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Geology and Correlation of the Mersin Mélanges, Southern Turkey

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Abstract: Our paper aims to give a thorough description of the infra-ophiolitic mélanges associated with the Mersin ophiolite. We propose new regional correlations of the Mersin mélanges with other mélange-like units or similar series, located both in southern Turkey and adjacent regions. The palaeotectonic implications of the correlations are also discussed. The main results may be summarized as follows: the infra-ophiolitic mélange is subdivided into two units, the Upper Cretaceous Sorgun ophiolitic mélange and the Ladinian-Carnian Hacıalanı mélange. The Mersin mélanges, together with the Antalya and Mamonia domains, are represented by a series of exotic units now found south of the main Taurus range, and are characteristic of the South-Taurides Exotic Units. These mélanges clearly show the mixed origin of the different blocks and broken formations. Some components have a Palaeotethyan origin and are characterized by Pennsylvanian and Lower to Middle Permian pelagic and slope deposits. These Palaeotethyan remnants, found exclusively in the Hacıalanı mélange, were reworked as major olistostromes in the Neotethys basin during the Eo-Cimmerian orogenic event. Neotethyan elements are represented by Middle Triassic seamounts and by broken formations containing typical Neotethyan conodont faunas such as *Metapolygnathus mersinensis* Kozur & Moix and *M. primitius* s. s., both present in the latest Carnian interval, as well as the occurrence of the middle Norian *Epigondolella praeslovakensis* Kozur, Masset & Moix. Other elements are clearly derived from the former north Anatolian passive margin and are represented by Huğlu-type series including the Upper Triassic syn-rift volcanic event. These sequences attributed to the Huğlu-Pindos back-arc ocean were displaced southward during the Late Cretaceous obduction event. The Tauric elements are represented by Eo-Cimmerian flysch-like and molasse sequences intercalated in Neotethyan series. Additionally, some shallow-water blocks might be derived from the Bolkardağ para-autochthonous and the Taurus-Beydağları marginal sequences.

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