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# INSAR CONSTRAINTS ON FAULT SLIP MODELS DURING THE 2014 EARTHQAUKE SEQUENCE IN THE ZAGROS MOUNTAIN, SOUTH-WESTERN IRAN

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**ABSTRACT:**

Zagros mountain fold-thrust belt in southwestern Iran is one of the largest and most active belts on our planet with continuous seismicity. This NW-SE trending belt extends in southwestern Iran within the Alpine-Himalayan orogenic chain, accommodating approximately one-third of N-S convergence between the Arabian plate and Iranian plateau. Earthquakes with moderate magnitudes, 5.5–6 $M_W$, are common in the approx. 250–350 km wide zone along the Zagros fold and thrust belt. However, there is almost no direct exposure of the contractional faults at surface along the Zagros fold-thrust belt. In fact, this issue has long been a topic of active debate in scientific communities as to whether there is a comprehensive correlation between reverse faults, growth of anticlinal structures and seismicity in Zagros.

The documentation of fault models using geodetic data provides fundamental information on constraining different mechanism of surface shortening in Zagros. In this paper we investigate coseismic source models of the Mw 6.2 18 August and Mw 5.6 15 October 2014 earthquakes that occurred in Ilam province of SW Iran. We produce coseismic surface deformation maps by interferometry synthetic aperture radar (InSAR) using data from RADARSAT-2 satellite. The deformation maps are analyzed using elastic dislocation modeling to infer the pattern of faulting for these earthquakes. The InSAR-derived fault models are then compared with geological data and seismic cross section to infer seismogenic characteristics of the 2014 earthquakes