Large Scale Interferometric Processing of Sentinel-1 Data over the Atacama Desert – a Contribution to the TecVolISA Project

Francesco De Zan¹, Homa Ansari¹, Alessandro Parizzi¹, Robert Shau¹, Michael Eineder¹, Sina Montazeri¹, Victor Navarro Sanchez¹, Thomas Walter²

(1) DLR - Remote Sensing Technology Institute
(2) GFZ - German Research Centre for Geosciences

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HELMHOLTZ
RESEARCH FOR GRAND CHALLENGES
Sentinel-1 InSAR products + Geophysical knowledge + Deep Learning
=> automatic detection and classification of motion sources
Mean velocity maps from InSAR (no GNSS calibration)

~50 Sentinel-1 slices

PS/DS processing, with tropospheric and ionospheric corrections
Large area PS/DS-processing + Along-track mosaicking + GPS calibration

Relative LoS defo rate

Azimuth mosaicking

GPS calibration (absolute LoS deformation rate)
Mean velocity inverted for East and vertical motion

The vertical motion suffers from leakage from a large scale North component.

Anyway, there is a number of prominent local vertical signals, as on volcanoes or on salt lakes.

Local vertical deformation