



EGUsphere, referee comment RC1
<https://doi.org/10.5194/egusphere-2022-595-RC1>, 2022
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Comment on egusphere-2022-595

Anonymous Referee #1

Referee comment on "Earthquake forecasting model for Albania: the area source model and the smoothing model" by Edlira Xhafaj et al., EGU Sphere,
<https://doi.org/10.5194/egusphere-2022-595-RC1>, 2022

The paper proposes two earthquake forecasting models for Albania, to give an overview of seismic activity in the country by implementing the area source and smoothed-gridded seismicity approaches. This subject has been also treated before from the local authors, in their efforts for a more accurate seismic hazard assessment of Albania. However, it is of interest because modelling of seismic activity rates is a very important step in the accurate assessment of the seismic hazard, and comparison of different outputs will allow a better characterization of seismicity rates.

From the methodological point of view the article is well written, and reflects accurately the scientific achievements in this subject. Catalog declustering (removing of foreshocks and aftershocks) using the Gardner and Knopoff (1974) algorithm is well done, because that is the most widely applied windowing method. Catalog declustering has enabled to identify the Poissonian rate of seismicity. Another important task to derive the inputs for hazard analysis is to determine the magnitude completeness threshold, M_c , of catalogue, i.e. the "lowest magnitude at which 100% of the events in a space-time volume are detected. Identification of the catalog completeness is correct and is in good agreement with the evaluations carried out before by local authors.

Considering catalog completeness, the events with $M \geq 4.0$ during the period of 1960 – 2006 were used for the forecast model learning. The forecasting is implemented into an area source model that includes 20 sub-regions and a smoothing model with a cell size of $0.2^\circ \times 0.2^\circ$ to forecast the seismicity in Albania. Both models show high seismic rate along the western coast and at the southern part of the study area, that is consistent with previous studies carried out in the area.

To further validate the forecast performance from the two models, the authors has used the Molchan diagram to quantify the correlation between models and observations. The Molchan diagram suggests that both 20 models are significantly better than a random distribution, confirming their forecasting abilities.

