

BBSAG

BULLETIN

99

1992 January 15

132. List of Minima of Eclipsing Binaries

The following table lists 30 photoelectric (underlined), 9 CCD-measured and 287 visual heliocentric minima of eclipsing binaries obtained primarily from September to December of 1991 by the following observers:

EBl	Ernst Blättler, Wald, Switzerland
RB	Roland Boninsegna, Dourbes, Belgium
RD	Roger Diethelm, R. Szafraniec Observatory, Metzerlen, Switzerland
AFi	Arnaud Fily, Periers-sur-le-Dan, France
PH	Patricia Huens, Ottignies Louvain-la-Neuve, Belgium
CJ	Christelle Jousain, Sezanne, France
MKo	Michael Kohl, Wald, Switzerland
KL	Kurt Locher, Grüt, Switzerland
APs	Anton Paschke, Rüti, Switzerland
HP	Hermann Peter, Otelfingen, Switzerland
DR	Delphine Russeil, Marseille, France
JVb	Jacqueline Vandenbroere, Bruxelles, Belgium
MW _o	Marek Wolf, Praha, CSFR

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 most of the photoelectric observations were reduced with the Kwee-van Woerden algorithm.

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29244	2311+458	TT And	p	48519.339	0.006	-0.033	12	HP	
29245	0041+306	UU And	p	48533.375	0.004	-0.002	11	HP	
29246	0058+378	WZ And	p	48538.444	0.004	+0.007	10	HP	
29247	0153+418	XZ And	p	48173.404	0.004	+0.017	8	MK _o	
29248			p	48530.372	0.004	+0.022	8	HP	
29249			p	48534.438	0.004	+0.016	7	HP	
29250			p	48564.301	0.003	+0.018	5	KL	
29251			p	48564.305	0.005	+0.022	8	HP	
29252	2334+483	AD And	p	48503.460	0.007	-0.002	8	HP	
29253			p	48504.432	0.007	-0.016	8	HP	
29254			p	48507.394	0.006	-0.012	9	HP	
29255			s	48538.466	0.004	-0.005	6	HP	
29256			s	48546.344	0.004	-0.018	11	HP	
29257			s	48548.314	0.004	-0.020	10	HP	
29258			p	48586.291	0.007	-0.011	8	HP	
29259	2308+516	BL And	p	48506.371	0.006	+0.005	7	HP	
29260			p	48540.339	0.005	+0.021	9	HP	
29261			p	48548.283	0.005	+0.019	8	HP	
29262			p	48561.283	0.005	+0.016	6	HP	
29263	0108+466	CO And	p	48504.428	0.009	+0.014	13	HP	
29264	0008+418	DO And	s	48532.468	0.007	-0.011	8	KL	elem. MVS 11, p. 106
29265	0139+445	EP And	p	48176.427	0.002	+0.015	11	MK _o	
29266			p	48562.363	0.004	+0.029	5	KL	
29267	2337+474	EX And	p	48621.443	0.003	-0.004	7	KL	
29268	0209+444	GZ And	s	48532.296	0.004	+0.001	6	KL	
29269	2324+452	LO And	s	48479.575	0.003	+0.019	25	RB	elem. GEOS Circ. No. 11
29270			s	48479.584	0.004	+0.028	14	DR	
29271			s	48479.585	0.008	+0.029	20	CJ	
29272			p	48517.432	0.005	+0.023	7	HP	
29273	2325+500	NSV14578 And	p	48619.379	0.008	-0.017	6	KL	elem. VSS 10, p. 374
29274	2217-230	AT Aqr	p	48532.345	0.004	+0.007	7	KL	
29275	2233-009	CX Aqr	p	48517.351	0.006	+0.007	6	HP	
29276			p	48552.374	0.006	+0.003	6	KL	
29277			p	48586.292	0.006	+0.006	8	HP	
29278	2319-162	CZ Aqr	p	48564.370	0.003	-0.014	7	KL	
29279	2126-072	EI Aqr	p	48538.395	0.012	-0.015	40	APs	CCD
29280	2019-075	XZ Aql	p	48496.486	0.007	+0.069	52	APs	CCD
29281	1945+091	OO Aql	s	48564.215	0.003	-0.052	90	APs	CCD, normal minimum
29282	1936+126	V343 Aql	p	48503.466	0.006	-0.009	6	HP	
29283			p	48540.345	0.006	-0.022	7	HP	
29284	2007+102	V346 Aql	p	48503.462	0.006	+0.006	5	HP	
29285			p	<u>48533.3245</u>	<u>0.0012</u>	<u>-0.0039</u>	20	EBI	pe
29286			p	48533.330	0.005	+0.002	9	HP	
29287	1932+057	V417 Aql	s	48490.365	0.005	-0.059	26	APs	CCD
29288	2013+008	V589 Aql	p	48508.410	0.003	-0.035	10	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29289	1929+106	V616 Aql	p	48587.259	0.005	-0.003	6	KL	elem. MVS 11, p.120
29290	1944+033	V829 Aql	p	48534.308	0.006	-0.033	9	HP	
29291	1945+093	V926 Aql	p	48564.228	0.005	+0.612	35	APs	CCD, normal minimum
29292	1956+116	V1168 Aql	p	48533.312	0.005	-0.016	9	HP	
