

8. Slopes

The term slope refers to:

- a) *an inclined surface or hillslope*
- b) *an angle of inclination or slope angle*

Slope = any part of the solid land surface (including level surfaces of 0°).

These surfaces can be:

- **sub-aerial** (exposed)
- **sub-marine** (underwater)
- **aggradational** (depositional)
- **degradational** (erosional)
- **transportational** or any mixture of these.

Geography (geomorphology) studies the hillslope = area between the watershed and the base. It may (may not) contain a river or stream.

Slope form = the shape of the slope in cross-section

Slope processes = activities acting on the slopes

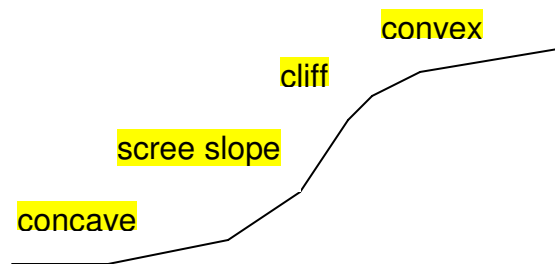
Slope evolution = development of slopes with time

Endogenic processes occur within the Earth (tectonic forces)

Exogenic processes operate at/near the Earth's surface (weathering/erosion, mass movements)

The simplest model of slope form:

- ❖ *waning slope (concave)*
- ❖ *scree slope*
- ❖ *cliff*
- ❖ *waxing slope (convex)*



Slopes = an open system => „active“ processes that shape „passive“ materials:

- *inputs*
 - energy (insolation)
 - mass (water and sediment)
- *outputs*
 - energy (re-radiated heat)
 - mass (water regolith)

The profile of a slope creates a store of potential energy, due to the difference in height between the crest and the base of the slope => this potential energy is converted to a kinetic energy (energy of movement) through mass movement and erosion.

Keywords:

slopes, fluvial, alluvial, eluviation, abrasion, subsurface flow, regolith, sub-aerial/sub-marine processes, erosion/weathering/degradation, (re)deposition/aggradation, slope form, slope processes, slope evolution, geomorphology