

Geology CR

1. Although the Czech Republic only covers a small part of the Eurasian continent (78.790 km²), it is very rich in geological resources, and evidence suggests that the country's land mass has been developing for nearly 2.5 billion years. Hence, when you look at a geological map of the area, it is possible to see a rich mosaic of colors.
2. In its geological history, the land area of the CR was covered several times by shallow and sometimes even deep seas. The area was also affected by volcanic activity, old folding, tropical and even glacial climates. The border with Slovakia is located along the young Alpino-Carpatian mountain belt.
3. Geological events moved many rocks deeper into the earth's crust which was then metamorphosed by high pressure and/or temperature. During geological processes which followed, some of these rocks were shifted upward, near the earth's surface, and were partially uncovered by surface geological activities.
4. For these reasons, it is possible to find all well-known types of rocks which settle on the bottom of seas, lakes or rivers (sandstone, conglomerate, slate, limestone, coal, sand, gravel etc.), metamorphic rocks (phyllite, gneiss), deep igneous rock (light granite and dark gabbro), and volcanic rocks (black basalts, light phonolite and andesite).
5. It's also possible to find many fossils in the sea and lake sediments. A large number of these fossils were originally discovered in the CR, especially from a fossil-rich area in the SW vicinity of Prague known as the Barrandian, named after the famous paleontologist Joachim Barrande (1799-1877). The most famous fossils which Barrande discovered were the trilobites. You can find beautiful collections of minerals and fossils, including Barrande's collection, in the National Museum on Wenceslas Square in the center of Prague.
6. Because of the Czech Republic's varied geological composition, an abundance of mineral deposits exist. At the present time, deposits of coal are used as raw materials for the generation of energy, and deposits of granites, basalts, sandstones, limestones, sands, clays and gravels as raw material for construction and the country's well-known ceramic and glass industries.
7. The poly metallic (copper, lead, tin, zinc) and precious metal (gold, silver) deposits were mostly exhausted during the country's long mining history and at present have no substantial economic value. Graphite deposits are of local importance. Extraordinarily rich deposits of silver greatly increased the importance and development of the Czech state in medieval times. The exploitation of rich uranium ores in the recent past caused great damage to the environment.

8. Interesting part of geology are gemstones. The best known types of Czech jewelry are moldavites, garnets (pyropes) and a variety of quartzes (agate, jasper), which were used to decorate some of the country's historical landmarks, such as Prague's St. Vitus cathedral and the castle at Karlstejn.

9. The geological composition, rock quality, and rock resistance determine the morphology of the earth's surface. In the small area that in the present days CR covers, it is possible to find, with the exception of big mountains and deserts, most types of landscapes.

10. Some impressive sights are the 25 M year old preserved volcanic landscape in NW Bohemia (the dark blue color on the map), with its occurrences of so-called "geological organs", extensive rock cities (some of these rocks are up to 100 M years old) in the NE part of Bohemia, with rock-towers, bridges, canyons, table mountains and areas of karst with caves which are richly decorated with stalactites (especially in the Moravian karst area).

11. In Bohemia, it is unfortunately easy to find traces of how mankind's activities can be a powerful geological force. The large, deep coal quarries in Northern Bohemia are warning examples of performance of mankind as a dangerous geological power, creating an anthropogenic landscape.

12. The Czech Republic, in the center of Europe, is an important watershed between the Black, Baltic and Mediterranean Seas.

An important part of a geological environment is its groundwater. The CR, situated on the so-called European roof, plays an important role as a main water-divide between the Black, Baltic and North Seas. The Czech Republic's main groundwater supplies are concentrated in the lowlands, especially in the Bohemian Cretaceous Basin. Nearly 80% of the 83 km³ of groundwater contained in the aquifers of the Bohemian Cretaceous Basin represent very high quality potable waters.

13. By comparison, the total water run-off from the whole territory of the Czech Republic is 15.2 km³, and the amount of surface water supplies in dam reservoirs is only 0.62 km³. The varied geology and tectonics of the Czech Republic provide its rich range of mineral waters, some of which have medicinal benefits.

14. The traditional spas in the western part of Bohemia, namely Karlovy Vary (Carlsbad), Mariánské Lázně (Marienbad) and Františkovy Lázně (Franzenbad), are well-known for their mineral water springs enriched with carbon dioxide from deep below the earth's surface. Karlovy Vary, along with Teplice and Velké Losiny in Northern Moravia, are also famous for their thermal waters.