A&A 519, A12 (2010)
DOI: 10.1051/0004-6361/200913949
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Astronomy & Astrophysics

1318 new variable stars in a 0.25 square degree region of the Galactic plane⋆

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Received 23 December 2009 / Accepted 14 May 2010

ABSTRACT

We conducted a deep photometric survey of a 0.5° × 0.5° area of the Galactic plane using the WFI instrument on the 2.2-m ESO telescope on La Silla, Chile. The dataset comprises a total of 267 *R*-band images, 204 from a 16 day observation run in 2005, supplemented by 63 images from a six week period in 2002. Our reduction employed the new numerical kernel difference image analysis method as implemented in the PYSIS3 code and resulted in more than 500 000 lightcurves of stars down to a magnitude limit of $R \sim 24.5$. A search for variable stars resulted in the detection of 1318 variables of different types. 1011 of these are eclipsing or contact binary stars. A number of the contact binaries have low mass-ratios and several of the detached binaries appear to have low-mass components. Three candidate contact binaries have periods at the known cut off including two with periods lower than any previously published. Also identified are 3 possible pre-main sequence detached eclipsing binaries.

Key words. catalogs – binaries: eclipsing – stars: variables: general

1. Introduction

During the past decade, many photometric surveys have aimed at the detection of extrasolar planets via transits or microlensing. A byproduct of these programmes is the detection of large numbers of variable stars (Wozniak et al. 2002; Wyrzykowski et al. 2004; Soszynski et al. 2008a,b, 2009; Bayne et al. 2002; Albrow et al. 2001; Weldrake et al. 2004, 2007).

In contrast to previous surveys, which have generally targeted the Galactic Bulge, Magellanic Clouds or globular clusters, this survey is of a 0.25 square degree region of the Galactic Plane, centred on galactic coordinates (330.94, −2.28). The majority of stars in this field are thought to be associated with the Norma Spiral Arm. In this paper we present a comprehensive catalogue of variable stars that we have detected, most of which are binary stars.

2. Observations

All observations for this project were obtained using the WFI camera on the ESO 2.2 m telescope at La Silla, Chile. The initial images were taken during 2002 as part of a microlensing followup study by the PLANET collaboration (Albrow et al. 1998). A follow-up observation run was made in 2005 in service mode using MPIA time (P.I. C. Afonso).

The WFI camera is a 4 by 2 mosaic of EEV CCD44 chips each containing 2k by 4k 15-μ pixels. The pixel scale is 0.238 arcsec/pixel. The total dataset (including the pilot data from 2002) is comprised of 267 *R*-band images, though a few were bad enough to be removed from the dataset prior to processing. For the most part the stellar images have a full width at half maximum of between 5 and 8 pixels. Due to inclement weather and other considerations, only half of the anticipated number of images was obtained during the 2005 observing run. A summary of the observations is given in Table 1.

Table 1. Summary of the observations used in this survey.

Year	Date	Filter	Number	Exposure time
2002	25 Jun.–15 Aug.	*R*	63	600
2005	26 Jul.–25 Aug.	*R*	204	720
2005	26 Jul.–25 Aug.	*B*	3	720
2005	26 Jul.–25 Aug.	*I*	3	720

3. Reduction

Bias-subtraction and flat-fielding of the images was performed using the ESOWFI and MSCRED packages in IRAF. After the mosaic images had been pre-processed they were divided into individual FITS files for each CCD chip that were further sectioned into eight 1k by 1k sub-images, resulting in 64 file sets (eight sections of eight CCD chips).

Difference imaging was carried out on each of the 64 image sets using PYSIS3 (Albrow et al. 2009). This code employs an optimal numerical convolution kernel (Bramich 2008) to match a photometric reference template to each target image in turn. This pixel representation of the kernel is the major point of difference with respect to the ISIS code (Alard & Lupton 1998), which uses a sum of Gaussian functions multiplied by polynomials to define the kernel. For the current application, each pixel in the kernel

⋆ The photometric data for the variable stars (catalogue) is only available in electronic form at the CDS via anonymous ftp to cdsarc.u-strasbg.fr (130.79.128.5) or via http://cdsweb.u-strasbg.fr/cgi-bin/qcat?J/A+A/vol/pg

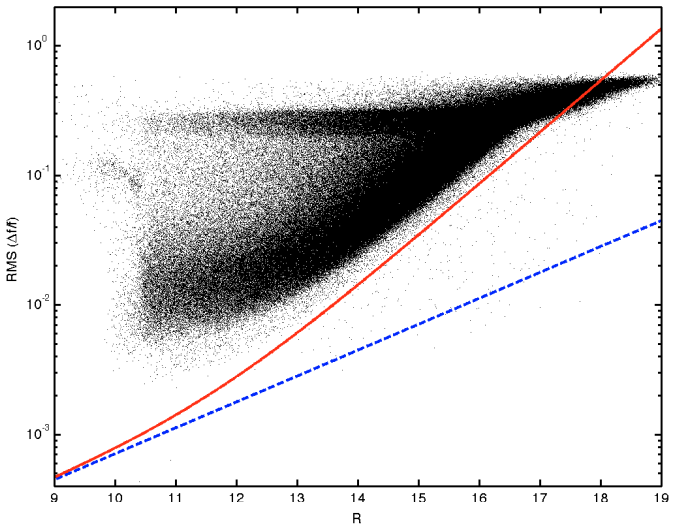

Fig. 1. rms scatter of $(\Delta f/f)$ lightcurves as a function of R magnitude. Also plotted are Poisson noise with (*upper line*) and without (*lower line*) average sky and readout noise.

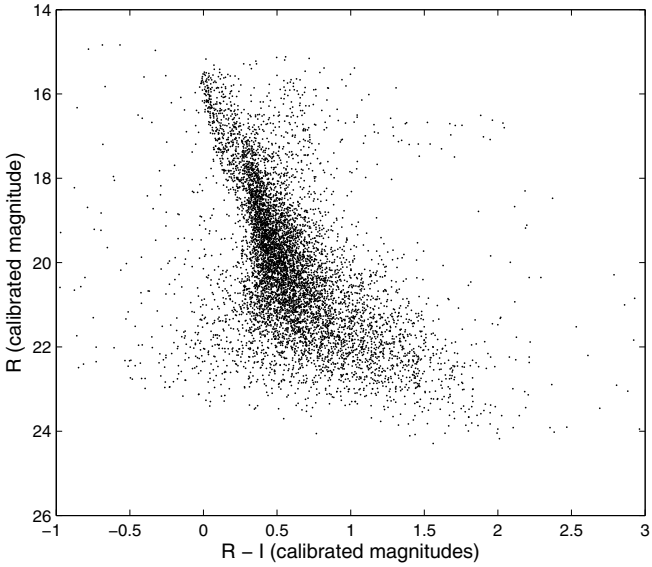

Fig. 2. Colour magnitude diagram of a subset of the field (1B).

was allowed to have a linear spatial variation across each 1k by 1k subimage.

Prior to the difference-imaging process, the best-seeing image was chosen as the astrometric template, and all other images were aligned to the nearest pixel of this template using integral-pixel XY shifts. A feature of our reduction method is that complete registration is not required, meaning that image interpolation can be avoided.

After several tests, our photometric reference frame was chosen to be a stack of three of the best-seeing images in the dataset. All these images had the best seeing over all eight chips and were all from the 2005 dataset.

PYSIS3 was developed for reduction of microlensing events and as such is designed to obtain a single lightcurve of the target star. For this project the code was modified to cycle through a list of coordinates of star positions. Optimal PSF-fitting photometry of all identified stars was carried out as follows. First, the PSF of the reference image was computed using a combination of relatively isolated bright stars. This reference PSF was then convolved to each target image and an optimal fit made at the coordinates of each star. The reduction of the dataset was accomplished using an IBM P575 supercomputer at the University of Canterbury's BlueFern facility, and resulted in difference-flux lightcurves for more than 500 000 stars.

The DAOPHOT (Stetson 1987) package in PYRAF was used to find stellar positions and fluxes on the reference images. Between seven and thirteen thousand stars were identified on each subimage using DAOFIND. ALLSTAR PSF photometry was performed to determine reference fluxes for all identified stars. In Fig. 1 we show the rms scatter in the photometric measurements as a function of R magnitude for the entire dataset.

4. Calibration

Using the astrometric capabilities of SKYCAT/GAIA (Albrecht et al. 1997) and ALADIN (Bonnarel et al. 2000) the x, y pixel coordinates of the reference frames have been transformed to J2000 sky coordinates defined using Digitized Sky Survey[1] (DSS) images and coordinates from the United States Naval Observatory (USNO) catalogue (Monet et al. 2003).

Similarly to the coordinate calibration, around 150 stars were identified in the reference frame from the USNO catalogue (Monet et al. 2003). The USNO B1.0 $R1$ magnitudes were recorded and compared with those found on the reference template using DAOPHOT. The average offset for the R magnitudes over the field as compared to the USNO B1.0 $R1$ magnitudes was used to correct our instrumental magnitudes. The corrections for B and I were made in similar fashion. We note that no colour-dependent terms have yet been applied and that our "calibrated" magnitudes are solely corrections to put them on the USNO B1.0 scale. Figure 2 shows a calibrated colour-magnitude diagram of a subset of the field.

5. Variable search

The initial variable star search was made by using the Lomb-Scargle (LSA) period finding algorithm (Lomb 1976). The LSA was run on every lightcurve with trial periods distributed logarithmically between 0.01 and 10 days. The highest power was recorded with the attendant false alarm probability and period. The period range was chosen due to the limits on observations – there are only 16 consecutive days of observations that are well sampled. Longer periods were considered but due to the uneven spacing of the data it is far less likely that a variable with period longer than 10 days (where we will see only a single cycle) will be detected with its correct period. However some longer period variables have been detected through their aliases.

In order to determine the appropriate threshold for variable star detections, simulated sinusoidal variables were inserted into a subset of the real data. The simulated variables had periods chosen randomly in the range 0.01 to 10 days and amplitudes in the range 0.05 to 0.5 mag, and were subjected to the same LSA procedure as the real data. We found that 80% of simulated variables had LSA false alarm probabilities (FAP)

[1] This research has made use of the Digitized Sky Surveys, produced at the Space Telescope Science Institute under US Government grant NAG W-2166. The images of these surveys are based on photographic data obtained using the Oschin Schmidt Telescope on Palomar Mountain and the UK Schmidt Telescope. The plates were processed into the present compressed digital form with the permission of these institutions.

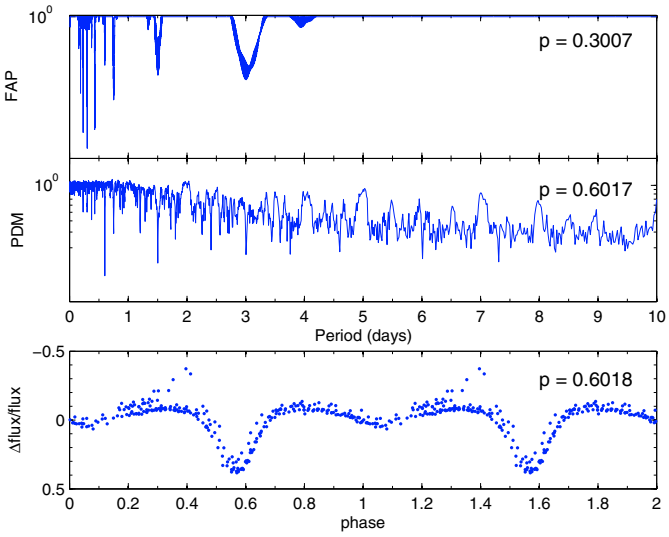

Fig. 3. Periodograms for an eclipsing binary star detected by the LSA (*top panel*) and PDM (*middle panel*) algorithms. The LSA minimum FAP is at half the correct period. The phased lightcurve (using the final refined period) of the star (V-728) is shown in *the bottom panel*.

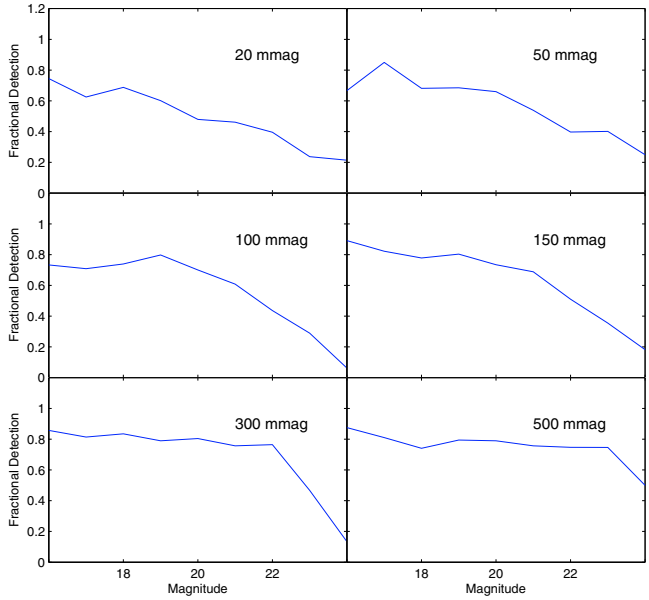

Fig. 4. Results from insertion of simulated sinusoidal variables into real data and searched with the variable detection algorithm – panels show correctly detected variables as a fraction of inserted sinusoids as a function of R magnitude for each amplitude.

below 10^{-8}, with the FAP decreasing as the amplitude increases. Conservatively, we adopted 10^{-6} as our LSA FAP threshold.

The Phase Dispersion Minimization (PDM) method (Stellingwerf 1978) was also used to refine the periods of detected variable stars. Our tests showed that this algorithm was more accurate than LSA in identifying the correct period for non-sinusoidal variables. Figure 3 shows the LSA and PDM periodograms for a sample eclipsing binary lightcurve.

Variable star candidates were chosen from the complete data set by first taking all stars with LSA FAP below the adopted threshold. Candidate variables with FAP below an initial threshold had their periods refined by further application of LSA or PDM with a smaller trial period interval. Visual examination of the phased lightcurves was used to reject many of these initial candidates. The majority of rejected candidates had non-continuous phased lightcurves with periods close to 1 day. A further systematic search for close variables with the same period led to the rejection of other candidates.

By comparing the number of simulated sinusoidal variables with LSA FAP below the adopted threshold and recovered periods within 10% of the inserted period or an alias, we have assessed our variable-star detection efficiency (Fig. 4). The efficiency peaks at 90% for bright, high-amplitude variables. For lower amplitudes the detection efficiency drops significantly for fainter stars.

6. Variable catalogue

A total of 1318 variable stars have been identified, only one of which is previously known (see Sect. 6.1 for more details). The catalogue includes a large number of eclipsing binaries with 143 of Agol type, 335 of β Lyrae type and 533 contact binaries (W Uma type). Also found are 9 possible Cepheids (DCEP) and a large number of un-categorized pulsating stars (PUL).

The catalogue (Table 2) lists the star identification number, right ascension, declination, calibrated magnitudes of R, $B-R$ and $R-I$ where available, the period, variable type and any notes. A classification that is not certain is followed by a colon (i.e. EA:), a star of both types is given both designations (i.e. EA + PUL) and where there is ambiguity in the class the two types are combined with a slash (i.e. EA/PUL). The notes column contains any other information ascertained about the star.

6.1. Previously known variables

Using the *VizieR* (Ochsenbein et al. 2000) on-line database we queried the Combined General Catalogue of Variable Stars (GCVS) (Samus et al. 2010) which includes those stars labelled New Suspected Variable (NSV) and also the All Sky Automated Survey (ASAS) (Pojmanski & Maciejewski 2004) which has a catalogue of Southern Variables. A 30′ cone search was performed at the field coordinates.

The search returned thirteen variable stars within the search area. These were examined individually by comparing our reference images to the DSS image of the region displayed by Aladin (Bonnarel et al. 2000) overlain with the variable stars found by *VizieR*. Four of the thirteen fell outside the frame of the observations and three others appeared between the CCD chips. One set of coordinates belonged to an ASAS V band lightcurve and was not detected in our images. The remaining five were detected in our images but of the five, four were strongly saturated and not in our DAOPHOT catalogue. The final star (HO Nor, an Agol type eclipsing binary with a period of 2.12317 days) was saturated in most frames and our lightcurve contains only a few points.

The remaining 1317 variables found from this survey are previously unknown.

7. Contact binaries

Contact binaries (EW) are amongst the most common variable stars. Contact binaries are detected at a rate of approximately 1 in 500 FGK dwarfs (Rucinski 2006). Here, we have catalogued 533 EW type stars out of 1318 variables.

Due to the similarities in lightcurve morphology, it is possible that some of the stars we have categorized as EW are in fact BY Draconis stars. For such cases, the catalogued period is twice the rotation period.

Table 3. Table of contact binaries with maxima of different brightness.

ID	Subset	Right Ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-4	1A	16:20:47.06	–53:25:06.8219	18.66	1.67	2.05	0.4131	EW
V-81	1C	16:20:34.42	–53:20:30.1431	17.77	1.95	0.68	0.3164	EW
V-220	2B	16:19:26.09	–53:23:07.7984	17.35	2.00	0.43	0.3629	EW
V-240	2C	16:19:39.44	–53:19:3.5470	18.12	2.34	0.59	0.3500	EW
V-333	2G	16:19:37.64	–53:11:39.8602	18.06	2.94	0.43	0.3213	EW
V-369	3A	16:18:59.77	–53:25:09.8420	16.74	2.00	0.19	0.2779	EW
V-472	3E	16:19:00.24	–53:16:15.5261	17.58	2.08	0.61	0.3683	EW
V-493	3F	16:18:36.50	–53:17:09.0202	16.23	1.87	1.75	0.2725	EW
V-528	3F	16:18:22.90	–53:14:53.5032	17.55	1.97	1.72	0.2577	EW
V-536	3G	16:18:40.88	–53:13:35.2199	16.68	1.69	0.45	0.2602	EW
V-540	3G	16:18:50.54	–53:13:15.8250	18.10	2.13	0.52	0.3485	EW
V-558	3G	16:18:54.13	–53:11:08.7186	18.95	2.33	0.85	0.2487	EW
V-570	3H	16:18:17.36	–53:12:29.4420	21.25	2.81	1.07	0.3532	EW
V-572	3H	16:18:17.49	–53:12:27.6664	17.42	2.01	0.83	0.2998	EW
V-604	4A	16:18:00.36	–53:24:10.6221	17.14	2.45	0.45	0.3846	EW
V-608	4A	16:17:47.16	–53:23:23.0615	16.09	1.68	0.24	0.3603	EW
V-923	5F	16:17:27.67	–53:31:43.2577	19.61	2.81	1.03	0.3122	EW
V-935	5G	16:17:58.58	–53:28:30.9711	19.54	2.40	0.82	0.3566	EW
V-941	5G	16:17:53.57	–53:27:48.4901	18.66	2.58	0.84	0.2410	EW
V-944	5G	16:17:46.51	–53:27:35.2609	18.40	2.54	0.84	0.3445	EW
V-1008	6B	16:18:26.62	–53:39:41.9407	16.17	1.50	0.60	0.3095	EW
V-1063	6E	16:18:42.36	–53:33:26.3744	16.28	1.47	0.65	0.3555	EW
V-1066	6E	16:18:41.01	–53:32:31.6337	20.30	2.69	1.08	0.3732	EW
V-1154	7B	16:19:27.62	–53:40:41.6333	17.22	1.82	0.87	0.4547	EW
V-1199	7D	16:19:14.08	–53:37:10.5505	17.82	1.84	0.41	0.2723	EW
V-1409	8F	16:20:16.80	–53:33:40.5853	16.49	1.31	0.50	0.4010	EW
V-1417	8F	16:20:31.49	–53:33:04.9446	19.53	1.54	1.08	0.2378	EW

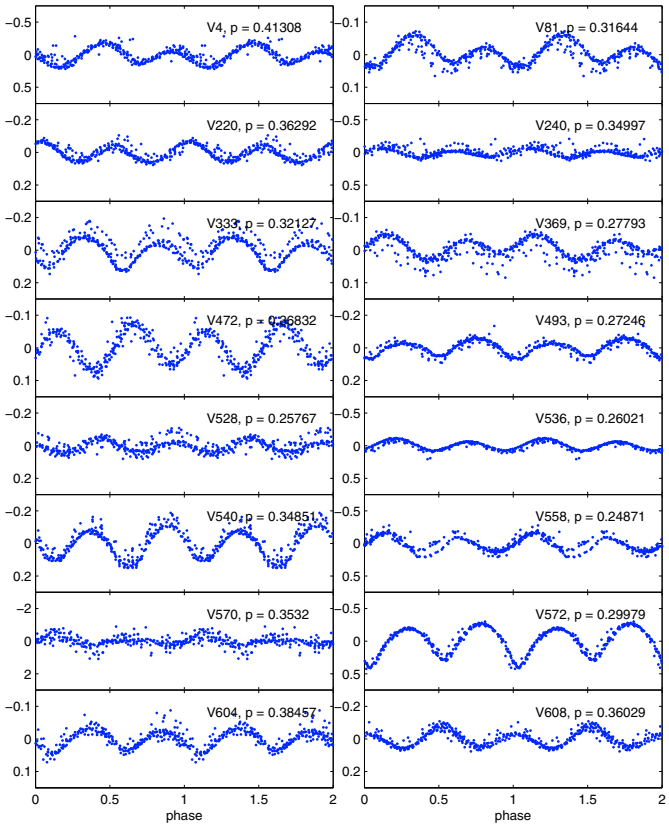

Fig. 5. Lightcurves of contact binaries with maxima of different brightness.

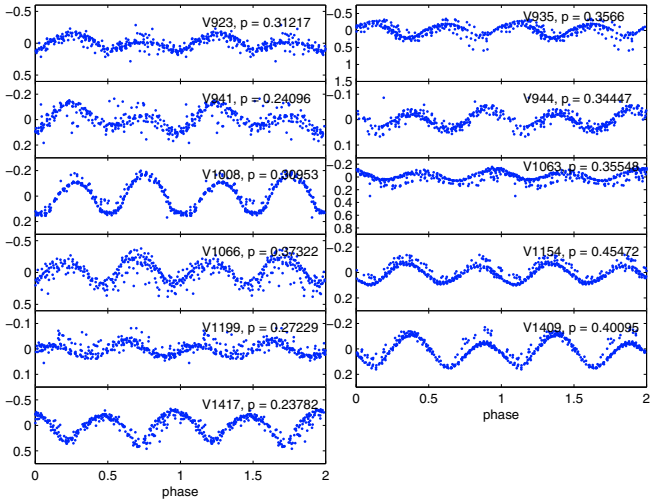

Fig. 6. Lightcurves of contact binaries with maxima of different brightness.

In the list of EW type stars there are a number with maxima at different brightness (the O'Connell effect) (O'Connell 1951; Davidge & Malone 1984). These variables are listed in Table 3 with lightcurves in Figs. 5 and 6.

Contact binaries have a strong period cut-off at approximately 0.215 to 0.22 days with a population maximum at slightly longer periods – around 0.27 days. The period cutoff is well known, but the reasons are not understood. Rucinski (2007) has made a study of contact binaries found in the All-Sky Automated Survey. The ASAS survey contains more than 3000 contact binaries but includes only one (083128+1953.1) with a period less than 0.22 d. That star has the shortest period of a contact eclipsing binary (0.2178 d) known prior to this paper.

From the variable stars found in this survey, we identified three as probable contact binaries with periods of less than

Table 4. Contact binaries with periods close to that of the known period cutoff.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-737	4G	16:17:50.67	–53:13:47.9457	19.19	2.65	1.16	0.2109	EW
V-301	2F	16:19:27.64	–53:16:24.3907	22.14		1.68	0.2143	EW
V-1085	6F	16:18:14.03	–53:32:50.9721	21.21	2.80	1.33	0.2199	EW

Table 5. Contact binaries that may have a low mass-ratio.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-26	1A	16:20:43.91	–53:23:29.7361	19.17	2.27	1.96	0.3631	EW
V-175	1H	16:20:08.57	–53:11:51.7763	17.98	2.34	0.81	0.3982	EW
V-193	2A	16:19:38.23	–53:24:59.8532	16.47	1.25	0.97	0.3907	EW
V-231	2C	16:19:42.23	–53:20:23.1327	18.42	2.30	0.48	0.3802	EW
V-410	3B	16:18:22.56	–53:24:10.8596	19.03	1.69	1.00	0.3794	EW
V-540	3G	16:18:50.54	–53:13:15.8250	18.10	2.13	0.52	0.3485	EW
V-568	3H	16:18:15.50	–53:12:36.5601	17.37	2.03	0.66	0.3559	EW
V-603	4A	16:18:04.46	–53:24:25.2664	15.73	1.92	0.47	0.3762	EW
V-766	4H	16:17:31.19	–53:13:13.1713	17.07	1.93	0.51	0.3761	EW
V-786	4H	16:17:23.08	–53:10:55.8408	18.15	2.34	0.71	0.3237	EW
V-948	5G	16:18:04.49	–53:27:07.6592	17.07	2.09	0.05	0.3804	EW
V-962	5H	16:17:27.09	–53:28:59.5381	19.12	2.30	0.62	0.3090	EW
V-968	5H	16:17:38.22	–53:27:28.1100	16.90	1.64	0.59	0.3760	EW
V-976	6A	16:19:00.14	–53:41:37.2113	17.33	2.45	0.04	0.3441	EW
V-1117	6H	16:18:36.27	–53:28:26.7849	19.44	2.35	0.56	0.3212	EW
V-1230	7E	16:19:56.70	–53:32:24.1384	15.89	1.06	0.38	0.3066	EW
V-1350	8C	16:20:34.33	–53:37:18.2836	18.30	2.13	0.56	0.3506	EW
V-1453	8G	16:20:45.64	–53:27:00.6708	18.61	2.40	0.17	0.3026	EW

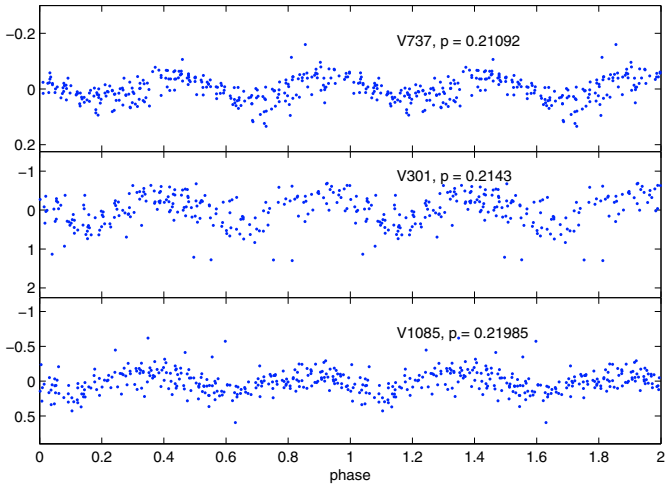

Fig. 7. Lightcurves of the three probable contact binaries with periods of less than 0.22 days.