29293	1922+159	V1353 Aql	p	48503.414	0.007	+0.016	11	HP	
29294	0201+237	SS Ari	s	<u>48623.3495</u>	<u>0.0015</u>	<u>-0.0952</u>	20	RD	pe, B
29295	0302+283	TX Ari	p	48586.273	0.007	-0.079	8	HP	
29296	0546+316	RZ Aur	p	48619.282	0.011	-0.059	6	KL	
29297	0543+411	XX Aur	p	48606.622	0.012	-0.343	14	KL	
29298	0542+411	ZZ Aur	p	48539.462	0.005	+0.004	8	HP	
29299			p	48586.365	0.005	+0.012	7	HP	
29300	0615+497	HL Aur	p	48233.318	0.003	-0.003	5	MKo	
29301	1458+353	TY Boo	s	48517.284	0.006	+0.060	5	HP	
29302	1435+361	BW Boo	p	<u>48518.3090</u>	<u>0.0006</u>	<u>-0.0066</u>	28	EBI	pe
29303	0620+778	AV Cam	p	48517.534	0.004	-0.047	13	JVb	
29304	0620-226	RU CMa	p	48587.535	0.005	+0.013	6	KL	
29305	0720-152	EE CMa	p	48621.490	0.005	+0.019	6	KL	
29306	0646-162	EQ CMa	p	48621.606	0.005	+0.281	13	KL	elem. BBSAG Bull. 87, p. 9
29307	0737+040	AK CMi	p	48545.592	0.005	-0.014	9	KL	
29308	0244+694	RZ Cas	p	48343.464	0.004	+0.010	15	PH	
29309			p	48478.527	0.004	+0.010	29	RB	
29310			p	48478.536	0.005	+0.019	20	AFi	
29311	0232+710	AB Cas	p	48545.580	0.005	+0.034	12	KL	
29312			p	48548.311	0.004	+0.030	11	HP	
29313	0123+698	AE Cas	p	48533.586	0.010	+0.081	6	KL	
29314	2302+592	CR Cas	p	48518.466	0.005	-0.069	6	KL	
29315	0042+628	CW Cas	s	48503.393	0.005	-0.060	8	HP	
29316			p	48507.391	0.006	-0.047	7	HP	
29317	2350+572	EP Cas	p	48505.389	0.005	-0.017	6	HP	
29318			p	48518.400	0.004	-0.021	7	HP	
29319			p	48540.359	0.005	-0.025	9	HP	
29320	2304+538	IR Cas	p	48530.398	0.005	+0.015	6	HP	
29321			s	48546.399	0.007	+0.019	9	HP	
29322			p	48556.270	0.006	+0.021	10	KL	
29323			p	48573.274	0.006	+0.008	6	HP	
29324	2326+602	IS Cas	p	48539.389	0.004	+0.015	11	HP	
29325	0105+612	OX Cas	p	<u>48588.328</u>	<u>0.005</u>	<u>+0.025</u>	22	RD	pe,B
29326	2309+534	V350 Cas	p	48621.306	0.004	+0.025	9	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29327	0049+501	V364 Cas	p	48506.384	0.004	+0.006	9	HP	
29328			s	48533.371	0.004	-0.010	6	HP	
29329	0028+734	V380 Cas	p	48507.368	0.005	-0.043	11	HP	
29330			p	48564.357	0.007	-0.060	12	HP	
29331	0037+499	V523 Cas	p	48176.362	0.006	+0.022	7	MKo	
29332			s	48518.370	0.004	+0.024	6	HP	
29333			s	48541.269	0.005	+0.021	6	KL	
29334			p	48573.401	0.005	+0.019	5	HP	
29335	0057+816	U Cep	p	48620.277	0.005	+0.048	12	KL	
29336	2145+570	SU Cep	p	48504.454	0.005	+0.015	8	HP	
29337	2038+754	VW Cep	p	<u>48500.4541</u>	<u>0.0016</u>	<u>-0.0583</u>	17	MWo	pe, B
29338			s	<u>48508.3836</u>	<u>0.0009</u>	<u>-0.0608</u>	20	MWo	pe, B
29339	2244+674	WY Cep	s	48552.264	0.005	+0.016	10	HP	
29340	2239+583	BE Cep	p	48571.383	0.008	-0.066	5	KL	
29341	2157+607	DK Cep	p	48503.428	0.006	+0.044	8	HP	
29342			p	48504.400	0.008	+0.031	9	HP	
29343			p	48506.377	0.007	+0.036	6	HP	
29344			p	48573.415	0.006	+0.032	8	HP	
29345	2306+609	DP Cep	p	48619.278	0.006	-0.025	6	KL	
29346	2249+567	GS Cep	p	48503.448	0.007	+0.011	9	HP	elem. IBVS No. 3596
29347			p	48506.383	0.006	+0.003	10	HP	
29348			p	48534.345	0.005	+0.003	10	HP	
29349	0140+798	GW Cep	p	48503.430	0.006	+0.058	7	HP	
29350			p	48517.455	0.005	+0.053	7	HP	
29351			s	48524.311	0.006	+0.054	7	HP	
29352			s	48573.421	0.006	+0.061	6	HP	
29353	2024+614	HI Cep	p	48571.301	0.006	+0.169	10	KL	elem. BBSAG Bull. 81, p.6
29354	2109+575	IO Cep	p	48548.408	0.005	+0.022	9	HP	
29355	2334+666	QZ Cep	p	48536.477	0.005	-0.079	15	JVb	
29356	0158+786	V357 Cep	p	48564.288	0.008	-0.046	6	KL	elem. Brno Contr. 28, 34
29357	0220+809	V358 Cep	p	48586.284	0.006	+0.022	5	KL	elem. BBSAG Bull. 96, p.10
29358	0246+015	SS Cet	p	48619.335	0.004	-0.020	7	KL	
29359	0312+025	TV Cet	p	<u>48622.3207</u>	<u>0.0020</u>	<u>+0.0049</u>	21	RD	pe, B
