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**50 NEW ECCENTRIC ECLIPSING BINARIES FOUND IN THE ASAS,
HIPPARCOS AND NSVS DATABASES**

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The publicly available NSVS (Wozniak et al., 2004), ASAS-3 (Pojmanski, 2002) and Hipparcos (Perryman et al., 1997) databases have been searched for new and suspected eclipsing binaries recently. For more details on these works see Otero (2004) and Otero et al. (2004). A considerable number of the systems found turned out to be eccentric binaries. Some have been published in the previous papers of that series and this work presents a new selection of them separately for easier study. All the systems are of the EA-type and show relatively long periods. Elements were found with AVE (Barberá, 1999). Unfiltered NSVS ROTSE1 magnitudes were shifted to match the V magnitude of the stars. 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 published electronically in IBVS No. 5482 (Otero, 2003).

Table 1 shows the list of variables. The first column gives the variable star designation according to the GCVS if it is a known variable or the GSC identifier otherwise. The following columns give another identifier; the brightness range of the variable (V= ASAS-3 V magnitudes; *= ROTSE1 magnitudes), with the magnitude of secondary eclipse between brackets; the orbital phase at which Min II takes place; the epoch of minimum light derived from the complete dataset; the period; the variability class and the spectral type with a reference to its source.

Table 1. New elements for 50 eccentric systems.

Variable/GSC	Star Name Other ID	Magnitude range	Min II phase	Epoch (HJD2400000+)	Period (days)	Spectral type
EQ Boo*	HIP 072757	8.80–9.20 (9.11)V	0.399	47931.794	5.43536	G5 (33)
GSC 0134 1181	HD 251059	10.15–10.71(10.50:)V	0.436	51629.644	14.3877	B9 (33)
GSC 0169 2236*		11.08–11.65:(11.42)V	0.669	51557.760	23.7704	
GSC 1890 1296	HD 043752	9.72–10.26(10.10:)V	0.789:	52977.747	10.8925	A2 (33)
GSC 2143 1871*	HD 338936	9.94–10.35:(10.33:)V	0.327	51511.507	7.6699	B0.5V (35)
GSC 3152 1202*		12.69–13.26 (13.25)*	0.489:	51478.596	2.09372	
GSC 3612 1565*		11.05–11.65:(11.6:)V	0.334	53671.255	5.85527	
GSC 3670 0919*		11.46–11.93(11.90:)*	0.450	51508.610	5.9613	
GSC 3677 0819*	BD+57 0209	10.81–11.06 (11.06)*	0.562	51548.650	8.4650	
GSC 3682 0837*		11.35–11.95:(11.95:)*	0.531	51556.605	6.1772	A0/A2 (45)
GSC 3964 0741*	BD+58 2217	9.93–10.24 (10.19)*	0.511	51448.645	9.9634	B8 (45)
GSC 4031 2155*		12.28–12.93 (12.76)*	0.441	51542.702	6.9092	B1:V: (17)
