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uvby − *β* PHOTOELECTRIC PHOTOMETRY OF CEPHEID STARS[1]

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RESUMEN

Presentamos fotometría fotoeléctrica $uvby-\beta$ de 41 estrellas Cefeidas clásicas. Se llevó a cabo una breve discusión de los datos comparados con observaciones análogas.

ABSTRACT

We present time-series $uvby-\beta$ photometry of 41 classical Cepheid stars. A brief discussion of a comparison between the present data and previous photometric observations is included.

Key Words: stars: variables: Cepheids — techniques: photometric

1. INTRODUCTION

The relevance of classical Cepheids in stellar astrophysics, both as distance indicators and for understanding stellar structure and pulsation, has been long acknowledged. The Strömgren ($uvby-\beta$) photometric system has proven to be very useful for the determination of fundamental physical quantities, such as reddening, effective temperature, gravity, and metallicity, for main sequence (Crawford 1975), giant (Olsen 1984), and supergiant stars (Arellano Ferro & Parrao 1989; Arellano Ferro & Mantegazza 1996). Large compilations of $uvby-\beta$ photometry for Cepheids have been published previously (Feltz & McNamara 1980; Eggen 1983, 1985; Meakes, Wallerstein, & Opalko 1991; Arellano Ferro et al. 1998). While there are several stars in common to such studies, there remain numerous Cepheids that are still poorly observed. This paper presents new $uvby-\beta$ data for 41 Cepheids, for many of which there is very little or no previous Strömgren photometry.

2. OBSERVATIONS

The observations presented here were gathered over different seasons (see Table 1) from 1989 to 2009 at the San Pedro Mártir Observatory in Baja California, Mexico. All data were obtained with the 1.5 m telescope equipped with a six-channel grating spectrophotometer. The observational procedure was the same in most seasons; each data point reported is the average of at least five 10 s integrations, and both sets of *uvby* data and the narrow and wide bands that define the β index were observed almost simultaneously. A single measurement of the sky with an integration time of 10 s was subtracted from the star measurements. On each night several standard stars were observed to carry out transformation into the standard system of Olsen (1983) and Crawford (1975, 1979). Photometric reductions were made using the NABAPHOT package (Arellano Ferro & Parrao 1989) that corrects for atmospheric extinction, transforms the data into the standard system, and converts the sidereal time into Heliocentric Julian Day. Standard stars were taken from Grönbech, Olsen, & Stromgren (1976), Grönbech & Olsen (1977) and Olsen (1983), but some bright standard stars were also taken from the list published in the Astronomical Nautical Almanac.

The transformation equations used in this work have the following form:

$$V = \mathrm{A} + \mathrm{B}\ (b-y)(\mathrm{inst}) + y(\mathrm{inst})\,,$$

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TABLE 1

LOG OF THE OBSERVING SESSIONS

Epoch	No. of stars	Initial date year month day	Final date year month day	Observers
1989 OctNov	16	1989 10 29	1989 11 07	jhp, rpg
2005 MayJune	4	2005 05 28	2005 06 31	jhp, rpm
2006 July	7	2006 07 14	2006 07 19	ma, jps
2006 November	12	2006 11 01	2006 11 13	ma, lpl, jps, yr
2006 December	8	2006 12 09	2006 12 11	jhp, jps, hg
2007 MarchApril	8	2007 03 30	2007 04 03	jhp, gm, bv
2007 October	12	2007 10 05	2007 10 26	jhp, jps, cg
2008 October	8	2008 10 08	2008 10 14	ma, jps
2008 December	9	2008 12 09	2008 12 14	jhp, pz, vha
2009 June	9	2009 06 24	2009 06 26	jhp, hg, arl

jhp - J.H. Peña; rpg - R. Peniche; rpm - R. Peña Miller; jps - J. P. Sareyan; ma - M. Alvarez; yr - Y. Rosas; lpl - L. Parrao; hg - H. Garcia; gm - G. Muñoz; bv - B. Vargas; cg - C. Guerrero; pz - P. Zasche; vah - V. H. Alvarado and arl - A. Renteria.

TABLE 2

MEAN VALUES AND STANDARD DEVIATIONS $\langle\sigma\rangle$ FOR THE TRANSFORMATION COEFFICIENTS DURING THE OCTOBER 2008 SEASON

Season	B	D	F	J	H	I	L
2008	0.884	0.996	1.027	0.013	1.007	0.062	−1.319
$\langle\sigma\rangle$	0.026	0.015	0.081	0.031	0.054	0.074	0.065

$$
\begin{aligned}
(b-y)(\mathrm{std}) &= \mathrm{C} + \mathrm{D}\ (b-y)(\mathrm{inst})\,, \\
m_1(\mathrm{std}) &= \mathrm{E} + \mathrm{F}\ m_1(\mathrm{inst}) + \mathrm{J}\ (b-y)(\mathrm{inst})\,, \\
c_1(\mathrm{std}) &= \mathrm{G} + \mathrm{H}\ c_1(\mathrm{inst}) + \mathrm{I}\ (b-y)(\mathrm{inst})\,, \\
\beta\ (\mathrm{std}) &= \mathrm{K} + \mathrm{L}\ \beta\ (\mathrm{inst})\,.
\end{aligned}
$$

Transformations between the instrumental and literature values for a group of standard stars are illustrated in Figure 1 for the night of October 11, 2008, while Table 2 presents values for the slopes and color term coefficients averaged for seven nights from the 2008 season. Standard deviations for each coefficient are listed at the bottom of the table. Except for the May 2005 season, which was devoted entirely to data acquisition of Cepheid stars, most seasons were planned for observation of short period variable stars, and hence few data points were obtained on each night for Cepheid and standard stars. Nevertheless, some seasons were long enough to obtain data strings suitable for covering the long cycles of some Cepheid stars.

TABLE 3

PHOTON COUNTING UNCERTAINTIES FOR THE NIGHT OF OCTOBER 11, 2008

ID	V	u	b	v	y	N
BS 1430	5.4	0.0004	0.0003	0.0002	0.0003	4
RT AUR	5.2	0.0005	0.0003	0.0002	0.0003	5
SZ TAU	6.5	0.0009	0.0006	0.0004	0.0004	6
ST TAU	8.5	0.0023	0.0014	0.0010	0.0010	6
SY AUR	9.0	0.0040	0.0020	0.0020	0.0020	6
AO AUR	9.1	0.0023	0.0014	0.0010	0.0010	10
AN AUR	10.7	0.0070	0.0040	0.0020	0.0020	10
ER AUR	11.6	0.0090	0.0050	0.0030	0.0030	10

2.1. *Photometric uncertainties*

Individual uncertainties were determined by calculating standard deviations for the fluxes in each filter for each star. Bright stars were clearly observed more accurately than faint ones, although faint stars were observed long enough to obtain pho-

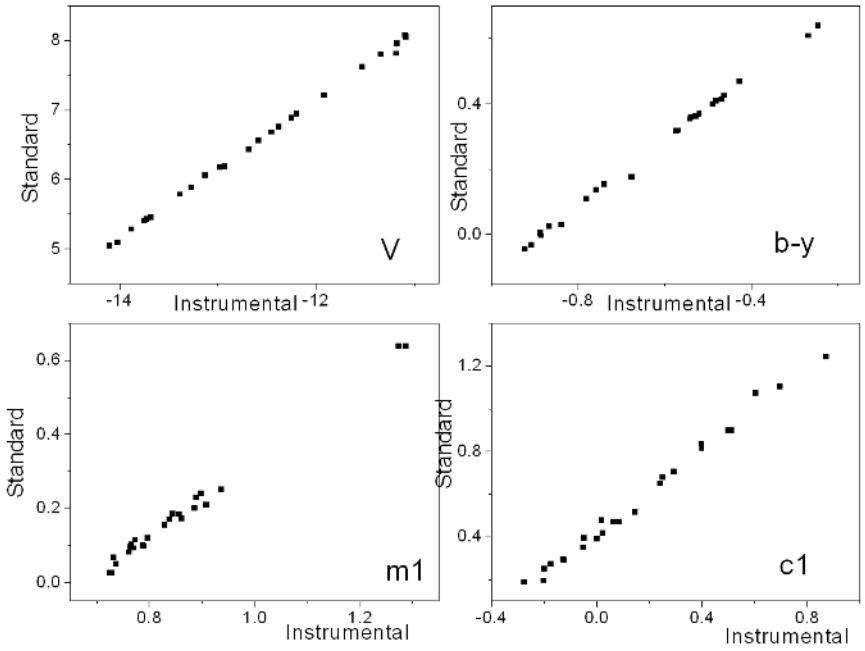

Fig. 1. A sample of transformation correlations between instrumental and standard values for a group of standard stars for the October 2008 season.

ton counts of high S/N ratio. Representative values for the photon counting uncertainties $N/\sqrt{(N)}$ derived from measurements on the night of October 11, 2008, for Cepheids with magnitudes ranging from $V = 5.2$ to 11.6 are presented in Table 3, with the standard star BS 1430 included for comparison. Given the results, the uncertainties associated with photon counting appear to be negligible.

Seasonal errors were evaluated from the differences (calculated minus observed) between magnitudes and colors for the standard stars, with ten to fifteen standard stars being observed on each night. Emphasized is the large range in magnitude and colors for the standards. Figure 1 presents for illustration standard deviations of the mean values in the differences $\langle \delta(V,\ (b-y),\ m_1,\ c_1) \rangle$ = (0.012, 0.005, 0.007, 0.018) for the October 2008 season.

3. RESULTS

A summary of the program objects is given in Table 4. Column 1 gives the star name, and Columns 2 and 3 the ephemerides elements employed to calculate light curve phase. The elements were taken from the General Catalogue of Variable Stars (Samus et al. 2009) in order to provide current light curve phasing. Subsequent columns in the table report the number of observations for each star by each of the previously-mentioned $uvby - \beta$ photometric observers: namely, Feltz & McNamara (1980), Eggen (1983, 1985), Meakes et al. (1991) and Arellano Ferro et al. (1998). The last column lists the number of observations from the present paper. Magnitudes and colors in the standard system obtained here for our sample of Cepheids are listed in Table 5.

4. COMPARISON WITH PREVIOUS PHOTOMETRY

The confidence level of our observations can be evaluated from the uncertainties discussed previously, and the good quality of the photometry is demonstrated by the good agreement with previously reported $uvby - \beta$ observations. The archival sources cited previously and the number of data points for each star are listed in Table 4. Of those, four stars with a large number of observations from different observers were selected to demonstrate the excellent agreement among the various data sets.

