

## Paleodrainage Patterns and Basin Evolution of the NW Himalaya

TALK

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During the late Tertiary the NW Himalaya rose rapidly due to crustal shortening, thickening and differential erosion. At the same time adjacent basins subsided accumulating thick prisms of sediments which were continually compressed, uplifted and eroded as thrust sheets migrated over them. The interplay of tectonism with erosion by changing river systems is particularly apparent in the Pamir arc, which indented Asia only within the last 20' ma, involving almost 1000 km northward thrusting of already assembled collision belts over the Tadjik marginal basin.

The age and nature of the foredeep sediments of the Tarim and Tadjik basins have been used to infer pulses of contemporary tectonism in the mountains. NET rates of erosion derived from radiometric and fission track dating, sediment budgets and river drainages can be compared with GROSS rates of uplift derived from fossil faunas and floras. These studies show that each range has an independent history of uplift and erosion within the framework of generally increasing late Tertiary uplift. And so has each basin. Deposition in basins is determined by the courses of the major rivers which have NOT remained constant. The thickness of sediment accumulating in marginal basins and the isostatic uplift of ranges depends on when rivers changed their courses, on when and how much temporary storage occurred within intermontane basins, and the time at which the intermontane barriers were breached and their sediments eroded.

Establishing the Cenozoic courses of the major rivers of Central and Southeast Asia shows that coarse clastic sediment pulses can not be used to infer increased tectonism in adjacent ranges, they may simply reflect river capture. Though this places constraints on the tectonic history of collision, it also provides an opportunity to reconstruct the landscape as well as orogenic evolution of the mountain belt.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Berichte der Geologischen Bundesanstalt](#)

Jahr/Year: 1993

Band/Volume: [43](#)

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