uvby photometry of southern B- and A stars (*)

D. vander Linden and C. Sterken (**)

Astrophysical Institute, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium

Summary. — *uvby* differential photometry is presented for a number of southern early type variable stars. With the exception of σ Sco, all stars were previously observed during Jerzykiewicz and Sterken's search program for new southern Beta Cephei type variables. Mean values of the standard *uvby* magnitudes and colour indices are also provided.

Key words : early-type variable stars — *uvby* photometry.

1. Introduction.

In 1975 M. Jerzykiewicz and C. Sterken started a photometric search program of examining for variability all *Bright Star Catalogue* objects spectroscopically similar to β Cephei variables, and located south of $-20°$ declination. Their main purpose was to look for new β Cephei variables. Besides a number of previously unknown β Cephei stars, they found numerous new variables of various kinds. A complete description of the project and of the first results is given by Jerzykiewicz and Sterken (1977) and Sterken and Jerzykiewicz (1983) (hereafter referred to as JS and SJ respectively). Many program and comparison stars were found to be variable, but for a number of them, the type of variability could not be established, nor could precise periods and amplitudes be determined. The results of additional detailed observations and analysis of individual objects can be found in Jerzykiewicz and Sterken (1979), Jerzykiewicz and Sterken (1980), Sterken and Jerzykiewicz (1980) and Jerzykiewicz and Sterken (1982).

Later, a number of interesting stars found variable by JS and SJ were reobserved photometrically. Special attention was paid to the newly discovered β Cephei star HR 5488 and to HD 149779, which later turned out to be an eclipsing close binary system. In addition, we observed in 1984 the « classical » β Cephei star σ Sco ; these data, together with the extensive lightcurves published by Kubiak and Seggewiss (1983) and by Sterken (1984) will be used for a study of the variation of the pulsation period of this star.

2. The observations.

All observations presented here have been obtained during three observing runs extending from 1982 May 8 to June 9, from 1983 June 24 to July 18, and from 1984 May 31 to June 26. For the first two runs, the observer was DvL and for the third run, observations were made by DvL and CS. The equipment used was the four-channel simultaneous *uvby* photometer attached to the Danish 50 cm telescope at the European Southern Observatory (ESO), La Silla (Chile). The photometer and the data acquisition system are extensively described in the ESO User's Manual and by Gronbech *et al.* (1976).

For each program star P, two comparison stars C1 and C2 were chosen. The usual observing sequence was :

C1 sky P sky C2 sky.

This sequence was continuously repeated during each night ; no measurements were made at airmasses exceeding 1.6. The integration times were chosen so as to obtain at least a total of 800000 counts in the weakest channel. The duration of the sky measurement ranged from about 10 s to about 60 s. Almost each night, a number of standard stars, taken from the list of Grønbech *et al.* (1976) were measured. Table I gives a list of the stars for which data are presented here.

---

3. The data reduction.

The data were reduced step-by-step in order to keep control over what is happening during the reduction. First, the counts received were transformed in apparent magnitudes m' using

$$m' = 15 - 2.5 \log (n_* - n_{sky})$$

where n_* and n_{sky} are the counts per second, respectively for the star and the sky background corrected for the deadtime of the system. Next, using the sequences of observed apparent magnitudes, nightly extinction coefficients were computed using Bouguer's method. At this stage, completely or partially bad nights could be recognized by the amount of scatter around the linear least squares fit of airmasses and apparent magnitudes. Only nights giving linear fits with a regression coefficient close to 0.99 were retained. Finally, the extinction coefficients k_u, k_v, k_b and k_y were derived by calculating the mean values obtained from the Bouguer plots constructed with the data of both comparison stars. During three nights (JD 2445117, JD 2445854 and JD 2445857), the extinction coefficients appeared to have varied smoothly during the night. In these cases, we divided the night into two or maximum three parts to make linear fits to the partial data. For one night (JD 2445878), the extinction was unusually small, which could be due to a drift in the equipment or to a smooth decrease of the extinction during the night. All extinction coefficients are listed in table II.

Once the extinction coefficients were computed, instrumental u, v, b and y magnitudes were obtained by correcting the apparent magnitudes m' for atmospheric extinction. For each measurement, heliocentric Julian Date was computed. These results were finally used to calculate *differential uvby* magnitudes program stars minus comparison stars (P-C1, P-C2). The differences between the comparison stars (C1-C2) then give an excellent indication of the quality of the night, and the standard deviation of the C2-C1 differences was used to estimate the mean error on one differential measurement. Deviant points or a strange behaviour in the C2-C1 data were checked for their origin. It appeared that some comparison stars were variable with a small amplitude on a night-to-night basis, but remained constant on a time scale of several hours. Nevertheless, the program minus comparison star differences we used for the study of the program stars were always obtained relative to a *constant* (to within the error on the measurement) comparison star.

Finally, the instrumental *uvby* magnitudes were transformed to the standard system of Crawford and Barnes (1970) using the calibration procedure described by Grønbech *et al.* (1976). Therefore, nightly transformation coefficients to the standard system were calculated and a seasonal mean was formed. These coefficients are given in table III. The mean (over all data) V, $b-y$, m_1 and c_1 magnitudes for the program and comparison stars are shown in table IV. For the observation of σ Sco and τ Sco, an annular diaphragm was mounted on the telescope tube. Standard stars were only measured during one night (JD 2445860). The given standard magnitudes are the mean values for that night, which contains observations from a maximum to a minimum, so that the mean is not biased by an unequal distribution of the observations around the true mean level. However, since we have only one night, it is impossible to find out if there are any systematic errors, so that the standard magnitudes of σ Sco and τ Sco may be slightly off the standard system.

4. The program stars.

4.1 HR 5488. — This star was found to be a β Cephei star by SJ. The β Cephei character was confirmed by vander Linden (1983) and vander Linden and Sterken (1985), who found three equidistant frequencies in the light variations. The HR 5488 minus HD 130572 *uvby* magnitude differences are given in table V.

4.2 HD 126859. — SJ used this star, together with HD 130572, as a comparison star for HR 5488. They found that at least one of the comparison stars was variable. It was later established (vander Linden and Sterken, 1986b) that HD 126859 was variable, HD 130572 being constant. The star turned out to be a multiperiodic δ Scuti variable with a primary period of $0\overset{d}{.}0528489$ and a light range of $0\overset{m}{.}015$ in V. The *uvby* photometry of HD 126859 relative to HD 130572 is given in table VI.

4.3 HD 149779. — SJ found a nearly $0\overset{m}{.}20$ variation on a time scale of several hours for this star. The observations presented here revealed that the star is an eclipsing close binary (vander Linden *et al.*, 1986a) with two almost identical B1 components, orbiting around each other in $1\overset{d}{.}27$. Table VII shows the HD 149779 minus HD 150591 magnitude differences.

4.4 σ Sco. — This well known classical β Cephei star was observed in 1984, partly with simultaneous spectroscopic observations. A detailed analysis of the (O-C) residuals of the times of maximum is in preparation. *uvby* photometry relative to τ Sco is shown in table VIII.

5. The comparison stars.

5.1 σ Lup. — Although Shobbrook (1978) found this star to be constant, we detected small (at the $0\overset{m}{.}01$ level) and apparently irregular changes in the nightly mean magnitudes. Further observations of this star are in progress. Table IX shows the nightly means relative to HD 130572.

5.2 HR 6174. — The variability of this star was first suspected in the study of HD 149779 (vander Linden *et*

al., 1986a). As for σ Lup, we noticed small and irregular changes in the nightly mean magnitudes. Additional observations are carried out in order to establish the type of variability. The nightly mean magnitudes relative to HR 6209 are shown in table X.

5.3 HD 130572, HR 6209 AND τ SCO. — Both HD 130572 and HR 6209 were found to be constant (within $0^{m}004$ in V) in u, v, b and y light, during a whole observing run (typically one month). Year-to-year changes are more difficult to detect, but can not be larger than about $0^{m}01$ in V, if present at all. τ Sco has since long been used as a comparison star for σ Sco (Van Hoof, 1966 ; Sterken, 1975 ; Kubiak and Seggewiss, 1983) and is assumed to be a constant star. Because no second comparison star was available, our observations do not allow an independent check of the stars' constancy.

6. Conclusion.

uvby photometry is presented for a number of early type variables which were first studied by Jerzykiewicz and Sterken in their search for β Cephei stars in the southern hemisphere. In three cases (HR 5488, HD 149779 and HD 126859), the type of variability has been firmly established. For two stars (HD 130572 and HR 6209), it is proven that they remained constant within $0^{m}01$ over a three year period. Two other stars (HR 6174 and σ Lup), for which further observations are under way, were found to show small variations on a time scale of days.

Acknowledgements.

References

CRAWFORD, D. L., BARNES, J. V. : 1970, *Astron. J.* **75**, 978.
GRØNBECH, B., OLSEN, E. H., STRÖMGREN, B. : 1976, *Astron. Astrophys. Suppl. Ser.* **26**, 155.
GARRISON, R. F., HILTNER, W. A., SCHILD, R. E. : 1977, *Astrophys. J. Suppl. Ser.* **35**, 111.
HILTNER, W. A., GARRISON, R. F., SCHILD, R. E. : 1969, *Astrophys. J.* **157**, 313.
HOFFLEIT, D. : 1982, *The Bright Star Catalogue* (Yale Univ. Obs., New Haven, Connecticut, U.S.A.).
HOUK, N., COWLEY, A. P. : 1975, *Michigan Catalogue of two-dimensional spectral types for the HD stars* **1**.
HOUK, N. : 1978, *Michigan Catalogue of two-dimensional spectral types for the HD stars* **2**.
JERZYKIEWICZ, M., STERKEN, C. : 1977, *Acta Astron.* **27**, 365 (JS).
JERZYKIEWICZ, M., STERKEN, C. : 1979, *IAU Coll.* **46**, « Changing Trends in Variable Star Research », Univ. of Waikato, (New-Zealand) F. M. Bateson, J. Smak, I. H. Urch (Eds) p. 474.
JERZYKIEWICZ, M., STERKEN, C. : 1980, *Proc. 5th European Regional Meeting in Astronomy* ; « Variations in Stars and Galaxies », p. B.4.1.
JERZYKIEWICZ, M., STERKEN, C. : 1982, *IAU Symp.* **98**, Be stars, M. Jaschek and H.-G. Groth (Ed) (D. Reidel Publ. Comp., Dordrecht, Holland), p. 49.
KUBIAK, M., SEGGEWISS, W. : 1983, *Acta Astron.* **33**, 61.
SHOBBROOK, R. R. : 1978, *Mon. Not. R. Astron. Soc.* **184**, 43.
STERKEN, C. : 1975, *Astron. Astrophys.* **43**, 321.
STERKEN, C. : 1984, *Astron. Astrophys. Suppl. Ser.* **58**, 657.
STERKEN, C., JERZYKIEWICZ, M. : 1980 in *Nonradial and Nonlinear Stellar Pulsation*, H. A. Hill, W. A. Dziembowski (Eds) (Springer Verlag, Berlin), p. 105.
STERKEN, C., JERZYKIEWICZ, M. : 1983, *Acta Astron.* **33**, 89.
VANDER LINDEN, D. : 1983, *Hvar Obs. Bull.* **7**, 223.
VANDER LINDEN, D., STERKEN, C. : 1985, *Astron. Astrophys.* **150**, 76.
VANDER LINDEN, D., VAN HAMME, W., JERZYKIEWICZ, M., STERKEN, C. : 1986a, *Astron. Astrophys.* **167**, 53.
VANDER LINDEN, D., STERKEN, C. : 1986b, *Astron. Astrophys.* **168**, 155.
VAN HOOF, A. : 1966, *Z. Astrophys.* **64**, 165.

TABLE I. — *The program stars and comparison stars. The spectral types are from the Bright Star Catalogue (Hoffleit, 1982) unless stated otherwise.*

star	Sp. Type		V	program (P) or comparison (C) star
HR5488	B2III		6.09	P
HD126859	A6V	(1)	7.0	P
HD149779	B1.5Vn	(2)	7.5	P
HR6084 = σ Sco	B1III	(3)	2.89	P
HR5425 = σ Lup	B2III		4.42	C
HR6174	B2.5IV		5.83	C
HD130572	AOV	(4)	6.8	C
HR6209	B6-7V		6.12	C
HR6165 = τ Sco	BOV		2.82	C

References : (1) Houk and Cowley (1975). (2) Garrison *et al.* (1977). (3) Hiltner *et al.* (1969). (4) Houk (1978).

