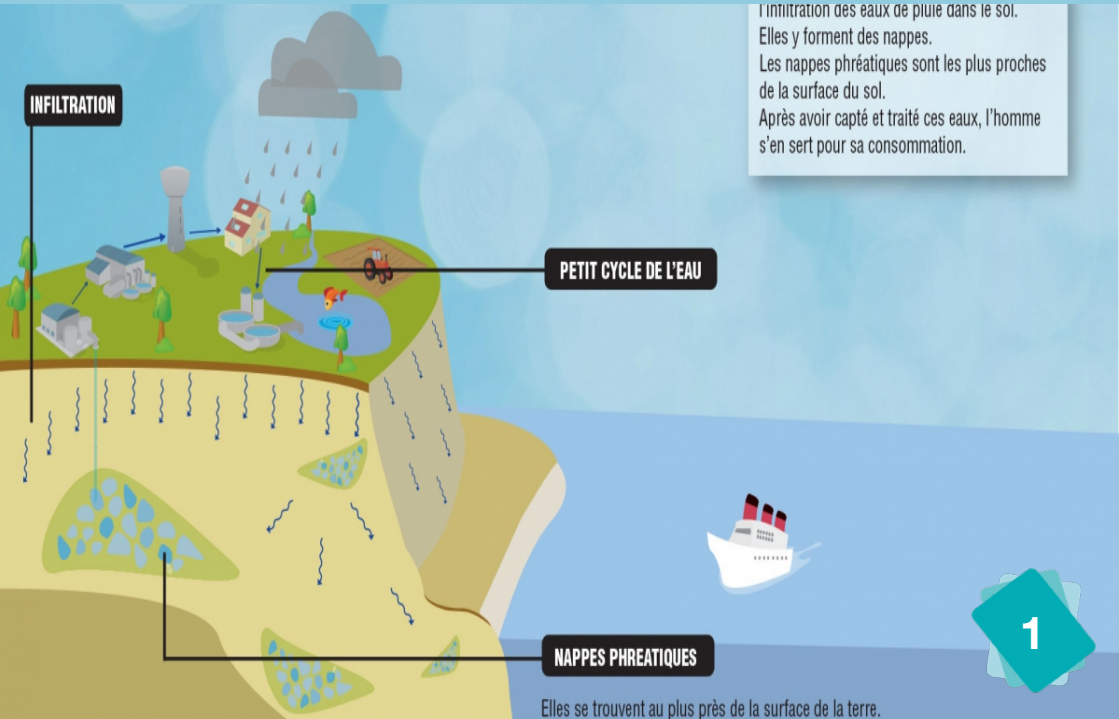
OVER-EXPLOITATION OF AQUIFERS

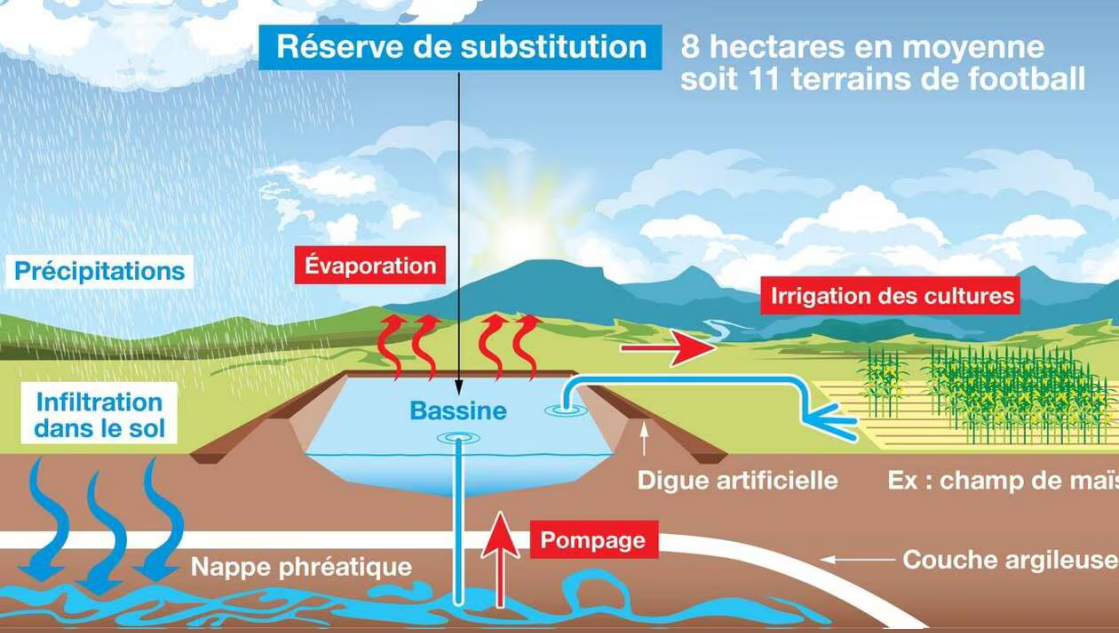


l'infiltration des eaux de pluie dans le sol.
Elles y forment des nappes.
Les nappes phréatiques sont les plus proches de la surface du sol.
Après avoir capté et traité ces eaux, l'homme s'en sert pour sa consommation.

Elles se trouvent au plus près de la surface de la terre.

1

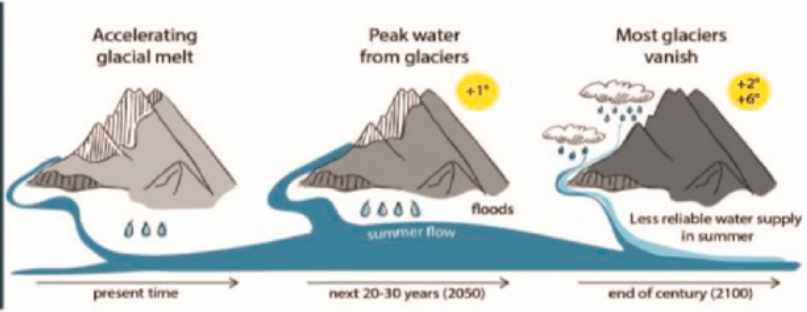
About 95% of Earth's liquid freshwater is stored in aquifers.
However, in some regions, annual extractions can reach 50% or even 100% of the natural recharge!
Such over-exploitation prevents their replenishment and leads to gradual, sometimes irreversible, depletion.



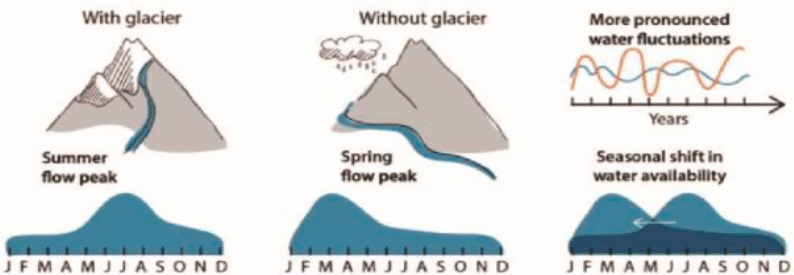
MEGABASIN AND WATER USE CONFLICTS

Mega-bassins store winter water from aquifers for summer irrigation.
While presented as a solution to climate change, they raise ecological (evaporation, disruption of aquifers) and social (water privatization for crops sometimes unsuitable for the local climate) tensions.
The debate focuses on agricultural adaptation, environmental justice, and collective resource management.

Water flow increases with glacial melting, then declines when the glaciers are gone.

