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South East Regional Group

Meeting

## Developments and innovation using InSAR

By Stewart Agar

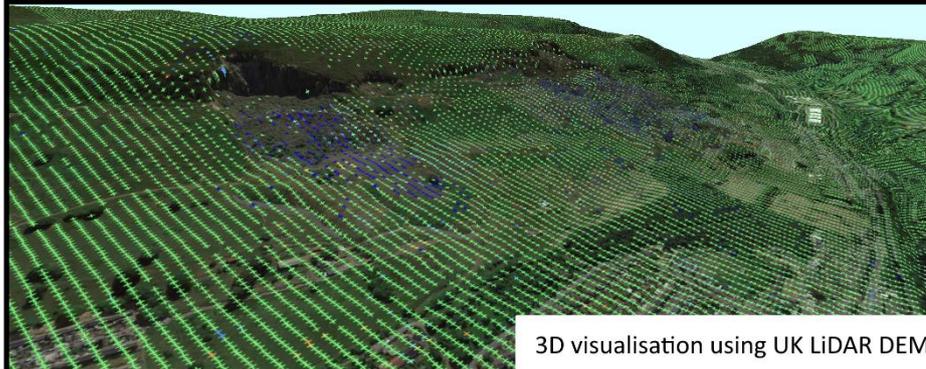
Department of Civil and Environmental Engineering, Imperial College London

Date: 4 May 2021 Time: 6pm

### Joint meeting with the Engineering Group of the Geological Society

Interferometric Synthetic Aperture Radar (InSAR) is a family of remote sensing techniques used to measure ground surface deformation to millimetric precision. The wide and frequent coverage from SAR satellites, and the impressive accuracies of data processing techniques has led to a rapid increase in the value of InSAR over recent years. The performance and value of InSAR continue to grow as new generations of SAR satellites are launched and processing methods improve. This has led to a revolution in our ability to monitor ground movements and surface properties at various scales and time periods, enabling unprecedented insight for a range of infrastructure projects and geohazards.

This presentation will introduce the principles of InSAR and highlight some of the innovative research and development currently ongoing at Imperial College, London through several geology related case studies both in the UK and internationally.



*InSAR displacements of an active landslide near Blaina, Wales, using ICSAR DS techniques developed at Imperial College London.*

### Personal Statement

Stewart is a researcher in the Geotechnics Section at Imperial College, London and Director of Ground Evolution Monitoring Ltd (GEM). His main research interests are focused on developing new and existing software approaches, such as the 'Persistent Scatterer' and 'Distributed Scatterer' techniques, to optimise their performance in rural areas of the UK. These developments allow InSAR to be an effective tool for surveying rural areas - capable of identifying faults, vegetation types, groundwater driven movements and geohazards. Stewart applies these techniques to help predict and monitor ground engineering problems, and is further developing new tools which use the full amplitude, phase and polarimetric components of SAR data to measure variations in surface moisture.

### Zoom Meeting



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Please let us know if you plan to attend: [southeastrg@googlemail.com](mailto:southeastrg@googlemail.com)