



FINNISH METEOROLOGICAL INSTITUTE

Serving OMI community within minutes for a decade

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In collaboration with



Remote Sensing Days

Wednesday Oct. 29 - Thursday Oct. 30, 2014



Questions to be answered

- Why are we doing?
- Where are we doing?
- What are we doing?
- How we are doing?
- When are we doing?
- To whom we are doing?
- What we will do in future?



Photo: Timo Lindholm

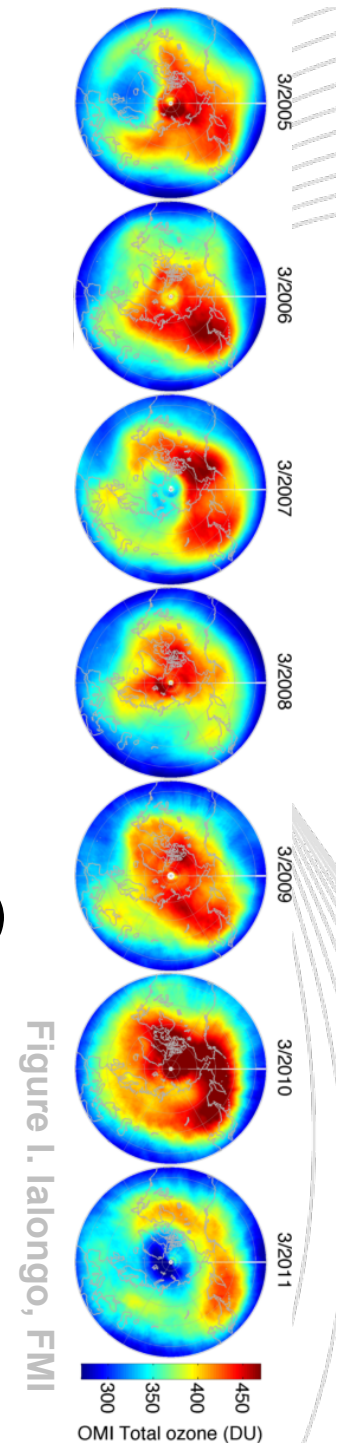


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Ozone Monitoring Instrument

- **Built as a Dutch-Finnish co-operation**
 - Dutch Space and TNO Science & Industry
 - VTT and Patria Finavitec
- **Financed by the Netherlands Agency for Aerospace Programmes and the Finnish Meteorological Institute**
- **Launched on 15 July 2004, onboard Aura**
- **Heritage/predecessor: GOME, SCIAMACHY and TOMS**
- **Resolution: 13 x 24 km at nadir (zoom mode 13 x 12 km)**
- **Swath width: 2600 km**
- **Wavelength: 270 to 500 nm**
 - Spectral resolution ~0.5 nm
- **Products:**
 - Ozone, UV, SO₂, aerosol and other key air quality components





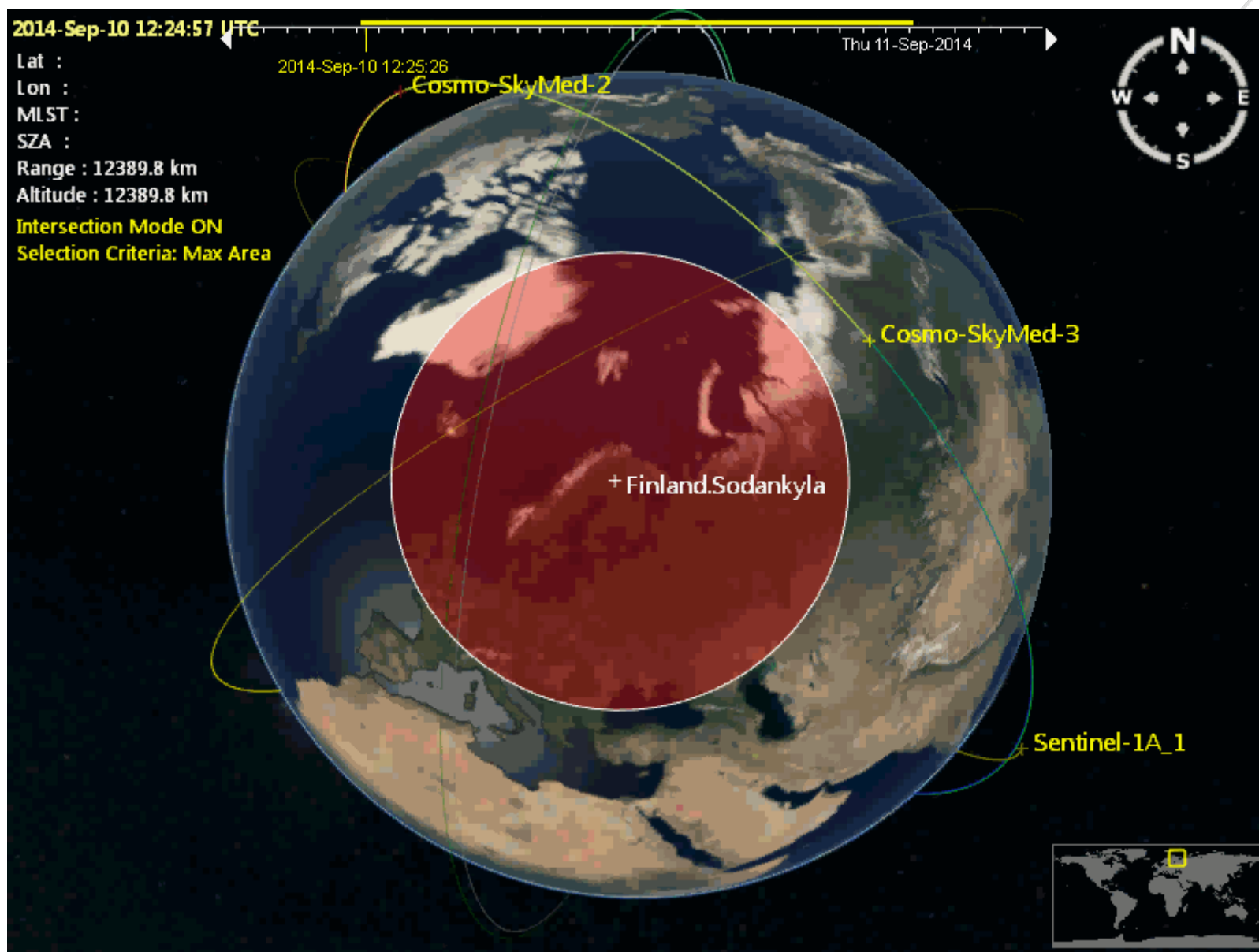
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NSDC - National Satellite Data Centre

Finnish Meteorological Institute – Arctic Research Centre (FMI-ARC)



National satellite data centre (NSDC) provides satellite data reception and data archiving and processing services to Finnish and international partners



Sodankylä Ground Station Lat 67°22' Lon 26°39'



- 2 x antenna
- Full scale processing environment
- Security and Safety standards according to ESA requirements
- 10 Gbit/s link between NSDC and HQ
- CAL-VAL support measurements



