



An Introduction to Caves and Karst

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Raise a hand if you have been in a cave.



Photo by Joe Zokaites



Photo by Carol Zokaites

Caves



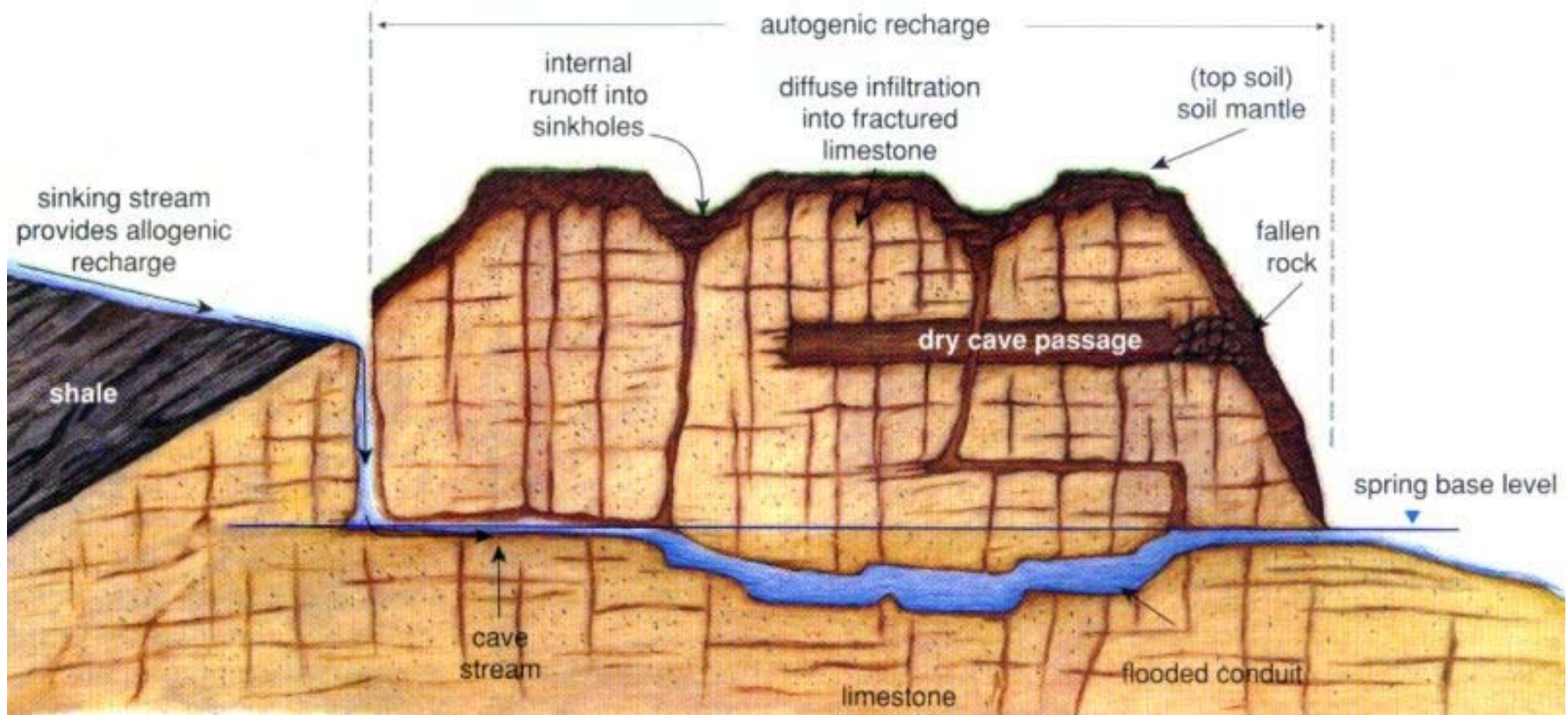
Photo by Chip Clark



Photo by Chip Clark

Karst -- *A unique type of landform*

- *characterized by subsurface drainage systems, sinking or losing streams, sinkholes, big springs, and caves.*
- *formed by the dissolution of limestone, dolomite, marble, or other soluble rocks*



Cross-section diagram by David Culver, American University.



