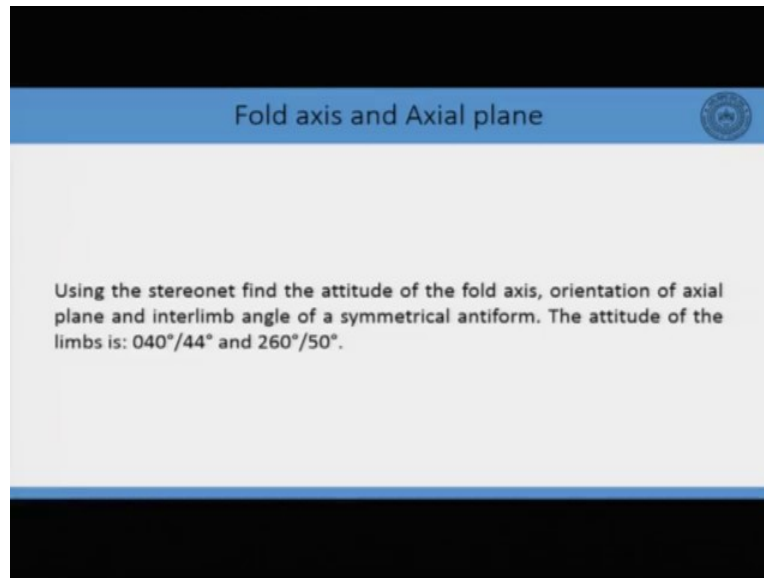


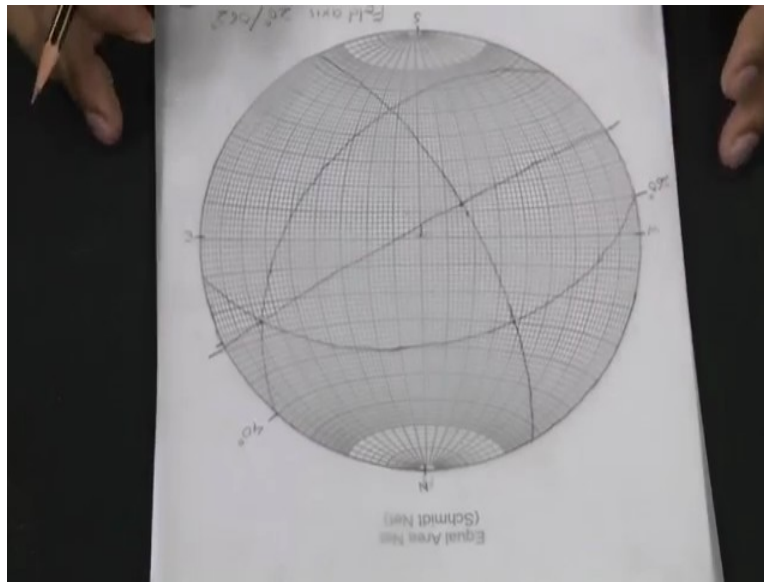
Structural Geology
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Lab Session: Stereonet IV
Fold axis and Axial plane from attitude of two limbs

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Now we will plot and determine the fold axis and the axial plane of the fold on this stereonet. The question is using this stereonet find the attitude of the fold axis and the orientation of the axial plane and interlimb angle of the symmetrical antiform and the attitude of the limbs is 40 degree, 44 degree and 260 degree, 50 degree means the first limb has a strike of 40 degree and dip is 44 degree and the second limb has a strike of 260 degree and a dip of 50 degree. So we will plot it on the stereonet.

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The primitive circle is already marked on the tracing paper and direction North, East, South, West is also marked, so the attitude of the first limb is 40 degree and dip is 44 degree. So first we will mark the strike. This is 10, 20, 30, 40. This is 40 degree and the dip is 44 degree. Now we will rotate this tracing paper and bring this 40 degree on the north and draw a great circle by counting 44 degree from the east.

This is 10, 20, 30, 10, 20, 30, 40, 42, 44. This is 44 so we have drawn the great circle of the first limb, now we will draw the great circle for the second limb so the strike is 260 degree so this is 270 so below that it is 260.

We will now bring this 260 on the north south and read the dip from the east 50 degree. 10, 20, 30, 40, 50 this is 50, so we will draw a great circle from this so any attitude of the bed is given. We will first mark the strike and always bring it to the north and read the dip from the east side not from the west side.

If we are bringing the strike on the north so the dip will be read always read from the east side. So again we will bring this tracing paper back to its original position, coinciding north on the tracing paper with the north on the stereonet and what we see is that the great circle representing these two limbs are intersecting at one point. The intersection of this great circle on the stereonet will represent the fold axis so to read the trend and plunge of this fold axis what we will do, we will again bring this intersection point on the east west line and read the amount.

So this is 10, this is 20 and will mark do a mark which will represent the trend of this fold axis. So the plunge is 20 degree and the trend is, this is 40, this is 50, this is 60, this is 62. So the trend is 62. So the attitude of the fold axis is the plunge is 20 degree towards 62 degree. Now we have to determine the axial plane of this fold, how to plot the axial plane of this fold?

The first point we know that it pass through the fold axis so we know this first point but how to determine the second point since this fold is symmetrical, so if we can determine the interlimb angle of this fold and so the bisect and able to determine the bisector of this interlimb angle. So we will get this another point and then by **blegging** this 2 point on the great circle, we can determine the axial plane of the fold.

Since we know the fold axis, what we will do? We will draw a point 90, 90 degree to the fold axis and will draw a great circle. Great circle through this point since 90 degree to the fold axis represents a profile plane to the fold. So on the profile plane we will determine the interlimb angle. So what will we do? We will again bring this fold axis on the east west line and read 90 degree from this fold axis. So 10, 20, 30, 40, 50, 60, 70, 80, 90 so this point is 90 degree to the fold axis and now we will draw a great circle through this point.

Which will represent the profile plane to the fold axis or to the fold, so this great circle represents the profile plane to the fold and on this profile plane we will read the count the interlimb angle. The interlimb angle is 10, 20, 30, 40, 50, 60, 70, 80, 90, 92. So the interlimb angle is 92 degree and the bisector of this interlimb angle will be 46 degree.

So we will again count the 46 degree 10, 20, 30, 40, 42, 44, 46 so this point this point represent the bisector of this interlimb angle so what for to draw the axial plane, we will bring this fold axis and the this bisector point on the same great circle.

So again we will rotate and will try to bring this 2 point on the same great circle, so these 2 now came on the same great circle and we will draw a line passing through this point. So the dip of the axial plane is steep (high) so the dip is 10, 20, 30, 40, 50, 60, 70, 80, 82, 84, 86 degree and the strike is 60 degree. So the attitude of the axial plane is 60 degree, the strike is 60 degree and the dip is 86 degree means the axial plane is almost vertical. Since the interlimb angle is 92 degree so it is open fold.