

bigbearcity2018

Occultation prediction for Big Bear City

E. Longitude -116 50 46.9, Latitude 34 16 5.4, Alt. 2060m; Telescope dia 15cm; dMag 0.0

RV	day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B					
y	m	d	h	m	s	R.A. (J2000)	Dec	SV	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o				
"/s	o	sec	h	m	s	No	D	v	r	V	ill												
18	Jan	1	4	36	50	d	94934	CB9	7.3	7.3s	99+	167		56	106	42N	23	81	23	-0.8	+5.3	+0.5	+4.0
.265				55.5		5	51	52.1	19	31	17	351.8	799.4										
94934 is double: ** 8.7 8.7 0.020" 9.0, dT = +0.07sec																							
94934 has been reported as non-instantaneous (Occ 434). Observations are highly desired																							
94934 = NSV 16706, 7.34, range 0.02, V																							
Distance of 94934 to Terminator = 11.2"; to 3km sunlit peak = 2.7"																							
18	Jan	1	9	17	46	d	95119	A0	7.5	7.4e	99+	169		57	252	58S	102	45	100	-1.3	+5.1	+1.6	-1.2
.447				-11.4		6	1	10.5	19	25	14	351.5	778.1										
95119 = v1385 Ori, 7.43 to 7.64, V, Type EB, Period 2.23796 days, Phase 3 %																							
Distance of 95119 to Terminator = 13.4"; to 3km sunlit peak = 4.1"																							
18	Jan	1	10	38	53	D	913	CB8	5.1	5.2s	99+	169		41	267	57N	36	334	34	-1.4	+5.1	+1.8	+1.8
.278				56.8		6	3	27.4	19	41	26	352.6	869.2										
R913 = 64 Orionis																							
913 is double: AB 5.1 6.1 0.056" 60.6, dT = +0.18sec																							
913 is a close double. Observations are highly desired																							
913 = NSV 2803, 5.13 to 5.16, V																							
Distance of 913 to Terminator = 11.7"; to 3km sunlit peak = 3.0"																							
18	Jan	3	4	10	23	r	1202	A0	7.1	7.1	98-	164		25	84	61N	317	17	304	+3.7	+2.3	+1.0	-0.7
.390				133.8		8	0	32.4	18	50	35	355.5	971.3										
18	Jan	3	6	2	21	R	1217	B9	6.2	6.2	98-	163		47	99	52N	325	25	312	+3.7	+2.1	+1.8	-1.9
.294				128.1		8	4	45.3	18	50	31	353.7	818.0										
18	Jan	4	13	48	30	R	1385	A1	6.6	6.6	91-	146		38	263	53N	325	267	306	+4.7	+0.2	+0.3	-2.5
.421				145.9		9	21	15.3	15	22	17	359.4	887.3										
18	Jan	5	6	7	28	r	1481	A5	7.4	7.3	85-	135		22	89	82N	297	356	275	+7.0	-1.4	+0.6	+0.2
.511				165.2		10	6	37.2	12	46	55	364.5	933.9										
18	Jan	5	14	30	16	r	1510	wk0	7.7	7.1	83-	132	-5	39	256	73S	274	219	251	+6.1	-1.5	+1.2	-1.1
.451				-159.1		10	20	26.4	11	21	10	364.9	853.6										
1510 is double: AB 7.8 12.2 43" 7.4, dT = +6sec																							
18	Jan	6	10	59	41	r	118702	K5	7.5	6.6s	75-	120		61	151	79N	303	327	279	+7.5	-3.1	+1.8	-1.0
.387				174.1		11	10	30.8	7	53	30	368.5	695.7										
118702 = NSV 18681, 7.56 to 7.62, Hp																							
18	Jan	7	9	6	26	R	1733	dA1	5.4	5.4	65-	108		32	109	87S	289	341	265	+8.4	-4.4	+1.1	+0.3
.441				-175.4		11	59	56.9	3	39	19	376.6	808.6										
R1733 = 7 Virginis																							
1733 is double: AB 5.3 14.5 3.2" 218.0, dT = -2.3sec																							
1733 is a close double. Observations are highly desired																							
18	Jan	7	9	44	31	r	119169	kF5	7.8	7.5	65-	108		39	117	70N	312	0	288	+8.3	-4.4	+1.2	-0.7
.402				163.0		12	1	10.1	3	37	56	376.1	766.7										
*** A light curve is desired as 119169 is in the Kepler2 program {ID = 201699550}																							
18	Jan	7	12	15	32	r	119204	K2	7.9	7.1	64-	107		58	166	71N	311	323	287	+7.9	-4.3	+1.7	-1.4
.366				169.4		12	4	37.1	3	9	42	375.3	678.0										
18	Jan	8	10	13	56	r	1848	K5	7.7	7.0	55-	95		32	117	46N	336	24	312	+8.3	-5.4	+0.6	-1.8
.324				140.6		12	52	12.2	-0	55	44	383.0	778.6										
18	Jan	9	13	44	19	R	139528	K0	7.2	6.7	43-	82		49	168	73N	309	319	287	+7.5	-5.9	+1.8	-1.2

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.342 172.0 13 44 57.0 - 6 0 8 388.0 649.8
 18 Jan 10 12 56 22 r 2082 G0 8.2 7.9 34- 71 37 140 27N 353 25 334 +7.0 -6.3 +0.1-3.1
 .213 126.0 14 32 34.3 - 9 45 25 393.5 692.6
 18 Jan 11 10 56 38 r 159140cA7 8.0 7.9 25- 61 8 112 60S 258 310 243 +6.4 -6.4 +0.8+1.7
 .374 -145.0 15 16 31.4 -13 13 2 399.9 886.2
 159140 is double: ** 8.8 8.8 0.36" 324.0, dT = -0.39sec
 159140 has been reported as non-instantaneous (Occ1019). Observations are highly desired
 18 Jan 11 11 1 19 r 2184cA3 7.3 7.1e 25- 61 9 112 74N 304 356 289 +6.4 -6.4 +0.3+0.0
 .445 168.8 15 16 48.6 -13 2 21 399.8 879.2
 R2184 = ES Librae
 2184 is double: AB 7.0 0.20" 152.6, dT = +0.4sec
 2184 is a close double. Observations are highly desired
 2184 = ES Lib, 7.1 to 7.57, V, Type EB/KE, Period 0.883042 days, Phase 21 %
 18 Jan 11 12 31 16 r 2190 F2 7.9 7.7 25- 60 24 127 11N 7 49 352 +6.2 -6.3 -1.6-5.9
 .124 108.4 15 20 9.4 -13 11 30 398.4 757.9
 18 Jan 12 12 8 24 r 159702kA6 8.1 7.9 17- 49 11 118 71N 304 354 294 +5.2 -6.0 +0.4+0.0
 .421 167.1 16 6 53.1 -16 8 46 402.5 842.3
 *** A light curve is desired as 159702 is in the Kepler2 program {ID = 205643210}
 18 Jan 14 14 23 5 r 2561SA3 7.6 7.5 5- 27 -7 15 127 63N 304 349 304 +2.3 -4.4 +0.7+0.0
 .366 159.7 17 49 35.6 -20 0 24 404.7 766.7
 2561 is triple: AB 7.6 10.4 44" 187.8, dT = +53sec : AD 7.6 297" 270.0, dT = -671sec
 18 Jan 20 1 49 1 r 3268 K1 5.3 4.8 8+ 32 -9 20 238 -75S 237 191 260 -6.0 +2.4 +0.7+0.0
 .415 -172.1 22 16 48.0 -12 49 53 396.7 805.7
 R3268 = 42 Aquarii
 18 Jan 20 3 9 2 D 3279 K0 7.8 7.3 8+ 33 6 251 40N 22 328 44 -6.1 +2.4 -0.2+1.5
 .331 45.9 22 20 16.3 -12 13 18 398.0 916.3
 18 Jan 21 2 9 47 D 3395 K2 8.0 7.4 14+ 44 27 237 72N 52 8 76 -6.9 +3.7 +0.9+0.3
 .400 10.7 23 7 17.3 - 8 48 56 392.7 776.2
 18 Jan 21 3 1 19 d 146529 G5 8.7 8.2 14+ 44 18 246 71S 89 40 114 -7.0 +3.7 +1.0-1.2
 .400 -25.0 23 8 49.4 - 8 48 28 393.5 841.4
 18 Jan 21 3 2 49 d 146525 K5 8.3 7.7 14+ 44 17 246 16S 144 94 168 -7.0 +3.7 +9.9+9.9
 .081 -79.5 23 8 26.7 - 9 0 35 393.5 844.5
 18 Jan 22 1 58 38 D 146980 G5 8.0 7.4 21+ 55 -11 39 227 70S 89 51 114 -7.4 +5.0 +2.0-0.9
 .337 -28.5 23 55 23.5 - 4 54 6 387.8 720.5
 18 Jan 22 2 6 42 D 3521 K0 7.8 7.1 21+ 55 38 230 55N 35 355 59 -7.4 +4.9 +1.0+1.3
 .346 26.4 23 55 7.7 - 4 40 5 387.9 727.8
 18 Jan 24 2 16 35 d 109982 F5 8.2 7.9 41+ 79 56 212 89N 69 43 91 -7.6 +6.7 +2.0+0.5
 .369 -7.7 1 34 3.9 4 7 44 377.3 681.6
 18 Jan 24 3 50 28 d 236DK0 8.0 7.3 41+ 80 43 240 70S 89 43 111 -7.9 +6.7 +1.8-1.0
 .366 -25.1 1 36 17.0 4 18 52 378.0 741.7
 236 is double: AB 8.0 11.6 5.3" 198.0, dT = -5sec
 236 is a close double. Observations are highly desired
 18 Jan 25 4 58 34 D 110566 A5 7.0 6.8 52+ 93 42 249 78N 59 8 78 -7.6 +7.0 +1.4+0.3
 .417 9.6 2 29 35.3 9 0 23 372.7 763.8
 18 Jan 26 2 47 19 d 93398 F5 7.3 7.1 63+ 105 68 180 21S 143 143 158 -6.3 +7.1 +5.9-8.9
 .087 -76.9 3 20 33.7 12 20 48 366.4 686.8
 18 Jan 26 2 56 56 Gr 93398 F5 7.3 7.1 63+ 105 69 ** GRAZE: CA 7.3S; Dist. 48km in az.
 156deg. [Lat = 33.80+0.37(E.Long+116.85)]
 18 Jan 26 5 21 55 m 491cK0 6.0 5.4 64+ 106 50 247 1S 163 111 177 -6.7 +7.0 +9.9+9.9
 .000 -90.0 3 24 10.1 12 37 47 366.9 744.9
 491 is double: ** 6.8 6.8 0.10" 159.0

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491 has been reported as non-instantaneous (Occ1020). Observations are highly desired
 Distance of 491 to Terminator = 2.8"; to 3km sunlit peak = 0.0"

18 Jan 27 8 27 31 D 667ck2 5.0 4.4 75+ 121 26 273 47S 121 62 129 -5.7 +6.6 +0.4-2.3
 .413 -37.4 4 28 26.4 16 21 35 363.7 918.3
 R667 = 75 Tauri
 667 is double: AB 5.0 30.0, dT = 0.00sec
 18 Jan 28 1 22 46 d 787DB3 7.1 7.1 83+ 132 -3 44 97 55N 47 107 50 -3.2 +6.1 +0.7+2.3
 .429 27.8 5 16 43.9 18 26 21 359.2 845.6
 787 is double: AB 7.7 8.3 2.6" 164.8, dT = -2.9sec
 787 is a close double. Observations are highly desired

18 Jan 28 5 2 8 d 94510 K5 7.3 6.4 84+ 133 74 197 78S 94 79 97 -3.7 +5.8 +2.2-0.3
 .393 -13.4 5 23 30.6 18 36 2 357.0 699.4
 18 Jan 28 9 39 26 D 832 M2 4.3 3.2v 85+ 135 25 276 48S 124 64 126 -4.1 +5.7 +0.2-2.1
 .456 -34.0 .03 5 32 12.8 18 35 39 359.8 959.7
 R832 = 119 Tauri (CE)
 832 = CE Tau, 4.23 to 4.54, V, Type SRC, Period 165. days
 18 Jan 28 10 17 18 D 836 B2 5.7 5.7v 85+ 135 17 281 34S 139 80 140 -4.1 +5.7 -0.3-2.7
 .389 -48.1 5 33 31.6 18 32 25 360.51020.0
 R836 = 120 Tauri
 836 = V0960 Tau, 5.53 to 5.69, V, Type GCAS, Period 1.03747 days, Phase 1 %

18 Jan 29 2 21 26 d 95586 A2 7.8 7.7 91+ 146 44 95 69N 66 127 62 -1.4 +4.7 +0.9+1.7
 .474 15.2 6 22 14.4 19 42 9 356.1 847.6
 18 Jan 29 7 39 52 d 95790 G5 7.9 7.3 92+ 148 61 248 83S 94 40 90 -2.1 +4.4 +1.8-0.8
 .439 -1.1 6 32 3.2 19 43 9 354.5 754.1
 18 Jan 29 9 18 20 d 1006CA0 7.1 7.1 93+ 149 42 266 25S 153 92 148 -2.2 +4.5 +0.1-3.9
 .273 -56.9 6 34 39.3 19 25 45 355.7 861.6
 R1006 = 22 Geminorum
 1006 is double: ** 7.7 7.7 0.050" 350.0, dT = -0.18sec
 1006 has been reported as non-instantaneous (Occ1323). Observations are highly desired

18 Jan 30 3 48 34 d 1135 K0 6.7 6.1 97+ 161 49 100 34N 36 96 26 +0.5 +3.1 +0.8+3.7
 .285 52.9 7 29 30.7 19 37 59 354.2 812.0
 Distance of 1135 to Terminator = 17.5"; to 3km sunlit peak = 6.7"

18 Jan 31 11 58 21 r X111682 11.6 11.5 90E 178 33 269 5N 346 286 329 +1.7 +1.1 -0.4-3.6
 .287 122.0 8 47 46.3 17 5 10 356.6 938.2
 18 Jan 31 11 59 36 D X111804 10.8 10.4 88E 178 33 269 88U 89 30 72 +1.7 +1.1 +0.8-1.0
 .513 18.7 8 49 15.7 16 48 53 356.6 937.5
 18 Jan 31 12 1 14 d X207946 11.7 86E 178 32 269 19S 142 82 125 +1.7 +1.1 +0.2-2.3
 .453 -33.5 8 48 52.9 16 35 19 356.7 940.1
 18 Jan 31 12 2 52 M X 13369 A5 9.7 9.6 83E 178 32 269 -38S 198 138 181 +1.7 +1.1 +9.9+9.9
 .000 -90.0 8 47 48.9 16 30 30 356.7 943.7
 18 Jan 31 12 4 47 m X207922 11.8 80E 178 31 269 -38S 198 138 181 +1.7 +1.1 +9.9+9.9
 .000 -90.0 8 47 51.6 16 29 2 356.8 946.4
 18 Jan 31 12 5 10 m X207942 11.6 79E 178 32 270 38N 18 318 1 +1.7 +1.1 +9.9+9.9
 .000 90.0 8 48 41.6 17 5 17 356.7 947.0
 18 Jan 31 12 6 0 R 98123 A2 9.2 9.2 78E 178 31 270 -26N 313 253 296 +1.7 +1.1 +0.3-2.1
 .496 154.7 8 47 28.6 16 59 6 356.8 949.7
 18 Jan 31 12 6 48 d X207950 11.5 76E 178 31 269 17S 143 83 126 +1.7 +1.1 +0.1-2.4
 .451 -34.6 8 49 3.9 16 34 11 356.8 948.0
 18 Jan 31 12 8 18 r X111665 11.9 11.4 73E 178 31 270 -64S 223 163 206 +1.7 +1.1 +1.9+1.4
 .231 -114.8 8 47 37.3 16 34 54 356.8 952.3
 18 Jan 31 12 13 10 R X111641 10.4 9.5 64E 178 30 271 -66N 272 212 255 +1.7 +1.1 +0.7-1.1

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.533	-164.1	8	47	25.3	16	46	57	356.9	960.1												
18 Jan	31 12	13	29	R	X111690			10.2	9.9	64E	178	30	271	-16N	322	262	305	+1.7	+1.1	+0.1-2.3	
.460	145.9	8	47	52.8	16	59	32	356.9	960.4												
18 Jan	31 12	14	53	r	X207935			11.7		61E	178	30	271	3N	341	281	324	+1.7	+1.1	-0.3-3.2	
.333	126.8	8	48	16.5	17	1	57	356.9	962.2												
18 Jan	31 12	16	43	D	X 13409	F5		10.6	10.3	57E	178	29	271	76U	112	53	95	+1.7	+1.1	+0.5-1.5	
.554	-4.5	8	49	47.8	16	39	26	357.0	962.1												
18 Jan	31 12	17	49	d	X111847w			11.4	10.6	55E	178	29	271	65U	76	16	58	+1.7	+1.1	+0.9-0.6	
.470	32.5	8	49	53.2	16	49	50	357.0	963.9												
	X111847 is double: AB 11.3 13.6 18.4" 303.3, dT = -26sec																				
18 Jan	31 12	21	55	d	X111850			11.7	11.4	47E	178	28	272	62U	59	359	42	+1.7	+1.1	+1.2+0.0	
.367	49.0	8	49	54.5	16	53	35	357.1	970.3												
18 Jan	31 12	30	34	m	X207963			11.8		29E	178	27	273	71U	18	318	1	+1.7	+1.1	+9.9+9.9	
.000	90.0	8	49	38.2	17	1	31	357.3	984.2												
18 Jan	31 12	35	17	D	X 13423	G5		10.3	9.9	20E	178	26	273	77U	139	80	122	+1.7	+1.1	+0.0-2.2	
.485	-31.8	8	50	10.4	16	29	56	357.4	989.8												
18 Jan	31 12	35	57	D	X111921			10.4	10.1	19E	178	26	273	48U	88	29	71	+1.7	+1.1	+0.6-1.0	
.539	19.3	8	50	36.1	16	43	0	357.4	990.6												
18 Jan	31 12	37	5	R	X 13385	K0		10.0	9.3	17E	178	25	274	-28N	306	246	288	+1.7	+1.1	+0.2-1.8	
.546	162.0	8	48	32.1	16	52	1	357.4	995.6												
18 Jan	31 12	41	46	d	X207974			11.8		10E	179	24	274	81U	153	94	136	+1.7	+1.1	-0.2-2.6	
.403	-45.7	8	50	11.3	16	26	36	357.5	999.8												
18 Jan	31 12	43	4	D	X111880			10.5	10.3	8E	179	24	274	83U	158	99	141	+1.7	+1.1	-0.3-2.9	
.364	-51.0	8	50	8.4	16	25	45	357.5	1001.8												
18 Jan	31 12	44	31	m	X111879			11.5	11.3	6E	179	24	275	53U	18	318	0	+1.7	+1.1	+9.9+9.9	
.000	90.0	8	50	8.2	16	57	55	357.6	1005.1												
18 Jan	31 12	45	38	r	X111768			11.4	10.3	5E	179	23	275	95U	303	243	285	+1.7	+1.1	+0.2-1.7	
.561	164.9	8	48	49.7	16	49	48	357.6	1008.5												
18 Jan	31 12	46	48	m	X111888			11.2	10.5	3E	179	23	275	50U	18	318	0	+1.7	+1.1	+9.9+9.9	
.000	90.0	8	50	14.2	16	58	5	357.6	1008.6												
18 Jan	31 12	47	1	R	X 13394	G5		10.5	10.0	3E	179	23	275	95U	298	239	281	+1.7	+1.1	+0.2-1.6	
.573	169.3	8	48	50.2	16	48	26	357.6	1010.7												
18 Jan	31 12	49	59	d	X111948			11.6	11.1	1E	179	23	275	64U	132	72	114	+1.7	+1.1	+0.1-1.9	
.532	-24.2	8	50	50.8	16	29	1	357.7	1011.8												
18 Jan	31 12	50	26	r	X207946			11.7		0E	179	22	275	101U	254	194	237	+1.7	+1.1	+0.6-0.6	
.488	-146.6	8	48	52.9	16	35	19	357.7	1015.6												
18 Jan	31 12	50	58	m	X207960			11.7		0E	179	22	275	100U	197	138	180	+1.8	+1.1	+9.9+9.9	
.000	-90.0	8	49	37.1	16	21	22	357.7	1014.9												
18 Jan	31 12	52	46	d	X111979			10.9	10.4	0E	179	22	276	30U	76	17	59	+1.7	+1.1	+0.6-0.7	
.500	31.4	8	51	12.8	16	43	40	357.7	1016.1												
18 Jan	31 12	52	50	D	X 13453	G5		9.6	9.1	0E	179	22	275	45U	105	45	88	+1.8	+1.1	+0.3-1.3	
.585	2.6	8	51	12.8	16	35	22	357.7	1016.0												
18 Jan	31 12	54	57	r	X207950			11.5		0E	179	21	276	97U	253	193	235	+1.8	+1.1	+0.6-0.6	
.485	-145.4	8	49	3.9	16	34	11	357.8	1022.5												
18 Jan	31 12	55	42	R	X111804			10.8	10.4	0E	179	21	276	81U	306	247	289	+1.8	+1.1	+0.1-1.8	
.559	161.2	8	49	15.7	16	48	53	357.8	1023.8												
18 Jan	31 12	59	31	D	X112010			10.9	10.6	0E	179	21	276	47U	110	51	93	+1.8	+1.1	+0.2-1.4	
.591	-2.5	8	51	26.7	16	32	47	357.9	1026.2												
18 Jan	31 13	0	11	r	X111850			11.7	11.4	0E	179	21	277	59U	336	277	319	+1.8	+1.1	-0.4-2.7	
.389	130.9	8	49	54.5	16	53	35	357.9	1030.1												
18 Jan	31 13	1	13	d	X112026			11.2	10.4	0E	179	21	277	36U	92	33	74	+1.8	+1.1	+0.4-1.1	

