THE ALGERIAN OFFSHORE EXPLORATION

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SONATRACH, a state oil company, began seismic exploration of the Algerian offshore and the western Mediterranean sea by the end of 1960, in three different and main steps.

In the first step, 1968 - 1970, the seismic profiling was concentrated on the bays along the Algerian coast longer than 1200 km. The main objective of this step was to define, as well as possible, the bathimetric data previously recorded and where it is, to some extent almost inexistant in front of the coastal chains.

For the second step, 1973-1974, the exploration idea became broader and then a very large exploration scale seismic programm was conducted. It includes the whole western Mediterranean sea, comprising Algero-provençal and Alboran basins. This survey allowed us to have a global morphology of the western Mediterranean sea, the thickness and the importance as well as the sedimentation and water depth.

Later, on 1976 - 1977, according to the results of the previous surveys, SONATRACH in association with TOTAL - CFP, recorded two important seismic programs in the western and eastern parts of the Algerian continental margin.

The result of the western program ended by a well drilled under 923 m of water and reached the metamorphic basement at 4418 m.

From that well, the lithostratigraphy of the western offshore was well defined and where the oldest deposits were dated of the upper - Miocene (TORTONIAN).

As concern the eastern offshore, no more works after the seismic survey in 1977, except reprocessing trials of a very few lines wich gave satisfying results.

Since that time, all the exploration efforts made in Algeria were concentrated on the continental domain, particularly on the Saharan platform.

MESSINA AND SIRTE ABYSSAL PLAINS AS FORELANDS OF THE MEDITERRANEAN RIDGE ACCRETIONARY COMPLEX

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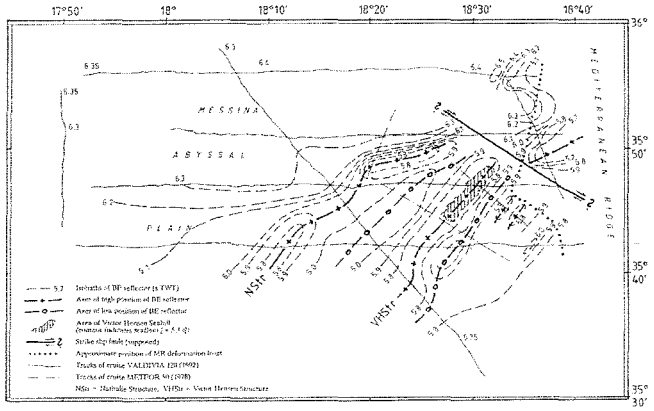
Only the Plio-Quaternary section of the sedimentary sequence of the Messina A.P. is known from DSDP Site 374 and several piston cores (HSÜ, MONTADERT *et al.*, 1978; HIEKE, 1984). The Quaternary is dominated by turbidites (MÜLLER *et al.*, 1978), the Pliocene by hemipelagic sediments. The occurrence of Upper Miocene (Messinian) evaporites is proved in Site 374. Information on older parts of the sedimentary sequence as well as on most of tectonic features is available from seismic investigations, e.g. carried out during Valdivia cruise 120 (HIRSCHLEBER *et al.*, 1994). Additional data come from gravity and magnetic studies.

The most important result is that the Messinian evaporites do not occur as a uniform thick layer covering the whole area under the Messina A.P. This is particularely documented in the SE corner of the plain. There Victor Hensen Seahill rises above the plain floor (HIEKE and WANNINGER, 1985). It is part of a narrow elongated SW-NE trending subbottom structure towards which the Messinian evaporites pinch out on both sides. Similar structures of different size accompany Victor Hensen Structure (Fig.). They are obviously affected by transverse faults. All structures are interpreted as horsts acting at least since Messinian time. Victor Hensen and Nathalie Structures are still active. The also observed pre-Messinian tectonics differ in size and type.

The pattern of syn- and post-Messinian tensional tectonic features is situated just in front of the about N-S trending deformation front of the Mediterranean Ridge accretionary complex. Therefore, we have to expect that similar structures influencing the thickness (and nature) of Messinian evaporites also occured in those part of the former Messina A.P. which are already incorporated into the accretionary complex. This can be confirmed by the relief of the ridge near the deformation front. Similar but less prominent structures are observed from Sirte A.P. There is most spectacular a synsedimentary normal fault displacing the base of evaporites in the order of 0.5 s TWT.

Decollement levels needed for shortening the sediment pile during accretion processes may have developped within the evaporite sequence as has been often assumed in the literature. Existing seismic profiles are not necessarely representative. Since the nature of the evaporites (with or without salt) is not yet known, and it is rather unlikely that evaporites cover as a uniform layer the whole area of the Mediterranean Ridge according to structural patterns of the incoming sediments like the presented one, we have to think about alternatives of the above mentioned level of main decollement.



The data of Valdivia cruise n°120 (this paper) are completed by data of Avedik and Hieke (1981) and Hieke and Wanninger (1985)

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