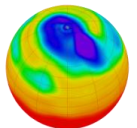# Sentinel-1 InSAR data by LiCSAR system

Milan Lazecky, Yasser Maghsoudi, C. Scott Watson, Yu Morishita, John Elliott, Andrew Hooper, Tim Wright, Fabien Albino, Daniel Juncu, and many others helped developing the system

Centre for Environmental Data Analysis
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL

Earthquakes without Frontiers
NATURAL ENVIRONMENT RESEARCH COUNCIL
ECONOMIC & SOCIAL RESEARCH COUNCIL

LiCS
NATURAL ENVIRONMENT RESEARCH COUNCIL
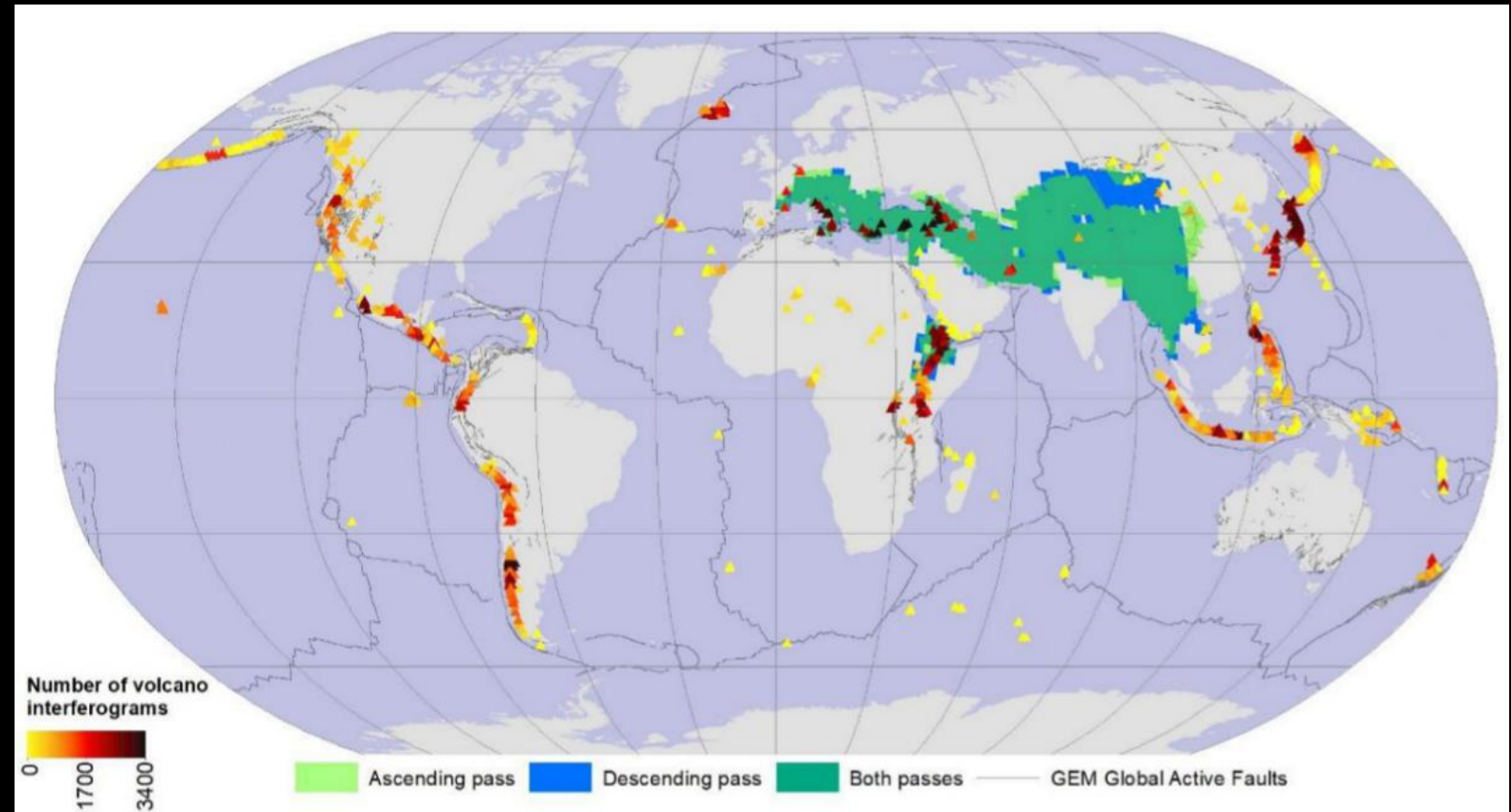
NERC
SCIENCE OF THE ENVIRONMENT

COMET

UNIVERSITY OF LEEDS

COMET LiCSAR

