

The longitudinal profiles of the Tejo and Douro tributaries commonly display concavities separated by knickpoints/knickzones. The most upstream concavity reflects a relict graded profile, of probable Piacenzian – Gelasian age. This concavity is separated from the rejuvenated profile, in the downstream part, by a slope-break knickpoint. In the rejuvenated profile, downstream concavities reflect the on-going transmission of several incision waves, linked to the Pleistocene - present stage of fluvial incision. In downstream concavities, some streams may be graded to transient forms of the river profile with respect to the lithology, structure and local base level history. They alternate with convexities (knickzones) developed where the incision waves were delayed, pinned to resistant substrate. The amount of incision obtained by downstream extrapolation of the relict concave reach to the confluence with the trunk river, are presented. The differential uplift along compartments limited by faults, should explain the differences in the incision values of Tejo and Douro tributaries. Different incision rates are calculated, based on a proposal of ca 2 Ma to the beginning of the incision. Considerable differences in channel steepness (k_{sn}), between the relict and the rejuvenated profile, seem result from different incision rates related with channel adjustment to the persistent forcing, the regional or differential uplift. Geomorphic thresholds, as the reduction area at the tributary junction, explain the automatic formation of slope-break knickpoints in these predominantly erosional landscapes.

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