

COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS

Number 5586

Konkoly Observatory
Budapest
3 January 2005

HU ISSN 0374 – 0676

NEW ELEMENTS FOR 80 ECLIPSING BINARIES V.

OTERO, SEBASTIÁN A.^{1,2}; WILS, PATRICK³; DUBOVSKY, PAVOL A.⁴

¹ Grupo Wezen 1 88, Buenos Aires, Argentina; e-mail: varsao@fullzero.com.ar

² Centro de Estudios Astronómicos (CEA), Mar del Plata, Argentina

³ Vereniging Voor Sterrenkunde, Belgium; e-mail: patrick.wils@cronos.be

⁴ Slovak Association of Amateur Astronomers, Podbiel, Slovakia; e-mail: vkco@orava.sk

The ASAS-3 (Pojmanski, 2002), NSVS (Wozniak et al., 2004) and Hipparcos (Perryman et al., 1997) databases have been used to find new elements for a fifth set of 80 eclipsing binaries. NSVS, ASAS-3 and Hipparcos data have been combined to improve the period determinations. Unfiltered NSVS ROTSE1 magnitudes were shifted to match the V magnitude of the stars. In all cases the amplitude of the eclipses were the same for all datasets so the combination was successful. When neither ASAS nor Hipparcos observations exist, the original ROTSE1 magnitudes have been given. Saturated data in ASAS-3 and flagged observations in the Hipparcos Epoch Photometry and the NSVS dataset were also discarded. Hipparcos observations have been transformed to V using a table by the author published electronically in IBVS No. 5482 (Otero, 2003). The candidate stars were selected from the Hipparcos Variability Annex and the NSV catalogue (Kukarkin and Kholopov, 1982) and its supplement (NSVS) (Kazarovets et al., 1998). Stars classified as eclipsing binaries and those showing mean Hp magnitudes close to the maximum Hp values in the Hipparcos Variability Annex were identified and their ASAS-3 and/or NSVS data subsequently obtained. Stars classified as possible eclipsing systems (of all types) and those with a spectral type between O and G that had no given classification within the NSV catalogues were also checked. The method of bisected chords was used to determine times of minima. The accuracy depends on the quantity and quality of the observations. Elements were found with AVE (Barberá, 1999) and a Microsoft Excel period search utility. Table 1 shows the list of variables. The first column gives the variable star designation according to the GCVS. The following columns give another identifier; the brightness range of the variable (V= ASAS-3 or Hipparcos V magnitudes; *= ROTSE1 magnitudes), with the magnitude of secondary eclipse between brackets; the epoch of minimum light derived from the complete dataset; the period; the variability class and the spectral type with a note to the spectral type source.

Table 1. New elements for 80 eclipsing binary stars.