The stars considered for comparison were X Cyg, VZ Cyg, SW Tau, and SS Tau. As evident from Figure 2, the various observations are in excellent agreement with each other. A comparison was made between the data of Arellano Ferro et al. (1998) and those of the present paper for all stars, and all observations fit in either the light curve or color index diagrams, demonstrating once again the stability of the stellar pulsations and the reproducibility and good quality of the observations. Figure 3 illustrates light curves for most of the Cepheids in our sample. The

TABLE 4

OBSERVED STARS IN $uvby - \beta$

Star	Epoch	Period	AF[1] 1998	Eggen 1983	Meakes 1991	F&McN[2] 1980	This paper
SW TAU	41687.77	1.583584	6		7		5
EU TAU	41324.22	2.10248					14
SZ TAU	34628.57	3.14873	6			28	46
SS SCT	35315.625	3.671253	26	13		29	0
RT AUR	42361.155	3.728115					11
Y AUR	37203.629	3.859485	1				37
CM SCT	35111.32	3.916977					21
ST TAU	41761.963	4.034299	2				42
X SCT	34905.58	4.19807					16
VZ CYG	41705.702	4.864453	9			30	10
AS PER	41723.934	4.972516					13
BG LAC	35315.273	5.331908				26	18
UY PER	44945.845	5.365106					3
BX SCT	27901.83	6.41133					11
AW PER	42709.059	6.463589				23	11
AO AUR	42815.86	6.763006					15
CK SCT	40855.25	7.41522					13
RS ORI	42820.794	7.566881	10	21			25
VY CYG	43045.282	7.856982	2				10
RX CAM	42766.583	7.912024					4
BK AUR	17377.719	8.002432					16
CN SCT	28670.16	9.9923					7
SY AUR	36843.52	10.144698	1				36
AN AUR	36843.309	10.29056					46
Y SCT	34947.2	10.341504	27				5
Z LAC	42827.123	10.885613	5			25	15
VX PER	43758.994	10.88904					4
TY SCT	37377.09	11.05302					8
SV PER	43839.296	11.129318	1				14
RX AUR	39075.63	11.623515				21	61
Z Sct	36247.16	12.90133	27				5
TX CYG	43794.971	14.7098					10
RW CAS	35575.227	14.7949					3
SZ CYG	43306.79	15.10965	10				5
ER AUR	43861.3	15.69073					11
X CYG	43830.387	16.386332	18			53	13
RW CAM	37389.57	16.41437					4
YZ AUR	37431.141	18.193212					28
RU SCT	31174.67	19.70062	27				8
VX CYG	43783.642	20.133407	6				13

[1]Arellano Ferro et al. (1998).

[2]Feltz & McNamara (1980).

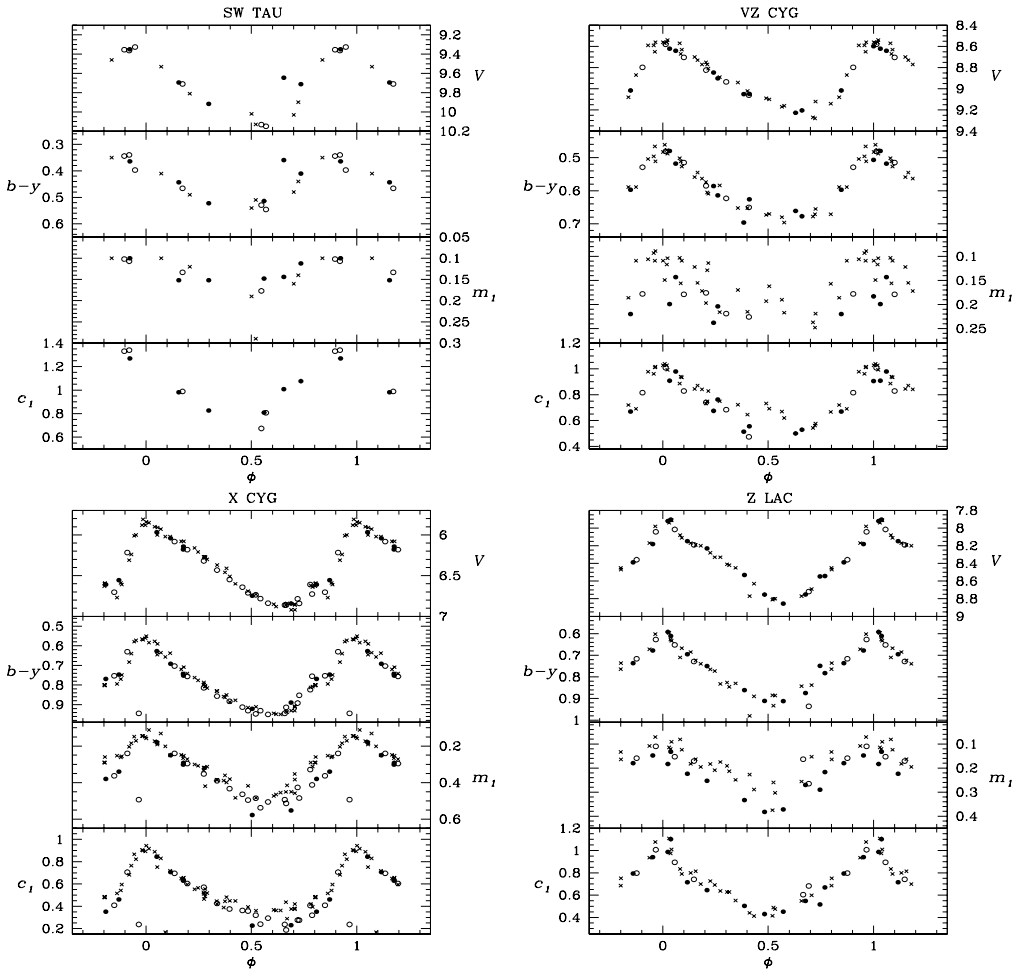

Fig. 2. Light curves in $uvby-\beta$ for four stars observed by several authors. Note the good agreement between the various sources. Open circles: Arellano Ferro et al. (1998); crosses, Feltz & McNamara (1980); filled circles, present work.

figure includes two data sets for each star, namely those of Arellano Ferro et al. (1998), represented by open circles, and those of the present paper by filled circles.

5. CONCLUSIONS

New $uvby-\beta$ photoelectric photometry has been acquired and is presented for 41 Cepheid stars. Such data can be useful for various fields of Cepheid research, such as the study of secular period changes (Szabados 1991; Arellano Ferro 1983), metallicity (Arellano Ferro & Mantegazza 1996), interstellar reddening (Chulhee 2008), and other physical parameters, for instance mean radii through applications of the Baade-Wesselink method (Arellano Ferro & Rosenzweig 2000). The photometry can also be utilized for several other purposes: to establish relationships with other basic properties, such as empirical determinations of pulsation mode like those developed for RR Lyrae stars (e.g., Kovács & Walker 2001, and references therein) through Fourier decomposition of the light curves (e.g., Peña et al. 2009); to determine metallicity photometrically from color indexes compared directly with predictions from theoretical models (e.g., Meakes et al. 1991); to support and improve knowledge of the chemical enrichment gradient in the Galaxy (e.g., the series of papers by Andrievsky et al. 2004, and references therein), among other topics.

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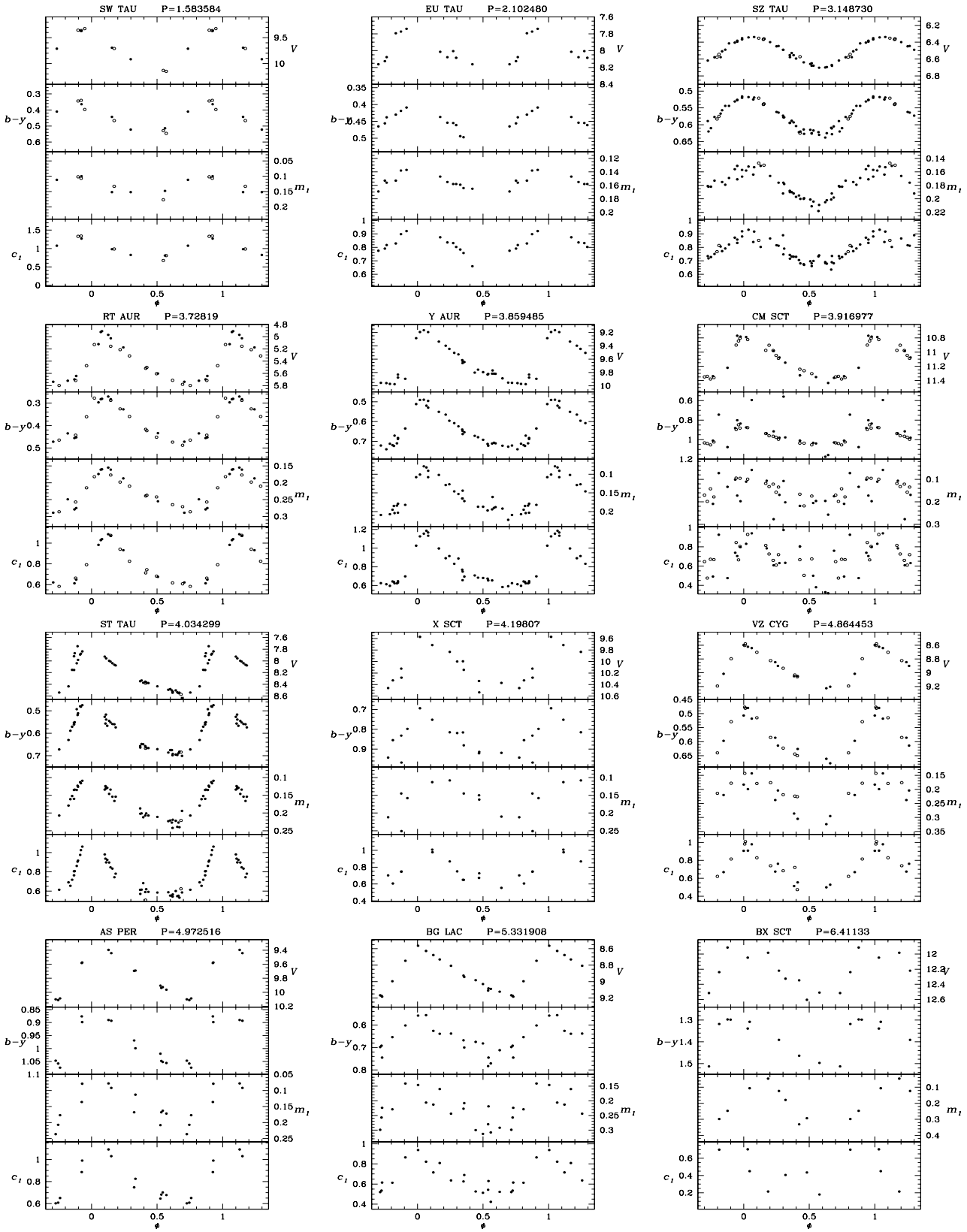

Fig. 3. $uvby-\beta$ Light curves of program Cepheids.

