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Intensive photometry of southern Be variables. I. Winter objects (*)

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Summary. — We present results of an intensive photometric campaign on some bright southern Be stars to search for periodic light variations. In order to obtain good phase coverage, observations were conducted from two sites with different longitude : ESO and SAAO. Most of the stars observed are indeed variable with periods close to one day (the expected rotational period for these stars). We present our results for winter objects.

Key words : Be stars — variable stars — photometry — stellar pulsations.

1. Introduction.

Periodic variability in Be stars has attracted great interest in recent years. The discovery of unexpected short-period variations in these stars has renewed the search for a viable mechanism of mass ejection. The current consensus of opinion is that non-radial oscillations, driven by an unknown mechanism, is the likely cause of the mass loss leading to the Be phenomenon (see Percy, 1987, for a recent review). This conclusion is mostly based on line-profile variations seen in some Be stars.

The small-scale "moving bumps" seen in the line profiles of some Be stars is attributed to high-order non-radial pulsations (NRP). But moving bumps are also seen in B stars without emission lines and even in δ Scuti stars (Walker and Yang, 1987). It seems that NRP is not solely responsible for the mass ejection. It is also known that one of the distinguishing features of line-profile variations in Be stars is the presence of low-order line-profile variations which some attribute to low-order NRP (Penrod, 1987). But again, low-order NRP is present in non-Be stars as well (β Cep and δ Sct). Many β Cep variables are rotating more rapidly than some Be stars. High rotation coupled with NRP does not seem to be a sufficient condition for the Be phenomenon. The information from photometric observations has not been adequately considered and it is possible that the conclusion that NRP is responsible for the mass loss could be premature.

A viable hypothesis should be able to explain the distribution of observed periods, the fraction of Be stars which are periodic, their photometric amplitudes and evolution of the shapes of their light curves. Such information can only be obtained by intensive photometric monitoring of a large sample of Be stars. Owing to the fact that periods are close to one day, it is very important to obtain observations from different longitudes. These observations should be obtained over a short time as the light curve can evolve quite rapidly. These demands can only be met by an international campaign.

In this paper we present results of such a campaign conducted from ESO and SAAO as well as some observations obtained at SAAO only. We observed 17 bright southern Be stars ; most of them turned out to be short-period variables. These stars were chosen from the *Bright Star* catalogue on the sole criterion that they should be well placed for observing. A list of candidate and comparison stars is given in table I. Results for variable program stars are given in tables IIa and IIb.

2. Observations and reductions.

The observations at SAAO were obtained with the Volks photometer attached to the 0.5-m reflector at Sutherland. These were made mostly through a single filter, Strömgren b, which was chosen as a compromise between the expected larger amplitude towards shorter wavelength and the

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decreased sensitivity to atmospheric extinction at longer wavelengths. Some four-colour observations were also made. For the brightest stars, a neutral density filter had to be used to prevent over-illumination of the photocathode. In these circumstances we calibrated the ND filter by observing the comparison stars with and without the filter. The rms deviation suggests that this calibration is good to within 3 millimag (the expected observational error of one measurement). Systematic errors due to the use of the neutral density filters are probably negligible owing to the narrow bandpass of Strömgren b.

In the reduction procedure, mean extinction coefficients were obtained for each night using the comparison stars. Corrections for transparency changes during the night were made by calculating the deviation for each comparison star. Stars in close proximity were treated as a group and mean transparency corrections were applied to the group, which included the Be stars. Comparison stars which were variable were detected at this stage and could be eliminated. We searched for micro-variability in the comparison stars by calculating their periodograms ; again such stars could be identified and eliminated. Finally, the mean magnitude of all comparison stars was adjusted to be in exact agreement with the mean b-magnitude for the same stars observed at ESO. This zero-point correction ensured that the Be stars observed from the two sites were on the same system.

The observations at ESO were made between 13 June and 6 July 1987. They were obtained with the six-channel $uvby\mathrm{H}\beta$ photometer on the Danish 0.5-m telescope. This instrument uses a grating and slots to define the passbands ; in consequence some systematic differences could be expected between the b magnitudes of the two observatories. In practice, these differences were very small (a few millimagnitudes) and posed no problem when combining the data sets. Because a new telescope control system with autocentering and automated observations had just been installed and still had to be checked during the observing run, the quality and quantity of the observations was not as high as could be expected at the start of the run. Later on, most of the problems were solved and nowadays the new, automated system has proved to be very reliable.

For the brightest stars, the same procedure was used as at SAAO. The reduction procedure was similar except that a polynomial model for transparency changes and zero-point drift was calculated for each night. Furthermore, a general least-squares solution which included all observations for all comparison stars provided best estimates for their mean magnitudes. Variable stars among them were easily identified by the large standard deviations. They were not included in obtaining the final magnitudes for the comparison stars. A small zero-point difference between these results and the standard $uvby$ system is still possible, but this is unimportant for the study of their light variations. The rms scatter for the comparison stars is in all cases less than 5 millimag.

3. Period finding.

We employed two methods of searching for periodicities. One is the standard Fourier periodogram analysis technique for unequally spaced data ; the other is a modification of Stellingwerf's (1978) phase-dispersion minimization (PDM) technique. The first method is suited to the case where the underlying variation is approximately sinusoidal, but it can give misleading results when the variations are highly non-sinusoidal or when a multiple-wave light curve is present. It is known that many Be stars have a double-wave light curve which will not be detected by this method. Clearly it will be impossible to discriminate between a single-wave light curve and a double-wave light curve with nearly equal amplitudes.

The PDM technique will identify the period for all kinds of light curves, but since the general noise level is rather high in this method (Swingler, 1989), one has to be careful of spurious periodicities. Our final choice was based on a careful examination of the phase diagram resulting from the periods produced by the Fourier and PDM techniques. Our criterion was by nature rather subjective, but we attempted to choose the period which resulted in the curve with the least scatter. Except for one or two cases, there is little doubt that our choice is the correct one.

Besides the complication discussed above, a serious difficulty arises when the irregular light variations which are sometimes present in Be stars (attributed to effects of the circumstellar material) has a time scale comparable to the underlying periodic variation. In these cases it is not possible to obtain the correct period with any certainty. As some long-term activity is nearly always present, we normally removed the long-term trend by fitting a low-order polynomial to the data. This of course has the effect of reducing the scatter at the expense of some uncertainty in the shape and amplitude of the light curve. The derived period will in general be unaffected by this procedure.

It is difficult to derive reliable standard errors for the periods, but an estimate can be obtained from the half-width of the Fourier periodogram peaks. Typically, we observed for about four weeks in each season which leads to a standard deviation of about 0.02 d^{-1} in frequency which can be taken as a reliable guide to the error in the quoted frequencies. Sometimes we have combined many seasons in order to obtain a more accurate period. This is always possible to do, but invariably there will be many possible choices of frequency (each separated by approximately one cycle per year) which will produce as good a fit. In this case the real error is not reduced by combining the data.

4. The results.

ν Cen

This star is a single-line spectroscopic binary (Palmer, 1906). Wilson (1914) determined the orbital elements and obtained a circular orbit with $P = 2.62516$ d. Hendry and Bahng (1981) found Hα to have double emission surrounding an absorption core. This observation indicates that ν Cen could be classified as a Be star, but it is probable that the emission originates as a result of binary interaction rather than an intrinsic property of the star itself. Spectroscopic observations suggest that this star may be a β Cep variable with a period of about 0.17 d and an amplitude of 5 km s^{-1} (Rajamohan, 1977 ; Kubiak and Seggewiss, 1982 ; Ashoka *et al.,* 1985). Waelkens and Rufener (1983) do not find any evidence for short period light variability, except for a variation with the same period as the binary period.

Our photometric observations (SAAO only) extend over two seasons, 1987 and 1988. The 1988 observations are particularly numerous and clearly show a variation with the same period as the orbital period (Fig. 1). Minimum light corresponds to maximum positive radial velocity. As discussed by Waelkens and Rufener (1983), the resulting light curve is most probably a reflection effect. A careful investigation did not reveal any signs of a variation at any other frequency with an amplitude exceeding 2 millimags.

μ Cen

This star is known as a "pole-on" Be star (v in i = 155 km s^{-1}). Ghosh *et al.* (1987) have summarized the history of Hα emission ; they reported an outburst in March/April 1987, about three months before the first set of our observations. A full discussion of an earlier outburst (February 1987) is given in Baade *et al.* (1988). Thimm (private communication) reported from spectra taken on May 29, 30 and on June 1, 1987 that Hα changed from pure absorption to emission in 3 days. This was only a few days before the start of our observations. All indications are that this Be Star was in a very active phase during this time.

μ Cen was one of the first Be stars in which periodic line-profile variability was found (Baade, 1984). Baade observed three or four nearly equally-spaced moving bumps. There were also low-order changes in the line profile in which the symmetry of the whole line varied, but with a longer time scale. The period of the low-order variations was estimated to be 0.505 d, five times the period of the moving bumps. Baade interpreted these results in terms of NRP with $\ell = m = 2$ and $\ell = m = 10$. In our opinion the poor time coverage places considerable doubt on the accuracy of this period which is practically equal to half a day, since the aliasing problem must be quite considerable. More recently, Baade (1987a) obtained 9 nights of line profile observations in which this period is apparently confirmed.

Since two kinds of line-profile variations are seen in this star, Baade (1987b) claims that it is multiperiodic and hence proof that the NRP interpretation is the only feasible one. Harmanec (1987a) has suggested that the short period structure in Be stars can be represented by integer ratios, in which case we are dealing not with incompatible periods but harmonics of a longer period (which he identifies as the period of rotation). Baade (1987b) has criticized this suggestion. Since the period ratio in μ Cen is 5 : 1 according to Baade, this star is perhaps not a convincing case of multi-periodicity.

We observed μ Cen for 29 nights in June/July 1987, 25 nights in March/April 1988 and 7 nights in June 1988. The latter two data sets are SAAO observations only. The 1987 data show that the star was photometrically very active at this time. There are two major excursions in brightness, each with a light range of 0.07 mag, separated by five nights.

A Fourier periodogram analysis shows no obvious trace of coherent periodicity : the three largest peaks being at frequencies of 0.05, 0.95 and 0.16 d^{-1}. These first frequencies appear to be artifacts caused by the large brightness excursions. The PDM periodogram shows essentially the same structure except for a large peak at 0.48 d^{-1}. This does not seem to be associated with the random brightness fluctuation and is the only coherent period we can extract from our 1987 data. The resulting light curve is a double-wave with a period of 2.10 d (Fig. 2).

Since our results from 1987 did not lead to a convincing period determination, we re-observed the star from SAAO in 1988. This time the star was less active, but surprisingly the periodograms look very similar to those of 1987. In particular the frequency at 0.48 d^{-1} was very strongly present. This seems to indicate that the 2.10 d period is physically real. As a final check we combined the data from both seasons which allowed us to refine the period to 2.1017 d. A plot of the light curve is shown in figure 2. The double-wave nature is very clear, but the large scatter indicates that there is an additional source of variation. A large increase in amplitude followed by a swift decrease can explain some of the apparent scatter in 1987. The peak-to-peak amplitude decreased from 0.08 mag in 1987 to 0.04 mag in 1988, though the large amplitude in 1987 could be mostly a result of a non-periodic brightness excursion during a few nights. But this cannot be invoked as the cause of the large scatter in 1988 ; this phenomenon is very common in the light curves of Be stars and can be termed "flickering".

In the light of these results, we cannot confirm Baade's 0.5 d period (frequency 2.0 d^{-1}) in μ Cen. We can possibly reconcile our results with this period if we note that the single-wave frequency (0.96 d^{-1}) is the one-day alias of Baade's period. We certainly did not find any indication of a 0.5 d period in our data. As a test, we analyzed Baade's (1984) radial velocity observations for the HeI line and constructed the phase diagram using a period of 2.1017 d. The resulting velocity curve has considerably greater scatter than the one constructed with 0.505 d, but is still quite reasonable and gives a double-wave curve. However, there are only 19 observations – far too few for a reliable period estimation.

η Cen

A description of recent emission-line activity in the shell star η Cen is given by Dachs *et al.* (1986). They conclude that at times the internal self-absorption by the shell is so severe that it may obscure a certain fraction of the light from the photosphere. Mennickent and Vogt (1988) observed the star during 1987. The lower order Balmer lines showed weak variable emission wings and variable shell absorption cores.

Baade (1983) discovered significant line-profile variations with a time scale of hours. During a search for rapid spectroscopic variations, Ghosh *et al.,* (1988) discovered a continuum flux variability with a time scale of hours.

Our results clearly show large short-period variability. A nightly range in brightness of nearly 0.1 mag is not uncommon. The Fourier periodogram shows a very strong peak at 1.56 d^{-1}, but the resulting light curve has a large scatter. The PDM periodogram shows, in addition, large peaks at one-half and one-third this frequency. An examination of the phase plots show that a better fit is obtained by assuming a double-wave light curve with $f = 0.78$ d^{-1}, but even then the scatter is large. By far the best phase plot is obtained with $f = 0.52$ d^{-1} which results in a triple-wave light curve.While double-wave light curves are common, only one case of a triple-wave light curve (α Eri, Balona *et al.,* 1987) is known.

This surprising result prompted us to re-observe η Cen for a further season in 1988 (SAAO observations only). Our analysis of these data showed quite convincingly that $f = 0.52$ d^{-1} is indeed present once again and gives a light curve with the least scatter. On this basis we feel that a triple-wave light curve with period of 1.927 d is likely to be the correct interpretation (Fig. 3). The peculiar light curve and the very large amplitude (0.14 mag in 1987, 0.10 mag in 1988) makes this star unique among the periodic Be variables. Line profile observations of η Cen are potentially of great importance in view of the large amplitude. If NRP is involved, the geometrical distortions and/or temperature variation must be exceedingly severe to give rise to such a large amplitude for an $\ell = |m| = 3$ mode.

HD 137518

This star was included in our program at the suggestion of C. Waelkens who found it to be a large-amplitude variable. Very little is known about this star. It has been classified as a luminous blue supergiant (B5Ia) by McConnell and Bidelman (1976). On the other hand, Garrison *et al.,* (1977) obtain a classification B1IIInep with a comment that the HeI lines are strongly veiled and the suspicion that it is a double-line spectroscopic binary. Ine the *Michigan Spectral Catalogue* (Houk, 1978), it is given the classification B1/2(I/IIIn), while Mermilliod (1987) tabulates it as O9Vn.

The photometric variability was discovered by Strohmeier *et al.* (1964) who found a range of 0.5 mag from sky patrol plates of the Bamberg Southern Station. The variability was later confirmed by Kozok (1985).

Our 1987 observations show a light range of 0.5 mag, but we could not find a definite periodicity. The Fourier periodogram shows a strong peak at $f = 0.11$ d^{-1} or its one-day alias at 0.89 d^{-1}. Smaller peaks are present at $f = 0.36$ and 1.29 d^{-1}. The PDM periodogram is similar except that $f = 0.12$ d^{-1} is by far the strongest. We examined the light curve at many different frequencies given by the Fourier and PDM periodograms, but no single choice produced a reasonable light curve. We could assume multiperiodicity of course. If we prewhiten the data by removing a sinusoid with $f_1 = 0.115$ d^{-1}, we obtain a noisy Fourier periodogram in which the highest peak is at $f_2 = 0.55$ d^{-1}. A multiperiodic Fourier fit with f_1 and f_2 leads to a rms scatter of 0.08 mag which is clearly unacceptable. Removing these two frequencies leads to a strong peak at $f_3 = 0.35$ d^{-1}, which is the third harmonic of f_1. A Fourier fit with f_1, f_2 and f_3 gives an rms scatter of 0.044 which is still very much higher than the expected observational error. Further prewhitening just gives a periodogram in which the noise level steadily increases towards low frequencies.

It is clear that no direct evidence for coherent multiperiodicity exists as even a solution with three frequencies is quite insufficient to describe the data. A solution can always be found by including more and more frequencies until the resulting rms scatter is sufficiently small, but there is no guarantee that the resulting solution will bear any resemblance to the true physics of the problem. We prefer to believe that the only likely periodicity in HD137518 is $P = 8.70$ d ($f = 0.115$ d^{-1}) and its harmonics (Fig. 4). Prewhitening by a Fourier curve leads to a further possible periodicity of 0.685 d, but the reality of this period is far from convincing. The residual variability can be attributed to random fluctuations.

This star is a very puzzling object. Without detailed spectroscopic observations it seems impossible to determine its nature. The large light amplitude suggests some type of eclipsing phenomenon.

κ^1 Aps

Slettebak (1982) describes how two spectra, taken one day apart, show striking differences in the widths of the absorption lines (from $v \sin i = 250$ km s^{-1} to 350 km s^{-1}), suggesting that this star may be a double-line spectroscopic binary. Mennickent and Vogt (1988) observed this star during 1988 and found the spectrum characterized by narrow absorption cores flanked by weak emission at Hβ.

The Fourier periodogram of this star shows it to be another periodic variable with a frequency of 1.61 d^{-1}. The PDM periodogram also gives a strong signal at half this frequency, indicating a double-wave light curve. However, the phase plot shows that this effect arises from only five data points which deepens the second minimum ; apart from this there is no strong reason to believe that the light curve is double-wave.

Observations at SAAO during 1988 give much the same results, but this time the double-wave nature is more convincing. This time the amplitude difference in the two waves is based on more observations and there are also distinct differences in their shapes. By combining the data from the two seasons we find the best double-wave period to be 1.238 d (Fig. 5). There has been relatively little change in overall amplitude between the two seasons.

η^1 TrA

This star turned out to be one of the few constant Be stars in our sample. No sign of periodicity is evident in either the Fourier or PDM periodograms. The rms scatter of all observations is 3 millimag – the value expected for a constant star. It was not observed in 1988.

48 Lib

This star has a long history of documented spectroscopic observations. It is well known for the long-lasting presence of numerous sharp shell absorption lines and for strong regular variations of Balmer emission line profiles and radial velocities of shell absorption lines with a quasi-period of about ten years (cf., e.g. Aydin and Faraggiana, 1978). Dachs *et al.* (1986) has described the emission-line history in recent years. Mennickent and Vogt (1988) found the spectrum of 48 Lib in 1987 to be characterized by many faint FeII shell lines, some of them surrounded by emission. Hβ and Hγ had deep central absorption cores with emission flanks ($V < R$). The V/R ratio was variable.

The 1987 data show a very strong peak at 2.49 d^{-1} in the Fourier periodogram. The PDM periodogram shows, in addition, smaller peaks at one-half and one-third of this frequency. Examination of the phase plots gives us no reason to suspect that the any of the lower frequencies are physically real. There is no appreciable reduction in scatter or differences in the waves. The phase plot for the single-wave period of 0.40 d shows a rather asymmetrical light curve with a gradual decline and sharp rise (Fig. 6).

To confirm the period, we re-observed the star during 1988. We obtained the same results. The best period from the combined data is 0.4017 d. This is the shortest period we have found among the periodic Be stars.

Ringuelet-Kaswalder (1963) reported periodic radial velocity variations with $P = 0.1154295$ d suggesting a pulsation similar to that of the β Cep variables. Such a variation has never been confirmed, though rapid changes in spectral appearance during one night is not unknown (Aydin and Faraggiana, 1978). We phased Ringuelet-Kaswalder's data on our photometric period, but were unable to produce a satisfactory velocity curve.

χ Oph

Recent variations in the emission lines in this well-observed Be star are discussed by Dachs *et al.* (1986). The considerable number of radial velocities in the literature were analyzed by Harmanec (1987b) who tentatively proposed that χ Oph is a spectroscopic binary with a period of 34.12 d in a highly eccentric orbit ($e = 0.699$).

Balona and Engelbrecht (1987) observed this star photometrically during 1985 and suggested a possible period of 0.935 d. The available data were insufficient to discriminate between this period and its one-day alias at 14.3 d. The shorter period was considered the more likely owing to the considerable brightness variations during the course of a night. In neither case is the resulting light curve particularly convincing.

Our 1987 data show much the same behaviour. Again, the strongest frequencies in both the Fourier and PDM periodograms occur at either 0.935 d or 14.3 d, but this time the longer period has a much higher peak. The resulting phase plot shows much less scatter for 14.3 d than for 0.935 d. Thus, by combining data from two separate sites we eliminate the alias problem and conclude that the true period is 14.3 d. Combining the 1985 and 1987 data yields a best period of 13.774 d (Fig. 7). A small number of observations were obtained in 1988.

This is the longest period so far detected for a periodic Be star. The question arises as to whether it represents an orbital variation. We looked for, but could not find, evidence for a radial velocity variation with this period from the data collected by Harmanec (1987b).

In spite of the fact that the 13.774 d period fits the photometric data, it is clear that there are variations on a much shorter time scale. However, these cannot be periodic as they would leave a signature in the periodogram. We are forced to conclude that this is one more example of the "flickering" phenomenon so common amongst these stars.

ζ Oph

ζ Oph (O9.5Ve) is one of the most rapidly rotating stars known. Emission lines at Hα and HeI were observed between July 1973 and April 1974 (Irvine, 1974 ; Niemela and Mendez, 1974 ; Barker and Brown, 1974). During 1979 there was no hint of emission at Hα, but by March 1980 Hα appeared as a well-developed double-emission feature quite similar to that observed during 1974 (Ebbets 1981).

Walker *et al.* (1979) were the first to discover the by now well-know phenomenon of "moving bumps"in the line profile of B stars. It was in this star, ζ Oph, that they were first detected. At that time they were interpreted as nonuniformities in the stellar photosphere carried across the line of sight by rotation. In this way a rotational period of 21.7 hours was deduced, leading to an estimated $v \sin i = 560$ km s^{-1}. This value is considerably higher than observed ($v \sin i = 370$ km s^{-1}), but it is sensitive to the adopted stellar radius. Harmanec (1989) has shown that a somewhat smaller radius, which is still consistent with the physical parameters for this star, will bring the expected projected rotational velocity into good agreement with the observed value.

Walker *et al.* (1981) presented further observations of this new phenomenon and proposed an alternative model in which the moving bumps arise from obscurations in the circumstellar material. They also suggested NRP as a possible explanation.

Vogt and Penrod (1983) obtained extensive high-resolution spectra of ζ Oph and confirmed the moving bumps seen by the earlier workers. They rejected the interpretation in terms of rotational modulation or obscuration by circumstellar material. While these models give rise to moving bumps in agreement with the observations, the expected light variations are not seen. They favour the NRP model. Harmanec (1989) has criticized this conclusion as it is based on only one night of photometry which does indeed show some variability. Nevertheless, the NRP model has been accepted by most groups as the most probable explanation in this and other Be stars.

It is clear that intensive photometric observations should shed considerable light on the nature of moving bumps. According to Vogt and Penrod (1983) the NRP interpretation should give rise to periodic light variations of amplitude 0.02 mag with a period of a few hours. Such periodic variations are easily detectable.

We started our photometric campaign on this star in 1985. The results of this first season were briefly reported in Balona and Engelbrecht (1987). During 1985 ζ Oph showed a clear indication of pulsation with a period of 0.193 d and amplitude of 0.02 mag. There was also a longer period of 1.075 d with amplitude 0.03 mag (Fig. 8a). The short-period pulsations were interpreted as NRP, but not as a new phenomenon. Since ζ Oph lies on the hot end of the β Cep instability strip, it seemed reasonable to classify the star as a β Cep variable. However, the presence of the longer period in a β Cep star is most unusual ; rather it is indicative of a periodic Be star. It is also of particular interest to note that if the light curve is phased on the long period of 1.075 d the short-period variation is easily visible as a sinusoidal modulation of the light curve (Fig. 8b). It looks very much as if the short period is practically one-sixth of the long period to within observational errors. This seems to confirm Harmanec's (1987a) suspicion that whenever a short-period is present it turns out to be a sub-multiple of the rotation period.

We observed ζ Oph during 1987 expecting to confirm the provisional results announced by Balona and Engelbrecht (1987). The Fourier and PDM periodograms both show some power at frequencies of 1.00 or 2.00 d^{-1} with a peak-to-peak amplitude of 0.01 mag. There is no sign of the short period variation seen in 1985. While the long period is close to the value seen in 1985, it is practically the same as one cycle per day and, as such, must give rise to a grave suspicion that this is an artifact. Indeed, since we had to observe ζ Oph at SAAO using a neutral density filter it would not be entirely surprising if some slight systematic error was present in the data. Under these conditions we can understand the results of the periodogram and we do not consider the one day period to be real. Indeed, the rms error of one observation from both sites is only 4 millimags., i.e. close to the expected rms error of a constant star. We conclude that ζ Oph was constant in light during June/July 1987.

Some observations at SAAO during early 1988 again indicated a constant light. But in June of that year a dramatic change took place : our results of four photometric nights show marked photometric activity with night-to-night variations exceeding 0.01 mag. It would be very interesting to discover if this is associated with the development of emission at Hα. Further photometric monitoring is planned for 1989.

ι Ara

Our photometric observations of this star now cover four seasons (1985 - 1988). The 1985 light variations were particularly difficult to interpret in spite of the fact that there were no long-term trends or other difficulties. The problem is the very large flickering associated with this star which tends to mask the underlying variation almost completely. Balona and Engelbrecht (1987) obtained a double-wave light curve with period 0.515 d as the most likely solution for this season. During 1986 the amplitude appeared to increase steadily during the observing period of one month, but a period of 0.56 d could be extracted. This is the same as the period obtained in 1985 within the observational error and results in a single-wave light curve.

Our 1987 data showed that once more the star was active with a short time scale. The strongest peak in the Fourier periodogram occurs at 0.265 d, but the PDM periodogram indicates that a double-wave solution is better as the strongest peak occurs at 0.53 d. The 1988 observations are too few to derive a period, but a solution with $P = 0.56$ d fits the data well.

The conclusion is that in spite of the low signal-to-noise ratio, a period close to 0.55 d is derived independently from each observing season. On this account we feel confident that this is indeed the correct period. Combining all the data gives a best solution of $P = 0.5565$ d (Fig. 9). The flickering in this star is one of the largest we have encountered. As a consequence the periodicity in this star is somewhat blurred, but periodicity implies coherence over many cycles and this period was the only one where such a coherence was observed. The rms deviation from the light curve is as large as 0.02 mag though the amplitude is as large as 0.10 mag.

α Ara

Mennickent and Vogt (1988) found the spectrum in 1986-7 to show double emission in Hβ and Hγ ($V \simeq R$) with small variations in the V/R ratio on a short time scale.

This star was immediately recognized as a large-amplitude short-period variable during the first observing run in 1985. The Fourier periodogram shows strong peaks at frequencies of 2.04 or 3.04 d^{-1} and its one day aliases. These two frequencies are also the strongest in the PDM periodogram, but the double-wave solution at 1.52 d^{-1} is nearly as strong. An examination of the light curve does indicate that there is a significant difference in amplitude between the two waves in the double-wave solution. Thus we adopted a period of 0.658 d ($f = 1.52$ d^{-1}, Balona and Engelbrecht, 1987).

In 1986 the highest peak in the periodograms occurs at

2.04 d^{-1} ; the solution for 1985 thus appears to be a one-day alias of the true period. That a wrong choice was made is not surprising in view of the closeness of the frequency to a half a day and the severe aliasing problem.

Our 1987 data shows that the ambiguity is completely resolved thanks to the different longitudes of the observing sites. The true period is either a single-wave with $P = 0.49$ d or a double-wave with $P = 0.98$ d. It is very difficult to be sure of the double-wave solution since the two waves are of nearly equal amplitude, but it is a distinct possibility. Unfortunately, the period is so close to one day that we cannot use the other observations (all made at SAAO) to settle this problem. By combining all the data we find a best period of 0.9807 d for the double-wave solution (Fig. 10). Results from 1988 indicate that this period fits the data well.

66 Oph

During 1987 this star showed double emission at Hβ and Hγ (Mennickent and Vogt, 1988).

We observed this star for one season only (1987). Apart from a gradual increase in brightness, there is no indication of periodicity. Nevertheless, the star is variable as the scatter (0.01 mag) is much larger than expected. It appears that we are seeing only the flickering component.

V986 Oph

This star is not known as a Be star, but we have included it here owing to its great interest in connection with the role of NRP in the Be phenomenon. V986 Oph has a long history of photometric variability. Lynds (1959) determined a period of 0.289 d and classified it as a β Cep variable. Jerzykiewicz (1975) confirmed this period from seven nights of photometry and deduced a peak-to-peak amplitude of 0.014 mag. However, not all the data could be described by a simple sinusoidal variation with this period. Pike and Lloyd (1979) failed to detect any radial velocity variations with the photometric period, though a systematic decrease in nightly mean velocities was observed.

To clarify the nature of this star, C. D. Pike organized an international campaign for July 1980. Fullerton *et al.* (1985) analyzed both the photometry and radial velocities obtained during the campaign and found a period of 0.325 d with a light amplitude of 0.01 mag in B. No significant radial velocity variations were found, but the systematic variation in mean nightly velocity was confirmed and orbital elements derived ($P = 25.56$ d, $2K = 35$ km s^{-1}, $e = 0.23$). They also obtained an extensive set of high dispersion line-profile observations and discovered high-order profile variations progressing from blue to red with a period of about 0.3 d. They deduced $\ell = 6$, but at times $\ell = 4$ and $\ell = 8$ are excited.

This confusing picture of V986 Oph prompted us to include it in our observing project. Our photometry for 1985 was obtained over 10 nights and showed light variations at a low level. Fourier periodogram analysis showed peaks at 1.74 and 1.16 d^{-1} and their one-day aliases (Fig. 11a - top panel). An unique period or periods could not be determined from these data alone. Combining these data with all available photometry showed the most likely period to be 0.30 d or 0.23 d, its alias.

Our 1987 data again shows micro-variability, but owing to the spacing in longitude the aliasing problem largely disappears. The Fourier periodogram shows three strong peaks at $f_1 = 3.30$, $f_2 = 1.41$ and $f_3 = 0.77$ d^{-1} with semi-amplitudes of 4.7, 4.6 and 3.8 millimags respectively (Fig. 11a - middle panel). Prewhitening by f_1 leaves f_2 and f_3 with f_2 slightly stronger (Fig. 11a - bottom panel). Further prewhitening by either f_2 or f_3 leads to a pure noise spectrum. Our conclusion is that there are two periods present : the short period is well determined to be 0.303 d (Fig. 11b), but the long period is uncertain, it is either 1.299 d or 0.709 d.

The short period is the same as the one originally suggested by Lynds and Jerzykiewicz and also found in our 1985 data. We cannot confirm the period found by Fullerton *et al.* (1985) ; indeed there is no indication of a 0.325 d period in our data at all. We note, however, that the 0.303 d period is the same as their estimate of the period of the high-order line-profile variations. The low photometric amplitude is consistent with a high-order NRP mode. The nature of the long period is uncertain. It could be another NRP mode (either rotationaly split p-mode or a g-mode), but the period is close to the expected period of rotation so that some kind of rotational modulation is not ruled out.

There appears to be no compelling reason to classify this star as anything other than a β Cep variable as originally suggested by Lynds (1959). Admittedly, it has the longest know period of a star in this class, but this is not surprising in view of its early spectral type and luminosity. It does apparently oscillate with somewhat higher order modes than the majority of other β Cep variables, but this is not a criterion for reclassification. The only reasonable criterion for classification is a definite indication of a different pulsation mechanism. Since there is no reason to believe that the pulsation mechanism in this star is any different from other β Cep variables, we feel that reclassification serves merely to confuse the issue.

ϵ Cap

Mennickent and Vogt (1988) observed this star in 1986 and found deep central absorption with no traces of emission at Hβ. Dachs *et al.* (1986) found Hα to have a central absorption and emission wings in 1982.

Our 1985 photometry showed that ϵ Cap underwent a sharp drop in brightness of nearly 0.2 mag in just three days followed by a rapid recovery. Excluding this period, the periodogram shows a set of peaks with $f = 2.60$ d^{-1} and its one-day aliases, but a double-wave light curve with half this frequency is possible as the waves have distinctly different amplitudes. This solution ($P = 0.769$ d) was proposed by Balona and Engelbrecht (1987).

The 1986 photometry again showed indications of periodicity, but we could not confirm the solution derived for 1985. Instead a frequency close to two cycles per day was indicated. The severe aliasing problem prevented a meaningful solution.

The combined ESO and SAAO data of 1987 showed a slow brightening over the observing run. Removing this trend showed a possible period very close to one day. By combining all available data we determined the best value to be 1.030 d (Fig. 12). Because it is so close to one day and because of the discrepancy obtained in 1985, this period must be regarded as very uncertain.

η PsA

Mennickent and Vogt (1988) find Hβ to be very diffuse with weak double emission ($V \simeq R$) around a broad absorption core.

We were unable to detect any clear periodicity in η PsA during 1985, but the star was clearly a low-amplitude variable. A Fourier periodogram suggested a possible period of 0.774 d, which is the value quoted by Balona and Engelbrecht (1987). During 1986, the low-level variability (flickering) was again evident. No reliable period could be extracted. The same is true for the combined ESO and SAAO data of 1987.

HR 8408

Slettebak (1982) discovered HR 8408 to be a Be star showing faint double emission ($V \simeq R$) at Hβ surrounding an absorption core. Mennickent and Vogt (1988) did not see emission during 1986, but suspect incipient emission at Hβ. Buscombe and Morris (1961) found a radial velocity range of 40 km s^{-1}.

This star was originally used as a photometric standard before we discovered its variability. The 1985 SAAO photometry shows clear indications of periodicity with a frequency $f = 2.53$ d^{-1}, though a double-wave solution with half this frequency shows the two waves to have significantly different amplitudes.

The 1986 data produced the highest peak in the Fourier periodogram at $f = 1.53$ d^{-1}, i.e. the one-day alias of the solution adopted for 1985. Again, a double-wave solution appeared to be significant.

The combined ESO and SAAO data of 1987 removed the aliasing problem. The correct frequency was found to be $f = 1.53$ d^{-1} or the double-wave solution at $f = 0.765$ d^{-1}. By combining all available data we refined the period to 1.3106 if we adopt the double-wave solution (Fig. 13). This value (or possibly the single-wave period of 0.6553 d) seems to be well established.

o Aqr

The emission features in this star have been relatively static since 1975. The spectrum shows double emission in the Balmer lines ($V \simeq R$) and a central shell absorption feature (Mennickent and Vogt 1988).

Photometry during 1985 showed a steady brightening of the star over a period of three months with a large excursion in magnitude on one occasion. These complications made period extraction very difficult. A subset of the data indicated a possible double-wave light curve with $P = 1.449$ d (Balona and Engelbrecht 1987). During 1986 a much larger amount of data was obtained and the star was more quiescent. Both the Fourier and PDM periodograms show a strong signal at $f = 1.40$ d^{-1} ($P = 0.71$ d) - half the period found in 1985. However, a double-wave light curve with the period found in 1985 also described the 1986 data well.

