

ACCURACY ASSESSMENT OF INSAR DEM TROPOSPHERIC NOISE REDUCTION TECHNIQUE AGAINST GPS OBSERVATION

Alireza Sharifi^a

Structural and erosion related processes interaction through geological time periods, are the main cause for a planet surface formation. The surface morphology estimation is the first step in understanding these processes. The erosion amount often depends on local slop angles, and the river drainage network, which is controlled by topography. Thus, the quantization of surface form is one of necessities. Topography is important in many anthropogenic activities, from transportation infrastructures to flood and landslide mitigation. Satellite Interferometric Synthetic Aperture Radar (InSAR) Signals are often intensively contaminated by atmospheric delays. The atmosphere conditions especially its water vapor content significantly varies in space and with time. Therefore it is essential to characterize the atmospheric variations in order to mitigate these effects by appropriate means. In the topographic case, for high resolution DEM generation, the errors may be decreased by choosing interferometric pairs with relatively long baselines, as the error magnitude is inversely dependent on the perpendicular component of the interferometer baseline. For InSAR DEM quality estimation against tropospheric corrected one, we use the GPS measurements to create the reference DEM in the region. The preliminary results show that the corrected DEM by phase gradient method has the highest correlation with the ground base observations.

^a: M.Sc of Remote Sensing, Alireza, Sharifi
University of Tehran
Karegar St., Engineering Faculty, University of Tehran, Tehran, Iran
+982177574243, alirezasharifi@live.com