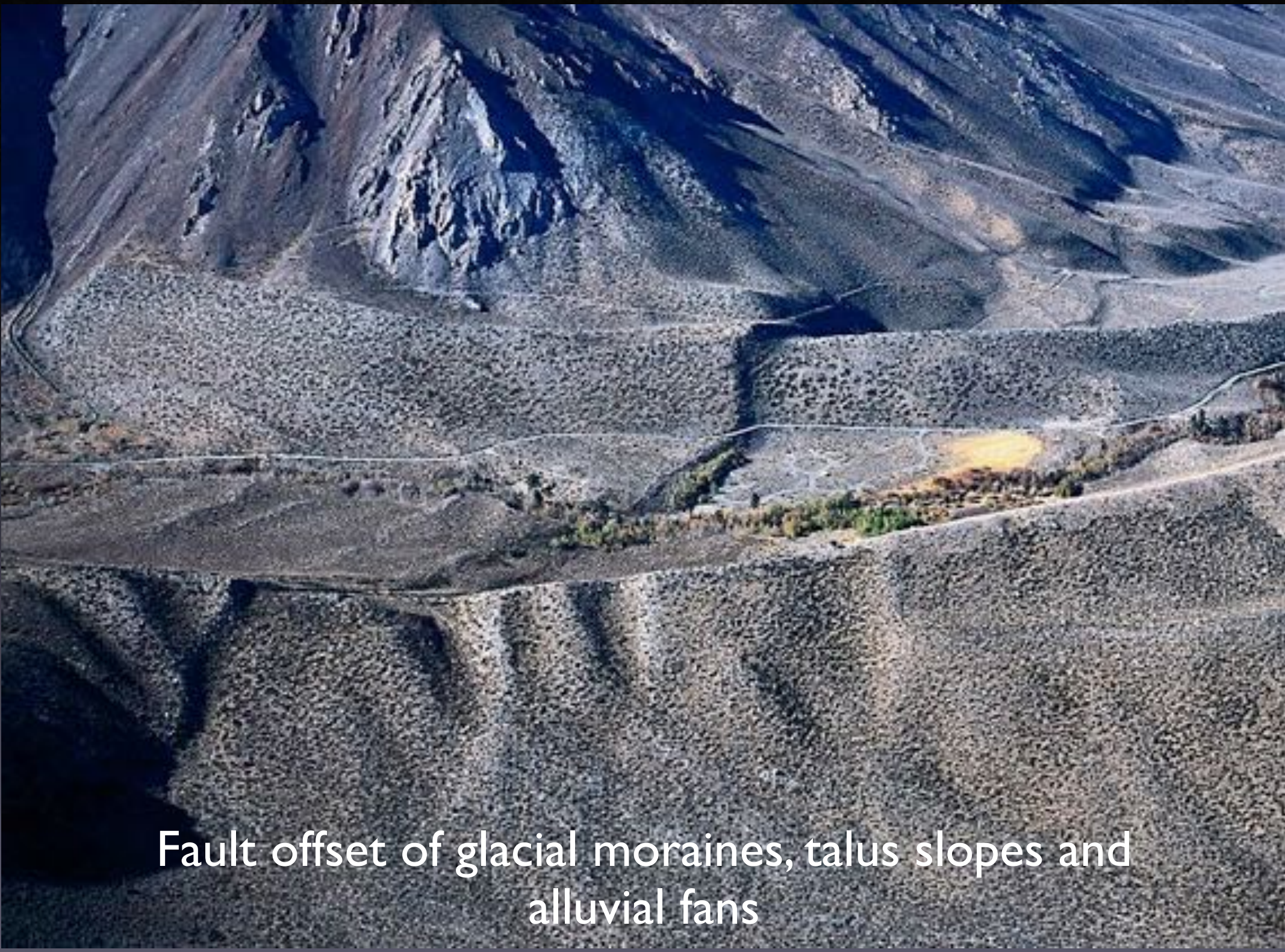
faults

A fault is a surface or zone along which there has been shear displacement.

