RADIO OBSERVATIONS OF MASSIVE OB STARS

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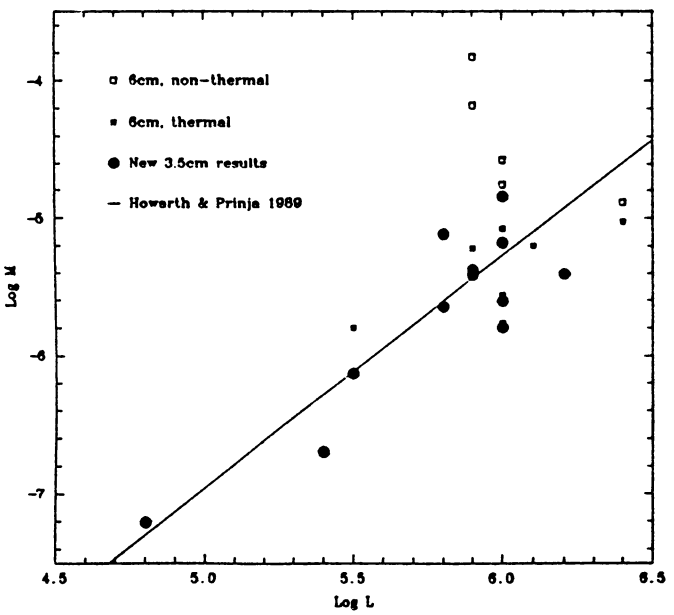
ABSTRACT. The mass-loss rates of O stars and B supergiants are of interest because of their influence on the evolution of these massive stars (among other matters). In principle, the 'safest' (*i.e.* most model-independent) method of determining $\dot{M}$ is to measure the free-free emission from stellar winds at radio wavelengths. This method is complicated, however, by the existence of poorly understood non-thermal emission in some stars, and by the possibility of hydrogen recombination in the winds of B supergiants.

We are in the process of carrying out a VLA survey of OB stars, initially at 3.5cm, to a flux limit of ~0.1mJy. Because *all* our targets should have thermal emission at detectable levels (based on mass-loss rates from Howarth & Prinja 1989 and terminal velocities from Prinja, Barlow & Howarth 1990), the survey is yielding an *unbiassed* estimate of the frequency of non-thermal emission. The improved sensitivity of our survey over earlier work defines the $\log \dot{M} - \log L$ relationship much more precisely than was previously possible, over a large range in luminosities; and allows us to make definitive statements on recombination in B supergiant winds. Our sample includes the first radio detections of an OC star, of a massive X-ray binary, and of thermal emission from a main-sequence star.



K. A. van der Hucht and B. Hidayat (eds.),
Wolf-Rayet Stars and Interrelations with Other Massive Stars in Galaxies, 315.