Faults

Are fractures that occur along the levels relative movement when a value differential stress ≠ 0. The range of size for faults is from microscopic mm scale to thousands of kilometer , Most faults are inclined at an angle measured from horizontal.

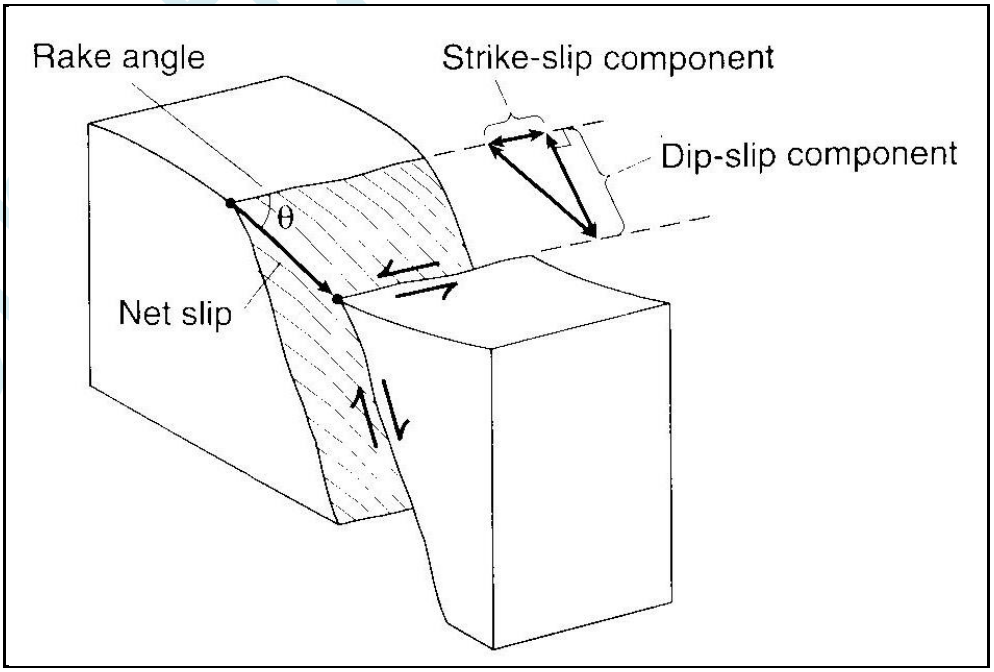
Geometric elements of the fault

Fault consists of two blocks separated by a rocky flat or weak surface called Fault plane. Rock mass which moves in the same direction of dip called hanging wall block, but the rock mass which move in reverse direction of dip are called foot wall block .

It is worth noting that if the fault is vertically tends at an angle of list 90, can not use the terms hanging wall and foot wall that does not have a tendency direction of the fault surface.

Geometric elements used to describe the nature of the relative motion between the two blocks rocky represented of :

1. Net slip : it outcome of the distance point moves on the surface of the fault.
2. Strike-slip component : a horizontal distance which is moving a point on the surface of the fault is parallel to the strike.
3. Dip-slip component : a horizontal distance which is moving a point on the surface of the fault is parallel to the direction of dip.
4. Rake angle : The angle between the strike line and the direction of net slip.



