



Late Triassic uplift and erosion of the Tauride platform: testing models of ‘Cimmerian’ orogenesis.

P. W. Mackintosh, A. H. F. Robertson

School of Geosciences, University of Edinburgh, Edinburgh, UK (peter.mackintosh@ed.ac.uk)

The Central Tauride mountain range in southern Turkey consists of an autochthonous continental platform of Late Precambrian to Early Eocene age (Geyik Dağ), tectonically overlain by series of allochthonous units of Late Palaeozoic to Early Cenozoic age (Beyşehir-Hoyran-Hadim nappes). These units restore as a north-facing passive margin related to a northerly strand of the Tethys ocean (Northern Neotethys).

A crucial event in the sedimentary evolution of the Tauride platform occurs during the latest Triassic when there is an abrupt phase of uplift and erosion. This is recorded by the deposition of a thick (up to 200m) succession of alluvial clastics known as the Çayır Formation. It has been suggested that this ‘Cimmerian’ uplift was related to the collision of a Gondwanan-derived microcontinent with the south margin of Eurasia during the final closure of a Palaeotethyan ocean. An alternative hypothesis is that the platform experienced a mainly rift-related evolution, with the northerly passive margin not being deformed until the Early Cenozoic suturing of Neotethys.

We are currently studying the Çayır Formation for over 300km along strike. Our work has involved detailed sedimentary logging, facies analysis, palaeocurrent measurement, sediment provenance, petrological and laboratory analysis. The Çayır formation is characteristic of a terrestrial braided alluvial facies, with limestone intercalations representing relative sea level rise and flooding of the platform. Palaeocurrent analysis of cross-bedded sandstones and clast imbrication shows a general flow pattern towards the S. The clast composition indicates provenance from Triassic (e.g. micritic limestone; quartzose sandstone) and Palaeozoic (e.g. crystalline limestone; quartzite) units, as exposed in the Tauride platform beneath. A Tauride source is supported by petrological analysis of lithiclastic sandstones. Crucially, there is a lack of sediment that could have been derived from the Eurasian active margin where metamorphism

and magmatism took place during Late Palaeozoic (Hercynian) and Late Triassic – Early Jurassic (Cimmerian) times.

Our work suggests that the Çayir Formation is comparable with sediments related to syn-rift uplift (e.g. the Red Sea and Gulf of Aden). There is no evidence of a collisional event, for which we would expect foreland basin development with an increasing subsidence rate through time. Also, there is no field evidence of an over-riding orogenic load within the study region. We therefore infer that the Çayir Formation relates to flexural uplift of a rift flank in the latest Triassic, not long prior to final continental break up to form a northern Neotethys ocean.