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Observations & Reductions
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Observations and Reductions

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1871

δ Capricorni

21 39 59

− 16 42

−30

1871 Oct. 16 | Oct. 22 | Nov. 5 | Nov. 9 | Nov. 19

39 52.2 39 41.2 | 39 52.1 39 43.7 | 39 53.9 39 45.9 | 39 52.9 39 44.5 | 39 49.6 39 44.6 | 39

54.3 42.5 | 54.3 45.0 | 56.0 47.9 | 55.0 45.9 | 51.6 45.8

56.4 44.0 | 56.5 46.6 | 58.0 49.0 | 57.1 47.4 | 53.8 47.0

0.7 12.7 | 0.8 135.3 | 2.4 50.3 | 1.4 137.8 | 58.1 137.4

2.8 | 2.9 45.1 | 4.6 123.5 | 3.5 | 0.2

−5.0 | −5.0 | 6.7 | 5.7 | 2.4

7.2 40 28.4 | 7.2 40 27.2 | 9.0 40 34.7 | 7.8 | 4.5

9.3 26.6 | 9.3 28.4 | 11.0 36.3 | 10.0 | 6.7

13.6 27.7 | 13.6 29.9 | 15.2 38.0 | 14.2 | 10.4

15.6 39 42.6 | 15.7 39 45.1 | 17.4 39 [illegible] | 16.5 39 45.9 | 13.1 39 45.8

17.9 | 17.9 | 19.7 48.1 | 18.6 | 15.3

235.0 | 235.3 | 253.9 | 242.7 | 266.2

180 | 180 | 180 | 180 | 240

55.0 | 55.3 | 73.9 | 62.7 | 26.2

log a sin 9.45543

log sin 9.98129

1.2669

.10998

40 5.00 | 40 5.03 | 40 6.72 | 40 5.70 | 40 2.38

0 4 10.55 0 6.5 | 4 18.6 5 0 13.2 | 4 17.5 5 0 20.9 | 4 18.6 | 4 21.9

20.2 17.2 | 27.0 24.7 | 17.1 19.8 | 18.9 | 21.2

30.7 23.7 | 45.6 37.9 | 34.6 40.7 | 37.5 | 43.1

15.35 11.85 | 22.80 17.45 | 17.30 20.35 | 18.75 | 21.55

+23.4 | +19.9 | +18.6 | +17.8 | +16.6

1.35025 | 1.30535 2.9890 | 1.26951 | 1.29667 | 1.22011

1.45823 | 1.41333 1.40688 | 1.37749 | 1.40465 | 1.32809

+2873 | +2540 +2553 | +2385 | +2539 | +2129

4 15.35 | 4 22.80 22.80 | 4 17.30 | 4 18.75 | 4 21.55

4 44.08 | 4 [illegible] 18.33 | 4 41.15 | 4 44.14 | 4 42.84

−16° 41′ 55.73 | 41 59.98 | 41 52.80 | 41 55.79 | 41 54.49

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N00-28

39 46.639 45.7
48.6 47.2
50.7 49.1
54.0 142.0
57.2
59.5
1.6
3.7
8.1
10.2 89 47.5
12.2
35 3 3
30 0
65 3.3
59.39

.0 42.76
21.8
49 4
24.70

42.1
1.08279
1.19077
+1552
4 24.70
4 4022

41 5187

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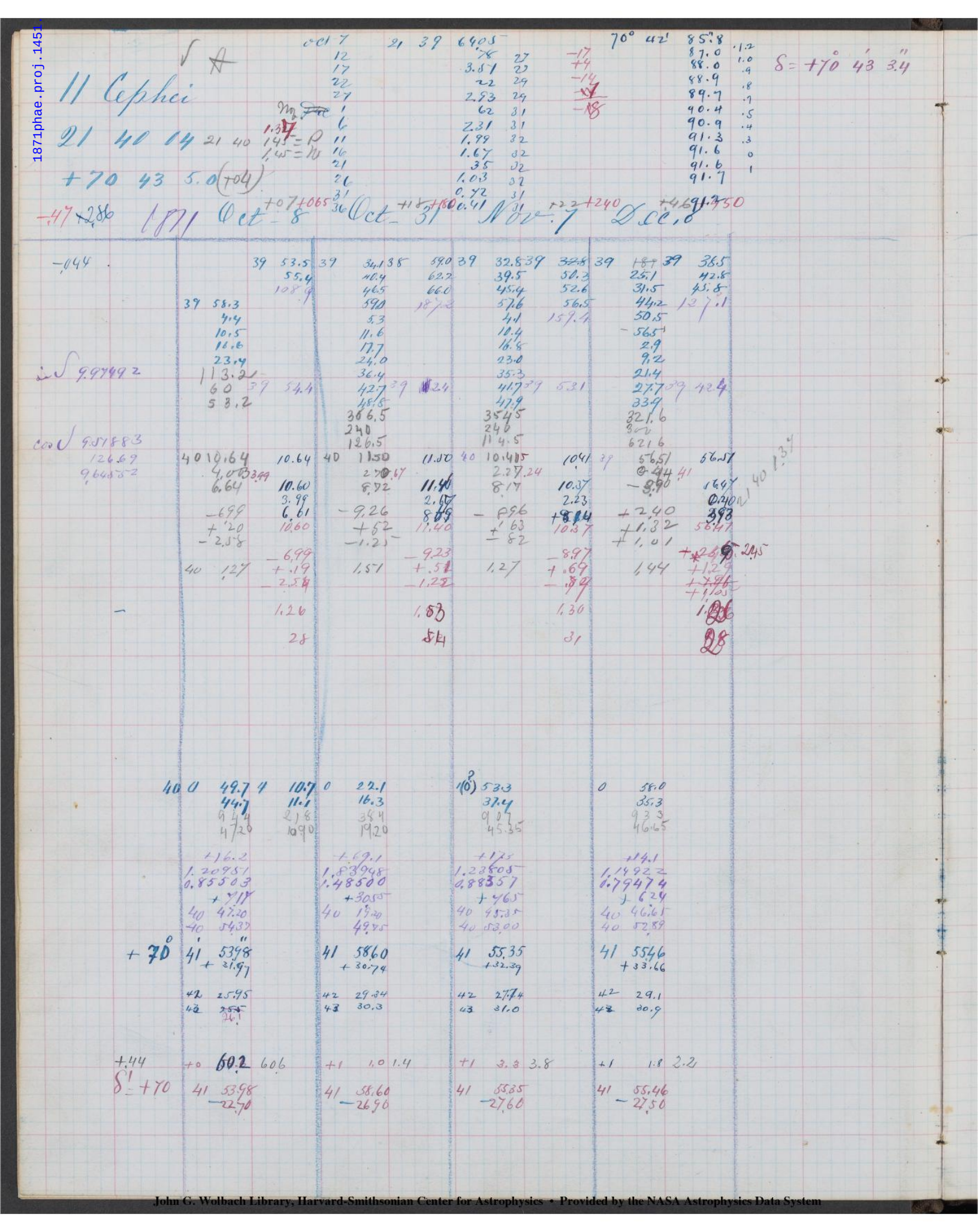
11 Cephei

21 40 14 21 40 1.45 = P
1.45 = M

+70 43 5.0 (+04)

1871 Oct 8 — Oct 31 — Nov 7 — Dec 0

δ = +70° 43' 3.4"



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11 Cygni

21 42 03 42 1,73 +03

+ 48 43 5.0

−11 +1,14 1871

Oct 4 Oct 8 Oct 16 Oct 22. Oct 31

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+7
−6
+1
+0
+14
+11
+2
−9
−1
−5
+1

δ = +48 42 47".2

Nov. 5	Nov. 7	Nov. 9	Nov. 28	Dec. 6
+15 +200	+22 +240	+20 +213	+28 +280	+46 450

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14 Pegasi

21 43 59

+ 29 35

+.5"

	Oct 8	Oct 22	Oct 23	Oct 31	Nov 5
	44 3.1 43 49.1	44 3.7 43 52.0	44 4.0 44 4.8	44 5.0 43 56.6	44 5.3 43 51.0
	5.4 51.0	6.2 53.0	6.3 7.6	7.3 57.9	7.5 52.7
	7.9 52.8	8.5 54.2	8.6 12.4	9.6 59.6	10.0 54.0
	12.6 152.9	13.2 159.3	13.3	14.4 174.1	14.6 157.7
	14.9	15.5	15.6	16.8	16.9
	17.4 44 38.0	18.0	19.0	19.1	19.4
	19.6 39.7	20.3 44 33.7	20.4 44 37.0	21.4	21.8 44 45.6
	22.0 41.1	22.7 37.5	22.7 38.7	23.8	24.1 47.5
Sin ∨ 9.69345	26.7	27.4 39.1	27.5 40.0	28.6	28.7 48.7
	29.1 43 54.9	29.7 43 53.1	29.8 44 6.2	30.9 43 58.0	31.2 43 52.6
	31.6	32.0	32.2	33.3	33.6
	190.3	197.2	199.4	210.2	213.1
Cos ∨ 9.93934					
12669					
.06603					
	44 17.30	44 17.93	18.13	44 19.11	44 19.37

	45 3 15.1 3 13.7	3 18.7	3 33.0 4 10.2	3 22.7	3 18.5 4 23.4
	13.8 11.3	17.4	36.2 14.8	21.0	10.2 15.0
	289 250	366	692 250	437	287 380
	14.45 12.50	18.30	34.60 22.50	21.85	14.35 19.00
	+26.3	+24.8	+11.9	+24.1	+26.8
	1.41995	1.39445	1.07558	1.32928	1.42813
	1.48598	1.46048	1.14158	1.39031	1.49416
	+3062	+2887	+1385	+2945	+3120
	48 14.45	48 18.30	48 34.60	48 21.85	48 14.35
	48 45.07	48 47.17	48 48.45	48 46.42	48 45.55
	+29° 34' 3.28"	34 1.18	33 59.90	34 1.93	34 2.80

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Nov-7		Nov-9		Nov. 19.		Nov. 28	
44 4.5	43 47.7	44 4.2	43 53.5	44 0.9	43 52.7	43 39.7	43 51.8
6.8	49.2	6.5	55.1	3.1	54.5	0.1	53.0
9.2	51.1	8.8	56.4	5.4	55.4	2.5	54.5
14.0	148.0	13.5	165.0	10.1	163.3	7.3	159.3
16.3		15.9		12.5		9.7	
18.7		18.2		15.0		12.1	
21.0		20.5		17.3		4.4	
23.4		22.9		16.7		16.7	
27.9		27.7		24.4		21.6	
30.4	43 47.3	30.1	43 55.0	26.8	43 54.1	23.9	43 53.1
32.8		32.4		29.2		26.1	
2050		206.7		1644		1941	
						60	
						134.1	
44 18.63		44 18.25		44 14.94		44 12.19	

48 3	15.3	3	24.0	3	25.3	3	30.1
	6.4		16.1		15.7		17.5
	247		401		410		476
	12.35		20.05		20.50		23.80
	+ 2.93		+ 2.32		+ 2.08		+ 1.91
	1.46657		1.36549		1.31806		1.28103
	1.53290		1.43152		1.38409		1.34706
	+ 3411		+ 2701		+ 2922		+ 2224
	48 12.35		48 20.05		48 20.50		48 23.80
	48 46.96		48 49.06		48 44.72		48 46.04
	34 1.89		34 1.29		34 3.63		34 2.31

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M Capricorni

21 46 18

− 14 09

−2.5

1871 Oct 4 Oct 8 Oct 22 Oct 27 Nov. 5 ~~Oct 31~~

	Oct 4			Oct 8			Oct 22			Oct 27			Nov 5		
	46	11.6	0.7		46	7.5	46	12.9	5.0	46	13.0	9.8	46	14.6	7.5
		13.7	2.5			8.9		15.0	6.3		15.0	10.3		16.6	8.7
		16.0	4.7			9.9		17.1	8.0		17.2	20.1		18.8	4.7
		20.4	7.9	46	20.7	26.3		21.3	19.3		24.5			22.9	35.9
		22.2			22.9			23.5			23.6			25.0	
		24.4			25.0			25.6			25.7			27.3	
		26.3	48.1		27.0			27.7	54.7	46	27.8	49.7	46	29.3	52.0
		28.6	49.7		29.2			29.9	56.5		30.0	50.5		31.4	53.4
Sun ∑ 9.388211		32.84	50.9		12 4			34.1	57.8		34.2			35.7	54.6
		34.9	2.6	46	8.8			36.3	6.4	46	36.4	10.0	46	37.7	8.6
		37.0						38.3			38.5			39.6	
		2676						281.7			2829			2992	
Coo ∑ 9.98662															
12669	46	24.34		46	24.96		46	25.61		46	25.72			27.20	
.11331		17.91													
		6.43													

30	1	6.0	2	6.2	1	11.3			1	13.2	2	17.1	1	18.2			1	14.2	2	11.5
		14.9		15.3		18.9				21.8		25.7		28.8				15.2		11.2
		209		215		302				350		428		470				294		227
		10.45		10.75		15.10				17.50		21.40		23.50				14.70		11.35
		+21.8				+16.2				+19.2				+15.7				+18.6		
		1.32845				1.32201	.20950			1.28330				1.19596				1.26957		
		1.45176				+33342	1.32281			1.39661				1.30921				1.38282		
		+2830				+2155	+21.03			+24.92				+20.38				+2410		
	31	10.45			31	15.10	15.10		31	17.50			31	23.50			31	14.70		
	31	38.75			31	246	36.13		31	42.42			31	43.88			31	38.85		
																		50.50		
−14°	8	50.40			8	47.78			8	54.07			8	55.53			8	50.40		

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Nov. 7 Nov. 9 Nov. 28

46	22.4	46	10.0	46	13.6	46	4.4	46	7.3	46	3.7
	24.4		11.6		15.5		6.0		9.3		5.7
	26.6		12.6		17.7		7.2		11.5		7.5
	28.6		34.8		22.0		17.6		15.8		16.9
	30.8				24.1				17.9		
	1328				26.2				20.0		
					28.3				22.1		
					30.4				24.1		
					34.6				28.5		
	46		11.4		36.9	46	5.9		30.5	46	5.6
					39.0				32.7		
					2853				219.7		
	26.56				26.21				19.97		

30	1	19.4	1	13.3	1	20.2		
		18.0		11.4		13.7		
		374		247		339		
		18.70		12.35		16.95		
		+15.2		+20.3		+14.4		
		1.181874		1.307582		1.158316		
		1.295115		1.420815		1.271167		
		+1973		+26.35		+1889		
		2633		31 12.35		31 16.95		
		31 1890		31 38.70		31 35.64		
		31 28.43						
		8 50.08		8 50.35		8 47.29		

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16 Pegasi

21 47 12 47 11.5 (+06)

+25 19

1871 +47

+.29

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Oct 1 21 47 13.59 +5 25° 19'
12 52.07 +5
17 48.08 +8
22 37.07 +9
27 13.29 +6
Nov. 1 21 8 +3
6 13 8 +2
11 05 8 +5
16 12.96 9
21 .88 8
26 .80 8
1 .73 7
6 .66 7

27.7 .4
28.1 .4
28.5 .3
28.8 .2
29.0 .1
29.1 .1
29.2 .0
29.2 -.1
29.1 -.2
29.3 -.3
28.9 -.4
28.2 -.5
27.7

Oct 8 +07 +065
Oct 16 +05 +079
Oct 23 +06 +106
Oct 31 +18 +180

47 7.0 47 1.0 47 26 46 56.3 47 29.6 47 46 56.5
9.2 2.4 9.9 57.6 31.1 57.6
11.5 4.0 12.1 58.8 32.8 58.3
16.0 7.4 16.6 172.7 33.5 17.9 173.4
18.3 19.0 20.2
20.6 21.2 22.5
22.9 47 41.6 23.4 37.4 24.7
25.1 43.5 25.7 39.0 27.0
27.6 45.1 30.3 40.1 11 23
31.9 47 2.5 32.5 46 57.6 47 31.2 46 57.8
34.3 34.9
22 6.4 37.4
233.2

Sin 9.63106
Cos 9.95615
12669
.08284

47 20.58 20.582 47 21.20 21.200 21.36 47 22.46 22.460
13.57 20.56 15.46 21.18 13.36 13.22 22.44
7.00 13.63 7.74 13.52 8.00 9.23 13.28
6.93 7.66 7.98 9.16
-6.99 -7.71 -7.95 -9.26
+3 20.56 +2 21.18 +3 21.34 +3 22.44
-1.99 -1.88 -1.77 -1.64
-.69 -.73 -.77 -.92
11.63 +.03 11.63 +.04 11.67 +.05 11.65 +.08
-1.99 -1.88 -1.77 -1.64
11.61 11.61 11.65 11.65
.63 .63 .66 .67

0 3 39.0 2 8.4 3 32.0 4 22.3 4 14.9 3 32.7
39.9 29.3 36.4 26.0 18.3 32.6
789 57.7 68.4 48.3 33.2 65.3
39.45 28.85 34.20 24.15 16.60 32.65

+18.1 +23.6 -9.8 +24.7
1.25768 1.37291 0.99123 1.39296
1.34052 1.45575 1.07407 1.47554
+2190 +2856 -1186 +2958
3 39.45 3 39.20 4 16.60 3 32.65
4 01.35 4 02.76 4 4.74 4 02.54
+25° 18 47.00 18 45.59 18 43.61 18 45.81
- 19.01 - 18.93 - 18.25 - 18.73
+ 18 28.0 18 26.7 18 25.5 18 27.1
19 27.8 19 28.4 19 28.8 19 29.1
-.27 +0 59.8 59.5 +1 1.7 1.4 +1 3.5 3.3 +1 2.0 1.7
δ' = +25 18 47.00 18 45.59 18 43.61 18 45.81
-19.50 -20.10 -20.50 -20.80

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δ = +25° 19' 8.3"

Nov. 7 +22 +340 Nov. 19 +32 +350 Dec. 5 +34 +373

47 36.0 47 4.7 46 56.0 46 57.2 47 32.3
31.9 7.6 57.3 59.5 33.9
39.5 9.2 56.8 1.7 35.7
47 17.5 13.4 13.7 17 2.1 6.4 12.9
19.7 16.6 8.6
22.0 18.3 10.9
24.4 20.5 13.1
26.6 22.7 15.5
11 02 27.5 20.0
47 29.8 46 57.4 22.2 47 33.9
37.8 31.9 24.5
2013 2396
126
119.6

2204 22040 18.30 18.30 10.87 10.873
13.11 22.02 12.91 18.28 12.67 10.86
8.93 13.17 6.39 12.97 1.80 12.79 1.6 26
+15 8.85 -5.56 -5.31 +1.65 1.87 1
-8.96 2202 + .15 18.28 + .16 10.86
+.11 -1.33 + .09 21
-1.53 897 -551 + 165
11.66 + .11 11.56 + .15 11.59 + .18
-1.53 -1.33 -1.09
11.68 11.54 11.67
64 .61 58
.60

0 4 25.4 3 40.1 4 35.5
17.9 32.7 22.0
42.4 72.8 57.5
21.20 36.40 28.75

x 15.8 +20.9 -23.0
1.49023 .19870 1.32015 1.36361
1.27317 .28154 1.40299 1.44645
-1776 -1912 + 25.29 -27.96
4 21.20 21.20 3 36.40 4 28.75
4 2.50 2.08 4 1.69 4 0.89

18 46.27 18 46.66 18 47.56
-18.90 -19.11 -19.33

18 27.4 18 27.5 18 28.2
19 36.6 19 29.2 19 27.8
1 2.2 1 1.7 59.6

1 22.20 +1 1.7 1.4 +0 59.5 59.2

18 46.27 18 46.66 18 47.56
-20.90 -20.90 -19.50

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B. A. C 7636

21 48 52

+ 55 36

+1.46

1871

	Oct. 8			Oct. 16			Oct. 22			Oct. 23			Oct. 31		
	48	~~52.0~~	48	48.10	48	37.2	48	38.8	48	33.9	48	23.0	48	33.8	49	3.8	48		49	7.0
	33.6	55.4		49.7		36.2		40.3		37.4		24.3		37.6		4.4				8.7
	36.9	59.0		53.0				40.5		41.0		27.1		41.4		8.2				11.1
	40.7	2.6		1.50.7				1.20.6		48.5		74.4		48.6				48.6		12.0
	48.0									52.0				52.3				53.1		38.8
	50.0				48	48.5				55.6				55.8				56.8		
	55.4		49	27.7		52.3				59.3				59.6	49	23.0		60.6		
	59.0			29.4		55.7				2.7				3.4		24.7		64.2		
SnN	2.7			31.6		59.5				10.2				10.4		26.4		28.3		
9.9165.1	9.9					63.1	48	40.2	48	13.9	48	24.8		15.0		28.1			49	9.7
	12.5	48	50.2							17.5				17.7	49	4.1				
	17.0																			
	366.7					279.1				372.2				375.6						
	23.8									24.0				24.0						
CO₂N	9.75202	6067								612.2				615.6						
	12669	48	55.15	55.185	48	55.82		55.820	48	55.65		55.655	48	55.96		55.87	48	56.66		56.860
	9.87871																			

.45	2	21.0	49.1		2	10.2	4	2.4	1	58.8		2	27.7	2	44.9	2	30.4			
		16.1	44.7			10.2		42.2		56.8			28.2		44.0		26.2			
		371	938			204		846		1156			559		880		566			
		18.55	46.90			10.20		42.30		57.80			27.95		44.00		28.30			
		+50				+15.6				+2.8			−8.2				−12.8			
		0.68497				1.19312				1.48855			0.91381				1.10721			
		0.57768				1.07183				1.36726			0.79252 m				0.98592 m			
		+378				+ 1182				+ 23.30			− 620				− 968			
	47	18.55			47	10.20			46	57.80		47	27.95			47	28.30			
	47	22.33			47	22.00			47	21.10		47	21.75			47	18.62			
+55°	35	26.02			35	26.35			35	27.25		35	26.60			35	29.73			