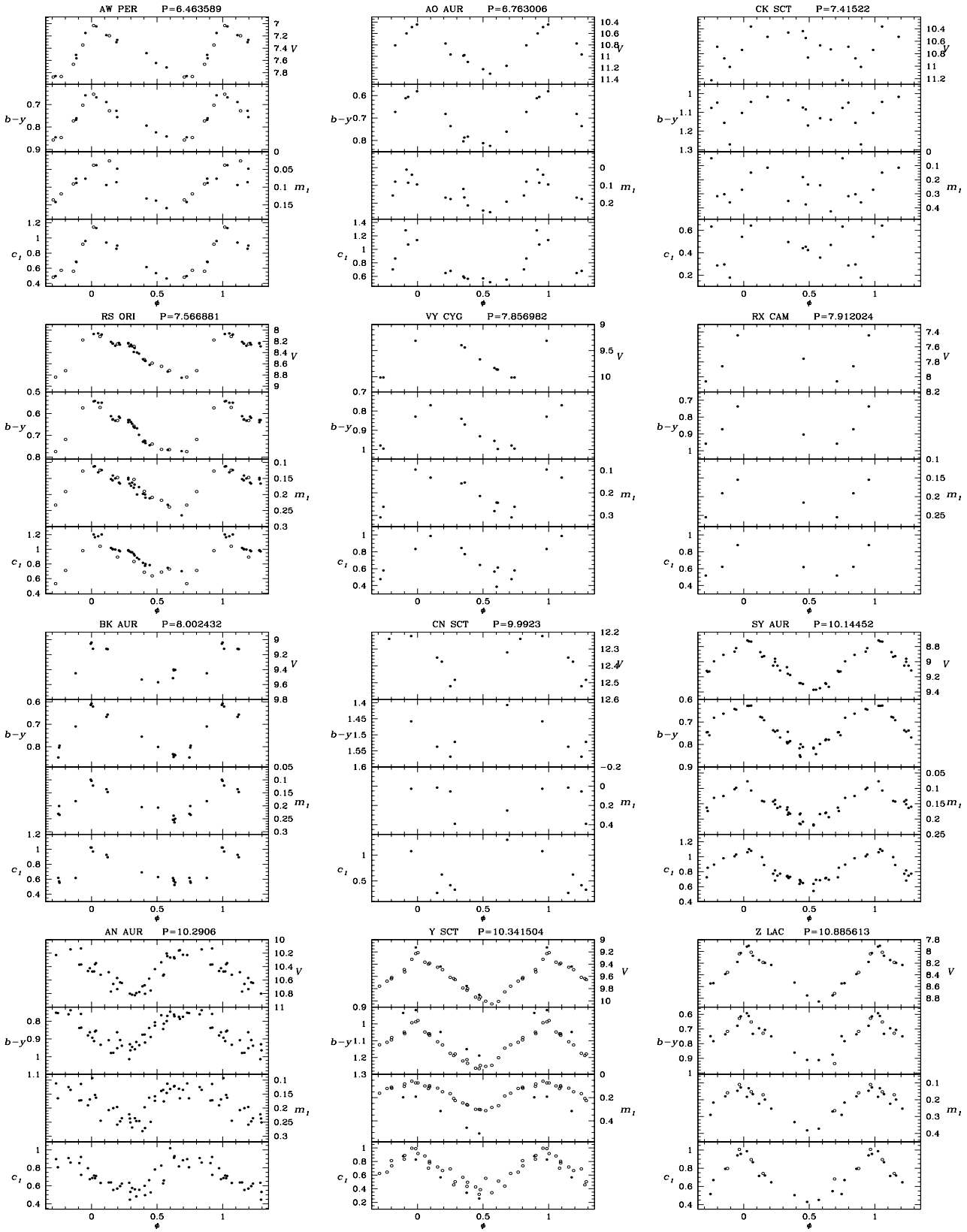

Fig. 3. Continued.

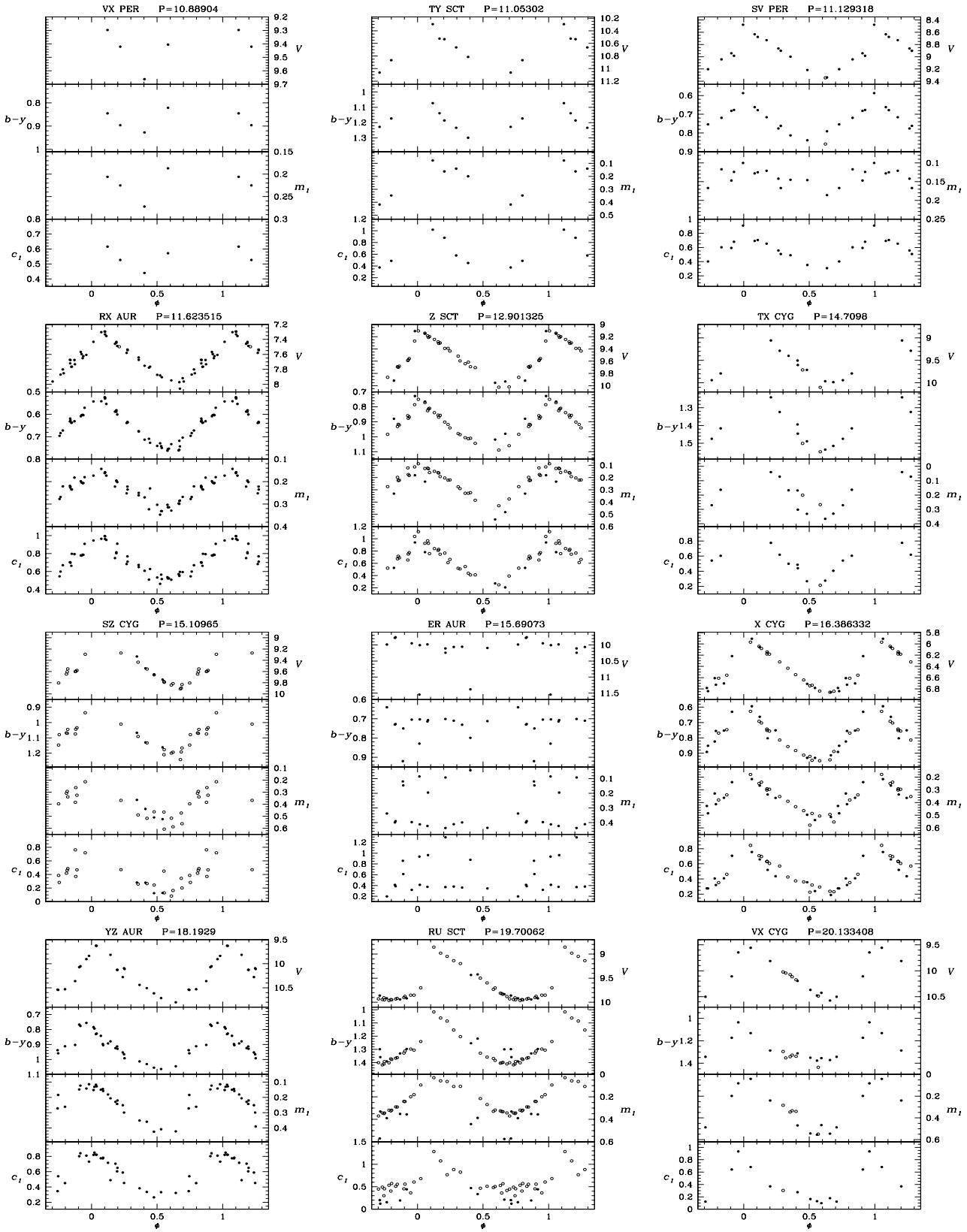

Fig. 3. Concluded.

TABLE 5

SAMPLE $uvby-\beta$ OBSERVATIONS OF CLASSICAL CEPHEIDS

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
SWTAU	9.694	0.443	0.152	0.982	2447833.9053	2.713	33.9046	41687.77	1.583584
SWTAU	9.712	0.410	0.112	1.076	2447837.9903	2.729	37.9923	41687.77	1.583584
SWTAU	9.916	0.522	0.152	0.826	2454190.6381			41687.77	1.583584
SWTAU	9.366	0.364	0.100	1.269	2454191.6274			41687.77	1.583584
SWTAU		0.514	0.148	0.809	2454192.6355			41687.77	1.583584
EUTAU	8.162		0.165	0.660	2454040.8979			41324.219	2.102480
EUTAU	7.774	0.419	0.138	0.898	2454041.8543			41324.219	2.102480
EUTAU	7.741	0.409	0.137	0.921	2454041.9443			41324.219	2.102480
EUTAU		0.494	0.159	0.784	2454042.8053			41324.219	2.102480
EUTAU		0.497	0.164	0.758	2454042.8578			41324.219	2.102480
EUTAU	7.794	0.430	0.153	0.829	2454043.8737			41324.219	2.102480
EUTAU	8.006	0.455	0.158	0.832	2454044.7949			41324.219	2.102480
EUTAU	8.085	0.461	0.158	0.803	2454044.8430			41324.219	2.102480
EUTAU	8.077	0.438	0.156	0.817	2454045.8303			41324.219	2.102480
EUTAU	8.125	0.456	0.153	0.791	2454047.9038			41324.219	2.102480
EUTAU	8.078	0.454	0.155	0.837	2454048.9065			41324.219	2.102480
EUTAU	8.162	0.465	0.169	0.775	2454049.9025			41324.219	2.102480
EUTAU	8.014	0.437	0.147	0.875	2454050.8937			41324.219	2.102480
EUTAU	8.029	0.436	0.158	0.887	2454052.9347			41324.219	2.102480
CYLAC	9.010	0.497	0.210	0.750	2453931.9447			28746.219	2.786944
CYLAC	9.119	0.489	0.214	0.712	2453934.9388			28746.219	2.786944
SZTAU	6.679	0.617	0.204	0.699	2447832.8697	2.636	32.8701	34628.570	3.148730
SZTAU	6.489	0.544	0.179	0.792	2447833.9010	2.659	33.9013	34628.570	3.148730
SZTAU	6.658	0.615	0.201	0.697	2447835.9425	2.627	35.9427	34628.570	3.148730
SZTAU			0.151	0.803	2454040.8974			34628.570	3.148730
SZTAU		0.622	0.195	0.706	2454041.8169			34628.570	3.148730
SZTAU		0.620	0.200	0.681	2454041.8505			34628.570	3.148730
SZTAU		0.627	0.199	0.670	2454041.9394			34628.570	3.148730
SZTAU		0.620	0.182	0.718	2454042.7934			34628.570	3.148730
SZTAU		0.610	0.182	0.728	2454042.8510			34628.570	3.148730
SZTAU		0.525	0.164	0.840	2454043.8684			34628.570	3.148730
SZTAU	6.528	0.588	0.190	0.732	2454044.7906			34628.570	3.148730
SZTAU	6.554	0.593	0.192	0.731	2454044.8361			34628.570	3.148730
SZTAU		0.609	0.201	0.635	2454045.7401			34628.570	3.148730
SZTAU		0.605	0.198	0.682	2454045.8001			34628.570	3.148730
SZTAU			0.158		2454046.8453			34628.570	3.148730
SZTAU	6.578	0.594	0.190	0.716	2454047.8989			34628.570	3.148730
SZTAU	6.670	0.611	0.192	0.690	2454048.9024			34628.570	3.148730
SZTAU	6.352	0.516	0.167	0.881	2454049.8978			34628.570	3.148730
SZTAU	6.490	0.578	0.176	0.748	2454050.8886			34628.570	3.148730
SZTAU	6.394	0.527	0.171	0.833	2454052.9298			34628.570	3.148730
SZTAU	6.650	0.626		0.661	2454079.9074			34628.570	3.148730
SZTAU	6.578	0.567		0.806	2454379.9989			34628.570	3.148730
SZTAU	6.639	0.614	0.200	0.675	2454381.9939			34628.570	3.148730
SZTAU	6.579	0.577	0.173	0.751	2454382.9998			34628.570	3.148730
SZTAU	6.338	0.519	0.153	0.917	2454383.9522			34628.570	3.148730
SZTAU	6.594	0.604	0.197	0.730	2454384.9585			34628.570	3.148730
SZTAU	6.618	0.589	0.181	0.735	2454385.9876			34628.570	3.148730
SZTAU	6.343	0.518	0.152	0.931	2454386.9658			34628.570	3.148730
SZTAU	6.553	0.595	0.188	0.744	2454387.9579			34628.570	3.148730
SZTAU	6.681	0.628		0.736	2454388.9694			34628.570	3.148730
SZTAU	6.367	0.520	0.157	0.919	2454389.9605			34628.570	3.148730
SZTAU		0.578	0.178	0.791	2454390.9715			34628.570	3.148730
SZTAU	6.700	0.638	0.205	0.691	2454391.9569			34628.570	3.148730
SZTAU	6.405	0.531	0.156	0.872	2454392.9336			34628.570	3.148730
SZTAU	6.449	0.562		0.816	2454393.9365			34628.570	3.148730
SZTAU		0.622	0.218	0.733	2454394.9437			34628.570	3.148730
SZTAU	6.414	0.544	0.169	0.821	2454395.9437			34628.570	3.148730
SZTAU	6.399		0.166	0.866	2454396.9304			34628.570	3.148730
SZTAU	6.680	0.625	0.211	0.681	2454397.9288			34628.570	3.148730
SZTAU	6.508	0.557	0.175	0.772	2454398.9272			34628.570	3.148730
SZTAU	6.695	0.625	0.202	0.679	2454750.9489			34628.570	3.148730
SZTAU	6.382	0.526	0.151	0.858	2454751.9486			34628.570	3.148730

