The Reconstruction of the Deformational History in Northern Sicilian Maghrebides and South-Western Calabrian Arc

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The west-east running Sicilian Magrebides show an axial depression in north-eastern Sicily, where the southern sector of the Calabrian Arc overthrust southward the Sicilidi and the external units of the chain. The tectonogenetic history, from the Oligocene, is related to at least three main phases, compressional, extensional and transcurrent.

The thrust belt has been realized through several deformation steps, as fold associations, in places inducing foliation and clivage, thrust and compressional faults, which shortened the belt in flat-ramp, duplex, nveloping and breaching geometries. This deformative phase continued until the Late Miocene, when the activation of low-angle extensional faults, related to the taper angle of the tectonic pile, produced a northward stretching of the belt, through reorientation and inversion of previous structures. Subsequently, the bulk of the Sicilian Maghrebides+Calabrian Arc experienced a severe shear tectonics, connected with the southern Tyrrhenian basin evolution, consisting in strike-slip and net- or dip-slip extensional fault systems, which allowed the increasing of the Calabrian Arc bending and the identification of an hinge-zone between northern Sicily and southern Tyrrhenian. Several of the Plio-Pleistocene brittle structures are still active, and sometimes responsible of the shallow seismicity in the area.

The reconstruction of the sequential order of deformations which affected the northern Sicilian belt, from Oligocene to Recent times, emphasizes some not still resolved problems, as: a) how the paleotectonic settlement was ?; b) which the regional relationships were between the “internal” sectors of the belt (Calabria-Peloritani, Kabilie, Rif) ?; c) were the deformation steps diachronic along the chain ?; d) since when have the southern sector of Calabrian Arc been belonging to the Maghrebides ?; e) how severe has been the shear tectonics ?, and how long has been active ?

Key words: Deformations, Sicilian Maghrebides, Calabrian Arc.