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.571	15.6	8	51	34.7	16	37	40	357.91028.8											
18 Jan 31 13	1	44	d	X207991				11.7	0E 179	21	277	18U	56	356	38	+1.8	+1.1	+0.9+0.1	
.367	51.8	8	51	23.7	16	47	30	357.91030.3											
18 Jan 31 13	6	0	M	X111887				10.5 10.3	0E 179	19	277	90U	197	138	180	+1.8	+1.1	+9.9+9.9	
.000	-90.0	8	50	13.6	16	19	14	358.11037.9											
18 Jan 31 13	6	50	r	X111847w				11.4 10.6	0E 179	19	278	60U	320	261	302	+1.8	+1.1	-0.1-2.1	
.505	147.5	8	49	53.2	16	49	50	358.11040.7											
X111847 is double: AB 11.3 13.6 18.4" 303.3, dT = -35sec																			
18 Jan 31 13	9	44	d	X208001				11.8	0E 179	19	278	30U	81	22	64	+1.8	+1.1	+0.4-0.8	
.537	26.4	8	51	54.1	16	39	20	358.11042.0											
18 Jan 31 13	12	12	d	X208003				11.7	0E 179	18	278	23U	68	10	51	+1.8	+1.1	+0.5-0.5	
.470	38.7	8	51	56.0	16	42	21	358.21046.0											
18 Jan 31 13	14	2	R	X 13409	F5			10.6 10.3	0E 179	18	278	69U	282	224	265	+1.8	+1.1	+0.2-1.3	
.604	-175.5	8	49	47.8	16	39	26	358.31052.1											
18 Jan 31 13	18	14	R	X111880				10.5 10.3	0E 179	17	279	78U	236	177	218	+1.8	+1.1	+0.7+0.0	
.383	-129.0	8	50	8.4	16	25	45	358.41057.9											
18 Jan 31 13	20	48	r	X207974				11.8	0E 179	16	279	75U	241	183	224	+1.8	+1.1	+0.6-0.2	
.427	-134.3	8	50	11.3	16	26	36	358.41061.9											
18 Jan 31 13	22	55	R	X 13423	G5			10.3 9.9	0E 179	16	279	70U	255	196	238	+1.8	+1.1	+0.4-0.7	
.521	-148.2	8	50	10.4	16	29	56	358.51065.6											
18 Jan 31 13	25	24	D	98189c				9.2 8.9	0E 179	16	279	55U	108	49	90	+1.8	+1.1	+0.1-1.3	
.613	-0.8	8	52	29.8	16	28	52	358.51066.0											
98189 is double: AB 9.7 10.2 0.30" 63.8, dT = +0.35sec																			
98189 is a close double. Observations are highly desired																			
18 Jan 31 13	27	35	d	X208021				11.7	0E 179	15	280	26U	53	354	35	+1.8	+1.1	+0.7+0.2	
.361	54.1	8	52	24.0	16	43	37	358.51070.1											
18 Jan 31 13	29	2	R	X111921				10.4 10.1	0E 179	15	280	42U	306	248	289	+1.8	+1.1	-0.1-1.7	
.583	160.7	8	50	36.1	16	43	0	358.61075.2											
18 Jan 31 13	29	6	D	X112146				10.1 9.5	0E 179	15	280	61U	114	56	97	+1.8	+1.1	+0.0-1.5	
.611	-7.8	8	52	35.9	16	26	21	358.61071.7											
18 Jan 31 13	32	11	D	X112128				10.5 10.4	0E 179	14	280	71U	137	79	120	+1.8	+1.1	-0.2-2.0	
.532	-30.8	8	52	27.4	16	20	27	358.61076.8											
18 Jan 31 13	35	53	r	X207991				11.7	0E 179	14	281	15U	338	280	321	+1.8	+1.1	-0.5-2.6	
.386	128.2	8	51	23.7	16	47	30	358.71085.2											
18 Jan 31 13	35	56	d	X208022				11.7	0E 179	13	281	76U	149	91	132	+1.8	+1.1	-0.4-2.3	
.459	-42.5	8	52	25.6	16	17	45	358.71082.8											
18 Jan 31 13	37	59	D	98193s				9.5 9.3	0E 179	13	281	68U	114	56	96	+1.8	+1.1	+0.0-1.4	
.619	-7.1	8	52	58.4	16	25	0	358.81085.5											
98193 is triple: **Aa,Ab 9.9 9.9 0.10" 331.0, dT = -0.13sec : AB 9.7 15.6 41" 350.0, dT = -37sec																			
98193 has been reported as non-instantaneous (Occ 806). Observations are highly desired																			
18 Jan 31 13	39	55	r	X111979				10.9 10.4	0E 179	13	282	24U	318	260	300	+1.8	+1.1	-0.3-1.9	
.535	148.6	8	51	12.8	16	43	40	358.81091.8											
18 Jan 31 13	40	0	r	X111948				11.6 11.1	0E 179	12	282	56U	262	204	245	+1.8	+1.1	+0.2-0.8	
.572	-155.8	8	50	50.8	16	29	1	358.81092.1											
18 Jan 31 13	41	4	D	98194	G5			7.8 7.3	0E 179	13	281	74U	126	68	108	+1.8	+1.1	-0.2-1.7	
.591	-19.3	8	52	58.7	16	21	25	358.81090.3											
18 Jan 31 13	44	1	m	X208028				11.6	0E 179	12	282	23U	16	319	359	+1.8	+1.1	+9.9+9.9	
.000	90.0	8	52	32.0	16	48	40	358.91096.6											
18 Jan 31 13	46	43	d	X208047				11.2	0E 179	11	282	80U	131	73	113	+1.8	+1.1	-0.2-1.8	
.576	-24.3	8	53	9.4	16	19	19	359.01099.1											

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18 Jan 31 13 47 27	R X 13453 G5	9.6 9.1 0E 179	11 283	38U 289 231 271	+1.8 +1.1 -0.1-1.3
.633 177.4	8 51 12.8 16 35	22 359.01103.8			
18 Jan 31 13 53 25	r X112026	11.2 10.4 0E 179	-11 10 283	28U 302 245 284	+1.8 +1.1 -0.2-1.5
.615 164.4	8 51 34.7 16 37	40 359.11113.0			
18 Jan 31 13 53 37	R X112010	10.9 10.6 0E 179	-11 10 283	39U 284 226 266	+1.8 +1.1 -0.1-1.2
.639 -177.5	8 51 26.7 16 32	47 359.21113.4			
18 Jan 31 13 54 22	r X208003	11.7 0E 179	-11 10 283	16U 325 268 307	+1.8 +1.1 -0.4-2.1
.499 141.3	8 51 56.0 16 42	21 359.11114.1			
18 Jan 31 13 55 49	d X208042	11.2 0E 179	-11 9 283	89U 165 108 148	+1.8 +1.1 -0.7-3.0
.329 -59.1	8 52 57.8 16 12	26 359.21114.0			
18 Jan 31 13 57 58	r X208001	11.8 0E 179	-10 9 284	22U 312 255 295	+1.8 +1.1 -0.3-1.8
.576 153.6	8 51 54.1 16 39	20 359.21119.9			
18 Jan 31 13 58 46	r X208021	11.7 0E 179	-10 9 284	21U 340 283 323	+1.8 +1.1 -0.6-2.6
.377 125.9	8 52 24.0 16 43	37 359.21120.6			
18 Jan 31 14 3 48	d X208065	11.3 0E 179	-9 8 284	73U 59 2 42	+1.8 +1.1 +0.3-0.2
.440 47.1	8 53 59.8 16 35	42 359.31126.0			
18 Jan 31 14 7 33	d X112259	11.4 11.1 0E 179	-8 7 285	96U 106 50 89	+1.8 +1.1 -0.2-1.2
.649 -0.4	8 54 16.8 16 21	48 359.41131.2			
18 Jan 31 14 9 58	d X112263	11.2 10.9 1E 179	-8 7 285	101U 116 60 99	+1.8 +1.1 -0.2-1.4
.640 -10.4	8 54 18.8 16 18	41 359.51134.9			
18 Jan 31 14 14 4	r X208022	11.7 5E 179	-7 6 286	69U 243 187 226	+1.8 +1.1 +0.1-0.3
.484 -137.5	8 52 25.6 16 17	45 359.61144.4			
18 Jan 31 14 16 40	R X112128	10.5 10.4 8E 179	-6 5 286	63U 255 199 237	+1.9 +1.1 +0.0-0.6
.566 -149.2	8 52 27.4 16 20	27 359.71148.6			
18 Jan 31 14 17 39	R 98189c	9.2 8.9 10E 179	-6 5 286	45U 285 229 267	+1.9 +1.1 -0.2-1.2
.659 -179.2	8 52 29.8 16 28	52 359.71150.4			
98189 is double: AB 9.7 10.2 0.30" 63.8, dT = +0.34sec					
98189 is a close double. Observations are highly desired					
18 Jan 31 14 20 10	D X112320	9.6 9.5 13E 179	-6 5 286	24S 89 34 72	+1.9 +1.1 -0.1-0.9
.633 16.2	8 54 52.6 16 24	24 359.71150.6			
18 Jan 31 14 20 38	R X112146	10.1 9.5 14E 179	-6 5 287	51U 278 222 260	+1.9 +1.1 -0.2-1.1
.656 -172.2	8 52 35.9 16 26	21 359.81154.8			
18 Jan 31 14 21 33	GrX208067	11.7 16E 179	-5 5 ** GRAZE: CA 70.1U; Dist. 5km in az.		
22deg. [Lat = 34.32-0.34(E.Long+116.85)]					
18 Jan 31 14 21 38	grX208067	11.7 16E 179	-5 5 287	70U 16 320 358	+1.9 +1.1 +9.9+9.9
.000 90.0	8 54 5.9 16 39	55 359.71154.6			
18 Jan 31 14 21 50	r X208042	11.2 16E 179	-5 4 287	84U 226 171 209	+1.9 +1.1 +0.3+0.4
.340 -120.9	8 52 57.8 16 12	26 359.81155.9			
18 Jan 31 14 23 45	D X 13544 F5	10.3 10.0 20E 179	-5 4 287	86U 37 341 20	+1.9 +1.1 +0.6+1.3
.242 68.6	8 54 34.6 16 36	51 359.81157.2			
18 Jan 31 14 24 53	d X112331	11.1 10.5 22E 179	-5 4 287	40S 70 14 52	+1.9 +1.1 +0.0-0.5
.539 35.6	8 55 0.9 16 29	5 359.81158.0			
18 Jan 31 14 25 40	GrX112234	11.2 10.9 23E 179	-5 4 ** GRAZE: CA103.0U; Dist. 53km in az.		
21deg. [Lat = 34.78-0.32(E.Long+116.85)]					
18 Jan 31 14 26 18	m X112234	11.2 10.9 24E 179	-5 3 287	-86S 195 140 178	+1.9 +1.1 +9.9+9.9
.000 -90.0	8 53 41.1 16 6	48 359.91161.7			
18 Jan 31 14 26 28	D X112335	10.9 10.3 24E 179	-4 4 287	33S 76 21 59	+1.9 +1.1 -0.1-0.7
.579 29.4	8 55 7.4 16 27	5 359.91160.4			
18 Jan 31 14 26 35	d X112309	11.2 10.8 25E 179	-4 4 287	94U 44 348 26	+1.9 +1.1 +0.3+0.6
.316 61.6	8 54 48.5 16 35	2 359.91161.3			
18 Jan 31 14 27 10	D X112300C	9.1 8.7v 26E 179	-4 4 287	89U 35 339 17	+1.9 +1.1 +0.7+1.6

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.218 70.9 8 54 41.5 16 36 39 359.91162.4
 X112300 is double: Ab,Aa 9.2 9.0 0.20" 330.0, dT = +0.39sec
 X112300 is a close double. Observations are highly desired
 X112300 = IK Cnc, 8.32, range 0.03, V, Type BY, Period 9.45 days
 18 Jan 31 14 27 14 D 98223SG5 8.3 v 26E 179 -4 4 287 89U 34 339 17 +1.9 +1.1 +0.7+1.6
 .216 71.1 8 54 41.5 16 36 40 359.91162.5
 98223 is triple: Aa,Ab 9.0 9.2 0.20" 150.0, dT = -0.4sec : AB 9.0 9.2 2.1" 163.8, dT = -6sec
 98223 is a close double. Observations are highly desired
 98223 = IK Cnc, 8.32, range 0.03, V, Type BY, Period 9.45 days
 18 Jan 31 14 27 39 M X112270 9.6 9.3 27E 179 -4 4 288 78U 16 320 358 +1.9 +1.1 +9.9+9.9
 .000 90.0 8 54 23.1 16 39 56 359.91163.8
 18 Jan 31 14 29 0 d X112345 11.3 10.7 29E 179 -4 3 287 26S 82 27 64 +1.9 +1.1 -0.1-0.8
 .611 23.5 8 55 15.5 16 24 59 359.91164.2
 18 Jan 31 14 29 1 R 98193S 9.5 9.3 29E 179 -4 3 288 58U 278 223 261 +1.9 +1.1 -0.2-1.1
 .664 -172.9 8 52 58.4 16 25 0 360.01167.6
 98193 is triple: **Aa,Ab 9.9 9.9 0.10" 331.0, dT = -0.09sec : AB 9.7 15.6 41" 350.0, dT =
 -19sec
 98193 has been reported as non-instantaneous (Occ 806). Observations are highly desired
 18 Jan 31 14 29 17 R 98194 G5 7.8 7.3 30E 179 -4 3 288 64U 266 211 248 +1.9 +1.1 -0.2-0.8
 .631 -160.7 8 52 58.7 16 21 25 360.01168.0
 18 Jan 31 14 31 1 D X 13561dG 10.2 10.1 33E 179 -4 3 288 -16S 123 67 105 +1.9 +1.1 -0.4-1.5
 .639 -17.1 8 55 10.9 16 13 23 360.01167.1
 X 13561 is double: BC 10.2 13.1 1.6" 226.4, dT = -0.6sec
 X 13561 is a close double. Observations are highly desired
 18 Jan 31 14 32 50 D 98229SA0 8.1 8.0 37E 179 -3 3 288 -18S 124 69 107 +1.9 +1.1 -0.4-1.5
 .635 -18.7 8 55 14.7 16 12 42 360.01169.9
 98229 is triple: **Aa,Ab 9.2 9.2 0.10" 345.0, dT = -0.12sec : AB 8.1 10.2 69" 307.0, dT =
 -108sec
 98229 has been reported as non-instantaneous (Occ 807). Observations are highly desired
 18 Jan 31 14 32 58 r X208047 11.2 37E 179 -3 2 288 70U 261 206 243 +1.9 +1.1 -0.1-0.7
 .613 -155.7 8 53 9.4 16 19 19 360.11173.5
 18 Jan 31 14 34 28 d X208103 11.8 40E 179 -3 2 288 14S 91 35 73 +1.9 +1.1 -0.2-0.9
 .649 14.9 8 55 30.9 16 21 33 360.01172.3
 18 Jan 31 14 38 16 r X208065 11.3 48E 179 -2 1 289 67U 332 278 315 +1.9 +1.1 -0.6-2.2
 .460 132.9 8 53 59.8 16 35 42 360.11181.1
 18 Jan 31 14 38 23 D X112373 10.8 10.4 48E 179 -2 2 289 30S 73 18 55 +1.9 +1.1 -0.1-0.6
 .569 32.5 8 55 38.4 16 25 56 360.11178.5
 18 Jan 31 14 41 37 m X208083 11.4 55E 179 -2 1 289 95U 15 321 358 +1.9 +1.1 +9.9+9.9
 .000 90.0 8 55 0.0 16 37 4 360.21184.9
 18 Jan 31 14 41 55 R X 13544 F5 10.3 10.0 55E 179 -1 1 289 82U 354 299 336 +1.9 +1.1 -1.1-3.5
 .247 111.4 8 54 34.6 16 36 51 360.21186.0
 18 Jan 31 14 43 20 R 98223SG5 8.3 v 58E 179 -1 1 290 86U 356 302 339 +1.9 +1.1 -1.2-3.8
 .220 108.9 8 54 41.5 16 36 40 360.21188.1
 98223 is triple: Aa,Ab 9.0 9.2 0.20" 150.0, dT = +0.8sec : AB 9.0 9.2 2.1" 163.8, dT = +10sec
 98223 is a close double. Observations are highly desired
 98223 = IK Cnc, 8.32, range 0.03, V, Type BY, Period 9.45 days
 18 Jan 31 14 43 27 R X112300C 9.1 8.7v 58E 179 -1 1 290 86U 356 302 338 +1.9 +1.1 -1.2-3.8
 .222 109.1 8 54 41.5 16 36 39 360.21188.2
 X112300 is double: Ab,Aa 9.2 9.0 0.20" 330.0, dT = -0.8sec
 X112300 is a close double. Observations are highly desired
 X112300 = IK Cnc, 8.32, range 0.03, V, Type BY, Period 9.45 days

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18 Feb 1 9 27 31 R 1434wM2 5.4 4.5s 99- 168 68 208 69s 266 243 245 +3.8 -0.7 +2.3-0.1
 .379 -153.8 .01 9 43 43.9 14 1 18 356.6 731.1
 R1434 = psi Leonis
 1434 is double: AB 5.5 11.6 284" 138.9, dT = +455sec
 1434 = NSV 4594, 5.35 to 5.39, V, Type LB
 Distance of 1434 to Terminator = 16.6"; to 3km sunlit peak = 6.3"

18 Feb 2 8 54 15 r 1562 K5 7.1 6.2s 95- 155 64 153 39N 339 2 316 +5.5 -2.4 +1.1-2.9
 .293 135.8 10 42 16.7 10 21 20 360.9 715.2
 1562 = NSV 18478, 7.18 to 7.24, Hp

18 Feb 3 11 20 48 r 1693kF5 7.5 7.3 89- 140 59 203 81s 281 262 256 +6.3 -3.8 +2.2-0.7
 .378 -160.9 11 40 29.3 5 8 24 367.2 712.1
 *** A light curve is desired as 1693 is in the Kepler2 program {ID = 201787591}

18 Feb 3 12 24 38 r 119000kg0 7.3 7.0 88- 140 51 227 42s 242 205 217 +6.2 -3.8 +3.1+0.9
 .226 -122.7 11 42 7.3 4 44 50 367.9 745.4
 *** A light curve is desired as 119000 is in the Kepler2 program {ID = 201765225}

18 Feb 5 11 54 30 R 1923ck0 7.0 71- 115 51 174 71s 271 276 248 +7.3 -5.7 +2.7+0.1
 .312 -149.6 13 24 26.1 - 4 18 32 380.2 667.7
 1923 is double: AB 7.02 10.85 0.40" 269.3, dT = -1.3sec
 1923 is a close double. Observations are highly desired

