

Performance of Neural Network based Ionospheric Tomography

HATTORI, Katsumi^{1*}, HIROOKA, Shinji¹

¹Graduate School of Science, Chiba University

Three-dimensional ionospheric tomography is effective for investigations of the dynamics of ionospheric phenomena. However, it is an ill-posed problem in the context of sparse data, and accurate electron density reconstruction is difficult. A neural network tomographic approach, a multilayer neural network trained by minimizing an objective function, allows reconstruction of sparse data. In this study, we validate the reconstruction performance of the developed algorithm using numerical simulations. Then we apply it to the practical data observed in March 2011, Japan.

Keywords: ionospheric tomography, Neural Network