NCC

UNITY AND DISCIPLINE

NCC

UNITY AND DISCIPLINE

NCC

UNITY AND DISCIPLINE

RELIEF, CONTOURS & GRADIENTS

Lt. Dr. A. Edward Samuel, Associate NCC Officer, 1 Coy, 8 TN BN NCC, GAC(A), Kumbakonam

NCC

UNITY AND DISCIPLINE

LESSON PLAN MR 1 (Part 4)

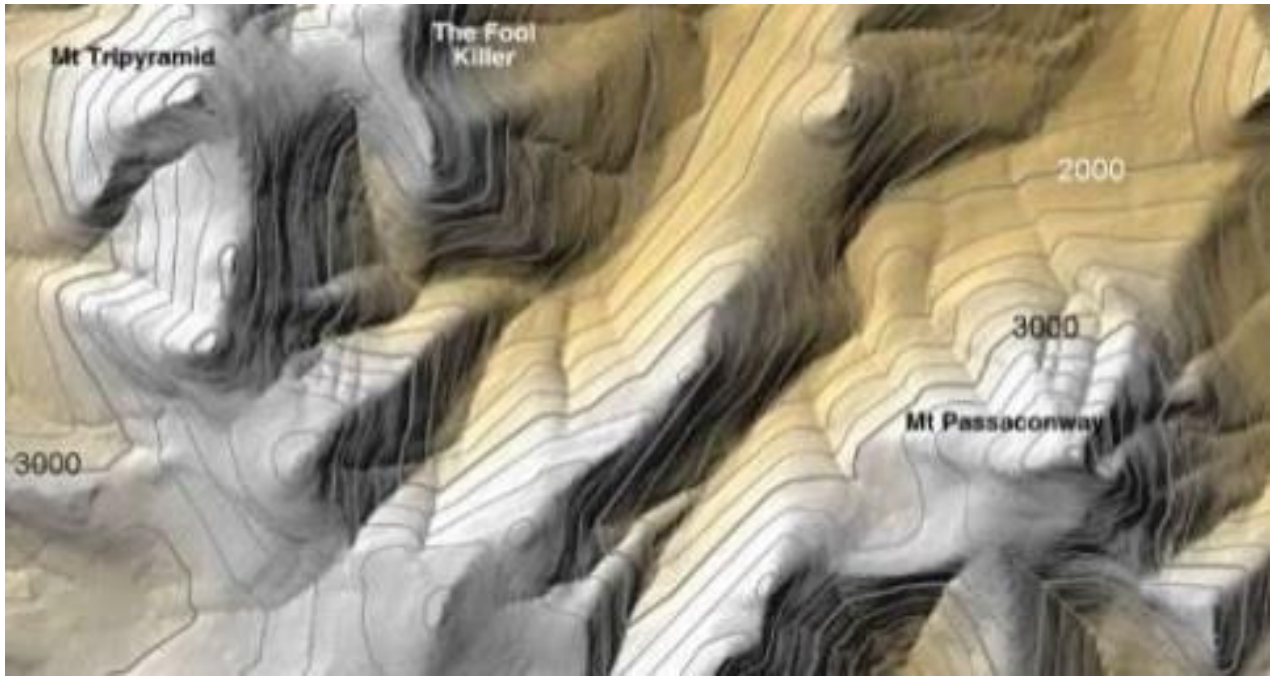
Lt. Dr. A. Edward Samuel, Associate NCC Officer, 1 Coy, 8 TN BN NCC, GAC(A), Kumbakonam

