

Verification of the estimation of electron density profile in the lower ionosphere using MF radar

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The electron density in the lower ionosphere region can be estimated with the DAE (Differential Absorption Experiment) method from MF radar observation. This method estimates electron densities by the difference in absorption of L-mode and R-mode waves to polarization. It is expected that the accuracy of estimation of the electron density improve. The objective of this study is to improve the precision of the electron density from MF radar observation. We verify this estimation process with the Full Wave method. L-mode waves and R-mode waves are used in MF radar observation. We compare receiving intensities of L-mode and R-mode waves calculated with the Full Wave method and those obtained by MF radar. And we calculate the absorption coefficient and reflection coefficient using the Full Wave method. Also we improve the DAE method.