



Multifractal analysis of the 1981 Kerman-Sirch and 2003 Bam earthquakes (Iran) from aftershock studies in Nayband Gowk fault system

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The Kerman-Sirch earthquake of 1981 July 28 ($M_w=7.1$), and Bam earthquake of 2003 December 26 ($M_w=6.6$), occurred near the centre and southern termination of the N-S trending Nayband and Gowk fault system which is located on the west side of the Lut block and accommodates part of the 2.5 cm yr⁻¹ northward motion of Arabia relative to Eurasia. The Kerman-Sirch earthquake aftershock cluster is about 35 km long, trends north-south, and distributed north of main shock and the Bam earthquake aftershock cluster is 25 km long, trends north-south, and is located 5 km west of the Bam-Baravat escarpment, exactly beneath the observed surface breaks. The aftershock sequence of two earthquakes is analyzed to study the fractal structure of Nayband-Gowk fault system. The fractal dimension (D_q) has been calculated by using local density function and the $C_q(r)$ spectrum. The results show that spatial distributions of aftershocks in different events on Nayband-Gowk fault system characterized by different fractal clustering patterns, which indicate that each segment has different geodynamic behavior and slip distribution.