

Overview of InSAR technology for monitoring subsidence over undermined areas¹

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Abstract: Interferometric Synthetic Aperture Radar (InSAR) has experienced a surge in the past decade due to advancements in technology and the proliferation of SAR-capable satellite instrumentation. Numerous processing methodologies have been developed that stem from InSAR, such as DInSAR and PSInSAR. Using one or more of these methods, one can detect ground surface movements (subsidence) at different order of magnitude, i.e. feet or millimeters. Although traditional surveying techniques are widely used to detect these movements to extreme accuracy, they prove to be costly and time consuming. InSAR based methods offer a lower cost technique to not only detect, but also continuously monitor ground deformation in subsidence prone areas, especially since InSAR imagery is freely available from the European Space Agency (ESA). In this presentation, the advantages and disadvantages of the different InSAR techniques for detecting and monitoring subsidence will be discussed. Examples will be given from abandoned mining areas.

Additional Key Words: Abandoned mines, active mines, ground movements, satellite imagery.

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