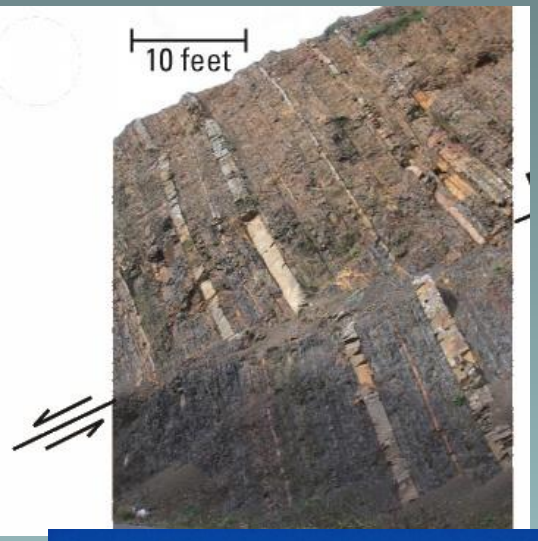
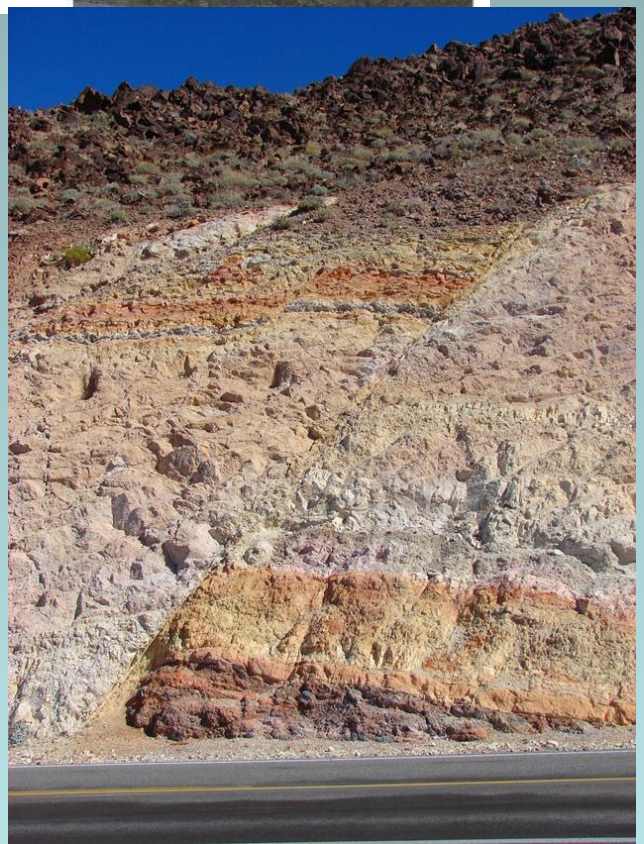
Extension Fractures (Joints):

