

BBSAG

BULLETIN

90

1989 January 20

123. List of Minima of Eclipsing Binaries

The following table lists 3 photoelectric (underlined) and 338 visual heliocentric minima of eclipsing binaries obtained primarily from September to December 1988 by the following observers:

FAC	Francesco Acerbi, Codogno, Italy
EBl	Ernst Blättler, Wald, Switzerland
GB	Guy Boistel, Sautron, France
RD	Roger Diethelm, Rodersdorf, Switzerland
JFa	Juan Fabregat, Burjasot, Spain
RG	Robert Germann, Wald, Switzerland
MKo	Michael Kohl, Uster, Switzerland
KL	Kurt Locher, Grüt, Switzerland
APs	Anton Paschke, Rütli, Switzerland
HP	Hermann Peter, Otelfingen, Switzerland
PR	Philippe Ralincourt, Nantes, France
JSu	Julia Suso, Valencia, Spain

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 data were reduced with the Kwee-van Woerden algorithm.

Nr	Design.	Star	Type	O	O-C	n	Obs	Remarks
25766	2311+458	TT And	p	47471.382	-0.020	7	HP	
25767	0000+325	TW And	p	47480.283	-0.060	7	KL	
25768	0041+308	UU And	p	47451.372	+0.019	7	KL	
25769	2342+454	WW And	p	47471.533	-0.109	8	GB	
25770	0042+284	WX And	p	47481.487	+0.011	6	KL	
25771	0153+418	XZ And	p	47468.252	+0.007	9	HP	
25772			p	47470.324	+0.007	6	KL	
25773			p	47523.258	+0.008	7	HP	
25774	2334+484	AD And	p	47439.337	-0.020	9	HP	
25775			s	47467.434	-0.028	8	HP	
25776			s	47488.412	-0.038	10	HP	
25777			s	47480.287	-0.018	9	HP	
25778	2308+516	BL And	p	47439.420	+0.003	8	HP	
25779			p	47481.316	+0.001	7	HP	
25780			p	47525.389	+0.010	7	HP	
25781	0008+418	DO And	s	47472.410	+0.015	8	KL	elem. MVS 11. p. 108
25782	0139+445	EP And	s	47474.310	+0.035	6	KL	
25783	2337+474	EX And	p	47524.403	+0.002	6	KL	
25784	0209+444	GZ And	s	47451.319	+0.009	6	KL	
25785			s	47468.385	-0.007	6	HP	
25786			s	47483.347	+0.010	7	HP	
25787			s	47522.414	+0.034	9	HP	
25788	0031+410	HIS And	p	47489.382	+0.115	6	KL	
25789	0207+488	LM And	p	47481.297	-0.207	5	KL	
25790	2324+452	LO And	s	47387.553	+0.009	19	JFa	
