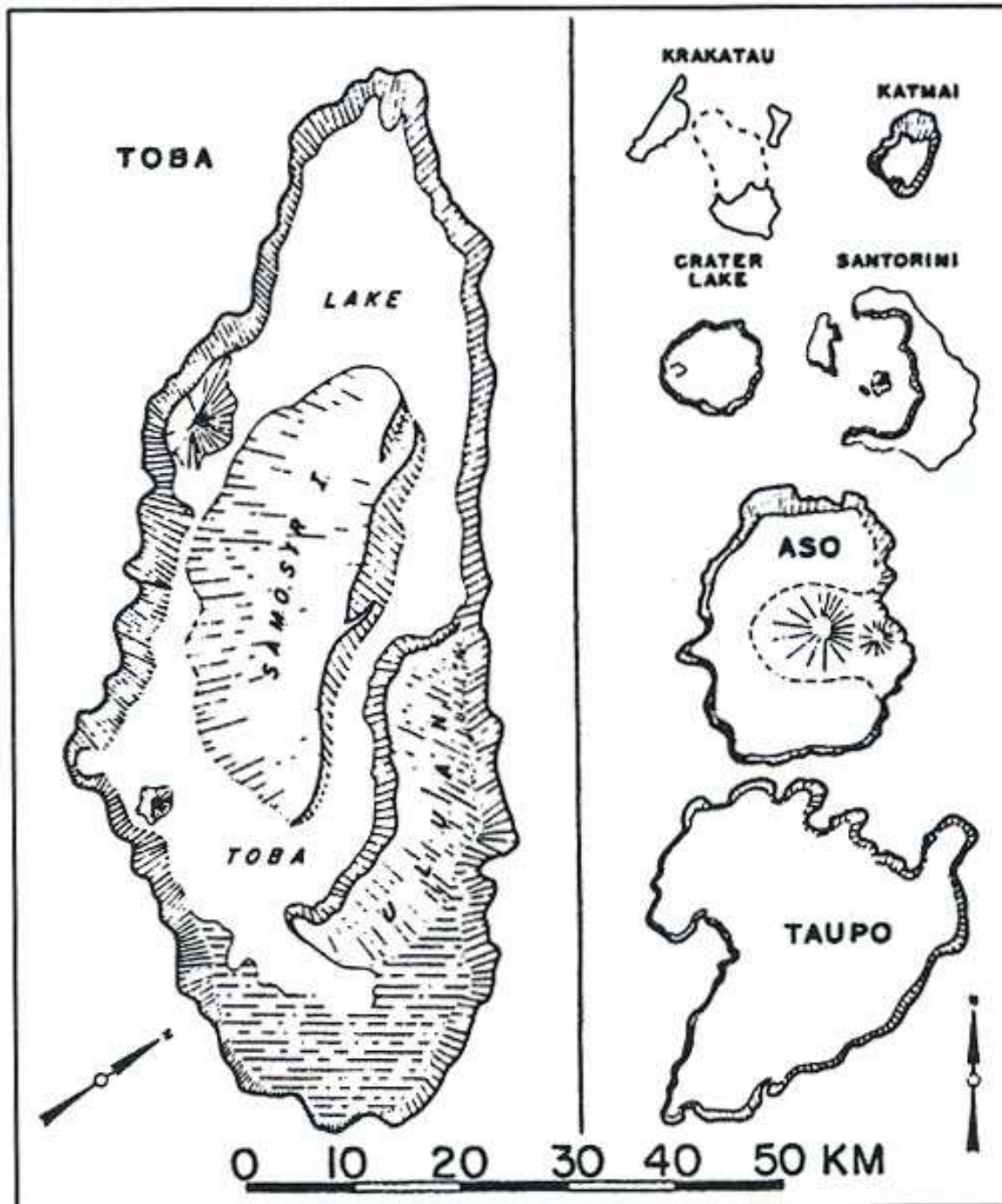




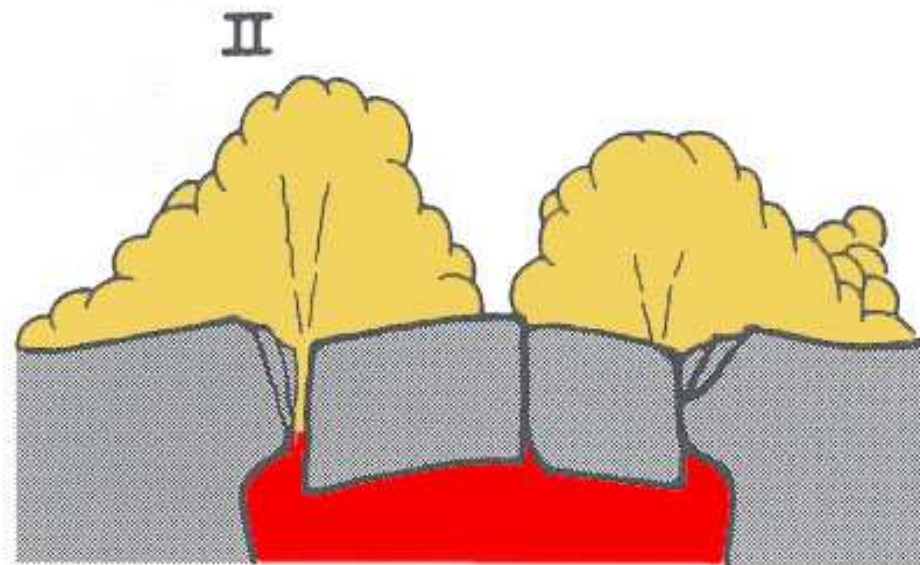
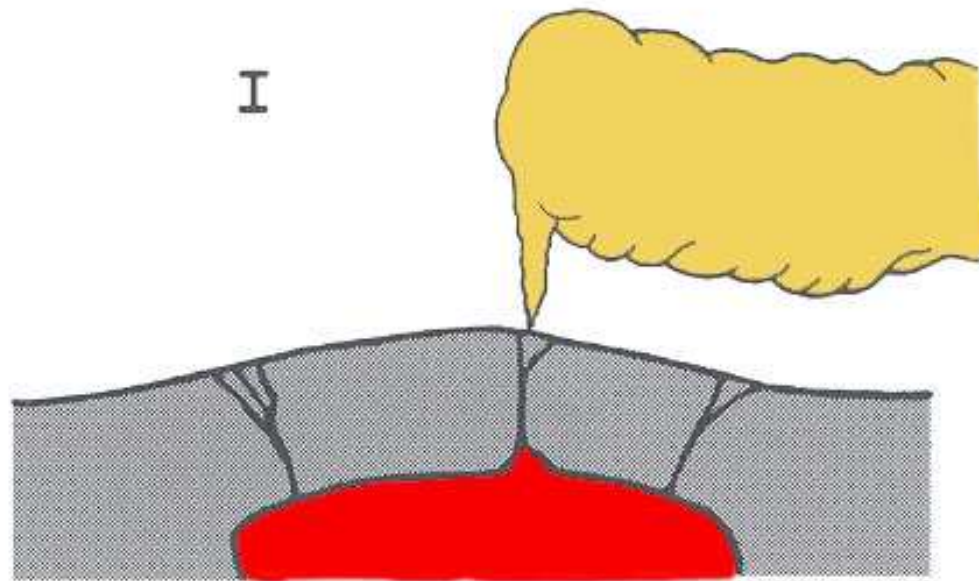


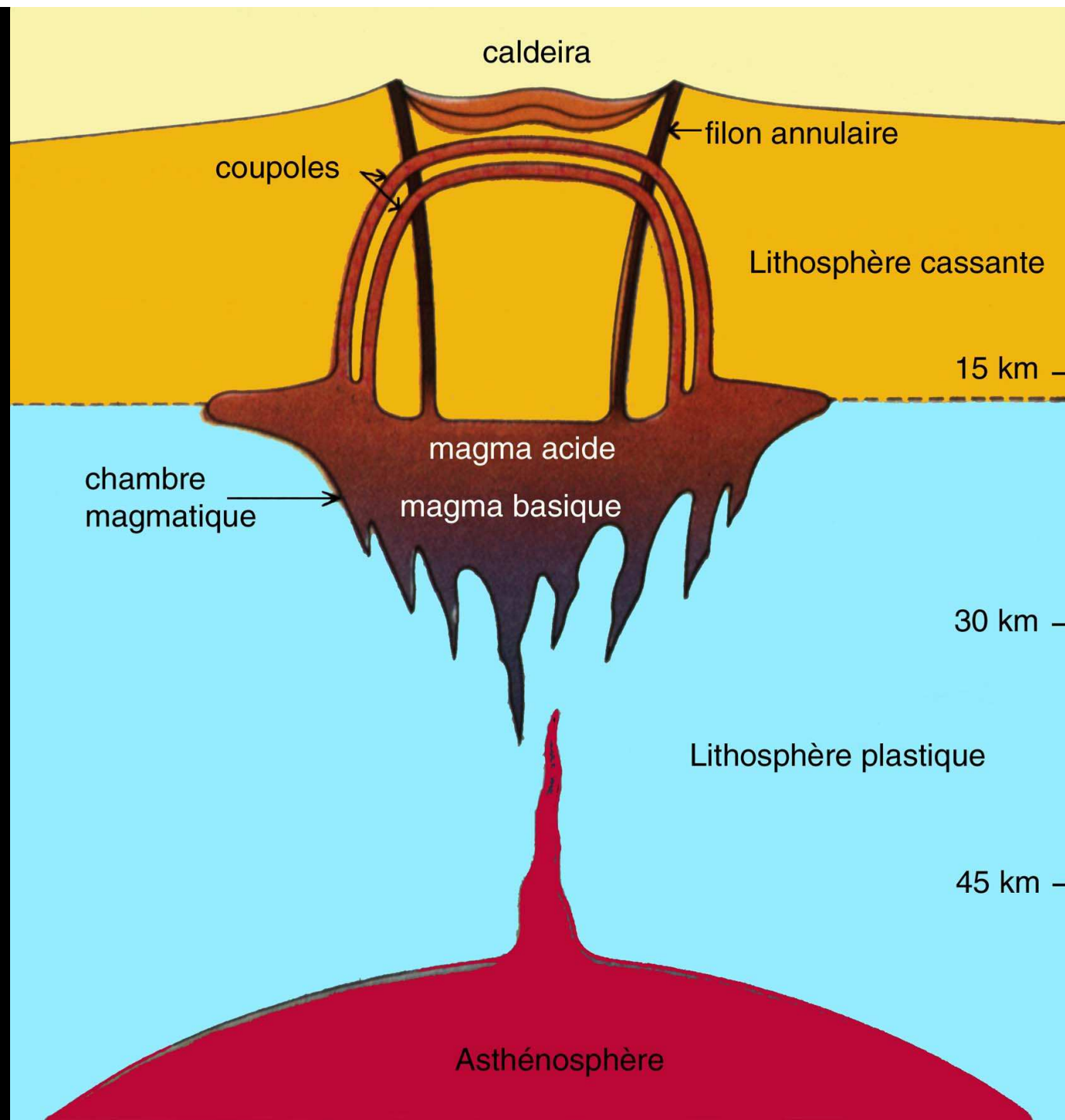


Monzier et al.



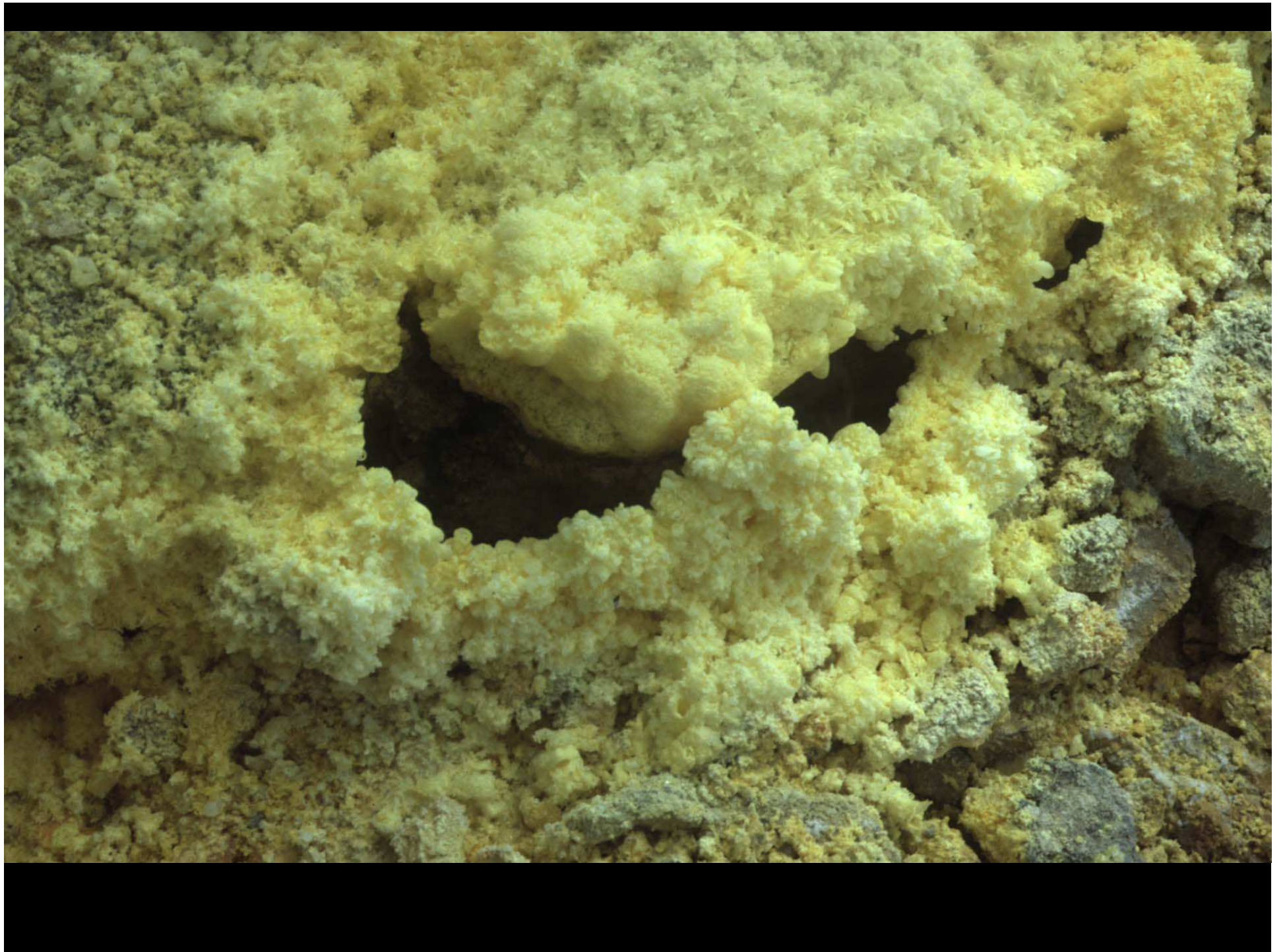
Ninkovich et al.





