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Photometric variability of some CP stars (*)

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Summary. — The photometric data relative to twenty-three southern CP stars have been re-analysed. New or improved parameters of the lightcurves are presented for eleven of them.

Key words : CP stars : period — CP stars : lightcurves — CP stars : Strömgren photometry.

1. The observational material.

uvby photometry of CP stars has been carried out in December 1975 at the European Southern Observatory on La Silla with the 50 cm ESO telescope equipped with a standard single-channel photometer. Preliminary results have been published for some of the stars observed (Heck *et al.*, 1977 ; Maitzen *et al.*, 1978 ; Renson *et al.*, 1978, 1984) as well as for the comparison stars (Heck and Manfroid, 1980). For most variable objects however, the data seemed to remain inconclusive.

In order to improve the quality of the final photometric values, the original observations were re-reduced using the PHOT2 programme (Manfroid and Heck, 1983, 1984). The differential data with comparison stars in the standard Strömgren system are presented in tables I to XXIII.

By combining these data with all other available material obtained by several observers during the last fifteen years, it has been possible to derive reliable lightcurves and periods for about half of the stars. The information on the observing runs used is given in table XXIV.

2. Analysis of the lightcurves.

For each star, a least-square fit of the observations has been done in each colour with the following function :

$$m = A_0 + A_1 \sin [2\pi (t - t_0)/P + \varphi_1] + \\ + A_2 \sin [4\pi (t - t_0)/P + \varphi_2] ,$$

where

— m is the magnitude in the corresponding colour,
— t, the time,
— P, the period,
— φ_j and A_j are the phases and amplitudes to be determined.

By varying P and minimizing the scatter of the observations around the above function in each colour, the most probable period can be estimated and the corresponding lightcurve parameters obtained. For more details on the method, refer to Mathys and Manfroid (1985). The uncertainties have been empirically estimated.

This procedure worked well for eleven of the twenty-three stars. For nine of them, it was possible to take into account data obtained during other runs by various observers, often using other comparison stars and different reduction procedures. Of course, the values of the coefficient A_0 calculated separately for each of these runs did not coincide (discrepancies of the order of 0.01 magnitude). They were arbitrarily set to zero and the observational data were shifted accordingly.

This allowed the direct comparison of the various groups of data. When the data within one group failed to produce an accurate least-square fit, the value for A_0 has been set to the average magnitude. The value t_0 has been arbitrarily set to the integer value of the heliocentric Julian date of the first observation used.

Table XXV presents the data sets used for each of the eleven stars for which a good least-square fit has been

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achieved. The parameters of the fits are listed in table XXVI and the lightcurves are plotted in figure 1 to 11 together with the harmonic fit. In several cases, *UBV* or Geneva photometric data were used to improve or confirm the value of the period *via* the *V* magnitude (see Ref. in Tab. XXV). The normal observing sequences involved two comparison stars. However several of them proved to be variable. The retained comparison stars are also given in table XXV.

3. Notes on individual stars.

HD 29305

The value derived from all combined data,

$$P = (2.943176 \pm 0.000043)\ \mathrm{d}$$

is in good agreement with the one given by Manfroid and Mathys (1985) :

$$P = (2.9433 \pm 0.0004)\ \mathrm{d}\ .$$

The few observations carried out by Maitzen in 1971 and 1979 (Maitzen, 1981) had little influence on the determination of *P*, but they were nonetheless included in the fit.

HD 56022

From the December 1975 data, the value :

$$P = (0.9195 \pm 0.0013)\ \mathrm{d}$$

has been obtained. It agrees well with that derived by Renson *et al.* (1976) :

$$P = (0.90 \pm 0.02)\ \mathrm{d}$$

and Hensberge *et al.* (1981) :

$$P = (0.9183 \pm 0.0013)\ \mathrm{d}\ .$$

By combining the data, we got :

$$P = (0.91889 \pm 0.00003)\ \mathrm{d}\ .$$

HD 56455

Waelkens (1985) and Renson *et al.* (1976) proposed different values of *P*. Those given by Renson are not compatible with our data. On the other hand, Waelkens' determination,

$$P = (1.9346 \pm 0.0001)\ \mathrm{d}\ ,$$

is quite plausible and we used it for the fit of the lightcurves.

HD 65987

Our December 1975 data gave :

$$P = (1.451 \pm 0.008)\ \mathrm{d}\ .$$

The more accurate period determined by North (1984) :

$$P = (1.44962 \pm 0.00018)\ \mathrm{d}$$

has been used to determine the parameters of the fits.

HD 66255

Manfroid and Mathys (1985) found for the frequency :

$$f = (0.14671 \pm 0.00149\ n)\ \mathrm{d}^{-1}$$

with $n = 0, \pm 1, 2, 3, \ldots$ on the basis of Runs 9 and 13. By combining Runs 1, 9 and 13, the uncertainty on *n* disappeared and the period was unequivocally determined as :

$$P = (6.8178 \pm 0.0016)\ \mathrm{d}\ .$$

HD 66605

Using Runs 9 and 13, Manfroid and Mathys (1985) found :

$$f = (0.44835 \pm 0.00148\ n)\ \mathrm{d}^{-1}\ .$$

After having added Run 1, it came :

$$f = (0.44980 \pm 0.00004)\ \mathrm{d}^{-1}$$

corresponding to :

$$P = (2.2232 \pm 0.0002)\ \mathrm{d}\ .$$

This is an excellent agreement with the previously determined value for $n = 1$. The only other possibility is :

$$f = (0.44705 \pm 0.00004)\ \mathrm{d}^{-1}\ ,$$

but it looks much less likely. Moreover it does not agree very well with Manfroid and Mathys' (1985) determination.

HD 72968

Maitzen *et al.* (1978) published the following period :

$$P = (11.305 \pm 0.002)\ \mathrm{d}$$

which agrees adequately with our data. Moreover it represents quite well magnetic field data. Another value quoted by Catalano and Renson (1984) can be excluded. Hence we adopted Maitzen *et al.*'s determination for the fit of the lightcurves.

HD 73340

By using the data of Runs 1, 9 and 13, we derived :

$$P = (2.66753 \pm 0.00025)\ \mathrm{d}$$

which is slightly more accurate than the values previously published by Renson *et al.* (1978) :

$$P = (2.6679 \pm 0.0004)\ \mathrm{d}$$

and Manfroid and Mathys (1985) :

$$P = (2.66745 \pm 0.0007)\ \mathrm{d}\ .$$

Data by Hensberge *et al.* (1976) have been included in the fit of the lightcurves, but they did not improve the derivation of the period.

HD 83368

Magnetic observations by Thompson (1983) confirmed that the period :

$$P = 1.42602 \text{ d}$$

published by Renson *et al.* (1984) was in fact the half period. Using Runs 1, 9 and 13 together with Kurtz's (1982) data, we derived :

$$P = (2.85189 \pm 0.00049) \text{ d} .$$

HD 83625

Manfroid and Mathys (1985) proposed a series of possible frequencies :

$$f = (0.92435 + 0.00148\, n \pm 0.00013)\ \text{d}^{-1} .$$

From all combined data, the most probable value appeared to be :

$$f = (0.92720 \pm 0.00004)\ \text{d}^{-1}$$

corresponding to $n = 2$ and :

$$P = (1.07852 \pm 0.00005) \text{ d} .$$

However $n = 0$ cannot be totally excluded, giving

$$f = (0.92452 \pm 0.00004)\ \text{d}^{-1} .$$

HD 92664

We could not improve the determination by Mégessier and Hensberge (1984) :

$$P = (1.6731 \pm 0.0001) \text{ d} ,$$

which has then been used in the calculations.

4. Constant stars.

Table XXVII lists the general data relative to eight stars that showed no variation during the December 1975 run. This does not exclude the possibility of long-term variations for some of them.

In fact, HD 94660 is definitely such a variable (Hensberge *et al.*, 1984). The same authors suspected HD 59256 of long-term variations. HD 101189 is also a suspected long-term variable, since it satisfies the criteria of Hensberge *et al.* (1984) : constancy over one week and $v \sin i \leqslant 30$ km s^{-1}. Notice also that Jakate (1979) found HD 101189 to be constant within a few thousandths of magnitude over several nights when it was used as a comparison star.

The case is different for HD 55719 which has a relatively high $v \sin i$. This is in marked contrast with the absence of short-term variations, also noted by Stift (1979) and by Jerzykiewicz and Sterken (1977). However Bonsack (1977) suggested an irregular variation of the magnetic field.

Table XXVIII presents four stars for which the data remained inconclusive. HD 50169 was suspected by Heck *et al.* (1977) of being a long-period variable, but short-term variations are also detected. It is probably a very peculiar star (Hensberge *et al.*, 1981). HD 50461 presents a large scatter, but no periodicity could be found. HD 53244 shows only fluctuations in the *u* filter. A frequency :

$$f = (1.729 \pm 0.001)\ \text{d}^{-1}$$

can even be suggested, but remains highly uncertain. The case of HD 101065, the well-known Przybylski's star, could not be settled with our few observations. Short-period variations are however present (Weiss and Kreidl, 1980 ; Kurtz, 1981).

