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Radio observations of the HII region complex RCW 95

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Abstract. The cloud RCW 95 was selected for study along with a number of other southern hemisphere regions in the galactic plane as part of a large program of search for YSOs associated with molecular clouds in the Galaxy. The project is an example of successful exploitation of large galactic surveys and combined both radio and far-IR observations. The selection of objects for study was based on data from the IRAS point source catalogue, in which we looked for sources with properties characteristic of star formation regions (SFRs). The main criteria constituted the presence of IRAS colours characteristic of compact HII regions, as according to work by Wood and Churchwell (1989) and the association with strong CS emission (using data from the catalogue of Bronfman et al. 1996). The presence of different maser species, typically found in association with SFRs, and ammonia lines was also used as an auxiliary information in the process. After selection, the stellar population of the regions were studied in the near-IR using data from both the 2MASS project and the SPTIZER satellite, allowing the construction of complete near-IR SEDs of the stars. RCW 95 is a special example of a region where the search successfully resulted in the discovery of several rich sites of star formation (Roman-Lopes and Abraham 2004 and 2006) and so, more detailed observations of the cloud were performed in radio in order to adress the structure and distribution of the compact HII regions therein. The continuum emission of the cloud was mapped in 43 GHz with a resolution of 2' and a complete water maser survey was conducted in its direction, at 22.2 GHz, with a positional accuracy of 1'; the result of these observations was a more clear picture of the structure of the compact and ultra-compact HII regions within the cloud and the discovery of more sites of star-formation that are still too obscured to be directly detected in the far-IR. In particular, the IRAS source 15412-5359 was revealed to be a compact site of massive star formation surrounded by an ionized region (powered by an O9V and several B0V stars) with a 43 GHz flux upper limit of 2.5 Jy.

Key words. Stars: formation – Stars: YSOs – ISM: masers – ISM: radio observations – Galaxy: HII Regions

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