RELIEF, CONTOURS AND GRADIENTS

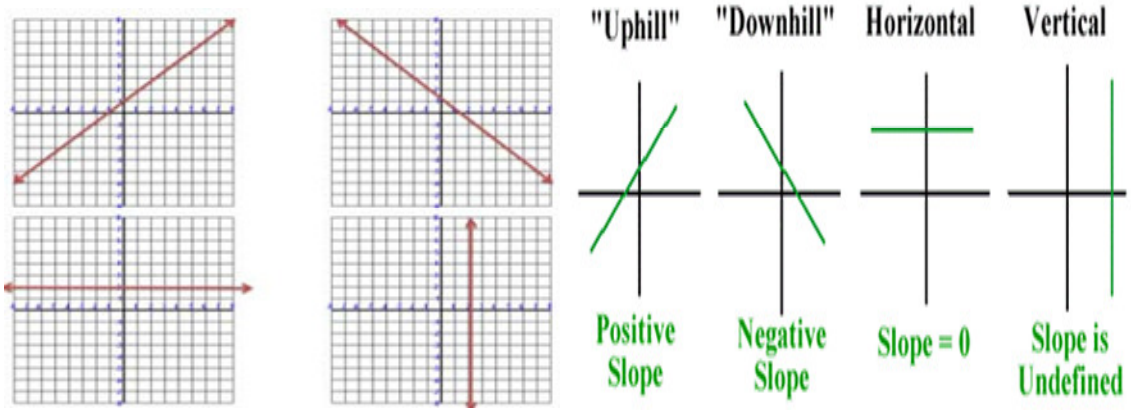
Relief

Relief means the shape of the ground in a vertical plane. Representation of a relief on a map means showing of heights and shape of the ground above or below or datum which is normally sea level. Thus it shows the broad features and relative heights of highlands and low lands which are portrayed on the map.

Relief is shown with means of hachure, shading, form lines, layer tints, contours, spot heights, trig heights, bench marks and relative heights.

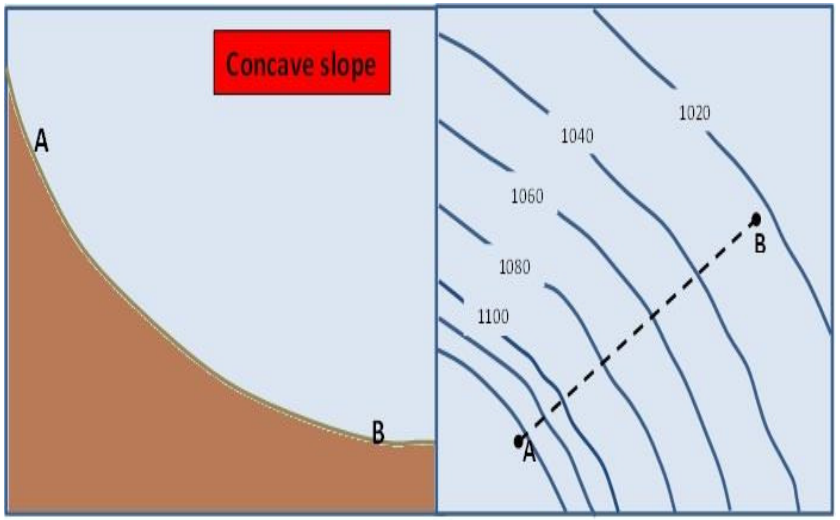


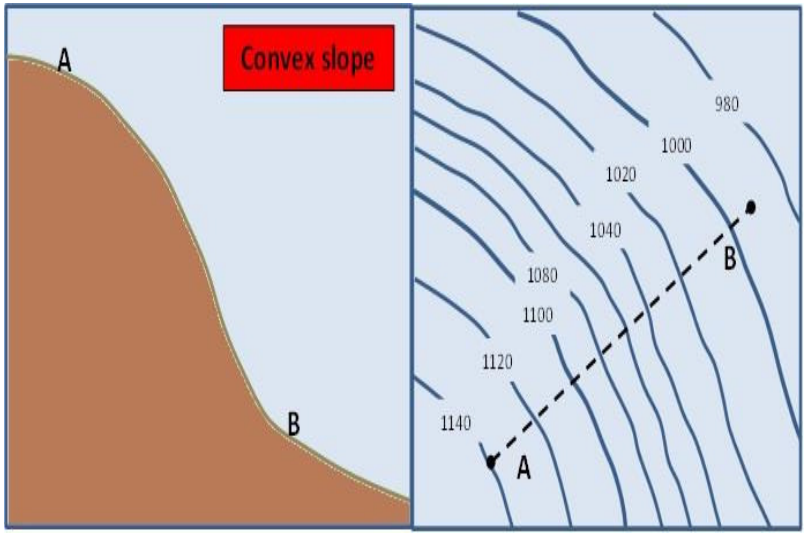
Slope means a surface of which one end or side is at a higher level than another. Contour lines represent to slope that is, closer the contour lines are, the steeper is the slope of the hill. If representation of slopes thecontour lines are far apart, the slope down is gradual.



