Chromospheric Ca ɪɪ emission in Nearby F, G, K, and M stars[1]

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ABSTRACT

We present chromospheric Ca II H & K activity measurements, rotation periods and ages for ∼1200 F-, G-, K-, and M- type main-sequence stars from ∼18,000 archival spectra taken at Keck and Lick Observatories as a part of the California and Carnegie Planet Search Project. We have calibrated our chromospheric S values against the Mount Wilson chromospheric activity data. From these measurements we have calculated median activity levels and derived $R'_{\rm HK}$, stellar ages, and rotation periods from general parameterizations for 1228 stars, ∼1000 of which have no previously published S values. We also present precise time series of activity measurements for these stars.

Subject headings: stars: activity, rotation, chromospheres

1. Introduction

The California & Carnegie Planet Search Program has included observations of ∼2000 late-type main-sequence stars at high spectral resolution as the core of its ongoing survey of bright, nearby stars to find extrasolar planets through precision radial velocity measurements (e.g., Cumming, Marcy, & Butler 1999; Butler et al. 2003). One source of error in the measured velocities is that due to "photospheric jitter": flows and inhomogeneities on the

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stellar surface can produce variations in the measured radial velocity of a star and may even mimic the signature of planetary companions (Henry, Donahue, & Baliunas (2002); Queloz et al. (2001); Santos et al. (2003)). In addition to providing a precision radial velocity, each of our radial velocity observations provides a measurement of the strength of the stellar chromospheric Ca II H & K emission cores. These measurements are an indicator of stellar magnetic activity and can provide an estimate of the photospheric jitter and rotation period of a star, both critical values for understanding and interpreting the noise present in radial velocity measurements (Noyes et al. 1984; Saar & Fischer 2000; Santos et al. 2000).

The largest campaign to measure and monitor Ca II H & K emission has been the Mount Wilson program begun by O. C. Wilson (1968) and continued and improved since then by Vaughan, Preston, & Wilson (1978) and others (Baliunas et al. 1998). From 1966-1977 this program used the "HKP-1" photometer which employed a photoelectric scanner at the coudé focus of the 100 inch telescope. Since 1977 the "HKP-2" photometer has been used, which is a new, specially designed photomultiplier mounted at the Cassegrain focus of the 60 inch telescope (e.g., Baliunas et al. 1995).

Duncan et al. (1991) published data from this program in the form of "season averages" of H & K line strengths from 65,263 observations of 1296 stars (of all luminosity classes) in the Northern Hemisphere, and later as detailed analyses of 171,300 observations of 111 stars characterizing the varieties and evolution of stellar activity in dwarf stars. This program defined the Mount Wilson "S value" which has become the standard metric of chromospheric activity.

Henry et al. (1996) published data from a survey of stars in the southern hemisphere, providing S values from 961 observations of 815 stars. Other surveys include the Vienna-KPNO survey (Strassmeier et al. 2000), whose motivation was to find Doppler-imaging candidates by using Ca II H & K as a tracer of rotation period in 1058 late-type stars, and that of our Anglo-Australian Planet Search (Tinney et al. 2002), which reported S values for 59 planet search stars not observed by previous surveys.

2. Observations

Observations for the California and Carnegie Planet Search Program have used the HIRES spectrometer at Keck Observatory for six years, measuring precision velocities of $\sim$700 stars as part of a campaign to find and characterize extrasolar planetary systems (e.g. Butler et al. 1996). HIRES is an echelle spectrometer which yields high resolution (67,000) spectra from 3850Å to 6200Å. Typical exposures in the Ca II H & K region yield a signal to noise ratio of 60 in the continuum, although this number can be smaller for very red stars since our requisite signal to noise in the iodine region of the spectrum dictates exposure time.

The detector on HIRES is a Tektronix 2048EB2 engineering-grade CCD optimized for the optical. The quantum efficiency degrades significantly blueward of the H & K lines, but is still 60% at 0.38 microns. Observations at Keck always employ an image rotator to keep the position angle parallactic, thereby minimizing the effects of atmospheric dispersion (Vogt et al. 1994).

The Planet Search program has also included observations made at Lick Observatory since 1987 with the Hamilton spectrograph fed by the Shane 3m telescope and the 0.6-meter Coudé Auxiliary Telescope (CAT) (Vogt 1987). The Hamilton spectrograph is also an echelle spectrometer with high resolution (60,000). In 2001 the CCD readout window was expanded to include the Ca II H & K region, where we typically achieve a signal to noise ratio between 10 and 60 in the continuum. This large range of S/N is partly due to the fact that the program does not employ an image rotator at Lick in order to keep the overall system efficiency high. As a result significant blue flux can be lost for those observations at large hour angles and airmasses (Filippenko 1982).

Two detectors have been used on the Hamilton spectrograph since the readout window was expanded. The first CCD, referred to as "Dewar 6" for the dewar it sits in, is an over-thinned 2048 × 2048 chip with 15μ pixels. The second, "Dewar 8", is a Lawrence Berkeley Laboratory high-resistivity CCD with the same dimensions as Dewar 6.

3. The Stellar Sample

The Planet Search at Lick and Keck observatories has included over 1000 stars over its duration, with many stars being added and a few dropped along the way as resources and circumstances dictate. Cumming, Marcy, & Butler (1999) analyzed the frequency of planets around many (76) of the best-observed Lick program stars, and Nidever et al. (2002) published absolute radial velocities for most program stars at Lick and Keck and many other stars (889) observed in the course of the program. These same spectra were analyzed by LTE atmosphere modeling to yield $T_{\rm eff}$, $\log g$, $v \sin i$, and chemical abundances by Valenti & Fischer (2004) and Fischer & Valenti (2004). The sample of this paper includes every star observed at Keck and Lick for which an accurate S can be obtained. It is composed of 1231 stars, 1199 of which have at least one measured S from Keck and 132 of which have at least one from Lick.

The Planet Search initially included single, late type, dwarf stars accessible from Lick

Observatory. As the resources of the Planet Search have grown, fainter F, G, and K dwarfs, M dwarfs, subdwarfs, and some subgiant stars have been added, and as the effect of activity on velocity precision has been uncovered, some more-active stars have been dropped. This paper's sample constitutes the stars which were still being monitored when activity measurements began (some now dropped) well as stars added to the search since then and a few incidental targets.

4. Data Reduction

4.1. S values

The S value is defined by the operation of the Mount Wilson spectrometers (Duncan et al. 1991), which measure a quotient of the flux in two triangular bandpasses centered on the H & K emission cores and two continuum regions on either side. Duncan et al. (1991) refer to these channels as the H, K, R, and V channels (where the R and V channels are the continuum channels on the red and blue sides, respectively of the H and K channels.) The HKP-1 spectrometer measured two 25 Å-wide R and V channels separated by about 250 Å about the rest position of the H & K lines, and the H and K channels which had a triangular instrumental profile with FWHM close to 1 Å. The HKP-2 spectrometer consisted of two 20 Å-wide R and V channels centered on 4001.07 Å and 3901.07 Å in the star's frame, and triangular bandpass H and K channels with a FWHM of 1.09 Å. Because the two Mount Wilson spectrometers had different bandpasses defined for the four channels, Duncan et al. derived a transformation from the HKP-1 measurements (referred to as "F values") to the HKP-2 S values.

The S values were constructed as

$$S = \alpha \frac{H+K}{R+V} \tag{1}$$

where H, K, R, and V refer to the flux in the corresponding bandpasses, and α was calculated to be 2.4 to make the mean S correspond to the mean F determined from the HKP-1 observations.

The differences in the continuum regions resulted in a transformation being necessary from S to F:

$$F = 0.033 + 0.9978S - 0.2019S^2 \tag{2}$$

We follow a similar prescription to extract measurements of activity from our spectra and transform those values into S values on the Mount Wilson scale.

4.2. Reduction of Spectra and Calibration of S

4.2.1. The Planet Search Reduction Pipeline

For all Planet Search spectra, extraction from raw CCD images is performed in an automated pipeline. We measured S values from these archival, reduced spectra.

We apply a scattered light subtraction to the HIRES echellograms before extraction. HIRES echellograms have many pixels of inter-order real estate, from which we can make good measurements of scattered light. We fit B-splines to the signal in these inter-order regions and interpolate linearly between them to estimate the scattered light in each order.

For both Lick and Keck data, a cosmic-ray removal algorithm removes the strongest cosmic rays from each 2-D echellogram before extraction. This is performed by modeling the profile of each order in the spatial direction by averaging over a suitably large region in the wavelength direction. Having determined the spatial profile in a region of the echellogram, cosmic rays are identified as extreme excursions from the mean profile. This technique is nearly identical to the technique used in optimal extraction (Horne 1986, §§II D & E).

One difficulty in extracting S values from Planet Search program spectra is that the spectra are not flux calibrated. Further, to properly account for photon statistics, the blaze function and throughput of the spectrometers are not removed.

4.2.2. Extraction of S from Keck Observations

We extracted S values from our Keck spectra following the prescription of Duncan et al. (1991) as closely as possible. To remove the blaze function, which the standard extraction retains, as noted above, we smoothed and normalized a representative flat field spectrum and divided it out of all spectra in the region of interest. This replaced the blaze function, which is a strong function of position along each spectral order, with the much more slowly varying continuum of the quartz lamp used in our flat field images.

We simulated the measurement of the Mount Wilson spectrometers by summing the counts within four wavelength bins. We defined two triangular, 1.09 Å FWHM bandpasses centered on the H & K lines, and two, fixed continuum channels 20 Å wide, just as in the case of the HKP-2 spectrometer. One difference we employed was to fix the continuum regions in the observer's frame rather than shift them into the star's frame. This prevented stars with particularly large Doppler velocities from shifting the channel into the next order, and it allowed us to correct for the effects of the imperfect flux calibration, as discussed below.

The effect of choosing this frame, rather than the stellar frame, was extremely small, causing changes in S of less than 1%.

Figure 1 shows the positions of the R, H, K, and V channels in one of our Keck spectra. Because we do not flux calibrate our spectra the relative fluxes of neighboring orders is not correct and the small effect of dividing out a quartz-lamp flat field remains. Because our continuum channels are fixed in the observer's frame, these spurious effects are essentially a constant function of the spectrometer, not of the object being observed. As a result the relative fluxes calculated by integrating the fluxes within each of the four bandpasses is different from the proper value by a constant multiplicative factor.

Rather than model and calculate these factors we elected to fit for them and solve for any additional calibrations required to match Mount Wilson S values without invoking additional degrees of freedom. We thus constructed S values from our Keck spectra as:

$$S = \frac{aH + bK}{cR + dV} \tag{3}$$

where a, b, c, and d are relative weights to be determined. We found that there are 114 suitable stars in our sample which have S values published in Duncan et al., and which have been observed more than once by each of our projects. We used unweighted averages of the Mount Wilson seasonal data to construct a mean S value, and performed a non-linear least-squares fit in log space for our relative weights. We found a good solution over all spectral types:

$$S = \frac{1.68H + 0.585K}{0.497R + 1.72V} \tag{4}$$

The addition of constant or $B - V$ terms did not improve χ^2_ν of our fit.

Not all of our extracted spectra were of sufficient quality for our purposes. The automated extraction pipeline occasionally failed to properly trace an order on the echellogram or it improperly extracted the background scattered light. We found that an excellent diagnostic of the quality of a spectra was to simply examine the ratio of the counts in the H and K channels. We modeled the dependence of the H/K ratio as a function of derived S with a spline, and rejected all points for which the H/K ratio differed from this model curve by a factor of 1.35 or more.

A second rejection was based on the empirical observation that a few very low-S/N spectra passed the ratio test but were clearly useless. We rejected all stars with fewer than 200 counts per pixel in the V channel. These cuts culled 759 of 15,274 spectra, bringing to total remaining Keck spectra to 14,515.

The results of the data rejection and calibration are shown in Figure 2, which shows Median S from Keck versus mean S from Duncan et al. for the 199 stars our programs have

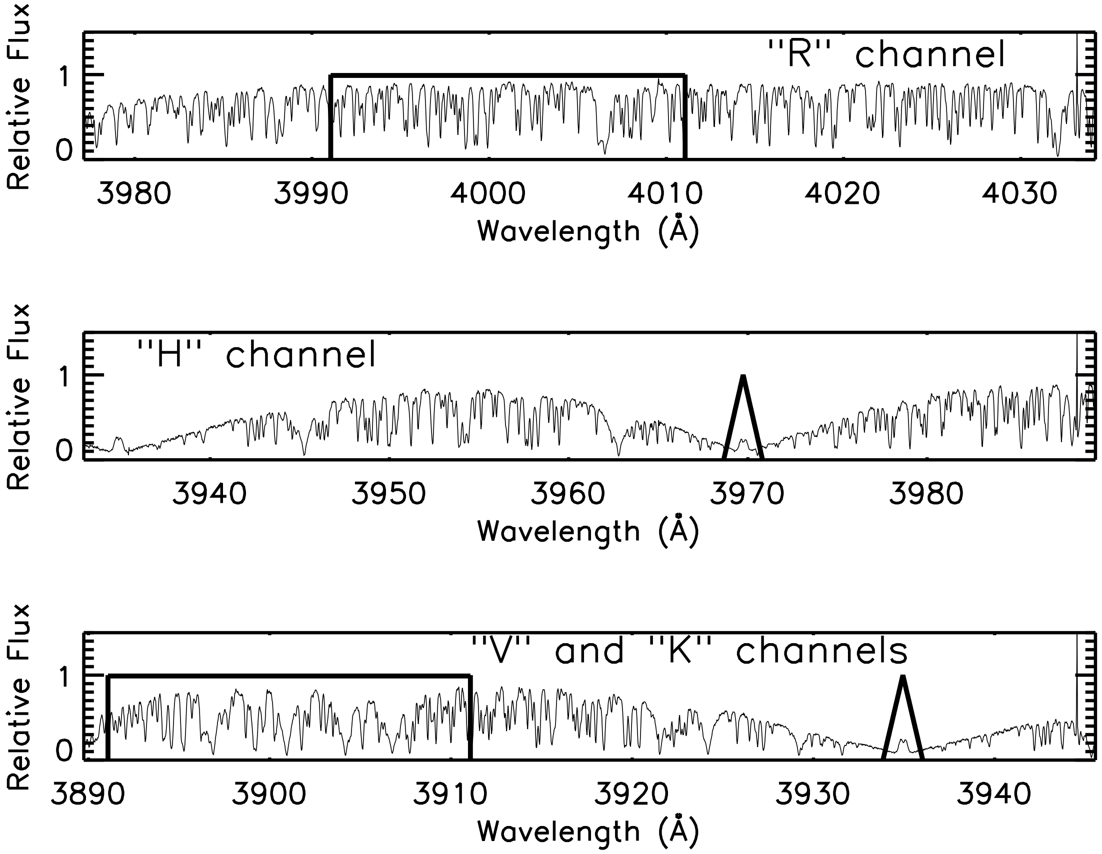

Fig. 1.— R, H, K, and V channels in a representative Keck spectrum. The ordinate is relative photon flux in arbitrary units. Wavelength is in the rest frame of the star. The H and K channels are always centered on the line cores; the R and V channels are fixed in the observer's frame.

in common. The 13% scatter in Figure 2 is primarily due to the chromospheric variability intrinsic to the stars. The Mount Wilson measurements used for the Keck calibration were made between 1966 and 1983 and many of these stars simply have different levels of chromospheric activity today than their means over that period.

4.2.3. Extraction of S from Lick Observations

We calibrated Dewars 6 and 8 from Lick independently because different extraction programs were used for the two dewars. Data reduction for our Lick spectra proved more difficult than it was for the Keck spectra. One complication is the lack of use of an image rotator at Lick: differential refraction can impose a spurious slope on the flux spectrum which is impossible to calculate a priori and difficult to calibrate. Also, since most of the Lick spectra are from the CAT, the typical signal to noise is considerably lower than for the Keck spectra.

Dewar 8 spectra posed additional difficulties as well. The automated extraction pipeline and observational plan for our Lick spectra were not optimized for the blue orders, where no Doppler information is gathered. This causes difficulty because the orders on the Hamilton spectrograph are closely spaced, making the extraction algorithm sensitive to any error in the assumed position of the orders which might arise from the low signal. The Dewar 8 reduction algorithm seems to have suffered along these lines, causing the continuum normalization to be uncertain by 10%. Further, the high-resistivity CCD in Dewar 8 yields a high incidence of cosmic-ray-like “worms” which are difficult to remove and can contribute a significant fraction of the flux in the H & K and continuum channels. As a result the Dewar 8 S values are less precise than those of the other instruments.

To mitigate these problems we employed a simpler extraction algorithm for our Lick spectra. We simply defined a continuum region which we denote the “C” channel just redward of the H line and constructed a simple ratio of the H channel to the C channel (see Figure 3). We thus defined our raw, uncalibrated Lick “S value” as

$$L = \frac{H}{C} \tag{5}$$

where we use the symbol “L” to denote the fact that this is not a Mount Wilson S value, but a ratio we have constructed related to it. The proximity of the continuum region and its employment of fewer pixels reduced the severity of the problems outlined above.

As a check, we examined the dependence of the extracted L on the signal to noise in the H & K region for a well-observed star (τ Ceti). The L values for exposures with low signal were

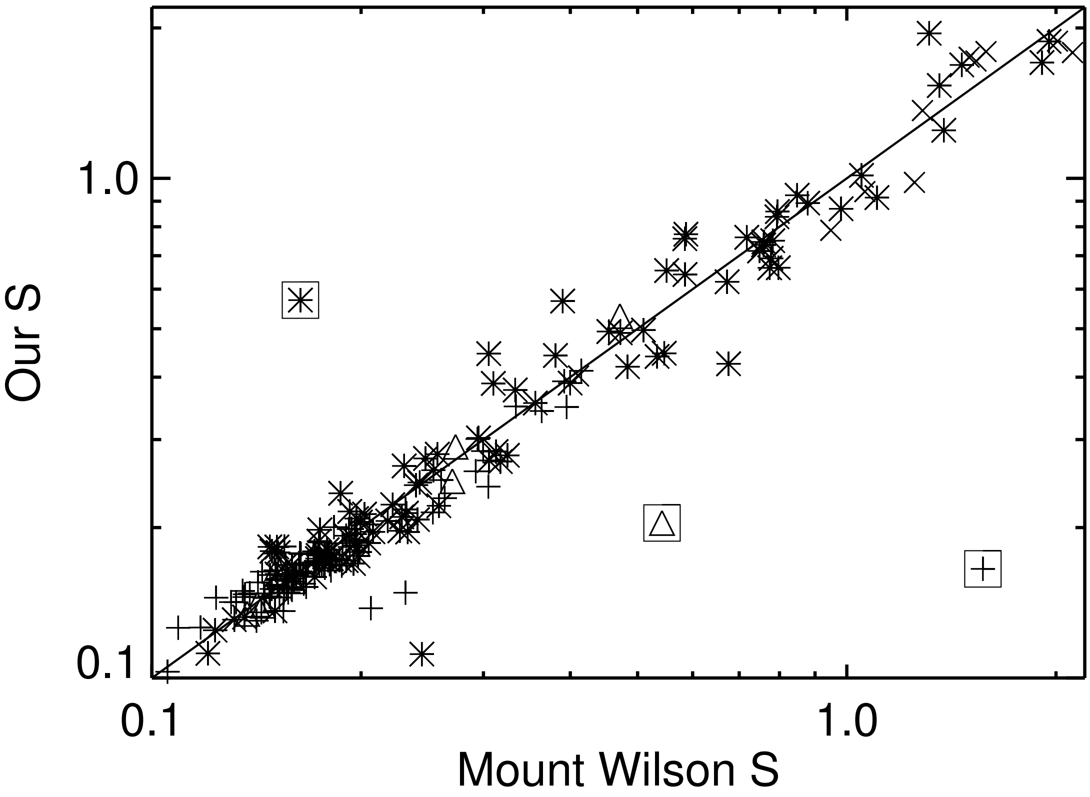

Fig. 2.— Median Keck S from this work versus mean Mount Wilson S from Duncan et al. The scatter of 13% (excluding the boxed outliers) is due in large part to the intrinsic chromospheric variability of these stars. Triangles represent F stars, crosses G stars, asterisks K stars, and X's M stars. We discuss the boxed outliers in § 5.4.

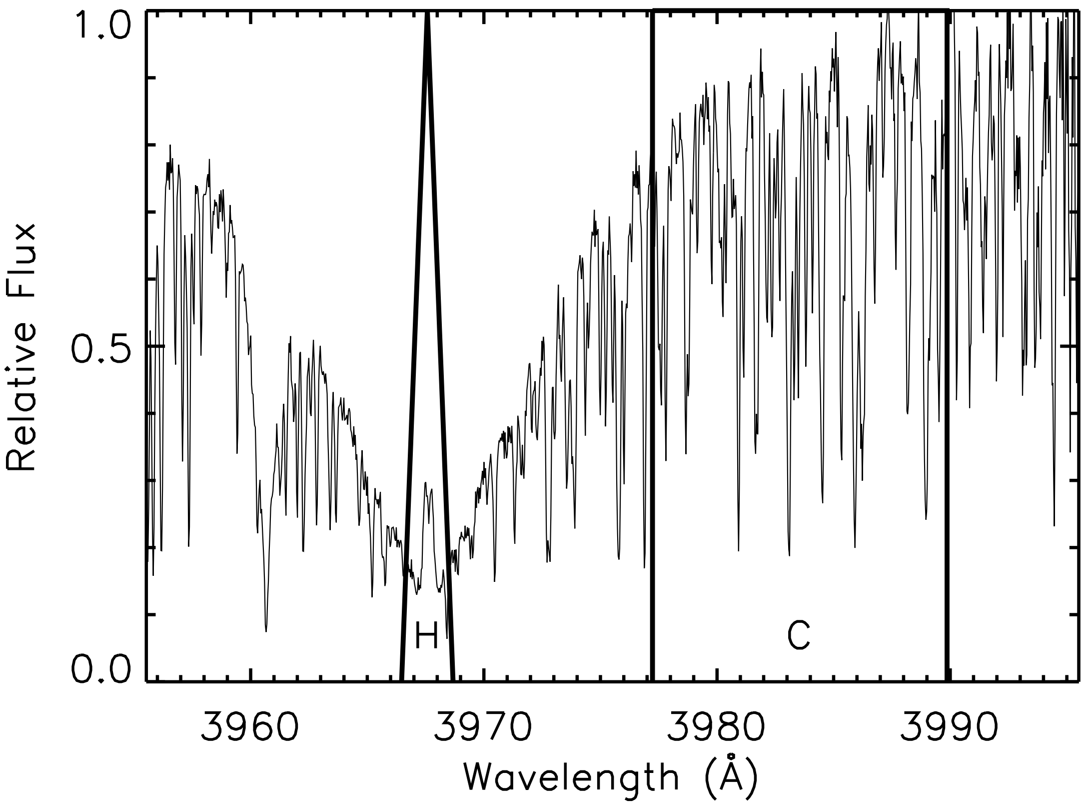

Fig. 3.— The H and C channels for a representative Lick spectrum. The ordinate units are arbitrary, the abscissa is in Angstroms.

clearly discrepant from nominal values, which is probably a result of poor extraction or poor accounting of the flux zero point. Such problems are not unexpected, since the extraction and background subtraction algorithm was designed for and tested on the typically high-signal iodine region. To correct for this we rejected all data in the low signal regime which we defined as spectra with a signal to noise ratio of < 50 in the continuum. The effect of this strict rejection scheme is severe. Of 3014 spectra, only 1400 survived this cut.

Because there are very few stars in our Lick sample that have never been observed at Keck, we performed a secondary calibration against our Keck data. We found that to match the Keck S values required quadratic transformations. For Dewar 6:

$$S = 0.507L + 0.189L^2 \tag{6}$$

and for Dewar 8:

$$S = 0.607L + 0.239L^2. \tag{7}$$

Figures 4 and 5 show how the final Lick S values compare to the Keck measurements. The scatter in Figure 4 is considerably lower than that of Figure 2 because the measurements were contemporaneous.

4.3. Differential S values

It is possible to make measurements of the flux change in an emission line of a particular star which are much more precise than the absolute strength indicated by S, as measured above. Since changes in S can be important diagnostics of rotation and activity, we have also measured sensitive differential S values, $S_{\rm diff}$, for all of our Keck observations, inspired by the technique of Shkolnik, Walker, & Bohlender (2003). We made these measurements from the same reduced data as the S values measured above, but with an independent technique, as described below.

For each star, we chose the observation from Keck with the highest signal to noise ratio as a template and reference spectrum. We scaled and shifted all other Keck spectra for that star such that we could directly compare the H line of every observation to the reference spectrum. When necessary, we added a small constant offset or slope to each spectrum to match the reference spectrum as closely as possible. We then defined E_i, the summed (scaled) counts in a 1 Å rectangular bandpass in observation i.

