Four More Ross Variables Identified

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Abstract : Four suspected variables, NSV 11649, NSV 12676, NSV 13469 and NSV 13558, first detected by F.E. Ross at Yerkes Observatory, are identified as red variable stars.

Introduction

Additional online data has been searched for Ross variables. As a result, four more of Ross' suspected variables have been identified as red variables, and accurate positions and cross-references determined.

Discussion

Selected stars from Ross' lists (Ross 1925) were searched for in the International Variable Star Index (VSX, Watson 2006). By the simple expedient of clicking through the VSX interface to SIMBAD, VizieR and the Northern Sky Variability Survey (NSVS, Williams et al. 2004), it was quickly determined that many of Ross' northern stars have been independently discovered by NSVS, or studied by other independent researchers (e.g. NSV 14327, Otero et al. 2005). Four stars, however, while not noted in any published catalogues, were found to have sufficient data in NSVS to confirm variability, along with 2MASS J-K magnitudes consistent with red variables. One star is known to have an M-type spectrum. Details of the four stars follow. Note that the Ross designations are given in SIMBAD form to differentiate between Ross' variables and his better-known proper-motion stars. All positions are from the Naval Observatory Merged Astrometric Dataset (NOMAD, Zacharias et al. 2005). Cross-identifications for all stars are given in Table 1.

NSV 11649 = SV* R 241. Position 19 01 15.46 -11 48 39.8. NSVS data suggests a semi-regular type variable (SR) with an epoch of JD 2451449 and a period near 125 days (see light curve, Figure 1). The NSVS magnitude range is 10.3 to 10.8. The 2MASS J-K magnitude is 1.301 (Skrutskie et al. 2006).

NSV 12676 = SV* R 078. Position 19 59 37.18 +48 34 07.6. NSVS data shows several cycles of this star (see light curve, Figure 2). The variability type is SR, and the period 65.4 days with epoch at JD 2451385.5 (phase plot, Figure 3) The NSVS magnitude range is 10.5 to less than 10.9. The 2MASS J-K magnitude is 1.264.

NSV 13469 = SV* R 287. Position 21 01 55.88 +31 59 12.9. NSVS data shows a variation on a time scale much longer than the NSVS sample (Figure 4). The NSVS magnitude range is 9.0 to 9.4. The spectral type of the star is M3 (Lee et al.1944), and the 2MASS J-K magnitude is

1.800. While certainly a red variable, the lack of data mandates the assignment of GCVS type L to this star

NSV 13558 = SV* R 115. Position 21 08 00.07 +37 34 18.3. The NSVS light curve shows just more than one full cycle of this semi-regular variable, with an apparent period near 180 days (Figure 5). The NSVS magnitude range is 11.0 to less than 11.6. The 2MASS J-K magnitude is 1.348.

Acknowledgements

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References

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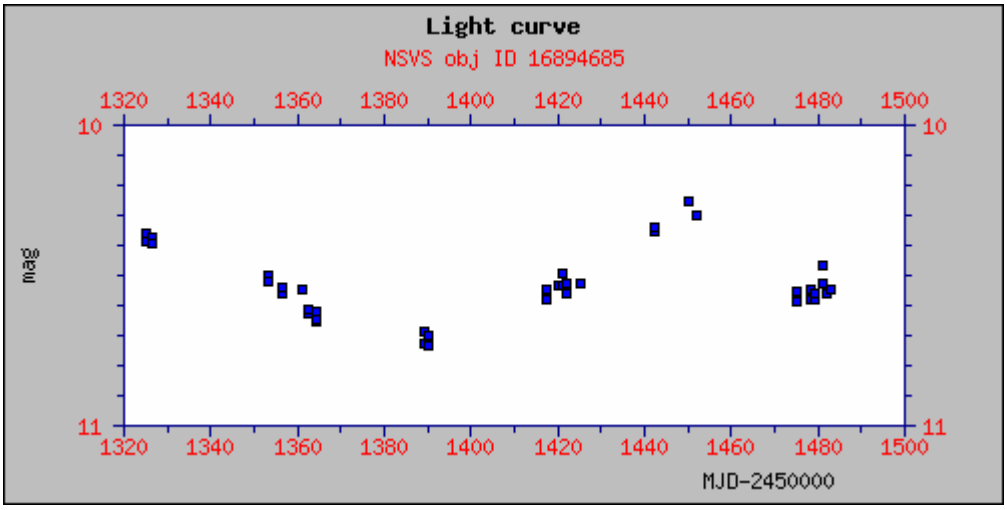

Figure 1 - Light curve of NSV 11649 from NSVS.

