

# OR/18/046 What data are used in the GV Models

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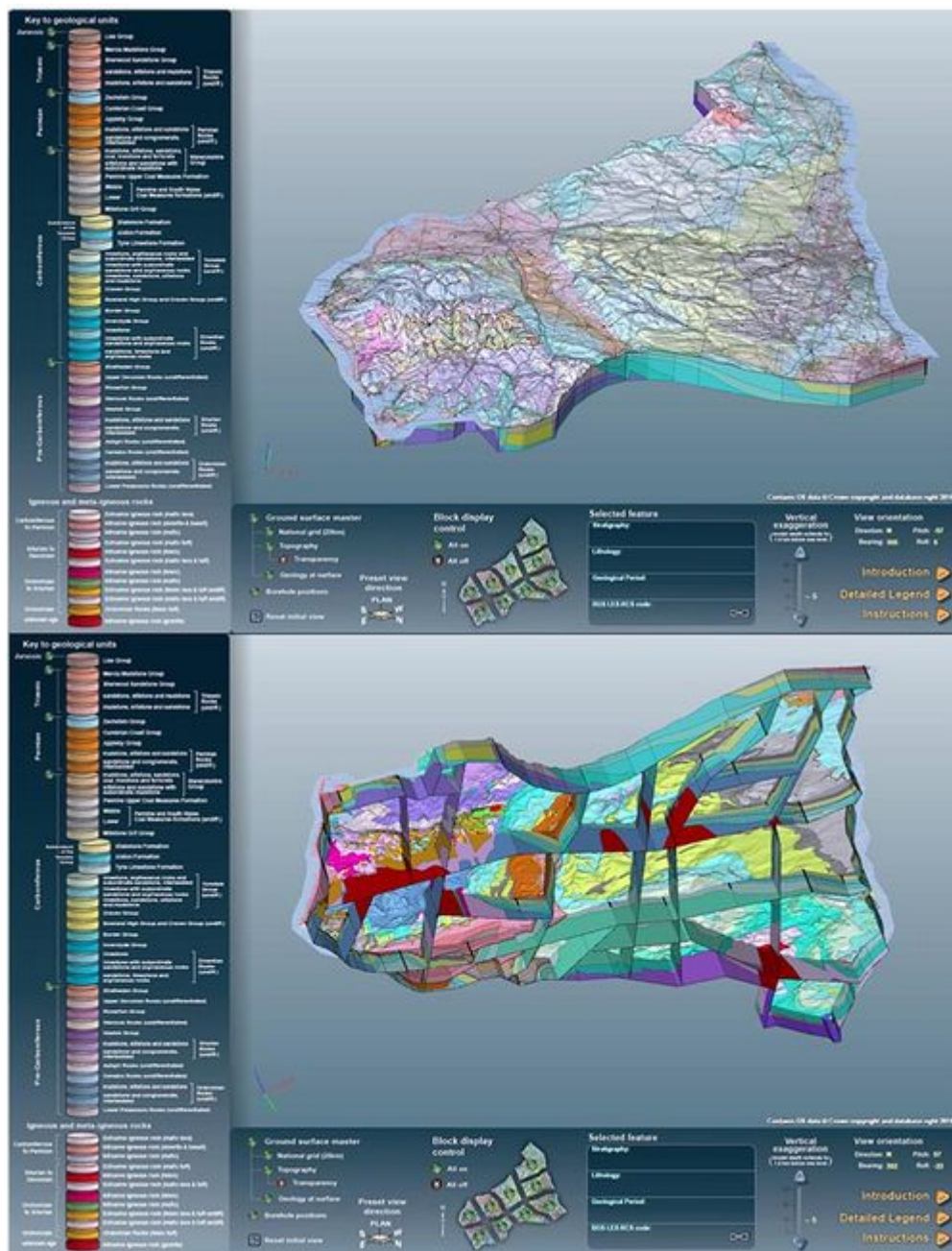
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Whitbread, K, and Ritchie, C. 2018. Regional Geological Visualisation Models. *Nottingham, UK, British geological Survey*. (OR/18/046).

The GV models are constructed from:

- the cross-sections from UK3D v2015
- new sections created as part of the GV Model development to complete the boundaries for each regional area
- the digital 1:625 000 scale bedrock geological map of the UK (DiGMapGB-625; BGS, 2007c<sup>[1]</sup>)
- the digital 1:250 000 scale Marine Bedrock Map of the UK continental shelf (DiGRock250k; BGS, 2013<sup>[2]</sup> for coastal areas of Wales and the Bristol Channel and,\* digital elevation, bathymetric and topographic data.