Star Name		Magnitude range	Epoch (HJD2440000+)	Period (days)	Type	Spectral type
Variable	Other ID					
BX Psc *	HIP 001435	7.53 – 7.60 (7.55)	8984.837	3.86051	EB:	A5 (24)
CX CVn *	HIP 068384	9.34 – 9.60 (9.53)	8455.639	6.563204	EA	
DD Oct *	HIP 098832	9.68 – 10.10 (9.86)	7999.344	2.83071	EA	F2V (1)
DT Cam *	HIP 024390	8.13 – 8.80:(8.6)	8501.355	14.1325	EA	A2 (24)
LX Mus *	HIP 066683	8.76 – 9.09 (8.99)	8770.665	11.75056	EA	F5V (1)
NSV 00049	GSC 3258 0448	12.00– 12.44(12.41)*	11324.849	0.332004	EW	
NSV 00381	GSC 4021 1459	12.57– 13.0 (12.75)*	11415.814	0.67708	EB	
NSV 00583*	GSC 2298 0114	14.1 – 15.2 (14.5)*	11338.067	2.0582	EA	
NSV 00587	GSC 4314 1709	11.80– 12.55:(11.9)*	11343.082	4.922	EA	
NSV 01009*	GSC 4048 0934	10.26– 10.56(10.52)*	11601.625	4.1278	EA	O7(V) (18)
NSV 01085	GSC 2860 1725	12.2 – 13.4 (12.4)*	11342.857	7.2778	EA	
NSV 01180	GSC 2354 1811	11.89– 12.17(12.03)*	11479.080	77.53	EA	
NSV 01447*	GSC 2366 3002	11.22– 11.87(11.87)*	11397.995	0.373042	EW	
NSV 01916	GSC 8959 0532	12.87– 13.21(13.19)*	11509.098	0.52878	EW	
NSV 02432	GSC 2910 0265	11.84– 12.19(12.16)*	11598.723	4.2650	EA	
NSV 02591	GSC 2413 0376	12.55– 13.2:(13.10)*	11548.612	0.71003	EW	
NSV 02621*	GSC 2923 1243	13.0 – 13.5 (13.25)*	11531.634	1.1833	EB:	
NSV 02951	GSC 3376 0052	13.97– 15.0 (14.35)*	11517.640	2.0338	EA	
NSV 03008	GSC 2422 0224	13.78– 15.2 (13.8)*	11519.672	4.3976	EA	
NSV 03186	HD 262834	10.22– 10.57(10.55)	13070.563	1.446303	EA	F8 (33)
NSV 03844	GSC 5412 0417	12.9 – 14.4(not obs)	12623.834	3.10835	EA	
NSV 04029	GSC 4380 1811	13.75– 14.3 (14.27)*	11520.823	1.66439	EA	
NSV 04050	GSC 6009 3746	11.66– 12.14(11.72)	11899.769	1.80488	EA	
NSV 04069	GSC 1941 0409	11.90– 12.33(12.27)	11598.746	0.717775	EB	
NSV 04083	GSC 5436 2588	12.70– 14.1(12.75)	12388.485	2.51875	EA	
NSV 04207*	GSC 1399 0798	12.5 – 12.9 (12.9)	11560.714	0.363675:	EW:	
NSV 04546	GSC 8941 0668	12.3 – 13.15(12.35)	12954.874	11.8884	EA	
NSV 04572*	GSC 8589 0265	12.45– 13.45(12.79)	12929.846	2.78678	EA	
NSV 05233	GSC 9233 0346	13.20– 13.55:(13.45)	12055.505	0.969605	EA	
NSV 05644	GSC 4400 0006	11.86– 12.10 (11.9)*	11620.769	0.84034	EA	F2 (14)
NSV 05756*	GSC 9240 0124	13.00– 13.75:(13.7)	13087.755	2.19461	EA	
NSV 06722	GSC 9269 2564	12.35– 14.0:(12.4)	12867.455	5.05085	EA	
NSV 06842	AC 4282175	12.62– 14.4:(12.72)	12635.842	1.83777	EA	
NSV 07446*	GSC 4638 0951	12.10– 12.52(12.52)*	11420.948	0.48885	EW	
NSV 08493	GSC 0408 0226	11.80– 12.27(12.21)	11325.797	0.386182	EW	
NSV 10858	GSC 9080 1805	13.15– 15.0(13.25)	12206.573	1.85188	EA	
NSV 11075*	HD 171379	9.64 – 9.89:(9.89)	12124.556	23.1868	EA	Fm del Del (2)
NSV 11335*	AC 3914867	12.40– 13.36 (12.6)	12082.640	2.65996	EA	
NSV 11359	GSC 8377 0837	11.78– 12.28(11.88)	11962.854	1.3675	EA	
NSV 11822	GSC 3550 1770	12.64– 13.2 (12.73)*	11483.590	0.90333	EA	
NSV 12263*	GSC 1061 1409	11.76– 12.45:(12.40)	11486.657	0.962992	EA	
NSV 12945*	GSC 2683 3724	11.70– 12.15 (12.1)	11415.730	18.88	EB/GS:	
NSV 13506	GSC 3172 0169	12.32– 13.1 (12.7)*	11282.436	0.66927	EA	
NSV 13635	HD 235475	9.96 – 10.42(10.40)*	11288.827	0.85785	EW	F8 (33)
NSV 13637*	GSC 3173 1826	9.65 – 10.14 (9.8)*	11518.644	1.27268	EA	A2 (24)
NSV 13638	GSC 1662 1759	12.44– 12.85(12.70)	13185.827	0.427417	EB	
NSV 13695	GSC 4252 0433	11.95– 12.33(12.30)*	11448.669	0.298755	EW:	
NSV 14062*	GSC 3614 0351	12.44– 13.05(13.05)*	11423.743	1.9881	EA	
NSV 14110*	GSC 3986 0860	10.53– 10.85:(10.8)*	11542.684	4.6722	EA	B0III (36)
NSV 14241	GSC 9337 1951	12.50– 13.21(13.08)	12134.686	0.337259	EW	
NSV 14327*	GSC 3621 0146	12.52– 13.4 (12.75)*	11505.640	1.34795	EA	
NSV 14332	GSC 3625 1048	13.06– 13.6:(13.5)*	11305.062	1.7679	EA	
NSV 14500	GSC 3636 0729	12.25– 12.81(12.78)*	11483.638	4.279	EA	
NSV 15024	GSC 4018 2473	12.59– 13.20(12.80)	11421.720	11.038	EA	
NSV 16225	HIP 032218	8.91 – 9.15 (9.05)	12997.720	4.14357	EA/RS:	G3/5V (5)
NSV 16352*	HD 290556	9.52 – 9.66 (9.64)	11962.558	3.21472	EA	A2 (9)

