

Unit -4

Structural Geology and Geophysical methods

Attitude of beds

- Attitude refers to the three dimensional orientation or positioning of a given geological feature , such as bed , a joint , a fold
- Dip and strike are used to express the attitude of any rocky body

Basic terms

Outcrop

- Outcrop is defined as an exposure of a solid rock on the surface of the earth.
- Exposure of rocks – valleys , uplands



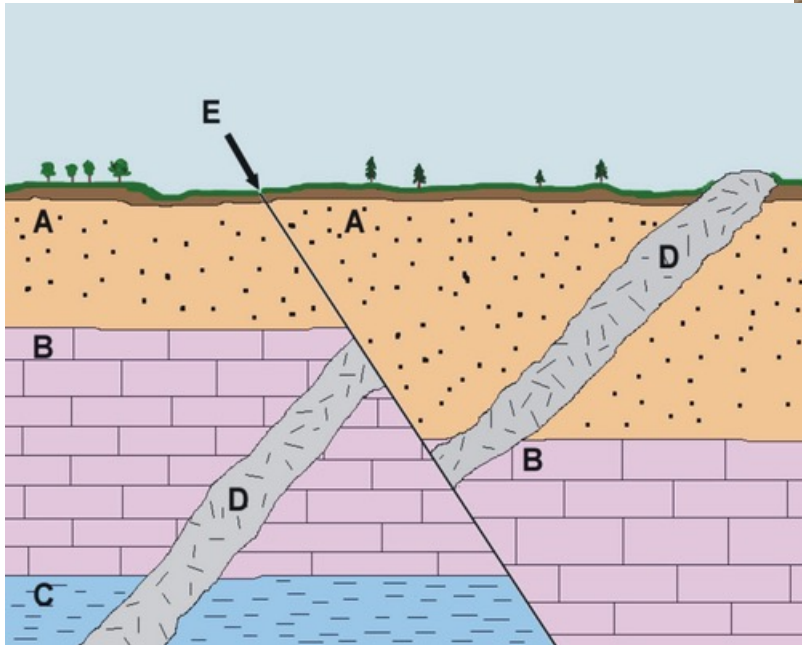


Bedding or stratification

- Distinct layers piled up one above the other , from bottom to top.
- These layers are also called as beds or strata.
- Variation in colour , composition and grain size
- This layered character is called bedding or stratification



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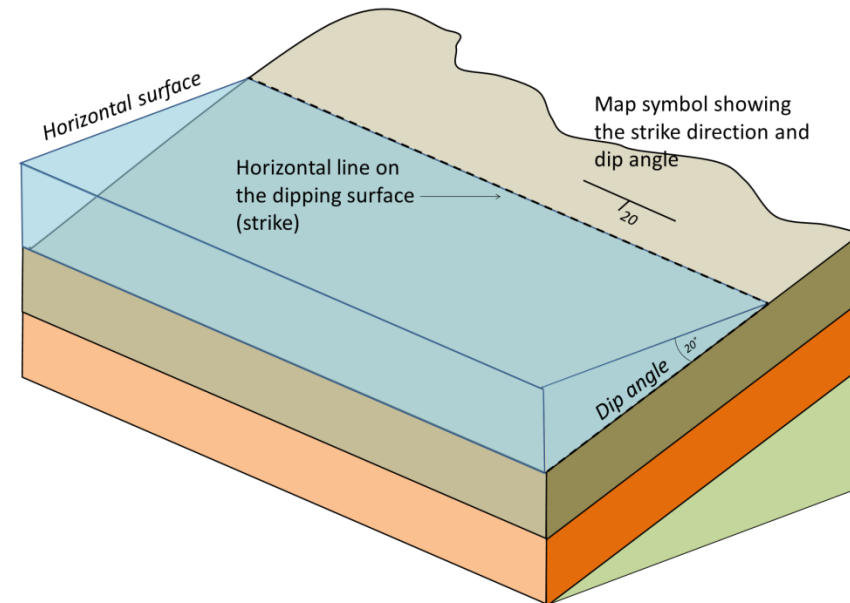
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Dip and strike

