

KG
11366
v. 493

Coast Survey Catalogue.
Observations and Reductions
From 15^h 14^m to 20^h 55^m
B. 6. 1878

Charles W. Sever, University Bookstore, Cambridge.

For an explanation of the arrangement of the computation,
see the Introductory pages to Books I and V.

1878phae.proj.149	D.M. 2052									
	15	14	6.95	+46	3	53.8	Legend			
	15	14.2	7.01			.4	" cos d	9.844138		
	+46	3'	.06			.6	" 1500000	9.94688m	then fine 5	
			.03			.9	" 1500000	9.94745m	after	
			7.01			.9				
			6.98			.9				
	- 3	40					tan d	+1.04		
1878	15	14	7.006	+46	3	53.8	sin z	- .06		
	June 4		June 6		June 9		June 19		June 20	
	15	15	5.7	15	14	26.3	15	12.0	14	44.4
			57.7			39.0		41.5		47.0
			59.8			41.0		49.6		118.5
			2.0			7.08		11.55		14.85
			4.03			10.04		14.85		17.75
			5.7			46.9		13.00		17.75
			4.03			10.20		13.00		17.75
			4.03			10.20		13.00		17.75
			14.50			17.60		22.14		22.14
			17.60			20.50		25.30		25.30
			20.55			23.56		28.25		28.25
			23.53			26.50		31.18		31.18
			26.54			29.60		34.20		34.20
			31.00			34.05		38.70		38.70
			34.00			36.78		41.53		41.53
			36.95			40.00		44.56		44.56
			39.88			43.00		47.50		47.50
			61.64			70.62		84.62		84.62
	15	15	5.7	15	14	26.3	15	12.0	14	44.4
			57.7			39.0		41.5		47.0
			59.8			41.0		49.6		118.5
			2.0			7.08		11.55		14.85
			4.03			10.04		14.85		17.75
			5.7			46.9		13.00		17.75
			4.03			10.20		13.00		17.75
			4.03			10.20		13.00		17.75
			14.50			17.60		22.14		22.14
			17.60			20.50		25.30		25.30
			20.55			23.56		28.25		28.25
			23.53			26.50		31.18		31.18
			26.54			29.60		34.20		34.20
			31.00			34.05		38.70		38.70
			34.00			36.78		41.53		41.53
			36.95			40.00		44.56		44.56
			39.88			43.00		47.50		47.50
			61.64			70.62		84.62		84.62
	15	15	5.7	15	14	26.3	15	12.0	14	44.4
			57.7			39.0		41.5		47.0
			59.8			41.0		49.6		118.5
			2.0			7.08		11.55		14.85
			4.03			10.04		14.85		17.75
			5.7			46.9		13.00		17.75
			4.03			10.20		13.00		17.75
			4.03			10.20		13.00		17

1878.0 S logem's
 2284 19 58.37 +45 42 9.8
 15^l 20.1 41
 42 42' 42
 43
 46
 -3 19 15 19 58.405 +45 42 10.2
 tan δ + 1.02
 sin Z - .06

June 4	June 6	June 9	June 17	June 20	June 25
20 56.3 58.2 0.7 3.7	20 49.70 52.63 50.9 58.68	20 52.86 53.80 58.60 1.70	20 57.50 58.1 0.35 48.9 51.3 53.3	21 11.17 14.00 16.96 19.85	20 52.8 53.6 58.2 0.6
56 6.7 278.59 1.68 2539 56.0 293.48 45.2 2033 46.0 16.57 9.20 2548 55.6 8478 22.80 2897 2.5 9204 24.28 2011 45.6 1237 8.38	6.07 9.00 11.90 14.77 59.64 17.90	9.00 12.00 15.00 17.88 74.78 20.90 2880 2.2 97.63 25.42 594 17.9 16.46 89.30 46.3 14.0 17325 40.50 269.4 59.3 9385 24.65	21 52.7 55.4 57.9 59.8 22.50 15.7 17.9	22 5.7 5.3 11.8 36.89 36.89 36.89	22 4.6 6.9 9.1 11.7 14.0 17325 40.50 269.4 59.3 9385 24.65
55.72 11.43 28.18 35.83 40.90 34.20	22.30 25.20 28.05 31.15 34.20	25.30 28.00 31.00 34.10 37.00	29.90 32.70 35.83 38.90 41.70	16.95 33.29 49.40 52.30 55.30	18.41 34.65 50.90 53.90 56.80
21 11.943 21 11.943 -1 8.91 -1.33 -3.32 -1 13.57 19 58.34	20 30.78 21 14.943 -1 11.78 -1.40 -3.32 -1 16.50 58.41	20 40.66 21 57.60 -1 11.78 -1.40 -3.32 -1 21.11 58.44	20 50.96 21 19.553 -1 16.47 -1.34 -3.32 -1 21.11 58.44	20 57.94 21 33.213 -1 30.15 -1.43 -3.21 -1 34.79 58.42	18 40.22 19 53.88 -1 31.74 -1.38 -3.21 -1 36.32 58.33
+10.82 1.03423 0.98384m 45 0 3.7 +0.3 5.8 +0.7 23.5 -28 20.1 +3.7 53.1 +1.9 45 14.28 -9.64 45 3.64 +45 37 44.71 -3 19 08 0.52347 -1201 0.51169 +3.25 - .03 - .01 - .05 +3.16 +45 37 47.87 +4 13.48 + .04 +4 13.52 + 8.39 4 21.91 +45 42 9.78	+24.13 1.38256 1.33274m 45 0 10.9 +2.0 15.1 +0.9 29.8 -0.7 27.3 +4.6 8.31 +6.8 45 20.78 -21.52 44 57.26 49.09 +2.13 +3.36 - .16 - .01 - .17 +3.021 52.11 +4 10.04 + .04 +4 10.08 + 7.87 17.95 10.06	+38.89 1.58984 1.54002m 45 0 22.4 +4.5 13.9 +4.1 26.4 +0.4 42.3 -56 39.9 +5.1 131.0 +4.4 45 32.75 44 23.37 -34.68 58.07 50.28 -165 0.52205 +3.33 - .41 - .02 - .11 +2.79 53.07 53.34 +4 10.25 + .04 +4 10.32 + 7.10 4 17.42 10.76	-38.05 1.58035m 1.53053 40 4 13.9 +4.1 16.7 +1.6 31.8 +1.00 31.1 +2.3 93.5 +8.0 44 23.37 33.93 57.30 51.05 -953 0.51417 +3.27 - .48 - .02 - .11 +2.66 53.61 56.00 +4 10.02 + .04 +4 10.06 + 4.05 14.75 10.75	+42.25 1.62583 1.57601m 45 0 23.6 +4.7 12.1 +3.6 25.1 +0.4 42.8 -58 27.8 +2.2 12.97 +4.5 45 32.42 44 20.62 34.48 55.10 53.60 -38.67 1.58737m 1.53755 40 4 12.7 +1.9 20.1 +0.8 37.4 -35 34.9 +5.2 111.5 +6.5 45 27.87 44 24.68 -32.73 55.14 53.25 +36.71 1.56478 1.51496m 45 0 19.1 +4.0 16.7 +4.5 20.1 +0.8 33.0 -0.3 31.3 +2.3 98.7 +8.0 45 27.87 44 24.68 -32.73 55.14 53.21	-34.61 1.53320m 1.48938 40 4 19.9 +4.2 17.7 +1.5 20.8 +0.7 39.1 -4.3 35.8 +5.2 115.6 +5.8 45 28.90 44 22.72 -34.33 54.57 53.78 -1209 0.51161 +3.25 - .40 - .03 - .15 +2.67 56.45 56.61 +4 9.52 + .05 +4 9.07 + 3.14 12.97 9.58

1878.0		S		log sin		log R ₁		1.09989	
brone (13 B)		15 22 24.10		+28 31 38.1		log R ₂		1.09989	
15 ^h 22 ^m 5		.09		37.7		" cos S		9.95549	
+25° 30'		.12		38.1		" sin S		0.06099	
+16 53		.09		37.9		" cos S		0.06156	
1878		.08		37.4		" sin S		0.06156	
		.03		37.5		" cos S		+0.48	
15 22 24.085		+28 31 37.8		sin Z		+ .29			
June 4		June 6		June 9		June 19		June 20	
June 25		June 26		June 27		June 28		June 29	
15 23 59.3		23 14.4		23 22.65		23 14.5		23 37.27	
2.2		16.7		24.50		16.6		29.53	
8.8		19.4		22.00		18.2		31.70	
5.8		21.5		24.40		20.8		34.00	
18.7 7.6		95.4 23.4 13550		31.65 92.8 22.7 15880		36.30 167.8 37.1 22730		50.04 294.5 3.0 23499	
24 2.3		38.15		24 2.1		39.78		24 23.4	
4.3		37.44		4.0		42.05		25.4	
6.4		39.71		6.3		44.38		27.6	
8.8		42.02		8.3		46.62		29.7	
31.5 10.0 19860		44.28 31.1 10.4 2177		48.94 137.6 31.0 29018		2.57		29.81 41.0 92.3 22.8 2717	
23 27.10		47.70		31.76		52.40		45.46	
49.41 47.12 39.72		49.97		44.35		54.60		58.024	
49.38 40 49.40 52.24		52.20		57.08		57.00		10.5460	
31 51.60 54.50		54.50		59.35		59.35		10.546	
42 54.00 119.06		26122 56.85		133.112 28503 1.65		174.08 589 15.28		178.75 6069 16.68	
24 3.74		23 19.08		23 18.56		23 33.56		23 58.90	
23 36.790		24 6.30		23 32.686		24 6.22		23 44.37	
-1 8.91		-1 11.78		-1 16.07		-1 30.15		-1 31.74	
-0.682		-0.66		-0.63		-0.67		-0.65	
-3.16		-3.16		-3.15		-3.12		-3.12	
-1 12.69		-1 15.60		-1 20.25		-1 32.94		-1 35.51	
15 22 24.10		24.09		24.12		24.09		24.08	
-26.95		+20.61		-26.61		+25.81		-21.85	
1.43056m		1.31408		1.42504m		1.41179		1.33945m	
1.49155		1.37564m		1.48660		1.47335m		1.40101	
50 4		55 0		55 0		50 4		55 0	
36.0 +40		25.1 +48		30.6 +47		36.0 +40		28.9 +48	
39.1 +06		32.3 +03		37.9 +09		41.8 +12		33.0 +04	
56.9 -14		47.8 -68		53.1 -53		56.4 -18		50.9 -63	
53.7 -01		44.5 +51		50.9 +51		55.1 -01		46.4 +51	
18.57 +31		149.7 +34		172.5 +54		189.3 +33		159.2 +40	
54 46.42		55 37.42		55 43.12		54 47.32		55 37.80	
31.01		-23.75		-29.74		25.18		-28.20	
55 17.43		13.67		55 13.38		12.50		55 11.60	
+25 27 30.92		34.68		34.97		35.85		36.75	
+16 51 3		1.24160		1.23967		1.23203		1.23203	
-11.93		+22.4		-15.3		-9.47		-13.39	
-16.97		-17.53		-17.348		-17.06		-17.07	
-15		-0.09		-0.14		-0.12		-0.18	
-24		-0.02		-0.03		-0.19		-0.18	
-0.08		-0.09		-0.14		-0.10		-0.10	
-17.44		-17.73		-17.65		-17.75		-17.31	
+25 27 13.46		16.95		17.28		18.10		19.44	
+4 13.48		+4 10.04		+4 10.25		+4 10.02		+4 10.05	
-0.20		-0.20		-0.20		-0.20		-0.21	
+11.36		+10.93		+10.32		+8.37		+8.18	
+4 24.64		20.77		20.40		16.19		15.02	
+25 31 38.12		37.72		38.09		37.87		37.44	

1878.0									
S.M. 222715 ^h 24 48.95 ^m									
15 ^h 24 ^m 9 ^s	.91								
	.93								
	.93								
+47° 38'	.90								
- 5 15 15 24 48.924	+47 37 21.86	tan δ		+1.64					
June 4		June 6		June 9		June 24		June 25	
26 37.7	25 39.70	25 31.0	25 42.88	25 58.4	25 47.15	23 17.6	23 44.10	23 33.5	24 22.0
40.0	42.90	34.1	45.70	45.70	1.9	52.0	2.09	47.15	36.6
42.4	46.90	37.4	46.75	5.0	53.85	23.0	54.20	38.7	8.45
44.5	48.80	39.6	57.85	7.5	56.40	26.0	53.20	42.5	114.1
211.6 470	229.30 52.00	185.3 43.2	249.18 58.00	23.6 10.8	266.50 59.40	116.2 28.7	250.95 56.30	196.1 44.8	418.6 145.0
	26.50	26 37.4	52.40	26 41.6	41.0	24 34.3	09.0	24 53.1	19.00
	39.52	40.2	2.45	43.9	7.10	37.4	11.00	55.6	22.19
	23.5	42.7	55.5	45.6	10.32	4.04	7.06	58.6	23.35
	5.75	45.0	87.0	48.0	13.23	42.8	14.00	1.9	28.30
1307 8.75	213.3 48.0	2793 11.83	229.6 50.5	5101 16.26	200.2 45.3	3510 13.20		293.7 4.5	2612 31.28
45.86	1330	48.834	1630	53.30	20.95	50.19	17.65	8.37	35.80
2.61	1638	5.589	1935	10.20	23.90	7.02	20.10	25.22	38.92
19.49	1945	22.24	22.40	27.087	27.23	23.83	23.78	42.01	43.03
	22.65		25.50		30.05		26.97		44.98
7.96	9748 35.70	16.65	11220 28.65	30.56	13533 33.20	21.04	11914 29.74	75.60	1008 48.30
26 42.32		25 37.06		26 4.72		23 23.24		23 39.22	
	26 2.653	26 42.66	26 5.558	26 45.92	26 10.186	24 40.04	24 7.013	24 58.74	24 25.200
- 1 8.91		- 1 11.79		- 1 16.48		+ 0 46.57		+ 28.45	
- 1.43		- 1.51		- 1.45		- 1.48		- 1.72	
- 3.37	- 1 13.71	- 3.35	- 1 16.65	- 3.33	- 1 21.26	- 3.17	+ 41.92	- 3.02	+ 23.70
	24 48.95		48.91		48.93		48.93		48.90
- 39.66		+ 28.50	- 37.10	+ 5.47	- 35.73	+ 43.77	- 33.03	+ 45.78	- 33.54
1.59835 ^m		1.45484	1.56937 ^m	0.73799	1.55303 ^m	1.64118	1.51891 ^m	1.66257	1.52556 ^m
1.53243		1.38949 ^m	1.50402	0.67264 ^m	1.48768	1.57583 ^m	1.45356	1.59722 ^m	1.46021
45 4		50 0	45 4	45 4	45 4	50 0	45 4	50 0	45 4
10.3 +33		5.0 +06	9.0 +30	44.8 +20	9.7 +31	13.2 +27	7.9 +28	76.1 +33	8.2 +28
11.5 +19		8.9 +09	11.8 +19	47.1 +20	12.2 +19	44.1 +09	8.7 +19	15.1 +09	8.1 +19
27.7 -01		23.8 -27	24.9 -10	2.1 +03	26.6 -04	32.9 -14	26.0 -06	36.8 -32	27.8 +09
27.0 +22		20.9 +38	24.9 +22	0.9 +02	26.3 +22	80.0 +50	24.8 +22	33.3 +51	25.1 +22
76.5 +73		88.6 +26	70.6 +61	21.49 +45	74.8 +68	90.2 +72	67.4 +63	101.3 +61	69.2 +69
49 19.12		50 14.65	49 17.65	49 53.72	49 18.70	50 22.55	49 16.85	50 25.32	49 17.30
34.07		-24.52	31.92	-4.71	30.74	-37.66	28.42	-39.56	28.85
49 53.19		49 50.13	49 57	49 49.01	49.44	44.89	49 45.27	49 45.76	46.15
+47 32 55.16		58.22	58.78	59.34	58.91	33 3.46	3.08	2.59	2.20
- 5 14 17									
0.72260									
- 11.85									
0.71075									
+ 5.14									
- 4.3									
- .21									
- .18									
+ 4.32									
+47 32 59.48		33 53.23	53.40	4.29	03.49	7.85	7.52	6.87	6.58
+ 4 13.48		3.32		3.89		7.68		6.72	
+ .06	+ 4 13.54	+ 10.04		+ 10.28		+ 9.90		+ 12.77	
+ 8.29		+ .06	+ 4 10.10	+ .06	+ 4 10.34	+ .07	+ 4 9.97	+ .08	+ 4 12.65
4 21.83		17.85		17.30		13.33		14.39	
+47 37 21.81		21.17		21.19		21.01		21.11	

[illegible]

Uræ Min.

[illegible]

June 26

July 7

July 1

July 3

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Bootes

15^h 55^m 7^s
+ 50° 15'

1878.0
15^h 55^m 36.67^s +50° 13' 46.3"
log sin δ 9.80580
" cos δ 9.91187m
46.4
45.5
45.7
45.8

- 7 52

15 55 36.67^s +50 13 45.94 tan δ + 1.20

1878

sin Z - .14

June 19

June 20

June 24

June 25

July 2

July 3

15 56 32.8 56 47.30 56 18.0 56 49.29 54 0.4 54 30.79
33.9 5080 19.8 5250 4.0 34.00
39.3 5280 22.7 5370 6.3 37.20
41.0 57.45 25.4 5890 9.5 4050
194.5 40.0 27010 0.50 114.6 28.7 7864 22.0 32.6 1214 18619 43.70

57 44.9 54.5 57 43.2 6.88 55 29.1 48.03
49.1 8.50 46.0 10.18 32.0 51.75
52.0 11.83 49.0 12.27 35.0 53.00
53.0 13.20 52.3 16.70 38.0 58.30
258.3 57.3 5928 18.30 246.4 55.9 6702 19.89 174.5 44.4 27506 1.48

54.02 23.10 55.73 24.60 37.24 6.25
11.86 26.28 13.30 27.99 35.01 9.52
29.63 29.78 31.13 31.16 12.73 12.70
32.90 34.28 16.00
35.51 48.13 36.15 40.26 18563 37.60 16498 6367 19.20

56 38.90 56 22.92 54 6.52
57 51.66 57 11.836 57 49.28 57 13.420 55 34.90 54 54.993
- 1 30.20 - 1 31.78 + 46.53
- 1.68 - 1.63 - 1.62
- 3.29 - 1 35.17 - 3.328 - 1 36.69 - 3.24 + 41.67 - 1.63

55 36.67 36.73 36.66
+ 32.94 - 39.82 + 50.50 - 35.86 + 48.47 - 39.91
1.51772 1.60010m 1.70329 1.55461m 1.68547 1.60108m
1.42959m 1.51197 1.61516m 1.46648 1.59734m 1.51295
10 3 10 2 10 3 10 2 10 3 10 2

43.1 +3.8 44.0 +3.1 57.4 +2.0 46.9 +2.6 53.9 +2.1 42.3 +3.3
42.1 +2.6 44.1 +3.9 57.1 +2.3 46.1 +4.2 54.2 +2.8 42.4 +3.5
59.1 +1.3 0.6 +0.6 14.0 -2.0 3.1 +0.9 11.6 -0.9 59.7 +0.2
57.1 +0.2 59.2 +2.2 11.1 +2.3 1.8 +2.7 10.2 +2.3 58.8 +2.2
201.4 59 2079 +2.8 196 +4.6 2179 +10.4 99 +6.3 2032 +9.2
13 50.35 12 51.97 14 4.90 12 54.47 14 2.48 12 30.80
-26.89 32.51 -41.22 29.27 -39.57 32.58
13 23.46 24.48 13 23.68 23.74 22.91 23.38

+50 9 24.89 23.87 24.67 24.61 25.44 24.97
- 7 50.47 0.89960
- 875 0.89085
+ 7.78
- .30
- .15
- .20
+ 7.13
+ 50 9 32.02 30.85 31.36 32.09 32.14 31.86

12.41
- 13.41
0.88819
+ 7.70
- .69
- .21
- .12
+ 6.68
31.72
+ 4 10.05
+ .10
+ 4.51
14.66
46.38

12.41
- 13.73
0.88587
+ 7.69
- .63
- .20
- .16
+ 6.70
32.00
+ 4 9.90
+ .11
+ 3.8
13.53
45.53

12.41
- 13.73
0.88587
+ 7.69
- .63
- .20
- .16
+ 6.70
32.00
+ 4 9.90
+ .11
+ 3.8
13.53
45.53

12.41
- 13.73
0.88587
+ 7.69
- .63
- .20
- .16
+ 6.70
32.00
+ 4 9.90
+ .11
+ 3.8
13.53
45.53

12.41
- 13.73
0.88587
+ 7.69
- .63
- .20
- .16
+ 6.70
32.00
+ 4 9.90
+ .11
+ 3.8
13.53
45.53

55 17.4 55 47.00 54 18.0 54 49.00
21.0 8020 20.5 5220
24.0 8360 22.5 5340
26.6 8660 27.2 5880
119.0 30.0 26740 0.00 118.5 30.3 2755 2.15

56 42.4 4.77 55 44.3 6.75
46.3 8.03 47.6 10.00
49.0 11.27 50.7 13.28
51.4 14.45 53.6 16.45
242.9 53.8 5627 17.75 252.0 55.8 6619 19.71

53.48 22.40 55.51 24.94
11.25 25.72 13.24 27.80
28.96 29.00 31.05 31.10
32.20 34.29
3369 4482 35.50 3980 15325 37.50

55 23.80 54 23.70
56 48.58 56 11.230 55 50.40 55 13.266
+ 30.42 + 28.40
- 1.93 - 1.87
- 3.12 + 25.37 - 3.10 + 23.43

36.60 36.70
+ 47.43 - 37.35 + 49.57 - 27.13
1.67605 1.57229m 1.69522 1.56972m
1.58792m 1.56416 1.60709m 1.48159
10 3 10 2 10 3 10 2

53.6 +2.1 43.8 +3.1 58.1 +2.1 44.7 +3.0
53.2 +3.0 43.3 +3.7 53.7 +2.9 43.9 +3.9
13.0 -1.6 3.8 +0.9 14.2 -2.1 3.9 +1.0
9.5 +2.3 1.8 +2.7 11.8 +2.3 1.9 +2.8
9.3 +5.8 2127 +10.4 1348 +5.2 2144 +10.7
14 2.33 12 53.17 14 33.70 12 53.60
-38.72 36.66 -40.47 30.31
13 23.61 24.83 23.23 23.91

24.74 18.82 25.12 24.44 +0.52
- 22.17
- 23.71
0.87589 0.87743
+ 7.54
- .60
- .16
- .15
+ 6.60
31.37
+ 4 12.50
+ .11
+ 1.63
14.24
45.66

53.6 +2.1 43.8 +3.1 58.1 +2.1 44.7 +3.0
53.2 +3.0 43.3 +3.7 53.7 +2.9 43.9 +3.9
13.0 -1.6 3.8 +0.9 14.2 -2.1 3.9 +1.0
9.5 +2.3 1.8 +2.7 11.8 +2.3 1.9 +2.8
9.3 +5.8 2127 +10.4 1348 +5.2 2144 +10.7
14 2.33 12 53.17 14 33.70 12 53.60
-38.72 36.66 -40.47 30.31
13 23.61 24.83 23.23 23.91

24.74 18.82 25.12 24.44 +0.52
- 22.17
- 23.71
0.87589 0.87743
+ 7.54
- .60
- .16
- .15
+ 6.60
31.37
+ 4 12.50
+ .11
+ 1.63
14.24
45.66

24.74 18.82 25.12 24.44 +0.52
- 22.17
- 23.71
0.87589 0.87743
+ 7.54
- .60
- .16
- .15
+ 6.60
31.37
+ 4 12.50
+ .11
+ 1.63
14.24
45.66

24.74 18.82 25.12 24.44 +0.52
- 22.17
- 23.71
0.87589 0.87743
+ 7.54
- .60
- .16
- .15
+ 6.60
31.37
+ 4 12.50
+ .11
+ 1.63
14.24
45.66

24.74 18.82 25.12 24.44 +0.52
- 22.17
- 23.71
0.87589 0.87743
+ 7.54
- .60
- .16
- .15
+ 6.60
31.37
+ 4 12.50
+ .11
+ 1.63
14.24
45.66

1878.0
Ophiuchi (21 B) 22 21.11 +0 56 23.0 by *aird*
 16 22.5 13 22.9 $\cos \delta$ 9.99994
 22.3 14 22.3 15 $\cos \delta$ 0.10601
 +0 55' 11 20.9 12 22.8
 12 23.0
 +41 28 12 23.0
 by R. 1.05544
 " R. 1.35611
 R₁ 22.70
 R₂ 11.36
 I

July 1	July 2	July 3	July 7	July 10	July 13
21 18.6 21 37.00 20.6 89.12 22.6 41.20 24.1 43.23 11.6 25.7 20585 45.30	22 17.9 22 38.80 20.2 40.70 21.8 42.80 23.6 44.93 108.9 25.4 2425 47.00	21 39.0 21 40.75 41.1 42.80 42.6 44.90 44.0 47.00 212.8 46.1 22445 49.00	22 15.0 22 11.88 19.7 14.00 21.6 16.34 21.6 18.00 22 20.00 289.8 1.2 24818 3.70	21 54.4 21 83.50 56.2 57.65 58.0 59.63 0.0 1.70 237.0 60.9 3027 10.20	21 43.9 22 1.95 46.7 4.00 47.5 6.00 49.0 8.12 23.1 50.0 8705 21.80
22 18.1 48.41 16.9 50.50 18.8 52.50 20.4 54.55 93.9 22.7 26261 56.65	22 17.9 22 38.80 20.2 40.70 21.8 42.80 23.6 44.93 108.9 25.4 2425 47.00	21 39.0 21 40.75 41.1 42.80 42.6 44.90 44.0 47.00 212.8 46.1 22445 49.00	22 15.0 22 11.88 19.7 14.00 21.6 16.34 21.6 18.00 22 20.00 289.8 1.2 24818 3.70	21 54.4 21 83.50 56.2 57.65 58.0 59.63 0.0 1.70 237.0 60.9 3027 10.20	21 43.9 22 1.95 46.7 4.00 47.5 6.00 49.0 8.12 23.1 50.0 8705 21.80
41.17 59.90 52.52 1.88 3.98 4.00 157.67 1988 8.10	42.85 1.45 54.20 3.50 5.57 5.60 16.262 2785 9.70	44.89 3.44 56.26 5.50 7.55 7.53 16870 3774 11.67	16.04 4.68 27.25 5.55 7.53 7.53 3774 11.67	59.64 18.25 10.93 20.30 22.29 22.24 32.86 11146 26.32	6.05 24.87 17.41 26.61 28.77 28.80 52.23 4386 33.00
21 22.32 22 18.78 + 32.00 - 0.03 - 3.12 + 28.55	22 21.78 22 54.206 + 30.37 - 0.03 - 3.12 + 26.92	21 42.56 21 56.233 + 28.35 - 0.03 - 3.12 + 24.91	22 18.77 22 4.615 + 19.92 - 0.03 - 3.12 + 16.49	21 57.96 22 41.36 + 13.60 - 0.03 - 3.12 + 10.17	21 47.40 22 46.22 + 1.12 - 0.03 - 3.12 + 3.71
22 21.11	21.13	21.14	21.11	21.12	21.12
+30.24 -26.22 +32.43 1.48058 1.41863 m 1.51095 1.58659 m 1.52464 1.61696 m	+13.67 1.13577 1.24178 m	-14.15 1.15076 m 1.25677	+12.99 -30.41 +30.01 -28.81 1.11361 1.48302 m 1.47727 1.45954 m 1.21962 m 1.58903 1.58328 m 1.56555	30 0 25 4 30 0 25 4 30 0 25 4	30 0 25 4 30 0 25 4 30 0 25 4
22.8 +4.6 11.1 +3.4 26.0 +4.9 29.6 +0.3 15.8 +1.7 32.2 +0.3 50.4 -6.4 36.2 -1.9 54.0 -4.8 45.5 +5.1 32.2 +2.2 48.9 +5.1 148.3 +3.6 95.3 +5.4 161.1 +5.5	26.0 +4.9 32.2 +0.3 54.0 -4.8 48.9 +5.1 30 37.08 29 23.82 30 40.28 -38.60 33.47 -41.40 29 58.48 57.29 29 58.88	3.0 +0.2 9.1 +0.9 30.8 -0.8 25.0 +4.4 30 16.98 29 42.25 18.06 -17.45 59.53 48.82	28.9 +5.2 36.1 +0.2 55.1 -3.2 169.0 +2.7 29 42.25 18.06 30 0.31	0.1 +0.0 6.4 +0.7 28.9 -0.9 22.7 +4.0 58.1 +3.8 5.3 +2.4 10.9 +1.9 32.3 -0.1 26.8 +2.2 75.3 +6.4 18.6 +3.9 26.9 +0.4 47.9 -6.8 41.6 +5.1 135.0 +2.6 30 14.52 29 18.82 30 33.75 29 18.68 -16.58 38.82 -38.31 36.78 29 57.94 57.64 29 55.44 55.46	18.6 +3.9 26.9 +0.4 47.9 -6.8 41.6 +5.1 135.0 +2.6 30 33.75 29 18.68 -38.31 36.78 55.44 55.46
+0 52 49.87 51.06 49.47	48.82	48.04	50.41 50.71 52.91 52.89		
25 48 1.70570 -1853 0.78187	1.68717 0.87826 1.68436 0.87937 1.68547 0.88377 1.68987	-2023 0.87937 1.68547 0.88377 1.68987	-15.41 -906 0.88419 1.69029 0.88419 1.69029	-15.41 -906 0.88419 1.69029 0.88419 1.69029	-15.41 -906 0.88419 1.69029 0.88419 1.69029
-7.61 -48.66 -0.01 -0.01 -0.02 -0.02 -0.09 -0.09 -7.72 -7.72 -48.78 -48.78	-7.56 -48.35 -0.01 -0.01 -0.03 -0.03 -0.14 -0.14 -7.74 -7.74 -48.63 -48.63	-7.58 -48.47 -0.01 -0.01 -0.03 -0.03 -0.14 -0.14 -7.74 -7.74 -48.60 -48.60	-7.65 -48.56 -0.01 -0.01 -0.03 -0.03 -0.14 -0.14 -7.74 -7.74 -48.56 -48.56	-7.66 -48.56 -0.01 -0.01 -0.03 -0.03 -0.14 -0.14 -7.74 -7.74 -48.56 -48.56	-7.67 -48.56 -0.01 -0.01 -0.03 -0.03 -0.14 -0.14 -7.74 -7.74 -48.56 -48.56
+0 52 01.09 4207 30.04 +4 11.94 12.54 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05	+4 12.54 11.96 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05	+4 12.54 11.96 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05	+4 12.54 11.96 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05	+4 12.54 11.96 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05	+4 12.54 11.96 -53 +4 11.41 +10.06 +4 21.47 +0 56 23.05
22.88	22.88	22.88	22.88	22.88	22.88

