



The *Baelo Claudia* earthquake problem, Southern Spain

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The ancient Roman city of *Baelo Claudia* (1st Century BC - 4th Century AD), located at the axial zone of the Gibraltar Strait (Cadiz, South Spain), contains abundant disrupted architectural relics and ground collapses (i.e. landsliding, liquefaction) linked to historic earthquake damage of intensity IX-X MSK (Silva et al., 2005). The archaeological stratigraphy of the city evidence two major episodes of abrupt city destruction bracketed in AD 40-60 and AD 350-395 separated by an intervening horizon of demolition for city rebuilding, otherwise characteristic for many earthquake-damaged archaeological sites in the Mediterranean. The second episode led the eventual city abandonment, and it is evidenced by good examples of column collapse, distortion, failure and breakdown of house and city walls, and pavement warping and disruptions, which can be catalogued as secondary coseismic effects. However, the unstable conditions of the ground characterised by the record of landsliding and the occurrence of swelling clays could facilitate to other natural processes (i.e. tsunamis, large surge storms, etc.) the eventual destruction of the city.

This study present the ongoing investigations of this archeoseismic site developed in the context of the Spanish-German project (Acciones Integradas Program HA2004-0099). Preliminary data suggest that the observed damage could be produced by the activity of nearby NE-SW strike-slip faults (i.e. Cabo de Gracia Fault), which are presently seismic sources of moderate seismicity. Detailed analysis of the geotechnical characteristics of the ground indicate that both site and directivity effects would couple to generate amplification of seismic shaking. This data set is analysed under the light of the Spanish seismic codes NCSE-98 and NCSE-02 in order to compare different

site response to close and far away earthquakes at various seismic scenarios.

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