N49a   Mass-loss from Semi-regular Variables

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Two 15×15 arcmin^2 fields in the Baade's clear Windows towards the inner Galactic bulge have been searched for semiregular variables (SRVs) in the MACHO database. SRVs are at least 20 times as numerous as Mira variables in these fields. Their mass-loss properties have been determined from 7 and 15 micron infrared observations taken with the ISO satellite as part of the ISOGAL programme. Near-infrared (JHK) data have been extracted from the 2MASS and DENIS surveys. The semiregular variables and Miras inhabit the bright tip of the distribution of giant stars in the $J - K$, K colour-magnitude diagram. It is found that many SRVs show mass-loss rates comparable to the short-period Miras although they have much smaller amplitudes. A period of greater than 70 days is a necessary but not a sufficient condition for mass-loss. The colour-period diagrams show a discontinuity between SRVs and Miras, especially in $J - H$, due to the strong efects of water-vapour absorption in the large-amplitude variables.