Quadrant II – Notes

Programme: **Bachelor of Science (Third Year)**

Subject: **Geology**

Paper Code: **(DSC) GEC-106**

Paper Title: **Structural Geology**

Unit: **Structural Geology I**

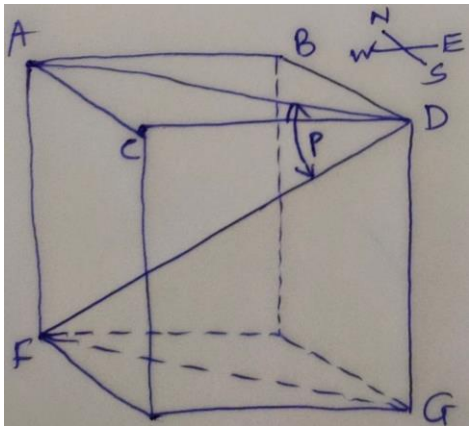
Module Name: **Folds Part 3**

Module No: **8**

Name of the Presenter: Raghav R Gadgil

Notes:

Plunge of folds:



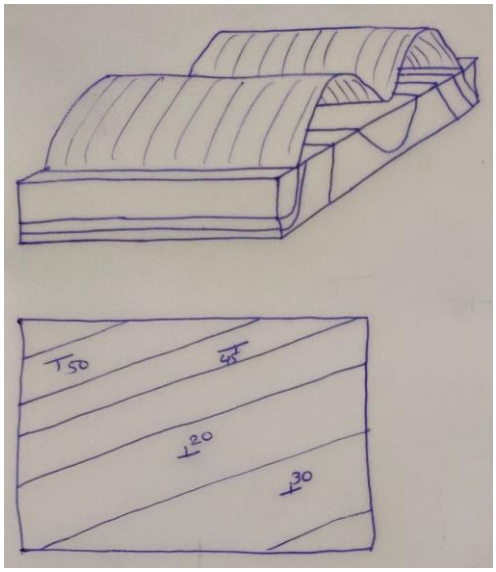
The attitude of the hinge of a fold is defined by two measurements: the bearing or strike of its horizontal projection and the plunge.

In the figure, FD is hinge line.

Of all the possible vertical planes, only ADFG contains the line FD. The intersection of this plane with the horizontal plane ABCD is the line AD.

The line AD is the horizontal projection of FD. In this figure the line AD bears NW, and this is therefore the bearing the horizontal projection of FD.

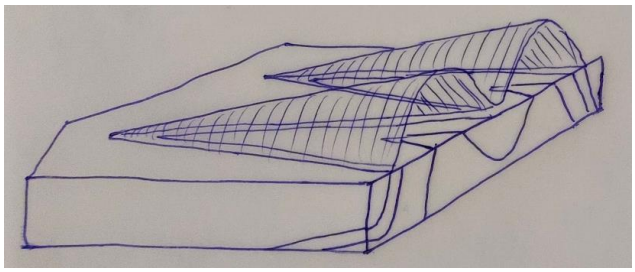
The plunge of FD is the angle P, which is the angle between AD and FD measured in the vertical plane ADFG.



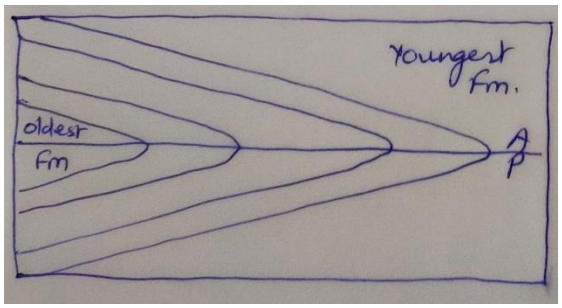
Although the larger plunging folds cannot be directly observed, they are easily recognised from the outcrop pattern.

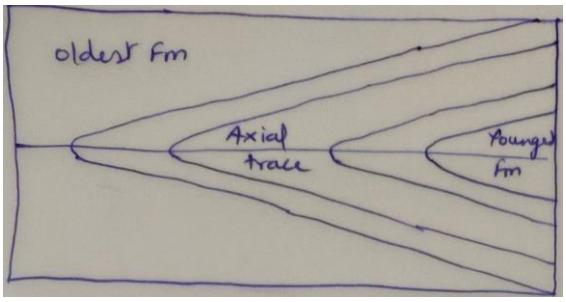
Shows a nonplunging fold, in map the beds on the opposite limbs strike parallel to each other; they do not converge.

is a map of nonplunging syncline.



is a plunging fold and on the map the beds converge; the formations have a zigzag pattern.