18 Feb 6 11 27 49 r 2035ck0 7.2 6.6 61- 103 43 150 82s 280 305 261 +7.3 -6.2 +2.2+0.2
 .342 -160.6 14 13 18.7 - 8 26 41 386.6 680.2
 2035 is double: AB 7.0 8.1 132.0, dT = 0.00sec
 2035 is a close double. Observations are highly desired

18 Feb 6 14 16 31 R 2043ck0 6.5 5.8 61- 102 -6 43 207 90s 288 266 269 +6.7 -6.1 +2.2-1.2
 .344 -171.3 14 16 48.7 - 8 53 4 387.2 654.1
 2043 is double: ** 7.4 7.4 0.10" 90.0, dT = +0.28sec
 2043 has been reported as non-instantaneous (Occ 16). Observations are highly desired

18 Feb 9 11 54 0 R 2399 G8 4.9* 4.3 32- 69 20 130 28N 341 23 334 +4.8 -5.6 +0.0-1.9
 .244 129.3 16 41 34.4 -17 44 32 401.1 749.9
 R2399 = 24 (Scorpii)/Ophiuchi

18 Feb 9 12 10 52 R 2396CA3 6.7* 6.6 32- 69 22 133 70s 259 299 252 +4.7 -5.6 +1.8+1.5
 .321 -149.0 16 41 18.7 -18 3 34 400.9 728.5
 2396 is double: ** 7.1 7.5 0.040" 141.0, dT = +0.06sec
 2396 has been reported as non-instantaneous (Occ 36). Observations are highly desired

18 Feb 10 11 18 7 r 2522 * 7.5 6.4v 24- 58 5 118 67N 298 349 296 +3.6 -4.9 +0.3+0.3
 .426 167.2 17 29 43.7 -19 28 23 404.5 856.4
 R2522 = TW Ophiuchi
 2522 = TW Oph, 11.6 to 13.8, pg, Type SRB, Period 185. days

18 Feb 11 13 17 43 d 2666DA1 4.9 16- 47 16 129 -78N 78 121 81 +1.9 -3.7 +1.5+1.6
 .351 22.7 18 25 21.0 -20 32 30 403.9 744.4
 R2666 = 21 Sagittarii
 2666 is double: AB 5.03 7.43 1.68" 281.6, dT = -4sec
 2666 is a close double. Observations are highly desired

18 Feb 11 13 19 7 R 2662 K5 7.6 6.5v 16- 47 16 130 76s 256 299 260 +1.9 -3.7 +1.5+1.6
 .345 -155.9 18 23 19.9 -20 39 13 403.9 740.5
 2662 = V4393 Sgr, 7.54 to 7.65, Hp, Type LB:

18 Feb 11 14 34 52 R 2666DA1 4.9 16- 46 -1 27 145 58N 302 332 306 +1.7 -3.6 +1.6-0.2
 .307 157.0 18 25 21.0 -20 32 30 402.8 652.6
 R2666 = 21 Sagittarii
 2666 is double: AB 5.03 7.43 1.68" 281.6, dT = -5sec
 2666 is a close double. Observations are highly desired

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18 Feb 18 3 0 6 d 146871 F2 9.2 9.0 5+ 25 5 260 22N 7 312 31 -6.5 +4.6 -0.2+2.9
 .247 60.6 23 43 52.8 - 5 25 30 391.0 956.5
 18 Feb 20 4 21 19 D 109873 A0 7.4 7.3 18+ 50 13 266 65S 97 42 120 -6.9 +6.5 +0.4-1.5
 .444 -27.7 1 24 54.6 3 20 58 383.1 932.2
 18 Feb 21 6 5 54 d 110464 K0 6.8 6.3 27+ 63 4 277 68N 51 355 71 -6.8 +7.0 +0.1+0.2
 .506 23.6 2 18 41.6 8 10 51 380.21018.5
 18 Feb 22 3 11 48 D 453CM1 7.1 6.2v 36+ 74 50 245 75S 91 41 107 -6.0 +7.0 +1.8-0.9
 .377 -20.5 3 6 17.1 11 39 55 372.6 727.1
 453 is double: ** 8.1 8.1 0.10" 54.0, dT = +0.21sec
 453 has been reported as non-instantaneous (OCC 595). Observations are highly desired
 453 = AQ Ari, 7.14 to 7.27, Hp, Type SRS:, Period 4.17 days
 18 Feb 22 5 44 2 D 462CB8 6.0 6.0 37+ 75 20 271 51S 115 57 130 -6.3 +7.0 +0.4-2.2
 .395 -38.0 3 10 38.8 11 52 21 374.9 911.7
 462 is double: ** 6.7 6.7 0.10" 90.0, dT = +0.23sec
 462 has been reported as non-instantaneous (OCC1200). Observations are highly desired
 18 Feb 23 3 16 49 d 592 G5 7.7 7.1 47+ 87 61 237 15N 4 318 15 -5.2 +6.8 +1.1+7.1
 .133 70.1 4 0 44.5 15 28 31 368.3 697.2
 18 Feb 23 6 9 47 d 93760 G0 7.9 7.5 48+ 88 28 271 40N 29 329 39 -5.5 +6.7 +1.2+1.7
 .297 52.7 4 6 16.1 15 41 53 370.5 881.0
 18 Feb 24 6 17 53 d 94294CA2 7.6 7.6 60+ 101 39 267 48N 41 341 46 -4.5 +6.0 +1.5+1.2
 .329 45.2 5 4 50.1 18 15 14 366.1 828.7
 94294 is double: ** 8.7 8.7 0.10" 90.0, dT = +0.2sec
 94294 has been reported as non-instantaneous (OCC 27). Observations are highly desired
 18 Feb 25 3 34 26 d 95119 A0 7.5 7.4e 70+ 114 75 184 74S 105 101 104 -2.8 +5.0 +2.3-0.7
 .366 -20.1 6 1 10.5 19 25 14 361.3 682.3
 95119 = V1385 Ori, 7.43 to 7.64, V, Type EB, Period 2.23796 days, Phase 51 %
 18 Feb 25 5 3 27 D 913CB8 5.1 5.2s 71+ 114 65 241 54N 53 3 51 -3.1 +5.0 +2.2+1.3
 .327 36.1 6 3 27.4 19 41 26 361.5 710.3
 R913 = 64 Orionis
 913 is double: AB 5.1 6.1 0.055" 59.7, dT = +0.17sec
 913 is a close double. Observations are highly desired
 913 = NSV 2803, 5.13 to 5.16, V
 18 Feb 26 6 49 29 d 1084 K5 7.3 6.6 81+ 129 57 253 71S 114 57 106 -1.8 +3.6 +1.4-1.7
 .422 -15.3 7 9 8.7 19 32 48 359.7 763.9
 18 Feb 26 7 43 53 d 96588 F5 7.8 7.5 81+ 129 46 264 36N 41 340 32 -1.9 +3.6 +2.3+1.8
 .243 59.1 7 10 33.9 19 48 11 360.4 825.4
 18 Feb 27 2 46 26 D 1217 B9 6.2 6.2 89+ 141 52 103 48N 58 116 44 +0.4 +2.0 +1.3+2.4
 .361 36.1 8 4 45.3 18 50 31 359.1 777.6
 18 Feb 28 11 13 31 d 1385 A1 6.6 6.6 96+ 158 26 272 30N 47 348 28 +1.1 +0.2 +1.5+0.8
 .257 62.5 9 21 15.3 15 22 17 361.7 975.9
 Distance of 1385 to Terminator = 18.4"; to 3km sunlit peak = 7.2"
 18 Mar 3 5 17 35 R 1733dA1 5.4 5.4 98- 163 29 107 89N 284 336 259 +5.8 -4.5 +1.0+0.6
 .469 -170.4 11 59 56.9 3 39 19 369.7 852.5
 R1733 = 7 Virginis
 1733 is double: AB 5.3 14.5 3.2" 218.0, dT = -2.8sec
 1733 is a close double. Observations are highly desired
 18 Mar 4 9 45 7 r 139080 K0 7.8 7.2 93- 149 54 174 69S 265 270 241 +6.0 -5.4 +2.7+0.4
 .307 -143.7 12 58 59.5 - 2 4 54 373.7 690.4
 18 Mar 6 8 47 55 R 2089 G5 6.7 6.2 78- 124 31 132 79S 274 313 256 +6.5 -6.3 +1.7+0.9
 .367 -156.1 14 39 0.4 -10 33 17 386.4 753.0
 18 Mar 7 12 16 51 D 2223SK0 3.9 3.4 68- 112 41 178 -71S 121 122 107 +5.4 -6.0 +2.1-1.0

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.327 -7.1 15 35 31.6 -14 47 22 391.2 624.8
R2223 = gamma Librae
2223 is triple: Aa,Ab 4.0 4.2 0.10" 191.0, dT = +0.1sec : AB 4.0 11.2 43" 157.2, dT = +105sec
2223 is a close double. Observations are highly desired
18 Mar 7 13 48 27 R 2223SK0 3.9 3.4 68- 111 -5 37 206 89N 283 260 269 +5.1 -5.9 +2.3-1.0
.332 -173.2 15 35 31.6 -14 47 22 391.8 635.1
R2223 = gamma Librae
2223 is triple: Aa,Ab 4.0 4.2 0.10" 191.0, dT = +0.01sec : AB 4.0 11.2 43" 157.2, dT = +74sec
2223 is a close double. Observations are highly desired
18 Mar 8 10 53 26 r 2352pF0 7.0 59- 101 30 143 10N 359 30 350 +5.0 -5.6 -0.8-4.4
.141 113.2 16 22 53.6 -17 1 9 396.1 686.5
*** A light curve is desired as 2352 is in the Kepler2 program {ID = 205523624}
2352 is double: AB 7.6 7.8 0.055" 108.2, dT = +0.13sec
2352 is a close double. Observations are highly desired
18 Mar 11 13 18 15 R 2757 B9 5.0 5.0 31- 67 -10 27 145 50N 305 335 312 +0.9 -2.7 +1.6-0.3
.285 149.4 18 57 20.5 -20 39 23 401.8 644.8
R2757 = xi 1 Sagittarii
18 Mar 20 2 38 56 d 110255 F8 8.7 8.5 7+ 31 -9 20 264 69S 99 43 120 -5.8 +6.7 +0.6-1.5
.433 -28.4 1 59 5.3 6 27 1 377.7 901.6
18 Mar 20 2 42 12 d 110253 F3 8.4 8.2 7+ 31 -10 19 265 61N 49 353 70 -5.8 +6.7 +0.6+0.3
.459 22.0 1 58 56.5 6 40 27 377.7 906.2
18 Mar 20 2 50 52 d 110260 G0 9.2 9.0 7+ 31 -12 17 266 67S 101 45 122 -5.8 +6.7 +0.5-1.6
.435 -29.9 1 59 27.3 6 28 25 377.9 918.8
18 Mar 20 3 14 6 d 292 K5 8.6 8.0 7+ 31 13 269 87N 75 19 96 -5.8 +6.7 +0.3-0.6
.519 -3.1 2 0 11.9 6 39 14 378.3 953.2
18 Mar 20 3 14 35 d 110265WF5 9.2 9.0 7+ 31 13 270 79N 67 10 88 -5.8 +6.7 +0.4-0.4
.518 5.2 2 0 9.9 6 41 28 378.3 953.9
110265 is double: AB 9.2 9.8 46" 118.4, dT = +55sec
18 Mar 20 3 40 38 D 110268 K5 7.4 6.5v 7+ 31 7 273 19N 8 311 28 -5.8 +6.7 +0.5+3.4
.224 65.5 2 0 12.7 6 55 5 378.9 994.6
110268 = DE Psc, 7.43 to 7.56, Hp, Type SRD
18 Mar 20 22 6 47 d 405SF1 4.3 4.1s 13+ 42 44 65 161 89N 78 94 95 -4.5 +7.1 +2.2+0.8
.370 -15.2 2 44 56.5 10 6 51 371.8 692.0
R405 = mu Ceti
405 is multiple: Aa,Ad 2.6 0.021" 243.0, dT = -0.05sec : Aa,Ab 4.2 6.2 0.10" 340.5, dT =
-0.03sec : Aa,Ac 2.3 0.25" 63.0, dT = +0.7sec : AB 4.2 13.6 160" 342.6, dT = -39sec
405 is a close double. Observations are highly desired
405 = NSV 909, 4.27, Type RS:
18 Mar 22 3 1 49 d 93599 8.9 8.2 22+ 57 40 260 82S 89 32 101 -4.4 +6.7 +1.2-1.0
.433 -11.7 3 47 22.5 14 32 30 370.5 794.8
18 Mar 23 20 28 44 d 832 M2 4.3 3.2v 42+ 80 56 25 84 39S 139 199 141 -1.5 +5.6 +1.5-1.2
.247 -62.5 .05 5 32 12.8 18 35 39 368.7 955.0
R832 = 119 Tauri (CE)
832 = CE Tau, 4.23 to 4.54, V, Type SRC, Period 165. days
18 Mar 23 20 39 25 Gr 832 M2 4.3 3.2v 42+ 80 58 27 ** GRAZE: CA 12.1s; Dist.241km in az.
152deg. [Lat = 31.80+0.45(E.Long+116.85)]
18 Mar 24 7 7 21 d 94934CB9 7.3 7.3s 45+ 85 16 283 42N 41 342 41 -2.7 +5.2 +0.8+0.7
.351 51.5 5 51 52.1 19 31 17 369.11010.1
94934 is double: ** 8.7 8.7 0.020" 9.0, dT = +0.05sec
94934 has been reported as non-instantaneous (Occ 434). Observations are highly desired
94934 = NSV 16706, 7.34, range 0.02, v

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18 Mar 25 6 22 21 d 78793 K2 8.0 7.2 56+ 97 37 271 51N 56 354 50 -1.6 +3.9 +1.4+0.3
.361 42.4 6 50 50.3 19 59 26 365.9 866.6

18 Mar 27 3 1 50 d 98112 F5 7.9 7.7 77+ 123 66 130 45N 60 101 43 +1.2 +0.7 +2.3+2.3
.291 42.7 8 46 29.5 17 29 45 363.3 698.3

18 Mar 27 4 2 5 d 1319wK2 7.2 6.5 77+ 123 73 167 46N 61 73 44 +1.0 +0.7 +2.7+1.9
.280 44.1 8 48 6.4 17 23 41 363.1 686.6
1319 is double: AB 7.4 13.7 43" 49.4, dT = +150sec

18 Mar 27 5 30 35 d 98159 A3 8.0 7.9 78+ 124 67 227 87N 103 63 85 +0.8 +0.7 +2.0-1.0
.404 6.1 8 50 33.3 17 1 55 363.3 715.6

18 Mar 28 2 56 40 Gr 1434wM2 5.4 4.5s 86+ 136 -11 53 ** GRAZE: CA 3.5s; Dist.138km in az.
7deg. [Lat = 35.52-0.10(E.Long+116.85)]

Distance of 1434 to Terminator = 5.3"; to 3km sunlit peak = 0.0"

18 Mar 29 3 15 40 d 1562 K5 7.1 6.2s 93+ 150 45 111 60N 86 137 62 +3.5 -2.5 +1.6+1.2
.395 24.9 10 42 16.7 10 21 20 366.9 775.4
1562 = NSV 18478, 7.18 to 7.24, Hp

18 Mar 29 9 16 46 d 1580 K2 7.6 7.0 94+ 152 41 250 86N 111 59 87 +2.6 -2.4 +1.1-1.6
.462 5.2 10 51 19.1 9 8 56 367.7 827.4

18 Mar 30 5 58 41 d 1693kF5 7.5 7.3 98+ 164 58 151 74S 139 163 115 +4.1 -3.9 +1.5-1.6
.372 -20.2 11 40 29.3 5 8 24 368.7 709.7
*** A light curve is desired as 1693 is in the Kepler2 program {ID = 201787591}

18 Mar 30 7 38 36 d 119000kG0 7.3 7.0 98+ 164 59 199 36S 178 162 153 +3.8 -3.8 +0.1-4.2
.214 -57.3 11 42 7.3 4 44 50 368.8 710.0
*** A light curve is desired as 119000 is in the Kepler2 program {ID = 201765225}

Distance of 119000 to Terminator = 12.4"; to 3km sunlit peak = 3.3"

18 Apr 1 6 59 4 r 1923cK0 7.0 99- 169 45 145 76N 283 312 261 +5.3 -5.7 +2.0+0.1
.375 -162.8 13 24 26.1 - 4 18 32 377.1 718.5
1923 is double: AB 7.02 10.85 0.40" 269.5, dT = -1sec
1923 is a close double. Observations are highly desired

Distance of 1923 to Terminator = 16.2"; to 3km sunlit peak = 6.0"

18 Apr 2 5 39 57 r 2035cK0 7.2 6.6 96- 157 23 119 77N 291 338 271 +5.8 -6.2 +0.9+0.3
.446 -174.5 14 13 18.7 - 8 26 41 383.4 834.0
2035 is double: AB 7.0 8.1 132.0, dT = 0.00sec
2035 is a close double. Observations are highly desired

18 Apr 2 8 2 50 R 2043cK0 6.5 5.8 96- 157 43 153 72N 296 319 277 +5.4 -6.0 +1.8-0.4
.375 -176.8 14 16 48.7 - 8 53 4 382.0 696.3
2043 is double: ** 7.4 7.4 0.10" 90.0, dT = +0.24sec
2043 has been reported as non-instantaneous (OCC 16). Observations are highly desired

18 Apr 2 8 32 13 R 2047 K0 6.6 6.0 96- 157 45 162 84N 285 300 266 +5.3 -6.0 +2.2-0.2
.356 -165.4 14 17 22.6 - 9 1 22 381.9 680.7

18 Apr 3 7 26 44 r 2158 A0 7.5 7.5 91- 145 29 134 56S 246 284 230 +5.5 -6.1 +2.4+2.4
.252 -129.1 15 6 34.2 -12 54 25 387.7 753.2

18 Apr 3 10 28 49 r 2167 K0 7.4 6.7 90- 144 43 185 29N 340 336 325 +4.9 -5.9 +1.2-2.7
.241 134.8 15 11 13.5 -13 3 16 387.0 642.2

18 Apr 4 7 27 20 r 2280wM1 6.5 5.6s 84- 133 20 127 85S 272 316 261 +5.0 -5.8 +1.3+1.0
.390 -159.4 15 57 5.2 -16 2 4 393.0 793.5
2280 is double: AB 6.6 13.7 36" 238.6, dT = -78sec
2280 = NSV 7351, 6.59, range 0.05, V

18 Apr 4 9 12 37 Gr 2291wF7 5.5 5.2v 84- 133 34 ** GRAZE: CA 16.3s; Dist.108km in az.
215deg. [Lat = 33.09-0.57(E.Long+116.85)]

18 Apr 4 9 26 14 R 2291wF7 5.5 5.2v 84- 133 35 153 35S 222 246 212 +4.7 -5.6 +5.0+5.4
.114 -108.9 16 0 19.6 -16 32 0 391.8 668.0

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R2291 = 49 Librae

2291 is double: AB 5.5 11.5 141" 337.3, dT = +522sec

2291 = HIP 78400, 5.47, range 0.00, 4V, Type VAR, Period 0.45326 days

18 Apr 5 12 23 34 r 160160 B9 7.8 7.7 75- 120 36 190 55N 309 300 304 +3.2 -4.8 +2.3-1.5
.282 153.6 16 55 6.4 -18 53 3 395.8 603.2

18 Apr 7 10 40 45 R 2697 F0 6.5 6.3v 58- 99 23 139 44N 311 347 316 +1.4 -3.0 +1.1-0.5
.293 146.8 18 35 21.3 -20 50 26 401.2 680.5

2697 = V4190 Sgr, 6.44 to 6.48, V, Type DSCTC

18 Apr 7 13 29 0 r 2708cG5 5.9 5.5 57- 98 0 35 181 79N 277 275 282 +0.8 -2.9 +2.6-0.2
.298 173.7 18 38 53.4 -21 3 7 400.2 582.7

2708 is double: AB 6.0 8.4 138.0, dT = 0.00sec

18 Apr 9 12 50 5 R 163462 K0 6.9 6.3 38- 76 -8 28 145 34S 200 230 215 -1.7 -0.3 +2.5+4.4
.147 -116.7 20 20 28.5 -19 38 50 400.0 637.3