5. Conclusion.

We have presented photometric observations for twenty-three CP stars. These observations and other data from several observers were used to derive the period and/or the parameters of the lightcurves for eleven of them.

The remaining stars are either constant, display long-term variations or have inconclusive data. One of them, HD 50169, is apparently quite peculiar and shows irregular variations.

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TABLE I. — *Observations of HD 29305 (HD 29305 – HD 24863).*

HJD 2,440,000+	u	v	b	y
2752.600	-4.116	-3.527	-3.340	-3.195
2752.671	-4.101	-3.531	-3.354	-3.206
2753.620	-4.140	-3.541	-3.356	-3.203
2753.725	-4.129	-3.543	-3.364	-3.213
2754.588	-4.203	-3.568	-3.386	-3.242
2754.728	-4.206	-3.562	-3.387	-3.237
2755.599	-4.103	-3.532	-3.351	-3.196
2755.752	-4.114	-3.539	-3.359	-3.206
2756.573	-4.124	-3.535	-3.353	-3.200
2756.631	-4.146	-3.551	-3.362	-3.214
2756.732	-4.124	-3.538	-3.362	-3.213
2757.604	-4.213	-3.562	-3.379	-3.241
2757.695	-4.191	-3.558	-3.378	-3.237
2758.573	-4.097	-3.524	-3.342	-3.193
2758.656	-4.101	-3.533	-3.350	-3.203
2758.733	-4.101	-3.528	-3.352	-3.198
2759.585	-4.127	-3.537	-3.358	-3.222
2759.727	-4.168	-3.556	-3.372	-3.216
2767.570	-4.122	-3.538	-3.352	-3.197
2767.718	-4.106	-3.531	-3.349	-3.202
2768.589	-4.143	-3.541	-3.358	-3.215
2770.568	-4.110	-3.536	-3.359	-3.206
2770.682	-4.102	-3.525	-3.348	-3.196
2771.563	-4.138	-3.539	-3.362	-3.218
2771.693	-4.154	-3.559	-3.379	-3.234
2772.567	-4.206	-3.571	-3.383	-3.228
2772.684	-4.138	-3.541	-3.368	-3.218
2773.568	-4.115	-3.531	-3.352	-3.204
2774.565	-4.149	-3.546	-3.365	-3.225
2774.668	-4.146	-3.543	-3.366	-3.231
2775.572	-4.152	-3.548	-3.374	-3.226
2776.565	-4.117	-3.533	-3.348	-3.198
2778.550	-4.142	-3.547	-3.367	-3.224
2778.616	-4.140	-3.532	-3.357	-3.218
2778.735	-4.113	-3.529	-3.358	-3.217
2779.550	-4.086	-3.510	-3.327	-3.182
2779.606	-4.100	-3.526	-3.341	-3.195
2779.676	-4.095	-3.521	-3.342	-3.197

TABLE II. — *Observations of HD 33904 [HD 33904 – 1/2 (HD 34816 + HD 35337)].*

HJD 2,440,000+	u	v	b	y
2752.607	-0.616	-1.343	-1.421	-1.477
2753.627	-0.619	-1.344	-1.426	-1.478
2754.587	-0.620	-1.345	-1.429	-1.486
2755.615	-0.619	-1.345	-1.427	-1.479
2756.561	-0.619	-1.346	-1.424	-1.480
2756.719	-0.614	-1.348	-1.430	-1.489
2757.631	-0.641	-1.354	-1.428	-1.482
2757.701	-0.635	-1.350	-1.428	-1.481
2758.588	-0.627	-1.346	-1.429	-1.479
2758.744	-0.622	-1.347	-1.434	-1.492
2759.592	-0.629	-1.348	-1.424	-1.483
2759.708	-0.618	-1.344	-1.430	-1.486
2759.765	-0.617	-1.341	-1.425	-1.488
2767.599	-0.618	-1.344	-1.433	-1.484
2768.581	-0.620	-1.340	-1.425	-1.487
2770.572	-0.614	-1.345	-1.429	-1.487
2771.592	-0.641	-1.350	-1.426	-1.481
2772.584	-0.631	-1.348	-1.426	-1.482
2772.682	-0.616	-1.341	-1.427	-1.490
2773.583	-0.624	-1.349	-1.430	-1.479
2773.669	-0.621	-1.347	-1.436	-1.479
2774.577	-0.626	-1.346	-1.425	-1.480
2774.661	-0.613	-1.339	-1.422	-1.480
2775.570	-0.620	-1.343	-1.426	-1.484
2775.708	-0.615	-1.346	-1.428	-1.488
2776.563	-0.613	-1.347	-1.428	-1.484
2776.621	-0.622	-1.347	-1.432	-1.486
2778.572	-0.623	-1.339	-1.426	-1.482
2779.570	-0.623	-1.348	-1.433	-1.486

TABLE III. — *Observations of HD 36629 (HD 36629 – HD 36342).*

HJD 2,440,000+	u	v	b	y
2752.631	-0.971	0.002	0.109	0.113
2757.616	-0.981	0.002	0.110	0.108
2758.580	-0.978	-0.002	0.106	0.109
2758.676	-0.975	-0.008	0.101	0.103
2759.588	-0.986	-0.008	0.110	0.105
2768.592	-0.973	0.004	0.113	0.105
2770.579	-0.977	-0.004	0.102	0.102
2771.575	-0.980	-0.011	0.097	0.105
2771.693	-0.975	-0.007	0.097	0.102
2772.576	-0.977	0.000	0.111	0.103
2774.574	-0.978	-0.003	0.100	0.103
2775.583	-0.974	-0.006	0.105	0.105
2775.723	-0.970	-0.003	0.108	0.111
2776.569	-0.978	-0.013	0.101	0.105
2776.627	-0.988	-0.004	0.106	0.111
2779.577	-0.993	-0.007	0.094	0.105

TABLE IV. — *Observations of HD 50169 [HD 50169 – 1/2 (HD 50040 + HD 50405)].*

HJD 2,440,000+	u	v	b	y
2752.718	0.160	0.201	0.157	0.208
2753.652	0.147	0.183	0.149	0.207
2754.664	0.179	0.201	0.157	0.210
2755.719	0.177	0.196	0.157	0.198
2756.676	0.150	0.188	0.148	0.211
2756.764	0.162	0.187	0.159	0.219
2757.706	0.160	0.191	0.148	0.207
2757.772	0.166	0.190	0.158	0.211
2758.710	0.166	0.198	0.166	0.213
2759.731	0.155	0.189	0.160	0.220
2767.619	0.167	0.191	0.163	0.218
2768.664	0.139	0.166	0.131	0.205
2770.614	0.164	0.196	0.161	0.227
2772.621	0.178	0.193	0.158	0.219
2772.829	0.167	0.183	0.154	0.205
2773.823	0.161	0.183	0.149	0.199
2774.821	0.167	0.193	0.163	0.217
2775.715	0.172	0.201	0.162	0.212
2776.618	0.171	0.191	0.158	0.213
2776.803	0.152	0.202	0.163	0.216
2778.738	0.149	0.188	0.158	0.220
2778.811	0.150	0.191	0.164	0.223
2779.625	0.161	0.198	0.162	0.221
2779.713	0.167	0.199	0.153	0.201
2779.772	0.202	0.199	0.168	0.208

TABLE V. — *Observations of HD 50461 [HD 50461 – 1/2 (HD 50672 + HD 50936)].*

HJD 2,440,000+	u	v	b	y
2752.728	-1.841	-1.337	-1.182	-1.014
2753.657	-1.878	-1.354	-1.202	-1.022
2754.668	-1.855	-1.361	-1.204	-1.023
2755.722	-1.843	-1.357	-1.199	-1.030
2756.683	-1.854	-1.366	-1.210	-1.038
2757.712	-1.848	-1.369	-1.214	-1.041
2757.776	-1.848	-1.358	-1.197	-1.036
2758.726	-1.846	-1.349	-1.182	-1.018
2758.785	-1.862	-1.348	-1.181	-1.020
2759.772	-1.822	-1.326	-1.173	-1.023
2767.624	-1.824	-1.345	-1.195	-1.032
2767.741	-1.872	-1.352	-1.179	-1.010
2770.617	-1.847	-1.349	-1.195	-1.017
2771.613	-1.892	-1.373	-1.205	-1.019
2772.611	-1.843	-1.355	-1.199	-1.027
2774.603	-1.859	-1.372	-1.219	-1.040
2774.825	-1.829	-1.338	-1.174	-1.008
2775.615	-1.875	-1.358	-1.212	-1.058
2776.600	-1.839	-1.343	-1.194	-1.028
2776.767	-1.814	-1.319	-1.167	-1.009
2779.617	-1.835	-1.351	-1.191	-1.022