25791			p	47388.488	-0.008	17	JFa	
25792			p	47452.390	-0.089	7	HP	
25793			p	47468.382	-0.093	7	HP	
25794			s	47472.379	-0.094	7	HP	
25795			s	47480.365	-0.107	7	HP	
25796			s	47525.301	-0.111	5	HP	
25797			p	47528.235	-0.130	6	HP	
25798	2117-110	RY Aqr	p	47483.290	-0.012	5	MKo	
25799	2217-203	AT Aqr	p	47472.276	+0.015	6	KL	
25800	2224-198	AY Aqr	s	47451.321	-0.004	4	KL	
25801	2233-009	CX Aqr	p	47474.315	+0.002	5	KL	
25802	2319-162	CZ Aqr	p	47471.274	-0.002	6	KL	
25803	2243+007	DD Aqr	p	47449.325	-0.107	15	APs	
25804			p	47482.285	-0.118	14	APs	
25805			p	47487.328	-0.120	14	APs	
25806	2231-201	EE Aqr	p	47450.302	-0.002	18	APs	
25807	2128-072	EI Aqr	p	47449.293	-0.031	14	APs	
25808	1945+091	OO Aql	s	47449.325	-0.008	15	APs	
25809			s	47450.333	-0.013	15	APs	
25810	1938+126	V343 Aql	p	47448.340	-0.022	6	KL	
25811	2007+102	V346 Aql	p	47431.393	+0.002	17	APs	
25812			p	47461.281	-0.001	7	HP	
25813	1932+057	V417 Aql	p	47432.386	-0.025	13	APs	
25814	1946+154	V688 Aql	p	47472.299	-0.073	7	HP	
25815	1922+159	V1353 Aql	s	47471.282	-0.040	6	HP	
25816	0201+237	SS Ari	p	47523.312	-0.093	10	HP	
25817			s	47524.348	-0.074	9	HP	
25818			p	47525.342	-0.093	8	HP	
25819	0302+283	TX Ari	p	47477.333	-0.194	7	EBI	
25820	0514+382	RY Aur	p	47449.606	+0.004	6	KL	
25821	0546+316	RZ Aur	p	47498.362	-0.009	5	KL	
25822	0629+324	WW Aur	p	47479.557	+0.007	16	GB	
25823	0515+337	AR Aur	s	47471.563	-0.074	10	GB	
25824	0509+334	CL Aur	p	47480.368	+0.081	6	KL	
25825	0615+497	HL Aur	p	47466.394	+0.001	7	HP	
25826			p	47527.394	-0.004	6	HP	
25827	0510+757	XZ Cam	p	47481.472	+0.069	5	KL	
25828	0837+200	RY Cnc	p	47524.372	+0.034	8	KL	
25829	0845+093	AE Cnc	p	47524.537	-0.010	6	KL	
25830	0420-152	EE CMa	p	47535.491	+0.017	6	KL	
25831	0846-162	EQ CMa	p	47535.472	+0.081	10	KL	elem. BBSAG Bulletin 87, p. 9
25832	0751+037	XZ CMi	p	47527.507	+0.000	6	HP	
25833	0737+040	AK CMi	p	47450.588	-0.005	10	MKo	
25834			p	47489.641	0.000	6	KL	