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Nov. 5 Nov. 7 Nov. 9

48 35.0 48 24.8 48 49.0 49 11.5 48 34.0 48 21.6
38.7 26.0 52.6 13.1 37.5 24.0
42.4 28.0 56.1 16.0 41.1 27.3
49.7 30.7 59.8 40.6 48.3 12.9
53.4 107.5 63.4 62.2
57.0 2809 55.9
8.6 20.9 59.4
4.3 23.8 3.1
11.7 26.4 10.4
15.4 48 27.4 49 13.5 14.0 48 24.3
18.8 17.6
3270 3735
306 2403
627.0 6138
48 57.00 57.09 48 56.18 56.180 55.77 55.773

45 1 41.3 2 47.32 40.9 2 3.7
53.0 35.9 27.0 51.4
57.3 83.2 67.9 55.1
56.65 41.60 33.96 47.53

+ 29.6 - 17.2 +31.5
1.48129 1.23805 1.49831
1.35000 1.11676 m 1.37702
+ 22.39 - 13.09 + 23.88
46 58.65 47 33.95 46 57.54
47 21.04 47 20.86 47 21.38
35 27.31 35 27.49 35 26.97

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21 50 37
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+1.48

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	Oct. 4	Oct. 8	Oct. 23	Oct. 31	Nov. 5
	50 19.7 50 5.4	50 20.3 50 14.4	50 20.8 50 13.0	50 20.7 50 9.6	21.8 50 13.3
	23.2 7.1	23.8 16.9	24.4 14.6	25.1 11.7	25.8 15.4
	27.0 9.3	27.5 15.8	28.0 17.4	28.9 14.5	29.0 17.7
	34.5 21.8	34.8 19.6	35.4 15.8	37.0? 35.8	36.4 46.4
	38.0	38.5	39.1	40.0	40.1
	41.6	42.2	42.8	43.8	43.7
	45.3 51 13.8	45.8 51 11.9	46.4 51 10.1	47.4	47.2 5.0
	49.0 15.5	49.5 19.8	50.1 11.7	51.0	51.1 7.3
sin ∫ 7.91857	56.3 17.3	57.0 17.6	57.3 14.8	58.4 50	58.3 9.5
	60.1 50 7.3	60.8 50 16.5	61.1 50 15.0	62.2 11.9	62.3 50 15.6
	63.7	64.4	64.8	65.7	66.0
	455.4	464.6	470.2	480.2	481.4
cos ∫ 9.94457					
12669					
9.87426					
	50 41.67 41.673	50 42.256 42.236	50 42.74 42.745	50 43.65 43.655	50 43.76 43.764

20	3 13.0 4 4.0	3 19.1	3 15.3 3 58.9	3 58.6	3 20.2 3 0.3
	10.8 1.4	14.8	16.0 58.5	52.1	9.4 48.2
	23.8 5.4	3.39	31.3 11.74	11.07	29.6 4.85
	11.90 2.70	16.95	15.65 58.70	55.35	14.80 24.25
	+24.4	+25.7	+27.7	+31.7 −2.82	+28.3
	1.53656	1.40993	1.44248	1.50106 1.45020	1.45488 .45180
	1.41082	1.28419	1.31674	1.37532 1.32446	1.33214 1.82606
	+ 25.75	+ 19.24	+ 20.79	+ 23.73 − 2.11	+ 21.48 + 2.119
	23 11.90	23 16.95	23 15.65	23 55.35 23 55.35	23 14.80 14.80
	23 37.65	36.19	36.39	23 19.08 23 34.24	23 36.28 35.99
+55°	59 10.70	59 12.16	59 11.96	59 14.11	59 12.36

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Nov. 9		Nov. 19.		Nov. 28			Dec. 5	
50 20.5	50 27.4	50. 16.9	50. 47.9	50 13.8	50 0.8		9.2 50	1.6
24.5	28.1	20.6	48.5	17.5	2.6		12.8	4.0
28.1	29.3	24.3	49.8	21.1	4.6		16.6	7.2
~~22.1~~	84.8	31.6	146.4	28.5	7.0		24.0	12.8
35.1		35.4		32.1			27.6	
38.8		39.0		35.9			31.2	
42.6		42.7		39.7			34.9	
46.3		46.4		43.3			38.5	
49.9		53.7		50.6			45.9	
57.3 50	28.3	57.6	50 48.8	54.3 50	2.7		49.6 50	4.8
61.1		61.2		58.1			53.3	
64.8		429 4		3949			3436	
4690								
42.64	42.636	39.04	39.036	35.90	35.900		31.24	31.236

20 3 32.1	3 48.0	3 19.9	3 26.2	
20.3	36.2	3.8	7.0	
524	842	237	33.2	
2620	42.10	11.85	16.60	
+14.3	−9.8	+33.2	+26.9	
1.85530	0.96123m	1.52114	1.42978	
1.02960	0.86549m	1.39540	1.30401	
+1070	−7.34	+2486	+2014	
23 2620	23 42.10	23 11.85	23 1660	
23 3650	23 34.76	23 3691	23 3674	
59 11.45	9 13.59	9 11.64	9 11.61	

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Oct. 4 Oct. 22 Oct. 29 Nov. 5

	53	20.1	53	9.1	53	21.4	53	10.6	53	22.8	53	13.1		23.0	53	13.4
		22.6		10.1		23.6		13.2		25.1		14.6		25.3		15.0
		24.8		11.1		26.0		14.9		27.6		16.4		27.7		16.8
		28.4		30.3		30.7		38.7		32.4		44.1		32.4		45.2
		31.9				33.1				34.6				34.8		
		34.2				35.4				36.9				37.0		
		36.6	53	57.8		37.8	53	57.2		39.3				39.4	54	1.0
		40.0		58.4		40.2		59.0		41.6				41.7		2.3
Sin S 9.68648		43.6		60.9		44.7		60.4		46.2				46.5		3.6
		46.0	53	10.1		47.1	53	12.9		48.9	53	14.7		48.8	53	15.1
		48.3				49.4				51.1				51.2		
		377.5				389.4				4065				4078		
cos S 9.94154									53	36.95						
12669	53	34.32		34318	53	35.40		35.400				36.955		37.07		37.073
06823																

20	4	36.0	25	0	32.6	4	43.4	0	36.4	4	38.9			4	41.9	0	36.3		
		43.4			40.0		50.2		42.9		37.7				39.3		35.0		
		49.4			42.6		53.6		49.3		76.6				81.2		71.3		
		39.70			36.30		46.80		39.65		38.30				40.60		35.65		
		+24.2					+22.5				+22.2				+22.0				
		1.38382					1.35218				1.34830				1.34242				
		1.45205					1.42041				1.41653				1.41065				
		+28.32					+26.33				+26.09				+25.79				
	24	39.70				24	46.80			24	38.30			24	40.60				
	25	8.02				25	13.13			25	4.39			25	6.39				
−29°	2	19.67				2	24.78			2	16.04			2	17.99				

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Nov 9 Nov. 12 Nov. 19 Nov. 25

53	22.1	53	17.6	53	21.4	53	11.5	18.7	53	11.3	53	— 53	48.7
	24.2		19.2		23.7		12.9	21.0		12.7		17.9	50.3
	26.5		21.0		26.0		14.2	23.4		14.5		20.3	51.9
	31.3		57.8		30.6		38.6	28.1		38.5		25.3	150.7
	33.7				33.0			30.6				27.6	
	36.0				35.4			32.8				29.8	
	38.4				37.8			35.2				32.1	
	40.7				40.1			37.5				34.6	
	45.5				44.9			42.3				39.3	
	47.8	53	19.8			53	12.9	44.6	53	12.8		41.6	53 50.3
	50.1				49.5			46.9				44.6	
	396.3				342.4			361.1				388.5	
	36.03		36.027		~~34.24~~		35.51	32.83		32.827		~~38.85~~	29.83

20	4	47.8	4	39.8		4	44.3	25	0	24.9					
		45.4		35.1			42.3			16.3					
		9.62		7.49			8.66			4.12					
		48.10		37.45			43.30			20.60					
		+16.7		+22.6			+20.0			20.5					
		1,22727		1,32825	.35410		1,30103			1,22603	.3180				
		1.29095		1.39661	1.42283		1,36926			1.35826		1.38003			
		+19.54		~~24.52~~	+26.44		+ 23.40			— ~~2252~~		— 2.394			
24		48.10	24	37.45	37.46	24	43.30	25		20.60		20.60			
25		8.64	25	~~2.37~~	3.88	25	6.70	27		~~7.38~~		56.61			
	2	19.29		2	15.54		2	18.35		2		8.26			

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Oct. 4	Oct. 8	Oct. 23	Oct. 29	Oct. 31

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56	34.8	56	28.0			57	9.5	56	36.1	56	24.2	56	37.6	56	30.4	56	36.3	56	26.0
	36.7		29.6				11.0		38.1		25.1		39.5		31.5		39.3		27.1
	38.9		30.9				12.8		40.2		26.8		41.5		32.8		41.3		28.6
	43.0		28.6	56	43.6		33.3		44.3		26.1		45.8		24.7		45.4		21.7
	45.0				45.6				46.3				47.7				47.5		
	47.0				47.7				48.5				49.8				49.5		
	50.1	57	13.4		49.8				50.6				51.8				51.6		
	52.2		14.7		51.8				52.4				53.8				53.7		
	55.2				238.5								57.9				57.7		
	57.3	56	29.5			57	11.1		58.8	56	25.4		60.0	56	34.5	56	39.8	56	27.2
	59.4								60.8				62.1				61.9		
	518.6												547.4				544.0		

56	47.28		47.145	56	47.70		47.700					56	49.85		49.764	56	49.45		49.455

5	3	45.8	4	46.0	4	39.9		3	49.0	4	48.5	0	47.0			3	44.6		
		55.0		54.0		45.9			51.8		54.4		50.2				49.0		
		100.8		100.0		65.8			43.2		52.9		97.2				93.6		
		50.40		50.00		42.90			52.2		61.0		48.60				46.80		
									95.4		113.9								
									47.70		56.95								

		+17.7				−23.41.365.20			+23.1				+18.2				+22.2		
		1.24996				1.12701.49538			1.36360				1.26087				1.34631		
		1.37415				1.25328			1.48978				1.38625				1.47253		
		+ 23.67				− 17.42 − 3129			+ 3089				+ 2489				+ 2469		
	8	50.40			9	42.80	9	42.50	8	47.70						8	46.80		
	9	1407			9	2488	9	11.61	9	18.59						9	1648		
−2°	46	25.72			46	23.26			46	30.24						46	28.14		

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Nov. 5 Nov. 9 Nov. 12 Nov. 28

56	56 32.0		56	56	56	56	56	
37.5	33.3	86.5	27.7	36.0	25.8	30.4	24.6	
39.6	34.8	38.6	29.1	38.0	26.6	32.4	26.1	
41.7	100.1	40.6	30.9	40.1	28.2	34.6	27.2	
45.8		44.7	87.7	44.1	80.8	36.6	77.9	
47.7		46.8		46.2		40.7		
50.0		49.0		48.3		42.7		
52.0 57	10.8	51.0		50.3		44.6		
54.0	12.0	53.0		52.5		46.7		
56.0	13.2	57.1		56.5		50.9		
60.2 56	38.4	59.1 56	29.2	58.5 56	26.7	53.0 56	26.7	
62.3		61.3		60.6		55.0		
5488		5377		5311		4696		
49.89	49.891	48.88	48.882	48.28	48.282	42.69	42.691	

3	5284	44.0	3	49.6	3	48.3	3	53.5
	50.8	42.2		47.9		43.7		47.0
	1036	862		975		920		1005
	5180	4310		4875		4600		5225

+16.5		+19.7	+21.4	+16.8
1.21948		1.29447	1.33041	1.22538
1.34366		1.42065	1.45659	1.35149
+22.06		+ 26.34	+2861	+ 2246
8 51.80		8 48.75	8 46.00	8 50.25
9 13.86		9 15.09	9 14.61	9 12.71
		26.74		2436
46 25.51		46 26.64	46 26.26	46 23.36

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30.1 .1
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30.8 .2
31.0 .3
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1871 Dec. 5 +34 +373 Oct 4 +07 +059 Oct 8 +07 +0656 Oct 16 −02 +079 0.86 Oct 22 +10 +147 326.7 Oct 29 +142

58	56.9		59	5.9	58	56.7	59	6.3	58	54.3	59	7.0	58	58.2	59	6.9	58	58.5	59	8.5	59	0.2
	57.0			7.7	8	58.0		8.4		57.4		9.0		59.3		7.0		59.6		10.5		1.7
	1.0			9.9	22	59.2		10.4		59.3		11.1		60.3		11.1		61.4		12.6		3.5
	5.1			14.0	41	173.7		14.5		171.0		15.3		177.8		15.2		179.5		16.7		5.4
	7.2			16.0	20			16.6				17.4				17.1				18.8		
	9.3			18.0	2.0			18.7				19.3			59	19.3	59	45.7		20.7		
	11.4			20.1	54	37.8	59	20.7	59	38.2		21.3		42.4		21.4		46.8		22.9		
	13.4			22.1	29	39.3		22.8		40.0		23.4		43.6		23.4		48.6		25.0		
	17.5			26.2	41	40.6		26.8		41.1		27.5		44.8		27.5				29.0		
	19.5			28.3	21			28.9	58	57.0	58	29.5	58	59.3	58	29.7	58	59.8		31.0	59	1.8
	21.6			30.4	58	57.7		31.0				61.7				31.7				33.1		
	2219			198.6				205.1				21 25				21 23				228.8		
	120																					
	013																					
	9.209					18.055								14.319				14.300				
	9.26		59	18.05			59	18.65			59	19.32			59	19.30			59	20.80		
	10.87	9.19		11.65		16.04		11.59		18.63		11.48		19.30		11.41		19.28		11.35		20.78
	1.66	10.87		6.41		11.65		6.96		11.59		7.84		11.48		7.89		11.41		9.46		11.31
		832				6.38				7.04				7.82				7.87				9.43
	+1.64	1.68		−6.39				−6.99				− 7.80				− 7.81				− 9.41		
	−1	9.19		0		18.04		0		18.63		0		19.30		0		19.28		0		20.78
	−1.43	+169		−221		− 637		−265		− 699		−204		+781		−1.97		−1.81		−1.91		− 942
57	9.41	− .01		9.45		− .00		9.41		− .00		9.38		− .00		9.52		− .00		9.48		− .00
		−1.43				−2.21				−2.15				−2.04				−1.97				−1.91
		9.44				9.46				9.49				9.45				9.59				9.45
		44				48				50				47				52				47

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12669
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15	8	53.0	4	46.9	3	50.9	4	47.9	3	53.7	4	53.4	3	58.1	4	59.8	3	56.1	
		60.6		54.7		56.1		51.7		0.6		59.2		3.1		66.2		58.7	
		11.34		10.16		11.70		9.96		5.43		11.26		6.12		12.60		11.48	
		56.80		51.80		53.60		49.80		57.15		56.30		60.60		63.00		57.40	
		+202 ✓				+21.6				+20.0				+19.5				+19.0	
		1.80536				1.33445				1.80103				1.29003				1.27845	
		1.43199				1.46108				1.42766				1.41666				1.40538	
				2703		+ 2891				+ 3677				+ 2610				+2543	
		1 56.80		56.80		53.30				57.15				0.60				57.40	
		19		2383		2391				2382				2810				2283	
	−0°	56	35.48 ✓		56	34.06			56	34.57			56	38.35			56	34.48	
			− 55.21			− 56.71				− 56.41				− 54.96				− 56.90	
		57	30.7		57	30.8			57	31.0			57	33.3			57	31.4	
		56	30.0		56	30.0			56	30.1			56	30.2			56	30.5	
	−.63	+1	00.7	0.1	+1	0.8	0.2		+1	0.9	0.2		+1	3.1	2.5		+1	0.9	0.3
	δ' = −0	56	35.48		56	34.06			56	34.57			56	38.35			56	34.48	
			−14.10			−14.10				−14.60				−13.90				−13.60	

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+2
+4
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+3
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$\delta = -0^\circ\ 56'\ 44.1''$

?

Oct. 31 +18 +180 | Nov. 5 +15 +200 | Nov. 7 +22 +240 | Nov. 9 +20 +213 | Nov. 19 +82 +350 | Nov. 28 +25 −273

59 8.3 10.3 12.4 16.5 18.5 20.5 22.6 24.7 28.7 30.8 32.9 22.62
58 58.3 59.6 60.5 178.7 57.6
59 8.6 10.7 12.6 16.7 18.9 20.5 23.0 25.0 29.0 31.1 33.3 22.67
58 57.1 58.2 59.7 175.0 4.33 44.5 46.5 58.3
59 7.9 10.0 12.1 15.9 18.1 20.3 22.2 24.2 28.5 30.5 32.5 22.22
58 56.0 57.3 58.8 172.1 57.4
59 7.6 9.6 11.8 16.0 17.9 19.9 22.0 24.0 28.0 30.1 32.2 21.91
59 0.9 2.1 3.5 6.5 2.2
59 37.9 39.1 40.4 117.4 39.1
59 4.4 6.4 8.4 12.5 14.5 16.7 18.4 20.8 24.6 26.9 29.0 183.1
59 13 3.3 5.4 9.6 wires 11.6 13.6 15.7 17.6 21.8 23.9 26.0 149.8
58 55.4 56.6 58.0 170.0 56.7

59 20.56 11.31 9.25 9.26 −1.84 9.43 46
20.565 20.55 −.923 −.00 −1.87 9.45
59 20.79 11.24 9.55 9.58 −1.80 9.51 46
20.881 20.78 −.960 −.00 −1.80 9.56 46
20.20 11.22 8.99 8.96 −1.78 9.46
20.200 20.18 −.894 −.00 −1.78 9.43 45
19.92 11.19 8.73 8.62 −1.75 9.53 52
19.919 19.90 −.862 −.00 −1.75 9.53 52
16.645 16.63 11.06 5.57 5.52 −1.82 9.48 51
16.65 11.06 5.59 −5.52 −.04 −1.82 9.49 51
13.619 13.62 10.95 2.65 −2.74 −.04 −1.54 9.36 51
13.60 10.95 2.65 −2.74 −.01 −1.54 9.59 51

153 54.8 59.0 113.8 56.90
3 55.2 53.3 108.5 54.25
4 57.1 55.3 112.4 56.20
3 54.7 52.0 106.4 54.70
4 2.5 0.3 2.8 1.40
4 56.1 53.3 109.4 54.70
4 5.1 −2.9 2.20 1.10

+21.0 1.32222 1.44885 +28.11 18 56.80 19 25.01
56 36.66 −53.80 57 32.5 56 30.6
+22.5 1.35018 1.47681 +29.98 18 54.25 19 24.28
56 35.88 −58.09 57 34.0 56 30.8
+22.8 1.35493 1.48456 +30.52 18 54.70 19 25.22
56 36.87 −56.96 57 33.8 56 30.8
+17.7 1.24422 1.37460 +23.69 19 1.40 19 25.09
56 36.74 −53.20 57 34.0 56 30.9
−22.5 1.35218 1.47881 −30.12 19 54.90 19 24.58
56 36.23 −53.84 57 34.0 56 31.5
+16.9 1.22440 1.35452 +22.62 19 1.10 19 23.72
56 35.37 −59.46 57 34.8 56 32.2

+1 1.9 1.2
56 36.66 −13.50
+1 3.2 2.6
56 35.88 −13.30
+1 3.0 2.4
56 36.87 −13.30
+1 3.1 2.4
56 36.74 −13.20
+1 2.5 1.9
56 36.23 −12.60
+1 2.6 2.0
56 35.37 −14.90

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22 01 00 1 0.3/ 0.41 +.00

+24 43

+.30 +.46

1871

Date				
Oct 4	22 01	2.46		76.5 +.5
12		.39	7	77.0 +.5
17		.32	7	77.5 +.3
22		.25	7	77.8 +.3
27		2.18	7	78.1 +.2
Nov 1		.11	7	78.3 +.1
6		.03	8	78.4 +.0
11		1.95	8	78.4 -.1
16		1.87	8	78.3

24° 42'

	Oct 4 (+07 +059)		Oct 8 (+07 +065)		Oct 16 (-.02 +079)		Oct 22 (-.79 +10 +147)		Oct 29 (+17 +119)	
-.017	0 53.3	0 48.8	0 55.9	44.4	0 56.6	0 47.5	56.5	0 49.6	0 08.1	0 50.0
	57.5	49.8	58.2	46.0	58.9	48.7	58.8	50.6	0.2	51.5
	59.8	51.0	0.4	47.8	1.1	50.2	0.9	51.6	2.6	53.2
	4.3	149.6	5.0	138.2	5.6	146.4	5.6	151.8	7.1	154.7
	6.7		7.2		8.0		7.8		9.4	
	8.9		9.5		10.1		10.2		11.6	
	11.2 1	28.9	11.7	33.6	12.4	26.7	12.3 1	27.1	13.8	
	13.4	30.1	13.9	35.0	14.7	27.6	14.6	28.2	16.1	
sin δ 9.62136	18.0	31.6	18.6	36.4	19.2	29.2	19.2	29.3	20.6	
	20.3 0	49.9	20.8	46.1	21.5 0	48.8	21.4 0	50.6	23.0	51.6
	22.4		23.0		23.7		23.6		23.2	
	277.8		224.2		231.8		230.9		187	
	180		120		120		120		60	
cos δ 9.95826	97.8		104.2		111.8		110.9		127	
12669	1 8.89	8.80	1 9.47	9.473 1	10.16	10.164 1	10.08	10.082	11.61	11.609
.08495	2.50	8.88	2.45	9.45	2.33	10.14	2.25	10.06	2.15	11.59
		2.50	7.02	2.45	7.83	2.33	7.83	2.25	9.46	2.15
		6.28		7.00		7.81		7.81		9.44
	-6.39	8.87	-6.99	9.45	-7.80	10.14	-7.79	10.06	-9.41	11.59
	+.13		+.13		+.1		+.1		+.8	
	-2.13	-6.37	-2.08	-6.99	-1.96	-7.81	-1.88	-7.81	-1.78	-9.42
		+.03		+.03		+.03		+.07		+.06
	1 0.40	-2.13	0.43	-2.08	0.41	-1.96	0.46	-1.88	0.50	-1.78
		0.40		0.41		0.40		0.44		0.45
		42		43		41		46		46