The combined ESO and SAAO data for 1987 again shows a strong signal with $f = 1.39$ d^{-1} or the double-wave equivalent at $f = 0.70$ d^{-1}. This time the amplitude difference in the waves did not appear to be significant. Considering the good agreement of the period determinations of three seasons, we can state with little doubt that the period of this star is $P = 1.4325$ d from all available data (Fig. 14). This gives a double-wave light curve with distinctly different amplitudes for the two waves in 1985 and 1986. An increase in amplitude from 0.01 mag in 1986 to 0.02 mag in 1987 seems to have occurred.

One of the aims of this project was to determine the temperature range at which periodic Be stars could be found. o Aqr is one of the coolest stars (B7IVe) which has been found to be periodic. Our impression is that periodicity is most likely to be found amongst earlier spectral types.

ψ^2 Aqr

This star is not known as an emission-line star. We decided to include it in our observing program owing to its very rapid rotation ($v \sin i = 332$ km s^{-1}) and to test the hypothesis that rapidly-rotating non-Be stars do not show low-order profile variations (which are expected to give rise to periodic light variations). Abt and Levy (1978) regard the star as a probable spectroscopic binary.

The SAAO data for 1986 showed a strong peak at $f = 1.87$ d^{-1} in the Fourier periodogram. The PDM periodogram suggested that a double-wave solution with half this frequency is more appropriate. The ESO and SAAO data of 1987 confirmed these conclusions. We have adopted a double-wave solution with $P = 1.073$ d obtained from an analysis of all existing photometry. A large decrease in amplitude seems to have occurred between the two seasons (Fig. 15).

The light variation in this star is in every respect similar to those in Be stars. It would be of great+ value to look for possible emission at Hα in this star. If it can be shown that emission is definitely not present but that short-period light variations are present, it could offer an important clue to the relationship between the short-period variations and the Be phenomenon.

5. Colour variations.

There are very few observations of periodic Be stars observed in more than one colour. Van Vuuren *et al.* (1988) found that the colour variations in periodic Be stars in the open cluster NGC 3766 were very small. The evidence indicates that the star is bluest (hotest) when brightest. The ESO observations produced simultaneous *uvby* colours. In figures 16 - 20 we show light and colour curves for some of the periodic Be stars observed at ESO. In general, the conclusions of van Vuuren *et al.*, (1988) are supported. The best evidence comes from observations of 48 Lib (Fig. 17). There is a small phase shift between *b* and *u-b,* but the star is brightest when bluest.

6. Conclusions.

A detailed interpretation of the results found in this paper and others in the series will be presented elsewhere. Here we summarize the main findings.

We found periodic light variations in almost all Be stars. Of the 17 candidates, only three stars were constant in light, three others had uncertain periods. The Be star HD137518 has a very unusual light curve which may not be strictly periodic or else could be another example of a triple-wave light curve as found in η Cen and α Eri.

In most cases the light curves are double waves with unequal maxima and minima. Sometimes the waves are of nearly equal amplitude, so it is quite possible that the periods of some apparently single-wave variables may be in error by a factor of two. Such a situation was found for two Be stars in the cluster NGC3766 (Ahmed 1 and Ahmed 15) where an apparently single-wave light curve became a double-wave light curve with twice the period in the course of a year (van Vuuren *et al.* 1988). The triple-wave light curve of η Cen is remarkable for its large amplitude, but has a counterpart in the bright star α Eri (Balona *et al.,* 1987).

It has become increasingly clear, both in this work and in previous studies of the light variability of periodic Be stars, that the light variations are never adequately described by purely periodic variations. There is always a residual scatter which is often many times larger than the expected observational error. We have called these random, short-term variations *flickering*. It seems that flickering is closely associated with periodic variability. The constant Be stars are really constant and do not show this flickering (or at least not to the same extent).

In all cases we found the period of light variation to be consistent with the expected period of rotation of the star. There is no clear evidence for multiperiodicity in any of the stars. In the case of ζ Oph we found a β Cep - like variation with a period of 0.193 d superimposed on a longer period of 1.075 d which is practically six times the length of the shorter period and could be the rotation period. This behaviour was only seen for one season. This star is clearly an exception to the rule and deserves closer study. For χ Oph (and possibly HD137518) we found evidence for a period longer than the expected period of rotation. It is not very clear whether this variation is intrinsic to the star (as is the case in general) or a result of a close companion or circumstellar material.

The results of this work clearly show the importance of multi-site observations for these short-period variables. The aliasing problem that still existed in some stars was completely resolved by combining results from the two sites.

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TABLE I. — *A summary of stars observed. Notes are given for program stars ; the others are comparison stars. The abbreviation 2W and 3W stands for double-wave and triple -wave light curve respectively. The grouping includes stars which are in close proximity and for which the same transparency corrections were applied. The projected rotational velocity, the mean Strömgren b magnitude and the total number of observations is shown.*

HR	HD	Name	MK type	vsini	<b>	N	Notes
HR 5190	HD 120307	ν Cen	B2IV	91	3.33	279	P = 2.621 d.
HR 5193	HD 120324	μ Cen	B2IV–Ve	175	3.39	360	P = 2.1017 d, 2W.
HR 5439	HD 127971		B7V		5.872	202	
HR 5440	HD 127972	η Cen	B1.5Vne	333	2.32	352	P = 1.927 d, 3W.
HR 5668	HD 135348		B3IV		6.026	178	
	HD 137518		B1IIInep		7.94	183	P = 8.696 d?
HR 5730	HD 137387	κ^1 Aps	B1pne		5.39	308	P = 1.238 d, 2W.
HR 5786	HD 138867		B9V		5.950	246	
HR 6172	HD 149671	η^1 TrA	B7IVe		5.89	202	Constant.
HR 6233	HD 151441		B8II–III		6.150	215	
HR 5902	HD 142096		B2.5V	197	5.065	230	
HR 5941	HD 142983	48 Lib	B5IIIpe	393	4.81	232	P = 0.4017 d.
HR 5993	HD 144470		B1V	142	3.986	401	
HR 6112	HD 147933		B2V	303	4.781	134	
HR 6118	HD 148184	χ Oph	B2IV:pe	134	4.61	346	P = 13.774 d.
HR 6175	HD 149757	ζ Oph	O9.5Vne	379	2.67	313	P_1= 1.075, P_2= 0.193 d.
HR 6224	HD 151133		B9.5III	100	6.050	131	
HR 6451	HD 157042	ι Ara	B2IIIne	369	5.25	542	P = 0.556 d, 2W.
HR 6460	HD 157243		B7III	150	5.120	684	
HR 6475	HD 157599		B8–9V		6.190	405	
HR 6510	HD 158427	α Ara	B2IIIne	298	2.81	545	P = 0.9807 d, 2W.
HR 6712	HD 164284	66 Oph	B2Ve	221	4.77	160	Constant.
HR 6719	HD 164432		B2IV		6.352	287	
HR 6732	HD 164716		B9V		6.878	66	
HR 6747	HD 165174	V986 Oph	B0IIIn	434	6.20	274	P_1=0.303, P_2=1.3/0.7 d.
HR 8260	HD 205637	ε Cap	B2.5Vpe	293	4.36	567	P = 1.03 d?
HR 8293	HD 206546		A3m	47	6.336	581	
HR 8386	HD 209014	η PsA	B8Ve		5.39	598	Constant.
HR 8408	HD 209522		B4IVne	300	5.90	597	P = 1.3106 d, 2W.
HR 8446	HD 210300		A5V		6.500	482	
HR 8402	HD 209409	o Aqr	B7IVe	227	4.67	526	P = 1.433 d, 2W.
HR 8451	HD 210419		A1Vnn	254	6.270	455	
HR 8533	HD 212404		A0V	65	5.750	406	
HR 8840	HD 219402		A3V		5.561	389	
HR 8858	HD 219688	ψ^2 Aqr	B5V	332	4.32	388	P = 1.073 d, 2W.

TABLE IIa. — *Strömgren-b observations for periodic Be stars observed at SAAO. The heliocentric Julian day is with respect to JD2440000.000.*

HR 5190

HJD	b
6959.2227	3.326
6959.2679	3.314
6959.3058	3.315
6959.3447	3.322
6959.3817	3.329
6959.4169	3.331
6959.4671	3.328
6960.4225	3.341
6961.2177	3.324
6961.2457	3.322
6961.2717	3.320
6961.3051	3.321
6961.3383	3.319
6961.3701	3.321
6961.4039	3.323
6961.4493	3.320
6962.2118	3.307
6962.2566	3.319
6962.2845	3.324
6962.3188	3.324
6965.2383	3.363
6965.3849	3.343
6965.4322	3.337
6966.2226	3.319
6966.2535	3.318
6966.2820	3.323
6966.3301	3.323
6966.3609	3.328
6966.3923	3.328
6966.4238	3.321
6967.2232	3.336
6967.2512	3.333
6967.2836	3.335
6967.3203	3.337
6967.3495	3.344
6967.3813	3.341
6967.4218	3.334
6967.4628	3.353
6968.2189	3.341
6968.2458	3.332
6968.2735	3.339
6968.3018	3.337
6968.3318	3.357
6972.2623	3.327
6972.3074	3.330
6972.3585	3.340
6978.2279	3.330
6978.2657	3.326
6978.3111	3.341
6978.3564	3.344
6978.4156	3.334
6980.2514	3.334
6980.2988	3.328
6980.3467	3.342
6980.3858	3.334
6980.4386	3.340
6981.2317	3.329
6981.2653	3.333
6981.3039	3.331
6981.3763	3.336
6982.2613	3.322
6982.3033	3.324
6982.3941	3.317
6983.2248	3.337
6983.2623	3.333
6983.3049	3.340
6983.3515	3.327
7236.3839	3.297
7236.4252	3.292
7236.4608	3.306
7236.5013	3.296
7236.5363	3.300
7236.5711	3.297
7236.6065	3.300
7236.6294	3.294
7237.2946	3.304
7237.3298	3.305
7237.3642	3.306
7237.3980	3.301
7237.4322	3.306
7237.4647	3.300
7238.2962	3.310
7238.3271	3.311
7238.3598	3.305
7238.3944	3.300
7238.4292	3.303
7238.4630	3.307
7238.4967	3.303
7238.5291	3.300
7238.5642	3.304
7238.5966	3.305
7238.6240	3.304
7238.6399	3.305
7240.2931	3.311
7240.3257	3.309
7240.3615	3.311
7240.3959	3.309
7240.4288	3.307
7240.4636	3.306
7240.4964	3.309
7240.5293	3.310
7240.5626	3.306
7240.5956	3.307
7240.6216	3.309
7240.6403	3.312
7241.2953	3.307
7241.3289	3.303
7241.3624	3.298
7241.3961	3.303
7241.4290	3.300
7241.4622	3.304
7241.4971	3.299
7241.5310	3.300
7241.5663	3.300
7241.5998	3.301
7241.6214	3.301
7241.6288	3.295
7242.2955	3.301
7242.3293	3.295
7242.3639	3.303
7242.4022	3.303
7242.4351	3.301
7242.4691	3.302
7242.5016	3.301
7242.5813	3.304
7242.6059	3.301
7242.6217	3.302
7243.3035	3.313
7243.3364	3.308
7243.3686	3.308
7243.4018	3.306
7243.4337	3.305
7243.4663	3.303
7243.5014	3.306
7243.5338	3.306
7243.5665	3.307
7243.5939	3.306
7243.6132	3.311
7243.6293	3.311
7245.5135	3.302
7246.3011	3.312
7246.3329	3.305
7246.3650	3.304
7246.3962	3.307
7246.4297	3.308
7246.4662	3.303
7246.4984	3.305
7246.5304	3.304
7246.5628	3.308
7246.6060	3.300
7246.6331	3.301
7246.6495	3.304
7247.3082	3.300
7247.3452	3.296
7247.3791	3.296
7247.4125	3.299
7247.4498	3.300
7247.4839	3.298
7247.5213	3.299
7247.5558	3.299
7247.5891	3.302
7247.6141	3.301
7247.6308	3.298
7248.3134	3.310
7248.4083	3.304
7248.5753	3.315
7250.3382	3.284
7250.3889	3.290
7250.4330	3.288
7250.4904	3.298
7250.5435	3.307
7250.5967	3.318
7250.6334	3.302
7251.3468	3.287
7251.3967	3.301
7251.4350	3.304
7251.4798	3.305
7251.5175	3.306
7251.5535	3.298
7251.6264	3.299
7252.3409	3.297
7252.3767	3.300
7252.4116	3.296
7252.4501	3.293
7252.4938	3.293
7252.5343	3.290
7252.5714	3.288
7252.6084	3.293
7252.6448	3.288
7260.3091	3.290
7260.3822	3.287
7261.4754	3.311
7261.5132	3.310
7261.5483	3.309
7261.5806	3.305
7261.6154	3.308
7261.6464	3.311
7262.2964	3.298
7262.3359	3.297
7262.4091	3.296
7262.4427	3.295
7262.4803	3.300
7262.5154	3.297
7262.5524	3.290
7262.5871	3.295
7262.6210	3.300
7263.2964	3.301
7263.3338	3.300
7263.3668	3.299
7263.4020	3.299
7263.4381	3.299
7263.4733	3.297
7263.5084	3.302
7263.5451	3.295
7263.5821	3.294
7264.2774	3.305
7265.3068	3.298
7265.4163	3.294
7265.4681	3.299
7265.5188	3.297
7265.5552	3.294
7265.5912	3.306
7266.2761	3.304
7266.3096	3.308
7266.3422	3.304
7266.3743	3.308
7266.4403	3.304
7266.4977	3.306
7266.5316	3.307
7266.5724	3.306
7266.6034	3.302
7267.2784	3.305
7267.3253	3.299
7268.2740	3.298
7268.3204	3.301
7268.3712	3.297
7268.4254	3.295
7268.4744	3.302
7270.2753	3.302
7270.3249	3.300
7270.3770	3.299
7270.4316	3.297
7270.4852	3.302
7270.5198	3.296
7270.5547	3.299
7270.5862	3.301
7270.6178	3.296
7274.2888	3.309
7274.3473	3.297
7274.4088	3.298
7274.4674	3.300
7274.5045	3.302
7274.5428	3.305
7274.5761	3.301
7321.4137	3.297
7322.2234	3.308
7322.2834	3.305
7322.3407	3.306
7322.3973	3.303
7322.4569	3.303
7323.2288	3.295
7323.2858	3.291
7323.3409	3.311
7323.4231	3.293
7323.4773	3.296
7328.2484	3.298
7328.3338	3.298
7329.2485	3.302
7329.3097	3.302
7329.3602	3.302
7329.4219	3.307
7330.2522	3.300
7330.3110	3.305
7330.3578	3.303
7330.4208	3.307
7331.2508	3.292
7331.3115	3.297
7331.3640	3.294
7331.4328	3.299

HR 5193

HJD	b
6959.2239	3.407
6959.2692	3.393
6959.3072	3.389
6959.3459	3.382
6959.3829	3.394
6959.4181	3.399
6959.4683	3.395
6960.4242	3.408
6961.2187	3.408
6961.2467	3.408
6961.2727	3.408
6961.3062	3.411
6961.3393	3.406
6961.3711	3.406
6961.4050	3.406
6961.4504	3.402
6962.2128	3.386
6962.2577	3.396
6962.2856	3.404
6962.3198	3.401
6965.2394	3.401
6965.2722	3.403
6965.3859	3.392
6965.4332	3.386
6966.2237	3.357
6966.2546	3.358
6966.2833	3.367
6966.3311	3.361
6966.3619	3.358
6966.3932	3.362
6966.4249	3.356
6967.2241	3.366
6967.2521	3.357
6967.2846	3.353
6967.3212	3.348
6967.3506	3.350
6967.3822	3.354
6967.4226	3.359
6967.4636	3.386
6968.2200	3.410
6968.2467	3.411
6968.2743	3.405
6968.3026	3.407
6968.3327	3.412
6972.2657	3.347
6972.3088	3.350
6978.2293	3.400
6978.2672	3.396
6978.3125	3.409
6978.3589	3.412
6978.4171	3.408
6980.3003	3.408
6980.3480	3.411
6980.3871	3.406
6980.4399	3.413
6981.2331	3.411
6981.2666	3.415
6981.3052	3.416
6981.3775	3.421
6982.2629	3.392
6982.3046	3.397
6982.3457	3.397
6982.3955	3.386
6983.2261	3.408
6983.2637	3.409
6983.3062	3.406
6983.3528	3.393
7236.3852	3.350
7236.4266	3.356
7236.4618	3.361
7236.5024	3.359
7236.5374	3.359
7236.5720	3.356
7236.6083	3.360
7236.6303	3.359
7237.2956	3.363
7237.3308	3.363
7237.3654	3.365
7237.3988	3.361
7237.4331	3.363
7237.4659	3.364
7238.2971	3.366
7238.3280	3.367
7238.3608	3.366
7238.3954	3.368
7238.4302	3.372
7238.4640	3.374
7238.4976	3.373
7238.5300	3.376
7238.5652	3.375
7238.5976	3.375
7238.6260	3.378
7238.6412	3.377
7240.2941	3.396
7240.3270	3.384
7240.3623	3.386
7240.3970	3.382
7240.4298	3.381
7240.4649	3.385
7240.4974	3.381
7240.5302	3.383
7240.5636	3.383
7240.5965	3.380
7240.6231	3.384
7240.6419	3.388
7241.2965	3.390
7241.3300	3.384
7241.3635	3.381
7241.3971	3.379
7241.4300	3.379
7241.4631	3.380
7241.4980	3.377
7241.5321	3.377
7241.5672	3.379
7241.6013	3.376
7241.6234	3.378
7241.6304	3.373
7242.2966	3.379
7242.3304	3.377
7242.3651	3.380
7242.4032	3.382
7242.4361	3.382
7242.4700	3.389
7242.5025	3.387
7242.5826	3.381
7242.6071	3.373
7242.6231	3.377
7243.3044	3.378
7243.3376	3.381
7243.3697	3.381
7243.4027	3.383
7243.4347	3.377
7243.4686	3.373
7243.5024	3.369
7243.5347	3.369
7243.5675	3.370
7243.5950	3.376
7243.6146	3.382
7243.6306	3.380
7245.5144	3.381
7246.3021	3.398
7246.3339	3.394
7246.3660	3.396
7246.3971	3.394
7246.4306	3.397
7246.4674	3.397
7246.4993	3.393
7246.5314	3.391
7246.5637	3.393
7246.6070	3.386
7246.6343	3.387
7246.6507	3.388
7247.3092	3.390
7247.3461	3.386
7247.3800	3.382
7247.4134	3.382
7247.4507	3.381
7247.4849	3.382
7247.5223	3.381
7247.5567	3.384
7247.5900	3.384
7247.6155	3.383
7247.6318	3.384
7248.3143	3.388
7248.4093	3.387
7248.5783	3.407
7250.3399	3.369
7250.3902	3.383
7250.4345	3.378
7250.4920	3.385
7250.5448	3.395
7250.5979	3.396
7250.6345	3.398
7251.3480	3.371
7251.3980	3.386
7251.4361	3.386
7251.4809	3.384
7251.5184	3.384
7251.5545	3.380
7251.6274	3.376
7252.3419	3.386
7252.3777	3.389
7252.4126	3.384
7252.4515	3.380
7252.4950	3.382
7252.5354	3.380
7252.5723	3.384
7252.6093	3.386
7252.6462	3.383
7260.3107	3.381
7260.3834	3.380
7261.4763	3.381
7261.5142	3.375
7261.5492	3.375
7261.5815	3.369
7261.6165	3.371
7261.6473	3.369
7262.2974	3.377
7262.3370	3.381
7262.3741	3.379
7262.4101	3.376
7262.4438	3.375
7262.4815	3.381
7262.5168	3.370
7262.5535	3.37
7262.5882	3.379
7262.6220	3.380
7263.2975	3.389
7263.3350	3.393
7263.3678	3.391
7263.4030	3.385
7263.4392	3.379
7263.4743	3.374
7263.5094	3.372
7263.5462	3.372
7263.5831	3.377
7264.2784	3.376
7265.3077	3.394
7265.4175	3.385
7265.4691	3.389
7265.5197	3.387
7265.5561	3.385
7266.2771	3.386
7266.3106	3.382
7266.3432	3.374
7266.3752	3.383
7266.4413	3.373
7266.4989	3.374
7266.5387	3.378
7266.5734	3.379
7266.6044	3.382
7267.2793	3.392
7267.3262	3.389
7268.2751	3.389
7268.3214	3.391
7268.3721	3.385
7268.4263	3.384
7268.4753	3.382
7270.2763	3.389
7270.3258	3.389
7270.3779	3.384
7270.4327	3.384
7270.4861	3.380
7270.5207	3.380
7270.5560	3.377
7270.5872	3.382
7270.6189	3.375
7274.2904	3.398
7274.3484	3.389
7274.4098	3.385
7274.4685	3.388
7274.5055	3.391
7274.5439	3.391
7274.5771	3.397
7321.4149	3.337
7322.2247	3.372
7322.2848	3.372
7322.3420	3.376
7322.3988	3.382
7322.4581	3.372
7323.2302	3.369
7323.2875	3.369
7323.3421	3.377
7323.4243	3.381
7323.4785	3.378
7328.2501	3.385
7328.3353	3.378
7328.4112	3.405
7329.2500	3.390
7329.3109	3.383
7329.3614	3.379
7329.4231	3.384
7330.2536	3.383
7330.3122	3.380
7330.3591	3.384
7330.4220	3.379
7331.2528	3.382
7331.3129	3.385
7331.3652	3.381
7331.4342	3.379

TABLE IIa (*continued*)

HR 5440

HJD	b
6959.2277	2.298
6959.2714	2.287
6959.3088	2.290
6959.3477	2.292
6959.3845	2.298
6959.4197	2.306
6959.4699	2.315
6960.4272	2.286
6961.2201	2.298
6961.2483	2.299
6961.2744	2.306
6961.3079	2.312
6961.3407	2.316
6961.3725	2.331
6961.4065	2.333
6961.4522	2.341
6962.2143	2.319
6962.2594	2.302
6962.2873	2.290
6962.3212	2.281
6962.3541	2.280
6965.2412	2.342
6965.2739	2.345
6965.3874	2.372
6965.4348	2.341
6965.4784	2.296
6966.2254	2.269
6966.2563	2.272
6966.2850	2.278
6966.3328	2.298
6966.3634	2.309
6966.3948	2.317
6966.4265	2.316
6966.4665	2.318
6967.2257	2.372
6967.2540	2.384
6967.2863	2.397
6967.3227	2.393
6967.3524	2.379
6967.3838	2.350
6967.4241	2.319
6967.4651	2.287
6968.2220	2.304
6968.2485	2.312
6968.2758	2.319
6968.3042	2.328
6968.3342	2.356
6972.2683	2.337
6972.3107	2.344
6978.2321	2.319
6978.2691	2.316
6978.3143	2.311
6978.3607	2.293
6978.4192	2.292
6980.3026	2.278
6980.3499	2.282
6980.3898	2.284
6980.4417	2.296
6981.2354	2.311
6981.2686	2.310
6981.3074	2.311
6981.3793	2.313
6982.2655	2.275
6982.3064	2.287
6982.3475	2.294
6982.3973	2.298
6982.4503	2.300
6983.2286	2.312
6983.2659	2.310
6983.3080	2.316
6983.3561	2.318
7236.3883	2.213
7236.4291	2.226
7236.4642	2.225
7236.5052	2.221
7236.5400	2.216
7236.5744	2.196
7236.6124	2.175
7236.6339	2.164
7237.3331	2.166
7237.3679	2.171
7237.4019	2.178
7237.4352	2.181
7237.4680	2.192
7238.3306	2.213
7238.3634	2.218
7238.3984	2.213
7238.4326	2.202
7238.4667	2.207
7238.4999	2.195
7238.5322	2.183
7238.5676	2.178
7238.5999	2.173
7238.6289	2.171
7238.6440	2.169
7240.3299	2.221
7240.3648	2.232
7240.3996	2.219
7240.4326	2.207
7240.4673	2.189
7240.5001	2.170
7240.5323	2.155
7240.5658	2.148
7240.5988	2.151
7240.6261	2.159
7240.6448	2.164
7241.3325	2.183
7241.3660	2.198
7241.3998	2.203
7241.4324	2.211
7241.4655	2.211
7241.5005	2.198
7241.5348	2.184
7241.5719	2.187
7241.6046	2.191
7241.6265	2.193
7241.6340	2.193
7242.2992	2.206
7242.3327	2.187
7242.3685	2.181
7242.4058	2.161
7242.4386	2.150
7242.4726	2.147
7242.5050	2.149
7242.5848	2.172
7242.6094	2.181
7242.6260	2.188
7243.3069	2.192
7243.3401	2.199
7243.3720	2.211
7243.4050	2.204
7243.4376	2.193
7243.4711	2.191
7243.5047	2.191
7243.5369	2.197
7243.5698	2.202
7243.5975	2.200
7243.6181	2.204
7243.6334	2.198
7245.5170	2.211
7246.3043	2.163
7246.3362	2.150
7246.3681	2.155
7246.3993	2.157
7246.4333	2.169
7246.4696	2.187
7246.5019	2.204
7246.5336	2.217
7246.5663	2.215
7246.6095	2.217
7246.6370	2.216
7246.6534	2.215
7247.3115	2.204
7247.3485	2.195
7247.3823	2.200
7247.4157	2.193
7247.4531	2.194
7247.4879	2.184
7247.5245	2.176
7247.5590	2.173
7247.5922	2.167
7247.6180	2.169
7247.6344	2.170
7248.3164	2.169
7248.4118	2.205
7248.5807	2.233
7250.3453	2.203
7250.3942	2.221
7250.4387	2.217
7250.4966	2.210
7250.5483	2.204
7250.6010	2.203
7250.6384	2.194
7251.4028	2.180
7251.4390	2.188
7251.4844	2.180
7251.5215	2.178
7251.5571	2.186
7251.6304	2.201
7252.3449	2.206
7252.3804	2.220
7252.4153	2.227
7252.4984	2.204
7252.5385	2.193
7252.5747	2.184
7252.6119	2.178
7252.6493	2.174
7260.3150	2.200
7260.3875	2.192
7261.4797	2.235
7261.5173	2.224
7261.5517	2.217
7261.5842	2.203
7261.6192	2.202
7261.6500	2.199
7262.3017	2.200
7262.3409	2.201
7262.3767	2.194
7262.4473	2.187
7262.4844	2.188
7262.5196	2.188
7262.5562	2.194
7262.5928	2.192
7262.6250	2.201
7263.3001	2.218
7263.3377	2.234
7263.3704	2.242
7263.4057	2.243
7263.4421	2.239
7263.4772	2.228
7263.5120	2.214
7263.5489	2.204
7263.5861	2.191
7264.2809	2.180
7265.3107	2.227
7265.4204	2.203
7265.4715	2.176
7265.5225	2.173
7265.5585	2.172
7266.2798	2.179
7266.3131	2.184
7266.3458	2.186
7266.3783	2.194
7266.4441	2.182
7266.5018	2.194
7266.5431	2.212
7266.5763	2.221
7266.6071	2.218
7267.2821	2.210
7267.3288	2.197

HR 5440

HJD	b
7268.2777	2.173
7268.3242	2.182
7268.3755	2.195
7268.4290	2.210
7268.4777	2.222
7270.2797	2.205
7270.3286	2.198
7270.3810	2.200
7270.4355	2.198
7270.4890	2.203
7270.5234	2.193
7270.5590	2.186
7270.5912	2.173
7270.6226	2.176
7274.2955	2.227
7274.3519	2.210
7274.4132	2.183
7274.4718	2.160
7274.5094	2.162
7274.5469	2.160
7274.5802	2.163
7321.4189	2.197
7322.2284	2.180
7322.2885	2.198
7322.3454	2.215
7322.4024	2.219
7322.4621	2.215
7323.2340	2.215
7323.2919	2.205
7323.3463	2.187
7323.4277	2.166
7323.4827	2.195
7328.2550	2.219
7328.3391	2.226
7328.4160	2.210
7329.2549	2.166
7329.3145	2.182
7329.3651	2.201
7329.4265	2.202
7330.2594	2.206
7330.3160	2.201
7330.3629	2.194
7330.4257	2.181
7331.2568	2.181
7331.2581	2.186
7331.3168	2.209
7331.3690	2.214
7331.4383	2.217

HD 137518

HJD	b
6959.2314	8.019
6959.2753	8.003
6959.3122	8.025
6959.3510	8.014
6959.3880	8.000
6959.4228	7.998
6959.4733	7.999
6959.5259	7.989
6960.4300	7.989
6960.4879	7.975
6960.5329	7.960
6961.2228	7.984
6961.2509	8.007
6961.2775	8.024
6961.3107	8.046
6961.3435	8.065
6961.3752	8.080
6961.4093	8.101
6961.4548	8.101
6962.2177	8.135
6962.2625	8.139
6962.2904	8.141
6962.3239	8.136
6965.2447	7.866
6965.2771	7.856
6965.3907	7.801
6965.4376	7.783
6965.4812	7.795
6965.5312	7.782
6966.2287	7.644
6966.2591	7.639
6966.2880	7.631
6966.3353	7.625
6966.3662	7.636
6966.3975	7.644
6966.4291	7.655
6966.4692	7.666
6966.5069	7.671
6967.2283	7.999
6967.2572	8.008
6967.2890	8.008
6967.3254	7.997
6967.3549	7.984
6967.3866	7.980
6967.4267	7.983
6967.4677	7.988
6967.5100	7.997
6968.2248	8.000
6968.2514	7.986
6968.2801	7.972
6968.3070	7.955
6972.2731	7.827
6972.3145	7.815
6972.3798	7.833
6978.2363	8.040
6978.2732	8.049
6978.3178	8.056
6978.3642	8.061
6978.4229	8.054
6978.4865	8.061
6980.3063	7.978
6980.3536	8.003
6980.3933	8.022
6980.4509	8.032
6981.2392	7.879
6981.2722	7.893
6981.3108	7.914
6981.3826	7.971
6981.4322	7.999
6982.2690	7.889
6982.3100	7.851
6982.3507	7.827
6982.4009	7.824
6982.4538	7.825
6983.2326	7.657
6983.2695	7.644
6983.3116	7.627
6983.3839	7.667
6983.3909	7.673
6983.4050	7.681

HR 5730

HJD	b
6959.2340	5.373
6959.2775	5.367
6959.3148	5.371
6959.3528	5.378
6959.3897	5.383
6959.4245	5.384
6959.4757	5.383
6959.5280	5.389
6960.4320	5.397
6960.4898	5.375
6960.5353	5.368
6961.2249	5.370
6961.2526	5.378
6961.2794	5.377
6961.3128	5.381
6961.3453	5.388
6961.3771	5.398
6961.4114	5.400
6961.4567	5.416
6962.2196	5.388
6962.2644	5.383
6962.2923	5.369
6962.3257	5.358
6965.2469	5.396
6965.2792	5.406
6965.3928	5.365
6965.4399	5.353
6965.4830	5.348
6965.5331	5.355
6966.2310	5.379
6966.2612	5.384
6966.2904	5.395
6966.3370	5.400
6966.3682	5.403
6966.3994	5.409
6966.4310	5.417
6966.4709	5.404
6966.5088	5.396
6967.2307	5.370
6967.2591	5.364
6967.2908	5.360
6967.3271	5.355
6967.3565	5.359
6967.3885	5.364
6967.4287	5.369
6967.4701	5.382
6967.5117	5.397
6968.2270	5.390
6968.2533	5.392
6968.2821	5.393
6968.3088	5.403
6972.2762	5.422
6972.3186	5.416
6972.3824	5.407
6973.3889	5.441
6978.2395	5.404
6978.2766	5.412
6978.3216	5.411
6978.3673	5.412
6978.4256	5.390
6978.4896	5.380
6980.3096	5.386
6980.3567	5.376
6980.3960	5.376
6980.4534	5.381
6981.2425	5.405
6981.2749	5.413
6981.3136	5.423
6981.3856	5.441
6981.4355	5.438
6982.2727	5.379
6982.3134	5.387
6982.3533	5.391
6982.4048	5.397
6982.4574	5.404
6983.2356	5.431
6983.2752	5.427
6983.3157	5.408
7246.6019	5.340
7246.6456	5.355
7247.6101	5.419
7247.6267	5.419
7248.3081	5.391
7248.3585	5.363
7248.4043	5.337
7248.5713	5.387
7250.3331	5.371
7250.3843	5.369
7250.4282	5.373
7250.4858	5.413
7250.5367	5.393
7250.5923	5.398
7250.6291	5.372
7251.3416	5.373
7251.3923	5.373
7251.4307	5.339
7251.4754	5.343
7251.5134	5.350
7251.5493	5.355
7251.5866	5.385
7251.6224	5.363
7252.3367	5.377
7252.3727	5.372
7252.4076	5.361
7252.4458	5.369
7252.4895	5.381
7252.5299	5.394
7252.5675	5.394
7252.6045	5.402
7252.6408	5.384
7260.3043	5.390
7260.3777	5.385
7261.4713	5.356
7261.5093	5.370
7261.5444	5.377
7261.5768	5.373
7261.6112	5.376
7261.6421	5.379
7262.3316	5.395
7262.3680	5.396
7262.4049	5.424
7262.4388	5.436
7262.4762	5.437
7262.5115	5.427
7262.5487	5.406
7262.5830	5.394
7262.6465	5.388
7263.2922	5.361
7263.3299	5.361
7263.3632	5.372
7263.3979	5.382
7263.4344	5.373
7263.4693	5.385
7263.5040	5.388
7263.5413	5.386
7263.5783	5.395
7264.2737	5.407
7265.3028	5.367
7265.4128	5.384
7265.4642	5.407
7265.5149	5.415
7265.5514	5.404
7265.5874	5.391
7265.6515	5.379
7266.2722	5.356
7266.3057	5.339
7266.3385	5.344
7266.3706	5.348
7266.4367	5.355
7266.4938	5.369
7266.5278	5.361
7266.5684	5.370
7266.5997	5.382
7266.6585	5.394
7267.2746	5.404
7267.3215	5.389
7267.3723	5.420
7268.2702	5.355
7268.3167	5.360
7268.3675	5.373
7268.4214	5.377
7268.4708	5.371
7270.2713	5.379
7270.3214	5.381
7270.3733	5.380
7270.4279	5.403
7270.4818	5.391
7270.5162	5.376
7270.5506	5.369
7270.5825	5.371
7270.6141	5.356
7270.6433	5.355
7270.6582	5.353
7274.2851	5.388
7274.3435	5.374
7274.4049	5.362
7274.4636	5.365
7274.5006	5.371
7274.5393	5.374
7274.5722	5.380
7321.4212	5.368
7322.2306	5.363
7322.2909	5.373
7322.3475	5.371
7322.4045	5.384
7322.4646	5.399
7323.2364	5.373
7323.2938	5.353
7323.3486	5.346
7323.4299	5.361
7328.2584	5.337
7328.3443	5.347
7329.2574	5.375
7329.3165	5.367
7329.3674	5.371
7329.4288	5.351
7329.4842	5.333
7330.2624	5.366
7330.3183	5.374
7330.3653	5.375
7330.4284	5.367
7330.4835	5.367
7331.2617	5.360
7331.3194	5.349
7331.3719	5.354
7331.4412	5.363
7331.5005	5.361

