Glossary

Abrasion the wearing away of a rock surface by friction as the result of the impact of winds, waves or currents, particularly when these agents are armed with rock fragments (sand or gravel); sometimes called corrasion

Alpine earth movement the folding and faulting of rock formations as the result of stresses associated with the uplift of the Alps in Europe in mid-Tertiary times; extending to southern England including the Weald the London Basin, the Isle of Wight and Dorset

Alum aluminium and potassium sulphate, a mineral which has household and industrial uses

Anticline an upfold or arch in rock strata

Basalt a dark, fine-grained basic igneous rock produced by volcanic activity

Beach renourishment the restoration of a depleted beach by depositing sand or gravel

Bedding plane the contact between layers of rock strata: see Fig. 2.17

Bioerosion erosion of a rock surface by physical and chemical processes associated with the activities of plants or animals: see Figs. 3.23, 3.24 and 3.25

Blowhole a hole or fissure in the roof of a cave through which fountains of water and spray are forced by intermittent air pressure trapped by incoming waves

Bluff a steep coastal slope stabilised beneath a soil and vegetation cover. In North America the term is often used as a synonym for cliff

Boulder Clay a mixture of clay and stones deposited by a glacier

Breakaway a fracture on a cliff behind an area where rock has subsided

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Brickearth a fine-grained silty sediment deposited by wind action; also known as loess

Buttress a narrow vertical rock projection from a cliff: see Fig. 2.30

Calcareous containing calcium compounds, notably calcium carbonate

Calcareous siltstone a fine-grained calcareous sediment coherent enough to stand as a cliff: see Fig. 3.2

Calcilutite a calcareous siltstone, q.v

Cambrian the earliest period (510–560 million years ago) in the Palaeozoic era

Caprock a layer of resistant rock on top of a cliff

Carboniferous a period 290–360 million years ago in the Palaeozoic era

Case hardening formation of a harder superficial crust on a rock outcrop by precipitation of cementing material such as carbonates or iron oxides

Castellated a landform like a castle wall, with battlements

Cave a natural enclave in a cliff

Cavitation the formation of a cave or cavity in a rock surface

Chalk a soft or moderately hard white or grey limestone composed largely or entirely of calcium carbonate; the upper division of the Cretaceous period

Cleavage parallel planes of division in a rock that splits into thin sheets (such as slates)

Cliff a steep slope exposing rock formations

Condominium a large building containing many apartments

Corniche a road along a steep coast: see Fig. 3.31

Cretaceous the last period of the Mesozoic era, 65–144 million years ago

Cyclone a violent storm around a centre of low atmospheric pressure; also known as a hurricane or typhoon

Debris fan accumulation of disintegrated rock material at the base of a slope

Devonian a period between 360 and 405 million years ago, during the Palaeozoic era

Dune calcarenite a generally consolidated aeolian (wind-deposited) sandstone lithified by cementation or partial cementation of dune sand by secondary internal precipitation of carbonates from groundwater: see Fig. 3.55

Dyke a long and narrow intrusion of volcanic rock

Earth cliff a cliff composed of soft rock

Eocene an epoch 36–53 million years ago, during the Tertiary period

Escarpment cliff a coastal cliff cut across rock formations that are horizontal or dipping landward

Fault cliff a cliff produced by land uplift along a fault line

Fault line the outcrop of a fracture in the land produced by displacement of rock formations (faulting)

Fault-line cliff a cliff cut by differential erosion along the line of a fault that had juxtaposed rock formations of contrasted resistance, so that the cliff exposes the fault plane

Ferruginous containing iron compounds

Ferromagnesian containing iron and magnesium compounds

Fetch the length of open water across which waves are generated by shoreward wind action

Frost shattering the disintegration of rock by recurrent freezing and thawing

Gabbro a basic crystalline igneous rock

Gault a thick heavy clay formation between the Upper and Lower Greensand in the Cretaceous rocks

Geomorphology the shaping of landforms

Glacial drift deposits left by a melting glacier

Glauconite a ferromagnesian clay mineral chiefly found in marine sediments

Gneiss a coarse crystalline metamorphic rock

Goethite a ferric iron oxide common in ferruginous sandstones

Granite a crystalline igneous rock containing quartz, feldspars and mica

Greenstone a dark green metamorphic rock, originally dolerite, gabbro or basalt, hardened by heat and pressure

