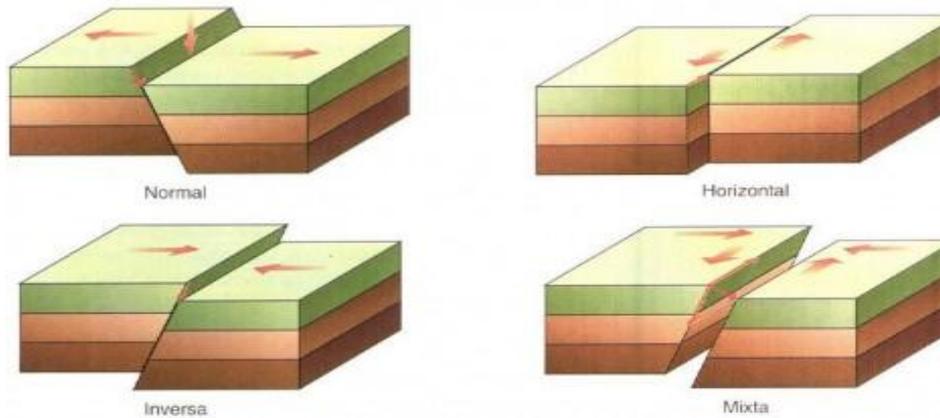
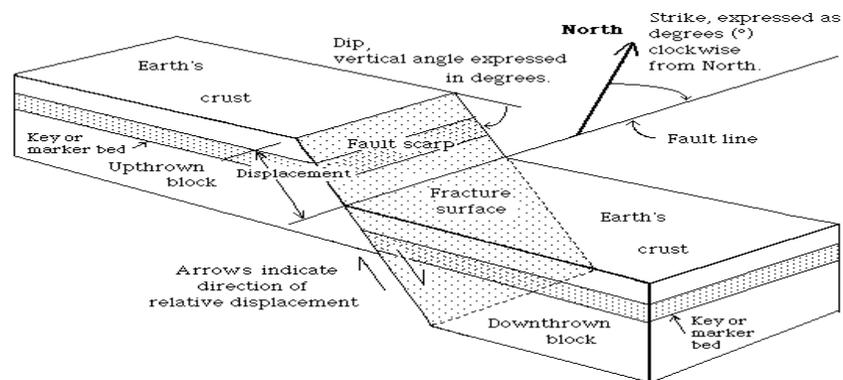


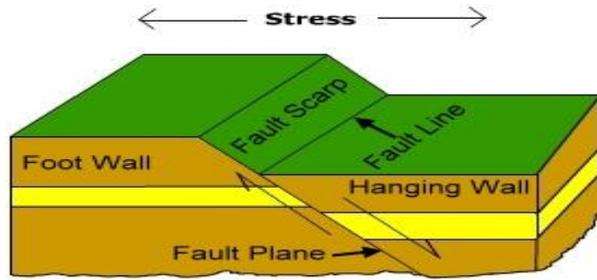
# COMPONENTS AND TYPES OF GEOLOGICAL FAULTS



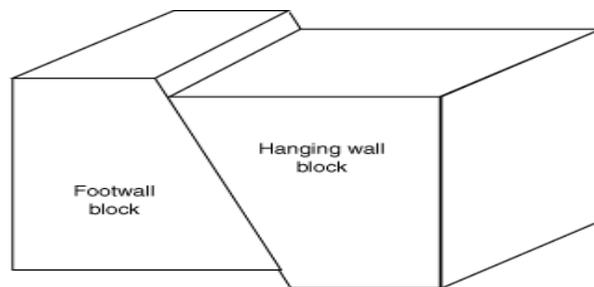
In a geological fault there can be identified the following components: “fault plane”, “fault blocks”, “guidance or orientation”, “dip”, “displacement” and “triangular facets”.



The “fault plane” which is the plane or surface along which the blocks move that are separated on the fault.

