

### 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								
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
Nov	1	22	34	10.1	r	93452	pF0	8.3	8.1	98-	165	48	138	45N	312	337	324	-2.0	+3.6	+3.2	-1.8	.138	110.8	3	29	19.6	16	11	54	400.1	754.3	
*** A light curve is desired as 93452 is in the Kepler2 program {ID = 210548838}																																
93452 is double: ** 9.3 9.3 0.060" 311.0, dT = -0.44sec																																
93452 has been reported as non-instantaneous (OCc 937). Observations are highly desired																																
Distance of 93452 to Terminator = 15.9"; to 3km sunlit peak = 5.8"																																
Nov	2	1	17	24.6	R	93484	pF5	7.0	6.8	98-	164	53	201	58N	298	285	310	-2.5	+3.4	+2.2	-2.3	.224	127.9	3	32	57.5	16	35	54	399.6	707.1	
*** A light curve is desired as 93484 is in the Kepler2 program {ID = 210575096}																																
93484 is quadruple: Aa,Ab 7.0 10.5 350.0, dT = 0.00sec : AB 7.1 16.9 467" 91.4, dT = +1864sec : AB 7.1 16.9 467" 91.4, dT = +1864sec																																
Nov	2	20	11	8.5	r	93825	F0	8.1	8.0	v	95-	155	25	91	27S	202	242	210	-2.8	+2.6	-0.3	+2.6	.327	-133.2	4	14	15.0	18	53	38	400.7	928.3
93825 = HIP 19763, 8.135, range 0.01, 7w, Type VAR, Period 0.3589 days, Phase 56%																																
Distance of 93825 to Terminator = 19.7"; to 3km sunlit peak = 7.9"																																
Nov	2	20	44	37.1	r	93834	K0	8.3	7.8	95-	155	30	97	23S	197	238	206	-2.9	+2.5	-0.3	+2.8	.292	-129.6	4	15	20.9	18	59	10	400.2	891.3	
Distance of 93834 to Terminator = 14.8"; to 3km sunlit peak = 4.6"																																
Nov	2	21	48	42	m	93840	cF5	7.2		95-	155	40	111	17N	337	15	345	-3.0	+2.4	+9.9	+9.9	.000	90.0	4	17	1.2	19	40	33	399.2	826.0	
93840 is double: AB 7.38 9.06 0.37" 354.0																																
93840 is a close double. Observations are highly desired																																
Distance of 93840 to Terminator = 9.2"; to 3km sunlit peak = 1.1"																																
Nov	2	22	32	11.4	R	93844	K0	7.6	6.9	95-	154	46	122	76N	278	312	286	-3.1	+2.3	+1.4	+1.0	.348	148.8	4	17	38.2	19	33	39	398.7	786.0	
Nov	2	23	36	13.9	r	93862	F5	8.5	8.2	95-	154	53	141	76N	278	302	286	-3.3	+2.2	+1.7	+0.6	.331	149.7	4	19	16.7	19	43	28	398.0	739.9	
Nov	3	3	23	9.2	r	93917	F	9.0	8.8	94-	153	50	230	73S	247	216	254	-4.0	+1.9	+1.3	-0.2	.374	-171.7	4	24	57.7	20	3	24	397.9	729.5	
Nov	3	19	37	10.4	R	752c	A7	4.6	4.5	91-	145	15	74	52S	228	268	232	-3.9	+1.2	-0.4	+1.9	.474	-154.2	5	3	5.7	21	35	24	399.6	1021.6	
R752 = iota Tauri																																
752 is double: ** 5.4 5.4 0.10" 0.0																																
752 has been reported as non-instantaneous (OCc 230). Observations are highly desired																																

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							
m	d	h	m	s	No	D	v	r	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
Nov	3	20	9	31.0	r	76940	pB3	8.0	91-	144	20	80	43S	219	260	223	-3.9	+1.2	-0.3	+2.2	.421	-146.0	5	4	22.1	21	38	37	399.0	984.2	
*** A light curve is desired as 76940 is in the Kepler2 program {ID = 247430338}																															
76940 is triple: AB 8.69 8.86 0.20" 302.5, dT = -0.05sec : AC 8.7 13.7 1.1" 217.9, dT = -2.5sec																															
76940 is a close double. Observations are highly desired																															
Nov	3	22	53	43.2	R	76997	A2	7.8	7.6	90-	143	44	113	24S	200	238	203	-4.2	+0.9	+0.0	+3.4	.258	-128.1	5	9	52.7	21	59	16	396.4	805.3
Nov	3	23	23	18.4	R	77003	cA0	7.6	90-	143	48	120	57S	234	269	237	-4.3	+0.8	+0.8	+2.2	.384	-161.3	5	10	12.9	22	8	12	396.0	778.8	
77003 is double: AB 7.90 9.09 0.10" 328.8, dT = +0.02sec																															
77003 is a close double. Observations are highly desired																															
Nov	3	23	49	28.5	R	77022	F2	8.1	7.7	90-	143	51	128	32S	208	240	211	-4.4	+0.8	+0.5	+3.2	.281	-135.4	5	11	17.9	22	7	1	395.7	758.4
Nov	4	0	12	5.2	R	77024	B8	8.1	8.0	90-	143	54	135	89S	266	294	269	-4.4	+0.7	+1.4	+1.1	.378	167.6	5	11	20.1	22	21	46	395.5	742.6
Nov	4	2	4	5.2	r	77045	G5	8.4	7.8	89-	142	61	182	65N	292	290	294	-4.8	+0.6	+1.8	-1.1	.300	145.2	5	14	19.0	22	39	36	394.9	700.3
Nov	4	4	4	33.5	r	77083	DF5	8.7	8.4	89-	141	53	230	57N	300	268	302	-5.1	+0.5	+1.3	-2.4	.302	142.6	5	17	32.4	22	49	45	395.2	728.9
77083 is double: AB 9.16 11.07 2.40" 190.6, dT = +2.6sec																															
77083 is a close double. Observations are highly desired																															
Nov	4	21	5	43.5	r	77792	M0	7.9	7.0s	84-	133	22	79	85N	275	316	273	-5.0	-0.4	+0.2	+1.4	.486	163.3	5	58	38.2	23	39	58	395.6	973.9
77792 = NSV 2745, 7.76 to 7.88, V																															
Nov	4	22	27	1.3	R	77851	A0	7.4	7.3v	84-	132	34	94	71S	252	294	250	-5.1	-0.5	+0.4	+1.9	.457	-173.7	6	1	29.2	23	42	14	394.3	879.2
77851 = HD 40678, 7.37 to 7.39, V, Type ACV, Period 22.029 days, Phase 17%																															
Nov	4	22	29	18.7	r	77852	A0	8.2	8.2V	84-	132	34	95	79S	259	301	257	-5.1	-0.5	+0.5	+1.8	.458	178.9	6	1	31.5	23	44	19	394.2	876.7
77852 = HD 40696, 8.24, , Type ACV, Period 0.9828 days, Phase 55%																															
Nov	5	2	2	41.4	R	78010	A0	8.2	8.2	83-	131	61	157	38S	218	233	216	-5.6	-0.9	+1.2	+2.9	.268	-135.8	6	8	11.0	23	51	40	391.8	710.9