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TABLE IIa (*continued*)

HR 5941

HJD	b
6959.2407	4.840
6959.2844	4.849
6959.3225	4.834
6959.3596	4.829
6959.3966	4.807
6959.4311	4.795
6959.4869	4.804
6959.5350	4.805
6960.4382	4.846
6960.4963	4.844
6960.5418	4.834
6961.2307	4.830
6961.2589	4.827
6961.2855	4.830
6961.3190	4.834
6961.3512	4.817
6961.3833	4.806
6961.4172	4.798
6961.4630	4.801
6962.2273	4.791
6962.2707	4.804
6962.2981	4.807
6962.3316	4.813
6965.2531	4.826
6965.2853	4.817
6965.3986	4.802
6965.4457	4.806
6965.4891	4.803
6966.2376	4.806
6966.2673	4.806
6966.2980	4.799
6966.3426	4.801
6966.3742	4.806
6966.4050	4.816
6966.4365	4.813
6966.4766	4.814
6966.5146	4.810
6967.2369	4.827
6967.2657	4.823
6967.2984	4.785
6967.3328	4.817
6967.3620	4.813
6967.3939	4.815
6967.4340	4.810
6967.4756	4.802
6967.5175	4.805
6968.2329	4.802
6968.2600	4.804
6968.2888	4.801
6968.3146	4.813
6972.2841	4.795
6972.3259	4.803
6973.3965	4.811
6978.2457	4.816
6978.2846	4.802
6978.3276	4.796
6978.3751	4.800
6978.4322	4.803
6980.3161	4.791
6980.3628	4.801
6980.4019	4.810
6980.4593	4.815
6981.2490	4.827
6981.2828	4.827
6981.3250	4.830
6981.3917	4.836
6981.4450	4.815
6982.2794	4.798
6982.3199	4.793
6982.3592	4.801
6982.4117	4.809
6982.4639	4.822
6983.2423	4.809
6983.2813	4.822
6983.3222	4.829
7321.5036	4.804
7322.2370	4.804
7322.2974	4.804
7322.3532	4.819
7322.4103	4.831
7322.4704	4.827
7322.5424	4.806
7323.2424	4.827
7323.2998	4.820
7323.3548	4.804
7323.4356	4.809
7323.4910	4.810
7328.3497	4.819
7328.4582	4.825
7329.2641	4.846
7329.3224	4.827
7329.3730	4.816
7329.4342	4.803
7329.4906	4.827
7330.2693	4.814
7330.3236	4.815
7330.3714	4.824
7330.4337	4.840
7330.4891	4.854
7331.2669	4.856
7331.3252	4.832
7331.3772	4.807
7331.4470	4.810
7331.5073	4.814

HR 6118

HJD	b
6271.2342	4.575
6271.2381	4.573
6271.2551	4.574
6271.2848	4.576
6271.3006	4.574
6271.3152	4.576
6271.3302	4.577
6271.3449	4.576
6271.3627	4.581
6271.3762	4.578
6271.3904	4.577
6271.4040	4.576
6271.4179	4.574
6271.4309	4.576
6273.2347	4.583
6273.2557	4.582
6273.2730	4.588
6273.2895	4.587
6273.3050	4.585
6273.3230	4.586
6273.3394	4.585
6273.3549	4.584
6273.3702	4.583
6273.3850	4.586
6273.4006	4.588
6274.2374	4.595
6274.2536	4.601
6274.2686	4.601
6274.2844	4.601
6274.2990	4.603
6274.3136	4.603
6274.3560	4.608
6274.3709	4.604
6274.3843	4.606
6274.4095	4.608
6276.2803	4.592
6276.2951	4.592
6276.3096	4.595
6276.3264	4.596
6276.3415	4.600
6276.3568	4.608
6276.3697	4.612
6276.3831	4.615
6276.3964	4.620
6276.4091	4.612
6276.4226	4.617
6277.2328	4.593
6277.2473	4.598
6277.2611	4.601
6277.2751	4.607
6277.2887	4.604
6277.3036	4.602
6277.3168	4.604
6277.3310	4.603
6277.3446	4.606
6277.3583	4.603
6277.3710	4.603
6277.3850	4.603
6277.3986	4.601
6277.4109	4.598
6277.4233	4.598
6278.2331	4.611
6278.2511	4.610
6278.2667	4.611
6278.3642	4.609
6278.3774	4.607
6278.3905	4.604
6278.4035	4.602
6278.4160	4.603
6279.3282	4.619
6279.3427	4.620
6279.3563	4.618
6279.3711	4.615
6279.3843	4.616
6279.4006	4.617
6279.4141	4.611
6281.2376	4.600
6281.2531	4.603
6281.2686	4.605
6281.2823	4.611
6281.2977	4.618
6281.3132	4.621
6281.3277	4.626
6281.3413	4.631
6281.3551	4.630
6281.3695	4.630
6281.3824	4.633
6281.3984	4.628
6281.4115	4.619
6282.3268	4.614
6282.3395	4.613
6282.3518	4.612
6282.3635	4.608
6282.3901	4.597
6282.4024	4.595
6282.4148	4.588
6283.2379	4.592
6283.2518	4.594
6283.2659	4.595
6283.2801	4.595
6283.2974	4.596
6283.3110	4.593
6283.3245	4.589
6283.3375	4.587
6283.3501	4.584
6283.3633	4.580
6283.3766	4.578
6283.3897	4.578
6283.4034	4.580
6959.2458	4.598
6959.2892	4.582
6959.3273	4.602
6959.3649	4.607
6959.4017	4.603
6959.4358	4.593
6959.4923	4.589
6959.5402	4.596
6960.4743	4.591
6960.5010	4.587
6960.5460	4.595
6961.2350	4.608
6961.2631	4.601
6961.2900	4.593
6961.3233	4.588
6961.3556	4.590
6961.3877	4.591
6961.4221	4.599
6961.4675	4.600
6962.2750	4.595
6962.3030	4.591
6962.3361	4.595
6965.2584	4.612
6965.2903	4.612
6965.4033	4.619
6965.4503	4.622
6965.4942	4.616
6965.5419	4.619
6966.2426	4.626
6966.2725	4.625
6966.3036	4.622
6966.3466	4.616
6966.3785	4.617
6966.4096	4.622
6966.4407	4.621
6966.4811	4.623
6966.5191	4.623
6967.2415	4.621
6967.2701	4.621
6967.3071	4.618
6967.3370	4.617
6967.3661	4.617
6967.3994	4.616
6967.4383	4.610
6967.4827	4.609
6967.5216	4.616
6968.2374	4.610
6968.2649	4.614
6968.2928	4.609
6968.3186	4.592
6972.2905	4.586
6972.3325	4.578
6973.4027	4.580
6978.2521	4.614
6978.2902	4.610
6978.3327	4.611
6978.3822	4.616
6978.4378	4.616
6980.3218	4.627
6980.3681	4.628
6980.4079	4.628
6980.4649	4.629
6980.5080	4.628
6981.2547	4.629
6981.2881	4.628
6981.3473	4.626
6981.3972	4.631
6981.4504	4.631
6982.2852	4.620
6982.3252	4.624
6982.3644	4.624
6982.4174	4.623
6982.4689	4.622
6983.2480	4.625
6983.2866	4.629
6983.3307	4.627
6983.4155	4.628
7321.4334	4.531
7321.5075	4.522
7322.2401	4.500
7322.3007	4.508
7322.3563	4.517
7322.4133	4.528
7322.4793	4.525
7322.5458	4.516
7323.2458	4.501
7323.3031	4.507
7323.3584	4.514
7323.4389	4.516
7323.4941	4.514
7328.2743	4.525
7328.3539	4.526
7328.4618	4.520
7329.2680	4.524
7329.3255	4.525
7329.3762	4.526
7329.4373	4.529
7329.4946	4.527
7330.2726	4.514
7330.3269	4.516
7330.3746	4.524
7330.4369	4.526
7330.4923	4.526
7331.2702	4.510
7331.3287	4.523
7331.3809	4.522
7331.4504	4.519
7331.5105	4.544

HR 6175

HJD	b
6271.2420	2.670
6271.2577	2.668
6271.2877	2.668
6271.3039	2.670
6271.3182	2.670
6271.3330	2.675
6271.3475	2.677
6271.3654	2.678
6271.3793	2.676
6271.3931	2.678
6271.4065	2.670
6271.4204	2.663
6271.4335	2.662
6273.2396	2.670
6273.2583	2.672
6273.2758	2.672
6273.2922	2.673
6273.3084	2.674
6273.3255	2.674
6273.3424	2.671
6273.3577	2.667
6273.3728	2.667
6273.3877	2.665
6273.4032	2.666
6274.2400	2.683
6274.2566	2.687
6274.2728	2.685
6274.2869	2.685
6274.3017	2.681
6274.3163	2.681
6274.3589	2.678
6274.3734	2.679
6274.3867	2.678
6274.4119	2.682
6276.2837	2.645
6276.2975	2.658
6276.3147	2.660
6276.3289	2.663
6276.3440	2.673
6276.3594	2.672
6276.3721	2.676
6276.3853	2.676
6276.3986	2.675
6276.4114	2.668
6276.4250	2.678
6277.2355	2.652
6277.2498	2.656
6277.2636	2.659
6277.2776	2.664
6277.2911	2.662
6277.3059	2.668
6277.3191	2.670
6277.3336	2.673
6277.3470	2.675
6277.3605	2.673
6277.3732	2.669
6277.3874	2.666
6277.4009	2.662
6277.4133	2.663
6277.4258	2.662
6278.2356	2.663
6278.2539	2.666
6278.3537	2.677
6278.3665	2.672
6278.3799	2.674
6278.3929	2.671
6278.4058	2.672
6278.4183	2.664
6279.3310	2.671
6279.3454	2.667
6279.3589	2.666
6279.3736	2.660
6279.3869	2.657
6279.4039	2.660
6279.4168	2.658
6281.2402	2.664
6281.2570	2.661
6281.2710	2.658
6281.2854	2.657
6281.3002	2.654
6281.3156	2.655
6281.3300	2.657
6281.3436	2.664
6281.3575	2.667
6281.3718	2.669
6281.3850	2.683
6281.4009	2.675
6281.4138	2.681
6282.3291	2.664
6282.3417	2.664
6282.3540	2.663
6282.3658	2.667
6282.3924	2.663
6282.4047	2.667
6282.4162	2.666
6283.2404	2.658
6283.2542	2.658
6283.2686	2.659
6283.2827	2.664
6283.2999	2.667
6283.3135	2.671
6283.3271	2.672
6283.3400	2.671
6283.3526	2.668
6283.3657	2.666
6283.3789	2.663
6283.3921	2.664
6283.4056	2.667
6959.2468	2.654
6959.3283	2.657
6959.3659	2.662
6959.4025	2.666
6959.4369	2.660
6959.4935	2.658
6959.5413	2.670
6960.4753	2.665
6960.5019	2.658
6960.5470	2.650
6961.2359	2.664
6961.2640	2.664
6961.2909	2.655
6961.3241	2.656
6961.3564	2.660
6961.3886	2.655
6961.4230	2.658
6961.4684	2.656
6962.2761	2.662
6962.3042	2.661
6962.3374	2.659
6965.2596	2.662
6965.2914	2.660
6965.4045	2.658
6965.4514	2.659
6965.4951	2.660
6965.5429	2.661
6966.2437	2.664
6966.2739	2.665
6966.3047	2.662
6966.3478	2.657
6966.3794	2.655
6966.4106	2.656
6966.4415	2.659
6966.4820	2.662
6966.5201	2.658
6967.2425	2.659
6967.2710	2.658
6967.3079	2.659
6967.3379	2.658
6967.3671	2.659
6967.4003	2.664
6967.4391	2.659
6967.4838	2.663
6967.5227	2.663
6968.2383	2.662
6968.2660	2.662
6968.2940	2.657
6972.2917	2.666
6972.3336	2.659
6973.4044	2.659
6978.2533	2.657
6978.2913	2.660
6978.3338	2.656
6978.3834	2.658
6978.4397	2.657
6980.3234	2.657
6980.3692	2.661
6980.4090	2.659
6980.4661	2.657
6981.2559	2.660
6981.2892	2.655
6981.3484	2.655
6981.3983	2.665
6981.4515	2.654
6982.2864	2.658
6982.3265	2.665
6982.3655	2.664
6982.4187	2.659
6982.4701	2.661
6983.2498	2.662
6983.2878	2.659
6983.3319	2.665
6983.4171	2.652
7321.4352	2.680
7321.5105	2.679
7322.2425	2.670
7322.3027	2.653
7322.3587	2.651
7322.4157	2.655
7322.4872	2.674
7322.5477	2.685
7323.2480	2.671
7323.3050	2.654
7323.3607	2.658
7323.4413	2.650
7323.4967	2.665
7328.2803	2.660
7328.3579	2.658
7328.4727	2.654
7329.2705	2.645
7329.3285	2.643
7329.3788	2.637
7329.4396	2.640
7329.4967	2.641
7330.2750	2.673
7330.3292	2.676
7330.3770	2.684
7330.4397	2.692
7330.4971	2.698
7331.2728	2.710
7331.3311	2.693
7331.3837	2.692
7331.4528	2.696

HR 6451

HJD	b
6271.2496	5.286
6271.2796	5.270
6271.2949	5.258
6271.3109	5.249
6271.3252	5.235
6271.3396	5.228
6271.3552	5.225
6271.3715	5.222
6271.3855	5.217
6271.3992	5.217
6271.4131	5.220
6271.4262	5.226
6271.4395	5.234
6271.4494	5.239
6273.2487	5.258
6273.2652	5.263
6273.2834	5.266
6273.2992	5.260
6273.3170	5.256
6273.3331	5.249
6273.3491	5.243
6273.3642	5.240
6273.3795	5.243
6273.3950	5.248
6273.4096	5.249
6274.2477	5.236
6274.2630	5.239
6274.2791	5.249
6274.2931	5.255
6274.3079	5.258
6274.3654	5.260
6274.3794	5.259
6274.4175	5.257
6276.2905	5.230
6276.3044	5.234
6276.3216	5.233
6276.3357	5.245
6276.3498	5.258
6276.3651	5.264
6276.3781	5.266
6276.3910	5.262
6276.4043	5.264
6276.4172	5.256
6276.4308	5.246
6277.2422	5.255
6277.2558	5.257
6277.2698	5.253
6277.2837	5.252
6277.2982	5.250
6277.3120	5.250
6277.3261	5.251
6277.3398	5.256
6277.3535	5.259
6277.3662	5.264
6277.3787	5.262
6277.3940	5.266
6277.4065	5.265
6277.4189	5.262
6277.4311	5.263
6278.2454	5.251
6278.2615	5.245
6278.3601	5.249
6278.3729	5.250
6278.3861	5.250
6278.3996	5.255
6278.4122	5.256
6278.4245	5.259
6278.4334	5.260
6279.3381	5.228
6279.3522	5.228
6279.3653	5.228
6279.3798	5.228
6279.3933	5.233
6279.4099	5.244
6279.4229	5.248
6281.2480	5.236
6281.2637	5.248
6281.2776	5.252
6281.2926	5.258
6281.3075	5.261
6281.3227	5.264
6281.3367	5.266
6281.3513	5.264
6281.3650	5.260
6281.3782	5.255
6281.3943	5.251
6281.4075	5.250
6281.4205	5.244
6281.4302	5.240
6282.3356	5.276
6282.3479	5.273
6282.3600	5.269
6282.3718	5.262
6282.3986	5.251
6282.4108	5.249
6282.4223	5.247
6282.4302	5.248
6282.4378	5.250
6282.4455	5.248
6283.2468	5.238
6283.2608	5.234
6283.2754	5.232
6283.2929	5.234
6283.3063	5.236
6283.3201	5.240
6283.3333	5.247
6283.3459	5.250
6283.3586	5.259
6283.3722	5.264
6283.3851	5.269
6283.3983	5.273
6283.4119	5.274
6676.3675	5.270
6676.3848	5.273
6676.4017	5.278
6677.3386	5.253
6677.3580	5.254
6677.3811	5.257
6677.4028	5.268
6680.2154	5.250
6680.2390	5.248
6680.2562	5.248
6680.2752	5.247
6680.2932	5.253
6680.3115	5.258
6680.3295	5.260
6680.3475	5.255
6680.3695	5.254
6682.2195	5.268
6682.2421	5.260
6682.2595	5.254
6682.2757	5.245
6682.2928	5.249
6682.3103	5.253
6682.3271	5.251
6682.3649	5.263
6682.3841	5.270
6684.3074	5.251
6684.3130	5.244
6684.3319	5.255
6684.3510	5.246
6684.3759	5.245
6686.2272	5.266
6686.2457	5.263
6686.2631	5.264
6686.2802	5.264
6686.2977	5.266
6686.3147	5.270
6686.3319	5.271
6686.3514	5.274
6686.3699	5.275
6686.3883	5.272
6688.2207	5.246
6688.2441	5.252
6688.2625	5.250
6688.2807	5.233
6688.2987	5.264
6688.3173	5.272
6690.2293	5.256
6690.2605	5.249
6690.2866	5.251
6690.3125	5.254
6690.3479	5.245
6690.3753	5.253
6691.2271	5.288
6691.2768	5.277
6691.2982	5.268
6691.3232	5.262
6691.3486	5.247
6691.3721	5.262
6692.2241	5.270
6693.2240	5.228
6693.2468	5.239
6693.2698	5.247
6693.2912	5.264
6693.3144	5.275
6693.3399	5.266
6693.3661	5.263
6694.2288	5.219
6694.2521	5.203
6694.2756	5.224
6694.2995	5.215
6694.3288	5.228
6694.3563	5.248
6695.2499	5.313
6695.2740	5.282
6695.2969	5.264
6695.3234	5.215
6695.3494	5.203
6696.2475	5.260
6696.2701	5.265
6696.2921	5.278
6696.3146	5.292
6696.3407	5.311
6697.2369	5.223
6697.2586	5.228
6697.2818	5.228
6697.3045	5.234
6697.3294	5.245
6697.3533	5.238
6698.2426	5.237
6698.2637	5.216
6698.2850	5.224
6698.3088	5.219
6698.3297	5.220
6699.2392	5.234
6699.2621	5.234
6700.2393	5.263
6700.2621	5.256
6700.2840	5.245
6700.3089	5.231
6700.3330	5.229
6703.2598	5.209
6703.2811	5.232
6703.3040	5.236
6703.3262	5.235
6959.2512	5.225
6959.3379	5.234
6959.3751	5.229
6959.4119	5.226
6959.4572	5.234
6959.5075	5.257
6959.5544	5.274
6959.5801	5.281
6960.4795	5.240
6960.5062	5.243
6960.5512	5.249
6960.5826	5.260
6960.6028	5.263
6960.6214	5.269

TABLE IIa (*continued*)

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HJD	b
6961.2414	5.258
6961.2673	5.267
6961.2945	5.248
6961.3277	5.235
6961.3603	5.231
6961.3922	5.235
6961.4267	5.240
6961.4728	5.248
6962.2798	5.226
6962.3082	5.224
6962.3411	5.241
6962.5534	5.229
6962.5807	5.228
6962.6106	5.226
6965.2641	5.220
6965.2953	5.223
6965.4084	5.265
6965.4552	5.276
6965.4990	5.273
6965.5461	5.249
6965.5914	5.239
6965.6135	5.249
6966.2484	5.259
6966.2777	5.263
6966.3121	5.258
6966.3512	5.250
6966.3830	5.239
6966.4142	5.229
6966.4450	5.233
6966.4856	5.250
6966.5254	5.257
6966.5659	5.255
6966.5828	5.255
6966.5986	5.255
6966.6136	5.258
6967.2465	5.256
6967.2747	5.265
6967.3113	5.261
6967.3411	5.249
6967.3772	5.249
6967.4039	5.246
6967.4426	5.234
6967.4874	5.245
6967.5274	5.256
6967.5678	5.256
6967.5830	5.257
6967.5987	5.254
6967.6154	5.258
6968.2419	5.244
6968.2695	5.247
6968.2974	5.251
6968.3225	5.247
6970.5270	5.238
6970.5659	5.228
6970.5905	5.228
6972.3000	5.273
6972.3387	5.280
6972.5204	5.242
6972.5434	5.247
6972.5646	5.248
6972.5868	5.252
6973.4105	5.268
6975.5615	5.249
6978.2589	5.238
6978.2973	5.238
6978.3389	5.241
6978.3888	5.249
6978.4448	5.267
6978.4971	5.268
6978.5364	5.257
6978.5564	5.249
6978.5755	5.244
6980.3287	5.238
6980.3741	5.237
6980.4136	5.242
6980.4713	5.259
6980.5113	5.263
6980.5421	5.258
6980.5607	5.251
6980.5783	5.247
6981.2610	5.255
6981.2937	5.271
6981.3532	5.268
6981.4029	5.239
6981.4581	5.215
6981.4985	5.228
6981.5313	5.239
6981.5542	5.263
6982.2914	5.222
6982.3316	5.246
6982.3702	5.282
6982.4236	5.303
6982.4745	5.279
6983.2549	5.264
6983.2925	5.258
6983.3381	5.249
6983.4237	5.262
7321.4397	5.240
7321.5138	5.245
7321.5852	5.246
7322.2454	5.224
7322.3054	5.244
7322.3637	5.267
7322.4184	5.265
7322.4904	5.256
7322.5502	5.245
7322.5940	5.243
7322.6282	5.246
7323.2624	5.244
7323.3174	5.224
7323.4554	5.263
7328.3075	5.203
7328.4908	5.204
7328.5491	5.210
7328.5936	5.207
7329.2879	5.168
7329.3419	5.203
7329.3918	5.273
7329.4514	5.271
7329.5100	5.254
7329.5476	5.236
7329.6029	5.201
7330.2900	5.219
7330.3417	5.201
7330.3900	5.199
7330.4527	5.202
7330.5089	5.170
7330.5453	5.186
7330.5817	5.190
7331.2879	5.242
7331.3451	5.250
7331.4013	5.229
7331.4665	5.226
7331.4671	5.223
7331.4677	5.221
7331.4682	5.218
7331.4687	5.221
7331.4692	5.221
7331.5250	5.225
7331.5665	5.218
7332.5677	5.243
7332.5683	5.240
7332.5689	5.238
7332.6038	5.240

HR 6510

HJD	b
6271.2525	2.818
6271.2825	2.829
6271.2975	2.836
6271.3131	2.836
6271.3280	2.839
6271.3423	2.845
6271.3587	2.843
6271.3740	2.841
6271.3883	2.841
6271.4018	2.836
6271.4158	2.835
6271.4285	2.832
6271.4424	2.827
6271.4520	2.822
6273.2531	2.851
6273.2704	2.849
6273.2867	2.851
6273.3022	2.858
6273.3202	2.852
6273.3366	2.850
6273.3523	2.844
6273.3677	2.837
6273.3826	2.831
6273.3980	2.826
6273.4125	2.826
6274.2505	2.847
6274.2660	2.847
6274.2817	2.848
6274.2963	2.846
6274.3109	2.845
6274.3685	2.830
6274.3822	2.830
6274.4073	2.824
6274.4207	2.827
6276.2928	2.860
6276.3075	2.850
6276.3243	2.853
6276.3384	2.852
6276.3546	2.843
6276.3678	2.836
6276.3809	2.833
6276.3943	2.834
6276.4069	2.837
6276.4202	2.828
6276.4336	2.831
6277.2451	2.850
6277.2587	2.855
6277.2725	2.854
6277.2865	2.851
6277.3013	2.851
6277.3146	2.850
6277.3288	2.847
6277.3425	2.847
6277.3562	2.841
6277.3689	2.839
6277.3814	2.832
6277.3967	2.833
6277.4090	2.831
6277.4214	2.826
6277.4337	2.824
6278.2485	2.846
6278.2639	2.839
6278.3624	2.832
6278.3753	2.830
6278.3885	2.824
6278.4019	2.828
6278.4145	2.822
6278.4268	2.820
6278.4357	2.818
6279.3406	2.833
6279.3546	2.829
6279.3676	2.823
6279.3822	2.824
6279.3967	2.824
6279.4122	2.822
6279.4254	2.820
6281.2509	2.844
6281.2660	2.841
6281.2799	2.836
6281.2955	2.829
6281.3107	2.821
6281.3257	2.819
6281.3394	2.818
6281.3536	2.815
6281.3681	2.812
6281.3806	2.813
6281.3967	2.812
6281.4097	2.812
6281.4229	2.817
6281.4324	2.819
6282.3377	2.820
6282.3501	2.820
6282.3621	2.819
6282.3741	2.820
6282.4009	2.822
6282.4130	2.824
6282.4245	2.826
6282.4323	2.827
6282.4400	2.830
6282.4478	2.830
6283.2494	2.830
6283.2632	2.829
6283.2777	2.824
6283.2952	2.819
6283.3087	2.821
6283.3225	2.814
6283.3355	2.818
6283.3482	2.818
6283.3614	2.821
6283.3748	2.824
6283.3878	2 826
6283.4013	2.829
6283.4145	2.829
6676.3694	3.128
6676.3866	3.124
6676.4035	3.130
6677.3404	3.110
6677.3599	3.117
6677.3830	3.124
6677.4044	3.121
6680.2181	3.104
6680.2415	3.107
6680.2580	3.113
6680.2770	3.116
6680.2951	3.118
6680.3134	3.121
6680.3312	3.118
6680.3493	3.122
6680.3712	3.122
6680.3902	3.112
6682.2220	3.120
6682.2438	3.117
6682.2612	3.104
6682.2780	3.100
6682.2946	3.095
6682.3121	3.085
6682.3288	3.082
6682.3480	3.076
6682.3667	3.076
6682.4043	3.083
6684.3098	3.094
6684.3148	3.101
6684.3339	3.096
6684.3529	3.083
6684.3779	3.083
6684.4018	3.087
6686.2293	3.080
6686.2476	3.076
6686.2649	3.075
6686.2823	3.067
6686.2995	3.059
6686.3165	3.049
6686.3336	3.039
6686.3532	3.024
6686.3717	3.012
6686.3901	3.005
6688.2234	3.080
6688.2462	3.096
6688.2642	3.063
6688.2824	3.073
6688.3005	3.064
6688.3193	3.066
6690.2319	3.110
6690.2633	3.099
6690.2892	3.109
6690 3145	3 095
6690.3509	3.089
6690.3783	3.068
6691.2293	3.097
6691.2793	3 094
6691.3009	3.088
6691.3254	3 088
6691.3507	3.089
6691.3742	3.093
6692.2260	3.064
6693.2259	3.049
6693.2492	3.042
6693.2721	3.034
6693.2934	3.037
6693.3185	3.046
6693.3423	3.039
6693.3681	3.041
6694.2309	3.005
6694.2543	3.038
6694.2778	3.054
6694.3016	3.053
6694.3309	3.058
6694.3586	3.062
6695.2520	3.016
6695.2762	3.030
6695.2993	3.012
6695.3254	3.041
6695.3517	3.057
6696.2496	3.051
6696.2721	3.056
6696.2942	3.068
6696.3172	3.080
6696.3429	3.083
6697.2391	3.073
6697.2609	3.069
6697.2840	3.067
6697.3071	3.076
6697.3317	3.088
6697.3555	3.089
6698.2447	3.047
6698.2658	3.063
6698.2872	3.074
6698.3110	3.071
6698.3325	3.095
6699.2414	3.065
6699.2642	3.066
6700.2415	3.072
6700.2640	3 064
6700.2861	3 066
6700.3110	3.084
6700.3352	3.087
6703.2618	3.081
6703.2831	3.096
6703.3059	3.089
6703.3286	3.092
6959.2629	2.820
6959.3405	2.831
6959.3779	2.830
6959.4140	2 820
6959.4610	2.805
6959.5094	2 800
6959.5515	2 802
6959 5822	2.801
6960 4811	2.793
6960.5077	2 793

HR 6510

HJD	b
6960.5527	2.803
6960.5845	2.805
6960.6046	2.809
6960.6232	2.815
6961.2431	2.811
6961.2691	2.824
6961.2961	2.826
6961.3292	2.822
6961.3620	2.814
6961.3939	2.806
6961.4281	2.794
6961.4744	2.801
6962.2818	2.821
6962.3104	2.808
6962.3435	2.802
6962.5558	2.808
6962.5828	2.806
6962.6137	2.793
6965.2659	2.822
6965.2997	2.809
6965.4102	2.803
6965.4573	2.808
6965.5012	2.812
6965.5488	2.806
6965.6110	2.813
6966.2504	2.822
6966.2795	2.807
6966.3138	2.799
6966.3529	2.803
6966.3849	2.805
6966.4158	2.805
6966.4467	2.814
6966.4872	2.805
6966.5338	2.804
6966.5637	2.807
6966.5802	2.811
6966.5963	2.814
6966.6114	2.804
6967.2488	2.817
6967.2764	2.809
6967.3129	2.804
6967.3428	2.801
6967.3790	2.799
6967.4058	2.809
6967.4441	2.801
6967.4892	2.802
6967.5378	2.806
6967.5656	2.808
6967.5803	2.812
6967.5963	2.815
6967.6132	2.823
6968.2438	2.814
6968.2712	2.816
6968.2991	2.810
6968.3240	2.819
6970.5298	2.817
6970.5622	2.822
6970.5868	2.811
6972.3030	2.799
6972.3419	2.805
6972.5402	2.826
6972.5614	2.830
6972.5836	2.829
6973.4147	2.818
6975.5582	2.835
6978.2614	2.814
6978.3001	2.816
6978.3419	2.815
6978.3908	2.816
6978.4472	2.823
6978.4991	2.829
6978.5330	2.829
6978.5536	2.818
6978.5724	2.815
6980.3314	2.816
6980.3764	2.818
6980.4156	2.826
6980.4732	2.827
6980.5141	2.822
6980.5391	2.816
6980.5577	2.808
6980.5756	2.803
6981.2631	2.820
6981.2957	2.821
6981.3551	2.818
6981.4049	2.825
6981.4618	2.823
6981.5009	2.816
6981.5273	2.811
6981.5506	2.786
6982.2934	2.823
6982.3344	2.819
6982.3727	2.817
6982.4255	2.818
6982.4768	2.813
6983.2577	2.815
6983.2950	2.821
6983.3403	2.826
7321.4434	2.837
7321.5181	2.832
7321.5871	2.827
7322.2472	2.840
7322.3071	2.821
7322.3654	2.819
7322.4201	2.827
7322.4921	2.829
7322.5520	2.821
7322.5957	2.837
7322.6300	2.845
7323.2647	2.830
7323.3193	2.813
7323.3755	2.781
7323.4572	2.835
7328.3096	2.845
7328.3750	2.842
7328.4930	2.843
7328.5512	2.864
7328.5957	2.868
7329.2897	2.830
7329.3438	2.829
7329.3936	2.817
7329.4533	2.825
7329.5119	2.852
7329.5496	2.857
7329.6050	2.848
7330.2918	2.834
7330.3435	2.825
7330.3920	2.820
7330.4544	2.842
7330.5108	2.848
7330.5472	2.853
7330.5834	2.836
7331.2898	2.827
7331.3469	2.820
7331.3992	2.822
7331.4713	2.856
7331.5270	2.849
7331.5685	2.839
7332.5714	2.829

HR 6747

HJD	b
6271.2464	6.196
6271.2768	6.196
6271.2923	6.197
6271.3078	6.197
6271.3222	6.198
6271.3369	6.200
6271.3517	6.200
6271.3692	6.201
6271.3832	6.202
6271.3969	6.203
6271.4101	6.203
6271.4242	6.203
6271.4372	6.208
6271.4470	6.207
6273.2445	6.207
6273.2626	6.213
6273.2805	6.210
6273.2964	6.206
6273.3142	6.209
6273.3295	6.210
6273.3463	6.211
6273.3618	6.211
6273.3770	6.211
6273.3923	6.210
6273.4071	6.208
6274.2440	6.215
6274.2603	6.209
6274.2769	6.211
6274.2908	6.210
6274.3054	6.209
6274.3201	6.210
6274.3628	6.214
6274.3772	6.217
6274.3904	6.217
6274.4155	6.214
6276.2874	6.202
6276.3016	6.218
6276.3190	6.198
6276.3335	6.202
6276.3476	6.198
6276.3630	6.205
6276.3760	6.205
6276.3890	6.194
6276.4023	6.195
6276.4151	6.188
6276.4287	6.203
6277.2399	6.207
6277.2536	6.218
6277.2673	6.215
6277.2814	6.209
6277.2949	6.213
6277.3096	6.206
6277.3236	6.210
6277.3375	6.210
6277.3509	6.209
6277.3643	6.206
6277.3768	6.205
6277.3912	6.202
6277.4045	6.198
6277.4170	6.197
6277.4293	6.197
6278.2401	6.205
6278.2584	6.209
6278.3577	6.206
6278.3706	6.205
6278.3838	6.204
6278.3968	6.205
6278.4099	6.205
6278.4222	6.204
6278.4311	6.203
6279.3352	6.199
6279.3497	6.202
6279.3630	6.203
6279.3776	6.207
6279.3907	6.212
6279.4076	6.213
6279.4206	6.214
6281.2453	6.214
6281.2612	6.211
6281.2750	6.211
6281.2893	6.210
6281.3048	6.210
6281.3199	6.212
6281.3343	6.217
6281.3482	6.214
6281.3617	6.213
6281.3759	6.214
6281.3920	6.209
6281.4050	6.207
6281.4180	6.209
6281.4274	6.208
6282.3333	6.194
6282.3457	6.194
6282.3577	6.194
6282.3695	6.195
6282.3966	6.201
6282.4086	6.206
6282.4202	6.206
6282.4283	6.207
6282.4355	6.208
6282.4434	6.211
6283.2446	6.197
6283.2583	6.196
6283.2731	6.194
6283.2887	6.198
6283.3039	6.196
6283.3174	6.199
6283.3312	6.200
6283.3439	6.204
6283.3566	6.205
6283.3700	6.208
6283.3833	6.206
6283.3963	6.207
6283.4099	6.204
6959.3012	6.210
6959.3339	6.212
6959.3712	6.200
6959.4061	6.213
6959 4406	6.210
6959.4987	6.202
6959.5448	6.216
6959.5871	6.214
6960.5130	6.201
6960.5606	6.201
6960.5883	6.203
6961.3025	6.201
6961.3341	6.204
6961.3665	6.206
6961.3987	6.207
6961.4345	6.202
6961.4792	6.204
6962.3153	6.218
6962.3482	6.199
6962.5332	6.207
6962.5603	6.204
6962.5873	6.206
6965.4154	6.198
6965.4624	6.192
6965.5133	6.196
6965.5561	6.194
6966.3187	6.197
6966.3571	6.196
6966.3893	6.197
6966.4204	6.194
6966.4514	6.207
6966.4916	6.208
6966.5383	6.206
6966.5589	6 206
6967.2807	6.200
6967.3173	6.207
6967.3467	6.209
6967.3736	6.206
6967.4112	6.208
6967.4496	6.213
6967.4929	6 200
6967.5427	6.198
6967.5626	6 189
6972.3492	6.209
6978.3072	6.203
6978.3510	6.200
6978 4001	6.203
6978.4584	6.201
6978.5089	6.194
6980.3387	6.202
6980.3806	6.201
6980.4223	6.203
6980 4805	6.211
6980.5182	6.206
6981.3001	6.198
6981.3617	6.212
6981.4133	6.216
6981.4696	6.206
6981.5052	6 206
6982.2979	6 202
6982.3418	6.202
6982.3794	6.202
6982.4325	6.203
6982.4830	6.206
6983.2993	6.202
6983.3449	6.202

