

GLOBULAR CLUSTER DISTANCES FROM THE RR LYRAE LOG (PERIOD) -
INFRARED MAGNITUDE RELATION.

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Abstract. The log (Period) - infrared (2.2 micron) magnitude relationship has been measured for 7 clusters (M3, M4, M5, M15, M107, ω Cen and NGC 5466). For the clusters where there are several observations for each of the variables, enabling a good mean magnitude to be derived, there is no evidence for scatter in the relation outside observational error. This conclusion applies also to ω Cen, even though the variables observed covered a range of metallicity. It is argued that very accurate relative distances can be obtained which are insensitive to reddening errors and the effects of metallicity. Any mass difference between variables in different clusters may still introduce uncertainties in the relative distances. Recent Baade-Wesselink results by Fernley et al. have been used as an absolute calibration, including a small residual correction for metallicity effects. On this scale, the mean distance modulus for 6 of the clusters (excluding NGC5466) is essentially the same as that derived by Buonanno, Corsi and Fusi-Pecchi (preprint) using a combination of horizontal branch magnitudes and main sequence fitting. However, individual distance moduli differ by typically 0.09 magnitudes. There is no clear correlation of this residual with metallicity.