

1 **Glossary**

2 **arkose** - rock deriving from chemical aggression of atmospheric agents acting over the minerals of
3 a granitoid, during a period of warm and wet climate, as that of an interglacial gap

4 **collision** - tectonic process of mechanical contrast of plates generated by convergent tectonic
5 regime, leading to thickening of the lithosphere

6 **continent** - topographic elevation of a geographically wide area, emergent from sea basins;
7 emergence from water level is geologically due to the density of the crustal part of the lithosphere,
8 which is lower than that of the crust of ocean floors and therefore thicker

9 **convergence** - motion of two lithospheric plates one towards the other; it may lead to formation
10 of an intracontinental mountain belt, in the case of collision of two lithospheres, both carrying a
11 crust of continental type

12 **crust** - the uppermost layer of lithospheric plates; two basic types of crust exist on the globe,
13 depending on the type of mantle component of the lithosphere: the oceanic lithosphere carries a
14 thin, but dense crust, with abundant minerals rich in magnesium and iron (mafic), while the
15 continental lithosphere carries a thicker, but less dense crusts, abundant in minerals rich in silicium
16 and aluminum (sialic)

17 **deformation** - change of global positioning and shape of an object caused by mechanical
18 transformations; it may consist of one- to-four geometric components: translation, rotation, internal
19 distortion (strain), and volume variation; over geologic times it may be incremental or finite

20 **divergence** - motion of two lithospheric plates one away from the other

21 **Earth dynamics** - the complex interaction system of the shells composing the planet, of which the
22 most active is the thermal engine that induces convection cells in the mantle and the generation,
23 translation, and recycling of the oceanic lithosphere down in the mantle at subduction trenches

- 24 **fabric** - association of micro- and/or macro-structures that characterise the geometric assemblage
25 of mineralogic components, or the macroscopic architecture of strata or lithologic layering of rocks;
26 name that derives from tissue and metallurgic industry: the intimate geometric of fibrous or granular
27 ordering
- 28 **facies** - a term that designates the “fossil” record of a specific petrogenetic environment, preserved
29 into a rock; the characters of a rock appear to be its exclusive markers; the ensemble of
30 environmental indicators contained in any rock type
- 31 **flexural basins** - linear depressions induced on the Earth’s surface at the front of the override of a
32 lithospheric element onto a downstanding lithosphere; normally are situated at a collisional front
- 33 **flysch deposits** - stratified sediment sequences deposited as mud and sand avalanches upon the
34 oceanic abyssal plain; whirling turbidity avalanches precipitate along the submarine canyons
35 carving the continental escarpment
- 36 **fossil** - every geologic material containing information about the history of a rock that may be
37 extracted by rock excavation; it may concern: a) mineralised biologic remnants of any life form; b)
38 remnants of modest size of mineral assemblages that are rare residuals of a previous state of a rock,
39 which is however dominated by a new mineral assemblage
- 40 **fragmentation (of continental plates)** - continental type of lithosphere may break into fragments
41 as a function of relatively rapid upwelling of sub-lithospheric mantle and/or far field tensional
42 stress; fragments drift apart at the first appearance of the new ocean-type of lithosphere that fills
43 the continental lithosphere gap
- 44 **geological environment** - the globe surface changes mainly under the effects of its internal
45 activity, climate, latitude, type of vegetation, use of the ground and consequently the superficial
46 geologic processes compose the accessible environment; the concept may adapt even to deeper
47 levels of the lithosphere, in the sense of factors that influence the geologic processes

- 48 **geological map** - any representation of the structure and lithology over a topographic map is
49 named “geological map”; as many types of map exist, as the necessities of representing different
50 surface features are multiple
- 51 **geological record** - any trace of ancient activity within the Earth or at surface
- 52 **geological time scale** - the present day organised summary of dated events that occurred on Earth
- 53 **geology** - science that investigates causes and effects (mechanisms or processes) of Earth’s
54 dynamics
- 55 **intramountain basins** - depressions of various configuration, often accepting continental
56 sediments and volcanics, opened by initial rifting or transtensional regimes across a mountain belt
- 57 **lithosphere** - the deformable, but cohesive layer of crust and upper mantle that record the most
58 part of the geologic activity of the planet; the ocean type lithosphere is renovated cyclically by the
59 expansion activity of mid-ocean ridges and concomitant consumption at subduction trenches; by
60 contrast, the consumption of continental lithosphere is minimal
- 61 **magnetic inversion** - periodical inversion of the poles of the magnetic field enveloping the planet
- 62 **map legend** - inventory of all rock types included in the map according to their origin; it is intended
63 to assist the comprehension of the map geological content; it may include also symbols and
64 structural and tectonic information
- 65 **margin** - rim of a lithospheric plate that concentrates different types of geologic activity
- 66 **mid oceanic ridge** - huge linear elevations within an oceanic space that marks its line of
67 symmetrically expanding drift
- 68 **mountain belts** - historically referred to linear topographic elevations within a continent; their
69 origin may be either collisional or by rifting