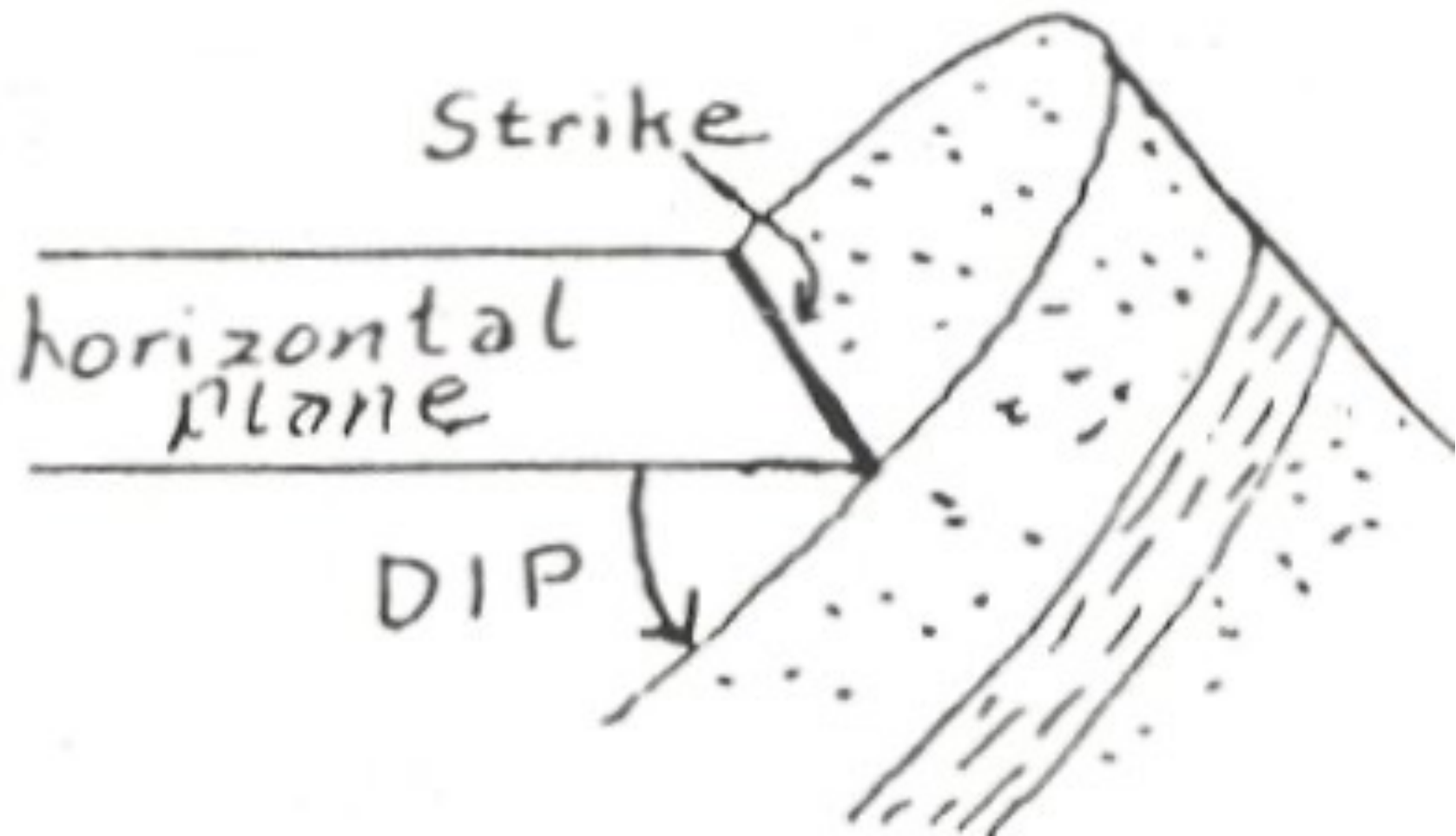
- Strike and dip refer to the orientation or attitude of a geologic feature

