# Accepted Manuscript


Late Neoproterozoic basement rocks of Meatiq area, Central Eastern Desert, Egypt: Petrography and remote sensing characterizations

Safaa M. Hassan, Yahiya A. El kazzaz, Maysa M.N. Taha, Abdullah T. Mohammad

PII: S1464-343X(17)30144-9

DOI: 10.1016/j.jafrearsci.2017.04.001

Reference: AES 2863

To appear in: *Journal of African Earth Sciences*

Received Date: 16 December 2016

Revised Date: 25 March 2017

Accepted Date: 3 April 2017

Please cite this article as: Hassan, S.M., El kazzaz, Y.A., Taha, M.M.N., Mohammad, A.T., Late Neoproterozoic basement rocks of Meatiq area, Central Eastern Desert, Egypt: Petrography and remote sensing characterizations, *Journal of African Earth Sciences* (2017), doi: 10.1016/j.jafrearsci.2017.04.001.

# Late Neoproterozoic basement rocks of Meatiq area, Central Eastern Desert, Egypt: petrography and remote sensing characterizations

Safaa M. Hassan[1], Yahiya A. El kazzaz[2,] Maysa.M .N. Taha[2], Abdullah.T.Mohammad[2]

[1] National Authority for Remote Sensing and Space Sciences (NARSS), Cairo, Egypt.

[2] Helwan University, Department of Geology, Faculty of Science, Cairo, Egypt

**Abstract**

Meatiq dome is one of the mysteries of the basement rocks in Central Eastern Desert (CED) of Egypt. Its mode of formation, and tectonic evolution are still controversial and not fully understood. Satellite remote sensing is a powerful tool for geologic applications, especially in inaccessible regions of the Earth's surface. In this study, three proposed Landsat-8 band ratios (6/2, 6/7, (6/4*4/3)), (6/7, 6/4, 4/2), and (7/5, 7/6, 5/3) are successfully used for detailed geological mapping of the different lithological rock units exposed in Meatiq dome area in the CED. Landsat-8 Principal component (PC) images is also used for refinement the boundaries between the widely-exposed rock units in the study area. Fourteen spectral bands of Advanced Space borne Thermal Emission and Reflection Radiometer (ASTER) data are successfully used to emphasize the distribution of some rock forming minerals (i.e. muscovite, quartz, ferrous oxides, ferrous silicates and hydroxyl-bearing minerals) in the lithological rock units of Meatiq dome area. ASTER muscovite index (B7/B6) and quartz index (B14/B12), ferrous iron index (B5/B3), ferrous silicates index (B5/B4), mafic index (B12/B13) and hydroxyl-bearing