[S13-2] Probability Forecast of the CME Geoeffectiveness Using Halo CMEs from 1997 to 2003

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The first attempt has been made to evaluate the forecast of geoeffective CMEs by using front-side halo CMEs. For this, we consider 7,742 CMEs observed by LASCO coronagraph and select 305 front-side halo CMEs from 1997 to 2003. To select CME-geomagnetic storm ($Dst<-50$ nT) pairs, we adopt a CME propagation model for estimating the arrival time of CME at the Earth and then select the nearest Dst minimum value within the window of ±24 hours. For statistical evaluation, we present contingency tables to estimate statistical parameters such as probability of detection yes (PODy) and false alarm ratio (FAR) by using these pairs. We examine probabilities of geoeffective CMEs according to their locations, speeds, and their combination. From these studies, we found that : (1) the total probability of CME geoeffectiveness for front-side halo CMEs is 40% (121/305); (2) PODys for the location ($-50<L<50$) and the speed (>400 km/s) are estimated to be larger than 80% but their FARs are about 60%; (3) the geoeffectiveness of CMEs has the maximum probability of about 55% for the area of $0^\circ<L<+30^\circ$; (4) the most probable areas whose geoeffectiveness fraction is larger than 0.5, are $0^\circ<L<+30^\circ$ for moderate speed CMEs (400~800 km/s), and $-30^\circ<L<+60^\circ$ for fast CMEs ($>$1,200 km/s). Our results can give some criteria to select geoeffective CMEs for space weather prediction.

[S14-1] Microlensing Effects in the Einstein Cross, QSO2237

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We present new estimation for microlenswing parameters in the Einstein Cross based on the Local HAE Caustic Modeling (Lee et al. Astro-ph/0503018). If we adopt much higher transverse velocity (10,000~40,000km/s; private communication with C. Kochanek) in the source plane, the estimated mass range for the microlenses can be higher (~10^-2 M_sun) than previous results (~10^-4 M_sun) which has been derived from 6,000km/s for the transverse velocity. Based on the new transverse velocity, we re-estimated the size of inner and outer radii of the accretion disk, the mass of SMBH in the quasar and the mass range for the microlenses in this system.