- LiCSAR system is generating interferograms from Sentinel-1 data

- covers tectonic and volcanic zones globally

- free and open InSAR data

- in total (Apr 2021) 455 000 ifgs

Number of volcano interferograms

0 — 1700 — 3400

Ascending pass | Descending pass | Both passes | GEM Global Active Faults

the system

- Sentinel-1 data from ASF, SciHub, CEDA Archive
- running on ~100 cores every moment (JASMIN >10k cores)
- allocated 350 TB data space (currently ~85 TB dataset)
- data and tools shared within community:
LiCSAR portal, CEDA Archive, EPOS,
https://gitlab.com/comet_licsar/licsar_documentation/wikis/licsar_tools
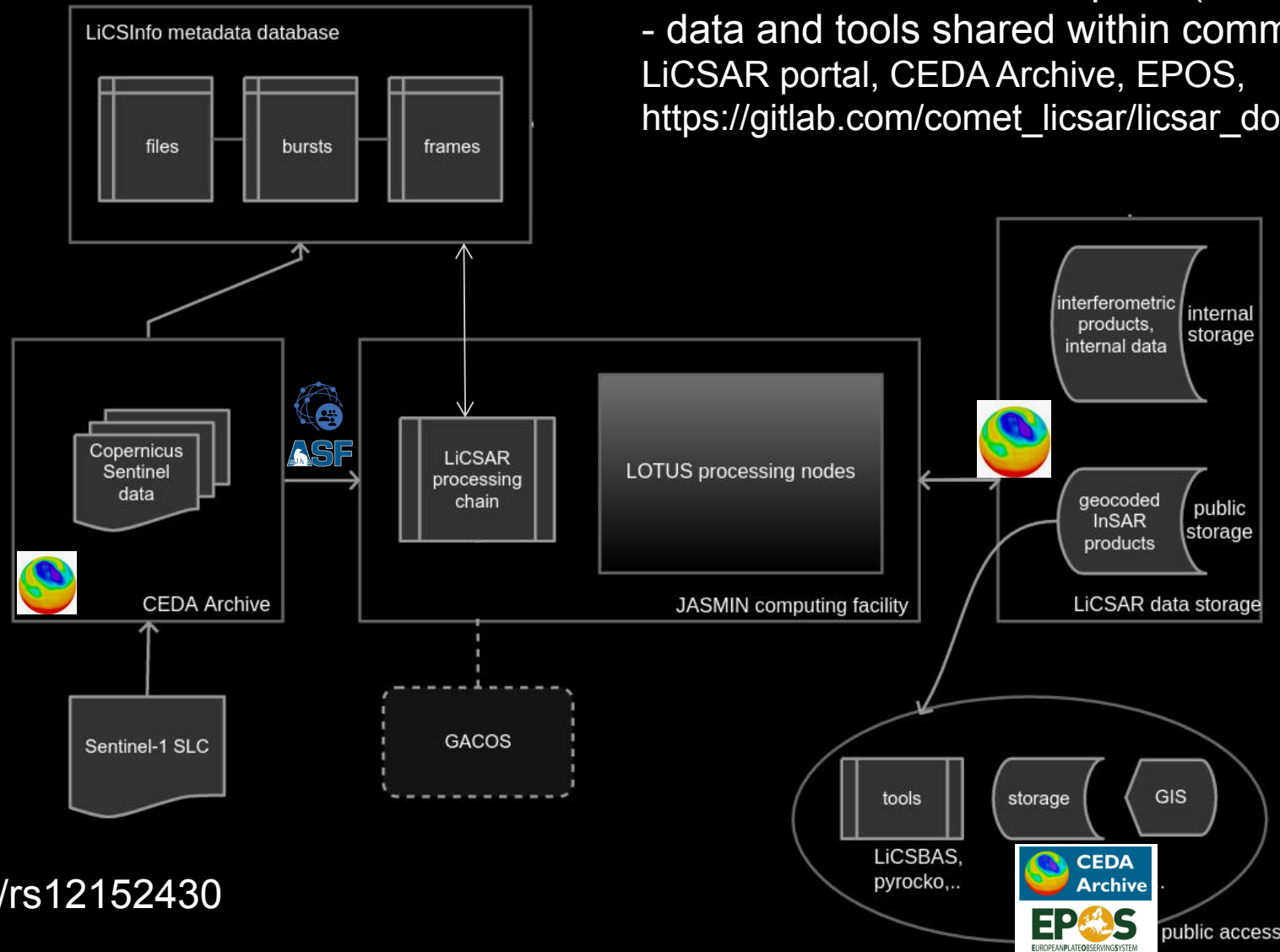
the data