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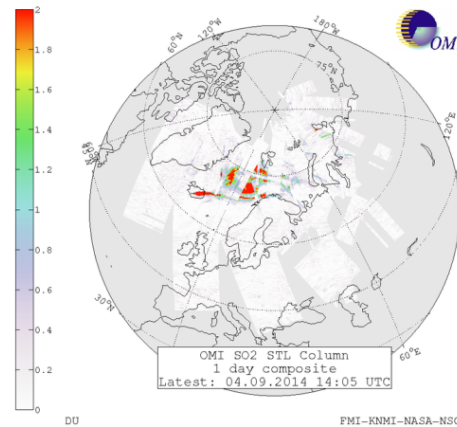
Satellite data availability from FMI Arctic Research Centre

Free access

- EOS-Terra and Aqua/**MODIS**
- EOS-Aura/**OMI**
- Suomi-NPP/**VIIRS** & **OMPS**
- FY-3B/C/**MERSI**

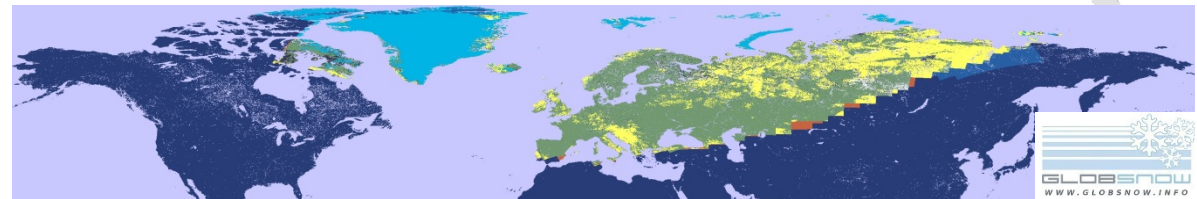
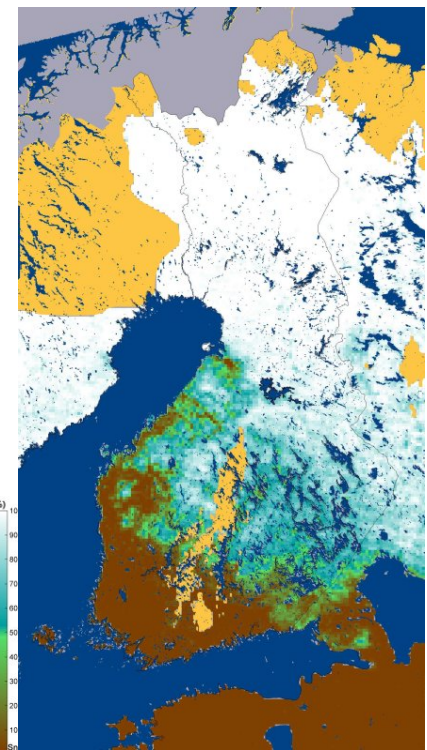
On-demand (commercial)

- COSMO-SkyMed/**SAR**
(4 satellite constellation)

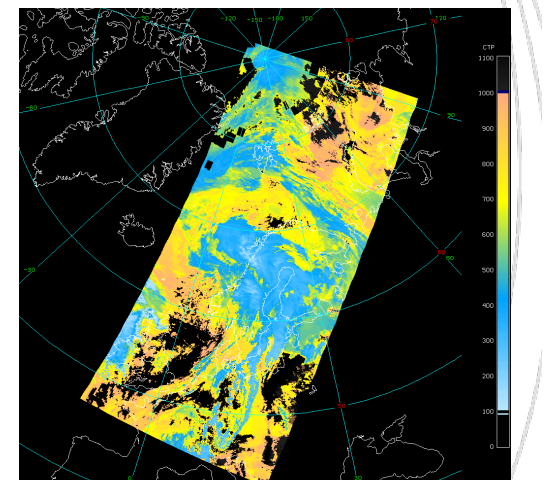
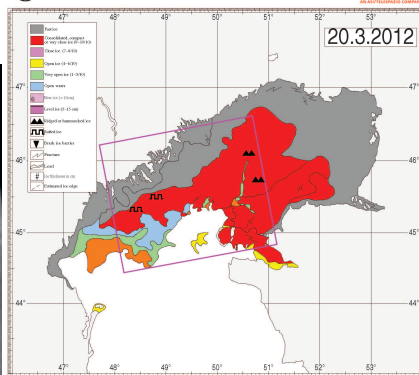


Cloud
Water
Non-classified

SCA (%)



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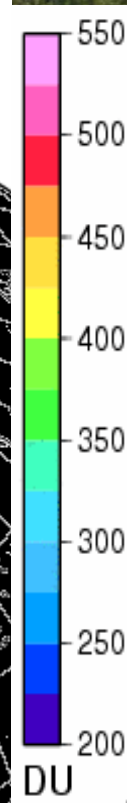
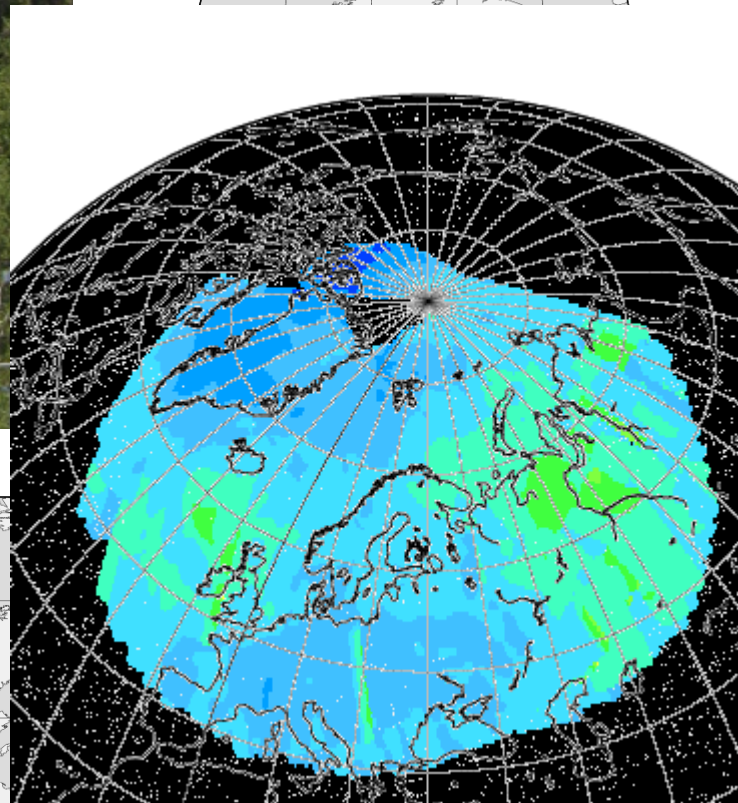
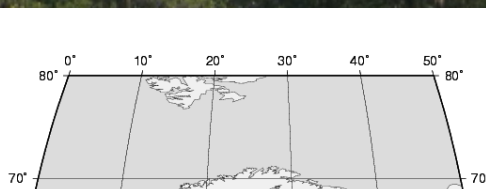