Table 1. New elements for 80 eclipsing binary stars.

Star Name		Magnitude range	Epoch (HJD2440000+)	Period (days)	Type	Spectral type
Variable	Other ID					
NSV 17227*	HIP 033225	8.11 – 8.18 (8.14)	8574.663	0.697461	EB/KW:	K0 (24)
NSV 17353*	GSC 9178 1586	13.14– 13.9:(13.85:)	12752.573	1.57097	EA	
NSV 17646*	HIP 038466	8.91 – 8.98 (8.97)	12950.772	3.38771	EA	B5V (2)
NSV 17878	GSC 2977 1179	12.65–13.20(12.83)*	11611.870	0.64453	EB	
NSV 18149*	HIP 045171	7.90 – 7.98 (7.98)	8594.965	1.115657	EA/KE	A1/2III/IV (5)
NSV 18470*	HD 092406	9.08 – 9.37 (9.23)	12786.540	32.186	EA	Bp shell (1)
NSV 18601	HIP 054156	8.94 – 9.03 (8.98)	8220.840	1.081354	EB	F2V (5)
NSV 19345*	HIP 059869	9.55 – 10.1: (9.9:)	7945.451	11.30489	EA	G3V (2)
NSV 20276*	HIP 074355	8.02 – 8.14(8.13:)	8953.470	5.47798	EA	A2V (27)
NSV 20546*	HD 145614	9.54 – 9.72 (9.71)	12722.863	3.7297	EA	B9III (2)
NSV 20599	HIP 080022	8.19 – 8.30 (8.24)	13170.830	3.19288	EB	F6/7V (2)
NSV 24021*	HIP 087511	9.51 – 9.77 (9.75)	8744.790	4.39435	EA	F2/3V (5)
NSV 24229	GSC 6842 1237	9.60 – 9.93 (9.92)	12840.577	0.617262	EW:	B2Vne (17)
NSV 25285*		13.6 –14.3: (14.2:)*	11495.658	0.33999	EW	
NSV 25486*	GSC 2713 2372	10.89–11.9:(11.35:)*	11490.400	112.4:	EB/GS	
NSV 25517	HIP 104743	7.94 – 8.11 (7.97)	7977.020	11.42365	EA	F0V (5)
NSV 25632	GSC 3978 0622	10.00–10.29(10.25)*	11428.659	1.29827	EA	B1:V (8)
NSV 25859	GSC 3211 1072	12.49– 13.0:(13.0:)*	11383.798	3.1875	EA	
OW Hya *	HIP 047427	6.31 –6.66(not obs)	8791.310	14.39303	EA	A0Vn (24)
V0340 Hya*	HIP 061836	8.23 – 8.50 (8.36)	7948.452	3.64741	EA	A0V (3)
V0343 Sge*	HIP 097670	7.27 – 7.37 (7.30)	8168.050	6.01426	EA	B8n (48)
V0726 Sco	HD 155534	10.34– 10.48(10.46)	12481.543	1.20179	EA/KE	A0V (3)
V1129 Tau*	HIP 017873	7.62 – 7.84 (7.84)	8650.300	4.86058	EA/RS:	G0V (50)
V2148 Cyg*	HIP 104483	6.59 – 6.74 (6.7:)	8717.250	10.237	EA	B4IVp (47)

Notes on individual stars:

BX Psc = Might be EA. Wrong period in the HIP catalogue (5.1825 d.).

