

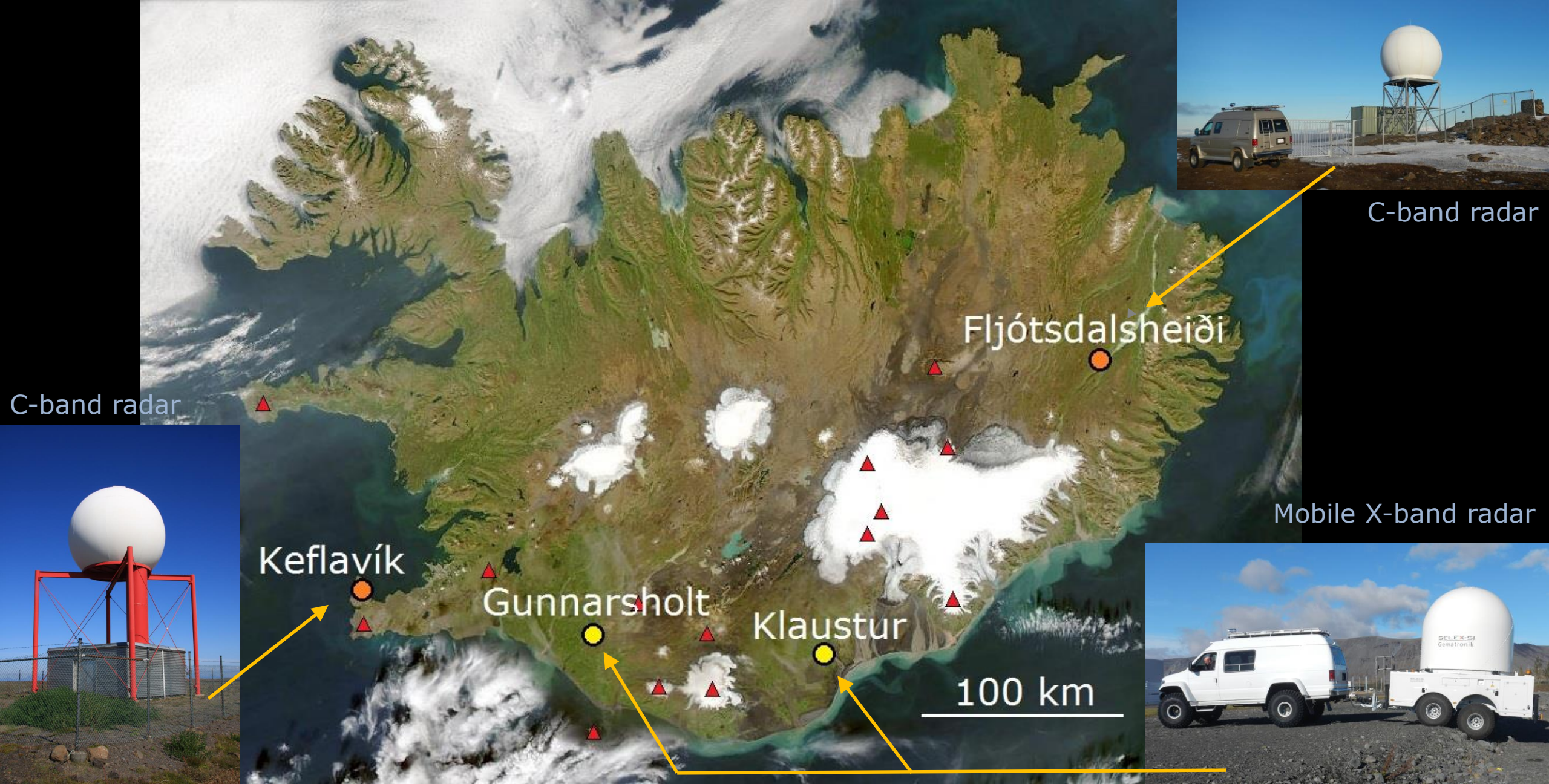
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# Status Report on Weather Radars in Iceland

**Hermann Arngrímsson, Þórður Arason & Baldur Bergsson**  
hermann@vedur.is, arason@vedur.is, bb@vedur.is

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Veðurstofa Íslands - Icelandic Meteorological Office, Bústaðavegur 9, IS-108 Reykjavík, Iceland



