

Landslides





Part 1

Landslides

What is a landslide?

- Definition- The downward sliding of a relatively dry mass of earth and rock. (Dictionary.com)
- The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows.



Effects on the Environment

- Destroys the slope/hill
- Eliminates all vegetation
- Buries houses and sometimes entire villages
- Weakens the slope and makes it more susceptible to further landslides

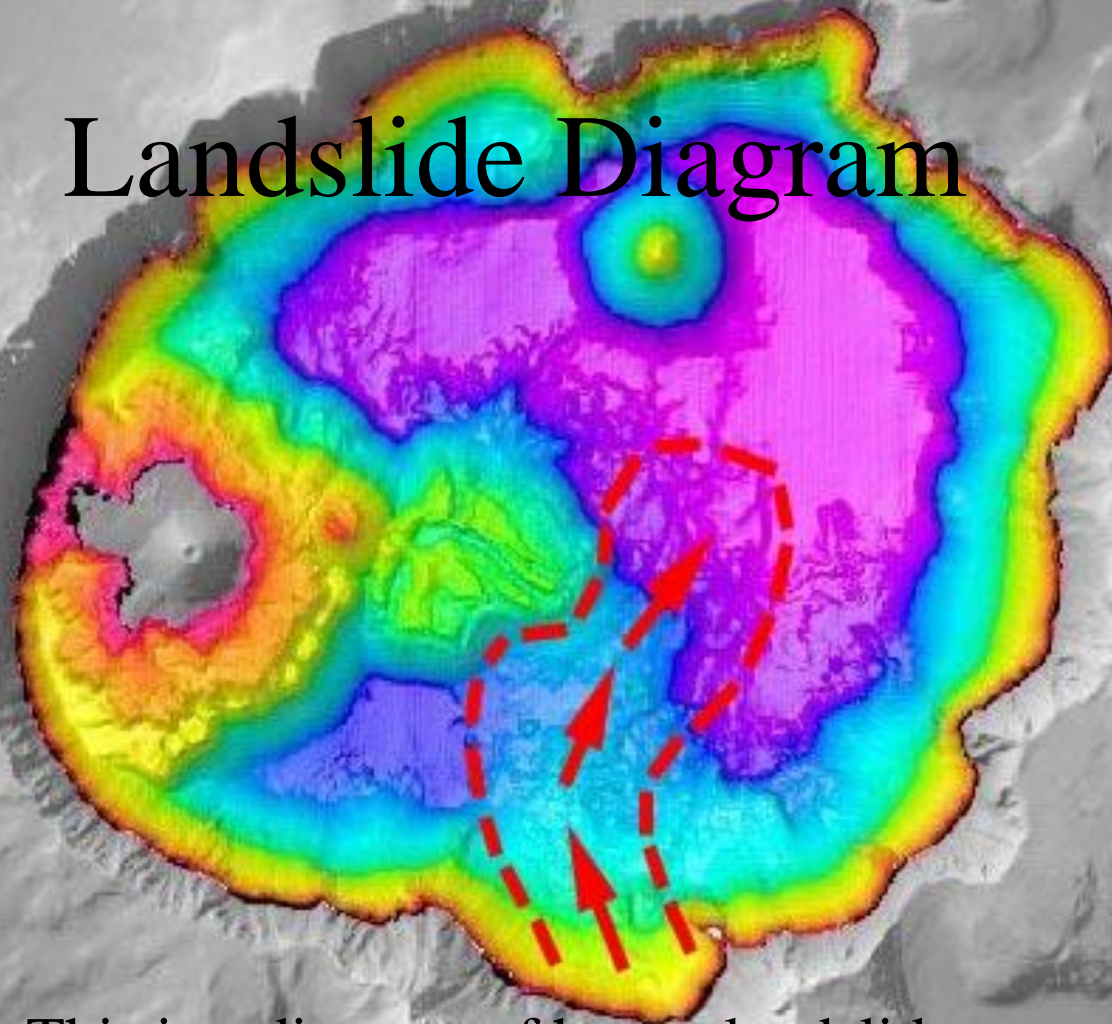


A Landslide



- Landslide in South America
- 400-500m high
- Only half of hill visible.

Landslide Diagram



This is a diagram of how a landslide moved from a high point to the lowest elevation on the Island (a lake).

