Analysis of the Water Level Fluctuation in Koyna-Warna Region, India

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Abstract

Koyna region in India is known to be the largest case of the Reservoir Triggered Seismicity (RTS) in the world with Magnitude 6.3 (M 6.3) earthquake in 1967. The region is seismically active even after forty five years with occurrences of earthquakes up to M 5.0. The porous crustal rocks of Koyna – Warna region respond to changes in the prevailing stress / strain regime. These changes induce variations in the water level in bore wells before; during and after an earthquake and their study can help in understanding the earthquake genesis in the region. In this work the observed water levels in the bore wells have been analyzed and found the co-seismic water level changes in some wells. The earthquake on 14th March 2005 with M 5.1 in Koyna – Warna region has been studied by using wavelet transformations and the results reveals the significant co-seismic changes in some of the bore wells. The Ukalu well has showed the maximum change in the water level since the epicenter is close to the well. The focal mechanism and the distance of the epicenter play important role in the variation of the water level fluctuations.

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References


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