TABLE VI. — *Observations of HD 53244 [HD 53244 – 1/2 (HD 49229 + HD 56405)].*

HJD 2,440,000+	u	v	b	y
2752.730	-1.951	-1.461	-1.340	-1.258
2753.664	-1.916	-1.443	-1.331	-1.257
2754.657	-1.921	-1.453	-1.342	-1.266
2755.729	-1.933	-1.455	-1.340	-1.263
2756.690	-1.934	-1.451	-1.340	-1.263
2757.719	-1.935	-1.455	-1.343	-1.260
2759.723	-1.944	-1.455	-1.337	-1.257
2759.769	-1.944	-1.458	-1.338	-1.259
2767.611	-1.917	-1.449	-1.339	-1.264
2767.738	-1.942	-1.455	-1.340	-1.258
2768.671	-1.924	-1.459	-1.340	-1.266
2770.608	-1.933	-1.451	-1.337	-1.262
2771.830	-1.942	-1.455	-1.344	-1.259
2772.823	-1.925	-1.450	-1.337	-1.256
2773.817	-1.936	-1.451	-1.344	-1.266
2774.599	-1.914	-1.445	-1.336	-1.269
2774.814	-1.932	-1.451	-1.338	-1.258
2775.611	-1.927	-1.451	-1.331	-1.260
2776.596	-1.919	-1.452	-1.338	-1.265
2776.764	-1.933	-1.447	-1.338	-1.259
2778.587	-1.925	-1.452	-1.347	-1.261
2778.789	-1.934	-1.453	-1.338	-1.260
2779.581	-1.935	-1.443	-1.332	-1.253

TABLE VII. — *Observations of HD 55719 (HD 55719 – HD 53704).*

HJD 2,440,000+	u	v	b	y
2752.743	-0.143	-0.099	0.020	0.109
2753.668	-0.152	-0.091	0.025	0.112
2754.706	-0.157	-0.097	0.020	0.109
2755.731	-0.155	-0.098	0.030	0.118
2756.699	-0.142	-0.096	0.022	0.102
2756.774	-0.155	-0.097	0.021	0.108
2757.734	-0.152	-0.098	0.016	0.108
2758.616	-0.168	-0.113	0.016	0.107
2759.668	-0.156	-0.101	0.013	0.113
2759.742	-0.157	-0.104	0.016	0.110
2767.607	-0.152	-0.101	0.019	0.107
2767.764	-0.141	-0.093	0.027	0.110
2768.631	-0.145	-0.097	0.015	0.104
2770.594	-0.146	-0.098	0.019	0.108
2770.688	-0.149	-0.102	0.014	0.106
2771.583	-0.139	-0.088	0.028	0.110
2771.700	-0.148	-0.088	0.026	0.107
2771.822	-0.140	-0.093	0.026	0.104
2772.592	-0.137	-0.099	0.024	0.109
2772.689	-0.143	-0.099	0.021	0.111
2772.816	-0.147	-0.099	0.020	0.111
2773.588	-0.141	-0.094	0.026	0.107
2773.674	-0.147	-0.102	0.017	0.109
2774.583	-0.145	-0.095	0.019	0.109
2774.677	-0.154	-0.094	0.013	0.104
2774.806	-0.145	-0.099	0.023	0.112
2775.595	-0.151	-0.102	0.021	0.108
2775.814	-0.149	-0.102	0.010	0.103
2776.585	-0.147	-0.102	0.020	0.111
2776.745	-0.144	-0.097	0.022	0.106
2778.593	-0.140	-0.094	0.029	0.112
2778.752	-0.161	-0.098	0.021	0.109
2779.584	-0.142	-0.086	0.024	0.112
2779.655	-0.143	-0.101	0.019	0.116
2779.717	-0.145	-0.095	0.017	0.105

TABLE VIII. — *Observations of HD 56022 [HD 56022 – 1/2 (HD 53704 + HD 56456)].*

HJD 2,440,000+	u	v	b	y
2752.744	-0.144	-0.199	-0.137	-0.090
2753.702	-0.163	-0.201	-0.135	-0.085
2753.770	-0.172	-0.205	-0.143	-0.089
2754.727	-0.187	-0.210	-0.147	-0.091
2754.780	-0.192	-0.210	-0.148	-0.099
2755.751	-0.200	-0.215	-0.151	-0.095
2756.699	-0.189	-0.210	-0.148	-0.097
2756.792	-0.179	-0.207	-0.149	-0.097
2757.735	-0.167	-0.206	-0.147	-0.090
2759.669	-0.151	-0.203	-0.139	-0.087
2759.742	-0.153	-0.203	-0.145	-0.088
2767.608	-0.192	-0.215	-0.149	-0.091
2767.764	-0.183	-0.208	-0.152	-0.098
2768.632	-0.186	-0.203	-0.151	-0.101
2770.595	-0.161	-0.201	-0.145	-0.091
2770.689	-0.151	-0.203	-0.142	-0.087
2771.583	-0.146	-0.200	-0.142	-0.094
2771.823	-0.142	-0.201	-0.136	-0.086
2772.593	-0.138	-0.197	-0.141	-0.085
2772.690	-0.143	-0.200	-0.139	-0.085
2772.817	-0.147	-0.198	-0.140	-0.083
2773.589	-0.144	-0.200	-0.144	-0.090
2773.675	-0.141	-0.201	-0.138	-0.087
2774.583	-0.139	-0.196	-0.139	-0.093
2774.677	-0.147	-0.201	-0.143	-0.089
2774.807	-0.143	-0.198	-0.136	-0.090
2775.596	-0.136	-0.200	-0.137	-0.088
2775.815	-0.163	-0.208	-0.152	-0.095
2776.586	-0.142	-0.197	-0.141	-0.093
2776.745	-0.163	-0.206	-0.145	-0.092
2778.595	-0.164	-0.200	-0.137	-0.095
2778.753	-0.200	-0.216	-0.153	-0.096
2779.585	-0.178	-0.202	-0.149	-0.096
2779.656	-0.189	-0.204	-0.152	-0.093
2779.717	-0.181	-0.200	-0.151	-0.101

TABLE IX. — *Observations of HD 56455 [HD 56455 – 1/2 (HD 53704 + HD 56456)].*

HJD 2,440,000+	u	v	b	y
2752.747	0.057	0.531	0.662	0.743
2753.728	0.102	0.539	0.680	0.762
2753.782	0.122	0.542	0.681	0.761
2754.730	0.061	0.533	0.673	0.746
2754.779	0.054	0.529	0.665	0.746
2755.753	0.095	0.536	0.678	0.756
2756.701	0.083	0.535	0.670	0.746
2756.794	0.059	0.533	0.667	0.746
2757.737	0.084	0.538	0.665	0.752
2759.671	0.076	0.527	0.669	0.742
2759.728	0.076	0.532	0.667	0.743
2767.611	0.040	0.524	0.661	0.730
2767.766	0.052	0.529	0.660	0.733
2768.635	0.144	0.553	0.692	0.764
2770.598	0.146	0.544	0.684	0.762
2770.690	0.132	0.551	0.685	0.768
2771.586	0.039	0.523	0.654	0.735
2771.824	0.052	0.526	0.661	0.732
2772.596	0.151	0.550	0.691	0.769
2772.692	0.140	0.550	0.692	0.772
2772.818	0.129	0.553	0.688	0.769
2773.591	0.041	0.524	0.656	0.734
2773.677	0.045	0.522	0.658	0.732
2774.585	0.149	0.556	0.692	0.772
2774.679	0.152	0.547	0.692	0.771
2774.809	0.134	0.547	0.686	0.763
2775.598	0.049	0.517	0.654	0.729
2775.817	0.039	0.522	0.652	0.729
2776.588	0.144	0.544	0.681	0.770
2776.747	0.139	0.549	0.684	0.763
2778.598	0.135	0.544	0.686	0.765
2778.755	0.126	0.543	0.682	0.769
2779.587	0.048	0.528	0.652	0.735
2779.658	0.059	0.529	0.663	0.746
2779.719	0.046	0.528	0.653	0.732

TABLE XI. — *Observations of HD 59435 [HD 59435 – 1/2 (HD 59154 + HD 59692)].*

HJD 2,440,000+	u	v	b	y
2752.771	0.447	0.320	-0.015	-0.278
2753.742	0.447	0.326	-0.010	-0.272
2754.734	0.445	0.314	-0.019	-0.276
2755.762	0.456	0.328	-0.002	-0.277
2756.730	0.436	0.319	-0.019	-0.269
2757.793	0.441	0.312	-0.013	-0.275
2758.783	0.431	0.317	-0.010	-0.269
2767.681	0.449	0.325	-0.008	-0.281
2768.698	0.461	0.327	-0.010	-0.279
2769.671	0.428	0.320	-0.022	-0.273
2769.790	0.435	0.311	-0.015	-0.278
2770.675	0.443	0.327	-0.010	-0.282
2771.673	0.448	0.321	-0.002	-0.277
2772.697	0.428	0.317	-0.014	-0.275
2773.693	0.436	0.310	-0.025	-0.282
2774.700	0.435	0.327	-0.007	-0.278
2775.745	0.452	0.323	-0.007	-0.283
2776.678	0.446	0.325	-0.011	-0.289
2776.811	0.446	0.325	-0.010	-0.275
2778.614	0.432	0.321	-0.017	-0.281
2779.599	0.435	0.325	-0.009	-0.284

