



# Late Pleistocene intraplate extension of the Central Anatolian Plateau, Turkey: Inferences from cosmogenic exposure dating of alluvial fan, fluvial terraces, landslide, and moraine surfaces along the Ecemiş Fault Zone

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**ABSTRACT:** The internal part of the Anatolian microplate extrudes between the North and East Anatolian Transform Faults in the Eastern Mediterranean. Because of the semiarid environment that preserves deformed geomorphic features, the Anatolian microplate offers an ideal setting to investigate intraplate crustal deformation. The Central Anatolian Fault Zone is a left-lateral strike-slip fault zone stretching from Central Anatolia to the Mediterranean Sea. It is a transtensional fault zone characterized by both wrench structures (strike-slip faults) and extensional structures (normal faults). We focused on the Ecemiş section of the Central Anatolian Fault Zone where datable geomorphic markers associated with strike-slip and normal faulting are evident. The presence of a semiarid climate and strongly karstified carbonate-rich basement rocks in the Ecemiş Fault Zone lead to long-term persistence of landforms such as alluvial fans, landslides, and moraines, which can serve as strain markers to reveal millennial scale (0–100 ka) slip rates, fault interactions, and kinematic changeovers. We employed geospatial technologies for geomorphic mapping and applied TCN 36Cl surface exposure dating to infer the timing and rates of faulting. We provide (1) detailed geomorphic map of the area, (2) high-resolution topography and topographical profiles, (3) the timing of surface-breaking normal faulting, (4) slip rates and extension rates of normal faults, and (5) an evaluation of the role of these structures in terms of the regional tectonic framework.