

## Notes - Erosion Landslide Video

- 1. Why do landslides occur?** *Landslides occur when gravity pulls down rocks and soil from a steep slope or cliff that had become separated from the main mass of the cliff by the forces of weathering. Most landslides are minor events, with just a few rocks falling at a time. Larger landslides can be triggered by earthquakes or floods. Deaths and property destruction can be caused by landslides when people get too close to an unstable slope.*
- 2. What forces work together to cause movement of the Earth's crust and surface?** *The Earth's surface is shaped by two main forces: heat inside the Earth, and gravity. The heat inside the Earth causes mountain building by volcanic eruptions and tectonic plate uplift. Gravity, along with water, wind and ice, cause the weathering and erosion of mountains.*
- 3. Why do people choose to live in an active landslide zone?** *Often people do not understand that a steep slope or cliff is not really stable and could collapse in a landslide. The forces of erosion act slowly over decades and even centuries of time, so it is easy to believe that a slope is stable when no movement or erosion is noticed over a period of a few years. Building sites at the top of cliffs or along a shoreline often have good views and high property values, so they are tempting places to build. Cities can become so crowded that people will use dangerous building sites because nothing else is available.*
- 4. How can scientists predict landslides?** *Scientists can only generally predict where landslides may occur sometime in the future, but will not be able to say specifically when it could occur. Because of this lack of certainty in predictions, many people will take a chance in living in a slide zone, and hope for the best.*
- 5. What are the common causes of landslides?** *The four main causes of landslides are (1) slopes that are too steep to be stable; (2) rock and soil types that are not strong and easily separated from the slope; (3) high water content in the soil that makes the rock and soil slide easier; and (4) earthquakes or storms that help trigger the landslide.*
- 6. How does the steepness of the slope and ground moisture affect landslide potential?** *As the steepness of a slope increases, the chance of a landslide increases. Slopes can be over-steepened when roads are built, when a river undercuts a bank, or when a building is constructed. A dangerous over-steepened slope may survive for centuries until a triggering event such as a flood or a severe rainstorm adds enough water pressure to finally cause the landslide.*
- 7. How do volcanoes cause landslides, mudflows and lahars?** *Volcanoes often build very steep mountains mostly made of loose, easily eroded materials such as volcanic ash. The gases released by volcanic vents can chemically weather solid igneous rock into clay. Volcanoes may have large snowfields and glaciers containing large amounts of water on their flanks. The explosive force of a volcanic eruption can trigger landslides of this loose rock and ash, and can melt all of the water contained in snowfields and glaciers in a very short time. This can cause a lahar, a mudflow made of snowmelt water, volcanic ash and rock, which can travel long distances (up to 50 miles) at very fast speeds (up to 100 miles per hour). In many parts of the world, including the northwest United States, large populations live in river valleys near volcanoes. These communities can be wiped out by a lahar because so little warning can be given.*