- standard frame: ~250x250 km

- 4+4 short-lag interferograms per epoch

- data shared as geotiffs of 0.001° resolution
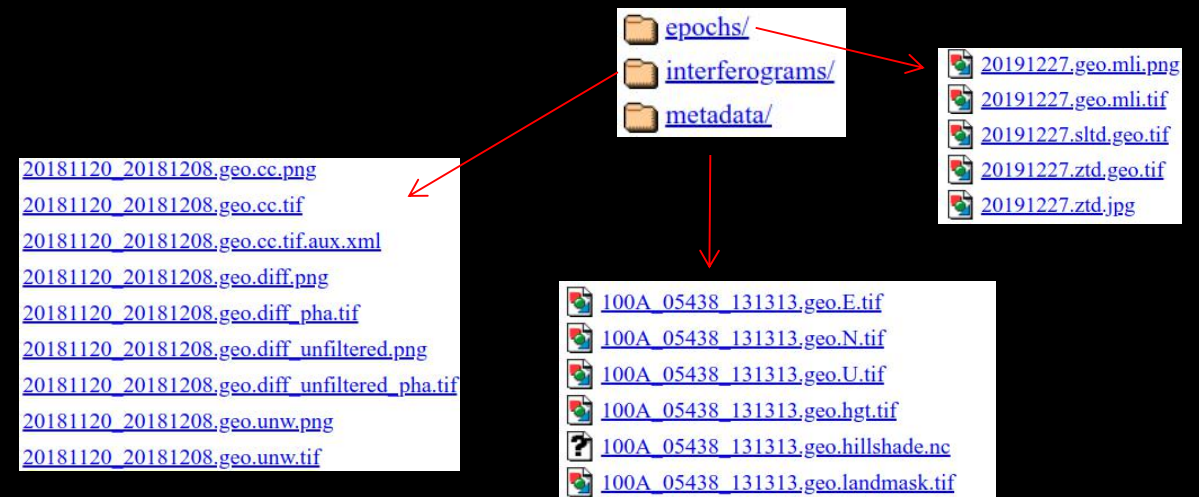