	Oct 4		Oct 8		Oct 16		Oct 22		Oct 29
35	4 48.6	40 0 38.7	4 44.7	0 42.3	4 45.5	40 0 32.1	4 50.3	0 35.4	4 49.3
	50.2	41.0	44.9	43.7	48.6	35.0	51.8	38.0	45.8
	98.8	79.7	89.6	86.0	94.1	67.1	102.1	73.4	95.1
	49.40	39.85	44.80	43.00	47.05	33.55	51.05	36.70	47.55
	+19.0		+23.4		+21.4		+19.5		+20.0
	1.27875		1.36922		1.33041		1.29003		1.30103
	1.36370		1.45417		1.41536		1.37498		1.38598
	+23.11		+28.46		+26.02		+23.71		+24.32
	39 49.40		39 44.80		39 47.05		39 51.05		39 47.55
	40 12.51		40 13.26		40 13.07		40 14.76		40 11.87
+24°	42' 35.84"		42 35.09		42 35.28		42 33.59		42 36.48
	- 19.42		- 19.94		- 19.79		- 19.38		- 19.98
+	42 16.4		42 15.1		42 15.5		42 14.2		42 16.5
	43 16.3		43 16.6		43 17.4		43 17.8		43 18.2
-.29	+0 59.8 59.5		+1 1.5 1.2		+1 1.9 1.6		+1 3.5 3.2		+1 1.7 1.4
δ' = +24	42 35.84		42 35.09		42 35.28		42 33.59		42 36.48
	-19.00		-19.40		-20.20		-20.60		-21.00

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$\delta = +24^\circ\ 42'\ 57.2''$

Oct. 31	Nov. 5	Nov. 7	Nov. 9	Nov. 12	Nov. 19.
+18 +180	+15 7200	+2 2 +240	+20 +213	+20 +220	+32 +350
0 57.80	0 58.10	0 57.20	0 57.00	0 53.7	0 46.8
52.0	0.2	49.5	59.2	56.0	48.1
2.2	2.6	19	1.4	58.2	49.6
6.8	7.0	6.3	6.0	49	145.8
9.0	9.3	8.7	8.2	-7.2	
11.3	11.6	10.9	10.4	9.4	
13.5	13.7	13.0	12.7	11.7	
15.7	16.1	14.4	15.1	16.3	
20.3	20.6	20.0	19.5	18.6	
22.6	22.8	22.2	21.8	20.8	
24.9	25.2	24.4	24.0	2.7	
1841	1872	2385	2353	259.5	
60	60	120	120	180	
124.1	127.2	1195	115.3	79.5	
1 11.28	1 11.583	1 10.86	1 10.48	1 9.90	1 7.23
2.12	2.04	2.01	1.98	1.93	1.82
9.16	9.42	8.86	8.50	7.97	5.41
				802	
− 9.26	− 9.58	− 8.96	− 8.61	9.88	− 5.54
+ .9	+ .7	+ .10	+ .09	+ .09	+ .16
− 1.75	− 1.67	− 1.64	− 1.61	− 1.56	− 1.45
11.26	11.54	10.84	10.46	9.88	7.20
− .923	− .960	− .897	− .862	− 8.04	− .957
+ .08	+ .09	+ .11	+ .10	+ .16	+ .16
− 1.75	− 1.67	− 1.64	− 1.61	− 1.56	− 1.45
0.36	0.29	0.36	0.33	0.41	0.40
0.36	0.36	0.34	0.33	0.38	0.41
38	38	35	35	40	42

35 4 51.3	4 52.2 40 0 42.9	4 53.4	7 51.2	40 0 41.0	35 4 52.9
49.7	44.3 35.0	43.9	44.7	30.4	45.7
101.0	96.5 77.9	97.3	95.9	71.4	98.6
50.50	48.25 38.95	48.65	47.95	35.70	49.30
+ 19.1	+ 19.5	+ 20.3	+ 18.9	− 17.7	+ 19.3
1.28103	1.29667	1.30732	1.27646	1.25285	1.28556
1.36578	1.38162	1.39245	1.36141	1.33780	1.37051
+ 23.22	+ 24.08	+ 24.68	+ 22.99	− 21.77	+ 23.49
89 50.50	39 48.25	39 48.65	39 47.95	39 48.30	39 49.30
40 13.72	40 12.33	40 13.33	40 10.94	40 13.53	40 12.77
42 34.63	42 36.02	42 35.02	42 37.41	42 34.42	42 35.58
− 19.18	− 20.07	− 19.68	− 19.79	− 19.86	− 19.89
42 15.5	42 15.9	42 15.3	42 17.6	42 14.6	42 15.7
43 18.8	43 18.4	43 18.4	43 18.4	43 18.4	43 18.2
+1 2.8 2.6	+1 2.5 2.2	+1 3.1 2.8	+1 0.8 0.5	+1 3.8 3.6	+1 2.5 2.2
42 34.63	42 36.02	42 35.02	42 37.41	42 34.42	42 35.58
− 21.10	− 21.20	− 21.20	− 21.20	− 21.20	− 21.00

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22 03 44 + 5 34

41.66

3 41.54 (+.01)

Oct 7	22 03 43.65	.05	+5° 33'	66".1	.0
12	.64			66.1	.0
17	58			66.1	
22	52			66.2	+.1
27	46			66.2	-.0
Nov 1	40			66.1	-.1
6	33	.06		65.9	-.2
11	27			65.7	-.2
16	20	07		65.5	-.2

+60 +.10 1871

Oct 4 +07 +059 | Oct 8. +07 +065 | Oct 16 -02 +079 | Oct 22. +10 +147 | Oct 29 +11 +119

-016

3	37.7	3	27.5	3	38.3	3	30.6	3	39.0	3	29.3	3	39.0	3	28.6	3	40.5	3	32.8
	39.7		28.6		40.4		32.1		41.0		30.6		41.1		29.7		42.6		33.0
	41.8		29.6		42.5		33.6		43.1		32.3		43.1		31.3		44.7		34.0
	45.9		85.7		46.6		96.3		423		92.9		47.3		87.6		48.7		99.0
	48.1				48.6				493				49.3				50.8		
	50.1				50.7				514				51.4				52.9		
4	52.14		14.7	4	52.8		22.6	5	53.55		12.0	4	53.54		18.8		55.0		
	54.2		15.7		54.9				55.6		13.1		55.5		20.3		57.0		
	58.3		16.7		59.0				586		14.7		59.6		21.3		61.2		
3	60.43		28.6	3	61.0	3	32.1	3	61.73		30.7	3	61.7	3	29.9	3	63.2	3	33.0
	62.5	4	15.7		63.1				63.7				638				65.3		
	550.6				557.9				565.2				556.3				581.9		

Sun 8.98699

cos 9.99795~

12669
12464

3	50.07		50.073	3	50.72		50.718	3	51.38		51.382	3	51.39		51.391	3	52.90		52.900
	43.72		50.06		43.68		50.99		43.59		5436		43.52		5437		43.44		52.88
	6.35		43.73		7.04		43.67		7.79		43.60		7.87		43.53		9.46		43.45
			6.33				7.01				7.76				7.84				9.43
	-699				-699				-780				-781				941		
	+1		50.06		+1		50.70		+1.0		51.36		+1.0		5637		+1		52.88
	-2.18				-2.14				-2.05				-1.58				-1.50		
			-637				-699				-781				-781				-942
3	41.57		+.01		41.60		+.01		41.58		+.01		41.61		+1.01		41.60		+.01
			-2.18				-2.14				-2.05				-1.98				-1.90
			41.52				41.58				41.51				41.59				41.57
			54				59				53				61				57

45	3	25.1	4	29.3	3	29.2		35.6	3	26.2	4	22.5	3	27.9		36.0	3	28.2	
		31.3		34.9		33.9		38.7		32.5		27.2		33.7		41.0		29.5	
		5.64		6.42		6.31		1.743		5.87		4.97		6.16		7.70		5.77	
		28.20		32.10		31.55		37.15		29.35		24.85		30.80		38.50		28.85	
		21.5		-25.6		+18.6				+20.7				+21.5				+19.9	
		1.33244		1.40824		1.26951				1.31567				1.33244				1.29885	
		1.45708		1.53288		1.39415				1.44061				1.45708				1.42349	
		+2865		-3411		+2478				+2458				+2860				+2651	
48		28.20		-32.10	48	31.55			48	29.35			48	30.80			48	28.85	
48		6685		-5795	48	56.33			48	56.93			48	5946			48	55.36	
														48.90					
+5°	33	51.50		5036	33	52.02	✓		33	51.42	✓		33	58.90	✓		33	5299	✓
		-44.00		-44.00		-45.18				-44.95				-43.78				-45.35	
+	33	7.5		6.36	33	6.8			33	6.5			33	05.1			33	7.6	
	34	6.1		6.1	34	6.1			34	6.1			34	6.2			34	6.2	
-.56	+0	58.6		597	+0	59.3	588		+0	59.6	590		+1	1.1	0.5		+0	58.6	58.1
				591															
δ' = +5	33	51.50			33	52.02			33	51.42			33	48.90			33	5299	
		-15.70				-15.70				-15.76				-15.80				-15.80	

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+0
+5
-1
+7
+5
+3
+0
+6
+3
-3
+2

$\delta = +5^\circ\ 33'\ 50.4''$

+16 +180 Oct. 31 | +(-5) +200 Nov. 2 | +22 +240 Nov. 7 | +20 +213 Nov. 9 | +32 +350 Nov. 19

3	40.33	43.5		40.53	34.0	3	40.	3	33.43	39.53	33.2		36.3	3	31.2				
	42.4	44.7		42.6	35.3		[illegible]		34.9	41.5	34.6		38.3		32.4				
	44.4	46.0		44.7	36.8				36.2	43.6	36.0		40.4		33.7				
	48.5	134.2		48.9	106.1		394		104.3	47.8	103.8		44.4		97.3				
	50.6			50.9			42.0			49.9			46.6						
	52.6			52.4			44.1			51.9			- 48.6						
	54.7			55.0	49.1		46.2			54.0			50.7						
	56.8			57.0	15.5		50.3			56.1			52.7						
	60.9			61.1			52.3			60.3			56.8						
	63.0	3	44.7	63.2	3	35.4	54.4	3	34.8	62.2	3	34.6	58.9	3	32.4				
	65.0			65.4			56.4			64.3			1.1						
	5792			58.22			60.6			5711			4748						
	-						62.6						5348						
	-						64.7												
	52.66	52.655		52.93	52.927		57.55		52.318	51.92	51.918		48.62		48.463	5	4862		
	43.42	52.64		43.34	52.91		52.32		52.39	43.29	51.89		43.16		48.61		43.17		
	9.25	43.43		9.49	43.35		43.31		43.32	8.63	43.30		5.46		1.80				
		9.21			9.56		9.01		8.58		8.60				1.78		8.43		
	-9.26			- 9.58			- 8.56			-8.61			- 5.54						
	+ .2	52.64		+ .2	52.91		+ .2		52.30	+ .2	51.90		+ .3		48.60				
	-1.88			-1.60			-1.77			-1.75			-1.62						
		-923			-960			-847			-862				-551				
	41.54	+ .02		41.57	+ .02		41.61	+ .02		41.58	+ .02		41.49		+ .03				
		-1.88			-1.80			-1.77			-1.75				-1.62				
		41.55			41.53			41.58			41.55				41.50				
		57			54			60			57				51				

45	3	47.7		3	36.3	4	28.9	3	37.2		3	36.4		3	38.9				
		48.8			31.4		23.7		30.0			33.0			33.1				
		96.5			67.7		52.6		67.2			69.4			72.0				
		48.25			33.85		26.30		33.60			34.70			36.00				
		+1.0			+1.75				+1.75			+1.73			+1.62				
		0.90309			1.24304				1.24304			1.23505			1.20852				
		1.02773			1.36768				1.36768			1.36269			1.33416				
		+.0663			+ 23.32				+ 23.32			+ 23.05			+ 21.58				
	48	48.25		48	33.85			48	33.60		48	34.70		48	36.00				
	48	58.90		48	57.17			48	56.92		48	57.75		48	57.58				
	33	4945		33	51.18			33	51.43		33	5060		33	5077				
		- 44.82			- 46.25				- 45.34			- 45.60			- 46.00				
	33	4.9		33	4.9			33	6.1		33	5.0		33	4.8				
	34	6.1		34	5.9			34	5.9		34	5.8		34	5.3				
	+1	12	0.6	+1	1.0	0.5		+0	59.8	59.2	+1	0.8	0.3	+1	0.5	+0	57.9		
	33	4945		33	5118			33	5143		33	5060		33	5077				
		- 15.70			- 15.50				- 15.50			- 15.40			- 14.90				

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24 Cephei 22 07

22 06 28 6 2280 (-01) 2283

+57 34

Oct. 7	22 06	2522	+57° 33'	78".8
12		'09	13	79.9
17		2495	14	81.0
22		81	14	82.0
27		24.66	15	82.8
Nov. 1		50	16	83.4
6		.33	17	84.0
11		16	17	84.5
16		23.99	17	84.8
21		81		84.5
				84.3

−.26 +.154 | +34 +373 | +07 +059 | +07 +065 | −02 +079 | +11 +119 | +18 +180

Dec. 5		Oct. 4		Oct. 8		Oct. 16		Oct. 29		Oct. 31	
5 58.6	5 47.8	6 8.7	5 54.6	6 9.2	5 54.7	6 9.7	5 53.9	6 11.0	5 53.7	6 10.6	5 48.4
2.0	49.7	12.4	56.2	12.9	57.0	13.6	55.8	14.7	56.0	14.4	50.2
4.9	51.7	16.4	58.9	16.8	59.4	17.4	58.2	18.7	58.1	18.2	52.2
13.6	147.2	24.1	169.7	24.5	171.1	25.1	167.9	26.2	167.8	25.9	53.8
17.5		26.8		28.2		29.0		30.0		29.7	204.6
21.2		31.6		32.1		32.8		34.0		33.5	
25.1		35.5 7	3.8	36.0 7	9.8	36.8 8	6.6	37.7		37.3	
28.9		39.1	5.8	38.8	12.0	40.4	8.6	41.4		41.1	
36.7		46.9	8.1	47.4	13.8	48.1	11.5	49.0		48.9	
40.3	49.7	50.8	5 56.6	51.3	5 57.0	51.9	5 55.9	53.0	5 56.9	52.8	5 57.1
44.3		54.6		55.2		55.7		56.9		56.6	
293.1		3469		3524		360.3		3726		369.0	
60											
233.1											
6 21.19	21.191	6 31.54	31.536	6 32.04	32.036	6 32.75	32.755	6 33.87	33.873	6 33.54	33.545
23.34	2416	25.25	31.50	25.18	32.01	24.57	32.73	24.59	3384	24.52	33.51
−2.15	23.33	6.24	25.28	6.85	25.17	7.77	24.96	9.28	24.58	9.02	24.57
	+2.17		6.22		6.84		7.77		9.26		9.00
+.164		−639		−693		−780		−941		−926	
+.59	21.16	+11	31.50	+11	32.01	−03	32.73	+17	33.84	+28	33.51
−54		−2.49		−2.38		−2.17		−1.79		−1.72	
	+165		+637		−699		−781		−942		−923
22.83	+.58	2277	+.09	2278	+.09	22.75	+.12	2284	+.19	2284	+.28
	−.54		−2.49		−2.38		−2.17		−1.79		−1.72
	22.85		22.73		22.73		22.87		22.82		22.84
	87		75		74		89		84		80

sin √9.92635

cos √9.92942
12669
9.85611

	Oct. 4		Oct. 8		Oct. 16		Oct. 29		Oct. 31
45	4 20.6	72.1	4 22.5	75.5	4 19.1	50 0 11.4	4 19.0		4 14.0
	19.7	70.7	18.3	72.0	17.0	10.1	12.3		8.9
	403	1428	408	1475	361	215	313		229
	20.15	71.40	20.40	73.75	18.05	10.25	15.65		11.45
+31.5	+34.9		+35.0		+36.8		+38.6		+42.4
1.49831	1.54283		1.54407		1.56585		1.58659 .57980		1.62737
1.35442	1.39894		1.40018		1.42196		1.44270 1.43591		1.48348
+2262	+25.06		+2513		+26.42		+27.72 +2728		+3044
	49 20.15		49 20.40		49 18.05		49 15.65 15.65		49 11.45
	49 45.21		49 45.53		49 44.47		49 43.37 42.93		49 41.89
+57	33 314		33 282		33 388		33 542		33 646
	+ 14.74		+ 15.19		+ 15.11		+ 15.21		+ 14.81
	33 17.9		33 18.0		33 19.0		33 20.6		33 21.3
	34 18.1		34 19.1		34 20.8		34 23.01		34 23.3
+24	+1 0.2 0.4		+1 1.1 1.4		+1 1.8 2.0		+1 2.5 2.7		+1 2.0 2.3
δ = +57 34'	33 314		33 282		33 388		33 542		33 646
	−21.10		−22.10		−23.80		−26.10		−26.30

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+7 −5 −6 +9 +4 +5 +8 +3 +0 −4 +14 +1 +3

δ = +57° 33′ 5″.0

+137 +200 Nov. 5 | +22 +240 Nov. 7 | +20 +213 Nov. 9 | +20 +220 Nov. 12 | +02 +350 Nov. 19 | +30 +253 Nov. 22

Nov. 5		Nov. 7		Nov. 9		Nov. 12		Nov. 19		Nov. 22	
10.8	54.0	9.9	55.0	9.6	53.6	8.8	51.0	6.1	5.2	5.0	52.3
14.5	56.7	13.8	57.0	13.3	56.5	12.6	52.9	9.9	7.1	9.0	53.8
18.3	56.7	17.6	60.1	17.1	58.8	16.5	54.9	13.6	9.0	12.8	57.8
26.0	169.4	25.3	173.1	24.7	168.5	24.0	158.8	21.3	21.3	20.4	163.7
30.0		29.1		28.7		27.9		25.2		24.2	
33.8		32.9		32.5		31.7		29.0		28.0	
37.6	10.0	36.6		36.4		35.6		32.8		31.8	
41.4	12.1	40.6		40.3		39.6		36.7		35.7	
44.0	17.6	48.3		47.7				44.3		43.4	
53.0	56.5	32.1	57.4	51.7	56.2		52.9	48.1	7.1	47.3	54.6
56.7		55.9		55.6				51.9		54.1	
371		362		357				318		308	

33.74	33.736	32.92	32.918	32.51	32.519	31.77	21.78	28.99	28.999	28.06	28.064
24.36	33.71	24.29	32.88	24.22	32.49	24.12	21.75	23.88	28.87	23.77	28.03
9.38	24.35	8.62	24.28	8.28	24.21	7.61	24.11	6.09	28.84	4.28	23.76
	9.36		8.61		8.28		7.64		5.10		4.276
−9.38		−8.95		−8.61		−8.02		−1.54		−4.69	
+23	33.71	+.30	32.89	+.33	32.49	+.33	31.75	+.61	28.97	+.47	28.03
−1.56		−1.49		−1.42		−1.32		−1.08		−.87	
22.83	−.960	22.82	−.897	22.81	−.862	22.76	−.803	4.288	−.551	2.247	−.467
	+.31		+.38		+.33		+.35		+.55		+.40
	−1.36		−1.49		−1.42		−1.32		−1.08		−.97
	2.286		2.281		2.278		2.275		2.293		2.277
	88		83		80		76		94		81

4	23.0	50.0	16.1	4	25.2	4	23.1	4	22.9	4	23.8	4	23.3
	11.8		5.8		11.1		11.5		8.0		21.6		13.2
	348		219		363		346		309		554		365
	17.40		10.95		18.15		17.30		15.45		27.70		18.25
	+37.2				+35.5		+36.3		+35.9		+21.9		+33.5
	1.55704				1.55023		1.55991		1.55985		1.54044		1.55204
	1.42665				1.40634		1.41602		1.44606		1.19655		1.38115
	+26.71				+25.49		+26.06		+27.93		+15.72		+24.05
49	17.40			49	18.15	49	17.30	49	15.45	49	27.70	49	18.25
49	44.11			49	42.64	49	43.36	49	43.38	49	42.42	49	42.30
33	4.24			33	4.71	33	4.99	33	4.97	33	4.93	33	6.05
+	16.04			+	15.73	+	15.82	+	16.13	+	16.28	+	15.88
33	20.3			33	20.4	33	20.8	33	21.1	33	21.2	33	21.8
34	23.9			34	24.1	34	24.2	34	24.6	34	24.6	34	24.5
+1	3.6	3.8		+1	3.7	4.0	+1	3.6	3.6	+1	3.5	3.8	+1	3.4	3.6	+1	2.8	2.9
33	4.24			33	4.71		33	4.99		33	4.97		33	4.93		33	6.05	
	−27.90				−27.10			−27.20			−27.60			−27.60			−27.50	

