

EGU2020-4835

EGU General Assembly 2020

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## Constraint of active deformation and transpression tectonics along the plate boundary in North Africa

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The Maghrebian tectonic domain in North Africa is here examined in the light of the recent GPS and seismotectonic results. The region includes the plate boundary in the western Mediterranean previously characterized by transpression and block rotation. The crustal deformation is documented along the Atlas Mountains in terms of the displacement field, with strain partitioning largely controlled by plate motions. The tectonic and seismotectonic analysis is based on our published data on shortening directions of Quaternary faulting and folding compared with present-day seismotectonic characteristics (earthquake moment tensors) of significant seismic events that allow an estimate of local and regional deformation rates in North Africa. Shortening directions oriented NE-SW to NW-SE for the Pliocene and Quaternary, respectively, and the S shape of the Quaternary anticline axes are in agreement with the 2°/Myr to 4°/Myr clockwise rotation obtained from paleomagnetic results on small tectonic blocks in the Tell Atlas. The continuous GPS data and results are obtained from the network in Morocco operative 1999 to 2006, the REGAT network in Algeria since 2007, and the network in Tunisia with data collected from 2014 to 2018. In addition, we add the most recent GPS results in southern Spain and southern Italy. The NW-SE to NNW-SSE  $5 \pm 1.5$  mm/yr convergence velocity and strain distribution of the Maghrebian tectonic domain is controlled by crustal block tectonics driven by E-W trending right-lateral faulting and NE-SW thrust-related folding. The correlation between the active transpression tectonic structures and velocity field shows a geodynamic framework consistent with the oblique plate convergence of Africa towards Eurasia.