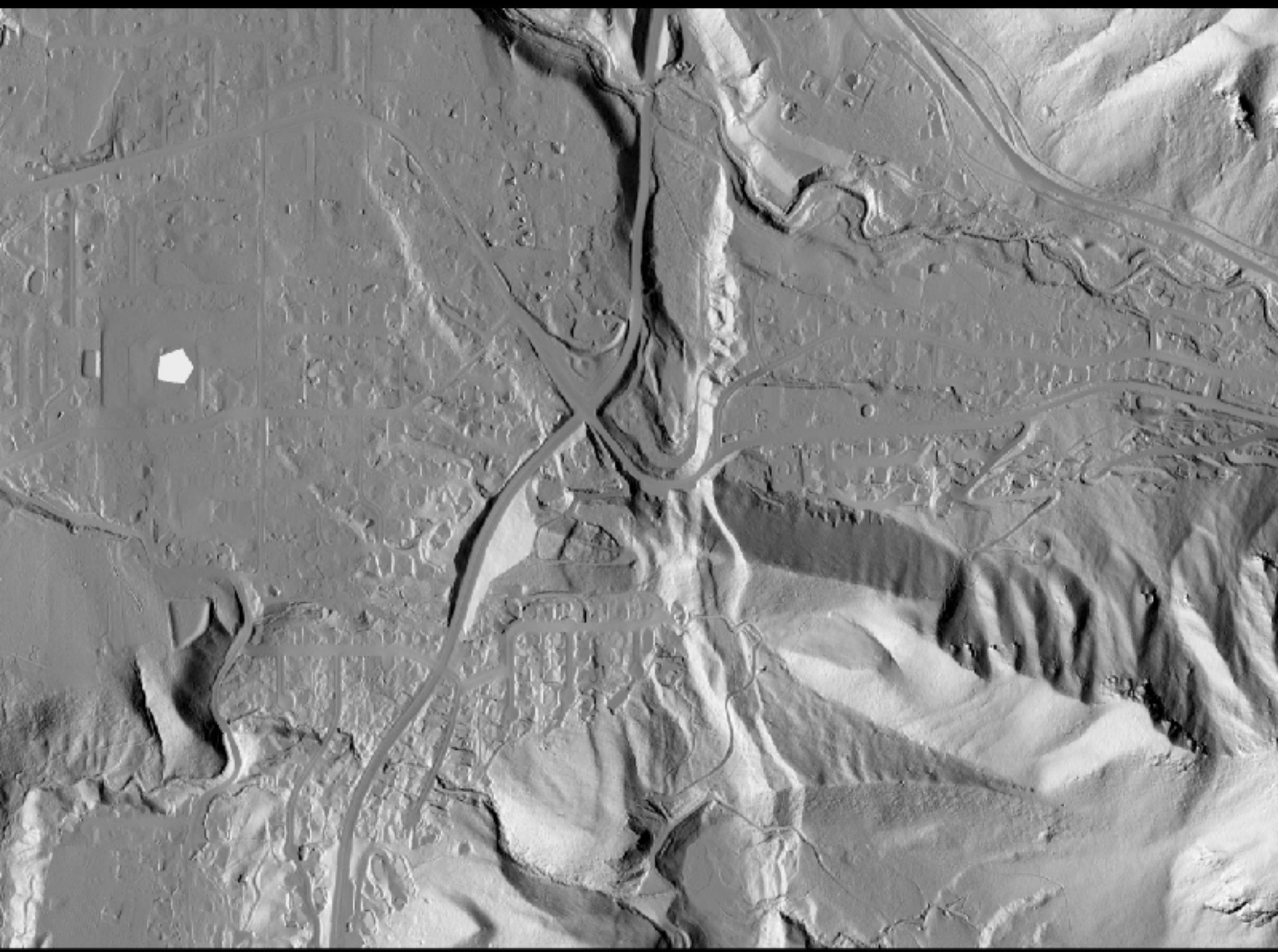
normal faulting near Convict Lake, eastern Sierras/Owens Valley, California



Fault offset of glacial moraines, talus slopes and alluvial fans

Fault offset of glacial moraines

Little Cottonwood Creek near Salt Lake City, Utah



# fault-surface features


ADVANCE

slickenside
(fault slip surface)

slickenlines

# slickenlines

I shear striae (scratches)


DNAG
CM
IN
mm

# slickenlines

1. shear striae (scratches)
2. grooves

# slickenlines

1 shear striae (scratches)

