

# BBSAG Bulletin 44

1979 September 7

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## 7<sup>th</sup> List of Minima of Eclipsing Binaries

The following table lists 10 photoelectric and 280 visual minima obtained mainly during 1979 June to August by the observers

MA Μαρία Άνδρακάκου, Άθήνα, Greece +  
AB Alberto Buzzoni, Ferrara, Italy  
(RD) Roger Diethelm, Flüh, Switzerland, photoelectric  
RD " " " " visual  
RG Robert Germann, Wald, Switzerland  
KL Kurt Locher, Grüt, Switzerland  
AM Alain Marot, Quimper, France  
GM Γιώργος Μαυροφρύδης, Άθήνα, Greece +  
DM Δημοσθένης Μουρίκης, Πειραιάς, Greece +  
AP Angelo del Parigi, Matera, Italy  
APa Άρίστος Παρρής, Λάρισσα, Greece ++  
HP Hermann Peter, Utelfingen, Switzerland  
EP Ennio Poretti, Arconate, Italy  
PR Philippe Ralincourt, Tunis, Tunisia  
NS Νικόλαος Στωϊνίδης, Λάρισσα, Greece ++  
GT Gilles Troispoux, Fleury-les-Aubrais, France

The O-C values refer to the linear elements of the GCVS 1969, disregarding improved elements in the 1971, 1974, and 1976 supplements to the GCVS. Reductions were made mainly using the tracing paper method.

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+ members of the Astronomical Department S.G.S.R., Athens  
++ " " " " Astrospace Research Center S.G.S.R., Larissa  
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(footnotes to page 2:)

- \* GCVS 1969 period erroneous, O-C according to the GCVS 1976:  
-.009 +.003 +.016 +.003
- \*\* not contained in the GCVS 1969, O-C according to the GCVS 1976: +.058 +.058 +.058 +.053 +.052
- \*\*\* GCVS elements incomplete, O-C according to the elements on page 5 of this issue: +.009: -.014
- \*\*\*\* O-C according to the GCVS 1969 exceeds 1 period, O-C according to the elements of BBSAG Bulletin 38, page 6: +.003 +.007 +.003 +.005 +.009
- \*\*\*\*\* not contained in the GCVS 1969, O-C according to the GCVS 1976: -.004 +.006 +.002 +.004
- \*\*\*\*\* GCVS 1969 period erroneous, O-C according to the GCVS 1976: -.016

