

Space Physics Seminar

Thursday, February 19, 2015

Successive and Interacting Coronal Mass Ejections: Causes and Effects

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Abstract:

Coronal mass ejections (CMEs) are the major driver of space weather at Earth, and their study has been a central topic to space physics since the 1970s. In the past decade, with the availability of new remote-sensing observations and advanced three-dimensional numerical simulations, significant progress has been made towards understanding the initiation and propagation of isolated CMEs. However, we do not have yet a clear understanding of the causes and consequences of successions of CMEs. Since observations, both at the Sun and near Earth, point towards the fact that multiple CMEs tend to occur in cluster, gaining a better understanding of this phenomenon is of uttermost importance. In this talk, studies covering the entire Sun-Earth system regarding the causes and effects of successive CMEs will be presented. Solar observations have revealed how magnetic connectivity between different active regions may result in the launch of series of sympathetic CMEs. Multiple CMEs in close succession are also particularly effective in accelerating particles in the low corona. Recent observations and simulations have shed light on how the “collision” of two CMEs can modify their direction and speed. Last, we will dive into the geomagnetic response to perturbed CMEs, focusing on the case of a fast shock propagating through a slower CME.



725 Commonwealth Avenue
Boston, MA 02215

3:00 pm

Refreshments
CAS Room 500

3:30 pm

Seminar
CAS Room 502

Next Week

- Amir Caspi
SwRI Boulder
- Thermal processes in the
solar corona



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