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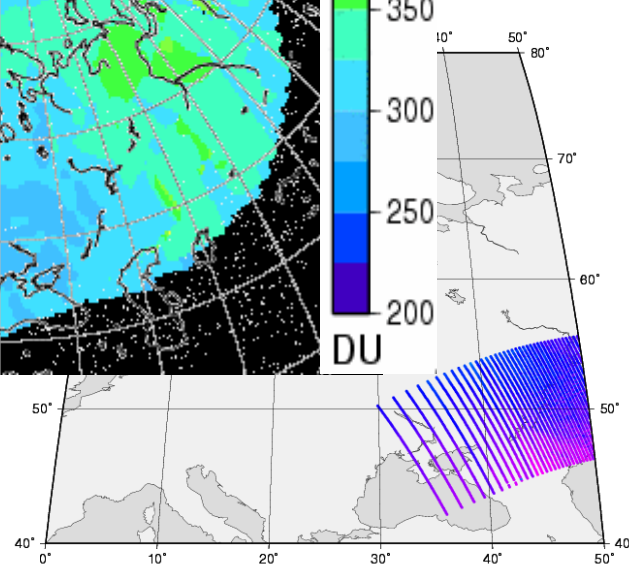
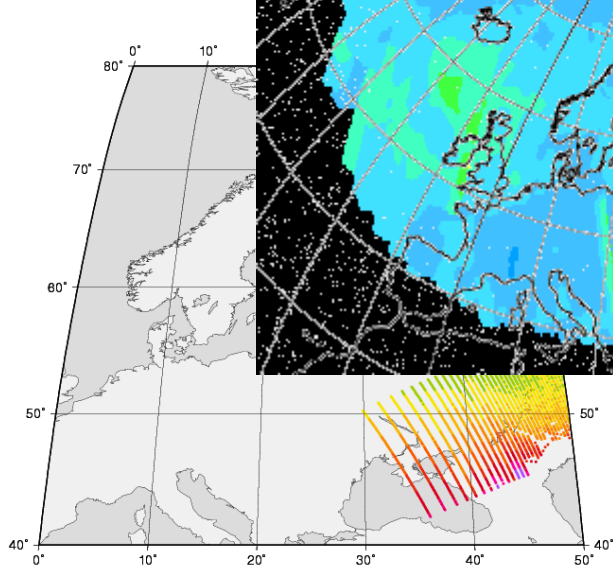


Begin

ice

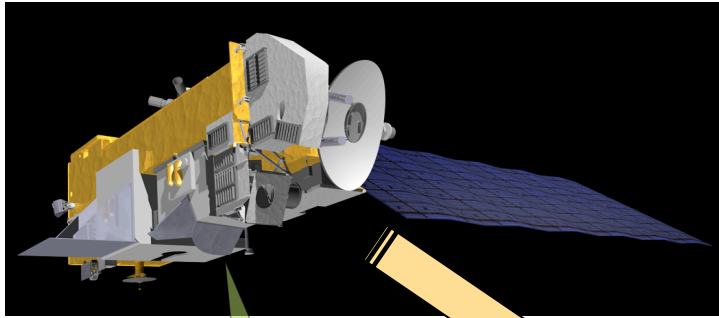


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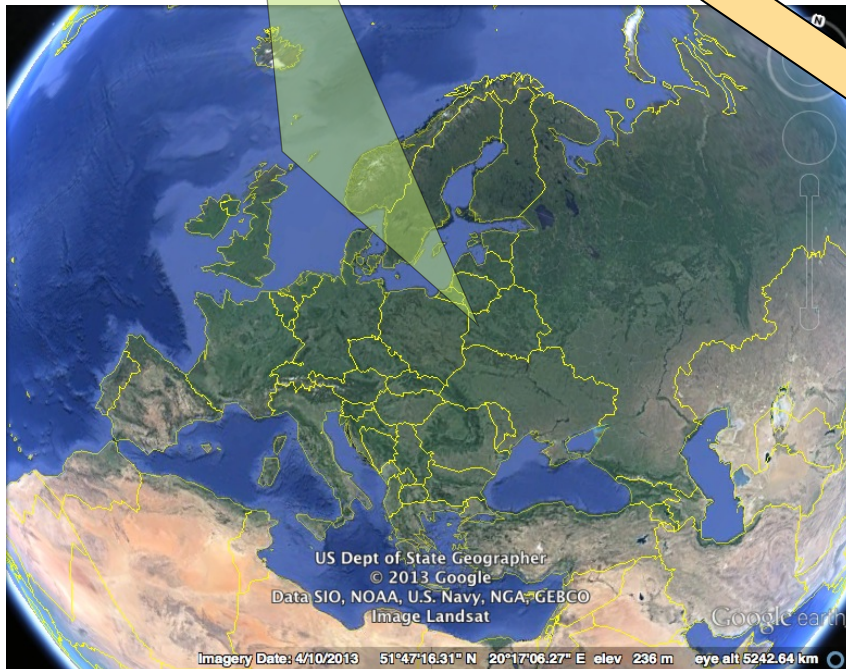


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Aura Direct Broadcast data reception in Sodankylä

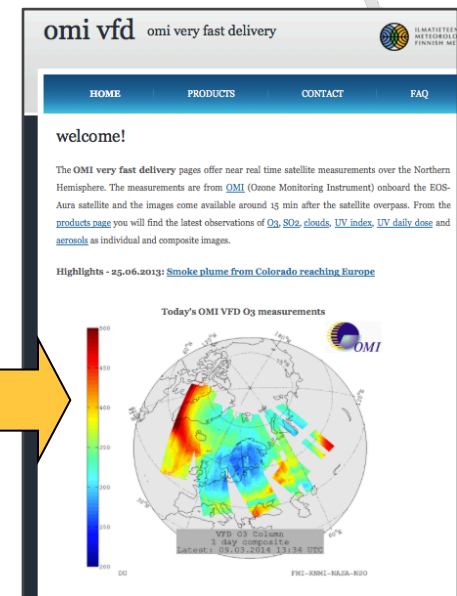
- High-latitude site optimal for data reception of Polar satellites
- Coverage: most of Europe



Observations



Direct Broadcast receiver



Distribution in the web



OMI VFD UV product used in Iceland

- Icelandic Radiation Safety Authority has been using OMI UV-radiation products from VFD since June 2012.
- Overpass data: Reykjavik and Egilsstaðir