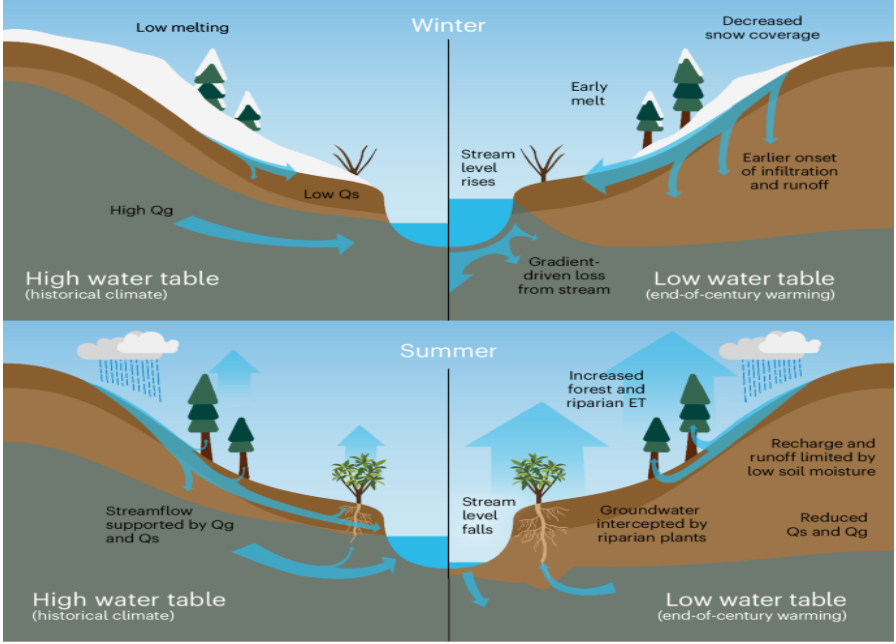


As glaciers retreat, the water flow peak shifts from summer to spring.



MELTING GLACIERS AND FRESHWATER SUPPLY

Glaciers, vital freshwater reservoirs, are melting rapidly due to global warming, disrupting river flow and aquifer recharge.
This threatens drinking water and irrigation supplies for millions.
Glacier melt also increases the risk of water shortages and conflicts in regions like the Himalayas and Alaska.



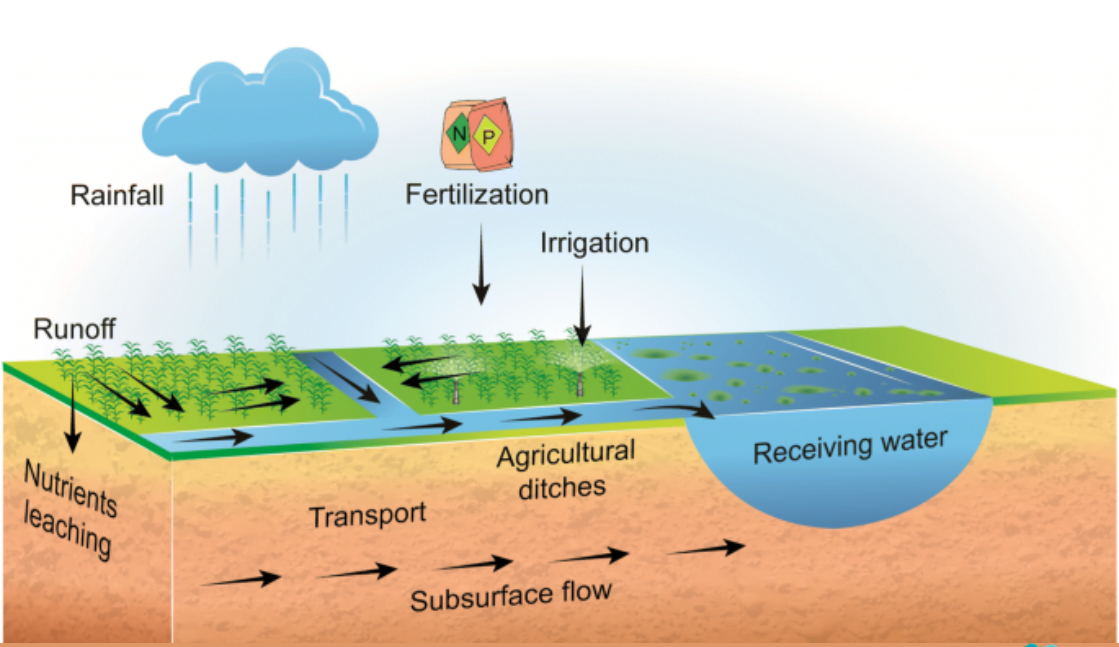
SURFACE WATER REDUCTION

Surface water reduction is seen in the significant decrease in river flows, particularly in summer, with reductions reaching up to 50% in some regions like the Southwest.
This threatens water availability for agriculture, industry, and drinking water, while aquatic ecosystems are disrupted and water quality deteriorates.

