

## Occultation prediction for Nederland midden

E. Longitude 5 0 0.0, Latitude 52 0 0.0, Alt. 0m;

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B	RV	Cct	durn	R.A. (J2000)	Dec	Mdist	SV										
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
21	Sep	1	23	39	26.6	R	78629	M*	7.6	6.8v	25-	60		4	52	42N	324	356	318	-3.0	-2.9	+0.0+0.3	.298	120.8		6	41	0.0	25	19	25	398.61127.8		
78629 = QR Gem, 7.6, range 0.15, V, Type LB, Period 20.576307 days, Phase 13%																																		
21	Sep	2	0	7	15.1	D	1030WA3		3.1	2.3s	25-	60		7	57	-89N	94	129	89	-3.0	-2.9	-0.4+1.2	.562	-9.7	.01	6	43	55.9	25	7	52	398.21100.3		
R1030 = Mebsuta = epsilon Geminorum																																		
1030 is double: AB 3.1 9.6 110" 94.1, dT = +196sec																																		
1030 = NSV 3183, 2.97 to 3.09, V																																		
21	Sep	2	0	8	3.0	r	78655	F6	8.8	8.6	25-	60		7	57	36N	329	4	323	-3.0	-2.9	+0.4+0.0	.241	115.1		6	42	17.9	25	21	50	398.11097.7		
21	Sep	2	1	0	35.9	R	1030WA3		3.1	2.3s	25-	59		14	67	68S	254	293	248	-3.0	-3.0	-0.3+1.6	.531	-170.3	.01	6	43	55.9	25	7	52	397.21037.5		
R1030 = Mebsuta = epsilon Geminorum																																		
1030 is double: AB 3.1 9.6 110" 94.1, dT = +195sec																																		
1030 = NSV 3183, 2.97 to 3.09, V																																		
21	Sep	2	3	37	37.3	R	78778cK0		6.8	6.0v	24-	58	-12	37	95	64N	303	346	296	-3.2	-3.3	+1.0+0.5	.346	141.0		6	49	43.2	25	29	4	394.6	853.2	
78778 is double: ** 7.7 8.4 0.25" 69.0, dT = +0.43sec																																		
78778 has been reported as non-instantaneous (OCc 244). Observations are highly desired																																		
78778 = QU Gem, 6.85, range 0.53, V, Type LB:, Period 244.045094 days, Phase 16%																																		
21	Sep	2	4	12	18.4	r	78791	K0	8.8	8.2	23-	58	-7	42	102	58S	245	287	238	-3.3	-3.3	+0.6+2.2	.403	-160.4		6	50	45.8	25	15	58	394.0	816.6	
21	Sep	2	4	22	27	M	1049	A2	6.8	6.7	23-	58	-5	44	104	12N	355	36	348	-3.3	-3.4	+9.9+9.9	.000	90.0		6	51	58.2	25	39	47	393.9	807.6	
21	Sep	2	6	51	14.4	r	1055	G0	5.7	5.4s	23-	57	17	61	151	69S	256	275	249	-3.7	-3.5	+1.5+1.1	.361	-166.6		6	55	18.7	25	22	33	392.3	707.0	
R1055 = 37 Geminorum																																		
1055 = NSV 17225, 5.73, range 0.02, V, Type VAR:																																		
21	Sep	3	0	54	19.8	R	1155	F0	6.4	6.2	17-	48		5	57	45S	238	272	227	-3.9	-4.1	-0.7+1.7	.488	-147.7		7	38	14.4	24	21	38	394.31104.5		
21	Sep	3	1	10	40.8	r	79578cA0		8.8	8.8	16-	48		7	60	31S	224	260	213	-3.9	-4.1	-0.8+2.1	.395	-134.0		7	39	5.6	24	18	51	394.11086.5		
79578 is double: ** 9.6 9.6 0.10" 92.0, dT = +0.17sec																																		
79578 has been reported as non-instantaneous (OCc 762). Observations are highly desired																																		
21	Sep	3	2	40	14.6	D	1170dG8		3.6	3.1	16-	47		20	75	-79S	114	155	103	-3.9	-4.3	+0.2+1.0	.472	-23.9		7	44	26.8	24	23	53	392.5	982.7	
R1170 = kappa Geminorum																																		