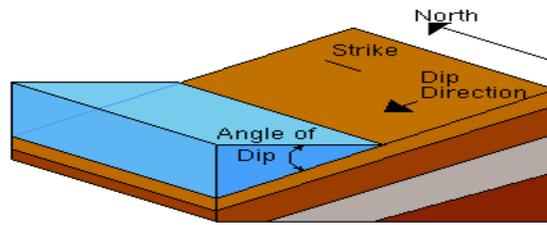


The “fault blocks” are the two portions of rock separated by the fault plane. If the “fault plane” is tilted, the block above the fault plane is the “hanging wall” or “upper block” and beneath the fault plane is called “footwall block”.

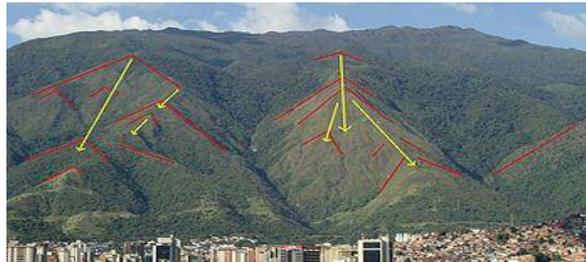


The fault may have an “orientation”, “strike” or “direction” related to the North-South axis and a horizontal line can be vertical, horizontal or inclined and also has a “dip” which is the angle of “fault plane” with respect to the horizon.

Also the fault must be determined a “displacement” or “escarpment” which is the net distance between the surfaces of the blocks and the direction in which a block is moved relative to the other.



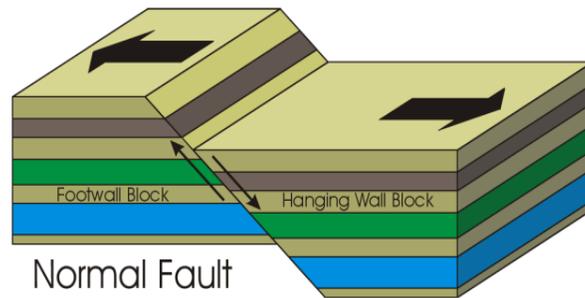
And finally, we can identify the “triangular facets” which are mirrors of faults that show the cut of a mountain range when the fault occurs perpendicularly to the mountain.



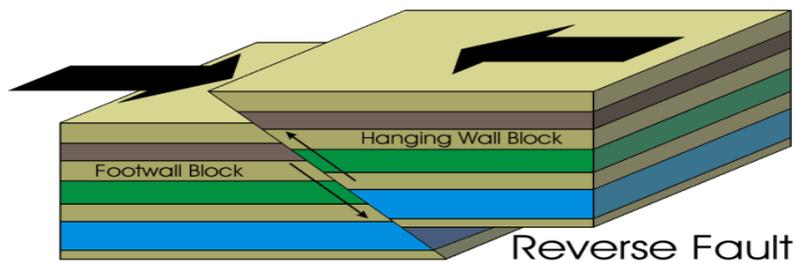
Faults are classified into three types by the direction in which their blocks move.

The “normal fault” is generated by the traction with vertical motion with respect to the “fault plane”, which typically has an angle of  $60^\circ$  from the horizontal plane, and as we have seen, generates a “hanging wall” and a “foot wall” where rocks on one side of the fault sink over rocks from the other side of the fault.

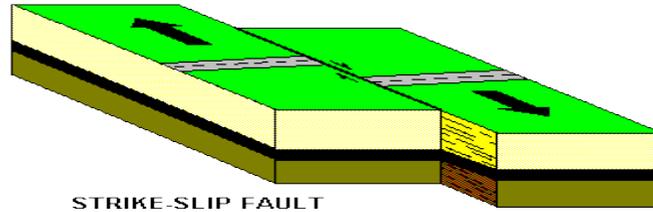
There are areas in a fault where the rock is separated, so that the crust in a specific area is able to occupy more space and do not create rocky ledges.