TABLE III. — *Seasonal mean transformation coefficients to the uvby standard system (with mean errors). We refer to Grønbech et al. 1976 for the significance of the symbols A to I. In the last column, n is the number of nights used to calculate the mean.*

	A	B	C	D	E	F	J	G	H	I	n
1982	1.553 4	0.011 7	0.343 4	1.054 3	0.228 12	1.015 55	-0.092 17	-0.382 3	0.993 1	0.036 3	14
1983	1.723 8	0.025 5	0.007 4	1.048 2	0.201 7	1.028 9	-0.088 6	0.394 5	0.987 1	0.023 7	8
1984	1.977 19	0.013 5	0.014 5	1.049 1	0.199 8	1.033 31	-0.098 6	0.412 16	0.991 3	0.058 13	8

TABLE IV. — *Mean uvby standard magnitudes (with mean errors). n is the number of measurements involved.*

star	V	b-y	m_1	c_1	n
HR 5488	6.088 1	0.036 1	0.027 2	0.058 1	586
HD 126859	6.972 2	0.128 1	0.195 2	1.012 1	198
HD 149779	7.598 4	0.228 1	-0.030 1	0.066 1	404
σ Sco	2.903 3	0.169 1	-0.035 1	0.001 2	36
σ Lup	4.433 1	-0.068 1	0.073 2	0.075 1	689
HR 6174	5.855 1	0.021 1	0.072 1	0.267 1	426
HD 130572	6.555 1	0.031 1	0.154 2	1.086 1	708
HR 6209	6.151 1	-0.011 1	0.086 1	0.425 1	405
τ Sco	2.827 1	-0.084 1	0.023 1	-0.116 1	37

TABLE II. — *Extinction coefficients at La Silla. For nights where two or three extinction coefficients were calculated, the mean value is given.*

date at end of night	JD at 0ʰUT - 2445000	k_u	k_v	k_b	k_y
12 05 82	101.5	0.536	0.266	0.153	0.105
18 05 82	107.5	0.557	0.275	0.157	0.102
19 05 82	108.5	0.573	0.281	0.141	0.100
21 05 82	110.5	0.567	0.280	0.157	0.098
25 05 82	114.5	0.604	0.294	0.143	0.105
26 05 82	115.5	0.633	0.313	0.168	0.100
27 05 82	116.5	0.546	0.266	0.156	0.118
28 05 82	117.5	0.588	0.297	0.169	0.125
29 05 82	118.5	0.592	0.302	0.176	0.118
30 05 82	119.5	0.561	0.278	0.158	0.101
03 06 82	123.5	0.561	0.278	0.153	0.103
05 06 82	125.5	0.597	0.300	0.151	0.109
06 06 82	126.5	0.553	0.273	0.154	0.101
08 06 82	128.5	0.550	0.274	0.158	0.108
09 06 82	129.5	0.580	0.278	0.195	0.113
25 06 83	510.5	0.585	0.308	0.198	0.153
26 06 83	511.5	0.642	0.343	0.202	0.171
27 06 83	512.5	0.572	0.296	0.161	0.128
28 06 83	513.5	0.660	0.378	0.235	0.194
29 06 83	514.5	0.640	0.322	0.249	0.191
03 07 83	518.5	0.576	0.306	0.185	0.143
05 07 83	520.5	0.591	0.309	0.186	0.142
13 07 83	528.5	0.620	0.319	0.202	0.200
14 07 83	529.5	0.559	0.318	0.153	0.169
15 07 83	530.5	0.574	0.285	0.164	0.135
16 07 83	531.5	0.581	0.302	0.180	0.143
17 07 83	532.5	0.595	0.314	0.181	0.140
18 07 83	533.5	0.556	0.281	0.156	0.119
01 06 84	852.5	0.588	0.320	0.156	0.114
02 06 84	853.5	0.556	0.285	0.159	0.125
03 06 84	854.5	0.592	0.315	0.212	0.166
04 06 84	855.5	0.582	0.313	0.190	0.155
05 06 84	856.5	0.609	0.323	0.229	0.172
06 06 84	857.5	0.583	0.307	0.196	0.150
07 06 84	858.5	0.571	0.293	0.226	0.170
09 06 84	860.5	0.564	0.296	0.169	0.135
10 06 84	861.5	0.554	0.281	0.170	0.126
11 06 84	862.5	0.581	0.305	0.194	0.149
12 06 84	863.5	0.770	0.441	0.330	0.258
14 06 84	865.5	0.594	0.309	0.208	0.156
17 06 84	868.5	0.558	0.283	0.190	0.146
18 06 84	869.5	0.613	0.314	0.242	0.174
19 06 84	870.5	0.633	0.304	0.203	0.155
25 06 84	876.5	0.547	0.286	0.169	0.131
26 06 84	877.5	0.509	0.248	0.064	0.086

TABLE V. — *Differential uvby photometry for HR 5488 relative to HD 130572.*

Heliocentric Julian Date - 2445000	u	v	b	y	Heliocentric Julian Date - 2445000	u	v	b	y
107.55910	-1.736	-0.584	-0.467	-0.471	126.84269	-1.750	-0.589	-0.467	-0.475
107.57790	-1.745	-0.587	-0.472	-0.474	126.85306	-1.742	-0.587	-0.467	-0.475
107.59479	-1.735	-0.579	-0.467	-0.467					
107.61143	-1.723	-0.572	-0.460	-0.461	510.50604	-1.757	-0.588	-0.473	-0.477
107.62804	-1.711	-0.563	-0.448	-0.452	510.51556	-1.760	-0.594	-0.476	-0.483
107.64501	-1.713	-0.562	-0.449	-0.454	510.52244	-1.755	-0.594	-0.477	-0.478
107.66130	-1.728	-0.573	-0.460	-0.460	510.52838	-1.760	-0.597	-0.480	-0.485
107.67777	-1.739	-0.583	-0.470	-0.472	510.53461	-1.753	-0.596	-0.477	-0.480
107.69385	-1.743	-0.580	-0.462	-0.471	510.54017	-1.753	-0.589	-0.472	-0.479
107.70980	-1.744	-0.585	-0.470	-0.476	510.54574	-1.747	-0.588	-0.472	-0.476
107.72818	-1.736	-0.578	-0.461	-0.465	510.55201	-1.751	-0.588	-0.473	-0.476
107.74424	-1.721	-0.573	-0.462	-0.460	510.55780	-1.751	-0.587	-0.470	-0.477
107.76029	-1.722	-0.568	-0.455	-0.458	510.56344	-1.742	-0.578	-0.463	-0.469
107.77653	-1.725	-0.568	-0.453	-0.459	510.56904	-1.732	-0.577	-0.458	-0.467
107.79861	-1.727	-0.573	-0.457	-0.459	510.57487	-1.734	-0.579	-0.462	-0.465
107.81472	-1.735	-0.579	-0.465	-0.468	510.58074	-1.729	-0.577	-0.461	-0.469
107.83598	-1.746	-0.584	-0.468	-0.474	510.58631	-1.730	-0.579	-0.459	-0.466
107.85443	-1.743	-0.588	-0.468	-0.474	510.59187	-1.741	-0.580	-0.463	-0.472
					510.59922	-1.745	-0.582	-0.465	-0.474
108.54813	-1.707	-0.559	-0.447	-0.450	510.61008	-1.746	-0.586	-0.472	-0.478
108.56412	-1.717	-0.567	-0.454	-0.459	510.61549	-1.748	-0.588	-0.470	-0.471
108.57941	-1.725	-0.571	-0.457	-0.461	510.62118	-1.751	-0.586	-0.473	-0.477
108.59424	-1.733	-0.578	-0.464	-0.469	510.63209	-1.750	-0.587	-0.473	-0.477
108.60945	-1.739	-0.582	-0.469	-0.471	510.63830	-1.752	-0.591	-0.469	-0.477
108.62841	-1.730	-0.575	-0.462	-0.466	510.64391	-1.758	-0.591	-0.473	-0.482
108.64385	-1.727	-0.571	-0.454	-0.461	510.64922	-1.752	-0.593	-0.477	-0.484
108.65987	-1.710	-0.563	-0.454	-0.454	510.65482	-1.758	-0.590	-0.474	-0.482
108.68016	-1.711	-0.564	-0.451	-0.451	510.65995	-1.747	-0.591	-0.475	-0.477
108.69775	-1.722	-0.573	-0.458	-0.462	510.66516	-1.748	-0.596	-0.474	-0.476
108.71449	-1.730	-0.575	-0.462	-0.464	510.67072	-1.749	-0.591	-0.475	-0.478
108.73459	-1.740	-0.586	-0.473	-0.474	510.67633	-1.743	-0.589	-0.467	-0.476
108.75055	-1.731	-0.575	-0.460	-0.461	510.68154	-1.751	-0.585	-0.472	-0.476
108.76646	-1.729	-0.576	-0.461	-0.463	510.68714	-1.738	-0.582	-0.468	-0.475
108.78765	-1.711	-0.563	-0.447	-0.450	510.69389	-1.730	-0.578	-0.459	-0.464
108.80490	-1.714	-0.564	-0.448	-0.453	510.70034	-1.739	-0.580	-0.462	-0.470
108.82210	-1.721	-0.575	-0.465	-0.463	510.70593	-1.742	-0.574	-0.464	-0.469
108.84512	-1.743	-0.586	-0.467	-0.473	510.71180	-1.730	-0.575	-0.462	-0.467
					510.71706	-1.736	-0.580	-0.467	-0.470
110.55190	-1.719	-0.568	-0.454	-0.454	510.72779	-1.740	-0.582	-0.463	-0.475
110.56834	-1.703	-0.558	-0.444	-0.447					
110.58334	-1.709	-0.562	-0.446	-0.454	511.51037	-1.743	-0.585	-0.469	-0.474
110.59881	-1.719	-0.569	-0.455	-0.460	511.51545	-1.743	-0.586	-0.470	-0.476
110.61698	-1.732	-0.576	-0.462	-0.464	511.52038	-1.752	-0.589	-0.472	-0.477
110.63175	-1.739	-0.584	-0.467	-0.471	511.52576	-1.756	-0.590	-0.474	-0.481
110.64675	-1.738	-0.580	-0.465	-0.469	511.53127	-1.756	-0.597	-0.475	-0.486
110.66643	-1.729	-0.578	-0.463	-0.462	511.53636	-1.759	-0.593	-0.477	-0.485
110.68355	-1.718	-0.573	-0.457	-0.461	511.54110	-1.758	-0.590	-0.477	-0.483
110.69866	-1.713	-0.565	-0.446	-0.457	511.55059	-1.763	-0.593	-0.479	-0.481
110.71767	-1.711	-0.561	-0.446	-0.451	511.55536	-1.759	-0.593	-0.473	-0.482
110.73238	-1.723	-0.572	-0.457	-0.460	511.55968	-1.750	-0.589	-0.471	-0.477
110.74707	-1.729	-0.575	-0.462	-0.463	511.56471	-1.749	-0.591	-0.474	-0.479
110.76583	-1.745	-0.587	-0.475	-0.473	511.56983	-1.746	-0.584	-0.469	-0.474
110.78086	-1.744	-0.585	-0.471	-0.473	511.57504	-1.743	-0.585	-0.468	-0.472
110.79658	-1.739	-0.584	-0.460	-0.467	511.57997	-1.742	-0.577	-0.464	-0.470
110.81616	-1.712	-0.564	-0.451	-0.451	511.58474	-1.734	-0.581	-0.473	-0.467
110.83137	-1.713	-0.568	-0.446	-0.456	511.58962	-1.734	-0.577	-0.458	-0.464
110.84699	-1.705	-0.559	-0.448	-0.448	511.59464	-1.727	-0.577	-0.457	-0.463
					511.59928	-1.734	-0.574	-0.455	-0.462
123.54654	-1.736	-0.584	-0.466	-0.467	511.60432	-1.728	-0.575	-0.459	-0.464
123.56055	-1.725	-0.566	-0.458	-0.457	511.60910	-1.729	-0.574	-0.459	-0.460
123.57432	-1.720	-0.567	-0.453	-0.454	511.62334	-1.730	-0.570	-0.458	-0.464
123.58782	-1.721	-0.568	-0.448	-0.457	511.62828	-1.735	-0.577	-0.459	-0.469
123.60139	-1.717	-0.563	-0.448	-0.454	511.63342	-1.731	-0.574	-0.461	-0.467
123.61435	-1.728	-0.575	-0.460	-0.463	511.63829	-1.738	-0.577	-0.459	-0.467
123.62773	-1.737	-0.577	-0.462	-0.469	511.64422	-1.738	-0.578	-0.459	-0.470
123.64524	-1.738	-0.587	-0.468	-0.474	511.65217	-1.738	-0.582	-0.466	-0.471
123.65841	-1.746	-0.585	-0.466	-0.475	511.65705	-1.740	-0.585	-0.468	-0.472
123.67230	-1.740	-0.580	-0.465	-0.469	511.66216	-1.747	-0.580	-0.465	-0.469
123.68553	-1.736	-0.580	-0.458	-0.464					
123.70110	-1.733	-0.574	-0.457	-0.463	512.46894	-1.736	-0.574	-0.457	-0.462
123.71438	-1.715	-0.572	-0.460	-0.457	512.47389	-1.727	-0.576	-0.460	-0.469
123.72758	-1.714	-0.562	-0.444	-0.451	512.47879	-1.727	-0.574	-0.461	-0.465
123.74144	-1.723	-0.570	-0.453	-0.458	512.48375	-1.726	-0.567	-0.457	-0.458
123.75520	-1.728	-0.573	-0.451	-0.463	512.49205	-1.728	-0.568	-0.452	-0.462
123.76935	-1.739	-0.587	-0.467	-0.472	512.49687	-1.729	-0.573	-0.456	-0.461
123.78375	-1.738	-0.585	-0.472	-0.469	512.50163	-1.726	-0.571	-0.456	-0.460
123.79845	-1.741	-0.585	-0.467	-0.470	512.50626	-1.727	-0.571	-0.454	-0.461
123.81576	-1.736	-0.578	-0.465	-0.467	512.51114	-1.734	-0.573	-0.457	-0.464
					512.51592	-1.736	-0.577	-0.460	-0.467
126.55668	-1.731	-0.573	-0.461	-0.461	512.52104	-1.745	-0.579	-0.467	-0.472
126.57091	-1.737	-0.580	-0.462	-0.467	512.52629	-1.746	-0.581	-0.470	-0.474
126.58411	-1.738	-0.579	-0.468	-0.471	512.53116	-1.749	-0.588	-0.472	-0.478
126.59722	-1.739	-0.579	-0.462	-0.468	512.53602	-1.747	-0.590	-0.476	-0.477
126.61028	-1.743	-0.578	-0.467	-0.469	512.54114	-1.760	-0.594	-0.477	-0.485
126.62327	-1.733	-0.574	-0.460	-0.466	512.54578	-1.756	-0.592	-0.480	-0.484
126.63646	-1.723	-0.575	-0.458	-0.458	512.55046	-1.753	-0.591	-0.477	-0.479
126.65034	-1.719	-0.568	-0.457	-0.458	512.55559	-1.759	-0.598	-0.479	-0.482
126.66398	-1.720	-0.570	-0.454	-0.454	512.56030	-1.760	-0.595	-0.480	-0.486
126.67703	-1.730	-0.575	-0.459	-0.464	512.56527	-1.757	-0.593	-0.479	-0.480
126.69004	-1.739	-0.580	-0.466	-0.467	512.56998	-1.749	-0.590	-0.477	-0.478
126.70374	-1.738	-0.583	-0.469	-0.474	512.57546	-1.754	-0.589	-0.475	-0.479
126.71701	-1.739	-0.589	-0.472	-0.474	512.58032	-1.750	-0.583	-0.471	-0.465
126.73040	-1.747	-0.587	-0.467	-0.471	512.58523	-1.741	-0.582	-0.469	-0.476
126.74440	-1.734	-0.583	-0.464	-0.469	512.58997	-1.736	-0.577	-0.462	-0.468
126.75823	-1.726	-0.577	-0.459	-0.464	512.59593	-1.727	-0.575	-0.458	-0.462
126.77297	-1.724	-0.571	-0.457	-0.461	512.60071	-1.729	-0.572	-0.457	-0.463
126.78848	-1.727	-0.572	-0.455	-0.463	512.60539	-1.726	-0.568	-0.456	-0.462
126.80423	-1.726	-0.576	-0.456	-0.463	512.60999	-1.724	-0.572	-0.455	-0.461
126.81305	-1.734	-0.579	-0.460	-0.460	512.61489	-1.719	-0.570	-0.454	-0.456
126.82219	-1.740	-0.585	-0.466	-0.471	512.61970	-1.723	-0.572	-0.456	-0.456
126.83206	-1.743	-0.590	-0.476	-0.481	512.62454	-1.728	-0.572	-0.455	-0.463