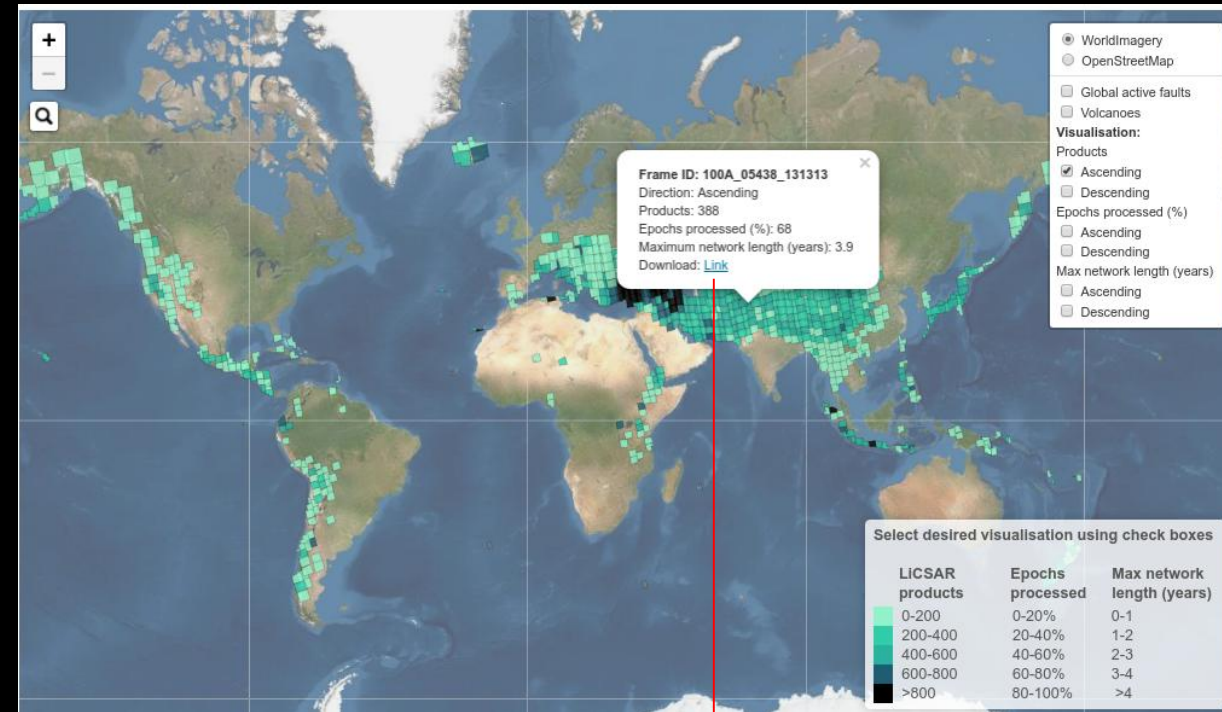
(approx. 110 m, WGS-1984)
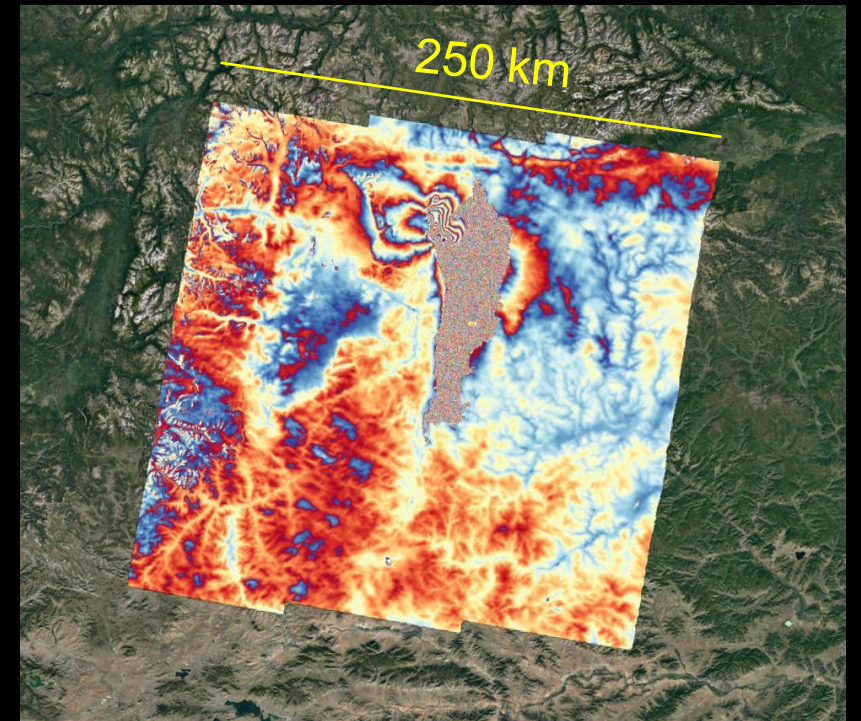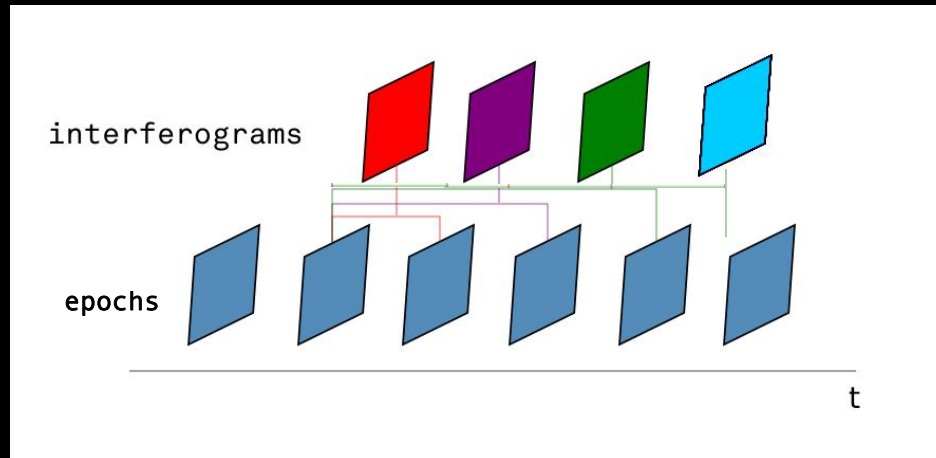
the data