TABLE X. — *Observations of HD 59256 (HD 59256 – HD 58377).*

HJD	u	v	b	y
2752.766	-0.353	-1.130	-1.198	-1.232
2753.731	-0.355	-1.134	-1.203	-1.242
2754.729	-0.346	-1.127	-1.196	-1.238
2755.757	-0.354	-1.132	-1.201	-1.238
2756.724	-0.350	-1.129	-1.194	-1.239
2757.789	-0.348	-1.133	-1.198	-1.234
2758.745	-0.350	-1.132	-1.194	-1.233
2759.749	-0.352	-1.133	-1.197	-1.231
2767.675	-0.353	-1.123	-1.192	-1.235
2768.691	-0.350	-1.130	-1.206	-1.236
2769.665	-0.345	-1.130	-1.192	-1.238
2769.784	-0.348	-1.125	-1.195	-1.235
2770.625	-0.363	-1.128	-1.199	-1.240
2771.600	-0.352	-1.138	-1.201	-1.240
2771.721	-0.346	-1.135	-1.201	-1.241
2772.608	-0.350	-1.134	-1.200	-1.238
2773.613	-0.356	-1.130	-1.200	-1.235
2774.610	-0.381	-1.149	-1.201	-1.237
2775.605	-0.357	-1.137	-1.206	-1.248
2775.740	-0.351	-1.124	-1.193	-1.237
2776.593	-0.350	-1.128	-1.197	-1.242
2776.671	-0.349	-1.130	-1.193	-1.229
2778.606	-0.356	-1.130	-1.207	-1.234
2778.829	-0.370	-1.145	-1.197	-1.230
2779.593	-0.353	-1.133	-1.196	-1.230

TABLE XII. — *Observations of HD 65987 [HD 65987 – 1/2 (HD 64507 + HD 65663)].*

HJD 2,440,000+	u	v	b	y
2752.786	0.608	0.783	0.805	0.874
2753.762	0.596	0.774	0.799	0.869
2754.760	0.627	0.794	0.823	0.877
2755.774	0.626	0.801	0.814	0.871
2757.752	0.602	0.790	0.816	0.873
2758.689	0.624	0.783	0.806	0.867
2759.681	0.605	0.781	0.797	0.866
2768.663	0.598	0.784	0.799	0.870
2769.803	0.601	0.781	0.800	0.865
2770.601	0.627	0.795	0.819	0.864
2770.835	0.612	0.786	0.812	0.870
2772.802	0.606	0.775	0.798	0.875
2775.780	0.611	0.776	0.806	0.869
2776.705	0.608	0.790	0.814	0.871
2776.814	0.604	0.785	0.805	0.868
2779.661	0.603	0.777	0.795	0.870

TABLE XIII. — *Observations of HD 66255 [HD 66255 – 1/2 (HD 66192 + HD 66210)].*

HJD 2,440,000+	u	v	b	y
2752.806	-1.309	-0.672	-0.607	-0.589
2757.778	-1.266	-0.644	-0.574	-0.558
2758.780	-1.290	-0.665	-0.590	-0.570
2767.712	-1.282	-0.646	-0.581	-0.564
2767.772	-1.267	-0.638	-0.569	-0.570
2767.838	-1.274	-0.644	-0.576	-0.564
2768.719	-1.241	-0.630	-0.564	-0.554
2769.706	-1.225	-0.624	-0.557	-0.553
2769.812	-1.227	-0.632	-0.562	-0.539
2770.702	-1.235	-0.630	-0.561	-0.549
2770.783	-1.236	-0.630	-0.568	-0.551
2771.698	-1.269	-0.647	-0.574	-0.560
2772.708	-1.279	-0.663	-0.593	-0.579
2773.620	-1.296	-0.666	-0.597	-0.580
2773.686	-1.301	-0.661	-0.592	-0.577
2774.617	-1.265	-0.641	-0.572	-0.579
2774.689	-1.253	-0.634	-0.565	-0.567
2775.707	-1.254	-0.637	-0.566	-0.549
2776.667	-1.225	-0.626	-0.557	-0.551
2776.741	-1.222	-0.629	-0.563	-0.547
2779.669	-1.290	-0.666	-0.601	-0.590

TABLE XIV. — *Observations of HD 66605 (HD 66605 – HD 67363).*

HJD 2,440,000+	u	v	b	y
2752.793	-0.171	-0.571	-0.650	-0.693
2753.778	-0.234	-0.565	-0.666	-0.735
2754.774	-0.173	-0.570	-0.651	-0.687
2755.796	-0.221	-0.574	-0.670	-0.733
2756.770	-0.165	-0.559	-0.635	-0.691
2757.757	-0.195	-0.571	-0.662	-0.716
2758.782	-0.185	-0.554	-0.633	-0.688
2767.709	-0.177	-0.548	-0.631	-0.684
2767.770	-0.171	-0.557	-0.635	-0.690
2767.835	-0.183	-0.550	-0.634	-0.689
2768.716	-0.183	-0.569	-0.657	-0.711
2769.703	-0.204	-0.554	-0.643	-0.706
2769.808	-0.195	-0.549	-0.643	-0.697
2770.699	-0.175	-0.563	-0.643	-0.689
2770.780	-0.173	-0.567	-0.647	-0.691
2771.696	-0.229	-0.557	-0.659	-0.721
2772.629	-0.155	-0.559	-0.631	-0.679
2772.704	-0.163	-0.569	-0.639	-0.678
2773.616	-0.246	-0.578	-0.692	-0.745
2773.683	-0.227	-0.577	-0.674	-0.746
2774.611	-0.169	-0.559	-0.631	-0.678
2774.684	-0.157	-0.556	-0.636	-0.679
2775.703	-0.244	-0.585	-0.675	-0.725
2776.663	-0.183	-0.560	-0.637	-0.684
2776.738	-0.171	-0.554	-0.634	-0.683
2779.666	-0.177	-0.566	-0.652	-0.696

TABLE XV. — *Observations of HD 72968 [HD 72968 – 1/2 (HD 70574 + HD 73997)].*

HJD 2,440,000+	u	v	b	y
2752.811	-0.860	-0.850	-0.757	-0.656
2753.787	-0.860	-0.846	-0.758	-0.659
2754.784	-0.881	-0.855	-0.763	-0.663
2755.800	-0.881	-0.862	-0.776	-0.671
2756.780	-0.878	-0.858	-0.762	-0.662
2757.765	-0.866	-0.852	-0.761	-0.658
2758.823	-0.871	-0.846	-0.750	-0.652
2759.810	-0.869	-0.850	-0.760	-0.655
2767.758	-0.889	-0.862	-0.773	-0.668
2768.725	-0.875	-0.852	-0.763	-0.660
2769.716	-0.860	-0.851	-0.762	-0.655
2770.711	-0.857	-0.845	-0.755	-0.660
2771.724	-0.884	-0.856	-0.767	-0.658
2772.720	-0.864	-0.855	-0.762	-0.666
2772.834	-0.871	-0.858	-0.768	-0.671
2773.734	-0.874	-0.861	-0.769	-0.667
2774.709	-0.865	-0.850	-0.756	-0.663
2775.757	-0.856	-0.843	-0.753	-0.657
2776.694	-0.860	-0.856	-0.758	-0.655
2776.821	-0.867	-0.853	-0.763	-0.659
2779.727	-0.874	-0.846	-0.757	-0.670

TABLE XVI. — *Observations of HD 73340 [HD 73340 – 1/2 (HD 71043 + HD 73127)].*

HJD 2,440,000+	u	v	b	y
2752.819	-0.722	-0.500	-0.462	-0.435
2753.798	-0.747	-0.521	-0.482	-0.451
2754.795	-0.728	-0.507	-0.473	-0.448
2755.802	-0.733	-0.499	-0.458	-0.438
2756.797	-0.767	-0.532	-0.493	-0.454
2757.798	-0.722	-0.494	-0.460	-0.431
2759.813	-0.757	-0.528	-0.488	-0.455
2767.763	-0.777	-0.536	-0.490	-0.450
2768.728	-0.715	-0.498	-0.460	-0.433
2769.719	-0.752	-0.513	-0.482	-0.448
2770.714	-0.742	-0.521	-0.482	-0.440
2770.798	-0.733	-0.516	-0.476	-0.442
2771.736	-0.745	-0.501	-0.461	-0.440
2772.738	-0.764	-0.531	-0.495	-0.454
2772.836	-0.771	-0.528	-0.493	-0.460
2773.763	-0.719	-0.497	-0.457	-0.433
2773.827	-0.713	-0.488	-0.446	-0.438
2774.717	-0.730	-0.494	-0.461	-0.430
2774.836	-0.743	-0.507	-0.470	-0.444
2775.783	-0.765	-0.526	-0.489	-0.458
2776.709	-0.718	-0.494	-0.456	-0.436
2776.823	-0.743	-0.502	-0.460	-0.433
2779.673	-0.733	-0.496	-0.458	-0.437
2779.816	-0.757	-0.504	-0.464	-0.433