Plumose structures on the Joint plane

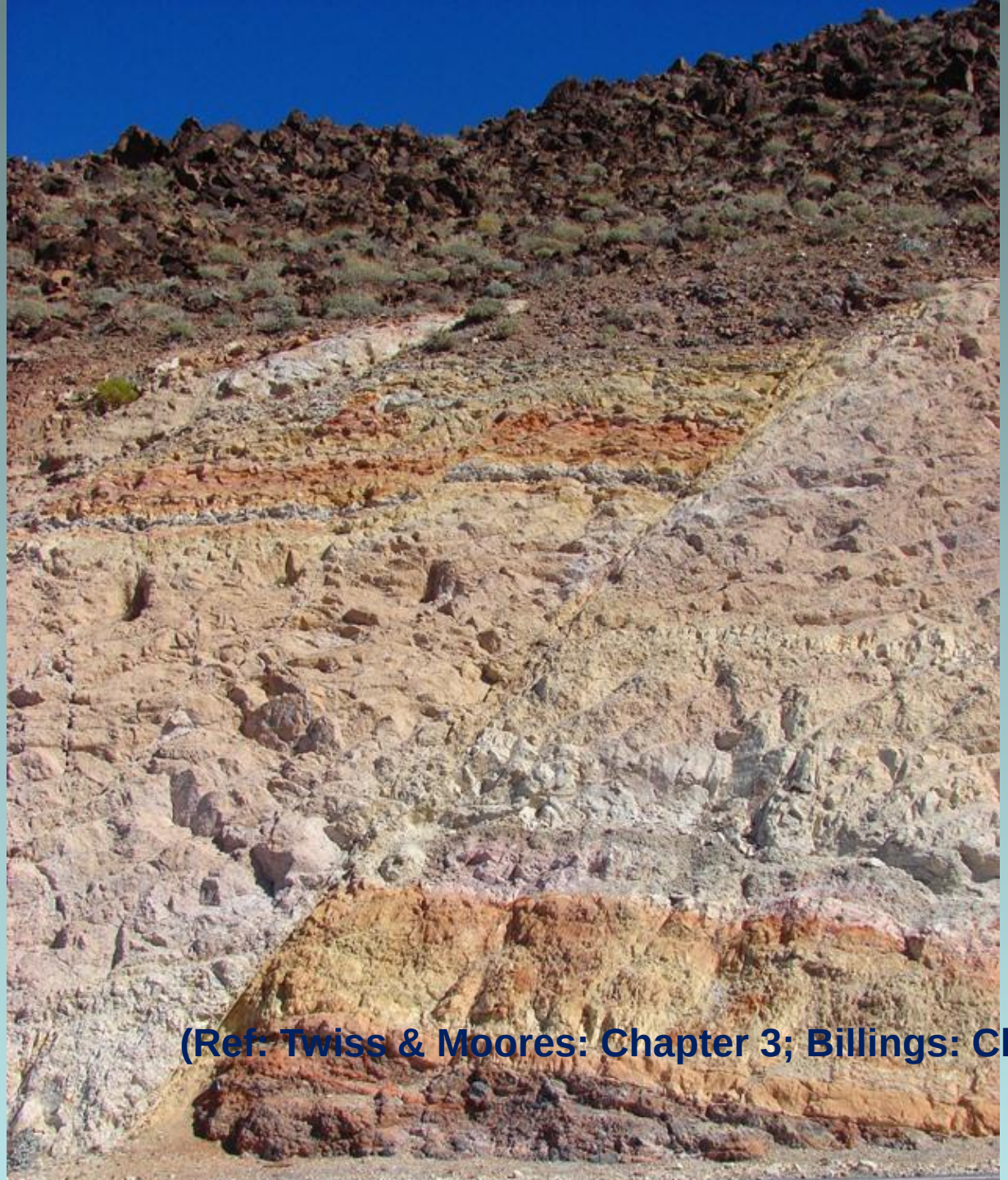
Shear Fractures





Slickenlines on the shear fracture plane

http://www.earthscienceworld.org/



(Ref: Twiss & Moores: Chapter 3; Billings: Chapter8)

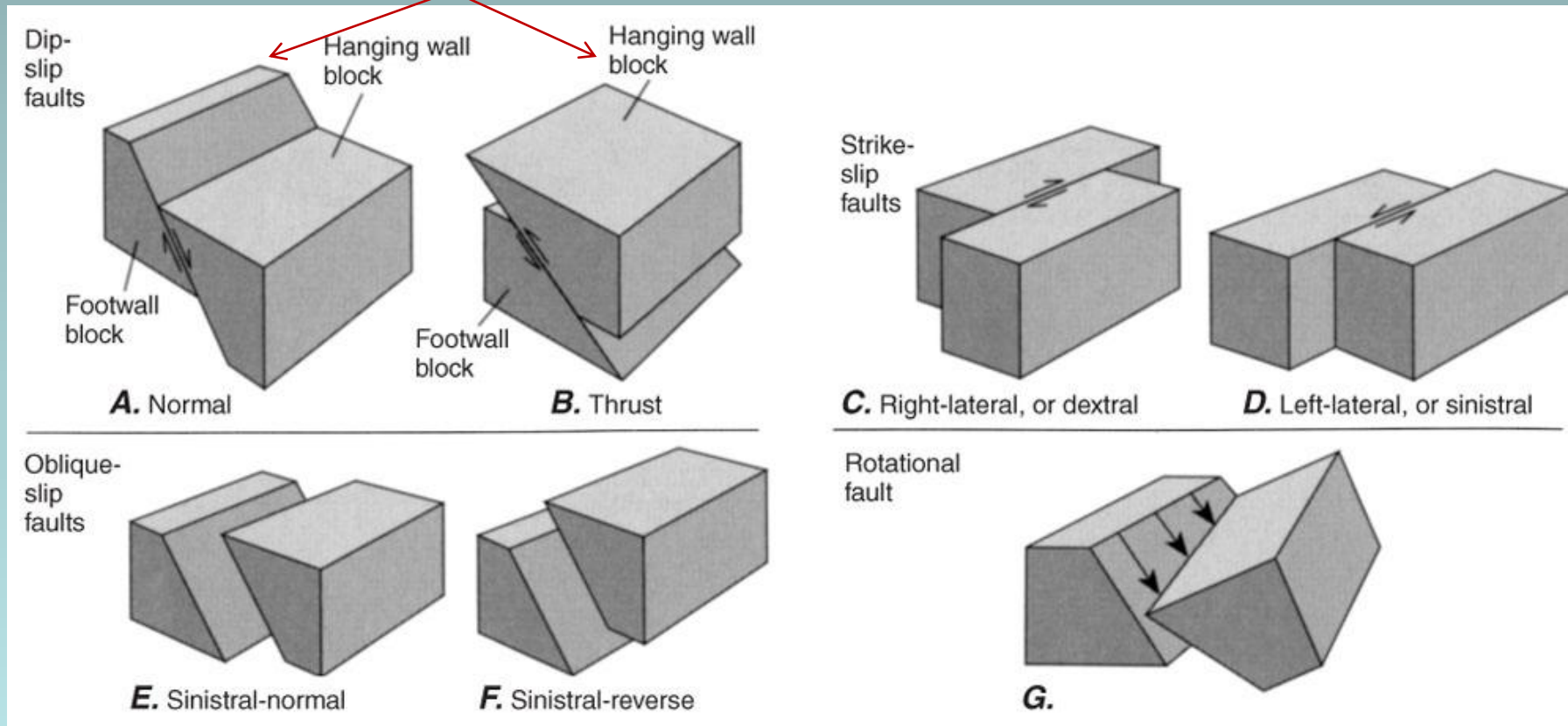
Genetic Classifications

Real movement on Fault (net slip)