<http://uv.gr.is>





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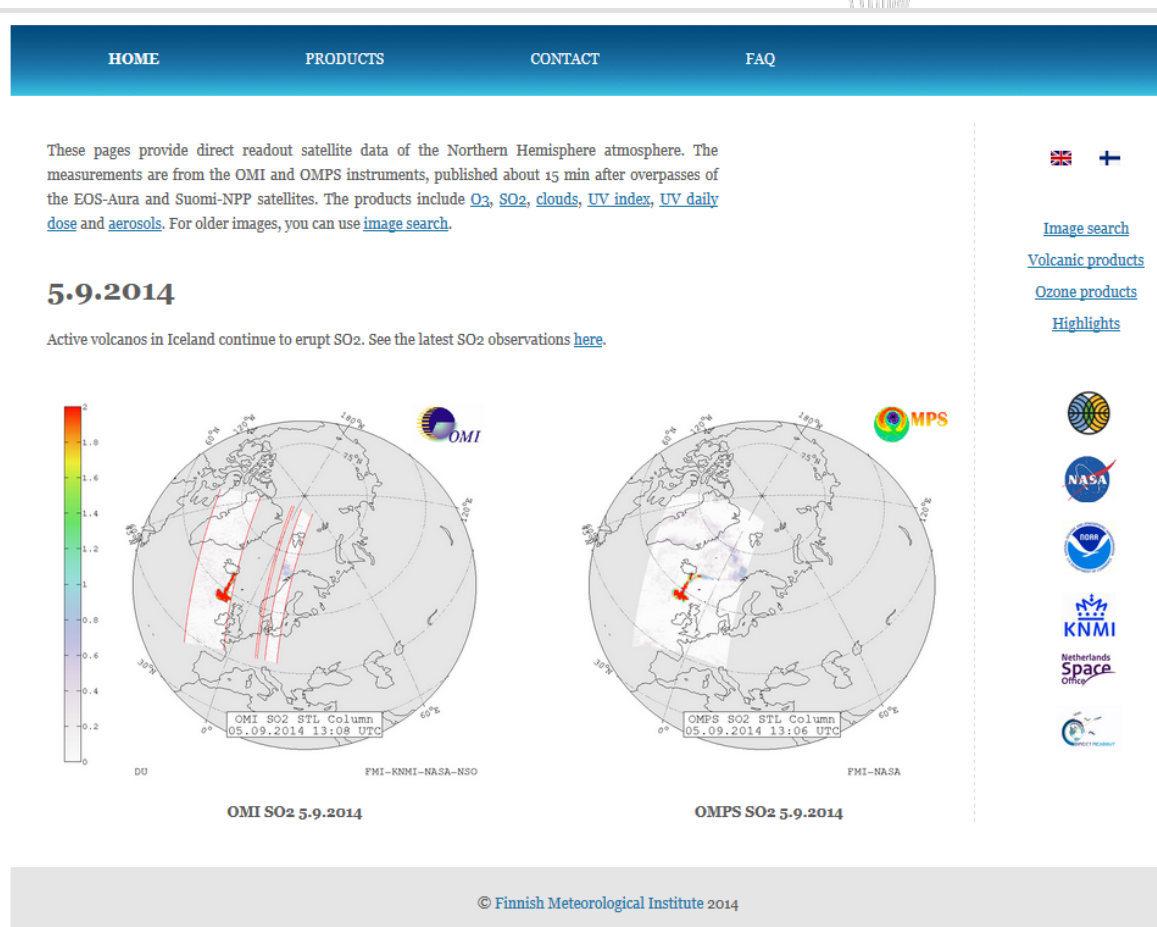
New SAMPO service

Satellite Measurements from Polar Orbit

- Instantly delivered Direct Readout products
- Replaces OMI-VFD web service
- Includes both OMI and OMPS

OMPS

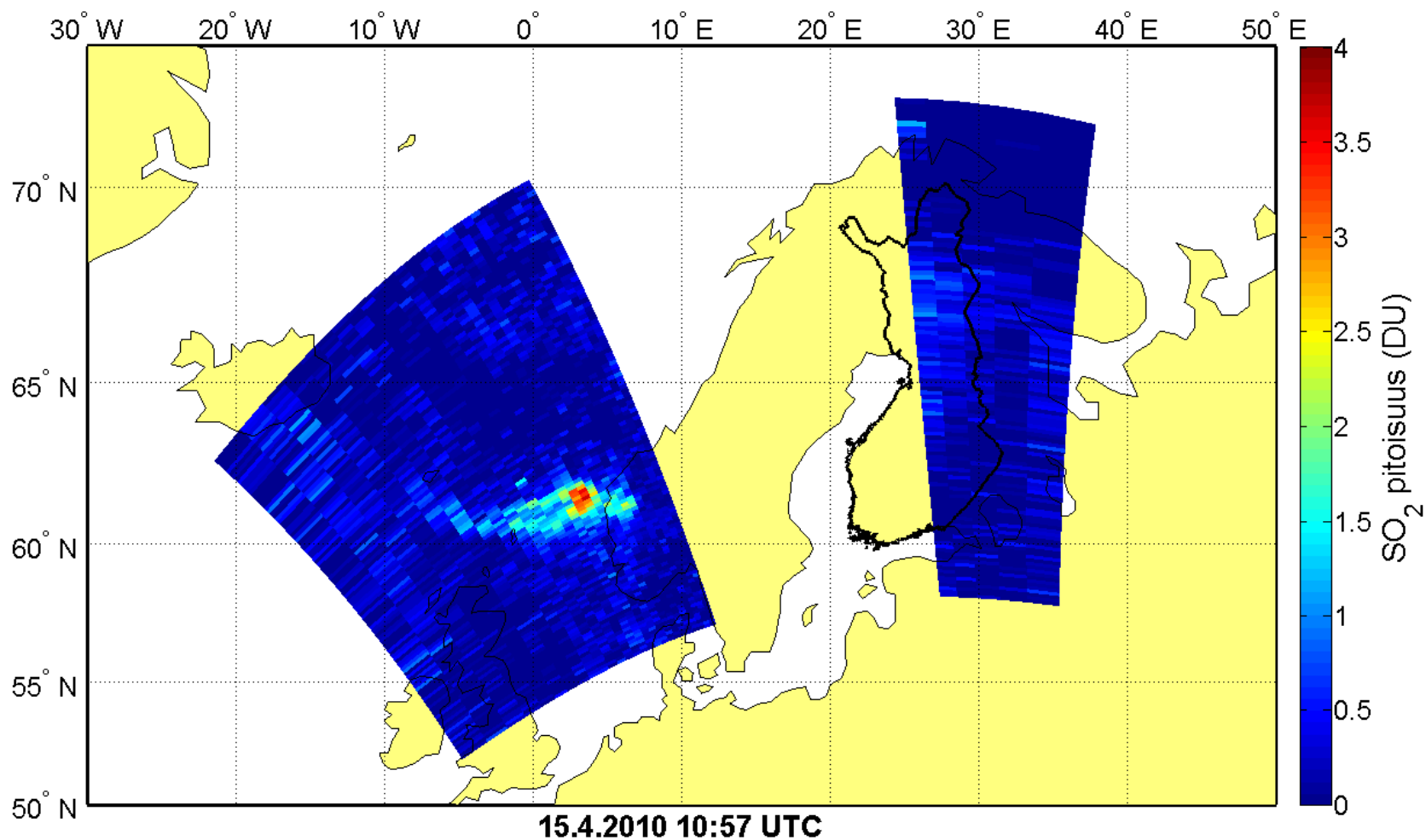
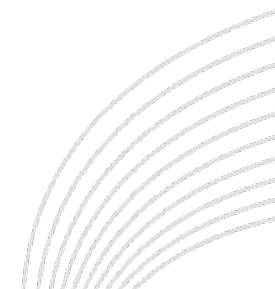
- Ozone Mapping and Profiler Suite
- On-board S-NPP
- Launched Oct 28th 2011



