



# Hydrosphere

# Hydrologic cycle

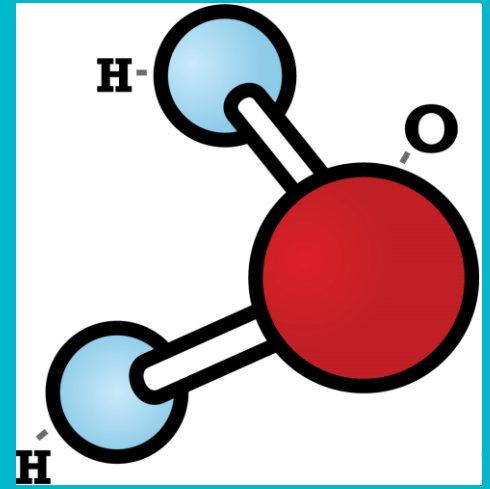


Veronika Říhová

- 1. What is water**
- 2. Water on Earth (Hydrosphere)**
- 3. Distribution of water**
- 4. Understanding the Hydrologic cycle  
and cycle components**
- 5. Why is so important?**

# 1. Water

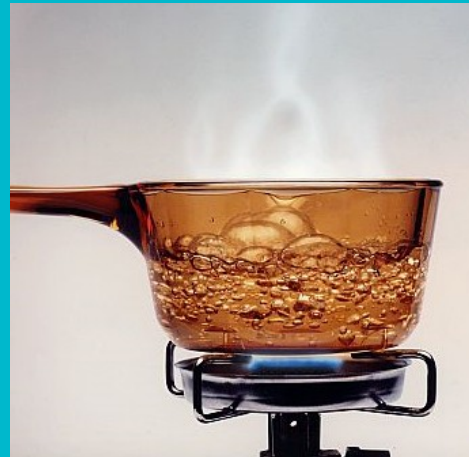
- two hydrogens to each oxygen atoms
- molecular formula  $H_2O$



- forms of water : solid, liquid, gaseous phase



0 C



>100 C

Earth is maybe the only planet where water exists as a liquid

Hydrology = the study of the waters of the Earth



## Water found on other planet :

- **Mercury** - 3.4% in the atmosphere, and large amounts of water in Mercury's exosphere
- **Venus** - 0.002% in the atmosphere
- **Mars** - 0.03% in the atmosphere
- **Jupiter** - 0.0004% in the atmosphere
- **Saturn** - in ices only

## 2. Water on Earth

HYDROSPHERE = „water sphere“

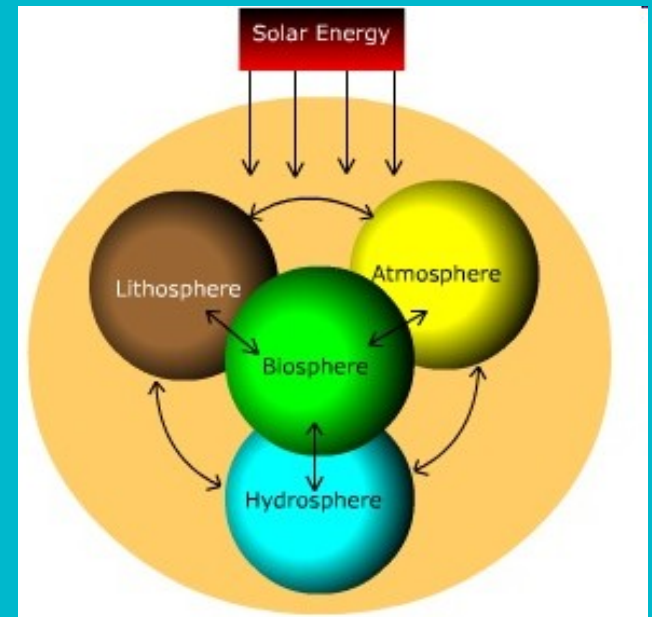
- all the earth's water (cca  $1,4 \cdot 10^9 \text{ km}^3$ )

