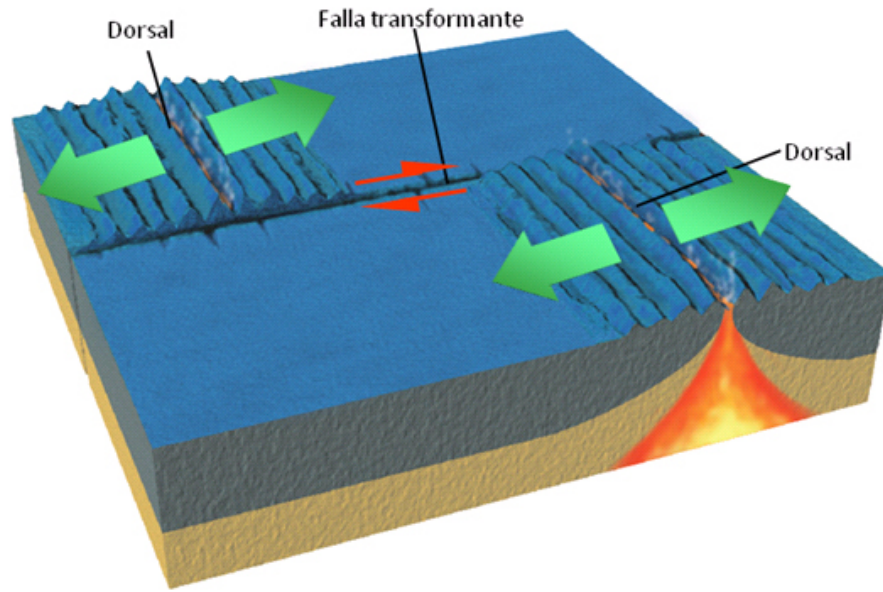


GEOLOGICAL FAULT

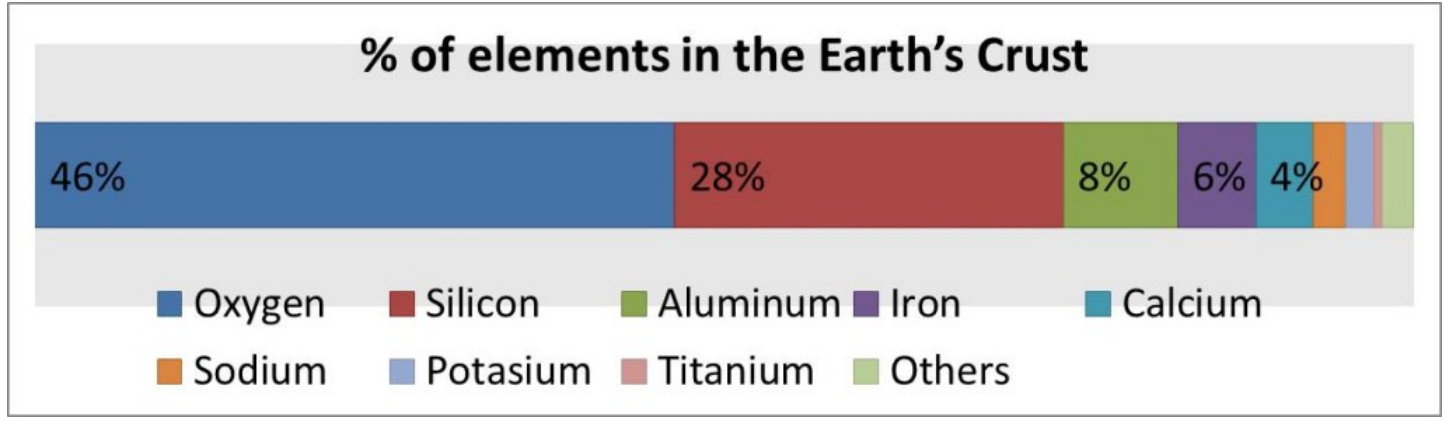


A fault is a discontinuity of the [crust](#) that occurs naturally in the propagation of a [fracture](#) in a rock structure by applying kinetic energy to such body, usually from the [heat generated in the Earth's core](#) or by the cooling and heating of the lithosphere by its interaction with the energy from the Sun