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
SZTAU	6.445	0.564	0.176	0.812	2454752.9397			34628.570	3.148730
SZTAU	6.703	0.630	0.209	0.741	2454753.9136			34628.570	3.148730
SZTAU	6.490	0.573	0.192	0.890	2454809.7245			34628.570	3.148730
SZTAU		0.634	0.121	0.683	2454810.7411			34628.570	3.148730
RTAUR	5.719	0.435	0.249	0.505	2454040.8987			42361.155	3.72819
RTAUR	4.924	0.283	0.161	1.029	2454041.8385			42361.155	3.72819
RTAUR	4.910	0.281	0.160	1.039	2454041.8723			42361.155	3.72819
RTAUR	5.697	0.456	0.279	0.613	2454044.8182			42361.155	3.72819
RTAUR	5.641	0.453	0.275	0.648	2454044.8667			42361.155	3.72819
RTAUR	4.970	0.271	0.155	1.086	2454045.7782			42361.155	3.72819
RTAUR	5.026	0.283	0.161	1.069	2454045.8508			42361.155	3.72819
RTAUR	5.736	0.472	0.289	0.621	2454047.9423			42361.155	3.72819
RTAUR	5.175	0.328	0.187	0.932	2454049.9351			42361.155	3.72819
RTAUR	5.601	0.434	0.255	0.675	2454050.9188			42361.155	3.72819
RTAUR	5.122	0.297	0.174	0.983	2454052.9576			42361.155	3.72819
YAUR	9.629	0.663	0.144	0.749	2447833.9792	2.645	33.9798	37203.629	3.859485
YAUR	9.876	0.683	0.179	0.646	2447835.9349	2.635	35.9355	37203.629	3.859485
YAUR	9.644	0.654	0.172	0.696	2447837.8887	2.642	37.8911	37203.629	3.859485
YAUR	9.769		0.161	0.502	2454040.9108			37203.629	3.859485
YAUR		0.719	0.195	0.644	2454041.8256			37203.629	3.859485
YAUR		0.723	0.185	0.638	2454041.8652			37203.629	3.859485
YAUR		0.710	0.184	0.623	2454041.9568			37203.629	3.859485
YAUR		0.520	0.082	1.185	2454042.8232			37203.629	3.859485
YAUR		0.530	0.091	1.132	2454042.8758			37203.629	3.859485
YAUR	9.660	0.647	0.165	0.657	2454043.8871			37203.629	3.859485
YAUR	9.818	0.707	0.190		2454044.8111			37203.629	3.859485
YAUR	9.820	0.710	0.188		2454044.8578			37203.629	3.859485
YAUR	9.832	0.688	0.203	0.631	2454045.8443			37203.629	3.859485
YAUR	9.888	0.722	0.192	0.584	2454048.9203			37203.629	3.859485
YAUR	9.895	0.635	0.182	0.698	2454049.9193			37203.629	3.859485
YAUR	9.337	0.551	0.102	0.996	2454050.9089			37203.629	3.859485
YAUR	9.952	0.727	0.222	0.593	2454052.9494			37203.629	3.859485
YAUR	9.802	0.672		0.708	2454380.0205			37203.629	3.859485
YAUR	9.399	0.565	0.129	0.892	2454383.0253			37203.629	3.859485
YAUR	9.758	0.679	0.187	0.684	2454383.9782			37203.629	3.859485
YAUR	9.955	0.721	0.209	0.625	2454384.9769			37203.629	3.859485
YAUR	9.286	0.512	0.108	1.026	2454386.0158			37203.629	3.859485
YAUR	9.447	0.596	0.127	0.915	2454386.9931			37203.629	3.859485
YAUR	9.795	0.692	0.187	0.681	2454387.9858			37203.629	3.859485
YAUR	9.959	0.740		0.614	2454388.9982			37203.629	3.859485
YAUR	9.194	0.491	0.101	1.125	2454389.9869			37203.629	3.859485
YAUR	9.506	0.608	0.146	0.832	2454390.9964			37203.629	3.859485
YAUR	9.831	0.713	0.197	0.674	2454391.9776			37203.629	3.859485
YAUR	9.822	0.722		0.655	2454391.9948			37203.629	3.859485
YAUR	9.971	0.712	0.207	0.597	2454392.9614			37203.629	3.859485
YAUR	9.166	0.490	0.079	1.154	2454393.9603			37203.629	3.859485
YAUR	9.529	0.624	0.153	0.889	2454394.9784			37203.629	3.859485
YAUR	9.818	0.711	0.194	0.655	2454395.9700			37203.629	3.859485
YAUR	9.975	0.671	0.204	0.623	2454396.9589			37203.629	3.859485
YAUR	9.195	0.496	0.108	1.167	2454397.9469			37203.629	3.859485
YAUR	9.614	0.640	0.165	0.769	2454398.9499			37203.629	3.859485
CMSCT	10.769	0.801	0.172	0.704	2446963.8983	2.654	63.8987	35111.32	3.916977
CMSCT	10.781	0.835	0.197	0.797	2446967.9135	2.658	67.9140	35111.32	3.916977
CMSCT	10.985	0.915	0.277	0.608	2446968.9025			35111.32	3.916977
CMSCT	11.328	1.010	0.218	0.803	2453518.8728			35111.32	3.916977
CMSCT	11.328	1.010	0.218	0.803	2453518.8728			35111.32	3.916977
CMSCT	11.363	1.029	0.175	0.759	2453519.8934			35111.32	3.916977
CMSCT	0.881	0.101	0.738		2453520.8581			35111.32	3.916977
CMSCT	0.937	0.106	0.784		2453521.7988			35111.32	3.916977
CMSCT	1.175	0.196	0.328		2453930.9144			35111.32	3.916977
CMSCT	11.221	1.076	0.133	0.475	2453931.9108			35111.32	3.916977
CMSCT	11.435	1.157	0.257	0.318	2453934.9170			35111.32	3.916977
CMSCT	11.339	1.010	0.209	0.491	2454189.9954			35111.32	3.916977
CMSCT	10.788	0.875	0.110	0.831	2454190.9884			35111.32	3.916977
CMSCT	11.075	0.980	0.169	0.631	2454191.9809			35111.32	3.916977

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
CMSCT		1.032	0.205	0.499	2454192.9901			35111.32	3.916977
CMSCT	12.654	0.559	0.107	0.974	2455006.8366	2.893	6.8360	35111.32	3.916977
CMSCT	11.352	1.039	0.196	0.380	2455007.8062	2.584	7.8072	35111.32	3.916977
CMSCT	12.553	0.744	−0.072	0.925	2455008.8173	2.769	8.8184	35111.32	3.916977
CMSCT	12.947	0.594	0.058	0.940	2455009.8037	2.921	9.8047	35111.32	3.916977
CMSCT	11.149	0.977	0.202	0.633	2455010.8039	2.630	10.8028	35111.32	3.916977
STTAU	8.435	0.630	0.179	0.691	2447832.8748	2.643	32.8753	41761.963	4.034299
STTAU	7.927	0.527	0.134	0.981	2447833.9904	2.679	33.9910	41761.963	4.034299
STTAU	8.493	0.686	0.223	0.588	2447835.9458	2.611	35.9461	41761.963	4.034299
STTAU	7.921	0.561	0.135	0.806	2454041.8312			41761.963	4.034299
STTAU	7.869	0.551	0.134	0.808	2454041.8525			41761.963	4.034299
STTAU	7.750	0.519	0.123	0.906	2454041.9411			41761.963	4.034299
STTAU		0.557	0.124	0.937	2454042.7987			41761.963	4.034299
STTAU		0.567	0.129	0.924	2454042.8540			41761.963	4.034299
STTAU		0.664	0.202	0.571	2454043.8705			41761.963	4.034299
STTAU	8.481	0.675	0.221	0.553	2454044.7920			41761.963	4.034299
STTAU	8.504	0.675	0.227	0.554	2454044.8399			41761.963	4.034299
STTAU		0.589	0.161	0.655	2454045.7543			41761.963	4.034299
STTAU	8.153	0.571	0.152	0.718	2454045.8080			41761.963	4.034299
STTAU		0.517	0.131		2454046.8478			41761.963	4.034299
STTAU	8.347	0.657	0.187	0.613	2454047.9007			41761.963	4.034299
STTAU	8.526	0.692	0.219	0.566	2454048.9038			41761.963	4.034299
STTAU	8.155	0.553	0.160	0.764	2454049.8997			41761.963	4.034299
STTAU	7.958	0.539	0.128	0.898	2454050.8907			41761.963	4.034299
STTAU	8.544	0.698	0.242	0.543	2454052.9316			41761.963	4.034299
STTAU	8.434	0.671	0.211	0.585	2454189.6307			41761.963	4.034299
STTAU	8.540	0.672	0.207	0.614	2454190.6438			41761.963	4.034299
STTAU	8.634	0.701	0.194	0.586	245438 0			41761.963	4.034299
STTAU	8.078	0.574	0.154	0.781	2454381.9947			41761.963	4.034299
STTAU	8.378	0.666	0.207	0.592	2454383.0012			41761.963	4.034299
STTAU	8.542	0.682	0.240	0.532	2454383.9539			41761.963	4.034299
STTAU	7.877	0.482	0.116	1.026	2454384.9592			41761.963	4.034299
STTAU	7.838	0.475	0.109	1.062	2454385.0014			41761.963	4.034299
STTAU	8.066	0.560	0.166	0.744	2454385.9891			41761.963	4.034299
STTAU	8.367	0.664	0.201	0.620	2454386.9676			41761.963	4.034299
STTAU	8.549	0.689	0.227	0.552	2454387.9603			41761.963	4.034299
STTAU	7.892	0.480	0.113	0.976	2454388.9715			41761.963	4.034299
STTAU	8.040	0.559	0.154	0.834	2454389.9619			41761.963	4.034299
STTAU	8.356	0.657	0.207	0.590	2454390.9734			41761.963	4.034299
STTAU	8.536	0.697	0.239	0.547	2454391.9583			41761.963	4.034299
STTAU	7.983	0.511	0.126	0.917	2454392.9393			41761.963	4.034299
STTAU	8.012	0.552	0.134	0.847	2454393.9380			41761.963	4.034299
STTAU	8.373	0.649	0.212	0.683	2454394.9455			41761.963	4.034299
STTAU	8.503	0.695	0.222	0.601	2454395.9455			41761.963	4.034299
STTAU	8.041	0.493	0.135	0.861	2454396.9334			41761.963	4.034299
STTAU	7.999	0.545	0.146	0.897	2454397.9306			41761.963	4.034299
STTAU	8.334	0.648	0.201	0.615	2454398.9288			41761.963	4.034299
XSCT	9.996	0.816		0.650	2446963.8898			34905.58	4.19807
XSCT	10.327	0.855	0.285	0.606	2446965.8430			34905.58	4.19807
XSCT	9.999	0.819		0.750	2446967.9021	2.628	67.9026	34905.58	4.19807
XSCT	10.460	0.943	0.212	0.702	2453518.8789			34905.58	4.19807
XSCT	9.571	0.694	0.051	1.326	2453519.8968			34905.58	4.19807
XSCT	9.833	0.815	0.108	0.868	2453520.8515			34905.58	4.19807
XSCT	10.338	0.921	0.150	0.672	2453521.7885			34905.58	4.19807
XSCT	10.535	0.914	0.162	0.727	2453521.7958			34905.58	4.19807
XSCT	12.511	0.798	0.158		2453930.9066			34905.58	4.19807
XSCT	10.280	0.968	0.251	0.748	2453934.9147			34905.58	4.19807
XSCT				0.977	2453935.9080			34905.58	4.19807
XSCT	10.371	0.919	0.210	0.554	2454189.9992			34905.58	4.19807
XSCT	10.123	0.832	0.145	0.746	2454190.9907			34905.58	4.19807
XSCT	9.714	0.752	0.113	1.008	2454191.9833			34905.58	4.19807
XSCT	10.144	0.881	0.145	0.649	2454192.9929			34905.58	4.19807
VZCYG	9.049	0.626	0.305	0.555	2448887.6361	2.629	87.6357	41705.702	4.864453
VZCYG	9.226	0.661	0.324	0.500	2448888.7007	2.611	88.6995	41705.702	4.864453
VZCYG	8.622	0.480	0.199	0.908	2448890.6559	2.665	90.6552	41705.702	4.864453

