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Elements for 33 Stars in Sonneberg Observatory field R Lyrae

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Abstract: Observation of little known short periodic stars of Sonneberg Observatory plates from field R Lyrae. Elements and light-curve are given.

I have observed these stars on 663 plates taken with the 40cm astrograph from Sonneberg Observatory in the period J.D. 2438551 until J.D. 2450282.

Many of the stars where discovered by Hoffmeister, C. They received Sonneberg numbers, 2 stars where discovered by Romano, G. (V449 Lyr, V450 Lyr), 1 star was discovered by Beljawski,S. (V839 Cyg) and 1 star was discovered by Parenago, P.P. (NSV11369).

For some known stars the elements could be improved. For all others new elements were determined.

The brightness of the stars was estimated by the Argelander method, that scale was based on USNO A2.0 catalogue.

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

Star	Type	Eo 24…	Period	D/M-m	Max	Min
LR Lyr	RRc	38585,821	0,3384662var	0,4	14,3	14,8
MS Lyr	RRab	49862,463	0,4645541	0,14	15,6	16,7
V 339 Lyr	RRab	50282,426	0,4564845	0,11	15,2	16,8
V 342 Lyr	RRab	49541,479	0,5604435	0,16	15,8	17,1
V 343 Lyr	RRab	49842,44	0,4482878var	0,18	15,6	17,1
V 345 Lyr	RRab	50282,439	0,6438054	0,16	14,8	16,2
V 347 Lyr	RRab	50282,437	0,5264661	0,11	14,4	16,1
V 349 Lyr	RRab	49842,473	0,5070919var	0,13	15,9	17,4
V 350 Lyr	RRab	49542,428	0,594236var	0,11	14	16,3
V 351 Lyr	RRab	49621,298	0,8394812	0,08	14,6	15,8
V 353 Lyr	RRab	49545,451	0,5568049	0,13	15,8	17,2
V 354 Lyr	RRab	49862,491	0,56169	0,1	15,3	16,4
V 360 Lyr	RRab	49842,421	0,5575715	0,12	15,3	16,2
V 362 Lyr	RRab	52248,478	0,5210765	0,12	14,6	15,6
V 365 Lyr	RRab	48514,378	0,4710986var	0,15	14,7	16,3
V 366 Lyr	RRab	49841,421	0,5270246	0,13	15,6	16,6
V 367 Lyr	RRab	49600,354	0,4660938	0,15	14,9	16,5
V 368 Lyr	RRab	49503,41	0,4564843	0,15	14,8	16,7
V 372 Lyr	RRab	50248,492	0,52911	0,15	15	16,2
V 449 Lyr	EA	49545,423	3,6070213	0,12	14,5	17,1
V 450 Lyr	RRab	49545,492	0,5046155	0,14	15,4	16,7
V 839 Cyg	RRab	49862,461	0,433776	0,14	14,4	15,2
V 1103 Cyg	EA	49449,577	2,4095428	0,13	15,4	17,5/15,5
V 1107 Cyg	RRab	49066,523	0,5657807	0,16	15,5	16,8
NSV 11228	RRab	49600,397	0,5044414	0,15	15,4	16,8
NSV 11306	EB	49537,459	2,5912285		15,5	16,5/16,5
NSV 11369	EA	49237,326	1,5822104	0,11	13,6	15,5
NSV 11558	RRab	49215,482	0,5197337	0,11	15,7	16,7
NSV 11622	RRab	49841,428	0,53061	0,14	15,8	17,2
NSV 11637	RRab	49542,407	0,5514079	0,12	14,9	16

NSV 11679	RRab	49541,485	0,5879578	0,14	14,3	15,3
NSV 11859	EB	49503,414	1,5191557		14,6	15,6/14,9
NSV 11871	RRab	49545,452	0,6088164	0,12	14,8	15,9

LR Lyr = USNO 1275-10210609 = S 4283
The first elements by Hoffmeister, C. (1) give a RRc star.
I have observed LR Lyr on 627 plates. Near epoch -20000 is an alteration of the period.

From J.D. 2429672 until 2442000 is:
Max = J.D. 2438587,821 (±0,010) + 0^d,3384662 (±0,0000007) x E (O – C calculated)

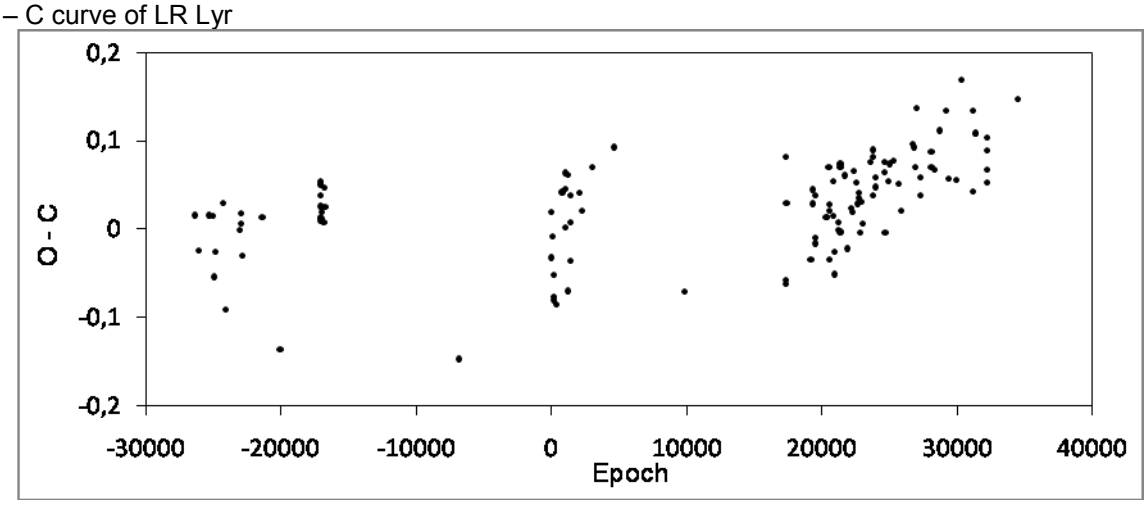
Since J.D. 2442000 is:
Max = J.D. 2444454,451 (±0,007) + 0^d,3384739 (±0,000001) x E
Typ = RRc Max = 14^m,3 Min = 14^m,8 M - m = 0^p,4

Observed Maxima:

Maximum	Epoch	O-C	Obs.	Maximum	Epoch	O - C	Obs.
29672,637	-26340	0,016	Hof	45525,433	20497	0,07	Hau
29747,737	-26118	-0,024	Hof	45530,406	20512	-0,034	Hau
30025,658	-25297	0,016	Hof	45546,376	20559	0,028	Hau
30103,504	-25067	0,015	Hof	45547,384	20562	0,021	Hau
30147,435	-24937	-0,054	Hof	45645,235	20851	0,055	Hau
30170,480	-24869	-0,025	Hof	45648,241	20860	0,015	Hau
30377,676	-24257	0,03	Hof	45671,217	20928	-0,025	Hau
30442,541	-24065	-0,091	Hof	45673,221	20934	-0,051	Hau
30793,620	-23028	-0,001	Hof	45761,620	21195	0,008	Hau
30804,470	-22996	0,018	Hof	45763,642	21201	-0,001	Hau
30806,490	-22990	0,007	Hof	45815,502	21354	0,074	Hau
30852,146	-22855	-0,03	Hof	45816,514	21357	0,07	Hau
31346,351	-21395	0,014	Hof	45818,471	21363	-0,003	Hau
31795,345	-20068	-0,136	Hof	45940,383	21723	0,061	Hau
32793,330	-17120	0,05	Hof	46004,270	21912	-0,022	Hau
32794,350	-17117	0,055	Hof	46093,671	22176	0,024	Hau
32797,350	-17108	0,009	Hof	46113,636	22235	0,019	Hau
32802,456	-17093	0,038	Hof	46147,530	22335	0,066	Hau
32803,485	-17090	0,051	Hof	46210,471	22521	0,053	Hau
32805,490	-17084	0,026	Hof	46251,402	22642	0,029	Hau
32809,540	-17072	0,014	Hof	46292,368	22763	0,041	Hau
32822,400	-17034	0,012	Hof	46293,378	22766	0,035	Hau
32826,460	-17022	0,011	Hof	46318,385	22840	-0,004	Hau
32827,490	-17019	0,025	Hof	46352,267	22940	0,031	Hau
32834,254	-16999	0,02	Hof	46373,228	23002	0,007	Hau
32885,350	-16848	0,008	Hof	46577,392	23605	0,076	Hau
32908,405	-16780	0,047	Hof	46642,391	23797	0,09	Hau
32917,522	-16753	0,025	Hof	46643,399	23800	0,082	Hau
36272,565	-6840	-0,147	Kor	46645,385	23806	0,038	Hau
38587,502	-1	0,019	Hau	46703,284	23977	0,059	Hau
38591,512	11	-0,032	Hau	46707,335	23989	0,048	Hau

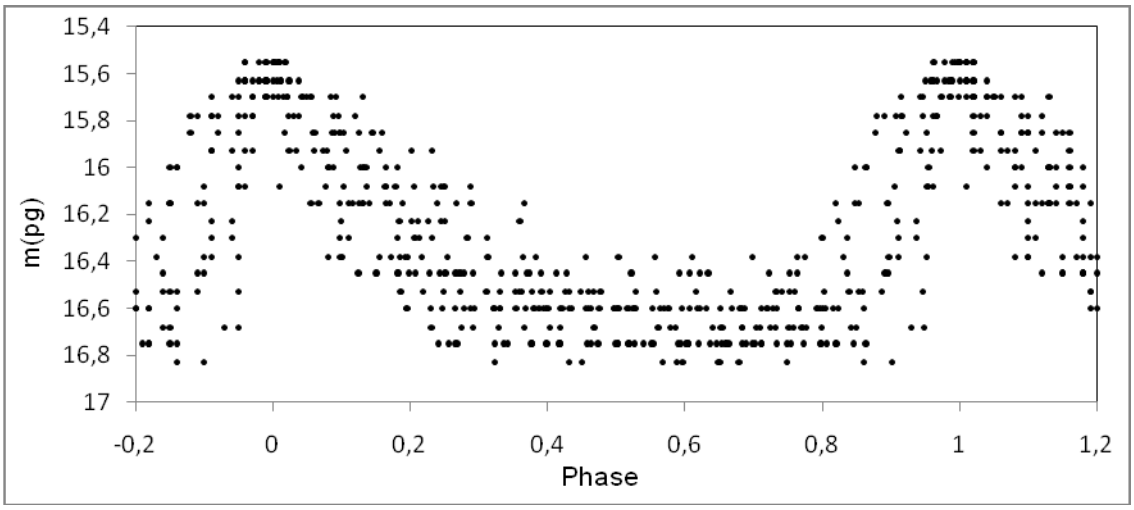
38613,536	76	-0,008	Hau	46913,489	24598	0,076	Hau
38650,385	185	-0,052	Hau	46917,539	24610	0,065	Hau
38651,373	188	-0,08	Hau	46941,501	24681	-0,004	Hau
38652,391	191	-0,077	Hau	47028,546	24938	0,055	Hau
38709,245	359	-0,085	Hau	47039,396	24970	0,074	Hau
38856,605	794	0,042	Hau	47139,248	25265	0,078	Hau
38936,505	1030	0,064	Hau	47271,561	25656	0,051	Hau
38937,503	1033	0,046	Hau	47353,440	25898	0,021	Hau
38940,505	1042	0,002	Hau	47616,504	26675	0,097	Hau
38996,412	1207	0,062	Hau	47655,423	26790	0,093	Hau
39003,387	1228	-0,07	Hau	47706,510	26941	0,071	Hau
39054,265	1378	0,038	Hau	47717,407	26973	0,137	Hau
39056,266	1384	0,008	Hau	47826,315	27295	0,059	Hau
39059,268	1393	-0,036	Hau	47827,310	27298	0,039	Hau
39289,502	2073	0,041	Hau	48095,408	28090	0,071	Hau
39351,422	2256	0,021	Hau	48096,440	28093	0,088	Hau
39619,536	3048	0,07	Hau	48174,267	28323	0,068	Hau
40150,274	4616	0,093	Hau	48305,636	28711	0,112	Hau
41927,396	9867	-0,071	Hau	48473,537	29207	0,134	Hau
44454,398	17333	-0,058	Hau	48514,415	29328	0,057	Hau
44458,455	17345	-0,062	Hau	48720,540	29937	0,056	Hau
44465,369	17365	0,082	Hau	48844,531	30303	0,169	Hau
44468,363	17374	0,03	Hau	49132,440	31154	0,043	Hau
45077,538	19174	-0,034	Hau	49147,425	31198	0,135	Hau
45130,402	19330	0,029	Hau	49193,429	31334	0,108	Hau
45131,433	19333	0,045	Hau	49194,445	31337	0,109	Hau
45180,456	19478	-0,01	Hau	49481,445	32185	0,089	Hau
45193,365	19516	0,038	Hau	49482,475	32188	0,104	Hau
45196,358	19525	-0,016	Hau	49486,501	32200	0,068	Hau
45464,453	20317	0,014	Hau	49503,409	32250	0,053	Hau
45486,453	20382	0,014	Hau	50248,467	34451	0,147	Hau

O – C curve of LR Lyr



MS Lyr = USNO 1275-10346769 = S 4296
Hoffmeister, C. has the star observed as an RR Lyrae star. He found no results.
The star is on edge of plates. I have observed the star on 451 plates and find following elements:

Max = J.D. 2449862,463 (±0,002) + 0^d,4645541 (±0,0000002) x E
Type = RRab Max = 15^m,6 Min = 16^m,7 M – m = 0^p,14



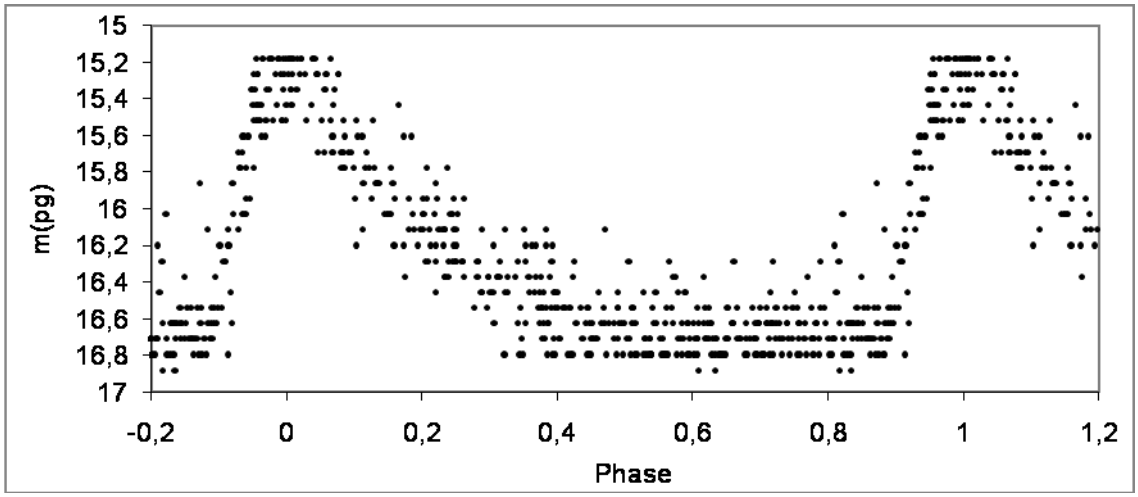
Observed Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38551,508	-24348	0,008	Hau	46591,518	-7041	-0,020	Hau
38638,387	-24161	0,016	Hau	46639,392	-6938	0,005	Hau
38650,444	-24135	-0,006	Hau	46699,323	-6809	0,009	Hau
38651,373	-24133	-0,006	Hau	46706,287	-6794	0,005	Hau
38977,480	-23431	-0,016	Hau	46914,406	-6346	0,003	Hau
39025,349	-23328	0,004	Hau	46925,571	-6322	0,019	Hau
39052,300	-23270	0,011	Hau	46940,445	-6290	0,027	Hau
39059,268	-23255	0,011	Hau	47139,248	-5862	0,001	Hau
39352,405	-22624	0,014	Hau	47293,472	-5530	-0,007	Hau
39379,332	-22566	-0,003	Hau	47325,511	-5461	-0,022	Hau
39739,338	-21791	-0,027	Hau	47392,446	-5317	0,017	Hau
39760,295	-21746	0,025	Hau	47779,422	-4484	0,020	Hau
40740,463	-19636	-0,016	Hau	47805,429	-4428	0,012	Hau
41927,396	-17081	-0,018	Hau	47826,315	-4383	-0,007	Hau
45104,483	-10242	-0,017	Hau	47827,251	-4381	0,000	Hau
45105,439	-10240	0,010	Hau	48174,267	-3634	-0,006	Hau
45138,422	-10169	0,010	Hau	48187,269	-3606	-0,012	Hau
45204,358	-10027	-0,021	Hau	48534,323	-2859	0,020	Hau
45231,305	-9969	-0,018	Hau	48762,394	-2368	-0,005	Hau
45518,421	-9351	0,003	Hau	48801,423	-2284	0,002	Hau
45578,335	-9222	-0,010	Hau	48834,404	-2213	-0,001	Hau
45645,235	-9078	-0,006	Hau	48887,359	-2099	-0,005	Hau
45770,660	-8808	-0,010	Hau	49194,445	-1438	0,011	Hau
46018,276	-8275	-0,002	Hau	49213,468	-1397	-0,013	Hau
46270,513	-7732	-0,018	Hau	49268,283	-1279	-0,015	Hau