[illegible]

[illegible]

1878.0									
Herculis (138 B) 16 ^h 39 ^m 21.69 ^s									
16 ^h 39 ^m 21.69 ^s									
+34° 16'									
+8 7									
1878									
July 1									
July 2									
July 3									
July 7									
July 9									
July 10									
38 9.5 38 21.48 38 14.9 38 36.83 38 16.6 38 38.85 38 20.0 38 47.20 38 26.8 38 51.40 38 32.0 38 53.65									
116 23.90 17.9 39.35 19.4 41.35 22.3 49.80 28.7 53.90 34.8 56.15									
13.7 24.45 20.0 41.87 21.3 43.85 24.8 52.22 30.7 56.40 36.7 58.62									
16.9 28.94 21.8 44.20 23.7 46.35 27.2 54.70 33.0 58.80 39.3 1.73									
70.6 18.9 18.2 29 31.48 99.4 24.8 20.12 46.77 106.7 25.7 21.25 48.85 123.5 29.2 26.10 57.17 154.2 35.0 28.90 1.80 184.3 41.0 20.34 8.79									
39 20.0 35.24 50.56 52.70 39 37.0 0.92 39 29.8 5.00 39 42.8 7.29									
22.8 37.62 53.00 53.20 39.0 3.80 32.4 7.58 44.5 9.84									
24.8 40.21 55.50 57.65 41.7 5.93 34.8 10.70 46.0 12.41									
27.0 42.63 58.14 0.05 42.2 8.00 37.0 12.52 47.9 14.90									
124.2 29.6 20.09 5 40.25 27.73 0.53 58.15 2.55 20.6 46.3 29.75 10.90 173.0 39.0 50.10 15.00 232.2 0.70 618.4 19.40									
26.46 53.93 48.95 41.82 42.5 43.85 6.35 52.22 14.62 56.38 18.72 58.67 21.00									
40.19 94 57.40 55.54 6.80 57.63 8.85 52.95 17.18 10.02 21.25 12.37 23.85									
53.95 95 53.97 9.29 9.20 11.37 13.38 19.61 19.50 23.79 23.85 26.06 26.06									
54.3 96 54.45 11.80 11.80 13.90 13.90 22.10 22.10 26.25 26.25 28.48									
120.60 26.77 59.10 16.665 46.44 14.39 17.285 56.6 16.38 17.78 96.05 24.65 30.19 118.97 28.90 37.10 130.29 31.20									
38 14.12 52.94 38 19.88 38 21.34 38 24.70 38 30.84 38 36.86									
39 24.84 38 40.20 38 55.550 38 57.616 39 41.24 39 57.26 39 34.60 39 10.083 39 46.44 39 12.363									
+ 31.97 + 30.34 + 28.32 + 19.88 + 15.80 + 13.56									
- 1.04 - 1.09 - 1.06 - 0.96 1.00 - 1.09 - 1.08									
- 3.18 + 27.75 - 3.18 + 26.07 - 3.18 + 24.08 - 3.15 + 15.73 - 3.13 + 11.58 - 3.12 + 9.35									
+ 39 21.69 21.62 21.70 21.66 21.64 21.72									
+39.82 -30.90 +35.67 +36.28 +41.23 -25.21 +32.22 -24.54 +35.51 -24.07									
1.60010 1.48996m 1.55230 1.55967 1.61521 1.54790m 1.59351 1.38987m 1.55035 1.53237m									
1.62337m 1.51323 1.57557m 1.58294m 1.63848m 1.57117 1.61678m 1.41314 1.57362m 1.55564									
10 1 10 0 10 1 10 1 10 0 10 1 10 0 10 1 10 0									
34.4 +45 19.9 +42 30.1 +50 31.1 +51 35.0 +44 14.2 +29 32.2 +49 25.3 +48 28.1 +53 14.2 +29									
37.1 +21 21.9 +06 32.1 +18 33.1 +18 38.2 +23 17.2 +09 35.5 +19 27.8 +03 31.1 +17 16.9 +09									
57.1 -04 43.3 -60 53.0 -42 54.7 -27 57.1 -04 36.2 -28 56.1 -11 50.0 -68 52.3 -45 39.1 -43									
54.3 +32 40.3 +51 50.1 +38 51.5 +36 55.2 +31 34.9 +52 52.1 +35 47.2 +51 47.9 +41 35.1 +52									
18.24 +24 12.54 +39 16.53 +64 17.04 +78 18.55 +44 10.25 +60 17.59 +32 15.03 +37 15.94 +66 10.53 +67									
11 45.72 10 31.35 11 41.32 11 42.60 11 46.38 10 25.62 11 43.98 10 37.58 11 39.85 10 26.32									
-42.01 82.60 -37.63 -38.28 -43.50 37.25 -41.38 25.89 -37.46 35.94									
11 3.71 3.95 11 3.69 11 4.32 11 2.88 11 2.87 2.60 3.47 2.39 11 2.26									
-34 11 44.64 44.40 44.86 44.03 45.47 45.48 45.75 44.88 45.96 46.09									
+8 6 54 0.91440 -1803 0.89637 -7.85 -2081 0.89359 -7.83 -19.81 0.89459 -7.85 -15.40 0.89900 -7.93 -17.13 0.89727 -7.89 -15.24 0.89916 -7.93									
-40 -24 -0.07 -0.02 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07									
-24 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07 -0.07									
-8.59 -8.24 -8.39 -8.45 -8.67 -8.43 -8.58 -8.16 -8.49 -8.37 -8.37 -8.37 -8.37 -8.37 -8.37 -8.37									
+34 11 36.05 36.16 36.27 35.58 36.80 37.05 37.17 36.72 37.47 37.72									
+4 11.94 +4 12.50 +4 12.39 +4 12.77 +4 12.65 +4 13.24 +4 13.12 +4 12.82 +4 12.88 +4 12.75									
+ 4.02 + 3.79 + 3.55 + 3.26 + 2.22 + 2.00									
4 15.85 16.18 16.20 16.77 16.77 14.91 14.75									
+8 15 51.95 52.45 51.78 52.69 51.85 52.35									

Herculis		16	41	22.16	1578.0	26	30.9	log ϵ	log R_1	1.19434	15
16 ^h 41 ^m					+43			" cos δ			
+43° 26'								" δ δ	9.86104		
- 1 3								" δ δ	9.96711		
		16	41	22.28	+43	26	30.88	tan δ	+0.95		
								sin Z	-0.2		
July 2	July 3	July 7	July 9	July 13	July 15						
40 13.6	40 35.20	40 13.4	40 37.39	40 22.0	40 22.0						
13.8	38.00	16.3	40.08	2.44	2.44						
18.4	41.00	18.9	42.92	26.8	26.8						
20.8	43.72	21.2	45.74	28.9	28.9						
91.0	23.4	20452	46.60	93.8	24.0	21472	48.62	133.9	31.8		
41 27.6	50.75	41 28.2	52.90	41 50.2	41 1.16	41 41.0	5.25	41 46.3	14.00	41 34.9	18.15
30.8	53.66	30.5	52.75	52.6	39.2	43.8	8.19	48.5	16.35	56.8	31.20
32.9	56.60	32.5	58.70	54.9	68.3	46.4	11.00	50.6	19.70	68.5	24.00
34.7	59.35	35.2	61.50	57.3	97.0	49.2	13.87	53.8	22.46	71.3	26.80
163.0	37.0	25256	22.0	163.5	37.1	29310	42.5	34.5	12.54	231.7	51.3
40.90	6.62	42.94	8.45	—	1675	55.40	21.00	4.03	29.65	8.35	34.30
56.51	9.35	58.62	11.27	6.83	653	19.80	23.80	19.66	32.40	23.97	27.00
12.19	12.10	14.20	14.29	22.55	9.1	22.52	26.65	26.60	35.29	38.19	39.78
16960	6097	1790	17576	7100	1099	11277	2830	33.05	3335	32.35	59.98
40 18.20		40 18.76	40 26.78	40 13.72	40 39.40	40 56.74	40 56.74	40 56.74	40 56.74	40 56.74	40 56.74
41 32.60	40 56.533	41 32.70	40 58.586	41 54.90	41 68.70	41 46.34	41 11.016	41 51.00	41 19.660	41 59.58	41 24.033
+ 30.33		+ 28.32	+ 1.88	+ 15.80	+ 7.06	+ 2.74	+ 1.52	+ 1.44	+ 3.05	+ 2.57	+ 1.83
- 1.63	33	- 1.48	- 1.39	- 3.10	- 1.52	- 1.44	- 3.05	- 2.57	- 3.02	- 1.83	
+ 3.18	+ 25.63	+ 3.16	+ 23.68	+ 3.12	+ 15.37	+ 3.10	+ 11.18	+ 3.05	+ 2.57	+ 3.02	+ 1.83
41 22.16		22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24
+38.33	-36.07	+39.83	-34.11	-19.91	-40.09	-49.03	-35.32	+40.27	-31.33	+27.29	-35.55
1.58354	1.55715	1.60021	1.53288	1.60304	1.69046	1.75875	1.54802	1.60498	1.47596	1.43600	1.55084
1.55065	1.52426	1.56732	1.49999	1.57075	1.65757	1.72526	1.51513	1.57209	1.46307	1.40311	1.51795
0 0	55 4	0 0	55 4	0 0	55 4	0 0	55 4	0 0	55 4	0 0	55 4
57.9 +13	49.0 +11	59.8 +13	52.0 +05	4.0 +04	37.8 +35	18.9 +40	48.4 +13	55.0 +13	50.2 +09	45.2 +25	45.2 +20
59.2 +19	49.5 +19	0.2 +17	52.1 +16	6.1 +07	38.3 +04	20.3 +08	49.1 +19	57.8 +21	52.2 +16	47.1 +29	47.1 +20
21.2 -34	9.8 -14	21.8 -33	13.1 -29	25.8 -18	57.8 -07	42.7 -58	10.8 -18	18.9 -40	12.7 -27	7.9 -09	7.2 -03
17.9 +67	7.8 +19	17.8 +67	10.1 +20	23.9 +42	56.1 -02	38.1 +52	8.1 +19	15.1 +70	8.8 +20	4.8 +69	3.7 +11
36.2 +65	23.61 +35	32.96 +64	7.3 +12	57.8 +35	19.0 +30	12.0 +12	23.64 +33	26.8 +64	3.9 +18	22.50 +14	22.32 +18
1 9.05	59 59.02	1 7.40	0 1.82	0 14.95	59 47.50	0 30.00	59 59.10	1 6.70	0 0.98	0 56.25	59 55.80
-35.53	33.44	-36.92	31.62	+37.77	45.45	+53.73	32.74	-37.33	29.04	-25.30	32.96
0 33.52	32.46	0 32.98	33.44	37.78	0 32.95	36.88	31.84	0 29.37	30.02	0 30.95	27.76
+43 22 14.83	15.89	15.37	14.91	15.40	15.40	15.40	16.51	18.98	18.33	17.40	20.59
- 1 3 37											
0.02880											
-2075											
0.00805	0.00695	0.00704	0.00794	0.01372	0.01234	0.01169	0.01059	0.02013	0.01903	0.02508	0.02398
+ 1.02		+ 1.02	+ 1.03	+ 1.03	+ 1.03	+ 1.03	+ 1.03	+ 1.04	+ 1.04	+ 1.06	+ 1.06
- .40	- .35	- .44	- .31	- .11	- .65	- .00	- .34	- .44	- .27	- .20	- .36
- .05	- .20	- .05	- .20	- .01	- .19	- .02	- .20	- .06	- .25	- .05	- .29
- .16	- .09	- .16	- .03	- .09	- .08	- .11	- .08	- .16	- .05	- .29	- .12
+ .41	+ .38	+ .37	+ .48	+ .82	+ .11	+ .90	+ .41	+ .38	+ .47	+ .52	+ .29
+43 22 15.24	16.27	16.74	15.39	15.76	15.51	16.75	16.92	19.36	18.80	17.92	20.88
15.76		15.56		15.64		16.84		19.08		19.40	
+4 12.50		+4 12.77		+4 13.24		+4 12.82		+4 11.87		+4 11.45	
+ .02	+4 12.52	+ .02	+4 12.79	+ .02	+4 13.26	+ .02	+4 12.84	+ .02	+4 11.89	+ .02	+4 11.47
+ 2.65		+ 2.40		+ 1.42		+ 0.95		+ 2.04		- 0.40	
+4 15.17		15.19		14.68		13.79		11.93		14.07	
+43 26 30.93		30.75		30.32		30.63		31.01		30.47	

Herculis (174 B) 16		1878.0	by R.		138643
16 ^L 49 ^m	49 39.77	+21 9 21.8	by R.	1.08576	
+21° 11'	.81 .74 .77 .75 .83	.8 .6 .3 .4 .7	.. cos δ	9.96962	
			.. 150000	0.07569	
+21 12		16 49 39.78	tan δ	+0.39	
1878		+21 9 21.60	Ext. Jan 2	+ .36	
July 2		July 3		July 7	
16 48 36.0	48 36.8	48 38.3	48 38.3	48 49.3	49 19.26
38.1	38.98	40.5	1.00	07.3	21.50
40.0	1.20	42.2	3.55	54.0	23.70
42.0	34.5	44.4	54.0	56.0	26.00
199.6	43.5	602 5.62	211.8	464	1898 7.60
49 43.6	89.0	49 37.5	109.0	50 0.7	314.2
48.7	11.0	39.7	132.5	3.0	33.67
47.6	13.40	41.4	15.39	5.0	35.90
49.5	15.60	43.2	17.60	7.2	38.05
237.8	51.4	6680 17.80	206.8	45.0	7694 19.80
1.20	21.00	3.19	23.15	23.69	23.69
13.36	23.30	15.39	25.40	38.88	70
25.50	25.48	27.56	27.60	48.08	.73
40.06	27.72	46.14	29.72	107.65	240.42
48 39.92	48 42.36	48 42.36	48 53.68	48 53.68	48 53.68
49 47.56	49 13.353	49 41.36	49 15.380	50 4.90	49 35.883
+ 30.32		+ 28.31		+ 19.86	
- 0.63		- 0.65		- 0.57	
- 3.27	+ 26.42	- 3.27	+ 21.43	- 3.26	+ 16.03
49 39.77		43		39.81	
July 8		July 9		July 10	
48 52.9	49 9.27	48 49.0	49 11.32	49 14.3	49 13.50
54.7	114.0	51.8	13.52	16.4	15.50
56.7	136.0	53.5	15.62	18.5	15.10
58.5	158.2	55.6	17.90	20.5	20.22
283.4	0.6	6509	18.00	267.3	57.4
49 49.6	21.38	49 52.2	23.43	50 9.7	25.81
51.3	23.60	54.5	25.65	11.6	25.00
53.0	25.85	56.0	27.87	14.0	26.03
55.0	28.03	57.0	30.00	15.6	32.32
265.6	56.7	129.06	30.20	280.8	0.1
49 49.6	21.38	49 52.2	23.43	50 9.7	25.81
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53.0	25.85	56.0	27.87	14.0	26.03
55.0	28.03	57.0	30.00	15.6	32.32
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1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52	+22 44 49.60 50.38 49.74 49.47 50.45 50.11 49.58 49.88 50.79 51.22 51.49	+19 33 49 1.31090 -20.36 -19.52 -19.52 -19.52 -19.52 -19.52 -19.52 -1

[illegible]

93 Herculis (212 B) μ 1578.0										log R ₁ 1.08898										19
17 ^h	1 ^m																			
+22°	15'																			
+20	8																			
July 2	July 3	July 7	July 8	July 9	July 10															
0 83.5	0 -	0 4.4	0 27.30	1 12.3	—	1 12.5	—	0 53.7	—	0 20.2	0 42.05									
33.6	29.77	27.53	29.52	14.3	—	15.0	—	56.2	—	23.4	44.33									
37.9	28.88	29.88	31.95	16.4	—	17.0	—	57.3	—	25.0	46.55									
39.3	28.1	32.05	34.03	18.4	—	18.5	—	58.3	—	26.8	47.79									
187.9	41.6	34.25	44.4	12.8	89.12	36.30	81.8	20.4	—	285.4	59.9	—	123.9	28.5	232.72	51.00				
1 15.5	37.60	1 6.8	39.60	1 36.7	0 48.00	—	0 —	1 34.4	0 52.05	1 22.5	54.30									
18.0	39.72	8.8	41.80	39.5	50.15	—	52.20	36.4	54.48	2.3	24.3	56.48								
19.9	42.00	10.7	44.00	41.9	52.40	—	—	38.0	56.65	2.2	26.2	58.65								
22.0	44.28	12.6	46.20	44.0	54.60	—	56.79	40.3	58.85	2.2	28.2	60.85								
99.0	23.6	210.12	46.52	53.4	14.5	220.08	48.48	208.3	46.2	26.85	56.70	—	298.72	32.9						
29.88	49.87	31.82	51.92	—	0.15	—	—	22.0	—	43.0	46.54	65.0								
42.02	52.00	44.01	54.08	52.37	52.37	2.35	—	45.0	56.58	56.58	66.4	58.74	89.0							
54.28	54.27	56.37	56.34	4.62	35	4.58	6.75	67.4	8.80	54	8.80	11.05	11.0							
126.18	27.139	56.75	132.20	25.184	0.90	—	23.12	9.14	337.4	11.30	44.44	13.30	176.33	552.5	13.40					
0 37.58	0 8.88	1 16.36	1 16.60	0 52.360	0 54.480	1 38.18	0 56.560	1 38.18	0 56.560	1 38.18	0 56.560	1 38.18	0 56.560	1 38.18	0 56.560	1 38.18				
+ 30.30	+ 28.29	+ 17.84	+ 17.83	+ 15.97	+ 13.92	+ 13.92	+ 11.83	+ 15.96	+ 15.96	+ 15.96	+ 15.96	+ 15.96	+ 15.96	+ 15.96	+ 15.96	+ 15.96				
- 0.66	- 0.66	- 0.60	- 0.60	- 3.27	- 3.27	- 3.27	- 3.27	- 0.66	- 0.66	- 0.66	- 0.66	- 0.66	- 0.66	- 0.66	- 0.66	- 0.66				
- 3.28	- 26.36	- 3.28	- 24.37	- 3.27	- 15.97	- 3.27	- 13.92	- 3.27	- 11.83	- 3.27	- 9.59	- 3.27	- 9.59	- 3.27	- 9.59	- 3.27				
1 8.40	8.44	8.33	8.40	8.39	8.37															
+4.46	-37.76	+35.19	-26.61	-24.00	-49.30	-22.12	—	-0.52	-41.62	+34.00	-26.52	27.47								
0.64933	1.57703	1.54642	1.42504	1.38021	1.69285	1.34479	—	9.71600	1.61930	1.53148	1.42357	1.43866								
0.72180	1.64950	1.61889	1.49751	1.45268	1.76532	1.41726	—	9.78847	1.69177	1.60395	1.49604	1.51133								
10 1	10 0	10 2	10 1	10 1	10 0	10 1	—	10 1	10 0	10 2	10 0	10 0								
37.9 +3.7	47.8 +2.1	13.8 +3.4	0.9 +1.4	4.0 +1.7	82.7 +4.6	7.9 +2.3	—	30.4 +5.0	41.1 +3.2	90.5 +2.6	57.4 +1.3	—								
41.1 +3.0	51.3 +3.0	17.4 +3.2	5.1 +2.2	8.2 +2.4	37.6 +0.8	11.6 +2.6	—	35.6 +1.9	48.3 +2.7	14.6 +3.3	1.6 +1.8	—								
59.9 +1.1	10.0 -1.7	35.9 -1.6	22.6 -3.0	24.9 -1.7	54.3 -4.5	30.1 -0.3	—	55.1 -2.2	4.5 -0.2	34.0 -0.6	20.0 -3.8	—								
57.8 +3.0	7.8 +1.73	33.6 +4.6	20.7 +6.6	24.2 +6.6	53.0 +5.1	28.0 +6.5	—	51.1 +3.2	2.2 +6.2	29.9 +4.8	17.4 +6.5	—								
196.7 +10.8	236.9 +1.07	100.7 +9.6	47.3 +7.2	61.3 +3.0	177.6 +6.0	77.6 +1.1	—	172.2 +8.3	213.1 +1.19	89.0 +1.0	26.4 +6.1	—								
11 49.18	10 59.22	12 25.18	11 12.32	11 15.32	10 44.40	11 19.40	—	11 43.05	10 53.28	12 22.25	11 6.60	9.10								
-5.27	44.62	-41.58	31.44	28.36	58.25	26.14	—	0.61	49.18	-40.17	31.34	32.46								
11 43.91	43.84	43.60	43.76	11 43.68	42.65	45.54	—	11 43.66	42.46	11 42.08	40.44	41.56								
+22 11 4.44	4.51	4.75	4.59	4.67	5.70	2.81	—	4.69	5.89	6.27	7.78	6.79								
+20 7 34							—													
1.32430							—													
-20.17							—													
1.30413							—													
-20.14							—													
- 00.03	- .27	- .23	- .14	- .11	- .46	- .09	—	- 00.03	- .33	- .22	- .14	—								
- .07	- .04	- .10	- .05	- .05	- .03	- .05	—	- .07	- .04	- .10	- .05	—								
- .27	- .27	- .18	- .18	- .23	- .15	- .28	—	- .21	- .30	- .25	- .15	—								
-20.48	-20.72	-20.75	-20.55	-20.78	-21.03	-20.58	—	-20.58	-20.97	-20.95	-20.72	—								
10 43.96	43.79	44.00	44.04	44.59	44.67	42.23	—	44.11	44.92	45.32	47.19	46.07								
43.88		44.02		44.28			—	44.52		46.26	45.70									
+4 12.50		+4 12.77		+4 13.24			—	+4 12.82		+4 12.88										
- .28	+4 12.22	- .28	+4 12.49	- .30	+4 12.94	- .30	—	- .31	+4 12.51	- .31	+4 12.57	- .31								
+ 4.99		+ 4.74		+ 3.98			—	+ 3.56		+ 3.36										
+4 7.19		17.26		16.89			—	16.07		15.93										
+22 15 1.07		1.28		1.17			—	59.22		0.59										

[illegible]

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Herculis (259.8) 17		15	11.52	1878.0	39	45.2	by R ₁	1.10044														
17 ^h 15.3			.50			45.5	" cos δ	9.95494														
+25° 39'			.50			45.8	" 15 cos δ	0.06101m														
+16 44			.51			46.0																
1878			.52			45.4																
			[.75]			46.3																
		17	15 11.508	+25	39	45.70	tand	+0.48														
							sin Z	+ .29														
July 9	July 10	July 13	July 15	July 16	July 22																	
17 14 21.2	14 42.60	14 25.8	14 44.95	14 38.1	14 51.36	14 43.6	14 56.00	14 46.4	14 57.97	14 54.0	15 11.38											
238	44.95	27.6	47.21	40.3	53.68	43.1	58.20	48.8	59.50	56.1	13.48											
26.0	47.21	30.5	49.40	42.2	56.00	47.6	0.30	50.7	2.05	58.6	15.62											
28.2	49.25	32.3	51.70	44.3	58.20	49.9	2.52	52.8	4.57	0.6	18.30											
129.4	30.23633	57.98	150.2	34.0	247.26	54.00	211.2	46.3	796.5	0.41	236.9	57.7	182	4.80	253.5	54.8	107.7	6.80	291.9	2.6	791.8	20.40
15 21.9	58.25	15 24.2	57.40	15 34.5	39.6	15 37.7	8.20	46 40.0	10.19	16 2.3	—											
24.0	57.55	26.8	59.70	36.3	6.30	40.3	10.47	15 42.3	12.44	4.2	—											
25.8	59.80	28.8	2.00	39.3	8.4	42.2	12.75	44.0	14.80	6.8	—											
27.8	2.17	30.8	43.0	41.4	10.75	44.9	15.00	46.4	17.00	5.3	—											
29.2	29.7	39.16	4.39	143.4	32.8	103.5	6.70	194.8	43.3	42.65	13.10	212.3	47.0	639.2	17.50	24.0	48.3	737.6	19.33	33.4	11.1	—
47.267	7.80	49.45	10.04	55.93	16.82	0.36	20.82	2.16	22.68	15.834	36.27											
59.83	10.72	2.07	12.27	8.33	18.85	12.78	22.00	14.75	25.00	—	38.60											
12.39	12.42	14.63	14.65	21.14	21.00	25.36	25.34	27.33	27.32	40.90	40.85											
	14.71		16.96		23.49		27.66		29.65		43.28											
17948	6195	16.90	615	7317	19.25	2560	10569	26.83	38.50	12682	34.00	44.24	13665	32.00	2450	43.30						
14 25.88		14 30.04		14 42.24		14 47.38		14 50.70		14 58.38												
15 25.84	14 59.86	15 28.68	15 2.050	15 38.96	15 8.533	15 42.46	15 12.833	15 44.20	15 14.746	16 6.68	15 28.370											
+ 15.73		+ 13.47		+ 6.95		+ 2.70		+ 0.72		— 12.70												
— 0.77		— 0.76		— 0.73		— 0.78		— 0.71		— 0.73												
— 3.27	+ 11.69	— 3.26	+ 9.45	— 3.25	+ 2.97	— 3.24	— 132	— 3.24	— 3.23	— 3.19	— 16.62											
	15 11.52		11.50		11.50		11.51		11.52		11.750											
+33.95	—26.01	+32.01	—26.63	+26.29	—30.43	+25.45	—29.63	+24.05	—29.45	+29.99	—38.11											
1.53084	1.41514	1.50529	1.42537	1.41979	1.48330	1.40569	1.47173	1.38112	1.46909	1.47698	1.58104											
1.59185	1.47615	1.56630	1.48638	1.48080	1.54431	1.46670	1.53274	1.44213	1.53010	1.53799	1.64205											
45 2	45 1	45 2	45 1	45 2	45 1	45 2	45 1	45 2	45 1	45 2	45 1											
27.8 +54	18.8 +47	25.1 +54	18.1 +45	16.6 +40	10.8 +30	14.9 +37	10.9 +30	13.8 +34	11.8 +35	18.8 +46	0.2 +13											
32.1 +21	22.9 +21	29.4 +23	21.9 +22	21.9 +28	15.2 +25	19.2 +31	15.9 +25	18.9 +31	16.8 +25	24.2 +26	5.8 +23											
52.8 -43	43.3 -50	50.5 -33	42.2 -47	41.6 -43	34.6 -43	38.2 -29	33.6 -09	38.8 -31	38.2 -16	44.3 -51	24.4 -21											
48.9 +28	40.5 +52	45.9 +32	38.0 +56	37.2 +43	31.2 +64	34.5 +46	31.3 +64	34.9 +45	33.2 +62	39.2 +41	21.4 +66											
16.6 +60	12.55 +70	15.07 +56	12.02 +76	11.73 +68	9.18 +76	10.68 +85	9.17 +110	10.64 +89	9.70 +106	12.65 +62	5.18 +81											
47 40.40	46 31.38	47 37.72	46 30.05	47 29.32	46 22.95	47 26.70	46 22.92	47 26.60	46 24.25	47 31.62	46 12.95											
—39.07	29.93	—36.84	30.65	—30.26	35.02	—29.29	34.10	—27.68	33.89	—34.51	43.86											
47 1.33	1.31	0.88	0.70	46 59.06	57.97	57.41	57.02	58.92	58.14	57.11	56.81											
+25 35 47.02	47.04	47.47	47.65	49.29	50.38	50.94	51.33	49.43	50.21	51.24	51.54											
+16 42.51																						
1.23780																						
—16.69																						
1.22111																						
—16.64																						
— .25	— .15	— .22	— .16	— .15	— .19	— .14	— .10	— .12	— .18	— .19	— .31											
— .11	— .06	— .10	— .06	— .13	— .07	— .14	— .08	— .14	— .08	— .15	— .07											
— .15	— .18	— .14	— .19	— .17	— .19	— .21	— .28	— .20	— .27	— .16	— .20											
— 17.15	— 17.03	— 17.12	— 17.12	— 17.42	— 17.42	— 17.65	— 17.71	— 17.43	— 17.60	— 17.17	— 17.25											
+16 35 24.87	30.01	30.30	30.53	31.87	32.96	33.29	33.62	32.00	32.71	34.07	34.29											
24.94		30.42		32.42		33.46		32.36		34.18												
+4 12.82		+4 12.88		+4 11.87		+4 11.45		+4 12.14		+4 12.29												
— .26	+4 12.56	— .26	+4 12.62	— .27	+4 12.60	— .28	+4 11.17	— .28	+4 11.86	— .29	+4 12.00											
+ 2.67		+ 2.45		+ 1.80		+ 1.40		+ 1.20		+ 0.10												
+4 18.23		15.07		13.40		12.57		13.06		12.10												
+25 39 45.17		45.49		45.82		46.03		45.42		46.28												

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Draconis

See 17 19 7.06

1878.0

+53

32

14.5

by hand

+ cov 8

9.77405

13.2

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13.7

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9.88012m

I

3.47

17 19.2

+53° 32'

-11 9

1878

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7.06

+53

32

13.8

tan 8

+ 1.35

sin 2

19

July 23

July 24

July 31

Aug. 12

Aug. 14

Aug. 20

b. f.

