

Zone of Saturation Encyclopedia Article

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Zone of Saturation

In discussions of **groundwater**, a zone of saturation is an area where water exists and will flow freely to a well, as it does in an **aquifer**. The thickness of the zone varies from a few feet to several hundred feet, determined by local geology, availability of pores in the formation, and the movement of water from recharge to points of **discharge**.

Saturation can also be a transient condition in the **soil profile** or **vadose zone** during times of high precipitation or **infiltration**. Such saturation can vary in duration from a few days or weeks to several months. In soils, the saturated zone will continue to have unsaturated conditions both above and below it; when a device used to measure saturation, called a piezometer, is placed in this zone, water will enter and rise to the depth of saturation. During these periods, the **soil** pores are filled with water, creating reducing conditions due to lowered oxygen levels. This reduction, as well as the movement of iron and manganese, creates distinctive soil patterns that allow the identification of saturated conditions even when the soil is dry.

See Also

Artesian Well; Drinking-Water Supply