18 Apr 10 11 27 58 R 3086 B9 6.2 6.2 30- 66 11 120 86S 249 297 267 -2.6 +1.0 +1.0+1.8
.394 -165.7 21 7 44.7 -17 27 21 399.8 788.9

18 Apr 11 18 7 58 r 3237cB8 4.3 4.3 20- 53 55 37 209 78S 236 212 258 -5.0 +2.5 +1.6+0.6
.349 -172.6 22 6 26.2 -13 52 11 392.8 670.1

R3237 = iota Aquarii

3237 is double: ** 5.2 5.2 0.050" 350.0, dT = +0.06sec

3237 has been reported as non-instantaneous (OCC1616). Observations are highly desired

18 Apr 18 3 8 25 d 93472wF8 8.8 8.5 5+ 26 -10 13 278 76S 101 43 114 -4.3 +6.7 +0.1-1.4
.518 -21.5 3 31 9.4 13 34 33 369.8 997.6

93472 is double: AB 8.7 17.9 79" 154.9, dT = +90sec

18 Apr 18 4 4 37 D 516cG5 6.9 6.3 5+ 27 2 285 80N 77 22 91 -4.2 +6.7 -0.1-0.6
.603 3.4 3 33 21.2 13 46 57 371.01087.2

516 is double: ** 8.1 8.1 0.10" 90.0, dT = +0.16sec

516 has been reported as non-instantaneous (OCC1205). Observations are highly desired

18 Apr 20 4 24 40 d 94609 K2 8.9 8.3 20+ 53 23 278 66S 115 55 117 -1.9 +5.3 +0.2-1.8
.490 -24.3 5 31 20.4 19 1 25 366.3 955.1

18 Apr 20 4 48 31 D 94634 F7 7.5 7.2 20+ 53 18 281 87S 93 33 95 -1.9 +5.3 +0.2-1.1
.558 -2.1 5 32 22.0 19 7 21 366.8 992.9

18 Apr 21 2 37 5 D 995SB6 4.1 4.2v 30+ 66 -4 57 254 71N 75 17 71 -0.5 +4.0 +1.8-0.2
.400 18.8 6 28 57.8 20 12 44 363.5 745.7

R995 = nu Geminorum

995 is multiple: Aa,Ab 4.1 5.1 0.09" 127.5, dT = +0.14sec : AP 4.1 15.1 24.7" 359.1, dT = +15sec : AD 4.1 12.9 53" 54.4, dT = +123sec : AQ 4.1 13.9 55" 14.1, dT = +67sec

995 is a close double. Observations are highly desired

995 = HIP 30883, 4.13, range 0.00, 7V, Type VAR, Period 0.10732 days

18 Apr 21 3 20 43 d 78446 F8 8.6 8.4 30+ 66 48 262 83N 88 27 83 -0.6 +4.0 +1.4-0.8
.445 7.7 6 30 20.7 20 7 44 364.1 792.3

18 Apr 21 3 46 39 R 995SB6 4.1 4.2v 30+ 66 43 267 -70N 295 233 290 -0.6 +4.0 +0.9-1.8
.442 161.0 6 28 57.8 20 12 44 364.5 827.0

R995 = nu Geminorum

995 is multiple: Aa,Ab 4.1 5.1 0.09" 127.5, dT = +0.21sec : AP 4.1 15.1 24.7" 359.1, dT = -24sec : AD 4.1 12.9 53" 54.4, dT = +59sec : AQ 4.1 13.9 55" 14.1, dT = -23sec

995 is a close double. Observations are highly desired

995 = HIP 30883, 4.13, range 0.00, 7V, Type VAR, Period 0.10732 days

18 Apr 21 4 16 51 d 95789 K2 8.3 7.7 30+ 67 37 270 60S 125 63 120 -0.7 +4.0 +0.5-2.2
.430 -28.5 6 31 59.8 19 55 6 365.0 865.6

18 Apr 21 4 56 27 d 95822 B8 8.0 8.0 30+ 67 29 275 49S 135 74 131 -0.7 +4.0 +0.1-2.5
.407 -38.7 6 33 16.4 19 50 37 365.8 924.1

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18 Apr 22 2 33 34 d 1138 G0 7.1 6.8 41+ 79 -3 68 234 82N 91 45 81 +0.7 +2.5 +2.1-0.5
 .394 8.7 7 30 23.4 19 48 50 363.6 703.0

18 Apr 23 3 3 2 D 1275SK5 5.3* 4.5s 52+ 93 -8 71 216 85N 99 68 84 +1.8 +0.9 +2.1-0.7
 .389 6.8 8 31 35.7 18 5 40 364.7 693.5

R1275 = theta Cancri
 1275 is multiple: ** 6.4 6.4 0.10" 100.0, dT = +0.26sec : AB 5.5 11.8 75" 62.0, dT = +153sec
 : AD 5.3 12.6 225" 268.2, dT = -568sec : AC 5.5 10.5 344" 214.1, dT = -369sec
 1275 has been reported as non-instantaneous (Occ 690). Observations are highly desired
 1275 = NSV 17911, 5.43 to 5.47, Hp

18 Apr 24 7 19 55 D 1415WA1 6.3 6.3 65+ 108 32 266 16S 183 125 163 +2.3 -0.6 -1.3-5.4
 .160 -71.4 9 35 52.9 14 22 47 369.3 900.1

R1415 = 7 Leonis
 1415 is double: AB 6.3 9.4 41" 80.0, dT = -59sec

18 Apr 24 7 57 45 D 1420 F2 6.6 6.4 65+ 108 24 271 66S 133 74 112 +2.2 -0.6 +0.2-2.0
 .494 -21.6 9 38 1.3 14 20 50 370.1 953.5

R1420 = 11 Leonis

18 Apr 25 4 1 3 D 1529 G5 6.6 6.2 75+ 119 67 179 66S 136 137 113 +3.5 -2.2 +1.6-1.9
 .361 -20.1 10 27 12.2 11 19 2 368.6 687.8

18 Apr 25 4 44 13 d 99146 G5 7.7 7.2 75+ 120 66 204 45N 68 48 45 +3.4 -2.2 +3.1+1.0
 .255 49.2 10 28 28.6 11 29 24 368.8 699.4

18 Apr 26 4 15 8 d 1646 K0 7.6 7.0 84+ 132 62 160 48N 73 90 49 +4.2 -3.6 +3.0+1.3
 .268 45.6 11 21 39.6 7 13 23 371.4 691.0

18 Apr 26 5 53 20 D 1648 G5 6.9 6.5 84+ 133 59 209 48S 157 133 133 +3.9 -3.5 +0.9-2.9
 .312 -37.3 11 23 15.2 6 35 9 371.7 706.5

18 Apr 27 4 32 20 d 1758 G5 6.9 6.4 91+ 145 54 149 81S 128 153 103 +4.7 -4.7 +1.7-1.0
 .383 -7.2 12 13 55.8 2 15 37 374.6 701.0

18 Apr 27 7 44 28 d 1767 A2 7.6 7.5 92+ 146 47 227 66S 143 106 119 +4.2 -4.6 +1.2-2.3
 .371 -23.0 12 17 57.5 1 34 31 375.5 734.2

18 May 1 5 42 18 R 2223SK0 3.9 3.4 98- 165 24 130 67N 291 332 278 +4.8 -5.8 +1.2+0.3
 .407 -175.8 15 35 31.6 -14 47 22 391.2 774.8

R2223 = gamma Librae
 2223 is triple: Aa,Ab 4.0 4.2 0.10" 191.0, dT = +0.04sec : AB 4.0 11.2 43" 157.2, dT = +72sec
 2223 is a close double. Observations are highly desired

18 May 1 12 0 5 R 2247 A6 5.4 5.3 98- 163 -12 24 229 81N 279 238 267 +3.6 -5.5 +1.5-1.3
 .379 -175.3 15 44 4.4 -15 40 22 392.2 723.2

R2247 = eta Librae

18 May 2 7 16 46 r 159935 A0 7.2 7.0 94- 153 28 142 84S 265 297 257 +4.0 -5.2 +2.0+1.1
 .330 -153.3 16 28 45.5 -17 59 6 394.5 706.5

18 May 4 7 19 28 d 2633SB2 3.8 3.7e 82- 131 12 126 -71S 106 152 109 +2.0 -3.3 +0.8+0.6
 .404 -4.2 18 13 45.8 -21 3 32 401.5 789.1

R2633 = mu Sagittarii
 2633 is multiple: AB 3.8 10.5 17.0" 257.9, dT = -37sec : AC 3.8 13.5 25.5" 119.1, dT = +62sec
 : AD 3.8 10.0 48" 311.9, dT = -108sec : AE 3.8 9.2 50" 114.0, dT = +124sec
 2633 = mu. Sgr, 3.8 to 3.88, V, Type EA+ACYG, Period 180.55 days, Phase 69 %

18 May 4 8 37 56 R 2633SB2 3.8 3.7e 82- 130 24 140 79N 277 312 280 +1.8 -3.2 +1.7+0.7
 .352 -176.0 18 13 45.8 -21 3 32 400.3 686.0

R2633 = mu Sagittarii
 2633 is multiple: AB 3.8 10.5 17.0" 257.9, dT = -46sec : AC 3.8 13.5 25.5" 119.1, dT = +67sec
 : AD 3.8 10.0 48" 311.9, dT = -112sec : AE 3.8 9.2 50" 114.0, dT = +137sec
 2633 = mu. Sgr, 3.8 to 3.88, V, Type EA+ACYG, Period 180.55 days, Phase 69 %

18 May 5 10 37 7 D 2797SF2 2.9 2.7S 74- 119 31 156 -49N 41 63 50 +0.1 -1.9 +2.8+2.7

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.202 49.9 19 9 45.8 -21 1 25 401.0 611.4
R2797 = Al Baldah = pi Sagittarii
2797 is triple: AB 3.6 3.6 0.10" 193.9, dT = -0.44sec : AB,C 3.0 6.0 0.30" 136.0, dT = -0.12sec
2797 is a close double. Observations are highly desired
2797 = NSV 11769, 1.75 to 2.38, K
18 May 5 11 41 47 R 2797SF2 2.9 2.7s 74- 118 35 173 35N 318 323 326 -0.1 -1.9 +2.6-1.9
.194 130.0 19 9 45.8 -21 1 25 400.7 585.6
R2797 = Al Baldah = pi Sagittarii
2797 is triple: AB 3.6 3.6 0.10" 193.9, dT = +0.29sec : AB,C 3.0 6.0 0.30" 136.0, dT = +1.5sec
2797 is a close double. Observations are highly desired
2797 = NSV 11769, 1.75 to 2.38, K
18 May 10 10 47 55 R 3419SK0 4.2 3.7 27- 63 6 105 44s 199 253 223 -5.6 +4.7 +0.6+3.3
.275 -126.0 .01 23 15 53.5 - 9 5 16 392.0 889.6
R3419 = psi 1 Aquarii
3419 is triple: A,BC 4.4 9.9 50" 311.0, dT = +69sec : AD 4.4 13.5 114" 272.8, dT = -113sec
18 May 17 2 50 18 D 764CG4 4.9 4.6 4+ 22 -2 16 282 62N 68 9 72 -2.5 +5.5 +0.4-0.4
.548 20.2 5 7 27.0 18 38 42 362.51025.9
R764 = 104 Tauri
764 is double: AB 5.8 5.8 0.09" 96.3, dT = +0.14sec
764 is a close double. Observations are highly desired
18 May 17 23 49 18 d 915CB2 4.6 4.5v 9+ 34 34 64 244 77N 82 30 81 -0.6 +4.3 +1.9-0.3
.417 6.7 6 3 55.2 20 8 18 358.1 729.9
R915 = chi 2 Orionis
915 is double: ** 5.5 6.3 0.020" 178.0, dT = 0.00sec
915 has been reported as non-instantaneous (Occ 396). Observations are highly desired
915 = khi 2 Ori, 4.68 to 4.72, Hp, Type ACYG, Period 2.8682 days, Phase 87 %
18 May 18 3 52 28 D 940SB9 5.8 5.8 9+ 36 16 283 43S 143 84 140 -0.8 +4.3 -0.4-2.6
.393 -48.4 6 12 1.3 19 47 26 362.11040.6
R940 = 68 Orionis
940 is triple: Aa,Ab 5.8 0.10" 294.0, dT = -0.22sec : AB 5.7 9.4 94" 202.3, dT = +120sec
940 is a close double. Observations are highly desired
18 May 18 4 4 57 d 78111 A5 8.4 8.2 10+ 36 14 285 69N 75 17 73 -0.8 +4.3 +0.2-0.6
.570 19.1 6 12 58.3 20 4 14 362.31060.2
18 May 18 4 11 37 d 95383 A9 8.3 8.2 10+ 36 12 286 55S 131 73 128 -0.8 +4.3 -0.4-2.0
.491 -36.3 6 13 1.1 19 49 1 362.51071.3
18 May 18 22 3 0 D 1077SG3 4.0 3.5v 16+ 47 56 70 130 36N 45 88 37 +1.3 +2.9 +1.9+2.9
.288 44.8 7 4 6.5 20 34 13 358.5 706.5
R1077 = Mekbuda = zeta Geminorum
1077 is multiple: **Aa,Ab 4.5 4.5 0.10" 90.0, dT = +0.24sec : AD 4.1 12.5 67" 345.0, dT = +116sec : AB 4.1 11.5 90" 85.0, dT = +238sec : AC 4.1 7.7 102" 346.8, dT = +187sec
1077 has been reported as non-instantaneous (Occ 293). Observations are highly desired
1077 = zet Gem, 3.62 to 4.18, V, Type DCEP, Period 10.15073 days, Phase 69 %
18 May 18 23 0 32 r 1077SG3 4.0 3.5v 16+ 48 44 76 174 -51N 317 322 309 +1.2 +2.8 +2.1-2.7
.283 135.2 7 4 6.5 20 34 13 358.3 692.6
R1077 = Mekbuda = zeta Geminorum
1077 is multiple: **Aa,Ab 4.5 4.5 0.10" 90.0, dT = +0.24sec : AD 4.1 12.5 67" 345.0, dT = -208sec : AB 4.1 11.5 90" 85.0, dT = +194sec : AC 4.1 7.7 102" 346.8, dT = -313sec
1077 has been reported as non-instantaneous (Occ 293). Observations are highly desired
1077 = zet Gem, 3.62 to 4.18, V, Type DCEP, Period 10.15073 days, Phase 69 %
18 May 19 4 10 26 D 96697 B9 7.5 7.5 18+ 50 24 278 57S 132 72 123 +0.7 +2.8 +0.0-2.1

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.474 -31.8 7 15 42.8 19 50 50 362.2 980.7
 18 May 20 3 17 50 d 1245SK0 7.7 7.0 27+ 63 -7 46 261 79S 114 55 100 +2.1 +1.2 +1.0-1.7
 .466 -7.7 8 15 58.4 18 41 38 362.2 825.8
 1245 is quadruple: Aa,Ab 7.5 7.5 0.44" 353.4, dT = -0.49sec : AB 7.7 10.5 4.4" 342.9, dT =
 -6sec : AC 7.7 9.8 69" 78.0, dT = +120sec
 1245 is a close double. Observations are highly desired
 18 May 20 4 58 41 d 97723 F8 8.4 8.1 28+ 64 26 275 38S 155 95 141 +2.1 +1.2 -0.3-2.9
 .357 -49.3 8 18 51.9 18 19 10 364.2 966.9
 18 May 20 6 34 53 D 1259 A9 5.9 5.9 29+ 65 7 287 74N 88 32 73 +2.1 +1.2 -0.1-0.9
 .602 16.4 8 23 21.8 18 19 56 366.41115.4
 R1259 = 20 Cancrī
 18 May 20 6 42 5 d 97783 K2 7.7 6.9 29+ 65 6 288 66S 128 72 113 +2.1 +1.2 -0.4-1.6
 .579 -23.9 8 23 25.8 18 8 11 366.61126.6
 18 May 23 5 44 21 d 118702 K5 7.5 6.6s 62+ 103 43 246 73S 131 81 107 +4.8 -3.4 +1.0-2.1
 .426 -12.9 11 10 30.8 7 53 30 372.7 789.8
 118702 = NSV 18681, 7.56 to 7.62, Hp
 18 May 24 3 59 34 D 1733dA1 5.4 5.4 72+ 116 59 189 76S 130 122 105 +5.5 -4.6 +1.7-1.6
 .372 -8.0 11 59 56.9 3 39 19 375.1 683.6
 R1733 = 7 Virginis
 1733 is double: AB 5.3 14.5 3.2" 218.0, dT = +0.24sec
 1733 is a close double. Observations are highly desired
 18 May 24 4 45 22 d 119169kF5 7.8 7.5 72+ 116 56 209 74N 99 75 74 +5.4 -4.5 +2.3-0.8
 .354 22.4 12 1 10.1 3 37 56 375.4 697.1
 *** A light curve is desired as 119169 is in the Kepler2 program {ID = 201699550}
 18 May 26 9 36 59 d 1976 A3 7.0* 6.9 89+ 142 17 249 68S 138 87 117 +4.9 -5.7 +0.8-2.3
 .399 -27.2 13 47 25.4 - 6 42 20 386.8 841.4
 18 May 27 3 42 46 d 2072 K0 6.6 5.9 94+ 152 -10 35 138 52S 155 190 137 +5.8 -6.1 +0.7-1.7
 .314 -35.8 14 28 32.0 -10 0 15 387.6 728.1
 18 May 28 7 47 18 d 2200 K0 7.5 7.0 98+ 165 40 198 78N 108 92 94 +4.6 -5.7 +2.3-1.0
 .335 4.8 15 24 5.0 -14 18 37 391.0 638.1
 18 Jun 3 12 0 11 r 3003 B9 7.8 7.8 80- 126 -7 36 187 87S 253 246 269 -2.6 +0.6 +2.4+0.4
 .307 -179.2 20 34 27.6 -19 23 53 401.2 597.6
 18 Jun 5 11 43 0 R 3256cF0 6.1 s 62- 104 -10 38 154 54S 214 235 236 -5.0 +3.3 +1.8+2.4
 .268 -145.9 22 12 25.8 -14 11 38 397.2 623.0
 R3256 = 39 Aquarii
 3256 is double: AB 6.19 9.34 0.26" 277.6, dT = -0.42sec
 3256 is a close double. Observations are highly desired
 3256 = NSV 14068, 6.02 to 6.07, V
 18 Jun 7 12 4 10 R 3506ck4 6.1 5.3s 43- 81 -6 36 131 49S 205 244 230 -6.7 +5.7 +1.1+2.8
 .293 -141.7 23 48 32.5 - 6 22 50 388.9 703.4
 3506 is double: ** 7.1 7.1 0.10" 90.0, dT = +0.15sec
 3506 has been reported as non-instantaneous (Occ 53). Observations are highly desired
 3506 = NSV 14715, 5.01 to 5.26, I
 18 Jun 9 12 2 37 r 208wF0 7.0 6.8s 23- 57 -7 26 105 68N 266 320 289 -6.8 +7.1 +1.0+1.3
 .432 157.6 1 25 40.7 2 58 19 378.4 857.6
 208 is double: AB 7.0 11.1 128" 43.3, dT = +215sec
 208 = NSV 15302, 7., , Type VAR:
 18 Jun 11 11 33 55 R 462cB8 6.0 6.0 8- 32 -11 5 79 57N 278 334 293 -5.2 +7.3 +0.0+0.9
 .540 151.7 3 10 38.8 11 52 21 369.11098.3
 462 is double: ** 6.7 6.7 0.10" 90.0, dT = +0.18sec
 462 has been reported as non-instantaneous (Occ1200). Observations are highly desired