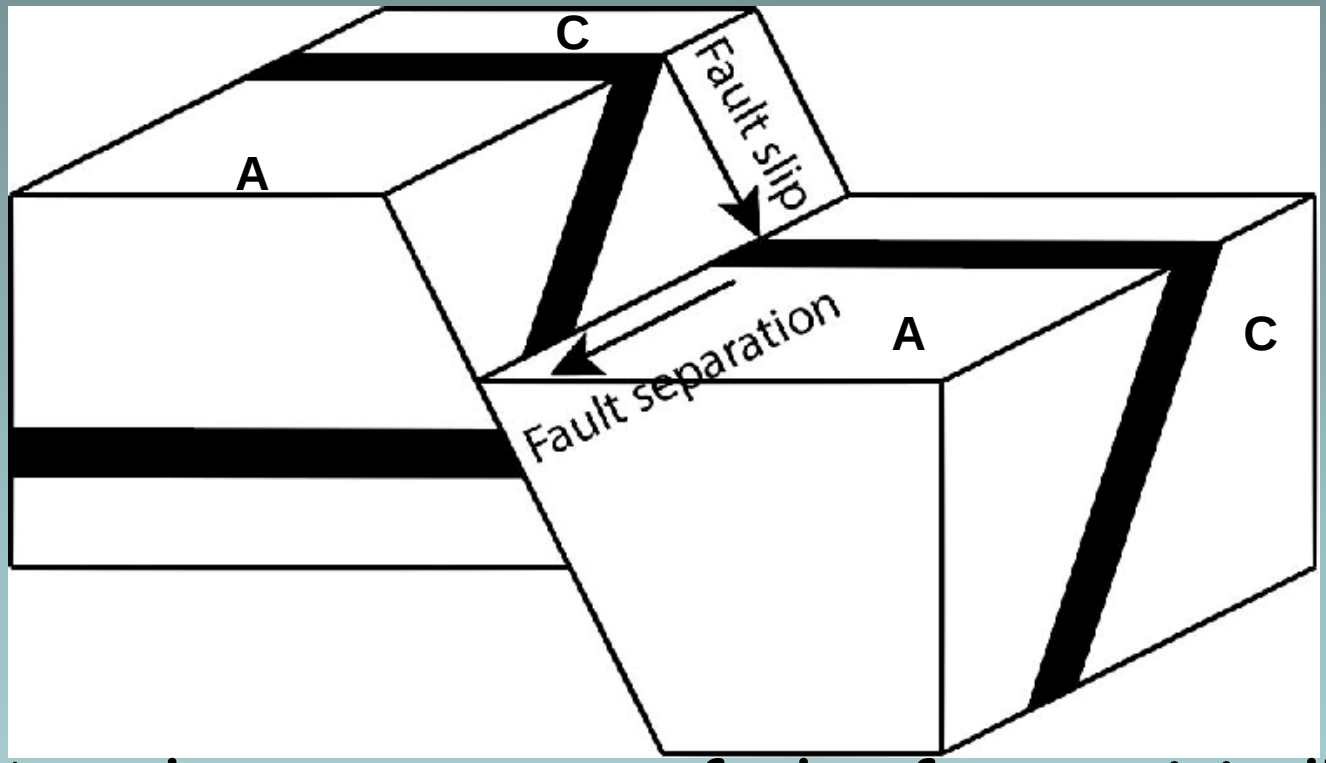
1. Normal fault: HW moves down
2. Reverse fault (high angle) or thrust fault (low angle): HW moves up
3. Strike-slip fault: Movement parallel to the strike of the fault
4. Oblique slip fault: Have both dip slip & strike slip components

Rotational Fault: Slip changes rapidly along horizontal distance of the fault (Scissor faults)

Dip slip fault



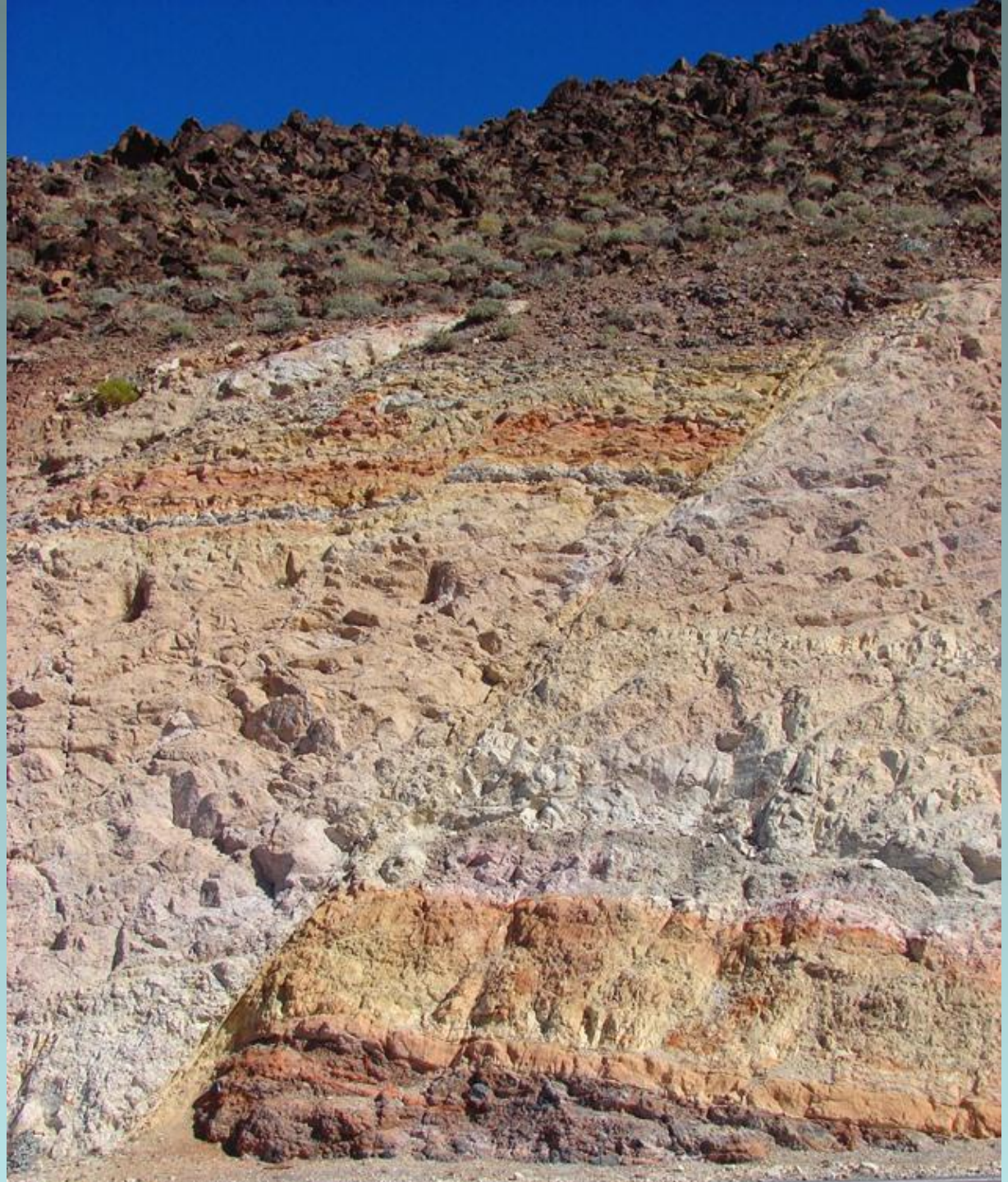
Motion on a fault is always relative..



