BBSAG

BULLETIN

98

1991 September 15

131. List of Minima of Eclipsing Binaries

The following table lists 19 photoelectric (**bold**), 19 CCD-measured and 425 visual heliocentric minima of eclipsing binaries obtained primarily from April to August of 1991 by the following observers:

FAc	Francesco Acerbi, Codogno, Italy
CBa	Carlo Barani, Codogno, Italy
EBl	Ernst Blättler, Wald, Switzerland
RD	Roger Diethelm, R. Szafraniec Observatory, Metzerlen, Switzerland
KL	Kurt Locher, Grüt, Switzerland
EN	Edmond Nezry, Toulouse, France
APs	Anton Paschke, Rüti, Switzerland
HP	Hermann Peter, Otelfingen, Switzerland
JVb	Jacqueline Vandenbroere, Bruxelles, Belgium
OW	Olivier Walas, Nantes, France

The O-C values generally refer to the linear elements of the GCVS 1985, with the remarked exceptions. For the reduction of the visual minima, the tracing paper method was employed, while the photoelectric observations were reduced with the Kwee-van Woerden algorithm.

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
28781	2311+458	**TT And**	p	48483.404	0.004	-0.021	7	HP	
28782	0000+325	**TW And**	p	48490.412	0.006	-0.010	11	HP	
28783	0041+306	**UU And**	p	48460.546	0.003	-0.002	8	KL	
28784	0058+378	**WZ And**	p	48483.482	0.005	0.003	6	HP	
28785			p	48490.447	0.005	0.011	6	HP	
28786	0153+418	**XZ And**	p	48477.433	0.003	0.016	6	KL	
28787			p	48496.435	0.006	0.017	9	HP	
28788	2334+483	**AD And**	p	48438.419	0.003	0.046	9	HP	
28789			p	48439.401	0.008	0.042	7	HP	
28790	2308+516	**BL And**	p	48459.407	0.007	-0..005	7	HP	
28791	0008+418	**DO And**	p	48484.585	0.008	-0.015	7	KL	elem. MVS 11, p. 106
28792	0139+445	**EP And**	s	48404.564	0.006	0.033	6	KL	
28793	0209+444	**GZ And**	p	48493.411	0.005	0.006	10	KL	
28794	2324+452	**LO And**	s	48442.485	0.006	0.021	7	HP	elem. GEOS Circ. No. 11
28795			s	48447.439	0.006	0.029	7	HP	
28796	2217-203	**AT Aqr**	s	48459.513	0.008	0.006	6	KL	
28797	2233-209	**CX Aqr**	p	48145.391		0.002	10	OW	
28798			p	48146.502		0.001	14	OW	
28799			p	48478.425	0.002	0.001	7	KL	
28800			p	48483.437	0.006	0.009	6	HP	
28801	2319-162	**CZ Aqr**	p	48488.446	0.003	-0.017	6	KL	
28802	1844+107	**KO Aql**	p	48460.487	0.007	0.008	14	HP	
28803	1945+092	**OP Aql**	p	48442.54	0.01	-0.12	25	APs	CCD, normal minimum
28804	1953+157	**V340 Aql**	p	48390.492	0.02	0.029	6	KL	
28805	1914+092	**V342 Aql**	p	48460.420	0.006	0.021	10	HP	
28806	1936+126	**V343 Aql**	p	48444.439	0.005	-0.008	8	HP	
28807			p	48479.476	0.005	-0.019	9	HP	
28808			p	48479.482	0.006	-0.013	14	KL	
28809	1928+135	**V415 Aql**	p	48473.46	0.05	0.11	78	APs	CCD
28810	1948+163	**V602 Aql**	p	48489.395	0.005	0.103	13	HP	
28811	1907-117	**V805 Aql**	p	**48460.4501**	**0.0003**	**0.0026**	28	EBl	pe
28812	1943+073	**V1157 Aql**	p	48390.571	0.004	0.001	9	KL	period unknown
28813	1922+159	**V1353 Aql**	s	48474.422	0.005	0.028	8	HP	
28814			p	48486.444	0.006	0.024	9	HP	
28815	0509+334	**CL Aur**	p	48489.553	0.005	0.088	6	KL	
28816	1402+302	**TU Boo**	p	48368.481	0.007	-0.044	6	KL	
28817			p	48406.431	0.003	-0.036	8	HP	
28818			s	48448.427	0.005	-0.035	7	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
28819	1458+353	**TY Boo**	p	48406.434	0.003	0.054	8	HP	
28820			p	48433.389	0.002	0.051	7	HP	
28821			s	48442.432	0.005	0.055	7	HP	
28822			p	48466.379	0.005	0.058	7	HP	
28823			p	48479.369	0.005	0.044	8	HP	
28824	1533+436	**YY Boo**	p	48390.429	0.003	-0.007	9	HP	
28825			p	48449.403	0.006	-0.030	6	HP	
28826	1432+248	**AD Boo**	p	**48407.372**	**0.001**	**0.025**	22	EBI	pe
28827			p	**48438.3944**	**0.0006**	**0.0146**	20	EBI	pe
28828	1137+805	**AL Cam**	p	48407.372	0.004	-0.022	8	HP	
28829	0906+306	**WW Cnc**	p	48390.390	0.003	-0.338	7	HP	
28830	0843+330	**WX Cnc**	p	48390.375	0.003	-0.007	6	HP	
28831	1354+289	**YZ CVn**	p	48429.447	0.007	0.000	5	KL	
28832	1300+568	**BI CVn**	s	48329.510		-0.079	24	JVb	
28833			s	48387.528		-0.069	15	JVb	
28834			p	48400.405		-0.061	8	JVb	
28835	0738+029	**TY CMi**	p	48359.40	0.01	0.63	13	APs	CCD
28836	0748+037	**UZ CMi**	p	48271.546		0.204	13	JVb	
28837			p	48329.437		0.186	12	OW	
28838	0751+037	**XZ CMi**	p	48305.431		0.004	11	OW	
28839	0727+046	**BF CMi**	p	48305.446		-0.070	14	OW	
28840	2021-131	**TY Cap**	p	48484.468	0.005	0.011	7	HP	
28841	0244+694	**RZ Cas**	p	48453.433	0.003	0.016	15	FAc	
28842			p	48471.356		0.011	22	EN	
28843	0232+710	**AB Cas**	p	48433.482	0.005	0.019	6	KL	
28844			p	48496.366	0.005	0.027	9	HP	
28845			p	48500.466	0.005	0.026	7	HP	
28846	0123+698	**AE Cas**	p	48489.534	0.006	0.058	9	KL	
28847	0130+707	**AH Cas**	p	48460.465	0.009	-0.221	7	KL	
28848	0042+628	**CW Cas**	s	48444.482	0.007	0.015	7	HP	
28849			s	48467.439	0.005	0.016	6	HP	
28850	2350+572	**EP Cas**	p	48439.492	0.004	-0.025	8	HP	
28851			p	48474.472	0.005	-0.023	6	HP	
28852			p	48483.428	0.006	-0.015	7	HP	
28853	2304+538	**IR Cas**	p	48419.444	0.003	0.013	6	KL	
28854			p	48466.422	0.005	0.023	8	HP	
28855			p	48481.396	0.004	0.022	6	HP	
28856			p	48496.365	0.005	0.016	8	HP	
28857	0048+585	**KL Cas**	p	48496.345	0.012	-0.017	8	KL	
