عنوان مقاله:

ON THE SEISMIC RISK ASSESSMENT OF TUNIS URBAN AREA:UNCERTAINTIES INVESTIGATION AND TREATMENT USING LOGIC TREE APPROACH

محل انتشار:

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

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نویسندگان:

A Ksentini - *Department of civil engineering, National School of Engineer of Tunis Tunisia*

N.B Romdhane - *Department of civil engineering, National School of Engineer of Tunis, Tunisia*

خلاصه مقاله:

A recent seismic risk study is presented for the basin of Tunis in order to evaluate the probability distribution of damage per building classes. Every step is discussed in the probabilistic hazard assessment and the building stock response. Random and epistemic uncertainties are investigated in order to measure the final model sensitivity to the input parameters. The latter concern essentially recently developed predictive laws for the euro-Mediterranean and Middle East regions (Akkar and Bommer 2010) and their combination with NGA (next generation of attenuation) models, seismic source models which were proposed for Tunisia (Jordanovsky et al., 1991 and NASG 2006), seismic recurrence estimation and amplification factors generated using global data on Vs30 velocity (Wald and Allen 2009) for hazard assessment. Those parameters are used in logic tree approach (Kulkarni et al., 1984) in order to give a median hazard map described in Peak ground acceleration and velocity and acceleration in short and long periods to define the uniform hazard spectrum in the study region. For buildings vulnerability, eight structure and occupancy classes are defined by site investigations (Khalfet and Romdhane 2008) and capacity curves are studied for every class using modal pushover analysis. All resulting parameters are finally used under GIS based FEMA-HAZUS loss estimation tool using advanced engineering building module AEBM (based on CSM method, Freeman 1975) to define probability distribution of different level of damage (from slight to complete) by building count and class.

کلمات کلیدی:

Seismic risk, Hazard, Logic tree, Uniform spectrum, Building Vulnerability, Hazus