Structural Geology
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Lab Session
Construction of Topographic Profile

Hello everyone, welcome once again to this online course of structural geology on NPTEL platform. So in this lecture demonstration we will learn how to construct a profile section from an topographic contour map.

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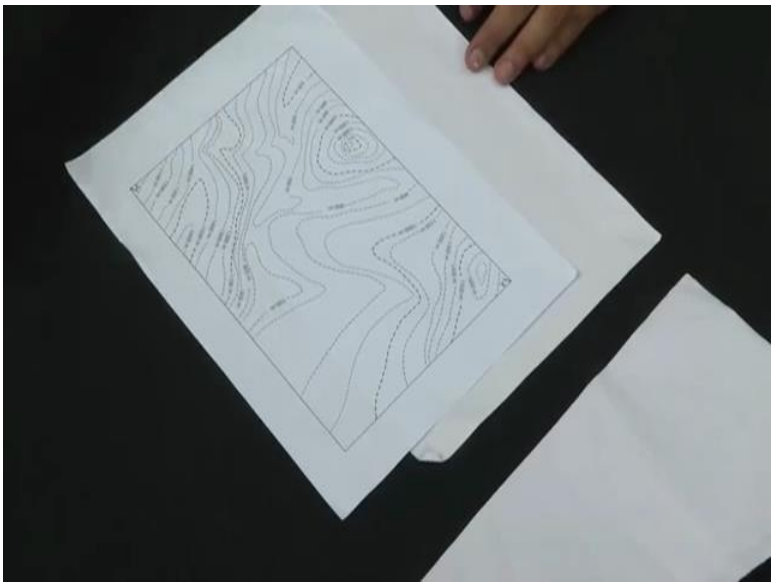

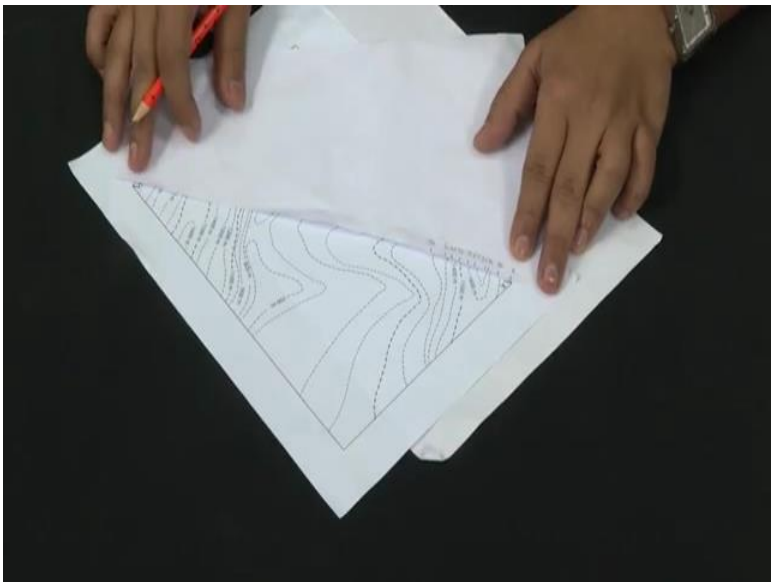

So this is an topographic map we will draw a profile section along with the profile line of x, y in order to draw a profile section in the topographic map, we will first make a strip of paper, this strip of paper we will place along the x y line and the contours that intersect along the x y line, we will mark them.

So, I rotate this map for my convenience of drawing, and this is the point x and I subsequently mark all the contour lines that meet along the x y line and I mark them. Then I below write their subsequent heights of the contour lines, if we do this in all the contour lines in the x y lines. We will obtain a thing which is similar to this, so now we have a paper strip ready where we have marked the x and y points and all the contours that intersect long the x y point along with their respective heights.

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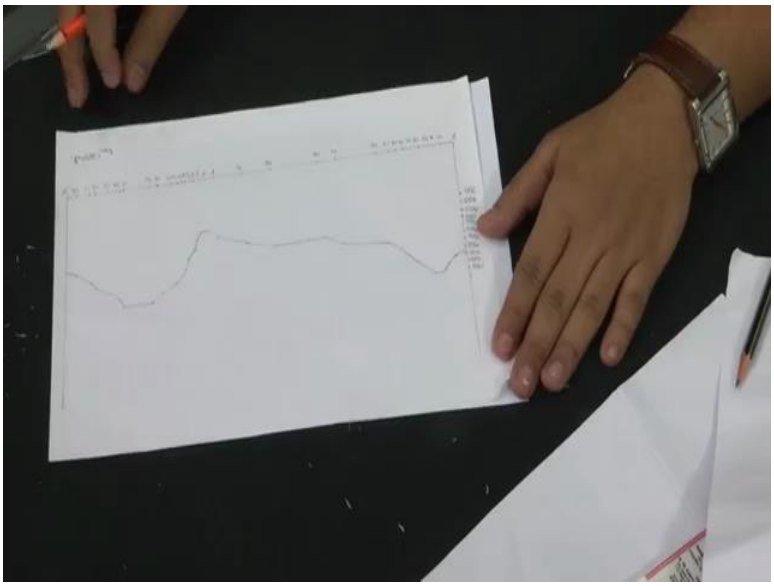

