

Mud Flow Encyclopedia Article

Mud Flow

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Mud Flow

The term mud flow, although not part of the classification system used by most **landslide** specialists, is a form of **mass movement** or **mass wasting** widely used in a manner that is synonymous with wet to very wet, rapid to extremely rapid earth flow. Mud itself is defined by most geologists as an unlithified mixture of silt, **clay**, and **water**; therefore, a mud flow is a flow consisting primarily of silt, clay, water, and other minor constituents such as **sand**, cobbles, boulders, trees, and other objects. A flow in which mud is a minor constituent relative to sand-size or coarser particles is by definition a **debris flow** or, if large pieces of **bedrock** are involved, a **rock** flow.

Because volcanic ash deposits commonly **weather** into clayey materials, mud flows are common on and around volcanoes as well as areas covered by deposits of fine-grained volcanic ash known as loess. A mudflow on a **volcano** can also be referred to as a fine-grained or muddy **lahar**.

Like debris flows, mud or earth flows can begin by mobilization from a landslide, incorporation of muddy sediments into flooding, or rapid **melting** of snow and **ice** during a volcanic eruption. Regardless of their mode of origin, mud or earth flows can be dangerous and destructive because of their great density (typically more than 50% solid material) and velocity. The density of debris and mudflows also allows them to transport unusually large boulders compared to **floods** consisting primarily of water. A typical debris or mudflow consisting of 60% solids and 40% water would have a density of about 125 lb/ft³ (2,000 kg/m³), or twice that of water. Thus, the buoyant force exerted on a boulder by a mud or debris flow would be about twice that exerted on the same boulder by water.

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