Numerical calibration of spacecraft antennas in isotropic cold plasma with an application to STEREO/WAVES

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Scientific antennas are a part of spaceborne radio experiments and are used to receive radiation and plasma waves created by natural processes which are studied by analysing the reception data. For a correct interpretation of the received radiation the antenna properties have to be known very accurately, so these antennas have to be calibrated.Numerical calibration methods can be used to investigate the two major influencing factors on the antenna properties, the irregular shape of the spacecraft body, and the surrounding plasma. A method is presented to compute the influence of the surrounding plasma by means of the Method of Moments and applied to the STEREO/WAVES antennas.