Nov	5	2	11	36	m	78031	B2	8.2	8.2	83-	131	62	161	8N	353	6	350	-5.7	-0.9	+9.9	+9.9	.000	90.0	6	8	56.5	24	21	36	391.7	708.5
Distance of 78031 to Terminator = 11.2"; to 3km sunlit peak = 0.5"																															
Nov	5	2	37	41.3	rX	8417	wK5	8.6	7.9	83-	131	62	173	46N	314	319	312	-5.7	-0.9	+1.9	-2.4	.235	129.4	6	9	0.9	24	15	56	391.6	703.2
X 8417 is double: AB 8.7 12.7 10.5" 135.3, dT = +45sec																															
Nov	5	2	58	49.4	rX	8438	dB8	8.8	8.8	82-	130	62	184	56N	304	302	301	-5.8	-0.9	+1.7	-1.8	.285	140.6	6	9	27.4	24	14	37	391.6	701.8
X 8438 is double: AB 12.8 13.7 9.4" 297.1, dT = -33sec																															
X 8438 is a close double. Observations are highly desired																															

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								
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
Nov	5	3	15	24.4	rX	8450	A2	8.7	8.7V	82-	130	62	192	83N	278	270	275	-5.9	-0.9	+1.6	-0.5	.361	167.4	6	9	43.4	24	8	43	391.5	702.4	
X 8450 = HD 42066, 8.67, , Type ACV, Period 2.1025 days, Phase 68%																																
Nov	5	3	15	54.8	R	78051	A2	7.6	7.5	82-	130	62	192	66N	294	286	292	-5.9	-0.9	+1.7	-1.3	.324	151.0	6	9	49.5	24	12	55	391.5	702.5	
Nov	5	3	44	30	M	936cK0		5.8	5.3	82-	130	61	204	4N	357	341	354	-5.9	-1.0	+9.9	+9.9	.000	90.0	6	11	32.3	24	25	13	391.5	707.3	
R936 = 5 Geminorum																																
936 is double: ** 6.7 6.7 0.050" 350.0																																
936 has been reported as non-instantaneous (OCc1300). Observations are highly desired																																
Distance of 936 to Terminator = 2.9"; to 3km sunlit peak = 0.0"																																
Nov	5	5	42	25.3	R	78122W		7.9	7.5	82-	130	-10	48	245	44S	225	187	222	-6.3	-1.0	+1.5	+0.7	.282	-134.0	6	14	9.2	23	57	17	392.1	772.4
78122 is double: BA 7.9 7.6 114" 358.0, dT = +275sec																																
Nov	5	5	46	14.6	R	78121WF0		7.5	7.3v	82-	130	-9	47	246	54S	235	197	232	-6.3	-1.0	+1.4	+0.1	.327	-143.4	6	14	8.9	23	59	11	392.1	775.7
78121 is double: AB 7.6 7.9 114" 178.0, dT = -191sec																																
78121 = PV Gem, 7.58 to 7.64, Hp, Type DSCTC, Period 0.188065 days, Phase 74%																																
Nov	5	6	56	27.9	r	954cG8		6.1	5.6	82-	129	1	37	262	54S	236	194	232	-6.4	-1.0	+1.0	-0.4	.352	-142.6	6	16	19.0	23	58	12	392.8	843.4
R954 = 8 Geminorum																																
954 is double: ** 6.9 6.9 0.10" 90.0, dT = +0.23sec																																
954 has been reported as non-instantaneous (OCc 288). Observations are highly desired																																
Nov	5	21	49	17.4	R	1052KF8		6.8	6.5	76-	121	21	77	82N	283	324	276	-5.8	-1.9	+0.2	+1.3	.488	161.3	6	54	42.8	24	14	44	391.9	980.3	
*** A light curve is highly desired as 1052 is in the Kepler2 program {ID = 202061312}																																
Nov	5	22	3	38.0	r	78870	B2	7.8	7.9S	76-	121	23	80	35S	220	262	213	-5.8	-1.9	-0.4	+2.6	.365	-136.1	6	55	37.2	24	0	29	391.7	963.3	
78870 = NSV 17230, 7.77, , Type VAR:																																
Nov	5	22	34	47.2	r	78887	K0	8.8	8.1	75-	121	28	86	70S	255	298	248	-5.9	-2.0	+0.2	+1.8	.483	-171.4	6	56	23.0	24	9	58	391.1	925.8	
Nov	5	22	46	38.4	r	78894wK0		8.7	8.2	75-	121	30	88	82N	283	326	276	-5.9	-2.0	+0.5	+1.2	.455	161.0	6	56	47.6	24	17	51	390.9	912.0	
78894 is double: AB 8.8 13.1 13.3" 291.3, dT = -29sec																																
Nov	6	0	33	2.8	d	1070	G5	5.2	4.7v	75-	120	45	109	-72S	113	153	106	-6.1	-2.2	+1.2	+0.6	.376	-27.7	7	2	24.8	24	12	56	389.2	801.6	
R1070 = omega Geminorum																																
1070 = ome Gem, 5.18 to 5.20, V, Type L:																																
Nov	6	0	45	30.0	R	78967	A2	8.1	8.0	75-	120	47	113	57N	308	347	300	-6.1	-2.2	+1.5	-0.2	.309	137.8	7	0	52.9	24	28	51	389.0	788.8	
Nov	6	1	30	15.6	R	78989	A0	8.5	8.5	75-	119	53	125	86S	271	304	263	-6.2	-2.2	+1.3	+1.0	.399	176.2	7	1	58.8	24	20	47	388.5	754.0	

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							
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s
Nov	6	1	39	46.1	R	1070	G5	5.2	4.7v	75-	119	54	129	54S	240	272	232	-6.2	-2.2	+1.1+2.1	.351	-152.2	7	2	24.8	24	12	56	388.4	747.9	
R1070 = omega Geminorum																															
1070 = ome Gem, 5.18 to 5.20, V, Type L:																															
Nov	6	1	49	23.0	r	X	10317	K0	8.9	8.4	74-	119	55	131	58N	308	339	300	-6.3	-2.3	+1.6-0.8	.301	139.9	7	2	46.3	24	30	18	388.3	742.1
Nov	6	1	52	41	r	79013	K2	8.8	8.3	74-	119	56	132	21N	345	15	337	-6.3	-2.3	+2.8-8.0	.089	103.1	7	3	27.7	24	35	47	388.3	740.6	
Nov	6	2	30	34.8	r	79020	F8	8.8	8.5	74-	119	59	147	90N	276	297	268	-6.4	-2.3	+1.5+0.4	.381	173.7	7	3	42.8	24	22	47	387.9	722.1	
Nov	6	2	36	10.4	r	79028	dA0	8.5	8.5	74-	119	60	149	56S	241	262	233	-6.4	-2.3	+1.4+1.8	.337	-151.6	7	4	0.2	24	13	52	387.9	720.2	
79028 is double: AB 8.5 14.8 5.1" 177.1, dT = -7sec																															
79028 is a close double. Observations are highly desired																															
Nov	6	4	30	49.9	R	1080	wM1	6.7	5.9s	74-	118	61	202	46S	232	217	224	-6.7	-2.4	+1.8+1.5	.280	-137.2	7	7	16.9	24	10	6	387.5	716.7	
1080 is double: AB 6.9 12.8 39" 8.9, dT = +102sec																															
1080 = NSV 17340, 6.78 to 6.86, Hp, Type SRB																															
Nov	6	4	55	0.4	r	79087	K0	8.8	8.3	74-	118	60	212	68N	298	276	289	-6.8	-2.4	+1.3-1.7	.358	158.2	7	7	50.6	24	25	53	387.5	725.3	