To transform E to the same scale as the S values measured in § 4.2 we compared the fractional changes with time in E, $\frac{E_i}{\bar{E}}$, to that in S, $\frac{S_i}{\bar{S}}$, for those stars with more than 9 Keck spectra and more than 2% variation in E, as shown in Figure 6. We fit a single line to these

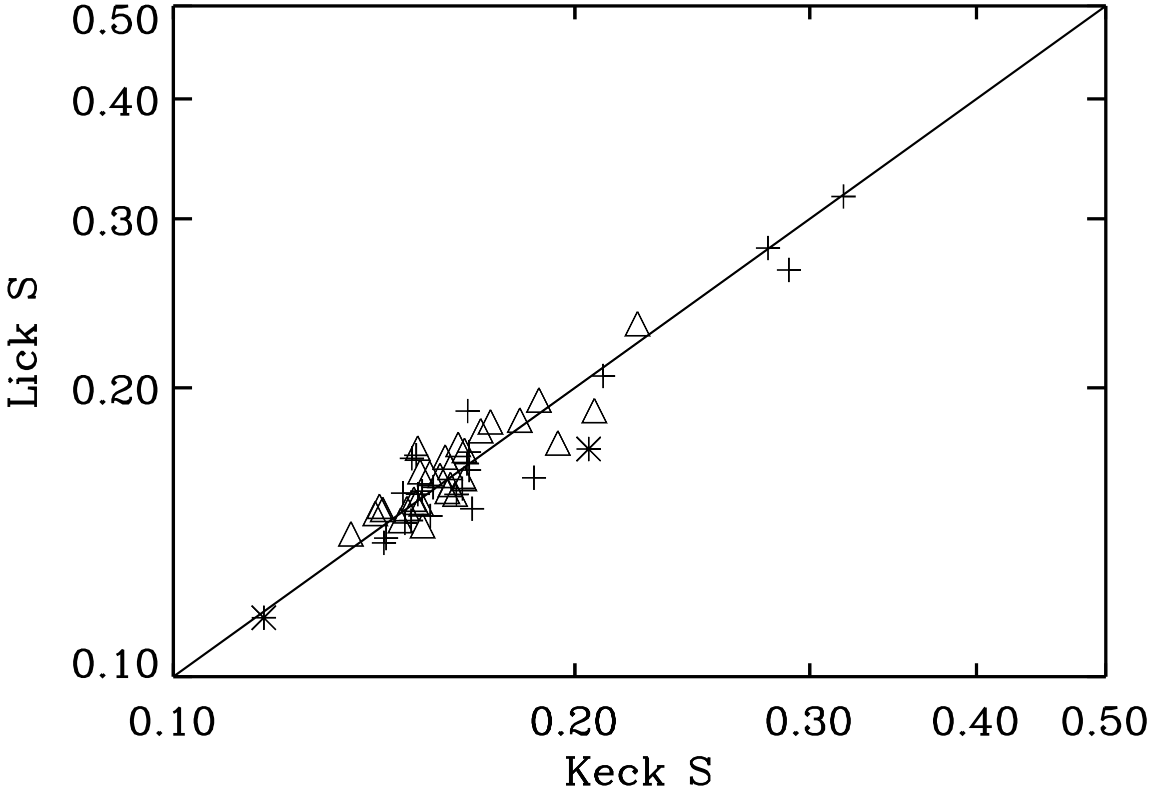

Fig. 4.— S measurements from Dewar 6 at Lick versus Keck S. The rms scatter is 6%, some of which is due to the intrinsic variability of these stars. Triangles represent F stars, crosses G stars, and asterisks K stars.

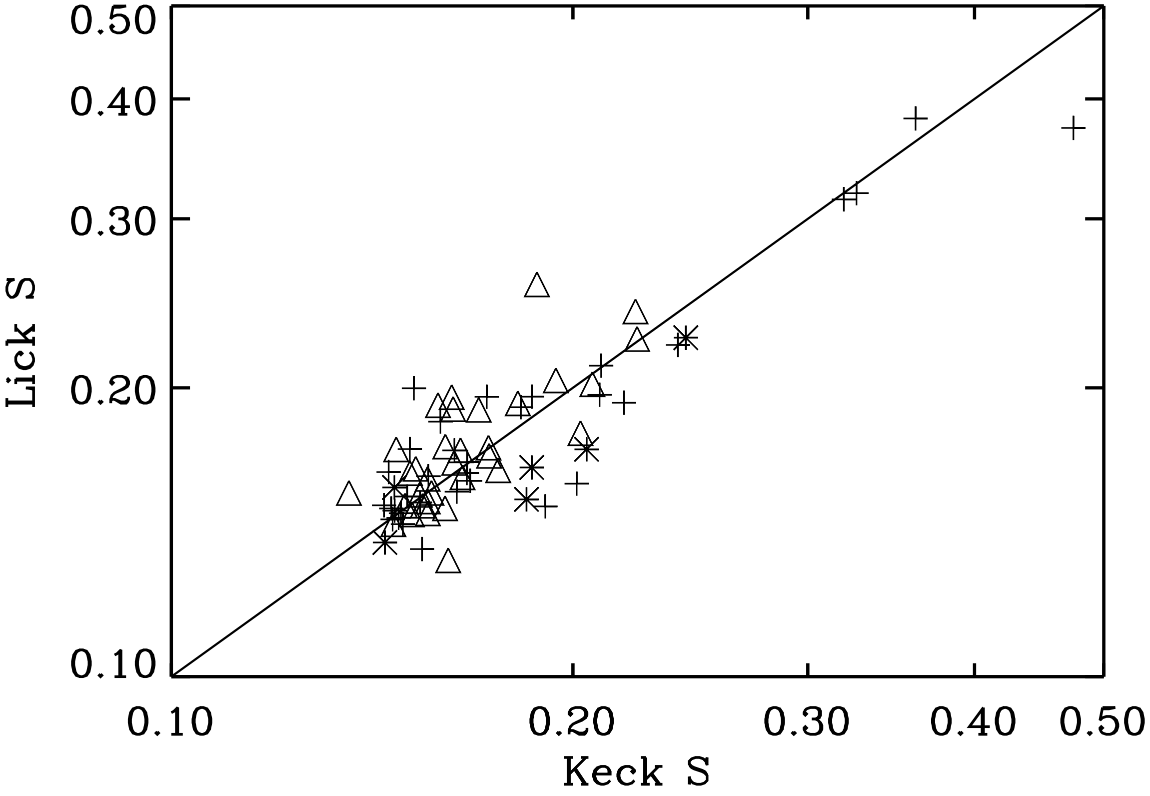

Fig. 5.— S measurements from Dewar 8 at Lick versus Keck S. The rms scatter is 12%, some of which due to the intrinsic variability of these stars. Triangles represent F stars, crosses G stars, asterisks K stars.

points for all such stars using a robust line-fitting routine which iteratively rejects outliers using the more precise $S_{\rm diff}$ values as the independent variable. The best-fit line which passes through (1,1) has a slope of 1.17. Therefore we adopt the relation:

$$S_{{\rm diff},i} = (\frac{E_i}{\bar{E}})^{1.2}\bar{S} \tag{8}$$

where $\bar{E}$ is the mean value of E_i for the star, and $\bar{S}$ is the grand S for the star (see Section 5.3).

5. Data From H& K Measurements

5.1. Uncertanties

Estimating uncertainties in our final values of $R'_{\rm HK}$ or other chromospheric-based quantities is difficult because they vary intrinsically with time on all timescales including those for rotation and stellar activity cycles. Activity cycles with periods longer than the duration of our observations will not be well measured; our final $R'_{\rm HK}$ values for our sample therefore represent median activity levels during the time we observed them, and not true averages for the star.

Measurement errors in these $R'_{\rm HK}$ vaules stem from the modest signal to noise ratio in the spectra and the quality of the calibration to the Mount Wilson S value. We discuss below uncertainties from random errors from finite signal to noise ratios and short term stellar variability. Calibration errors are negligible due to the large number of stars we used in the calibration.

The 13% scatter in Figure 2 is partly due to stellar variability, since our data are not contemporaneous with the Mount Wilson data and many stars are in different parts of their activity cycles. Thus our quoted values of R'HK carry uncertainties of no more than 13%, that is, they lie within 13% of the longterm average for the typical star. Measurements for stars observed more frequently and for the full duration of the Planet Search program will have correspondingly lower uncertainties.

5.1.1. Random Errors

To estimate the random errors in our S values we used τ Ceti (= HD10700, HR509, V = 3.5) as a test case. τ Ceti serves as an excellent diagnostic star because we have a

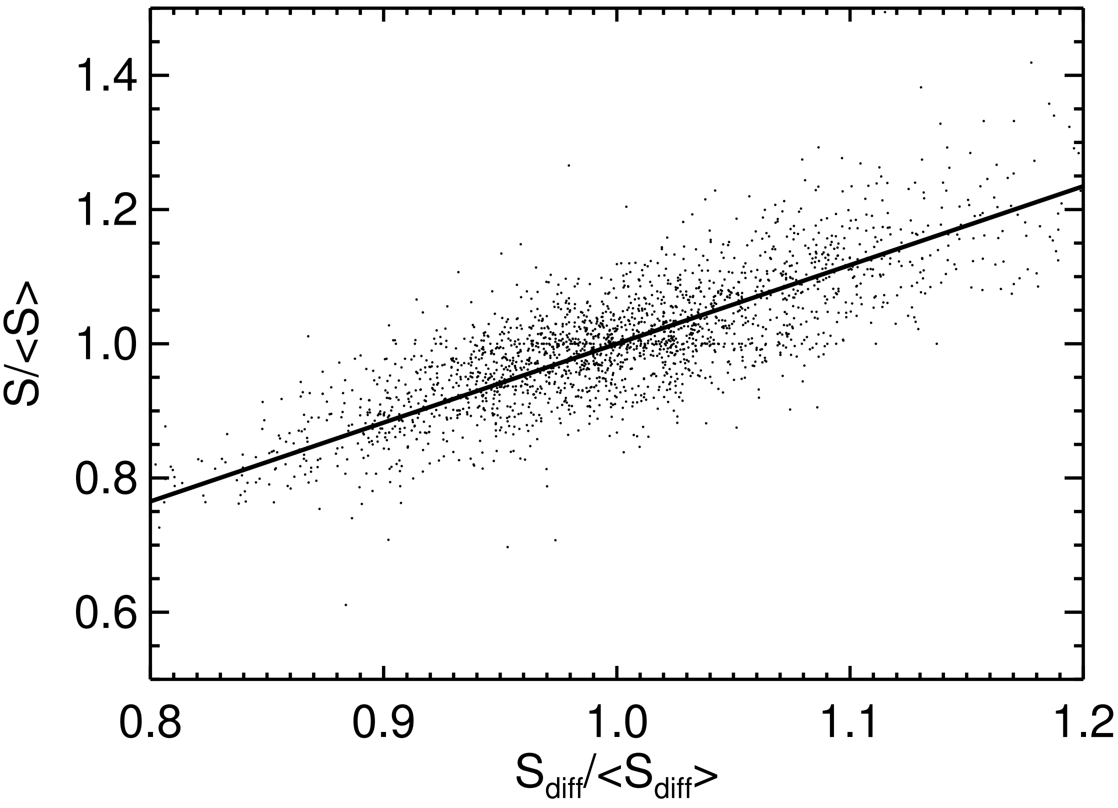

Fig. 6.— This figure demonstrates the calibration of the differential S values ($S_{\rm diff}$) to the scale of the less precise, absolute measurements of S. Each point shows the S and $S_{\rm diff}$ measurements from a single Keck spectrum, scaled by the median S and mean $S_{\rm diff}$, respectively, for all such observations of a given star. 2203 observations of the 124 most chromospherically variable stars are represented here. The best-fit line is shown as a solid line and has a slope of 1.2. The 6% scatter of this distribution about the solid line is consistent with the estimate of the errors in S in § 5.1.1.

large number of observations of it at Keck and with both dewars at Lick. We observe τ Ceti often because of the extraordinary velocity precision we can achieve for this star with short exposure times. This makes it an excellent source with which to search for any systematic errors in our precision velocities.

τ Ceti is also very well observed by the Mount Wilson project. Baliunas et al. (1995) note that despite its late spectral type and color, it exhibits only 1% variation in its S values, suggesting that it may be in a "Maunder Minimum". They also note that the rotation period (33 d) implied by its S value and the observed $v \sin i$ (1 km/s) suggest that the star may be viewed nearly pole on.

The standard deviation of all τ Ceti S values is 6% for the Keck observations, 5.5% for Dewar 6, and 10.5% for Dewar 8. The differential S values from Keck (§ 4.3) for this star (Figure 7) have a standard deviation of 1.3%, which is consistent with the 1% variations reported by the Mount Wilson project. These estimates are consistent with the 6.5% scatter about the fit in Figure 6.

The disparity in the scatter in S and S_{diff} quantifies the errors introduced by difficulties in the raw reduction and extraction of S values from the echellograms, as described in § 4.2. These include the difficulty of properly correcting for scattered light, properly removing the blaze function of the spectrometer, and properly extracting orders with modest signal to noise. Much of the systematic component of these errors is removed by our calibration procedure, but a component which varies with time clearly remains. While the errors induced by these difficulties are not necessarily characterized by Gaussian noise, Figure 7 shows that they are averaged out over many observations.

Errors in S for other stars will be similar to those for τ Ceti because we use an exposure meter to ensure a uniform signal to noise across our sample. This exposure meter is sensitive to light in the iodine region, so blue stars will have smaller Poisson errors in the Ca II H & K region than red stars.

We can calculate uncertainties in S_{diff} another way, as well. Occasionally during the course of the planet search, we take two or more consecutive exposures of a star. Under the assumption that the chromospheric activity of the star does not change over the course of several minutes, we can look at these sets of exposures and use the variation in the S_{diff} values measured in these sets as an estimate of the precision of S_{diff}. Based on these sets we estimate a typical uncertainty in S_{diff} of 1.2%. This value, which is significantly higher than the Poisson noise, represents a reasonable estimate of the precision of the S_{diff} values. This value is also consistent the smallest variations in S_{diff} seen among stars in our sample.

There are also a small systematic (and therefore correlated) errors in the the differential

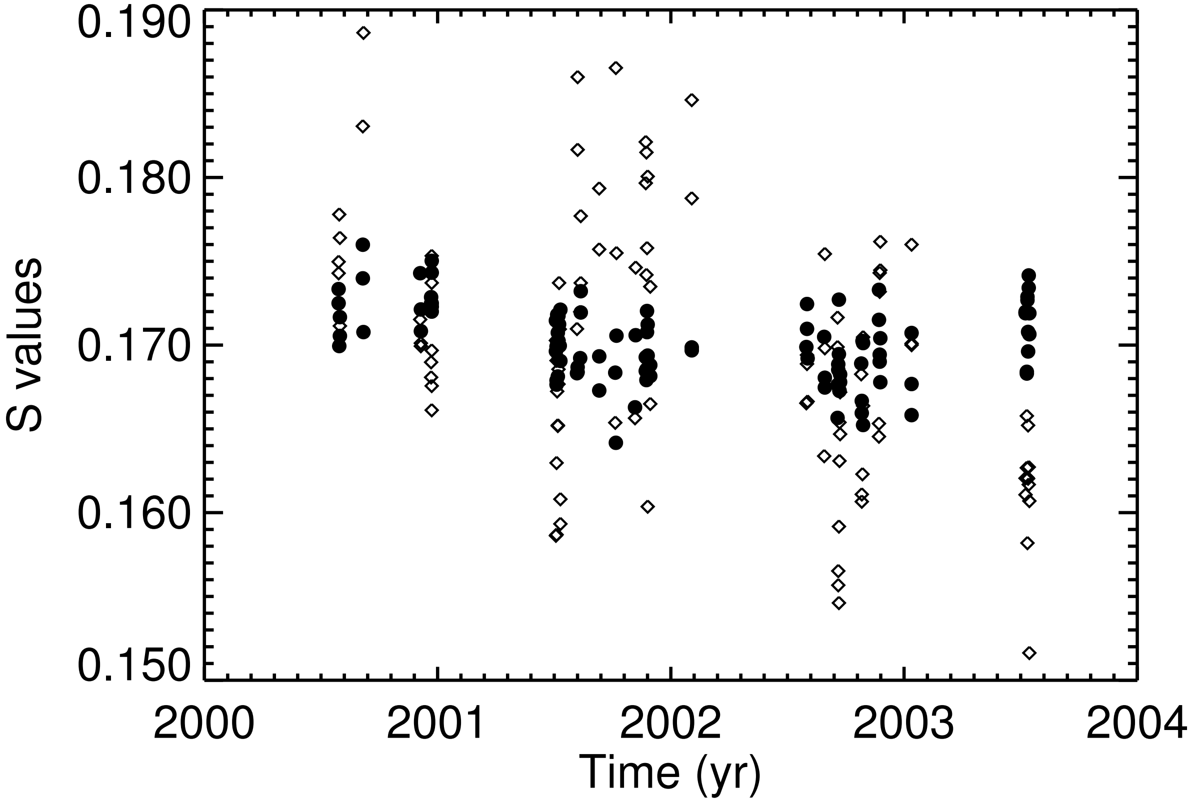

Fig. 7.— τ Ceti S values (open diamonds) and differential S values, S_{diff} (filled circles) from Keck. Activity variations apparent in the S values are revealed to be due to uncertainties by the more precise differential values.

S values, on the order of 1%. For instance, our values of $S_{\rm diff}$ have a small and complex dependence on the focus of the spectrometer. This is can be seen in Figure 7 where there appears to be a slight decrease in the $S_{\rm diff}$ values for τ Ceti after 2001 due to an improvement in the focus of HIRES at that time.

5.2. $R'_{\rm HK}$, Ages, and Rotation Periods

The S index includes both chromospheric and photospheric contributions. To remove the photospheric component and determine the fraction of a star's luminosity that is in the Ca II H & K lines, we follow the prescription of Noyes et al. (1984) to generate the $\log R'_{\rm HK}$ values which appear in Table 2. The transformation of S indices to $R'_{\rm HK}$ is a function of $B-V$, and is only calibrated for $0.44 < B-V < 0.9$.

The transformation used by Noyes et al. is that of Middelkoop (1982):

$$R_{\rm HK} = 1.340 \times 10^{-4} C_{\rm cf} S \tag{9}$$

where

$$C_{\rm cf}(B-V) = 1.13(B-V)^3 - 3.91(B-V)^2 + 2.84(B-V) - 0.47 \tag{10}$$

transforms the flux in the R and V channels to total continuum flux and S is the Mount Wilson S value of the star. This number must be corrected for the photospheric contribution to the flux in the Ca II H & K line cores. Noyes et al. use the expression in Hartmann et al. (1984)

$$\log R_{\rm phot} = -4.898 + 1.918(B-V)^2 - 2.893(B-V)^3 \tag{11}$$

to make the correction

$$R'_{\rm HK} = R_{\rm HK} - R_{\rm phot}. \tag{12}$$

From these $R'_{\rm HK}$values one can derive rotation periods from the empirical fits of Noyes et al.:

$$\log{(P_{\rm rot}/\tau)} = 0.324 - 0.400 \log R_5 - 0.283 (\log R_5)^2 - 1.325 (\log R_5)^3 \tag{13}$$

where R_5 is defined as $R'_{\rm HK} \times 10^5$ and τ is the convective turnover time:

$$\log \tau = \left\{ \begin{array}{ll} 1.362 - 0.166x + 0.025x^2 - 5.323x^3 & x > 0 \\ 1.362 - 0.14x & x < 0 \end{array} \right. \tag{14}$$

where $x = 1 - (B-V)$ and the ratio of mixing length to scale height is 1.9. Finally, we can calculate ages (Donahue 1993, cited in Henry et al. (1996)):

$$\log t = 10.725 - 1.334 R_5 + 0.4085 R_5^2 - 0.0522 R_5^3 \tag{15}$$

where t is the stellar age in years. The age calibration is certainly invalid in the T Tauri regime, therefore in Table 2 for stars so active that this relation yields unreasonably low ages of $\log(\mathrm{Age/yr}) < 7$ we simply quote "< 7".

Noyes et al. (1984) report that the rms in the calibration for Equation 14 is 0.08 dex. Henry et al. (1996) notes that the age relation yields ages such that in 15 of 22 binaries where it has been tested the ages differ by less than 0.5 Gyr. On the other hand, during the solar cycle the sun's age as calculated by the relation varies from 2.2 to 8.0 Gyr.

For all three of these values, R'_{HK}, P_{rot}, and age, the reader should keep in mind that the *mean* S value of a star is the dispositive quantity, and that many program stars have been observed only once or twice. Only for stars with many years of observation can we claim good knowledge of a mean value of S.

5.3. Tables of Measurements

We present two tables of S values here. Table 1 contains S_{diff} values from all of our Keck observations. The first three columns of these tables identify the star observed by HD number, Hipparcos number, and an "other" designation such as Gliese, HR, or SAO number. For some stars we have added binary component letters 'A' and 'B' to HD numbers of the brighter and fainter components, respectively, for uniqueness even when these qualifiers do not appear in the HD catalog. The fourth column specifies the Julian Date of the observation, and the fifth column lists the differential S value (on the absolute Mount Wilson scale, as described in § 4.3) for that observation. The final column contains alternate names for some stars and coordinates for stars for which only one catalog name is given.

Table 2 contains our median, final S value for each star in our sample, which we refer to as the "grand S". To remove the effects of highly uneven sampling of stars which vary in activity, we took the median S values in 30-day bins and used the median value of those medians. For simplicity, and to reduce the chance of breaking up observations taken within days of each other, these bins are not adjacent but are rather defined algorithmically such that some observation always lies an the beginning of a 30-day interval. For instance if observations occur on days 1, 25, 62, 63, 90, 91 and 99, then the bins would be from days 1 through 30, days 62 through 91, and days 99 through 128.

To calculate grand S values we use only Keck and Dewar 6 spectra, if possible. For stars with only (less precise) Dewar 8 data, those are used and so noted. We combined all Dewar 6 and Keck observations for each of our stars and calculated 30-day medians. The median of all of these 30-day S values we call the "grand S" value of the star, and the standard deviation of the differential S values is quoted as a fractional uncertainty, $\sigma_{S_{\rm diff}}/S$.

Table 2 contains 15 columns. The first three identify each star with the conventions described above for Table 1. The fourth and fifth columns list $B-V$ and M_V as reported by the Hipparcos catalog (Perryman et al. 1997) or, if unavailable, by SIMBAD. The sixth and seventh columns list the Julian dates of the first and last observations used in calculating the grand S value. The eighth column lists the total number of observations, and the ninth column lists the number of monthly bins used to calculate the grand S value. The tenth column contains the grand S value as described above. The eleventh column contains the fractional standard deviation of the differential S values for that star. Since the precision of $S_{\rm diff}$ is 1%, entries in this column near 1% represent stars with without significant detected activity variations.

The next three columns list the quantities derived from these measurements and target notes, $\log R'_{\rm HK}$, log (age/yr), and rotation period in days, as described in § 5.2. The final column contains target notes. The note “d8” refers to an entry based solely on Dewar 8 data, for which an the uncertainty of each measurement contributing to the grand S is around 10%. All other entries are based on Keck and Dewar 6 data which have per-measurement uncertainties of around 6%. Again, alternate names for stars are noted, and J2000 coordinates are given for stars with only one catalog name.

5.4. Target Notes

5.4.1. The Sun

Our sample contains 5 observations of the asteroid Vesta obtained in 1997, about one year after solar minimum. We include these at the top of Table 2 under the name “Sol”. The S value of 0.167 is consistent with solar minimum (Baliunas et al. 1995).

5.4.2. HD 531 A & B

The binary system of HD 531 consists of two stars of similar colors and magnitudes separated by 5 $''$. Since there seems to be confusion in SIMBAD regarding the properties of and nomenclature for these stars, we have deemed the eastern object HD 531B and the western one HD 531A, and we have not listed colors for these objects.

5.4.3. HR 3309

HR 3309 (= HD 71148), which appears as a boxed cross in Figure 2, has a grand S value of 0.17, which is highly discrepant from the mean Duncan et al. value of 1.57. The higher value is inconsistent with the Hipparcos $B-V$ value of 0.67 for this star. Soderblom (1985), in his analysis of the Mount Wilson S values, quotes a mean S value of 0.169, consistent with our value, and the Mount Wilson project archives confirm that the Duncan et al. value is a transcription error (S. Baliunas, private communication).

5.4.4. HD 137778

HD 137778 (= GJ 586B), which appears as a boxed asterisk in Figure 2, has a grand S value of 0.57, significantly higher than the mean Duncan et al. value of 0.16. Both values are plausible with its Hipparcos $B-V$ color of 0.87, but the higher value would imply a very young age. Strassmeier et al. (2000) report a "R_{HK}" value of 7×10^{-5} which apparently corresponds to the R'_{HK} values calculated here. Strassmeier's R_{HK} would imply $S = 0.875$ for this star, which is extremely high for a star of this color, and would imply extraordinary activity.

This star is in the ROSAT All-Sky Survey bright source catalog with a flux of $\sim 5\times10^{13}$ erg/cm^2/s. With a parallax of 48 mas, this corresponds to $L_{\mathrm{X}}/L_{\mathrm{Bol}} \sim 10^{-5}$, consistent with a very active, young star.

These discrepancies are puzzling, although it appears that most measurements imply significant activity. Perhaps this star has simply become significantly more active since the Mount Wilson data were taken. Observations by the Mount Wilson project between May 1995 and March 2001 give a mean S value of 0.64, much closer to the value reported here (S. Baliunas, private communication). The Strassmeier value may represent an extraordinary event or may be calibrated differently than values derived from S values.

5.4.5. HD 58830

Based upon its spectrum, HD 58830 (= GJ 9233), which appears as a boxed triangle in Figure 2, appears not to be a main-sequence star at all, but an F5-F8 giant, although SIMBAD lists it as a G0 star. Our S value of 0.20 is significantly different from the Duncan et al. value of 0.54. Observations by the Mount Wilson project between November 1997 and November 1998 give a mean S value of 0.21, consistent with our observations (S. Baliunas, private communication).

6. Conclusions

We have measured chromospheric activity as S values from over 15,000 archival spectra taken over the course of the California and Carnegie Planet Search Program. These spectra were taken with the HIRES spectrograph at Keck Observatory and the two detectors at the Hamilton spectrograph at Lick observatory and contain both precision velocity information and the Ca II H & K lines from which S values were derived.

Extraction of activity measurements from the Keck spectra was successful, with over 95% of all Keck spectra used yielding useful S values. The Lick spectra were more problematic: only $\sim 50\%$ of the spectra proved useful due to low signal to noise ratios and poor extraction in this very blue region by the automated extraction pipeline. Nonetheless, the 1400 good Lick measurements and the 14514 good Keck measurements combine to give a record of the chromospheric activity for over 1000 late-type main-sequence stars. Analysis of the measured activity level of τ Ceti demonstrates a typical per-observation random error of 6% at Keck and 6.5% and 10.5% for the two detectors at Lick.

We combined the Keck data with the good Lick data to create median S values in 30-day bins. We have generated "grand S" by taking the median of these monthly values. These grand S's represent median activity levels for our program stars for the periods we observed them. For stars with $0.5 < B - V < 0.9$, there are well-calibrated relationships between mean activity level, age, and rotation period, allowing the determination of those quantities for our stellar sample. We present our grand S values and derived ages and rotation periods in Table 2. We also have measured differential S values for each stars which are more precise. We present these data electronically as Table 1.

