

## Where is Earth's water located?

Yep, the Earth is doing a balancing act with its water!

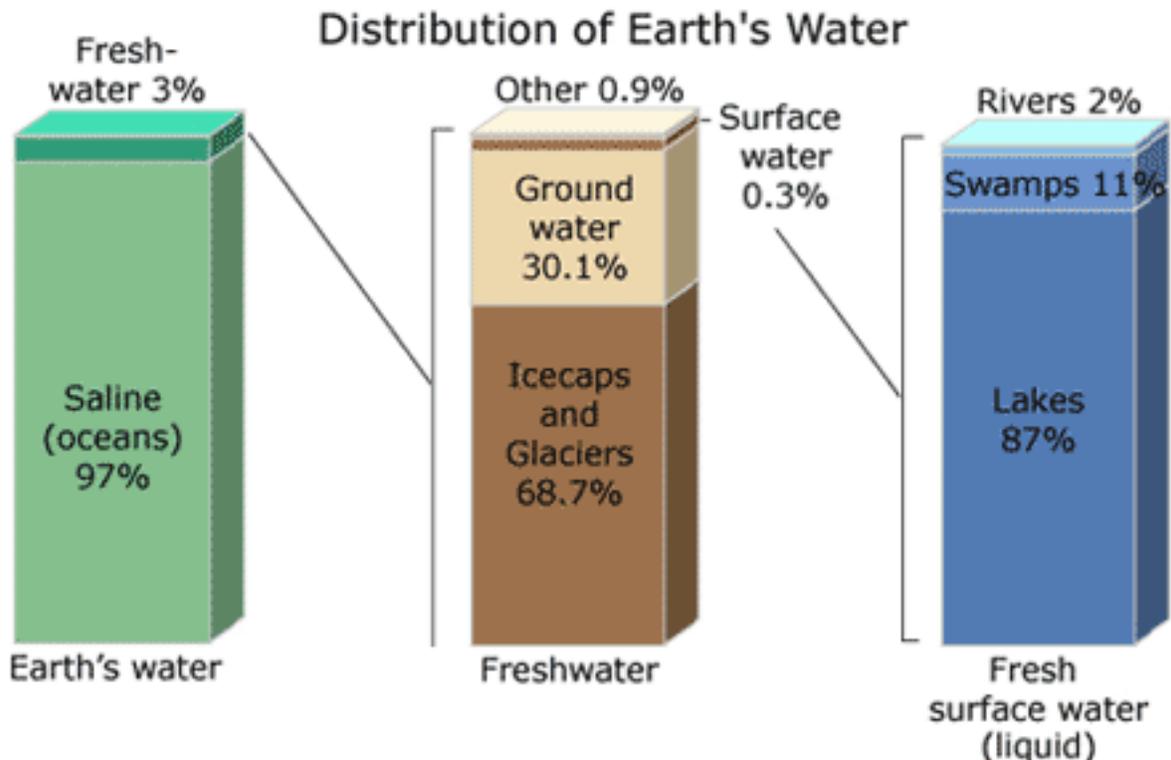


Water is continually moving around, through, and above the Earth as water vapor, liquid water, and ice. In fact, water is continually changing its form. The Earth is pretty much a "closed system," like a terrarium. That means that the Earth neither, as a whole, gains nor loses much matter, including water. Although some matter, such as meteors from outer space, are captured by Earth, very little of Earth's substances escape into outer space. This is certainly true about water. This means that the same water that existed on Earth millions of years ago is still here. Thanks to the water cycle (view a graphic of the water cycle), the same water is continually being recycled all around the globe. It is entirely possible that the water you drank for lunch was once used by Mama Alosaurus to give her baby a bath.

By the way, there is a theory that much of Earth's water came from comets hitting the planet over billions of years.