0.22 days, and another 4 with periods less than 0.23 days. Table 4 lists the three shortest period candidates and their lightcurves are shown in Fig. 7. All three systems are faint and it is possible that they are reddened pulsating stars, rather than binaries. Followup photometry on the systems is desired to confirm their nature and verify the periods. Two of the stars have shorter periods than any contact binary published thus far.

The literature on contact binaries contains a number with low mass-ratios. The lightcurves of these systems always have a flat bottomed minimum and a period within the range 0.3 to 0.4 d. The flat bottom of the minimum is caused by the full eclipse of the smaller component of the binary. Our catalogue of contains 18 contact binaries whose lightcurves correspond to these criteria (see Table 5 and Fig. 8). There are also 14 contact binaries with flat bottomed lightcurves which fall outside the period range −0.3 to 0.4 d (see Table 6 and Fig. 9).

As for contact binaries with low mass-ratios it is possible to use the lightcurves found in the catalogue to identify systems that may have low-mass components. As in Weldrake et al. (2007), we select contact binaries with periods of less than 0.25 days (19 candidates) and those Agol-type detached binaries with periods less than 1.6 days and non-varying out of eclipse lightcurves (9 candidates). The variables are listed in Tables 7 and 8 and their lightcurves shown in Figs. 10 and 11. A number of these are brighter objects which would allow spectroscopic followup to confirm the nature of the components.

7.1. Observed contact binary fraction

The observed fraction of contact binary stars in the field can be calculated from the number of detected contact binaries. As the variable star detection efficiency is not 100% we must take this into account when we determine the binary fraction. We use the detection efficiency for an average amplitude (150 mmag) to determine an effective number of stars with detectible variations to be 62.6% of the total. From the fraction of detected contact eclipsing binaries we can make an estimate of the total fraction of contact binary stars in the field. There are 533 detected contact binaries. The effective number of field stars is 335 592 giving an observed fraction of contact binaries as 0.16%. Taking into account non-detections due to unfavourable orientations causes this number to double to 0.32%, which tallies well with the rate of contact binaries found amongst main-sequence stars in the disk of the Galaxy by Rucinski (1997).

Table 6. Contact binaries that may have a low mass-ratio – the lightcurves have shape but not periods suggesting low mass-ratios.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-9	1A	16:20:50.50	–53:24:40.1987	19.05	1.33	2.28	0.5106	EW
V-92	1C	16:20:48.80	–53:19:04.3178	19.24	2.23	0.94	0.4076	EW
V-115	1E	16:20:53.66	–53:17:11.7310	19.14	2.55	0.67	0.5553	EW
V-467	3E	16:18:59.97	–53:16:25.5253	19.25	2.83	0.52	0.4095	EW
V-482	3E	16:18:56.66	–53:15:05.8831	17.15	1.95	0.53	0.4277	EW
V-493	3F	16:18:36.50	–53:17:09.0202	16.23	1.87	1.75	0.2725	EW
V-523	3F	16:18:30.89	–53:15:11.5286	16.49	2.38		0.9037	EW
V-984	6A	16:18:47.74	–53:41:03.6335	17.74	2.84	0.61	0.6118	EW
V-1091	6F	16:18:38.73	–53:31:56.7975	17.24	2.20	1.08	0.5765	EW
V-1232	7E	16:19:39.57	–53:32:12.9626	18.13	1.65	0.90	0.4570	EW
V-1272	7G	16:19:38.92	–53:27:04.6993	18.47	2.33	0.82	0.2853	EW
V-1312	8A	16:20:38.43	–53:38:56.5849	17.00	1.24	4.28	0.5868	EW
V-1354	8C	16:20:48.55	–53:36:20.9116	18.64	1.86	0.80	0.4498	EW
V-1422	8F	16:20:09.11	–53:32:17.6392	18.48	1.92	0.75	0.4381	EW

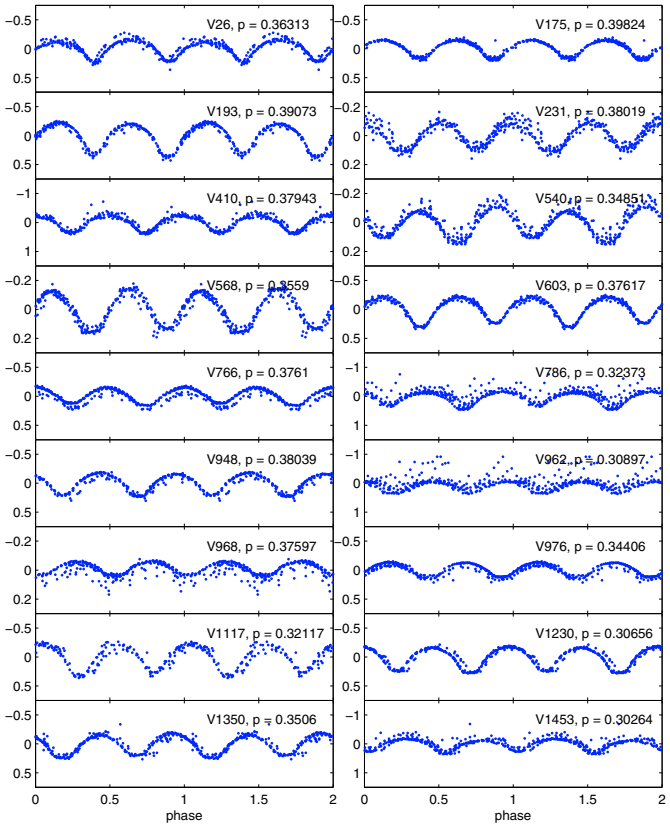

Fig. 8. Lightcurves of the contact binaries with shape and periods suggesting low mass-ratios.

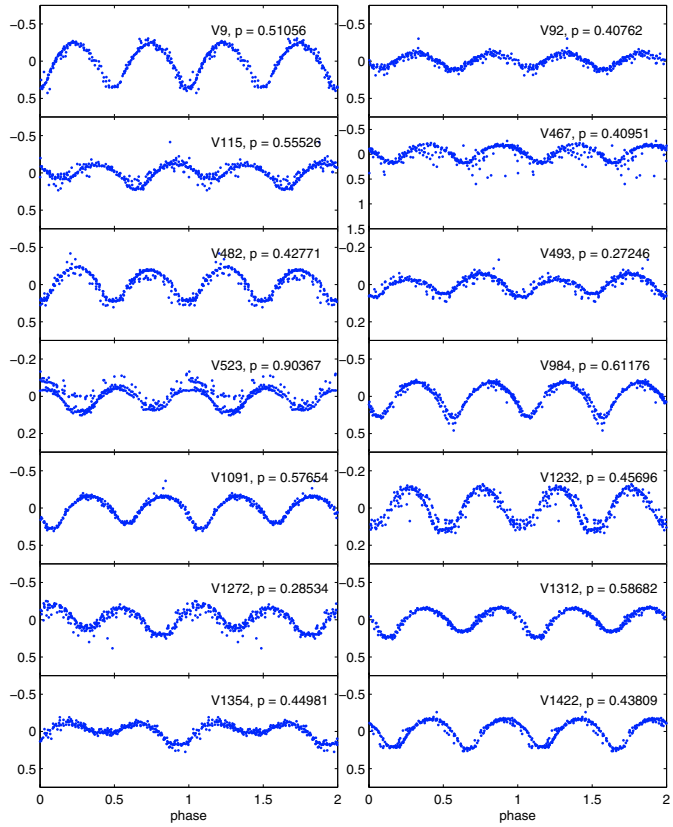

Fig. 9. Lightcurves of the contact binaries with shape (but not period) suggesting low mass-ratios.

8. Other variable stars

8.1. Variable stars off the main sequence

Many variable stars can only be classified from photometric measurements by examining their position on a colour−magnitude diagram. The colour−magnitude diagrams for each subfield of our database are mostly comprised of main sequence stars, presumably the young population at the distance of the Norma spiral arm) plus a number of other field stars. There is considerable differential reddening between subfields.

There are no features that can easily be interpreted as post-main sequence, although some of the stars may be evolved stars at greater distances. We have overplotted the positions of identified variable stars on the colour−magnitude diagrams for the appropriate subfields and found a number that appear to fall off the main sequence. These stars form a disparate group with a large range of periods and variable types. They are listed in Tables 9 (redder than the main sequence) and 10 (bluer). The lightcurves of these variables can be seen in Figs. 12 to 15. The redder group includes the contact binary (V-1230) which may have a low mass-ratio. Binaries that are bluer than the main sequence may contain a white-dwarf component. A number of the bluer variables are eclipsing or ellipsoidal binaries and one of these stars (V-894) fits the criteria for a low mass companion.

Table 7. Eclipsing binaries that may have a low mass component.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-737	4G	16:17:50.67	–53:13:47.9457	19.19	2.65	1.16	0.2109	EW
V-301	2F	16:19:27.64	–53:16:24.3907	22.14		1.68	0.2143	EW
V-1085	6F	16:18:14.03	–53:32:50.9721	21.21	2.80	1.33	0.2199	EW
V-522	3F	16:18:28.65	–53:15:13.7680	21.54	3.46	2.35	0.2226	EW
V-1250	7G	16:19:51.13	–53:29:59.1415	21.06	2.62	1.65	0.2234	EW
V-840	5C	16:17:57.44	–53:36:59.9529	21.49	3.02	1.68	0.2270	EW
V-1386	8D	16:20:07.71	–53:35:31.1146	20.01	1.91	2.30	0.2289	EW
V-179	1H	16:20:19.37	–53:11:35.1909	20.51	3.03	1.13	0.2321	EW
V-1417	8F	16:20:31.49	–53:33:04.9446	19.53	1.54	1.08	0.2378	EW
V-776	4H	16:17:34.08	–53:12:02.1376	19.56	2.53	0.97	0.2386	EW
V-1056	6D	16:18:15.23	–53:35:25.1012	21.87	2.96	1.21	0.2389	EW
V-941	5G	16:17:53.57	–53:27:48.4901	18.66	2.58	0.84	0.2410	EW
V-434	3C	16:18:54.81	–53:20:48.4850	20.18	2.62	0.66	0.2413	EW
V-740	4G	16:17:49.64	–53:13:21.5601	17.91	2.34	0.96	0.2429	EW
V-753	4G	16:17:56.34	–53:11:51.1016	18.01	2.20	0.40	0.2460	EW
V-558	3G	16:18:54.13	–53:11:08.7186	18.95	2.33	0.85	0.2487	EW
V-1434	8F	16:20:20.06	–53:31:01.2833	20.47	2.48	0.89	0.2490	EW
V-516	3F	16:18:31.63	–53:15:35.7031	19.64	3.42	2.40	0.2493	EW
V-1447	8G	16:20:51.11	–53:27:48.4544	17.43	2.31	0.40	0.2494	EW

Table 8. Detached eclipsing binaries that may have a low mass component.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-1106	6G	16:18:55.35	–53:28:34.7387	18.83	2.19	0.73	0.4983	EA
V-992	6A	16:18:45.09	–53:39:45.9131	19.46	2.46	1.48	0.4095	EA
V-790	4H	16:17:28.84	–53:10:42.0607	17.83	2.09	0.37	0.4711	EA
V-244	2C	16:19:37.54	–53:18:34.5958	18.35	2.84	1.14	0.5610	EA
V-755	4G	16:17:58.34	–53:11:39.78	20.63	3.00	1.28	0.6861	EA
V-611	4A	16:18:02.91	–53:23:07.2723	18.33	2.37	0.50	0.7061	EA
V-979	6A	16:18:46.94	–53:41:25.8984	18.57	2.91	0.43	0.8337	EA
V-894	5E	16:18:05.07	–53:31:34.5940	19.24	1.60	1.65	0.7043	EA
V-52	1B	16:20:11.65	–53:24:02.0859	16.28	1.86	0.19	1.1242	EA

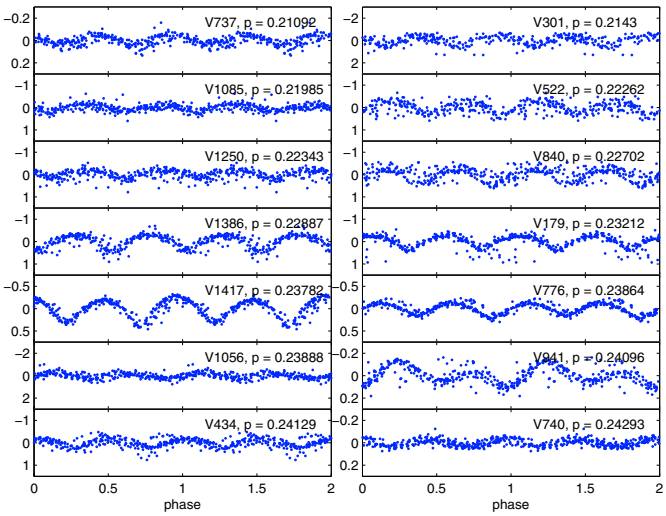

Fig. 10. Lightcurves of eclipsing binaries with shape and periods suggesting a low-mass component.

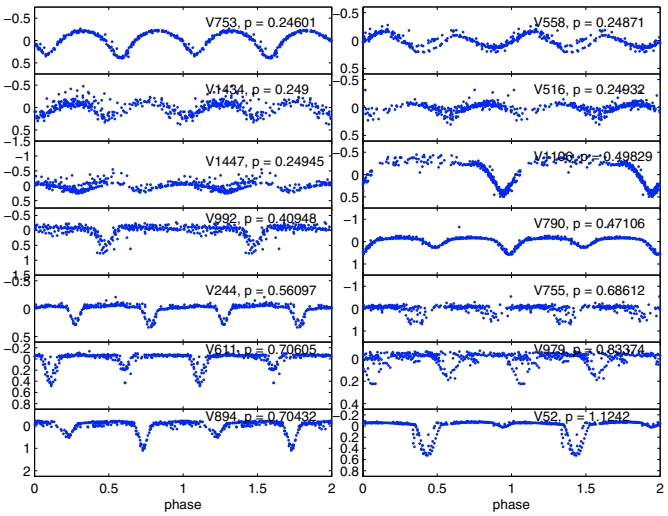

Fig. 11. Lightcurves of the eclipsing binaries with shape and periods suggesting a low-mass component.

8.2. Pre-main sequence stars

Detached eclipsing binaries are important for constraining stellar evolutionary theories. From detached eclipsing binaries one can determine elementary stellar information such as the mass and radius. Calibration of pre-main sequence (PMS) stars is scarce below 1 solar mass. There are only 6 PMS detached eclipsing binaries known in this mass range (Irwin et al. 2007). Fitting of these known PMS binaries with current models fails when both components are fitted simultaneously, implying a deficiency in

Table 9. Variable stars redder than the main sequence.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes *B*	*I*	*R*	Period (days)	Type
V-70	1C	16:20:42.84	–53:21:34.5504	17.13	2.76	0.97	19.0426	EB
V-96	1C	16:20:51.92	–53:18:49.0723	17.95	2.99	1.01	0.9539	PUL:
V-104	1D	16:20:14.62	–53:21:05.4916	17.58	2.11	0.75	8.0431	PUL:
V-105	1D	16:20:12.64	–53:20:57.3738	16.27	3.34		1.9334	EB/PUL
V-112	1D	16:20:19.04	–53:19:30.1081	20.02	3.23	1.63	0.6662	EW
V-139	1G	16:20:43.97	–53:13:42.5724	16.18	4.40		0.9616	PUL:
V-162	1G	16:20:45.36	–53:10:40.3784	16.25	4.19	0.90	1.0604	PUL:
V-173	1H	16:20:24.63	–53:11:52.5340	20.93	4.13	1.14	0.3194	EW
V-199	2A	16:19:47.02	–53:24:33.1889	18.12	2.74	1.53	1.9181	EB:
V-202	2A	16:19:56.18	–53:23:54.6145	19.84	4.40	-2.18	2.2439	EB:
V-411	3B	16:18:13.30	–53:24:09.7108	16.08	3.87		10.1541	PUL
V-419	3B	16:18:36.16	–53:23:36.5147	16.00	3.90		0.9631	PUL:
V-441	3C	16:18:48.65	–53:19:39.9446	16.09	2.66	0.90	13.0928	EB/PUL
V-447	3D	16:18:31.89	–53:21:24.9115	17.58	2.69	1.67	2.1272	EB:
V-581	3H	16:18:16.88	–53:11:26.9764	17.10	2.70	0.90	2.2406	EB:
V-582	3H	16:18:24.83	–53:11:25.5501	15.99	2.84	1.08	17.1408	PUL:
V-605	4A	16:18:00.95	–53:24:03.3517	15.88	4.29		1.0447	PUL:
V-828	5B	16:17:21.64	–53:39:19.0873	17.80	3.38	0.87	1.0408	PUL:
V-832	5C	16:17:53.30	–53:37:56.4531	18.73	3.71	1.13	4.3532	EB:
V-837	5C	16:18:02.56	–53:37:11.4579	18.68	3.19	1.17	0.2926	EW
V-848	5C	16:17:50.66	–53:35:50.1725	20.40	4.25	1.36	3.4134	EB:
V-854	5D	16:17:39.27	–53:37:57.1063	19.61	4.41	0.86	0.6904	PUL:
V-870	5D	16:17:16.83	–53:35:05.0840	15.46	3.25	-0.11	1.6404	CV/PUL
V-930	5G	16:17:43.06	–53:29:08.6007	15.97	4.31		0.9319	PUL:
V-954	5H	16:17:18.38	–53:29:28.6719	17.37	2.93	1.05	9.4259	PUL:
V-1019	6C	16:18:46.31	–53:37:53.8736	18.02	2.79	0.77	2.1220	EB/PUL
V-1027	6C	16:18:41.87	–53:36:27.6245	17.42	2.46	0.80	5.3830	EB:
V-1035	6C	16:18:47.72	–53:35:47.0940	17.70	2.67	0.95	19.7144	EB:
V-1041	6D	16:18:34.40	–53:37:25.3713	17.91	3.16	1.14	6.3022	EB
V-1050	6D	16:18:18.11	–53:36:29.9025	16.50	2.49	0.88	0.4408	EW
V-1083	6F	16:18:31.07	–53:33:08.9237	18.04	2.79	1.49	5.1341	PUL:
V-1089	6F	16:18:33.25	–53:32:13.2173	17.98	2.99	1.30	1.8838	EB:
V-1125	7A	16:19:51.01	–53:41:34.1022	18.04	3.10	0.74	0.3636	EW
V-1126	7A	16:19:44.41	–53:41:26.9105	17.18	2.82	0.59	0.9238	PUL
V-1174	7C	16:19:40.58	–53:37:16.9534	17.55	2.50	2.06	0.9244	EW:
V-1190	7C	16:19:37.75	–53:35:11.8051	17.85	3.08	1.31	1.0495	PUL
V-1230	7E	16:19:56.70	–53:32:24.1384	15.89	1.06	0.38	0.3066	EW
V-1233	7E	16:19:46.19	–53:31:51.0483	16.36	1.61	0.85	0.4105	EW
V-1234	7E	16:19:45.10	–53:31:47.7425	18.39	2.29	1.14	0.4646	EW
V-1235	7E	16:19:43.60	–53:31:45.7793	16.11	0.73	0.24	0.3249	EW
V-1241	7F	16:19:29.61	–53:33:46.4558	16.56	2.91	1.04	0.9557	PUL
V-1244	7F	16:19:19.41	–53:33:13.8689	17.80	2.84	1.02	1.0914	PUL
V-1294	7H	16:19:25.51	–53:27:18.8946	16.33	2.32	0.64	5.6922	DCEP/PUL
V-1300	8A	16:20:44.19	–53:41:13.1280	16.54	2.76	4.33	0.9572	PUL
V-1348	8C	16:20:56.72	–53:37:33.4913	16.37	2.15	0.68	7.8091	PUL:
V-1349	8C	16:20:46.79	–53:37:23.9814	17.48	2.63	0.88	2.0982	EB:
V-1361	8C	16:20:43.01	–53:35:12.0040	16.56	2.21	0.89	2.1402	EB
V-1362	8C	16:20:56.13	–53:35:10.4319	17.50	2.63	1.00	9.2446	EB:
V-1380	8D	16:20:16.12	–53:36:07.2759	15.95	2.52	2.00	7.8590	PUL

the theoretical models. Detections of more pre-main sequence detached binaries will lead to stronger constraints on the theory. Following the method used in Christiansen et al. (2008), we use the positions of known pre-main sequence binaries on a colour−colour diagram, to determine which detached binaries in a sample may be pre-main sequence. These can then be followed up by spectroscopy (Irwin et al. 2007). In order for the comparison to be made, J, H and K magnitudes have been obtained from the 2MASS survey (Skrutskie et al. 2006) for the detached binaries in this survey so that they can be compared to the known pre-main sequence binaries.

Due to the faintness of many of the stars in the field only 3 of the EA type stars (V-827, V-887 and V-897) were given magnitudes by the 2MASS survey. A colour−colour diagram of the 6 known PMS eclipsing binaries and our three EA stars with 2MASS magnitudes is plotted in Fig. 16. The dashed lines represent limits on candidature of pre-main sequence binaries ($J - H = 0.6$ mag, $H - K = 0.078$ mag) Also plotted are the intrinsic stellar loci of giant stars and dwarf stars from Bessell & Brett (1988). The 2MASS measurements have been transformed into the Bessell & Brett system using the equations in Carpenter (2001). All three of our EA stars with 2MASS measurements are

Table 10. Variable stars bluer than the main sequence.

ID	Subset	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes *B*	*I*	*R*	Period (days)	Type
V-149	1G	16:20:56.01	–53:11:41.6310	21.46	1.11	1.18	1.9232	EB:
V-153	1G	16:20:48.70	–53:11:24.4095	22.08		1.18	2.0894	EB:
V-161	1G	16:20:38.50	–53:10:42.5178	21.33	2.35	0.99	0.4007	EW:
V-364	3A	16:19:01.65	–53:25:40.0235	21.38	2.24	1.29	0.2955	EW
V-470	3E	16:18:41.70	–53:16:22.4156	21.87	1.68	0.27	0.9197	PUL:
V-542	3G	16:18:52.29	–53:13:13.8844	20.12	1.82	0.69	0.3413	EW
V-576	3H	16:18:18.61	–53:12:13.2789	21.19	2.05	0.91	0.3609	EW
V-587	3H	16:18:21.26	–53:10:49.3220	21.55	2.32	1.32	0.3487	EW
V-620	4B	16:17:36.00	–53:25:04.7264	18.35	1.81	0.63	0.3971	EW
V-801	5A	16:18:01.48	–53:40:19.5726	20.59	1.83	0.34	0.6746	CV/PUL
V-866	5D	16:17:17.11	–53:35:29.5915	18.43	2.18	0.34	3.2450	EA:
V-880	5E	16:17:48.20	–53:32:53.2065	19.03	1.41	1.24	0.3325	EW/EA
V-894	5E	16:18:05.07	–53:31:34.5940	19.24	1.60	1.65	0.7043	EA
V-1102	6G	16:18:43.98	–53:29:36.7935	19.92	0.82	1.07	0.3207	EW
V-1319	8B	16:20:20.87	–53:41:30.5543	21.63	0.70	1.79	2.2396	EB:

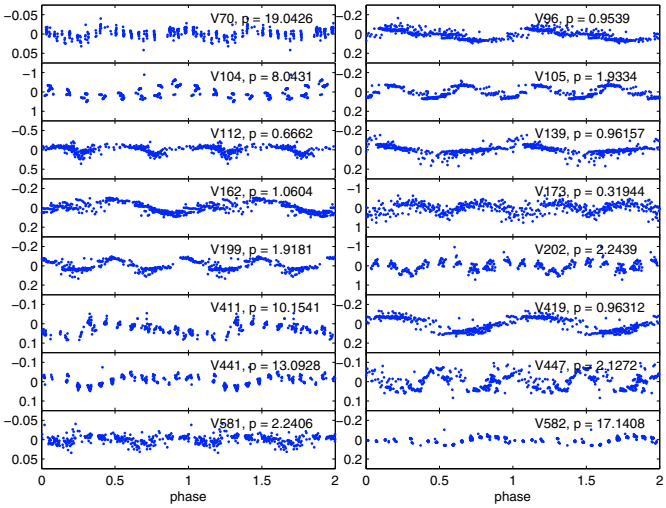

Fig. 12. Lightcurves of variable stars which appear redder than the main sequence seen in the colour−magnitude diagrams.

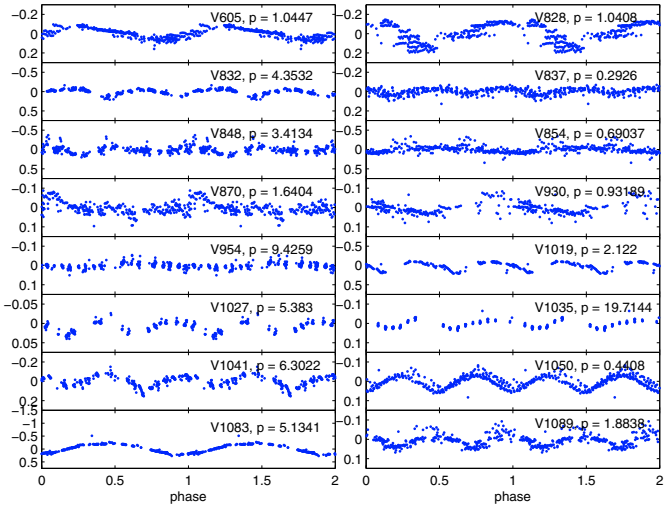

Fig. 13. Lightcurves of variable stars which appear redder than the main sequence seen in the colour−magnitude diagrams.

candidates for pre-main sequence stars (Table 11) and worthy of further study.

