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Deformation and emplacement of the Upper Cretaceous Izmir-Ankara-Erzincan Suture Zone in the Eastern Pontides, Turkey.

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The Izmir-Ankara-Erzincan Suture Zone in the Eastern Pontides, Turkey, is restored as a Santonian-Maastrichtian (85.8-65.5 Ma) south-facing 'Western Pacific-Type' active margin. The structural vergence of individual units within the suture zone records their emplacement history and is critical to understanding the tectonic assembly of northeastern Anatolia.

Santonian-Campanian (85.5-70 Ma) southwards migration of arc volcanism was coupled with the incorporation of Pontide metamorphic basement rocks into an extension-related diabase dyke complex during subduction 'rollback'. To the south, in the Taurides, an abrupt conformable transition from neritic limestones to pelagic limestones and coarse debrites of Campanian-Maastrichtian age (83.5-65.5 Ma) signifies the arrival of the Tauride passive margin at the subduction trench. Trench-margin collision triggered southward and northward emplacement of ophiolite, accretionary melange, volcanic arc and related units over the Taurides and the Pontides respectively. Five tectonostratigraphic units within the suture zone yield Late Cretaceous (Campanian-Maastrichtian) biostratigraphic ages and preserve pervasive shear fabrics, folds and faults exhibiting a relatively early top-to-the-north kinematic sense of movement. Later north-vergent compressional deformation of Mid Eocene age is seen in adjacent areas to the north. However, the Palaeocene-Eocene Sipikör Formation is the oldest unit in the Eastern Pontides to lack evidence of north-vergent deformation in the area studied. South-vergent thrusting subsequently imbricated all of the units of the suture

zone together with adjacent basement units and the overlying Sipikör Formation. The deformed Upper Cretaceous-Lower Cenozoic units are overlain with angular unconformity by Oligocene-Lower Miocene cover rocks of the Sivas Basin which were later deformed by further folding and thrusting.

Structural and stratigraphic data support a model for backarc ophiolite emplacement onto the Eurasian active continental margin during Campanian-Maastrichtian ‘soft collision’. The backarc lithosphere was also underthrust southwards beneath the volcanic arc. ‘Hard collision’ resulted in large-scale southwards re-imbrication, together with northward backthrusting in some areas during Mid-Late Eocene time (48.6-37.4 Ma).