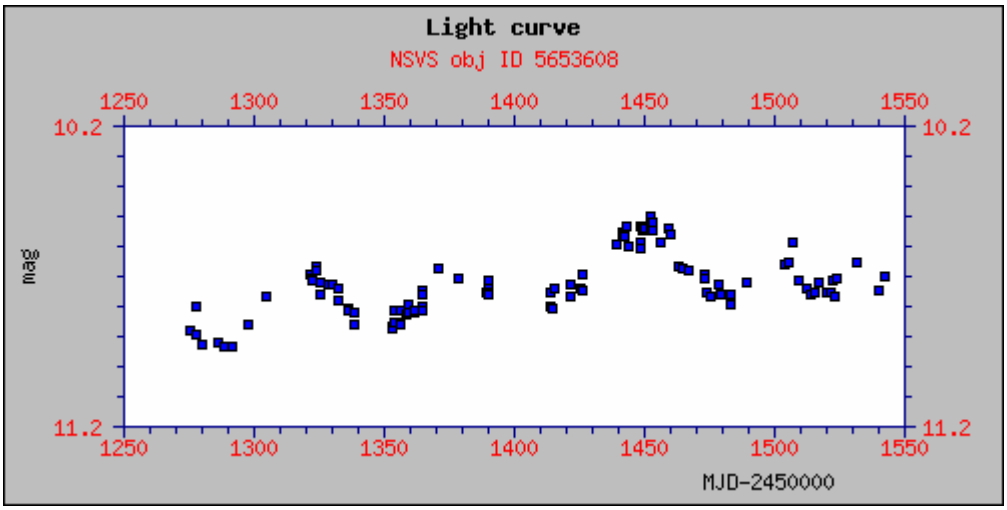

Figure 2 - Light Curve of NSV 12676 from NSVS

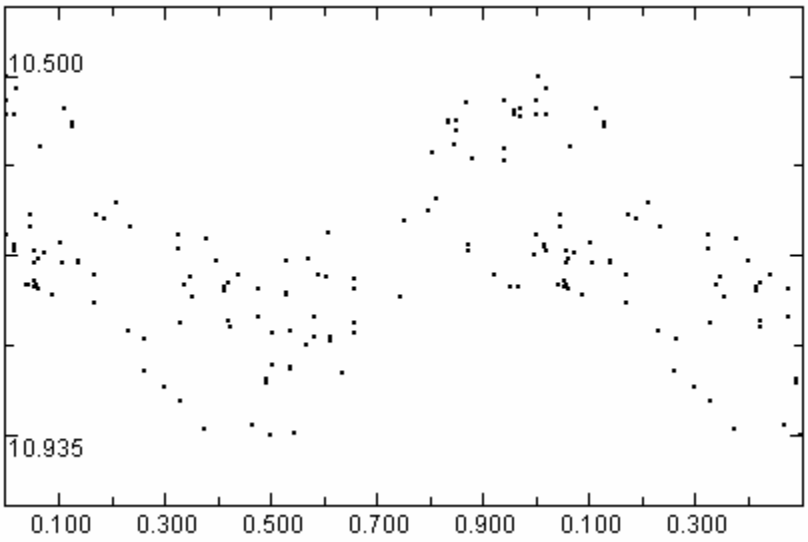

Figure 3 - Phase plot of NSV 12676 NSVS data, P=65.4 d.

