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Magnetic turbulence in the geospace environment: observations and implications

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Magnetic turbulence is found in most space plasmas, including the geospace environment. Recent spacecraft observations of magnetic turbulence in the ion foreshock, in the magnetosheath, in the polar cusp regions, and in the magnetotail will be reviewed. Ionospheric turbulence will also be considered. Turbulence features like the fluctuation level, the spectral power law index, the turbulence anisotropy and intermittency, and the turbulence driver will be addressed. The dissipation of the turbulence energy will be considered as a source of plasma heating, and the influence of such a turbulence on the plasma transport across the magnetopause and acceleration in the magnetotail will be described, also using the results of numerical simulations.

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