GSC 4062 0752*		10.90–11.33 (11.24)*	0.489	51578.625	8.1190	
GSC 4257 0906*	SAO 019456	9.98–10.6 (10.31:)V	0.599:	51475.710	12.922	A0 (24)
GSC 4277 0586*		12.20–12.65:(12.64:)*	0.670	51364.686	2.87475	
GSC 4282 0702*		11.62–12.20 (12.03)*	0.429	51311.870	13.714	
GSC 4292 0745*		10.86–11.21 (11.07)*	0.528	51478.573	6.560	
GSC 4302 0936*		11.42–11.86(11.63:)*	0.443:	51465.650	18.8805	
GSC 4309 0449	BD+73 0077	10.55–10.91 (10.7:)*	0.710	51478.660	24.850	
GSC 4311 0987*		11.06–11.78 (11.67)*	0.230	51427.630	29.067	
GSC 4330 1963*		11.32–11.55 (11.46)*	0.682	51485.8	152.95	
GSC 4349 1189*		11.32–11.88 (11.67)*	0.490	51548.607	17.871	
GSC 4375 1733*		12.47–12.8: (12.78)*	0.466	51628.645	9.272	
GSC 4381 0288*		11.79–12.22 (12.92)*	0.565	51582.760	12.111	
GSC 4479 0412	BD+66 1663	10.43–10.83(10.75:)*	0.482	51442.716	7.0385	A5 (61)
GSC 4480 0830*		11.45–11.69 (11.65)*	0.518	51474.575	4.4871	
GSC 4480 1097*		10.63–11.06 (10.81)*	0.540	51467.580	27.33	
GSC 4480 1261*		11.64–11.96 (11.73)*	0.476:	51466.747	2.3337	
GSC 4481 0230*		11.46–11.92 (11.92)*	0.585	51606.605	3.57494	
GSC 4487 0347*		11.52–11.96 (11.94)*	0.560	51504.666	1.98873	
GSC 4502 0203*		11.90–12.50 (12.43)*	0.232	51607.605	16.080	
GSC 4513 2537*		11.18–11.72 (11.7:)*	0.494	51572.752	6.3344	
GSC 4514 2034*		11.27–11.5 (11.4)*	0.467	51598.565	8.6386	
GSC 4518 1759*		11.37–11.8: (11.7:)*	0.693	51532.600	9.4545	
GSC 4524 1856*		11.03–11.29(11.27:)*	0.522	51524.605	6.6764	
GSC 4544 0439*		11.27–11.55 (11.43)*	0.630:	51462.0	50.517	
GSC 4596 1254	SAO 003282	10.72–11.27 (11.19)*	0.547:	51397.673	9.33543	F8 (24)
GSC 5922 1647*		10.58–11.15 (10.70)V	0.513	53619.883	3.9895	
GSC 8957 2047	HD 093683	7.91–8.18 (8.17)V	0.655	52700.640	17.7997	B1Vnep (8)
NSV 04653	GSC 6611 0836	12.55–13.1: (13.0:)V	0.539	53404.795	5.9199	
NSV 08163*	GSC 7368 1457	13.0:–13.5: (13.5:)V	0.528	53634.555	1.9541	
NSV 08299	GSC 7369 1400	11.74–12.10 (11.78)V	0.342:	51978.842	11.0943	
NSV 12772	GSC 1625 0975	11.70–12.3 (12.22:)V	0.379	52734.943	8.3264	
NSV 17921	HIP 041980	7.85–7.97 (7.91)V	0.291	48112.955	6.17848	B4V (47)
NSV 24564*	HIP 091928	8.54–8.83 (8.66)V	0.784	48315.454	19.2449	B9V (2)
PX Hya	HIP 051683	8.40–8.90: (8.73)V	0.210	48462.195	36.1553	F2V (4)
V0680 Mon*	GSC 0748 0218	9.93–10.31 (10.09)V	0.865	52990.717	8.5381	B8 (33)
V0990 Her*	HIP 090338	7.68–7.92 (7.9:)V	0.445:	48048.755	8.19329	A0 (33)
V3895 Sgr	HD 163632	8.97–9.45 (9.29)V	0.407	53579.348	27.1104	A0 (33)
VZ PsA*	HIP 111809	5.66–5.83 (5.70:)V	0.573:	48810.941	5.76333	A2Vp (47)