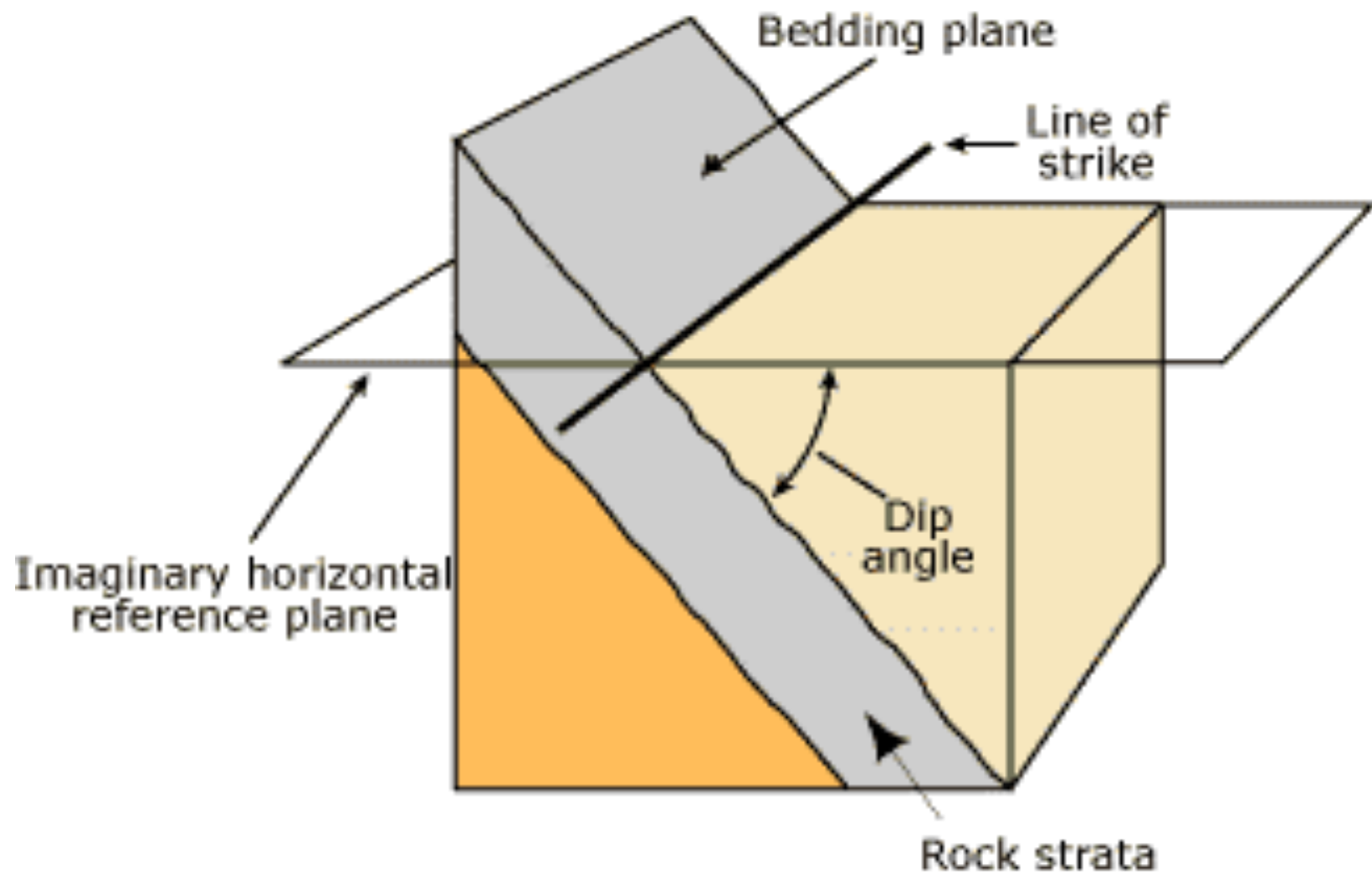


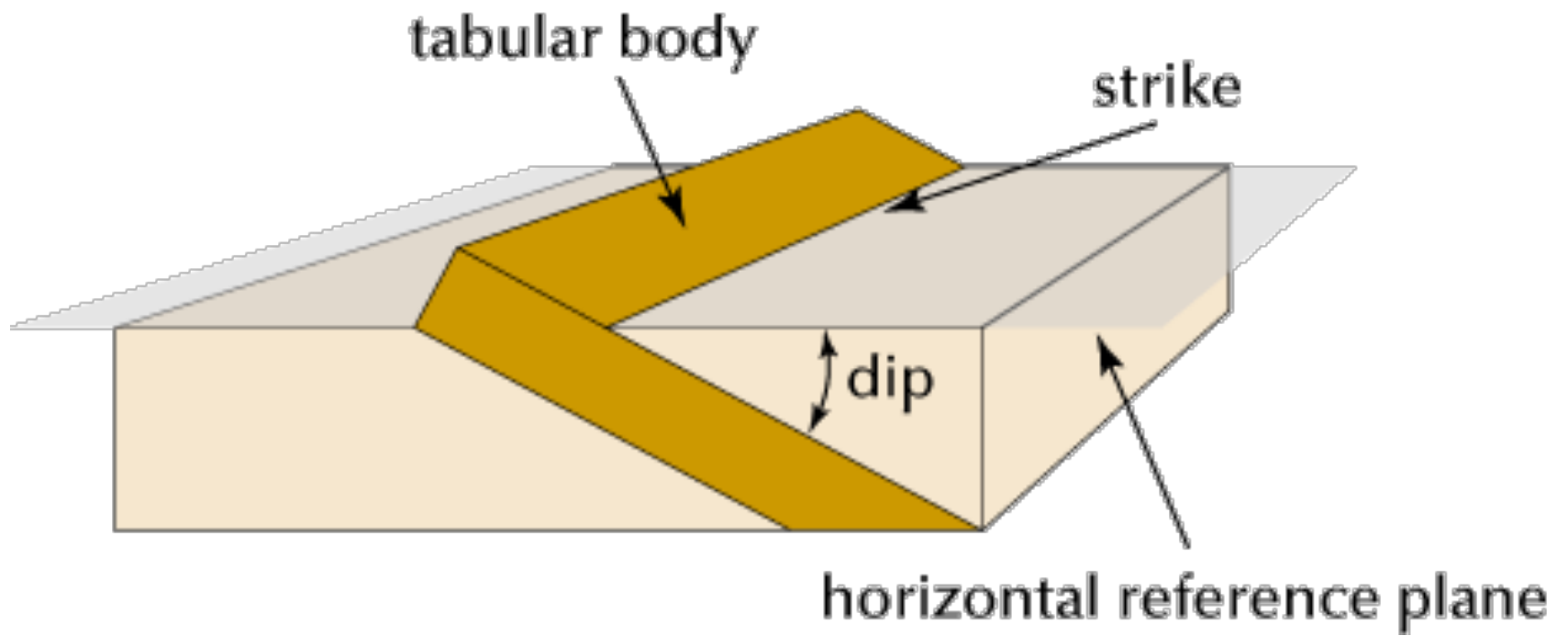