For each star, these measurements of activity, S and $R'_{\rm HK}$ represent median activity levels over the duration of the observations, which may be significantly shorter than a stellar activity cycle. This represents a source of error when deriving stellar properties such as age from these measurements.

The differential S values, $S_{\rm diff}$, measured here are much more precise than S but no more accurate: we scaled them to the median of the S values, so while they are excellent measurements of temporal variations in activity for a given star they contain no additional information regarding differences in the overall activity among stars.

We have also measured metallicities for many of these stars and in a future work (Wright

2004) will present an analysis of these same stars for stellar characteristics, chromospheric periodicities, and evolutionary status, including the effects of metallicity from Valenti & Fischer (2004) and Fischer & Valenti (2004).

The authors are indebted to Debra Fischer for her work with the Lick Observatory Planet Search, particularly in regards to gathering Ca II H & K data, and for donating her time and expertise regarding the Hamilton spectrograph and its data products.

The authors wish to recognize and acknowledge the very significant cultural role and reverence that the summit of Mauna Kea has always had within the indigenous Hawaiian community. We are most fortunate to have the opportunity to conduct observations from this mountain.

The authors also thank the many observers who helped gather the data herein, and the referee, Sallie Baliunas, for her insightful and constructive report.

This research has made use of the SIMBAD database, operated at CDS, Strasbourg, France.

This research has made use of NASA's Astrophysics Data System Bibliographic Services.

Table 1. S_{diff} for Planet Search Program stars

HD	HIP	Other	Date JD-2400000	S_{diff}	notes
		Sol	50667.07115	0.168	Vesta
		Sol	50667.07810	0.165	Vesta
		Sol	50667.08616	0.167	Vesta
		Sol	50667.09427	0.165	Vesta
		Sol	50667.10113	0.166	Vesta
225261	400	GJ 3003	50366.92005	0.176	
225261	400	GJ 3003	50667.02786	0.172	
225261	400	GJ 3003	50689.03329	0.177	
225261	400	GJ 3003	50716.03115	0.171	
225261	400	GJ 3003	51010.02209	0.170	
225261	400	GJ 3003	51071.00666	0.175	
225261	400	GJ 3003	51072.00845	0.170	
225261	400	GJ 3003	51072.91727	0.177	
225261	400	GJ 3003	51173.80237	0.173	
225261	400	GJ 3003	51368.01875	0.175	

Note. — [The complete version of this table is in the electronic edition of the Journal. The printed edition contains only a sample.]

Table 2. Measured and Derived Quantities for all Stars

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
		Sol	0.656	4.83	50667	50667	5	1	0.166	0.70	-4.96	25.	9.69	Vesta; See § 5.4
224983	184		0.888	5.85	52833	52833	1	1	0.177	···	-5.01	46.	9.76	
225261	400	GJ 3003	0.755	5.78	50367	52836	32	18	0.174	1.36	-4.96	36.	9.68	
	428	GJ 2F	1.472	9.65	51757	52829	16	10	1.788	9.44	···[1]	···[1]	···[1]	
225213	439	GJ 1	1.462	10.36	52601	52832	2	2	0.451	16.21	···[1]	···[1]	···[1]	
38 A	473	GJ 4A	1.440	8.66	51757	52829	12	9	1.647	4.28	···[1]	···[1]	···[1]	
38 B		GJ 4B	1.410	···	51757	52829	19	10	1.820	6.12	···[1]	···[1]	···[1]	
105	490	SAO 214961	0.595	4.49	52516	52833	7	3	0.337	2.92	-4.41	5.	8.63	
283	616	GJ 9003	0.798	6.14	50367	52807	17	14	0.179	2.14	-4.96	39.	9.68	
377	682	SAO 109027	0.626	4.59	51343	52836	27	14	0.377	1.46	-4.36	4.	8.38	
400	699	HR 17	0.504	3.61	51014	51014	1	1	0.166	···	-4.87	8.	9.55	
531 B	795		···	···	51343	52829	18	10	0.462	3.83	···	···	···	Eastern of pair; See § 5.4
531 A	795		···	···	51343	52829	18	9	0.435	2.93	···	···	···	Western of pair; See § 5.4
691	919		0.755	5.29	52515	52830	8	3	0.446	3.97	-4.38	8.	8.45	V344 And
984	1134	SAO 128650	0.521	4.00	51014	51014	1	1	0.307	···	-4.42	3.	8.69	
	1368	GJ 14	1.370	8.11	52097	52829	9	7	1.979	6.65	···[1]	···[1]	···[1]	
1388	1444	GJ 9008	0.599	4.42	50366	52601	45	20	0.155	1.33	-5.00	19.	9.75	
1326 A	1475	GJ 15A	1.560	10.33	50462	52829	24	17	0.606	12.04	···[1]	···[1]	···[1]	
1326 B		GJ 15B	1.800	···	51052	52829	6	5	1.191	14.91	···[1]	···[1]	···[1]	
1461	1499	HR 72	0.674	4.62	50367	52829	18	17	0.156	1.75	-5.03	29.	9.80	
	1734	GJ 1009	1.485	9.86	52832	52832	1	1	1.801	···	···[1]	···[1]	···[1]	
1815	1768	GJ 17.2	0.888	6.55	50367	50367	1	1	0.454	···	-4.51	17.	8.96	
1854		SAO 192490	0.610	···	50366	50984	12	6	0.172	1.69	-4.91	19.	9.60	
1835	1803	HR 88	0.659	4.84	50367	50367	1	1	0.342	···	-4.44	8.	8.78	BE Cet
1832	1813	SAO 73940	0.639	4.53	50806	52829	16	14	0.170	2.59	-4.93	22.	9.64	
2025	1936	GJ 18.0	0.940	6.64	50367	52807	14	13	0.348	5.28	···[1]	···[1]	···[1]	
2475	2237	HR 108	0.594	3.90	50367	50463	4	3	0.237	1.99	-4.64	10.	9.18	
2589	2422		0.883	3.20	52834	52836	3	1	0.127	1.64	-5.23	56.	10.07	
3074 A	2663	SAO 192609	0.617	3.62	50366	52829	15	13	0.154	3.02	-5.02	22.	9.78	
3079	2712	GJ 9016	0.549	4.01	51014	51174	5	2	0.152	0.81	-4.99	13.	9.73	
3141	2742		0.870	5.71	52833	52833	1	1	0.187	···	-4.97	44.	9.69	
3443	2941	HR 159	0.715	4.61	50367	50807	6	3	0.175	3.01	-4.94	31.	9.65	
		GJ 26	1.540	···	52102	52834	19	6	0.719	12.52	···[1]	···[1]	···[1]	LHS 119
3651	3093	HR 166	0.850	5.65	50367	52834	34	18	0.169	2.56	-5.02	45.	9.77	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\mathrm{diff}}}/S$ %	log R'_{HK}	$\mathrm{P_{rot}}$ (days)	log (Age/yr)	Note
3674	3119	SAO 92011	0.538	3.95	51014	51014	1	1	0.170	···	-4.88	11.	9.55	
3770	3169	SAO 128888	0.571	3.58	51014	51014	1	1	0.156	···	-4.98	16.	9.72	
3795	3185	HR 173	0.718	3.86	50366	52601	31	19	0.151	1.14	-5.07	35.	9.86	
3821	3203	GJ 9020A	0.620	4.96	51174	51174	1	1	0.303	···	-4.49	8.	8.92	
3765	3206	GJ 28	0.937	6.17	50462	52834	24	17	0.210	7.78	··· [1]	··· [1]	··· [1]	
3861	3236	SAO 109369	0.528	3.90	51014	52160	2	2	0.183	···	-4.80	9.	9.43	
4208	3479	GJ 9024	0.664	5.21	50367	52833	41	20	0.170	1.72	-4.95	26.	9.66	
4203	3502	SAO 74235	0.771	4.24	51757	52806	19	10	0.136	1.84	-5.18	45.	10.00	
4256	3535	GJ 31.4	0.983	6.32	50367	52830	29	16	0.261	9.54	··· [1]	··· [1]	··· [1]	
4271	3540	SAO 128932	0.537	3.94	51014	51014	1	1	0.163	···	-4.91	11.	9.61	
4307	3559	HR 203	0.603	3.63	50366	52830	38	16	0.143	2.03	-5.10	21.	9.89	18 Cet
4398	3607	HR 210	0.978	0.44	50367	50367	1	1	0.109	···	··· [1]	··· [1]	··· [1]	
4614 A	3821	HR 219	0.587	4.59	51171	51174	27	1	0.165	1.09	-4.93	17.	9.64	η Cas
4747	3850	GJ 36	0.769	5.78	50367	52573	24	17	0.248	4.10	-4.72	26.	9.31	
4635	3876		0.900	6.09	52834	52834	1	1	0.338	···	-4.67	28.	9.23	
4915	3979	SAO 128986	0.663	5.26	51174	51174	1	1	0.186	···	-4.86	23.	9.53	
4903	4005	SAO 54203	0.559	3.65	51174	52160	2	2	0.166	···	-4.91	13.	9.61	
4967	4022	GJ 40	1.290	8.04	50366	50366	2	1	1.026	1.41	··· [1]	··· [1]	··· [1]	
5035	4103		0.707	5.42	52833	52833	1	1	0.173	···	-4.94	30.	9.66	
5065	4127	SAO 54224	0.595	3.64	51014	52162	2	2	0.141	···	-5.11	20.	9.91	
5133	4148	GJ 42.0	0.936	6.41	51174	51174	1	1	0.407	···	··· [1]	··· [1]	··· [1]	
5372	4393	SAO 21850	0.667	4.47	50807	52835	20	15	0.189	2.38	-4.85	23.	9.51	
5470	4423	SAO 92167	0.631	4.20	52133	52602	14	6	0.154	1.75	-5.03	24.	9.80	
		GJ 47	···	···	51793	52834	7	4	1.025	3.63	···	···	···	LHS 1176
6101	4849	GJ 3071	1.008	6.50	51012	51070	3	2	0.500	4.31	··· [1]	··· [1]	··· [1]	
	4856	GJ 48	1.501	10.49	50667	52834	14	11	0.769	···	··· [1]	··· [1]	··· [1]	
	4872	GJ 49	1.463	9.55	50667	52834	17	13	2.495	7.33	··· [1]	··· [1]	··· [1]	
	5004	SAO 192901	0.764	6.31	51582	52833	9	9	0.177	2.20	-4.95	36.	9.67	
6558	5189	SAO 129121	0.606	3.86	52133	52833	10	6	0.155	2.80	-5.01	20.	9.76	
6611	5276	SAO 36943	0.541	3.74	51014	51014	1	1	0.157	···	-4.96	12.	9.68	
6660	5286	GJ 53.1A	1.122	6.83	50367	50367	1	1	0.773	···	··· [1]	··· [1]	··· [1]	
6734	5315		0.847	3.11	50367	52833	46	20	0.131	1.49	-5.20	53.	10.04	29 Cet
6715	5335		0.710	5.06	52833	52833	1	1	0.158	···	-5.03	33.	9.79	
	5476	SAO 22049	0.536	3.87	52096	52603	19	6	0.155	1.16	-4.97	12.	9.69	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
6872 A	5480	SAO 22050	0.470	3.69	52096	52834	12	7	0.163	1.86	-4.86	6.	9.53	
6963	5521	SAO 36995	0.730	5.52	52515	52834	7	3	0.290	0.79	-4.60	18.	9.12	
7047	5534	SAO 109718	0.568	4.24	51014	51014	1	1	0.162	···	-4.94	15.	9.65	
7228	5682	SAO 54518	0.551	3.50	51014	52162	2	2	0.146	···	-5.04	14.	9.81	
7438		GJ 54.2B	0.780	···	50367	50367	1	1	0.275	···	-4.67	24.	9.22	
7483	5881	SAO 54557	0.671	5.01	51793	52308	12	6	0.202	7.87	-4.80	22.	9.43	
7661	5938	SAO 147702	0.753	5.43	52515	52602	5	2	0.412	2.62	-4.42	9.	8.67	
7590	5944	SAO 37069	0.594	4.72	51174	51174	1	1	0.278	···	-4.53	7.	9.00	
7727	5985		0.563	4.16	51014	51229	4	2	0.162	0.16	-4.94	14.	9.65	40 Cet
7895	6130	GJ 56.3A	0.780	5.79	50367	50367	1	1	0.256	···	-4.71	26.	9.29	
8038	6197	SAO 166958	0.701	4.79	52095	52601	14	7	0.260	5.54	-4.64	18.	9.19	
	6276	SAO 147747	0.791	5.71	52515	52836	6	3	0.529	1.96	-4.32	6.	8.01	
	6339	SAO 54624	0.916	6.17	52833	52833	1	1	0.487	···	···[1]	···[1]	···[1]	
7924	6379	GJ 56.5	0.826	6.04	52188	52576	7	5	0.222	6.21	-4.83	35.	9.48	
8326	6390	GJ 3091A	0.970	6.29	50367	50367	1	1	0.367	···	···[1]	···[1]	···[1]	
8262	6405	SAO 92398	0.627	4.92	51014	52159	2	2	0.170	···	-4.93	21.	9.63	
8331	6442	SAO 92406	0.681	3.86	51014	51014	1	1	0.141	···	-5.14	33.	9.96	
8389	6456	GJ 57.1A	0.900	5.45	50367	52833	26	20	0.184	11.36	-5.00	46.	9.74	
8328	6498	SAO 37167	0.691	3.80	52097	52807	10	7	0.131	2.74	-5.23	37.	10.07	
8467	6575	SAO 54666	1.100	5.71	52515	52835	6	3	0.279	3.23	···[1]	···[1]	···[1]	
8553	6613		0.912	5.89	52833	52833	1	1	0.172	···	···[1]	···[1]	···[1]	
8574	6643	SAO 74702	0.577	3.90	51014	52834	11	8	0.144	0.81	-5.07	18.	9.86	
8648	6653	SAO 109878	0.675	4.40	50806	52833	31	17	0.153	0.97	-5.05	30.	9.82	
8673	6702	HR 410	0.500	3.43	51014	52159	2	2	0.200	···	-4.71	6.	9.29	
8765	6712	SAO 129296	0.707	3.76	52134	52574	11	5	0.185	2.28	-4.89	29.	9.57	
8941	6869	SAO 92453	0.526	3.10	51014	51014	1	1	0.195	···	-4.75	8.	9.34	
8907	6878	SAO 37248	0.505	3.99	52515	52835	6	3	0.268	1.59	-4.50	3.	8.94	
8997	6917	GJ 58.2	0.966	5.92	50367	50367	1	1	0.567	···	···[1]	···[1]	···[1]	
9070	6978	SAO 54737	0.710	4.78	52097	52836	10	7	0.195	4.36	-4.85	27.	9.51	
9280	7080	SAO 147853	0.760	4.22	51171	51174	6	1	0.145	0.87	-5.12	42.	9.92	
9224	7090	SAO 74767	0.622	4.15	51014	52162	2	2	0.168	···	-4.93	20.	9.64	
9312	7143	SAO 92492	0.929	2.95	52101	52101	1	1	0.267	···	···[1]	···[1]	···[1]	
9331	7221	SAO 22381	0.710	4.87	51883	52602	11	6	0.151	2.41	-5.07	34.	9.85	
9540	7235	GJ 59	0.766	5.52	50366	52833	11	6	0.300	10.78	-4.60	20.	9.13	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$\rm P_{rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
9472	7244	SAO 74789	0.666	5.02	52515	52836	7	3	0.308	3.02	-4.51	10.	8.97	
9562	7276	HR 448	0.639	3.39	50367	52833	21	17	0.135	1.51	-5.19	28.	10.01	
9407	7339	GJ 59.1	0.686	4.91	50807	52835	13	12	0.160	1.35	-5.01	30.	9.76	
9770	7372		0.909	5.24	51043	51070	3	1	0.508	13.41	··· [1]	··· [1]	··· [1]	BB Scl
9518		SAO 11842	0.480	···	52097	52834	11	7	0.132	2.12	-5.12	8.	9.92	
		SAO 11844	0.490	···	52128	52834	12	6	0.146	3.07	-5.00	8.	9.74	BD +60 271
9826	7513	HR 458	0.536	3.45	52112	52282	48	6	0.146	···	-5.04	12.	9.80	υ And
10002	7539	GJ 62	0.830	5.51	50463	52832	18	14	0.161	1.66	-5.04	45.	9.81	
9939	7564	SAO 74830	0.900	3.87	52101	52101	1	1	0.201	···	-4.94	44.	9.66	
9986	7585	SAO 92543	0.648	4.72	50806	52601	19	14	0.175	3.12	-4.91	23.	9.60	
10126	7733	SAO 74857	0.733	5.08	51174	51174	1	1	0.168	···	-4.98	34.	9.71	
10086	7734	GJ 65.1	0.690	4.95	51014	52161	2	2	0.275	···	-4.60	15.	9.12	
10145	7902	GJ 9059	0.691	4.88	50462	52834	23	15	0.160	1.66	-5.01	30.	9.76	
10476	7981	HR 493	0.836	5.87	50276	52835	268	25	0.186	3.42	-4.95	41.	9.66	
10486	8044	HR 495	1.020	2.61	52101	52101	1	1	0.201	···	··· [1]	··· [1]	··· [1]	
	8051	GJ 70	1.525	10.67	52134	52833	5	5	1.265	20.74	··· [1]	··· [1]	··· [1]	
10436	8070	GJ 69	1.202	7.78	51369	52834	13	9	0.869	5.34	··· [1]	··· [1]	··· [1]	
10700	8102	HR 509	0.727	5.68	51755	52836	394	15	0.168	1.35	-4.98	33.	9.71	τ Cet
10697	8159	HR 508	0.720	3.71	50367	52835	57	25	0.149	2.53	-5.08	36.	9.87	109 Psc
10853	8275	GJ 74	1.044	7.10	50367	50367	1	1	0.762	···	··· [1]	··· [1]	··· [1]	
11020	8346	GJ 76	0.795	6.04	50687	52573	14	11	0.169	2.05	-5.00	40.	9.74	
10780	8362	HR 511	0.804	5.64	51174	51174	1	1	0.271	···	-4.69	27.	9.27	
11226	8548	SAO 129526	0.569	3.90	51014	51174	5	2	0.150	0.51	-5.02	16.	9.79	
11507	8768	GJ 79	1.424	8.67	50463	51582	2	2	1.846	6.91	··· [1]	··· [1]	··· [1]	
11505	8798	SAO 129551	0.635	4.55	51014	51014	1	1	0.155	···	-5.02	24.	9.78	
11373	8867		1.010	6.74	52834	52834	1	1	0.576	···	··· [1]	··· [1]	··· [1]	
11833	9035	SAO 110238	0.590	3.25	52129	52189	5	2	0.163	···	-4.94	17.	9.66	
11850	9073	SAO 75038	0.711	5.24	52515	52835	7	3	0.339	3.36	-4.49	11.	8.91	
11964 A	9094	GJ 81.1A	0.817	3.76	50366	52836	33	21	0.138	1.66	-5.16	49.	9.98	
12051	9269	GJ 82.1	0.773	5.19	50419	52836	22	16	0.157	1.76	-5.05	40.	9.82	
12235	9353	HR 582	0.610	3.43	50367	51014	8	5	0.152	2.34	-5.03	21.	9.79	ZI 106
12328	9406	SAO 129630	0.960	3.14	52101	52101	1	1	0.133	···	··· [1]	··· [1]	··· [1]	
		GJ 3126	1.540	···	52133	52574	3	3	1.108	5.40	··· [1]	··· [1]	··· [1]	G 244-47
12414	9473	SAO 110286	0.510	3.72	50840	50840	1	1	0.157	···	-4.93	9.	9.64	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$P_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
12661	9683	SAO 75125	0.710	4.58	50840	52836	52	16	0.150	1.44	-5.08	35.	9.87	
12786	9716	GJ 3133	0.832	5.75	50367	50367	1	1	0.541	···	-4.36	8.	8.32	
	9724	GJ 84	1.514	10.32	50840	52489	9	8	1.230	11.55	··· [1]	··· [1]	··· [1]	
12846	9829	SAO 75144	0.662	5.06	51174	52652	20	8	0.163	1.07	-4.98	26.	9.71	
13043	9911	GJ 9073A	0.624	4.04	50367	52830	57	21	0.150	1.56	-5.05	23.	9.83	
13357 A	10175	SAO 92824	···	···	52308	52652	6	5	0.218	1.68	···	···	···	
13357 B	10175		···	···	52308	52652	6	5	0.282	4.19	···	···	···	BD +13 343B
13382	10218	SAO 75191	0.980	4.66	52516	52835	7	3	0.324	3.37	··· [1]	··· [1]	··· [1]	
	10279	GJ 87	1.431	9.96	51410	52574	10	8	0.544	13.08	··· [1]	··· [1]	··· [1]	
13612 B	10303	GJ 87.1B	0.716	2.09	50367	52601	22	17	0.162	2.56	-5.00	33.	9.75	
13507	10321	SAO 37865	0.672	5.10	50840	51229	8	3	0.319	1.74	-4.49	10.	8.93	
13531	10339	SAO 37868	0.700	5.31	50840	50840	1	1	0.390	···	-4.40	7.	8.59	
	10449	SAO 129772	0.582	5.12	51411	52574	18	9	0.163	1.73	-4.94	16.	9.65	
13945	10492	SAO 167658	0.737	4.88	52129	52308	7	4	0.225	4.18	-4.76	26.	9.37	
13825	10505	SAO 75231	0.690	4.69	50840	50840	1	1	0.169	···	-4.96	29.	9.68	
13836	10510		0.705	5.27	52836	52836	1	1	0.290	···	-4.58	15.	9.09	
13579	10531	GJ 90	0.920	5.27	51174	51174	1	1	0.377	···	··· [1]	··· [1]	··· [1]	
14001	10542	GJ 91.2	1.033	6.20	50419	50419	1	1	0.528	···	··· [1]	··· [1]	··· [1]	
13997	10599	SAO 92865	0.790	5.33	52133	52832	16	6	0.160	2.54	-5.04	41.	9.81	
13931	10626	SAO 37918	0.642	4.32	50807	52836	17	14	0.154	1.00	-5.03	25.	9.80	
13974	10644	HR 660	0.607	4.66	52516	52538	4	1	0.217	0.41	-4.71	13.	9.29	8 Tri
14082 B	10679	SAO 75264	0.622	5.09	50840	50840	1	1	0.370	···	-4.37	4.	8.43	
14082 A	10680	SAO 75265	0.518	4.01	50840	50840	1	1	0.309	···	-4.41	3.	8.67	
14412	10798	HR 683	0.724	5.81	50366	52574	23	18	0.195	5.12	-4.85	29.	9.52	
14651	11028		0.720	5.27	52836	52836	1	1	0.154	···	-5.05	35.	9.82	
	11048	GJ 96	1.466	9.02	51582	52603	17	6	1.791	8.93	··· [1]	··· [1]	··· [1]	
14802	11072	HR 695	0.608	3.48	50462	51171	9	6	0.149	4.92	-5.05	21.	9.83	κ For
15335	11548	HR 720	0.591	3.45	50367	52603	17	13	0.142	1.61	-5.10	20.	9.89	13 Tri
15468	11565	GJ 100	1.120	7.40	50462	50462	1	1	0.883	···	··· [1]	··· [1]	··· [1]	
15814	11843	HR 741	0.572	3.71	50367	50715	3	2	0.181	6.76	-4.83	13.	9.48	29 Ari
16141	12048		0.670	4.05	50366	52835	70	23	0.145	1.44	-5.11	31.	9.91	79 Cet
16270	12110	GJ 1048	1.069	6.70	50366	50366	1	1	0.876	···	··· [1]	··· [1]	··· [1]	
16160	12114	HR 753	0.918	6.50	50367	50367	1	1	0.266	···	··· [1]	··· [1]	··· [1]	
		GJ 105B	1.620	···	52830	52830	1	1	0.727	···	··· [1]	··· [1]	··· [1]	BX Cet

