

Geology 104 National Parks  
Lecture 05: Topographic and Geologic Maps

I. Topographic Maps

A. Maps that show

1. Elevation changes (shape) of the land surface
2. Location of roads, towns, railroads and important landmarks

B. Contour lines

1. These are lines on a topo map that indicate elevation relative to sea level
2. They are continuous lines on the map
3. Each point along the line has the same elevation
  - a. if you were to 'walk' along a contour line you would not walk up or down hill.
  - b. leaving the contour requires that you either go up or down hill.

C. Contour interval

1. This is the vertical distance between contour lines
2. It is constant for a given map

Note: as you become familiar with topographic maps, you will begin to recognize and interpret the landscape (three dimensions) represented on a two dimensional map!

II. Geologic Maps

A. Maps that show

1. The distribution of rocks over the surface
2. The patterns that emerge provide information regarding the geologic history of an area

B. Information in Geologic Maps

1. Formations:

- a. Sedimentary and volcanic rock units extend over vast areas
  - ii. the top and bottom of the units are recognizable
  - iii. Contact = boundary surface between two formations/rock units
- b. These rocks formed during an interval of time

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- Thus they record the history of an area over that interval of time
  - c. Such recognizable units are called formations
2. Structures:
- a. The patterns described by the bedrock are called structures
  - b. Examples: domes (e.g. black hills), basins (e.g. Illinois), folds, faults