29360	0246-211	TW Cet	p	48541.522	0.008	-0.012	8	KL	
29361	0147-198	VY Cet	p	48606.414	0.005	-0.014	10	KL	
29362	0156-231	AA Cet	p	48543.436	0.004	-0.007	8	KL	
29363	2021+430	UW Cyg	p	48507.362	0.006	+0.038	8	HP	
29364			p	48538.417	0.005	+0.035	8	HP	
29365	2002+414	WW Cyg	p	48506.429	0.004	+0.009	9	HP	
29366	2051+386	WZ Cyg	p	48173.415	0.007	+0.034	10	MKo	
29367			p	48533.445	0.005	+0.034	8	HP	
29368			p	48546.299	0.005	+0.029	8	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29369	2022+467	ZZ Cyg	p	48502.362	0.005	-0.018	6	HP	
29370			p	48534.421	0.005	-0.017	8	HP	
29371			p	48565.226	0.003	-0.014	5	KL	
29372			p	48573.396	0.005	-0.016	9	HP	
29373	2111+305	AE Cyg	p	48546.334	0.005	+0.006	10	HP	
29374	1939+466	BR Cyg	p	<u>48539.4249</u>	<u>0.0009</u>	<u>+0.0000</u>	21	MW	pe, B
29375			p	48619.365	0.011	-0.014	5	KL	
29376	2056+349	CG Cyg	p	48505.380	0.005	+0.032	7	HP	
29377			p	48546.403	0.004	+0.031	12	HP	
29378	2156+523	DO Cyg	p	48538.382	0.005	-0.006	8	HP	
29379			p	48586.273	0.005	+0.004	9	HP	
29380	1938+291	EN Cyg	p	48532.304	0.002	+0.132	9	KL	
29381	2035+352	GO Cyg	s	<u>48524.3823</u>	<u>0.0022</u>	<u>+0.0438</u>	32	EBl	pe
29382	1941+326	V370 Cyg	p	48564.275	0.003	-0.006	6	KL	
29383	2016+361	V382 Cyg	s	<u>48564.374</u>	<u>0.006</u>	<u>+0.020</u>	24	EBl	pe
29384	2113+372	V387 Cyg	p	48504.411	0.006	+0.007	6	HP	
29385	2044+340	V398 Cyg	p	48532.357	0.005	-0.074	5	KL	elem. IBVS No. 3309
29386	2026+381	V445 Cyg	p	48538.417	0.006	+0.147	7	HP	
29387			p	48540.360	0.006	+0.143	10	HP	
29388	2027+389	V456 Cyg	p	48506.435	0.005	+0.012	7	HP	
29389			p	48539.408	0.005	+0.012	8	HP	
29390			p	48548.333	0.004	+0.025	9	HP	
29391			s	48552.342	0.005	+0.023	7	KL	
29392			p	48573.291	0.006	+0.029	8	HP	
29393	1952+328	V466 Cyg	p	48505.414	0.005	+0.007	6	HP	
29394			p	48519.332	0.004	+0.009	8	HP	
29395	1924+298	V687 Cyg	p	48534.313	0.006	-0.002	9	HP	
29396	2011+404	V726 Cyg	p	48621.244	0.002	+0.028	8	KL	
29397	2025+586	V728 Cyg	p	48502.332	0.005	+0.014	6	HP	
29398			p	48504.369	0.007	-0.009	9	HP	
29399			p	48539.387	0.004	-0.014	7	HP	
29400			p	48572.351	0.010	-0.012	7	KL	
29401	2030+506	V745 Cyg	p	48536.462	0.006	+0.009	9	JVb	
29402	2040+505	V748 Cyg	p	48524.344	0.012	+0.004	6	KL	
29403	2014+478	V787 Cyg	p	48539.437	0.006	+0.010	9	HP	
29404	1952+362	V822 Cyg	p	48587.268	0.012	-0.072	6	KL	
29405	2122+324	V1073 Cyg	s	<u>48598.336</u>	<u>0.004</u>	<u>-0.047</u>	20	EBl	pe
29406	1937+548	V1143 Cyg	p	<u>48539.3118</u>	<u>0.0013</u>	<u>-0.0036</u>	28	RD	pe, B
29407	2035+181	W Del	p	48509.494	0.010	-0.030	7	KL	
29408	2033+082	TT Del	p	48600.217	0.006	-0.024	5	KL	
29409	2101+130	TY Del	p	48505.364	0.007	+0.032	8	HP	
29410			p	48524.434	0.006	+0.044	9	HP	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29411	2027+138	YY Del	p	48533.369	0.007	+0.005	8	HP	
29412	2051+044	FZ Del	p	48517.394	0.005	-0.018	8	HP	
29413			p	48561.245	0.006	-0.027	5	HP	
29414	1142+725	Z Dra	p	48598.275	0.003	-0.066	6	KL	
29415	1841+626	RR Dra	p	48546.386	0.003	+0.049	21	HP	
29416			p	48597.341	0.007	+0.040	6	KL	
29417	1822+588	RZ Dra	p	48506.350	0.006	+0.028	6	HP	
29418			p	48533.344	0.005	+0.029	7	HP	
29419	1820+475	TZ Dra	p	48507.372	0.005	0.000	10	HP	
29420			p	48546.337	0.004	-0.007	12	HP	
29421	1926+688	UZ Dra	p	48598.390	0.004	0.000	6	KL	
29422	1850+476	WX Dra	p	48508.498	0.003	+0.017	8	KL	
29423	1826+689	BE Dra	p	48512.388	0.007	+0.077	12	JVb	
29424	1922+698	DW Dra	p	48606.303	0.003	-0.004	10	KL	elem. BBSAG Bull. 84, p. 6
29425	0419-061	TZ Eri	p	48619.387	0.005	+0.082	7	KL	
29426	0321-008	WX Eri	s	<u>48619.325</u>	<u>0.003</u>	<u>-0.021</u>	28	EBl	pe