core InSAR data

- filtered + unfiltered interferograms
- unwrapped interferograms
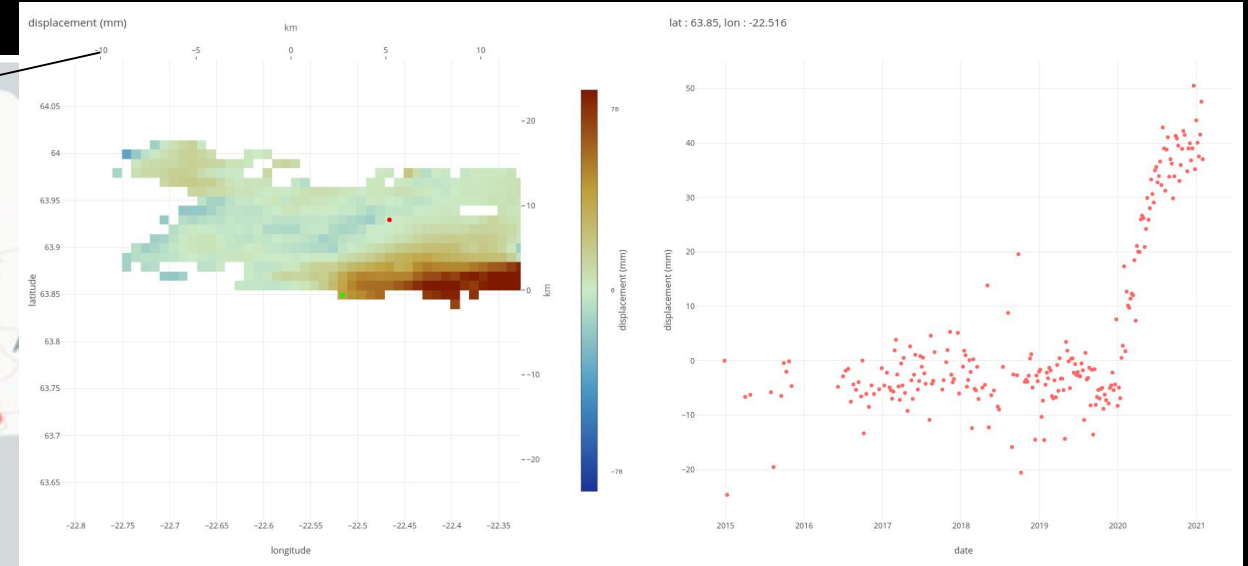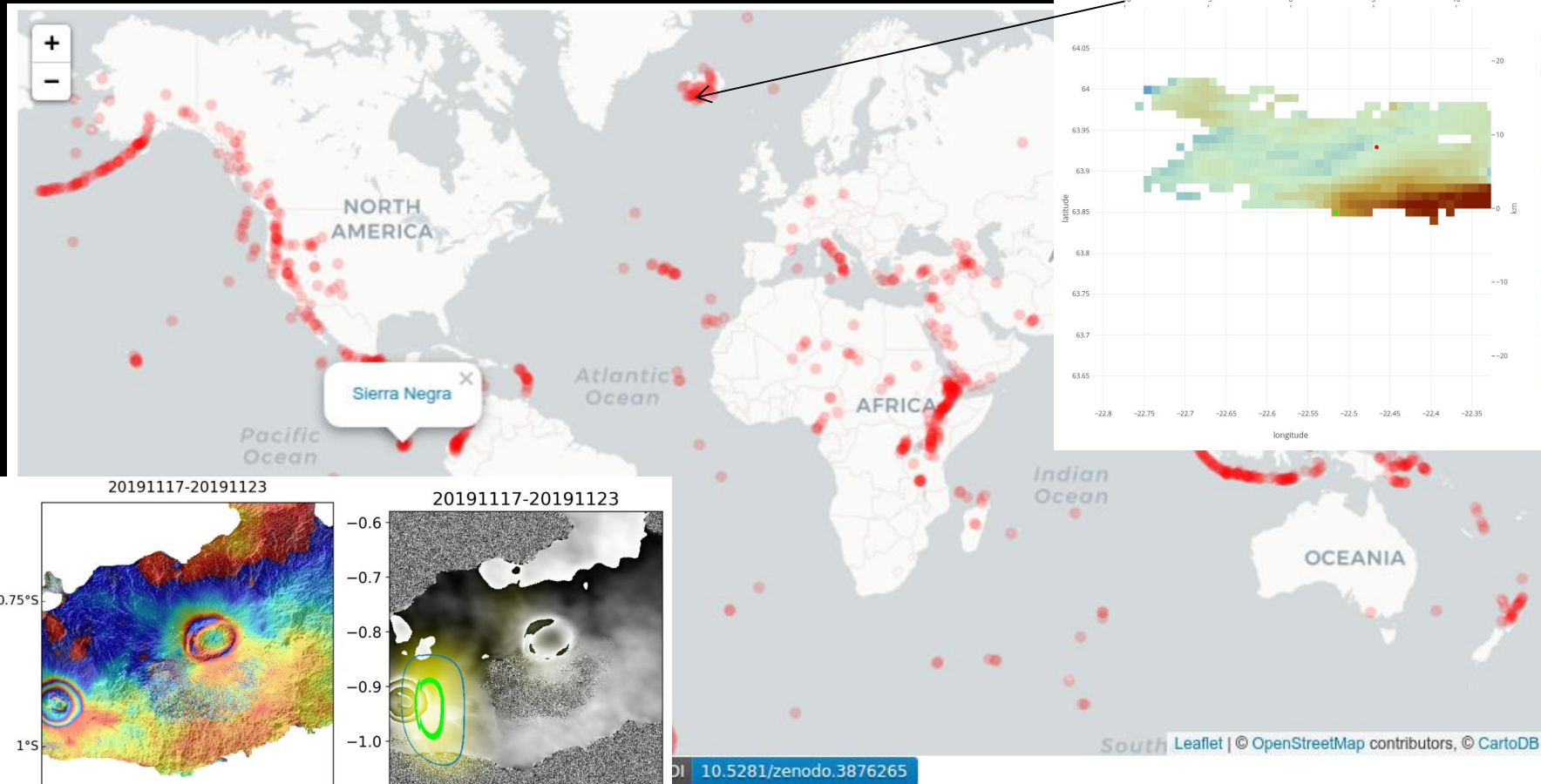- interferometric coherence

