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Chaos Game Representation of Indian Plate Seismicity

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Abstract

Chaos Game Representation (CGR) based on Iterated Function Systems is one of the modest techniques to create fractal structures but can unveil characteristic structures and hidden correlations effectually. This method has been applied currently to unveil the characteristic structure in DNA and also in the field of nonlinear time series data. In this paper, we propose a novel way to represent earthquake sequences using CGR. This representation showed that a characteristic correlation exists between events occurring at different parts of a plate boundary, which are otherwise difficult to explore. The method of CGR is used here to unveil this characteristic for the Indian plate and show that there exists a correlation between earthquakes occurring at different parts of a plate.

Keywords: Chaos game representation, Iterated function systems, Datadriven IFS, Indian plate, Correlation between earthquakes, Sequential occurrence of earthquakes