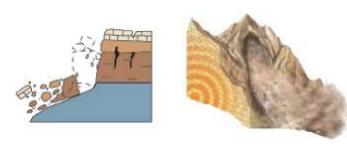
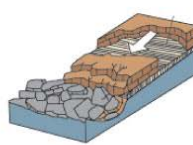



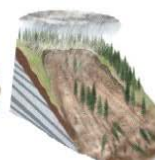


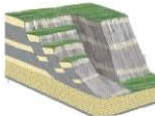




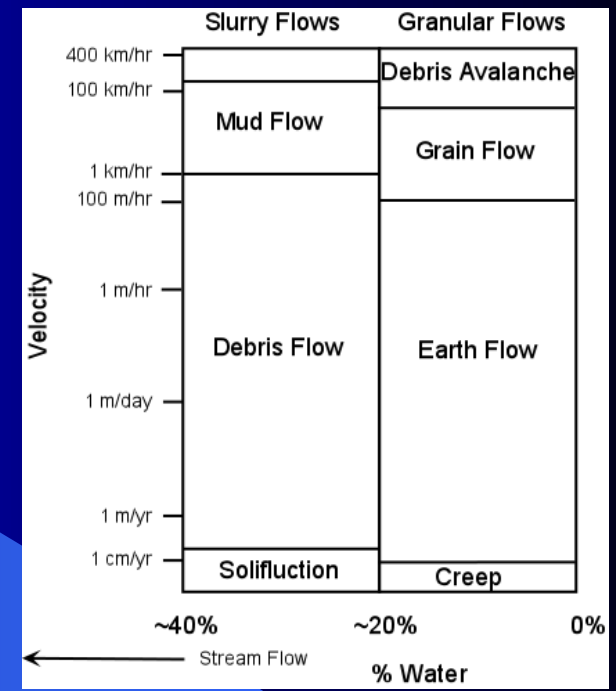
# Mass Movement

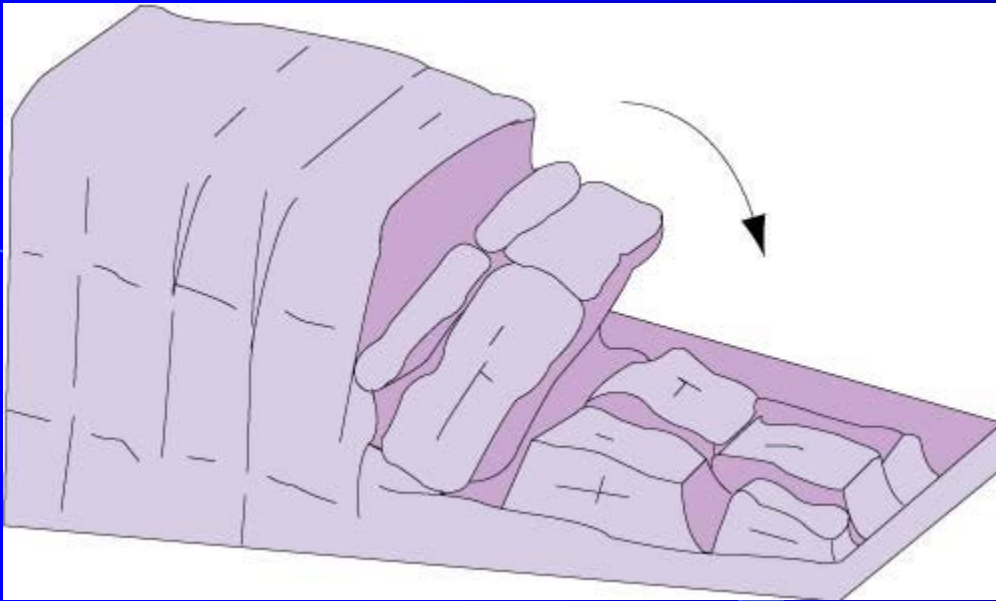


# VELOCITY

Material	NATURE OF MOTION	Slow 1cm/Year Low Water Content	Moderate 1KM/Hour High Water Content	Rapid 5KM/Hour or More High Air content
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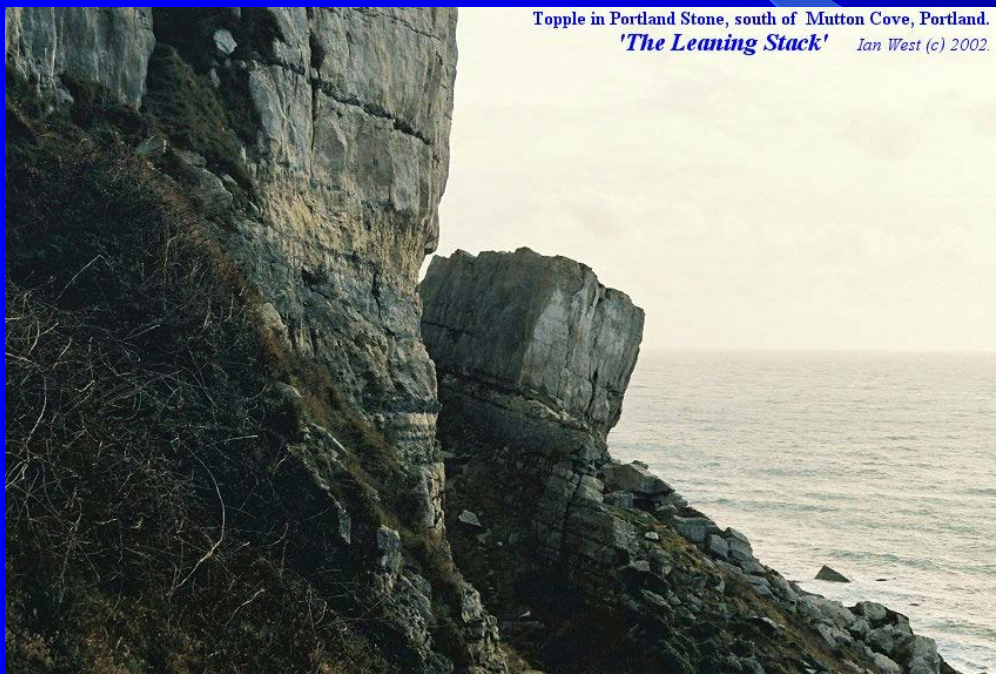
ROCK	FLOW	 <p>Topple      Rock Avalanche</p>		
	SLIDE OR FLOW	 <p>Rock Creep</p>	 <p>Rockslide</p>	 <p>Rockflow</p>
LOOSE MATERIAL	FLOW	 <p>Earth Creep</p>	 <p>Earth Flow</p>	 <p>Debris Flow</p>
	FLOW	 <p>MudFlow</p>		
	SLIDE OR FLOW	 <p>Slump</p>	 <p>Debris Slide</p>	 <p>Debris Avalanche</p>





# Topple

[Topple video](#)



Topple in Portland Stone, south of Mutton Cove, Portland.  
*'The Leaning Stack'* Ian West (c) 2002.

# Rock Avalanche



[Rock Avalanche video](#)



