

Glossary of terms

Accretionary lapilli: spheroidal, concentrically layered pellets of volcanic ash between 2 and 10 mm in diameter. Formed by accretion of ash and dust by condensed water in a moisture-rich eruption column.

Aeolian: relating to or caused by wind. Commonly used to describe dunes formed by wind, indicating a subaerial depositional environment.

Alluvial fan: fan-shaped deposit of alluvium deposited by water flowing out of a steep, narrow gully onto a plain or valley floor.

Alluvium: general term for unconsolidated detrital rock material deposited by a stream, or other body of running water, as a sorted or semi-sorted sediment; occurs in the bed of a stream, on a floodplain or delta, or as a cone or fan below gullies at the base of a mountain slope.

Anticline: fold that contains older rocks towards the centre of curvature.

Aphanitic: term used to describe crystalline aggregates that are so small that they cannot be seen by the naked eye.

Archaean: the earlier part of the Precambrian, between 4000 Ma and 2500 Ma.

Braidplain: flood plain in which a stream divides into numerous interconnecting branches, becoming a tangle of channels, islands and sandbars.

Calc-alkaline: association of **sub-alkaline** igneous rocks that generally have a higher proportion of Al_2O_3 than the tholeiitic association.

Caldera: very large, bowl-shaped volcanic depression formed by collapse of a volcanic edifice. The depression may be surrounded, or partially surrounded, by a ring fracture.

Caledonian Orogeny: major mountain-building event in North America, Britain and Scandinavia that took place at the end of the Silurian (see Figure 1.4).

Cathaysia Block: large tectonic entity of crustal rocks forming the basement of southeastern China.

Concretion: lumps or nodules found in shales, sandstones and limestones.

Concentrically zoned: variations in the chemical composition of a mineral grain as concentric layers.

Chronostratigraphy: grouping and classification of rocks or sediments into units based on the time of their deposition.

Colluvium: a general term applied to loose, heterogeneous, and incoherent accumulations of soil material or rock fragments; deposited chiefly by mass wasting processes. Usually occurs as sheets on, or at the base of, a steep slope or cliff. A wide range of transport mechanisms are involved, from rain splash and continuous creep, to sliding and flowing. The chief characteristic of colluvial deposits is the absence of sorting, with grain size varying from the finest particles to huge boulders.

Corestone: block of relatively unweathered rock within a mass of weathered rock.

Cross bedding: arrangement of strata that are inclined at an angle to the main (subhorizontal) stratification.

Cryptocrystalline: textural term for crystals that are so small that they cannot be recognised or distinguished under an ordinary microscope.

Devitrification: the conversion of glass to a crystalline state.

Dyke: tabular body of intrusive igneous rock that cuts across the structural fabric of the host rock.

Dextral fault: strike-slip fault in which movement is described as right-lateral.

Distal: term used to describe a sediment or volcanic deposit laid down far from its source.

Enclave: a non-genetic term used to describe a small body of rock within a host granitic body.

En échelon: term used to describe the staggered or overlapping arrangement of geological features, such as faults and veins.

Epiclastic: term used to describe a sediment composed of weathered or eroded fragments of pre-existing rocks.

Equigranular: term used to describe mineral grains of approximately the same size.

Estuarine: pertaining to, or formed in, an estuary. An estuary is the mouth of a river where fresh water comes into contact with saline water and is characterised by distinctive hydrodynamic conditions relating to fluvial discharge, tidal currents and mixing.

Euhedral: term used to describe fully-developed crystals showing well-formed crystal faces.

Eutaxitic: term used to describe a streaky appearance of welded tuffs in which lapilli, pumice fragments (fiamme) and glass shards are flattened (mainly by compaction) into a disc-like or cigar-shaped form during deposition.

Facies: body of rock characterised by a particular combination of **lithology**, [and] physical and biological structures that bestow an aspect different from the bodies of rock above, below or laterally adjacent.

Ferruginous nodules: small (1–5 mm in diameter) pyrite-rich **concretions**.

Fill (material): granular sediment and rock used for engineering purpose such as land reclamation.

Flood plain: low-lying area on either side of a fluvial channel that is periodically occupied by floodwaters that cannot be contained within the channel.

Flow banding: Thin (2–10 mm), planar layers of contrasting colour and texture in an igneous rock formed by magma flow.

Foliation: term used to describe the segregation of minerals into different layers or bands in metamorphic rocks and sometimes igneous rocks.

Formation: lithostratigraphical unit; body of rock or sediment identified by its lithological character and stratigraphical position and that is mappable as an **outcrop** or below the surface.

Geochronology: the study of age-dating rock by radiometric methods (see **Radioisotope**).