CX CVn = Period might be half the value given. Wrong period in the HIP catalogue is 1.64096 d. Visual binary. A=9.5; B=13.2 Hp. Sep. 1''29 (Perryman et al., 1997).

DD Oct = Wide visual binary. A=9.8; B=13.0 V. Sep. 21''4 (Dommagnet and Nys, 2002).

DT Cam = Lack of observations at minima.

LX Mus = Eccentric system.

NSV 00583 = O'Connell effect. Max. II ROTSE1= 14.2.

NSV 01009 = Eccentric system. Visual binary. Sep. 1''5 (Worley and Douglass, 1997).

NSV 01447 = Primary eclipse might be the secondary.

NSV 02621 = Might be EA.

NSV 04207 = Scatter.

NSV 04572 = Eccentric system.

NSV 05756 = Faint for ASAS. Period might be half the value given. Primary eclipse might be the secondary.

NSV 07446 = Primary eclipse might be the secondary.

NSV 11075 = Slightly eccentric. Primary eclipse might be the secondary.

NSV 11335 = USNO-A2.0 0450-35737102.

NSV 12263 = Classified as L: in the NSV catalogue (Kukarkin and Kholopov, 1982).

NSV 12945 = Wils and Greaves (2004) give it as a DCEP with a period of 9.5 d.

NSV 13637 = Wide visual binary. B= GSC 3173 1682, 11.5 V. Sep. 21''0 (Fabricius et al., 2002).

NSV 14062 = Primary eclipse might be the secondary.

- NSV 14110 = Eccentric system.
- NSV 14327 = Spectrum M3 in Kholopov et al. (2004) is wrong. There is no red star in the area. 2MASS colors are for an F5 star.
- NSV 16352 = Period might be half the value given.
- NSV 17227 = Slight O'Connell effect.
- NSV 17353 = Period might be half the value given.
- NSV 17646 = Koen and Eyer (2002) give period = 1.69397 d.
- NSV 18149 = Highly distorted EA. Period 0.557808 d. in the HIP catalogue with no variability type given.
- NSV 18470 = Peculiar lightcurve. Emission line star. Spectrum also given as A1Iab (Stephenson and Sanduleak, 1971), B1.5V (Reed, 1998) and (B5V)_p shell (Buscombe, 1998). Batten et al. (1989) give a spectroscopic period of 27.595 d.
- NSV 19345 = Slightly eccentric. No data at minima.
- NSV 20276 = Period might be half the value given. Visual binary. A=8.4; B=9.6 Hp. Sep. 0''12 (Perryman et al., 1997).
- NSV 20546 = Slightly eccentric.
- NSV 24021 = Slightly eccentric. Spectrum G5 in Ochsenbein (1980).
- NSV 25285 = USNO-A2.0 1275-14063446.
- NSV 25486 = Few cycles recorded for a reliable period determination. Classified as INS: in the NSV Supplement (Kazarovets et al., 1998).
- NSV 25859 = Period might be half the value given.
- OW Hya = Visual binary. A=6.4; B=8.8 Hp. Sep. 0''36 (Perryman et al., 1997) Period might be twice the value given.
- V0340 Hya = Eccentric system. Wrong period in the HIP catalogue (3.8175 d.).
- V0343 Sge = Eccentric system.
- V1129 Tau = Mean magnitude changes. 0.1 magnitude difference between ASAS-3 and Hipparcos data. Amplitude of the eclipses is 0.1 mag. Period might be half the value given. Koen and Eyer give period = 1.9852 d. Possible T Tauri star according to Li and Hu (1998).
- V2148 Cyg = Be star. Period might be wrong. Wrong period in the HIP catalogue (8.018 d.).

