



[Sinkholes](#)

[Earthquakes](#)

[Landslides](#)

[Radon](#)

[Disaster Preparedness](#)

[Geohazard News](#)

[Geospatial Data](#)

[What is Radon?](#)

[Radon from Ground to You](#)

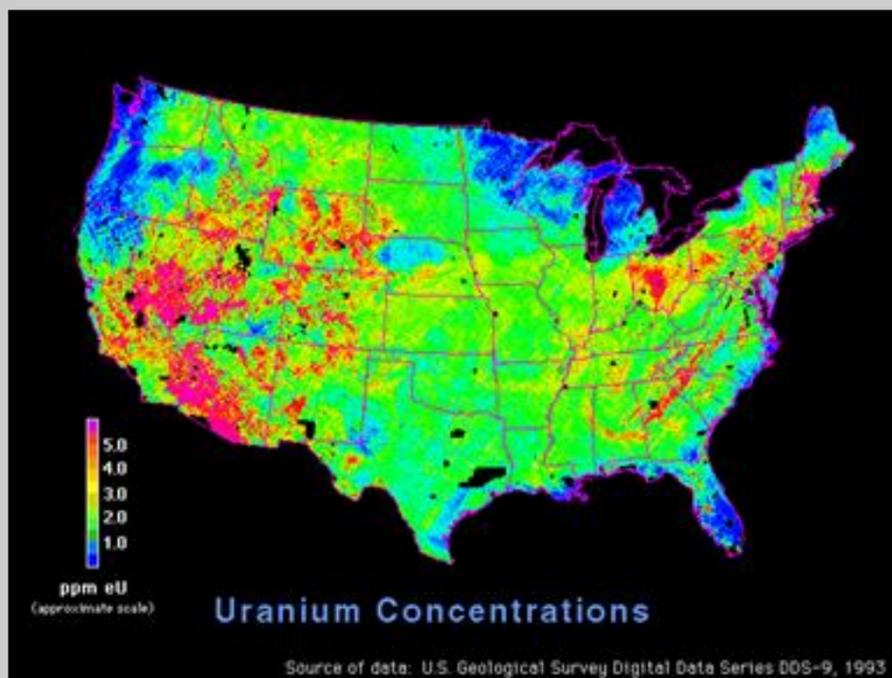
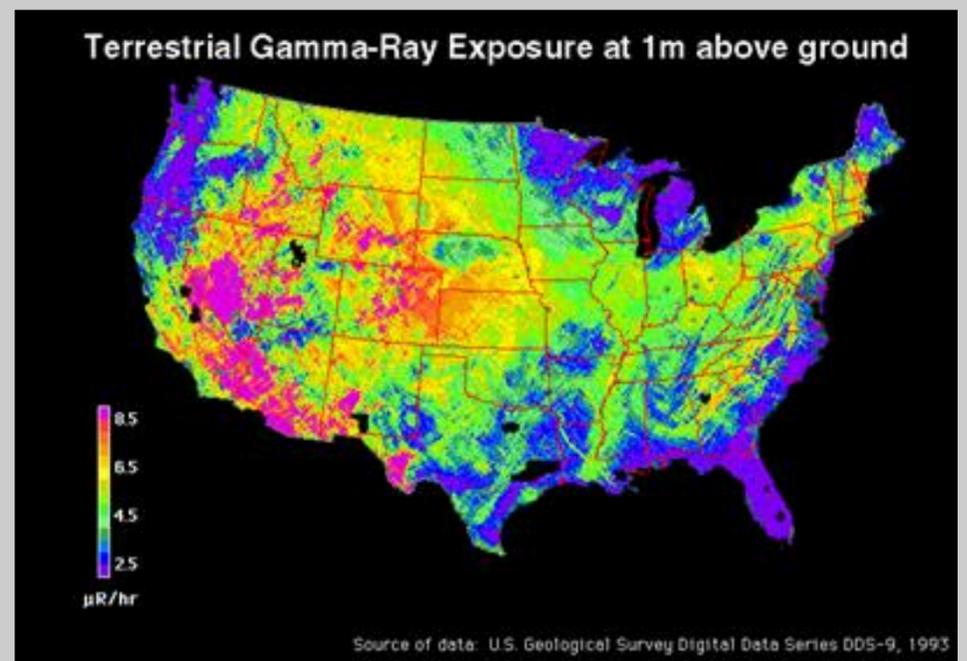
[Radon in Alabama](#)

[Additional Radon Information](#)

RADON: WHAT IS IT?