<http://sampo.fmi.fi/>



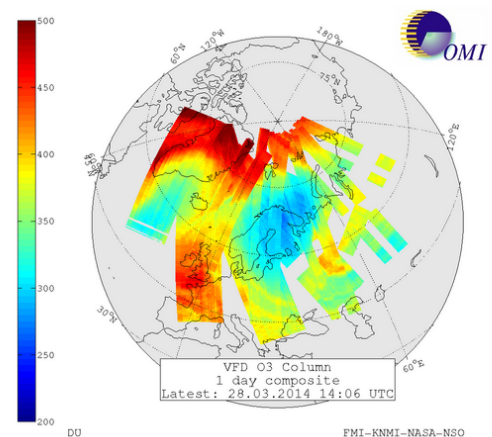
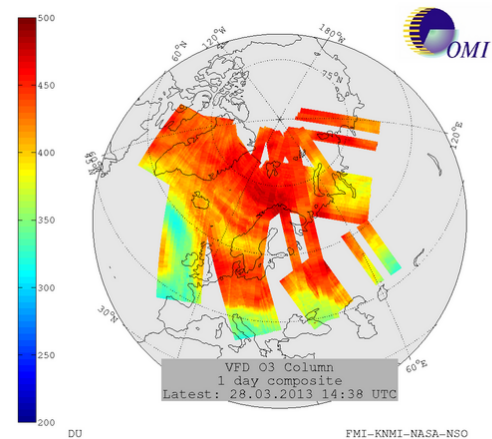
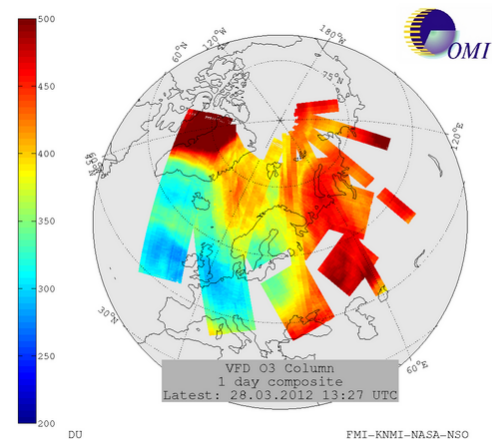
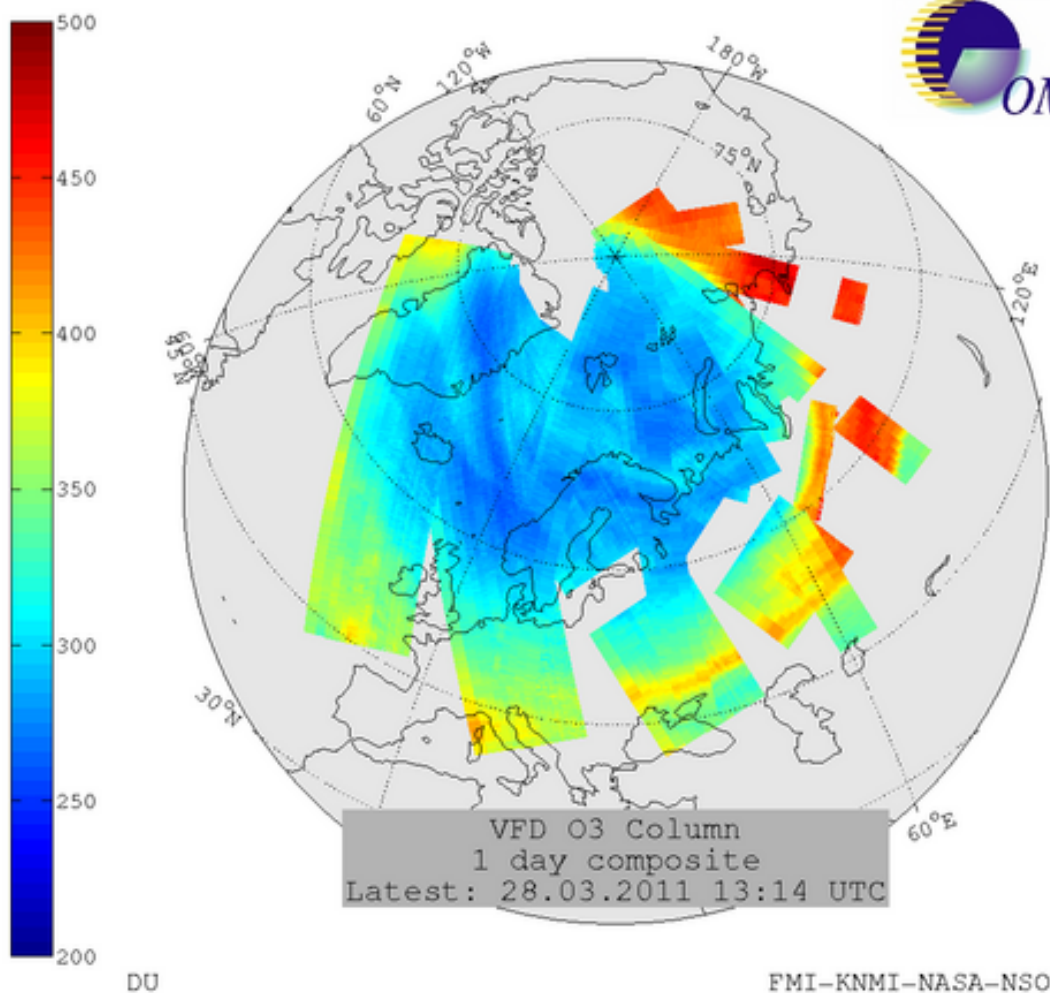
2010: Eyjafjallajökull





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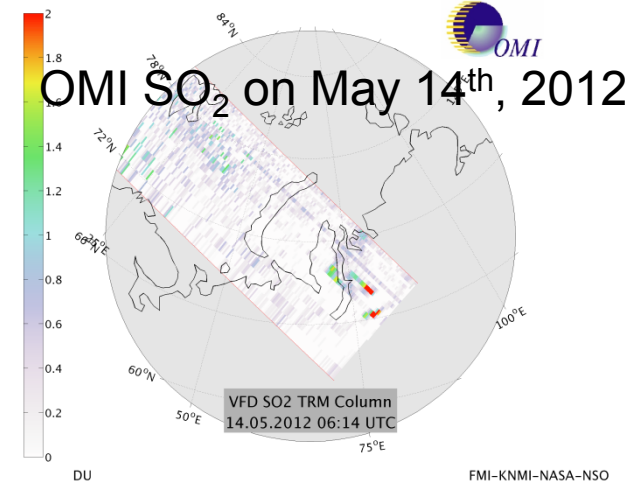
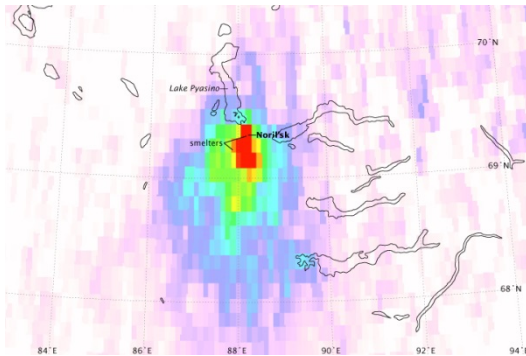
2011: Arctic ozone loss





Sulfur dioxide from metal smelters in Siberia

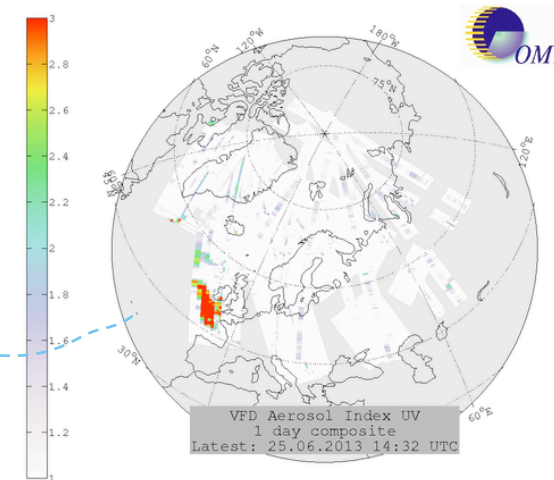
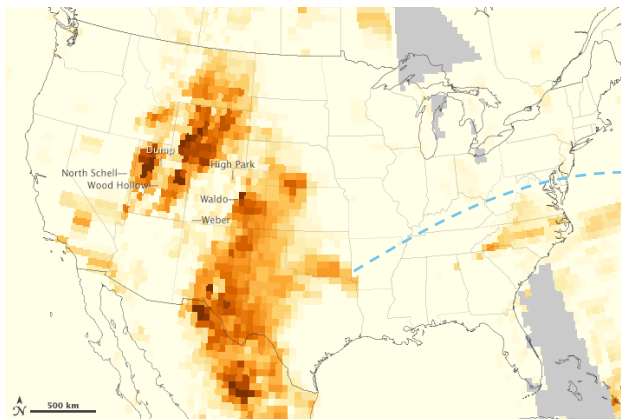
Averaged SO₂: Jun-Aug, 2005-07