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+39 05

+.81

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	Oct. 4		Oct. 22.		Oct. 29		Oct. 31		Nov. 5	
	13.9	3.8	14.3	2.5	15.9	19.0	15.7	21.7	18.9	59.5
	16.5	5.0	16.9	3.9	18.3	14.2	18.3	23.2	18.4	1.0
	19.1	6.7	19.7	5.8	21.1	15.5	20.8	24.9	21.1	2.4
	24.4	15.5	24.9	12.3	26.4	42.7	26.2	27.8	26.4	182.7
	27.1		27.6		29.1		28.9		29.0	
	29.7		30.3		31.7		31.4		31.7	
	32.4	52.9	33.0	55.8	34.3		34.1		34.4	58.4
	35.0	54.7	35.6	57.0	37.0		38.8		37.0	52.9
	40.3	56.7	40.8	58.6	42.3		42.0		42.3	54.6
	42.9	5.2	43.6	4.1	45.1	14.2	44.7	23.3	44.9	170.7
	45.7		46.2		47.6		47.4		47.5	
	3270		332.9		348		348.3		348.6	

sin ∫ 9.79965

cos ∫ 9.88999

12669

0.01668

	29.73	29.727	30.26	30.264	31.62	31.6188	31.66	31.664	32.69	31.691

15	27.0	17.8	24.0	19.6	34.7		44.0		23.1	17.3
	24.8	16.6	23.6	20.9	30.4		40.8		15.6	9.1
	518	344	476	405	651		848		387	264
	25.90	17.20	23.80	20.25	32.55		42.40		19.35	13.2
	+24.5		+26.2		+17.4		+8.4		+36.8	
	1.38917		1.41830		1.24055		0.92428		1.48855	
	1.40586		1.43498		1.25723		0.94096		1.50523	
	+2546		+2722		+[illegible]		+8948.73		+3201	
18	25.90		23.80		32.55		42.40		19.35	
18	51.36		51.02		50.63		42.40 51.13		51.36	
+39°	3 56.99		3 57.33		3 57.72		3 57.22		3 56.99	

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Nov. 9 Nov. 19 Nov. 22

8	4.58	5.1	8	10.4	8	~~11.8~~	8	10.58	2.3
	12.3	7.0		14.1		~~14.0~~		13.0	4.1
	20.0	9.3		16.6		~~16.7~~		15.7	6.0
	26.4	21.4		21.9	8	39.3		20.9	12.4
	28.0			24.6		41.8		23.6	
	30.6			27.34		43.6		26.3	
	33.2			29.8		124.7		29.1	
	35.85			32.7				31.7	
	41.2			38.6				36.9	
	43.8	7.1		40.7	8	41.6		39.8	4.1
	46.5			42.2				42.2	
	336.7			3004				2897	
	30.61	30.609		27.31		27.309		26.34	26.337

15	3	31.3	4	9.4	3	31.6		
		22.1		−0.2		23.2		
		534		9.20		545		
		216.70		4.60		27.40		
		~~+2.85~~		−14.3		+2.2 ✓		
		1.38707		1.15534		1.34630		
		1.38775		1.17202 m		1.36303		
		+ 2442		− 1486		+ ~~2242~~ 2308		
18		26.70	19	4.60	18	27.40	27.40	
18		31.12	18	4274	18	~~2.52~~	30.48	
3		5723	3	5861	3	5787		

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θ Aquarii

22 10 04 10 1.59 (−07) 1.53

−8 25

+.77

(−.15)

1871

Oct 17 22 10 38.5 5 — 8° 25′ 16″.9 Oct. 7
17 .80 17.1.2 " 12
22 74 17.3.2 " 17
27 69 17.5.2 " 22
Nov. 3 63 17.8.3 " 27
6 57 18.1.3 Nov. 1
11 50 18.4.3 " 6
16 43 18.9.3 " 11
21 37 19.1.4 " 16
30 19.4 " 21
(−.05) 19.8 " 26

	Oct 4 (+07 +059)		Oct 8 (+07 +065)		Oct 16 (−02 +079)		Oct 22 (+10 +147)		Oct 29 (+1 +119)	
−.016	9 57.8	9 57.8	9 58.4	9 52.1	10 9 59.0	10 9 50.4	9 59.0	9 46.2	10	10 23.8
	59.8	58.7	0.5	53.2	1.0	51.6	1.0	47.5		25.5
	1.9	116.5	2.5	54.5	3.0	52.8	3.2	49.5		26.8
	6.0		6.7	159.8	7.4	154.8	7.2	143.2	8.9	76.1
	8.1		8.7		9.4		9.3		10.9	
	10.2		10.8		11.6		11.5		12.9	
	12.4	10 37.9	12.9	10 28.1	13.7	11 30.0	13.5	10 34.3	15.0	
sin δ 9.16545	14.4	39.1	15.0	29.5	15.8	31.6	15.6	35.7	17.0	
	18.6		19.2	30.7	19.6		19.7	37.1	6 47	
	20.7	9 58.2	21.2	9 52.3	22.0	9 51.6	21.9	9 47.7		10 25.4
	22.8		23.3		24.0		24.0			
	232.7		179.2		186.7		185.9			
cos δ 9.99530	120		80		60		60			
12669	112.7		119.2		126.7		125.9			
.12199	10 10.25	10.245	10 10.84	10.836	10 11.52	11.518	10 11.45	11.445	10 12.94	12.940
	3.88	10.23	3.84	10.82	3.75	11.50	3.69	11.43	3.61	12.92
	6.37	3.81	7.00	3.77	7.77	3.65	7.76	3.62	9.33	3.54
		6.42		7.05		7.82		7.81		9.38
	−6.37		−6.99		−7.80		−7.81		−9.41	
	−2.29	10.23	−2.25	10.82	+0 −2.16	11.50	−2.10	11.43	−2.02	12.92
	10 1.56	−6.37 −.01 −2.29	1.59	−6.99 −.01 −2.25	1.56	−7.81 −.02 −2.16	1.53	−7.81 −.02 −2.10	1.50	−9.42 −.02 −2.02
		1.56		1.57		1.52		1.50		1.46
		58		59		.53		52		48

45										
	2 33.9	3 26.1	2 25.8	3 13.1	2 22.3	3 18.0	2 21.2	3 24.9	3 7.3	
	44.0	35.4	32.5	19.8	30.7	29.1	29.5	33.0	11.7	
	77.9	61.5	55.3	32.9	53.0	47.1	50.7	57.9	19.0	
	38.95	30.75	29.15	16.45	26.50	23.55	25.35	28.95	9.50	

	Oct 4	Oct 8	Oct 16	Oct 22	Oct 29
	+12.0	+17.5	+19.9	+23.7	−12.5
	1.07918	1.24304	1.29885	1.37475	1.09691
	1.20117	1.36503	1.42084	1.49674	1.21890
	+15.89	+23.18	+26.35	+31.39	−16.55
	47 38.95	47 29.15	47 26.50	47 25.35	48 9.50
	47 54.84	48 52.33	47 52.85	47 56.74	47 52.95
−8°	26 6.49	25 3.98	25 4.50	25 8.39	25 3.60 (4.60)
	−71.25	−73.18	−72.78	−70.84	−73.55
−	26 17.7	26 17.2	26 17.3	26 19.2	26 17.1
−	25 16.8	25 16.9	25 17.3	25 17.5	25 17.9
−.72	+1 0.9 0.2	+1 1.3 0.6	+1 0.0 +0 59.3	+1 1.7 0.9	+0 59.2 58.5
δ′ = −8	25 6.49 −12.10	25 3.98 −12.60	25 4.50 −12.20	25 8.39 −12.00	25 4.60 −11.60

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Oct. 2

δ = −8° 25′ 29.5″

Oct. 31 | Nov. 5 | Nov. 9 | Nov. 12 | Nov. 19 | Nov. 22

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ζ Aquarii

22 13 27

− 8 28

−15

1871

	Oct. 8		Oct. 16		Oct. 29		Oct. 31		Nov. 7	
	13 21.3	13 8.6	13 22.0	13 14.2	13 23.7	13 16.3	13 23.4	13 11.1	V3 23.0	13 18.8
	23.3	10.0	24.2	15.5	25.7	17.4	25.4	12.3	25.1	20.0
	25.4	11.4	26.3	16.8	27.7	18.6	27.5	14.2	27.2	21.6
	29.6	30.0	30.5	46.5	32.0	52.3	31.7	37.6	31.4	60.4
	33.7		32.5		34.0		33.8		33.4	
	33.7		34.6		36.0		35.8		35.5	
	35.8 14	4.8	36.7 14	59.4	38.0		38.0		37.6 13	58.9
	37.8	6.0	36.7	1.0	40.2		40.0		39.7	60.5
sin ∫ 9.16801	42.1	7.0	42.8	2.7	44.4		44.1		43.8	62.5
	44.2 13	10.0	44.9 13	15.5	46.5 13	17.4	46.3 13	12.5	46.0 13	20.1
	46.3		47.0		48.6		48.4		47.9	
	3712		3802		3968		3944		3906	
cos ∫ 9.99524										
.12665										
.12193										
	13 33.79	33.655	13 34.56	34.564	13 36.07	36.073	13 35.85	35.655	35.51	35.509

494	−53.0 1	6.3	0 0.7 1	1.3	0 3.8		0 58.2 −1.5		0 11.9 1	14.7
	2.1	14.1	9.3	9.6	5.9		5.2		8.7	3.7
	49	204	10.0	10.9	9.7		3.4		20.6	18.4
	−2.45	10.20	5.00	5.45	4.85		1.70		10.30	9.20
	57.55									
	+2.36		+19.1	+18.7			+2.32		+15.4	
	1.37291		1.28103	1.27184			1.36436		1.~~4112~~	1.18750
	1.49484		1.40296	1.39337			1.48929		1.30377	1.30943
	+31.25		+2529	+2476			+3055		+~~2039~~	+2039
49	57.55		50 5.60	50 4.85			50 0.70		50 10.30	10.30
50	28.80		60 30.29	50 29.61			60 ~~4965~~		60 ~~3043~~	30.69
							32.51			
	Ef.								42.34	
−8°	27 40.45		27 41.94		27 41.26		27 44.20		27 42.24	

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Nov. 9		Nov. 12		Nov. 22		Nov. 23	
13 22.7	13 18.9	13	13 40.0	13 18.5	13 13.3	13 18.3	13 6.6
24.7	21.2		41.0	20.5	14.8	20.4	7.7
26.8	22.2		42.1	22.6	16.0	22.6	14.3
81.0	23.8	30.4	43.1	26.9	44.1	26.7	
33.0	86.1	32.5		29.0		28.9	
35.0		34.6		31.1		31.0	
37.1		36.5		33.1		32.8	
39.2		38.7		35.1		34.9	
43.3		172.7		39.2		39.2	
45.5 13 21.5		13	41.0	41.3 13	14.7	41.3 13	7.1
47.6				43.4		43.2	
359				3407		339.3	
35.08	35.052	34.54	34.540	30.972	30.973	30.85	30.845

50 0 15.2	0 41.4	0 9.0	45 4 59.8
15.0	37.0	10.3	58.1
302	784	193	1178
15.10	39.20	9.65	5895
+13.6	− 6.5	+1.63	+23.7
1,13354	0,81291	1,21219	1,34445
1,25547	0,93484	1,33412	1,49668
+ 1801	− 861	+ 2158	+ 3138
50 15.10	50 39.20	50 9.65	49 58.91
50 23.11	50 38.59	50 31,28	50 30,33
27 4476	27 4224	27 4288	27 4198

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γ Aquarii

22 15 02

−2 02

1871

Oct 7 +065 Oct 16 Oct 16 +079 Oct 31 +180 Dec. 6

Sun 8.54999

Corr 9.99972

12669

12642

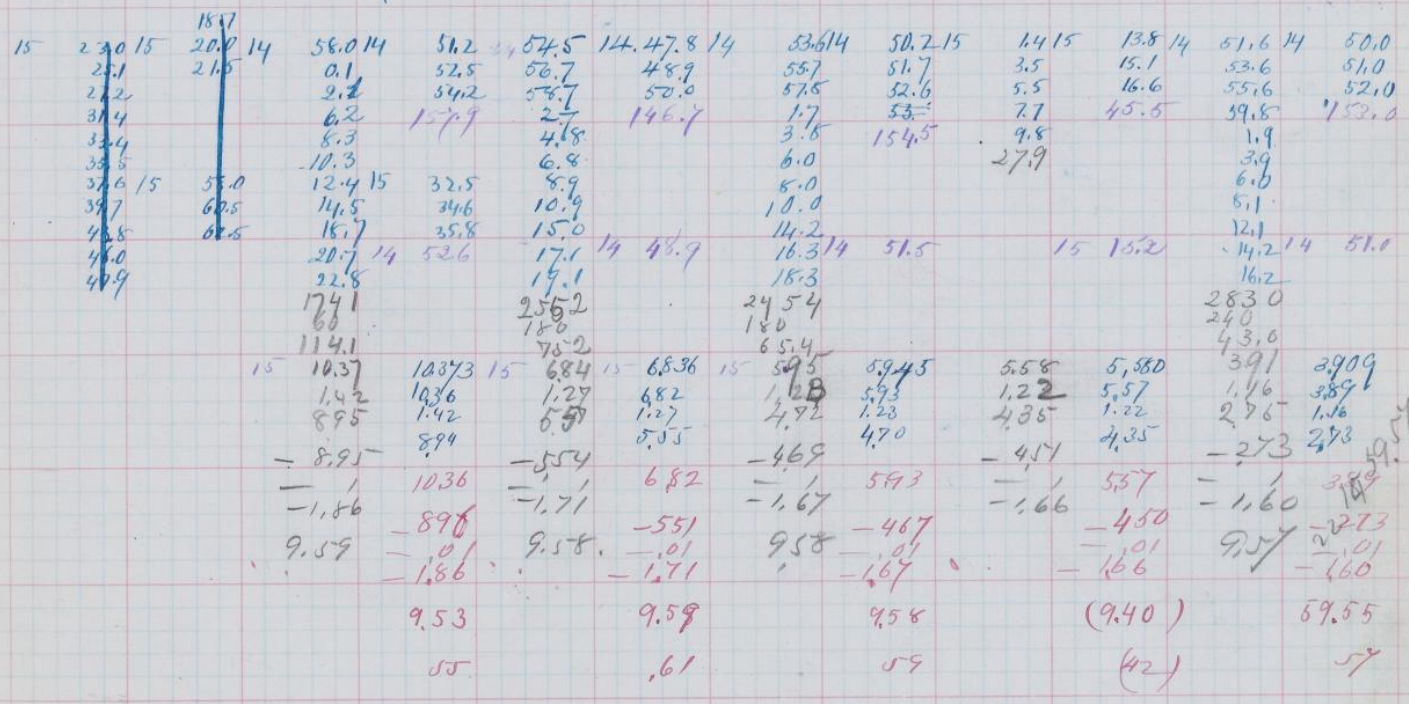
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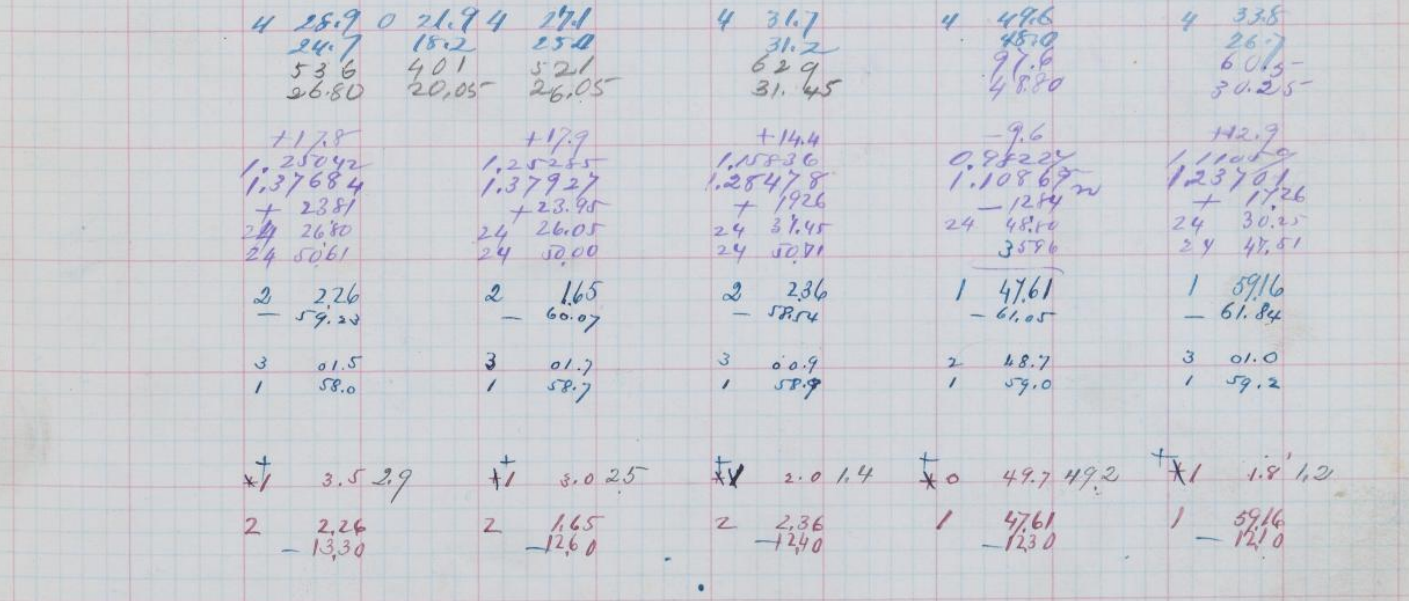
1871phae.proj.1451

+7
+0
−1
−1
+5
+3
+1
+2

δ = −2° 2′ 11.3″

Nov. 7 +22 +240 Nov. 7 +32 +250 Nov 19 +30 +253 Nov 22 +18 +180 Nov 23 +28 +280 Nov 28





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B. D. C 7803

22 16 36

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1871 Dec. 5 Oct. 29 Oct. 31 Nov. 9 Nov. 19. Nov. 22

16	12.8	16	54.8	16	25.9	16	18.7	25.5	16	25.5	17	5.7	16	29.4	16	6.8	16	21.3	16	30.2	16	20.6	16	32.4	16
	16.6		56.6		28.7		19.7	27.0		28.3		6.9		27.4		8.3		24.3		31.0		23.3		33.5	
	19.4		59.2		31.4		21.2	29.4		31.2		8.8		30.4		10.0		27.1		33.6		26.1		35.5	
	25.0		170.6		37.0		86			36.8		21.4		36.0		25.1		32.6		94.8		31.9		101.4	
	26.9				39.9					39.7				38.9				35.3				34.5			
	30.7				42.7					42.6				41.5				38.2				37.4			
	33.5				45.5					45.3				44.5				41.1				40.1			
	36.4				48.4					48.0				47.1				43.9				43.0			
	42.0				54.0					53.7				52.8				49.5				48.6			
	44.9	16	56.9		56.7	16	19.9			56.6	17	7.1		55.6	16	8.4		52.4	16	81.6		51.3	16	33.8	
	47.5				59.6					59.3				58.6				55.1				54.3			
	335.7				469.8					467.0								420.8				411.1			
	30.52		30.518	16	42.71		42.709	16	42.45		42.455			41.56				38.25		38.255		37.37		37.373	

sin 9.83459

cos 9.86342
12669
9.99611

15	3	18.6		2	87.6		3	12.4		3	17.6		2	71.8		2	74.7		15	3
		13.6			21.3			7.6			13.8			40.2			41.7			
		5.0			16.3			4.8			3.8			31.6			33.0			
		9.30			18.80			6.20			8.80			96.90			37.35			
		−26.4			+22.8			−24.7	⇒			268		+6.6			+5.6			
		1.42160	m		1.35793			1.39280	m		0.94948	1.42813		0.81954			0.55680	✓		
		1.41171	m		1.34804			1.38281	m		0.93459	1.41824		0.80965			0.54641			
		−2531.			+2224			−2414			+460	−2620		+641			+ 13.52			
		18 9.30			17 18.80			18 6.20			18 8.80			17 35.50			17 37.35			
		17 43.41			17 41.09			17 42.06				17 4260		17 4236			5 40.87			
+43°	5	4.86		5	7.26		5	6.29		5	11.91	5.95	5	5.99		5	7.48		5	

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Nov. 28 Dec. 6.