46292,368	-7685	0,003	Hau	49482,475	-818	0,017	Hau
46299,336	-7670	0,003	Hau	49541,464	-691	0,008	Hau
46318,385	-7629	0,005	Hau	49862,463	0	0,000	Hau
46352,267	-7556	-0,025	Hau				

V 339 Lyr = USNO 1275-10211010 = S 9324
From 551 observations I can give following elements:

Max = J.D. 2450282,426 (±0,004) + 0^d,4564845 (±0,0000003) x E
Type = RRab Max = 15^m,2 Min = 16^m,8 M – m = 0^p,11



Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38643,431	-25497	-0,010	Hau	46685,348	-7880	0,020	Hau
38671,280	-25436	-0,006	Hau	46913,550	-7380	-0,020	Hau
38883,570	-24971	0,018	Hau	46914,488	-7378	0,005	Hau
39027,348	-24656	0,004	Hau	46924,524	-7356	-0,002	Hau
39054,265	-24597	-0,012	Hau	46925,466	-7354	0,027	Hau
39378,365	-23887	-0,016	Hau	46941,426	-7319	0,010	Hau
39708,438	-23164	0,019	Hau	47094,345	-6984	0,007	Hau
41927,394	-18303	0,004	Hau	47392,446	-6331	0,023	Hau
44397,426	-12892	-0,002	Hau	47706,510	-5643	0,026	Hau
45105,416	-11341	-0,019	Hau	47717,417	-5619	-0,023	Hau
45141,476	-11262	-0,022	Hau	47770,372	-5503	-0,020	Hau
45163,412	-11214	0,003	Hau	48068,466	-4850	-0,010	Hau
45200,378	-11133	-0,006	Hau	48095,408	-4791	-0,001	Hau
45227,329	-11074	0,012	Hau	48100,410	-4780	-0,020	Hau
45488,452	-10502	0,026	Hau	48175,319	-4616	0,025	Hau
45530,406	-10410	-0,016	Hau	48186,258	-4592	0,009	Hau
45535,461	-10399	0,017	Hau	48712,568	-3439	-0,008	Hau
45556,440	-10353	-0,002	Hau	48883,296	-3065	-0,005	Hau
45561,481	-10342	0,018	Hau	48893,338	-3043	-0,006	Hau
45578,335	-10305	-0,018	Hau	49271,301	-2215	-0,012	Hau
45642,250	-10165	-0,011	Hau	49511,410	-1689	-0,014	Hau
45674,216	-10095	0,001	Hau	49569,393	-1562	-0,004	Hau
45812,532	-9792	0,002	Hau	49841,440	-966	-0,022	Hau
45818,471	-9779	0,007	Hau	49862,463	-920	0,003	Hau
46004,270	-9372	0,017	Hau	50282,446	0	0,020	Hau
46291,385	-8743	0,003	Hau				

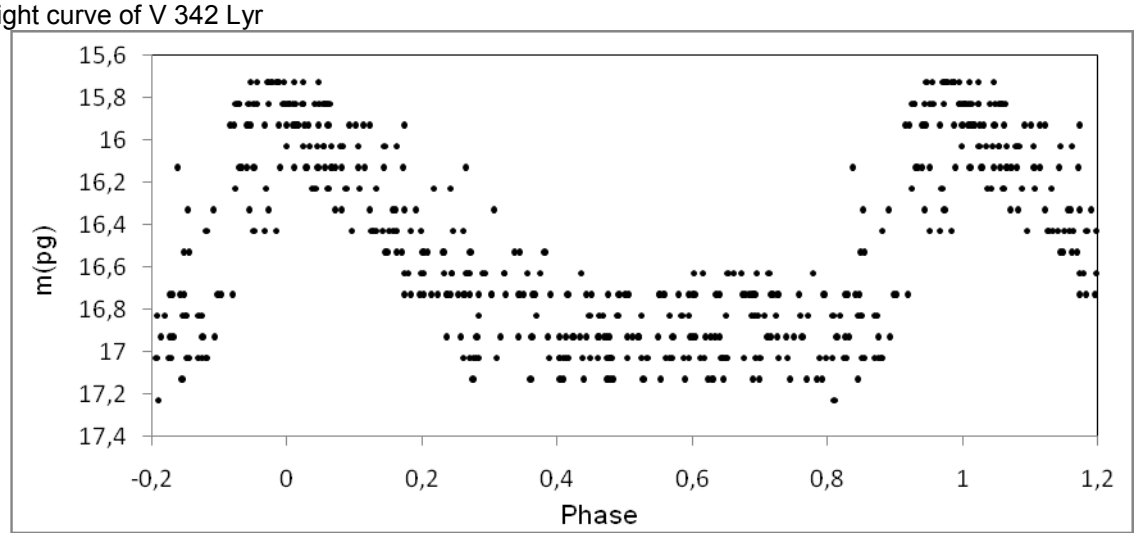
V 342 Lyr = USNO 1275-10288551 = S 9327
The star is very faint. He could be observed only for 375 plates.
Following elements are given:

Max = J.D. 2449541,479 (±0,006) + 0^d,5604435 (±0,0000007) x E
Type = RRab Max = 15^m,8 Min = 17^m,1 M – m = 0^p,16

Maxima:

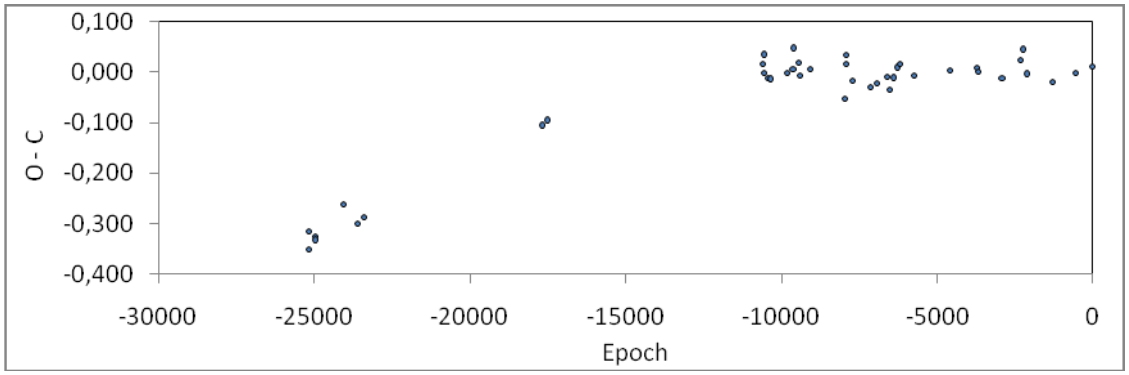
Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38563,496	-19588	-0,027	Hau	46175,456	-6006	-0,003	Hau
38650,385	-19433	-0,007	Hau	46318,385	-5751	0,013	Hau
39263,514	-18339	-0,003	Hau	46387,304	-5628	-0,002	Hau
39286,501	-18298	0,006	Hau	46473,648	-5474	0,033	Hau
39739,338	-17490	0,005	Hau	46643,399	-5171	-0,030	Hau
44468,363	-9052	0,013	Hau	46702,302	-5066	0,027	Hau
44793,442	-8472	0,035	Hau	46913,550	-4689	-0,012	Hau
45077,538	-7965	-0,013	Hau	46944,413	-4634	0,026	Hau
45104,483	-7917	0,030	Hau	47060,398	-4427	0,000	Hau
45164,451	-7810	0,031	Hau	47325,511	-3954	0,023	Hau
45196,358	-7753	-0,007	Hau	47779,422	-3144	-0,025	Hau
45228,312	-7696	0,002	Hau	48534,323	-1797	-0,040	Hau
45461,462	-7280	0,007	Hau	48712,568	-1479	-0,016	Hau
45493,402	-7223	0,002	Hau	48831,430	-1267	0,032	Hau
45613,310	-7009	-0,025	Hau	49449,551	-164	-0,015	Hau
45641,317	-6959	-0,040	Hau	49541,464	0	-0,015	Hau
45645,282	-6952	0,002	Hau				

Light curve of V 342 Lyr



V 343 Lyr = USNO 1275-10305430 = S 9638
From 450 observations can be given following elements:
The star has a variable period. Near epoch -14000 is an alteration of the period.

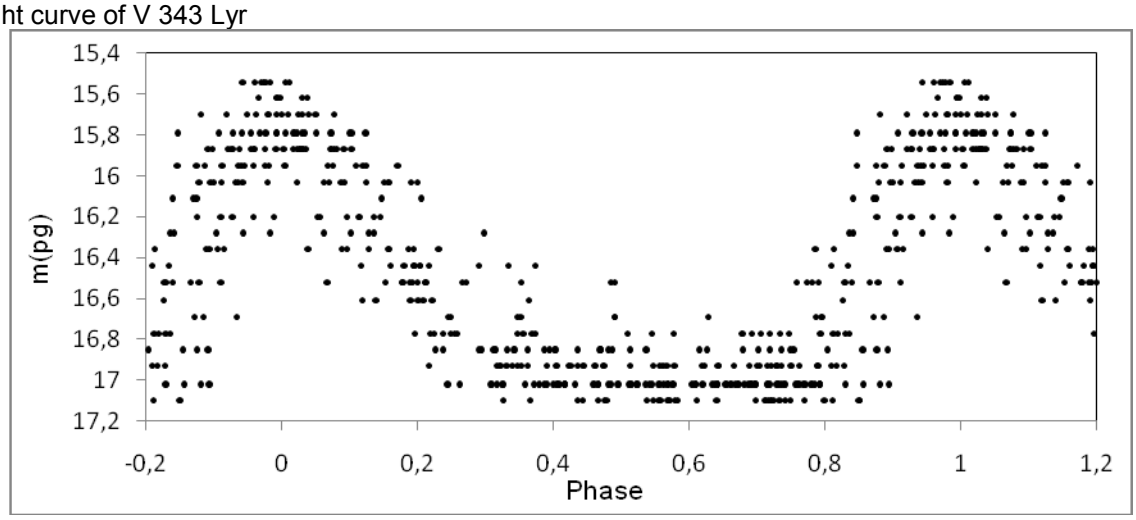
From J.D. 2438000 until 2444000 is:
Max = J.D. 2441984,302 (±0,012) + 0^d,4483186 (±0,000002) x E
Since J.D. 2444000 is:
Max = J.D. 2449842,440(±0,008) + 0^d,4482878 (±0,000001) x E (O – C calculated)
Type= RRab Max = 15^m,6 Min = 17^m,1 M – m = 0^p,18



Observed Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38551,508	-25186	-0,350	Hau	46288,428	-7928	0,015	Hau
38560,508	-25166	-0,316	Hau	46293,378	-7917	0,034	Hau
38643,431	-24981	-0,326	Hau	46385,227	-7712	-0,016	Hau
38652,391	-24961	-0,332	Hau	46639,392	-7145	-0,030	Hau
39057,265	-24058	-0,262	Hau	46731,300	-6940	-0,021	Hau
39262,543	-23600	-0,300	Hau	46884,627	-6598	-0,009	Hau
39350,420	-23404	-0,288	Hau	46924,499	-6509	-0,034	Hau
41922,431	-17667	-0,105	Hau	46977,421	-6391	-0,010	Hau
41984,305	-17529	-0,095	Hau	47028,546	-6277	0,010	Hau
45087,465	-10607	0,016	Hau	47060,380	-6206	0,015	Hau
45104,483	-10569	-0,001	Hau	47262,535	-5755	-0,008	Hau
45105,416	-10567	0,035	Hau	47779,422	-4602	0,003	Hau
45161,405	-10442	-0,012	Hau	48179,300	-3710	0,008	Hau
45196,370	-10364	-0,013	Hau	48188,258	-3690	0,001	Hau
45441,596	-9817	-0,001	Hau	48534,323	-2918	-0,013	Hau
45525,433	-9630	0,006	Hau	48802,435	-2320	0,023	Hau
45530,406	-9619	0,048	Hau	48837,424	-2242	0,046	Hau
45613,310	-9434	0,019	Hau	48894,308	-2115	-0,003	Hau
45621,353	-9416	-0,007	Hau	49271,301	-1274	-0,020	Hau
45770,647	-9083	0,007	Hau	49600,362	-540	-0,002	Hau
46266,395	-7977	-0,052	Hau	49842,451	0	0,011	Hau

Light curve of V 343 Lyr



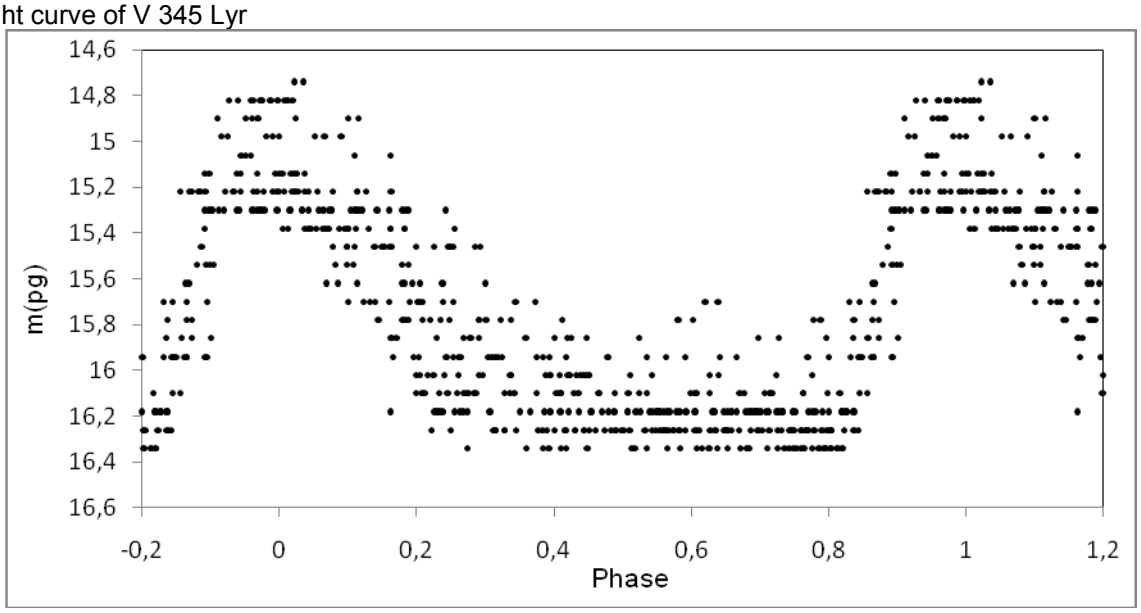
V 345 Lyr = USNO 1275-10318011 = S 9332
In GCVS is stated a period of 0,644 days.
From 566 observations can be given following elements:

Max = J.D. 2450282,439 (±0,009) + 0^d,6438054 (±0,000001) x E
Type= RRab Max = 14^m,8 Min = 16^m,2 M – m = 0^p,16

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
39029,349	-17479	-0,015	Hau	46707,361	-5553	-0,027	Hau
39287,499	-17078	-0,031	Hau	46940,445	-5191	0,000	Hau
39378,365	-16937	0,058	Hau	46942,441	-5188	0,064	Hau
42958,473	-11376	-0,036	Hau	47748,435	-3936	0,014	Hau
45138,438	-7990	0,004	Hau	47804,374	-3849	-0,058	Hau
45138,422	-7990	-0,012	Hau	47826,315	-3815	-0,006	Hau
45145,507	-7979	-0,009	Hau	48093,499	-3400	-0,002	Hau
45196,358	-7900	-0,018	Hau	48413,451	-2903	-0,021	Hau
45225,360	-7855	0,012	Hau	48693,602	-2468	0,075	Hau
45641,317	-7209	0,071	Hau	48720,540	-2426	-0,027	Hau
45761,620	-7022	-0,017	Hau	48771,403	-2347	-0,025	Hau
45812,532	-6943	0,034	Hau	49125,495	-1797	-0,026	Hau
46199,406	-6342	-0,019	Hau	49127,444	-1794	-0,008	Hau
46473,648	-5916	-0,038	Hau	49147,425	-1763	0,015	Hau
46522,638	-5840	0,023	Hau	49163,504	-1738	-0,001	Hau
46591,545	-5733	0,042	Hau	49841,440	-685	0,008	Hau
46640,400	-5657	-0,032	Hau	50282,446	0	0,007	Hau

