# Study of effects of strong electric field on radio wave absorption in the polar D region using EISCAT UHF and MF data

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It is well known that electromagnetic waves in the short wave range get absorbed in the D region when the electron density is sufficiently enhanced. This absorption is due tofrequent electron-neutral collisions.

Simultaneous colocated density and electric field and of a partial reflection MF radar monitoring absorption enabled us to revisit and study this aspect of radio wave propagation with improved instrumentation.

We find several absorption events which can explained "classically" by enhanced D region ionization, but also two events where the electron density remains low, but the electric field strength exceeds 50 mV/m.

We suggest that in these events radio wave absorption is caused by anomalous electron collisions due to plasma turbulence in the lower E region.

It is well known that electromagnetic waves in the short wave range get absorbed in the D region when the electron density is sufficiently enhanced, possibly caused by solareruptions (Moegel-Dellinger effect, PCA events) and veryenergetic auroral precipitation. This absorption is due to frequent electron-neutral collisions.

Simultaneous colocated operation of the EISCAT UHF radar measuring the electron density and electric field and of a partial reflection MF radar monitoring absorption enabled us to revisit and study this aspect of radio wave propagation with improved instrumentation.

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