TABLE V *(continued).*

Heliocentric Julian Date − 2445000	u	v	b	y
512.63012	−1.725	−0.570	−0.456	−0.462
512.63488	−1.725	−0.572	−0.461	−0.461
512.63967	−1.729	−0.577	−0.462	−0.470
512.64472	−1.736	−0.576	−0.460	−0.467
512.64964	−1.740	−0.579	−0.466	−0.470
512.65427	−1.746	−0.582	−0.467	−0.474
512.65906	−1.745	−0.585	−0.469	−0.475
512.66399	−1.752	−0.586	−0.474	−0.477
512.66875	−1.752	−0.589	−0.471	−0.474
512.67536	−1.760	−0.591	−0.472	−0.480
512.68022	−1.757	−0.597	−0.480	−0.477
512.68513	−1.759	−0.592	−0.479	−0.484
512.69028	−1.758	−0.595	−0.479	−0.484
512.69582	−1.761	−0.595	−0.476	−0.483
512.70096	−1.754	−0.597	−0.480	−0.485
512.70568	−1.747	−0.594	−0.475	−0.479
512.71092	−1.749	−0.593	−0.478	−0.480
512.71600	−1.753	−0.590	−0.472	−0.478
518.48111	−1.722	−0.569	−0.455	−0.460
518.48713	−1.718	−0.572	−0.453	−0.459
518.49186	−1.722	−0.568	−0.449	−0.455
518.49690	−1.722	−0.567	−0.454	−0.458
518.50187	−1.724	−0.568	−0.455	−0.457
518.50685	−1.721	−0.571	−0.458	−0.461
518.51155	−1.732	−0.578	−0.464	−0.464
518.51641	−1.728	−0.576	−0.462	−0.467
518.52099	−1.740	−0.579	−0.465	−0.469
518.52571	−1.740	−0.579	−0.464	−0.468
518.53076	−1.747	−0.588	−0.467	−0.476
518.53537	−1.747	−0.590	−0.471	−0.474
518.54013	−1.750	−0.592	−0.473	−0.479
518.54509	−1.754	−0.588	−0.474	−0.478
518.56005	−1.751	−0.589	−0.476	−0.480
518.56522	−1.756	−0.590	−0.481	−0.481
518.57004	−1.750	−0.590	−0.477	−0.477
518.57463	−1.751	−0.595	−0.475	−0.479
518.57970	−1.755	−0.587	−0.469	−0.479
518.58459	−1.749	−0.586	−0.470	−0.475
518.58940	−1.737	−0.584	−0.464	−0.471
518.59399	−1.737	−0.578	−0.464	−0.470
518.59866	−1.734	−0.578	−0.460	−0.467
518.60328	−1.731	−0.574	−0.458	−0.464
518.60804	−1.733	−0.577	−0.465	−0.472
518.61260	−1.719	−0.567	−0.453	−0.457
518.61737	−1.725	−0.568	−0.452	−0.458
518.62192	−1.722	−0.568	−0.457	−0.458
518.62658	−1.727	−0.572	−0.457	−0.457
518.63129	−1.724	−0.569	−0.456	−0.460
518.63588	−1.729	−0.570	−0.455	−0.463
518.64072	−1.727	−0.575	−0.457	−0.467
518.64691	−1.734	−0.580	−0.460	−0.468
518.65195	−1.737	−0.579	−0.463	−0.471
518.65683	−1.745	−0.580	−0.467	−0.471
518.66143	−1.741	−0.585	−0.467	−0.476
518.66749	−1.755	−0.592	−0.474	−0.479
518.67210	−1.749	−0.588	−0.471	−0.477
518.67673	−1.751	−0.592	−0.475	−0.480
518.68207	−1.758	−0.591	−0.473	−0.483
518.68705	−1.759	−0.597	−0.476	−0.483
518.69205	−1.752	−0.591	−0.479	−0.481
518.69700	−1.756	−0.594	−0.474	−0.483
528.48652	−1.740	−0.584	−0.470	−0.472
528.49194	−1.753	−0.586	−0.472	−0.478
528.49662	−1.752	−0.595	−0.477	−0.481
528.50170	−1.751	−0.594	−0.475	−0.478
528.50666	−1.754	−0.598	−0.476	−0.477
528.51175	−1.760	−0.593	−0.478	−0.484
528.51673	−1.756	−0.592	−0.479	−0.480
528.52164	−1.758	−0.592	−0.474	−0.483
528.52644	−1.754	−0.593	−0.476	−0.479
528.53156	−1.752	−0.592	−0.474	−0.477
528.53634	−1.749	−0.588	−0.471	−0.478
528.54121	−1.742	−0.585	−0.465	−0.473
528.54613	−1.741	−0.585	−0.463	−0.474
528.55207	−1.742	−0.580	−0.466	−0.468
528.55689	−1.740	−0.582	−0.464	−0.468
528.56137	−1.736	−0.575	−0.460	−0.469
528.56631	−1.727	−0.573	−0.456	−0.465
528.57160	−1.725	−0.569	−0.448	−0.461
528.57866	−1.727	−0.573	−0.460	−0.465
528.58336	−1.721	−0.570	−0.454	−0.463
528.58835	−1.728	−0.576	−0.453	−0.464
528.59313	−1.732	−0.576	−0.456	−0.460
528.59760	−1.730	−0.575	−0.457	−0.464
528.61172	−1.748	−0.585	−0.467	−0.475
528.61632	−1.749	−0.590	−0.472	−0.478
528.62119	−1.748	−0.585	−0.469	−0.479
528.62633	−1.757	−0.591	−0.473	−0.483
528.63110	−1.755	−0.599	−0.479	−0.481
528.63595	−1.757	−0.594	−0.474	−0.485
528.64115	−1.754	−0.591	−0.473	−0.484
528.64616	−1.760	−0.595	−0.480	−0.485
528.65115	−1.754	−0.594	−0.481	−0.482
528.65607	−1.759	−0.590	−0.479	−0.482
528.67120	−1.747	−0.584	−0.468	−0.476
529.48582	−1.741	−0.583	−0.469	−0.471
529.49343	−1.736	−0.580	−0.464	−0.469
529.49829	−1.735	−0.583	−0.467	−0.471

Heliocentric Julian Date − 2445000	u	v	b	y
529.50354	−1.736	−0.584	−0.467	−0.472
529.50878	−1.736	−0.583	−0.465	−0.472
529.51353	−1.740	−0.583	−0.469	−0.473
529.53161	−1.740	−0.589	−0.474	−0.473
529.53713	−1.740	−0.584	−0.464	−0.475
529.54223	−1.741	−0.580	−0.466	−0.472
529.54749	−1.736	−0.578	−0.459	−0.467
529.55247	−1.734	−0.579	−0.464	−0.471
529.55748	−1.728	−0.575	−0.456	−0.469
529.56275	−1.729	−0.578	−0.456	−0.465
529.56778	−1.725	−0.574	−0.452	−0.462
529.57271	−1.723	−0.573	−0.454	−0.459
529.57809	−1.729	−0.572	−0.457	−0.462
529.58304	−1.722	−0.575	−0.457	−0.462
530.47429	−1.735	−0.580	−0.467	−0.471
530.47950	−1.729	−0.575	−0.458	−0.464
530.48454	−1.732	−0.576	−0.457	−0.463
530.48954	−1.730	−0.571	−0.458	−0.464
530.49419	−1.728	−0.575	−0.456	−0.466
530.49907	−1.742	−0.582	−0.459	−0.469
530.50386	−1.745	−0.586	−0.469	−0.473
530.50872	−1.743	−0.583	−0.465	−0.471
530.51334	−1.741	−0.577	−0.464	−0.471
530.51802	−1.749	−0.591	−0.470	−0.477
530.52269	−1.750	−0.589	−0.475	−0.475
530.52779	−1.749	−0.591	−0.474	−0.477
530.53266	−1.758	−0.590	−0.472	−0.482
530.53745	−1.755	−0.589	−0.473	−0.484
530.54201	−1.752	−0.591	−0.472	−0.476
530.54662	−1.753	−0.587	−0.472	−0.476
530.55139	−1.749	−0.592	−0.470	−0.475
530.56686	−1.747	−0.593	−0.472	−0.478
530.57700	−1.743	−0.585	−0.472	−0.470
530.58206	−1.742	−0.586	−0.469	−0.479
530.58732	−1.739	−0.583	−0.465	−0.473
530.59231	−1.734	−0.578	−0.465	−0.466
530.59719	−1.725	−0.574	−0.456	−0.459
530.60227	−1.732	−0.576	−0.463	−0.468
530.60723	−1.734	−0.573	−0.461	−0.466
530.61208	−1.727	−0.576	−0.465	−0.466
530.61845	−1.725	−0.573	−0.455	−0.462
530.62375	−1.730	−0.571	−0.458	−0.466
530.62875	−1.729	−0.572	−0.456	−0.463
530.63358	−1.728	−0.578	−0.459	−0.462
530.63897	−1.731	−0.572	−0.459	−0.464
530.64400	−1.737	−0.579	−0.461	−0.468
530.64894	−1.737	−0.578	−0.459	−0.465
530.65383	−1.737	−0.582	−0.468	−0.472
530.65891	−1.735	−0.580	−0.461	−0.467
531.46837	−1.738	−0.579	−0.463	−0.469
531.47327	−1.732	−0.576	−0.459	−0.466
531.47832	−1.736	−0.578	−0.461	−0.467
531.48302	−1.726	−0.574	−0.459	−0.461
531.48779	−1.730	−0.573	−0.457	−0.462
531.49302	−1.726	−0.568	−0.451	−0.461
531.49864	−1.731	−0.574	−0.461	−0.460
531.50381	−1.734	−0.576	−0.455	−0.462
531.50879	−1.733	−0.574	−0.457	−0.461
531.51401	−1.729	−0.576	−0.460	−0.465
531.51924	−1.737	−0.580	−0.466	−0.470
531.52461	−1.748	−0.583	−0.466	−0.473
531.52989	−1.749	−0.588	−0.470	−0.475
531.53532	−1.749	−0.592	−0.472	−0.479
531.54580	−1.746	−0.588	−0.472	−0.477
531.55118	−1.755	−0.592	−0.473	−0.478
531.55636	−1.752	−0.587	−0.473	−0.474
531.56149	−1.753	−0.588	−0.469	−0.479
531.56681	−1.749	−0.588	−0.469	−0.477
531.57207	−1.746	−0.589	−0.471	−0.476
531.57800	−1.741	−0.583	−0.462	−0.468
531.58417	−1.731	−0.578	−0.460	−0.469
531.58922	−1.736	−0.581	−0.463	−0.470
531.59440	−1.734	−0.577	−0.461	−0.465
531.59969	−1.735	−0.570	−0.457	−0.462
531.60500	−1.733	−0.571	−0.458	−0.463
531.61006	−1.735	−0.573	−0.456	−0.465
531.61636	−1.730	−0.572	−0.458	−0.461
531.62198	−1.733	−0.576	−0.460	−0.463
531.62746	−1.728	−0.571	−0.457	−0.462
531.63269	−1.732	−0.575	−0.458	−0.467
531.63798	−1.743	−0.578	−0.460	−0.472
531.64336	−1.743	−0.585	−0.464	−0.472
531.64867	−1.747	−0.586	−0.468	−0.474
531.65470	−1.745	−0.589	−0.473	−0.475
531.65996	−1.742	−0.590	−0.464	−0.475
531.66535	−1.750	−0.583	−0.465	−0.475
853.52202	−1.739	−0.584	−0.469	−0.472
853.53425	−1.724	−0.574	−0.464	−0.466
853.54028	−1.722	−0.565	−0.456	−0.464
853.54646	−1.719	−0.570	−0.454	−0.459
853.55236	−1.713	−0.564	−0.448	−0.451
853.55834	−1.722	−0.566	−0.448	−0.458
853.56440	−1.715	−0.562	−0.450	−0.454
853.57049	−1.716	−0.566	−0.451	−0.455
853.57656	−1.717	−0.570	−0.456	−0.457
853.58263	−1.723	−0.568	−0.455	−0.461
853.59461	−1.740	−0.584	−0.468	−0.473
853.60066	−1.741	−0.584	−0.469	−0.474

TABLE V *(continued)*.