Karst

A land area with Sinkholes, Springs, Sinking Streams and Caves

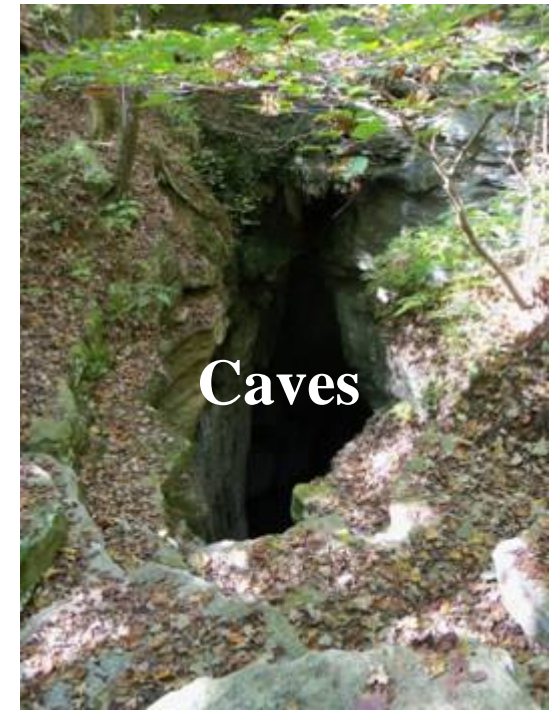
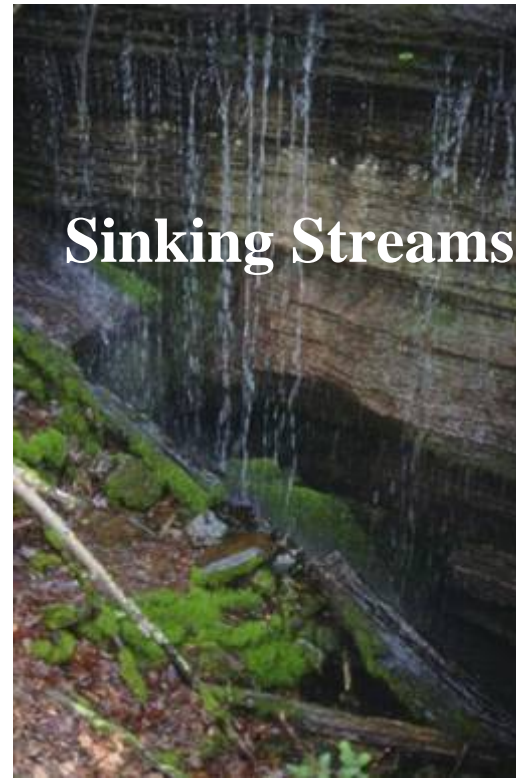
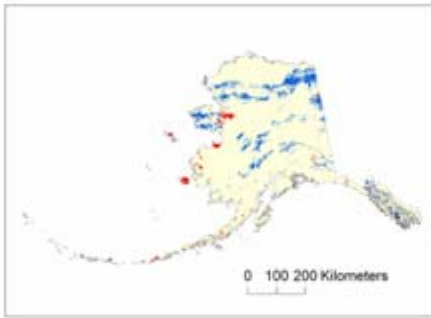


Photo by John Bowling



Photo by Ed Fortney



Potential Karst and Karstic Aquifers of the United States

USGS U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

National Karst Map by USGS,
from Dr. Dan Doctor



Do you live in a karst area shown on this map? A – Yes B – No



View of Karst Landscapes - thin and variable soil depths over the cavernous limestone. This allows rain and snow to enter the subsurface and groundwater quickly without a lot of filtration.



Sinkholes and rocky fields



Alpine Karst is developed in mountain areas with a history of glaciation. Most of the soil has been removed by physical weathering exposing the beautiful rock surface called “karren”.



Photo by Dave Bunnell



Photo by Dave Bunnell



Why do you need to know about karst landscapes?

Surface water and groundwater interact very quickly in karst topography.

Here an underground stream emerges from a cave forming a karst spring.



Photo by Steve Wells



Photo by Bill Douty

Sinkhole or Sink

A name for closed depressions. Sinkholes are one of the most obvious signs of a karst terrane.



Photo by Carol Zokaites

Sinkhole In A Cup
By Project Underground
on BatsLive website



Sinking Streams Surface water becomes groundwater by streams sinking into the ground.



Photo by
Dave Bunnell

Stream flows into cave at one location.



Photo from
VA Karst Program

Water slowly dripping from a stream bed down into the underground.



Water entering a cave flows through vertical conduits into the cavernous reservoir system below.





Water flows along the sculpted cave floor like a surface stream.
Karst groundwater moves rapidly, up to several miles a day.



Photo by
Phil Lucas



Springs

Most karst groundwater returns to the surface at springs.



Photo by Steve Wells



Do you get your drinking water from a well or spring in a karst area?

- A – No
- B – Yes, private well
- C – Yes, public water supply well
- D – I don't know