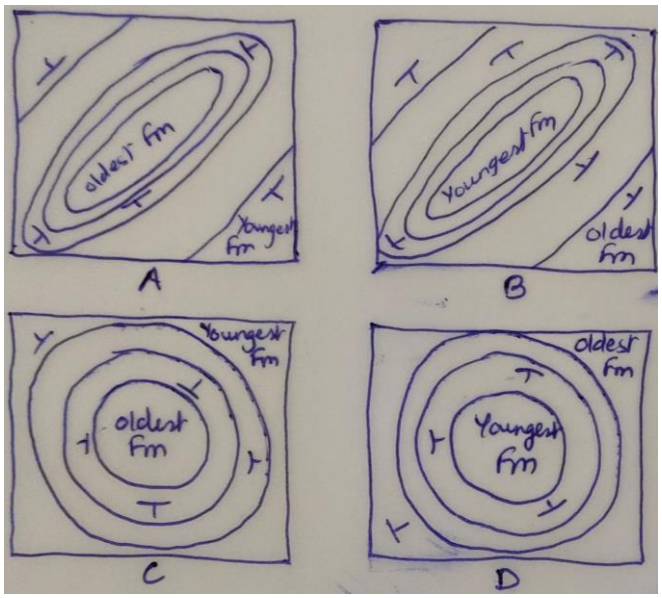




These are maps of plunging folds; the beds on the opposite limbs strike toward each other and the formations converge.

shows plunging anticline and shows plunging syncline.

The axial trace of a fold connects the points where, on the map, each bed shows the maximum curvature.



The plunge does not remain constant and can reverse.

In A, anticline with axial trace trending NE. the fold plunges 10° to the NE and the value of the plunge is zero in the center of the map, here the strata on the opposite limbs are parallel in strike.

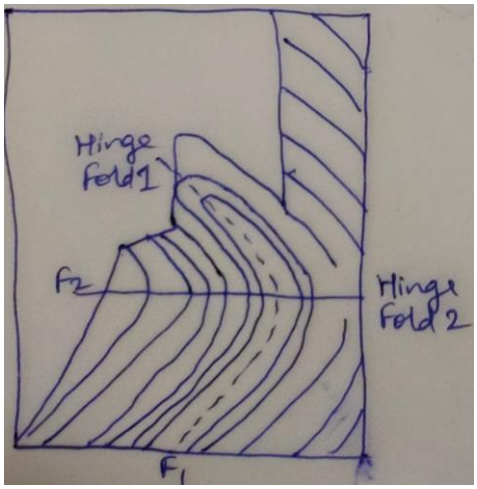
In the SW corner, the anticline plunges 15° to the SW

A doubly plunging fold is one that reverses its direction of plunge within the limits of the area under discussion. Most folds are doubly plunging.

A dome is an anticlinal uplift that has no distinct trend (C)

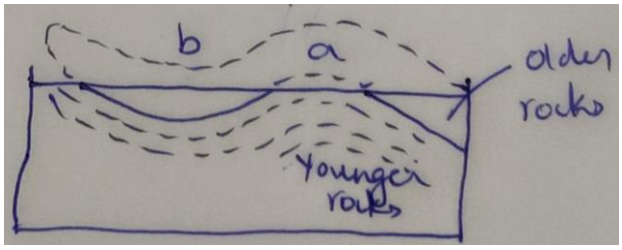
A basin is a synclinal depression that has no distinct trend (D)

Refolding:



Folds may be refolded. In the figure a vertical isoclinal fold has been refolded by an open fold with a horizontal AP.

A reclined fold is the one in which the axes plunge directly down the dip of the axial surface. Many reclined folds form when steeply dipping beds are subjected to shearing parallel to the strike of the beds.



fold ‘a’ appears to be an anticline, fold ‘b’ appears to be a syncline.

But it is also possible for it to be a refolded fold.

Fold ‘a’ and ‘b’ is not an anticline or syncline but antiform and synform must be used where the age of the stratigraphic succession is unknown.