Nov	6	6	24	7.0	d	1092	F5	5.9	5.6	73-	118	-4	50	242	-71S	116	79	107	-7.0	-2.4	+0.9-2.0	.397	-17.0	7	12	26.4	24	7	43	387.9	780.6
R1092 = 48 Geminorum																															
Nov	6	6	25	18.6	R	79133	F5	7.9	7.7	73-	118	-3	49	242	53S	240	203	231	-7.0	-2.4	+1.5-0.1	.324	-141.1	7	10	29.6	24	6	29	387.9	782.5
Nov	6	7	32	30.4	r	1092	F5	5.9	5.6	73-	117	6	40	259	76S	263	221	254	-7.1	-2.4	+0.8-1.3	.430	-163.2	7	12	26.4	24	7	43	388.4	846.1
R1092 = 48 Geminorum																															
Nov	6	23	37	52.6	r	79781	K2	8.8	8.2	66-	108	29	88	74N	296	338	284	-6.5	-3.4	+0.6+0.9	.440	154.7	7	54	14.3	23	30	14	386.4	912.6	
Nov	6	23	59	57	M	79804	cG0	7.4		66-	108	32	92	9N	1	44	349	-6.5	-3.4	+9.9+9.9	.000	90.0	7	56	2.8	23	41	33	386.0	888.7	
79804 is double: AB 7.90 8.57 0.16" 54.0																															
79804 is a close double. Observations are highly desired																															
Nov	7	0	15	8.6	R	1195	B8	6.8	6.9	66-	108	34	95	33N	337	20	325	-6.5	-3.4	+1.6-2.0	.189	113.9	7	56	6.5	23	37	26	385.7	871.4	
Nov	7	2	24	48.0	R	1200	K0	6.9	6.4	65-	107	52	127	43S	234	267	221	-6.8	-3.6	+1.1+2.7	.306	-138.7	7	59	42.6	23	10	58	383.9	758.1	
Nov	7	2	41	41	R	1208	DK1	6.4		65-	107	54	132	16N	355	25	342	-6.8	-3.6	+9.9+9.9	.078	101.1	8	1	0.8	23	34	59	383.7	749.0	
1208 is double: AB 6.48 9.95 1.97" 325.6, dT = -22sec																															
1208 is a close double. Observations are highly desired																															

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										
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	
Nov	7	4	47	59.8	r	79906	K2	8.7	8.1	64-	106	61	185	49N	322	319	309	-7.1	-3.7	+1.2	-2.4	.295	139.2	8	3	58.9	23	24	21	382.8	724.8		
Distance of 79951 to Terminator = 13.4"; to 3km sunlit peak = 0.0"																																	
Nov	8	0	23	12.8	r	1325p	G0	8.6		55-	96	26	88	55S	251	292	234	-6.7	-4.6	+0.2	+2.1	.447	-153.2	8	51	22.6	21	4	49	381.5	925.7		
*** A light curve is desired as 1325 is in the Kepler2 program {ID = 212048998}																																	
1325 is double: AB 9.49 9.01 0.40" 335.8, dT = -0.08sec																																	
1325 is a close double. Observations are highly desired																																	
Nov	8	3	39	3	m	1342K	G5	7.6	7.3	54-	95	53	135	2N	14	42	357	-7.0	-4.7	+9.9	+9.9	.000	90.0	8	58	55.7	21	9	59	378.4	760.8		
*** A light curve is highly desired as 1342 is in the Kepler2 program {ID = 212053807}																																	
Nov	8	3	48	11.8	R	80537k	F8	8.7	8.4	54-	95	53	139	60S	256	282	239	-7.0	-4.7	+1.5	+1.4	.364	-152.0	8	57	49.3	20	49	41	378.4	756.3		
*** A light curve is desired as 80537 is in the Kepler2 program {ID = 212034471}																																	
Nov	8	5	24	11.9	R	80571	K2	8.7	8.1	54-	94	59	177	82S	279	281	261	-7.2	-4.8	+1.5	-0.3	.400	-170.6	9	0	28.5	20	44	53	377.7	742.8		
Nov	9	0	13	56.9	r	98751	G5	8.3	7.7	45-	84	14	79	79N	301	341	281	-6.4	-5.4	+0.2	+0.7	.522	161.4	9	46	1.1	17	53	21	377.2	1008.3		
Nov	9	2	16	12.6	r	98802	F6	8.8	8.6	44-	83	32	103	50N	331	10	310	-6.5	-5.6	+0.9	-0.8	.341	135.1	9	50	42.3	17	44	0	374.9	875.3		
Nov	9	3	2	39.6	R	98813S	F8	8.4	8.1	43-	83	39	113	86S	287	323	266	-6.6	-5.6	+1.0	+0.8	.460	-179.3	9	51	39.1	17	28	33	374.2	834.2		
98813 is quadruple: AB 8.4 12.9 55" 302.5, dT = -116sec : AC 8.4 14.2 93" 296.7, dT = -198sec : AD 8.4 13.5 104" 299.8, dT = -221sec																																	
Nov	10	3	5	49.3	R	99287p	K0	8.4	7.9	33-	70	28	105	25N	359	37	336	-5.8	-6.1	+0.7	-3.7	.190	112.2	10	47	0.2	13	1	47	369.6	899.9		
*** A light curve is desired as 99287 is in the Kepler2 program {ID = 248892906}																																	
99287 is double: AB 8.5 9.5 43" 36.9, dT = -180sec																																	
Nov	10	3	18	27.2	R	1569k	A2	6.9	6.8	V	33-	70	30	10	9	71S	276	312	253	-5.8	-6.1	+0.7	+1.3	.476	-163.9	10	46	19.3	12	44	52	369.3	887.7
*** A light curve is desired as 1569 is in the Kepler2 program {ID = 248882918}																																	
1569 = HD 93273, 6.903, , Type VAR																																	
Nov	10	5	50	51.6	R	99317k	K0	8.1	7.6	32-	68	-9	47	150	74S	278	296	255	-6.0	-6.1	+1.4	+0.4	.423	-160.7	10	50	45.6	12	16	3	367.3	798.0	
*** A light curve is desired as 99317 is in the Kepler2 program {ID = 248864364}																																	
Nov	11	2	45	50.0	R	118969	K0	8.9	8.3	22-	57	13	95	71S	278	316	254	-4.6	-6.3	+0.3	+1.3	.541	-164.5	11	38	46.7	7	23	45	365.9	997.0		
Nov	11	5	32	20.2	D	1702	M0	4.0	3.3	v	21-	55	35	132	-70S	137	165	114	-4.7	-6.2	+0.8	-0.4	.462	-18.3	.01	11	45	51.6	6	31	46	363.1	856.9
R1702 = nu Virginis																																	
1702 = nu. Vir, 4.1 to 4.16, Hp, Type SRB																																	
Distance of 119034 to Terminator = 14.4"; to 3km sunlit peak = 0.0"																																	
Nov	11	5	43	31	R	119034	F2	7.7	7.4	21-	55	-11	37	135	6N	20	47	357	-4.7	-6.2	+9.9	+9.9	.073	98.8	11	45	48.8	6	56	33	363.0	849.5	

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									
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s		
Nov	11	6	38	9.6	R	1702	M0	4.0	3.3v	21-	55	-3	41	151	76S	282	300	259	-4.8	-6.1	+1.3+0.3	.446	-161.8	.01	11	45	51.6	6	31	46	362.4	825.7	
R1702 = nu Virginis																																	
1702 = nu. Vir, 4.1 to 4.16, Hp, Type SRB																																	
