ON SOLAR CYCLE DEPENDENCE OF MAGNETOSPHERIC CRITICAL DYNAMICS

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In last two decades it has been widely documented that the Earth's magnetosphere behaves as an out-of-equilibrium system near criticality in response to the changes of the solar wind features. Nevertheless, an extensive analysis of the dependence of such a critical dynamics as a function of solar wind cycle phases is still not available. Here, we investigate the changes of the distribution functions of the Auroral Electrojet (AE) burst features (energy, time duration, waiting time) as a function of the solar activity level as measured by Wolf sunspot number (R) on a period covering more than three solar cycles (1978-2013). In particular, we look for and discuss the presence of a Finite Size Scaling (FSS) effect as a function of the solar activity level.