28858	0045+605	**OR Cas**	p	48474.460	0.006	0.000	6	HP	
28859			p	48484.414	0.006	-0.012	6	HP	
28860			p	48489.410	0.005	0.002	7	HP	
28861			p	48499.368	0.003	-0.006	6	KL	
28862			p	48499.376	0.005	0.002	8	HP	
28863	0049+501	**V364 Cas**	s	48448.487	0.005	-0.026	10	HP	
28864			p	48489.410	0.004	0.006	9	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
28865	0028+734	**V380 Cas**	p	48492.434	0.008	-0.048	10	HP	
28866	0037+499	**V523 Cas**	s	48404.558	0.003	0.019	7	KL	
28867			s	48449.425	0.004	0.017	4	HP	
28868			s	48453.394	0.005	0.013	7	HP	
28869			p	48475.484	0.005	0.019	8	HP	
28870			p	48486.462	0.004	0.014	9	HP	
28871	1140-355	**V752 Cen**	s	48373.360	0.004	-0.005	6	KL	
28872	0057+816	**U Cep**	p	48373.461	0.006	0.044	10	KL	
28873	2145+570	**SU Cep**	p	48440.454	0.004	0.014	9	HP	
28874			p	48449.455	0.005	0.002	8	HP	
28875			p	48486.421	0.005	0.010	6	HP	
28876	2038+754	**VW Cep**	p	48396.392		-0.031	18	FAc	
28877			s	48437.422		-0.053	12	CBa	
28878			s	48437.423		-0.051	13	FAc	
28879			p	48438.382		-0.066	6	FAc	
28880			p	48453.423		-0.054	17	FAc	
28881			s	48453.574		-0.042	20	FAc	
28882			s	48454.414		-0.037	14	FAc	
28883			p	48454.531		-0.060	16	FAc	
28884	2217+696	**WW Cep**	p	48444.452	0.008	-0.048	10	HP	
28885			p	48467.451	0.007	-0.053	9	HP	
28886			p	48490.456	0.006	-0.051	8	HP	
28887	2239+583	**BE Cep**	s	48490.557	0.004	-0.044	5	KL	
28888	2320+650	**CM Cep**	p	48466.460	0.005	-0.023	6	KL	
28889	2157+607	**DK Cep**	p	48499.451	0.006	0.012	8	HP	
28890			p	48500.461	0.006	0.036	7	HP	
28891	2127+649	**GI Cep**	p	48497.420	0.005	-0.016	14	HP	
28892	2249+567	**GS Cep**	s	**48467.384**	**0.004**	**0.002**	22	RD	pe, B; elem. IBVS No. 3596
28893	0140+798	**GW Cep**	s	48447.478	0.005	0.063	5	HP	
28894			p	48467.403	0.005	0.060	7	HP	
28895			s	48486.362	0.005	0.049	7	HP	
28896			p	48489.390	0.006	0.047	6	HP	
28897			p	48490.352	0.005	0.052	6	HP	
28898			s	48492.433	0.007	0.061	6	HP	
28899			p	48495.448	0.005	0.047	12	HP	
28900			p	48496.414	0.006	0.056	8	HP	
28901			p	48497.363	0.005	0.049	7	HP	
28902			s	48499.436	0.006	0.049	6	HP	
28903			s	48500.396	0.006	0.053	8	HP	
28904	2109+575	**IO Cep**	p	48433.466	0.003	0.011	8	HP	
28905			p	48480.437	0.006	0.021	7	HP	
28906			p	48480.451	0.010	0.035	10	KL	
28907	2334+666	**QZ Cep**	p	48218.411		-0.063	15	JVb	
28908	0220+809	**V358 Cep**	p	48459.560	0.015	0.015	7	KL	elem. BBSAG Bull. 96, p. 10
28909	0146-211	**TW Cet**	s	48473.577	0.003	0.008	6	KL	
28910	0147-198	**VY Cet**	s	48484.583	0.007	-0.006	6	KL	
28911	0156-231	**AA Cet**	p	48470.538	0.005	0.014	6	KL	
28912	1230+269	**RW Com**	s	48385.398	0.003	-0.020	5	HP	
28913			s	48390.397	0.004	-0.005	7	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
28914	1232+236	**RZ Com**	p	48385.460	0.003	0.013	8	HP	
28915			p	48404.418	0.003	0.015	9	HP	
28916			p	48447.402	0.005	0.008	8	HP	
28917	1247+189	**SS Com**	p	48407.418	0.004	0.020	7	HP	
28918	1209+228	**CC Com**	s	48438.389	0.003	0.004	6	HP	
28919	1604+274	**TW CrB**	p	48404.465	0.004	0.009	8	HP	
28920			p	48407.402	0.004	0.002	7	HP	
28921			s	48442.453	0.005	0.015	6	HP	
28922			p	48460.415	0.004	0.016	7	HP	
28923			p	48480.435	0.004	0.014	7	HP	
28924	1205-128	**W Crv**	p	48357.468	0.003	0.004	23	APs	CCD
28925			p	48385.409	0.003	0.003	6	KL	
28926	1235-147	**Y Crv**	p	48385.42	0.02	-0.09	46	APs	CCD
28927	2005+461	**SW Cyg**	p	48448.460	0.004	-0.097	10	HP	
28928	2021+430	**UW Cyg**	p	48500.458	0.004	0.034	7	KL	
28929			p	48500.462	0.004	0.038	8	HP	
28930	2002+414	**WW Cyg**	p	48433.437	0.003	0.008	6	KL	
28931			p	48433.438	0.002	0.009	11	HP	
28932			p	48486.510	0.004	-0.004	8	HP	
28933			p	48496.474	0.005	0.008	11	HP	
28934	2051+386	**WZ Cyg**	p	48405.442	0.004	0.029	6	HP	
28935			p	48429.412	0.002	0.036	8	HP	
28936			p	48453.373	0.005	0.033	6	HP	
28937			p	48467.404	0.004	0.037	8	HP	
28938			p	48474.408	0.005	0.028	7	HP	
28939			p	48488.443	0.005	0.036	7	HP	
28940	2022+467	**ZZ Cyg**	p	48390.466	0.003	-0.020	6	HP	
28941			p	48407.444	0.004	-0.014	7	HP	
28942			p	48429.445	0.002	-0.015	7	HP	
28943			p	48441.391	0.005	-0.012	5	HP	
28944			p	48466.530	0.004	-0.018	5	KL	
28945			p	48490.428	0.006	0.008	8	HP	
28946	2111+305	**AE Cyg**	p	48447.472	0.005	0.001	7	HP	
28947			p	48448.445	0.005	0.005	10	HP	
28948			p	48479.450	0.005	-0.004	6	HP	
28949			p	48480.426	0.007	0.003	9	HP	
28950	1939+466	**BR Cyg**	p	48447.480	0.005	0.002	7	HP	
28951			p	48467.460	0.004	-0.007	8	HP	
28952			p	48495.447	0.005	-0.003	6	KL	
28953	2056+349	**CG Cyg**	p	48433.428	0.003	0.030	7	HP	
28954			p	48481.397	0.005	0.032	7	HP	
28955	2156+523	**DO Cyg**	p	48449.453	0.006	-0.015	5	HP	
28956			p	48497.351	0.005	0.002	9	HP	
28957	2035+352	**GO Cyg**	p	**48459.4260**	**0.0011**	**0.0452**	20	RD	pe, B
28958	2113+372	**V387 Cyg**	p	48429.461	0.002	0.007	7	HP	
28959			p	48447.386	0.005	-0.005	7	HP	
28960			p	48479.430	0.004	0.009	6	HP	
28961			p	48497.363	0.005	0.005	6	HP	
28962	2027+312	**V388 Cyg**	p	**48467.4050**	**0.0020**	**-0.0114**	16	RD	pe, B