Nov	12	4	37	34.6	R	119493	G0	9.0	8.6	13-	42	17	111	76N	312	347	289	-3.1	-5.9	+0.4+0.2	.534	165.6		12	36	21.9	1	2	42	360.7	964.9		
Nov	13	5	59	58.2	r	139409	kF0	9.0	8.8	6-	27	-9	15	121	89S	298	330	277	-1.2	-5.0	+0.5+0.6	.554	-178.3		13	33	30.2	-	5	39	41	357.6	961.4
*** A light curve is desired as 139409 is in the Kepler2 program {ID = 212796092}																																	
Nov	18	17	11	11.0	D	187596	cK3	8.4		16+	47	7	211	80N	77	56	84	+6.5	+3.7	+1.0-0.8	.453	6.5		19	2	24.1	-25	41	19	372.2	822.3		
187596 is double: AB 8.47 11.16 0.20" 190.0, dT = -0.18sec																																	
187596 is a close double. Observations are highly desired																																	
Nov	18	17	16	46	D	187583	A2	8.0	7.9	16+	47	6	213	10S	167	145	175	+6.4	+3.7	+5.8-8.1	.048	-84.0		19	1	41.6	-26	0	20	372.3	827.3		
Nov	20	18	59	36.2	d	189965	K0	8.3	7.6	35+	73	10	212	86S	78	58	96	+6.9	+6.1	+1.1-0.9	.424	-10.1		21	3	2.1	-21	58	8	384.8	804.0		
Nov	21	17	7	6	D	3202	F0	6.2	6.0	45+	84	20	175	10N	350	354	11	+6.9	+7.0	-0.9+3.4	.094	75.9		21	51	41.7	-18	37	23	389.1	727.6		
Nov	22	16	22	23.8	d	165227	K0	8.1	7.6	55+	95	-7	19	151	29N	6	24	28	+6.5	+7.5	+0.6+2.2	.202	58.6		22	40	20.9	-14	36	15	394.0	738.8	
Nov	22	18	46	15	D	165258	K1	7.6	6.9	55+	96	23	188	21S	136	131	159	+6.1	+7.4	+4.7-3.9	.091	-76.3		22	44	17.3	-14	36	42	394.1	731.4		
Nov	22	20	29	38.8	d	165281	kK0	8.4	7.8	56+	97	19	214	29N	6	346	29	+5.8	+7.3	-0.1+1.6	.243	53.4		22	46	6.6	-13	50	10	394.9	782.6		
*** A light curve is desired as 165281 is in the Kepler2 program {ID = 206034636}																																	
Nov	22	20	58	56.6	D	3343	pB9	5.7	5.7	56+	97	16	220	51S	106	82	129	+5.7	+7.3	+1.6-2.0	.290	-46.3		22	47	42.8	-14	3	23	395.3	804.2		
R3343 = 69 Aquarii																																	
*** A light curve is desired as 3343 is in the Kepler2 program {ID = 206026652}																																	
3343 is triple: AB 5.7 9.6 20.7" 127.3, dT = +67sec : AC 5.7 63" 35.0, dT = +70sec																																	
Nov	22	22	14	32.9	D	3349	WK5	4.1	3.2s	57+	98	8	237	83N	60	28	83	+5.6	+7.3	+0.5-0.7	.453	1.2	.01	22	49	35.5	-13	35	33	396.4	870.8		
R3349 = tau Aquarii																																	
3349 is double: AB 4.2 9.9 133" 297.4, dT = -159sec																																	
3349 = NSV 14329, 3.98 to 4.04, V																																	
Nov	23	20	26	20.2	d	146769	K0	8.7	8.2	65+	108	26	204	82S	73	59	97	+5.0	+7.5	+1.4-0.3	.372	-16.0		23	33	4.8	-	9	22	3	398.0	747.0	
Nov	23	20	42	45.0	d	146764	K0	8.0	7.5	66+	108	25	208	52N	27	10	50	+4.9	+7.5	+0.6+0.8	.337	30.4		23	32	56.0	-	9	9	34	398.1	755.3	
Nov	23	22	43	1.6	d	3480	F5	7.2	6.9	66+	109	13	236	68N	43	11	66	+4.6	+7.4	+0.4-0.1	.416	17.2		23	36	0.3	-	8	45	58	399.6	843.4	

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										
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s		
Nov	24	15	37	16.5	d	18cK1	5.8	5.3s	73+	117	-1	14	118	38N	11	45	34	+4.7	+7.6	+0.4	+2.5	.265	51.5	0	10	18.9	-	5	14	55	401.6	830.0	
18 is double: ** 6.8 6.8 0.10" 90.0, dT = +0.07sec																																	
18 has been reported as non-instantaneous (OCc1138). Observations are highly desired																																	
18 = NSV 15038, 5.82 to 5.85, V																																	
Nov	24	16	31	43.4	d	128632	K2	8.3	7.7	73+	118	-8	21	130	35N	8	37	32	+4.6	+7.6	+0.4	+2.5	.247	52.3	0	11	35.7	-	5	4	5	400.9	785.3
Nov	24	17	4	41.5	d	128644	K2	8.1	7.4	73+	118	24	137	55S	99	124	122	+4.5	+7.6	+1.5	+1.2	.304	-39.3	0	13	12.1	-	5	14	31	400.6	763.3	
Nov	24	20	19	41.6	d	128679	K0	8.8	8.3	74+	119	33	191	84S	69	62	92	+4.0	+7.3	+1.5	+0.2	.364	-13.3	0	17	15.8	-	4	26	56	400.1	724.8	
Nov	25	16	55	17.1	d	129029	K4	7.9	7.2	81+	129	-12	23	123	36N	8	40	31	+3.4	+7.1	+0.2	+2.6	.259	51.1	0	55	33.2	0	1	11	402.5	805.7	
Nov	25	18	31	31	d	126cK0	7.6	7.0	82+	129	34	147	7N	340	359	2	+3.2	+7.0	-2.2	+5.2	.085	77.2	0	57	13.0	0	20	32	401.6	743.8			
126 is double: AB 7.6 11.1 350.0, dT = 0.00sec																																	
Distance of 126 to Terminator = 9.7"; to 3km sunlit peak = 0.0"																																	
Nov	25	20	2	7.8	d	109579	K0	8.6	7.9	82+	130	39	174	37N	10	14	32	+2.9	+6.9	+0.4	+2.3	.259	45.5	0	59	36.6	0	40	15	401.2	718.9		
Nov	25	23	22	40.7	D	150SF1	6.1	5.9v	83+	131	27	233	35N	8	339	30	+2.3	+6.7	+0.3	+2.0	.253	51.0	1	3	49.0	1	22	1	402.5	785.4			
R150 = 26 Ceti																																	
150 is triple: AB 6.1 9.5 16.0" 252.9, dT = -27sec : AC 6.1 14.1 120" 291.0, dT = +105sec																																	
150 = HIP 4979, 6.06, range 0.01, 0V, Type VAR, Period 369.00369 days																																	
Nov	26	19	21	42	M	249	K3	4.5	3.7	89+	141	40	148	-6N	327	346	347	+1.8	+6.3	+9.9	+9.9	.000	90.0	1	41	25.9	5	29	15	401.8	743.7		
R249 = nu Piscium																																	
Nov	26	19	26	20.4	d	110085	G0	8.6	8.4	89+	141	40	149	48S	105	123	125	+1.8	+6.3	+2.1	+0.5	.255	-47.8	1	43	6.4	5	12	40	401.8	741.8		
Nov	26	19	29	57.4	d	110087c	G0	8.8	8.5	89+	141	40	150	72S	81	99	101	+1.8	+6.3	+1.5	+1.1	.347	-24.1	1	43	11.9	5	19	31	401.8	740.3		
110087 is double: AB 9.2 10.2 0.40" 7.1, dT = +0.32sec																																	
110087 is a close double. Observations are highly desired																																	
Nov	26	20	31	58.4	D	110088	K0	7.6	6.8	89+	141	44	170	35N	8	14	28	+1.6	+6.2	+0.3	+2.7	.244	48.7	1	43	38.5	5	44	44	401.5	720.3		