16	18.4	17	0.5	16	12.0	16	56.0
	21.2		1.9		15.6		58.0
	24.2		2.8		18.5		60.8
	29.7		6.9		24.1		174.8
	32.4				27.0		
	35.2				29.7		
	38.0				32.5		
	110.8				36.6		
	46.5				40.9		
	49.3	17	2.1		43.8	16	58.3
	52.2				46.6		
	3879				3273		

35.26 35.264 29.75 29.755

	19.6		18.4
15 3	16.7	3	18.4
	2.9		0.0
	9.80		9.20
	−26.5		−28.6
	1.42813 air		1.45623 air
	1.41824 vac		1.44644 vac
	−26.20		−27.96
18	9.80	18	9.20
17	43.60	17	41.24
5	476	5	7.11

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3 Lacertae

22 18 32 18 29.405-.01

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+34 +373

1871 Dec. 5 | Oct 4 +07 +059 | Oct 8. +07 +065 | Oct 15 +05 +079 | Oct 23 +06 +100 | Oct 31 +18

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+8
+6
−6
+3
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+0

δ = +51° 34′ 59″.8

Nov. 9 +20 +213 Nov. 13 +21 +220 Nov. 22 +30 +253 Nov. 28 +25 +280

18		18	32.0	18	18.1	18	9.4	18	15.3	18	2.8
			53.1		21.4		10.9		18.6		3.6
			55.6		24.6		13.1		21.8		5.4
	32.8		57.8		31.5		24.4		28.4		11.0
	36.0		21.4		34.7		27.4		31.8		
	39.5				36.0		33.4		34.8		
	42.7				41.2				38.3		
	46.9				41.7				41.5		
	1970				54.2				48.1		
		18	54.6		54.6	18	11.1		51.6	18	3.7
					57.9				54.8		
					4179				3850		

18		18	27.7								
			30.8								
			58.5								
		18	29.2								
			3617								

38.40		39.400		37.99		37.999		35.00		35.000	
31.02		39.37		30.51		37.48		30.67		34.97	
8.38		34.01		7.47		30.51		4.33		30.66	
		8.36				7.06				4.31	
−8.61				−7.40				−4.69			
+.25		39.37		+.25		37.97		+.38		34.97	
−1.62				−1.05				−1.27			
		−8.62				−7.42				−4.67	
29.42		+.27		29.33		+.27		29.42		+.33	
		−1.62				−1.57				−1.27	
		29.40				29.31				29.35	
		42				33				36	

32.86		32.882									
30.57		32.85									
2.36		30.80									
		2.35									
−2.73											
+.31		32.85									
−1.11											
		−2.77									
29.39		+.85									
		−1.11									
		29.38									
		40									

29.414

45	3	94.5		3	24.2	3	19.7	3	64.5		
		32.0			18.6		16.7		40.3		
		42.5			5.6		3.0		24.2		
		47.25			12.10		9.85		32.25		
		−15.2			+26.9		+31.3		+3.7		
		1.44154			1.42975		1.49557		0.57820		
		1.10188			1.34979		1.41558		0.48824		
		−1264			+2238		+2604		+3088		
48		47.25		48	12.10	48	9.85	48	32.25		
48		3461		48	3448	48	3589	48	3823		
					1387						
34		13.74		34	~~1387~~ ✓	34	1246	34	1302		
		+9.49			+9.55		+9.24		+10.02		
34		23.2		34	23.4	34	21.7	34	23.0		
35		26.4		35	26.6	35	27.0	35	27.0		
+1		3.2	3.3	+1	3.2	3.3	+1	5.3	5.5	+1	4.0	4.1
34		13.74		34	13.87		34	12.46		34	13.02	
		−26.60			−26.80			−27.20			−27.20	

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1871 +0 43

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Oct. 16		Oct. 29		Nov. 7		Nov. 12		Nov. 19.	
18 35.9	18 30.4	18 40.4	19 12.0	18 19.9	18 0.3	18 38.9	18 31.3	18. 36.4	18.324
40.0	31.5	42.4	13.5	23.2	2.4	40.9	33.0	38.3	33.7
42.9	33.2	44.6	15.2	26.5	5.0	43.0	34.6	40.3	35.3
47.2	45.1	48.6	40.7	33.0	7.7	47.0	98.9	44.5	101.4
49.2		50.6		36.4		49.1		46.5	
51.2		52.8		39.7		51.1		48.6	
53.3	21.4	54.8		43.1	2.9	53.2		50.6	
55.4	22.4	56.8		46.5	4.5	55.3		52.7	
57.4	23.1	61.0		52.9	6.1	59.4		56.48	
61.5	18 31.7	63.0	19 13.6	56.3	18 2.6	61.4	18 32.9	58.9	18 33.8
63.5		65.0		59.7		63.5		1.0	
5625		3800		4372		5628		5346	

Sun 8.09718

18 524	51.136	18 52.72	52.727	39.75	39.745	51.16	51.164	46.60	48.600

cos 9.99996
12669
.12665

35 3	101.8		85.6				105.5		102.3
	47.7 4	52.3 4	42.6			3	55.7	3	58.1
	54.1	58.5	43.0				49.8		55.2
	50.90		42.80				52.75		56.65
	+19.4		−20.9		+37.1		+18.3		+14.8
	1.28782		1.32016		1.56637		1.26245		1.17026
	1.41445		1.44680n		1.69602		1.38910		1.29691
	+25.97		−25.97		+		+24.50		+ 1981
38	50.90	39	42.80			38	52.75	38	56.65
39	16.87	39	14.83			39	17.20	39	16.96
+0 43	31.48	43	33.52			43	31.10	43	31.89

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Nov. 23

18 ~~35~~ 18 32.6
37.1 33.6
39.1 34.8
43.4 101.0
45.5
47.4
49.5
51.6
55.7
57.7 1833.7
59.8

4744

35 3 11 44
58.8
54.8
5 4 20
137
1 1 36 72
1 1 26 37
+ 1834
38 57.20
39 15.54
3281
43 31.81

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3 Aquarii 3

22 22 13
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Pr.

1871	Oct - 4	Oct - 8	Oct - 9	Oct - 29	Nov. 7
	22 7.6 21 57.1	22 8.2 22 1.0 22	8.3 21 58.5 22	10.4 22 4.0 22	10.0 22 3.0
	9.7	10.3 2.1	10.3 0.6	12.5 5.0	12.0 4.5
	11.7	12.4 3.1	12.3 119.1	14.6 9.8	14.1 5.8
	15.9	16.5	16.5	18.5	18.1 13.8
	18.9	18.5	18.5	20.7	20.1
	20.0	20.5	20.6	22.7	22.1
	22.0	22.6 22 44.8	22.6 22 35.7	24.8	24.2 22 43.0
	24.1	24.6	24.7 37.7	26.9	26.4 44.4
Sin ∫ 8.07650	28.2	28.7	28.7	30.9	30.4 45.6
	30.2 21 9.1	30.8 22 1.6	30.9 21 59.6	33.0 22 4.5	32.5 22 4.4
	32.3	32.8	32.9	35.0	34.5
	220.6	229	226.3	250	244
cos ∫ 9.99997					
12669					
12666					
	22 20.05 20.055	22 20.54 20.536	22 20.57 20.573	22 22.72 22.727	22.22 22.218

0	2	181.2			2	117.7			2	116.5			?	114.3				60.7	
		51.2				55.5	3	52.8		56.0			2	56.0			3	2.7	4 53.7
		50.0				62.2		0.0		61.5				58.3				58.0	51.2
		55.60				58.85				58.25				57.15				0.35	
		+23.0				+19.0				+21.1				+19.2				+17.8	
		1.36172				1.27875				1.32428				1.26007				1.25642	
		1.48638				1.40541				1.45094				1.38673				1.37708	
		+30.71				+28.43				+28.24				+24.37				+23.83	
	2	55.60			2	58.85			2	58.25			2	57.15			3	0.35	
	3	26.39			3	24.28			3	26.49			3	24.52			3	24.18	
-0°	40	38.04			40	35.93			40	38.14 ✓				E 33.17					
													40	33.21 ✓			40	35.83 ✓	

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Nov. 12 Nov. 13 Nov. 19. Nov. 28 Dec. 6

22	6.9	22	0.8	22	8.22	58.2	22	6.4	22	0.0	22	3.4	27	52.2	22	0.3	22	4.4		
	11.0		27		10.1			8.5				5.4		53.6		2.5		5.1		
	12.9		4.1		12.4			10.5				7.6		54.6	21	58.2		8.4		
	17.1		7.6		16.5			14.6				11.6		160.4		0.3		17.9		
	19.2				18.8			16.7				13.7				2.5				
	21.2				20.6			14.7				15.6				6.5				
	23.2				22.7			20.6				17.7				8.4				
	25.4				24.6			22.8				19.8				10.5				
	29.5				28.7			26.9				24.1				12.6				
	31.5	22	3.5		30.8	21	58.2	29.0	22	0.0		26.4	21	53.5		14.6	22	5.9		
	33.6				33.0			31.1				28.2				18.9				
	2335				2261			2059				1732				20.8				
																22.9				
																1762				
	21.23		21.227		20.55		20.555	18.72		18.718		15.75		16.7452	2	160		10.564		
																116.2				
																10.56				

3	6.10			2	108.1			3	-0.1			2	106.8			3	84.5			
	2.85				56.5				2.2				57.5				23.2			
	58.2				51.6				-2.3				49.0				11.3			
	0.88				54.05				-0.05				53.40				17.25			
	+18.7				+22.4				+18.7				+22.2				+4.7			
	1.27184				1.35024				1.27184				1.34695				0.67209			
	1.39850				1.47690				1.39850				1.47301				0.79875			
	+25.03				+29.98				+25.03				+29.72				+6.29			
3	0.50			2	54.05			2	59.95			2	53.40			3	17.25			
3	25.53			3	24.03			3	24.98			3	23.72			3	23.54			
40	37.18			40	3568			40	3663			40	34.77			40	35.19	✓		

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76

q_1 Draconis L.C

$\delta = +76° \; 22' \; 33.''6$

22 23 48 10 24 3.73 = R(-431)
10 3 37 3.80 = A.
-.88 7 6 23 (-07)

1871 - 4.13

	Oct 8	Oct 9	Oct 16	Oct 31	Nov 9
+.065	+.27 +.065	+.03 +.059	+.05	+.18 +.180	+.20 +.213
	23 51.6 / 0.3 / 9.0 / 17.7 / 26.5 / 105.1 / 45.1	23 45.4 / 47.8 / 54.5 / 147.7	23 25.0 / 34.5 / 51.7 / 0.5 / 8.8 / 17.9 / 26.7 / 44.3 / 52.7 / 1.4 / 299.8 / 180 / 99.8	24 40.6 / 41.9 / 43.9 / 126.4 / 24 37.5 / 40.2 / 42.4 / 23 42.1	23 18.2 / 27.1 / 36.0 / 53.0 / 1.6 / -10.8 / 19.3 / 28.0 / 45.3 / 54.1 / 62.7 / 356.1 / 240 / 116.1	23 31.8 / 35.7 / 44.0 / 111.5 / 26 16.2 / 20.4 / 25.5 / 23 37.1	22 20.7 / 30.0 / 38.8 / 56.0 / 5.1 / -13.3 / 22.3 / 30.7 / 48.6 / 57.4 / 66.0 / 386.9 / 240 / 148.9	23 47.5 / 50.7 / 57.0 / 155.2 / 51.7	23 21.8 / 30.5 / 39.6 / 56.9 / 5.7 / 14.1 / 22.8 / 31.7 / 49.0 / 57.9 / 66.7 / 396.7 / 240 / 156.7	23 24.8 / 3 / 50.2 / 51.7 / 101.9 / 25 22.2 / 26.6 / 29.0 / 31.6 / 50.9 / 27.3
Sin δ 9.98762					
cos δ 9.37185n / 12669 / 9.49854n	24 9.02 / 2.24 2.18 / 6.95 / -6.96 / -.29 / +1.59 / 24 3.36	9.020 / 9.08 / 1.62 / 7.46 / 9.08 / -6.92 / -.27 / +1.53 / 3.42 / 44	24 9.07 / 2.30 2.22 / 7.07 / -6.95 / -.13 / +1.57 / 3.50	25 9.073 / 9.14 / 1.84 / 7.30 / 9.14 / -7.00 / -.24 / +1.46 / 3.36 / 38	10.55 / 2.75 / 7.74 / -7.81 / +.25 / +0.78 / 3.80	24 13.54 / 4.14 4.27 / 9.33 / -9.26 / -.75 / -0.34 / 3.19	13.536 / 13.60 / 3.70 / 9.90 / 13.60 / -9.23 / -.75 / -0.44 / 3.21 / 22	24 14.04 / 5.03 5.02 / 8.98 / -8.61 / -.83 / -1.24 / 3.61	14.245 / 14.81 / 4.60 / 9.71 / 14.31 / -8.62 / -.88 / -1.30 / 3.51 / 53

Time

	Oct 8	Oct 9	Oct 16	Oct 31	Nov 9
	45 3 59.6 / 3.8 / 55.8 / 29.80 / +19.5 / 1.29666 / 0.79520n / -6.24 / 48 59.80 / 47 53.56	2 46.4 / 41.4	3 66.6 / 7.6 / 59.0 / 33.30 / +27.0 / 1.43136 / 0.92990n / -8.57 / 48 3.30 / 47 54.79	2 46.5 / 40.0 / 3 44.0 / 34.2 / 19.8 / 22.00	2 31.8 / 26.3	3 26.8 / 17.4 / 5.6 / 13.00 / +81.8 / 1.91275 / 1.41129n / -25.78 / 48 13.00 / 47 47.22	3 60.9 / 7.7 / 53.2 / 30.45 / +23.3 / 1.36735 / 0.86589n / -7.35 / 48 0.45 / 47 53.10	2 36.2 / 19.8 / 560 / 28.00 -.731 / 1.86392 / .86251 / 2304 / 47 28.00 / 47 51.04
	103° 34 54.79 / + 1 47.18	34 53.56 / +1 44.93		35 1.13 / +1 46.27	34 55.25 / + 1 49.24	57.31
app. δ =	+ 36 42.0 / 76° 23' 18.0	36 38.5 / 23 21.5		36 47.0 / 23 12.30	36 44.5 / 23 15.5
	76 22 16.5 / 103 37 43.5 / +1 1.5 2.3	22 16.2 / 37 43.8 / +1 5.3 6.1		22 9.8 / 37 50.2 / +1 2.8 3.6	22 7.9 / 37 52.1 / +1 7.6 8.4
+.81 δ' I =	103 34 54.79 / +1.216	34 53.56 / +1.740		35 1.13 / +2.380	34 55.25 / +2.570

Right margin: -3 / -3 / -5 / -20 / -10 / -37 / -2 / -3 / 23.2 / 3 / 5 / -1 / 2 / 2 / 4 / 5 / 4 / 31 / 18 / 13 / 4 / 1 / 6.10 6 / 45 2 / -1.5 / 47 / 35 / 37 / 25 / 2 / 37 / -10 / 35 / +

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+76° 22' 16".7

Nov. 19 — Nov. 22 — Nov. 23

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1871	Dec. 5	Oct. 4	Oct. 29	Nov. 12	Nov. 18	Nov. 25

23 55.9 23 50.0 24 14.1 24 33.1 24 30.1 24 39.8 24 25.1 24 10.6 24 27.8
58.2 50.6 16.5 34.0 31.1 44.1 26.5 13.4 28.9
0.6 51.6 19.0 35.1 32.2 47.1 27.8 15.6 30.4
5.6 52.9 21.4 102.2 17.0 73.4 15.2 131.0 16.9 77.4 18.3 87.1
7.9 23.9 19.4 17.9 17.2 20.8
10.5 9 49 21.8 20.4 19.8
13.8 24.3 22.7 22.3
15.5 26.7 25.3 24.7
20.4 109.2 101.5 94.1
22.9 23 50.7 24 18.98 24 34.1 24 21.84 24 31.1 24 43.7 24 28.5 24 29.0
25.2
236 3
120
176 3

24 10.57 10.5727 18.980 24 21.84 21.840 20.30 20.300 19.78 19.780 15.74

sin 9.73611

cos 9.92359
12665
.050 28

200	46.8			89.3		66.9		22.5		76.8		81.9							
	−0.7		0	40.0	0	31.9	0	44.3	0	40.1	0	42.5							
	47.5			49.3		35.0		43.2		36.7		39.4							
	43.40			44.65		33.45		46.25		38.40		40.95							
	+22.30					−9.8		−23.4											
	1.29885																		
	1.64913			1.17897m		0.96848m		1.36921m		0.82667m									
	1.94798			1.22925m		1.08876m		1.41949m		0.87635m									
	+22.30			−15.1		−10.43		−26.27		−7.52		−14.93							
20	53.40			20 44.65		20 33.45		20 46.25		20 38.40		20 40.95							
21	15.78			20 29.70		20 23.02		20 19.98		20 30.88		20 26.02							
		−32°	57	39.35	57	34.67	57	31.63	57	42.53	57	37.67							

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Nov. 26 Nov. 28 Dec. 6

24 0.1 24 4.3 24 0.1 24 4.3 24 31.0
2.5 6.6 2.5 6.6 33.2
4.9 9.3 4.9 9.3 34.9
12.4 20.2 24 4.6? 99.1
14.6 12.4 7.3
18.8 14.6 9.5
19.7 17.1 11.9
24.8 19.7 14.5
29.9 24.8 19.2
32.3 24 6.7 29.0 24 21.8 24 35.0
29.5 24.3
24 14.8

20 0 18.0 0 21.8
13.8 11.5
4.2 10.8
9.00 5.80
+8.1 2.50
0.89260 .90850 1.33110
.94758 .95878 1.42138
+9.10 +2.39
20 9.00 9.00 20 4.50
20 17.58 18.10 20 1.51

57 29.75 ✓ 57 3.116

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7 .023 58.78

a Lacertae 22 25 58.69 +.08

22 26 03

-.13 + 49 36

+1.18

Oct 7	22 25	61.12	+49° 37′ 31.9
12		.03	9	33.0
17		60.93	10	34.0
22		.83	10	34.9
27		60.72	11	35.7
Nov. 1		.60	12	36.4
6		60.48	12	36.9
11		.36	12	37.5
16		60.23	13	37.7
21		.11	12	37.8
26		.98	13	37.9
Dec 1		.86	12	37.9
6		.73	12	37.7

Dec. 3 +.34 +.373 | Oct 4 +.07 +.059 | Oct 8 +.07 +.065 | Oct 15 +.05 +.079 | Oct 16 +.05 +.079 | Nov 25 +2

Nevin II

Dec. 3		Oct 4		Oct 8		Oct 15		Oct 16		Nov 25	
25 38.9	26 29.2	26 40.5	25 37.8	25 49.0	25 44.7	25 40.1	26 25.5	25 2.6	26 19.6	26 44.6	26 27.0
42.0	30.6	42.8	40.0	52.2	46.8	43.2	28.8	5.7	22.0	47.8	28.5
45.1	32.5	44.8	41.7	55.5	91.5	45.9	54.3	8.8	23.3	51.0	30.0
51.4	92.3	25 48.6	119.5	1.8		52.4		12.1	64.9	57.2	31.6
54.7		51.7		4.9		55.8		15.2		0.4	117.1
57.8		54.9		8.0		59.0		44.4		3.5	
0.9		1.3	26 40.8	11.3	26 32.8	2.4			26 33.0	6.7	
4.1		4.4	42.8	14.4	34.5	5.4			35.0	10.0	
10.5		7.6	44.8	20.8	36.2	11.9			36.8	16.2	
13.7	26 30.8	10.9	25 39.8	23.9	25 45.7	15.0	26 27.1		26 21.6	19.5	29.3
16.9		14.0		27.1		18.0				22.6	
336.0		20.3		268.9		349.1				279.5	
300		23.7		180		3				240	
636.0		26.5		88.9		64.9				39.5	
25 57.82	57.818	26 26.29	7.536	26 8.08	8.082	59.01	59.009	26 8.88	8.880	26 3.59	3.590
59.75	57.79	1.80	7.58		8.06	0.97	58.99	0.95	8.86	0.00	3.57
1.93	57.83	18.29	7.25	1.10	1.18	58.04	1.85	7.93	1.03	3.58	0.08
1.93	2.04		6.26		6.88	0.57	7.94		7.83		3.49
+1.65	57.79	-6.39	7.51	-6.96	8.06	-7.49	58.99	-7.80	8.86	-3.71	3.57
+.40		+.8		+.8		+.6		+.6		+.26	
-3.24	+1.66	-2.48	-6.37	-2.41	-6.92	-2.28	-7.81	-2.26	-7.81	-1.31	-3.72
	+.44		+.07		+.07		+.09		+.09		+.25
	-3.06	58.75	-2.48	58.79	-2.41		-2.28	58.88	-2.26	58.83	-1.31
	56.65		58.73		58.80		49.79		58.88		58.79
	83		76		.81				90		81

sin δ 9.88169

cos δ 9.81166
12669
993835

Dec. 3	Oct 4		Oct 8		Oct 15	Oct 16		Nov 25
98.5	2.1		6.3		98.5	67.6		83.7
45 1 59.5	1 1.3	1 56.3	1 4.6	1 47.7	40 1 48.1	45 1 34.5	47.2	45 1 46.7
39.0	0.8	54.1	1.7	43.7	49.8	33.1	44.3	36.0
49.25	1.15		3.15		49.25	33.80		41.35
32.0	+27.7		+22.4			-12.7		-25.7
1.51853 m	1.44247		1.35024			1.10886 m		1.40993 m
1.45688 m	1.38082		1.28859			1.04215 m		1.34828 m
-28.63	+24.03		+19.44			-11.02		-22.30
46 49.25	46 1.05		46 3.15			46 33.80		46 41.35
46 20.62	46 25.08		46 22.59			46 22.78		46 19.05
+49° 36 27.73	36 23.27		36 25.76			36 25.57		36 29.30
+ 7.51	+ 7.02		+ 7.30			+ 7.25		+ 7.48
+36 35.2	36 30.3		36 33.1			36 32.8		36 36.8
37 37.7	37 31.23		37 32.12			37 32.98		37 37.9
+.10 +1 2.5 26	+1 1.0 1.1		+0 59.1 59.2			+1 0.0 0.1		+1 1.1 1.2
δ′ = +49 36 27.13	36 23.27		36 25.76			36 25.57		36 29.30
-27.00	-20.60		-21.50			-22.90		-27.20

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δ = +49 37 10.7

Nov. 28

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η Aquarii

22 28 46

− 0 47

+.68 −.01

1871

43.66

43.58 = P +.08

28 43.60 = M

Oct-7 22 28 45.85 −0° 46′ 39″.4

12 .10 39.4

17 75 39.5

22 70 39.6

27 65 39.8

Nov 1 59 40.0

6 53 40.2

11 47 40.4

16 41 .06 40.7

21 35 6 41.0

26 28 7 41.2

+.07 +.065 +.11 +.119 +.207 +.220 +.21 +.220

Oct +4 +.059 Oct 8 Oct 29 Nov 13 Nov 23

28	40.0	28	28.5	28	40.5	28	34.0	28	42.8	28	36.3	28	41.2	28	51.8	28	40.6	28	34.1
	42.0		29.9		42.6		35.1		44.9		37.9		43.2		55.2		42.7		35.5
	44.1		31.3		44.6		36.6		46.9		39.5		45.4		58.8		44.7		36.7
	48.2		29.7		48.8		105.7		51.0		11.37		49.4		61.7		48.9		106.3
	50.3				50.7				53.0				51.5	28	33.4		50.0		
	52.3				52.8				55.1				53.6		34.2		52.9		
29	54.4		10.8	29	54.8		11.8		57.1				55.6		35.7		54.9		
	56.4		11.9		56.8		12.7		59.2				57.7		103.3		57.0		
	0.4		13.0		1.0		13.9		63.3				61.8				61.1		
	62.5	28	29.9		3.1	28	35.2	28	65.4	28	37.9		63.8	28	34.4		63.2	28	35.4
	64.6				5.1				67.5				65.8				65.2		
	57 52				40 0.85				60 62				58 90				56 21		
					180				—										
					58 0.85				—										