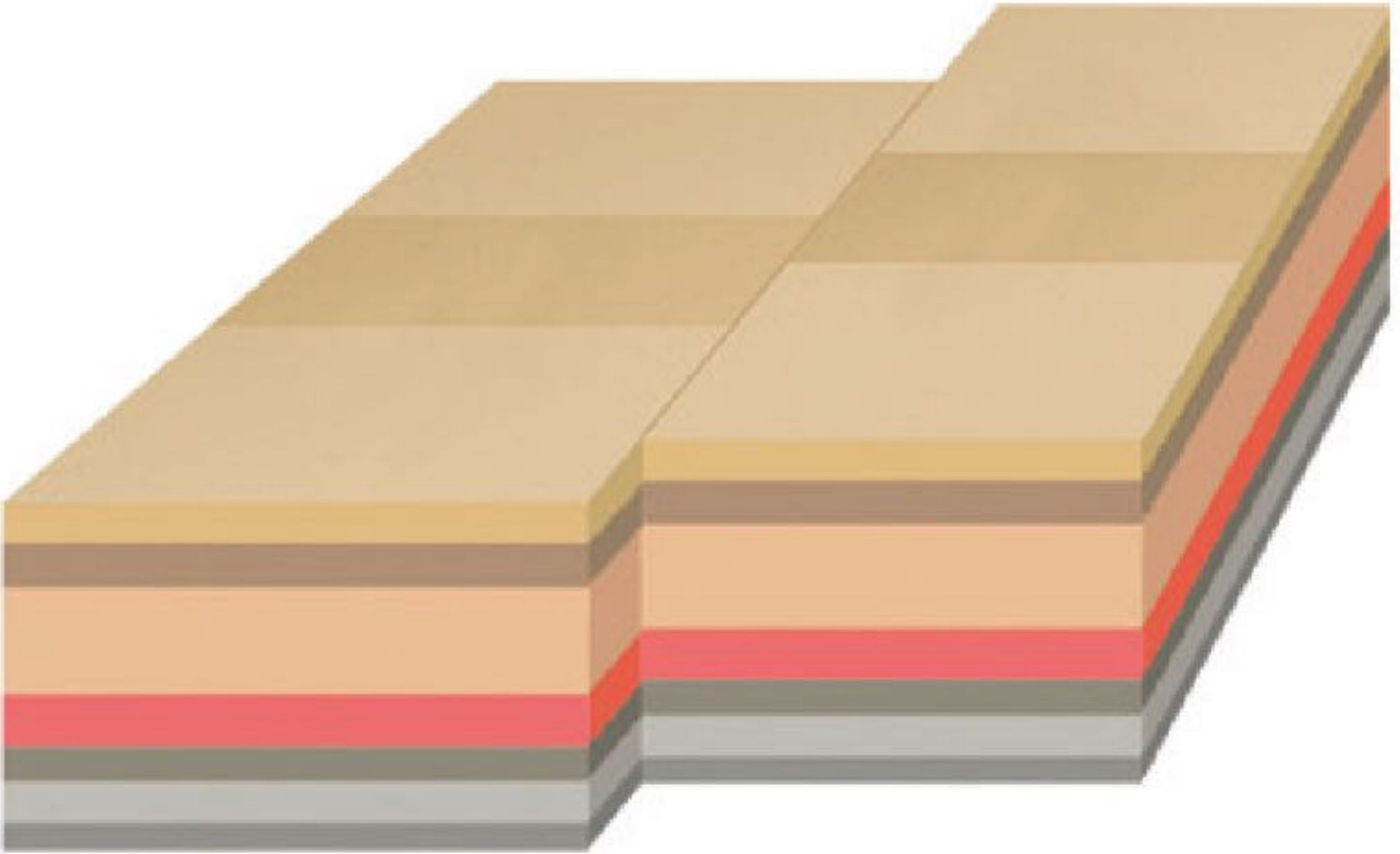
2 grooves

3 slickenfibers (vein-fill within fault)


LIBERTY

# sense of slip

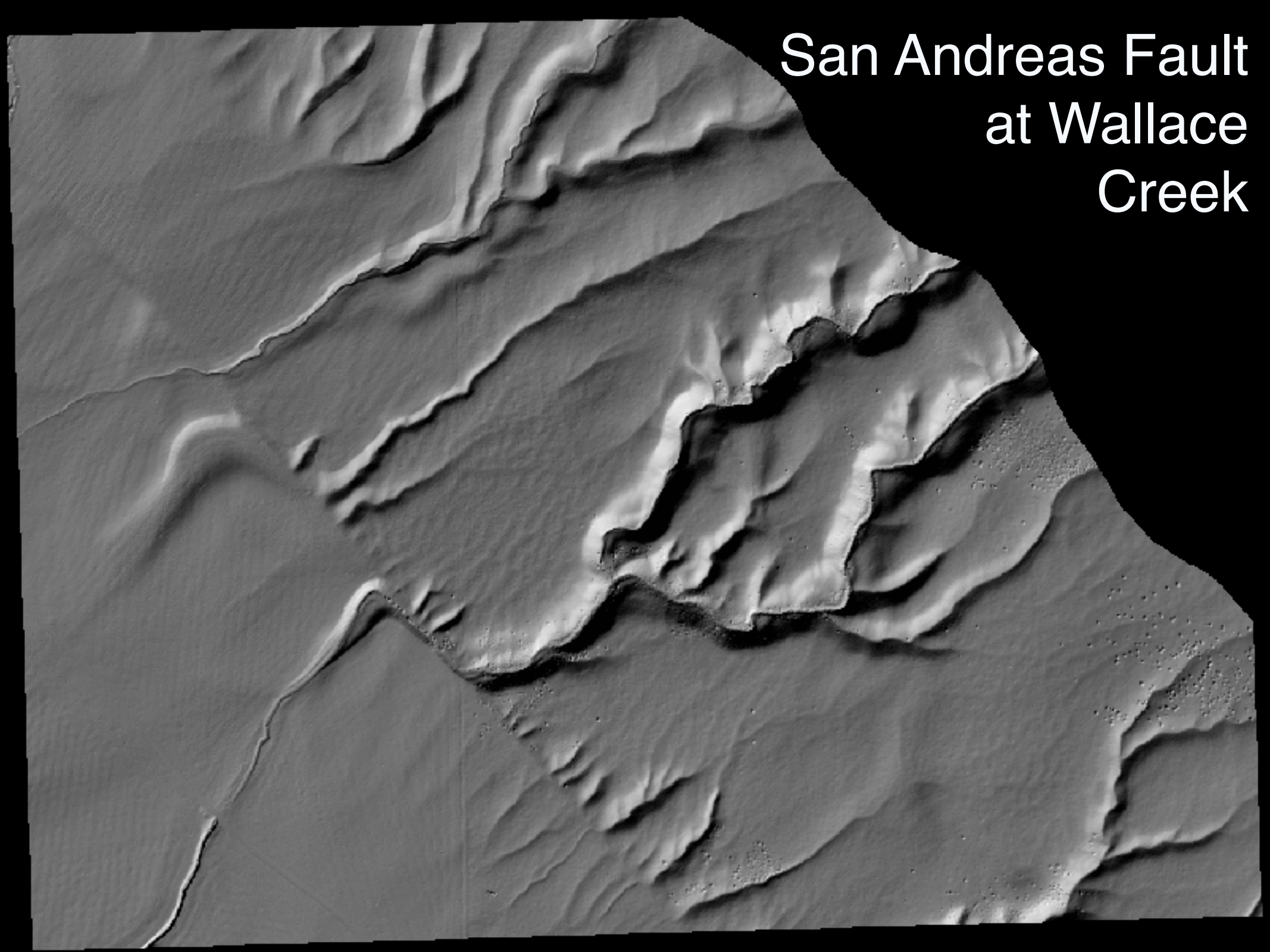
- strike-slip: slip is horizontal or parallel to strike



