

Attitude of the Geological Structures

Planar Structures

They resemble the geometric shape of a plane (like faults, joints, and veins). A planar structure's orientation can be specified by its strike and dip (Figure 1).

Strike: is the angle between an imaginary horizontal line (strike line) on the plane and the direction to true north (Figure 1 and 2). The strike is a line of equal elevation on a plane. There are an infinite number of parallel strike lines for any inclined plane. The strike is measure with magnetic compass.

Dip: is the angle of the plane's slope (more precisely, the angle between a horizontal plane and dip line, an imaginary line parallel to the steepest slope on the plane, as thought of as the direction water would run down the plane (Figure 1 and 2).

Bearing: the horizontal angle between a line and a specified coordinate direction, usually true north or south; the compass direction or azimuth (Figure 3).

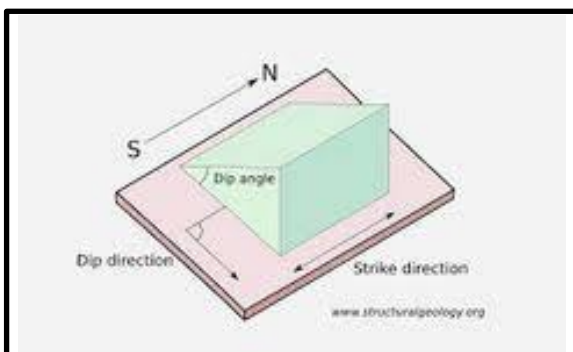


Figure 1: Strike and Dip of plane

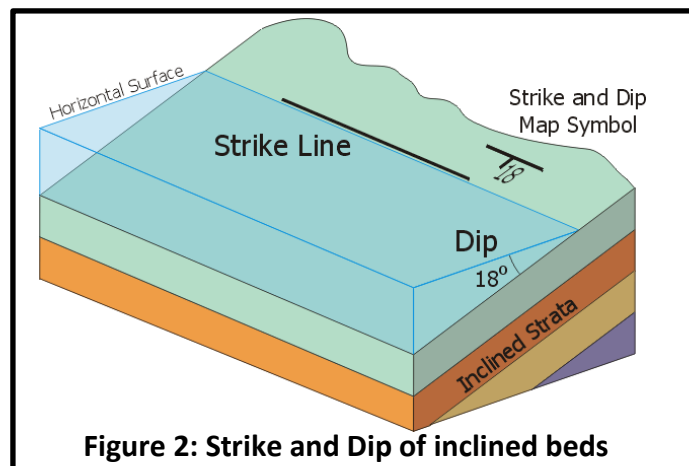


Figure 2: Strike and Dip of inclined beds

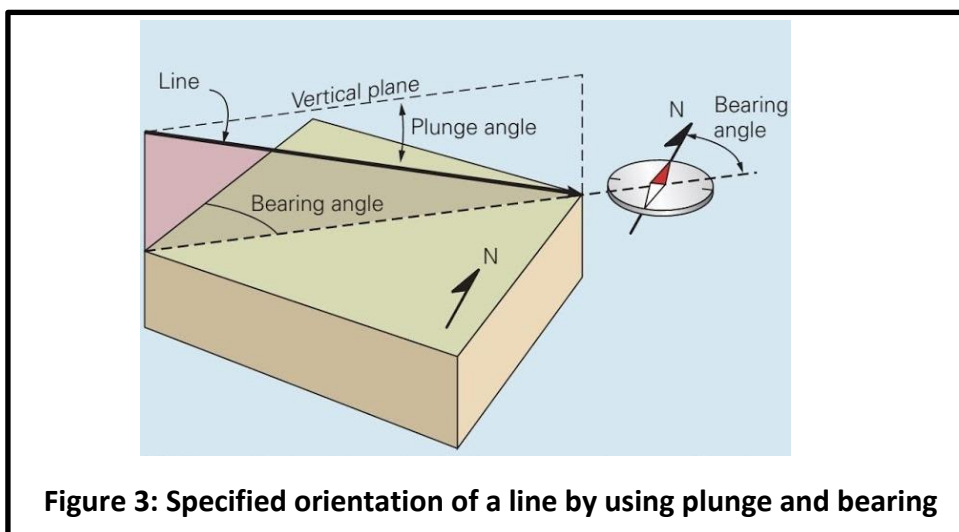


Figure 3: Specified orientation of a line by using plunge and bearing

There are two main conventions for writing attitude of planar structures:

