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Study of shear activity criteria and their indications on a regional-scale tectonic framework: a case study from the Um Nar area, Central Eastern Desert, Egypt.

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Wprowadź dowolną treść, którą chcesz powtórzyć, w tym inne kontrolki zawartości. Można również wstawić tę kontrolkę wokół wierszy tabeli, aby powtórzyć części tabeli.

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The Central Eastern Desert of Egypt comprises a variety of lithologies that were formed during the Pan-African Orogeny, a prolonged deformational regime. The NW-SE Najd Fault System (NFS) is primarily responsible for the evolution of the tectonic fabrics exposed in the area. The anastomosing shear zones of this system are identified with local names at several localities in the Central Eastern Desert (e.g., Atalla, Nugrus, and Um Nar Shear Zones). Despite the widely held belief that shear sense of motion along the NFS is sinistral, our field investigation revealed dextral shear activity along the Um Nar Zone, especially at shallow crustal level. At thirty field stations, we explored the macro- and microstructures (e.g., S-C fabric, asymmetric pleats, rotated porphyroclasts) associated with the shear activity of Um Nar Zone. These features reveal two major shortening events that occur roughly in the ENE-WSW and NW-SE directions as a result of the initiation of the Um Nar sinistral master shear, which refers to late-stage reactivation at the shallow crustal level with a dextral shear sense of motion. These outcomes would raise quarries for re-evaluation of the NFS at other localities and, consequently, re-modeling of the tectonic framework of the NFS.

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