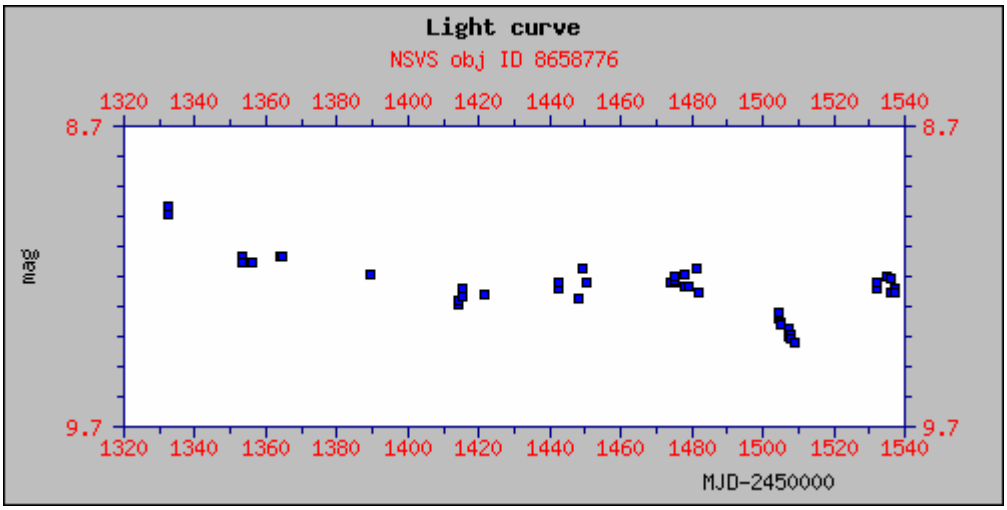

Figure 4 - Light curve of NSV 13469 from NSVS

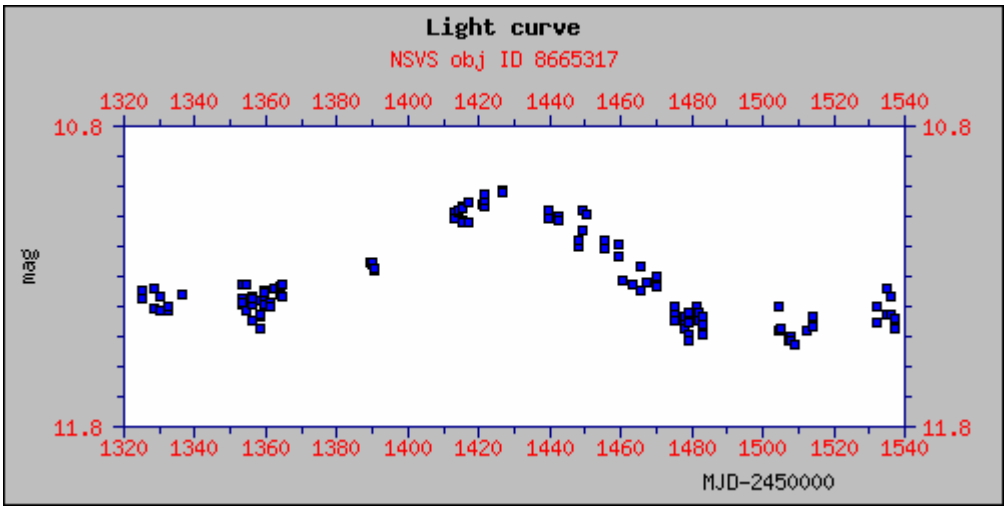

Figure 5 - Light Curve of NSV 13558 from NSVS

Star	Cross-IDs
NSV 11649	GSC 5714-0639 IRAS 18584-1152 NOMAD1 0781-0664437 2MASS 19011546-1148397
NSV 12676	GSC 3562-0860 IRAS 19581+4825 NOMAD1 1385-0334648 2MASS 19593713+4834070
NSV 13469	GSC 2705-3282 NOMAD1 1219-0582774 IRAS 20598+3147 2MASS 21015589+3159129 DO 19873
NSV 13558	NOMAD1 1275-0571623 2MASS 21080005+3734183

Table 1 – Cross identifications of Ross variables in this paper