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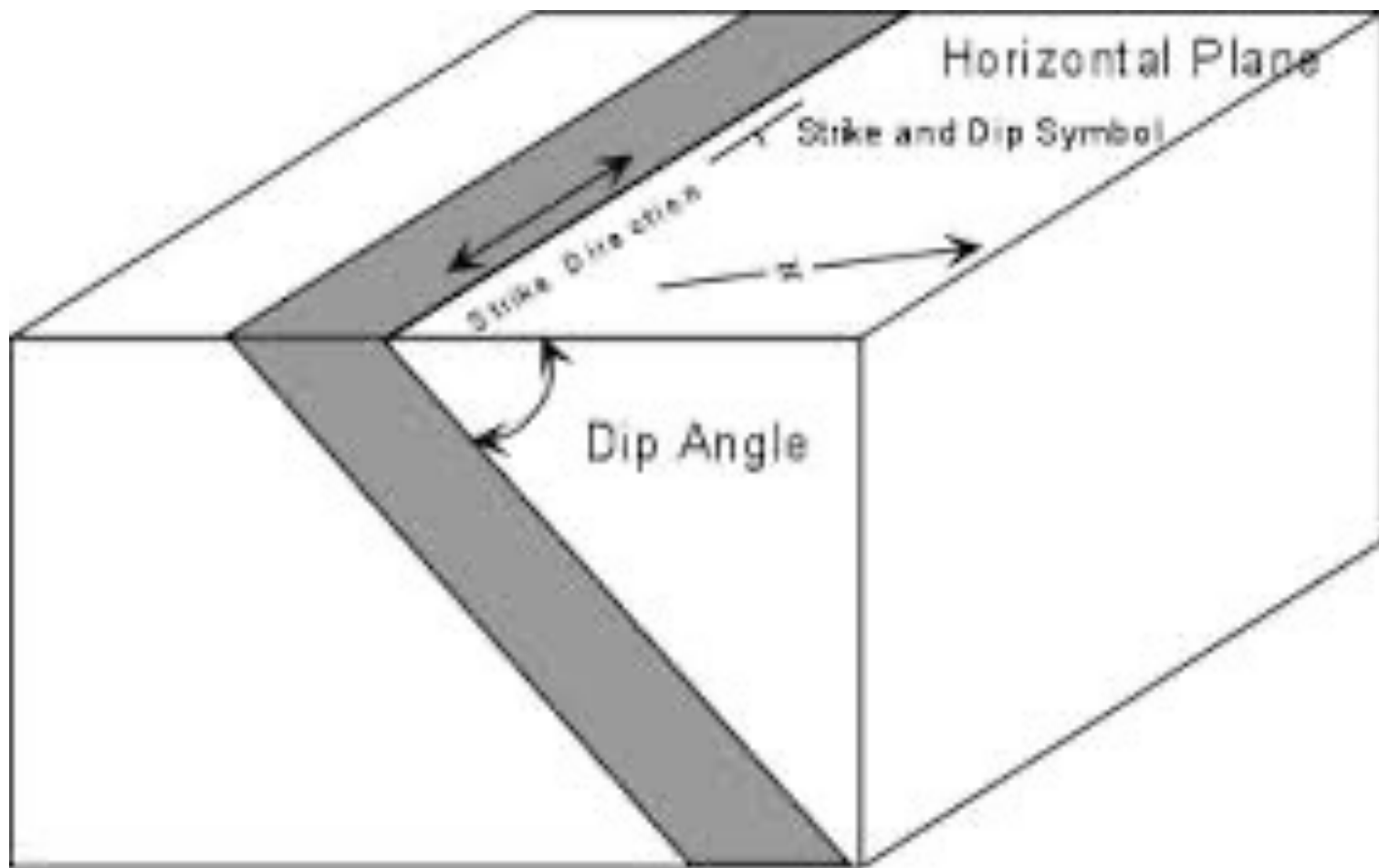
Dip