29427	0427-123	AM Eri	p	48532.530	0.007	-0.042	6	KL	
29428	0558+231	RW Gem	p	48619.611	0.006	-0.004	7	KL	
29429	0648+175	EF Gem	p	48508.576	0.004	-0.020	7	KL	
29430	1737+329	SZ Her	p	48502.342	0.007	-0.013	5	HP	
29431			p	48547.334	0.005	-0.016	10	KL	
29432			p	48552.243	0.005	-0.015	9	HP	
29433	1711+307	TU Her	p	48518.358	0.003	-0.027	10	KL	
29434			p	48518.362	0.005	-0.023	9	HP	
29435	1717+419	TX Her	p	<u>48482.4298</u>	<u>0.0010</u>	<u>+0.0094</u>	27	MWo	pe, B
29436			p	48548.352	0.004	+0.018	10	HP	
29437	1711+164	AK Her	p	48495.365	0.010	-0.015	37	APs	CCD, clouds
29438	1848+124	BC Her	p	48505.370	0.008	-0.195	8	HP	
29439			p	48539.317	0.005	-0.209	10	HP	
29440	1622+114	FN Her	p	48507.335	0.006	+0.135	8	HP	
29441	1848+246	HS Her	p	<u>48484.4194</u>	<u>0.0010</u>	<u>+0.0149</u>	24	MWo	pe, B
29442	1751+437	V338 Her	p	48505.391	0.005	+0.007	8	HP	
29443			p	48539.343	0.004	+0.010	9	HP	
29444	1822+250	V342 Her	p	48538.381	0.005	+0.001	8	HP	
29445	1654+377	V359 Her	p	48519.337	0.006	+0.077	9	HP	
29446			p	48533.376	0.009	+0.070	9	HP	
29447	1716+418	V728 Her	s	48503.440	0.006	+0.012	7	HP	elem. IBVS No. 3234
29448	2251+376	SW Lac	s	48552.302	0.005	-0.011	11	HP	
29449			s	<u>48619.3304</u>	<u>0.0008</u>	<u>-0.0137</u>	28	EBl	pe
29450	2228+543	TW Lac	p	48623.329	0.009	+0.052	10	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29451	2238+380	VX Lac	p	48502.374	0.005	+0.010	7	HP	
29452			p	48517.416	0.004	+0.009	7	HP	
29453	2247+447	VY Lac	p	48524.373	0.007	-0.134	8	HP	
29454			p	48552.351	0.004	-0.135	11	HP	
29455	2213+484	AU Lac	p	48572.386	0.005	-0.011	5	KL	
29456	2226+535	DG Lac	p	48538.428	0.004	-0.090	10	HP	
29457	2231+558	OO Lac	p	48621.241	0.005	+0.099	8	KL	
29458	0933+264	Y Leo	p	48545.614	0.005	-0.009	10	KL	
29459	1059+101	AM Leo	p	<u>48621.5885</u>	<u>0.0017</u>	<u>-0.0044</u>	20	EBI	pe
29460	1102+054	AP Leo	s	<u>48621.5897</u>	<u>0.0008</u>	<u>-0.0165</u>	20	EBI	pe
29461	0945+335	T LMi	p	48619.562	0.004	-0.023	6	KL	
29462	0507-149	Z Lep	p	48534.646	0.007	-0.147	6	KL	
29463	0557-202	RS Lep	p	48620.448	0.003	+0.006	6	KL	
29464	1925+415	TT Lyr	p	48505.410	0.006	-0.011	9	HP	
29465	1814+410	TZ Lyr	p	48507.360	0.007	+0.010	8	HP	
29466			p	48534.334	0.005	+0.013	9	HP	
29467			p	48552.303	0.006	+0.002	10	HP	
29468	1919+378	UZ Lyr	p	48518.349	0.005	-0.012	7	HP	
29469	1831+377	EW Lyr	p	48524.409	0.006	+0.245	8	KL	
29470			p	48524.414	0.005	+0.249	9	HP	
29471	0632+088	RW Mon	p	48534.631	0.003	-0.008	7	KL	
29472	0637+020	V498 Mon	p	<u>48623.416</u>	<u>0.002</u>	<u>-0.057</u>	22	RD	pe, B
29473	1826+108	V451 Oph	s	<u>48499.3838</u>	<u>0.0008</u>	<u>-0.0019</u>	32	EBI	pe
29474	1816+142	V501 Oph	p	48517.443	0.006	-0.002	7	HP	
29475	1738+078	V506 Oph	s	48518.340	0.008	+0.016	8	HP	
29476	1756+135	V508 Oph	s	48521.340	0.006	+0.013	32	APs	CCD
29477			p	48543.211	0.009	-0.011	6	KL	
29478	1754+049	V566 Oph	s	<u>48499.3849</u>	<u>0.0004</u>	<u>+0.0216</u>	32	EBI	pe
29479	1814+068	V577 Oph	p	48500.44	0.03	+0.02	66	APs	CCD, min. incompletely obs.
29480	0454-036	EQ Ori	p	48623.409	0.002	-0.027	8	KL	
29481	0508-086	ER Ori	p	<u>48539.676</u>	<u>0.002</u>	<u>+0.007</u>	12	EBI	pe
29482	0502+092	FK Ori	p	48533.646	0.004	+0.004	6	KL	
29483	0505-028	FL Ori	p	48587.445	0.006	+0.003	9	KL	
29484	0610+214	FT Ori	s	<u>48606.349</u>	<u>0.003</u>	<u>+0.684</u>	20	RD	pe, B; see note in this Bulletin
29485	0540-007	GG Ori		<u>48606.369</u>	<u>0.004</u>	<u>-0.459</u>	18	RD	pe, B; see note in this Bulletin
29486				<u>48623.4634</u>	<u>0.0008</u>	<u>+0.0564</u>	46	RD	pe, B; see note in this Bulletin
29487	0552-093	V640 Ori	p	48597.497	0.003	-0.038	6	KL	

