Late Eocene-Oligocene palaeogeography of Thrace Basin and its relationship with Eastern Thrace Basin

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Thrace Basin is an area of interest for many studies since it bears a significant natural gas and oil potential. There are two prevailing views with the development of the basin. One of these views is that Thrace Basin was a fore-arc basin, generated by the northward subduction of Inner-Pontide Ocean during Middle Eocene – Oligocene. The second view assumes that Thrace Basin was an either intermountain or collisional basin.

Sedimentological studies and facies analysis conducted in Thrace Basin indicate that there are 13 distinct facies. It is revealed that Late Eocene-Oligocene sediments were deposited under shallow marine, lagoon and terrestrial environments by means of lateral and vertical facies associations. It is observed that the sequence commenced from a deep marine environment and upward passed to shallow marine and terrestrial environments from Eocene onwards in general. Besides, the presence of volcano-clastic materials within the sequence implies that the sequence was accompanied by a volcanism during the deposition. In the light of these data, it is considered that the fore-arc basin model will be appropriate.

Thrace Basin is separated from the basin in the east by Çatalca and Istranca uplift. This basin is known as "Eastern Thrace Basin". The fill of this basin is composed of Oligocene marine Karaburun formation, overlying unconformably reefal limestones of Middle-Late Eocene unconformably. Karaburun formation begins by beach clastics as a transgressive series, and lasts by shallow marine and pelagic clastics and carbonates, and upward passes to deep marine clays bearing olistostromal units. These are overlain by deep marine channels, followed by uppermost coaliferous delta plain facies. This sedimentary succession shows that this basin is distinct from Thrace. Resting on Karaburun formation, delta plain sediments are characterized by lagoonal and some fluvial inputs, and have an age of Early-Middle Miocene based on mammalian fossils. Since it lies unconformably over beach deposits, it is differentiated here as a new unit, the Ağaçlı formation. It has an extent between Ağaçlı and Akpınar villages. Lithologically it includes claystone, marl, coal and some conglomerate and sandstone levels, and its thickness is up to 55 m. The sequence has a lagoonal character, and its lower levels bear fluvial inputs. The mammalian fossils such as *Cricetodon meini*, *Democricetodon* sp., *Microdyromys* sp., Rodentia indet., *Alloptox* sp. are collected from mudstones in these levels, and an age of Early-Middle Miocene is given to this unit. Its age is Oligocene-Early Miocene according to pollens from these levels. We confirm the view that Thrace Basin is a separate basin from the Eastern Thrace Basin, and they do not form terrestrial basin occasionally intruded by marine inputs.

The Isparta Angle and its reletationship with Aegean-Cyprus Tectonic Arcs, SW Turkey

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Recent active tectonics of the southwestern Anatolia region is very interesting and complex for academic studies. It has been studied about plate tectonics especially for 20 years. Taurus Mountains in Turkey which are located in Alpine-Himalayan orogenic belt, are one of the most active tectonic region in this orogenic belt.

Although the Taurus Mountains generally run in approximately east-west direction, this order is interrupted in Isparta-Burdur Region (Lakes Region). They locally bend and form an inverse V shaped angular deformation which is formed around the lakes region located in the north of Antalya Bay. This tectonic structure is known as the Isparta Bend or the Isparta

Angle in geological literature. Isparta Angle is a big active tectonic structure in the Southwestern Turkey. It is related with subduction zone located between African and Eurasia in Mediterranean Sea at south of Turkey. Subduction zone is the most important convergent plate boundary in the region and is divided into two parts in the south of Turkey. These two parts are called Aegean and Cyprus tectonic arcs. They extend from the Eastern Mediterranean Sea towards the Aegean Sea along the southwestern coast of Turkey. Main reason of the seismicities that occurred in the region are these subduction zones.

Southwestern Anatolia is under the influence of N- S compressional forces along the Aegean and the Cyprus tectonic arcs due to the African–Anatolian Plate's activities and also southwestern part of Taurus Mountains includes lots of enigmatic structures. These subduction zones have different seismotectonic and seismicity characteristics particularly in the east and west of Fethiye Bay. This difference has formed structurally large-scale tectonic fracture zones and big important tectonic structures for example Isparta Angle in the region. This angle is bordered by Aegean-Cyprus tectonic arcs in the south, Southwestern Anatolian Fault at the west and Kırkavak Fault at the east. Southwestern Anatolian Fault is one of the most important NE-SW direction and left lateral slip fault which is located between Fethiye Bay and Eğirdir Lake. On the other hand, Kırkavak Fault is one of the most important NNW-SSE direction and right lateral slip fault which is located between Eğirdir Lake and the Mediterranean Sea. These are conjugate faults and syntectonic deformations in the region. This large-scale structural deformation, which has played an important role in the geodynamic and geotechnical revolution of the region, is located in the Lakes Region in the north of Antalya Bay, Southwestern Turkey.

The Aegean Arc is higher seismicity than Cyprus Arc. This arc differentiates in direction toward NE and NW in south of the Crete Island because of it locally bends an edge around south of island. It caused a forming of a big tectonic line in the region known as Southwestern Anatolian Fault also known as Fethiye-Burdur Fault Zone. On the other hand, it is believed that this bending is responsible for the extension in Western Anatolia since at least the middle-Upper Miocene. Isparta Angle has formed during the Paleotectonic Period (Middle Miocene time), and its evolution continues up until the present time since Upper Miocene. Even today it is the most important active tectonic deformation in the region. During the Neotectonic Period, many interesting events and structures are resulted due to this active tectonic deformation since the Upper Miocene. Examples of these events include active faulting, seismicity, volcanism and continental/lacustrine deposition in southwestern Turkey. On the other hand, The Central Anatolia moves westward along the North Anatolian Fault, relative to Eurasia. However, the Western Anatolia (west of the Isparta Angle) moves in a SW direction along the Southwestern Anatolian Fault. These are major evidence for active tectonic in the region. One of the significant deformations in the Mediterranean Sea is the Pliny-Strabo Trench that has a left lateral slip, extends as the Southwestern Anatolian Fault between the Fethiye Bay and the Eğirdir Lake in southwestern Turkey. Western and the Central Anatolia were separated from each other with the Southwestern Anatolian Fault.

Main purpose of this study is to present the effects of the Aegean and the Cyprus tectonic arcs on the Isparta Angle at the southwestern Taurus and all tectonic structures during the paleotectonic and neotectonic periods.

Non-destructive study on objects from Benedictine Abbey of Einsiedeln

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During this study, chalices made about start of 17th century were investigated. This is the first time that these objects were studied from people outside the Abbey. The goal of the study was to characterize the gems of these items and to compare them with the observation