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Magnetospheric responses to periodic variations of the solar wind dynamic pressure

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We investigate magnetospheric responses to periodic variations of the solar wind dynamic pressure. The solar wind variations simulated in the present study have the dynamic pressure variations with periods of 2, 6, and 10 minutes. As results, the variations with periods smaller than 6 minutes tend to have the inertia current in the magnetosphere. On the other hand, the longer-period variations have dominant diamagnetic current. Note that a global MHD simulation does not reproduce the field-line resonance.