Nov	26	22	13	49.0	d	110120	K2	8.9	8.4	89+	142	42	204	90S	63	49	83	+1.3	+6.0	+1.4	+0.2	.369	-5.6	1	46	30.5	5	57	13	401.6	723.1		
Nov	26	22	38	14.2	d	110121	K2	8.3	7.6	89+	142	40	212	51N	24	5	44	+1.2	+6.0	+0.8	+1.6	.308	34.6	1	46	32.3	6	8	59	401.8	730.6		
Nov	27	17	31	16.1	D	110516	K0	6.9	6.4	94+	151	25	107	83S	71	107	88	+0.9	+5.5	+0.5	+1.9	.437	-9.3	2	24	30.5	9	42	48	403.0	866.1		
Nov	27	19	33	55.7	D	362	F5	6.5	6.2	94+	152	41	137	83N	56	82	74	+0.6	+5.3	+1.0	+1.8	.392	2.4	2	27	23.4	10	11	54	401.4	764.7		
R362 = 25 (Arietis)/Ceti																																	

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									
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s		
Nov	27	23	43	14.0	d	92992	cG5	8.7	8.2	95+	153	43	222	47N	21	357	38	-0.2	+4.9	+0.8	+1.8	.284	41.1	2	32	20.6	11	4	59	401.2	734.1		
92992 is double: ** 9.5 9.5 0.30" 86.0, dT = +0.45sec																																	
92992 has been reported as non-instantaneous (OCc 983). Observations are highly desired																																	
Nov	28	23	15	39.9	D	478	cG5	7.4	7.0	98+	164	52	200	82S	72	60	86	-1.3	+3.8	+1.5	+0.2	.363	-8.1	3	18	27.1	15	10	38	399.4	710.8		
478 is double: AB 7.5 15.4 0.030" 189.3, dT = -0.04sec																																	
478 is a close double. Observations are highly desired																																	
Nov	29	3	43	57.3	d	93425	K2	7.9	7.3	98+	165	20	271	88S	66	27	80	-2.0	+3.6	+0.4	-0.9	.455	7.8	3	25	23.4	15	49	35	401.9	896.2		
Nov	29	19	16	58.4	D	593	pF4	5.9	5.7	100+	173	34	105	59S	89	128	99	-1.7	+2.9	+0.8	+1.6	.409	-22.8	4	0	48.8	18	11	38	399.4	860.0		
*** A light curve is desired as 593 is in the Kepler2 program {ID = 210688161}																																	
593 is double: AB 5.9 11.0 176" 275.9, dT = -427sec																																	
593 = HIP 18735, 5.89, range 0.00, 6V, Type VAR, Period 0.42378 days																																	
Distance of 593 to Terminator = 4.6"; to 3km sunlit peak = 0.0"																																	
Nov	30	19	5	26.7	r	725	kA0	7.0	7.0	100-	175	28	91	68N	300	342	305	-2.7	+1.5	+0.9	+1.0	.312	130.7	4	48	43.9	21	18	57	397.8	922.5		
*** A light curve is desired as 725 is in the Kepler2 program {ID = 247390050}																																	
Distance of 725 to Terminator = 3.1"; to 3km sunlit peak = 0.0"																																	
Dec	1	19	27	36.8	R	859	B8	6.6	6.6	V	98-	164	26	84	83N	276	318	276	-3.7	+0.0	+0.3	+1.4	.466	159.9	5	41	54.8	23	19	34	395.4	951.8	
859 = HD 37752, 6.58, , Type ACV, Period 1.3049 days, Phase 49%																																	
Dec	1	20	1	28.2	R	865	B2	6.2	6.3	v	98-	163	30	91	51S	230	272	230	-3.7	-0.1	+0.0	+2.3	.429	-154.1	5	43	19.5	23	12	16	394.9	912.5	
865 = V0731 Tau, 5.98 to 6.27, V, Type GCAS																																	
Dec	1	23	1	26.0	r	77586	B9	8.3	8.3	98-	162	56	135	62N	296	325	296	-4.1	-0.4	+1.7	-0.2	.306	141.5	5	48	38.6	23	47	8	392.5	745.1		
Dec	2	0	35	44.4	r	77636	A0	8.5	8.4	V	97-	162	62	174	54N	304	308	303	-4.4	-0.5	+1.8	-1.6	.274	137.2	5	51	17.1	23	55	35	392.0	708.9	
77636 = HD 39078, 8.52, , Type ACV, Period 0.9913 days, Phase 86%																																	
Dec	2	1	24	31.6	r	77666	K2	8.8	8.2	97-	162	61	197	34S	212	201	211	-4.5	-0.6	+1.5	+2.8	.234	-128.8	5	52	55.7	23	36	36	391.9	708.9		
Distance of 77666 to Terminator = 15.7"; to 3km sunlit peak = 5.5"																																	
Dec	2	4	40	50.2	r	77792	M0	7.9	7.0	s	97-	160	39	259	31S	210	169	209	-5.0	-0.7	+1.6	+1.4	.216	-119.7	5	58	38.2	23	39	58	393.1	831.6	
77792 = NSV 2745, 7.76 to 7.88, V																																	
Distance of 77792 to Terminator = 15.6"; to 3km sunlit peak = 5.4"																																	
Dec	2	6	13	37.9	r	77851	A0	7.4	7.3	v	97-	160	-11	25	277	50S	229	187	227	-5.2	-0.7	+0.7	-0.5	.359	-137.2	6	1	29.2	23	42	14	394.2	936.8
77851 = HD 40678, 7.37 to 7.39, V, Type ACV, Period 22.029 days, Phase 40%																																	



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										
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		
Dec	2	6	17	52.5	r	77852	A0	8.2	8.2	V	97-	160	-10	24	278	60S	239	197	237	-5.2	-0.7	+0.5	-0.8	.414	-147.2	6	1	31.5	23	44	19	394.3	942.0	
77852 = HD 40696, 8.24, , Type ACV, Period 0.9828 days, Phase 28%																																		
Dec	2	20	9	14.9	R	1019SA5	A5	6.8	6.6		94-	152		25	81	40N	322	4	316	-4.5	-1.6	+1.0	+0.0	.252	120.0	6	38	18.9	24	27	2	392.5	959.6	
1019 is quadruple: AB 6.8 11.9 10.0" 195.0, dT = +24sec : AC 6.8 10.8 51" 352.0, dT = -174sec : AD 6.8 9.7 385" 162.1, dT = +1431sec																																		
Dec	2	23	16	7.5	r	78686	A2	8.8	8.7		94-	151		52	122	65N	297	332	291	-4.8	-1.9	+1.5	+0.1	.342	147.4	6	44	8.0	24	32	54	389.7	767.2	
Dec	2	23	43	40.7	R	78706WK2		7.0	6.1	s	94-	150		55	131	32N	331	2	324	-4.9	-1.9	+2.2	-3.3	.166	114.7	.01	6	45	23.5	24	40	21	389.4	748.7
78706 is double: AB 7.1 10.9 15.2" 261.0, dT = -32sec																																		
78706 = NSV 17172, 7.02 to 7.08, Hp																																		
Dec	3	1	49	35.9	r	1041	F8	8.4	8.2		93-	150		62	185	59S	242	238	235	-5.3	-2.0	+1.6	+1.2	.331	-151.1	6	48	29.3	24	21	40	388.8	712.1	
Dec	3	5	21	42.9	R	1052KF8		6.8	6.5		93-	149		41	257	57S	241	199	233	-5.8	-2.1	+1.2	-0.5	.354	-143.1	6	54	42.8	24	14	44	389.8	837.2	
