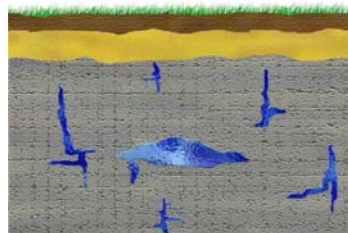


Florida's geology allows for the creation of many interesting features including **sinkholes**, **underground rivers**, **springs**, and **caves**. These features make up what is called **karst topography** which forms as flowing water slowly dissolves the limestone and dolostone.



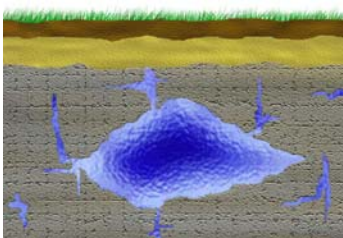
This lake is actually a spring which opens into an underwater cave system. Photo—Ron DeAmorim

**Sinkholes**, a sometimes problematic karst feature, form when a water formed void in carbonate rock collapses. Collapse sinkholes occur when a large void forms in the limestone. The cavity continues to grow in size until it can no longer support the weight of the overlying sand and soil. At this time the surface collapses forming a sinkhole, usually rapidly and sometimes catastrophically. The famous Winter Park sinkhole that opened in May 1981 had a volume of almost a quarter of a million cubic yards.

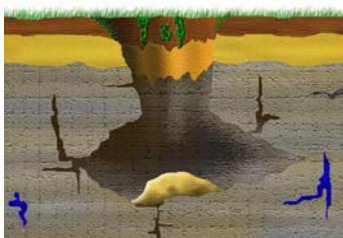


Left: Water begins to dissolve the limestone aquifer.

Right: Over time, the void expands as water continues to dissolve the rock.



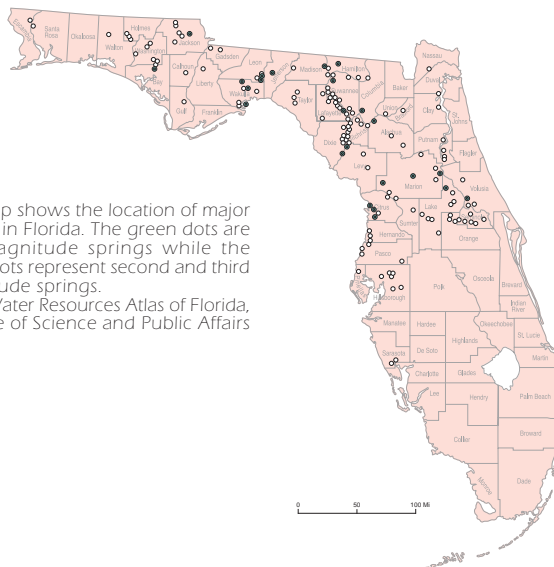
Right: When the potentiometric surface decreases, the land surface collapses into the void below.



Left: This huge sinkhole opened up in Winter Park, Florida in May, 1981. Notice the four lane road for scale. The red circle in the upper left marks two people. Photo—Florida Geologic Survey

# Karst

A spring occurs when groundwater discharges to the surface through natural openings in the ground. Florida is home to 27 of the country's 78 first-magnitude springs, that is, springs that discharge greater than 64.6 million gallons a day to the surface. Spring Creek Springs of Wakulla County has an average discharge of over a billion gallons of water each day.

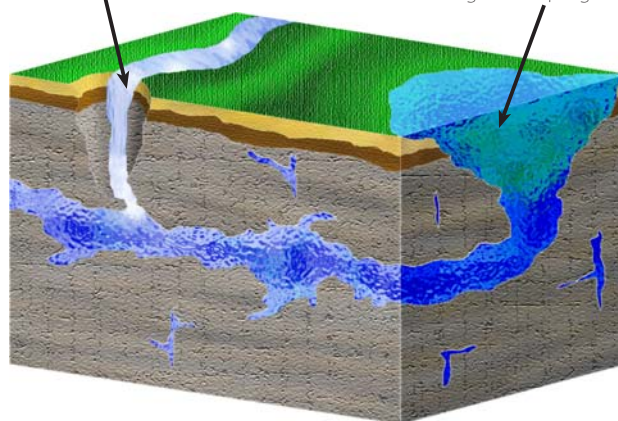


This map shows the location of major springs in Florida. The green dots are first magnitude springs while the white dots represent second and third magnitude springs. Map—Water Resources Atlas of Florida, Institute of Science and Public Affairs

In some locations, rivers flow into sinkholes or other openings in the ground and "disappear" below the Earth's surface. These underground rivers flow through pore spaces as well as through underground caves. When groundwater moves through these natural pipes, it is called **conduit flow**. Later the water may issue forth from springs. As you can see, natural systems are all interconnected. What you do in one place may affect water quality hundreds of miles away.

River flowing into a sink which ends up in the groundwater.

Water that enters the aquifer from the stream or from rain water seeping through the soil will discharge at this spring.



All of the water (rain, surface water, waste water, etc.) that enters the aquifer and discharges at this spring is said to originate from within this springshed.

The interaction of surface and groundwater has brought about the idea of **springsheds**. A springshed is the entire area that contributes water to a given spring. For example, assume there is a lake that is connected by groundwater flow to a spring 50 miles to the south. This lake, although 50 miles away, is within the springshed. Everyone needs to be careful about what they put in the groundwater. It may not only affect the water directly below their feet, but also many miles away.

