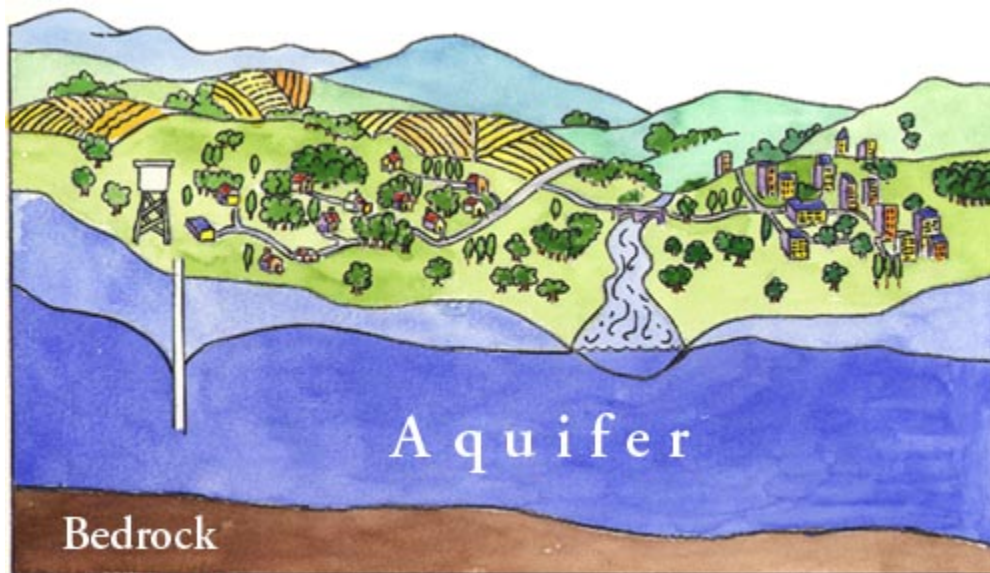


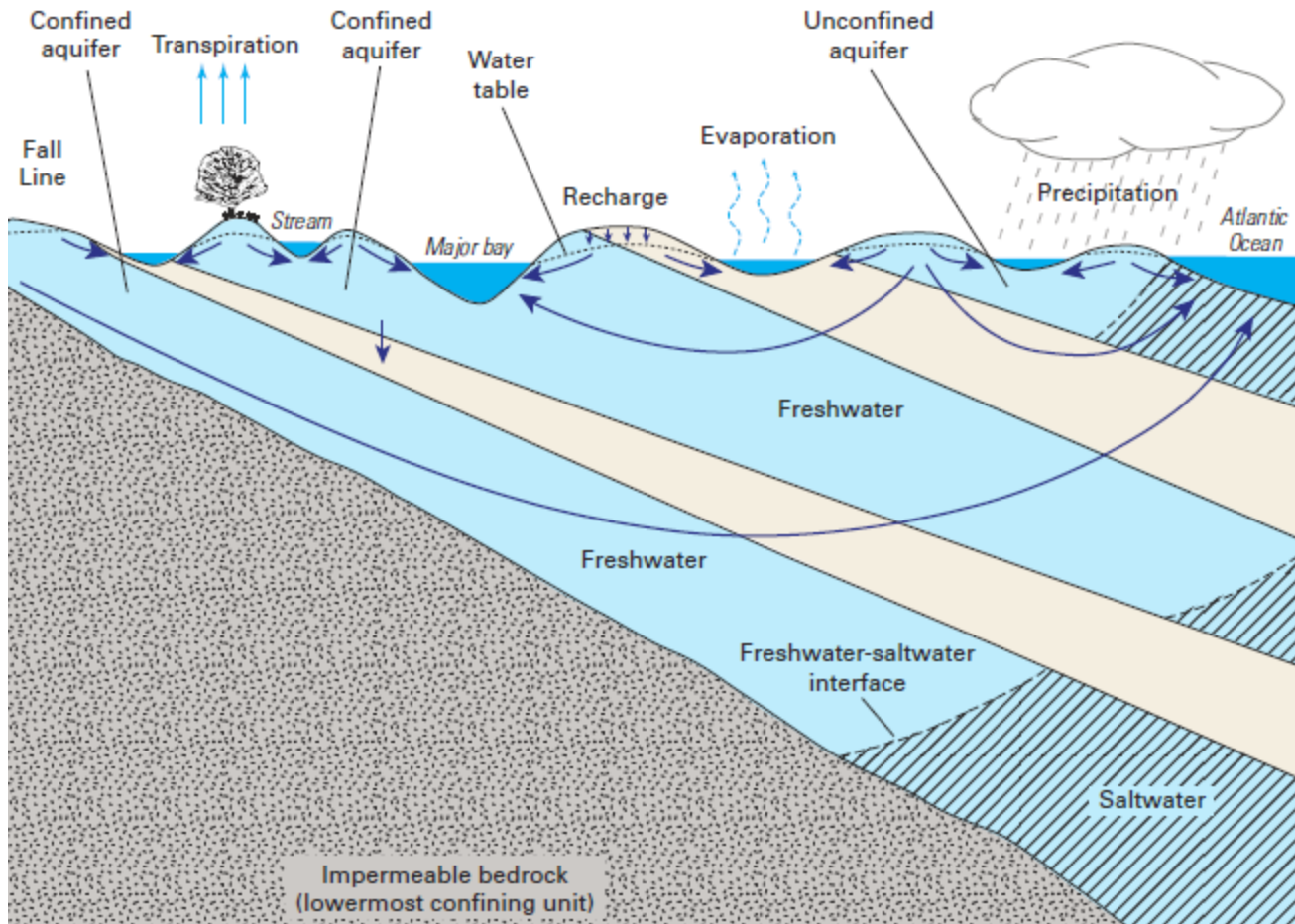
# AQUIFER



An aquifer is a layer or body of water that is stored and transmitted in a permeable rock layer of the lithosphere of the