Radon is a radioactive, colorless, odorless, tasteless gas produced by the natural breakdown of radioactive elements in soil and rocks. There are many ways to test soil and rock to determine whether the material contains radioactive elements, and therefore identify areas which may have higher levels of radon.

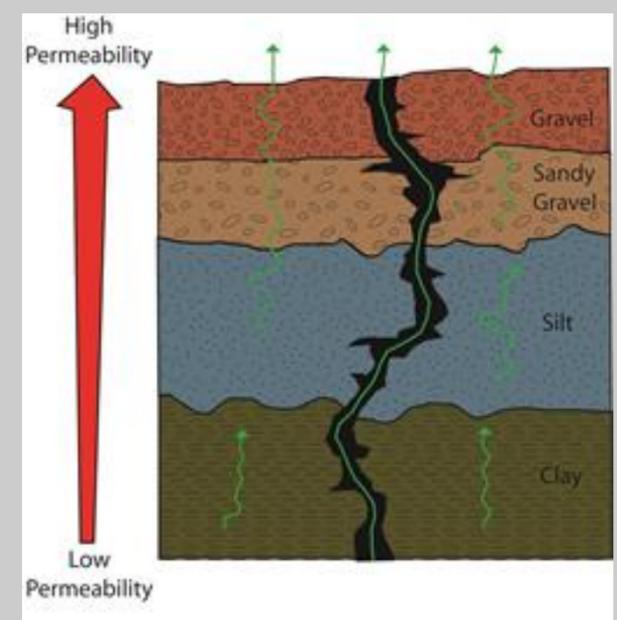
One method for radioactive material detection is with aerial gamma-ray data collection. A gamma-ray detector mounted on an aircraft is flown over an area of interest and the amount of radioactive elements in the area can be calculated. To read more about this method and about the U.S. Department of Energy's National Uranium Resource Evaluation program, [click here](#).



Radon from Uranium

Levels of radon vary from place to place and even from house to house within a given area. The higher the uranium content of the rocks that underlie an area, the greater the likelihood that houses in the area will contain elevated levels of radon.

Because radon is a gas, it can migrate through rocks and soils, escaping into fractures and openings in rocks and into ground water.