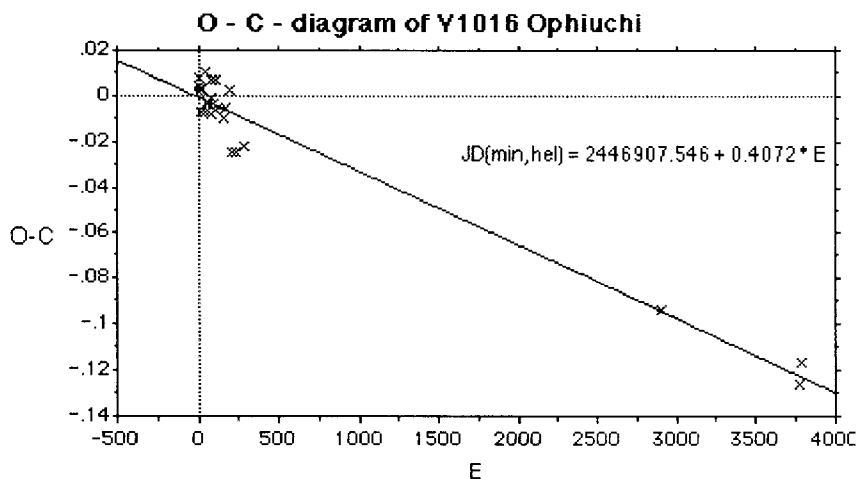
Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29488	2226+177	UX Peg	p	48176.377	0.008	+0.010	11	MK0	
29489			p	48505.382	0.005	+0.012	7	HP	
29490			p	48539.348	0.004	-0.004	8	HP	
29491			p	48573.323	0.004	-0.011	6	KL	
29492	2210+081	AT Peg	p	<u>48620.2514</u>	<u>0.0013</u>	<u>-0.0135</u>	20	EBl	pe
29493	2220+160	BB Peg	s	48519.359	0.004	+0.007	7	HP	
29494			p	48546.302	0.004	+0.019	9	HP	
29495			p	48564.369	0.006	+0.011	8	HP	
29496	2125+047	BN Peg	p	48530.390	0.007	+0.002	5	HP	
29497			p	48540.380	0.007	+0.007	10	HP	
29498			p	48620.252	0.008	-0.011	5	KL	
29499	2128+117	BO Peg	p	48517.375	0.006	-0.001	9	HP	
29500	2136+264	BX Peg	p	48507.420	0.005	+0.012	7	HP	
29501			p	48518.360	0.006	+0.016	6	HP	
29502	2357+184	DM Peg	p	48556.436	0.007	+0.103	15	JVb	
29503	2148+150	GH Peg	p	<u>48507.4268</u>	<u>0.0012</u>	<u>+0.0054</u>	36	MW0	pe, B
29504	0236+419	Z Per	p	48547.398	0.008	-0.056	6	KL	
29505	0320+463	RT Per	p	48540.432	0.005	+0.030	7	HP	
29506			p	48552.318	0.004	+0.025	7	KL	
29507	0335+425	WY Per	p	48564.283	0.004	+0.009	5	KL	
29508	0405+464	XZ Per	p	48534.340	0.005	-0.021	7	HP	
29509			p	48564.280	0.005	-0.022	8	HP	
29510	0403+333	AG Per	s	<u>48588.3621</u>	<u>0.0018</u>	<u>+0.1218</u>	24	RD	pe, B; displaced secondary
29511	0150+545	BY Per	p	48508.331	0.004	+0.008	7	KL	
29512	0433+441	KR Per	s	48573.394	0.005	+0.011	8	HP	
29513	0156+529	KW Per	p	48539.471	0.004	+0.006	8	HP	
29514			p	48619.558	0.004	+0.004	6	KL	
29515	0253+376	LS Per	p	48512.585	0.003	-0.307	11	JVb	
29516	0236+454	PS Per	p	48509.458	0.005	+0.038	6	KL	
29517	2331+076	Y Psc	p	48542.380	0.006	-0.033	12	KL	
29518	0054+120	SX Psc	p	48547.550	0.004	-0.014	10	KL	
29519			p	48548.402	0.005	+0.011	7	HP	
29520	1922+163	CU Sge	s	48518.395	0.012	+0.007	48	APs	CCD
29521			p	48524.347	0.005	+0.021	8	HP	
29522			p	48539.395	0.005	+0.027	8	HP	
29523	1957+190	CW Sge	s	48539.402	0.007	-0.102	9	HP	
29524			p	48546.323	0.005	-0.114	15	HP	
29525			p	48548.307	0.004	-0.111	11	HP	
29526	1905+188	DL Sge	p	48506.419	0.006	+0.097	7	HP	
29527			p	48512.406	0.005	+0.083	7	JVb	