Bonin, 1980



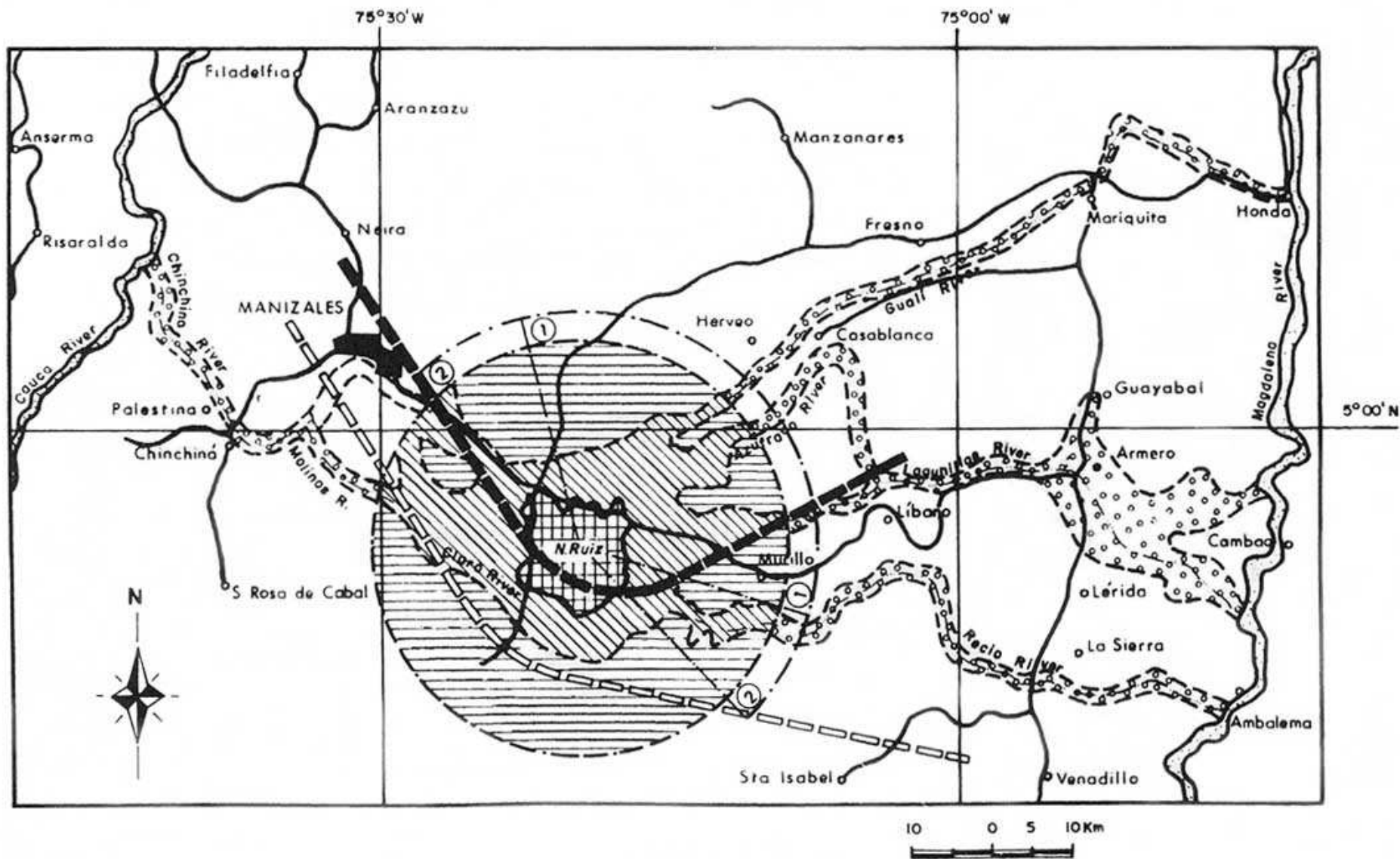
















地震

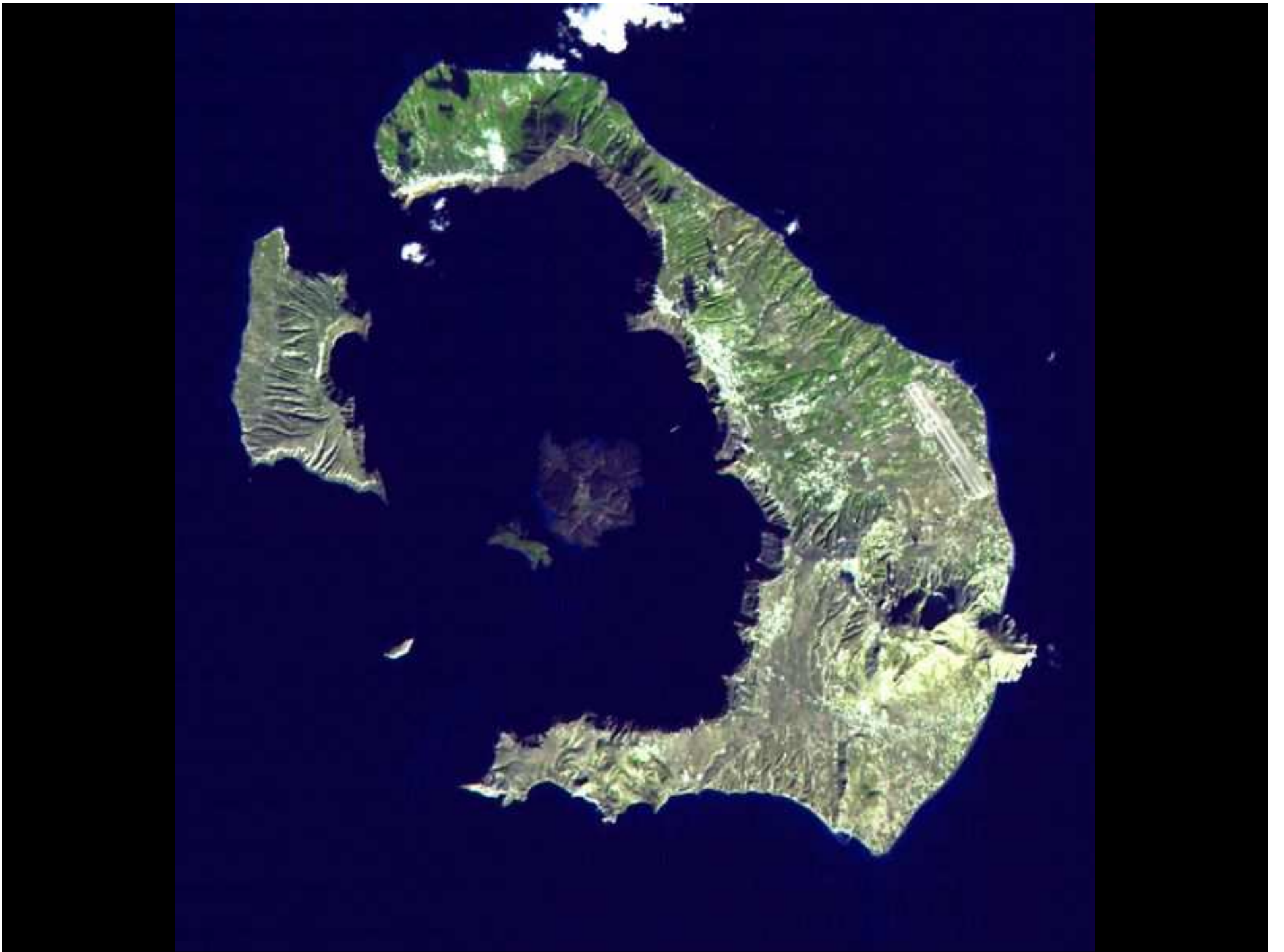
津波

CAUTION TSUNAMI HAZARD AREA

すぐに高い所へひなん

伊東市

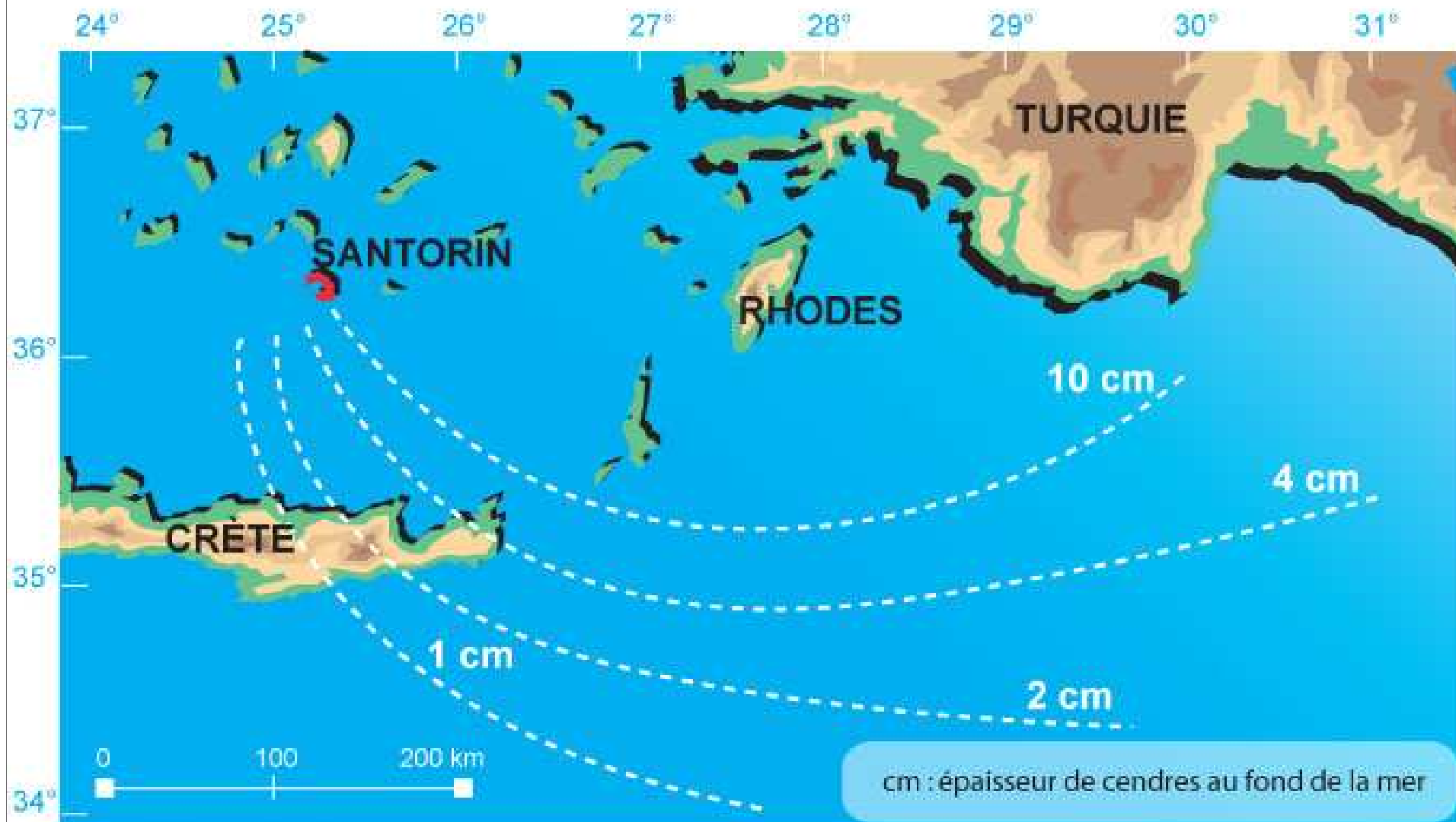
八幡野
428
32.11
15







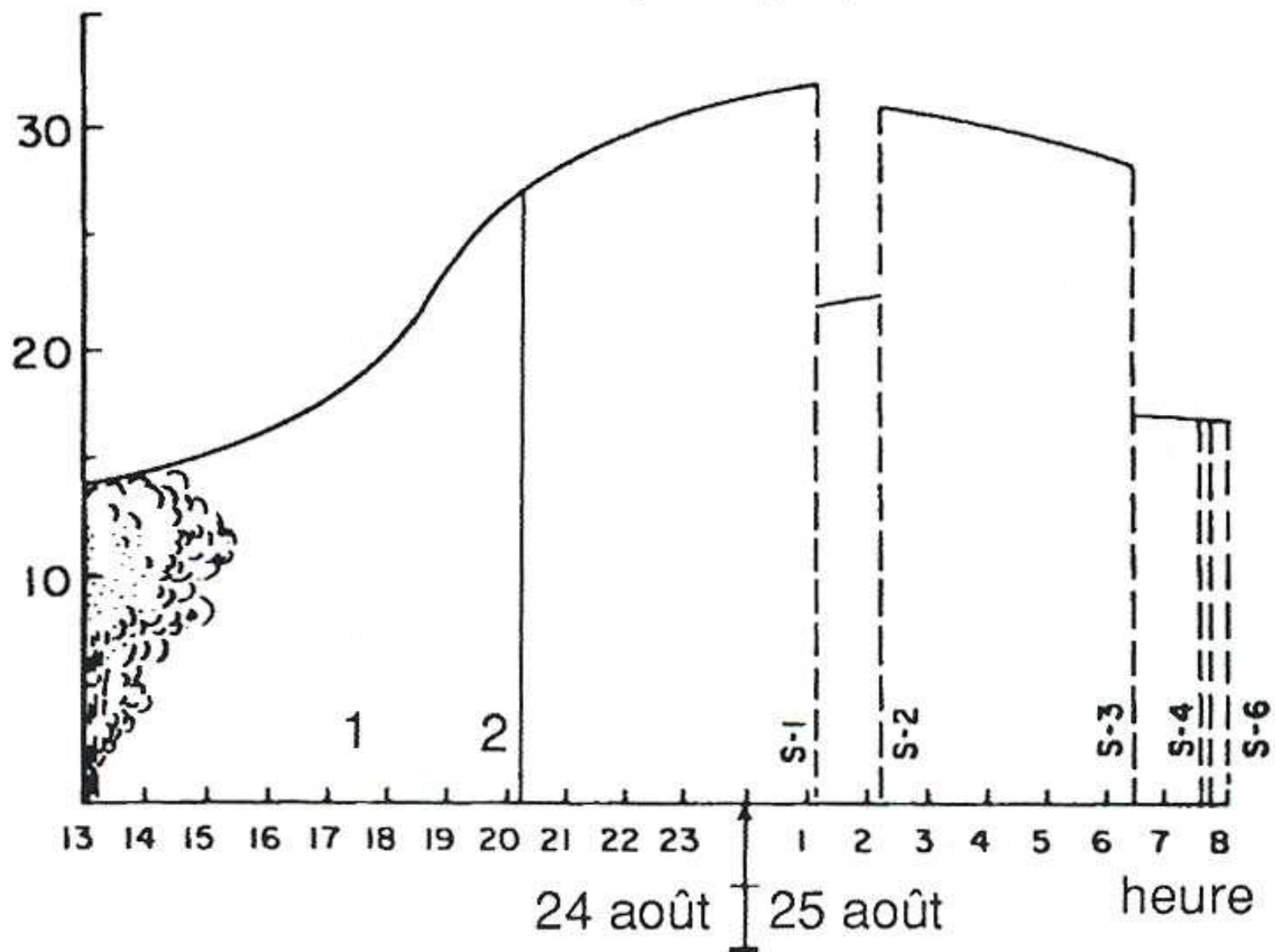
