

# Icelandic Met Office

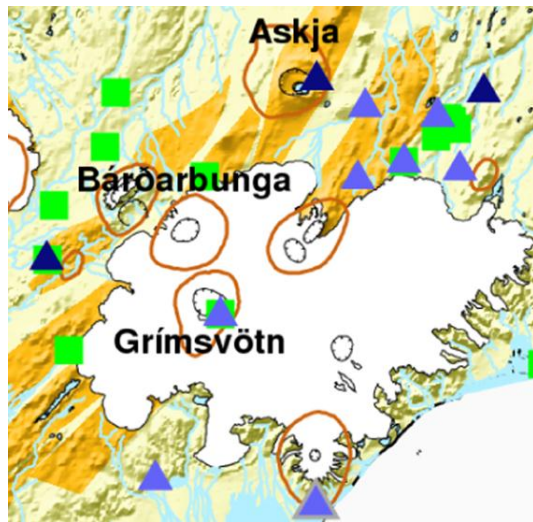


## Seismic Activity at Volcanoes in Vatnajökull Ice Cap

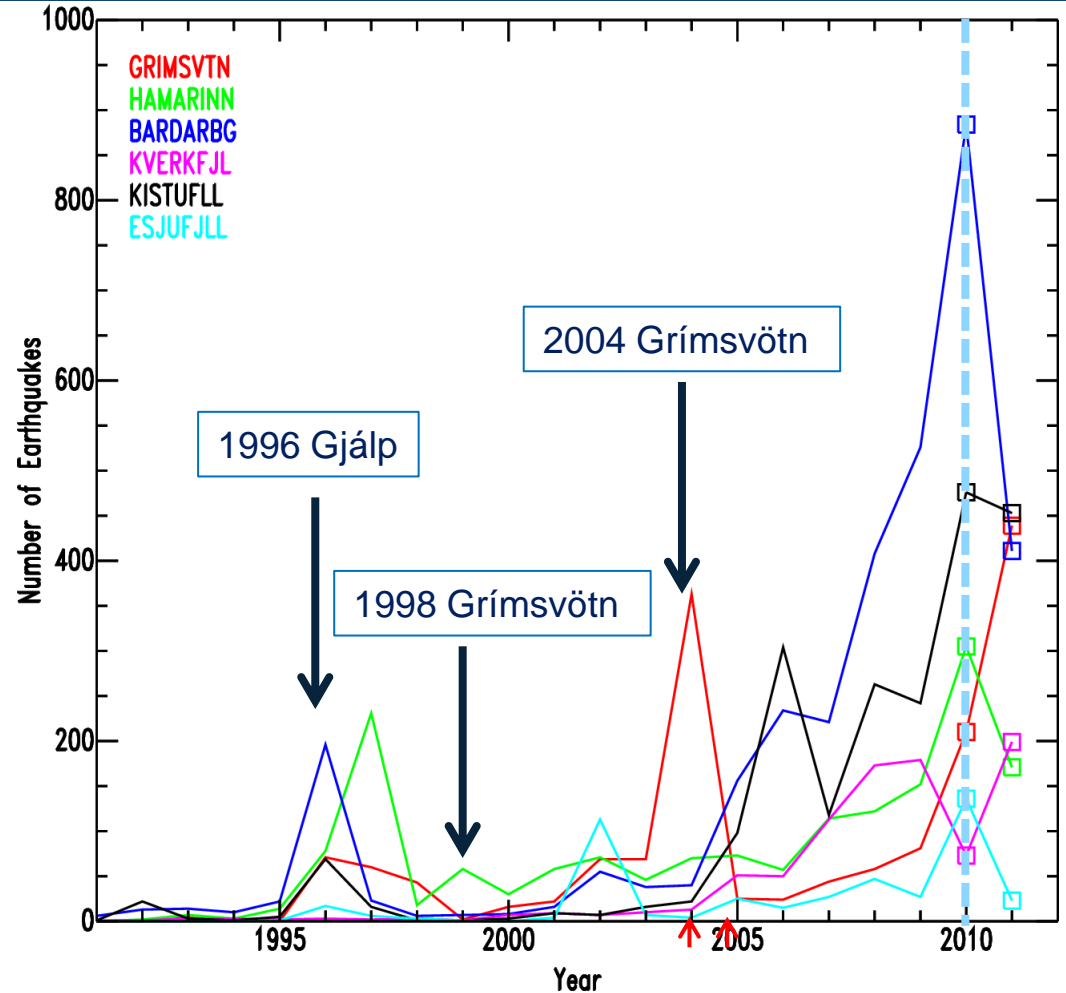
*Kristín S. Vogfjörð,*  
*21 May 2011*

# Volcanoes in Vatnajökull ice-cap

