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The fractal characteristics of crustal deformation curve and its earthquake cases

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Using Box-Counting method can calculate the map's dimension (entropy) Characteristics, such as self-similarity, scale invariance, the power law. In this paper, We first extracted a certain period of crustal deformation precursory data, calcuated it's Capacity dimension and Information dimension, and then slided the window for discussion the relationship between it's temporal evolution and the earthquakes. The results showed that: the fractal characteristics of GUZA borehole station curve is very significant (log-log coordinate system, had a higher degree of linear, the linear regression correlation coefficient R is 0.9855, indicating that the curve conforms the power-law), Before 12 May 2008 Wenchuan MS8 earthquake, July 9, 2009 MS6.0 Yao'an earthquake, April 14, 2010 MS7.1 Yushu earthquake, the dimension of the curve had a reducing phenomenon, from the fractal point of view, that may exist some "attractors " to force the results of lower capacity dimension.

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