OPEN EUROPEAN JOURNAL ON VARIABLE STARS

May 2013

http://var.astro.cz/oejv ISSN 1801-5964

New Mira Variables from the MACHO Galactic Bulge Fields, part II

KLAUS BERNHARD [1,3,4], STEFAN HÜMMERICH [2,3,4]

1) A-4030 Linz, Austria; e-mail: klaus . bernhard@liwest . at
2) D-56338 Braubach, Germany; e-mail: ernham@rz-online . de
3) Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV), Munsterdamm 90, D-12169 Berlin, Germany
4) American Association of Variable Star Observers (AAVSO), 49 Bay State Road, Cambridge, MA 02138, USA

BAV Mitteilungen Nr. 229

Abstract: We present a new sample of 525 Mira variables in the direction of the Galactic Bulge, expanding on previous samples of 69 and 500 objects, respectively, and thereby concluding our search for new Mira variables in the MACHO Galactic Bulge fields. 364 Miras of the present sample are reported as variable stars for the first time. We have cross-correlated our sample with the sample of Mira stars from the OGLE-III Catalog of Long-Period Variables (LPVs) in the Galactic Bulge and found 146 matches; MACHO and OGLE periods are in very good overall agreement. We present summary data for all stars of the present sample and give a statistical overview, comparing the properties of the MACHO and OGLE samples and enlarging on the analyses in our previous paper. Lightcurves, folded lightcurves and further details are available via the AAVSO International Variable Star Index (http://www.aavso.org/vsx/). Data of the complete sample of Mira variables from the MACHO Galactic Bulge fields, as presented in our papers (Bernhard, 2011; Huemmerich and Bernhard, 2012 and the present paper), can be found in the appendix.

1. Introduction

We have continued our search for Mira variables in the MACHO Galactic Bulge fields (Bernhard, 2011; Huemmerich and Bernhard, 2012). The MACHO project (http://macho.anu.edu.au/) comprises observations carried out between 1992 and 2000 with the 1.27 m Great Melbourne Telescope situated at Mount Stromlo in Australia. All observations were taken simultaneously through the non-standard MACHO blue filter (~4500-6300 Å; hereafter MACHO B-band) and MACHO red filter (~6300-7600 Å; hereafter MACHO R-band) using a combination of eight 2048*2048 CCD cameras (Alcock et al., 1999). For more information on the MACHO project see e.g. Alcock et al. (1997).

Retaining the methodology outlined in our first paper, we have inspected MACHO R-band lightcurves from the MACHO Galactic Bulge fields in order to find suitable Mira candidates. MACHO R-band was chosen over B-band photometry because of its increased sensitivity towards the red band of the electromagnetic spectrum, making it more suitable for identifying red variables such as Miras. In the case of three stars, however, it was necessary to fall back on B-band observations because of bad R-band photometry. We have then transformed MACHO instrumental magnitudes on to the Kron-Cousins system by using equation (2) of Alcock et al. (1999). Only stars with an amplitude > 2 mag (Rc) were investigated and subjected to a visual inspection of their lightcurves; objects exhibiting significant changes in amplitude, mean magnitude and / or period suggesting semi-regularity have been rejected. For the very bright objects, ASAS-3 V data (Pojmanski, 2002) has been included into the analysis whenever available in order to increase the time baseline and achieve a period solution of higher accuracy.

We have cross-matched our sample with the 2MASS Catalog (Skrutskie et al., 2006), from which we derive astrometric positions and near-infrared color indices. Each object was checked against the Strasbourg CDS Vizier service (Ochsenbein et al., 2000) and the AAVSO International Variable Star Index (Watson et al., 2006) for pre-existence as a Mira-type star in variability catalogs. In addition, we have established a cross-correlation with the sample of Mira stars from the OGLE-III Catalog of Long-Period Variables (LPVs) in the Galactic Bulge (Soszyński et al., 2013; hereafter OGLE sample), the results of which are presented in Chapter 2 along with a comparison of the MACHO and OGLE samples.

Summary data for all new Mira variables are presented in Table 1, which also gives corresponding identifiers from other lists. Lightcurves, folded lightcurves and further details are available via the AAVSO International Variable Star Index (Watson et al., 2006; http://www.aavso.org/vsx/). Data of the Mira variables from our previous papers can be found online at VizieR (catalog J/other/OEJV/149) and in the Peremennye Zvezdy Variable Stars Supplement (PZP, vol. 11, N 12). Additionally, data of the complete sample of Mira stars from the MACHO Galactic Bulge fields, as presented in our papers (Bernhard, 2011[1]; Huemmerich and Bernhard, 2012 and the present paper), can be found in the appendix, including 2MASS J, H, K photometry (Skrutskie et al., 2006).

2. Properties of the MACHO Mira sample and comparison with the OGLE sample

2.1 Cross-correlation with Mira variables from the OGLE-III Catalog of Long-Period Variables (LPVs) in the Galactic Bulge

We have cross-correlated the present sample of MACHO Miras with the OGLE sample (Soszyński et al., 2013). We find 146 matches, which is in agreement with our expectations as the sky coverage of the two surveys is different and many of the brighter MACHO objects will likely be saturated in the OGLE frames. Corresponding OGLE identifiers (OGLE-BLG-LPV-NNNNNN) are listed in Table 1.

Except for two cases, in which the given period was half the actual value[2], MACHO and OGLE periods are in very good overall agreement. In exactly 50% of cases, MACHO and OGLE periods agree to within 1%, while the period difference is more than 4.5% for only 5 stars of the entire sample (see Figure 1). Examples of excellent period agreement between MACHO and OGLE Miras are presented in Figure 2.

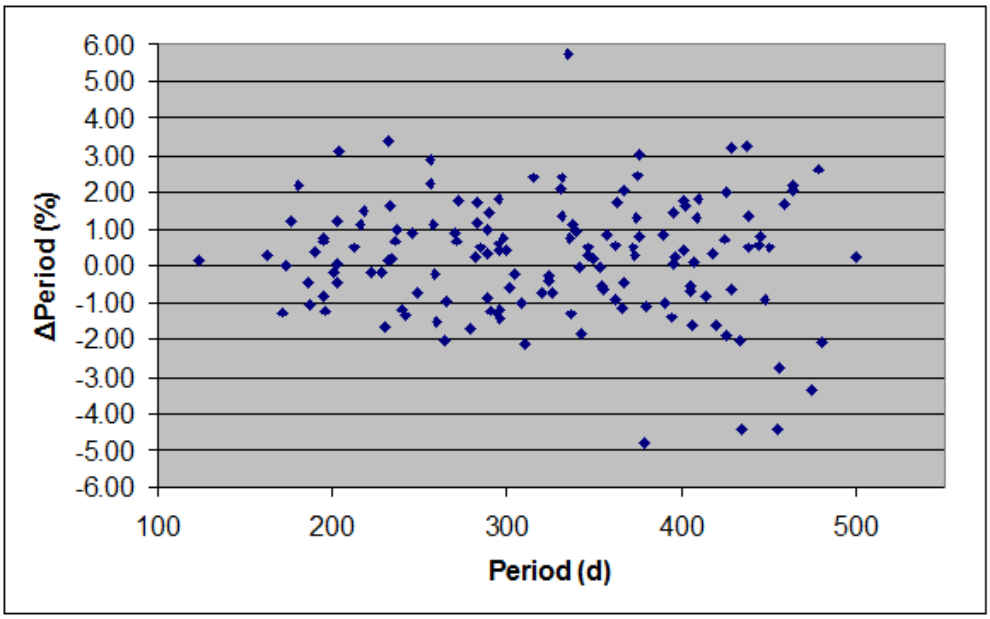

Figure 1: Difference between OGLE and MACHO periods, as expressed in ΔPeriod (%)

We have investigated all stars with ΔPeriod > 3% and find that the observed differences in period are mostly due to the disparity between MACHO and OGLE coverage. Both samples are based on quite heterogeneous datasets. OGLE time coverage and number of datapoints vary "[...] from about 100 points collected over two years to more than 3,000 observations obtained between 1997 and 2009

[1] One star of the sample presented in Bernhard (2011) has been identified as a duplicate entry (MACHO 101.20779.46 = MACHO 104.20779.6004). As better coverage of the object has been achieved in field 101, we retain MACHO 101.20779.46 and drop the other identifier from our sample.

[2] Both objects (MACHO 180.22111.49, P = 182.5 d in the MACHO sample; OGLE-BLG-LPV-211391, P = 155.96 d in the OGLE sample) are listed with their corrected periods (P = 365 d and P = 305 d, respectively) in Table 1.

(OGLE-II + OGLE-III)." (Soszyński et al., 2013). MACHO data, on the other hand, comprises from about 200 to more than 1,200 datapoints which were mostly collected over a timespan from 1,500 to 2,500 days in the case of the Galactic Bulge fields. MACHO fields with fewer than 200 observations have been excluded from our analysis.

As indicated above, longer time coverage results in more accurate results in almost all cases. This was expected, as small cycle-to-cycle variations, which Mira variables are notorious for, may have a great impact on the period solutions for stars with short time baselines that only cover a small number of cycles. This holds especially true for long-period Miras, for which analyses are sometimes based on only two consecutive maxima. Furthermore, in some cases, maxima have been covered only partially or not at all, which is seen frequently in stars whose periods are very nearly equal to one year. Additionally, varying lightcurve shapes add uncertainty to the period analysis. Considering these difficulties, and the fact that Mira variables are prone to exhibiting intrinsic period scatter (cf. e.g. Koen and Lombard, 1995; Zijlstra and Bedding, 2002), the excellent agreement of MACHO and OGLE periods is noteworthy. Figures 3 and 4 give examples of the period solutions for MACHO and OGLE Miras with ΔPeriod > 3% which illustrate the frequent disparity in time coverage between both datasets.

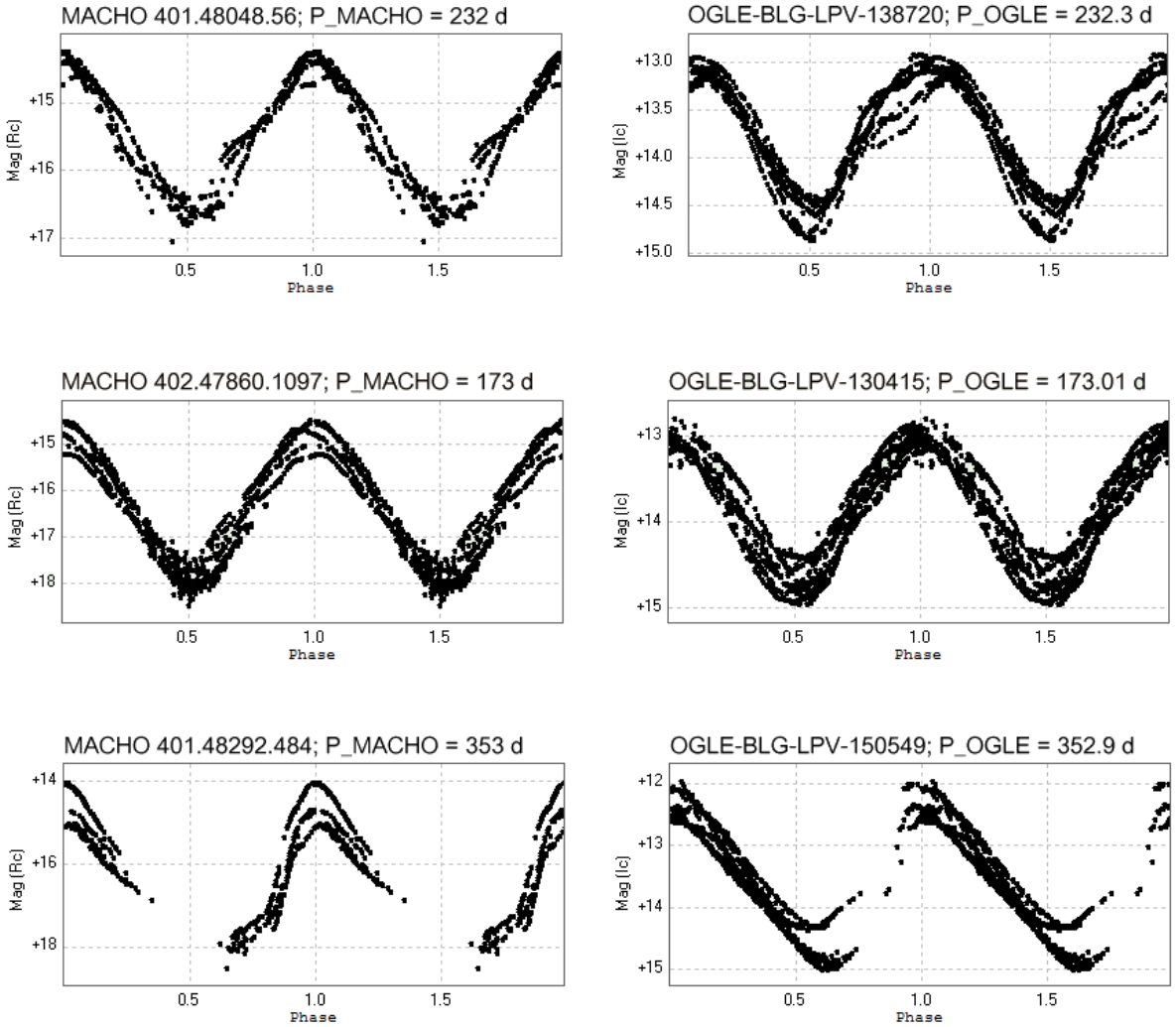

Figure 2: Period solutions for the stars MACHO 401.48048.56 / OGLE-BLG-LPV-138720 (top), MACHO 402.47860.1097 / OGLE-BLG-LPV-130415 (middle), MACHO 401.48292.484 / OGLE-BLG-LPV-150549 (bottom), based on MACHO data (left side) and OGLE data (right side). Although MACHO and OGLE data were taken at different epochs, there is excellent agreement between MACHO and OGLE periods, which also indicates the stability of the pulsational behaviour of these Miras.

