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Petrographic and Facies Properties of the Evaporites in the Cihanbeyli-Yeniceoba Basin (Central Anatolia, Turkey)

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The Cihanbeyli–Yeniceoba Tertiary basin and other neighbouring basins such as Haymana on the NW and Tuzgölü on the east were formed after ophiolite emplacement and then evolved as tectonic controlled basins bordered with normal and oblique-slip fault systems NW-SE in extending. Where sedimentation commenced with Late Cretaceous-Early Paleocene marine transgression and ended by late Middle Eocene-Early Oligocene regression that involved thick evaporite sedimentation just before the onset of the terrestrial regime through the early Late Oligocene-Pliocene time. This study mainly was focused on the evaporitic sediments of the Late Oligocene-Middle Miocene aged Gökdağ Formation which unconformably overlain by fluvial and alluvial units of the Cihanbeyli Formation (Late Miocene-Early Pliocene). Typical outcrops have been seen around the Yeniceoba-Kütükuşağı-Kuşca region located in the western part of Tuz Gölü (Salt Lake). The study includes several targets. These are stratigraphical contact and relationship between evaporite and non-evaporite units, evaporite environments and mineralogical, petrographical and microtextural features of the evaporites. The following five evaporite facies were described: a) massive gypsum (F1), b) laminated-banded gypsum (F2), c) nodular gypsum (F3), d) clastic gypsum (F4), e) satin-spar gypsum (F5). On the other hand polarized microscope and scanning electron microscope (SEM) show that secondary gypsums are represented by alabastrine and porfiroblastic textures. Primary anhydrite relicts, euhedral celestine crystals accompanied with the secondary gypsum. Clastic gypsum is rich in fragment fossils (mostly nummulites) and kaolinite clay minerals. All data suggest that evaporites were widely deposited as basin margin evaporite that temporally underwent atmospheric conditions gave rise to detrital gypsum ranging from gypsarenite to gypsum conglomerate.
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