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
VZCYG	8.846	0.586	0.238	0.675	2448891.6701	2.642	91.6694	41705.702	4.864453
VZCYG	9.204	0.677	0.295	0.529	2448893.7081	2.634	93.7086	41705.702	4.864453
VZCYG	9.016	0.597	0.220	0.669	2448894.6185	2.644	94.6182	41705.702	4.864453
VZCYG	8.641	0.518	0.143	0.979	2448895.6626	2.669	95.6631	41705.702	4.864453
VZCYG	8.901	0.614	0.204	0.762	2448896.6345	2.642	96.6341	41705.702	4.864453
VZCYG	9.051		0.286	0.514	2453931.9423			41705.702	4.864453
VZCYG	8.597	0.507	0.183	0.906	2453934.9357			41705.702	4.864453
ASPER	10.087	1.074	0.177	0.651	2447828.9884	2.623	28.9894	41723.934	4.972516
ASPER	9.937	1.048	0.168	0.682	2447832.8284	2.623	32.8290	41723.934	4.972516
ASPER	10.110	1.058	0.207	0.609	2447833.8906	2.598	33.8911	41723.934	4.972516
ASPER	9.442	0.893	0.092	1.030	2447835.9040	2.68	35.9048	41723.934	4.972516
ASPER	9.963	1.056	0.172	0.678	2447837.9943	2.604	37.9967	41723.934	4.972516
ASPER	10.100	1.047	0.236	0.603	2448887.9683	2.637	87.9677	41723.934	4.972516
ASPER	9.583	0.876	0.136	0.886	2448888.9583	2.689	88.9576	41723.934	4.972516
ASPER	9.695	0.969	0.168	0.748	2448890.9426	2.63	90.9422	41723.934	4.972516
ASPER	9.905	1.020	0.208	0.646	2448891.9408	2.615	91.9404	41723.934	4.972516
ASPER	9.575	0.898	0.079	0.990	2448893.9461	2.692	93.9458	41723.934	4.972516
ASPER	9.396	0.890	0.078	1.091	2448894.9462	2.697	94.9458	41723.934	4.972516
ASPER	9.690	0.999	0.113	0.825	2448895.9663	2.65	95.9659	41723.934	4.972516
ASPER	9.926	1.052	0.163	0.702	2448897.0010	2.647	97.0014	41723.934	4.972516
BGLAC	9.030	0.682	0.313	0.513	2448887.6383	2.616	87.6379	35315.273	5.331908
BGLAC	9.167	0.698	0.299	0.520	2448888.7919	2.627	88.7911	35315.273	5.331908
BGLAC	8.627	0.556	0.206	0.822	2448890.6585	2.665	90.6579	35315.273	5.331908
BGLAC	8.808	0.638	0.244	0.636	2448891.6725	2.633	91.6719	35315.273	5.331908
BGLAC	8.983	0.675	0.300	0.526	2448892.6764	2.619	92.6761	35315.273	5.331908
BGLAC	9.123	0.712	0.292	0.522	2448893.6520	2.62	93.6516	35315.273	5.331908
BGLAC	8.996	0.654	0.229	0.613	2448894.6197			35315.273	5.331908
BGLAC	8.564	0.558	0.146	0.938	2448895.6663	2.674	95.6667	35315.273	5.331908
BGLAC	8.731	0.639	0.160	0.809	2452500.9161			35315.273	5.331908
BGLAC	8.944	0.700	0.208	0.690	2452501.9125			35315.273	5.331908
BGLAC	9.083	0.745	0.219	0.630	2452502.8989			35315.273	5.331908
BGLAC	9.184	0.745	0.224	0.615	2452503.9046			35315.273	5.331908
BGLAC	8.747	0.602	0.141	0.865	2452504.8502			35315.273	5.331908
BGLAC	9.089	0.771	0.308	0.423	2453931.9437			35315.273	5.331908
BGLAC	8.677	0.626	0.213	0.716	2453934.9375			35315.273	5.331908
BGLAC	8.927	0.668	0.227	0.626	2455007.8790	2.628	7.8795	35315.273	5.331908
BGLAC	9.109	0.783	0.280	0.543	2455008.8802			35315.273	5.331908
BGLAC	9.173	0.692	0.257	0.535	2455009.8780	2.632	9.8784	35315.273	5.331908
UYPER	11.303	1.123	0.087	0.807	2447833.8798	2.617	33.8803	44945.845	5.365106
UYPER	11.759	1.235	0.191	0.568	2447835.8917	2.633	35.8929	44945.845	5.365106
UYPER	10.899	0.948	0.064	1.143	2447837.8443	2.709	37.8459	44945.845	5.365106
BXSCT	11.914	1.297	0.247		2446961.9231	2.753	61.9239	27901.83	6.41133
BXSCT	12.047	1.339		0.703	2446962.9098			27901.83	6.41133
BXSCT	11.983		0.046	0.214	2446963.9071	2.667	63.9077	27901.83	6.41133
BXSCT	12.239	1.318	0.298	0.699	2446967.9256	2.676	67.9260	27901.83	6.41133
BXSCT		1.308	0.106	0.450	2453521.7926				6.41133
BXSCT	12.325		0.179	0.406	2453933.8728				6.41133
BXSCT	12.604		0.293	0.435	2453934.9191				6.41133
BXSCT	12.220	1.391	0.123		2454190.0042				6.41133
BXSCT	12.347	1.464	0.331		2454190.9931				6.41133
BXSCT	12.509	1.497		0.180	2454191.9851				6.41133
BXSCT	12.515	1.513			2454192.9946				6.41133
AWPER	7.566	0.761	0.088	0.681	2447833.9387	2.664	33.9393	42709.059	6.463589
AWPER	7.303	0.728	0.086	0.858	2447835.9119	2.67	35.9122	42709.059	6.463589
AWPER	7.642	0.824	0.138	0.536	2447837.8613	2.62	37.8633	42709.059	6.463589
AWPER	7.152	0.659	0.076	0.960	2448887.9472	2.699	87.9468	42709.059	6.463589
AWPER	7.187	0.689	0.094	0.940	2448888.9791	2.68	88.9782	42709.059	6.463589
AWPER	7.481	0.794	0.132	0.616	2448890.9592	2.641	90.9588	42709.059	6.463589
AWPER	7.714	0.842	0.159	0.465	2448891.9472	2.62	91.9468	42709.059	6.463589
AWPER	7.855	0.846	0.142	0.497	2448892.9393	2.638	92.9390	42709.059	6.463589
AWPER	7.510	0.768	0.076	0.688	2448893.9506	2.653	93.9510	42709.059	6.463589
AWPER	7.045	0.668	0.038	1.131	2448894.9490	2.712	94.9494	42709.059	6.463589
AWPER	7.265	0.756	0.048	0.900	2448895.9780	2.669	95.9787	42709.059	6.463589
AOAUR	10.807	0.673	0.079	0.865	2447832.8599	2.626	32.8608	42815.86	6.763006
AOAUR	10.443	0.581	0.095	1.138	2447833.9835	2.671	33.9841	42815.86	6.763006

