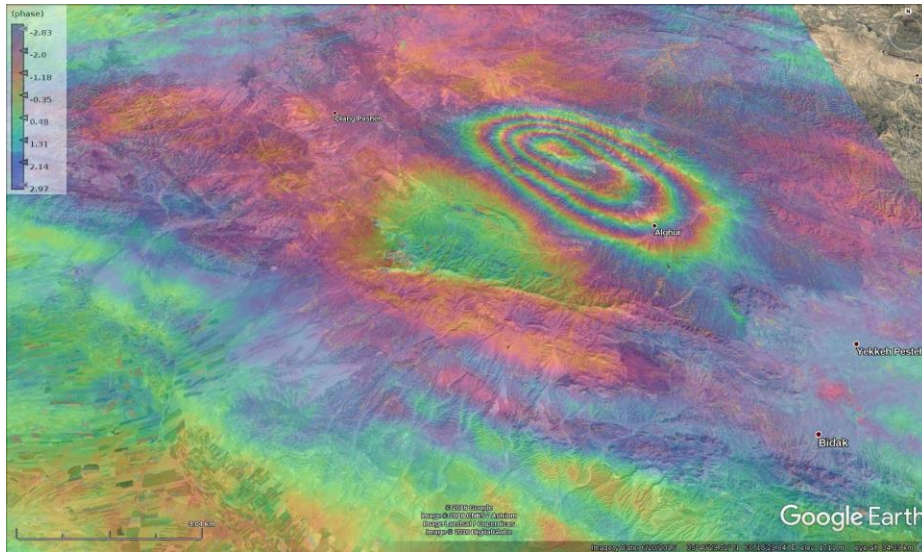


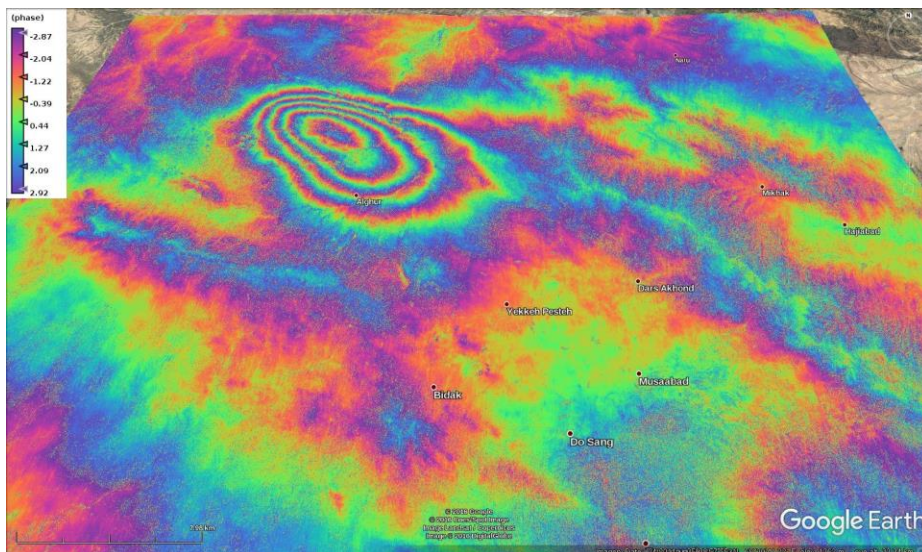
Doghaleh (Sefidsang) Fariman, NE Iran earthquake, Mw6.1, 5 April 2017, A preliminary field observation and DInSAR study

The earthquake in NE of city of Fariman in Khorasan-e Razavi Province of NE Iran, occurred in 10:39 a.m local time, therefore most of the inhabitants have been placed in the outdoor. Most of the inhabitants are farmers, catelmen and are working in livestock. The victims are fortunately limited to one old woman and a couple of injured (and not more).

