Determining electron Coulomb collision effects on incoherent scatter via the full Foker Plank operator

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The *Dougherty* [1964] formalism with the full Foker Plank collision operator is applied to incoherent scatter theory to account for electron Coulomb collision effects in the presence of a magnetic field. The Monte Carlo results of *Sulzer and Gonzalez* [1999] have shown these effects are important for the correct interpretation measurements at Jicamarca when the radar is pointed within a few degrees of perpendicular to the magnetic field. Also Woodman [2004] found that solutions with a partial Foker Plank operator bound the Sulzer and Gonzalez results, but could not provide verification of all the details. Here numerical solutions are developed from Dougherty [1964] and used to compute the electron admittance functions for inclusion in the Nyquist approach to incoherent scatter theory [*Dougherty and Farley*, 1960; *Swartz and Farley*, 1979]. These solutions are free from the statistical uncertainties inherent in Monte Carlo approaches but are still rather numerically intensive.

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