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18 Jun 16 3 39 10 d 97359SK2 7.8 7.3 8+ 32 -8 16 283 70s 123 64 111 +1.2 +1.7 -0.1-1.7
 .575 -20.3 7 54 54.1 19 14 11 358.91066.5
 97359 is quadruple: AD 7.9 11.7 80" 5.6, dT = -65sec : AB 7.9 10.8 98" 288.4, dT = -164sec :
 AC 7.9 10.6 126" 62.6, dT = +107sec
 18 Jun 16 3 56 56 d 97372 A0 8.6 8.6 8+ 32 -11 13 285 72N 86 28 73 +1.2 +1.7 +0.1-0.9
 .601 16.9 7 55 51.1 19 21 57 359.31094.4
 18 Jun 16 4 10 21 d 97385 K 8.6 7.9 8+ 32 10 286 75s 118 61 106 +1.3 +1.7 -0.2-1.5
 .616 -15.6 7 56 18.2 19 11 3 359.61115.5
 18 Jun 16 20 36 31 D 1310SK0 3.9 3.4 13+ 43 75 56 109 66N 81 137 65 +3.6 +0.0 +1.7+1.2
 .416 18.0 8 44 41.1 18 9 16 357.1 757.3
 R1310 = Asellus Australis = Delta Cancri
 1310 is triple: Aa,Ab 3.9 4.9 23.9, dT = -0.7sec : AB 3.9 12.2 40" 69.6, dT = +95sec
 18 Jun 16 21 51 2 r 1310SK0 3.9 3.4 14+ 44 61 69 135 -75N 301 338 284 +3.4 +0.0 +2.0-1.0
 .392 162.1 8 44 41.1 18 9 16 356.6 712.7
 R1310 = Asellus Australis = Delta Cancri
 1310 is triple: Aa,Ab 3.9 4.9 23.9, dT = +0.15sec : AB 3.9 12.2 40" 69.6, dT = +65sec
 18 Jun 17 3 33 23 D 1335 K1 6.2 5.7 15+ 46 -7 28 272 88N 105 45 87 +2.9 +0.0 +0.5-1.4
 .550 4.2 8 57 8.3 17 8 38 360.3 963.6
 18 Jun 17 3 50 36 d 98258 8.7 7.8 15+ 46 -9 25 275 70N 86 26 68 +2.9 +0.0 +0.6-1.0
 .522 22.5 8 57 48.4 17 10 53 360.7 989.2
 18 Jun 18 4 17 5 d 1463 K0 8.2 7.7 25+ 60 29 267 78s 122 64 100 +4.3 -1.7 +0.4-1.8
 .522 -9.1 9 57 52.6 13 36 26 364.2 933.9
 18 Jun 23 4 6 20 D 2043CK0 6.5 5.8 77+ 123 -12 47 182 84s 119 117 99 +6.6 -6.1 +2.1-1.0
 .347 1.3 14 16 48.7 - 8 53 4 386.4 650.1
 2043 is double: ** 7.4 7.4 0.10" 90.0, dT = +0.25sec
 2043 has been reported as non-instantaneous (OCC 16). Observations are highly desired
 18 Jun 23 4 39 54 D 2047 K0 6.6 6.0 77+ 123 46 194 72s 130 118 111 +6.5 -6.1 +1.9-1.6
 .341 -11.0 14 17 22.6 - 9 1 22 386.6 650.4
 18 Jun 24 4 33 38 d 2158 A0 7.5 7.5 85+ 135 43 176 84s 116 119 100 +6.1 -6.0 +2.1-0.8
 .337 1.4 15 6 34.2 -12 54 25 390.6 638.3
 18 Jun 25 7 37 48 D 2291WF7 5.5 5.2v 92+ 147 32 215 80N 98 68 87 +4.8 -5.4 +2.1-1.1
 .337 7.9 16 0 19.6 -16 32 0 395.3 652.9
 R2291 = 49 Librae
 2291 is double: AB 5.5 11.5 141" 337.3, dT = -211sec
 2291 = HIP 78400, 5.47, range 0.00, 4v, Type VAR, Period 0.45326 days
 18 Jun 29 10 15 16 r 188123 K5 7.0 6.2 99- 167 31 205 85N 263 241 273 -0.1 -1.1 +2.2-0.4
 .320 176.4 19 26 27.6 -21 14 45 402.6 625.2
 18 Jun 30 12 24 47 r 163462 K0 6.9 6.3 95- 155 -3 23 224 32N 315 278 330 -1.9 +0.2 +3.3-4.2
 .162 116.4 20 20 28.5 -19 38 50 403.5 713.3
 18 Jul 2 9 39 41 r 3210CK2 7.2 85- 134 37 155 68N 275 296 296 -3.9 +3.0 +2.5+0.5
 .288 154.6 21 55 0.3 -15 15 29 400.1 617.7
 3210 is double: AB 7.31 10.16 0.30" 79.0, dT = +1sec
 3210 is a close double. Observations are highly desired
 18 Jul 2 11 52 33 r 3217WA2 7.4 7.3 85- 134 -9 40 195 78s 240 227 262 -4.4 +3.0 +2.0+0.7
 .322 -176.1 21 57 47.4 -15 7 24 399.7 625.7
 3217 is double: AB 7.4 11.1 17.6" 325.8, dT = -4sec
 18 Jul 3 8 25 15 r 3327 K2 6.8 6.1 78- 124 24 125 56s 216 260 239 -4.8 +4.3 +1.3+2.7
 .304 -144.6 22 41 25.6 -12 13 48 399.1 720.8
 18 Jul 5 12 41 30 m 128707 K0 6.9 6.4 58- 99 -1 52 166 10N 328 339 352 -7.2 +6.3 +9.9+9.9
 .000 90.0 0 21 4.3 - 2 54 35 388.1 650.1
 18 Jul 10 11 5 31 r 94070 A2 8.4 8.2 10- 37 7 74 31N 315 12 322 -4.4 +6.2 +0.5-0.5

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.305 118.7 4 41 32.6 17 24 47 364.21121.2
 18 Jul 10 11 48 6 r 711 K5 8.2 7.3 10- 36 -11 16 79 83N 263 321 269 -4.3 +6.2 +0.1+1.2
 .590 170.0 4 42 58.5 17 18 40 363.11054.7
 18 Jul 18 5 25 47 d 1781 M* 7.6 6.8s 33+ 70 14 262 78S 124 68 99 +6.6 -5.1 +0.4-1.8
 .514 -10.2 12 24 40.7 1 23 2 374.2 947.1
 1781 = NSV 19382, 7.65 to 7.72, Hp
 18 Jul 21 5 14 2 D 2128 G7 5.8 5.3 64+ 106 32 224 75N 93 57 76 +6.9 -6.0 +1.9-1.0
 .346 18.7 14 54 22.9 -11 53 54 389.0 689.9
 R2128 = 13 Librae
 18 Jul 21 23 27 36 d 2223SK0 3.9 3.4 72+ 116 41 15 120 38S 158 206 145 +7.4 -6.0 +0.0-1.5
 .315 -43.6 15 35 31.6 -14 47 22 394.1 832.4
 R2223 = gamma Librae
 2223 is triple: Aa,Ab 4.0 4.2 0.10" 191.0, dT = +0.27sec : AB 4.0 11.2 43" 157.2, dT = +135sec
 2223 is a close double. Observations are highly desired
 18 Jul 22 5 40 55 D 2247 A6 5.4 5.3 73+ 118 32 217 48S 147 116 135 +6.2 -5.6 +1.8-2.7
 .264 -40.0 15 44 4.4 -15 40 22 393.5 658.1
 R2247 = eta Librae
 18 Jul 25 3 39 19 D 2633SB2 3.8 3.7e 94+ 151 -9 27 145 46N 48 79 51 +3.6 -3.0 +2.9+2.9
 .206 52.5 18 13 45.8 -21 3 32 401.8 660.7
 R2633 = mu Sagittarii
 2633 is multiple: AB 3.8 10.5 17.0" 257.8, dT = -72sec : AC 3.8 13.5 25.5" 119.1, dT = +41sec
 : AD 3.8 10.0 48" 311.9, dT = -27sec : AE 3.8 9.2 51" 114.0, dT = +102sec
 2633 = mu. Sgr, 3.8 to 3.88, V, Type EA+ACYG, Period 180.55 days, Phase 15 %
 18 Jul 25 4 35 50 r 2633SB2 3.8 3.7e 94+ 151 32 159 -31N 332 350 334 +3.4 -2.9 +1.4-2.1
 .191 127.3 18 13 45.8 -21 3 32 401.4 614.6
 R2633 = mu Sagittarii
 2633 is multiple: AB 3.8 10.5 17.0" 257.8, dT = -25sec : AC 3.8 13.5 25.5" 119.1, dT = +112sec
 : AD 3.8 10.0 48" 311.9, dT = -238sec : AE 3.8 9.2 51" 114.0, dT = +209sec
 2633 = mu. Sgr, 3.8 to 3.88, V, Type EA+ACYG, Period 180.55 days, Phase 15 %
 18 Jul 30 5 27 31 r 3288 K0 5.8 5.3 95- 153 13 117 51S 216 266 239 -3.3 +3.9 +1.1+2.7
 .314 -140.7 22 24 27.1 -13 31 46 401.8 790.3
 R3288 = 50 Aquarii
 18 Jul 30 9 52 38 R 3303kF2 6.4 6.2 94- 152 43 182 73S 237 235 260 -4.2 +4.0 +2.1+1.1
 .320 -174.8 22 30 1.5 -12 54 54 398.5 620.8
 *** A light curve is desired as 3303 is in the Kepler2 program {ID = 206068930}
 18 Jul 31 6 37 36 r 3409 K0 7.0 6.4 89- 142 21 118 84S 247 294 271 -4.5 +5.2 +1.1+1.8
 .396 -176.7 23 12 58.6 - 9 34 14 398.6 766.4
 18 Jul 31 7 43 42 d 3419SK0 4.2 3.7 89- 141 32 130 -42N 25 65 49 -4.7 +5.2 +1.2+3.0
 .270 41.6 .01 23 15 53.5 - 9 5 16 397.3 697.5
 R3419 = psi 1 Aquarii
 3419 is triple: A,BC 4.4 9.9 50" 311.0, dT = +52sec : AD 4.4 13.5 114" 272.8, dT = -156sec
 18 Jul 31 8 49 54 R 3419SK0 4.2 3.7 89- 141 41 147 57N 285 312 309 -4.9 +5.2 +2.7+0.2
 .252 138.4 .01 23 15 53.5 - 9 5 16 396.4 649.1
 R3419 = psi 1 Aquarii
 3419 is triple: A,BC 4.4 9.9 50" 311.0, dT = -178sec : AD 4.4 13.5 114" 272.8, dT = -442sec
 18 Jul 31 8 50 23 d 3425CB5 4.4 4.5v 89- 141 41 147 -65S 97 125 122 -4.9 +5.2 +2.5+0.5
 .279 -34.5 23 17 54.2 - 9 10 57 396.4 650.1
 R3425 = psi 2 Aquarii
 3425 is double: ** 5.4 5.4 0.10" 90.0, dT = +0.36sec
 3425 has been reported as non-instantaneous (OCc1639). Observations are highly desired
 3425 = psi 2 Aqr, 4.40, range 0.06, b, Type BE:, Period 1.073 days

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18 Jul 31 10 3 58 R 3425cB5 4.4 4.5v 89- 141 46 171 43S 205 213 230 -5.2 +5.1 +1.3+2.5
 .270 -145.3 23 17 54.2 - 9 10 57 395.8 629.4
 R3425 = psi 2 Aquarii
 3425 is double: ** 5.4 5.4 0.10" 90.0, dT = +0.16sec
 3425 has been reported as non-instantaneous (OCc1639). Observations are highly desired
 3425 = psi 2 Aqr, 4.40, range 0.06, b, Type BE:, Period 1.073 days

18 Aug 4 8 35 34 d 364 B9 4.3 4.3 54- 94 19 93 -56N 37 94 56 -6.7 +7.5 +0.1+2.3
 .442 28.4 2 28 9.5 8 27 36 381.8 930.4
 R364 = xi 2 Ceti

18 Aug 4 9 33 25 R 364 B9 4.3 4.3 53- 94 31 102 70N 272 327 291 -6.7 +7.5 +1.1+1.1
 .404 151.5 2 28 9.5 8 27 36 380.4 848.1
 R364 = xi 2 Ceti

18 Aug 4 10 27 37 r 110568 G5 8.1 7.6 53- 94 42 111 78S 240 291 258 -6.8 +7.4 +1.1+1.9
 .425 -177.4 2 29 44.6 8 29 56 379.2 783.3

18 Aug 5 9 35 6 r 93398 F5 7.3 7.1 43- 81 24 91 69S 233 291 247 -6.4 +7.2 +0.3+1.9
 .497 -166.1 3 20 33.7 12 20 48 375.6 933.4

18 Aug 5 11 25 1 R 491cK0 6.0 5.4 42- 81 46 108 43S 208 261 222 -6.5 +7.1 +0.5+2.8
 .350 -143.3 3 24 10.1 12 37 47 373.2 791.2
 491 is double: ** 6.8 6.8 0.10" 159.0, dT = -0.19sec
 491 has been reported as non-instantaneous (OCc1020). Observations are highly desired

18 Aug 6 10 1 29 R 627 K1 6.6 6.0 32- 68 20 84 38N 310 9 319 -5.6 +6.6 +1.1-0.4
 .282 120.8 4 16 48.7 16 12 52 370.3 990.6

18 Aug 6 11 26 49 R 636cF7 7.0* s 31- 68 38 95 23N 325 25 334 -5.7 +6.4 +3.9-4.2
 .114 103.6 4 19 54.9 16 31 21 368.3 868.0
 R636 = 55 Tauri
 636 is double: AB 7.26 8.62 0.62" 11.8, dT = -4sec
 636 is a close double. Observations are highly desired
 636 = NSV 15952, 6.88, range 0.01, v, Type BY:

18 Aug 7 10 25 33 r X 73437S 8.3 8.2 21- 55 15 78 44S 216 275 219 -4.5 +5.5 -0.4+2.2
 .462 -141.1 5 16 43.9 18 26 20 365.61051.8
 X 73437 is triple: Ba,Bb 8.5 11.0 0.70" 160.7, dT = -0.9sec : BA 8.3 7.7 2.6" 344.8, dT = +4sec
 X 73437 is a close double. Observations are highly desired

18 Aug 7 10 25 36 R 787DB3 7.1 7.1 21- 55 15 78 44S 217 275 220 -4.5 +5.5 -0.4+2.2
 .462 -141.2 5 16 43.9 18 26 21 365.61051.8
 787 is double: AB 7.7 8.3 2.6" 164.8, dT = -3sec
 787 is a close double. Observations are highly desired

18 Aug 8 10 54 50 r 78226 G0 8.8 8.4 12- 41 10 73 79S 257 315 254 -3.0 +4.1 -0.1+1.2
 .629 -176.6 6 19 22.8 19 59 59 361.61105.0

18 Aug 8 11 5 29 R 95544 G5 7.7 7.2 12- 41 12 74 44S 222 280 219 -3.0 +4.0 -0.4+2.1
 .487 -141.6 6 20 12.1 19 52 27 361.41088.5

18 Aug 8 11 26 29 r 95562 G5 8.3 7.8 12- 41 16 76 49S 227 286 224 -3.0 +4.0 -0.3+2.0
 .504 -146.7 6 21 1.9 19 55 33 360.91055.0

18 Aug 8 11 34 12 R 971cG5 7.3 6.7 12- 41 17 77 33S 212 271 208 -3.0 +4.0 -0.5+2.6
 .395 -131.5 6 21 35.7 19 53 31 360.71043.1
 971 is double: ** 7.5 9.5 0.050" 320.0, dT = +0.04sec
 971 has been reported as non-instantaneous (OCc 404). Observations are highly desired

18 Aug 8 15 4 8 r 995SB6 4.1 4.2v 11- 39 23 59 109 43S 222 279 218 -3.1 +3.6 +1.2+2.8
 .336 -139.8 6 28 57.8 20 12 44 356.6 761.5
 R995 = nu Geminorum
 995 is multiple: Aa,Ab 4.1 5.1 0.09" 128.7, dT = +0.02sec : AP 4.1 15.1 24.7" 359.1, dT =
 +53sec : AD 4.1 12.9 53" 54.3, dT = +153sec : AQ 4.1 13.9 55" 14.1, dT = +145sec

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995 is a close double. Observations are highly desired

995 = HIP 30883, 4.13, range 0.00, 7V, Type VAR, Period 0.10732 days

18 Aug 9 11 33 17 R 79370 A0 7.6 7.6 5- 26 5 70 85S 269 325 259 -1.2 +2.3 -0.2+0.9
 .655 177.3 7 24 49.7 20 0 3 359.01141.2

18 Aug 9 11 38 28 r 79371CF5 9.5 9.3 5- 26 6 70 69S 254 310 244 -1.2 +2.3 -0.3+1.2
 .636 -167.5 7 25 6.9 19 55 53 358.91133.0

79371 is double: BA 9.5 9.1 0.8" 46.5, dT = +1.1sec

79371 is a close double. Observations are highly desired

18 Aug 9 11 38 28 r X101218C 9.1 9.0 5- 26 6 70 69S 254 310 244 -1.2 +2.3 -0.3+1.2
 .636 -167.5 7 25 6.9 19 55 53 358.91133.0

X101218 is double: AB 9.1 9.5 0.8" 226.5, dT = -1.1sec

X101218 is a close double. Observations are highly desired

18 Aug 9 11 50 8 r 79378 G5 9.5 9.1 5- 26 9 72 88N 277 334 267 -1.2 +2.3 +0.0+0.8
 .630 169.7 7 25 36.7 20 2 54 358.61114.2

18 Aug 9 12 2 52 r X 11079 K0 9.6 9.1 5- 26 11 73 52S 237 295 227 -1.2 +2.3 -0.3+1.7
 .548 -150.6 7 26 21.9 19 52 22 358.31094.0

18 Aug 9 12 8 22 R 1127cF2 5.9 5.8S 5- 26 -11 12 74 39N 326 24 316 -1.2 +2.2 +0.8-1.1
 .316 120.4 7 26 56.3 20 15 27 358.21085.9

R1127 = 61 Geminorum

1127 is double: AB 5.9 0.051" 286.1, dT = -0.12sec

1127 is a close double. Observations are highly desired

1127 = NSV 3592, 5.9, , Type DSCT:

18 Aug 14 3 20 19 D 1733dA1 5.4 5.4 10+ 37 -9 14 265 72S 127 72 103 +5.4 -4.6 +0.3-1.8
 .539 -13.8 11 59 56.9 3 39 19 366.5 986.4

R1733 = 7 Virginis

1733 is double: AB 5.3 14.5 3.2" 218.0, dT = -0.08sec

1733 is a close double. Observations are highly desired

18 Aug 14 3 50 13 d 119169kF5 7.8 7.5 10+ 38 8 269 88N 107 51 82 +5.4 -4.7 +0.2-1.4
 .575 5.9 12 1 10.1 3 37 56 367.31029.8

*** A light curve is desired as 119169 is in the Kepler2 program {ID = 201699550}

18 Aug 16 3 20 28 D 139528 K0 7.2 6.7 28+ 63 -10 27 241 72N 91 44 70 +7.1 -6.0 +1.3-1.1
 .400 23.1 13 44 57.0 - 6 0 8 377.0 794.7

18 Aug 17 5 32 46 d 2089 G5 6.7 6.2 38+ 77 9 251 32N 49 356 31 +7.0 -6.0 +0.4+0.5
 .249 57.9 14 39 0.4 -10 33 17 385.6 877.1

18 Aug 19 4 41 13 d 2341kF3 7.4 7.1 58+ 100 28 220 57N 67 34 58 +6.2 -5.1 +1.9-0.2
 .285 35.1 16 18 27.1 -17 23 16 393.7 666.6

*** A light curve is desired as 2341 is in the Kepler2 program {ID = 205468535}

18 Aug 22 6 18 5 D 2746 G8 5.7 5.1 84+ 133 30 206 57N 53 30 60 +2.6 -1.9 +1.8+0.6
 .275 30.7 18 54 0.1 -21 21 35 401.9 622.5

R2746 = 33 Sagittarii

18 Aug 22 9 9 0 D 2759 G8 3.5 2.9 85+ 134 6 239 13N 9 319 16 +2.0 -2.0 -1.6+4.3
 .134 71.5 .03 18 57 43.8 -21 6 24 404.5 827.1

R2759 = xi 2 Sagittarii

18 Aug 23 8 27 0 d 2892ck0 6.8 91+ 145 21 224 36S 134 96 146 +0.8 -0.6 +2.9-3.7
 .185 -59.5 19 48 0.0 -20 57 27 403.5 714.4

2892 is double: AB 7.0 8.9 0.20" 45.0, dT = +0.01sec

2892 is a close double. Observations are highly desired

18 Aug 27 11 34 54 r 146509ck0 7.1 6.6 99- 169 29 234 86N 270 228 294 -4.6 +4.6 +1.6-1.1
 .344 151.1 23 6 17.2 - 9 36 22 397.1 757.0

