



Capivara Reservoir, Sp, 42 Years Of Induced Seismicity

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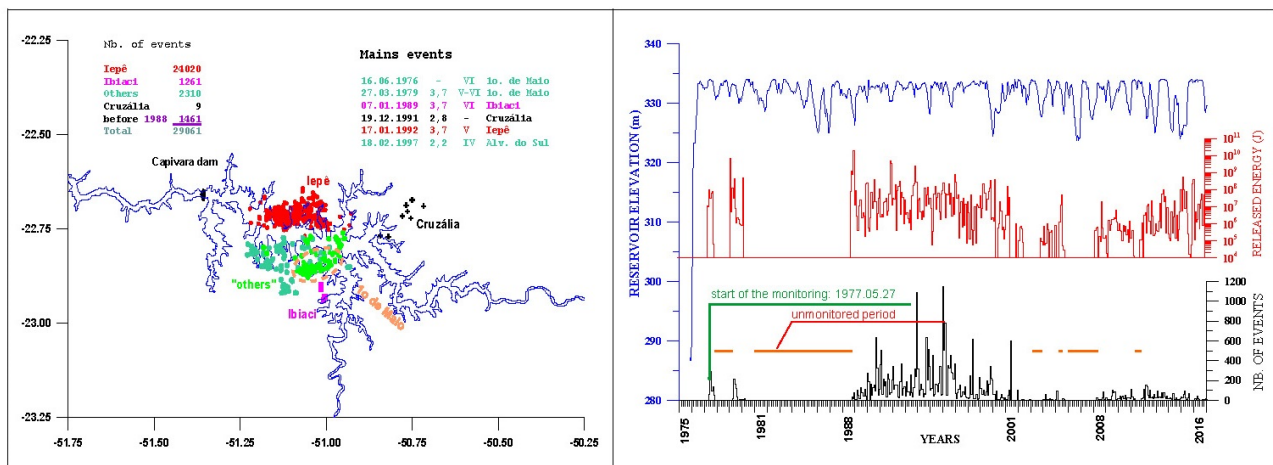
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Abstract

The Capivara Reservoir, (22.66 S and 51.36 W) in the Paranapanema River, SP/PR, covers the Serra Geral basalts and the Bauru sandstones. At its normal operating level the reservoir has 576 km², 10.5 km³, 85 km of extension and 55 m of maximum depth. It was filled in the first half of 1976. The induced seismicity showed the following characteristics: • no earthquakes were known in the area before the filling; • 3 months after the filling, earthquakes were felt in the vicinity of the Tibagi River mouth (at the towns of Primeiro de Maio, PR, and Iepê, SP); • epicenters are distributed in three areas: Iepê (large concentration), Primeiro de Maio, Others; • the area of Ibiaci and Cruzália had some seismicity for a certain period; • the seismic areas are 40 km from the axis of the dam and not in the deepest part of the lake; • epicenters are mostly outside the reservoir, with some near the margin; • the focal depths reached up to 3 km, with a predominance of depths < 1 km, probably in the basalts or in the immediately underlying sediments; • the earthquakes generally occurred in the form of "swarms", with up to 1100 earthquakes in a month; • between 1982 and 1988, according to local residents, small earthquakes continued to occur in the area of Iepê; • seismicity showed an expansion towards the West, in the direction of Alvorada do Sul, PR, since 1996; • the area of Primeiro de Maio resumed its seismicity in recent years; • studies conducted between 1991-1995 showed that the distribution of epicenters are consistent with fractures in basaltic and sedimentary rocks; • seismicity continues still today, although there has been a decrease in the number of earthquakes and magnitude. Earthquakes have magnitudes predominantly < 1.5 mR; • the induced seismicity can be classified as being of the combined type, that is, rapid or initial and delayed afterwards.



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