Talus Pile or Talus Slope Encyclopedia Article

Talus Pile or Talus Slope

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Contents

Talus Pile or Talus Slope Encyclopedia Article.....1

Contents.....2

Talus Pile or Talus Slope.....3

Talus Pile or Talus Slope

Geologists define talus as the pile of rocks that accumulates at the base of a cliff, chute, or slope. The formation of a talus slope results from the talus accumulation.

Because the term "talus" incorporates the concept of a pile, many geologists prefer it to "talus pile" and reserve the term "talus slope" for specific reference to the surface of the talus.

The recognition and characterization of talus slopes is often important in determining the potential for mass movements (landslides, etc.). Movements occur whenever the talus slope exceeds the critical angle. The exact angle at which failure takes place depends upon the materials (e.g., **rock** type), rock size, moisture content, but dry homogenous materials in a pile generally experience slope failure when the angle of repose (the resting slope angle) exceeds 33–37°. The critical angle lowers as materials become less intrinsically cohesive or when friction between particles is reduced by rain or other forms of moisture. Moisture also adds to the overall mass of the slope and thus increases the gravitational force on the slope.

For example, if a cliff or rock formation is composed of shale, the processes of **weathering** and the force of **gravity** (a shear stress) allow the downslope accumulation of shale rock fragments and debris at the base of the formation. The talus slope is triangular, with the internal angles of the sides of the triangle (the slope's angle of repose) limited by the critical angle.

The degree of sameness in size, layering, and homogeny of the talus is referred to as sorting. As a general rule, talus accumulated from rockfalls is better sorted than talus created by glacial deposits but far less sorted than piles constructed by **sedimentation**. Contributing rock that is irregularly fractured does not **weather** evenly and because it breaks off in large irregular pieces, contributes to a poorly sorted talus slope.

The formation of a talus slope results from the talus accumulation. © Jack Dermid. ***Reproduced by permission.***

See Also

Landscape Evolution; Landslide; Mass Movement; Mass Wasting