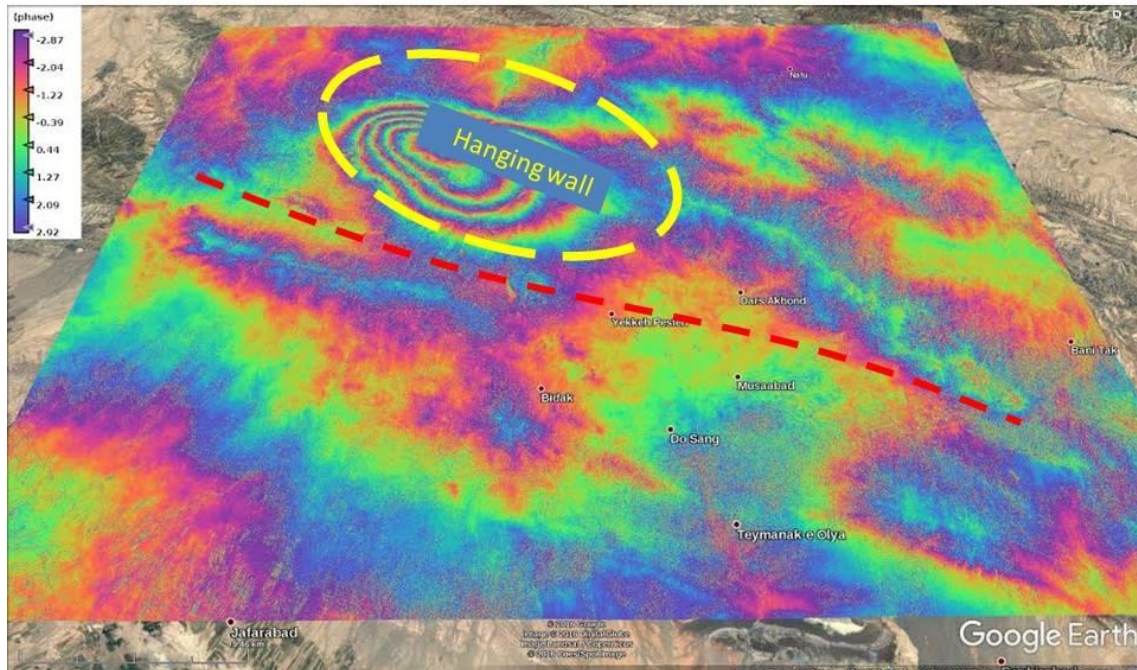
Two co-seismic wrapped interferometric maps were created using ascending (24/3/2017 - 5/4/2017) and descending (25/3/2017 – 6/4/2017) Sentinel 1 SAR scenes. The s/w for processing was SNAP. Both deformation maps show negative values of phase indicating movement towards the satellite, case that means it is a block pushed up.



Co-seismic deformation map using an ascending Sentinel 1 SAR image pair



Co-seismic deformation map using a descending Sentinel 1 SAR image pair



Tectonic interpretation based on DInSAR results and field observations.

The trend of the fault rupture might be followed up to be reverse (compressional) with a NW-SE fault trend. The distribution of aftershocks are mostly towards the North of Doghaleh (Alghur) and it seems that the aftershock are mostly location on the hanging wall. The landslide distributions and the location of the tension cracks and fissures are following the same pattern as the aftershocks. .Based on the existing distribution of intensities in the epicentral region, the fault plane having a slope towards NE, might be selected as the causative fault line. The distribution of aftershocks, the location of the villages suffering from most damages and the result of the SAR interferometry analysis might be taken as the fact to approve such hypothesis. Possible two important near source/site effects as well: 1) the reason for more important damages in the epicentral region (especially in Doghaleh village) might be the soil amplification as well as topography effects, and 2) the distribution of damages is mostly towards Southeast of the epicentral zone/fault line. This fact plus the major intensities and greater accelerations recorded in the SW and NE directions (normal direction to the fault line).Therefore a directivity effect might be interpreted due to the rupture propagation from NW towards SE.

The lobe of the fringes (in total 4-5 fringes), taken in consideration the above information, coincides with the hanging wall of the reverse fault. In the northwest part of the lobe fringes exhibit greater density

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