EUV DIMMINGS AS A DIAGNOSTIC OF CME ACTIVITY

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Large-scale coronal EUV dimmings, developing on timescales of minutes to hours in association with a flare or filament eruption, are known to exhibit a high correlation with coronal mass ejections. While most observations indicate that the decrease in emission in a dimming is due, at least in part, to a density decrease, a complete understanding requires us to examine at least four mechanisms that have been observed to cause darkened regions in the corona: 1) mass loss, 2) cooling, 3) heating, and 4) absorption/obscuration. Recent advances in automatic detection, observations with improved cadence and resolution, multi-viewpoint imaging, and spectroscopic studies have continued to shed light on dimming formation, evolution, and recovery. However, there are still many outstanding questions, including 1) Why do some CMEs show dimming and some do not? 2) What determines the location of a dimming? 3) What determines the temporal evolution of a dimming? 4) How does the post-eruption dimming connect to the ICME? 5) What is the relationship between dimmings and other CME-associated phenomena? The talk will emphasize the different formation mechanisms of dimmings and their relationship to CMEs and CME-associated phenomena.