TABLE XVII. — *Observations of HD 75333 (HD 75333 – HD 72660).*

HJD 2,440,000+	u	v	b	y
2752.836	-1.002	-0.607	-0.535	-0.512
2753.804	-0.990	-0.603	-0.527	-0.506
2754.802	-1.001	-0.603	-0.532	-0.506
2755.811	-0.993	-0.606	-0.527	-0.503
2756.802	-1.007	-0.607	-0.538	-0.514
2757.805	-1.009	-0.606	-0.535	-0.510
2758.815	-1.000	-0.609	-0.534	-0.511
2759.836	-0.999	-0.609	-0.543	-0.512
2767.746	-0.999	-0.609	-0.532	-0.506
2768.735	-1.007	-0.606	-0.539	-0.507
2769.726	-1.008	-0.607	-0.538	-0.505
2769.818	-1.005	-0.611	-0.537	-0.511
2770.722	-1.014	-0.616	-0.544	-0.503
2770.796	-1.000	-0.605	-0.534	-0.506
2771.729	-1.006	-0.606	-0.529	-0.502
2772.726	-1.008	-0.614	-0.538	-0.502
2773.747	-1.007	-0.607	-0.533	-0.504
2774.713	-0.992	-0.606	-0.533	-0.506
2774.834	-1.000	-0.602	-0.533	-0.501
2775.770	-0.996	-0.610	-0.532	-0.518
2776.700	-1.002	-0.612	-0.540	-0.513
2779.798	-0.992	-0.601	-0.526	-0.511

TABLE XVIII. — *Observations of HD 83368 (HD 83368 – HD 82578).*

HJD 2,440,000+	u	v	b	y
2753.805	-0.270	-0.311	-0.363	-0.368
2754.802	-0.293	-0.344	-0.358	-0.352
2755.817	-0.295	-0.345	-0.362	-0.349
2756.814	-0.275	-0.305	-0.358	-0.366
2757.815	-0.281	-0.331	-0.356	-0.354
2759.808	-0.311	-0.340	-0.373	-0.362
2767.800	-0.278	-0.319	-0.364	-0.356
2768.736	-0.302	-0.352	-0.365	-0.349
2769.727	-0.248	-0.311	-0.354	-0.367
2769.819	-0.273	-0.332	-0.365	-0.361
2770.723	-0.268	-0.316	-0.349	-0.360
2770.805	-0.275	-0.303	-0.359	-0.359
2771.748	-0.292	-0.345	-0.361	-0.359
2771.831	-0.284	-0.349	-0.358	-0.353
2772.744	-0.265	-0.326	-0.359	-0.365
2773.771	-0.267	-0.309	-0.357	-0.360
2774.720	-0.300	-0.354	-0.369	-0.345
2775.802	-0.326	-0.356	-0.361	-0.353
2776.711	-0.265	-0.308	-0.362	-0.371
2776.826	-0.278	-0.320	-0.369	-0.369
2779.695	-0.284	-0.333	-0.382	-0.368
2779.777	-0.278	-0.324	-0.370	-0.368
2779.834	-0.284	-0.331	-0.369	-0.363

TABLE XIX. — *Observations of HD 83625 [HD 83625 – 1/2 (HD 82856 + HD 84461)].*

HJD 2,440,000+	u	v	b	y
2753.812	-0.077	0.391	0.455	0.537
2754.822	-0.056	0.401	0.464	0.542
2755.820	-0.048	0.411	0.469	0.544
2756.819	-0.037	0.413	0.478	0.553
2757.826	-0.027	0.430	0.490	0.554
2758.824	-0.031	0.424	0.483	0.556
2759.802	-0.059	0.391	0.460	0.541
2767.803	-0.075	0.393	0.457	0.538
2768.739	-0.042	0.408	0.471	0.549
2769.731	-0.037	0.421	0.475	0.553
2769.822	-0.046	0.407	0.475	0.551
2770.727	-0.020	0.420	0.487	0.556
2770.809	-0.034	0.421	0.479	0.553
2771.751	-0.039	0.409	0.477	0.552
2771.833	-0.032	0.412	0.483	0.562
2772.748	-0.053	0.390	0.455	0.544
2773.784	-0.055	0.384	0.456	0.532
2775.805	-0.088	0.371	0.443	0.533
2776.715	-0.081	0.376	0.444	0.533
2779.699	-0.065	0.386	0.454	0.534
2779.810	-0.085	0.384	0.447	0.535

TABLE XX. — *Observations of HD 92664 [HD 92664 – 1/2 (HD 88981 + HD 90874)].*

HJD 2,440,000+	u	v	b	y
2768.745	-1.351	-0.481	-0.245	-0.086
2769.739	-1.314	-0.470	-0.225	-0.072
2769.830	-1.323	-0.470	-0.235	-0.073
2770.813	-1.306	-0.457	-0.216	-0.062
2771.795	-1.379	-0.498	-0.256	-0.090
2772.791	-1.317	-0.471	-0.228	-0.063
2773.798	-1.368	-0.485	-0.248	-0.081
2774.770	-1.323	-0.468	-0.216	-0.056
2775.822	-1.317	-0.463	-0.220	-0.060
2776.726	-1.353	-0.489	-0.241	-0.082
2776.793	-1.363	-0.492	-0.249	-0.092
2779.730	-1.308	-0.472	-0.233	-0.068
2779.824	-1.371	-0.487	-0.231	-0.055

TABLE XXI. — *Observations of HD 94660 [HD 94660 – 1/2 (HD 93453 + HD 94724)].*

HJD 2,440,000+	u	v	b	y
2767.813	-0.790	-0.524	-0.414	-0.244
2768.755	-0.783	-0.515	-0.401	-0.244
2769.751	-0.782	-0.518	-0.408	-0.244
2769.834	-0.786	-0.525	-0.412	-0.248
2770.752	-0.789	-0.520	-0.407	-0.248
2770.821	-0.782	-0.522	-0.410	-0.246
2771.792	-0.778	-0.520	-0.403	-0.250
2772.777	-0.777	-0.527	-0.406	-0.248
2772.838	-0.779	-0.518	-0.405	-0.248
2773.811	-0.812	-0.534	-0.414	-0.242
2774.781	-0.784	-0.523	-0.413	-0.247
2774.838	-0.785	-0.522	-0.407	-0.240
2775.812	-0.785	-0.525	-0.408	-0.242
2776.776	-0.783	-0.521	-0.411	-0.246
2778.806	-0.792	-0.523	-0.404	-0.236
2779.736	-0.779	-0.513	-0.409	-0.246
2779.831	-0.784	-0.519	-0.399	-0.236

TABLE XXII. — *Observations of HD 101065 [HD 101065 – 1/2 (HD 101128 + HD 101596)].*

HJD 2,440,000+	u	v	b	y
2767.816	-0.780	-0.306	-0.856	-1.209
2768.759	-0.775	-0.323	-0.860	-1.190
2769.756	-0.799	-0.319	-0.860	-1.173
2769.836	-0.783	-0.328	-0.859	-1.186
2770.736	-0.809	-0.346	-0.873	-1.190
2770.823	-0.796	-0.327	-0.863	-1.193
2771.795	-0.798	-0.307	-0.864	-1.197
2772.737	-0.821	-0.337	-0.872	-1.199
2772.814	-0.815	-0.326	-0.858	-1.181
2773.770	-0.817	-0.326	-0.854	-1.179
2773.830	-0.801	-0.314	-0.855	-1.190
2774.765	-0.820	-0.326	-0.856	-1.184
2774.842	-0.796	-0.325	-0.853	-1.185
2775.809	-0.820	-0.334	-0.861	-1.177
2776.779	-0.796	-0.304	-0.861	-1.195
2776.836	-0.820	-0.320	-0.860	-1.198
2778.808	-0.829	-0.329	-0.862	-1.189
2779.740	-0.784	-0.323	-0.869	-1.199
2779.817	-0.799	-0.321	-0.862	-1.183

TABLE XXIII. — *Observations of HD 101189 (HD 101189 – HD 101995).*

HJD 2,440,000+	u	v	b	y
2767.823	-1.417	-1.078	-0.999	-0.952
2769.763	-1.434	-1.098	-1.009	-0.958
2770.753	-1.433	-1.086	-1.001	-0.950
2770.814	-1.427	-1.089	-1.012	-0.963
2771.739	-1.448	-1.080	-1.001	-0.936
2771.821	-1.437	-1.080	-1.000	-0.947
2772.802	-1.421	-1.077	-0.997	-0.947
2773.802	-1.432	-1.082	-1.008	-0.956
2774.771	-1.463	-1.098	-0.996	-0.948
2775.818	-1.488	-1.112	-1.006	-0.945
2776.718	-1.428	-1.087	-1.008	-0.949
2776.786	-1.429	-1.075	-1.005	-0.956
2779.806	-1.432	-1.080	-1.007	-0.950

TABLE XXIV. — *Observing runs used in the analysis. The list concerns only those stars which gave positive results (reliable lightcurve).*

Run	Epoch	Tel.	Observer(s)	Ref.
1	December 1975	1	A. Heck	-
2	February-April 1970	2	S.C. Wolff & R.J. Wolff	1
3	December 1970	3	R. Albrecht	1
4	November 1971	3	H.M. Maitzen	2
5	February 1973	4	H.M. Maitzen	1
6	January 1975	5	H. Hensberge	3, 4
7	February 1975	1	A. Heck & J. Manfroid	5
8	February-March 1975	1	G. Hammerschlag-Hensberge & E.J. Zuiderwijk	3, 4
9	February 1977	1	J. Manfroid	-
10	April 1977	5	C. Mégessier	4
11	November 1977	1	J. Manfroid	-
12	February 1978	5	D. Vanbeveren & H. Hensberge	1
13	December 1978	5	J. Manfroid	-
14	November 1979	5	H.M. Maitzen	2, 6
15	December 1979	5	H. Hensberge	6
16	September 1981	1	J. Manfroid	-
17	January 1982	1	J. Manfroid	-

TABLE XXIV *(continued).*

Telescope codes:

1 - Danish 50cm
2 - Mauna Kea 60cm
3 - Bochum 60cm
4 - ESO 1m
5 - ESO 50cm

Reference codes:

1 - Maitzen et al. (1978)
2 - Maitzen (1981)
3 - Hensberge et al. (1976)
4 - Mégessier & Hensberge (1984)
5 - Heck et al. (1976)
6 - Hensberge et al. (1981)

Remark:

The differential ybvu values given in Ref. 4 for HD 92664 correspond to the comparison star minus the CP star instead of the reverse as usual.