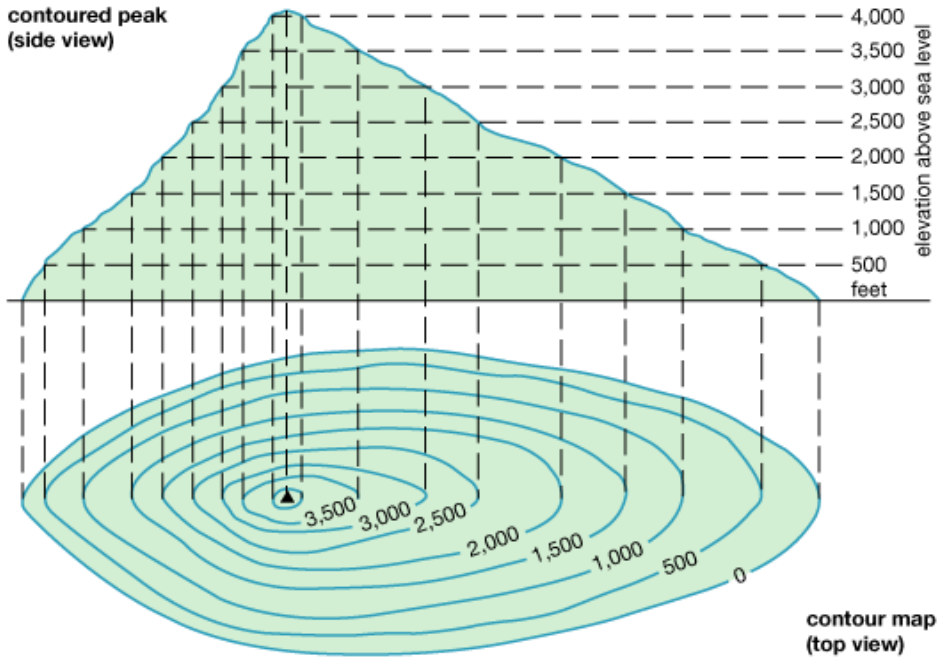
Types of Slope

The slopes are of two types, convex and concave. A convex slope is the one which bulges outwards and concave slope is the one which curves inwards.





Contour is an imaginary line drawn on map showing same height from mean sea level. If you walk along a contour line you neither gain nor loose elevation.



Characteristics of Contours

(a) Contours accurately show height, shape and slope of the ground.

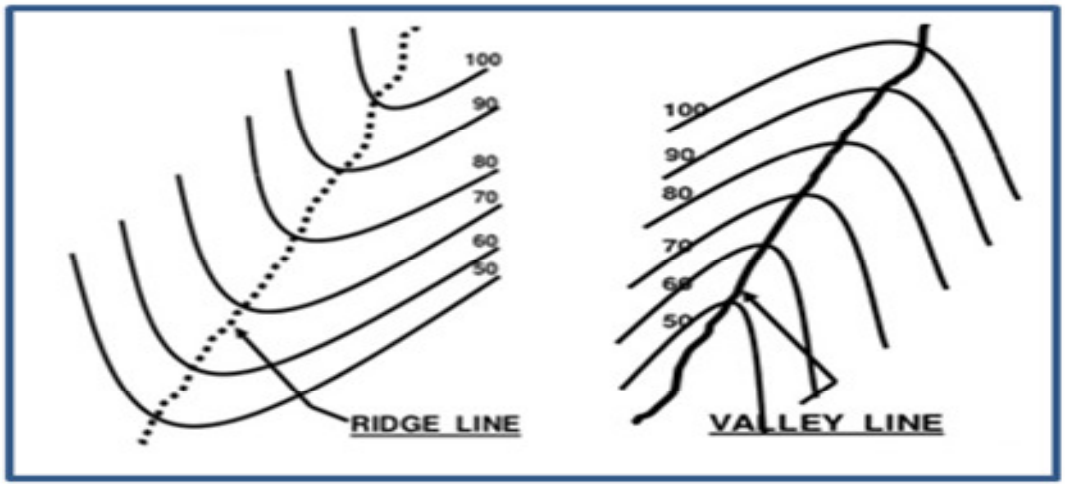
(b) Contours are shown generally in brown.