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End JD-2400000	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$\rm P_{rot}$ (days)	log (Age/yr)	Note
16287	12158	GJ 9087	0.944	6.17	51012	52576	10	8	0.659	4.78	⋯ [1]	⋯ [1]	⋯ [1]	
16275	12198	SAO 93028	0.665	4.30	52134	52603	16	5	0.163	2.10	-4.98	27.	9.72	
16397	12306	GJ 9089	0.583	4.59	50462	52575	12	10	0.161	1.15	-4.96	16.	9.68	
16548	12350	SAO 130036	0.702	3.36	52101	52101	1	1	0.137	⋯	-5.17	37.	10.00	
16623	12364	GJ 105.3	0.601	4.67	50689	52575	16	12	0.156	1.94	-5.00	19.	9.74	
16909	12709	GJ 106	1.074	6.89	50367	50367	1	1	0.890	⋯	⋯ [1]	⋯ [1]	⋯ [1]	
17037	12764	SAO 130084	0.534	3.85	50839	52239	17	11	0.157	1.55	-4.95	11.	9.67	
16895	12777	HR 799	0.514	3.85	52161	52219	2	2	0.152	⋯	-4.97	10.	9.70	
16895	12777	GJ 107	⋯	9.36	52238	52652	4	4	1.604	10.54	⋯	⋯	⋯	
	12781	GJ 109	1.530	11.18	51410	52576	11	8	0.886	9.31	⋯ [1]	⋯ [1]	⋯ [1]	
17152	12797	SAO 168014	0.772	5.17	52129	52237	5	3	0.158	1.75	-5.04	40.	9.81	
17190	12926	GJ 112.0	0.840	5.84	50367	52835	24	15	0.210	5.96	-4.87	38.	9.55	
17230	12929	GJ 112.1	1.269	7.58	50367	51174	2	2	0.915	5.46	⋯ [1]	⋯ [1]	⋯ [1]	
17332 A	13027	SAO 93105	0.680	4.33	51411	51900	10	4	0.387	2.87	-4.39	6.	8.53	
17382	13081	GJ 113.0	0.820	5.81	50367	50367	1	1	0.439	⋯	-4.45	12.	8.79	
17433	13118		0.956	3.72	52101	52101	1	1	1.951	⋯	⋯ [1]	⋯ [1]	⋯ [1]	VY Ari
17660	13258	GJ 114	1.194	7.12	51227	52575	14	10	1.014	5.64	⋯ [1]	⋯ [1]	⋯ [1]	
18144	13601	SAO 93185	0.749	5.33	51174	51174	1	1	0.203	⋯	-4.84	31.	9.49	
18143	13642	GJ 118.2A	0.953	5.72	50367	52835	25	16	0.188	10.34	⋯ [1]	⋯ [1]	⋯ [1]	
18262	13679	HR 870	0.478	2.73	52652	52652	1	1	0.140	⋯	-5.04	7.	9.80	
18445	13769	GJ 120.1C	0.960	5.79	51043	52652	18	12	0.415	6.20	⋯ [1]	⋯ [1]	⋯ [1]	
18632	13976	SAO 110894	0.926	6.12	51012	52601	15	10	0.616	5.09	⋯ [1]	⋯ [1]	⋯ [1]	
18907	14086	HR 914	0.794	3.47	51171	51173	5	1	0.143	0.78	-5.13	45.	9.94	ϵ For
18803	14150		0.696	4.99	50367	52834	34	18	0.185	5.10	-4.88	27.	9.56	51 Ari
18940	14230	SAO 75711	0.624	4.45	52516	52516	1	1	0.258	⋯	-4.60	11.	9.12	
19034	14241	GJ 121.2	0.677	5.34	50366	52835	28	16	0.180	1.83	-4.90	26.	9.59	
19019	14258	SAO 110937	0.520	4.27	52516	52602	5	2	0.211	2.72	-4.68	7.	9.24	
19467	14501	GJ 3200	0.645	4.48	50366	52835	28	18	0.156	1.30	-5.02	25.	9.78	
19308	14532	SAO 56178	0.672	4.21	50839	52575	12	9	0.156	2.63	-5.03	29.	9.79	
19632	14623	SAO 168331	0.678	4.89	52516	52516	1	1	0.319	⋯	-4.50	10.	8.94	
19373	14632	HR 937	0.595	3.94	52188	52575	9	5	0.153	1.12	-5.02	19.	9.77	ι Per
19668	14684	SAO 130311	0.790	5.43	52516	52602	5	2	0.476	1.31	-4.38	8.	8.45	
19994	14954	HR 962	0.575	3.32	52202	52517	12	4	0.173	0.69	-4.88	14.	9.55	94 Cet
19902	14976	SAO 56256	0.732	5.03	51074	51074	1	1	0.286	⋯	-4.60	18.	9.13	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
20165	15099	GJ 9112	0.861	6.09	50366	52603	17	13	0.221	6.35	-4.86	38.	9.52	
20367	15323	SAO 56323	0.574	4.23	50839	50840	2	1	0.282	0.53	-4.50	6.	8.95	
20619	15442	GJ 135	0.655	5.09	50366	52601	21	13	0.193	4.55	-4.83	21.	9.48	
20727	15572	GJ 138.1A	0.690	4.93	50367	50367	1	1	0.164	⋯	-4.99	30.	9.73	
20675	15669	HR 1001	0.468	2.64	51899	52652	52	10	0.178	1.62	-4.78	5.	9.40	
21019	15776	HR 1024	0.702	3.36	50366	52601	19	13	0.147	1.11	-5.10	34.	9.90	
	15904		0.571	6.27	51411	52575	13	9	0.154	2.23	-4.99	16.	9.73	BD +11 468
21197	15919	GJ 141.0	1.153	6.96	50366	52601	17	10	0.743	9.81	⋯ [1]	⋯ [1]	⋯ [1]	
21313	16107	SAO 56465	0.623	3.92	51793	52601	16	6	0.145	1.39	-5.09	24.	9.89	
21531	16134	GJ 142	1.337	7.89	50463	50463	1	1	1.606	⋯	⋯ [1]	⋯ [1]	⋯ [1]	
21774	16405	SAO 75971	0.680	4.59	52133	52576	9	5	0.150	1.60	-5.07	31.	9.86	
	16404		0.667	6.14	51171	52653	12	9	0.127	2.43	-5.27	35.	10.12	BD +66 268
21847	16517	SAO 56530	0.503	3.84	50839	52575	15	10	0.226	2.12	-4.62	5.	9.15	
22049	16537	HR 1084	0.881	6.18	52142	52543	13	4	0.447	⋯	-4.51	17.	8.95	ϵ Eri
21962	16538	SAO 93484	0.503	3.33	50839	50840	2	1	0.189	0.05	-4.76	7.	9.36	
22072	16641	HR 1085	0.891	3.00	50420	52833	16	11	0.132	1.45	-5.20	55.	10.03	
22282	16727	SAO 130589	0.789	5.02	52134	52652	15	7	0.169	2.28	-4.99	40.	9.73	
22484	16852	HR 1101	0.575	3.60	52146	52229	4	2	0.139	⋯	-5.12	18.	9.92	10 Tau
22713	17027	HR 1111	0.921	3.24	52652	52652	1	1	0.142	⋯	⋯ [1]	⋯ [1]	⋯ [1]	21 Eri
22879	17147	GJ 147.1	0.554	4.75	50366	52603	16	14	0.163	1.19	-4.92	13.	9.62	
22918	17183	GJ 3244	0.954	3.70	52652	52652	1	1	0.145	⋯	⋯ [1]	⋯ [1]	⋯ [1]	
23249	17378	HR 1136	0.915	3.74	50463	52602	20	14	0.136	1.59	⋯ [1]	⋯ [1]	⋯ [1]	δ Eri
23356	17420	SAO 149134	0.927	6.36	51043	52536	12	9	0.345	6.25	⋯ [1]	⋯ [1]	⋯ [1]	
23588	17544	GJ 154.1	1.012	6.52	50420	50420	1	1	0.581	⋯	⋯ [1]	⋯ [1]	⋯ [1]	
23439	17666	GJ 1064A	0.750	6.23	50463	52603	17	14	0.178	1.06	-4.94	34.	9.65	
23596	17747	SAO 39110	0.634	3.67	51901	51901	1	1	0.150	⋯	-5.06	25.	9.84	
		TYC 65- 1471-1	1.100	⋯	52516	52575	2	2	0.735	0.89	⋯ [1]	⋯ [1]	⋯ [1]	03:48:58.70 +01:10:53.9
24040	17960	SAO 93630	0.653	4.16	50839	52576	14	10	0.147	1.85	-5.09	28.	9.88	
24213	18106	SAO 76286	0.583	3.79	50839	52652	14	10	0.148	1.92	-5.05	18.	9.82	
24365	18208	GJ 3254	0.840	2.66	50463	52603	14	11	0.136	1.33	-5.17	51.	9.99	
24496	18267	GJ 3255	0.719	5.23	50839	52576	15	11	0.192	5.06	-4.87	29.	9.53	
	18280	GJ 156	1.366	8.10	50462	52576	18	12	1.158	8.50	⋯ [1]	⋯ [1]	⋯ [1]	
24341	18309	SAO 24291	0.683	3.80	50463	52652	15	12	0.153	1.56	-5.05	31.	9.83	
24238	18324	GJ 155.2	0.831	6.20	50463	52652	20	14	0.176	0.91	-4.98	42.	9.72	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
					JD-2400000									
24727	18388	SAO 130824	0.500	3.62	50839	52576	13	10	0.147	1.87	-5.00	9.	9.74	
24892	18432	GJ 3258	0.748	3.94	50366	52601	29	18	0.148	1.48	-5.09	39.	9.89	
24916	18512	GJ 157A	1.115	7.08	50366	52576	13	10	0.947	3.02	··· [1]	··· [1]	··· [1]	
25069	18606	HR 1232	1.001	2.65	50366	52308	19	13	0.122	1.38	··· [1]	··· [1]	··· [1]	
24451	18774	GJ 156.2	1.132	7.18	51227	52575	12	7	0.925	7.56	··· [1]	··· [1]	··· [1]	
25535	18824	SAO 194709	0.628	3.14	50366	50806	3	2	0.150	1.53	-5.05	24.	9.83	
25457	18859	HR 1249	0.500	3.96	52516	52602	5	2	0.317	1.24	-4.39	2.0	8.54	
25329	18915	GJ 158	0.863	7.18	50463	52601	13	11	0.193	5.37	-4.94	42.	9.66	
25682	19024	GJ 9142	0.769	5.01	52133	52574	10	5	0.163	1.11	-5.01	39.	9.77	
25790	19070	SAO 130932	0.752	3.00	52652	52652	1	1	0.179	···	-4.93	34.	9.64	
281540	19143		0.964	7.21	51412	52602	11	7	0.273	6.17	··· [1]	··· [1]	··· [1]	
25825	19148	SAO 93760	0.593	4.50	52133	52602	13	5	0.297	2.72	-4.48	6.	8.90	
	19165	GJ 160.2	1.206	7.84	52601	52601	1	1	0.596	···	··· [1]	··· [1]	··· [1]	
26151	19232	SAO 169142	0.832	5.18	51171	52601	11	9	0.186	7.24	-4.95	41.	9.66	
25918	19301	SAO 39329	0.725	5.32	51584	51584	1	1	0.170	···	-4.97	33.	9.69	
25665	19422	GJ 161	0.952	6.37	51174	51174	1	1	0.284	···	··· [1]	··· [1]	··· [1]	
26161	19428	SAO 57026	0.550	3.88	50839	52537	12	8	0.147	1.34	-5.03	14.	9.80	
26767	19786	SAO 93830	0.640	4.78	51411	51975	9	5	0.314	3.68	-4.48	8.	8.90	
26794	19788	GJ 165.2	0.943	6.17	50420	52602	17	13	0.208	6.36	··· [1]	··· [1]	··· [1]	
26965	19849	HR 1325	0.820	5.92	52236	52602	7	4	0.196	2.80	-4.90	38.	9.60	DY Eri
26990	19911	SAO 111707	0.661	4.79	52516	52602	6	2	0.247	0.68	-4.65	16.	9.20	
27466	20218	SAO 131119	0.650	5.05	52516	52602	5	2	0.250	3.43	-4.64	14.	9.18	
28187	20638	SAO 195001	0.629	4.69	50366	52601	15	12	0.162	1.58	-4.97	22.	9.71	
28005	20800	SAO 39540	0.711	4.35	50839	52652	21	12	0.151	1.78	-5.07	35.	9.85	
28388	20802	SAO 169470	0.752	2.76	50366	51171	8	6	0.156	1.56	-5.05	38.	9.82	
28237	20826		0.560	4.12	52516	52603	5	2	0.290	1.53	-4.48	5.	8.88	
28344	20899		0.609	4.45	51411	51584	7	3	0.314	4.38	-4.46	6.	8.84	V920 Tau
28343	20917	GJ 169	1.363	8.00	51227	52602	12	7	1.534	11.31	··· [1]	··· [1]	··· [1]	
28447	21010	SAO 76634	0.722	3.52	52652	52652	1	1	0.142	···	-5.14	38.	9.95	
28676	21158	SAO 76645	0.641	4.12	51174	51174	1	1	0.155	···	-5.03	25.	9.79	
28946	21272	GJ 9158	0.779	5.78	51174	51174	1	1	0.235	···	-4.76	29.	9.37	
28495	21276		0.759	5.55	52537	52603	6	2	0.478	1.28	-4.34	6.	8.20	
237287	21433	GJ 171	0.902	5.99	50463	50463	1	1	0.159	···	··· [1]	··· [1]	··· [1]	
29150	21436	SAO 76668	0.685	4.94	51174	51174	1	1	0.180	···	-4.90	27.	9.59	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
232979	21553	GJ 172	1.423	8.58	51544	52603	9	6	1.705	4.38	⋯[1]	⋯[1]	⋯[1]	
	21556	GJ 173	1.505	10.12	51581	52516	8	5	0.677	5.38	⋯[1]	⋯[1]	⋯[1]	
29461	21654	SAO 94049	0.655	4.55	51411	52601	15	8	0.284	1.73	-4.55	12.	9.05	
29528	21703	SAO 94057	0.830	5.16	51793	52601	13	6	0.155	2.01	-5.07	46.	9.86	
29587	21832	SAO 39690	0.633	5.03	50463	51073	5	4	0.186	2.69	-4.85	20.	9.51	
29836	21923	SAO 94078	0.677	3.95	51901	51901	1	1	0.142	⋯	-5.13	32.	9.94	
285968	21932	GJ 176	1.523	10.08	50840	52575	18	12	1.367	8.40	⋯[1]	⋯[1]	⋯[1]	
29883	21988	GJ 176.2	0.907	6.25	51174	51174	1	1	0.215	⋯	⋯[1]	⋯[1]	⋯[1]	
30495	22263	HR 1532	0.632	4.87	51975	51975	1	1	0.259	⋯	-4.60	12.	9.12	58 Eri
30508	22319	SAO 112091	0.846	3.12	52652	52652	1	1	0.151	⋯	-5.10	48.	9.89	
30562	22336	HR 1536	0.631	3.65	51584	51584	3	1	0.152	0.60	-5.04	24.	9.81	
30339	22429	SAO 24853	0.611	3.88	51793	52603	14	6	0.151	1.93	-5.04	21.	9.81	
30652	22449	HR 1543	0.484	3.67	52280	52280	2	1	0.214	⋯	-4.65	4.	9.19	ZI 311
30708	22576	SAO 57460	0.717	4.20	50839	52652	12	9	0.153	1.54	-5.06	35.	9.83	
30649	22596	GJ 9168	0.586	4.56	50463	52537	18	12	0.162	1.18	-4.95	17.	9.67	
30825	22633	SAO 57468	0.875	2.91	52652	52652	1	1	0.134	⋯	-5.19	54.	10.02	
30973	22715	GJ 2035	1.019	6.63	50420	50420	2	1	0.642	0.52	⋯[1]	⋯[1]	⋯[1]	
	22762	GJ 180	1.547	10.44	52220	52603	3	3	0.687	25.48	⋯[1]	⋯[1]	⋯[1]	
31253	22826	SAO 94193	0.583	3.48	50839	52576	22	14	0.141	1.66	-5.11	19.	9.91	
31560	22907	GJ 2037	1.072	6.86	50366	52603	10	9	0.537	11.21	⋯[1]	⋯[1]	⋯[1]	
31412	22919	GJ 9169	0.561	4.24	50839	52536	16	11	0.173	2.21	-4.87	13.	9.54	
31966	23286	GJ 182.1	0.673	4.02	50839	52654	17	12	0.141	1.56	-5.14	32.	9.95	
32450	23452	GJ 185A	1.430	8.66	50840	51073	3	2	1.400	3.06	⋯[1]	⋯[1]	⋯[1]	
32387	23550	GJ 3324	0.810	2.95	50366	51072	5	4	0.140	1.07	-5.15	47.	9.96	
32850	23786	GJ 3330	0.804	5.84	50366	52536	4	4	0.317	3.26	-4.60	21.	9.13	
32923	23835	HR 1656	0.657	3.91	51174	51174	1	1	0.155	⋯	-5.03	27.	9.79	104 Tau
33021	23852	HR 1662	0.625	3.89	50366	52603	19	15	0.145	1.33	-5.10	24.	9.89	13 Ori
32963	23884	SAO 76970	0.664	4.87	50806	52602	11	10	0.156	1.12	-5.02	28.	9.78	
	23932	GJ 190	1.520	10.43	51552	51900	4	3	0.965	6.27	⋯[1]	⋯[1]	⋯[1]	
33555	24130	HR 1685	0.984	2.82	52652	52652	1	1	0.123	⋯	⋯[1]	⋯[1]	⋯[1]	
33793	24186		1.543	10.89	51171	52713	6	6	0.325	4.98	⋯[1]	⋯[1]	⋯[1]	VZ Pic
33636	24205	SAO 112506	0.588	4.71	50839	52603	25	13	0.180	2.32	-4.85	15.	9.51	
33632	24332	SAO 57754	0.542	4.41	50840	51230	6	2	0.171	3.96	-4.87	11.	9.54	
34101	24419	GJ 193	0.719	4.94	50366	52308	8	7	0.169	2.59	-4.97	32.	9.70	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
34445	24681	SAO 112601	0.661	4.04	50839	52652	21	13	0.154	2.04	-5.04	28.	9.80	
34721	24786	HR 1747	0.572	3.98	50366	52601	18	14	0.149	1.45	-5.03	16.	9.79	
34411	24813	HR 1729	0.630	4.18	51898	52713	9	6	0.151	1.25	-5.05	24.	9.83	λ Aur
34579 A	24820	HR 1741	1.020	0.51	50366	50366	1	1	0.111	⋯	⋯[1]	⋯[1]	⋯[1]	
34745	24864	SAO 112633	0.531	4.13	50839	52713	15	11	0.155	1.10	-4.96	11.	9.69	
34865	24874	GJ 3346	1.003	6.79	50420	50420	1	1	0.668	⋯	⋯[1]	⋯[1]	⋯[1]	
34575	25094	SAO 25144	0.750	4.75	51544	52601	11	7	0.147	1.58	-5.10	40.	9.90	
35627	25388	SAO 132095	0.572	3.67	50839	52652	12	9	0.145	0.90	-5.07	17.	9.85	
35850	25486		0.553	4.16	52536	52603	5	2	0.445	1.89	-4.22	1.1	< 7	
35974	25490	SAO 195865	0.600	3.34	50419	52601	12	11	0.147	1.74	-5.06	20.	9.84	
35681	25580	SAO 58065	0.510	3.76	50840	51230	5	2	0.183	1.05	-4.79	7.	9.41	
36003	25623	GJ 204	1.113	7.08	50367	52713	17	13	0.367	12.69	⋯[1]	⋯[1]	⋯[1]	
35956	25662	GJ 3347A	0.582	4.40	50366	52188	15	12	0.162	2.10	-4.95	16.	9.66	
36308	25873	SAO 94610	0.814	5.64	51544	52713	9	6	0.442	3.77	-4.44	12.	8.76	
36395	25878		1.474	9.19	50420	52713	18	14	2.173	4.99	⋯[1]	⋯[1]	⋯[1]	WR 69
37213	26273	SAO 170581	0.707	3.60	50420	52713	23	14	0.150	1.18	-5.08	34.	9.86	
245409	26335	GJ 208	1.415	8.50	50420	52575	19	12	3.297	4.63	⋯[1]	⋯[1]	⋯[1]	
37124	26381	GJ 209	0.667	5.07	50420	52602	38	17	0.179	2.48	-4.90	25.	9.59	
37484	26453		0.404	3.39	52538	52713	6	3	0.252	0.89	⋯[1]	⋯[1]	⋯[1]	
37008	26505	GJ 3358	0.834	6.18	51174	51174	1	1	0.181	⋯	-4.96	42.	9.69	
37216	26653	SAO 25310	0.764	5.63	52536	52603	6	3	0.358	1.34	-4.50	14.	8.94	
37588	26689	SAO 94743	0.524	3.61	50840	50840	1	1	0.154	⋯	-4.97	11.	9.70	
37962	26737	SAO 196074	0.648	5.01	50367	52603	14	11	0.208	1.87	-4.77	19.	9.38	
233153	26801	GJ 212	1.473	9.30	51581	52603	8	6	2.543	11.57	⋯[1]	⋯[1]	⋯[1]	
38207		SAO 170732	0.360	⋯	52538	52575	3	2	0.239	1.43	⋯[1]	⋯[1]	⋯[1]	
38392		HR 1982	0.940	⋯	52236	52603	6	3	0.533	3.98	⋯[1]	⋯[1]	⋯[1]	γ Lep B
38230	27207	GJ 217	0.833	5.77	50420	52713	20	14	0.173	2.96	-4.99	43.	9.74	
37006	27225	SAO 5630	0.722	5.45	52536	52713	6	4	0.393	2.69	-4.41	8.	8.66	
38529	27253	HR 1988	0.773	2.81	50419	52603	49	19	0.174	6.92	-4.96	37.	9.69	
38949	27417	SAO 170859	0.566	4.65	52538	52713	6	3	0.263	2.05	-4.55	7.	9.03	
38858	27435	HR 2007	0.639	5.01	50419	52538	18	13	0.168	0.84	-4.95	23.	9.66	
39156	27641	SAO 94924	0.828	3.14	52652	52652	1	1	0.135	⋯	-5.18	50.	10.01	
39715	27918	GJ 223	1.014	6.71	50420	51174	3	2	0.442	2.78	⋯[1]	⋯[1]	⋯[1]	
39881	28066	HR 2067	0.650	4.36	50366	52601	22	14	0.154	1.35	-5.04	26.	9.80	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
40397	28267	GJ 3377C	0.720	5.16	50839	52652	13	10	0.166	1.34	-4.98	33.	9.72	
40650	28634	SAO 40802	0.567	4.22	50840	50840	1	1	0.160	···	-4.95	15.	9.67	
41700	28764		0.517	4.22	52574	52602	4	1	0.291	0.93	-4.45	3.	8.81	
40979	28767	SAO 40830	0.573	4.13	50840	52713	25	8	0.234	2.52	-4.63	9.	9.17	
40647	28902		0.783	5.77	52537	52713	6	3	0.384	3.90	-4.48	13.	8.90	
41593	28954		0.814	5.81	50839	50840	2	1	0.490	0.33	-4.39	9.	8.51	V1386 Ori
	29277	GJ 226	1.514	10.62	52008	52220	2	2	0.876	17.56	··· [1]	··· [1]	··· [1]	
42581	29295	GJ 229	1.487	9.34	50547	52603	17	13	1.675	8.08	··· [1]	··· [1]	··· [1]	
42618	29432	GJ 3387	0.642	5.03	50366	52654	22	14	0.168	2.51	-4.94	23.	9.66	
43162	29568	HR 2225	0.713	5.26	50366	50366	1	1	0.400	···	-4.40	8.	8.57	
43042	29650	HR 2220	0.430	3.58	52535	52607	12	2	0.171	···	··· [1]	··· [1]	··· [1]	71 Ori; d8: higher rand. err
42250	29761	GJ 9205	0.776	5.38	50462	52713	18	15	0.163	1.79	-5.02	39.	9.77	
43745	29843	HR 2254	0.576	3.04	50366	52603	19	13	0.137	1.24	-5.14	19.	9.96	
43587	29860	HR 2251	0.610	4.27	50366	52004	15	11	0.156	1.02	-5.00	20.	9.75	ZI 520
43523	30023	SAO 41016	0.561	4.31	50840	50840	1	1	0.214	···	-4.69	9.	9.26	
43947	30067	SAO 95538	0.562	4.41	50839	52652	13	10	0.159	1.22	-4.95	14.	9.67	
44420	30243	SAO 133153	0.686	4.56	51544	52603	11	7	0.157	2.11	-5.03	30.	9.79	
45184	30503	HR 2318	0.626	4.65	50366	52574	19	14	0.167	2.66	-4.95	21.	9.66	
45067	30545	HR 2313	0.564	3.28	50419	52603	21	14	0.140	1.45	-5.10	16.	9.90	
44985	30552	SAO 95656	0.593	4.42	50839	52652	14	10	0.159	2.06	-4.97	18.	9.70	
45588	30711	HR 2349	0.545	3.67	50366	52601	19	12	0.151	1.86	-5.00	13.	9.74	
45350	30860	SAO 59126	0.740	4.44	51544	52712	19	10	0.147	1.32	-5.10	39.	9.90	
45391	30862	SAO 59131	0.613	5.10	51174	51174	1	1	0.176	···	-4.89	18.	9.57	
46090	31083	SAO 113993	0.710	4.90	50839	52574	13	9	0.177	3.67	-4.93	30.	9.63	
46375	31246	SAO 114040	0.860	5.29	51070	52713	69	14	0.186	1.97	-4.96	43.	9.69	
47391	31623	SAO 197008	0.703	4.92	50419	50548	4	3	0.166	5.26	-4.98	31.	9.72	
260655	31635	GJ 239	1.480	9.66	50840	52574	12	9	0.919	9.65	··· [1]	··· [1]	··· [1]	
47157	31655	SAO 114147	0.735	4.70	51314	52713	19	11	0.154	1.87	-5.06	37.	9.83	
47127	31660	SAO 95907	0.725	4.65	50840	50840	1	1	0.160	···	-5.02	35.	9.78	
47752	32010	GJ 241	1.021	6.86	50462	51174	2	2	0.497	6.02	··· [1]	··· [1]	··· [1]	
48938	32322	HR 2493	0.550	4.31	50419	52603	17	13	0.156	1.64	-4.96	13.	9.69	
48682	32480	HR 2483	0.575	4.15	52349	52349	1	1	0.177	···	-4.85	14.	9.52	56 Aur
49197	32702		0.546	4.05	52576	52653	3	2	0.310	0.71	-4.43	4.	8.72	
49736	32874	SAO 78795	0.600	4.14	50840	50840	1	1	0.154	···	-5.01	19.	9.76	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$P_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
49674	32916	SAO 41390	0.729	5.05	51883	52713	37	9	0.211	4.61	-4.80	27.	9.43	
50499	32970	SAO 197294	0.614	3.84	50419	52712	25	17	0.153	1.67	-5.02	21.	9.79	
50281	32984	GJ 250A	1.071	6.88	50419	52653	22	13	0.694	7.51	··· [1]	··· [1]	··· [1]	
50806	33094	HR 2576	0.708	3.99	50366	52712	22	15	0.147	1.28	-5.10	35.	9.89	
50639	33109	SAO 133840	0.566	4.04	50839	52574	13	10	0.156	1.11	-4.98	15.	9.71	
50635 B		GJ 9220B	0.720	5.64	50419	50419	1	1	0.315	···	-4.54	14.	9.02	
50554	33212	SAO 78855	0.582	4.38	50840	52653	20	7	0.161	1.49	-4.95	16.	9.67	
265866	33226	GJ 251	1.580	11.18	50784	52576	14	10	0.760	7.92	··· [1]	··· [1]	··· [1]	
50692	33277	HR 2569	0.573	4.55	50463	52576	18	13	0.162	1.81	-4.94	15.	9.65	37 Gem
51219	33382	SAO 114659	0.690	4.88	50806	52574	16	11	0.164	1.83	-4.99	30.	9.73	
51419	33537	SAO 78921	0.620	5.02	51174	51174	1	1	0.180	···	-4.87	19.	9.54	
52265	33719	HR 2622	0.572	4.05	50839	52573	26	12	0.150	1.87	-5.02	16.	9.78	
52698	33817	GJ 259	0.882	5.89	51171	51171	1	1	0.378	···	-4.59	23.	9.11	
52456	33848	SAO 114791	0.863	5.90	51069	52574	13	9	0.290	8.67	-4.71	30.	9.29	
51866	33852	GJ 257.1	0.986	6.43	50462	52576	17	13	0.335	8.61	··· [1]	··· [1]	··· [1]	
52919	33955		1.078	7.02	50419	52574	3	3	0.532	8.03	··· [1]	··· [1]	··· [1]	
52711	34017	HR 2643	0.595	4.53	50546	52576	23	12	0.162	1.65	-4.96	18.	9.68	
53665	34239	SAO 134179	0.517	3.22	50839	52653	15	11	0.144	1.41	-5.04	11.	9.81	
54563	34608	HR 2692	0.880	3.11	50419	51071	5	5	0.134	1.77	-5.19	54.	10.02	
55575	35136	HR 2721	0.576	4.41	51174	51174	1	1	0.161	···	-4.95	16.	9.66	
56274	35139	GJ 3436	0.607	5.14	50419	52573	16	12	0.178	2.38	-4.87	18.	9.55	
56303	35209	SAO 115185	0.609	4.27	50839	52574	13	10	0.150	1.43	-5.04	21.	9.82	
56124	35265	SAO 59945	0.631	4.74	50840	52334	2	2	0.175	···	-4.90	21.	9.59	
	35519	SAO 115271	0.876	5.71	51171	52219	9	7	0.175	3.12	-5.01	46.	9.76	
	36208	GJ 273	1.573	11.97	50806	52574	13	10	0.844	15.14	··· [1]	··· [1]	··· [1]	
58781	36249	SAO 96918	0.734	4.89	50839	52712	16	13	0.158	1.59	-5.03	36.	9.80	
58830	36322	SAO 60106	0.950	1.55	50419	50548	4	3	0.204	1.04	··· [1]	··· [1]	··· [1]	See § 5.4
	36357	GJ 273.1	0.923	6.51	51174	51174	2	1	0.564	0.28	··· [1]	··· [1]	··· [1]	
59747	36704	SAO 60168	0.863	6.21	51174	51174	1	1	0.565	···	-4.37	9.	8.43	
60491	36827	SAO 134849	0.900	6.19	51171	52574	11	7	0.546	2.87	-4.43	13.	8.74	
	36834	GJ 277.1	···	···	51581	52576	5	5	0.891	6.66	···	···	···	
61606	37349	GJ 282A	0.891	6.42	50419	52778	11	9	0.581	4.48	-4.39	10.	8.55	
63077	37853	HR 3018	0.589	4.45	50366	50548	3	3	0.159	3.53	-4.97	17.	9.70	171 Pup
61994	38018		0.712	4.79	52574	52601	3	1	0.241	0.91	-4.70	21.	9.27	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
63754	38216	HR 3048	0.579	2.97	50419	52778	16	13	0.132	2.02	-5.19	20.	10.02	
63433	38228	SAO 79729	0.682	5.21	50840	50840	1	1	0.387	⋯	-4.39	7.	8.54	
64090	38541	GJ 1104	0.621	6.01	50462	52576	21	11	0.143	0.86	-5.11	24.	9.91	
64606	38625	GJ 292.2	0.739	6.01	50419	50419	1	1	0.176	⋯	-4.94	34.	9.66	
64324	38647		0.659	5.04	52574	52601	3	1	0.241	3.34	-4.67	16.	9.23	
64468	38657	GJ 292.1	0.950	6.26	50463	52004	14	10	0.187	1.17	⋯[1]	⋯[1]	⋯[1]	
62613	38784		0.719	5.39	52220	52576	4	2	0.199	1.24	-4.84	28.	9.49	
65277	38931	GJ 293.1	1.065	6.84	50462	52778	18	13	0.312	6.37	⋯[1]	⋯[1]	⋯[1]	
65486	38939		1.043	7.12	50462	52575	3	3	0.757	4.73	⋯[1]	⋯[1]	⋯[1]	
65430	39064	GJ 3471	0.833	5.86	50462	52576	28	14	0.169	1.38	-5.01	44.	9.77	
65583	39157	GJ 295	0.716	5.84	50419	52574	17	12	0.172	0.95	-4.95	32.	9.68	
66428	39417	SAO 135426	0.715	4.55	51883	52778	17	7	0.149	1.99	-5.08	35.	9.87	
67458	39710	GJ 296.1	0.600	4.76	50462	52712	20	12	0.162	1.35	-4.96	18.	9.68	
67228	39780	HR 3176	0.642	3.46	51314	52334	2	2	0.143	⋯	-5.12	27.	9.92	10 Cnc
66171	39822	SAO 6424	0.621	4.81	50462	52713	12	11	0.168	2.34	-4.94	20.	9.65	
66751	40015		0.567	4.21	52573	52603	4	2	0.165	1.44	-4.92	14.	9.62	
67767	40023	HR 3191	0.825	2.61	50419	52712	26	14	0.187	11.61	-4.94	40.	9.65	ψ Cnc
68017	40118	GJ 9256	0.679	5.10	50462	52712	35	17	0.176	1.32	-4.92	26.	9.62	
68168	40133	SAO 97640	0.667	4.69	50806	52778	12	9	0.155	0.92	-5.03	28.	9.80	
68978	40283	SAO 198958	0.618	4.54	50462	52778	19	14	0.168	2.89	-4.93	20.	9.64	
69076	40419		0.706	5.61	52574	52601	3	1	0.190	0.80	-4.87	28.	9.54	
	40501	GJ 2066	1.510	10.29	50806	52575	11	8	0.933	9.66	⋯[1]	⋯[1]	⋯[1]	
68988	40687	SAO 14494	0.652	4.35	51552	52713	24	11	0.154	2.46	-5.04	26.	9.80	
69830	40693	HR 3259	0.754	5.45	51975	51975	1	1	0.176	⋯	-4.95	35.	9.67	
69809	40761	SAO 97727	0.674	4.34	51551	52778	12	9	0.147	2.20	-5.09	31.	9.88	
69897	40843	HR 3262	0.487	3.84	52283	52283	1	1	0.164	⋯	-4.87	7.	9.55	χ Cnc
70516	41184		0.652	4.87	52573	52603	4	2	0.396	1.94	-4.35	5.	8.30	
70843	41226	SAO 97797	0.539	3.72	50840	50840	1	1	0.156	⋯	-4.96	12.	9.68	
71334	41317	GJ 306.1	0.643	4.86	50462	52575	28	11	0.161	1.36	-4.99	24.	9.73	
71479	41479	SAO 135935	0.646	4.06	50839	52778	13	9	0.149	2.32	-5.07	26.	9.85	
71148	41484	HR 3309	0.624	4.63	50840	50840	1	1	0.165	⋯	-4.95	21.	9.67	See § 5.4
71881	41844	SAO 26892	0.630	4.39	50806	52713	16	11	0.159	1.19	-5.00	23.	9.74	
72673	41926	HR 3384	0.780	5.95	50419	52778	20	16	0.179	3.46	-4.95	37.	9.66	
72528	41968	SAO 136028	0.525	3.82	51975	51975	1	1	0.146	⋯	-5.02	11.	9.78	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
72659	42030	SAO 136045	0.612	3.91	50839	52806	17	10	0.154	2.05	-5.02	21.	9.78	
72760	42074	GJ 3507	0.791	5.63	50840	50840	1	1	0.472	···	-4.38	9.	8.49	
72954	42075	HR 3397	0.752	2.42	50419	50463	2	2	0.136	2.25	-5.17	43.	10.00	
72780	42112	SAO 97927	0.513	3.87	50840	52334	2	2	0.161	···	-4.91	9.	9.61	
73350	42333	GJ 9273	0.655	4.87	51174	51174	1	1	0.315	···	-4.49	9.	8.92	
73344	42403	SAO 80310	0.547	4.17	50863	51230	6	2	0.207	2.52	-4.71	9.	9.29	
73512	42418	SAO 116990	0.897	5.87	51171	51227	3	2	0.219	1.67	-4.89	41.	9.58	
72905	42438		0.618	4.86	52573	52601	3	1	0.349	1.83	-4.40	5.	8.62	
73668	42488	SAO 117000	0.610	4.50	50840	51230	14	3	0.177	1.83	-4.88	18.	9.56	
	42491	SAO 117001	0.810	5.57	50840	52806	5	3	0.289	1.93	-4.66	25.	9.22	
73667	42499	GJ 315.0	0.832	6.27	50462	52805	23	15	0.181	1.33	-4.97	42.	9.69	
74014	42634	SAO 136179	0.760	4.96	51174	51174	1	1	0.154	···	-5.06	40.	9.84	
74156	42723	SAO 117040	0.585	3.56	52008	52778	9	6	0.144	1.97	-5.08	19.	9.86	
75302	43297	SAO 117163	0.689	5.08	50840	50840	1	1	0.256	···	-4.64	17.	9.19	
75393	43299		0.536	4.18	52573	52713	4	2	0.307	2.45	-4.43	3.	8.73	
75332	43410	HR 3499	0.549	3.93	50863	51230	11	3	0.290	2.34	-4.47	4.	8.87	
75732 A	43587	HR 3522	0.869	5.47	52065	52805	21	8	0.165	3.11	-5.04	47.	9.81	55 Cnc
75782	43634	SAO 61111	0.609	2.80	51975	51975	1	1	0.134	···	-5.19	24.	10.02	
76218	43852		0.771	5.60	52573	52807	5	3	0.388	2.50	-4.46	12.	8.85	
76752	44089	SAO 80548	0.680	4.46	50863	50863	1	1	0.164	···	-4.98	28.	9.72	
76909	44137	SAO 117323	0.756	4.45	51544	52805	17	10	0.143	0.98	-5.13	42.	9.93	
77407	44458	SAO 61224	0.609	4.65	50863	50863	1	1	0.385	···	-4.34	3.	8.17	
79210	45343	GJ 338A	1.410	8.68	50608	52712	15	13	1.785	8.38	···[1]	···[1]	···[1]	
79211	120005		1.420	8.71	50608	52805	18	14	1.879	4.39	···[1]	···[1]	···[1]	STF 1321B
79555	45383	GJ 339	1.035	6.58	50462	51171	2	2	0.692	3.91	···[1]	···[1]	···[1]	
80133	45621	SAO 136740	0.869	5.20	51174	51174	1	1	0.488	···	-4.45	13.	8.80	
80367	45737	GJ 340.2	0.860	5.81	51171	52713	11	9	0.172	0.90	-5.01	45.	9.77	
80632	45839	GJ 340.3	1.163	7.19	50462	50462	1	1	0.639	···	···[1]	···[1]	···[1]	
80715	45963		0.987	5.76	50462	50462	1	1	1.084	···	···[1]	···[1]	···[1]	BF Lyn
80606	45982		0.765	5.23	52008	52806	22	10	0.149	1.41	-5.09	41.	9.88	ZI 748
81133	45995	SAO 200301	0.557	4.37	50462	50862	7	4	0.186	2.36	-4.80	11.	9.43	
		G 161-29	1.400	···	51173	52601	7	5	0.204	···	···[1]	···[1]	···[1]	LTT 3472
81809	46404	HR 3750	0.642	2.91	50419	50419	1	1	0.169	···	-4.94	23.	9.66	
82106	46580	GJ 349	1.002	6.68	50863	51230	4	3	0.662	2.39	···[1]	···[1]	···[1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$\rm P_{rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
233641	46639	SAO 27275	0.548	4.31	51883	52712	12	5	0.137	0.82	-5.12	15.	9.92	
82558	46816		0.933	6.50	51171	51581	5	4	1.568	1.85	··· [1]	··· [1]	··· [1]	LQ Hya
82943	47007	SAO 155312	0.623	4.35	51975	52652	17	8	0.172	6.32	-4.92	20.	9.61	
	47103	GJ 357	1.572	11.14	50840	52713	2	2	0.425	···	··· [1]	··· [1]	··· [1]	
83443	47202	SAO 221348	0.811	5.04	51898	52712	37	8	0.216	2.62	-4.84	35.	9.49	
	47513	GJ 361	1.490	10.10	51581	52806	6	6	1.474	9.25	··· [1]	··· [1]	··· [1]	
	47650	GJ 362	1.488	10.88	52713	52713	1	1	3.208	6.04	··· [1]	··· [1]	··· [1]	
84035	47690	GJ 365	1.133	6.88	50462	52713	18	14	0.559	6.33	··· [1]	··· [1]	··· [1]	
84737	48113	HR 3881	0.619	3.75	52334	52334	1	1	0.130	···	-5.23	27.	10.07	15 LMi
85488	48411	GJ 371	1.230	7.25	50463	50463	1	1	1.025	···	··· [1]	··· [1]	··· [1]	
85301	48423		0.718	5.20	52601	52807	5	3	0.361	2.99	-4.46	10.	8.83	
85725	48468	HR 3916	0.622	2.50	50419	51171	8	6	0.130	1.36	-5.24	27.	10.08	
	48714	GJ 373	1.438	8.90	51552	52805	12	8	2.060	4.30	··· [1]	··· [1]	··· [1]	
86264	48780	SAO 155612	0.510	3.11	51975	51975	1	1	0.193	···	-4.74	7.	9.34	
86680	49060	SAO 81137	0.607	3.00	51884	52236	10	3	0.156	4.47	-5.00	20.	9.75	
86728	49081	HR 3951	0.676	4.50	52334	52334	1	1	0.152	···	-5.06	30.	9.84	20 LMi
86972	49127	GJ 3581	1.016	6.56	50463	50463	1	1	0.744	···	··· [1]	··· [1]	··· [1]	
87359	49350	SAO 137336	0.689	4.98	50806	52805	14	11	0.185	4.27	-4.88	27.	9.56	
87424	49366	SAO 155709	0.891	6.32	51171	52683	11	7	0.522	1.96	-4.44	13.	8.78	
87836	49680	SAO 61885	0.708	4.30	51314	52829	17	10	0.157	4.32	-5.03	33.	9.80	
87883	49699	SAO 61890	0.965	6.28	51174	51174	1	1	0.250	···	··· [1]	··· [1]	··· [1]	
88072	49756		0.647	4.70	50806	52806	18	13	0.163	1.24	-4.98	24.	9.71	
88218	49769	HR 3992	0.615	3.70	50419	52601	40	17	0.148	1.58	-5.06	22.	9.85	
88371	49942	SAO 81224	0.637	4.44	50463	52713	14	13	0.160	1.00	-4.99	24.	9.74	
	49986	GJ 382	1.487	9.82	50608	52805	19	13	2.031	6.16	··· [1]	··· [1]	··· [1]	
88725	50139	GJ 9322	0.609	4.96	50463	52804	20	15	0.169	1.32	-4.92	19.	9.62	
88986	50316	HR 4027	0.635	3.93	50420	52713	17	14	0.148	1.90	-5.08	25.	9.86	24 LMi
89307	50473	SAO 99049	0.594	4.57	50863	52334	2	2	0.162	···	-4.95	18.	9.67	
89391	50478	GJ 3594	0.940	2.53	50462	52683	21	16	0.122	2.66	··· [1]	··· [1]	··· [1]	
89221	50485	SAO 43276	0.925	3.72	52102	52102	1	1	0.153	···	··· [1]	··· [1]	··· [1]	
89269	50505	GJ 3593	0.653	5.09	50419	52713	21	15	0.169	1.29	-4.94	24.	9.66	
89319	50546	HR 4046	1.022	2.82	52102	52334	2	2	0.121	···	··· [1]	··· [1]	··· [1]	
89744	50786	HR 4067	0.531	2.78	52215	52346	12	3	0.158	···	-4.94	11.	9.65	
90156	50921	GJ 3597	0.659	5.20	50419	52804	16	14	0.169	1.13	-4.95	25.	9.66	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$\rm P_{rot}$ (days)	log (Age/yr)	Note
90125	50939	HR 4085	0.991	1.32	50419	52804	20	17	0.112	2.15	···[1]	···[1]	···[1]	
	51007	GJ 390	1.459	9.67	51581	52804	8	6	1.734	11.24	···[1]	···[1]	···[1]	
90711	51257	GJ 3603	0.810	5.36	50462	52804	22	16	0.169	8.29	-5.00	42.	9.75	
90722	51258	SAO 156003	0.724	4.35	51551	52804	14	10	0.142	2.10	-5.13	38.	9.94	
	51317	GJ 393	1.507	10.34	50608	52806	17	12	1.004	7.15	···[1]	···[1]	···[1]	
90905	51386		0.562	4.38	52573	52807	5	2	0.311	2.51	-4.43	4.	8.75	
		SAO 27668	1.340	···	52805	52805	1	1	1.296	···	···[1]	···[1]	···[1]	GJ 394
90839	51459	HR 4112	0.541	4.28	52739	52739	3	1	0.173	···	-4.86	11.	9.53	36 UMa A; d8: higher rand. err
90875	51468	GJ 3606	1.150	7.00	51200	52805	12	10	0.593	7.41	···[1]	···[1]	···[1]	
	51525	GJ 397	1.330	7.87	51200	52805	14	9	1.502	10.11	···[1]	···[1]	···[1]	
91204	51579	SAO 99171	0.651	4.25	51552	52601	13	6	0.147	1.83	-5.09	27.	9.88	
91545	51781	SAO 81423	1.063	2.85	52102	52102	1	1	0.130	···	···[1]	···[1]	···[1]	
91638	51784	SAO 137653	0.506	3.93	50863	51230	6	2	0.159	1.60	-4.92	9.	9.62	
91816	51884		0.855	5.37	51172	51228	3	2	0.454	1.36	-4.47	14.	8.86	LR Hya
92222 B		SAO 62181	0.790	···	52063	52713	9	5	0.370	2.78	-4.51	15.	8.96	
92222 A		SAO 62182	0.700	···	52063	52713	12	8	0.362	4.65	-4.44	9.	8.78	
92588	52316	HR 4182	0.880	3.57	52102	52102	1	1	0.146	···	-5.13	51.	9.94	33 Sex
92788	52409	SAO 137743	0.694	4.76	50863	52683	26	11	0.153	2.90	-5.05	32.	9.83	
92945	52462	GJ 3615	0.873	6.05	50462	51680	13	6	0.641	2.72	-4.32	7.	8.00	
92855	52498		0.565	4.51	52601	52807	5	4	0.308	4.59	-4.44	4.	8.78	
93745	52888	SAO 201782	0.596	3.76	50462	52806	23	16	0.148	3.06	-5.06	20.	9.83	
	52940		0.551	3.38	51171	52308	16	10	0.151	2.23	-5.00	14.	9.75	BD +13 2311B
	52942	SAO 99310	0.506	3.18	51171	52806	18	13	0.142	1.82	-5.04	10.	9.81	
94280	53196	SAO 137858	0.560	3.97	51975	51975	1	1	0.155	···	-4.98	14.	9.71	
94340	53217	GJ 9336	0.645	3.94	50462	50548	4	2	0.269	1.36	-4.58	12.	9.10	
94765	53486	GJ 3633	0.920	6.15	51174	51174	1	1	0.543	···	···[1]	···[1]	···[1]	
95091	53618	SAO 201951	0.659	3.74	50462	50462	1	1	0.152	···	-5.05	28.	9.83	
		BD -10 3166	0.903	···	51172	52806	30	13	0.216	7.92	···[1]	···[1]	···[1]	TYC 5503- 946-1
95128	53721	HR 4277	0.624	4.29	51171	51201	29	1	0.154	1.18	-5.02	23.	9.78	47 UMa
95188	53747		0.760	5.70	52602	52807	6	4	0.431	1.05	-4.40	9.	8.59	
	53767	GJ 408	1.525	10.92	50608	52829	16	12	0.890	10.39	···[1]	···[1]	···[1]	
95650	53985		1.437	9.24	51581	52834	17	8	3.990	8.01	···[1]	···[1]	···[1]	DS Leo
95735	54035	GJ 411	1.502	10.46	50603	52713	34	16	0.402	9.75	···[1]	···[1]	···[1]	
	54211	GJ 412A	1.491	10.30	50606	52805	16	12	0.367	8.20	···[1]	···[1]	···[1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
96418	54347	SAO 81674	0.513	3.14	50863	50863	1	1	0.145	···	-5.02	10.	9.78	
96574	54383	SAO 99459	0.551	3.81	50863	50863	1	1	0.149	···	-5.02	14.	9.78	
96700	54400	HR 4328	0.606	4.42	50419	52806	22	15	0.160	1.94	-4.97	19.	9.70	
	54532	GJ 413.1	1.529	10.30	51552	52713	9	7	0.906	6.00	··· [1]	··· [1]	··· [1]	
97037	54582	SAO 138023	0.613	4.24	50863	51229	4	2	0.154	1.10	-5.02	21.	9.78	
97004	54614	SAO 43637	0.767	4.89	51174	51174	1	1	0.152	···	-5.07	41.	9.86	
97101 B		GJ 414B	1.570	···	52065	52829	4	4	1.491	5.24	··· [1]	··· [1]	··· [1]	
97101 A	54646	GJ 414A	1.255	7.93	50463	52805	19	15	1.192	7.70	··· [1]	··· [1]	··· [1]	
97233	54677	GJ 416	1.203	7.28	50463	50463	1	1	0.596	···	··· [1]	··· [1]	··· [1]	
97343	54704	GJ 3648	0.760	5.37	50419	52805	25	17	0.166	1.66	-5.00	37.	9.74	
97503	54810	GJ 418	1.179	7.43	50462	50462	1	1	1.056	···	··· [1]	··· [1]	··· [1]	
97561	54844		0.750	3.38	52102	52102	1	1	0.146	···	-5.11	40.	9.91	ZI 876
97658	54906	GJ 3651	0.845	6.12	50463	52805	21	17	0.195	4.03	-4.92	41.	9.63	
97584	54952		1.043	6.85	52308	52681	3	3	0.757	4.87	··· [1]	··· [1]	··· [1]	
98281	55210	GJ 423.1	0.732	5.58	50462	52806	17	14	0.176	3.57	-4.94	33.	9.65	
98388	55262	SAO 99552	0.507	3.73	50863	50863	1	1	0.152	···	-4.96	9.	9.69	
	55360	GJ 424	1.412	9.52	51552	52681	9	8	0.778	7.52	··· [1]	··· [1]	··· [1]	
98553	55363		0.594	4.89	52652	52807	5	3	0.154	1.44	-5.01	19.	9.76	
98697	55455	SAO 118806	0.523	3.52	50863	50863	1	1	0.148	···	-5.01	11.	9.77	
98618	55459	SAO 27996	0.642	4.71	50838	52681	13	11	0.159	1.35	-5.00	24.	9.75	
98744	55508	SAO 62514	0.538	2.72	52065	52778	10	5	0.128	2.14	-5.21	15.	10.04	
98745	55509	SAO 62515	0.536	0.28	52065	52335	10	3	0.145	3.44	-5.04	13.	9.81	
99109	55664	SAO 138182	0.874	5.19	51172	52835	31	14	0.161	6.27	-5.06	48.	9.84	
99491	55846	HR 4414	0.778	5.25	50419	52804	31	20	0.208	7.37	-4.84	33.	9.49	83 Leo
99492	55848	GJ 429.0B	1.002	6.30	50462	52807	28	20	0.254	9.41	··· [1]	··· [1]	··· [1]	
99610	55900	SAO 156690	0.722	4.70	51975	51975	1	1	0.174	···	-4.95	32.	9.66	
99995	56145	SAO 43786	0.912	3.40	52102	52102	1	1	0.140	···	··· [1]	··· [1]	··· [1]	
100180	56242	HR 4437	0.570	4.46	50419	52806	29	16	0.162	1.68	-4.94	15.	9.65	88 Leo
100167	56257	SAO 43797	0.617	4.63	50863	50863	1	1	0.206	···	-4.76	16.	9.36	
100238	56260	SAO 138251	1.050	2.92	52102	52102	1	1	0.119	···	··· [1]	··· [1]	··· [1]	
100623	56452	HR 4458	0.811	6.06	50419	52805	16	14	0.198	7.09	-4.89	37.	9.57	
	56528	GJ 433	1.489	10.03	51200	52804	8	7	0.830	6.45	··· [1]	··· [1]	··· [1]	
101177	56809	HR 4486	0.566	4.45	51314	51314	1	1	0.163	···	-4.93	14.	9.64	
101206	56829	GJ 3678	0.980	6.74	50463	51551	9	7	0.686	5.15	··· [1]	··· [1]	··· [1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
101259	56830	HR 4489	0.821	2.34	50462	52804	24	15	0.131	1.31	-5.21	51.	10.04	
101472	56960		0.549	4.46	52652	52807	5	3	0.253	2.57	-4.56	6.	9.06	
101501	56997	HR 4496	0.723	5.41	52739	52739	3	1	0.309	···	-4.55	15.	9.05	d8: higher rand. err
101563	57001	HR 4498	0.651	3.35	50462	50956	6	5	0.152	1.52	-5.05	27.	9.83	
	57087	GJ 436	1.493	10.62	51552	52834	17	9	0.726	4.12	··· [1]	··· [1]	··· [1]	
101959	57217	SAO 180141	0.552	4.42	52652	52807	5	3	0.158	1.27	-4.95	13.	9.67	
102071	57271		0.805	5.56	52652	52807	5	3	0.240	1.51	-4.77	31.	9.38	
102158	57349	GJ 27	0.622	4.47	50463	52806	19	15	0.156	1.62	-5.01	22.	9.76	
	57450		0.582	5.58	51173	52681	14	10	0.155	1.55	-4.99	17.	9.73	BD +51 1696
102357	57488	SAO 81988	0.521	4.00	50863	50863	1	1	0.284	···	-4.47	3.	8.86	
	57544	GJ 445	1.572	12.14	50863	51581	2	2	0.609	···	··· [1]	··· [1]	··· [1]	
102540	57574	GJ 3687	0.756	2.89	50462	50956	6	5	0.151	2.03	-5.08	40.	9.87	
102634	57629	HR 4533	0.518	3.48	50863	50863	1	1	0.154	···	-4.96	10.	9.69	
102870	57757	HR 4540	0.518	3.40	52288	52335	3	2	0.157	···	-4.94	10.	9.65	β Vir
102902	57759	SAO 202865	0.701	2.64	50462	51680	11	10	0.150	8.49	-5.07	33.	9.86	
	57802	GJ 450	1.477	10.10	50840	52712	16	9	1.619	5.67	··· [1]	··· [1]	··· [1]	
103095	57939	HR 4550	0.754	6.61	51200	51314	5	2	0.200	1.38	-4.85	31.	9.51	CF UMa
103432	58067	GJ 452.3A	0.710	5.36	50462	52804	17	13	0.203	4.24	-4.82	26.	9.46	
103829	58318	SAO 28203	0.668	4.49	51900	52681	12	7	0.151	1.85	-5.06	29.	9.84	
103932	58345	GJ 453	1.128	6.95	50462	52804	21	14	0.486	17.52	··· [1]	··· [1]	··· [1]	
104067	58451	GJ 1153	0.974	6.33	50462	52804	18	14	0.437	9.27	··· [1]	··· [1]	··· [1]	
104304	58576	HR 4587	0.760	4.99	51975	51975	1	1	0.183	···	-4.92	35.	9.62	
104526	58698	GJ 454.3	1.173	-1.01	50463	50610	4	3	0.145	1.10	··· [1]	··· [1]	··· [1]	
104556	58708	SAO 44005	0.860	2.92	50463	52835	22	18	0.126	1.27	-5.23	55.	10.07	
104800	58843	SAO 119191	0.585	5.23	51553	52713	10	8	0.163	1.27	-4.94	16.	9.65	
104860	58876		0.596	4.52	52778	52807	4	1	0.349	2.20	-4.39	4.	8.52	
104985	58952		1.029	0.74	52835	52835	1	1	0.076	···	··· [1]	··· [1]	··· [1]	
105113 B	59021		···	···	50806	51884	13	8	0.180	3.14	···	···	···	CD-32 8503B
105113 A	59021	SAO 203123	0.623	2.94	50462	52804	24	16	0.145	2.18	-5.09	24.	9.89	
105405	59175	SAO 62852	0.515	4.02	50863	50863	1	1	0.153	···	-4.96	10.	9.69	
105590	59272	GJ 9390A	0.666	4.62	50462	50956	6	5	0.173	1.88	-4.93	25.	9.63	
105618	59278	SAO 99967	0.710	4.51	51883	52804	17	7	0.145	1.93	-5.11	36.	9.91	
105631	59280	GJ 3706	0.794	5.53	50463	52806	17	14	0.289	5.40	-4.65	24.	9.20	
106116	59532	GJ 458.1	0.701	4.78	50462	52804	18	15	0.156	2.20	-5.03	32.	9.80	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
					JD-2400000									
106156	59572	GJ 3715	0.792	5.47	50463	52804	17	15	0.239	6.00	-4.76	30.	9.37	
106252	59610	SAO 99998	0.635	4.54	50863	50863	1	1	0.163	···	-4.97	23.	9.70	
106423	59690	SAO 119282	0.616	3.90	51975	51975	1	1	0.148	···	-5.06	22.	9.84	
107146	60074	SAO 100038	0.604	4.76	51341	52804	8	5	0.383	3.04	-4.34	3.	8.17	
107148	60081	SAO 138714	0.707	4.46	51553	52806	24	12	0.157	2.61	-5.03	33.	9.80	
107213	60098	HR 4688	0.523	2.90	51584	52334	2	2	0.138	···	-5.10	12.	9.89	9 Com
107434	60239	SAO 203374	0.536	3.98	50984	50984	2	1	0.296	···	-4.45	4.	8.81	
107705	60353	HR 4708	0.567	4.09	50863	51229	4	2	0.167	3.39	-4.90	14.	9.60	17 Vir
	60559	GJ 465	1.574	11.57	52654	52713	2	2	0.308	···	··· [1]	··· [1]	··· [1]	
108510	60816	SAO 138799	0.584	4.43	50863	50863	1	1	0.197	···	-4.77	13.	9.38	
		G 60-6	0.920	···	51172	52804	13	11	0.207	···	··· [1]	··· [1]	··· [1]	LP 555-23
108874	61028	SAO 82344	0.738	4.58	51341	52834	34	15	0.150	1.81	-5.08	38.	9.87	
109358	61317	HR 4785	0.588	4.63	51551	52806	11	9	0.167	1.98	-4.92	16.	9.62	
109333	61329	GJ 3735	1.103	7.06	50463	50463	1	1	0.759	···	··· [1]	··· [1]	··· [1]	
110315	61901	GJ 481	1.109	7.13	50463	52806	22	17	0.347	7.86	··· [1]	··· [1]	··· [1]	
110501	61995	SAO 63146	1.074	2.86	52102	52102	1	1	0.125	···	··· [1]	··· [1]	··· [1]	
110537	62039	SAO 138928	0.675	4.49	50806	52835	55	19	0.154	1.53	-5.05	29.	9.82	
111031	62345	GJ 3746	0.695	4.45	50463	52807	21	17	0.151	1.46	-5.07	33.	9.85	
111066	62349	SAO 82490	0.540	3.64	50863	50863	1	1	0.151	···	-5.00	12.	9.74	
	62452	GJ 486	1.563	11.82	52335	52804	3	3	0.652	···	··· [1]	··· [1]	··· [1]	
111261	62472	GJ 1164A	1.149	7.41	50463	50463	1	1	0.596	···	··· [1]	··· [1]	··· [1]	
111312	62505	GJ 1165	0.946	6.30	50463	52007	10	9	0.522	4.09	··· [1]	··· [1]	··· [1]	
111395	62523	HR 4864	0.703	5.12	50463	51975	2	2	0.290	13.83	-4.58	15.	9.09	
111398	62536	SAO 100279	0.660	4.31	50863	50863	1	1	0.152	···	-5.05	28.	9.83	
111484 A	62596		0.568	4.45	50984	52829	19	14	0.211	3.48	-4.71	10.	9.28	
111484 B	62596		0.568	4.55	50984	52829	19	14	0.185	2.69	-4.81	12.	9.45	BD +04 2658B
111515	62607	GJ 3752	0.686	5.52	50463	52829	21	16	0.170	1.09	-4.95	28.	9.67	
111631	62687	GJ 488	1.409	8.33	51582	52806	12	7	1.793	6.06	··· [1]	··· [1]	··· [1]	
112060	62904	SAO 100321	0.805	3.20	52102	52102	1	1	0.156	···	-5.06	44.	9.84	
112257	63048	SAO 82565	0.665	4.69	50806	52806	16	13	0.167	1.84	-4.96	26.	9.68	
113194	63618		1.216	7.12	52308	52804	6	3	0.701	7.96	··· [1]	··· [1]	··· [1]	
114174	64150	GJ 9429	0.667	4.68	50463	52712	54	22	0.164	1.89	-4.98	27.	9.71	
114335	64264	SAO 204187	0.559	3.99	50984	50984	1	1	0.155	···	-4.98	14.	9.71	
114710	64394	HR 4983	0.572	4.42	52335	52450	7	2	0.198	···	-4.76	12.	9.36	β Com