Heliocentric Julian Date − 2445000	u	v	b	y	Heliocentric Julian Date − 2445000	u	v	b	y
853.60669	−1.745	−0.588	−0.470	−0.474	855.52272	−1.738	−0.582	−0.466	−0.468
853.61274	−1.749	−0.592	−0.478	−0.477	855.52847	−1.736	−0.582	−0.467	−0.468
853.62723	−1.753	−0.593	−0.475	−0.482	855.53425	−1.737	−0.585	−0.470	−0.468
853.63331	−1.754	−0.593	−0.477	−0.479	855.54000	−1.741	−0.582	−0.467	−0.470
853.63925	−1.741	−0.584	−0.469	−0.472	855.54574	−1.736	−0.583	−0.471	−0.472
853.64515	−1.739	−0.588	−0.473	−0.474	855.55276	−1.734	−0.581	−0.467	−0.472
853.66720	−1.719	−0.569	−0.458	−0.458	855.55852	−1.735	−0.578	−0.468	−0.469
853.67312	−1.716	−0.566	−0.451	−0.457	855.56460	−1.733	−0.582	−0.465	−0.468
853.67906	−1.711	−0.565	−0.449	−0.453	855.57031	−1.730	−0.580	−0.469	−0.466
853.68495	−1.707	−0.561	−0.449	−0.452	855.57611	−1.728	−0.574	−0.463	−0.464
853.69083	−1.706	−0.560	−0.445	−0.451	855.58188	−1.725	−0.577	−0.463	−0.464
853.69670	−1.715	−0.566	−0.452	−0.455	855.58777	−1.721	−0.572	−0.459	−0.460
853.70268	−1.719	−0.570	−0.455	−0.455	855.59358	−1.720	−0.572	−0.455	−0.459
853.70921	−1.722	−0.573	−0.463	−0.465	855.59942	−1.726	−0.570	−0.459	−0.460
853.71502	−1.728	−0.574	−0.459	−0.463	855.60535	−1.723	−0.572	−0.456	−0.460
853.72120	−1.735	−0.580	−0.467	−0.468	855.61124	−1.724	−0.570	−0.457	−0.457
853.72710	−1.741	−0.584	−0.472	−0.471	855.61716	−1.728	−0.572	−0.458	−0.463
853.73305	−1.741	−0.585	−0.469	−0.472	855.62294	−1.729	−0.572	−0.456	−0.462
853.73900	−1.745	−0.586	−0.470	−0.474	855.62869	−1.725	−0.575	−0.460	−0.464
853.74492	−1.745	−0.589	−0.475	−0.477	855.63457	−1.728	−0.578	−0.465	−0.466
853.75093	−1.752	−0.588	−0.476	−0.480	855.64047	−1.732	−0.579	−0.461	−0.467
853.75691	−1.748	−0.587	−0.474	−0.474	855.64624	−1.737	−0.576	−0.467	−0.468
853.76289	−1.740	−0.586	−0.472	−0.474	855.65205	−1.738	−0.581	−0.468	−0.471
853.76896	−1.739	−0.584	−0.467	−0.471	855.65803	−1.737	−0.580	−0.465	−0.470
853.77461	−1.738	−0.582	−0.466	−0.467	855.66383	−1.742	−0.582	−0.468	−0.473
853.78051	−1.727	−0.577	−0.462	−0.465	855.66978	−1.741	−0.580	−0.471	−0.472
853.78643	−1.727	−0.581	−0.464	−0.467	855.67571	−1.741	−0.583	−0.470	−0.473
853.79297	−1.721	−0.575	−0.458	−0.462	855.68175	−1.737	−0.580	−0.469	−0.470
853.79946	−1.713	−0.568	−0.451	−0.458	855.68759	−1.737	−0.580	−0.466	−0.469
853.80611	−1.718	−0.571	−0.458	−0.460	855.69339	−1.736	−0.581	−0.466	−0.468
853.81330	−1.716	−0.567	−0.448	−0.456	855.69926	−1.732	−0.584	−0.470	−0.469
853.82037	−1.714	−0.567	−0.450	−0.454	855.70515	−1.728	−0.576	−0.460	−0.467
					855.71100	−1.727	−0.578	−0.465	−0.465
854.46548	−1.721	−0.569	−0.455	−0.460	855.71692	−1.728	−0.573	−0.460	−0.469
854.47186	−1.716	−0.572	−0.463	−0.459	855.72332	−1.720	−0.574	−0.458	−0.462
854.47831	−1.721	−0.574	−0.461	−0.463	855.72935	−1.721	−0.570	−0.451	−0.459
854.48476	−1.722	−0.572	−0.461	−0.462	855.73522	−1.723	−0.572	−0.455	−0.462
854.49120	−1.727	−0.573	−0.462	−0.463	855.74171	−1.728	−0.568	−0.450	−0.460
854.49757	−1.729	−0.575	−0.464	−0.466	855.74819	−1.726	−0.575	−0.463	−0.465
854.50346	−1.737	−0.579	−0.465	−0.473	855.75501	−1.731	−0.575	−0.457	−0.464
854.50945	−1.738	−0.582	−0.467	−0.472	855.76144	−1.737	−0.579	−0.460	−0.467
854.51528	−1.736	−0.580	−0.467	−0.470	855.76790	−1.735	−0.579	−0.463	−0.465
854.52112	−1.738	−0.582	−0.471	−0.473	855.77427	−1.737	−0.582	−0.466	−0.470
854.52690	−1.742	−0.585	−0.467	−0.473	855.78089	−1.740	−0.582	−0.467	−0.471
854.53267	−1.743	−0.583	−0.471	−0.471	855.78755	−1.742	−0.581	−0.464	−0.473
854.53848	−1.737	−0.582	−0.465	−0.471	855.79404	−1.741	−0.584	−0.467	−0.472
854.54437	−1.736	−0.579	−0.463	−0.467	855.80074	−1.740	−0.588	−0.469	−0.471
854.55024	−1.731	−0.575	−0.464	−0.466	855.80787	−1.734	−0.582	−0.464	−0.467
854.55640	−1.726	−0.572	−0.457	−0.463	855.81490	−1.732	−0.581	−0.463	−0.470
854.56218	−1.725	−0.569	−0.458	−0.461					
854.56799	−1.722	−0.574	−0.462	−0.459	863.46871	−1.734	−0.578	−0.464	−0.470
854.57378	−1.721	−0.573	−0.460	−0.461	863.48168	−1.727	−0.577	−0.460	−0.465
854.57953	−1.718	−0.572	−0.458	−0.459	863.48796	−1.726	−0.571	−0.459	−0.460
854.58538	−1.720	−0.570	−0.460	−0.459	863.49370	−1.718	−0.574	−0.457	−0.458
854.59123	−1.722	−0.569	−0.460	−0.462	863.49916	−1.724	−0.569	−0.456	−0.464
854.59699	−1.723	−0.572	−0.461	−0.460	863.50494	−1.712	−0.566	−0.451	−0.453
854.60270	−1.727	−0.574	−0.462	−0.462	863.51014	−1.708	−0.566	−0.454	−0.458
854.60851	−1.722	−0.576	−0.463	−0.464	863.51596	−1.714	−0.568	−0.454	−0.455
854.61440	−1.730	−0.579	−0.469	−0.468	863.52180	−1.714	−0.566	−0.452	−0.457
854.62023	−1.735	−0.578	−0.465	−0.466	863.52762	−1.721	−0.571	−0.453	−0.459
854.62598	−1.731	−0.580	−0.466	−0.466	863.53348	−1.721	−0.569	−0.454	−0.462
854.63176	−1.733	−0.582	−0.468	−0.470	863.53921	−1.718	−0.570	−0.456	−0.457
854.63765	−1.742	−0.587	−0.472	−0.474	863.54504	−1.734	−0.575	−0.459	−0.465
854.64345	−1.740	−0.585	−0.467	−0.473	863.55078	−1.736	−0.583	−0.467	−0.471
854.64934	−1.735	−0.582	−0.469	−0.472	863.55666	−1.735	−0.584	−0.467	−0.473
854.65513	−1.740	−0.582	−0.466	−0.470	863.56267	−1.744	−0.586	−0.469	−0.474
854.66096	−1.733	−0.583	−0.467	−0.469	863.56852	−1.743	−0.587	−0.470	−0.472
854.66683	−1.732	−0.578	−0.464	−0.466	863.57443	−1.744	−0.588	−0.472	−0.474
854.67269	−1.728	−0.573	−0.459	−0.462	863.58016	−1.745	−0.590	−0.476	−0.475
854.67853	−1.721	−0.570	−0.461	−0.459	863.58600	−1.750	−0.587	−0.475	−0.478
854.68440	−1.725	−0.569	−0.454	−0.460	863.59171	−1.749	−0.588	−0.474	−0.480
854.69028	−1.720	−0.569	−0.453	−0.461	863.59755	−1.746	−0.587	−0.471	−0.478
854.69589	−1.714	−0.566	−0.452	−0.458	863.60331	−1.744	−0.589	−0.477	−0.475
854.70166	−1.713	−0.565	−0.449	−0.450					
854.70759	−1.710	−0.564	−0.452	−0.453	876.70346	−1.742	−0.585	−0.469	−0.474
854.71340	−1.707	−0.561	−0.449	−0.452	876.70970	−1.736	−0.580	−0.468	−0.470
854.71952	−1.714	−0.566	−0.450	−0.456	876.71646	−1.742	−0.584	−0.474	−0.476
854.72533	−1.717	−0.568	−0.455	−0.455	876.72264	−1.748	−0.585	−0.474	−0.479
854.73142	−1.720	−0.569	−0.458	−0.459					
854.73733	−1.722	−0.577	−0.464	−0.466	877.55960	−1.720	−0.571	−0.459	−0.460
854.74323	−1.725	−0.575	−0.463	−0.464	877.58724	−1.734	−0.583	−0.464	−0.472
854.74911	−1.731	−0.581	−0.461	−0.467	877.59342	−1.737	−0.577	−0.467	−0.468
854.75497	−1.736	−0.579	−0.467	−0.470	877.59905	−1.735	−0.584	−0.467	−0.472
854.76145	−1.731	−0.582	−0.465	−0.468	877.61037	−1.739	−0.584	−0.466	−0.475
854.76792	−1.737	−0.582	−0.470	−0.472	877.61595	−1.735	−0.585	−0.465	−0.472
854.77434	−1.739	−0.585	−0.466	−0.470	877.62202	−1.735	−0.582	−0.464	−0.470
854.78084	−1.735	−0.582	−0.467	−0.472	877.62786	−1.733	−0.582	−0.466	−0.469
854.78709	−1.731	−0.579	−0.466	−0.470	877.63404	−1.729	−0.578	−0.461	−0.463
854.79360	−1.732	−0.579	−0.464	−0.466	877.64020	−1.732	−0.577	−0.460	−0.465
854.80023	−1.724	−0.574	−0.459	−0.463	877.64638	−1.722	−0.574	−0.459	−0.461
854.80671	−1.725	−0.573	−0.461	−0.463	877.65259	−1.727	−0.573	−0.460	−0.463
854.81376	−1.718	−0.569	−0.454	−0.458					
855.47371	−1.719	−0.569	−0.459	−0.459					
855.48010	−1.721	−0.574	−0.460	−0.459					
855.48660	−1.724	−0.573	−0.458	−0.459					
855.49301	−1.723	−0.570	−0.457	−0.460					
855.49947	−1.722	−0.572	−0.456	−0.457					
855.50533	−1.728	−0.576	−0.459	−0.463					
855.51118	−1.729	−0.573	−0.462	−0.463					
855.51700	−1.735	−0.579	−0.463	−0.470					