IMPACT ON HUMAN HEALTH

5

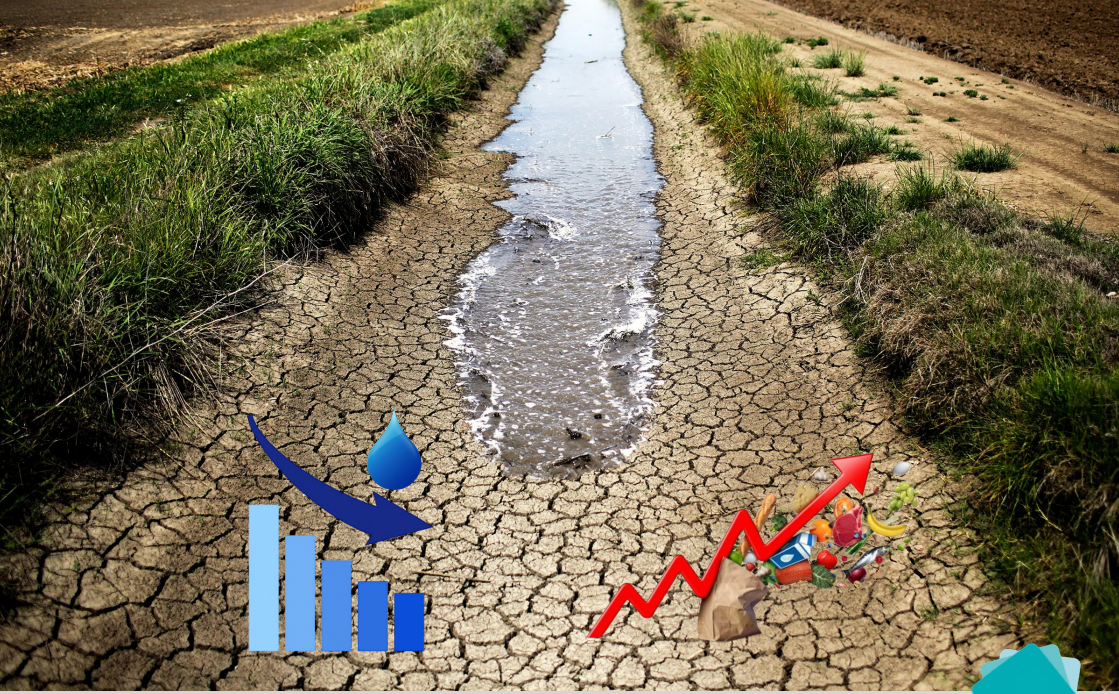
Agricultural pollution, particularly from nitrates and pesticides, contaminates aquifers and rivers, posing health risks such as cancers, digestive disorders, and hormonal issues.
Additionally, irrigating crops and feeding livestock with polluted water leads to bioaccumulation of pollutants in food, amplifying health risks for humans through the food chain.



AGRICULTURAL POLLUTION OF WATERS

Modern agriculture makes massive use of chemical fertilisers and pesticides to improve yields. Some of these substances are not absorbed by plants and reach water through infiltration into groundwater, surface run-off into rivers or underground drainage. They can also be dispersed through the air, via spray drift or the volatilisation of pesticides.

Pollution of these waters leads to the proliferation of algae (eutrophication), which depletes aquatic environments of oxygen and kills wildlife, as well as contaminating drinking water. Some pesticides are also defined a cancer-causing.



