

The Study of Sq Equivalent Current during the Solar Cycle

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The Sq current relates to the solar very closely. The activities of solar directly affect the Sq current. In this paper, the geomagnetic data from INTERMAGNET and Geomagnetic Network Center of China Earthquake Administration in 23rd solar cycle (1996~2006) have been used to analyze the variation of external and internal source Sq equivalent current. The method we adopted is the spherical harmonics analysis. The strength of the Sq equivalent current has a good correlation to the spot number of the sun. The intensity of the current is larger during the solar maximum years than that during the solar minimum years. The latitude of the current focus is not affected significantly by the solar activities. There is an evident difference between the seasonal change of current intensity during the solar maximum years and solar minimum years. During the solar maximum years, the peak value of current intensity occurs near the equinoxes, while during the solar minimum years, the peak value of current intensity occurs near the solstices.

Keywords: external and internal Sq current, the spherical harmonics analysis, solar activity