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The NCAR Mauna Loa Solar Observatory (MLSO) COSMO K-Coronagraph (K-Cor) issues near-real-time coronal mass ejection (CME) alerts (when MLSO is operating) to the community and to NASA's Community Coordinated Modeling Center Solar Energetic Particle (SEP) scoreboard for use by the NASA Space Radiation Analysis Group in support of the Artemis mission. K-Cor has a field-of-view from 1.05 to 3 solar radii with 15-second cadence images to study CME onset and dynamics in the low and middle corona. Data are fully processed in less than 2 minutes using a fully automated pipeline that includes CME detection. The K-Cor field-of-view, high time cadence and low latency data, combine to provide an early warning CME detection capability as part of a SEP forecasting system, as pointed out by St. Cyr et al. (2017). Most of the K-Cor alerts are issued before the CME enters the LASCO field-of-view. When LASCO data latency is included, we show that K-Cor alerts can provide the first warning of in-progress CMEs tens of minutes to an hour before the CME can be seen in available LASCO data. Data latency will be lower for the upcoming CCOR coronagraph, however the inner field-of-view of CCOR is 3.6 solar radii (vs LASCO 2.1 solar radii) requiring more time for the CME to travel to be visible in CCOR images. K-Cor CME alerts provide early detection of CMEs along with speed and location information that can be combined with CME measurements from CCOR images to improve forecasts.

We discuss the CME detection system and performance statistics. We present characteristics of CMEs in the low and middle corona that are associated with SEP events. We discuss ongoing work to improve performance and highlight the benefit of a ground-based coronagraph network (I,e. ngGONG mission).

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