- 70 **mylonites** - rocks marking fault zones that originated at a depth of the crust in which at least some
71 of the minerals are sufficiently plastic to ensure viscous flow of the mass, at the motion velocity of
72 the fault
- 73 **nappes** - historical name used to demonstrably displaced tectonic ensembles (tectonic units) of
74 rocks upon other units
- 75 **ocean** - geographically a large deep basin; geologically is a deep basin floored by a thinner and
76 denser crust than that of the continents, therefore determining its depth
- 77 **orogenesis** - mechanism, or process of construction of a mountain chain (orogen)
- 78 **palaeoclimate** - ascertained conditions of a climate that lasted for a time sufficient to leave
79 environmental imprints on Earth
- 80 **palaeogeography** - the reconstruction of the original geographic position of ocean and
81 continental masses all over geologic times
- 82 **petrogenesis** - generation of rock types in specific terrestrial environments, or on other planets
- 83 **physiography** - the exterior shape of the Earth's crustal surface; a richer scientific image of the
84 Earth surface is provided the geomorphology, that account also for its genesis
- 85 **plate** - it is a mechanically uniform cap of lithosphere (lithospheric plate), free to wander upon the
86 globe
- 87 **plate tectonics** - geological-geophysical theory of Earth dynamics that, over more than 50 years,
88 tends to unify description of all processes acting at the scale of the whole planet (the "new global
89 tectonics")
- 90 **polar wandering** - ongoing migration of the position of magnetic poles on Earth's surface
- 91 **polycyclic** - any periodically recurrent terrestrial process

- 92 **rifting** - initial mechanical thinning of a continent caused by extensional forces, generating a
93 topographic depression, possibly leading to opening of a sea basin and, by continuation (drifting), to
94 an oceanic space
- 95 **rock factories** - geologic jargon name indicating surface, or intra-lithospheric sites in which rock
96 types are generated, or rejuvenated, as an effect of tectonic displacements of the lithosphere
- 97 **scientific divulgation (geological)** - effort to dissemination of scientific principles as the civil
98 right of world citizens to know more about basics on Earth's surface changes and dynamics
- 99 **sea basin** - terrestrial space occupied by relatively salt water, disregarding the lithologic nature of
100 its floor and depth
- 101 **spreading** - large scale effective process of active opening of an oceanic space
- 102 **strain** - distortion of the original shape of a rock volume, or any geologic object, of any size
- 103 **stress** - 3D field of active forces
- 104 **subduction** - downgoing motion of a plate (normally oceanic) that plunges into the mantle, often
105 reaching deep levels; it is the most destructive tectonic process on Earth
- 106 **submarine canyons** - scars generated by submarine erosion, incised on the continental slope
107 connecting continents or continental shelves with the abyssal plains
- 108 **tectonic** - adj.: the structural configuration of one part of the Earth (from the Greek tektoniké =
109 architecture)
- 110 **tectonic regime** - conditions of stress field (and resulting deformation) between lithosphere plates
- 111 **tectonics** - noun: large-scale deformation process generating new structures, frequently
112 superimposed upon all preexisting types of geologic configurations

- 113 **terrestrial spheres** - shells of planetary scale, each including materials manifesting similar rock
114 composition, and chemical and physical properties
- 115 **territorial planning** - administrative decision of destination to usages of Earth surface lots that
116 should be guided by experts of short and long term natural cycles
- 117 **thermal engine** (of the Earth) - various mechanisms of heat transfer that modify rock temperature,
118 volume, and their mineralogical composition, and ultimately induce profound modifications of the
119 tectonic configuration of the lithosphere
- 120 **transcurrence** - motion of two lithospheric plates that slip one flanking the other
- 121 **unconformity** - sedimentary structure displaying a discordant orientation of recent strata lying
122 over older ones (angular unconformity); sequence of sedimentary strata set overlain by younger
123 ones lying differently
- 124 **Wilson cycle** - periodical cycles of agglomeration of continental lithosphere fragments into a single
125 megacontinent, by subductive consumption of the intervening old ocean lithospheres; the latter is
126 followed by new rift-driven fragmentation of the megacontinent and related opening of new ocean
127 basin with newly formed ocean-type lithospheres; cycle periodicity ranges between 200 and 400
128 Ma.
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