Space Science Seminar
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10:30 a.m.
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CME Rates Over Four Cycles

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Host: Dr. Alphonse Sterling

Observations of white-light CMEs now extend over the last four solar cycles (SCs), including through most of SC 24. SOHO/LASCO has observed all of SC 23 and continues to obtain data through SC 24. In addition, since 2007 we have had near-Sun observations of CMEs from the STEREO/SECCHI coronagraphs, and in the heliosphere with the Solar Mass Ejection Imager (SMEI; 2003 - 2011) and SECCHI Heliospheric Imagers. CME rates have typically been well correlated with sunspot numbers (SSNs) and the total magnetic field (MF). However, since the SC 23/24 minimum, there is evidence that the CME and SSN rates have diverged, with similar SC 24 CME rates but much lower SSN and MF. It has been suggested that this is related to the weak solar polar magnetic fields during the recent extended minimum and the rise of SC 24. However, there is a large spread in the CME rates determined by manual vs. automatic counting techniques. I will also discuss recent studies of the ground-based Mauna Loa Mk coronameters to fill in the "coronagraph gap" in CME rates from 1989-1996, determination of a basal rate of CMEs at minima, and how double-cycle peaks and hemispherical offsets affect CME rates.

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