FMI-KNMI-NASA-NSO

June 2013 – Smoke plume from Colorado

The smoke plume originating from the wildfires in Colorado reached Europe in 25th June 2013



FMI-KNMI-NASA-NSO

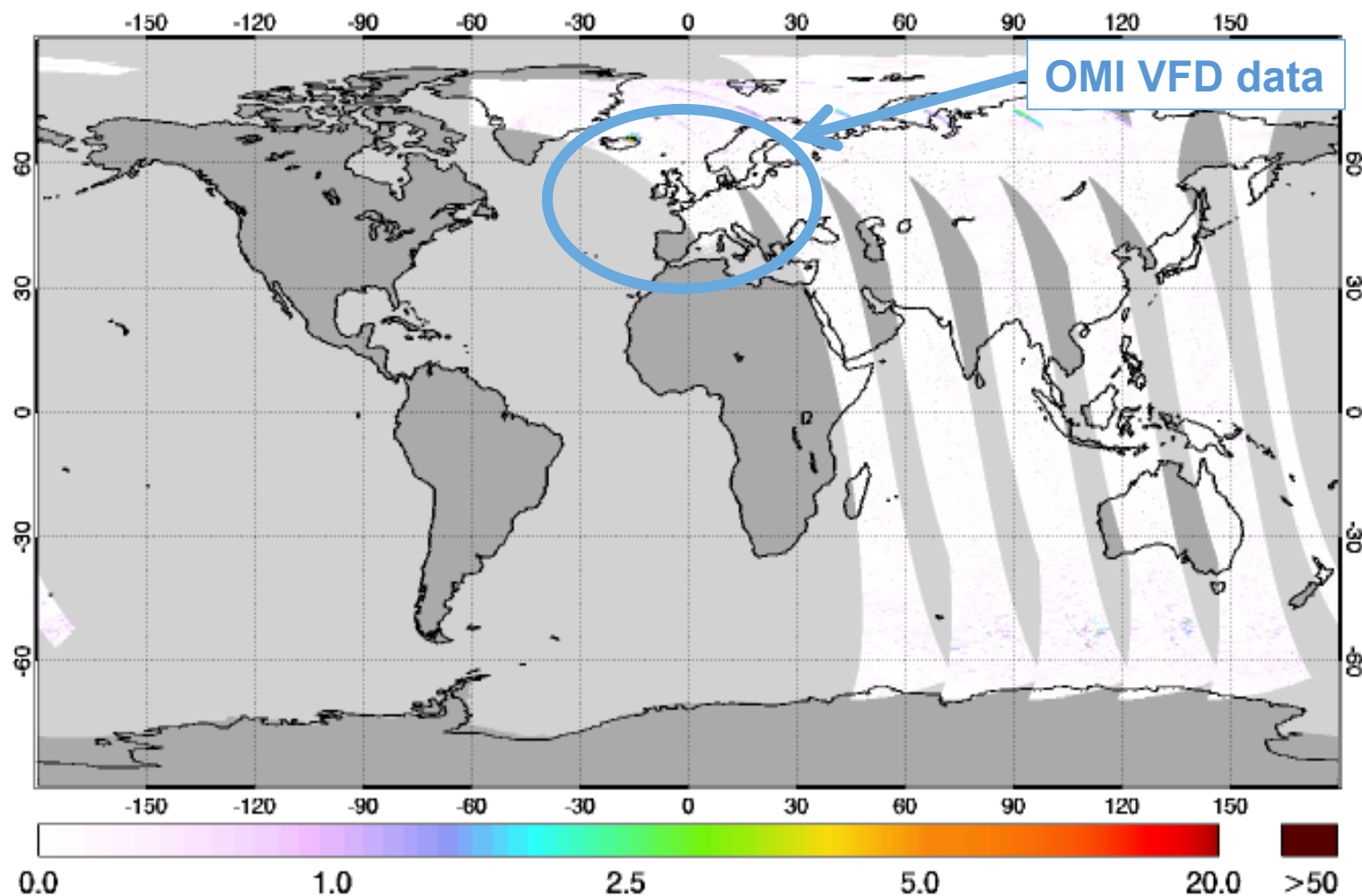


2014: Bárðarbunga

SO₂ vertical column [DU] (STL)