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
28963	2026+381	**V445 Cyg**	p	48460.504	0.002	0.144	6	KL	
28964			p	48499.464	0.006	0.150	11	HP	
28965	2014+373	**V454 Cyg**	p	48400.530		0.000	23	JVb	normal minimum
28966	2027+389	**V456 Cyg**	p	48408.416	0.006	0.025	6	KL	
28967			p	48440.499	0.006	0.025	8	HP	
28968			p	48449.398	0.006	0.012	8	HP	
28969			p	48490.404	0.005	0.023	8	HP	
28970	1952+328	**V466 Cyg**	p	48441.413	0.005	0.017	7	HP	
28971			p	48466.442	0.005	-0.001	7	HP	
28972	2003+318	**V477 Cyg**	p	**48458.4343**	**0.0013**	**-0.0055**	10	RD	pe. B
28973	2043+49	**V512 Cyg**	p	48480.384	0.005	-0.090	12	JVb	
28974	2131+355	**V620 Cyg**	p	48475.530	0.009	0.076	14	JVb	
28975	1924+298	**V687 Cyg**	s	48405.421	0.006	0.002	7	HP	
28976			p	48481.387	0.007	-0.004	6	HP	
28977			p	48486.506	0.005	-0.006	9	HP	
28978	2011+404	**V726 Cyg**	p	48459.408	0.01	0.034	6	KL	
28979	2025+586	**V728 Cyg**	p	48438.446	0.002	-0.008	8	HP	
28980			p	48471.396	0.006	-0.020	7	KL	
28981	2014+478	**V787 Cyg**	p	48406.453	0.004	0.006	7	HP	
28982			p	48484.416	0.008	0.015	8	HP	
28983	2101+130	**TY Del**	p	48474.411	0.006	0.049	7	HP	
28984	2027+138	**YY Del**	p	48448.494	0.006	-0.009	10	HP	
28985			p	48483.392	0.007	-0.007	6	HP	
28986	2043+109	**AV Del**	p	48448.502	0.006	0.001	6	HP	
28987	2050+158	**BS Del**	p	48460.485	0.010	0.300	28	APs	CCD, normal minimum
28988	2037+142	**DM Del**	p	48454.471	0.003	-0.003	11	FAc	
28989	2051+044	**FZ Del**	p	48441.423	0.005	-0.017	6	HP	
28990			p	48459.429	0.005	-0.025	5	HP	
28991			p	48470.389	0.005	-0.031	7	KL	
28992			p	48481.358	0.005	-0.026	5	HP	
28993			p	48488.410	0.006	-0.024	5	HP	
28994			p	48499.375	0.005	-0.023	8	HP	
28995	1142+725	**Z Dra**	p	48397.375	0.004	-0.062	6	KL	
28996	1841+626	**RR Dra**	p	48444.457	0.004	0.047	9	HP	
28997			p	48495.417	0.004	0.044	10	KL	
28998			p	48495.425	0.005	0.052	9	HP	
28999	1822+588	**RZ Dra**	p	48404.431	0.004	0.021	8	HP	
29000			p	48442.442	0.005	0.021	9	HP	
29001			p	48447.399	0.005	0.021	8	HP	
29002			p	48474.390	0.004	0.019	7	HP	
29003			p	48490.364	0.005	0.017	6	HP	
29004	1820+475	**TZ Dra**	p	48442.414	0.005	-0.005	9	HP	
29005	1926+688	**UZ Dra**	s	48368.482	0.004	0.014	7	KL	
29006			s	48492.387	0.006	-0.010	8	HP	
29007	1815+532	**AK Dra**	p	48498.513	0.015	0.026	20	JVb	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29008	1214+651	**AR Dra**	p	48405.374	0.003	0.002	6	KL	
29009			p	48405.374	0.003	0.002	7	HP	
29010	1731+572	**CV Dra**	p	48453.575		-0.012	8	FAc	elem. IBVS No. 3213
29011	1922+698	**DW Dra**	p	48390.460	0.003	-0.007	7	KL	elem. BBSAG Bulletin 84, p. 6
29012	2054+048	**S Equ**	p	48448.460	0.005	0.044	9	HP	
29013			p	**48479.3804**	**0.0005**	**0.0390**	22	EBI	pe
29014	1828+125	**RX Her**	s	**48479.4602**	**0.0007**	**0.0002**	24	EBI	pe
29015	1737+329	**SZ Her**	p	48407.442	0.004	-0.013	6	HP	
29016			p	48438.530	0.004	-0.013	10	KL	
29017			p	48443.440	0.006	-0.011	11	HP	
29018			p	48479.442	0.005	-0.006	8	HP	
29019			p	48497.433	0.005	-0.013	8	HP	
29020	1652+169	**TT Her**	p	**48476.4069**	**0.0007**	**0.0213**	24	EBI	pe
29021	1711+164	**AK Her**	p	**48390.4213**	**0.0006**	**0.0004**	24	EBI	pe
29022			p	**48444.378**	**0.001**	**0.002**	24	EBI	pe
29023			p	**48460.3916**	**0.0006**	**-0.0020**	26	EBI	pe
29024	1848+124	**BC Her**	p	48465.468	0.007	0.039	5	KL	
29025	1838+248	**BO Her**	p	48490.422	0.006	-0.006	10	HP	
29026	1615+090	**CC Her**	p	48390.432	0.004	0.041	8	HP	