Light curve of V 345 Lyr



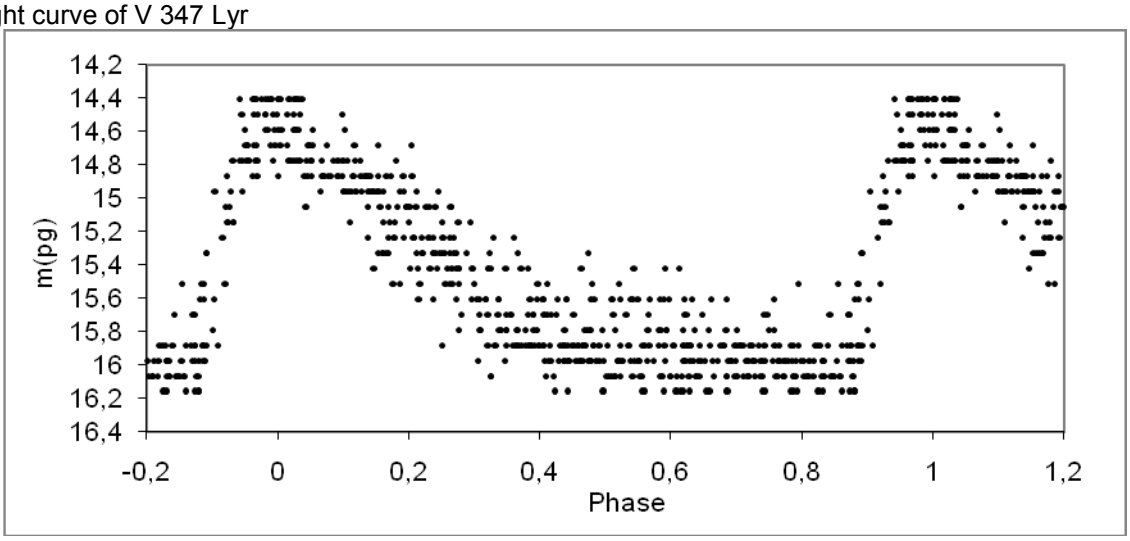
V 347 Lyr = USNO 1275-10352213 = S 9334
From 617 observations can be given following elements:

Max = J.D. 2450282,437 (±0,003) + 0^d,5264661 (±0,0000003) x E
Typ = RRab Max = 14^m,4 Min = 16^m,1 M – m = 0^p,11

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38587,502	-22214	-0,016	Hau	46699,323	-6806	0,015	Hau
38672,278	-22053	-0,001	Hau	46728,304	-6751	0,041	Hau
38673,357	-22051	0,025	Hau	46884,627	-6454	0,003	Hau
38935,503	-21553	-0,009	Hau	46923,584	-6380	0,002	Hau
39263,514	-20930	0,013	Hau	46940,445	-6348	0,016	Hau
39293,504	-20873	-0,005	Hau	46941,501	-6346	0,019	Hau
39351,422	-20763	0,002	Hau	47029,406	-6179	0,004	Hau
39379,332	-20710	0,009	Hau	47039,396	-6160	-0,009	Hau
45141,476	-9765	-0,019	Hau	47070,477	-6101	0,011	Hau
45180,430	-9691	-0,023	Hau	47271,561	-5719	-0,015	Hau
45208,366	-9638	0,010	Hau	47591,659	-5111	-0,009	Hau
45211,511	-9632	-0,004	Hau	47678,510	-4946	-0,025	Hau
45227,329	-9602	0,020	Hau	47686,446	-4931	0,014	Hau
45441,596	-9195	0,016	Hau	47804,374	-4707	0,014	Hau
45488,452	-9106	0,016	Hau	47822,257	-4673	-0,003	Hau
45497,404	-9089	0,018	Hau	48093,408	-4158	0,018	Hau
45576,340	-8939	-0,016	Hau	48106,540	-4133	-0,012	Hau
45673,221	-8755	-0,004	Hau	48394,520	-3586	-0,009	Hau
45916,436	-8293	-0,017	Hau	48683,560	-3037	0,002	Hau
45936,442	-8255	-0,016	Hau	48800,427	-2815	-0,007	Hau
46147,553	-7854	-0,018	Hau	49099,437	-2247	-0,030	Hau
46175,456	-7801	-0,018	Hau	49119,473	-2209	0,001	Hau
46177,577	-7797	-0,003	Hau	49516,442	-1455	0,014	Hau
46292,368	-7579	0,019	Hau	49537,495	-1415	0,009	Hau
46321,321	-7524	0,016	Hau	49546,438	-1398	0,002	Hau
46554,523	-7081	-0,007	Hau	50282,446	0	0,010	Hau

Light curve of V 347 Lyr



V 349 Lyr = USNO 1275-10395802 = S 9335

The period of 349 Lyr is variable. Near epoch -15000 is an alteration of the period. The star is very faint.

From J.D. 2438000 until 2444000 is:

Max = J.D. 2438579,454 (0,008) + 0^d,507096 (0,000006) x E

Since J.D. 242444000 is:

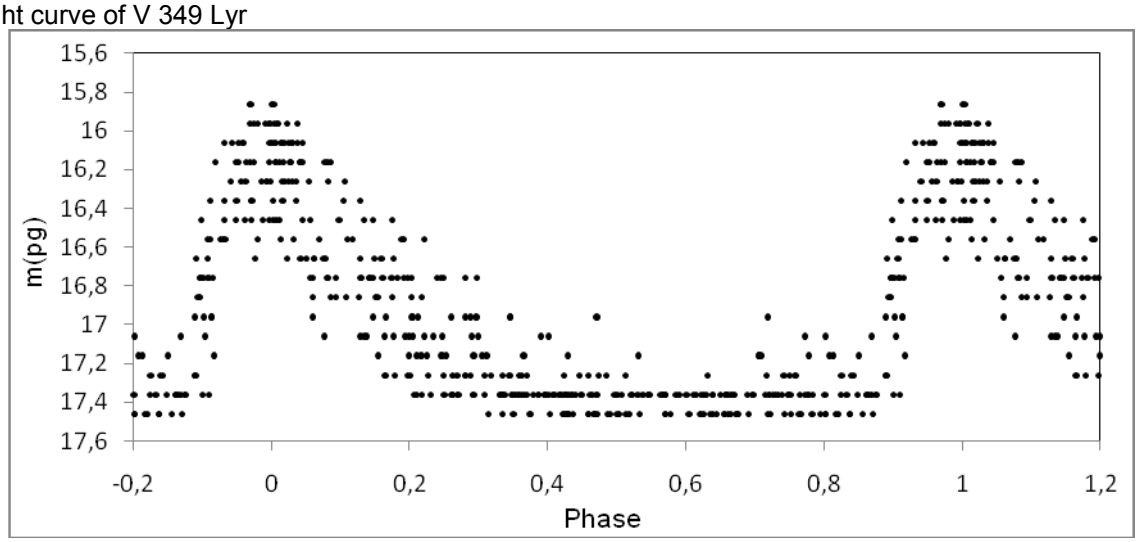
Max = J.D. 2449842,473 (0,006) + 0^d,5070877 (0,000001) x E (O – C calculated)

Typ = RRab Max = 15^m,9 Min = 17^m,4 M – m = 0^p,13

Maxima:

Maxima	Epoch	O - C	Obs.	Maxima	Epoch	O - C	Obs.
38579,467	-22211	-0,081	Hau	46685,348	-6226	0,003	Hau
38613,409	-22144	-0,114	Hau	46884,596	-5833	-0,034	Hau
38673,276	-22026	-0,083	Hau	46913,550	-5776	0,016	Hau
38940,505	-21499	-0,090	Hau	46915,577	-5772	0,014	Hau
39690,501	-20020	-0,076	Hau	46941,426	-5721	0,002	Hau
44402,435	-10728	-0,001	Hau	46942,441	-5719	0,003	Hau
44468,397	-10598	0,039	Hau	47655,423	-4313	0,019	Hau
44793,442	-9957	0,041	Hau	47790,279	-4047	-0,010	Hau
45082,444	-9387	0,003	Hau	47822,257	-3984	0,021	Hau
45116,394	-9320	-0,022	Hau	47823,256	-3982	0,006	Hau
45222,356	-9111	-0,041	Hau	47826,315	-3976	0,023	Hau
45576,340	-8413	-0,004	Hau	47827,310	-3974	0,004	Hau
45577,334	-8411	-0,024	Hau	48444,441	-2757	0,009	Hau
45607,292	-8352	0,015	Hau	48514,415	-2619	0,005	Hau
45612,348	-8342	0,001	Hau	48544,331	-2560	0,003	Hau
45642,250	-8283	-0,016	Hau	48773,519	-2108	-0,013	Hau
45645,282	-8277	-0,026	Hau	48800,427	-2055	0,019	Hau
45673,221	-8222	0,023	Hau	48802,435	-2051	-0,001	Hau
45674,216	-8220	0,004	Hau	48834,404	-1988	0,021	Hau
45676,248	-8216	0,008	Hau	48838,424	-1980	-0,015	Hau
45911,500	-7752	-0,029	Hau	48837,424	-1982	-0,001	Hau
45940,418	-7695	-0,015	Hau	49124,444	-1416	0,007	Hau
46554,492	-6484	-0,024	Hau	49841,440	-2	-0,019	Hau
46591,545	-6411	0,011	Hau	49842,451	0	-0,022	Hau

Light curve of V 349 Lyr



V 350 Lyr = USNO 1350-09944314 = S 9337
The first period from Galkina, M.P. and Shugarov, S.V. (2), P=0^d,594245 was too large.
I have observed the star of 571 plates. The period is variable.

Max = 2449542,428 + 0^d,594236 x E

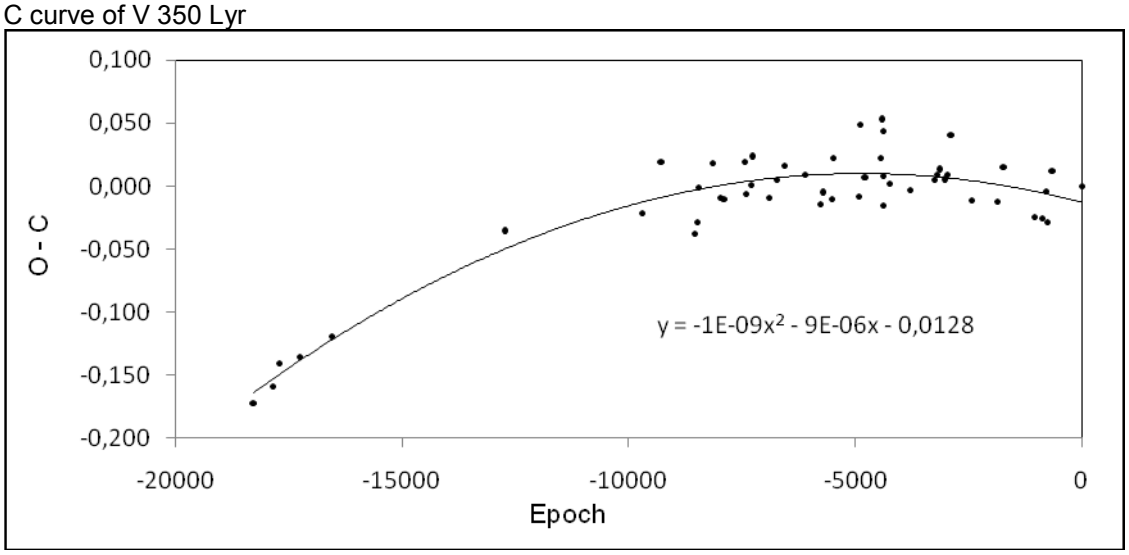
Type = RRab Max = 14^m,0 Min = 16^m,3 M – m = 0^p,11

From the O – C curve I can derive the following nonliear term: $y = -1E\text{-}09x^2 - 9E\text{-}06x - 0{,}0128$

Observed Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38674,274	-18289	-0,172	Hau	46616,402	-4924	-0,008	Hau
38940,505	-17841	-0,159	Hau	46644,388	-4877	0,049	Hau
39024,310	-17700	-0,141	Hau	46685,348	-4808	0,007	Hau
39293,504	-17247	-0,136	Hau	46707,335	-4771	0,007	Hau
39709,486	-16547	-0,119	Hau	46913,550	-4424	0,022	Hau
41984,305	-12719	-0,035	Hau	46925,466	-4404	0,053	Hau
43784,260	-9690	-0,021	Gal	46941,501	-4377	0,044	Hau
44024,372	-9286	0,019	Gal	46944,413	-4372	-0,015	Hau
44466,426	-8542	-0,038	Hau	46944,436	-4372	0,008	Hau
44497,336	-8490	-0,028	Gal	47029,406	-4229	0,002	Hau
44525,292	-8443	-0,001	Gal	47288,488	-3793	-0,003	Hau
44706,554	-8138	0,019	Gal	47616,514	-3241	0,005	Hau
44809,329	-7965	-0,009	Gal	47651,578	-3182	0,009	Hau
44847,359	-7901	-0,010	Gal	47682,483	-3130	0,014	Hau
45131,433	-7423	0,019	Hau	47748,435	-3019	0,005	Hau
45147,452	-7396	-0,007	Gal	47776,368	-2972	0,009	Hau
45207,477	-7295	0,001	Hau	47826,315	-2888	0,041	Hau
45222,356	-7270	0,024	Hau	48101,394	-2425	-0,012	Hau
45441,596	-6901	-0,009	Hau	48445,456	-1846	-0,012	Hau
45547,384	-6723	0,005	Hau	48514,415	-1730	0,015	Hau
45647,227	-6555	0,016	Hau	48927,369	-1035	-0,025	Hau
45913,438	-6107	0,009	Hau	49032,548	-858	-0,026	Hau
46116,643	-5765	-0,014	Hau	49076,543	-784	-0,004	Hau
46147,553	-5713	-0,005	Hau	49098,505	-747	-0,029	Hau
46266,395	-5513	-0,010	Hau	49154,404	-653	0,012	Hau
46291,385	-5471	0,022	Hau	49542,428	0	0,000	Hau

O - C curve of V 350 Lyr

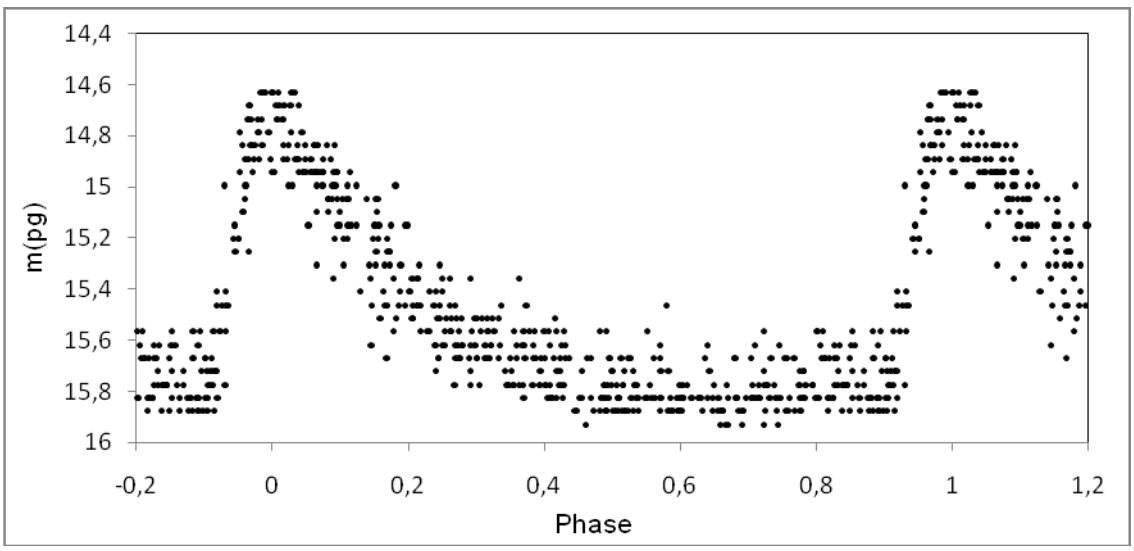


V 351 Lyr = USNO 1275-10396344 = S 9336
The period of Gushchin, I.A. (3),P=0^d,8394956, was too large.
New improved elements are:

Max = J.D. 2449621,298 (±0,006) + 0^d,8394812 (±0,0000009) x E
Type = RRab Max = 14^m,6 Min = 15^m,8 M – m = 0^p,08

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38638,387	-13083	0,022	Hau	45824,378	-4523	0,053	Gus
38643,431	-13077	0,029	Hau	45912,483	-4418	0,013	Hau
38675,276	-13039	-0,027	Hau	45912,506	-4418	0,036	Gus
38856,605	-12823	-0,026	Hau	46147,530	-4138	0,005	Hau
39025,349	-12622	-0,017	Hau	46289,381	-3969	-0,016	Hau
39057,265	-12584	-0,002	Hau	46321,321	-3931	0,024	Hau
39349,421	-12236	0,015	Hau	46703,284	-3476	0,023	Hau
39704,481	-11813	-0,026	Hau	46703,323	-3476	0,062	Gus
41922,431	-9171	0,015	Hau	46884,596	-3260	0,007	Hau
44290,623	-6350	0,031	Gus	46926,555	-3210	-0,008	Hau
44490,357	-6112	-0,032	Gus	47271,561	-2799	-0,029	Hau
44793,442	-5751	0,000	Hau	47392,446	-2655	-0,029	Hau
45085,555	-5403	-0,026	Hau	47748,435	-2231	0,020	Hau
45138,438	-5340	-0,030	Hau	47769,398	-2206	-0,004	Hau
45180,430	-5290	-0,012	Hau	47817,239	-2149	-0,014	Hau
45196,370	-5271	-0,023	Hau	47822,257	-2143	-0,033	Hau
45211,511	-5253	0,008	Hau	47827,310	-2137	-0,017	Hau
45228,312	-5233	0,019	Hau	48093,408	-1820	-0,034	Hau
45489,397	-4922	0,025	Hau	48151,354	-1751	-0,012	Hau
45562,406	-4835	0,000	Hau	48188,285	-1707	-0,019	Hau
45578,335	-4816	-0,022	Hau	48720,540	-1073	0,005	Hau
45641,317	-4741	-0,001	Hau	48894,308	-866	0,001	Hau
45673,221	-4703	0,003	Hau	48915,308	-841	0,014	Hau
45818,471	-4530	0,023	Hau	49621,307	0	0,009	Hau
45823,475	-4524	-0,010	Gus				