Slip – Actual movement on a fault of two originally adjoining points (always estimated on the fault plane).

Usually never preserved; generally always calculated

Separation – Distance measured in a specific direction between the same planar feature on opposite sides of the fault.

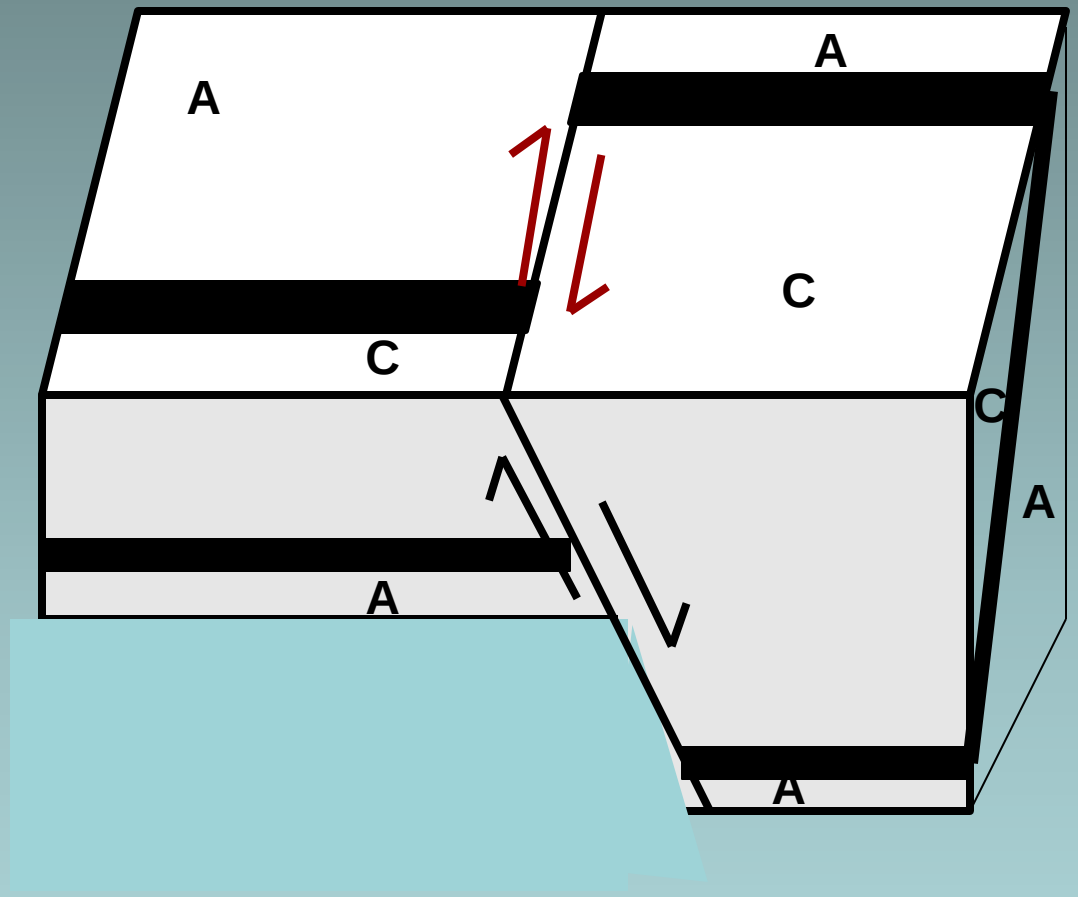


Motion on a fault is always relative..

Map /cross sectional view does not provide information on actual fault movement

After erosion...

