Large [CII] maps unveil rapid molecular cloud erosion around expanding HII regions

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Large [CII] maps unveil rapid molecular cloud erosion around expanding HII regions

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I will present results from the SOFIA FEEDBACK legacy survey that maps the [CII] fine-structure line at 158 micron with a high spectral resolution of ~0.2 km/s. [CII] is the main coolant of the neutral ISM and traces the photodissociation region (PDR) at the interface of HII regions and their surrounding molecular cloud. The [CII] spectra in all FEEDBACK regions display prominent high-velocity wings at this interface region. This traces mass ejection from the molecular cloud that is driven by stellar feedback. The morphology of this mass ejection is often observed in the form of expanding shells, but not exclusively. Quantifying the mass ejection rate associated with these high-velocity wings indicates rapid molecular cloud erosion, i.e. within a few Myr, after the formation of high-mass stars.