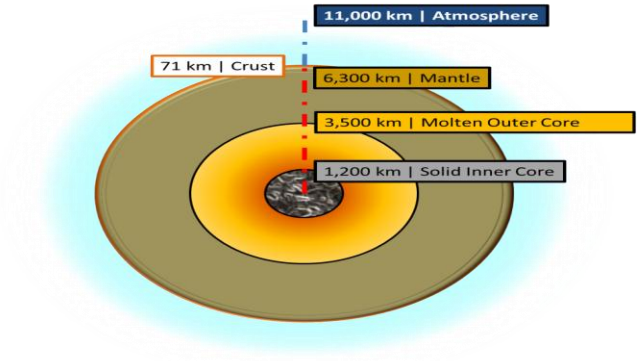
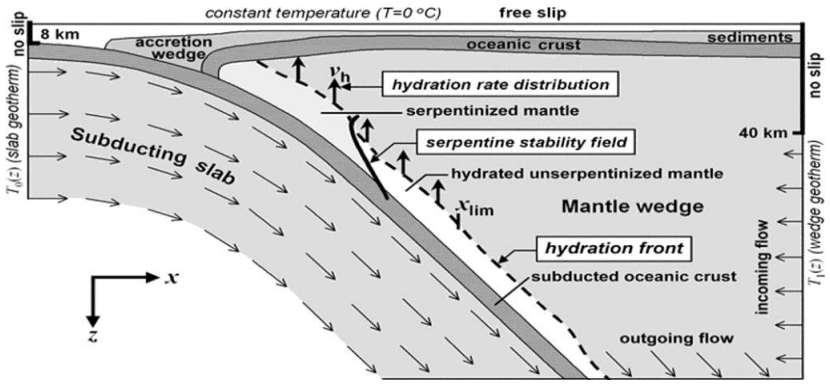
THE EARTH'S LITHOSPHERE

The lithosphere is the rigid, rocky outer layer of the Earth on which all known life happens, and which and extends on average to about 70 km (40 miles) to 100 km (60 miles) deep in the mantle.

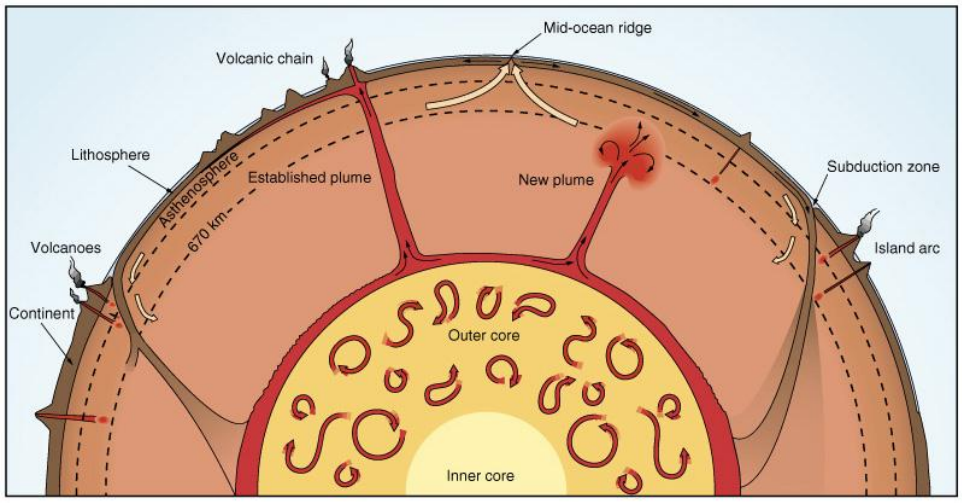
The lithosphere is a layer extremely thin compared to the rest of the planet that has a depth of 6,371 km., Representing 1.56% of the radius of the Earth.