TABLE XXV. — *Data sets used in the derivation of least-square fit. Columns 1 and 2 give two identifications of the CP stars. The spectrum in column 3 is taken from a preliminary version of the catalogue of Ap stars by Renson (1986). v* sin *i (km/sec) in column 4 has been taken from Uesugi and Fukuda (1981). C_1 and C_2 are the HD numbers of the comparison stars (Col. 5 and 6). The run number in column 7 refers to table XXIV. Column 8 gives the number n of independent observations in each run. P (days) appears in column 10 while column 11 gives bibliographical references concerning the period. The symbols used in the plots (Fig. 1 to 11) are reproduced in column 9 for each run.*

HD	Other id.	Sp. type	v sin i	C_1 (HD)	C_2	Run	n	s	P	Ref.
29305	HR 1465	A0p Si	55	24863	-	1	38	+	2.943176	1
				31203/4	-	4	6	*		
				27604	-	11	40	x		
				27604	-	13	9	□		
				27647	-	14	7	■		
				27604	-	16	9	△		
				27604	-	17	6	✡		
56022	HR 2746	A0p SiCrSr	40	56456	53704	1	35	+	0.91889	1
				56456	-	7	11	△		
				56456	-	14	8	✡		
				56456	-	15	15	*		
56455	HR 2761	A0p Si	-	56456	53704	1	35	+	1.9346	2
65987	CoD -60°976	B9p SiSr	15	65663	64507	1	16	+	1.44962	3
66255	HR 3151	A0p Si	-	66192	66210	1	21	+	6.8178	1
				66192	66210	9	41	x		
				66192	66210	13	8	□		
66605	CoD -44°3980	A0p Si	-	67363	-	1	26	+	2.2232	1
				65211	-	9	33	x		
				65211	-	13	8	□		
72968	HR 3398	A2p SrCr	15	70574	73997	1	21	+	11.305	4
				73431	-	2	30	△		
				73400	-	3	23	✡		
				73997	-	5	9	*		

HD	Other id.	Sp. type	v sin i	C_1 (HD)	C_2	Run	n	s	P	Ref.
73340	HR 3413	B9p Si	-	73127	71043	1	24	+	2.66753	1
				74071	-	6	9	△		
				74071	-	8	7	✡		
				73127	71043	9	33	x		
				73127	71043	13	8	□		
83368	HR 3831	A7p SrCrEu	-	82578	-	1	23	+	2.85189	1
				82578	84552	9	32	x		
				82578	84552	13	8	□		
83625	CoD -53°2664	A0p SiSr	-	82856	84461	1	21	+	1.078516	1
				82856	84228	9	30	x		
				82856	84228	13	8	□		
92664	HR 4185	B9p Si	55	90874	88981	1	13	+	1.6731	5
				93194	-	6	5	■		
				93194	-	8	12	✡		
				93194	-	10	6	△		
				93194	-	12	13	*		

Reference codes :
(1) this paper ;
(2) Waelkens (1985) ;
(3) North (1984) ;
(4) Maitzen *et al.* (1978) ;
(5) Mégessier and Hensberge (1984).

TABLE XXVI. — *Parameters of the least-square fit of the lightcurves (see Sect. 2 — n is the number of points used). t_{max} is the epoch of the first maximum in u after t_0.*

HD	P	t_0 2,440,000+	t_{max} 2,440,000+	n		A_1	A_2	φ_1	φ_2	σ
29305	2.943176	1278.0	1280.00	115	y	0.0190	0.0036	5.313	0.607	0.0047
					b	0.0167	0.0033	5.300	0.456	0.0068
					v	0.0134	0.0033	5.363	0.581	0.0063
					u	0.0447	0.0138	5.299	0.726	0.0104
56022	0.91889	2447.0	2447.05	69	y	0.0048	0.0015	2.756	1.703	0.0039
					b	0.0061	0.0017	2.756	1.793	0.0041
					v	0.0041	0.0010	2.849	2.945	0.0043
					u	0.0203	0.0069	2.787	2.420	0.0099
56455	1.9346	2752.0	2752.46	35	y	0.0189	0.0018	1.796	2.592	0.0038
					b	0.0170	0.0009	1.827	4.862	0.0040
					v	0.0132	0.0010	1.890	3.743	0.0036
					u	0.0514	0.0079	1.764	3.718	0.0103
65987	1.44962	2752.0	2752.20	16	y	0.0002	0.0026	4.229	0.888	0.0018
					b	0.0089	0.0023	1.281	0.711	0.0037
					v	0.0107	0.0012	1.455	3.346	0.0037
					u	0.0138	0.0044	1.592	3.247	0.0046
66255	6.8178	2752.0	2752.89	70	y	0.0187	0.0024	2.338	2.085	0.0037
					b	0.0195	0.0042	2.423	2.130	0.0032
					v	0.0194	0.0045	2.465	2.246	0.0032
					u	0.0365	0.0021	2.319	0.661	0.0057
66605	2.2232	2752.0	2753.82	67	y	0.0263	0.0058	4.657	5.867	0.0046
					b	0.0173	0.0055	4.982	5.883	0.0045
					v	0.0081	0.0054	5.769	6.058	0.0039
					u	0.0357	0.0084	4.342	5.484	0.0071

HD	P	t_0 2,440,000+	t_{max} 2,440,000+	n		A_1	A_2	φ_1	φ_2	σ
72968	11.305	618.0	619.47	83	y	0.0019	0.0070	3.698	1.446	0.0049
					b	0.0010	0.0073	2.371	1.383	0.0049
					v	0.0011	0.0042	2.663	1.535	0.0051
					u	0.0028	0.0084	2.358	1.491	0.0057
73340	2.66753	2427.0	2428.87	81	y	0.0102	0.0029	5.362	0.445	0.0038
					b	0.0172	0.0039	5.251	0.502	0.0037
					v	0.0165	0.0050	5.289	0.441	0.0043
					u	0.0176	0.0100	5.590	0.276	0.0067
83368	2.85189	2753.0	2753.23	63	y	0.0010	0.0091	5.436	5.284	0.0032
					b	0.0017	0.0020	0.402	4.166	0.0048
					v	0.0004	0.0223	0.905	2.388	0.0063
					u	0.0082	0.0205	1.551	2.367	0.0081
83625	1.078516	2753.0	2753.04	59	y	0.0127	0.0045	3.022	0.490	0.0030
					b	0.0181	0.0065	2.925	0.508	0.0042
					v	0.0175	0.0067	2.904	0.211	0.0050
					u	0.0236	0.0046	3.233	0.469	0.0055
92664	1.6731	2428.0	2428.89	49	y	0.0168	0.0062	6.189	2.519	0.0050
					b	0.0163	0.0087	0.047	2.515	0.0053
					v	0.0155	0.0089	0.249	2.561	0.0051
					u	0.0364	0.0105	6.127	2.623	0.0114

TABLE XXVII. — *Stars showing no variation in December 1975 (see also the heading of Tab. XXV — n is the number of observations).*

HD	Other id.	Sp. type	v sin i	C_1 (HD)	C_2	n
33904	HR 1702	B9p MnHg	20	34816	35337	29
36629	BD -4°1164	B3p He w	-	36342	-	16
55719	HR 2727	A3p SrCrEu	95	53704	-	35
59256	HR 2863	B9p Si	-	58377	-	25
59435	BD -8°1937	A4p SrCrSi	-	59692	59154	21
75333	HR 3500	B9p MnHg	30	72660	-	22
94660	HR 4263	A0p EuCrSi	-	94724	93453	17
101189	HR 4487	A0p CrYHg	15	101495	-	13

TABLE XXVIII. — *Stars giving inconclusive results (see also the heading of Tab. XXV — n is the number of observations).*

HD	Other id.	Sp. type	v sin i	C_1 (HD)	C_2	n
50169	BD -4°1164	A3p SrCrEu	≤10	50040	50405	25
50461	BD -7°1614	B9p SiCr	-	50672	50936	21
53244	HR 2657	B8p MnHg	20	56405	49229	23
101065	CoD -46°7232	F3p Ho	-	101396	101128	19

