Valanginian Sea-Level Records on the Bilecik Carbonate Platform and Slope Environment, Western Sakarya Zone, Western Pontides

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The peritidal carbonate successions have been studied on the Valanginian part of the Bilecik platform in the north-western Turkey. They display cyclic patterns through the sections. This cyclicity is generally seen as shallowing upward type and interpreted as the records of short-term sea-level fluctuations. On the Bilecik Platform, intraclastic/pelloidal/bioclastic subtidal facies are more frequently encountered. Pelloidal grainstone/packstone, intraclastic/bioclastic grainstone/packstone display iron encrusted/corroded surfaces around pelloids, oncoids and intraclasts. This iron encrustation is not well observed within the matrix or cements. Therefore, it can be interpreted as the subaerial contribution during transportation/deposition of grains followed up a weathering condition possible by storms/tide activities. Alternation of wet and dry climate conditions could also have contributed to have such a color change.

Pelloidal grainstone/packstone, intraclastic/bioclastic grainstone/packstone or facies lies at the bottom and fenestral/birds eye limestones or lime mudstone facies take place at the top of the cycles which display a shallowing upward character. Thickness and number of subaerially capped cycles increases in the Valanginian compared to Jurassic cycles in the Bilecik Platform. Reddish-pinkish and beige colored facies display alternations on the Bilecik platform. The Bilecik carbonate platform margin displays alternation of pelagic carbonates and tongues of the platform carbonates. Tongues of the Bilecik Platform display thick-bedded bioclastic packstone facies lying between thin-bedded pelagic lime mudstones/wackestones. Consequently, this study implies that climate effected sea-level variations on studied shallow carbonate platform were on the order of meters and effects of possible storms/tides were also recorded. Pelagic equivalents of these sea-level records displayed alternation of thick bedded bioclastic packstone facies and thin-bedded pelagic lime mudstone/wackestone facies.