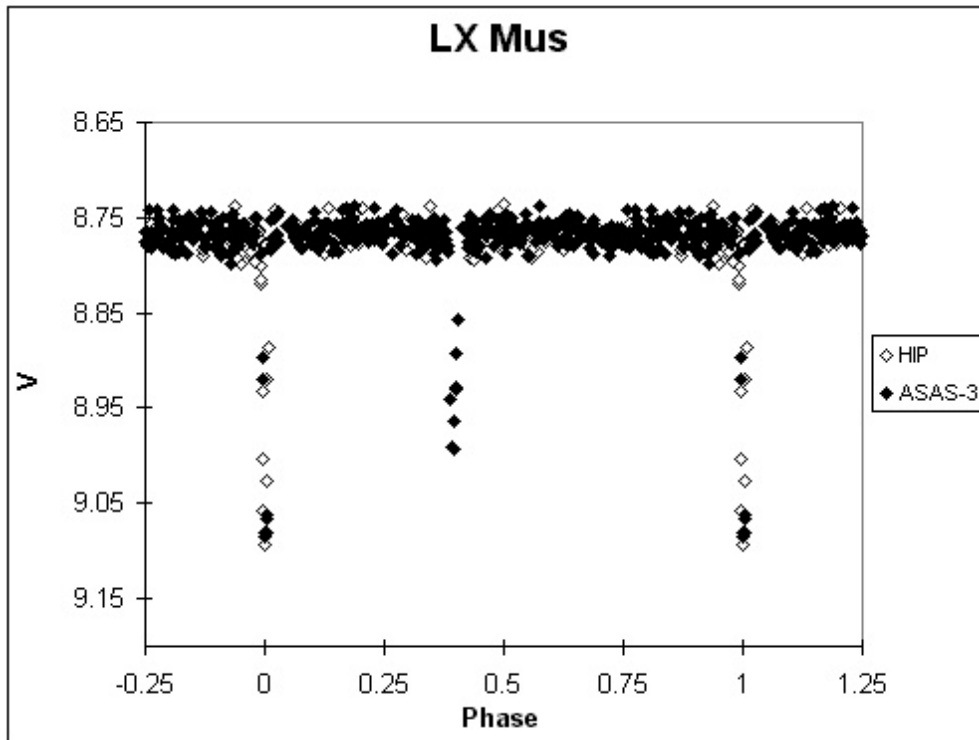


Figure 1. Light curve of LX Mus showing ASAS-3 and Hipparcos observations.

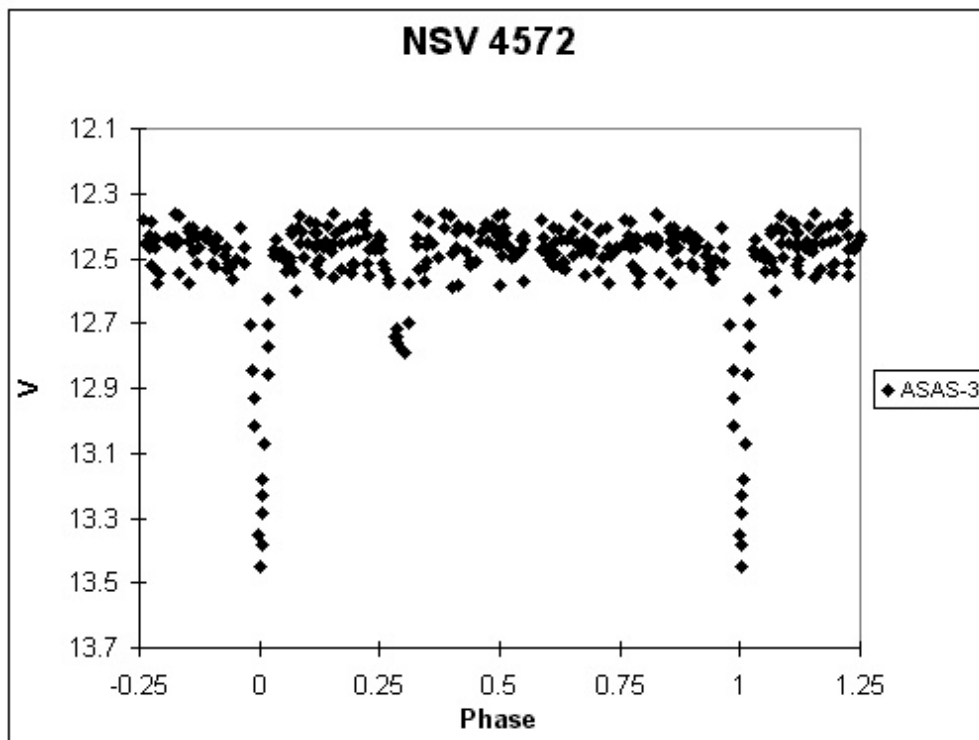


Figure 2. Light curve of NSV 4572 showing ASAS-3 observations.