Sources of spectral type: (2) Houk, 1978. (4) Houk and Smith-Moore, 1988. (8) Kennedy, 1983. (17) Buscombe, 1998. (24) Ochsenein, 1980. (33) Cannon and Pickering, 1993. (35) Georgelin et al., 1973. (45) Skiff, 2005. (47) Jaschek, 1978. (61) Heckmann and Dieckvoss, 1975.

Notes on individual stars:

- EQ Boo = Visual binary. A=9^m4; B=10^m1 Hp. Sep. 1''3 (Perryman et al., 1997).
- GSC 0169 2236 = USNO-A2.0 0900-04878758 = 2MASS J07243141+0303278.
- GSC 2143 1871 = Primary eclipse might be the secondary. Visual binary. A=10^m9; B=11^m1 Vt. Sep. 0''5 (Fabricius et al., 2002).
- GSC 3152 1202 = USNO-A2.0 1275-13932971 = 2MASS J20271727+3756268. Primary eclipse might be the secondary.
- GSC 3612 1565 = USNO-A2.0 1350-14941873 = 2MASS J21470330+5003177. Found with the help of visual observations. Normalized to the Tycho-2 (Hog et al., 2000) V magnitude at maximum. Primary eclipse might be the secondary.
- GSC 3670 0919 = USNO-A2.0 1425-02049264 = 2MASS J01305304+5325384.
- GSC 3677 0819 = Primary eclipse might be the secondary.
- GSC 3682 0837 = USNO-A2.0 1425-02073759 = 2MASS J01315922+5926474. Primary eclipse might be the secondary.
- GSC 3964 0741 = In galactic open cluster Trumpler 37. Visual binary. A=9^m2; B=11^m0. Sep. 0''2 (Worley et al., 1997).
- GSC 4031 2155 = USNO-A2.0 1500-01666660 = 2MASS J01381799+6108351.
- GSC 4062 0752 = USNO-A2.0 1500-03209730 = 2MASS J03321837+6116408.
- GSC 4257 0906 = Found with the help of visual observations. Normalized to the Tycho-2 V magnitude at maximum.
- GSC 4277 0586 = USNO-A2.0 1500-09201191 = 2MASS J22380235+6727583. Primary eclipse might be the secondary.
- GSC 4282 0702 = USNO-A2.0 1500-09437279 = 2MASS J23011398+6234052.
- GSC 4292 0745 = USNO-A2.0 1500-09818583 = 2MASS J23303493+6633457.
- GSC 4302 0936 = USNO-A2.0 1575-00126395 = 2MASS J00145093+7149452.
- GSC 4311 0987 = USNO-A2.0 1575-01245194 = 2MASS J02083191+6806151.
- GSC 4330 1963 = USNO-A2.0 1575-01688353 = 2MASS J03245066+7033224.
- GSC 4349 1189 = USNO-A2.0 1575-02488101 = 2MASS J06073817+6943468.
- GSC 4375 1733 = USNO-A2.0 1575-02922240 = 2MASS J08564648+6940320.
- GSC 4381 0288 = USNO-A2.0 1575-02913131 = 2MASS J08515815+7401549.
- GSC 4480 0830 = USNO-A2.0 1575-05185169 = 2MASS J22371878+7054287.
- GSC 4480 1097 = USNO-A2.0 1575-05088010 = 2MASS J22245961+7018541.
- GSC 4480 1261 = USNO-A2.0 1575-05090014 = 2MASS J22251591+7014339. Amplitude reduced by light from nearby stars.
- GSC 4481 0230 = USNO-A2.0 1575-05400358 = 2MASS J23013922+6942449. Primary eclipse might be the secondary. Amplitude reduced by light from nearby stars.
- GSC 4487 0347 = USNO-A2.0 1575-05818254 = 2MASS J23461047+7129554.
- GSC 4502 0203 = USNO-A2.0 1650-00394686 = 2MASS J01543486+7928093.
- GSC 4513 2537 = USNO-A2.0 1650-00654079 = 2MASS J03244918+7720122. Primary eclipse might be the secondary.
- GSC 4514 2034 = USNO-A2.0 1650-00846009 = 2MASS J04325120+7842541.
- GSC 4518 1759 = USNO-A2.0 1650-00829131 = 2MASS J04262307+7913514.
- GSC 4524 1856 = USNO-A2.0 1650-01014575 = 2MASS J05464390+7520564. Visual binary. A= 11^m4; B= 11^m6 Vt. Sep. 0''5 (Fabricius et al., 2002).
- GSC 4544 0439 = USNO-A2.0 1650-01398811 = 2MASS J09425469+7856546.
- GSC 5922 1647 = USNO-A2.0 0675-02301694 = 2MASS J05453057-1746333. Classified as ED in the ASAS catalogue with a wrong period of 7.979 days.
- NSV 08163 = Primary eclipse might be the secondary.

NSV 24564 = Visual binary. A=8^m6; B=11^m3 Hp. Sep. 3^{''}7 (Perryman et al., 1997)
 V0680 Mon = Extremely eccentric system. One of the stars is possibly slightly variable.
 RR-type in the GCVS.

V0990 Her = Primary eclipse might be the secondary.

VZ PsA = Found with the help of visual observations.

