Kinematics and Paleostresses in the Jebha-Chrafate Transcurrent Fault (Northern Rif, Morocco)

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During the alpine deformation of the Rif Cordillera, major transfer faults developed during the W-SW motion of its Internal Zones in respect to the African margin before the Late Miocene. The Jebha-Chrafate, is an ENE-WSW sinistral major transcurrent fault of the central part of the Rif Cordillera, formed during the southwestwards emplacement of the Internal Zones on the Flysch units and the External Zones. This fault acted as a transfer fault favouring the westwards displacement of the northern blocks. The analysis of minor structures along the Jebha area indicates the activity of top to the SW low and high angle normal faults during the tectonic wedge emplacement. These data suggest that the tectonic wedge corresponding to the Internal Zones has moved by a combination of compressive deformation in depth and extensional spreading in shallow levels, corresponding to the observed faults. However, in spite that slip should be sinistral from regional data, and locally evidences of sinistral motion are recognized, most of the kinematic indicators along the transcurrent fault zone point to a reactivation as dextral fault. This last kinematics may be a consequence of the recent NW-SE Eurasia-Africa convergence. Finally, the recentmost structures correspond to a final overprinting of normal faults during the late stages of relief uplift. Paleostress determinations from microfault allow to precise the tectonic evolution of this region. This field example illustrates the reactivation under different stress regimes of an old major brittle structure in the changing scenario of the Eurasian-African plate boundary in the western Mediterranean.

Key words: Internal Rif, transfer fault, reactivation, low angle normal faults, paleostress evolution.