*** A light curve is highly desired as 1052 is in the Kepler2 program {ID = 202061312}																																		
Dec	3	6	28	13.3	r	78894wK0		8.7	8.2		92-	148		-9	31	271	86S	269	226	262	-5.9	-2.1	+0.4	-1.5	.475	-170.9	6	56	47.6	24	17	51	390.5	910.5
78894 is double: AB 8.8 13.1 13.3" 291.3, dT = -26sec																																		
Dec	3	20	51	48.2	r	79524	F5	8.0	7.7		88-	140		23	80	82N	285	326	274	-5.1	-3.0	+0.3	+1.2	.491	163.7	7	35	1.5	23	55	54	389.3	966.1	
Dec	3	21	48	36.6	r	79549	K0	8.4	7.7		88-	140		31	90	85S	272	314	261	-5.2	-3.1	+0.5	+1.5	.477	176.8	7	37	2.2	23	53	20	388.3	899.2	
Dec	3	22	14	39.0	r	79561	G5	8.3	7.8		88-	139		35	95	72S	259	302	248	-5.2	-3.1	+0.5	+1.8	.456	-170.1	7	37	56.9	23	50	10	387.9	870.1	
Dec	3	22	33	29.9	r	79574	K0	8.8	8.2		88-	139		38	99	63S	251	292	239	-5.2	-3.2	+0.5	+2.0	.427	-160.8	7	38	37.4	23	47	57	387.6	850.2	
Dec	4	0	14	16.7	R	79620	A3	8.1	8.0		87-	139		52	124	54N	313	347	301	-5.4	-3.3	+1.5	-0.8	.310	139.6	7	42	0.3	24	3	2	386.3	763.1	
Dec	4	0	17	1	r	79631	K2	8.8	8.2		87-	139		52	124	12N	355	29	344	-5.4	-3.3	+9.9	+9.9	.054	97.6	7	42	48.7	24	7	53	386.2	761.8	
Distance of 79631 to Terminator = 15.8"; to 3km sunlit peak = 3.8"																																		
Dec	4	1	15	40.8	r	79644	A0	8.6	8.6		87-	138		58	145	76S	264	286	252	-5.6	-3.4	+1.5	+0.9	.384	-168.8	7	43	29.4	23	49	15	385.7	731.6	
Dec	4	3	25	3.5	R	79688	K0	7.5	7.0		87-	137		60	204	66S	254	238	242	-5.9	-3.4	+1.7	+0.2	.350	-153.2	7	47	9.0	23	39	49	385.3	732.0	
Dec	4	3	28	10.7	r	79690	F5	8.9	8.7		87-	137		60	205	78S	265	249	253	-6.0	-3.4	+1.6	-0.3	.379	-164.8	7	47	11.8	23	42	41	385.3	733.1	
Dec	4	4	38	56.9	R	79717	S*	8.0	V		87-	137		53	231	76N	292	260	280	-6.1	-3.4	+1.1	-1.7	.407	170.4	7	49	18.2	23	44	4	385.5	771.6	
79717 = T Gem, 7.98 to 15.0, V, Type M, Period 289. days, Phase 32%																																		
Dec	4	5	15	25.9	r	79740cF2		8.5	8.3		86-	137		49	242	46N	323	286	310	-6.2	-3.4	+0.5	-2.8	.332	141.0	7	50	44.7	23	47	1	385.7	799.9	
79740 is double: ** 9.2 9.2 0.10" 143.0, dT = +0.3sec																																		
79740 has been reported as non-instantaneous (OCc 683). Observations are highly desired																																		
Dec	4	6	34	4.9	r	79765	F8	8.9	8.7		86-	136		-8	37	261	85N	284	242	272	-6.3	-3.4	+0.6	-1.7	.468	-179.7	7	52	49.4	23	29	58	386.5	876.5

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									
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
Dec	4	23	41	6.3	r	1285	pG0	8.4	8.1	80-	127	39	104	65N	307	347	291	-5.6	-4.4	+1.0	+0.2	.391	150.5	8	36	40.0	22	10	23	383.7	835.7	
*** A light curve is desired as 1285 is in the Kepler2 program {ID = 212107694}																																
1285 is double: AB 8.4 11.9 4.7" 83.6, dT = +9sec																																
1285 is a close double. Observations are highly desired																																
Dec	5	0	9	57.0	r	80293	K0	8.6	7.9	80-	127	43	111	76S	268	307	252	-5.7	-4.5	+0.9	+1.4	.429	-169.8	8	37	21.2	21	58	48	383.3	809.6	
Dec	5	3	8	24	M	1308	SA1	4.7	4.7	79-	126	59	171	3S	196	201	179	-6.1	-4.6	+9.9	+9.9	.000	-90.0	8	43	17.1	21	28	7	381.7	733.4	
R1308 = Asellus Borealis = Gamma Cancri																																
1308 is triple: AC 4.7 14.1 91" 258.0 : AB 4.7 10.2 116" 67.0																																
Distance of 1308 to Terminator = 2.2"; to 3km sunlit peak = 0.0"																																
Dec	5	4	13	2.7	r	80395	K0	8.9	8.3	79-	125	59	200	38N	335	322	319	-6.2	-4.6	+0.8	-3.1	.273	132.5	8	44	54.8	21	51	23	381.5	746.4	
Dec	5	5	25	46.5	r	80417	K0	8.7	8.2	78-	125	52	228	61N	312	283	296	-6.4	-4.5	+0.8	-2.1	.391	157.2	8	46	35.4	21	38	3	381.7	785.6	
Dec	5	5	51	40.0	r	80425	K0	8.6	8.0	78-	125	49	235	69N	304	271	287	-6.4	-4.5	+0.8	-2.0	.421	165.7	8	47	14.6	21	32	34	381.9	804.9	
Dec	5	22	24	58.0	r	1400	cF5	8.3		71-	115	17	81	48N	329	9	310	-5.5	-5.3	+0.6	-0.3	.352	131.7	9	29	0.7	19	17	19	382.1	980.3	
1400 is double: AB 8.42 9.96 1.04" 224.8, dT = +0.7sec																																
1400 is a close double. Observations are highly desired																																
Dec	6	0	59	2.3	R	98640	K0	8.0	7.5	70-	114	40	112	61S	258	295	238	-5.7	-5.4	+0.9	+1.9	.396	-152.6	9	33	38.6	18	44	12	379.5	820.5	
Dec	6	2	0	30.4	r	1417	CG5	8.9		70-	114	48	128	22N	355	26	335	-5.8	-5.5	+1.0	-4.7	.163	112.7	9	36	26.1	18	55	43	378.7	779.2	
1417 is double: Ab,Aa 9.6 8.7 0.10" 67.0, dT = -0.19sec																																
1417 is a close double. Observations are highly desired																																
Dec	6	2	0	30.4	r	X115360	S	8.9	8.5	70-	114	48	128	22N	355	26	335	-5.8	-5.5	+1.0	-4.7	.163	112.7	9	36	26.1	18	55	43	378.7	779.2	
X115360 is triple: Aa,Ab 8.74 9.60 0.10" 247.0, dT = +0.19sec : AB 8.95 11.36 0.85" 229.1, dT = +3sec																																
X115360 is a close double. Observations are highly desired																																
Dec	6	5	23	35	m	98711	cF2	8.9	8.7	69-	112	54	206	7S	204	188	184	-6.3	-5.4	+9.9	+9.9	.000	-90.0	9	41	31.1	17	53	13	377.6	772.3	
98711 is double: AB 9.2 9.8 0.17" 338.6																																
98711 is a close double. Observations are highly desired																																
Dec	6	6	36	48.3	r	98726	B9	8.6	8.5s	69-	112	-8	47	230	33S	231	201	211	-6.4	-5.4	+2.4	+0.8	.193	-115.7	9	43	11.5	17	46	0	377.9	817.0
98726 = NSV 18256, 8.56 to 8.65, Hp, Type VAR																																
