Monofractal and multifractal analysis of the spatial distribution of earthquakes in the central zone of Chile

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Statistical and fractal properties of the spatial distribution of earthquakes in the central zone of Chile are studied. In particular, data are shown to behave according to the well-known Gutenberg-Richter law. The fractal structure is evident for epicenters, not for hypocenters. The multifractal spectrum is also determined, both for the spatial distribution of epicenters and hypocenters. For negative values of the index of multifractal measure q, the multifractal spectrum, which usually cannot be reliably found from data, is calculated from a generalized Cantor-set model, which fits the multifractal spectrum for q>0, a technique which has been previously applied for analysis of solar wind data.