TABLE VI. — *Differential uvby photometry for HD 126859 relative to HD 130572.*

Heliocentric Julian Date − 2445000	u	v	b	y
107.56684	0.711	0.649	0.519	0.419
107.58389	0.702	0.645	0.513	0.416
107.60059	0.687	0.629	0.498	0.404
107.61765	0.712	0.649	0.520	0.417
107.63377	0.707	0.650	0.515	0.423
107.65063	0.689	0.631	0.500	0.408
107.66723	0.703	0.647	0.515	0.417
107.68309	0.708	0.653	0.523	0.421
107.69917	0.695	0.636	0.507	0.410
107.71742	0.701	0.642	0.515	0.414
107.73384	0.712	0.651	0.519	0.420
107.74951	0.696	0.642	0.512	0.413
107.76605	0.703	0.641	0.511	0.411
107.78238	0.710	0.651	0.520	0.420
107.80442	0.696	0.638	0.509	0.411
107.82068	0.699	0.642	0.513	0.413
107.84186	0.699	0.643	0.515	0.416
107.86004	0.694	0.636	0.502	0.409
108.55393	0.690	0.632	0.504	0.403
108.56926	0.707	0.652	0.522	0.419
108.58431	0.712	0.653	0.524	0.422
108.59956	0.692	0.633	0.499	0.406
108.61467	0.700	0.640	0.509	0.411
108.63359	0.711	0.653	0.521	0.425
108.64912	0.695	0.634	0.505	0.406
108.66565	0.702	0.635	0.507	0.413
108.68566	0.708	0.648	0.521	0.422
108.70402	0.692	0.633	0.503	0.407
108.72018	0.697	0.640	0.511	0.415
108.74004	0.713	0.652	0.520	0.420
108.75637	0.691	0.633	0.507	0.404
108.77198	0.700	0.641	0.515	0.416
108.79366	0.705	0.650	0.519	0.421
108.81110	0.694	0.632	0.504	0.409
108.82841	0.700	0.642	0.515	0.414
110.55725	0.697	0.634	0.506	0.410
110.57372	0.705	0.643	0.518	0.414
110.58870	0.712	0.650	0.518	0.420
110.60383	0.697	0.637	0.509	0.411
110.62199	0.693	0.636	0.507	0.409
110.63676	0.719	0.655	0.519	0.425
110.65290	0.697	0.633	0.505	0.412
110.67153	0.699	0.637	0.510	0.413
110.68902	0.711	0.650	0.524	0.420
110.70372	0.695	0.641	0.512	0.414
110.72270	0.698	0.636	0.509	0.414
110.73741	0.709	0.652	0.517	0.422
110.75197	0.707	0.646	0.512	0.419
110.77103	0.696	0.633	0.505	0.410
110.78618	0.701	0.642	0.513	0.415
110.80146	0.710	0.653	0.521	0.425
110.82114	0.684	0.628	0.504	0.407
110.83692	0.704	0.647	0.514	0.418
123.55207	0.692	0.634	0.499	0.406
123.56568	0.698	0.637	0.507	0.411
123.57967	0.708	0.647	0.516	0.415
123.59312	0.709	0.650	0.520	0.420
123.60644	0.691	0.632	0.502	0.405
123.61978	0.693	0.635	0.505	0.405
123.63343	0.704	0.647	0.517	0.419
123.65019	0.701	0.641	0.512	0.413
123.66348	0.689	0.633	0.504	0.411
123.67735	0.700	0.640	0.514	0.413
123.69278	0.703	0.649	0.520	0.419
123.70619	0.701	0.637	0.504	0.411
123.71943	0.691	0.627	0.502	0.408
123.73351	0.697	0.638	0.510	0.414
123.74672	0.712	0.653	0.524	0.422
123.76058	0.694	0.637	0.509	0.411
123.77464	0.686	0.627	0.496	0.405
123.80414	0.710	0.658	0.527	0.427
123.82239	0.691	0.632	0.499	0.406
126.56184	0.699	0.639	0.507	0.410
126.57581	0.690	0.632	0.497	0.403
126.58879	0.706	0.645	0.514	0.419
126.60194	0.707	0.651	0.516	0.422
126.61488	0.697	0.641	0.513	0.413
126.62792	0.692	0.628	0.500	0.406
126.64104	0.704	0.643	0.511	0.416
126.65513	0.713	0.649	0.520	0.423
126.66879	0.694	0.637	0.510	0.411
126.68179	0.692	0.634	0.505	0.413
126.69495	0.707	0.643	0.514	0.419
126.70864	0.709	0.648	0.518	0.421
126.72171	0.691	0.637	0.514	0.413
126.73557	0.695	0.633	0.507	0.407
126.74920	0.708	0.644	0.516	0.418
126.76363	0.700	0.647	0.513	0.415
126.77841	0.697	0.631	0.504	0.406
126.79411	0.701	0.640	0.509	0.414
857.47026	0.700	0.640	0.512	0.415
857.47627	0.696	0.637	0.510	0.410
857.48130	0.702	0.639	0.509	0.411
857.48627	0.698	0.643	0.513	0.415
857.49131	0.707	0.639	0.511	0.416
857.49632	0.704	0.645	0.517	0.419

Heliocentric Julian Date − 2445000	u	v	b	y
857.50138	0.700	0.646	0.513	0.415
857.50651	0.707	0.644	0.517	0.416
857.51162	0.699	0.642	0.512	0.411
857.51663	0.694	0.640	0.512	0.412
857.52165	0.703	0.644	0.511	0.413
857.52666	0.698	0.639	0.508	0.411
857.53168	0.703	0.642	0.510	0.411
857.53673	0.694	0.635	0.502	0.408
857.54182	0.701	0.638	0.508	0.410
857.54686	0.697	0.642	0.512	0.416
857.55195	0.705	0.645	0.512	0.414
857.55697	0.700	0.641	0.514	0.415
857.56200	0.700	0.639	0.507	0.409
857.56701	0.700	0.640	0.512	0.414
857.57259	0.706	0.639	0.508	0.415
857.57759	0.696	0.636	0.510	0.409
857.58254	0.696	0.640	0.509	0.408
857.58752	0.695	0.633	0.503	0.409
857.59259	0.697	0.640	0.505	0.410
857.59765	0.633	0.593	0.412	0.336
857.60270	0.708	0.647	0.515	0.416
857.60787	0.707	0.649	0.516	0.420
857.61293	0.705	0.646	0.515	0.418
857.61799	0.704	0.642	0.509	0.412
857.62308	0.699	0.638	0.507	0.412
857.62816	0.700	0.639	0.511	0.410
857.63317	0.698	0.634	0.507	0.410
857.63900	0.698	0.641	0.508	0.407
857.64411	0.707	0.641	0.511	0.414
857.64917	0.707	0.641	0.514	0.419
857.65418	0.699	0.643	0.515	0.416
857.65935	0.709	0.649	0.521	0.424
857.66437	0.709	0.650	0.522	0.417
857.67050	0.696	0.643	0.512	0.416
857.67554	0.699	0.635	0.509	0.412
857.68057	0.696	0.629	0.507	0.409
857.68574	0.697	0.639	0.513	0.413
857.69104	0.702	0.638	0.514	0.413
857.69624	0.702	0.639	0.509	0.409
857.70139	0.702	0.642	0.512	0.414
857.70636	0.703	0.645	0.518	0.415
857.71162	0.718	0.654	0.522	0.424
857.71660	0.706	0.651	0.522	0.421
857.72213	0.707	0.647	0.512	0.420
857.72718	0.696	0.642	0.510	0.410
857.73232	0.687	0.634	0.499	0.404
857.73778	0.689	0.632	0.504	0.403
857.74295	0.701	0.634	0.509	0.413
857.74815	0.701	0.636	0.511	0.410
857.75444	0.702	0.642	0.514	0.412
857.75958	0.699	0.644	0.517	0.416
857.76513	0.704	0.649	0.519	0.417
857.77024	0.703	0.642	0.519	0.414
857.77532	0.695	0.641	0.510	0.411
857.78052	0.695	0.637	0.508	0.409
858.49036	0.700	0.642	0.518	0.417
858.49540	0.704	0.649	0.517	0.415
858.50033	0.709	0.649	0.520	0.417
858.50524	0.705	0.644	0.514	0.413
858.51031	0.699	0.645	0.512	0.413
858.51526	0.700	0.641	0.517	0.413
858.52023	0.693	0.641	0.507	0.408
858.52524	0.694	0.635	0.504	0.406
858.53024	0.691	0.636	0.506	0.407
858.53533	0.702	0.637	0.506	0.411
858.54083	0.700	0.640	0.510	0.412
858.54587	0.701	0.645	0.517	0.413
858.62369	0.696	0.639	0.511	0.415
858.62869	0.698	0.635	0.509	0.413
858.63348	0.696	0.634	0.506	0.407
858.63849	0.690	0.630	0.502	0.401
858.64346	0.700	0.636	0.510	0.408
858.64872	0.701	0.639	0.501	0.408
868.45688	0.700	0.637	0.509	0.408
868.46404	0.695	0.633	0.506	0.408
868.47098	0.696	0.637	0.508	0.414
868.47832	0.706	0.642	0.508	0.420
868.48482	0.700	0.644	0.513	0.416
868.49881	0.712	0.649	0.517	0.419
868.50565	0.707	0.643	0.511	0.415
868.51272	0.699	0.640	0.509	0.412
868.51955	0.690	0.634	0.506	0.408
868.52486	0.695	0.637	0.507	0.406
868.53012	0.701	0.635	0.509	0.413
868.53531	0.700	0.643	0.512	0.414
868.54048	0.703	0.645	0.518	0.417
868.54586	0.698	0.647	0.515	0.415
868.55260	0.699	0.647	0.514	0.414
868.55924	0.695	0.640	0.510	0.413
868.56610	0.697	0.638	0.512	0.412
868.57282	0.695	0.636	0.507	0.411
868.57934	0.699	0.639	0.511	0.407
868.58615	0.701	0.638	0.512	0.413
868.59296	0.700	0.641	0.515	0.413
868.59982	0.707	0.647	0.515	0.417
868.60677	0.696	0.638	0.507	0.407
868.61386	0.697	0.642	0.508	0.405
868.62122	0.693	0.637	0.505	0.408
868.62808	0.696	0.634	0.503	0.406

TABLE VII. — *Differential uvby photometry for HD 149779 relative to HR 6209.*

Heliocentric Julian Date − 2445000	u	v	b	y
114.70303	1.508	1.739	1.605	1.380
114.72600	1.502	1.737	1.603	1.379
114.73747	1.497	1.732	1.601	1.371
114.74910	1.485	1.724	1.589	1.362
114.76188	1.475	1.716	1.583	1.355
114.77322	1.457	1.696	1.562	1.334
114.80218	1.457	1.700	1.568	1.341
114.81448	1.451	1.697	1.570	1.337
114.82615	1.455	1.700	1.561	1.338
114.83923	1.452	1.695	1.560	1.336
114.85358	1.456	1.698	1.564	1.337
115.68097	1.573	1.806	1.675	1.449
115.69271	1.594	1.831	1.690	1.465
115.70404	1.603	1.836	1.705	1.479
115.71858	1.644	1.874	1.735	1.515
115.73992	1.694	1.923	1.787	1.563
115.79446	1.716	1.941	1.801	1.575
115.80483	1.708	1.934	1.793	1.568
115.81530	1.690	1.923	1.789	1.559
115.82691	1.684	1.916	1.774	1.549
115.83793	1.672	1.901	1.760	1.539
115.84838	1.643	1.884	1.749	1.518
115.85893	1.633	1.862	1.725	1.501
115.86978	1.619	1.851	1.709	1.489
116.56674	1.543	1.778	1.642	1.411
116.57781	1.540	1.768	1.629	1.404
116.58969	1.522	1.757	1.619	1.396
116.60023	1.515	1.749	1.611	1.387
116.61091	1.498	1.737	1.602	1.378
116.62214	1.494	1.734	1.594	1.371
116.63244	1.487	1.734	1.596	1.368
117.60543	1.632	1.862	1.726	1.499
117.61574	1.654	1.878	1.745	1.509
117.62605	1.676	1.897	1.759	1.535
117.63683	1.692	1.915	1.772	1.553
117.64702	1.705	1.930	1.786	1.563
117.65796	1.718	1.943	1.801	1.577
117.66802	1.722	1.948	1.812	1.581
117.67849	1.733	1.957	1.814	1.591
117.68901	1.731	1.957	1.818	1.593
117.70024	1.729	1.959	1.821	1.589
117.71067	1.719	1.947	1.804	1.583
117.73242	1.681	1.919	1.786	1.557
117.74268	1.669	1.901	1.766	1.539
117.75309	1.648	1.881	1.744	1.522
117.76328	1.629	1.860	1.721	1.495
117.77340	1.609	1.843	1.710	1.479
117.78426	1.600	1.829	1.697	1.469
117.79509	1.587	1.816	1.678	1.452
117.80552	1.570	1.799	1.669	1.439
117.81705	1.550	1.786	1.651	1.424
117.82761	1.539	1.767	1.634	1.406
117.83814	1.529	1.766	1.630	1.406
117.84854	1.523	1.753	1.619	1.394
117.86030	1.521	1.756	1.618	1.395
117.87024	1.499	1.741	1.605	1.376
118.56247	1.472	1.711	1.583	1.356
118.57430	1.459	1.704	1.570	1.341
118.58538	1.463	1.702	1.572	1.339
118.59621	1.456	1.700	1.572	1.339
118.60675	1.465	1.705	1.565	1.342
118.61835	1.451	1.700	1.567	1.335
118.62859	1.465	1.701	1.563	1.343
118.63924	1.468	1.706	1.569	1.339
118.64951	1.467	1.701	1.560	1.344
118.66345	1.472	1.708	1.572	1.346
118.67379	1.469	1.705	1.573	1.344
118.68434	1.475	1.712	1.574	1.349
118.69531	1.483	1.717	1.579	1.357
118.70560	1.489	1.723	1.584	1.363
118.71595	1.485	1.721	1.586	1.359
118.72673	1.491	1.727	1.592	1.365
118.73719	1.499	1.735	1.595	1.370
118.74755	1.498	1.735	1.603	1.375
118.75768	1.510	1.747	1.610	1.387
118.76853	1.516	1.753	1.614	1.389
118.77918	1.516	1.758	1.626	1.395
118.78973	1.527	1.763	1.629	1.402
118.80051	1.533	1.769	1.629	1.408
118.81062	1.539	1.775	1.640	1.412
118.82188	1.553	1.793	1.657	1.427
118.83218	1.563	1.797	1.663	1.435
118.84265	1.580	1.816	1.682	1.455
118.85342	1.601	1.828	1.691	1.464
118.86501	1.619	1.845	1.711	1.483
118.87758	1.634	1.864	1.732	1.504
119.54934	1.681	1.914	1.777	1.549
119.56048	1.693	1.925	1.790	1.559
119.57169	1.700	1.936	1.802	1.571
119.58247	1.715	1.950	1.818	1.588
119.59318	1.713	1.944	1.812	1.581
119.60393	1.716	1.944	1.809	1.586
119.61891	1.695	1.929	1.792	1.564
119.62962	1.685	1.923	1.787	1.556
119.63990	1.674	1.903	1.764	1.545
119.64959	1.654	1.892	1.756	1.526