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# Major Events

## Oct 2017 – Sept 2018

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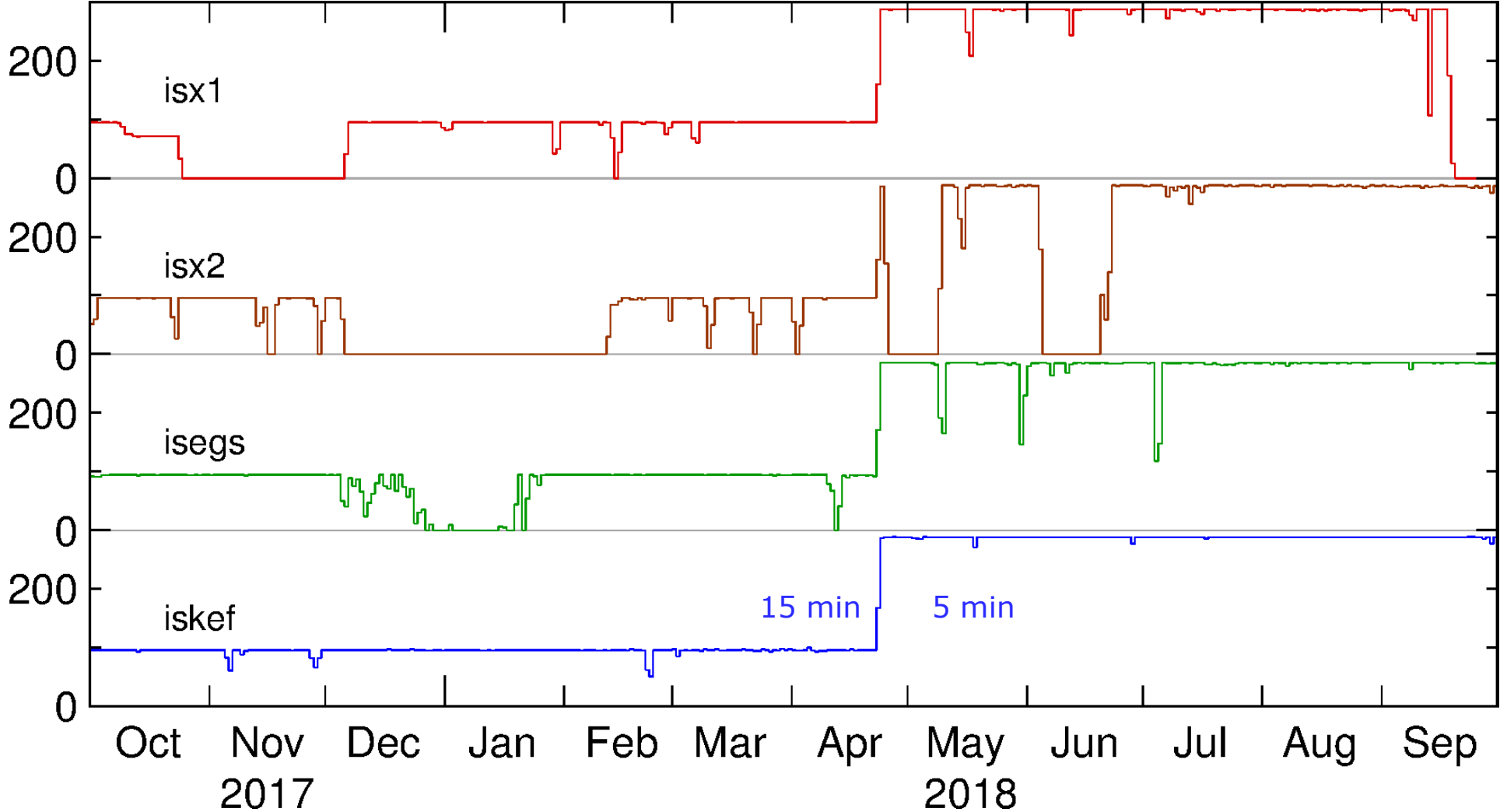
- 2017-12-05 – Servo drive problems at isegs (E-Iceland)
- 2018-04-13 – Servo amplifier replaced at isegs
- 2018-04-23 – Scanning frequency for all four radars was increased from 15 to 5 min
- 2018-05-15 – Disks for radar archive full

## Plans

- 2019 iskef will be renewed (SW-Iceland)
- 2020 isegs will be renewed (E-Iceland)
- 2021 New C-band radar in N-Iceland
- 2019 - 2031 The Grand Plan