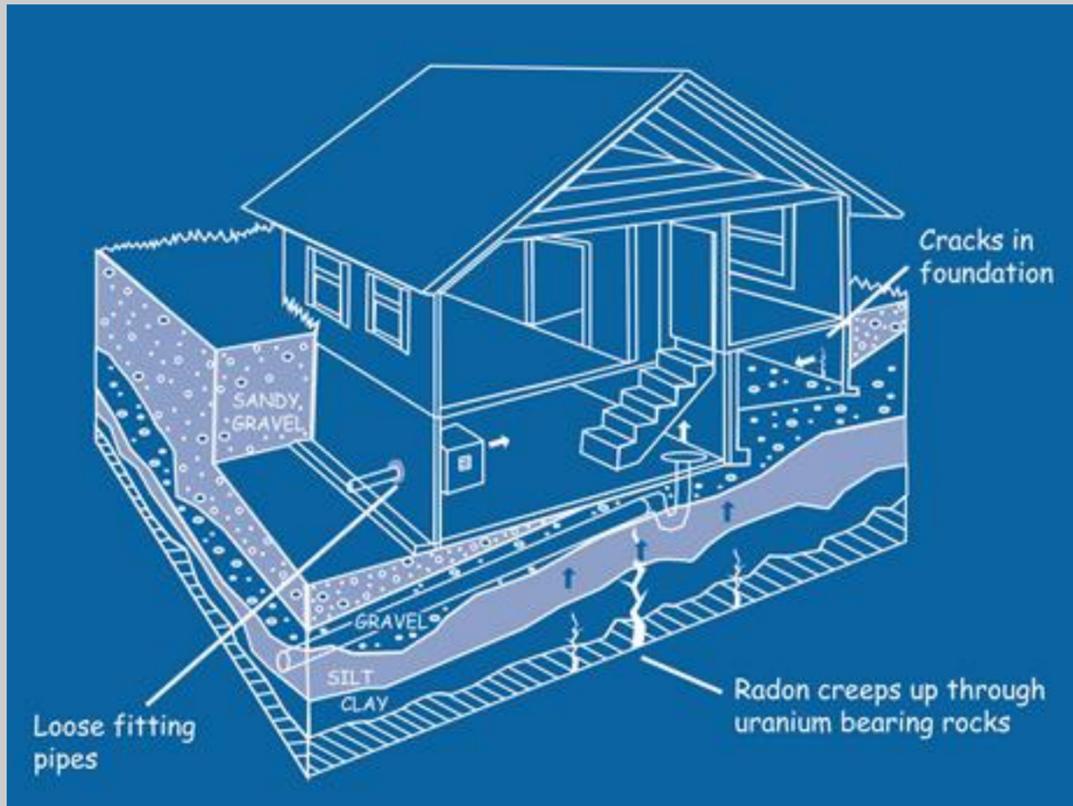
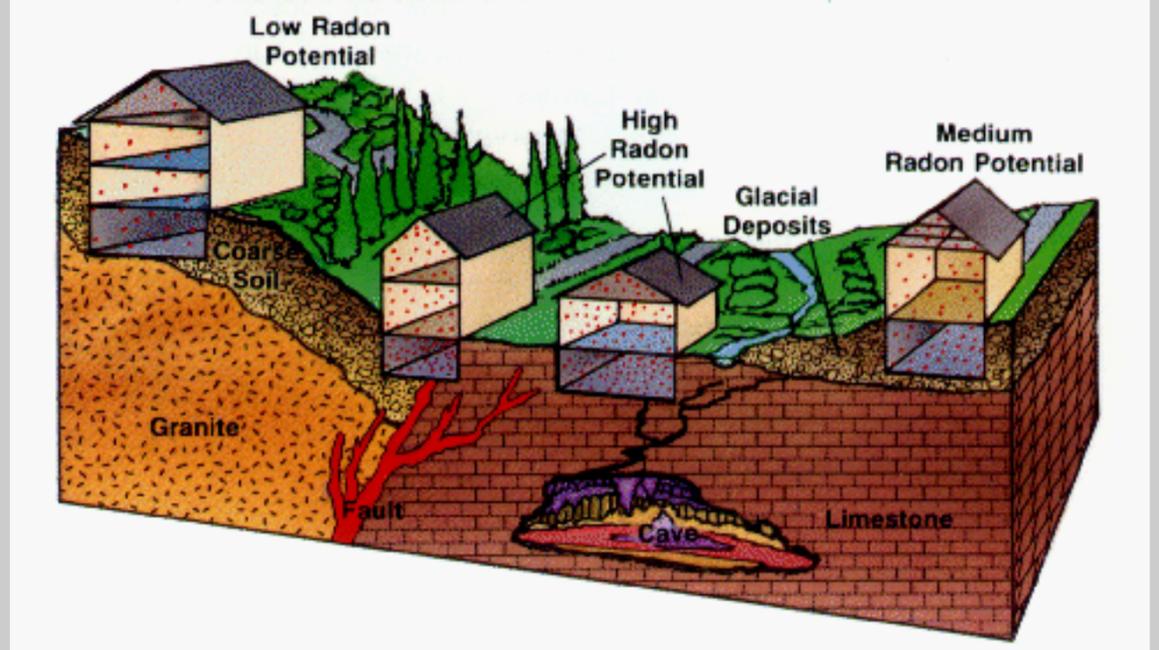
FROM GROUND TO YOU

Radon Potential

By evaluating the geology in an area, scientists can evaluate the radon potential of the rocks and soils at housing sites or other areas of interest. The factors listed below can increase the probability that an area will have above-average levels of radon.

1. Uranium-rich rocks underlie the area.

2. The site is located on a hill or slope.
3. Soils are well drained or dry most of the time.
4. Soils form deep cracks during dry time of the year.
5. Highly permeable soils are present.
6. The soils are thin and bedrock is close to the surface.
7. Underlying rocks are fractured.
8. The underlying rock contains limestone caverns.
9. High levels of indoor radon have been reported in the county or neighborhood.



Radon from Ground to Home

Radon moving through soil near the earth's surface usually escapes into the atmosphere, although some of it may seep into our homes through construction joints, cracks in the foundation, or the water supply. Even if the soil air contains only moderate levels of radon, concentrations inside houses may be high.

The U.S. Environmental Protection Agency's action level (the level at which steps should be taken to reduce radon) is 4 picocuries per liter of air (pCi/L). About 1 out of every 15 houses in the U.S. has radon levels exceeding the recommended action level.

