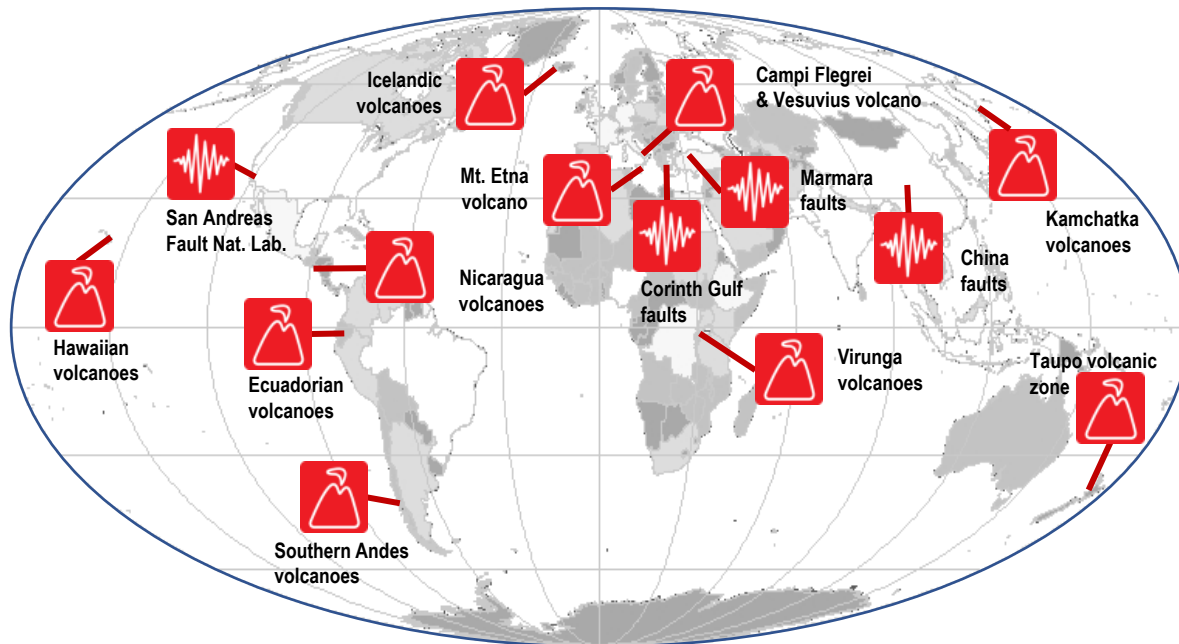


The GEO-GSNL initiative

Established in GEO in 2011, GSNL aims to improve **monitoring and research on seismic and volcanic hazards**, to stimulate better information support for Risk Prevention and Emergency Response by local governments.

We maintain long term archives of open access in-situ and EO data (**mainly thanks to ESA sponsorship**) and promote **international collaboration, capacity development, knowledge transfer** and **Open Science**, at specific **Supersites**.

A few results obtained with this approach are presented in the following slides.