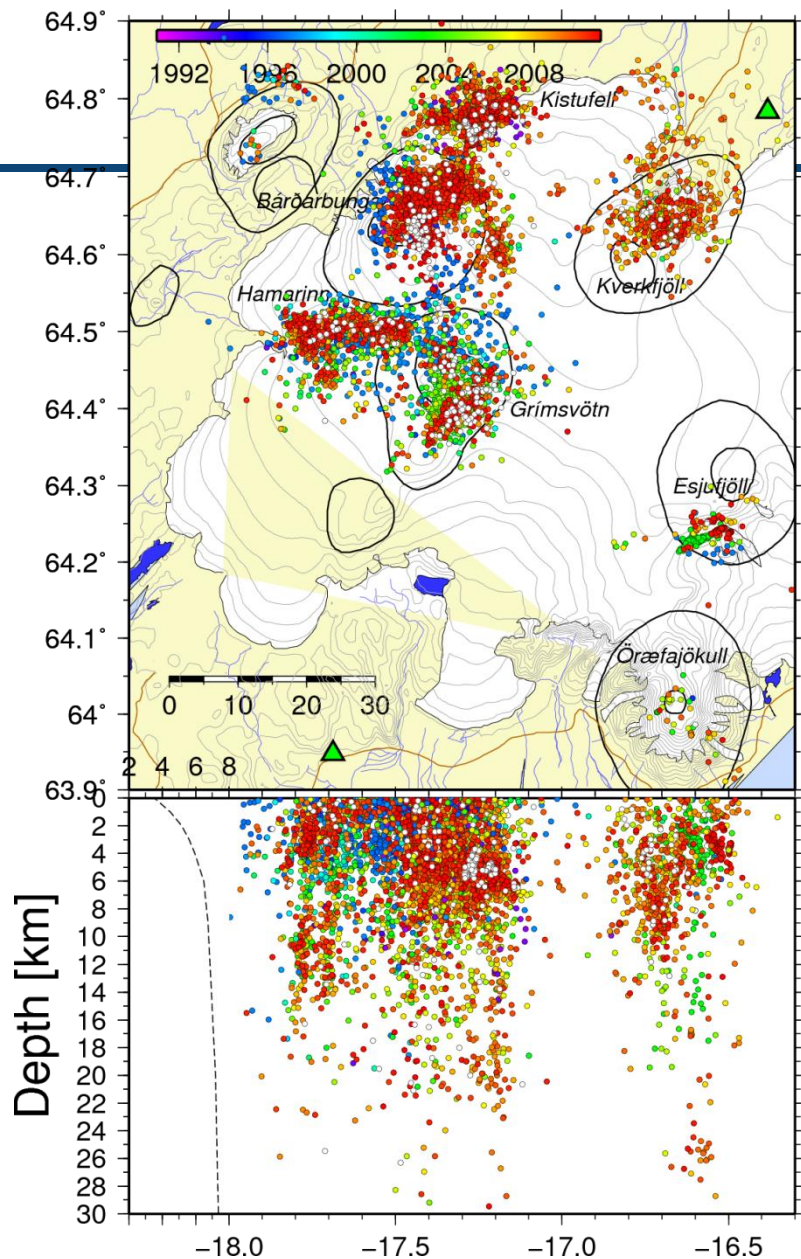
Seismic activity is increasing



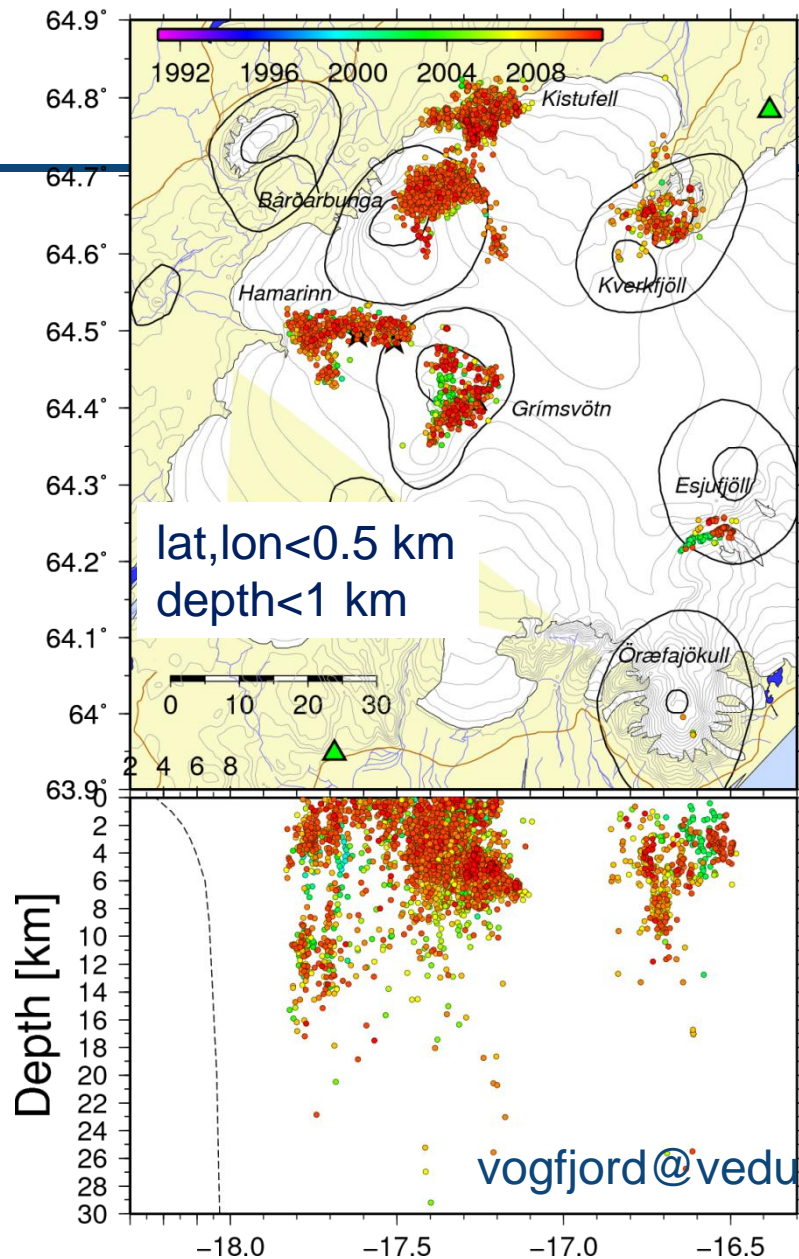
