

Inversion of Topography

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Inversion of Topography

- Landforms are constantly changing through deposition and erosion.
- There are constructional and erosional landforms.
- Typically, constructional landforms such as river terraces and alluvial fans are constructed by deposition of transported parent materials.
- Typically, erosional landforms such as nose slopes and head slopes are remnants of residual parent materials.

Regional Scale

- On a broad scale, such as across the Appalachian and Blue Ridge Mountain region, we have very extensive river terraces and footslopes.
- It is not uncommon to find ancient alluvium and colluvium on summits of low-relief hills in the valleys, and highly dissected footslope remnants on mid-slopes of the mountains.
- How did that happen?

Processes

- The mountains in Virginia were once much taller than they are now. Tens of thousands of feet have eroded.
- The mountains are continuously rising, and streams are continuously downcutting to compensate. Throughout geologic time, ocean levels have risen and fallen.
- Lower ocean levels and rising mountains cause streams to downcut and convert floodplains to terraces.
- As they downcut, streams are also pirating watersheds from each other and changing the watershed boundaries and stream volume.

Regional Scale of Deposition

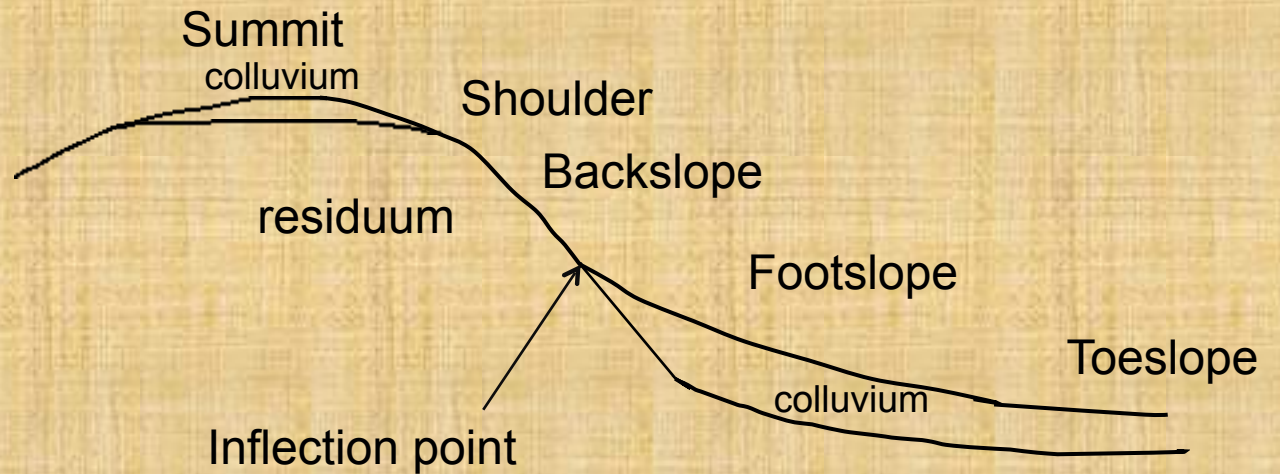
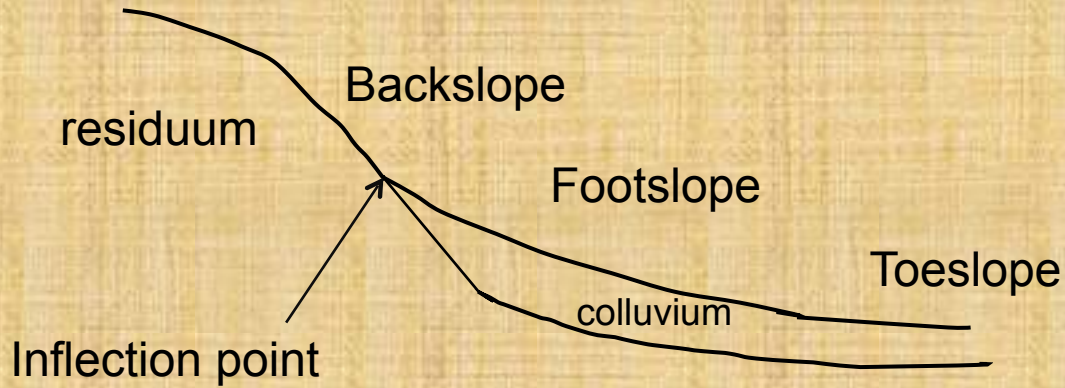
- Footslopes of the once taller mountains may extend across broad valleys and extend for miles in many directions away from the source (which may no longer exist).
- Stream dissection of the landscape may isolate portions of the alluvial and colluvial deposits, and incomplete downcutting may leave them behind.
- In time, the terraces and footslopes may become summits. Long after, they may become highly dissected and appear as erosional landforms.

Local Scale of Deposition

- On local hillslope scales, we find colluvium in footslope and toeslope positions, in sinkholes, and in broad drainageways.
- In karst landscapes, the sinkholes collapse, and what used to be a footslope or sinkhole sideslope may now become an upland hillside.

Inversion

Summit, shoulder



Questions?