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
AOAUR		0.612		1.283	2454041.8362			42815.86	6.763006
AOAUR		0.606	0.085	1.072	2454041.9645			42815.86	6.763006
AOAUR	10.775	0.682	0.169	0.649	2454043.8935			42815.86	6.763006
AOAUR	10.990	0.804	0.120	0.598	2454044.8153			42815.86	6.763006
AOAUR	10.978	0.787	0.168	0.579	2454044.8635			42815.86	6.763006
AOAUR		0.549	0.157	0.703	2454047.9375			42815.86	6.763006
AOAUR	10.488		0.040		2454048.9256			42815.86	6.763006
AOAUR	10.968	0.736	0.177	0.681	2454050.9152			42815.86	6.763006
AOAUR	11.304	0.824	0.251	0.513	2454052.9546			42815.86	6.763006
AOAUR	10.599		0.011		2454380.0317			42815.86	6.763006
AOAUR	11.225	0.812	0.242	0.570	2454383.9835			42815.86	6.763006
AOAUR	11.098	0.783	0.213	0.564	2454389.9548			42815.86	6.763006
AOAUR	11.166	0.761	0.192	0.551	2454391.9520			42815.86	6.763006
CKSCT	10.730	1.139	0.425	0.470	2446962.8980			40855.25	7.41522
CKSCT	10.688	1.048	0.317	0.287	2446963.8953	2.662	63.8958	40855.25	7.41522
CKSCT	10.461	1.035	0.351	0.496	2446967.9097	2.650	67.9102	40855.25	7.41522
CKSCT	10.548	1.084	0.376	0.454	2446968.8996			40855.25	7.41522
CKSCT	10.364	1.044	0.149	0.642	2453520.8547			40855.25	7.41522
CKSCT	10.529	1.017	0.114	0.731	2453521.7908			40855.25	7.41522
CKSCT	10.861	1.170	0.234	0.424	2453931.9149			40855.25	7.41522
CKSCT	11.225	1.076	0.047	0.633	2453933.8696			40855.25	7.41522
CKSCT	11.011	1.271	0.361	0.179	2453934.9109			40855.25	7.41522
CKSCT	10.437	1.074	0.181	0.441	2455006.8337	2.640	6.8336	40855.25	7.41522
CKSCT	10.666	1.131	0.239	0.357	2455007.8106	2.611	7.8113	40855.25	7.41522
CKSCT	10.874	1.156	0.303	0.296	2455009.8078	2.630	9.8085	40855.25	7.41522
CKSCT	10.739	1.103	0.271	0.542	2455010.8062	2.622	10.8070	40855.25	7.41522
RSORI		0.542	0.112	1.164	2447943.7633	2.688	43.7648	42820.794	7.566881
RSORI	8.241	0.626	0.141	1.000	2447944.7993	2.648	44.8008	42820.794	7.566881
RSORI	8.230	0.640	0.148	0.988	2447945.6936	2.638	45.6951	42820.794	7.566881
RSORI	8.545	0.726	0.200	0.774	2447946.6584	2.627	46.6597	42820.794	7.566881
VYCYG	9.398	0.840	0.158	0.846	2448885.6512	2.641	85.6520	43045.282	7.856982
VYCYG	9.834	0.955	0.281	0.566	2448887.6257	2.613	87.6253	43045.282	7.856982
VYCYG	10.016	0.979	0.309	0.476	2448888.6513	2.611	88.6506	43045.282	7.856982
VYCYG		0.770	0.132	0.988	2448891.6575	2.675	91.6568	43045.282	7.856982
VYCYG	9.441	0.870	0.154	0.773	2448893.7059	2.630	93.7063	43045.282	7.856982
VYCYG	9.669	0.931	0.214	0.644	2448894.6157	2.627	94.6161	43045.282	7.856982
VYCYG	9.865	0.997	0.244	0.613	2448895.6876	2.620	95.6887	43045.282	7.856982
VYCYG	10.014	0.995	0.262	0.579	2448896.6912	2.618	96.6916	43045.282	7.856982
VYCYG	9.861		0.243	0.386	2453931.9409			43045.282	7.856982
VYCYG	9.313	0.829	0.096	0.834	2453934.9355			43045.282	7.856982
RXCAM	7.859	0.872	0.191	0.622	2447828.9839	2.632	28.9847	42766.583	7.912024
RXCAM	7.758	0.904	0.216	0.619	2447833.8874	2.627	33.8879	42766.583	7.912024
RXCAM	8.061	0.958	0.255	0.518	2447835.9007	2.622	35.9010	42766.583	7.912024
RXCAM	7.446	0.737	0.155	0.880	2447837.8274	2.650	37.8291	42766.583	7.912024
BKAUR	9.514	0.833	0.254	0.616	2454041.8282			17377.719	8.002432
BKAUR	9.398	0.846	0.238	0.577	2454041.8678			17377.719	8.002432
BKAUR	9.411	0.839	0.255	0.590	2454041.8778			17377.719	8.002432
BKAUR	9.403	0.838	0.250	0.557	2454041.9612			17377.719	8.002432
BKAUR		0.848	0.231	0.618	2454042.8321			17377.719	8.002432
BKAUR		0.804	0.201	0.572	2454042.8827			17377.719	8.002432
BKAUR	9.449	0.710	0.182	0.617	2454043.8921			17377.719	8.002432
BKAUR	9.055	0.614	0.099	1.024	2454044.8133			17377.719	8.002432
BKAUR	9.038	0.608	0.104	1.023	2454044.8600			17377.719	8.002432
BKAUR	9.123	0.667	0.136	0.926	2454045.7736			17377.719	8.002432
BKAUR	9.127	0.657	0.147	0.894	2454045.8463			17377.719	8.002432
BKAUR	9.533	0.755	0.205	0.692	2454047.9257			17377.719	8.002432
BKAUR	9.569	0.801	0.207	0.629	2454048.9225			17377.719	8.002432
BKAUR	9.857	0.835	0.264	0.523	2454049.9218			17377.719	8.002432
BKAUR	9.831	0.795	0.235	0.553	2454050.9111			17377.719	8.002432
BKAUR	9.122	0.621	0.122	0.970	2454052.9518			17377.719	8.002432
CNSCT	12.320	1.407	0.253	1.294	2446962.9032			28670.16	9.9923
CNSCT	12.240				2446963.9005	2.774	63.9012	28670.16	9.9923
CNSCT	12.375			0.623	2446967.9151	2.655	67.9158	28670.16	9.9923
CNSCT	12.483	1.522	0.391	0.331	2446968.9039			28670.16	9.9923
CNSCT	12.223	1.458	0.027	1.074	2454190.0101			28670.16	9.9923

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
CNSCT	12.351	1.537	0.015	0.269	2454191.9883			28670.16	9.9923
CNSCT	12.521	1.568	0.055	0.418	2454192.9969			28670.16	9.9923
SYAUR	9.116	0.769	0.160	0.774	2447832.8484	2.652	32.8489	36843.52	10.14452
SYAUR	9.350	0.798	0.184	0.687	2447835.9294	2.636	35.9298	36843.52	10.14452
SYAUR	8.995	0.681	0.131	0.895	2447837.8819	2.654	37.8845	36843.52	10.14452
SYAUR	9.129	0.759			2449399.7761			36843.52	10.14452
SYAUR	8.961		0.138	0.682	2454040.9054			36843.52	10.14452
SYAUR	9.073	0.789	0.170	0.739	2454041.8231			36843.52	10.14452
SYAUR		0.795	0.162	0.745	2454041.8619			36843.52	10.14452
SYAUR		0.790	0.179	0.715	2454041.9533			36843.52	10.14452
SYAUR		0.848	0.185	0.691	2454042.8181			36843.52	10.14452
SYAUR		0.855	0.182	0.679	2454042.8686			36843.52	10.14452
SYAUR		0.818	0.221	0.543	2454043.8829			36843.52	10.14452
SYAUR	9.284	0.781	0.181	0.712	2454044.8047			36843.52	10.14452
SYAUR	9.293	0.777	0.179	0.718	2454044.8511			36843.52	10.14452
SYAUR	9.121	0.746	0.163	0.726	2454045.7653			36843.52	10.14452
SYAUR	9.134	0.745	0.174	0.853	2454045.8370			36843.52	10.14452
SYAUR	8.867	0.642	0.103	1.006	2454047.9160			36843.52	10.14452
SYAUR	8.719	0.628	0.077	1.060	2454048.9148			36843.52	10.14452
SYAUR	8.874	0.677			2454049.9116			36843.52	10.14452
SYAUR	9.052	0.737	0.143	0.773	2454050.9028			36843.52	10.14452
SYAUR	9.283	0.817	0.215	0.637	2454052.9428			36843.52	10.14452
SYAUR	8.735	0.627	0.107	1.079	2454383.9687			36843.52	10.14452
SYAUR	8.926	0.692	0.143	0.890	2454384.9686			36843.52	10.14452
SYAUR	9.053	0.738	0.164	0.748	2454386.0031			36843.52	10.14452
SYAUR	9.176	0.785	0.183	0.732	2454386.9821			36843.52	10.14452
SYAUR	9.294	0.811	0.209	0.650	2454387.9744			36843.52	10.14452
SYAUR	9.370	0.843		0.692	2454388.9879			36843.52	10.14452
SYAUR	9.332	0.779	0.194	0.693	2454389.9764			36843.52	10.14452
SYAUR	8.910	0.663	0.125	0.980	2454391.9714			36843.52	10.14452
SYAUR	8.821	0.645	0.098	1.031	2454392.9513			36843.52	10.14452
SYAUR	8.732	0.628		1.101	2454393.9510			36843.52	10.14452
SYAUR	8.936	0.680	0.141	0.995	2454394.9587			36843.52	10.14452
SYAUR	9.002	0.743	0.152	0.817	2454395.9597			36843.52	10.14452
SYAUR	9.159	0.744	0.186	0.731	2454396.9492			36843.52	10.14452
SYAUR	9.283	0.799	0.217	0.665	2454397.9402			36843.52	10.14452
SYAUR	9.371	0.814	0.218	0.638	2454398.9401			36843.52	10.14452
ANAUR	10.534	0.844	0.135	0.627	2447828.9993	2.618	28.9999	36843.309	10.2906
ANAUR	10.130	0.759	0.114	0.921	2447832.8379	2.66	32.8384	36843.309	10.2906
ANAUR	10.366	0.858	0.153	0.685	2447833.9419	2.638	33.9426	36843.309	10.2906
ANAUR	10.634	0.906	0.247	0.597	2447835.9147	2.603	35.9158	36843.309	10.2906
ANAUR	10.803	0.920	0.271	0.496	2447837.8668	2.632	37.8693	36843.309	10.2906
ANAUR	10.755	0.889	0.249	0.527	2448887.9491	2.641	87.9487	36843.309	10.2906
ANAUR	10.518	0.814	0.176	0.660	2448888.9818	2.634	88.9808	36843.309	10.2906
ANAUR		0.754	0.165	0.807	2448890.9608	2.666	90.9604	36843.309	10.2906
ANAUR	10.144	0.738	0.135	0.859	2448891.9506	2.642	91.9500	36843.309	10.2906
ANAUR	10.347	0.853	0.163	0.710	2448893.9519	2.65	93.9524	36843.309	10.2906
ANAUR	10.483	0.907	0.207	0.637	2448894.9510	2.62	94.9506	36843.309	10.2906
ANAUR	10.643	0.938	0.236	0.625	2448895.9798	2.624	95.9803	36843.309	10.2906
ANAUR	10.825	0.958	0.236	0.561	2448897.0030	2.59	97.0038	36843.309	10.2906
ANAUR	10.569	0.862	0.196	0.326	2454040.9093			36843.309	10.2906
ANAUR		1.014	0.222	0.634	2454041.8574			36843.309	10.2906
ANAUR		0.964	0.251	0.532	2454041.9480			36843.309	10.2906
ANAUR		0.825	0.174	0.782	2454043.8778			36843.309	10.2906
ANAUR	10.205	0.799	0.146	2.033	2454044.8001			36843.309	10.2906
ANAUR	10.244	0.770	0.113	1.317	2454044.8461			36843.309	10.2906
ANAUR	10.161	0.775	0.131	0.816	2454045.7611			36843.309	10.2906
ANAUR	10.155	0.787	0.165	1.286	2454045.8329			36843.309	10.2906
ANAUR	10.465	0.880	0.190	0.796	2454048.9102			36843.309	10.2906
ANAUR	10.521	0.933	0.245	0.632	2454049.9067			36843.309	10.2906
ANAUR	10.657	0.978	0.200	0.554	2454050.8968			36843.309	10.2906
ANAUR	10.777	0.935	0.246	0.556	2454052.9376			36843.309	10.2906
ANAUR	10.770	0.979		0.638	2454380.0115			36843.309	10.2906
ANAUR	10.792	0.917	0.246	0.482	2454382.0012			36843.309	10.2906
ANAUR	10.578	0.838	0.163	0.663	2454383.0112			36843.309	10.2906