# Strike-slip faults

# sense of slip

- strike-slip
  - left-lateral
  - right-lateral


San Andreas Fault
at Wallace
Creek

# sense of slip

1 strike-slip

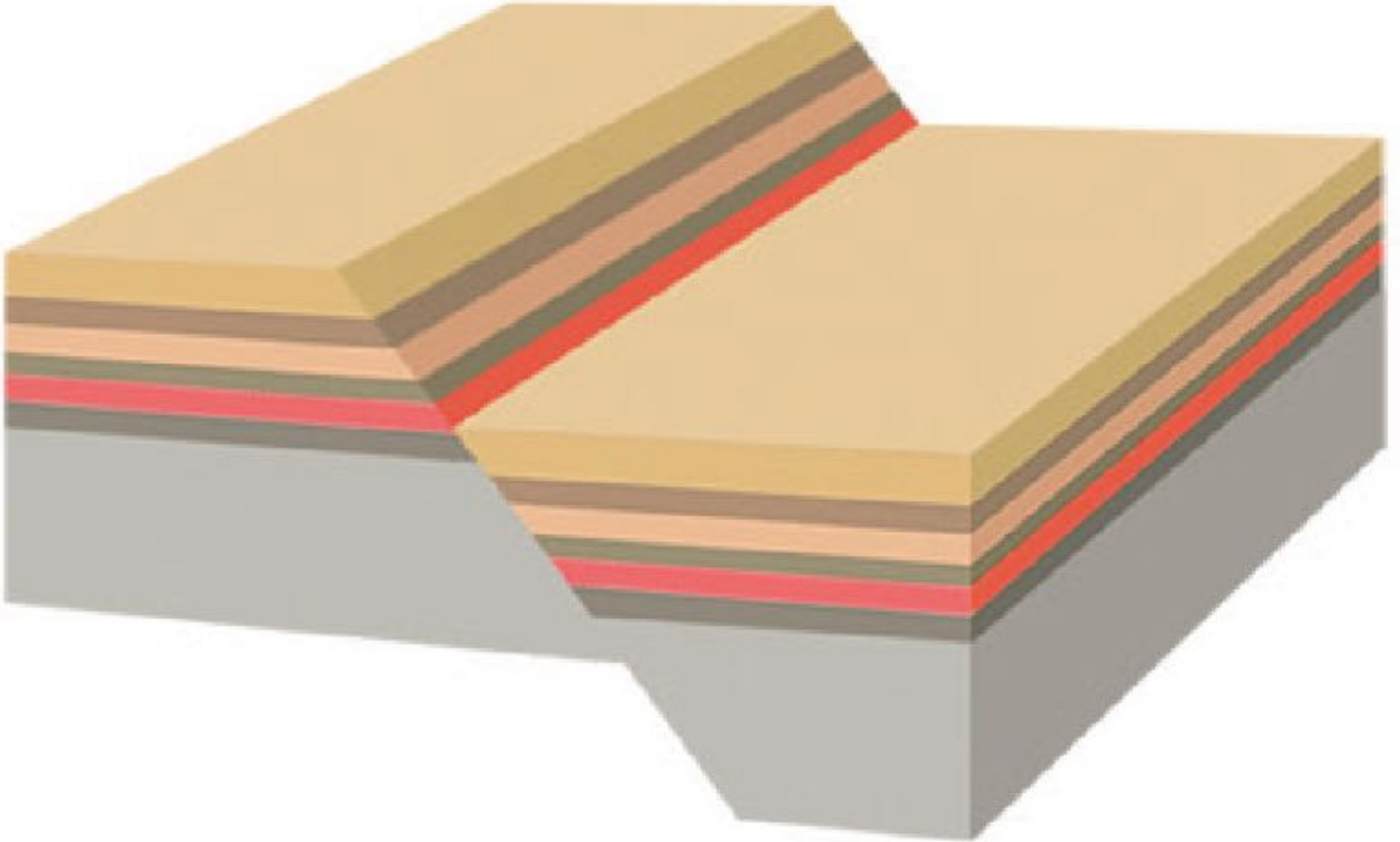
2 dip-slip: slip is perpendicular to strike, parallel to dip

