



Deformation model in South of Spain and North of Africa region from GPS episodic surveys

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In the mid 90's, San Fernando Naval Observatory (ROA) implemented a GPS geodetic network to study the kinematical behaviour of the Southern Spain and Northern Morocco Region, which covers the broad plate boundary zone fitting the relative motion between the Eurasian and the African Tectonic Plates. This paper will deal with the analysis of a set of different episodic surveys made from 1998 to 2005. After we processed surveys data by using BERNESE Software, a rigorous adjustment model of unevenly spanned observations was used to estimate velocities and strain rate parameters. To get the deformation parameters over the discrete surface defined by the GPS points, we used the Delauny Triangulation, since we were looking for an optimum vertex distribution. Then we used a lineal interpolation function to estimate velocity gradient tensors at the triangles. Deformations may be evaluated as extension or compression, depending on these tensors eigenvalues: while positive eigenvalues mean extensions, negative eigenvalues are related to compression processes. Results show a convergent NW-SE motion between the Eurasian and African plates, although the convergence direction moves to N-S when advancing towards the East through the Alboran Sea.

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