Earth, saturating its pores or cracks and can be extracted in economically exploitable quantities.

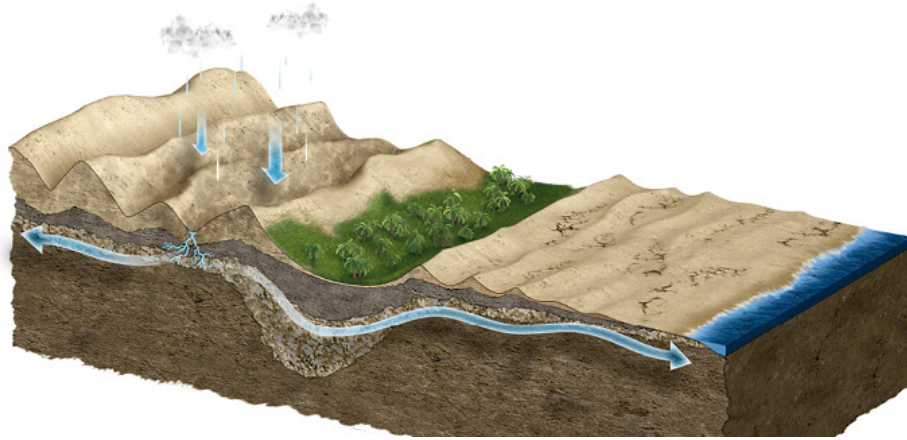


The aquifers range from very shallow and can even reach depths of up to 3 km.