### Water on and in the Earth

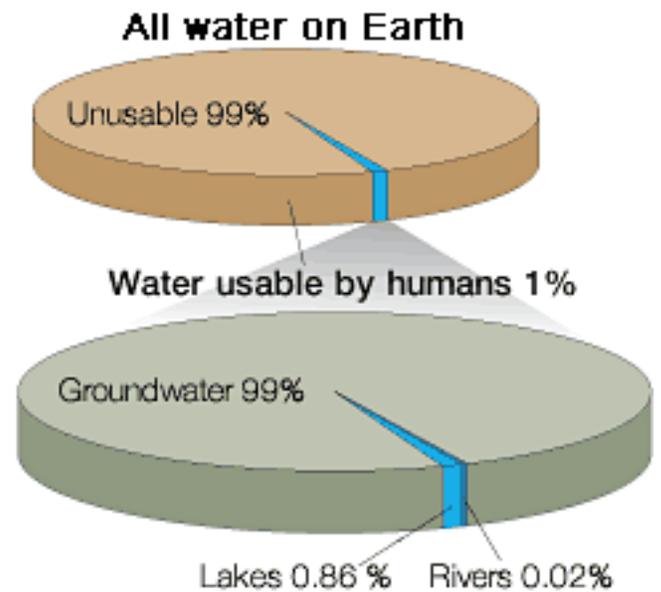
Where is Earth's water located and in what forms does it exist? You can see how water is distributed by viewing these bar charts. The left-side bar shows where the water on Earth exists; about 97 percent of all water is in the oceans. The middle bar shows the distribution of that three percent of all Earth's water that is freshwater. The majority, about 69 percent, is locked up in glaciers and icecaps, mainly in Greenland and Antarctica. You might be surprised that of the remaining freshwater, almost all of it is below your feet, as ground water. No matter where on Earth you are standing, chances are that, at some depth, the ground below you is saturated with water. Of all the freshwater on Earth, only about 0.3 percent is contained in rivers and lakes—yet rivers and lakes are not only the water we are most familiar with, it is also where most of the water we use in our everyday lives exists.



How much of Earth's water is available for our uses ... and in what forms does it exist? You can best see how water is distributed by viewing these pie charts:

The top pie chart shows that over 99 percent of all water (oceans, seas, ice, most saline water, and atmospheric water) is not available for our uses. And even of the remaining fraction of one percent (the small brown slice in the top pie chart), much of that is out of reach. Considering that most of the water we use in everyday life comes from rivers (the small dark blue slice in the bottom pie chart), you'll see we generally only make use of a tiny portion of the available water supplies. The bottom pie shows that the vast majority of the fresh water available for our uses is stored in the ground (the large grey slice in the second pie chart).

For a detailed explanation of where Earth's water is, look at the data table below. Notice how of the world's total water supply of about 332.5 million cubic miles (1,386 million cubic kilometers) of water, over 96 percent is saline. And, of the total freshwater, over 68 percent is locked up in ice and glaciers. Thus, surface-water sources (such as rivers) only constitute about 22,300 cubic miles (93,100 cubic kilometers), which is about 0.0067 percent of total water, yet rivers are the source of most of the water people use.



Water source	Water volume, in cubic miles	Water volume, in cubic kilometers	Percent of fresh water	Percent of total water
Oceans, Seas, & Bays	321,000,000	1,338,000,000	--	96.5
Ice caps, Glaciers, & Permanent Snow	5,773,000	24,064,000	68.7	1.74
Groundwater	5,614,000	23,400,000	--	1.7
Fresh	2,526,000	10,530,000	30.1	0.76
Saline	3,088,000	12,870,000	--	0.94
Soil Moisture	3,959	16,500	0.05	0.001
Ground Ice & Permafrost	71,970	300,000	0.86	0.022
Lakes	42,320	176,400	--	0.013
Fresh	21,830	91,000	0.26	0.007
Saline	20,490	85,400	--	0.006
Atmosphere	3,095	12,900	0.04	0.001
Swamp Water	2,752	11,470	0.03	0.0008
Rivers	509	2,120	0.006	0.0002
Biological Water	269	1,120	0.003	0.0001
<b>Total</b>	<b>332,500,000</b>	<b>1,386,000,000</b>	<b>-</b>	<b>100</b>

Source: Gleick, P. H., 1996: Water resources. In Encyclopedia of Climate and Weather, ed. by S. H. Schneider, Oxford University Press, New York, vol. 2, pp.817-823.