

MAGNETIC FIELD GRADIENTS IN SOLAR WIND PLASMA AND GEOPHYSICS PERIODS

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Using recent data obtained by Advanced Composition Explorer (ACE) the pumping scale of the magnetic field gradients of the solar wind plasma has been calculated. This pumping scale is found to be equal to $24\text{h} \pm 2\text{h}$. The ACE spacecraft orbits at the L1 libration point which is a point of Earth-Sun gravitational equilibrium about 1.5 million km from Earth. Since the Earth's magnetosphere extends into the vacuum of space from approximately 80 to 60,000 kilometers on the side toward the Sun the pumping scale cannot be a consequence of the 24h-period of the Earth's rotation. *Vise versa*, a speculation is suggested that for the very long time of the coexistence of Earth and of the solar wind the weak interaction between the solar wind and Earth could lead to stochastic synchronization between the Earth's rotation and the pumping scale of the solar wind magnetic field gradients. This synchronization could transform an original period of the Earth's rotation to the period close to the pumping scale of the solar wind magnetic field gradients.