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Coronal dimmings associated with the May 2024 flare/CME events from AR 13664

During the first half of May 2024, Active Region 13664 was the source of 11 X class flares, over 50 M class flares as well as numerous coronal mass ejections (CMEs). The high number of CMEs launched in quick succession caused the largest geomagnetic storm since two decades. The most distinct phenomena in the low corona associated with CMEs and strong flares are coronal dimmings, which are localized regions of transiently reduced emissions observed in extreme ultraviolet (EUV) and soft X-ray (SXR) wavelengths. As such, they are important diagnostics for CME activity (in particular for Earth-directed CMEs) and provide insights on the accompanying physical processes in the low corona. In this contribution, we present a systematic study of the coronal dimmings associated with the flares in AR13664 as observed by the AIA instrument onboard the Solar Dynamics Observatory between the 3rd and 14th of May. We study the dimming parameters (area, brightness, magnetic flux) and relate them with key characteristics of the observed CMEs. We also attempt to understand the magnetic configuration involved in these eruptive events by studying the anchor points of the coronal dimmings and the associated flare ribbons.

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