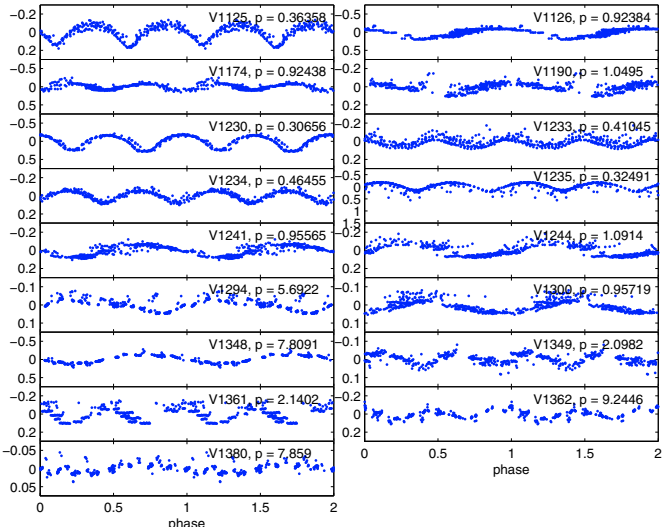

Fig. 14. Lightcurves of variable stars which appear redder than the main sequence seen in the colour−magnitude diagrams.

8.3. Other variable stars

In cataloguing the variable stars a number of stars have been identified as miscellaneous pulsating stars. These stars are uncategorized either because the lightcurve showed no particular morphology that could be clearly identified or secondary information that was not available was needed. A number of these stars had lightcurves suggesting RR Lyrae type stars but further investigation of their position on the colour−magnitude diagram found them squarely on the main sequence. An example of such a star is shown in Fig. 17.

9. Summary

From a photometric imaging survey of a 0.25 square degree region in Norma, we have extracted ~500 000 lightcurves. 1318 variable stars have been identified, the majority of which are binaries. A number of these stars are of interest for further study. Photometric observations of the short-period contact binary stars would be useful to confirm the period and nature of these stars. Also needing followup are the low mass-ratio contact binaries to confirm their nature. Those bright enough low-mass component candidates require spectroscopic measurements to

Table 11. Possible pre-main sequence eclipsing binaries.

ID	Subset	2MASS ID	Right ascension (J2000.0)	Declination (J2000.0)	Calibrated magnitudes R	$B-R$	$R-I$	Period (days)	Type
V-827	5B	16173776-5339210	16:17:37.78	–53:39:20.1204	16.20	2.10	0.31	0.5727	EA
V-887	5E	16174598-5332177	16:17:45.99	–53:32:17.4920	16.27	1.60	1.01	2.2913	EA
V-897	5E	16175274-5331011	16:17:52.77	–53:31:02.2072	15.89	1.75	1.07	7.59400	EA

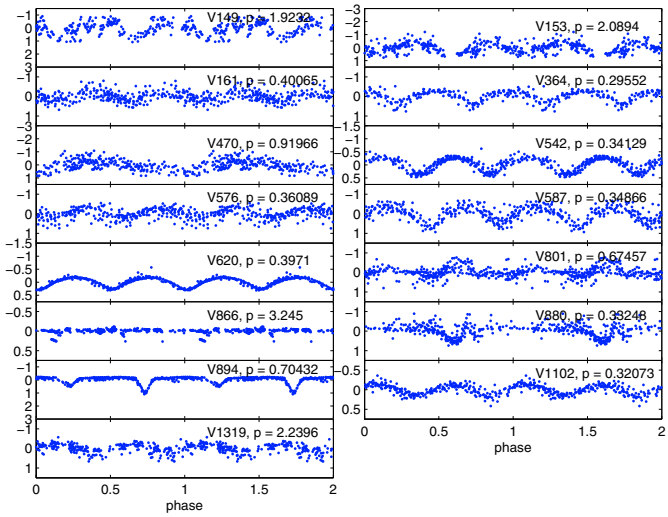

Fig. 15. Lightcurves of variable stars which appear bluer than the main sequence seen in the colour−magnitude diagrams.

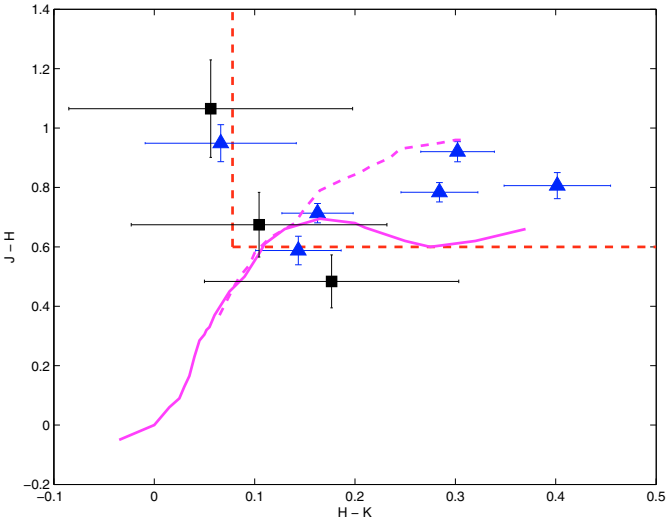

Fig. 16. Colour–colour diagram in the infrared showing those known pre-main sequence eclipsing binaries (blue triangles) and candidates from this survey (black squares). The magnitudes of the known pre-main sequence stars are taken from Cargile et al. (2008); Covino et al. (2004); Hebb et al. (2006); Irwin et al. (2007); Stassun et al. (2004) and Stassun et al. (2007). The dashed lines represent limits on candidature of pre-main sequence binaries ($J-H=0.6$ mag, $H-K=0.078$ mag) Also plotted are the intrinsic stellar loci of giant stars (dashed line) and dwarf stars (solid line) from Bessell & Brett (1988).

confirm their nature. There are a number of Agol-type eclipsing binaries that may, given deeper infra-red measurements, be recognised as pre-main sequence binaries. Already there are three candidate pre-main sequence stars (with infra-red observations from 2MASS) which require spectroscopic followup.

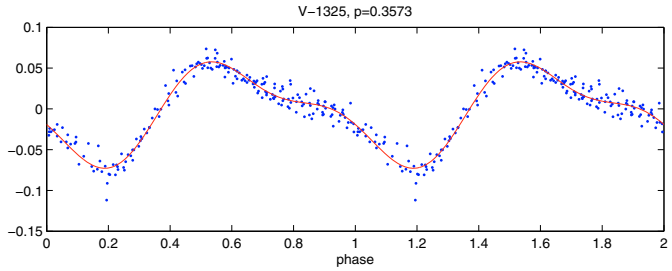

Fig. 17. Lightcurve of a probable RR Lyrae star, shown with a fit that includes fundamental and first-harmonic components.

Acknowledgements. We thank the anonymous referee for his thoughtful comments. This work was supported by the Marsden Fund of New Zealand under contract UOC302.

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Table 2. Catalogue of variable stars. Tabulated are star ID, coordinates, magnitudes, period and variable type.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1	1A	16:20:37.72	–53:25:26.5011	17.84	1.81	1.90	2.18480	EB	
V-2	1A	16:20:52.98	–53:25:24.0178	19.68	1.96	1.71	0.43817	EW	
V-3	1A	16:20:41.89	–53:25:07.5671	20.27	2.30	2.23	0.67577	EW	
V-4	1A	16:20:47.06	–53:25:06.8219	18.66	1.67	2.05	0.41308	EW	2 max
V-6	1A	16:20:49.68	–53:24:54.9648	15.97	1.26	1.64	8.45680	PUL:	
V-7	1A	16:20:41.60	–53:24:52.8653	17.94	1.58	1.76	1.87580	EB	
V-9	1A	16:20:50.50	–53:24:40.1987	19.05	1.33	2.28	0.51056	EW	flat bottom
V-11	1A	16:20:46.81	–53:24:35.0235	19.31	2.16	1.82	0.40644	EW	
V-13	1A	16:20:52.65	–53:24:27.0178	18.64	2.19	2.17	0.86336	EA	
V-14	1A	16:20:40.27	–53:24:26.6044	18.74	1.87	1.99	1.46712	EB	
V-15	1A	16:20:51.95	–53:24:24.8163	18.40	1.78	1.69	0.36636	EW	
V-17	1A	16:20:37.33	–53:24:18.8611	17.92	2.62	2.21	2.18690	EA:	
V-18	1A	16:20:51.02	–53:24:11.9551	18.48	2.33	2.28	6.45360	PUL:	
V-19	1A	16:20:34.96	–53:24:11.0538	19.15	1.88	1.87	2.19202	EA	
V-20	1A	16:20:35.35	–53:24:10.5681	19.26	1.80	1.90	0.39752	EW	
V-21	1A	16:20:36.55	–53:23:58.2339	17.98	2.24	2.11	4.83100	EB:	
V-22	1A	16:20:35.57	–53:23:45.1797	16.00	1.81	1.80	2.13320	EB:	
V-24	1A	16:20:43.49	–53:23:31.1435	20.47	2.74	2.76	2.18060	EB	
V-26	1A	16:20:43.91	–53:23:29.7361	19.17	2.27	1.96	0.36313	EW	flat bottom
V-27	1A	16:20:48.80	–53:23:25.2463	16.03	1.31	1.76	1.05150	EW/EB	2ndry poor
V-28	1A	16:20:39.27	–53:23:23.1293	16.08	1.45	1.72	1.09140	PUL:	
V-29	1A	16:20:45.26	–53:23:19.8121	21.15	2.68	1.82	0.67302	EW:	
V-30	1A	16:20:40.40	–53:23:03.2787	17.72	1.57	1.77	0.93385	PUL:	
V-31	1A	16:20:53.98	–53:22:57.1333	20.85	2.20	1.99	2.21230	EB	2ndry poor
V-32	1A	16:20:48.58	–53:22:50.8546	16.71	1.74	1.85	1.21620	PUL:	
V-33	1A	16:20:48.99	–53:22:44.1877	16.59	1.48	1.70	0.95522	PUL:	
V-34	1A	16:20:38.04	–53:22:36.2803	16.95	1.48	1.70	0.96161	PUL:	
V-35	1B	16:20:13.79	–53:25:29.7239	17.87	2.46	0.43	3.38540	EB:	
V-36	1B	16:20:29.61	–53:25:26.7747	21.20	3.00	0.71	0.26009	EW	
V-37	1B	16:20:21.23	–53:25:26.3147	16.16	1.54	0.02	9.09270	PUL	
V-38	1B	16:20:16.38	–53:25:24.3146	17.46	2.10	0.51	1.23020	EB:	
V-39	1B	16:20:17.77	–53:25:19.0847	18.45	2.35	0.39	1.09790	EB:	
V-40	1B	16:20:28.63	–53:25:11.3113	19.44	2.28	0.12	0.31253	EW	
V-41	1B	16:20:21.72	–53:25:00.4222	17.50	2.22	0.30	1.65340	PUL:	
V-42	1B	16:20:12.01	–53:24:59.6884	16.70	1.83	0.22	0.92186	EW	starspots
V-43	1B	16:20:14.09	–53:24:54.4736	17.44	1.94	0.26	5.36310	PUL:	
V-44	1B	16:20:18.33	–53:24:49.8904	18.71	2.29	0.48	3.82580	EB	
V-46	1B	16:20:19.84	–53:24:47.0310	18.39	2.26	0.44	0.38963	EW	
V-47	1B	16:20:24.86	–53:24:40.4591	18.90	2.66	0.81	2.08940	EB:	
V-48	1B	16:20:16.56	–53:24:13.1079	18.71	2.40	0.59	0.30074	EW	
V-49	1B	16:20:16.62	–53:24:11.7960	19.75	2.41	0.53	0.26146	EW	
V-51	1B	16:20:14.00	–53:24:09.8226	17.52	2.14	0.43	0.36906	EW/EB	
V-52	1B	16:20:11.65	–53:24:02.0859	16.28	1.86	0.19	1.12420	EA	
V-53	1B	16:20:18.19	–53:23:59.6795	18.64	2.36	0.46	0.86444	EA	
V-54	1B	16:20:24.82	–53:23:52.2730	18.21	2.55	0.38	2.66700	EA	
V-55	1B	16:20:24.75	–53:23:51.3237	17.67	1.93	0.28	1.58970	EB:	
V-56	1B	16:20:30.74	–53:23:49.8040	18.24	2.16	0.28	9.27200	PUL:	
V-58	1B	16:20:20.11	–53:23:39.54	19.05	2.24	0.40	0.44374	EW/EB	
V-59	1B	16:20:29.85	–53:23:35.4931	20.77	2.49	0.60	1.05560	EA:	
V-60	1B	16:20:29.03	–53:23:28.9939	18.99	2.66	0.32	1.51583	EA	
V-61	1B	16:20:19.01	–53:23:23.9701	17.98	1.79	1.10	0.68925	EB	
V-62	1B	16:20:18.88	–53:23:22.5292	20.29	2.97	0.54	2.21880	EB	
V-63	1B	16:20:09.97	–53:23:12.8517	18.24	2.66	0.84	2.08940	EB:	
V-64	1B	16:20:22.97	–53:23:09.5434	18.74	2.28	0.32	2.19140	EB:	
V-66	1B	16:20:24.03	–53:22:56.2609	16.82	1.70	0.12	0.27793	EW	
V-67	1B	16:20:23.64	–53:22:52.5331	16.65	2.16	0.40	0.50961	EW	
V-68	1B	16:20:28.69	–53:22:45.7180	16.05	1.87	0.20	1.47560	EB:	
V-69	1B	16:20:18.59	–53:22:41.7178	17.85	2.10	0.31	1.88040	EB:	
V-70	1C	16:20:42.84	–53:21:34.5504	17.13	2.76	0.97	19.04260	EB	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-71	1C	16:20:48.47	–53:21:29.7174	17.79	1.84	0.51	0.77463	EB	
V-72	1C	16:20:51.24	–53:21:26.4169	19.00	2.40	0.95	14.95440	EB	
V-73	1C	16:20:39.44	–53:21:21.7321	17.45	1.61	0.45	18.23040	EB	
V-74	1C	16:20:45.63	–53:21:17.9891	18.67	2.50	1.24	0.44212	EA:	
V-76	1C	16:20:51.92	–53:20:59.8864	18.79	2.65	0.72	0.39547	EW	
V-77	1C	16:20:53.60	–53:20:52.9790	19.07	1.99	1.14	0.32109	EW	
V-78	1C	16:20:33.84	–53:20:50.7047	17.10	2.04	0.53	0.42347	EW	
V-79	1C	16:20:40.62	–53:20:42.1864	17.40	1.63	0.37	1.86610	EB:	
V-80	1C	16:20:41.39	–53:20:37.3960	17.29	1.94	0.50	16.23600	EB	
V-81	1C	16:20:34.42	–53:20:30.1431	17.77	1.95	0.68	0.31644	EW	2 max
V-82	1C	16:20:52.66	–53:20:28.4620	17.66	1.84	0.68	0.59150	EW	
V-83	1C	16:20:54.00	–53:20:08.5417	17.43	2.11	0.61	0.40090	EW	
V-84	1C	16:20:51.93	–53:20:04.3068	16.15	1.69	0.46	12.96360	EB	
V-85	1C	16:20:47.95	–53:20:03.6498	20.95	2.67	0.97	0.31352	EW	
V-86	1C	16:20:46.52	–53:20:02.1437	18.60	2.53	0.83	0.30515	EW	
V-88	1C	16:20:48.62	–53:19:49.5531	17.96	1.66	0.46	1.88380	EB	
V-89	1C	16:20:50.85	–53:19:42.2058	17.91	2.19	0.74	3.89780	PUL:	
V-90	1C	16:20:53.51	–53:19:39.2996	19.56	2.76	0.89	0.30640	EW	
V-91	1C	16:20:42.66	–53:19:33.6171	20.67	2.45	1.45	0.40416	EW	
V-92	1C	16:20:48.80	–53:19:04.3178	19.24	2.23	0.94	0.40762	EW	flat bottom
V-93	1C	16:20:41.76	–53:18:57.2842	17.45	1.85	0.56	2.21460	EB:	
V-94	1C	16:20:50.39	–53:18:55.4306	17.59	1.90	0.51	18.31380	EB:	
V-95	1C	16:20:45.79	–53:18:50.8853	17.98	2.40	0.75	0.33738	EW	
V-96	1C	16:20:51.92	–53:18:49.0723	17.95	2.99	1.01	0.95390	PUL:	
V-97	1C	16:20:55.66	–53:18:44.5550	17.23	2.04	0.90	2.75460	EB	tracking
V-98	1C	16:20:53.11	–53:18:40.6774	18.67	2.33	0.75	1.87120	PUL:	
V-99	1C	16:20:54.93	–53:18:37.7611	20.49	2.60	1.06	0.41118	EW	
V-100	1C	16:20:54.93	–53:18:36.7082	19.00	2.44	1.04	0.34096	EW	spiky
V-102	1D	16:20:14.08	–53:21:08.4265	17.36	1.18	0.73	0.46901	EW	
V-103	1D	16:20:13.78	–53:21:07.0021	17.66	0.97	0.57	0.95267	PUL	
V-104	1D	16:20:14.62	–53:21:05.4916	17.58	2.11	0.75	8.04310	PUL:	
V-105	1D	16:20:12.64	–53:20:57.3738	16.27	3.34		1.93340	EB/PUL	tracking
V-106	1D	16:20:15.01	–53:20:30.6915	16.51	0.65	0.32	1.58200	EB:	tracking
V-107	1D	16:20:15.02	–53:20:14.9772	18.53	1.23	0.69	1.79480	PUL:	chaotic
V-108	1D	16:20:20.37	–53:19:43.0826	19.15	1.39	1.10	0.52258	PUL:	
V-109	1D	16:20:17.38	–53:19:40.2190	18.67	1.56	0.81	0.34297	EW	2ndry poor
V-110	1D	16:20:15.59	–53:19:34.9497	19.95	1.68	1.10	0.71300	EW	
V-111	1D	16:20:19.46	–53:19:30.7039	20.06	1.75	1.01	0.28494	EW:	
V-112	1D	16:20:19.04	–53:19:30.1081	20.02	3.23	1.63	0.66620	EW	
V-113	1D	16:20:29.98	–53:19:23.3905	19.30	1.57	0.74	0.35983	EW	
V-114	1E	16:20:47.24	–53:17:23.7243	20.68	2.93	0.52	0.29626	EW	
V-115	1E	16:20:53.66	–53:17:11.7310	19.14	2.55	0.67	0.55526	EW	flat bottom
V-116	1E	16:20:52.76	–53:16:55.4478	19.24	2.63	0.70	0.33238	EW	2ndry poor
V-117	1E	16:20:49.14	–53:16:54.8605	19.75	3.06	0.88	2.23740	EB:	
V-118	1E	16:20:51.27	–53:16:47.4364	18.45	2.49	0.38	0.58462	EW	
V-119	1E	16:20:44.39	–53:16:20.4690	17.02	2.34	0.57	0.41257	EW	
V-120	1E	16:20:41.23	–53:15:44.9720	20.08	2.91	0.57	0.32924	EW	
V-121	1E	16:20:37.20	–53:15:33.6412	17.71	1.82	0.37	0.27668	EW	
V-122	1E	16:20:36.50	–53:15:18.9725	18.15	2.24	0.54	0.47967	EW/EB	
V-123	1E	16:20:43.85	–53:14:44.8962	17.71	2.53	0.61	0.92560	EW/EB	
V-124	1F	16:20:19.04	–53:17:30.8273	18.44	2.59	0.98	0.27288	EW	
V-125	1F	16:20:20.64	–53:17:04.1964	18.97	2.32	1.18	1.91770	EB:	
V-126	1F	16:20:15.84	–53:14:08.0183	18.64	2.26	1.15	0.38512	EW	
V-127	1F	16:20:28.73	–53:16:45.6065	18.25	2.12	1.06	7.10920	EB:	
V-128	1F	16:20:31.52	–53:14:08.8244	17.38	1.89	0.98	2.24920	EB:	
V-129	1F	16:20:11.69	–53:14:15.0476	19.87	2.72	1.19	0.39124	EW	
V-130	1F	16:20:30.13	–53:16:04.8805	16.07	1.60	0.81	1.90560	EB:	starspots
V-131	1F	16:20:22.64	–53:17:37.2411	17.89	2.40	1.39	1.23240	EB:	
V-132	1F	16:20:17.28	–53:15:56.0509	19.92	2.59	1.26	3.62260	EA	
V-133	1F	16:20:14.92	–53:16:56.4242	16.70	2.16		0.53330	PUL:	wave

