

Temporal changes in fractal structures of the seismic activities with the eruption occurred off Eastern Coast of Izu Peninsula

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We analyzed the fractal natures of swarm earthquakes occurred off the eastern coast of Izu Peninsula, central Japan, using the JMA Earthquake Catalogue data. The spatial fractal dimension D - and the b -value of the Gutenberg-Richter formula were used for this analysis.

The significant temporal variations of both parameters were detected for the swarm activities and classified in two groups. One is a positive correlation, and the other is a negative correlation between D - and b -values. The former case seems to correspond with ordinary swarm activities, while in the latter case some direct volcanic activities such as eruptions are accompanied by earthquake swarms. Consequently a negative correlation in D - and b -values may play an important role as an indicator of volcanic eruptions.