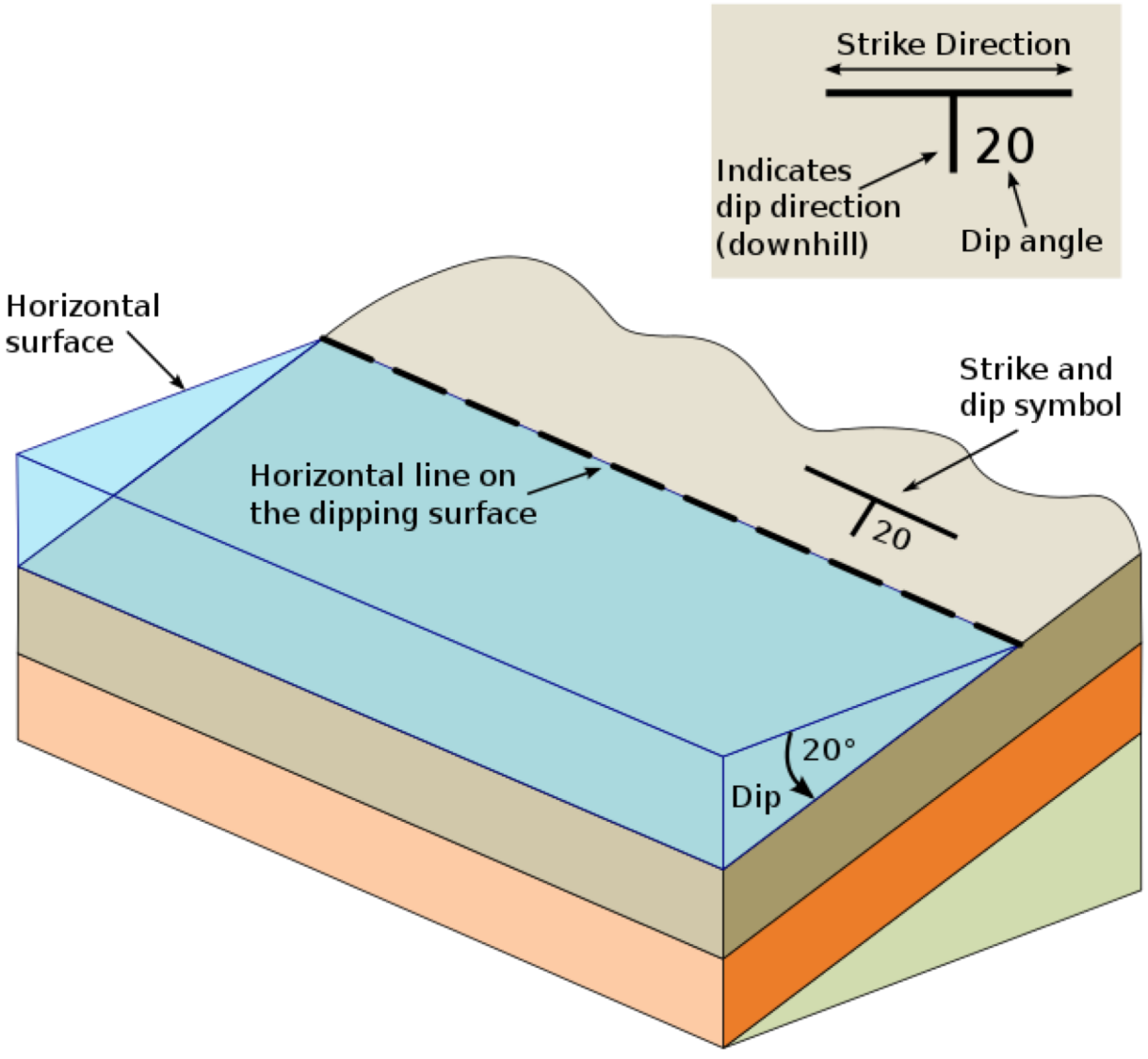
Fundamentals of Earth Sciences (ESO 213A)