18

43.0

47.2

60.2

63.5

253.0

57.1

47.44

16.85

20

5.0

11.74

14.3

17.6

72.3

20.7

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36.00

9.89

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48.10

86.98

18

50.60

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[illegible]

Ophiuchi (238B) 28

17h 28.3

+16° 26'

+25 57

1878.0

S

log sin δ

Log R

1.37416

1.07349

R

23.67

R

11.84

I

2.16

n cos δ 9.98189
150000 0.08796

tan δ

+0.29

sin Z

+0.44

July 24

July 28

July 31

Aug. 12

Aug. 14

Aug. 22

27 56.5	28 16.65	28 11.8	28 37.15	28 18.3	28 31.80	28 46.0	28 58.68	28 48.9	29 3.63	29 20.5	29 23.7
58.9	18.71	13.6	39.12	24.6	33.53	47.9	9.79	47.6	5.75	23.5	26.00
9.0	20.97	15.1	41.25	22.5	35.60	50.3	3.03	49.2	7.85	24.7	25.00
2.6	23.00	17.0	43.45	24.6	37.85	51.8	5.10	50.9	10.83	26.5	29.19
3.0	45.53	20.20	76.3	18.8	206.59	40.62	112.8	2.68	178.53	40.00	249.4

28.35	48.80	43.10	10.35	10.40	35.60
30.60	50.89	45.30	12.62	17.56	37.78
32.62	52.99	47.49	14.86	19.63	39.92
34.90	55.14	49.67	16.90	21.80	42.00
16347	37.00	26522	57.40	23746	57.90

20.91	40.30	41.32	42.47	0.90	35.71	58.00	2.98	22.55	7.91	27.15	28.07	47.40
32.69	42.40	53.04	20.51	26.63	47.49	57.17	14.79	240.0	19.68	29.49	39.59	45.52
44.55	44.30	4.79	10.85	4.85	59.34	59.33	26.63	26.64	31.57	31.60	51.78	61.71
	46.70					7.48		28.60		33.70		53.81
9815	22275	48.80	159.15		14254	29668	3.70	4440	6314	30.85	5916	15784
												35.90

28 0.60	28 32.716	28 15.26	28 22.56	28 47.513	28 49.88	29 14.800	28 49.32	29 19.720	29 24.54	29 39.913
										39.887
- 17.00	- 25.38	- 31.70	- 59.08	- 1 4.11	- 1 24.40	- 1 0.45	- 1 0.41	- 1 2.78	- 1 2.78	- 1 2.78
- 0.44	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46	- 0.46
- 3.34	- 20.78	- 3.31	- 29.15	- 3.28	- 35.44	- 3.15	- 1 02.69	- 3.13	- 1 7.69	- 3.02

28 11.94	12.06	12.06	12.06	12.06	12.06	12.06	12.06	12.06	12.06	12.06

+32.12	+37.79	+25.95	+24.95	+24.92	+30.40	+15.35
1.50678	1.57738	1.411414	1.39707	1.39655	1.48287	1.18611
1.59474m	1.66534m	1.50210	1.48503m	1.48451m	1.57083m	1.27407m
0 2	0 2	0 2	0 2	0 2	0 2	0 2

41.6 +35	33.2 +50	28.1 +54	23.1 +51	30.1 +52	14.4 +36
45.7 +42	37.1 +23	34.9 +21	27.7 +23	33.8 +21	19.6 +30
6.4 +06	59.5 +04	55.2 -26	50.3 -54	58.7 +02	42.4 -45
1.3 +26	52.5 +24	48.8 +28	43.3 +35	51.2 +26	35.7 +44
21.50 +109	182.3 +101	167.0 +77	144.4 +55	173.8 +101	112.1 +65
2 53.75	2 45.57	2 41.75	2 36.10	2 43.45	2 28.02
-39.33	-46.27	-30.55	-30.52	-37.22	-18.80
2 14.42	2 59.30	2 11.20	2 5.58	6.23	9.22

+16 20 33.93	49.05	34.64	37.15	42.77	42.12	39.13

+25 58 04	1.44780	-14.59	1.43321	-27.12	-15	-17	-27.71	+16 20 6.22

-12.55	-43.5	-15.65	-14.53	-37.4	-14.53	-27.12	-13	-0.08	-0.46	-0.26
-27.24	-27.76	-27.05	-27.12	-27.80	-27.12	-27.12	-27.12	-27.12	-27.12	-27.12
-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21
-14	-14	-14	-14	-14	-14	-14	-14	-14	-14	-14
-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
-27.84	-27.84	-27.84	-27.84	-27.84	-27.84	-27.84	-27.84	-27.84	-27.84	-27.84
6.80	9.00	15.41	14.54	11.07	14.54	14.54	14.54	14.54	14.54	14.54

+4 12.39	+4 12.46	+4 11.65	+4 10.90	+4 11.29	+4 10.03
- .45	- .45	- .45	- .45	- .45	- .45
+ 0.80	+ 0.80	+ 0.80	+ 0.80	+ 0.80	+ 0.80
+4 12.74	12.19	10.98	8.67	8.84	6.84

+16 24 18.96	18.99	19.93	25.08	23.38	17.91

Herculis (299 B)

32² 27.45

1878.0

+68

12 44.3

log sin δ

45.4

45.2

45.4

46.3

9.56949

9.67556

1/2 I

- 25 50

17

32² 27.254

+68

12 45.32

tan δ

+2.50

1878

sin 2

- .44

July 15

July 16

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July 22

July 22

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July 28

17 31² 12.9

17.1

22.0

29.7

115.5

33 11.0

17.8

20.3

24.1

103.6

1.07

31.65

2.25

9497

31 23.10

33 20.72

+ 2.68

- 4.08

- 3.11

32 27.15

31 17.1

14.8

19.4

24.7

95.4

33 49.5

56.2

1.0

2.5

31 19.08

33 0.30

+ 0.70

- 3.69

- 3.08

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16137

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31 19.08

33 0.30

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31 2.0

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14016

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72.1

75.3

78.5

81.7

84.9

88.1

91.3

94.5

97.7

100.9

104.1

107.3

110.5

113.7

116.9

120.1

123.3

126.5

129.7

132.9

136.1

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142.5

145.7

148.9

152.1

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158.5

161.7

164.9

168.1

171.3

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July 24

31 22.0	32 9.4	32 39.9	31 29.8	32 17.7	32 45.0
26.3	12.0	42.6	34.5	20.4	50.9
31.0	14.8	45.0	38.6	23.0	53.6
37.0	17.4	48.0	43.1	25.8	56.5
158.2 41.9	20.4	50.9 46.5	50.5	28.6	59.1
	23.2	53.8		31.4	1.9
32 41.2	25.7	56.6	33 30.5	34.3	4.7
45.6	28.5	59.4	34.5	37.0	7.4
50.1	31.3	62.3	39.0	39.6	10.2
54.9		65.2			
252.2 0.4	20.30	10.7 195.5	49.0	28.64	18.7
	50.94	13.0		28	2.15
	21.33	15.8		59.14	24.3
		18.6		29.87	27.0
	152.57	21.4		177.65	29.9
		24.2			32.5
		26.8			35.3
		29.6			38.3
31 31.64		1921 32.5	31 39.30	2685	41.1
32 50.44		32 50.856	33 39.10	32 59.216	
- 17.01			- 25.38		
- 3.81			- 4.65	3.98	
- 2.99		- 23.61	- 2.63	- 31.99	
		27.25		27.23	

+79.22	+0.42	+79.92	-39.88
1.89883	9.62325	1.90266	1.60076m
1.57439m	9.29881m	1.57822m	1.27632
15 0	10 4	15 0	10 4

6.1 +.08	29.4 +.52	4.0 +.04	8.0 +.28
4.3 +.04	28.9 +.03	3.8 +.04	7.3 +.19
24.1 -.26	47.8 -.61	23.4 -.29	26.5 -.04
23.1 +.41	46.2 +.08	22.2 +.39	24.9 +.22
57.6 +.27	152.3 +.02	53.4 +.18	66.7 +.65
15 14.40	14 38.07	15 13.35	14 16.67
-37.53	-0.20	-37.86	18.89
14 36.87	37.87	35.49	35.56
+48 8 11.48	10.48	12.86	12.79

-1454		-1249	
1.43056		1.43261	
+26.95		+27.08	
- 1.19	00	- 1.21	.30
- .01	.28	- .01	.21
- .07	.01	- .05	.16
+25.68	+26.66	+25.81	+26.41
+37.16	37.14	38.64	39.20
37.15		38.94	
+4 12.39		+4 12.46	
+ .45	+4 12.64	+ .45	+4 12.91
- 4.56		- 5.83	
+4 8.28		7.35	
45.43		46.29	

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July 31

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July 24

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39^m 5
52.6 42.3
.3 43.4
.4 49.0
.4 52.4
.4 55.8
.5 59.4
.4 2.7
.3 6.0

July 28

40 6.3
12.2
18.1
21.8
90.4 32.0

39^m —
— 0.8 50.5
— 0.9 53.7
— 0.8 57.4
— 0.9 0.9
— 0.6 4.0
— 1.0 7.9
— 0.9 11.2
— 1.4 15.1

— 16.5
52.41 52.41 19.9
30.30 .49 23.4
26.9
30.4
33.7
37.2
40.4

— 23.1
0.91 0.91 28.2
38.64 .53 31.8
35.2
38.8
42.1
45.3
48.8
34.78 52.5
40 0.870

40 18.76

27.27 44.3 40 18.08
39 52.450

— 17.02
— 4.83
— 2.77 80

— 25.39
— 4.84 50.4
— 2.59 60
39 27.80

— 33.03
27.84

— 26.31
1.42012 m
1.00393
55' 0

— 17.21
1.23578 m
0.81959
55' 1

59.7 +13
59.2 +19
18.9 -40
15.5 +70
33.3 +62

1.8 +14
0.8 +17
22.2 -31
18.8 +67
43.6 +67

56' 8.32
10.09
56 18.41

56 10.90
6.60
17.50

+72 26 29.94

30.85

-30 7 50
1.52380
-14.31
1.50949
+32.32
— .10
— .07
— .16
+31.99
+72 27 01.93

-0.33

22
-12.04
1.51176 58
+32.498
— .04
— .06
— .17
+32.221
3.06

-0.27

+4' 12.39
+ .51 +4 12.90
— 4.60
+4 8.30
+72 31 10.25

+4 12.46 +4 12.98
+ .52
— 5.859
+ 7.39
10.45

1878.0											
Draconis 17 41 26.37 +53 51 12.4 by end											
17h 41.76 .43 11.4 " cos δ 9.77095											
+53° 50' .45 12.7 " " 9.87702											
-11 27 17 41 26.430 +53 51 12.60 tan δ +1.37											
sin δ - .20											
July 13 July 15 July 16 July 23 July 24 July 28											
41 12.8 41 — 41 23.0 41 — 41 12.1 41 44.0 41 13.8 41 29.0 41 13.9 41 22.40 41 33.7 41 30.60											
16.3 — — 26.5 — — 16.0 8.18 16.9 23.67 16.9 23.85 56.3 34.20											
18.9 — — 30.6 9.80 9.80 19.2 11.35 19.0 27.24 20.2 29.34 39.3 37.68											
21.4 5.50 8.90 34.8 9.0 13.40 23.0 13.25 22.8 30.35 23.3 32.72 2.7 4.20											
95.1 25.7 .46 12.46 157.3 37.4 .70 16.70 96.6 26.3 5802 18.64 98.2 23.7 18556 34.00 110.6 26.3 4666 36.35 28.4 6.2 18835 44.67											
4 17.60 22.39 23.75 39.30 41.43 49.90											
21.00 26.05 27.35 42.85 43.00 53.49											
24.78 29.27 30.80 46.39 48.45 56.80											
28.20 32.75 34.40 49.90 52.00 60.55											
12327 31.69 4651 36.35 5430 38.00 2184 53.40 24225 55.45 28484 41.03											
5.48 36.90 9.80 4120 11.60 4310 27.11 58.50 29.33 0.19 37.67 9.00											
24.65 40.40 29.36 44.55 30.86 46.80 46.37 21.0 48.47 4.29 56.97 12.60											
43.94 44.00 48.10 48.02 50.08 50.00 5.62 5.60 7.64 7.72 16.14 16.15											
740.7 21970 81.00 8726 24052 55.00 9254 25090 57.20 13710 2810 12.70 14544 3818 14.70 17078 5069 23.29											
41 19.02 41 30.26 41 19.33 41 19.64 41 20.12 41 59.69											
41 24.690 41 29.087 41 30.846 41 46.366 41 48.980 41 56.726											
+ 6.87 + 2.67 + 0.69 + 14.71 + 17.05 + 35.40											
- 2.08 - 2.24 - 2.02 - 2.07 - 2.089 - 2.148											
- 3.11 + 1.68 - 3.09 - 2.86 - 2.96 - 19.94 - 2.94 - 22.06 - 2.887 - 30.45											
41 26.37 26.93 26.95 26.93 26.42 26.98											
+5.67 -1.17 +11.53 +26.73 +28.36 -2.78 ⁵											
0.75358 0.06819 m 1.06183 1.42700 1.45271 0.44871 m											
0.63060 m 9.94521 0.93885 m 1.30402 m 1.32973 m 0.31793 ⁶⁵											
35 0 35 0 35 0 35 1 35 1 35 0											
52.2 +15 47.2 +22 56.1 +13 5.2 +18 6.6 +20 42.0 +30											
54.0 +27 49.1 +30 57.1 +22 6.5 +24 7.1 +24 42.2 +20											
— 1.9 8.2 -09 16.9 -42 26.6 -10 27.2 -09 3.6 -01											
— 2.7 4.1 +67 13.1 +71 22.1 +65 23.0 +66 58.1 +53											
228.6 +110 23.2 +64 60.4 +97 63.9 +101 205.9 +102											
36 230 35 57.15 36 5.80 36 15.10 36 15.97 35 51.47											
- 4.27 0.88 -8.69 -20.14 -21.37 2.08											
35 58.03 58.03 57.11 54.96 54.60 53.55 ⁴											
+53 46 50.32 50.32 51.24 53.39 53.75 54.85											
-11 28 12 1.06760 -312 -752 -1109 -14.67 ²¹ -12.19											
- 745 1.06448 1.06008 1.05651 1.05323 ³³ 1.05541											
1.06015 +11.49 +11.60 +11.48 +11.39 +11.303 ³¹ +11.36											
+ 20 — 00 — .04 — .18 — .21 — 00											
- .05 -0.26 — .06 -0.34 — .07 -0.27 -0.50 — .08 -0.54 — .05 -0.31											
- 21 — 28 — .16 — .24 — .25 — .26											
+11.23 +11.26 +11.21 +10.89 +10.76 ⁷ +11.05											
+53 47 1.55 1.58 2.45 4.28 4.52 5.86											
+4 11.87 +4 11.45 +4 11.64 +4 12.14 +4 12.33 +4 12.21 +4 12.41 +4 12.39 +4 12.59 +4 12.46 +4 12.67											
+ .19 +12.06 + .19 + .19 + .20 + .20 392 + .26 + .21											
- 1.819 - 9.86 10.27 8.49 8.42 7.58											
+4 10.87 11.44 12.82 12.77 12.94 13.44											
+53 51 12.42 11.44 12.82 12.77 12.94 13.44											

[illegible]

1878.0

15 " by axis

Herculis (336-B) $41^{\circ} 50.05'$ $+38^{\circ} 55' 48.2''$ $47.7''$ " 9.89091
 $17^{\circ} 41.9'$ $.09$ $47.9''$ $9.99698m$
 $+38^{\circ} 56'$ $.02$ $48.2''$ 1000 stars
 $+3 27$ $.15$

17 $41^{\circ} 50.05'$ $+38^{\circ} 55' 48.05''$ tan δ $+0.81$ sin z $+ .06$

Aug. 18

Aug. 25

Sept. 1

Sept. 10

42 24.6	42 48.04	42 44.5	43 55.7	43 0.2	43 22.30	43 58.0	43 45.48
27.2	40.73	47.1	8.10	2.6	24.85	57.8	48.22
28.9	33.5	49.0	10.78	5.0	27.85	2.0	37.10
31.2	56.00	51.4	13.45	7.6	30.15	3.5	53.40
145.7	33.8	266.74	58.62	246.0	54.0	540.7	16.20
	24.9		20.12		36.79	44 33.4	0.24
	5.20		22.60		39.48	35.5	2.68
	8.00		25.40		42.00	37.8	5.80
	10.68		28.03		44.77	39.9	8.39
396.7	13.30	126.7	30.64		210.54	47.50	42.8
							27.90
53.35	17.20	10.81	34.60	27.54	57.40	50.85	14.24
7.93	19.90	25.36	37.20	42.11	54.02	5.58	17.30
22.53	22.47	39.93	39.90	56.70	56.70	20.03	20.03
238.1	25.10	42.60	42.60	12.635	58.38		22.67
42 29.14	112.67	28.00	76.10	99.67	45.37	283.50	2.00
						16.46	100.15
	43 7.936	42 49.20	43 25.366	43 5.08	43 42.116	44 1.66	44 37.88
						44 5.466	
-1 14.06	-1 31.53	-1 48.54	-1 12.02	-1 1.13	-1 1.15	-1 1.15	-1 1.15
-1.13	-1.20	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17
-2.70	-1 19.89	-2.55	-1 35.28	-2.36	-1 52.10	-2.17	-2 15.34
	41 50.05		50.09		50.02		50.15

+38.80	+36.17	+37.04	+3.83	-32.39
1.58883	1.58835	1.56867	0.58320	1.57041m
1.58581m	1.55533m	1.56565m	0.58018m	1.50739
30 +	30 1	30 1	30 0	30 0

26.2 +3.3	21.8 +5.1	22.9 +5.2	49.9 +1.7	13.1 +2.6
28.7 +1.8	25.7 +1.9	25.2 +1.9	52.9 +3.0	16.5 +0.9
57.2 -5.0	46.5 -5.5	48.1 -5.7	14.2 -3.5	37.1 -3.3
45.3 +4.5	43.9 +4.7	43.0 +4.8	8.2 +7.3	32.8 +5.1
181.4 +6.6	137.9 +6.2	139.2 +6.2	52 +8.5	99.5 +5.3
31 37.85	31 34.47	31 34.80	31 1.30	30 24.88
-38.53	-35.92	-36.78	-3.80	32.17
30 59.32	58.55	58.02	57.50	57.05
+38 51 49.03	49.80	50.33	50.85	51.30

+3 26 49				
0.54060				
-15.44	-11.25	-20.41	-7.73	
0.52456	0.52845	0.51959	0.53227	
-3.35	-3.38	-3.31	-3.41	
- .41	- .35	- .37	- .00	- .28
- .05	- .06	- .10	- .10	- .04
- .17	- .16	- .16	- .21	- .13
-3.98	-3.95	-3.94	-3.92	-3.86
+38 51 45.05	45.85	46.39	47.13	47.44

+4 10.92	+4 10.49	+4 10.81	+4 10.75	+4 10.77
- .06	- .06	- .06	- .05	- .05
- 7.70	- 8.859	- 9.328	- 9.53	- 9.53
+4 3.16	1.84	1.47	0.94	0.94
+38 55 48.21	47.69	47.86	48.22	48.22

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Herculis		17 43 10.75	1578.0	36 25.6	by R ₁	1.38475					
17 ^h 43.3		16.5	+20	25.9	" R ₂	1.08408					
+20° 36'		180		25.6	" " "						
		78.81		24.6	" " "						
		180		24.9	" " "						
		86		26.0	" " "						
+21 47		17 43 10.75	+20	36 25.43	tan δ	+0.38					
					sin z	+0.37					
July 13		July 15	July 23	Aug. 12	Aug. 20	Aug. 25					
42 56.5	42 51.35	42 42.4	42 35.48	42 56.5	43 13.00	44 38.4	44 21.40	44 10.7	44 17.15	44 52.5	44 —
58.8	53.30	44.7	57.63	59.0	13.30	37.3	23.65	12.6	19.40	54.0	—
04	53.75	46.6	0.00	1.5	17.50	39.6	20.77	14.4	21.70	56.3	33.70
2.0	57.30	48.7	2.15	8.1	19.60	41.7	28.60	16.2	23.80	58.4	33.70
1.9 42 28.55	0.05 23.1	50.7 24.4	46.18	5.4 5.3	57.35 21.90	47.7 43.7	49.14 30.82	72.5 18.6	105.10 26.00	281.9 0.7	163 38.05
	34.2	43 38.8	7.50	29.57	25.15		33.60		29.38		41.50
	5.61	40.4	9.70	.63	27.42		35.80		31.60		43.70
	7.85	42.6	11.85	.60	29.60		—		33.90		46.00
	10.70	44.2	14.22	.69	31.90		40.30		36.00		48.18
	39.07	12.19 21.24	46.4 59.67	16.40			42.60		49.08 38.20		237.1 50.33
55.71	13.50	59.89	19.60	17.47	37.35	A-1					
7.81	17.61	11.93	21.83	29.62	39.60	A-2					
19.90	20.00	24.06	24.00	41.75	41.76	25.83 13.62	38.08 .63	21.62	41.40	33.73	53.55
	22.03		26.36		43.90			33.82	43.70	45.24	58.87
2342	99.51 24.37	3588	20.21 28.50	88.84	208.76 46.15			45.87	48.80	58.05	58.12
								101.31	48.70		0.35
43 0.38		42 46.62		43 1.08				229.35 50.40	137.72	29.024 2.35	
	43 7.806	43 42.48	43 11.960		43 29.613	44 39.54	44 14.50		44 56.38		44 45.907
+ 4.86		+ 2.67		— 14.91		— 59.1108	— 1 11.39		— 1 31.55		
— 0.58		— 0.62		— 0.57		— 0.62 59	— 0.58 4		— 0.56		
— 3.36 + 2.92		— 3.36 — 1.31	— 3.32 3 — 18.81	— 3.14 — 1 02.84	— 3.08 4 — 1 22.97	— 3.08 4 — 1 22.97	— 3.08 4 — 1 22.97	— 2.98 6 — 1 35.05			
	43 10.73		10.65		10.80		10.78 81		10.80		10.86
+ 7.43		+ 25.34	— 30.52	+ 28.53	— 25.91		+ 19.27		— 10.47		
0.87099		1.40381	1.48458	1.45530	1.41347		1.28488		1.01995		
0.94836		1.48118	1.56195	1.53267	1.49084		1.36223		1.09732		
50 0		50 0	45 4	50 0	45 4		50 0		45 4		
8.1 +13		28.5 +48	21.9 +52	32.6 +46	24.9 +54		16.2 +34		38.9 +33		
15.2 +09		34.9 +04	27.8 +04	38.3 +09	29.7 +02		21.6 +06		45.3 +18		
34.7 -21		54.9 -39	47.2 -60	58.1 -13	50.1 -58		43.3 -39		3.7 +03		
29.5 +50		49.7 +51	41.8 +13	52.8 +51	44.4 +11		37.5 +52		0.8 +02		
87.5 +51		168.0 +64	138.7 +09	181.8 +93	149.1 +08		118.6 +35		208.7 +56		
50 21.87		50 42.00	49 34.67	50 45.45	49 37.27		50 29.65		49 52.17		
— 8.88		— 30.28	36.47	— 34.09	+ 30.96		— 23.03		12.51		
50 12.99		11.72	11.14	11.36	6.31		6.62		4.68		
					8.23						
					40.12						
+20 32 35.36		36.63	37.21	36.99	42.04		41.73		43.67		
+21 46 3											
1.36150											
— 7.41		— 310	— 1100	— 1510	— 2025		— 1120		— 1120		
1.35409		1.35840	1.35050	1.34640	1.34125		1.35030		1.35030		
— 22.60		— 22.82	— 22.41	— 22.20	— 22.74		— 22.40		— 22.40		
— .01		— .11	— .15	— .12	— .07		— .02		— .02		
— .02	— 0.16	— .04	— .05	— .14	— .01	— 0.29	— 0.16	— 0.16	— 0.36		
— .13		— .16	— .23	— .02	— .08		— .14		— .14		
— 22.76		— 23.15	— 22.84	— 22.48	— 22.10		— 22.76		— 22.76		
+20 32 12.60		13.50	13.92	14.15	17.64		19.63		20.91		
		13.71									
+4 11.87		+4 11.45	+4 12.21	+4 10.90	+4 10.22		+4 10.44		+4 10.12		
— .35	+4 11.52	— .36	+4 11.09	— .38	+4 10.52		— .37	+4 10.12			
+ 1.52		+ 1.09	— 0.42	— 3.60	— 4.854		— 5.03				
+4 13.04		12.18	11.41	6.92	5.30		50.9				
+20 36 25.64		25.89	25.56	24.56	24.93		26.00				

Herculis (349 B) 17		1878.0		log δ		log R_1		1.41578		1.11571	
17 45.7		22.8		21.4		21.6		1150000		0.04634	
+29° 22'		21.6		21.6		21.6		R ₁		26.05	
		21.6		21.6		21.6		R ₂		13.04	
		21.6		21.6		21.6		I			
+13° 1'		17 45 39.15		+29 21 21.95		tan δ		+ 0.56			
1878		17 45 39.15		+29 21 21.95		sin z		+ .22			
July 13		July 15		July 16		July 23		July 24		July 28	
17 45 41.5		45 17.6		45 22.93		45 10.4		45 24.90		45 20.8	
43.6		20.0		25.35		12.2		27.30		22.7	
43.7		21.7		27.64		14.4		29.60		24.7	
47.7		23.8		30.00		16.9		32.00		27.0	
2280 49.5		1093 26.2		8812 32.20		725 18.6		4813 34.33		1243 29.1	
46 10.3		45 31.50		L		35.80		37.85		53.45	
11.7		34.00				38.41		40.15		53.90	
13.8		36.45				40.70		42.53		58.18	
15.5		38.88				43.30		44.75		0.60	
693 18.0		18198 41.15		20390 45.69		21285 47.97		29108 2.95		130 5.00	
		44.70		27.62		49.00		29.63		50.90	
36.3940		36.4074		48.15		40.78		51.50		42.57	
49.46		36.4950		44.0		53.81		53.97		55.65	
		5.180		5.619		5.619		5.619		5.619	
24330 54.25		12221		36904 58.38		12786		27833 0.55		17459	
45 45.60		45 21.86		45 14.50		45 24.86		45 23.22		45 36.02	
46 13.86		45 26.380		45 40.738		45 42.620		45 58.196		46 0.280	
+ 6.56		+ 2.67		+ 0.69		+ 0.84		+ 0.85		+ 0.85	
- 0.85		- 0.91		- 0.83		- 0.84		- 0.85		- 0.85	
- 3.27		+ 2.74		- 3.26		- 3.26		- 3.26		- 3.26	
45 39.12		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22		39.22		39.22		39.22	
		39.24		39.22							

Ophiuchi (297 B) 46		1878.0	1878.0	logarithm	logarithm	logarithm	logarithm	logarithm	logarithm
17 ^h 46.5	46.5	24.65	+1	20 11.5	11.5	11.5	11.5	11.5	11.5
+ 1° 21'	21'	24.65	+1	20 11.5	11.5	11.5	11.5	11.5	11.5
+ 41 2	2	24.65	+1	20 11.5	11.5	11.5	11.5	11.5	11.5
July 15	July 28	July 31	Aug. 18	Aug. 27	Sept. 10				
46 35.4	47 9.8	46 44.93	47 14.4	47 24.66	47 34.0	47 49.40	48 7.6	48 2.445	
37.6	11.5	46 44.93	47 14.4	47 24.66	47 34.0	47 49.40	48 7.6	48 2.445	
39.7	13.1	46 44.93	47 14.4	47 24.66	47 34.0	47 49.40	48 7.6	48 2.445	
40.9	14.7	46 44.93	47 14.4	47 24.66	47 34.0	47 49.40	48 7.6	48 2.445	
1954 41.8	656 16.5	53.00	894 21.2	15396 34.9	1873 41.0	26787 57.70	575 15.4	4258 32.61	
46 —	46 49.65	47 33.3	48 58.85	49 38.10	50 28.85	51 18.85	52 9.85	53 0.85	
2555 25.55	54 27.60	55 27.75	56 27.75	57 27.75	58 27.75	59 27.75	60 27.75	61 27.75	
63 29.75	2652 57.72	1855 41.3	028 4.20	21085 46.30	2440 9.10	19916 44.10			
32.82	58.70	53.70	0.90	48.92	7.10	30.79	49.30	53.57	12.20
25.57 25.57	5.07	71 5.00	11.49	13 11.50	53.51	59.60	16.31	16.34	51.17
37.10 25.74	39.23	18550 41.45	2536 9.28	047 57.45	10.70	12.67	2453 57.00	1476	8156 20.17
46 39.08	47 13.12	46 39.13	47 17.88	47 37.46	48 11.50	48 39.84	48 11.50	48 39.84	
46 28.65	46 53.705	47 37.10	47 0.15	47 42.156	48 49.20	48 39.84	48 11.50	48 39.84	
+ 2.67	25.41	31.73	1 11.08	1 56.76	2 12.03	2 12.03	2 12.03	2 12.03	
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
3.65	1.01	3.62	2.9.06	3.60	35.36	3.44	17.55	3.32	40.32
46 24.56	24.64	24.80	24.80	24.61	24.60	24.60	24.60	24.60	
13.82	19.41	21.03	37.40	24.28	27.46	28.35	28.35	28.35	
1.12450m	1.28803m	1.32284	1.56750m	1.38525	1.43870	1.45255	1.45255	1.45255	
1.23045	1.39398	1.42879	1.67345	1.49120m	1.54465m	1.55850m	1.55850m	1.55850m	
5 0	5 0	5 1	0 4	5 1	5 1	5 1	5 1	5 1	
29.6 +47	22.8 +44	9.9 +28	57.2 +01	15.9 +41	19.9 +49	19.9 +49	19.9 +49	19.9 +49	
37.9 +09	22.9 +04	18.6 +24	6.4 +05	22.2 +22	25.6 +19	25.6 +19	25.6 +19	25.6 +19	
57.7 -15	51.6 -61	38.2 -31	25.2 -18	44.8 -54	47.2 -56	47.2 -56	47.2 -56	47.2 -56	
51.1 +51	42.8 +51	30.9 +64	19.8 +18	37.2 +57	40.0 +39	39.7 +53	39.7 +53	39.7 +53	
176.3 +22	150.1 +40	97.6 +85	48.6 +06	120.1 +66	132.7 +51	132.7 +51	132.7 +51	132.7 +51	
5 44.07	5 37.82	6 24.40	5 12.15	6 30.02	6 33.18	6 33.42	6 33.42	6 33.42	
17.60	24.77	- 26.84	47.75	- 30.99	- 35.05	- 36.18	- 36.18	- 36.18	
6 1.07	2.29	5 57.56	57.39	5 59.03	58.13	57.24	57.24	57.24	
+1 16 47.28	46.06	50.79	49.32	49.32	50.22	51.11	51.11	51.11	
+41 1 51	1.69960	1.69527	1.68425	1.68425	1.68740	1.69189	1.69189	1.69189	
- 308	- 1208	- 433	- 1535	- 1535	- 1220	- 771	- 771	- 771	
1.68652	1.68752	1.69527	1.68425	1.68425	1.68740	1.69189	1.69189	1.69189	
-49.72	-48.70	-49.58	-48.33	-48.33	-48.69	-49.19	-49.19	-49.19	
- 00	- 00	- 00	- 01	- 01	- 01	- 01	- 01	- 01	
- .04	- .03	- .06	- .21	- .05	- .06	- .16	- .16	- .16	
- .23	- .10	- .21	- .02	- .17	- .13	- .16	- .16	- .16	
-49.99	-48.83	-48.81	-48.56	-48.56	-48.89	-49.52	-49.52	-49.52	
+1 15.57.16	57.23	59.23	0.76	1.33	1.33	1.59	1.59	1.59	
+4 11.45	+4 10.81	+4 12.40	+4 11.80	+4 11.65	+4 10.92	+4 10.26	+4 11.13	+4 10.82	
- .624	- .656	- .656	- .656	- .656	- .656	- .656	- .656	- .656	
+ 3.857	+ 2.218	+ 1.92	+ 1.92	+ 1.92	+ 1.92	+ 1.92	+ 1.92	+ 1.92	
+4 14.38	13.98	12.92	10.63	10.63	12.34	9.54	9.54	9.54	
+1 20 11.54	11.21	13.00	12.08	11.39	11.65	11.13	11.13	11.13	