About 70 % of surface is covered by water

„Blue planet“

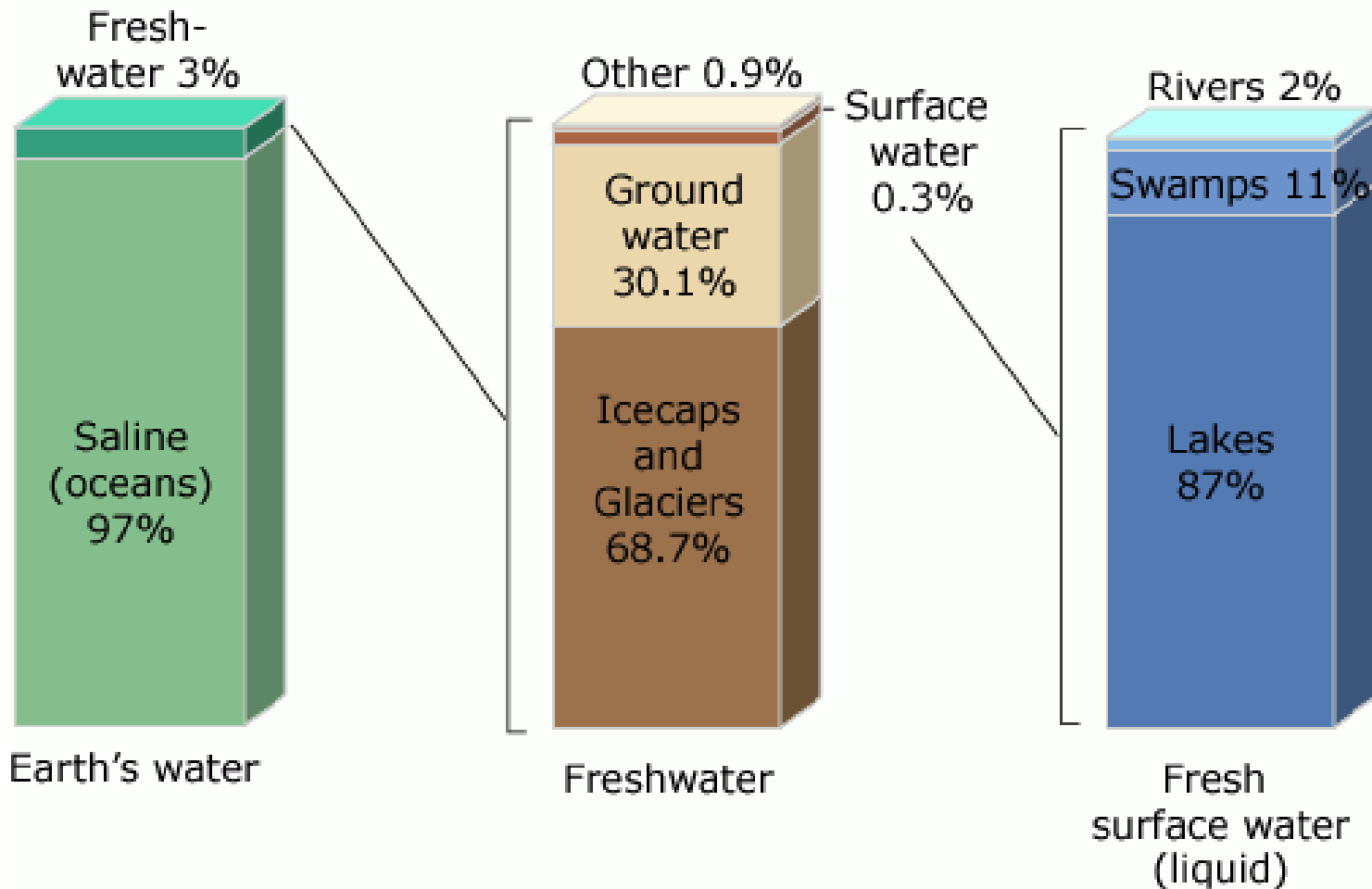


Hydrosphere interacts with,  
and is influenced by other  
spheres



# 3. Distribution of water

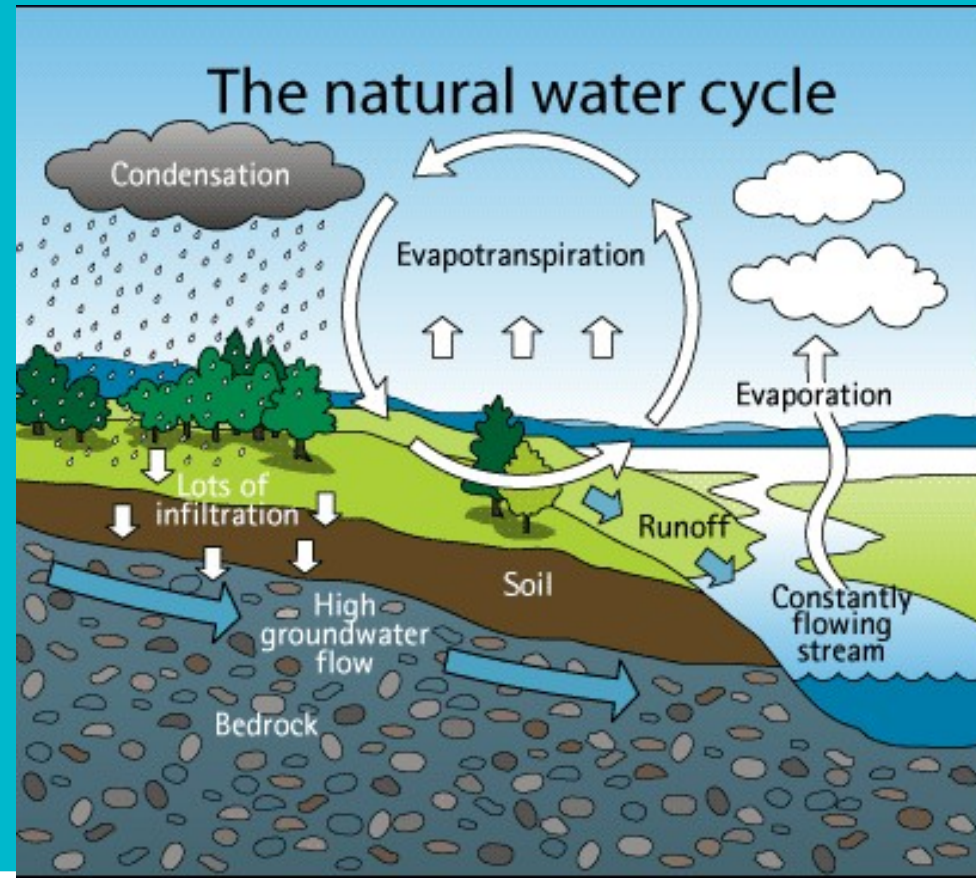
