

★ Reference Point



Period: 11th May 1992 to 27th February 2003
 No. Scenes: 70
 Master Scene: 7th August 1997

Coordinate System: Universal Transverse Mercator
 Zone: 30 (W 6 to 0)
 Projection: Transverse Mercator
 Datum: World Geodetic System 1984
 Ellipsoid: WGS 1984
 Units: meters

Average annual motion rate (mm/yr)

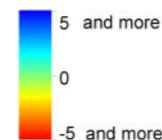


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 Data Copyright: ESA 1992-2003
 Background image: Landsat ETM+ B8
 Data processed by TRE 2004



"The data from the Terrafirma project is giving us new insights into ground and building movement histories in urban Britain. As a result the BGS is planning further investigations of the likely ground movement causes in Stoke-on-Trent."

"The project outputs have the potential to significantly enhance the BGS's national digital geohazard information system (GeoSure)."

Professor Martin Culshaw, Programme Manager, Urban Geoscience and Geological Hazards, British Geological Survey

Stoke-on-Trent is subject to numerous ground-related environmental issues including:

1. Coal mining subsidence
2. Minewater rise
3. Fault reactivation
4. Salt extraction subsidence
5. Dereliction and artificial ground
6. Infilled quarries/waste disposal sites
7. Landslides and steep slopes
8. Compressible valley alluvium

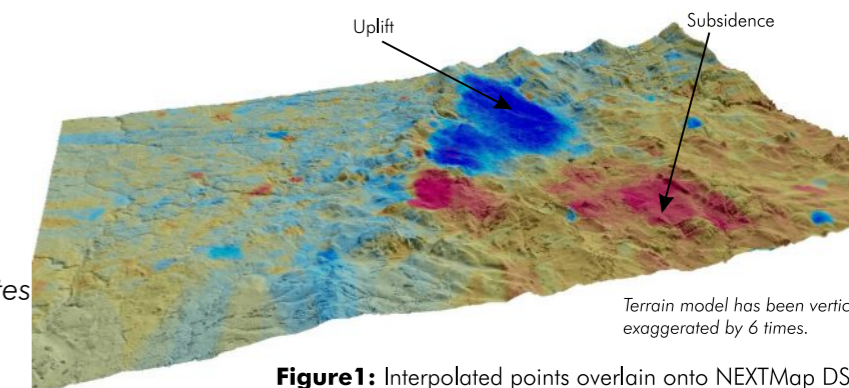


Figure 1: Interpolated points overlain onto NEXTMap DSM (no relation to topography, except insofar as topography relates to the geology).

Extract from Terrafirma Service Utility Report:
 Professor Martin Culshaw, Programme Manager,
 Urban Geoscience and Geological Hazards, British Geological Survey



Photo A: Damage to Barlaston Church to the south of Stoke-on-Trent caused by mining induced fault reactivation. Photo courtesy of Laurance Donnelly.



Photo B: Fault reactivation (see red line). Image courtesy of Laurance Donnelly.

Terrafirma could bring new opportunities in the study and understanding in areas such as: ground motions due to mine-water recharge, subsidence over former abandoned mine workings, monitoring the effects of mine-water pumping regimes, subsidence above areas of gypsum dissolution, monitoring of large civil engineering constructions such as motorways, road bridges, railway lines etc. By providing quantitative and semi-quantitative information, these complement our existing geohazard and digital Geosure products: compressible soils, dissolution, running sand, shrink-swell clays, slope instability.

One new opportunity is the realisation that Terrafirma information can provide valuable quantitative information for monitoring neo-tectonics in the United Kingdom, both locally, and potentially regionally.

Extract from Terrafirma Service Utility Report
 Dr. Douglas Tragheim - Senior Remote Sensing Geologist, British Geological Survey