Springs Encyclopedia Article

Springs

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Springs

A site where **groundwater** emerges from the subsurface is known as a spring. Springs present the most familiar manifestation of groundwater, and have been utilized as drinking **water** sources throughout history. These natural features have sometimes been viewed mysteriously and the waters regarded as having therapeutic, medicinal, or magical properties. These misconceptions continue today, including the belief that spring water is of superior quality or purity. Fallacies such as this are exploited in the sales of beverages and other products. Unfortunately, water that flows naturally from the ground is conveyed with no more special properties than the same groundwater that is drawn from a nearby well. In fact, because of the exposure at the surface, spring water is potentially more easily contaminated than water drawn from a properly constructed well.

Springs can be classified based on their groundwater source (e.g., water-table springs and perched springs). **Water table** springs discharge where the land surface intersects the water table. Perched springs, however, flow from the intersection of the land surface with a local groundwater body that is separated from the main **saturated zone** below by a zone of relatively lower **permeability** and an **unsaturated zone**. In addition to the location of the water table, groundwater discharge at springs is commonly controlled by other factors such as stratigraphic contacts, **faults and fractures**, and cavern openings. The relationship of local **topography** and geologic structure to the point of groundwater discharge is one of the most common classification systems for springs.

Springs are also classified based on magnitude of discharge, chemical characteristics, water **temperature**, type of the groundwater flow system, and others. Because springs allow them to easily and directly access the groundwater, hydrogeologists often use information of this nature to help interpret the groundwater flow system of an **area**.

The quantity of discharge from a particular spring is determined by three variables: **aquifer** permeability, groundwater basin size, and quantity of recharge. The largest springs can have a discharge of over 1,000 cubic feet per second. However, springs of this size are rare. A spring with a discharge

Hot spring.© Buddy Mays/Corbis. ***Reproduced by permission.***

insufficient to support a small rivulet is referred to as a seep. The flow from a seep is commonly so low as to preclude measurement.

See Also

Karst Topography; Porosity and Permeability; Saturated Zone