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Comment

## ***Interactive comment on “Study of the seismicity temporal variation for the current seismic hazard evaluation in Val d’Agri, Italy” by I. Baskoutas et al.***

### **Anonymous Referee #1**

Received and published: 14 July 2014

Dear Editor, This paper is discussing the temporal variation of seismicity parameters i.e. number of events, b value, energy release, for the Val d’Agri region, using the seismic catalog of the area. The authors use a new research tool that simplifies the processing of the catalog and recognize precursory patterns in the seismicity pattern, these are latter correlated with the major events in the area ( $M > 4$ ). The paper is interesting but has a few drawbacks that need to be taken care before it is accepted for publication. My comments are given in the following paragraphs starting with general comments and progressing with specific comments on the manuscript. Overall I believe that the paper can be accepted for publication after minor revision.

General comments: First of all the paper needs a careful correction of English language (I am suggesting some changes in the following paragraphs). This must be corrected

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since in a few cases it is not easy to understand the paper. The authors are talking about seismic hazard but I believe that their work is closer to “earthquake forecasting” or statistical seismicity, thus I would suggest to change the title and the terminology in the paper in this respect. I must say that this is upon the authors or the editor to decide. The authors talk about a “smoothing (filter) window” but they don’t explain what is its value in this application and how much it can affect the results. They need to provide a few lines describing this parameter. They must also define the terms in the equations in a better way e.g. what is  $n$  in eq.1,3 ?

Specific comments Abstract “the  $b$  value of the frequency magnitude distribution of Gutenberg-Richter relationship” ->  $b$  value of Gutenberg-Richter relationship or  $b$  value of the frequency magnitude distribution “were successfully correlated and 25 of them resulted false.” -> correlated with what..?? 25 -> 25% or 25% could not be correlated with a change in seismicity pattern “of the current status seismic hazard” -> of the current seismic hazard status

Introduction “with magnitudes ranging between 2.2 and 3.2, also” -> with magnitudes ranging between 2.2Md and 3.2Md, also “Usually to asses” -> Usually to assess “method is to estimating” -> method is to estimate “peak ground strong motion expected”-> peak ground motion expected “task for area” -> task for an area “ $N$  that occurs in a certain magnitude range, the  $b$  value of the frequency magnitudes distribution relation “ ->  $N$  that occur in a certain magnitude range, the  $b$  value of the frequency magnitude distribution

Method “by the means of FastBEE” -> by means of FastBEE “the medium to the topic tectonic stress acting” -> the medium to the local tectonic stress acting “log  $N$ , is obtained by the means of the follow formula” -> by means of the following formula also note that log $N$  is confusing here since just  $N$  would be enough the same holds for eq.1 and 3 “is the minimum magnitude of the catalogue completeness,” -> is the completeness magnitude

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“The standard error of the calculation is given by the relation:  $\sigma \lg N = 0.4343/N$ ,” explain how is this derived ?  $\lg$  is  $\log$ ..??

Eq.2, it seems that the index for NMmin is not written correctly

“earthquakes in the  $i$ th magnitude” -> earthquakes in the  $i$ th magnitude interval? “obtained using the follow relation” -> obtained using the following relation “ $E_i$  is the seismic energy” ->  $e_i$  is the seismic energy

Data and analysis “This analysis use seismic data,” -> This analysis uses seismic data, “Figure 3 show, from the top to at the bottom” -> Figure 4 shows, from the top to the bottom “which epicenter can be seen” -> their epicenters can be seen “report the lower magnitude earthquakes threshold” -> unclear needs rewriting maybe “report the earthquake magnitude threshold that occurred ...” “Because of the low seismicity,” -> Due to low seismicity

“the number of earthquakes as the variance of magnitudes” -> unclear needs rewriting “of the examined parameters” only one parameter is consider as reliable before e.g. on parameter  $\log E_{2/3}$  time series only “Namely, both parameters” only one parameter is consider as reliable before e.g. on parameter  $\log E_{2/3}$  time series only this needs rewrite “of this trend coincides with the appearance of the relative,  $\log E_{2/3}$  and  $\log N$  minima after that shows an increasing period.” Not clear which parameter starts to increase

“period lasting until the earthquake occur, unless this behaviour changes. Earthquakes 1 and 2 of Table 1 can not be analysed, because there are not data before 1983.” - > until the earthquake occurrence, unless this behaviour changes. Earthquakes 1 and 2 of Table 1 cannot be analysed, because there are no data before 1983.

Results “followed by earthquake,” -> followed by an earthquake, “Is interesting to” -> It is interesting to “which was started at the” -> which started at the Conclusions “that fluctuates around parameters mean values in the examined over a 30-year period of

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observations” -> that fluctuates around parameter’s mean values in the examined more than 30-years observation period

“these changes were supposed that depict the response” -> these changes were considered to depict the response “until the 2013 shows” -> until 2013 shows “in given area” -> in a given area

References References contain a few typographical errors e.g. “Changes in the magnitude-frequency 6-value”, “The frequency–magnitude relation of raicrofracturi’ng in rock”

Figures Earthquake no2 cannot be seen in Fig.4, 5.

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