V 353 Lyr = USNO 1350-09984018 = S 9342
The period of Gushchin, I.A. (3), P=0^d,556801, was too small.
New improved elements are:

Max = J.D. 2449545,451 (±0,005) + 0^d,5568049 (±0,0000006) x E
Type = RRab Max = 15^m,8 Min = 17^m,2 M – m = 0^p,13

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38640,424	-19585	-0,003	Hau	46706,287	-5099	-0,016	Hau
38650,444	-19567	-0,006	Hau	46861,674	-4820	0,023	Hau
38673,276	-19526	-0,003	Hau	46885,568	-4777	-0,026	Hau
39021,309	-18901	0,027	Hau	47030,393	-4517	0,030	Hau
39704,481	-17674	0,000	Hau	47262,535	-4100	-0,016	Hau
45163,412	-7870	0,016	Hau	47717,471	-3283	0,010	Hau
45231,305	-7748	-0,022	Hau	47805,429	-3125	-0,007	Hau
45521,422	-7227	0,000	Hau	47823,256	-3093	0,003	Hau
45561,481	-7155	-0,031	Hau	48099,412	-2597	-0,017	Hau
45613,310	-7062	0,015	Hau	48177,344	-2457	-0,037	Hau
45642,250	-7010	0,001	Hau	48186,258	-2441	-0,032	Hau
45816,514	-6697	-0,015	Hau	48394,520	-2067	-0,015	Hau
45913,404	-6523	-0,009	Hau	48544,331	-1798	0,015	Hau
46116,643	-6158	-0,003	Hau	48770,410	-1392	0,031	Hau
46251,425	-5916	0,032	Hau	49481,445	-115	0,027	Hau
46343,265	-5751	-0,001	Hau	49545,466	0	0,015	Hau
46566,571	-5350	0,026	Hau				

V 354 Lyr = USNO 1275-10465544 = S 9642
From 530 observations I can give following elements:

Max = J.D. 2449862,491 (0,007) + 0^d,561690 (0,0000007) x E
Type = RRab Max = 15^m,3 Min = 16^m,4 M – m = 0^p,10

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38558,506	-20125	0,026	Hau	46643,399	-5731	-0,047	Hau
38936,505	-19452	0,008	Hau	47088,339	-4939	0,035	Hau
38977,480	-19379	-0,020	Hau	47672,462	-3899	0,000	Hau
39021,309	-19301	-0,003	Hau	47717,407	-3819	0,010	Hau
39026,348	-19292	-0,020	Hau	47776,368	-3714	-0,006	Hau
39053,344	-19244	0,015	Hau	48095,430	-3146	0,016	Hau
39057,265	-19237	0,005	Hau	48131,369	-3082	0,007	Hau
45204,360	-8293	-0,036	Hau	48504,366	-2418	0,041	Hau
45222,356	-8261	-0,014	Hau	48683,560	-2099	0,056	Hau
45464,453	-7830	-0,005	Hau	48769,426	-1946	-0,016	Hau
45496,472	-7773	-0,003	Hau	48887,359	-1736	-0,038	Hau
46004,284	-6869	0,042	Hau	49511,429	-625	-0,006	Hau
46018,276	-6844	-0,009	Hau	49862,463	0	-0,028	Hau
46121,623	-6660	-0,013	Hau				

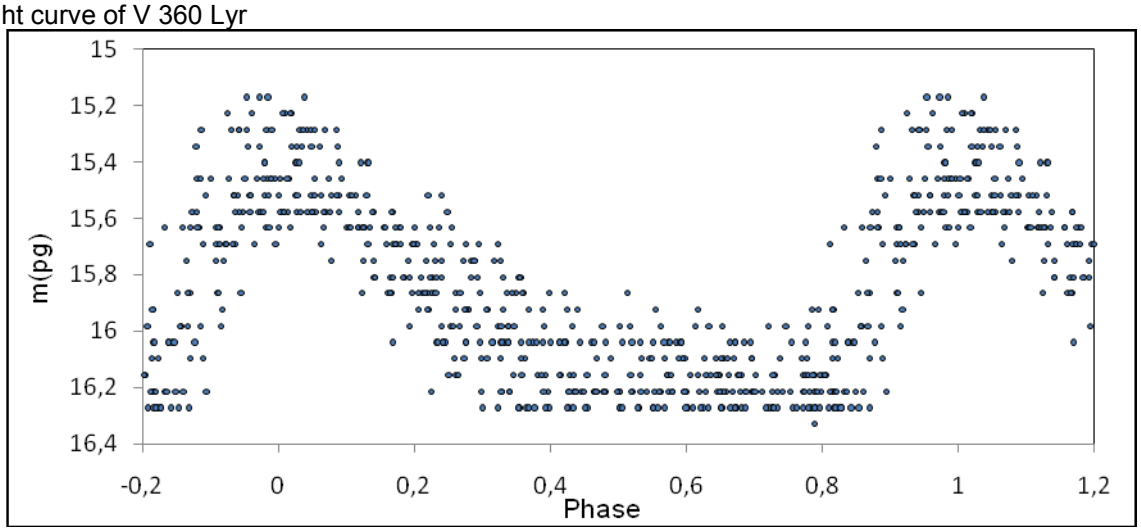
V 360 Lyr = USNO 1350-10134307 = S 9347
From 554 observations I can give the following elements:

Max = J.D. 2449842,421 (±0,008) + 0^d,5575715 (±0,0000007) x E
Type = RRab Max = 15^m,3 Min = 16^m,2 M – m = 0^p,12

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38579,467	-20200	-0,010	Hau	46526,564	-5947	0,021	Hau
38584,506	-20191	0,011	Hau	46646,383	-5732	-0,038	Hau
38613,494	-20139	0,005	Hau	47325,511	-4514	-0,032	Hau
38674,274	-20030	0,010	Hau	48060,407	-3196	-0,015	Hau
39286,501	-18932	0,024	Hau	48835,450	-1806	0,003	Hau
45130,402	-8451	0,018	Hau	49154,404	-1234	0,026	Hau
45647,227	-7524	-0,026	Hau	49193,429	-1164	0,021	Hau
45814,503	-7224	-0,021	Hau	49422,608	-753	0,038	Hau
45911,516	-7050	-0,026	Hau	49503,409	-608	-0,009	Hau
46288,428	-6374	-0,032	Hau	49842,451	0	0,030	Hau

Light curve of V 360 Lyr



V 362 Lyr = USNO 1275-10740492 = S 9351
The star was observed by Galkina, M.P. and Shugarov, S.Y. (2). The period is too large.
The new improved elements are:

Max = J.D. 2452248,478 (±0,004) + 0^d,5210765 (±0,0000003) x E
Type = RRab Max = 14^m,6 Min = 15^m,6 M – m = 0^p,12

Observed maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
34138,415	-30917	0,058	Gal	46385,227	-7414	0,009	Hau
38579,467	-22394	-0,025	Hau	46386,266	-7412	0,006	Hau
38591,512	-22371	0,035	Hau	46387,304	-7410	0,002	Hau
38592,494	-22369	-0,025	Hau	46554,571	-7089	0,003	Hau
38638,387	-22281	0,013	Hau	46566,571	-7066	0,019	Hau
38652,432	-22254	-0,011	Hau	46576,428	-7047	-0,025	Hau
38673,276	-22214	-0,01	Hau	46591,545	-7018	-0,019	Hau
38673,297	-22214	0,011	Hau	46685,348	-6838	-0,01	Hau
38709,245	-22145	0,005	Hau	46923,502	-6381	0,012	Hau

38937,503	-21707	0,032	Hau	46924,524	-6379	-0,008	Hau
39056,266	-21479	-0,011	Hau	46925,571	-6377	-0,003	Hau
39260,514	-21087	-0,025	Hau	47141,291	-5963	-0,009	Hau
39379,332	-20859	-0,012	Hau	47271,561	-5713	-0,008	Hau
39619,536	-20398	-0,025	Hau	47294,502	-5669	0,006	Hau
39702,441	-20239	0,029	Hau	47391,412	-5483	-0,005	Hau
39704,481	-20235	-0,015	Hau	47392,446	-5481	-0,013	Hau
40740,420	-18247	0,024	Hau	47616,514	-5051	-0,008	Hau
41927,396	-15969	-0,012	Hau	47678,510	-4932	-0,02	Hau
44101,351	-11797	0,011	Hau	47714,460	-4863	-0,024	Hau
44437,435	-11152	0,001	Gal	47739,510	-4815	0,014	Hau
44461,391	-11106	-0,012	Gal	48095,408	-4132	0,017	Hau
44497,336	-11037	-0,022	Gal	48096,440	-4130	0,007	Hau
44843,318	-10373	-0,034	Gal	48179,300	-3971	0,016	Hau
44845,450	-10369	0,013	Gal	48682,629	-3005	-0,015	Hau
44876,220	-10310	0,04	Gal	48762,394	-2852	0,025	Hau
44878,237	-10306	-0,028	Gal	48763,420	-2850	0,009	Hau
45057,527	-9962	0,012	Gal	48800,427	-2779	0,02	Hau
45225,329	-9640	0,027	Hau	48837,424	-2708	0,02	Hau
45464,453	-9181	-0,023	Hau	48838,424	-2706	-0,022	Hau
45488,452	-9135	0,007	Hau	48884,314	-2618	0,013	Hau
45525,433	-9064	-0,009	Hau	49062,532	-2276	0,023	Hau
45609,323	-8903	-0,012	Hau	49147,425	-2113	-0,019	Hau
45645,282	-8834	-0,007	Hau	49457,501	-1518	0,016	Hau
45812,532	-8513	-0,023	Hau	49481,445	-1472	-0,009	Hau
46004,284	-8145	-0,027	Hau	49482,475	-1470	-0,022	Hau
46266,395	-7642	-0,017	Hau	49542,428	-1355	0,008	Hau
46373,228	-7437	-0,005	Hau	50248,467	0	-0,012	Hau

V 365 Lyr = USNO 1350-10247753 = S 9655

I observed the star on 487 plates. The maxima are different high. The star has presumable Blashko-effekt.

Near epoch -6000 is an alteration of the period. For the determination of the period, I have use maxima about 14,7mag.

From J.D. 2438000 until 2445000

$$\text{Max} = 2445082{,}529\ (\pm 0{,}000) + 0^{d}{,}4711354\ (\pm 0{,}000002) \times E$$

Since J.D. 242445000

$$\text{Max} = \text{J.D. } 2448514{,}378\ (\pm 0{,}020) + 0^{d}{,}4710986\ (\pm 0{,}000003) \times E$$

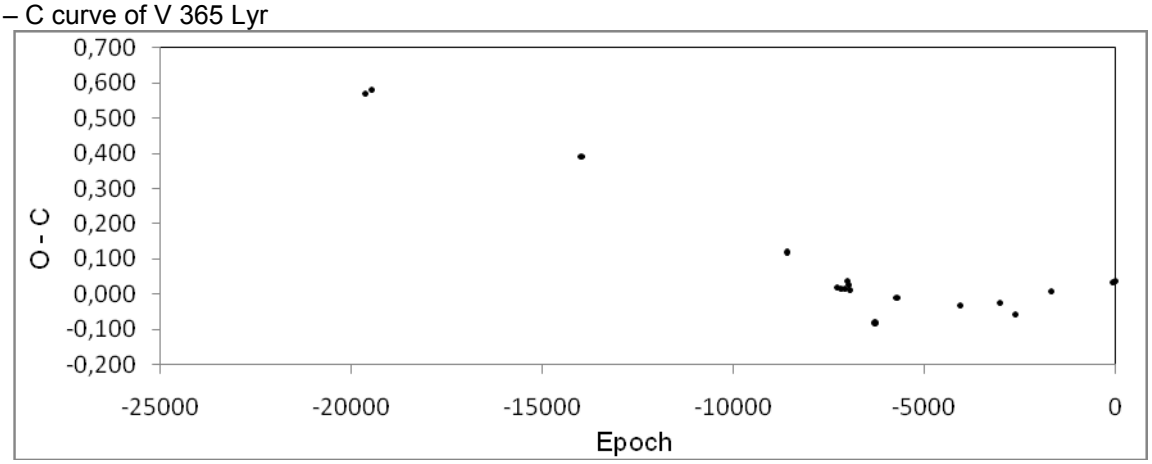
Type = RRab Max = $14^{m}{,}7$ Min = $16^{m}{,}3$ M – m = $0^{p}{,}15$

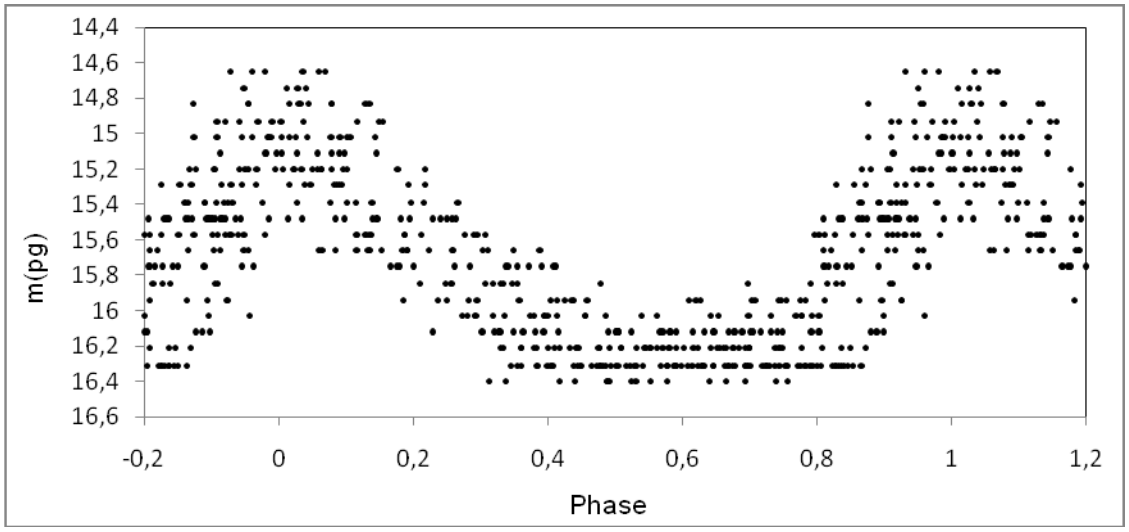
Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
39263,514	-19638	0,570	Hau	45231,305	-6969	0,013	Hau
39347,379	-19460	0,580	Hau	45546,376	-6300	-0,081	Hau
41927,396	-13983	0,390	Hau	45814,503	-5731	-0,009	Hau
44465,405	-8595	0,119	Hau	46597,445	-4069	-0,033	Hau
45082,444	-7285	0,019	Hau	47088,339	-3027	-0,024	Hau
45131,433	-7181	0,014	Hau	47271,561	-2638	-0,059	Hau
45180,430	-7077	0,017	Hau	47714,460	-1698	0,007	Hau

45211,543	-7011	0,037	Hau	48473,425	-87	0,033	Hau
45223,311	-6986	0,028	Hau	48514,415	0	0,037	Hau

O – C curve of V 365 Lyr





V 366 Lyr = USNO 1350-10257794 = S 9353
From 457 observations can be given following elements:

Max = J.D. 2449841,421 (0,004) + 0^d,5270246 (0,0000004) x E

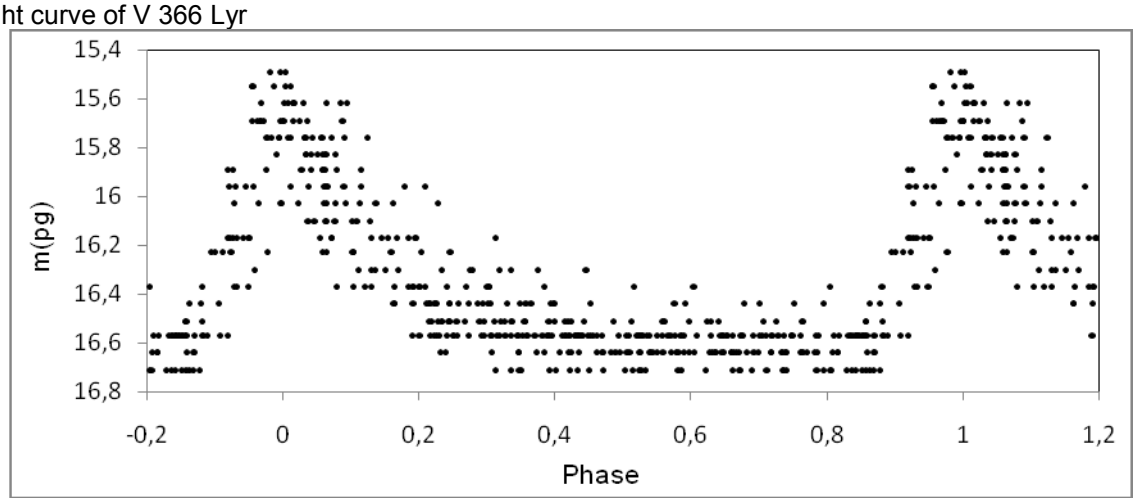
Type = RRab Max = 15^m,6 Min = 16^m,6 M – m = 0^p,13