Landslide Damages

- \$1 billion in damages per year
- 50 to 75 deaths per landslide

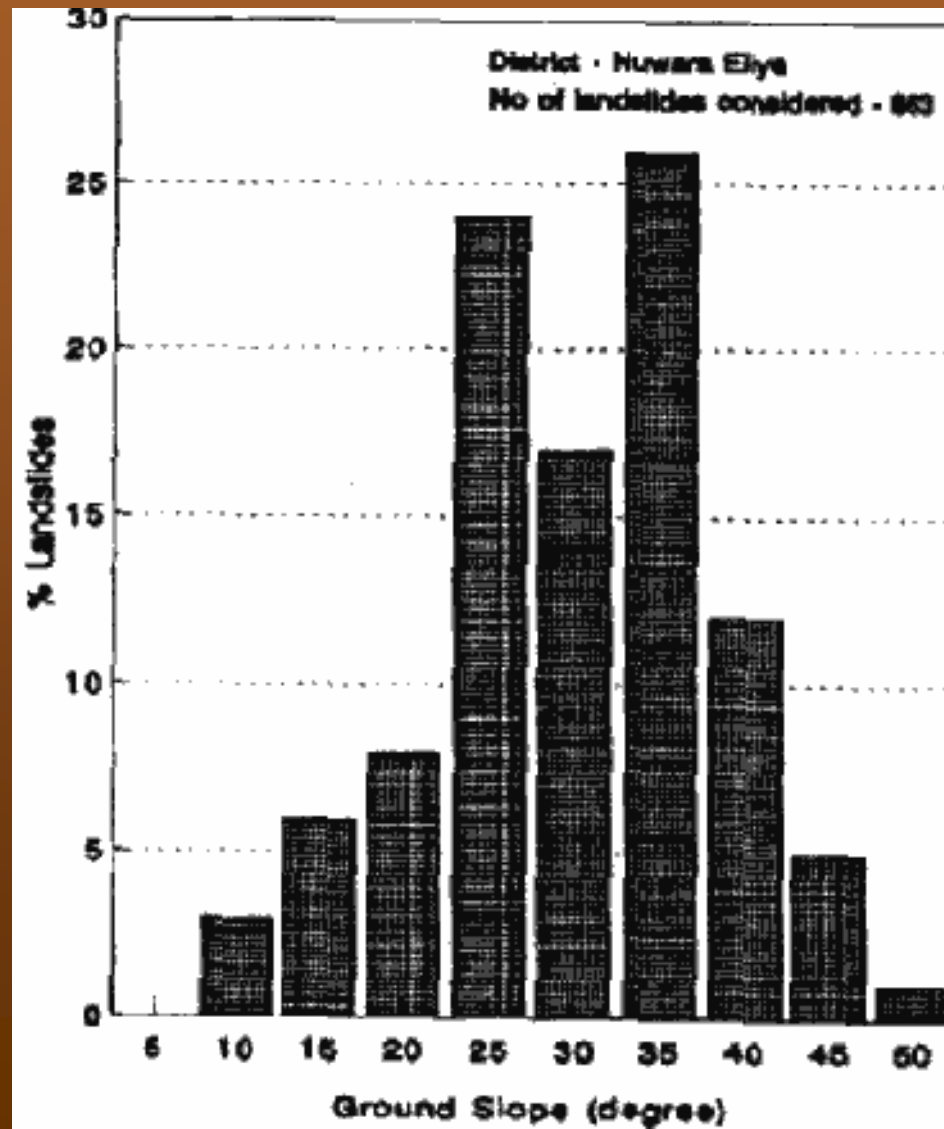


What causes a landslide?

- Erosion causing extremely steep slopes
- Powerful earthquakes
- Excess weight on unstable soil
- Volcanic eruptions
 - Ash
 - Great force



Slope/Chance of Landslide



Where do they occur the most?

- Landslides can occur on any steep slope and commonly occur in
 - The U.S.A.
 - Appalachian Mountains
 - Rocky Mountains
 - Pacific Coastal Regions
 - South America



Recent landslides

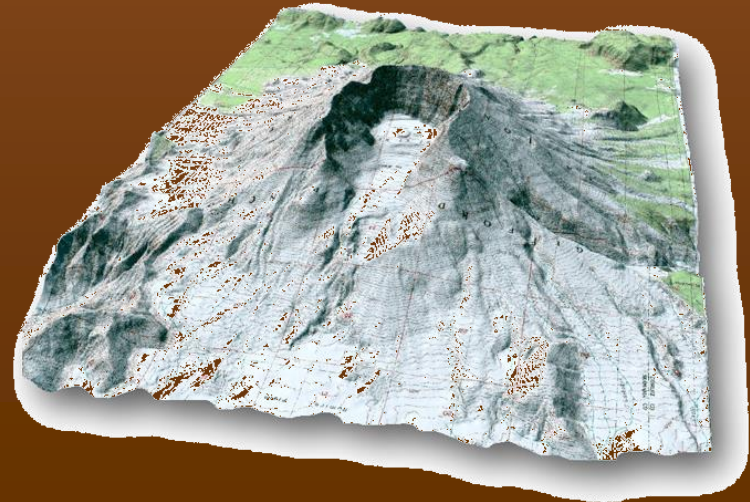
- Brazil, January 2003, 8 people killed
- March 4, 2003 14 people killed, 400 buried in Bolivia
- March 19th, 2003 7 people killed, 13 injured, and 20+ missing in Western Columbia
- April 1st, 2003 400 homes buried, 700 people missing Bolivia landslide
- April 2, 2003 34 people killed in Indonesian flood/landslide



