

QUATERNARY DEFORMATIONS AND STRESS FIELD CHANGES IN THE APENNINES (ITALY)

1PICCARDI, L., 1MORATTI, G., 2SANI, F., 1BONINI, M. and 1BOCCALETTI, M.
1CNR-Centro Studio Geologia Appennino, Firenze, Italy; 2Dipartimento di Scienze della Terra, Firenze, Italy.

Geological, structural and morphological studies, at various scales, were performed in key-areas of the NNW trending Apenninic fold-and-thrust belt. The collected data allowed us to individuate the occurrence of two main stress fields that have been active during Quaternary. During the early Pleistocene continental sedimentation continued in the intermontane basins, which developed since Pliocene, while marine sedimentation took place both at the front of the chain (Adriatic margin) and in the fault-controlled basins of the internal area (Tyrrhenian margin). Analysis of faults in the early Pleistocene deposits indicates a NE-SW to E-W oriented direction of compression, roughly orthogonal to the trace of the main thrust fronts. At the end of the early Pleistocene this tectonic phase, then at its apex, reactivated some of the thrusts in the chain and determined the uplift of sectors of the Apennines. During the middle-late Pleistocene a new sedimentation cycle in the basins was controlled by a new stress field with nearly NE-SW oriented extension, associated with a roughly NW-SE compression axis. This stress field is in agreement with the array of the main active fault systems in the Apennines. Our data suggest that the present kinematics between the Apennines and the Adriatic block implies a left-lateral component of relative displacement, which could be accommodated by the consistent reactivation of roughly NNW trending deep-seated structures. The individuated Quaternary stress-field change and the middle-late Pleistocene-Holocene stress field are interpreted in the framework of the NW-SE trending Africa-Europe convergence.