Geophysical anomaly: deviation of the gravity (gravity anomaly) or magnetic value (magnetic anomaly) from the theoretical value, after a correction has been made to the point of the Earth's surface where the measurement was made.

Gondwana: southern hemisphere supercontinent dating from the late Palaeozoic to the early Mesozoic. Gondwana corresponds to the protocontinent Laurasia in the Northern Hemisphere. Both land masses are thought to have been derived by the splitting of another older supercontinent called Pangaea.

Granular texture: rock texture characterised by an aggregation of mineral grains of approximately equal size.

Gravity model: geological interpretation of the gravity field based on free-air or Bouguer gravity anomalies.

Greisen: aggregate of quartz and Lithium-mica with accessory amounts of topaz, fluorite, tourmaline, rutile, cassiterite, and wolframite; formed by alteration of granitic rock.

Group: formal lithostratigraphic unit, next in order above **Formation**; a differentiated assemblage of formations is a subgroup.

Holocene: period of geological time from around 10 000 years BP to the present day.

Hydrothermal alteration: alteration of rocks by the interaction of heated water with preformed solid phases.

Indosinian Orogeny: mountain building event in East Asia that was active between about 250 and 210 Ma (see **Figure 1.4**).

Isotopes: forms of an element (e.g. oxygen, carbon) differing from each other in atomic weight.

Lacustrine: relating to a lake or inland body of water.

Lianhuashan Fault Zone: major 30 km-wide northeast-trending fault system in eastern Guangdong Province bounded to the north by the Shenzhen Fault and to the south by the Haifeng Fault.

Lithology: physical characteristics of sediments and rocks based on grain size, mineral content and colour.

Lithostratigraphy: grouping and classification of rocks or sediments into **units** based on their **lithology**.

Luminescence: emission of light; used as a general term referring to **thermoluminescence** and **optically-stimulated luminescence** dating techniques.

Mass movement: the carrying of material in a moving medium such as water, air, or ice.

Mass transport: a general term for the dislodgement and downslope transport of soil and rock material under the influence of gravity and not within, on, or under another medium. The mass properties of the material being transported depend on the interaction of the soil and rock particles and on the moisture content. Mass wasting includes slow displacements, such as creep, and rapid earth movements such as rockfalls, rockslides and debris flows.

Megacryst: non-genetic term for any crystal or grain that is significantly larger than the surrounding groundmass or matrix.

Member: lithostratigraphical unit subordinate to, and making up part of, a formation.

Mesoperthite: a variety of **perthite** which has similar modal proportions of K- and Na-rich phases.

Mesoproterozoic: Middle Proterozoic era ranging from 1600 Ma to 900 Ma.

Miarolitic cavity: small irregular cavity in granitic rocks into which small crystals of the rock-forming minerals protrude.

Microperthite: a variety of **perthite** in which the lamellae are visible only with the aid of a microscope.

Morphology: the general shape, form and arrangement of superficial deposits and rocks. The term is also used to describe the shape of the land surface, or topography.

Mylonite: hard, fine-grained chert-like rock with a banded or streaky structure, formed by extreme granulation of the rocks during faulting or intense dynamic metamorphism.

Neoproterozoic: Late Proterozoic era ranging from 900 Ma to 543 Ma.

North China Block: large, crustal tectonic entity forming the basement of northern China.

Outcrop: that part of a body of rock or superficial deposit that appears at the surface of the earth or at the seabed; *verb* to **crop out** (see also **subcrop**).

Optically-stimulated luminescence (OSL): the emission of light by a crystal of quartz or feldspar when exposed to radiation in the visible waveband; the basis of a Quaternary age-dating technique.

Palaeontology: study of life from past geological times based on the preserved remains of animals and plants (fossils).

Palaeoproterozoic: Early Proterozoic era ranging from 2500 Ma to 1600 Ma.

Palaeosol: ancient soil buried from past geological ages.

Parataxitic texture: exceptionally well-layered **eutaxitic texture**.

Pegmatite: very coarse-grained igneous rock with interlocking crystals (>20 mm), usually found in dykes, lenses or veins on the margins of granitic intrusions.

Perlitic fracturing: fracturing associated with cooling of glassy igneous rock.

Perthite: variety of alkali feldspar consisting of parallel or subparallel intergrowths of a K-rich phase, usually microcline, with a Na-rich phase, such as albite.

Petrography: the study of the description and classification of rocks by means of microscopic examination of thin sections.

Phenocryst: term used for a crystal in an igneous rock that is larger than other crystals of the surrounding matrix, and formed during the early stages of crystal development.