- Dip is the maximum angle of inclination of a layer of a rock with the horizontal.
- It is expressed in terms of direction of inclination and degree of inclination



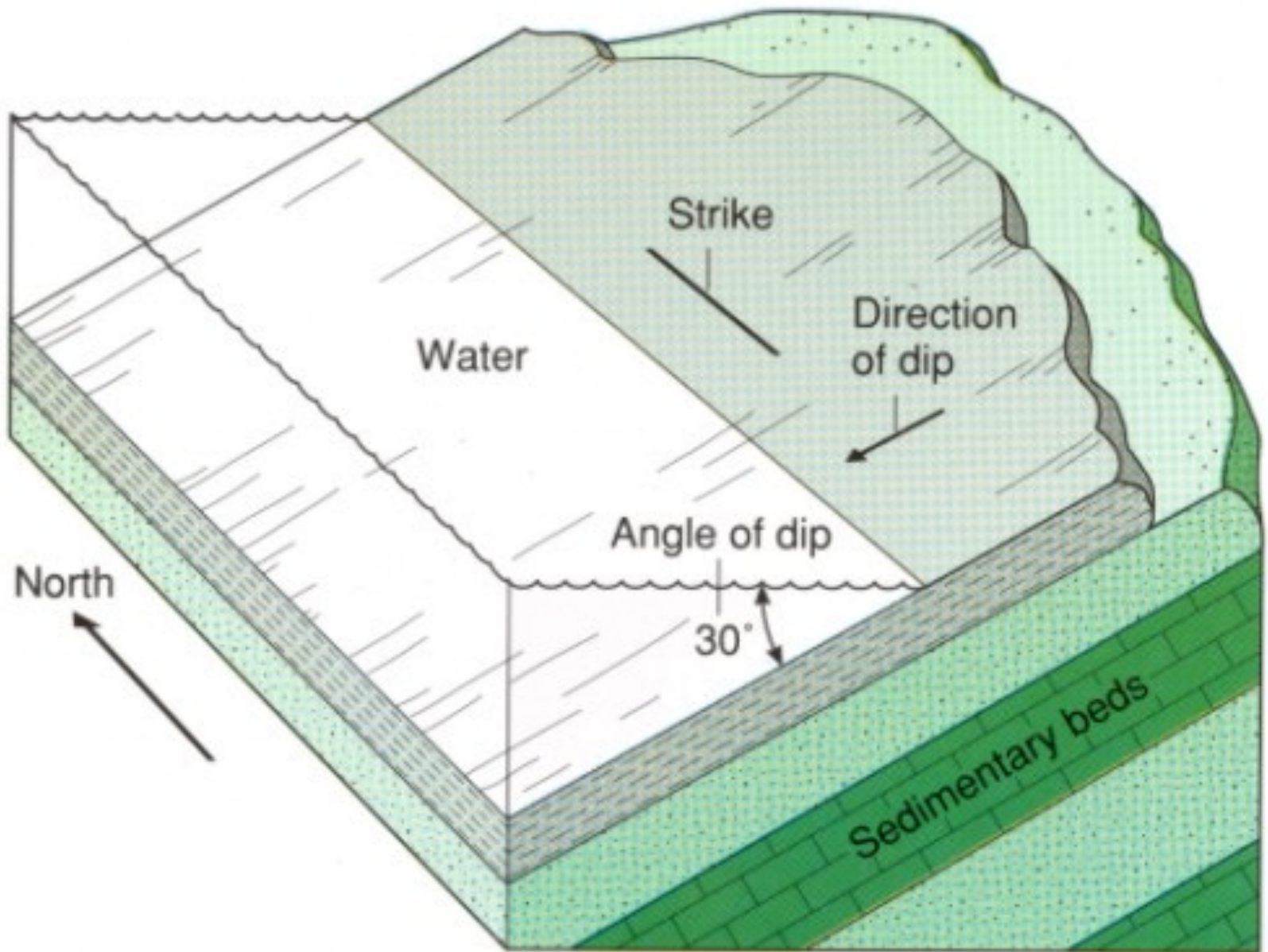






Strike

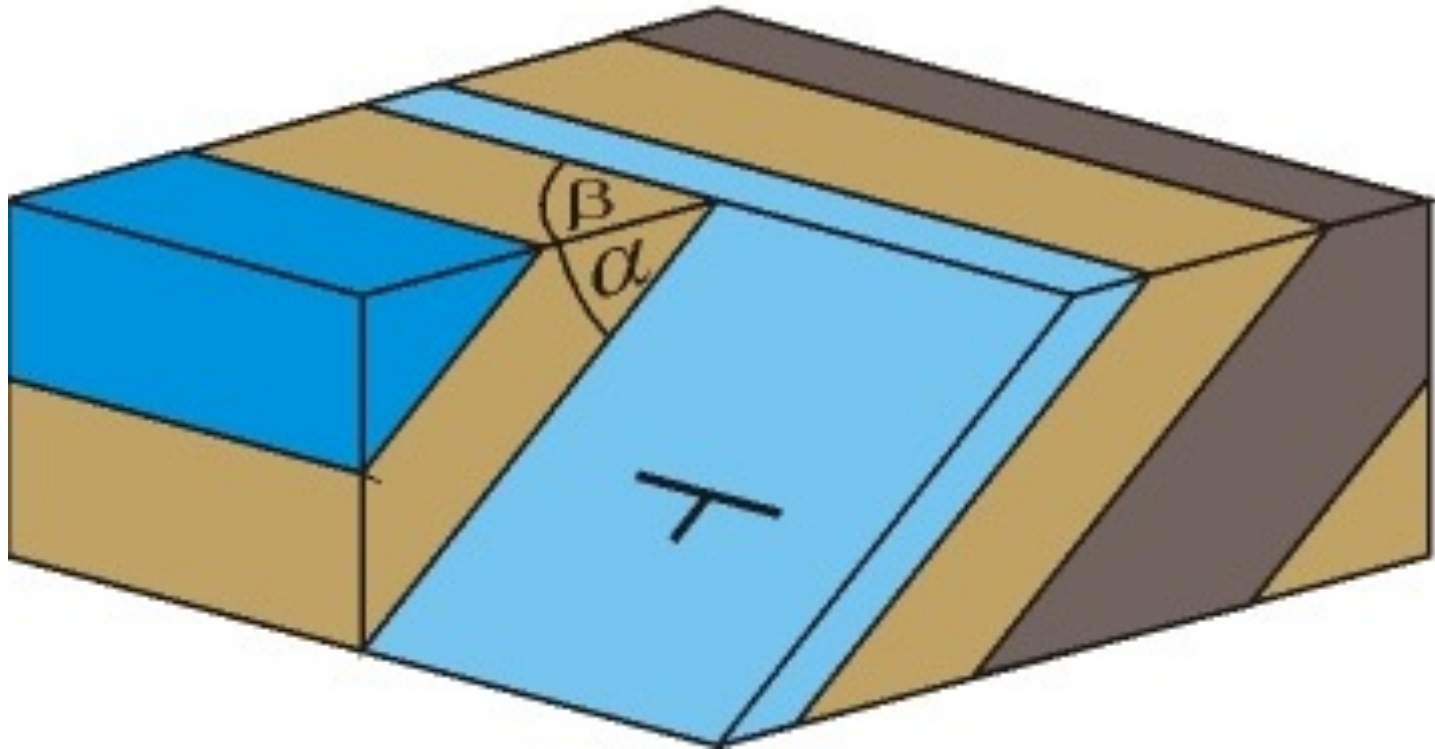
- It is a geographic direction given by the line of intersection of a horizontal plane with a bedding plane of a layer of a rock.