Distribution of Earth's Water



# 4. Hydrologic cycle – water cycle

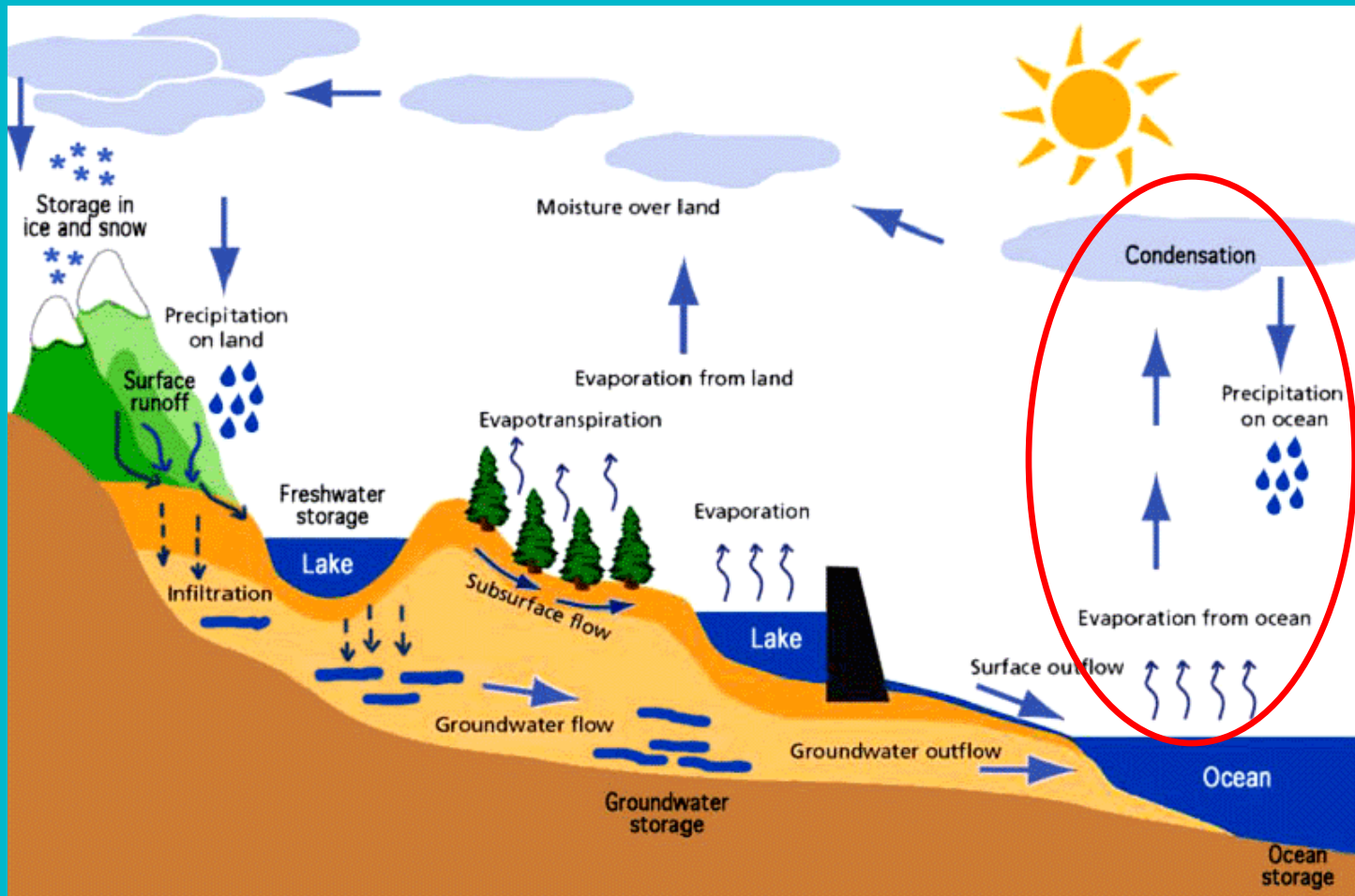
## Water-cycle components :

- precipitation
- evapotranspiration
- surface runoff
- subsurface runoff
- infiltration
- springs