29528			p	48518.399	0.010	+0.076	10	HP	
29529			p	48561.248	0.005	+0.061	6	HP	
29530	1911-142	EG Sgr	p	48508.40	0.03	+0.04	10	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
29531	1849-063	BS Sct	p	48524.325	0.006	+0.050	8	KL	
29532	1554+224	AU Ser	p	48504.363	0.006	-0.022	7	HP	
29533	0400+279	RW Tau	p	48519.435	0.003	-0.057	8	KL	
29534	0548+281	SV Tau	p	48233.439	0.005	+0.004	7	MKo	
29535	0434+015	AC Tau	p	48509.596	0.004	+0.047	7	KL	
29536	0344+249	AH Tau	s	48571.315	0.005	-0.066	6	KL	
29537	0358+202	GR Tau	p	<u>48616.282</u>	<u>0.002</u>	<u>-0.017</u>	22	RD	pe, B
29538	0435+205	HU Tau	p	<u>48616.3239</u>	<u>0.0013</u>	<u>+0.0121</u>	16	RD	pe, B
29539	0128+301	V Tri	p	48534.440	0.006	-0.012	7	HP	
29540			p	48564.291	0.005	-0.007	8	HP	
29541			p	48564.308	0.007	+0.010	5	KL	
29542	0157+276	X Tri	p	48517.477	0.004	-0.018	10	HP	
29543	0132+293	RS Tri	p	48546.462	0.006	-0.007	11	HP	
29544	0210+367	RV Tri	p	48517.381	0.005	-0.011	7	HP	
29545			p	48538.480	0.006	-0.016	4	HP	
29546	0222+278	RW Tri	p	48532.470	0.001	-0.001	6	KL	
29547	0928+496	XZ UMa	p	48598.395	0.006	-0.004	5	KL	
29548	0851+651	AC UMa	p	48533.401	0.007	+0.012	5	KL	
29549	2026+246	AW Vul	p	48502.403	0.008	+0.003	5	HP	
29550			p	48519.332	0.005	-0.003	8	HP	
29551			p	48548.371	0.005	+0.003	10	HP	
29552			p	48586.275	0.004	+0.004	10	HP	
29553	2030+246	AX Vul	p	48518.328	0.006	-0.020	10	KL	
29554			p	48518.335	0.006	-0.013	8	HP	
29555	2033+224	AY Vul	p	48540.399	0.005	+0.014	8	HP	
29556			p	48598.279	0.004	-0.005	7	KL	
29557	2023+272	BE Vul	p	48506.399	0.005	+0.012	9	HP	
29558			p	48534.340	0.005	+0.016	8	HP	
29559			p	48548.299	0.005	+0.007	9	HP	
29560	1954+237	BO Vul	p	48503.345	0.005	+0.031	10	HP	
29561			p	48538.372	0.005	+0.032	7	HP	
29562	2023+208	BP Vul	p	48533.457	0.007	-0.006	12	HP	
29563	1935+218	BS Vul	p	48504.412	0.005	+0.004	7	HP	
29564			p	48524.405	0.005	+0.006	8	HP	
29565			p	48586.275	0.005	-0.001	7	HP	
29566	2044+280	BU Vul	p	48524.379	0.005	+0.006	7	HP	
29567			p	48548.279	0.004	+0.009	8	HP	
29568	2023+263	CD Vul	p	48597.256	0.005	0.000	6	KL	
29569	2005+240	EY Vul	p	48482.511	0.014	+0.018	24	JVb	normal minimum