TABLE IIa (*continued*)

HR 8260

HJD	b
6271.4769	4.431
6271.4901	4.432
6271.5035	4.429
6271.5166	4.429
6272.5434	4.428
6272.5557	4.431
6272.5697	4.433
6272.5832	4.430
6274.5166	4.438
6274.5292	4.439
6274.5401	4.437
6274.5515	4.435
6276.4542	4.417
6276.4677	4.415
6276.4794	4.414
6276.4907	4.414
6276.5022	4.417
6276.5141	4.417
6276.5252	4.415
6276.5377	4.415
6276.5503	4.417
6276.5633	4.414
6276.5745	4.415
6276.5848	4.417
6276.5973	4.413
6276.6082	4.409
6276.6183	4.411
6276.6287	4.412
6276.6391	4.413
6276.6494	4.414
6277.4611	4.413
6277.4735	4.412
6277.4844	4.415
6277.4961	4.417
6277.5070	4.418
6277.5190	4.417
6277.5305	4.422
6277.5414	4.419
6277.5560	4.415
6277.6151	4.421
6277.6267	4.416
6277.6373	4.420
6277.6479	4.414
6277.6552	4.410
6278.4497	4.423
6278.4872	4.419
6278.5007	4.418
6278.5137	4.413
6278.5262	4.414
6278.5389	4.408
6278.5513	4.412
6278.5644	4.410
6278.5768	4.407
6278.5890	4.407
6278.6008	4.411
6278.6129	4.412
6278.6244	4.414
6278.6377	4.413
6278.6490	4.425
6281.4625	4.427
6281.4756	4.428
6281.4870	4.426
6281.4989	4.426
6281.5119	4.422
6281.5236	4.421
6281.5368	4.418
6281.5499	4.417
6281.5619	4.417
6281.5750	4.417
6281.5861	4.412
6281.5975	4.411
6281.6084	4.409
6281.6205	4.407
6281.6313	4.410
6282.4729	4.411
6282.4844	4.408
6282.4960	4.411
6282.5070	4.413
6282.5181	4.417
6282.5294	4.419
6282.5400	4.421
6282.5508	4.422
6282.5675	4.421
6282.5800	4.424
6282.5926	4.422
6282.6047	4.424
6282.6166	4.421
6282.6286	4.420
6282.6401	4.419
6334.3637	4.563
6334.3843	4.563
6334.4028	4.563
6334.4203	4.560
6334.4368	4.554
6334.4543	4.555
6334.4702	4.549
6334.4874	4.546
6338.3944	4.490
6338.4120	4.485
6338.4271	4.483
6338.4433	4.483
6338.4580	4.488
6338.4731	4.481
6339.3485	4.467
6339.3657	4.467
6339.3813	4.468
6339.4034	4.471
6339.4191	4.471
6339.4343	4.471
6339.4561	4.465
6363.2663	4.424
6363.2835	4.423
6363.3067	4.423
6363.3226	4.424
6363.3383	4.423
6363.3541	4.423
6363.3698	4.419
6363.3847	4.421
6363.4002	4.423
6364.2602	4.421
6364.2770	4.419
6367.2909	4.446
6367.3075	4.453
6676.3762	4.437
6676.3932	4.437
6676.4102	4.437
6676.4275	4.440
6676.4440	4.443
6676.4626	4.442
6676.4820	4.447
6676.5037	4.451
6676.5202	4.448
6676.5371	4.447
6676.5536	4.448
6677.3473	4.414
6677.3667	4.434
6677.3898	4.436
6677.4109	4.435
6677.4288	4.441
6677.4454	4.448
6677.4618	4.443
6677.4783	4.447
6677.4977	4.453
6677.5132	4.451
6677.5325	4.440
6677.5538	4.462
6680.2267	4.427
6680.2489	4.429
6680.2654	4.430
6680.2845	4.429
6680.3027	4.430
6680.3205	4.436
6680.3383	4.436
6680.3560	4.434
6680.3777	4.436
6680.3996	4.437
6680.4287	4.441
6680.4388	4.442
6680.4540	4.441
6680.4736	4.442
6680.4975	4.444
6680.5145	4.445
6682.2295	4.418
6682.2506	4.418
6682.2683	4.417
6682.2848	4.421
6682.3012	4.422
6682.3187	4.425
6682.3356	4.422
6682.3545	4.426
6682.3739	4.427
6682.3924	4.423
6682.4108	4.434
6682.4259	4.430
6682.4418	4.431
6682.4565	4.433
6682.4736	4.435
6682.4886	4.433
6682.5042	4.436
6682.5199	4.435
6682.5357	4.437
6682.5536	4.436
6684.3218	4.424
6684.3414	4.423
6684.3629	4.427
6684.3850	4.430
6684.4088	4.427
6684.4260	4.433
6684.4416	4.431
6684.4585	4.414
6684.5027	4.454
6684.5179	4.436
6686.2367	4.422
6686.2546	4.425
6686.2722	4.424
6686.2895	4.428
6686.3068	4.427
6686.3234	4.430
6686.3406	4.432
6686.3599	4.429
6686.3786	4.429
6686.3970	4.433
6686.4127	4.435
6686.4279	4.436
6686.4432	4.436
6686.4578	4.439
6686.4735	4.442
6686.4890	4.439
6686.5066	4.442
6686.5228	4.441
6686.5397	4.444
6688.2308	4.401
6688.2540	4.430
6688.2716	4.415
6688.2896	4.417
6688.3076	4.421
6688.3267	4.423
6690.2412	4.418
6690.2719	4.430
6690.2971	4.428
6690.3220	4.433
6690.3587	4.430
6690.3862	4.428
6690.4145	4.434
6690.4378	4.435
6690.4644	4.434
6690.4852	4.432
6690.5047	4.427
6690.5271	4.425
6691.2376	4.425

HR 8260

HJD	b
6691.2644	4.424
6691.2874	4.427
6691.3089	4.424
6691.3333	4.428
6691.3585	4.432
6691.3818	4.432
6691.4031	4.432
6691.4214	4.432
6691.4387	4.434
6691.4628	4.435
6691.4803	4.436
6691.4969	4.438
6691.5146	4.434
6692.4238	4.438
6692.4465	4.436
6692.4671	4.434
6692.4892	4.438
6692.5119	4.438
6693.2342	4.423
6693.2578	4.424
6693.2803	4.425
6693.3030	4.433
6693.3262	4.434
6693.3524	4.436
6693.3766	4.437
6693.3996	4.438
6693.4194	4.437
6693.4389	4.438
6693.4650	4.444
6693.4876	4.445
6693.5092	4.456
6694.2395	4.419
6694.2624	4.421
6694.2857	4.434
6694.3096	4.418
6694.3387	4.432
6694.3664	4.429
6694.3882	4.431
6694.4113	4.441
6694.4356	4.434
6695.2616	4.424
6695.2841	4.444
6695.3071	4.430
6695.3343	4.436
6695.3605	4.435
6695.3833	4.435
6695.4048	4.438
6695.4267	4.438
6695.4505	4.440
6695.5063	4.434
6696.2577	4.430
6696.2796	4.427
6696.3018	4.428
6696.3249	4.429
6696.3510	4.433
6696.3726	4.431
6696.3946	4.439
6696.4163	4.432
6696.4374	4.434
6697.2471	4.425
6697.2690	4.426
6697.2927	4.435
6697.3161	4.435
6697.3391	4.445
6697.3647	4.430
6697.3859	4.431
6697.4071	4.429
6698.2526	4.417
6698.2735	4.427
6698.2952	4.427
6698.3185	4.427
6698.3418	4.434
6698.3622	4.437
6699.2498	4.434
6699.2723	4.438
6700.2496	4.431
6700.2720	4.430
6700.2946	4.433
6700.3192	4.430
6700.3453	4.426
6702.4444	4.432
6702.4665	4.431
6702.4865	4.435
6703.2701	4.435
6703.2910	4.426
6703.3147	4.428
6703.3373	4.433
6703.3569	4.433
6703.3779	4.434
6703.3984	4.434
6703.4184	4.436
6703.4391	4.433
6703.4722	4.433
6959.4441	4.380
6959.5103	4.370
6959.5570	4.364
6959.5891	4.361
6959.6119	4.359
6959.6296	4.372
6959.6458	4.357
6959.6586	4.356
6959.6716	4.355
6960.5149	4.369
6960.5630	4.371
6960.5891	4.368
6960.6057	4.365
6960.6241	4.363
6960.6371	4.366
6960.6483	4.363
6960.6602	4.361
6960.6723	4.362
6961.4364	4.369
6961.4801	4.372
6962.5335	4.371
6962.5653	4.369
6962.5880	4.369
6962.6141	4.379
6965.4169	4.367
6965.4632	4.364
6965.5139	4.370
6965.5574	4.369
6965.6218	4.362
6965.6369	4.362
6965.6520	4.362
6966.4534	4.360
6966.4938	4.364
6966.5399	4.365
6966.5671	4.366
6966.5840	4.367
6966.5996	4.366
6966.6150	4.372
6966.6330	4.366
6966.6484	4.369
6967.4131	4.362
6967.4512	4.367
6967.4948	4.360
6967.5443	4.354
6967.5690	4.348
6967.5842	4.355
6967.6004	4.356
6967.6167	4.358
6967.6299	4.356
6967.6409	4.359
6967.6514	4.358
6970.5399	4.365
6970.5701	4.365
6970.5968	4.355
6970.6248	4.357
6970.6431	4.357
6972.5242	4.357
6972.5463	4.356
6972.5674	4.354
6972.5894	4.357
6972.6021	4.357
6972.6158	4.360
6972.6288	4.361
6972.6416	4.359
6972.6542	4.365
6972.6666	4.367
6972.6802	4.368
6975.5424	4.359
6975.5651	4.355
6975.5823	4.352
6975.5976	4.352
6975.6122	4.350
6975.6270	4.350
6975.6415	4.352
6975.6562	4.355
6978.4068	4.347
6978.4629	4.344
6978.5181	4.351
6978.5398	4.355
6978.5594	4.353
6978.5786	4.353
6978.5939	4.356
6980.4281	4.352
6980.4845	4.350
6980.5245	4.350
6980.5453	4.351
6980.5638	4.349
6980.5817	4.345
6980.5956	4.343
6980.6085	4.341
6980.6229	4.340
6980.6362	4.341
6980.6483	4.342
6980.6606	4.341
6981.3684	4.354
6981.4202	4.358
6981.4767	4.356
6981.5123	4.349
6981.5360	4.346
6981.5615	4.343
6981.5778	4.354
6981.6018	4.347
6981.6165	4.353
6981.6307	4.348
6981.6458	4.340
6981.6597	4.341
6982.3859	4.353
6982.4385	4.355
6983.5908	4.348
6983.6052	4.348
6983.6289	4.348
6983.6434	4.348
6983.6556	4.348
7321.4888	4.467
7321.5662	4.451
7322.4384	4.416
7322.5107	4.440
7322.5709	4.468
7322.6140	4.482
7327.6088	4.474
7328.5135	4.492
7328.5675	4.484
7328.6114	4.489
7328.6558	4.501
7329.4096	4.529
7329.4673	4.533
7329.5264	4.528
7329.5846	4.536
7329.6198	4.537
7329.6659	4.534
7329.6779	4.530
7330.4067	4.522
7330.4123	4.528
7330.4691	4.532
7330.5327	4.528
7330.5640	4.538
7330.5967	4.551

HR 8260

HJD	b
7331.4200	4.521
7331.4868	4.526
7331.5534	4.540
7332.5856	4.527

HR 8402

HJD	b
6271.4695	4.708
6271.4840	4.709
6271.4968	4.708
6271.5103	4.707
6271.5228	4.706
6272.5376	4.697
6272.5502	4.697
6272.5619	4.696
6274.5097	4.706
6274.5229	4.706
6274.5348	4.707
6274.5463	4.705
6276.4472	4.714
6276.4622	4.715
6276.4743	4.709
6276.4854	4.710
6276.4967	4.710
6276.5086	4.711
6276.5198	4.705
6276.5324	4.706
6276.5447	4.711
6276.5569	4.710
6276.5691	4.711
6276.5796	4.707
6276.5923	4.706
6276.6025	4.708
6276.6133	4.711
6276.6236	4.706
6276.6339	4.704
6276.6442	4.712
6277.4547	4.700
6277.4672	4.702
6277.4792	4.698
6277.4910	4.702
6277.5017	4.697
6277.5130	4.699
6277.5252	4.700
6277.5364	4.696
6277.5494	4.697
6277.6101	4.698
6277.6205	4.698
6277.6322	4.699
6277.6430	4.699
6278.4425	4.707
6278.4568	4.709
6278.4815	4.712
6278.4939	4.711
6278.5073	4.716
6278.5203	4.717
6278.5325	4.716
6278.5450	4.717
6278.5575	4.713
6278.5706	4.719
6278.5828	4.710
6278.5950	4.711
6278.6067	4.709
6278.6184	4.710
6278.6318	4.709
6278.6434	4.702
6281.4552	4.718
6281.4699	4.718
6281.4815	4.717
6281.4932	4.715
6281.5053	4.717
6281.5179	4.716
6281.5311	4.716
6281.5429	4.716
6281.5558	4.711
6281.5678	4.711
6281.5805	4.711
6281.5921	4.710
6281.6030	4.706
6281.6141	4.710
6281.6260	4.709
6282.4668	4.701
6282.4792	4.701
6282.4909	4.700
6282.5021	4.701
6282.5131	4.700
6282.5241	4.699
6282.5352	4.699
6282.5455	4.697
6282.5617	4.697
6282.5750	4.695
6282.5877	4.696
6282.5999	4.697
6282.6119	4.697
6282.6238	4.696
6334.3772	4.715
6334.3944	4.715
6334.4134	4.716
6334.4301	4.714
6334.4465	4.709
6334.4634	4.713
6334.4801	4.710
6338.3871	4.668
6338.4050	4.671
6338.4209	4.672
6338.4370	4.672
6338.4518	4.671
6338.4667	4.675
6339.3416	4.681
6339.3596	4.693
6339.3747	4.689
6339.3953	4.684
6339.4128	4.685
6339.4277	4.680
6363.2576	4.672
6363.2774	4.674
6363.3001	4.675
6363.3167	4.674
6363.3323	4.677
6363.3479	4.677
6363.3637	4.677
6363.3791	4.677
6363.3940	4.675
6364.2538	4.673
6364.2703	4.671
6367.2850	4.676
6367.3011	4.673
6367.3168	4.674
6676.3806	4.688
6676.3984	4.690
6676.4153	4.686
6676.4321	4.688
6676.4503	4.687
6676.4677	4.687
6676.4895	4.688
6676.5090	4.684
6676.5256	4.689
6676.5424	4.686
6677.3521	4.679
6677.3713	4.685
6677.3943	4.682
6677.4159	4.683
6677.4337	4.691
6677.4501	4.685
6677.4665	4.683
6677.4833	4.686
6677.5024	4.686
6677.5185	4.681
6677.5373	4.677
6680.2341	4.679
6680.2543	4.688
6680.2705	4.688
6680.2897	4.686
6680.3075	4.686
6680.3258	4.684
6680.3433	4.685
6680.3612	4.687
6680.3825	4.686
6680.4047	4.685
6680.4230	4.683
6680.4431	4.683
6680.4860	4.684
6680.5026	4.683
6680.5202	4.684
6682.2367	4.679
6682.2559	4.676
6682.2731	4.687
6682.3064	4.684
6682.3235	4.684
6682.3401	4.686
6682.3590	4.683
6682.3787	4.682
6682.3975	4.682
6682.4154	4.691
6682.4303	4.686
6682.4464	4.685
6682.4624	4.688
6682.4788	4.683
6682.4933	4.682
6682.5099	4.685
6682.5250	4.684
6682.5410	4.681
6684.3271	4.687
6684.3468	4.688
6684.3681	4.680
6684.3907	4.669
6684.4141	4.676
6684.4312	4.685
6684.4472	4.693
6684.4636	4.704
6684.5072	4.690
6686.2599	4.686
6686.2772	4.690
6686.2944	4.687
6686.3118	4.689
6686.3279	4.688
6686.3453	4.688
6686.3642	4.689
6686.3837	4.688
6686.4016	4.685
6686.4177	4.688
6686.4326	4.686
6686.4481	4.689
6686.4628	4.683
6686.4783	4.683
6686.4951	4.682
6686.5124	4.683
6686.5285	4.683
6688.2393	4.670
6688.2597	4.694
6688.2773	4.677
6688.2954	4.692
6688.3133	4.687
6688.3320	4.695
6690.2496	4.682
6690.2792	4.680
6690.3043	4.682
6690.3286	4.687
6690.3651	4.685
6690.3939	4.688
6690.4223	4.685
6690.4446	4.688
6690.4708	4.691
6690.4914	4.687
6690.5118	4.683
6691.2447	4.688
6691.2711	4.688
6691.2943	4.693
6691.3160	4.695
6691.3400	4.692
6691.3649	4.685
6691.3879	4.689
6691.4102	4.688
6691.4275	4.685
6691.4451	4.687
6691.4684	4.683
6691.4857	4.684

TABLE IIa (*continued*)

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HJD	b
6691.5027	4.679
6691.5201	4.683
6692.2414	4.687
6692.4314	4.686
6692.4528	4.681
6692.4738	4.684
6692.4963	4.685
6692.5195	4.689
6693.2409	4.681
6693.2641	4.686
6693.2867	4.671
6693.3090	4.688
6693.3321	4.691
6693.3582	4.689
6693.3829	4.690
6693.4058	4.692
6693.4258	4.696
6693.4447	4.689
6693.4711	4.700
6693.4939	4.704
6693.5153	4.705
6694.2464	4.680
6694.2686	4.684
6694.2927	4.688
6694.3164	4.682
6694.3452	4.679
6694.3731	4.695
6694.3946	4.691
6694.4177	4.701
6695.3403	4.685
6695.3670	4.686
6695.3894	4.684
6695.4112	4.686
6695.4332	4.688
6696.2639	4.692
6696.2860	4.691
6696.3081	4.690
6696.3310	4.694
6696.3573	4.692
6696.3793	4.689
6696.4008	4.664
6696.4223	4.693
6696.4436	4.685
6697.2534	4.682
6697.2758	4.685
6697.2994	4.685
6697.3224	4.687
6697.3456	4.676
6697.3712	4.677
6697.3925	4.678
6697.4133	4.675
6698.2592	4.686
6698.2806	4.690
6698.3017	4.691
6698.3246	4.690
6698.3481	4.689
6698.3691	4.692
6699.2565	4.693
6700.2559	4.678
6700.2782	4.677
6700.3009	4.680
6700.3255	4.679
6700.3517	4.680
6702.4506	4.676
6702.4734	4.672
6703.2767	4.688
6703.2985	4.689
6703.3208	4.689
6703.3435	4.690
6703.3630	4.692
6703.3839	4.694
6703.4044	4.695
6703.4247	4.696
6703.4592	4.692
6703.4783	4.689
6959.4507	4.654
6959.5155	4.672
6959.5624	4.675
6959.5942	4.665
6959.6164	4.671
6959.6358	4.668
6959.6519	4.671
6959.6642	4.668
6959.6770	4.669
6960.5206	4.680
6960.5676	4.676
6960.5930	4.674
6960.6106	4.679
6960.6282	4.684
6960.6410	4.677
6960.6523	4.674
6960.6648	4.676
6960.6766	4.663
6961.4431	4.687
6961.4860	4.680
6962.5431	4.667
6962.5708	4.669
6962.5946	4.675
6962.6235	4.671
6962.6440	4.678
6965.4234	4.680
6965.4699	4.676
6965.5198	4.682
6965.5617	4.672
6965.6022	4.683
6965.6266	4.677
6965.6423	4.678
6965.6570	4.679
6966.4584	4.672
6966.4987	4.669
6966.5445	4.667
6966.5712	4.661
6966.5883	4.662
6966.6037	4.661
6966.6191	4.659
6966.6404	4.660
6966.6558	4.659
6967.4561	4.669
6967.4997	4.668
6967.5492	4.677
6967.5729	4.677
6967.5882	4.675
6967.6051	4.679
6967.6230	4.676
6967.6353	4.677
6967.6460	4.678
6967.6562	4.679
6970.5504	4.682
6970.5769	4.681
6970.6098	4.682
6970.6338	4.680
6970.6501	4.687
6972.5303	4.674
6972.5521	4.676
6972.5749	4.674
6972.5941	4.678
6972.6075	4.675
6972.6208	4.674
6972.6340	4.677
6972.6463	4.679
6972.6590	4.678
6972.6722	4.675
6972.6845	4.678
6975.5488	4.684
6975.5713	4.680
6975.5888	4.679
6975.6034	4.677
6975.6186	4.676
6975.6332	4.676
6975.6472	4.675
6975.6613	4.678
6978.4735	4.684
6978.5244	4.679
6978.5453	4.677
6978.5647	4.677
6978.5844	4.677
6978.6002	4.674
6980.4949	4.676
6980.5312	4.681
6980.5499	4.682
6980.5689	4.681
6980.5880	4.682
6980.6009	4.680
6980.6138	4.681
6980.6284	4.684
6980.6415	4.679
6980.6527	4.677
6980.6653	4.675
6981.4841	4.675
6981.5181	4.674
6981.5414	4.674
6981.5674	4.670
6981.5856	4.665
6981.6074	4.670
6981.6224	4.668
6981.6369	4.664
6981.6522	4.664
6981.6646	4.661
6983.5971	4.673
6983.6142	4.677
6983.6356	4.671
6983.6486	4.669
6983.6601	4.669
7322.5149	4.669
7322.5751	4.664
7322.6182	4.667
7327.6153	4.670
7328.5772	4.674
7328.6177	4.673
7328.6623	4.668
7329.5888	4.667
7329.6242	4.672
7329.6704	4.669
7329.6818	4.668
7330.5685	4.670
7330.6022	4.667
7332.5907	4.671

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HJD	b
6271.4724	5.896
6271.4856	5.897
6271.4993	5.896
6271.5121	5.900
6271.5246	5.900
6272.5392	5.893
6272.5518	5.895
6272.5634	5.897
6272.5791	5.896
6274.5119	5.885
6274.5245	5.887
6274.5364	5.886
6274.5477	5.885
6276.4492	5.884
6276.4637	5.887
6276.4757	5.883
6276.4870	5.886
6276.4983	5.885
6276.5103	5.889
6276.5214	5.889
6276.5340	5.893
6276.5463	5.893
6276.5596	5.892
6276.5706	5.901
6276.5813	5.900
6276.5937	5.897
6276.6040	5.902
6276.6147	5.905
6276.6251	5.904
6276.6355	5.905
6276.6456	5.902
6276.6565	5.902
6276.6597	5.906
6277.4562	5.903
6277.4696	5.904
6277.4805	5.903
6277.4925	5.902
6277.5031	5.901
6277.5145	5.900
6277.5268	5.902
6277.5379	5.900
6277.5512	5.902
6277.6116	5.897
6277.6236	5.889
6277.6337	5.890
6277.6444	5.888
6277.6562	5.881
6277.6625	5.878
6277.6682	5.879
6277.6741	5.879
6277.6798	5.882
6278.4446	5.887
6278.4582	5.889
6278.4829	5.895
6278.4957	5.893
6278.5089	5.893
6278.5217	5.895
6278.5341	5.898
6278.5467	5.898
6278.5592	5.898
6278.5722	5.900
6278.5845	5.901
6278.5965	5.903
6278.6083	5.904
6278.6200	5.908
6278.6335	5.907
6278.6448	5.910
6278.6569	5.914
6278.6635	5.910
6278.6691	5.904
6278.6752	5.909
6281.4572	5.896
6281.4712	5.897
6281.4829	5.892
6281.4947	5.890
6281.5080	5.893
6281.5194	5.893
6281.5326	5.891
6281.5458	5.893
6281.5575	5.892
6281.5693	5.893
6281.5820	5.893
6281.5935	5.893
6281.6045	5.894
6281.6155	5.896
6281.6273	5.894
6281.6374	5.898
6281.6433	5.895
6281.6495	5.895
6281.6554	5.895
6281.6613	5.894
6281.6673	5.896
6282.4682	5.887
6282.4807	5.890
6282.4922	5.892
6282.5035	5.895
6282.5145	5.897
6282.5257	5.899
6282.5365	5.900
6282.5470	5.900
6282.5633	5.904
6282.5765	5.904
6282.5890	5.905
6282.6012	5.908
6282.6132	5.906
6282.6252	5.905
6282.6366	5.908
6282.6470	5.905
6282.6545	5.907
6282.6620	5.904
6282.6690	5.903
6334.3564	5.894
6334.3792	5.894
6334.3977	5.895
6334.4154	5.896
6334.4320	5.897
6334.4482	5.899
6334.4653	5.901
6334.4823	5.901
6338.3888	5.901
6338.4068	5.899
6338.4227	5.896
6338.4387	5.896
6338.4535	5.897
6338.4682	5.892
6339.3437	5.887
6339.3613	5.906
6339.3968	5.885
6339.4144	5.887
6339.4292	5.879
6339.4502	5.898
6363.2601	5.901
6363.2789	5.906
6363.3019	5.904
6363.3182	5.901
6363.3337	5.899
6363.3494	5.893
6363.3652	5.889
6363.3804	5.886
6363.3954	5.883
6364.2552	5.890
6364.2719	5.883
6367.2865	5.892
6367.3027	5.893
6367.3183	5.897
6676.3772	5.879
6676.4109	5.879
6676.4284	5.882
6676.4468	5.883
6676.4634	5.890
6676.4841	5.898
6676.5047	5.902
6676.5211	5.901
6676.5380	5.897
6676.5545	5.892
6676.5691	5.896
6676.5832	5.896
6677.3482	5.866
6677.3676	5.866
6677.3907	5.867
6677.4119	5.869
6677.4296	5.867
6677.4463	5.873
6677.4627	5.872
6677.4793	5.879
6677.4985	5.883
6677.5141	5.873
6677.5334	5.872
6677.5547	5.880
6680.2283	5.878
6680.2500	5.879
6680.2665	5.883
6680.2855	5.884
6680.3037	5.887
6680.3215	5.890
6680.3394	5.894
6680.3569	5.897
6680.3786	5.897
6680.4007	5.895
6680.4181	5.892
6680.4397	5.889
6680.4551	5.881
6680.4747	5.881
6680.4988	5.877
6680.5161	5.876
6682.2314	5.880
6682.2516	5.876
6682.2693	5.876
6682.2857	5.879
6682.3021	5.879
6682.3196	5.879
6682.3366	5.881
6682.3555	5.883
6682.3747	5.880
6682.3933	5.879
6682.4116	5.886
6682.4267	5.880
6682.4427	5.882
6682.4575	5.877
6682.4744	5.872
6682.4894	5.872
6682.5057	5.871
6682.5208	5.871
6682.5365	5.871
6682.5544	5.873
6682.5730	5.870
6684.3227	5.894
6684.3424	5.893
6684.3639	5.889
6684.3898	5.889
6684.4100	5.887
6684.4270	5.886
6684.4425	5.875
6684.4595	5.857
6684.5035	5.872
6684.5191	5.862
6686.2380	5.880
6686.2558	5.881
6686.2732	5.883
6686.2905	5.886
6686.3078	5.885
6686.3242	5.886
6686.3415	5.886
6686.3607	5.882
6686.3794	5.879
6686.3979	5.881
6686.4136	5.880
6686.4289	5.881
6686.4443	5.881
6686.4586	5.880

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HJD	b
6686.4745	5.880
6686.4901	5.879
6686.5076	5.879
6686.5238	5.877
6686.5408	5.878
6686.5543	5.871
6686.5647	5.873
6688.2326	5.870
6688.2550	5.896
6688.2727	5.881
6688.2906	5.883
6688.3087	5.884
6688.3276	5.885
6690.2426	5.891
6690.2733	5.888
6690.2984	5.883
6690.3238	5.882
6690.3598	5.882
6690.3875	5.878
6690.4158	5.872
6690.4392	5.873
6690.4656	5.881
6690.4863	5.882
6690.5062	5.882
6690.5282	5.885
6690.5468	5.882
6691.2390	5.880
6691.2657	5.873
6691.2887	5.874
6691.3109	5.874
6691.3345	5.873
6691.3596	5.875
6691.3829	5.882
6691.4052	5.881
6691.4227	5.886
6691.4398	5.887
6691.4638	5.890
6691.4813	5.890
6691.4982	5.888
6691.5156	5.892
6691.5321	5.895
6692.4249	5.874
6692.4478	5.873
6692.4686	5.867
6692.4908	5.869
6692.5141	5.868
6693.2357	5.870
6693.2591	5.871
6693.2818	5.879
6693.3042	5.874
6693.3274	5.877
6693.3535	5.881
6693.3777	5.889
6693.4008	5.892
6693.4207	5.893
6693.4400	5.893
6693.4661	5.884
6693.4887	5.880
6693.5103	5.892
6693.5292	5.892
6694.2409	5.884
6694.2636	5.872
6694.2870	5.877
6694.3108	5.864
6694.3399	5.870
6694.3676	5.860
6694.3894	5.862
6694.4125	5.855
6694.4367	5.843
6695.2627	5.869
6695.2854	5.859
6695.3083	5.876
6695.3354	5.880
6695.3620	5.885
6695.3844	5.885
6695.4060	5.888
6695.4279	5.888
6695.4517	5.904
6695.5080	5.879
6695.5268	5.921
6695.5286	5.891
6696.2589	5.890
6696.2809	5.881
6696.3030	5.878
6696.3261	5.882
6696.3522	5.874
6696.3738	5.871
6696.3958	5.865
6696.4176	5.858
6696.4386	5.864
6697.2484	5.877
6697.2705	5.874
6697.2941	5.880
6697.3174	5.880
6697.3403	5.896
6697.3660	5.881
6697.3875	5.888
6697.4084	5.884
6698.2541	5.859
6698.2748	5.877
6698.2965	5.874
6698.3199	5.875
6698.3430	5.875
6698.3634	5.875
6699.2511	5.881
6699.2762	5.890
6700.2509	5.885
6700.2732	5.872
6700.2958	5.870
6700.3204	5.862
6700.3466	5.854
6702.4457	5.871
6702.4677	5.867
6702.4877	5.870
6703.2714	5.885
6703.2923	5.881
6703.3159	5.883
6703.3385	5.891
6703.3581	5.890
6703.3791	5.887
6703.3998	5.887
6703.4196	5.883
6703.4410	5.884
6703.4734	5.880
6703.4919	5.880
6959.4452	5.894
6959.5113	5.902
6959.5580	5.897
6959.5904	5.904
6959.6129	5.903
6959.6318	5.913
6959.6471	5.905
6959.6609	5.910
6959.6739	5.908
6960.5160	5.895
6960.5642	5.903
6960.5901	5.895
6960.6074	5.896
6960.6249	5.888
6960.6378	5.884
6960.6491	5.885
6960.6614	5.886
6960.6732	5.882
6961.4375	5.909
6961.4824	5.909
6962.5390	5.889
6962.5674	5.894
6962.5904	5.889
6962.6177	5.882
6965.4201	5.896
6965.4661	5.892
6965.5163	5.898
6965.5583	5.893
6965.6236	5.899
6965.6391	5.903
6965.6541	5.897
6966.4547	5.885
6966.4949	5.896
6966.5410	5.888
6966.5678	5.886
6966.5852	5.886
6966.6005	5.886
6966.6159	5.893
6966.6357	5.892
6966.6512	5.894
6967.4151	5.908
6967.4521	5.907
6967.4961	5.908
6967.5455	5.900
6967.5700	5.892
6967.5851	5.893
6967.6012	5.892
6967.6174	5.889
6967.6319	5.886
6967.6431	5.886
6967.6531	5.880
6970.5429	5.891
6970.5717	5.903
6970.5981	5.902
6970.6267	5.905
6970.6443	5.909
6972.5256	5.906
6972.5475	5.906
6972.5708	5.912
6972.5904	5.906
6972.6032	5.907
6972.6168	5.908
6972.6299	5.907
6972.6425	5.903
6972.6552	5.904
6972.6677	5.904
6972.6811	5.902
6975.5436	5.888
6975.5662	5.883
6975.5834	5.888
6975.5989	5.891
6975.6137	5.890
6975.6280	5.890
6975.6425	5.894
6975.6574	5.898
6978.4085	5.900
6978.4668	5.908
6978.5195	5.896
6978.5409	5.892
6978.5604	5.897
6978.5795	5.898
6978.5951	5.900
6980.4313	5.904
6980.4879	5.911
6980.5258	5.907
6980.5462	5.908
6980.5648	5.904
6980.5826	5.900
6980.5966	5.899
6980.6094	5.896
6980.6239	5.896
6980.6372	5.897
6980.6491	5.893
6980.6614	5.889
6981.3700	5.893
6981.4220	5.896
6981.4779	5.885
6981.5134	5.891
6981.5372	5.889
6981.5627	5.889
6981.5791	5.880
6981.6029	5.889
6981.6176	5.892
6981.6318	5.893
6981.6468	5.887

HR 8408

HJD	b
6981.6606	5.894
6982.3878	5.906
6982.4400	5.903
6983.5918	5.889
6983.6064	5.890
6983.6300	5.896
6983.6443	5.901
6983.6566	5.908
7321.5669	5.875
7322.4391	5.889
7322.5113	5.896
7322.5715	5.899
7322.6146	5.908
7327.6095	5.881
7328.5143	5.901
7328.5684	5.902
7328.6127	5.896
7328.6567	5.890
7329.4106	5.886
7329.4681	5.885
7329.5271	5.885
7329.5853	5.884
7329.6203	5.880
7329.6665	5.889
7329.6785	5.893
7330.4078	5.896
7330.4697	5.896
7330.5333	5.893
7330.5646	5.898
7330.5974	5.898
7331.4209	5.874
7331.4875	5.885
7331.5539	5.877
7332.5863	5.895

TABLE IIa (*continued*)