# A. Evaporation and condensation

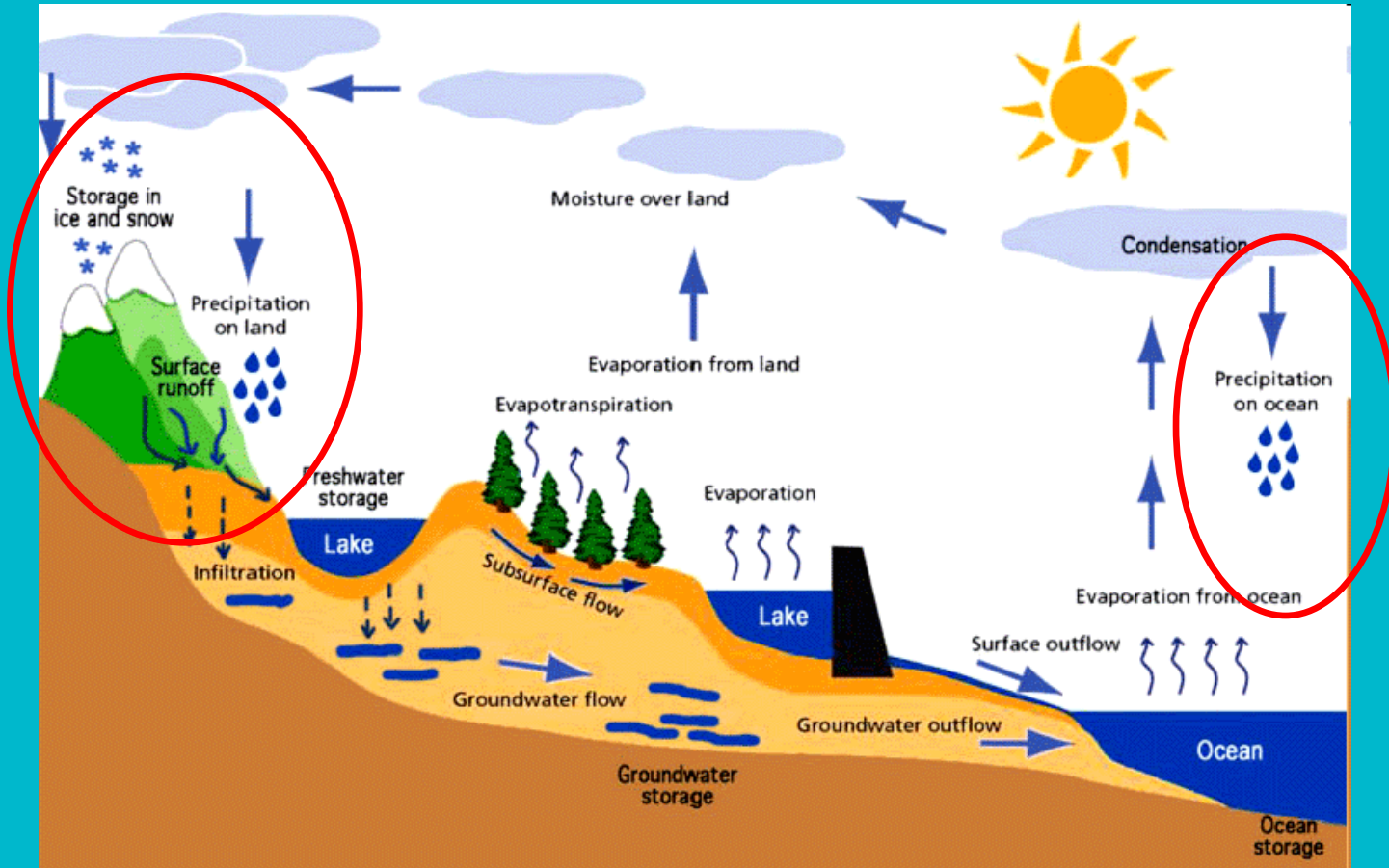
- water vapor condenses in the atmosphere to form clouds