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-134	1F	16:20:16.77	–53:15:42.2572	17.51	1.99	1.06	0.40532	PUL:	sloped
V-135	1F	16:20:27.04	–53:15:53.3564	20.21	3.11	1.30	0.40821	EA	
V-136	1F	16:20:09.85	–53:15:12.7863	20.56	2.53	1.56	0.32897	EW	
V-137	1F	16:20:09.54	–53:15:31.4535	19.22	1.88	1.37	5.41640	PUL:	
V-138	1F	16:20:18.95	–53:15:21.3296	19.16	2.19	0.93	0.27485	EW	
V-139	1G	16:20:43.97	–53:13:42.5724	16.18	4.40		0.96157	PUL:	
V-140	1G	16:20:44.91	–53:13:35.2323	19.06	2.57	0.93	0.37186	EW/EA	
V-141	1G	16:20:52.59	–53:13:28.4754	17.79	2.47	1.11	4.26960	EB:	
V-142	1G	16:20:52.51	–53:13:23.2241	19.61	2.40	0.81	1.04690	EA:	
V-143	1G	16:20:56.20	–53:13:21.4443	20.26	2.63	0.74	0.25439	EW	
V-144	1G	16:20:50.06	–53:12:58.1203	19.47	2.73	1.05	13.89520	PUL:	
V-147	1G	16:20:33.22	–53:12:00.7872	18.23	2.02	0.54	9.85820	PUL	
V-148	1G	16:20:48.07	–53:11:50.1935	19.94	2.76	1.37	9.19520	PUL	
V-149	1G	16:20:56.01	–53:11:41.6310	21.46	1.11	1.18	1.92320	EB:	
V-151	1G	16:20:33.17	–53:11:32.4265	19.03	2.34	0.83	19.03860	EB:	
V-152	1G	16:20:54.95	–53:11:27.9094	18.22	2.33	0.61	2.21320	EB:	
V-153	1G	16:20:48.70	–53:11:24.4095	22.08		1.18	2.08940	EB:	
V-155	1G	16:20:52.18	–53:11:20.9957	19.27	2.46	0.84	0.33274	EW:	2ndry poor
V-157	1G	16:20:44.22	–53:11:17.4829	20.86	3.12	1.34	0.34570	EW	
V-158	1G	16:20:45.79	–53:11:11.1943	18.35	1.87	0.99	0.51786	EA	
V-159	1G	16:20:33.16	–53:11:05.4711	19.36	2.96	1.10	19.04440	EB:	
V-160	1G	16:20:49.64	–53:10:47.3170	16.09	1.65	0.56	0.43451	EW:	tracking
V-161	1G	16:20:38.50	–53:10:42.5178	21.33	2.35	0.99	0.40065	EW:	
V-162	1G	16:20:45.36	–53:10:40.3784	16.25	4.19	0.90	1.06040	PUL:	tracking
V-163	1G	16:20:33.84	–53:10:35.6855	18.49	2.68	1.37	8.31680	PUL:	
V-164	1G	16:20:51.63	–53:10:28.5414	19.49	2.63	1.02	0.40309	EW	
V-165	1G	16:20:49.53	–53:10:24.4719	18.56	2.37	0.89	17.59980	EB:	
V-166	1G	16:20:46.66	–53:10:23.0624	16.55	1.80	0.48	2.19360	EB:	
V-167	1H	16:20:08.22	–53:13:45.3466	19.35	2.39	0.89	0.33287	EA:	
V-168	1H	16:20:13.70	–53:13:31.4046	16.39	1.49	0.44	18.03520	EB:	
V-169	1H	16:20:08.87	–53:13:26.9153	20.35	3.04	1.21	0.35916	EW	
V-170	1H	16:20:21.92	–53:12:28.0437	16.65	1.75	0.54	10.58760	EB	
V-171	1H	16:20:17.88	–53:12:10.4525	17.12	1.67	0.56	0.29314	EW	
V-172	1H	16:20:21.87	–53:12:01.4314	18.67	2.48	1.02	0.32159	EW	
V-173	1H	16:20:24.63	–53:11:52.5340	20.93	4.13	1.14	0.31944	EW	
V-174	1H	16:20:09.08	–53:11:52.5604	17.51	2.42	0.85	9.45380	EB:	
V-175	1H	16:20:08.57	–53:11:51.7763	17.98	2.34	0.81	0.39824	EW	flat bottom
V-176	1H	16:20:11.71	–53:11:48.1186	18.01	2.40	0.79	0.77305	EW	
V-177	1H	16:20:28.49	–53:11:45.2410	19.55	2.49	1.29	0.24266	PUL	
V-178	1H	16:20:10.30	–53:11:37.3622	20.09	2.82	1.11	0.26615	EW	
V-179	1H	16:20:19.37	–53:11:35.1909	20.51	3.03	1.13	0.23212	EW	
V-180	1H	16:20:22.46	–53:11:31.7874	17.33	1.80	0.71	0.78742	EA	
V-181	1H	16:20:22.28	–53:11:31.1804	19.87	2.56	1.01	0.65090	EA	
V-182	1H	16:20:22.74	–53:11:19.4975	20.46	3.10	1.17	0.31421	EW	
V-183	1H	16:20:11.68	–53:11:19.1238	18.90	2.45	1.15	5.53380	EB:	
V-184	1H	16:20:20.23	–53:11:07.8304	16.61	2.12	0.76	16.68460	EB:	
V-185	1H	16:20:30.35	–53:10:53.7565	19.80	2.53	0.88	0.68846	EA:	
V-186	1H	16:20:19.32	–53:10:38.2564	19.70	2.47	0.84	2.22350	EA:	
V-187	1H	16:20:11.83	–53:10:37.0225	18.87	2.54	1.14	7.73800	PUL:	
V-188	2A	16:19:50.27	–53:25:22.4359	15.74	1.28	0.96	5.41060	PUL:	
V-190	2A	16:19:48.25	–53:25:10.4809	19.01	2.50	1.50	4.46900	PUL:	
V-191	2A	16:19:43.04	–53:25:09.8434	20.32	2.14	1.75	0.38231	EW	
V-192	2A	16:19:51.37	–53:25:06.3998	20.32	2.18	1.19	0.29202	EW	
V-193	2A	16:19:38.23	–53:24:59.8532	16.47	1.25	0.97	0.39073	EW	flat bottom
V-194	2A	16:19:38.30	–53:24:58.4183	19.05	2.10	1.52	0.48571	EW	
V-195	2A	16:19:39.60	–53:24:48.5575	19.72	2.33	1.36	0.29075	EW	
V-197	2A	16:19:47.81	–53:24:38.4826	17.80	1.43	0.97	2.08340	EB:	
V-198	2A	16:19:38.93	–53:24:38.3293	19.98	2.16	1.06	0.30707	EW	
V-199	2A	16:19:47.02	–53:24:33.1889	18.12	2.74	1.53	1.91810	EB:	
V-200	2A	16:19:47.62	–53:24:18.3113	16.75	1.20	0.91	1.92310	EB:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-201	2A	16:19:49.83	–53:23:59.8968	17.94	1.64	1.18	0.39628	PUL:	
V-202	2A	16:19:56.18	–53:23:54.6145	19.84	4.40	-2.18	2.24390	EB:	
V-203	2A	16:19:49.49	–53:23:51.6757	20.77	2.13	1.96	0.74058	EA	
V-204	2A	16:19:54.79	–53:23:31.5866	18.09	1.44	1.03	1.87920	EB:	
V-206	2A	16:19:48.94	–53:23:11.9970	18.09	1.66	0.83	0.28616	EW	
V-207	2A	16:19:41.41	–53:23:07.9876	19.93	2.22	1.16	0.40092	EW	
V-208	2A	16:19:52.14	–53:22:57.0972	18.85	1.61	1.18	0.54533	PUL	2ndry poor
V-209	2A	16:19:55.75	–53:22:47.2848	19.62	2.02	1.16	0.90011	PUL	
V-211	2B	16:19:31.76	–53:25:31.3237	17.60	2.55	0.85	2.95320	PUL	possible CEP
V-212	2B	16:19:26.10	–53:25:27.0607	19.19	2.04	1.19	9.26680	PUL:	
V-213	2B	16:19:26.12	–53:24:59.0217	20.24	2.10	1.18	0.30666	EW	
V-214	2B	16:19:29.57	–53:24:11.4759	18.88	2.20	0.69	1.49020	EA	
V-215	2B	16:19:13.23	–53:24:11.4147	16.21	2.04	0.45	2.13960	EB:	
V-216	2B	16:19:29.18	–53:23:45.7853	20.32	2.79		0.54419	EB	
V-217	2B	16:19:31.15	–53:23:38.2907	17.33	1.65	0.11	1.88810	EB	
V-218	2B	16:19:12.55	–53:23:19.0340	19.05	2.71	1.25	1.90560	EB	
V-219	2B	16:19:28.78	–53:23:08.1536	20.58	2.22	2.55	1.05140	EA	
V-220	2B	16:19:26.09	–53:23:07.7984	17.35	2.00	0.43	0.36292	EW	2 max
V-221	2B	16:19:31.96	–53:22:52.7062	18.09	2.17	0.50	2.19360	EB:	
V-222	2B	16:19:32.69	–53:22:48.3329	20.57	2.63		2.21890	EA	
V-223	2B	16:19:23.38	–53:22:42.6696	17.85	1.72	0.60	0.49150	EW	2ndry poor
V-224	2B	16:19:25.34	–53:22:38.6901	18.08	2.18	0.78	1.09460	PUL:	
V-225	2C	16:19:47.08	–53:21:42.3961	18.64	2.55	0.56	1.04982	EA:	
V-226	2C	16:19:58.90	–53:21:02.9628	16.52	2.72	0.65	8.48630	PUL:	
V-227	2C	16:19:43.02	–53:20:59.7829	16.64	2.36	0.61	0.27335	EW	
V-229	2C	16:19:50.20	–53:20:38.4516	16.97	2.41	0.78	0.60278	EW	starspots
V-230	2C	16:19:54.96	–53:20:33.4676	19.46	2.73	0.82	0.66351	EW	starspots
V-231	2C	16:19:42.23	–53:20:23.1327	18.42	2.30	0.48	0.38019	EW	flat bottom
V-232	2C	16:19:42.15	–53:20:15.3063	19.65	3.24	1.50	2.83780	EB	
V-233	2C	16:19:44.31	–53:20:10.2459	18.55	2.58	0.47	0.31592	EW	
V-234	2C	16:19:51.42	–53:20:06.2386	19.68	2.90	0.72	9.19200	PUL:	
V-235	2C	16:19:49.92	–53:20:01.1519	19.37	2.79	0.69	9.27000	PUL:	
V-236	2C	16:19:55.43	–53:19:38.2356	19.05	3.07	0.83	5.41010	PUL	
V-237	2C	16:19:43.54	–53:19:36.5574	18.79	2.51	1.26	0.37949	EW	
V-238	2C	16:19:58.22	–53:19:18.8208	16.48	2.96	0.43	0.35598	EW	
V-239	2C	16:19:44.40	–53:19:08.1420	16.68	3.49	0.37	1.81990	EB:	tracking
V-240	2C	16:19:39.44	–53:19:3.5470	18.12	2.34	0.59	0.34997	EW	2 max
V-241	2C	16:19:52.52	–53:19:02.2387	17.20	2.93	0.98	2.16120	EB:	
V-242	2C	16:19:51.10	–53:18:57.8209	18.75	3.15	0.96	2.24940	EB:	
V-243	2C	16:19:46.26	–53:18:57.5090	18.59	3.18	0.94	6.35230	PUL	
V-244	2C	16:19:37.54	–53:18:34.5958	18.35	2.84	1.14	0.56097	EA	
V-245	2D	16:19:30.64	–53:21:41.8293	16.48	1.32	0.46	0.56248	EW	
V-246	2D	16:19:23.28	–53:21:38.1693	20.30	2.38	0.87	0.44336	EW	
V-247	2D	16:19:12.06	–53:21:34.4294	17.61	1.39	0.51	2.13810	EA	2ndry poor
V-248	2D	16:19:20.61	–53:21:29.14	16.98	1.38	0.49	10.76160	EB:	stacking
V-249	2D	16:19:21.40	–53:21:25.2431	17.70	1.71	0.50	1.84750	EB	
V-250	2D	16:19:19.05	–53:21:22.5338	16.53	1.36	0.38	18.19100	EB	
V-251	2D	16:19:25.98	–53:21:17.2587	17.45	1.67	0.55	9.22420	EB:	
V-252	2D	16:19:26.78	–53:20:59.0455	17.64	2.35	0.85	1.89550	EB	
V-253	2D	16:19:32.73	–53:20:45.2151	19.13	2.34	1.61	6.79780	EB	
V-254	2D	16:19:12.70	–53:20:44.2617	17.92	1.72	0.56	2.23840	EB	
V-255	2D	16:19:27.52	–53:20:39.6550	17.17	1.88	0.67	5.79650	PUL	
V-256	2D	16:19:25.74	–53:20:38.7027	17.77	1.69	0.51	0.27018	EW	
V-257	2D	16:19:30.94	–53:20:31.0857	19.41	2.02	0.71	0.32382	EW	starspots
V-259	2D	16:19:13.45	–53:20:05.4142	19.29	2.49	0.79	0.31466	EW	
V-260	2D	16:19:22.21	–53:19:45.3253	18.97	2.58	0.91	1.91960	EB	
V-261	2D	16:19:21.44	–53:19:22.4855	18.31	2.14	1.03	4.91890	PUL:	
V-262	2D	16:19:29.43	–53:19:09.7059	16.00	1.37	0.40	8.51860	PUL:	sloped
V-263	2D	16:19:12.99	–53:19:08.8994	17.00	1.77	0.69	0.45161	EW	
V-264	2D	16:19:22.42	–53:18:57.6344	18.98	2.04	0.67	3.81960	CV:	vy odd