Observed maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38551,508	-21422	0,008	Hau	45645,235	-7962	-0,016	Hau
38636,349	-21261	-0,002	Hau	45645,235	-7962	-0,016	Hau
38941,506	-20682	0,008	Hau	45816,514	-7637	-0,020	Hau
39054,265	-20468	-0,016	Hau	46291,385	-6736	0,002	Hau
39263,514	-20071	0,004	Hau	46386,266	-6556	0,018	Hau
39349,421	-19908	0,006	Hau	46387,304	-6554	0,002	Hau
42958,473	-13060	-0,007	Hau	46642,391	-6070	0,009	Hau
44458,392	-10214	0,000	Hau	46699,289	-5962	-0,011	Hau
44468,397	-10195	-0,008	Hau	46728,304	-5907	0,017	Hau
45085,533	-9024	-0,018	Hau	47365,460	-4698	0,001	Hau
45141,433	-8918	0,017	Hau	47648,448	-4161	-0,024	Hau

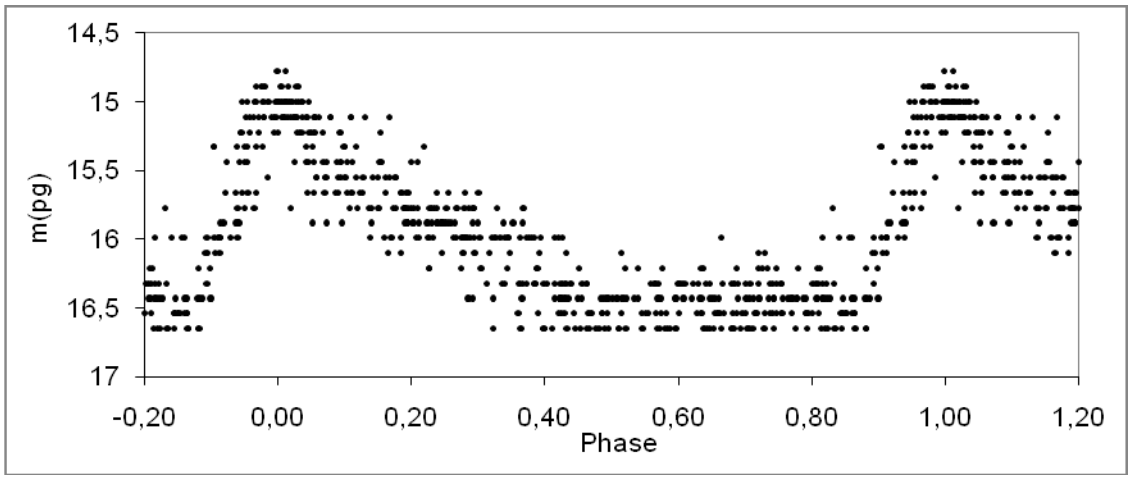
45180,413	-8844	-0,002	Hau	47678,510	-4104	-0,002	Hau
45211,511	-8785	0,001	Hau	48096,440	-3311	-0,003	Hau
45227,329	-8755	0,008	Hau	48883,296	-1818	0,006	Hau
45492,399	-8252	-0,015	Hau	49101,469	-1404	-0,009	Hau
45578,335	-8089	0,016	Hau	49841,440	0	0,019	Hau
45607,318	-8034	0,013	Hau				

Light curve of V 366 Lyr



V 367 Lyr = USNO 1275-10894559 = S 9656
The coordinates of this star are inaccurate. From 579 observations can be given following elements:

Max = J.D. 2449600,354 (±0,003) + 0^d,4660938 (±0,0000003) x E
Type = RRab Max = 14^m,9 Min = 16^m,5 M – m = 0^p,15



Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38587,502	-23628	0,012	Hau	46566,571	-6509	0,022	Hau
38643,431	-23508	0,010	Hau	46608,483	-6419	-0,015	Hau
39288,501	-22124	0,006	Hau	46644,388	-6342	0,001	Hau
39351,422	-21989	0,005	Hau	46733,404	-6151	-0,007	Hau
44101,373	-11798	-0,006	Hau	46917,509	-5756	-0,009	Hau
44458,392	-11032	-0,015	Hau	46924,509	-5741	0,000	Hau
44465,405	-11017	0,006	Hau	47028,454	-5518	0,006	Hau
45138,422	-9573	-0,016	Hau	47392,446	-4737	-0,022	Hau
45194,353	-9453	-0,016	Hau	48106,540	-3205	0,017	Hau

45229,316	-9378	-0,010	Hau	48178,307	-3051	0,005	Hau
45489,397	-8820	-0,010	Hau	48184,369	-3038	0,008	Hau
45607,318	-8567	-0,010	Hau	48395,509	-2585	0,007	Hau
45761,620	-8236	0,015	Hau	48444,441	-2480	0,000	Hau
45818,471	-8114	0,002	Hau	48746,470	-1832	0,000	Hau
46147,530	-7408	-0,001	Hau	48830,380	-1652	0,013	Hau
46175,472	-7348	-0,025	Hau	49131,468	-1006	0,004	Hau
46266,395	-7153	0,010	Hau	49278,300	-691	0,017	Hau
46300,408	-7080	-0,002	Hau	49503,409	-208	0,003	Hau
46385,227	-6898	-0,012	Hau	49600,362	0	0,008	Hau

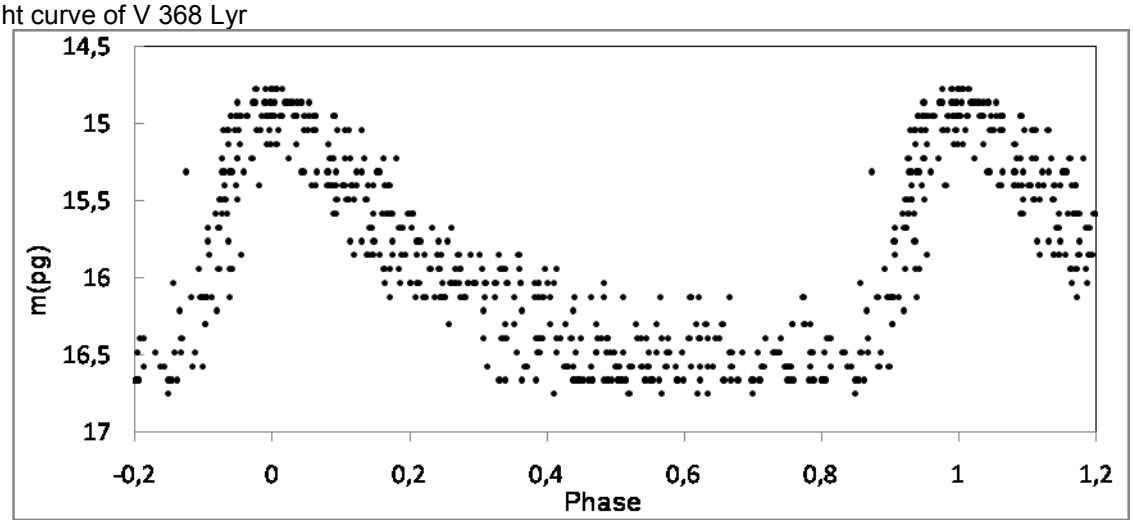
V 368 Lyr = USNO 1275-10887526 = S 9354
The following elements are the result from 484 observations:

Max = J.D. 2449503,410 (±0,003) + 0^d,4564843 (±0,0000004) x E
Type = RRab Max = 14^m,8 Min = 16^m,7 M – m = 0^p,15

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38587,502	-23913	0,001	Hau	46709,283	-6121	0,013	Hau
38636,349	-23806	0,004	Hau	46915,577	-5669	-0,024	Hau
38640,424	-23797	-0,029	Hau	46926,555	-5645	-0,001	Hau
38695,247	-23677	0,016	Hau	47028,393	-5422	0,041	Hau
39376,325	-22185	0,019	Hau	47262,535	-4909	0,006	Hau
41929,396	-16592	-0,026	Hau	47294,502	-4839	0,020	Hau
44101,351	-11834	-0,024	Hau	47325,511	-4771	-0,012	Hau
44468,397	-11030	0,009	Hau	47591,659	-4188	0,005	Hau
44793,413	-10318	0,008	Hau	47682,483	-3989	-0,011	Hau
45085,533	-9678	-0,022	Hau	47714,460	-3919	0,012	Hau
45192,397	-9444	0,025	Hau	47804,374	-3722	-0,001	Hau
45211,543	-9402	-0,002	Hau	48092,416	-3091	-0,001	Hau
45464,453	-8848	0,016	Hau	48097,414	-3080	-0,024	Hau
45612,348	-8524	0,010	Hau	48177,344	-2905	0,021	Hau
45607,318	-8535	0,002	Hau	48188,258	-2881	-0,021	Hau
45649,300	-8443	-0,013	Hau	48443,426	-2322	-0,027	Hau
45671,217	-8395	-0,007	Hau	48544,331	-2101	-0,005	Hau
45676,248	-8384	0,002	Hau	48682,629	-1798	-0,022	Hau
45814,533	-8081	-0,027	Hau	48683,560	-1796	-0,004	Hau
45815,502	-8079	0,029	Hau	48720,540	-1715	0,001	Hau
45936,424	-7814	-0,018	Hau	48763,420	-1621	-0,029	Hau
46177,433	-7286	-0,032	Hau	48773,519	-1599	0,027	Hau
46272,443	-7078	0,029	Hau	48800,427	-1540	0,003	Hau
46299,336	-7019	-0,011	Hau	48837,424	-1459	0,025	Hau
46320,334	-6973	-0,011	Hau	48863,419	-1402	0,000	Hau
46474,653	-6635	0,016	Hau	49066,542	-957	-0,013	Hau
46576,428	-6412	-0,005	Hau	49098,505	-887	-0,003	Hau
46591,518	-6379	0,021	Hau	49099,437	-885	0,016	Hau
46597,445	-6366	0,014	Hau	49422,608	-177	-0,004	Hau
46645,385	-6261	0,023	Hau	49449,551	-118	0,006	Hau
46708,335	-6123	-0,022	Hau	49503,409	0	-0,001	Hau

Light curve of V 368 Lyr



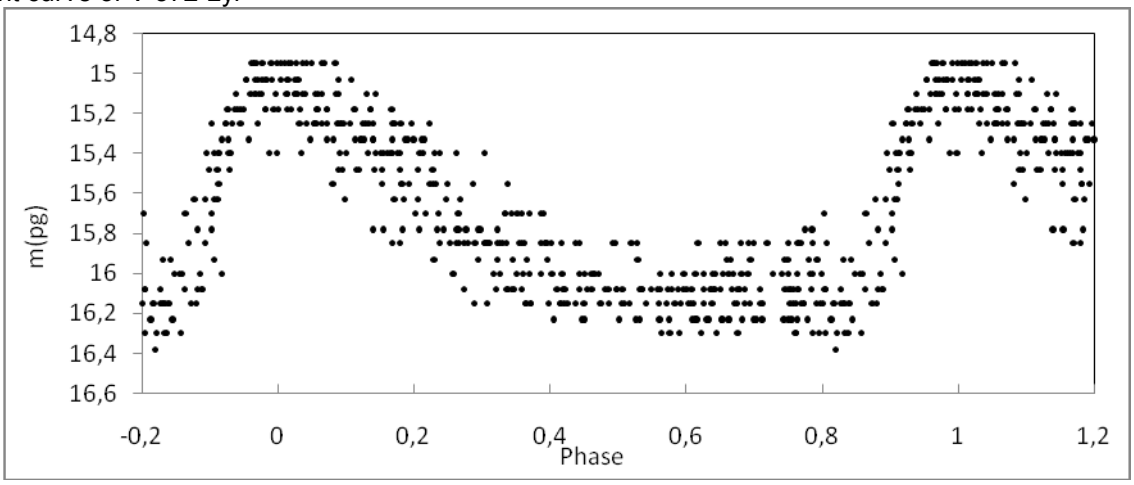
V 372 Lyr = USNO 1275-11040374 = S 9358
From 479 observations I can give the elements:

Max = J.D. 2450248,492 (±0,005) + 0^d,529110 (±0,0000004) x E
Type = RRab max = 15^m,0 Min = 16^m,2 M – m = 0^p,15

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38579,467	-22054	-0,033	Hau	46728,304	-6653	-0,019	Hau
38642,459	-21935	-0,005	Hau	46851,640	-6420	0,034	Hau
38675,276	-21873	0,007	Hau	46861,674	-6401	0,015	Hau
38996,412	-21266	-0,027	Hau	46913,520	-6303	0,008	Hau
39021,309	-21219	0,002	Hau	46923,564	-6284	-0,001	Hau
39056,266	-21153	0,038	Hau	46939,435	-6254	-0,003	Hau
39057,265	-21151	-0,021	Hau	47029,406	-6084	0,019	Hau
39376,325	-20548	-0,015	Hau	47648,448	-4914	0,003	Hau
39739,338	-19862	0,029	Hau	47748,435	-4725	-0,012	Hau
41922,431	-15736	0,014	Hau	47817,239	-4595	0,007	Hau
41984,305	-15619	-0,018	Hau	48093,408	-4073	-0,019	Hau
44458,432	-10943	-0,009	Hau	48102,417	-4056	-0,005	Hau
44466,395	-10928	0,017	Hau	48305,636	-3672	0,036	Hau
44793,413	-10310	0,045	Hau	48395,509	-3502	-0,040	Hau
45104,460	-9722	-0,025	Hau	48747,429	-2837	0,022	Hau
45228,312	-9488	0,016	Hau	48766,423	-2801	-0,032	Hau
45493,402	-8987	0,022	Hau	48802,435	-2733	0,001	Hau
45530,406	-8917	-0,012	Hau	48838,424	-2665	0,010	Hau
45672,227	-8649	0,007	Hau	49193,429	-1994	-0,018	Hau
45770,660	-8463	0,026	Hau	49449,551	-1510	0,015	Hau
45814,533	-8380	-0,017	Hau	49476,498	-1459	-0,023	Hau
46266,395	-7526	-0,015	Hau	49511,429	-1393	-0,013	Hau
46293,378	-7475	-0,017	Hau	49565,401	-1291	-0,010	Hau
46328,307	-7409	-0,009	Hau	49600,362	-1225	0,030	Hau
46709,283	-6689	0,008	Hau	50248,467	0	-0,025	Hau

Light curve of V 372 Lyr

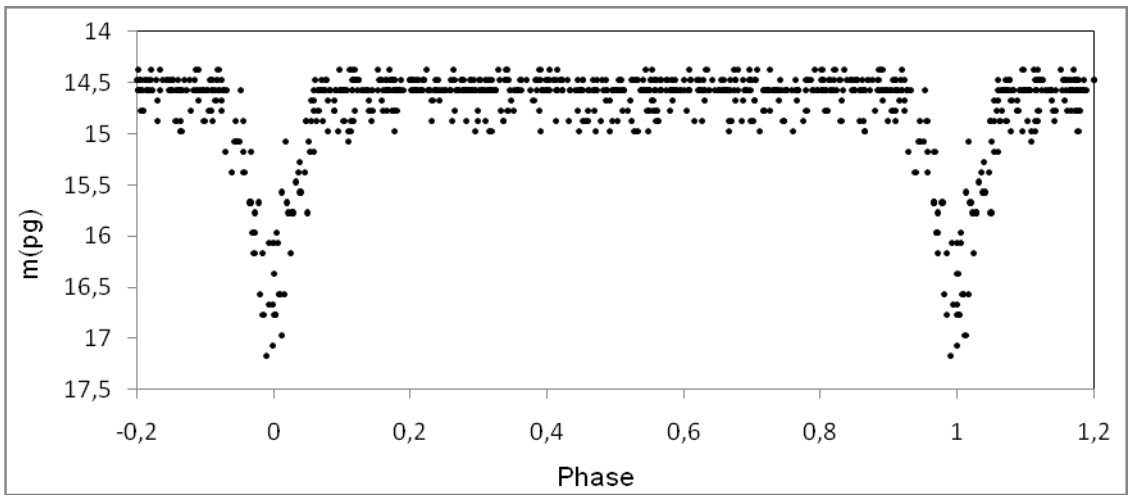


V 449 Lyr = USNO 1275-10801482 = GR 249
Discovered by Romano, G. (4) and classified as eclipsing binary.
I hav observed the star on 621 plates and found following elements:

Min = J.D. 2449545,423 (±0,010) + 3^{d},6070213 (±0,000007) x E
Type = EA Max = 14^{m},5 Min = 17^{m},1 D = 0^{p},12

Minima:

Minimum	Epoch	O - C	Obs.	Minimum	Epoch	O - C	Obs.
38594,525	-3036	0,019	Hau	48095,408	-402	0,008	Hau
39027,348	-2916	-0,001	Hau	48178,307	-379	-0,055	Hau
39348,395	-2827	0,021	Hau	48773,519	-214	-0,001	Hau
41927,396	-2112	0,002	Hau	48802,435	-206	0,058	Hau
45130,402	-1224	-0,027	Hau	48838,424	-196	-0,023	Hau
45646,231	-1081	-0,002	Hau	49076,543	-130	0,033	Hau
46147,553	-942	-0,056	Hau	49271,301	-76	0,012	Hau
46645,385	-804	0,007	Hau	49480,498	-18	0,001	Hau
46728,304	-781	-0,035	Hau	49545,466	0	0,043	Hau