1170 is double: AB 3.7 10.0 7.3" 241.0, dT = -9sec																																		
1170 is a close double. Observations are highly desired																																		
21	Sep	3	3	36	7.0	R	1170dG8		3.6	3.1	16-	47		28	86	53S	246	289	235	-3.9	-4.4	+0.1+2.1	.440	-156.0		7	44	26.8	24	23	53	391.5	913.6	
R1170 = kappa Geminorum																																		
1170 is double: AB 3.7 10.0 7.3" 241.0, dT = -17sec																																		
1170 is a close double. Observations are highly desired																																		
21	Sep	3	3	43	33.1	R	79662dG0		8.6		16-	47	-11	29	87	32S	225	268	214	-4.0	-4.4	-0.1+2.9	.336	-134.8		7	44	56.2	24	19	14	391.4	905.2	
79662 is double: AB 8.57 12.63 1.36" 263.8, dT = -3sec																																		
79662 is a close double. Observations are highly desired																																		
21	Sep	12	18	47	59.8	d	2333kB9		7.4	7.3	38+	76	-8	10	213	80S	111	90	102	+0.9	+1.1	+1.2-1.2	.456	-5.6		16	14	53.3	-22	22	49	368.0	817.8	
*** A light curve is desired as 2333 is in the Kepler2 program {ID = 204426847}																																		

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B	RV	Cct	durn	R.A. (J2000)	Dec	Mdist	SV										
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
21	Sep	13	19	10	59.4	d	2483	K1	7.1	6.5	49+	89	-12	9	204	73N	77	61	74	+1.8	+2.7	+1.3	-0.7	.414	21.2	17	16	27.7	-25	18	20	369.3	794.8	
21	Sep	14	18	54	7.9	D	2650	K3	4.7	3.8	60+	102	-10	11	187	36S	141	136	144	+2.7	+4.2	+1.5	-0.8	.281	-48.9	.02	18	18	3.2	-27	2	34	370.8	768.1
21	Sep	17	22	43	36.5	d	190337	K0	7.2	6.6	89+	142		15	200	82S	73	60	92	+4.3	+7.1	+1.2	-0.4	.432	-8.0	21	26	22.0	-20	59	57	378.0	799.3	
21	Sep	18	22	16	34.3	d	3276	G0	7.3	7.0	95+	154		22	182	76S	71	69	92	+4.8	+7.4	+1.4	+0.2	.412	-9.4	22	19	34.4	-16	42	16	380.4	770.6	
21	Sep	19	20	41	34.5	d	3396	A8	7.7	7.5	98+	165		20	145	72N	26	47	49	+5.2	+7.4	+0.8	+1.7	.347	35.3	23	7	24.3	-11	48	24	383.7	792.0	
21	Sep	20	1	40	8.0	D	3413p	K5	6.1	5.3	99+	167		19	222	73N	25	0	48	+4.6	+7.1	+0.3	+0.6	.381	32.7	23	14	40.2	-10	41	19	384.6	843.8	
*** A light curve is desired as 3413 is in the Kepler2 program {ID = 245955340}																																		
3413 is quadruple: AB 6.1 10.9 4.1" 258.4, dT = -6sec : AC 6.1 12.5 32" 223.3, dT = -79sec : AD 6.1 12.9 115" 130.4, dT = -80sec																																		
3413 is a close double. Observations are highly desired																																		
21	Sep	22	2	41	38.9	r	109473	G0	8.2	7.8	99-	167		31	221	81S	258	234	280	+4.1	+5.7	+1.2	-0.7	.391	158.9	0	48	33.2	0	22	55	390.7	794.8	
21	Sep	23	0	6	27.3	r	109931k	G0	8.5	8.2	96-	156		42	161	71N	277	289	297	+3.9	+5.0	+2.0	+0.4	.295	138.1	1	30	33.9	5	22	16	392.9	755.1	
*** A light curve is desired as 109931 is in the Kepler2 program {ID = 220433795}																																		
21	Sep	24	0	55	31.4	r	92875	G0	8.7	8.4	91-	145		47	161	37S	202	214	220	+3.0	+3.7	+0.6	+2.3	.319	-145.6	2	17	46.8	10	27	49	395.6	741.8	
21	Sep	24	23	8	20.0	R	445	F8	7.3	7.0	85-	134		36	114	66N	280	316	295	+2.2	+2.6	+1.2	+1.3	.330	140.3	3	0	53.4	15	1	52	398.8	830.9	
