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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

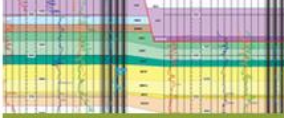
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Home » Our data » Our products » Geology » DiGMapGB » Bedrock theme

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- Geology
- Geology index
- Boreholes
- DiGMapGB
- DiGMapGB-10
- DiGMapGB-25
- DiGMapGB-50
- DiGMapGB-250
- DiGMapGB-625
- DiGMapGB-Plus
- Soil Parent Material Model
- Superficial Thickness

Geophysics

Digital Geology - Bedrock theme

Bedrock geology (formerly known as 'solid' geology by BGS) is a term used for the main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water. The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 2.6 million years ago.

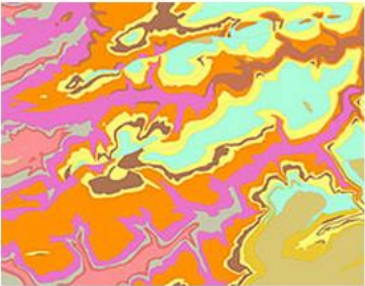
For DiGMapGB and related purposes all these rocks are placed in a separate Bedrock theme of information. Wherever possible, they are referred to by their current name; for stratified units this will usually be of lithostratigraphic type. More information on units is available in the BGS Lexicon of Named Rock Units.

Geological maps usually show all the bedrock strata onshore, apart perhaps from beneath extensive spreads of superficial deposits such as coastal plain alluvium. For DiGMapGB-50 the bedrock has been extrapolated, where possible, beneath these and out to about the low water mark around the coast. On some recently published geological maps bedrock is also mapped offshore on the continental shelf.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary. These are described in the BGS Rock Classification Scheme Volumes 1-3.

Igneous rocks are derived from molten magma in the Earth's crust. They may, for example, be extruded at the surface by volcanic activity, to form lavas and tuffs (ash); or intruded into other rocks to form large masses of granite and gabbro at depth or minor crosscutting basalt dykes near the surface. Metamorphic rocks such as schist and gneiss are those that have been changed from one rock type to another in the solid state by the recrystallisation of minerals, often at high temperatures and pressures when buried deep in the Earth's crust. Sedimentary rocks are formed when grains and fragments of existing rocks are eroded away by ice, water and wind action, transported elsewhere and redeposited as a sediment. These sediments are often laid down in layers or strata of loose particles of gravel, sand, silt and clay. Over time they may be buried by later sediments and consolidated or cemented to form stratified or bedded rocks such as conglomerate, sandstone, siltstone and claystone. Other sedimentary rocks such as ironstone and limestone are created by chemical or biogenic (life) action.

The geological sequence of rocks preserved varies from place to place but packages of strata with similar characteristics may be recognisable over considerable distances. Such study has developed into the science of stratigraphy, of which lithostratigraphy is but one type.



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