146509 is double: ** 8.1 8.1 0.10" 67.0, dT = +0.27sec

146509 has been reported as non-instantaneous (OCC 709). Observations are highly desired

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Distance of 146509 to Terminator = 16.7"; to 3km sunlit peak = 6.4"

18 Aug 28 7 22 16 R 3506cK4 6.1 5.3s 97- 159 42 142 62S 231 262 256 -4.5 +5.8 +1.7+1.9
 .345 -169.9 23 48 32.5 - 6 22 50 393.7 670.1
 3506 is double: ** 7.1 7.1 0.10" 90.0, dT = +0.23sec
 3506 has been reported as non-instantaneous (OCC 53). Observations are highly desired
 3506 = NSV 14715, 5.01 to 5.26, I

18 Aug 30 9 21 39 r 208wF0 7.0 6.8s 86- 135 54 145 84S 248 277 270 -5.8 +7.1 +2.0+1.4
 .358 169.8 1 25 40.7 2 58 19 386.0 680.2
 208 is double: AB 7.0 11.1 127" 43.3, dT = +323sec
 208 = NSV 15302, 7., , Type VAR:

18 Aug 31 11 50 3 r 110466 F2 8.0 7.7 77- 122 63 192 19S 184 174 203 -6.3 +7.1 +0.3+4.5
 .196 -123.4 2 18 46.1 7 42 21 381.3 660.6

18 Aug 31 12 29 26 R 110464 K0 6.8 6.3 77- 122 -11 61 212 52N 293 266 312 -6.5 +7.1 +3.2-2.1
 .227 129.0 2 18 41.6 8 10 51 381.3 666.4

18 Sep 1 6 27 34 r 444cK6 5.9 5.1 69- 112 10 84 55S 221 278 237 -5.5 +7.3 -0.1+2.0
 .485 -152.7 3 0 44.1 10 52 13 382.61013.8
 444 is double: ** 6.7 6.7 0.10" 161.0, dT = -0.1sec
 444 has been reported as non-instantaneous (OCC 596). Observations are highly desired

18 Sep 1 9 48 47 R 453cM1 7.1 6.2v 68- 111 50 116 89S 255 305 271 -5.8 +7.1 +1.6+1.4
 .399 167.3 3 6 17.1 11 39 55 378.2 749.8
 453 is double: ** 8.1 8.1 0.10" 54.0, dT = +0.23sec
 453 has been reported as non-instantaneous (OCC 595). Observations are highly desired
 453 = AQ Ari, 7.14 to 7.27, Hp, Type SRS:, Period 4.17 days

18 Sep 1 12 5 39 R 462cB8 6.0 6.0 67- 110 68 173 5S 172 178 187 -6.2 +6.9 -1.1+8.1
 .114 -108.2 3 10 38.8 11 52 21 376.8 665.8
 462 is double: ** 6.7 6.7 0.10" 90.0, dT = -0.13sec
 462 has been reported as non-instantaneous (OCC1200). Observations are highly desired

18 Sep 2 10 20 45 r 592 G5 7.7 7.1 57- 98 49 107 68N 282 337 292 -5.4 +6.5 +1.9+0.5
 .350 144.8 4 0 44.5 15 28 31 373.8 776.8

18 Sep 3 16 23 1 r 764cG4 4.9 4.6 44- 83 36 56 252 55S 229 173 233 -5.7 +5.2 +1.9+1.1
 .336 -145.9 5 7 27.0 18 38 42 367.8 724.2
 R764 = 104 Tauri
 764 is double: AB 5.8 5.8 0.10" 344.2, dT = +0.12sec
 764 is a close double. Observations are highly desired

18 Sep 4 8 25 42 R 888cB9 6.0 5.7s 35- 73 7 71 49N 309 5 309 -3.8 +4.6 +0.3-0.1
 .394 129.4 5 52 23.4 19 52 4 369.51111.6
 888 is double: ** 6.8 6.8 0.050" 350.0, dT = -0.1sec
 888 has been reported as non-instantaneous (OCC1284). Observations are highly desired
 888 = NSV 16714, 6.06, , Type VAR:

18 Sep 4 8 34 19 r 94948 K0 7.7 7.1 35- 73 8 72 80N 279 335 278 -3.8 +4.6 +0.0+0.8
 .576 160.0 5 52 31.0 19 45 17 369.31097.5

18 Sep 4 9 32 51 R 895cB2 5.9 6.0s 35- 73 20 79 74S 252 312 251 -3.8 +4.5 +0.1+1.4
 .560 -174.3 5 54 56.7 19 44 59 367.91005.1
 R895 = 57 Orionis
 895 is double: AB 6.1 8.3 0.015" 110.0, dT = +0.02sec
 895 is a close double. Observations are highly desired
 895 = NSV 2722, 5.90, range 0.02, V, Type BCEP:

18 Sep 4 12 1 7 r 95098 B8 7.9 8.0 34- 71 49 99 67S 246 306 244 -3.9 +4.2 +1.1+1.7
 .439 -168.0 6 0 9.8 19 59 27 364.8 794.0

18 Sep 4 12 7 34 r 77828 K5 8.6 7.7 34- 71 51 100 79S 258 318 256 -3.9 +4.2 +1.3+1.3
 .445 -179.9 6 0 17.2 20 3 19 364.7 786.5

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18 Sep 4 12 52 13 d 915cb2 4.6 4.5v 34- 71 -7 59 108 -81s 98 155 97 -4.0 +4.1 +1.9+0.4
 .397 -19.1 6 3 55.2 20 8 18 364.1 742.4
 R915 = chi 2 Orionis
 915 is double: ** 5.5 6.3 0.020" 178.0, dT = +0.01sec
 915 has been reported as non-instantaneous (OCC 396). Observations are highly desired
 915 = khi 2 Ori, 4.68 to 4.72, Hp, Type ACYG, Period 2.8682 days, Phase 8 %

18 Sep 4 14 9 40 r 915cb2 4.6 4.5v 33- 71 9 72 140 63s 242 277 241 -4.2 +4.0 +2.0+1.6
 .369 -160.6 6 3 55.2 20 8 18 363.2 688.2
 R915 = chi 2 Orionis
 915 is double: ** 5.5 6.3 0.020" 178.0, dT = -0.02sec
 915 has been reported as non-instantaneous (OCC 396). Observations are highly desired
 915 = khi 2 Ori, 4.68 to 4.72, Hp, Type ACYG, Period 2.8682 days, Phase 8 %

18 Sep 5 10 9 47 r 78915 B9 7.8 7.8 24- 59 16 76 70N 295 353 287 -2.6 +2.9 +0.4+0.4
 .505 149.1 6 57 46.0 20 27 59 364.51040.8

18 Sep 5 10 51 56 r 1063 G5 8.1 7.6 24- 58 24 81 85N 280 341 272 -2.6 +2.8 +0.5+0.8
 .530 163.7 6 59 22.8 20 26 42 363.6 973.6

18 Sep 5 11 59 15 D 1077SG3 4.0 3.5v 23- 58 37 89 -62N 67 129 59 -2.6 +2.7 +0.7+1.7
 .476 17.5 7 4 6.5 20 34 13 362.2 876.0
 R1077 = Mekbuda = zeta Geminorum
 1077 is multiple: **Aa,Ab 4.5 4.5 0.10" 90.0, dT = +0.19sec : AD 4.1 12.5 67" 344.8, dT =
 +19sec : AB 4.1 11.5 90" 85.0, dT = +179sec : AC 4.1 7.7 102" 346.8, dT = +37sec
 1077 has been reported as non-instantaneous (OCC 293). Observations are highly desired
 1077 = zet Gem, 3.62 to 4.18, V, Type DCEP, Period 10.15073 days, Phase 49 %

18 Sep 5 13 3 35 r 79030SG 7.6 7.3 23- 57 -5 50 99 76N 289 350 281 -2.7 +2.6 +1.6+0.2
 .414 156.4 7 4 5.0 20 35 51 360.9 790.7
 79030 is multiple: CD 7.7 12.5 35" 152.7, dT = +62sec : CE 7.7 14.8 97" 323.0, dT = -195sec :
 CA 7.7 4.1 102" 166.8, dT = +131sec : BC 11.5 7.7 144" 309.1, dT = -328sec

18 Sep 5 13 5 30 R 1077SG3 4.0 3.5v 23- 57 -5 50 99 82N 283 344 275 -2.7 +2.5 +1.6+0.4
 .430 162.6 7 4 6.5 20 34 13 360.9 788.5
 R1077 = Mekbuda = zeta Geminorum
 1077 is multiple: **Aa,Ab 4.5 4.5 0.10" 90.0, dT = +0.23sec : AD 4.1 12.5 67" 344.8, dT =
 -73sec : AB 4.1 11.5 90" 85.0, dT = +199sec : AC 4.1 7.7 102" 346.8, dT = -104sec
 1077 has been reported as non-instantaneous (OCC 293). Observations are highly desired
 1077 = zet Gem, 3.62 to 4.18, V, Type DCEP, Period 10.15073 days, Phase 49 %

18 Sep 6 10 33 18 m 97491 B9 7.7 7.7 15- 45 8 72 11N 360 56 346 -1.2 +1.2 +9.9+9.9
 .000 90.0 8 2 4.7 19 44 14 362.41099.5

18 Sep 7 11 52 20 R 1355 G5 7.6 7.0 7- 30 10 76 85N 293 350 275 +0.5 -0.7 +0.2+0.4
 .581 162.8 9 6 15.6 17 6 43 360.51064.0

18 Sep 7 12 21 15 d 98388 F5 8.4 8.2 7- 30 16 80 -2N 20 78 1 +0.5 -0.8 -1.5+7.5
 .135 76.6 9 8 54.4 17 14 3 359.91020.1

18 Sep 7 12 28 11 Gr 98388 F5 8.4 8.2 7- 30 17 ** GRAZE: CA 11.5N; Dist. 52km in az.
 343deg. [Lat = 34.76+0.25(E, Long+116.85)]

18 Sep 7 12 32 39 R 1361 K0 7.6 7.0 7- 30 -11 18 82 3s 201 259 182 +0.5 -0.8 -1.3+7.4
 .139 -104.0 9 8 34.2 16 42 6 359.61001.1

18 Sep 7 12 34 19 r 98388 F5 8.4 8.2 7- 30 -11 18 81 25N 353 52 335 +0.5 -0.8 +2.1-6.0
 .133 103.4 9 8 54.4 17 14 3 359.6 998.4

18 Sep 13 4 3 31 d 2043ck0 6.5 5.8 15+ 45 2 258 53N 68 13 49 +6.3 -5.9 +0.2-0.5
 .408 38.7 14 16 48.7 - 8 53 4 379.5 962.5
 2043 is double: ** 7.4 7.4 0.10" 90.0, dT = +0.23sec
 2043 has been reported as non-instantaneous (OCC 16). Observations are highly desired

18 Sep 14 3 8 8 D 2158 A0 7.5 7.5 23+ 57 19 239 50N 63 17 48 +6.5 -5.7 +1.1-0.3

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.310 43.2 15 6 34.2 -12 54 25 383.3 791.7
 18 Sep 15 4 25 31 D 2291WF7 5.5 5.2v 32+ 69 11 241 64N 74 25 64 +6.1 -5.2 +0.8-0.7
 .387 25.4 16 0 19.6 -16 32 0 390.0 810.3
 R2291 = 49 Librae
 2291 is double: AB 5.5 11.5 141" 337.4, dT = -44sec
 2291 = HIP 78400, 5.47, range 0.00, 4v, Type VAR, Period 0.45326 days
 18 Sep 16 2 24 11 d 160106kg8 8.1 7.7 41+ 80 -7 33 205 48S 139 117 133 +5.9 -4.5 +2.2-2.2
 .263 -37.1 16 48 32.2 -19 17 16 392.3 627.3
 *** A light curve is desired as 160106 is in the Kepler2 program {ID = 205123559}
 18 Sep 18 6 16 43 D 2704ca5 5.9 5.8 62+ 104 14 232 55N 52 8 57 +3.1 -2.2 +0.6+0.1
 .333 30.6 18 37 54.4 -21 23 52 401.5 754.3
 18 Sep 19 4 21 51 d 188123 K5 7.0 6.2 70+ 114 33 196 61N 53 38 63 +2.2 -0.9 +2.1+0.8
 .273 28.0 19 26 27.6 -21 14 45 401.0 601.2
 18 Sep 19 7 22 3 d 2851 A2 6.1 6.1 71+ 115 11 234 48S 123 77 134 +1.6 -1.0 +1.7-2.6
 .275 -47.0 19 30 54.0 -21 18 44 403.3 788.3
 18 Sep 22 3 35 29 d 3210ck2 7.2 92+ 147 33 144 57N 33 64 55 -1.4 +3.2 +1.8+2.6
 .262 38.4 21 55 0.3 -15 15 29 399.2 646.9
 3210 is double: AB 7.31 10.16 0.30" 79.0, dT = +0.8sec
 3210 is a close double. Observations are highly desired
 18 Sep 22 5 32 51 d 3217wa2 7.4 7.3 92+ 147 41 177 87N 63 66 85 -1.9 +3.2 +2.2+1.0
 .318 2.4 21 57 47.4 -15 7 24 398.3 614.1
 3217 is double: AB 7.4 11.1 17.6" 325.8, dT = -7sec
 18 Sep 24 7 4 1 d 3478 G5 6.4 5.9 99+ 169 49 177 38S 95 97 119 -4.0 +5.5 +2.9-0.2
 .273 -36.4 23 35 32.1 - 7 27 52 392.3 645.1
 Distance of 3478 to Terminator = 6.2"; to 3km sunlit peak = 0.0"
 18 Sep 27 7 46 46 r 291cg5 6.8 6.2 95- 153 54 136 20S 191 227 211 -4.8 +7.1 +0.4+3.5
 .255 -132.0 1 59 58.4 6 2 8 381.9 707.2
 291 is double: ** 7.9 7.9 0.10" 90.0, dT = +0.08sec
 291 has been reported as non-instantaneous (Occ1171). Observations are highly desired
 Distance of 291 to Terminator = 13.8"; to 3km sunlit peak = 3.8"
 18 Sep 27 12 41 22 r 306 F0 6.8 6.6 94- 152 38 250 64S 234 182 254 -5.7 +6.8 +1.2+0.4
 .403 -167.5 2 5 48.5 7 1 42 382.5 766.5
 18 Sep 28 4 48 40 R 405SF1 4.3 4.1s 90- 142 15 87 59N 291 349 308 -4.4 +7.2 +0.5+0.6
 .377 135.5 2 44 56.5 10 6 51 382.6 981.1
 R405 = mu Ceti
 405 is multiple: Aa,Ad 2.6 0.021" 243.0, dT = -0.04sec : Aa,Ab 4.2 6.2 0.10" 339.1, dT =
 -0.18sec : Aa,Ac 2.3 0.25" 63.0, dT = +0.44sec : AB 4.2 13.6 160" 342.5, dT = -266sec
 405 is a close double. Observations are highly desired
 405 = NSV 909, 4.27, , Type RS:
 18 Sep 29 5 42 30 r 526 G5 6.7 6.2 82- 130 17 85 59S 231 289 243 -4.1 +6.8 +0.0+1.9
 .511 -162.1 3 39 17.1 13 53 29 379.0 986.3
 18 Sep 30 6 12 31 r 94019ck5 6.7 5.8 72- 117 15 79 81S 255 313 262 -3.6 +5.9 +0.0+1.4
 .562 177.2 4 35 2.4 17 12 4 376.11026.7
 94019 is double: ** 7.9 7.9 0.050" 89.0, dT = +0.09sec
 94019 has been reported as non-instantaneous (Occ 954). Observations are highly desired
 18 Sep 30 8 30 25 r 705 K0 7.9* 7.2 72- 116 42 97 57S 232 291 238 -3.7 +5.7 +0.7+2.1
 .434 -161.8 4 39 52.2 17 29 21 373.1 826.0
 18 Sep 30 12 44 20 m 94119 K0 7.8 7.2 71- 114 71 216 9N 346 315 352 -4.4 +5.3 +9.9+9.9
 .000 90.0 4 47 7.1 18 29 15 370.8 665.9
 18 Oct 1 7 47 0 r 94684cb9 7.2 61- 103 23 82 75S 254 314 255 -3.0 +4.6 +0.3+1.4
 .535 -178.1 5 36 2.6 19 32 58 372.0 965.7

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94684 is double: AB 7.23 10.88 0.80" 69.5, dT = +1.5sec
 94684 is a close double. Observations are highly desired
 18 Oct 1 9 18 19 r 94723 K0 7.8 7.0 61- 103 42 93 81S 260 322 261 -3.1 +4.5 +1.0+1.3
 .462 175.2 5 39 8.1 19 46 7 370.1 832.4
 18 Oct 1 9 42 8 r 94739 B9 7.6 7.6 61- 102 46 97 49S 228 289 228 -3.2 +4.4 +0.7+2.4
 .396 -152.4 5 40 9.6 19 40 49 369.7 801.8
 18 Oct 1 10 22 6 r 856 K5 8.1 7.2 60- 102 55 104 60N 299 358 299 -3.2 +4.3 +2.2-0.5
 .310 137.2 5 41 11.7 20 3 45 369.0 755.8
 18 Oct 1 13 22 38 r 77528SK0 8.1 7.6 60- 101 -5 75 207 70N 289 266 289 -3.7 +4.1 +2.4-1.2
 .334 153.5 5 45 59.5 20 15 0 367.7 665.6
 77528 is triple: AB 8.2 11.3 6.1" 335.0, dT = -13sec : AC 8.2 11.8 16.2" 332.1, dT = -36sec
 77528 is a close double. Observations are highly desired
 18 Oct 1 17 57 29 r 894cG0 4.4 4.1v 58- 99 46 24 279 70N 290 229 289 -4.3 +4.1 +0.2-1.6
 .500 162.9 5 54 23.0 20 16 34 370.8 940.0
 R894 = chi 1 Orionis
 894 is double: AB 4.5 7.5 0.015" 247.8, dT = -0.02sec
 894 is a close double. Observations are highly desired
 894 = khi 1 Ori, 4.38 to 4.41, V, Type RS
 18 Oct 2 9 37 56 r 78609 M0 8.0 7.2v 49- 89 34 87 45S 230 292 224 -2.3 +3.0 +0.3+2.3
 .418 -148.0 6 39 59.2 20 29 11 368.0 879.7
 78609 = ASAS J063959+2029.2, 7.89, range 0.16, V, Type MISC, Period 68.4 days, Phase 29 %
 18 Oct 2 10 17 0 r 78632wG5 7.4 6.9 49- 89 42 92 73S 257 319 251 -2.3 +3.0 +1.0+1.4
 .461 -175.0 6 41 3.3 20 38 44 367.3 825.1
 78632 is double: AB 7.6 13.4 18.4" 203.0, dT = -23sec
 18 Oct 2 12 8 28 R 1031 A0 7.1 7.0 49- 88 64 115 62S 247 300 241 -2.6 +2.8 +1.8+1.6
 .378 -161.5 6 44 30.1 20 41 35 365.6 707.8
 18 Oct 2 12 25 55 R 78698 F8 7.2 6.9 48- 88 67 121 84N 281 330 275 -2.6 +2.8 +2.2+0.0
 .380 165.2 6 44 54.9 20 51 38 365.4 695.9
 18 Oct 2 13 17 14 r 78726 B9 8.3 8.3 48- 88 -6 75 149 58S 243 270 237 -2.8 +2.7 +2.2+1.5
 .344 -154.8 6 46 26.0 20 42 16 365.1 673.7
 18 Oct 3 8 14 53 r 1150cK0 6.7 6.1 39- 77 7 70 88N 281 337 270 -1.3 +1.6 +0.0+0.7
 .596 166.4 7 37 5.5 20 9 24 368.71095.9
 1150 is double: ** 7.6 7.6 0.10" 90.0, dT = +0.16sec
 1150 has been reported as non-instantaneous (OCc1368). Observations are highly desired
 18 Oct 3 9 7 59 r 79583cF0 7.3 7.1 38- 76 17 77 85S 275 334 263 -1.3 +1.5 +0.2+0.9
 .562 173.0 7 39 17.8 20 8 55 367.51010.3
 79583 is double: ** 8.0 9.5 0.050" 220.0, dT = -0.05sec
 79583 has been reported as non-instantaneous (OCc1370). Observations are highly desired
 18 Oct 3 10 51 49 r 79639 B9 8.2 8.2 38- 76 37 90 71S 261 323 249 -1.3 +1.3 +0.9+1.3
 .477 -172.3 7 43 9.7 20 7 2 365.3 852.1
 18 Oct 3 11 24 3 R 79652 G5 7.4 7.0 37- 75 44 94 88S 278 340 266 -1.4 +1.2 +1.3+0.7
 .453 171.6 7 44 13.9 20 12 5 364.7 809.5
 18 Oct 3 11 47 8 R 1171 A1 6.5 6.5 37- 75 48 98 66N 304 5 292 -1.4 +1.2 +1.7-0.5
 .368 146.3 7 45 9.3 20 18 58 364.4 782.1
 R1171 = 79 Geminorum
 18 Oct 3 17 58 30 r 1193cA0 5.4 5.4 35- 73 45 47 263 81N 290 229 277 -2.3 +1.0 +1.1-1.6
 .460 174.6 7 55 39.9 19 53 2 364.0 815.6
 R1193 = 85 Geminorum
 1193 is double: AB 15.7" 189.9, dT = +6sec
 18 Oct 4 10 18 43 D 1310SK0 3.9 3.4 27- 62 18 80 -81S 114 174 98 -0.2 -0.3 +0.5+0.3
 .523 -20.4 8 44 41.1 18 9 16 365.6 989.3