Number of Earthquakes per year



# Rel. located events

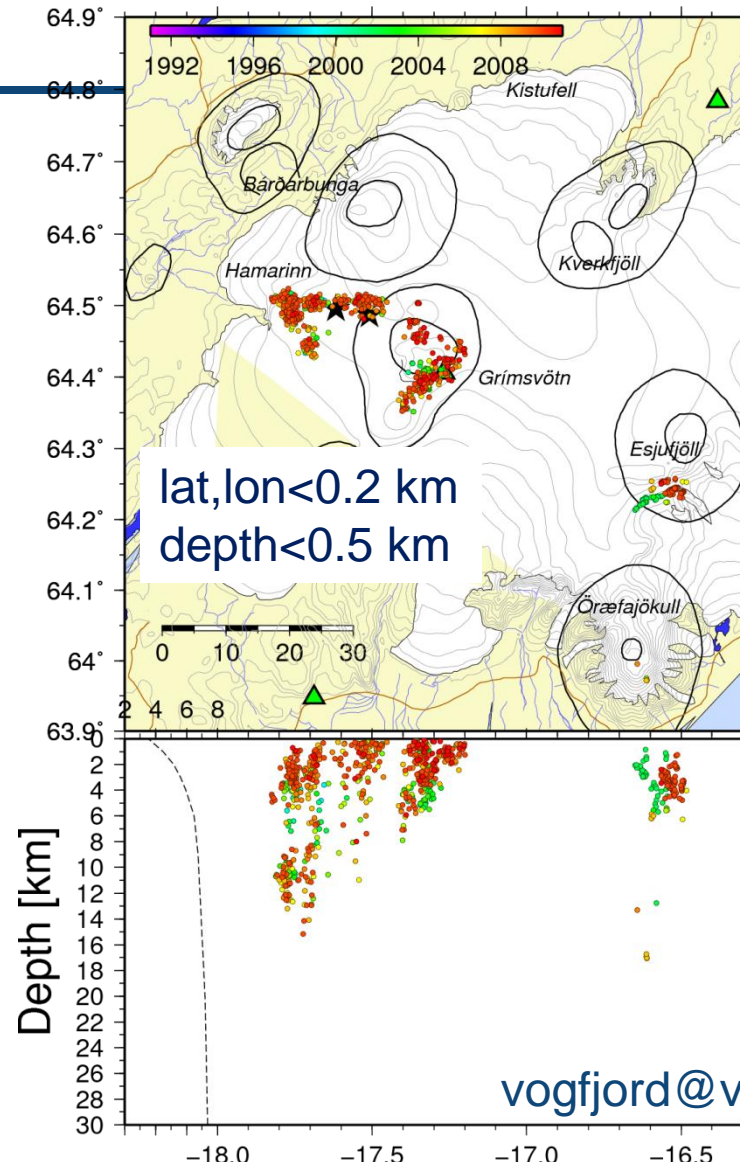
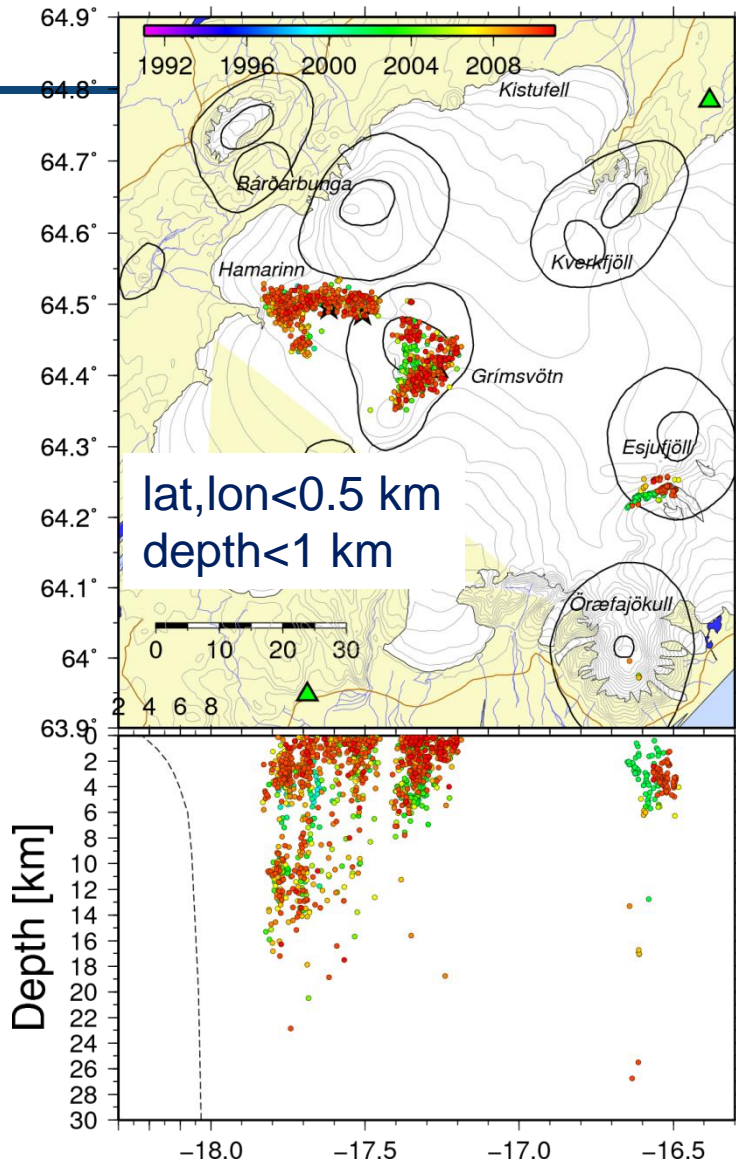


