

Global MHD simulation of the magnetospheric response to large and sudden enhancement of the solar wind dynamic pressure

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New global MHD simulation of the magnetosphere has been developed and is now available for somewhat extreme solar wind input parameters. We started to investigate interesting phenomena including super-large sudden commencement (super SC), geosynchronous magnetopause crossing (GMC), as well as the saturation of cross polar cap potential etc. Here we show the initial results on the response of the magnetosphere to large and sudden enhancement of the solar wind dynamic pressure, gradually increasing the dynamic pressure up to the extreme level of GMC. We discuss the fundamental mechanisms of transient response.