Ophiuchi

17^h 47^m 17.78

+6° 7'

1878

July 23

July 28

Aug. 12

Aug. 27

Sept. 10

Sept. 12

154 7.0 2513 29.20

322.0

34.38

36.40

38.48

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76.00

78.00

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84.00

86.00

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92.00

94.00

96.00

98.00

100.00

17 47 17.78

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log R₁

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Herculis 17 ^h 50 ^m 43.28		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
17 ^h 50 ^m 43.28		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
+22° 28'		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
+19 55		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
July 15		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
July 16		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
July 23		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
July 28		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
Aug. 18		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
Aug. 22		1878.0	+22 29 2.5		log sin δ	log R ₁		1.08966				
40	50 8.0	50 27.85	50 11.7	50 30.00	50 27.7	50 45.50	51 39.1	—	51 21.6	51 44.25	51 43.9	51 34.35
50	9.8	30.20	13.6	32.20	30.3	47.78	40.7	—	23.1	46.40	48.1	36.62
50	11.7	32.57	15.3	34.37	32.3	49.90	43.2	—	24.5	48.80	50.4	39.00
60	13.5	34.68	17.5	36.60	34.1	52.10	45.4	—	26.7	51.00	52.3	42.00
65	581 10.1	3207 36.77	779 19.8	1207 38.90	1605 26.1	24968 5.440	2162 47.8	—	1249 29.0	24365 53.20	2513 54.6	2472 36.3
73	51 13.4	40.04	51 15.3	42.35	51 25.4	57.85	—	—	—	56.60	—	66.00
80	15.9	42.38	17.1	44.43	27.3	61.0	—	—	—	58.70	—	88.8
87	18.4	44.60	19.6	46.78	29.2	64.28	—	—	—	61.00	—	111.5
90	20.3	46.78	21.6	48.95	31.4	67.44	—	—	—	63.18	—	134.0
95	897 21.7	22270 48.90	971 23.5	23371 51.20	1467 33.4	1123 66.0	—	—	—	505 53.7	—	5565 15.62
10	32.41	52.40	34.41	54.49	49.984	10.08	—	—	20.48	48.73	—	19.00
22	44.54	54.73	46.74	56.90	2.25	12.38	—	—	22.90	1.01	—	21.25
28	56.96	57.00	59.04	59.00	14.55	14.50	—	—	24.934	65	—	23.47
35	—	59.20	—	12.0	—	16.77	—	—	27.00	—	—	25.70
47	13391	25478 14.5	14019	29519 3.60	678	7273 19.00	—	—	29.45	208	—	27.50
50	11.62	—	15.58	—	32.10	—	—	—	24.98	—	—	—
51	17.94	50 44.636	51 19.42	50 46.730	51 29.34	51 22.48	—	—	12.725	52 10.26	—	52 11.70
+	2.66	—	1.68	—	14.92	—	—	—	1 14.10	—	—	—
—	0.67	—	0.60	—	0.62	—	—	—	0.57	—	—	—
—	3.35	—	3.34	—	3.22	—	—	—	3.06	—	—	—
12	—	—	—	—	—	—	—	—	—	—	—	—
78	50 43.28	—	—	43.47	—	43.39	—	—	43.36	—	—	—
2	+33.02	-33.30	+31.15	-32.69	+30.15	-27.09	-30.51	+36.05	+20.91	—	—	—
1.51878	1.52244	1.49346	1.51441	1.47929	1.43281	1.48444	1.55691	1.32035	1.39214	—	—	—
1.59057	1.59423	1.56525	1.58620	1.55108	1.50460	1.55623	1.62870	—	—	—	—	—
55 3	55 1	55 3	55 1	55 3	55 1	55 1	55 3	55 2	—	—	—	—
32	3.6 +19	43.9 +26	2.2 +17	47.0 +20	0.2 +16	53.0 +10	47.6 +19	1.8 +17	40.3 +37	—	—	—
42	9.7 +30	50.3 +43	7.9 +30	53.0 +41	6.3 +30	57.5 +34	57.8 +42	6.2 +30	45.3 +41	—	—	—
14	27.2 -01	7.0 +08	23.9 -14	10.0 -05	23.3 -17	15.8 -28	10.5 -07	25.9 -04	22.2 +09	—	—	—
37	23.2 +34	3.8 +41	21.9 +34	7.5 +48	20.1 +35	12.7 +49	6.9 +48	20.6 +35	0.1 +23	—	—	—
47	63.7 +62	23.50 +1.8	55.9 +1.7	33.75 +1.04	49.9 +64	19.0 +68	28.68 +1.02	54.5 +78	208.9 +1.10	—	—	—
60	58 15.92	56 56.25	58 13.97	56 59.37	58 12.47	57 4.75	56 59.20	58 13.62	57 52.22	—	—	—
20	-38.96	39.29	-36.75	38.57	-35.57	31.96	35.99	-42.53	-24.67	—	—	—
80	57 36.96	35.54	37.22	37.94	36.90	36.71	35.19	31.09	27.55	—	—	—
55	+22 25 11.39	12.81	11.13	10.41	11.45	11.64	13.16	17.26	20.80	—	—	—
+19	53 29	—	—	—	—	—	—	—	—	—	—	—
1.31870	—	—	—	—	—	—	—	—	—	—	—	—
-304	—	—	—	—	—	—	—	—	—	—	—	—
1.31566	—	—	—	—	—	—	—	—	—	—	—	—
-20.49	—	—	—	—	—	—	—	—	—	—	—	—
-21	—	—	—	—	—	—	—	—	—	—	—	—
-20	—	—	—	—	—	—	—	—	—	—	—	—
-21	—	—	—	—	—	—	—	—	—	—	—	—
-21.21	—	—	—	—	—	—	—	—	—	—	—	—
+22 24 50.08	51.51	50.11	49.35	50.61	50.89	52.36	56.60	59.67	—	—	—	—
5080	—	—	—	—	—	—	—	—	—	—	—	—
+4 11.45	—	—	—	—	—	—	—	—	—	—	—	—
-33 +4 11.12	—	—	—	—	—	—	—	—	—	—	—	—
+4 11.72	—	—	—	—	—	—	—	—	—	—	—	—
+22 29 2.52	—	—	—	—	—	—	—	—	—	—	—	—

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Herculis

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Aug. 14

Aug. 20

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Sept. 1

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John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Sm. 3009

$$17^L 57.2^m$$
 $+33^{\circ} 20'$

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1878

July 23

July 28

Aug. 12

Aug. 26

Aug. 29

Sept. 1

17	57	3.6	57	5.85	57	5.02	—	58	28.1	57	52.54	58	6.5	58	27.47	59	1.0	—	59	3.0	58	41.60
		5.7		11.00		5.7	—		30.3		58.01		8.5		29.88		3.1	—		5.5		44.04
		7.5		12.51		5.52	—		32.5		57.49		10.8		32.29		6.3	—		7.4		46.48
		9.7		15.98		5.73	—		34.9		59.95		12.6		34.78		8.8	—		10.3		48.00
389	12.0	6744	18.40	2747	59.3	—	—	1629	36.8	2742	2.43	334	15.0	16182	37.40	302	11.0	—	387	12.5	3252	51.40

	2220	57	—	627	41.00	58	48.80	5310
	1457	—	—	858	43.55		57.27	57.63
	2700	—	—	1110	46.02		53.80	0.14
	2960	37.75	4022	1360	48.48		56.20	2.60
18539	3202	.61	42.53	5559	51.00	26872	58.65	047 5.00

13.49	38.60	—	4420	57.48	20.00	32.36	57.45	—	2.40	46.50	8.60				
27.08	38.15	37.68	37.68	4870	11.12	22.40	46.01	57.01	53.74	53.74	5.00	0.09	11.10		
40.62	40.65	51.16	56	5110	24.99	25.00	57.50	57.50	7.40	.80	7.40	13.58	13.62		
	43.10			5362	27.05	27.05		2.03			9.90		16.00		
8119	20310	43.60	25881	3614	3359	12495	3400	13787	29751	4.53	3700	12.30	017	6792	18.60

57	7.78	57	54.94	58	32.58	58	10.68	57	6.04	57	7.74	58	45.956	58	53.770	59	0.056
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- 14.94	- 25.43	- 59.14	- 1 343.7	- 1 42.19	- 1 48.57
- 0.00	- 1.05	- 1.02	- 0.95 ³	- 0.99	- 0.95
- 3.20	- 19.14	- 3.16	- 29.64	- 2.98	- 1 3.14
				- 2.73	- 1 38.03
				- 2.65	- 1 45.85
				- 2.61	- 1 52.12

57	7.92	7.98	8.06	7.93	7.92	7.93
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$+19.28$ 1.28511 1.31312_n $\overset{5}{1} \quad \overset{3}{3}$	-17.32 1.23855_n 1.26656 $\overset{5}{5} \quad \overset{2}{2}$	-21.38 1.33001_n 1.35802_n $\overset{5}{5} \quad \overset{2}{2}$	$+35.28$ 1.54753 1.57554_n $\overset{5}{5} \quad \overset{3}{3}$	-12.27 1.08884_n 1.11685_n $\overset{5}{5} \quad \overset{2}{2}$	-7.68 0.88836_n 0.91337_n $\overset{5}{5} \quad \overset{2}{2}$
-------------------------------------------------------------------------------	-------------------------------------------------------------------------------	---------------------------------------------------------------------------------	-------------------------------------------------------------------------------	---------------------------------------------------------------------------------	--------------------------------------------------------------------------------

2	13.4 +41	34.4 +47	25.2 +54	22.3 +58	32.7 +50	38.2 +43
4	17.1 +27	36.4 +22	27.7 +23	24.8 +18	34.8 +21	39.2 +27
6	37.8 -23	59.2 +03	58.1 -54	46.7 -49	56.1 -16	2.3 +09
8	32.4 +33	51.8 +25	44.2 +34	40.7 +23	51.4 +26	57.2 +20
10	1009 +28	1818 +27	1472 +57	1345 +50	1750 +81	1469 +29
12	8 25.18	7 45.45	7 36.80	8 33.62	7 43.75	7 48.22
14	-20.56	18.47	+22.80	-37.63	+13.09	+8.19
16	8 4.62	8 3.92	7 14.00	7 55.99	30.66	41.03
18			54.60		50.54	57.41
20			48.75		51.61	50.94
22	+38	14 44.43	15 34.35	14 52.36	15 71.69	7.32

[illegible]

+4	12.21	+4	12.46	+4	10.90	+4	10.93	+4	10.47	+4	10.81
-	.16	+4	12.05	-	.16	+4	10.74	-	.16	+4	10.31
-	2.858	-	3.871	-	6.764	-	8.265	-	2.897	-	.15
+4	9.47		8.59		4.10		2.12		2.34		1.39
18	43.74		43.63		43.64		4.190		43.46		43.14

Herculis (404B) γ

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 .27 14.3
 140 14.8
 .27 14.8
 26 13.9

" 1500 d 9.92731

" 1500 d 0.03338m

+10 9

18 1 17.30 +32° 13' 14.50
 .295

tand +0.63

rinvz +.18

July 23

July 24

July 28

Aug. 12

Aug. 14

Aug. 18

1 15.5	1 18.00	1 2.9	1 20.20	1 23.4	1 28.50	1 35.2	2 28.7	1 48.0	2 7.10	1 57.4	2 108.7
17.3	20.60	4.5	22.60	25.7	31.00	36.9	46.5	50.2	9.60	56.9	19.40
20.2	23.00	6.7	25.20	28.0	33.53	39.0	7.12	52.2	12.05	1.6	21.70
22.1	25.50	8.5	27.55	30.5	35.92	0.7	9.60	54.3	14.47	3.2	24.26
996 24.40	11500 27.90	332 10.6	12555 34.00	1401 32.5	16725 38.30	2959 4.1	3584 12.10	2612 56.5	6027 17.00	73 6.2	10901 26.78
	31.55		33.60	2 15.3	42.02		15.60		20.64		38.20
	33.95		36.10	17.3	44.40		18.05		23.00		32.75
	36.40		38.50	26.3	47.00		20.50		26.40		35.15
	38.70		40.97	22.4	49.41		22.90		27.80		37.60
8175 41.15		14262 43.40	1000 24.7	2357 57.74		10242 25.37		12697 30.18		17575 40.05	
23.00	44.90	25.11	47.00	33.45	53.47	7.17	29.00	12.05	33.92	21.80	43.75
36.35	47.39	38.52	49.38	46.91	57.86	30.48	31.50	25.39	36.28	35.15	46.10
49.79	49.78	51.99	57.99	0.35	0.40	33.96	34.00	38.77	38.70	48.39	48.64
	52.19		54.40		2.75		36.40		41.22		51.00
10914 46.96	54.70	11562 59.94	56.97	14071	176 52.8	6161	16980 38.90	7621 43.87	48.75	10554 29.76	53.47
1 18.92		1 6.64		1 38.02		1 59.18		1 52.24		2 1.46	
	1 36.380		1 38.540	2 20.00	1 46.903		2 20.536		2 25.403		2 35.180
- 14.94		- 17.06		- 25.44		- 59.15		- 4.18		- 14.12	
- 0.95		- 0.98		- 1.020		- 0.98		- 0.97		- 0.88	
- 32.2	- 19.11	- 32.8	- 21.24	- 3.18	- 29.63	- 3.01	- 1 3.14	- 2.98	- 1 8.13	- 2.92	- 1 17.92
	1 17.27		17.30		17.27		17.40		17.27		17.26

+16.46	+31.30	+18.88	-33.10	+21.86	+33.16	+33.72
1.21643	1.50379	1.27600	1.51983m	1.32960	1.52061	1.52789
1.24981m	1.53717m	1.30938m	1.55321	1.36298m	1.55399m	1.56127m
10 3	10 3	10 3	10 2	10 3	[10 3]	10 3
38.9 +46	56.2 +20	40.9 +42	45.3 +29	38.9 +46	52.2 +22	52.0 +22
41.8 +25	57.9 +21	43.4 +30	46.8 +43	40.4 +43	53.4 +29	53.6 +29
2.6 +18	19.1 -29	4.8 +16	8.2 +01	3.2 +18	15.4 -25	17.7 -20
58.9 +03	13.9 +23	59.5 +04	6.1 +37	58.2 +02	10.9 +23	10.8 +23
202.2 +92	27.1 +35	208.6 +92	225.4 +10	200.7 +109	11.9 +49	14.1 +44
13 50.55	14 6.77	13 52.15	12 56.35	13 50.17	14 2.97	14 3.52
-17.78	-34.45	-20.39	35.74	-23.07	-35.81	-36.41
13 32.77	32.32	31.76	32.09	27.10	27.16	27.11
			16.24			
+32 9 15.58	16.03	16.59	27.74	21.25	21.19	21.24
+10 9 23						
1.01350						
-1031	-1384	-1170	-1450	-1366	-1493	
1.00319	0.99966	1.00180	0.99900	1.00004	0.99857	
-10.07	-9.99	-10.04	-9.98	-10.00	-9.97	
- .06	- .25	- .09	- .27	- .11	- .28	
- .23	- .25	- .19	- .14	- .11	- .12	- 0.31
- .33	- .09	- .23	- .28	- .27	- .12	
-10.59	-10.58	-10.55	-10.73	-10.47	-10.51	-10.48
+32 9 4.99	5.45	6.04	5.53	10.78	10.68	20.76
		5.78				
+4 12.21	+4 12.39	+4 12.46	+4 10.90	+4 11.29	+4 10.92	
- .18	- .18	- .18	- .18	- .18	- .18	
- 2.60	- 2.83	- 3.83	- 6.86	- 7.00	- 7.62	
+4 9.43	9.38	8.55	4.06	4.11	3.12	
+32 13 14.42	14.83	14.33	14.84	14.79	13.88	

Serculis

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1878

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22.9

log sin δ

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24.0

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log R₁R₁R₂

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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log sin δ

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John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

53

1878.0
Herculis (425 B) 5 44.36
18° 5.8'
+36° 26'
+5 57
18 5 44.36
+36 26 33.00
tan δ +0.74
sin Z +.10

July 23	July 24	Aug. 22	Aug. 25	Aug. 26	Sept. 10						
5 37.3 39.7 42.4 44.7	5 44.37 46.50 49.32 52.05	6 8.9 11.3 13.3 16.0	5 46.38 49.00 51.70 54.20	7 0.1 2.0 5.3 8.3	6 53.55 55.87 58.26 60.5	7 19.3 21.5 24.0 26.1	7 2.0 3.10 5.60 8.20	6 57.7 2.2 3.8 5.5	7 3.30 5.80 8.40 10.90	7 46.8 48.8 50.5 52.8	7 40.55 43.23 45.70 48.36
2107 46.6	4749 54.65	676 18.1	25803 56.70	271 11.4	29193 84.0	1191 28.2	2820 10.80	186 7.4	4180 13.40	2545 55.6	22893 50.80
6 34.3 36.2 38.6 41.4	58.50 1.00 3.65 6.27		0.45 3.20 5.80 8.40		7.20 9.80 12.60 15.45		14.68 17.22 19.90 22.38		17.30 19.90 22.60 25.00	8 27.2 29.7 31.7 33.4	54.73 57.30 58.85 2.60
1934 42.7	1822 8.80		2875 10.90		6291 17.86		9888 24.90		11225 27.55	1880 36.0	29750 3.02
49.99 3.64 17.68 108.3	12.56 15.77 17.70 20.20	51.61 5.75 19.85 1721	14.72 17.38 19.80 22.40	58.39 12.38 28.71 3868	21.57 24.20 26.70 29.18	5.64 19.77 33.89 5930	28.80 31.36 33.80 36.40	8.36 22.45 36.59 6740	31.37 34.05 36.62 41.73	45.79 59.90 13.98 17967	8.78 11.12 14.00 16.60 6990 19.20
5 42.14 6 38.68 - 14.95 - 1.12 - 3.18	6 13.58 6 36.03 - 17.07 - 1.13 - 3.18		6 5.736 - 21.38	7 5.42 - 2.78	7 12.893 12.560 - 1.12 - 1.04 - 2.72	7 23.32 - 1 31.61 - 1.04 - 2.72	7 19.766 - 1 34.38 - 1.04 - 2.70	7 3.72 - 1 38.12 - 2.37	7 22.466 - 2 12.07 - 1.05 - 2.37	8 31.60 7 59.890 - 2 15.49	7 59.890 7 59.890 - 2 15.49
5 44.36			44.36		44.19 32	44.35	44.35	44.35	44.35	44.10	

+21.47	-35.07	-7.78		+7.14		-4.05	+18.75	+8.99	-31.71
1.33183	1.54494	0.89098		0.85370		0.60746	1.27300	0.95376	1.50120
1.34345	1.55656	0.90260		0.86532		0.61708	1.28462	0.96538	1.51282
0 0	55 4	0 0	55 4	0 0		55 4	0 0	0 0	55 4
28.3 +49	31.8 +50	0.0 +00	19.6 +50	3.8 +04		53.8 +03	18.3 +38	7.1 +10	25.2 +54
31.8 +03	33.9 +01	1.8 +18	21.2 +11	7.0 +07		57.9 +08	20.6 +07	9.7 +09	27.7 +04
52.8 -55	54.2 -40	22.8 -32	41.1 -36	26.4 -15		17.2 -41	42.7 -58	32.1 -11	48.9 -60
48.9 +51	51.4 +03	19.2 +36	38.2 +18	25.9 +45		14.4 +20	37.8 +52	25.7 +45	44.8 +10
161.8 +48	170.3 +14	438 +22	1201 +43	631 +41		233 -13	1194 +39	746 +53	1466 +08
0 40.45	59 42.57	0 10.75	59 30.02	0 15.77		0 5.82	0 29.85	0 18.65	59 36.65
- 22.05	36.02	7.99		- 7.33		4.16	- 19.26	- 9.23	32.57
0 18.40	18.59	18.94		23.10		9.98	10.59	9.42	7.22
+36 22 29.95	29.76	29.41		25.25		38.37	37.76	38.93	39.13
+5 56 08									
0.77720									
- 1010									
0.76710									
- 5.85									
- 12.4	- 32.6	- .00	- .27	- .00		- .09	- .09	- .01	- .26
- .04	- .28	- .01	- .11	- .01	- 0.11	- .20	- .02	- .03	- .46
- 12.0	- .04	- .06		- .10		+ .03	- .10	- .13	- .02
- 6.13	- 6.49	- 5.87		- 6.06		- 6.01	- 6.08	- 6.08	- 6.62
+36 22 23.82	23.27	23.54		33.85		32.36	31.68	32.88	32.51
23.54								32.70	
+4 12.21		+4 12.39		+4 10.03		+4 10.49	+4 10.93	+4 10.82	
- 10	+4 12.11	- .10	+4 12.29	- .10	+4 9.93	- 10	+4 10.39	- .10	+4 10.73
- 3.8	12.4 8.99	- 3.8	12.4 8.93	- 9.12		- 9.854	- 9.867	- 11.14	
+4 8.99		+4 8.93		+4 0.81		+4 0.85	+4 1.16	+3 59.59	
+36 26 32.53		32.47		34.66		33.21	32.84	32.29	

524

Ophiuchi

18^h 17^m
+11° 59'

+30 24

1878

July 28

Aug. 18

Aug. 25

Aug. 26

Aug. 27

Sept. 10

18 16 48.9
50.4
52.5
54.717 8.46
10.8
12.73
14.6617 5.62
8.79
1.18
3.1517 5.670
59.00
1.18
3.1518 7.5
9.2
10.6
12.418 14.50
16.50
18.60
20.6518 20.8
23.1
24.2
25.618 19.68
21.80
23.90
26.1519 24.3
26.4
28.3
30.018 58.70
0.70
0.66
2.80

2630 86.0

6323 1680

43 4.8

533 5.30

545 14.8

9305 22.50

1214 27.7

11953 28.00

1406 31.6

12

20.05

8.40

28.88

31.23

6.05

22.17

10.32

28.00

33.85

8.20

24.22

12.67

30.20

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10.35

26.30

14.73

32.26

37.66

12.47

1214 28.40

6314 16.50

15067 34.33

17719 39.65

5167 14.60

12.65

31.62

1.07

20.00

18.61

37.40

23.91

42.88

58.65

17.70

24.23

33.80

12.63

22.10

30.13

39.05

35.44

45.00

10.33

19.78

35.86

35.90

24.25

24.27

41.72

41.70

47.11

47.00

21.97

22.05

7274

38.00

3795

26.37

43.55

43.55

10646

49.25

30.95

24.05

16 52.60

17 24.246

18 0.86

18 10.90

18 30.153

18 24.28

18 35.486

19 28.12

19 10.317

- 25.47

- 1 14.17

- 1 31.65

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- 0.30

- 0.30

- 0.30

- 3.52

- 29.32

- 3.36

- 1 17.82

- 3.28

- 1 35.24

- 3.25

- 1 40.58

- 3.03

- 2 15.43

16 54.93

57.83

54.91

54.91

54.89

+31.65

+11.79

+19.25

+19.25

+19.25

+11.21

-17.80

1.50037

1.07151

1.28443

1.28443

1.28443

1.04961

1.25042

1.59687

1.16801

1.38093

1.38093

1.14611

1.34692

25 3

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25 3

25 2

38.6 +46

9.4 +32

14.8 +45

14.8 +45

37.0 +43

7.7 +27

29.8 +32

42.6 +28

14.3 +29

22.3 +22

22.3 +22

41.8 +33

11.8 +30

35.6 +22

4.6 +14

36.3 +14

41.9 +39

41.9 +39

3.2 +09

33.6 +01

57.9 +01

56.4 +03

29.5 +34

35.5 +30

35.5 +30

56.2 +22

27.2 +34

49.2 +28

20.2 2.91

89.5 +81

114.5 +58

114.5 +58

198.2 1.07

80.3 +20

172.5 +101

28 50.55

28 22.38

28 28.62

28 28.62

27 49.55

28 20.08

27 43.12

-39.52

-14.72

-24.04

-24.04

-14.00

-14.00

22.23

28 11.03

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4.58

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6.08

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+11 54 37.32

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43.77

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+30 24 01

1.52860

-14.48

-10.15

-8.45

-11.21

-7.59

-11.28

1.51732

1.51855

1.51855

1.52015

1.51739

1.52101

-32.91

-32.67

-33.00

-33.00

-33.12

-32.91

-33.19

-11

-0.2

-0.04

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-32.99

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-33.28

-33.28

-33.75

+11 54 3.88

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8.99

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+4 12.46

+4 10.92

+4 10.44

+4 10.44

+4 11.13

+4 10.82

-52

+4 11.94

-52

+4 10.40

-51

+4 9.98

-50

+4 10.63

-45

+4 10.37

-1.874

-4.855

-5.226

-5.226

-5.4

-5.4

-5.4

-6.238

-6.238

-6.238

+4 10.20

+4 8.85

+4 4.72

+4 4.72

+4 5.19

+4 5.19

+4 3.99

+4 3.99

+4 3.99

+4 3.99

+11 58 14.08

13.55

15.16

15.16

14.18

14.18

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13.24

1678.0

Ophiuchi $19^m 46.84^s$
 $18^h 19.9^m$
 $+70^{\circ} 58'$

$+7^{\circ} 57'$ 54.2 53.8 53.6 53.8 53.2
 54.2 53.8 53.6 53.8 53.2
 54.2 53.8 53.6 53.8 53.2

log $\sin \delta$ 9.99579
 $0.10186m$

$+34$ 25

18 19 46.728

$+7$ 57 53.83

$\tan \delta$ $+0.14$
 $\sin z$ $+ .56$

July 28

Aug. 18

Aug. 25

Sept. 1

Sept. 10

Sept. 12

19	51.0	20	0.45	20	33.0	20	48.70	20	52.9	21	638	21	4.7	21	23.00	21	27.7	21	46.57	21	37.7	21	51.48
	51.6		2.50		34.6		51.00		54.6		83.0		6.1		25.32		29.5		48.66		39.4		53.55
	53.7		4.52		37.1		53.03		56.9		1048		7.8		27.24		31.6		50.70		41.7		55.59
	55.4		6.67		38.9		55.15		58.5		1285		9.8		29.39		33.3		52.70		43.4		57.72
1270	57.0	56.7	8.50	1842	40.6	26516	57.20	2837	0.8	1289	1468	407	12.3	13645	31.30	1572	35.1	25343	57.83	2075	45.3	57.87	
20	40.8		11.88				10.35				1783				34.53	22	27.0		55.00	22	28.9		2.92
	42.8		14.10				2.40				2004				36.67		29.0		0.05		30.6		5.03
	44.8		16.37				4.60				2202				38.73		30.8		2.18		32.2		7.02
	46.6		18.28				6.70				2400				40.80		32.6		4.30		34.1		9.18
	47.9	47.7	20.30		2270	865		10999	26.10				19365	42.90	1542	34.8	1095	6.42	1618	36.0	3550	11.35	
4.59		23.52		53.03		1172	10.52		2923	27.29		46.04	50.69		9.55		55.63		14.40				
16.19		25.63		4.54		1380	21.99		3127	38.73		48.12	2.19		11.35		7.10		16.50				
27.65		27.60		15.97		16.00	33.43		33.43	50.24		50.25	13.67		13.65		18.589		15.63				
5.4		29.70				18.04			35.55			52.37			15.80				20.65				
47.83	34.56	31.78		1354	7984	20.18	6594	16717	37.67	11626	25120	54.42	655	6835	17.80	2184	9293	22.75					
19	53.54	20	36.84	20	36.84	20	36.74	21	8.14	21	8.14	21	31.34	21	31.34	21	41.50						
20	44.58	19	16.143	21	4.513	21	21.980	21	38.753	22	30.84	22	2.183	22	32.86	22	7.103						
-	25.18	-	14.18	-	1	31.66	-	1	48.63	-	2	12.10	-	2	17.07	-	2	17.07					
-	0.22	-	0.20	-	0.20	-	0.21	-	0.20	-	0.20	-	0.20	-	0.20	-	0.19	-	0.19				
-	3.60	-	29.30	-	3.15	-	17.84	-	3.37	-	3.28	-	52.11	-	3.14	-	15.41	-	3.11	-	20.37		
	19	46.84		46.67		46.74		46.74		46.61		46.74		46.74		46.74		46.74		46.74			

