



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

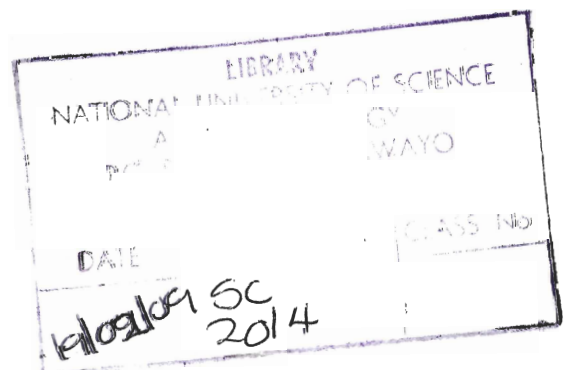
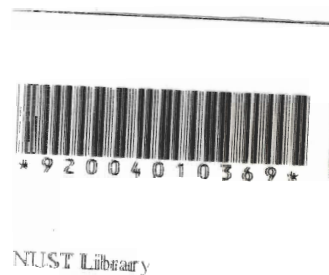
INDUCED SEISMICITY AND STRESS MIGRATION AT LAKE KARIBA.

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Abstract

Lake Kariba is a large artificial lake created by the construction of the Kariba Dam on the Zambezi River between the years 1955-1958. The filling of Lake Kariba has been accompanied by a considerable increase in seismic activity. More than 2 400 ($M_b > 6.5$) earthquakes have occurred during the period considered in this study from 1959-1989. The increased seismicity has occurred in a series of bursts, the most intense of which were related to the earthquake swarms of 1963. The seismicity peaked in September, 1963 with an M_b 6.1 earthquake. The first induced earthquakes were located in the northeastern end of the reservoir, with activity gradually migrating upstream to cover the whole reservoir area surrounding regions. In this study we describe the spatial and temporal variations in seismicity and their relationship to geological structure and regional tectonics, basing our study entirely on two sets of data: the Meteorological Services' catalogue of earthquakes in the Lake Kariba area, 1959 to 1989, and reviews of regional geology and tectonics from the published works of several authors.