Rock creep



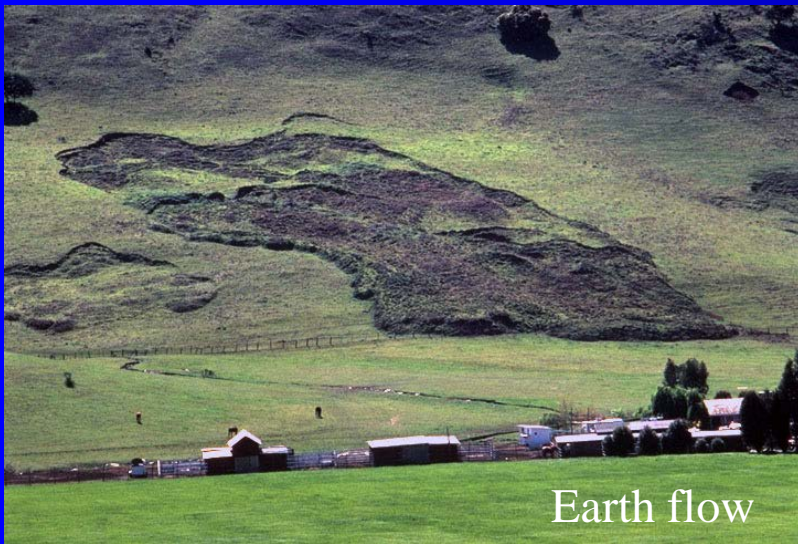
Rock slide

Rock flow

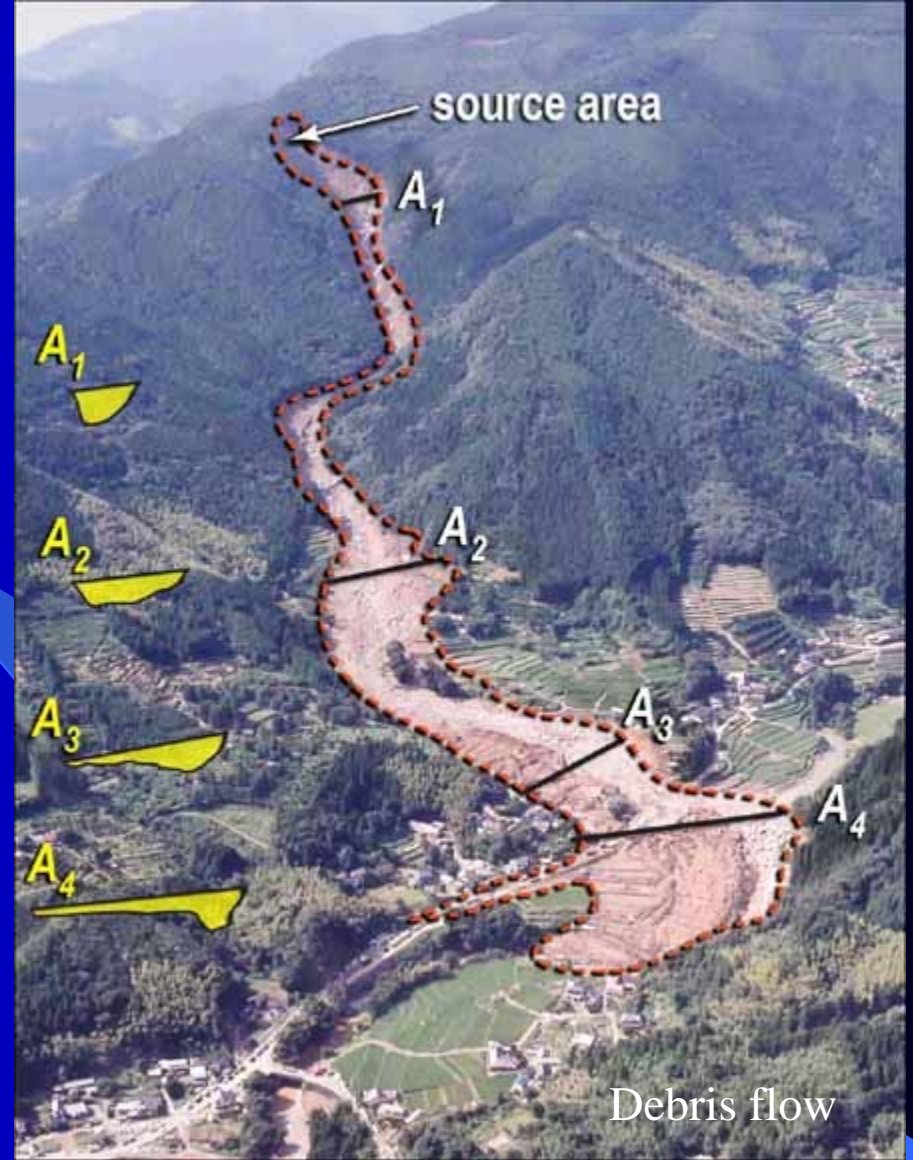




Creep