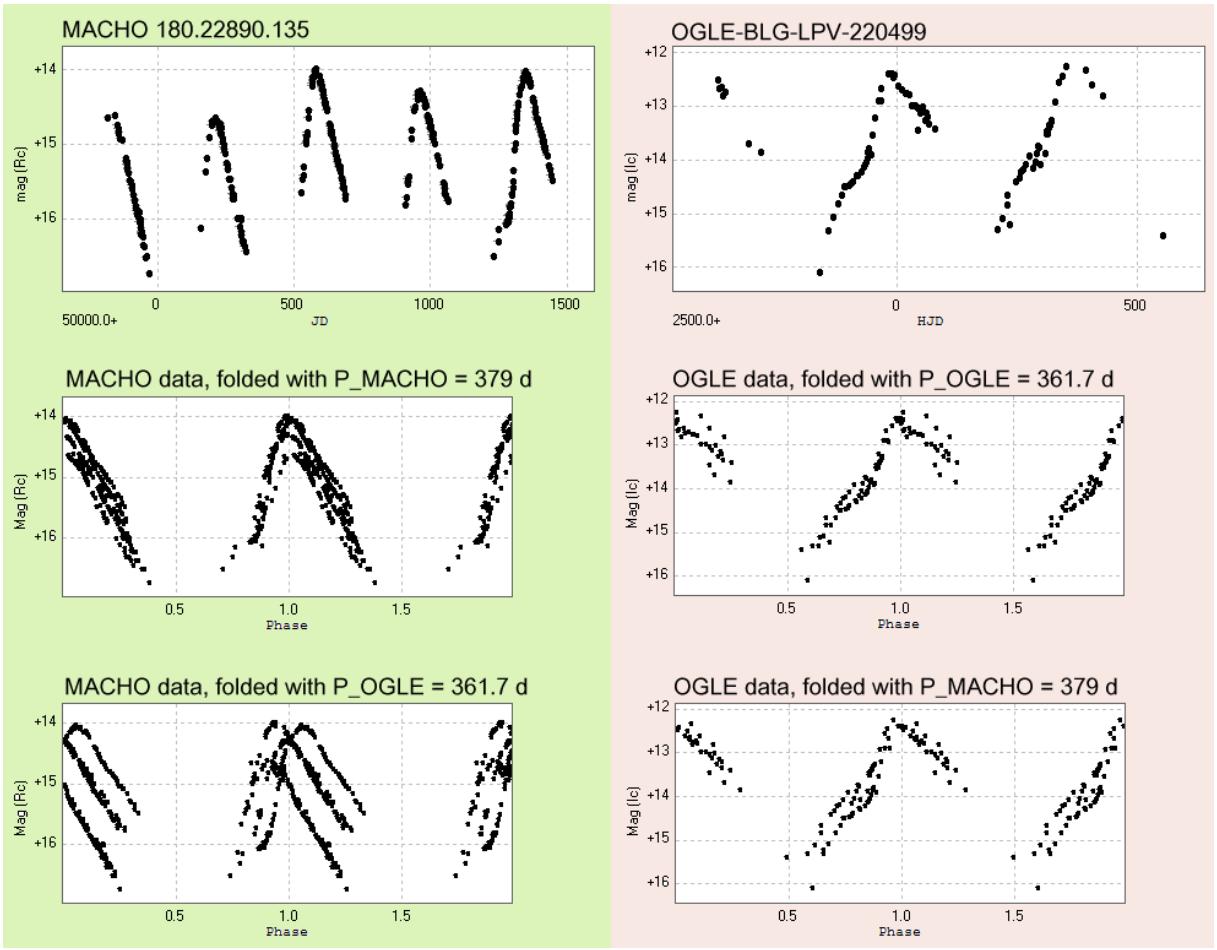

Figure 3: The star MACHO 180.22890.135 / OGLE-BLG-LPV-220499. The left side of the figure shows MACHO Rc data (green-shaded area): lightcurve (top) and corresponding phase plots based on MACHO period (middle) and OGLE period (bottom). The right side of the figure shows OGLE Ic data (red-shaded area): lightcurve (top) and corresponding phase plots based on OGLE period (middle) and MACHO period (bottom). The MACHO period produces a better fit of both datasets, which is to be expected because of longer time coverage.

In agreement with the above mentioned deductions, the disparity in coverage seems to be most pronounced for objects with ΔPeriod > 3%. We have therefore chosen to augment this situation by combining MACHO and OGLE data for all objects with ΔPeriod > 3%. The resulting increment of the time baseline enables us to obtain a period solution of higher accuracy for these stars; an example of this procedure is illustrated in Figure 5. Stars, whose periods result from a combination of MACHO and OGLE data, are marked as such in Table 1.

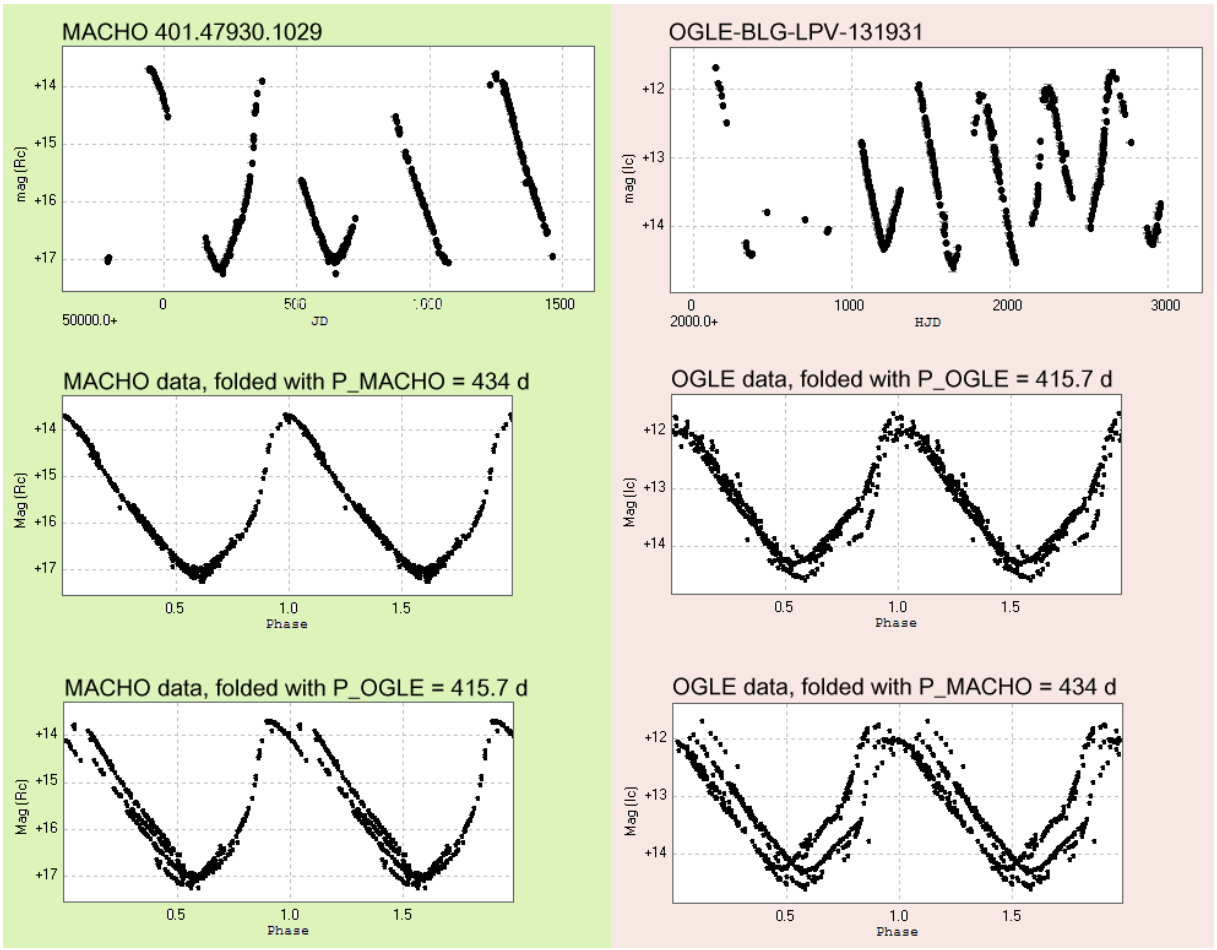

Figure 4: The star MACHO 401.47930.1029 / OGLE-BLG-LPV-131931. The specification and arrangement of the data are the same as in Figure 3. Both period solutions produce a better fit of their respective data sets. The period solution of the OGLE sample is preferable in this case as it has been based on a considerably larger dataset which also boasts better coverage of maxima.

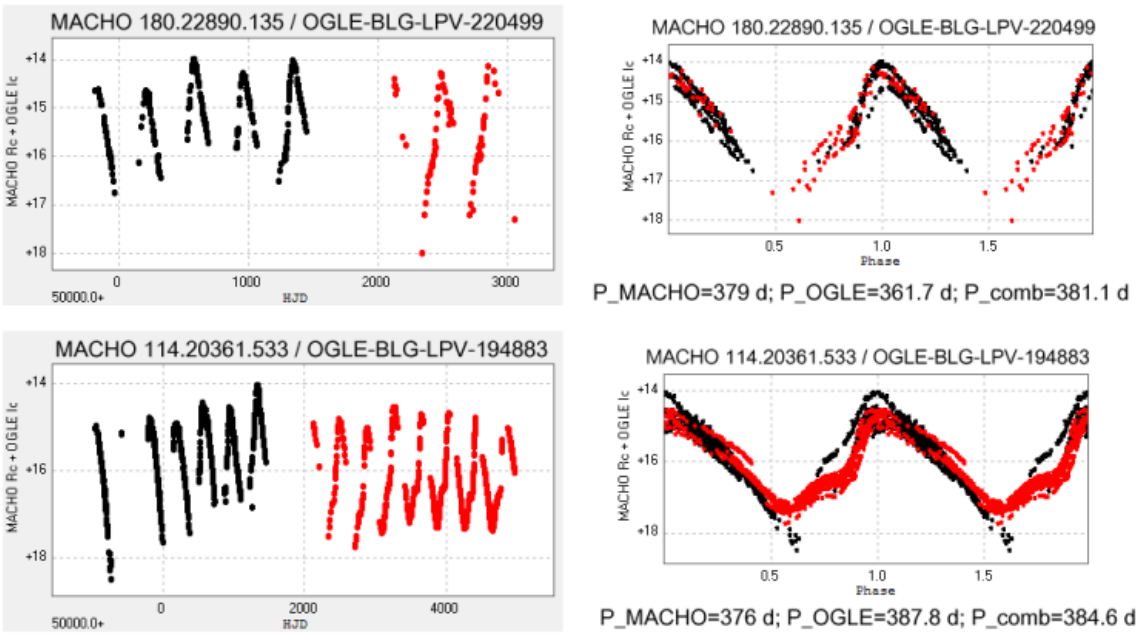

Figure 5: Period solutions for the stars MACHO 180.22890.135 / OGLE-BLG-LPV-220499 (top) and MACHO 114.20361.533 / OGLE-BLG-LPV-194883 (bottom), based on a combination of MACHO and OGLE data. For the period analysis, OGLE Ic (red) has been shifted to match MACHO Rc (black).

http://var.astro.cz/oejv ISSN 1801-5964

2.2 Period distribution[3]

We have compared the period distribution of the MACHO and OGLE samples, the result of which is illustrated in Figure 6. The OGLE sample (N = 6528) is more complete and comprises about six times as many Mira variables as the MACHO sample (N = 1094), which bears on the following results. Nevertheless, and despite of an overall good agreement, there is a noteworthy discrepancy in the period distribution between both samples. The MACHO sample contains more Miras with periods ranging from 201-350 days, notably in the range from 201-300 days. In contrast, the OGLE sample encompasses a much higher percentage of Miras in the period range > 350 days. In fact, the longest-period Mira we have been able to identify in MACHO data is the OH maser source MACHO 305.35072.100 with a period of P = 592 d (cf. also Huemmerich and Bernhard, 2012); there do not seem to be Miras of longer period in the entire MACHO sample.

The observed discrepancy is most likely due to the different passbands and limiting magnitudes of the MACHO and OGLE projects. OGLE observations are taken in the Cousins I-band (Ic), which roughly comprises a wavelength region between ~6800 and ~9000 Å (cf. e.g. Moro and Munari, 2000), and are thus much more suited to finding long-period Miras which are mostly very red objects due to extinction by circumstellar dust (cf. e.g. Matsunaga et al., 2005). Furthermore, a fraction of the brighter Miras will likely be saturated in the OGLE frames, which possibly contributes to the observed differences in period distribution between both samples.