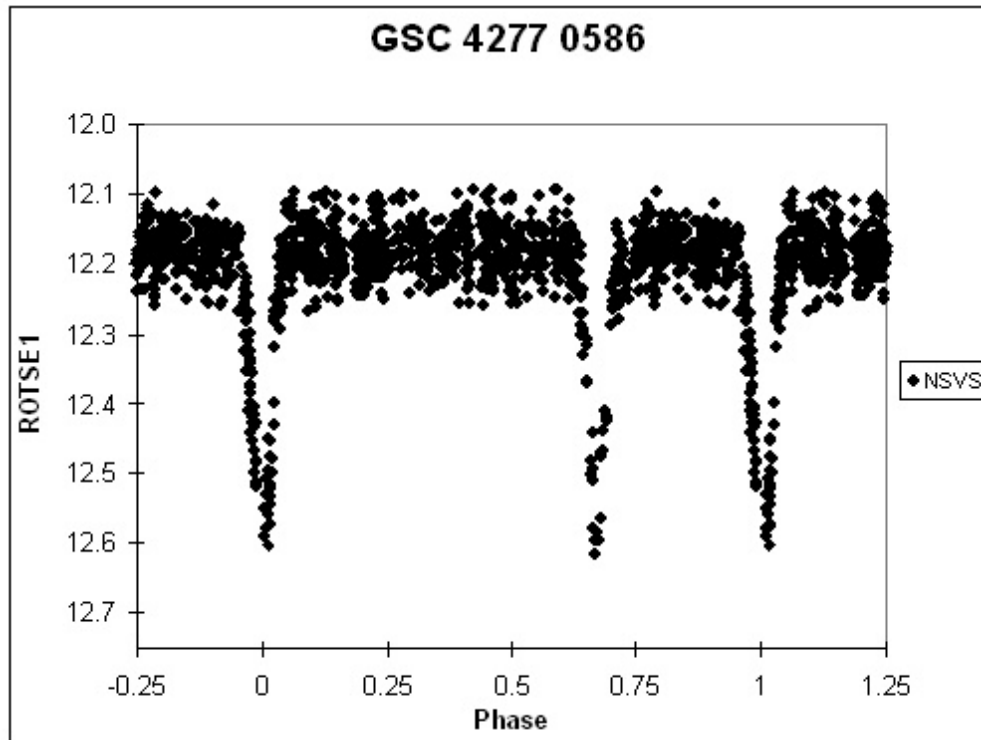


Figure 1. Light curve of GSC 4277 0586 showing NSVS observations.

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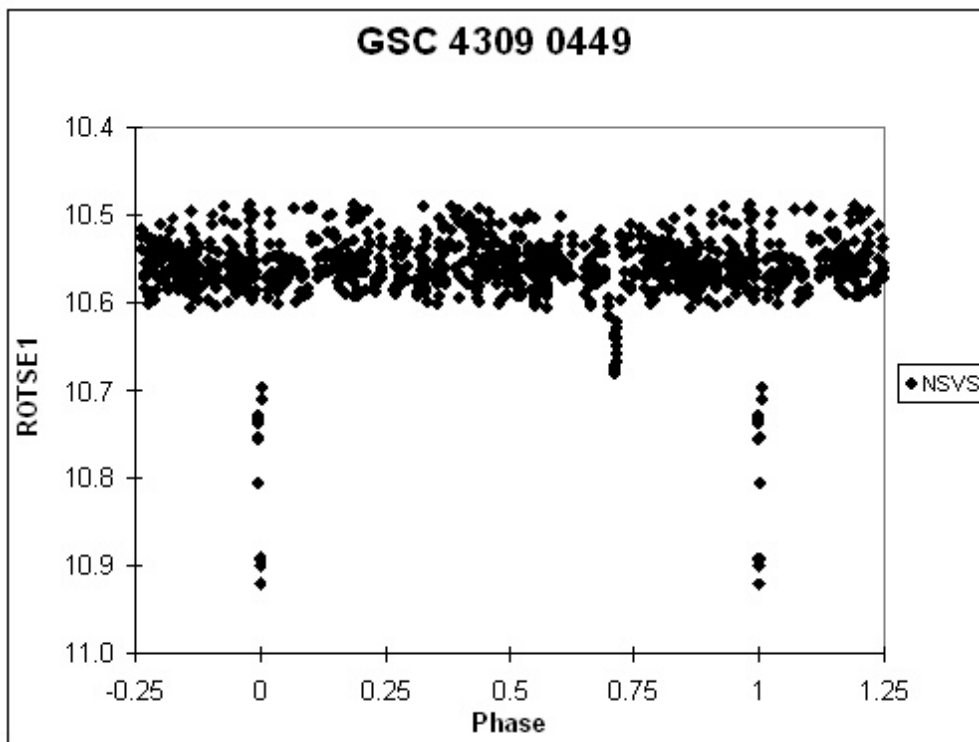


Figure 2. Light curve of GSC 4309 0449 showing NSVS observations.