# Selected



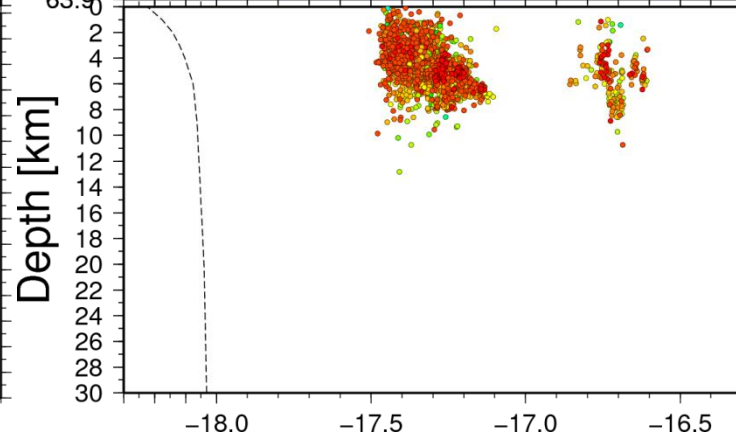
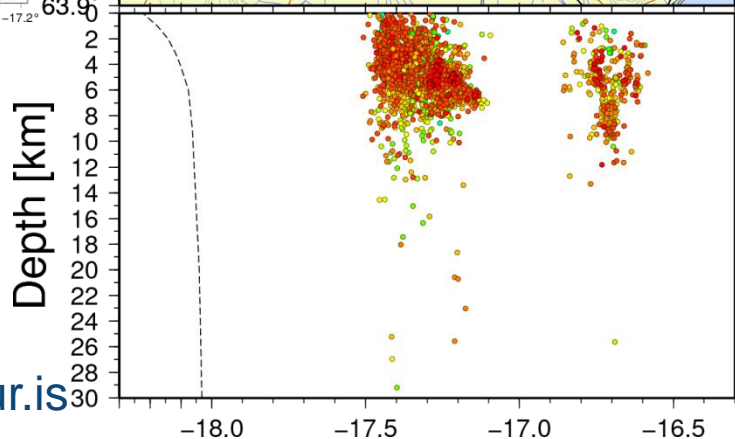