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
					JD-2400000									
114783	64457	GJ 3769	0.930	6.01	50984	52835	48	20	0.215	12.25	···[1]	···[1]	···[1]	
114729	64459	SAO 204237	0.591	3.96	50463	52778	44	21	0.147	1.55	-5.05	19.	9.83	
114946	64577	HR 4995	0.862	2.38	50463	52804	20	18	0.131	1.48	-5.21	54.	10.04	55 Vir
115383	64792	HR 5011	0.585	3.92	52268	52268	2	1	0.337	···	-4.40	4.	8.60	59 Vir; d8: higher rand. err
115404	64797		0.926	6.24	52308	52805	6	3	0.446	3.54	···[1]	···[1]	···[1]	
115589	64905		0.864	5.45	51200	52834	22	14	0.155	2.47	-5.08	48.	9.87	
115617	64924	HR 5019	0.709	5.09	52389	52738	7	3	0.156	···	-5.04	33.	9.80	61 Vir; d8: higher rand. err
115781	64956		1.123	0.91	50546	50546	1	1	0.906	···	···[1]	···[1]	···[1]	BL CVn
116442	65352	GJ 3781A	0.780	6.04	50463	52806	26	18	0.180	1.66	-4.94	37.	9.66	
116443	65355	GJ 3782B	0.869	6.22	50463	52829	23	20	0.194	5.27	-4.94	42.	9.66	
116858	65574	GJ 511A	0.920	6.36	50546	50546	1	1	0.315	···	···[1]	···[1]	···[1]	
117126	65708	SAO 139353	0.651	4.13	50863	50863	1	1	0.154	···	-5.04	26.	9.80	
117176	65721	HR 5072	0.714	3.68	52334	52349	6	1	0.165	···	-4.99	32.	9.73	70 Vir
117207	65808	SAO 204517	0.724	4.67	50463	52805	33	22	0.152	1.77	-5.06	36.	9.84	
	65859	GJ 514	1.493	9.64	50546	52806	21	17	1.272	6.77	···[1]	···[1]	···[1]	
117635	65982	GJ 3788	0.781	4.87	50463	50955	5	4	0.181	2.27	-4.94	37.	9.65	
117936	66147	GJ 2102	1.026	6.65	50984	52806	16	14	0.565	6.79	···[1]	···[1]	···[1]	
	66459	GJ 519	1.391	8.87	51581	52807	10	9	1.468	5.63	···[1]	···[1]	···[1]	
118914	66621	SAO 63667	0.661	4.55	51756	52806	13	8	0.150	3.40	-5.07	28.	9.85	
119850	67155	GJ 526	1.435	9.79	50546	52807	18	15	0.787	9.88	···[1]	···[1]	···[1]	
120066	67246	HR 5183	0.630	3.90	50463	52807	23	17	0.139	1.82	-5.15	26.	9.97	
120136	67275	HR 5185	0.508	3.53	52334	52381	5	2	0.202	···	-4.70	6.	9.28	
120476	67422	GJ 528	1.110	6.37	51227	52806	14	11	0.736	12.59	···[1]	···[1]	···[1]	
120476 B	67422	GJ 528B	1.200	···	51227	52806	17	12	1.114	8.63	···[1]	···[1]	···[1]	
120467	67487	GJ 529	1.257	7.40	50546	52807	17	14	0.684	9.33	···[1]	···[1]	···[1]	
120690	67620	HR 5209	0.703	4.93	50463	50609	3	2	0.223	3.30	-4.75	23.	9.35	
121320	67904		0.687	5.29	52654	52807	5	3	0.195	0.46	-4.84	25.	9.49	
121560	68030	HR 5243	0.518	4.24	50863	50863	1	1	0.160	···	-4.92	10.	9.62	
122064	68184	HR 5256	1.040	6.47	51581	52834	19	12	0.235	5.32	···[1]	···[1]	···[1]	
122120	68337	GJ 535	1.160	7.16	50546	52806	16	15	0.642	5.15	···[1]	···[1]	···[1]	
122303	68469	GJ 536	1.461	9.67	51411	52806	10	9	1.064	17.34	···[1]	···[1]	···[1]	
122652	68593	SAO 63905	0.563	4.31	50863	52806	15	13	0.191	2.29	-4.78	11.	9.40	
122676	68634	GJ 3824	0.740	5.03	50863	50863	1	1	0.175	···	-4.95	34.	9.66	
123760	69160	SAO 100878	0.656	4.02	52095	52489	8	4	0.198	2.62	-4.81	21.	9.44	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\mathrm{diff}}}/S$ %	log R'_{HK}	$\mathrm{P_{rot}}$ (days)	log (Age/yr)	Note
124257 B			1.100	···	52063	52806	5	5	0.141	1.60	··· [1]	··· [1]	··· [1]	BD +50 2054B
124257 A		SAO 29032	0.800	···	52063	52806	5	5	0.141	1.84	-5.14	46.	9.95	
124115	69340	HR 5307	0.479	3.11	51975	51975	1	1	0.189	···	-4.74	5.	9.34	
124106	69357	GJ 3827	0.865	6.11	50548	52804	18	14	0.340	5.33	-4.63	25.	9.17	
124292	69414	GJ 3830	0.733	5.31	50863	50863	1	1	0.169	···	-4.97	34.	9.71	
124694	69518	SAO 44946	0.530	4.26	50863	50863	1	1	0.266	···	-4.52	5.	8.98	
124642	69526	GJ 3833	1.064	6.84	51174	51174	1	1	0.877	···	··· [1]	··· [1]	··· [1]	
124755	69569	HR 5335	1.071	2.98	52101	52101	1	1	0.121	···	··· [1]	··· [1]	··· [1]	
125040	69751	HR 5346	0.504	3.71	50863	50863	1	1	0.255	···	-4.53	4.	9.00	
125184	69881	HR 5353	0.723	3.89	50277	52835	34	22	0.151	3.02	-5.07	36.	9.85	
125455	70016	GJ 544A	0.867	5.99	50276	52829	20	18	0.198	6.64	-4.93	42.	9.63	
	70218	GJ 546	1.275	7.77	50284	51174	3	2	1.371	19.68	··· [1]	··· [1]	··· [1]	
126053	70319	HR 5384	0.639	5.02	50276	52806	47	20	0.168	1.42	-4.94	23.	9.66	
125968	70330	SAO 182489	0.658	3.95	52095	52128	6	2	0.187	0.59	-4.86	23.	9.52	
126532	70500		0.853	5.93	52834	52834	1	1	0.214	···	-4.87	39.	9.54	
126583	70557		0.750	5.39	52833	52833	1	1	0.183	···	-4.92	34.	9.62	
126614	70623	SAO 139932	0.810	4.64	51200	52777	28	16	0.142	2.75	-5.14	47.	9.95	
126961	70782	SAO 120481	0.549	3.98	50863	50863	1	1	0.162	···	-4.92	12.	9.63	
128642	70857		0.774	5.42	52834	52834	1	1	0.187	···	-4.91	35.	9.61	
127334	70873	HR 5423	0.702	4.50	50863	52452	4	3	0.152	···	-5.06	33.	9.84	
128165	71181	GJ 556	0.997	6.60	51174	51174	1	1	0.446	···	··· [1]	··· [1]	··· [1]	
	71253	GJ 555	1.633	12.38	52334	52805	4	4	0.884	4.69	··· [1]	··· [1]	··· [1]	
128167	71284	HR 5447	0.364	3.52	52739	52796	4	2	0.220	···	··· [1]	··· [1]	··· [1]	d8: higher rand. err
128311	71395	GJ 3860	0.973	6.38	50984	52835	49	21	0.700	4.27	··· [1]	··· [1]	··· [1]	
128428	71462	SAO 140035	0.755	4.20	50546	51707	51	13	0.147	1.78	-5.10	41.	9.90	
129333	71631		0.626	4.95	52654	52834	6	3	0.530	4.20	-4.18	1.2	< 7	
129010	71774	SAO 182760	0.591	3.33	50546	52806	18	16	0.129	6.08	-5.24	23.	10.08	
129191	71803	SAO 140072	0.682	4.52	51583	52807	11	8	0.155	2.22	-5.04	30.	9.80	
	71898	GJ 9492	1.615	10.91	50840	52806	8	7	0.716	15.38	··· [1]	··· [1]	··· [1]	
129814	72043	SAO 101175	0.636	4.41	50863	52712	17	11	0.165	2.02	-4.96	23.	9.69	
130004	72146		0.931	6.42	52334	52778	4	3	0.267	4.67	··· [1]	··· [1]	··· [1]	
130087	72190	SAO 101198	0.612	3.78	51583	52806	11	8	0.148	1.48	-5.06	22.	9.84	
129926 B		GJ 561.1B	0.500	···	50277	50277	2	1	0.298	5.08	-4.43	2.	8.72	
130307	72312	GJ 3867	0.893	6.29	50276	52829	15	13	0.410	5.54	-4.56	21.	9.06	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
					JD-2400000									
130322	72339	SAO 140142	0.781	5.67	51756	52806	11	9	0.230	6.47	-4.78	30.	9.39	
130948	72567	HR 5534	0.576	4.59	52452	52452	2	1	0.285	···	-4.50	6.	8.94	
130871	72577	GJ 563.3	0.957	6.64	50276	52806	19	15	0.280	1.46	···[1]	···[1]	···[1]	
131023	72634	GJ 3868A	0.760	5.23	50547	50547	1	1	0.341	···	-4.53	15.	9.00	
131156 B	72659	GJ 566B	1.160	7.84	50276	50276	1	1	1.280	···	···[1]	···[1]	···[1]	
131156 A	72659	HR 5544	0.720	5.41	52376	52376	2	1	0.437	···	-4.35	6.	8.30	ξ Boo; d8: higher rand. err
130992	72688	GJ 565	1.036	6.66	50546	52807	15	13	0.389	6.74	···[1]	···[1]	···[1]	
131117	72772	HR 5542	0.605	3.29	50463	52829	18	16	0.134	1.23	-5.18	23.	10.01	
131509	72830	GJ 3872	0.896	3.69	50547	52834	23	20	0.136	1.73	-5.18	54.	10.01	
	72944		1.500	10.15	52063	52804	9	6	6.110	8.46	···[1]	···[1]	···[1]	CE Boo
132142	73005	GJ 569.1	0.785	5.88	50546	52834	25	20	0.168	1.17	-5.00	40.	9.74	
131977	73184	HR 5568	1.024	6.86	50463	50608	12	3	0.504	2.22	···[1]	···[1]	···[1]	
132307	73245		0.780	5.55	52833	52833	1	1	0.179	···	-4.95	37.	9.67	
132173	73269		0.554	4.21	52516	52829	5	3	0.278	3.09	-4.50	5.	8.94	
132375	73309	HR 5583	0.509	3.37	50863	50863	1	1	0.153	···	-4.96	9.	9.68	
132425	73314		0.834	5.50	52833	52833	1	1	0.292	···	-4.68	27.	9.24	
132505	73321	SAO 101312	0.651	3.82	52095	52807	10	6	0.144	1.64	-5.11	28.	9.91	
132756	73449	SAO 120789	0.691	4.33	50863	50863	1	1	0.168	···	-4.96	29.	9.69	
133161	73593	SAO 101345	0.599	4.27	50863	50863	1	1	0.153	···	-5.02	19.	9.78	
133460	73700	SAO 83637	0.559	3.16	51975	51975	1	1	0.161	···	-4.94	14.	9.65	
133295	73754		0.573	4.53	52516	52829	5	4	0.297	3.36	-4.47	5.	8.87	
134319	73869		0.677	5.17	52515	52834	6	4	0.412	4.14	-4.35	5.	8.28	
134044	73941	HR 5630	0.537	4.00	50863	52452	7	3	0.159	···	-4.94	11.	9.65	
134083	73996	HR 5634	0.429	3.46	52797	52797	2	1	0.217	···	···[1]	···[1]	···[1]	d8: higher rand. err
134353	74118		0.852	5.41	52833	52833	1	1	0.252	···	-4.78	34.	9.39	
134440	74234	GJ 579.2B	0.850	7.08	51229	52713	12	9	0.221	1.06	-4.85	37.	9.51	
134439	74235	GJ 579.2A	0.770	6.74	50548	52829	41	15	0.227	0.93	-4.78	29.	9.40	
		SAO 101438	0.743	···	50276	52834	58	26	0.157	1.61	-5.04	37.	9.81	GJ 3897B
135101	74432	HR 5659	0.680	4.42	50276	52834	31	21	0.145	1.48	-5.11	32.	9.90	
134987	74500	HR 5657	0.691	4.42	50277	52829	53	20	0.147	1.89	-5.09	33.	9.89	23 Lib
135599	74702	SAO 120922	0.830	5.96	50863	51174	5	2	0.392	2.88	-4.52	17.	8.98	
136118	74948	SAO 140452	0.553	3.34	50863	50863	1	1	0.156	···	-4.97	13.	9.70	
136274	74954		0.737	5.36	52834	52834	1	1	0.152	···	-5.07	37.	9.85	
	74995	GJ 581	1.600	11.57	51410	52829	13	9	0.528	5.41	···[1]	···[1]	···[1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
136580	75039	SAO 45491	0.510	3.87	50863	52450	3	3	0.149	···	-4.99	10.	9.73	
136442	75101	HR 5706	1.062	3.50	50984	52834	37	19	0.129	1.63	··· [1]	··· [1]	··· [1]	
136654	75104	SAO 64647	0.532	3.68	50863	52451	2	2	0.156	···	-4.96	11.	9.68	
136544	75158	SAO 140480	0.475	3.46	51975	51975	1	1	0.137	···	-5.06	7.	9.84	
136713	75253	GJ 1191	0.970	6.28	50277	52834	36	22	0.323	14.47	··· [1]	··· [1]	··· [1]	
136834	75266	GJ 1192	0.992	6.25	50276	52807	16	16	0.243	11.94	··· [1]	··· [1]	··· [1]	
136923	75277	SAO 101515	0.804	5.64	50863	50863	1	1	0.239	···	-4.77	31.	9.38	
136925	75281	SAO 101514	0.656	4.58	50863	52834	19	12	0.157	1.44	-5.01	26.	9.77	
137510	75535	HR 5740	0.618	3.16	51975	52339	3	2	0.155	···	-5.01	22.	9.77	
137303	75542	GJ 3905	1.045	6.88	50548	50548	1	1	0.414	···	··· [1]	··· [1]	··· [1]	
138004	75676		0.676	4.94	52515	52807	5	3	0.173	0.66	-4.93	27.	9.64	
137763	75718	GJ 586A	0.788	5.40	50277	50277	1	1	0.173	···	-4.97	39.	9.71	
137778	75722	GJ 586B	0.868	5.98	50277	52835	15	14	0.570	4.38	-4.37	9.	8.43	See § 5.4
137812	75762	SAO 159285	0.821	3.73	52101	52101	1	1	0.143	···	-5.13	48.	9.94	
139813	75829		0.803	5.62	52515	52807	5	3	0.469	1.30	-4.40	10.	8.58	
138573	76114	SAO 101603	0.656	4.77	50863	50863	1	1	0.160	···	-5.00	26.	9.75	
138549	76200	SAO 206764	0.717	5.36	50547	52834	20	14	0.189	5.57	-4.88	29.	9.55	
138776	76228	SAO 140612	0.745	4.62	51311	52835	14	11	0.143	1.47	-5.12	40.	9.93	
139477	76315	SAO 16775	1.063	6.99	51227	52834	17	12	0.892	2.76	··· [1]	··· [1]	··· [1]	
139323	76375	GJ 591	0.946	5.91	50546	52835	26	21	0.237	13.30	··· [1]	··· [1]	··· [1]	
139341	76382	GJ 593A	0.906	5.09	50546	50610	3	2	0.202	2.32	··· [1]	··· [1]	··· [1]	
139324	76398	SAO 64802	0.633	3.88	51975	51975	1	1	0.152	···	-5.05	24.	9.82	
139457	76543	SAO 101658	0.531	3.69	51341	52835	13	10	0.145	0.76	-5.03	12.	9.80	
140538	77052	HR 5853	0.684	5.03	52308	52835	7	4	0.197	1.45	-4.83	24.	9.47	ψ Ser
141004	77257	HR 5868	0.604	4.07	50602	52452	24	6	0.160	1.02	-4.97	19.	9.70	ZI 1157
141399	77301		0.770	4.41	52834	52835	2	1	0.137	0.40	-5.17	45.	9.99	
141103	77335	SAO 140761	0.512	3.52	50863	50863	1	1	0.146	···	-5.02	10.	9.78	
141272	77408	GJ 3917	0.801	5.79	50276	50276	1	1	0.476	···	-4.39	9.	8.53	
141937	77740		0.628	4.63	52516	52835	7	3	0.169	1.26	-4.94	21.	9.65	
142373	77760	HR 5914	0.563	3.60	50602	50610	11	1	0.139	1.10	-5.11	16.	9.91	χ Her
142626	77790		0.835	5.91	52834	52834	1	1	0.259	···	-4.75	31.	9.35	
142267	77801	HR 5911	0.598	4.86	50276	51975	4	3	0.181	1.84	-4.85	16.	9.51	
142229	77810	SAO 121238	0.627	5.04	51341	52516	12	8	0.325	2.36	-4.45	7.	8.81	
142860	78072	HR 5933	0.478	3.62	52451	52451	1	1	0.172	···	-4.82	6.	9.46	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\mathrm{diff}}}/S$	log R'_{HK}	$\mathrm{P}_{\mathrm{rot}}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
143291	78241	GJ 9533	0.757	5.94	50276	52806	24	17	0.179	2.48	-4.94	35.	9.65	
143006			0.730	···	52516	52829	4	3	0.839	5.52	-4.03	0.5	< 7	V1149 Sco
143313	78259		0.995	3.47	50276	50276	1	1	1.693	···	··· [1]	··· [1]	··· [1]	MS Ser
143761	78459	HR 5968	0.612	4.18	50602	50610	10	1	0.145	1.32	-5.08	22.	9.87	ρ CrB
144287	78709		0.771	5.44	52834	52835	2	1	0.162	1.29	-5.02	39.	9.78	
144087	78738	GJ 9541A	0.750	5.18	50277	50277	1	1	0.267	···	-4.66	22.	9.22	
144088	78739	GJ 9541B	0.850	5.47	50277	50277	1	1	0.344	···	-4.60	23.	9.13	
144579	78775	GJ 611A	0.734	5.87	50546	52806	30	15	0.170	1.02	-4.97	34.	9.70	
144179	78842	GJ 9543A	0.818	4.73	50548	50984	12	4	0.194	1.37	-4.91	39.	9.61	
144253	78843	GJ 610.0	1.043	6.05	50547	51756	12	10	0.247	7.37	··· [1]	··· [1]	··· [1]	
144585	78955	HR 5996	0.660	4.02	50547	52829	19	15	0.146	3.11	-5.10	29.	9.89	
145148	79137	HR 6014	0.988	3.51	52101	52101	1	1	0.135	···	··· [1]	··· [1]	··· [1]	
145435	79152	SAO 45913	0.530	3.86	51013	52451	2	2	0.151	···	-4.99	11.	9.73	
145229	79165	SAO 101968	0.604	4.86	51013	51013	1	1	0.294	···	-4.50	7.	8.93	
144988	79214	SAO 207405	0.596	2.85	50548	52829	16	14	0.139	1.63	-5.13	21.	9.94	
145675	79248		0.877	5.32	50546	52834	46	27	0.161	4.63	-5.06	48.	9.84	14 Her
	79308	SAO 45950	0.714	5.36	52833	52833	1	1	0.161	···	-5.01	33.	9.76	
145934		SAO 102017	1.050	···	50606	52834	43	17	0.113	1.71	··· [1]	··· [1]	··· [1]	
145958 B	79492	GJ 615.1B	0.800	4.87	50276	52712	35	20	0.182	2.43	-4.94	39.	9.66	
145958 A	79492	GJ 615.1A	0.764	4.75	50276	52712	33	18	0.179	4.26	-4.94	36.	9.65	
145809	79524	GJ 3944	0.617	3.72	50277	52829	19	15	0.149	2.10	-5.06	22.	9.84	
146362		HR 6064	0.640	···	50546	52834	21	17	0.229	4.38	-4.69	16.	9.26	
147231	79619	GJ 9551	0.722	4.78	50546	52538	33	16	0.177	2.31	-4.93	31.	9.64	
146233	79672	HR 6060	0.652	4.76	50284	52805	139	18	0.169	1.95	-4.95	24.	9.66	ZI 1223
147379 A	79755	GJ 617A	1.409	8.47	51680	52805	14	8	1.593	5.42	··· [1]	··· [1]	··· [1]	
147379 B	79762		1.510	10.54	51707	52806	9	8	1.220	6.04	··· [1]	··· [1]	··· [1]	EW Dra
147044	79862	SAO 65213	0.631	4.71	51013	51013	1	1	0.168	···	-4.94	22.	9.66	
146775	79946	GJ 9553	0.616	4.61	50548	52829	32	18	0.166	2.02	-4.94	20.	9.66	
147512	80218	SAO 141126	0.718	5.13	51013	51013	1	1	0.170	···	-4.96	32.	9.69	
147750	80262		0.724	5.43	52833	52833	1	1	0.178	···	-4.93	32.	9.63	
	80295		1.009	6.98	51311	52807	13	11	0.431	6.52	··· [1]	··· [1]	··· [1]	BD -11 4126
147776	80366	GJ 621	0.950	6.73	50547	51314	2	2	0.392	6.61	··· [1]	··· [1]	··· [1]	
	80459	GJ 625	1.591	11.04	50862	52806	14	12	0.612	18.39	··· [1]	··· [1]	··· [1]	
148467	80644	GJ 626	1.253	7.59	50276	51314	2	2	0.716	10.83	··· [1]	··· [1]	··· [1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$\rm P_{rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
148427	80687	SAO 159932	0.950	3.03	52101	52101	1	1	0.124	···	···[1]	···[1]	···[1]	
	80824	GJ 628	1.604	11.95	51410	52805	20	14	0.892	11.75	···[1]	···[1]	···[1]	
150706	80902		0.607	4.84	52515	52807	5	3	0.249	3.61	-4.61	11.	9.14	
149200	81062	SAO 141237	0.533	3.64	51013	51013	1	1	0.141	···	-5.08	13.	9.86	
149652	81279	SAO 121722	0.523	3.68	51013	51013	1	1	0.143	···	-5.05	11.	9.82	
149661	81300	HR 6171	0.827	5.82	50602	52834	32	13	0.355	7.40	-4.57	20.	9.07	V2133 Oph
149724	81347	SAO 141271	0.783	4.12	52095	52807	10	6	0.139	1.54	-5.16	45.	9.98	
149806	81375	SAO 121731	0.828	5.57	51013	51013	1	1	0.222	···	-4.83	35.	9.48	
149933	81421		0.763	5.17	52833	52833	1	1	0.146	···	-5.11	42.	9.91	
150554	81662		0.591	4.41	52515	52834	6	4	0.186	0.92	-4.82	15.	9.46	
150433	81681	GJ 634.1	0.631	4.86	50276	52806	43	18	0.162	1.53	-4.98	22.	9.71	
150437	81767	SAO 184553	0.683	4.13	52095	52829	11	6	0.152	1.56	-5.06	31.	9.84	
151044	81800	SAO 30055	0.541	4.14	51975	51975	1	1	0.151	···	-5.00	13.	9.74	
151541	81813	GJ 637.1	0.769	5.63	50546	52834	37	23	0.168	1.62	-4.99	38.	9.73	
150933	81880	SAO 84562	0.573	3.99	51013	52451	2	2	0.153	···	-5.00	16.	9.75	
150698	81910	SAO 184581	0.674	3.36	50548	52829	17	13	0.135	1.48	-5.19	34.	10.02	
151090	81991		0.890	3.17	52101	52101	1	1	0.138	···	-5.17	53.	9.99	41 Her
151288	82003	GJ 638	1.310	8.15	50602	52807	22	10	1.248	7.32	···[1]	···[1]	···[1]	
151877	82267	GJ 639	0.821	5.85	50546	52806	16	15	0.208	7.42	-4.87	37.	9.53	
151995	82389	GJ 640	1.020	6.71	50276	52807	18	16	0.272	8.27	···[1]	···[1]	···[1]	
152446	82568	SAO 102445	0.529	3.42	51013	51013	1	1	0.157	···	-4.95	11.	9.67	
152391	82588		0.749	5.51	50602	51703	25	5	0.392	5.93	-4.44	10.	8.76	V2292 Oph
152311	82621	HR 6269	0.685	3.63	50548	50714	4	3	0.135	2.80	-5.19	35.	10.02	
152792	82636	SAO 46350	0.631	3.43	50547	52806	17	16	0.144	1.08	-5.11	25.	9.91	
152555	82688		0.591	4.43	52516	52834	7	3	0.334	4.30	-4.41	4.	8.65	
152781	82861	HR 6284	0.952	3.30	52101	52101	1	1	0.134	···	···[1]	···[1]	···[1]	
153525	83006	GJ 649.1C	1.004	6.71	50547	52835	13	7	0.613	6.27	···[1]	···[1]	···[1]	
153557	83020	GJ 649.1A	0.980	6.49	50547	52834	16	7	0.636	5.72	···[1]	···[1]	···[1]	
	83043	GJ 649	1.522	9.58	51410	52833	25	13	1.588	5.65	···[1]	···[1]	···[1]	
153458	83181	SAO 141474	0.652	4.78	50863	52829	16	13	0.257	13.19	-4.62	14.	9.15	
153627	83204	SAO 102522	0.594	4.23	51013	51013	1	1	0.167	···	-4.93	17.	9.63	
154345	83389	GJ 651	0.728	5.48	50547	52834	18	15	0.183	5.31	-4.91	31.	9.60	
154160	83435	HR 6339	0.770	3.72	52101	52101	1	1	0.137	···	-5.17	45.	9.99	
154088	83541	GJ 652	0.814	5.30	50548	52834	26	19	0.166	4.01	-5.02	42.	9.77	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$P_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
154363	83591	GJ 653	1.100	7.54	50276	52835	18	14	0.518	10.85	··· [1]	··· [1]	··· [1]	
154417	83601	HR 6349	0.578	4.45	51013	51013	1	1	0.248	···	-4.59	8.	9.12	V2213 Oph
154653	83689	GJ 654.2	0.960	0.30	50276	50608	2	2	0.098	0.57	··· [1]	··· [1]	··· [1]	
155060	83827	SAO 65809	0.562	4.42	51013	52449	2	2	0.157	···	-4.97	14.	9.70	
154962	83906	HR 6372	0.697	3.61	51013	51013	1	1	0.133	···	-5.21	37.	10.04	
155456	84028		0.869	5.44	52833	52833	1	1	0.168	···	-5.03	46.	9.80	
155423	84082	SAO 122157	0.569	3.56	51013	51013	1	1	0.144	···	-5.07	17.	9.85	
	84099	GJ 3992	···	11.14	52390	52833	5	4	0.817	8.02	···	···	···	
156279	84171		0.801	5.33	52833	52833	1	1	0.155	···	-5.06	43.	9.84	
155712	84195		0.941	6.39	52833	52833	1	1	0.205	···	··· [1]	··· [1]	··· [1]	
156146	84417	SAO 102690	0.734	4.25	51371	52190	18	8	0.207	5.06	-4.82	28.	9.46	
156026	84478		1.144	7.45	50984	52805	18	14	0.858	2.90	··· [1]	··· [1]	··· [1]	V2215 Oph
156668	84607		1.015	6.52	52833	52833	1	1	0.194	···	··· [1]	··· [1]	··· [1]	
156985	84616		1.019	6.59	52190	52806	11	6	0.305	7.72	··· [1]	··· [1]	··· [1]	
156365	84636	GJ 665.1	0.647	3.22	50277	52829	46	19	0.137	1.64	-5.17	29.	10.00	
		GJ 667C	1.570	10.97	52007	52804	10	7	0.633	4.80	··· [1]	··· [1]	··· [1]	LHS 443
	84790	GJ 671	1.560	10.91	52390	52833	3	3	0.601	···	··· [1]	··· [1]	··· [1]	
156826	84801	HR 6439	0.850	2.67	50276	52778	24	15	0.135	1.63	-5.18	52.	10.01	
157214	84862	HR 6458	0.619	4.59	50602	50608	9	1	0.151	0.99	-5.04	22.	9.81	
157466	85007	SAO 85045	0.526	4.51	51013	52449	2	2	0.165	···	-4.89	10.	9.58	
157172	85017	SAO 160504	0.783	5.22	52095	52829	10	6	0.177	3.97	-4.96	38.	9.68	
157347	85042	HR 6465	0.680	4.83	50955	52829	17	13	0.155	1.51	-5.04	30.	9.80	
157338	85158	SAO 208769	0.588	4.34	50548	52807	13	12	0.153	1.13	-5.01	18.	9.76	
158633	85235	HR 6518	0.759	5.90	51975	51975	1	1	0.181	···	-4.93	35.	9.63	
158222	85244	SAO 30377	0.667	4.76	50956	51369	6	4	0.177	1.44	-4.91	25.	9.61	
157881	85295	GJ 673	1.359	8.10	50276	52805	18	10	1.686	7.26	··· [1]	··· [1]	··· [1]	
158332	85436		0.820	5.31	52833	52833	1	1	0.150	···	-5.10	46.	9.89	
159062	85653		0.737	5.47	52833	52833	1	1	0.159	···	-5.03	36.	9.79	
	85665	GJ 678.1A	1.461	9.33	50955	52804	16	11	1.367	12.71	··· [1]	··· [1]	··· [1]	
159063	85799	SAO 102891	0.534	3.47	51013	52804	24	11	0.146	2.03	-5.03	12.	9.79	
159222	85810	HR 6538	0.639	4.65	50547	52835	19	17	0.177	3.62	-4.90	22.	9.58	
	86162	GJ 687	1.505	10.87	50604	52806	25	17	0.771	11.58	··· [1]	··· [1]	··· [1]	
159909	86193	SAO 102962	0.693	4.46	51013	51013	1	1	0.180	···	-4.91	28.	9.60	
	86287	GJ 686	1.530	10.08	50605	52804	17	12	0.691	10.16	··· [1]	··· [1]	··· [1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
160346	86400	GJ 688	0.959	6.38	50276	50276	1	1	0.284	···	··· [1]	··· [1]	··· [1]	
160693	86431	SAO 66228	0.576	4.70	50547	52835	29	18	0.160	1.33	-4.95	16.	9.67	
161897	86540		0.720	5.29	52515	52835	6	3	0.199	3.14	-4.84	28.	9.49	
161198	86722	GJ 692.1	0.752	5.65	50276	50667	4	3	0.171	1.40	-4.97	36.	9.70	
	86776	GJ 694	1.528	10.60	50956	52805	18	13	1.028	9.79	··· [1]	··· [1]	··· [1]	
	86961	GJ 2130	1.463	11.53	52007	52488	7	5	2.045	9.18	··· [1]	··· [1]	··· [1]	
161797	86974	HR 6623	0.750	3.80	50602	51411	48	4	0.145	1.35	-5.11	40.	9.92	86 Her
161555	86985	SAO 141859	0.671	3.63	51013	51013	1	1	0.144	···	-5.11	31.	9.91	
	87062		0.605	5.67	51410	52804	11	9	0.165	6.86	-4.94	19.	9.66	BD -08 4501
161848	87089	GJ 9605	0.822	6.00	50276	52829	18	16	0.183	2.17	-4.95	40.	9.67	
162826	87382	HR 6669	0.541	3.93	51013	52452	3	3	0.144	···	-5.05	13.	9.83	
	87579	GJ 697	0.940	6.52	50276	50276	1	1	0.602	···	··· [1]	··· [1]	··· [1]	
163102	87678	SAO 141954	0.516	3.76	51013	51013	1	1	0.146	···	-5.02	10.	9.77	
163153	87710	SAO 141956	0.759	3.66	51013	52834	40	21	0.133	1.69	-5.20	45.	10.03	
163489		GJ 4035	1.110	···	50276	52833	51	20	0.103	1.92	··· [1]	··· [1]	··· [1]	
163675	87834	SAO 103234	1.002	3.46	52101	52101	1	1	0.135	···	··· [1]	··· [1]	··· [1]	
163840	87895	HR 6697	0.642	4.04	50276	50276	1	1	0.161	···	-4.99	24.	9.73	
