

Tectonic-sedimentation reconstruction of Neoproterozoic metavolcanic sequences; the El-Dabbah area, Central Eastern Desert, Egypt

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In the Eastern Desert of Egypt, Neoproterozoic island arc sequence with Banded Iron Formations (BIFs) are reported within volcano-sedimentary sequence whose geological structure and stratigraphy are not well understood. In this study, the geological structure was established to reconstruct the stratigraphy in El Dabbah in the Central Eastern Desert.

It preserves a sequence of relatively undeformed lower greenschist-facies rocks, overlain by subaerial sedimentary strata deposited in strike-slip basins (the Atsham Formation and the Hammamat Group). Reconstructed a stratigraphic–tectonic history of this metavolcanic sequence is understand the Neoproterozoic iron formation stratigraphy and characteristics, which related snowball earth event or not. New geochronological data are used to date the crystallization of granite at $ca.638.1 \pm 2.9$ Ma and a rhyodacite at 659.6 ± 3.0 Ma. Four generations of structural deformation have been identified in this area: accretional phase (D_1 : 700–680 Ma); strike-slip deformation with transtension, normal faulting, and strong left-lateral shear after the Atsham Formation deposition (D_2 : 650–640 Ma); and subaerial sedimentation of the Hammamat Group coincident with the activity of a strike-slip fault and formation of a pull-apart basin (D_3 : 638–600 Ma) and followed by extensional deformation. Here we show stratigraphic and structural interpretation in low grade metamorphosed sequence at the El-Dabbah area, in Central Eastern Desert in Arabian-Nubian Shield.

Keywords: Neoproterozoic, Island arc, strike-slip basin, banded iron formation