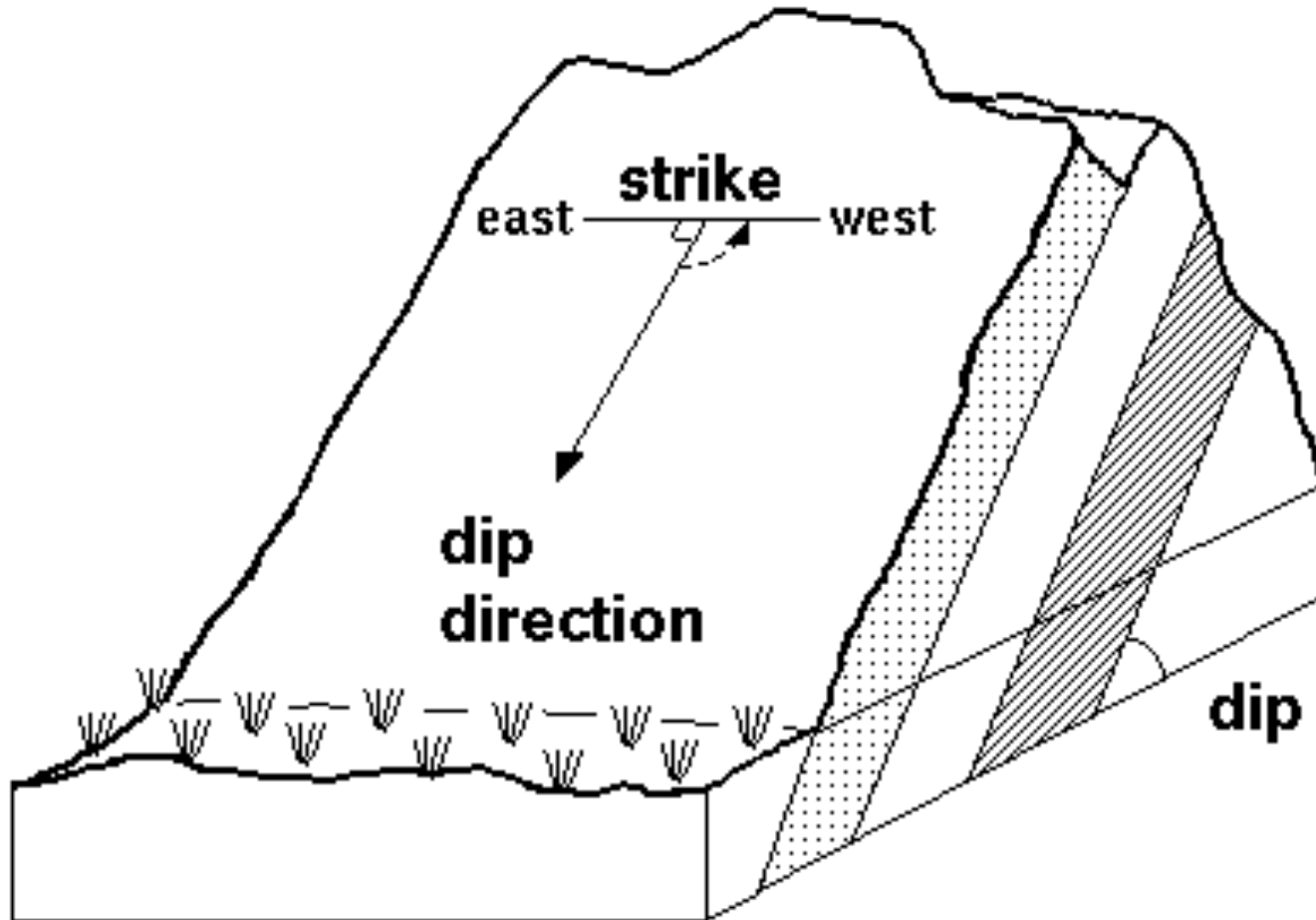
Apparent and true dip

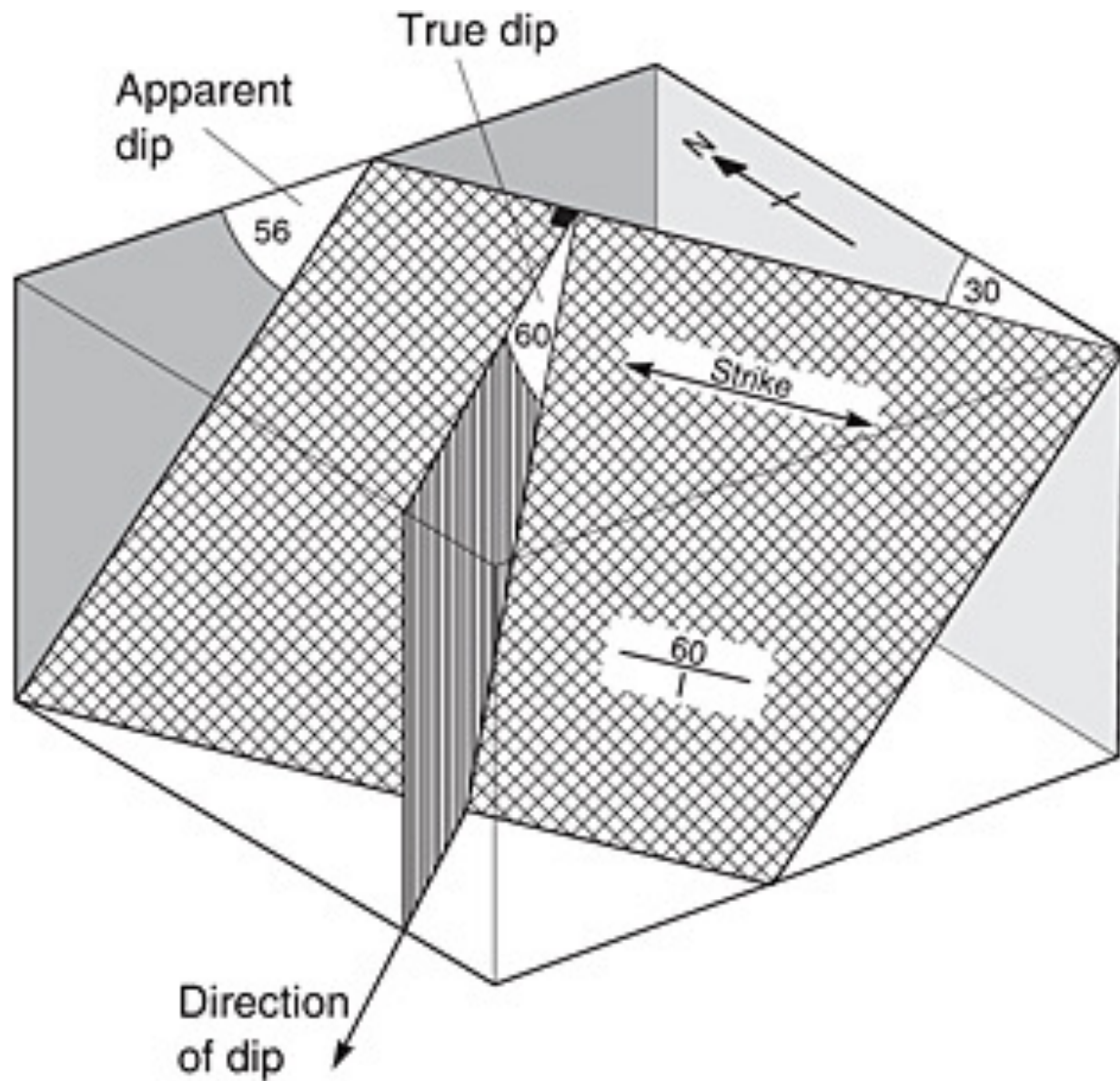
- When a dip of a layer is measured in a direction , at right angles to the strike of that particular layer it is called true dip
- Apparent dip – when dip of a layer is measured in any other direction which is not at