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
ANAUR	10.336	0.766	0.139	0.825	2454383.9615			36843.309	10.2906
ANAUR	10.260	0.762	0.123	0.912	2454384.9646			36843.309	10.2906
ANAUR	10.278	0.772	0.121	0.930	2454384.9991			36843.309	10.2906
ANAUR	10.228	0.752	0.112	0.897	2454385.9982			36843.309	10.2906
ANAUR		0.761	0.125	0.909	2454386.9756			36843.309	10.2906
ANAUR	10.368	0.836	0.172	0.722	2454387.9681			36843.309	10.2906
ANAUR	10.471	0.912		0.714	2454388.9796			36843.309	10.2906
ANAUR	10.817	0.945	0.269	0.576	2454391.9662			36843.309	10.2906
ANAUR	10.677	0.875	0.197	0.600	2454392.9461			36843.309	10.2906
ANAUR					2454393.9451			36843.309	10.2906
ANAUR	10.265	0.746	0.132	1.019	2454394.9525			36843.309	10.2906
ANAUR	10.224	0.775	0.135	0.885	2454395.9538			36843.309	10.2906
ANAUR	10.423	0.862	0.169	0.674	2454398.9375			36843.309	10.2906
ANAUR	10.734	0.952	0.259	0.569	2454750.9690			36843.309	10.2906
ANAUR	10.801	0.930	0.237	0.446	2454751.9635			36843.309	10.2906
ANAUR	10.692	0.876	0.282	1.130	2454752.9489			36843.309	10.2906
ANAUR	10.437	0.806	0.158	1.539	2454753.9277			36843.309	10.2906
ANAUR	10.371	0.838	0.173	0.853	2454809.7383			36843.309	10.2906
ANAUR	10.473	0.893	0.093	0.687	2454810.7554			36843.309	10.2906
YSCT		0.935	0.197	0.879	2446962.8933			34947.2	10.341504
YSCT	9.127	0.918	0.191	0.829	2446963.8906	2.677	63.8910	34947.2	10.341504
YSCT	9.439	1.048	0.315	0.568	2446965.8418			34947.2	10.341504
YSCT	9.756	1.150	0.459	0.342	2446967.9038	2.631	67.9042	34947.2	10.341504
YSCT	9.900	1.188	0.508	0.257	2446968.8926			34947.2	10.341504
ZLAC	8.548	0.749	0.290	0.516	2448887.6472	2.629	87.6463	42827.123	10.885613
ZLAC	7.919	0.592	0.183	0.987	2448890.6705	2.675	90.6699	42827.123	10.885613
ZLAC	8.148	0.695	0.224	0.715	2448891.6806	2.647	91.6799	42827.123	10.885613
ZLAC	8.231	0.750	0.253	0.645	2448892.6924	2.634	92.6919	42827.123	10.885613
ZLAC	8.532	0.861	0.333	0.504	2448894.6258	2.624	94.6253	42827.123	10.885613
ZLAC	8.753	0.911	0.382	0.430	2448895.6721	2.629	95.6725	42827.123	10.885613
ZLAC	8.856	0.912	0.372	0.452	2448896.6355	2.63	96.6360	42827.123	10.885613
ZLAC	8.752	0.875	0.270	0.548	2452500.9199			42827.123	10.885613
ZLAC	8.542	0.783	0.217	0.670	2452501.9153			42827.123	10.885613
ZLAC	8.388	0.736	0.180	0.793	2452502.9009			42827.123	10.885613
ZLAC	8.180	0.678	0.147	0.941	2452503.9065			42827.123	10.885613
ZLAC	7.904	0.611	0.132	1.102	2452504.8451			42827.123	10.885613
ZLAC	8.028	0.614	0.127	0.957	2455007.8756	2.689	7.8752	42827.123	10.885613
ZLAC	8.075	0.733	0.167	0.866	2455008.8769	2.670	8.8773	42827.123	10.885613
ZLAC	8.195	0.706	0.199	0.720	2455009.8787	2.640	9.8791	42827.123	10.885613
VXPER	9.297	0.845	0.206	0.616	2447832.8185	2.635	32.8190	43758.994	10.88904
VXPER	9.421	0.896	0.225	0.527	2447833.8773	2.599	33.8777	43758.994	10.88904
VXPER	9.662	0.927	0.272	0.440	2447835.8890	2.625	35.8895	43758.994	10.88904
VXPER	9.405	0.821	0.187	0.572	2447837.8412	2.626	37.8423	43758.994	10.88904
TYSCT	10.524	1.139	0.315	0.565	2446961.9112	2.69	61.9116	37377.09	11.05302
TYSCT	10.972		0.294	0.208	2446963.8969	2.613	63.8974	37377.09	11.05302
TYSCT	11.063	1.228	0.418	0.374	2446967.9117	2.64	67.9125	37377.09	11.05302
TYSCT	10.867	1.173	0.348	0.487	2446968.9010			37377.09	11.05302
TYSCT	10.295	1.073	0.078	1.019	2454190.0149			37377.09	11.05302
TYSCT	10.533	1.186	0.162	0.881	2454190.9973			37377.09	11.05302
TYSCT	10.664	1.234	0.141	0.579	2454191.9907			37377.09	11.05302
TYSCT	10.815	1.299	0.200	0.450	2454192.9986			37377.09	11.05302
SVPER	9.216	0.839	0.146	0.353	2447828.9930	2.621	28.9938	43839.296	11.129318
SVPER	9.043	0.719	0.117	0.602	2447832.8319	2.638	32.8324	43839.296	11.129318
SVPER	8.985	0.677	0.124	0.680	2447833.8940	2.66	33.8946	43839.296	11.129318
SVPER	8.676	0.678	0.125	0.704	2447835.9084	2.666	35.9089	43839.296	11.129318
SVPER	8.903	0.762	0.167	0.507	2447837.8697	2.632	37.8720	43839.296	11.129318
SVPER	9.338	0.791	0.186	0.308	2448887.9449	2.65	87.9444	43839.296	11.129318
SVPER	9.203	0.754	0.167	0.402	2448888.9762	2.627	88.9754	43839.296	11.129318
SVPER	8.943	0.682	0.147	0.593	2448890.9572	2.669	90.9568	43839.296	11.129318
SVPER	8.477	0.587	0.100	0.908	2448891.9481	2.674	91.9485	43839.296	11.129318
SVPER	8.633	0.662	0.128	0.692	2448892.9367	2.671	92.9363	43839.296	11.129318
SVPER	8.729	0.716	0.121	0.653	2448893.9489	2.669	93.9493	43839.296	11.129318
SVPER	8.865	0.776	0.142	0.557	2448894.9472	2.655	94.9476	43839.296	11.129318
SVPER	8.999	0.813	0.145	0.490	2448895.9765	2.655	95.9760	43839.296	11.129318
RXAUR	7.303	0.542	0.143	0.964	2447829.0017	2.655	29.0022	39075.63	11.623515

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
RXAUR	7.752	0.713	0.270	0.608	2447832.8403	2.608	32.8423	39075.63	11.623515
RXAUR	7.873	0.741	0.303	0.533	2447833.9555	2.608	33.9560	39075.63	11.623515
RXAUR	7.971	0.718	0.286	0.550	2447835.9176	2.602	35.9179	39075.63	11.623515
RXAUR	7.720	0.619	0.226	0.702	2447837.8644	2.638	37.8667	39075.63	11.623515
RXAUR		0.571	0.180	0.908	2447943.7530	2.638	43.7547	39075.63	11.623515
RXAUR	7.355	0.554	0.173	0.951	2447945.6787	2.648	45.6798	39075.63	11.623515
RXAUR	7.487	0.601	0.202	0.909	2447946.6519	2.633	46.6529	39075.63	11.623515
RXAUR	7.458	0.588	0.222	0.749	2448887.9510	2.634	87.9506	39075.63	11.623515
RXAUR	7.580	0.639	0.252	0.683	2448888.9842	2.62	88.9835	39075.63	11.623515
RXAUR	7.778	0.709	0.323	0.510	2448890.9627	2.601	90.9623	39075.63	11.623515
RXAUR	7.881	0.729	0.347	0.463	2448891.9526	2.601	91.9522	39075.63	11.623515
RXAUR	7.947	0.733	0.329	0.508	2448892.9437	2.606	92.9430	39075.63	11.623515
RXAUR	7.918	0.704	0.268	0.594	2448893.9540	2.633	93.9536	39075.63	11.623515
RXAUR	7.801	0.672	0.221	0.670	2448894.9521	2.636	94.9525	39075.63	11.623515
RXAUR	7.675	0.631	0.182	0.793	2448895.9813	2.651	95.9817	39075.63	11.623515
RXAUR		0.762	0.303	0.537	2454041.8208			39075.63	11.623515
RXAUR		0.755	0.314	0.522	2454041.8592			39075.63	11.623515
RXAUR		0.753	0.314	0.523	2454041.9501			39075.63	11.623515
RXAUR		0.761	0.297	0.571	2454042.8149			39075.63	11.623515
RXAUR		0.758	0.299	0.558	2454042.8650			39075.63	11.623515
RXAUR		0.696	0.277	0.546	2454043.8793			39075.63	11.623515
RXAUR	7.672	0.632	0.219	0.702	2454044.8019			39075.63	11.623515
RXAUR	7.675	0.627	0.223	0.698	2454044.8483			39075.63	11.623515
RXAUR	7.567	0.609	0.198	0.779	2454045.7634			39075.63	11.623515
RXAUR	7.596	0.604	0.204	0.777	2454045.8348			39075.63	11.623515
RXAUR	7.332	0.530	0.159	0.962	2454047.9136			39075.63	11.623515
RXAUR	7.445	0.589	0.195	0.814	2454048.9127			39075.63	11.623515
RXAUR	7.544	0.637	0.235	0.710	2454049.9089			39075.63	11.623515
RXAUR	7.673	0.677	0.250	0.649	2454050.8999			39075.63	11.623515
RXAUR	7.905	0.750	0.331	0.516	2454052.9400			39075.63	11.623515
RXAUR	7.870	0.684	0.268	0.599	2454078.84			39075.63	11.623515
RXAUR	7.764	0.637	0.235	0.797	2454079.837			39075.63	11.623515
RXAUR	7.623	0.604	0.206	0.785	2454080.858			39075.63	11.623515
RXAUR	8.058	0.743	0.284	0.596	2454380.0071			39075.63	11.623515
RXAUR	7.766	0.638	0.234	0.663	2454382.0050			39075.63	11.623515
RXAUR	7.650	0.602	0.207	0.788	2454383.0125			39075.63	11.623515
RXAUR	7.432	0.543	0.173	0.945	2454383.9656			39075.63	11.623515
RXAUR	7.293	0.524	0.162	0.995	2454384.9667			39075.63	11.623515
RXAUR	7.297	0.526	0.158	0.992	2454384.9957			39075.63	11.623515
RXAUR	7.433	0.582	0.197	0.803	2454386.0001			39075.63	11.623515
RXAUR	7.535	0.634	0.222	0.768	2454386.9787			39075.63	11.623515
RXAUR	7.641	0.675	0.261	0.673	2454387.9712			39075.63	11.623515
RXAUR	7.764	0.727	0.230	0.628	2454388.9848			39075.63	11.623515
RXAUR		0.742	0.331	0.565	2454389.9732			39075.63	11.623515
RXAUR		0.924	0.429	0.200	2454390.9826			39075.63	11.623515
RXAUR	7.962	0.724	0.311	0.576	2454391.9689			39075.63	11.623515
RXAUR	7.852	0.665	0.261	0.629	2454392.9488			39075.63	11.623515
RXAUR	7.732	0.627	0.208	0.730	2454393.9484			39075.63	11.623515
RXAUR	7.607	0.578	0.204	0.911	2454394.9560			39075.63	11.623515
RXAUR	7.297	0.523	0.156	1.001	2454395.9568			39075.63	11.623515
RXAUR	7.345	0.517	0.177	0.927	2454396.9465			39075.63	11.623515
RXAUR	7.475	0.601	0.211	0.808	2454397.9388			39075.63	11.623515
RXAUR	7.570	0.643	0.240	0.706	2454398.9347			39075.63	11.623515
RXAUR	7.664	0.674	0.283	0.634	2454399.9724			39075.63	11.623515
RXAUR	7.936	0.749	0.329	0.504	2454750.9718			39075.63	11.623515
RXAUR	7.976	0.731	0.304	0.546	2454751.9682			39075.63	11.623515
RXAUR	7.895	0.684	0.278	0.613	2454752.9530			39075.63	11.623515
RXAUR	7.771	0.643	0.227	0.757	2454753.9309			39075.63	11.623515
RXAUR	7.986	0.740	0.331	0.624	2454809.7424			39075.63	11.623515
RXAUR	7.938	0.715	0.188	0.623	2454810.7576			39075.63	11.623515
ZSCT	9.953	1.019	0.542	0.272	2446962.8952			36247.16	12.901325
ZSCT	9.931	0.980	0.482	0.207	2446963.8925	2.621	63.8930	36247.16	12.901325
ZSCT	9.917	0.880	0.331	0.526	2446965.8407			36247.16	12.901325
ZSCT	9.109	0.728	0.181	0.941	2446967.9055	2.676	67.9060	36247.16	12.901325
ZSCT	9.149	0.765	0.233	0.782	2446968.8955			36247.16	12.901325