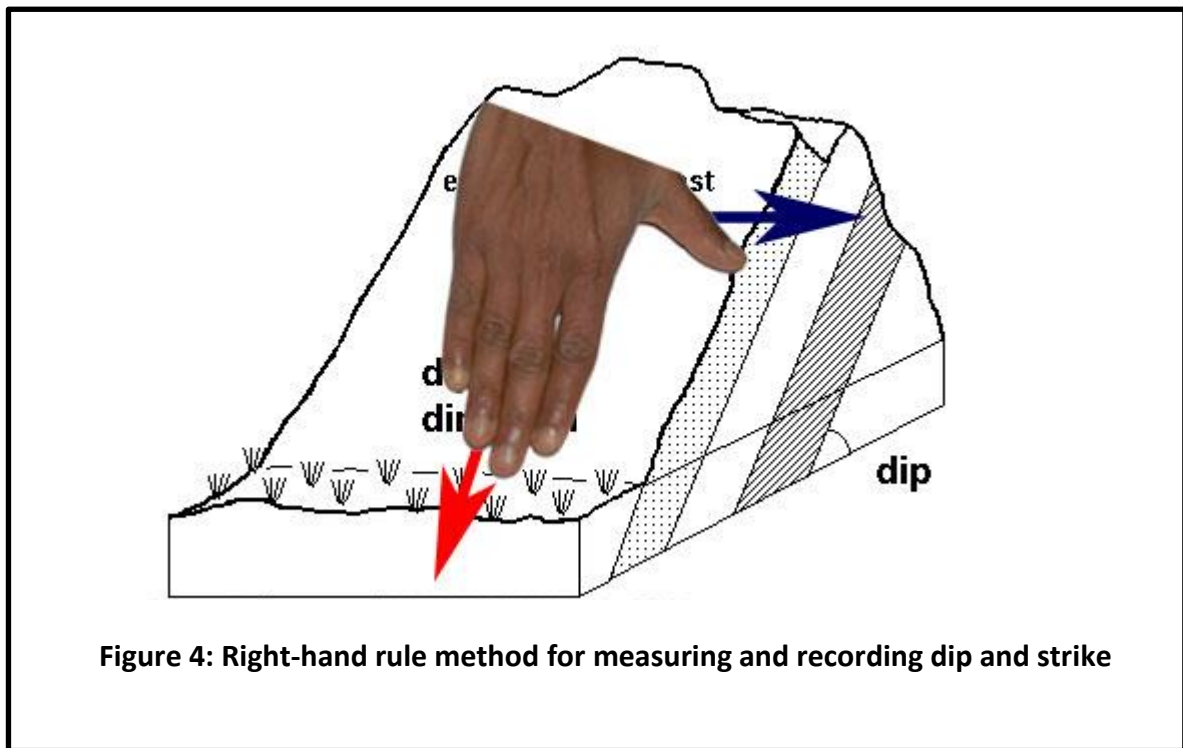
1. Strike/True Dip angle (T.D.D = NE ; SE ; SW ; NW)
2. True Dip Direction/True Dip angle

The right-hand rule states that you choose the strike azimuth such that the surface dips to your right (more precisely, record strike in the direction that your right-hand index finger points when your thumb points down the dip) Figure 4.

In azimuth method the right-hand rule is commonly followed:

Strike - 90° = T.D.D or

T.D.D + 90° = Strike



Exercise: Write all possible conventions of these attitudes of planes:

384°/85° ; S54°W/45°SE ; 05°/67°NE ; N45°E/35°NW ; 025°/33°NW ;

N45°W/65°NE ; 216°/37°