Abstract

To identify a set of earthquake precursors for predicting earthquakes in different tectonic environments, a series of geo-scientific tools and methodologies based on rigorous assessment of multi-parameters have been developed by different researchers without complete success in earthquake prediction. The aim of earthquake forecasting involve multi-components analysis in implementing probabilistic forecasts that resolves decision-making in a low-probability environment. The proposed work analytically examined some of the modern seismological earthquake algorithms used for analyzing seismo-electro-telluric-geodetic data used across the globe. The present study develops a fuzzy inference model by correlating evaluatory parameters by surveying analytical work of the data sets used, numerical experimentation done in analysis and the global application and success rate of 18 of the most viable earthquake prediction algorithms developed by mutually comparing different models in earthquake predictability experiments. Using qualitative analysis in probabilistic information, an efficient trust model has been implemented through fuzzy inferencing rules. Trust validity through information is an aggregation of consensus in earthquake occurrence given a set of past success rate and the methodologies involved in prediction.
References

- Andalib, A., Zare, M. and Atry, F., A fuzzy expert system for earthquake prediction, case study: the zagros range, ICMSAO, 2009. CrossRef
- Asada, T., Earthquake prediction techniques. – Their application, in Japan, University of Tokyo Press, pp: 317, 1982. CrossRef
- Dmowska R., Earthquake prediction--state of the art, Pageoph Topical Volumes
- Ebel J. E., Chambers D. W., Kafka, A. L. and Baglivo J. A., Non-Poissonian earthquake clustering and the hidden markov model as bases for earthquake forecasting in California, Seismological Research Letters; v. 78(1); p. 57-65; DOI: 10.1785/gssrl.78.1.57, 2007.


Kisslinger C., Practical Approaches to Earthquake Prediction and Warning., Kluwer Academic Pub., Amsterdam, Netherlands, 1986. Crossref


Decision Analysis for Earthquake Prediction Methodologies: Fuzzy Inference Algorithm for Trust Validation

Am. , 92, 570-580, DOI: 10. 1785/0120000223,2002

- Shimazaki K. and Stuart W. , Earthquake prediction, Birkhäuser Pub. , Basel ; Boston, USA,1985. Crossref
- Shih-jung M. ,Introduction to earthquake prediction in China, Ti chen chiu pan she Pub. , Pei-ching, China,1993
- Thanassoulas C. and Tselentis G. , Periodic variations in the earth’s electric field as earthquake precursors: results from recent experiments in Greece. , Tectonophysics Volume: 224, Issue: 1-3, Pages: 103-111,1993. Crossref
Decision Analysis for Earthquake Prediction Methodologies: Fuzzy Inference Algorithm for Trust Validation

- Wyss M., Slater L. and Burford R. O., Decrease in deformation rate as a possible precursor to the next Parkfield earthquake, Nature 345, 428–431, doi:10.1038/34528a0, 1990b.

**Index Terms**

Computer Science

Applied Sciences

**Keywords**

Precursors algorithms Component Trust Efficiency Prediction