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Preliminary consideration on the seismic actions recorded during the 2016 Central Italy seismic sequence

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After the Mw 6.0 mainshock of August 24, 2016 at 03.36 a.m. (local time), with the epicenter located between the towns of Accumoli (province of Rieti), Amatrice (province of Rieti) and Arquata del Tronto (province of Ascoli Piceno), several activities were started in order to perform some preliminary evaluations on the characteristics of the recent seismic sequence in the areas affected by the earthquake. Ambient vibration acquisitions have been performed using two three-directional velocimetric synchronized stations, with a natural frequency equal to 0.5Hz and a digitizer resolution of equal to 24bit. The activities are continuing after the events of the seismic sequence of October 26 and October 30, 2016. In this paper, in order to compare recorded and code provision values in terms of peak (PGA, PGV and PGD), spectral and integral (Housner Intensity) seismic parameters, several preliminary analyses have been performed on accelerometric time-histories acquired by three near fault station of the RAN (Italian Accelerometric Network): Amatrice station (station code AMT), Norcia station (station code NRC) and Castelsantangelo sul Nera station (station code CNE). Several comparisons between the elastic response spectra derived from accelerometric recordings and the elastic demand spectra provided by the Italian seismic code (NTC 2008) have been performed. Preliminary results retrieved from these analyses highlight several apparent difference between experimental data and conventional code provision. Then, the ongoing seismic sequence appears compatible with the historical seismicity in terms of integral parameters, but not in terms of peak and spectral values. It seems appropriate to reconsider the necessity to revise the simplified design approach based on the conventional spectral values.

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