



Surface and subsurface paleoseismic record of the Baelo Claudia area (Gibraltar Arc area, southern Spain) – first results

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The ruins of the Roman city of *Baelo Claudia*, close to the Strait of Gibraltar (Spain), yield evidence for the first historic earthquake damage on the Iberian Peninsula (40-60 AD; Silva et al., 2005). The western Betic Cordilleras have experienced several moderate and partly strong earthquakes and earthquake-related hazards (landslides and tsunamis) during the last 2000 years of historical report. We investigate paleo-earthquakes and secondary effects recorded in the geological record, as well as the paleostress framework in which they evolved.

Our Spanish-German project (Acciones Integradas Program HA2004-0099) deals with the characterization, quantification and (if possible) datation of the set of probable evidences of Coseismic surfacial displacements (Csd) occurred during the recent Pleistocene, Holocene, and the historical period in the Gibraltar Strait zone. The results will be incorporated into the framework of the INQUA Project: “INQUA INTENSITY SCALE BASED ON SEISMICALLY-INDUCED GROUND EFFECTS IN THE ENVIRONMENT”. Aside of the different neotectonic evidences between the Bay of Algeciras and Conil, we focus on the ancient roman city of *Baelo Claudia*, which is at the moment the only example of archeoseismic damage within the Iberian Peninsula, and its surroundings. Beside architectural damage on buildings and old pavements described by Silva et al (2005), field works will comprise detailed geomorphologic and structural geology analyses of the catalogued Csd in order to assess

the homogeneity and continuity (or not) of the present stress field throughout the time. Ground Penetrating Radar and geoelectrical studies were carried out in the framework of this project in fault zones to map and mirror fossilised and active faults and, also to investigate unexcavated disturbed archaeological remains, like the recently unravelled ancient harbour zone at the present beach. Consistent grids of GPR and geoelectrical profiles are planned to investigate the more relevant topographic steps within the ancient urban area in order to assess their structural, tectonic or geomorphologic origin. The comparison of the future results with checked architectural disturbances will throw light into the origin and nature of the different sets of archeoseismic indicators occurring at Baelo Claudia.

Silva, P.G., Borja, F., Zazo, C., Goy, J.L., Bardají, T., Luque L., Lario, J., Dabrio, C.J., 2005. Archeoseismic Record at the ancient Roman city of *Baelo Claudia* (Cádiz, South Spain). *Tectonophysics* 408: 129-146.

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