Bolivia, March 4, 2003

World's Worst

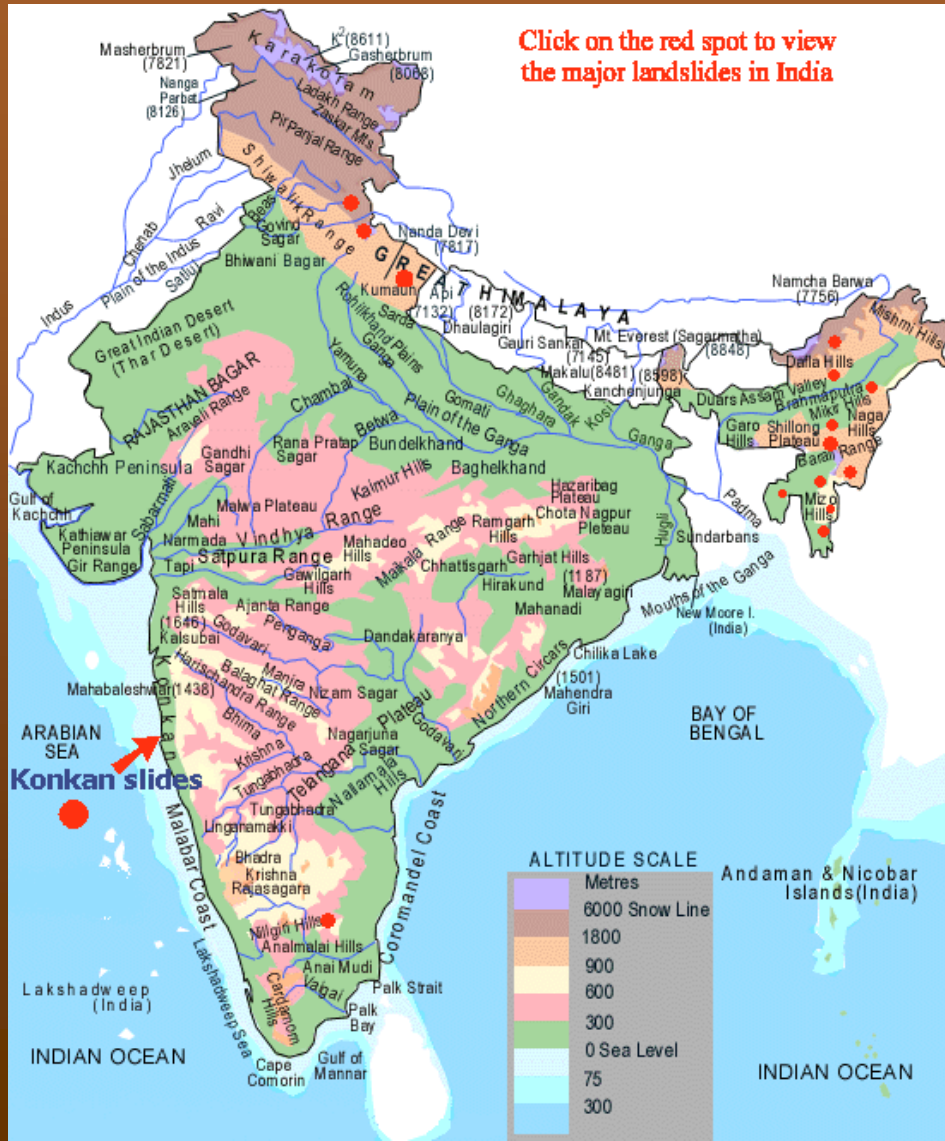
- 1911
 - Usoy, Tajikistan
 - 1.5mi of rock
 - 1880ft. Damn
 - Very few deaths
- 1980
 - Mount St. Helen's,
Washington state
 - 1.7mi of rock
 - Less than 60 fatalities



