

THE FINE STRUCTURE OF AFTERSHOCK TIME SERIES

A. M. Correig and A. Llobet

Dept. d'Astronomia i Meteorologia, Universitat de Barcelona, E-08028
Barcelona, Spain.

anton@mizar.am.ub.es

In a previous study (Correig *et al.*(1977),*J.Geophys.Res.*102,27,407) it was shown, in a case history of an inter-event aftershock time series, that the sequence of aftershocks could be decomposed into leading aftershocks (the sequence that obey Omori's law) and cascades (events initiated by a leading aftershock that do not obey Omori's law) that occur at a nearly constant rate. By fitting straight lines to the series of cascades (correlation coefficient greater than 0.9), it was found that the evolution of cascades with time follows a power law. The above characteristics have been confirmed through the study of several aftershock series, such as Landers, Northridge and Kobe among others, suggesting that we can deal with a general behavior. Further studies, still in progress, show that *i*)the epicenters display a fractal dimension of 1.1 for distances less than about 10 km and 1.65 for greater scales, *ii*)the inter-event time series analysis shows that the fractal dimension of the whole series is 2,also for the cascades, while for the leading aftershocks is 1, and *iii*) the statistical distribution of some cascades' parameters such as energy, timelife and length are being determined. For the length, the cascades show a narrow distribution. The separation between leading aftershocks and cascades, as well as the power law distribution of slopes is well modeled by a Fiber Bundle Model.