

Recent and Active Normal Faults and Paleostresses in Boudinar and Nekor Basins (Central Rif Cordillera)

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The present day relief of the Rif Cordillera is consequence of the compressive deformation that occurs between the Eurasian and African plates since the Miocene. The boundary between the central Rif Cordillera and the Alboran Sea, in the Al Hoceima area, has a very abrupt topography as consequence of the relief uplift produced by the recent tectonic activity. It continues up to Present, evidenced by the seismicity. The region is affected by the Nekor Fault, one of the main sinistral faults in the Rif Cordillera. Although this fault was active during Miocene times at present is inactive. The present-day relief along the coast line is determined by horst and graben structures separated by active normal faults. The Al Hoceima horst is separated by a set of NNW-SSE eastwards dipping normal faults from the Nekor Basin. The NNE-SSW oriented Trougout Fault separates this basin from the Ras Tarf horst. Eastwards, a NNW-SSE normal fault constitutes the boundary with the Boudinar Basin. The slip of most of these roughly oriented N-S normal faults decrease southwards up to disappear, and does not displace the NESW oriented Nekor Fault.

The paleostress analysis from microfaults suggests that there is an extensional heterogeneous stress field during the development of these faults. While near the Al Hoceima area the extension trend is ENE-WSW oriented, subparallel to the coast line, in Ras Tarf, local extension orthogonal to the coast line may be a local consequence of the uplift of the horst. In Boudinar Fault, a progressive change of stress, from well directed E-W extension in the central part up to radial extension in the southern fault end is recognized. These stresses contrast with the present day stresses obtained from deeper earthquake focal mechanisms.

Key words: Al Hoceima, paleostresses, fault end, Rif Cordillera.