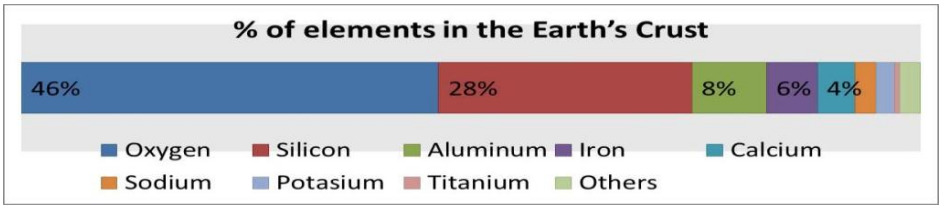
The lithosphere is variable in its depth and it may even 200 km (120 miles) and in subduction zones within the mantle can be found at depths up to 400 km (250 miles).



The Earth's lithosphere is chemically different from the upper mantle that began 3.8 billion years ago, because it is a product of the solidification of derivatives from the mantle that ascended through pores and cracks and which over geologic time cooled on the surface.

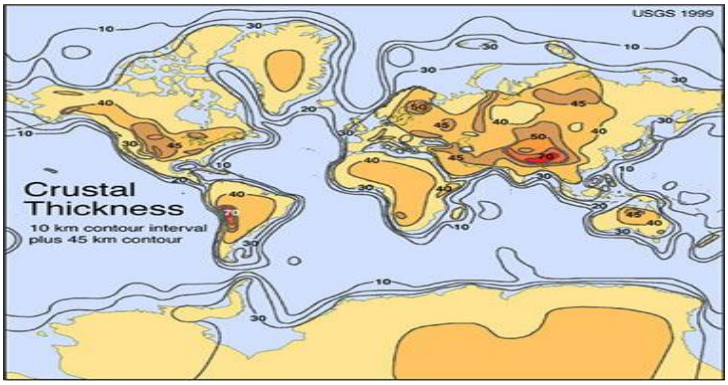


Lithosphere comprises of oxygen, silicon, aluminum, iron, calcium, sodium, potassium, titanium and other elements.

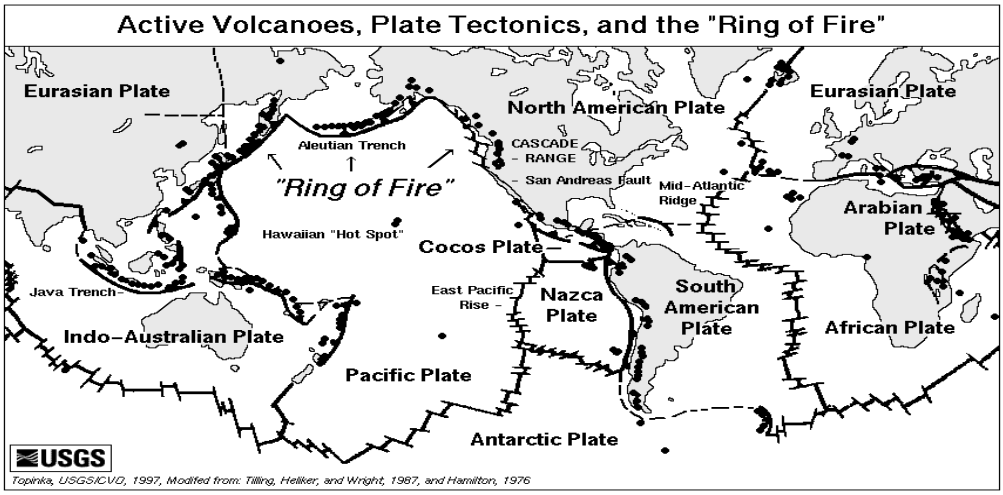


The density of the lithosphere is 3 tons/m3. It is stiff and the Earth's internal heat spreads by conduction through it, since it is floating on a layer of concentrated magma on the surface of the mantle or "lithospheric mantle." Seismic wave velocities in this layer are between 6.5 and 7.8 km per second.

A layer called the "Mohorovicic discontinuity" or "Moho" is 5 km deep in the oceans and 65 km depth in the continental crust formed by the interaction between the lithosphere and upper mantle, which consists of a viscous material called high-temperature magma that is concentrated on the upper mantle from the mantle and sometimes comes to the surface through volcanoes. Is at a temperature of about 500 ° C and a density of 3.4 t/m3.

