

Interactive comment on “Magnetospheric chaos and dynamical complexity response during storm time disturbance” by Irewola Aaron Oludehinwa et al.

Anonymous Referee #1

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Review of “Magnetospheric Chaos and Dynamical Complexity Response During Storm Time Disturbance” by Oludehinwa, Olusola, Bolaji, Odeyemi and Njah

The paper presents interesting new results and should be published in NPG after suitable corrections/modifications have been made. Major Comments In reading the article from the beginning, I had assumed that the authors have separated CMEs from CIRs and sheaths. It is only later, reading further into the article that I found out that they have not. Thus the Introduction section must be rewritten to include other interplanetary causes of magnetic storms. Sheath generated magnetic storms and CIR generated magnetic storms are generally weaker than ICME/MC generated storms.

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So this may be an explanation for some of your results? Please consider adding this to your Discussion Section. Please also consider separating these three different types of storm sources and write a second paper. Minor Comments Title: “Disturbances”? Line 31. Here you could add sheath causes of magnetic storms. Some pertinent references are JGR, 93, A8, 8519-8531, 1988; JGRSP, 124, 3926-3948, 2019; NPG, 27, 75-119, 2020. You should also add references and comments on CIR magnetic storms. The discovery and naming of CIRs is in paper GRL, 3, 2, 137-140, 1976. There is a whole book of articles on CIRs and geomagnetic activity: AGU monograph volume 167: “Recurrent Magnetic Storms: Corotating Solar Wind Streams”. Some pertinent articles are: JGR, 100, 21717-21743, 1995; JGR, 113, A05221, https://doi.org/10.1029/2007JA012744, 2008; https://doi.org/10.1029/167GM24, 2006; https://doi.org/10.1029/167GM11, 2006. Line 33. I suggest deleting the phrase “Irrespective of what causes the geomagnetic storm...”. The above 2008 paper showed that for all 90 magnetic storms, all were caused by IMF Bsouthward fields. Line 35: Dessler Line 51: “Lower auroral electrojet (AL)”? I have never heard it called this before. Line 104: Chapman-Ferraro

Interactive comment on Nonlin. Processes Geophys. Discuss., https://doi.org/10.5194/npg-2020-47, 2020.

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