Sun ∫ 8.13581 m

CO₂ ∫ 9.99996

12669

.12668

28	52.29	52,291	29	52.80	52800	28	55.11	55,109	28	53.55	53545	28	52.92	52,918					
	45.86			45.83			45.63			45.46			45.45					
	6.41	52.28		6.96	52.78		9.48	55.09		8.09	53.53		7.47	52.90				
	−6.39	6.34		−6.96	6.88		−9.41	9.38		8.01	7.59		−7.40	7.37				
	0	52,28		0	52.78		0	55,09		0	53,53		0	52,90				
	−2.28			2,25			2,05			1.88			1.87					
		−.638			−.692			−.942			−.802			−.741				
28	43.62	−.00		43.59	−.00		43.65	−.00		43.66	−.00		43.61	−.00				
		−2.28			2,25			2,05			1.88			1.87					
		43.62			43.61			43.62			43,63			43.62					
		64			63			62			65			64					

5	4	9.2	4	57.2	4	20.0	4	57.2	4	17.9			17.5			4	18.5		
		1.2		63.4		7.3		61.3		7.8		4	11.3				10.8		
		8.0				17.7				10.1			6.2				7.7		
		4.60				10.00				8.95			8.75				9.25		
		+22.4				+17.6				+17.3			+13.1				+16.5		
		1.35024				1.24551				1.23552			1.28103				1.24303		
		1.47689				1.37216				1.36217			1.40768				1.36968		
		+ 29.88				+23.56				+23.02			+25.57				+ 23.43		
		9 4.60			9	10.00	9	8.95				9	08.75			9	9.25		
		9 34.88			9	33.56	9	31.97				9	34.32			9	32.68		
−0°	46′	46″.23			46	45.21			46	43.62		46	45.97			46	44.33		
—		54.98			−	56.50			−	56.73		−	58.32			−	57.09		
—	47	41.2			47	41.7			47	40.3		47	44.3			47	42.2		
—	46	39.4			46	39.4			46	39.9		46	40.40			46	40.56		

−.63	±	1	1.8	1.2	±	1	2.3	1.7	±	1	0.4	+0	59.7	±	1	4.3	3.7	±	1	1.6	1.1
δ = −0	46	46.23			46	45.21			46	43.62				46	45.97			46	44.33		
		−14.80				−14.80				−14.30					−14.20				−13.70		

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+6 +5 +5 +7 +6 +9 +9 +5 +12 +8 +8

$\delta = -0^\circ\ 46'\ 54.2''$

+30 +253 Nov. 22 | +18 +180 Nov. 23 | +22 +214 Nov. 25 | +28 +280 Nov. 28 | +30 +305 Dec. 20

	28	27.0 28	37.5 28	31.7 28	36.9 28	27.1 28	35.7 28	31.0 28	20.2
		26.5	34.6	32.9	38.9	28.6	37.9	32.0	22.3
		30.1	41.7	34.3	40.9	29.8	39.9	33.1	24.4
28	45.9	8 5.6	45.9	8 8.9	45.0	8 5.3	44.1	8 6.1	28.7
	48.0		47.9		47.0		46.1		30.6
	50.0		50.0		49.1		48.1		32.5
	52.2		52.0		51.1		50.1		34.7
	54.3		54.0		53.2		52.2		36.7
	2564		=		57.3		56.4		40.8
		28 28.5	= 28	32.9	59.3 28	28.5	58.3 28	32.1	42.9
					61.4		60.3		44.9
					54 01		52 91		35 87

	50.08	50.080 28	49.92	49.92	49.00	49.100	48.10	48.100	32.61
	45.39	50.06	45.32	49.50	48.29	48.08	45.25	48.08	32.68
	4.74	49.41	4.59	49.40	8.82	49.37	2.85	49.33	43.10
	−4.68	4.60	−4.57	4.50	−3.71	3.71	−2.72	2.75	−12.43
	0	50.06	0	49.90	0	49.08	0	48.08	−12.41
	1.75	−46	1.74	−450	1.71	−372	1.67	−272	32.27
		−00		−100		−100		−00	+12.39
	4364	1.75	43.67	1.74	43.68	1.71	4371	1.67	43.74
		43 65		43.66		43.69		43.69	43.54
		67		67		67		70	56

43.66

	11.1	11.52	16.8	20.4
5 4	6.0	3 58.8	4 9.2	4 14.3
	5.1	56.4	7.6	6.1
	5.50	57.60	4.40	10.20
	+2.16	+17.0	+20.6	+16.1
	1.33445	1.23044	1.31336	1.20682
	1.46110	1.35709	1.44051	1.33347
	+28.91	+ 22.76	+ 27.58	+ 21.50
	9 5.50	8 57.60	9 8.40	9 10.20
	9 3441		9 35.78	9 31.70
	4606	9 20.36		
46	4506 ✓	46 3201	46 4763	46 4340 ✓
	− 56.05	− 58.40	− 57.33	− 59.50
47	41.1	47 30.4	47 49.0	47 42.9
46	41.1	46 41.1	46 41.3	46 41.4
×1	0.0+0 59.3	×0 49.3 48.7	×1 3.7 3.1	×1 1.5−0.8
46	4606	46 32.01	46 47.63	46 43.40
	− 13.10	− 13.10	− 12.90	− 12.80

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226 B Cephei

22 30 02

+ 79 33

+3.88 (+.05)+

Dec. 3 +37 Oct. 9 +53+059 Oct. 22 +10+147 Oct. 31 +18+180 Nov. 2 +17+192 Nov. 19 +32+350

29	7.1	28	30.3	29	21.2	28	40.0	30	2.3	30	38.7	29	21.9	29	43.2	29	22.3	22	28	57.8	29	16.0	28	41.0
	15.1		36.8		29.8		45.9		10.4		43.5		29.7		46.0		30.6			58.1		23.8		44.0
	23.6		39.1		37.8		51.7		15.9		47.6		38.5		51.8		38.2			58.8		32.4		48.2
	41.6		42.6		54.5		137.6		27.1		127.8		54.5		141.0		53.0			61.7		48.6		138.2
	45.7		148.8		2.7								2.6				3.1			22.4		57.1		
	56.6				10.7				11.27				11.4				11.5					5.3		
	5.1				19.0	30	35.0		6.0				19.1				19.6			17.3		13.6		
	13.2				27.3		38.3		5.27				27.7				27.9			21.3		21.7		
	29.4				35.0		42.2						44.3				44.1			25.8		35.0		
	37.6	28	37.2		43.8	28	45.9			30	43.3		52.4	29	47.0		53.0	29		56.8		46.6	28	44.4
	46.3				51.9								60.6				1.3					54.8		
	32.3				60.3								36.27				30.71					35.79		
	30.0				59.0								29.0				18.0					30.0		
	624.3				24								122.7				127.1					57.9		
616	56.76		56.755	30	14.0		10.818		10.54		10.540	30	11.16		11.155	30	11.55		11.555		37	5.26		5.264
32	57.73	73	58.9	30	10.82		1076				10.98		2.62		11.10		2.47			11.49		1.14		6.20
9	2.58		59.73	30	4.06	4.00	3.58		3.26		3.14	3.20	8.60		2.81			2.43	2.37			4.14	1.08	1.03
			3.14		6.82		6.83				7.34				8.59					9.12				4.17
	+1.65								-7.81								-9.55							
	+1.65		56.59		6.98		10.76				10.48		-9.26		11.10					11.49		5.53		5.26
	+1.33				+.12				+ .39				+.70				.66					1.25		
	+ .28		+.67		-4.04		-.80		-3.25		-.781		-2.61		-.923		-2.46			-.953		-1.13		-.551
			+1.45				+.23				+.57				+.70					+.74				+1.35
30	0.02		+.28		59.92		-.404		59.87		-3.25		59.99		-2.61		0.20			-2.46		59.85		-1.13
			59.99				59.95				54.99				54.96					60.24				59.91
			0.02				59.97				0.00				59.98					0.26				59.92

Sun ν 9.91604

ecl ν 9.39713
12669
9.52382

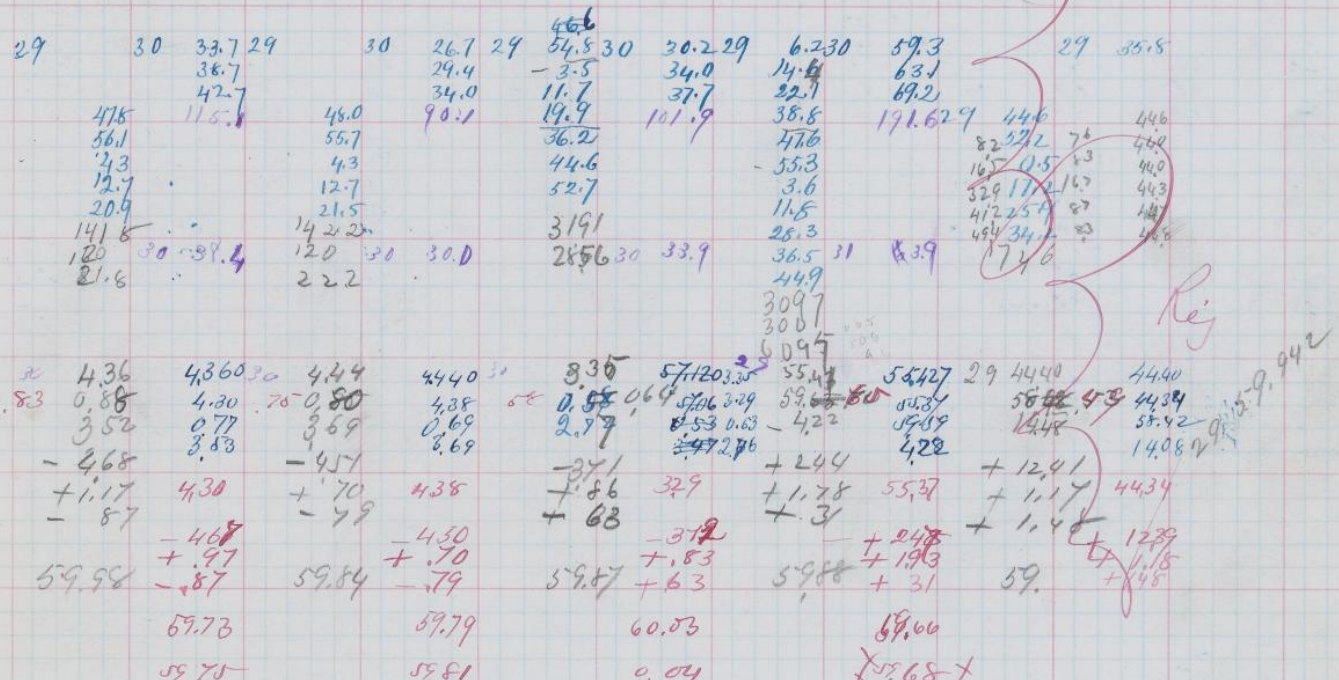
					10.8				11.4						25.0								-14.3		
60	0	4.8	45	4	54.2	50	0	46.70		66.1			0	16.0	0		-9.6				0	0.5		
		-15.6			53.2			31.6		34.2				9.0			1.2		0	48.0		-14.8		
		-5.40			55.70					31.9				12.50			-8.85			31.2		-7.15		
		+79.6			+8.49					33.65				+24.2			-4.80					+80.9		
		1.90091			1.92896					-32.8				1.38881			+74.8					1.90794		
		1.42473			1.45272					1.51587m				0.90763			1.87390					1.43176		
		+26.59			+ 28.36					1.03969m				+ 808			1.39772					+ 27.03		
48		54.60	49		55.70					-1095				12.50			+ 24.99					52.85		
50		21.19	50		24.06				50	33.05			50	20.58		49	55.20					19.88		
									50	22.10						50	20.19							
475	32	27.16		32	24.29				32	26.25			32	27.77		32	28.16				32	28.47		
		+34.47			+ 36.47					+ 37.98				+ 39.30			+ 37.74					+ 38.87		

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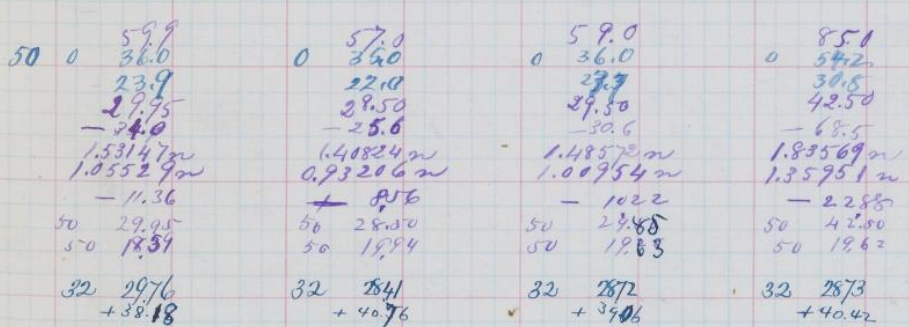
1871phae.proj.1451.

+6
−4
−1
−3
+25
−9
−26
−20
+3
−33
−6

+30 +253 Nov. 22 | +8 +180 Nov. 23 | +22 +214 Nov. 25 | +46 +50 Dec. 6 | +20 +85? Dec. 20.



50 | 0 | A. R. only.



1871phae.proj.1451.

31 Cephei 22 32

ε Pisc Aust

22 33 33

−27 43

−53

Dec. 5	Oct. 4	Oct. 9	Oct. 22.	Oct. 29	Nov. 2
33 16.5 34 0.5	33 26.0 33 22.2	33 26.7 33 14.8	33 27.5 33 19.0	33 29.0 33 20.4	33 29.0 33 20.8
19.6 1.6	28.3 23.5	29.0 16.7	29.7 20.6	31.2 21.7	31.4 21.7
22.0 3.1	30.6 25.3	31.4 18.3	31.9 22.8	33.6 23.5	33.6 23.5
26.9 5.2	35.3 71.0	36.0 49.8	36.6 62.4	38.3 66.1	39.4 66.0
29.0	37.6	38.3	39.0	40.6	40.8
31.3	−40.0	40.6	41.4	43.8	43.0
33.8	42.2 34 0.3	42.9 34 0.5	43.6 34 2.0	46.2	45.3
36.1	44.5 1.8	45.3 2.4	46.0 3.0	47.5	47.7
40.7	49.2 3.2	49.8 4.4	50.6 5.8	52.0	52.3
43.1 34 1.7	51.6 33 23.7	52.2 33 16.6	52.9 87 20.8	54.5 33 22.0	54.7 33 22.0
45.3	54.0	54.6	55.3	56.8	57.0
3443	4393	4466 34 2.4	4544	4725	4742
31.30 31.300	33 39.93 39.936	33 40.628 33 40.628	33 41.32 41.318	33 42.95 42.955	43.11 43.109

ε = 7.66854 m

ε = 2.94407
1.26869
.07376

47.5	78.9	57.8	77.9	56.8	58.6
0 4 27.8	3 34.8 4 19.3	3 24.6 4 18.8	3 35.6 4 24.1	3 26.8	3 28.4
19.7	44.1 25.0	33.2 26.6	42.3 32.0	30.0	30.2
23.75	39.45	28.90 454	38.95	28.40	29.20
−0.4	+16.2	+24.0 −21.8	+20.5	+26.9	+21.1
1.48287 m	1.20951	1.38021 1.33846	1.31175	1.32014	1.32428
1.55663 m	1.28327	1.45397 1.41222	1.38551	1.39390	1.39804
−36.03	+ 1920	+2844 −2583	+2930	+ 2477	+ 2501
4 23.75	3 39.45	3 28.90 2270	3 28.95	3 28.40	3 25.30
3 47.92	3 58.64	3 57.34 56.87	3 62.25	3 53.17	3 50.1
−27° 40 58.37	41 10.30	41 8.99	42 14.90	41 4.82	41 5.96

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Nov. 12 Nov. 13 Nov. 19 Nov. 23

33	27.5	21.1	26.8	16.0	24.9	15.0	23.8	21.2
	29.7	22.1	29.0	17.5	27.1	16.6	26.0	22.7
	32.0	23.3	31.2	19.4	26.3	18.4	29.3	24.8
	36.6	66.5	36.0	52.9	34.1	50.0	33.0	68.7
	39.1		38.3		36.4		35.2	
	41.2		40.6		38.7		37.1	
	43.6		42.9		41.1		40.0	
	46.0		45.3		43.4		42.3	
	50.6		50.0		48.1		47.0	
	53.1	22.2	32.4	17.6	50.4	16.7	49.4	22.9
	55.3		54.7		53.6		51.6	
	454		447		427		415.3	
	41.32	41.327	40.65	40.665	38.83	38.827	37.75	37.735

0	59.1	56.8	59.9	65.7
3	31.1	29.7	30.7	34.9
	28.10	27.1	29.2	33.85
	29.55	28.40	29.95	34.35
	+ 19.1	+ 23.1	+ 22.1	+ 14.9
	1.28103	1.36172	1.34439	1.17316
	1.35479	1.43548	1.41815	1.24694
	+ 22.63	+ 27.26	+ 26.20	+ 17.66
3	29.55	3 28.40	3 29.95	3 34.35
3	52.18	3 55.66	3 56.15	3 52.01
	383			
	41 373	41 7.31	41 7.80	41 3.66

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3 Pegasi

22 35 05 +10 10

1.75

35 1.68 P

1.66 = A

+53 +18

1971

001-Y 22 35 892 10° 9' 48".2

12 87 5 48.4 +2 +4

17 82 5 48.6 +2 +4

22 77 5 48.7 +1 +2

27 3.72 5 48.8 +1 +2

nov 1 67 5 48.8 0 +3 +10

6 61 6 48.7 -1 -1

11 55 6 48.6 -1 -4

16 8.49 6 48.4 -2 -3 -7

21 43 6 48.2

26 36 7 47.9 3 -11

1 +47.6 +2.20

Oct. 8 +07 +065 Oct. 9 +23 +059 Oct. 31 +15 +180 Nov. 2 +24 +192 Nov. 13

	34	58.4	34	50.3	34	58.5	34	49.5	35	0.4	34	50.5	35	0.7	34	50.2	34	58.4	35	32.7
		0.4		51.4		0.5		51.3		2.6		51.9		2.9		51.6		0.5		34.0
		2.5		52.9		2.6		52.8		4.8		53.5		5.0		53.0		2.6		35.7
		6.7		154.6		6.7		153.6		8.8		156.2		9.1		154.8		6.9		162.4
		8.8				8.9				10.8				11.2				9.0		
		10.8				11.0				13.0				13.2				11.0		
		12.9	35	28.1		13.1	35	29.0		15.0				15.3		37.5		13.0		
		15.0		29.3		15.0		31.0		17.1				17.4		38.7		15.1		
		19.3		30.8		19.3		32.8		21.3				21.6		39.9		19.4		
		21.3	34	51.5		21.4	34	51.2		23.4	34	52.1		23.8	34	51.6		21.4	35	34.1
		23.4				23.4				25.4				25.8				23.5		
		179.5				180.4				1426				1460				1808		
		66				60												180		
		119.5				120.4												120.8		
Sun V 9.24677	35	10.86		10.864	35	10.95		10.945	35	1296		12964		13.27		13.273	35	10.98		10.982
		3.91		1084		3.60		10.53		369		1295		3.65		13.26		3.912		10.86
		6.95		3.95		7.05		3.94		9.28		3.73				3.69		7.45		3.56
				6.89				6.99				9.22		9.58		9.57				7.40
		-6.96				-6.86				-9.26								-7.40		
COV V 9.99313		+1		10.84		+1		10.93		+3		12.95		+3		13.26		4		10.96
12669		-2.23				2.22				2.01				1.97				1.84		
.11782				-692				-700				-923				-953				-741
		1.68		+.01		1.76		+.01		1.72		+.03		1.78		+.03		1.78		+.04
				-223				-222				-201				-197				-184
				1.70				1.79				1.74				1.79				1.75
				72				74				75				80				77

	10	2	16.65	3	45.7	2	15.78	3	49.0	2	11.47			2	10.82	3	55.9	3	11.03		
			36.5		49.5		56.8		54.0		55.8				55.0		55.1		55.0		
			0.9				61.0				58.9				53.2				52.3		
			58.25				58.90				57.35				54.10				55.15		
			+12.4				+11.7				+26.9				+11.7				-23.1		
			1.28780				1.23446				1.32014				1.33645				1.33967	1.36360	m
			1.40762				1.41428				1.43996				1.45627				+51947	1.48342	m
			+2556				+2596				+2754				+2859				-2316	-30.44	
		12	58.25			12	58.90			12	57.35			12	54.10			18	55.15	55.15	
		13	23.81			13	29.86			13	29.89			13	22.69			13	24.71	24.71	
	+10°	9	24.54			9	23.49			9	23.46			9	25.66			9	23.64		
			38.13				37.32				37.86				38.43				39.19		
		8	46.4			8	46.2			8	45.9			8	47.2			8	44.5		
		9	48.2			9	48.3			9	48.8			9	48.8			9	48.5		
	-.49	+1	1.8	1.3		+1	2.1	1.6		+1	2.9	2.4		+1	1.6	1.1		+1	4.0	3.5	
	S' = +10	9	24.54			9	23.49			9	23.46			9	25.66			9	23.64		
			-17.00				-17.10				-17.60				-17.60				-17.30		

