

Global MHD simulation of the magnetospheric response of the Bastille day storm

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We are developing a real-time numerical simulator for the solar wind-space-magnetosphere-ionosphere coupling system using next a generation magnetosphere-ionosphere coupling global MHD simulation. The feature of simulation has an advanced robustness to strong solar wind case because a triangular grid is used, which is able to calculate in the uniform accuracy over the whole region. The resolution is 7682 grids in the horizontal direction and 240 grids in the radial direction. The inner boundary of the simulation box is set at 2.6 Re. We want to investigate the reproduction of the magnetosphere-ionosphere simulation result in the case of strong solar wind. Therefore we compared the simulation results with the observation of the Bastille day storm event (2000/6/15), in which the solar wind velocity was above 1000 km/s and the value of Bz reached -60 nT. In this lecture, we will report the result compared with AE index, CPCP, and artificial satellites observation.

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