Les retombées de cendres lors de l'éruption du Santorin (il y a 3500 ans environ)



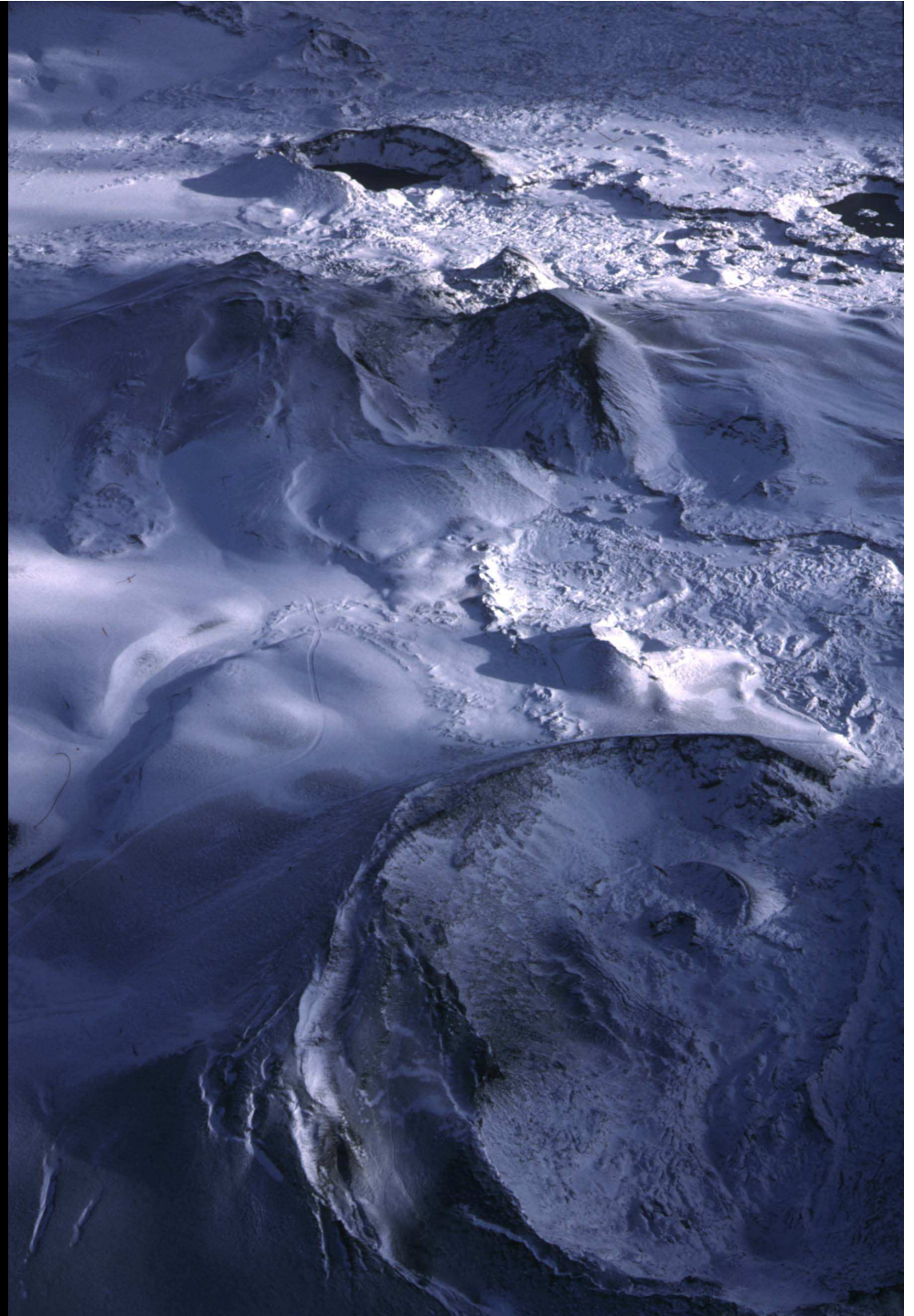
Source : Watkins et al., 1978

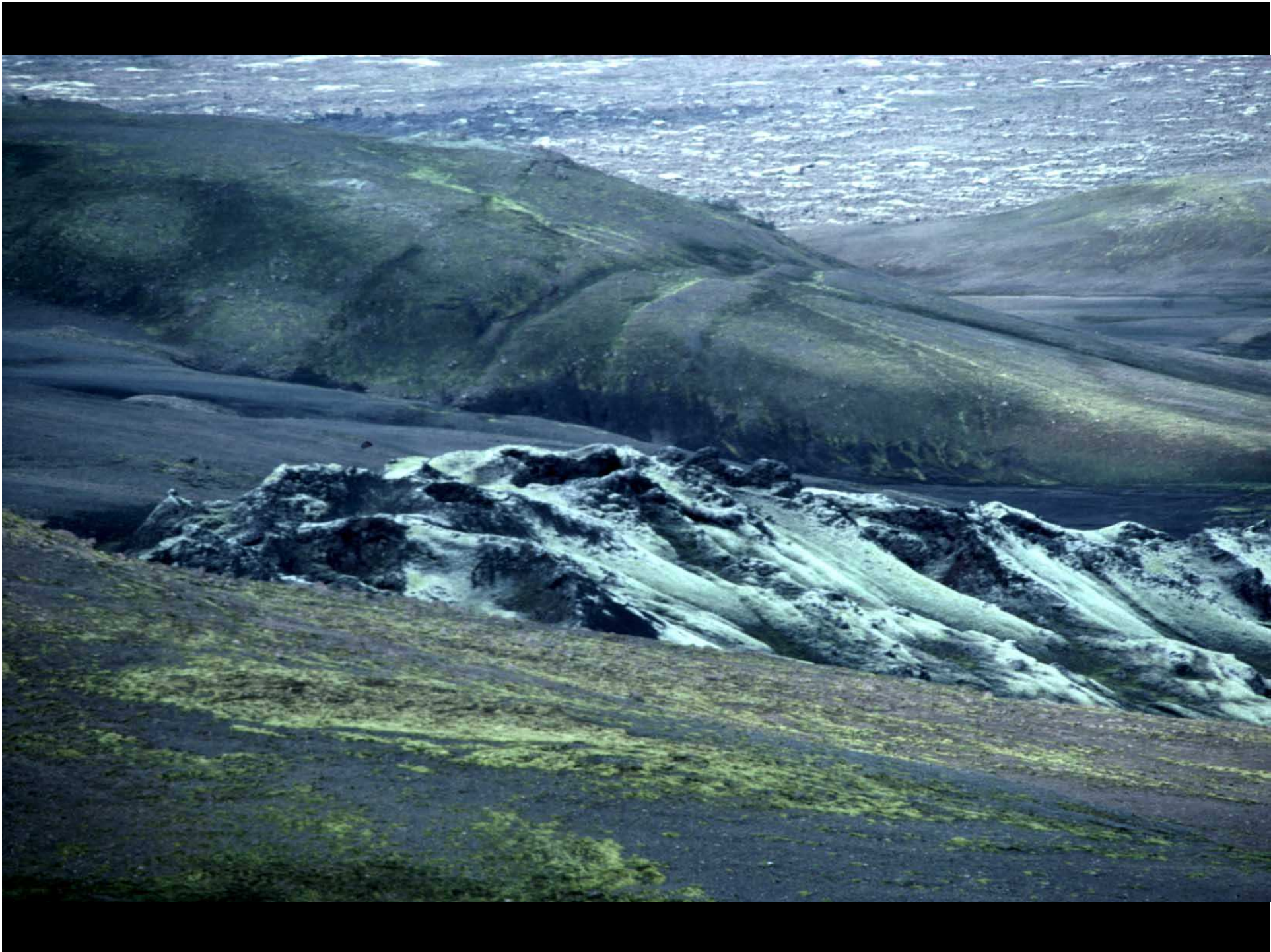


hauteur de la colonne éruptive (km)

