Early Cretaceous sedimentation and orogeny on the southern active margin of Eurasia: Central Pontides, Turkey

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The Pontides in northern Turkey constituted part of the southern active margin of Eurasia during the Mesozoic. In the Early Cretaceous, a large submarine turbidite fan covered most of the Central Pontides. New U-Pb detrital zircon data show that the major source of the turbidites was the East European Craton in the north. This implies that there was no Black Sea rift between the Pontides and the East European Craton during the Early Cretaceous. The Lower Cretaceous turbidites are bounded in the south by a large metamorphic area, the Central Pontide Supercomplex, which is considered as a pre-Jurassic basement. New geological mapping, petrology, U-Pb zircon and Ar-Ar muscovite ages indicate that the northern part of the Central Pontide Supercomplex consists of Lower Cretaceous distal turbidites deformed and metamorphosed in a subduction zone in the Albian. The rest of the Central Pontide Supercomplex is made of Middle Jurassic, Lower Cretaceous and middle Cretaceous (Albian) metamorphic belts, each constituting distinct subduction-accretion units. They represent episodes of collision of oceanic volcanic arcs and oceanic plateaus with the Eurasian margin. The rifting of the Black Sea is generally regarded to have started in the Aptian-Albian. However, the lack of an Aptian-Albian magmatic arc, the absence of a rift between East European Craton and the Central Pontides during the Barremian-Aptian and the widespread Albian uplift of the Black Sea region indicate that the West Black Sea basin rifted and opened during the Late Cretaceous (Turonian-Santonian), a time of regional extension and magmatic arc development.