1 September 2014

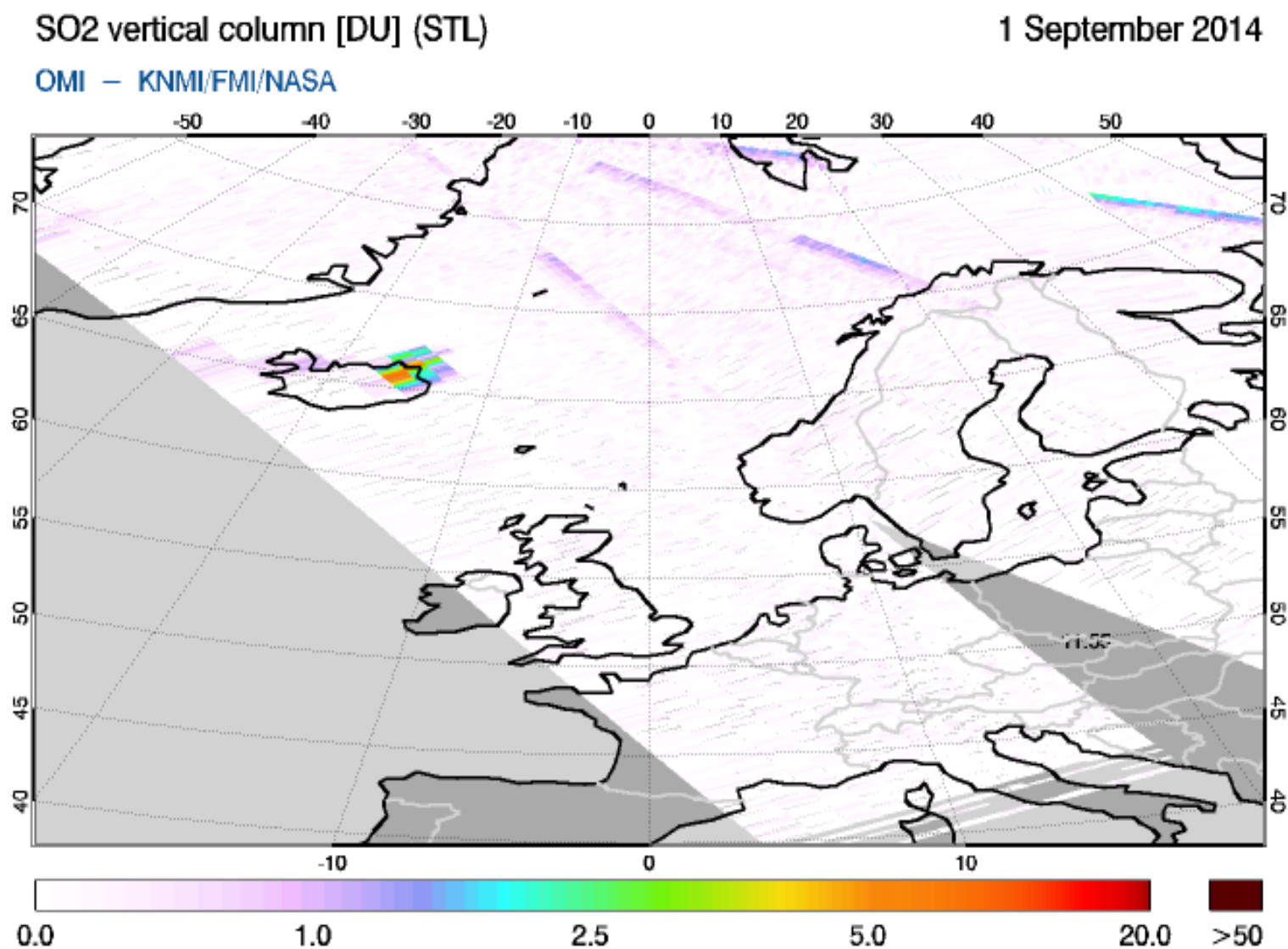
OMI — KNMI/FMI/NASA





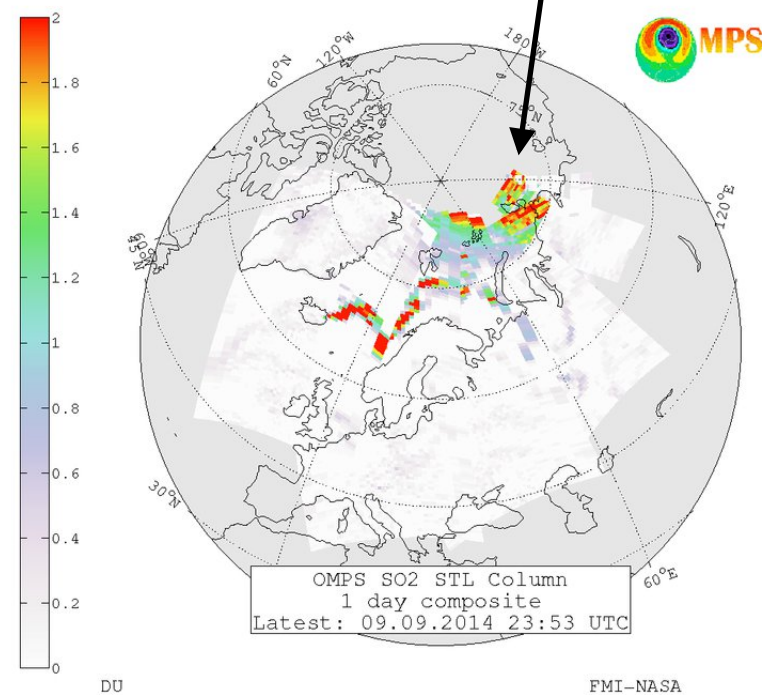
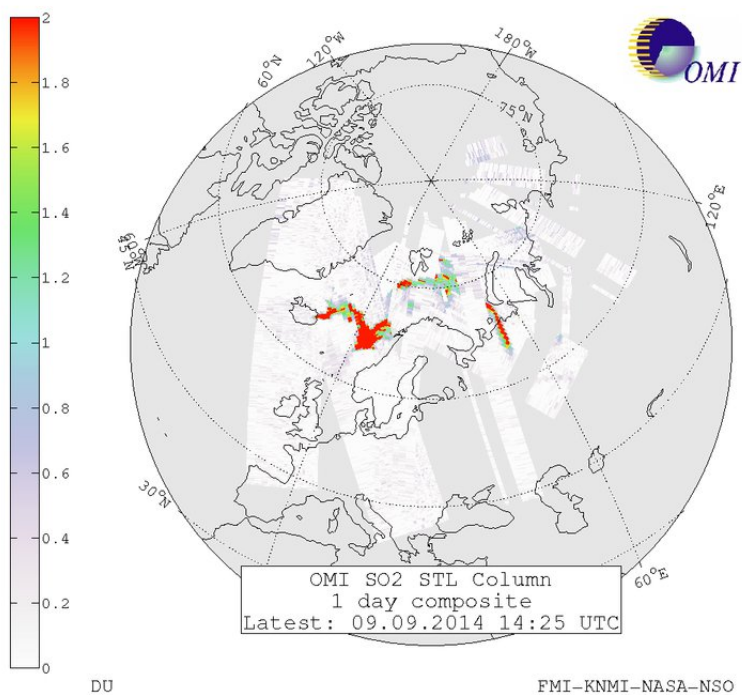
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2014: Bárðarbunga