LACK OF WATER AND RISING FOOD PRICES

The lack of water due to drought, increased evaporation and overexploitation of groundwater is reducing agricultural yields.
This leads to a reduction in the resources produced by agriculture and therefore a reduction in the food supply.
This reduction will lead to a rise in prices, affecting food security, especially in already vulnerable regions.

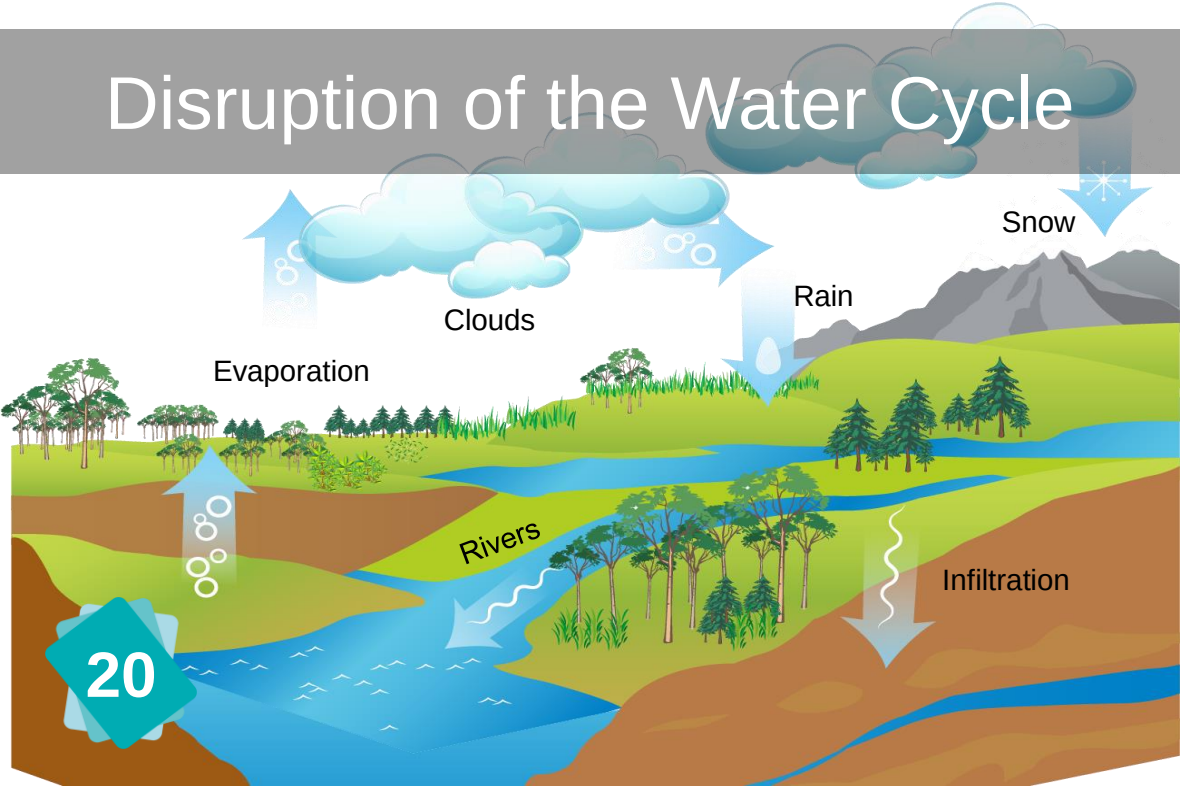
8

DETERIORATION IN THE QUALITY OF DRINKING WATER

Most drinking water comes from groundwater and surface water. But these sources are increasingly contaminated by agricultural (pesticides and nitrates), industrial and urban (wastewater, microplastics) pollution.

As a result of this pollution, the water becomes unfit for consumption without significant treatment, which generates costs for local authorities and limits access to healthy water, particularly for vulnerable populations. This pollution is therefore a major factor in health risks.