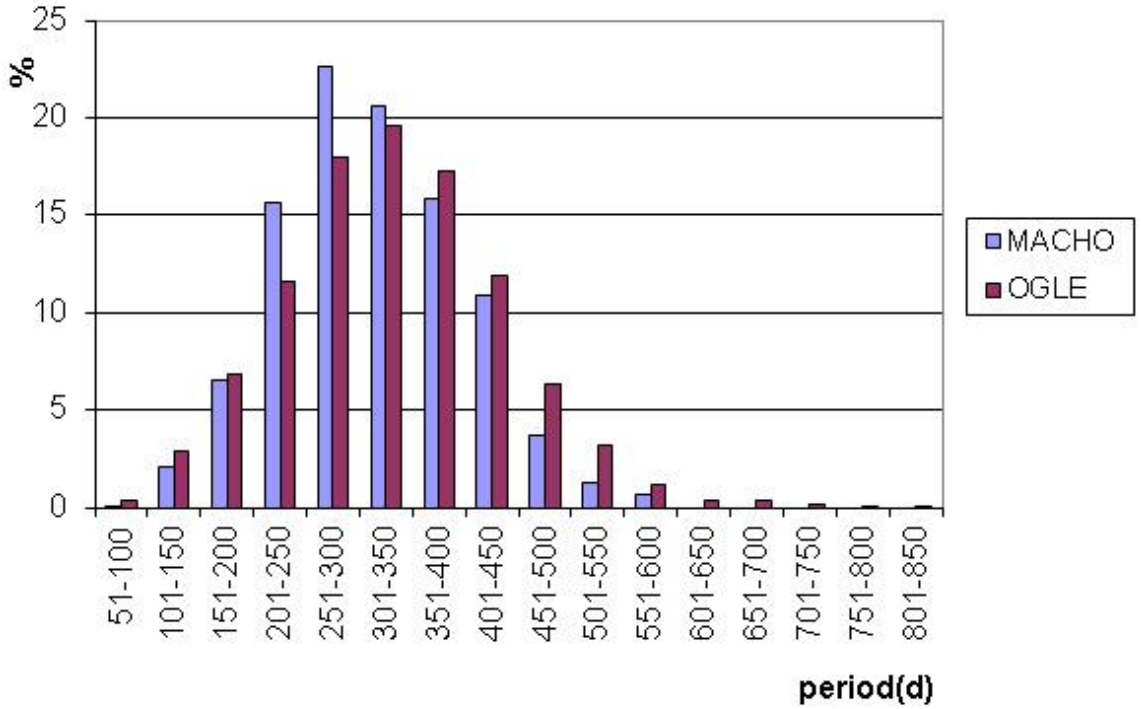

Figure 6: Period distribution of Mira variables in the direction of the Galactic Bulge (lilac: MACHO sample; N = 1094 / purple: OGLE sample; N = 6528)

[3] All analyses presented in this chapter and the following ones are based on the whole sample of Mira variables from the MACHO Galactic Bulge fields as presented in Bernhard (2011), Huemmerich and Bernhard (2012) and the present paper.

2.3 Properties in colour-magnitude, period-colour and period-luminosity space

2.3.1 Colour-magnitude diagrams

Figure 7 shows the colour-magnitude diagrams for Mira variables from the MACHO and OGLE samples, the results of which are in excellent agreement. Both diagrams exhibit a red tail of Miras with (H-Ks) ≥ 1, extending to about (H-Ks) = 1.5 in the case of MACHO Miras and (H-Ks) = 2 in the case of the OGLE sample. This is in agreement with the findings of Matsunaga et al. (2005); cf. in particular their Figure 7. It is noteworthy that Miras with (H-Ks) ≥ 1 become fainter with increasing (H-Ks), which becomes especially obvious in the OGLE sample, demonstrating again the advantages of OGLE in discovering Miras towards the red and faint end. This underluminosity in the 2MASS Ks-band is likely caused by circumstellar extinction due to dust (cf. e.g. Fraser, 2008).

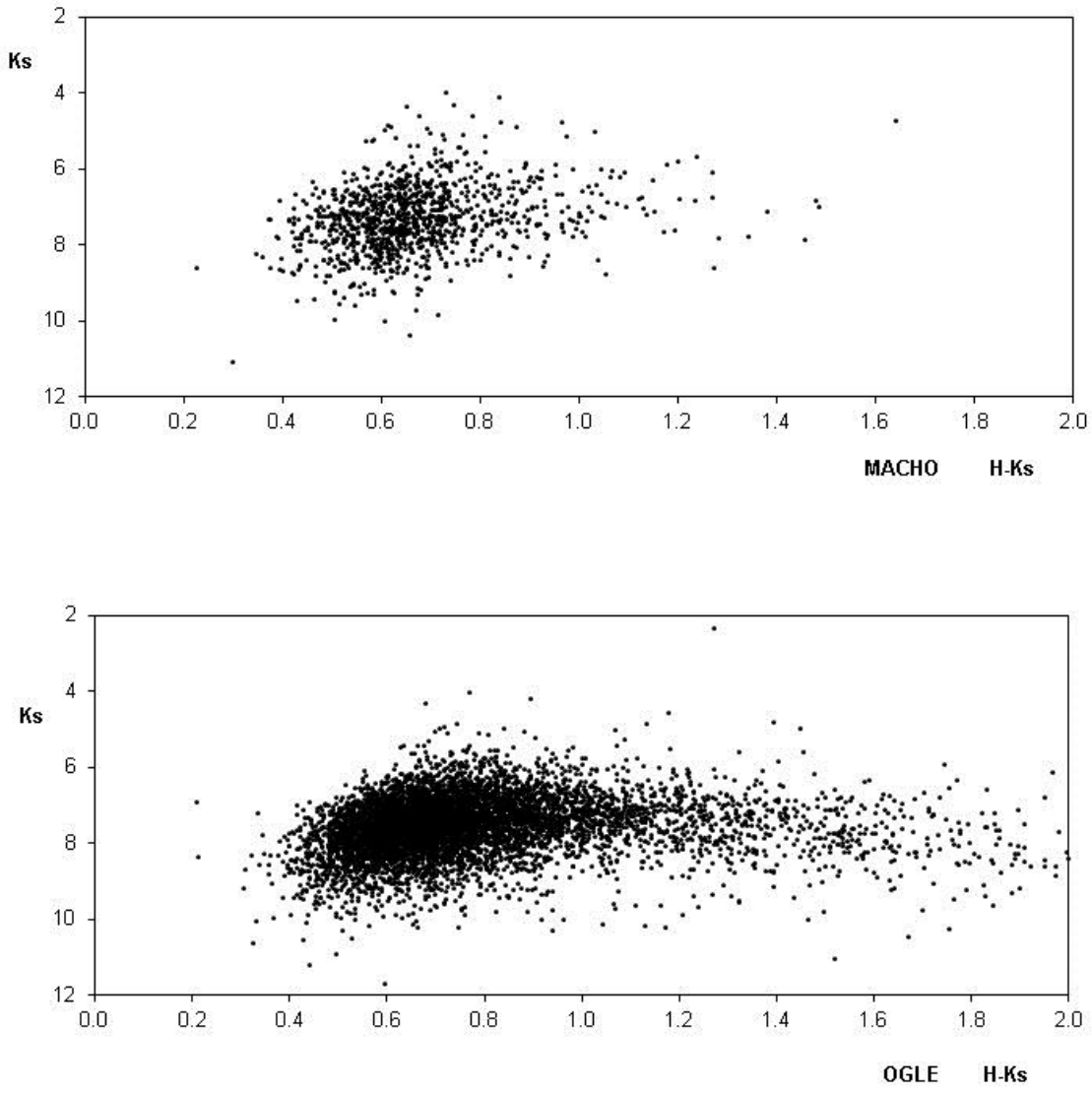

Figure 7: 2MASS (H-Ks) vs. Ks diagrams for the MACHO sample (top; N = 1094) and the OGLE sample (bottom; N = 6528)

http://var.astro.cz/oejv ISSN 1801-5964

2.3.2 Period-colour diagrams

Period-colour diagrams of the MACHO and OGLE samples are given in Figure 8; period is expressed in log (P). As expected, Miras of longer period have larger (H-Ks) values and thus redder colours. There is a turn-off point at log (P) ~ 2.6, at which the increase in (H-Ks) follows a steeper slope, indicating that Miras with periods longer than log (P) ~ 2.6 tend to show colour excesses because of circumstellar dust shells, as denoted by Matsunaga et al. (2005).

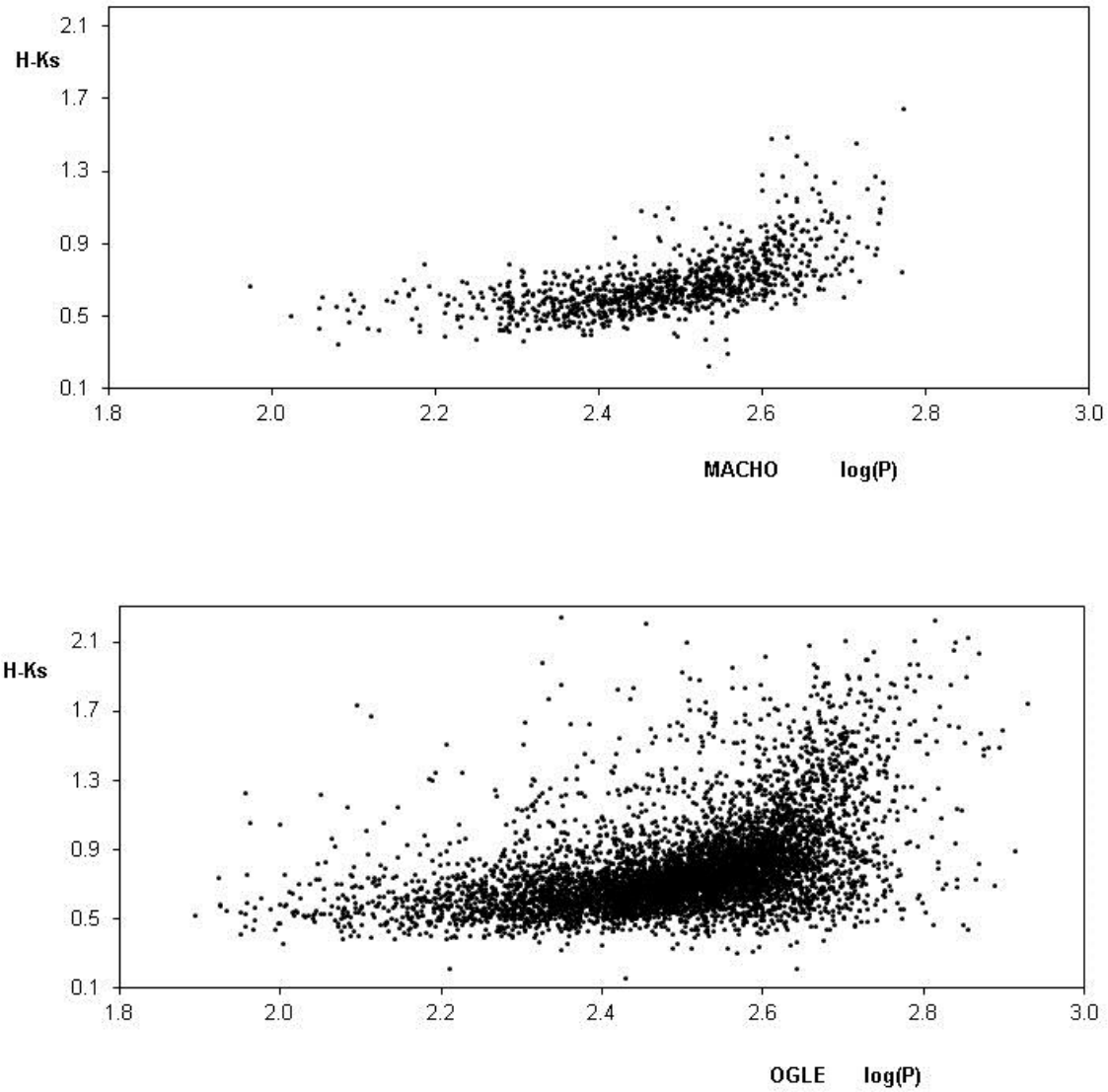

Figure 8: Log (P) vs 2MASS (H-Ks) diagrams for the MACHO sample (top; N = 1094) and the OGLE sample (bottom; N = 6528)

http://var.astro.cz/oejv ISSN 1801-5964

2.3.3 Period-luminosity diagrams

The distribution of Mira variables in the period-luminosity plane is rather clearly outlined. They occupy what has become to be known as "sequence C" and are well separated from the semi-regular and OSARG (OGLE Small Amplitude Red Giant) variables (cf. e.g. Wood et al., 1999; Soszyński et al., 2013; especially their Figure 5). There is excellent agreement in the distribution of Mira variables in the period-luminosity diagrams for both samples, with OGLE data reaching to fainter Ks.

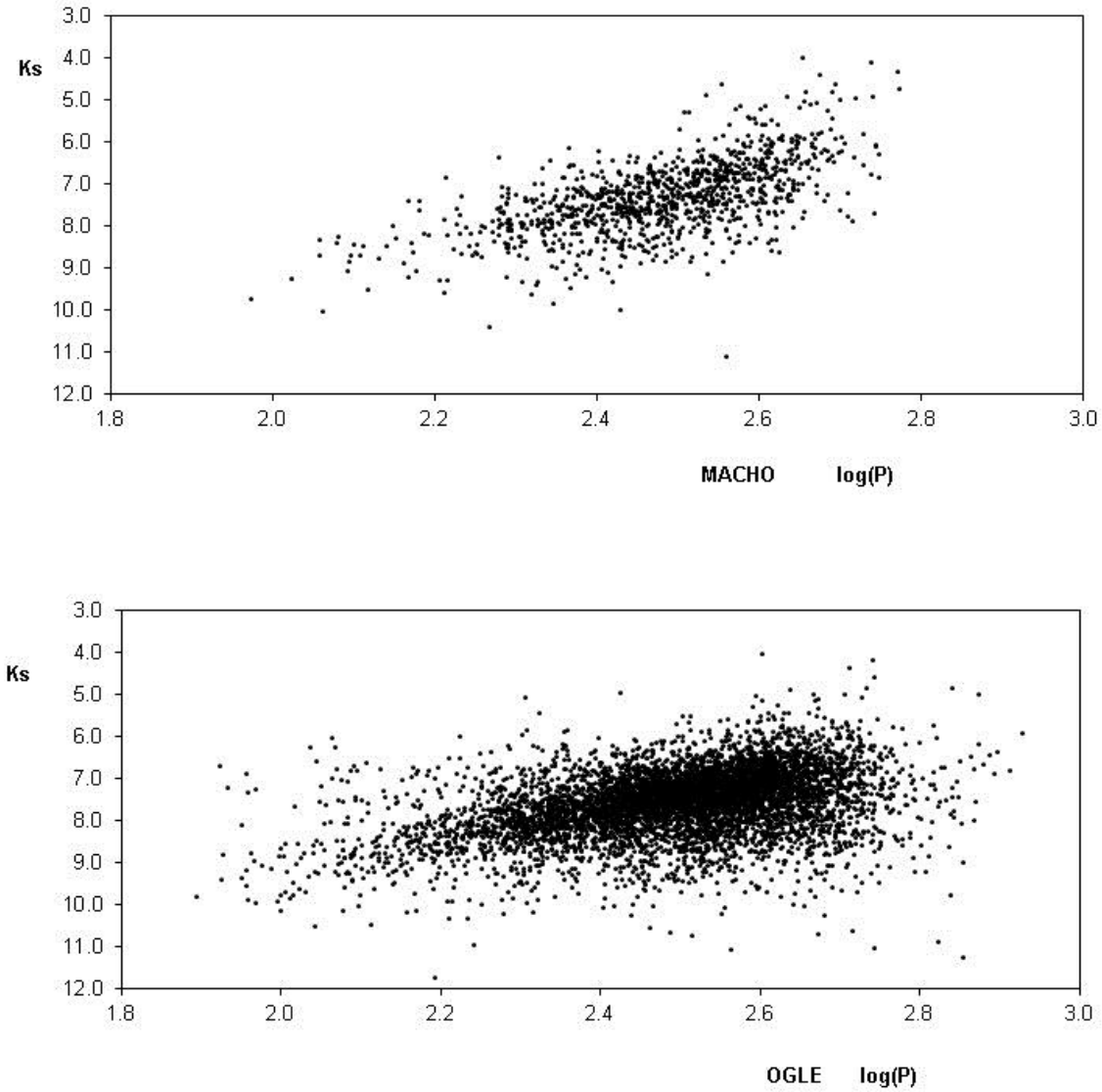

Figure 9: Log (P) vs 2MASS Ks diagrams for the MACHO sample (top; N = 1094) and the OGLE sample (bottom; N = 6528)