V 450 Lyr = USNO 1275-10853351 = GR 250
The first period of Haussler, K. (9), P=0,5046104 was to small. The improved elements are:

Max = J.D. 2449545,492 (±0,006) + 0^d,5046155 (±0,0000004) x E
Type = RRab Max = 14^m,4 Min = 15^m,2 M – m = 0^p,14

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38370,267	-22146	-0,010	Hau	45493,402	-8030	-0,028	Hau
38558,506	-21773	0,007	Hau	45494,461	-8028	0,022	Hau
38559,503	-21771	-0,005	Hau	45645,282	-7729	-0,037	Hau
38613,516	-21664	0,014	Hau	46017,242	-6992	0,022	Hau
38652,349	-21587	-0,008	Hau	46113,636	-6801	0,034	Hau
38695,247	-21502	-0,003	Hau	46116,643	-6795	0,013	Hau
38937,503	-21022	0,038	Hau	46592,503	-5852	0,021	Hau
38940,505	-21016	0,012	Hau	47028,454	-4988	-0,016	Hau
38941,506	-21014	0,004	Hau	47691,512	-3674	-0,023	Hau
39702,441	-19506	-0,021	Hau	48060,417	-2943	0,008	Hau
39704,481	-19502	0,000	Hau	48128,516	-2808	-0,016	Hau
41984,305	-14984	-0,028	Hau	48206,256	-2654	0,014	Hau
44458,455	-10081	-0,008	Hau	48304,646	-2459	0,004	Hau
45162,405	-8686	0,003	Hau	48769,426	-1538	0,033	Hau
45164,410	-8682	-0,010	Hau	48770,410	-1536	0,007	Hau
45489,397	-8038	0,004	Hau	49163,504	-757	0,006	Hau
45492,399	-8032	-0,021	Hau	49545,466	0	-0,026	Hau

V 839 Cyg = USNO 1350-10443022 = SVS 707
The star was discovered by Beljavski, S. (5) as RR Lyrae star.
Piening, A.T. (6) found eclipsing binary with 5,3 days period. Malkov, O.Y. (7) uses the values in “A catalogue of eclipsing variables”.
I hav observed this star on 558 plates. V 839 Cyg is not a eclipsing binary, it is a RR Lyrae star with the following elements:

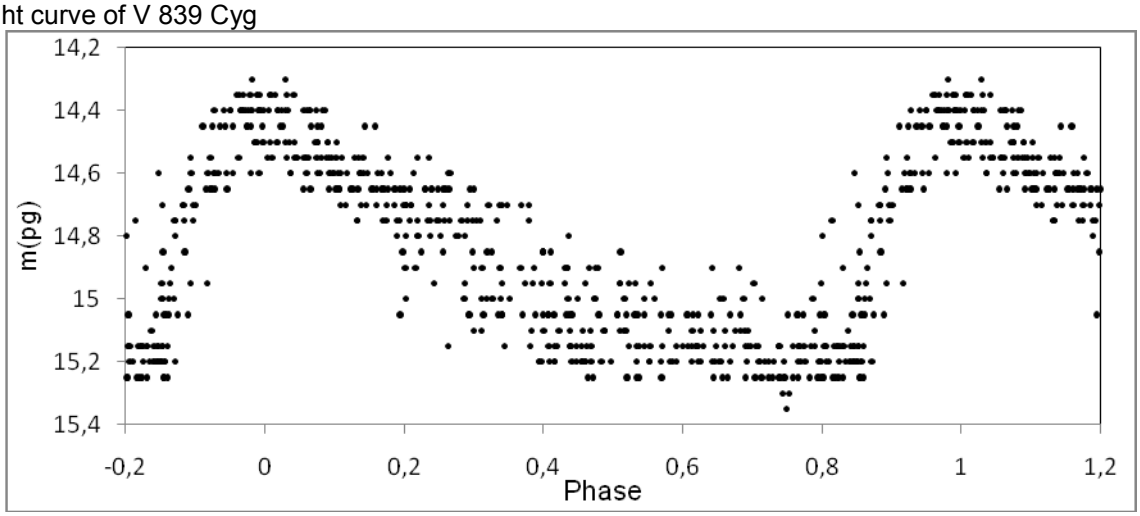
Max = 2449862,461 (±0,004) + 0^d,433776 (±0,0000003) x E
Type = RRab Max = 14^m,4 Min = 15^m,3 M – m = 0^p,14

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38636,349	-25880	0,011	Hau	46741,417	-7195	-0,026	Hau
38642,417	-25866	0,006	Hau	46851,640	-6941	0,018	Hau
38652,391	-25843	0,003	Hau	46881,536	-6872	-0,016	Hau
38669,313	-25804	0,008	Hau	46924,499	-6773	0,003	Hau
38709,245	-25712	0,033	Hau	46944,436	-6727	-0,014	Hau
38936,505	-25188	-0,006	Hau	46977,421	-6651	0,004	Hau
39059,268	-24905	-0,002	Hau	47294,502	-5920	-0,005	Hau
39260,514	-24441	-0,028	Hau	47591,659	-5235	0,015	Hau
39293,504	-24365	-0,005	Hau	47648,459	-5104	-0,009	Hau
44458,455	-12458	-0,025	Hau	47655,423	-5088	0,014	Hau
44465,405	-12442	-0,015	Hau	47671,472	-5051	0,014	Hau
45087,465	-11008	0,010	Hau	47717,407	-4945	-0,032	Hau
45130,402	-10909	0,003	Hau	47736,510	-4901	-0,015	Hau
45196,370	-10757	0,037	Hau	47817,239	-4715	0,032	Hau

45222,356	-10697	-0,003	Hau	47826,315	-4694	-0,001	Hau
45496,494	-10065	-0,012	Hau	48176,365	-3887	-0,009	Hau
45546,376	-9950	-0,014	Hau	48444,441	-3269	-0,006	Hau
45642,250	-9729	-0,004	Hau	48682,629	-2720	0,039	Hau
45645,282	-9722	-0,009	Hau	48762,394	-2536	-0,011	Hau
45770,660	-9433	0,008	Hau	48801,423	-2446	-0,022	Hau
45912,483	-9106	-0,014	Hau	48834,404	-2370	-0,008	Hau
46263,418	-8297	-0,004	Hau	48884,314	-2255	0,018	Hau
46343,265	-8113	0,029	Hau	48887,359	-2248	0,026	Hau
46474,653	-7810	-0,017	Hau	49099,437	-1759	-0,012	Hau
46554,492	-7626	0,007	Hau	49422,608	-1014	-0,004	Hau
46577,467	-7573	-0,008	Hau	49449,551	-952	0,045	Hau
46643,399	-7421	-0,010	Hau	49541,464	-740	-0,003	Hau
46706,287	-7276	-0,020	Hau	49862,463	0	0,002	Hau

Light curve of V 839 Cyg



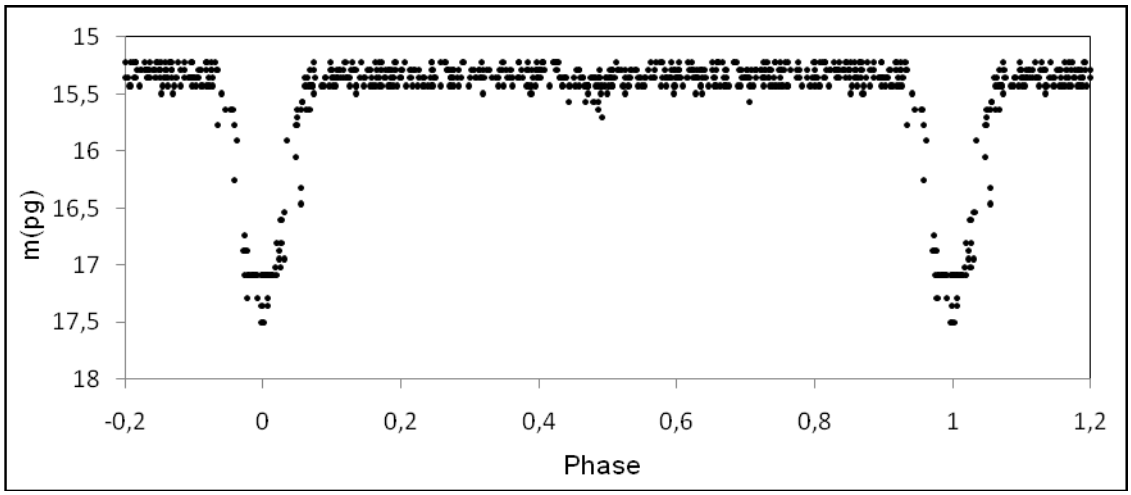
V 1103 Cyg = USNO 1350-10346251 = S 9357
From 617 observations I can give the following elements:

Min = J.D. 2449449,577 (±0,010) + 2^d,4095428 (±0,000005) x E
Type = EA Max = 15^m,4 Min = 17^m,5 / 15^m,5 D = 0^p,13

Minima:

Minimum	Epoch	O - C	Obs.	Minimum	Epoch	O - C	Obs.
38652,391	-4481	-0,025	Hau	47678,500	-735	-0,063	Hau
38669,313	-4474	0,030	Hau	47719,520	-718	-0,005	Hau
38941,506	-4361	-0,055	Hau	47736,523	-711	0,131	Hau
39028,349	-4325	0,045	Hau	47748,435	-706	-0,005	Hau
39288,501	-4217	-0,034	Hau	47777,318	-694	-0,036	Hau
45165,408	-1778	-0,002	Hau	48095,408	-562	-0,006	Hau
45194,353	-1766	0,029	Hau	48177,300	-528	-0,038	Hau
45524,494	-1629	0,062	Hau	48413,451	-430	-0,023	Hau
45676,248	-1566	0,015	Hau	48454,451	-413	0,015	Hau
45936,424	-1458	-0,040	Hau	48801,423	-269	0,013	Hau
46177,433	-1358	0,015	Hau	48883,296	-235	-0,038	Hau
46271,397	-1319	0,007	Hau	49119,473	-137	0,003	Hau
46577,402	-1192	0,000	Hau	49131,468	-132	-0,049	Hau

46861,674	-1074	-0,054	Hau	49213,468	-98	0,026	Hau
46977,421	-1026	0,035	Hau	49271,301	-74	0,030	Hau
47030,393	-1004	-0,003	Hau	49449,551	0	-0,026	Hau



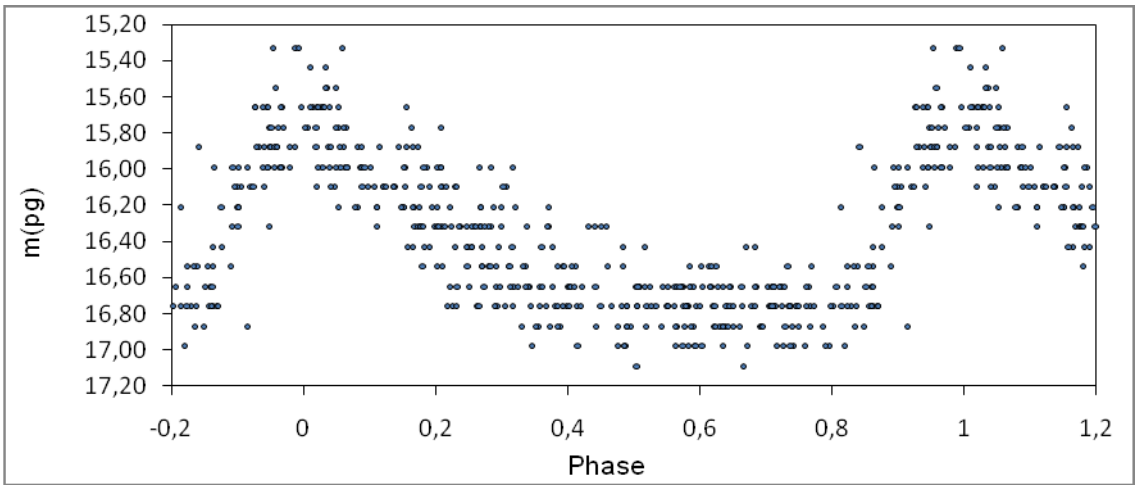
V 1107 Cyg = USNO 1350-10432575 = S 9360
From 440 observations can be given the following elements:

Max = J.D. 2449066,523 (±0,008) + 0^d,5657807 (±0,0000008) x E

Type = RRab Max = 15^m,5 Min = 16^m,8 M – m = 0^p,16

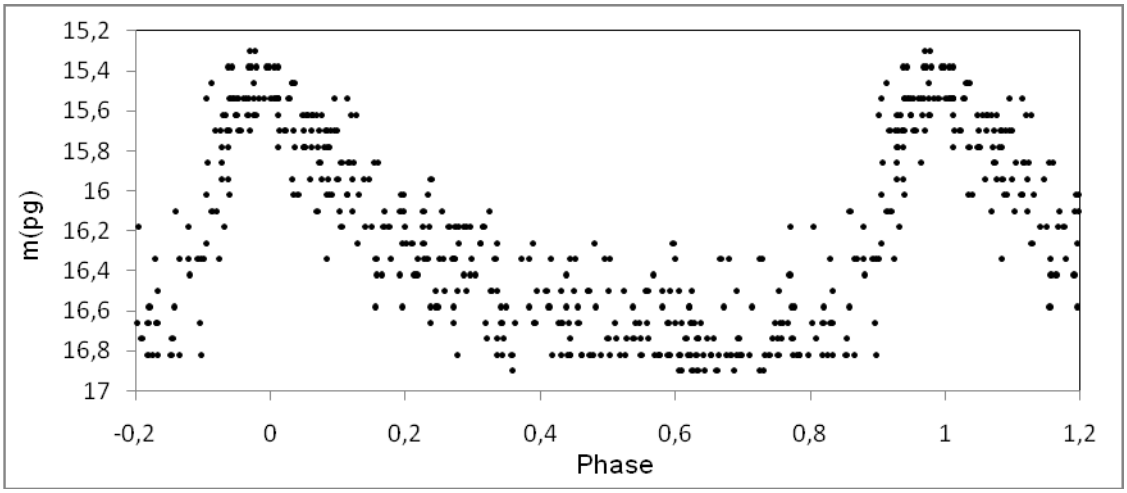
Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38551,508	-18585	0,019	Hau	45556,440	-6204	0,020	Hau
38636,349	-18435	-0,007	Hau	45577,334	-6167	-0,019	Hau
38670,299	-18375	-0,004	Hau	46261,400	-4958	0,018	Hau
38977,480	-17832	-0,042	Hau	46640,432	-4288	-0,023	Hau
39053,344	-17698	0,008	Hau	47028,546	-3602	-0,035	Hau
40740,506	-14716	0,012	Hau	47414,449	-2920	0,006	Hau
44468,397	-8127	-0,026	Hau	48179,338	-1568	-0,041	Hau
45130,402	-6957	0,015	Hau	48747,429	-564	0,006	Hau
45169,407	-6888	-0,019	Hau	48927,369	-246	0,028	Hau
45194,353	-6844	0,033	Hau	49062,532	-7	-0,031	Hau
45441,596	-6407	0,030	Hau	49066,542	0	0,019	Hau
45547,384	-6220	0,017	Hau				



NSV 11228 = USNO 1350-09841816 = S 9325
From 386 observations can be given following elements:

Max = J.D. 2449600,397 (±0,005) + 0^d,5044414 (±0,0000004) x E
Type = RRab Max = 15^m,4 Min 16^m,8 M – m = 0^p,15



Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38592,494	-21822	0,017	Hau	46554,571	-6038	-0,009	Hau
38636,349	-21735	-0,014	Hau	46597,445	-5953	-0,012	Hau
38638,387	-21731	0,006	Hau	46645,385	-5858	0,006	Hau
38642,417	-21723	0,001	Hau	46646,383	-5856	-0,005	Hau
38643,431	-21721	0,006	Hau	46939,466	-5275	-0,003	Hau
38883,570	-21245	0,031	Hau	46941,501	-5271	0,015	Hau
38935,503	-21142	0,006	Hau	46991,410	-5172	-0,016	Hau
38936,505	-21140	-0,001	Hau	47038,387	-5079	0,048	Hau
38937,503	-21138	-0,012	Hau	47039,396	-5077	0,048	Hau
38941,506	-21130	-0,044	Hau	47392,446	-4377	-0,011	Hau
39024,310	-20966	0,031	Hau	47678,500	-3810	0,025	Hau
39619,536	-19786	0,017	Hau	47682,483	-3802	-0,028	Hau
39765,306	-19497	0,003	Hau	47776,368	-3616	0,031	Hau
41984,305	-15098	-0,036	Hau	47817,239	-3535	0,042	Hau
45077,560	-8966	-0,015	Hau	47822,257	-3525	0,016	Hau
45116,394	-8889	-0,023	Hau	47823,256	-3523	0,006	Hau
45180,456	-8762	-0,025	Hau	48068,427	-3037	0,019	Hau
45225,351	-8673	-0,026	Hau	48133,469	-2908	-0,012	Hau
45461,462	-8205	0,007	Hau	48176,365	-2823	0,006	Hau
45464,453	-8199	-0,029	Hau	48177,344	-2821	-0,024	Hau
45519,446	-8090	-0,020	Hau	48360,525	-2458	0,045	Hau
45524,494	-8080	-0,016	Hau	48412,451	-2355	0,013	Hau
45621,353	-7888	-0,010	Hau	48712,568	-1760	-0,012	Hau
45770,660	-7592	-0,018	Hau	48863,419	-1461	0,011	Hau
45814,533	-7505	-0,031	Hau	49098,505	-995	0,027	Hau
45913,404	-7309	-0,031	Hau	49099,437	-993	-0,050	Hau
45916,436	-7303	-0,025	Hau	49215,493	-763	-0,015	Hau

