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Impacts of Outflows on NGC 1333 Using Observations of HH6¹

MADALYN JOHNSON, California State University, East Bay , DAN WATSON, ADAM RUBINSTEIN, University of Rochester — NGC 1333 is a low-mass nebula consisting of many young stellar objects with bipolar outflows. The outflows interact with the surrounding molecular cloud, which causes small shock regions referred to as Herbig-Haro (HH) Objects. These regions emit light as atomic and molecular spectral lines. The Spitzer Space Telescope and the Hubble Space Telescope took images of the emission from HH objects in NGC 1333. We focus on HH6 and use photometry on the images to measure its spectral lines' intensities. By comparing the intensities for each wavelength and the simulated model observations, we found pre- and post-shock parameters for HH6. From these parameters, we derived the mass flow rates, momentum, and kinetic energy injection rate into the surrounding molecular cloud. This information can not only indicate the effects HH6 may have on NGC 1333 but also give us more information about the young stellar objects' star formation rate.

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