Table 1: Summary data for the new sample of 525 Miras from the MACHO Galactic Bulge fields

No.	MACHO	RA (J2000)	DEC (J2000)	Range(MACHO)		Epoch(Max)	Per(d)	Other ID / Remarks
501	403.47552.12	17 54 44.10	-29 27 50.1	12.3-15.3	Rc	2451254	331	OGLE-BLG-LPV-114862
502	402.47618.372	17 55 17.01	-29 04 50.8	13.1-17.1	Rc	2451268	197	
503	402.47624.8	17 55 17.77	-28 40 43.5	12.2-<16.4	Rc	2450959	241	
504	402.47678.275	17 55 27.31	-29 02 33.2	12.2-<16.7	Rc	2450885	268	
505	402.47680.779	17 55 27.40	-28 57 43.8	14.1-17.8:	Rc	2451055	400	
506	402.47675.8	17 55 30.05	-29 15 10.0	>12.4-<15.5	Rc	2451028	203	OGLE-BLG-LPV-121843
507	402.47676.58	17 55 32.71	-29 11 58.6	>13.4-16.8	Rc	2451427	312	
508	402.47683.5	17 55 33.86	-28 44 55.7	12.0-15.7	Rc	2450632	197	
509	402.47684.48	17 55 35.08	-28 41 15.1	>11.4:-17.0	Rc	2451405	547	
510	402.47683.10	17 55 35.92	-28 43 01.9	12.7-16.5	Rc	2451279	215	
511	402.47739.56	17 55 39.15	-28 59 53.5	>12.4-16.3	Rc	2451404	284	
512	402.47744.10	17 55 43.46	-28 41 01.3	10.8:-<14.6	Rc	2450965	232	
513	402.47744.1236	17 55 49.82	-28 39 09.5	14.6-18.4:	Rc	2451072	376	
514	402.47745.178	17 55 50.45	-28 35 42.0	15.5:-18.5:	Rc	2450894	333	
515	402.47742.51	17 55 51.75	-28 48 13.4	>13.2-<17.0	Rc	2450918	222	
516	402.47796.1591	17 56 04.94	-29 13 21.0	>14.7-19.3:	Rc	2450978	232	
517	403.47794.99	17 56 11.63	-29 18 35.9	12.8-16.9	Rc	2451390	271	OGLE-BLG-LPV-127802
518	401.47812.11	17 56 12.82	-28 07 42.3	13.9-16.7	Rc	2450940	402	OGLE-BLG-LPV-127960
519	401.47870.821	17 56 15.15	-28 16 18.9	14.0:-17.2:	Rc	2450665	124	OGLE-BLG-LPV-128355
520	403.47855.7	17 56 16.10	-29 18 04.4	>13.2-15.7	Rc	2450652	209	
521	402.47861.12	17 56 16.80	-28 51 29.4	12.8-16.3:	Rc	2451012	206	
522	403.47847.26	17 56 17.19	-29 49 07.8	13.0-16.5:	Rc	2450980	258	OGLE-BLG-LPV-128742
523	403.47844.144	17 56 17.84	-29 59 24.4	12.6-16.5	Rc	2451253	240	OGLE-BLG-LPV-128864
524	402.47863.43	17 56 20.89	-28 43 40.3	12.5-<16.5	Rc	2450992	240	
525	401.47871.515	17 56 21.32	-28 14 04.0	13.6-<18.0	Rc	2451370	386	
526	403.47853.708	17 56 21.91	-29 25 57.6	13.0-16.8	Rc	2451343	257	
527	402.47865.12	17 56 24.28	-28 38 08.7	12.6-<14.8	Rc	2451322	357	
528	402.47859.92	17 56 24.40	-28 59 25.9	12.7-16.4	Rc	2451328	252	
529	402.47860.1097	17 56 26.25	-28 56 32.4	14.5-18.2	Rc	2450975	173	OGLE-BLG-LPV-130415
530	403.47849.1260	17 56 26.55	-29 42 14.7	12.4-16.7	Rc	2450572	244	
531	403.47854.30	17 56 28.29	-29 21 40.6	12.8-16.3:	Rc	2450195	270	OGLE-BLG-LPV-130789
532	402.47861.231	17 56 30.45	-28 54 03.5	15.4-18.4	Rc	2451319	216	OGLE-BLG-LPV-131151
533	402.47864.10	17 56 30.91	-28 39 03.7	>12.0-<15.6	Rc	2451260	176	OGLE-BLG-LPV-131231
534	401.47930.1029	17 56 34.85	-28 17 11.3	13.7-17.2	Rc	2454248	429.5	OGLE-BLG-LPV-131931, c
535	403.47908.117	17 56 34.87	-29 43 55.1	11.8-16.4:	Rc	2451260	295	OGLE-BLG-LPV-131936
536	403.47908.29	17 56 37.77	-29 42 57.1	13.5-16.6	Rc	2450637	428	OGLE-BLG-LPV-132456
537	402.47920.811	17 56 38.88	-28 56 11.5	14.8:-18.0	Rc	2450582	288	OGLE-BLG-LPV-132639
538	401.47930.68	17 56 39.75	-28 14 51.3	14.0-16.9	Rc	2450928	248	OGLE-BLG-LPV-132799
539	402.47915.16	17 56 42.12	-29 16 49.7	12.8:-17.0	Rc	2450905	230	OGLE-BLG-LPV-133205
540	401.47929.17	17 56 42.47	-28 19 42.9	12.4-16.0	Rc	2450660	201	OGLE-BLG-LPV-133271
541	403.47904.301	17 56 46.56	-29 59 50.8	12.8-16.3	Rc	2450972	164	
542	403.47904.1888	17 56 47.96	-30 00 00.8	15.2-18.5	Rc	2451303	195	OGLE-BLG-LPV-134223
543	403.47908.93	17 56 49.85	-29 45 06.2	13.7-16.5	Rc	2450979	272	
544	401.47986.11	17 56 50.63	-28 31 35.3	12.5-16.3	Rc	2450898	236	OGLE-BLG-LPV-134680
545	403.47973.18	17 56 51.01	-29 25 14.5	12.8-16.1:	Rc	2450560	274	
546	401.47988.38	17 56 53.20	-28 23 52.0	12.5-16.5	Rc	2451361	215	
547	403.47971.4455	17 56 55.50	-29 31 19.8	16.1-20.2:	V	2451295	288	V4656 Sgr, OGLE-BLG-LPV-135449
548	403.47964.31	17 56 56.12	-29 59 28.4	13.4-16.8	Rc	2450705	425	OGLE-BLG-LPV-135555
549	401.47986.30	17 56 56.46	-28 31 25.9	14.5-<18.1	Rc	2450573	171	OGLE-BLG-LPV-135614
550	401.47996.25	17 56 56.77	-27 53 30.4	13.4-18.0	Rc	2451313	275	
551	401.47991.546	17 56 57.06	-28 14 07.3	12.5:-16.1	Rc	2451010	210	
552	401.47987.82	17 56 57.44	-28 27 11.3	12.3-16.4	Rc	2450876	197	
553	403.47965.28	17 56 58.37	-29 56 37.6	12.4-16.0	Rc	2450985	410	
554	403.47968.172	17 57 00.24	-29 45 45.8	13.0-16.2	Rc	2451427	192	
555	402.47976.33	17 57 02.03	-29 11 18.3	12.6-16.7	Rc	2451278	253	
556	402.47983.526	17 57 04.08	-28 44 15.1	14.6-<18.4:	Rc	2450659	366	OGLE-BLG-LPV-136817
557	402.47976.8	17 57 05.26	-29 10 41.2	13.2-16.7	Rc	2451414	402	
558	401.47991.529	17 57 05.93	-28 13 27.8	13.9-17.0	Rc	2450938	237	OGLE-BLG-LPV-137086
559	401.47995.786	17 57 06.18	-27 56 17.3	14.1-18.0:	Rc	2450609	278	
560	401.47991.606	17 57 06.54	-28 13 14.5	>13.2-17.0:	Rc	2451375	245	
561	402.48037.33	17 57 10.73	-29 06 41.4	13.1-16.4	Rc	2451032	390	
562	402.48039.31	17 57 14.04	-29 01 05.8	13.3-16.4	Rc	2451392	288	OGLE-BLG-LPV-138285
563	401.48056.67	17 57 16.20	-27 53 16.6	14.6-18.3	Rc	2451384	239	
564	403.48025.50	17 57 16.83	-29 58 17.3	12.5-<16.2	Rc	2450958	262	
565	402.48041.152	17 57 16.83	-28 53 55.3	>11.8-15.9	Rc	2451430	356	Mis V0531
566	401.48048.56	17 57 17.04	-28 25 57.6	14.3-<17.0	Rc	2450897	232	OGLE-BLG-LPV-138720
567	401.48049.161	17 57 17.36	-28 22 22.3	12.7-16.3	Rc	2450895	187	OGLE-BLG-LPV-138761
568	401.48049.1073	17 57 17.84	-28 21 58.4	13.5-17.1:	Rc	2450897	282	OGLE-BLG-LPV-138829
569	401.48054.248	17 57 23.93	-28 01 58.8	>14.3-17.4	Rc	2450870	366	OGLE-BLG-LPV-139727
570	402.48045.455	17 57 25.85	-28 36 04.5	14.3:-17.1:	Rc	2451414	325	OGLE-BLG-LPV-140021
571	401.48114.555	17 57 28.35	-27 58 46.7	13.5-17.8	Rc	2451014	311	
572	401.48112.111	17 57 32.62	-28 10 15.5	12.3-16.3	Rc	2450676	190	
573	402.48096.84	17 57 33.70	-29 11 18.6	12.9-16.6	Rc	2451410	251	
574	401.48115.19	17 57 34.67	-27 55 32.9	12.4-16.6:	Rc	2450157	310	