HR 8858

HJD	b
6676.3843	4.324
6676.4019	4.329
6676.4192	4.330
6676.4355	4.333
6676.4539	4.337
6676.4716	4.339
6676.4939	4.343
6676.5127	4.342
6676.5294	4.349
6676.5464	4.343
6676.5623	4.342
6676.5747	4.347
6676.5898	4.341
6676.6024	4.341
6677.3567	4.344
6677.3754	4.355
6677.3980	4.328
6677.4197	4.327
6677.4380	4.319
6677.4543	4.324
6677.4705	4.310
6677.4879	4.322
6677.5059	4.319
6677.5223	4.317
6677.5412	4.333
6677.5623	4.332
6677.5792	4.326
6680.2589	4.324
6680.2748	4.322
6680.2937	4.334
6680.3115	4.334
6680.3296	4.329
6680.3475	4.330
6680.3650	4.338
6680.3865	4.343
6680.4088	4.348
6680.4312	4.352
6680.4471	4.362
6680.4639	4.359
6680.4906	4.353
6680.5070	4.354
6680.5412	4.353
6680.5580	4.350
6680.5884	4.366
6682.2413	4.346
6682.2603	4.342
6682.2768	4.337
6682.2937	4.339
6682.3106	4.335
6682.3271	4.335
6682.3439	4.338
6682.3634	4.336
6682.4011	4.328
6682.4189	4.352
6682.4346	4.338
6682.4501	4.339
6682.4665	4.346
6682.4823	4.343
6682.4971	4.341
6682.5135	4.343
6682.5289	4.344
6682.5453	4.346
6682.5615	4.347
6682.5776	4.347
6682.5908	4.344
6682.6036	4.344
6684.3513	4.330
6684.3726	4.329
6684.3962	4.322
6684.4185	4.331
6684.4352	4.329
6684.4512	4.338
6684.4962	4.339
6686.2812	4.343
6686.2987	4.343
6686.3157	4.342
6686.3317	4.345
6686.3492	4.347
6686.3680	4.347
6686.3874	4.351
6686.4054	4.349
6686.4219	4.352
6686.4365	4.353
6686.4519	4.354
6686.4668	4.352
6686.4823	4.348
6686.4994	4.348
6686.5167	4.339
6686.5325	4.337
6686.5485	4.332
6686.5592	4.333
6686.5702	4.328
6686.5829	4.330
6686.5947	4.329
6688.2442	4.306
6688.2636	4.314
6688.2995	4.336
6688.3175	4.331
6688.3360	4.335
6690.3101	4.330
6690.3343	4.336
6690.3702	4.323
6690.3996	4.335
6690.4272	4.327
6690.4497	4.327
6690.4753	4.340
6690.4962	4.335
6690.5167	4.342
6690.5384	4.340
6690.5549	4.349
6690.5787	4.353
6692.4370	4.346
6692.4575	4.344
6692.4789	4.342
6692.5017	4.339
6692.5257	4.346
6693.2458	4.346
6693.2693	4.345
6693.2913	4.354
6693.3143	4.352
6693.3366	4.356
6693.3627	4.349
6693.3874	4.353
6693.4107	4.346
6693.4305	4.348
6693.4502	4.339
6693.4755	4.335
6693.4987	4.335
6693.5202	4.325
6693.5372	4.316
6693.5524	4.312
6693.5647	4.309
6694.2514	4.320
6694.2981	4.333
6694.3221	4.338
6694.3513	4.341
6694.3779	4.334
6694.3993	4.334
6694.4226	4.336
6694.4471	4.327
6695.2731	4.336
6695.3186	4.350
6695.3453	4.340
6695.3725	4.345
6695.3940	4.347
6695.4162	4.349
6695.4384	4.349
6695.5187	4.359
6695.5354	4.370
6696.2696	4.332
6696.2919	4.333
6696.3132	4.342
6696.3362	4.344
6696.3629	4.341
6696.3845	4.341
6696.4058	4.336
6696.4280	4.345
6696.4491	4.354
6697.2586	4.334
6697.2817	4.331
6697.3046	4.332
6697.3287	4.335
6697.3509	4.334
6697.3769	4.334
6697.3983	4.342
6697.4195	4.339
6698.2647	4.349
6698.2863	4.349
6698.3081	4.344
6698.3303	4.340
6698.3537	4.340
6700.2636	4.353
6700.2841	4.344
6700.3067	4.348
6700.3342	4.349
6702.4560	4.344
6702.4786	4.340
6702.5000	4.345
6702.5202	4.328
6702.5367	4.337
6703.2821	4.355
6703.3038	4.343
6703.3265	4.349
6703.3491	4.346
6703.3689	4.349
6703.3899	4.354
6703.4100	4.353
6703.4302	4.352
6703.4642	4.353
6703.4838	4.348
6703.4992	4.345
6703.5167	4.349
6703.5341	4.344
6959.5189	4.334
6959.5664	4.329
6959.5968	4.321
6959.6190	4.315
6959.6385	4.311
6959.6543	4.318
6959.6666	4.318
6959.6793	4.319
6960.5232	4.347
6960.5705	4.339
6960.5949	4.342
6960.6137	4.335
6960.6306	4.326
6960.6433	4.322
6960.6550	4.326
6960.6671	4.322
6961.4888	4.324
6962.5455	4.347
6962.5731	4.345
6962.5970	4.344
6965.5223	4.320
6965.5637	4.316
6965.6043	4.327
6965.6293	4.324
6965.6441	4.327
6965.6592	4.329
6966.5474	4.329
6966.5740	4.322
6966.5906	4.321
6966.6054	4.319
6966.6213	4.319
6966.6441	4.320
6966.6587	4.324
6967.5019	4.338
6967.5513	4.338
6967.5746	4.331
6967.5907	4.328

HR 8858

HJD	b
6967.6069	4.328
6967.6253	4.323
6967.6373	4.319
6967.6477	4.319
6967.6578	4.318
6970.5551	4.321
6970.5805	4.324
6970.6139	4.327
6970.6373	4.329
6970.6543	4.329
6972.5345	4.334
6972.5559	4.335
6972.5784	4.334
6972.5967	4.332
6972.6102	4.331
6972.6236	4.330
6972.6363	4.334
6972.6489	4.331
6972.6615	4.335
6972.6745	4.333
6972.6868	4.336
6975.5528	4.327
6975.5756	4.327
6975.5923	4.329
6975.6064	4.328
6975.6216	4.329
6975.6362	4.327
6975.6502	4.326
6975.6639	4.324
6978.4783	4.321
6978.5277	4.326
6978.5487	4.329
6978.5677	4.329
6978.5886	4.332
6978.6033	4.335
6980.4987	4.330
6980.5345	4.339
6980.5526	4.340
6980.5713	4.339
6980.5907	4.334
6980.6034	4.330
6980.6165	4.325
6980.6314	4.325
6980.6437	4.325
6980.6550	4.325
6980.6676	4.323
6981.4877	4.324
6981.5214	4.333
6981.5445	4.335
6981.5722	4.334
6981.5970	4.341
6981.6115	4.339
6981.6253	4.336
6981.6408	4 334
6981.6549	4.331
6981.6669	4.325
6983.6001	4.328
6983.6180	4.320
6983.6388	4.324
6983.6510	4.322
6983.6623	4.326
7322.5186	4.327
7322.5769	4.328
7322.6199	4.324
7327.6189	4.329
7328.5796	4.334
7328.6197	4.340
7328.6645	4.337
7329.5912	4.324
7329.6260	4.332
7329.6723	4.339
7329.6832	4.337
7330.5706	4.333
7330.6038	4.333
7332.5926	4.327

TABLE IIb. — *Four-colour Strömgren photometry for periodic Be stars observed at ESO. Observations between JD2446991 and 2447000 were obtained at SAAO. The heliocentric Julian day is with respect to JD 2440000.000.*

HR 5193

HJD	u	v	b	y
6961.6036	3.954	3.687	3.418	3.444
6961.6330	3.953	3.685	3.416	3.441
6961.6522	3.952	3.685	3.417	3.446
6961.6780	3.950	3.684	3.416	3.444
6961.7008	3.948	3.679	3.410	3.438
6961.7379	3.947	3.680	3.412	3.442
6963.5516	3.926	3.682	3.400	3.434
6963.5675	3.929	3.665	3.394	3.420
6963.5856	3.929	3.668	3.395	3.421
6963.6102	3.929	3.670	3.397	3.423
6963.6385	3.933	3.668	3.395	3.422
6963.6633	3.933	3.670	3.395	3.422
6963.6956	3.935	3.673	3.401	3.427
6963.7329	3.935	3.672	3.398	3.425
6965.5115	3.918	3.654	3.384	3.410
6965.5525	3.910	3.650	3.378	3.405
6965.5902	3.907	3.649	3.378	3.404
6965.6291	3.907	3.647	3.376	3.402
6965.6895	3.899	3.644	3.370	3.400
6965.7197	3.906	3.646	3.375	3.401
6967.4974	3.882	3.647	3.370	3.391
6967.5349	3.887	3.670	3.385	3.412
6967.5629	3.883	3.645	3.369	3.388
6967.5947	3.872	3.642	3.365	3.386
6967.6326	3.873	3.642	3.363	3.382
6967.6716	3.872	3.640	3.364	3.380
6967.6989	3.876	3.642	3.365	3.383
6968.4851	3.934	3.677	3.402	3.433
6968.5176	3.928	3.673	3.399	3.428
6968.5536	3.922	3.668	3.395	3.425
6968.5920	3.918	3.666	3.392	3.422
6968.6279	3.921	3.663	3.391	3.421
6968.6648	3.919	3.660	3.388	3.419
6968.7102	3.917	3.658	3.386	3.418
6969.5790	3.973	3.671	3.412	3.434
6969.6168	3.947	3.676	3.404	3.433
6969.6491	3.947	3.673	3.403	3.430
6969.6773	3.948	3.675	3.406	3.433
6970.6210	3.936	3.665	3.388	3.418
6970.6626	3.929	3.657	3.381	3.413
6970.6953	3.919	3.652	3.375	3.404
6971.4822	3.893	3.638	3.364	3.389
6971.5219	3.889	3.635	3.361	3.383
6971.5517	3.884	3.629	3.354	3.376
6971.5934	3.875	3.620	3.346	3.364
6971.6301	3.876	3.625	3.347	3.363
6971.6729	3.878	3.627	3.352	3.369
6971.7157	3.892	3.639	3.365	3.379
6972.4852	3.847	3.605	3.333	3.351
6972.5230	3.858	3.614	3.337	3.355
6972.5521	3.857	3.617	3.340	3.356
6972.5948	3.864	3.627	3.348	3.362
6972.6371	3.871	3.635	3.356	3.373
6972.6761	3.884	3.640	3.363	3.380
6973.4807	3.884	3.645	3.369	3.387
6973.5107	3.878	3.646	3.366	3.387
6973.5523	3.874	3.641	3.365	3.387
6973.5925	3.859	3.630	3.357	3.383
6973.6791	3.869	3.634	3.358	3.378
6975.5990	3.942	3.674	3.399	3.430
6975.6156	3.938	3.669	3.394	3.428
6975.6320	3.946	3.671	3.399	3.427
6975.6553	3.933	3.661	3.386	3.417
6979.4812	3.959	3.688	3.413	3.443
6979.5282	3.955	3.685	3.408	3.439
6979.5701	3.957	3.689	3.411	3.441
6979.6095	3.957	3.685	3.408	3.441
6979.6422	3.957	3.683	3.406	3.438
6980.4793	3.958	3.676	3.409	3.443
6980.4823	3.959	3.680	3.413	3.446
6980.5207	3.957	3.677	3.410	3.442
6980.5654	3.962	3.682	3.414	3.444
6980.6022	3.960	3.682	3.412	3.443
6980.6627	3.956	3.679	3.409	3.444
6981.4869	3.974	3.694	3.424	3.453
6981.5449	3.969	3.691	3.419	3.450
6981.5840	3.969	3.691	3.420	3.451
6981.6247	3.969	3.691	3.417	3.450
6981.6698	3.968	3.690	3.416	3.455
6982.6634	3.977	3.688	3.416	3.451

HR 5440

HJD	u	v	b	y
6965.5139	2.768	2.542	2.275	2.300
6965.5541	2.751	2.531	2.264	2.288
6965.5919	2.759	2.535	2.267	2.292
6965.6308	2.776	2.545	2.278	2.307
6965.6919	2.803	2.564	2.297	2.330
6965.7219	2.819	2.572	2.307	2.338
6965.7645	2.832	2.583	2.317	2.350
6967.4990	2.787	2.557	2.289	2.315
6967.5373	2.787	2.557	2.289	2.313
6967.5650	2.786	2.556	2.286	2.311
6967.5965	2.791	2.562	2.292	2.318
6967.6345	2.806	2.571	2.302	2.327
6967.6731	2.826	2.583	2.313	2.340
6967.7011	2.829	2.585	2.315	2.344
6967.7403	2.832	2.580	2.308	2.337
6968.4870	2.910	2.636	2.361	2.388
6968.5214	2.931	2.657	2.380	2.406
6968.5560	2.944	2.675	2.400	2.422
6968.5938	2.948	2.682	2.408	2.429
6968.6294	2.976	2.689	2.427	2.442
6968.6309	2.945	2.684	2.411	2.431
6968.6322	2.946	2.683	2.411	2.432
6968.6664	2.920	2.658	2.388	2.412
6968.7123	2.857	2.601	2.333	2.360
6968.7514	2.827	2.571	2.302	2.324
6969.5807	2.873	2.605	2.335	2.357
6969.6183	2.881	2.613	2.344	2.365
6969.6507	2.876	2.609	2.341	2.361
6969.6790	2.870	2.605	2.334	2.357
6969.7171	2.872	2.604	2.334	2.354
6970.6227	2.845	2.597	2.324	2.346
6970.6642	2.863	2.585	2.315	2.341
6970.6985	2.865	2.579	2.307	2.334
6971.4838	2.894	2.612	2.343	2.368
6971.5236	2.917	2.626	2.358	2.382
6971.5537	2.921	2.623	2.356	2.379
6971.5952	2.926	2.620	2.352	2.375
6971.6320	2.915	2.612	2.343	2.365
6971.6747	2.922	2.618	2.347	2.368
6971.7175	2.936	2.637	2.367	2.386
6972.4878	2.900	2.623	2.357	2.378
6972.5246	2.879	2.615	2.346	2.368
6972.5552	2.853	2.597	2.326	2.351
6972.5970	2.836	2.581	2.312	2.334
6972.6388	2.825	2.567	2.299	2.325
6972.6778	2.833	2.570	2.302	2.330
6972.7255	2.853	2.584	2.317	2.345
6973.4827	2.878	2.613	2.343	2.369
6973.5124	2.873	2.610	2.337	2.363
6973.5539	2.870	2.604	2.334	2.359
6973.5942	2.861	2.599	2.330	2.358
6973.6809	2.896	2.625	2.355	2.379
6973.7315	2.856	2.600	2.332	2.359
6975.6006	2.862	2.602	2.332	2.357
6975.6173	2.864	2.604	2.335	2.362
6975.6337	2.864	2.609	2.339	2.365
6975.6569	2.851	2.598	2.328	2.357
6979.4842	2.839	2.599	2.326	2.348
6979.5299	2.835	2.603	2.326	2.350
6979.5722	2.822	2.592	2.318	2.342
6979.6114	2.800	2.569	2.294	2.321
6979.6440	2.790	2.561	2.287	2.314
6980.4842	2.823	2.575	2.311	2.341
6980.5227	2.832	2.582	2.316	2.344
6980.5680	2.834	2.583	2.315	2.344
6980.6065	2.835	2.582	2.315	2.343
6980.6690	2.839	2.584	2.317	2.345
6980.7219	2.839	2.587	2.316	2.347
6981.4893	2.816	2.584	2.316	2.341
6981.5468	2.783	2.558	2.289	2.315
6981.5860	2.780	2.544	2.277	2.303
6981.6266	2.782	2.553	2.283	2.311
6981.6719	2.797	2.563	2.293	2.325
6982.6656	2.848	2.593	2.327	2.362

HD 137518

HJD	u	v	b	y
6960.4987	8.737	8.427	7.988	7.745
6960.5410	8.728	8.416	7.977	7.740
6960.5642	8.700	8.397	7.959	7.720
6960.5909	8.671	8.373	7.938	7.697
6960.6093	8.652	8.356	7.921	7.711
6960.6508	8.603	8.329	7.889	7.657
6960.6794	8.579	8.307	7.874	7.638
6960.7160	8.531	8.284	7.850	7.615
6960.7352	8.502	8.262	7.835	7.604
6960.7369	8.500	8.260	7.834	7.601
6960.7816	8.462	8.237	7.808	7.583
6960.8153	8.446	8.223	7.798	7.574
6962.5389	8.799	8.475	8.053	7.841
6962.5545	8.791	8.470	8.049	7.832
6962.5584	8.788	8.466	8.047	7.826
6962.5762	8.784	8.467	8.046	7.825
6962.5916	8.783	8.463	8.041	7.821
6962.6075	8.780	8.459	8.040	7.818
6962.6248	8.774	8.453	8.035	7.812
6962.6413	8.775	8.448	8.027	7.810
6962.6929	8.767	8.438	8.016	7.798
6962.7199	8.758	8.433	8.013	7.795
6962.7418	8.748	8.418	7.996	7.780
6962.7636	8.732	8.408	7.987	7.771
6962.7658	8.734	8.397	7.981	7.764
6962.7991	8.718	8.392	7.975	7.754
6965.5275	8.505	8.227	7.805	7.583
6965.5668	8.514	8.228	7.808	7.587
6965.6027	8.515	8.223	7.806	7.581
6965.6423	8.509	8.224	7.800	7.576
6965.7298	8.525	8.242	7.823	7.600
6965.7770	8.549	8.261	7.837	7.615
6967.5145	8.686	8.430	8.005	7.787
6967.5457	8.706	8.440	8.019	7.801
6967.5742	8.705	8.436	8.020	7.794
6967.6065	8.707	8.447	8.025	7.807
6967.6488	8.719	8.459	8.040	7.819
6967.6813	8.722	8.465	8.047	7.831
6967.7087	8.721	8.470	8.048	7.828
6967.7488	8.727	8.473	8.056	7.838
6967.7888	8.753	8.488	8.071	7.856
6968.4990	8.703	8.386	7.950	7.729
6968.5319	8.698	8.381	7.949	7.723
6968.5649	8.685	8.375	7.942	7.718
6968.6020	8.666	8.361	7.932	7.702
6968.6453	8.617	8.335	7.899	7.669
6968.6737	8.598	8.323	7.889	7.663
6968.7218	8.572	8.313	7.880	7.653
6968.7606	8.563	8.305	7.874	7.648
6968.8056	8.514	8.270	7.842	7.614
6969.5947	8.730	8.433	8.004	7.759
6969.6270	8.714	8.412	7.984	7.745
6969.6594	8.682	8.390	7.961	7.724
6969.6873	8.653	8.367	7.939	7.705
6969.7251	8.607	8.331	7.904	7.676
6970.6339	8.911	8.565	8.128	7.893
6970.6738	8.929	8.572	8.136	7.900
6970.7085	8.937	8.580	8.140	7.905
6970.7474	8.970	8.601	8.162	7.923
6971.4991	8.731	8.426	7.989	7.756
6971.5333	8.707	8.404	7.970	7.736
6971.5626	8.665	8.369	7.938	7.708
6971.6031	8.641	8.348	7.912	7.681
6971.6407	8.640	8.344	7.909	7.675
6971.6844	8.626	8.337	7.900	7.665
6971.7275	8.605	8.314	7.882	7.647
6971.7756	8.573	8.301	7.869	7.628
6972.4992	8.656	8.352	7.927	7.708
6972.5347	8.673	8.373	7.947	7.725
6972.5626	8.696	8.391	7.965	7.735
6972.6092	8.723	8.420	7.989	7.764
6972.6473	8.755	8.436	8.007	7.777
6972.6852	8.812	8.471	8.046	7.812
6972.7324	8.843	8.497	8.066	7.845
6972.7657	8.852	8.500	8.071	7.841
6973.4917	8.748	8.442	8.020	7.805
6973.5230	8.743	8.439	8.023	7.802
6973.5630	8.730	8.432	8.010	7.797
6973.6022	8.692	8.398	7.988	7.775
6973.6890	8.642	8.352	7.939	7.726
6973.7453	8.572	8.291	7.876	7.672
6975.6081	8.333	8.117	7.703	7.485
6975.6251	8.352	8.127	7.718	7.503
6975.6410	8.368	8.144	7.729	7.513
6975.6645	8.394	8.163	7.749	7.530
6979.4990	8.841	8.499	8.069	7.840
6979.5425	8.817	8.480	8.047	7.821
6979.5853	8.805	8.461	8.030	7.804
6979.6201	8.799	8.463	8.026	7.792
6979.6517	8.800	8.461	8.019	7.793
6979.7109	8.776	8.442	8.004	7.776
6980.4989	8.825	8.460	8.024	7.794
6980.5359	8.820	8.462	8.022	7.791
6980.5774	8.823	8.466	8.029	7.788
6980.6237	8.820	8.464	8.026	7.786
6980.6801	8.783	8.436	7.999	7.760
6980.7328	8.734	8.401	7.969	7.736
6981.5194	8.737	8.450	8.030	7.800
6981.5572	8.748	8.454	8.032	7.804
6981.5978	8.751	8.466	8.039	7.809
6981.6363	8.750	8.464	8.042	7.805
6981.6823	8.752	8.468	8.036	7.809
6982.6786	8.510	8.261	7.838	7.614

HR 5730

HJD	u	v	b	y
6961.6091	5.955	5.704	5.394	5.365
6961.6363	5.951	5.704	5.391	5.366
6961.6556	5.947	5.700	5.388	5.363
6961.6814	5.931	5.689	5.380	5.354
6961.7032	5.919	5.680	5.371	5.343
6961.7424	5.908	5.673	5.364	5.342
6963.5568	5.876	5.654	5.344	5.319
6963.5721	5.873	5.653	5.343	5.316
6963.5920	5.872	5.652	5.343	5.315
6963.6194	5.882	5.662	5.353	5.324
6963.6438	5.893	5.673	5.362	5.334
6963.6678	5.898	5.673	5.363	5.335
6963.7004	5.906	5.678	5.369	5.342
6963.7069	5.903	5.681	5.368	5.345
6963.7382	5.919	5.681	5.373	5.348
6963.7588	5.914	5.677	5.368	5.347
6963.7830	5.917	5.677	5.367	5.346
6963.8144	5.921	5.674	5.366	5.349
6963.8377	5.924	5.678	5.367	5.352
6965.5208	5.907	5.670	5.361	5.340
6965.5587	5.908	5.671	5.363	5.340
6965.5960	5.913	5.677	5.369	5.345
6965.6360	5.921	5.682	5.374	5.350
6965.7255	5.943	5.693	5.384	5.362
6965.7720	5.961	5.710	5.400	5.377
6967.5054	5.960	5.701	5.395	5.377
6967.5409	5.972	5.712	5.404	5.384
6967.5689	5.977	5.716	5.406	5.384
6967.6006	5.974	5.713	5.403	5.379
6967.6396	5.971	5.713	5.404	5.379
6967.6767	5.958	5.705	5.396	5.370
6967.7041	5.949	5.700	5.392	5.366
6967.7429	5.935	5.693	5.387	5.365
6967.7842	5.928	5.691	5.383	5.361
6968.4924	5.900	5.669	5.358	5.335
6968.5253	5.891	5.660	5.350	5.326
6968.5595	5.887	5.661	5.351	5.328
6968.5973	5.903	5.672	5.364	5.339
6968.6358	5.919	5.683	5.373	5.349
6968.6388	5.920	5.681	5.372	5.346
6968.6688	5.928	5.687	5.379	5.355
6968.7170	5.942	5.692	5.383	5.360
6968.7556	5.954	5.702	5.391	5.371
6968.8001	5.944	5.690	5.382	5.361
6969.5839	5.958	5.717	5.405	5.380
6969.6211	5.942	5.706	5.396	5.369
6969.6542	5.920	5.692	5.384	5.358
6969.6820	5.909	5.683	5.375	5.348
6969.7201	5.899	5.672	5.363	5.341
6969.7544	5.895	5.664	5.356	5.336
6970.6288	5.956	5.701	5.392	5.372
6970.6688	5.944	5.690	5.378	5.357
6970.7022	5.936	5.682	5.372	5.349
6971.4902	6.044	5.788	5.477	5.448
6971.4930	6.047	5.791	5.480	5.450
6971.5282	6.041	5.787	5.478	5.447
6971.5579	6.007	5.757	5.447	5.416
6971.5980	5.965	5.713	5.404	5.376
6971.6360	5.951	5.699	5.389	5.360
6971.6796	5.940	5.695	5.383	5 350
6971.7207	5.931	5.688	5.376	5.348
6971.7704	5.925	5.681	5.371	5.343
6971.8139	5.940	5.686	5.378	5.356
6972.4934	5.965	5.711	5.401	5.376
6972.5287	5.961	5.705	5.394	5.364
6972.5583	5.949	5.695	5.383	5.353
6972.6011	5.953	5.701	5.387	5.356
6972.6422	5.961	5.714	5.400	5.368
6972.6810	6.005	5.744	5.430	5.396
6972.7285	6.088	5.794	5.481	5.451
6972.7617	6.100	5.804	5.490	5.460
6973.4867	6.021	5.732	5.410	5.386
6973.5163	6.000	5.710	5.395	5.362
6973.5570	5.988	5.701	5.387	5.357
6973.5978	5.987	5.705	5.393	5.364
6973.6841	6.024	5.728	5.414	5.390
6973.7347	5.991	5.703	5.392	5.371
6973.7881	5.989	5.720	5.405	5.402
6975.6038	5.995	5.720	5.406	5.378
6975.6206	5.992	5.716	5.403	5.374
6975.6370	5.979	5.704	5.392	5.364
6975.6588	6.014	5.733	5.420	5.396
6979.4942	6.009	5.738	5.430	5.404
6979.5362	6.002	5.733	5.421	5.395
6979.5775	5.990	5.723	5.412	5.385
6979.6158	5.978	5.718	5.407	5.379
6979.6474	5.964	5.708	5.397	5.372
6980.4920	5.954	5.693	5.385	5.363
6980.5299	5.965	5.702	5.392	5.368
6980.5722	5.970	5.706	5.395	5.370
6980.6157	5.967	5.701	5.390	5.366
6980.6751	5.998	5.725	5.411	5.385
6980.7270	6.015	5.742	5.428	5.407
6980.7667	6.029	5.757	5.444	5.426
6981.4947	5.981	5.720	5.408	5.385
6981.5514	5.947	5.689	5.380	5.357
6981.5922	5.936	5.682	5.372	5.348
6981.6319	5.931	5.679	5.366	5.344
6981.6776	5.945	5.693	5.382	5.363
6982.6710	6.020	5.731	5.425	5.398
6982.7317	6.020	5.745	5.440	5.416

TABLE IIb (*continued*)

HR 5941

HJD	u	v	b	y
6960.5071	5.862	5.185	4.836	4.793
6960.5455	5.839	5.171	4.824	4.787
6960.5681	5.826	5.162	4.814	4.780
6960.5956	5.818	5.150	4.805	4.772
6960.6264	5.812	5.140	4.792	4.763
6960.6538	5.824	5.145	4.800	4.768
6960.6830	5.834	5.158	4.810	4.780
6960.7196	5.839	5.160	4.813	4.783
6960.7407	5.843	5.159	4.812	4.783
6960.7848	5.856	5.166	4.817	4.784
6960.8184	5.858	5.173	4.822	4.788
6962.5198	5.876	5.192	4.842	4.805
6962.5211	5.868	5.176	4.829	4.791
6962.5231	5.858	5.178	4.826	4.791
6962.5424	5.850	5.167	4.818	4.785
6962.5662	5.841	5.157	4.808	4.776
6962.5799	5.843	5.158	4.809	4.779
6962.5951	5.836	5.149	4.802	4.772
6962.6103	5.836	5.150	4.803	4.774
6962.6279	5.832	5.149	4.801	4.771
6962.6484	5.836	5.150	4.803	4.773
6962.7015	5.847	5.162	4.814	4.784
6962.7228	5.853	5.166	4.818	4.787
6962.7444	5.858	5.169	4.821	4.790
6962.7699	5.867	5.172	4.825	4.790
6962.8030	5.868	5.178	4.827	4.788
6965.5312	5.836	5.154	4.805	4.774
6965.5690	5.848	5.166	4.815	4.784
6965.6061	5.855	5.172	4.820	4.788
6965.6448	5.851	5.170	4.819	4.785
6965.7327	5.844	5.160	4.810	4.777
6965.7808	5.837	5.158	4.810	4.775
6967.5179	5.843	5.158	4.809	4.782
6967.5483	5.835	5.154	4.804	4.776
6967.5773	5.840	5.159	4.806	4.779
6967.6113	5.852	5.167	4.816	4.786
6967.6528	5.860	5.171	4.818	4.790
6967.6846	5.866	5.178	4.825	4.794
6967.7116	5.870	5.182	4.830	4.797
6967.7518	5.849	5.173	4.822	4.790
6967.7912	5.829	5.156	4.804	4.769
6968.5027	5.889	5.204	4.847	4.814
6968.5344	5.889	5.201	4.846	4.814
6968.5673	5.864	5.184	4.829	4.799
6968.6057	5.841	5.160	4.807	4.778
6968.6480	5.843	5.153	4.802	4.773
6968.6767	5.834	5.151	4.800	4.772
6968.7244	5.851	5.164	4.811	4.781
6968.7636	5.857	5.166	4.814	4.783
6969.5975	5.864	5.164	4.812	4.785
6969.6331	5.861	5.164	4.810	4.784
6969.6622	5.880	5.182	4.829	4.799
6969.6898	5.888	5.196	4.842	4.809
6969.7277	5.892	5.215	4.859	4.818
6970.6364	5.817	5.153	4.800	4.771
6970.6766	5.793	5.135	4.782	4.754
6970.7108	5.806	5.147	4.796	4.766
6970.7496	5.832	5.161	4.808	4.776
6971.5018	5.817	5.149	4.797	4.770
6971.5357	5.853	5.183	4.830	4.802
6971.5649	5.841	5.162	4.812	4.782
6971.6061	5.845	5.164	4.811	4.781
6971.6437	5.857	5.174	4.819	4.789
6971.6869	5.897	5.197	4.843	4.807
6971.7301	5.913	5.213	4.859	4.819
6971.7792	5.880	5.185	4.834	4.794
6972.5022	5.901	5.203	4.850	4.818
6972.5372	5.909	5.210	4.856	4.820
6972.5649	5.901	5.203	4.851	4.815
6972.6129	5.869	5.178	4.827	4.794
6972.6496	5.829	5.150	4.800	4.770
6972.6878	5.816	5.140	4.790	4.761
6972.7350	5.829	5.146	4.797	4.768
6972.7682	5.842	5.158	4.805	4.774
6973.4952	5.817	5.144	4.794	4.764
6973.5274	5.827	5.151	4.799	4.771
6973.5660	5.842	5.162	4.812	4.782
6973.6106	5.838	5.164	4.813	4.783
6973.6925	5.896	5.202	4.850	4.814
6973.7482	5.837	5.160	4.812	4.778
6975.6435	5.839	5.163	4.809	4.779
6975.6670	5.846	5.168	4.815	4.784
6979.5052	5.801	5.133	4.780	4.753
6979.5453	5.814	5.137	4.787	4.760
6979.5886	5.832	5.153	4.799	4.773
6979.6228	5.847	5.159	4.808	4.779
6979.6544	5.849	5.160	4.808	4.779
6979.7150	5.867	5.168	4.818	4.785
6980.5021	5.884	5.173	4.824	4.796
6980.5439	5.880	5.196	4.835	4.810
6980.5803	5.877	5.190	4.837	4.805
6980.6282	5.851	5.181	4.829	4.793
6980.6831	5.873	5.171	4.824	4.792
6980.7362	5.851	5.154	4.804	4.773
6981.5244	5.817	5.143	4.793	4.764
6981.5604	5.826	5.146	4.796	4.768
6981.6003	5.839	5.161	4.808	4.779
6981.6393	5.858	5.169	4.817	4.788
6981.6853	5.879	5.183	4.828	4.801
6982.6826	5.826	5.145	4.795	4.767
6991.2590	5.454	4.867	4.817	4.827
6991.3026	5.466	4.884	4.831	4.832
6991.3503	5.473	4.896	4.837	4.841
6991.3955	5.465	4.888	4.830	4.834
6991.4399	5.450	4.880	4.823	4.833
6991.4931	5.445	4.871	4.804	4.829
6994.2336	5.510	4.919	4.853	4.865
6994.2788	5.432	4.887	4.827	4.833
6994.3213	5.394	4.844	4.798	4.809
6994.3660	5.402	4.860	4.792	4.799
6994.4104	5.430	4.875	4.834	4.817
6995.2274	5.392	4.828	4.776	4.789
6995.2720	5.398	4.848	4.792	4.802
6995.3222	5.410	4.853	4.795	4.807
6998.2634	5.423	4.861	4.808	4.820
6998.3200	5.412	4.860	4.799	4.810
6998.3693	5.422	4.853	4.799	4.815
6998.4158	5.416	4.862	4.804	4.816
6999.2235	5.415	4.855	4.813	4.815
6999.2710	5.437	4.869	4.815	4.828
6999.3188	5.454	4.881	4.821	4.823
6999.3625	5.444	4.872	4.821	4.827
6999.4045	5.454	4.876	4.825	4.832
7000.2236	5.450	4.881	4.819	4.828
7000.2676	5.449	4.885	4.823	4.828
7000.3115	5.427	4.875	4.816	4.819
7000.3552	5.414	4.865	4.807	4.807
7000.4134	5.392	4.845	4.793	4.811

