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EDITORIAL

How much water is in prison in our world?

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The hydrological cycle describes the continuous movement of water above and below the Earth's surface. This cycle includes the journey of water from the oceans and seas to the atmosphere, from the atmosphere to the Earth's surface, and back to the seas and oceans. This term reflects the fact that Earth's water resources neither increase nor decrease over time. Is the hydrological cycle sustainable today? Could it be delayed due to unnatural processes?

About 97.5% of the total amount of water in the world is found in oceans, as salt water. A large part of the remaining 2.5% is trapped as fresh water in groundwater and glaciers. 68% of this fresh water is found in glaciers and glaciel areas, 30% in groundwater, and 0.3% in lakes and rivers. In other words, most of the fresh water on the planet is inaccessible to us. Nature is the source of water; therefore our ability to support additional human lives on planet Earth depends upon the protection of nature and the continued operation of the water cycle (Hunt 2004).

Can water in prison be expressed, especially water trapped in groundwater and glaciers or is it more accurate to express it as a reserve? If these sources are inaccessible, the amount of directly usable fresh water is quite low. For example, only 0.3% of the usable fresh water on Earth is found in lakes, rivers and the atmosphere. But doesn't this water enter the hydrological circulation? Yes, water sources, such as groundwater and glaciers, enter hydrological circulation, but this process is very slow and in some cases takes an extremely long time. The hydrological cycle is a system in which water constantly moves in the atmosphere, on the ground, and in underground reservoirs (Linton, J. 2008). However, the speeds at which groundwater and glaciers enter the hydrological cycle are different. For example, groundwater is formed when rainwater filters through the ground surface and passes underground. This water is stored in underground aquifers, where it moves more slowly than other water sources in the hydrological cycle. Glaciers store most of the water in frozen form (Scanlon et al., 2023). Over time, this water melts especially with climate change and temperature increases, becomes liquid and participates in the hydrological cycle. The water formed by the melting of glaciers usually reaches the oceans through groundwater or rivers. However, this process may take many years.

Although groundwater and glaciers are included in the hydrological cycle, their access and the speed at which they participate in the cycle are limited. Therefore, these resources may generally be considered "reserves", and it takes a very long time for them to be included in the water cycle. Is it possible to measure this speed? Is it related to climate change and global warming?

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The rate of glacier melting varies depending on climatic factors, especially temperature increase and precipitation. Glacier melting may be monitored by processes, such as glacier mass loss and the inclusion of meltwater in the hydrological cycle. Satellite and aerial photographs and Glacier Monitoring Stations are used to measure the rate of glacier melting (Scanlon et al., 2023).

Climate change may alter precipitation patterns. For example, more precipitation can increase the rate of groundwater renewal in some regions. However, increasing temperatures and greater evaporation may also reduce water resources. In addition, extreme droughts may negatively affect the rate of groundwater renewal. Global warming directly affects the rate at which glaciers melt. Rising temperatures accelerate the rate at which glaciers melt, allowing more freshwater to flow into rivers and oceans. This process raises sea levels and alters local ecosystems. Glacial melt may also have an impact on groundwater levels. Melted glacier water may recharge groundwater reservoirs, but only in certain areas (Kuang et al., 2024). For example, when glaciers in mountainous areas melt, they may seep into the ground, increasing groundwater levels.

The rate at which both groundwater and glaciers participate in the hydrological cycle may be approximated and monitored by various methods. However, since these processes are very slow, long-term observations are required to understand their effects. Climate change and global warming may accelerate these processes, and could have significant effects, especially in terms of melting glaciers and changes in the groundwater cycle. Therefore, climate change may affect the accessibility and distribution of these resources, making water resource management extremely difficult (Douville et al., 2022; Kuang et al., 2024).

However, what we really want to emphasize in this article concerns “liquids in bottles that are discarded”, this is a different issues and concerns every individual and whose use has increased relatively in the last 100 years and continues to do so. Changing this practice is the responsibility of every individual.

When we were about to throw away the last quarter liter of drinks, we realized that there was liquid in them (like fresh water and cola in plastic bottles). What should we do? We poured the fresh water into the flowers and the cola into the sink. We could estimate how long that water would remain trapped in plastic bottles. About 200 years. We have always paid attention to this since then, if it becomes more widespread, it will affect all foods containing liquid. Ice left in cold drinks, water wasted with meals... We got very interesting answers when we asked our students. What do you do with the liquids left in plastic bottles? Some give them to aquariums, some to flowers. We ask in the restaurants we go to... what do you do? By the way, how much water or liquid is currently bottled in the world and not in the natural cycle? This is also a subject that needs to be investigated... Another research question could be plastic contamination of the water waiting in plastic bottles... Is it possible to stop using plastic? If not, shouldn't we limit it or be careful?

The total number of people who have lived (and continue to live) in the last 100 years is ~100-110 billion individuals (8.2 billion of them are still alive). How many of these individuals discard plastic bottles containing potable water? Moreover, plastic, which has entered human society in recent years, has another negative effect on natüre, i.e. the lack of decomposition These plastic bottles trap potable water. The question to be answered concerns how much water a person may waste by entrapment in plastic bottles throughout their lifespan? The answer is likely to be a staggering amount!Isn't throwing water in the trash a temporary interruption to the water cycle? Which is more important - freeing water or recycling plastic bottles.

Come on, let's recycle plastic bottles from now on, and free the water inside them to nature.

Our environment needs to be made aware of the sustainable use of water, one of the basic resources of life Especially our water, which is used unconsciously, does not take place in the normal hydrological cycle and remains in plastic materials -the risk of contamination of microplastics to the water is another issue to be disscuss at this duration-, and it takes centuries for these materials to decompose in nature.

The primary element that needs to be planned is to raise awareness of the importance of water in children starting from their basic education, and the state needs to educate the public on this issue with encouraging meetings. Both scientific and educational meetings should be organized on the fact that water is a necessary element not only for humans but also for all living things around us and the ecological order of the world.

Water is life. Let's protect our lives.

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