575	402.48100.1187	17	57	36.49	-28	57	40.4	14.7-17.4:	Rc	2451402	374	OGLE-BLG-LPV-141561
576	402.48096.92	17	57	36.83	-29	10	50.5	14.4-<17.7	Rc	2450626	389	OGLE-BLG-LPV-141618
577	401.48113.23	17	57	37.49	-28	02	46.6	12.2-16.3:	Rc	2450666	377	Mis V0477
578	401.48108.260	17	57	38.27	-28	23	55.0	14.4-18.5:	Rc	2450605	480	OGLE-BLG-LPV-141814
579	401.48107.171	17	57	38.34	-28	29	32.6	13.2:-16.3	Rc	2450531	232	
580	401.48106.390	17	57	38.36	-28	31	05.6	13.8-17.1	Rc	2450893	283	OGLE-BLG-LPV-141826
581	401.48116.434	17	57	40.93	-27	51	18.1	16.0-<19.2	Rc	2451403	378	
582	401.48174.65	17	57	56.03	-27	58	58.3	13.5-16.7	Rc	2450279	120	
583	401.48168.2186	17	57	57.31	-28	25	15.0	12.7-16.0	Rc	2450681	220	Mis V0858
584	401.48167.1504	17	57	57.62	-28	27	30.6	13.9-<17.3	Rc	2450246	272	OGLE-BLG-LPV-144910
585	401.48231.373	17	58	06.33	-28	11	56.4	13.5-17.0	Rc	2451338	404	OGLE-BLG-LPV-146523
586	118.17880.14	17	58	09.41	-30	04	19.2	14.6-18.9	V	2451040	194	V4666 Sgr
587	401.48231.397	17	58	09.97	-28	14	19.8	13.8-17.0	Rc	2451305	256	
588	401.48237.16	17	58	11.16	-27	50	00.9	14.0-17.2	Rc	2450650	412	
589	401.48235.62	17	58	11.77	-27	56	53.3	15.2-<18.4	Rc	2451288	353.3	OGLE-BLG-LPV-147554, c
590	401.48228.20	17	58	12.16	-28	25	37.2	12.0-15.6	Rc	2450647	242	OGLE-BLG-LPV-147607
591	118.18009.13	17	58	14.39	-30	08	42.5	13.5-<17.5	Rc	2450999	375	OGLE-BLG-LPV-148017
592	401.48235.98	17	58	19.75	-27	57	10.0	15.7-19.3:	Rc	2450634	390	OGLE-BLG-LPV-149029
593	118.18014.144	17	58	20.04	-29	50	11.3	13.4-15.7	Rc	2450932	285	OGLE-BLG-LPV-149084
594	401.48231.348	17	58	20.66	-28	12	00.0	14.0-16.9	Rc	2454231	208.5	OGLE-BLG-LPV-149185, c
595	401.48292.278	17	58	22.92	-28	06	52.3	13.5-<17.2	Rc	2450641	354	OGLE-BLG-LPV-149605
596	401.48294.428	17	58	24.15	-28	01	37.1	13.7-17.5:	Rc	2450572	266	OGLE-BLG-LPV-149841
597	118.18012.472	17	58	24.58	-29	57	58.2	15.1-18.5	Rc	2450582	279	OGLE-BLG-LPV-149937
598	401.48288.405	17	58	24.61	-28	25	06.4	14.5-<18.1	Rc	2451368	363	
599	401.48294.763	17	58	24.70	-27	58	57.3	14.5:-17.6	Rc	2450628	265	OGLE-BLG-LPV-149959
600	401.48292.242	17	58	25.89	-28	07	34.0	>14.4-18.1:	Rc	2450542	369	
601	401.48287.380	17	58	26.12	-28	26	37.4	14.2-<17.1	Rc	2451358	352	
602	401.48293.22	17	58	26.15	-28	05	59.9	>12.3-<16.0	Rc	2450264	233	OGLE-BLG-LPV-150230
603	401.48292.484	17	58	28.03	-28	10	27.4	14.0-18.0:	Rc	2450632	353	OGLE-BLG-LPV-150549
604	401.48296.5	17	58	28.98	-27	52	03.0	13.0-<16.0	Rc	2450649	453	V4668 Sgr
605	401.48292.107	17	58	34.48	-28	08	49.2	14.5-17.8	Rc	2450517	256	OGLE-BLG-LPV-151621
606	401.48291.324	17	58	34.52	-28	13	12.4	13.3-16.7:	Rc	2450573	315	OGLE-BLG-LPV-151636
607	401.48350.14	17	58	39.91	-28	14	52.3	13.2-16.3	Rc	2450614	196	OGLE-BLG-LPV-152533
608	118.18143.140	17	58	47.01	-29	54	38.1	13.8-17.6:	Rc	2450364	415	
609	118.18277.190	17	58	49.47	-29	38	14.1	14.1-18.4	Rc	2451392	315	
610	118.18270.2512	17	58	54.44	-30	03	52.9	15.8-<20.0:	Rc	2451247	450	OGLE-BLG-LPV-155390
611	401.48410.101	17	59	08.50	-28	17	52.7	12.2-<16.8	Rc	2451034	255	
612	113.18421.82	17	59	10.34	-28	42	06.2	12.0-15.1	Rc	2451339	163	OGLE-BLG-LPV-158358
613	401.48409.142	17	59	15.30	-28	21	25.1	14.7-17.6:	Rc	2450633	401	OGLE-BLG-LPV-159315
614	401.48471.587	17	59	22.86	-28	11	41.6	14.2-17.4:	Rc	2450279	256	OGLE-BLG-LPV-160712
615	113.18412.749	17	59	23.46	-29	17	42.2	13.2-<16.9	Rc	2451265	478	OGLE-BLG-LPV-160831
616	401.48471.275	17	59	24.35	-28	12	07.2	13.9-19.0	V	2450274	252	Mis V0641
617	108.18688.5379	17	59	48.97	-28	12	01.2	15.9-22.0:	Rc	2451352	294	OGLE-BLG-LPV-165360
618	108.18684.670	17	59	50.55	-28	31	15.1	14.7-16.9	Rc	2451280	338	OGLE-BLG-LPV-165655
619	118.18659.155	17	59	53.59	-30	08	42.5	15.0-17.7:	Rc	2450520	355	OGLE-BLG-LPV-166141
620	108.18816.57	18	00	04.61	-28	20	45.8	13.6-18.5:	Rc	2451390	125	
621	118.18798.395	18	00	12.01	-29	34	52.2	15.2-17.3	Rc	2449988	384	
622	176.18827.244	18	00	12.28	-27	37	07.7	15.4-<18.1	Rc	2451055	395	OGLE-BLG-LPV-169132
623	108.18820.1796	18	00	12.48	-28	05	44.5	15.1-19.0:	Rc	2451090	469	
624	108.18816.1465	18	00	14.32	-28	19	43.6	15.0-17.2	Rc	2451323	331	OGLE-BLG-LPV-169412
625	108.18819.1271	18	00	18.96	-28	11	25.8	14.7-17.2	Rc	2451383	340	
626	108.18816.1283	18	00	20.20	-28	19	55.8	14.1-17.3	Rc	2451270	394	OGLE-BLG-LPV-170300
627	108.18948.438	18	00	25.02	-28	11	48.8	14.8-18.3:	Rc	2450726	413	
628	176.18962.250	18	00	33.20	-27	18	12.3	14.1-17.3	Rc	2451335	236	
629	108.19082.450	18	00	40.74	-27	57	52.6	13.8-<20.0	Rc	2450708	409	OGLE-BLG-LPV-173320
630	108.19078.3202	18	00	44.74	-28	12	04.9	15.0-19.3	Rc	2451005	418	OGLE-BLG-LPV-173876
631	108.19082.287	18	00	55.31	-27	58	31.1	15.0-<18.2	Rc	2451341	372	OGLE-BLG-LPV-175252
632	108.19211.1360	18	01	10.04	-28	02	27.9	>14.4-18.1	Rc	2450858	372	
633	176.19220.1067	18	01	10.06	-27	24	44.8	15.0-18.1:	Rc	2451382	355	
634	108.19342.24	18	01	30.19	-27	57	01.4	11.5-15.8	Rc	2449872	237	V4706 Sgr, a
635	176.19352.191	18	01	33.16	-27	18	44.8	15.9-19.5	Rc	2451300	463	OGLE-BLG-LPV-180581
636	108.19468.1211	18	01	39.06	-28	12	19.1	14.1-17.3	Rc	2450715	463	OGLE-BLG-LPV-181343
637	108.19468.207	18	01	39.39	-28	13	54.3	14.2:-17.4	Rc	2451445	343	OGLE-BLG-LPV-181388
638	108.19465.29	18	01	47.39	-28	27	10.9	11.2:-14.0	Rc	2451374	120.5	GSC 06854-00685
639	108.19595.42	18	01	54.64	-28	25	53.8	11.3-15.1	Rc	2453170	195.5	Mis V0546, OGLE-BLG-LPV-183330, a
640	176.19612.498	18	01	54.87	-27	19	32.4	15.7-17.7	Rc	2450658	330	OGLE-BLG-LPV-183355
641	114.19580.126	18	01	56.70	-29	26	37.2	13.1-16.9	Rc	2451433	349	
642	113.19583.433	18	01	57.68	-29	12	31.2	14.0-17.5	Rc	2451047	438	OGLE-BLG-LPV-183706
643	114.19582.1686	18	01	58.82	-29	16	36.2	12.7-16.5	Rc	2450871	298	OGLE-BLG-LPV-183862
644	114.19579.17	18	02	02.26	-29	28	53.7	>11.3-15.8	Rc	2450524	296	Mis V0547, OGLE-BLG-LPV-184236
645	108.19592.2243	18	02	02.90	-28	37	03.4	12.5-16.1	Rc	2451276	295	OGLE-BLG-LPV-184313
646	114.19718.14	18	02	20.38	-28	54	13.9	11.9-<14.2	Rc	2450595	235	Mis V0553
647	114.19849.1497	18	02	31.69	-28	48	53.7	12.3-16.0	Rc	2451302	302	OGLE-BLG-LPV-187883
648	114.19844.1893	18	02	33.39	-29	09	37.3	12.0-15.1	Rc	2450608	179	
649	114.19970.177	18	02	51.44	-29	24	18.2	>14.0-17.7	Rc	2449048:	357	
650	109.19988.32	18	02	57.58	-28	11	51.5	11.2:-15.4	Rc	2451389	223	Mis V0880 OGLE-BLG-LPV-190766
651	104.19991.1317	18	03	01.22	-28	01	46.6	14.0-17.8	Rc	2451453	362	OGLE-BLG-LPV-191136

652	109.19981.294	18	03	01.78	-28	41	03.9	12.0-16.1	Rc 2451232	283	OGLE-BLG-LPV-191190
653	109.20113.272	18	03	08.17	-28	35	19.4	12.0-16.0	Rc 2451324	234	OGLE-BLG-LPV-191794
654	114.20099.3642	18	03	08.77	-29	29	02.6	15.4-19.8:	Rc 2451015	560	
655	114.20105.188	18	03	09.21	-29	05	45.5	12.7-18.5:	Rc 2451408	212	OGLE-BLG-LPV-191899
656	104.20127.996	18	03	10.99	-27	39	23.0	14.4-17.7	Rc 2451248	404	OGLE-BLG-LPV-192094
657	114.20103.1344	18	03	12.30	-29	14	32.4	>16.4-19.8:	Rc 2451375	438	OGLE-BLG-LPV-192232
658	109.20113.520	18	03	12.89	-28	35	41.9	12.5-16.4	Rc 2450302	469.0	OGLE-BLG-LPV-192304, c
659	104.20124.1176	18	03	13.84	-27	50	43.5	13.8-17.2	Rc 2451027	203	OGLE-BLG-LPV-192393
660	104.20129.142	18	03	14.53	-27	31	09.3	>13.6-17.0	Rc 2451180:	357	OGLE-BLG-LPV-192453
661	114.20103.1127	18	03	20.66	-29	14	32.3	12.7-17.0	Rc 2450989	424	OGLE-BLG-LPV-193043
662	104.20123.506	18	03	22.28	-27	55	11.4	14.5-18.0:	Rc 2451403	396	OGLE-BLG-LPV-193180
663	104.20259.61	18	03	25.67	-27	31	40.0	12.3-15.8	Rc 2451020	228	
664	114.20234.1541	18	03	25.96	-29	11	02.7	12.8-16.0	Rc 2451325	257	
665	114.20233.530	18	03	32.51	-29	14	59.1	15.0-<17.4	Rc 2450598	305	OGLE-BLG-LPV-194043
666	104.20252.1432	18	03	41.12	-27	59	33.0	14.6:-17.5	Rc 2451321	290	OGLE-BLG-LPV-194802
667	114.20361.533	18	03	42.01	-29	22	43.7	14.0-<18.4	Rc 2451338	384.6	OGLE-BLG-LPV-194883, c
668	104.20383.1969	18	03	45.48	-27	52	55.4	14.5-18.0	Rc 2451020	433	OGLE-BLG-LPV-195147
669	104.20384.290	18	03	47.15	-27	48	08.2	>13.0-16.5	Rc 2451440	427	
670	104.20384.732	18	03	50.09	-27	49	19.6	14.4-17.5	Rc 2450552	303	
671	104.20380.3404	18	03	56.72	-28	04	29.5	>13.3-15.9	Rc 2451257	408	OGLE-BLG-LPV-196119
672	104.20388.795	18	03	56.97	-27	31	54.2	13.5-16.9	Rc 2451417	343	
673	104.20383.48	18	03	58.22	-27	53	37.6	11.6:-16.0	Rc 2451250	218	OGLE-BLG-LPV-196281
674	104.20519.21	18	04	03.22	-27	30	43.4	11.4:-15.3	Rc 2451305	240	
675	114.20492.62	18	04	08.95	-29	19	26.8	>12.0-14.9	Rc 2450998	246	OGLE-BLG-LPV-197307
676	109.20508.87	18	04	11.53	-28	14	59.1	11.7-15.7	Rc 2451312	251	
677	114.20499.1439	18	04	15.30	-28	51	00.4	10.8-14.7	Rc 2451343	335	
678	104.20640.4674	18	04	19.73	-28	04	55.0	11.2:-14.5	Rc 2451296	190	
679	104.20649.5962	18	04	20.41	-27	28	17.6	11.7:-14.7	Rc 2451380	114.5	
680	114.20620.819	18	04	31.45	-29	24	40.2	14.0-17.2	Rc 2451062	420	OGLE-BLG-LPV-199537
681	101.20654.170	18	04	33.00	-27	08	20.8	13.1-16.6	Rc 2451230	365	OGLE-BLG-LPV-199690
682	101.20787.65	18	04	37.83	-26	58	57.7	13.3-16.4	Rc 2449997	401	OGLE-BLG-LPV-200174
683	101.20785.33	18	04	38.33	-27	07	26.6	11.8:-15.4	Rc 2451385	324	OGLE-BLG-LPV-200228
684	101.20786.1066	18	04	40.88	-27	00	36.7	12.4-17.1	Rc 2451468	360	
685	101.20779.191	18	04	51.24	-27	28	37.3	>12.8-15.7:	Rc 2450175	322	
686	114.20883.41	18	04	56.67	-29	14	22.0	11.0:-15.2	Rc 2451342	228	OGLE-BLG-LPV-202245
687	109.20891.113	18	04	57.89	-28	43	28.1	11.9-15.3	Rc 2451363	353	
688	104.21032.445	18	05	28.73	-27	57	55.3	>13.0-16.1	Rc 2451364	296	OGLE-BLG-LPV-205560
689	101.21173.381	18	05	32.95	-27	14	03.9	14.5-<17.7	Rc 2451437	397	
690	101.21176.964	18	05	34.24	-27	03	28.8	>13.5-17.7	Rc 2451388	339	
691	101.21170.797	18	05	43.68	-27	25	15.9	13.9-16.9:	Rc 2451262	380	OGLE-BLG-LPV-206825
692	120.21269.13	18	05	58.23	-29	31	27.9	10.8-14.8	Rc 2451337	310	a
693	101.21307.439	18	06	00.41	-26	56	24.5	14.0:-17.2	Rc 2450865	375	
694	101.21429.60	18	06	10.17	-27	30	20.9	11.1:-15.5	Rc 2450167	318	
695	128.21407.362	18	06	10.42	-28	58	42.1	12.7-15.8	Rc 2451313	399	
696	101.21437.204	18	06	12.44	-26	59	16.9	11.6-<15.8	Rc 2450628	443	
697	128.21409.540	18	06	15.09	-28	49	19.4	13.2-17.0	Rc 2451370	345	
698	128.21409.579	18	06	16.38	-28	49	50.7	15.3-20.4:	Rc 2451028	483	
699	101.21428.114	18	06	17.90	-27	33	31.1	>12.7-15.8	Rc 2451213	358	
700	101.21432.307	18	06	21.40	-27	16	22.4	12.5-16.6	Rc 2451440	346	OGLE-BLG-LPV-209515
701	120.21395.990	18	06	22.53	-29	46	23.3	13.2-16.9:	Rc 2451289	324	OGLE-BLG-LPV-209583
702	120.21400.65	18	06	24.21	-29	24	42.1	10.8-14.6	Rc 2451390	195.5	a
703	128.21538.224	18	06	28.43	-28	52	56.3	>14.5-16.9	Rc 2450328	433	
704	128.21541.15	18	06	28.45	-28	40	58.7	12.5-16.4	Rc 2450536	289	OGLE-BLG-LPV-209889
705	128.21534.130	18	06	29.26	-29	07	53.9	14.1-16.9	Rc 2450162	349	OGLE-BLG-LPV-209932
706	179.21579.922	18	06	33.47	-26	10	09.7	15.3-18.9	Rc 2451403	340	OGLE-BLG-LPV-210173
707	179.21585.69	18	06	33.48	-25	46	38.1	13.4:-17.0:	Rc 2453557	442.8	OGLE-BLG-LPV-210174, c
708	179.21585.2061	18	06	33.61	-25	46	50.3	15.1-20.0:	Rc 2451375	342	OGLE-BLG-LPV-210185
709	105.21552.3440	18	06	43.06	-27	58	54.7	11.9-<16.6	Rc 2450534	307	
710	120.21655.785	18	06	44.42	-29	45	33.0	15.7-18.7	Rc 2450200	518	
711	105.21684.924	18	06	45.92	-27	49	44.0	14.2-17.7	Rc 2451222	405	OGLE-BLG-LPV-210891
712	179.21705.30	18	06	48.92	-26	27	34.0	11.0-<14.1	Rc 2451007	450	
713	128.21672.319	18	06	54.62	-28	37	24.5	12.4-15.8	Rc 2451392	305	OGLE-BLG-LPV-211391
714	105.21678.336	18	06	55.43	-28	13	58.8	11.7-15.9	Rc 2450711	356	
715	105.21683.366	18	06	58.83	-27	54	47.3	>15.6-17.8:	Rc 2450973	456	OGLE-BLG-LPV-211621
716	128.21793.262	18	07	10.33	-29	12	15.4	>14.8-17.8	Rc 2450970	502	
717	105.21814.12	18	07	17.16	-27	50	41.4	>12.7-16.4	Rc 2449790	339	
718	120.21787.672	18	07	19.56	-29	37	45.9	14.4-17.0	Rc 2451390	435	
719	128.21934.68	18	07	23.83	-28	31	38.6	11.6-<15.9	Rc 2450270	252	
720	179.21972.669	18	07	33.59	-25	57	52.1	14.2-17.9	Rc 2451332	308	OGLE-BLG-LPV-213860
721	128.22055.126	18	07	40.13	-29	06	36.3	>13.5-17.4	Rc 2450110	353	OGLE-BLG-LPV-214321, c
722	105.22073.52	18	07	40.18	-27	53	53.4	13.8-<18.5	Rc 2450615	500	OGLE-BLG-LPV-214324
723	128.22056.213	18	07	41.31	-29	03	21.4	14.0-16.3	Rc 2450726	371	
724	128.22061.568	18	07	41.33	-28	43	21.8	14.6-18.7:	Rc 2450715	195	OGLE-BLG-LPV-214394
725	105.22071.39	18	07	43.96	-28	03	31.5	>11.9-15.6	Rc 2449247	384	
726	128.22058.402	18	07	46.49	-28	52	44.0	14.5-17.2	Rc 2451245	444	OGLE-BLG-LPV-214720
727	180.22111.49	18	07	49.76	-25	20	50.9	14.4-<17.5	Rc 2452426	365.0	OGLE-BLG-LPV-214920, c
728	180.22109.195	18	07	50.55	-25	28	26.9	>14.0-16.8	Rc 2450924	305	