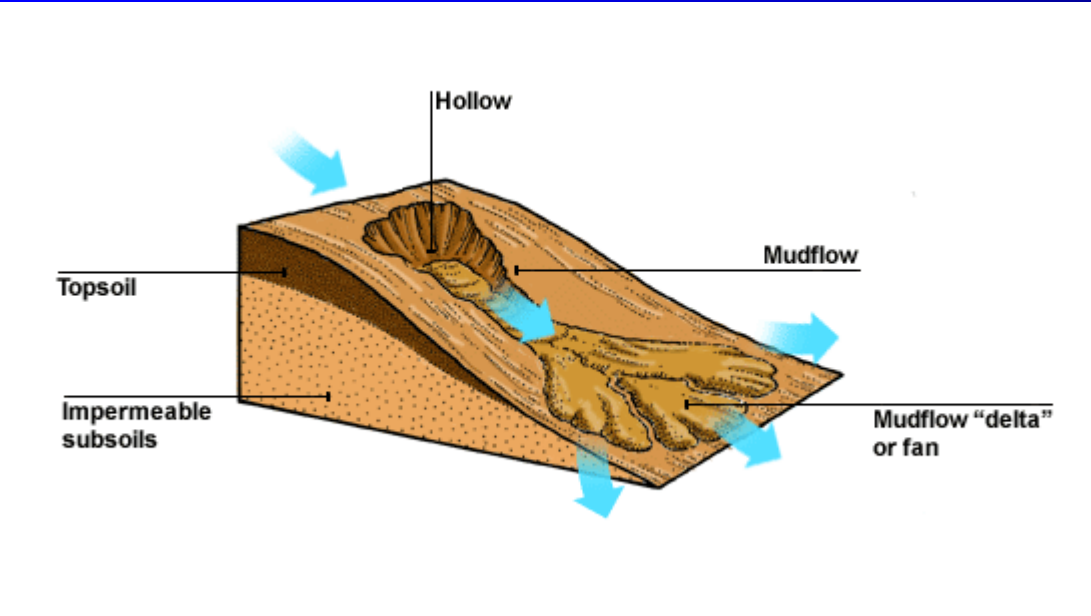


Earth flow

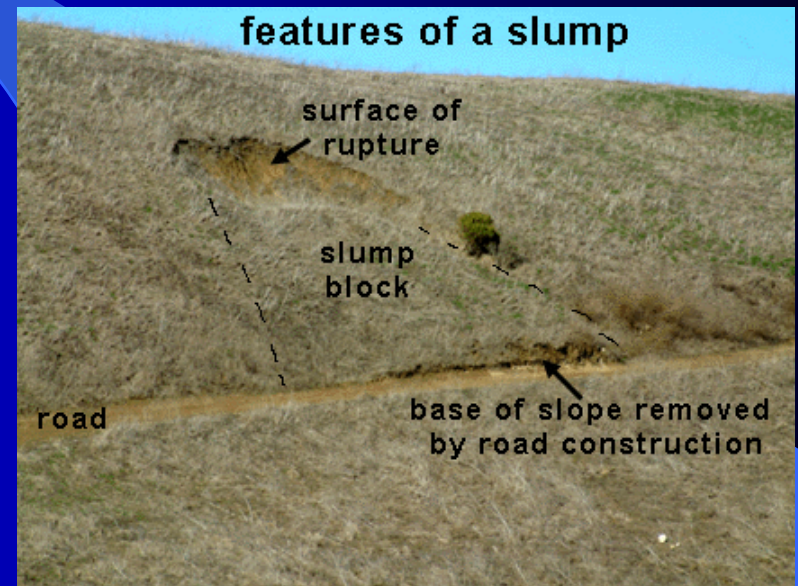
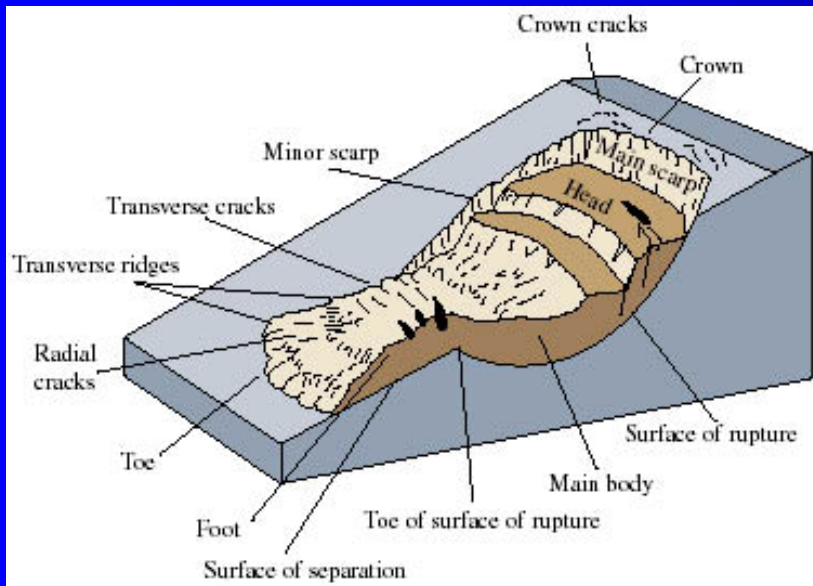


