

Magnetospheric dynamics as a probe for solar wind and solar activity

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The Earth's magnetosphere is engulfed in a continuous solar wind flow, carrying interplanetary magnetic field. Quasi-periodic and sporadic interplanetary medium variations are driven by solar activity. Since terrestrial magnetosphere is formed by a unique balance of heliospheric and geomagnetic factors of almost equal strength, a variety of geomagnetic phenomena are holding solar imprints. Though currently direct measurements of solar wind are available and this method is not in the focus of attention, it is of primary importance to reconstruct historical solar wind and solar activity time-series and therefore long-term solar activity trends. Observing emanations of electromagnetic waves or energetic particles from other planets can serve as a measure of solar/stellar activity or planetary magnetic field.

Keywords: Solar activity; solar wind; magnetosphere's structure.