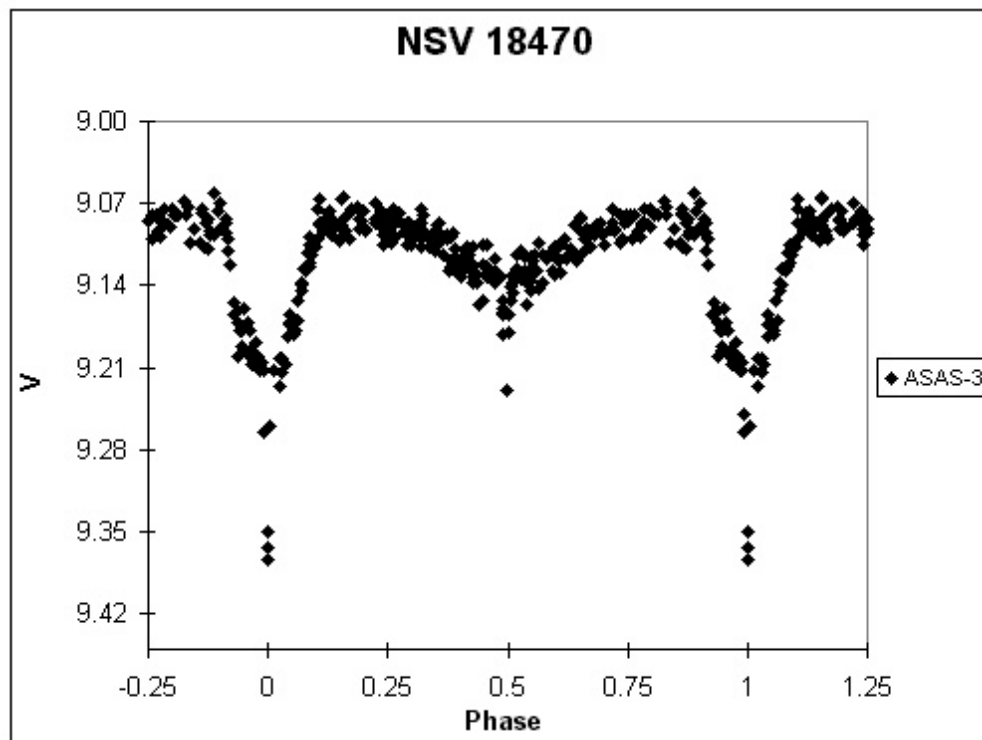


Figure 3. Light curve of NSV 18470 showing ASAS-3 observations.

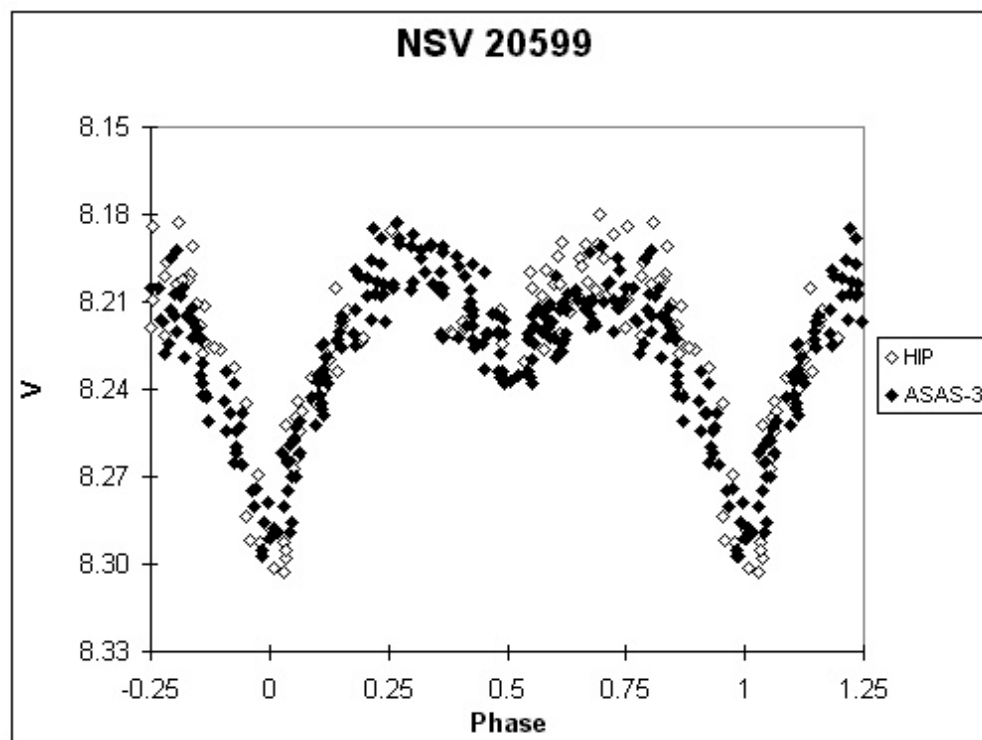


Figure 4. Light curve of NSV 20599 showing ASAS-3 and Hipparcos observations.