# sense of slip

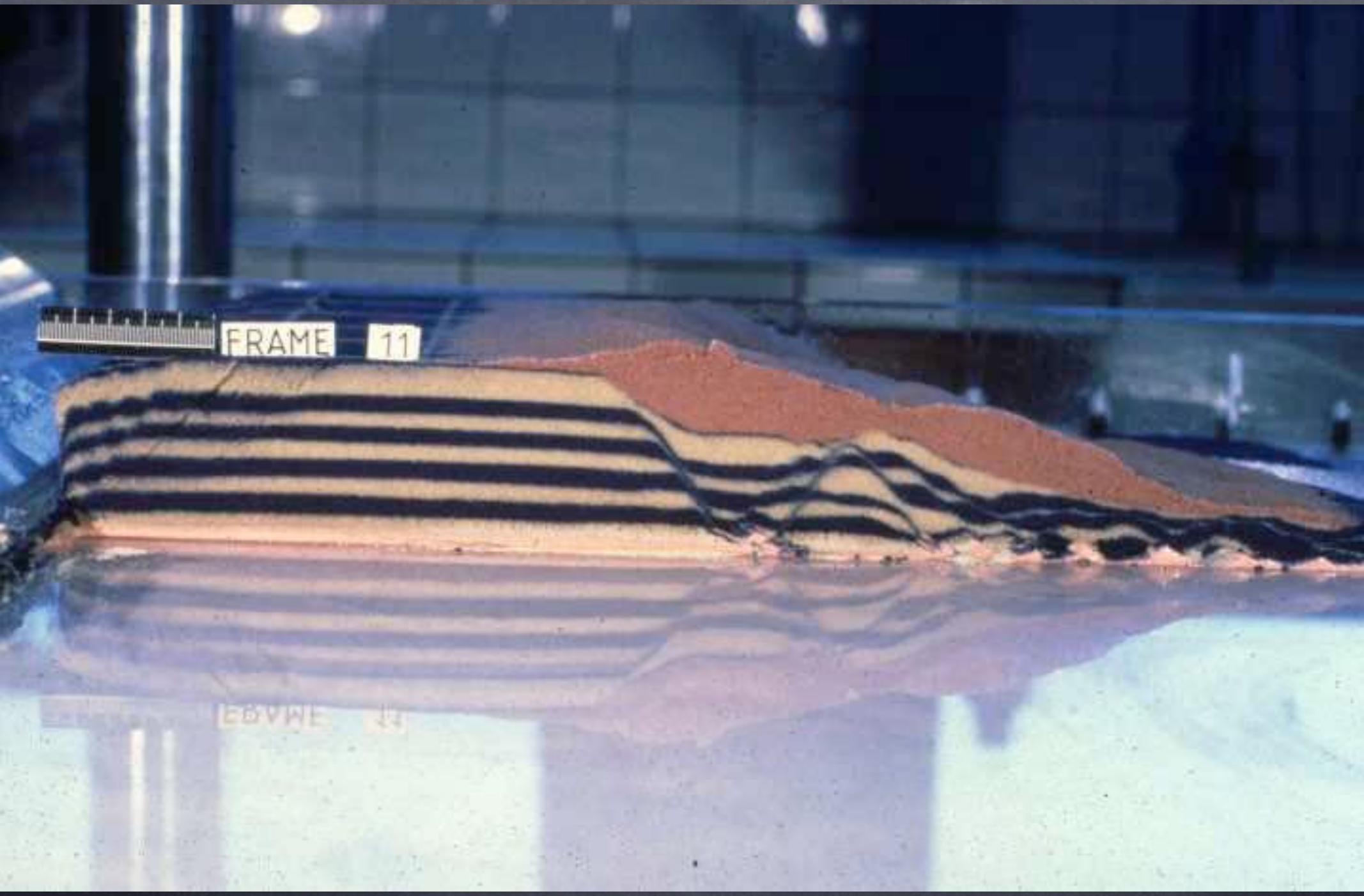
1 strike-slip

2 dip-slip

– normal: hanging-wall block moves down-dip

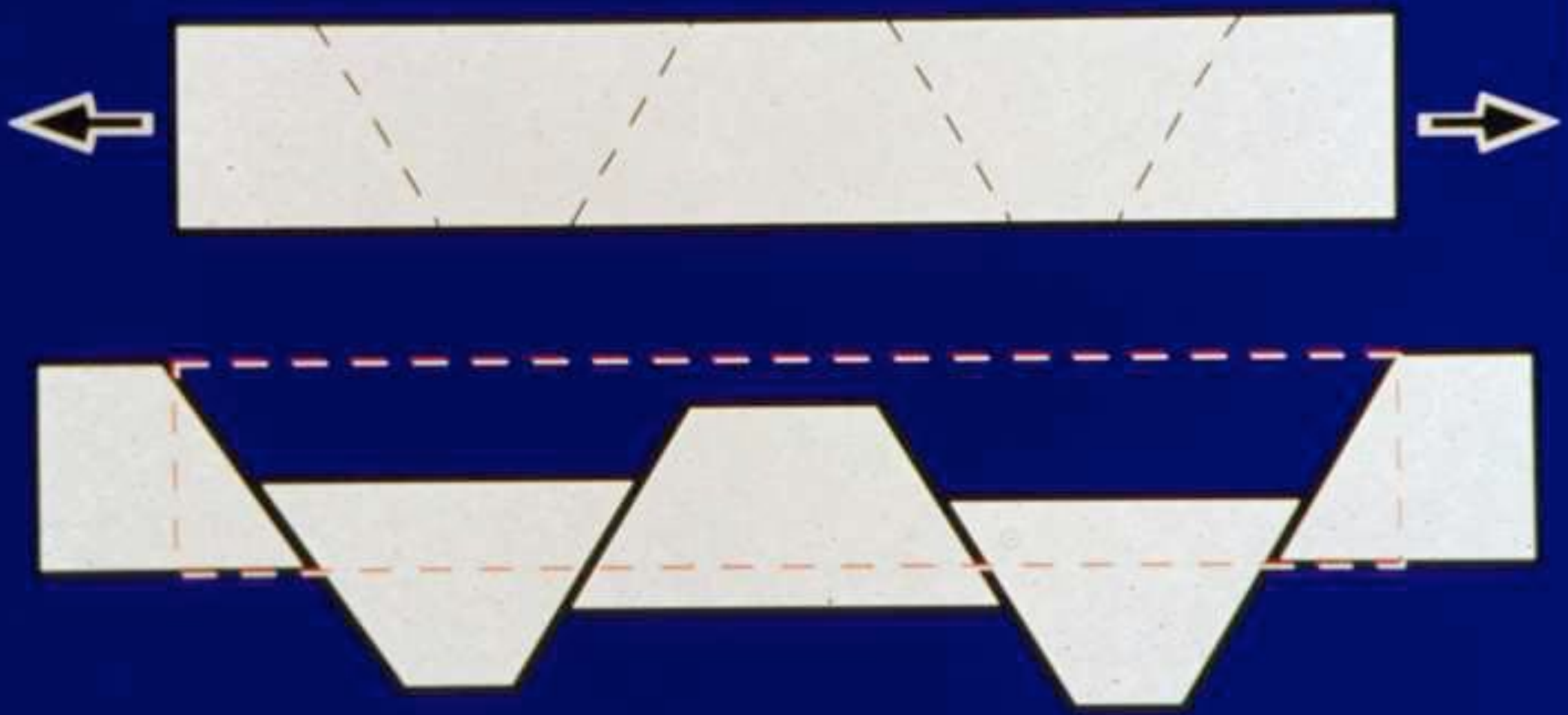