New elements for V1016 Oph

In BBSAG Bulletin No. 83, page 7, K. Locher reported preliminary elements for the EW type eclipsing binary V1016 Ophiuchi. In the meantime, a number of additional timings of minimum, some of them by means of a CCD camera, have been obtained. These allow the refinement of the elements. The diagram below shows the behaviour of the O-C-values from the elements given by Locher. A least squares analysis of the available data yields the following new elements:

$$JD(\text{min, hel}) = 2446907.5457 + 0.407168 \cdot E$$

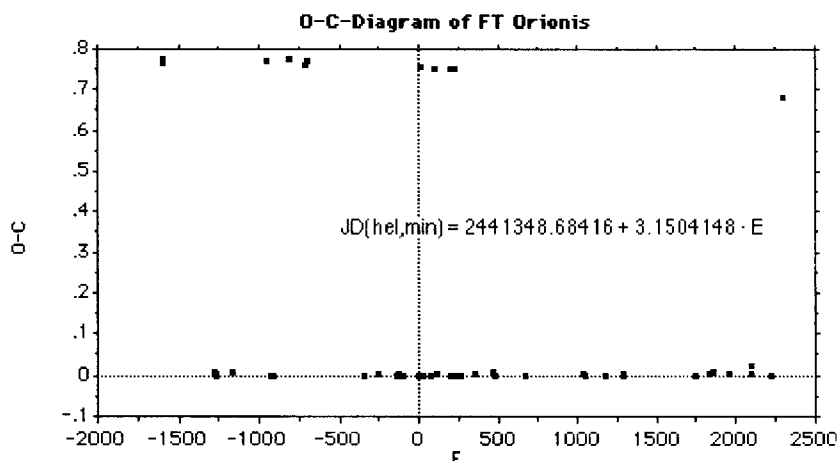


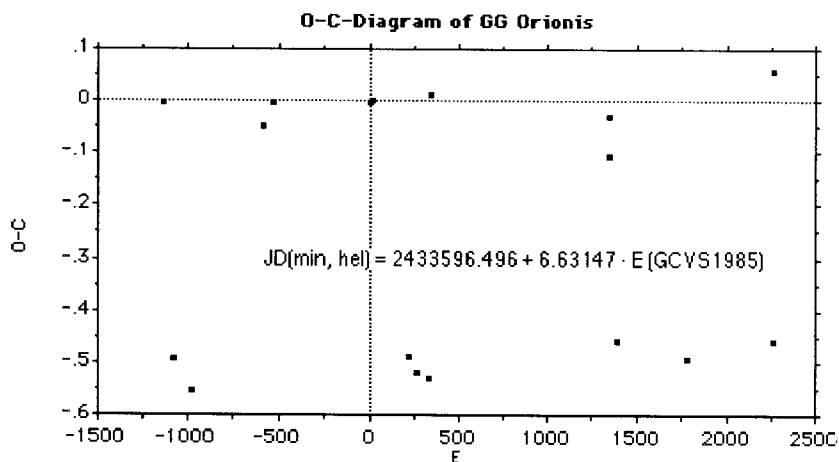
Motion of the line of apsides in FT Orionis and GG Orionis

During the night of JD 2448606 secondary minima of FT Orionis and GG Orionis were observed photoelectrically. Due to unfavourable circumstances, only the ascending branches of the light curve could be covered satisfactorily. For this reason, the times of minimum given in the table above (page 6) are somewhat uncertain.

On JD 2448623 we were able to secure a complete "primary" minimum of GG Orionis by photoelectric means. From our data, we can infer that the so called "primary" minimum is **shallower** by 0.17 mag. in B. The naming of "primary" and "secondary" minima should therefor be reversed, as originally determined by Kordylewski (AAc 4 (1950), 134). This conclusion is supported by the photographic data given by Busch (Mitt. Hartha No. 9 (1975), 18).

The following graphs show complete O-C-diagrams of the observations (visual and photoelectric) known to me. In both cases, the new timings confirm the trend of the change of the displacement of the secondary minimum. Especially in the case of GG Ori more observations are urgently needed in order to secure our conclusion. We will try to follow the behaviour of these stars in the future.





On the coordinates of V448 Ophiuchi = SVS 431

The variability of V448 Oph was discovered by P. Shajn (PZ 4, 261, 1934). In his discovery note, the position of the variable was given with an error of 1° in declination. The correct coordinates are:

$17^{\text{h}}15^{\text{m}}21^{\text{s}}$; $-18^\circ 06' 54''$ (2000.0),

based on the GSC. The writer has yet to observe a minimum.