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-265	2D	16:19:14.29	–53:18:51.8702	16.39	1.64	0.55	3.45140	PUL:	
V-266	2D	16:19:17.02	–53:18:47.9281	16.15	2.32		0.96566	EB	
V-267	2D	16:19:34.00	–53:18:45.7982	18.61	2.10	0.76	0.36226	EW	
V-268	2D	16:19:14.73	–53:18:44.5316	19.71	2.31	0.47	0.39813	EW	
V-269	2D	16:19:31.22	–53:18:42.4028	18.57	1.91	0.96	0.35488	EW	
V-270	2E	16:19:44.76	–53:17:48.8327	18.03	1.93	0.79	0.41238	EW	
V-271	2E	16:19:44.46	–53:17:23.3965	19.19	2.31	1.04	2.21020	EA:	
V-272	2E	16:19:45.33	–53:17:09.3914	18.70	1.83	0.73	0.35919	EW	
V-274	2E	16:19:43.14	–53:17:08.3540	16.42	1.94	0.78	18.55980	EB:	
V-277	2E	16:19:39.42	–53:16:38.8595	18.81	2.06	0.97	0.33029	EW	
V-278	2E	16:19:32.22	–53:16:35.6428	16.96	1.54	0.62	5.08250	PUL:	
V-279	2E	16:19:30.40	–53:16:28.0948	16.89	1.97	0.72	1.88290	EB	
V-280	2E	16:19:38.89	–53:16:18.4057	17.58	2.33	1.02	3.42860	EB	
V-281	2E	16:19:40.06	–53:16:13.2084	19.35	2.37	0.92	2.19320	EB	
V-282	2E	16:19:31.96	–53:16:06.8031	17.95	1.72	0.85	3.24040	EB:	
V-283	2E	16:19:30.77	–53:16:02.0773	17.73	1.93	0.76	1.83606	EB:	
V-284	2E	16:19:30.27	–53:16:01.5648	17.22	1.66	0.69	1.11880	PUL:	
V-285	2E	16:19:24.19	–53:16:02.0403	16.06	1.51	0.47	0.51118	EW/EB	
V-286	2E	16:19:20.04	–53:15:49.9258	17.64	1.96	0.81	0.41186	EW	stacking
V-287	2E	16:19:21.07	–53:15:46.0043	17.57	1.95	0.84	0.48357	EW	
V-288	2E	16:19:31.68	–53:15:38.87	19.93	2.47	1.18	3.61400	EB:	
V-289	2E	16:19:24.18	–53:15:36.6578	19.59	2.36	0.96	0.34981	EW	spiky
V-290	2E	16:19:28.60	–53:15:34.4680	17.15	1.96	0.81	1.37970	EA	
V-291	2E	16:19:16.95	–53:15:23.8441	20.40	2.53	1.02	2.21450	EA:	
V-292	2E	16:19:22.36	–53:15:18.8364	20.75	2.88	1.21	0.30864	EW	
V-293	2E	16:19:22.14	–53:15:18.4155	21.34	2.25	1.28	0.40524	EW	
V-294	2E	16:19:21.93	–53:15:16.3524	18.07	2.02	0.95	0.48417	EW	
V-296	2E	16:19:05.40	–53:14:46.1866	18.85	2.10	0.96	0.71385	EA	messy
V-297	2E	16:19:04.71	–53:14:37.3055	19.55	2.29	0.89	2.21010	EA:	messy
V-298	2F	16:19:12.29	–53:16:49.1785	18.01	2.27	1.09	0.41251	EW	
V-299	2F	16:19:23.45	–53:16:29.3725	19.60			2.18900	EA/EB	
V-300	2F	16:19:14.70	–53:16:33.9584	17.40	1.54	0.82	4.25870	PUL:	chaotic
V-301	2F	16:19:27.64	–53:16:24.3907	22.14		1.68	0.21430	EW	spiky
V-303	2F	16:19:19.58	–53:16:26.7613	19.70	2.32	1.32	0.36580	EW	
V-305	2F	16:19:29.47	–53:16:08.2003	18.08	2.19	0.95	0.46228	EW	
V-306	2F	16:19:33.18	–53:16:04.5353	18.16	1.63	1.57	0.28107	EW	
V-307	2F	16:19:16.15	–53:16:07.1454	19.63	2.65	1.30	0.61205	EW	starspots
V-308	2F	16:19:14.43	–53:15:54.6893	17.68	2.22	1.00	1.10150	EA:	
V-309	2F	16:19:33.30	–53:15:39.7240	19.56	2.26	1.06	1.16210	EB	
V-311	2F	16:19:10.92	–53:15:31.3066	18.83	2.24	1.09	5.92290	EA:	
V-312	2F	16:19:28.17	–53:15:18.3992	19.08	2.30	1.12	2.19360	EB	
V-314	2F	16:19:27.87	–53:15:09.9431	17.51	1.75	0.79	7.72190	PUL	
V-315	2F	16:19:30.48	–53:15:04.7339	20.89	2.75	2.01	17.02160	EB:	
V-319	2F	16:19:27.25	–53:14:44.6046	17.98	2.16	0.91	0.29771	EW	spiky
V-322	2F	16:19:15.03	–53:14:43.3119	19.06	2.23	1.33	0.33845	EW	
V-323	2G	16:19:48.25	–53:13:51.6015	19.67	2.73	0.31	0.29987	EW	
V-324	2G	16:19:41.56	–53:13:53.2178	19.25	2.50	0.39	2.21460	EA:	
V-325	2G	16:19:43.61	–53:13:48.8128	15.88	1.97	0.10	0.83276	EA	chaotic
V-326	2G	16:19:53.46	–53:13:39.5780	20.05	2.72	0.79	0.31052	EW	
V-327	2G	16:19:51.99	–53:13:26.8954	17.46	2.33	0.29	8.54100	PUL:	
V-328	2G	16:19:48.13	–53:12:58.3183	16.34	1.92	0.08	10.75070	EB/PUL	
V-329	2G	16:19:52.55	–53:12:47.1901	17.91	2.40	0.30	2.04990	EB:	
V-330	2G	16:19:56.60	–53:12:34.7860	15.93	1.95	0.09	0.82031	PUL:	
V-331	2G	16:19:41.57	–53:12:07.9517	19.21	2.68	0.40	1.92320	EB	
V-332	2G	16:19:38.39	–53:11:42.5892	16.74	1.92	0.08	6.41990	PUL:	
V-333	2G	16:19:37.64	–53:11:39.8602	18.06	2.94	0.43	0.32127	EW	2 max
V-334	2G	16:19:41.09	–53:11:36.8321	16.84	2.01	0.17	16.75300	EB	
V-335	2G	16:19:54.72	–53:11:18.6992	19.46	3.13	0.80	0.27013	EW	
V-336	2G	16:19:55.05	–53:11:16.7048	19.74	2.98	0.72	2.21220	EA:	
V-337	2G	16:19:53.62	–53:11:02.9051	20.63	3.13	0.93	0.25380	EW:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-338	2G	16:19:59.54	–53:10:53.1745	17.09	2.51	0.23	2.21460	EB:	
V-340	2G	16:19:42.15	–53:10:49.6223	17.72	2.58	0.43	9.19420	PUL:	
V-341	2G	16:19:44.67	–53:10:46.1383	16.82	2.16	0.28	0.50348	EB	2ndry poor
V-343	2H	16:19:17.96	–53:13:42.3478	16.98	1.65	0.53	2.18900	EB:	
V-344	2H	16:19:25.74	–53:13:37.4713	18.72	1.91	0.62	0.08352	PUL	
V-345	2H	16:19:24.84	–53:13:17.9815	18.23	1.92	0.61	1.05600	EB:	
V-346	2H	16:19:12.81	–53:13:16.6603	19.50	2.28	0.70	0.70796	PUL:	
V-348	2H	16:19:31.93	–53:13:07.7407	17.44	1.82	0.64	0.55059	EW	
V-349	2H	16:19:24.37	–53:13:00.6118	19.51	2.28	0.84	0.44458	EW	
V-350	2H	16:19:32.57	–53:12:49.1459	17.82	2.03	0.66	2.13740	EB:	
V-351	2H	16:19:19.31	–53:12:40.5499	16.86	1.39	0.38	0.91801	PUL:	
V-352	2H	16:19:27.91	–53:12:38.4446	17.84	1.80	0.57	9.13710	PUL:	
V-353	2H	16:19:21.74	–53:12:08.6000	18.29	1.97	0.65	1.33060	EA	
V-354	2H	16:19:14.51	–53:12:06.0678	16.20	1.41	0.36	1.83740	EB	
V-355	2H	16:19:20.99	–53:12:00.5953	17.99	2.63	0.88	1.05050	PUL	
V-356	2H	16:19:12.90	–53:11:59.2289	20.45	2.43	1.25	0.40706	EW	spiky
V-357	2H	16:19:16.84	–53:11:30.2571	17.31	1.56	0.43	1.89150	EB:	
V-358	2H	16:19:15.35	–53:11:19.9766	19.31	2.75	1.13	3.78860	EB:	
V-359	2H	16:19:21.35	–53:11:18.3195	17.30	1.93	0.74	1.42390	EB:	
V-360	2H	16:19:18.82	–53:11:02.9243	16.62	1.68	0.38	1.06660	PUL:	
V-361	2H	16:19:18.88	–53:10:58.8837	18.48	1.94	0.69	0.60122	EW	
V-362	2H	16:19:29.56	–53:10:57.4228	19.45	2.42	0.86	1.53310	PUL:	
V-363	2H	16:19:33.99	–53:10:51.3906	19.91	2.88	1.28	0.43801	EW	
V-364	3A	16:19:01.65	–53:25:40.0235	21.38	2.24	1.29	0.29552	EW	
V-365	3A	16:18:42.19	–53:25:36.7018	20.55	2.96	0.51	0.33714	EW	
V-366	3A	16:18:59.69	–53:25:22.4462	16.08	2.18	0.29	18.86840	EB:	
V-367	3A	16:18:58.23	–53:25:19.2751	20.59	2.53	0.52	1.05100	EA:	
V-369	3A	16:18:59.77	–53:25:09.8420	16.74	2.00	0.19	0.27793	EW	2 max
V-370	3A	16:18:52.16	–53:25:05.6422	19.59	2.45	0.50	17.78040	EB:	
V-371	3A	16:18:56.76	–53:24:59.8014	20.20	2.93	0.55	2.21230	EA:	
V-372	3A	16:18:53.75	–53:24:36.5313	17.35	2.26	0.34	7.67120	PUL:	
V-373	3A	16:18:44.16	–53:24:33.5150	19.38	2.46	0.62	0.46837	EW	
V-374	3A	16:18:44.18	–53:24:32.0589	18.67	2.75	0.67	1.98010	PUL	
V-375	3A	16:19:00.03	–53:24:30.1551	20.23	2.97	0.83	0.31408	EW	
V-376	3A	16:18:44.68	–53:24:18.9325	20.98	2.98	0.46	0.66826	EW:	
V-377	3A	16:18:54.62	–53:24:14.7798	19.88	2.73	0.38	0.36013	EW	
V-379	3A	16:19:02.58	–53:24:08.8567	20.67	3.01	0.85	0.26794	EW	
V-380	3A	16:18:55.29	–53:24:00.7726	17.09	2.08	0.32	0.31048	EW	
V-381	3A	16:18:50.51	–53:23:52.8140	18.66	2.67	0.58	1.19810	EB	
V-383	3A	16:18:54.04	–53:23:44.8279	17.09	2.28	0.41	0.31851	EW	
V-384	3A	16:18:54.10	–53:23:43.3905	19.97	2.51	0.44	0.37897	EW	
V-385	3A	16:18:46.31	–53:23:35.8159	19.33	2.81	0.78	1.12200	PUL:	
V-386	3A	16:19:01.20	–53:23:28.5764	16.72	2.21	0.38	1.26920	DCEP/PUL	interesting
V-387	3A	16:18:58.29	–53:23:10.8415	18.91	2.55	0.45	0.36750	PUL	sloped, spiky
V-388	3A	16:18:42.07	–53:23:06.7763	16.65	1.84	0.19	2.91890	PUL:	tracking
V-389	3A	16:18:59.54	–53:23:02.0058	21.73	2.78	0.76	0.32924	EW	
V-390	3A	16:18:50.79	–53:22:54.8815	17.02	2.32	0.44	1.63690	EB:	tracking
V-391	3A	16:18:42.40	–53:22:48.5632	16.08	1.72	0.11	2.57080	EB:	
V-392	3B	16:18:29.28	–53:25:26.5863	19.44	2.04	0.78	0.61734	EW	
V-394	3B	16:18:27.41	–53:25:19.9026	18.46	2.26	0.71	1.07680	PUL	
V-395	3B	16:18:27.27	–53:25:20.0947	19.54	2.10	0.75	2.21020	EB:	
V-396	3B	16:18:15.71	–53:25:12.5826	20.27	2.38	0.86	0.68712	EW	
V-397	3B	16:18:15.75	–53:25:09.6512	19.12	2.60	0.95	3.86070	PUL:	
V-398	3B	16:18:15.63	–53:25:09.6951	18.03	2.31	0.76	3.90300	DCEP/PUL	
V-399	3B	16:18:24.63	–53:25:07.6053	18.92	2.13	0.82	1.56680	EB:	
V-400	3B	16:18:18.30	–53:24:59.1375	18.82	2.02	1.00	0.45258	EW	
V-402	3B	16:18:16.59	–53:24:48.1722	17.93	1.79	0.53	1.90580	EB:	
V-403	3B	16:18:36.20	–53:24:36.2295	16.28	1.52	0.37	1.88380	EB	
V-404	3B	16:18:27.51	–53:24:30.4031	18.78	2.44	0.75	1.12380	PUL:	sloped
V-405	3B	16:18:16.49	–53:24:29.4687	19.47	2.33	0.96	0.34505	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-406	3B	16:18:18.59	–53:24:26.3119	17.33	1.58	0.46	1.09450	PUL:	
V-407	3B	16:18:28.41	–53:24:21.3659	17.97	1.89	0.49	1.91440	EB:	
V-408	3B	16:18:28.95	–53:24:17.4831	18.89	2.29	0.93	0.32509	PUL:	sloped
V-409	3B	16:18:31.26	–53:24:17.2946	18.52	1.93	0.59	2.24400	EB:	
V-410	3B	16:18:22.56	–53:24:10.8596	19.03	1.69	1.00	0.37943	EW	flat bottom
V-411	3B	16:18:13.30	–53:24:09.7108	16.08	3.87		10.15410	PUL	
V-412	3B	16:18:18.44	–53:24:08.1737	21.27	2.84	1.19	0.28652	EW	
V-413	3B	16:18:29.46	–53:24:02.0079	21.18	3.00	1.34	1.88580	EB:	
V-414	3B	16:18:26.08	–53:24:01.2271	18.85	2.61	0.90	0.30258	EW	
V-415	3B	16:18:33.16	–53:23:54.5693	19.19	2.34	0.83	0.33592	EW	2ndry poor
V-416	3B	16:18:29.97	–53:23:49.4830	19.96	2.34	0.76	0.34128	EW	2ndry poor
V-417	3B	16:18:21.99	–53:23:38.4473	16.77	2.32	0.81	5.87490	PUL	chaotic
V-418	3B	16:18:37.06	–53:23:38.5076	18.99	2.34	0.58	0.39015	EW	
V-419	3B	16:18:36.16	–53:23:36.5147	16.00	3.90		0.96312	PUL:	
V-420	3B	16:18:36.21	–53:23:34.44	20.09	2.43	2.33	2.06800	EA:	
V-421	3B	16:18:24.22	–53:23:31.1901	17.92	2.54	0.77	1.83620	EB:	
V-422	3B	16:18:32.30	–53:22:53.7156	16.11	1.90	0.57	5.49280	PUL:	sloped
V-423	3B	16:18:16.22	–53:22:44.1846	18.92	2.84	1.03	2.13580	EB:	
V-424	3B	16:18:31.83	–53:22:43.5573	17.45	1.94	0.52	1.06976	PUL	
V-425	3B	16:18:29.14	–53:22:37.4123	16.30	1.52	0.48	0.73062	PUL	sloped
V-426	3B	16:18:23.00	–53:22:33.1311	21.97	3.24	0.74	0.31137	EW	
V-427	3C	16:19:00.30	–53:21:41.3152	18.79	2.40	0.78	0.35031	EW	
V-428	3C	16:18:51.49	–53:21:34.1645	17.99	2.17	0.66	6.77720	PUL:	chaotic
V-429	3C	16:18:41.20	–53:21:31.9175	16.62	1.80	0.34	0.43280	EW	
V-430	3C	16:18:54.15	–53:21:12.3247	17.00	1.61	0.59	0.72011	EB:	messy
V-431	3C	16:18:49.75	–53:21:08.2589	19.53	2.52	1.19	0.67768	EW	
V-432	3C	16:18:58.06	–53:21:08.0957	18.19	2.09	0.77	0.29482	EW	
V-433	3C	16:18:45.81	–53:20:58.1917	19.40	2.52	0.75	1.56680	PUL:	chaotic
V-434	3C	16:18:54.81	–53:20:48.4850	20.18	2.62	0.66	0.24129	EW	
V-435	3C	16:18:51.43	–53:20:41.0526	17.58	1.68	0.43	1.10660	PUL:	
V-436	3C	16:19:02.73	–53:20:29.0962	18.19	2.37	0.71	1.58140	EA	stacking
V-437	3C	16:18:43.04	–53:20:25.8997	17.72	1.85	0.49	7.33470	PUL:	
V-438	3C	16:19:02.44	–53:20:06.7917	17.33	2.25	0.73	5.96580	PUL:	
V-439	3C	16:18:52.13	–53:20:01.3231	21.96	2.60	1.09	2.23940	EB	
V-440	3C	16:18:45.56	–53:19:41.3980	19.94	2.33	0.73	2.21450	EA	messy
V-441	3C	16:18:48.65	–53:19:39.9446	16.09	2.66	0.90	13.09280	EB/PUL	
V-442	3C	16:18:54.50	–53:19:19.5165	16.45	1.60	0.37	5.74120	PUL:	
V-443	3C	16:18:57.78	–53:19:02.3510	19.98	2.43	0.97	0.38911	EW	
V-444	3C	16:19:02.15	–53:18:58.4530	19.49	1.91	1.05	1.90500	EA	
V-445	3D	16:18:32.11	–53:21:47.6961	16.22	1.40	0.88	0.31904	EW	
V-446	3D	16:18:30.94	–53:21:38.3666	19.46	2.26	1.45	0.37923	EW	
V-447	3D	16:18:31.89	–53:21:24.9115	17.58	2.69	1.67	2.12720	EB:	
V-448	3D	16:18:28.30	–53:21:10.6774	16.93	1.52	1.28	0.77538	EB	
V-449	3D	16:18:31.85	–53:21:01.6603	17.64	4.75	-0.88	0.28433	EW	messy
V-450	3D	16:18:18.35	–53:20:50.9222	18.25	1.53	1.24	16.82720	EB:	
V-451	3D	16:18:26.33	–53:20:49.8677	16.42	1.59	1.31	0.91736	PUL	tracking
V-452	3D	16:18:15.20	–53:20:19.3377	16.64	1.10	1.01	0.93972	PUL	
V-453	3D	16:18:34.79	–53:20:13.9816	18.61	1.83	1.38	4.47660	EB:	
V-454	3D	16:18:29.51	–53:20:10.6967	16.86	1.34	1.10	1.11430	PUL:	
V-455	3D	16:18:34.85	–53:19:45.6595	17.13	1.37	1.16	0.37539	EW	
V-456	3D	16:18:14.22	–53:19:36.6862	18.36	2.24	1.47	1.69200	EB	odd
V-457	3D	16:18:35.32	–53:19:34.0572	19.79	1.82	1.44	1.76620	EA	
V-458	3D	16:18:29.62	–53:18:41.6713	21.39		1.66	2.21000	EB	
V-459	3D	16:18:36.46	–53:18:40.6803	18.56	1.48	1.16	1.11970	PUL:	
V-460	3E	16:18:49.99	–53:17:30.6454	17.39	2.74	0.73	2.67980	DCEP/PUL	
V-461	3E	16:19:02.53	–53:17:28.7580	17.73	2.80	0.58	3.12820	EB	
V-462	3E	16:18:43.79	–53:17:23.1065	16.66	1.70	0.31	7.81400	PUL:	
V-463	3E	16:18:43.94	–53:17:05.8524	17.55	1.90	0.34	2.13540	EB:	
V-464	3E	16:18:56.46	–53:16:51.1046	19.46	2.59	0.79	0.32508	EW	
V-466	3E	16:18:59.36	–53:16:50.4684	20.12	2.96	0.75	0.25793	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-467	3E	16:18:59.97	–53:16:25.5253	19.25	2.83	0.52	0.40951	EW	flat bottom
V-468	3E	16:18:48.88	–53:16:25.3019	21.08	3.28	0.76	0.35090	EW	
V-469	3E	16:18:56.43	–53:16:23.2021	15.93	1.79	0.39	2.96060	PUL:	
V-470	3E	16:18:41.70	–53:16:22.4156	21.87	1.68	0.27	0.91966	PUL:	
V-472	3E	16:19:00.24	–53:16:15.5261	17.58	2.08	0.61	0.36832	EW	2 max spiky
V-473	3E	16:18:58.39	–53:16:13.2144	18.77	2.02	1.01	0.49216	EW	
V-474	3E	16:19:02.39	–53:15:58.9826	16.05	1.71	0.30	2.28880	PUL:	
V-475	3E	16:18:48.87	–53:15:53.1379	18.18	2.22	0.61	0.74814	EW	
V-476	3E	16:18:52.04	–53:15:46.6801	20.25	2.97	0.75	2.20800	EA	
V-477	3E	16:18:59.80	–53:15:46.4437	16.71	2.91	0.82	6.50520	PUL:	
V-478	3E	16:18:47.67	–53:15:44.5355	18.20	2.04	0.43	1.09780	PUL:	
V-479	3E	16:18:41.31	–53:15:41.4615	18.59	1.68	0.95	1.91170	EA	
V-480	3E	16:18:54.36	–53:15:34.4376	16.17	2.01	0.39	9.27940	DCEP/PUL	
V-481	3E	16:18:44.21	–53:15:08.1409	19.20	2.83	0.82	2.34120	PUL:	
V-482	3E	16:18:56.66	–53:15:05.8831	17.15	1.95	0.53	0.42771	EW	flat bottom
V-483	3E	16:18:43.53	–53:14:59.2905	17.76	2.18	0.46	8.09860	PUL	
V-484	3E	16:18:47.44	–53:14:57.7374	17.71	1.99	0.51	1.09230	EA	
V-485	3F	16:18:21.80	–53:17:41.5486	16.79	2.46	2.36	2.71930	PUL	
V-486	3F	16:18:22.10	–53:17:35.2985	18.73	2.52	2.06	15.61360	EB:	
V-487	3F	16:18:30.70	–53:17:34.7839	16.68	1.92	1.42	0.36638	EW	
V-489	3F	16:18:26.00	–53:17:26.6410	18.55	2.85	2.29	1.60210	EB:	
V-490	3F	16:18:17.51	–53:17:16.3651	16.39	1.70	1.69	0.47427	EW	
V-492	3F	16:18:36.47	–53:17:14.4323	19.02	3.08	2.17	2.09420	EB	
V-493	3F	16:18:36.50	–53:17:09.0202	16.23	1.87	1.75	0.27246	EW	2 max flat bot
V-495	3F	16:18:20.88	–53:17:01.7454	19.42	2.52	2.14	1.05040	EA	
V-496	3F	16:18:21.15	–53:16:55.2647	17.49	2.16	1.69	0.76894	EA	
V-497	3F	16:18:31.18	–53:16:53.6467	16.37	1.86	1.70	3.66720	EB/PUL	
V-498	3F	16:18:30.16	–53:16:46.7071	19.12	2.79	1.99	0.29975	EW	
V-500	3F	16:18:24.26	–53:16:43.4488	16.71	1.84	1.86	4.68040	PUL:	
V-502	3F	16:18:33.94	–53:16:34.7104	20.52	3.49	2.41	0.30351	EW	
V-503	3F	16:18:22.64	–53:16:22.5777	19.14	2.79	2.24	0.58746	EW	
V-508	3F	16:18:28.14	–53:16:11.1223	21.17	3.85	2.46	0.45880	EW	sloped
V-510	3F	16:18:26.21	–53:16:04.1665	18.62	2.48	1.98	0.11073	PUL	wave
V-512	3F	16:18:20.60	–53:15:51.0975	16.00	1.56	1.44	0.38303	EW	
V-514	3F	16:18:29.94	–53:15:45.6409	19.63	2.82	1.68	0.30300	EW	
V-515	3F	16:18:14.95	–53:15:44.8112	18.49	2.19	1.89	3.32280	PUL:	
V-516	3F	16:18:31.63	–53:15:35.7031	19.64	3.42	2.40	0.24932	EW	
V-517	3F	16:18:31.52	–53:15:35.0759	18.50	2.21	1.79	0.28490	EW	
V-518	3F	16:18:23.42	–53:15:32.3038	18.29	2.23	1.98	1.10400	EB:	shallow 2ndry
V-519	3F	16:18:33.99	–53:15:24.6460	18.81	2.32	1.95	0.45345	EW	
V-520	3F	16:18:23.75	–53:15:18.9682	18.02	2.27	1.78	8.41140	PUL:	
V-521	3F	16:18:14.05	–53:15:14.0738	17.53	2.15	1.76	0.57631	EA	messy
V-522	3F	16:18:28.65	–53:15:13.7680	21.54	3.46	2.35	0.22262	EW	
V-523	3F	16:18:30.89	–53:15:11.5286	16.49	2.38		0.90367	EW	flat bottom
V-524	3F	16:18:19.80	–53:15:09.7609	17.86	2.57	1.92	1.61450	EA	
V-527	3F	16:18:21.20	–53:14:57.4378	18.16	2.37	2.07	5.09250	PUL:	
V-528	3F	16:18:22.90	–53:14:53.5032	17.55	1.97	1.72	0.25767	EW	2 max
V-530	3F	16:18:26.22	–53:14:37.7879	18.26	2.57	2.10	0.47871	EW	
V-532	3G	16:18:55.12	–53:13:47.6631	17.74	1.84	0.43	2.18480	EB:	
V-533	3G	16:18:47.46	–53:13:40.2350	16.03	1.41	0.31	1.84110	EB:	2ndry poor
V-534	3G	16:19:01.19	–53:13:39.0112	17.47	1.70	0.82	0.29443	EW	
V-535	3G	16:18:41.08	–53:13:35.1236	19.86	2.54	1.02	0.29925	EW	
V-536	3G	16:18:40.88	–53:13:35.2199	16.68	1.69	0.45	0.26021	EW	2 max
V-538	3G	16:18:41.81	–53:13:20.5262	17.64	1.71	0.39	1.06260	PUL:	
V-539	3G	16:18:55.97	–53:13:17.0476	16.45	1.66	0.35	1.83340	EB:	
V-540	3G	16:18:50.54	–53:13:15.8250	18.10	2.13	0.52	0.34851	EW	2 max flat bot
V-542	3G	16:18:52.29	–53:13:13.8844	20.12	1.82	0.69	0.34129	EW	
V-543	3G	16:18:42.76	–53:13:11.6746	17.50	2.02	0.44	0.38871	EW	
V-544	3G	16:18:46.41	–53:13:06.7189	18.85	2.15	0.69	0.89915	PUL	
V-545	3G	16:18:46.97	–53:13:02.2878	17.22	1.73	0.43	1.04820	PUL:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-546	3G	16:18:50.86	–53:12:55.6920	20.16	2.59	0.70	0.29178	EW	
V-547	3G	16:19:02.09	–53:12:51.4753	16.36	1.71	0.45	0.81709	EW	
V-548	3G	16:19:02.79	–53:12:46.4142	17.30	1.53	0.35	4.77710	PUL:	
V-549	3G	16:18:40.09	–53:12:07.6494	18.41	2.10	0.68	0.15711	PUL:	
V-550	3G	16:18:58.78	–53:11:58.0833	18.84	2.38	0.91	3.17600	EB:	
V-551	3G	16:19:01.28	–53:11:56.3822	19.84	2.27	0.63	0.41580	EW	
V-552	3G	16:18:45.46	–53:11:53.8485	19.02	2.44	0.69	0.29030	EW	
V-553	3G	16:18:42.03	–53:11:45.1609	19.18	2.32	0.90	0.38981	EW	
V-554	3G	16:18:42.99	–53:11:27.8390	18.78	2.34	0.63	0.26538	EW	
V-555	3G	16:18:47.44	–53:11:15.7299	18.63	1.88	0.57	1.17040	EB:	
V-556	3G	16:18:47.82	–53:11:15.1119	17.83	1.83	0.51	1.20150	EB	
V-557	3G	16:18:57.38	–53:11:13.9433	17.02	1.76	0.51	1.53470	CV/PUL	chaotic
V-558	3G	16:18:54.13	–53:11:08.7186	18.95	2.33	0.85	0.24871	EW	2 max
V-560	3G	16:18:59.48	–53:10:56.7742	17.64	2.43	0.55	0.32826	EW	
V-562	3G	16:19:00.63	–53:10:54.0314	16.17	1.58	0.38	0.38273	EW	
V-563	3H	16:18:07.30	–53:13:42.6613	21.68	3.46	1.27	2.24400	EB:	
V-564	3H	16:18:17.40	–53:13:13.4610	18.78	2.07	0.60	2.18910	EA	
V-565	3H	16:18:07.62	–53:13:10.6033	17.72	2.44	0.84	1.34910	EA	
V-566	3H	16:18:11.49	–53:13:09.7148	20.18	2.65	0.85	1.41120	EA	
V-567	3H	16:18:15.42	–53:12:36.6570	19.51	2.49	0.83	0.30218	EW	spiky
V-568	3H	16:18:15.50	–53:12:36.5601	17.37	2.03	0.66	0.35590	EW	flat bottom
V-570	3H	16:18:17.36	–53:12:29.4420	21.25	2.81	1.07	0.35320	EW	2 max
V-572	3H	16:18:17.49	–53:12:27.6664	17.42	2.01	0.83	0.29979	EW	2 max
V-573	3H	16:18:15.58	–53:12:27.5952	19.36	2.62	0.88	3.68160	EB:	
V-574	3H	16:18:18.90	–53:12:23.7376	16.53	1.78	0.54	0.73330	EW	
V-575	3H	16:18:20.40	–53:12:23.1575	18.66	2.40	0.70	0.47341	EW	
V-576	3H	16:18:18.61	–53:12:13.2789	21.19	2.05	0.91	0.36089	EW	
V-577	3H	16:18:21.06	–53:12:11.4329	19.33	2.48	0.87	0.36167	EW	spiky
V-578	3H	16:18:12.74	–53:12:11.0860	20.27	2.56	1.04	0.28806	EW	
V-579	3H	16:18:20.91	–53:12:02.1620	16.90	1.92	0.44	0.42256	EW	
V-580	3H	16:18:22.64	–53:11:51.6442	16.75	1.76	0.54	1.10150	PUL:	spiky
V-581	3H	16:18:16.88	–53:11:26.9764	17.10	2.70	0.90	2.24060	EB:	
V-582	3H	16:18:24.83	–53:11:25.5501	15.99	2.84	1.08	17.14080	PUL:	long
V-583	3H	16:18:24.11	–53:11:15.2030	17.93	2.12	0.58	0.96152	PUL:	
V-584	3H	16:18:18.55	–53:11:13.6008	17.34	1.90	0.54	3.27060	EB:	
V-585	3H	16:18:25.39	–53:10:57.6002	16.37	1.61	0.48	2.30070	EA:	
V-586	3H	16:18:29.61	–53:10:52.7997	18.51	2.10	0.63	2.16920	EB:	
V-587	3H	16:18:21.26	–53:10:49.3220	21.55	2.32	1.32	0.34866	EW	spiky
V-588	3H	16:18:28.65	–53:10:46.4396	17.38	2.30	0.76	5.36840	PUL	tracking
V-589	4A	16:18:01.11	–53:25:15.3848	16.73	2.26	0.37	6.13260	EA	chaotic
V-590	4A	16:17:48.32	–53:25:13.5862	20.50	3.16	0.71	9.51220	PUL	
V-591	4A	16:18:01.04	–53:25:13.6930	20.33	2.49	0.77	2.42120	EA	messy
V-592	4A	16:17:57.91	–53:25:13.1996	16.85	2.10	0.24	1.06324	PUL	
V-593	4A	16:17:45.99	–53:24:54.2489	17.88	2.77	0.58	9.67330	PUL:	
V-594	4A	16:17:45.74	–53:24:51.6404	19.75	2.95	0.96	0.66490	EA:	messy
V-595	4A	16:17:52.56	–53:24:50.9186	15.98	2.20	0.36	6.46600	PUL:	
V-596	4A	16:18:05.32	–53:24:50.8641	17.32	2.04	0.26	0.38542	EW	
V-597	4A	16:17:59.72	–53:24:43.3513	20.78	2.89	0.38	9.20120	PUL:	
V-598	4A	16:17:50.24	–53:24:32.3650	20.14	2.52	0.08	0.43868	EW	
V-599	4A	16:18:01.02	–53:24:32.4544	18.48	3.11	0.71	4.66200	PUL:	
V-600	4A	16:17:53.01	–53:24:31.7995	19.05	2.58	0.71	8.58560	PUL:	
V-603	4A	16:18:04.46	–53:24:25.2664	15.73	1.92	0.47	0.37617	EW	flat bottom
V-604	4A	16:18:00.36	–53:24:10.6221	17.14	2.45	0.45	0.38457	EW	2 max
V-605	4A	16:18:00.95	–53:24:03.3517	15.88	4.29		1.04470	PUL:	
V-606	4A	16:17:58.47	–53:23:49.3453	16.14	2.06	0.32	2.98180	PUL:	odd
V-608	4A	16:17:47.16	–53:23:23.0615	16.09	1.68	0.24	0.36029	EW	2 max
V-609	4A	16:17:43.02	–53:23:14.6074	18.24	2.88	0.91	0.55976	PUL:	chaotic
V-610	4A	16:18:04.36	–53:23:13.8245	18.84	2.75	0.73	0.60290	EW	odd
V-611	4A	16:18:02.91	–53:23:07.2723	18.33	2.37	0.50	0.70605	EA	
V-612	4A	16:17:48.18	–53:23:03.9637	16.45	2.28	0.35	0.31185	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-613	4A	16:18:02.33	–53:22:31.3044	21.97		1.25	0.67302	EW:	
V-614	4B	16:17:17.33	–53:25:18.4839	19.78	2.82	0.74	2.21220	EB:	
V-615	4B	16:17:38.23	–53:25:18.8812	19.39	2.27	0.91	0.45119	EW	
V-616	4B	16:17:33.34	–53:25:14.6756	19.47	2.50	0.77	1.36700	EB:	
V-617	4B	16:17:38.12	–53:25:07.0072	20.67	3.01	0.78	2.21010	EA:	
V-618	4B	16:17:24.99	–53:25:05.6536	17.64	2.23	0.56	2.20530	EA/EB	
V-619	4B	16:17:32.87	–53:25:05.8665	17.52	2.23	0.52	0.82035	PUL	
V-620	4B	16:17:36.00	–53:25:04.7264	18.35	1.81	0.63	0.39710	EW	
V-621	4B	16:17:34.65	–53:24:40.6601	22.02	3.38	0.85	0.67406	EW	
V-622	4B	16:17:35.06	–53:24:36.7080	17.35	2.54	0.67	0.26800	EW:	
V-623	4B	16:17:29.53	–53:24:30.6740	18.48	2.74	0.54	0.39180	EW	
V-625	4B	16:17:36.02	–53:24:24.5207	17.34	1.94	0.36	2.22860	EB:	
V-626	4B	16:17:22.21	–53:24:11.2999	20.13	2.87	0.83	0.33651	PUL:	
V-627	4B	16:17:29.77	–53:24:05.5361	17.91	2.25	0.62	3.33400	EA	odd
V-628	4B	16:17:21.47	–53:24:03.0912	19.11	2.74	0.81	2.21900	EA/EB	
V-629	4B	16:17:19.18	–53:23:59.3663	21.28	2.94	0.68	1.91060	EB:	messy
V-630	4B	16:17:32.01	–53:23:45.5598	18.21	2.98	0.49	0.40835	EW	
V-632	4B	16:17:19.27	–53:23:31.9829	19.12	2.70	0.60	2.21010	EA:	
V-633	4B	16:17:33.63	–53:23:27.9718	18.22	2.49	0.71	4.05430	PUL:	
V-634	4B	16:17:27.95	–53:23:26.4780	21.31	3.18	1.05	1.05200	EA:	
V-635	4B	16:17:19.89	–53:23:25.4971	21.29	2.89	0.75	19.18420	EB:	
V-636	4B	16:17:31.07	–53:23:25.6379	19.58	2.61	0.84	0.42515	EW	
V-637	4B	16:17:19.07	–53:23:18.7723	18.33	3.05	0.80	3.73820	EB	
V-638	4B	16:17:27.99	–53:22:53.7445	17.50	1.94	0.36	1.06660	PUL:	
V-639	4B	16:17:25.42	–53:22:49.0160	20.08	3.27	0.72	0.31059	EW	
V-640	4B	16:17:36.95	–53:22:49.5499	19.06	2.97	0.88	6.17860	EA	
V-644	4B	16:17:36.53	–53:22:36.0734	18.80	2.51	0.76	1.05040	EA:	
V-645	4B	16:17:33.95	–53:22:32.7579	17.97	2.32	0.53	0.34210	EW	2ndry poor
V-647	4C	16:17:57.12	–53:21:29.4571	17.97	2.00	1.23	0.43496	EW	
V-648	4C	16:17:44.95	–53:21:22.6517	16.07	1.59	0.55	2.23870	PUL:	sloped
V-649	4C	16:17:53.30	–53:21:08.8836	15.79	1.57	0.52	9.18250	EB:	
V-650	4C	16:18:00.05	–53:20:57.6295	20.26	3.48	1.14	0.26845	EW	
V-651	4C	16:17:43.05	–53:20:43.6879	18.10	2.33	0.91	3.71230	PUL	
V-652	4C	16:17:56.83	–53:20:22.0574	16.24	1.57	0.52	8.08630	PUL	
V-653	4C	16:18:01.75	–53:19:53.1794	19.17	2.62	1.06	3.14770	PUL	
V-654	4C	16:17:57.53	–53:19:51.9312	19.98	3.08	1.25	2.09420	EB:	
V-656	4C	16:17:43.08	–53:19:33.3438	19.16	3.11	0.98	0.25899	EW	
V-657	4C	16:17:52.84	–53:19:24.8119	22.12		1.04	9.43360	PUL	
V-658	4C	16:17:48.60	–53:19:20.9181	17.45	1.82	0.77	0.59433	EW	
V-659	4C	16:17:57.42	–53:19:12.5206	21.58	2.65	1.05	2.24400	EB:	
V-660	4C	16:17:49.40	–53:19:10.2270	18.97	2.18	1.05	0.71121	EW	
V-662	4C	16:18:01.42	–53:19:08.5952	17.95	2.29	0.83	0.26059	EW	spiky
V-664	4C	16:17:43.91	–53:19:08.7442	19.44	2.38	0.91	2.21230	EA:	
V-665	4C	16:17:51.45	–53:19:00.4085	16.72	2.36	0.91	12.84250	EB:	
V-666	4C	16:17:43.46	–53:18:46.5532	19.14	2.25	0.84	9.42710	PUL	
V-667	4C	16:17:55.04	–53:18:39.0612	18.58	2.22	0.77	9.43160	PUL	
V-668	4D	16:17:37.89	–53:21:41.1988	17.77	1.95	0.63	0.30656	EW	
V-669	4D	16:17:40.71	–53:21:36.6793	18.00	2.01	0.71	0.37512	EW	
V-670	4D	16:17:33.97	–53:21:34.2990	17.55	2.05	0.63	18.47720	EB:	
V-671	4D	16:17:16.87	–53:21:29.6088	18.64	2.42	0.60	0.78248	EW	
V-672	4D	16:17:33.54	–53:21:29.8133	17.38	1.59	0.57	1.92490	EB:	
V-673	4D	16:17:18.68	–53:21:28.9635	17.53	2.03	0.60	0.36149	EW	
V-674	4D	16:17:39.41	–53:21:22.2114	18.55	2.11	0.80	0.38651	EW	messy
V-675	4D	16:17:22.84	–53:21:01.8499	17.18	1.70	0.51	0.96063	PUL:	
V-676	4D	16:17:36.15	–53:21:00.5305	19.54	2.22	0.81	0.35869	EW	
V-677	4D	16:17:35.81	–53:20:45.1953	20.77	2.43	0.81	1.05090	EA:	
V-678	4D	16:17:19.91	–53:20:38.1780	18.57	2.62	1.50	4.59200	PUL:	
V-679	4D	16:17:33.74	–53:20:37.0845	18.56	1.95	0.80	1.43990	EW	
V-680	4D	16:17:25.04	–53:20:28.5629	17.53	2.08	0.73	2.19560	EB:	
V-681	4D	16:17:29.61	–53:20:13.8921	18.88	2.34	0.72	0.37138	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-682	4D	16:17:38.67	–53:20:13.7090	16.63	1.65	0.53	2.19350	EA/EB	
V-683	4D	16:17:19.85	–53:20:09.6063	17.11	1.70	0.49	2.11510	EB	
V-684	4D	16:17:23.72	–53:19:48.7383	20.67	2.25	0.50	1.11630	PUL:	
V-685	4D	16:17:17.50	–53:19:28.3903	20.30	2.55	0.82	2.21240	PUL:	
V-686	4D	16:17:27.77	–53:19:06.7412	19.81	2.73	0.72	0.43592	EW	
V-687	4D	16:17:25.77	–53:18:56.9679	18.46	1.83	0.65	0.43538	EW	spiky
V-688	4D	16:17:24.95	–53:18:46.8083	17.26	1.74	0.49	3.85520	CV/PUL	
V-689	4D	16:17:29.88	–53:18:43.7860	17.33	2.09	0.74	1.53750	EA	
V-690	4D	16:17:16.54	–53:18:34.7959	20.70	2.42	0.72	18.07660	EB:	
V-693	4E	16:17:58.18	–53:17:25.6160	19.62	2.25	0.04	0.67302	CV/PUL	
V-694	4E	16:17:48.20	–53:17:11.9895	17.79	1.65	0.72	2.90810	EA	
V-695	4E	16:17:46.45	–53:17:09.4770	20.03	2.07	0.84	0.26578	EW	
V-696	4E	16:17:48.12	–53:17:05.2093	15.91	1.31	0.41	16.74700	EB/PUL	
V-697	4E	16:17:53.10	–53:17:03.8390	19.86	2.24	1.07	0.25805	EW	
V-698	4E	16:18:01.49	–53:17:01.6382	16.50	1.26	0.38	9.80930	PUL	
V-699	4E	16:17:54.27	–53:16:55.4275	18.29	1.98	0.83	4.13240	PUL	
V-700	4E	16:17:54.70	–53:16:48.4729	17.96	1.65	0.65	12.38880	EB:	
V-701	4E	16:17:48.86	–53:16:40.6263	19.36	1.65	0.76	2.56869	EA:	
V-702	4E	16:18:02.06	–53:16:37.8031	16.89	1.17	0.41	1.91770	EB:	
V-703	4E	16:17:53.31	–53:16:32.2095	19.56	2.51	0.70	2.09420	EB:	
V-705	4E	16:17:49.93	–53:16:18.9807	17.50	1.33	0.61	0.41142	EW	
V-707	4E	16:17:52.09	–53:16:09.3680	19.59	2.03	0.88	2.16280	EB	
V-708	4E	16:17:51.46	–53:15:52.0501	21.07	2.23	0.77	4.59620	PUL	
V-709	4E	16:18:00.84	–53:14:54.7751	17.27	1.48	0.54	1.20922	PUL	
V-710	4E	16:17:59.22	–53:14:50.0320	17.10	1.56	0.55	1.39759	EA:	
V-711	4E	16:18:04.53	–53:14:50.0045	16.61	1.21	0.36	1.70818	PUL:	
V-712	4E	16:17:58.11	–53:14:48.3481	18.45	1.85	0.65	0.45108	EW:	
V-713	4E	16:18:02.15	–53:14:36.6228	20.65	2.06	0.54	2.21230	EB:	
V-714	4F	16:17:40.17	–53:17:42.3796	21.01	3.09	1.60	2.23720	EA/EB	
V-715	4F	16:17:21.77	–53:17:38.7366	16.58	1.81	1.11	2.18460	EB:	
V-716	4F	16:17:16.78	–53:17:36.6301	19.57	2.69	1.42	0.45393	EW:	
V-717	4F	16:17:23.16	–53:17:36.7545	16.72	1.78	1.01	1.89030	EB:	
V-718	4F	16:17:16.89	–53:17:35.7365	18.29	3.05	0.93	0.58815	EB	
V-719	4F	16:17:16.81	–53:17:20.2602	18.88	2.76	1.46	2.13960	EB	
V-720	4F	16:17:19.86	–53:17:16.8623	16.44	1.90	1.03	8.61700	EB:	
V-721	4F	16:17:20.03	–53:17:06.2968	17.35	1.87	1.06	15.27400	EB:	
V-722	4F	16:17:37.51	–53:17:03.3566	20.23	2.73	1.41	0.46045	EW	
V-723	4F	16:17:23.95	–53:16:57.6105	16.16	2.55	1.40	8.16640	EA	odd
V-724	4F	16:17:18.72	–53:16:36.8012	19.19	2.63	1.53	0.83920	EA	
V-725	4F	16:17:22.55	–53:16:01.4409	19.38	3.01	1.58	2.21460	EA/EB	
V-726	4F	16:17:19.30	–53:15:57.3394	18.84	2.43	1.39	1.64320	EB:	
V-728	4F	16:17:32.24	–53:15:57.5520	18.18	2.17	1.02	0.60182	EA/EB	
V-729	4F	16:17:21.41	–53:15:53.5389	20.63	3.04	1.52	1.04525	EA:	
V-730	4F	16:17:38.61	–53:15:43.4652	16.17	1.64	1.08	0.91609	PUL:	spiky
V-731	4F	16:17:34.19	–53:15:42.9564	17.63	1.92	1.18	12.42420	EB:	
V-732	4F	16:17:29.27	–53:15:40.0960	19.39	2.50	1.54	2.58840	EB:	
V-733	4F	16:17:32.74	–53:15:36.7005	15.92	1.71	1.03	6.61290	PUL	sloped
V-734	4F	16:17:18.62	–53:15:18.2733	16.61	1.85	1.07	1.91980	EB:	
V-735	4F	16:17:16.86	–53:14:52.1703	20.22	2.73	1.42	0.26467	EW	
V-736	4F	16:17:16.49	–53:14:37.0818	18.12	2.40	1.34	0.28740	EW	
V-737	4G	16:17:50.67	–53:13:47.9457	19.19	2.65	1.16	0.21092	EW	spiky
V-738	4G	16:17:46.36	–53:13:45.3399	18.58	2.36	1.27	0.47046	PUL:	sloped
V-739	4G	16:18:01.72	–53:13:23.9178	18.90	2.14	1.09	0.41808	EW	
V-740	4G	16:17:49.64	–53:13:21.5601	17.91	2.34	0.96	0.24293	EW	
V-741	4G	16:18:02.64	–53:13:14.3680	16.24	1.64	0.65	1.62390	PUL:	
V-742	4G	16:17:48.94	–53:13:16.3355	18.24	2.29	1.01	0.36019	EW	
V-743	4G	16:17:57.90	–53:12:51.8925	18.52	2.16	0.90	10.00950	PUL:	
V-744	4G	16:18:01.52	–53:12:43.5745	16.85	2.22	0.83	0.50228	EW	2ndry poor
V-745	4G	16:17:50.34	–53:12:35.3180	17.78	1.87	0.72	2.08560	EB	
V-746	4G	16:17:48.97	–53:12:30.0559	17.48	1.79	0.73	5.62680	PUL	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-747	4G	16:17:48.85	–53:12:08.0329	16.39	1.93	0.88	0.54049	EW	
V-749	4G	16:17:53.25	–53:12:02.8767	17.63	2.12	0.73	0.37960	EW	
V-751	4G	16:18:00.53	–53:11:57.3348	18.28	2.72	1.15	0.46684	EW	
V-753	4G	16:17:56.34	–53:11:51.1016	18.01	2.20	0.40	0.24601	EW	
V-755	4G	16:17:58.34	–53:11:39.78	20.63	3.00	1.28	0.68612	EA	
V-756	4G	16:18:04.99	–53:11:36.5288	18.29	2.11	0.81	2.24800	EB	
V-757	4G	16:18:03.81	–53:11:30.3882	21.56	2.87	0.75	0.35630	EW	
V-758	4G	16:17:46.55	–53:11:34.0791	20.06	3.22	1.20	0.28506	EW	
V-759	4G	16:17:46.46	–53:11:16.9827	18.04	2.12	0.85	6.09760	PUL	chaotic
V-760	4G	16:17:52.23	–53:11:12.6119	20.79	3.04	1.35	0.46352	EW	
V-761	4G	16:17:46.67	–53:11:03.4765	16.76	2.26	0.91	0.58384	EW	
V-762	4G	16:17:59.14	–53:10:47.2156	19.22	2.29	1.10	4.61070	PUL	
V-763	4H	16:17:39.34	–53:13:43.2596	20.00	2.88	1.06	0.39535	EW	
V-764	4H	16:17:26.86	–53:13:34.1397	19.43	2.66	0.84	0.28923	EW	
V-765	4H	16:17:17.44	–53:13:27.8726	19.54	2.93	0.90	0.44476	EW	
V-766	4H	16:17:31.19	–53:13:13.1713	17.07	1.93	0.51	0.37610	EW	flat bottom
V-769	4H	16:17:24.17	–53:13:03.7587	21.31	2.99	0.79	0.26752	EW	
V-770	4H	16:17:34.52	–53:13:02.5070	18.40	2.46	0.85	0.32740	EW	
V-773	4H	16:17:36.56	–53:12:26.8118	18.17	2.09	0.75	3.36930	PUL	
V-774	4H	16:17:38.49	–53:12:17.6039	17.43	1.73	0.51	1.88078	EB	
V-775	4H	16:17:17.41	–53:12:07.3357	17.30	2.41	1.11	7.73560	PUL	
V-776	4H	16:17:34.08	–53:12:02.1376	19.56	2.53	0.97	0.23864	EW	spiky
V-777	4H	16:17:32.89	–53:11:59.7827	16.43	1.95	0.45	0.48333	EW	
V-778	4H	16:17:23.61	–53:11:57.2344	19.56	2.81	0.86	0.31800	EW	
V-779	4H	16:17:33.01	–53:11:54.2539	19.52	2.86	1.38	0.46977	EW	
V-780	4H	16:17:23.63	–53:11:42.1470	17.18	1.65	0.65	1.36924	EB	
V-781	4H	16:17:17.47	–53:11:19.6265	19.47	2.71	0.81	0.08205	PUL:	sloped
V-782	4H	16:17:22.13	–53:11:14.4998	20.94	3.23	0.94	0.30051	EW	
V-784	4H	16:17:36.98	–53:11:00.1176	17.16	1.92	0.65	3.96200	EA	
V-785	4H	16:17:38.08	–53:10:59.1857	17.66	2.32	0.81	6.32360	EB:	
V-786	4H	16:17:23.08	–53:10:55.8408	18.15	2.34	0.71	0.32373	EW	flat bottom
V-787	4H	16:17:35.55	–53:10:46.6866	16.31	1.67	0.56	2.79660	EB	
V-788	4H	16:17:29.44	–53:10:44.7032	17.54	1.74	0.58	4.95450	PUL:	
V-789	4H	16:17:32.85	–53:10:44.2024	19.15	2.74	0.63	5.92440	EA	
V-790	4H	16:17:28.84	–53:10:42.0607	17.83	2.09	0.37	0.47106	EA	
V-791	4H	16:17:31.24	–53:10:40.9399	17.99	2.21	0.87	0.31056	EW	spiky
V-792	5A	16:17:50.76	–53:41:56.6328	16.90	1.83	0.24	10.13240	PUL:	
V-793	5A	16:17:56.15	–53:41:27.7737	19.22	2.51	0.81	1.41120	PUL:	
V-794	5A	16:18:03.23	–53:41:18.7704	17.84	1.99	0.35	2.13980	EB:	
V-795	5A	16:18:04.65	–53:41:11.4032	18.61	2.59	0.64	0.25974	EW	
V-796	5A	16:17:50.95	–53:41:06.5750	17.49	2.48	0.59	1.92476	EB	
V-797	5A	16:17:44.58	–53:40:53.3014	18.45	2.77	0.82	0.28652	EW	
V-798	5A	16:18:03.77	–53:40:45.2719	17.16	2.25	0.50	0.49112	EW	
V-799	5A	16:17:54.36	–53:40:39.9361	19.32	2.66	0.59	0.71368	EW	
V-800	5A	16:17:46.26	–53:40:34.2090	17.76	2.62	0.51	0.39378	EW	
V-801	5A	16:18:01.48	–53:40:19.5726	20.59	1.83	0.34	0.67457	CV/PUL	
V-802	5A	16:17:50.53	–53:39:57.3056	18.64	2.06	0.47	3.53520	PUL:	
V-803	5A	16:17:50.80	–53:39:46.2160	16.46	1.69	0.32	3.27010	CV/PUL	
V-804	5A	16:18:02.37	–53:39:42.1427	19.20	2.61	0.69	0.38669	EW	
V-805	5A	16:17:56.98	–53:39:40.78	17.49	1.77	0.32	2.14160	EB:	
V-806	5A	16:17:47.32	–53:39:39.3835	16.46	1.72	0.33	1.07210	PUL:	
V-807	5A	16:18:04.13	–53:39:32.6288	18.04	2.54	0.64	0.74550	EB	
V-808	5A	16:18:03.28	–53:39:18.6216	18.88	2.63	0.99	1.25674	EB:	
V-809	5A	16:17:44.98	–53:39:16.1369	19.40	2.64	1.07	5.26010	PUL	
V-810	5A	16:18:01.86	–53:39:13.1659	19.19	2.70	0.69	0.36861	EW	
V-811	5A	16:17:46.98	–53:39:09.4916	21.00	3.04	0.85	0.34475	EW	
V-812	5A	16:17:46.48	–53:38:58.8592	18.38	2.43	0.84	0.48753	PUL	
V-813	5B	16:17:33.88	–53:41:53.6707	16.27	2.51	0.34	7.09190	PUL	
V-814	5B	16:17:35.68	–53:41:42.5309	19.59	2.94	0.38	0.56872	EW	
V-815	5B	16:17:26.02	–53:41:10.7272	21.21	3.46	0.76	1.90225	EB:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-816	5B	16:17:36.69	–53:40:44.5103	17.71	2.26	0.29	0.39912	EA:	
V-817	5B	16:17:39.81	–53:40:43.0690	18.29	2.60	0.38	0.34267	EW	2ndry poor
V-819	5B	16:17:19.11	–53:40:21.0394	15.79	1.83	0.10	0.26105	EW	
V-820	5B	16:17:22.11	–53:40:17.0129	16.84	2.36	0.14	0.40656	EW	
V-821	5B	16:17:37.05	–53:40:09.9729	17.29	2.37	0.38	1.59760	PUL	stacking
V-822	5B	16:17:32.58	–53:39:54.8586	21.99	2.97	0.51	0.16596	PUL:	
V-823	5B	16:17:37.69	–53:39:50.1165	16.08	1.84	0.07	1.09770	PUL	
V-824	5B	16:17:38.96	–53:39:32.9518	19.93	2.74	0.91	0.37658	EW	
V-825	5B	16:17:25.84	–53:39:23.7151	16.93	1.84	0.08	0.45276	EW	
V-826	5B	16:17:27.75	–53:39:23.1764	19.55	3.37	0.99	2.18980	EB:	
V-827	5B	16:17:37.78	–53:39:20.1204	16.20	2.10	0.31	0.57270	EA	
V-828	5B	16:17:21.64	–53:39:19.0873	17.80	3.38	0.87	1.04080	PUL:	
V-830	5B	16:17:18.36	–53:39:08.6957	16.23	2.13	0.40	8.55420	PUL:	
V-831	5B	16:17:17.07	–53:39:04.8151	20.02	3.08	0.83	0.32433	EW	
V-832	5C	16:17:53.30	–53:37:56.4531	18.73	3.71	1.13	4.35320	EB:	
V-833	5C	16:17:49.96	–53:37:54.2261	19.26	2.81	1.10	0.56320	EW	
V-834	5C	16:17:48.19	–53:37:37.7021	18.63	2.82	1.07	0.34226	EW	
V-836	5C	16:17:52.28	–53:37:15.6724	18.61	2.31	0.81	9.59780	EB:	
V-837	5C	16:18:02.56	–53:37:11.4579	18.68	3.19	1.17	0.29260	EW	
V-838	5C	16:18:03.30	–53:37:08.8222	18.63	2.56	0.98	0.47862	EW:	
V-839	5C	16:17:58.70	–53:37:08.1929	16.54	1.63	0.53	8.35420	PUL	
V-840	5C	16:17:57.44	–53:36:59.9529	21.49	3.02	1.68	0.22702	EW	
V-841	5C	16:17:56.74	–53:36:54.1224	21.01	3.05	0.92	0.30836	EW	
V-843	5C	16:17:54.48	–53:36:36.5674	18.02	2.49	1.16	1.51360	PUL	
V-844	5C	16:17:57.66	–53:36:31.4957	16.76	1.99	0.67	2.19960	EB/PUL	
V-845	5C	16:17:44.82	–53:36:05.3056	20.51	2.55	0.82	0.37476	EW	
V-846	5C	16:17:44.82	–53:36:04.6148	20.30	2.80	0.97	0.31562	EW	
V-847	5C	16:17:59.68	–53:36:00.9452	17.90	2.19	0.63	2.25840	EB:	
V-848	5C	16:17:50.66	–53:35:50.1725	20.40	4.25	1.36	3.41340	EB:	
V-849	5C	16:18:03.40	–53:35:37.5845	18.26	1.67	1.05	0.55249	EA	
V-850	5C	16:17:46.15	–53:35:28.3523	19.94	3.07	1.21	0.38594	EW	
V-852	5C	16:17:55.07	–53:35:04.9610	17.79	1.89	0.58	1.81980	EB	
V-853	5C	16:17:47.88	–53:34:56.2434	17.30	1.86	0.66	0.59086	EA	odd
V-854	5D	16:17:39.27	–53:37:57.1063	19.61	4.41	0.86	0.69037	PUL:	
V-855	5D	16:17:16.62	–53:37:51.5631	19.70	3.65	0.31	0.34537	PUL:	
V-856	5D	16:17:33.53	–53:37:23.4630	17.11	2.46	-0.07	2.13760	EB:	
V-857	5D	16:17:35.25	–53:37:19.3127	19.53	4.09	0.17	0.24550	PUL:	
V-858	5D	16:17:35.83	–53:36:56.7631	17.06	2.50	-0.08	0.92666	PUL	
V-859	5D	16:17:36.40	–53:36:43.8646	17.96	3.01	0.25	6.94620	EB:	
V-860	5D	16:17:18.70	–53:36:40.1625	20.03	3.07	0.27	0.30139	EW	
V-861	5D	16:17:21.05	–53:36:39.7741	21.70		1.06	2.23960	EB:	
V-863	5D	16:17:15.84	–53:36:30.8891	17.17	2.81	-0.58	0.27516	EW	
V-864	5D	16:17:30.25	–53:36:17.0363	18.73	2.90	-0.03	0.86934	EW	
V-865	5D	16:17:38.46	–53:36:09.4484	16.18	2.27	-0.09	2.15860	EB:	
V-866	5D	16:17:17.11	–53:35:29.5915	18.43	2.18	0.34	3.24500	EA:	
V-867	5D	16:17:34.05	–53:35:26.5823	19.10	3.23	0.02	0.35746	EW	
V-868	5D	16:17:16.83	–53:35:19.2230	20.10	2.80	0.44	0.34466	EW	
V-869	5D	16:17:17.01	–53:35:09.7261	16.80	2.61	-0.20	2.19360	EB:	
V-870	5D	16:17:16.83	–53:35:05.0840	15.46	3.25	-0.11	1.64040	CV/PUL	
V-871	5E	16:17:59.27	–53:34:00.1703	18.74	2.66	1.42	2.14380	EB:	
V-872	5E	16:18:04.70	–53:33:58.9044	21.06	2.75	1.71	0.39971	EW:	
V-873	5E	16:17:43.19	–53:33:50.9770	18.41	2.31	1.29	1.83950	EB:	
V-874	5E	16:17:46.05	–53:33:49.5357	19.10	2.43	1.40	0.92262	EA	
V-875	5E	16:17:53.53	–53:33:47.2588	18.19	2.43	1.28	2.14180	EB:	
V-876	5E	16:17:47.10	–53:33:43.1207	18.95	3.02	1.48	0.19950	PUL	
V-878	5E	16:17:50.18	–53:33:29.5001	18.60	1.87	1.30	0.25993	EW	
V-879	5E	16:18:02.94	–53:33:16.6103	20.02	2.68	1.41	0.33893	EW	
V-880	5E	16:17:48.20	–53:32:53.2065	19.03	1.41	1.24	0.33248	EW/EA	messy
V-882	5E	16:17:45.80	–53:32:45.4355	20.09	2.28	1.35	0.39879	EW:	
V-883	5E	16:17:45.30	–53:32:43.1260	20.15	2.37	1.51	0.28512	EW:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-887	5E	16:17:45.99	–53:32:17.4920	16.27	1.60	1.01	2.29130	EA	
V-888	5E	16:18:00.71	–53:32:16.1860	18.92	2.04	2.08	8.48700	EB:	
V-889	5E	16:18:03.00	–53:32:05.4002	19.29	2.49	1.33	0.33014	EW	
V-890	5E	16:17:47.95	–53:32:01.8090	19.81	2.98	1.38	0.33163	EW	2ndry poor
V-891	5E	16:17:43.10	–53:31:57.5247	16.21	1.57	0.92	0.33945	EW	
V-892	5E	16:17:50.46	–53:31:50.2662	21.70	2.61	1.37	2.22350	EA:	
V-894	5E	16:18:05.07	–53:31:34.5940	19.24	1.60	1.65	0.70432	EA	
V-895	5E	16:17:47.26	–53:31:30.1879	16.93	1.80	1.05	0.94158	PUL:	
V-896	5E	16:18:01.79	–53:31:29.3366	18.36	2.00	1.09	7.23360	EB:	
V-897	5E	16:17:52.77	–53:31:02.2072	15.89	1.75	1.07	7.59400	EA:	
V-898	5F	16:17:40.37	–53:33:59.4318	21.11	3.65	1.09	9.42950	PUL	
V-899	5F	16:17:18.35	–53:33:54.7893	18.27	2.57	0.82	2.20890	EA/EB	
V-900	5F	16:17:20.60	–53:33:44.7036	21.49	2.42	1.55	0.26794	EW	
V-903	5F	16:17:34.23	–53:33:32.9620	17.00	1.81	0.54	2.13520	EB:	
V-904	5F	16:17:30.69	–53:33:27.7862	18.89	2.41	0.77	2.27000	EB:	
V-905	5F	16:17:17.10	–53:33:25.7393	17.10	2.09	0.49	0.36562	EW/EB	vy odd
V-906	5F	16:17:19.03	–53:33:19.1460	20.41	2.38	0.90	1.92320	EB	
V-907	5F	16:17:22.28	–53:33:10.8062	18.02	1.87	0.58	1.81150	EB	
V-908	5F	16:17:36.95	–53:33:09.4304	17.88	2.77	0.97	1.95580	EB	
V-909	5F	16:17:19.66	–53:33:05.4230	19.99	2.35	0.98	0.36015	EW	
V-910	5F	16:17:34.36	–53:33:01.9130	17.29	1.85	0.54	2.10390	EB:	
V-911	5F	16:17:25.34	–53:33:01.3244	17.60	2.30	0.64	0.41786	EW	
V-912	5F	16:17:26.78	–53:32:45.9199	20.41	2.57	1.10	0.40460	EW	
V-913	5F	16:17:38.59	–53:32:39.7046	17.91	1.95	0.69	6.61580	PUL:	
V-914	5F	16:17:25.34	–53:32:36.0625	17.12	1.73	0.48	7.04780	PUL:	
V-915	5F	16:17:36.67	–53:32:34.4817	16.44	1.94	0.60	8.76220	PUL:	
V-916	5F	16:17:33.91	–53:32:33.4944	20.97	2.30	0.96	1.11310	EB	
V-917	5F	16:17:21.59	–53:32:32.0760	17.15	1.71	0.48	4.32220	PUL:	
V-918	5F	16:17:21.75	–53:32:21.2236	19.13	2.31	0.84	0.47905	EW	
V-919	5F	16:17:27.99	–53:32:14.1046	17.15	2.02	0.70	0.35102	EW	
V-920	5F	16:17:27.66	–53:32:06.9322	18.24	2.04	0.65	8.22070	PUL:	
V-921	5F	16:17:40.05	–53:32:07.3131	19.05	2.37	0.87	3.80430	EB:	
V-922	5F	16:17:22.12	–53:31:58.2634	17.71	2.22	0.75	0.34418	EW	
V-923	5F	16:17:27.67	–53:31:43.2577	19.61	2.81	1.03	0.31217	EW	2 max
V-924	5F	16:17:19.97	–53:31:42.1733	16.69	1.56	0.43	1.80330	EB	
V-925	5F	16:17:39.49	–53:31:19.8005	21.12	2.93	0.90	0.29662	EW	
V-926	5G	16:18:00.45	–53:30:05.5910	17.13	1.70	0.38	1.09560	PUL	
V-927	5G	16:17:53.39	–53:29:55.3403	17.20	1.82	0.39	2.14800	EB:	
V-928	5G	16:18:01.32	–53:29:47.2477	21.13	2.73	0.96	1.03230	EA	messy
V-929	5G	16:17:48.30	–53:29:09.7042	20.48	3.04	0.93	0.54571	EW/EA	
V-930	5G	16:17:43.06	–53:29:08.6007	15.97	4.31		0.93189	PUL:	messy
V-931	5G	16:18:01.18	–53:28:45.8301	19.88	2.53	0.93	0.60378	EW	messy
V-932	5G	16:17:59.75	–53:28:41.7503	19.04	2.25	0.61	0.43897	EW	spiky
V-934	5G	16:17:56.28	–53:28:40.4786	18.16	2.36	0.79	0.94195	EA	
V-935	5G	16:17:58.58	–53:28:30.9711	19.54	2.40	0.82	0.35660	EW	2 max
V-936	5G	16:18:02.82	–53:28:20.4889	17.39	2.02	0.52	0.94701	PUL	
V-937	5G	16:17:43.18	–53:28:17.6794	20.75	2.51	1.10	0.26471	EW	
V-938	5G	16:17:47.11	–53:28:17.2475	17.20	2.08	0.52	0.95995	PUL:	odd
V-939	5G	16:17:43.19	–53:28:16.7299	22.08	2.92	1.04	0.30509	EW	vy messy
V-940	5G	16:17:54.08	–53:28:03.9044	18.85	2.90	0.76	0.35634	EW	spiky
V-941	5G	16:17:53.57	–53:27:48.4901	18.66	2.58	0.84	0.24096	EW	2 max
V-942	5G	16:17:44.95	–53:27:46.7815	17.41	1.83	0.39	7.88540	PUL:	
V-943	5G	16:17:52.26	–53:27:47.4940	17.99	1.96	0.66	0.69269	EA	shallow 2ndry
V-944	5G	16:17:46.51	–53:27:35.2609	18.40	2.54	0.84	0.34447	EW	2 max
V-945	5G	16:17:58.64	–53:27:20.18	16.74	1.62	0.36	9.05200	PUL:	
V-946	5G	16:17:51.88	–53:27:16.9425	21.39	2.10	0.89	0.41031	EW	
V-947	5G	16:18:01.70	–53:27:10.3765	18.18	2.45	0.74	2.16720	EB/PUL	
V-948	5G	16:18:04.49	–53:27:07.6592	17.07	2.09	0.05	0.38039	EW	flat bottom
V-949	5G	16:18:04.36	–53:27:07.4088	17.64	2.16	0.55	0.46993	EW	
V-950	5G	16:17:56.07	–53:27:05.0278	19.68	2.41	0.62	2.24180	EB:	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-951	5H	16:17:33.95	–53:30:07.0929	19.47	2.54	0.88	0.44412	EW	
V-952	5H	16:17:34.00	–53:29:59.9735	18.26	1.98	0.75	1.23240	EA	
V-953	5H	16:17:34.88	–53:29:48.5302	20.67	2.87	1.26	0.40073	EW	
V-954	5H	16:17:18.38	–53:29:28.6719	17.37	2.93	1.05	9.42590	PUL:	
V-955	5H	16:17:30.68	–53:29:28.2514	18.20	2.31	1.07	4.17680	EB:	spiky
V-957	5H	16:17:20.56	–53:29:12.1078	17.86	2.50	0.82	0.42696	EW	
V-959	5H	16:17:25.82	–53:29:04.4147	19.99	2.67	0.73	2.21910	EA:	
V-960	5H	16:17:29.91	–53:29:03.9057	16.89	2.17	0.86	0.36683	EW	
V-961	5H	16:17:37.07	–53:29:03.1806	17.51	1.93	0.74	3.32630	PUL:	
V-962	5H	16:17:27.09	–53:28:59.5381	19.12	2.30	0.62	0.30897	EW	flat bottom
V-963	5H	16:17:19.71	–53:28:51.8113	16.27	2.11	0.79	1.11760	CV/PUL	
V-964	5H	16:17:30.80	–53:28:47.7061	20.57	2.67	1.03	0.33651	PUL	
V-965	5H	16:17:29.23	–53:28:44.6058	16.59	1.60	0.55	1.83994	EB:	2ndry poor
V-967	5H	16:17:39.43	–53:28:07.2778	20.61	3.15	1.34	0.26298	EW	
V-968	5H	16:17:38.22	–53:27:28.1100	16.90	1.64	0.59	0.37597	EW	flat bottom
V-969	5H	16:17:22.18	–53:27:14.7922	17.62	1.52	0.93	9.07880	EA:	
V-971	5H	16:17:36.92	–53:26:59.1211	18.48	2.51	1.62	5.65320	EB:	
V-972	6A	16:18:47.83	–53:41:56.9413	19.14	3.01	0.29	1.02690	PUL:	
V-973	6A	16:18:55.29	–53:41:55.9221	16.42	2.61	0.12	2.13580	EB:	
V-975	6A	16:18:59.68	–53:41:39.7678	19.01	2.90	0.43	1.84110	EA	
V-976	6A	16:19:00.14	–53:41:37.2113	17.33	2.45	0.04	0.34406	EW	flat bottom
V-978	6A	16:18:39.96	–53:41:33.2040	18.66	2.76	0.22	2.18900	EB:	
V-979	6A	16:18:46.94	–53:41:25.8984	18.57	2.91	0.43	0.83374	EA	
V-980	6A	16:18:51.17	–53:41:23.2194	20.57	2.32	0.39	0.66536	EW/EA	
V-981	6A	16:18:44.79	–53:41:11.4614	21.52	3.03	0.75	1.12090	PUL	
V-982	6A	16:18:49.80	–53:41:08.6857	17.90	2.64	-0.17	0.31876	EW	
V-984	6A	16:18:47.74	–53:41:03.6335	17.74	2.84	0.61	0.61176	EW	flat bottom
V-985	6A	16:18:59.81	–53:40:58.4141	16.34	2.08	0.52	1.10930	EA	messy
V-986	6A	16:18:48.64	–53:40:48.5764	17.62	2.34	0.17	0.38781	EW	odd
V-987	6A	16:18:40.20	–53:40:37.5993	17.90	2.74	0.22	0.48913	PUL	
V-988	6A	16:19:00.51	–53:40:20.0449	17.77	2.36	0.14	0.72481	EA	
V-989	6A	16:18:41.38	–53:40:06.5439	16.40	3.72	0.71	0.48695	PUL:	
V-990	6A	16:18:48.75	–53:39:46.9636	20.32	3.22	-0.06	0.46632	EW	
V-991	6A	16:18:42.10	–53:39:46.7286	17.47	2.79	0.31	1.18720	EB:	
V-992	6A	16:18:45.09	–53:39:45.9131	19.46	2.46	1.48	0.40948	EA	
V-993	6A	16:18:52.90	–53:39:42.7147	15.54	2.05	0.01	0.92188	PUL:	wave
V-994	6A	16:18:57.67	–53:39:21.4701	18.37	2.95	0.34	0.88314	EA	
V-995	6A	16:19:01.18	–53:39:20.7398	18.12	3.24	0.47	7.17040	PUL	
V-996	6A	16:18:55.94	–53:39:14.7686	16.46	2.33	0.00	2.79670	EA:	odd
V-997	6A	16:18:58.53	–53:39:10.2897	17.37	2.96	0.69	3.88250	PUL:	
V-998	6B	16:18:15.87	–53:41:44.8001	19.10	2.31	0.73	0.46524	EW	
V-999	6B	16:18:17.80	–53:41:30.0474	21.67	3.28	1.21	2.24180	EB:	
V-1000	6B	16:18:35.78	–53:41:11.3378	21.54	3.25	0.69	2.07760	EB:	
V-1001	6B	16:18:27.69	–53:41:06.0809	16.28	1.78	0.46	16.48460	EB:	
V-1002	6B	16:18:22.33	–53:41:04.3771	19.28	2.31	0.85	3.13230	PUL:	sloped
V-1003	6B	16:18:15.95	–53:40:53.2772	21.66	2.76	1.41	2.24400	EB:	
V-1004	6B	16:18:18.25	–53:40:53.0181	15.99	2.03	0.65	4.22920	EB:	
V-1005	6B	16:18:31.68	–53:39:55.1066	15.88	1.48	0.36	3.54770	PUL:	
V-1007	6B	16:18:20.99	–53:39:42.0978	19.84	2.86	0.68	0.29331	EW	
V-1008	6B	16:18:26.62	–53:39:41.9407	16.17	1.50	0.60	0.30953	EW	2 max
V-1010	6B	16:18:18.06	–53:39:30.5861	20.16	2.83	0.90	0.49094	EW	
V-1011	6B	16:18:23.65	–53:39:30.0113	17.54	2.11	0.55	0.31339	EW	
V-1012	6B	16:18:30.06	–53:39:20.4873	20.10	2.74	0.84	0.34561	EW	messy
V-1013	6B	16:18:26.94	–53:39:09.4830	19.29	2.54	0.97	1.88086	EB:	
V-1014	6B	16:18:31.07	–53:38:58.8539	18.43	1.79	0.68	0.59508	EW	
V-1016	6B	16:18:24.64	–53:38:58.3637	20.30	2.33	0.51	0.34732	EW	
V-1017	6B	16:18:32.34	–53:38:58.2604	16.74	1.28	0.53	0.35005	EW	
V-1018	6B	16:18:35.50	–53:38:56.1622	18.33	2.66	0.94	5.37360	PUL	
V-1019	6C	16:18:46.31	–53:37:53.8736	18.02	2.79	0.77	2.12200	EB/PUL	
V-1020	6C	16:18:49.10	–53:37:38.3609"	16.37	1.53	0.36	7.39460	PUL	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1021	6C	16:18:55.05	–53:37:33.2804	16.22	1.73	0.36	1.86650	EB/PUL	spiky
V-1022	6C	16:18:50.94	–53:37:08.8599	16.74	1.40	0.37	2.21830	EB	
V-1023	6C	16:18:52.44	–53:37:04.6301	19.00	2.34	0.74	7.63590	DCEP/PUL	
V-1025	6C	16:18:43.92	–53:36:35.1966	19.02	2.23	1.27	0.32069	EW	
V-1026	6C	16:18:48.23	–53:36:32.0953	20.91	2.49	1.00	0.28644	EW	
V-1027	6C	16:18:41.87	–53:36:27.6245	17.42	2.46	0.80	5.38300	EB:	
V-1028	6C	16:18:57.47	–53:36:24.6601	18.84	2.32	0.83	15.28220	EB:	2ndry poor
V-1029	6C	16:18:52.16	–53:36:23.5733	18.37	2.20	0.64	2.24920	EB:	
V-1030	6C	16:18:41.75	–53:36:21.0495	18.52	2.11	0.64	9.77700	EB:	2ndry poor
V-1031	6C	16:18:59.21	–53:36:06.5834	17.53	2.18	0.63	6.89580	DCEP/PUL	
V-1032	6C	16:18:57.12	–53:36:05.0555	18.08	2.21	0.59	3.90160	DCEP/PUL	
V-1033	6C	16:18:47.70	–53:35:54.5191	16.98	1.59	0.40	15.50000	EB:	
V-1035	6C	16:18:47.72	–53:35:47.0940	17.70	2.67	0.95	19.71440	EB:	
V-1036	6C	16:19:02.01	–53:35:30.0949	17.21	1.77	0.43	3.12540	EB:	
V-1037	6C	16:18:48.13	–53:35:28.0383	19.09	2.51	0.75	0.84880	EB	
V-1038	6C	16:18:53.42	–53:34:55.4734	18.27	2.37	0.73	0.93979	EW/EB	2ndry poor
V-1039	6D	16:18:14.37	–53:37:43.9068	18.61	2.35	0.64	0.64986	EW	
V-1040	6D	16:18:22.97	–53:37:28.2728	21.92	2.98	0.88	2.23940	EB:	
V-1041	6D	16:18:34.40	–53:37:25.3713	17.91	3.16	1.14	6.30220	EB	
V-1042	6D	16:18:15.26	–53:37:23.5910	21.66	2.34	1.51	0.33764	EW	
V-1044	6D	16:18:31.77	–53:37:19.3685	19.31	2.26	0.83	0.48383	EW	2ndry poor
V-1045	6D	16:18:15.52	–53:37:09.8641	16.96	1.59	0.53	13.61120	EB	
V-1046	6D	16:18:29.99	–53:36:42.5546	18.21	1.69	0.58	0.74136	EA	
V-1047	6D	16:18:34.29	–53:36:41.0658	20.03	2.36	0.97	0.26634	EW	
V-1048	6D	16:18:15.94	–53:36:39.8453	16.19	1.47	0.50	5.24850	PUL	
V-1050	6D	16:18:18.11	–53:36:29.9025	16.50	2.49	0.88	0.44080	EW	
V-1051	6D	16:18:28.66	–53:36:26.4346	19.67	2.89	0.97	0.39788	EW	
V-1052	6D	16:18:14.18	–53:36:02.6641	19.39	2.92	1.14	0.37153	EW	
V-1053	6D	16:18:20.63	–53:35:42.5912	18.82	2.48	1.04	2.25240	EB:	
V-1054	6D	16:18:34.15	–53:35:30.2863	20.56	2.56	1.03	0.31170	EW	
V-1055	6D	16:18:37.02	–53:35:26.2741	17.08	1.82	0.72	1.93520	PUL	odd
V-1056	6D	16:18:15.23	–53:35:25.1012	21.87	2.96	1.21	0.23888	EW	
V-1057	6D	16:18:22.45	–53:35:13.8503	20.09	2.21	0.89	0.85828	EA	
V-1058	6D	16:18:21.56	–53:35:04.5533	16.40	1.53	0.61	4.23800	PUL	
V-1059	6E	16:18:52.76	–53:33:40.3080	19.27	2.38	1.13	0.31878	EW	spiky
V-1061	6E	16:18:55.26	–53:33:32.9329	19.02	2.58	1.10	1.76730	EB:	
V-1062	6E	16:19:00.85	–53:33:32.5273	19.68	2.62	0.97	0.40214	EW:	
V-1063	6E	16:18:42.36	–53:33:26.3744	16.28	1.47	0.65	0.35548	EW	2 max
V-1064	6E	16:18:49.37	–53:33:08.6366	19.65	2.32	0.95	0.46113	EW	
V-1065	6E	16:18:53.11	–53:32:31.9796	19.78	2.02	1.12	0.67959	EW/EB	
V-1066	6E	16:18:41.01	–53:32:31.6337	20.30	2.69	1.08	0.37322	EW	2 max
V-1067	6E	16:18:48.49	–53:32:30.4862	21.34	2.52	1.25	0.30598	EW	messy
V-1068	6E	16:18:52.45	–53:32:25.5229	18.47	2.59	1.25	0.93780	PUL:	
V-1069	6E	16:18:58.58	–53:32:21.8742	16.91	1.73	0.59	4.14480	PUL	
V-1070	6E	16:18:56.86	–53:32:20.4693	18.89	2.41	0.93	0.95982	EB:	
V-1071	6E	16:18:49.99	–53:32:20.2111	17.68	2.27	0.93	0.36509	EW	starspots
V-1072	6E	16:18:48.07	–53:31:41.5737	17.45	2.13	0.85	1.09900	PUL	
V-1073	6E	16:18:41.58	–53:31:37.7494	17.75	2.74	0.97	0.66259	EW	2ndry poor
V-1074	6E	16:18:50.75	–53:31:34.9017	18.09	1.70	0.48	0.85855	EA	
V-1075	6E	16:18:54.03	–53:31:12.0674	18.28	2.45	0.93	0.29147	EW	messy
V-1076	6E	16:18:40.84	–53:31:04.5503	17.24	2.59	1.14	5.23820	EB:	
V-1077	6F	16:18:18.30	–53:33:44.5907	16.26	1.63	0.72	4.49290	PUL	
V-1078	6F	16:18:27.76	–53:33:38.8142	18.90	2.24	0.98	2.21010	EA	
V-1079	6F	16:18:20.11	–53:33:28.2667	17.84	2.10	0.96	8.52190	PUL	
V-1080	6F	16:18:22.30	–53:33:24.7061	17.41	1.63	1.08	0.34726	EW	
V-1081	6F	16:18:23.33	–53:33:22.3363	19.41	2.60	1.09	0.27307	EW	
V-1082	6F	16:18:11.53	–53:33:10.5479	17.16	1.77	0.80	5.95570	PUL:	
V-1083	6F	16:18:31.07	–53:33:08.9237	18.04	2.79	1.49	5.13410	PUL:	odd
V-1084	6F	16:18:15.12	–53:33:02.5156	18.41	2.33	0.74	0.31803	EW	
V-1085	6F	16:18:14.03	–53:32:50.9721	21.21	2.80	1.33	0.21985	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1086	6F	16:18:29.93	–53:32:41.4803	20.68	2.93	1.04	0.26423	EW	
V-1087	6F	16:18:13.17	–53:32:30.8930	19.40	2.76	1.21	0.56889	EW	
V-1088	6F	16:18:23.06	–53:32:13.2978	18.33	2.20	0.96	0.29757	EW	
V-1089	6F	16:18:33.25	–53:32:13.2173	17.98	2.99	1.30	1.88378	EB:	
V-1091	6F	16:18:38.73	–53:31:56.7975	17.24	2.20	1.08	0.57654	EW	flat bottom
V-1092	6F	16:18:30.10	–53:31:53.2074	18.38	2.10	1.02	0.47078	EW	
V-1093	6F	16:18:16.83	–53:31:40.6252	17.84	2.22	1.02	0.27349	EW	
V-1094	6F	16:18:25.33	–53:31:28.5634	18.16	2.19	0.96	1.66000	PUL	
V-1095	6F	16:18:24.14	–53:31:23.6632	16.83	1.56	0.68	9.18610	PUL	
V-1096	6F	16:18:17.91	–53:31:14.6672	19.01	2.45	1.14	7.50960	PUL	
V-1097	6F	16:18:30.48	–53:31:04.5114	17.19	1.69	0.77	2.18520	EB:	
V-1098	6G	16:18:41.41	–53:30:09.1648	19.02	2.13	0.43	0.58368	EW	
V-1099	6G	16:18:49.01	–53:30:08.0401	18.27	2.25	0.66	2.11850	EA	
V-1100	6G	16:18:43.76	–53:29:42.5889	19.71	2.52	0.55	0.37974	EW	
V-1101	6G	16:18:57.22	–53:29:36.6937	19.76	2.38	0.58	0.31796	EW	
V-1102	6G	16:18:43.98	–53:29:36.7935	19.92	0.82	1.07	0.32073	EW	
V-1103	6G	16:18:47.59	–53:29:27.1876	16.90	1.69	0.34	1.92100	EB:	
V-1104	6G	16:18:57.23	–53:29:06.1988	15.87	1.71	0.34	8.72840	PUL	
V-1105	6G	16:18:59.02	–53:28:47.0033	21.15	3.17	1.60	0.65984	EW	
V-1106	6G	16:18:55.35	–53:28:34.7387	18.83	2.19	0.73	0.49829	EA	odd
V-1107	6G	16:18:54.76	–53:28:34.5685	16.93	1.36	0.77	0.29009	EW	
V-1108	6G	16:18:59.67	–53:28:26.1745	16.14	1.46	0.12	0.24898	CV/PUL	
V-1110	6G	16:18:47.62	–53:28:05.1520	18.19	2.27	0.50	18.06960	EB	
V-1111	6G	16:18:48.50	–53:27:26.1825	21.60	3.33	1.23	0.67178	EW:	
V-1112	6G	16:18:44.09	–53:27:23.6547	19.93	2.56	0.70	0.35949	EW	
V-1114	6G	16:18:48.85	–53:27:12.4939	18.93	2.42	0.62	1.04480	PUL	
V-1115	6H	16:18:21.95	–53:29:47.8769	18.26	2.63	0.57	0.66909	EW/EB	
V-1116	6H	16:18:25.36	–53:29:13.3752	19.03	2.94	0.77	0.32422	EW	
V-1117	6H	16:18:36.27	–53:28:26.7849	19.44	2.35	0.56	0.32117	EW	flat bottom
V-1118	6H	16:18:16.51	–53:28:25.6390	18.66	2.72	0.75	0.74083	PUL:	
V-1119	6H	16:18:22.98	–53:27:29.2528	16.27	2.75	1.08	10.84906	EB:	
V-1120	6H	16:18:17.27	–53:27:13.0479	18.33	2.35	0.57	0.92247	EA	
V-1121	7A	16:19:46.56	–53:41:55.3682	19.36	2.35	0.81	0.65468	EW	
V-1122	7A	16:19:40.38	–53:41:53.6134	19.78	2.46	0.79	0.68910	EW	messy
V-1123	7A	16:19:48.97	–53:41:49.6246	17.45	2.37	0.71	1.90390	EB:	
V-1124	7A	16:19:45.41	–53:41:35.1582	16.90	1.70	0.51	1.42670	CV/PUL	odd
V-1125	7A	16:19:51.01	–53:41:34.1022	18.04	3.10	0.74	0.36358	EW	
V-1126	7A	16:19:44.41	–53:41:26.9105	17.18	2.82	0.59	0.92384	PUL	tracking
V-1127	7A	16:19:52.03	–53:41:23.6874	18.16	2.14	0.62	1.04470	PUL	
V-1128	7A	16:19:49.85	–53:41:23.0785	17.37	1.98	0.53	0.95993	PUL	
V-1129	7A	16:19:53.12	–53:41:22.73	20.84	2.78	0.68	0.34327	EW	
V-1130	7A	16:19:53.08	–53:41:20.9988	17.36	2.08	0.46	0.41401	EW	
V-1131	7A	16:19:41.85	–53:41:16.6021	20.50	2.66	1.28	1.43450	EB:	
V-1132	7A	16:19:44.74	–53:40:59.4329	20.79	2.58	0.87	1.91210	EB:	
V-1133	7A	16:19:51.37	–53:40:57.6491	17.53	1.75	0.51	2.13360	EB	
V-1134	7A	16:19:47.20	–53:40:50.4011	16.68	1.68	0.57	1.45650	PUL:	
V-1135	7A	16:19:54.37	–53:40:43.0790	18.46	1.94	0.88	0.45306	EW	tracking
V-1136	7A	16:19:48.14	–53:40:41.3309	19.80	2.53	0.54	0.28020	EW	
V-1137	7A	16:19:45.62	–53:40:22.6364	17.80	2.27	0.74	0.55216	PUL	odd
V-1138	7A	16:19:45.36	–53:40:13.9031	19.91	2.24	0.74	1.30330	EA:	
V-1139	7A	16:19:56.34	–53:40:05.3559	20.50	2.29	1.21	0.30491	PUL:	odd
V-1140	7A	16:19:44.07	–53:39:54.4011	18.73	2.32	0.73	0.29430	EW	
V-1141	7A	16:19:57.31	–53:39:53.2032	17.53	1.84	0.56	1.56290	EB	
V-1142	7A	16:19:48.91	–53:39:46.3195	17.72	2.36	-0.17	0.61704	EA	
V-1143	7A	16:19:38.57	–53:39:37.0515	15.91	1.60	0.39	1.05930	PUL	
V-1144	7A	16:19:51.20	–53:39:24.25	19.63	2.08	0.91	0.36742	EW	spiky
V-1145	7A	16:19:47.51	–53:39:05.6643	17.75	1.92	0.62	8.24880	PUL	
V-1146	7B	16:19:21.75	–53:41:59.8919	18.05	1.89	0.65	1.77840	EB:	2 max
V-1147	7B	16:19:29.58	–53:41:50.0387	20.06	2.99	0.76	0.34832	EW	
V-1149	7B	16:19:33.36	–53:41:27.5329	16.11	1.81	0.55	0.75590	EB	shallow 2ndry