Photo from VA Karst Program

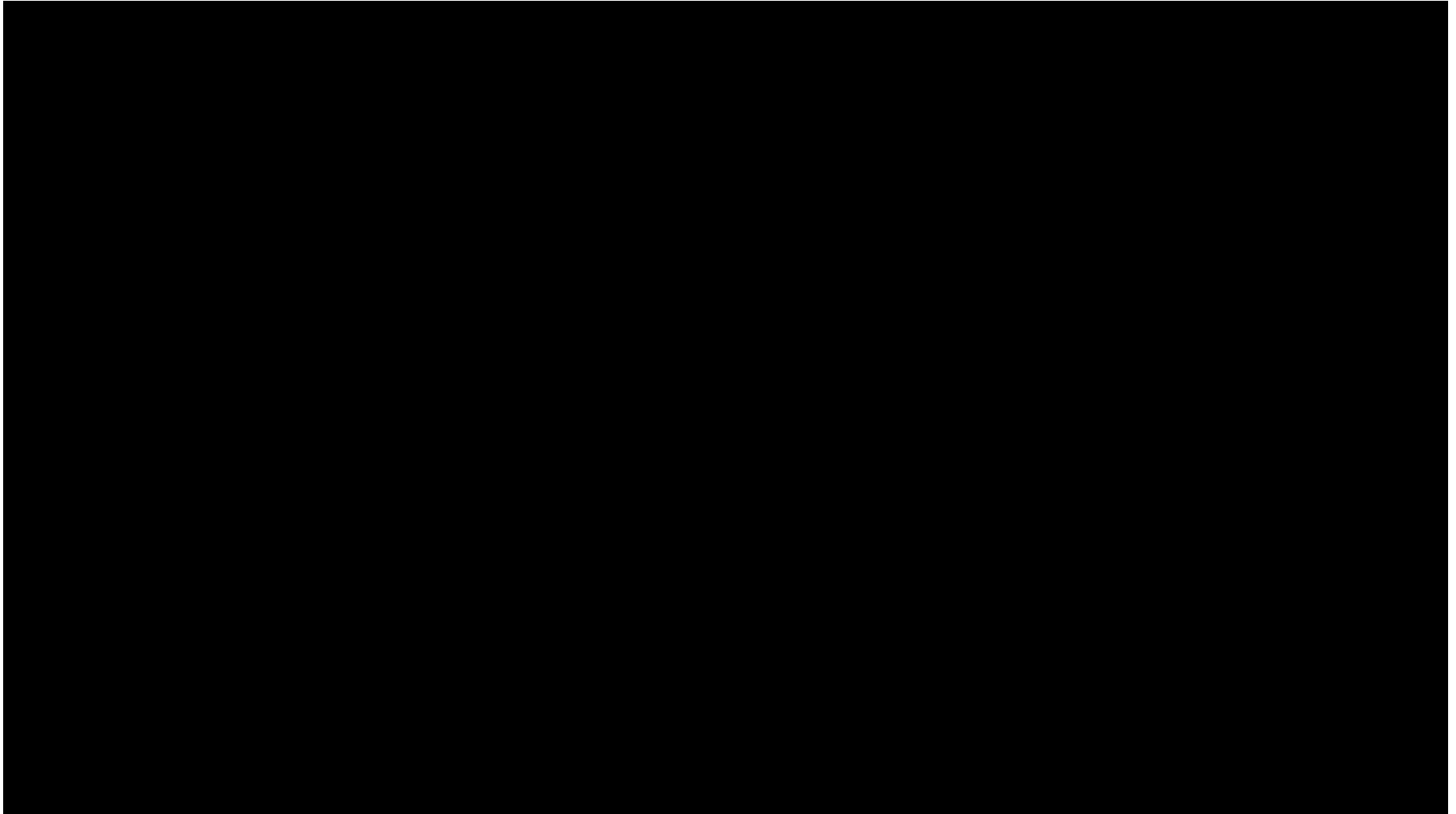


How do we know where the karst water goes underground?



Photo from the
VA Karst Program

Scientists use nontoxic, fluorescent dyes to chart the courses of underground streams and rivers.



Video of Groundwater Model



Cows in the creek,
anywhere USA

Threats and hazards in Karst Environments

Sinkhole dumps Rain water
flows through the sinkhole trash
and into the groundwater.





Photo from VA Karst Program

Threats and hazards in Karst Environments

Stormwater runoff and road collapses



Photo from NCKRI

Best management practices and grant programs are available from many state and federal agencies to help keep the karst waters clean.



Cave entrances in Karst areas



Joe Zokaites



Dave Bunnell



Carol Zokaites



Joe Zokaites



Photo by Chip Clark

Cave Passages



Photo by Phil Lucas



Photo by Phil Lucas



Cave Formations

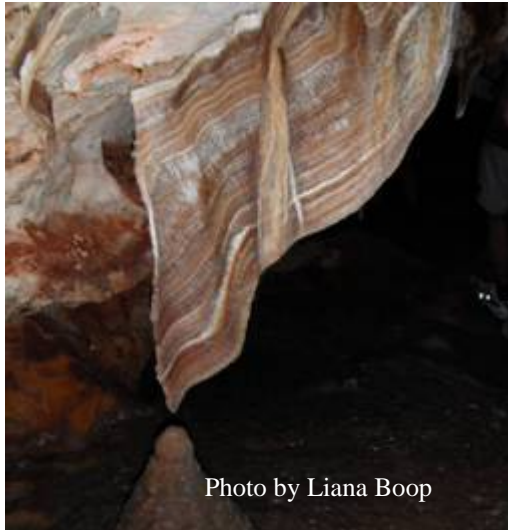


Photo by Liana Boop



Photo by Chip Clark



Photo by Phil Lucas



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Photo by Carlin Kartchner



Photo by Liana Boop



Photo by VA Karst Program



Photo by Karen Franzl



Photo by VA Karst Program

Cave scientists study the geology, biology, hydrology and paleontology of the cave and karst systems.



Map by Joe Zokaites



Photo by Carol Zokaites



Photo by Phil Lucas

Karst landscapes host productive aquifers, amazing caves, sinkholes, sinking streams and springs.



Photo by Ed Fortney