

LATE NEOGENE STRUCTURE OF THE PELAGIAN BLOCK

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The Pelagian sea together with nearly continental areas as the Tunisian Sahel Plain, the Sicilian Iblei Plateau and the Malta Shelf constitutes a sedimentary and tectonic unit that we name the Pelagian block.

It abuts westward against the folded Tunisian Atlas, and plunges northward below the Sicilian Nappes. Eastward the Siculo-Malta Escarpment forms a sharp faulted boundary with the deep Ionian Basin. But arriving from the south the Pelagian Block is nothing else but a faulted promontary of the African Platform. The Pelagian block has been the object of extensive geophysical coverage and quite a few deep wells have been drilled by oil companies. Shallow seismic lines in some places of interest allow a more detailed knowledge of the shallow structure of the area.

Generally speaking the Upper Miocene sedimentary pile is made of a few hundred meters of shallow water deposits : a sand formation, a carbonate formation and at the top an evaporitic formation of Messinian age. This evaporitic level gives a good seismic marker and is followed by a pelagic formation of Pliocene marls. The sedimentary sequence ends with Pleistocene deposits, more diversified according to varied depositional setting.

In the South of the Pelagian block, the Gabes basin is characterized by a relatively important subsidence and moderate faulting. There are a few elongated folds due to a diapirism of Triassic salt. The basin opens eastward in direction of the deeper Tripolitanian basin. There are minor WNW/ESE faulted grabens but no large N-S fault which could extend to the South the Siculo-Malta escarpment.

In the central part, the Tunisian Plateau includes the southern part of the Sahel, the Kerkennah islands area and extend to the East as far as the Medina bank. The subsidence is smaller, the faulting more intense and creates a few grabens deepening eastward. A minor faulted escarpment of SW/NE direction separates the Tunisian plateau from the Syrte basin.

North of Lampedusa island the Sicily Channel is well outlined by the -500 metres isobath. Three main trenches are well marked on the sea bottom : Malta trough - 1700m, Linosa trough - 1600m, Pantellaria trough -1300m. They were formed by two phases of faulting during Plio-Quaternary times - The last phase was Pleistocene and gave the trenches their present morphology. This last phase of faulting is contemporaneous of the volcanism of Pantellaria, Linosa and the eruptions recorded during historic time in the area South of Sicily.

North of a high marked by the Pinne Marine and Madrepor banks, a last asymmetrical basin plunges northward below the allochthonous masses pertaining to the

Caltanissetta "basin" : these nappes constitute the northern flank of the Gela foredeep. This deep basin is partially filled with slumped sediments (derived from the nappes). These olistostromes interfinger with the autochthonous sedimentation during Pliocene and mainly Pleistocene.

The Sicily channel swerves to the North, West of the Pantellaria through, to join the Tyrrhénian sea through the Egadi Valley. In fact the sea bottom morphology does not let perceive the system of deep throughs which proceed and increase in size to the West, filled up par Plio-Quaternary sediments coming from Tunisia, under the Tunisian continental Shelf from Mahdia to the Tunis Gulf. Their extension on shore is known in the Northern Sahel. The same tensional system goes on in the Tunisian Atlas where Quaternary throughs have been described.

The Sicilo-Maltese escarpment does not continue to the South : passing the 36th parallel it swerves eastward to join the Cyrenaica scarp through the Medina Ridge and Cyrena plateau.

In the North of this major feature we enter the Ionian domain with an abyssal plain receiving from the North and the N.E. the allochthonous masses proceeding from the Calabrian Rise and the Mediterranean Ridge. Varied sediments (shallow water deposits of Triassic - Lwr Liassic age and pelagic rocks of Oxfordian, Albien, Senonian, Paleogene and Neogene age) have been dredged from the N.S. segment of the Sicilo-Maltese Scarp. Their facies and the depth where they were found are in agreement with those observed in the wells drilled on the Pelagian Bloc. We know practically nothing about their chronological equivalents on the other side of the faulted scarp, in the Ionian domain.