

JURASSIC-CRETACEOUS MODEL OF SEDIMENTATION AND STRUCTURE
OF RAVNI KOTARI AND PODVELEBIT GEOTECTONIC UNITS

P. MILJUSH and J. PENSA
INA-Naftaplin Oil -Company, Zagreb
(Yugoslavia)

Résumé : Ce travail présente un modèle de la sédimentation jurassique-crétacé, ainsi que la stratigraphie et la structure géologique des unités géotectoniques de "Ravni Kotari" et de "Podvelebit".

Ravni Kotari and Podvelebit geotectonic units represent parts of Dinarides miogeosynclines of area between Rijeka and Split and they contain mesozoic carbonates with anhydrites, overlaid by paleogene limestones and clastic deposits.

Jurassic-Cretaceous model of sedimentation is controlled by sedimentation in several shelf depressions separated by shallow-water of uplifted zones. Paleotectonic settings and climatic conditions are the main factors in the distribution of different carbonates as well as anhydrites. On the basis of environmental analysis of carbonates the following facies are distinguished :

1. Open marine, neritic shelf facies originated in the deepest shelf environment in the Adriatic foreland. Includes mostly fine pelagic deposits, limestones interbedded with shales and marly-limestone of upper turonian and senonian age.
2. Upper Cretaceous facies of slope carbonate and turbidites occur in the slope zone (Losinj-Premuda-Dugi Otok) and marine channels of Adriatic foreland.
3. Facies of breccia and microbreccia interbedded with carbonates on the slope zones of Podvelebit depression, originated predominantly during Cretaceous period.
4. Open marine, littoral-neritic carbonate facies of Ravni Kotari and Podvelebit depression of turonian-senonian age.
5. Restricted shelf facies, predominantly pelitic carbonates, restricted circulation of water and reduction environments. Appear in all three depressions between evaporites and Upper Cretaceous open marine carbonates.

6. Evaporite facies of carbonate-anhydrite complex originated in restricted environment of Ravni Kotari depression. This depression was the most isolated one on the Adriatic Salient shelf area of Africa platform during Jurassic and Cretaceous. Drilling showed the thickness of that complex to be over 3000 m. It is characterized by multiple change of carbonate-breccia sequence and anhydrite one. Thin beds of breccia "caused by collapse of carbonate layers due to solution of interlayered anhydrite" (Blount and Moore, 1969 ; Dunham 1972). Complex is further deformed by tangential forces and reversal movements of imbricate structures and Ravni Kotari overthrust, which disturbed primarily sedimentary relations between anhydrite and carbonate sequences, especially in the upper part of the complex. It explains secondary position of older anhydrite in younger carbonates in the frontal part of overthrust.

Synthesis results of drilling, geological and geophysical explorations, partially illustrated in the cross-sections, indicates two main structural zones which illustrated in the cross-sections, indicates two main structural zones which separated geotectonic units of Podvelebit, Ravni Kotari and Adriatic foreland. Podvelebit unit is characterized by Paleogene "Promina breccias", Ravni Kotari with Eocene flysch and Adriatic foreland with predominantly molasse. Thick sedimentary complexes of Podvelebit and Ravni Kotari are folded and deformed into long asymmetrical folds and imbricate structures. The island zone of Cres-Losinj, Dugi Otok, Brač are part of frontal zone of Ravni Kotari overthrust which spread over Adriatic foreland. During late Paleogene Ravni Kotari it uplifted as high land area, while Adriatic foreland continued sedimentation of marine deposits, with local oscillations and breaks. In the late Paleogene and during Quaternary period transgression and sedimentation involved one part of Ravni Kotari and Podvelebit unit. Greater subsidence of Adriatic area resulted in formations of many channels, islands and bays which exist up to this day.