# Radar Data Retrievals

## Number of scans per day, Oct 2017 – Sept 2018



# Keflavík C-band Radar - iskef

## Logbook Oct 2017 – Sept 2018

- 2017-11-05 – Thunderstorm, power outage
- 2017-11-27 – Saab technician, inspection, **calibration**
- 2018-04-04 – Lightning protection installed
- 2018-04-23 – Scans every 5 min
  
- Data retrieval Oct 2017 – Sept 2018: **99.6%**



Keflavík SW-Iceland C-band radar.  
Photo Þórður Arason 9 August 2011

# Fljótsdalsheiði C-band Radar - ísegs

## Logbook Oct 2017 – Sept 2018

- 2017-11-10 – Az-motor problems
- 2017-12-05 – Az-motor breakdown
- 2018-04-13 – Servo amplifier replaced
- 2018-04-23 – Scans every 5 min
- 2018-05-09 – Pulse shape problems
- 2018-06-11 – Tuning
- 2018-07-04 – Az-motor replaced
- 2018-08-07 – Calibration problems
  
- Data retrieval Oct 2017 – Sept 2018: **92.8%**



Fljótsdalsheiði E-Iceland C-band radar.  
Photo Hermann Arngrímsson 8 July 2016

# Mobile X-band Radar - isx1

## Logbook Oct 2017 – Sept 2018

- 2017-10-01 – In operation at Gunnarsholt (S-Iceland)
  - 2017-10-24 – Moved to Reykjavík
  - 2017-10-25 – **Calibration**, brakes and generator serviced
  - 2017-12-05 – Moved to Klaustur (SE-Iceland)
  - 2018-03-08 – Inspection, adjustments
  - 2018-04-23 – Scans every 5 min
  - 2018-09-13 – Rainbow server problems
  - 2018-09-21 – Moved to Reykjavík
  - 2018-10-01 – Being serviced in Reykjavík
- 
- Data retrieval Oct 2017 – Sept 2018: **86%**



Mobile radar isx1 installed with clear view over Bárðarbunga before the 2014-2015 volcanic eruption.  
Photo Þorgils Ingvarsson 22 August 2014

# Mobile X-band Radar - isx2

## Logbook Oct 2017 – Sept 2018

- 2017-10-01 – In operation at Klaustur (SE-Iceland)
- 2017-12-05 – Moved to Reykjavík
- 2018-01-25 – **Calibration** and service
- 2018-02-12 – Installed at Gunnarsholt (S-Iceland)
- 2018-04-23 – Scans every 5 min
- 2018-05-07 – New Gunnarsholt site tested
- 2018-06-04 – Moved to Reykjavík
- 2018-06-19 – New Gunnarsholt Observatory site
- 2018-10-01 – In operation at Gunnarsholt
  
- Data retrieval Oct 2017 – Sept 2018: **74%**



Specially adapted truck to take mobile radar off road.  
Photo Hermann Arngrímsson 20 October 2016.



