



Contribution ID: 212

Type: **Talk**

What can we learn about coronal mass ejections from their associated coronal dimmings?

Tuesday 10 September 2024 17:10 (15 minutes)

Coronal dimmings are sudden decreases of the solar EUV and soft X-ray emission caused by coronal mass ejection (CMEs). From the solar observations, we know that dimming regions map to the bipolar ends of closed magnetic field lines that become stretched or temporarily opened during an eruption, and the decrease in the emission is a result of the depletion of coronal plasma caused by the expansion and mass loss due to the CME. We present recent statistical studies that showed distinct correlations between characteristic CME mass and speed with key parameters of the associated coronal dimmings such as their spatial extent and intensity drop. We also discuss how the locations of the coronal dimmings may help us to better understand the origin of the eruption. Finally, we outline how full-Sun EUV measurements provide us with a means to connect the solar observations to late-type stars, and to develop methods for the detection of stellar coronal mass ejections.

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Session Classification: Multi-scale energy release, flares and coronal mass ejections

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