

STAR FORMATION HISTORY OF THE LARGE MAGELLANIC CLOUD AND
ASYMPTOTIC GIANT BRANCH EVOLUTION OBTAINED FROM A STUDY
OF LONG-PERIOD VARIABLES.

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Abstract. A survey for Long-Period Variables has been made of the Bar and southern regions of the Large Magellanic Cloud. This has been combined with the results of Reid, Glass and Catchpole (1988) to present a global survey of the LMC. Periods are used as age indicators, giving the star formation history of the LMC from 1 to 10 Gyr, which indicates a major burst of star formation occurred approximately 4 Gyr ago.

Infrared photometry is used to derive bolometric luminosities and shows most are Asymptotic Giant Branch members and that a third are Carbon stars. None of the Carbon stars have a bolometric magnitude brighter than -5.4, and they tend to have lower pulsation amplitudes and longer periods than the M stars. The remaining stars are almost all of spectral type M and their I-band amplitude of pulsation increases with period. Both the Carbon and M stars lie on a well-defined $K-(\log P)$ relation, that may be useful as a distance estimator.