



Figure 4: The various determinations of \bar{M}_V for RR Lyrae stars plotted versus $[Fe/H]$. The type of symbol refers to the authors of the \bar{M}_V determination.

(a) B-W method: ● Burki and Meylan (1986), ○ Manduca et al. (1981), ⊕ Oke (1966) and Oke et al. (1962), ⊗ Woolley and Dean (1976), □ Siegel (1982), ⊞ Wallerstein and Brugel (1979), ⊠ McNamara and Feltz (1977); hatched areas: average of the determinations of McDonald (1981), Woolley and Savage (1971) and Woolley and Davies (1977). The horizontal line represents the mean value of \bar{M}_V based on the 7 RR Lyrae stars.

(b) Globular clusters and statistical parallaxes: relations given by S for Sandage (1982), C for Carney (1980), B for Butler et al. (1978), HL for Heck and Lakaye (1978), CD for Clube and Dawe (1980), and HJBW for Hawley et al. (1986).

according to Sandage (1982). Although the sample at our disposal is still small, this effect can be evaluated as follows: the RR Lyrae stars of intermediate metallicity $[Fe/H] \approx -1.2$ could be slightly brighter by about 0.2 magnitude than either those being very deficient or those having a solar composition.

(ii) *Determination based on globular clusters analysis.* Tremendous discrepancies exist between the determinations based on the B-W method (field stars) and on globular clusters (Figure 4b): the relation of Carney (1980), based on globular cluster main sequence fitting, is fainter by about 0.2 magnitude for stars with $[Fe/H] \leq -1.0$ (C relation in Figure 4b), and the relation for globular clusters by Sandage (1982) is fainter by about 0.5 magnitude for stars with $[Fe/H] \geq -1.2$ (S relation in Figure 4b). The case of ω Cen is interesting because there is a wide range of $[Fe/H]$ values among its numerous RR Lyrae member stars. According to Butler et al. (1978), there is virtually no dependence of \bar{M}_V on $[Fe/H]$ for these stars. Their mean relation is drawn in Figure 4b (B relation), using 5.2 kpc for the distance to this cluster. The difference in magnitude between the mean B-W and mean ω Cen relations can be reduced to zero by adopting 5.5 kpc for the distance to this globular cluster.

(iii) *Determination based on statistical parallaxes.* The most recent analysis gives $\langle \bar{M}_V \rangle = 0.76 \pm 0.14$ (Hawley et al. 1986), without any significant dependence on metallicity (HJBW relation in Figure 4b). This mean value, fainter by about 0.2 magnitude than the mean B-W value $\langle \bar{M}_V \rangle = 0.57 \pm 0.09$, is nevertheless in agreement at the 1σ level. The results of the studies of Heck and Lakaye (1978) and Clube and Dawe (1978) and Clube and Dawe

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