

Reconstruction Paleogeomorphological Map of the Nile River in Upper Egypt by Using Some Geomorphological and Geoarchaeological Indicators

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Abstract : Ancient Egyptians built their temples purposefully close to the River Nile to use it for transporting construction stones from far away quarries to building sites in river-boats. Most temples, therefore, have river-harbors associated with their geometric designs. The paleoriver channel remapped by using this idea, besides other geomorphological and geoarchaeological indicators/evidence located between Aswan and Luxor cities. In this sense, this paper defines the characteristics of this ancient course and its associated landforms using paleochannel morphology, paleomeandering, and ancient river dynamics during historic and prehistoric times. Both geomorphological and geoarchaeological approaches used to reconstruct the paleomorphology of the river course. It helps to investigate the ancient river morphology by using the following techniques: comparison and interpretation of multi dates satellite images and historical maps between 1943 and 2004. The results illustrated on maps using GIS (ARC GIS V.10 software) and the field data collected from the western bank of The Nile River at Luxor area and Karnak, Edfu, Esna and Kom Ombo temples. Created both current and paleogeomorphological maps depending upon the results of geoarchaeological surveying and soil analysis and dating, for surface and subsurface soil sampling by hand auger, laser diffraction analysis for 7 soil samples collected from some mounds and Malkata channel in the western bank of The Nile River near Luxor. Paleo-current directions were determined by using standard Brunton compass to use it as an indicator is evidence for the direction of flow of The Nile River during deposition of some accumulated mounds on the western part of the floodplain near Luxor city. C-14 dating was used for two samples collected from these mounds as well as geographical information system (GIS) technique for mapping. The geomorphological and geoarchaeological evidence shows that the Nile River course in Luxor area was around 4.5 km wide and contained many islands and sandbars which separated inside the river channel, now appearing as scattered mounds inside the floodplain. Upper Egypt has migrated during the historic times to the east up to five kilometers and become far away from the ancient temples, quarries, and harbors. It has also become as well as become more meandering and narrower than before.

Keywords : Nile River, ancient harbours, Luxor, paleogeomorphology, geoarchaeology

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