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+4
+6
+7
+12
+9
+8
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+1
+5
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$\delta = +10^\circ\ 9'\ 31.''2$

+30 +253 Nov. 22 | +18 +180 Nov. 23. | +22 +214 Nov. 25 | +28 +280 Nov. 28 | 5 6 +50 Dec. 6

Nov. 22		Nov. 23.		Nov. 25		Nov. 28		Dec. 6	
34 55.6	34 48.1	34 55.4	35 1.6	34 54.5	34 47.0	34 53.5	35 22.0	34 48.3	35 21.6
57.8	49.8	57.5	2.7	56.6	48.7	55.6	23.1	50.4	22.8
59.8	51.1	59.5	2.9	58.6	50.0	57.6	24.4	52.6	24.6
3.8	149.0	3.6	4.6	3.0	145.7	1.9	69.5	56.6	69.0
6.0		5.7	11.8	5.0		4.0		58.7	
8.1		8.0		7.0		6.1		0.8	
10.1		10.1		9.1		8.2		2.7	
12.3		12.3		11.3		10.1		4.9	
16.4		16.1		15.4		14.4		9.1	
18.7 34	49.7	18.4 35	2.9	17.5 34	48.6	16.6 35	23.2	11.1 35	23.0
20.7		20.6		19.6		18.6		13.2	
26 93		26 72		25 76		24 66		30 84	
180		180		180		180		300	
86 93		86 72		85 76		84 66		84	
35 6.12	8.18 35	7.93	7.927 35	7.05	7.055 35	06.05	6.055 35	0.76	0.764
3.42	8.10	3.40	7.91	3.37	7.04	3.33	6.07	3.24	0.75
4.69	3.46	4.52	3.44	3.68	8.41	2.72	3.34	2.48	3.28
	4.64		4.47		3.63		2.87		2.53
−4.68		−4.57		−3.70		−2.72		2.44	
+ 5	8.10	3	7.91	+ 4	7.04	+ 1.5	6.04	+ 9	0.75
1.74	−4.68	1.72	−4.59	1.69	−3.72	−1.65	−2.72	1.56	3.22
	+ .05		+ .03		+ .04		+ .05		+ .08
1.75	−4.74	1.73	−4.72	1.70	−3.69	1.73	−1.65	1.72	−1.56
	1.74		1.73		1.67		1.72		1.76
	76		75		69		78		75

138
72

10 3 1.6	3 3.8	3 1.5	3 8.9	3 12.1
1.3	18.2	3.2	49.1	58.1
−2.3	12.6	−1.7	35.8	45.9
−0.50	15.40	0.175	43.95	11.55
+18.4	+15.0	+15.5	−1.1	−22.2
1.26481	0.69897	1.26717	1.23299m	1.34635m
1.38463	0.81879	1.38699	1.35281m	1.46617m
+2425	+ 6.59	+ 24.37	− 22.58	− 29.26
13 59.50	13 15.40	13 0.75	13 43.95	13 8.55
13 23.76	13 21.99	13 25.12	13 21.42	13 22.29
9 2460	9 2636	9 2323	9 2693	9 2606
− 37.8	− 39.38	− 38.67	− 39.96	− 39.62
8 46.8	8 47.0	8 44.6	8 47.0	8 46.4
9 48.1	9 48.0	9 47.9	9 47.7	9 47.2
+1 1.3 0.8	+1 1.0 0.6	+1 3.3 2.8	+1 0.7 0.2	+1 0.8 0.3
9 2460	9 2636	9 2323	9 2693	9 2606
−1690	− 1680	− 1670	− 1650	− 1600

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5'.45

36 59 36 5'.46 -.04

+29 33

+22 +57 +34 +373 +07 +059 +07 +065 +03 +059 +10 +147 +11 +

Dec. 5 Oct. 4 Oct. 8 Oct. 9 Oct 22 Oct. 29

001-7 22 36 5572 +29° 32' 69".5

12 70.2

17 62 70.8

22 71.2

27 71.8

Nov 1 72.2

6 72.5

11 72.7

16 72.8

21 72.8

26 72.7

72.5

72.3

36 42.9 36 40.8 36 52.0 31 45.1 36 52.4 36 43.0 36 52.4 36 42.5 36 53.1 36 38.2 36 54.6 36 42.5

45.3 42.3 54.3 47.0 54.7 44.6 54.8 43.6 55.6 39.3 57.0 43.9

47.7 44.1 56.6 49.0 57.0 46.1 57.1 45.3 57.9 40.7 59.3 45.6

52.3 1.3 1.9 1.8 2.6 4.1

54.6 3.8 4.3 4.3 5.0 6.4

57.0 -6.2 -6.6 6.6 7.4 8.8

59.3 8.4 37 30.4 8.9 37 30.1 9.0 37 28.3 9.7 37 32.8 11.1

1.8 10.8 32.0 11.3 31.6 11.3 30.2 12.0 33.9 13.5

6.5 15.5 33.8 15.8 32.9 16.0 31.3 16.8 35.5 18.3

8.8 36 17.9 36 44.6 18.3 36 44.6 18.5 36 43.8 19.1 36 39.4 20.6 36 44.0

11.2 20.3 20.7 20.9 21.6 23.0

62.74 24.71 251.9 25 21.7 260.8 27.67

18.6 180 180 180 180

67.1 71.9 72.7 80.8 96.7

37 57.04 57.036 37 6.10 6.100 37 6.54 6.536 37 6.61 6.609 37 7.37 7.345 8.79 8.791

55.50 57.02 55.75 6.08 55.71 6.082 55.70 6.089 55.56 7.33 59.46 8.77

1.86 68.86 6.34 57.71 6.83 57.67 6.92 57.66 7.37 57.52 9.33 57.42

+.165 -.184 -6.39 +6.37 -6.96 6.85 -6.95 6.93 -7.81 -.941 9.35

+.20 57.02 +.4 6.08 +.4 6.52 +.2 6.59 +.6 7.33 +.6 8.77

-1.44 +.167 2.29 -.637 2.25 -.692 2.24 -.700 2.10 -.781 2.00 -.942

57.45 +.21 57.46 +.03 57.37 +.04 57.44 +.03 57.49 +.08 57.44 +.07

-1.44 -2.29 -2.25 -2.24 -2.10 -2.00

dii 9.69301 57.46 57.45 57.39 57.38 57.50 57.42

.48 .47 .40 .40 .52 .44

eai 9.93948 .12668 .06617

18.3 9.3 9.5 0.0 47.4 45 10.23

50 0 17.3 0 3.8 56.7 0 0.0 0 53.2 0 -0.6 0 52.3 0 -6.8 0 4.7 4 56.1

1.0 5.5 59.0 59.5 53.6 +0.6 53.7 54.2 57.5 51.2

9.15 4.6 59.5 53.40 0.00 53.78 53.65

+14.2 +19.1 +21.9 -25.0 +22.8 -23.3 +27.9 +24.5

1.16435 1.28103 1.34044 1.39754 1.34793 1.36735 1.44560 1.39445

1.23052 1.34720 1.40661 1.46411 1.46410 1.43352 1.51177 1.46062

+1700 +2224 +2550 -2511 +2911 -2713 +3249 +2888

50 9.15 50 4.65 49 59.75 50 53.40 50 0.00 50 53.00 49 53.70 49 53.65

50 26.15 50 26.89 50 25.25 24.29 50 24.11 28.87 50 26.19 50 22.53

+29° 32 22.20 32 21.46 32 23.10 24.16 32 19.24 22.48 32 22.16 32 25.82

-14.24 -13.55 -13.75 -18.48 13.48 -14.21 -12.68

-13.38 13.85

32 8.0 32 7.9 32 9.3 10.31 32 5.8 9.00 32 8.8 32 12.0

33 12.82 33 9.21 33 9.7 9.7 33 9.8 9.8 33 11.3 33 12.1

-21+1 4.2 40 +1 1.2 10 +1 0.4 0.2 +1 0.0 +1 0.8 0.6 +1 2.5 2.3 +1 0.0 +0 59.8

δ' = +29 32 22.20 32 21.46 32 23.10 32 19.24 32 22.16 32 25.82

22.30 -19.20 -19.80 22.48 -19.90 -21.40 -22.16

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$\delta = +29^\circ\ 32'\ 49.9''$

Oct 31 | Nov 7 | Nov 13 | Nov 22 | Nov 23. | Nov 25

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13 Lacertae

22 38 22 38 20.49 (05)

+41 09

20.47

7.02 + .87

1871

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Oct 7 22 38 22.87 +41° 8' 54".6

12 .76 55.6

17 .74 56.5

22 .66 57.3

27 22.58 58.0

Nov 1 .49 58.6

6 .39 59.1

11 .30 59.5

16 22.20 59.8

21 .11 60.0

26 .01 60.0

1 21.91 59.9

Oct 8 +.07 +.065 Oct 9 +.03 +.059 Oct 22 +.10 +.149 Nov 2 +.17 +.192 Nov 12 +.220

38 13.4 38 12.5 38 16.1 38 25.0 38 43.3 38 15.7 38 2.5 08 12.8 38 11.4

16.0 13.8 18.9 29.4 44.6 18.5 3.8 16.4 12.3

18.8 14.4 24.3 30.4 46.7 21.0 4.7 19.2 13.0

24.2 40.7 27.0 33.1 134.6 26.5 11.0 24.6 36.7

27.0 35.9 29.3 27.4

29.8 168.0 151.8 32.0 30.1

32.4 39 1.5 32.6 34.7 38 5.8 32.8

34.9 3.4 35.1 37.4 5.7 35.5

40.7 4.8 40.7 43.0 6.2 41.0

43.4 38 13.6 43.5 38 56.0 38 44.9 45.6 38 3.7 48.7 38 12.2

46.1 46.2 48.4 46.5

327.0 327.5 352.1 330.0

sin 9.81825

38 29.79 29.70 29.77 38 29.77 38 30.36 30.30 32.01 32.04 30.00 30.000

22.86 28.77 22.85 29.75 22.61 30.32 22.47 31.99 22.28 29.58

6.93 22.81 6.92 22.80 6.95 7.68 22.61 7.71 22.42 9.92 2.23

6.96 6.98 7.81 9.57 8.01 3.75

cos 9.87679 29.77 29.75 30.32 31.99 29.78

12669 +.4 +.3 +9 +15 +17

.00348 −2.37 −2.36 −2.17 −1.58 −1.79

692 700 781 953 802

38 20.52 +.05 20.46 +.05 20.45 +.13 +.17 20.37 +.19

−2.37 −2.36 −2.17 −1.78 −1.79

20.53 20.44 20.47 (20.65) 20.36

46 42 50 (67) 38

10 14 38.0 15 0 27.1 15 0 17.5 15 0 6.7 10 14 23.8 15 0 17.6 10 14 40.2

37.9 27.7 20.3 8.4 14.1 15.7 28.0

37.95 20.05 7.65 21.45 34.10

+6.3 −26.2 −14.6 +28.2 +17.8

1.20951 1.41830 m 1.16436 m 1.45178 1.23042

1.21299 1.42178 m 1.16783 m 1.45526 1.25390

+16.33 −24.41 −14.42 +28.53 +17.44

14 27.95 15 20.05 15 7.65 14 21.45 14 34.10

14 59.28 14 53.64 14 52.93 14 49.98 14 52.04

+41° 7 54.07 7 54.71 7 55.42 7 58.37 7 56.31

−2.14 −1.49 −1.33 −2.24 −1.80

53.2

7 51.9 7 54.1 7 56.1 7 52.5

8 54.8 8 55.0 8 57.13 8 58.7 8 54.85

−.02 +1 2.9 2.9 +1 1.8 1.8 +1 3.3 3.3 +1 2.6 2.6 +1 5.4 5.0

δ = +41 7 54.07 7 54.71 7 55.42 7 58.37 7 56.31

−20.60 −20.80 −23.10 −24.50 −25.40

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+6
−3
−1
−11
+4
−10
−06
+5
−2

$\delta = +41^\circ\ 8'\ 34''.2$

Nov. 19. Nov. 22 Nov. 25 Dec. 6

38.11.1 37 53.2 38 2.8 38 8.2 37 52.5 38 2.5 38 6.8
13.8 63.6 40.4 10.8 54.3 5.3 8.6
16.4 55.7 41.8 13.5 56.5 5.1 10.2
21.9 57.1 38 209 1202 19.0 163.3 13.3 25.6
24.7 21 7.8 23.1 21.6 16.0
27.4 26.8 24.4 19.1
20.1 29.8 27.1 21.6
32.9 31.8 29.8 24.4
38.3 1322 35.2 29.8
40.9 37 54.9 38 40.1 37.9 37 54.4 32.6 38 8.5
43.8 40.7 35.2
3013 2682 2079

27.39 27.391 26.44 26.440 24.38 24.382 18.99 18.90 .460
22.14 27.37 22.09 2642 2.97 24.36 23.80 18.97 .44
5.25 22.09 4.35 22.04 2.41 21.82 2.80 21.762
5.28 4.38 +3.44 ++2.44 −2.79
−5.53 4.68 −2.72 18.97
+28 27.37 26 26.42 +.24 24.36 +.40
−1.65 −1.60 −1.48 −1.31
−550 −468 −271 +2.44
20.49 +.30 20.42 +.22 20.42 +.24 20.52 +.39
−1.65 −1.60 −1.48 −1.31
20.52 20.37 20.41 20.52
53 39 43 45

37.5 6.5 4.33 78.5
10 4 22.8 150 6.7 10 4 25.3 10 4 48.1
14.5 −0.2 15.0 30.4
18.60 3.26 21.65 39.25
+32.5 −13.7 +30.0 +10.5
1.51188 1.13642m 1.47712 1.02118
1.57536 1.14020m 1.48060 1.02466
+3276 −1381 +3024 +1018
4 8865 15 3.25 14 21.65 14 39.25
14 51.41 14 49.44 14 51.89 14 49.83
7 5694 7 5891 7 5646 7 5852
−1.88 −1.34 −1.86 −1.56

7 55.1 7 57.6 7 54.6 7 57.0
P 59.9 9 00.0 8 59.9 8 59.7

+1 4.8 48 +1 2.4 24 +1 5.3 5.3 +1 2.7 2.6
7 5694 7 5891 7 5646 7 5852
−2570 −2580 −2570 −2550

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λ Pegasi

22 40 22 40 19.12 +.00

+22 53

19.16

+42

1871 +33

Oct 4 +07 +059

Oct 8 +07 +065

Oct 9 +03 +059

Oct 22. +10 +147

Oct 29 +11 +150

sin J 9.58979

cos J 9.96440

.12669

.09108

δ' = +22 52 52.06 − 18.50

52 54.82 − 18.90

52 53.31 − 19.00

52 [illegible] − 20.30

52 56.32 − 20.70

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1871phae.proj.14531

+2
+5
+4
+5
+9
+0
+1
+9
−2
+3

$\delta = +22^\circ\ 53'\ 14.''5$

Nov 2 +17 +192 | Nov 12 +20 +220 | Nov 13 +21 +220 | Nov 22 +30 +253 | Nov 23 +18 +180 | Nov 25 +12 +214

40 26.3 40 45.6 40 15.5 40 46.9 40 14.9 40 8.0 40 12.0 40 5.2 40 12.0 40 6.4 40 11.0 40 0.7
28.5 47.2 17.7 48.5 17.2 9.6 14.2 6.9 14.1 8.4 13.2 22 2.1
30.8 48.6 20.0 50.8 19.5 10.9 16.5 8.5 16.4 9.4 15.5 23 3.5
32.9 141.4 24.4 146.2 23.8 28.5 20.9 20.6 20.7 24.7 22.9 44 6.3
35.1 26.7 26.0 23.2 23.0 22.2 23
153 40 45.7 28.8 28.3 25.3 25.1 24.4 22
47.1 31.1 30.5 27.6 27.6 26.6 22
48.6 33.4 32.7 29.8 29.7 25.8 22
37.5 37.1 34.3 34.0 33.3 45
40 47.1 40.1 40 45.7 39.4 40 9.5 36.5 40 6.9 36.5 40 5.2 35.6 40 2.1
42.3 41.7 38.8 38.7 37.8
3179 3117 289.1 277.9 2683

30.792 30.640 28.90 28.900 28.28 28.282 25.38 25.373 25.26 25.264 24.39 24.391
21.10 30.62 20.96 28.88 20.95 28.26 20.88 25.36 20.82 25.20 20.79 24.08
81.10 6.93 20.96 7.92 7.33 20.95 4.53 20.88 4.43 20.82 3.69 20.79 14!
9.52 7.92 7.31 4.53 4.43 3.59

−5.53 80.70 −8.08 28.88 −7.40 28.26 −4.70 25.36 −4.51 25.25 −3.70 24.08
+7 +8 +12 +9
−1.98 −963 −1.84 −802 −1.83 −741 −1.71 −466 −1.74 −449 −1.67 −371
+.88 +.09 +.09 +.11 +.08 +.09
19.18 −1.98 19.13 −1.84 19.13 −1.83 19.08 −1.71 19.12 −1.70 19.11 −1.69
19.27 19.11 19.11 19.10 19.14 19.09
29 12 13 12 16 10

30 22.8 30 35.3 25 59.1 25 61.8 26 1.9 25 54.1
0 14.6 0 23.2 4 33.9 4 35.0 4 34.9 4 30.6
8.2 12.0 25.2 26.5 26.1 23.5
11.40 17.60 29.55 30.90 30.50 27.05
−16.5 −19.8 +18.8 +18.5 +17.1 +22.3
1.21748 m 1.29666 m 1.27415 1.26717 1.23299 1.34830
1.30857 m 1.38775 m 1.36524 1.35826 1.32408 1.43939
−20.35 −24.42 + 23.19 + 22.52 + 21.09 + 27.50
30 11.40 30 17.60 29 29.55 29 30.90 29 30.82 29 27.05
39 51.05 39 53.18 29 52.74 29 53.42 29 51.59 29 54.55
52 57.30 52 55.17 52 55.61 52 54.63 52 56.76 52 53.80
− 21.40 − 22.08 − 22.15 − 21.48 − 22.38 − 22.00

52 35.9 52 33.1 52 33.5 52 33.2 52 34.4 52 31.8
53 35.4 53 35.7 53 35.7 53 35.6 53 35.5 53 35.5

+6 59.5 59.1 +1 2.6 2.3 +1 2.2 1.9 +1 2.4 2.1 +1 1.1 0.8 +1 3.7 3.3

52 57.30 52 55.17 52 55.61 52 54.63 52 56.76 52 53.80
−20.90 −21.20 −21.20 −21.10 −21.00 −21.00

19.44
11 1.44

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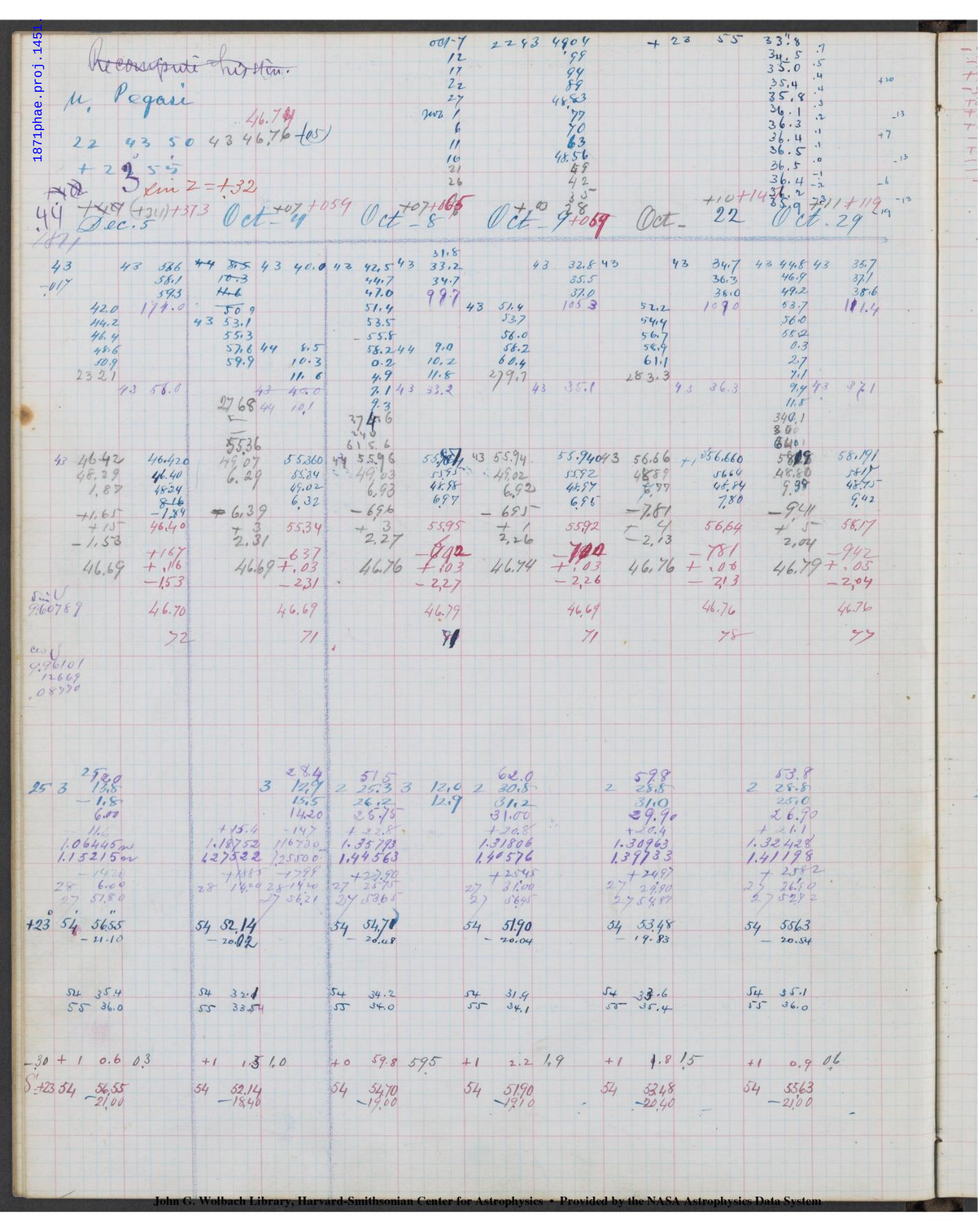
Reconsiderations