Dec	6	7	5	19.6	r	98737	G5	8.4	7.9	69-	112	-4	43	238	32S	230	197	210	-6.5	-5.4	+2.3	+0.5	.194	-115.0	9	44	1.0	17	40	24	378.1	839.7

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							
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s
Dec	6	22	29	25.6	r	1514	A1	6.2	6.2s	61-	103	7	75	70S	270	308	248	-5.3	-6.0	-0.1+1.4	.547	-164.7	10	21	50.3	14	58	33	379.01043.1		
R1514 = 42 Leonis																															
1514 = NSV 4828, 6.09 to 6.17, V																															
Dec	7	0	20	54.4	r	99117	G0	8.5	8.0v	60-	102	24	96	59N	322	1	300	-5.3	-6.1	+0.6-0.1	.418	146.4	10	26	11.5	14	54	1	376.9	917.8	
99117 = DW Leo, 8.5, range 0.08, V, Type RS																															
Dec	7	1	26	15.8	R	1532	K0	7.6	7.0	60-	101	33	110	49N	332	9	310	-5.4	-6.1	+0.8-1.0	.351	138.4	10	28	25.3	14	45	12	375.8	855.3	
Dec	7	1	56	16.9	R	1535	K0	6.9	6.3	60-	101	37	117	49S	249	284	227	-5.5	-6.1	+1.1+2.4	.339	-137.9	10	28	48.5	14	20	37	375.4	831.2	
Dec	7	2	1	56.8	r	99159w	K0	8.9	8.3	60-	101	38	118	32N	349	23	327	-5.5	-6.1	+0.8-2.5	.247	123.0	10	29	47.1	14	40	51	375.3	827.2	
99159 is double: AB 11.2 14.0 25.5" 332.1, dT = -99sec																															
Dec	7	2	47	39.9	d	1544	M2	5.4	4.5v	59-	101	43	130	-76S	125	154	103	-5.5	-6.1	+1.1-0.2	.431	-11.6	.01	10	32	11.7	14	8	15	374.7	799.9
R1544 = 46 Leonis																															
1544 = ES Leo, 5.46 to 5.56, Hp, Type SRB:																															
Dec	7	4	0	23.9	R	1544	M2	5.4	4.5v	59-	100	50	154	84S	285	301	262	-5.7	-6.1	+1.4+0.1	.417	-168.4	.01	10	32	11.7	14	8	15	374.0	772.2
R1544 = 46 Leonis																															
1544 = ES Leo, 5.46 to 5.56, Hp, Type SRB:																															
Dec	7	4	41	6.9	R	99179	K5	8.6	7.8	59-	100	52	169	50S	251	257	228	-5.8	-6.0	+2.0+1.2	.291	-133.2	10	33	17.1	13	51	8	373.7	768.9	
Dec	7	6	20	36.3	R	99202p	A2	7.8	7.7	58-	100	-10	49	206	59N	322	306	300	-6.0	-6.0	+0.8-1.9	.402	156.8	10	36	13.7	13	48	47	373.6	792.9
*** A light curve is desired as 99202 is in the Kepler2 program {ID = 248917776}																															
99202 is double: ** 7.7 10.2 0.38" 285.6, dT = -0.8sec																															
99202 has been reported as non-instantaneous (OCc 663). Observations are highly desired																															
Dec	8	0	49	37.7	r	1638c	A2	8.1	8.0	49-	89	17	96	72N	311	349	288	-4.8	-6.3	+0.4+0.3	.501	161.2	11	19	6.9	9	45	4	373.3	958.4	
1638 is double: ** 9.3 9.3 0.10" 90.0, dT = +0.15sec																															
1638 has been reported as non-instantaneous (OCc 83). Observations are highly desired																															
Dec	8	2	22	45.5	R	1647	A2	6.7	6.5	49-	88	30	115	46S	250	284	226	-4.8	-6.3	+1.0+2.5	.336	-134.2	11	21	50.2	9	10	6	371.7	870.5	
Dec	8	4	33	27.5	R	118843	G0	8.5	8.2	48-	87	44	151	86N	298	316	275	-5.0	-6.3	+1.2-0.2	.444	-178.2	11	25	29.7	8	55	24	370.1	797.2	
Dec	8	4	45	39.6	r	118866	K5	8.7	7.9	48-	87	45	154	18N	5	21	342	-5.0	-6.2	-0.1-4.1	.186	114.8	11	26	52.3	9	1	14	369.9	794.5	
Dec	8	4	58	24.4	r	118854	K0	8.9	8.4	48-	87	45	159	53S	257	270	233	-5.1	-6.2	+1.9+1.2	.319	-136.2	11	26	2.5	8	38	33	369.9	791.8	
Dec	8	5	9	41.4	R	1659	K0	6.7	6.0	48-	87	46	163	66S	269	280	246	-5.1	-6.2	+1.7+0.5	.376	-148.6	11	26	18.0	8	39	34	369.8	790.1	
Dec	8	6	24	28.0	R	118880	K2	8.3	7.6	47-	87	-10	46	189	74N	309	304	286	-5.2	-6.1	+1.1-1.2	.439	172.6	11	28	26.7	8	32	50	369.5	793.8

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								
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
Dec	9	1	14	21.0	R	1755	A0	6.9	6.9	38-	76	8	94	59N	325	4	302	-3.9	-6.2	+0.2	-0.2	.482	149.2	12	11	40.2	4	3	21	369.9	1008.0	
Dec	9	3	28	7.2	R	119297	F8	8.0	7.8	37-	75	27	122	45N	340	11	317	-3.9	-6.1	+0.5	-1.1	.374	139.1	12	16	7.2	3	33	36	367.6	882.2	
Dec	9	5	3	42.6	R	119317	KA*	8.0	7.9	V	36-	74	37	147	73N	312	332	289	-4.0	-6.0	+1.0	-0.4	.457	169.6	12	18	19.1	3	6	4	366.4	825.4
*** A light curve is highly desired as 119317 is in the Kepler2 program {ID = 201667495}																																
119317 = HD 107000, 8.01, , Type ACV, Period 2.8187 days, Phase 6%																																
Dec	9	6	49	59.4	R	119349	KK0	8.4	8.0	36-	73	-7	41	180	49N	336	335	312	-4.2	-5.9	+0.7	-1.6	.384	147.8	12	21	24.5	2	43	41	365.8	806.3
*** A light curve is highly desired as 119349 is in the Kepler2 program {ID = 201644284}																																
Dec	10	2	21	20.6	r	139144	F0	8.4	8.2	27-	62	6	102	40S	244	282	223	-2.7	-5.6	+0.4	+2.9	.347	-127.4	13	5	27.4	-2	33	27	366.3	1015.6	
Dec	10	3	52	57.3	R	139174	WF2	7.8	7.6	e	26-	61	18	121	79N	306	338	284	-2.7	-5.5	+0.6	+0.4	.521	174.1	13	8	29.9	-2	40	44	364.7	926.6
139174 is double: AB 7.9 10.4 42" 213.0, dT = +4sec																																
139174 = HY Vir, 7.81 to 8.1, V, Type EA, Period 2.7323377 days, Phase 53%																																
Dec	10	3	56	26.4	R	139172	F0	8.7	8.5	26-	61	19	121	77S	282	314	260	-2.7	-5.5	+0.7	+1.1	.496	-161.9	13	8	25.2	-2	47	48	364.7	923.7	
Dec	10	5	14	22.1	R	139196	pF8	8.7	8.5	25-	61	27	140	44S	248	272	227	-2.8	-5.4	+1.7	+2.3	.291	-126.4	13	10	43.9	-3	17	31	363.7	866.4	
*** A light curve is desired as 139196 is in the Kepler2 program {ID = 251520792}																																
139196 is double: AB 8.7 15.2 13.5" 7.2, dT = +22sec																																
Dec	10	6	51	1.2	R	139229	K2	7.3	6.6	25-	60	-7	34	166	90S	294	303	273	-2.9	-5.3	+1.2	-0.2	.463	-171.1	13	13	21.3	-3	29	40	362.8	824.7
