



The Quaternary uplift history of Central Anatolia Plateau, Turkey: Evidences from the terraces of Kizilirmak River in Cappadocia

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Abstract

River terraces yield important information about the rate and amount of the uplift and incision associated with plateau development. The Central Anatolian Plateau (CAP) is the only orogenic plateau in Europe that rose between Aegean extensional tectonic province to the west, the Bitlis-Zagros collision zone to the east, African-Eurasian subduction zone to the south and the Pontic mountain belt to the north. It can be compared to the evolution of its larger counterparts such as Tibet, the North American Cordilleran Plateau or the Andean Altiplano-Puna. The incision of Kızılırmak River, the longest river (1355 km) of the plateau that reaches the Black Sea to the northern margin, has created an erosional landscape within the late-Middle Miocene and Quaternary lacustrine and ignimbritic deposits in Cappadocia section of CAP. The geomorphological investigations indicate fifteen terrace staircases at elevations up to 160 m from the actual river bed. Previous $40\text{Ar}/39\text{Ar}$ dating of the basalt flow (Evren Ridge Basalt) that fossilized the oldest tributary terrace in the valley was dated to the Early Quaternary (~ 2 Ma). Within the terrace sequences three additional basalt flows were also dated and they all suggest an incision rate of approximately ~ 0.08 mm a $^{-1}$, with important variations in time span. We collected several samples from the river terraces for surface and burial cosmogenic 10Be , 26Al and 36Cl dating and expect to refine the age relationships and learn more about the uplift rates.