Landslides in Central America



Landslides in India



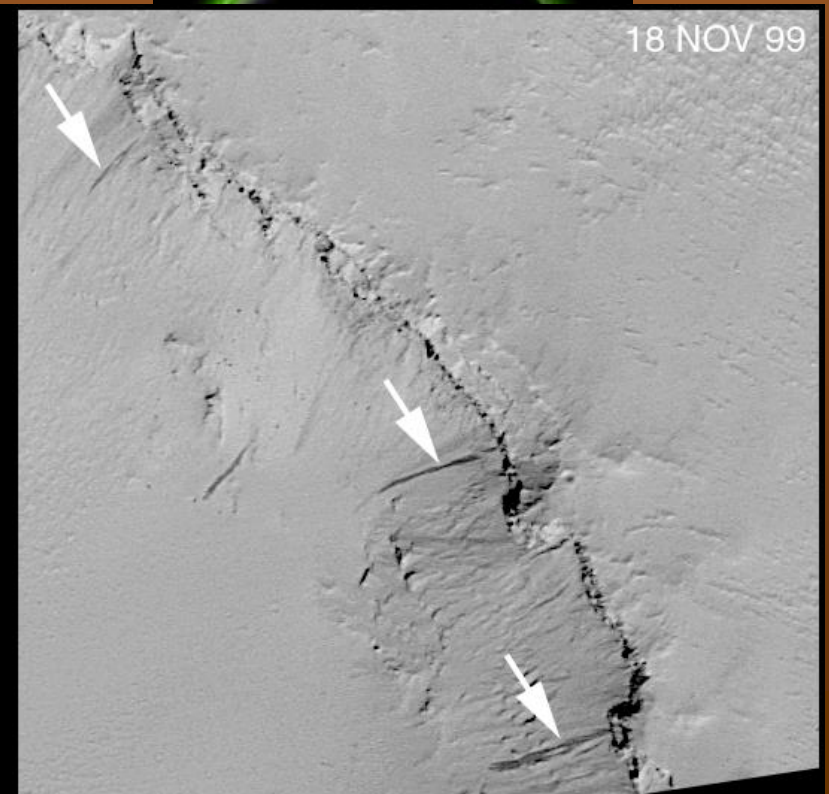
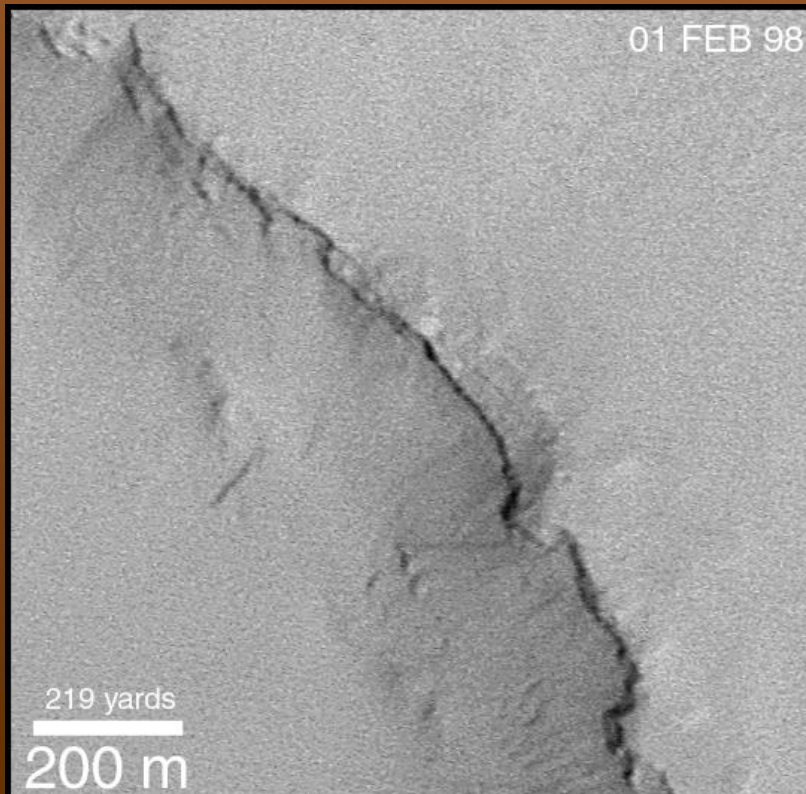
Landslides in Canada



Extra-Terrestrial Landslides?

- Think landslides occur only on earth?

This shows a landslide on the side of a crater on the surface of Mars



A photograph of a dirt road in a hilly, vegetated area. The road is partially covered with a thick layer of brown mud and debris, indicating a mudslide. The background shows a steep, green hillside with some trees and a small white building visible on the left. The sky is blue with some clouds.

Part 2

Mudslides

What is a Mudslide?

- Definition-A mudflow, especially a slow-moving one.
- The same as a landslide, only involving lots of water



What Causes a Mudslide?

- Over saturation of soil due to melting snow and/or heavy rain
- Erosion of land by rivers or other water
- Open hill sides due to fire
- Anything that causes a lack of vegetation and therefore stability on a slope
- Violent storms and blasting of weak slopes will cause heavy amounts of precipitation to weaken a slope

Mudslide Damages



- \$1 billion USD in damages per year
- 50 to 75 deaths annually (in US)



Mudslide in California