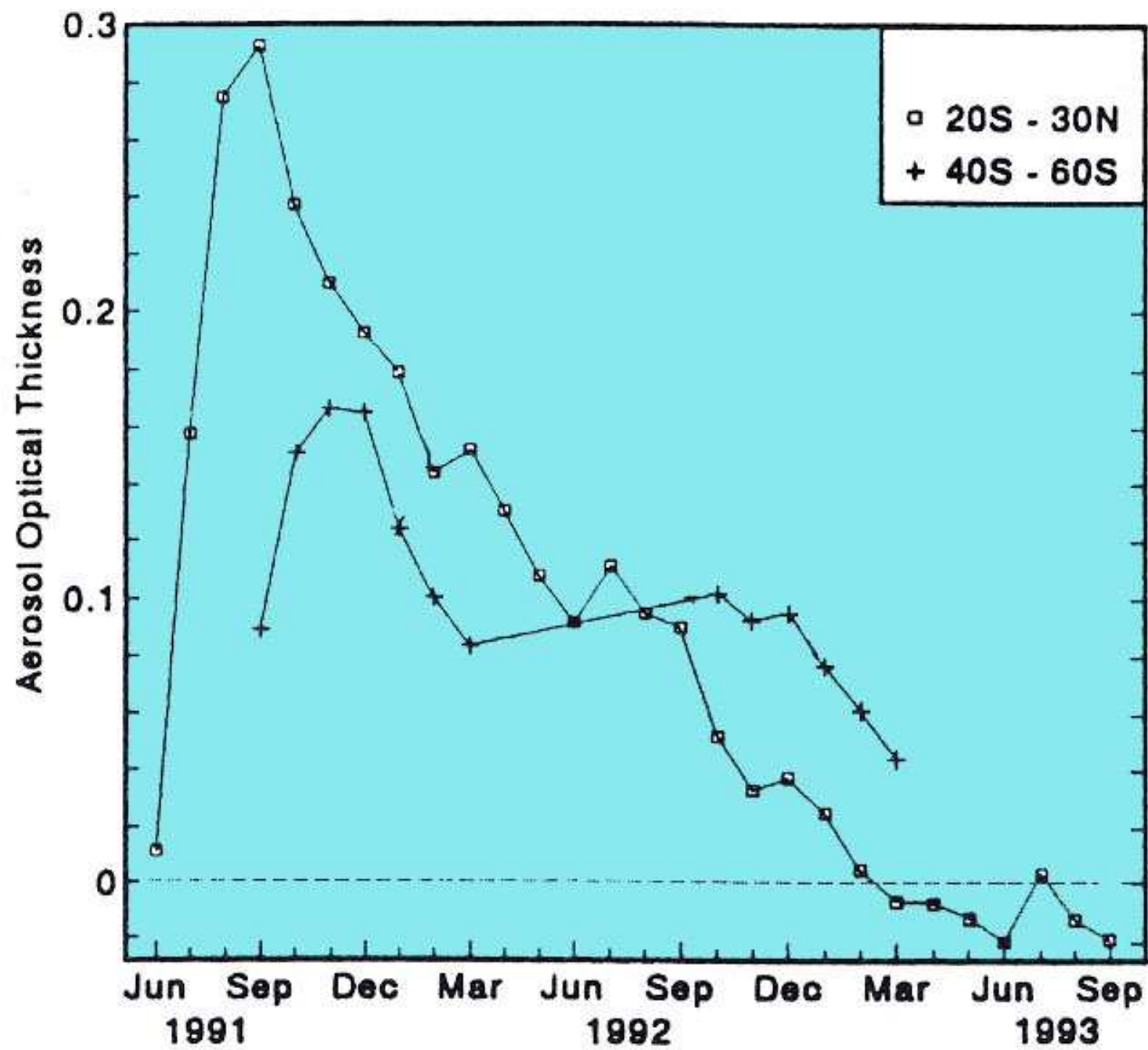


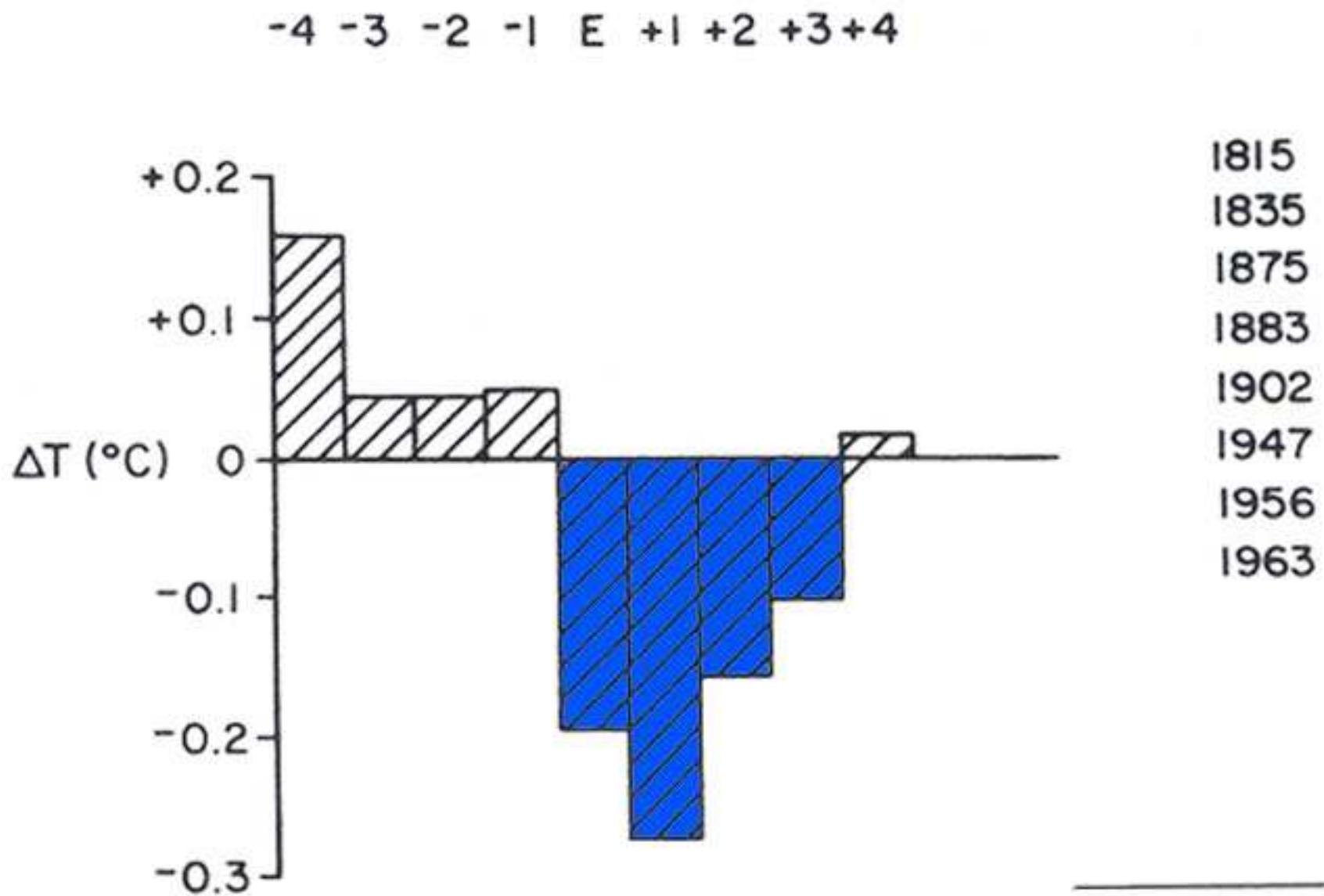
impact
climatique









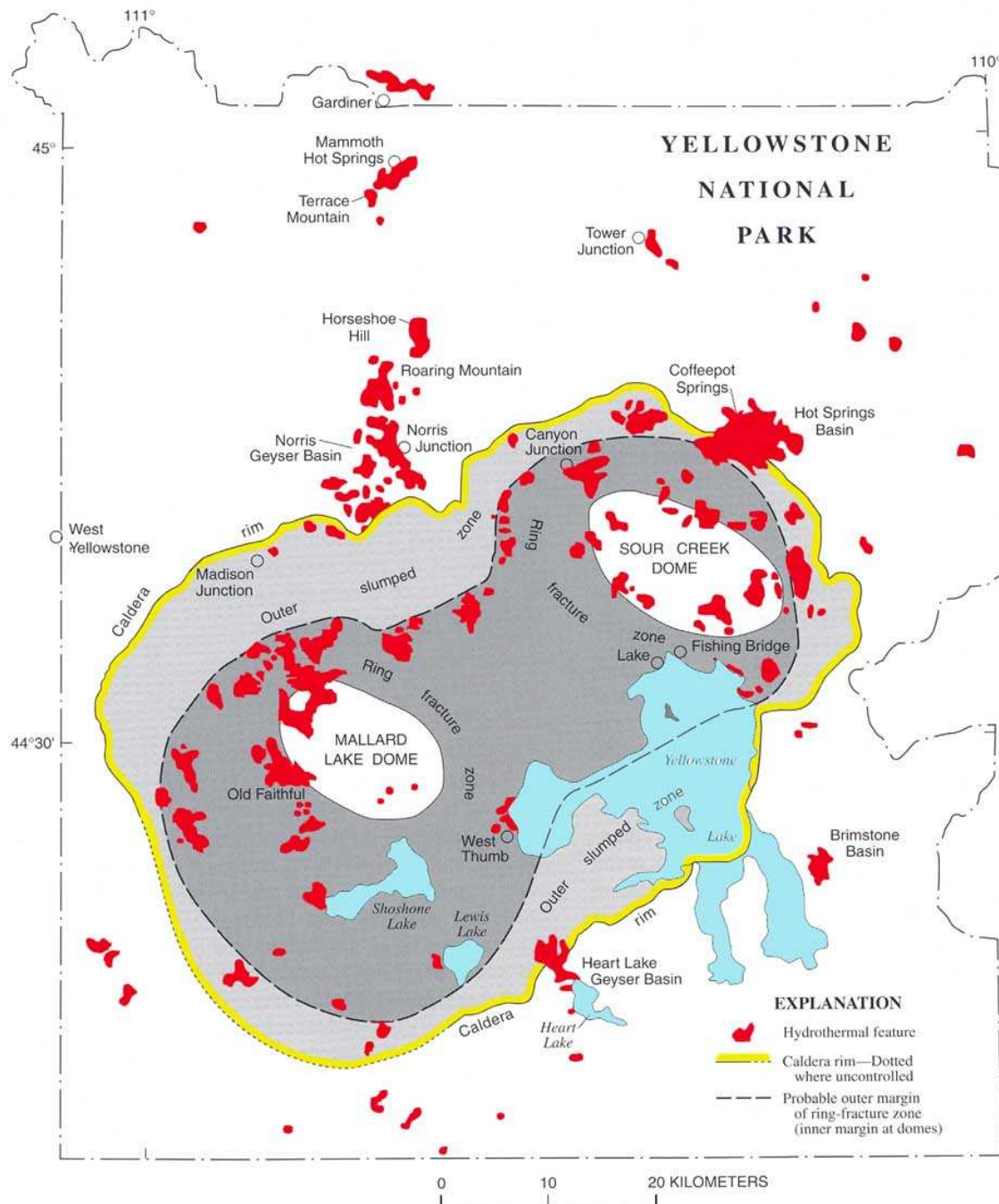


supervolcan?









Christiansen, 2001



Isabelle
Bardintzeff





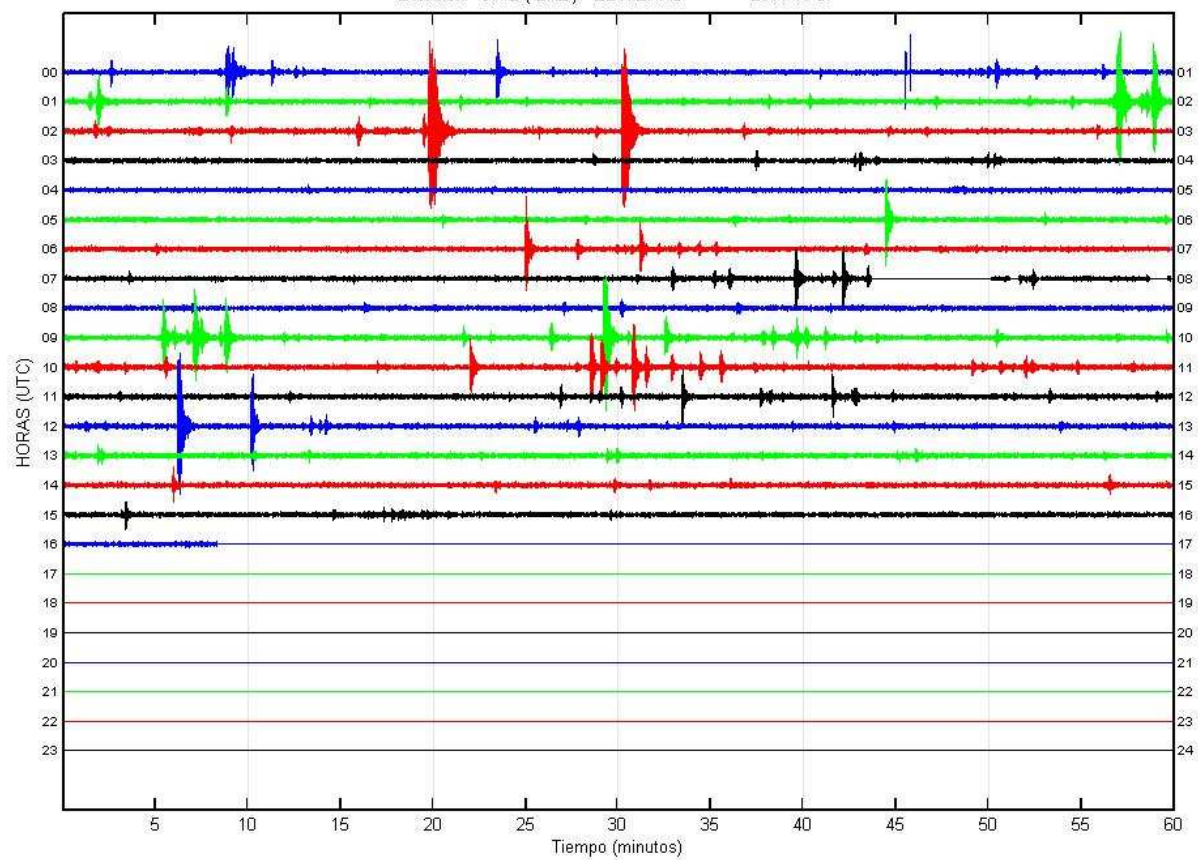




INSTITUTO GEOGRÁFICO NACIONAL

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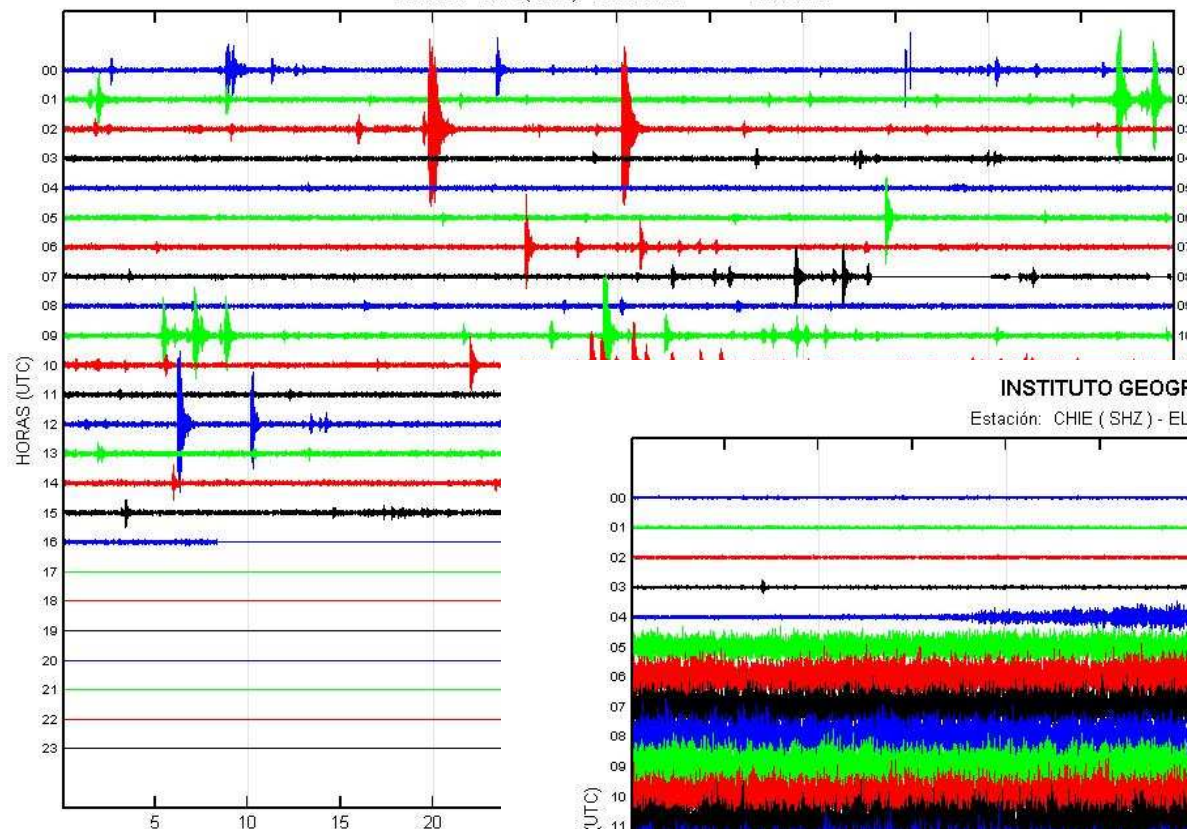
2011-10-07