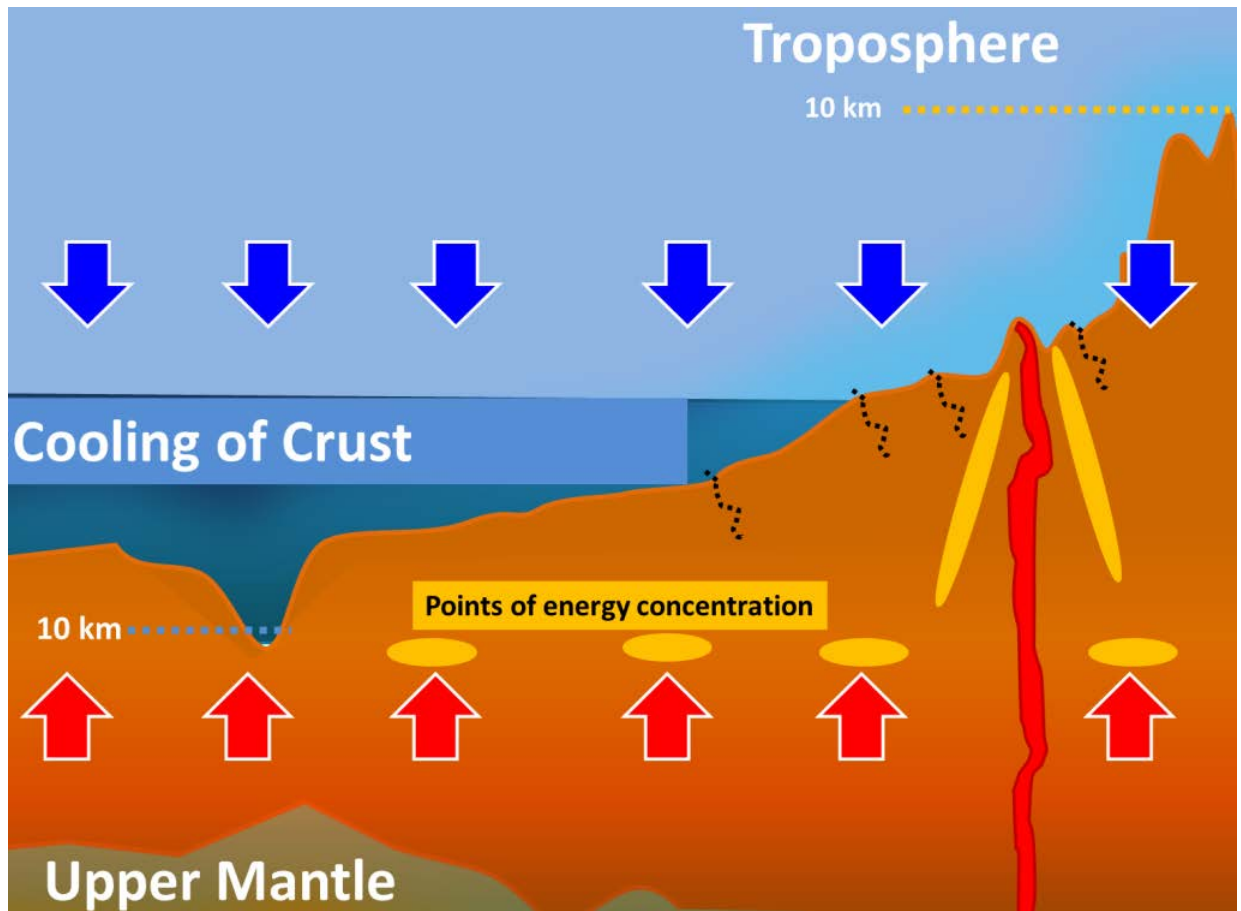
In general terms, the higher the heat, more plastic is the behavior of the lithosphere, while higher cooling promotes the formation of fractures.



The crust material is generally cooler and solid, mainly consisting of oxides of silicon, magnesium, but also is composed of many elements chemically bound in many ways so it is not homogeneous as a whole.