Heliocentric Julian Date − 2445000	u	v	b	y
119.66030	1.639	1.874	1.740	1.507
119.67189	1.628	1.855	1.718	1.493
119.68209	1.602	1.836	1.703	1.471
119.69222	1.596	1.823	1.689	1.464
119.70233	1.586	1.811	1.670	1.451
119.71332	1.570	1.802	1.662	1.439
119.72403	1.557	1.791	1.655	1.423
119.73464	1.542	1.777	1.644	1.414
119.74553	1.540	1.769	1.633	1.404
119.75531	1.537	1.765	1.630	1.405
119.76516	1.520	1.760	1.627	1.390
119.77498	1.518	1.755	1.621	1.388
119.78492	1.510	1.746	1.611	1.383
119.79527	1.507	1.744	1.605	1.381
123.89293	1.541	1.778	1.649	1.418
123.90735	1.567	1.800	1.658	1.435
123.92130	1.588	1.816	1.683	1.452
510.74155	1.491	1.728	1.595	1.365
510.75158	1.492	1.730	1.599	1.372
510.76848	1.506	1.743	1.607	1.381
510.77557	1.506	1.748	1.617	1.383
510.78324	1.509	1.754	1.623	1.387
510.79112	1.517	1.758	1.625	1.394
510.79908	1.521	1.760	1.622	1.382
510.80734	1.532	1.770	1.630	1.404
512.73625	1.550	1.786	1.652	1.424
512.74379	1.566	1.797	1.655	1.433
512.75100	1.573	1.807	1.671	1.442
512.75846	1.588	1.814	1.678	1.453
512.76568	1.590	1.826	1.695	1.462
512.77271	1.610	1.837	1.702	1.475
512.78023	1.614	1.849	1.717	1.487
512.78761	1.628	1.864	1.730	1.497
512.79481	1.641	1.878	1.743	1.510
512.80304	1.656	1.888	1.746	1.522
513.48556	1.726	1.953	1.817	1.589
513.49498	1.722	1.951	1.814	1.586
513.50301	1.725	1.949	1.817	1.585
513.51079	1.724	1.948	1.808	1.581
513.51904	1.720	1.942	1.811	1.580
513.52670	1.711	1.936	1.801	1.568
513.53445	1.698	1.927	1.789	1.558
513.54239	1.686	1.917	1.778	1.548
513.55015	1.676	1.904	1.764	1.540
513.55807	1.664	1.893	1.749	1.521
513.56576	1.652	1.876	1.743	1.509
513.57294	1.638	1.866	1.731	1.501
513.58030	1.624	1.854	1.713	1.486
513.58754	1.610	1.843	1.707	1.476
513.59512	1.604	1.834	1.696	1.469
513.60305	1.589	1.818	1.680	1.451
513.61021	1.581	1.808	1.673	1.441
513.61759	1.565	1.804	1.662	1.436
513.62453	1.560	1.791	1.656	1.428
513.63160	1.550	1.785	1.650	1.418
513.63875	1.546	1.784	1.644	1.413
513.64571	1.543	1.774	1.636	1.406
513.65254	1.535	1.768	1.629	1.401
513.65994	1.529	1.765	1.628	1.398
513.66725	1.525	1.755	1.618	1.393
513.67395	1.514	1.754	1.618	1.391
513.68358	1.503	1.746	1.613	1.382
514.48314	1.455	1.695	1.559	1.332
514.49054	1.455	1.700	1.566	1.337
514.49788	1.455	1.702	1.563	1.337
514.50501	1.456	1.704	1.570	1.346
514.51242	1.467	1.707	1.573	1.346
514.51978	1.465	1.713	1.578	1.349
514.52647	1.469	1.716	1.581	1.350
514.53320	1.475	1.721	1.586	1.353
514.54007	1.475	1.726	1.588	1.357
514.54709	1.486	1.728	1.595	1.366
518.70802	1.541	1.777	1.639	1.411
518.71619	1.535	1.770	1.631	1.407
518.72269	1.528	1.767	1.630	1.402
518.73649	1.517	1.755	1.626	1.396
518.74321	1.509	1.751	1.613	1.385
518.74990	1.508	1.747	1.613	1.385
518.75664	1.502	1.744	1.606	1.380
518.76353	1.489	1.734	1.606	1.377
518.77033	1.492	1.734	1.605	1.374
518.77751	1.487	1.727	1.590	1.369
518.78422	1.483	1.722	1.587	1.363
518.79109	1.474	1.717	1.584	1.356
520.60639	1.540	1.784	1.651	1.416
520.61288	1.529	1.769	1.635	1.406
520.61966	1.526	1.765	1.630	1.403
520.62636	1.523	1.760	1.626	1.399
520.63297	1.516	1.761	1.627	1.394
520.63941	1.513	1.755	1.620	1.394
520.64600	1.515	1.748	1.616	1.388
520.65269	1.508	1.742	1.613	1.385
520.65949	1.507	1.740	1.606	1.381
520.66621	1.506	1.739	1.609	1.379

TABLE VII *(continued)*.

Heliocentric Julian Date − 2445000	u	v	b	y
520.67306	1.497	1.734	1.601	1.371
520.68446	1.485	1.725	1.593	1.366
520.69105	1.481	1.720	1.585	1.362
520.69771	1.483	1.717	1.582	1.358
520.70426	1.484	1.716	1.583	1.355
520.71088	1.474	1.717	1.581	1.350
520.71773	1.471	1.708	1.577	1.348
520.72453	1.466	1.703	1.568	1.343
520.73163	1.472	1.707	1.570	1.346
520.73861	1.464	1.703	1.571	1.342
520.74517	1.463	1.700	1.563	1.338
520.75186	1.459	1.699	1.560	1.337
520.75861	1.459	1.700	1.563	1.339
520.76562	1.456	1.696	1.559	1.333
520.77237	1.449	1.695	1.558	1.332
520.77912	1.454	1.695	1.559	1.333
528.68238	1.710	1.934	1.791	1.563
528.69010	1.716	1.941	1.805	1.574
528.69687	1.728	1.950	1.814	1.585
528.70342	1.729	1.948	1.813	1.583
528.71002	1.730	1.954	1.820	1.587
528.71655	1.726	1.952	1.817	1.586
528.72316	1.732	1.956	1.818	1.587
528.72963	1.724	1.951	1.817	1.587
528.73631	1.722	1.945	1.811	1.582
528.74303	1.719	1.941	1.803	1.574
528.74956	1.709	1.930	1.798	1.570
528.75649	1.695	1.928	1.790	1.557
530.67967	1.660	1.894	1.755	1.525
530.68593	1.645	1.879	1.740	1.514
530.69247	1.645	1.872	1.732	1.503
530.69910	1.620	1.857	1.724	1.492
530.70556	1.613	1.851	1.715	1.487
530.71192	1.606	1.838	1.702	1.475
530.71819	1.594	1.829	1.699	1.465
530.72468	1.580	1.817	1.683	1.454
530.73149	1.575	1.810	1.671	1.441
530.73811	1.565	1.798	1.665	1.434
530.74464	1.560	1.790	1.659	1.428
530.75130	1.545	1.779	1.652	1.420
531.67538	1.497	1.733	1.594	1.368
531.68196	1.499	1.735	1.599	1.368
531.68852	1.497	1.738	1.601	1.376
531.69419	1.506	1.742	1.604	1.380
531.69975	1.513	1.737	1.603	1.379
531.70627	1.505	1.749	1.616	1.383
531.71303	1.512	1.753	1.616	1.389
531.71999	1.514	1.756	1.622	1.393
531.72660	1.521	1.757	1.621	1.393
531.73321	1.525	1.761	1.625	1.396
531.73990	1.526	1.769	1.630	1.405
531.74656	1.535	1.773	1.636	1.408
532.47497	1.679	1.914	1.774	1.544
532.48150	1.695	1.922	1.785	1.555
532.48829	1.703	1.929	1.791	1.561
532.49468	1.713	1.943	1.802	1.575
532.50167	1.715	1.942	1.807	1.577
532.50809	1.714	1.944	1.812	1.579
532.51445	1.724	1.950	1.814	1.583
532.52113	1.725	1.953	1.814	1.585
532.52766	1.718	1.953	1.811	1.583
532.53443	1.721	1.950	1.813	1.583
532.54069	1.713	1.939	1.806	1.576
532.54708	1.706	1.939	1.804	1.573
532.55379	1.705	1.933	1.794	1.569
532.56053	1.693	1.924	1.789	1.558
532.56687	1.678	1.915	1.779	1.549
532.57334	1.681	1.909	1.773	1.540
532.57983	1.663	1.894	1.762	1.532
532.58642	1.654	1.892	1.757	1.526
532.59284	1.644	1.875	1.738	1.513
532.59935	1.633	1.864	1.730	1.502
532.60584	1.619	1.854	1.720	1.493
532.61207	1.608	1.845	1.712	1.479
532.61881	1.600	1.836	1.693	1.470
532.62543	1.592	1.824	1.692	1.463
532.63211	1.590	1.817	1.684	1.459
532.63866	1.578	1.811	1.676	1.449
532.64513	1.569	1.801	1.666	1.434
532.65154	1.563	1.798	1.662	1.430
532.65784	1.555	1.790	1.651	1.422
532.66422	1.548	1.782	1.649	1.418
532.67071	1.544	1.777	1.639	1.414
532.67751	1.539	1.772	1.635	1.405
532.68408	1.527	1.766	1.628	1.401
532.69063	1.530	1.762	1.630	1.401
532.69730	1.518	1.757	1.620	1.392
532.70371	1.518	1.749	1.613	1.386
532.71048	1.507	1.745	1.609	1.383
532.71717	1.504	1.745	1.606	1.379
532.72366	1.498	1.740	1.599	1.378
532.73058	1.497	1.735	1.599	1.370
532.73735	1.483	1.735	1.591	1.366
532.74397	1.487	1.722	1.589	1.362
533.47964	1.452	1.699	1.563	1.333
533.48621	1.460	1.696	1.561	1.334