Gulleying formation of deep, narrow incised channels by runoff on cliffs or steep slopes: see Fig. 3.7

Haematite a form of ferric oxide common in ferruginous sandstones

Hawkesbury Sandstone a Triassic sandstone formation extensive in Central New South Wales and prominent on the Sydney coast: see Fig. 2.33

Head deposit a poorly sorted angular rubble in an earthy matrix formed by periglacial (freeze-and-thaw) weathering and extensive on slopes in periglaciated areas such as SW England

Hogsback cliff rounded, convex coastal slopes in previously periglaciated areas, notably on the North Devon coast: see Fig. 2.41

Holocene the last 10,000 years of geological time

Humate a consolidated deposit formed within dunes as a subsoil horizon enriched by downwashed iron oxides and organic matter leached from overlying sand, or a compacted peaty swamp deposit: see Fig. 4.1

Igneous rock formed where molten rock (magma) from the Earth's interior has been extruded on to the surface (volcanic rock) or intruded into the crust to cool as crystalline rock (e.g. granite)

Induration hardening of a rock formation by precipitation of cementing materials (carbonates, iron oxides, silica) or by heat and pressure, as in metamorphic rocks

Isostatic depression of the Earth's crust as the result of loading of the surface by sediment accumulation, volcanic deposition or ice accumulation, and uplift as the result of unloading, as when an ice sheet melts (postglacial isostatic recovery)

Joints vertical, horizontal or inclined planes of division in a rock formation formed after consolidation (shrinkage of cooling igneous rocks or drying sedimentary rocks)

Jurassic a period between 144 and 213 million years ago in the Mesozoic era

Jurassic Coast the name given to the south coast of England between Orcombe Point in Devon and Old Harry Rocks in Dorset, which has cliffs cut in Jurassic formations and also Triassic and Cretaceous formations; it is a World Heritage site

Kaolinite a soft white clay mineral formed by the decomposition of feldspars

Karst landforms shaped by solution processes, notably on limestones karstic features include surface depressions sinkholes, caves and irregular outcrops (lapiés)

Landslide mass movement of rock or rubble down a slope; also known as a landslip: see Fig. 3.15

Lapiés etched, pitted and spiky surfaces formed by solution on limestones: see Fig. 3.22

Laterisation weathering of rocks under humid tropical conditions to form clay minerals containing oxides of aluminium, iron and manganese

Laterite weathered rock produced by laterisation q.v

Lias the lowest division of the Jurassic rock formations

Lithology the characteristics of a rock, including its mineral composition, structure and grain size

Litorina Sea the name given to a marine transgression that occurred in the Baltic region around 8000–6000 years ago, followed by a fall in sea level that produced the marine foreland (see Fig. 2.37)

London Clay a clay formation of Eocene age, extensive in the London Basin

Marine transgression a rising sea, relative to the land

Massive rock in which planes of division (joints or bedding-planes) are widely spaced

Megacliff a cliff more than 500 m high: see Fig. 1.2

Metamorphic rock rock that was originally igneous or sedimentary, which has been altered by heat, pressure or permeating liquids or gases, producing new structures and minerals

Microcliff a cliff generally less than a metre high

Miocene an epoch 5 to 23 million years ago in the Tertiary period

Monocline a sharp flexure between horizontal rock strata at different levels

Montmorillonite a clay mineral that swells in volume because of water absorption, and shrinks as it dries out

Moraine a ridge of sediment (silt, sand, gravel, boulders) deposited by a melting glacier

Mudrock a massive rock composed of indurated fine-grained sediment (silt and clay)

Mudflow where highly lubricated fine-grained sediment moves downslope as a slurry

Mudslide where a mass of coherent silty or sandy clay moves irregularly down a slope

Natural arch a tunnel excavated through a headland, island or stack: see Fig. 2.27

Notch and visor profile a hollow excavated along the base of a cliff with an overhanging rock projection, see Fig. 2.6

Ocean swell regular waves transmitted across an ocean from a stormy area

Old Red Sandstone a sandstone of Devonian age

Olivine a green mineral common in basic volcanic lava, notably basalt

Palaeontological pertaining to fossils

Palaeozoic the geological era including Cambrian to Permian, 560–248 million years ago

Peat partly decomposed swamp vegetation

Periglacial process or environment bordering the limits of glaciation, typified by recurrent freezing and thawing, including snowfall and snowmelt