Placoderm: member of an extinct class of bony fishes, that was enveloped in armour-like plates and had distinctive jaws; age range from Early to Late Devonian.

Pluton: massive granitic body comprising a single intrusive unit.

Poikilitic texture: igneous rock term used to describe the occurrence of a host mineral that partly or completely encloses earlier-formed minerals.

Polymictic: term used to describe a clastic sedimentary rock composed of a variety of fragment types.

Porphyritic texture: term used to describe an igneous rock containing large crystals (**phenocrysts**) in a matrix of smaller crystals.

Proterozoic: the later part of the Precambrian, between 2500 Ma and 543 Ma.

Protolith: parent rock from which a given metamorphic rock or granitic magma was formed.

Proximal: next to or nearest the point of attachment or place of reference; commonly used to describe a clastic sedimentary deposit consisting of coarse clasts and formed nearest the source area.

Pyroclastic flow: a hot dense cloud of volcanic ash and gas that moves rapidly as a surface flow, under the influence of gravity, away from the vent.

Radioisotope: radioactive isotope of an element. Carbon radioisotopes ^{13}C and ^{14}C are commonly referred to as radiocarbon.

Reclamation: extension of land seawards by the addition of fill material.

Red beds: red sedimentary strata that are primarily composed of sandstone, siltstone and shale; generally considered to indicate deposition in an arid, continental environment.

Rheomorphic tuff: lava-like tuff that is formed following deposition by the tuff constituting and flowing like a lava.

Rodinia: ancient supercontinent that existed in the Precambrian prior to formation of **Gondwana**

S–C fabric: anastomosing foliations comprising S (schistosity) and C (shearing) planes (see Figure 9.8) that form largely synchronously in a shear zone.

Schlieren: pencil-like, discoidal, or blade-like mineral aggregates, varying greatly in size, that occur in igneous rocks; some schlieren may be elongated inclusions.

Sill: tabular igneous intrusion with boundaries conformable with the planar structure of the surrounding rock.

Skarn: contact metamorphic rock composed of calcium, magnesium and iron silicates, derived from nearly pure limestone or dolomite.

Sinistral fault: strike-slip fault where movement is described as left-lateral.

Spherulites: spherical aggregates, commonly consisting of alkali feldspar fibres arranged radially about a nucleus, such as a phenocryst.

Stock: small intrusive body.

Stockwork: mineral deposit in the form of a network of veinlets diffused in the country rock.

Strike-slip fault: fault in which the principal displacement is parallel to the strike of the fault plane, which is usually vertical.

Sub-alkaline: containing no alkali minerals other than feldspars; used for describing rocks belonging to the calc-alkaline or tholeiitic series.

Subcrop: part of a rock or superficial deposit that occurs beneath an overlying superficial sediment or rock; *verb* to occur beneath overlying sediment or rock (see also **outcrop**).

Subhedral: term used to describe crystals that are imperfectly formed but preserve typical faces.

Subsolidus: below the melting point of a chemical system in which reaction may occur in the solid state.

Suite: group of comagmatic rocks with a characteristic chemistry and mineralogy.

Syn-: occurring contemporaneously with; as in synvolcanic sedimentation, occurring in a region of volcanic activity.

Syncline: fold that contains younger rocks towards the centre of curvature.

Syneresis crack: a shrinkage crack formed by spontaneous throwing off of water by a gel during ageing.

Tectonic: relating to forces concerned with movement of large-scale structural entities, such as lithospheric plates or major faults.

Tethys Ocean: sea that lay between the northern and southern continents of the eastern hemisphere from the Permian to the mid-Tertiary periods.

Thermoluminescence: emission of light on heating; the basis of a Quaternary age-dating technique

Transpression: combination of strike-slip motion and compression during crustal deformation.

Transtension: combination of strike-slip motion and extension during crustal deformation.

Twinning: the joining or intergrowth of crystal lattices between two or more individuals of the same mineral species.

Unconformity: surface separating younger from older strata where there has been a substantial break in the geological profile, generally involving erosion.

Unit: informal division of a geological formation.

Vesicular texture: term used to describe lava characterised by abundant vesicles formed by the expansion of gases during the fluid stage of development.

Vitroclastic texture: term used to describe a pyroclastic rock characterised by crescentically or triangularly fragmented pieces of glass.

Welding fabric: texture of pyroclastic rocks that is formed by welding together of pumice, lapilli and glass shards.

Xenolith: a foreign inclusion in an igneous rock.

Yangtze Block: large tectonic entity of crustal rocks forming the basement of central China.

Yanshanian Orogeny: mountain building in southern China that was active between about 190 Ma and 90 Ma ago (see Figure 1.4).