

Distinguish, differentiate, compare and explain what is the difference between Oceanic and Continental Crust. Comparison and Differences.

The Earth's crust is the outermost part of the lithosphere, with a thickness ranging from less than 10 km in the oceans to more than 70 km in continental regions. Three crustal types are continental, oceanic, and transitional. Continental crust includes the major continents, their margins, and several submerged micro-continents. It constitutes only 0.4 % of Earth's mass, but covers about 41 % of Earth's surface and comprises 79 % of the total crustal volume.

Difference between Oceanic and Continental Crust

S.No.	Oceanic Crust	Continental Crust
1	Forms beneath deep oceans.	forms beneath earths continental land masses and under a shallow sea.
2	Ranges between 5-8 km.	Ranges between 30-70 km.
3	Consist mainly basalt Rocks of less than 200 million years old.	Consist of lighter rocks Rocks ranges from young to nearly 4 billion years.

Crust

The crust composes of two rocks. The continental crust is mostly granite. The oceanic crust is basalt. Basalt is much denser than the granite. Because of this, the less dense continents ride on the denser oceanic plates. The Basalt forms when hot material in the upper mantle is decompressed. This allows it to melt and form liquid magma, which cools off quickly.

Oceanic Crust

The rocks of the oceanic crust are very young, not older than 200 million years, compared with the rocks of the continental crust 3.6 billion years old. The decompression occurs beneath rifts in the crust, such as those found at the mid-ocean ridges. It is through these rifts that lava is extruded onto the surface to create new ocean crust. Oceanic crust produce continuously at mid-ocean ridges. At these ridges, magma rises into the upper mantle and crust, as the plates diverge. As it moves away from the ridge, the lithosphere becomes cooler and denser, and sediment gradually builds on top of it. The youngest oceanic lithosphere is at the oceanic ridges and is progressively older away from the ridges.

Continental Crust

The continents include a wide range of rock types, including granitic igneous rocks, sedimentary rocks, and the metamorphic rocks formed by the alterations of both. They contain a lot of quartz, a mineral absent in oceanic crust. This core foundation is often referred to as a shield or basement rock. The first continental rocks were the result of repeated melting, cooling, and remixing of oceanic crust, driven by volcanic activity above mantle convection cells, which were much more numerous and vigorous than today.

Geologists believe that the major continental cores were formed by the early solidification of the lighter components of magma between 3.9 and 3.8 billion years ago. The younger sedimentary deposits cover generally the continental shields. These sedimentary rocks constitute the interior platforms of the continents.

Continental crust provides the most complete record of Earth's geological history. Its mean age is about 2.5 Ga, while its old fragment, present in the central parts of the continents, is more than 4.0 Ga old. In contrast, the oldest oceanic crust is only about 160 Ma old because of the rapid recycling of oceanic lithosphere at subduction zones. Thus, studies of continental crust provide a unique opportunity to understand the geologic and geodynamic evolution of Earth.