

AP20

## Regional Unconformities in the Cenomanian and Turonian Limestone of Southwest Iran (Sarvak Formation) - Sub-aerial Exposures, Diagenetic Patterns & Impact on Reservoir Properties

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### SUMMARY

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The Cenomanian/Turonian shallow water deposits of the Sarvak Formation constitute one of the main reservoirs in SW Iran. Heterogeneities in these reservoirs are controlled by lateral facies changes, caused by intrashelf basin to platform transitions, and by diagenetic overprint related to three (regional) exposure surfaces that subdivide the succession in third order depositional sequences. This diagenetic imprint has been studied in superb exposures of this formation in the outcrops of coastal Fars, which are considered as good outcrop analogues for the nearby oilfields.

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The diagenetic study focuses on: (1) the effect of exposure occurring in the Middle Cenomanian on the reservoir properties of large-scale, bioclastic grainstone sandwaves, which are impregnated with paleo-oil. Observations show that meteoric water influx lead to an early stabilization of the mineralogy, which prevented later diagenetic evolution during burial and thus a partial preservation of primary pore-space. (2) Two exposure surfaces, one at the top of the Cenomanian, and one in the Turonian, with well-developed palaeosoils, including pisolith formation, and fluvial conglomerate and sandstone deposits, reworking palaeosoil elements. The Turonian surface displays evidence for erosion, and possibly (subtle) tectonic control. Observations show that despite the preservation of these palaeosoils the carbon-isotope signal of underlying altered carbonates is modified only a few meters below the surface. This is of primary importance for who aims to use the stable carbon isotope of carbonates as a correlation tool for sequence stratigraphy.