A MATLAB BASED GUI APPLICATION IN HYDROSEISMICITY OF THE KOYNA – WARNA REGION, INDIA

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ABSTRACT

Hydroseismicity was proposed to explain the occurrence of intraplate earthquakes in regions. Koyna - Warna region one of the reservoir triggered seismicity zone in India, which is an example of intraplate earthquake region. The seismicity is continuing after 45 years of impoundment of the Koyna reservoir in 1961 and 25 years of impoundment of Warna reservoir in 1985. The excess of previous maximum water level, the annual rise of water level in the reservoirs and filling rate of these reservoirs are some of the important factors in increasing the pore pressure. In this study, we used the daily changes in the water levels in both the reservoirs and calculated the pore pressure from starting of the impoundment of the reservoir up to 2008. We also studied the pore pressure changes with depth for various values of hydraulic diffusivity. An automatic formulation has been developed in Matlab for computing and plotting the pore pressure history.

KEYWORDS: Koyna reservoir, Pore pressure diffusion, Reservoir-induced seismicity, Stress memory, Strain hardening.