

Water is on and in the Earth



Ground water seeps to the surface the day after a storm.

The vast majority of water on the Earth's surface, over 96 percent, is [saline](#) water in the oceans. The freshwater resources, such as water falling from the skies and moving into streams, rivers, lakes, and groundwater, provide people with the water they need every day to live. Water sitting on the surface of the Earth is easy to visualize, and your view of the water cycle might be that rainfall fills up the [rivers](#) and [lakes](#). But, the unseen water below our feet is critically important to life, also. How would you account for the flow in rivers after weeks without rain? In fact, how would you account for the water flowing down this driveway on a day when it didn't rain? The answer is that there is more to our water supply than just surface water, there is also plenty of water beneath our feet.

Even though you may only notice water on the Earth's surface, there [is much more freshwater stored in the ground](#) than there is in liquid form on the surface. In fact, some of the water you see flowing in rivers comes from seepage of groundwater into river beds. Water from precipitation continually seeps into the ground to recharge the [aquifers](#), while at the same time water in the ground continually recharges rivers through seepage.

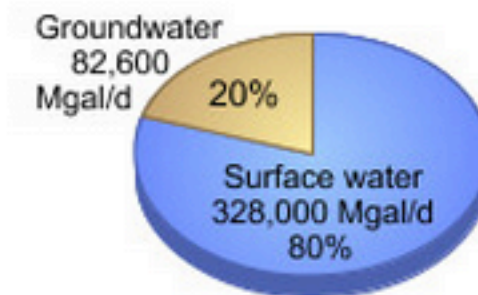
Humans are happy this happens because people make use of both kinds of water. In the United States in 2005, we used about 328 billion gallons per day of [surface water](#) and about 82.6 billion gallons per day of [groundwater](#). Although surface water is used more to supply drinking water and to irrigate crops, groundwater is vital in that it not only helps to keep rivers and lakes full, it also provides water for people in places where visible water is scarce, such as in the desert towns of the western United States. Without groundwater, people would be sand-surfing in Palm Springs, California instead of playing golf.

Just how much water is there on (and in) the Earth? Here are some numbers you can think about:

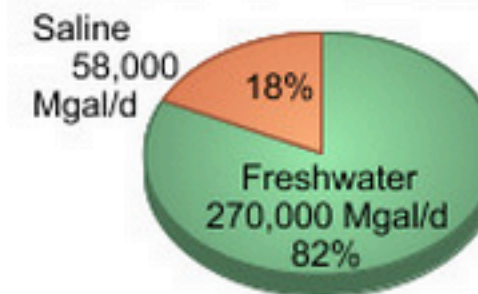
- If all of Earth's water (oceans, icecaps and glaciers, lakes, rivers, groundwater, and water in the atmosphere) was put into a sphere, then the diameter of that water ball would be about 860 miles (about 1,385 kilometers), a bit more than the distance between Salt Lake City, Utah to Topeka, Kansas. The volume of all water would be about 332.5 million cubic miles (mi^3), or 1,386 million cubic kilometers (km^3). A cubic mile of water equals more than 1.1 trillion gallons. A cubic kilometer of water equals about 264 billion gallons.
- About $3,100 \text{ mi}^3$ ($12,900 \text{ km}^3$) of water, mostly in the form of water vapor, is in the atmosphere at any one time. If it all fell as precipitation at once, the Earth would be covered with only about 1 inch of water.
- The 48 contiguous United States receives a total volume of about 4 mi^3 (17.7 km^3) of precipitation each day.
- Each day, 280 mi^3 ($1,170 \text{ km}^3$) of water [evaporate](#) or [transpire](#) into the atmosphere.
- If all of the world's water was poured on the contiguous (lower 48 states) United States, it would cover the land to a depth of about 107 miles (145 kilometers).
- Of the freshwater on Earth, much more is stored in the ground than is available in [lakes](#) and [rivers](#). More than $2,000,000 \text{ mi}^3$ ($8,400,000 \text{ km}^3$) of freshwater is stored in the Earth, most within one-half mile of the surface. But, if you really want to find freshwater, the most is stored in the $7,000,000 \text{ mi}^3$ ($29,200,000 \text{ km}^3$) of water found in [glaciers and icecaps](#), mainly in the polar regions and in Greenland.

Kentucky, 169.5 miles in diameter), and (3) Fresh-water lakes and rivers (sphere over Georgia, 34.9 miles in diameter). Credit: [Howard Perlman](#), USGS; globe illustration by [Jack Cook](#), Woods Hole Oceanographic Institution (©); [Adam Nieman](#).
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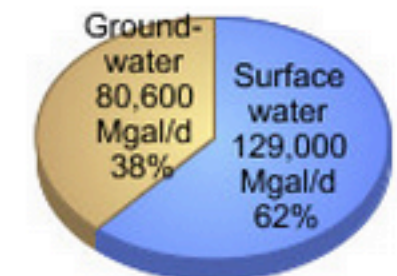
Total water withdrawals, 2005



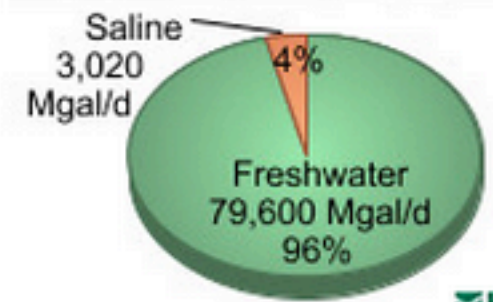
Surface-water withdrawals, 2005



Total water withdrawals, 2005 (excluding thermoelectric)



Groundwater withdrawals, 2005



USGS