+22.60	-28.44	+27.67	+25.24	+20.61	+30.74	-28.66	+25.61	-25.25
1.35411	1.45393m	1.44201	1.40209	1.48586	1.48770	1.45728m	1.40841	1.40226m
1.45897m	1.55579	1.54387m	1.50395m	1.58772m	1.58956m	1.55914	1.51027m	1.50412
25 3	25 2	25 3	25 3	25 3	25 3	25 2	25 3	25 2
41.9 +40	37.3 +42	44.8 +34	40.0 +44	47.9 +29	46.1 +33	30.7 +52	38.8 +46	34.9 +46
47.1 +34	42.9 +37	49.7 +34	47.2 +34	52.2 +31	52.1 +31	37.2 +23	44.8 +32	40.8 +31
7.6 +09	2.9 +09	11.4 -08	6.0 +14	14.7 -23	13.5 -18	58.0 +03	6.5 +13	1.9 +09
59.8 +04	55.8 +22	2.9 +13	59.2 +03	7.7 +21	3.9 +16	49.8 +27	57.8 +02	54.8 +23
2167 .87	1989 +11.0	228.8 +23	2124 +95	25 +58	23.56 +62	17.57 +05	2079 +83	19.24 +07
28 54.17	27 49.72	28 57.20	28 53.10	29 0.62	28 58.70	27 43.92	28 51.97	27 48.10
-28.67	35.96	-34.98	-31.91	-38.70	-38.87	36.24	-32.38	31.92
28 26.60	25.68	22.22	21.19	21.92	20.03	20.16	19.59	20.02
+7 54 22.75	22.67	54 26.13	27.16	26.43	28.32	28.19	28.76	28.33
+34 24 12								
1.59560								
-1123								
1.58437								
-38.40								
- .09								
- .19								
- .22								
-38.90								
+7 53.43.85	43.79	47.65	48.21	48.31	48.96	48.87	49.69	49.51
43.82								
+4 12.46								
- .58	+4 11.88	- .57	+4 10.35	- .56	+4 10.81	- .56	+4 10.25	- .56
- .131		- .13	- .13	- .13	- .13	- .13	- .13	- .13
+4 10.57		+4 6.52	+4 5.63	+4 5.27	+4 4.87	+4 3.46		
+7 57 54.39		54.17	53.84	53.58	53.79	53.15		

[illegible]

1878.0
 $Ly\alpha$ (28B) m_{23} $28^m 10.28$ $+30$ $27^m 49.7$ $h\gamma$
 $18^m 28.3$ 23.19 49.5 $" \cos \delta$ 9.93547
 $+30^\circ 28'$ $.20$ 49.4 $" \sin \delta$ $0.04154m$
 $.11$ 49.8
 $.17$ 48.2

I 2.39

$+11$ 55 18 28 10.190 $+30$ 27 49.32 $\tan \delta$ $+0.59$
 $\sin z$ $+121$

July 28

Aug. 12

Aug. 13

Aug. 14

Aug. 18

Aug. 20

28 19.0	28 22.02	28 38.0	28 58.80	28 48.0	28 58.00	28 49.4	29 04.3	28 58.5	29 15.60
19.2	24.30	39.9	57.90	50.3	0.50	52.1	58.0	0.9	18.02
23.4	27.00	43.0	0.40	52.2	2.75	54.0	5.30	2.8	20.40
23.0	29.29	40.4	2.70	54.3	8.25	55.8	7.60	4.5	22.83
1164 27.8	13423 31.62	1442 47.9	190 51.0	2618 57.0	1497 7.67	2703 59.0	2613 10.00	135 6.8	10197 25.12
	35.10		8.65		11.59		13.65		25.64
	37.68		11.10		13.82		16.00		31.10
	39.92		13.40		15.95		18.38		33.53
	42.20		15.85		18.30		20.80		35.95
19965 44.70		6730 18.30		7966 20.70		9208 23.25		16759 38.87	
26.85	48.20	0.38	26.83 22.05	2.99	24.00	5.23	26.60	20.39	42.00
39.93	50.79	13.46	74 24.35	15.93	26.70	18.41	29.26	33.52	44.39
53.16	53.30	26.69	63 26.63	29.19	29.15	31.52	31.49	46.78	46.76
	55.53	7.6	1.62		31.55		33.95		49.15
11994 26.582	58.00	46.52	13344 31.40	49.11	14395 34.05	55.16	15760 36.30	10069	23390 51.60
28 23.28		28 42.84		28 52.36		28 54.06		29 2.70	
	28 39.80		29 13.51		29 16.036		29 18.386		29 33.563
- 25.49		- 59.26		- 1.79		- 4.25		- 1	19.52
- 0.94		- 0.92		- 0.92		- 0.91		-	0.84
- 3.27	- 29.70	- 3.14	- 1 3.28	- 3.13	- 1 5.84	- 3.12	- 1 8.28	- 0.83	- 3.02
									- 23.39
28 10.28		10.23		10.20		10.11			10.17

+16.70	+30.67	+23.65	+24.33	+30.86
1.22272	1.48671	1.37438	1.38614	1.48940
1.26426m	1.52825m	1.41592m	1.42768m	1.53094m
55 4	55 4	55 4	55 4	55 4
1.6 +20	12.2 +36	4.7 +23	4.9 +23	8.9 +30
4.9 +19	15.8 +17	7.6 +19	8.2 +19	11.9 +19
24.0 -14	34.3 -09	27.2 -02	26.9 -02	31.2 +02
19.6 +21	30.9 +23	24.2 +21	24.4 +21	27.2 +22
50.1 +46	43.2 +67	63.7 +61	64.4 +61	79.2 +73
59 12.52	59 23.30	59 15.92	59 16.10	59 17.80
-18.38	-33.75	-26.06	-26.77	-33.96
58 54.14	49.55	49.86	49.33	58 48.94
+30 23 54.21	58.80	23 58.49	59.02	23 59.41
+11 54 141				
1.08450				
-1102	-1357	-1380	-1258	-1425
1.07348	1.07093	1.07070	1.07192	1.07025
-11.84	-11.77	-11.77	-11.80	-11.78
- .07	- .22	- .14	- .14	- .14
- .21	- .13	- .13	- .13	- .13
- .12	- .17	- .15	- .15	- .18
-12.24	-12.29	-12.19	-12.22	-12.15
+30 23 41.97	46.51	46.30	46.80	47.26
+4 12.46	+4 10.90	+4 11.16	+4 11.29	+4 10.22
- .22	- .22	- .22	- .22	- .21
- 4.8 51	- 7.8 67	- 7.8 86	- 8.05	- 8.8
+4 7.73	+4 3.01	+4 3.08	+4 3.02	+4 0.84
+30 27 49.70	19.52	49.38	49.82	48.20

1878phae.proj.149

1878.0											
Ophiuchi											
18 ^h 30 ^m 38.58	15	30	38.58	+9	1	8	40.6	log R ₁	1.36147		
18 ^h 30 ^m 39.5			39.5				40.4	log R ₂	1.06080		
+9° 2'			74				39.5	R ₁	22.99		
			79				40.5	R ₂	11.50		
			74				37.8	I			
			69				38.4				
+33 21							tan δ	+0.16			
1878							sin z	+ .55			
July 28	Aug. 12		Aug. 13		Aug. 14		Aug. 20		Sept. 1		
18 30 32.2	30 41.12	31 39.6	31 37.60	31 18.7	31 28.60	31 18.72	31 31.15	31 24.1	31 46.25	31 56.3	32 15.30
34.3	43.23	1.4	39.79	17.8	30.50	17.0	33.30	26.4	47.30	58.4	17.30
35.6	43.32	2.4	41.88	20.0	32.50	18.6	35.50	25.0	54.48	0.0	19.35
37.1	47.50	5.3	43.95	22.0	34.92	20.2	37.48	29.7	62.07	1.8	21.50
1782 39.0	2671 49.4	165 6.8	2622 46.0	993 23.8	16402 37.00	931 22.1	17698 39.35	1394 31.2	3225 54.65	00 3.5	9700 23.65
31 15.3	52.60		49.00		40.28		42.47		57.82		26.70
17.4	54.78		51.20		42.18		44.64		59.92		28.80
19.6	58.65		53.40		44.30		46.82		62.03		30.90
21.9	58.88		55.50		46.40		48.95		64.05		33.00
981 23.9	3381 0.90		2665 51.35		22166 48.50		23388 51.00		987 6.05		15440 35.10
45.34 8.33	39.7	41.84	41.84	32.80	51.67	35.34	54.40	50.45	935	19.40	38.18
56.76 26	6.12	53.33	.83	44.33	53.70	46.78	56.05	1.97	11.40	30.88	40.29
8.14 14	8.16			55.81	55.80	58.25	58.28	13.47	13.40	42.37	42.30
17024	4069 12.25			13294	57.90	14043	0.40		15.50		44.46
30 35.64	31 8.243			31 19.86	0.00	29123 2.00		58.9	6735 17.70	9265	2118.3 46.60
31 19.62	30 56.746		31 41.835		31 44.313		31 46.803		32 1.963		32 30.883
- 25.54		- 59.287		- 1 180		- 1 4.26		- 1 19.52		- 1 48.65	
- 0.25		- 0.25		- 0.25		- 0.25		- 0.23		- 0.23	
- 3.68	- 29.36	- 3.53	- 1 03.00	- 3.52	- 1 5.57	- 3.51	- 1 8.02	- 3.46	- 1 23.22	- 3.31	- 1 52.14
	30 38.88		38.84		38.74		38.77		38.74		38.69
32.60		- 21.46									
+21.41	22.84	+28.54		+24.45		+28.19		+34.08		+30.88	
151322 1.32449	1.35927	1.58591	133163m	1.38828		1.45010		1.53250		1.48968	
1.61387 1.42514m	1.45492	1.68656m	133228	1.48893m		1.55075m		1.63315m		1.59033m	
25 0		20 3		20 4		25 0		25 0		25 0	
E 8.9 +16	[57.4] +00 +20		56.3 +01		0.0 +00		12.2 +24		7.0 +10		
F 14.9 +09	2.3 +02 +17		1.1 +00		4.8 +06		12.8 +10		7.3 +07		
G 35.4 -24	23.9 -26 -18		22.9 -29		26.3 -16		34.5 -19		30.0 -07		
H 26.3 +45	16.6 +34 +21		16.0 +18		19.7 +37		27.2 +46		22.3 +39		
8.50 +46	24 +10 +40		36.3 -14		50.8 +27		86.7 +61		66.6 +49		
25 21.38	25 10.05		25 9.07		25 12.70		25 21.68		25 16.65		
-26.62 41.10	+48.89 27.06		-30.83		-35.54		-42.97		-38.93		
24 54.76	21.46		38.24		37.16		38.71		37.72		
5.50 8.10	8.71										
+8 5.59	11.24		10.11		11.19		9.64		10.63		
	26.89										
+33 20 30											
1.57830											
-11.07	-1350		-1374		-12.51		-1928		-1948		
1.56753	1.56480		1.56456		1.56579		1.56702		1.55882		
-36.72	-36.71		-36.69		-36.80		-36.23		-36.21		
- .09	- .04		- .05		- .07		- .10		- .08		
- .02	- .13	-0.23	- .16	-0.27	- .01	-0.15	- .01	-0.26	- .02	-0.22	
- .12	- .03		+ .03		- .07		- .15		- .12		
-37.15	-36.78		-36.87		-36.98		-36.49		-36.43		
+8 57 30.92	34.26		33.24		34.24		33.15		34.20		
+4 12.46	+4 10.90		+4 11.16		+4 11.29		+4 10.22		+4 10.81		
- .57	- .57	+4 11.89	- .57	+4 10.33	- .57	+4 10.72	- .53	+4 9.67	- .52	+4 10.29	
- 2.36	- 4.89		- 4.31		- 4.42		- 5.01		- 6.11		
+4 9.73	+4 6.14		+4 6.28		+4 6.30		+4 4.60		+4 4.18		
+9 1 40.65	40.40		39.52		40.54		37.75		38.38		

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60

Serpentis (196 B) 18° 31' 19.94"

1878.0

24 39.0

18° 31.4'

188

39.6

n cos δ

9.99999

-0° 25'

93

38.6

n cos δ

0.10606m

92

38.7

n cos δ

0.10606m

88

38.6

n cos δ

0.10606m

83

38.7

n cos δ

0.10606m

+42 48

18 31 19.94

-0 24 38.8

tan δ

0.01

1878

sin Z

+ .68

Sept. 12

Sept. 14

Sept. 15

Sept. 16

Sept. 18

Sept. 19

h

m

s

m

s

33

24.88

33

17.7

33

30.27

33

16.0

33

33.00

33

12.7

33

35.70

33

18.7

33

40.38

33

25.6

33

42.76

33

27.6

33

47.00

33

47.00

33

48.05

33

59.05

14.8

27.00

19.2

34.37

20.5

37.37

16.3

39.73

21.9

44.72

27.6

47.00

28.2

48.05

31.0

46.60

33.0

48.63

1464

33.0

3486

59.05

34

4.3

36.17

41.50

34

13.0

44.50

34

12.6

46.90

34

32.1

51.76

34

24.0

16.8

28.00

20.8

36.45

22.1

39.28

17.9

41.87

23.7

46.60

25.6

48.63

1101

25.6

2276

48.63

1464

33.0

3486

59.05

34

4.3

36.17

41.50

34

13.0

44.50

34

12.6

46.90

34

32.1

51.76

34

24.0

54.05

18.5

31.00

22.3

36.45

22.1

39.28

17.9

41.87

23.7

46.60

25.6

48.63

1101

25.6

2276

48.63

1464

33.0

3486

59.05

34

4.3

36.17

41.50

34

13.0

44.50

34

12.6

46.90

34

32.1

51.76

34

24.0

54.05

83.3

20.2

4500

33.12

1046

24.6

17182

38.48

1013

23.9

18630

41.50

811

19.6

19894

43.83

1101

25.6

2276

48.63

1464

33.0

3486

59.05

34

4.3

36.17

41.50

34

13.0

44.50

34

12.6

46.90

34

32.1

34

4.3

36.17

41.50

34

13.0

44.50

34

12.6

46.90

34

32.1

51.76

34

24.0

54.05

5.9

38.35

43.50

46.53

48.50

50.65

52.70

54.75

56.80

58.85

60.90

62.95

65.00

67.05

69.10

71.15

73.20

75.25

77.30

79.35

8.0

40.40

45.65

47.80

49.95

52.10

54.25

56.40

58.55

60.70

62.85

65.00

67.15

69.30

71.45

73.60

75.75

77.90

80.05

82.20

84.35

86.50

88.65

90.80

92.95

95.10

97.25

99.40

101.55

103.70

105.85

108.00

110.15

112.30

114.45

116.60

9.6

42.52

47.77

49.92

52.07

54.22

56.37

58.52

60.67

62.82

64.97

67.12

69.27

71.42

73.57

75.72

77.87

80.02

82.17

84.32

86.47

88.62

90.77

92.92

95.07

97.22

99.37

101.52

103.67

105.82

107.97

110.12

112.27

114.42

116.57

118.72

39.4

11.6

20194

44.50

22855

30.00

824

20.0

4288

52.70

803

19.6

5554

65.28

1769

39.1

2953

0.07

1385

31.8

29125

240

2.900

4.768

7.536

10.304

13.072

15.840

18.608

21.376

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[illegible]

Lapce (63B) h m 2		1878.0	δ " h g a i n d		
18 ^h 41 ^m 9.51	18 41 9.51	+26 31 57.7	57.7	9.95167	
18 ^h 41.2	18 41.2	57.8	57.8	0.05774	
+26° 32'	57	57.9	57.9		
+15 51	52	58.1	58.1		
	53	57.8	57.8		
18 41 9.53	18 41 9.53	+26 31 57.7	57.7		
		tan δ	+0.50		
		inv x	+1.27		

Aug. 18	Aug. 20	Aug. 22	Aug. 29	Sept. 10	Sept. 14
41 65.8	42 10.35	42 8.0	42 15.65	42 6.5	42 24.50
0.6	12.60	9.8	18.03	5.6	2.88
3.7	15.10	12.0	20.84	11.6	2.010
5.3	17.30	14.0	22.62	12.4	2.738
157 7.3	7490 19.55	680 16.7	10164 25.20	556 18.5	12352 29.06
	23.03		28.40		32.10
	25.29		30.70		35.30
	27.60		33.00		38.05
	29.90		35.30		40.85
13812 32.30	4498 37.08	18910 42.60	27818 0.18	2603 22.85	620 16.0
14.98	20.33	41.00	25.10	40.50	42.94
27.62	32.99	43.38	37.82	45.20	55.64
40.32	45.71	46.72	50.53	52.05	8.27
8292	9903	2855 50.40	11345	2864 50.29	16685
42 3.14	42 12.00	42 11.12	42 48.38	43 1.86	43 7.38
	42 27.640	42 33.010	42 37.816	42 55.616	43 25.203
-1 14.24	-1 19.55	-1 24.56	-1 42.27	-2 12.15	-2 22.53
-0.70	-0.71	-0.76	-0.75	-0.71	-0.70
-3.18	-1 18.23	-3.16	-1 23.42	-3.13	-1 28.45
9	41 9.51	9.59	9.34	9.57	9.52
			45		
+24.50	+21.01	+26.70	+7.24	+23.34	+28.13
1.38 9.17	1.32 24.3	1.42 65.1	0.85 9.74	1.36 8.10	1.44 9.17
1.44 69.1m	1.38 0.17m	1.48 42.6m	0.91 7.48m	1.42 5.84m	1.50 6.91m
50 4	50 4	50 4	50 4	50 4	50 3
52.9 +0.4	48.9 +1.1	53.3 +0.4	30.2 +5.1	47.6 +1.5	52.6 +0.4
56.1 +0.9	52.2 +1.6	57.2 +0.7	33.8 +0.1	51.1 +1.8	56.0 +0.9
17.0 -4.1	12.3 -2.6	16.8 -4.1	54.2 -4.0	11.6 -2.2	17.8 -4.1
11.3 +2.0	8.4 +1.9	11.9 +2.0	50.2 +0.4	5.3 +1.5	9.2 +2.0
17.3 -0.5	1.8 +2.0	1.2 -1.0	16.8 +1.6	23.56 +2.6	15.6 -0.8
55 4.32	55 0.45	55 4.80	54 42.10	54 58.90	55 3.90
-27.99	-24.00	-30.50	-8.27	-26.66	-32.13
54 36.33	36.45	34.30	33.83	32.24	31.77
+26 28 12.02	11.90	14.05	14.52	16.11	16.58
+15 50 26					
1.21 32.0					
-13.83	-19.02	-19.2	-7.77	-7.49	-8.58
1.19 9.37	1.19 4.18	1.21 1.28	1.20 5.43	1.20 5.71	1.20 4.62
-15.83	-15.64	-16.25	-16.05	-16.06	-16.02
-13	-10	-16	-100	-12	-17.6
-15	-15	-15	-23	-50	-51.6
+0.2	-0.5	+0.3	-0.4	-0.7	+0.21
-16.09	-15.94	-16.55	-16.32	-16.75	-16.68
+26 27 55.93	55.96	57.50	58.20	59.36	59.90
					60.20
+4 10.92	+4 10.22	+4 10.03	+4 10.47	+4 10.82	+4 9.90
-28	-28	-27	-26	-24	-23
-8.84	-9.17	-9.54	-10.54	-11.81	-12.12
+4 2.80	+4 0.77	+4 0.28	+3 59.72	+3 58.77	+3 57.55
+26 31 57.73	56.73	57.78	57.92	58.13	57.75

[illegible]

Lyræ (67 B) 18 ^h 43 ^m 21.06		1878.10		5 ^h 37 ^m 20.8		by R. R.		1.12524		65		
18 ^h 43.5	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	
+31° 38'	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	
+10 45	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	1878.10	
Aug. 18	Aug. 20	Aug. 22	Sept. 10	Sept. 14	Sept. 16	Sept. 18	Sept. 20	Sept. 22	Sept. 24	Sept. 26	Sept. 28	
44 8.6	44 21.00	44 8.0	44 26.43	44 10.2	44 31.40	45 36.1	45 —	45 40.0	45 29.00	45 9.0	45 34.10	
10.9	23.52	7.7	25.92	12.7	33.83	38.5	—	43.1	21.35	10.5	36.55	
12.9	26.00	9.7	28.31	10.6	36.20	40.8	—	45.0	33.69	11.9	38.00	
14.8	28.40	12.0	30.80	17.4	38.66	43.0	23.58	46.7	36.29	13.3	41.55	
645 17.3	29.72	30.80	48.4 14.0	666 36.20	762 19.3	1814 44.00	2030 44.6	44 28.48	2235 48.7	45 38.65	607 16.0	45 43.80
34.40	36.87	39.29	41.70	44.18	46.48	48.77	51.90	54.20	56.70	59.00	61.20	63.50
25.94	47.74	36.33	53.16	36.23	58.03	23.61	36.95	33.79	55.36	39.00	0.95	—
39.27	54.19	44.64	55.60	49.60	60.00	36.95	.95	47.13	57.92	52.42	3.20	—
52.59	52.54	57.99	58.00	2.91	2.91	—	—	4.45	0.30	5.74	5.65	—
1178.5	58.00	133.76	84.0	148.74	53.0	—	—	141.38	2.95	157.16	8.05	—
44 12.30	26.27	57.80	44 9.88	44 44.63	44 15.24	45 40.60	45 36.950	45 44.70	45 47.12	46 12.14	45 52.384	—
-1 14.25	44 39.27	-1 19.57	44 44.63	-1 24.56	44 49.580	-2 12.15	-2 22.54	-2 22.54	45 47.12	-2 27.94	-2 27.94	—
- 0.87	- 0.87	- 0.88	- 0.88	- 0.94	- 0.94	- 0.88	- 0.88	- 0.88	- 0.88	- 0.88	- 0.88	—
- 3.10	- 3.10	- 3.07	- 3.07	- 3.08	- 3.08	- 2.78	- 2.78	- 2.62	- 2.62	- 2.58	- 2.58	—
- 1 18.22	- 1 18.22	- 1 23.52	- 1 23.52	- 1 28.85	- 1 28.85	- 2 15.74	- 2 15.74	- 2 26.02	- 2 26.02	- 2 26.02	- 2 26.02	—
43 21.08	43 21.08	21.03	21.03	21.03	21.03	21.21	21.21	21.12	21.12	21.12	21.12	—
+26.38	+34.97	+34.34	+34.34	-3.65	-3.65	+2.43	+2.43	+40.25	+40.25	-29.65	-29.65	—
1.42127	1.54370	1.53580	1.53580	0.56229	0.56229	0.38561	0.38561	1.60477	1.60477	1.47202	1.47202	—
1.45748	1.57991	1.57201	1.57201	0.57850	0.57850	0.42182	0.42182	1.64078	1.64078	1.50823	1.50823	—
45 4	45 4	45 4	45 4	45 3	45 3	45 4	45 4	45 4	45 4	45 3	45 3	—
35.0 +4.2	43.2 +2.4	40.2 +3.1	40.2 +3.1	57.5 +2.0	57.5 +2.0	4.8 +2.3	4.8 +2.3	44.2 +2.2	44.2 +2.2	29.8 +5.8	29.8 +5.8	—
38.2 +0.4	46.2 +1.9	45.2 +1.8	45.2 +1.8	1.2 +1.5	1.2 +1.5	7.3 +1.9	7.3 +1.9	48.8 +1.9	48.8 +1.9	34.7 +1.4	34.7 +1.4	—
58.0 -0.6	5.6 +0.0	4.8 +0.1	4.8 +0.1	22.9 -1.9	22.9 -1.9	30.0 +0.2	30.0 +0.2	7.4 -0.3	7.4 -0.3	54.1 -2.8	54.1 -2.8	—
53.9 -0.1	3.9 +1.2	1.0 +0.2	1.0 +0.2	16.6 +2.1	16.6 +2.1	20.7 +2.1	20.7 +2.1	1.8 +0.4	1.8 +0.4	49.8 +1.2	49.8 +1.2	—
185.1 +3.9	218.9 +5.5	211.2 +5.2	211.2 +5.2	38.2 +3.7	38.2 +3.7	62.8 +6.5	62.8 +6.5	22.2 +4.2	22.2 +4.2	16.7 +5.6	16.7 +5.6	—
49 46.28	49 54.72	49 52.80	49 52.80	49 9.55	49 9.55	49 15.70	49 15.70	49 55.55	49 55.55	48 41.70	48 41.70	—
-28.67	-38.01	-37.33	-37.33	3.97	3.97	-2.64	-2.64	-43.75	-43.75	32.23	32.23	—
49 17.61	16.71	15.47	15.47	13.52	13.52	13.06	13.06	11.80	11.80	14.13	14.13	—
+31 33 30.74	31.64	32.88	32.88	34.83	34.83	35.29	35.29	36.55	36.55	34.22	34.22	—
+10 45 08	1.03880	-13.78	-13.78	1.02502	1.02502	-10.59	-10.59	-10.72	-10.72	-11.00	-11.00	—
1.03880	1.03880	-13.78	-13.78	1.02502	1.02502	-10.59	-10.59	-10.72	-10.72	-11.00	-11.00	—
-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	-13.78	—
1.02502	1.02502	-10.44	-10.44	1.03693	1.03693	-10.75	-10.75	1.03026	1.03026	1.04142	1.04142	—
-10.59	-10.59	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.72	-10.72	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72	-11.00	-11.00	—
-10.44	-10.44	-10.44	-10.44	-10.89	-10.89	-10.75	-10.75	-10.72	-10.72			

[illegible]

Aquilae (10.3) $46^{\circ} 26' 59''$ $+13^{\circ} 49' 15.7''$ $\log R_1$
 $18^{\circ} 46.5'$ 52 15.1 $\log R_2$
 $+13^{\circ} 50'$ 54 15.7 R_1
 $41 \frac{1}{2}$ 14.4 15.7 R_2
 53 15.1 I
 44

106.816
 11.70

$+28^{\circ} 33'$

$18^{\circ} 46' 26.514'' +13^{\circ} 49' 15.30''$

$\tan \delta + 0.225$
 $\sin Z + .48$

Aug. 12

Aug. 13

Aug. 29

Sept. 1

Sept. 10

Sept. 14

47. 36.5	47. 137.0	47. 10.2	47. 163.0	47. 41.8	47. 56.57	48. 41.4	—	48. 9.0	48. 26.18	48. 24.7	48. 36.60
39.0	16.00	11.8	18.40	43.4	58.65	43.6	—	11.0	28.28	26.3	38.60
41.8	18.00	13.8	20.60	45.8	0.75	45.6	—	12.4	30.44	27.9	40.70
43.2	20.20	15.7	22.67	47.5	3.00	47.4	—	14.4	32.57	29.4	42.80
2059 45.4	9029 22.39	703 18.8	10267 24.80	2283 48.8	415 5.18	2276 48.6	—	638 17.0	15232 34.85	1401 31.8	10368 44.85
	25.40		28.00		8.20		48 14.50	49 5.0	38.00	49 19.8	48.10
	27.60		30.05		10.38		16.66	7.0	40.05	21.7	53.35
	29.73		32.80		12.49		18.80	8.7	42.26	23.4	52.42
	32.07		34.80		14.60		21.00	10.2	44.29	25.5	54.53
4885 34.05		16115 36.80		6244 16.77		9396 23.00	445 13.6	21094 46.35	1182 27.8	26210 56.70	
18.06	37.30	20.53	39.60	0.83	19.95	—	26.15	30.46	49.70	40.73	57.85
29.77	39.48	32.23	41.80	12.49	22.05	18.79	28.29	42.19	51.72	52.42	1.99
41.57	41.60	43.95	44.00	24.19	24.20	30.39	30.37	52.91	53.93	4.11	4.04
8440	43.65	9691	46.00	37.51	26.30	15199 34.68	126.56	56.05	58.15	157.26	6.18
47 41.18	20788 45.85	47 14.06	21975 48.30	47 45.66	12095 28.48	48 45.52	48 18.740	49 8.70	48 42.186	49 23.64	48 52.420
	47 29.800	47 32.236		48 12.503		48 18.740	49 8.70	48 42.186	49 23.64	48 52.420	
-D 59.2633	-1 1.84	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227	-1 4.227
- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239	- 0.7239
- 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49	- 1 3.49
46 26.66	26.52	26.54	26.54	26.54	26.54	26.54	26.54	26.54	26.54	26.54	26.54

-11.38	+18.18	+26.84	-26.78	+29.43	-26.71	+24.40	-31.22
1.05614m	1.25959	1.42878	1.42781m	1.46879	1.42667m	1.38739	1.49443m
1.14743	1.35288m	1.52207m	1.52110	1.56208m	1.51996	1.48068m	1.58772
35 1	35 2	35 2	35 1	35 2	35 1	35 2	35 1
38.8 +35	16.2 +39	23.4 +52	18.8 +47	25.9 +54	14.9 +40	19.0 +46	10.3 +29
44.2 +38	21.7 +28	28.8 +23	23.9 +20	33.4 +21	21.2 +22	24.8 +25	16.2 +25
6.8 +08	44.3 -51	51.0 -52	47.7 -57	54.9 -29	44.0 -52	49.1 -56	39.9 -40
58.2 +30	35.8 +44	42.7 +35	38.7 +55	44.7 +33	34.6 +60	35.6 +44	27.8 +65
208.0 +111	118.0 +60	148.9 +58	129.1 +65	158.9 +79	114.7 +70	138.5 +59	94.2 +79
36 52.00	37 29.50	37 36.47	36 32.27	37 39.72	36 28.67	37 30.12	36 23.55
14.11	-22.54	-33.27	33.20	-36.48	33.11	-30.25	38.70
37 6.11	6.96	3.20	5.47	3.24	1.78	1.87	2.25
+13 45 42.34	41.39	45.15	42.88	45.11	46.57	46.48	46.10
428 32 56							
1.49580							
-12.93							
1.48287							
-30.40							
- .02							
- .06							
- .28							
-32.76							
+13 45 11.48							
+4 10.90							
- .49 +4 10.41							
- 6.215							
+4 4.26							
+13 49 15.74							

1878phae.proj.149

1878

Herculis (493 B) $18^{\circ} 50.8'$ $+17^{\circ} 58'$ $+24$ 25

1878

Aug. 12 Aug. 13 Aug. 22 Aug. 25 Aug. 27 Sept. 10

18 51 16.3 51 80.22 51 15.3 51 82.79 51 37.4 51 38.38 51 43.6 52 26.0 52 22.0 52 42.69

18.4 32.48 16.8 34.90 39.8 87.50 47.5 47.0 24.0 44.50

20.1 34.69 18.7 37.10 41.5 89.50 49.9 68.5 26.2 47.00

22.0 36.70 20.5 39.20 43.5 91.50 51.8 92.0 28.6 49.00

1005 23.5 17314 39.00 946 23.3 18584 41.40 2079 43.7 24853 40.5 2493 54.5 3462 1127 1811 30.3 23489 51.40

42.40 44.40 46.40 48.40 23254 51.00 24523 53.28 5807 16.03 9431 23.28 53 26.0 54.58