UK3D v2015 is a national-scale fence diagram of intersecting sections developed by BGS through its NERC-funded National Capability programme and with support from Radioactive Waste Management Limited and the Environment Agency (Mathers et al., 2014<sup>[3]</sup>; Waters et al., 2015<sup>[4]</sup>). UK3D v2015 provides a regional- to national-scale geological characterisation of the bedrock in the upper 1.5 to 6 km of the crust that compliments DiGMapGB-625 (BGS, 2007c<sup>[1]</sup>), the digital version of the 1:625 000 bedrock geological map of the UK (BGS, 2007a<sup>[5]</sup>, b<sup>[6]</sup>).



**Figure 2** Screen captures from the Northern England GV Model showing the 3D pdf (Adobe Acrobat™) block model format. Based upon British Geological Survey Geology DiGMapGB-625 and UK3D v2015 data. Contains Ordnance Survey data © Crown copyright and database rights 2018. Ordnance Survey Licence no. 100021290. Created using ArcGIS. Copyright © Esri. All rights reserved.

In addition to using the existing UK3D sections, new sections along the edges of each of the regional areas were constructed to provide complete bounding sections around each model area. These were developed following the same methodology as the UK3D v2015 model.

In coastal areas of Wales and the Bristol Channel, a simplified version of the BGS 1:250 000 scale DiGRock250 marine bedrock geology map (BGS, 2013<sup>[2]</sup>) has been developed to show the distribution of rock types near the sea bed.

Topographic maps and terrain data have also been used in the model construction. Topographic maps for regions in England and Wales were derived from Ordnance Survey Open Data available at 1:250 000 scale <sup>[note 1]</sup>. For the Northern Ireland model, suitable open access topographic data was not

available at the time of model development and 1:250 000 scale OS Northern Ireland (OSNI) topographic data has been used under licence<sup>[note 2]</sup>.

The geological and topographic maps are draped over digital terrain data to form the capping surface of the models. Open access digital terrain model (DTM) datasets have been used for onshore areas of England, Wales and Northern Ireland in the models; the OS Terrain 50 DTM<sup>[note 3]</sup> was used for England and Wales, and the OS Northern Ireland 10 m DTM<sup>[note 4]</sup> was used for Northern Ireland. The Terrain 50 and OSNI 10 m DTMs were subsampled to 200 m and fitted to the UK3D sections.

## Footnote

1. ↑ <https://www.ordnancesurvey.co.uk/business-and-government/products/strategi.html>
2. ↑ <https://mapshop.nidirect.gov.uk/Catalogue/Digital-products/Raster-mapping/1-250-000-raster-mapping>
3. ↑ <https://www.ordnancesurvey.co.uk/business-and-government/products/terrain-50.html>
4. ↑ <https://www.nidirect.gov.uk/articles/10m-digital-terrain-model-height-data>

## References

1. ↑ <sup>1.0</sup> <sup>1.1</sup> BRITISH GEOLOGICAL SURVEY. 2007c. DiGMapGB-625 — BGS digital geology 1:625 000 scale. [www.bgs.ac.uk/products/digitalmaps/digmapgb\\_625.html](http://www.bgs.ac.uk/products/digitalmaps/digmapgb_625.html)
2. ↑ <sup>2.0</sup> <sup>2.1</sup> BRITISH GEOLOGICAL SURVEY. 2013. DiGRock250k — Marine bedrock 1:250 000 scale. [www.bgs.ac.uk/products/offshore/DigRock250.html](http://www.bgs.ac.uk/products/offshore/DigRock250.html)
3. ↑ MATHERS, S J, TERRINGTON, R L, WATERS, C N, and THORPE S. 2014. The construction of a bedrock geology model for England and Wales. *British Geological Survey Open Report*. OR/14/039
4. ↑ WATERS, C N, TERRINGTON, R L, COOPER, M R, RAINE, R J, and THORPE S. 2015. The construction of a bedrock geology model for the UK: UK3D\_v2015. *British Geological Survey Open Report*. OR/15/069.
5. ↑ BRITISH GEOLOGICAL SURVEY. 2007a. 1:625 000 scale bedrock geology south. *British Geological Survey map published 2007*.
6. ↑ BRITISH GEOLOGICAL SURVEY. 2007b. 1:625 000 scale bedrock geology north. *British Geological Survey map published 2007*.

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