29027			p	48442.457	0.004	0.046	13	HP	
29028			p	48482.335	0.003	0.042	10	KL	
29029			p	48475.401	0.004	0.044	10	HP	
29030	1618+185	**CT Her**	p	48364.363	0.009	-0.014	6	KL	
29031			p	48439.419	0.006	0.013	9	HP	
29032			p	48489.426	0.006	0.002	11	HP	
29033	1845+227	**DH Her**	p	48497.447	0.008	-0.021	16	HP	
29034	1806+458	**DQ Her**	p	48390.492	0.001	0.001	6	KL	
29035	1622+114	**FN Her**	p	48480.419	0.006	0.132	7	HP	
29036	1848+235	**GL Her**	p	48429.455	0.002	0.020	8	HP	
29037			p	48483.399	0.005	0.030	8	HP	
29038			p	48490.431	0.005	0.027	8	HP	
29039			p	48497.456	0.009	0.017	9	HP	
29040	1819.144	**MT Her**	p	48419.541	0.003	0.013	6	KL	
29041	1749+500	**MX Her**	p	48433.459	0.004	-0.285	10	HP	
29042			p	48440.487	0.005	-0.300	7	HP	
29043			p	48480.409	0.007	-0.288	9	HP	
29044	1751+437	**V338 Her**	p	48407.449	0.003	-0.005	8	HP	
29045			p	48488.417	0.004	0.008	8	HP	
29046	1822+250	**V342 Her**	p	48480.442	0.008	-0.021	7	HP	
29047	1714+209	**V381 Her**	p	48440.523	0.006	0.122	8	KL	
29048	1716+418	**V728 Her**	p	48433.409	0.002	-0.034	6	HP	elem. IBVS No. 3234
29049			p	48441.450	0.006	-0.005	6	HP	
29050			s	48449.426	0.003	-0.040	6	HP	
29051			p	48466.433	0.006	0.000	7	HP	
29052	1715+331	**u Her**	p	48454.492	0.004	0.016	10	FAc	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29053	1017-229	**VY Hya**	p	48390.392	0.004	-0.053	6	KL	
29054	2228+543	**TW Lac**	p	48474.478	0.004	0.034	11	HP	
29055	2238+380	**VX Lac**	p	48459.385	0.005	0.000	7	HP	
29056			p	48460.461	0.006	0.002	8	HP	
29057	2247+447	**VY Lac**	p	48439.423	0.004	-0.111	6	HP	
29058			p	48467.389	0.004	-0.125	8	HP	
29059			p	48495.375	0.004	-0.117	9	HP	
29060	2226+535	**DG Lac**	p	48474.448	0.005	-0.080	8	HP	
29061			p	48496.489	0.008	-0.105	5	KL	
29062	0933+264	**Y Leo**	p	48385.438	0.002	-0.005	6	KL	
29063			p	48385.441	0.004	-0.002	12	HP	
29064	1114-063	**UX Leo**	p	48361.430	0.007	-0.225	44	APs	CCD
29065	0958+176	**XY Leo**	p	48385.400	0.004	0.044	9	HP	
29066	0959+172	**XZ Leo**	p	48385.375	0.005	0.010	9	HP	
29067	0809+574	**SX Lyn**	p	48404.392	0.003	0.025	8	HP	
29068	0912+429	**UU Lyn**	p	48404.409	0.004	0.012	9	HP	
29069	1914+323	**RV Lyr**	p	48398.464	0.009	-0.008	6	KL	
29070			p	48488.434	0.005	-0.015	10	HP	
29071	1925+415	**TT Lyr**	p	48442.486	0.005	-0.010	10	HP	
29072			p	48484.430	0.005	-0.016	13	HP	
29073	1814+410	**TZ Lyr**	p	48407.421	0.004	0.019	8	HP	
29074			p	48444.421	0.005	0.001	6	HP	
29075			p	48453.417	0.009	0.007	8	HP	
29076			p	48490.429	0.006	0.000	7	HP	
29077	1919+378	**UZ Lyr**	p	48376.513	0.003	-0.002	7	KL	
29078			p	48429.468	0.002	-0.003	8	HP	
29079			p	48448.386	0.006	0.002	8	HP	
29080			p	48499.443	0.006	-0.005	8	HP	
29081	1915+328	**BV Lyr**	p	48398.465	0.008	-0.012	5	KL	
29082	1831+377	**EW Lyr**	p	48448.417	0.004	0.253	9	HP	
29083			p	48483.492	0.004	0.251	8	HP	
29084	1909+365	**FH Lyr**	p	48459.500	0.006	-0.031	7	KL	
29085	1913+337	**NV Lyr**	p	48460.394	0.004	-0.053	6	KL	
29086	1916+271	**PS Lyr**	p	48443.423	0.006	0.061	8	HP	
29087	1713+012	**U Oph**	s	**48476.4160**	**0.0005**	**0.0132**	24	EBl	pe
29088	1613-068	**SW Oph**	p	48406.486	0.01	0.125	44	APs	CCD
29089	1712-080	**SZ Oph**	p	48385.536	0.014	0.065	5	KL	
29090	1704+078	**WZ Oph**	p	48408.468	0.006	0	48	APs	CCD
29091	1746+050	**V378 Oph**	p	48445.5	1	-33.7	9	APs	CCD
29092	1728+106	**V449 Oph**	p	48481.380	0.005	0.037	7	HP	
29093	1816+142	**V501 Oph**	p	48486.474	0.006	0.003	7	HP	
29094			p	48488.397	0.005	-0.010	9	HP	

	Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29095	1638+006	**V502 Oph**	p	**48429.3901**	**0.0003**	**-0.0407**	22	EBl	pe	
29096	1738+078	**V506 Oph**	p	48440.409	0.005	0.026	6	HP		
29097			s	48449.430	0.005	0.034	7	HP		
29098			s	48466.385	0.006	0.022	6	HP		
29099			p	48475.403	0.005	0.027	6	HP		
29100			s	48484.412	0.006	0.022	7	HP		
29101	1756+135	**V508 Oph**	p	48438.418	0.003	0.014	7	HP		
29102			p	48449.459	0.004	0.021	6	HP		
29103			p	48469.459	0.004	0.023	11	KL		
29104	1757+034	**V509 Oph**	p	48475.445	0.015	-0.014	58	APs	CCD	
29105	1805+024	**V511 Oph**	p	48438.452	0.003	-0..006	22	APs	CCD	
29106	1754+049	**V566 Oph**	s	48437.477		-0.030	11	FAc		
29107			s	48437.494		-0.013	13	CBa		
29108			s	48453.493	0.003	0.011	9	FAc		
29109			s	**48474.3954**	**0.0011**	**0.0205**	24	EBl	pe	
29110	1803+020	**V573 Oph**	p	48444.688	0.008	-0.040	38	APs	CCD, normal minimum	
29111	1625-041	**V709 Oph**	p	48433.49	0.02	-1.11	25	APs	CCD, normal minimum	
29112	1806+091	**V839 Oph**	s	**48474.4055**	**0.0012**	**0.0730**	22	EBl	pe	
29113	1820+040	**V916 Oph**	p	48419.524	0.010	0.056	6	KL		
29114	1613-052	**V1016 Oph**	s	48444.396	0.010	-0.126	12	APs	CCD, elem. BBSAG 83, 7	
29115			p	48447.460	0.010	-0.116	20	APs	CCD	
29116	0508-086	**ER Ori**	p	48270.402		0.015	8	OW		
29117	0452+013	**ET Ori**	p	48270.519		-0.002	11	OW		
29118	0538+025	**FZ Ori**	p	48270.308		-0.008	9	OW		
29119			s	48270.504		-0.012	8	OW		
29120	0618+031	**V647 Ori**	p	48270.353		-0.167	14	JVb		
29121	2327+132	**TY Peg**	p	48460.560	0.002	-0.074	7	KL		
29122			p	48488.398	0.005	-0.066	6	HP		
29123	2226+177	**UX Peg**	p	48474.484	0.005	0.006	7	HP		
29124			p	48488.376	0.006	-0.003	7	HP		
29125	2220+160	**BB Peg**	p	48441.448	0.005	0.001	6	HP		
29126			p	48479.422	0.005	0.016	7	HP		
29127			p	48500.365	0.006	-0.007	9	HP		
29128	2125+047	**BN Peg**	p	48440.519	0.003	0.007	7	KL		
29129			p	48460.492	0.004	0.008	7	HP		
29130			p	48475.471	0.004	0.007	8	HP		
29131			p	48500.444	0.005	0.015	8	HP		
29132	2136+264	**BX Peg**	p	48438.454	0.002	0.030	8	HP		
29133			s	48439.403	0.008	-0.003	9	HP		
29134			s	48444.451	0.005	-0.002	6	HP		
29135			p	48479.376	0.008	0.011	7	HP		
29136			p	48500.402	0.005	0.005	8	HP		
29137	2146+278	**CW Peg**	p	48475.463	0.005	0.048	7	HP		
29138	2312+165	**EY Peg**	p	48493.588	0.01	0.918	4	KL	elem. BBSAG Bull. 85, p. 5	
29139	0320+463	**RT Per**	p	48472.474	0.003	0.024	12	KL		