- the sun's energy is necessary to power the cycle





# B. Precipitation

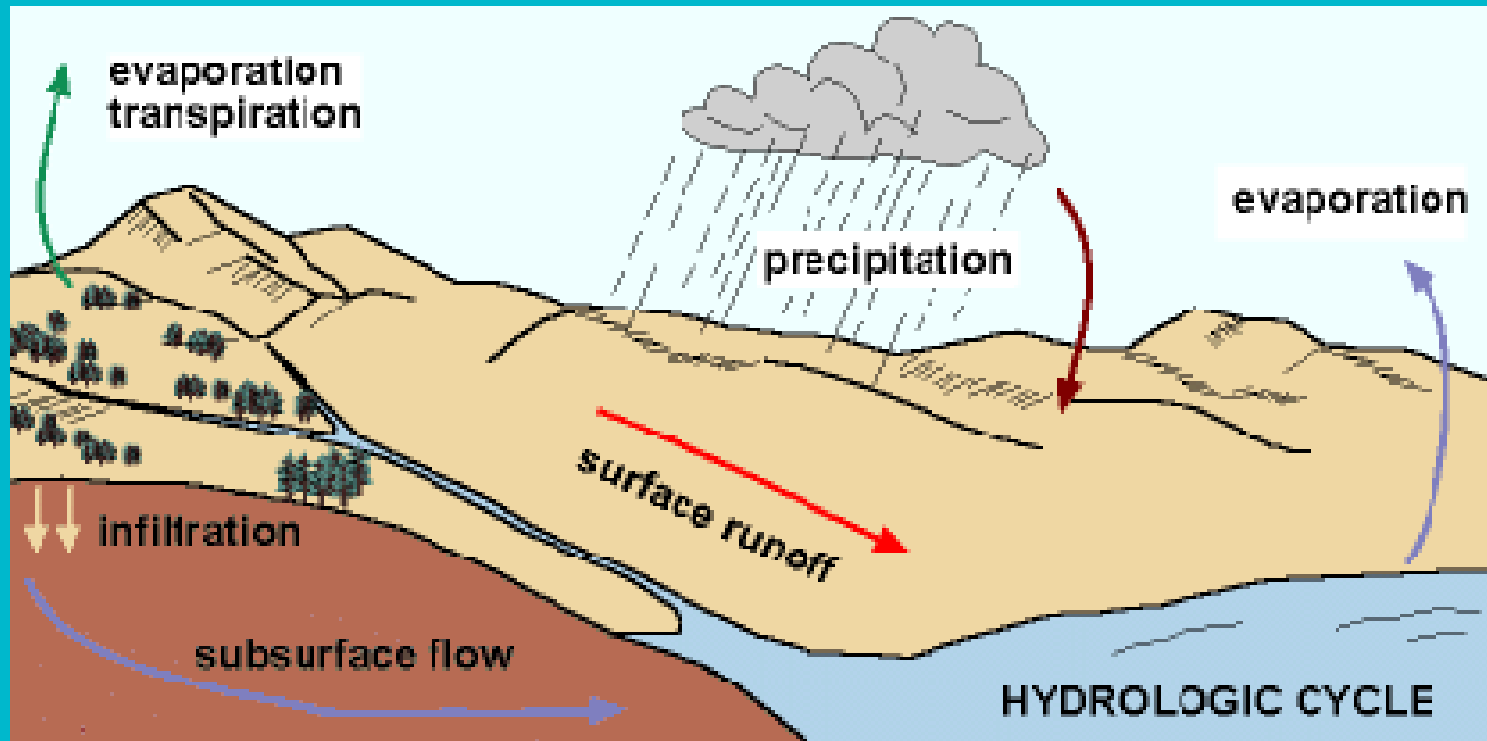
- can be : rain, snow, \*hail or \*\*sleet



