On the relationship between solar flares and the acceleration/deceleration of CMEs

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To investigate the relationship between solar flares and acceleration/deceleration of CMEs, I selected flares for study according to the following criteria: (1) flares observed with HXT between 1996 and 2001, (2) heliocentric longitude exceeds 30 degree, and (3) peak count rate in the M2 band of HXT (33-53 keV) exceeding 20 counts/s and examined the photon index obtained from L- and M1-band count data pair and M1- and M2-band pair. Then I examined if flares were associated with CMEs using SoHO (LASCO) CME catalogue, and examined their acceleration.

I found that CMEs were decelerated in the case for flares whose Gamma(M2/M1) is 3.5 or less and that CMEs were accelerated in the case for flares whose Gamma(M2/M1) is 3.7 of more.