

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

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PS-INSAR PROCESSING TECHNOLOGY IN MONITORING OILFIELD SURFACE DEFORMATION
– STUDY OF THE VOLGA-URAL BASIN**Abstract**

subsidence districts are at over the top and medium hazard of tormented by subsidence resulted in damages like diminish in runoff and wastewater seepage capacity, disturbance to water transportation structures undermine artificial infrastructure balance. Also land subsidence may also be caused by the exploitation of oil and gas. Russia is a major oil and gas producer in the globe. The Romashkino field is an oilfield located in Tatarstan region of Russia, the largest oilfield in the Volga-Ural Basin found in 1948. In this study the application of INSAR analysis for surface deformation by oil and gas extraction and injection cycle with 14 SLC SAR Images of the descending pass from Sentinel-1 satellite in C band between 2017 and 2020 is presented. The Permanent Scatterers (PS-InSAR) Technique was utilized to study displacement deformation utilizing the SARPROZ software. In this approach, just the coherent pixels with stable phase or amplitude are processed, due the high-density vegetation cover and long wintertime with snow cover decreased the number of resulting points. Result of the displacement re-sampled Price of local land deformation between 2017 and 2020 projected. The displacement rates surrounding the Romashkino oilfield in this study range from 3 mm/yr to -9 mm/yr, according to PS-InSAR measurements. Additionally, we suggest an acceptable cutoff to choose the PSs for the case study when is $\rho > 0.70$ (DA 0.25).