right angles to its strike direction it is called apparent dip

True dip, α

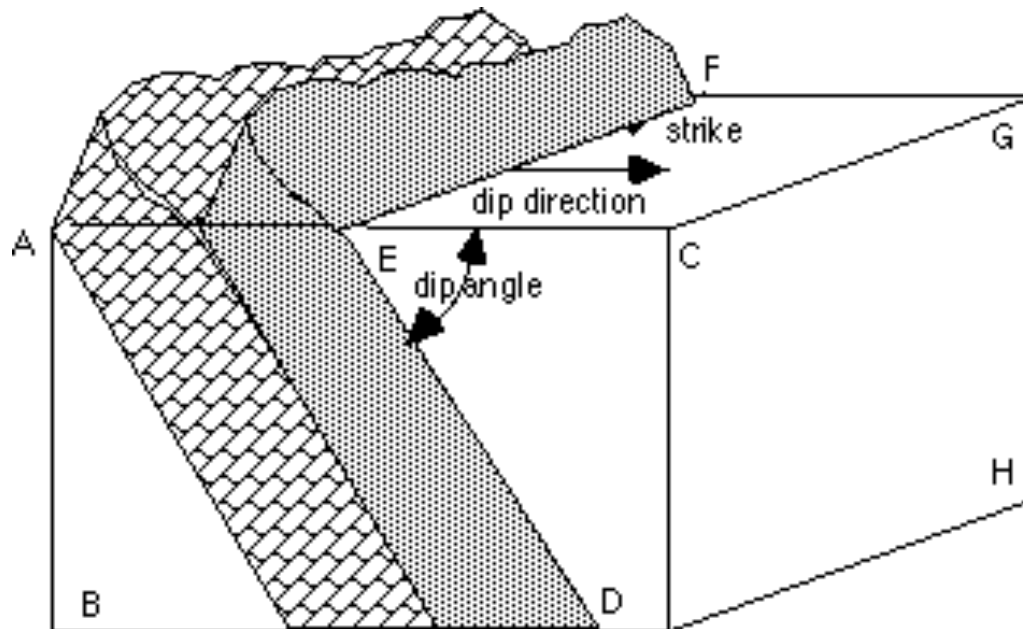


True dip





- True dip is a line perpendicular to the strike and is the steepest line along the plane of the bed
- Apparent dip is the angle from horizontal of a line that is not perpendicular to strike



