

عنوان مقاله:

Spectral Accelerations and Uniform Hazard Spectra in Northern Algeria, using spatially-smoothed seismicity

محل انتشار:

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خلاصه مقاله:

Seismic hazard in terms of spectral acceleration (SA) has been estimated in northern Algeria using the spatially-smoothed seismicity methodology. The present work is intended to be the second part of our previous research where we evaluated the seismic hazard in terms of peak ground acceleration (PGA) using the same approach. To perform these evaluations, four complete and Poissonian seismic models have been used. One of them considers earthquakes with magnitudes above MS 6.5 in the last 300 years, that is, the most energetic seismicity in the region. Firstly, seismic hazard maps in terms of SA, at periods of 0.1, 0.2, 0.3, 0.4, 0.5, 1.0, 1.5 and 2.0 s, with 39.3% and 10% probability of exceedance in 50 years, have been obtained. Then, uniform hazard spectra (UHS) are computed and examined in detail for twelve of the most industrial and populated cities in northern Algeria. All the results reported in this study are for rock soil and 5% of damping. It deserves to be remarked that, in the seismic hazard maps as well as in the UHS plots, we observed maximum SA values in the central area of the Tell. The higher values are in the Chleff region (previously El Asnam), specifically, in the vicinity of the Quaternary Basin, around the location of the destructive earthquakes of September 9, 1954 (MS 6.8), and October 10, 1980 (MS 7.3). These maximum values are associated with periods of 0.22 s and 0.32 s for return periods of 100 and 475 years, respectively.

کلمات کلیدی:

seismic hazard, spectral acceleration, uniform hazard spectra, spatially-smoothed seismicity method, northern Algeria

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