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R1310 = Asellus Australis = Delta Cancri
 1310 is triple: Aa,Ab 3.9 4.9 22.5, dT = +0.03sec : AB 3.9 12.2 40" 69.4, dT = +55sec
 18 Oct 4 10 33 10 r 1307 K0 8.0 7.4 27- 62 21 82 52S 247 307 231 -0.2 -0.3 +0.2+1.8
 .485 -153.0 8 43 8.4 18 9 2 365.2 963.4
 R1307 = 44 Cancri
 18 Oct 4 11 16 28 R 1310SK0 3.9 3.4 27- 62 30 87 59S 255 315 238 -0.2 -0.4 +0.6+1.6
 .476 -159.5 8 44 41.1 18 9 16 364.3 897.6
 R1310 = Asellus Australis = Delta Cancri
 1310 is triple: Aa,Ab 3.9 4.9 22.5, dT = -0.7sec : AB 3.9 12.2 40" 69.4, dT = +85sec
 18 Oct 4 12 1 45 r 98107CA2 8.3 26- 62 39 93 72S 268 329 251 -0.3 -0.5 +1.0+1.1
 .469 -171.7 8 46 11.7 18 10 47 363.4 834.9
 98107 is double: AB 8.49 10.50 0.30" 122.6, dT = +0.5sec
 98107 is a close double. Observations are highly desired
 18 Oct 5 11 58 27 r 98748 K0 8.9 8.2 17- 48 25 88 39S 240 299 219 +1.0 -2.1 +0.4+2.4
 .391 -138.5 9 45 36.0 14 53 13 363.8 921.1
 18 Oct 7 12 43 46 r 118979 K0 8.5 7.9 3- 21 7 88 25S 238 294 214 +3.7 -4.8 +0.0+2.6
 .365 -129.2 11 40 7.0 5 52 51 367.01026.5
 18 Oct 13 1 34 50 D 2361 B2 4.2 4.1V 17+ 48 -5 24 224 62S 124 87 116 +5.4 -4.6 +1.8-1.9
 .343 -23.5 16 27 1.4 -18 27 23 388.4 704.9
 R2361 = chi Ophiuchi
 2361 = khi Oph, 4.14 to 4.77, V, Type GCAS+LERI, Period 0.649 days
 18 Oct 13 2 45 15 r 2361 B2 4.2 4.1V 17+ 49 13 237 -68S 254 207 246 +5.2 -4.6 +0.9-0.7
 .383 -156.3 16 27 1.4 -18 27 23 389.8 790.8
 R2361 = chi Ophiuchi
 2361 = khi Oph, 4.14 to 4.77, V, Type GCAS+LERI, Period 0.649 days
 18 Oct 14 2 49 45 D 185318 K4 7.0 6.2 25+ 60 19 227 83S 99 59 96 +4.6 -3.6 +1.5-1.3
 .375 -6.6 17 21 51.6 -20 34 10 393.8 721.6
 18 Oct 15 2 43 32 D 2635 K2 5.5 4.7s 34+ 72 26 215 82S 96 66 99 +3.7 -2.4 +2.0-1.1
 .338 -8.9 18 14 15.9 -21 42 47 396.9 658.1
 R2635 = 14 Sagittarii
 2635 = NSV 10393, 5.36 to 5.50, V
 18 Oct 16 1 33 9 D 2779WK0 3.8 3.2 43+ 82 -5 34 185 63N 57 52 65 +2.9 -1.2 +2.5+1.0
 .265 29.3 .01 19 4 41.0 -21 44 29 398.7 588.3
 R2779 = omicron Sagittarii
 2779 is double: AB 3.8 13.8 39" 253.6, dT = -141sec
 18 Oct 16 2 58 31 R 2779WK0 3.8 3.2 44+ 83 29 208 -63N 291 266 299 +2.5 -1.2 +2.5-1.5
 .285 151.1 .01 19 4 41.0 -21 44 29 399.3 630.9
 R2779 = omicron Sagittarii
 2779 is double: AB 3.8 13.8 39" 253.6, dT = -109sec
 18 Oct 18 1 32 33 d 163869 F0 7.6 7.4 62+ 104 -5 34 158 65S 99 118 116 +0.3 +1.5 +2.5+0.3
 .287 -22.1 20 46 38.4 -19 26 17 400.7 602.4
 18 Oct 18 2 48 29 D 3035 F3 6.8 6.6 63+ 105 37 179 83S 81 82 98 +0.0 +1.5 +2.6+0.3
 .302 -8.4 20 48 13.7 -19 15 37 400.4 592.6
 18 Oct 19 5 23 24 M 3171CA7 3.7 3.5v 72+ 116 33 211 6S 154 128 175 -1.9 +2.8 +9.9+9.9
 .000 -90.0 21 40 5.5 -16 39 44 399.5 662.7
 R3171 = Nashira = gamma Capricorni
 3171 is double: AB 4.6 4.6 0.008" 93.9
 3171 = gam Cap, 3.2, range 0.03, J, Type ACV
 Distance of 3171 to Terminator = 17.1"; to 3km sunlit peak = 0.5"
 18 Oct 19 5 23 53 Gr 3171CA7 3.7 3.5v 72+ 116 32 ** GRAZE: CA 5.3S; Dist.164km in az.
 324deg. [Lat = 36.09+0.60(E.Long+116.85)]

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18 Oct 20 1 50 12 D 3288 K0 5.8 5.3 80+ 126 -9 31 137 88s 68 104 91 -2.2 +4.1 +1.8+1.6
 .347 1.6 22 24 27.1 -13 31 46 397.9 669.9
 R3288 = 50 Aquarii

18 Oct 20 6 21 10 D 3303kF2 6.4 6.2 80+ 128 35 216 76s 80 50 103 -3.2 +4.0 +2.0-0.4
 .337 -19.0 22 30 1.5 -12 54 54 396.9 685.8
 *** A light curve is desired as 3303 is in the Kepler2 program {ID = 206068930}

18 Oct 21 2 34 28 d 3409 K0 7.0 6.4 87+ 138 34 134 89N 62 99 86 -3.3 +5.3 +1.7+1.8
 .359 3.4 23 12 58.6 - 9 34 14 394.5 688.9

18 Oct 21 5 8 44 D 3419SK0 4.2 3.7 87+ 138 47 181 70N 43 42 67 -3.8 +5.2 +1.7+1.6
 .322 16.3 23 15 53.5 - 9 5 16 393.0 639.0
 R3419 = psi 1 Aquarii
 3419 is triple: A,BC 4.4 9.9 50" 311.0, dT = -4sec : AD 4.4 13.5 114" 272.8, dT = -226sec

18 Oct 21 6 34 0 r 3419SK0 4.2 3.7 88+ 139 42 210 -78N 254 230 279 -4.1 +5.1 +2.1+0.0
 .340 164.1 23 15 53.5 - 9 5 16 393.2 674.6
 R3419 = psi 1 Aquarii
 3419 is triple: A,BC 4.4 9.9 50" 311.0, dT = -81sec : AD 4.4 13.5 114" 272.8, dT = -318sec

18 Oct 21 6 55 52 m 3425CB5 4.4 4.5v 88+ 139 40 216 4s 149 119 173 -4.2 +5.1 +9.9+9.9
 .000 -90.0 23 17 54.2 - 9 10 57 393.3 689.6
 R3425 = psi 2 Aquarii
 3425 is double: ** 5.4 5.4 0.10" 90.0
 3425 has been reported as non-instantaneous (OCc1639). Observations are highly desired
 3425 = psi 2 Aqr, 4.40, range 0.06, b, Type BE:, Period 1.073 days
 Distance of 3425 to Terminator = 1.4"; to 3km sunlit peak = 0.0"

18 Oct 21 6 56 36 Gr 3425CB5 4.4 4.5v 88+ 139 39 ** GRAZE: CA 3.3s; Dist.122km in az.
 326deg. [Lat = 35.59+0.56(E.Long+116.85)]
 Distance of 3425 to Terminator = 4.2"; to 3km sunlit peak = 0.0"

18 Oct 23 4 17 34 d 106 K0 6.6 5.9 97+ 161 43 130 50N 11 50 34 -4.5 +6.8 +0.5+3.4
 .255 48.6 0 49 55.0 - 0 13 27 385.6 721.9

18 Oct 25 5 4 28 r 110566 A5 7.0 6.8 99- 171 42 111 77s 278 329 296 -4.2 +7.1 +1.7+0.8
 .354 144.1 2 29 35.3 9 0 23 377.7 800.1
 Distance of 110566 to Terminator = 10.3"; to 3km sunlit peak = 2.1"

18 Oct 25 13 15 50 r 398ck0 6.5 5.9 99- 169 -10 18 271 66N 304 247 321 -5.4 +6.7 +0.3-2.9
 .320 129.6 2 42 0.1 10 32 41 378.7 921.6
 398 is double: ** 6.9 8.5 0.006" 298.5, dT = -0.02sec
 Distance of 398 to Terminator = 14.4"; to 3km sunlit peak = 4.8"

18 Oct 27 4 8 56 r 627 K1 6.6 6.0 92- 148 14 80 18s 196 254 205 -2.9 +6.1 -0.6+2.9
 .324 -124.6 4 16 48.7 16 12 52 374.21036.5
 Distance of 627 to Terminator = 16.7"; to 3km sunlit peak = 5.3"

18 Oct 27 5 43 39 r 636cF7 7.0* s 92- 147 33 92 29s 206 266 215 -2.9 +5.9 +0.0+2.8
 .364 -137.3 4 19 54.9 16 31 21 372.1 895.3
 R636 = 55 Tauri
 636 is double: AB 7.26 8.62 0.62" 12.2, dT = +1.7sec
 636 is a close double. Observations are highly desired
 636 = NSV 15952, 6.88, range 0.01, V, Type BY:

18 Oct 27 8 7 9 M 653SA7 4.8* 4.7 92- 146 62 119 19N 338 27 346 -3.2 +5.6 +9.9+9.9
 .000 90.0 4 24 5.8 17 26 39 369.8 731.1
 R653 = 64 delta 2 Tauri
 653 is triple: ** 5.6 5.6 0.040" 53.0 : AB 4.8 14.6 148" 248.4
 653 has been reported as non-instantaneous (OCc 952). Observations are highly desired

18 Oct 27 8 35 4 r 93913cF6 7.0 6.7 91- 146 66 131 58s 235 277 244 -3.3 +5.6 +1.6+1.8
 .385 -166.7 4 24 22.3 17 4 44 369.5 709.5

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93913 is double: ** 7.6 10.6 0.18" 108.8, dT = +0.28sec
 93913 has been reported as non-instantaneous (OCC 615). Observations are highly desired
 18 Oct 27 9 41 46 r 93927 F0 7.5* 7.3 91- 146 73 172 73N 284 291 292 -3.5 +5.5 +2.6-0.7
 .317 146.7 4 25 53.5 17 26 51 369.1 679.5
 18 Oct 27 9 45 21 r 93934 G5 7.5 6.8 91- 146 73 174 32S 210 214 218 -3.5 +5.5 +1.5+3.1
 .285 -138.7 4 26 31.3 17 9 18 369.1 678.8
 18 Oct 27 11 7 2 r 93958cG2 7.8 7.5v 91- 145 67 229 20S 197 157 205 -3.7 +5.4 +1.6+4.3
 .206 -122.6 4 28 48.3 17 17 8 369.2 685.4
 93958 is double: ** 9.0 9.0 0.50" 279.0, dT = -0.36sec
 93958 has been reported as non-instantaneous (OCC 532). Observations are highly desired
 93958 = V0920 Tau, 7.84, range 0.05, V, Type BY
 18 Oct 27 11 32 6 m 93963SF6 6.9* 6.7 91- 145 63 239 11N 346 298 354 -3.8 +5.4 +9.9+9.9
 .000 90.0 4 29 30.4 17 51 47 369.4 696.6
 93963 is triple: **Aa 7.7 7.7 0.030" 337.0 : AB 6.9 9.1 110" 9.1
 93963 has been reported as non-instantaneous (OCC1036). Observations are highly desired
 Distance of 93963 to Terminator = 8.3"; to 3km sunlit peak = 0.2"
 18 Oct 27 11 55 46 r 93962cF7 7.0 6.7s 91- 145 58 246 77S 254 201 262 -3.8 +5.4 +1.9+0.0
 .397 -176.7 4 29 20.6 17 32 42 369.6 712.1
 93962 is double: ** 7.0 0.012" 204.0, dT = -0.02sec
 93962 has been reported as non-instantaneous (OCC1235). Observations are highly desired
 93962 = NSV 16025, 7.05, range 0.03, b, Type BY:
 18 Oct 27 12 13 44 r 93967cB7 7.8* 91- 145 55 251 80N 277 222 285 -3.9 +5.4 +1.8-1.2
 .383 161.1 4 29 48.1 17 40 39 369.7 725.9
 93967 is double: AB 9.37 8.09 0.055" 242.0, dT = -0.12sec
 93967 is a close double. Observations are highly desired
 18 Oct 27 13 46 54 Gr 684DB9 6.2 91- 144 -4 37 ** GRAZE: CA 5.0N; Dist. 36km in az.
 12deg. [Lat = 34.60-0.17(E.Long+116.85)]
 Distance of 684 to Terminator = 4.7"; to 3km sunlit peak = 0.0"
 18 Oct 27 13 53 45 r X 70265D 7.0 7.0 91- 144 -3 36 269 16N 341 281 349 -4.1 +5.4 +9.9+9.9
 .092 101.4 4 33 32.8 18 1 1 371.1 836.4
 X 70265 is double: BA 7.0 7.0 2.9" 96.9, dT = +14sec
 X 70265 is a close double. Observations are highly desired
 Distance of X 70265 to Terminator = 18.3"; to 3km sunlit peak = 6.0"
 18 Oct 27 13 53 49 R 684DB9 6.2 91- 144 -3 35 269 16N 341 281 349 -4.1 +5.4 +9.9+9.9
 .092 101.4 4 33 32.9 18 1 0 371.1 836.5
 R684 = 119 H1. Tauri
 684 is double: AB 6.97 7.02 2.90" 276.9, dT = -14sec
 684 is a close double. Observations are highly desired
 Distance of 684 to Terminator = 18.4"; to 3km sunlit peak = 6.1"
 18 Oct 28 7 10 43 R 796 A0 6.7 6.7v 84- 134 41 93 70N 290 352 293 -2.2 +4.6 +1.5+0.3
 .379 143.1 5 20 18.3 19 34 42 369.1 847.4
 796 = V1159 Tau, 6.63 to 6.66, Hp, Type ACV, Period 1.63988 days, Phase 17 %
 18 Oct 29 10 22 23 m 987cG5 8.0 7.4 74- 119 68 120 11N 353 44 349 -1.6 +2.9 +9.9+9.9
 .000 90.0 6 27 19.0 21 17 37 365.7 700.0
 987 is double: ** 8.5 8.5 0.10" 90.0
 987 has been reported as non-instantaneous (OCC1317). Observations are highly desired
 18 Oct 29 10 58 47 R 989SK0 6.7 5.9 74- 119 73 139 33S 218 253 213 -1.7 +2.9 +1.8+3.4
 .260 -132.5 6 27 46.6 20 47 22 365.5 680.9
 R989 = 15 Geminorum
 989 is multiple: AB 6.7 8.2 24.4" 201.8, dT = -90sec : AC 6.7 12.7 83" 35.2, dT = +320sec :
 AD 6.7 12.7 87" 52.0, dT = +326sec : AE 6.7 13.6 111" 44.0, dT = +425sec

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18 Oct 29 11 23 37 r 78406 A0 7.6 7.6 74- 119 76 158 63N 301 320 296 -1.8 +2.9 +2.4-1.5
 .313 145.4 6 28 9.4 21 9 27 365.4 673.7
 18 Oct 30 7 21 13 R 1113wM0 5.1 4.3s 65- 107 20 79 22S 211 271 201 -0.3 +1.7 -0.5+3.2
 .314 -124.9 .01 7 21 56.9 20 26 37 368.6 982.9
 R1113 = 56 Geminorum
 1113 is double: AB 5.3 12.2 12.8" 185.7, dT = -37sec
 1113 = NSV 3550, 5.09, range 0.06, V
 18 Oct 30 8 0 43 r 79343 F0 7.7 7.6 65- 107 28 83 48S 237 299 227 -0.3 +1.6 +0.2+2.1
 .452 -151.2 7 23 3.7 20 33 20 367.7 920.4
 18 Oct 30 9 0 37 r 1123DA5 7.3 7.2 64- 107 40 91 19S 208 270 198 -0.4 +1.5 +0.1+4.3
 .242 -121.0 7 25 35.3 20 29 43 366.6 834.1
 1123 is double: AB 7.3 8.1 6.7" 47.0, dT = +26sec
 1123 is a close double. observations are highly desired
 18 Oct 30 11 44 45 r 79451 A0 7.2 7.2 63- 106 71 132 11S 200 241 190 -0.7 +1.3 +1.9+8.9
 .113 -107.0 7 30 38.9 20 29 30 364.6 683.7
 18 Oct 30 11 57 17 r 79443 A0 7.6 7.5 63- 105 73 140 89S 279 314 268 -0.8 +1.3 +2.2-0.1
 .383 175.1 7 30 14.8 20 47 4 364.5 679.0
 18 Oct 31 11 55 12 r 97869 A3 7.4 7.3 52- 92 62 116 46S 240 292 225 +0.3 -0.4 +2.0+2.3
 .312 -141.1 8 31 0.5 18 58 6 364.6 708.2
 18 Oct 31 12 23 21 R 1276 K0 6.5 5.7 52- 92 67 126 58S 252 297 236 +0.2 -0.4 +2.2+1.4
 .344 -151.5 8 31 41.3 18 59 16 364.4 692.8
 18 Oct 31 13 16 31 r 97903 F5 8.3 8.1 51- 92 -11 74 158 76S 270 290 254 +0.1 -0.4 +2.3+0.2
 .375 -166.9 8 33 3.2 19 0 6 364.1 679.6
 18 Oct 31 19 34 0 r 1310SK0 3.9 3.4 49- 89 42 14 283 82S 277 219 261 -0.5 -0.3 +0.1-1.2
 .582 -170.5 8 44 41.1 18 9 16 368.71054.6
 R1310 = Asellus Australis = Delta Cancrj
 1310 is triple: Aa,Ab 3.9 4.9 22.1, dT = -0.22sec : AB 3.9 12.2 40" 69.4, dT = +61sec
 18 Nov 1 9 35 55 R 1395 G9 6.3 5.8 41- 80 22 85 80N 299 358 279 +1.6 -1.8 +0.7+0.1
 .490 159.7 9 25 32.5 16 35 8 367.9 932.5
 18 Nov 2 10 51 8 r 1524 A2 8.2 8.0 30- 66 24 91 72N 311 9 288 +2.5 -3.4 +0.8-0.4
 .454 154.1 10 24 58.6 12 43 49 368.2 901.9
 18 Nov 2 11 51 33 r 99122 G5 8.1 7.5 29- 66 36 100 83S 285 342 262 +2.4 -3.4 +1.1+0.5
 .461 -177.8 10 26 39.4 12 29 19 367.1 821.9
 18 Nov 2 12 12 27 R 99133 K0 7.8 7.0 29- 66 41 104 84S 286 342 264 +2.4 -3.4 +1.3+0.4
 .448 -178.0 10 27 16.9 12 26 42 366.7 797.9
 18 Nov 2 13 32 19 R 99157cF2 7.4 29- 65 -8 55 122 71S 274 319 251 +2.2 -3.5 +1.9+0.6
 .389 -161.3 10 29 25.6 12 11 13 365.7 728.4
 99157 is double: AB 7.69 8.76 0.10" 85.8, dT = +0.25sec
 99157 is a close double. observations are highly desired
 18 Nov 13 1 23 23 d 188346 G8 7.7 7.2 26+ 62 -8 30 203 32S 138 117 149 +1.5 -0.1 +3.6-3.4
 .161 -60.1 19 36 54.8 -21 54 10 399.5 625.0
 18 Nov 13 3 45 28 d 188422 B5 7.9 7.9 27+ 63 13 233 40N 30 345 41 +1.0 -0.1 +0.0+1.1
 .281 45.4 19 40 16.6 -21 18 8 401.5 780.6
 18 Nov 15 1 29 38 D 3113CB5 5.4 5.5V 45+ 84 -10 38 180 77N 60 60 79 -1.1 +2.6 +2.2+1.0
 .303 9.3 21 17 57.3 -17 59 6 400.3 597.1
 R3113 = 30 Capricorni
 3113 is double: ** 6.1 6.1 0.10" 87.0, dT = +0.29sec
 3113 has been reported as non-instantaneous (Occ1602). observations are highly desired
 3113 = HD 202671, 5.40, , Type ACV, Period 1.9917 days, Phase 60 %
 18 Nov 16 1 41 20 D 3236KF3 7.1 6.9 54+ 95 40 169 53N 32 41 54 -2.4 +3.9 +1.7+2.2
 .263 33.0 22 6 13.2 -14 53 46 398.9 606.3