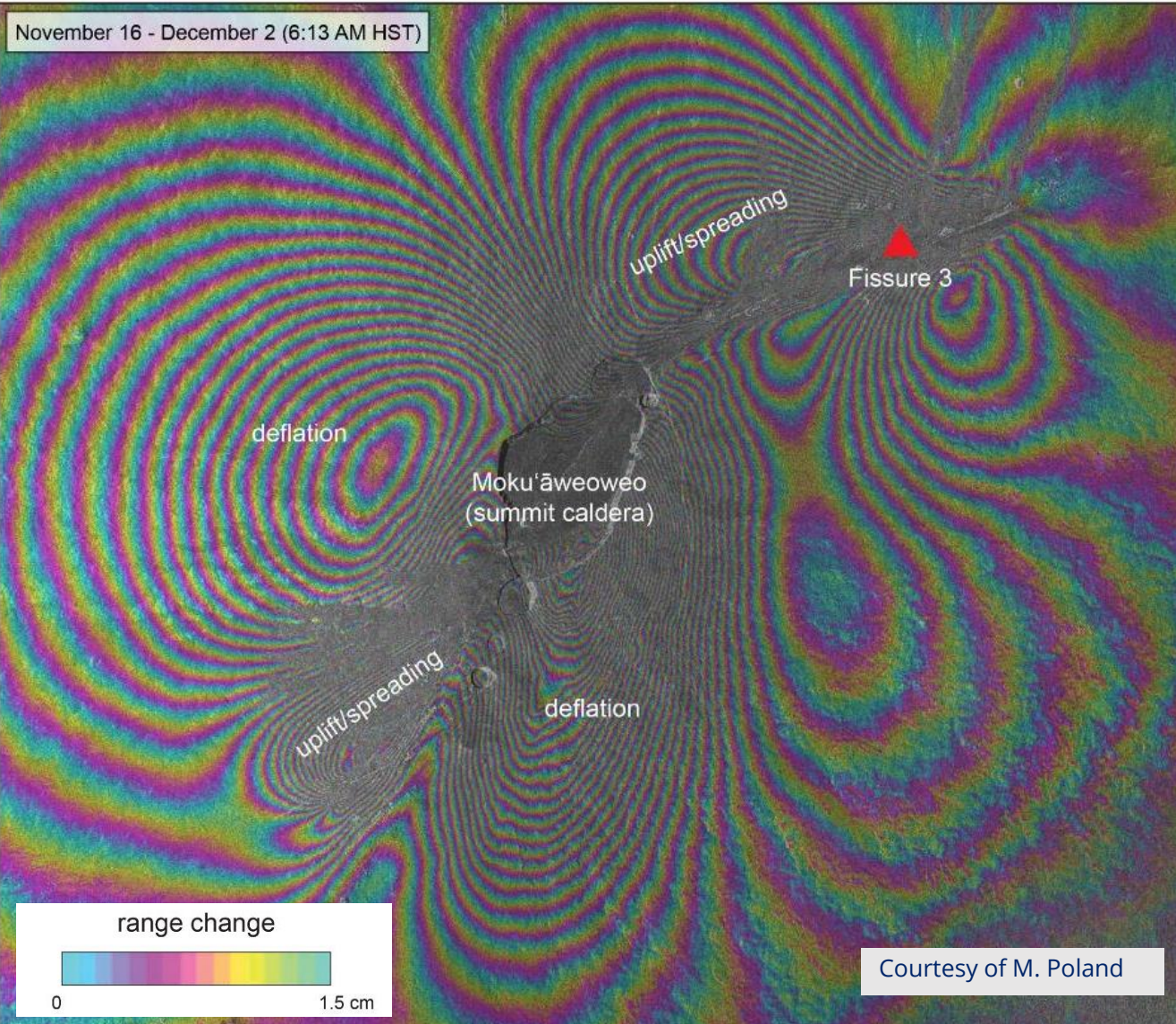


The GSNL network in 2023: 13 Geohazard Supersites and a Natural Laboratory



The GSNL partnership

The 2022 Mauna Loa, Hawai'i, eruption

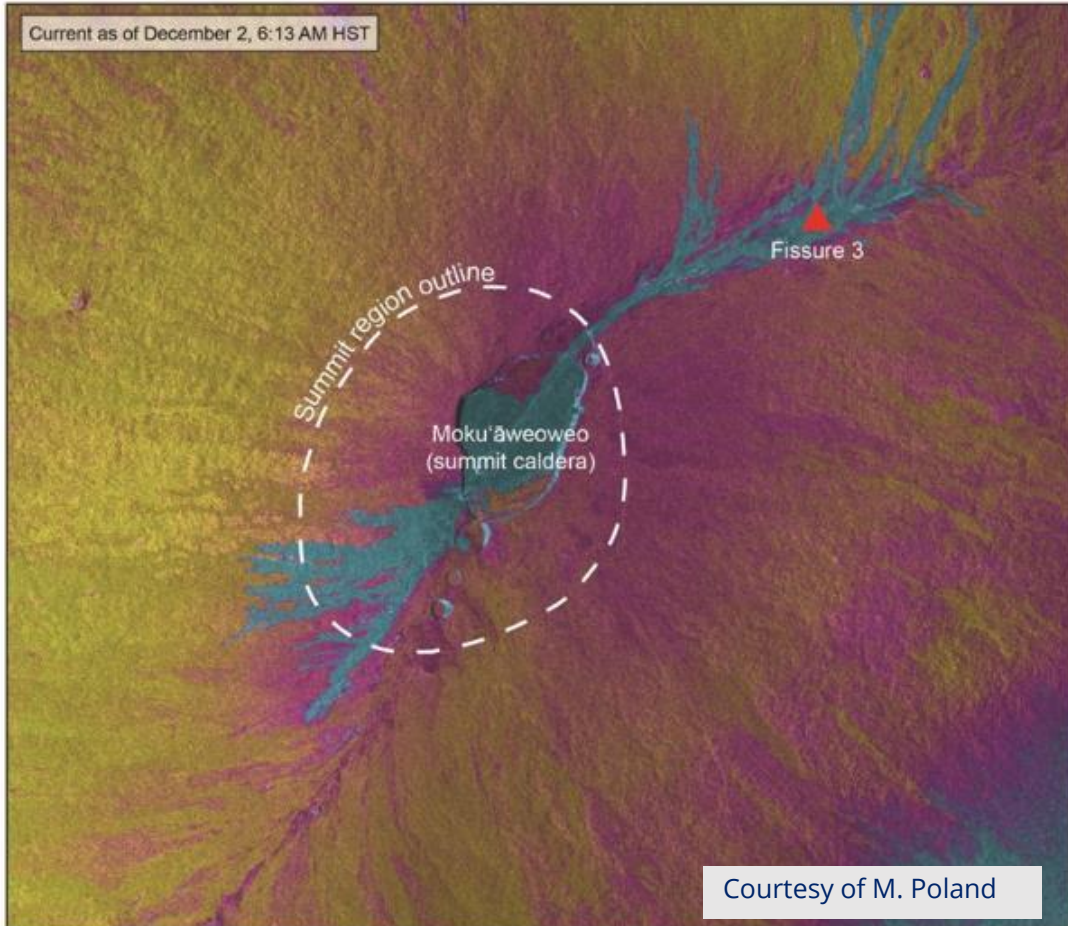


Cosmo Skymed interferogram

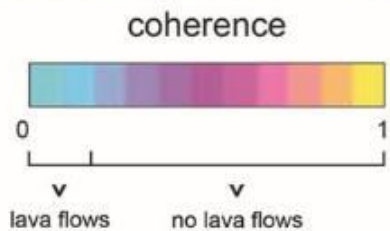
November 15 - December 2

A complex pattern of ground deformation, including inflation, deflation zones and fractures, formed around the summit caldera before the eruption.