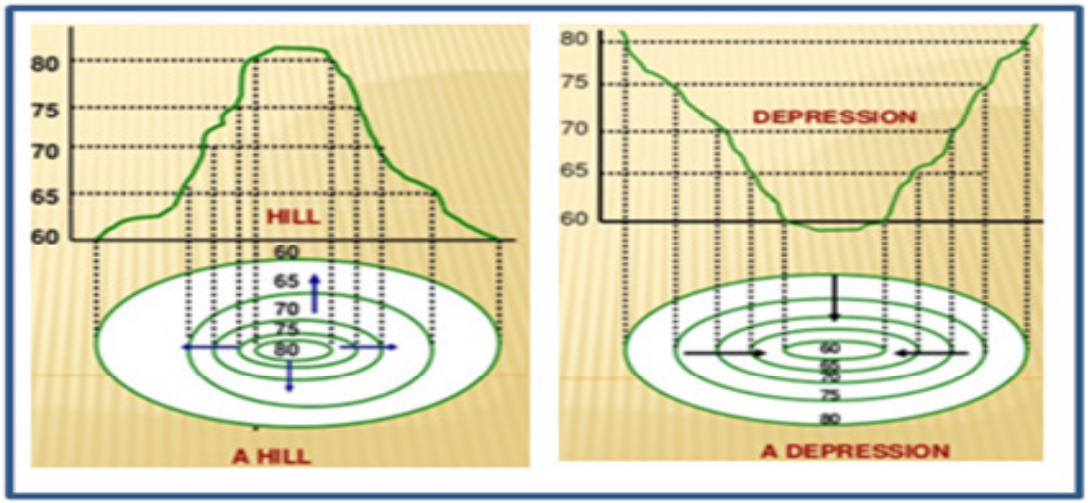
(c) Height is marked on every fifth contour.

(d) Contour lines vary in appearance

(e) These lines never touch or cross each other.

NCC
UNITY AND DISCIPLINE

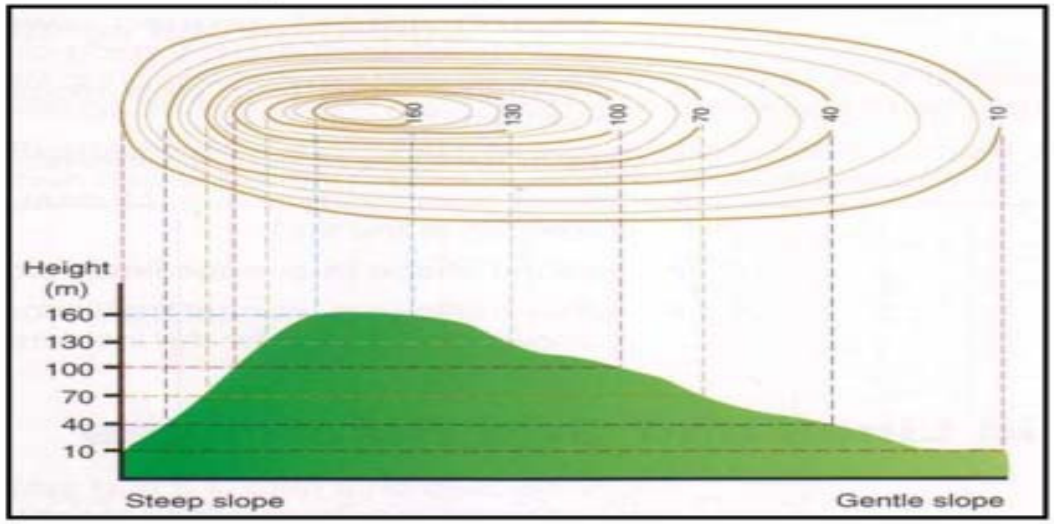




Lt. Dr. A. Edward Samuel, Associate NCC Officer, 1 Coy, 8 TN BN NCC, GAC(A), Kumbakonam

