

OR/14/026 Modelled surfaces/volumes

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[Jump to navigation](#) [Jump to search](#)

Hulbert A G, Terrington R L. 2014. Metadata report for the East Midlands region of the Pennine Basin 1:250 000 resolution geological model. *British Geological Survey Internal Report*, OR/14/026.

The surfaces were generated from the structural depth contour plots. Well control was *not* directly used.

Surfaces modelled are (numbers relate to stratigraphic order):

Rockhead

- 1 Top Cornbrash
- 2 Top Penarth Group
- 3 Top Sherwood Sandstone Group
- 04 Variscan Unconformity
- 5 Top Hard Coal
- 6 Subcrenatum Marine Band (Top Namurian)
- 07 Top Dinantian
- 8 Top Asbian
- 9 Top Tournasian
- 10 Caledonian Unconformity

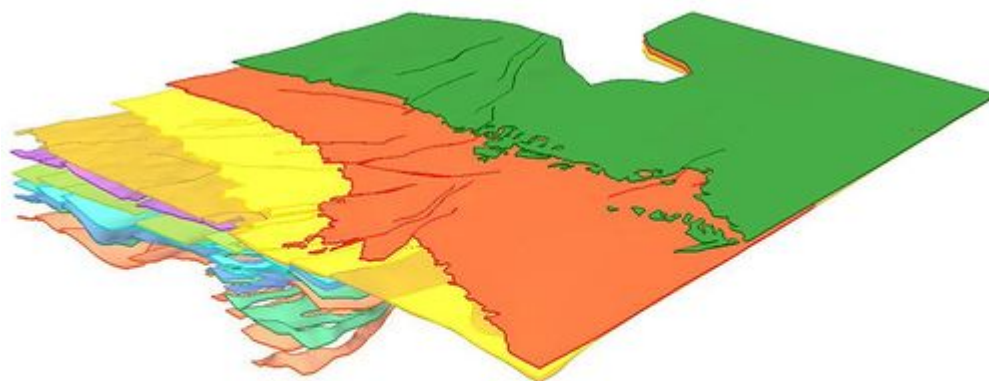


Figure 4 Image of modelled surfaces viewed from the South-West.

The figure below summarises the general stratigraphy from Pharaoh *et al* (2011)^[1]:

Period	Epoch	Groups / Formations	Main lithology	Maximum thickness	Tectonics	
Quaternary	Holocene / Pleistocene	Quaternary	Peat, various glacial deposits	50 m		Regional uplift and erosion
Cretaceous	Late	Chalk Group	Chalk	200 m	Alpine unconformity	Thermal subsidence
	Early	Lower Greensand Group	Sandstone	30 m		
		Splisbury (Sandstone), Tealby formations etc.	Sandstone, clay	60 m		
Jurassic	Late	Ancholme Group	Mudstone and limestone	180 m	Late Cimmerian unconformity	Rifting
	Mid	Great Oolite Group	Limestone	20 m		
		Inferior Oolite Group	Limestone	25 m		
	Early	Lias Group	Mudstone and limestone	250 m		
Triassic	Late	Penarth Group	Siltstone, mudstone, sandstone	15 m		Thermal subsidence
	Mid	Mercia Mudstone Group	Mudstone, siltstone, halite, gypsum	250 m		Rifting
		Early	Sherwood Sandstone Group	Sandstone, conglomerate		250 m
Permian	Late	Zechstein Group	Mudstone	400 m		Thermal subsidence
		Rotliegendes Group	Aeolian sandstone	130 m		
Carboniferous	Stephanian	Wanlockshire Group	Mudstone, sandstone, siltstone	150 m	Vartican unconformity	Basin inversion, regional uplift and erosion
	Westphalian	Pennine Coal Measures Group	Mudstone, sandstone, siltstone, coal	1150 m	Symon unconformity	
	Namurian	Millstone Grit Group	Millstone Grit Group: sandstone, mudstone	800 m		Thermal relaxation
		Morridge Fm.				
	Viséan	Craven Group	Craven Group: mudstone, minor limestone and sandstone	4000 m		Rifting
Tournaisian	Peak Limestone Group	Peak Limestone Group: limestone	1000 m			
Devonian	Late	Ungrouped	Conglomerate, sandstone, mudstone	450 m		
Devonian	Early		Conglomerate, sandstone, mudstone	150 m	Acadian unconformity	Basin inversion, regional uplift and erosion
Silurian	Pridoli	Ungrouped	Mudstone, Greywacke sandstone	700 m		Thermal relaxation
	Ludlow			1000 m		
	Wenlock Llandovery					
Ordovician	Ashgill		Mudstone, sandstone	1200 m	Shelvelan unconformity	Terrane amalgamation
	Caradoc		Volcanics and tuffs			Rifting
	Llando		Diorite and granite intrusions			
	Llanvirn Arenig Tremadoc		Mudstone	1000 m		
	Cambrian	Late	Merioneth	Basal sandstone, mudstone	400 m	
Mid		St David's				
Early		Lomley				
Precambrian		Fenland complex	Volcanics and tuffs	2300 m+	Avalonian unconformity	
		Charnian Supergroup				

Figure 5 Summary of the stratigraphy, geological and tectonic events for the East Midlands region of the Pennine Basin.

Reference

1. ↑ PHAROAH, T C, VINCENT, C J, BENTHAM, M S, HULBERT, A G, WATERS, C N, and SMITH, N J P. 2011. The structure and evolution of the East Midlands region of the Pennine Basin. Subsurface Memoir edition. *British Geological Survey*, 143.

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 Category:

- [OR/14/026 Metadata report for the East Midlands region of the Pennine Basin 1:250 000 resolution geological model](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [View source](#)
- [View history](#)
- [PDF Export](#)

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)

- [Cite this page](#)
- [Browse properties](#)

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- [Disclaimers](#)

