Trace elements and REE geochemistry of Late Jurassic-Early Cretaceous Platform Carbonates, Ayralaksa Area (Trabzon, NE Turkey): Implications for diagenetic processes

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Large-scale, massive dolomite bodies are well preserved in the Eastern Pontides (northeast Turkey), which is known as one of the best examples of the metallogenic provinces on the Alpine-Himalayan belt. These dolomite bodies are hosted in the Upper Jurassic – Lower Cretaceous Berdiga Formation, which is composed of platform carbonates. The Berdiga Formation in Ayralaksa area (Trabzon, NE Turkey) is pervasively dolomitized by fabric-destructive and fabric-preserving replacive dolomites (RD). These dolomites are Ca-rich and non-stoichiometric (Ca_{56-66}-Mg_{34-44}) and have low δ18O (–19.01 to –4.20‰ V-PDB) and δ13C (2.11 to 4.40 ‰V-PDB) values, radiogenic $^{87}Sr/^{86}Sr$ ratios (0,70745-0,70636). All dolomite samples have low Y/Ho (20–45) and Sm/Nd (0.1-0.3) ratios and they contain highly variable contents of rare earth elements (REE+Y) (1.9-15.8). REE patterns of dolomites normalized to Post-Archean Australian shale generally show a distinct positive Eu (1.3–2.1), negative Ce (0.5-1.1) and slightly flattened Pr (0.8–1.1) anomalies. The distinct REE features of the dolomites are mainly attributed to complex diagenetic alterations (dolomitization and recrystallization) occurring at shallow to deep burial stage.

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