INSTITUTO GEOGRÁFICO NACIONAL

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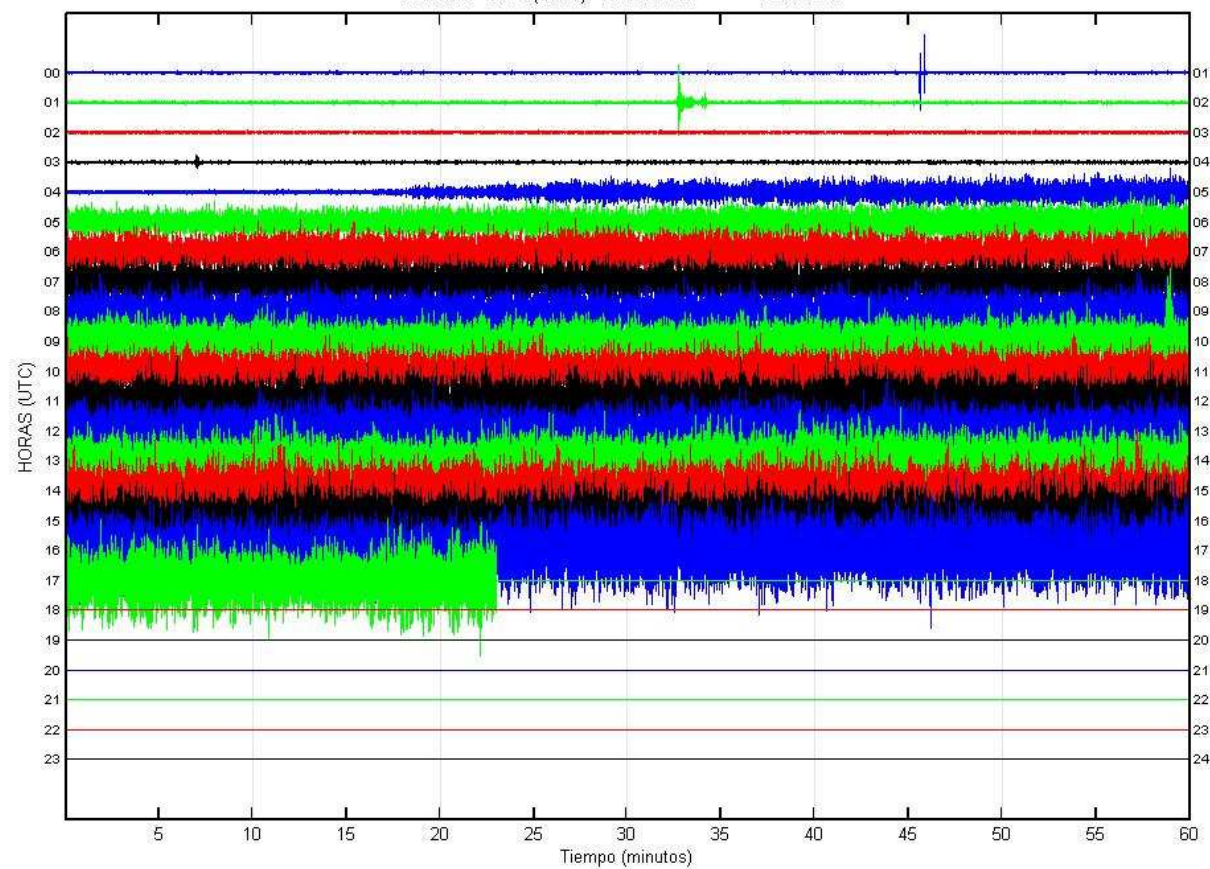
2011-10-07



INSTITUTO GEOGRÁFICO NACIONAL

Estación: CHIE (SHZ) - EL HIERRO

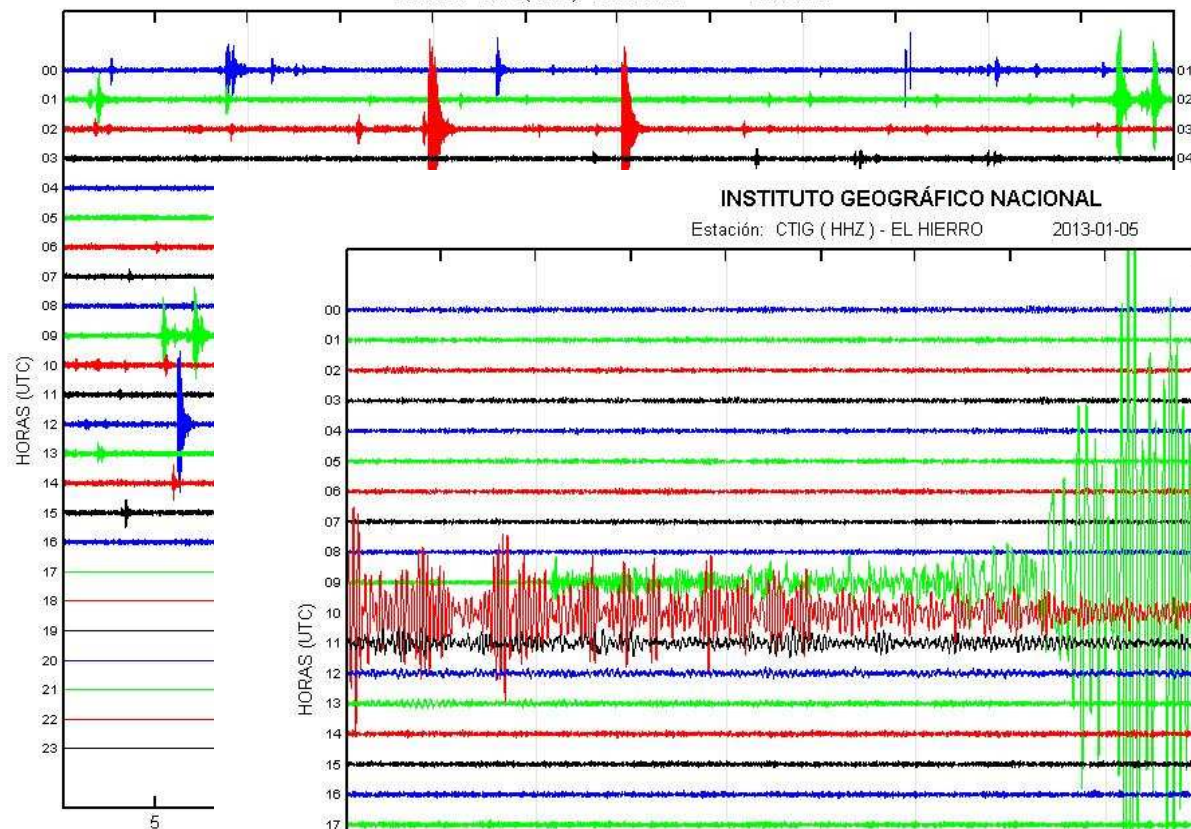
2011-10-10



INSTITUTO GEOGRÁFICO NACIONAL

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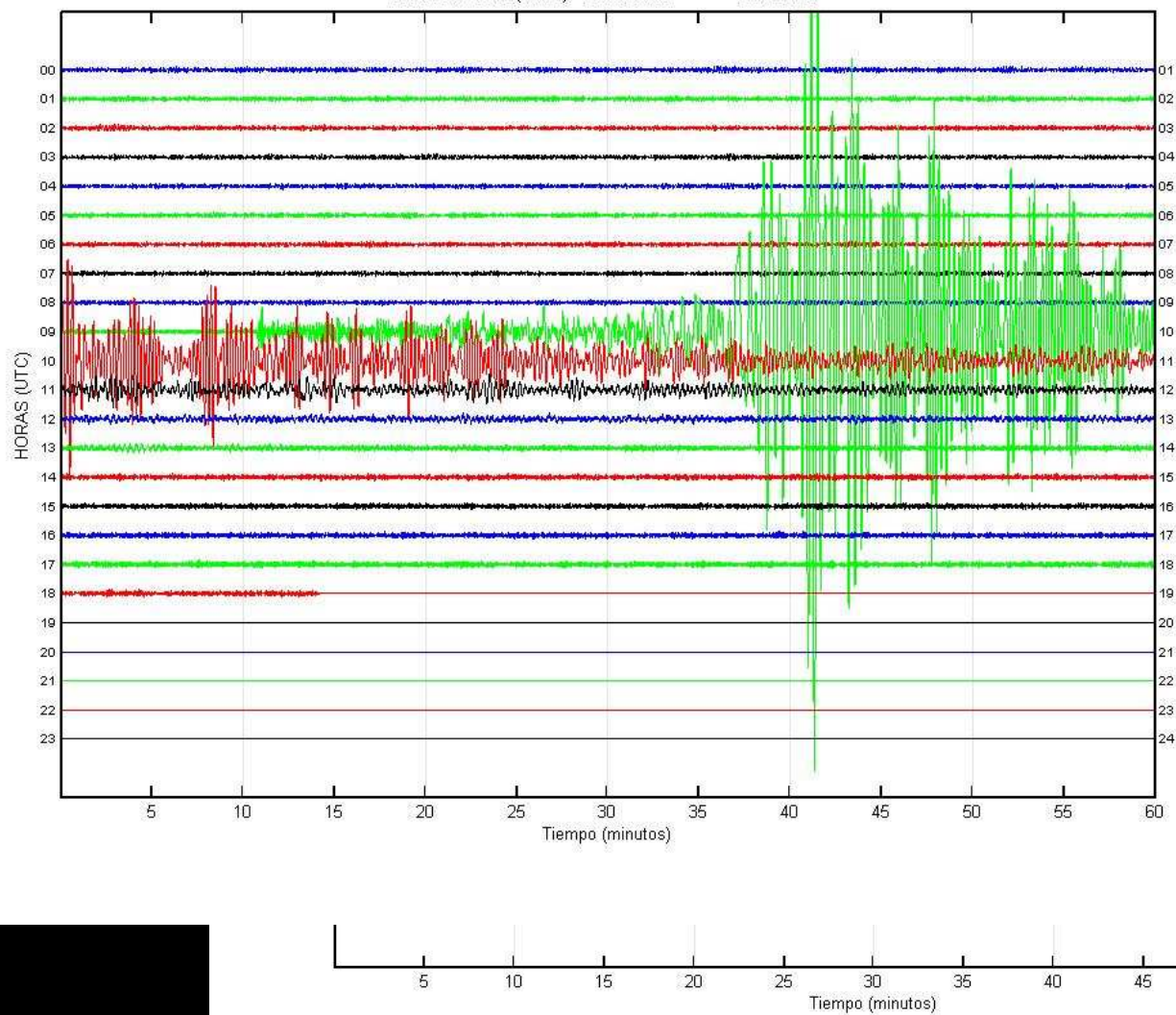
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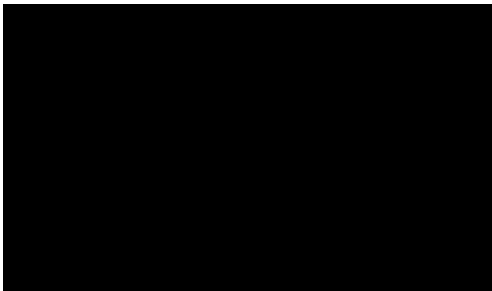
INSTITUTO GEOGRÁFICO NACIONAL

