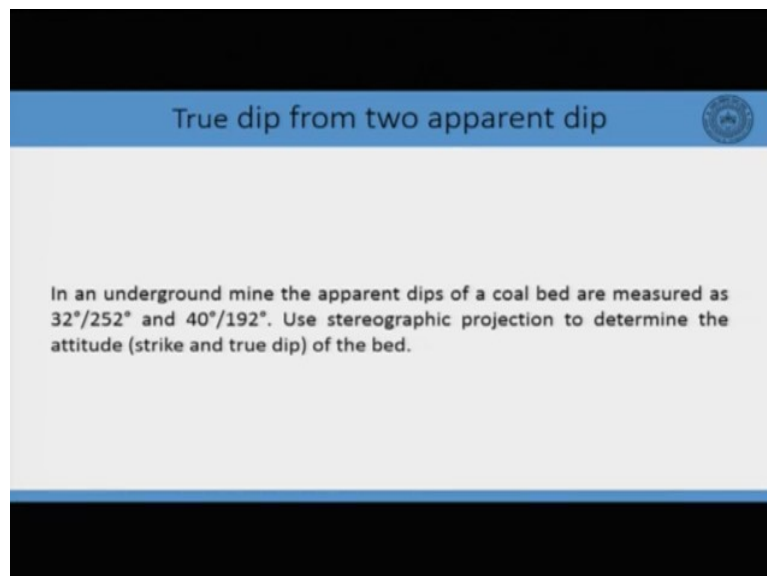
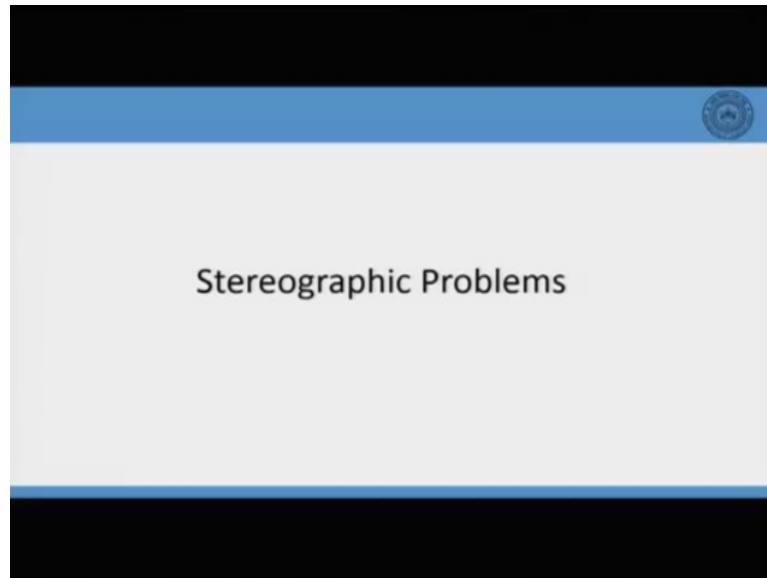


Structural Geology
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Lab Session Stereonet I
True dip from two apparent dips

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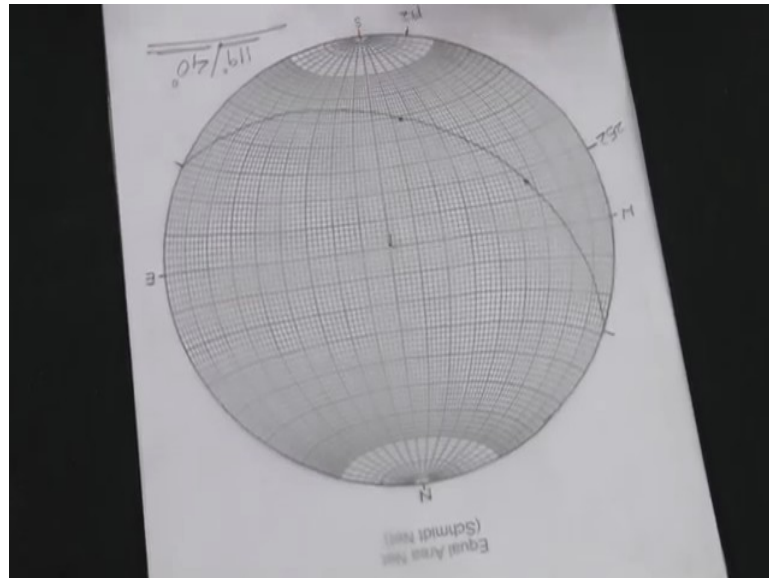


Hello all, welcome to the online NPTEL structure Geology course. I am Saquib Abdullah, one of the teaching assistants of this course, along with another TA and my colleague Manav Mukherjee is here to have a live session on stereographic problems. So, the first problem is how to determine the true dip from the two apparent dips.

If we have two apparent dip on the plane and so how we will determine the strike and the dip of this plane. So, the question is in an underground mine the apparent dips of the coal bed are measured as 32 degree, 252 degree, 40 degree, 192 degree means the apparent dip of the first is, the plunge is 32 degree and the trend is 252 degree and the second one plunge is the 40

degree and the trend is 192 degree. So, we have two apparent dips so using Stereonet. How we will determine the attitude of the bed, means strike and the true dip. We will solve this problem through Stereonet.

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So, we what we will do, we will take a tracing paper and then place it on the Stereonet, so this way there is one pin through that we will adjust the tracing paper on the Stereonet so now we will draw a perimeter circle around the periphery of this Stereonet. So, we have drawn the circle around the periphery of this stereonet and we will now mark the North. This is north, this is east, this is south and this is west.

Now the question is, we have values of two apparent dips. The first is the plunge is 32 degree towards 252 degree, So, we will draw this, so this is 10 this is 20, 30, 40, 50, 60, 70, 80, 90, this is 90 and this is again 90 this is 180 then 190, 200 and 10, 20, 30, 40, 50, this is 250 and The trend is 252, this will be the 252.

So we will mark the trend 252 and now we will rotate this trend to the East-West line and count the plunge. The plunge is 32 degrees and then we will count as 10, 20, 30 and this is 32. So this point will represent the trend and plunge of the first apparent dip.

Now, again we will rotate this tracing paper to its original point and point coincides this North on the tracing paper with the North on the Stereonet and again then we will again read the value of trend and plunge of the second apparent dip. So, the plunge is 40 degree and the trend is 192 degree.

So, this is 90, this is 180, this is 190 and this is 192. This is 192, again I will rotate this tracing paper and bring this 192 on the East-West line and count the plunge. The plunge is 40 degree. So, 10, 20, 30, 40. So this point will represent the trend and plunge of the second apparent dip.

Now I will again rotate this tracing paper and bring it back to its original position and since we have two apparent dips and we have to calculate the true dip of this plane. Since this apparent dip and true dip. They all, if we draw a great circle, so they have to lie on the same great circle so what we will do? we will try to bring these two points on the same great circle in order to get the true dip.

So, again we will rotate this tracing paper and will bring these two points on the same great circle, so here we can see these two are lying on the same great circle. So, what we will do? We will draw a line passing through this great circle and will now count the true dip because this will represent the strike. So, the perpendicular to the strike will give the true dip.

So, the true dip is 10, 20, 30, 40. So the value of true dip is 40 degree, and we can now know the strike by bringing this tracing paper back to its original position. So, this strike is 90, 100, 110, and this is 119. So, the attitude of this planar feature strike is 119 degrees and the dip is 40 degree. So, the true dip is 40 degree and the strike is 119 degree.