*\*hail = kroupy, \*\*sleet = déšť se sněhem*

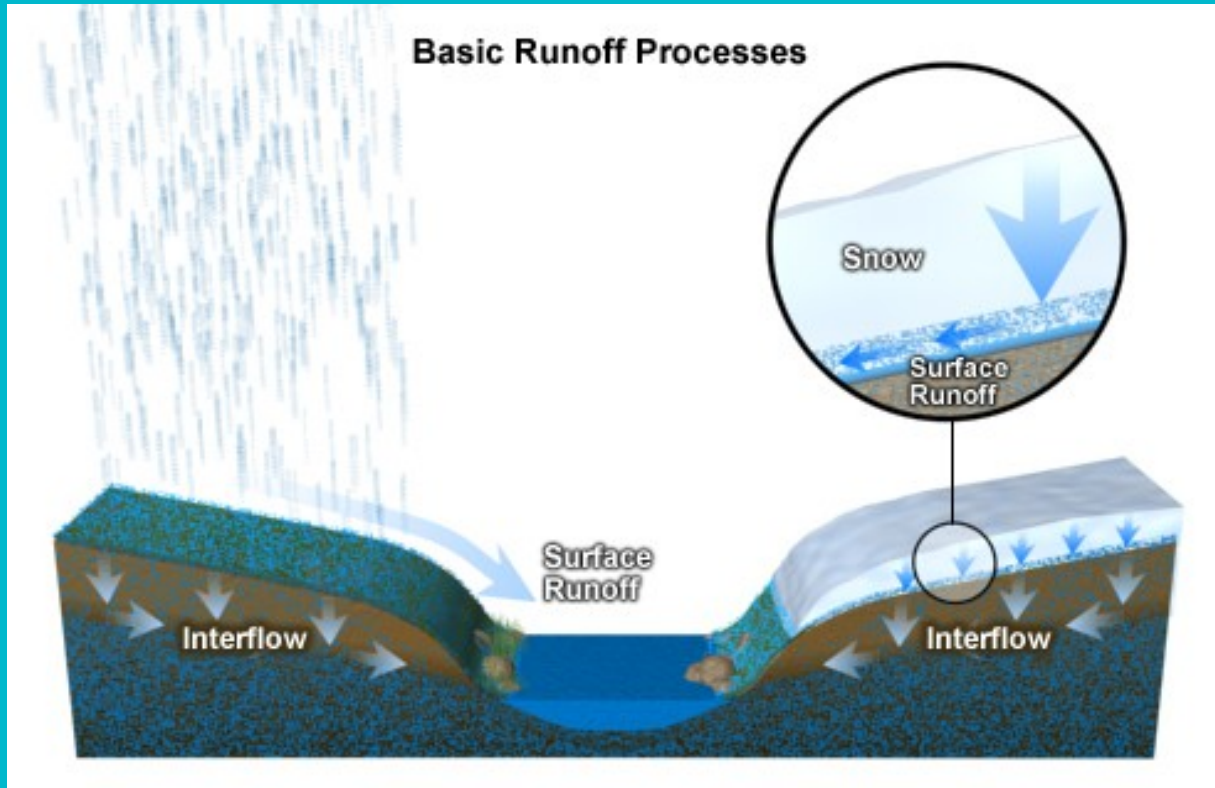
## C. Infiltration, runoff, evapotranspiration