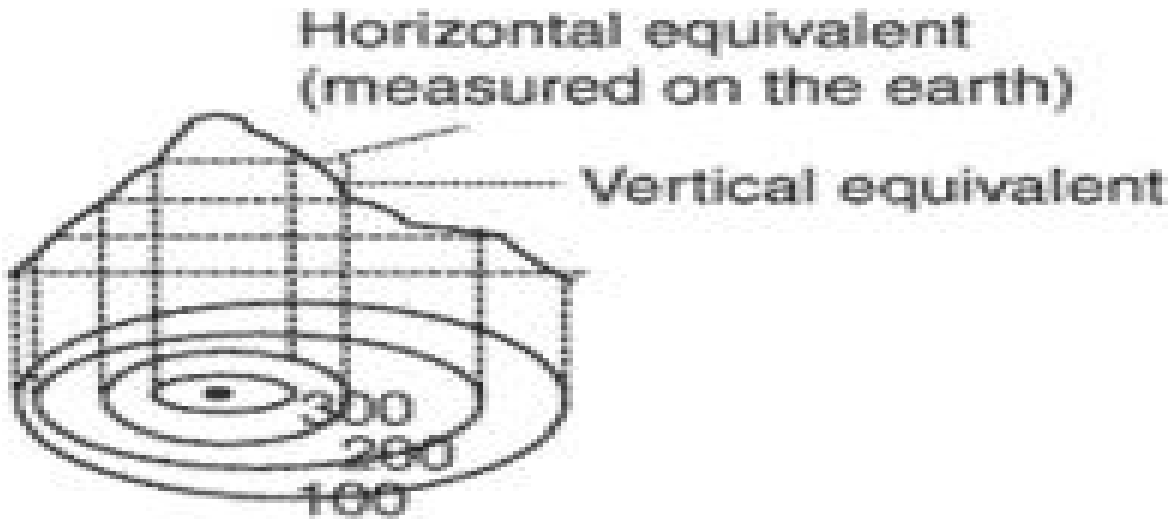
Vertical Interval (VI)

The rise between successive contour lines is known as the vertical interval (VI). On map scale 1 inch to 1 mile, the VI of each contour line is 50 feet while on the ¼ inch to a mile it is 250 feet.



Horizontal Equivalent (HE)

The distance measured flat on the map between adjacent contour lines is horizontal equivalent (HE).



Gradient is the slope of the ground expressed as the angle the ground makes with the horizontal. A gradient of 1 in 15 means that in a horizontal. The horizontal equivalent is obtained by measuring on the map and vertical interval by subtracting the contour heights. You may often need to know just how steep a piece of ground is, whether a road is too steep for a certain type of vehicle to negotiate. The gradient can be worked out quickly from a contoured map.

In other words, it is the ratio of the vertical interval to horizontal equivalent. It is independent of any unit of measurement. Simple Formula is VI/HE = Gradient.

The horizontal equivalent is obtained by measuring on the map and vertical interval by subtracting the contour heights.

You may often need to know just how steep a piece of ground is, whether a road is too steep for a certain type of vehicle to negotiate. The gradientcan be workedout quickly from a contoured map.

Measuring Gradient.The rise or fall of a slope can be expressed in following two ways:

(a) In an Angle or Degree of Slope.

(b) The tangent of the Angle or Gradient.

Conclusion

Contour reading is very important as it shows the height, shape and slope of the ground. For correct map reading, one should be able to read the contour lines and select the correct route for the navigation.

NCC

UNITY AND DISCIPLINE

THANK YOU

JAI HIND

NCC

UNITY AND DISCIPLINE