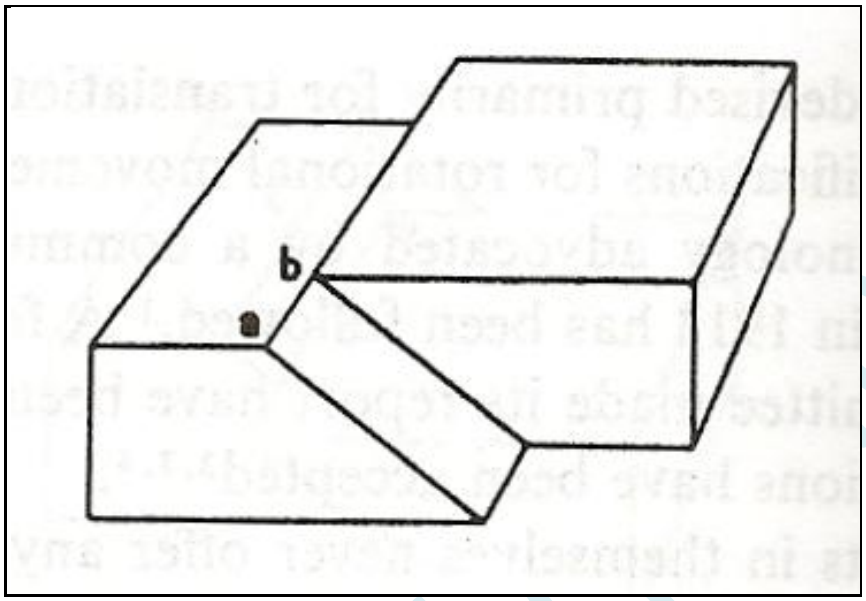
Geometric elements of fault

Classification of Faults

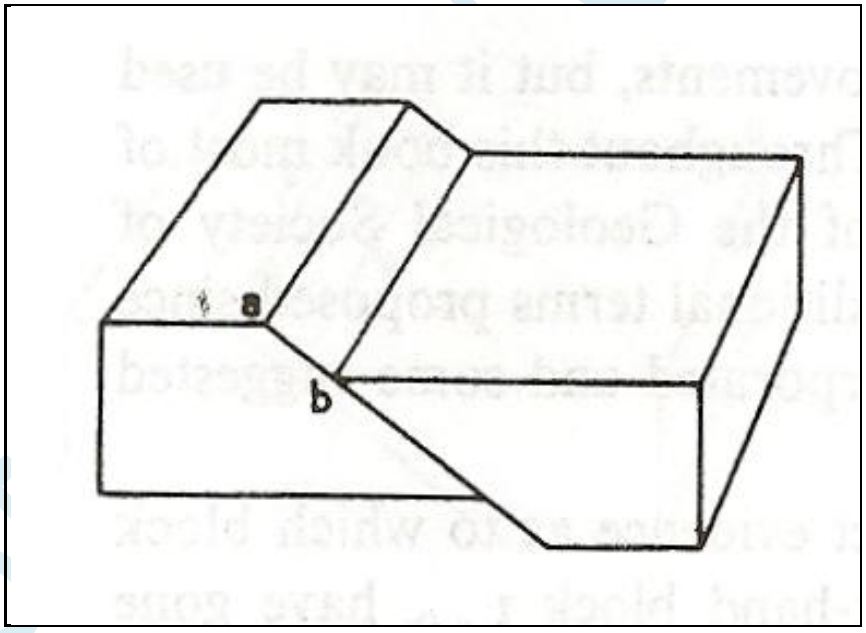
A. Geometrical Classification.

1. Classification based on net slip.

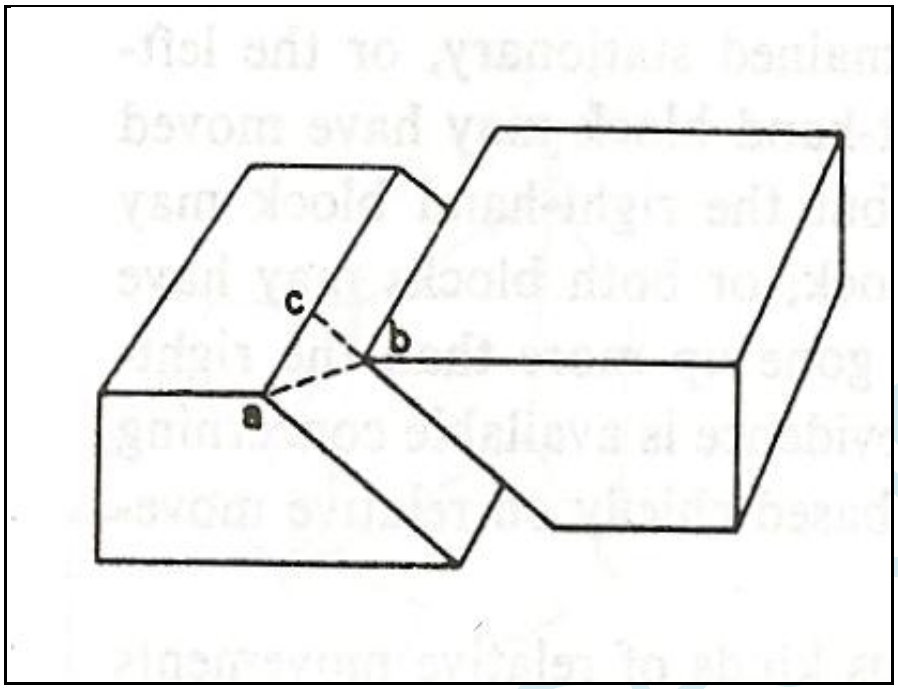
a. Strike – slip fault.



