

Sedimentary facies and depositional environment of the Mobarak formation in the Kahang area, Central Alborz

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Abstract

The carbonate- siliciclastic sediments of the Mobarak Formation (Lower Carboniferous) at the Kahang area with 222 m thick, is composed of thick-bedded shale and thin-bedded limestone in the lower part, thin-medium- bedded limestone in the middle part, thick-bedded shale intercalated with limestone in the upper part of sequence and thick, massive conglomerate at the uppermost of the section. Based on petrography, geometry, macrofossil contents and trace fossil evidences (in the fieldwork observations), as well as microfossil and textural characteristics (in the laboratory studies), determination of 15 carbonate and one siliciclastic facies was possible. These facies are deposited in six facies zones include tidal flat, lagoon, shoal and patch reef in the inner ramp, middle ramp, ramp slope and deep ramp. The massive conglomerate facies is deposited in an upper shoreface- onshore setting. Templates facies as slope break related turbidite facies (crinoid packstone), intercalated within deep ramp facies (spiculite mudstone) display this carbonate-siliciclastic sequence is deposited in a carbonate platform of distally steepened ramp. The lateral changes in the facies and thickness of the sedimentary successions of the Mobarak Fm. display a generally deepening trend from south-south western to the N-NE of the Alborz Basin during deposition of the Mobarak Fm. in lower Carboniferous.

Keywords: Alborz, Mobarak formation, Turbidite, Distally steepened ramp