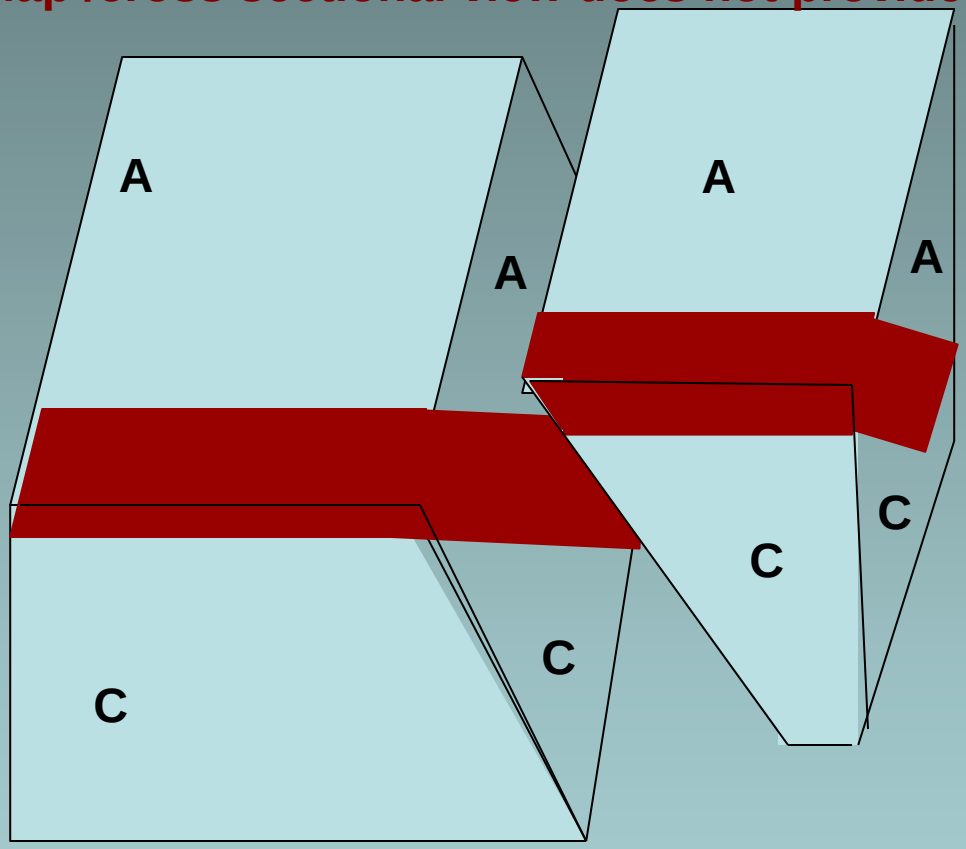
Map view

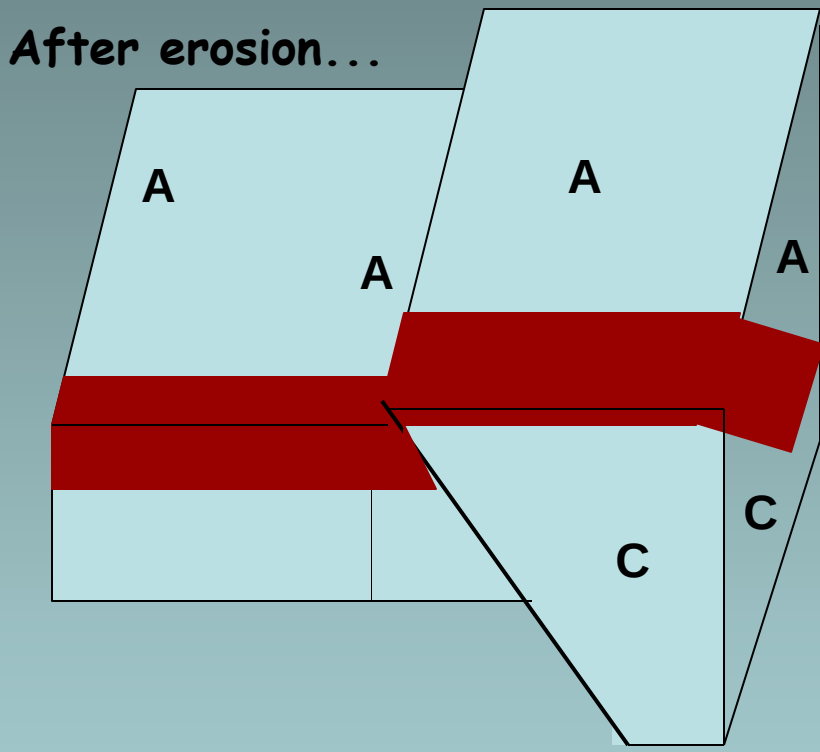


Apparent sinistral strike-slip
Map view not sufficient

X incorrect.

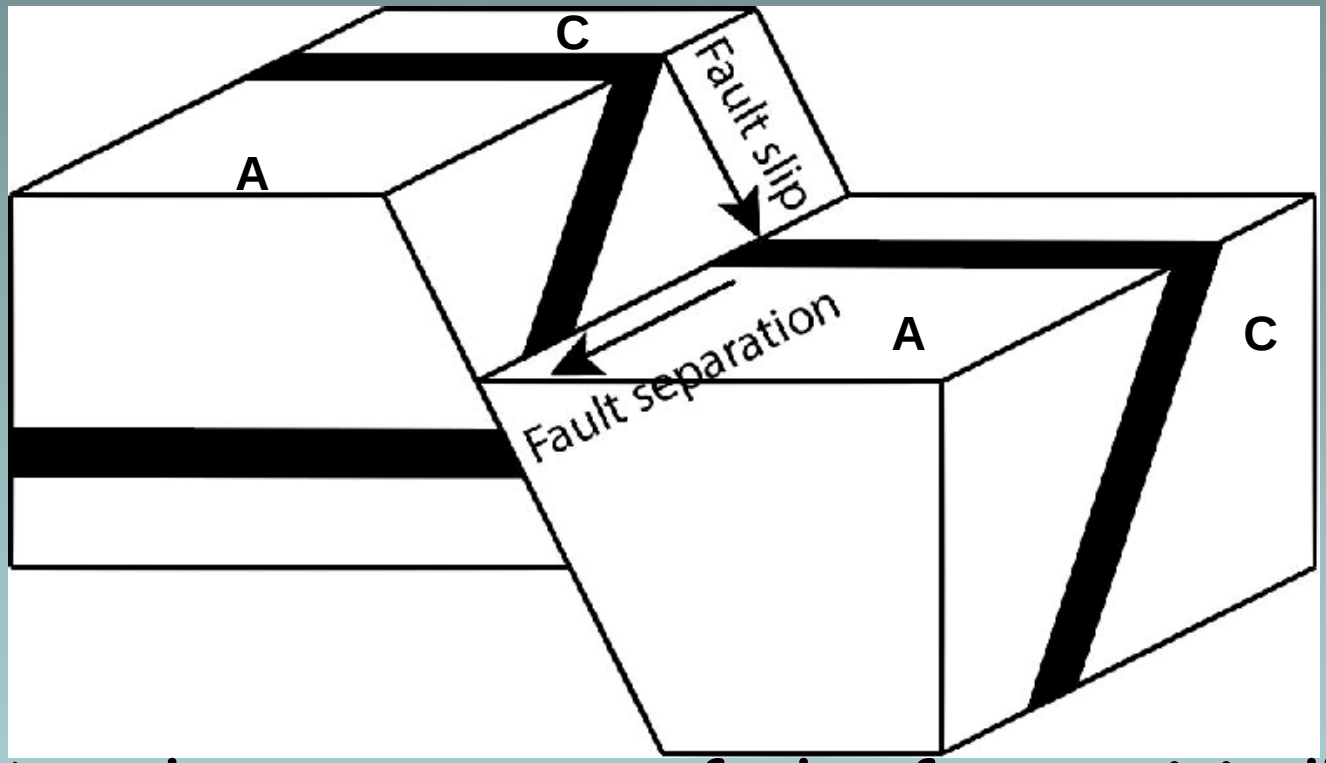
Map /cross sectional view does not provide information on actual fault movement