HR 6118

HJD	u	v	b	y
6961.6140	5.265	5.142	4.608	4.270
6961.6423	5.261	5.142	4.608	4.267
6961.6634	5.260	5.141	4.606	4.264
6961.6870	5.261	5.141	4.608	4.263
6961.7093	5.259	5.140	4.606	4.261
6961.7488	5.258	5.137	4.604	4.258
6961.7676	5.255	5.138	4.603	4.258
6961.7994	5.253	5.135	4.602	4.257
6961.8193	5.256	5.139	4.604	4.258
6963.5617	5.272	5.156	4.621	4.283
6963.5794	5.274	5.155	4.623	4.282
6963.5965	5.277	5.155	4.623	4.283
6963.6250	5.274	5.156	4.622	4.281
6963.6493	5.274	5.157	4.623	4.282
6963.6727	5.273	5.158	4.623	4.283
6963.7125	5.273	5.155	4.623	4.281
6963.7426	5.268	5.152	4.619	4.277
6963.7635	5.271	5.154	4.621	4.278
6963.7876	5.271	5.152	4.621	4.277
6963.8216	5.267	5.150	4.618	4.274
6963.8435	5.272	5.159	4.626	4.281
6965.5341	5.275	5.161	4.631	4.288
6965.5720	5.273	5.159	4.628	4.285
6965.6092	5.275	5.159	4.630	4.287
6965.6479	5.271	5.159	4.629	4.284
6965.7351	5.275	5.159	4.631	4.286
6965.7832	5.272	5.158	4.630	4.283
6967.5203	5.272	5.157	4.627	4.289
6967.5507	5.272	5.153	4.624	4.287
6967.5797	5.276	5.153	4.626	4.288
6967.6140	5.274	5.155	4.624	4.287
6967.6552	5.270	5.152	4.622	4.283
6967.6868	5.271	5.151	4.623	4.281
6967.7140	5.270	5.153	4.624	4.282
6967.7540	5.268	5.152	4.623	4.281
6967.7938	5.269	5.152	4.623	4.283
6968.5056	5.275	5.158	4.627	4.286
6968.5365	5.264	5.149	4.618	4.278
6968.5712	5.261	5.147	4.617	4.276
6968.6087	5.259	5.144	4.613	4.271
6968.6506	5.262	5.150	4.617	4.275
6968.6790	5.262	5.148	4.618	4.276
6968.7270	5.273	5.157	4.627	4.283
6968.7639	5.273	5.155	4.626	4.282
6968.8084	5.261	5.148	4.617	4.272
6969.6016	5.270	5.157	4.626	4.286
6969.6355	5.271	5.154	4.624	4.285
6969.6645	5.269	5.153	4.624	4.283
6969.6925	5.272	5.154	4.624	4.281
6969.7301	5.271	5.155	4.624	4.282
6970.6069	5.276	5.150	4.620	4.286
6970.6398	5.273	5.149	4.619	4.282
6970.6807	5.272	5.147	4.617	4.280
6970.7141	5.267	5.142	4.613	4.274
6970.7534	5.269	5.141	4.612	4.271
6970.7849	5.260	5.133	4.607	4.263
6971.5051	5.266	5.138	4.612	4.277
6971.5397	5.281	5.155	4.625	4.289
6971.5684	5.262	5.130	4.601	4.264
6971.6099	5.259	5.126	4.597	4.257
6971.6475	5.258	5.126	4.594	4.254
6971.6903	5.257	5.125	4.594	4.250
6971.7337	5.258	5.126	4.596	4.251
6971.7837	5.254	5.125	4.596	4.250
6972.5061	5.253	5.120	4.590	4.249
6972.5404	5.251	5.118	4.586	4.244
6972.5688	5.249	5.114	4.583	4.240
6972.6163	5.249	5.118	4.584	4.241
6972.6537	5.246	5.114	4.581	4.238
6972.6908	5.243	5.115	4.584	4.239
6972.7380	5.244	5.118	4.588	4.243
6972.7718	5.242	5.117	4.587	4.244
6973.4987	5.255	5.125	4.591	4.246
6973.5310	5.249	5.121	4.588	4.245
6973.5699	5.246	5.120	4.586	4.243
6973.6151	5.245	5.119	4.589	4.246
6973.6960	5.243	5.117	4.588	4.243
6973.7516	5.231	5.112	4.585	4.240
6973.7952	5.233	5.114	4.582	4.236
6975.6467	5.255	5.143	4.611	4.267
6975.6715	5.253	5.139	4.607	4.263
6977.7555	5.256	5.153	4.615	4.276
6978.7465	5.269	5.154	4.624	4.284
6979.5120	5.275	5.166	4.633	4.293
6979.5496	5.276	5.166	4.635	4.295
6979.5924	5.273	5.164	4.632	4.292
6979.6261	5.277	5.165	4.636	4.294
6979.6580	5.276	5.168	4.638	4.295
6979.7489	5.275	5.163	4.635	4.288
6980.5063	5.277	5.167	4.638	4.297
6980.5487	5.284	5.173	4.644	4.301
6980.5849	5.282	5.171	4.643	4.299
6980.6330	5.277	5.168	4.639	4.294
6980.6926	5.277	5.165	4.638	4.293
6980.7402	5.281	5.169	4.642	4.297
6980.7757	5.284	5.177	4.648	4.300
6981.5276	5.284	5.174	4.643	4.301
6981.5638	5.288	5.169	4.643	4.300
6981.6053	5.283	5.172	4.643	4.301
6981.6430	5.282	5.170	4.640	4.296
6981.6894	5.281	5.174	4.642	4.302
6982.6870	5.273	5.161	4.634	4.293
6991.2869	4.913	4.855	4.619	4.312
6991.3311	4.902	4.853	4.613	4.305
6991.3804	4.910	4.867	4.631	4.318
6991.4242	4.903	4.867	4.629	4.317
6991.4744	4.913	4.864	4.630	4.319
6991.5263	4.943	4.872	4.652	4.316
6994.2609	4.886	4.830	4.596	4.294
6994.3059	4.882	4.827	4.600	4.289
6994.3501	4.878	4.824	4.603	4.290
6994.3949	4.880	4.827	4.577	4.266
6994.4377	4.870	4.821	4.583	4.280
6995.2546	4.914	4.860	4.616	4.298
6995.3052	4.913	4.857	4.614	4.294
6995.3548	4.910	4.836	4.592	4.274
6998.2979	4.924	4.854	4.627	4.317
6998.3502	4.918	4.857	4.624	4.315
6998.3990	4.915	4.840	4.614	4.305
6998.4445	4.892	4.839	4.601	4.300
6999.2530	4.897	4.821	4.598	4.296
6999.3014	4.904	4.821	4.598	4.289
6999.3458	4.904	4.828	4.599	4.297
6999.3888	4.887	4.820	4.595	4.282
6999.4315	4.894	4.828	4.591	4.289
7000.2507	4.897	4.800	4.569	4.271
7000.2951	4.880	4.793	4.561	4.255
7000.3382	4.886	4.795	4.558	4.254
7000.3939	4.886	4.800	4.572	4.263

HR 6175

HJD	u	v	b	y
6965.5464	3.179	3.057	2.668	2.540
6965.5803	3.175	3.051	2.662	2.535
6965.6241	3.174	3.051	2.662	2.536
6965.6656	3.173	3.053	2.662	2.535
6965.7590	3.184	3.061	2.672	2.543
6965.8076	3.181	3.057	2.669	2.536
6967.5305	3.186	3.065	2.672	2.550
6967.5578	3.179	3.059	2.665	2.542
6967.5911	3.181	3.059	2.667	2.543
6967.6281	3.181	3.058	2.666	2.543
6967.6663	3.177	3.052	2.662	2.537
6967.6969	3.179	3.054	2.665	2.539
6967.7238	3.181	3.057	2.667	2.541
6967.7659	3.181	3.057	2.666	2.538
6967.8058	3.187	3.062	2.672	2.544
6968.5135	3.188	3.066	2.672	2.548
6968.5465	3.184	3.066	2.672	2.551
6968.5835	3.179	3.057	2.667	2.543
6968.6240	3.182	3.061	2.669	2.546
6968.6612	3.179	3.058	2.668	2.542
6968.6889	3.181	3.059	2.669	2.542
6968.7373	3.194	3.072	2.679	2.548
6968.7753	3.182	3.054	2.665	2.536
6969.6138	3.178	3.053	2.662	2.539
6969.6466	3.178	3.055	2.663	2.540
6969.6753	3.184	3.058	2.668	2.543
6969.7020	3.182	3.059	2.667	2.541
6969.7423	3.185	3.063	2.671	2.544
6970.6177	3.182	3.061	2.669	2.547
6970.6518	3.181	3.060	2.666	2.546
6970.6911	3.181	3.058	2.668	2.541
6970.7242	3.181	3.059	2.669	2.543
6970.7654	3.185	3.062	2.670	2.544
6971.5132	3.191	3.070	2.676	2.553
6971.5474	3.201	3.080	2.688	2.564
6971.5843	3.189	3.066	2.675	2.549
6971.6243	3.183	3.062	2.670	2.546
6971.6624	3.192	3.066	2.674	2.547
6971.7004	3.189	3.061	2.671	2.541
6971.7540	3.183	3.057	2.666	2.536
6971.8015	3.180	3.056	2.669	2.532
6972.5122	3.188	3.059	2.670	2.541
6972.5479	3.185	3.056	2.667	2.540
6972.5881	3.181	3.060	2.666	2.539
6972.6294	3.179	3.057	2.665	2.539
6972.6651	3.179	3.057	2.666	2.541
6972.7020	3.176	3.056	2.664	2.538
6972.7476	3.184	3.058	2.670	2.540
6972.7911	3.181	3.057	2.666	2.538
6973.5083	3.190	3.059	2.667	2.540
6973.5398	3.188	3.059	2.668	2.541
6973.5813	3.179	3.055	2.668	2.542
6973.6260	3.173	3.053	2.666	2.541
6973.7054	3.170	3.053	2.660	2.534
6973.7626	3.157	3.042	2.654	2.527
6977.7374	3.173	3.057	2.657	2.539
6979.5250	3.185	3.059	2.669	2.543
6979.5625	3.183	3.061	2.670	2.544
6979.6048	3.180	3.061	2.670	2.546
6979.6400	3.180	3.057	2.666	2.542
6979.6701	3.188	3.065	2.674	2.549
6980.5166	3.191	3.065	2.677	2.552
6980.5625	3.182	3.060	2.671	2.546
6980.5986	3.179	3.057	2.667	2.541
6980.6479	3.186	3.059	2.671	2.543
6980.7042	3.184	3.059	2.670	2.543
6980.7538	3.179	3.056	2.665	2.539
6981.5406	3.184	3.082	2.679	2.560
6981.5805	3.181	3.057	2.666	2.541
6981.6178	3.189	3.063	2.672	2.546
6981.6534	3.191	3.065	2.675	2.548
6982.6475	3.181	3.054	2.665	2.541
6982.7029	3.190	3.063	2.674	2.547
6991.2889	2.789	2.745	2.652	2.568
6991.3332	2.778	2.752	2.654	2.567
6991.3824	2.785	2.764	2.665	2.574
6991.4262	2.775	2.767	2.668	2.574
6991.4767	2.788	2.763	2.666	2.580
6991.5284	2.804	2.756	2.680	2.567
6994.2640	2.798	2.766	2.662	2.570
6994.3079	2.805	2.774	2.677	2.587
6994.3521	2.794	2.783	2.684	2.592
6994.3969	2.804	2.775	2.669	2.572
6994.4398	2.781	2.764	2.678	2.591
6995.2572	2.811	2.791	2.692	2.600
6995.3071	2.812	2.783	2.681	2.592
6995.3568	2.807	2.787	2.682	2.594
6998.3006	2.785	2.767	2.669	2.582
6998.3034	2.777	2.767	2.665	2.579
6998.3524	2.777	2.760	2.658	2.576
6998.4011	2.788	2.764	2.672	2.588
6998.4470	2.784	2.762	2.678	2.590
6999.2550	2.772	2.779	2.675	2.588
6999.3035	2.794	2.782	2.690	2.596
6999.3479	2.785	2.772	2.675	2.589
6999.3909	2.776	2.763	2.669	2.580
6999 4336	2.772	2.763	2.668	2.577
7000.2527	2.775	2.760	2.668	2.583
7000.2970	2.775	2.761	2.665	2.579
7000.3403	2.778	2.761	2.663	2.575
7000.3967	2.790	2.762	2.671	2.577

HR 6451

HJD	u	v	b	y
6979.7579	5.769	5.570	5.247	5.230
6979.7812	5.765	5.564	5.239	5.219
6979.8023	5.758	5.557	5.231	5.216
6980.5082	5.790	5.584	5.262	5.244
6980.5553	5.776	5.576	5.252	5.234
6980.5912	5.765	5.565	5.242	5.222
6980.6404	5.753	5.555	5.228	5.207
6980.6985	5.768	5.566	5.239	5.218
6980.7474	5.787	5.587	5.262	5.243
6980.7832	5.790	5.591	5.266	5.248
6980.8154	5.784	5.585	5.259	5.243
6980.8365	5.766	5.590	5.255	5.249
6981.5334	5.766	5.569	5.242	5.225
6981.5746	5.782	5.584	5.260	5.243
6981.6107	5.784	5.583	5.259	5.239
6981.6488	5.768	5.571	5.244	5.226
6981.6955	5.755	5.550	5.224	5.207
6982.6339	5.757	5.558	5.235	5.215
6982.6950	5.789	5.590	5.265	5.245
6982.7504	5.812	5.607	5.282	5.265
6991.2715	5.371	5.282	5.249	5.265
6991.3153	5.375	5.275	5.252	5.266
6991.3652	5.389	5.297	5.265	5.285
6991.4078	5.394	5.290	5.265	5.289
6991.4563	5.384	5.289	5.260	5.286
6991.5073	5.370	5.262	5.243	5.272
6991.5439	5.380	5.273	5.239	5.276
6994.2463	5.356	5.234	5.222	5.245
6994.2910	5.375	5.278	5.248	5.262
6994.3344	5.401	5.314	5.266	5.285
6994.4229	5.409	5.301	5.269	5.288
6994.5155	5.371	5.251	5.228	5.246
6995.2400	5.434	5.325	5.295	5.322
6995.2848	5.435	5.320	5.294	5.316
6995.3344	5.385	5.276	5.245	5.277
6998.2788	5.388	5.288	5.255	5.288
6998.3340	5.396	5.301	5.273	5.301
6998.3833	5.376	5.280	5.256	5.282
6998.4289	5.372	5.268	5.240	5.264
6998.4640	5.364	5.262	5.238	5.256
6998.5145	5.380	5.273	5.256	5.273
6999.2370	5.404	5.288	5.268	5.298
6999.2848	5.381	5.275	5.252	5.273
6999.3312	5.390	5.283	5.257	5.283
6999.3745	5.394	5.294	5.266	5.295
6999.4167	5.412	5.304	5.285	5.310
6999.4654	5.411	5.300	5.268	5.290
6999.5151	5.386	5.272	5.256	5.275
7000.2363	5.409	5.305	5.282	5.294
7000.2806	5.412	5.304	5.281	5.302
7000.3240	5.404	5.289	5.272	5.289
7000.3762	5.388	5.279	5.257	5.287
7000.4285	5.393	5.290	5.253	5.284
7000.4809	5.416	5.303	5.281	5.311

HR 6451

HJD	u	v	b	y
6960.5582	5.770	5.577	5.252	5.226
6960.5760	5.775	5.582	5.257	5.231
6960.6044	5.791	5.594	5.270	5.245
6960.6343	5.796	5.599	5.274	5.248
6960.6595	5.800	5.605	5.279	5.251
6960.7063	5.789	5.590	5.265	5.239
6960.7254	5.786	5.585	5.262	5.236
6960.7279	5.782	5.583	5.259	5.235
6960.7482	5.777	5.573	5.249	5.227
6960.7918	5.761	5.562	5.239	5.217
6960.8347	5.755	5.564	5.240	5.219
6962.5317	5.758	5.557	5.232	5.209
6962.5501	5.761	5.551	5.228	5.205
6962.5722	5.753	5.552	5.227	5.203
6962.5864	5.750	5.550	5.223	5.201
6962.6002	5.752	5.552	5.225	5.201
6962.6175	5.756	5.556	5.230	5.205
6962.6322	5.764	5.560	5.236	5.210
6962.6563	5.766	5.567	5.243	5.218
6962.7068	5.773	5.576	5.252	5.227
6962.7285	5.774	5.577	5.253	5.230
6962.7498	5.770	5.577	5.252	5.230
6962.7746	5.771	5.572	5.250	5.225
6962.8086	5.760	5.558	5.236	5.213
6962.8271	5.757	5.555	5.232	5.212
6962.8443	5.758	5.556	5.230	5.210
6962.8718	5.761	5.559	5.232	5.214
6962.8903	5.767	5.565	5.238	5.216
6965.5363	5.792	5.581	5.254	5.235
6965.5745	5.778	5.567	5.240	5.219
6965.6184	5.780	5.573	5.247	5.224
6965.6575	5.787	5.582	5.256	5.233
6965.7407	5.791	5.591	5.265	5.245
6965.8020	5.767	5.559	5.235	5.216
6965.8323	5.749	5.539	5.215	5.197
6967.5235	5.782	5.580	5.255	5.238
6967.5531	5.783	5.583	5.258	5.238
6967.5859	5.782	5.582	5.258	5.240
6967.6228	5 780	5.580	5.255	5.236
6967.6618	5.772	5.568	5.243	5.221
6967.6922	5.764	5.562	5.238	5.217
6967.7191	5.756	5.556	5.232	5.211
6967.7605	5.757	5.560	5.236	5.214
6967.7992	5.772	5.578	5.254	5.233
6967.8350	5.781	5.586	5.263	5.242
6967.8593	5.784	5.588	5.263	5.242
6968.5079	5.782	5.585	5.258	5.232
6968.5400	5.763	5.574	5.248	5.224
6968.5766	5.753	5.565	5.241	5.217
6968.6180	5.759	5.572	5.247	5.222
6968.6564	5.761	5.568	5 244	5 218
6968.6848	5.759	5.566	5.241	5 215
6968.7327	5.769	5.572	5 246	5 217
6968.7713	5.771	5 573	5.248	5.220
6968.8126	5.777	5 579	5.255	5.228
6968 8419	5.789	5 593	5 269	5.242
6968.8680	5.786	5.588	5.266	5.236
6968.8879	5.775	5.581	5.257	5.231
6969.6081	5.761	5.568	5.243	5.225
6969.6413	5.753	5.568	5.243	5.226
6969.6705	5.755	5.566	5.241	5.223
6969.6978	5.741	5.551	5.225	5.207
6969.7373	5.733	5.542	5.217	5.195
6970.6136	5.765	5.562	5.235	5.218
6970.6469	5.769	5.572	5.246	5.227
6970.6872	5.793	5.594	5.269	5.248
6970.7202	5.796	5.593	5.270	5.248
6970.7602	5.773	5.572	5.250	5.230
6970.7981	5.758	5.558	5.235	5.214
6970.8204	5.756	5.556	5.232	5.210
6970.8382	5.744	5.549	5.224	5.205
6971.5076	5.805	5.599	5.256	5.256
6971.5427	5.815	5.610	5.265	5.265
6971.5800	5.800	5.590	5.246	5.243
6971.6191	5.790	5.580	5.235	5.228
6971.6554	5.788	5.576	5.230	5.224
6971.6964	5.792	5.584	5.238	5.230
6971.7497	5.812	5.609	5.265	5.254
6971.7920	5.822	5.617	5.274	5.264
6971.8262	5.809	5.601	5.259	5.248
6971.8523	5.790	5.582	5.241	5.233
6971.8680	5.784	5.569	5.229	5.218
6972.5075	5.762	5.563	5.240	5.226
6972.5429	5.770	5.573	5.249	5.237
6972.5779	5.767	5.570	5.247	5.235
6972.6249	5.771	5.571	5.247	5.233
6972.6592	5.774	5.570	5.246	5.233
6972.6980	5.768	5.565	5.240	5.225
6972.7432	5.770	5.564	5.242	5.227
6972.7864	5.773	5.573	5 249	5 236
6972.8178	5.782	5.583	5.257	5 242
6972.8474	5.796	5.597	5.271	5.256
6973 5021	5.792	5.577	5.253	5.234
6973.5345	5.789	5.580	5.255	5.242
6973.5773	5.773	5.573	5.251	5.234
6973.6215	5.762	5.560	5.239	5.221
6973 7013	5.774	5.574	5.248	5.228
6973.7582	5.777	5.575	5.251	5.231
6973 8027	5.791	5.589	5.264	5.240
6975.6122	5.775	5.568	5.241	5.223
6975 6286	5 772	5.566	5.241	5.220
6975 6480	5.776	5.573	5.246	5.229
6977.7319	5.776	5.571	5.248	5.226
6977 7638	5.771	5.567	5.243	5.222
6977 7930	5.769	5 563	5.240	5.218
6977 8219	5.766	5.566	5.242	5.222
6978.7573	5.777	5.581	5.257	5.234
6978 7862	5.767	5.571	5.244	5.228
6978 8111	5.767	5 566	5.238	5 222
6979.5186	5 779	5.578	5 250	5 234
6979 5569	5 787	5.582	5 257	5 239
6979.5999	5 784	5.583	5 258	5 236
6979 6347	5 787	5 581	5.254	5 235
6979 6647	5.781	5 578	5 251	5 232

HR 6510

HJD	u	v	b	y
6961.5995	3.390	3.143	2.814	2.793
6961.6184	3.391	3.144	2.814	2.791
6961.6452	3.389	3.140	2.810	2.787
6961.6663	3.390	3.142	2.811	2.787
6961.6902	3.392	3.145	2.815	2.787
6961.7133	3.395	3.147	2.818	2.791
6961.7527	3.399	3.152	2.824	2.797
6961.7718	3.401	3.155	2.826	2.798
6961.8022	3.397	3.152	2.823	2.796
6961.8241	3.395	3.151	2 824	2.798
6961.8382	3.391	3.145	2.817	2.792
6961.8522	3.387	3.143	2.815	2.792
6961.8662	3.387	3.140	2.812	2.792
6961.8855	3.381	3.130	2.802	2.783
6961.8988	3.382	3.129	2.803	2.782
6963.5652	3.384	3.137	2.803	2.787
6963.5826	3.386	3.137	2.806	2.788
6963.5998	3.387	3.137	2.803	2.786
6963.6283	3.387	3.138	2.804	2.787
6963.6534	3.391	3.144	2.809	2.790
6963.6759	3.395	3.148	2.816	2.794
6963.7161	3.399	3.156	2.825	2.801
6963.7459	3.402	3.158	2.825	2.799
6963.7661	3.397	3.155	2.823	2.800
6963.7994	3.390	3.145	2.815	2.792
6963.8256	3.383	3.136	2.805	2.785
6963.8449	3.382	3.133	2.801	2.782
6963.8555	3.379	3.131	2.800	2.781
6963.8663	3.380	3.132	2.800	2.784
6963.8678	3.381	3.130	2.800	2.782
6963.8721	3.380	3.130	2.801	2.783
6963.8894	3.384	3.128	2.799	2.781
6965.5436	3.385	3.132	2.803	2.784
6965.5785	3.387	3.137	2.806	2.789
6965.6226	3.397	3.148	2.818	2.795
6965.6641	3.406	3.158	2.827	2.804
6965.7573	3.393	3.144	2 813	2.791
6965.8062	3.378	3.126	2.798	2.777
6965.8356	3.371	3.120	2.793	2.776
6967.5284	3.373	3.128	2.798	2 781
6967.5565	3.378	3.134	2.803	2.785
6967.5893	3.388	3.143	2.813	2.792
6967.6265	3.396	3.153	2.822	2.800
6967.6649	3.396	3.152	2.821	2.797
6967.6952	3.395	3.148	2.817	2.794
6967.7224	3.388	3.142	2.813	2.789
6967.7646	3.379	3.132	2.804	2.781
6967.8028	3.373	3.131	2.800	2.780
6967.8395	3.373	3.132	2.802	2.782
6967.8635	3.372	3.130	2.801	2.778
6968.5119	3.378	3.128	2.796	2.774
6968.5439	3.376	3.129	2.800	2.777
6968.5797	3.382	3.139	2.809	2.787
6968.6216	3.395	3.150	2.820	2.792
6968.6598	3.397	3.151	2.820	2.793
6968.6876	3.393	3.148	2.817	2.789
6968.7359	3.395	3.148	2.816	2.788
6968 7741	3.378	3.134	2.804	2.777
6968.8160	3.364	3.123	2.792	2.767
6968.8453	3.376	3.136	2.808	2.784
6968.8717	3 366	3.126	2.798	2.771
6968.8893	3.372	3.131	2.803	2 775
6969.6120	3.398	3.154	2.821	2.802
6969.6453	3.392	3.148	2.815	2.795
6969.6734	3.388	3.141	2.812	2.790
6969.7007	3.382	3.140	2.807	2.785
6969.7408	3.374	3.132	2.801	2.781
6970.6165	3.394	3.148	2.814	2.794
6970.6506	3.388	3.144	2.812	2.792
6970.6898	3.385	3.140	2.810	2.788
6970.7231	3.385	3 139	2.808	2 787
6970.7641	3.379	3.136	2.807	2.788
6970.8026	3.371	3.126	2.800	2.779
6970.8245	3.372	3.126	2.798	2.779
6970.8413	3.371	3.124	2.796	2.776
6971.5119	3.432	3.180	2.831	2.829
6971.5462	3.415	3.163	2.812	2 811
6971 5831	3.430	3.174	2.825	2.820
6971.6228	3.424	3.166	2 815	2.809
6971.6611	3.425	3.171	2.820	2 811
6971 6993	3.414	3.158	2 809	2.800
6971.7527	3.402	3.148	2.801	2.793
6971.8003	3.394	3.138	2.791	2.783
6971.8319	3.391	3.135	2 788	2 782
6971 8554	3.390	3.134	2 788	2.780
6971.8714	3.392	3 136	2.790	2.782
6972.5110	3.407	3.151	2.823	2 808
6972.5468	3.408	3.154	2.824	2.810
6972.5862	3.407	3.155	2.826	2.809
6972.6284	3.399	3.151	2.821	2.806
6972.6639	3.387	3.143	2.814	2.801
6972.7009	3.374	3.133	2.806	2 791
6972.7464	3.373	3.128	2.801	2.785
6972.7897	3.370	3.122	2.795	2.782
6972.8264	3.378	3.128	2 800	2.788
6972.8512	3.385	3.137	2.807	2 795
6973.5064	3.409	3.149	2.818	2.798
6973.5386	3.411	3 153	2 824	2.807
6973.5801	3.399	3.148	2.821	2.803
6973.6249	3.386	3.142	2.814	2 797
6973.7041	3.373	3.128	2.800	2.779
6973.7611	3.365	3.122	2.795	2.776
6973.8079	3.382	3.133	2.803	2 783
6975.6151	3.388	3.144	2.813	2.794
6975.6317	3.384	3.137	2.807	2 790
6975.6511	3.374	3.129	2.799	2.783
6977.7358	3.379	3.134	2 805	2.784
6977.7669	3.386	3.139	2 813	2 791
6977.7960	3.387	3.142	2.815	2.794
6977.8234	3.392	3.144	2.817	2.797
6978.7623	3 377	3.138	2 808	2.787
6978.7911	3.382	3.141	2.810	2 791
6978.8139	3.389	3.143	2 813	2.795
6979.5239	3.393	3.149	2.820	2.801

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TABLE IIb (*continued*)

HR 6510

HJD	u	v	b	y
6979.5612	3.379	3.137	2.808	2.789
6979.6038	3.376	3.132	2.803	2.785
6979.6389	3.368	3.126	2.797	2.778
6979.6691	3.372	3.129	2.800	2.780
6979.7630	3.382	3.142	2.814	2.792
6979.7849	3.380	3.139	2.810	2.791
6979.8055	3.388	3.145	2.816	2.797
6979.8229	3.381	3.138	2.807	2.789
6980.5152	3.390	3.146	2.818	2.803
6980.5613	3.373	3.128	2.801	2.784
6980.5973	3.368	3.121	2.792	2.773
6980.6465	3.363	3.119	2.790	2.771
6980.7029	3.374	3.134	2.804	2.782
6980.7524	3.385	3.142	2.814	2.793
6980.7886	3.386	3.144	2.812	2.793
6980.8206	3.387	3.143	2.811	2.796
6980.8422	3.392	3.148	2.814	2.797
6980.8589	3.395	3.151	2.814	2.798
6981.5389	3.374	3.132	2.801	2.785
6981.5793	3.361	3.119	2.789	2.775
6981.6156	3.365	3.121	2.792	2.775
6981.6555	3.371	3.127	2.797	2.778
6981.7019	3.381	3.141	2.809	2.791
6982.6456	3.385	3.137	2.807	2.788
6982.7014	3.390	3.145	2.816	2.798
6991.2734	2.996	2.847	2.818	2.838
6991.3172	2.984	2.835	2.810	2.826
6991.3672	2.976	2.826	2.795	2.819
6991.4106	2.967	2.827	2.802	2.823
6991.4586	2.980	2.840	2.811	2.835
6991.5105	2.994	2.844	2.813	2.836
6991.5463	3.002	2.836	2.810	2.837
6994.2482	2.996	2.838	2.821	2.833
6994.2929	2.982	2.839	2.801	2.826
6994.3365	3.004	2.857	2.805	2.829
6994.3805	2.973	2.836	2.808	2.835
6994.4248	2.993	2.833	2.810	2.829
6994.5173	3.003	2.846	2.806	2.838
6995.2419	2.997	2.836	2.805	2.833
6995.2867	3.005	2.853	2.827	2.845
6995.2914	2.983	2.835	2.810	2.829
6995.3362	2.991	2.846	2.814	2.848
6995.3404	3.002	2.844	2.809	2.835
6998.2810	2.994	2.829	2.811	2.835
6998.3360	2.996	2.848	2.823	2.847
6998.3853	2.994	2.846	2.817	2.839
6998.4308	3.002	2.843	2.816	2.837
6998.4661	3.003	2.854	2.821	2.843
6998.5166	3.027	2.873	2.843	2.862
6999.2389	2.984	2.840	2.811	2.833
6999.2880	2.987	2.846	2.818	2.839
6999.3330	3.002	2.853	2.819	2.850
6999.3764	3.005	2.849	2.821	2.844
6999.4189	2.998	2.858	2.826	2.850
6999.4672	3.000	2.863	2.835	2.852
6999.5172	3.021	2.865	2.833	2.844
7000.2380	2.978	2.839	2.810	2.829
7000.2826	2.983	2.839	2.806	2.837
7000.3259	2.984	2.834	2.809	2.833
7000.3787	2.986	2.843	2.815	2.841
7000.4304	2.997	2.850	2.820	2.843
7000.4828	2.998	2.861	2.826	2.863

HR 6747

HJD	u	v	b	y
6960.6384	6.641	6.578	6.207	6.112
6960.6734	6.640	6.582	6.207	6.115
6960.7090	6.642	6.580	6.207	6.114
6960.7307	6.646	6.583	6.212	6.121
6960.7540	6.643	6.584	6.213	6.122
6960.801A	6.641	6.581	6.209	6.115
6960.8388	6.644	6.579	6.207	6.111
6960.8646	6.643	6.582	6.210	6.117
6960.8659	6.647	6.580	6.207	6.113
6962.6031	6.642	6.582	6.209	6.110
6962.6208	6.634	6.576	6.201	6.106
6962.6352	6.633	6.575	6.202	6.104
6962.6677	6.627	6.568	6.194	6.101
6962.7103	6.626	6.568	6.195	6.102
6962.7310	6.624	6.565	6.194	6.102
6962.7523	6.630	6.567	6.198	6.103
6962.7771	6.633	6.572	6.202	6.108
6962.8125	6.637	6.575	6.206	6.110
6962.8325	6.637	6.578	6.207	6.110
6962.8498	6.635	6.576	6.205	6.107
6965.6157	6.642	6.586	6.212	6.116
6965.6545	6.640	6.583	6.209	6.115
6965.7382	6.639	6.580	6.207	6.112
6965.7872	6.651	6.584	6.211	6.116
6965.8299	6.650	6.590	6.218	6.123
6967.5837	6.622	6.564	6.188	6.094
6967.6197	6.634	6.575	6.202	6.110
6967.6594	6.634	6.577	6.201	6.112
6967.6899	6.637	6.580	6.205	6.114
6967.7171	6.640	6.584	6.211	6.118
6967.7582	6.643	6.583	6.211	6.118
6967.7972	6.642	6.583	6.212	6.117
6967.8337	6.639	6.584	6.210	6.109
6968.5742	6.629	6.573	6.198	6.103
6968.6121	6.642	6.582	6.207	6.118
6968.6542	6.644	6.587	6.211	6.120
6968.6825	6.645	6.581	6.208	6.116
6968.7303	6.652	6.590	6.215	6.119
6968.7691	6.643	6.582	6.208	6.112
6968.8114	6.635	6.577	6.201	6.105
6968.8403	6.642	6.583	6.209	6.110
6969.6052	6.641	6.583	6.211	6.117
6969.6384	6.635	6.577	6.204	6.108
6969.6677	6.628	6.570	6 197	6.104
6969.6956	6.623	6.565	6.192	6.098
6969.7350	6.624	6.566	6.193	6.099
6970.6106	6.639	6.584	6.207	6.111
6970.6429	6.639	6.585	6.208	6.114
6970.6840	6.643	6.588	6.212	6.116
6970.7178	6.644	6.587	6.212	6.117
6970.7570	6.647	6.592	6.217	6.119
6970.7886	6.644	6 587	6.216	6.118
6971.6138	6.631	6.574	6.199	6.109
6971.6523	6.639	6.580	6.207	6.113
6971.6934	6.640	6.583	6.206	6 112
6971.7369	6.630	6.572	6.198	6.103
6971.7881	6.622	6.565	6.192	6.096
6971.8227	6.617	6.563	6.189	6.092
6972.5718	6.640	6.582	6.206	6.110
6972.6196	6.638	6.581	6.206	6.110
6972.6567	6.629	6.574	6.200	6.107
6972.6952	6.625	6.573	6.198	6.107
6972.7409	6.628	6.575	6.202	6.108
6972.7828	6.628	6.574	6.203	6.108
6972.8149	6.633	6.580	6.206	6.113
6973.5728	6.653	6.591	6.217	6.121
6973.6193	6.645	6.584	6.209	6.116
6973.6990	6.660	6.598	6.222	6.122
6973.7555	6.678	6.599	6.233	6.135
6973.7997	6.668	6.609	6.234	6.132
6975.6747	6.648	6.584	6.212	6.114
6977.7287	6.633	6.580	6.207	6.111
6977.7608	6.637	6.585	6.211	6.115
6977.7903	6.631	6.583	6.209	6.112
6978 7537	6.621	6.570	6.196	6.105
6978.7831	6.622	6.569	6.195	6.104
6979.5535	6.642	6.580	6.207	6.108
6979.5972	6.636	6.580	6.207	6.113
6979.6322	6.636	6.578	6.203	6 113
6979.6623	6.637	6.580	6.205	6.112
6979 7562	6.629	6.570	6.195	6.104
6980.5536	6.657	6 580	6.210	6.116
6980.5899	6.654	6.576	6.207	6.115
6980 6385	6.636	6.568	6.191	6.098
6980.6970	6.647	6.575	6.201	6.108
6980 7454	6.650	6 578	6 204	6.111
6980 7816	6.648	6.576	6.204	6.109
6980 8132	6.649	6.580	6.207	6.108
6981.5319	6.643	6 589	6.211	6.114
6981.5734	6.636	6.579	6 204	6.108
6981.6093	6.641	6.581	6.206	6.110
6981.6476	6.652	6.588	6.214	6 118
6981 6936	6 649	6.594	6.216	6 123
6982.6914	6.649	6.589	6.215	6 122
6982.7489	6.682	6.628	6.253	6.157

