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# Spatial variation of Present-day stress field and tectonic regime in Tunisia and surroundings from formal inversion of focal mechanisms (Central Mediterranean)

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We compiled 121 focal mechanisms from various sources for Tunisia and adjacent regions up to Sicily, to image the current stress field in the collision front of the Alpine Maghrebides chain and its foreland. The fault kinematic type was determined using the Frohlich Triangle and the current tectonic regime and stress field were determined by a formal stress tensor inversion using the Win-Tensor program. Stress inversion of all the available data provides a first-order stress field with a N150°E horizontal compression (SHmax) and a transpressional tectonic regime, but the obtained stress tensor does not fit well enough with the data set. Their inversion evidences a 2nt and 3rd 29 order spatial variation in the tectonic regime and horizontal stress directions. This regime gradually changes to transpression and strike-slip in the Atlassic and Pelagian foreland, where preexisting NW-SE to E-W deep faults system are reactivated.

In the N-S Axis which separates these two foreland domains, the SHmax rotates in an E-W direction, defining a third order stress field. This spatial variation of the sismotectonic stress field and tectonic regime is consistent with the neotectonic stress field determined elsewhere from fault-slip data. The confrontation of available GPS velocity data with seismotectonic results in Central Mediterranean highlight two “African” domains, East Algerian/Tunisia and Pelagian-Sicily, where systematic deviations from the predicted Nubia-Eurasia plate motions are seen. The past and current tectonic deformations and kinematics of the Central Mediterranean is subordinately guided by the plate convergence (i.e. Africa-Eurasia) and controlled by deep dynamics.