Dec	11	5	10	59.0	R	2016	kA0	6.7	6.6	16-	47	16	130	56S	259	287	240	-1.3	-4.4	+1.1	+1.8	.394	-138.4	14	4	21.5	-9	15	28	362.0	924.0	
*** A light curve is desired as 2016 is in the Kepler2 program {ID = 212658101}																																
Dec	11	5	17	22.7	d	2022	pF2	5.5	5.3	16-	47	17	131	-84N	107	135	88	-1.3	-4.4	+0.8	+0.8	.511	12.9	14	6	42.8	-9	18	49	361.9	920.6	
R2022 = 95 Virginis																																
*** A light curve is desired as 2022 is in the Kepler2 program {ID = 212655748}																																
2022 is double: AB 5.5 16.4 185.0, dT = 0.00sec																																
Dec	11	5	24	44.3	R	139725	pG0	8.1	7.8	16-	47	18	133	61N	321	349	303	-1.3	-4.4	+0.5	-0.1	.485	158.9	14	5	10.7	-9	2	55	361.8	912.6	
*** A light curve is desired as 139725 is in the Kepler2 program {ID = 212667055}																																
139725 is double: AB 8.1 11.0 4.8" 340.0, dT = -9sec																																
139725 is a close double. Observations are highly desired																																

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								
m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
Dec	11	6	20	16.6	R	2022p	F2	5.5	5.3	16-	46	-11	23	146	68N	314	335	296	-1.3	-4.3	+0.7	-0.1	.485	167.0	14	6	42.8	-9	18	49	361.2	872.8
R2022 = 95 Virginis																																
*** A light curve is desired as 2022 is in the Kepler2 program {ID = 212655748}																																
2022 is double: AB 5.5 16.4 185.0, dT = 0.00sec																																
Dec	11	8	57	19.6	d	2033	K3	4.2	3.5s	15-	45	8	28	187	-89S	114	109	95	-1.5	-4.0	+1.3	-0.6	.467	6.9	14	12	53.7	-10	16	25	360.5	823.0
R2033 = kappa Virginis																																
2033 = NSV 20060, 5.52 to 5.7, B, Type VAR:																																
Dec	11	10	6	56.7	R	2033	K3	4.2	3.5s	15-	45	13	24	206	76N	306	290	288	-1.6	-3.9	+1.1	-1.2	.474	172.9	14	12	53.7	-10	16	25	360.7	835.4
R2033 = kappa Virginis																																
2033 = NSV 20060, 5.52 to 5.7, B, Type VAR:																																
Dec	12	5	14	3.1	R	158968	K0	8.5	7.8	8-	33	5	122	23S	222	255	207	+0.4	-3.0	+2.2	+6.0	.146	-105.1	15	0	55.6	-15	1	35	361.5	983.5	
Dec	12	6	2	7.0	R	158985	K0	8.9	8.2	8-	33	11	132	55N	324	353	310	+0.4	-2.9	+0.3	-0.1	.479	153.5	15	2	38.6	-14	48	2	360.9	936.9	
Dec	12	6	6	39.5	R	158984	K5	9.0	8.2	8-	33	11	133	51S	250	278	235	+0.4	-2.9	+1.3	+2.1	.358	-132.2	15	2	22.9	-15	8	16	360.8	933.0	
Dec	12	6	20	29.1	R	158989	A0	8.4	8.4	8-	33	-11	13	136	81S	281	307	266	+0.3	-2.9	+0.9	+1.0	.502	-162.6	15	2	46.8	-15	3	0	360.6	920.7
Dec	12	6	46	13	m	2151	B8	8.2	8.3	8-	32	-8	15	142	9S	208	232	194	+0.3	-2.8	+9.9	+9.9	.000	-90.0	15	4	8.9	-15	27	41	360.4	900.5
Dec	12	6	50	28	m	159001	cF5	8.1		8-	32	-7	15	143	9S	208	231	194	+0.3	-2.8	+9.9	+9.9	.000	-90.0	15	4	14.2	-15	29	52	360.4	897.2
159001 is double: AB 8.67 9.17 0.018" 331.9																																
159001 is a close double. Observations are highly desired																																
Dec	12	6	58	47.4	r	159008	F0	7.9	7.7	8-	32	-6	16	144	38N	341	3	326	+0.3	-2.8	+0.2	-0.7	.375	137.5	15	4	44.4	-14	59	50	360.2	890.3
Dec	13	6	56	23.8	D	2302	SB0	2.6	2.7s	3-	18	-6	6	133	-40N	54	82	44	+2.0	-1.2	+1.6	+2.9	.270	59.7	16	5	26.2	-19	48	20	361.2	939.6
R2302 = Acrab = beta Scorpii																																
2302 is multiple: Aa,Ab 2.9 4.1 350.0, dT = 0.00sec : AB 2.6 0.001" 126.3, dT = 0.00sec : AB 2.6 10.6 0.33" 218.3, dT = -1.2sec : AC 2.6 4.5 13.7" 19.9, dT = +42sec																																
2302 is a close double. Observations are highly desired																																
2302 = NSV 7424, 2.61 to 2.67, V																																
Dec	13	7	26	59.9	r	2303	SB2	4.8	4.9	3-	18	-2	9	140	18N	355	20	346	+2.0	-1.1	-0.4	-1.4	.249	118.7	16	5	26.6	-19	48	7	360.9	910.6
2303 is triple: CE 4.5 6.6 0.10" 55.3, dT = -0.2sec : CA 4.5 2.6 13.7" 199.9, dT = +50sec																																
2303 is a close double. Observations are highly desired																																

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								
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
Dec	13	7	27	47.0	R	2302	SB0	2.6	2.7s	3-	18	-2	9	140	20N	353	18	344	+2.0	-1.1	-0.4	-1.3	.262	120.2	16	5	26.2	-19	48	20	360.9	909.9
R2302 = Acrab = beta Scorpii																																
2302 is multiple: Aa,Ab 2.9 4.1 350.0, dT = 0.00sec : AB 2.6 0.001" 126.3, dT = 0.00sec : AB 2.6 10.6 0.33" 218.3, dT = +0.9sec : AC 2.6 4.5 13.7" 19.9, dT = -47sec																																
2302 is a close double. Observations are highly desired																																
2302 = NSV 7424, 2.61 to 2.67, V																																
Dec	14	9	35	27.8	d	Mercury		-1.1	-1.1	0-	4	11	11	156	-56S	114	131	112	+3.4	+0.9	+1.2	+0.5	.412	-7.7	17	13	33.8	-23	56	46	362.5	731.5
Mercury contacts: Dark limb 9 35 22; Terminator 9 35 22; Bright limb 9 35 33: diam = 4.6"; %illum = 99.6%; PA bright limb = 78.0																																
Dec	14	10	56	11.6	R	Mercury		-1.1	-1.1	0-	3	14	14	174	69N	277	281	275	+3.3	+1.0	+1.6	+0.1	.392	-172.6	17	13	33.8	-23	56	46	362.3	693.7
Mercury contacts: Dark limb 10 56 6; Terminator 10 56 9.5; Bright limb 10 56 18: diam = 4.6"; %illum = 99.6%; PA bright limb = 78.0																																