729	128.22187.3833	18	07	57.28	-28	59	34.1	10.8:-<15.0	Rc 2450561	191.5 ASAS J180759-2859.5
730	180.22247.288	18	08	01.29	-24	59	29.0	15.3-<19.1	Rc 2450678	376
731	180.22246.22	18	08	04.69	-24	59	52.6	12.3-16.3	Rc 2450925	244
732	110.22193.126	18	08	09.89	-28	31	42.4	12.8-16.0	Rc 2451343	290
733	110.22194.156	18	08	10.33	-28	31	32.2	>14.5-17.2	Rc 2450125	362 OGLE-BLG-LPV-216140
734	128.22313.1871	18	08	16.09	-29	11	48.9	12.9-17.6	Rc 2451372	337 OGLE-BLG-LPV-216471
735	180.22376.685	18	08	21.34	-24	59	45.6	13.9-<18.0	Rc 2451363	346
736	110.22323.31	18	08	25.59	-28	32	20.6	11.8:-<17.0	Rc 2450214	260.3 a
737	180.22371.729	18	08	28.71	-25	22	36.9	14.8-<18.0	Rc 2451335	400
738	110.22320.1968	18	08	29.17	-28	46	55.1	11.4:-<15.1	Rc 2451056	292 a
739	180.22371.54	18	08	29.49	-25	20	09.8	13.3-15.9	Rc 2451249	316
740	179.22356.1295	18	08	29.80	-26	22	09.6	15.2:-<19.5	Rc 2450627	203 OGLE-BLG-LPV-217242
741	115.22437.1157	18	08	34.34	-29	38	18.5	15.2-17.8	Rc 2451292	406 OGLE-BLG-LPV-217485
742	110.22453.546	18	08	38.16	-28	32	22.9	14.5-18.1	Rc 2451344	181 OGLE-BLG-LPV-217707
743	110.22454.501	18	08	41.26	-28	28	05.8	>13.3-16.9	Rc 2450785:	364
744	102.22463.4	18	08	41.83	-27	54	06.7	12.0-15.9	Rc 2451418	285
745	110.22449.2753	18	08	43.76	-28	48	45.7	14.8-19.0	Rc 2451024	546
746	102.22598.36	18	08	54.67	-27	32	08.2	>11.7-15.5	Rc 2449054	347
747	180.22630.134	18	08	54.74	-25	27	16.0	13.4-15.4	Rc 2451285	400
748	110.22583.125	18	08	55.36	-28	33	07.0	14.5:-17.6	Rc 2451262	234
749	110.22579.37	18	08	55.81	-28	50	20.0	11.9-14.7	Rc 2451422	180
750	110.22585.827	18	08	57.41	-28	25	12.7	14.0-17.9	Rc 2450284	260 OGLE-BLG-LPV-218704
751	180.22633.82	18	08	58.33	-25	14	12.6	14.6-<16.5	Rc 2451340	374
752	102.22591.90	18	08	58.85	-28	02	17.7	11.8-15.3:	Rc 2451403	367
753	110.22576.29	18	08	59.15	-29	03	15.3	11.0:-14.8	Rc 2451263	231
754	115.22563.56	18	08	59.66	-29	52	08.9	13.2-<15.7	Rc 2451312	280
755	180.22639.364	18	09	06.34	-24	50	31.8	14.1-18.5:	Rc 2451355	418
756	102.22724.2834	18	09	13.48	-27	48	39.7	15.4-18.8	Rc 2451288	187.5 OGLE-BLG-LPV-219517
757	115.22699.120	18	09	13.77	-29	28	04.4	11.6-15.3	Rc 2450633	270
758	180.22767.528	18	09	16.18	-24	58	34.6	14.8-18.0	Rc 2451270	453
759	178.22747.118	18	09	16.32	-26	18	53.2	12.7-17.4	Rc 2451335	305
760	110.22708.113	18	09	18.83	-28	54	45.2	11.7:-<15.0	Rc 2451275	254
761	110.22705.6	18	09	20.74	-29	05	08.5	>11.8-<15.3	Rc 2451395	467
762	102.22722.585	18	09	21.05	-27	59	03.2	14.4-17.2	Rc 2451362	336 OGLE-BLG-LPV-219838
763	110.22712.317	18	09	21.93	-28	38	02.4	14.4-17.7	Rc 2450330	445
764	180.22769.425	18	09	22.44	-24	48	19.7	15.3-18.5:	Rc 2450685	404
765	180.22759.4919	18	09	25.48	-25	30	44.8	14.3-17.8:	Rc 2451420	161
766	115.22701.62	18	09	27.23	-29	22	58.7	12.9-<15.5	Rc 2451268	346 OGLE-BLG-LPV-220116
767	115.22700.113	18	09	27.28	-29	25	15.2	>13.4-<16.8	Rc 2451247:	363 OGLE-BLG-LPV-220118
768	110.22708.91	18	09	27.43	-28	54	50.7	12.6-16.0	Rc 2451335	135
769	115.22696.162	18	09	27.63	-29	40	13.8	12.0-<15.8	Rc 2450198	304
770	115.22699.890	18	09	27.98	-29	30	05.1	>13.8-17.9	Rc 2451290:	395 OGLE-BLG-LPV-220166
771	180.22890.135	18	09	35.34	-25	24	24.3	14.0-<16.7	Rc 2452489	381.1 OGLE-BLG-LPV-220499, c
772	115.22832.17	18	09	37.69	-29	19	21.5	12.9-18.0	Rc 2451307	310 OGLE-BLG-LPV-220609
773	102.22851.229	18	09	38.27	-28	03	27.4	12.2:-16.2	Rc 2451265	378
774	102.22854.543	18	09	38.69	-27	47	41.5	13.7-16.4	Rc 2450649	428
775	102.22859.31	18	09	39.15	-27	30	09.6	11.0:-15.4	Rc 2454524	267 a
776	180.22896.764	18	09	42.78	-25	02	47.9	15.0-18.6	Rc 2451289	190.5 OGLE-BLG-LPV-220814
777	110.22975.111	18	09	46.63	-28	25	51.5	14.7-<16.3	Rc 2450598	373 OGLE-BLG-LPV-220954
778	115.22955.133	18	09	46.88	-29	45	23.2	13.0-16.2	Rc 2450304	443 OGLE-BLG-LPV-220966
779	110.22975.402	18	09	49.42	-28	26	51.6	12.2-16.4	Rc 2450695	359
780	115.22956.161	18	09	50.82	-29	40	27.0	12.8-16.3	Rc 2450560	310
781	102.22988.46	18	09	53.69	-27	35	31.7	11.5-15.0	Rc 2450551	274
782	110.22966.1853	18	09	55.18	-29	01	25.7	15.0-<21.0:	Rc 2450534	554
783	110.22969.81	18	09	56.15	-28	49	39.6	>11.7-14.9	Rc 2451283	472
784	180.23025.69	18	09	56.96	-25	06	58.1	15.0-17.4	Rc 2449902	443.4 OGLE-BLG-LPV-221392, c
785	110.22970.1618	18	09	57.36	-28	47	04.8	>13.7-17.2	Rc 2450162	329
786	102.22985.728	18	10	00.56	-27	45	05.5	12.8-17.0	Rc 2451373	343
787	180.23029.75	18	10	01.54	-24	50	32.6	15.3-18.8	Rc 2449844	327
788	180.23154.43	18	10	05.54	-25	08	24.8	15.3-<17.8	Rc 2450607	425 OGLE-BLG-LPV-221744
789	102.23120.358	18	10	10.81	-27	26	41.6	12.4-16.7	Rc 2450643	490
790	115.23083.24	18	10	13.13	-29	52	42.8	12.7-17.0	Rc 2451315	320 OGLE-BLG-LPV-222028
791	102.23110.83	18	10	13.94	-28	04	21.3	13.4-15.7	Rc 2451356	296
792	102.23117.494	18	10	14.35	-27	36	25.2	13.1:-16.3	Rc 2449067	358
793	115.23214.146	18	10	27.79	-29	51	03.4	12.0-15.6	Rc 2451252	248
794	102.23243.363	18	10	29.08	-27	53	16.5	14.4-17.0	Rc 2450277	414 OGLE-BLG-LPV-222645
795	115.23213.1551	18	10	31.71	-29	52	24.4	15.0-19.0:	Rc 2450545	447 OGLE-BLG-LPV-222753
796	115.23213.20	18	10	32.36	-29	53	27.0	10.2:-<14.2	Rc 2452901	192 a
797	115.23213.17	18	10	35.84	-29	52	32.8	>11.7-<15.1	Rc 2449125	350
798	102.23250.264	18	10	36.95	-27	24	24.0	14.8-17.5:	Rc 2450657	295 OGLE-BLG-LPV-222951
799	110.23227.77	18	10	38.46	-28	59	07.9	13.0-<15.8	Rc 2451362	378
800	102.23240.22	18	10	38.74	-28	05	04.1	12.2-<15.8	Rc 2450680	489
801	110.23226.21	18	10	39.80	-28	59	51.1	11.5:-14.7	Rc 2450975	200
802	115.23215.70	18	10	40.24	-29	47	30.0	>11.8-14.7	Rc 2451375	214
803	110.23359.47	18	10	42.27	-28	48	41.0	>13.5-16.4	Rc 2449127	331
804	180.23412.6	18	10	42.35	-25	19	36.2	11.7:-14.2	Rc 2450569	152
805	102.23372.281	18	10	47.06	-27	56	15.2	11.5:-16.0	Rc 2450652	275 a