Nr	Design.	Star	Type	O	O-C	n	Obs	Remarks
5835	0706+017	AN CMI	p	47535.497	-0.384	10	KL	
5836	0244+696	RZ Cas	p	47352.602	+0.007	21	PR	
5837			p	47388.488	+0.016	17	JFa	
5838			p	47443.447	+0.014	14	FAc	
5839			p	47467.348	+0.010	11	PR	
5840			p	47467.358	+0.018	19	GB	
5841			p	47480.498	+0.010	14	GB	
5842	0016+588	TV Cas	p	47388.432	+0.020	16	JFa	
5843	0232+710	AB Cas	p	47460.259	+0.011	6	KL	
5844	0123+698	AE Cas	p	47491.291	+0.056	6	KL	
5845	0042+628	CW Cas	p	47462.297	+0.032	11	HP	
5846			s	47471.363	+0.011	7	HP	
5847			p	47483.328	+0.018	11	HP	
5848			s	47522.401	+0.034	8	HP	
5849			s	47525.251	+0.015	6	HP	
5850			p	47526.385	+0.033	7	HP	
5851	2350+572	EP Cas	p	47450.354	-0.020	8	HP	
5852	2304+538	IR Cas	p	47460.340	-0.005	6	KL	
5853			p	47477.368	+0.008	9	EBl	
5854			p	47481.454	+0.008	8	HP	
5855			p	47522.297	+0.009	6	HP	
5856	0048+585	KL Cas	p	47392.555	-0.018	6	KL	
5857	0051+542	KR Cas	p	47514.251	-0.107	4	KL	
5858	0045+605	OR Cas	s	47452.347	-0.006	7	KL	
5859			p	47480.373	-0.009	6	KL	
5860			p	47525.232	+0.005	7	HP	
5861	0037+499	V523 Cas	p	47450.274	+0.010	6	HP	
5862			p	47456.350	+0.011	6	KL	
5863			p	47466.403	+0.017	7	HP	
5864			p	47471.310	+0.015	8	EBl	
5865			s	47481.469	+0.008	8	MKo	
5866			p	47483.344	+0.012	6	HP	
5867			p	47522.253	+0.012	5	HP	
5868			s	47526.344	+0.014	7	HP	
5869	0013+466	V544 Cas	p	47449.371	-0.011	6	KL	
5870	0057+816	U Cep	p	47483.428	+0.029	7	KL	
5871	2145+570	SU Cep	s	47467.390	+0.014	6	HP	
5872			p	47472.346	+0.013	7	HP	
5873			s	47523.274	+0.010	5	HP	
5874			p	47527.317	-0.003	6	HP	
5875	2217+698	WW Cep	p	47412.324	-0.063	8	EBl	
25876	2244+674	WY Cep	s	47474.348	+0.034	8	HP	
25877	2336+640	XX Cep	p	47483.318	-0.001	11	HP	
25878	2320+650	CM Cep	p	47481.236	-0.016	6	KL	
25879	2047+589	DE Cep	p	47472.346	-0.003	6	KL	
25880	2157+807	DK Cep	p	47449.470	+0.021	6	KL	
25881	2140+694	EK Cep	p	47384.548	+0.012	23	JFa	
25882	2249+567	GS Cep	p	47468.403	-0.066	8	HP	
25883			p	47472.310	-0.039	7	HP	
25884	2024+614	HI Cep	p	47449.437	+0.085	6	KL elem.	BBSAG Bull 81, p. 6
25885	2300+622	NN Cep	p	47471.363	+0.001	14	FAc	
25886	2134+656	PX Cep	p	47449.283	-0.034	6	KL elem.	IBVS Nr. 3048
25887	0158+786	V357 Cep	p	47531.296	-0.020	6	KL elem.	Brno Contr. 28, p. 34
25888	0220+809	V358 Cep	p	47452.423	+0.603	7	KL elem.	BBSAG Bull 63, p. 5
25889	0246+015	SS Cet	p	47450.587	-0.006	7	MKo	
25890			p	47471.394	-0.007	6	KL	
25891			p	47471.404	+0.004	15	APs	
25892	0144-100	TT Cet	p	47471.470	-0.028	12	APs	
25893	0146-211	TW Cet	p	47467.401	-0.005	16	APs	
25894			p	47480.382	-0.015	16	APs	
25895			p	47480.389	-0.007	6	KL	
25896			p	47481.340	-0.007	13	APs	
25897			s	47481.502	-0.004	7	MKo	
25898	0153-009	TX Cet	p	47471.363	-0.009	7	EBl	
25899	0053-023	VV Cet	p	47469.331	+0.042	12	APs	
25900			p	47481.36	+0.06	9	APs	
25901			p	47504.350	+0.061	10	APs	
25902	0136-180	VW Cet	s	47481.39	+0.08	13	APs	period only approx. known
25903	0147-198	VY Cet	p	47480.385	-0.008	12	APs	
25904			p	47480.386	-0.007	6	KL	
25905			p	47481.407	-0.008	16	APs	
25906	0256+033	XY Cet	p	47471.435	-0.004	20	APs	
25907	0156-231	AA Cet	p	47461.462	+0.010	6	KL	
25908	1205-128	WCrv	p	47531.633	+0.005	7	KL	

