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Aptian Ramp Sedimentation of the Jebel Serdj Massif, North-Central Tunisia, and Sea Level Variations Recorded in Magnetic Susceptibility

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Abstract : The Aptian series in north-central Tunisia was studied in detail regarding to lithology, microfacies, and magnetic susceptibility to provide new insights into the paleoenvironmental evolution and sea level changes in the carbonate platform. The study series is about 350 meters thick, and it consists of fives sequences of limestones, separated by four levels of marlstones and marly limestones. Petrographic study leads to the definition of 11 microfacies which are successively recorded along the Serdj section into the outer ramp, mid-ramp, inner ramp and coastal facies associations. The magnetic susceptibility of all samples was measured and compared with the facies and microfacies. There is a clear link between facies and magnetic susceptibility; the distal facies show high values while the proximal areas show lower values. The magnetic susceptibility profile reflects stratigraphic variations in response to relative changes in sea level and input of detrital materials. During the Aptian, kaolinite/illite intensity ratios show high values possibly indicating a warming trend followed then by decreasing values that may indicate a cooling trend. During the Albian, this cooling trend is reverted into humid/warming.

Keywords : Aptian, mineralogy, petrology, Serdj massif
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