cur- rent no.	star	minimum or- der	JD hel 244...	O-C	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	O-C	ob- ser- ver
14319	TT And	I	4114.496	-.061	6 KL	14370	AD Boo	I	4079.417	+.048	11 HP
14320	UU And	I	4065.569	+.118	12 KL	14371	SV Cam	I	4033.403	-.012	6 KL
14321		I	4117.490	+.119	7 KL	14372	TY Cap	I	4077.458	-.095	6 KL
14322	WZ And	I	4090.407	-.019	8 KL	14373	RZ Cas	I	3843.349	.000	10 PR
14323	AB And	II	4099.390	+.031	6 RG	14374		I	3941.363	+.004	203AB
14324		II	4114.326	+.029	7 RG	14375		I	4039.375	+.005	12 AP
14325		II	4116.314	+.026	7 RG	14376		I	4082.399	.000	8 RG
14326	EP And	II	4036.514	*	6 KL	14377	TV Cas	I	3850.236	-.016	8 PR
14327		I	4060.571	*	7 KL	14378	IR Cas	I	4079.384	-.086	6 KL
14328		II	4072.504	*	6 KL	14379	OR Cas	I	4048.446	+.033	8 KL
14329		I	4090.474	*	7 KL	14380	V 523 Cas	II	4033.583	*****	6 KL
14330	GZ And	I	4061.497	**	7 KL	14381		I	4077.410	*****	6 KL
14331		I	4065.462	**	8 KL	14382		II	4092.479	*****	7 KL
14332		II	4065.614	**	16 KL	14383		II	4105.568	*****	7 KL
14333		I	4079.487	**	11 KL	14384	U Cep	I	4045.448	+.047	8 KL
14334		II	4079.639	**	11 KL	14385		I	4060.447	+.048	11 KL
14335	CR Aqr	I	4087.468	+.179	7 KL	14386		I	4075.386	+.029	10 APa
14336		I	4090.551	+.175	8 KL	14387		I	4085.370	+.041	8 NS
14337	CX Aqr	I	4045.550	+.016	6 KL	14388		I	4085.376	+.047	13 APa
14338		I	4060.562	+.016	8 KL	14389	BR Cep	I	4082.402	-.117	6 KL
14339		I	4070.570	+.016	6 KL	14390	EG Cep	I	4028.375	+.021	8 RG
14340	CZ Aqr	I	4087.555	+.013	5 KL	14391	TW Cet	II	4099.595	-.014	6 KL
14341	XZ Aql	I	4115.385	+.047	12 HP	14392	VY Cet	I	4087.621	*****	7 KL
14342	KO Aql	I	4078.476	+.162	11 (RD)	14393	AA Cet	II	4087.604	§	6 KL
14343	OO Aql	II	4059.430	-.045	8 RD	14394		I	4098.585	§	5 KL
14344		II	4060.447	-.055	11 KL	14395	RW Com	II	4039.380	-.044	6 RG
14345		I	4073.373	-.039	7 RG	14396		I	4046.381	-.045	6 RG
14346		I	4079.442	-.051	7 HP	14397	CC Com	I	4046.394	+.125	6 RG
14347		II	4090.352	-.037	8 RG	14398	TW CrB	II	4085.370	§§	10 KL
14348	V 337 Aql	I	4085.404	-.073	8 RG	14399	Y Cyg	I	3824.347	-.008	13 PR
14349	V 340 Aql	I	4116.518	+.061	6 KL	14400		I	3845.313	-.017	16 PR
14350	V 342 Aql	I	4079.387	-.091	10 (RD)	14401		II	4083.548	+.010	10 (RD)
14351		I	4079.417	-.061	8 HP	14402	UW Cyg	I	4045.468	-.005	7 KL
14352	V 343 Aql	I	4089.341	+.001	5 NS	14403		I	4083.424	-.007	11 HP
14353	V 346 Aql	I	4072.476	-.009	10 HP	14404		I	4114.486	-.002	9 HP
14354		I	4082.431	-.011	7 RG	14405	WW Cyg	I	4090.463	+.023	6 KL
14355		I	4082.435	-.007	9 HP	14406		I	4090.464	+.024	10 HP
14356	V 479 Aql	I	4048.507	+.017	7 KL	14407	ZZ Cyg	I	4033.544	-.034	7 KL
14357		I	4114.372	+.028	7 KL	14408		I	4079.433	-.034	9 HP
14358	V 760 Aql	I	4039.416	+.017	6 KL	14409	CG Cyg	I	4116.395	-.027	9 HP
14359	V 762 Aql	I	4090.578	***	5 KL	14410	DL Cyg	I	4087.499	-.060	10 (RD)
14360		I	4114.406	***	9 KL	14411	GU Cyg	I	4082.436	-.003	7 RG
14361	V 803 Aql	I	4048.496	****	7 KL	14412		I	4090.355	+.021	8 RG
14362		II	4073.394	****	11 KL	14413	MR Cyg	I	4082.461	-.008	12 (RD)
14363		II	4079.449	****	8 KL	14414	V 387 Cyg	I	4039.445	+.058	7 HP
14364		I	4079.582	****	8 KL	14415		I	4114.395	+.059	7 HP
14365		I	4082.484	****	6 KL	14416	V 444 Cyg	I	4083.545	+.031	10 (RD)
14366	ZZ Boo	II	4009.411	-.019	57 AB	14417	V 456 Cyg	II	4046.441	+.002	7 HP
14367		II	4014.428	+.008	29 PR	14418		II	4079.424	+.019	10 HP
14368	AC Boo	I	4028.392	-.010	7 RG						
14369		I	4059.411	-.004	7 RD						