44.46 46.46 48.46 50.46 24523 53.28 5807 16.03 9431 23.28 53 26.0 54.58

44.46 46.46 48.46 50.46 24523 53.28 5807 16.03 9431 23.28 53 26.0 54.58

44.46 46.46 48.46 50.46 24523 53.28 5807 16.03 9431 23.28 53 26.0 54.58

34.63 54.30 37.11 56.70 59.71 1918 6.92 26.45 46.98 6.33

46.71 56.42 49.07 58.70 11.61 21.87 18.86 28.59 39.07 8.65

38.61 58.03 1.00 1.00 23.49 23.53 30.76 30.70 18.86 10.50

13995 57.8 14718 320 3481 25.59 5654 3290 17691 13.00

51 20.10 29303 30.0 51 18.92 500 54.0 51 41.58 1749 27.80 51 49.86 15379 35.15 52 26.22 5429 15.29

51 46.650 51 18.92 51 49.060 52 11.603 52 18.846 52 26.22 5429 15.29

59.27 35 1 1.85 1 24.52 1 31.76 1 35.53 1 32.8

0.50 0.50 0.48 0.47 0.45 0.45 0.45

3.43 1 328 3.43 1 5.78 3.34 1 28.40 3.30 1 35.53 3.28 3.07 2 15.69

50 43.45 43.28 43.28 43.28 43.28 43.28

+26.55 +30.14 +30.02 +28.99 +32.75 -31.15

1.42406 1.47914 1.47741 1.46225 1.51521 1.49346

1.50842 1.56350 1.56177 1.54661 1.59957 1.57782

25 4 25 4 25 4 25 4 25 4 25 3

32.3 +4.8 36.2 +3.9 31.8 +4.8 31.7 +4.9 35.9 +4.0 38.1 +4.2 17.7 +5.0

37.7 +0.4 41.3 +1.1 38.2 +0.4 39.1 +0.6 41.9 +1.2 41.1 +1.0 23.9 +1.9

59.0 -0.4 1.5 +0.2 57.3 -1.1 58.7 -0.5 1.4 +0.2 1.1 +0.2 45.2 -4.7

53.2 +0.1 54.3 -0.1 51.6 +0.2 51.8 +0.2 55.3 -0.1 54.3 -0.1 37.2 +2.8

18.2 +4.9 19.3 +5.1 17.8 +4.3 18.1 +5.2 19.4 +5.3 19.1 +5.3 19.1 +5.3

29 45.55 29 48.32 29 44.72 29 45.32 29 47.90 29 48.62 29 47.90 28 31.00

-32.24 -36.60 -36.46 -35.21 -39.77 37.83

29 13.31 11.72 8.26 29 10.11 8.13 8.83

+17 53 35.04 36.63 40.09 38.24 40.22 39.52

+24 25 03 1.41730 1.40453 -25.38 -12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306

-12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306

-12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306

-12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306 -12.77 -14.04 1.40418 -25.306

17 53 09.28 10.86 13.66 12.19 13.75 13.20

+4 10.90 +4 11.16 +4 10.63 +4 10.49 +4 10.82 +4 10.46

-42 +4 10.48 -42 +4 10.74 -41 +4 9.62 -41 +4 10.08 -41 +4 10.46 -41 +4 10.46

-42 +4 10.48 -42 +4 10.74 -41 +4 9.62 -41 +4 10.08 -41 +4 10.46 -41 +4 10.46

-42 +4 10.48 -42 +4 10.74 -41 +4 9.62 -41 +4 10.08 -41 +4 10.46 -41 +4 10.46

-42 +4 10.48 -42 +4 10.74 -41 +4 9.62 -41 +4 10.08 -41 +4 10.46 -41 +4 10.46

+17 53 12.69 14.37 14.72 13.31 13.34 13.34

<p> <i>Aquila</i> (1823) 52^h 49.08 +17° 11' 52.5" <i>bygenid</i> 18^h 52.9" <i>cos δ</i> 9.98013 +17° 12' <i>1500000</i> 0.08620w +25 11 <i>tan δ</i> +0.31 18 52 49.070 +17 11 52.83 <i>sin Z</i> +.42 </p>															
<p> Aug. 20 Aug. 22 Aug. 25 Aug. 29 Sept. 10 Sept. 16 </p>															
2.69	53 39.7	53 46.28	53 44.0	54 1.15	53 48.8	54 8.35	53 57.3	54 19.00	54 40.0	54 48.70	54 46.3	55 4.07			
1.80	41.5	58.36	46.0	3.88	0.11	10.65	57.4	21.00	41.5	50.89	48.0	6.37			
1.00	43.8	0.55	40.3	5.36	5.30	12.45	1.1	23.20	43.2	52.87	52.3	8.41			
1.00	45.7	2.70	50.0	7.73	5.35	14.90	3.2	25.40	45.3	55.15	57.9	10.60			
1.40	2181 47.6	204 51.5	2402 51.9	2770 9.88	2661 5.77	6395 17.10	56 4.6	11625 27.65	2174 47.4	26486 57.26	2502 53.7	4235 12.90			
1.48		8.18		13.00		2028		20.75		0.50	43 53.8	16.20			
1.85		10.30		15.77		2250		33.00		2.60	52.5	18.25			
1.20		12.48		17.45		2465		35.15		4.70	54.6	20.40			
1.30		14.65		19.60		2682		37.40		6.95	56.3	22.48			
1.40		6231 16.90		4692 21.70		12325 29.00		17594 39.64		2380 9.05	2718 57.7	10198 24.65			
1.43	0.41	2000 5.54	2487	12.79	8220	23.25	42.68	52.97	12.25	8.47	28.05				
1.50	12.50	2225 17.38	2703	24.65	3440	35.19	44.78	4.76	14.35	20.39	30.24				
1.50	24.37	2435 29.22	2920	36.54	3635	47.02	47.00	16.58	16.60	32.35	32.33				
1.50	3728	2655	31.40	7398	35.70	10546	49.19	1431	18.18	6121	34.47				
1.29	53 43.62	12187 28.72	5214	4612 33.62	7398	4265 49.83	23509 57.44	54 43.48	5290 20.92	54 50.04	16176 34.63				
1.70		54 12.426	53 48.04	54 17.380	53 53.22	54 24.660	54 35.153	55 4.770	55 54.36	55 20.403					
	-1 19.59	-1 24.58	-1 24.58	-1 31.77	-1 31.77	-1 42.29	-1 42.29	-2 12.17	-2 27.95	-2 27.95					
	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44					
1.69	-3.38	-1 23.41	-3.38	-1 28.44	-3.38	-1 35.56	-3.38	-1 46.03	-3.10	-2 15.71	-3.00	-2 31.36			
1.28		52 49.08		4844		4910		4912		4906		4904			
				49.02											
1.6	+28.87	+22.34	+31.44	+34.03	+21.29	+30.36	-33.96								
6m	1.46045	1.46746	1.49748	1.53186	1.32818	1.48230	1.53097m								
2	1.54663m	1.55366m	1.58368m	1.61806m	1.41438m	1.56850m	1.61717								
	10 4	10 4	10 4	10 4	10 4	10 4	10 3								
1.50	53.4 +0.4	57.9 +0.5	55.2 +0.2	58.7 +0.0	40.9 +2.9	50.7 +0.8	33.0 +5.6								
1.19	58.7 +0.3	57.3 +0.7	1.7 +0.1	3.7 +0.2	46.1 +1.9	56.1 +0.9	38.3 +1.8								
1.47	19.9 -3.8	18.1 -4.1	21.4 -3.4	24.4 -2.2	7.5 -0.4	18.4 -4.1	59.0 -0.4								
1.28	13.7 +2.0	11.0 +2.0	14.3 +2.0	17.7 +1.8	58.9 -0.1	8.2 +1.9	51.1 +0.9								
1.30	25.7 -1.1	18.3 -0.9	32.6 -1.1	44.5 -0.2	213.4 +4.5	13.4 -0.5	181.4 +2.9								
1.0	15 6.42	15 4.58	15 8.15	15 11.12	14 53.35	15 3.35	13 45.35								
83	-35.21	-35.78	-38.34	-41.50	-25.96	-37.03	41.42								
83	14 31.21	28.80	29.81	29.62	27.39	26.32	26.77								
52	+17 8 17.14	19.55	18.54	18.73	20.96	22.03	21.58								
	+25 10 21														
	1.43230														
	-1879	-168	-909	-759	-745	+281									
	1.41351	1.43062	1.42321	1.42471	1.42485	1.43511									
	-25.71	-26.95	-26.50	-26.59	-26.60	-27.23									
	-1.13	-1.13	-1.15	-1.18	-1.07	-1.14	-1.18								
	-1.15	-1.15	-1.20	-1.20	-1.49	-1.51	-1.38								
	+1.03	+1.02	+1.03	+1.01	-1.11	+1.01	-1.20								
	-25.16	-27.07	-26.82	-26.77	-27.27	-27.87	-27.99								
	+17 7 50.98	52.34	51.72	51.71	53.69	54.16	53.59								
						53.88									
	+4 10.22	+4 10.03	+4 10.49	+4 10.47	+4 10.82	+4 9.84									
	-4.43 +4 9.79	-4.42 +4 9.61	-4.42 +4 10.07	-4.42 +4 10.06	-4.37 +4 10.45	-4.34 +4 9.50									
	-8.229	-8.256	-8.284	-8.284	-8.258	-8.258									
	+4 1.50	+4 1.05	+4 1.13	+4 0.63	+3 59.87	+3 58.49									
	+17 11 52.48	53.39	52.85	52.34	53.56	52.37									

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Draconis

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Sept. 16

Sept. 17

2.8	57 53.9	57 48.2	58 15.1	57 57.3	57 50.5	58 17.6
5.2	58.9	50.8	17.4	3.4	53.0	19.9
7.8	2.4	53.0	19.8	6.0	55.6	22.4
20.2	8.3	55.5	22.5	10.7	58.0	24.8
2.8	155 12.0	58.0	24.7	314 14.0	0.5	27.2
5.0		0.4	27.2		3.0	29.7
7.3		2.7	29.8	58 43.7	5.6	32.2
		5.4	32.0	49.0	7.7	34.7
32.3		5219 7.9	2230 34.5	52.7	39 10.0	2455 37.0
				57.9		
39.6		57.99	41.9	2653 2.0	0.43	44.4
42.2		24.77	44.2		27.28	47.0
44.7		51.79	46.7		54.32	49.5
47.8			49.3		54.32	51.8
49.4		744.5	51.9			54.2
51.7			54.4		8203	56.9
54.3			56.7			59.4
56.2			58.3			61.7
58.4	58 3.10			58 6.28		
26.3			4661 1.7	58 53.06		4889 4.0
			58 24.816			58 27.343
	- 2 27.95		50	- 2 39.37		
	- 2.86			- 2.76		
2.52	- 1.02	8-2 31.89	- 2 31.89	- 1.02	3-2 34.16	- 2 34.16
53.08			5296			53.18

+21.75		+21.06	-25.72
1.33746		1.32346	1.41027m
1.06758m		1.05358m	1.14039
20 1		20 1	20 1
29.1 +52		27.3 +53	2.8 +15
29.2 +18		28.0 +18	2.2 +18
49.1 -55		49.1 -55	22.2 -31
44.2 +47		44.4 +46	18.5 +67
151 6 +62		1488 +62	457 +69
21 37.90		21 37.20	21 11.42
-11.68		-11.31	13.82
21 26.22		25.89	25.24
1 22.13		22.46	23.11
+287		-572	
1.38477		1.37618	
+24.25		+23.78	
- .10		- .09	- .14
- .16		- .16	- .12
- .15		- .16	- .17
+23.84	- 0.41	+23.37	+23.35
45.97		45.83	46.46
		46.14	
+4 9.84		+4 10.82	
+ .31	+4 10.15	+ .31	+4 11.13
- 17.864		- 17.878	
+3 51.51		+3 53.35	
37.48		39.49	

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2102 45.9

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38 42.04

39 12.82

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1.19396

1.19229

1.10415

1.21004

1.35641

1.43393

1.29623

1.47799

1.13130

1.64454

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1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0	1878.0
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Aug. 25

$$\begin{array}{r} 19 \quad 6 \quad 49.0 \\ 8 \quad 7.9 \end{array}$$

$$\begin{array}{r} 7 \quad 11.0 \\ 18.6 \quad 18.0 \\ 18.7 \quad 26.3 \\ 19.1 \quad 24.3 \\ 18.9 \quad 41.7 \\ 18.5 \quad 48.9 \end{array}$$

3822 12.8

$$\begin{array}{r} 18.63 \\ 42.47 \\ 59.8 \\ 127.09 \end{array}$$

$$\begin{array}{r} 6 \quad 49.0 \\ 8 \quad 7.90 \end{array}$$

$$\begin{array}{r} -1 \quad 31.81 \\ -10.77 \\ -0.07 \\ 10 \end{array}$$

Aug. 26

8 0.4

$$\begin{array}{r} 8 \quad 12.0 \\ 19.7 \\ 27.6 \end{array}$$

$$\begin{array}{r} 34.6 \\ 42.7 \\ 49.8 \\ 57.3 \\ 55.7 \end{array}$$

$$\begin{array}{r} 30.4 \\ 43.0 \\ 51.0 \\ 55.4 \\ 5.6 \\ 13.3 \\ 21.6 \end{array}$$

$$\begin{array}{r} 53.5 \quad 36.6 \\ 89 \quad 42.363 \end{array}$$

$$\begin{array}{r} -1 \quad 42.68 \\ 17 \quad 59.68 \end{array}$$

8 0.4

6 —

8 13.3

20.1 57.3

20.2 5.0

20.6 13.1

19.7 19.7

20.1 27.7

20.5 35.7

20.5 43.3

20.3 50.7

20.25 37.8

44.23 44.7

7.53 52.1

132.01 58.8

8.3 8.3

15.4 15.4

22.1 22.1

30.4 30.4

678 38.1

-1 3449 8 44.003

-10.329 -10.329

+0.04 -1 44.74

59.26

$$\begin{array}{r} +113.36 \\ 2.05423 \\ 1.29293m \\ 15 \quad 0' \end{array}$$

$$\begin{array}{r} +34.46 \\ 1.58732m \\ 0.77602m \end{array}$$

$$\begin{array}{r} +43.60 \\ 1.63949 \\ 0.87819m \\ 15 \quad 1 \end{array}$$

$$\begin{array}{r} 57.2 +13 \\ 59.8 +17 \\ 15.2 -38 \\ 16.3 +69 \\ 28.5 +61 \\ 16 \quad 7.12 \\ -17.63 \\ 15 \quad 47.49 \\ 16 \quad 41.20 \\ +82 \quad 36 \quad 0.56 \end{array}$$

5.97

$$\begin{array}{r} -39 \quad 48 \quad 8 \\ 1.68070 \\ -868 \\ 1.67202 \\ +46.99 \\ -0.09 \\ -0.04 \\ -0.15 \\ +46.71 \\ +82 \quad 733.91 \end{array}$$

$$\begin{array}{r} +4 \quad 10.49 \\ + \quad 64 \\ -13.217 \\ +3 \quad 58.96 \\ 11 \quad 31.87 \end{array}$$

+4 11.13

$$\begin{array}{r} 0.4 +13 \\ 1.4 +17 \\ 17.4 -42 \\ 17.7 +67 \\ 36.9 +85 \\ 16 \quad 9.22 \\ -7.55 \\ 16 \quad 1.67 \\ 6 \quad 46.68 \end{array}$$

$$\begin{array}{r} -712 \\ 1.67358 \\ +47.16 \\ -0.15 \\ -0.05 \\ -0.14 \\ +46.82 \\ 33.50 \end{array}$$

$$\begin{array}{r} +4 \quad 10.93 \\ + \quad 64 \\ -12.40 \\ +3 \quad 58.17 \\ 31.67 \end{array}$$

-0.34

+4 11.57

1878.0

Byzoe (145 B) 10^m 40.54

+30

18 52.6

by aid

by R₁
R₂

1.11924

19^m 10.8
+30° 19'57
56
48.51
56
5451.5
50.9
51.6
51.6
51.4n cos δ 9.93614
0.04221mR₁
R₂
I

13.16

+12 4

19 10 40.54
39

+30

18 51.60

tan δ

+0.58

sin Z

+0.21

Aug. 14

Aug. 18

Aug. 20

Aug. 22

Sept. 1

Sept. 14

11 5.2	11 31.00	12 1.7	11 40.95	12 9.6	-	11 40.4	11 51.20	11 53.4	12 35.15	12 28.0	12 48.75
7.4	33.2	3.3	43.1	11.7	-	47.0	53.70	35.6	17.60	29.9	51.40
9.0	35.8	5.4	45.8	14.2	-	45.7	56.10	57.6	19.90	31.6	53.62
12.0	38.0	7.7	48.17	16.2	-	51.5	58.36	0.0	22.45	33.5	56.04
482 14.6	4950 40.70	286 10.5	2898 0.950	700 18.3	-	2456 52.0	2026 0.90	2587 2.1	9962 24.72	1585 36.5	2829 58.48
	44.5		54.18		11 59.40		43.0		28.40	13 33.0	2.04
	46.60		56.33		1.80		6.82		30.80	34.6	4.40
	49.00		58.78		4.30		9.00		33.10	36.4	6.80
	51.55		1.38		6.66		11.53		35.55	38.4	9.00
24518 53.78		2967 3.80		2111 9.00		4545 13.80		16885 38.00	1530 40.6	3379 11.35	
35.90	57.50	48.79	738	—	12.60	56.05	17.68	19.96	41.45	53.66	15.00
49.03	59.50	58.93	9.82	4.22	4.22	15.20	9.09	20.02	43.52	6.76	17.49
2.25	2.20	12.10	12.05	17.40	24	17.40	22.37	22.40	46.27	19.88	19.83
14718	1125 7.20	17682	14.80	19.50	8700 22.20	2751	24.78	24.78	48.68	2030	22.38
11 9.64		12 5.72	6050 16.85	12 14.00	11 49.12	1188 27.00	9940	33138 57.00	2030	9939 24.69	
	11 49.060		11 58.940	12 4.230		12 9.170		12 33.133	13 36.60	13 6.766	
-1 4.36	-1 14.33	-1 19.64	-1 0.82	-1 23.67	-1 24.650	-1 0.88	-1 48.75	-1 0.84	-1 22.61	-1 0.81	-1 26.23
-0.89	-0.81	-0.82	-0.81	-0.81	-0.81	-0.81	-0.81	-0.81	-0.81	-0.81	-0.81
-327	-1 8.52	-3.23	-1 18.37	-3.21	-1 23.67	-3.18	-1 28.69	-3.04	-1 52.63	-2.81	-2 26.23
	10 40.54		40.54		40.56		40.48		40.50		40.54

+39.42	-6.78	-2.77	+20.05	+35.39	+35.07	-29.83
1.59572	0.83123m	0.98989m	1.30211	1.54888	1.54494	1.47465m
1.63793m	0.87344	1.03210	1.34432m	1.59109m	1.58715m	1.51686
5 3	5 2	5 2	5 2	5 3	5 3	5 1
16.1 +47	25.4 +54	21.3 +49	52.9 +17	9.0 +31	5.9 +23	55.1 +09
20.0 +25	29.3 +23	26.2 +25	57.2 +32	11.8 +30	9.7 +30	58.5 +32
39.1 -28	49.8 -54	45.1 -53	16.3 -30	32.9 +01	30.6 +06	20.2 -28
35.0 +31	43.4 +35	40.7 +38	110 +40	28.2 +34	21.9 +34	12.0 +49
110.2 +75	147.9 +58	133.3 +59	7.89	81.9 +36	68.1 +33	25.8 +62
8 27.55	7 36.98	7 33.32	8 4.35	8 20.48	8 17.02	7 6.45
-43.44	7.47	10.77	-22.10	-37.00	-38.65	32.87
7 44.11	44.45	44.09	42.25	41.48	38.37	39.32
+30 15 4.24	3.90	4.26	6.10	6.87	9.98	9.03
+12 3 34						
1.09000						
-1122	-1338	-1842	-123	-1869	-802	
1.07878	1.07662 94	1.07158	1.08877	1.08034 7131	1.08198	
-11.99	-11.934	-11.79	-12.27	-12.03 11.78	-12.08	
-0.37	-0.00	-0.02	-0.09	-0.30	-0.29	-0.21
-0.11	-0.08	-0.08	-0.09	-0.20	-0.33	-0.21
-0.19	-0.15	-0.15	-0.15	-0.24	-0.23	-0.16
-12.66	-12.167	-12.04	-12.60	-12.752	-12.93	-12.66
+30 14 51.58	51.73	52.22	53.50	54.35	57.05	56.37
+4 11.29	+4 10.92	+4 10.22	+4 10.03	+4 10.81	+4 9.90	
-0.22	-0.21	-0.21	-0.21	-0.20	-0.18	+4 9.72
-10.07	-10.90	-10.824	-11.867	-13.237	-15.05	
+4 1.00	+3 59.81	+3 58.72	+3 58.15	+3 57.24	+3 54.67	
+30 18 52.58	51.54	50.94	51.65	51.54	51.38	

[illegible]

[illegible]

Aquilae (106 B) 14

20 44.08

1878.0

+12

46 44.8

begin

19^h 20^m

43.93

46.4

" end

9.98907

+12° 48'

44.01

45.0

" 150086ani

0.09514m

+29 35

43.98

46.0

tan

+ 0.23

44.05

46.7

sin Z

+ .49

43.99

45.5

19 20 43.995

+12

46 45.73

Aug. 14

Aug. 18

Aug. 20

Aug. 22

Aug. 25

Aug. 26

19	21	33.4	21	36.38	21	33.9	21	46.30	31	29.6	21	31.75	21	35.0	21	36.70	21	43.8	22	38.0	21	45.7	22	6.53
		35.2		38.70		35.5		48.44		31.1		33.83		29.7		35.70		47.5		6.00		48.0		8.55
		36.6		40.50		37.6		50.0		32.5		36.00		41.2		0.80		49.7		8.18		49.7		10.20
		37.8		43.00		39.5		52.74		34.8		38.17		43.3		2.80		51.7		10.33		51.7		12.85
18.33	40.3	20.98	45.10	18.82	41.7	20.66	54.78	16.49	36.9	27.93	0.18	20.76	45.4	400	5.00	24.84	53.7	40.89	12.49	25.03	55.2	53.63	15.00	

	4820			5788		337		825		1500		1803	
	5020			915		542		1028		1763		2020	
	5238			220		760		1238		1980		2228	
	5450			439		966		1460		2185		2450	
26L93	56.65		1105	643		3782	1177	6220	1669	9882	2404	11166	26.65

40.79	59.80	50.57	9.60	55.99	13.00	0.80	19.90	8.18	27.25	10.73	29.70
52.39	2.00	2.21	11.68	7.56	17.00	12.44	22.00	19.76	29.20	22.33	31.85
4.08	4.10	13.83	13.85	19.19	19.28	24.11	24.15	31.36	31.29	33.98	34.00
157.26	620	661	14.00	22.74	21.30	26.25	26.25	59.30	38.45	36.15	36.15
21	20.40	43.30	69.13	18.00	45.98	23.40	20.35	28.25	46.81	35.62	67.04

21	36.66	21	37.64	21	32.98	21	46.52	21	49.68	21	50.06
21	52.420	22	2.203	22	7.980	22	12.450	22	19.766	22	22.346
-1	4.37	-1	14.37	-1	19.67	-1	24.684	-1	31.86	-1	34.52
-	0.36	-	0.32	-	0.33	-	0.35	-	0.34	-	0.33
-	3.61	-1	8.34	-	3.58	-1	18.27	-	3.55	-1	24.55

-1	8.34	-1	18.27	-	3.58	-1	23.57	-1	28.584	-1	35.72	-1	38.36
20	44.08		43.93		44.01		43.97 ^a		44.05		45.99		

+15.76	+24.56	+34.60	+30.93	+30.09	+32.29
1.19756	1.39023	1.53908	1.49038	1.47842	1.50907
1.29270m	1.48537m	1.63422m	1.58552m	1.57356m	1.60421m
35 4	35 4	40 0	35 4	35 4	35 4

40.8	+2.9	49.2	+1.1	1.7	+0.1	55.1	+0.2	53.0	+0.4	58.2	+0.0
45.3	+1.8	54.2	+1.3	7.8	+0.8	1.3	+0.0	0.4	+0.0	3.5	+0.1
7.0	-0.2	16.7	-4.0	28.7	-1.0	21.8	-3.3	20.8	-3.6	24.8	-2.0
59.8	-0.0	7.5	+1.9	22.1	+3.9	13.3	+2.0	12.4	+2.0	16.7	+1.8
21.29	+4.5	7.6	+0.3	60.3	+3.8	31.5	-1.1	26.6	-1.2	43.2	-0.1
39	53.22	40	1.90	40	15.08	40	7.88	40	6.65	40	10.80
-19.62		-30.58		-43.07		-38.51		-37.46		-40.20	
39	33.60	31.32		32.01		29.37		29.19		30.60	
+12	43 14.75	17.03		16.34		18.98		19.16		17.75	

+29	35 24										
1.51440											
-108.7		-12.80		-18.19		-97		-82.2		-67.2	
1.50353		1.50160		1.49621		1.51343		1.50618		1.50768	
-31.88		-31.74		-31.35		-32.62		-32.08		-32.19	
.03		.07		.15		.12		.11		.12	
.14	-0.28	.15	-0.23	.01	-0.26	.15	0.24	.20	-0.28	.21	-0.33
.11		.01		.10		.03		.03		.00	
-32.16		-31.97		-31.61		-32.86		-32.36		-32.52	
+12	42.42.59	45.06		44.73		46.12		46.80		45.23	

+4	11.29	+4	10.92	+4	10.22	+4	10.03	+4	10.49	+4	10.93
-	.50	+4	10.79	-	.50	+4	9.72	-	.49	+4	10.00
-	8.854	-	9.213	-	9.41	-	9.768	-	10.06	-	10.218
+4	2.25	+4	1.29	+4	0.31	+3	59.86	+3	59.94	+4	0.28
+12	46 14.84	46.35		45.04		45.98		46.74		45.29	

1878.0									
Aquila									
19 ^h 21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25	21 ^m 57.25
19 ^h 22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
+14° 2'	2'	2'	2'	2'	2'	2'	2'	2'	2'
+28° 21'	21'	21'	21'	21'	21'	21'	21'	21'	21'
19 21 57.34	21 57.34	21 57.34	21 57.34	21 57.34	21 57.34	21 57.34	21 57.34	21 57.34	21 57.34
Aug. 18	Aug. 20	Aug. 22	Aug. 26	Aug. 27	Aug. 29	Aug. 29	Aug. 29	Aug. 29	Aug. 29
23 22.1	23 22.0	23 34.8	23 32.5	23 15.7	23 22.38	23 9.4	23 27.60	23 27.60	23 27.60
24.0	23.7	36.2	34.6	17.2	24.53	10.9	29.77	29.77	29.77
25.5	26.0	38.1	36.3	19.0	26.67	13.2	31.80	31.80	31.80
26.8	27.6	40.0	37.4	20.8	28.75	15.3	34.00	34.00	34.00
1278 29.4	1287 29.4	1903 41.2	1801 39.3	2033 28.18	953 22.6	1325 30.70	658 17.0	18932 36.05	36.05
11.32	23 16.07	23 18.73	23 33.53	31.40	34.00	39.30	39.30	39.30	39.30
13.35	21.00	23.00	35.87	36.22	38.40	41.36	41.36	41.36	41.36
15.35	23.00	26.07	37.77	37.77	40.50	45.67	45.67	45.67	45.67
17.60	24.20	28.36	39.72	41.50	42.44	47.75	47.75	47.75	47.75
7759 19.77	10450 20.20	23 33.10	24.07	43.00	45.78	51.00	51.00	51.00	51.00
15.52	15.52	27.13	25.00	20.70	24.90	30.50	26.06	24.06	35.40
27.25	27.25	30 27.30	32.60	89 32.60	37.53	25.82	37.62	47.41	47.42
32 29.45	32 29.45	32 29.45	32 29.45	32 29.45	32 29.45	32 29.45	32 29.45	32 29.45	32 29.45
24 31.50	24 31.50	24 31.50	24 31.50	24 31.50	24 31.50	24 31.50	24 31.50	24 31.50	24 31.50
23 25.56	23 25.56	23 25.56	23 25.56	23 25.56	23 25.56	23 25.56	23 25.56	23 25.56	23 25.56
23 15.630	23 15.630	23 20.895	23 25.940	23 35.713	23 38.343	23 43.570	23 43.570	23 43.570	23 43.570
-1 14.37	-1 14.37	-1 19.67	-1 24.65	-1 34.52	-1 37.22	-1 42.34	-1 42.34	-1 42.34	-1 42.34
-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35
-3.58	-3.58	-1 18.24	-3.55	-1 23.57	-3.53	-1 28.56	-3.49	-1 38.36	-3.48
21 57.25	21 57.25	33 57.42	57.38	57.35	57.29	57.29	57.29	57.29	57.29
-10.03	-4.84	-12.12	-0.31	+19.28	+30.41	+30.41	+30.41	+30.41	+30.41
1.00 130.2	0.68485	1.08350	9.49136	1.28511	1.48302	1.48302	1.48302	1.48302	1.48302
1.09 421	0.77776	1.17641	9.58427	1.37802	1.57593	1.57593	1.57593	1.57593	1.57593
20 3	20 3	20 3	20 3	20 4	20 4	20 4	20 4	20 4	20 4
[39.5] +45	46.8 +31	38.1 +47	52.2 +22	15.9 +44	29.0 +52	29.0 +52	29.0 +52	29.0 +52	29.0 +52
45.1 +32	52.9 +30	44.1 +31	57.8 +21	21.9 +10	34.9 +01	34.9 +01	34.9 +01	34.9 +01	34.9 +01
6.3 +14	13.4 -17	3.7 +17	19.0 -29	43.0 -50	55.8 -23	55.8 -23	55.8 -23	55.8 -23	55.8 -23
57.6 +02	5.7 +20	55.8 +03	10.2 +23	34.9 +21	46.8 +07	46.8 +07	46.8 +07	46.8 +07	46.8 +07
+23	23.8 +64	20.17 +38	19.2 +37	11.57 +25	16.65 +37	16.65 +37	16.65 +37	16.65 +37	16.65 +37
23 52.12	23 59.70	23 50.42	24 4.80	24 28.92	24 41.62	24 41.62	24 41.62	24 41.62	24 41.62
12.42	6.00	15.01	0.38	-23.88	-37.66	-37.66	-37.66	-37.66	-37.66
24 4.54	24 5.70	24 5.43	24 5.18	5.04	3.96	3.96	3.96	3.96	3.96
13 +4 58 43.81	58 42.65	58 42.92	43.17	43.31	44.39	44.39	44.39	44.39	44.39
+28 19 56	19 56	19 56	19 56	19 56	19 56	19 56	19 56	19 56	19 56
1.49190	1.49190	1.49190	1.49190	1.49190	1.49190	1.49190	1.49190	1.49190	1.49190
-12.77	-12.77	-12.77	-12.77	-12.77	-12.77	-12.77	-12.77	-12.77	-12.77
1.47913	1.47913	1.47913	1.47913	1.47913	1.47913	1.47913	1.47913	1.47913	1.47913
-30.14	-30.14	-30.14	-30.14	-30.14	-30.14	-30.14	-30.14	-30.14	-30.14
-0.01	0.00	0.02	0.00	0.05	0.12	0.12	0.12	0.12	0.12
-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12
-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23
-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
+24 58 13.31	12.60	11.57	12.35	12.63	13.41	13.41	13.41	13.41	13.41
+4 10.92	+4 10.22	+4 10.03	+4 10.93	+4 11.13	+4 10.47	+4 10.47	+4 10.47	+4 10.47	+4 10.47
-48 +4 10.44	-48 +4 9.74	-48 +4 9.56	-48 +4 10.46	-48 +4 10.67	-48 +4 10.01	-48 +4 10.01	-48 +4 10.01	-48 +4 10.01	-48 +4 10.01
-9.40	-9.40	-9.40	-9.40	-9.40	-9.40	-9.40	-9.40	-9.40	-9.40
+4 1.04	+4 0.05	+3 59.59	+3 59.97	+4 1.06	+3 59.96	+3 59.96	+3 59.96	+3 59.96	+3 59.96
+14 2 11.35	12.65	11.16	12.32	12.69	12.57	12.57	12.57	12.57	12.57