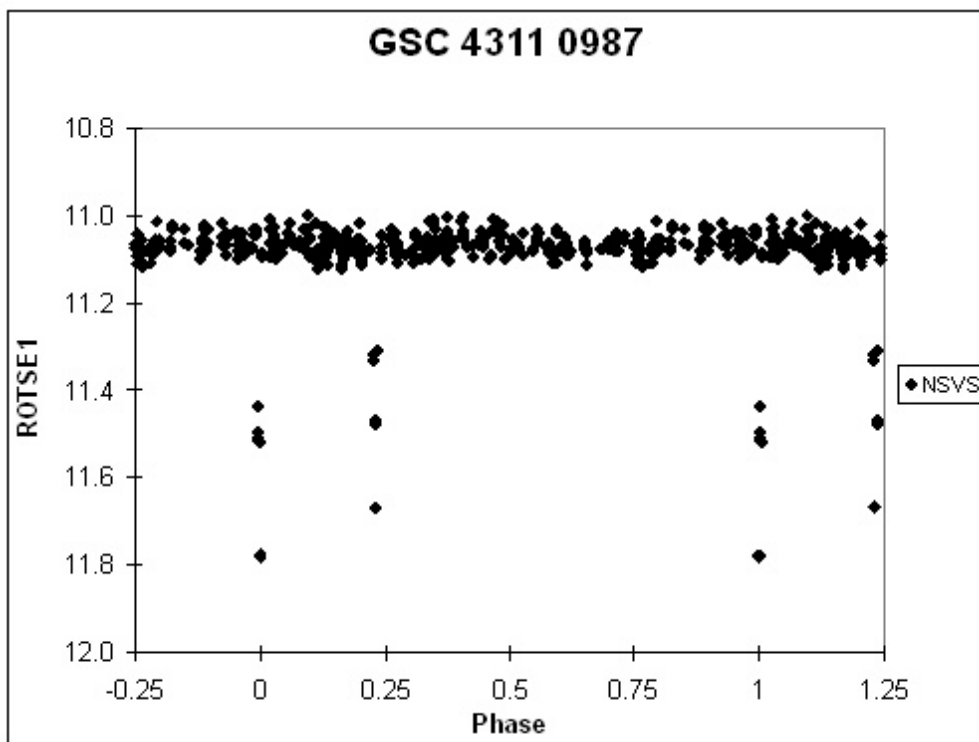


Figure 3. Light curve of GSC 4311 0987 showing NSVS observations.

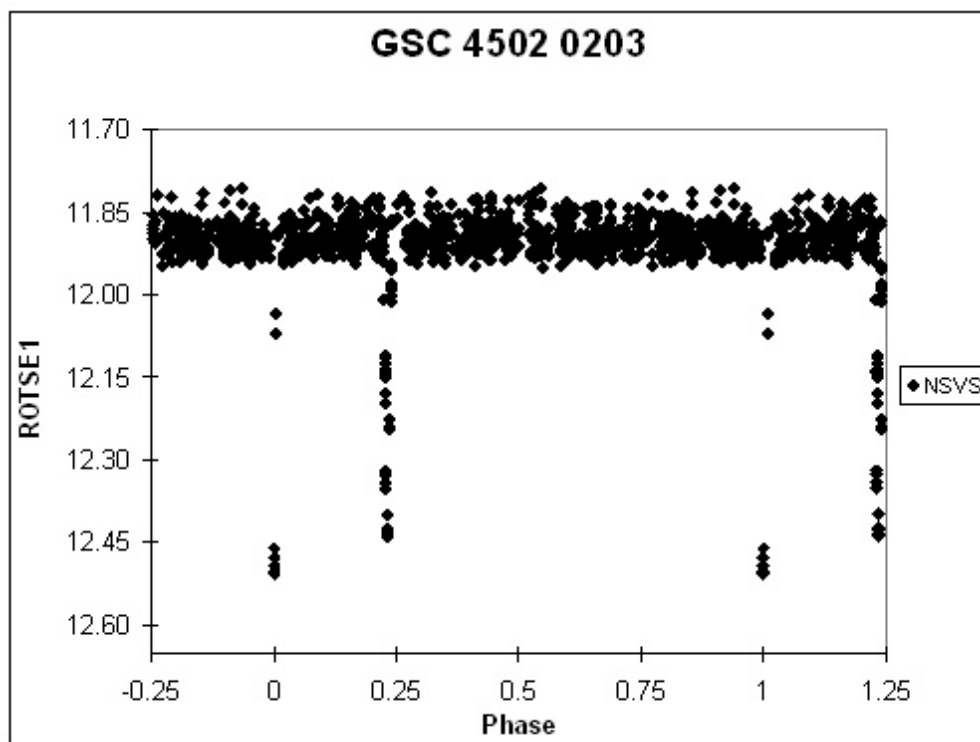


Figure 4. Light curve of GSC 4502 0203 showing NSVS observations.