Estación: CTIG (HHZ) - EL HIERRO

2013-01-05





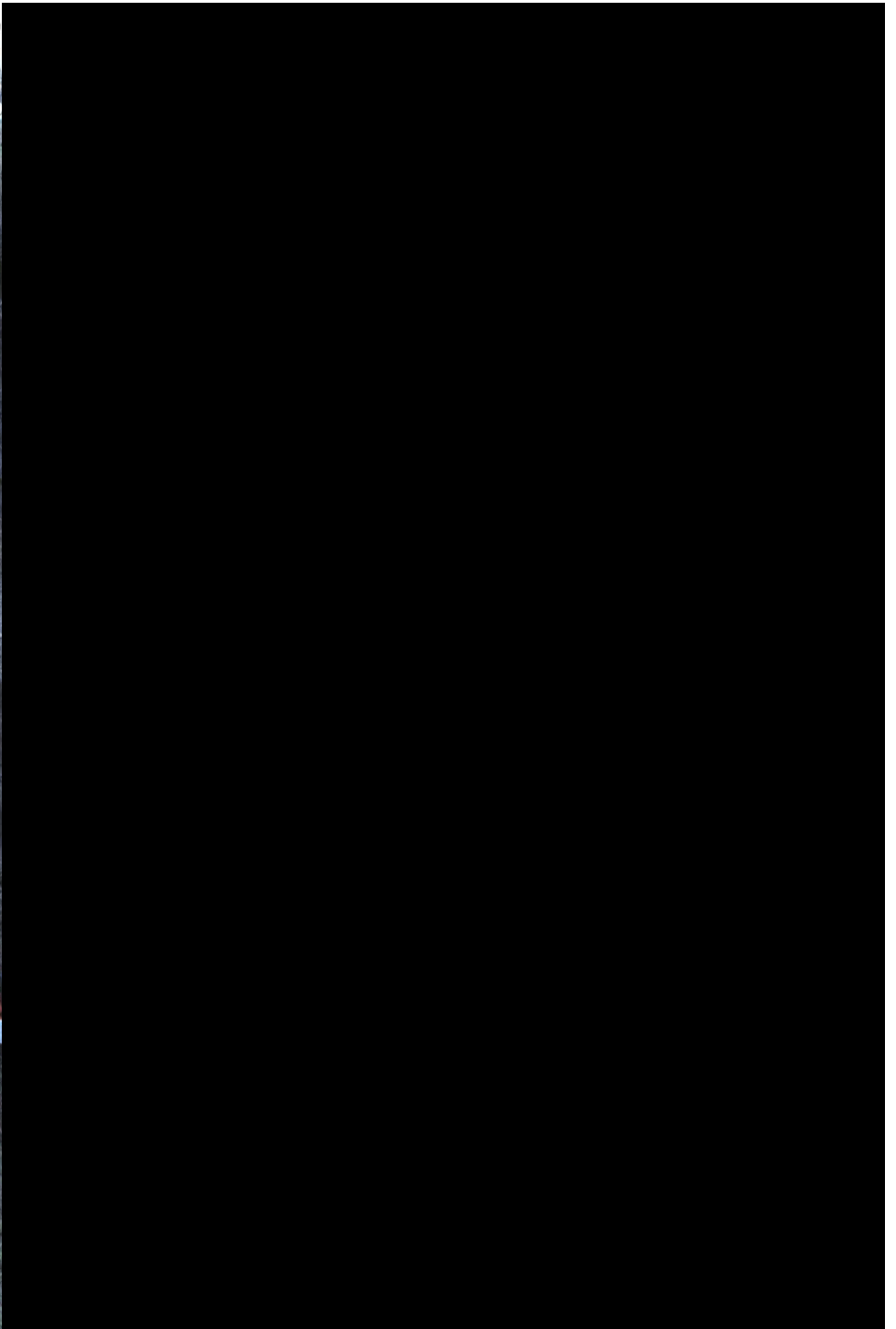
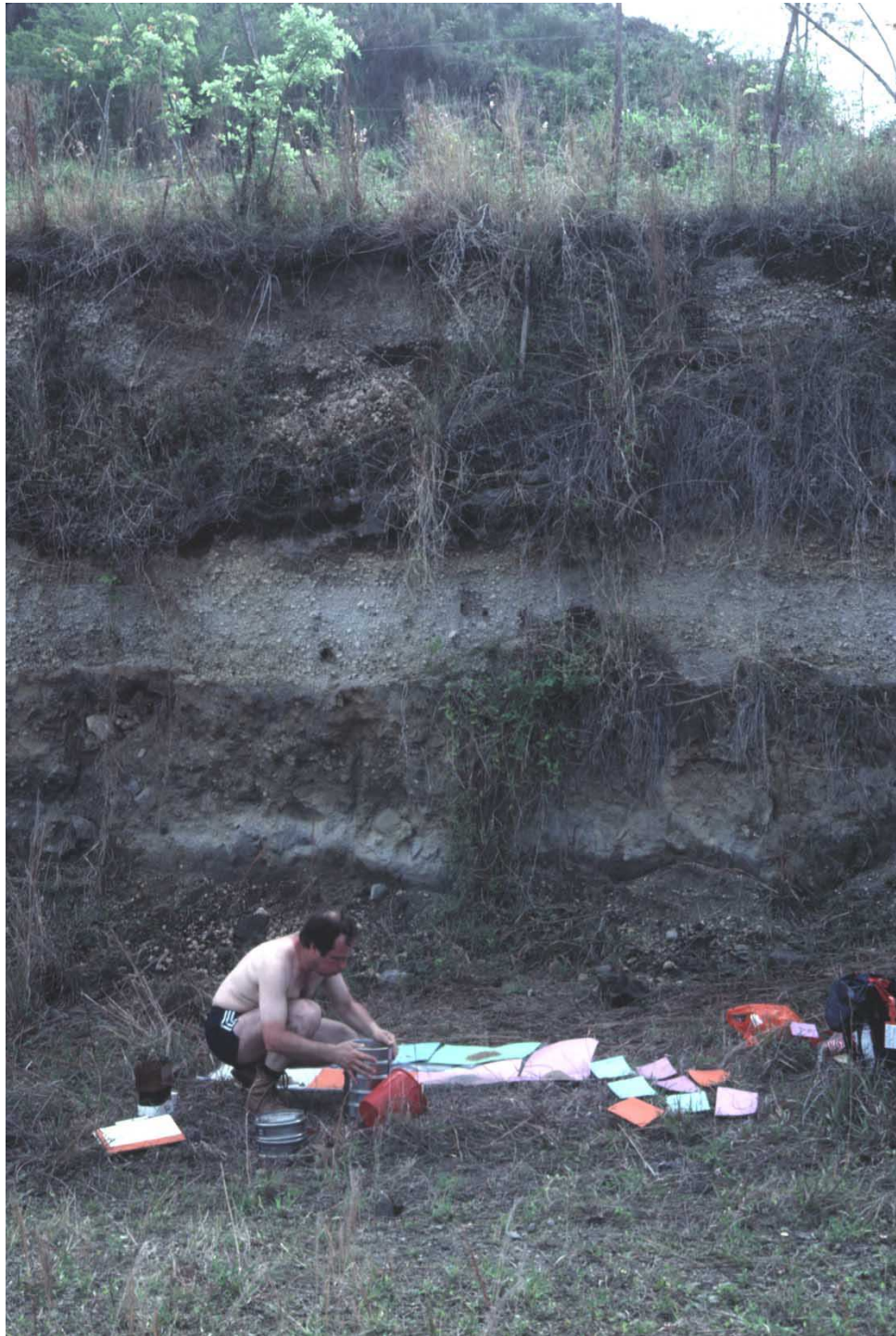


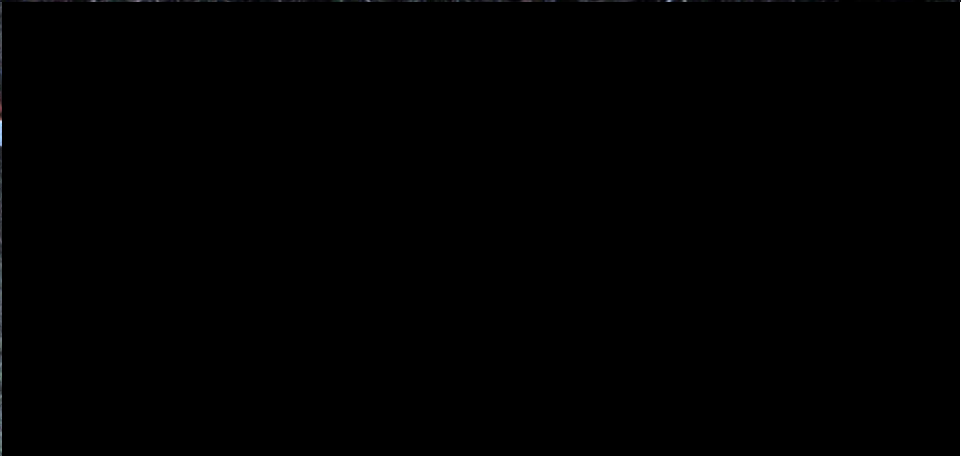












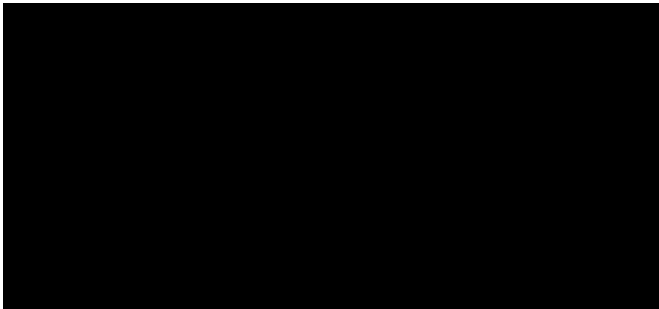
Les Volcans d'Auvergne











ERUPCION VOLCANICA



ANTES DURANTE DESPUES



SEÑALES EN CASO
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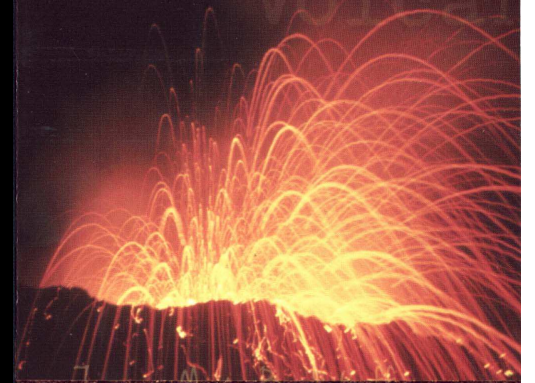
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H₂O CO₂ SiO₂ H₂S H₂O CO₂ SiO₂ H₂S

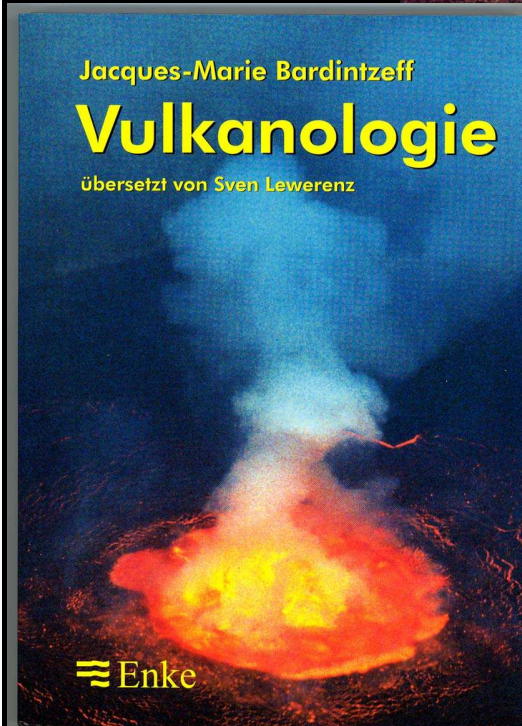


Jacques-Marie Bardintzeff
Alexander R. McBirney

Jacques-Marie Bardintzeff

Vulkanologie

übersetzt von Sven Lewerenz



Enke

Jacques-Marie Bardintzeff

**Islande 2014
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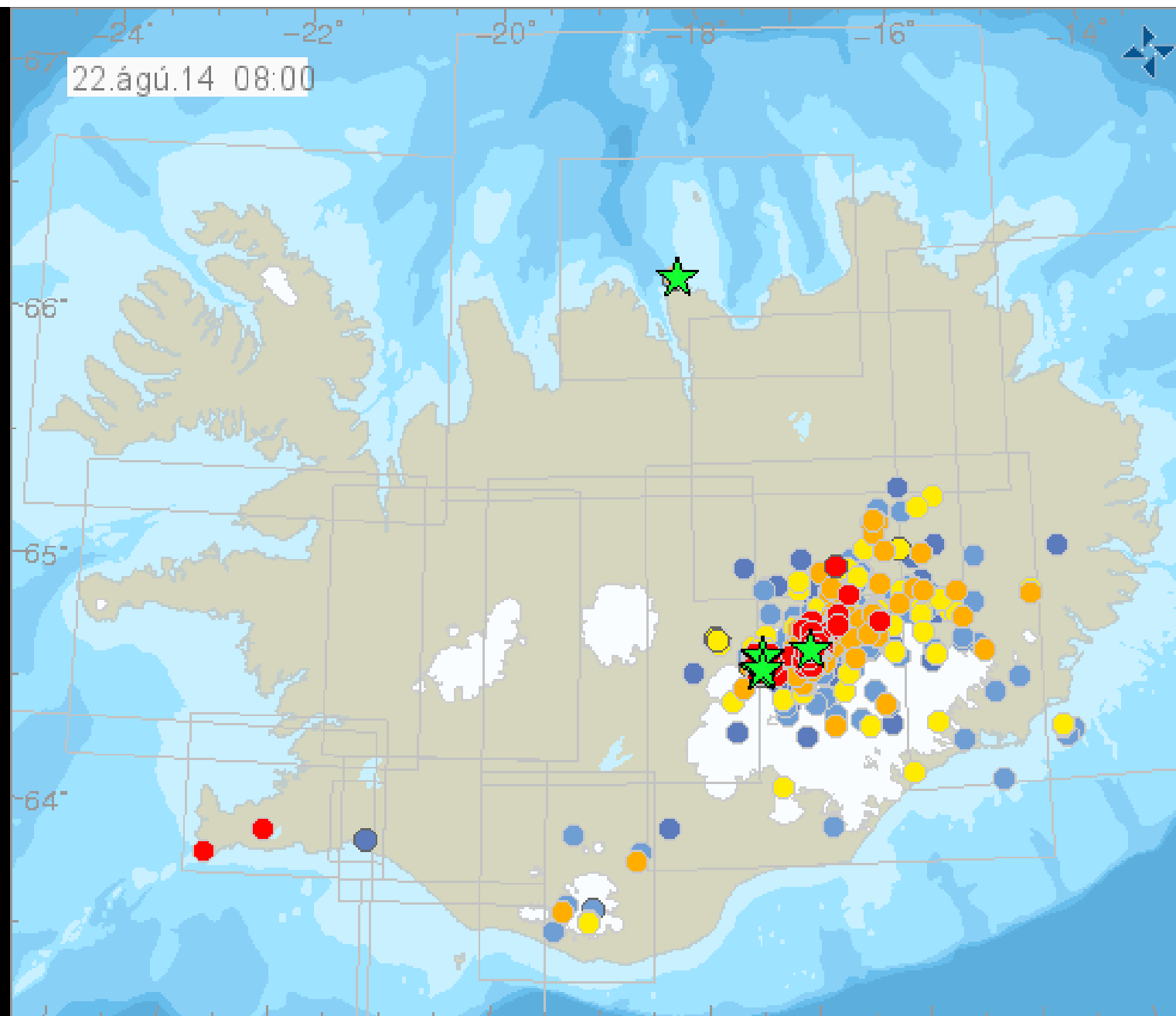
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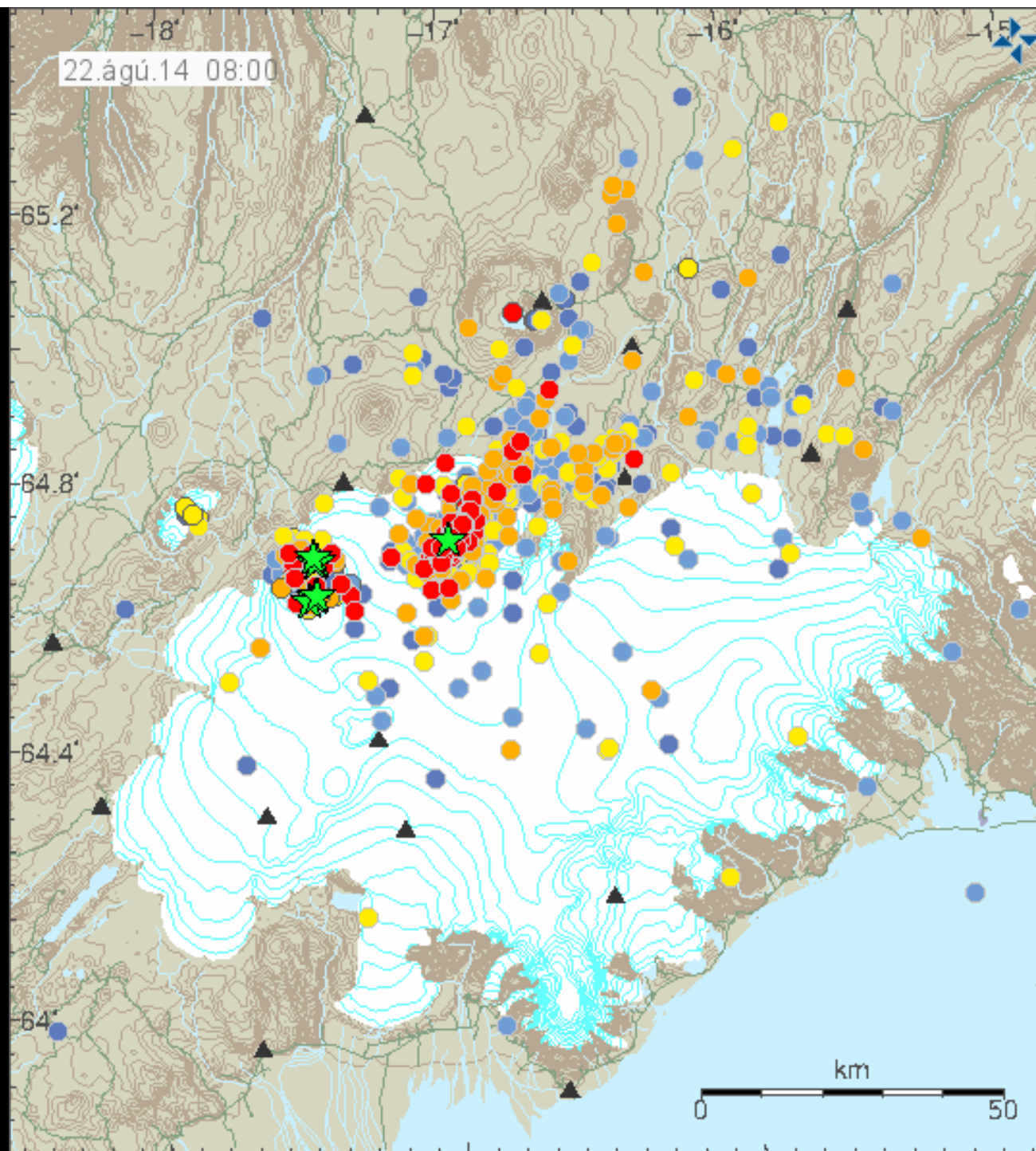
www.futura-sciences.com/fr/scientifique/t/terre/d/bardintzeff_80/