The only way to know if you have a radon problem is to test. [Click here to learn more about how to test for radon.](#)

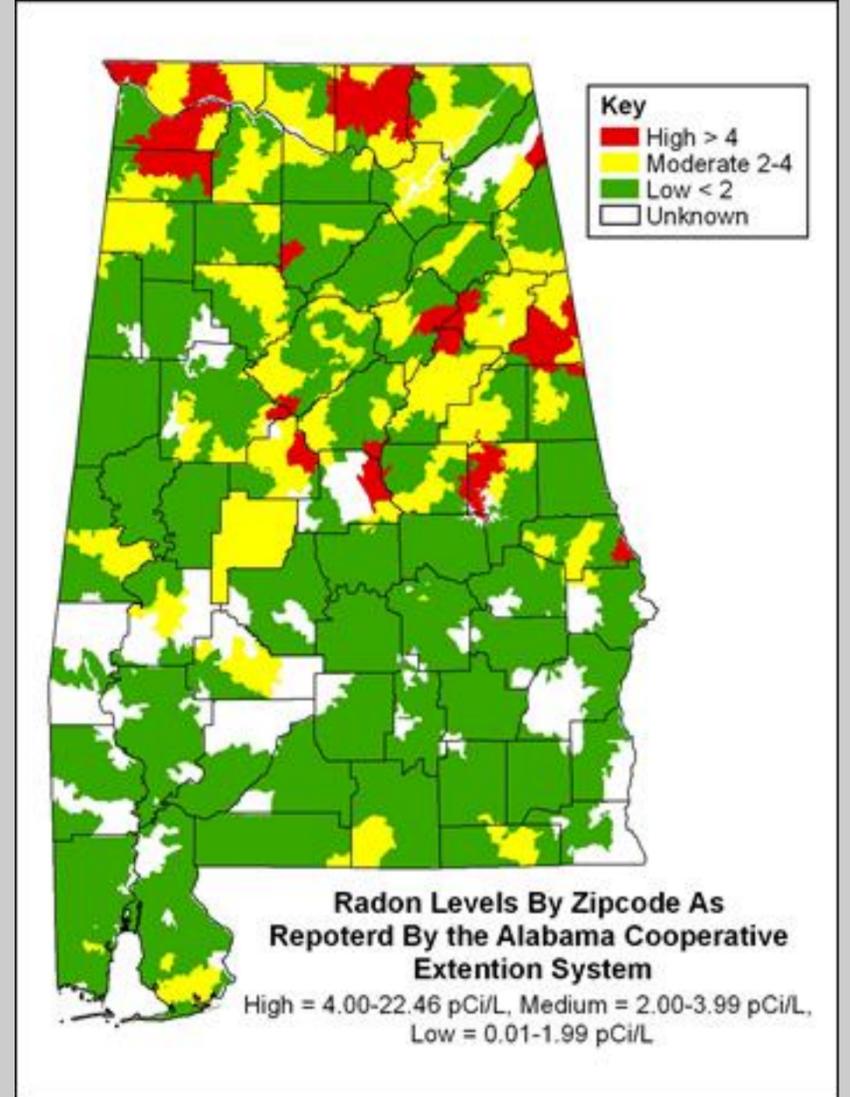
RADON IN ALABAMA

Radioactive Geology

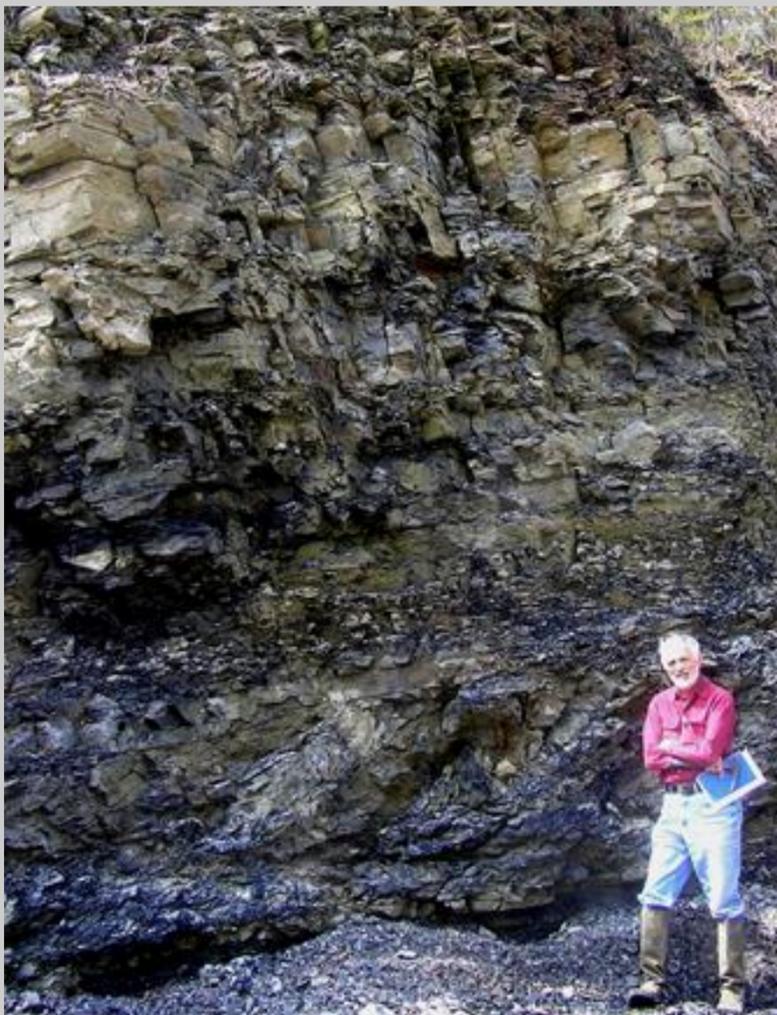
In Alabama, areas that have higher uranium concentrations include the Appalachian Mountains, the Cumberland Plateau, and the inner Gulf Coastal Plain. Faults in granite and shale in the Appalachians contain elevated uranium. The inner Coastal Plain units contain sands with glauconite, a clay mineral high in uranium. Karst areas in north Alabama overlie the Chattanooga Shale Formation which contains a high level of uranium. In the map to the right, you can see the levels of radon are also correlated with these higher uranium areas.