- the water moves across the land (=runoff) or it may infiltrate into the ground, evaporate into the air, become stored in lakes or reservoirs



# Runoff

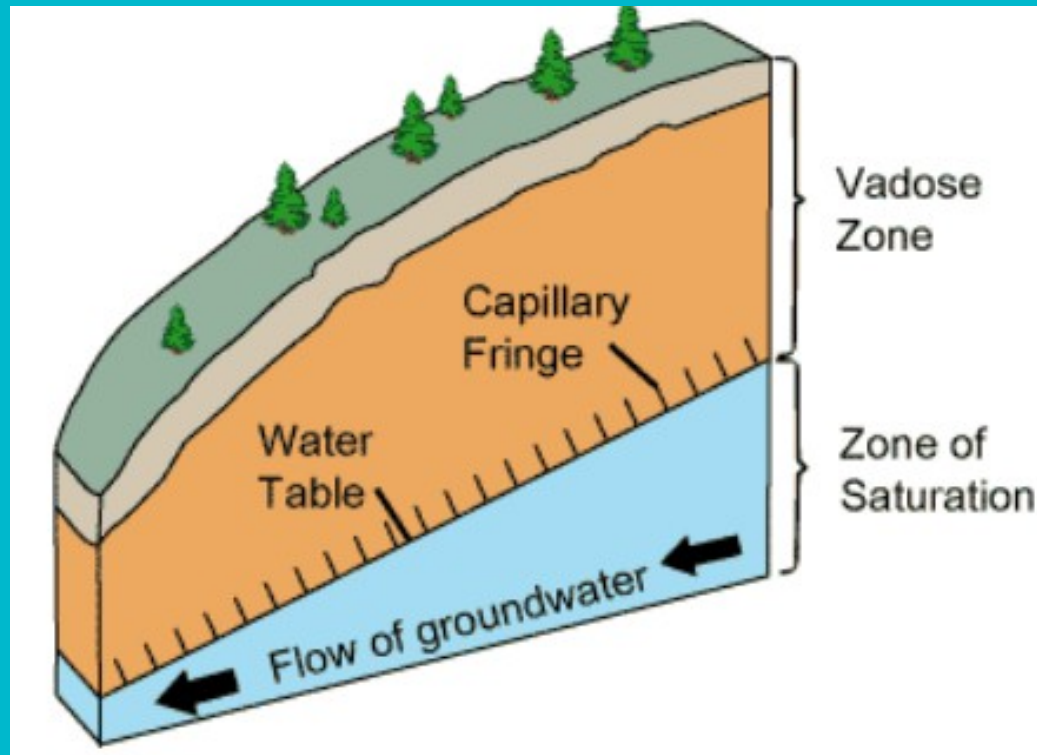
- if precipitation occurs faster than it can infiltrate the ground
- precipitation collects in : rivers, lakes, oceans ...
- surface runoff and channel runoff (= \*streamflow)



