

Structural Geology

Elastic Rebound Theory:

Stress and Strain:

The Elastic Limit: $\text{Stress} > \text{Strain}$

Brittle and Ductile Behavior in Rocks:

When does Brittle behavior occur?

When does ductile occur?

Folding and Faulting

Stress:

- 1) Compressive
- 2) Extensional or Tensional
- 3) Shear

The “attitude” of rocks:

Strike

Dip

These parameters are used on **geologic maps**, special maps that show the types of rock exposed in a geographical area.

They are also used in the construction of **geologic cross-sections**, which represent a vertical slice through a portion of the Earth.

Folding occurs when the rock behaves in a ductile fashion (typically far below the surface).

- 1) Anticlines:

2) Synclines:

3) Excessive Stress Folds:

- a) Asymmetrical
- b) Overturned
- c) Recumbent
- d) Hairpin or Isoclinal

Other Fun Terminology:

Plunge of the Fold:

Pitch of the Fold:

Other Special Structural Folds: Domes and Basins

1) Dome

2) Basin

Fractures in the rock are called joints.

No movement has taken place on these features.

Typically joints occur in joint sets.

Faulting occurs when rock behaves in a brittle fashion (typically near the surface).

1) Dip Slip Faults

a) Normal (or detachment)

b) Reverse (or Thrust)

Horst and Graben Topography

2) Strike-slip

a) Left Lateral

b) Right Lateral