Heliocentric Julian Date − 2445000	u	v	b	y
533.49271	1.455	1.694	1.558	1.334
533.49933	1.464	1.696	1.560	1.332
533.50604	1.460	1.697	1.560	1.331
533.51275	1.462	1.705	1.572	1.342
533.51946	1.463	1.702	1.570	1.343
533.52614	1.461	1.703	1.567	1.343
533.53309	1.463	1.707	1.570	1.343
533.53984	1.467	1.709	1.571	1.346
533.54673	1.465	1.713	1.577	1.345
533.55337	1.473	1.719	1.583	1.351
533.55983	1.480	1.721	1.587	1.357
533.56637	1.486	1.718	1.587	1.361
533.57282	1.481	1.725	1.589	1.360
533.57960	1.487	1.725	1.590	1.367
533.58623	1.490	1.735	1.601	1.370
533.59327	1.497	1.738	1.605	1.372
533.59994	1.501	1.745	1.610	1.383
533.60730	1.505	1.748	1.608	1.386
533.61402	1.508	1.751	1.611	1.388
533.62055	1.514	1.755	1.623	1.392
533.62714	1.514	1.757	1.623	1.399
533.63387	1.524	1.762	1.626	1.400
533.64086	1.526	1.767	1.629	1.406
533.64764	1.541	1.776	1.642	1.416
533.65424	1.544	1.779	1.645	1.415
533.66097	1.553	1.791	1.655	1.427
533.66768	1.565	1.796	1.662	1.434
533.67423	1.572	1.800	1.670	1.442
533.68087	1.576	1.810	1.677	1.449
533.68771	1.597	1.826	1.691	1.465
533.69461	1.602	1.833	1.701	1.474
533.70138	1.614	1.846	1.708	1.482
533.70818	1.629	1.857	1.724	1.496
533.71464	1.645	1.866	1.732	1.503
533.72158	1.644	1.882	1.743	1.512
533.72842	1.663	1.895	1.752	1.530
533.73497	1.673	1.904	1.768	1.540
533.74164	1.697	1.917	1.782	1.553
857.79194	1.544	1.786	1.644	1.414
857.79890	1.559	1.794	1.657	1.425
857.80536	1.568	1.805	1.664	1.435
857.81790	1.583	1.814	1.673	1.450
857.82425	1.597	1.826	1.683	1.460
857.83064	1.607	1.835	1.696	1.471
857.83687	1.610	1.849	1.710	1.481
857.84346	1.625	1.860	1.717	1.492
857.85092	1.638	1.872	1.732	1.503
857.85858	1.646	1.884	1.742	1.514
861.47822	1.466	1.708	1.575	1.346
861.48765	1.470	1.710	1.575	1.350
861.49562	1.480	1.717	1.582	1.353
861.50350	1.488	1.720	1.581	1.361
861.51134	1.490	1.723	1.593	1.365
861.51927	1.496	1.731	1.591	1.373
861.52702	1.496	1.733	1.600	1.372
861.53434	1.503	1.743	1.607	1.381
861.54137	1.509	1.744	1.608	1.383
861.54908	1.515	1.752	1.613	1.388
861.55565	1.519	1.754	1.615	1.389
861.56225	1.524	1.758	1.619	1.389
861.56855	1.525	1.765	1.627	1.397
861.57490	1.530	1.770	1.623	1.403
861.58116	1.537	1.771	1.631	1.401
861.58751	1.537	1.773	1.636	1.406
861.59384	1.545	1.777	1.640	1.416
861.60018	1.551	1.790	1.650	1.425
861.60653	1.558	1.794	1.655	1.429
861.61293	1.564	1.802	1.662	1.434
861.61935	1.572	1.808	1.669	1.442
861.62566	1.580	1.820	1.682	1.452
861.63195	1.586	1.829	1.691	1.461
861.63817	1.601	1.840	1.698	1.474
861.64455	1.607	1.849	1.712	1.479
861.65086	1.618	1.853	1.716	1.491
861.65714	1.632	1.868	1.734	1.502
861.66384	1.638	1.878	1.744	1.509
861.67090	1.649	1.888	1.750	1.520
861.67802	1.668	1.902	1.765	1.535
861.68514	1.684	1.911	1.773	1.547
861.69454	1.693	1.925	1.789	1.559
861.70163	1.698	1.931	1.794	1.562
861.70892	1.705	1.940	1.799	1.572
861.71605	1.714	1.943	1.807	1.577
861.72318	1.720	1.948	1.806	1.583
861.73048	1.716	1.948	1.810	1.580
861.73769	1.719	1.948	1.810	1.585
861.74476	1.716	1.944	1.813	1.584
861.75191	1.710	1.942	1.805	1.574
861.75903	1.705	1.935	1.794	1.566
861.76615	1.695	1.924	1.784	1.560
861.77323	1.692	1.919	1.785	1.555
861.78045	1.680	1.908	1.772	1.542
861.79082	1.661	1.894	1.757	1.528
861.79801	1.652	1.882	1.742	1.515
861.80520	1.643	1.869	1.731	1.504
861.81237	1.627	1.859	1.720	1.490
861.82003	1.608	1.846	1.708	1.480
861.82792	1.604	1.830	1.695	1.466
861.83565	1.587	1.825	1.681	1.458
861.84398	1.570	1.812	1.669	1.443
861.85184	1.564	1.801	1.661	1.436
861.85965	1.552	1.789	1.650	1.427
861.86794	1.540	1.776	1.643	1.417
861.87653	1.530	1.775	1.634	1.407
861.88515	1.525	1.763	1.626	1.398
876.73014	1.491	1.732	1.594	1.365
876.73785	1.493	1.735	1.597	1.368
876.74429	1.498	1.739	1.597	1.370
876.75084	1.500	1.736	1.596	1.369
876.75909	1.509	1.749	1.606	1.380
876.76550	1.511	1.750	1.607	1.387
876.77228	1.509	1.751	1.612	1.384
876.77882	1.511	1.752	1.617	1.388
876.78543	1.524	1.762	1.622	1.396

TABLE VIII. — *Differential uvby photometry for σ Sco relative to τ Sco.*

Heliocentric Julian Date − 2445000	u	v	b	y	Heliocentric Julian Date − 2445000	u	v	b	y
852.80437	0.779	0.514	0.303	0.060	862.54979	0.846	0.547	0.332	0.083
852.80842	0.773	0.506	0.295	0.056	862.55250	0.853	0.554	0.338	0.091
852.81253	0.772	0.510	0.301	0.053	862.55518	0.851	0.551	0.337	0.090
852.81634	0.769	0.502	0.294	0.054	862.55785	0.843	0.543	0.329	0.081
852.82021	0.765	0.504	0.295	0.052	862.56055	0.852	0.550	0.334	0.087
852.82424	0.760	0.494	0.290	0.049	862.56332	0.858	0.555	0.341	0.093
852.82842	0.752	0.493	0.285	0.038	862.56600	0.857	0.550	0.333	0.089
852.83236	0.754	0.489	0.291	0.050	862.56874	0.852	0.548	0.333	0.085
852.84034	0.741	0.482	0.281	0.036	862.57173	0.862	0.556	0.341	0.093
852.84420	0.754	0.485	0.283	0.048	862.57453	0.858	0.550	0.334	0.088
852.84806	0.763	0.496	0.293	0.049	862.57720	0.850	0.548	0.333	0.083
852.85234	0.765	0.494	0.293	0.051	862.58001	0.858	0.548	0.332	0.088
852.85627	0.763	0.494	0.296	0.052	862.58264	0.855	0.550	0.336	0.087
852.86015	0.773	0.504	0.305	0.061	862.58532	0.858	0.552	0.336	0.089
					862.58796	0.852	0.545	0.329	0.084
856.50208	0.781	0.520	0.309	0.058	862.59061	0.847	0.544	0.330	0.080
856.50625	0.781	0.517	0.304	0.060	862.59650	0.847	0.542	0.328	0.082
856.51004	0.783	0.522	0.315	0.070	862.59922	0.844	0.537	0.319	0.078
856.51395	0.781	0.512	0.301	0.061	862.60187	0.844	0.536	0.320	0.078
856.51795	0.773	0.507	0.299	0.057	862.60455	0.843	0.541	0.326	0.079
856.52189	0.776	0.514	0.308	0.061	862.60730	0.837	0.536	0.321	0.074
856.52561	0.773	0.505	0.298	0.055	862.60996	0.835	0.534	0.318	0.073
856.52938	0.763	0.504	0.299	0.051	862.61265	0.832	0.532	0.319	0.072
856.53311	0.764	0.498	0.288	0.050	862.61533	0.829	0.532	0.316	0.069
856.53693	0.758	0.494	0.285	0.044	862.61816	0.822	0.526	0.312	0.064
856.54080	0.761	0.496	0.289	0.047	862.62082	0.819	0.524	0.310	0.062
856.54453	0.765	0.500	0.289	0.050	862.62347	0.819	0.524	0.311	0.064
856.54815	0.763	0.492	0.287	0.050	862.62614	0.817	0.523	0.310	0.064
856.55234	0.759	0.491	0.286	0.043	862.62888	0.817	0.522	0.307	0.063
856.55607	0.764	0.491	0.284	0.042	862.63157	0.815	0.524	0.310	0.066
856.55981	0.769	0.499	0.294	0.046	862.63428	0.805	0.514	0.301	0.056
856.56348	0.775	0.500	0.295	0.053	862.63709	0.806	0.514	0.301	0.058
856.56724	0.783	0.506	0.294	0.062	862.63979	0.806	0.517	0.302	0.061
856.57095	0.780	0.504	0.295	0.051	862.64247	0.802	0.514	0.301	0.057
856.57465	0.790	0.510	0.303	0.056	862.64513	0.799	0.514	0.301	0.055
856.57853	0.791	0.506	0.298	0.056	862.64783	0.798	0.511	0.301	0.058
856.58225	0.794	0.511	0.304	0.060	862.65053	0.791	0.509	0.300	0.051
856.58600	0.801	0.515	0.305	0.065	862.65427	0.792	0.510	0.300	0.056
856.58972	0.805	0.517	0.301	0.060	862.65699	0.793	0.514	0.304	0.057
856.59341	0.806	0.517	0.305	0.060	862.65966	0.790	0.511	0.299	0.057
856.59755	0.816	0.524	0.311	0.067	862.66250	0.790	0.515	0.300	0.059
856.60145	0.820	0.527	0.313	0.071	862.66527	0.791	0.514	0.303	0.062
856.60518	0.822	0.530	0.315	0.072	862.66817	0.787	0.510	0.298	0.058
856.60891	0.828	0.532	0.317	0.073	862.67085	0.785	0.514	0.303	0.060
856.61261	0.830	0.531	0.319	0.075	862.67360	0.785	0.511	0.300	0.061
856.61657	0.836	0.537	0.325	0.079	862.67632	0.782	0.512	0.297	0.059
856.62037	0.838	0.536	0.320	0.077	862.67910	0.774	0.510	0.302	0.055
					862.68180	0.774	0.507	0.298	0.055
860.73185	0.759	0.490	0.286	0.047	862.68480	0.774	0.507	0.295	0.054
860.73480	0.755	0.488	0.278	0.039	862.68760	0.772	0.507	0.297	0.054
860.73767	0.759	0.491	0.280	0.044	862.69051	0.771	0.502	0.292	0.052
860.74046	0.754	0.486	0.276	0.036	862.69333	0.772	0.501	0.292	0.054
860.74318	0.761	0.494	0.289	0.045	862.69619	0.768	0.500	0.290	0.052
860.74603	0.759	0.490	0.286	0.042	862.69886	0.766	0.499	0.290	0.050
860.74874	0.760	0.490	0.282	0.043	862.70170	0.766	0.497	0.288	0.050
860.75206	0.764	0.494	0.286	0.045	862.70454	0.763	0.494	0.285	0.047
860.75511	0.767	0.494	0.281	0.044	862.70718	0.764	0.497	0.290	0.049
860.75849	0.768	0.495	0.285	0.043	862.70985	0.761	0.495	0.284	0.043
860.76188	0.779	0.507	0.303	0.054	862.71251	0.763	0.495	0.287	0.047
860.76526	0.776	0.503	0.292	0.051	862.71510	0.762	0.496	0.289	0.047
860.76888	0.785	0.507	0.296	0.055	862.71769	0.763	0.495	0.286	0.045
860.77310	0.790	0.510	0.296	0.057	862.72056	0.766	0.497	0.290	0.047
860.77734	0.795	0.512	0.298	0.057	862.72325	0.769	0.501	0.293	0.051
860.78105	0.801	0.517	0.303	0.062	862.72607	0.768	0.500	0.291	0.048
860.78484	0.806	0.519	0.308	0.065	862.72879	0.768	0.498	0.289	0.047
860.78859	0.806	0.518	0.309	0.061	862.73148	0.772	0.502	0.290	0.049
860.79238	0.813	0.524	0.312	0.066	862.73424	0.777	0.503	0.293	0.052
860.79636	0.820	0.530	0.316	0.071	862.73705	0.778	0.505	0.294	0.052
860.80002	0.825	0.534	0.321	0.075	862.73980	0.786	0.510	0.299	0.059
860.80367	0.827	0.535	0.326	0.078	862.74975	0.794	0.515	0.302	0.059
860.80765	0.830	0.533	0.318	0.076	862.75255	0.814	0.532	0.320	0.078
860.81132	0.831	0.535	0.323	0.073	862.76153	0.810	0.525	0.311	0.069
860.81495	0.837	0.539	0.328	0.080	862.76431	0.822	0.533	0.320	0.077
860.81869	0.840	0.541	0.329	0.081					
860.82238	0.844	0.545	0.332	0.084	865.48424	0.802	0.515	0.309	0.066
860.82621	0.848	0.549	0.339	0.090	865.48764	0.807	0.522	0.316	0.070
860.82992	0.845	0.540	0.327	0.081	865.49070	0.815	0.527	0.320	0.070
860.83361	0.853	0.552	0.336	0.087	865.49357	0.816	0.524	0.309	0.066
860.83730	0.857	0.552	0.340	0.092	865.49646	0.821	0.526	0.311	0.069
860.84238	0.849	0.547	0.335	0.086	865.49957	0.826	0.534	0.320	0.076
860.84639	0.848	0.545	0.334	0.084	865.50264	0.828	0.538	0.324	0.077
860.85001	0.851	0.549	0.343	0.090	865.50572	0.830	0.533	0.319	0.075
860.85365	0.846	0.540	0.329	0.077	865.50886	0.829	0.530	0.318	0.073
860.85731	0.850	0.543	0.323	0.083	865.52530	0.848	0.541	0.327	0.082
					865.52827	0.846	0.542	0.324	0.077
862.50412	0.790	0.511	0.300	0.059	865.53144	0.851	0.549	0.331	0.084
862.50718	0.796	0.518	0.304	0.059	865.53454	0.850	0.544	0.330	0.085
862.51009	0.802	0.520	0.312	0.068	865.53729	0.852	0.545	0.329	0.084
862.51310	0.807	0.524	0.312	0.068	865.54040	0.849	0.546	0.330	0.082
862.51613	0.814	0.526	0.314	0.072	865.54328	0.852	0.548	0.335	0.082
862.51956	0.816	0.531	0.320	0.075	865.54628	0.849	0.546	0.330	0.084
862.52253	0.824	0.535	0.321	0.079	865.54915	0.851	0.543	0.323	0.082
862.52521	0.824	0.532	0.319	0.078	865.55201	0.846	0.538	0.325	0.081
862.52795	0.831	0.536	0.322	0.081	865.55491	0.850	0.544	0.327	0.084
862.53068	0.830	0.534	0.322	0.076	865.55782	0.848	0.545	0.333	0.084
862.53356	0.835	0.538	0.325	0.082	865.56087	0.848	0.544	0.331	0.083
862.53632	0.833	0.534	0.319	0.077	865.56387	0.845	0.542	0.325	0.082
862.53901	0.833	0.535	0.322	0.076	865.56682	0.844	0.539	0.326	0.082
862.54175	0.843	0.550	0.334	0.087	865.57012	0.841	0.538	0.326	0.079
862.54441	0.839	0.541	0.327	0.081	865.57329	0.839	0.535	0.322	0.078
862.54712	0.847	0.550	0.335	0.087	865.57628	0.835	0.535	0.320	0.076

TABLE VIII *(continued)*.

