



Role of Late Mesozoic subduction and Palaeogene collision in melange genesis and ophiolite emplacement in the Anatolides of western and central Turkey

A.H.F. Robertson (1), O. Parlak (2), T. Ustaömer (3), U. Ünlügenç (2)

(1) School of GeoSciences, Univ. Edinburgh, W. Mains Rd., Edinburgh, EH9 3JW, UK, (2) Dept. Geological Engineering, Çukurova Univ., 01330-Balcali, Adana, Turkey, (3) Dept. Geology, İstanbul Univ., 34310-Avcilar, İstanbul, Turkey.

The Anatolides represent an excellent example of a rifted passive margin, later subducted and exhumed within a collisional belt. Eleven areas exposed E-W over >450km were studied and correlated (Bolkar Mtns.-Karaburun). The Triassic-Upper Cretaceous Anatolide meta-carbonate platform is overlain by gravity flows and regionally extensive melange, including meta-pelagic carbonate, meta-chert and meta-basalt. However, some melange remained unmetamorphosed. Overlying sheets of unmetamorphosed ophiolitic peridotite are cut by diabase/gabbro dykes and locally underlain by a metamorphic sole. New geochemical evidence (major, trace and rare earth elements) of basaltic blocks in the melange suggest a range of within plate, mid-ocean ridge and subduction-influenced eruptive settings. Combined with existing analyses, the evidence is consistent with existence of a major ocean, including seamounts and an intra-oceanic volcanic arc. The crosscutting dykes are subduction-influenced, possibly related to rifting of a supra-subduction zone 'fore-arc' ophiolite. The Anatolide-Tauride platform rifted in the Triassic and a Neotethyan ocean opened to the N from the latest Triassic onwards. Northward intra-oceanic subduction began in the Late Cretaceous and an accretionary prism of mainly pelagic carbonates, radiolarites, neritic limestones and volcanics formed. Associated blueschist blocks were rapidly exhumed and reworked by gravitational processes. The Anatolide passive margin approached the trench during Campanian-Maastrichtian, causing initial up-flexure, then down-flexure and the emplacement of multiple gravity flows derived from the collapsing margin. The Anatolide platform was subducted beneath the northern (Sakarya) active continental margin undergoing regional HP/LT metamorphism, then exhumation.