Title:	Detecting Surface Deformation and Groundwater Depletion using InSAR Technique over Metropolitan and historical cities of Rajasthan, India
Authors:	Dhayal, Pooja
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Abstract:	Over-extraction of groundwater is the main cause of land subsidence. The continu- ous depletion of groundwater is becoming a serious concern in the northern part of India. Due to the arid and semi-arid climate in Rajasthan, there is low rainfall and high temperature. Increasing anthropogenic activities due to growing population and rapid urbanization consume more groundwater for agricultural and daily purposes. However, it is evident that over-drafting leads to induced land subsidence in many acquirer-systems worldwide. For measuring the surface deformation in Sikar, Jaipur and Jodhpur, we used the Interferometric synthetic aperture radar (InSAR) tech- nique. The data were processed using the Small BAseline Subset (SBAS) technique using the GMTSAR tool by Sandell et al., 2011. For this, we used Sentinel-1 data. In Sikar, we got groundwater declining rate is -1.7 m/yr, and the land subsidence rate occurred around 1 cm/yr. In Jaipur and Jodhpur, the groundwater declining rate was observed -2 m/yr and -1.5 m/yr, respectively. Some parts of the Jaipur and Jodhpur districts was also shown surface deformation, which is around 1.1 cm/yr and 1 cm/yr, respectively. xiii
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