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# Radar Volcano Monitoring

## Volcanic Eruptive Source Parameter Assessment

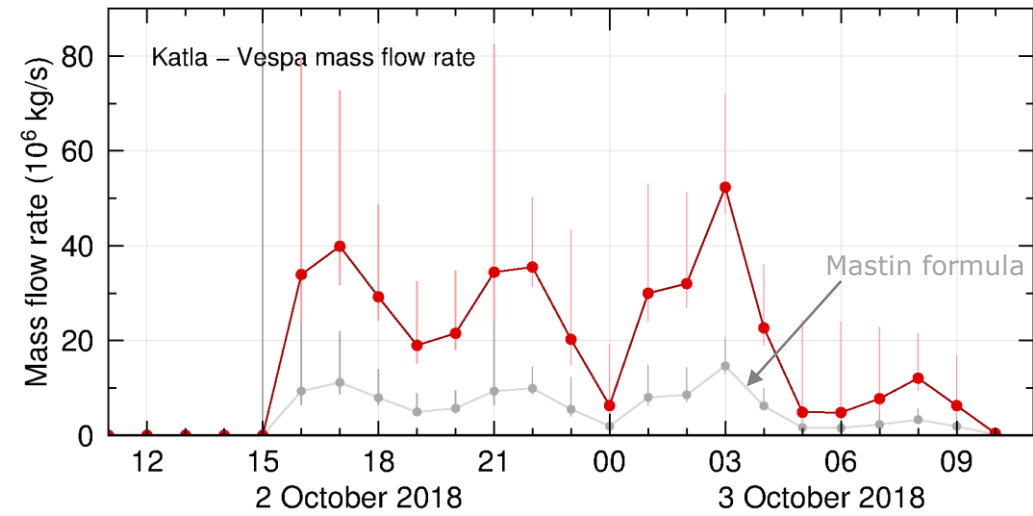
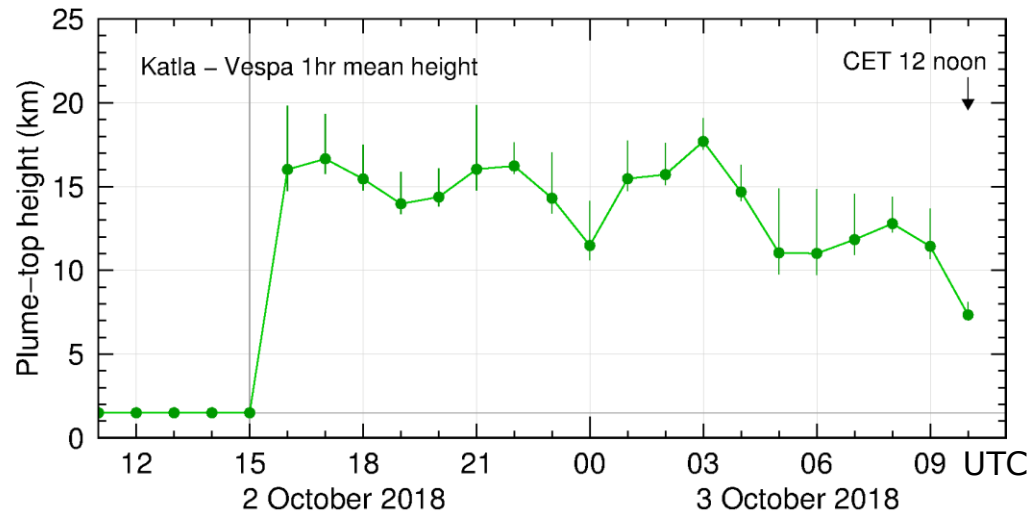
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### Integrated automatic real-time system

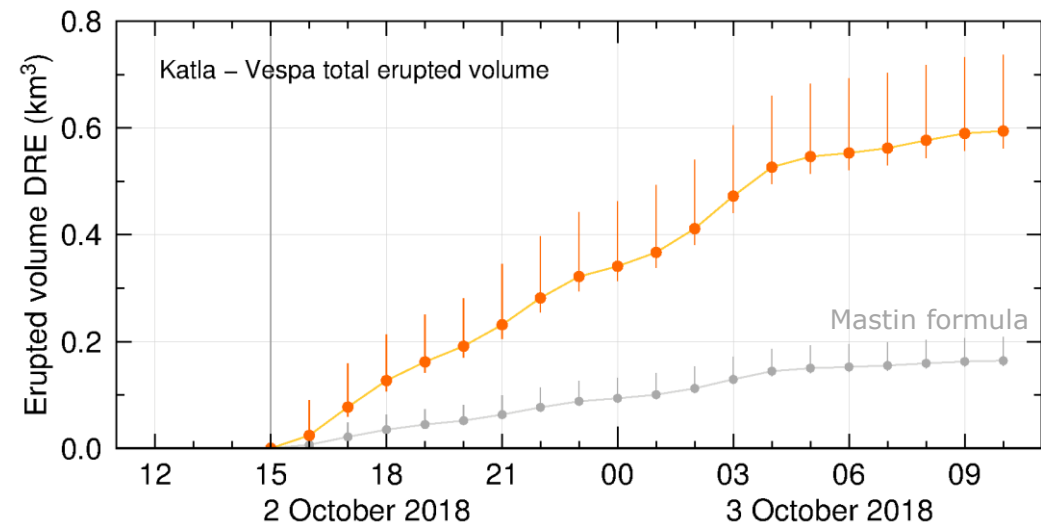
- 1. Eruption Onset:** Manually estimated
- 2. Plume Height:** Weather radar data are used to estimate plume height over volcano every hour
- 3. Source Parameters:** Inversion for source parameters in the 1D PlumeMoM numerical volcanic plume model using the radar plume height and vertical atmospheric profile from the ECMWF numerical weather prediction model
- 4. Ash Dispersal:** Initialization of the dispersal models VOL-CALPUFF and NAME with the estimated source parameters and weather data
- 5. Open Access:** Data, tables and graphs published in real-time at <http://brunnur.vedur.is/radar/vespa>