Types of dip

1. Primary dip
2. Secondary dip
3. Local and regional dip

Primary dip

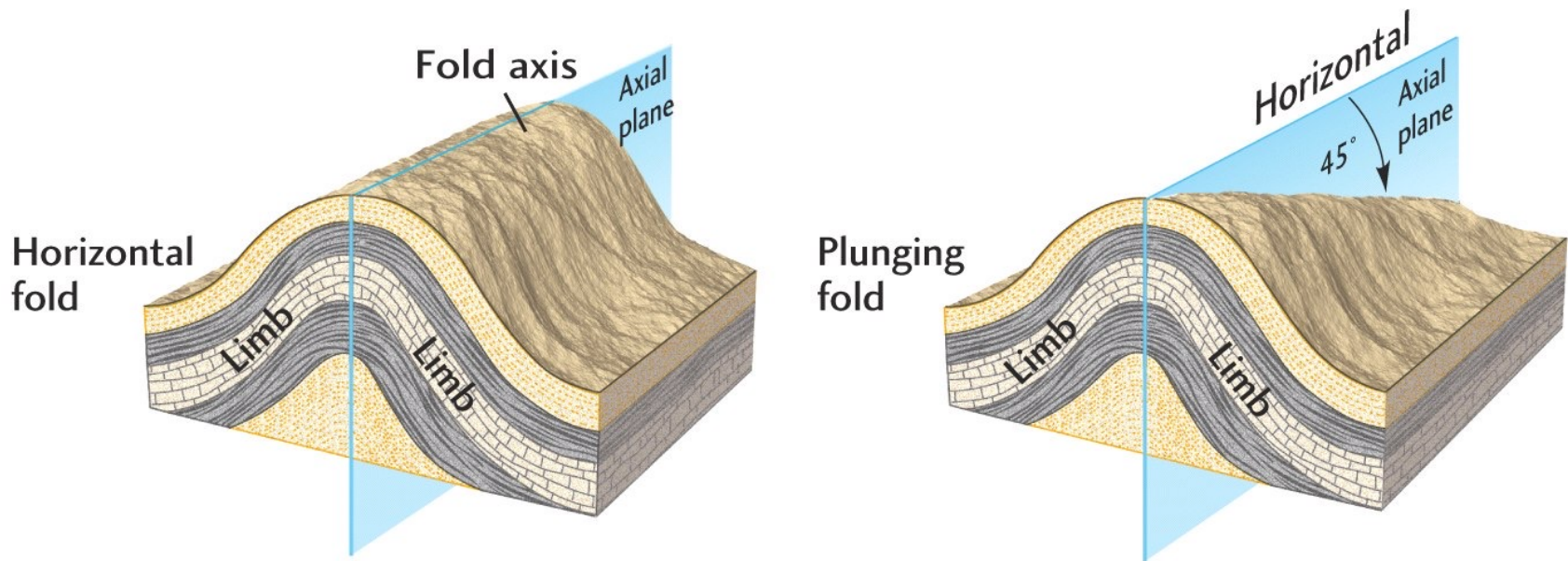
- Primary dip - Slope of the deposition of sedimentary rocks is between 5 – 10 degrees , such dips are called primary dips
- Secondary dip – inclination formed in the strata after deposition due to tectonic forces

- Local Dip – inclination of rocks in a limited area of observation
- Regional dip - inclination of series of formations exposed over a wide area

Folds and Folding

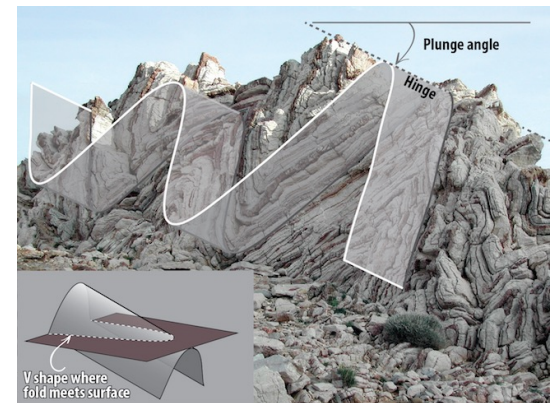
- Folds – undulations or bends or curvatures developed in the rocks of the crust
- The process of development of folds in the rocks is called Folding.

Folds



Parts of a fold

1. Limbs – sides or flanks of a fold
2. Hinge
3. Axial plane
4. Axis of fold- line parallel to hinge line of fold
5. Crest – up arched bends
6. Trough – down arched beds
7. Plunge of a fold



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Parts of a fold