86

Aquila (115B) 19^h 23^m 45^s 1878.0
 19^h 23.9^m +14 20 45.5^s log₁₀ 9.98623
 +14° 21' 1878 19 23 45.93^s +14 20 46.12^s 1878.0
 1878 19 23 45.93^s +14 20 46.12^s 1878.0

+28 2 19 23 45.93^s +14 20 46.12^s 1878.0
 1878 19 23 45.93^s +14 20 46.12^s 1878.0

Aug. 14

Aug. 18

Aug. 22

Aug. 25

Aug. 27

Aug. 29

19 24 21.0	24 35.48	25 6.7	24 48.10	24 41.7	24 38.8	24 46.6	25 54.5	24 30.6	25 11.00	25 2.4	25 16.29
23.0	40.34	10.7 9.3	5.034	4.36	0.68	4.83	7.80	52.4	13.10	3.8	18.31
24.7	42.70	11.4 11.4	5.241	4.50	2.67	5.09	10.00	54.1	15.30	5.6	20.32
26.7	44.65	—	5.453	4.69	4.80	5.23	12.18	57.2	17.45	7.6	22.56
237 25.3	2132 46.90	—	26213 56.70	2267 49.5	1343 69.0	252.0	539 49.3	14.20	2717 58.4	7645	19.60
50.04	—	—	59.75	—	10.04	—	17.35	—	22.65	—	27.80
52.18	—	—	2.05	—	12.15	—	19.29	—	24.77	—	30.03
54.30	—	—	4.27	—	14.36	—	21.50	—	27.00	—	32.18
56.35	—	—	6.20	—	16.40	—	24.03	—	29.18	—	34.38
27144 58.57	—	—	2107 5.50	—	7157 18.62	—	10497 26.10	—	13485 31.25	—	16073 36.42
42.66	17.0	52.43	12.00	2.69	21.50	9.97	24.30	15.29	34.53	20.49	38.60
54.29	3.80	4.21	16.28	—	14.31	24.00	21.77	31.42	26.97	36.53	32.15
5.98	6.05	16.20	.06	—	26.13	26.05	33.54	33.50	38.69	38.67	43.92
16293	2990 10.30	12.84	25 18.20	20.53	43.13	29.29	35.70	38.75	40.80	42.95	46.03
24 24.74	—	25 11.13	24 45.34	—	24 50.40	6528	16772 37.80	8075	19348 42.95	9656	2961 48.20
24 54.320	—	25 4.280	25 14.376	—	25 21.760	—	25 26.983	—	25 32.186	—	—
-1 4.39	-1 14.38	-1 24.60	-1 31.87	-1 37.22	-1 42.34	-1 47.46	-1 52.58	-1 57.70	-1 62.82	-1 67.94	-1 73.06
- 4.40	- 0.36	- 0.39	- 0.38	- 0.36	- 0.39	- 0.35	- 0.35	- 0.35	- 0.35	- 0.35	- 0.35
- 3.58	- 1 8.07	- 3.55	- 1 18.29	- 3.53	- 1 28.58	- 3.52	- 1 35.77	- 3.51	- 1 41.09	- 3.50	- 1 46.23
23 48.94	—	45.99	45.80	—	45.99	—	45.89	—	45.96	—	—

+22.57	-6.85	+29.04	+31.36	+32.64	+26.47
1.47085	0.83569m	1.46300	1.49638	1.51375	1.42275
1.56315m	0.92799	1.55530m	1.58888m	1.60605m	1.51505m
5 0	5 0	5 0	5 0	5 0	5 0
58.1 +13	11.9 +23	53.2 +14	54.9 +13	59.0 +13	50.2 +17
4.0 +20	18.0 +09	59.7 +18	2.8 +19	4.7 +21	56.2 +24
25.1 -17	39.6 -46	20.8 -36	23.1 -28	26.1 -12	18.2 -41
16.7 +68	30.8 +50	13.2 +72	14.3 +71	18.4 +67	9.3 +73
43.9 +89	100.3 +36	26.9 +68	35.1 +75	48.2 +89	13.9 +73
6' 10.98	5 25.08	6 6.72	6 8.77	6 12.05	6 3.48
-36.57	8.47	-35.92	-38.78	-40.37	-32.74
5 34.41	33.50	30.80	27.79	5 31.68	30.74
+14 17 13.24	14.80	17.55	18.36	16.67	17.61
+28 1 24	—	—	—	—	—
1.48630	—	—	—	—	—
-1075	-1271	-88	-812	-913	-703
1.47555	1.47359	1.48542	1.47818	1.47717	1.47927
-29.89	-29.76	-30.58	-30.07	-30.00	-30.15
-12	-00	-11	-12	-14	-09
-04	-01	-03	-04	-05	-05
-21	-09	-17	-19	-22	-18
-30.26	-29.86	-30.89	-30.42	-30.41	-30.47
+14 16 43.68	44.94	46.66	47.95	46.26	47.14
+4 11.29	+4 10.92	+4 10.03	+4 10.49	+4 11.13	+4 10.47
- 48 +4 10.81	- 48 +4 10.44	- 47 +4 9.56	- 47 +4 10.02	- 47 +4 10.66	- 46 +4 10.01
- 40 8.95	- 9.54	- 10.14	- 10.59	- 10.90	- 11.21
+4 1.86	+4 0.90	+3 59.42	+3 59.33	+3 59.76	+3 58.80
+14 20 45.54	15.54	46.08	47.38	46.02	45.94

133. <i>Aquila</i> ^f ₂₉ 5381		878.0	5	log 10	log 10	129183	
19 ^h 30.0	.80	20 35.2	34.2	n cro 8	9.98422	70. 23.54	
+15° 21'	.76		35.7	1520029m	0.09029m	70. 11.78	
	.83		34.4			I	
	.80		34.8				
	.82		34.5				
+27 2		19 29 53808	+15 20 34.80	land	+0.27		
				rim 2	+ .45		
Aug. 14		Aug. 20	Aug. 25	Aug. 26	Aug. 27	Aug. 29	
30 30.9	30 46.03	31 9.3	31 14.0	30 35.7	31 13.45	31 32.6	31 14.16
32.5	48.27	11.6	35.0	57.4	15.25	53.8	18.28
34.0	50.40	12.7	36.4	58.5	17.65	56.3	20.28
35.9	52.48	15.6	38.0	0.2	19.85	58.7	22.60
1711 37.8	55182 54.64	672 17.0	2821 9.87	2941 2.3	2885 22.05	1824 41.0	10218 24.65
	58.00		13.25		25.85		28.00
	0.17		15.35		27.50		30.03
	2.30		17.0		29.60		32.16
	4.30		19.45		31.70		34.40
	6.40		21.85		33.80		36.60
50.36	9.85	5.64	24.98	17.71	37.00	30.44	40.00
2.23	12.00	17.42	27.00	29.59	39.20	32.24	42.00
14.07	14.05	29.19	29.18	41.37	41.40	44.05	46.80
666	16.15	31.30	31.30	88.67	43.06	46.05	48.30
30 34.22	7033 18.28	52.25	14596 32.50	88.67	45.70	9.673	2025 48.30
	31 2.220		31 17.416		31 29.586		31 32.243
-1 4.40		1 19.69		-1 31.89		-1 34.53	
- 0.42		- 0.38		- 0.40		- 0.38	
- 3.58	-1 8.41	- 10.4	-1 23.62	- 4.2	-1 35.80	- 11.3	-1 38.11
9		- 3.55		- 3.51		- 3.50	
	29 5381		53.82		53.76		53.83
							53.80
							53.82
+28.00		+2.98		+30.74		-4.24	
1.44716		0.59988		1.48770		0.62737m	
1.53745m		0.69017m		1.57799m		0.71766	
5 1		5 0		5 1		5 0	
[6.8]							
+21	36.6 +39		6.6 +20		26.2 +49		54.7 +13
12.0 +26	42.2 +19		13.3 +26		31.3 +03		59.3 +18
34.7 -14	3.4 -01		34.2 -11		53.1 -54		21.2 -34
26.2 +66	57.5 +53		26.2 +66		44.8 +51		141 +71
+49	197 +110		80.3 +10		153.4 +59		29.3 +68
6 19.92	5 49.92		6 20.08		5 38.85		6 7.32
-34.47	- 4.90		- 37.84		5.22		-4.47 23.48
5 45.45	45.02		42.24		5 44.07		5 57.85 48.84
+15 17 2.90	3.33		6.11		4.28		17 52.50 4.51
+27 1 35							17 5.37
1.46790							
-1057	-1800		-794		-645		-895
1.5733	1.44990		1.48796		1.46145		1.45895
-28.66	-28.18		-28.84		-28.94		-28.77
- .11	- .00		- .13		- .00		- .00
- .04	- .02	- 0.30	- .05	- 0.43	- .02	- 0.14	- .04
- .25	- .28		- .25		- .13		- .17
-29.06	-28.48		-29.27		-29.08		-28.98
+15 16 33.84	34.85		36.84		35.20		35.63
+4 11.29	+4 10.22		+4 10.49		+4 10.93		+4 11.13
- .46 +4 10.88	- .46 +4 9.76		- .45 +4 10.04		- .45 +4 10.48		- .45 +4 10.69
- 9.546	- 10.41		- 11.214		- 11.328		- 11.441
+4 1.37	+3 59.35		+3 58.90		+3 59.20		+3 59.27
+15 20 35.21	34.20		35.74		34.40		34.80
							34.57

[illegible]

Sept. 9

Sept. 14

32	38.0	—	32	23.5	30	16.7	31	6.3	32	42.3
	1.5	—		31.9		35.0		15.1		47.2
	19.9	—		40.4		53.1		23.2		0.5
	36.4	—		49.0		3.4		32.0		7.2
818	46.0	31	22.0	58.8	2427	11.5		41.6		17.6
		27.9	30.7	7.6				48.9		25.3
34	28.3	22.1	39.6	16.2	32	10.5		58.3		34.2
	40.3	21.7	48.0	24.3		22.2		7.6		43.5
	59.3	21.8	56.8	5254	33.7	43.9	3700	16.0	1532	47.4
	11.9					57.8				
2518	22.0	21.90		69.5	2134	19.0		41.11		18.4
		58.38		8.4				17.02		27.3
		34.58		17.1				53.53		35.8
				25.3						45.3
	17486			34.2			5166			57.1
				48.5						2.2
				52.3						10.5
33	16.36			1.3	30	48.54				20.0
34	56.36			3112	9.4	32	42.68		4818	28.2
				32	58.287				33	17.220
-2	986					-2	30.45			
-	11.41					-	109383			
+	2.08			-2	19.19	+	2.57		-2	37.74
							14			
				39.10						39.48

-18.07	-68.07									
1.25696m	1.83296m	2.07214m								
0.43427	1.01027	1.24945								
10	4	10	3							
0.1	+2.0	43.8	+36							
2.8	+1.6	45.9	+33							
19.9	-2.7	2.6	+18							
18.0	+2.1	0.5	+0.5							
408	+3.0	2128	+92							
14	10.20	13	53.20							
	2.72		10.24							
14	12.92		3.44							
			10.46							
			37.39							
+83	8	35.43	44.71							

-258										
1.69392										
+49.42										
- .02										
- .38										
- .08										
+48.94										
+83	9	24.37	25.34							
		24.56								
+4		10.15								
+		.57	10.72							
-		17.22								
+3		53.50								
		18.36								

[illegible]

1878.0

logarithm

Aquila (150 B) 35° 26.76' +13° 32' 60.2"

19^h 35.5^m

+13° 33'

+28 50

35° 26.72' +13° 32' 0.45"

tan δ

+0.24

sin Z

+0.48

Aug. 14

Aug. 20

Aug. 25

Aug. 31

Sept. 15

Sept. 16

35 59.9	36 19.45	36 22.5	36 34.48	36 28.3	36 46.68	36 41.0	37 1.08	37 20.0	37 40.0	37 26.5	37 42.35
2.3	2.41	2.46	2.652	2.50	2.877	42.3	3.12	21.6	42.05	27.8	44.43
4-	23.60	2.65	28.40	31.8	28.85	44.2	5.24	23.4	44.30	29.5	46.52
6.0	25.70	28.0	41.00	33.4	33.00	46.2	7.30	25.6	46.32	31.2	48.62
204 5.0	11795 27.50	1326 30.4	1375 42.00	1587 35.7	2540 35.10	2223 48.6	2620 9.46	1182 27.6	2415 48.48	1486 33.6	2280 38.88
	31.00		46.15		58.40		12.45	38 21.6	37.85	38 20.6	54.05
	33.00		48.18		58.5		14.70	23.3	53.87	22.3	58.05
	35.25		50.30		2.20		16.88	25.8	56.89	23.9	58.33
	37.54		52.45		4.0		19.02	27.5	58.00	26.0	0.42
1629 39.50		35168 0.460		1305 6.90		8420 21.05	1279 27.7	2784 0.20	1204 27.6	2748 2.63	
23.59	42.38	38.75	57.77	50.58	10.00	5.24	24.30	44.23	3.35	46.56	5.82
35.26	44.44	50.33	58.90	2.61	12.12	16.84	26.40	55.91	5.40	58.29	7.90
46.66	46.55	1.99	2.00	14.29	14.38	28.55	28.60	7.51	7.50	10.02	10.03
10551	48.50		4.10	7.78	16.38	50.63	30.65		9.55		12.06
36 4.06	23322 0.115	15107	997 6.20	7148 18.60		4275 32.50	16765	3758 11.78	17487	5011 14.30	
	36 26.52		36 31.74		36 44.46		37 23.64		37 29.72		
	36 35.170		36 50.356		37 2.593		37 16.876	38 25.88	37 55.883	38 24.08	37 58.290
-1 4.11	-1 19.71		-1 31.91		-1 46.33		-2 25.54		-2 28.01		
- 0.37	- 0.34		- 0.35		- 0.36		- 0.33		- 0.32		
- 3.63	-1 8.41	- 3.60	-1 23.65	- 3.56	-1 35.82	- 3.50	-1 50.19	- 3.01	-2 29.18	- 3.30	-2 31.63
	35 26.76		26.71		26.77		26.69		26.70		26.66

+31.09	+23.84	+30.85	+32.42	+32.24	-29.70	+28.57	-25.79
1.49262	1.37731	1.48926	1.51081	1.50840	1.47276m	1.45591	1.41145m
1.58643m	1.47112m	1.58307m	1.60462m	1.60221m	1.56657	1.54972m	1.50526
50 4	50 4	50 4	50 4	50 4	50 3	50 4	50 3
43.8 +22	33.7 +46	40.6 +30	42.8 +24	38.4 +34	20.9 +56	33.8 +45	26.2 +61
49.0 +19	39.8 +08	47.7 +20	47.0 +20	45.1 +18	28.1 +16	40.2 +08	33.2 +15
10.9 -19	0.3 +00	8.1 -06	9.1 -10	5.4 +01	49.4 -48	0.5 +01	54.2 -27
3.0 +09	53.3 +01	59.3 -01	2.4 +07	55.0 -01	38.5 +26	50.7 +03	44.3 +18
22.67 +31	187.1 +53	21.87 +43	22.13 +41	203.9 +52	136.9 +50	185.2 +57	157.9 +67
54 56.68	54 46.77	54 53.92	54 55.32	54 50.98	53 34.22	54 46.30	53 39.47
-38.59	-29.59	-38.29	-40.24	-40.01	36.86	-35.46	32.01
54 18.09	17.18	15.63	15.08	10.97	11.08	10.84	11.48
+13 38 30.26	31.17	32.72	33.27	37.38	37.27	37.51	36.87
+28 50 08							
1.50090							
-1038	-1787	-771	-934	-50		-344	
1.49052	1.48303	1.49319	1.49156	1.50040		1.49872	716
-30.94	-30.41	-31.13	-31.01	-31.65		-31.52	42
- .12	- .07	- .12	- .13	- .13		- .11	
- .14	- .14	- .20	- .29	- .48		- .48	- .09
- .08	- .14	- .11	- .10	- .13		- .14	- .37
-31.28	-30.76	-31.56	-31.53	-32.39		-32.26	- .17
+13 27 58.98	0.41	1.16	1.74	4.99	5.01	5.36	4.82
				5.00		5.09	
+4 11.29	+4 10.22	+4 10.49	+4 10.96	+4 10.45		+4 9.84	
- .49	- .49	- .48	- .47	- .39		- .38	
- 9.859	- 10.52	- 11.21	- 12.01	- 13.42		- 13.549	
+4 1.21	+3 59.21	+3 58.80	+3 59.52	+3 56.64		+3 55.97	
+13 32 00.19	59.62	59.96	026	1.64		1.06	

[illegible]

bygni
19^h 46.^m
+32° 37'

[illegible]

1878phae.proj.1497

		1878		1879		1880		1881		1882		1883		1884		1885		1886		1887		1888		1889		1890		1891		1892		1893		1894		1895		1896		1897		1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		1908		1909		1910		1911		1912		1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		1923		1924		1925		1926		1927		1928		1929		1930		1931		1932		1933		1934		1935		1936		1937		1938		1939		1940		1941		1942		1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953		1954		1955		1956		1957		1958		1959		1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025	
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[illegible]

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[illegible]

1878phae.proj.119

99

1878.0
bygni 19 58 36.55 +29 34 18.3 bygnid
19 58.7 57 19.0 " coo 5 993934
.62 19.6
52 19.4 " Woodham 0.04541m
+29° 35' 144.52 18.9
154 19.7

+12 48 19 58 36.53 +29 34 19.2 land +0.57
15 snow +.22

Aug. 25

Aug. 31

Sept. 15

Sept. 18

Sept. 25

Sept. 30

h	m	s	m	s	h	m	s	m	s	h	m	s	m	s	h	m	s	m	s	h	m	s	m	s
20	0	6.7	59	55.00	0	2.8	0	9.28	0	26.6	0	48.36	0	33.5	0	53.43	0	50.6	1	10.76	1	48.0	1	21.72
		10.7		57.20		5.4		11.75		25.8		50.72		37.6		57.77		52.1		13.24		49.7		24.27
317	14.3		59.69		7.5		14.05		30.7		53.15		38.0		0.22		55.4		15.38		53.1		26.78	
			2.05		9.8		16.29		32.2		55.38		39.8		2.66		57.3		17.87		54.7		29.16	
			29841	447	3.75	12.0	7022	18.85	1527	34.4	26548	67.70	1909	42.0	008	4.00	27.57	0.3	7778	20.33	2620	56.5	3334	3141
			8.00				22.38				1.80	1	480		8.53	1	537		23.77	2	10.9		35.00	
			1930				24.50				3.50		502		10.86		574		26.22		13.0		37.25	
			13.00				27.00				6.00		623		13.26		04		28.58		15.0		39.60	
			15.10				29.50				8.30		541		15.53		24		31.00		17.0		41.83	
6390	17.0						31.80				10.78	2608	56.2	6610	17.90	0.5	4.6		42.74	33.87	750	19.1	4406	44.38
			59.68	21.00	14.04		35.36	53.09		14.45		0.02		21.53		15.56			36.87	26.67			47.28	
			12.78	23.45	27.09		37.50	6.08		16.68		13.22		24.00		28.59			39.30	39.61			50.48	
			25.76	25.78	40.13		40.08	19.08		15.00		26.33		26.34		41.63			41.67	52.66			52.88	
			3822	28.62	51.26		42.54	1825		21.46		39.57		28.65		85.78			43.91	118.94			53.28	
			0	10.57	2580	34.55	20065	44.87		23.82	9541	23.82		13164	31.10			20816	46.41	118.94			57.38	
			0	12.740	0	7.50	0	27.056		0	30.54		0	38.18		0	55.14		1	52.40				
			-1	32.00	-1	46.38		-2	25.60		1	6.83		1	52.16		1	13.190		2	0.10		1	28.593
			-	0.84	-	0.85		-	0.78		-	0.74		-	0.74		-	0.82		0.77				
			-	3.35	-1	36.19		-	3.29	-1	50.52		-	3.08	-2	29.46		-	3.03	-2	36.67		-	2.90
			58	36.55				36.54				36.62					36.52			36.44			36.54	

+2.17	+19.59	+35.54	+35.01	-38.97	+33.45	-31.51	-12.75	-35.35
0.33646	1.29203	1.55072	1.54419	1.59073m	1.52440	1.49845m	1.10551m	1.54839m
0.38187m	1.33744m	1.59613m	1.58960m	1.63614	1.56981m	1.54386	1.15092	1.69380

50 2	50 2	50 2	50 2	50 1	50 2	50 1	50 1	50 1
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3.0 +0.9	21.3 +4.9	34.7 +4.7	36.0 +4.4	12.8 +3.5	32.7 +5.0	24.9 +5.0	40.1 +3.3	15.6 +4.1
8.7 +3.5	25.0 +2.5	40.8 +3.1	39.4 +2.8	17.2 +2.5	36.3 +2.2	24.8 +1.9	44.6 +3.9	19.9 +2.3
26.2 -0.5	44.7 -5.2	57.8 -0.2	57.9 -0.2	36.1 -2.0	55.7 -2.0	44.2 -5.2	1.9 +1.4	37.9 -3.0
22.1 +4.6	40.2 +3.9	57.9 +2.5	52.5 +2.5	30.5 +6.4	50.1 +6.5	39.0 +5.5	57.1 +3.0	33.3 +6.2
60.0 +8.5	131.2 +6.1	185.2 +1.0	185.8 +8.5	76.6 +1.0	174.8 +1.7	128.9 +7.2	203.7 +1.6	106.7 +8.6
52 15.00	52 32.80	52 46.30	52 46.45	51 24.15	52 43.70	51 32.22	51 50.92	51 26.67
-2.41	-21.75	-39.46	-38.87	43.27	-37.14	34.98	14.16	39.25
52 12.59	11.05	6.84	52 7.58	7.42	6.56	52 7.20	5.08	5.92

+29 30 35.76	37.30	41.51	40.77	40.93	41.79	41.15	43.37	42.43
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+12 48 03								
1.11670								
-70.2	-906	+127	-12.93	-426				
1.10768	1.10764	+329	1.10377	1.11244				
-12.87	-12.81	1.11949	-12.70	-12.95				
-	-	-13.182	-	-				
-	-	-30	-2.9	-26				
-	-	-28	-2.8	-27				
-	-	-25	-2.6	-29				
-13.17	-13.20	-14.0	-13.51	-13.77				

+29 30 22.59	24.10	27.56	27.26	27.47	28.02	27.63	29.71	28.68
			27.36		27.82		24.20	
+4 10.49	+4 10.96	+4 10.45	+4 10.78	+4 10.70	+4 10.55	+4 10.58	+4 10.44	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
+3 55.67	+3 54.95	+3 52.00	+3 52.09	+3 51.09	+3 50.52	+3 50.52	+3 50.52	

+29 34 18.26	1906	1956	19.45	1891	1972			
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[illegible]

<i>Aquila</i> (221 B)	59	49.80	+15°	9	12.1	Hyacinth	
19 ^h 59.9		83			12.1	" cor S	9.98460
		85			11.3		
		78			13.0	" 1600 Stani	0.09067m
+15° 10'		76			11.3		
		77			10.4		

+27	13	19	59	49.80	+15	9	11.70	tan δ	+0.27
				998				sin α	+0.46

Sept. 15

Sept. 17

Sept. 22

Sept. 28

Oct. 2

Oct. 8

[illegible]

+22.39	-26.75	+33.23	-25.75	+27.72	-29.50	+26.27	-29.73	+28.87	-30.75	+29.15	-33.35
1.35005	1.42732 _m	1.52153	1.41078 _m	1.44279	1.46982 _m	1.41946	1.47319 _m	1.46045	1.48785 _m	1.46464	1.52310 _m
1.44072 _m	1.51799	1.61220 _m	1.50145	1.53346 _m	1.56049	1.51013 _m	1.56386	1.55112 _m	1.57852	1.55531 _m	1.61377
15 2	15 1	15 2	15 1	15 2	15 1	15 2	15 1	15 2	15 1	15 2	15 1

15.1 +3.7	13.2 +3.6	29.4 +5.3	15.9 +4.1	22.1 +5.0	10.6 +2.9	18.3 +4.4	8.8 +2.5	23.3 +5.1	11.1 +3.0	24.7 +5.4	7.1 +2.1
23.1 +2.7	21.1 +2.2	35.2 +2.1	22.1 +2.2	29.9 +2.2	18.6 +2.4	25.8 +2.5	15.6 +2.5	29.1 +2.3	16.2 +2.5	30.8 +2.1	13.6 +2.5
43.1 -4.8	41.5 -4.4	56.9 -0.9	44.0 -5.2	49.9 -5.4	37.8 -2.9	45.6 -3.4	33.3 -0.8	52.4 -4.6	37.2 -2.6	52.0 -4.8	34.1 -1.0
33.4 +4.7	32.1 +6.3	47.1 +3.1	34.6 +6.0	39.2 +4.1	29.0 +6.5	36.6 +4.3	28.1 +6.5	43.5 +3.4	30.8 +6.4	43.9 +3.5	26.1 +6.6
114.7 +6.3	107.9 +7.7	168.6 +9.6	116.6 +7.1	141.1 +8.9	96.0 +8.9	126.3 +5.8	85.8 +10.7	198.3 +6.2	95.3 +9.3	150.4 +6.2	80.9 +12.2
17 28.67	16 26.98	17 42.15	16 29.15	17 35.27	16 24.00	17 31.58	16 21.45	17 37.08	16 23.82	17 37.60	16 20.22
-27.59	32.96	-40.95	31.73	-34.16	36.35	-32.37	36.63	-35.57	37.89	-35.92	41.09
17 1.08	16 59.94	17 1.20	0.88	1.11	0.35	16 59.21	58.08	17 1.51	1.71	1.68	1.31
+15 5 47.27	48.41	47.15	47.47	47.24	48.00	49.14	50.37	46.84	46.64	46.67	47.04

[illegible]