21	Sep	24	23	23	30.6	R	93238	F2	7.8	7.4	85-	134		38	118	89N	257	291	271	+2.2	+2.5	+0.9	+1.7	.405	163.6	3	1	17.3	14	58	56	398.6	817.1	
21	Sep	26	0	22	27.8	r	93629k	F0	8.5	8.3s	77-	123		44	118	70N	278	313	289	+0.8	+1.1	+1.3	+1.2	.338	145.4	3	50	23.6	19	15	16	399.8	795.7	
*** A light curve is desired as 93629 is in the Kepler2 program {ID = 210759464}																																		
93629 = NSV 15808, 8.53, range 0.02, 0V, Type VAR, Period 0.12193 days																																		
21	Sep	26	1	41	58.6	r	93645	K0	8.4	7.8	77-	123		53	142	39N	309	333	320	+0.6	+0.9	+3.0	-1.7	.159	114.7	3	52	36.5	19	36	29	399.1	736.7	
21	Sep	26	4	24	2	Gr	583cA		8.8	8.6	76-	122	-11	55	**	GRAZE: CA 9.7N; Dist. 10km in az. 344deg. [Lat = 52.10+0.17(E.Long-5.00)]																		
21	Sep	26	4	28	2	r	583cA		8.8*	8.6	76-	122	-11	55	210	16N	333	314	343	+0.1	+0.7	+9.9	+9.9	.038	96.1	3	56	52.7	20	5	1	399.1	700.5	
583 is double: ** 9.5 9.6 0.08" 223.9																																		
583 has been reported as non-instantaneous (OCcl724). Observations are highly desired																																		
21	Sep	26	22	7	38.9	r	76665	K0	8.2	7.6	70-	113		19	79	72N	280	321	286	-0.2	-0.1	+0.2	+1.5	.437	150.6	4	35	36.7	22	1	14	402.5	980.0	
21	Sep	27	1	8	49	m	76713WK7		8.9	7.7	69-	112		46	115	14N	339	16	345	-0.6	-0.4	+9.9	+9.9	.000	90.0	4	41	43.4	22	43	54	400.0	785.9	
76713 is double: AB 8.9 10.4 16.4" 41.3																																		
21	Sep	28	1	12	32.1	r	77245	F8	8.9	8.7	59-	101		41	103	38S	215	257	216	-1.9	-1.8	+0.1	+2.9	.328	-140.9	5	33	4.1	24	21	54	399.6	818.6	
21	Sep	28	1	43	29.7	R	835	B8	7.0	6.9	59-	101		46	110	87N	271	310	272	-1.9	-1.8	+1.1	+1.4	.391	163.9	5	33	30.8	24	37	44	399.2	787.8	
21	Sep	28	22	4	54.3	r	78207	B8	7.8	7.8	51-	91		8	59	75N	287	323	284	-2.9	-2.7	-0.3	+1.1	.504	154.7	6	18	43.8	25	20	54	401.2	1084.1	
21	Sep	28	22	48	5.6	R	966SB9		7.1	7.1	51-	91		13	66	52S	235	273	231	-2.9	-2.8	-0.5	+1.8	.476	-153.2	6	20	36.4	25	11	20	400.6	1035.4	
966 is triple: AC 7.1 12.0 41" 291.1, dT = -48sec : AB 7.1 8.9 57" 265.0, dT = -104sec																																		
21	Sep	29	0	10	38.0	r	78321	A5	8.9	8.8	50-	90		25	81	36S	219	261	215	-3.0	-2.9	-0.4	+2.6	.361	-138.1	6	23	52.3	25	15	2	399.2	937.4	
21	Sep	29	0	27	21.7	r	78322	B1	8.4	8.4v	50-	90		28	84	76S	259	301	255	-3.0	-2.9	+0.2	+1.8	.474	-178.0	6	24	3.9	25	25	1	398.9	917.1	
78322 = PY Gem, 8.38 to 8.57, V, Type GCAS																																		
21	Sep	29	1	29	26.4	R	78362	A2	8.6	8.6	50-	90		37	95	80S	263	306	258	-3.1	-3.0	+0.6	+1.7	.438	178.2	6	26	6.9	25	30	40	397.9	845.8	
21	Sep	29	1	33	40.9	R	78365SG0		8.9	8.5	50-	90		38	96	90N	273	316	269	-3.1	-3.1	+0.7	+1.4	.426	167.8	6	26	14.7	25	33	43	397.8	841.1	
78365 is triple: **Aa,Ab 9.3 9.3 0.10" 321.0, dT = -0.16sec : AB 9.0 11.2 41" 124.1, dT = +82sec																																		
78365 has been reported as non-instantaneous (OCc 793). Observations are highly desired																																		
21	Sep	29	2	56	19.3	R	78415	A0	8.6	8.6	49-	89		50	115	84S	267	305	263	-3.3	-3.2	+1.1	+1.3	.394	175.2	6	28	45.0	25	37	15	396.7	760.6	