Debris flow

# Mudflow



# Slump







Debris slide

Debris avalanche



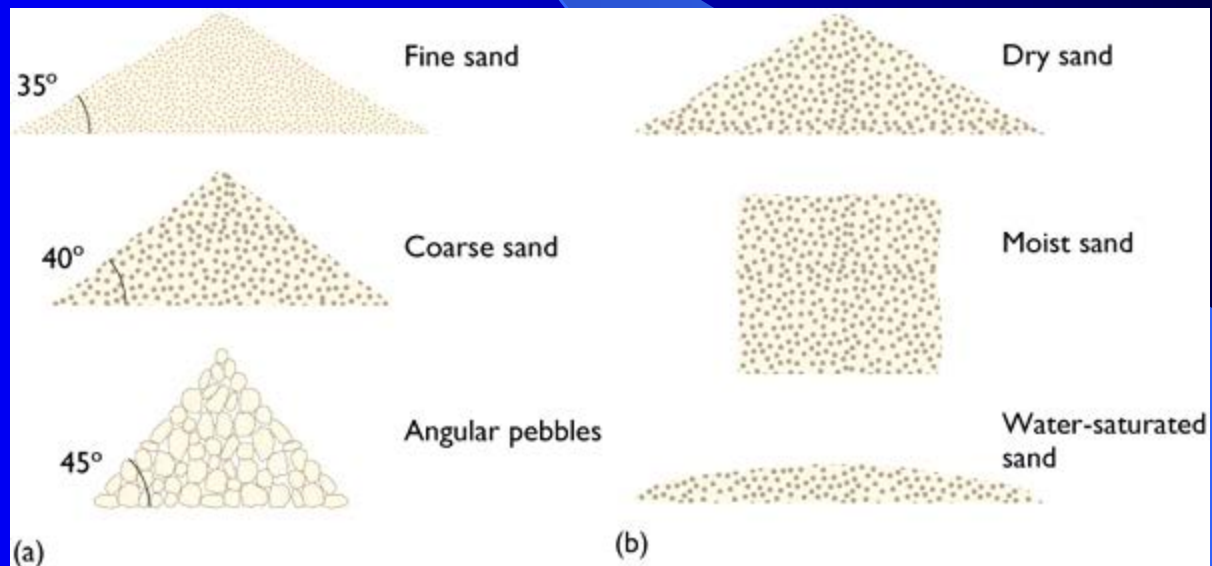
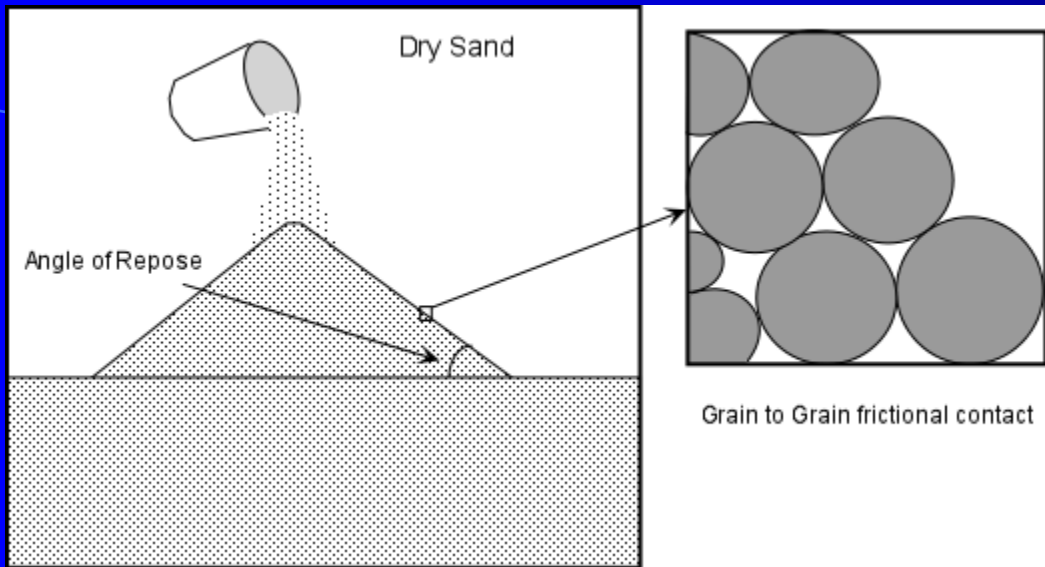
# Tropical Storm Irene and Mass Rt. 2

