R011-12
C 会場 ：11/25　PM1 （13:15-15:15）
13:35〜13:50

グローバル MHD モデルのエミュレータを用いた極域電離圏再解析データ作成への展望

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Prospects for generating reanalysis data of the polar ionosphere based on an emulator of a global MHD model

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Although a wide area of the polar ionosphere can be observed by various methods, it is not easy to grasp the state of the entire polar ionosphere due to some gaps of the spatial coverage of the observations. On the other hand, the recent development of global MHD models has made it possible to predict the state of the polar ionosphere under given solar wind conditions. It would therefore be a promising approach to combine MHD simulation and the ionospheric measurements for analysing the state of the polar ionosphere. However, realistic MHD models of the magnetosphere is too computationally expensive to examine various events. To overcome this problem, we are constructing a machine-learning-based emulator that mimics the outputs of a global MHD model, REPPU. The latest version of the emulator, SMRAI2, instantaneously provides a spatio-temporal patterns of the electric potential and current in the polar ionosphere from a sequence of the solar wind data. The outputs of the emulator look reasonable and they roughly corresponds to the line-of-sight velocity as observed by SuperDARN radars. We then conduct data assimilation to incorporate ionospheric measurements such as the SuperDARN data into this emulator. The product of the data assimilation may be able to be used as reference data for the polar ionosphere in the future. We will report the current status and future prospects of our project.