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<http://planeto.geol.u-psud.fr/Jacques-Marie-Bardintzeff,62.html>



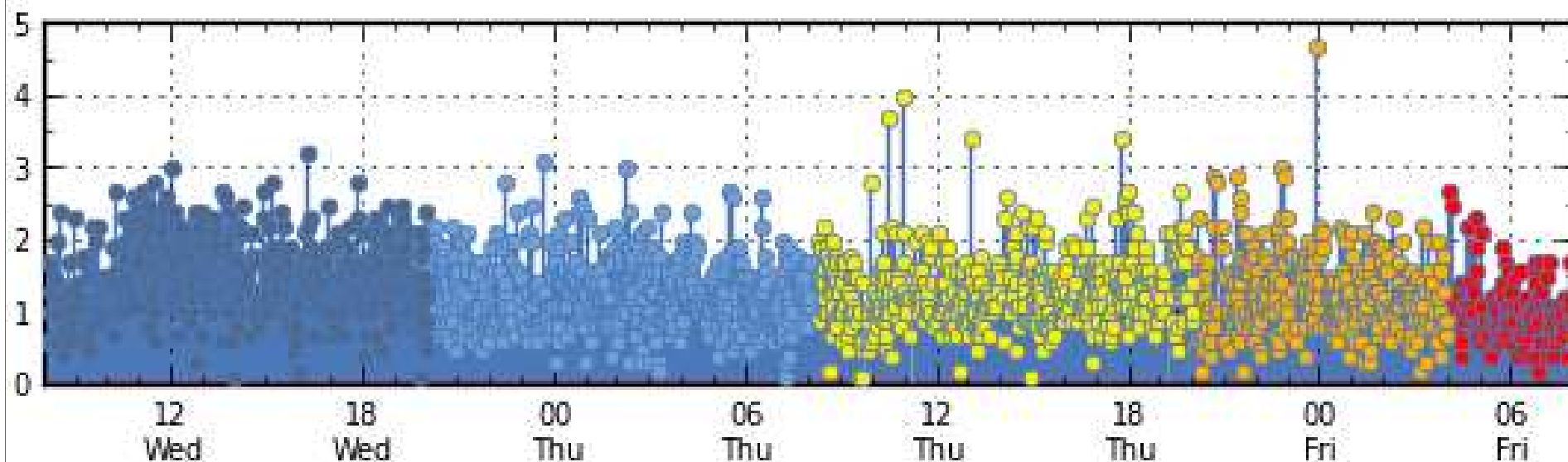
Nordic Volcanological Center 2014.08.22



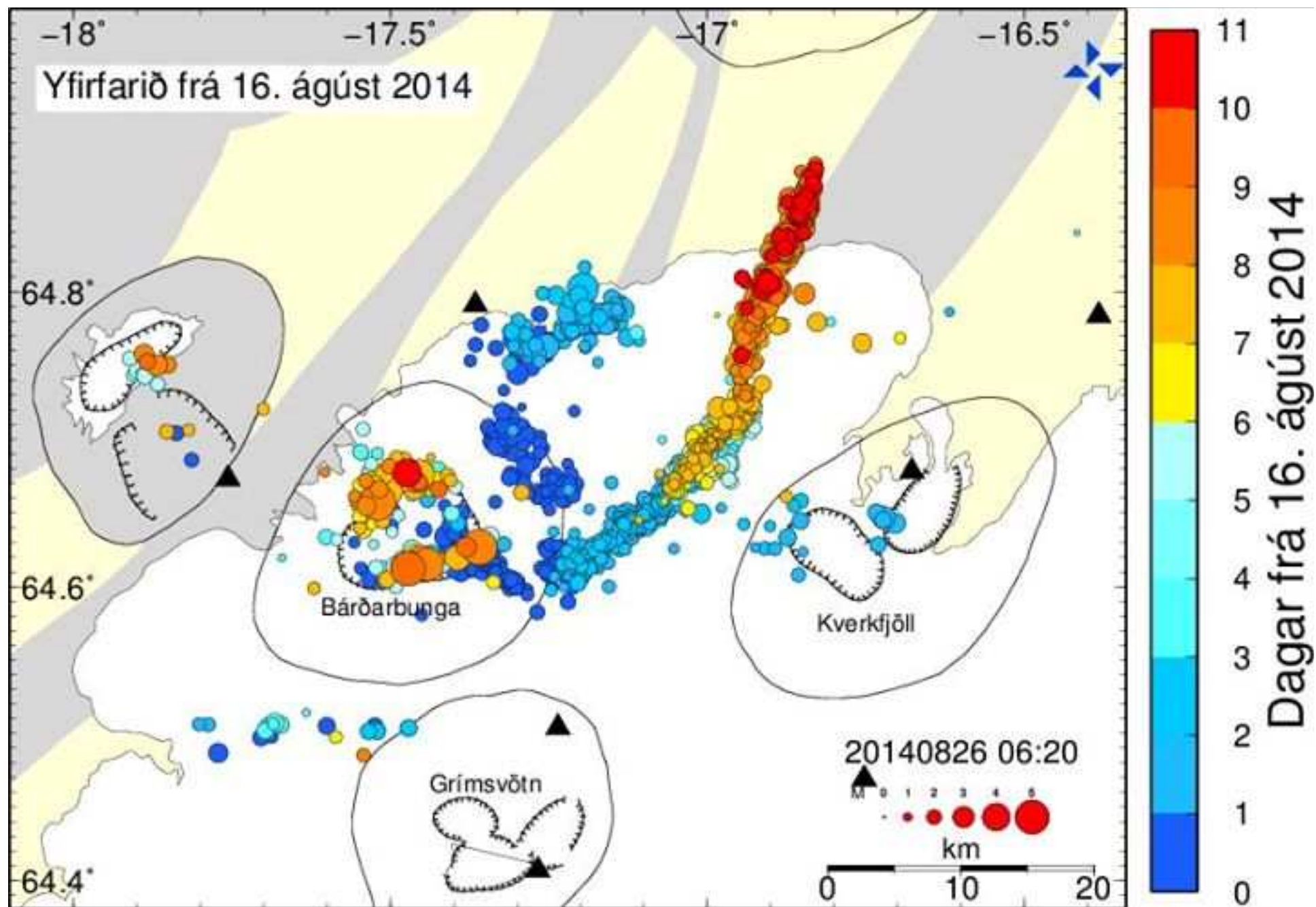
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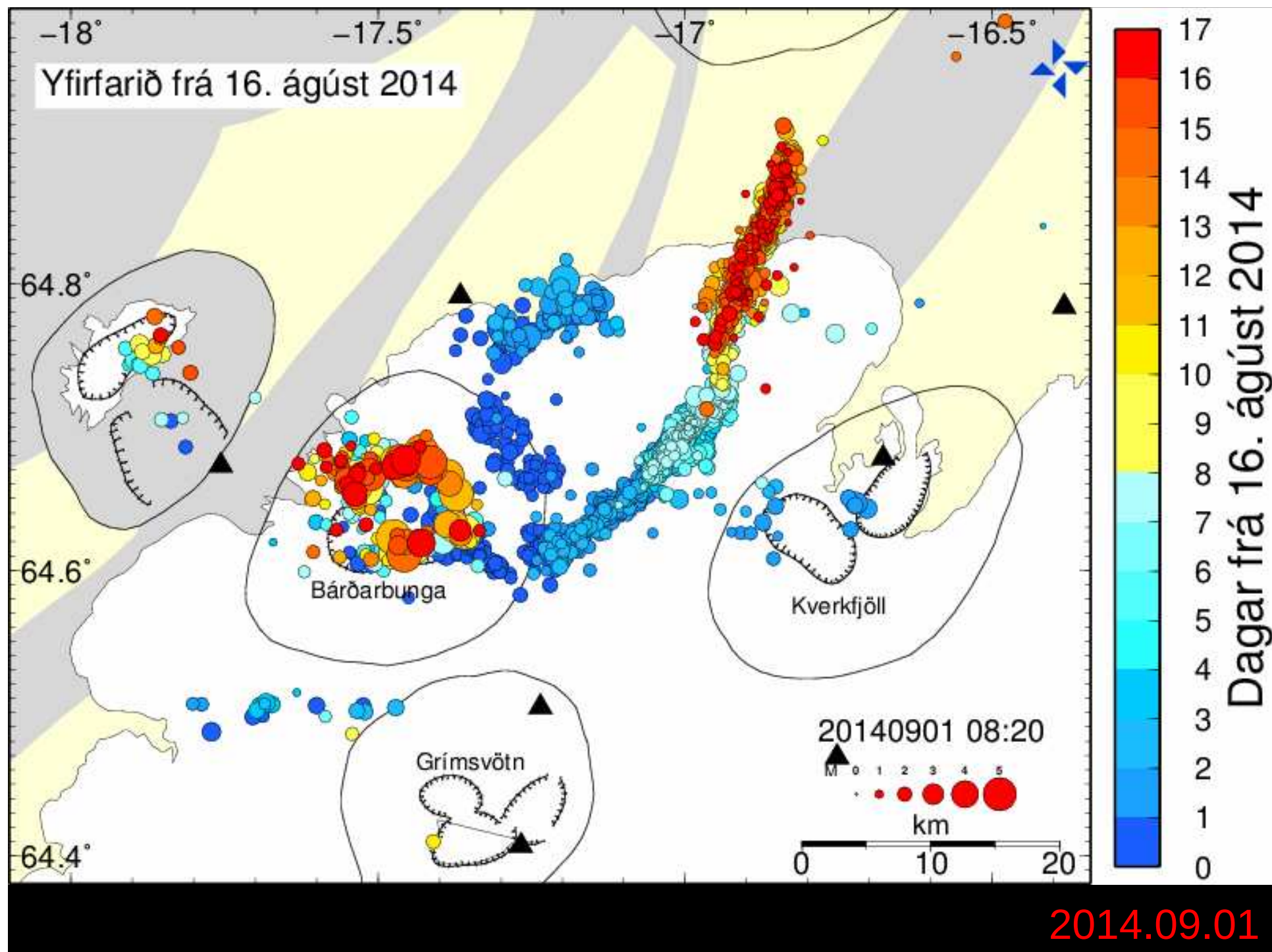
@Veðurstofa Íslands