HR 8260

HJD	u	v	b	y
6963.7250	4.978	4.674	4.355	4.421
6963.7493	4.975	4.673	4.355	4.420
6963.7710	4.979	4.675	4.358	4.423
6963.8057	4.980	4.676	4.360	4.425
6963.8321	4.980	4.677	4.362	4.425
6963.8511	4.981	4.678	4.362	4.424
6963.8612	4.981	4.677	4.362	4.426
6963.8825	4.977	4.677	4.361	4.422
6963.8836	4.981	4.674	4.361	4.422
6963.8935	4.987	4.675	4.363	4.423
6963.8983	4.978	4.674	4.358	4.420
6965.8128	4.974	4.674	4.357	4.420
6965.8380	4.972	4.671	4.355	4.419
6965.8556	4.973	4.671	4.355	4.417
6965.8787	4.971	4.668	4.353	4.416
6965.8922	4.965	4.663	4.347	4.411
6967.7304	4.976	4.682	4.361	4.426
6967.7698	4.979	4.681	4.362	4.425
6967.8095	4.990	4.676	4.364	4.424
6967.8422	4.972	4.674	4.355	4.416
6967.8662	4.968	4.672	4.352	4.413
6968.7023	4.942	4.645	4.327	4.395
6968.7415	4.967	4.666	4.348	4.413
6968.7790	4.968	4.666	4.349	4.414
6968.8182	4.974	4.671	4.354	4.419
6968.8474	4.984	4.682	4.364	4.428
6968.8742	4.974	4.674	4.356	4.419
6968.8963	4.976	4.675	4.357	4.420
6969.7062	4.972	4.670	4.354	4.417
6969.7467	4.972	4.666	4.351	4.414
6970.7291	4.972	4.676	4.358	4.421
6970.7692	4.971	4.675	4.358	4.421
6970.8042	4.967	4.669	4.353	4.415
6970.8267	4.965	4.665	4.350	4.410
6970.8559	4.953	4.658	4.340	4.402
6970.8655	4.952	4.654	4.338	4.401
6970.8765	4.953	4.653	4.339	4.400
6970.8920	4.952	4.653	4.337	4.399
6971.6679	4.997	4.690	4.369	4.431
6971.7047	4.988	4.678	4.360	4.422
6971.7595	4.985	4.679	4.359	4.424
6971.8035	4.980	4.679	4.360	4.424
6971.8336	4.981	4.678	4.360	4.424
6971.8571	4.977	4.672	4.357	4.421
6971.8791	4.973	4.670	4.353	4.416
6971.8907	4.973	4.671	4.353	4.417
6971.9033	4.970	4.667	4.351	4.414
6972.6695	4.979	4.674	4.358	4.417
6972.7063	4.979	4.678	4.361	4.420
6972.7512	4.979	4.675	4.359	4.420
6972.7971	4.977	4.674	4.360	4.417
6972.8292	4.979	4.676	4.360	4.419
6972.8686	4.983	4.679	4.365	4.422
6972.8934	4.992	4.687	4.372	4.427
6973.6667	4.951	4.657	4.348	4.402
6973.7093	4.968	4.674	4.359	4.412
6977.7445	4.940	4.652	4.331	4.398
6977.7797	4.941	4.655	4.334	4.398
6977.8097	4.941	4.654	4.333	4.398
6977.8324	4.941	4.655	4.335	4.398
6977.8487	4.946	4.658	4.337	4.403
6977.8605	4.948	4.657	4.338	4.403
6977.8818	4.950	4.662	4.342	4.407
6977.8915	4.955	4.667	4.347	4.411
6978.7653	4.948	4.656	4.336	4.399
6978.7964	4.947	4.658	4.339	4.402
6978.8194	4.951	4.662	4.342	4.407
6979.6764	4.948	4.661	4.344	4.405
6979.7671	4.952	4.659	4.345	4.406
6979.7904	4.951	4.664	4.347	4.410
6979.8106	4.954	4.661	4.347	4.407
6979.8259	4.951	4.661	4.344	4.406
6979.8384	4.953	4.660	4.344	4.407
6979.8553	4.959	4.662	4.347	4.410
6979.8712	4.952	4.661	4.344	4.407
6979.8872	4.949	4.659	4.341	4.405
6979.9017	4.957	4.663	4.347	4.408
6980.6548	4.949	4.657	4.339	4.404
6980.7112	4.950	4.653	4.336	4.400
6980.7928	4.953	4.659	4.341	4.403
6980.8240	4.959	4.665	4.346	4.410
6980.8454	4.963	4.668	4.350	4.415
6980.8648	4.963	4.668	4.349	4.413
6980.8875	4.963	4.670	4.351	4.415
6980.8994	4.966	4.668	4.349	4.414
6981.6626	4.946	4.652	4.332	4.391
6982.6561	4.972	4.641	4.324	4.384
6982.7111	4.981	4.654	4.340	4.404
6982.7561	4.970	4.644	4.331	4.393
6991.5808	4.547	4.380	4.387	4.462
6991.6331	4.559	4.386	4.393	4.469
6998.4835	4.537	4.364	4.370	4.443
6998.5354	4.574	4.383	4.394	4.462
6998.5941	4.568	4.374	4.380	4.452
6998.6498	4.551	4.369	4.368	4.445
6999.4862	4.540	4.361	4.363	4.436
6999.5498	4.542	4.365	4.373	4.438
6999.5995	4.554	4.360	4.368	4.435
6999.6528	4.567	4.375	4.376	4.450
7000.4987	4.571	4.380	4.382	4.455
7000.5268	4.554	4.368	4.369	4.442
7000.5631	4.540	4.371	4.367	4.442
7000.6191	4.559	4.363	4.369	4.441

HR 8402

HJD	u	v	b	y
6961.7577	5.813	5.046	4.668	4.694
6961.7766	5.816	5.048	4.670	4.694
6961.8066	5.821	5.050	4.673	4.698
6961.8284	5.817	5.049	4.670	4.697
6961.8419	5.820	5.051	4.673	4.697
6961.8561	5.818	5.051	4.673	4.698
6961.8677	5.819	5.049	4.673	4.696
6961.8869	5.819	5.049	4.672	4.694
6961.8998	5.818	5.049	4.671	4.693
6962.7533	5.839	5.045	4.667	4.678
6962.7772	5.819	5.048	4.661	4.675
6962.8141	5.818	5.047	4.662	4.678
6962.8324	5.817	5.047	4.662	4.676
6962.8585	5.814	5.042	4.657	4.671
6962.8795	5.811	5.041	4.654	4.669
6962.8944	5.810	5 041	4.655	4.667
6962.9036	5.807	5.039	4.650	4.663
6963.7513	5.801	5.038	4.658	4.673
6965.8195	5.801	5.039	4.659	4.676
6965.8432	5.800	5.037	4.658	4.676
6965.8612	5.797	5.037	4.657	4.675
6965.8831	5.794	5.035	4.656	4.674
6965.8965	5.792	5.031	4.652	4.669
6967.7340	5.822	5.057	4.677	4.702
6967.7733	5.827	5.055	4.678	4.702
6967.8130	5.828	5.055	4.678	4.703
6967.8459	5.822	5.053	4.675	4.700
6967.8702	5.821	5.052	4.675	4.699
6968.7452	5.785	5.029	4.649	4.676
6968.7843	5.787	5.029	4.650	4.678
6968.8217	5.787	5.029	4.649	4.678
6968.8505	5.802	5.044	4.663	4.692
6968.8775	5.798	5.036	4.658	4.684
6968.8998	5.801	5.037	4.660	4.685
6969.7500	5.820	5.048	4.671	4.697
6970.7729	5.811	5.047	4.669	4.695
6970.8086	5.808	5.042	4.664	4.690
6970.8304	5.803	5.041	4.662	4.686
6970.8587	5.797	5.039	4.661	4.686
6970.8689	5.794	5.033	4.656	4.681
6970.8842	5.791	5.032	4.654	4.679
6970.8951	5.790	5.034	4.655	4.681
6971.7081	5.818	5.054	4.674	4.698
6971.7630	5.811	5.048	4.667	4.695
6971.8069	5.809	5.045	4.665	4.693
6971.8371	5.818	5.054	4.674	4.700
6971.8609	5.813	5.046	4.667	4.696
6971.8834	5.818	5.051	4.672	4.698
6971.8952	5.815	5.049	4.669	4.697
6971.9065	5.814	5.044	4.666	4.691
6972.7093	5.834	5.061	4.682	4.705
6972.7542	5.827	5.054	4.676	4.701
6972.8000	5.826	5.052	4.675	4.700
6972.8348	5.828	5.053	4.676	4.700
6972.8733	5.824	5.054	4.676	4.703
6972.8977	5.826	5.055	4.677	4.703
6973.7125	5.794	5.036	4.659	4 685
6977.7483	5.813	5.055	4.676	4.701
6977.7834	5.813	5.054	4.675	4.701
6977.8132	5.810	5.052	4.673	4.698
6977.8360	5.809	5.051	4.671	4.697
6977.8525	5.808	5.053	4.675	4.700
6977.8648	5.808	5.050	4.672	4.699
6977.8851	5.803	5.048	4.670	4.696
6977.8949	5.800	5.046	4.669	4.695
6978.7698	5.801	5.038	4.659	4.685
6978.8014	5.790	5.036	4.654	4.682
6978.8272	5.793	5.036	4.656	4.684
6979.7715	5.816	5.049	4.670	4.696
6979.7946	5.821	5.049	4.670	4.697
6979.8150	5.826	5.055	4.675	4.703
6979.8301	5.829	5.058	4.679	4.705
6979.8435	5.824	5.055	4.674	4.703
6979.8631	5.826	5.055	4.675	4.703
6979.8758	5.827	5.055	4.676	4.701
6979.8920	5.832	5.055	4.678	4.703
6979.9072	5.824	5.055	4.675	4.699
6980.7156	5.826	5.055	4.677	4.703
6980.7969	5.812	5.044	4.665	4.691
6980.8291	5.814	5.047	4.669	4.695
6980.8504	5.811	5.042	4.666	4.692
6980.8691	5.808	5.041	4.665	4.691
6980.8921	5.809	5.043	4.667	4.691
6980.9035	5.806	5.044	4.668	4.694
6982.7157	5.855	5.067	4.687	4.723
6982.7619	5.853	5.064	4.683	4.716
6991.5976	5.412	4.733	4.672	4.711
6991.6497	5.403	4.742	4.680	4.718
6998.5024	5.417	4.738	4.695	4.722
6998.5534	5.423	4.749	4.682	4.713
6998 6129	5.418	4.745	4.686	4.718
6999.5039	5.397	4.717	4.658	4.686
6999 5676	5.389	4.716	4.661	4.689
6999.6189	5.387	4.721	4.658	4.686
7000.4688	5.401	4.724	4.670	4.706
7000.5186	5.409	4.738	4.680	4.705
7000.5379	5.396	4.734	4.673	4.694
7000.5813	5.407	4.739	4.677	4.704
7000.6387	5.413	4.745	4.675	4.710

TABLE IIb (*continued*)

HR 8408

HJD	u	v	b	y
6960.7686	6.688	6.225	5.891	5.942
6960.7697	6.689	6.220	5.888	5.939
6960.8037	6.699	6.232	5.900	5.951
6960.8410	6.699	6.231	5.900	5.952
6960.8676	6.695	6.230	5.900	5.951
6960.8785	6.697	6.231	5.901	5.953
6960.8869	6.692	6.229	5.899	5.951
6960.8946	6.695	6.226	5.899	5.949
6960.9011	6.693	6.229	5.898	5.949
6960.9084	6.696	6.229	5.901	5.950
6960.9141	6.697	6.230	5.898	5.951
6960.9203	6.697	6.230	5.901	5.951
6965.8142	6.673	6.213	5.882	5.936
6965.8165	6.679	6.217	5.886	5.938
6965.8397	6.676	6.216	5.886	5.939
6965.8571	6.675	6.215	5.884	5.936
6965.8799	6.671	6.216	5.884	5.936
6965.8939	6.674	6.217	5.883	5.938
6967.7317	6.680	6.216	5.881	5.937
6967.7711	6.682	6.222	5.887	5.942
6967.8108	6.684	6.228	5.892	5.946
6967.8441	6.679	6.223	5.888	5.941
6967.8674	6.676	6.219	5.886	5.935
6968.7034	6.679	6.215	5.882	5.939
6968.7425	6.697	6.232	5.897	5.953
6968.7800	6.692	6.223	5.890	5.946
6968.8194	6.687	6.222	5.887	5.942
6968.8485	6.697	6.230	5.897	5.949
6968.8753	6.685	6.217	5.884	5.937
6968.8973	6.686	6.220	5.887	5.940
6969.7085	6.685	6.223	5.891	5.943
6969.7479	6.690	6.221	5.891	5.942
6970.7308	6.689	6.226	5.892	5.944
6970.7703	6.696	6.218	5.892	5.944
6970.8057	6.686	6.221	5.888	5.941
6970.8280	6.685	6.222	5.888	5.942
6970.8571	6.686	6.221	5.890	5.944
6970.8669	6.690	6.227	5.896	5.950
6970.8780	6.690	6.227	5.895	5.949
6970.8933	6.689	6.227	5.895	5.948
6971.7058	6.695	6.224	5.888	5.944
6971.7605	6.691	6.216	5.884	5.942
6971.8049	6.689	6.219	5.885	5.942
6971.8347	6.696	6.220	5.889	5.945
6971.8582	6.694	6.222	5.890	5.945
6971.8813	6.698	6.226	5.893	5.947
6971.8926	6.700	6.227	5.893	5.947
6971.9044	6.698	6.225	5.892	5.949
6972.6706	6.701	6.224	5.894	5.942
6972.7073	6.699	6.224	5.896	5.948
6972.7523	6.689	6.216	5.888	5.940
6972.7981	6.686	6.214	5.886	5.937
6972.8313	6.694	6.220	5.890	5.943
6972.8698	6.695	6.224	5.895	5.943
6972.8952	6.699	6.230	5.899	5.950
6973.6677	6.673	6.209	5.886	5.934
6973.7103	6.697	6.226	5.900	5.947
6977.7457	6.687	6.220	5.886	5.943
6977.7809	6.697	6.232	5.896	5.952
6977.8109	6.701	6.236	5.901	5.952
6977.8336	6.696	6.233	5.898	5.953
6977.8498	6.697	6.231	5.895	5.953
6977.8618	6.693	6.230	5.895	5.950
6977.8829	6.695	6.229	5.893	5.947
6977.8927	6.696	6.226	5.894	5.947
6978.7668	6.687	6.220	5.888	5.939
6978.7979	6.680	6.220	5.889	5.940
6978.8208	6.681	6.218	5.886	5.939
6979.7685	6.701	6.232	5.903	5.953
6979.7918	6.696	6.231	5.900	5.947
6979.8120	6.695	6.231	5.902	5.951
6979.8272	6.696	6.228	5.899	5.948
6979.8398	6.698	6.235	5.904	5.953
6979.8591	6.695	6.232	5.901	5.950
6979.8727	6.696	6.233	5.901	5.952
6979.8891	6.694	6.232	5.901	5.950
6979.9039	6.697	6.235	5.905	5.956
6980.6571	6.694	6.227	5.892	5.946
6980.7127	6.682	6.213	5.880	5.936
6980.7941	6.679	6.212	5.880	5.932
6980.8254	6.680	6.214	5.882	5.935
6980.8467	6.682	6.217	5.886	5.938
6980.8670	6.683	6.219	5.886	5.939
6980.8896	6.679	6.219	5.886	5.940
6980.9005	6.680	6.218	5.883	5.938
6981.6654	6.692	6.222	5.887	5.936
6982.6586	6.721	6.225	5.894	5.943
6982.7129	6.728	6.236	5.906	5.959
6982.7584	6.701	6.208	5.881	5.932
6991.5826	6.300	5.950	5.939	6.007
6991.6348	6.297	5.956	5.936	6.003
6998.4855	6.267	5.921	5.908	5.983
6998.5373	6.268	5.909	5.899	5.963
6998.5959	6.280	5.919	5.905	5.972
6998.6524	6.286	5.922	5.905	5.981
6999.4879	6.285	5.925	5.904	5.975
6999.5515	6.291	5.930	5.920	5.984
6999.6013	6.294	5.928	5.908	5.975
6999.6545	6.281	5.935	5.907	5.984
7000.5010	6.275	5.905	5.911	5.962
7000.5293	6.252	5.903	5.887	5.958
7000.5648	6.262	5.915	5.898	5.963
7000.6218	6.265	5.917	5.894	5.965

HR 8858

HJD	u	v	b	y
6961.7780	5.234	4.668	4.313	4.370
6961.8076	5.235	4.668	4.315	4.373
6961.8295	5.235	4.666	4.313	4.372
6961.8431	5.241	4.671	4.318	4.375
6961.8581	5.242	4.675	4.319	4.378
6961.8695	5.244	4.676	4.321	4.378
6961.8883	5.263	4.671	4.324	4.381
6961.9007	5.262	4.672	4.325	4.380
6962.7792	5.250	4.676	4.319	4.373
6962.8157	5.231	4.666	4.308	4.371
6962.8336	5.225	4.661	4.303	4.367
6962.8626	5.232	4.661	4.307	4.369
6962.8809	5.233	4.665	4.309	4.374
6962.8960	5.237	4.667	4.312	4.376
6962.9082	5.237	4.670	4.313	4.380
6963.7719	5.264	4.692	4.328	4.373
6965.8206	5.269	4.691	4.334	4.384
6965.8447	5.268	4.691	4.334	4.385
6965.8626	5.264	4.687	4.331	4.380
6965.8841	5.263	4.686	4.330	4.381
6965.8989	5.267	4.687	4.333	4.382
6967.7744	5.261	4.682	4.330	4.387
6967.8146	5.259	4.683	4.326	4.387
6967.8466	5.261	4.680	4.327	4.387
6967.8707	5.260	4.681	4.327	4.387
6968.7853	5.239	4.673	4.318	4.378
6968 8226	5.245	4.676	4.320	4.382
6968.8511	5.257	4.689	4.332	4.393
6968.8782	5.256	4.685	4.329	4.390
6968.9003	5.251	4 679	4.323	4.383
6970.7738	5.253	4.682	4.327	4.386
6970.8097	5.252	4.679	4.324	4.384
6970.8313	5.255	4.681	4.326	4.386
6970.8595	5.248	4.676	4.319	4.380
6970.8698	5.248	4.673	4.319	4.379
6970.8863	5.250	4.675	4.321	4.380
6970.8956	5.252	4.677	4.322	4.382
6971.7635	5.276	4.699	4.341	4.400
6971.8075	5.255	4.682	4.326	4.386
6971.8378	5.250	4.677	4.321	4.384
6971.8616	5.246	4.674	4.318	4.382
6971.8842	5.248	4.672	4.317	4.379
6971.8957	5.245	4.671	4.315	4.378
6971.9073	5.248	4.671	4.317	4 377
6972.7551	5.269	4.690	4.334	4.392
6972.8013	5.263	4.684	4 330	4.391
6972.8357	5.255	4.680	4.324	4.384
6972.8763	5.248	4.676	4.322	4.383
6972.8985	5.249	4.677	4.323	4.382
6973.7722	5.279	4.693	4.344	4.402
6977.7843	5.238	4.679	4.324	4.384
6977.8139	5.235	4.679	4.323	4.385
6977.8367	5.239	4.677	4.322	4.385
6977.8524	5.235	4 673	4.320	4.382
6977.8660	5.228	4.673	4.318	4.381
6977.8859	5.233	4.674	4.320	4.381
6977.8993	5.229	4.673	4.316	4.379
6978.7713	5.271	4.694	4.335	4.396
6978.8033	5.260	4.689	4.329	4.390
6978.8292	5.258	4.691	4.331	4.394
6979.7727	5.276	4.695	4.341	4.398
6979.7958	5.267	4.686	4.331	4.391
6979.8163	5.263	4.689	4.330	4.394
6979.8317	5.266	4.685	4.331	4.391
6979.8446	5.266	4.687	4.330	4.393
6979.8648	5.264	4.683	4.328	4.389
6979.8775	5.257	4.683	4.325	4.389
6979.8936	5.256	4.680	4.324	4.387
6979.9086	5.250	4.674	4.318	4.380
6980.7984	5.263	4.683	4.326	4.387
6980.8307	5.263	4.685	4.329	4.391
6980.8520	5.258	4.683	4.327	4.388
6980.8701	5.255	4.678	4.324	4.385
6980.8936	5.253	4.677	4.322	4.382
6980.9044	5.251	4.674	4.320	4.381
6982.7232	5.293	4.698	4.339	4.403
6991.6139	4.877	4.391	4.361	4.424
6991.6622	4.864	4.402	4.367	4.429
6998.5703	4.857	4.369	4.329	4.397
6998.6287	4.854	4.372	4.338	4.393
6999.5803	4.844	4.357	4.322	4.380
6999.6321	4.842	4.365	4.331	4.391
7000.5960	4.832	4.371	4.324	4.380

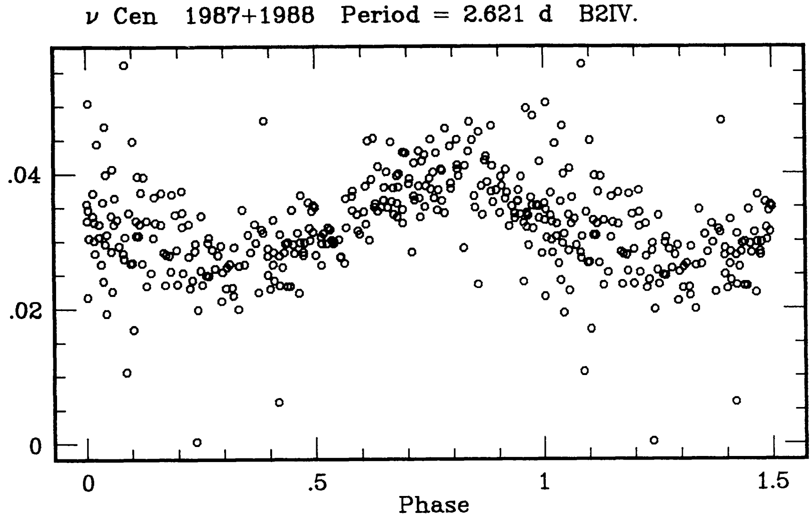

FIGURE 1. — Light curve of ν Cen ($P = 2.621$ d). In this and subsequent figures, the scale is in magnitudes and the epoch of phase zero is JD2446000.000.

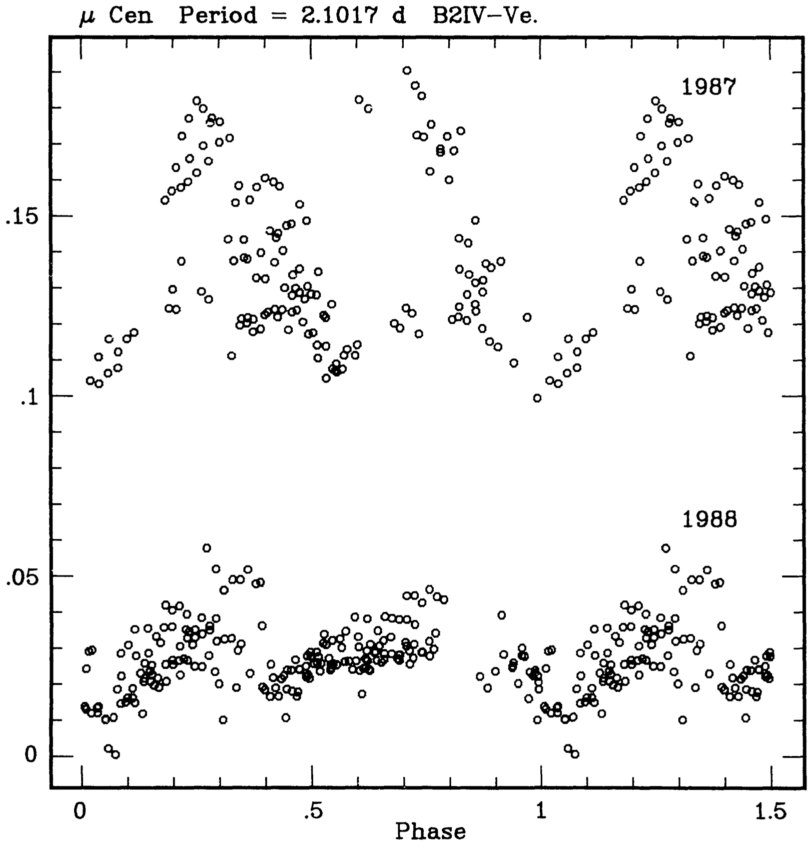

FIGURE 2. — Light curve of μ Cen ($P = 2.1017$ d).

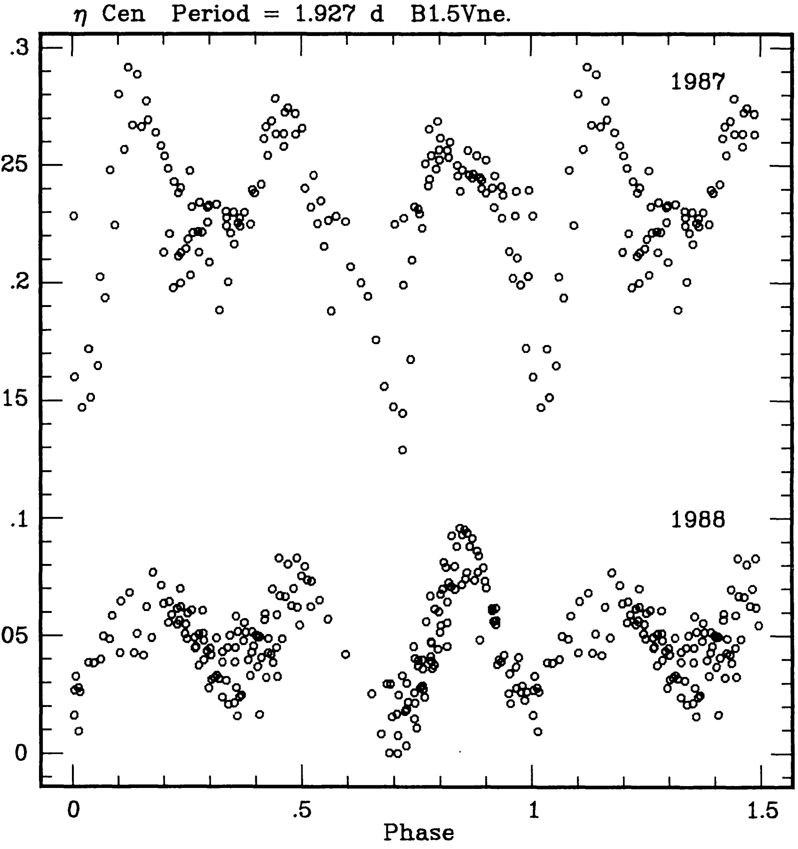

FIGURE 3. — Light curve of η Cen ($P = 1.927$ d).

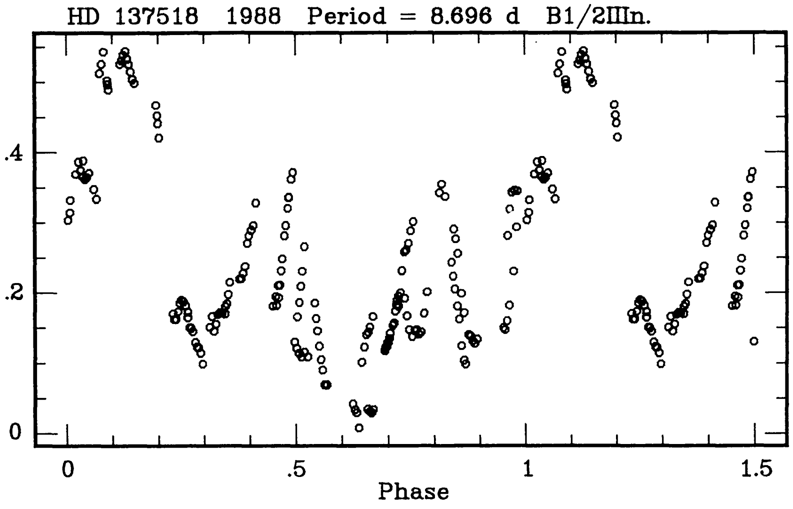

FIGURE 4. — Light curve of HD137518 ($P = 8.696$ d).

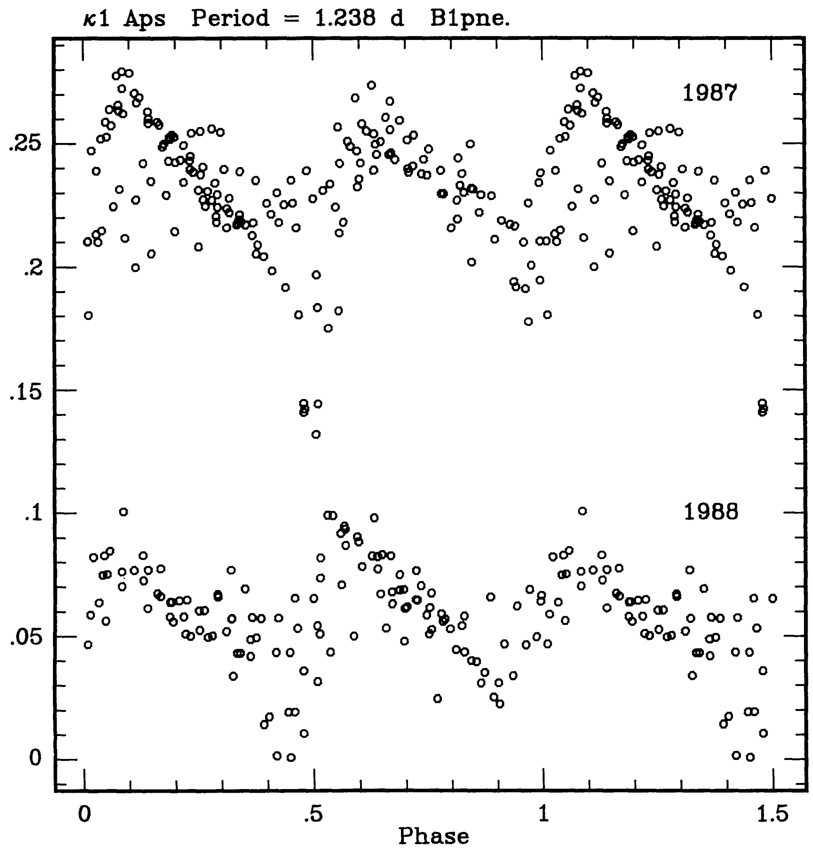

FIGURE 5. — Light curve of κ^1 Aps ($P = 1.238$ d).

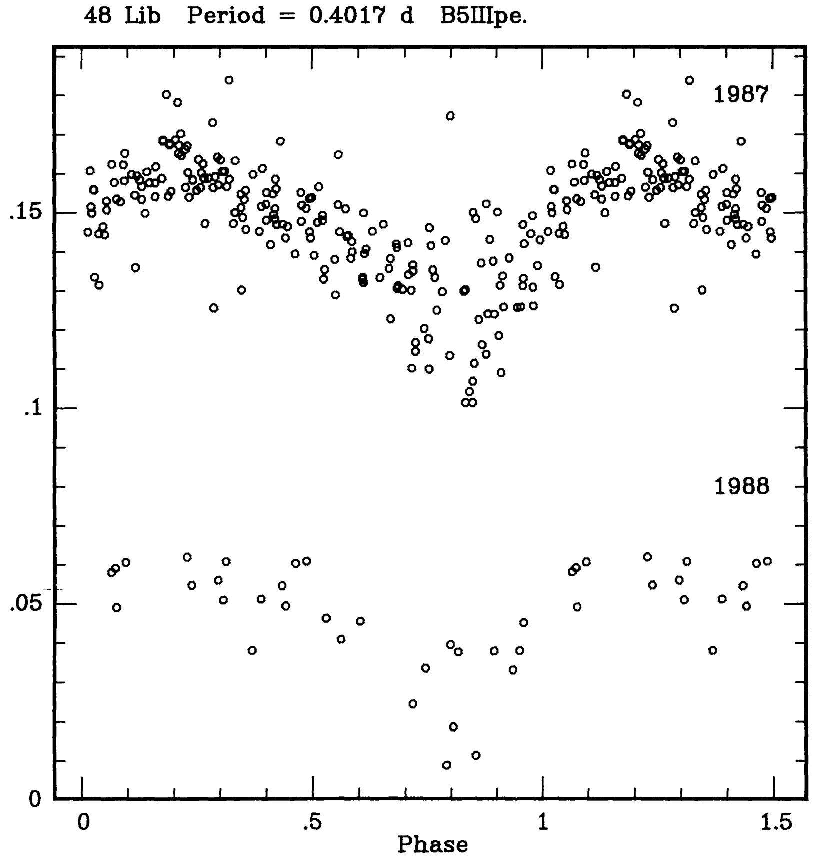

FIGURE 6. — Light curve of 48 Lib ($P = 0.4017$ d).

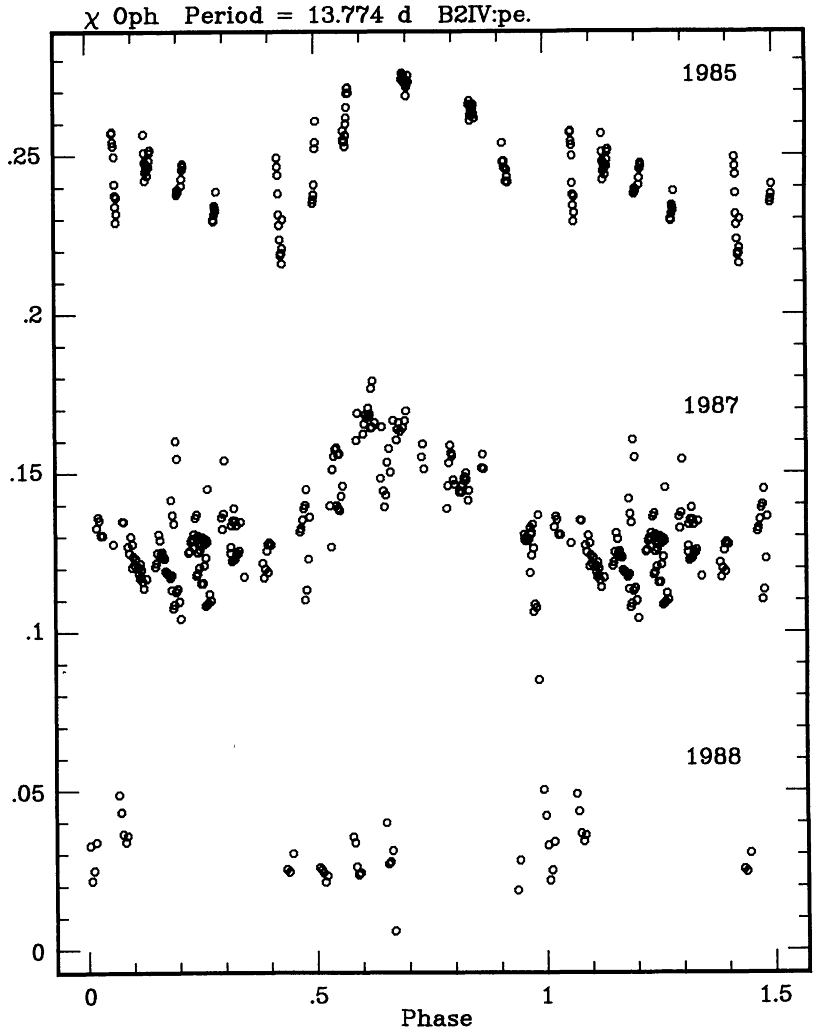

FIGURE 7. — Light curve of χ Oph ($P = 13.774$ d).

