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Erratum: A detailed census of variable stars in the globular cluster NGC 6333 (M9) from CCD differential photometry

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The paper 'A detailed census of variable stars in the globular cluster NGC 6333 (M9) from CCD differential photometry' was published in MNRAS, 434, 1220 (2013). Equation (7) representing the phase $\phi(t)$ at time t of a periodic variable undergoing a period change is erroneous. This equation should instead read:

$$\phi(t) = N_{\rm E}(t) - \lfloor N_{\rm E}(t) \rfloor, \qquad (1)$$

where $N_{\rm E}(t)$ is the number of cycles elapsed at time t since a reference epoch E. The incomplete brackets or 'floor function' represent the rounding down to the nearest integer. The quantity $N_{\rm E}(t)$ for a constant rate of period change is given by:

$$N_{\rm E}(t) = \frac{1}{\beta} \ln \left[1 + \frac{\beta}{P_0}(t - E) \right], \qquad (2)$$

where β is the period change rate and P_0 is the period at the epoch E. The reader is referred to the paper by Kains et al. (2015) for a discussion and references included there.

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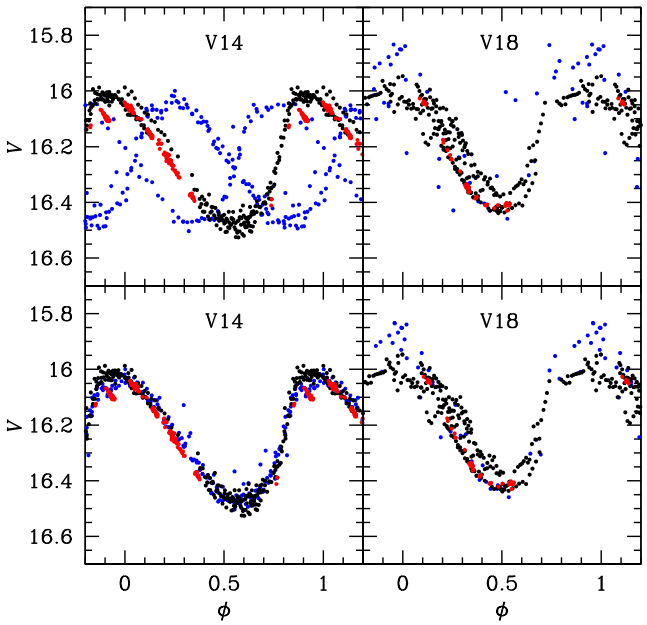

Figure 1. Light curves of the two RRc stars V14 and V18 phased with a constant period (top panels) and with the ephemerides including a secular period variation given in the text (bottom panels). The colours refer to: blue, data from 1994–1995 (Clement & Shelton 1999), black and red, data from observations at Hanle and La Silla observatories, respectively, from Arellano Ferro et al. (2013). A colour version of this figure is available in electronic form.

Consequently, our derived period change rates for the RR Lyrae stars V14 and V18 in NGC 6333 are wrong. Repeating the analysis with the correct equations, we find $P_0 = 0.327\,052$ d at epoch $E = 2455\,323.3708$ d and $\beta \approx +9.2$ d Myr^{-1} for V14 and $P_0 = 0.341\,370$ d at epoch $E = 2455\,323.2745$ d and $\beta \approx +4.0$ d Myr^{-1} for V18. We find that the phased light curves for V14 and V18 using these new parameters (and equations) are noticeably improved as shown in Fig 1.

REFERENCES

Arellano Ferro A. et al., 2013, MNRAS, 434, 1220
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