A. Paschke

On the O-C-value of the secondary minimum of V541 Cygni

V541 Cygni is an eclipsing binary with a substantial eccentricity and a rather long period (15.33 days), which makes the determination of a time of minimum of this summertime object a rather difficult task for an observer at a midnorthern latitude. During the night of JD 2448616, I was able to follow the descending branch of a secondary minimum of V541 Cyg. These observations were terminated by the very low altitude of the variable in connection with the prevailing atmospheric conditions. Nevertheless, it is possible to infer an approximate time of minimum at 2448616.34. This yields a current O-C-value computed from the linear elements in the GCVS 1985 of -0.63^{d} or $+0.01^{\text{d}}$ from the formula given by Khaliullin (1985, ApJ 299, 668).

R. Diethelm

Preliminary elements of NSV 9595 = KZP 3406 = HV 11030

This star was suspected by Huruata (HA 109, 1942) as being of either "Cluster or Eclipsing" type. Huruata did not publish an identification chart, but he gave accurate coordinates and the description "f of 3 ***".

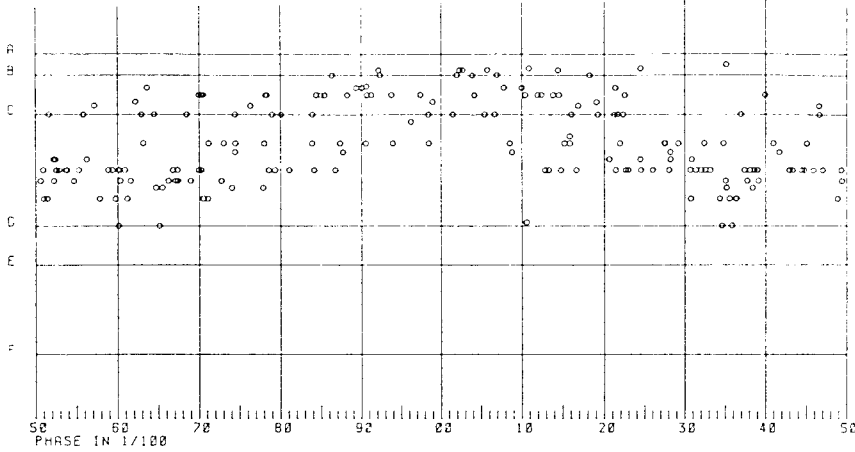
KZP 3406 was studied by D. A. Mitrofanov (PZ 22, 1986). He published an identification map including a sequence of 6 comparison stars, named a to f, as well as 191 photographic observations (blue). No period fitted his data to a reasonable degree. The noise in the data, also seen in the following diagram, is probably a real phenomenon of the light curve of the variable, as suggested by the fact, that the curve Mitrofanov found for the fainter star V555 Oph from the same photographic material shows much less scatter. A change in the period value does not explain the poor fit.

The writer has collected 238 CCD images of NSV 9595 in 1990 and 1991. Two comparison stars were used, the brighter one being star d of Mitrofanov, while the fainter one is a new comparison star g situated about $3'$ SE of the variable.

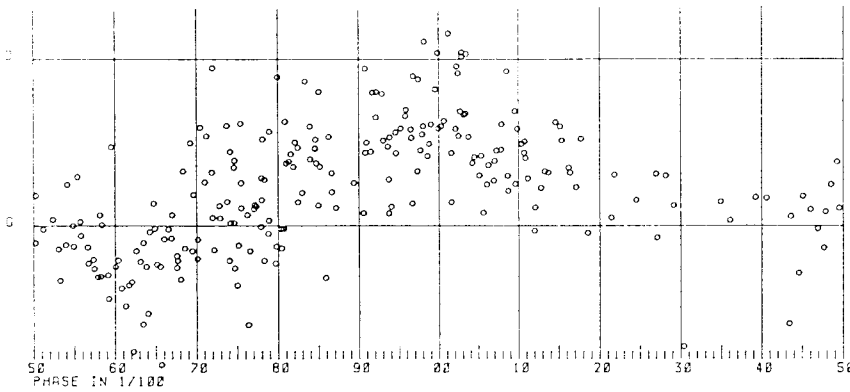
The elements $JD(\text{hel,max}) = 2442857.250 + 0.46509 \cdot E$ describe both sets of data as can be seen in the following diagrams. An alternate period of 0.46505 days describes the CCD data better, but Mitrofanovs longer series even worse. The type of variability remains open. We suspect RRc type (annotation by the editor: possible double mode pulsation) and for practical reasons prefer to give times of maximum.

The writer would like to express his gratitude to H. Ch. Kaemper from the University of Bonn for his help in the literature search.

A. Paschke



Photographic observations by D. A. Mitrofanov



CCD-observations by A. Paschke

List of photoelectrically timed minima that have been published in the BBSAG Bulletin

The editor has compiled a complete list of all the photoelectrically timed minima of eclipsing binaries that have appeared in the BBSAG Bulletin (more than 300). Anybody interested in receiving a copy of this list is invited to contact the editor at the address given below.

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