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

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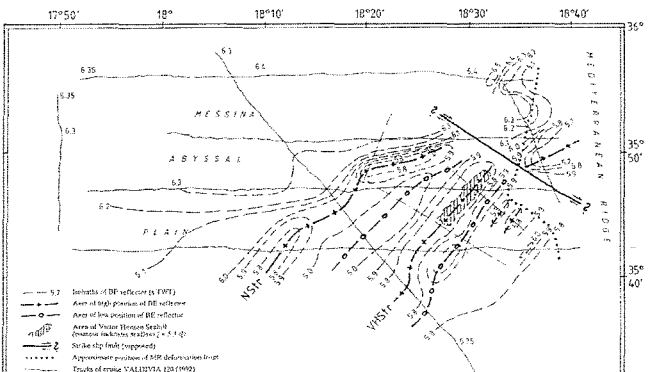
Only the Plio-Quaternary section of the sedimentary sequence of the Messina A.P. is known from DSDP Site 374 and several piston cores (HSÜ, MONTADERT *et al.*, 1978; HIEKE, 1984). The Quaternary is dominated by turbidites (MÜLLER *et al.*, 1978), the Pliocene by hemipelagic sediments. The occurrence 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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