# Normal faults


FRAME 11


FRAME 9

# Extension and Rifting



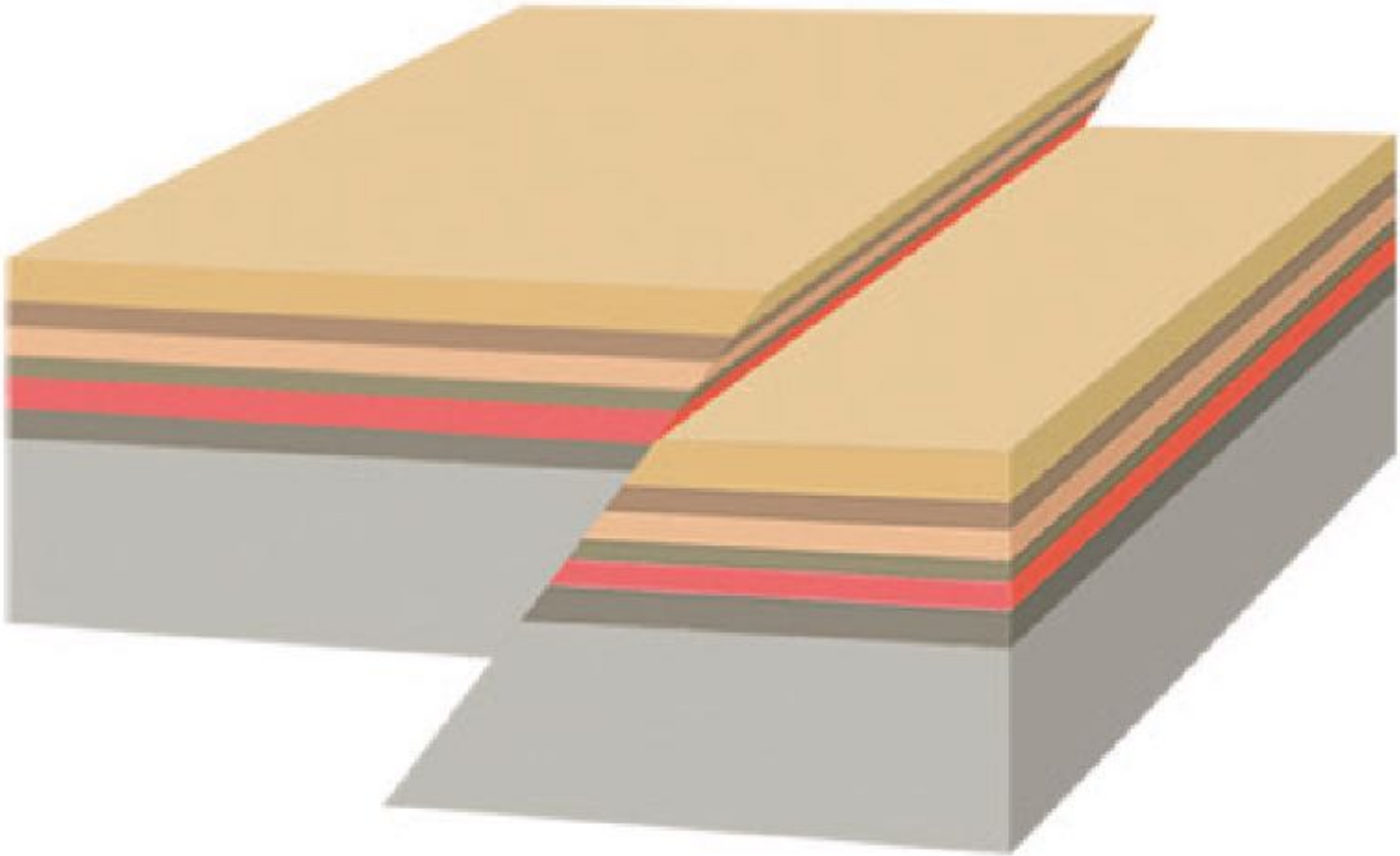
Normal faults result from stretching of the crust

