The Search for Newborn Stars: Observing Bok Globules in the Visible and Infrared

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Bok Globules are dense clouds of cold molecular hydrogen gas that are generally associated with larger emission nebulae and young star clusters. I hypothesized that these clouds represent the first stages of stellar formation, and that these clouds are collapsing due to gravity and forming stars in their dense cores.To test this hypothesis three groups of globules were observed in both visible (specifically Hydrogen Alpha) and infrared wavelengths (700-1100nm). Out of the total 43 globules 21 possible infrared sources were found. 15 of these infrared sources were strong enough to obtain accurate measurements from and place on an Hertzsprung-Russell diagram. Based on analysis of the HR diagram, all but two of the infrared sources found matched the predicted properties of a genuine protostar. Given this data it can be accurately said that Bok Globules are indeed sites of stellar formation, since ~30.23% of the globules surveyed had strong infrared sources that could not be attributed to a source other than star formation.