[illegible]

bygni (140 B) 3 ² 1.30		1878.0 +34 4 9.7		bygnid		1005 9.91823		150000 0.02430m		I 2.49			
20 ^h 3.1		31		10.5									
+34° 4'		39		10.7									
+8 19		26		10.7									
		27.35		9.1									
Sept. 12		Sept. 15		Sept. 16		Sept. 18		Sept. 19		Sept. 25			
h m s	m s	h m s	m s	h m s	m s	h m s	m s	h m s	m s	h m s	m s	h m s	m s
20 4 48.0	5 3.90	4 53.0	5 12.22	5 8.6	5 14.70	4 52.2	5 19.20	5 5.9	5 21.70	5 48.2	5 —	5 —	5 —
50.2	6.39	54.9	14.70	10.3	17.30	54.0	21.86	7.8	24.22	50.7	—	—	—
52.4	8.85	57.4	17.20	12.9	19.60	56.1	24.30	10.2	26.74	54.0	39.63	39.63	39.63
55.0	11.40	59.5	19.53	15.0	22.05	58.3	26.82	12.0	29.26	56.3	.88	42.37	42.37
2626 57.0	44.54	14.00 28.82	1.4 8.572	22.00	64.3 17.5	9620 24.55	28.15	0.9	12.54	29.36	51.0 15.1	13.71	31.79
5 46.0	17.65	5 57.4	26.70	5 57.4	28.28	6 5.8	33.00	6 9.8	35.40	6 33.8	48.65	48.65	48.65
48.2	20.05	59.5	28.34	59.0	30.77	7.6	35.56	12.0	38.00	35.9	57.10	57.10	57.10
50.5	22.60	2.5	30.73	1.8	33.35	10.0	38.00	14.0	40.38	38.0	53.76	53.76	53.76
53.0	25.04	4.6	33.53	3.5	36.80	11.9	40.38	15.8	43.00	39.6	56.05	56.05	56.05
2532 53.5	112.94	27.60	106 6.6	154.42	36.00	77 6.0	166.55	38.35	49.5	142	4016	43.05	70.3
8.91	31.40	17.14	38.70	19.64	42.00	24.31	46.78	26.74	48.10	32.74	2.18	2.18	2.18
22.59	33.30	30.88	42.00	33.31	44.58	38.03	49.10	40.43	51.70	53.64	4.66	4.66	4.66
36.34	36.35	44.60	44.50	47.03	47.00	51.72	57.71	54.12	54.16	7.15	7.18	7.18	7.18
67.84	35.78	47.10	47.10	49.98	49.60	54.06	54.25	54.25	56.53	56.53	9.61	9.61	9.61
4 52.52	181.72	41.39	92.62	22.00	49.70	99.98	235.18	52.00	114.06	258.60	56.76	121.29	270.61
5 50.64	5 22.613	6 2.12	5 30.873	6 1.54	5 33.326	6 7.90	5 38.020	6 14.06	5 40.430	6 38.32	5 53.510	6 53.510	6 53.510
-2 17.32	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61	-2 25.61
-0.93	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94	-0.94
-3.06	-2 26.31	-3.06	-2 29.56	-2.98	-2 31.94	-2.95	-2 36.73	-2.93	-2 39.17	-2.92	-2 42.84	-2.92	-2 42.84
	3 1.30		1.31		1.39		1.29		1.26		1.24		1.24
+30.09	-28.03	+33.63	-31.25	+20.47	-28.21	+41.72	-31.88	+30.23	-33.63	-0.13	-44.81	-44.81	-44.81
1.47842	1.44762	1.52673	1.49485	1.31112	1.45040	1.62034	1.50352	1.48044	1.52673	9.11394	1.65137	1.65137	1.65137
1.50272	1.47192	1.55103	1.51915	1.33542	1.47470	1.64464	1.52782	1.50474	1.55103	9.13824	1.67567	1.67567	1.67567
20 2	20 1	20 2	20 1	20 2	20 1	20 2	20 1	20 2	20 1	20 2	20 1	20 2	20 1
40.5 +37	38.8 +35	43.9 +31	34.2 +46	28.5 +54	37.7 +38	52.5 +18	35.2 +43	39.8 +38	31.9 +49	9.2 +22	21.3 +50	21.3 +50	21.3 +50
43.7 +38	41.8 +32	48.5 +43	39.8 +27	33.3 +21	41.8 +32	55.3 +35	38.4 +24	43.0 +37	35.8 +19	11.6 +34	24.7 +19	24.7 +19	24.7 +19
5.1 +08	4.1 +14	8.4 -02	59.5 +09	53.2 -43	1.1 +14	17.4 +31	59.5 +09	3.9 +10	56.3 -10	32.3 +00	46.1 -55	46.1 -55	46.1 -55
58.9 +22	68.8 +30	1.2 +26	53.3 +33	47.4 +31	55.8 +30	10.1 +40	54.2 +32	56.8 +20	49.3 +39	26.4 +47	40.7 +52	40.7 +52	40.7 +52
208.2 +105	203.5 +101	222.0 +78	186.8 +125	162.4 +63	196.4 +104	163 +62	187.3 +108	193.5 +105	173.3 +97	79.5 +103	132.8 +66	132.8 +66	132.8 +66
22 52.05	21 50.88	22 55.50	21 46.70	22 40.60	21 49.10	23 3.82	21 46.82	22 46.38	21 43.32	22 19.88	21 33.20	21 33.20	21 33.20
-31.82	29.64	-35.57	33.05	-21.65	29.83	-44.12	33.72	-31.77	35.57	0.14	47.39	47.39	47.39
22 20.23	20.52	19.93	19.75	18.95	18.93	22 19.70	20.54	18.91	22 18.89	20.02	20.59	20.59	20.59
+34 0 28.12	27.83	28.42	28.60	29.40	29.42	28.65	27.81	29.44	29.46	28.33	27.76	27.76	27.76
+8 18 10	0.92450												
-11.80	0.91270												
-8.18													
-23	-20	-29	-24	-10	-20	-44	-26	-23	-29	-20	-51	-51	-51
-29	-18	-29	-18	-27	-18	-31	-18	-28	-17	-23	-16	-16	-16
-26	-28	-25	-25	-16	-29	-16	-27	-26	-24	-26	-17	-17	-17
-8.96	-8.84	-9.26	-9.14	-9.02	-9.16	-9.07	-8.87	-9.07	-9.00	-8.81	-9.16	-9.16	-9.16
+340 19.16	18.99	19.16	19.46	20.38	20.26	19.58	18.94	20.34	20.46	19.52	18.60	18.60	18.60
19.08		19.31		20.32		19.26		20.42		19.06			
+4 9.49		+4 10.45		+4 9.84		+4 10.93		+4 10.13		+4 10.70			
-12	+4 9.37	-11	+4 10.34	-11	+4 9.73	-11	+4 10.82	-11	+4 10.02	-10	+4 10.60	+4 10.60	+4 10.60
-18.71		-19.18		-19.34		-19.63		-19.87		-20.24			
+3 50.86		+3 51.16		+3 50.39		+3 51.19		+3 50.25		+3 50.06			
+34 4 9.74		10.47		10.71		10.45		10.67		9.58			

04

Vulpecula

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20 6 1.13

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S " began

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15008 hmi

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Delphinus (1 B) 13 45.72

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+0.49

Oct. 1

Oct. 2

Oct. 3

Oct. 8

Oct. 10

Oct. 21

J. F. F.

17 6.1

16 —

16 47.8

16 —

17 2.9

16 45.5

16 48.85

16 83.2

16 53.10

17 26.5

17 17.40

8.0

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49.4

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4.8

47.7

57.35

35.8

43.00

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18.45

9.8

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37.4

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6.8

52.3

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38.0

57.40

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17 36.4

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17 18.8

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17 33.7

16 30.00

17 29.4

0.66

17 33.3

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38.5

48.70

20.9

52.00

35.5

52.24

31.1

2.70

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52.70

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52.00

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4.80

37.6

8.80

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24.8

54.00

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2029 44.6

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12.47

57.28

16.18

21.65

50.78

50.78

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52.04

1.50

54.30

54.30

3.92

4.81

14.22

8.85

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7.8

2.39

3.66

3.70

5.72

1.27

5.90

16.49

16.34

20.44

12.15

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7.90

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8245

20.82

2657

10220

17 9.74

16 51.48

17 22.78

16 52.040

17 37.56

16 54.285

17 33.26

17 4.840

17 37.24

17 8.856

17 33.323

-3 1.44

-3 2.77

-3 4.92

-3 15.59

-3 19.60

-3 44.33

-3 0.30

-3 0.27

-3 4.756

-3 4.576

-3 4.570

-0.33

-0.30

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-3.28

-3 5.06

-3 3.27

-3 6.34

-3 3.25

-3 8.50

-3 3.18

-3 19.04

-3 3.14

-3 23.04

-3 2.96

13 45.72

45.70

45.70

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45.70

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45.70

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45.70

-18.96

-49.80

+0.56

-30.74

-12.41

-43.27

+14.88

-28.42

+31.14

-28.38

+2.36

1.27784

1.69723

9.74819

1.48770

1.09342

1.63619

1.17260

1.45362

1.49332

1.45301

0.37291

1.37287

1.79226

9.84322

1.58273

1.18845

1.73122

1.26763

1.57865

1.58835

1.54804

0.46794

35 0

30 4

35 0

35 0

35 0

30 4

35 1

35 0

35 1

35 0

35 0

23.3 +4.6

45.3 +1.9

48.6 +2.0

8.9 +1.6

30.9 +4.7

53.8 +0.3

5.1 +1.8

11.2 +2.0

24.6 +5.3

8.9 +1.6

49.9 +1.7

29.8 +0.3

51.2 +1.8

52.0 +2.7

14.4 +0.9

37.1 +0.7

59.0 +0.2

11.5 +2.5

17.6 +0.9

32.8 +1.8

17.7 +0.9

57.1 +2.2

52.0 -5.9

11.8 -2.3

17.3 -4.2

36.9 -3.3

0.0 -0.5

21.0 -3.5

32.7 -0.6

39.4 -4.5

53.0 -4.2

38.6 -4.1

18.9 -4.0

43.3 +5.1

5.2 +1.5

6.9 +7.2

28.7 +4.9

50.3 +5.1

11.1 +2.0

23.6 +6.6

30.1 +5.0

43.2 +9.8

29.0 +4.9

9.4 +7.3

148.4 +4.1

233.5 +2.9

6.8 +7.7

88.9 +4.1

178.3 +1.0

24.9 -1.0

72.9 +1.0

98.3 +3.4

153.6 +7.7

94.2 +3.3

15.3 +7.2

35 97.10

34 58.38

36 1.70

35 22.22

35 44.58

35 6.22

36 18.22

35 24.57

36 38.40

35 23.55

36 3.82

23.60

61.98

-0.70

38.26

15.48

106

[illegible]

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110

Vulpec. (90 B)

20

20

16.82

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Vulpecula		1878.0		S		hyg											
20 ^h 26 ^m 8 ^s	26 44.95	28 45.03	28 36.3	28 36.5	28 36.7	28 36.7	28 36.6	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7
+25° 24'	26 44.95	28 45.03	28 36.3	28 36.5	28 36.7	28 36.7	28 36.6	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7
+16 59	20 26 45.06	28 45.03	28 36.3	28 36.5	28 36.7	28 36.7	28 36.6	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7	28 36.7
Sept. 9	Sept. 14	Sept. 15	Sept. 16	Sept. 17	Sept. 18	Sept. 19	Sept. 20	Sept. 21	Sept. 22	Sept. 23	Sept. 24	Sept. 25	Sept. 26	Sept. 27	Sept. 28	Sept. 29	Sept. 30
20 28 17.2	28 41.85	28 35.8	28 37.73	28 37.1	28 37.60	28 36.9	29 0.05	29 18.0	29 235	28 562	29 473	29 473	29 473	29 473	29 473	29 473	29 473
19.2	44.23	38.7	57.00	38.5	0.10	39.3	2.25	20.2	467	583	700	700	700	700	700	700	700
21.4	46.37	40.0	38.30	41.5	2.13	41.6	4.50	22.4	700	03	935	935	935	935	935	935	935
23.6	48.62	42.0	1.53	43.5	4.55	43.7	6.75	24.3	927	28	1154	1154	1154	1154	1154	1154	1154
1070 25.6	51.07	44.0	29630	3.74	45.1	1116 6.78	2072 45.7	2275 9.20	1109 26.0	3454 1153	18 42	4642 1380	4642 1380	4642 1380	4642 1380	4642 1380	4642 1380
29 25.4	52.50	29 41.3	7.20	29 40.0	10.22	29 45.1	12.40	29 45.4	1500	29 470	1728	1728	1728	1728	1728	1728	1728
27.7	53.70	43.1	9.55	41.5	12.65	42.0	14.57	47.0	1740	484	1940	1940	1940	1940	1940	1940	1940
29.8	55.00	45.1	11.80	44.0	14.75	45.0	17.15	48.7	1953	506	2183	2183	2183	2183	2183	2183	2183
32.0	1.25	47.5	14.05	45.8	17.10	57.4	19.29	50.5	2200	526	2418	2418	2418	2418	2418	2418	2418
1492 34.3	29505 3.60	2365 45.5	5900 16.40	2191 47.5	7420 19.48	2457 53.2	8830 21.66	2442 52.6	9517 24.24	2536 53.0	10941 26.52	26.52	26.52	26.52	26.52	26.52	26.52
46.41	7.05	59.26	19.85	2.23	22.68	4.55	25.22	6.97	27.63	9.28	29.86	29.86	29.86	29.86	29.86	29.86	29.86
59.01	9.35	11.80	22.18	14.84	24.00	17.06	27.40	19.63	29.87	21.88	32.20	32.20	32.20	32.20	32.20	32.20	32.20
11.59	11.70	24.44	24.45	27.31	27.40	29.72	32.05	32.10	32.05	34.41	34.38	34.38	34.38	34.38	34.38	34.38	34.38
17701	5795 16.05	3550	2218 29.00	4438	13653 31.50	5133	14860 34.25	5870	16082 36.64	6557	17206 39.00	39.00	39.00	39.00	39.00	39.00	39.00
28 21.40	28 40.10	28 40.10	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34	28 41.34
29 29.84	28 59.003	29 45.30	29 11.833	29 43.82	29 14.793	29 49.14	29 17.110	29 48.84	29 19.566	29 50.72	29 21.856	21.856	21.856	21.856	21.856	21.856	21.856
-2 10.20	-2 22.81	-2 22.81	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67	-2 25.67
-0.64	-0.64	-0.64	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65	-0.65
-3.20	-2 14.05	-3.33	-2 26.80	-3.32	-2 29.64	-3.31	-2 32.02	-3.29	-2 34.47	-3.28	-2 36.82	36.82	36.82	36.82	36.82	36.82	36.82
40	26 44.95	45.03	45.03	45.15	45.09	45.10	45.04	45.04	45.04	45.04	45.04	45.04	45.04	45.04	45.04	45.04	45.04
+37.60	-30.84	+31.73	-33.47	+33.45	-29.03	+35.67	-32.03	-2.61	-29.27	+21.50	-28.86	-28.86	-28.86	-28.86	-28.86	-28.86	-28.86
1.57519	1.48911	1.50147	1.52466	1.52440	1.46285	1.55230	1.50556	0.41664	1.46642	1.33244	1.46030	1.46030	1.46030	1.46030	1.46030	1.46030	1.46030
1.63711	1.55103	1.56339	1.58658	1.58632	1.52477	1.61422	1.56748	0.47856	1.52834	1.39486	1.52222	1.52222	1.52222	1.52222	1.52222	1.52222	1.52222
0 3	0 1	0 3	0 1	0 3	0 1	0 3	0 1	0 2	0 1	0 2	0 1	0 1	0 1	0 1	0 1	0 1	0 1
17.5 +50	56.2 +08	9.4 +32	54.5 +09	10.9 +35	58.1 +07	12.7 +39	54.0 +09	29.1 +53	58.6 +07	58.8 +16	59.8 +07	59.8 +07	59.8 +07	59.8 +07	59.8 +07	59.8 +07	59.8 +07
22.3 +22	1.5 +30	13.6 +29	58.6 +32	17.1 +27	4.1 +31	18.7 +24	59.2 +31	35.1 +21	3.0 +30	2.4 +27	3.3 +30	3.3 +30	3.3 +30	3.3 +30	3.3 +30	3.3 +30	3.3 +30
41.6 -38	20.2 -28	34.0 -01	19.8 -29	36.1 -12	23.2 -19	37.6 -22	18.3 -31	54.2 -35	22.0 -23	22.3 -22	24.1 -15	24.1 -15	24.1 -15	24.1 -15	24.1 -15	24.1 -15	24.1 -15
35.7 +30	16.2 +47	26.3 +34	12.0 +49	29.2 +34	17.0 +47	30.2 +34	12.9 +49	47.8 +30	17.8 +47	16.9 +36	17.8 +47	17.8 +47	17.8 +47	17.8 +47	17.8 +47	17.8 +47	17.8 +47
117.1 +64	34.1 +57	8.3 +94	24.9 +61	9.3 +84	42.4 +66	99.2 +27	24.4 +58	166.2 +69	41.4 +61	40.4 +57	45.0 +69	45.0 +69	45.0 +69	45.0 +69	45.0 +69	45.0 +69	45.0 +69
3 29.28	2 8.52	3 20.82	2 6.22	3 23.32	2 10.60	3 24.80	2 6.10	2 46.55	2 10.35	3 10.10	2 11.25	2 11.25	2 11.25	2 11.25	2 11.25	2 11.25	2 11.25
-43.36	35.57	-36.59	38.60	-38.58	33.48	-41.14	36.94	3.01	34.54	-24.79	33.28	33.28	33.28	33.28	33.28	33.28	33.28
2 45.92	44.09	2 44.23	44.82	2 44.74	44.08	2 43.66	43.04	2 44.56	44.59	2 45.31	44.53	44.53	44.53	44.53	44.53	44.53	44.53
+25 20 2.43	4.26	4.12	3.53	3.61	4.27	4.69	5.31	3.79	3.46	3.04	3.82	3.82	3.82	3.82	3.82	3.82	3.82
+16 58 36	1.24500	-19.6	1.24304	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50	-17.50
1.24500	1.24304	1.23852	1.23852	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721	1.24721
-17.50	-17.50	-17.32	-17.32	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67	-17.67
-30.0	-20.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0
-31.0	-19.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0
-16.0	-14.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0
-18.27	-18.04	-18.10	-17.91	-18.45	-18.24	-18.58	-18.365	-17.9187	-16.02	-17.641	-17.66	-17.66	-17.66	-17.66	-17.66	-17.66	-17.66
+25 19 44.16	46.23	46.02	45.62	45.16	46.03	46.11	46.96	45.92	46.48	45.40	46.16	46.16	46.16	46.16	46.16	46.16	46.16
45.20	45.82	45.82	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60
+4 10.15	+4 9.90	+4 9.90	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45	+4 10.45
-0.26	+4 9.89	-0.26	+4 9.66	-0.26	+4 10.21	-0.26	+4 9.61	-0.26	+4 10.59	-0.26	+4 10.70	+4 10.70	+4 10.70	+4 10.70	+4 10.70	+4 10.70	+4 10.70
-18.5	-18.5	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21	-19.21
+3 51.46	+3 50.45	+3 50.45	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86	+3 50.86
+25 23 36.6	36.27	36.27	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46

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1878.0
Delphinus (50 B) 46 53.58 +17 34 10.6 *hygeni* 8
 20 47.0 .63 9.7 " *coo* 8 9.97926
 +17 34' .62 11.2 " *15 coo* 8 0.08533m
 .57 10.2
 .67 10.0
 .85 9.5

+24 49
 20 46 53.65 +17 34 10.28
 53 *tan* 5 +0.32
cin 2 +.42

Sept. 18

Sept. 19

Sept. 23

Sept. 25

Oct. 14

Oct. 16

20	48	58.2	49	14.27	48	57.7	49	16.67	49	17.5	49	26.10	49	23.4	49	29.66	49	58.6	50	10.03	50	9.8	50	14.42	
		56.3		16.43		59.6		18.90		19.2		28.42		27.4		32.00		1.0		12.22		11.7		16.65	
		58.0		18.60		1.7		21.00		21.3		30.41		27.7		34.16		3.6		14.38		14.0		18.90	
		0.3		20.73		3.4		23.26		23.2		32.61		28.3		36.28		5.2		16.47		15.8		21.59	
	29	16	1.8	9303	23.00	85	6.1	10523	23.40	1062	25.0	1226	8472	27.5	31.5	17054	38.44	167	7.3	7177	18.67	693	18.0	9397	23.0
	49	53.0		26.10	49	56.8		28.70	50	12.7		38.00	50	9.1		41.73	51	1.7		21.92	51	9.0		26.28	
		55.2		28.33		58.6		30.83		14.3		40.22		10.7		43.80		3.0		24.00		10.7		28.55	
		56.3		30.12		0.2		33.00		17.0		42.45		12.6		46.00		5.0		26.15		12.3		30.60	
		58.0		32.46		2.6		35.22		18.9		44.64		14.4		48.21		6.7		28.32		13.8		32.73	
	28	33	0.8	18221	34.80	29	44	16516	37.41	837	20.8	1217	4686	633	16.5	13011	50.37	252	8.8	13071	30.42	620	16.2	8311	34.95
		18.61		38.00		21.05		40.53		30.45		48.88		34.11		53.89		14.35		33.68		18.79		38.14	
		30.44		40.20		33.03		42.63		42.43		52.05		46.02		57.78		26.14		35.90		30.62		40.20	
		42.35		42.38		44.87		45.00		54.27		57.33		57.87		67.81		38.07		38.05		42.39		42.42	
		9.140		44.47		48.95		49.00		12.15		56.88		138.00		0.00		78.56		40.23		9.180		44.52	
	48	58.32		21173	46.68	49	1.70	22436	49.20	27137	58.63			28936	2.18		78.56		42.50		9180		21193	46.75	
	49	56.66	49	30.466	50	0.58	49	22.983	50	16.74	49	42.383	50	12.66	49	46.000	51	5.04	50	26.186	51	12.40	50	30.600	
	-2	32.96			-2	35.39			-2	44.88			-2	48.52			-3	28.94			-3	33.21			
	-	0.40			-	0.44			-	0.41			-	0.46			-	0.41			-	0.40			
	-	3.53	-2	36.89	-	3.52	-2	39.35	-	3.47	-2	48.76	-	3.45	-2	52.43	-	3.17	-3	32.52	-	3.18	-3	36.75	
		46	53.58			53.63				53.62				53.57					53.67				53.85		

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	+32.15	-26.19	+31.28	-27.60	+21.14	-34.36	+18.28	-26.66	+22.85	-38.85	+16.74	-41.80												
5	1.50718	1.41814	1.49527	1.44091	1.32510	1.53605	1.26198	1.22767	1.35889	1.58737	1.22376	1.62118												
9	1.59251	1.50347	1.58060	1.52624	1.41043	1.62138	1.34731	1.30700	1.44422	1.67472	1.30909	1.70651												
	50 2	50 1	50 2	50 1	50 2	50 1	50 2	50 1	50 2	50 1	50 2	50 1	50 2											
57	27.9	+5.4	17.8	+4.5	26.4	+5.4	14.9	+4.0	12.6	+3.1	5.6	+1.9	10.9	+2.7	24.1	+5.3	15.1	+3.7	0.6	+1.4	8.1	+1.9	56.1	+0.8
14	33.7	+2.1	23.2	+2.1	32.9	+2.1	20.9	+2.2	20.4	+3.0	12.2	+2.6	16.4	+3.3	31.9	+1.8	22.3	+2.8	8.2	+2.4	14.5	+3.3	2.9	+3.0
24	55.8	-1.8	46.0	-5.5	55.1	-2.7	43.9	-5.2	39.2	-3.3	31.3	-0.3	37.9	-2.8	44.1	-5.2	42.9	-4.8	28.0	-0.7	36.6	-2.0	24.3	-1.3
10	46.4	+3.2	35.8	+5.9	44.7	+3.3	33.6	+6.1	30.9	+4.8	24.9	+6.6	28.8	+4.8	36.2	+5.9	34.2	+4.6	21.3	+6.6	27.8	+4.7	16.4	+4.7
57	163.8	+8.9	122.8	+7.0	159.1	+8.1	113.3	+7.1	103.1	+7.6	74.0	+1.6	94.0	+8.0	136.3	+7.8	114.5	+6.3	58.1	+2.9	87.0	+2.9	39.7	+2.2
00	52	40.95	51	30.70	52	39.77	51	28.32	52	25.77	51	18.50	52	23.50	51	34.07	52	28.62	51	14.52	52	21.75	51	9.92
93	-39.13		31.88		-38.07		33.59		-25.73		41.82		-22.25		26.28		-27.81		47.28		-20.37		50.88	
93	52	1.82		2.58	52	1.70		1.91	52	0.04		0.32	52	1.25	52	54.35	52	0.81		1.80		1.38		0.80
42	+17 30	46.53		45.77		46.65		46.44		48.31		48.03		47.10		47.54		46.55		46.97		47.55		
	+24	47 52																						
		1.42490																						
		-1169																						
		1.41321																						
		-25.90																						
		-16																						
		-27																						
		-22.1																						
		-26.55																						
	+17 30	19.98		19.43		19.72		19.67		21.92		21.55		20.24		14.95		20.80		19.66		20.30		20.74
		19.70				19.70				21.74				20.21				20.23				20.52		
	+4	10.93				10.13				10.07				10.70				11.68				10.98		
	-	33	+4	10.60		.32	+4	9.81		.30	+4	9.27		.29	+4	10.41		.26	+4	11.42		.26	+4	
	-	19.874				19.85				20.327				20.547				21.70				21.876		
	+3	50.86				50.98				49.50				49.94				49.72				48.74		
	+17 34	10.56				9.66				11.24				10.10				9.95				9.46		

[illegible]

Delphinii (55-B) ^{1878.0} _{54 53.14 +18 51 21.6} ^{h g r i s} _{h g r i s} ^{log R_i} _{log R_i} ¹³⁸⁰⁰³ _{1.07936} ¹¹⁹													
20	55.0	.13	19.9	" cos δ	9.97602	R _i	23.99						
+18° 52'		.15	21.2	" 15 cos δ	0.08209 _m	R _i	12.00						
		.22	20.4			I	2.19						
		.01	21.7										
		.19	23.2										
+23	31			tan δ	+0.34								
				sin Z	+1.40								
Sept. 9		Sept. 14		Sept. 19		Sept. 23		Sept. 25		Sept. 28			
1 m 8	m 5	57 19.5	57 3.70	57 33.0	57 -	57 59.6	57 37.80	57 43.0	57 -	57 53.3	57 -		
20 57 25.7	56 -	21.5	5.90	34.2	-	41.6	39.90	45.0	31.25	57.2	40.55	38.36	
27.7	-	23.7	8.00	36.7	20.62	43.7	42.00	47.4	33.52	59.7	36	40.36	
29.7	-												
31.3	55.38	25.7	10.20	38.5	53	22.72	44.14	49.3	33.81	1.6	.48	42.67	
1474 33.0	59 57.77	1176 27.2	4030 12.50	1881 40.7	45	24.83	2380 47.5	21017 46.33	2358 57.1	16762 38.05	2977 3.9	40.67	45.05
57 37.6	2.88	57 57.0	15.70	57 58.8	28.20	58 16.5	49.69	58 8.8	41.22	58 27.7		48.22	
38.8	5.00	53.3	12.55	0.7	30.50	16.6	57.76	10.3	43.27	30.0		50.40	
40.8	7.30	55.2	20.00	2.7	32.62	20.4	54.05	12.4	45.27	32.1		52.62	
43.0	9.43	57.0	22.30	4.7	34.72	22.2	56.25	14.0	47.80	34.0		54.78	
2044 44.7	36.44	11.70	275.2	58.7	10047 24.52	13.2	6.3	16304 37.00	1021 24.1	27038 58.60	615 16.0	2743 49.87	1598 36.0
55.38	14.50	8.06	22.65	20.53	4005	42.02	42.03	1.63	33.52	53.05	40.51		0.10
7.29	17.10	20.09	29.80	32.61	42.42	54.07	.07	3.90	45.48	53.48	52.60		2.37
19.29	19.35	32.05	32.05	44.55	44.63	6.03	.04	6.05	57.54	57.53	4.52		4.68
21.96	21.45		34.20		46.72	8.20			59.72	59.72			6.60
21.96	9645 23.65	6020	16025 36.45	9769	22274 48.92	16.213	30.16	10.38	13.654	28770 1.92	15763	2261	8.86
57 29.48	57 28.52	57 36.62	57 36.62	57 36.62	57 47.60	57 47.60	57 47.60	57 47.60	57 47.60	57 47.60	57 47.60	57 47.60	57 47.60
57 40.88	57 7.320	57 55.04	57 20.066	58 2.64	57 32.563	58 20.42	57 54.043	58 12.30	57 45.513	58 51.96	57 52.543		
-2 10.09	-2 22.88	-2 35.10	-2 35.10	-2 35.10	-2 44.90	-2 44.90	-2 44.90	-2 44.90	-2 44.90	-2 44.90	-2 44.90	-2 44.90	-2 44.90
-0.46	-0.47	-0.47	-0.47	-0.47	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44	-0.44
-3.63	-2 14.18	-3.59	-2 26.94	-3.54	-2 39.41	-3.49	-2 18.83	-3.48	-2 52.50	-3.48	-2 59.35		
	54 53.14		53.13		53.15		53.22		53.01		53.19		
-22.16	-33.56	-5.45	-34.97	-4.06	-30.08	-5.55	-38.37	-1.65	-26.79	-7.00	-39.42		
1.34557 _m	1.52582 _m	0.73640 _m	1.54370 _m	0.60853 _m	1.47828 _m	0.80887 _m	1.42127 _m	0.21748 _m	1.42797 _m	0.84510 _m	1.59592 _m		
1.42766	1.60791	0.81849	1.62579	0.69062	1.56037	0.87048	1.50336	0.29957	1.51006	0.92719	1.67781		
30 4	30 3	30 4	30 3	30 4	30 4	30 4	30 3	30 4	30 4	30 4	30 3		
12.7 +3.7	58.2 +2.0	35.1 +4.2	56.9 +2.0	33.5 +4.6	2.3 +2.0	34.5 +4.3	50.8 +2.4	36.2 +3.9	57.7 +2.4	28.7 +5.2	49.1 +2.7		
18.4 +1.5	3.8 +1.8	40.2 +0.8	2.3 +1.3	38.9 +0.6	7.3 +1.9	41.3 +1.1	57.7 +2.2	40.7 +0.9	10.0 +1.9	35.1 +0.1	55.8 +2.5		
38.2 -3.1	23.9 -1.4	1.5 +0.2	23.2 -2.0	59.3 -0.3	28.0 +0.0	59.7 -0.2	15.2 -2.5	1.6 +0.3	31.3 +0.1	53.8 -4.3	13.2 -1.7		
31.1 +2.3	18.3 +2.1	52.3 +0.2	14.4 +2.3	57.8 +0.2	21.8 +2.0	52.3 +0.2	9.2 +2.2	54.3 -0.1	25.3 +2.2	46.7 +0.8	7.9 +2.1		
10.04 +4.4	44.2 +4.5	18.91 +5.4	36.8 +2.6	18.35 +5.7	5.94 +5.9	18.78 +5.4	12.9 +4.3	19.28 +5.0	72.3 +6.6	164.3 +1.8	6.0 +5.6		
34 25.10	34 11.05	34 47.28	34 9.20	34 48.88	34 14.85	34 46.95	34 3.22	34 48.20	34 18.08	34 41.08	34 1.50		
26.77	40.54	6.58	42.25	4.91	36.34	37.87	37.87	1.99	32.36	8.46	47.62		
34 51.37	51.59	34 53.86	51.45	34 50.79	51.19	39.17	39.17	50.19	50.44	49.54	49.12		
47 56.48	56.76	54.49	56.90	57.56	57.16	57.78	57.78	47 58.16	57.91	58.81	59.23		
30 42													
1.39880													
-165													
1.39715													
-24.95													
-1.08	-1.19	-1.00	-2.1	-1.00	-1.15	-1.00	-1.25	-1.00	-1.12	-1.00	-1.26		
-40	-38	-48	-42	-48	-42	-48	-41	-48	-43	-42	-36		
-11	-11	-14	-10.9	-13	-15	-14	-11	-13	-17	-15	-14		
-25.54	-25.63	-25.33	-25.43	-25.39	-25.50	-24.99	-25.14	-25.48	-25.59	-24.85	-25.14		
30.94	31.13	29.16	31.47	32.14	31.66	29.71	33.64	32.68	32.32	33.96	34.09		
31.04		30.32		31.92		31.68		32.50		34.02			
+4 10.15	+4 9.80	+4 9.90	+4 9.56	+4 10.13	+4 9.82	+4 10.07	+4 9.78	+4 10.70	+4 10.42	+4 11.04	+4 10.77		
-35		-34		-31		-29		-28		-27			
-19.23		-20.0		-20.658		-21.08		-21.324		-21.854			
+3 50.57		+3 50.62		+3 49.24		+3 48.75		+3 49.18		+3 49.23			
+18 51 21.61		19.94		21.16		20.43		21.68		23.25			

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 $+4 \quad 11.85$