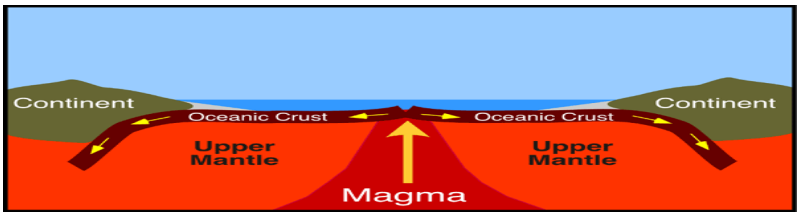


The crust is not always the same. It is composed of semi-rigid plates that rest or float on a material called “tectonic plates” that can extend up to 80 km depth and divide the lithosphere in giant plates that fit like a puzzle around the globe with small movements every year.



The lithosphere can be classified as “continental crust” (with a thickness up to 70 km mainly composed of plutonic and metamorphic rocks with an estimated age maximum of 3.8 billion years) and “oceanic crust” (from 5 to 10 km composed of

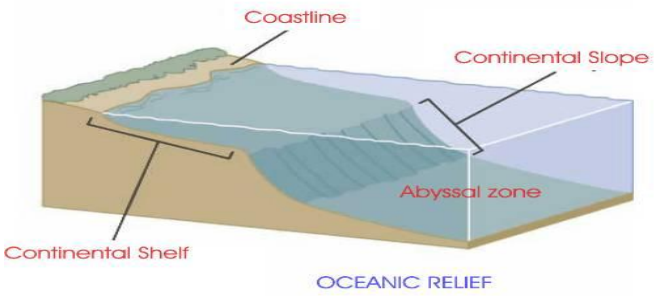
thick basalt, sediments and plutonic rock mineral denser than continental crust with an estimated age maximum of 180 million years because it contains less silicate) connected together by a “transition crust” that occurs gradually between them.



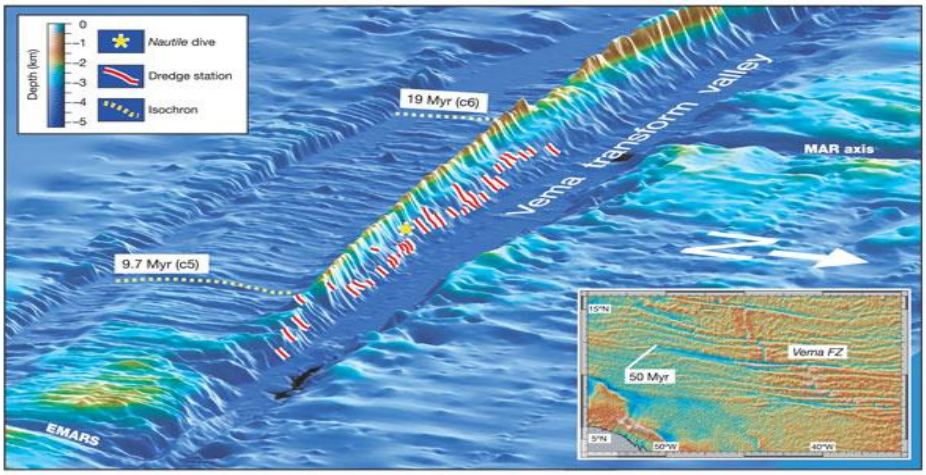
The continental crust consists mainly of “mountains” (high forms of topography with large elevations), “ridges” (groups of mountains), “hills” (mild elevations of the relief), “plateaus” (highlands or above reliefs of 200 meters above sea level), “plains” (reliefs low over sea level) and “valleys” (flat areas surrounded by hills or mountains) and “lows” that correspond to the surface below the sea level.

The underwater terrain in the ocean floor has the same types of topographic areas that the mainland, consisting of the “continental shelf” (extension of the continents from the water surface to 200 m depth), the “bathyal region” (has a steep decline

from 200 mt to 1000 meters) and the “deep-sea trenches and marine” (from 5000 to 11,000 meters with abundant organic deposits or sludge).



This relief is constantly recycled forming fresh oceanic ridges and disappearing from view when subducted carrying a large amount of water and carbon into the mantle



Source: http://www.artinaid.com/2013/04/the-earths-litosphere/