Triggered Star Formation in a Turbulent ISM
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A multifrequency study of the active star forming region NGC 6357

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To investigate the interaction of the massive stars with the gas and dust in the active star forming region NGC 6357, located in the Sagittarius spiral arm at a distance of 1.7-2.6 kpc (Massey *et al.* 2001), we analyzed the distribution of the neutral and ionized gas, and that of the dust, based on Hα, [OIII] and [SII] images obtained with the Curtis-Schmidt telescope at CTIO, radio continuum observations at 1.465 MHz obtained with the Very Large Array (NRAO) in the DnC configuration (synthesized beam = 38"), HI data from the Parkes survey (angular resolution = 15'), CO(1-0) observations obtained with the Nanten radiotelescope at Las Campanas Observatory (angular resolution = 2.7'), and IR images in the four MSX bands (angular resolution = 18.3").

NGC 6357 consists of a low excitation ionized envelope, 50' in diameter, HII regions in different evolutionary stages (Felli *et al.* 1990), molecular clouds, OB stars (most of them belonging to the open cluster Pismis 24), and IR sources (Persi *et al.* 1986).

The [SII]/Hα and [OIII]/Hα line ratios confirm the low excitation of the ionized envelope. Although the HI emission distribution is dominated by absorption due to radio continuum sources, the optical filaments to the E and W are seen surrounded by neutral gas with velocities in the range –12 to +2 km s^{-1}. The CO emission distribution shows molecular gas associated with the region with velocities in the range –7 to +1 km s^{-1}.

A detailed analysis of the region reveals interstellar bubbles and photodissociation regions created by the massive stars in Pi 24 and by undisclosed ionizing sources.

Keywords. ISM: HII regions - ISM: individual (NGC 6357) - ISM: bubbles

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