Cross-section view – apparent reverse X not correct

Motion on a fault is always relative..



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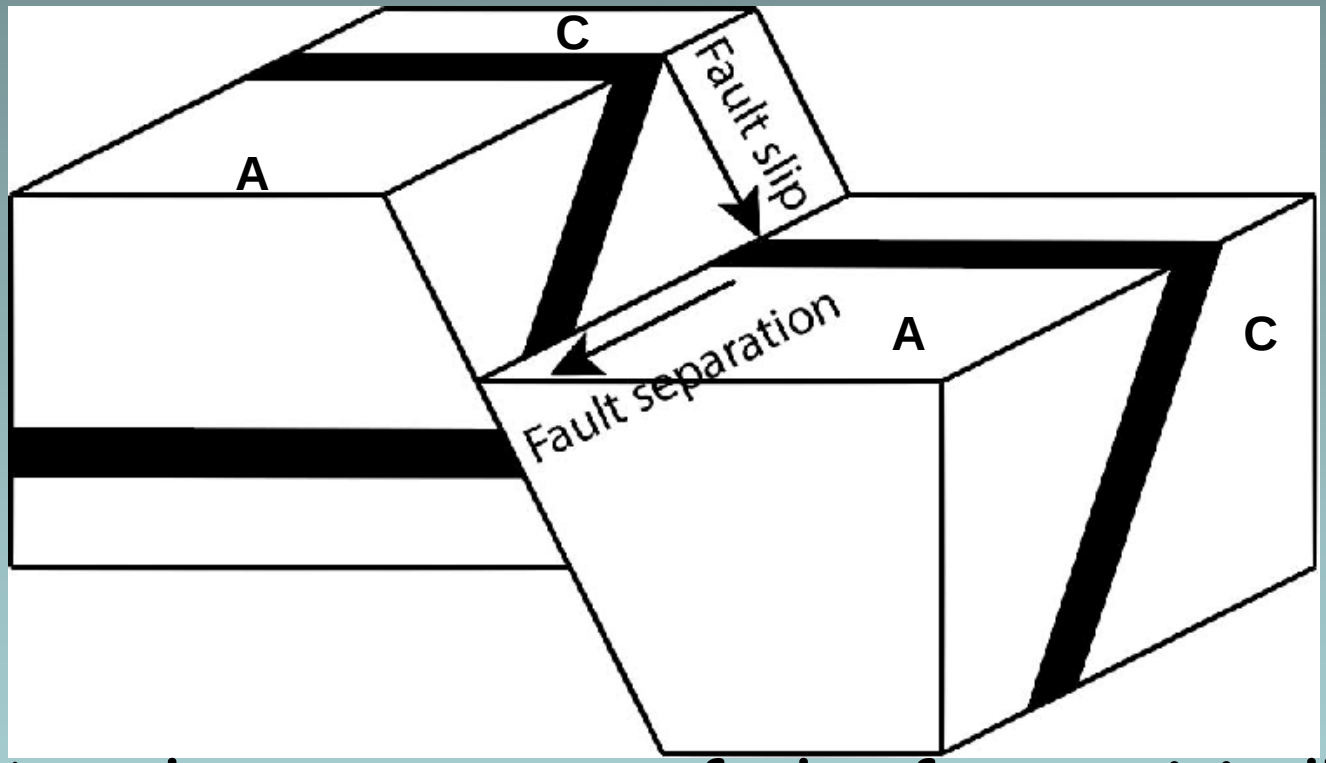
Slickenlines on fault plane

Motion on a fault is always relative..