# sense of slip

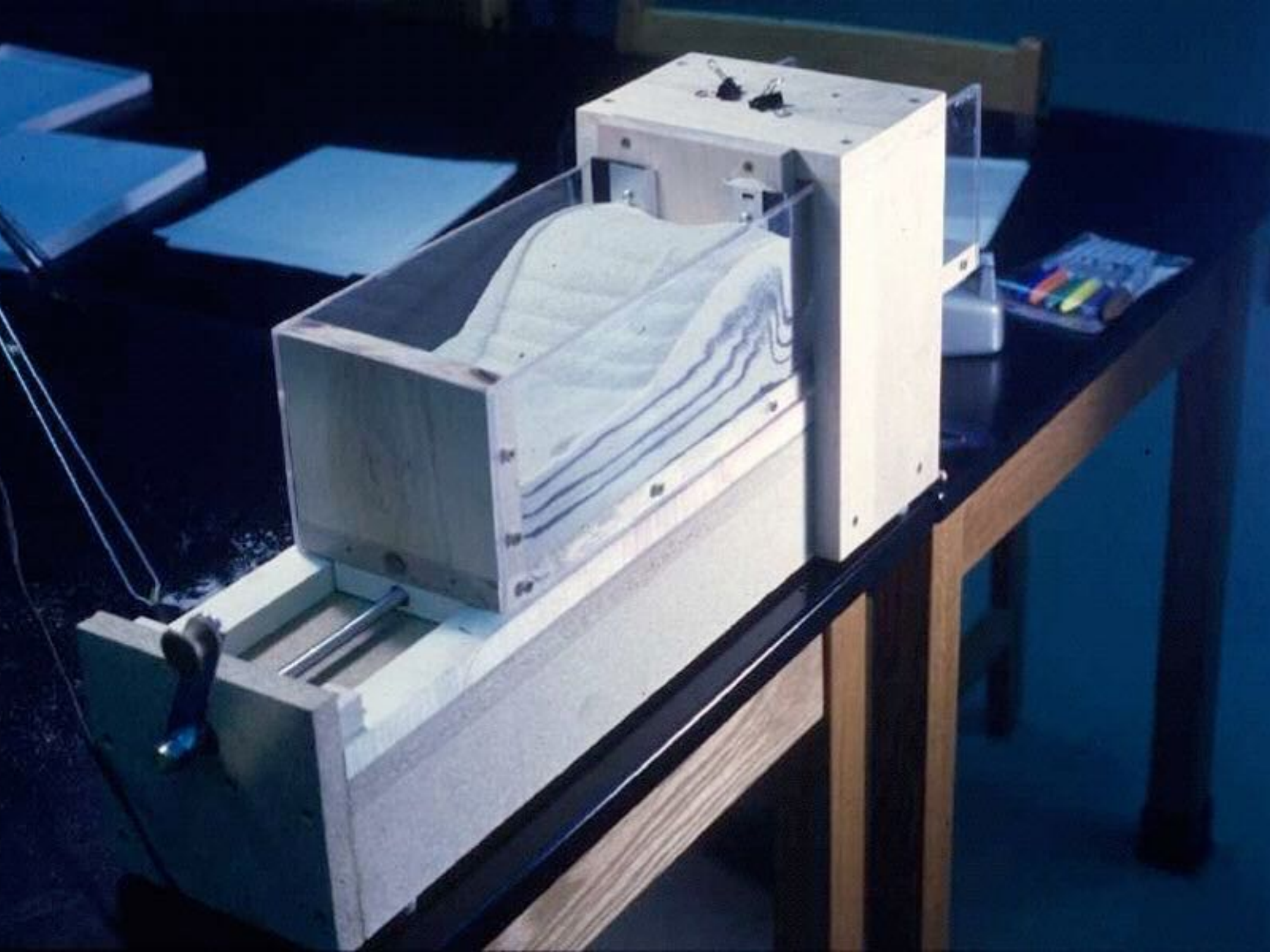
1 strike-slip

2 dip-slip

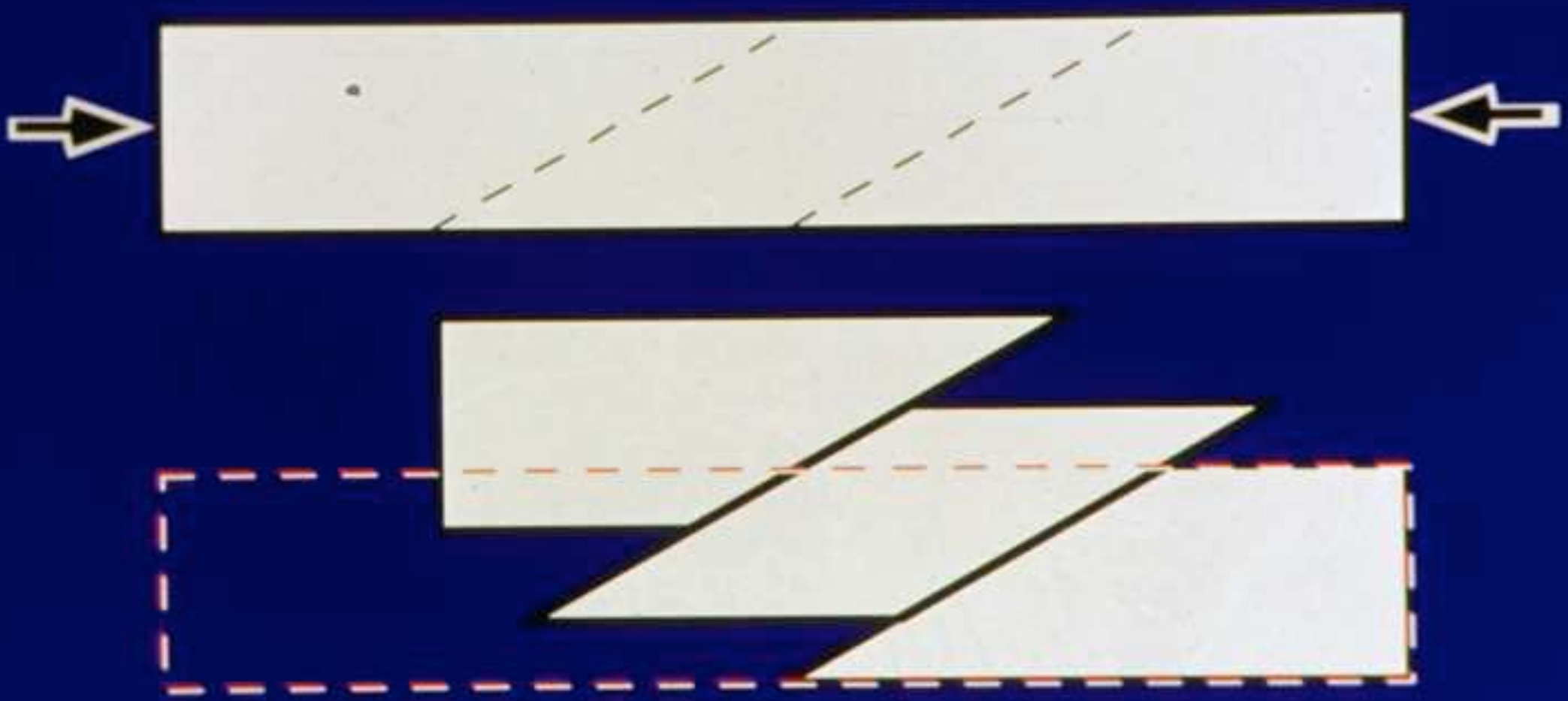
- normal
- reverse: hanging-wall block moves up-dip



