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# Estimating Mining-Induced 3-D Time-Series Displacements from Single-Track SAR Datasets

Zefa Yang (1), Zhiwei Li (1), Jianjun Zhu (1), Lixin Wu (1), and Axel Preusse (2)

(1) Central South University, School of Geosciences and Info-Physics, Department of Geodesy and Remote Sensing, Changsha, China (yangzf@csu.edu.cn; zwli@csu.edu.cn; zjj@csu.edu.cn; awulixin@263.net), (2) RWTH Aachen University, Institute of Mine Surveying, Mining Subsidence Engineering and Geophysics in Mining, Aachen, Germany (preusse@ifm.rwth-aachen.de)

Mining-related deformations are the direct cause for most of geohazards (e.g., landsides, building damage, and aquifer broken). Limited by available number of current space-borne SAR sensors and their near-polar flighting configuration, previous InSAR methods based on multi-track SAR datasets are hardly to performed to accurately retrieve mining-induced 3-D time-series displacements. This paper presents a method for retrieving mining-induced 3-D time-series displacements from single-track SAR datasets by fusing a mining-related prior deformation model. Compared with the previous multi-track SAR-based methods, the presented method has much less requirement on SAR data and can significantly improves the accuracy of estimated time-series deformations in the north direction. Finally, 13 ascending TerraSAR-X images over Yulin coal mining area, China, were selected to test the proposed method.