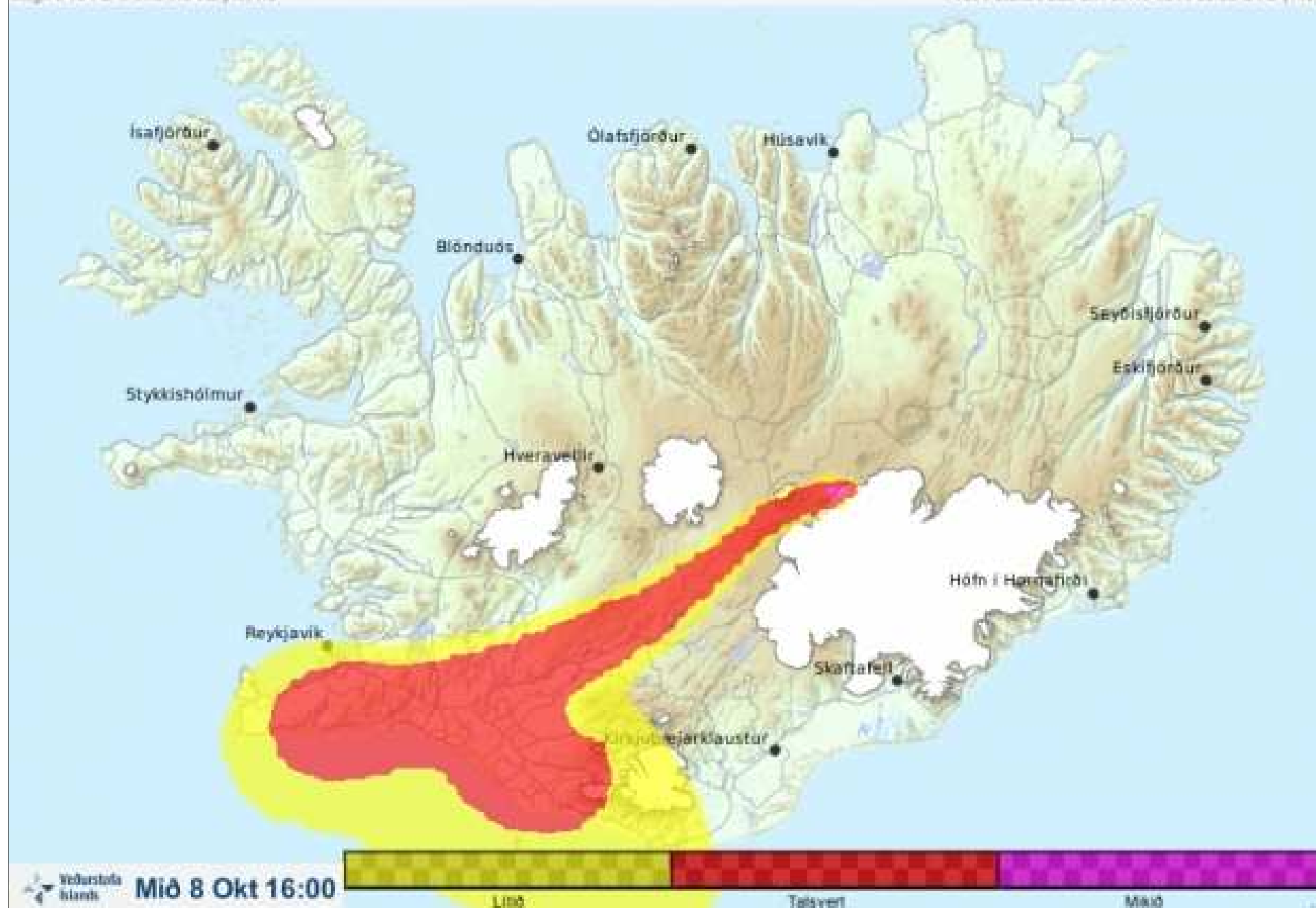


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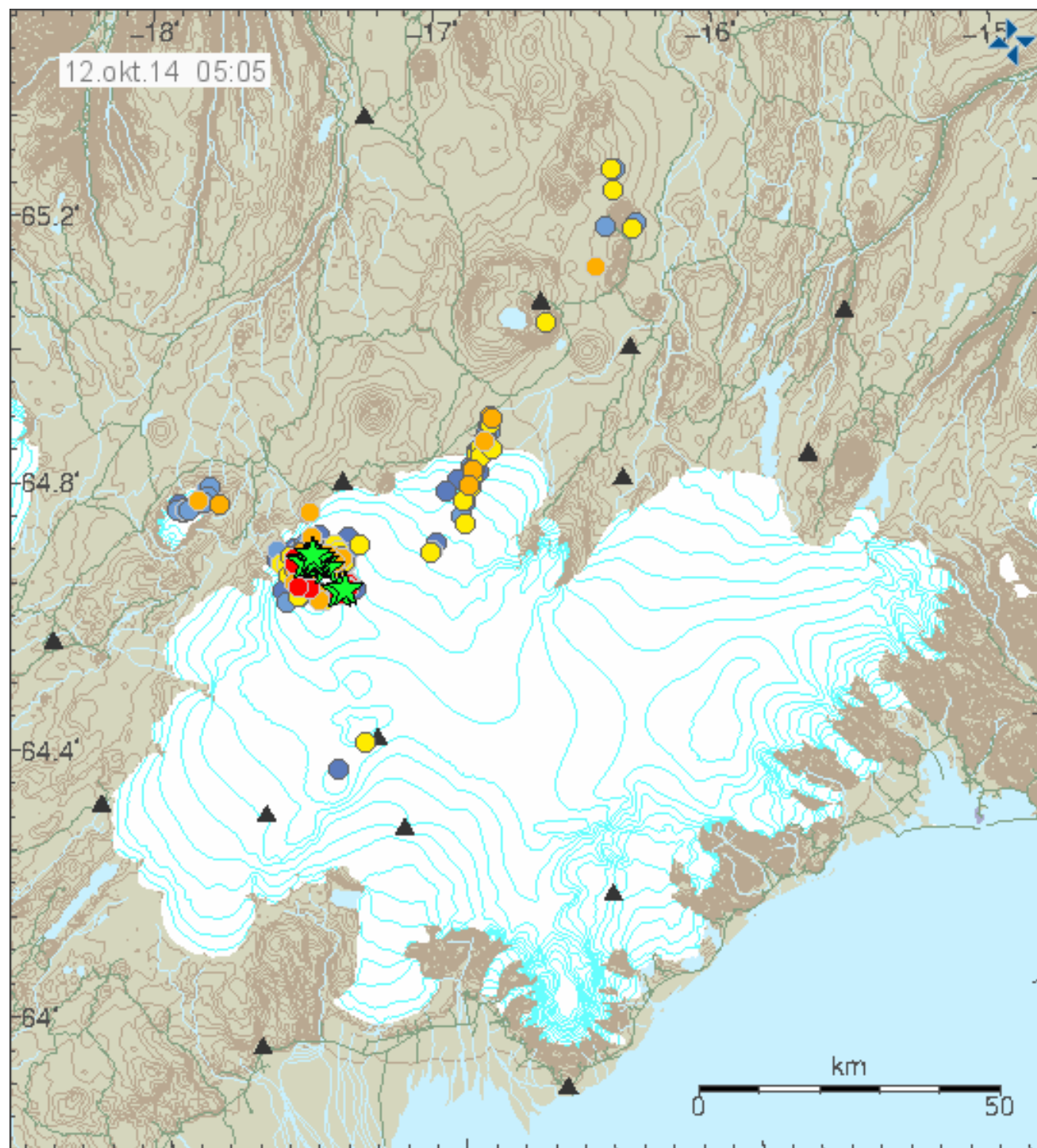


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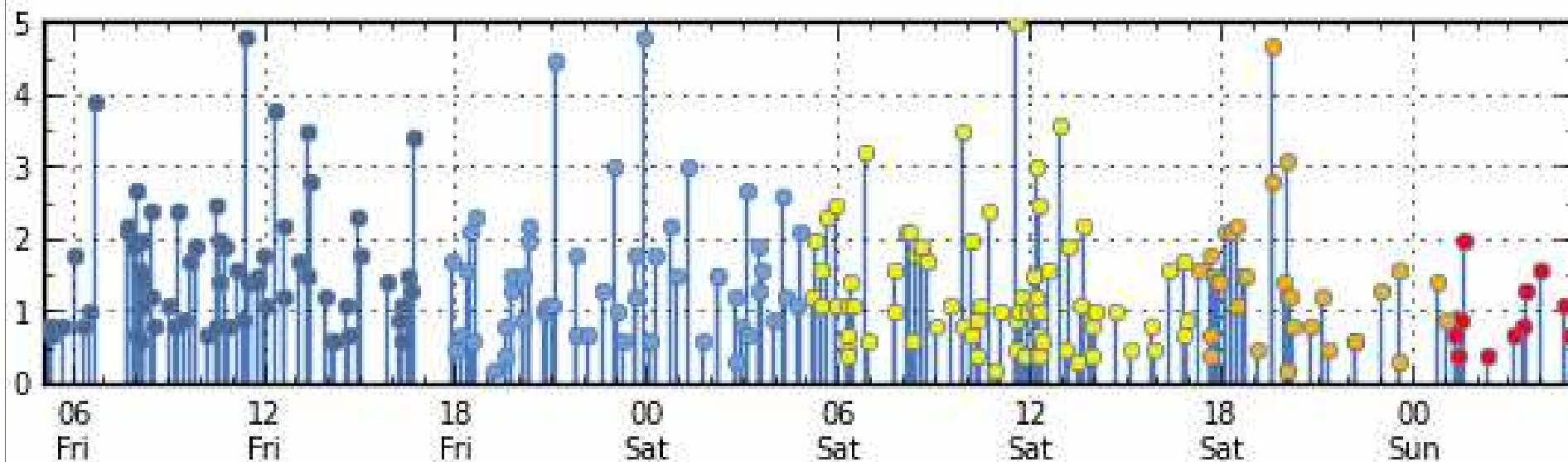
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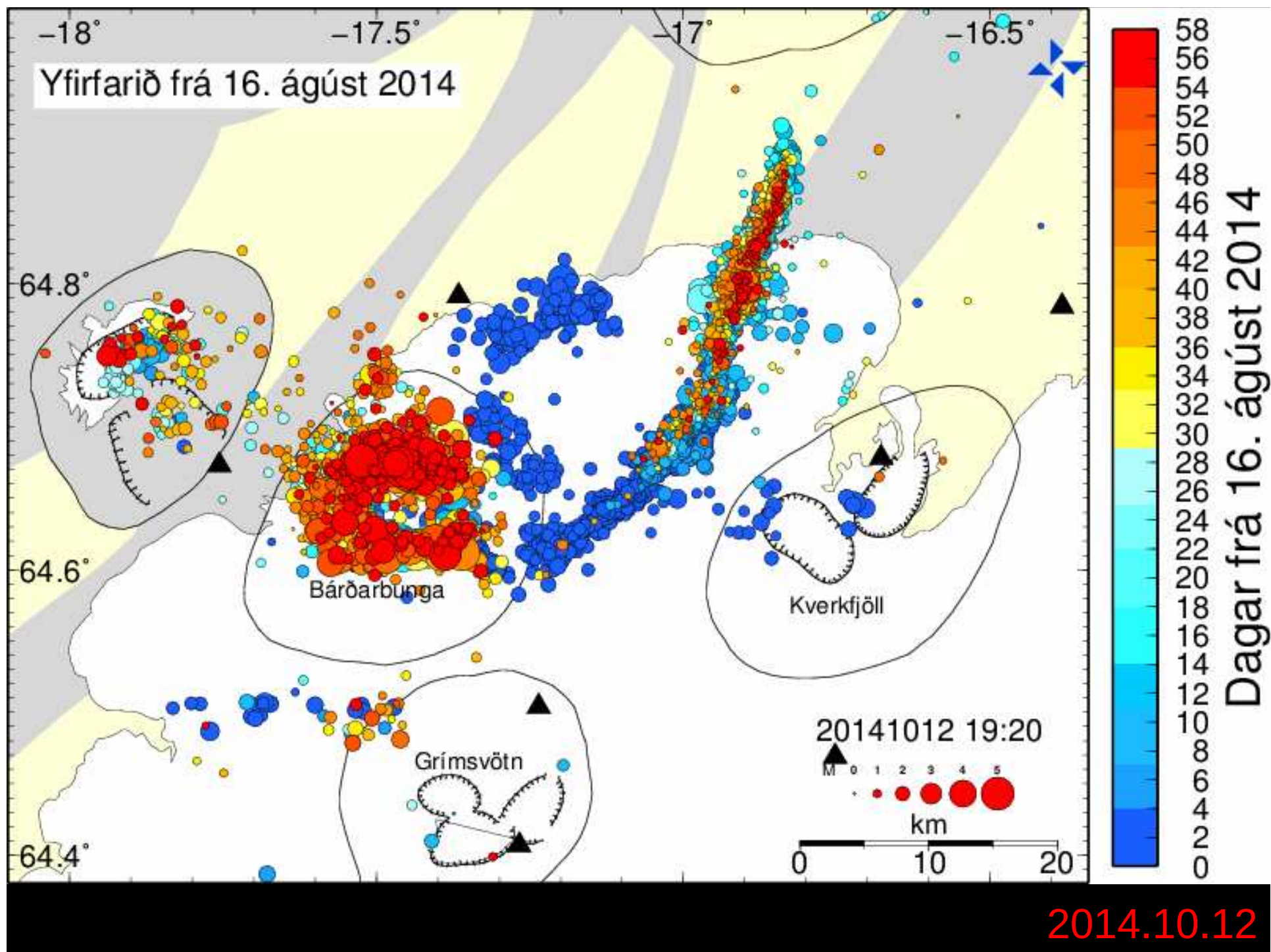
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12.10.14 05:05

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2014.10.12



2014.10.12

















































Michael Pitiot, Halldor Hreinsson, Jacques-Marie Bardintzeff (photo Bruno Cusa)



Documents

Nordic Volcanological Center

Photos J.M. Bardintzeff dans le cadre
du tournage du film « Terra »
(réalisateurs Yann Arthus-Bertrand et
Michael Pitiot)

Photo Bruno Cusa