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29140	0405+464	**XZ Per**	p	48490.578	0.003	-0.020	7	KL	
29141	0156+529	**KW Per**	p	48484.526	0.003	0.005	6	KL	
29142	0306+426	**V432 Per**	s	48481.598	0.005	0.058	11	JVb	
29143			p	48484.636	0.002	0.042	11	JVb	
29144			p	48487.525	0.004	0.037	14	JVb	
29145	0217+542	**DHK11 Per**	p	48454.573		0.005	14	FAc	elem. IBVS No. 3479
29146	2331+076	**Y Psc**	p	48459.532	0.003	-0.034	11	KL	
29147	2010+191	**UZ Sge**	p	48429.449	0.002	0.001	9	HP	
29148			p	48440.510	0.003	-0.017	7	KL	
29149			p	48460.458	0.005	-0.010	9	HP	
29150			p	48480.408	0.005	-0.002	8	HP	
29151			p	48500.347	0.006	-0.005	8	HP	
29152	1922+163	**CU Sge**	p	48440.430	0.005	0.021	8	HP	
29153			p	48474.485	0.005	0.035	6	HP	
29154			p	48497.431	0.004	0.022	9	HP	
29155	1957+190	**CW Sge**	p	48406.461	0.004	0.017	7	HP	
29156			s	48438.464	0.002	-0.006	7	HP	
29157			p	48441.454	0.006	0.012	6	HP	
29158			p	48447.392	0.005	0.007	7	HP	
29159			p	48480.404	0.005	0.002	7	HP	
29160			p	48484.395	0.005	0.030	7	HP	
29161			s	48489.367	0.005	0.050	7	HP	
29162			p	48490.338	0.006	0.030	6	HP	
29163	1905+188	**DL Sge**	p	48488.404	0.006	0.084	8	HP	
29164			p	48500.398	0.007	0.076	7	HP	
29165	1819-252	**XZ Sgr**	p	48438.506	0.002	0.052	14	KL	
29166	1836-227	**DV Sgr**	p	48471.412	0.003	-0.144	11	KL	
29167	1851-126	**U Sct**	p	48484.395	0.006	0.015	8	HP	
29168	1846-102	**RS Sct**	p	48466.441	0.006	0.005	8	HP	
29169			p	48466.442	0.006	0.006	46	APs	CCD
29170			p	48488.368	0.006	0.012	6	HP	
29171	1556+173	**AO Ser**	p	48397.364	0.002	0.005	6	KL	
29172			p	48404.405	0.002	0.011	39	APs	CCD
29173			p	48404.410	0.003	0.017	6	HP	
29174			p	48433.426	0.003	0.013	7	HP	
29175			p	48440.462	0.004	0.014	8	HP	
29176			p	48484.424	0.004	0.009	6	HP	
29177			p	48499.378	0.005	0.015	8	HP	
29178	1536+024	**AS Ser**	p	48385.402	0.006	0.011	8	HP	
29179			p	48406.396	0.004	0.038	6	HP	
29180			p	48440.410	0.006	0.039	7	HP	
29181	1554+224	**AU Ser**	s	48404.462	0.004	-0.012	7	HP	
29182			p	48405.421	0.003	-0.020	7	KL	
29183			p	48429.381	0.002	-0.023	6	HP	
29184			s	48440.410	0.005	-0.010	6	HP	
29185			p	48475.378	0.006	-0.020	6	HP	
29186			s	48486.401	0.006	-0.012	5	HP	
29187	1553+176	**BI Ser**	p	48439.468	0.005	-0.486	13	HP	
29188			p	48474.418	0.005	-0.478	6	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29189	1534+156	**CC Ser**	p	48390.465	0.006	0.008	7	HP	
29190			s	48398.483	0.008	0.028	58	APs	CCD
29191			p	48404.425	0.006	0.035	7	HP	
29192			p	48405.444	0.006	0.023	6	HP	
29193			p	48438.452	0.002	0.006	8	HP	
29194			s	48444.408	0.005	0.028	7	HP	
29195			s	48460.404	0.006	0.028	7	HP	
29196			p	48467.390	0.005	0.049	8	HP	
29197			p	48483.374	0.006	0.036	7	HP	
29198			p	48499.363	0.007	0.029	9	HP	
29199	0344+249	**AH Tau**	p	48489.627	0.002	-0.082	8	KL	
29200	0128+301	**V Tri**	p	48466.571	0.003	0.003	8	KL	
29201	0210+367	**RV Tri**	p	48477.454	0.005	0.005	6	KL	
29202	1339+596	**TW UMa**	p	48459.382	0.004	-0.039	6	KL	
29203	1206+563	**TY UMa**	p	48405.432	0.004	0.043	7	HP	elem. IBVS No. 1949
29204			s	48407.388	0.004	0.050	8	HP	
29205			p	48438.412	0.002	0.051	9	HP	
29206			s	48441.426	0.005	0.052	6	HP	
29207	1334+521	**UX UMa**	p	48419.469	0.001	0.001	6	KL	
29208	0934+562	**VV UMa**	p	48385.437	0.004	-0.013	6	HP	
29209			p	48407.443	0.003	-0.004	7	HP	
29210	1026+620	**ZZ UMa**	p	48390.471	0.003	-0.009	6	HP	
29211	1042+525	**BH UMa**	p	48385.426	0.004	-0.118	12	HP	
29212			p	48406.401	0.003	-0.103	7	HP	
29213	1158+132	**AG Vir**	p	**48385.388**	**0.004**	**-0.007**	20	EBI	pe
29214	1325+033	**AW Vir**	p	48405.443	0.003	0.003	7	HP	
29215	1340+048	**AZ Vir**	p	48385.463	0.004	-0.005	6	HP	
29216			p	48406.438	0.004	-0.009	7	HP	
29217	2026+246	**AW Vul**	p	48439.494	0.005	-0.003	8	HP	
29218			p	48460.466	0.006	0.001	9	HP	
29219	2030+246	**AX Vul**	p	48447.460	0.004	-0.019	9	HP	
29220	2033+224	**AY Vul**	p	48441.476	0.005	0.001	6	HP	
29221			p	48499.382	0.006	0.008	9	HP	
29222			p	48499.383	0.003	0.009	6	KL	
29223	2023+272	**BE Vul**	p	48377.561	0.003	-0.006	6	KL	
29224			p	48433.452	0.002	0.011	7	HP	
29225			p	48447.424	0.005	0.014	7	HP	
29226			p	48492.419	0.006	0.001	7	HP	
29227	1954+237	**BO Vul**	p	48429.404	0.003	0.032	6	KL	
29228			p	48429.406	0.003	0.034	7	HP	
29229			p	48460.538	0.004	0.032	8	HP	
29230			p	48466.375	0.004	0.032	8	HP	
29231			p	48499.455	0.004	0.032	10	HP	
29232	1935+218	**BS Vul**	p	48444.434	0.005	-0.002	6	HP	
29233			p	48475.385	0.005	0.011	7	HP	
29234			p	48483.471	0.005	0.006	7	HP	

	Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29235	2044+280	BU Vul	p	48438.461	0.003	0.007	8	HP		
29236			p	48442.446	0.005	0.008	9	HP		
29237			p	48479.432	0.004	0.010	6	HP		
29238			p	48495.358	0.005	0.004	6	HP		
29239	2023+263	CD Vul	p	48495.389	0.005	0.011	5	KL		
29240			p	48484.442	0.005	0.004	6	HP		
29241			p	48486.499	0.006	0.009	5	HP		
29242			p	48497.438	0.005	0.009	7	HP		
29243	2011+265	DR Vul	s	**48490.4600**	**0.0005**	**0.0216**	52	EBl	pe, displaced secondary	

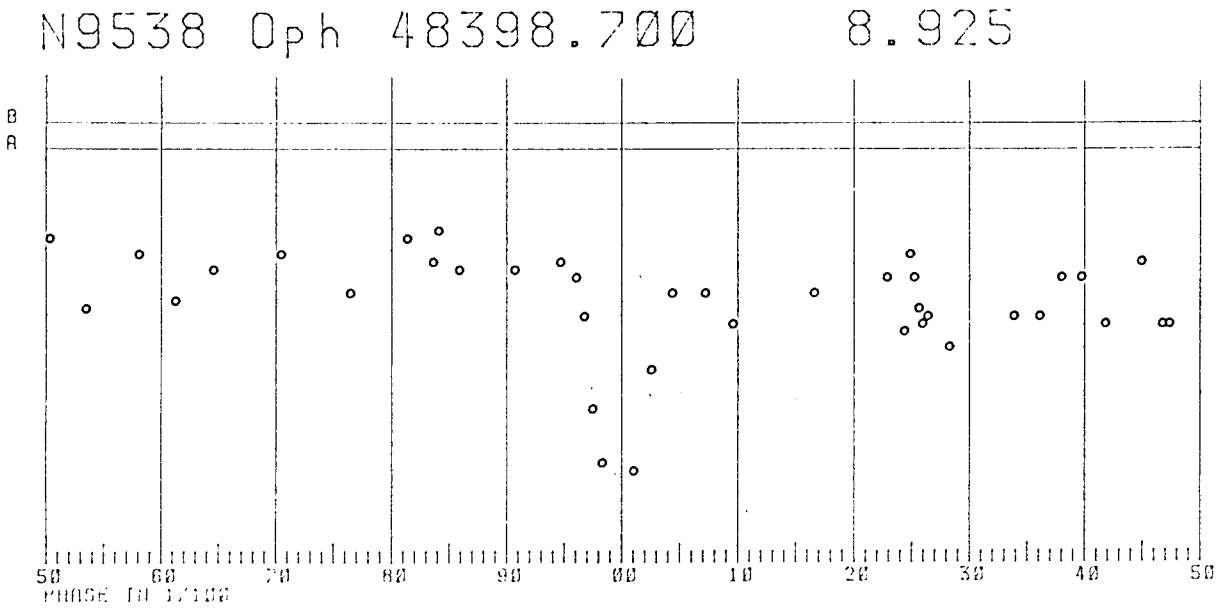
Preliminary elements for NSV 9538 = KPZ 3382 = S 4176