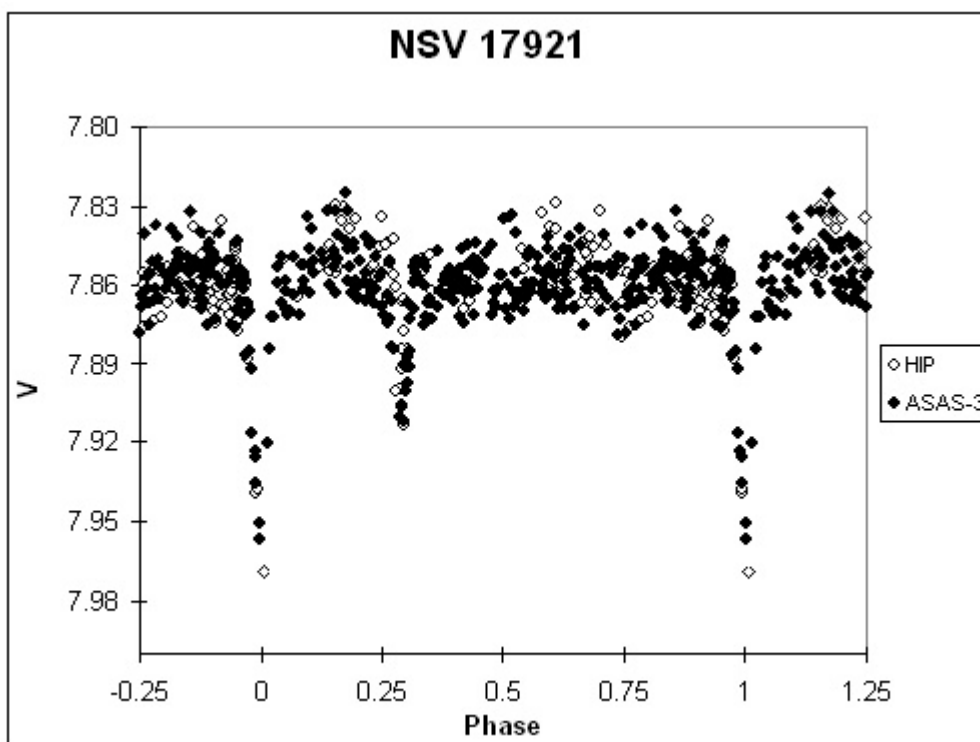


Figure 5. Light curve of NSV 17921 showing ASAS-3 and Hipparcos observations.

