



## **STEREOS and SOHO CMEs and EUV Waves Associated with Type II Radio Bursts**

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Type II radio bursts are caused by fast mode MHD waves in the corona and interplanetary medium, so the start of the type II bursts is a good indicator of the presence of shocks near the Sun. Statistical investigations have shown that type II bursts are associated with CMEs of above-average kinetic energy. Type II bursts at metric wavelengths start when CMEs are typically at a heliocentric distances of  $\sim 2$  solar radii, so the coronagraphic observations had to be extrapolated to heights closer to the Sun because of the limited inner field of view. STEREO's inner coronagraph (COR1) is capable of observing the coronal range where type II bursts start. During the first year of observation, several metric type II bursts and a few longer wavelengths ones were observed in conjunction with STEREO observations. In particular, we consider the type II bursts that occurred on May 19, 22, 23 and June 03, 2007. We compared the type II observations with EUV waves and CME observations and found the following: (i) all metric type II bursts have associated CMEs in overlapping spatial domains, (ii) CME speeds obtained from COR1 is generally lower than those from outer coronagraphs such as COR2 on STEREO and C2 and C3 on SOHO, (iii) type II bursts are invariably associated with EUV waves observed by SREREO/EUVI and SOHO/EIT, (iv) SWAVES data are consistent with type II CME - hierarchy that the larger the wavelength range of type II bursts, greater is the kinetic energy.