For a fracture occurs, the kinetic energy from the heat and the electromagnetic field of the Earth's core, which spreads through the mantle to the surface and generating mechanical pressure must be high enough to exceed the "limits of deformation" and "limits toughness" of the crust, breaking its bonds in the molecules of the solid and concentrating the stresses at the surfaces, defects, grain and existing faults.



The cracks are caused by tensions applied to the bonds of molecules of a solid to a generalized flow state.

Fractures can be originated by the energy spread of a crack in a rock structure, if the speed has sufficient energy and intensity to overcome the forces of tension and cohesion of the crust.



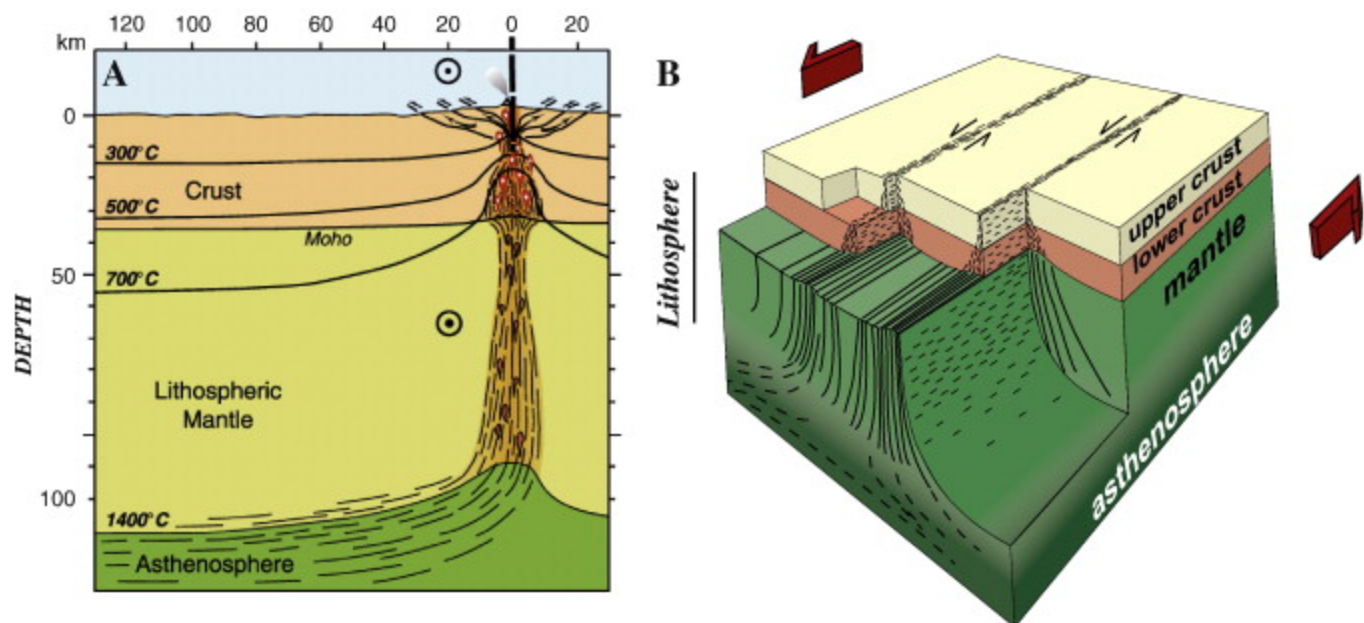
Usually new fractures in the crust will begin in existing defects, propagating and creating new surfaces or through a process that consumes mechanical energy across the rock mass and spread on surfaces as mechanical energy. As the fault increases its sides, the crust material relaxes.



