Evidences of post‐rift compressional tectonics in the North‐Eastern Tyrrenhian Basin.

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In this work we analyzed about 1600 miles of high‐resolution, near vertical incidence, seismic profiles collected by AGIP in 1985 and available through the Italian VSDP ministerial project.

The Tyrrhenian Sea lies in the Mediterranean Sea between Corsica, Sardinia, Sicily and the African (Adria‐Ionian) subducting plate (e.g. Malinverno and Ryan, 1986; Faccenna et al., 2001). The Tyrrhenian started to form in the Upper Miocene (10 Ma) (Kastens and Mascle, 1990; Sandwell and Smith, 2001). The Tyrrhenian basins” (first described by Selli and Fabbri, 1971), located along the continental slope in the North‐Eastern coast of the Tyrrhenian are analyzed here. As expected, the structural evidence of compressional tectonics in the study area.

Intraslope basin with a semigraben structure generated by a normal fault acting during syn‐rift extensional tectonic.

The basement map shows an upper continental slope interrupted by intraslope basins, and followed (to the west) by structural highs that border these peri‐tyrrhenian basins. The axes of positive and negative structures are mainly sinistral/SEG, in agreement with the local direction of the Tyrrhenian rift.

Fig. 9: active and inactive tectonics found in the study area.

A major unconformity “R” (after Marani and Zitellini, 1986) drawn in the Palmarola basin and ridge, give us the possibility to map the sediment thickness in that area before (Fig. 7) and after it (Fig. 8).

As shown in section C, this “R” marks the main compressional event occurred here. Evidences of uplift‐uplift with evident migration of depocenter are also present (see section F).

Seismic reflectors, related to prograding sequences are here involved in the intraslope ridge uplift. This give us a constrain for the age of the beginning of the compressional inversion, which should be younger that the beginning of the progradation in this area, on 1.5 Ma (Balmino et al. 1996).

The unconformity “R” (drawn in the Palmarola basin and ridge) is very well‐recognized in the seismic section. This unconformity marks the boundary between the pre‐ and post‐rift sequences. Inversions are recognized along the structural highs that forms the Palmarola ridge.

A grid of seismic lines in the northern part of Palmarola ridge and in the saddle bring us a constrain for the age of the beginning of the compressional inversion, which should be younger that the beginning of the progradation in this area, on 1.5 Ma (Balmino et al. 1996).

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