	Design.	Star	Type	O	O-C	n	Obs	Remarks
3	2021+430	UW Cyg	p	47458.326	+0.038	9	KL	
0	2104+455	VV Cyg	p	47535.250	-0.011	6	KL	
1	2002+414	WW Cyg	p	47461.324	+0.001	11	KL	
2			p	47471.280	+0.003	7	HP	
3	2051+386	WZ Cyg	p	47456.268	+0.027	7	HP	
4			p	47460.343	+0.011	7	KL	
5			p	47522.316	+0.030	9	HP	
6	2022+467	ZZ Cyg	p	47439.380	-0.009	9	HP	
7			p	47524.244	-0.008	8	HP	
8	1939+466	BR Cyg	p	47381.414	-0.013	8	MKo	
9			p	47449.386	-0.001	9	MKo	
0			p	47461.379	-0.001	7	KL	
1	2056+349	CG Cyg	p	47458.419	+0.028	8	HP	
2			p	47477.247	+0.029	6	HP	
3	1952+379	CV Cyg	s	47452.338	-0.098	8	HP	
4			s	47456.282	-0.088	7	HP	
5	2156+523	DO Cyg	p	47471.345	+0.003	10	HP	
6	2007+304	KR Cyg	p	47462.265	+0.003	7	HP	
7			p	47522.268	-0.000	5	HP	
8	2016+361	V382 Cyg	s	47461.327	-0.002	12	HP	
9	2113+373	V387 Cyg	p	47467.264	+0.006	7	EBI	
0			p	47481.377	+0.006	6	HP	
1			p	47483.287	-0.007	8	RG	
2			p	47524.302	+0.011	6	HP	
3	1927+303	V401 Cyg	p	47456.304	+0.010	7	HP	
4			s	47461.274	+0.027	8	HP	
5			s	47468.274	+0.035	6	HP	
6			p	47470.282	+0.003	5	HP	
7	2027+389	V456 Cyg	p	47450.382	+0.023	7	HP	
8			p	47467.316	+0.024	6	HP	
9	1952+328	V466 Cyg	p	47474.266	+0.010	8	HP	
10	2151+535	V680 Cyg	p	47439.357	+0.011	9	HP	
11			p	47481.325	+0.009	7	HP	
12	1924+298	V687 Cyg	s	47461.308	-0.012	12	HP	
13			p	47467.299	+0.004	7	HP	
14	2011+404	V728 Cyg	p	47491.305	-0.014	6	KL	
Nr	Design.	Star	Type	O	O-C	n	Obs	Remarks
25945	2025+586	V728 Cyg	p	47472.256	+0.011	7	HP	
25946			p	47474.307	+0.002	10	HP	
25947			p	47474.310	+0.005	7	KL	
25948	2159+473	V1414 Cyg	p	47496.340	+0.028	5	KL	
25949	2129+336	V1908 Cyg	p	47472.251	-0.060	8	KL	elem. P. Z. 22. p. 359
25950	2035+181	W Del	p	47471.377	-0.030	6	KL	
25951	2102+130	TY Del	p	47470.262	+0.020	7	HP	
25952	2027+238	YY Del	p	47456.340	-0.005	6	KL	
25953	2037+142	DM Del	p	47432.384	-0.032	14	APs	
25954	2051+044	FZ Del	p	47466.327	-0.013	6	HP	
25955			p	47488.252	-0.019	4	KL	
25956	1142+725	Z Dra	p	47482.468	-0.043	7	KL	
25957	1841+626	RR Dra	p	47456.360	+0.079	7	HP	
25958	1822+588	RZ Dra	p	47450.299	+0.002	6	RG	
25959			p	47456.369	+0.013	7	HP	
25960			p	47471.234	+0.005	7	HP	
25961			p	47477.284	-0.005	7	RG	
25962	1820+475	TZ Dra	p	47467.276	+0.012	8	HP	
25963			p	47480.247	-0.007	7	HP	
25964	1655+527	AI Dra	p	47378.398	+0.012	15	JFa	
25965			p	47384.398	+0.018	17	JFa	
25966			p	47385.584	+0.005	17	JFa	
25967	1214+651	AR Dra	p	47489.623	+0.010	6	KL	
25968	1922+698	DW Dra	p	47458.433	-0.002	10	KL	elem. BBSAG Bull 84, p. 6
25969	0419+061	TZ Eri	p	47527.411	+0.048	11	HP	
25970	0321+008	WX Eri	p	47526.450	-0.005	8	HP	
25971	0427-123	AM Eri	p	47451.593	+0.035	7	KL	
25972	0329-034	AS Eri	p	47477.466	-0.057	10	APs	
25973	0558+231	RW Gem	p	47498.339	-0.002	6	KL	
25974	0631+155	BD Gem	p	47531.471	+0.005	6	KL	
25975	0627+196	CK Gem	p	47451.675	-0.034	10	KL	
25976	0637+218	CX Gem	p	47535.540	+0.000	5	KL	