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1150	7B	16:19:11.90	–53:41:19.8050	20.11	2.56	1.37	0.66498	EA:	2ndry poor
V-1151	7B	16:19:14.62	–53:41:11.5877	17.82	2.20	0.89	5.70400	EB:	
V-1152	7B	16:19:11.64	–53:41:00.5219	19.23	2.29	0.55	0.52729	EW	
V-1153	7B	16:19:11.32	–53:40:56.9425	21.04	2.36	0.81	0.30156	EW	
V-1154	7B	16:19:27.62	–53:40:41.6333	17.22	1.82	0.87	0.45472	EW	2 max
V-1156	7B	16:19:21.74	–53:40:33.3339	18.94	2.44	1.05	2.32120	PUL:	
V-1157	7B	16:19:11.61	–53:40:31.9343	21.05			1.89690	EB	
V-1158	7B	16:19:16.11	–53:40:22.4458	19.11	2.38	0.44	0.38168	EW	
V-1159	7B	16:19:29.54	–53:39:33.8475	16.52	1.53	0.56	4.25780	PUL	
V-1160	7B	16:19:26.28	–53:39:30.9302	18.91	2.20	0.96	1.04690	EB:	
V-1161	7B	16:19:27.14	–53:39:25.9723	18.47	2.02	0.77	0.49582	EW	2ndry poor
V-1162	7B	16:19:27.28	–53:39:25.5080	20.48	2.48	0.86	0.39754	EW	
V-1163	7B	16:19:13.28	–53:38:58.4557	19.35	2.34	0.89	0.28233	EW/EB	
V-1164	7B	16:19:25.09	–53:38:57.3183	16.22	1.98	0.69	1.03480	PUL:	
V-1165	7B	16:19:28.23	–53:38:56.8375	18.51	2.14		3.56500	PUL:	
V-1166	7C	16:19:50.05	–53:37:52.7957	17.26	1.80	0.79	2.13560	EB:	
V-1167	7C	16:19:38.09	–53:37:50.8420	16.08	1.66	0.76	0.28705	EW	
V-1169	7C	16:19:40.68	–53:37:39.6683	20.40	2.21	1.39	0.31411	EW	spiky
V-1170	7C	16:19:56.31	–53:37:26.7520	21.10	2.34	1.50	0.38057	EW	
V-1171	7C	16:19:52.33	–53:37:22.0748	18.03	1.59	0.79	0.93884	PUL	
V-1172	7C	16:19:48.64	–53:37:23.1531	17.28	1.86	0.95	0.43056	EW	
V-1173	7C	16:19:43.59	–53:37:23.6990	17.62	1.97	1.03	0.42723	EW	
V-1174	7C	16:19:40.58	–53:37:16.9534	17.55	2.50	2.06	0.92438	EW:	odd
V-1175	7C	16:19:48.35	–53:37:14.4441	21.29	2.74	1.08	0.33508	EW	2ndry poor
V-1176	7C	16:19:55.65	–53:36:38.8029	18.16	2.26	1.06	0.27858	EW	
V-1177	7C	16:19:48.43	–53:36:32.7857	19.38	2.41	1.18	0.44562	EW	tracking
V-1178	7C	16:19:52.29	–53:36:29.9488	18.42	2.20	1.03	2.10320	EA	
V-1179	7C	16:19:50.86	–53:36:23.8747	18.39	2.32	1.12	2.57780	PUL	
V-1180	7C	16:19:43.61	–53:36:25.5391	17.41	1.63	0.72	2.08380	EA:	
V-1181	7C	16:19:39.44	–53:36:02.5587	16.09	1.54	0.79	2.15430	EA	chaotic
V-1182	7C	16:19:58.23	–53:35:56.4471	19.32	2.15	1.17	0.35620	EW	
V-1183	7C	16:19:41.14	–53:36:01.2092	19.69	2.38	1.11	0.34306	EW	
V-1185	7C	16:19:47.93	–53:35:53.2757	18.90	2.17	1.23	2.23970	EA:	
V-1186	7C	16:19:41.66	–53:35:50.9639	17.50	1.50	0.74	1.95510	PUL	spiky
V-1187	7C	16:19:53.41	–53:35:30.3301	18.25	2.30	0.97	0.37308	EW	
V-1188	7C	16:19:52.93	–53:35:26.2290	17.09	1.98	0.76	0.39398	EW	
V-1189	7C	16:19:54.90	–53:35:19.0731	16.76	1.70	0.69	1.87748	EB	
V-1190	7C	16:19:37.75	–53:35:11.8051	17.85	3.08	1.31	1.04950	PUL	
V-1191	7D	16:19:16.07	–53:37:49.5309	16.37	1.66	0.30	6.61140	PUL:	odd
V-1192	7D	16:19:33.29	–53:37:44.7089	18.16	2.25	0.60	2.24520	EB	
V-1193	7D	16:19:15.20	–53:37:38.3174	19.57	2.70	0.67	2.24200	EB	
V-1194	7D	16:19:23.79	–53:37:31.7710	17.22	2.52	0.69	0.94784	PUL	spiky
V-1195	7D	16:19:18.65	–53:37:28.5760	18.82	2.34	0.57	0.24552	PUL:	sloped
V-1196	7D	16:19:16.14	–53:37:24.2633	17.80	2.06	0.53	1.67750	EB:	spiky
V-1198	7D	16:19:20.90	–53:37:15.5028	20.71	2.67	0.95	0.38667	EW	
V-1199	7D	16:19:14.08	–53:37:10.5505	17.82	1.84	0.41	0.27229	EW	2 max
V-1200	7D	16:19:11.10	–53:36:59.1292	21.15	2.56	0.87	2.24420	EB:	
V-1201	7D	16:19:29.08	–53:36:51.6242	17.80	1.93	0.46	7.42490	PUL:	
V-1202	7D	16:19:28.54	–53:36:46.6961	17.78	2.00	0.38	18.40900	EB:	
V-1203	7D	16:19:16.65	–53:36:39.1752	19.07	2.23	0.89	1.06270	EA	messy
V-1205	7D	16:19:25.02	–53:36:33.3160	17.59	2.25	0.71	2.10040	EB	
V-1206	7D	16:19:31.34	–53:36:25.5490	17.84	2.32	0.60	5.03210	PUL	
V-1207	7D	16:19:32.03	–53:36:01.0778	20.81	2.68	0.99	0.54735	EW	
V-1208	7D	16:19:12.08	–53:35:52.8632	16.86	2.05	0.44	7.53270	PUL	spiky
V-1209	7D	16:19:16.88	–53:35:43.4613	20.34	2.27	0.72	0.30555	EW	
V-1210	7D	16:19:26.63	–53:35:41.5845	16.83	2.10	0.53	4.40360	PUL	odd
V-1211	7D	16:19:12.73	–53:35:30.3119	16.42	2.26	0.49	1.91880	EB:	tracking
V-1212	7D	16:19:30.19	–53:35:23.8049	18.26	2.28	0.50	5.57190	PUL:	
V-1213	7D	16:19:22.25	–53:35:15.3032	18.80	2.23	0.64	0.69980	EW	
V-1214	7D	16:19:16.71	–53:35:11.8069	19.48	2.53	0.94	0.42123	EW	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1215	7D	16:19:20.05	–53:35:01.4628	19.31	2.50	0.71	0.34851	EW	
V-1216	7E	16:19:41.43	–53:33:58.7661	19.06	1.43	0.80	8.41180	EB:	
V-1217	7E	16:19:48.59	–53:33:49.6621	19.02	1.60	0.80	0.30011	EW	
V-1218	7E	16:19:48.52	–53:33:49.1299	19.60	1.68	0.77	0.26105	EW	messy
V-1221	7E	16:19:40.46	–53:33:03.2104	18.29	1.57	0.84	0.84339	EW	
V-1222	7E	16:19:56.87	–53:33:01.8995	20.30	1.43	0.67	0.28959	EW	
V-1224	7E	16:19:55.58	–53:32:59.7875	18.57	1.14	0.77	0.77714	EW	spiky
V-1226	7E	16:19:39.65	–53:32:54.1831	19.54	1.54	0.86	2.64480	EA:	
V-1227	7E	16:19:52.00	–53:32:45.2722	19.53	1.74	0.77	0.72423	PUL	
V-1228	7E	16:19:40.00	–53:32:40.9236	18.79	1.60	0.75	0.41023	EB:	
V-1229	7E	16:19:51.81	–53:32:39.9978	19.35	1.42	2.61	0.44569	EW	
V-1230	7E	16:19:56.70	–53:32:24.1384	15.89	1.06	0.38	0.30656	EW	flat bottom
V-1232	7E	16:19:39.57	–53:32:12.9626	18.13	1.65	0.90	0.45696	EW	flat bottom
V-1233	7E	16:19:46.19	–53:31:51.0483	16.36	1.61	0.85	0.41045	EW	messy
V-1234	7E	16:19:45.10	–53:31:47.7425	18.39	2.29	1.14	0.46455	EW	
V-1235	7E	16:19:43.60	–53:31:45.7793	16.11	0.73	0.24	0.32491	EW	
V-1236	7E	16:19:39.32	–53:31:41.1464	19.98	1.59	0.83	0.38544	EW	messy
V-1237	7E	16:19:50.06	–53:31:35.4347	18.01	1.27	0.64	8.64510	PUL:	
V-1238	7E	16:19:51.97	–53:31:15.5151	19.91	1.92	0.93	0.32832	EW	
V-1239	7E	16:19:55.91	–53:31:14.6524	18.67	1.65	0.86	5.20670	PUL	
V-1240	7F	16:19:19.79	–53:33:52.3482	18.55	2.13	0.69	0.45689	EW	
V-1241	7F	16:19:29.61	–53:33:46.4558	16.56	2.91	1.04	0.95565	PUL	tracking
V-1242	7F	16:19:12.96	–53:33:43.6502	15.94	1.91	0.56	1.24020	PUL	odd
V-1243	7F	16:19:24.41	–53:33:22.7970	16.43	1.52	0.40	1.92290	EB:	
V-1244	7F	16:19:19.41	–53:33:13.8689	17.80	2.84	1.02	1.09140	PUL	tracking
V-1246	7F	16:19:17.90	–53:32:41.7721	17.40	1.69	0.72	0.34472	EW	
V-1247	7F	16:19:26.56	–53:31:24.7907	17.15	2.18	0.63	2.19380	EB:	
V-1248	7F	16:19:25.44	–53:31:18.7428	15.83	1.68	0.49	1.03270	EB	tracking
V-1249	7F	16:19:13.15	–53:31:06.3649	17.05	1.85	0.29	0.47582	EB:	
V-1250	7G	16:19:51.13	–53:29:59.1415	21.06	2.62	1.65	0.22343	EW	
V-1251	7G	16:19:38.53	–53:29:59.2565	20.70	2.83	1.01	1.51750	EB:	
V-1252	7G	16:19:51.27	–53:29:54.3746	18.92	2.44	0.98	3.35760	EB:	
V-1255	7G	16:19:57.63	–53:29:33.2727	19.55	2.49	0.78	0.31213	EW	
V-1256	7G	16:19:46.36	–53:29:27.4757	17.46	1.76	0.53	1.88568	EB:	
V-1257	7G	16:19:43.57	–53:29:14.3844	19.38	2.24	1.02	3.11590	EA:	odd
V-1258	7G	16:19:57.20	–53:29:04.6572	18.46	2.16	0.66	3.40780	EB:	
V-1259	7G	16:19:46.40	–53:29:00.4340	16.94	1.82	0.63	1.93210	PUL	odd
V-1260	7G	16:19:58.99	–53:28:50.4342	19.76	2.37	0.80	1.77030	PUL:	
V-1261	7G	16:19:43.42	–53:28:48.4051	16.91	1.89	0.49	0.34713	EW	
V-1262	7G	16:19:38.70	–53:28:46.1851	16.44	1.67	0.48	1.91596	EB	
V-1264	7G	16:19:52.36	–53:28:26.5217	18.63	2.35	0.71	0.33728	EW	odd
V-1265	7G	16:19:49.85	–53:28:15.5515	17.56	2.13	0.80	2.38800	EA	2ndry poor
V-1266	7G	16:19:46.25	–53:28:14.8927	18.72	2.03	0.72	0.55794	PUL:	
V-1267	7G	16:19:44.14	–53:28:00.0172	16.80	1.76	0.68	0.52211	EW	2ndry poor
V-1268	7G	16:19:43.43	–53:27:35.3430	16.90	1.94	0.58	0.75491	EW	
V-1269	7G	16:19:36.32	–53:27:16.5950	19.34	2.15	1.25	0.43142	EW	
V-1271	7G	16:19:56.43	–53:27:07.6860	20.10	2.75	1.79	12.95380	EB:	
V-1272	7G	16:19:38.92	–53:27:04.6993	18.47	2.33	0.82	0.28534	EW	flat bottom
V-1273	7H	16:19:11.21	–53:30:06.4584	19.31	2.58	0.64	0.30552	EW	
V-1274	7H	16:19:26.92	–53:29:50.02	17.98	2.57	1.05	7.80040	DCEP/PUL	
V-1275	7H	16:19:23.16	–53:29:45.3982	19.18	1.96	0.56	1.33360	EA	
V-1276	7H	16:19:11.30	–53:29:42.1523	19.71	2.44	0.75	0.42614	EW	
V-1277	7H	16:19:33.97	–53:29:37.5306	16.49	1.78	0.32	2.14200	EB	
V-1279	7H	16:19:13.73	–53:29:23.1149	20.64	3.12	0.73	0.27096	EW	
V-1280	7H	16:19:17.64	–53:29:05.0331	17.72	2.12	0.51	2.06800	PUL:	
V-1281	7H	16:19:34.13	–53:29:03.53	18.64	2.55	0.74	0.41342	EW	
V-1282	7H	16:19:26.20	–53:29:03.3727	16.50	1.59	0.31	1.09680	PUL:	sloped
V-1283	7H	16:19:14.22	–53:28:51.3741	18.66	2.16	0.69	4.20780	EB	
V-1284	7H	16:19:16.89	–53:28:47.7636	18.05	2.22	0.62	4.77660	EB:	
V-1285	7H	16:19:16.41	–53:28:43.3533	17.02	1.86	0.40	3.18060	EB	

