

MASS MOVEMENT

Name _____

MASS MOVEMENT processes involve the movement of **W** material downslope under the force of **Gr** (not transported by a moving agent such as **R** or the **S**)

Such movements occur on **A** slopes, but may be sporadic or **C**, **F** or slow and involve no **W** or completely saturated material.

SLOW processes include **soil C** which involves **S** water. **Rockfall** is very **F** and involves very little **W** whereas **Mudflows** are also **F** but involve much **W**.

* **SOIL CREEP** is a **S** process which can occur on even **G** and well vegetated slopes. Overall rates of movement may be as little as _____ per annum, though faster on **S** slopes. If the slope is too steep (more than about 35°) then **F** processes tend to operate (slips and slides). It is caused by any expansion of soil particles (due to heat, **W** by rainfall or growth of **I** crystals). Expansion occurs perpendicular to the ground **S**, but contraction occurs **V** downwards with **G**. It results in step-like features called **T** which may be up to a **D** in width and 50cm in **H**. It may also result in roads **C**, trees **B**, fences **B** and soil **P** up behind walls causing eventual collapse. It is a **Con** movement.

* **MUDFLOWS & LANDSLIDES** are **F** movements which occur on **S** slopes. They often occur after heavy **R** or snow **M** which causes soil and weathered rock (especially clays) to become **Sat**. Saturation increases the **W** of material (clay by 3 times) and **D** its cohesion (its ability to **St** together). Such movements may also be triggered (**S** off) by **E** or **V** eruptions, which may also **M** snow on mountain tops. Speeds may be up to **D**.

FREQUENCY & RATE of mass movement is increased by:-

* anything which increases the **D**ness of slopes (eg:- transport of sediment by the **D** or **D**, cuttings under slopes by man for **D** or agriculture.

* anything which increases the **W** of material (high **R**, **S** melt, faster rates of **Wea** producing more **M**). Impermeable bedrock, by allowing **D** penetration of water into the rock will therefore cause **D** soil saturation and **D** mass movement.

* Anything which reduces the **C** of the material (its ability to **S** together). Plant **R** (especially **T** roots) **B** soil very effectively, as well as drying out the soil by extracting **W** for **Transp**. Grazing **A** will therefore _____ the likelihood of mass movement.