# EXERCISE: Eruption of Katla

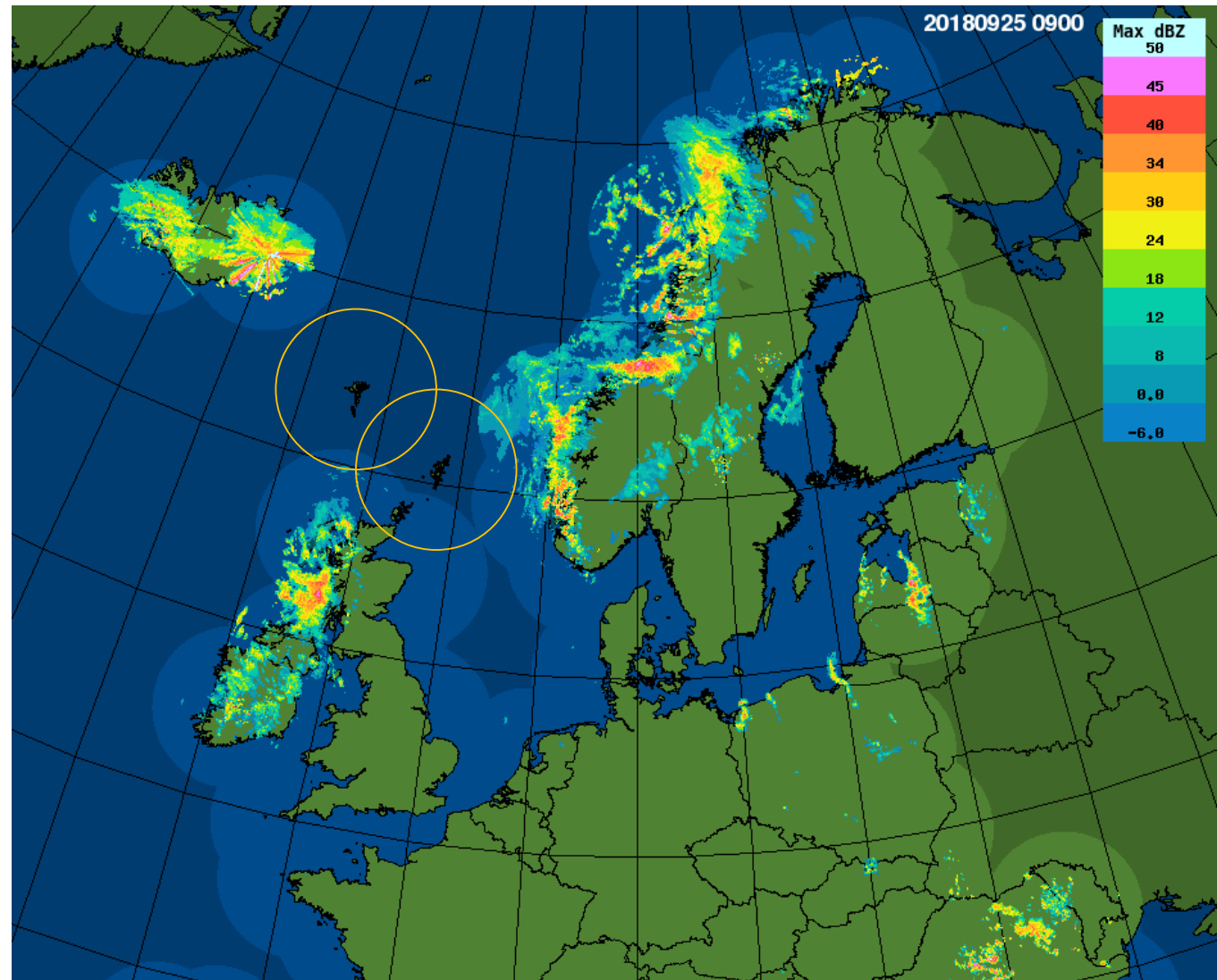
Started 19 hours ago: 2 October at 15:00 UTC