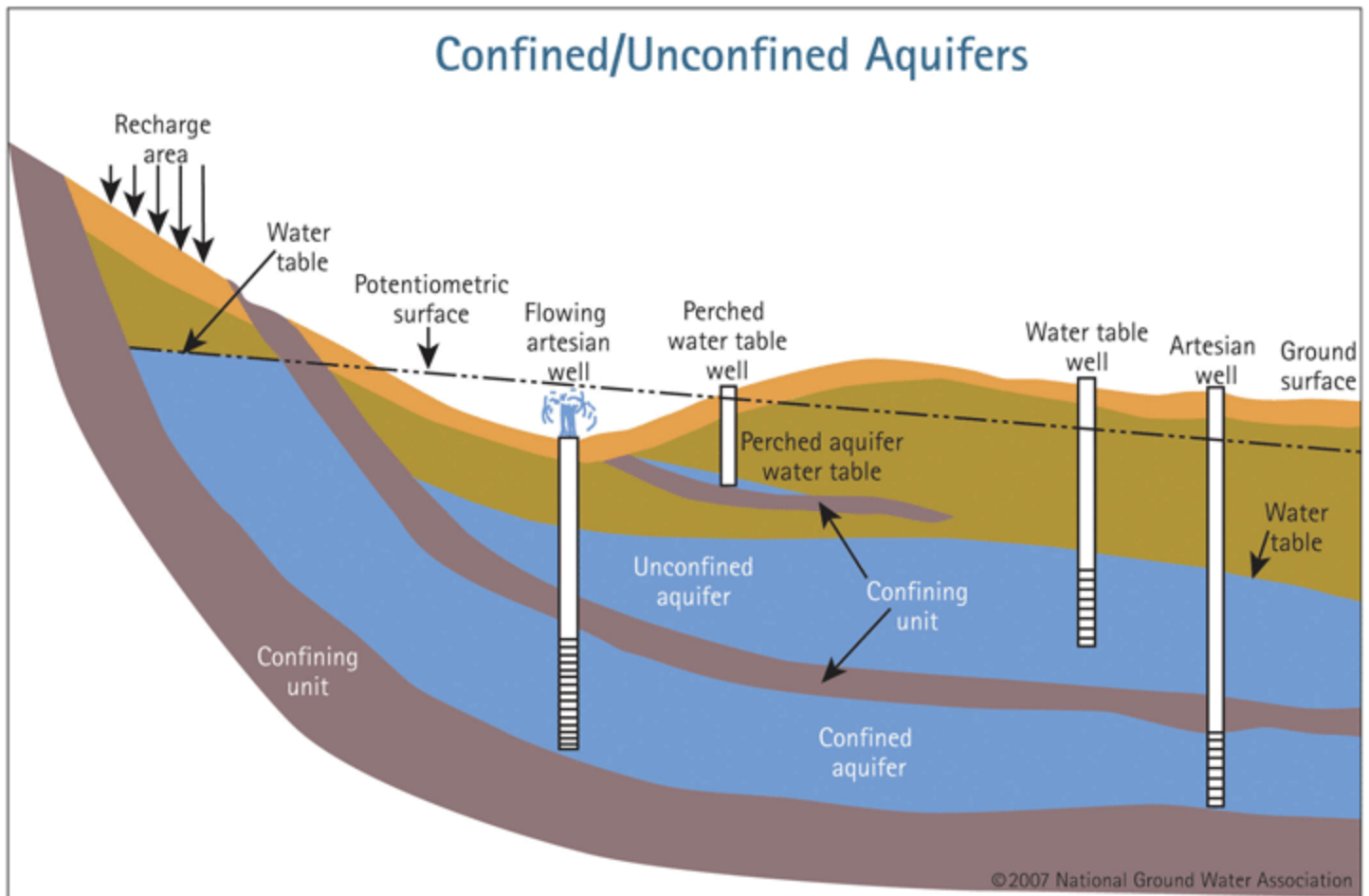


In general, water from rainfall percolate through the surface of the earth in recharge areas of the aquifer.

The aquifers are generally recharged through an active processes of filtration which is very slow and with a very long duration that occur from the surface compared to recharge processes occurring in lakes and streams.

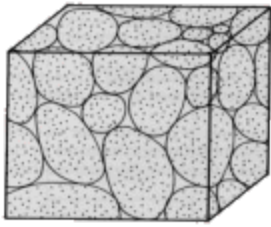


The renewal of the water reserves will depend on the physical and chemical characteristics of the geological formations, arid climatic circumstances, porosity and percolation of surface material, topographical conformation of the presence and density of vegetation in the ground and of course the weather and the seasons that influence precipitation rates in the area.

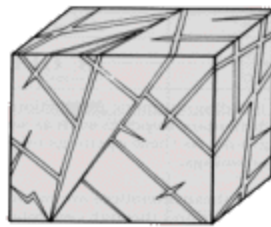


Water will follow a direction parallel to the surface drainage by gravity, resulting in an underground discharge to the sea which is not observed on the surface but may be of great importance in maintaining marine ecosystems.