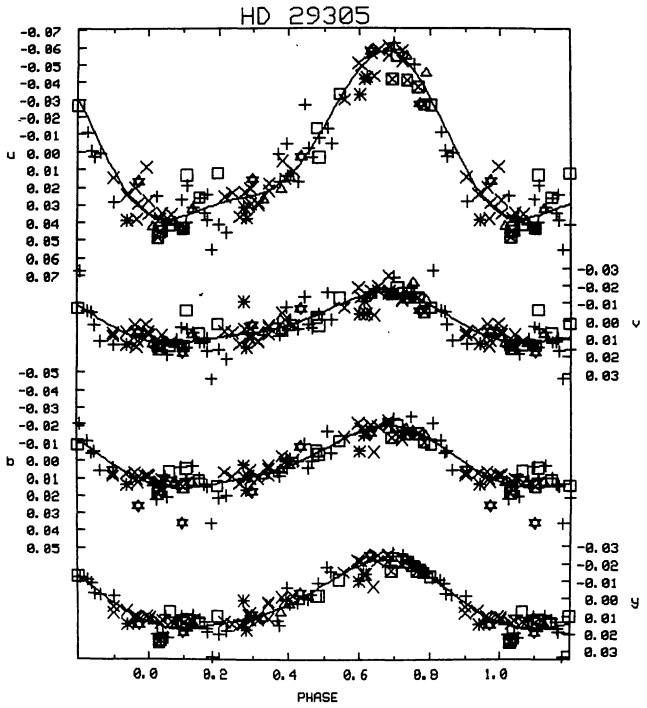

FIGURE 1. — *uvby* lightcurves of HD 29305 with P = 2.943176 d. The phase origin has been taken at HJD = 2,441,278.0.

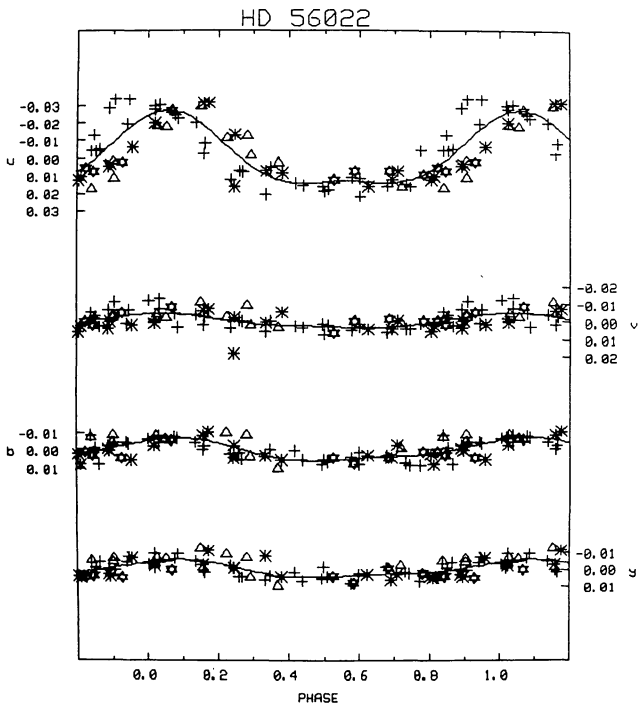

FIGURE 2. — *uvby* lightcurves of HD 56022 with P = 0.91889 d. The phase origin has been taken at HJD = 2,442,447.0.

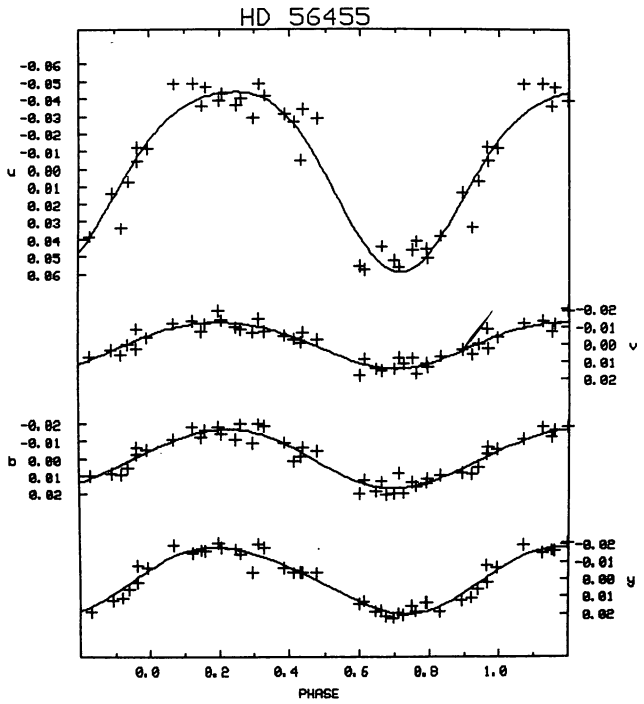

FIGURE 3. — *uvby* lightcurves of HD 56455 with P = 1.9346 d. The phase origin has been taken at HJD = 2,442,752.0.

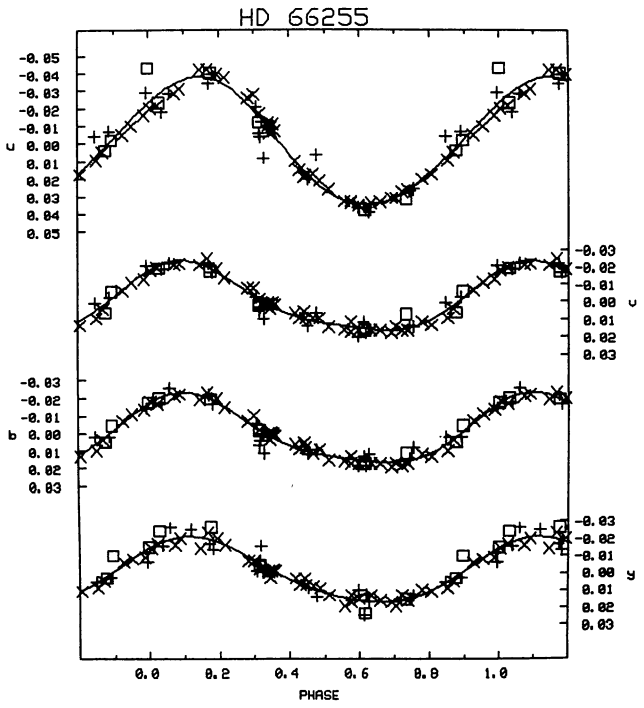

FIGURE 5. — *uvby* lightcurves of HD 66255 with P = 6.8178 d. The phase origin has been taken at HJD = 2,442,752.0.

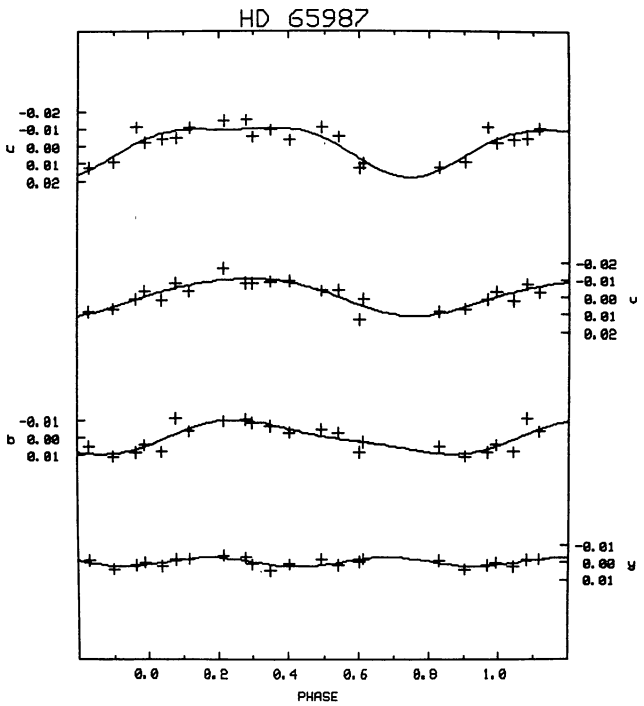

FIGURE 4. — *uvby* lightcurves of HD 65987 with P = 1.44962 d. The phase origin has been taken at HJD = 2,442,752.0.

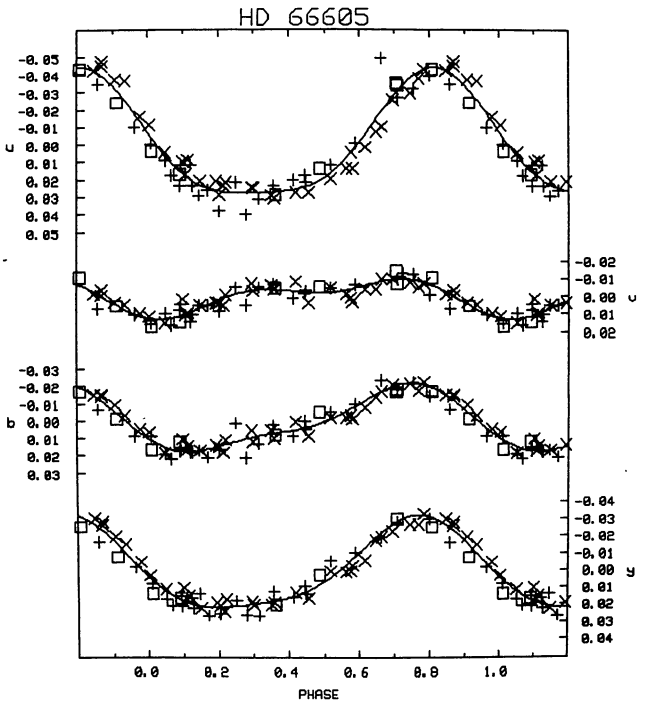

FIGURE 6. — *uvby* lightcurves of HD 66605 with P = 2.2232 d. The phase origin has been taken at HJD = 2,442,752.0.