additional data:

- backscatter intensity epoch files
- GACOS atmospheric correction
- DEM, landmask (GMT),..
- E-N-U vectors
- Google Earth kmz files for coseismic ifgs

related portals

Susi Ebmeier, Fabien Albino, C. Scott Watson, Richard Rigby,...

https://comet.nerc.ac.uk/comet-volcano-portal

time series analysis by
LiCSBAS (open source)
https://github.com/yumorishita/LiCSBAS

ML-based detection
of volcanic deformation

related portals

John Elliott, Milan Lazecky, C. Scott Watson, Yasser Maghsoudi,...

https://comet.nerc.ac.uk/comet-lics-portal-earthquake-event/
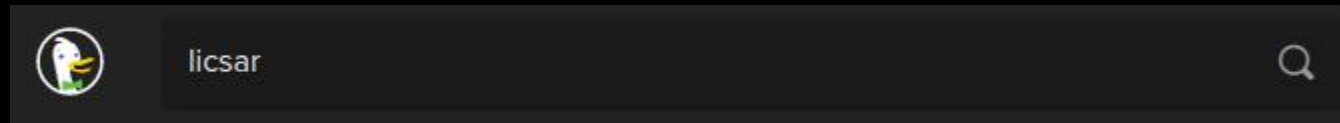

interferograms generated ~12 hours after post-earthquake acquisition (earthquakes > Mw5.5)

thank you for attention