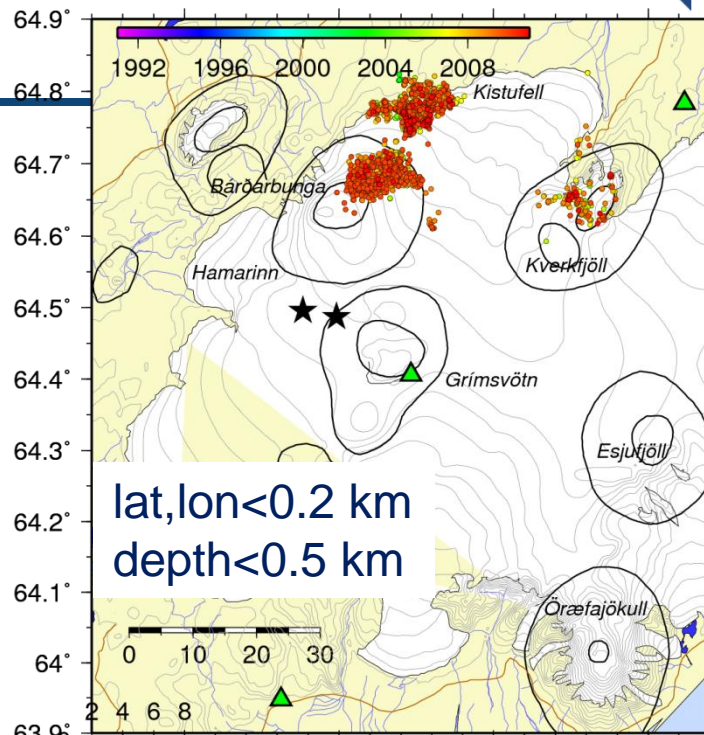
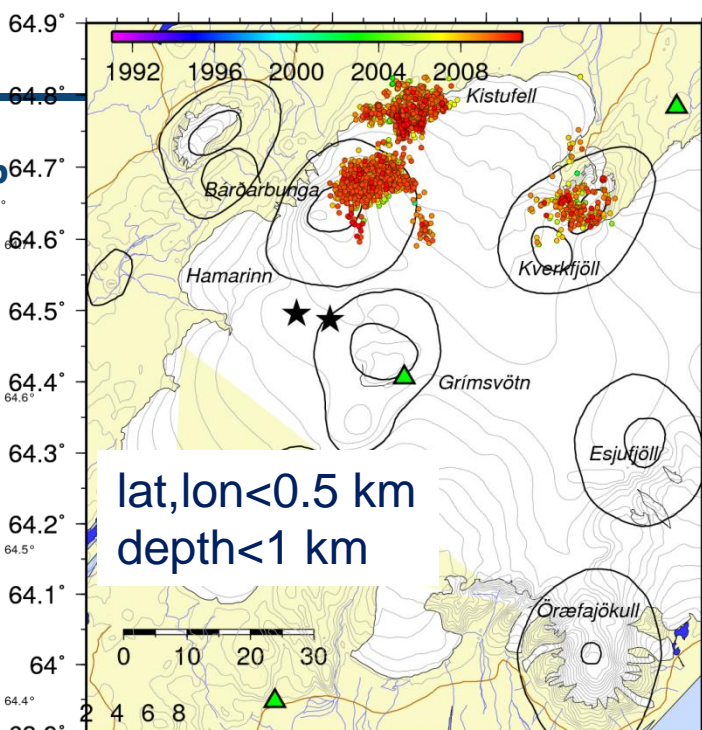
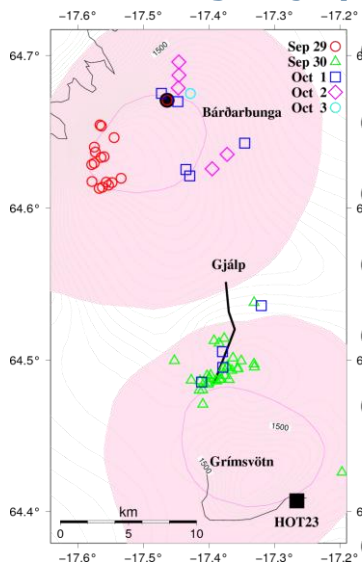


