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Local Magnitude Study of the Seismic Activity on Itacarambi, MG

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ABSTRACT

The importance of studying the local magnitude related to seismic activity occurred recently in the region of Itacarambi, state of Minas Gerais, is due to the fact that these were earthquakes of intraplate origin. From the study of [1] and the relation between local magnitude and seismic signal duration, was performed a data analysis obtained in the same region, on the period between October/2007 and June/2008, in which we can estimate the equation $MD = 2.153 (\pm 0.072) \text{ LogD} - 1.925 (\pm 0.132)$ to calculate the magnitude of local duration. We can also estimate one value for the b parameter using the equation $\text{LogN} = a - bMD$ from a frequency-magnitude study. It was found the value of $b = 0.826 (\pm 0.020)$ for the general activity of Itacarambi, MG, that is within the universal range proposed by [2].

KEYWORDS

Intraplate Earthquakes; Local Magnitude; Duration of Seismic Signal; Parameter b

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References

- [1] C. F. Richter, " An Instrumental Earthquake Magnitude Scale," Bulletin of the Seismological Society of America, Vol. 25, No. 1, 1935, pp. 1-32.
- [2] C. Frohlich and S. D. Davis, " Teleseismic b Values; or, Much ado about 1.0," Journal of Geophysical Research, Vol. 98, No. B1, 1993, pp. 641-644. doi:10.1029/92JB01891
- [3] C. N. Chimpliganond, M. Assumpção, M. Von Huelsen and G. S. França, " The Intracratonic Caraíbas-Itacarambi Earthquake of December 09, 2007 (4.9 mb), Minas Gerais State, Brazil," Tectonophysics, Vol. 480, No. 1-4, 2010, pp. 48-56. doi:10.1016/j.tecto.2009.09.016
- [4] M. S. Assumpção, " A Regional Magnitude Scale for Brazil," Bulletin of the Seismological Society of America, Vol. 73, No. 1, 1983, pp. 237-246.
- [5] M. S. Assumpção, " Intraplate Stresses in South America Based on Earthquake Focal Mechanisms," Congresso da Sociedade Brasileira de Geofísica, Rio de Janeiro, 1989.
- [6] M. M. Dessokey, H. M. Hussein, E. M. Abdelrahman and M. F. Abdelwahed, " Local Magnitude, Duration Magnitude and Seismic Moment of Dahshour 1992 Earthquakes," 2000. <http://hdl.handle.net/2122/1278>
- [7] W. H. K. Lee, R. E. Bennett and K. L. Meagher, " A Method of Estimating Magnitude of Local Earthquakes from Signal Duration," US Geological Survey Open-File Report, 1972.
- [8] W. C. Tapley and J. E. Tull, " SAC—Seismic Analysis Code," Users Manual, Lawrence Livermore National Laboratory, Revision 4, 1992.
- [9] B. Gutenberg and C. F. Richter, " Frequency of Earthquakes in California," Bulletin of the Seismological Society of America, Vol. 34, 1944, pp. 185-188.

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[10] R. E. Abercrombie, " Earthquake Source Scaling Relationships from – 1 to 5 ML, Using Seismograms Recorded at 2.5 km Depth," Journal of Geophysical Research, Vol. 100, No. B12, 1995, pp. 24015-24036. doi:10.1029/95JB02397

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