



## Statistical Analysis of Completeness Period and Seismicity Parameters of Earthquake Catalogue for Sree Padmanabhaswami Temple, Thiruvananthapuram District, Kerala

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### Abstract

In the present study, seismicity data analysis of SreePadmanabhaswami Temple, Thiruvananthapuram District, Kerala, India has been performed. The area is having a radius of 500 km with SreePadmanabhaswami Temple (8.48°N Latitude and 76.94°E Longitude) as the centre. Earthquake catalogue from 1822-2021 has been compiled and homogenized using regional empirical relationships recommended by Kolathayar and Sitharam (2012). Data on earthquakes were declustered using Uhrhammer's (1986) method to exclude foreshocks and aftershocks within a time and space window, and then statistical analysis was done to ensure data completeness. Using the Gutenberg-Richter (1944) relationship, the seismic parameters are 1.234 and 0.532, respectively. The  $M_{max}$  value calculated using Kijko's MATLAB algorithm found to be  $6.08 \pm 0.26$ .

**Keywords:** Gutenberg-Richter, Statistical analysis, Foreshocks, Seismicity