r	Design.	Star	Type	O	O-C	n	Obs	Remarks
177	1737+329	SZ Her	p	47468.266	-0.012	6	HP	
178			p	47477.287	-0.011	8	RG	
179	1852+189	TT Her	p	47387.390	+0.023	20	JFa	
180	1717+419	TX Her	p	47380.448	+0.025	15	JFa	
181			p	47384.542	+0.001	21	JFa	
182			s	47385.566	-0.006	12	JFa	
183	1711+164	AK Her	p	47388.462	-0.002	14	JFa	
184	1751+437	V338 Her	p	47450.343	-0.003	5	HP	
185			p	47471.246	+0.008	6	HP	
186	1716+418	V728 Her	s	47439.315	+0.048	6	HP elem. IBVS No. 3234	
187	2251+376	SW Lac	p	47529.3605	-0.0136	9	RD pe, B	
188	2247+447	VY Lac	s	47481.397	-0.124	8	HP	
189			p	47523.375	-0.115	6	HP	
190	2227+535	DGLac	p	47468.295	-0.054	6	HP	
191	2210+484	EQ Lac	p	47524.252	+0.107	5	KL	
192	0933+264	Y Leo	p	47535.647	-0.001	7	KL	
193	1848+333	Beta Lyr	p	47424.73	+9.12	6	RG	
194			p	47477.27	+10.01	5	RG	
195	1814+411	TZ Lyr	p	47452.351	+0.010	6	HP	
196	1909+365	FH Lyr	p	47458.284	-0.028	6	KL	
197	0632+088	RW Mon	p	47482.471	-0.005	6	KL	
198	0651-041	XZ Mon	p	47472.499	+0.025	5	KL	
199	0650+092	AY Mon	p	47472.664	-0.011	8	KL	
200	0706+007	BM Mon	p	47531.360	+0.017	6	KL	
201	0700+003	HM Mon	p	47531.380	-0.007	6	KL	
202	0635+036	V396 Mon	p	47531.335	+0.006	6	KL	
203	1756+135	V508 Oph	p	47431.280	+0.013	7	RG	
204			p	47452.306	+0.006	7	RG	
205	1754+049	V568 Oph	p	47387.401	+0.021	20	JFa	
206			s	47388.414	+0.010	14	JFa	
207	0454-036	EQ Ori	p	47481.493	-0.022	9	MKo	
208	0508-086	ER Ori	p	47508.579	+0.003	16	JFa	
			p	47450.573	-0.007	8	MKo	
			p	47449.518	-0.408	4	KL	
			p	47512.373	-0.025	7	KL	
			s	47449.444	-0.033	12	APs	
			s	47490.290	-0.038	12	APs	
			p	47449.445	-0.033	18	APs	
			p	47477.289	-0.039	6	KL	
			p	47480.361	-0.039	6	HP	
			p	47450.392	-0.005	14	APs	
			p	47481.289	0.000	7	HP	
			p	47483.385	+0.028	11	APs	
			p	47439.357	-0.006	7	HP	
			s	47466.297	+0.001	6	HP	
			s	47470.259	-0.013	7	HP	
			p	47524.328	+0.011	6	HP	
			s	47526.294	-0.011	7	HP	
			p	47449.351	-0.738	17	APs	
			p	47468.299	+0.012	6	HP	
			p	47483.274	+0.007	9	MKo	
			p	47488.251	-0.008	5	KL	
			p	47524.242	-0.010	7	HP	
			p	47474.318	+0.016	7	HP	
			p	47490.27	-0.00	21	APs normal minimum	
			p	47477.37	-0.14	25	APs	
			p	47470.364	+0.198	7	KL elem. BBSAG Bull. 85, p. 5	
			p	47456.331	-0.022	6	KL	
			p	47480.376	+0.025	6	KL	
			p	47525.392	+0.024	8	HP	
			p	47511.515	-0.007	5	KL	
			p	47456.412	-0.018	6	KL	
			p	47524.367	-0.010	8	HP	
			p	47530.3100	+0.0415	8	RD pe, B	
			p	47451.355	-0.001	6	KL	