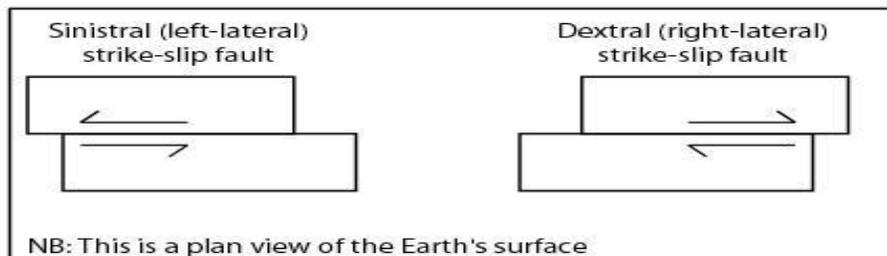
The “reverse fault” is generated by compression. It has horizontal movements where the upper block (hanging wall) is located above the lower block (footwall). It occurs in areas where the rocks are compressed against each other so that the rocky crust area occupies less space, creating an exposed area of the fault called “outbound.”



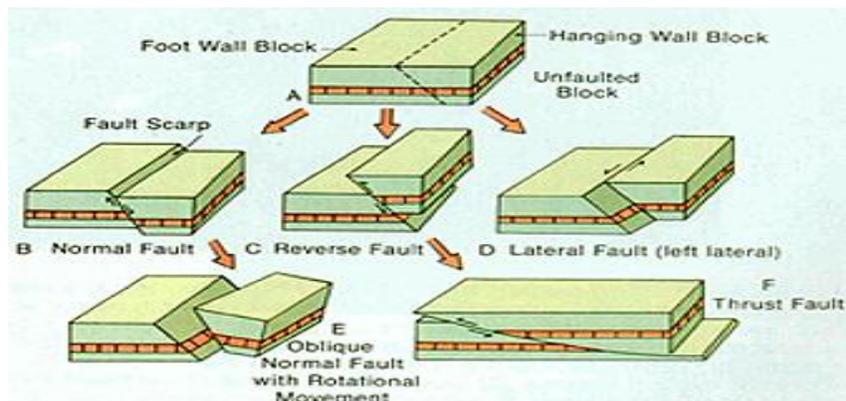
The “strike-slip fault” or “transform fault” has a predominant horizontal component and a small vertical component. The rock block from one side moves to one direction, while the opposite block is moving in an opposite direction. It is identified due to the discontinuity of a field.



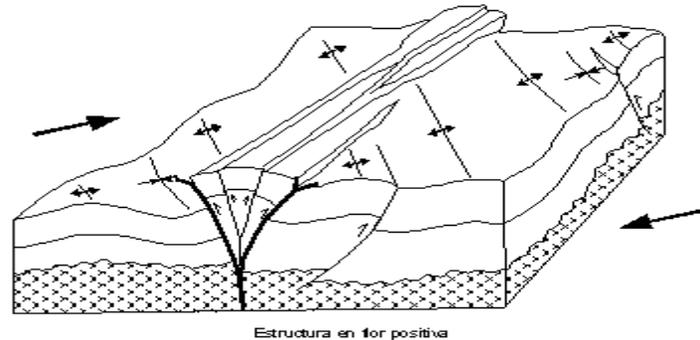
Faults are divided into “dextral” (clockwise relative movements with respect to the observer) and “sinistral” (left wise relative movements with respect to the observer).



The movement along the fault does not occur in a single way, but as a combination of three types of faults and may have various directions which can be vertical, horizontal or a combination.



Also, it is important to note that a fault is not only a crack in the rock but can occur in a variety of fractures caused by similar movements, so can be grouped into “fault zones”



The nature of the motion of the rocks in either sides of the “fault plane” can help determine the origin and behavior of the fault both in individual and small faults.

Faults can be considered active when the deformation of their Quaternary sediments shows evidence of movement during the last 1.8 million years.

If landslides occur in the fault of stable and almost imperceptible after several years, it is called an “aseismic” fault but if landslides occur suddenly causing earthquakes and then long periods of inactivity they are called “crawlers” faults.

When the activity of a fault occurs suddenly and abruptly it can produce a large earthquake and even rupture of the earth’s surface, creating a “scarp” or a fault.

The most active faults cause most earthquakes like the San Andreas Fault in California.



Fracture means that there will be motion from one side of discontinuity with respect to the “fault plane” and in the another block of rock.

Source: <http://www.artinaid.com/2013/04/components-and-types-of-geological-faults/>