

# Visibility of coronal mass ejection by LASCO coronagraphs

# Seiji Yashiro[1]

[1] CUA

<http://cdaw.gsfc.nasa.gov/>

We report the association of X-ray flares with coronal mass ejections (CMEs) and the basic properties of flare-associated CMEs in the aspect of the difference between disk and limb events. We collected 1370 X-ray flare events (above C3 level) detected by GOES satellite and their CME associations were investigated using white light data from the LASCO coronagraphs. We compared the CME association of disk and limb flares and found that (1) CME association rate clearly increased with X-ray flare size from 20% for average flares (between C3 and C9 level) to 100% for huge flares (above X3 level), (2) almost all CMEs associated with large flares (above M1) were detected by LASCO while at least 12% of CMEs associated with average flares (between C3 and M1) were unidentified. We examined the statistical properties of the flare-associated CMEs and compared them by flare size and longitude. The CMEs associated with X-class flares were significantly faster (Ave 1325 km/s) and wider (Median 244 deg) than those of CMEs associated with average flares (576 km/s, 70 deg). We conclude that all fast and wide CMEs are detectable by LASCO, but slow and narrow CMEs may not be visible when the CMEs originate from the disk center.