# Loki hryggur – Grímsvötn – Esju fjöll

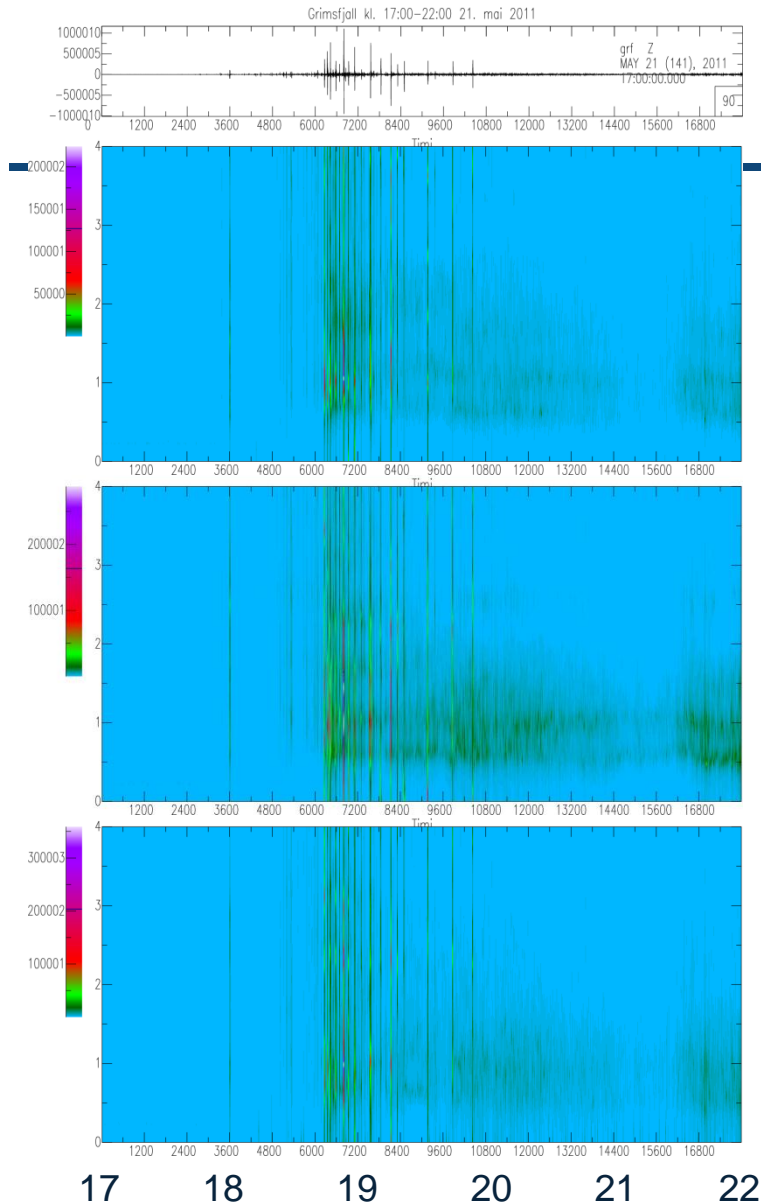


# Bárdarbunga– Kistufell – Kverkfjöll

## 1996 Bárðarbunga-Gjálp



# Onset of 21 May Grímsvötn eruption



**21 May 2011**

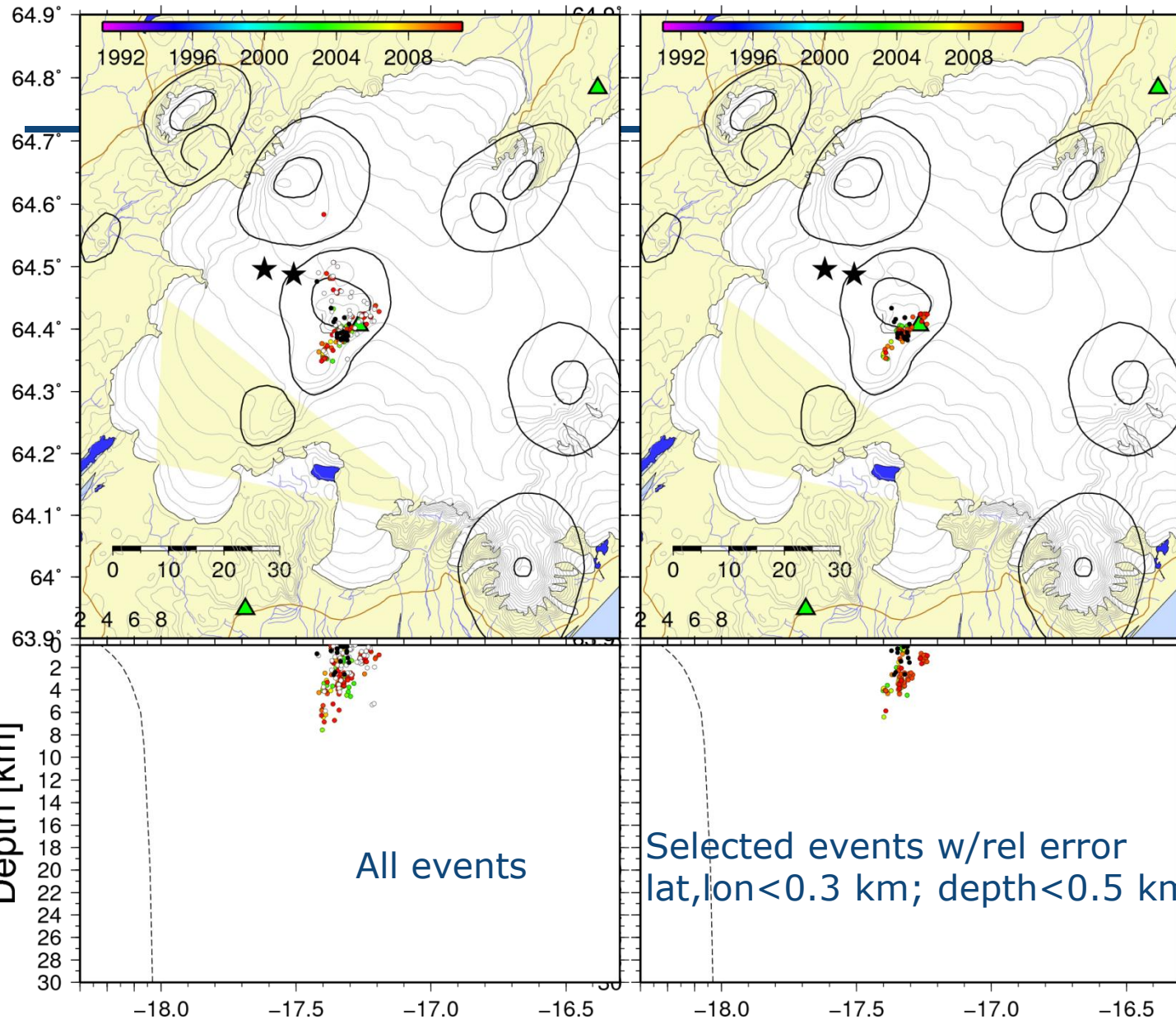
**At station GRF on caldera rim.**

**Onset of continuous tremor at  
~1Hz is around 18:50**

**Plume seen at 19:15 from  
Lómagnúpur**



# Relatively located earthquakes



Black circles:  
21 May 2011

Reference  
events selected  
w.r.t. low relative  
error in lat, lon  
and depth

All events

Selected events w/rel error  
lat,lon<0.3 km; depth<0.5 km

## Volcanic unrest at volcanoes in Vatnajökull

- Seismic activity at volcanoes in Vatnajökull ice cap has been increasing over the last 5 years; **Grímsvötn, Hamarinn (Loki ridge), Bárðarbunga, Kistufell, Kverkfjöll** and **Esjufjöll**
- Detected seismicity in Vatnajökull is generally shallow, but under the western part of Loki ridge the seismicity extends into the middle crust (~13 km).

vogfjord@vedur.is