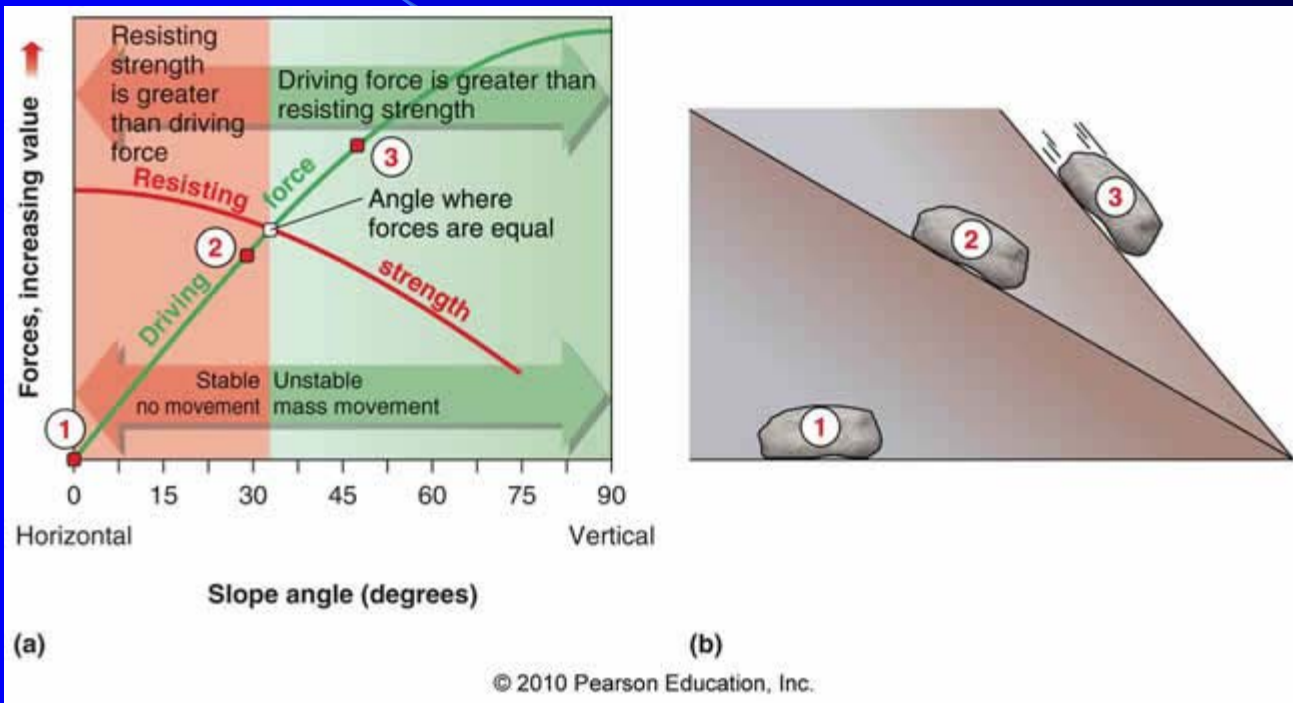
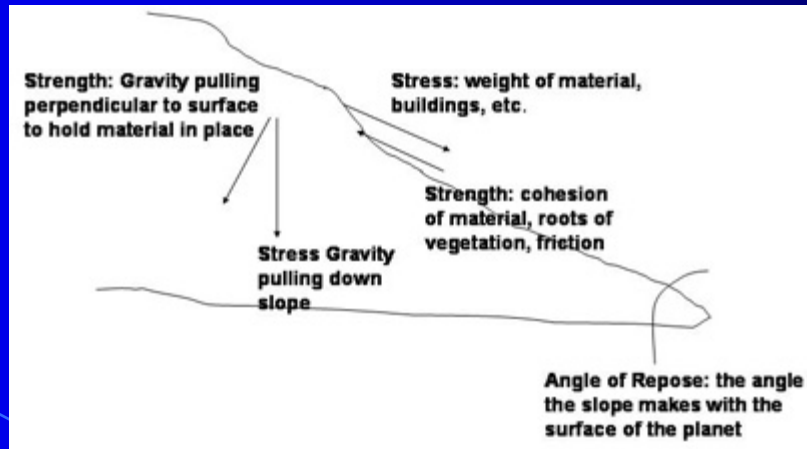


# Hegben Lake Earthquake - Slide and Quake Lake



**Angle of repose** - the maximum angle to the horizontal at which rocks, soil, etc, will remain without sliding.





## Factors that facilitate mass movement

- Seismic shaking
- Increased overburden from structures
- Increased soil moisture
- Reduction of roots holding the soil to bedrock
- Undercutting of the slope by excavation or erosion
- Weathering by frost heave
- Bioturbation