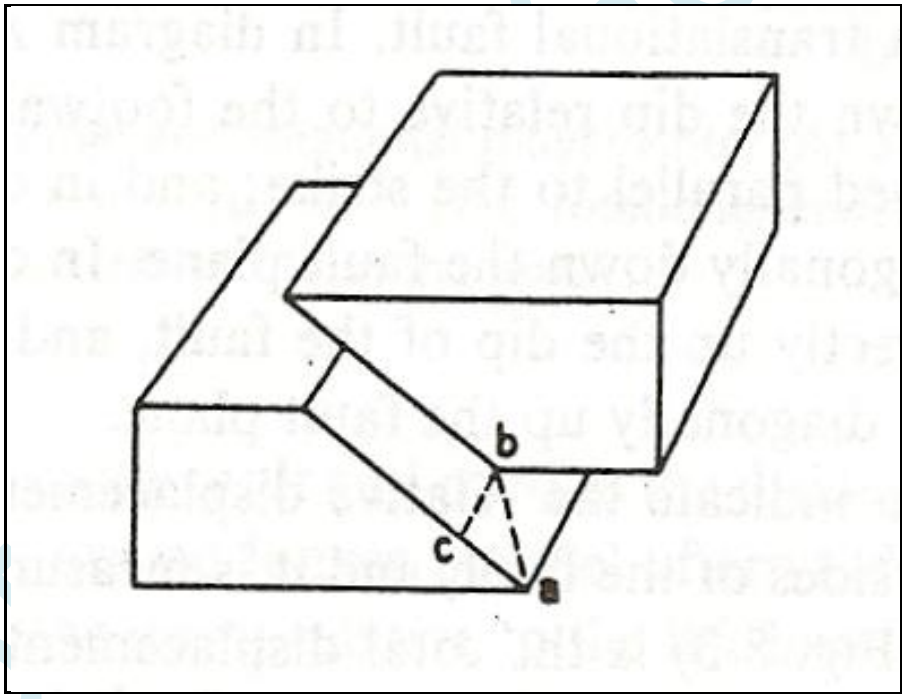
b. Dip – slip fault.



c. Diagonal – slip fault.

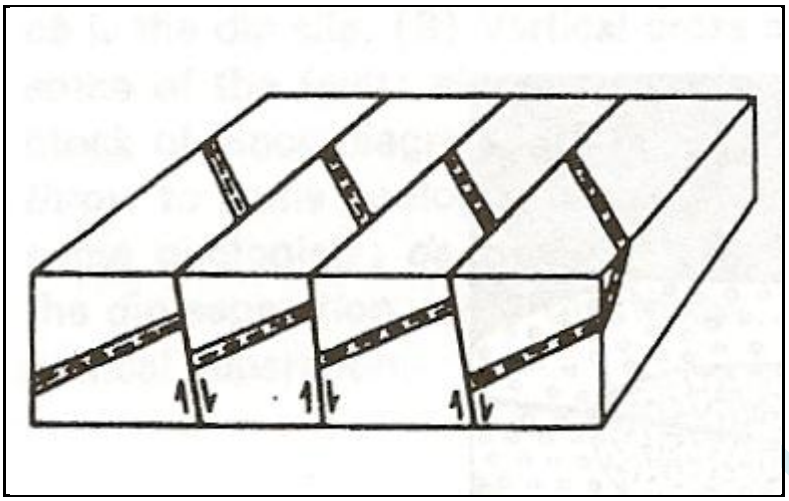


d. Diagonal reveres fault.

