

Neogene evolution of the Apulian Swell

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Resumé.

Une étude systématique de la dorsale de Pouille qui sépare, suivant une direction NW-SE, le bassin adriatique du bassin ionien a été entreprise. Elle permet de préciser les caractéristiques de la couverture sédimentaire et de distinguer deux grands secteurs ayant une évolution tectonique différente à partir du Miocène supérieur. La marge apulienne-adriatique est relativement sédimentée et faiblement tectonisée. La marge apulienne-ionienne ne possède qu'une mince couverture sédimentaire récente et est parcourue par un dense réseau d'accidents distensifs encore actifs pour la plupart.

Abstracts.

The submerged Apulian swell constitutes a wide, dissymmetric, NW-SE oriented topographic high in the Northern Ionian Sea, extending from the Apulia to Kephallinia and separating the relatively shallow Southern Adriatic basin from the deeper Ionian Sea.

During recent years a systematic survey (including dredging and seismic profiling) has been carried out by I.G.M. Bologna across the whole area in order to study its sedimentary cover and shallow structure and to clarify its general recent evolution.

The bathymetric map of the Swell allows to distinguish two margins; towards NE (Adriatic margin) the Apulian slope is gentle and wide, towards SW (Ionian margin) the slope comprises a series of steep scarps facing the deep Ionian basin and the Taranto valley. This asymmetric morphology reflects a comparable opposition between the two margins of the level of both the sedimentary cover and the structural framework.

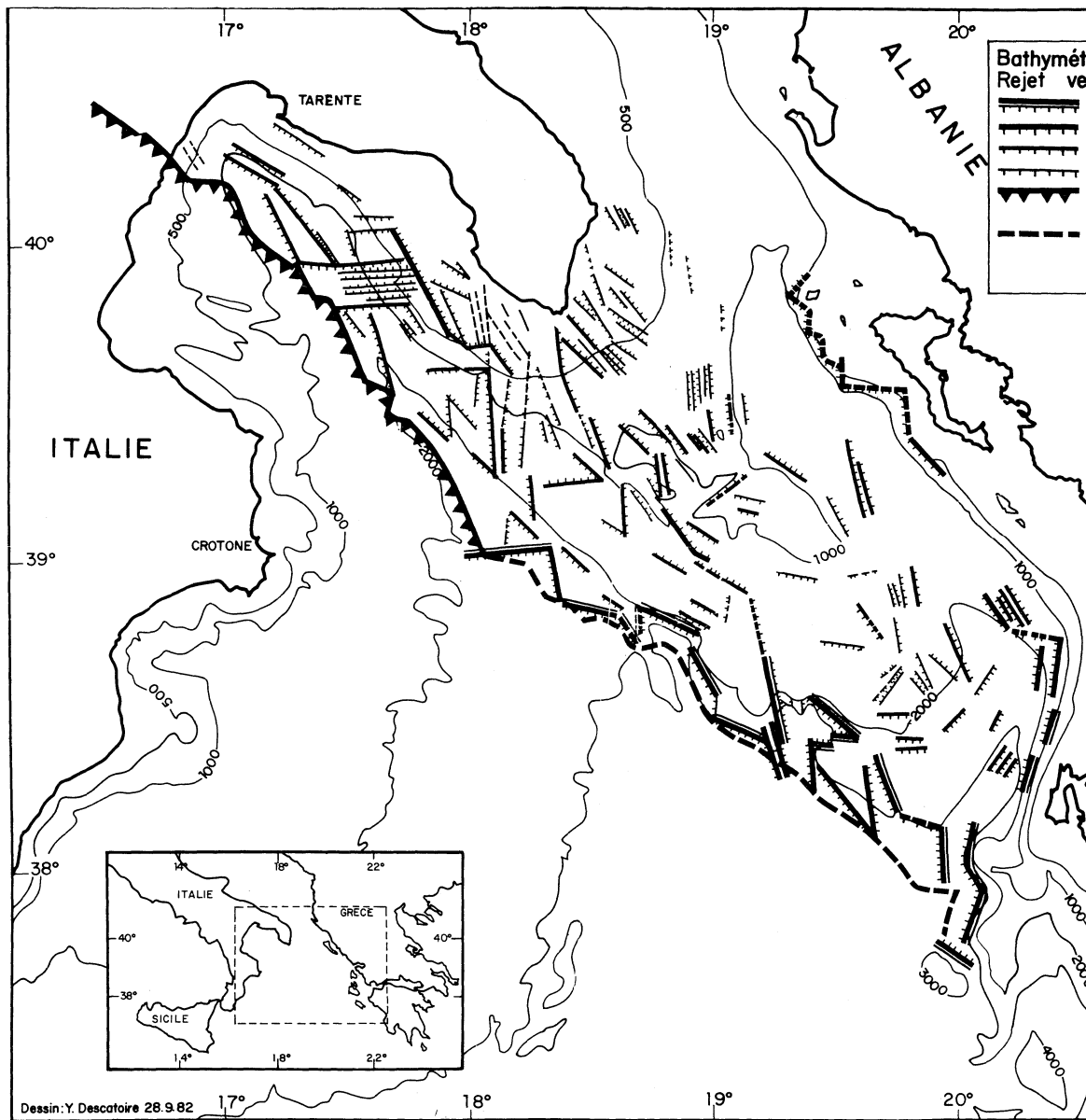
1. - The Northeastern margin (Adriatic margin).

Along this area we observe below a lower Pliocene to Quaternary cover (locally thick) a strong horizon correlated with the late Miocene (Messinian). On the Swell itself the Messinian seismic sequences represent an erosional surface while eastward they gradually pass to well layered strata thickening towards the Hellenic continental margin below the Otranto channel. Finally deep and relatively well layered seismic sequences are observed below Late

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Miocene series. They are provisionally attributed to Oligo-Miocene deposits covering the Apulian basement and locally thickening in former basins. This portion of the Apulian swell is poorly faulted; most of the faults are covered by undisturbed Lower Pliocene indicating a decrease in tectonic activity since that time and a probable increase of a regular subsidence since Upper Miocene.

2. - The Southwestern margin (Ionian margin)

The sedimentary cover displays a comparable seismic sequence. However we observe a general thinning of the Quaternary-Messinian strata. Except locally (within small grabens) the cover rests directly on a strongly diffractive seismic basement attributed to Upper Cretaceous dolomitic limestone of Apulia. This area is intensively cut by a grid of distensive faults active until recent time. The main structural trends are N-S, E-W and NW-SE. Large vertical offsets characterize mostly N-S and E-W faults which are presumed to be former rejuvenated structures. NW-SE, more discrete, faults may correspond to younger (Lower Pliocene-Pleistocene) distensive features as it is the case along the adjacent Salentina peninsula. Finally S-E wards the Apulian swell abuts against the steeply NE-SW trending Kephallinia slope interpreted as the morphologic scar of a major right lateral strike-slip fault pinched to the activity of the Hellenic arc.

The Neogene evolution of the Apulian swell comprises at least two stages. During Miocene (and may be slightly before) former tectonic trends are reactivated and create along the Adriatic Apulian margin a series of horizons and tilted blocks. Messinian sedimentary strata are deposited within the basins while erosion is active on the Swell itself. Active subsidence occurs during Pliocene and Quaternary in these basins.

The tectonic evolution of the Ionian Apulian margin is rather different. Probable former trends (N-S and E-W) as well as recent structures are activated somewhere during Miocene and are active until recent time, illustrating thus the present day asymmetry of the Apulian swell. This difference in evolution relates probably to an advanced collision stage between Apulia and Calabria and a probable subsequent bending of the Apulian platform.