21	Sep	29	3	46	6.2	R	78451	G8	8.3	7.7	49-	89		56	130	36N	327	359	323	-3.4	-3.2	+2.3	-3.0	.168	116.5	6	30	40.1	25	53	4	396.2	724.4	
21	Sep	29	5	20	19.5	r	78477	K2	8.4	7.8	49-	88	-3	64	169	62N	302	309	297	-3.7	-3.3	+1.7	-1.3	.298	146.3	6	32	51.8	25	50	51	395.6	687.9	

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B	RV	Cct	durn	R.A. (J2000)	Dec	Mdist	SV									
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s
21	Sep	30	2	21	24.7	D	1117cG8	5.0	4.6	40-	78	37	95	-39S	150	193	141	-4.2	-4.2	+1.6-1.3	.209	-61.6	7	23	28.5	25	3	2	394.5	842.9			
R1117 = 57 Geminorum																																	
1117 is double: ** 5.9 5.9 0.10" 90.0, dT = +0.24sec																																	
1117 has been reported as non-instantaneous (OCcl358). Observations are highly desired																																	
21	Sep	30	2	39	3	Gr	79351 B9	8.9	8.9	40-	78	40	**	GRAZE: CA	10.5N;	Dist.	73km	in	az.	333deg.	[Lat = 52.74+0.32(E.Long-5.00)]												
21	Sep	30	2	46	50.1	r	79351 B9	8.9	8.9	40-	78	41	100	25N	344	26	334	-4.2	-4.3	+2.7-4.7	.111	105.0	7	23	24.6	25	30	59	394.1	815.3			
21	Sep	30	2	55	6.1	R	1117cG8	5.0	4.6	40-	78	42	103	18S	207	249	198	-4.3	-4.3	-0.1+4.7	.200	-118.3	7	23	28.5	25	3	2	394.0	807.0			
R1117 = 57 Geminorum																																	
1117 is double: ** 5.9 5.9 0.10" 90.0, dT = +0.23sec																																	
1117 has been reported as non-instantaneous (OCcl358). Observations are highly desired																																	
21	Sep	30	5	34	46.4	r	79407 F0	8.5	8.3	39-	77	-2	61	152	19S	209	227	199	-4.7	-4.4	+1.5+5.7	.149	-113.7	7	28	3.1	25	1	41	392.2	703.1		
21	Oct	1	4	6	17.8	R	80105 A0	7.9	7.9	30-	66	44	108	43N	332	12	318	-5.1	-5.2	+1.5-1.7	.241	124.9	8	20	0.7	23	48	34	389.2	793.5			
21	Oct	2	0	39	44.7	r	80626 K0	8.7	8.1	22-	56	4	61	87N	293	329	276	-5.3	-5.6	-0.2+0.9	.559	165.7	9	5	52.8	21	3	15	388.7	1087.3			
21	Oct	2	1	25	1.4	R	80648 K0	8.7	8.2	22-	55	10	69	82N	299	337	281	-5.3	-5.7	+0.0+0.8	.519	160.7	9	7	43.5	21	0	32	387.9	1034.9			
21	Oct	2	3	48	46.9	R	80693 G0	8.4	8.1	21-	54	31	96	71S	271	312	253	-5.4	-5.9	+0.6+1.5	.458	-169.2	9	12	42.5	20	40	24	385.2	870.2			
21	Oct	3	3	43	16.8	D	1484cA0	3.5	3.5s	13-	42	20	88	-28N	54	94	33	-5.4	-6.2	+0.0+3.2	.310	52.9	10	7	20.0	16	45	46	380.8	949.7			
R1484 = eta Leonis																																	
1484 is double: AB 3.5 8.4 0.10" 239.7, dT = -0.32sec																																	
1484 is a close double. Observations are highly desired																																	
1484 = NSV 4738, 3.46 to 3.60, V																																	
21	Oct	3	4	20	24.1	R	1484cA0	3.5	3.5s	13-	42	25	95	45N	341	21	320	-5.4	-6.2	+0.8-1.3	.297	127.2	10	7	20.0	16	45	46	380.1	908.0			
R1484 = eta Leonis																																	
1484 is double: AB 3.5 8.4 0.10" 239.7, dT = +0.06sec																																	
1484 is a close double. Observations are highly desired																																	
1484 = NSV 4738, 3.46 to 3.60, V																																	
