

Difference of geomagnetic activities in spring and in fall

Shinichi Watari[1], Takashi Watanabe[2]

[1] CRL, [2] Env. Sci., Ibaraki Univ.

It is well known that geomagnetic activities have semiannual variations with two peaks near the equinoxes. There are several explanations for this: the Russell-McPherron effect, the axial hypothesis, and the equinoctial hypothesis. Here we used daily values of Dst index, Kp index, solar wind parameters, and sunspot numbers and studied magnitudes of the two peaks of geomagnetic activities near equinoxes for solar cycles 20, 21, and 22. According to statistical tests, the spring peaks of geomagnetic activities were always larger than the fall peaks. Solar wind speeds were also faster in spring than in fall. However, southwards components of IMF did not show such tendency. Solar activities, sunspot numbers, did not show such tendency, either.