46147,530	-6845	0,034	Hau	49259,399	-676	0,004	Hau
46261,541	-6619	0,042	Hau	49600,362	0	-0,035	Hau
46299,336	-6544	0,004	Hau				

NSV 11306 = USNO 1350-09880474 = S 9330
The period is variable of this eclipsing binary. Near epoch -1200 is an alteration of the period.
From 577 observations can be given the following elements:
From J.D. 2438000 until 2446500 :

Min = J.D. 2446474,609 (±0,016) + 2^d,5909019 (±0,000001) x E

Since J.D. 2446500

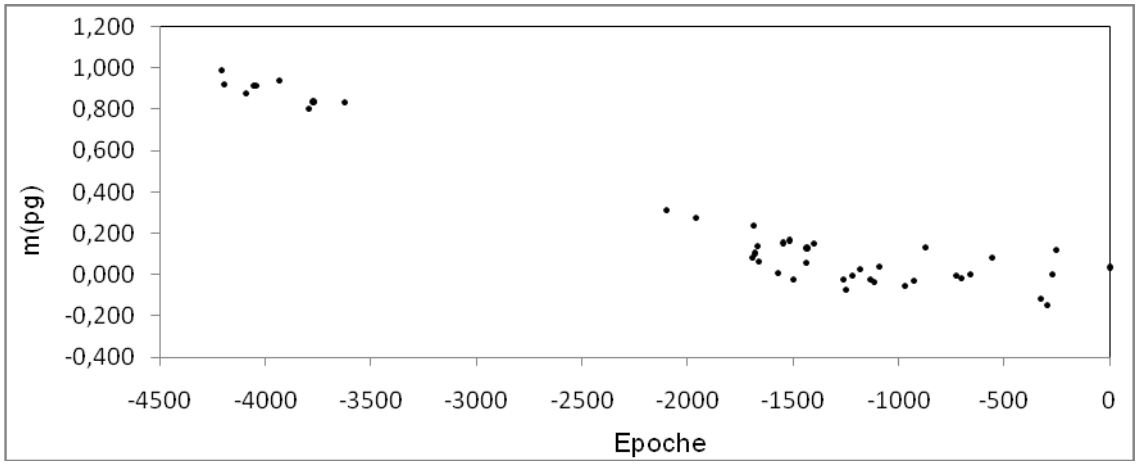
Min = J.D. 2449537,459 (±0,037) + 2^d,5912285 (±0,00004) x E (O – C calculated)

Type = EB Max = 15^m,5 Min = 16^m,5 / 16^m,5

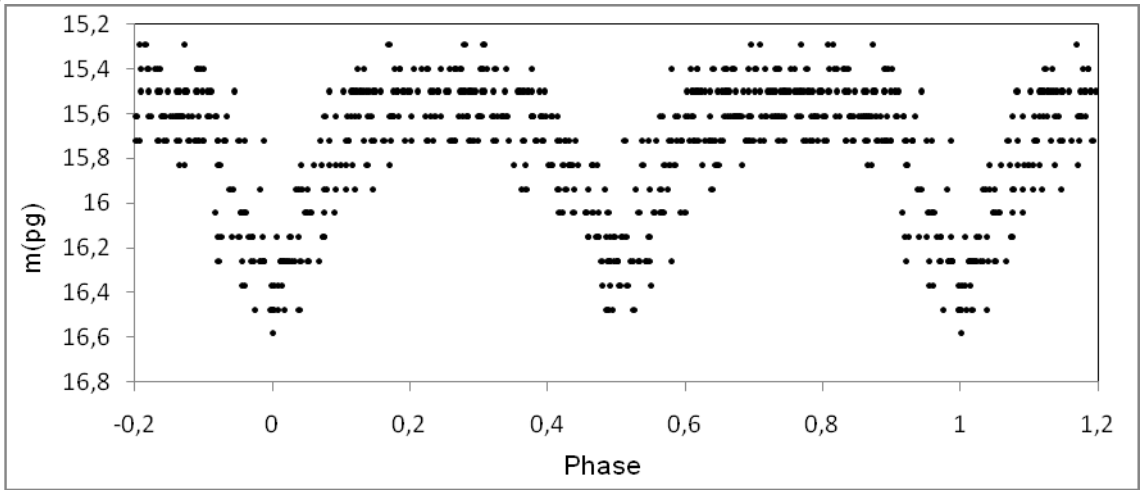
Minima:

Minimum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38642,332	-4205	0,989	Hau	45820,471	-1434,5	0,129	Hau
38673,357	-4193	0,919	Hau	45912,483	-1399	0,153	Hau
38941,506	-4089,5	0,876	Hau	46263,418	-1263,5	-0,024	Hau
39028,349	-4056	0,913	Hau	46298,348	-1250	-0,075	Hau
39054,265	-4046	0,917	Hau	46385,227	-1216,5	-0,003	Hau
39348,395	-3932,5	0,942	Hau	46474,653	-1182	0,026	Hau
39708,438	-3793,5	0,804	Hau	46592,503	-1136,5	-0,025	Hau
39760,295	-3773,5	0,837	Hau	46640,432	-1118	-0,034	Hau
40150,274	-3623	0,836	Hau	46705,283	-1093	0,037	Hau
44101,373	-2098	0,311	Hau	47030,393	-967,5	-0,052	Hau
44465,405	-1957,5	0,276	Hau	47139,248	-925,5	-0,029	Hau
45145,410	-1695	0,083	Hau	47271,561	-874,5	0,131	Hau
45162,405	-1688,5	0,235	Hau	47648,448	-729	-0,005	Hau
45180,413	-1681,5	0,105	Hau	47714,515	-703,5	-0,015	Hau
45211,543	-1669,5	0,140	Hau	47827,251	-660	0,003	Hau
45228,312	-1663	0,066	Hau	48099,412	-555	0,085	Hau
45461,462	-1573	0,005	Hau	48692,602	-326	-0,117	Hau
45535,461	-1544,5	0,154	Hau	48766,423	-297,5	-0,146	Hau
45609,323	-1516	0,166	Hau	48840,422	-269	0,003	Hau
45649,300	-1500,5	-0,021	Hau	48883,296	-252,5	0,122	Hau
45816,514	-1436	0,059	Hau	49537,495	0	0,036	Hau

O - C curve of NSV 11306



Light curve of NSV 11306



NSV 11369 = USNO 1275-10370258 = SVS 1017
The star was discovered by Parenago, P.P. (8).
From 647 observations can be given the following elements:

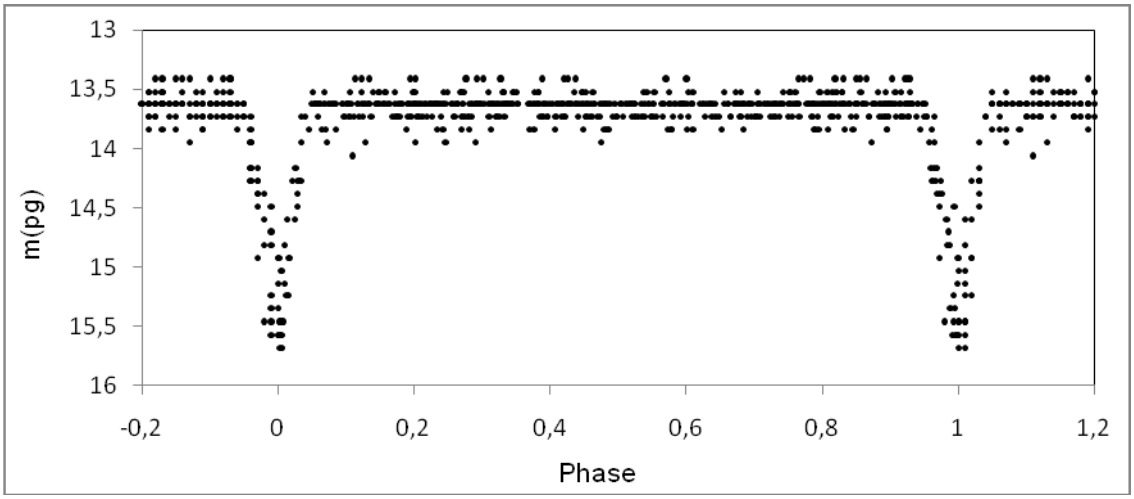
Min = J.D. 2449237,326 (±0,004) + 1^d,5822104 (±0,000001) x E

Type = EA Max = 13^m,6 Min = 15^m,5 D = 0^p,11

Minima:

Minimum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
29521,370	-12461	-0,032	Par	46707,361	-1599	-0,011	Hau
38652,349	-6690	0,011	Hau	46884,596	-1487	0,017	Hau
39027,348	-6453	0,026	Hau	47028,546	-1396	-0,014	Hau
39704,481	-6025	-0,027	Hau	47691,512	-977	0,006	Hau
44465,369	-3016	-0,010	Hau	47748,435	-941	-0,031	Hau
45082,423	-2626	-0,018	Hau	47805,429	-905	0,003	Hau
45196,370	-2554	0,009	Hau	48093,408	-723	0,020	Hau
45441,596	-2399	-0,007	Hau	48131,369	-699	0,008	Hau
45609,323	-2293	0,005	Hau	48544,331	-438	0,013	Hau
45674,216	-2252	0,028	Hau	48683,560	-350	0,008	Hau
45770,660	-2191	-0,043	Hau	48767,400	-297	-0,010	Hau
45911,516	-2102	-0,004	Hau	48835,450	-254	0,005	Hau
46321,321	-1843	0,009	Hau	48862,339	-237	-0,003	Hau
46566,571	-1688	0,016	Hau	49237,319	0	-0,007	Hau

Light curve of NSV 11369



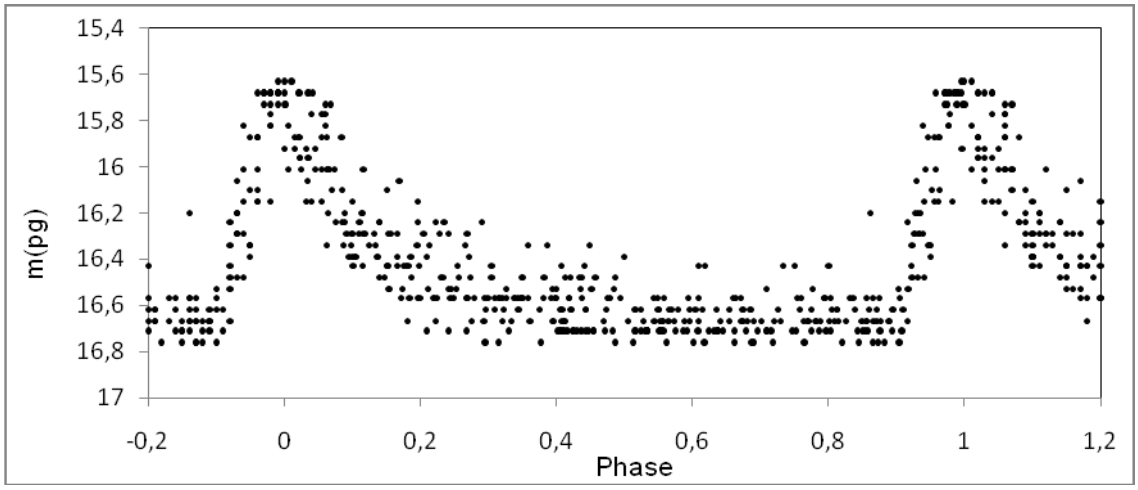
NSV 11558 = USNO 1275-10518530 = S 9644
From 434 observations can be given the following elements:

Max = J.D. 2449215,482 (±0,004) + 0^d,5197337 (±0,0000004) x E
Type = RRab Max = 15^m,7 Min = 16^m,7 M – m = 0^p,11

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38638,387	-20351	0,006	Hau	46608,483	-5016	-0,015	Hau
38651,373	-20326	-0,002	Hau	46645,385	-4945	-0,014	Hau
38652,432	-20324	0,018	Hau	46925,571	-4406	0,036	Hau
38674,274	-20282	0,031	Hau	46939,561	-4379	-0,007	Hau
38675,276	-20280	-0,007	Hau	47028,454	-4208	0,011	Hau
39056,266	-19547	0,019	Hau	47294,535	-3696	-0,011	Hau
39057,265	-19545	-0,022	Hau	47686,446	-2942	0,021	Hau
39350,420	-18981	0,003	Hau	47714,515	-2888	0,024	Hau
40150,274	-17442	-0,013	Hau	47776,368	-2769	0,029	Hau
45105,416	-7908	-0,012	Hau	47778,399	-2765	-0,019	Hau
45145,446	-7831	-0,001	Hau	47805,429	-2713	-0,015	Hau
45196,370	-7733	-0,011	Hau	48068,427	-2207	-0,003	Hau
45222,356	-7683	-0,012	Hau	48093,408	-2159	0,031	Hau
45488,452	-7171	-0,020	Hau	48692,602	-1006	-0,028	Hau
45577,334	-7000	-0,012	Hau	48831,430	-739	0,031	Hau
45818,471	-6536	-0,032	Hau	48832,430	-737	-0,008	Hau
45843,444	-6488	-0,006	Hau	48894,308	-618	0,021	Hau
46289,381	-5630	0,000	Hau	49163,504	-100	-0,005	Hau
46327,307	-5557	-0,015	Hau	49215,493	0	0,011	Hau
46352,267	-5509	-0,002	Hau				

Light curve of NSV 11558



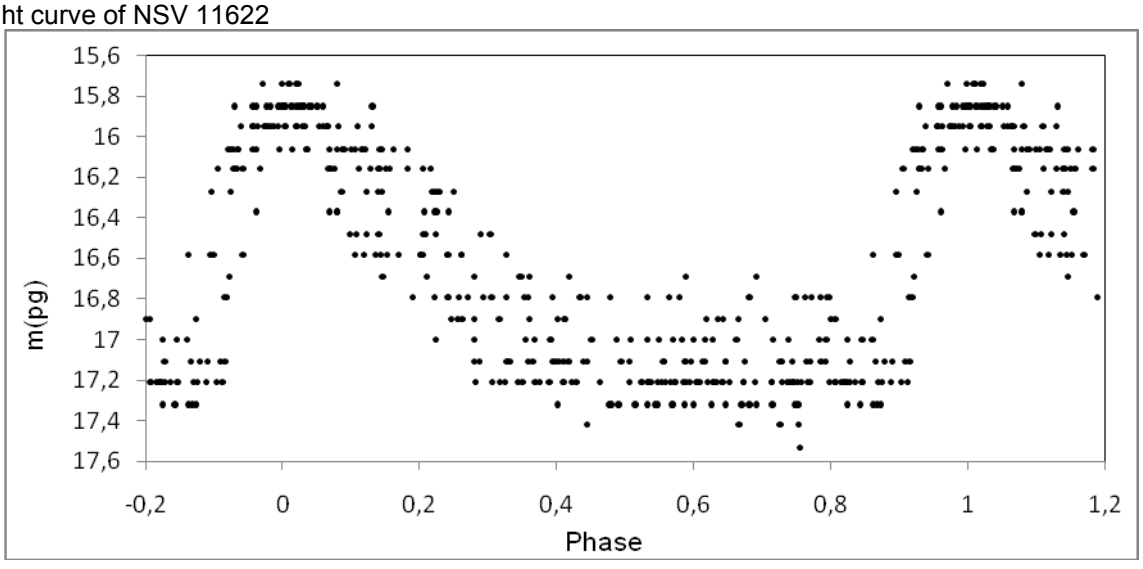
NSV 11622 = USNO 1275-10587225 = S 9648
This RR Lyrae star has following elements:

Max = J.D. 2449841,428 (±0,003) + 0^d,530610 (±0,0000003) x E
Type = RRab Max = 15^m,8 Min = 17^m,2 M – m = 0^p,14

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38592,494	-21200	-0,002	Hau	46592,503	-6123	0,000	Hau
38642,375	-21106	0,002	Hau	46642,391	-6029	0,011	Hau
38652,432	-21087	-0,023	Hau	46685,348	-5948	-0,012	Hau
38675,276	-21044	0,005	Hau	46913,520	-5518	-0,002	Hau
38709,245	-20980	0,015	Hau	46923,584	-5499	-0,020	Hau
39056,266	-20326	0,017	Hau	47380,436	-4638	-0,023	Hau
39260,514	-19941	-0,020	Hau	47591,659	-4240	0,017	Hau
40740,420	-17152	0,015	Hau	47648,448	-4133	0,031	Hau
41927,396	-14915	0,016	Hau	47717,407	-4003	0,011	Hau
44458,392	-10145	0,002	Hau	47719,520	-3999	0,001	Hau
45085,555	-8963	-0,016	Hau	47769,398	-3905	0,002	Hau
45145,507	-8850	-0,022	Hau	47778,399	-3888	-0,017	Hau
45169,407	-8805	0,000	Hau	47827,251	-3796	0,019	Hau
45194,353	-8758	0,007	Hau	48099,412	-3283	-0,023	Hau
45203,354	-8741	-0,012	Hau	48174,267	-3142	0,016	Hau
45228,312	-8694	0,007	Hau	48175,319	-3140	0,006	Hau
45441,596	-8292	-0,014	Hau	48176,365	-3138	-0,009	Hau
45464,453	-8249	0,027	Hau	48395,509	-2725	-0,007	Hau
45525,433	-8134	-0,013	Hau	48766,423	-2026	0,011	Hau
45820,471	-7578	0,006	Hau	48801,423	-1960	-0,009	Hau
45940,383	-7352	0,000	Hau	48894,308	-1785	0,019	Hau
46175,456	-6909	0,012	Hau	49131,468	-1338	-0,004	Hau
46177,577	-6905	0,011	Hau	49503,409	-637	-0,020	Hau
46287,379	-6698	-0,023	Hau	49841,440	0	0,012	Hau
46473,648	-6347	0,002	Hau				

Light curve of NSV 11622



NSV 11637 = USNO 1350-10092534 = S 9650
I have observed this star on 584 plates and found the following elements.