21	Oct	3	4	46	21.6	R	98961 F8	8.6	8.3	13-	42	-10	29	101	22S	228	267	207	-5.4	-6.2	+0.4+4.2	.234	-119.2	10	7	42.8	16	16	29	379.6	882.2		
21	Oct	4	4	14	8	Gr	1598PF5	6.5	6.3	7-	30	14	**	GRAZE: CA	9.6N;	Dist.	126km	in	az.	351deg.	[Lat = 53.15+0.10(E.Long-5.00)]												
21	Oct	4	4	23	14.9	R	1598PF5	6.5	6.3	6-	30	14	90	30N	1	40	338	-4.9	-6.1	+0.6-3.4	.190	110.6	10	59	41.1	11	42	21	375.7	981.5			
*** A light curve is highly desired as 1598 is in the Kepler2 program (ID = 248842300)																																	
1598 is double: ** 7.2 7.2 0.10" 90.0, dT = -0.01sec																																	
1598 has been reported as non-instantaneous (OCc 85). Observations are highly desired																																	
21	Oct	4	4	33	36.9	R	99389kF8	8.8	8.6	6-	29	-12	16	92	62N	329	8	306	-4.9	-6.1	+0.4-0.3	.425	143.0	10	59	27.3	11	38	1	375.5	969.7		
*** A light curve is desired as 99389 is in the Kepler2 program (ID = 248839425)																																	
21	Oct	8	15	19	17.0	D	2118SA3	2.8	2.7s	7+	30	14	17	210	25S	171	152	155	-0.4	-1.1	+0.7-1.8	.275	-54.9	14	50	52.7	-16	2	30	361.5	837.9		
R2118 = Zubenelgenubi = alpha Librae																																	
2118 is multiple: AD 2.7 7.3 266.0, dT = 0.00sec : AB 2.7 5.2 231" 314.0, dT = -675sec : AC 2.7 12.5 272" 291.0, dT = -500sec : AE 2.7 20.0																																	
2118 = NSV 6827, 2.72 to 2.75, V																																	
21	Oct	8	15	58	0.4	r	2118SA3	2.8	2.7s	7+	30	9	14	219	-43S	239	216	224	-0.4	-1.0	+1.3-0.8	.281	-125.1	14	50	52.7	-16	2	30	361.8	857.8		
R2118 = Zubenelgenubi = alpha Librae																																	
2118 is multiple: AD 2.7 7.3 266.0, dT = 0.00sec : AB 2.7 5.2 231" 314.0, dT = -218sec : AC 2.7 12.5 272" 291.0, dT = -600sec : AE 2.7 20.0																																	
2118 = NSV 6827, 2.72 to 2.75, V																																	

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B	RV	Cct	durn	R.A. (J2000)	Dec	Mdist	SV									
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s
21	Oct	10	18	19	12.3	d	184839	KG5	8.9	8.5	24+	58		4	220	76S	111	85	107	+2.3	+2.5	+1.1	-1.4	.470	-13.1	16	57	52.0	-24	55	7	365.6	855.6
*** A light curve is highly desired as 184839 is in the Kepler2 program (ID = 203790700)																																	
21	Oct	12	20	2	40.2	d	187716	ESG6	7.2	6.6	46+	86		4	215	69N	62	39	70	+4.2	+5.4	+0.8	-0.7	.443	18.2	19	8	8.1	-26	50	5	372.0	840.8
187716 is triple: **Aa,Ab 7.8 7.8 0.050" 160.0, dT = -0.02sec : AB 7.3 8.6 45" 124.0, dT = +49sec																																	
187716 has been reported as non-instantaneous (OCc 769). Observations are highly desired																																	
21	Oct	13	20	22	15.5	d	2939	A9	7.5*	7.2v	57+	99		8	208	71N	58	40	71	+4.9	+6.5	+0.9	-0.5	.432	14.9	20	10	6.8	-25	17	2	375.3	813.2
2939 = BD Cap, 7.51 to 7.57, Hp, Type DSCTC, Period 0.160222 days, Phase 42%																																	
21	Oct	14	20	15	42.1	d	3087	A9	7.8	7.6	68+	111		15	195	68N	49	39	66	+5.4	+7.2	+1.0	+0.1	.403	18.3	21	7	56.0	-22	20	7	378.4	778.1