FRACTAL STUDY OF EXTENSIVE AIR SHOWER TIME SERIES

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Arrival time intervals of air showers were studied using a fractal analysis method (Taken\'s method).

The used data were obtained by the air shower array, located at Mitsuishi (348N, 134E) in Japan, observed from Jan 1989 to Oct 1999 with an event rate of approximately one per minute, with the mean energy of 8x10^14 eV.

We found 60 chaotic events with the fractal dimensions less than 5.0, by grouping 256 air showers in a bucket.

In the right ascension distribution of the air showers in these events, we observed a peak at 9 hour with 2.2 sigma.

The longest chaotic event lasted for four hours, found by a time-development analysis of the chaotic events, done by shifting (10 min steps) the starting time of the buckets.