Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Initial Results from UHF and HF Radar Studies of Ionospheric Interaction Experiments at HAARP J.P. SHEERIN, R. ILIE, E.L. ROESLER, Eastern Michigan Univ., W.A. BRISTOW, B. WATKINS, U. Alaska-Fairbanks — High power HF radiowave-ionosphere interaction experiments have begun at the HAARP Ionospheric Research Observatory in Gakona, AK. Recent upgrades to this facility permit a new generation of experiments at unprecedented intensities. The SuperDARN radar station in Kodiak, AK is now routinely employed to measure HF backcatter from irregularities and upper hybrid modes induced the interaction volume. Construction has now begun on a new UHF radar facility, AMISR, currently located at HAARP. We use AMISR to probe strong Langmuir turbulence (SLT) induced in the interaction region. Complementary to these radar probes are new stimulated electromagnetic emissions (SEE) receivers (SIERRA) which record the emissions that propagate to the ground. We report on a series of experiments using the coordinated observations of the new radar and SEE diagnostics at the increased HF powers available. Using short HF pump pulses, we are able to discriminate, characterize, and compare prompt SEE spectra with plasma line signatures now detectable by the AMISR radar. Experimental results are compared to predictions from recent modeling efforts.

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Date submitted: 25 Jul 2005 Electronic form version 1.4