Geophysical Research Abstracts, Vol. 7, 10507, 2005
SRef-ID: 1607-7962/gra/EGU05-A-10507

Testing the tectonic model of Palaeo-Tethyan ophiolites in the Eastern Pontides, N Turkey: an alternative origin as composite basement-cover units

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The Yusufeli area of the Eastern Pontides is reported in the literature to include the type example of a Palaeo-Tethyan ophiolite, representing oceanic crust of Early Jurassic age formed at a mid-ocean ridge and later subducted southwards. To test this interpretation the entire area was remapped at 1;25,000. The main results are that the oldest rocks in the area, amphibolite and gneiss, of inferred Late Precambrian age (DIC), and cut by an undeformed granite (Narlik Granite) of probable Late Palaeozoic age. This basement unit was intruded by swarms of dykes of gabbro-diabase and acidic composition and then unconformably overlain by volcanic-sedimentary assemblages of Late Triassic?-Early Jurassic age (Irmakyani Unit). This, in turn, was cut by isolated basaltic dykes, then deformed, before being unconformably overlain by transgressive platform to slope facies of Late Jurassic-Early Cretaceous age (Tortum Group). This unit was finally overlain by Late Cretaceous volcanogenic rocks of the well-documented Eastern Pontide magmatic arc. The area was dissected into NE-SW trending units by high-angle (transcurrent) faults in the north and experienced NW-directed thrusting in the south during Early Tertiary time.

The various units in the area that were previously assigned to a Palaeo-Tethyan ophiolite instead form parts of a high-grade metamorphic basement and an Early Mesozoic volcanic-sedimentary cover succession. Tectonic models relying on evidence of Palaeo-Tethyan ophiolites in the Eastern Pontides, thus need to be reconsidered. The

available evidence instead points to continuing subduction-related and extensional events along the south margin of Eurasia during Late Palaeozoic-Early Tertiary time.