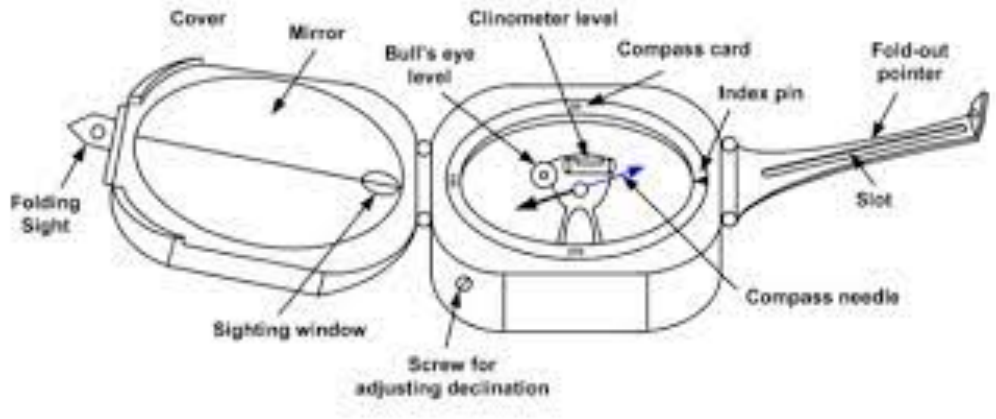
Dibakar Ghosal
Department of Earth Sciences

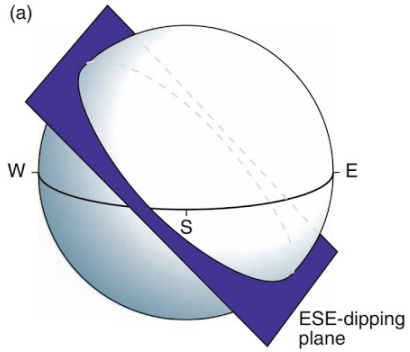
Attribute plotting in Stereonet plotting

