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## **Density and Electric Field Measurements with STEREO-SWaves.**

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A low frequency part of the STEREO experiment SWaves was designed to make measurements of low frequency electric fields and rapid measurements of density fluctuations, using the three antennas. The short (6 meter stacer) monopole antennas of STEREO respond both to density fluctuations and to electric fields, and also to fluctuations of electron temperature. That implies determining four quantities, or possibly five, density and 3 components of electric field and perhaps temperature, from three measurements, the potentials on the three orthogonal antennas relative to the spacecraft.

One possibility is to add a fourth equation implied by the large plasma conductivity, so large that electric field parallel to the magnetic field is zero, a condition which has often been used in electric field measurements.

However, it has proved more effective to use prior knowledge of the nature of the fluctuations to show that one or more of the unknowns has negligible effects. Examples will be discussed