806	102.23376.436	18	10	49.27	-27	41	19.7	11.7:-16.7	Rc 2451443	269	
807	102.23373.76	18	10	54.17	-27	54	21.3	13.0-16.2	Rc 2450657	495	
808	102.23511.23	18	11	03.84	-27	22	34.7	13.5-<16.1	Rc 2450305	393	
809	102.23510.1015	18	11	04.85	-27	24	27.9	14.1-18.0	Rc 2450572	431.1	OGLE-BLG-LPV-223907, c
810	115.23473.377	18	11	06.95	-29	52	55.5	14.3-<17.4	Rc 2451020	352	
811	111.23492.5069	18	11	17.05	-28	37	23.1	11.7:-14.0	Rc 2450614	262	a
812	111.23483.459	18	11	17.32	-29	15	40.7	13.9-17.5	Rc 2450285	458	
813	102.23634.99	18	11	22.57	-27	49	47.6	13.7-<15.5	Rc 2450572	347	
814	102.23634.254	18	11	26.56	-27	50	10.0	15.0:-17.5:	Rc 2451407	228	
815	178.23788.141	18	11	42.73	-26	14	01.2	13.0-15.7	Rc 2451043	474	
816	102.23764.71	18	11	49.68	-27	49	02.2	>11.7-14.1	Rc 2451247	385	
817	167.23784.190	18	11	54.28	-26	30	00.1	13.9-16.6	Rc 2453248	233.4	OGLE-BLG-LPV-225157, c
818	103.24034.3927	18	12	14.31	-27	11	39.1	12.8-16.2	Rc 2451320	486	
819	103.24028.193	18	12	16.53	-27	35	29.6	13.3-<15.7	Rc 2450564	310	
820	103.24159.188	18	12	32.43	-27	28	52.1	13.5-17.5:	Rc 2449088	419	
821	111.24135.446	18	12	33.49	-29	04	13.9	>13.5-17.4	Rc 2451326	194	
822	103.24155.31	18	12	38.18	-27	44	58.2	11.1:-15.0	Rc 2451379	326	
823	103.24159.422	18	12	43.44	-27	28	30.6	13.2:-16.9	Rc 2451372	422	
824	111.24136.3779	18	12	46.75	-29	02	39.1	11.5:-14.6	Rc 2450190	313	
825	111.24137.4010	18	12	48.13	-28	58	50.2	11.3:-15.7	Rc 2451365	305	
826	111.24268.35	18	12	50.65	-28	51	45.5	>11.0-15.2	Rc 2451415:	345	
827	103.24288.1033	18	12	55.53	-27	32	38.9	14.9-17.7	Rc 2451010	439	
828	111.24268.83	18	12	55.91	-28	53	51.9	>11.5-15.0	Rc 2451295:	400	
829	103.24287.464	18	13	00.57	-27	36	25.0	12.9-17.3	Rc 2451055	550	NSV 10359
830	111.24268.46	18	13	02.01	-28	52	04.0	>11.4-14.4	Rc 2451337	303	
831	111.24264.332	18	13	03.21	-29	08	20.5	>12.8-<16.4	Rc 2451060:	363	
832	111.24270.80	18	13	03.61	-28	47	31.4	11.2:-14.4	Rc 2450608	229	
833	103.24291.654	18	13	03.69	-27	21	23.6	14.6-<17.1	Rc 2450583	315	
834	103.24413.137	18	13	14.38	-27	51	46.6	12.3-17.1	Rc 2450672	421	
835	103.24417.536	18	13	16.78	-27	36	37.4	>13.2:-16.9	Rc 2451210:	371	
836	116.24387.51	18	13	19.79	-29	36	19.1	12.7-<17.2	Rc 2450273	376	OGLE-BLG-LPV-226558
837	103.24419.126	18	13	24.88	-27	28	49.3	>12.9-<16.6	Rc 2450287	255	
838	103.24415.40	18	13	24.99	-27	46	07.6	>13.0-16.9:	Rc 2449192	380	
839	111.24524.305	18	13	32.22	-29	07	54.9	>12.1-15.8	Rc 2450621	276	
840	103.24547.1405	18	13	37.36	-27	36	04.3	11.5:-14.8	Rc 2451301	284	
841	103.24552.61	18	13	37.74	-27	17	49.9	12.4:-15.7:	Rc 2449083	350	
842	111.24522.18	18	13	40.29	-29	15	54.5	10.6:-14.8	Rc 2449209	266	a
843	103.24683.102	18	13	50.99	-27	14	00.3	13.2:-15.8:	Rc 2451343	300	OGLE-BLG-LPV-227045
844	111.24787.377	18	14	02.51	-28	57	58.7	>13.5-16.3:	Rc 2449856:	311	
845	161.24829.65	18	14	03.60	-26	08	14.6	13.8-15.5:	Rc 2450907	437	
846	103.24805.4730	18	14	14.18	-27	44	07.3	15.3:-18.2:	Rc 2451000	439	
847	103.24809.3394	18	14	18.01	-27	31	01.7	14.0-17.3	Rc 2450633	216	
848	161.24956.149	18	14	28.20	-26	22	00.3	14.7:-16.9	Rc 2450218	261	
849	307.35038.26	18	14	28.60	-23	52	05.0	12.2-16.5	Rc 2451318	276	
850	306.35051.162	18	14	33.35	-22	59	08.4	14.0-17.1	Rc 2450936	236	
851	304.35058.101	18	14	34.21	-22	33	04.2	>13.9-17.3	Rc 2451230:	370	
852	306.35055.57	18	14	34.91	-22	46	48.0	13.3-17.0	Rc 2451015	447	
853	305.35067.40	18	14	35.04	-21	56	00.3	15.4-19.3	Rc 2450537	309	
854	167.24948.31	18	14	35.65	-26	55	37.3	10.7:-14.1:	Rc 2450905	171	a
855	306.35214.385	18	14	37.00	-23	22	00.2	14.2-18.0	Rc 2451352	346	
856	306.35214.120	18	14	37.21	-23	22	45.6	13.3-16.9	Rc 2450578	270	
857	305.35238.56	18	14	40.97	-21	45	43.8	14.5-<17.8	Rc 2451287	352	
858	305.35236.114	18	14	44.16	-21	53	41.4	15.4-19.0	Rc 2450202	316	
859	307.35203.9	18	14	45.83	-24	05	19.1	13.1-15.8	Rc 2450313	389	
860	307.35208.632	18	14	49.62	-23	43	21.3	13.9-21.5:	Rc 2450595	283	
861	306.35390.48	18	14	53.43	-22	47	03.6	13.5-<16.9	Rc 2451319	296	
862	304.35391.339	18	14	54.73	-22	43	11.1	15.0-18.0	Rc 2451297	400	
863	305.35411.149	18	14	55.18	-21	23	43.8	14.4:-<17.2	Rc 2450955	447	
864	304.35400.159	18	14	58.63	-22	10	09.2	15.4-<18.4	Rc 2451352	372	
865	305.35412.379	18	15	01.99	-21	22	20.1	16.5-20.2:	Rc 2450530	194	
866	307.35373.2725	18	15	04.19	-23	56	47.9	>14.0-20.0:	Rc 2451303	400	
867	305.35410.181	18	15	04.66	-21	28	23.1	>15.5-19.4:	Rc 2450645	425	
868	307.35376.82	18	15	06.16	-23	44	30.1	14.3:-<17.3	Rc 2451402	370	
869	305.35402.184	18	15	06.26	-22	01	33.1	>14.5-17.5	Rc 2450470:	358	
870	304.35399.174	18	15	06.76	-22	14	44.8	>14.3-17.0	Rc 2451185:	359	
871	304.35567.31	18	15	11.15	-22	13	29.5	13.1-<16.0	Rc 2451368	385	
872	307.35541.147	18	15	14.33	-23	58	10.4	12.9-16.0	Rc 2450961	300	
873	306.35556.110	18	15	15.60	-22	58	44.4	12.5-16.4	Rc 2451305	268.5	
874	307.35548.86	18	15	17.62	-23	29	00.7	14.0-17.2	Rc 2450194	270	
875	177.25361.49	18	15	21.49	-25	20	08.9	14.4-18.7:	Rc 2450960	259	OGLE-BLG-LPV-228268
876	305.35576.146	18	15	22.06	-21	36	37.9	14.7-17.6	Rc 2449990:	400	
877	306.35555.283	18	15	23.54	-23	01	22.8	14.7-<18.5	Rc 2450594	409	
878	306.35718.463	18	15	26.54	-23	21	48.3	>14.2-<17.1	Rc 2450230	238	
879	305.35738.316	18	15	28.86	-22	00	23.9	14.0-17.4	Rc 2450956	290	
880	304.35729.66	18	15	33.48	-22	37	28.3	12.8-16.5	Rc 2451347	405	
881	305.35745.791	18	15	34.01	-21	32	32.8	14.8-18.4	Rc 2451390	343	
882	306.35723.119	18	15	34.44	-23	02	42.4	14.2-16.8	Rc 2450239	272	

883	304.35728.128	18	15	35.50	-22	40	20.6	14.9-<18.0	Rc 2451368 372
884	306.35726.165	18	15	35.9	-22	49	59.4	14.6-18.4	Rc 2450184 344
885	305.35745.91	18	15	36.22	-21	34	39.1	>13.6-16.3	Rc 2449750: 343
886	177.25498.648	18	15	36.47	-24	54	53.8	16.1-19.1	Rc 2451326 459 OGLE-BLG-LPV-228414
887	305.35744.432	18	15	38.30	-21	37	48.3	14.1-17.3	Rc 2451383 335
888	306.35718.73	18	15	39.83	-23	21	34.2	12.6-15.7	Rc 2450306 317
889	304.35736.146	18	15	41.13	-22	07	57.0	14.3-16.8	Rc 2449807 327
890	305.35911.758	18	15	43.36	-21	41	34.4	16.7-20.5:	Rc 2450513 552
891	157.25386.28	18	15	45.70	-32	20	02.6	>11.6-14.6	Rc 2449630: 373
892	305.35907.164	18	15	49.11	-21	57	52.8	13.0-17.6	Rc 2451021 488
893	305.35913.104	18	15	50.34	-21	33	49.5	13.5-16.2	Rc 2450670 147
894	306.35895.352	18	15	52.36	-22	46	33.1	14.8-18.8	Rc 2451387 350
895	304.35896.13	18	15	53.39	-22	41	48.1	13.0-<17.6	Rc 2451350 369
896	306.35888.85	18	15	56.02	-23	14	40.7	13.0-16.7	Rc 2450539 302
897	305.35915.484	18	15	56.80	-21	26	44.7	14.5-17.7	Rc 2451340 437
898	305.35914.127	18	15	57.05	-21	29	43.6	16.1-19.7	Rc 2450307 418
899	304.36063.242	18	16	02.83	-22	43	59.8	>14.1-17.5	Rc 2450002: 376
900	305.36080.175	18	16	03.01	-21	38	25.4	13.8:-17.0	Rc 2450880 384
901	157.25513.177	18	16	07.36	-32	33	15.1	11.8:-<16.4	Rc 2451355 356
902	306.36060.195	18	16	08.66	-22	55	19.9	>14.3-17.5	Rc 2450530 367
903	304.36063.337	18	16	12.35	-22	44	06.1	15.3-18.1	Rc 2450545 241
904	305.36076.320	18	16	16.57	-21	53	21.8	14.4-19.0	Rc 2450577 412
905	306.36230.10	18	16	18.20	-22	49	21.3	>12.4-16.3	Rc 2450194 302
906	305.36242.66	18	16	19.28	-22	00	12.7	12.9-16.5	Rc 2451315 273
907	306.36226.238	18	16	23.33	-23	03	15.8	13.8-16.8	Rc 2450642 292
908	305.36250.400	18	16	26.32	-21	28	11.0	14.0-17.4:	Rc 2450581 203
909	306.36221.243	18	16	26.44	-23	25	11.1	12.6-16.9	Rc 2450945 234
910	304.36232.26	18	16	31.20	-22	42	54.9	>11.5-14.3	Rc 2451020 430
911	305.36414.88	18	16	42.96	-21	46	29.6	13.3-<17.1	Rc 2450886 363
912	306.36557.77	18	16	55.99	-23	23	12.0	12.4-15.4	Rc 2451268 317
913	305.36579.607	18	16	57.59	-21	58	54.8	14.3-<18.3	Rc 2450584 316
914	305.36579.19	18	16	57.61	-21	56	09.7	12.8-<16.6	Rc 2451267 337
915	306.36561.35	18	16	59.54	-23	10	34.1	>13.0-15.3:	Rc 2450983 221
916	157.25904.24	18	17	04.51	-32	29	05.3	>12.7-15.1	Rc 2449750: 362
917	155.26045.67	18	17	09.66	-31	44	21.4	>13.0-16.4	Rc 2451376 316
918	305.36917.497	18	17	26.96	-21	47	31.3	>14.8-18.0	Rc 2451245: 402
919	304.36906.128	18	17	27.67	-22	31	42.7	14.3-<16.7	Rc 2451352 327
920	305.36919.1000	18	17	27.85	-21	42	45.0	15.7-<19.2	Rc 2450664 467
921	305.36917.36	18	17	30.51	-21	47	41.4	12.7-15.6	Rc 2450978 168.5
922	305.36918.44	18	17	31.51	-21	46	16.0	11.8-15.5	Rc 2450542 280
923	309.36911.41	18	17	32.72	-22	11	12.7	11.5-15.5	Rc 2450610 215
924	308.36917.519	18	17	35.07	-21	47	12.7	13.3-17.5	Rc 2450592 283
925	308.36915.105	18	17	35.40	-21	58	13.4	12.5-16.4	Rc 2450891 233
926	308.37090.146	18	17	42.45	-21	28	09.3	13.1-16.7	Rc 2450925 290
927	308.37081.19	18	17	42.46	-22	03	11.5	12.4-16.6	Rc 2450233 273
928	308.37090.433	18	17	46.63	-21	27	15.1	14.0-18.0	Rc 2450932 404
929	309.37076.962	18	17	48.93	-22	26	07.2	14.5-17.6	Rc 2450540 356
930	308.37087.4	18	17	55.44	-21	39	51.2	12.2-16.0	Rc 2450924 255
931	308.37084.235	18	17	56.03	-21	54	21.6	13.8:-17.2	Rc 2450894 365
932	311.37227.694	18	17	58.70	-23	31	49.5	14.5-18.3	Rc 2451297 383
933	309.37247.217	18	18	01.63	-22	13	10.2	12.7-16.7	Rc 2451346 337
934	310.37236.71	18	18	02.97	-22	55	56.7	12.1-16.6	Rc 2451330 234
935	309.37244.9	18	18	05.00	-22	23	44.3	13.6-17.2	Rc 2449876 278
936	155.26430.26	18	18	05.87	-32	03	54.6	>12.1-15.6	Rc 2449630: 383
937	310.37231.57	18	18	05.96	-23	15	11.8	12.3-16.4	Rc 2451325 232
938	308.37259.119	18	18	07.30	-21	23	12.8	13.5-17.0	Rc 2450540 298
939	311.37223.1206	18	18	08.88	-23	49	11.0	13.4-17.0:	Rc 2450535 331
940	310.37237.368	18	18	08.93	-22	52	40.6	13.2-17.5	Rc 2451294 398
941	308.37252.26	18	18	10.25	-21	54	08.7	12.3-16.5	Rc 2451340 233
942	311.37225.124	18	18	14.43	-23	42	31.6	>13.2-16.8:	Rc 2451281 382
943	311.37227.89	18	18	14.45	-23	34	12.0	13.8:-16.3:	Rc 2450637 428
944	309.37247.71	18	18	14.88	-22	12	46.2	12.6-16.6	Rc 2450968 295
945	310.37407.177	18	18	16.38	-22	46	48.9	13.5-17.2	Rc 2450539 283
946	155.26431.24	18	18	17.80	-32	01	55.6	13.2-15.6	Rc 2451301 315
947	309.37407.243	18	18	19.35	-22	44	35.2	14.5-16.9	Rc 2451308 309
948	308.37421.123	18	18	21.12	-21	48	56.0	14.6-18.3	Rc 2451334 511
949	310.37399.459	18	18	22.59	-23	18	27.7	13.6-17.6	Rc 2450977 475
950	308.37417.47	18	18	23.60	-22	03	13.7	15.2-19.2	Rc 2450941 222
951	311.37394.18	18	18	28.32	-23	35	32.4	12.2-16.6	Rc 2451279 138
952	308.37425.44	18	18	30.61	-21	34	24.5	13-<16.6	Rc 2450221 290
953	310.37401.23	18	18	30.71	-23	10	34.4	12.5-16.2:	Rc 2451403 253
954	155.26565.69	18	18	34.28	-31	46	03.8	12.5-16.4	Rc 2450951 156
955	309.37576.222	18	18	39.42	-22	41	50.5	13.9-<17.1	Rc 2450580 298
956	310.37572.20	18	18	40.57	-22	57	47.5	>13.8-16.9	Rc 2450205 308
957	311.37564.351	18	18	43.55	-23	29	51.2	13.8-17.5	Rc 2451294 328
958	308.37585.95	18	18	43.58	-22	03	48.9	13.6:-<17.8	Rc 2450587 287
959	310.37573.9	18	18	45.13	-22	54	56.6	12.4-15.7	Rc 2450196 311

