

Nonlin. Processes Geophys. Discuss., referee comment RC1  
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## **Comment on npg-2021-23**

Anonymous Referee #1

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Referee comment on "Investigation on the characteristics of the South Atlantic Anomaly"  
by Khairul Afifi Nasuddin et al., Nonlin. Processes Geophys. Discuss.,  
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This paper analysed the temporal characteristics of the SAA using ground magnetometer observations during both quiet and active solar conditions. The authors, using the Hurst exponent, claimed the SAA to be persistent because of the ring current. In addition, they repeated the same analysis out of SAA using middle and high latitudes ground stations finding: a mixture of persistence and anti-persistence at mid-latitudes; anti-persistence at high latitudes. They explained such features as a consequence of plasma and seasonal weather variations for mid-latitudes and of the influence of the geomagnetic storm and aurora for high latitudes.

In my opinion, despite the analysis can be potentially interesting, the paper shows too qualitative conclusions. The authors should try to explain their conclusions adding some data analysis. For example, they could use magnetospheric satellite magnetic data to confirm their conclusion about the role played by the ring current in causing the SAA persistence. The same for other latitude out of the SAA.

For this reason the manuscript is not acceptable in the present form.

Regards.