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1286	7H	16:19:27.38	–53:28:23.5144	19.06	2.32	0.52	0.26849	EW	spiky
V-1287	7H	16:19:14.21	–53:28:09.5177	17.76	2.42	0.49	0.37136	EW	
V-1289	7H	16:19:24.20	–53:28:00.4114	20.77	3.66	0.65	0.27589	EW	
V-1290	7H	16:19:28.68	–53:27:59.8926	20.28	2.47	0.75	0.20045	PUL:	
V-1291	7H	16:19:16.42	–53:27:53.9865	18.48	2.27	0.61	0.55266	EB:	
V-1292	7H	16:19:27.00	–53:27:37.0885	20.72	2.27	1.06	0.31075	EW	
V-1293	7H	16:19:11.24	–53:27:22.5513	16.27	1.58	0.25	1.81124	EB	
V-1294	7H	16:19:25.51	–53:27:18.8946	16.33	2.32	0.64	5.69220	DCEP/PUL	sloped
V-1295	7H	16:19:26.14	–53:27:16.7049	17.33	1.87	0.44	2.06030	PUL	
V-1296	8A	16:20:49.58	–53:41:52.2713	17.36	1.93	3.98	0.39886	EW	
V-1297	8A	16:20:40.21	–53:41:31.5940	16.88	1.80	3.98	6.19680	PUL	
V-1298	8A	16:20:34.77	–53:41:24.3234	19.11	2.02	4.13	2.19560	EB	
V-1299	8A	16:20:56.44	–53:41:15.9642	18.54	2.37	4.30	0.30935	EW	
V-1300	8A	16:20:44.19	–53:41:13.1280	16.54	2.76	4.33	0.95719	PUL	
V-1301	8A	16:20:54.44	–53:40:57.2005	19.93	2.04	4.04	2.24650	EA/EB	
V-1302	8A	16:20:36.66	–53:40:56.7745	20.00	1.95	3.97	0.95640	EA	
V-1303	8A	16:20:46.10	–53:40:39.9240	20.95	2.16	4.01	2.23940	EB	
V-1304	8A	16:20:35.53	–53:40:35.7867	21.40	2.47	4.15	2.24420	EB	
V-1305	8A	16:20:40.58	–53:40:34.2078	18.44	2.73	4.08	0.35883	EW	
V-1307	8A	16:20:44.52	–53:39:53.1782	20.00	2.35	4.43	0.30800	EW	
V-1308	8A	16:20:35.60	–53:39:39.1334	17.84	1.78	4.14	0.63331	EW	
V-1309	8A	16:20:43.06	–53:39:32.9812	18.40	2.40	4.39	15.79520	EB:	
V-1310	8A	16:20:41.57	–53:39:33.0794	18.84	2.04	3.99	0.31291	EW	
V-1311	8A	16:20:42.34	–53:39:20.4384	16.45	1.80	3.99	17.55820	CV/PUL	
V-1312	8A	16:20:38.43	–53:38:56.5849	17.00	1.24	4.28	0.58682	EW	flat bottom
V-1313	8A	16:20:36.84	–53:38:56.4508	16.60	1.98	4.20	2.70810	PUL:	spiky
V-1314	8B	16:20:26.42	–53:41:58.4618	17.96	2.35	0.81	1.92480	CV/PUL	
V-1315	8B	16:20:14.57	–53:41:54.6558	20.96	2.41	1.06	0.28905	EW	
V-1316	8B	16:20:14.56	–53:41:52.6181	20.29	2.58	0.95	0.35101	EW	
V-1317	8B	16:20:28.79	–53:41:47.3478	17.20	1.58	0.52	5.75180	PUL	
V-1318	8B	16:20:22.66	–53:41:36.4233	19.88	2.02	0.76	1.90720	EB:	
V-1319	8B	16:20:20.87	–53:41:30.5543	21.63	0.70	1.79	2.23960	EB:	
V-1320	8B	16:20:18.79	–53:41:26.8334	21.02	2.49	1.66	0.46164	PUL	
V-1321	8B	16:20:11.55	–53:41:25.7288	21.44	2.12	1.07	2.22560	EB	
V-1322	8B	16:20:11.07	–53:41:21.9380	19.24	1.96	0.77	0.64151	EW/EB	
V-1323	8B	16:20:24.48	–53:41:21.3159	19.78	2.52	0.82	0.45467	EA	
V-1324	8B	16:20:26.65	–53:41:20.3412	17.50	2.24	0.88	1.92322	EB:	
V-1325	8B	16:20:25.35	–53:41:16.4804	17.76	2.20	0.96	0.35785	PUL	sloped
V-1326	8B	16:20:27.25	–53:41:13.9712	17.37	1.68	0.66	7.56830	PUL	
V-1327	8B	16:20:22.11	–53:41:11.4324	21.59	2.55	0.87	0.25915	EW	
V-1328	8B	16:20:15.64	–53:41:08.2924	18.39	2.16	0.89	1.07312	PUL:	
V-1329	8B	16:20:23.82	–53:40:49.3086	21.07	1.85	0.69	1.91060	EB:	
V-1330	8B	16:20:20.74	–53:40:48.5749	17.84	1.54	0.34	0.54971	EA	
V-1331	8B	16:20:10.85	–53:40:46.0416	18.12	1.95	0.77	7.73270	PUL	
V-1332	8B	16:20:09.12	–53:40:45.9634	19.83	2.20	0.62	0.32813	EW	
V-1333	8B	16:20:18.54	–53:40:41.5556	16.50	1.84	0.69	5.26960	EB/PUL	2 max
V-1334	8B	16:20:11.85	–53:40:33.0290	16.07	1.62	0.70	1.48850	PUL	
V-1335	8B	16:20:15.66	–53:40:22.0947	18.33	1.60	0.69	1.10400	PUL	
V-1336	8B	16:20:08.48	–53:40:12.1415	16.54	1.47	0.50	2.10240	EB	
V-1337	8B	16:20:19.61	–53:39:33.6466	18.20	2.02	0.79	6.82920	PUL	
V-1338	8B	16:20:29.23	–53:39:28.5470	17.80	2.48	0.88	1.83478	EB	tracking
V-1339	8B	16:20:12.12	–53:39:24.4657	16.09	1.91	0.75	2.12320	EB:	tracking
V-1340	8B	16:20:11.19	–53:39:22.9304	18.98	1.83	0.78	0.55709	EW	
V-1341	8B	16:20:12.13	–53:39:08.7589	20.88	1.94	1.20	0.30347	EW	
V-1342	8B	16:20:24.88	–53:39:08.1509	16.74	1.74	0.55	0.87682	EA	
V-1343	8B	16:20:14.46	–53:39:00.7309	19.59	1.82	0.97	0.37595	EW	
V-1344	8C	16:20:40.73	–53:37:56.7775	17.71	1.64	0.48	2.09420	EB	
V-1345	8C	16:20:52.15	–53:37:49.1784	16.81	1.83	0.60	1.12220	PUL	
V-1346	8C	16:20:35.59	–53:37:49.4591	18.71	1.66	0.55	2.09420	EB:	
V-1347	8C	16:20:39.95	–53:37:47.9651	17.65	2.00	0.67	0.32103	EW	messy

