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عنوان مقاله:

THE USE OF MONTE CARLO METHOD FOR EVALUATION OF UNCERTAINTY PROPAGATION IN ASSESSMENT OF TEHRAN SEISMIC VULNERABILITY

محل انتشار:

ششمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1390)

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خلاصه مقاله:

Result precisions must be determined to know each phenomenon and make the results of implementation applicable. In phenomena which different parameters are interfered, we confronted many errors in results due to errors which existed in input parameters and used models. Complexities in results uncertainties are due to both intrinsic uncertainty in inputs and lack of our phenomenon/model knowledge. Uncertainties recognition includes recognition of uncertainty sources as well as recognition of uncertainty impacts on final results. So, the probable result ranges as well as precise confidence range for final results can be determined. In this research, geospatial information science/system has been implemented to estimate the seismic vulnerability and its probable damages for a particular scenario in Tehran. We applied fuzzy logic concepts to well known analytic hierarchical process (AHP) approach for the damage assessment. Based on this modified approach we developed a hierarchy of effective factors in earthquakes' vulnerability due to definition of their priorities against a given earthquake scenario.The effect of uncertainty in geospatial data and analysis functions which are applied in estimating Tehran seismic vulnerability would affect the quality of decision making for estimating the damages. In this paper, uncertainty assessments in Tehran seismic vulnerability maps, achieved from modified AHP (integrated with fuzzy logic) and Monte Carlo Simulation approaches have been considered. In the research the results are numerical. In other words, numerical values of statistical parameters for seismic vulnerability maps achieved from two mentioned methods are compared .with each others

کلمات کلیدی:

Seismic Vulnerability ,Uncertainty ,Monte Carlo Simulation ,GIS

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