Their behavior in the pore spaces of the rock depends on the chemical composition, the crystallization of the rock and the way in which it is located. If the pores are wide enough, the water will flow freely through them driven by water properties (capillarity, surface tension) and driven by gravity “water down”



**Pores in unconsolidated  
Sedimentary Deposits e.g.  
Sand**

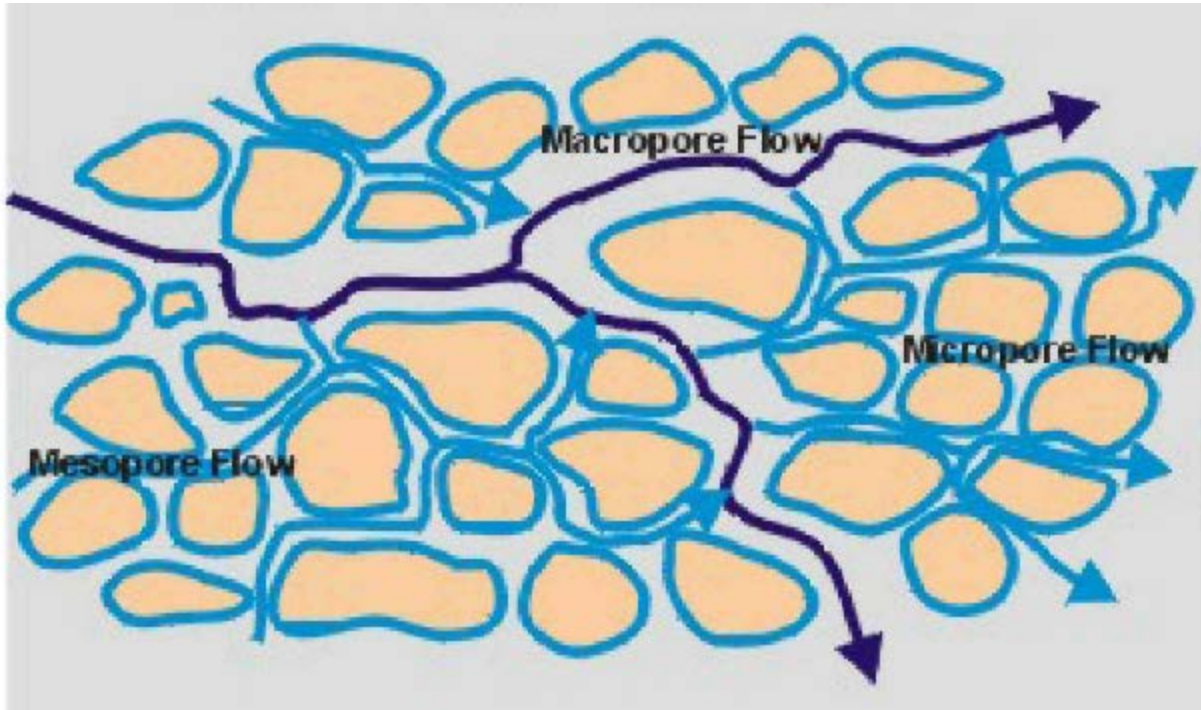


**Joints in Hard Rock  
e.g. Granite, Quartzite**

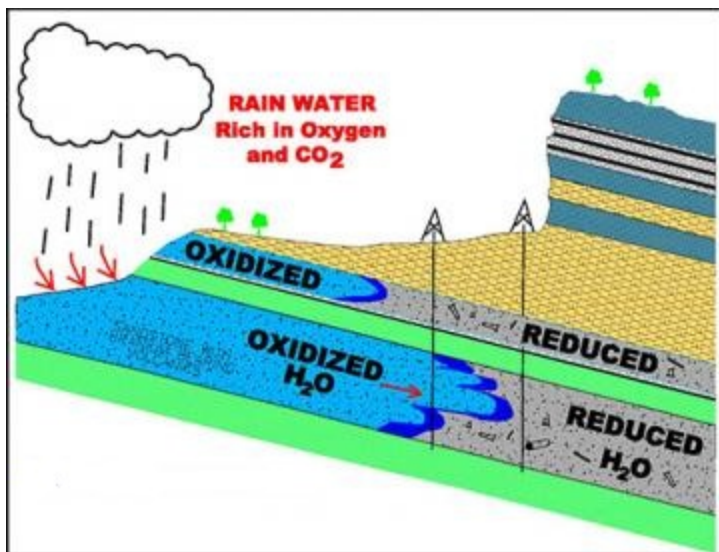
The dipolar nature of water allows to easily attach to the elements or compounds in the rocks with porosity.

Being the surface tension of water high, the water molecules exhibit “capillarity behavior” through the rock pores, adhering to the walls and causing a displacement in the aquifer mass through cohesion.