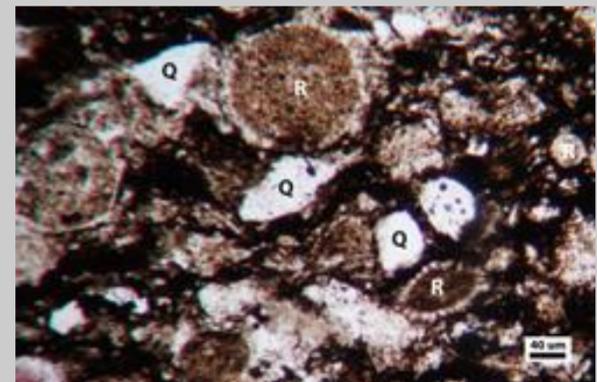
The most radioactive geologic unit in Alabama is the Upper Devonian age Chattanooga Shale formation (above). The Chattanooga Shale is a brownish-black to grayish-black silty, organic shale and fine grain sandstone. Outcrops of this unit occur in the northern and eastern parts of the Plateaus and in the Valley and Ridge. Roadcut exposure of Chattanooga Shale (black layer) near Goose Pond in Jackson County, Alabama.



To see radon test results for your county, [click here](#).



Geological Survey of Alabama geologist by an outcrop of Chattanooga Shale near Duck Springs in Etowah County, Alabama. Related information on the research conducted in relation to this photo can be found in "Geological foundation for production of natural gas from diverse shale formations" by J. C. Pashin, D. C. Kopaska-Merkel, A. C. Arnold, and M. R. McIntyre, (2011), Research Partnership to Secure Energy for America (RPSEA) Final Report 07122.17.01.



Chattanooga Shale as seen through the microscope. To examine the tiny particles that make up the shale, a sample of rock is glued to a microscope slide and ground down until thin enough to pass light through it in order to see the individual mineral grains. Q = quartz, R = radiolarians (a type of marine microfossil). Black areas are matrix that contains a fine residue of uranium. This sample was taken from the outcrop pictured to the left.

Recently, there has been concern over radon from granite countertops. Some granite may contain radioactive elements such as uranium, thorium, and potassium. While most granite contains only traces of these elements and the amount of radiation is at background levels, some granites can have higher levels. To read more about **granite countertops' associated radon**, [click here](#) to see a short report by the Alabama Department of Public Health.

ADDITIONAL INFORMATION

Testing for Radon in Your Home

There are many kinds of inexpensive, do-it-yourself radon test kits available through the mail and in hardware stores and other retail outlets. Be sure to buy a kit that is approved by the U.S. Environmental Protection Agency (USEPA). Short-term tests may take as little as 2 days and are generally performed in the lowest level of the home.

To read more information on radon and radon in Alabama, click the links below to the USEPA and U.S. Geological Survey.

<http://www.epa.gov/radon/index.html>

<http://www.epa.gov/radon/states/alabama.html>

<http://energy.cr.usgs.gov/radon/radonhome.html>

[Sinkholes](#)

[Earthquakes](#)

[Landslides](#)

[Radon](#)

[Disaster
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[Geohazard
News](#)

[Geospatial Data](#)

[Geological Hazards Home](#)



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