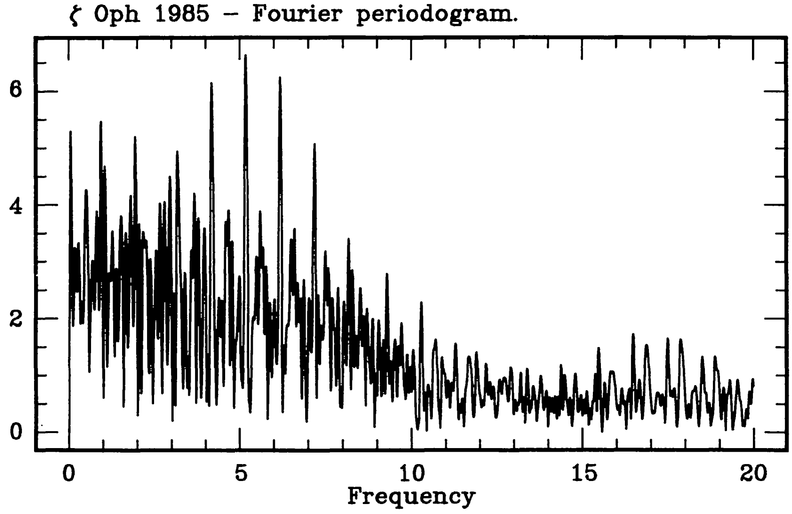

FIGURE 8a. — Fourier periodogram for 1985 data of ζ Oph. The frequency is in cycles d^{-1} and the semi-amplitude in millimagnitudes.

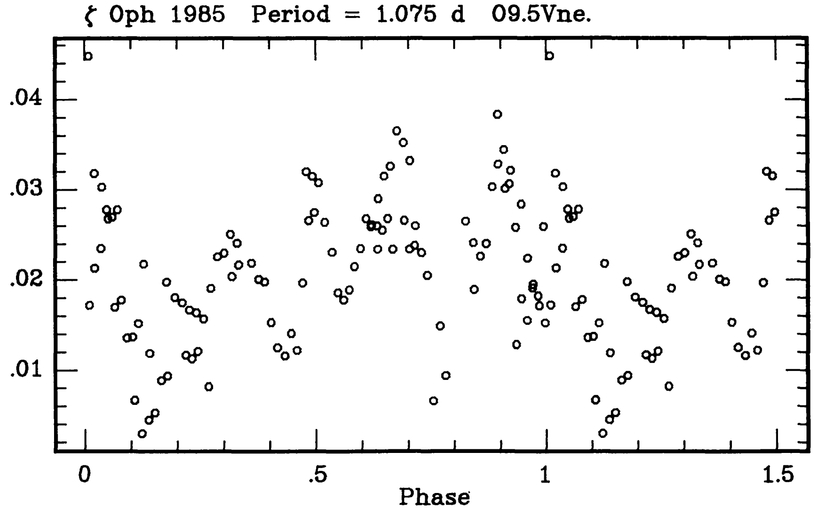

FIGURE 8b. — Light curve of ζ Oph for 1985 ($P = 1.075$ d).

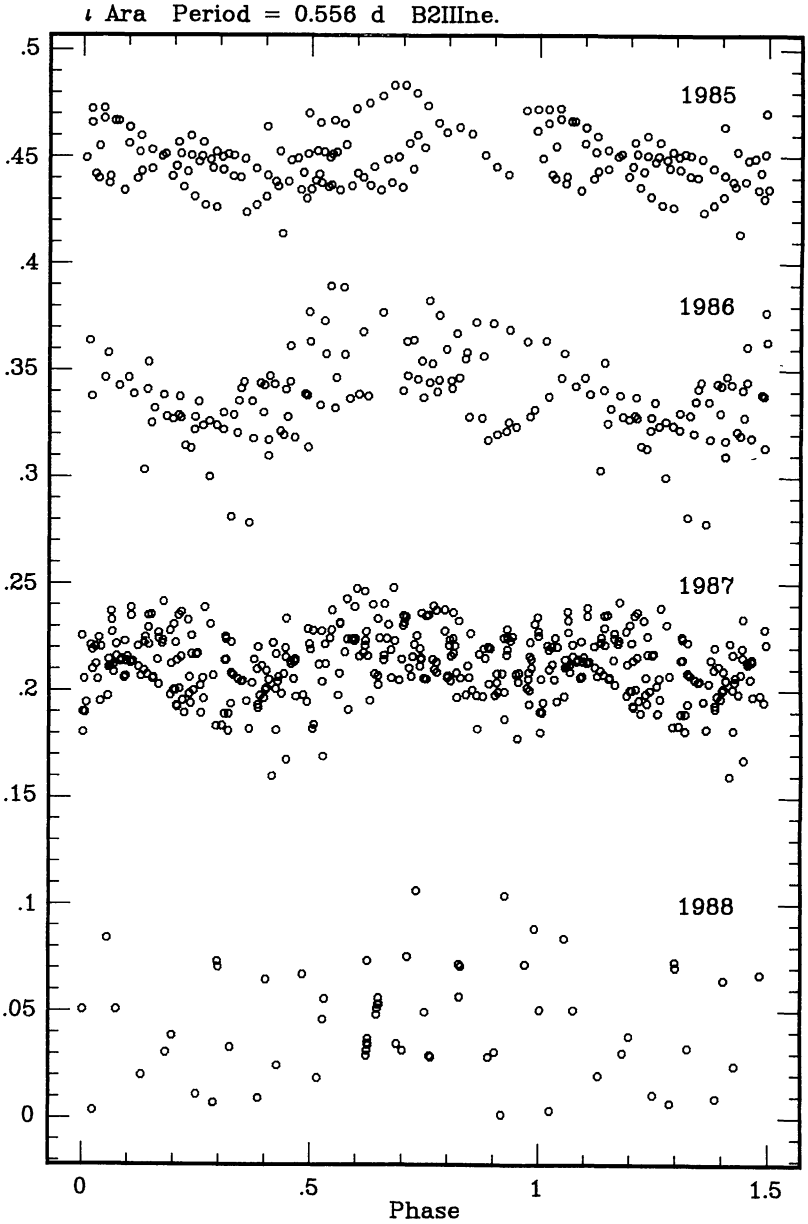

FIGURE 9. — Light curve of ι Ara ($P = 0.556$ d).

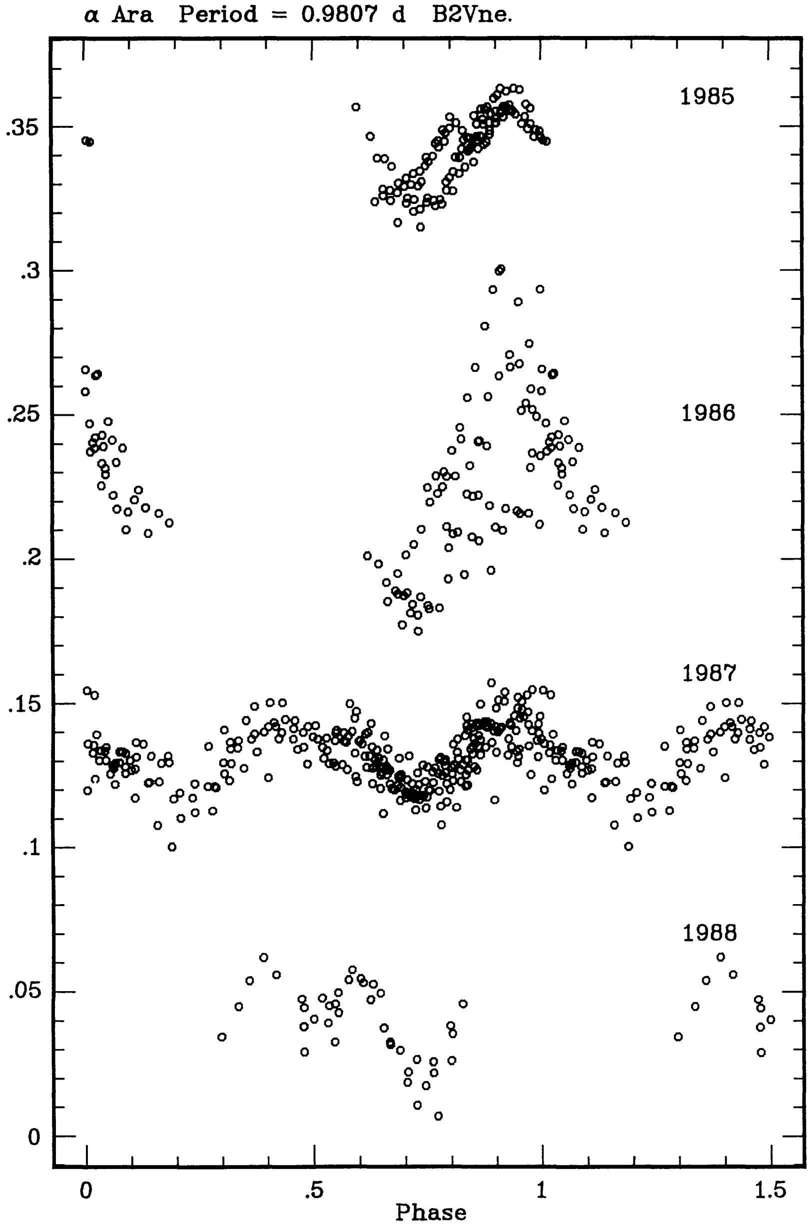

FIGURE 10. — Light curve of α Ara ($P = 0.9807$ d).

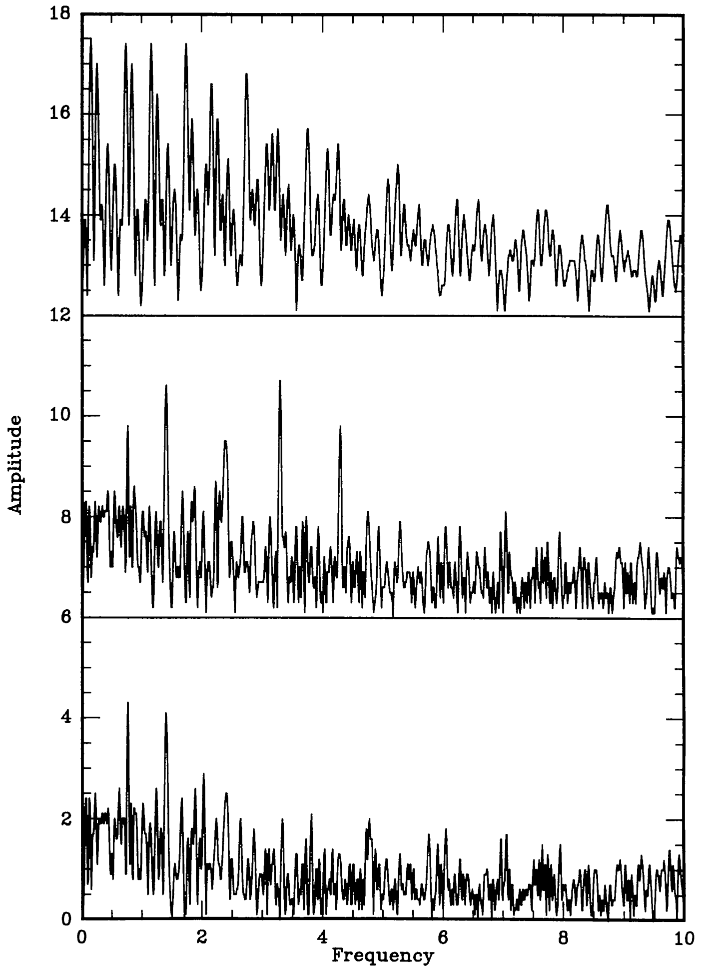

FIGURE 11a. — Fourier periodograms for V986 Oph. Top panel - 1985 data ; middle panel - 1987 data ; bottom panel - 1987 data prewhitened by 3.30 d^{-1}. The frequency is in cycles d^{-1} and the semi-amplitude in millimagnitudes.

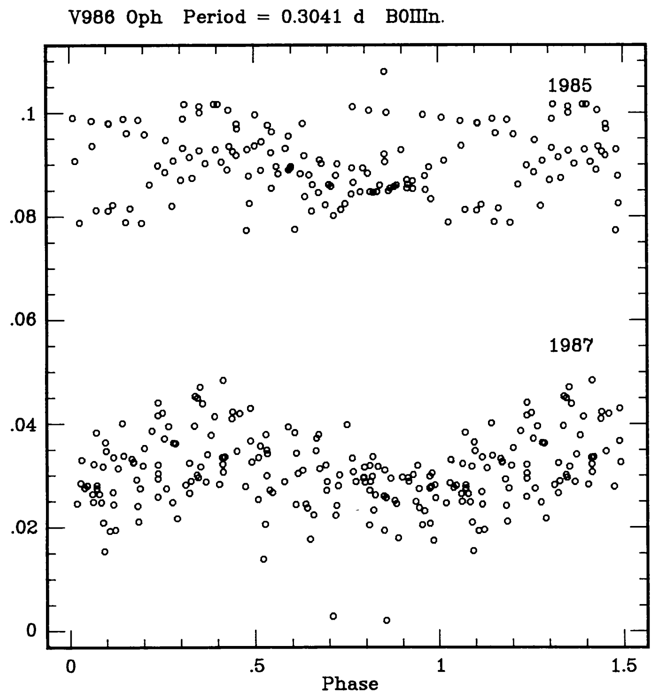

FIGURE 11b. — Light curve of V986 Oph ($P = 0.3041$ d).

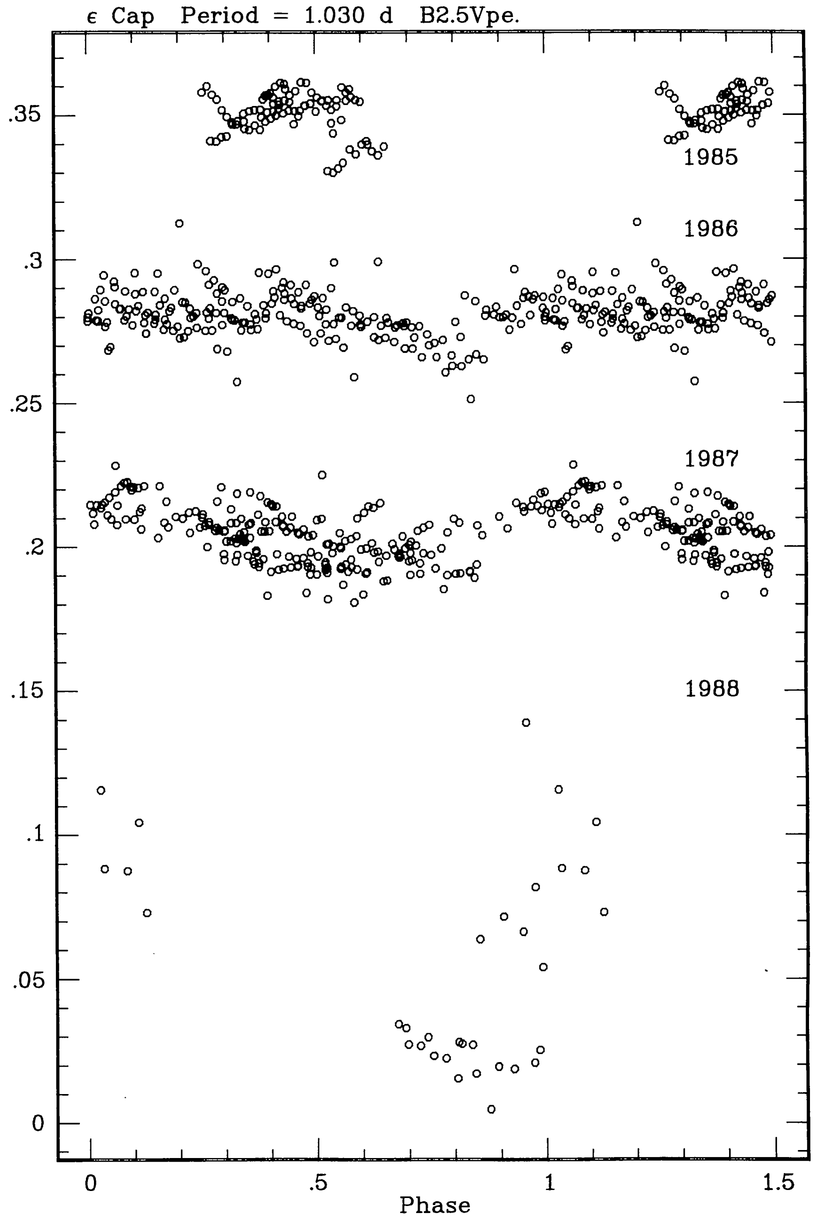

FIGURE 12. — Light curve of ε Cap ($P = 1.030$ d).

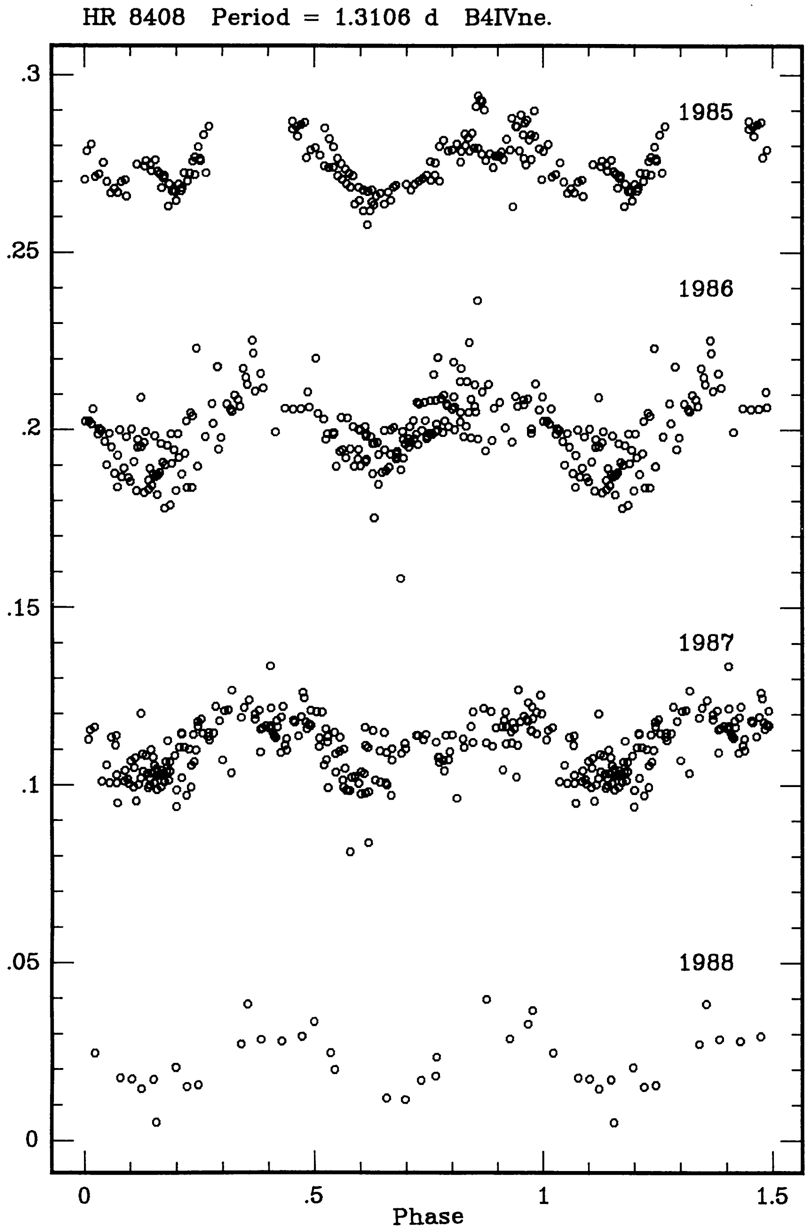

FIGURE 13. — Light curve of HR 8408 ($P = 1.3106$ d).

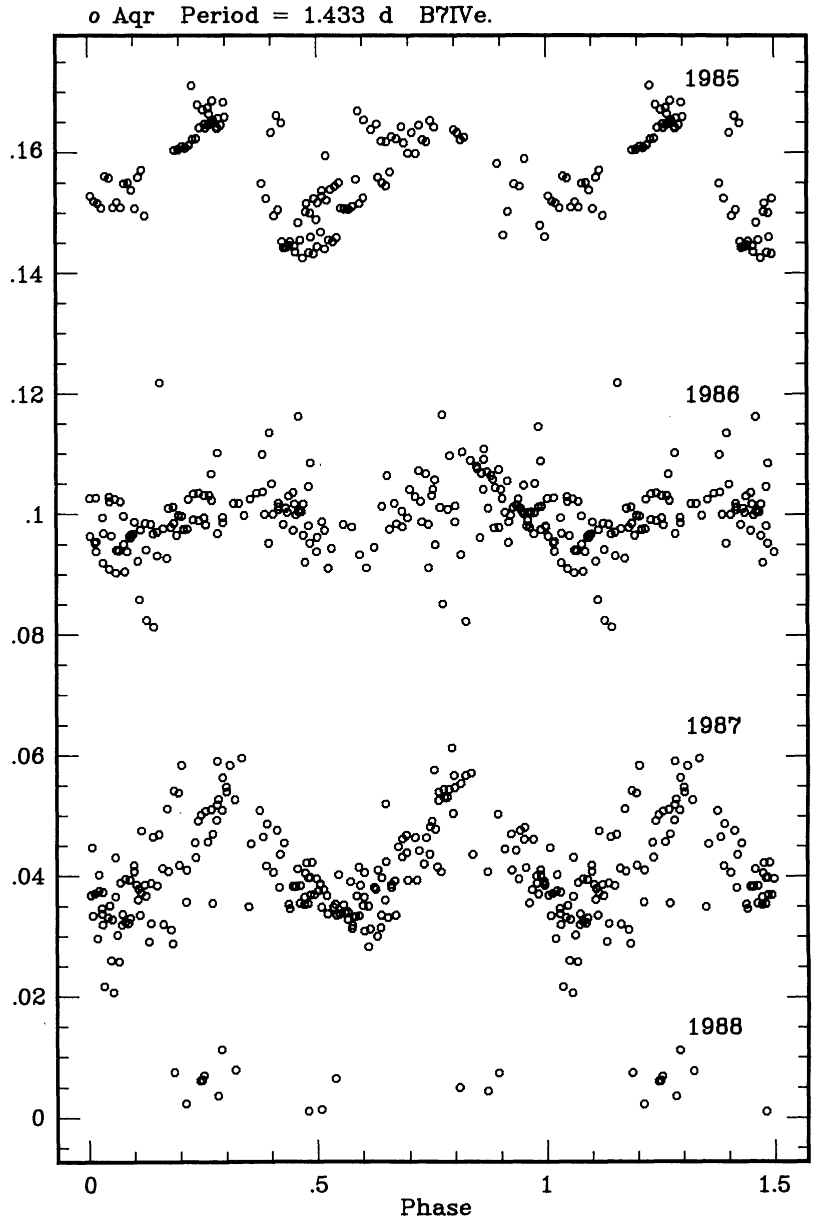

FIGURE 14. — Light curve of o Aqr ($P = 1.433$ d).

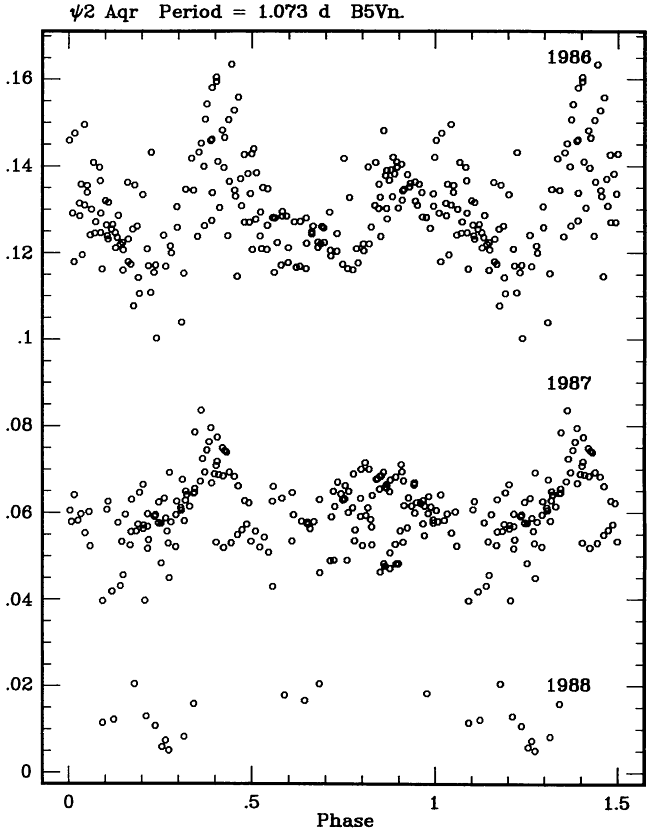

FIGURE 15. — Light curve of ψ^2 Aqr ($P = 1.073$ d).

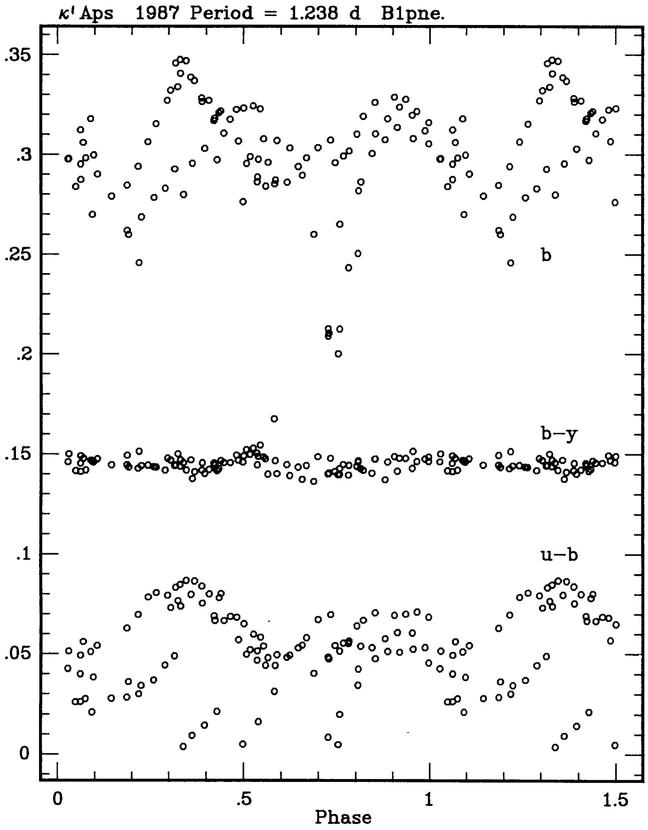

FIGURE 16. — Light and colour variations in κ^1 Aps ($P = 1.238$ d). In this and subsequent figures the colour and light variations are plotted according to the astronomical convention, i.e. with more negative values (bluer colour) upwards.

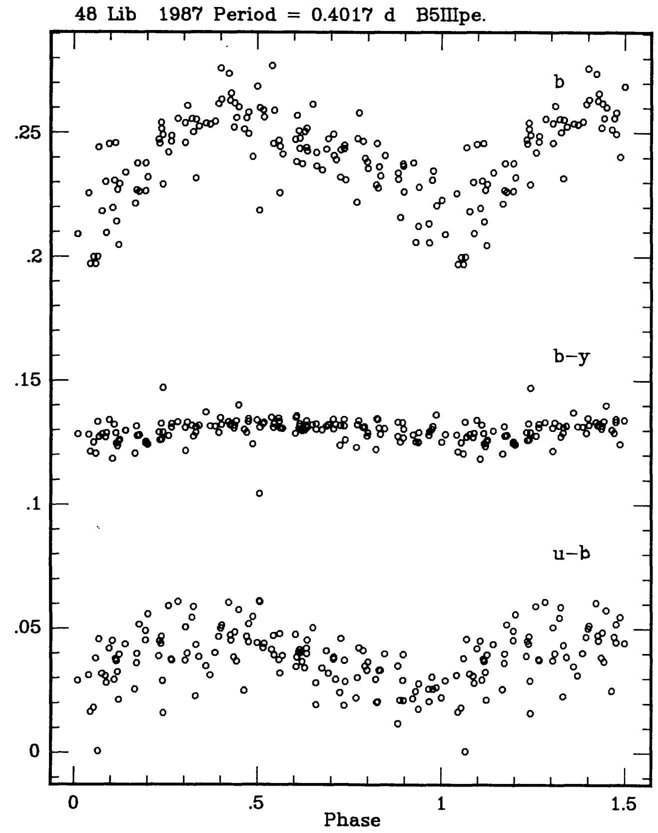

FIGURE 17. — Light and colour variations in 48 Lib ($P = 0.4017$ d).

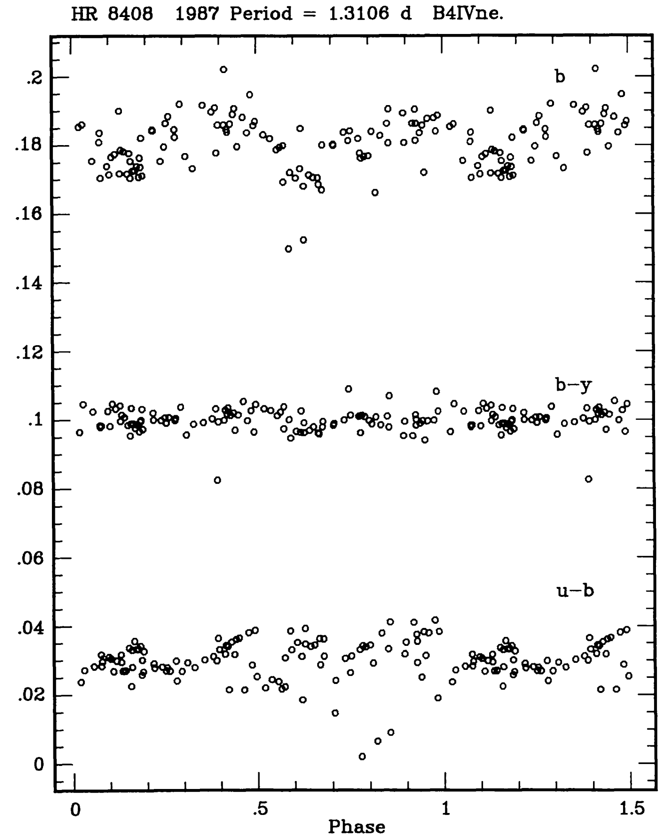

FIGURE 18. — Light and colour variations in HR 8408 ($P = 1.3106$ d).

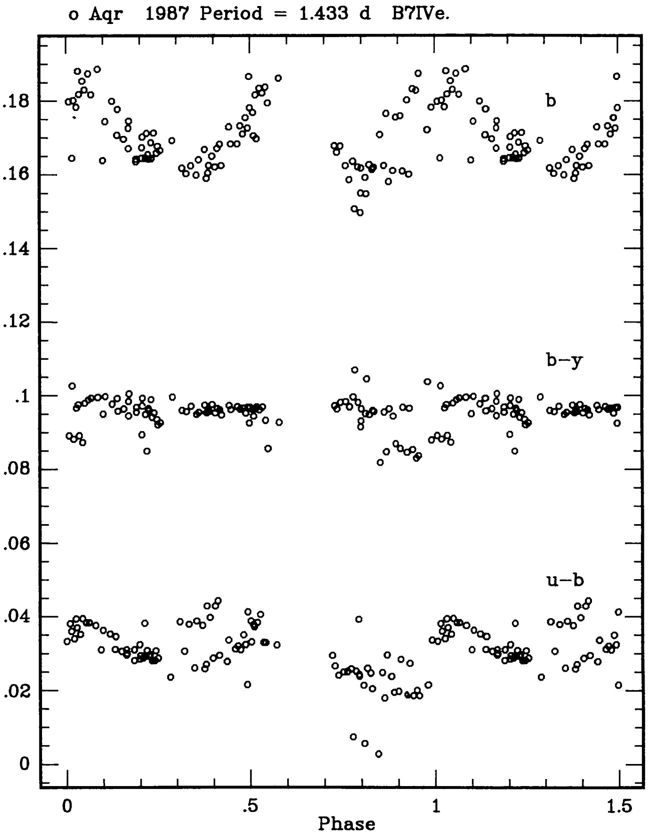

FIGURE 19. — Light and colour variations in o Aqr ($P = 1.433$ d).

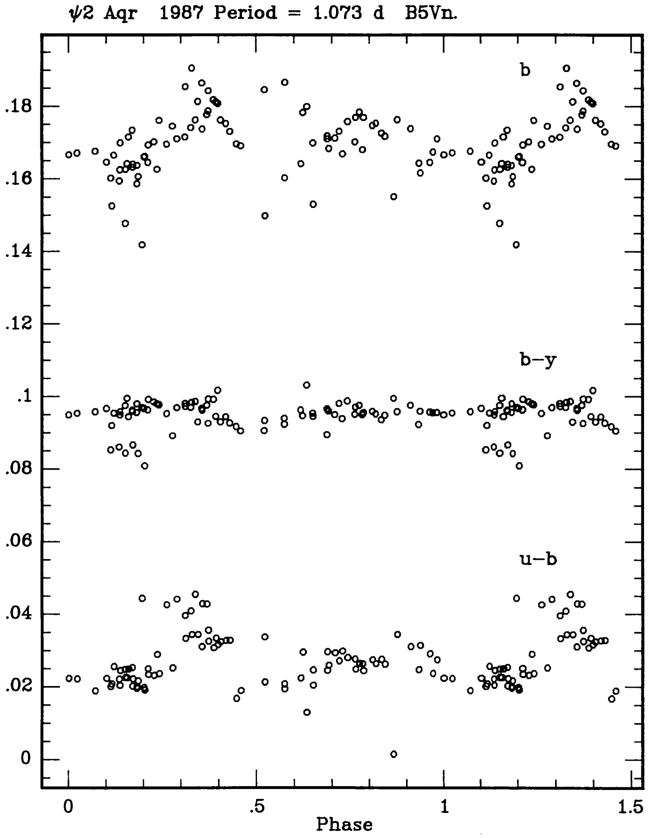

FIGURE 20. — Light and colour variations in ψ^2 Aqr ($P = 1.073$ d).