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*** A light curve is highly desired as 3236 is in the Kepler2 program {ID = 205997466}

18 Nov 16 6 19 54 D 3256cF0 6.1 s 55+ 96 15 241 68N 47 359 69 -3.4 +3.8 +0.4+0.3
 .403 17.1 22 12 25.8 -14 11 38 401.0 819.4
 R3256 = 39 Aquarii
 3256 is double: AB 6.19 9.34 0.25" 277.9, dT = -0.4sec
 3256 is a close double. Observations are highly desired
 3256 = NSV 14068, 6.02 to 6.07, V

18 Nov 17 1 10 25 D 3356cB8 5.8 5.8v 63+ 106 -6 38 146 56S 100 129 124 -3.4 +5.1 +2.5+0.4
 .271 -36.0 22 53 28.7 -11 36 59 396.8 643.8
 R3356 = 74 Aquarii
 3356 is double: AB 5.8 6.4 0.034" 187.5, dT = +0.01sec
 3356 is a close double. Observations are highly desired
 3356 = HI Aqr, 5.80, range 0.01, V, Type ACV, Period 3.5892 days, Phase 9 %

18 Nov 18 7 49 15 D 3506cK4 6.1 5.3s 74+ 119 20 247 28S 126 76 151 -5.6 +5.8 +1.9-4.4
 .192 -63.8 .01 23 48 32.5 - 6 22 50 393.8 829.7
 3506 is double: ** 7.1 7.1 0.10" 90.0, dT = +0.42sec
 3506 has been reported as non-instantaneous (OCC 53). Observations are highly desired
 3506 = NSV 14715, 5.01 to 5.26, I

18 Nov 18 8 5 9 Gr 3506cK4 6.1 5.3s 74+ 119 18 ** GRAZE: CA 1.1s; Dist.186km in az.
 163deg. [Lat = 32.52+0.25(E.Long+116.85)]
 Distance of 3506 to Terminator = 7.6"; to 3km sunlit peak = 0.0"

18 Nov 20 2 22 20 d 109783WG5 7.3 6.7 89+ 141 40 120 77S 74 120 97 -5.3 +7.2 +1.5+1.5
 .396 -14.0 1 17 9.8 2 0 55 383.4 758.9
 109783 is double: AB 7.4 9.6 39" 103.7, dT = +86sec

18 Nov 20 2 35 28 d 109787MK0 7.6 89+ 141 42 123 26S 125 168 147 -5.3 +7.2 +3.2-1.1
 .170 -64.9 1 17 19.5 1 50 29 383.2 746.0
 109787 is triple: AB 7.71 10.69 1.77" 277.0, dT = -9sec : AC 7.7 11.6 51" 175.4, dT = +191sec
 109787 is a close double. Observations are highly desired

18 Nov 20 4 6 8 d 109795 A5 7.6 7.4 89+ 141 55 151 19N 350 13 12 -5.6 +7.1 -1.1+5.7
 .142 67.4 1 18 15.4 2 33 2 381.9 686.4

18 Nov 20 8 32 17 d 109873 A0 7.4 7.3 90+ 143 35 247 73N 44 354 66 -6.3 +6.8 +1.0+0.8
 .396 19.6 1 24 54.6 3 20 58 382.5 779.7

18 Nov 20 9 42 10 d 210DB9 6.6 6.7 90+ 143 22 259 82N 53 359 75 -6.4 +6.8 +0.7+0.2
 .453 13.4 1 26 53.6 3 32 8 383.6 865.5
 210 is double: AB 6.7 9.5 5.7" 332.7, dT = +2.1sec
 210 is a close double. Observations are highly desired

18 Nov 21 10 28 53 d 110464 K0 6.8 6.3 96+ 156 25 263 55S 94 38 113 -6.2 +6.8 +0.8-1.3
 .431 -24.5 2 18 41.6 8 10 51 378.0 868.7

18 Nov 25 3 54 58 R 894cG0 4.4 4.1v 95- 153 17 77 57S 242 302 241 -1.3 +3.8 -0.1+1.6
 .568 -164.7 5 54 23.0 20 16 34 365.81044.5
 R894 = chi 1 Orionis
 894 is double: AB 4.5 7.5 0.013" 232.8, dT = -0.02sec
 894 is a close double. Observations are highly desired
 894 = khi 1 Ori, 4.38 to 4.41, V, Type RS

18 Nov 25 7 54 12 r 77889 G5 6.9 6.4 94- 152 64 115 22S 207 261 205 -1.5 +3.3 +1.0+3.9
 .256 -127.8 6 3 7.0 20 35 11 361.7 733.2
 Distance of 77889 to Terminator = 18.1"; to 3km sunlit peak = 6.6"

18 Nov 25 10 38 29 r 77983 K2 7.1 6.3 94- 151 71 229 53S 238 196 236 -2.0 +3.2 +2.2+1.2
 .349 -151.1 6 7 17.9 20 49 13 361.2 698.8

18 Nov 25 12 57 50 r 935 B5 6.8 6.8 93- 150 45 266 73S 259 197 256 -2.2 +3.1 +1.3-0.6
 .451 -166.0 6 11 23.2 20 54 19 362.6 818.1

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18 Nov 26 6 47 48 r 79005 G5 7.7 7.2 88- 139 39 90 88N 280 342 272 +0.0 +1.9 +1.1+0.7
 .471 164.2 7 3 10.6 21 10 29 362.6 860.4
 18 Nov 26 7 55 18 r 79047DB9 7.8 87- 138 53 100 41S 229 290 221 -0.1 +1.7 +1.1+2.6
 .355 -143.3 7 5 41.1 20 59 45 361.6 777.2
 79047 is double: AB 7.88 11.25 1.85" 268.0, dT = -4sec
 79047 is a close double. Observations are highly desired
 18 Nov 26 10 35 28 R 1086CG9 6.4 6.0 87- 137 77 178 89N 280 282 271 -0.5 +1.6 +2.2-0.4
 .390 173.1 7 10 6.7 21 14 49 360.4 687.5
 1086 is double: ** 6.4 0.004" 96.6, dT = +0.01sec
 18 Nov 26 11 56 44 r 79174SG5 7.3 6.7 86- 137 69 238 51N 317 268 308 -0.7 +1.5 +1.6-2.8
 .312 139.8 7 12 46.3 21 21 9 360.7 713.1
 79174 is triple: AB 7.4 11.8 28.0" 64.8, dT = +27sec : AC 7.4 11.0 54" 110.4, dT = +155sec
 18 Nov 28 8 11 41 r 1362SK3 7.2 6.6 68- 111 31 89 40S 237 297 218 +2.5 -1.6 +0.5+2.5
 .377 -139.1 9 9 2.3 17 28 11 364.9 881.2
 R1362 = 78 Cancri
 1362 is triple: AB 7.5 9.0 350.0, dT = 0.00sec : ** 7.5 9.0 0.005" 341.0, dT = 0.00sec
 18 Dec 2 12 21 22 r 139024 K2 8.8 8.2 23- 57 29 113 60S 266 315 242 +5.6 -6.2 +1.3+1.4
 .387 -148.0 12 53 28.1 - 0 45 49 375.5 830.8
 18 Dec 2 13 40 11 r 139041 G5 8.8 8.5 23- 57 -11 42 130 41S 247 286 224 +5.5 -6.1 +2.6+2.6
 .245 -126.2 12 55 32.6 - 1 7 29 374.5 752.1
 18 Dec 2 14 11 18 R 1856DF5 6.8 22- 57 -5 47 139 75N 311 344 288 +5.4 -6.1 +1.4-0.9
 .396 170.5 12 56 26.6 - 0 57 17 374.2 729.1
 1856 is double: AB 7.33 7.61 1.12" 103.1, dT = +2.5sec
 1856 is a close double. Observations are highly desired
 18 Dec 2 14 11 19 r X125132D 7.6 7.4 22- 57 -5 47 139 75N 311 344 288 +5.4 -6.1 +1.4-0.9
 .396 170.5 12 56 26.6 - 0 57 17 374.2 729.1
 X125132 is double: BA 7.6 7.3 1.1" 283.1, dT = -2.5sec
 X125132 is a close double. Observations are highly desired
 18 Dec 3 12 13 34 R 1965CA1 6.5 6.5 15- 45 15 108 87N 299 351 278 +6.1 -6.4 +0.5+0.1
 .492 177.5 13 43 54.2 - 5 29 56 379.9 907.6
 1965 is double: ** 7.3 7.3 0.050" 350.0, dT = -0.06sec
 1965 has been reported as non-instantaneous (OCc1453). Observations are highly desired
 18 Dec 10 1 24 50 d 187953 A3 8.1 8.0 7+ 30 -10 14 230 66S 106 63 115 +1.4 -0.5 +1.5-1.7
 .348 -28.0 19 18 54.3 -22 6 13 400.6 764.7
 18 Dec 10 1 39 57 d 187964 K2 8.9 8.1 7+ 30 12 233 81N 73 28 82 +1.4 -0.5 +0.9-0.6
 .403 4.6 19 19 19.6 -21 56 35 400.8 785.5
 18 Dec 10 2 12 16 d 187974 F8 8.3 8.0 7+ 31 7 238 19S 153 104 162 +1.3 -0.5 +3.6-7.2
 .110 -75.1 19 19 43.8 -22 11 17 401.5 833.5
 18 Dec 12 0 42 47 d 3069 A* 6.3 6.3v 19+ 52 -2 34 202 68N 53 33 71 -0.9 +2.3 +1.7+0.7
 .312 15.6 20 59 36.1 -19 2 7 401.5 630.5
 R3069 = 20 Capricorni (AO)
 3069 = AO Cap, 6.25 to 6.30, V, Type ACV, Period 2.2411 days, Phase 62 %
 18 Dec 12 2 0 9 d 164065 K0 9.0 8.6 19+ 52 26 221 81N 66 31 84 -1.2 +2.3 +1.4-0.1
 .359 1.7 21 1 26.4 -18 55 3 402.3 700.7
 18 Dec 12 4 0 21 d 164113 F0 8.2 8.0s 20+ 53 7 242 52N 36 346 55 -1.5 +2.2 +0.0+0.7
 .370 32.5 21 4 13.6 -18 31 24 404.3 859.4
 164113 = NSV 25446, 8.23 to 8.33, Hp
 18 Dec 13 2 12 53 d 164689 G6 8.3 7.9 28+ 63 32 215 89S 73 44 94 -2.6 +3.6 +1.8-0.2
 .340 -10.2 21 50 23.1 -16 11 48 401.6 673.6
 18 Dec 14 1 42 44 D 165197ck3 7.5* 6.8 36+ 74 42 196 87S 73 59 96 -3.7 +4.8 +2.3+0.3
 .317 -12.7 22 37 5.4 -12 53 52 399.5 629.1

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165197 is double: ** 7.7 9.3 0.063" 246.0, dT = -0.2sec
 165197 has been reported as non-instantaneous (OCc1656). Observations are highly desired
 18 Dec 14 3 42 13 d 165218SG8 7.8 v 37+ 75 29 228 72S 87 48 110 -4.1 +4.7 +1.8-0.9
 .334 -26.3 22 39 34.5 -12 36 54 400.5 724.1
 165218 is quadruple: AB 8.63 8.78 2.85" 280.9, dT = -8sec : AC 8.6 13.0 115" 257.2, dT = -339sec
 : AD 8.6 14.3 135" 37.5, dT = +263sec
 165218 is a close double. Observations are highly desired
 165218 = NV Aqr, 7.74, range 0.02, v, Type BY, Period 6.20 days
 18 Dec 14 5 6 10 D 3327 K2 6.8 6.1 37+ 75 15 243 77N 56 7 80 -4.4 +4.7 +0.5+0.0
 .422 6.9 22 41 25.6 -12 13 48 401.8 827.5
 18 Dec 16 5 24 38 d 25 G6 7.4 6.9 56+ 97 33 238 79N 55 11 79 -6.5 +6.4 +1.1+0.3
 .390 4.8 0 14 1.2 - 3 54 32 393.4 747.2
 18 Dec 17 1 30 17 d 129029 K4 7.9 7.2 65+ 108 -10 50 143 42N 18 48 41 -6.3 +7.1 +0.8+3.0
 .278 39.6 0 55 33.2 0 1 10 387.9 677.8
 18 Dec 17 3 6 28 d 126ck0 7.6 7.0 66+ 108 56 182 30N 5 4 29 -6.6 +7.0 +0.4+3.7
 .221 50.6 0 57 13.0 0 20 32 387.1 653.2
 126 is double: ** 7.7 11.2 0.037" 98.3, dT = -0.01sec
 126 has been reported as non-instantaneous (OCc 676). Observations are highly desired
 18 Dec 19 1 17 47 d 110616 F2 7.5 7.3 83+ 132 -8 39 108 63S 94 147 112 -6.2 +7.2 +1.5+1.0
 .378 -31.8 2 34 13.1 8 59 19 377.3 813.8
 18 Dec 19 9 4 52 Gr 405SF1 4.3 4.1s 85+ 135 25 ** GRAZE: CA -4.5s; Dist.312km in az.
 2deg. [Lat = 37.08-0.02(E.Long+116.85)]
 18 Dec 19 9 6 26 m 405SF1 4.3 4.1s 85+ 135 25 265 -5s 162 105 179 -7.4 +6.7 +9.9+9.9
 .000 -90.0 2 44 56.5 10 6 51 376.7 866.1
 R405 = mu Ceti
 405 is multiple: Aa,Ad 2.6 0.021" 243.0 : Aa,Ab 4.2 6.2 0.10" 338.6 : Aa,Ac 2.3 0.25"
 63.0 : AB 4.2 13.6 160" 342.5
 405 is a close double. Observations are highly desired
 405 = NSV 909, 4.27, Type RS:
 18 Dec 21 1 0 34 D 650cA1 5.6 5.5s 96+ 157 -4 19 82 62S 98 157 106 -4.6 +5.9 +0.4+0.9
 .508 -27.2 4 23 25.1 16 46 38 368.01019.4
 R650 = 63 Tauri
 650 is double: ** 5.9 7.9 350.0, dT = 0.00sec
 650 = NSV 15964, 5.64, range 0.02, v, Type VAR:
 18 Dec 21 1 32 35 d 93913cF6 7.0 6.7 96+ 158 -10 25 86 74N 53 113 61 -4.6 +5.8 +0.2+1.9
 .523 16.6 4 24 22.3 17 4 44 367.2 971.3
 93913 is double: ** 7.6 10.6 0.18" 108.8, dT = +0.2sec
 93913 has been reported as non-instantaneous (OCc 615). Observations are highly desired
 18 Dec 21 2 29 44 d 93934 G5 7.5 6.8 96+ 158 37 94 82S 77 137 85 -4.6 +5.7 +0.8+1.4
 .496 -8.5 4 26 31.3 17 9 18 366.0 890.0
 18 Dec 21 2 41 40 d 93938 K5 6.9 6.1 96+ 158 39 95 47S 112 172 120 -4.6 +5.7 +1.5+0.2
 .357 -43.6 4 26 51.1 17 1 43 365.7 873.5
 18 Dec 21 4 9 9 d 93962cF7 7.0 6.7s 97+ 159 57 111 74N 54 108 62 -4.8 +5.5 +1.2+2.0
 .424 14.2 4 29 20.6 17 32 42 364.1 772.8
 93962 is double: ** 7.0 0.014" 261.8, dT = -0.03sec
 93962 has been reported as non-instantaneous (OCc1235). Observations are highly desired
 93962 = NSV 16025, 7.05, range 0.03, b, Type BY:
 18 Dec 21 6 58 58 d X 70265D 7.0 7.0 97+ 160 72 209 50N 31 6 38 -5.2 +5.3 +1.6+2.8
 .291 42.4 4 33 32.8 18 1 1 362.8 694.0
 X 70265 is double: BA 7.0 7.0 2.9" 96.9, dT = +4sec
 X 70265 is a close double. Observations are highly desired

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18 Dec 21	6 58 59	D	684DB9	6.2	97+	160	72	209	50N	31	6	38	-5.2	+5.3	+1.6+2.8
.292	42.3		4 33 32.9	18	1	0	362.8	694.0							
	R684 = 119 H1. Tauri														
	684 is double: AB 6.97 7.02 2.90" 276.9, dT = -4sec														
	684 is a close double. Observations are highly desired														
18 Dec 24	10 32 34	r	79710 K0	7.8	7.2	96-	157	70	232	76N	296	251	284	-0.5	+0.4 +1.8-1.5
.410	165.2		7 48 45.5	20	47	32	355.1	730.4							
18 Dec 25	6 42 28	r	1312dF2	6.8	6.6	91-	144	40	93	68S	262	323	245	+1.9	-1.2 +1.0+1.3
.474	-165.7		8 45 29.6	18	49	3	357.6	849.1							
	1312 is double: AB 6.8 13.0 8.1" 298.0, dT = -14sec														
	1312 is a close double. Observations are highly desired														
18 Dec 25	9 24 56	R	1322 A2	6.4	6.4	90-	143	70	136	66N	309	346	291	+1.6	-1.3 +1.9-1.4
.375	154.9		8 50 45.1	18	49	56	355.8	715.5							
18 Dec 25	13 37	1	R	1340 A0	6.6	6.6	89-	141	46	261	51N	324	265	307	+1.1 -1.3 +0.5-2.6
.408	146.0		8 58 18.3	18	18	30	357.6	853.8							
18 Dec 25	14 12	3	R	1343 M4	6.3	5.5v	89-	141	-8	39	266	71N	304	244	286 +1.1 -1.3 +0.6-1.9
.503	166.3		8 59 10.7	18	8	6	358.2	899.3							
	1343 = FZ Cnc, 6.28 to 6.38, Hp, Type SRB, Period 17.6 days														
18 Dec 26	12 31	2	r	1459 G5	7.4	6.9	81-	128	66	221	54S	252	218	231	+2.9 -3.0 +2.7+0.5
.311	-137.1		9 56 37.4	14	43	27	358.6	738.8							
18 Dec 29	13 4	12	r	1823 F2	8.1	7.9	48-	88	54	156	89N	294	314	271	+6.4 -6.1 +2.0-0.6
.387	-171.6		12 42 3.0	0	29	43	371.3	703.7							