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Quasilinear Operator Development from Full-wave RF Plasma Simulations¹ LEE BERRY, ORNL, R.W. HARVEY, CompX, E.F. JAEGER, ORNL, RF-SCIDAC TEAM — Calculation of the plasma response to ICRF or LH fields is an important problem for plasma heating and current drive and requires iteration between RF-plasma and Fokker-Planck codes coupled by the quasilinear operator (QLO). Computation of the QLO using the fields from spectral codes such as AORSA poses complexities over typical from ray-tracing/Kennel-Engelmann solutions including a breakdown in the RPA because multiple Fourier modes describe a single plasma mode. We will present modified expressions for the QLO that addresses mode-correlation concerns. Another approach to calculating the QLO is to use time and toroidal angle averages of direct solutions to the Lorentz equations. Initial results indicate semi-quantitative agreement, taking into account that the Lorentz solutions are drift-orbit rather than field line averages. Progress on work to make more direct comparisons will be presented.

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