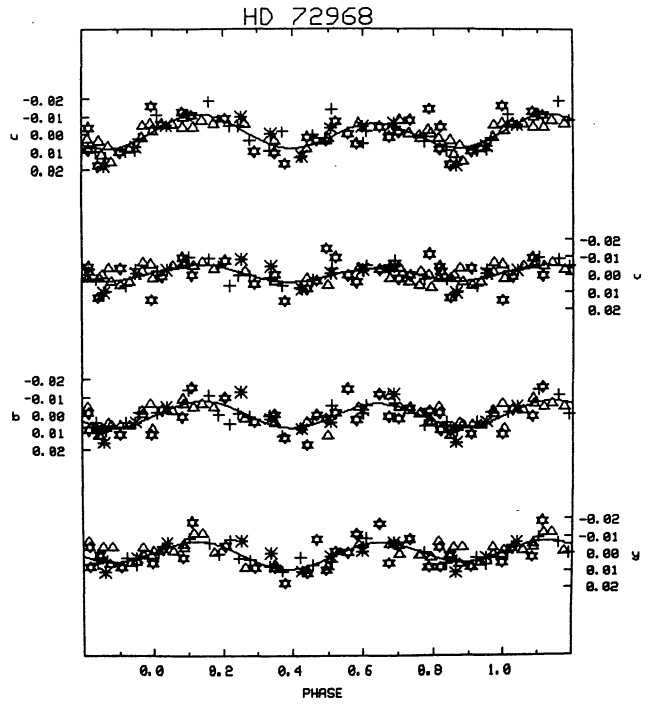

FIGURE 7. — *uvby* lightcurves of HD 72968 with P = 11.305 d. The phase origin has been taken at HJD = 2,440,618.0.

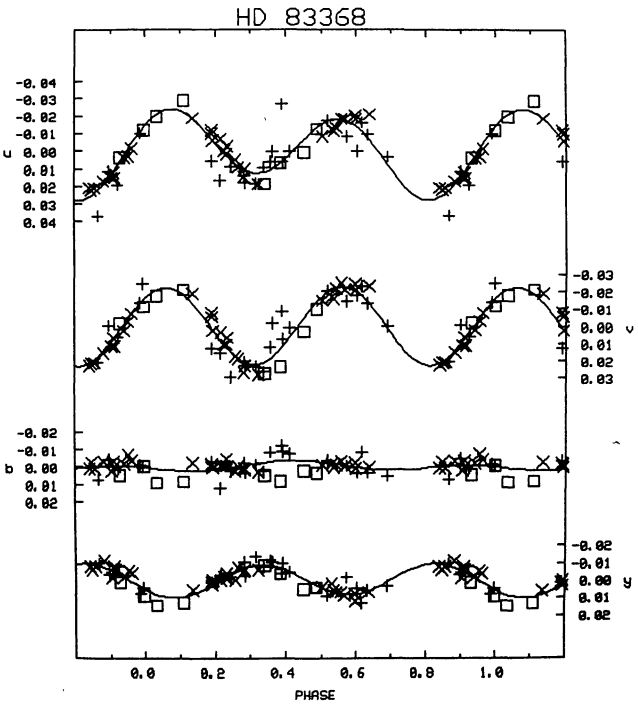

FIGURE 9. — *uvby* lightcurves of HD 83368 with P = 2.85189 d. The phase origin has been taken at HJD = 2,442,753.0.

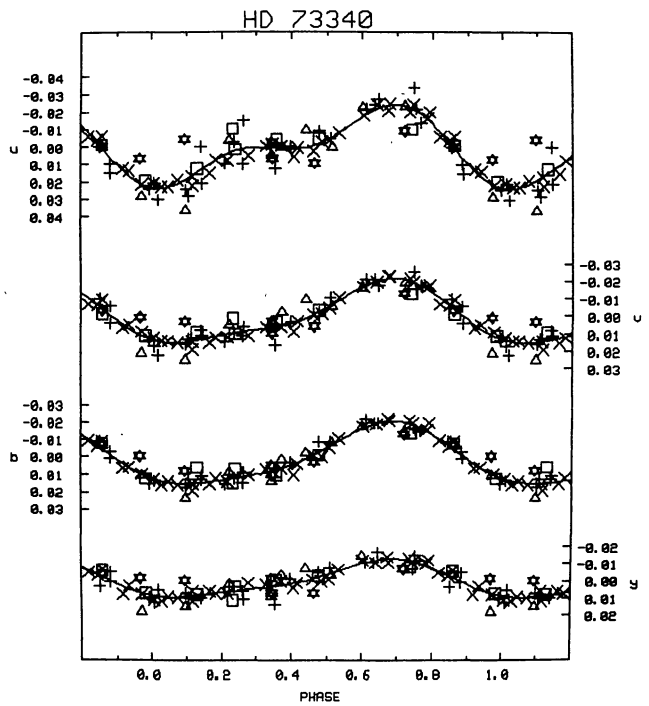

FIGURE 8. — *uvby* lightcurves of HD 73340 with P = 2.66753 d. The phase origin has been taken at HJD = 2,442,427.0.

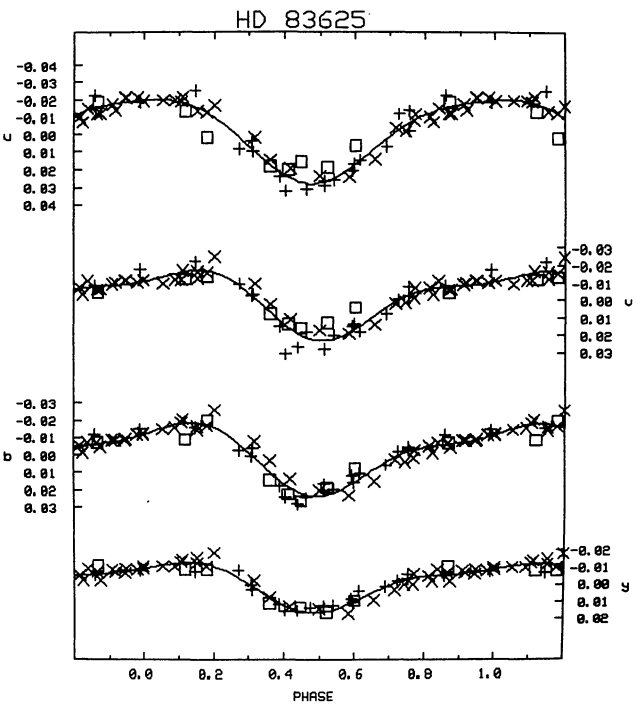

FIGURE 10. — *uvby* lightcurves of HD 83625 with P = 1.078516 d. The phase origin has been taken at HJD = 2,442,753.0.

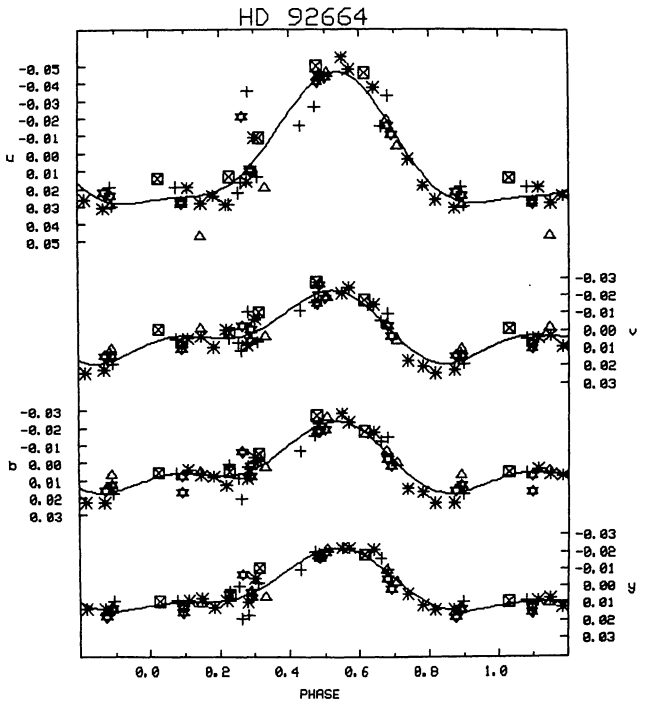

FIGURE 11. — *uvby* lightcurves of HD 92664 with $P = 1.6731$ d. The phase origin has been taken at HJD = 2,442,428.0.