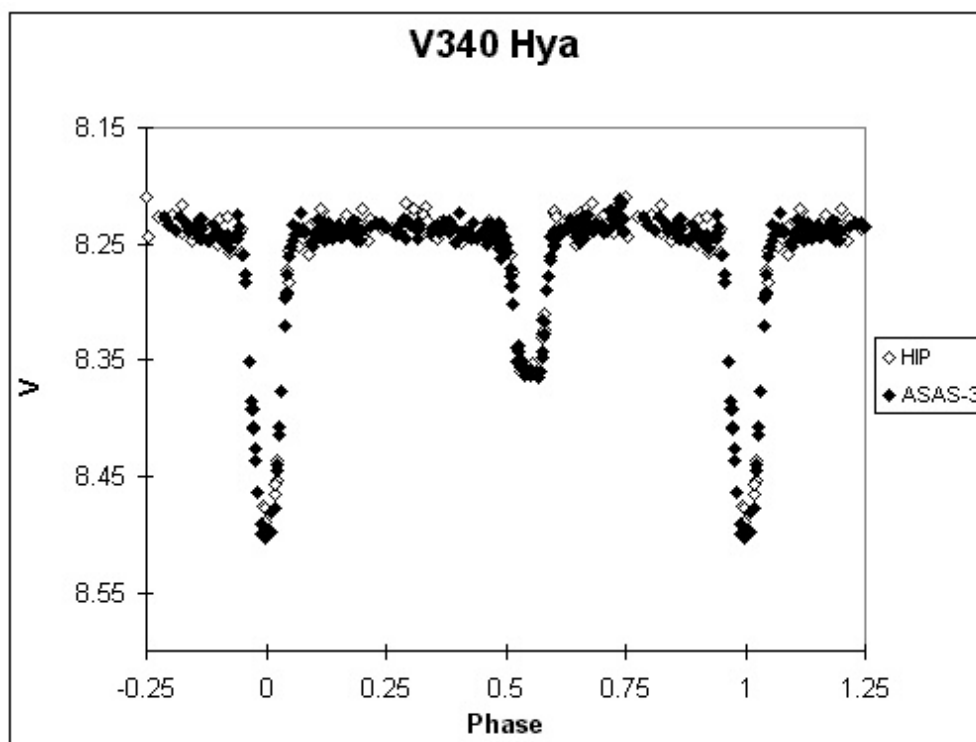


Figure 5. Light curve of V340 Hya showing ASAS-3 and Hipparcos observations.

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ERRATUM FOR IBVS 5586

The following information had been omitted from IBVS 5586:

Sources of spectral type (Table 1.): (1) Houk and Cowley, 1975. (2) Houk, 1978. (3) Houk, 1982. (5) Houk and Swift, 1999. (8) Kennedy, 1983. (9) Nesterov et al., 1995. (14) Kholopov et al., 2003. (17) Buscombe, 1998. (18) Buscombe, 1999. (24) Ochsenbein, 1980. (27) Grenier et al., 1999. (33) Cannon and Pickering, 1993. (36) Jaschek et al., 1964. (47) Jaschek, 1978. (48) Dufflot et al., 1995. (50) Li and Hu, 1998.

ERRATUM FOR IBVS 5586

The EA/RS: star NSV 16225 published as HIP 32218 is actually HIP 23385 = HD 32218.

ERRATUM FOR IBVS 5586

Sebastian Otero reported the following error:

IBVS No.	item	printed	correct
5586	filter (NSV 15024)	13.20(12.80)	13.20(12.80)*

ERRATA FOR IBVS 5586

Geert Hoogeveen reported the following errors:

IBVS No.	item	printed	correct
5586	identifier (NSV 20599)	HIP 80022	HIP 80222
5586	identifier (NSV 1916)	GSC 8959-0532	GSC 1859-0532