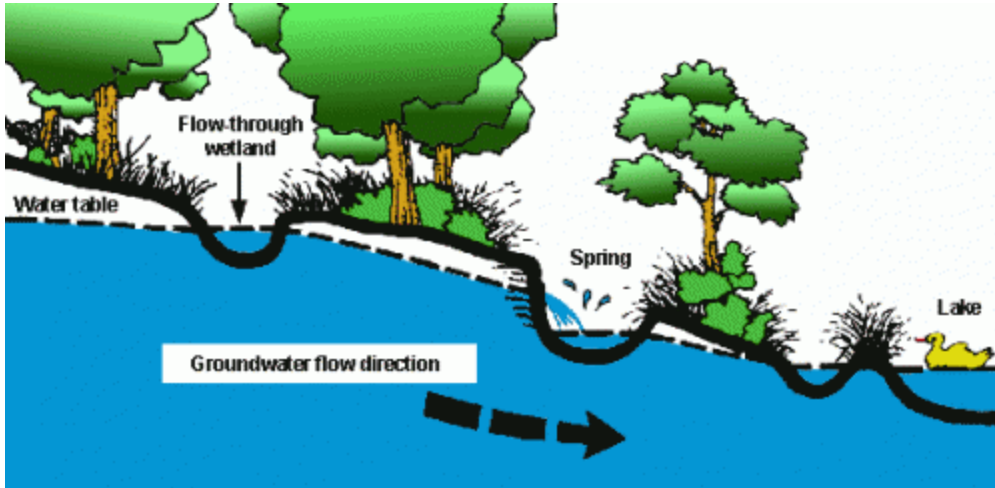




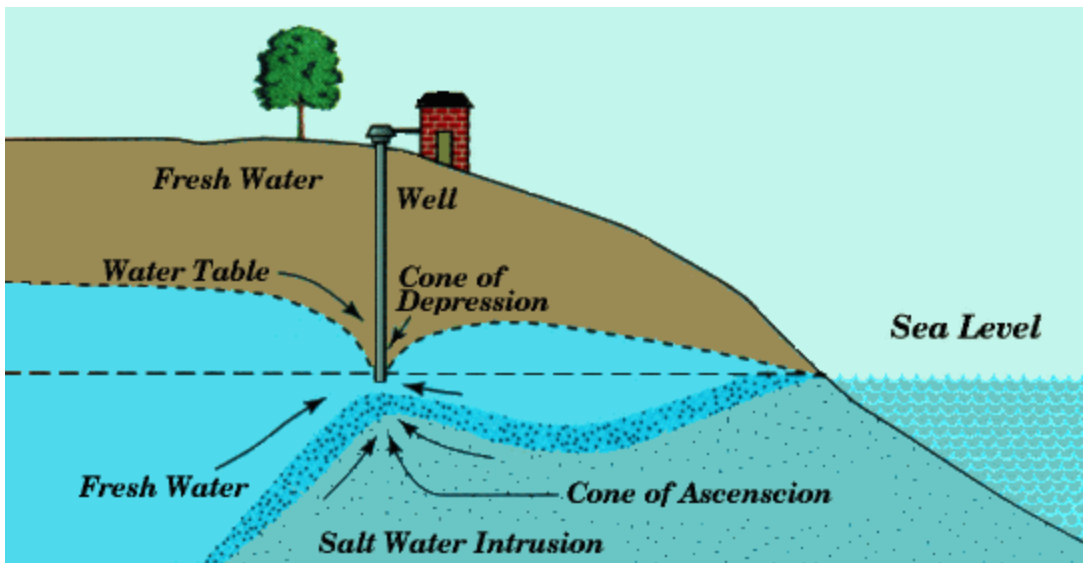
Water in aquifers will dissolve ionic salts or minerals from the rocks which are present and will therefore have a large electromagnetic conduction capacity, and also will generate physical interactions with elements in processes as leaching.



Groundwater may naturally spring up in different kinds of springs on the slopes and topography accidents, where the water table intersects the surface.



The water contained in aquifers could also be accessed through wells, boreholes reaching the aquifer that will be partially filled with groundwater, as long as they are drilled below the water level at which cause a local depression.



Source : <http://www.artinaid.com/2013/04/what-is-an-aquifer/>