Crossover fluctuations of DFA-exponents of geoelectrical signals possibly linked to seismic activity in the South Pacific Mexican Coast.

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Since the ends of 2012 we have continuously measured the electric self-potential of the ground at two sites in the south pacific Mexican coast. The two geoelectrical stations ($16^o21'33''$N, $98^o14'52''$O in Oaxaca, and $17^o29'29''$N, $101^o57'08''$O in Guerrero, Mex.) are very near to the border of the Cocos and The north American tectonic plates. The registered signals are in the Ultra Low frequency (ULF) range and are analyzed by means of the Detrended Fluctuation Analysis (DFA). In the log-log DFA plane the analyzed signals typically shows two scaling regimes; one in the "large" scales range with $\alpha \approx 0.5$ (white noise) and other in the "low" scales range when $\alpha \approx 1.5$ (Brownian noise). However, in some cases the crossover disappears and $\alpha_1 = \alpha_2 = \alpha$ with α in the interval (0.7,1.3). Interestingly, in several occasions, specially when the collapsed exponent α is close to $1/f$ noise some few days after this, a seismic event with $M \geq 4.5$ occurs inside a circle of around $100km$ centered in the station. Besides, we discuss some additional statistical features of the evolution of scaling exponents for almost 1-year period.