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
TXCYG	9.603	1.446	0.302	0.440	2448890.6327	2.653	90.6321	43794.971	14.7098
TXCYG	9.712	1.489	0.331	0.268	2448891.6517	2.63	91.6510	43794.971	14.7098
TXCYG	9.965	1.536	0.366	0.276	2448893.7043	2.651	93.7047	43794.971	14.7098
TXCYG	9.985	1.515	0.330	0.406	2448894.6140	2.636	94.6144	43794.971	14.7098
TXCYG	9.941	1.475	0.271	0.541	2448895.6849	2.642	95.6856	43794.971	14.7098
TXCYG	9.792	1.416	0.163	0.604	2448896.6891	2.67	96.6892	43794.971	14.7098
TXCYG	9.057	1.241	0.040	0.775	2455006.8867	2.680	6.8871	43794.971	14.7098
TXCYG	9.286	1.324	0.072	0.618	2455007.8740	2.669	7.8736	43794.971	14.7098
TXCYG	9.399		0.167	0.499	2455008.8692	2.649	8.8696	43794.971	14.7098
TXCYG	9.504	1.394	0.168	0.486	2455009.8693	2.664	9.8707	43794.971	14.7098
RWCAS	9.651	1.020	0.481	0.242	2447832.7477	2.622	32.7492	35575.227	14.7949
RWCAS	9.756	1.028	0.478	0.259	2447833.8739	2.656	33.8746	35575.227	14.7949
RWCAS	9.611	0.909	0.370	0.382	2447835.8862	2.632	35.8866	35575.227	14.7949
SZCYG	9.333	1.067	0.364	0.282	2455006.8807	2.632	6.8815	43306.79	15.10965
SZCYG	9.544	1.130	0.439	0.279	2455007.8654	2.608	7.8655	43306.79	15.10965
SZCYG	9.653		0.510	0.125	2455008.8562	2.592	8.8567	43306.79	15.10965
SZCYG	9.744	1.162	0.524	0.128	2455009.8417	2.608	9.8422	43306.79	15.10965
ERAUR	9.984		0.338		2454040.9171			43861.3	15.69073
ERAUR	9.778	0.730	0.399	0.412	2454041.8765			43861.3	15.69073
ERAUR	9.759	0.727	0.390	0.387	2454041.9593			43861.3	15.69073
ERAUR	9.948	0.704	0.397	0.319	2454043.8891			43861.3	15.69073
ERAUR	10.005	0.703	0.412	0.413	2454044.8559			43861.3	15.69073
ERAUR	9.980	0.714	0.423	0.375	2454045.7687			43861.3	15.69073
ERAUR		0.707			2454045.8421			43861.3	15.69073
ERAUR	10.107	0.701	0.437	0.371	2454047.9214			43861.3	15.69073
ERAUR	10.062	0.710	0.411	0.381	2454048.9185			43861.3	15.69073
ERAUR	10.055	0.731	0.399	0.362	2454049.9160			43861.3	15.69073
ERAUR	10.091	0.712		0.346	2454052.9472			43861.3	15.69073
XCYG	6.784	0.892	0.427	0.276	2449216.8791			43830.387	16.386332
XCYG	6.609	0.824	0.329	0.407	2449217.8666			43830.387	16.386332
XCYG	6.710	0.931	0.496	0.357	2449507.9857			43830.387	16.386332
XCYG	6.783	0.931	0.538	0.240	2449508.9608			43830.387	16.386332
XCYG	6.860	0.914	0.514	0.188	2449510.9498			43830.387	16.386332
XCYG	6.841	0.852	0.485	0.275	2449511.9769			43830.387	16.386332
XCYG	6.726	0.755	0.413	0.320	2449512.9663			43830.387	16.386332
XCYG	6.703	0.753	0.363	0.409	2449513.9712			43830.387	16.386332
XCYG	6.216	0.630	0.240	0.706	2449514.9814			43830.387	16.386332
XCYG	5.907	0.594	0.216	0.756	2455006.8773	2.653	6.8777	43830.387	16.386332
XCYG	6.059	0.663	0.267	0.658	2455007.8628	2.646	7.8632	43830.387	16.386332
XCYG	6.159	0.803	0.337	0.520	2455008.8542	2.642	8.8547	43830.387	16.386332
XCYG		0.751	0.364	0.436	2455009.8398	2.647	9.8399	43830.387	16.386332
RWCAM	8.251	0.846	0.091	0.696	2447828.9812	2.656	28.9824	37389.57	16.41437
RWCAM	8.600	1.016	0.162	0.327	2447833.8844	2.633	33.8856	37389.57	16.41437
RWCAM	8.741	1.059	0.154	0.219	2447835.8988	2.636	35.8991	37389.57	16.41437
RWCAM	8.918	1.063	0.158	0.136	2447837.8483	2.625	37.8505	37389.57	16.41437
YZAUR	10.543	0.959	0.184	0.540	2447832.8512	2.621	32.8508	37431.141	18.1929
YZAUR	10.053	0.776	0.123	0.840	2447835.9317	2.655	35.9322	37431.141	18.1929
YZAUR		0.794	0.131	0.849	2447837.8794	2.627	37.8819	37431.141	18.1929
YZAUR	10.538	0.938	0.272	0.346	2448887.9529	2.607	87.9525	37431.141	18.1929
YZAUR	10.530	0.912	0.261	0.451	2448888.9867	2.628	88.9860	37431.141	18.1929
YZAUR	10.072	0.767	0.148	0.802	2448890.9645	2.655	90.9641	37431.141	18.1929
YZAUR	9.905	0.756	0.142	0.809	2448891.9541	2.646	91.9537	37431.141	18.1929
YZAUR		0.784	0.152	0.819	2448892.9455	2.656	92.9452	37431.141	18.1929
YZAUR		0.842	0.150	0.775	2448893.9551	2.638	93.9416	37431.141	18.1929
YZAUR		0.893	0.181	0.716	2448894.9532	2.646	94.9536	37431.141	18.1929
YZAUR		0.924	0.229	0.704	2448895.9825	2.605	95.9829	37431.141	18.1929
YZAUR	10.278	0.953	0.251	0.589	2448897.0055	2.604	97.0060	37431.141	18.1929
YZAUR	10.361	0.903			2449399.7871			37431.141	18.1929
YZAUR	9.837		0.114	0.731	2454040.9072			37431.141	18.1929
YZAUR	9.625	0.831	0.117	0.822	2454041.8638			37431.141	18.1929
YZAUR	9.629	0.827	0.128	0.821	2454041.9551			37431.141	18.1929
YZAUR		0.897	0.145	0.773	2454042.8209			37431.141	18.1929
YZAUR		0.905	0.158	0.783	2454042.8718			37431.141	18.1929
YZAUR	9.815	0.879	0.206	0.489	2454043.8842			37431.141	18.1929
YZAUR	10.128	0.913	0.243	0.604	2454044.8066			37431.141	18.1929

TABLE 5 (CONTINUED)

Star	V	$b-y$	m_1	c_1	HJD ($uvby$)	β	HJD (β)	Epoch-2400000	P (days)
YZAUR	10.127	0.929	0.220	0.650	2454044.8532			37431.141	18.1929
YZAUR	10.093	0.966	0.299	0.452	2454045.7672			37431.141	18.1929
YZAUR	10.111	0.992			2454045.8387			37431.141	18.1929
YZAUR	10.440	1.013	0.351	0.383	2454047.9186			37431.141	18.1929
YZAUR	10.506	1.031	0.359	0.335	2454048.9167			37431.141	18.1929
YZAUR	10.615	1.055	0.424	0.265	2454049.9137			37431.141	18.1929
YZAUR	10.713	1.064	0.408	0.332	2454050.9054			37431.141	18.1929
YZAUR	10.802	1.046	0.422	0.322	2454052.9457			37431.141	18.1929
RUSCT	9.434	1.254	0.442	0.471	2446962.8966			31174.67	19.70062
RUSCT	9.422	1.219	0.387	0.336	2446963.8939	2.64	63.8943	31174.67	19.70062
RUSCT	9.833	1.300	0.575	0.213	2446967.9073	2.63	67.9078	31174.67	19.70062
RUSCT	9.862	1.299	0.570	0.202	2446968.8981			31174.67	19.70062
RUSCT		1.359	0.330	0.122	2455006.8254	2.652	6.8260	31174.67	19.70062
RUSCT	9.918	1.391	0.389	0.155	2455007.8016	2.625	7.8023	31174.67	19.70062
RUSCT	9.942	1.331	0.352	0.194	2455009.7980	2.643	9.7989	31174.67	19.70062
RUSCT	9.919	1.297	0.356	0.442	2455010.7956	2.649	10.7945	31174.67	19.70062
VXCYG	10.196	1.312	0.469	0.275	2448885.6451	2.638	85.6459	43783.641	20.133408
VXCYG	10.369	1.351	0.543	0.164	2448887.6211	2.607	87.6207	43783.641	20.133408
VXCYG	10.477	1.377	0.555	0.129	2448888.6461	2.604	88.6454	43783.641	20.133408
VXCYG	10.574	1.372	0.545	0.178	2448890.6300	2.639	90.6294	43783.641	20.133408
VXCYG	10.501	1.343	0.487	0.122	2448891.6485	2.632	91.6478	43783.641	20.133408
VXCYG	10.108	1.174	0.198	0.642	2448895.6830	2.644	95.6838	43783.641	20.133408
VXCYG	9.646	1.036	0.082	0.934	2448896.6870	2.679	96.6866	43783.641	20.133408
VXCYG	9.556	1.132	0.041	0.682	2453931.9365			43783.641	20.133408
VXCYG	9.812	1.287	0.240	0.369	2453934.9314			43783.641	20.133408
VXCYG	10.425	1.355	0.466	0.097	2455009.8666	2.632	9.8671	43783.641	20.133408

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