Nr	Design.	Star	Type	O	O-C	n	Obs	Remarks
042	0258+437	IU Per	p	47452.330	+0.004	7	RG	
043			p	47452.342	+0.016	7	HP	
044			p	47481.468	+0.003	7	HP	
045	0158+529	KW Per	p	41456.415	+0.004	6	KL	
046			p	47456.417	+0.006	7	HP	
047			p	47470.376	-0.004	7	HP	
048			p	47471.308	-0.003	7	EBI	
049			p	47525.333	+0.009	9	HP	
050	0253+376	LS Per	p	47524.232	-0.240	6	KL	
051	0238+454	PS Per	p	47491.294	+0.031	6	KL	
052	0304+407	Beta Per	p	47482.328	+0.005	11	RG	
053			p	47489.544	+0.017	7	JFa	
054			p	47499.555	+0.028	6	JSu	
055	2331+076	Y Psc	p	47450.314	-0.027	7	HP	
056			p	47514.285	-0.074	4	KL	
057	0054+120	SX Psc	p	47471.435	-0.007	11	APS	
058			p	47481.332	-0.020	5	KL	
059			p	47481.346	-0.006	7	HP	
060	0811-238	XZ Pup	p	47531.414	+0.052	6	KL	
061	0736-243	AY Pup	s	47511.481	-0.005	4	KL	
062	0751-195	DF Pup	p	47524.432	+0.001	8	KL	
063	1916+195	U Sge	p	47461.318	-0.009	14	HP	
064	1922+163	CU Sge	p	47456.357	+0.001	11	HP	
065			s	47466.274	+0.021	9	HP	
066			s	47481.278	-0.016	8	HP	
067	1950-147	V505 Sgr	p	47384.465	-0.001	26	JFa	
068	1554+224	AU Ser	s	47381.407	+0.000	7	MKo	
069	1535+190	LX Ser	p	47535.662	+0.001	6	KL	
070	0400+280	RW Tau	p	47525.450	-0.029	11	HP	
071	0434+015	AC Tau	p	47469.486	+0.006	6	KL	
072	0344+249	AH Tau	s	47526.395	-0.053	6	HP	
073	0549+162	AM Tau	p	47483.358	+0.018	5	KL	
074	0511+276	AS Tau	p	47524.527	+0.068	6	KL	
075	0345+221	EO Tau	s	47481.494	+0.008	7	MKo	
076			s	47530.3021	+0.0018	8	RD pe, B	
26077	0526+287	ES Tau	p	47524.552	-0.001	6	KL	
26078	0128+261	V Tr	p	47489.371	-0.007	5	KL	
26079			s	47471.415	-0.011	7	HP	
26080			p	47524.384	-0.004	6	HP	
26081			p	47527.312	-0.001	7	HP	
26082	0157+276	X Tr	p	47387.593	-0.007	14	JFa	
26083			p	47388.564	-0.007	16	JFa	
26084			p	47468.287	-0.008	6	HP	
26085	0132+293	RS Tr	p	47523.270	-0.015	6	HP	
26086	0210+367	RV Tr	p	47471.296	-0.008	6	KL	
26087			p	47523.291	-0.015	7	HP	
26088			p	47477.328	-0.005	7	EBI	
26089			p	47526.305	-0.016	8	HP	
26090	0222+278	RW Tr	p	47449.343	-0.001	7	KL	
26091	1138+522	RW UMa	p	47523.526	-0.037	6	KL	
26092	1334+521	UX UMa	p	47524.615	+0.001	6	KL	
26093	0928+496	XZ UMa	p	47516.650	+0.005	5	KL	
26094	1026+620	ZZ UMa	p	47523.659	-0.001	4	KL	
26095	1108+466	BM UMa	s	47524.631	+0.008	6	KL	
26096	1927+273	XZ Vul	p	47474.293	+0.017	5	KL	
26097	2026+246	AW Vul	p	47381.433	+0.001	9	MKo	
26098	2033+225	AY Vul	p	47452.375	+0.003	7	KL	
26099	2023+272	BE Vul	p	47474.281	+0.004	6	KL	
26100	1954+237	BO Vul	p	47460.347	+0.018	5	KL	
26101			p	47462.308	+0.034	8	HP	
26102	2023+208	BP Vul	p	47431.331	-0.014	6	RG	
26103			p	47466.271	-0.001	7	HP	
26104	1935+218	BS Vul	p	47477.258	-0.004	8	HP	
26105	2044+280	BU Vul	s	47472.315	+0.011	6	HP	
26106	2023+263	CD Vul	p	47477.286	+0.004	7	KL	