\* \* \* \* \* see preceding page

§ not contained in the GCVS 1969, O-C according to the GCVS 1974: -.015  
-.025:

§§ not contained in the GCVS 1969, O-C according to the GCVS 1976: -.001

cur- rent no.	star	minimum or- der	JD hel 244...	ob- s- C	n ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	ob- s- C	n ser- ver
14419	V 463 Cyg	I	4081.508	-.021	13 (RD)	14470	VX Lac	I	4117.355	-.069	7 HP
14420	V 477 Cyg	I	4048.439	-.025	6 RG	14471	CM Lac	I	4034.438	-.004	7 RG
14421		I	4048.448	-.016	8 HP	14472	DG Lac	I	4114.425	+.217	12 HP
14422		I	4048.449	-.015	15 EP	14473	PP Lac	I	4036.517	**	6 KL
14423	V 548 Cyg	I	4115.305	-.075	12 RG	14474		II	4072.428	**	6 KL
14424	V 687 Cyg	I	4078.438	+.005	8 HP	14475		II	4077.463	**	5 KL
14425	V 836 Cyg	I	4082.463	+.005	12 (RD)	14476	AP Leo	II	4022.402	-.006	9 GT
14426	YY Del	I	4078.544	+.006	6 KL	14477	SX Lyn	I	4090.439	-.329	7 KL
14427	FZ Del	I	4077.368	-.013	5 KL	14478	TZ Lyr	I	4069.432	+.028	7 HP
14428	Z Dra	I	4045.432	+.008	11 KL	14479		I	4069.433	+.029	8 KL
14429		I	4083.443	+.010	8 HP	14480		I	4114.395	+.041	9 HP
14430	RZ Dra	I	4046.447	-.022	6 HP	14481	UZ Lyr	I	4117.384	+.036	11 HP
14431		I	4046.447	-.021	6 RG	14482	EW Lyr	I	4036.434	+.070	6 KL
14432		I	4073.433	-.028	8 RG	14483		I	4073.449	+.059	7 KL
14433		I	4078.397	-.022	8 HP	14484		I	4114.384	+.071	9 HP
14434		I	4099.328	-.024	7 RG	14485		I	4116.336	+.074	6 KL
14435		I	4116.421	-.009	7 HP	14486	LZ Lyr	I	4114.458	+.300	6 KL
14436	TW Dra	I	4060.506	-.043	7 KL	14487	U Oph	I	4072.524	-.004	8 HP
14437	AI Dra	I	4044.487	+.010	18 AM	14488		II	4073.370	+.004	7 RG
14438	CM Dra	I	4028.507	*	6 KL	14489		II	4083.433	+.003	8 HP
14439		I	4087.489	*	7 KL	14490		I	4099.365	+.001	7 RG
14440	Z Her	I	4082.476	+.012	7 HP	14491		I	4099.370	+.006	13 EP
14441		I	4090.447	-.002	8 HP	14492		II	4115.296	-.004	8 RG
14442		I	4090.447	-.002	11 KL	14493	RV Oph	I	4077.451	.000	6 KL
14443		I	4114.398	-.009	7 KL	14494	RZ Oph	I	4037.59	+.41	8 RG
14444	SZ Her	I	4090.353	+.037	6 KL	14495	SZ Oph	I	4087.364	+.265	6 KL
14445		I	4099.356	+.042	8 RG	14496	V 449 Oph	I	4048.535	+.056	6 KL
14446		I	4117.352	+.039	8 HP	14497		I	4114.419	+.057	6 KL
14447	TT Her	I	4046.431	-.029	8 RG	14498	V 501 Oph	I	4048.421	+.003	9 HP
14448	TU Her	I	4061.463	-.083	7 KL	14499		I	4077.460	+.004	6 KL
14449	TX Her	I	4039.391	-.026	6 RG	14500		I	4078.418	-.006	8 HP
14450	BC Her	I	4115.348	-.228	8 HP	14501	V 508 Oph	I	4046.445	+.012	6 RG
14451	CC Her	I	4048.432	+.074	7 RG	14502		I	4046.455	+.022	7 HP
14452		I	4048.438	+.080	11 HP	14503		II	4070.401	+.005	8 HP
14453	CT Her	I	4048.493	+.047	11 HP	14504		I	4070.581	+.012	6 KL
14454		I	4082.427	+.040	7 RG	14505		II	4079.369	+.010	6 RG
14455		I	4082.438	+.051	10 HP	14506		I	4114.362	+.004	6 RG
14456	DQ Her	I	4073.525	+.013	7 KL	14507	V 735 Oph	I	4058.382	-.195	9 APa
14457		I	4079.525	+.011	11 KL	14508		I	4058.386	-.191	5 NS
14458		I	4082.429	+.011	7 KL	14509		I	4090.443	-.187	11 HP
14459	ES Her	I	4114.394	-.123	6 KL	14510	V 752 Oph	I	4082.389	***	7 KL
14460	GL Her	I	4065.446	+.087	10 KL	14511	V 839 Oph	I	4059.429	-.010	8 RD
14461		I	4072.484	+.089	10 HP	14512	V 913 Oph	I	4072.485	-.107	10 HP
14462	MT Her	I	4072.505	+.037	5 KL	14513	V 1010 Oph	I	4072.410	-.096	11 KL
14463		I	4076.404	+.036	4 KL	14514		I	4072.425	-.080	11 EP
14464		I	4077.378	+.035	6 KL	14515		I	4072.454	-.051	9 HP
14465	u Her	I	4069.373	-.005	8 EP	14516		I	4074.407	-.083	10 GM
14466		I	4069.386	+.009	7 RG	14517		I	4076.387	-.087	7 KL
14467	SW Lac	II	4048.427	-.127	6 RG	14518		I	4076.390	-.084	16 GM
14468		II	4082.431	-.120	8 RG	14519		I	4078.374	-.084	10 GM
14469		II	4101.343	-.131	7 RG	14520		I	4082.347	-.080	15 GM
						14521		I	4082.353	-.074	7 RG

