

Project Details

ROSES ID: NRA-01-OSS-01

Selection Year: 2002

Program Element: Independent Investigation: Solar Helio LWS

Project Title:

Determining the properties of Earth-directed Coronal Mass Ejections

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Summary:

Early detection of coronal mass ejections (CME's) is now possible. However, the physical properties of a CME need to be known in order to predict the effects it will have on space weather. Recent work has shown that EUV/X-ray dimmings in the low corona and EIT waves are intimately related to CME's. In this proposal, we show how the origin of the mass, its distribution, and the dynamics of a CME are reflected in the associated dimming and wave. This investigation will use SOHO/EIT observations of EUV dimmings and EIT waves and SOHO/LASCO white light observations of CME's. By examining events observed in both telescopes, the radial, latitudinal, and longitudinal distribution of mass in CME's and their bulk velocity will be related to the EUV dimmings and waves. We expect to show clear relationships between the EUV data and the white light observations. Studying the CME, dimming, and wave together will help us to understand more about the physics of CME's. In addition, the results of this proposed work can be used to study and make predictions of the geoeffectiveness and arrival time of Earth directed CME's. Because these phenomena appear during the earliest stages of a CME, space weather predictions can be made in real-time.

Publication References:

Summary: "

Reference: Determining the properties of Earth-directed Coronal Mass Ejections - Biesecker, Douglas Alan NOAA/SEC