Answers to J.A. Pelaez (Referee)

In my opinion, this manuscript is suitable for publication with changes, as outlined below.	
Concerning title: - Write “Seismic hazard” instead of “Seismic hazards”.	We agree, our initial submission did not have the “s”, which was inadvertently introduced in the final version.
Concerning “introduction” section: - page 3764, lines 24-25. Write “García-Mayordomo” instead of “Gacía-Mayordomo”	Noted.
page 3765, lines 18-19. It is very debatable the fact that in recent times a design seismic input in maritime areas is required. Really, it is interesting to know the expected acceleration values in the middle of the Alborán Sea, the Valencia Through or the Gulf of Cádiz, hundred of meters below the sea level? If authors search through latest seismic hazard computations published in scientific journals, they can observe that authors do not draw seismic hazard values at sea, amongst other things because, taking into account reliability and completeness of the used seismic catalogs, seismic hazard values have large uncertainties.	Indeed that need exists. For example we carried out a PSHA for the whole length of the Baleares gasline (from Denia to Ibiza and Mallorca). Similar requirements arise for other lifelines, such as the Medgaz gasline, power lines, communication cables, etc. It is true that uncertainties are much greater for offshore than for onshore events, especially regarding the historical catalogue. In our case this is reflected by the different reference years and uncertainties assigned to offshore and onshore events (see tables 1 and 2).
page 3766, lines 5-6. The quoted work has been done and published. Authors must refer it.	Yes, we can add it now. They were not published when we first submitted the article.
Concerning “methodology” section:	
- page 3768, lines 5-6. Write “Woo (1996a)” instead of “Woo (1996)”.	Noted.
Concerning “seismic catalog” section:	
- page 3771, lines 10-12. Really large events in NW Italy may influence the seismic hazard in NE Spain? There is some antecedent? If so, cite it. It can be inferred from final results? If so, refer it.	The distance considered for compiling information when performing a PSHA is typically 320 km (200 mi), a value that originates from the US Nuclear Regulations. It is true that this distance should be dependent on the earthquake magnitude; anyhow for site specific studies, it can be modified if

	the particular conditions justify it. In this case, the top right corner of the area studied (3ºE, 44ºN, see Figures 9-12), already in French territory, is less than 320 km away from the Italian territory. Additionally, in this specific methodology, the seismic source model is constructed with kernel functions that spread the influence of events over a certain distance from the epicenter. So an event with its epicenter outside the region over which the seismic activity is integrated may have a kernel that contributes to the activity rate being integrated.
- page 3771, line 13. Write "(USGS, 2011; ISC, 2010)" instead of "(USGS and ISC)	Noted.
- page 3772, lines 8-9. Martínez-Solares and López-Arroyo (2004) is not included in the references section	Noted.
. - page 3774, lines 16-15. García-Mayordomo (2005), quoted sometimes in the manuscript, is not included in the references section.	Noted.
Concerning "attenuation model" section:	
- The use of the Youngs et al. (1997) attenuation relationship, a relationship for subduction regions, is not well justified. "Deep" earthquakes (h > 35 km) in the Iberian Peninsula are not related to a subduction process, and although there is a clear slow attenuation in the SW Spanish coast (López-Casado et al., 2000, among others) where the previous relationship can be used, a) this slow attenuation happens not only for "deep" earthquakes but also for "shallow" earthquakes, and b) this slow attenuation do not happens in the Málaga-Alboran Sea-Alhoceima region, do not quoted by the authors (page 3777, lines 4-6), or the Pyrenean region, where authors also use the Youngs et al. (1997) relationship. Authors quote the Buforn et al. (1988) work to justify the fact that there is a possible subduction of the African plate under the Iberian one. This is just the criterion of several authors to propose that earthquakes below 600 km are produced for this process, but not earthquakes in the range (30-50 km) under the Alborán Sea or Pyrenean regions. The only problem of the depth of the earthquakes cannot be resolved by using an attenuation relationship for subduction events. It can	Both our approach and that proposed by the reviewer are somewhat artificial in that the GMPE is being employed in conditions other than those for which it was conceived. Additionally, in the case of employing a crustal GMPE for deep seismicity, it is unclear how to proceed: a first option may be just introducing the hypocentral distance instead of the epicentral one; but looking closer at the GMPE formulation, another option may be letting the parameter that is composed with the distance be the depth (see Ambraseys (1995) who presents both options). As indicated in p 3775 lines 16-21, only earthquakes with focal depth up to 200 km depth and magnitude above 5.0 are considered. Hence many deep earthquakes in the Pyrenean region and in the South of Spain are not incorporated in the calculation.