\* GCVS elements incomplete, O-C according to Martins' elements PASP 37, p.168, 1975: -.359 -.367

\*\* GCVS elements incomplete, O-C according to Figer's (1<sup>st</sup> set) elements IBVS 1231: +.153 +.166 +.187

\*\*\* GCVS elements incomplete, O-C according to the elements of BBSAG Bul-

cur- rent no.	star	minimum or- JD hel der 244...	0-C	n ser- ver	ob- ser- ver	cur- rent no.	star	minimum or- JD hel der 244...	0-C	n ser- ver	ob- ser- ver
14522		I 4084.331	-.080	7	GM	14562		I 4082.465	+.012	5	HP
14523		I 4086.314	-.082	10	GM	14563		I 4114.347	+.010	9	RG
14524	U Peg	I 4116.353	-.015	7	RG	14564		I 4114.359	+.022	8	HP
14525	BN Peg	I 4099.390	-.280	7	RG	14565		I 4116.345	+.016	8	RG
14526		I 4114.362	-.287	7	RG	14566	AU Ser	I 4036.429	*****	6	KL
14527		I 4114.366	-.283	11	KL	14567		I 4048.413	*****	7	RG
14528	BY Peg	I 4028.509	+.073	7	KL	14568		II 4069.479	*****	8	HP
14529	CU Peg	I 4065.530	+.190	14	KL	14569		II 4082.426	*****	8	HP
14530	DI Peg	I 4092.460	-.018	7	KL	14570	AH Tau	I 4116.644	-.062	5	KL
14531		I 4117.369	-.024	5	RG	14571	X Tri	I 4077.574	-.046	6	KL
14532		I 4117.377	-.015	8	HP	14572		I 4078.549	-.042	11	KL
14533	HI Peg	I 4072.557:	*	6	KL	14573		I 4114.497	-.040	6	KL
14534	RT Per	I 4078.510	-.061	7	KL	14574		I 4116.438	-.043	13	MA
14535	WY Per	I 4082.586	-.043	10	KL	14575		I 4116.440	-.040	17	DM
14536	IQ Per	I 3957.335	**	21	PR	14576	RV Tri	I 4077.542	-.029	6	KL
14537	QU Per	I 4082.522	***	6	KL	14577	RW Tri	I 4079.614	-.004	7	KL
14538	β Per	I 4087.432	-.111	7	RG	14578		I 4087.500	-.002	6	KL
14539	Y Psc	I 4087.507	+.159	12	KL	14579	TX UMa	I 4039.366	+.006	6	RG
14540		I 4117.632	+.158	6	KL	14580	UX UMa	I 4036.454	+.001	7	KL
14541	RW Psa	I 4072.522	-.056	6	KL	14581		I 4039.400	-.002	6	KL
14542		I 4077.569	-.055	6	KL	14582		I 4045.498	-.002	6	KL
14543		I 4090.553	-.047	6	KL	14583		I 4048.448	-.001	6	KL
14544	U Sge	I 4087.4670	+.0047	8	(RD)	14584		I 4051.399	.000	10	KL
14545		I 4087.476	+.013	11	KL	14585		I 4073.425	-.001	8	KL
14546	UZ Sge	I 4115.416	+.050	11	HP	14586		I 4087.390	.000	6	KL
14547	XY Sgr	I 4078.458	+.009	6	KL	14587		I 4114.332	-.003	6	KL
