



Coronal mass ejections on young G, K, and M stars

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Young and magnetically active G, K, and M dwarfs exhibit high rates of flares, including ones that are orders of magnitude more energetic than known from the Sun, so-called superflares. On the Sun, strong flares are almost always accompanied by coronal mass ejections (CMEs). This raises the question if young active stars have correspondingly large CME rates. This could be an important contribution to stellar mass- and angular momentum loss. Moreover, frequent CME impacts could then lead to efficient erosion of planetary atmospheres. However, in contrast to flares, observations of stellar CMEs are rare and often the observational methods do not allow for an unambiguous identification. We present results from a model which combines stellar flare rates with solar flare-CME relationships to estimate the possible CME occurrence rates and the associated mass-loss from active G, K, and M stars. Comparison with stellar mass-loss measurements shows that for the most active stars, the mass-loss rates from CMEs tend to be overestimated, which could be due to increased confinement by their strong magnetic fields.