

Some additional explanations

Geological terms

Paleozoic

Geological era that spanned from approximately 540 to 250 million years ago. Formation of the Pangea supercontinent and the Hercynian mountain chain. The Paleozoic era comprises the **Cambrian, Ordovician, Silurian, Devonian, Carboniferous and Permian** periods.

Mesozoic

Geological era that lasted until around 65 million years ago. Deposits of marine sediments that formed the mountains in our part of the world. The Mesozoic era comprises the **Triassic, Jurassic and Cretaceous** periods. Break-up of the Pangea supercontinent, formation of the Tethys Ocean

Tertiary

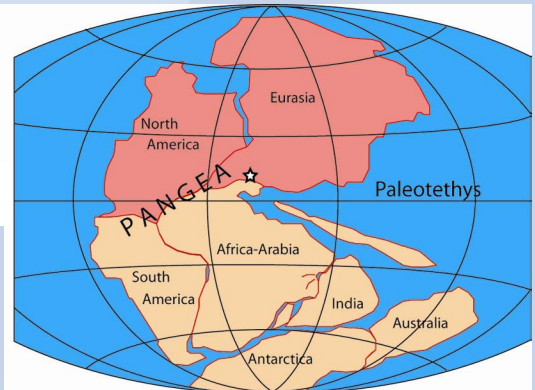
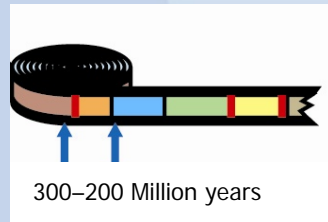
Geological era that spanned from 65 to 2.5 million years ago. Formation of the chain of the Alps. Comprises the **Paleocene, Neocene and Quaternary** periods..

Quaternary

Geological era spanning from 2.6 million years ago to the present. During this era, glaciation formed the relief of the Alps as we know them today, and humans first appeared.

Pangea

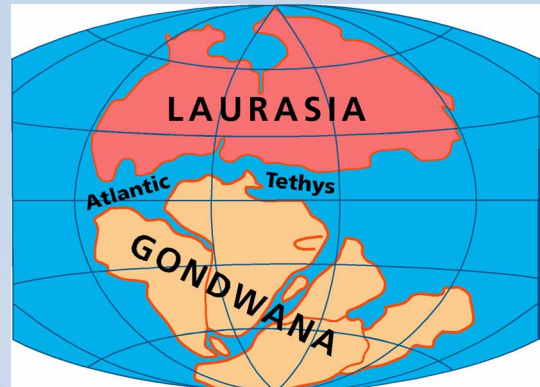
Ancient supercontinent encompassing more or less all emerged landmasses. Existed from the end of the Carboniferous period to the beginning of the Jurassic.



☆ Future Dents du Midi, Muveran, Diablerets,...

Tethys

An ancient ocean that opened from east to west across Pangea, dividing the land masses of Gondwana in the south (Africa and South America) and Laurasia in the north (Eurasia and North America). Arrangement of continents and oceans towards the middle of the Jurassic period around 160 million years ago).



Position of the continents and oceans during the Jurassic period 160 million years ago (or 160 thousand millenniums)

Some additional explanations

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| Slate | Metamorphic rock that is formed under low pressure and temperatures. Belongs to the family of schists and can be split into thin sheets. Is used for covering roofs in many parts of the world. |
| Clay | Material of fine-grained minerals of detrital origin resulting from the alteration of certain rocks. Frequently found in sedimentary rock formations. |
| Limestone | Sedimentary rock formed in oceans and lacustrine environments, rich in calcite (calcium carbonate). Has two origins: chemical (precipitation by warm water) and biological (formation from shells and organisms [molluscs, corals, plankton] that are found in abundance in the form of fossils or debris in limestone rocks (M. Marthaler, 2005). |
| Conglomerate | Sedimentary rock made up of pebbles, gravel, sand, etc., from other older rocks, usually transported by rivers in flood, then deposited in a delta (M. Marthaler, 2001). |
| Dolomite | Sedimentary rock of marine origin similar to limestone, comprising calcium magnesium carbonate. Dolomite is less soluble and harder than limestone, and often forms solid and craggy rocky faces (M. Marthaler, 2001). |
| Flysch | Sequence of layers of granitic and clayey sandstone sedimented in a deep marine trench at the foot of an active shelf or a mountain chain in formation. The sandstone is formed from the provision of sand by underwater avalanches, while the clay is deposited in calm waters between two avalanches. |
| Gneiss | Metamorphic rock with a ribboned appearance and with a shimmering (or sparkling) surface caused by the positioning of the minerals. In the lighter bands these are mainly quartz and feldspars, and in darker ones they are micas and amphiboles (M. Marthaler, 2005). |
| Granite | Magmatic rock comprising several light minerals such as quartz and pink and white feldspars, and certain dark and shiny minerals such as black mica. Granite is a magmatic rock typical of the continental crust. Its formation is the result of very slow cooling (over a period of around a million years) of magma that is rich in silicium and its crystallisation into minerals that are clearly visible and distinct from others (M. Marthaler, 2005). |
| Sandstone | Sedimentary rock formed by the compaction of a siliceous sand. |
| Gypsum | Sedimentary rock that is normally formed by sedimentation during the evaporation of shallow seawater through the crystallisation of the salt contained in the water. It is a very soft rock that ranges in colour from white to greyish. |

Some additional explanations

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| Magmatism | Process associated with liquefied magma originating from deep below the earth's crust. Magmatic rocks were formed by the crystallisation of magma. They are the main component of the earth's crust. (H. Staffelbach, 2009). |
| Metamorphism | Process associated with an increase in temperature and pressure that causes recrystallisation and often reorientation of minerals in rocks. Metamorphic rocks are rocks that have been transformed by metamorphism (H. Staffelbach, 2009). |
| European shelf | Submerged section of Europe situated at the southern border of the European tectonic plate, slightly inclined, approximately 100 kilometres wide and at a maximum depth of 200 metres below the surface of the sea. |
| Nappe | Body of rock that has been dislodged and moved by tectonic forces along the surface and deposited on another body of rock. This "surface" can have a certain thickness (usually a few dozen metres) where the rocks are highly deformed, stretched or crushed. The two bodies of rock may differ in terms of paleogeographic origin and their age (which may be inverted, i.e. older rocks may be deposited on top of younger ones. A body of rock may also be split (two times the same series of rocks on top of one another) (M. Marthaler, 2005). |
| Tectonic plates | Major mobile and broken up sections of the earth's external solid and rocky lithosphere. These mobile portions of the surface of the planet are limited by ridges, subduction zones or faults. A plate may be oceanic (e.g. the Pacific Plate) or continental (e.g. the African Plate). |
| Sediment | Sediment: Loose deposit left behind by water, wind and other erosion agents and which may be of marine, fluvial, lacustrine or glacial origin. Sedimentary rocks result in the accumulation and compaction of debris of mineral (degradation of other rocks) or organic (animal and vegetable matter, fossils) origin, or chemical precipitations (e.g. limestone, dolomites) (H. Staffelbach, 2009). |
| Stratigraphy | Branch of geology that studies rock layers and sedimentation that provide evidence of the earth's very long history (M. Marthaler, 2005). |

Marthaler, M. (2005): The Alps and our Planet – The African Matterhorn: a Geological Story. – Editions LEP, Le Mont-sur-Lausanne.

Staffelbach, H. (2009): Manuel des Alpes. – Rossolis, Bussigny.