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GPS Constraints on the Active Deformation in Tunisia: Implications on the Geodynamics of the Western Mediterranean

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The plate boundary in the western Mediterranean includes the Tunisian Atlas Mountains. We study the active deformation of this area using GPS data collected from 2014 to 2018. WNW to NNW trending velocities express the crustal motion and geodetic strain field from the Sahara platform to the Tell Atlas, consistent with the African plate convergence. To the south, the velocities indicate a nearly WNW-ESE trending right-lateral motion of the Sahara fault-related fold belt with respect to the Sahara Platform. Further north and northeast, the significant decrease in velocities between the Eastern Platform and Central – Tell Atlas marks the NNW trending shortening deformation associated with local ENE – WSW extension visible in the Quaternary grabens. The velocity field and strain distribution associated with the active E-W trending right-lateral faulting and NE-SW fault-related folds sustain the existence of three main tectonic blocks and related transpression tectonics. The velocity field and pattern of active deformation in Tunisia document the oblique plate convergence of Africa towards Eurasia.