

# EIT WAVE DETECTOR FOR STEREO/SECCHI: NEW PROPERTIES OF CORONAL WAVES AND THEIR THEORETICAL IDENTIFICATION

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The Solar TERrestrial RELations Observatory (STEREO) is the third mission in NASA's Solar Terrestrial Probes program, and consists of two identical spacecraft that will be placed far enough one from the other to give the possibility of stereoscopic vision of the solar corona. The SECCHI telescope includes an EUV imager similar to SOHO/EIT, two coronagraphs and a Heliospheric Imager. The role of the Royal Observatory of Belgium solar physics group is the software development for this mission and further scientific EUV data analysis.

The EIT Wave Detector is an automated scientific package including a number of criterii for the detection of the variety of EIT waves. The occurrence of Earth-directed CMEs can be detected in their earliest stages as EIT waves in EUV observations of the solar disc. They are seen like large scale bright structures propagating on the EUV solar disk followed by the dimness intensity initiated by the solar eruption, sometimes associated to type-II radiobursts when they steepen to a shock wave. The earliest possible detection of CME is required for efficient computation of its geoeffectivness. The detector consists of new algorithms specially developed for event detection in the optically thin coronal plasma medium. General regularities of coronal waves has been extracted and summarized from B. Thompson events catalog.

Such coronal waves discovered in 1997 by SOHO/EIT were identified to be fast magneto-sonic wave when observed with the high resolution instrument and the velocities about 1000 km/s (TRACE). We presented the MHD solution of slow magneto-acoustic wave corresponded to the slow velocities (50-300 km/s) of the slow waves observed with lower cadence EIT telescope. Series of new established properties of EIT waves waves will be presented such as rotation of EIT waves and new large scale transient phenomena appearance under interaction of the waves with other active solar structures.