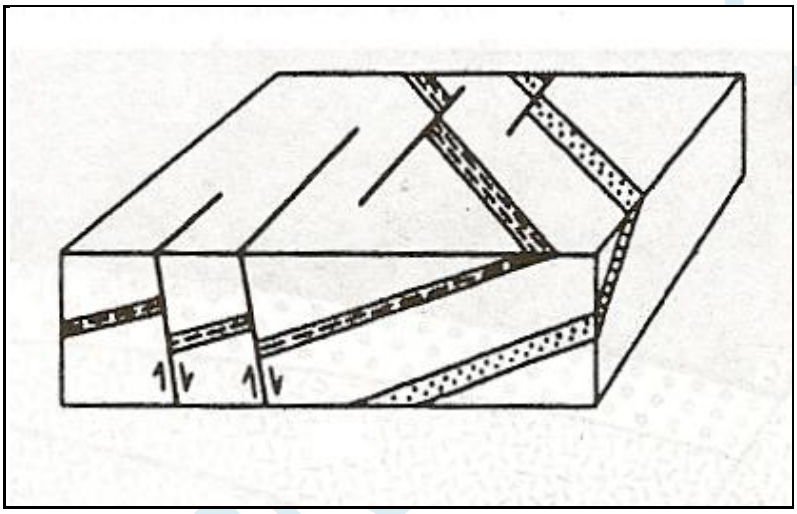


2. Classification based on fault pattern:

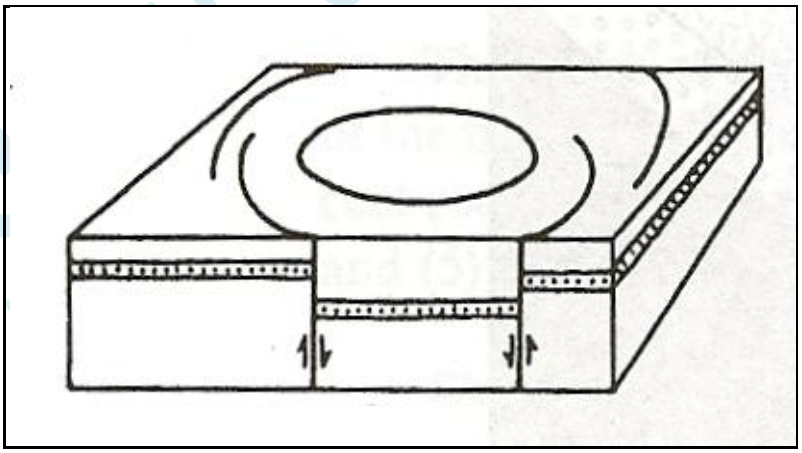
a. Parallel fault.



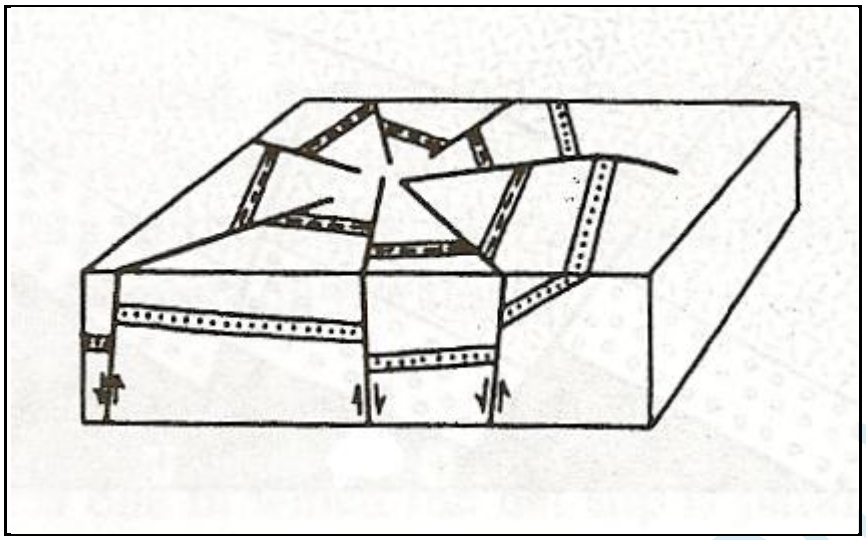
b. En Echelon fault.



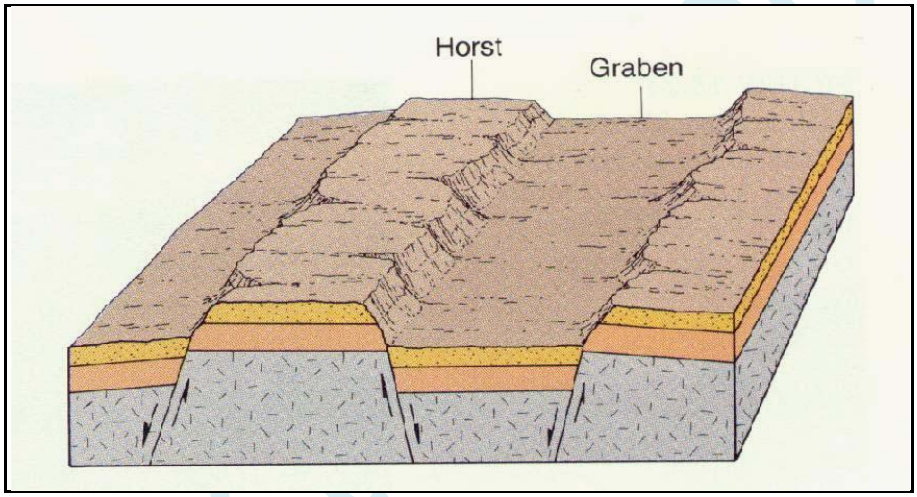
c. Peripheral fault.



d.Radial fault.



e. Horst &Graben fault.