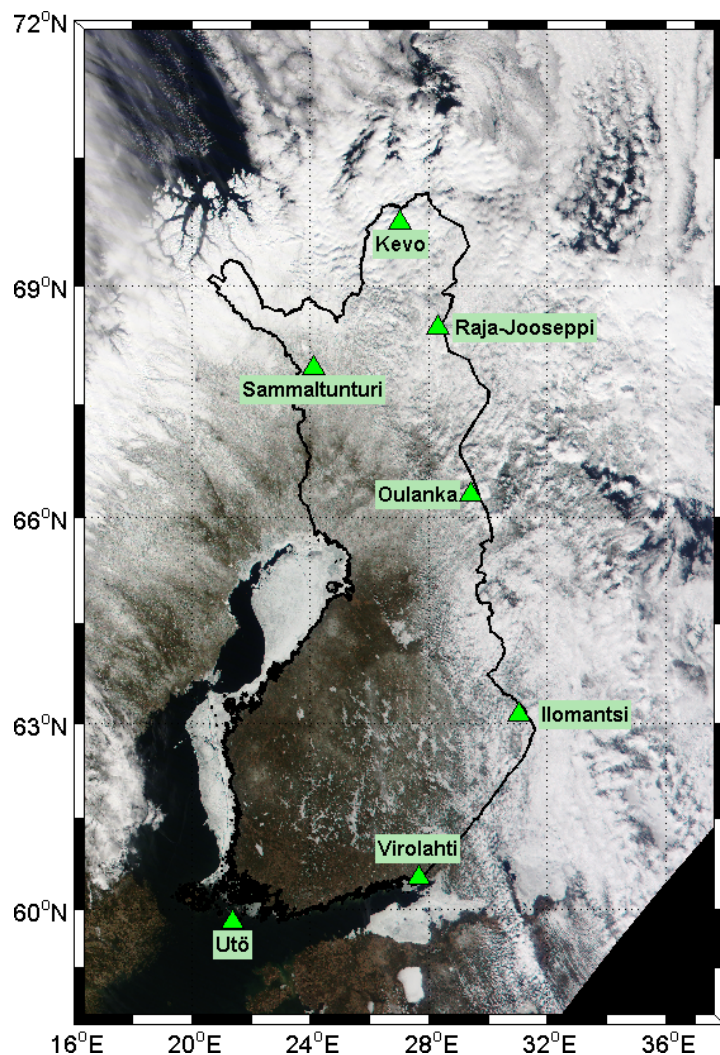
2014: Bárðarbunga



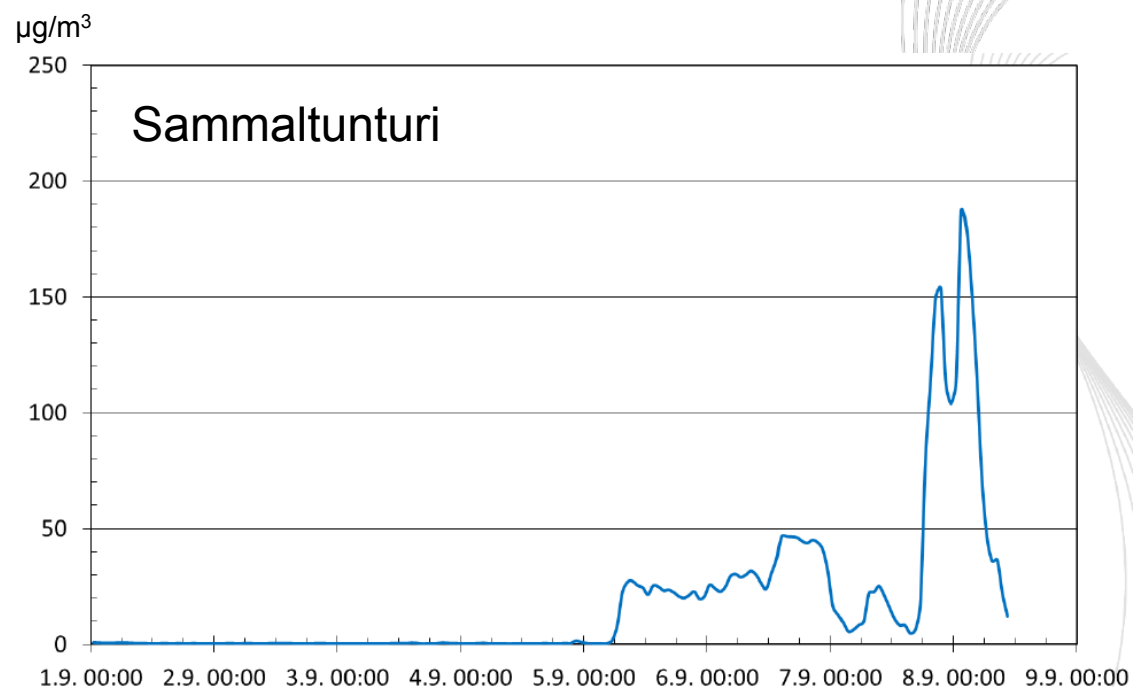
Aerosol scattering coefficient at 550 nm at 06:09 UTC 0.468 at 500 nm (long term mean 0.66) Mm^{-1}



2014: Bárðarbunga



SO₂ measurements in Finland



Maximum SO₂ concentration in Sammaltunturi was 187 µg/m³.

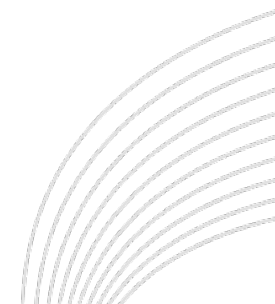
Health risk limit is 350 µg/m³.



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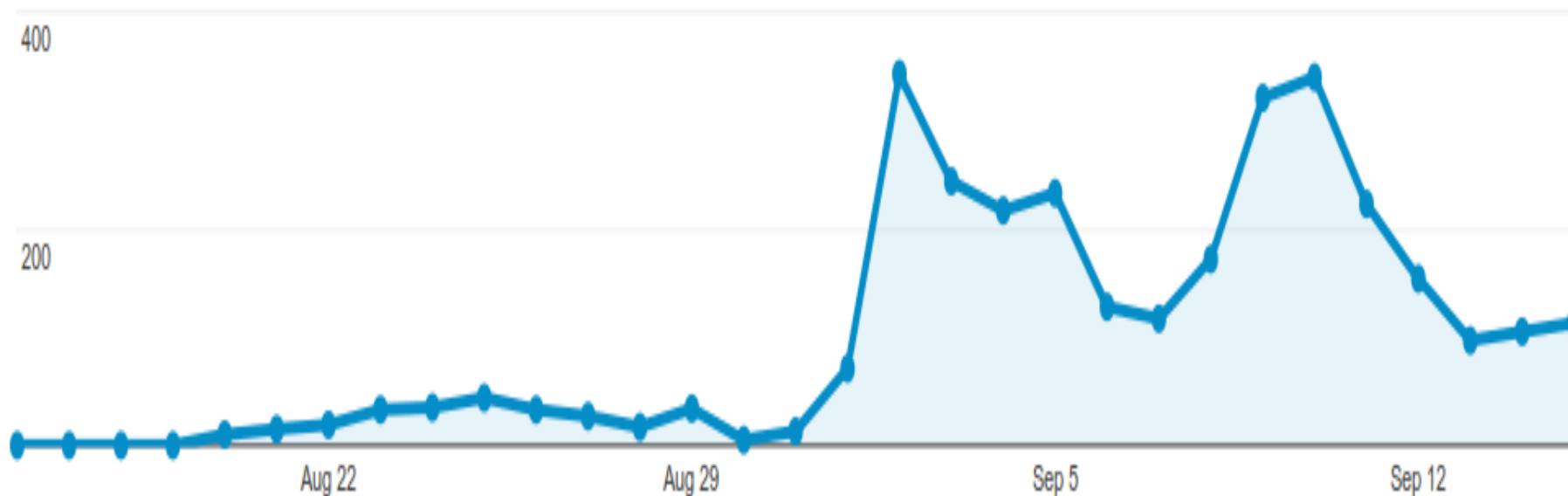
Public outreach



Sessions ▼ VS. [Select a metric](#)

Day Week Month  

● Sessions



Show: All | Starred

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The next step: Sentinels

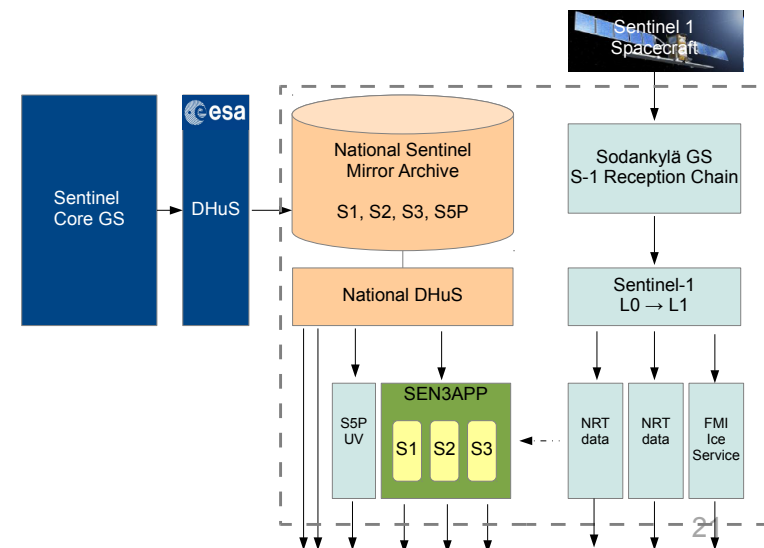


Image: ESA/Sentinel-1



Finnish Collaborative Ground Segment

1. Local reception of Sentinel-1 Direct Broadcast
 - Focus on NRT and Quasi-Real-Time products
 - Special Interests:
 - S1 -> Baltic Sea Ice monitoring, Oil spill monitoring
2. National Sentinel mirror site
 - Provision of Sentinel data to Finnish Data users
 - S1, S2, S3 and **S5P**
 - Long-term data archive
 - Automated data processing lines for specific products
 - Hosting of processing services





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