

OR/18/012 Appendix 4 - Areas with important solution features

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Loveless, S, Lewis, M A, Bloomfield, J P, Terrington, R, Stuart, M E, and Ward, R S. 2018. 3D groundwater vulnerability. *British Geological Survey Internal Report*, OR/18/012.

From Farrant (2008)^[1]

- Chalk; well-developed karst occurs in Dorset, near Salisbury, around Newbury and Hungerford and in many parts of the Chilterns (particularly along the Palaeogene margin between Beaconsfield and Hertford).
- Purbeck Group, Jurassic Limestone and Corallian Group; particularly in some of the Portlandian and Purbeck limestones in Dorset and Wiltshire.
- Cornbrash and Corallian limestones; around Oxford and on the southern flank of the North York Moors.
- Lincolnshire Limestone; karst developed south of Grantham.
- Mercia Mudstone; where halite is present — mainly within the Triassic strata of the Cheshire Basin, and to a lesser extent in Lancashire, Worcestershire and Staffordshire. Subsidence has affected the main Triassic salt fields including Cheshire, Staffordshire (Stafford), Worcestershire (Droitwich), coastal Lancashire (Preesall).
- Permian rocks; halite of north-east England. Where the saliferous Triassic rocks come to outcrop, most of the halite has dissolved and the overlying and interbedded strata have collapsed or foundered producing a buried salt karst. These areas commonly have saline springs, indicative of continuing salt dissolution.
- Permian salt; present at depth beneath coastal Yorkshire and Teeside. Here the salt deposits and the karstification processes are much deeper than in the Triassic salt. Some dissolution mining subsidence has occurred.
- Gypsum karst; occurs in relatively small areas and is present mainly in a belt 3 km wide and about 100 km long in the Permian rocks of eastern and north-eastern England. Karstification thicknesses are enhanced by the thickness of gypsum in the Permian sequence and the fact that it has interbedded dolomite aquifers. Significant thicknesses of gypsum also occur along the eastern side of the Vale of Eden. Gypsum palaeokarst features also occur, especially along the coast of north-east England.
- Gypsum karst locally occurs in the Triassic strata, but the effects of karstification are much less severe than in the Permian rocks. Mainly present in weakly permeable mudstone sequences. Active subsidence occurs in many places, especially around the town of Ripon, and to a lesser extent in the eastern part of Darlington; it also occurs in several other locations along the outcrop.
- Zechstein Group dolomites; less soluble than pure limestones so karstic features are less- well developed. However the dolomites are closely associated with gypsum. Numerous small cave systems are present along the outcrop from near Mansfield in the south to Sunderland in the north. Some sinking streams are present as are numerous springs, but very few sinkholes occur. However, numerous open joints, incipient conduit systems on bedding planes, palaeokarst, and sediment infilled fissures can be identified in road cuttings and quarries.
- Limestone-rich Permo-Triassic conglomerates; in Mendip, and parts of Devon, host cave systems, perhaps the most famous example being Wookey Hole in Somerset.
- Carboniferous Limestone; hosts the best developed karst and longest cave systems in the

country. Karst features are present on and within the majority of the outcrop. Particularly well-developed karst occurs in the Mendip Hills, in the Derbyshire Peak District and in the Yorkshire Dales and adjacent areas, running up into the northern Pennines. Less well known karst areas include the Forest of Dean, and around the fringes of the Lake District. In all these areas, well-developed karstic drainage systems, sinkholes and extensive cave systems are common.

- Limestones of Devonian age; known well developed cave systems in Plymouth, Buckfastleigh and Torbay, in addition to stream sinks, karstic springs, sinkholes and areas of irregular rockhead.
- Limestones of Silurian age; in the West Midlands and Welsh Borders, but no significant cave systems are known.

References

1. [↑](#) FARRANT, A, and COOPER, A. 2008. Karst geohazards in the UK: the use of digital data for hazard management. *Quarterly Journal of Engineering Geology and Hydrogeology*, Vol. 41, 339-356.

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