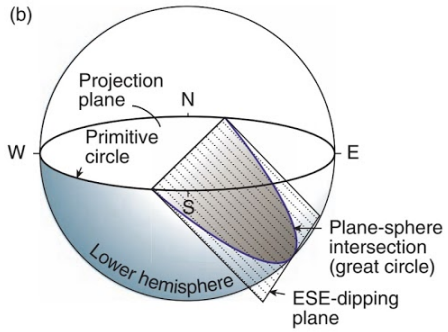
Previous Class: Crustal deformation

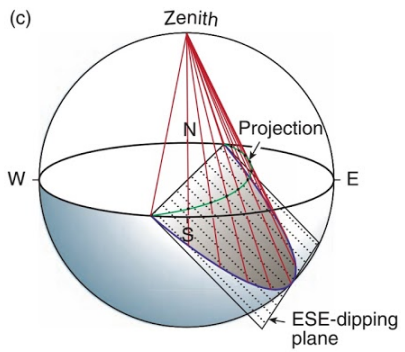


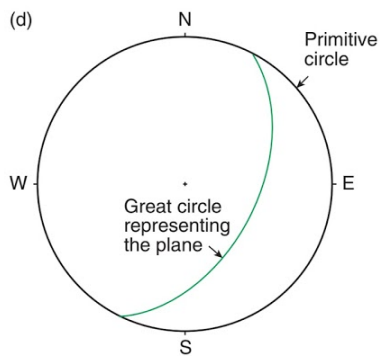
Brunton compass



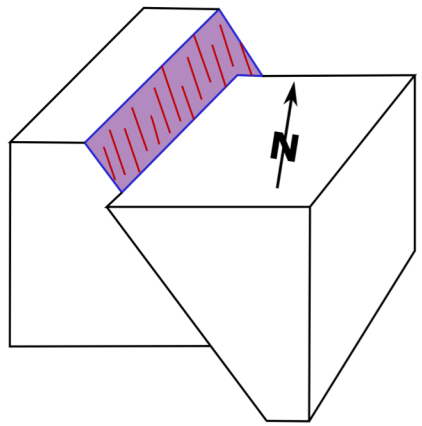




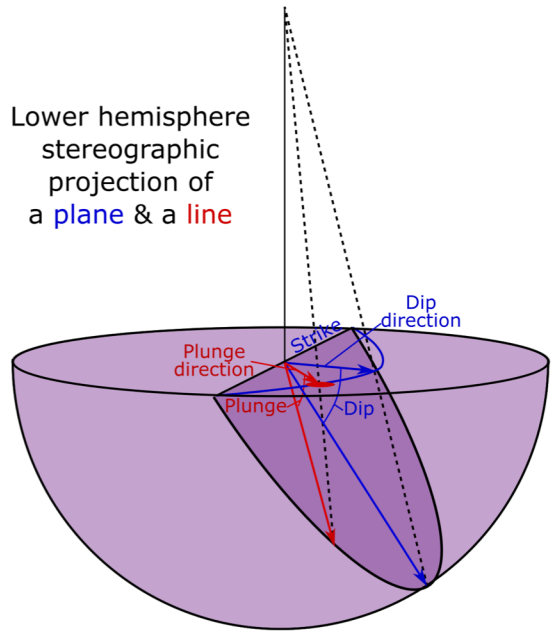




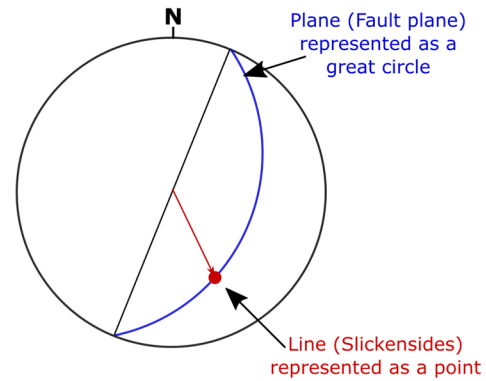
Oblique normal fault with slickensides on the fault plane



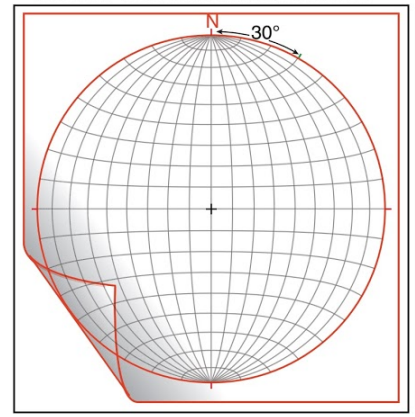
Lower hemisphere stereographic projection of a plane & a line



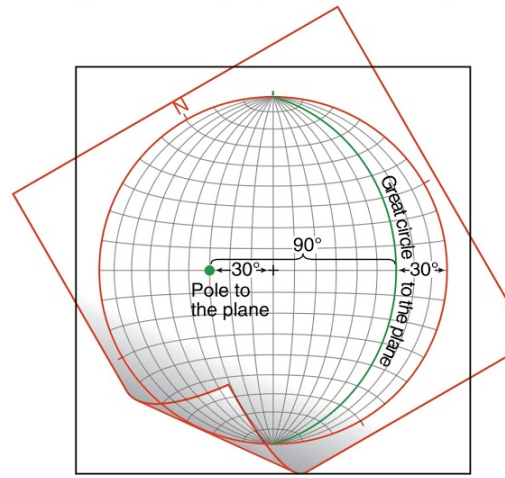
Representation of 3D structures on a plane



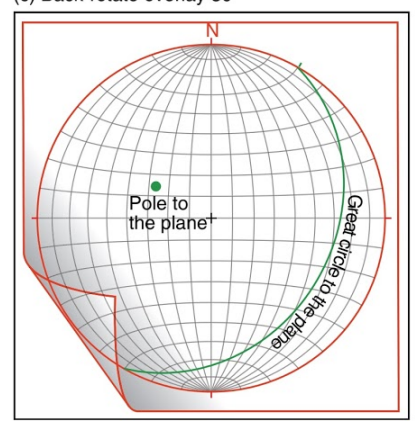
(a) Mark primitive circle and N, E, S and W. Count 30° E of N and mark off the strike



(b) Rotate overlay 30°, mark great circle or pole



(c) Back-rotate overlay 30°



Practice problems on stereonet

1. Plot each of the following beds on the tracing paper overlay.
a) 260˚/12 ˚; b) 180˚/90 ˚

2. Plot the following lineations on tracing paper overlays.
a) 43 ˚, 217 ˚; b) 86 ˚, 270 ˚

3. A fault plane has slip lineations oriented in the true-dip direction of the fault plane. The orientation of the lineation is measured as 49 ˚ →041 ˚. Plot and calculate the fault plane orientation, i.e., strike and dip, on a tracing paper.

4. Two limbs of a synform have the following attitudes 042 ˚ /65 ˚ SE and 105 ˚ /40 ˚ N. Determine the trend and plunge of the fold axis.

5. A planar fault contact contains lineation that trend N60 ˚W. The fault plane contact has an attitude of 010˚/80 ˚. Find the following:
(i) What is the plunge of the lineation?
(ii) What is the rake/pitch of the lineation on the fault plane?