# Development of a prediction system of the sporadic E layer occurrence: Current status and future prospects

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Prediction of sporadic E (Es) layers is one of the most important issues in the space weather forecast. In our space weather forecasting, one-day prediction of the Es layer occurrence has been done, based on current observations of Es layers obtained by our ionosondes. However, Es layers occasionally show significant day-to-day variations, and present conditions may not last until one day later. In order to study a method of the Es layer occurrence prediction, we analyzed the simulation data of the whole atmosphere-ionosphere coupled model GAIA, and compared the data with foEs data. We found that the ion convergence at 120 km altitude agrees fairly well with the variation in the observed foEs. Based on this result, we have been investigating a prediction scheme of the Es layer occurrence. Our group has recently developed a real-time GAIA simulation system, which is capable of predicting ionospheric conditions for a few days ahead. Using data obtained from the real-time GAIA, we are developing a prediction system of the Es layer occurrence. We will report the status of development of the prediction system, preliminary results, problems, and future prospects.

Keywords: Sporadic E layer, Model, Prediction, Vertical ion convergence

 