

STEREO/WAVES: NEW PERSPECTIVES ON THE STEREOSCOPY OF SOLAR RADIO SOURCES IN THE INTERPLANETARY MEDIUM

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We describe and review the capabilities of the WAVES (SWAVES) investigation on the two STEREO spacecraft. The WAVES instrument is composed of a set of 3 monopole antennas connected to a radio receiver. The receiver measures spectral and cross-spectral power densities on one, two or three antennas in the frequency range between 10 kHz and 16 MHz. This package will therefore have direction finding (DF) capabilities, allowing to determine the direction of arrival of an incoming wave, its flux and polarization properties. A DF analytical model has been recently developed and applied to the CASSINI/RPWS data in order to perform DF on localized Jovian radio-emission (Cecconi et al., 2005). We present an extension of this latter model for extended solar radio emission such as type III and type II bursts, produced respectively by subrelativistic electrons travelling outward along open magnetic field lines to lower densities in the interplanetary medium (IPM) and by solar wind electrons accelerated by transient shocks moving outward from the Sun to the IPM.

We discuss also the scientific objectives of SWAVES associated to the previous observations: to probe the density and IMF structure of the heliosphere before and after CMEs; to understand the radio emission process and the beam pattern of radio bursts; to measure the electron density and temperature of filament material in magnetic clouds.