

# Endogenetic process:

[Science](#), [Geology](#)



**ENDOGENETIC PROCESS:** The Endogenetic processes are the processes that shape the land by forces coming from within the earth (Endogenetic forces). There are 3 main Endogenetic processes: folding, faulting and volcanism. They take place mainly along the plate boundaries, which are the zones that lay on the edges of plates. These zones are weak. Endogenetic processes cause many major landform features. **MOVEMENTS:** The forces coming from within the earth cause two types of movements in the earth. (1) Horizontal movements (2) Vertical movements These movements motored by the Endogenetic forces introduce various types of vertical irregularities which give birth to numerous varieties of relief features on earth's surface, e. g., mountains, plateaus, plains, lakes, faults, folds, etc. The origin of Endogenetic forces is related to the thermal conditions of the interior earth. The Endogenetic forces and related horizontal and vertical movements are caused due to contraction and expansion of rocks because of varying thermal conditions and temperature changes inside the earth. The Endogenetic forces and movements are divided, on the basis of intensity, into two major categories: (1) Sudden (2) Diastrophic forces. Sudden forces are the result of long period preparation deep within the earth. The cumulative effects on the earth's surface are quick and sudden. Geologically, these sudden forces are termed as 'constructive forces' because these create certain relief features on the earth's surface. Diastrophic forces include both verticals and horizontal movements which are caused due to forces deep within the earth. These diastrophic forces operate very slowly and their effects become discernible after thousands and millions of years. These force also termed as constructive forces, affect larger areas of the

globe and produce meso-level reliefs, for example, mountains, plateau, plains, lakes, big faults, etc. These diastrophic forces are further subdivided into two groups, namely (a) Eperiogenetic movements and (b) Orogenetic movements.

**FOLDS:** Folds are wave-like bends formed due to tangential compressive forces resulting from horizontal movement caused by the Endogenetic force originating deep within the earth. The two sides of a fold are called limbs of the fold. The limb which is shared companion syncline is called middle limb. The plane which dissects the angle between the two limbs or middle limb of the syncline is called the axis of fold or axial plane.

**EARTHQUAKES** An earthquake is a vibration or oscillation of the surface of the earth caused by a transient disturbance of the elastic or gravitational equilibrium of the rocks at or beneath the surface. The horizontal and vertical movements caused by endogenetic forces result in the formation of faults and fold which in turn cause isostatic disequilibrium in the crustal rocks which ultimately causes earthquakes of varying magnitudes depending on the nature and magnitude of dislocation of rock blocks caused by faulting and folding. In fact, sudden dislocation of rock blocks caused by both tensile and compressive forces trigger immediate earth tremor due to sudden maladjustment of rock blocks. This theory tries to explain the mode and causes of earthquakes mainly caused by fractures and faults in the earth's crust and upper mantle. The underground rocks are elastic like rubber and expand when stretched and pulled. The stretching and pulling of crustal rocks due to tensile forces is slow process. The rocks continue to be stretched so long as the tensile forces do not exceed the elasticity of the rocks but as the tensile forces exceed the rocks elasticity they are broken

and broken rock blocks try immediately to occupy their previous positions so that they may adjust themselves. All these processes occur so rapidly that the equilibrium of the concerned crustal surface is suddenly disturbed and hence earth tremors are caused.

**VOLCANOES** A volcano is a vent or opening usually circular in form through which heated materials consisting of gases, water, liquid lava and fragments of rocks are ejected from the highly heated interior to the surface of the earth. Magma is molten rock within the Earth's crust. When magma erupts through the earth's surface it is called lava. Lava can be thick and slow-moving or thin and fast-moving. Rock also comes from volcanoes in other forms, including ash (finely powdered rock that looks like dark smoke coming from the volcano), cinders (bits of fragmented lava), and pumice (light, weight rock that is full of air bubbles and is formed in explosive volcanic eruptions — this type of rock can float on water). Volcanic eruptions are closely associated with several interconnected processes such as:

- The gradual increase in temperature with increasing depth at a rate of 1°C per 32m due to heat generated by degeneration of radioactive elements inside the earth.
- Origin of magma because of lowering of melting point caused by reduction in pressure of overlying rocks due to fractures caused by splitting of plates.
- Origin of gases and water vapour due to heating of water.
- Ascent of magma due to pressure from gases and vapour.

Occurrence of volcanic eruption. These eruptions are closely associated with plate boundaries.