

***From basalts to badlands: Late Quaternary landscape evolution in a tributary of the Gediz river, Kula, Turkey***

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The Geren catchment, a small tributary of the Gediz River, Western Turkey, consists of badlands which are the end result of Pleistocene-Holocene incision of the Gediz river. Early Pleistocene Gediz incision is characterized by an uplift-driven, climate-controlled terrace record which has been disrupted after volcanic activity started (Maddy et al., 2007). In the Late Pleistocene and Holocene, additional controls on Gediz incision and landscape evolution have been recognized: local base-level change in the form of basaltic lava dams, river capture and human impact. However, their relative magnitude and the subsequent complex response of the Geren catchment are not yet known. DEM analysis and fieldwork have been used to start clarifying Late Quaternary landscape evolution of this area.

The Geren catchment is mainly formed in readily erodible Miocene basin fills on which younger alluvial, deltaic and lake sediments have been deposited at different levels. In the higher parts of the Geren catchment these deposits are limestone-gravel rich sediments which now serve as cap-rocks. Erosion-deposition phases with a gradually decreasing gradient in the lower part of the catchment suggest Late Pleistocene-Holocene complex response to base-level changes and climatic change and, possibly human-induced, vegetation cover changes.

Near the confluence of the Geren with the Gediz, lava streams have flowed down and dammed the Gediz river valley and subsequently created local base level rise and fall after dam breaching. At least four separate lava flows have been distinguished in the contemporary valley which all may have blocked the Geren catchment. More insight into the landscape evolution and complex landscape dynamics of this area will come from sediment (OSL) and basalt (Ar) datings, increased altitude control and DEM accuracy and Landscape Evolution Modelling.

#### References

- Maddy, D., Demir, T., Bridgland, D.R., Veldkamp, A., Stemerink, C., van der Schriek, T., and Schreve, D. (2007) - The Pliocene initiation and Early Pleistocene volcanic disruption of the palaeo-Gediz fluvial system, Western Turkey: *Quaternary Science Reviews*, v. 26, p. 2864-2882.