



Use of Geoenvironmental Impact of Climate Change in Management and Assessment Lake Nasser, Egypt

El Sayed El Gammal

Abstract

This study monitor how to management the water stored after High Dam in the biggest artificial global lake (Lake Nasser), Integration of physical features and water level changes within the lake curse and margins. Statistical data presented, interpreted and correlated with using remote sensing technique in change detection. Different Landsat images acquired at different times (1970, 1982, 1987, 2000, 2003 and 2008) have been used by the ERDAS and ARC-GIS techniques to estimate the movements of lake borders and water fluctuation proportional to water sizes in place. Regards to water fluctuation degree, the lake can be divide into 4 classes in lake's sectors: 1, show maximum change degree, 2 show medium change degree, 3 slight to neglected change degree, and 4, no change. Functions control the water fluctuation in Lake Nasser are; (i) the granite and Nubia sandstone outcrops, (ii) NW, E-W and NE structure in order, (iii) low topography.

Water level change detection on Landsat images in different dates elucidates big variation between different lake sectors, there are strangle points and other useful localities that yields environmental implication.

The strangle points detected in the curse of River Nile and after 40 years since lake initiation, the water are more strangled in this curse because of the water velocity before the High Dam was high speed can pass toward the north in Nile annual flood but after the dam, the water velocity decreased. Due to decrease of velocity, the water go to narrow incised wadis (Khors) in the Nile high flood plus the sands drift, these khors are bounded by hard Nubia sandstone already saturated by water and it consider the main underground water reservoir in Egypt. In addition, the entrance of the lake in Halfa inside Sudan is subjected to suspended sediments (mud) forming new delta plus the sands drift that impair the reservoir in Egypt.

Wadi Allaqui have 250 km length and 2 km average width, it's is the 5th order channel inside a large drainage basin that consider a recourses to the River Nile and hence to Lake Nasser. Wadi Allaqui have silt-soil with depth reach up to 5 meters. Kurkur have similar to Allaqui circumstance and support the Nile Basin.