

## ***Interactive comment on “Evaluation of global seismicity along Northern and Southern hemispheres” by Olaide Sakiru Hammed et al.***

**Matteo Taroni (Referee)**

matteo.taroni@ingv.it

Received and published: 24 June 2020

In this manuscript the authors try to investigate the correlation between the b-value of the Gutenberg-Richter law and the Latitude of the earthquakes. In my opinion they made 3 very important mistakes: 1) b-value must be estimated using the maximum likelihood approach; using the least square approach can lead to a strong bias in the estimation. 2) the magnitude of completeness seems to be underestimated in the first years (see figure 16: very low number of events in the first years). 3) you must test the statistical significance of the differences in the estimated b-values; simply showing the differences without any statistical test do not prove your hypothesis.

Taking into account this 3 very important mistakes, this manuscript cannot be accepted

C1

for publication.

Other small corrections are of secondary importance and were not listed in this review.

Suggestions to improve the manuscript for a possible re-submission: 1) consider the Global CMT catalog; 2) use the MLE for the b-value (see papers by Ian Kagan and Stefan Wiemer); 3) test the results (see papers by Tokuji Utsu); 4) ZMAP software can help you research (<http://www.seismo.ethz.ch/en/research-and-teaching/products-software/software/ZMAP/>); 5) take a look to the Community Online Resource for Statistical Seismicity Analysis (<http://www.corssa.org/en/home/>);

Matteo Taroni

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-128>, 2020.

C2