Heliocentric Julian Date - 2445000	u	v	b	y
865.57916	0.834	0.528	0.317	0.074
865.58202	0.830	0.531	0.316	0.072
865.58502	0.826	0.528	0.319	0.074
865.58820	0.823	0.530	0.311	0.067
865.59145	0.822	0.526	0.314	0.069
865.59427	0.820	0.527	0.319	0.069
865.59755	0.817	0.526	0.322	0.071
865.60039	0.815	0.524	0.312	0.065
865.60319	0.810	0.521	0.312	0.066
865.60603	0.808	0.522	0.315	0.065
865.60879	0.807	0.522	0.313	0.067
865.61177	0.803	0.521	0.309	0.061
865.61456	0.803	0.517	0.307	0.064
865.61730	0.805	0.521	0.309	0.065
865.62105	0.801	0.519	0.313	0.061
865.62386	0.800	0.517	0.309	0.069
865.62669	0.797	0.514	0.309	0.069
865.62961	0.795	0.515	0.303	0.065
865.63240	0.798	0.519	0.309	0.067
865.63530	0.791	0.515	0.306	0.067
865.63809	0.789	0.517	0.304	0.064
865.64083	0.783	0.517	0.306	0.059
865.64389	0.777	0.508	0.300	0.058
865.64680	0.778	0.508	0.298	0.057
865.68947	0.763	0.494	0.286	0.045
865.69302	0.768	0.497	0.287	0.044
865.69588	0.768	0.498	0.292	0.046
865.69876	0.771	0.496	0.289	0.048
865.70215	0.773	0.500	0.287	0.043
865.70504	0.779	0.503	0.295	0.051
865.70791	0.784	0.505	0.299	0.056
865.71089	0.787	0.508	0.297	0.056
865.71379	0.794	0.511	0.299	0.060
865.71665	0.797	0.513	0.301	0.058
865.71953	0.801	0.514	0.305	0.065
865.72256	0.807	0.521	0.314	0.067
865.72563	0.805	0.519	0.304	0.060
865.72867	0.813	0.523	0.315	0.069
865.73171	0.817	0.528	0.314	0.066
865.73460	0.820	0.529	0.316	0.070
865.73757	0.823	0.531	0.319	0.075
865.74050	0.829	0.534	0.322	0.075
865.74337	0.829	0.536	0.321	0.074
865.74618	0.830	0.541	0.324	0.074
865.74894	0.835	0.542	0.328	0.077
865.75192	0.840	0.540	0.325	0.079
865.75475	0.835	0.541	0.325	0.076
865.75803	0.843	0.542	0.326	0.078
865.76091	0.844	0.542	0.323	0.081
865.76385	0.844	0.543	0.329	0.080
865.76722	0.843	0.544	0.325	0.078
865.77047	0.847	0.542	0.329	0.078
865.77335	0.847	0.543	0.329	0.081
865.77641	0.846	0.539	0.325	0.079
865.77943	0.843	0.541	0.325	0.078
865.78297	0.852	0.547	0.326	0.083
865.78593	0.844	0.542	0.324	0.078
865.78912	0.847	0.541	0.327	0.078
865.79220	0.848	0.542	0.324	0.080
865.79573	0.842	0.539	0.325	0.076
865.79937	0.839	0.537	0.326	0.078
865.80234	0.834	0.537	0.322	0.073
865.80536	0.838	0.538	0.325	0.078
865.80857	0.834	0.535	0.325	0.075
865.81174	0.830	0.527	0.314	0.069
865.81477	0.823	0.527	0.312	0.065
865.81792	0.826	0.525	0.306	0.067
869.54839	0.808	0.524	0.311	0.063
869.55127	0.807	0.519	0.306	0.061
869.55388	0.804	0.520	0.309	0.060
869.55646	0.804	0.519	0.308	0.062
869.55925	0.800	0.516	0.309	0.058
869.56210	0.797	0.514	0.309	0.064
869.56464	0.795	0.514	0.304	0.058
869.56745	0.795	0.516	0.309	0.059
869.57034	0.793	0.515	0.308	0.059
869.57294	0.792	0.510	0.305	0.061
869.57566	0.791	0.514	0.306	0.058
869.57820	0.788	0.513	0.303	0.059
869.58083	0.785	0.514	0.302	0.056
869.58334	0.786	0.513	0.301	0.059
869.58605	0.777	0.511	0.299	0.054
869.59124	0.774	0.509	0.301	0.056
869.59389	0.774	0.505	0.294	0.054
869.59712	0.770	0.505	0.292	0.049
869.60019	0.767	0.498	0.290	0.053
869.60296	0.764	0.496	0.291	0.052
869.60579	0.763	0.498	0.285	0.050
869.60858	0.761	0.496	0.288	0.047
869.61165	0.760	0.494	0.285	0.046
869.61442	0.756	0.492	0.283	0.041
869.61816	0.760	0.490	0.284	0.044
869.62085	0.755	0.490	0.281	0.040
869.62349	0.758	0.492	0.284	0.043
869.62603	0.758	0.490	0.284	0.043
869.62881	0.758	0.489	0.283	0.040
869.63160	0.759	0.492	0.285	0.042
869.63415	0.759	0.489	0.281	0.040
869.63675	0.763	0.493	0.284	0.041
869.63966	0.766	0.490	0.286	0.043

Heliocentric Julian Date - 2445000	u	v	b	y
869.64811	0.777	0.500	0.289	0.050
869.65085	0.777	0.503	0.294	0.050
869.65388	0.784	0.506	0.298	0.058
869.65658	0.786	0.504	0.292	0.053
869.66229	0.789	0.508	0.297	0.054
869.66500	0.799	0.511	0.292	0.057
869.66769	0.799	0.519	0.308	0.060
869.67071	0.801	0.517	0.303	0.060
869.67340	0.811	0.528	0.313	0.066
869.67602	0.816	0.527	0.314	0.071
869.67867	0.819	0.529	0.313	0.069
869.68142	0.820	0.532	0.315	0.072
869.68396	0.820	0.528	0.312	0.071
869.68649	0.829	0.539	0.324	0.077
869.68904	0.832	0.538	0.322	0.077
869.69164	0.836	0.533	0.316	0.076
869.69423	0.840	0.540	0.327	0.084
869.69693	0.833	0.535	0.313	0.075
869.69947	0.845	0.549	0.336	0.087
869.70212	0.847	0.549	0.337	0.087
869.70470	0.848	0.546	0.331	0.087
869.70744	0.850	0.549	0.334	0.087
869.71016	0.854	0.548	0.331	0.091
869.71295	0.848	0.547	0.327	0.084
869.71593	0.854	0.551	0.334	0.091
869.71894	0.853	0.552	0.335	0.035
869.72177	0.859	0.555	0.339	0.093
869.72445	0.856	0.549	0.334	0.036
869.72740	0.857	0.554	0.337	0.089
869.72992	0.857	0.553	0.339	0.092
869.73455	0.859	0.554	0.333	0.086
869.73727	0.854	0.551	0.332	0.086
869.73993	0.848	0.541	0.322	0.073
870.60630	0.750	0.490	0.279	0.035
870.60954	0.757	0.495	0.285	0.043
870.61245	0.759	0.492	0.281	0.042
870.61545	0.759	0.493	0.285	0.043
870.61849	0.760	0.490	0.281	0.043
870.62138	0.758	0.485	0.277	0.039
870.62435	0.765	0.494	0.284	0.043
870.62747	0.763	0.493	0.285	0.043
870.63098	0.767	0.493	0.285	0.044
870.63434	0.776	0.499	0.291	0.049
870.63737	0.779	0.502	0.296	0.054
870.64049	0.782	0.506	0.297	0.054
870.64353	0.786	0.505	0.296	0.055
870.64672	0.789	0.512	0.301	0.057
870.64968	0.792	0.511	0.299	0.056
870.65277	0.795	0.511	0.298	0.058
870.65571	0.806	0.521	0.307	0.066
870.65863	0.805	0.521	0.307	0.062
870.66160	0.807	0.522	0.311	0.064
870.66467	0.818	0.529	0.310	0.071
870.66776	0.822	0.532	0.319	0.075
870.67128	0.825	0.532	0.317	0.074
870.67425	0.829	0.534	0.323	0.077
870.67732	0.829	0.537	0.325	0.073
870.68043	0.833	0.534	0.325	0.075
870.68394	0.835	0.539	0.325	0.076
870.68690	0.840	0.542	0.325	0.081
870.68993	0.841	0.544	0.329	0.082
870.69304	0.847	0.547	0.331	0.084
870.69601	0.848	0.547	0.333	0.086
870.69893	0.851	0.549	0.331	0.086
870.70185	0.852	0.549	0.331	0.088
870.71169	0.859	0.557	0.340	0.092
870.71517	0.861	0.556	0.341	0.094
870.71834	0.856	0.550	0.335	0.087
870.72139	0.863	0.556	0.341	0.095
870.72444	0.856	0.552	0.335	0.086

TABLE IX. — *Differential uvby photometry for σ Lup relative to HD 130572.*

JD − 2445000	u	v	b	y
107.711	−3.602	−2.400	−2.217	−2.124
108.689	−3.595	−2.394	−2.214	−2.120
110.695	−3.601	−2.401	−2.218	−2.124
123.684	−3.599	−2.396	−2.215	−2.121
126.703	−3.593	−2.391	−2.210	−2.117
510.620	−3.597	−2.396	−2.213	−2.119
511.583	−3.603	−2.402	−2.220	−2.124
512.598	−3.597	−2.396	−2.216	−2.120
518.591	−3.600	−2.399	−2.217	−2.122
528.581	−3.601	−2.399	−2.215	−2.122
529.534	−3.602	−2.403	−2.219	−2.125
530.568	−3.602	−2.401	−2.217	−2.123
531.569	−3.593	−2.393	−2.211	−2.117
853.679	−3.596	−2.398	−2.216	−2.122
854.641	−3.593	−2.395	−2.215	−2.120
855.643	−3.596	−2.400	−2.217	−2.122
857.628	−3.593	−2.395	−2.215	−2.120
858.572	−3.599	−2.400	−2.217	−2.123
863.538	−3.583	−2.388	−2.207	−2.113
868.546	−3.597	−2.398	−2.215	−2.121
876.712	−3.593	−2.397	−2.214	−2.121
877.608	−3.597	−2.400	−2.217	−2.123

TABLE X. — *Differential uvby photometry for HR 6174 relative to HR 6209.*

JD − 2445000	u	v	b	y
114.786	−0.387	−0.241	−0.260	−0.292
115.778	−0.379	−0.239	−0.258	−0.288
116.607	−0.378	−0.241	−0.264	−0.293
117.745	−0.384	−0.244	−0.265	−0.295
118.728	−0.384	−0.243	−0.263	−0.295
119.680	−0.404	−0.257	−0.275	−0.307
123.910	−0.387	−0.242	−0.256	−0.290
510.781	−0.383	−0.244	−0.262	−0.296
512.775	−0.361	−0.233	−0.253	−0.285
513.587	−0.390	−0.248	−0.267	−0.300
514.520	−0.375	−0.235	−0.255	−0.289
518.755	−0.399	−0.254	−0.272	−0.304
520.698	−0.380	−0.243	−0.263	−0.294
528.725	−0.375	−0.241	−0.262	−0.293
530.720	−0.399	−0.253	−0.272	−0.304
531.716	−0.365	−0.232	−0.255	−0.286
532.614	−0.387	−0.246	−0.266	−0.297
533.615	−0.385	−0.245	−0.264	−0.296
857.831	−0.392	−0.250	−0.271	−0.302
861.689	−0.383	−0.243	−0.264	−0.295
876.763	−0.399	−0.254	−0.276	−0.305