*streamflow = odtok v korytě*

# Infiltration

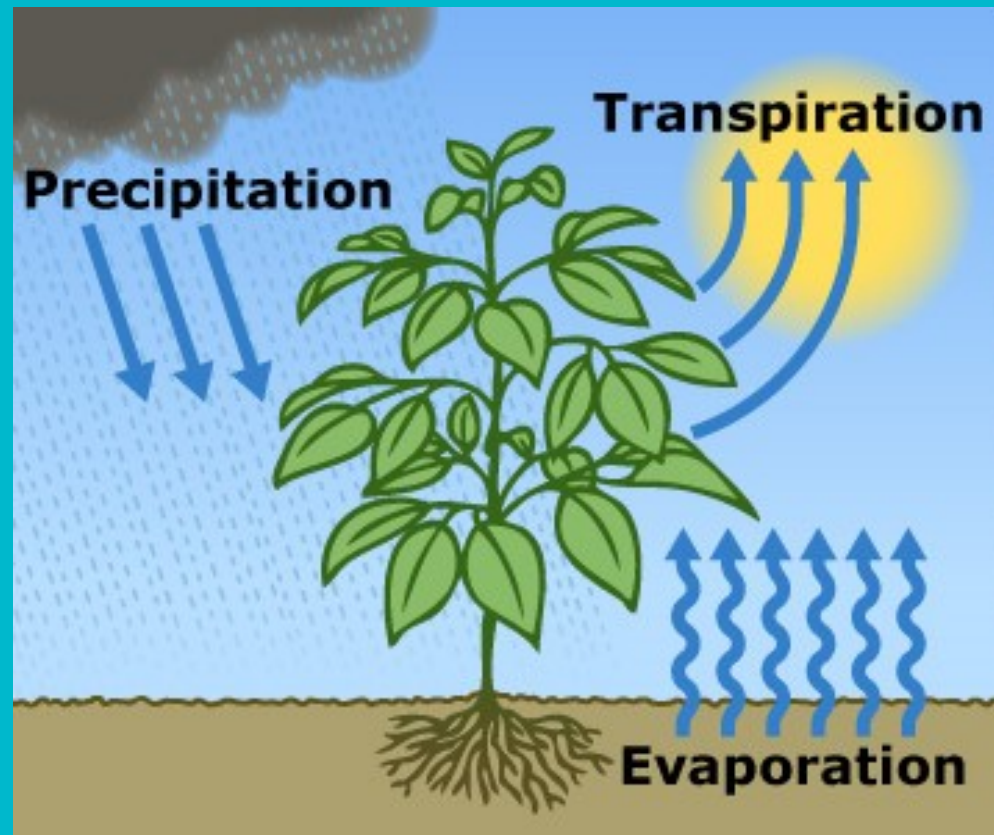
- the flow of water from the ground surface into the ground. Once infiltrated, the water becomes \*\*soil moisture or groundwater.



*\*soil moisture = půdní vlhkost, water table = hladina podz.vody*

# Evapotranspiration

**evaporation** (vapour from the ground or bodies of water )  
+  
**transpiration** (from plants)

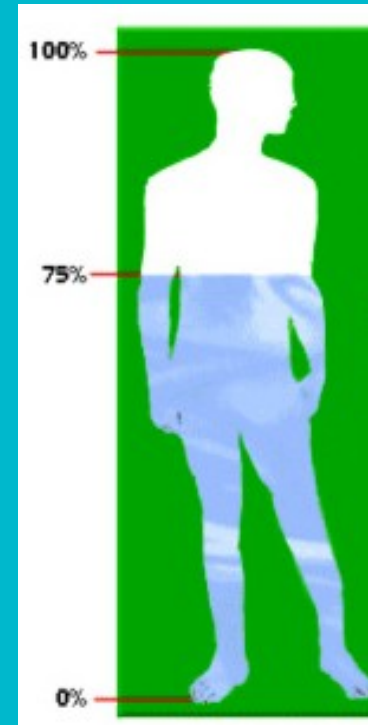
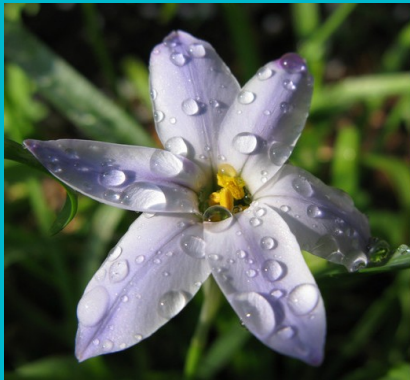


# 5. Conclusion – importance of water cycle

- water cycle regulates the temp on Earth
- water travels through the air, falls to the earth
- this is repeated in a cycle that never stops
- precipitation creates lakes, rivers, ... (water reservoirs)
- water evaporates and forms clouds (influences weather)
- is responsible for the rain



- water is essential to life
- life probably evolved in water
- human body = 75 % of water



# Literature and sources



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**Thank you for your attention**