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Corresponding Author : Prof. Lakshmi Mohan Nadimpalli (lakshmi_mohan639@rediffmail.com)

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Title: CAN SCALE PARAMETERS OF THE FRACTALISED WAVEFORMS OF EARTHQUAKE PHENOMENA INDICATE BOUNDRIES OF CHAOTIC AND FRACTALISED EARTH- AN ARTIFICIAL INTELLIGENCE APPROACH

Abstract:

N.L.MOHAN Centre of Exploration Geophysics, Department of Geoph Osmania University, Hyderabad-500007, India Email: lakshmi_mohan639@rediffmail.com ABSTRACT The entire recorded waveform of a few earthquakes are analysed using scale extraction formulation, using scale invariant s (rational number) domain transformation, with a basic hypothesis that the waveform of recorde earthquake does not contain noise and every wavelet, a part of the re waveform, is because of chaotic and fractalized earth media. The pres attempt is formulated following the unsupervised learning concept, in artificial intelligence approach, for object classification in the sense th classification of patterns of earthquake waveforms based on quantiza scale parameters. The entire earthquake record is divided into severa segments. Each segment is transformed into s domain. Keeping th transformed part of the very first segment of the waveform as base component, ( ), the s transformed part of remaining segments, (divided with the base component. The plot of logarithmic value of the the each segment dived by the base component, , versus the s yi the value of the scale parameter. It is noticed that each segment cont least two or more scale parameters with distinct demarcations. The sa procedure is adopted for extraction of the scale parameter, using the (rational number- temporal frequency) transformation. Also, the earthquake wave form data sets are analysed using the complex s domain transformation and scale parameters are quantified from the components. The next step is that scale parameters of all the segmer joined. It is quite remarkable that it appears to be similar to the trave curve or ray path. The change in scale parameter along the path may attributed to the demarcation of fractalized earth and thus makes the linear modelling of the chaotic and fractalized earth regime more mea and accurate. This study may pave the way for better understanding distribution of the source energy in non-linear fashion through the fra chaotic earth regime. This method is unique parallel processing, and a unsupervised learning approach that fall in the domain of clustering w discriminating features of objects are not known in advance.