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1348	8C	16:20:56.72	–53:37:33.4913	16.37	2.15	0.68	7.80910	PUL:	odd
V-1349	8C	16:20:46.79	–53:37:23.9814	17.48	2.63	0.88	2.09820	EB:	
V-1350	8C	16:20:34.33	–53:37:18.2836	18.30	2.13	0.56	0.35060	EW	flat bottom
V-1351	8C	16:20:44.27	–53:36:57.9866	17.58	1.66	0.47	1.91970	EB	
V-1352	8C	16:20:41.75	–53:36:55.3926	17.66	1.70	0.46	1.92134	EB	
V-1353	8C	16:20:46.51	–53:36:43.6362	18.55	2.01	0.70	0.29925	EW	
V-1354	8C	16:20:48.55	–53:36:20.9116	18.64	1.86	0.80	0.44981	EW	flat bottom
V-1355	8C	16:20:51.39	–53:36:13.2319	20.08	1.82	0.68	1.90894	EB	
V-1356	8C	16:20:36.29	–53:35:58.5289	16.98	1.83	0.54	2.21680	EA:	
V-1357	8C	16:20:40.99	–53:35:49.1659	17.50	1.65	0.54	4.24620	PUL:	chaotic
V-1358	8C	16:20:44.79	–53:35:41.8446	19.23	1.96	0.70	0.35247	EW	
V-1359	8C	16:20:50.28	–53:35:38.7511	19.25	1.60	0.67	0.39825	EW	
V-1360	8C	16:20:50.16	–53:35:26.1090	19.77	2.31	0.75	0.26968	EW	spiky
V-1361	8C	16:20:43.01	–53:35:12.0040	16.56	2.21	0.89	2.14020	EB	tracking
V-1362	8C	16:20:56.13	–53:35:10.4319	17.50	2.63	1.00	9.24460	EB:	
V-1363	8C	16:20:43.00	–53:35:10.4535	20.09	2.31	0.97	1.88580	EB:	
V-1364	8D	16:20:22.49	–53:37:55.5806	18.59	2.32	1.96	0.40228	PUL:	odd
V-1365	8D	16:20:29.59	–53:37:54.3549	19.67	2.40	1.93	0.28312	EW	
V-1366	8D	16:20:19.67	–53:37:52.4645	17.32	2.29	2.19	4.15230	PUL:	odd
V-1367	8D	16:20:16.10	–53:37:48.4829	18.82	2.12	1.79	2.24540	EB	
V-1368	8D	16:20:24.99	–53:37:23.8289	19.14	2.60	1.76	1.05540	EB:	messy
V-1369	8D	16:20:23.46	–53:37:23.4783	19.10	2.13	1.78	0.43060	EW	
V-1370	8D	16:20:21.44	–53:37:21.5458	16.10	1.77	1.71	4.18110	PUL:	odd
V-1371	8D	16:20:10.72	–53:37:00.9596	17.10	1.66	1.59	2.12920	EB	
V-1372	8D	16:20:22.54	–53:37:00.3630	19.17	2.42	2.00	0.30957	EW	
V-1373	8D	16:20:18.44	–53:37:00.4503	19.53	2.13	2.02	0.41096	EW/EA	
V-1375	8D	16:20:27.75	–53:36:50.7508	20.78	1.91	2.29	0.30607	EW	
V-1376	8D	16:20:23.55	–53:36:47.2685	22.01	2.96	2.86	2.23940	EB	
V-1377	8D	16:20:11.54	–53:36:41.9724	18.45	2.20	1.94	1.34220	EA	
V-1378	8D	16:20:16.62	–53:36:25.5095	19.06	2.41	1.98	0.49685	EW/EA	2ndry poor
V-1379	8D	16:20:29.12	–53:36:09.1761	16.58	2.33	2.07	2.10180	EB/PUL	
V-1380	8D	16:20:16.12	–53:36:07.2759	15.95	2.52	2.00	7.85900	PUL	
V-1381	8D	16:20:16.92	–53:35:51.3739	17.76	2.20	1.78	3.70250	PUL	
V-1382	8D	16:20:08.36	–53:35:43.2905	17.68	1.81	1.61	2.12760	EB:	
V-1383	8D	16:20:18.42	–53:35:41.1125	17.32	2.01	1.78	0.39763	EW	
V-1384	8D	16:20:13.78	–53:35:36.8625	16.77	2.35	2.09	7.90620	PUL:	
V-1385	8D	16:20:12.50	–53:35:34.5986	17.12	1.87	1.76	0.64443	PUL	wave
V-1386	8D	16:20:07.71	–53:35:31.1146	20.01	1.91	2.30	0.22887	EW	
V-1387	8D	16:20:10.23	–53:35:30.1290	16.22	1.89	1.75	2.22500	EB:	
V-1388	8D	16:20:29.76	–53:35:25.0527	17.70	1.96	1.83	2.19800	EA/EB	
V-1389	8D	16:20:24.17	–53:35:22.3944	16.21	1.74	1.70	2.25460	EB:	
V-1390	8D	16:20:24.83	–53:35:12.0277	18.40	2.04	1.73	1.91430	EB:	
V-1391	8D	16:20:24.97	–53:35:11.5334	20.12	2.38	1.80	1.05100	EA:	
V-1392	8E	16:20:41.49	–53:34:02.8344	19.82	2.20	0.50	0.26295	EW	
V-1393	8E	16:20:43.65	–53:33:55.5765	18.89	2.11	0.60	2.01224	EA	
V-1394	8E	16:20:44.72	–53:33:55.3616	18.01	1.81	0.37	0.48262	EW	2ndry poor
V-1396	8E	16:20:36.28	–53:33:46.0533	17.18	1.67	0.30	1.04940	EA	
V-1397	8E	16:20:47.69	–53:32:51.1633	16.35	2.16	0.67	2.09420	EB:	
V-1398	8E	16:20:53.47	–53:32:40.1046	17.89	1.79	0.46	0.45984	EW	
V-1399	8E	16:20:56.33	–53:31:54.8593	17.75	1.71	0.40	2.21240	EB	
V-1400	8E	16:20:36.78	–53:31:23.4766	17.70	1.89	0.41	1.05250	EA:	
V-1401	8E	16:20:39.01	–53:31:20.9639	19.00	2.51	0.83	2.07960	EB	
V-1402	8E	16:20:44.66	–53:31:17.9832	18.26	1.84	0.54	0.57342	EB:	
V-1403	8E	16:20:53.79	–53:31:10.9264	17.25	1.92	0.43	1.21340	PUL	
V-1404	8F	16:20:20.58	–53:34:03.9322	18.85	1.86	0.63	0.67075	EW:	2ndry poor
V-1405	8F	16:20:25.06	–53:34:01.9829	18.15	1.91	0.74	1.77440	EB	
V-1406	8F	16:20:29.35	–53:34:01.2749	19.27	1.91	0.65	0.38941	EW	
V-1407	8F	16:20:10.79	–53:34:00.2251	18.16	1.69	0.51	4.19940	PUL:	
V-1408	8F	16:20:16.87	–53:33:45.7686	17.92	1.91	0.64	0.43928	EW	
V-1409	8F	16:20:16.80	–53:33:40.5853	16.49	1.31	0.50	0.40095	EW	2 max

Table 2. continued.

ID	Subset	RA	Dec	R	$B-R$	$R-I$	Period (days)	Type	Notes
V-1410	8F	16:20:08.26	–53:33:35.4881	18.87	2.23	1.65	1.92640	EB:	
V-1411	8F	16:20:08.42	–53:33:33.5574	16.68	1.70	0.75	0.61722	EW	
V-1412	8F	16:20:08.79	–53:33:30.4624	20.36	2.23	0.70	0.89273	EW	
V-1414	8F	16:20:23.81	–53:33:19.6958	17.20	1.37	0.42	16.55080	EB	
V-1415	8F	16:20:29.18	–53:33:18.8052	19.85	2.54	1.72	1.93140	EB	
V-1416	8F	16:20:31.68	–53:33:14.4707	19.48	1.94	0.74	2.21460	EA:	
V-1417	8F	16:20:31.49	–53:33:04.9446	19.53	1.54	1.08	0.23782	EW	2 max
V-1418	8F	16:20:28.88	–53:32:58.0680	16.06	1.27	0.36	4.61800	PUL:	
V-1419	8F	16:20:08.29	–53:32:44.8924	18.36	1.98	0.30	0.32712	EW	
V-1421	8F	16:20:26.23	–53:32:17.4642	18.59	2.02	0.68	0.33121	EW	2ndry poor
V-1422	8F	16:20:09.11	–53:32:17.6392	18.48	1.92	0.75	0.43809	EW	flat bottom
V-1423	8F	16:20:07.93	–53:32:09.6449	17.00	1.25	0.37	1.87720	EB	
V-1424	8F	16:20:18.89	–53:32:03.7406	21.27	1.97	0.41	2.24410	EB:	
V-1425	8F	16:20:07.54	–53:31:55.3262	18.10	1.78	0.65	0.84372	PUL:	
V-1426	8F	16:20:25.78	–53:31:52.0977	18.64	2.02	0.94	1.58440	EB	
V-1427	8F	16:20:15.63	–53:31:49.8334	16.27	1.08	0.35	2.18920	EB	
V-1428	8F	16:20:28.19	–53:31:42.0576	17.71	1.43	0.54	1.53580	EB	
V-1429	8F	16:20:28.51	–53:31:31.8902	21.14	2.06	0.56	0.36851	EW	
V-1430	8F	16:20:17.92	–53:31:27.9187	17.18	1.57	0.61	1.74180	EA	
V-1431	8F	16:20:15.22	–53:31:17.7302	18.54	1.61	0.77	1.81370	PUL:	
V-1432	8F	16:20:27.25	–53:31:04.4258	18.91	2.37	1.57	1.12060	PUL:	
V-1433	8F	16:20:25.83	–53:31:01.0308	17.44	1.65	0.63	0.38768	EW	
V-1434	8F	16:20:20.06	–53:31:01.2833	20.47	2.48	0.89	0.24900	EW	
V-1435	8F	16:20:11.56	–53:30:59.0776	17.32	2.13	0.82	9.43450	PUL	
V-1436	8G	16:20:44.11	–53:29:41.9338	18.04	2.11	0.37	1.10320	PUL	
V-1437	8G	16:20:48.25	–53:29:36.0585	21.22	2.36	1.18	0.33651	PUL:	
V-1438	8G	16:20:36.77	–53:29:35.6346	19.07	2.16	0.56	0.48907	PUL	
V-1439	8G	16:20:38.10	–53:29:29.7761	18.74	2.23	0.44	0.31279	EW	
V-1441	8G	16:20:46.37	–53:29:17.2365	18.78	2.11	0.46	0.72453	EW	
V-1443	8G	16:20:56.32	–53:28:34.8134	19.02	2.28	0.22	0.28673	EW	
V-1444	8G	16:20:44.82	–53:28:35.0231	21.63	2.73	0.74	1.05350	EA	2ndry poor
V-1447	8G	16:20:51.11	–53:27:48.4544	17.43	2.31	0.40	0.24945	EW	2ndry poor
V-1448	8G	16:20:49.82	–53:27:27.2875	18.29	2.35	0.43	2.70740	EB	messy
V-1450	8G	16:20:54.09	–53:27:23.1795	19.72	2.97	0.80	10.30400	EB:	
V-1451	8G	16:20:45.58	–53:27:09.1224	18.09	2.09	0.34	0.33480	EW	2ndry poor
V-1452	8G	16:20:56.41	–53:27:06.3552	16.25	1.70	0.12	2.01840	EA	HO Nor
V-1453	8G	16:20:45.64	–53:27:00.6708	18.61	2.40	0.17	0.30264	EW	flat bottom
V-1454	8H	16:20:18.34	–53:30:02.2935	21.28	2.89	0.94	2.24400	EB:	
V-1455	8H	16:20:23.42	–53:29:50.3956	21.20	2.18	0.76	0.67237	EW:	messy
V-1456	8H	16:20:23.41	–53:29:46.9195	17.01	1.20	0.85	0.47311	EW	
V-1457	8H	16:20:23.41	–53:29:43.0503	19.06	2.22	0.61	2.08550	EB:	
V-1458	8H	16:20:18.73	–53:29:39.5504	19.55	2.51	0.59	0.28595	EW	
V-1459	8H	16:20:30.98	–53:29:11.5542	19.18	2.22	0.72	0.67302	EW	
V-1460	8H	16:20:16.68	–53:29:00.4161	19.61	2.52	0.96	0.27351	EW	
V-1461	8H	16:20:23.61	–53:28:56.8197	18.16	2.41	0.78	2.40990	PUL:	
V-1462	8H	16:20:28.80	–53:28:52.1161	16.69	1.43	0.50	1.88770	PUL:	
V-1463	8H	16:20:31.01	–53:28:43.2941	20.02	2.48	0.95	2.23740	EB:	
V-1464	8H	16:20:27.70	–53:28:43.1260	16.94	2.29	0.69	1.89700	EB:	
V-1465	8H	16:20:24.75	–53:28:42.5809	21.06	3.00	0.76	0.35827	EW	
V-1466	8H	16:20:12.33	–53:28:31.5157	19.29	2.16	0.45	0.37807	EW	
V-1467	8H	16:20:27.39	–53:28:30.8576	17.80	1.95	0.60	0.37432	EW	
V-1468	8H	16:20:23.13	–53:28:18.2630	17.56	1.91	0.64	1.26060	EB:	
V-1469	8H	16:20:21.15	–53:28:11.7599	18.86	2.20	0.87	0.29737	EW	
V-1470	8H	16:20:15.10	–53:28:06.9228	18.45	2.16	0.75	0.35009	EW	
V-1471	8H	16:20:09.95	–53:27:52.3726	16.64	1.43	0.36	8.88100	EB/PUL	
V-1472	8H	16:20:18.45	–53:27:26.2013	19.96	2.16	0.67	2.24180	EB	
V-1473	8H	16:20:17.03	–53:27:22.9259	20.87	2.63	0.74	0.33640	PUL	
V-1474	8H	16:20:24.94	–53:26:59.1603	18.87	1.96	0.48	0.50520	EW	2ndrypoor
V-1475	8H	16:20:15.57	–53:26:57.4857	16.34	1.61	0.07	0.41674	EW:	odd