	87937	GJ 699	1.570	13.21	50602	52835	67	18	0.761	17.62	··· [1]	··· [1]	··· [1]	
164595	88194	SAO 85632	0.635	4.76	50956	52835	15	13	0.159	1.22	-5.00	23.	9.74	
164507	88217	HR 6722	0.747	3.01	50548	52835	53	18	0.143	1.80	-5.13	41.	9.94	
164651	88324		0.746	5.09	52833	52833	1	1	0.155	···	-5.05	38.	9.82	
164922	88348	GJ 700.2	0.799	5.31	50276	52834	47	24	0.158	1.45	-5.05	43.	9.82	
165045	88481		0.796	5.42	52833	52833	1	1	0.344	···	-4.55	18.	9.05	
165173	88511		0.762	5.39	52833	52833	1	1	0.162	···	-5.02	38.	9.78	
165567	88533	HR 6764	0.509	3.02	51013	52452	2	2	0.186	···	-4.77	7.	9.39	
165222	88574	GJ 701	1.508	9.91	50602	52835	28	18	0.990	4.69	··· [1]	··· [1]	··· [1]	
165341	88601		1.150	7.49	50284	50284	1	1	0.945	···	··· [1]	··· [1]	··· [1]	70 Oph B
165360	88656	SAO 142081	0.526	3.38	51013	51013	1	1	0.229	···	-4.62	6.	9.15	
165438	88684	HR 6756	0.968	3.02	52101	52101	1	1	0.124	···	··· [1]	··· [1]	··· [1]	
165908	88745	GJ 704A	0.500	3.95	50547	50547	1	1	0.145	···	-5.02	9.	9.77	
165908	88745	GJ 704B	1.100	7.31	50603	50603	1	1	0.146	···	··· [1]	··· [1]	··· [1]	
	88778	SAO 103400	1.276	1.22	50548	50666	4	3	0.113	1.16	··· [1]	··· [1]	··· [1]	
166435	88945	SAO 85784	0.633	4.83	51013	51014	2	1	0.450	0.39	-4.27	3.	7.27	
166620	88972	HR 6806	0.876	6.15	50602	52452	12	4	0.186	1.89	-4.97	44.	9.70	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End JD-2400000	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
	89215		0.755	6.52	51410	52804	12	9	0.175	1.52	-4.96	35.	9.68	BD +05 3640
167215	89270	SAO 85832	0.578	3.60	52063	52538	11	6	0.139	1.50	-5.12	19.	9.93	
167216	89275	SAO 85834	0.529	3.70	52063	52835	14	8	0.143	1.05	-5.05	12.	9.83	
167389	89282	SAO 47313	0.649	4.76	50956	52835	16	12	0.214	3.73	-4.75	18.	9.35	
168009	89474	HR 6847	0.641	4.52	51013	52450	3	3	0.147	···	-5.08	26.	9.87	
167665	89620	HR 6836	0.536	4.00	50284	52575	20	16	0.152	2.92	-4.99	12.	9.73	
168603	89771		0.771	5.45	52833	52833	1	1	0.373	···	-4.49	13.	8.90	
168443	89844	GJ 4052	0.724	4.03	50277	52835	102	31	0.143	1.67	-5.12	38.	9.93	
168723	89962	HR 6869	0.941	1.84	52148	52148	2	1	0.118	···	··· [1]	··· [1]	··· [1]	
168746	90004	SAO 161386	0.713	4.78	51756	52804	13	9	0.155	1.16	-5.05	34.	9.82	
169822	90355	SAO 123474	0.699	5.67	51373	52489	26	13	0.169	1.23	-4.96	30.	9.69	
169889	90365		0.764	5.42	52833	52833	1	1	0.172	···	-4.97	37.	9.70	
169830	90485	HR 6907	0.517	3.10	51756	52835	11	9	0.140	1.87	-5.07	11.	9.86	
170174		SAO 123515	1.080	···	50548	52835	33	17	0.096	2.25	··· [1]	··· [1]	··· [1]	
170778	90586	SAO 47529	0.619	4.66	51013	51013	1	1	0.308	···	-4.48	7.	8.89	
170469	90593	SAO 103765	0.677	4.15	51706	52804	22	10	0.147	1.93	-5.09	31.	9.88	
170493	90656	GJ 715	1.074	6.67	50276	52829	23	18	0.431	13.61	··· [1]	··· [1]	··· [1]	
170829	90729	HR 6950	0.795	3.72	52101	52101	1	1	0.136	···	-5.17	47.	10.00	
170657	90790	GJ 716	0.861	6.21	50277	52804	28	17	0.320	5.30	-4.65	26.	9.21	
171067	90864	GJ 1229	0.692	5.20	50276	52836	25	19	0.176	4.66	-4.92	28.	9.62	
171314	90959		1.181	7.05	50276	50276	1	1	0.425	···	··· [1]	··· [1]	··· [1]	V774 Her
		GJ 4063	1.420	···	51441	52833	4	4	1.281	8.44	··· [1]	··· [1]	··· [1]	LP 229-17
171665	91287	GJ 9630	0.687	5.03	50284	52836	19	18	0.178	6.45	-4.91	27.	9.61	
171918	91332	SAO 142443	0.679	4.18	51706	52804	9	8	0.151	1.53	-5.06	30.	9.84	
172310	91381	GJ 9631	0.704	5.70	50547	52835	18	15	0.184	6.97	-4.89	28.	9.57	
172051	91438	HR 6998	0.673	5.28	50284	52835	33	18	0.179	2.89	-4.90	25.	9.59	
172649	91507	SAO 67221	0.525	4.12	51013	51013	1	1	0.287	···	-4.46	3.	8.85	
	91699	GJ 4070	1.579	11.00	52099	52833	5	5	0.523	···	··· [1]	··· [1]	··· [1]	
172513	91700	SAO 210475	0.748	5.34	50548	52834	40	22	0.208	3.74	-4.82	30.	9.47	
173739	91768	GJ 725A	1.504	11.18	50602	52776	21	14	0.440	12.40	··· [1]	··· [1]	··· [1]	
173740	91772	GJ 725B	1.561	11.97	50602	52804	20	13	0.654	19.83	··· [1]	··· [1]	··· [1]	
173701	91949	GJ 725.1	0.843	5.36	50548	52804	16	14	0.214	12.06	-4.87	38.	9.53	
173667	92043	HR 7061	0.483	2.79	52123	52123	1	1	0.166	···	-4.86	6.	9.53	
173818	92200	GJ 726	1.295	8.06	51313	52835	11	10	1.221	10.30	··· [1]	··· [1]	··· [1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End JD-2400000	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
174080	92283	GJ 727	1.070	6.78	51314	51314	1	1	0.837	···	··· [1]	··· [1]	··· [1]	
229590	92311	GJ 728	1.284	8.01	51442	51442	1	1	0.941	···	··· [1]	··· [1]	··· [1]	
174457	92418	SAO 104160	0.621	3.84	51373	52516	14	8	0.150	1.13	-5.05	23.	9.82	
174912	92532	SAO 67481	0.594	4.76	51013	52450	2	2	0.164	···	-4.94	17.	9.65	
175317	92882	HR 7126	0.445	3.03	51707	51707	1	1	0.184	···	-4.74	3.	9.33	
175541	92895	GJ 736	0.869	2.49	50284	52834	30	20	0.126	3.06	-5.23	56.	10.07	
175518	92918	SAO 142809	0.747	4.83	51013	51013	1	1	0.160	···	-5.02	37.	9.78	
175726	92984	SAO 124077	0.583	4.55	51013	51013	1	1	0.331	···	-4.41	4.	8.65	
176051	93017	GJ 738B	1.000	6.46	50548	50548	1	1	0.154	···	··· [1]	··· [1]	··· [1]	
176029	93101	GJ 740	1.444	8.99	51442	51442	1	1	1.747	···	··· [1]	··· [1]	··· [1]	
176377	93185	GJ 9639	0.606	4.95	50547	52835	87	15	0.178	1.71	-4.87	17.	9.54	
230409	93341	SAO 104353	0.703	6.07	51410	52804	13	9	0.175	1.59	-4.93	30.	9.64	
176733	93377		0.705	4.88	52833	52833	1	1	0.155	···	-5.04	33.	9.81	
177153	93427	SAO 48012	0.569	4.12	51013	52123	3	2	0.154	···	-4.99	15.	9.73	
176982	93518	GJ 740.1A	0.738	3.47	50284	52835	19	16	0.142	1.64	-5.14	40.	9.95	
177830	93746	GJ 743.2	1.093	3.32	50276	52833	51	22	0.125	1.60	··· [1]	··· [1]	··· [1]	
		GJ 745B	1.570	11.02	50983	52833	10	9	0.282	···	··· [1]	··· [1]	··· [1]	G 185-4
349726 A		GJ 745A	1.580	11.01	50983	52833	9	7	0.310	···	··· [1]	··· [1]	··· [1]	
178911 B	94075	SAO 67875	0.750	4.62	51342	52805	15	9	0.168	3.86	-4.98	36.	9.72	
179957	94336	HR 7293	0.650	4.77	50548	52836	17	15	0.152	1.00	-5.05	27.	9.83	
179958	94336	HR 7294	0.650	4.59	50548	52836	15	14	0.148	1.34	-5.08	27.	9.86	
180161	94346		0.804	5.53	52833	52833	1	1	0.372	···	-4.52	16.	8.98	
230999	94615		0.687	4.69	51793	52833	10	6	0.153	2.46	-5.05	31.	9.82	
179949	94645	HR 7291	0.548	4.09	51793	52835	14	9	0.188	1.66	-4.79	10.	9.41	
180684	94751	SAO 104678	0.588	3.18	51373	52516	15	9	0.141	1.32	-5.11	20.	9.91	
180617	94761		1.464	10.28	52062	52836	23	10	0.981	7.46	··· [1]	··· [1]	··· [1]	V1428 Aql
182189	94802		0.729	4.11	52833	52833	1	1	0.135	···	-5.19	41.	10.02	
181144	94905	SAO 104707	0.541	4.20	51013	51013	1	1	0.249	···	-4.57	6.	9.07	
180702	94926	SAO 211161	0.579	3.35	50366	50366	1	1	0.150	···	-5.02	17.	9.78	
181655	94981	HR 7345	0.676	4.28	50806	51707	35	10	0.171	1.32	-4.94	27.	9.66	
181234	95015	SAO 143270	0.841	5.15	51342	52835	19	11	0.153	2.15	-5.08	47.	9.87	
181720	95262	SAO 211218	0.599	4.10	50366	50366	1	1	0.147	···	-5.07	20.	9.85	
182488	95319	HR 7368	0.804	5.42	51013	51013	1	1	0.183	···	-4.94	39.	9.65	
182619	95428		0.718	5.19	52833	52833	1	1	0.155	···	-5.05	35.	9.82	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$P_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
182572	95447	HR 7373	0.761	4.27	50367	52834	49	19	0.148	2.65	-5.10	41.	9.89	
183255	95575	GJ 1237	0.929	6.01	50548	50716	4	4	0.213	5.30	···[1]	···[1]	···[1]	
183263	95740	SAO 124664	0.678	4.25	52095	52833	20	11	0.145	1.87	-5.11	32.	9.91	
183341	95772	SAO 104879	0.623	4.20	51013	51013	1	1	0.157	···	-5.00	22.	9.75	
183650	95821	GJ 761.1	0.718	4.14	50548	52833	27	18	0.145	2.00	-5.11	37.	9.92	
183756	95926	SAO 104914	0.915	2.95	52101	52101	1	1	0.128	···	···[1]	···[1]	···[1]	
183658	95962	GJ 9659	0.640	4.60	50955	52835	17	14	0.160	1.41	-4.99	24.	9.73	
183870	96085	GJ 1240	0.922	6.25	50277	52835	26	15	0.546	2.44	···[1]	···[1]	···[1]	
185144	96100	HR 7462	0.786	5.87	50602	52834	96	10	0.206	8.61	-4.85	34.	9.51	
184385	96183	GJ 762.2	0.745	5.37	51013	51013	1	1	0.314	···	-4.56	16.	9.06	
184962	96434	SAO 105038	0.531	3.54	51013	51013	1	1	0.250	···	-4.56	5.	9.06	
185395	96441	HR 7469	0.395	3.14	52112	52517	92	8	0.187	···	···[1]	···[1]	···[1]	θ Cyg
184860	96471	GJ 764.1A	1.011	5.97	50284	52489	22	16	0.237	8.37	···[1]	···[1]	···[1]	
185501	96576		0.719	4.97	52833	52833	1	1	0.229	···	-4.74	24.	9.33	
185295		SAO 124877	0.840	···	50366	52833	20	16	0.138	1.47	-5.16	50.	9.98	
185720	96813	SAO 143674	0.525	3.57	51013	51013	1	1	0.157	···	-4.94	10.	9.66	
186408	96895	HR 7503	0.643	4.32	50602	52489	13	3	0.145	1.78	-5.10	27.	9.90	16 Cyg
186427	96901	HR 7504	0.661	4.60	52489	52489	1	1	0.148	···	-5.08	29.	9.87	
186704	97255	SAO 125036	0.612	4.62	51342	51412	5	2	0.380	3.04	-4.35	4.	8.26	
187123	97336	SAO 68845	0.661	4.43	50806	52834	60	17	0.155	1.41	-5.03	27.	9.80	
187237	97420	SAO 87733	0.660	4.79	51013	52805	20	12	0.210	3.00	-4.77	20.	9.38	
187691	97675	HR 7560	0.563	3.68	52106	52160	3	2	0.146	···	-5.05	16.	9.82	o Aql
187923	97767	HR 7569	0.642	3.95	50277	52835	26	18	0.146	1.59	-5.09	26.	9.88	
188015	97769	SAO 87842	0.727	4.63	51755	52836	23	10	0.155	4.65	-5.05	36.	9.82	
187897	97779	SAO 125154	0.647	4.52	51013	52573	39	14	0.243	5.46	-4.65	15.	9.21	
187760	97805	SAO 188654	1.155	7.21	51442	51442	1	1	1.135	···	···[1]	···[1]	···[1]	
188088	97944	HR 7578	1.017	5.46	50277	50277	2	1	0.643	0.45	···[1]	···[1]	···[1]	V4200 Sgr
188510	98020	SAO 105417	0.599	5.85	51342	52834	16	11	0.148	1.57	-5.05	20.	9.83	
188512	98036	HR 7602	0.855	3.03	50602	50609	9	1	0.130	1.00	-5.21	54.	10.04	
188376	98066	HR 7597	0.748	2.82	50284	50715	6	5	0.178	4.71	-4.94	34.	9.65	ω Sgr
189087	98192	GJ 773.2	0.797	5.88	50276	50367	2	2	0.302	4.97	-4.63	22.	9.16	
188807	98204	GJ 773	1.318	7.91	51442	51442	1	1	0.941	···	···[1]	···[1]	···[1]	
189067	98206	SAO 87974	0.641	4.04	51013	51013	1	1	0.150	···	-5.06	26.	9.84	
189733	98505		0.932	6.25	52833	52833	1	1	0.525	···	···[1]	···[1]	···[1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$P_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
189561	98575	HR 7643	0.981	1.10	50284	50367	2	2	0.154	1.32	···[1]	···[1]	···[1]	
189625	98589	SAO 163190	0.654	4.67	50806	52835	20	16	0.200	3.29	-4.80	20.	9.43	
190067	98677	GJ 775.1	0.714	5.72	50277	52834	25	19	0.189	5.90	-4.88	29.	9.55	
190007	98698		1.128	6.87	50984	52835	25	15	0.662	6.36	···[1]	···[1]	···[1]	V1654 Aql
190228	98714	SAO 88118	0.793	3.33	52238	52835	8	5	0.135	1.46	-5.18	47.	10.01	
190360	98767	HR 7670	0.749	4.72	50366	52836	67	21	0.148	1.54	-5.09	40.	9.89	
190404	98792	GJ 778	0.815	6.32	50276	52833	25	20	0.176	1.35	-4.98	41.	9.71	
190406	98819	HR 7672	0.600	4.56	50602	52576	43	14	0.199	4.39	-4.77	15.	9.39	
190470	98828	GJ 779.1	0.924	6.15	50276	50366	2	2	0.342	11.40	···[1]	···[1]	···[1]	
190412	98878		0.705	5.08	52832	52832	1	1	0.170	···	-4.96	31.	9.68	
190771	98921	HR 7683	0.654	4.80	51013	51013	1	1	0.350	···	-4.43	7.	8.72	
191022	98978	SAO 49176	0.661	3.95	51013	51013	1	1	0.153	···	-5.05	28.	9.82	
191391	99385	GJ 782	1.296	7.93	51442	51442	1	1	1.298	···	···[1]	···[1]	···[1]	
193202	99427	GJ 786	1.320	7.75	51342	52805	12	5	0.892	3.21	···[1]	···[1]	···[1]	
191785	99452	GJ 783.2A	0.830	5.78	50277	52833	31	21	0.165	1.60	-5.03	44.	9.79	
192020		GJ 4138	0.860	···	50548	52834	21	15	0.447	5.27	-4.48	15.	8.90	
192263	99711	SAO 144192	0.938	6.30	50984	52834	28	16	0.488	5.53	···[1]	···[1]	···[1]	
192343	99727	SAO 125595	0.680	3.92	50366	52834	15	11	0.145	1.83	-5.11	32.	9.91	
192344	99729	SAO 125597	0.704	3.72	51755	52834	13	8	0.136	1.79	-5.18	37.	10.01	
193216	99965	SAO 32429	0.747	5.70	52515	52540	2	1	0.184	0.56	-4.91	33.	9.61	
193017	100072	SAO 144266	0.567	4.45	51013	51013	1	1	0.209	···	-4.71	10.	9.29	
193795	100363	SAO 88563	0.683	4.23	51793	52836	14	10	0.150	1.14	-5.07	31.	9.85	
194035	100500	SAO 106041	0.726	3.71	51013	51013	1	1	0.147	···	-5.10	37.	9.90	
193901	100568	SAO 189226	0.554	5.45	51410	52835	15	10	0.155	1.37	-4.97	14.	9.71	
194766	100895	SAO 144449	0.520	4.15	51013	51013	1	1	0.159	···	-4.93	10.	9.63	
194765	100896	SAO 144450	0.519	3.29	51707	52159	2	2	0.157	···	-4.94	10.	9.65	
195034	100963		0.642	4.84	52515	52836	6	4	0.166	2.32	-4.96	23.	9.68	
195019 A	100970	SAO 106138	0.662	4.01	51013	52835	37	18	0.147	1.87	-5.09	29.	9.88	
195019 B	100970		1.150	7.34	51439	52835	13	7	0.675	12.21	···[1]	···[1]	···[1]	4.1 ″from component A
195104	101059	SAO 125857	0.512	4.25	51013	51013	1	1	0.166	···	-4.88	9.	9.56	
	101180	GJ 793	1.542	11.04	50984	52805	9	8	1.600	7.76	···[1]	···[1]	···[1]	
195564	101345	HR 7845	0.689	3.74	50366	52778	28	17	0.142	1.59	-5.13	34.	9.94	
195987	101382		0.796	5.35	52832	52832	1	1	0.175	···	-4.97	39.	9.70	
196201	101597	SAO 106276	0.759	5.58	51368	52540	16	7	0.181	5.33	-4.93	35.	9.63	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	P$_{\rm rot}$ (days)	log (Age/yr)	Note
196850	101875	GJ 794.3	0.610	4.61	50548	52835	24	15	0.161	1.97	-4.97	20.	9.70	
196885	101966	HR 7907	0.559	3.80	51013	52450	2	2	0.151	···	-5.01	15.	9.76	
196761	101997	HR 7898	0.719	5.53	50277	52835	29	18	0.179	3.00	-4.92	31.	9.63	
197076	102040	HR 7914	0.611	4.82	50366	52836	21	16	0.170	3.25	-4.92	19.	9.62	
197214	102264	GJ 4157	0.671	5.20	50277	50715	5	4	0.175	1.46	-4.92	26.	9.62	
	102401	GJ 806	1.491	10.29	50602	52805	12	11	0.948	10.55	··· [1]	··· [1]	··· [1]	
197711	102486	SAO 189666	0.914	5.21	50984	51051	3	2	0.187	0.94	··· [1]	··· [1]	··· [1]	
198089	102610	SAO 106494	0.587	4.47	51013	51013	1	1	0.158	···	-4.98	17.	9.71	
198387	102642	HR 7972	0.883	3.18	52101	52101	1	1	0.134	···	-5.19	54.	10.02	
198425	102766		0.939	6.38	52832	52832	1	1	0.448	···	··· [1]	··· [1]	··· [1]	
199019	102791		0.767	5.51	52515	52807	6	4	0.457	1.48	-4.37	8.	8.44	
198550	102851	GJ 808.2	1.068	6.74	50276	50276	1	1	0.938	···	··· [1]	··· [1]	··· [1]	
199476	102970	GJ 1255D	0.685	5.45	50604	52836	19	11	0.168	1.43	-4.96	28.	9.69	
	103039		1.653	12.71	52805	52835	2	1	1.294	6.96	··· [1]	··· [1]	··· [1]	LP 816-60
198802	103077	HR 7994	0.661	3.11	50366	52833	28	16	0.146	3.58	-5.10	29.	9.89	
199305	103096	GJ 809	1.483	9.31	50602	52835	19	14	1.553	7.27	··· [1]	··· [1]	··· [1]	
	103256	GJ 1259	1.054	7.04	50366	50366	2	1	0.555	0.26	··· [1]	··· [1]	··· [1]	
	103269		0.590	6.05	51343	52833	20	10	0.156	1.84	-4.99	18.	9.74	BD +41 3931
199598	103455	SAO 89320	0.584	4.32	51013	52160	4	3	0.207	···	-4.73	12.	9.32	
199960	103682	HR 8041	0.635	4.10	50366	52836	21	16	0.147	2.13	-5.08	25.	9.87	11 Aqr
199918	103735	SAO 212635	0.620	4.41	50366	50957	6	5	0.172	2.64	-4.91	20.	9.61	
200560	103859	GJ 816.1A	0.970	6.26	50548	50548	1	1	0.621	···	··· [1]	··· [1]	··· [1]	
200565	103983	SAO 126508	0.650	4.37	51341	52806	31	12	0.195	2.98	-4.82	21.	9.46	
200538	104071	SAO 212692	0.606	4.01	50366	52836	18	15	0.146	2.22	-5.07	21.	9.85	
200746	104075	SAO 126530	0.654	4.74	51373	52515	14	7	0.326	2.34	-4.47	8.	8.86	
200779	104092	GJ 818	1.119	7.41	50277	50366	4	2	0.750	10.45	··· [1]	··· [1]	··· [1]	
201651	104225		0.766	5.61	52832	52832	1	1	0.163	···	-5.01	38.	9.77	
200968	104239	GJ 819A	0.901	5.89	50984	52833	15	9	0.420	5.14	··· [1]	··· [1]	··· [1]	
201219	104318		0.692	5.23	52515	52836	8	3	0.267	6.38	-4.62	16.	9.16	
201203	104367	SAO 190052	0.511	3.09	52095	52836	14	7	0.179	1.19	-4.81	8.	9.44	
	104432	GJ 821	1.490	10.45	51704	52829	8	6	0.362	···	··· [1]	··· [1]	··· [1]	
201924	104587		0.780	5.40	52834	52836	2	1	0.151	2.04	-5.08	42.	9.87	
201891	104659	SAO 106908	0.525	4.63	51013	52162	2	2	0.170	···	-4.86	10.	9.53	
202108	104733	SAO 71071	0.666	5.17	51013	51013	1	1	0.210	···	-4.77	20.	9.38	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	$\rm P_{rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
201989	104809		0.689	5.01	52516	52833	6	3	0.313	5.43	-4.52	12.	8.98	
202573	105000	GJ 822.2	0.887	0.69	50276	51075	21	9	0.103	1.76	-5.39	71.	10.25	
202575	105038	GJ 824	1.020	6.84	50367	52835	20	13	0.746	2.94	…[1]	…[1]	…[1]	
202751	105152	GJ 825.3	0.990	6.73	50366	52832	20	16	0.246	8.31	…[1]	…[1]	…[1]	
203030	105232		0.750	5.39	52515	52830	7	3	0.450	3.10	-4.37	7.	8.39	
203040	105341	GJ 826.1	1.340	8.02	51442	51442	1	1	1.642	…	…[1]	…[1]	…[1]	
202917	105388		0.690	5.34	52539	52833	4	2	0.537	5.64	-4.22	2.	< 7	
204277	105918		0.529	4.07	52515	52807	6	3	0.250	0.75	-4.56	5.	9.06	
	106106	GJ 829A	1.620	11.19	50957	50957	1	1	0.850	…	…[1]	…[1]	…[1]	
204814	106122		0.759	5.56	52833	52833	1	1	0.156	…	-5.05	39.	9.82	
204587	106147	GJ 830	1.261	7.83	50366	52807	23	15	0.755	9.41	…[1]	…[1]	…[1]	
205905	106913		0.623	4.71	52516	52807	6	3	0.247	3.54	-4.63	12.	9.17	
	106924		0.551	6.27	51410	52830	16	8	0.130	3.09	-5.20	16.	10.03	BD +59 2407
206332	107040	SAO 89899	0.600	3.91	51013	52160	2	2	0.159	…	-4.98	19.	9.71	
207897	107038		0.868	6.07	52832	52832	1	1	0.251	…	-4.79	35.	9.42	
206374	107070		0.686	5.30	52515	52834	7	4	0.256	2.22	-4.64	17.	9.19	
206387	107107	SAO 126991	0.720	4.57	51341	52829	18	10	0.429	2.95	-4.36	7.	8.38	
207485	107457		0.727	5.10	52832	52832	1	1	0.387	…	-4.43	9.	8.72	
207491		GJ 838.1A	1.040	6.71	50366	50366	2	1	0.568	0.29	…[1]	…[1]	…[1]	
207740	107821	SAO 90050	0.737	4.50	51342	51793	13	4	0.217	1.56	-4.79	27.	9.41	
207839	107822		0.777	5.15	52833	52833	1	1	0.196	…	-4.88	34.	9.56	
207804	107840	SAO 71762	1.062	0.45	50604	50689	3	2	0.197	5.00	…[1]	…[1]	…[1]	
207966	107920		0.798	5.50	52833	52833	1	1	0.194	…	-4.90	37.	9.59	
207874	107941	SAO 127122	0.880	5.71	50984	52807	15	10	0.175	4.98	-5.01	46.	9.77	
207992	107958		0.720	5.23	52832	52832	1	1	0.157	…	-5.03	35.	9.80	
208038	108028		0.937	6.28	52832	52832	1	1	0.533	…	…[1]	…[1]	…[1]	
208313	108156	GJ 840	0.911	6.19	51374	51374	1	1	0.279	…	…[1]	…[1]	…[1]	
208527	108296	HR 8372	1.698	-1.34	50276	50419	7	3	0.288	2.92	…[1]	…[1]	…[1]	
208776	108473	SAO 127201	0.577	3.82	51013	51013	1	1	0.147	…	-5.05	17.	9.83	
208801	108506	HR 8382	0.971	3.46	50366	52836	26	16	0.125	1.33	…[1]	…[1]	…[1]	
208880	108525		0.755	5.70	52832	52832	1	1	0.206	…	-4.83	31.	9.48	
209393	108774		0.693	5.33	52515	52834	7	3	0.346	2.04	-4.46	10.	8.84	
209290	108782	GJ 846	1.453	9.10	51410	52806	16	7	1.717	7.81	…[1]	…[1]	…[1]	
209253	108809		0.504	4.24	52515	52807	7	3	0.278	0.79	-4.47	3.	8.87	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month	Grand S	$\sigma_{S_{\rm diff}}/S$	log $R'_{\rm HK}$	P$_{\rm rot}$	log (Age/yr)	Note
					JD-2400000			Bins		%		(days)		
209458	108859		0.594	4.29	51341	52836	56	14	0.154	1.40	-5.00	19.	9.75	V376 Peg
209599	108947		0.816	5.85	52832	52832	1	1	0.197	···	-4.90	38.	9.59	
209779	109110	SAO 145866	0.674	4.82	51374	51374	1	1	0.349	···	-4.44	8.	8.78	
209875	109144	SAO 127300	0.537	3.72	51013	52829	23	12	0.147	2.23	-5.02	12.	9.78	
210144	109162		0.788	5.33	52832	52832	1	1	0.174	···	-4.97	39.	9.70	
211681	109169	SAO 3704	0.735	3.85	52096	52602	10	6	0.147	2.03	-5.10	38.	9.89	
210312	109355	SAO 107694	0.670	4.89	52095	52806	22	8	0.156	2.09	-5.03	28.	9.79	
210277	109378	GJ 848.4	0.773	4.90	50277	52829	66	26	0.155	1.98	-5.06	41.	9.83	
	109388	GJ 849	1.531	10.65	51410	52834	15	7	1.042	4.08	··· [1]	··· [1]	··· [1]	
210302	109422	HR 8447	0.489	3.58	51342	52807	12	9	0.147	1.33	-4.99	8.	9.73	τ PsA
210392	109428	SAO 145912	0.702	3.95	51793	52829	16	9	0.154	2.25	-5.05	33.	9.83	
210460	109439	HR 8455	0.688	2.46	50276	52834	51	21	0.215	12.69	-4.77	22.	9.38	
210667	109527	GJ 850	0.812	5.48	51013	51440	17	5	0.389	3.47	-4.50	15.	8.95	
	109555	GJ 851	1.465	9.96	52095	52834	7	5	1.838	10.47	··· [1]	··· [1]	··· [1]	
210752	109646	SAO 145939	0.535	4.56	51013	51013	1	1	0.167	···	-4.89	11.	9.57	
211038	109822	GJ 851.3	0.890	3.64	50277	52832	62	22	0.135	1.58	-5.18	54.	10.01	
211080	109836	SAO 145965	0.756	3.27	52095	52807	10	6	0.136	1.14	-5.18	44.	10.01	
		SAO 51891	0.960	···	52515	52829	7	3	1.011	1.64	··· [1]	··· [1]	··· [1]	V383 Lac
212291	110508		0.682	5.36	52515	52836	14	3	0.198	2.78	-4.82	24.	9.46	
212733	110716		0.902	6.00	52832	52832	1	1	0.165	···	··· [1]	··· [1]	··· [1]	
212801	110853	SAO 213830	0.810	3.19	50367	52832	33	18	0.189	7.95	-4.92	38.	9.62	
239960 A	110893	GJ 860A	1.613	11.58	50606	52601	19	13	0.707	10.39	··· [1]	··· [1]	··· [1]	
239960 B	110893		1.800	13.31	51439	51439	1	1	0.659	···	··· [1]	··· [1]	··· [1]	DO Cep
213042	110996	GJ 862	1.080	6.71	52189	52807	8	6	0.374	9.14	··· [1]	··· [1]	··· [1]	
213472	111136		0.700	4.13	52095	52807	12	7	0.145	1.63	-5.11	35.	9.91	ZI 2096
213519	111148	SAO 52097	0.649	4.50	50806	52833	19	12	0.156	1.18	-5.02	26.	9.78	
213575	111274	SAO 146142	0.668	4.17	51013	51013	1	1	0.147	···	-5.09	30.	9.88	
213628	111349	GJ 9787	0.721	5.27	50367	52807	19	14	0.175	3.39	-4.94	32.	9.65	
214557	111748	SAO 52209	0.582	3.54	51013	52162	6	3	0.143	0.94	-5.09	18.	9.88	
214683	111888		0.938	6.70	52832	52832	1	1	0.590	···	··· [1]	··· [1]	··· [1]	
214749	111960	GJ 868.0	1.143	7.17	50277	52832	23	14	1.156	4.80	··· [1]	··· [1]	··· [1]	
215152	112190	GJ 4291	0.966	6.45	51010	52807	16	11	0.293	11.11	··· [1]	··· [1]	··· [1]	
215500	112245		0.719	5.50	52832	52832	1	1	0.165	···	-4.99	33.	9.73	
215578		SAO 108160	0.970	···	50367	52536	24	16	0.112	1.76	··· [1]	··· [1]	··· [1]	

Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin JD-2400000	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\rm diff}}/S$ %	log $R'_{\rm HK}$	$P_{\rm rot}$ (days)	log (Age/yr)	Note
215704	112426		0.803	5.50	52833	52833	1	1	0.196	···	-4.90	37.	9.58	
215648	112447	HR 8665	0.502	3.15	52121	52229	16	3	0.139	···	-5.07	10.	9.86	ξ Peg
216520	112527	SAO 3796	0.867	6.03	52189	52833	11	7	0.181	2.49	-4.98	44.	9.72	
216191	112768		0.859	5.75	52832	52832	1	1	0.205	···	-4.90	40.	9.59	
216182	112813		1.192	0.18	50366	50786	5	4	0.112	1.96	···[1]	···[1]	···[1]	72 Aqr; See § 5.4
216275	112812		0.590	4.74	52515	52807	7	3	0.165	1.87	-4.93	17.	9.64	
216320	112829		0.817	5.45	52833	52833	1	1	0.259	···	-4.73	29.	9.32	
216259	112870	GJ 9798	0.849	6.68	50276	52807	30	17	0.188	1.65	-4.95	42.	9.67	
	113020	GJ 876	1.597	11.79	50602	52835	115	24	1.020	10.44	···[1]	···[1]	···[1]	
216625	113086	SAO 108240	0.530	3.82	51013	52162	6	4	0.160	0.72	-4.93	11.	9.63	
216770	113238		0.821	5.22	52832	52832	1	1	0.193	···	-4.92	39.	9.62	
216803	113283		1.094	7.07	52515	52807	4	3	0.913	4.21	···[1]	···[1]	···[1]	
216899	113296	GJ 880	1.507	9.49	50666	52807	20	14	1.882	6.74	···[1]	···[1]	···[1]	
217014	113357	HR 8729	0.666	4.52	52121	52190	17	3	0.148	···	-5.08	29.	9.87	
217004	113386	SAO 191529	0.679	3.41	50367	52807	23	15	0.140	1.57	-5.15	33.	9.96	
217107	113421	HR 8734	0.744	4.70	51014	52832	53	22	0.150	1.36	-5.08	39.	9.87	
217165	113438	SAO 127869	0.617	4.47	51342	52829	33	16	0.165	1.28	-4.95	20.	9.67	
217357	113576	GJ 884	1.379	8.33	50366	52830	37	15	1.569	6.14	···[1]	···[1]	···[1]	
217618	113695	SAO 72937	0.724	4.22	51374	51374	1	1	0.148	···	-5.09	37.	9.88	
217813	113829		0.620	4.72	51374	52159	2	2	0.316	···	-4.47	7.	8.85	MT Peg
217877	113896	HR 8772	0.581	4.24	51014	52829	14	7	0.152	2.00	-5.01	17.	9.76	
218168	113905	SAO 10607	0.632	4.68	52096	52834	14	8	0.302	1.59	-4.50	8.	8.94	
218209	113989	GJ 9808	0.646	5.12	50667	52806	25	14	0.180	2.26	-4.89	22.	9.57	
218101	113994	HR 8784	0.886	3.40	52101	52101	1	1	0.164	···	-5.06	48.	9.83	
218133	114028	SAO 108390	0.597	4.21	51014	51014	1	1	0.153	···	-5.02	19.	9.78	
217987	114046	GJ 887	1.483	9.76	50984	52830	29	12	1.070	11.30	···[1]	···[1]	···[1]	
218235	114081	HR 8788	0.482	2.98	52158	52160	3	1	0.206	···	-4.67	5.	9.23	
218261	114096	HR 8792	0.544	4.18	52123	52159	2	2	0.213	···	-4.68	8.	9.25	
218566	114322	GJ 4313	1.012	6.21	50367	52829	23	15	0.245	17.18	···[1]	···[1]	···[1]	
218687	114378	SAO 108437	0.607	4.48	51014	51014	1	1	0.343	···	-4.41	5.	8.62	
218739	114385	SAO 52754	0.658	4.77	51014	51014	1	1	0.301	···	-4.52	10.	8.99	
	114411	GJ 891	1.566	10.29	52829	52829	1	1	1.168	13.73	···[1]	···[1]	···[1]	
218730	114424	SAO 146541	0.604	4.57	51014	51014	1	1	0.177	···	-4.88	17.	9.55	
218868	114456	SAO 52768	0.750	5.13	51014	51014	1	1	0.231	···	-4.75	27.	9.35	

