

An obscured cluster associated with the H II region RCW173

Amparo Marco, Ignacio Negueruela

Universidad de Alicante, Spain

The discovery of several clusters of red supergiants towards $l = 24^{\circ} \sim 30^{\circ}$ has triggered interest in this area of the Galactic plane, where lines of sight are very complex and previous explorations of the stellar content were very preliminary.

We attempt to characterise the stellar population associated with the H II region RCW 173 (=Sh2-60), located at $l \sim 24^{\circ}$, as previous studies have suggested that this population could be beyond the Sagittarius arm.

We obtained UBV photometry of a stellar field to the south of the brightest part of RCW 173, as well as spectroscopy of about twenty stars in the area. We combined our new data with archival 2MASS near-infrared photometry and Spitzer/GLIMPSE imaging and photometry, to achieve a more accurate characterisation of the stellar sources and the associated cloud.

We find a significant population of early-type stars located at $d = 3.0$ kpc, in good agreement with the 'near' dynamical distance to the H II region. This should be located at the near intersection of the Scutum-Crux arm. A luminous O7 star is likely to be the main source of ionisation. Many stars are concentrated around the bright nebulosity, where GLIMPSE images in the mid infrared show the presence of a bubble of excited material surrounding a cavity that coincides spatially with a number of B0-1 V stars. We interpret this as an emerging cluster, perhaps triggered by the nearby O7 star. We also find a number of B-type giants. Some of them are located at approximately the same distance, and may be part of an older population in the same area, characterised by much lower reddening. A few have shorter distance moduli and are likely to be located in the Sagittarius arm.

The line of sight in this direction is very complex. Optically visible tracers delineate two spiral arms, but seem to be absent beyond $d \sim 3$ kpc. Several H II regions in this area suggest that the Scutum-Crux arm contains thick clouds actively forming stars. All these populations are projected on top of the major stellar complex signposted by the clusters of red supergiants.

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Email: ignacio.negueruela@ua.es