Regolith Encyclopedia Article

Regolith

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Regolith

Regolith is a layer of loose or unlithified **soil** and **rock** debris that overlies and blankets **bedrock**. It is derived from the Greek roots *rhegos*, for blanket, and *lithos*, for stone. The term is descriptive and non-genetic, meaning that regolith refers to any blanket of unlithified material regardless of its origin. Lunar regolith (also known as lunar soil) is the loose material ranging in size from dust to boulders on the surface of the **Moon**, and is believed to have been formed as a result of meteorite impact and fragmentation.

Regolith can be transported by a variety of geologic processes or formed in place by the chemical and physical **weathering** of bedrock. Transported regolith can include volcanic ash, glacial deposits, alluvium, colluvium (debris accumulating near the base of a slope due to **creep** or related processes), talus, loess (windblown silt), eolian deposits, **landslide** and **debris flow** deposits, and soil. Regolith resting on slopes can also be the source material for landslides, debris flows, and rock falls. Because regolith can be the product of many different geological processes, its physical characteristics (for example, density, **permeability, porosity**, and strength) can be highly variable over short distances. Geologic maps typically do not portray regolith unless it is so thick that it completely obscures bedrock or the purpose of the map is specifically to show unlithified surficial deposits.

In the fields of engineering **geology**, geotechnical engineering, and soil mechanics, regolith is often referred to as soil even though it may not have been altered by biological and chemical soil forming processes. These conflicting definitions of soil can cause confusion, so it is always important to understand the context in which the word is being used.

Characterization of the physical properties of regolith is of paramount importance in many engineering and environmental projects. In some cases, regolith must be removed in order to construct foundations on bedrock. In other cases, it is the regolith itself in which structures are anchored or which constitutes the source of material for embankments and other earthworks. Regolith can also be a locally significant **aquifer** that yields **groundwater** relatively easily and inexpensively. Because regolith lies at the earth's surface, however, aquifers in it are much more easily polluted than those in deeper **artesian** aquifers.

See Also

Alluvial System; Eolian Processes; Glacial Landforms; Landscape Evolution; Soil and Soil Horizons; Stream Valleys, Channels, and Floodplains; Talus Pile or Talus Slope