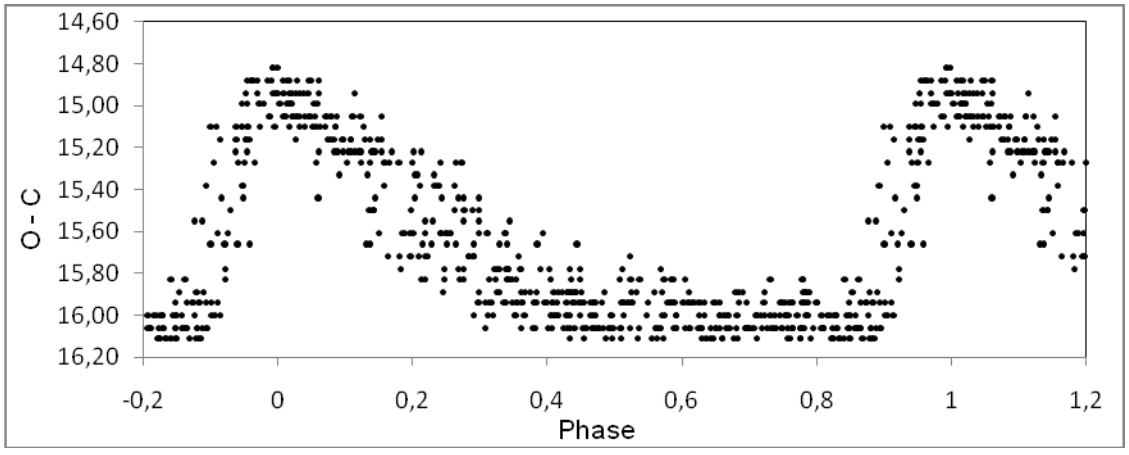
$$\text{Max} = \text{J.D. } 2449542{,}407\ (\pm 0{,}003) + 0^{d}{,}5514079\ (\pm 0{,}0000004) \times E$$

Type = RRab Max = $14^{m}{,}9$ Min = $16^{m}{,}0$ M – m = $0^{p}{,}12$

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38613,494	-19820	-0,008	Hau	46704,315	-5147	0,004	Hau
38650,444	-19753	-0,003	Hau	46709,283	-5138	0,010	Hau
38670,299	-19717	0,002	Hau	46731,300	-5098	-0,030	Hau
38675,276	-19708	0,016	Hau	46884,596	-4820	-0,025	Hau
38935,503	-19236	-0,022	Hau	46914,406	-4766	0,009	Hau
38940,505	-19227	0,018	Hau	46915,509	-4764	0,009	Hau
39024,310	-19075	0,009	Hau	46926,555	-4744	0,027	Hau
39289,502	-18594	-0,027	Hau	46941,426	-4717	0,010	Hau
39352,405	-18480	0,016	Hau	47028,546	-4559	0,008	Hau
40150,274	-17033	-0,002	Hau	47365,460	-3948	0,011	Hau
44458,412	-9220	-0,014	Hau	47392,446	-3899	-0,022	Hau
44468,363	-9202	0,011	Hau	47671,472	-3393	-0,008	Hau
45145,486	-7974	0,006	Hau	47682,492	-3373	-0,016	Hau
45203,354	-7869	-0,024	Hau	47703,450	-3335	-0,012	Hau
45229,316	-7822	0,022	Hau	47804,374	-3152	0,005	Hau
45441,596	-7437	0,010	Hau	48068,508	-2673	0,014	Hau
45461,462	-7401	0,025	Hau	48106,540	-2604	-0,001	Hau
45488,452	-7352	-0,004	Hau	48131,369	-2559	0,015	Hau
45493,402	-7343	-0,017	Hau	48179,319	-2472	-0,008	Hau
45525,433	-7285	0,033	Hau	48443,426	-1993	-0,025	Hau
45546,376	-7247	0,022	Hau	48712,568	-1505	0,030	Hau
45578,335	-7189	-0,001	Hau	48834,404	-1284	0,005	Hau
45621,353	-7111	0,008	Hau	49066,542	-863	0,000	Hau
45816,514	-6757	-0,030	Hau	49071,517	-854	0,012	Hau
45912,483	-6583	-0,006	Hau	49119,473	-767	-0,004	Hau
46017,242	-6393	-0,014	Hau	49124,444	-758	0,004	Hau
46577,467	-5377	-0,020	Hau	49194,445	-631	-0,024	Hau
46641,445	-5261	-0,005	Hau	49457,501	-154	0,011	Hau
46646,383	-5252	-0,030	Hau	49542,428	0	0,021	Hau
46699,348	-5156	0,000	Hau				

Light curve of NSV 11637



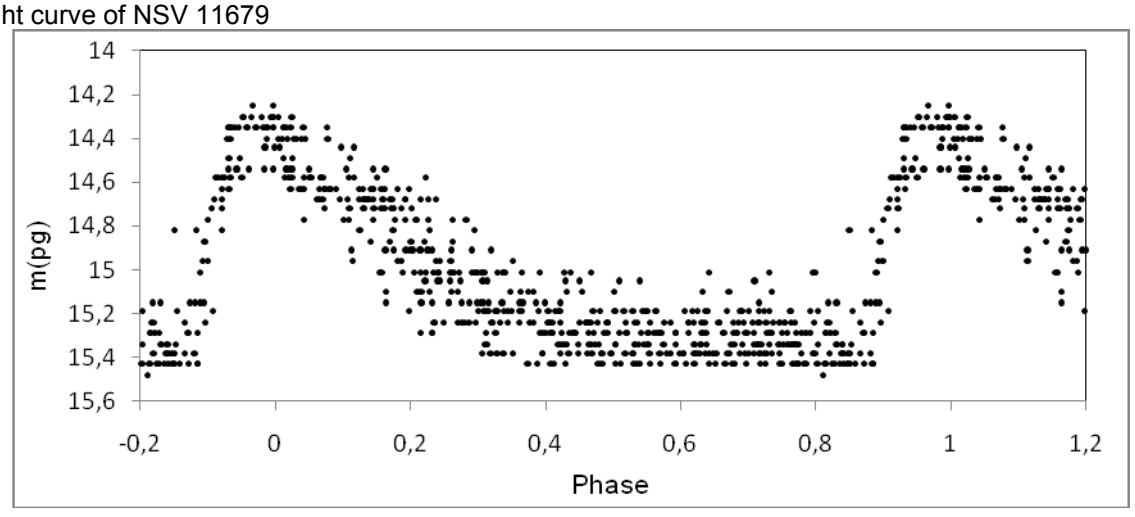
NSV 11679 = USNO 1275-10658619 = S 9652
Following elements are the result of 618 observations:

Max = J.D. 2449541,485 (±0,003) + 0^d,5879578 (±0,0000004) x E
Type = RRab Max = 14^m,3 Min = 15^m,3 M – m = 0^p,14

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38638,387	-18544	-0,009	Hau	46699,289	-4834	-0,008	Hau
38642,502	-18537	-0,009	Hau	46709,283	-4817	-0,009	Hau
38883,570	-18127	-0,004	Hau	46733,404	-4776	0,005	Hau
38936,505	-18037	0,015	Hau	46914,488	-4468	-0,002	Hau
39287,499	-17440	-0,002	Hau	46924,499	-4451	0,014	Hau
39350,420	-17333	0,008	Hau	47028,546	-4274	-0,007	Hau
44397,441	-8749	-0,001	Hau	47262,535	-3876	-0,026	Hau
45082,423	-7584	0,010	Hau	47365,460	-3701	0,007	Hau
45169,407	-7436	-0,024	Hau	47616,514	-3274	0,003	Hau
45222,356	-7346	0,009	Hau	47686,458	-3155	-0,020	Hau
45460,468	-6941	-0,002	Hau	47769,398	-3014	0,018	Hau
45493,402	-6885	0,006	Hau	48060,417	-2519	-0,002	Hau
45613,310	-6681	-0,029	Hau	48100,410	-2451	0,010	Hau
45676,248	-6574	-0,002	Hau	48186,258	-2305	0,016	Hau
46017,242	-5994	-0,024	Hau	48458,456	-1842	-0,011	Hau
46116,643	-5825	0,012	Hau	48534,323	-1713	0,010	Hau
46175,456	-5725	0,029	Hau	48802,435	-1257	0,013	Hau
46272,443	-5560	0,003	Hau	48915,308	-1065	-0,002	Hau
46328,307	-5465	0,011	Hau	49193,429	-592	0,015	Hau
46576,428	-5043	0,014	Hau	49458,565	-141	-0,018	Hau
46616,402	-4975	0,007	Hau	49541,464	0	-0,021	Hau
46646,383	-4924	0,002	Hau				

Light curve of NSV 11679



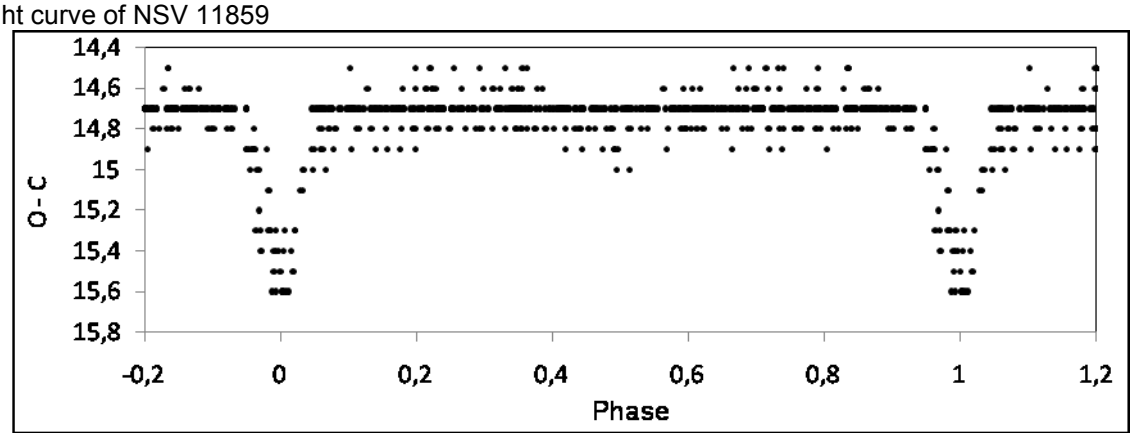
NSV 11859 = USNO 1275-11013746 = S 9356
From 577 observations can be given the following elements:

Min = 2449503,414 (±0,007) + 1^d,5191557 (±0,0000002) x E
Type = EB Max = 14^m,6 Min = 15^m,6 / 14^m,9

Minima:

Minimum	Epoch	O - C	Obs.	Minimum	Epoch	O - C	Obs.
38670,299	-7131	-0,014	Hau	46287,379	-2117	0,018	Hau
38673,357	-7129	0,006	Hau	46644,388	-1882	0,026	Hau
38992,399	-6919	0,025	Hau	47288,488	-1458	0,003	Hau
45105,439	-2895	-0,018	Hau	47823,256	-1106	0,029	Hau
45497,404	-2637	0,004	Hau	48151,354	-890	-0,011	Hau
45649,300	-2537	-0,015	Hau	48473,425	-678	-0,001	Hau
45936,424	-2348	-0,012	Hau	49076,543	-281	0,012	Hau
46147,553	-2209	-0,045	Hau	49503,409	0	-0,005	Hau
46261,541	-2134	0,006	Hau				

Light curve of NSV 11859



NSV 11871 = USNO 1350-65754 = S 9658
Following elements are the result of 551 observations:

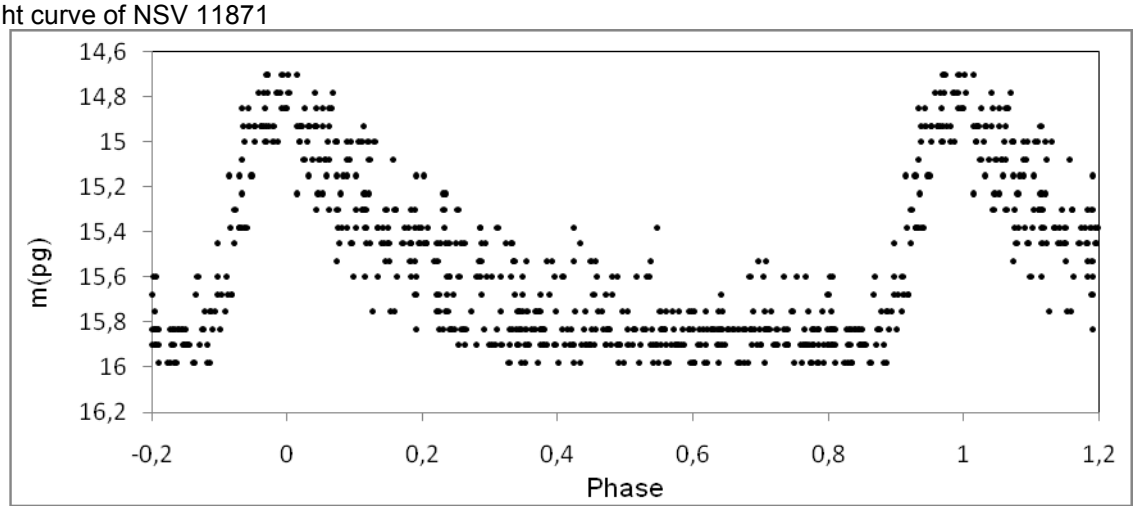
Max = J.D. 2449545,452 (±0,005) + 0^d,6088164 (±0,0000006) x E
Type = RRab Max = 14^m,8 Min = 15^m,9 M – m = 0^p,12

Maxima:

Maximum	Epoch	O - C	Obs.	Maximum	Epoch	O - C	Obs.
38579,467	-18012	0,016	Hau	46924,499	-4305	0,002	Hau
38613,536	-17956	-0,009	Hau	47013,397	-4159	0,012	Hau
38940,505	-17419	0,026	Hau	47030,393	-4131	-0,038	Hau
39026,348	-17278	0,026	Hau	47094,345	-4026	-0,012	Hau
39029,349	-17273	-0,017	Hau	47271,561	-3735	0,038	Hau
39051,268	-17237	-0,016	Hau	47682,492	-3060	0,018	Hau
39262,543	-16890	0,000	Hau	47805,429	-2858	-0,026	Hau
39287,499	-16849	-0,005	Hau	48068,508	-2426	0,045	Hau
39348,395	-16749	0,009	Hau	48093,408	-2385	-0,017	Hau
39351,422	-16744	-0,008	Hau	48096,440	-2380	-0,029	Hau
45145,507	-7227	-0,029	Hau	48179,300	-2244	0,032	Hau
45161,405	-7201	0,040	Hau	48454,451	-1792	-0,002	Hau
45164,410	-7196	0,001	Hau	48504,366	-1710	-0,010	Hau
45192,397	-7150	-0,018	Hau	48712,568	-1368	-0,023	Hau
45203,354	-7132	-0,019	Hau	48770,410	-1273	-0,019	Hau
45228,312	-7091	-0,023	Hau	48795,422	-1232	0,032	Hau
45486,453	-6667	-0,020	Hau	48837,424	-1163	0,025	Hau
45525,433	-6603	-0,004	Hau	48840,422	-1158	-0,021	Hau

45647,227	-6403	0,026	Hau	48862,339	-1122	-0,021	Hau
45936,408	-5928	0,020	Hau	48884,314	-1086	0,037	Hau
46199,406	-5496	0,009	Hau	48915,308	-1035	-0,019	Hau
46261,541	-5394	0,045	Hau	49131,468	-680	0,011	Hau
46272,443	-5376	-0,012	Hau	49472,432	-120	0,038	Hau
46577,467	-4875	-0,005	Hau	49503,409	-69	-0,035	Hau
46608,483	-4824	-0,039	Hau	49542,428	-5	0,020	Hau
46616,402	-4811	-0,034	Hau	49545,466	0	0,014	Hau
46913,520	-4323	-0,019	Hau				

Light curve of NSV 11871



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