3. Classification based on value of dip of fault:

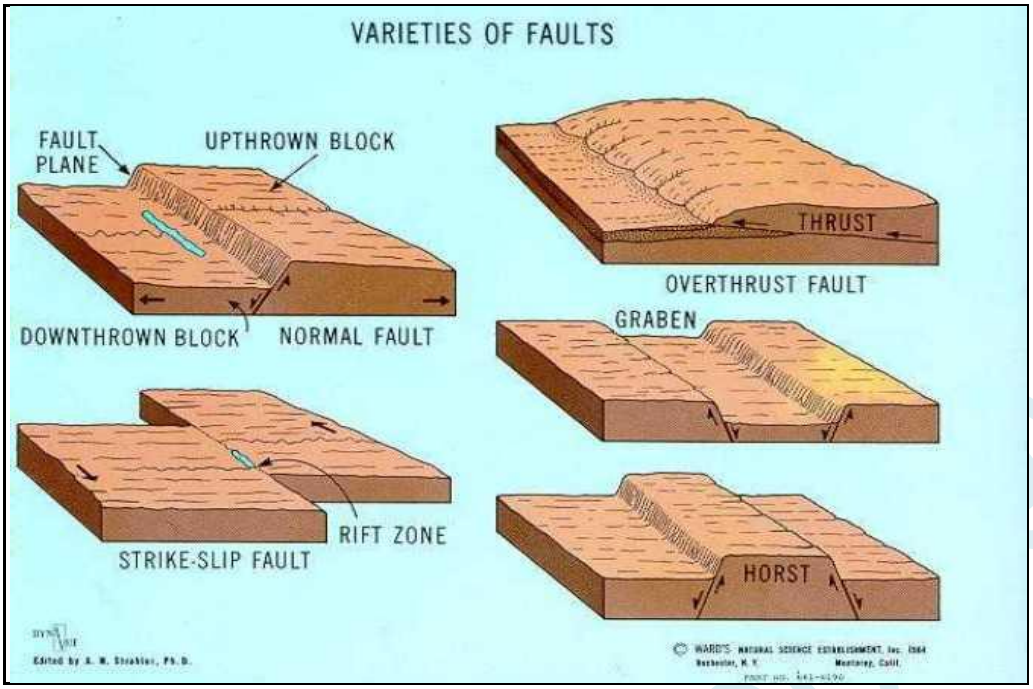
a. High – angle fault (dip > 45°).

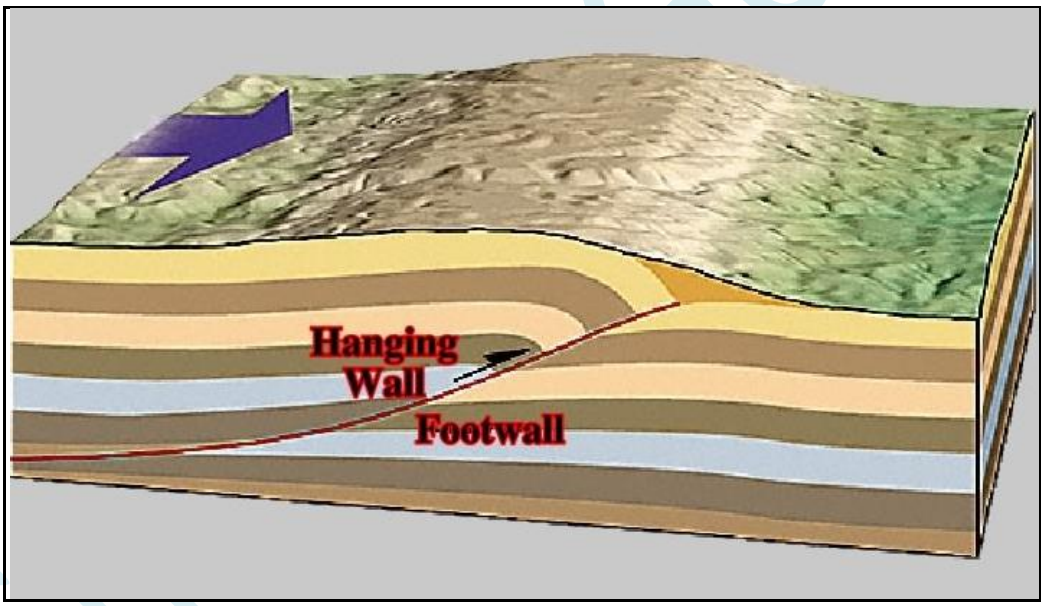
b. Low – angle fault (dip < 45°).

B. Genesis Classification:

Genetic classification is based on the nature of the relative movement along the fault.

a. Thrust fault (that dips > 45°).
b. Normal fault.
c. Overthrust fault (fault dips < 10° and has a large net slip).
d. Reverse fault.





Thrust fault