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Table 2—Continued

HD	HIP	Other	B-V	M_V	Begin	End	# Obs	# Month Bins	Grand S	$\sigma_{S_{\mathrm{diff}}}/S$ %	log R'_{HK}	$\mathrm{P}_{\mathrm{rot}}$ (days)	log (Age/yr)	Note
					JD-2400000									
219172	114670	SAO 108468	0.561	4.05	51014	52162	2	2	0.178	···	-4.85	12.	9.50	
219175 B	114703	SAO 146578	0.651	5.96	50367	50367	1	1	0.179	···	-4.89	23.	9.57	
219420	114834	SAO 128069	0.537	3.52	51014	51014	1	1	0.156	···	-4.96	12.	9.68	
219538	114886	GJ 4320	0.871	6.15	50462	52829	20	16	0.233	9.67	-4.84	38.	9.49	
219542 B	114914		0.654	3.91	52446	52830	15	6	0.204	4.76	-4.78	20.	9.40	
219542 A	114914	SAO 146605	0.640	4.50	52446	52805	11	5	0.158	1.92	-5.00	24.	9.75	
219834 A	115126	HR 8866	0.787	3.62	50366	50366	1	1	0.159	···	-5.04	41.	9.81	94 Aqr A
219834 B	115125	GJ 894.2B	0.880	6.06	50366	52829	34	19	0.230	12.35	-4.85	39.	9.51	
219953	115194	GJ 9822	0.811	6.36	50276	52829	27	19	0.175	1.23	-4.98	41.	9.71	
220077	115279		0.561	4.08	51369	52488	24	9	0.171	1.34	-4.88	13.	9.55	HEI 88
220096	115312	HR 8883	0.817	0.63	50366	50366	1	1	0.492	···	-4.39	9.	8.52	
220182	115331	GJ 894.4	0.801	5.66	50667	50667	1	1	0.494	···	-4.37	8.	8.41	
	115332	GJ 4333	1.524	11.55	52488	52829	3	3	0.945	9.28	··· [1]	··· [1]	··· [1]	
220221	115341		1.056	6.51	52834	52834	1	1	0.627	···	··· [1]	··· [1]	··· [1]	
220339	115445	GJ 894.5	0.881	6.35	50367	52830	20	15	0.					

Note. — $B-V$ and M_V values are from Hipparcos Perryman et al. (1997), where available. *Begin* and *End* are the dates of the first and last observations used to compute the grand S. *# Month Bins* denotes total number of time bins used to determine the grand S as defined in § 5.1.1. *# Obs* denotes the total number of observations of the target included in grand S. $\sigma_{S_{\mathrm{diff}}}/S$ is the fractional standard deviaton of the differential S values for a star (for those stars with Keck data) and measures the star's intrinsic variability. The overall uncertainty in the grand S varies from star to star, but we conservatively estimate it to be around 13%, in general (see § 5.1). *log (Age/yr)* values less than 7 are entered as "< 7". Coordinates in the *Note* column are J2000 Hipparcos coordinates. Other entries in the *Note* column are explained in § 5.3

[1] The chromospheric activity relation used to derive this quantity is only calibrated for stars with $0.44 < B-V < 0.9$.

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