Reply to the comments by Paul PUKITE:

We would like to thank Paul PUKITE for carefully reading the manuscript and giving valuable comments and/or suggestions. Please see below our response.

Seems like this semi-annual dependence should necessarily occur since there is a semi-annual cycle of the earth's axis declination. This would give a larger scattering cross-section to the polar regions (more susceptible to ionizing radiation) twice a year, alternating north and south pole.

- Thank you. In fact, as indicated in our manuscript, the semi-annual dependence of the geomagnetic activity is one of their earliest-reported features (e.g., Broun, 1848; Sabine, 1852). At present, there are three main mechanisms which are used to discuss this feature. The three mechanisms are:
    1. The "axial effect" proposed by Cortie (1912), which is related to the Earth's position in the heliosphere
    2. The "equinoctial effect" (Boller and Stolov, 1970), related to the relative angle of solar wind incidence with respect to Earth's rotation axis
    3. The "Russell–McPherron effect" (Russell and McPherron, 1973), related to the geometrical controls of interplanetary magnetic fields.
- These are clearly discussed in the manuscript.