Reviewer’s report

Title: Geomagnetic Disturbances Driven by Solar Activity Enhance Total and Cardiovascular Mortality Risk in 263 U.S. Cities

Version: 0 Date: 25 Mar 2019

Reviewer: Claudia Lage

Reviewer's report:

After having reviewed the manuscript "Geomagnetic Disturbances Driven by Solar Activity Enhance Total and Cardiovascular Mortality Risk in 263 U.S. Cities" by Zilli-Vieira et al. I have raised some corrections and questions, as follows:

- in the Introduction section, pg 5, line 37, which is the concept of activity level I to IV GMD?
- in the Supplementary Material ST1 it appears that the timespan during which the observations were made were different for part of the locations; were these differences taken into account in the author's analyses?
- I suggest including the full table of disease classification cited as ICD60, I00 to I99 in the Supplementary Material so specialized experts can better address any particular cause-response relationship.
- in the Methods section, pg 6, "Population", authors should inform the total number of deaths included in the study, even though it is mentioned afterwards, in the Results section.
- in the same section, pg 7, line 53, "Environmental Data", the Kp index is defined, but not the Ap one.
- in the Results section, pg 10, line 16, the Kp index had been said as varying from 0 to 9 previously, then it is said here as averaged 16.5, why?
General question:

To better address the aspect of the influence of GMD on deaths by CVD and electric disturbances on an electrically-driven physiologic system, as the cardiovascular one, authors should proceed a more detailed comparison with data from studies performed in Canada and Mexico.

I considered the study based on a well-designed statistics in a way that the raised conclusions can be accepted as significant. I thus recommend it for publication in Environmental Health.

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
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Acceptable

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