On the Period of DD Aquarii

The writer has observed DD Aqr in 1986, but in vain, as no minimum could be found. In 1987, having observed the complete lightcurve, a significant primary at phase 0.5 (in respect to the elements of the GCVS 1985) and no secondary could be found visually. In 1988, this large deviation was confirmed (see BBSAG Bulletin 89).

D. Lichtenknecker kindly made available all the minimumtimes stored in his database, showing large deviations from the GCVS 1985 elements $JD_{\min, \text{hel}} = 2442633.438 + 0.7206335 * E$. The following table contains these observations:

Literature	Type	O		Observer	O-C
CTAD 22	p	28395.162	vis	Soloviev	0.000
MVS 6. 15	p	33896.494	pg	Spittgerber	+0.020
"	p	35070.286	pg	"	+0.007
"	p	37886.524	pg	"	-0.023
"	p	39349.456	pg	"	-0.022
"	p	39419.388	pg	"	-0.028
"	p	40205.333	pg	"	+0.016
BBSAG 4	s	41503.486	vis	Locher	+0.349
BBSAG 23	s	42633.437	vis	Diethelm	+0.477
unpublished	s	46605.480	pg	Vielmetter	+0.472
BBSAG 86	p	47056.368	vis	Paschke	+0.007
"	p	47066.463	vis	"	+0.008
"	p	47069.339	vis	"	-0.000
"	p	47087.360	vis	"	-0.004
BBSAG 89	p	47397.400	vis	"	+0.001
BBSAG 90	p	47449.325	vis	"	+0.013
BBSAG 90	p	47462.285	vis	"	-0.005
BBSAG 90	p	47467.328	vis	"	-0.009

Most of the observations are visual. Spittgerber gives the mean time of exposure of single photographs, while Vielmetter has obtained a series of photographs showing the descent to minimum. It was not published because it is not complete.

The new elements

$$JD_{\min, \text{hel}} = 2428395.162 + 0.7210107 * E$$

yield the O-C-values given in the last column in the table above. Only three minima do not fit these elements, but they may be secondaries. The one published by Locher is at phase 0.5. To prove the more probable case that the observations of Diethelm and Vielmetter indicate a displaced secondary, photoelectric observations will be necessary.

A. Paschke