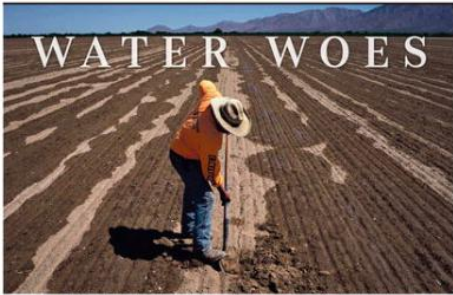




## Arizona Rocks 79

Text and photos by Ray Grant

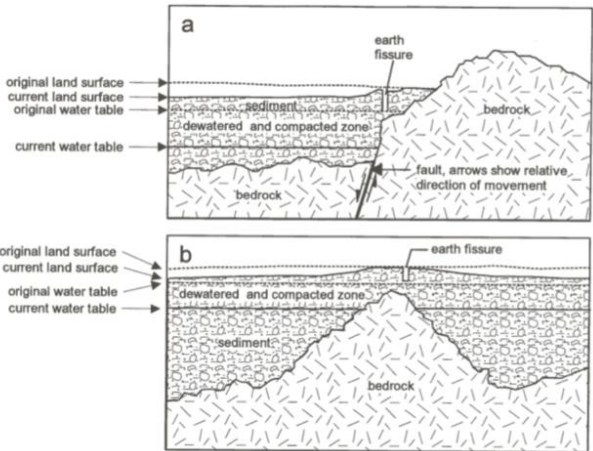
There has been a lot in the news lately about water in Arizona, see Arizona Republic of December 15. This was a long article about over pumping of ground water and lowering the water table. It does not mention a side effect.



In areas where unlimited pumping is allowed, farms are drilling deep wells and groundwater levels are dropping

The lowering of the water table causes the ground surface to drop and at some locations, earth fissures to open up. As the water is removed the loss of the upward buoyant force of the water allows the sediments to compress. In some places the surface has gone down more than 20 feet and this can be a problem for water flow. In heavy rains water can flood new lower areas that did not flood previously. Also at some locations where the bedrock is close to the surface, earth fissures, cracks, can form.

The Arizona Geological Survey has been very active studying earth fissures and has a lot of information on their website ([azgs.arizona.edu](http://azgs.arizona.edu), then go to Center for Natural Hazards). From there you can go to reports and maps of specific areas. When I was teaching, I would take my environmental geology classes on field trips to the earth fissures to show the unintended effect of people's activities. The fissures can be spectacular as erosion widens and deepens them and they can cause damage to roads and buildings.



Some of the places where each fissures can form, from Arizona Geological Survey, Down to Earth Series 3, Land Subsidence and Earth Fissures in Arizona, 1993



Earth Fissure near Apache Junction in 1976 soon after it opened, over time people fill them in or nature erodes them and they slowly fill up.



Earth Fissure in Chandler Heights in 1978, it is some years old and eroding. Unfortunately, people used the fissure as a trash disposal site (Chandler Heights).