960	310.37740.758	18	18	56.11	-22	57	34.0	12.1-<16.0	Rc 2450670	220
961	308.37762.2492	18	19	04.10	-21	30	55.7	>12.4-<16.3	Rc 2451330	300
962	160.27048.224	18	19	23.87	-25	34	43.4	14.6:-19.4	Rc 2450680:	559
963	310.38079.25	18	19	27.25	-22	46	57.0	12.4-<16.4	Rc 2450168	362
964	310.38077.52	18	19	33.17	-22	53	40.7	14.1-17.4	Rc 2450266	195
965	309.38088.127	18	19	34.13	-22	07	08.7	14.2-18.0:	Rc 2451333	299
966	149.27108.65	18	19	39.32	-30	13	28.3	>11.7-15.0	Rc 2449899	304
967	308.38266.162	18	19	42.61	-21	30	31.3	13.0-17.5	Rc 2450642	314
968	310.38242.89	18	19	44.17	-23	04	54.6	13.8-16.6	Rc 2450560	406
969	311.38230.1146	18	19	46.27	-23	52	05.7	13.6-17.9	Rc 2450594	534
970	311.38398.126	18	19	59.30	-23	54	14.3	11.5:-15.5	Rc 2451272	257
971	149.27240.6	18	20	01.31	-30	07	24.5	11.6-14.6	Rc 2451295	175.5
972	311.38567.1070	18	20	14.38	-23	48	29.2	12.5-15.8	Rc 2451283	380
973	308.38597.243	18	20	21.20	-21	47	14.8	13.3-17.1	Rc 2450574	263
974	149.27360.929	18	20	22.02	-30	46	55.1	>13.0-15.8	Rc 2451300	402
975	310.38577.136	18	20	24.52	-23	08	49.8	12.3-16.9:	Rc 2450679	523
976	308.38597.974	18	20	24.60	-21	50	53.6	15.2-18.8	Rc 2450970	320
977	149.27752.4254	18	21	16.74	-30	36	47.5	13.0-15.0	Rc 2450621	408
978	149.27889.7	18	21	23.04	-30	10	30.3	11.7-14.5	Rc 2450277	241
979	149.27889.43	18	21	29.41	-30	11	30.7	12.8-16.7	Rc 2450306	450
980	136.27916.215	18	21	30.59	-28	20	38.5	14.3-<20.4	Rc 2451357	305
981	136.28044.51	18	21	39.11	-28	30	10.4	14.0-<17.7	Rc 2451373	269
982	136.28047.41	18	21	51.87	-28	17	18.3	>12.0-<15.3	Rc 2450895:	387
983	136.28171.57	18	22	12.08	-28	42	18.5	13.5-17.7	Rc 2450285	398
984	136.28430.126	18	22	36.46	-28	45	48.3	>11.5-16.4	Rc 2450585	305
985	153.28397.1410	18	22	44.41	-30	57	23.6	16.3-18.6	Rc 2451310	427
986	136.28561.2314	18	22	56.95	-28	41	17.6	15.6-<20.0	Rc 2451280:	398:
987	136.28566.126	18	23	03.24	-28	22	16.7	12.0-16.1	Rc 2451372	414
988	136.28820.47	18	23	36.01	-28	43	57.6	12.0-15.0	Rc 2450242	448
989	136.28824.483	18	23	36.96	-28	30	52.3	>14.0-<17.5	Rc 2451327	423
990	150.28922.21	18	23	51.64	-30	36	35.9	11.0-14.1	Rc 2450997	240
991	150.28927.26	18	23	53.52	-30	18	42.3	11.3:-15.3	Rc 2451318:	276: Cl*NGC 6624 V1, b
992	150.28928.5	18	24	02.41	-30	13	33.6	11.3:-15.0	Rc 2449425:	335
993	150.29053.55	18	24	11.22	-30	34	35.0	11.9-15.7	Rc 2450948	320
994	150.29315.15	18	24	55.68	-30	25	44.5	11.7-15.5	Rc 2450582	292
995	166.30683.260	18	28	00.04	-25	52	22.4	13.9:-17.5	Rc 2450640	463
996	147.31143.28	18	29	02.44	-29	53	16.3	12.2-<15.1	Rc 2450999	293
997	303.44071.35	18	29	28.84	-15	18	03.4	14.5-<19.0	Rc 2451329	383 TSVSC1 TN-S300112321-306-67-2
998	303.44578.145	18	30	15.88	-15	03	16.0	16.1-20.5:	Rc 2451397	512
999	303.44581.276	18	30	19.57	-14	52	46.2	>14.8-<17.5	Rc 2451054	422
1000	303.45088.65	18	30	57.37	-14	41	06.9	12.9-<15.5	Rc 2451320	375 TSVSC1 TN-S300112130-888-67-2
1001	303.45086.512	18	30	58.76	-14	50	32.8	14.0-18.1	Rc 2451366	412
1002	147.32054.11	18	31	07.93	-29	50	37.9	10.5:-14.6	Rc 2450999	292 GSC 06869-00888
1003	301.45108.136	18	31	08.40	-13	19	11.2	15.0-17.7	Rc 2451431	346
1004	301.45278.157	18	31	16.56	-13	11	59.2	15.5-<18.5	Rc 2450986	362
1005	302.45268.365	18	31	20.99	-13	54	39.1	14.8-18.0	Rc 2451237	311
1006	301.45269.57	18	31	23.06	-13	48	22.3	>14.3-<17.5	Rc 2450947	265
1007	302.45261.155	18	31	23.31	-14	19	08.7	16.0-19.8:	Rc 2451370	185
1008	302.45264.936	18	31	24.62	-14	08	01.9	14.3:-18.5	Rc 2451337	330
1009	301.45447.41	18	31	31.56	-13	10	33.4	>14.8-19.4:	Rc 2449775:	363
1010	301.45447.87	18	31	41.60	-13	10	48.2	>14.9-<18.7	Rc 2451260	312
1011	301.45442.409	18	31	43.84	-13	30	44.5	14.2-17.1	Rc 2451073	257
1012	301.45611.486	18	31	50.52	-13	24	08.9	>13.5-18.0	Rc 2449977	376
1013	302.45600.25	18	31	57.94	-14	07	05.6	>13.9-<17.2	Rc 2451283	349
1014	302.45594.500	18	31	58.40	-14	33	26.6	14.0-17.9:	Rc 2451350	349
1015	303.45586.33	18	32	00.92	-15	04	04.3	12.6-<17.5	Rc 2451401	370 TSVSC1 TN-S300112121-277-67-2
1016	301.45949.218	18	32	20.53	-13	18	12.9	13.9-17.5	Rc 2451340	254
1017	301.46108.40	18	32	51.42	-13	53	06.7	14.3-17.8:	Rc 2451044	388
1018	302.46270.66	18	32	57.06	-14	15	24.3	11.0:-15.0	Rc 2451374	276 TSVSC1 TN-S300113102-63-67-2
1019	301.46284.33	18	32	59.65	-13	21	38.4	14.0-17.7	Rc 2450320	409
1020	301.46276.189	18	32	59.97	-13	53	26.2	>13.8-16.3	Rc 2451180:	364
1021	301.46448.926	18	33	11.46	-13	38	25.0	14.4-17.8	Rc 2451418	344
1022	301.46451.1111	18	33	14.70	-13	23	30.6	15.3-18.7	Rc 2450545	484
1023	301.46453.72	18	33	16.15	-13	17	14.7	13.7-<19.0:	Rc 2450547	311
1024	301.46445.287	18	33	26.36	-13	47	02.7	14.5-17.4	Rc 2450575	286
1025	301.46784.864	18	33	55.94	-13	36	09.1	14.2-18.0	Rc 2450601	507

Remarks:

a Period based on a combination of MACHO Rc and ASAS-3 V data.

b Contained in the globular cluster NGC 6624 and discovered as a variable object by Laborde and Fourcade (1966). It is identified here as a Mira variable for the first time.

c Period based on a combination of MACHO Rc and OGLE Ic data.

Acknowledgements: This paper utilizes public domain data obtained by the MACHO Project, jointly funded by the US Department of Energy through the University of California, Lawrence Livermore National Laboratory under contract No. W-7405-Eng-48, by the National Science Foundation through the Center for Particle Astrophysics of the University of California under cooperative agreement AST-8809616, and by the Mount Stromlo and Siding Spring Observatory, part of the Australian National University. This research has made use of the SIMBAD and VizieR databases operated at the Centre de Données Astronomiques (Strasbourg) in France, of the Smithsonian / NASA Astrophysics Data System, of the AAVSO International Variable Star Index (VSX) and of the Two Micron All Sky Survey (2MASS). It is a pleasure to thank John Greaves and Patrick Wils for suggestions and helpful comments. We especially thank Sebastián Otero for his invaluable help in improving on the data of the MACHO sample.

References:

Alcock, C. et al., 1997, ApJ, 486, 697 (1997ApJ...486..697A)

Alcock, C. et al., 1999, PASP, 111, 1539 (1999PASP..111.1539A)

Bernhard, K., 2011, PZP, 11, 12 (2011PZP....11...12B)

Fraser, O. J., 2008, PhDT, Proquest / UMI, AAT 3328397 (2008PhDT.....6F)

Groenewegen, M. A. T.; Blommaert, J. A. D. L., 2005, A&A, 443, 143 (2005A&A...443..143G)

Huemmerich, S.; Bernhard, K., 2012, OEJV, 149, 1 (2012OEJV..149....1H)

Koen, C.; Lombard, F., 1995, MNRAS, 274, 821-831 (1995MNRAS.274..821K)

Laborde, J. R.; Fourcade, C. R., 1966, MmSAI, 37, 251 (1966MmSAI..37..251L)

Matsunaga, N.; Fukushi, H.; Nakada, Y., 2005, MNRAS, 364, 117 (2005MNRAS.364..117M)

Moro, D.; Munari, U., 2000, A&AS, 147, 361 (2000A&AS..147..361M)

Ochsenbein, F.; Bauer, P.; Marcout, J., 2000, A&AS, 143, 23 (2000A&AS..143...23O)

Pojmanski, G., 2002, Acta Astronomica, 52, 397 (2002AcA....52..397P)

Skrutskie, M. F. et al., 2006, AJ, 131, 1163 (2006AJ....131.1163S)

Soszyński, I. et al., 2013, AA, 63, 21 (2013AcA....63...21S)

Watson, C.; Henden, A. A.; Price, A., 2006, SASS, 25, 47 (2006SASS...25...47W)

Wood, P. R. et al., 1999, IAU Symposium 191, 151 (1999IAUS..191..151W)

Zijlstra, A. A.; Bedding, T. R., 2002, JAAVSO, 31, 1-10 (2002JAVSO..31....2Z)