

PHOTOGRAPHIC PHOTOMETRY AND MINIMA TIMINGS OF THE ECLIPSING BINARIES U SGE AND V363 CYG

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ABSTRACT. Seven seasonal minima timings of U Sge and 5 moments of weakenings of V393 Cyg obtained from the photovisual observations using the Odessa 7-camera astrograph plate collection are listed. The tables of observations are available via Internet at <http://uavso.pochta.ru/pikhun>.

Key words: Stars: eclipsing: individual: U Sge, V363 Cyg.

Eclipsing binary stars V393 Cyg and U Sge have been measured by A.I.P. on pv plates of the 7-camera astrograph of the Astronomical Observatory of the Odessa National University. Altogether 673 and 873 brightness estimates have been obtained for these stars. The phase curves are presented in Fig. 1,2 using the ephemeris listed in the GCVS (Kholopov et al., 1985).

For determination of seasonal minima timings, the separate program has been written by I.L.A. For U Sge, the phase curve is good, so we have splitted the whole interval into seasons of few years, removing all observations brighter than the limiting magnitude 7.^m78. For these seasons, the eclipse was fitted by a parabola, for which the seasonal phase and it's statistical error have been estimated. The seasonal moment of minimum t_{min} is the moment closest to the mean time of the observations fitted, which has the phase equal to that of the bottom of the parabola. ($O - C$) are deviations of minima from the linear ephemeris. For control, we also list limits of the season t_{start} and t_{end} the number of remained observations near the minimum n :

| t_{min} | $O - C$ | $t_{start} - t_{end}$ | n |
|-------------------|---------|-----------------------|-----|
| 37968.5496±0.0021 | 0.0007 | 37167-38563 | 17 |
| 39060.4907±0.0069 | 0.0017 | 38564-39405 | 9 |
| 40301.1782±0.0033 | 0.0019 | 39733-40801 | 8 |
| 42332.9335±0.0084 | 0.0050 | 41545-43046 | 6 |
| 45111.7881±0.0019 | -0.0095 | 44459-45916 | 10 |
| 46754.7660±0.0065 | -0.0126 | 46619-47035 | 10 |
| 47626.9738±0.0045 | -0.0046 | 47363-48066 | 7 |

For V393 Cyg, the curve is very noisy, and one may suggest physical variability of the component(s) and/or period variations. Thus we list times of observations weaker than 10.^m23: 38623.4174, 38623.4504, 38950.5125, 39741.3414, 41186.4159, 41895.4543.

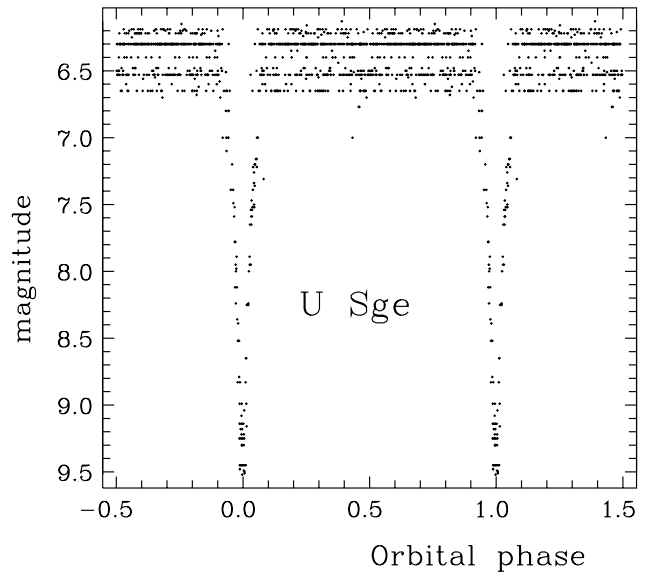


Figure 1. Phase curve of U Sge for the GCVS ephemeris $\text{Min.HJD}=2417130.4114+3.38061933 \cdot E$.

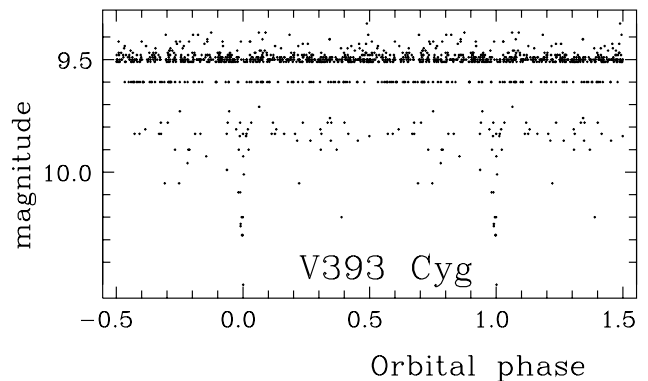


Figure 1. Phase curve of V393 Cyg for the GCVS ephemeris $\text{Min.HJD}=2422090.485+13.63354 \cdot E$.

References

Kholopov P.N. et al.: 1985, General Catalogue of Variable Stars, Moscow, Nauka