Katla eruption on 12 October 1918

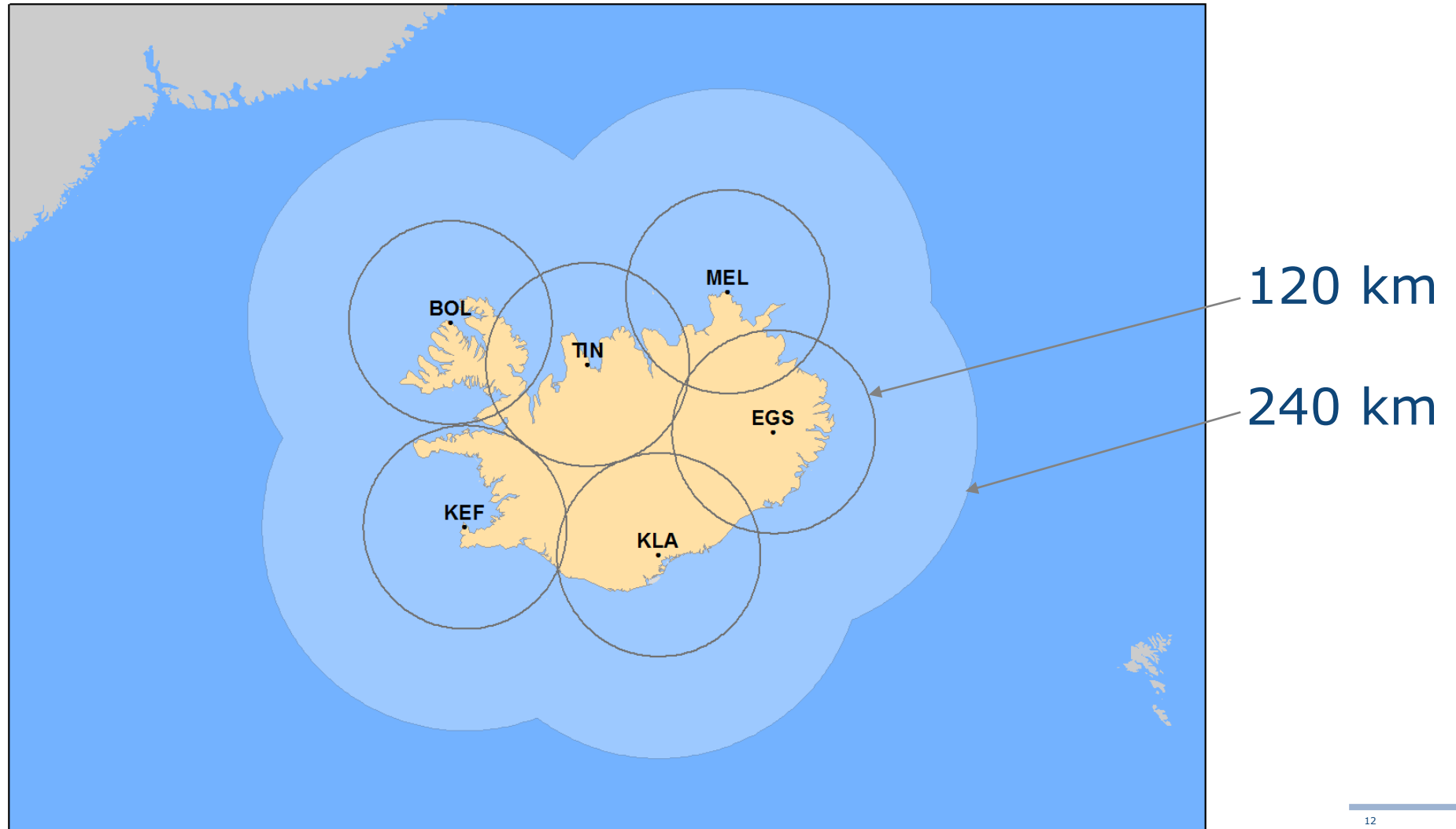


# Alone on the Odyssey Map



# The Grand Plan

## All C-band Dual-Pol, Installation 2019-2031



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# Discussion

## Problems, speculations, questions

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### **New Installations – What is essential, common pitfalls?**

- Tender for a radar (specs, criteria)
- Saab - Vaisala - EEC - Selex ?
- Open software for standard products
- Software for R&D