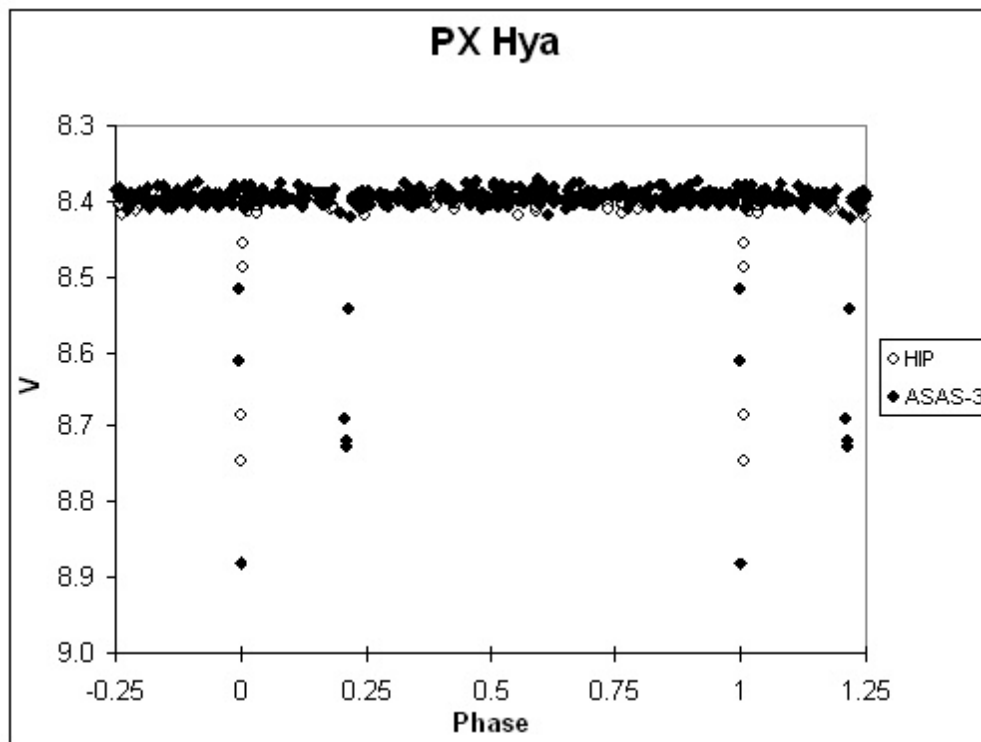


Figure 6. Light curve of PX Hya showing ASAS-3 and Hipparcos observations.

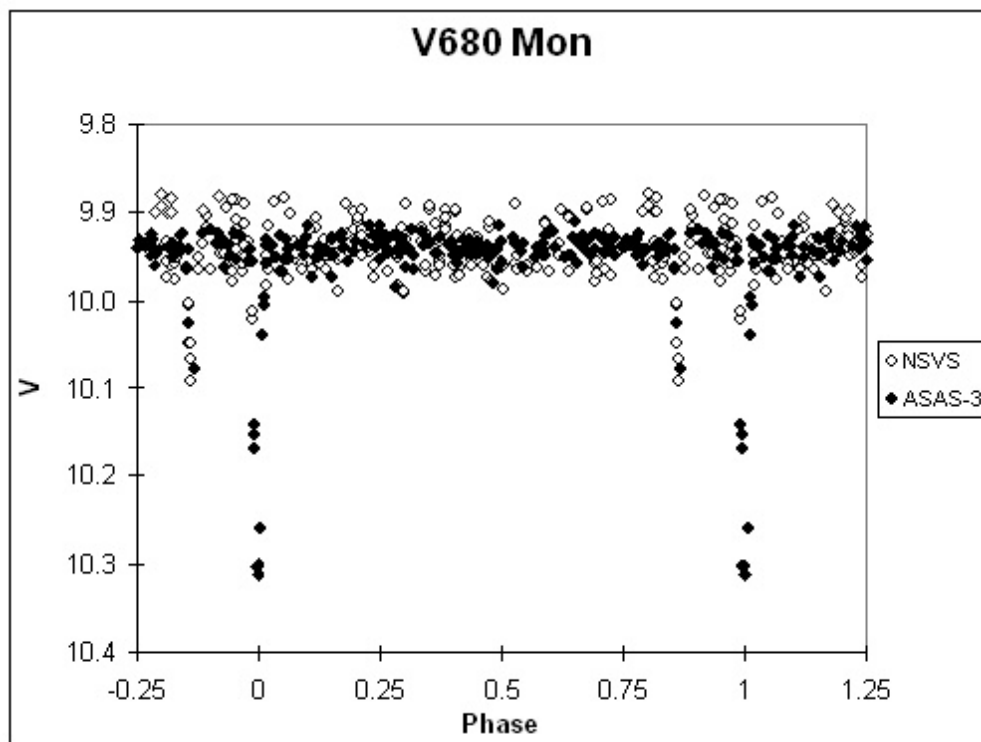


Figure 7. Light curve of V680 Mon showing ASAS-3 and NSVS observations.

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ERRATUM FOR IBVS 5681

One of the eccentric eclipsers in IBVS 5681 is wrongly identified as GSC 3682-0837 = USNO-A2.0 1425-02073759 = 2MASS J01315922+5926474.

The eclipsing binary with a period of 6.1772 d is actually GSC 3682-0736 = UCAC2 50208296 = 2MASS J01215916+5833136 at 01^h21^m59^s.16 +58°33^m13^s.6 (2000.0). The spectral type is B0.

ERRATUM FOR IBVS 5681

The star identified as GSC 03682-00837 = USNO-A2.0 1425-02073759 = 2MASS J01315922+5926474 is actually GSC 03682-00736 = 2MASS J01215916+5833136.

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