Permafrost permanently frozen ground

Phyllite a metamorphosed fine-grained rock formed by the intense compression of slate with crumpled cleavage and silky texture

Pindan a type of scrub woodland vegetation in NW Australia, and also the red silty clay formation on which it grows: see Fig. 2.19

Pleistocene the geological epoch 10,000–2 million years ago, preceding the Holocene in the Quaternary period

Plunging cliff a cliff or steep coast that descends into deep water without any intervening shore platform, rocky shore or beach: see Fig. 1.2

Portland Limestone a limestone near the top of the Jurassic rock sequence on the Dorset coast: see Fig. 2.48

Postglacial the period following the melting of Pleistocene glaciers and ice sheets

Pre-Cambrian the geological era preceding the Palaeozoic era, more than 560 million years ago

Purbeck Beds a rock formation at the top of the Jurassic rock sequence on the Dorset coast

Quartzite a rock formation consisting largely or entirely of quartz (silica), occurring either as an igneous intrusion (dyke) or indurated sandstone

Quaternary the geological period that began about 2 million years ago, and comprises the Pleistocene and Holocene epochs

Raised beach a beach that has been uplifted by tectonic movements to stand above the level at which it originally formed

Rill a small narrow channel formed by runoff

Rock fall the collapse of a rock or rocks from the face of a cliff; also termed a cliff fall: see Fig. 3.35

Rotational slide a landslide down a curved slip plane, forming a back-tilted rock mass

Runoff the flow of water down a slope

Salt plucking the disintegration of a rock surface caused by the growth of salt crystallising from sea spray

Sedimentary rock rock formed by the deposition of sediment in water or on land

Seepage the flow of water out of a rock formation

Shear strength resistance to shearing (the fracturing of rock)

Shear stress the cause of shearing (the fracturing of rock)

Shore platform a flat or gently sloping rock surface extending between high and low tide levels: see Fig. 2.1

Siliceous containing silica

Silicified indurated by the deposition (precipitation) of silica

Slope-over-wall coast a coastal profile with an upper slope descending to a steeper, often vertical cliff: see Fig. 2.49

Slumping collapse of a slope

Slurry semi-liquid mud (silt or clay)

Smectite a clay that swells in volume as it absorbs water and shrinks as it dries out

Soil creep the slow downslope movement of soil or surface sediment

Solifluction the slow downslope movement of sediment or weathered debris lubricated by waterlogging, notably when a frozen land surface thaws

Solution the dissolving of soluble rock material, notably carbonates, in water

Stack an isolated steep-sided rock pillar or column rising from the shore, a shore platform, or the sea floor near a cliffed coast: see Fig. 6.1

Storm waves produced by strong wind action during a storm

Strata layers of rock in a stratified formation

Stratigraphy study of the geological sequence and position of rock formations

Subaerial exposed to the atmosphere

Syncline a downfold in rock strata

Talus apron a slope-foot accumulation of rocky debris: see Fig. 3.4

Tectonic movements of the Earth's crust, including earthquakes; folding and faulting of rock formations

Tectonic plates migrating areas of Earth's crust on which the continents stand

Terrace a flat or gently sloping strip of land bordered above and below by steeper slopes. See Figs. 2.7 and 2.33

Tertiary the geological period between 2 and 65 million years ago, consisting of the Palaeocene, Eocene, Oligocene, Miocene and Pliocene epochs

Toppling separation and collapse of columns of rock from a cliff face: see Fig. 3.2

Translational slide where a rock mass slips down a seaward-sloping dipping plane

Triassic the period, 213–248 million years ago, at the beginning of the Mesozoic era

Tsunami a sea wave generated by a major disturbance within an ocean basin (earthquake, submarine volcanic eruption or landslide), which increases in height on entering shallow water, and can exceed 30 metres when it breaks on a coastline

Undercliff a lowland fringe below a cliff or steep coast produced by subsidence or erosion: see Fig. 2.20

Upper Greensand a rock formation immediately underlying the Chalk in the English Cretaceous

Volcanic ash fine-grained sediment ejected from a volcano, known also as tuff

Wealden alternating sandstone and clay formations in the Lower Cretaceous in England

Weathering the disintegration and decomposition of a rock surface exposed to the atmosphere as the result of physical, chemical and biological processes