be solved, for example, using attenuation relationships for shallow events if hypocentral distance is used instead of the epicentral one. - Other important question is the fact of to consider as “shallow” earthquakes all events located above 35 km depth. To consider an earthquake happened at 20, 30 or 35 km depth at surface (this is that implies to use the epicentral distance in the attenuation relationships) clearly increases the seismic hazard close to these events. I propose to the authors to compute the different attenuation of a certain event at distances of 0 km and 35 km using, for example, the Ambraseys et al. (2005) relationship. Authors can observe a very large difference between these two computed values, independently of the magnitude or soil type. I propose again to use the hypocentral distance instead of the epicentral one. This criterion, followed by the authors, could be one of the reasons because authors obtain biggest seismic hazard values in certain areas that previous works.	Since the very deep earthquakes are not included in the calculation, the reference to Buforn et al (1988) and the accompanying explanations can be omitted. The overall influence of the deep seismicity in the results was studied in Crespo (2011). The impact on the results is only relevant for the South-West of the Iberian Peninsula: it is about 10% along the coast, increasing towards the Atlantic Ocean and decreasing towards the North-East. It has no influence in Pyrenean region or the South-East of Spain, so this cannot be the reason for the larger values obtained in these two areas. The criterion is the same one adopted in the IGN national hazard map.
Concerning “seismic activity rate” section:	
- page 3778, lines 24-25. Write “Gutenberg-Richter (1944)” instead of “Gutenberg-Richter”.	Noted.
Concerning “results” section:	
- The computation of seismic hazard values for a return period of 2475 years appears as unreasonable in this work, more taking into account the characteristics of the Iberian seismic catalog. For this return period, with no excuse, geological data must be considered. The temporal extent of the Iberian catalog does not cover the seismic cycle of the Iberian active faults. Nonetheless, seismic hazard values for a return period of 975 years, using only seismicity data, appear more reasonable. It is not true that authors declare in page 3783 (lines 5-7). Given the characteristics of the seismic catalog and the obtained results on the “reference years” showed in table 2 (v.g., 1000 for earth- quakes in the range MW 6.6-7.1), the seismic hazard contribution of the geological data must be important for return periods above one thousand years. - It could be illustrative to cite the biggest earthquakes happened in the areas	There was also a comment concerning this same part from referee #1. Being sensitive to this fact, we included the explanations in section 6.2. What we say in page 3783 (lines 5-7) is in agreement with this comment: we acknowledge in the text that for this return period the results can be influenced by fault activity not reflected in the catalogue, so this fact should be considered when looking at the results. The reason for choosing the 2475 yr return period instead of 975 yr is that at present the former is the one being demanded by the industry; we chose to give an answer for the return period demanded, even if it might have to be supplemented with paleoseismic information in the future. We are currently actively working in the inclusion of paleoseismic information.

with biggest seismic hazard. Likely, they are the main reason of these hazard values.	Since some explanations were added motivated by referee 1, we suggest Dr. Pelaez to read the text again to see if the new version, together with the above explanations, is now acceptable.
. - page 3784, lines 3-4.Figures 14 and 15 are quoted before figures 11 to 13.	Figures 11 to 13 should be mentioned in section 6.2. What actually happens, is that lines 9-17 in page 3786 should go at the end of section 6.2.
- page 3785, line 28. Write “Ambraseys et al.” instead of “Ambraseys”.	Noted, no problem.
When comparing, for example, Lisbon (0.20g for a return period of 475 years) and Granada (0.30g) results, seismic hazard values do not agree with “expectable” values when using a non zonified approach, or that is one and the same, with historical seismicity. For example, Lisbon has felt intensities equal or above intensity VIII-IX during the 1309, 1356, 1531 and 1755 earthquakes (LNEC, 1986). Granada never felt this intensity (there is no evidence from the Spanish historic catalog). Then, how are these seismic hazard values possible? Can author explain it from the new compiled catalog?	The reviewer’s line of reasoning would pertain more to deterministic than probabilistic results. That said, his comment is pertinent and the result he mentions is somewhat counterintuitive, due particularly to the increased hazard calculated in Granada. It is hard to pinpoint a single cause: possible contributors are the magnitude-intensity correlations used, an excessive attenuation of offshore events, the treatment of onshore and offshore databases, etc.
Concerning figures:	
- Kilometer scale in figures 5, 6, 8, 9, 10, 11, 12 and 13 is not necessary, taking into account that plots show geographical coordinates.	Correct, it is redundant. We considered it helpful because readers tend to be more familiar with km than with geographical coordinates.
- Figures 6 and 8 must depict the same frame that figures 5, 9, 10, 11, 12 and 13, that is, all the studied region.	We do not see why, it is an intermediate result for which we have chosen the more illustrative area. We can include an explanatory comment in the text.
- It is possible to compute the spectra in figures 14 and 15 with more resolution? Moreover, given the result, only the period interval 0.0-1.0 s is significant.	Referee 1 made a similar request. These figures will be replotted to make them clearer. In our opinion, all available periods are of interest, even if only to confirm that nothing significant happens.