Disruption of the Water Cycle



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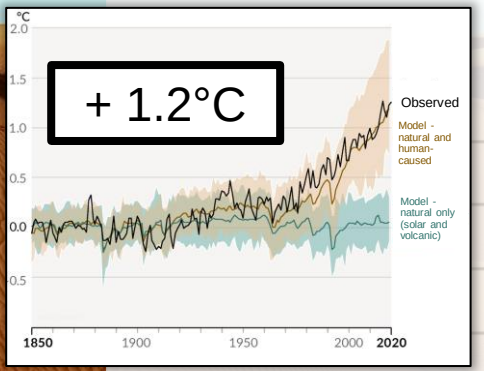
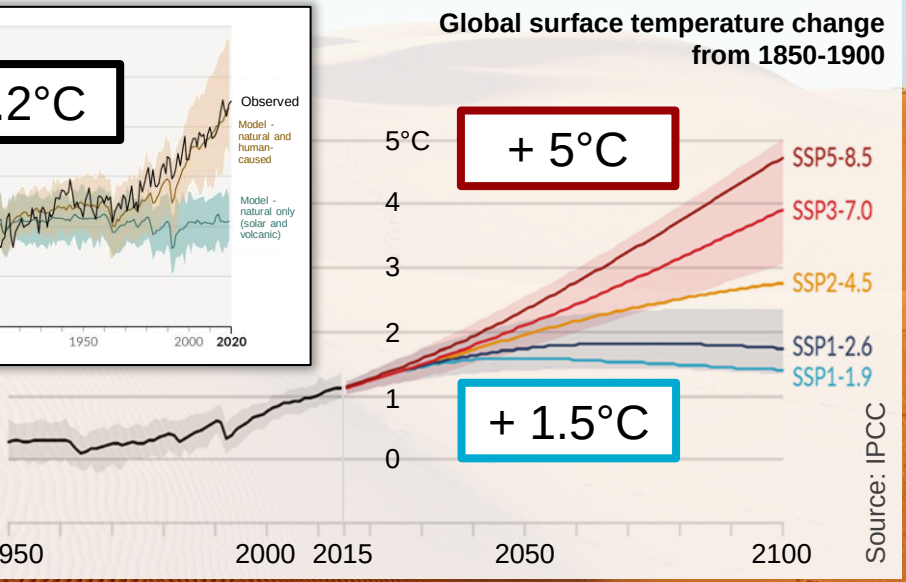
Hotter oceans and a hotter atmosphere lead to stronger evaporation, causing rainclouds and rainfall. Hotter land and a hotter atmosphere also lead to stronger evaporation, this time causing the ground to dry out.

Set 3

Rising Air Temperatures





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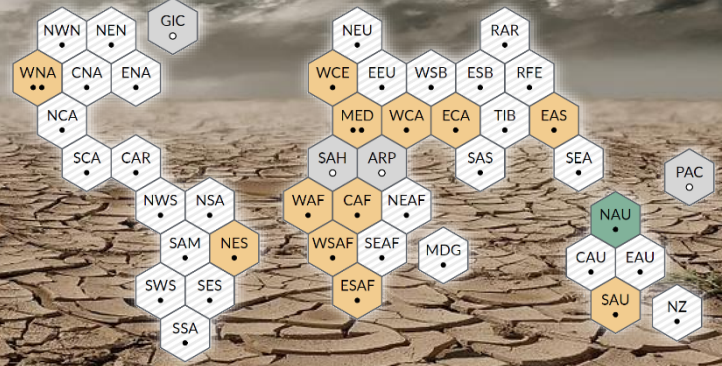
The average air temperature at the surface of the Earth has increased by 1.2°C since 1900. Future emission scenarios predict that this increase will reach between 2 and 5°C by 2100.
During the last ice age 20,000 years ago, the average air temperature was only 5°C lower than today and warming up took 10,000 years.

Set 1

Droughts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The disruption of the water cycle can both increase and decrease rainfall. A lack of rain can cause drought. Droughts are likely to become more frequent in the future.

Set 4

Freshwater Resources

31

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Freshwater resources are affected by changes in rainfall and by the melting of glaciers that regulate the flow of rivers.

Set 5