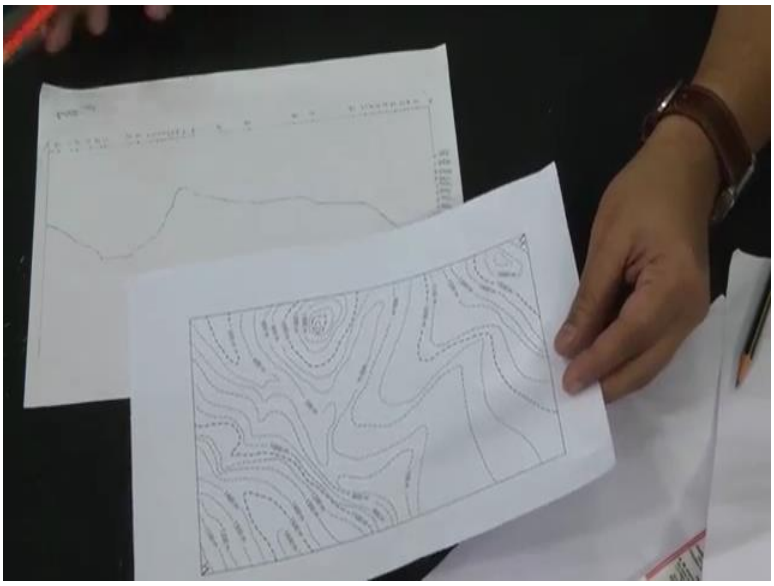

Now to draw the profile section, what we will do is that we will plot a x yy diagram, so I first. Now basically I have to choose a scale, so the scale I will choose is to represent all the contours, in the strip we see that the lowest contour is of 700 meter and the highest contour is of 17000 meters.

So the gap is thousand meters, so what I will do, I will preferably choose a scale that represents 1 centimetre is to 200 meters. So basically 0.5 centimetre or 5 mille meter will give me a hundred of spacing, so now I will write this as x and this as y and from here I will place the strip again and mark all the intersection points.

Now what I will do is that I will, in the vertical axis will mark the corresponding heights as I have taken the scale of 1 centimetre equivalent to 200 meters. The 3.5 centimetre will represent the seven hundred meters contours and from that on every 0.5-centimetre interval will represent another contours of hundred meters interval. So I mark all the contours in the vertical axis, their equivalent height.

Now I rotate the paper just for my convenience and right the corresponding heights of the contour is given me 700 meters and every 0.5 centimetre will give me a hundred meter spacing. Now what I will do is that, I will draw certain parallel lines allow a parallel to the our section line which is the x y line.

So I will need help of a setsquare, along with the scale to draw all the parallel lines, parallel to x and y, so I will put the setsquare and from here I will construct all the parallel lines but I will construct them very rightly. So now I have obtained all the lines that are necessary for me. Now I will project all the points that have been intersected along the x y line to their respective heights.

So first I mark the heights 15, 16 represents, 1500 metres, 1600 meters, 1700 hundred meters, and so on, it is just for my convenience as there is not enough space to write all the values, all the digits to be specific.

Now I again rotate the paper for convenience of the drawing and then what I do, I will draw some points which corresponds to the particular contour height. This is our first point, and this is our second point. So basically 15 corresponds to 1500 metres 16 corresponds to 1600 metres on the vertical scale and so on. So I move this way and construct all the necessary points.

Now the contours are very steep in this part as we see the spacing between the contours is very raise and the vertical height is getting increased with very little horizontal spacing along the x y line. So I will reconstruct these points again, I think I have made a mistake somewhere. The steep points, so I do it from here again.

This is 1500 metres; this again represents 1400 metres. This is 1300 metres, this is 1200 metres, this is 1100 metres, and this is thousand metres. So what I will do now is to obtain the profile, I will join the dotted points I have obtained. So, I see that nearer to the x, the height is increasing, so I will just start the point below 1500 metres and then join each point with a straight line, with certain curved designs.

Now the slope is gradually decreasing. So here it is almost constant now again it decreased decreased, decreased now it is increasing at very steep rate. Now again it becomes constant and then decreases as we move and reach towards y. Now what I will do I will erase all the little traces of lines that I have drawn.

Now when we erase all the lines which have been drawn for our convenience, we come up with the profile section of the contours, of the topography contour map that has been provided, this section is drawn along the line x, y as it is seen in the map and this is how you reconstruct a section from the contour map. So, thank you all.