14548		I 4082.500	+.004	6	KL	14588	XZ UMa	I 4029.366	-.081	6	APa
14549	EG Sgr	I 4090.442	*****	11	KL	14589		I 4029.385	-.062	7	NS
14550		I 4115.311	*****	7	KL	14590	ZZ UMa	I 4033.391	+.009	8	RG
14551	V 505 Sgr	I 4072.434	-.023	12	EP	14591		I 4072.473	+.003	8	HP
14552		I 4072.436	-.021	11	KL	14592	AC UMa	I 4036.524	+.268	6	KL
14553		I 4079.542:	-.012:	7	KL	14593	UW Vir	I 4039.389	+.311	6	KL
14554		I 4091.364	-.018	7	RG	14594	DL Vir	I 4016.421:	+.071:	20	PR
14555		I 4117.374	-.031	10	HP	14595	Z Vul	I 4069.385	+.019	8	EP
14556		I 4117.378	-.028	8	RG	14596	RS Vul	I 4087.492	+.001	9	(RD)
14557	RT Scl	I 4090.587	-.153	8	KL	14597	AX Vul	I 4039.411	+.003	6	KL
14558	U Sct	I 4048.477	+.029	7	HP	14598		I 4045.481	-.003	6	KL
14559		I 4070.440	+.027	5	HP	14599		I 4116.346	-.007	6	KL
14560		I 4114.368	+.026	9	HP	14600	AY Vul	I 4060.474	+.030	8	KL
14561	RS Sct	I 4078.484	+.016	6	KL	14601	BO Vul	I 4072.570	-.079	6	KL

\* not contained in the GCVS 1969, 0 - C according to the GCVS 1974: +.043:

\*\* GCVS 1969 elements incomplete, 0-C according to the GCVS 1974: +.016

\*\*\* GCVS 1969 elements incomplete, 0-C according to the elements of BBSAG Bulletin 42, page 3, footnote 1: -.030

\*\*\*\* 0 - C according to the GCVS but with half its period: -.154 -.147 (cf. BBSAG Bulletin 42, page 4)

\*\*\*\*\* GCVS 1969 elements too inaccurate for reasonable reduction, 0-C according to the GCVS 1974: -.009 -.007 -.006 -.006

current no.	star	minimum or-der	JD hel 244...	0-C	n	observer
14602		I	4115.377	-.082	11	HP
14603	BU Vu1	I	4046.396	+.005	7	RG
14604		I	4116.387	+.010	7	HP
14605	CD Vu1	I	4117.352	-.021	8	HP
14606	NO Vu1	II	4045:504	*	7	KL
14607		II	4048:492	*	6	KL
14608		I	4060.528	*	7	KL

\* not contained in the GCVS 1969, 0-C according to the GCVS 1976: +.010 +.032 +.018

V 7 6 2 Aquilae :  
 Detection of the Period

The GCVS 1969-71-74-76 states only  $2.1/n$  for the period of this EA binary. My survey during 9 nights in August and September 1979 manifests unambiguously  $n = 2$  and a preliminary value uncertain in the third decimal.