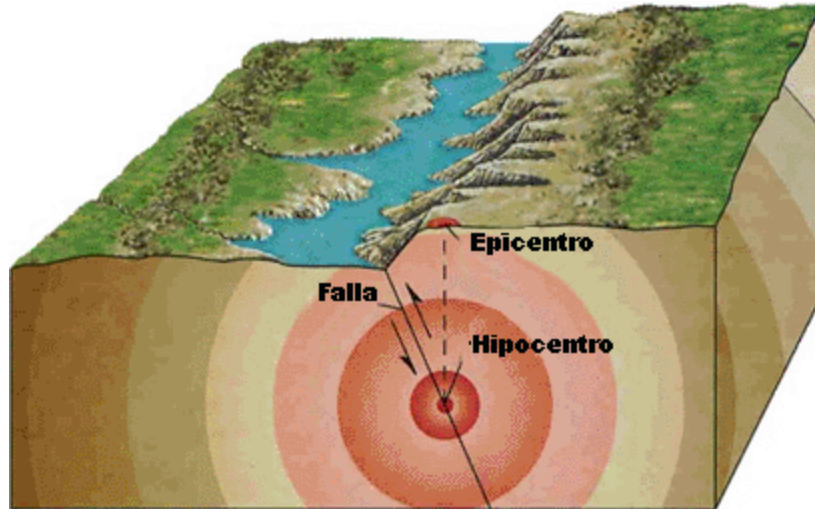
When a crack reaches a certain length, it can propagate catastrophically through the structure, as it releases energy in the surface of the broken materials.

Due to the stiffness and friction properties of the rock, it can not flow into each other, but rather concentrate on the rocks stress and when they reach a certain stress level, the accumulated potential energy dissipates releasing mechanical energy, which focuses on a plane with an accommodated relative motion.

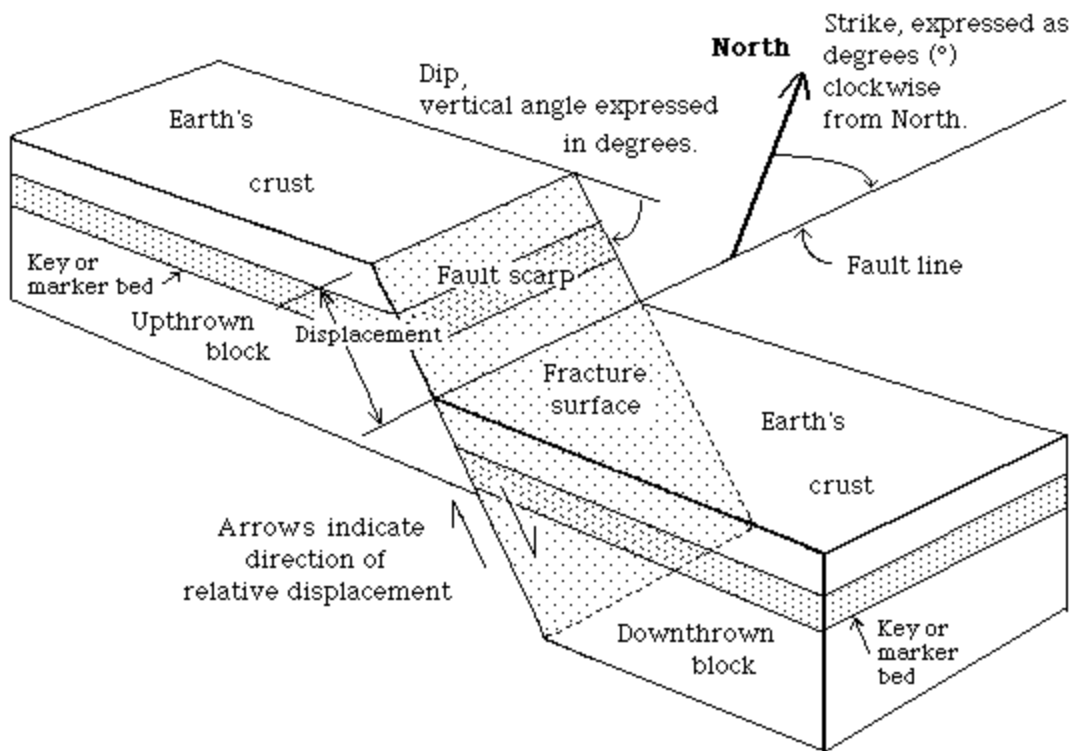
Faults can be detected even to depths of 250 km in the Earth's upper mantle.



The energy release associated with rapid movement on active faults is the cause of most [earthquakes](#).



It is called “fault line” to the surface trace of a fault where fault planes intersect with the surface of the Earth. The two nonvertical sides of a fault known as “hanging block” (which is above the level of the fault) and “footwall block” (which is below the fault plane).



The relative movement of either side of the fault surface controls the origin and behavior of the fault.