The variability of this star was detected by C. Hoffmeister in 1949. Three weakenings observed in the summer of 1990 were reported in BBSAG Bulletin 96. Two more, found in the spring of 1991, allow to derive the following preliminary elements:

$$JD(min,hel) = 2448398.700 + 8.925 \cdot E .$$

Each point in the diagram below is the mean of 11 CCD images drawn to the average of their phase. Since no minimum was observed completely, the D value seen in the diagram depends on the assumed period and may be in error. The amplitude is about 0.5 mag. The comparison stars used are 5 minutes of arc to the southeast (A) and 7 minutes of arc to the south (B) of the variable.

A. Paschke



Remarks on some little observed stars from CCD photometry

FF Aqr: A minimum predicted by the elements of the GCVS did not occur. The star was identified by its coordinates in the Guide Star Catalogue.

V719 Aql: The minimum does not take place at the time predicted by the GCVS elements.

VW Cet: The star was identified by GCVS coordinates in the Guide Star Catalogue. 234 CCD images taken in 11 nights and distributed over 90% of the presumed period of 0.486 days do not any significant changes. An EB variability with more than 0.3 mag amplitude should have been recognized from the data. The visual minimum published in BBSAG Bulletin 90 is obviously not correct.

Y Crv: This is an EW type star according to the GCVS 85. But on the AAVSO finding chart we find the remark "RRc type not excluded". The variable was observed in 11 nights in the spring of 1990 and 1991. A total of 320 CCD images has been secured and about 90% of the period has been covered. The light curve resembles a sine-curve, with minima and maxima lasting equally long. The minima are of equal depth and apparently not asymmetric. No firm conclusion on the true type of variability can be drawn from this data.

RR Crv: Faint at JD 2448328.478 with the ascending part of the light curve observed until 2448328.586. An exact timing of the minimum was not possible.

BL Del: Observed in 19 nights, but only one observation about 0.5 mag. fainter than usual on JD 2448127.433.

BS Del: The minimum given in BBSAG Bulletin 97 (No. 28577) is about 0.2 mag deep and must be a secondary. The star was found to be significantly fainter on JD 2448213.298, probably on the ascending branch of a primary eclipse. According to the GCVS, the amplitude should be 1.8 mag (pg). From the red sensitive CCD data it is found to be less than 1.0 mag. The value of D = 0.17 p, marked in the GCVS with a question mark, is confirmed. We find a time of totality of 0.03 p. Obviously, this variable is hard to observe visually.

V1031 Ori: Tis star is of 6th magnitude, and therefore observing with a CCD camera is difficult and may be inaccurate. No significant weakening was seen at the time predicted by the GCVS elements.

NSV 3690 = SVS 906: This variable, mentioned as constant in the BBSAG Bulletin 95, was about 0.3 mag. fainter in October 1990 than the year before. The star is probably red and shows slow variations (type L).

A. Paschke

Erratum:

Minimum No. 28674 of EG Ori given in BBSAG Bulletin 97, page 7, was secured by means of CCD photometry.

R. Diethelm