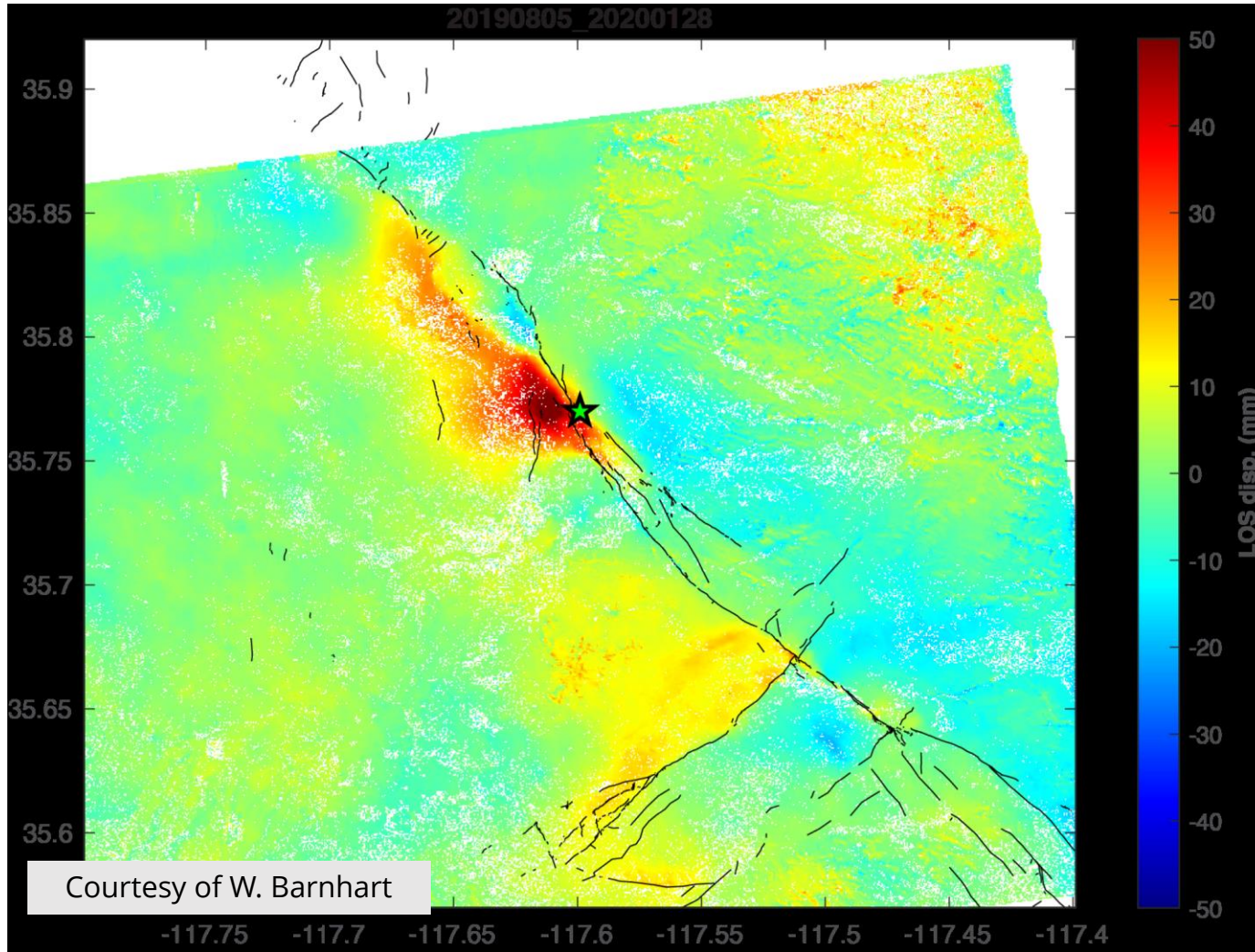
The 2022 Mauna Loa, Hawai'i, eruption



Cosmo Skymed coherence changes were used to monitor the lava flow emplacement during the December 2022 Mauna Loa eruption.

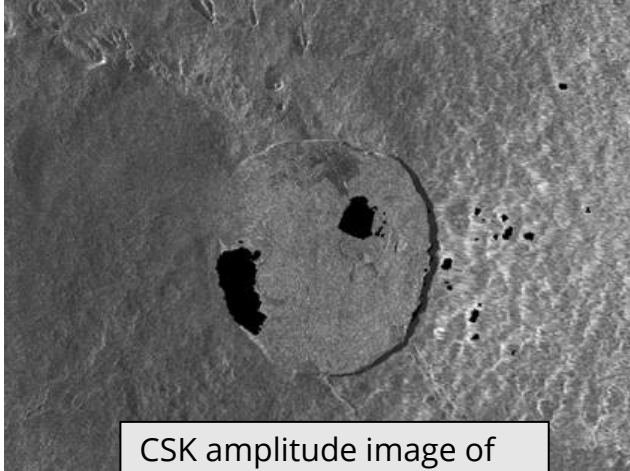


San Andreas Fault Natural Laboratory



Cosmo Skymed data were used to map the post seismic deformation of the 2019 Mw 7.1 Ridgecrest earthquake, revealing the important role of poroelastic rebound following seismic perturbations in the shallow crust.

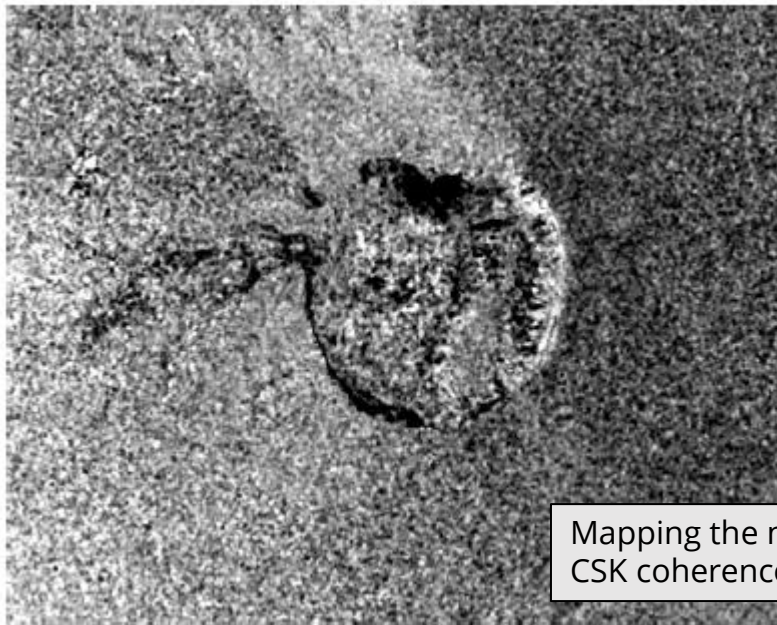
Virunga volcano Supersite



CSK amplitude image of
Nyiamulagira volcano

Cosmo Skymed data were used to monitor the May 2023 eruption of Nyiamulagira, when a small lava flow fed by the lava lake in the inner crater, ran down the western flank.

Since the area is inaccessible from the ground, these were the best monitoring products for the situational awareness, used by the local Observatory.



Mapping the new lava flow from
CSK coherence analysis