Reverse faults



# Compression and Thrusting



Reverse faults result from shortening of the crust

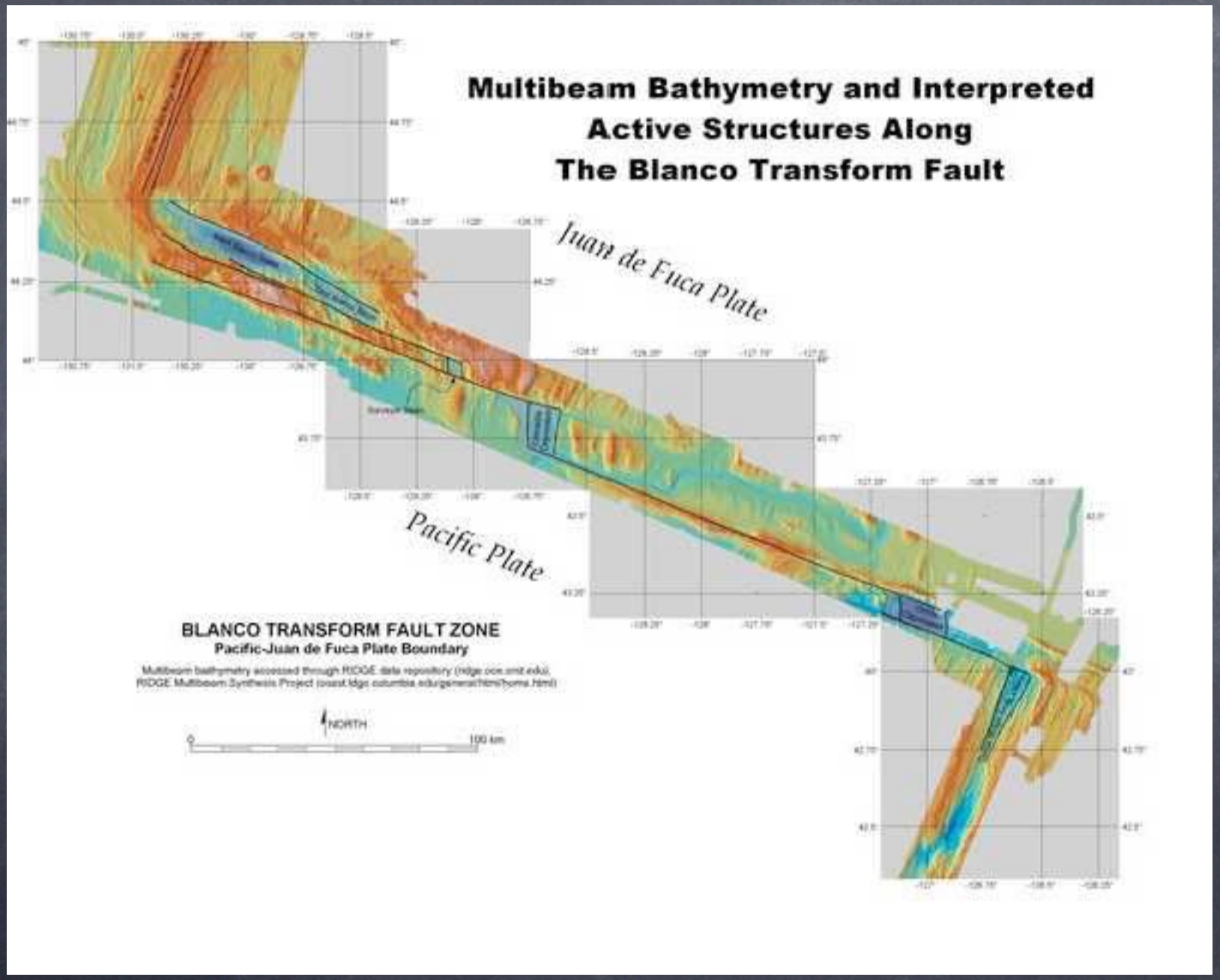
# sense of slip

1 strike-slip
2 dip-slip
3 oblique-slip: has components of strike-slip and dip-slip motion

# sense of slip

1. strike-slip
2. dip-slip
3. oblique-slip

A transform fault is a plate-boundary fault along which the plates move (approximately) parallel to the fault, relative to each other.


Multibeam Bathymetry and Interpreted
Active Structures Along
The Blanco Transform Fault
Juan de Fuca Plate
Pacific Plate
BLANCO TRANSFORM FAULT ZONE
Pacific-Juan de Fuca Plate Boundary
Multibeam bathymetry accessed through RIDGE data repository (ridge.oce.orst.edu).
RIDGE Multibeam Synthesis Project (coast.ldgo.columbia.edu/general/html/home.html)
NORTH
100 km