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Miocene to recent sedimentary and structural evolution of the southern Karasu Rift (northern Dead Sea Fault), Southern Turkey.

S. J. Boulton

School of Earth, Ocean and Environmental Sciences, University of Plymouth, Plymouth, UK (sarah.boulton@plymouth.ac.uk / Fax: +44 (0)1752 238307 / Phone: +44 (0)01752232406)

The Karasu Rift, south central Turkey, is the northernmost section of the Dead Sea Fault Zone. The Karasu Rift is 15-20km wide and the bounding faults have a significant vertical component of motion. Palaeozoic to Upper Miocene sediments have been exhumed in the footwall and are faulted as well as jointed, two main populations of faults have been identified, those trending NE-SW (010˚- 060˚) and those trending $\sim$ N-S (320˚-005˚), although in some areas there is also a third subset of faults that trend E-W. Unconformably overlying the youngest unit of the Arabian passive margin sequence (highly deformed Eocene shallow-marine carbonates interpreted as having been deposited on a northwards facing carbonate ramp) are Lower Miocene conglomerates, sandstones and palaeosols up to 150 m thick (Kı cı Formation). These were deposited in a range of marginal marine settings consisting of alluvial fan/fan delta facies, flood plain as well as fully marine facies indicating a complex topography existed at this time. Subsequently, during the Middle Miocene, local patch reefs developed in restricted areas (Kepez Formation), with a vertical and lateral transition to relatively deep water hemipelagic marl, with clastic interbeds (Gökdere Formation), which have been dated as being mostly Upper Miocene in age. Upwards, the proportion of sand increases, recording the progradation from pro-delta to delta front, distributary mouth-bar and interdistributary bays. Water depth gradually became shallower until during Pliocene time the area became continental in nature. By the Quaternary rifting had resulted in the development of the present graben with alluvial fans active on the margins and braided rivers depositing coarse conglomerates in the axial zone. The western

margin of the Karasu Rift provides a record of the final evolution of the northern margin of the Arabian plate prior to and during continental collision, which took place in the Miocene, and the subsequent development of the northernmost extension of the Dead Sea Fault Zone in the Pliocene.