The stated GCVS photographic amplitude of  $1.8^m$  seems to be somewhat smaller in visual light as usually. It is too large to reasonably interpret the odd E minima as secondaries.

Preliminary elements are 2444114.42 + 1.037 E

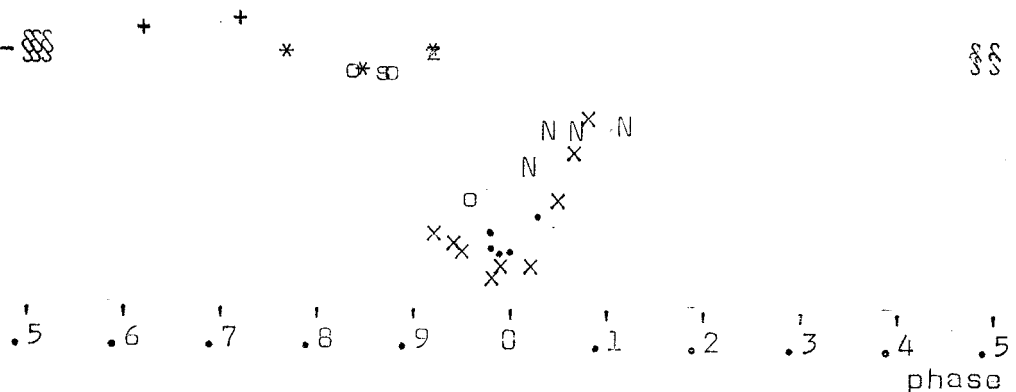
Figure 46 plots all my visual observations against the respective phase.

K. Locher

Fig.46

comparison  
 magnitude-----  
 2' west

comparison  
 magnitude-----  
 7'west-  
 southwest



(JD 2444000+ N 087 • 090 § 099 x 114 s 115 o 116 z 117 \* 118 + 122)

R Z O p h i u c h i :

Improvement of the Changed Minimum Shape

One period after the 1978 minimum that I found unexpectedly narrow as reported in BBSAG Bulletin 39 p.7 , I was again able to survey the eclipse visually with sufficient density to get a decisive result, which turned out to be almost identical with that preceding one.

Hence there is no more doubt that rather a drastic change in the geometric elements has taken place around 1970.

R. Germann

V 7 6 0 A q u i l a e :

The Accurate Identification

As usual, the atlas by Цесевич and Казанасмац gives a very clear view of the surrounding field of this eclipsing variable. However, an observer looking for it at minimum time would be misled by its chart ( page III-3 ), because a star considerably brighter than the variable at minimum, situated some 50 arcseconds to the north of the latter, is lacking there.

K. Locher

T U S a g i t t a e :

Note on the O - C

Due to its totality duration of 4.1 hours (according to the GCVS 1969-71-74-76), it is very hard to get a minimum timing derived from both branches of the lightcurve, which none of the BBSAG observers has been able to do until now. During the night JD 2444082 I was able to survey the bottom of the light curve preceded by the descension, which ended near JD 82.48. Along with the quoted d value, the O - C (against the GCVS 1969-71-74-76 elements) results as +0.27 .

K. Locher

## E r r a t a

star concerned	bulletin no.	minimum no.	misprinted entry	misprinted value	correct value
V 342 Aql	38	12907	observer	HP	KL
RZ Cas	40	13692	O	3812.281	3812.284
			O-C	+0.008	+0.011
	40	13695	O	3818.253	3818.256
			O-C	+0.003	+0.007