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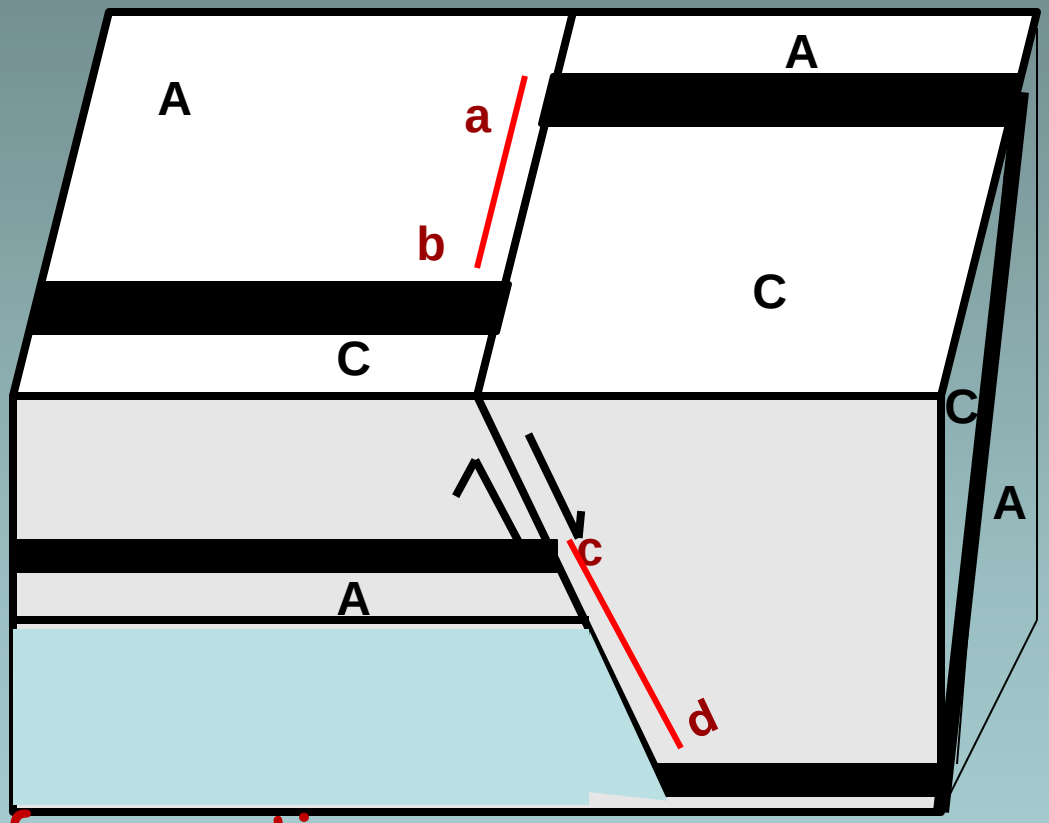
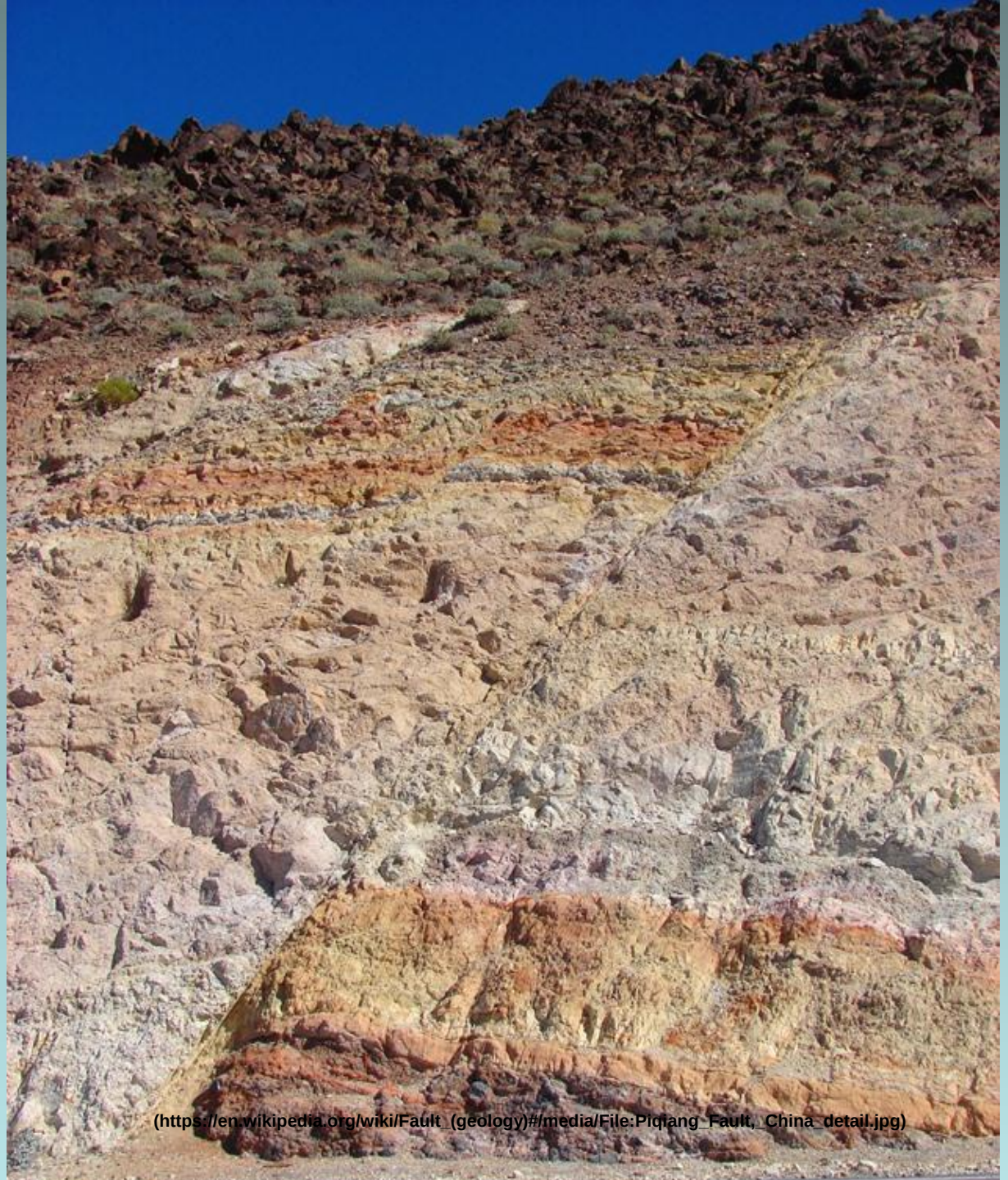


Components of separation:

(A)Strike separation (ab): Measurement of the diplaced bed along strike of the fault (map view)

