

GENERATION OF DEM AND STUDY OF SURFACE DEFORMATION USING SYNTHETIC APERTURE RADAR (SAR) INTERFEROMETRY

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Abstract: Interferometric SAR (InSAR) imaging is a modern remote sensing technique, utilizes the interaction of electromagnetic waves that referred to as interference and measure precise distances in few millimeters to tens of centimeters. InSAR uses two or more stereo SAR images of the same area to extract landscape topography and its deformation patterns. The study has employed Bam Earthquake data set of ascending and descending passes of 7 SLC, different perpendicular baseline values and differential Interferometric pairs from ESA (European Space Agency). The main objectives of the study were to generate DEM and to derive surface deformation through differential inteferometric process. The generated DEM was validated through Ground Control Points (GCPs) and accordingly resulted minimum and maximum deviation were found 0.22 % and -7.26% respectively. The surface deformation result indicated clearly differential fringes that appear along the Bam fault confirming the slip along the fault.

Keywords: InSAR, DEM, Surface Deformation and Inteferometry.