



On some geomorphological consequences of orographic precipitation.

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The growth of a mountain range perpendicular to the prevailing wind direction leads to the progressive development of an asymmetrical distribution of precipitation because of orographic effect. The first geomorphological consequence is the formation of an asymmetrical topography of the range, the leeward flank, that receives less precipitation, being steeper than the windward one. The use of some simple laboratory experiments allows to investigate the detail geomorphic response to the development of an asymmetrical topography linked to precipitation gradient. During the development of an asymmetrical range, the migration of the drainage divide toward the leeward flank leads to a progressive decrease of the area of the drainage basins whereas the mean slope of the leeward topography increases. It induces the formation of a highly unstable and dynamical landscape whose evolution is characterised by captures, formation of terraces, relief inversions and migration of divides between drainage basins. Results from these experiments provide some insights to highlight the migration of the drainage divide of mountain ranges that evolve under orographic precipitation.