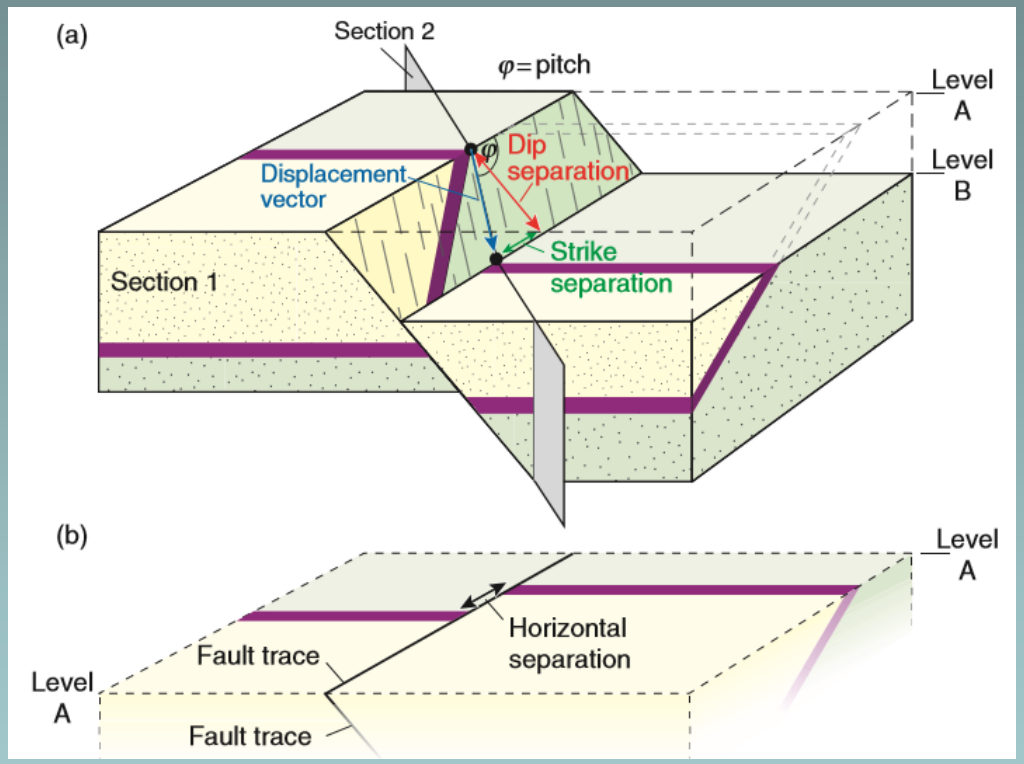
(B) dip separation (cd): Measurement of the displaced bed down the dip of fault plane (cross-sectional view)

Dip separation



(https://en.wikipedia.org/wiki/Fault_(geology)#/media/File:Piqiang_Fault,_China_detail.jpg)

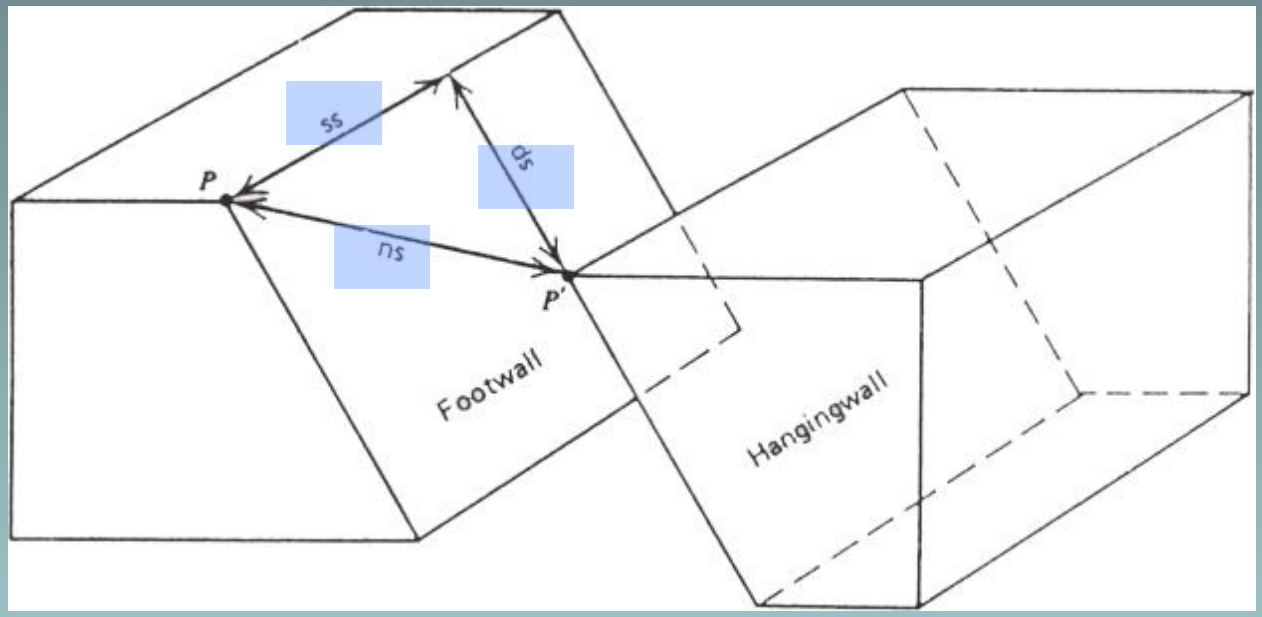
Strike separation



Will the Strike separation remain constant during evolution of the fault?

Will the Strike separation remain constant at different erosion level?

Motion on a fault is always relative..



Net Slip (ns): **Straight line distance** between two points, that were originally adjacent to one another, after fault moved.

Total movement could be different; it's the vector PP'.

Net slip lies on the fault plane

Components of net slip:

(A) Dip slip (ds): Component of net slip parallel to dip of the fault

(B) Strike slip (ss): Component of net slip parallel to strike of the fault