

Karst Topography

1. Extensive coverage across US and globe
2. In eastern US: Common in Florida, Kentucky, Indiana, Minnesota, Ohio, Illinois, Missouri, and Arkansas
3. Developed in areas dominated by limestone and gypsum
 - a. Created by erosional work by groundwater
 - b. Primary erosional work is carried out by chemical weathering
 - i. Acids dissolve limestone and the Ca^{2+} and the HCO_3^- are carried away in the water
 1. Water becomes acidified by incorporating carbon dioxide to form carbonic acid
 2. Hydrogen sulfide gas can be oxidized to form sulfuric acid which is mixed with the water
 3. Organic acids can mix with water
 - c. Orientation of fractures, joints, or bedding planes will control the development of caverns
 - d. Acidified waters flow through fractures, joints, or bedding planes slowly enlarging the passages
4. Sinkholes
 - a. Can vary in depths from under a meter to greater than 50 meters
 - b. Form in one of two ways
 - i. Infiltrating groundwater slowly dissolved the underlying bedrock (limestone)
 1. With time the bedrock surface is lowered and the fractures are enlarged
 2. Soil begins to slide into the void created by the widening fractures
 - ii. Roof collapse of a cavern
 1. Weight overlying the cavern becomes too much and/or the roof becomes too weak to support the overlying weight
 2. Could also be induced by groundwater removal