M. Pegasi

22 43 50 43 46.76 (05)

+ 23 55

Dec. 5 Oct. 4 Oct. 8 Oct. 9 Oct. 22 Oct. 29



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$\delta = +23^\circ\ 55'\ 15.0''$

P2@ 6 11 16 21 26 — 22 43 — 4428 22 6 15 7 9 6 48.02 7 — +23° 55' — 35".9 35.5 35.1 34.6 34.0

Nov. 12 +20+220 Nov. 28 +28+280 Dec. 6 +46+50 Dec. 17 +39+376

43.0	37.1	37.6	24.4	32.1	26.0	23.9	13.7
45.3	36.7	39.8	25.8	34.3	27.2	26.1	15.2
47.6	40.0	42.0	27.1	36.7	28.8	28.4	16.4
52.0	45.8	46.4	27.3	41.0	32.0	32.9	45.3
54.3		48.7		43.3		35.1	
56.5		50.9		45.6		37.3	
58.8		53.1		47.9		39.6	
1.0		55.3		50.1		41.8	
5.4		59.8		54.5		46.3	
7.9	38.6	62.1	25.8	56.8	27.3	48.6	15.1
10.0		64.4		59.2		50.8	
38.18		56.01		50.15		41.08	
21.0							
621.8							

56.53	56.527	50.92	54.918	45.59	45.591	37.35	37.345
48.61	56.01	48.39	50.50	46.28	41.57	48.13	37.03
8.91	45.86	2.53	45.84	−2.69	41.23	−10.78	46.08
	7.95		2.06		−2.68		−10.75
−8.01		−2.72		+2.43		+10.57	
+.9	56.51	+.13	50.90	+.20	45.57	+.17	37.37
1.65	−	−1.63		−1.52		−1.37	
	−.802		−.271		+.248		+.159
46.76	+.10	46.70	+.12	46.70	+.22	46.72	+.16
	−1.85		−1.63		−1.52		−4.37
	46.74		46.68		46.75		46.71
	.76		.70		.76		.73

46.761

25	2	65.8	
		38.3	
		27.5	
		32.90	
		+.17	
		1.26285	
		1.34055	
		+ 2191	
	27	32.50	
	27	59.81	
	54	53.54	
		− 21.02	
	54	32.5	
	55	36.4	
	+1	3.9	3.6
	54	53.54	
		−21.40	

		45.9	
	2	29.1	
		16.8	
		22.95	
		+25.1	
		1.39967	
		1.48737	
		+ 3072	
	27	22.45	
	27	53.68	
	54	54.68	
		−21.35	
	54	33.3	
	55	36.3	
	+1	3.0	2.7
	54	54.68	
		−21.30	

		61.6	
	2	39.8	
		21.8	
		30.80	
		+15.3	
		1.26245	
		1.35015	
		+ 2240	
	27	30.50	
	27	53.20	
	54	55.15	
		− 20.89	
	54	34.3	
	55	35.9	
	+1	1.6	1.3
	54	55.15	
		−20.90	

A. R. only

	+2.2
	1.34635
	1.43405
	27.7
2	

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ζ Cephei

22 45 08 45 55 57.03

+65 31 (+03) 5.49 5.51

−39 +220

Oct 7 · 22 45 8.75 +65° 31′ 39″

12 61 14 48 8 +1.4

17 .46 15 47 2 1.4 52

22 29 17 46 1.7

27 8.12 18 44 6 1.1

Nov 1 7.93 19 43 4 1.7

6 7.73 20 42 2 1.4 52

11 7.52 21 41 1.4

16 7.31 21 40 +1.4

21 09 22 39 .8 +1.4

26 86 23 38 .5 1.4

Dec 1 64 22 37 .4 +1.1

6 41 23 36 .2 +1.2

+03 +003 +40 +147 +17 +192 +18 −13

1871 Dec. 5 Oct. 8 Oct. 9 Oct. 22. Nov. 2 Nov. 23

45 40.8 45 36.0 45 49.9 45 41.6 44 45.8 44 34.0 45 46.6 45 0.0 44 42.7 44 33.8 44 41.8 44 25.4

42.7 36.9 51.9 54.0 42.8 50.7 37.2 51.1 1.1 52.5 36.5 46.6 28.2

44.9 37.8 58.3 44.4 56.0 40.6 56.1 2.18 57.5 37.6 51.4 31.2

49.0 40.7 0.2 5.7 111.8 5.7 3.7 7.4 191.4 1.0 84.8

51.1 10.8 10.7 6.4

53.1 −2.3 15.7 10.9

55.1 4.5 46 70.2 20.4 45 52.7 25.7 58.4 22.1 45 37.4 15.8

57.3 6.6 21.7 25.6 57.0 35.6 0.2 27.1 21.0

59.4 10.6 22.9 35.5 60.5 40.7 2.8 62.0 30.8

63.6 45 36.9 14.7 40.5 44 27.3 45.6 1.3 42.0 44 36.6 36.1 44 27.3

6.5 26.7 45.5 4.7 41.0

58.4 24.0 35.2 3.8 31.2

53.16 25.7 18.0 18.0

46 2.34 17.2.2 17.3.3 19.0.6

5.72 45 15.68 68 15.655 45 15.65 15.845 45 17.33 17.33 45 11.25 11.164

6.62 8.69 68 15.62 8.66 8.56 13.81 7.88 7.88 7.92 7.63 7.02 11.13

6.96 7.86 4.16 6.96

−6.95 9.98 4.88

−.037 +7 15.62 +22 13.81 −9.53 17.30 −.451 11.13

−3.14 −6.91 −2.76 −7.81 +.37 −1.39

−2.33 −9.53 −1.47

45 5.66 +.01 5.50 +.32 5.56 +.42 5.56 +.40

−3.18 −2.78 −2.33 −1.47

6.51 5.56 5.80 5.60

60 58 62

sin 9.95908

cos 9.61745

12669

9.70414

50 2 15.7 2 57.9 2 43.8 2 58.0 2 13.0 2 58.0 2 8.9

10.4 53.9 23.8 53.7 12.0 46.0 11.1

13.30 20.0 1.0 −7.2

138.4 21.90 6.50 4.45

1.58433 +14.5 1.407 +42.9

1.32847 1.16136 1.61575 .60850 1.63245

+21.30 0.90550 1.36009 1.35264 1.37659

52 1330 +805 +2291 +22.52 +23.80

52 8460 52 21.90 6.50 6.50 52 4.45

52 2995 52 29.95 29.41 29.02 52 28.25

+65° 30 13.75 30 18.40 30 19.33 30 20.10

+24.37 +24.28 +25.05 +26.10

30 38.1 30 42.7 30 44.4 30 46.2

31 39.9 31 43.55 31 45.9 31 48.7

+.36 +1 1.8 2.2 +1 0.8 1.1 +1 1.5 1.9 +1 2.5 2.8

δ = +65° 30 13.75 30 18.40 30 19.33 30 20.10

−20.70 −24.30 −26.70 −29.50

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+6 +3 −15 +7 +0 −17 −13 −4

δ = +65° 31′ 19.2″

Dec 6 11 16 21 26 — 22 45 — 641 .19 596 .74 6.51 — 22 23 22 23

65° 31′

49.2 −.1 49.1 −.2 48.9 −.4 48.5 −.5 48.0

Nov. 25 +22 +214 — Dec. 17 +339 +376 — Dec. 20 +30 +305

44 40.6 45.2 50.3 0.3 5.1 10.1 15.0 20.0 30.0 34.9 40.0 — 44 37.1 40.2 43.6 120.9 40.3 — 44 24.7 29.7 34.6 44.6 49.6 54.4 59.3 4.4 14.3 19.2 24.2 — 44 15.9 19.4 21.5 56.8 18.9 — 44 22.7 27.8 32.7 42.7 47.7 52.2 57.7 2.7 12.6 17.3 22.4 — 44 5.5 8.9 11.6 26.0 8.7

291.5 180 111.5 — 3590 246 549.0 — 3385 270 5785

10.14 6.94 3.23 −3.69 +.39 −1.89 5.45 — 44 10.02 6.88 3.24 +10.12 −3.71 +.47 −1.36 5.53 — 44 5.498 5.98 −11.45 +10.57 −.66 −.38 5.30 — 54.455 54.425 5.87 −13.19 +18.45 +2.43 +.66 −.26 54.42 — 52.59 5.84 5.74 +12.40 +.67 −.22 5.40

5.52

55 — 49 — 42

240 — 50 2 18.7 8.3 12.00 +27.8 1.47421 1.21885 +16.53 52 12.00 52 28.53 — 30 19.82 +25.83 — 30 45.7 31 48.8 — +1 3.1 3.5 — 30 19.82 29.60

74.9 — 2 15.0 56.9 97.45 +35.6 1.55145 1.29559 +19.45 52 97.45 52 97.20 — 30 21.15 +25.47 — 30 46.6 31 49.0 — +1 2.4 2.7 — 30 21.15 29.80

690 — 2 15.6 53.4 84.50 +43.9 1.64246 1.38660 +24.85 52 84.50 52 28.85 — 30 19.50 +26.01 — 30 45.5 31 48.6 — +1 3.1 3.5 — 30 19.50 29.40

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λ Aquarii

22 45 56 45 53.03 +01

— 8 16

+77 −15

1871

Oct. 4 +97 +059

Nov. 28 +28 +280

Dec. 6 +34 +272

Dec. 6 +41

Oct 7 12 17 22 27 Nov 1 6 11 16 21 26

22 45 55.32 28 24 20 55.15 10 04 98 54.82 86 80 74 69

04 − 8° 15' 41".9

+4 +9 +8 +2 +6

41.9 42.1 42.3 42.6 42.9 43.2 43.6 43.9 44.3 44.6 45.0 45.3 45.7

+70 +14 +14 −2

−.016

Sin 9.15770

9.99546

12669

.122115

46 13.5 14.8 16.1 44.4

45 57.5 59.6 61.8 63.9 66.0 308.8

46 14.8

45 45.1 43.2 49.3 53.4 55.5 57.6 59.7 1.8 5.9 8.0 10.3

45 39.1

3938 240 6338

46 61.76 55.34 6.42 −6.39 − 1 −2.37 −.637 −.01 −2.37 52.99 53.01

61.760 54.77 55.35 +6.39 61.74

45 57.99

57.62 54.77 2.85 − 2.72 − 4 53.80 53.06

45 39.5 37.5 39.0 40.4 117.2

57.618 57.60 54.78 +2.82 57.60 −271 −.04 −1.80 53.05 .06

45 40.8 42.7 44.9 49.0 51.1 53.1 55.1 57.3 61.4 63.6 65.8 5-84½ — —

43 32.1 34.3 36.7 41.0 43.3 45.6 47.8 50.1 54.5 56.9 59.2

45 26.0 27.2 28.8

5.316 54.70 1.54 +1.65 — 5 −11.73 53.03

53.164 53.15 54.71 −1.56 53.15 +168 −.05 −1.73 53.04 05

45 39.8 41.9 44.0 48.2 5-0.3 52.3 54.3 56.4 0.5 2.645 4.9 39.52 1.8 595.2

45 39.5 40.5 41.2 42.3 163.8 40.9

52.29 54.69 − 2.40 +2.43 — 4 −11.52 52.93

52.291 52.28 54.40 −2.42 52.25 +2.38 −.07 −1.72 52.97 .99

3 5.7 32.9 42.8 87.85 — 1.6 1.11394 1.23609 − 17.22 38 37.85 38 20.63

35 3 32.8 2 58.0 50.2 54.10 +18.5 1.26717 1.38932 +24.81 37 54.10 38 18.61

3 56.7 24.7 59.0 28.35

3 14.6 10.5 0.5 38.0 +11.4 1.05690 1.17965 +11.0 38 5.8 38 20.0

− 8° 15 32.28 − 1 11.06

15 30.26 − 1 16.64

15 32.55 − 1 16.04

− 8 16 43.3 15 41.8

16 46.9 15 45.2

16 48.6 15 45.7

− 7.2 +1 1.5 0.8

+1 1.7 1.0

+1 2.9 2.1

δ' = −8 15 32.28 −13.40

15 30.26 −10.50

15 32.55 −10.06

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$\delta = -8^\circ\ 15'\ 55.''7$

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8 Aquarii

22 47 50

−16 30

−30

Dec. 5	Oct. 4	Oct. 8	Oct. 9	Nov. 12	Nov. 23
47 35.5 47 30.1	47 44.1 47 36.8	47 44.8 47 37.8 47	44.7 47 36.5	45.5 47 37.7 47	41.8 47 39.6
37.7 31.8	46.3 38.4	46.8 38.8	46.8 38.1	47.7 38.9	43.9 41.1
39.8 33.7	48.3 39.3	49.0 40.0	48.9 40.1	49.8 40.1	46.1 42.3
44.5 95.6	52.7 114.5	53.3 116.6	53.1 114.7	54.1 116.7	50.4 123.2
46.2	54.8	55.4	55.3	56.1	52.6
48.3	57.0	57.5	57.4	58.3	54.7
50.5	59.1 48 19.7	59.7 48 19.3	59.6 48 24.2	0.6	56.8
52.7	61.2 20.8	1.8 21.1	1.7 26.2	2.6	58.9
57.0	65.5 22.1	6.1 22.7	6.0 27.7	6.8	63.2
59.0 47 31.9	67.7 47 38.2	8.3 47 38.9	8.1 47 38.2	9.1 47 38.9	65.4 47 41.1
61.2	19.9	10.4	10.3	11.1	67.5
5324	6266	393.1	391.9	3417	663.3
		240	240	300	
		633.1	631.9	641.7	
48.40 48.400	47 56.97 56.964	47 57.55 57.555	47 57.45 57.445	47 58.34 58.336	47 54.66 54.664

Sum S 9.45334

Corr S 9.98174
12669
10843

64.1	121.1	113.6	120.3	113.9	0.7
402 ~~47.0~~ = ~~447~~	1 36.0 = 41.1	1 53.6 2 46.8	1 53.3 3 56.8	1 59.1	2 1.8
57.0	65.1	0.0 34.2	65.0	60 54.6	−1.1
02.05	60.55	56.80	60.15	56.95	0.35
+16.5	+15.8	+18.7	+19.2	+17.4	+15.6
1.21748	1.27415	1.27884	1.28360	1.28480	1.13353
1.32591	1.38258	1.38027	1.39173	1.39623	1.24176
+21.8	+24.3	+24.00	+24.65	+24.90	+17.46
52 2.05	52 0.55	51 56.80	52 0.15	52 56.95	52 0.35
52 23.23	52 24.68	52 20.84	52 24.80	52 21.85	52 17.81
16° 29′ 34.88″	29 36.33	32.45 ✓ 29 31.45	29 36.45	29 33.50	29 29.46

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6.38
3.41
2.97

Nov-25		Nov-28		Dec. 17		Dec. 20	
47 41.1	47 29.1	47 40.0	47 35.3	47 26.5	47 23.0	47 24.5	47 20.3
43.2	30.8	42.1	36.7	28.7	24.6	26.7	21.1
45.3	32.6	44.3	38.7	30.8	26.0	28.9	22.6
49.5	92.5	45.5	110.7	35.0	78.6	33.1	64.0
51.8		50.7		37.1		35.3	
53.8		52.9		39.3		37.14	
56.0		54.9		41.4		39.5	
58.2		57.1		43.6		41.8	
62.5		61.3		47.9		46.0	
64.5	47 30.8	63.6	47 36.9	50.0	47 24.5	48.1	47 21.3
66.7		65.6		52.1		50.3	
5925		5810		4324		4116	
53.86	52.864	52.82	52.818	39.31	39.309	37.41	37.418

	108.4		3.1		15.2		6.86
50 1	54.7	2	4.9	2	12.0	2	6.1
	53.7		-1.8		3.2		56.5
	54.20		1.55		7.60		61.30
	+23.1		+15.9		+14.8		+16.1
	1.36361		1.20139		1.17026		1.20682
	1.47204		1.30982		1.27869		1.31525
	+2965		+2041		+1900		+2067
	51 54.20		52 1.55		52 7.60		52 61.30
	52 2385		52 2190		52 2860		52 2197
	29 3550		29 3361		29 3825		29 3362

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a Pisc Aust

22 50 33 50 31,106 (403)

31.102

− 30 18

−58

1871

Oct 4 +07 +059

Oct 8. +07 +065

Nov 12 +20 +220

Nov 23 +18 +180

Nov 25 +22 +214

− 018

	Oct 4		Oct 8.		Nov 12		Nov 23		Nov 25	
50	25.9	19.3	26.5	21.6	27.1	23.1	23.6	14.9	22.7	16.6
	26.2	21.0	28.5	23.8	24.6	24.4	26.0	15.9	25.3	15.10
	30.6	23.3	31.1	25.5	32.0	25.6	28.3	30.8	27.5	19.8
	35.3	6.3.6	36.0	10.9	36.7	13.1	32.9		32.4	54.4
	37.6		38.3		39.2		35.2		34.7	
	40.2		40.8		41.4		37.9		37.2	
	42.451	9.3	43.0	4.7	43.7		40.2		37.4	
	44.8	10.0	45.4	5.8	46.1		42.5		41.8	
	48.8		50.3		51.2		47.3		46.6	
	32.0 50	21.2	52.7 50	23.6	53.5 50	24.4	49.8 50	15.4	49.0	18.1
	534		55.0		55.9		52.1		51.4	
	491.2		447.9		456.4		415.8		408.0	

sin 9.70288n

sin 9.93621
12669
.06290

50	40.11	40.109	40.72	40.718	41.49	41.491	37.80	37.800	37.09	37.091
	33.78	40.09	33.70	40.70	33.28	41.48	33.13	27.78	33.10	37.07
	6.37	33.76	7.02	33.73	8.19	33.32	4.67	33.16	3.99	33.13
		6.33		6.97		8.15		4.62		8.94
	−6.39		− 6.66		−.801		− 451		− 371	
	− 4	40.09	− 4	40.70	− 12	41.47	− .10	37.78	− 13	37.07
	− 2.67		− 2.64		− 2.23		− 2.07		− 2.04	
		− 6.37		− 6.92		− 8.02		− 4.44		− 3.71
50	31.01	− .03	31.08	− .04	31.13	− .13	31.12	− .10	31.21	− .12
		− 2.67		− 2.64		− 2.23		− 2.07		− 2.04
		31.02		31.10		31.09		31.12		31.20
		04		12		10		12		21

	686		623		601		41.1		63.8	
35 3	30.8 4	27.0	3 29.0 4	16.4	3 33.2		3 22.0		3 33.6	
	37.8	33.3	34.3	22.9	26.9		19.1		30.2	
	34.30		31.65		30.05		20.55		31.91	
	+ 18.9		+ 17.1		+ 17.1		+ 22.4		+ 19.0	
	1.27646		1.23299		1.23299		1.35024		1.27875	
	1.29436	1.33936	1.29589		1.29589		1.41314		1.34165	
	+ 19.23	+ 2.185		+ 19.76		+ 19.76		+ 2.589		+ 2.196
38	34.30	34.30	38 31.65		38 30.05		38 20.55		38 31.90	
38	56.53	56.15	38 51.41		38 49.81		38 46.44		38 53.87	
− 30°	16	7.70	16	3.06	16	1.46	15	58.09	16	5.52

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+287280 +46 +450 +80 +305

Nov. 28 Dec. 6 Dec. 20

50	21.8	50	17.7	50	16.5	50	6.9	50	6.4	49	58.2
	24.2		19.3		18.8		8.6		8.7	23	58.8
	26.4		21.1		21.1		9.8		11.1	24	59.7
	31.2		58.1		25.9		2.5.3		15.8	4.7	60.8
	33.6				28.3				18.3	2.5	61.8
	36.1				30.7				20.6	23	299.3
	38.4				33.0				23.0	24	
	40.9				35.4				25.4	2.4	
	45.6				40.2				30.2	4.8	
	48.0	50	19.4	50	42.6	50	8.4		32.8	19	59.8 ×
	50.3				45.0				34.9	21	59.9
	3965				3375				2269		

36.04	36.045	30.68	30.682	20.63	20.627
33.06	36.03	32.94	30.67	32.76	20.61
2.98	33.09	−2.26	32.97	−12.18	32.79
	2.94		2.30		12.18
−2.72	+	2.43		+12.43	31.10
+.16	36.03	−.27	30.67	−.17	20.61
−2.00		−1.88		−1.70	31.09
	−2.71		+2.48		+12.40
31.16	−.16	30.58	+.26	31.19	−.18
	−2.00		−1.88		−1.70
	31.16		31.01		31.13
	15		03		14

54	0	44	0	49	3
35 3	31.3	3	28.0	3	27.8
	22.7		16.0		19.5
	7.00		23.00		24.65
	+16		+22.3		+20.8
	1.22010		1.34830		1.31806
	1.28300		1.41120		1.38096
	+1919		+2578		+2404
	38 2.00		38 22.00		38 24.65
	38 4.19		38 47.98		38 48.69
	15 5864 ✓		15 5943 ✓		16 0.34

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1871phae.proj.1451.

B.A.C 8002

22 52 36
− 30 09
−58

1871 Dec. 5 | Oct. 4 | Nov. 23 | Nov. 25 | Nov. 28 | Dec. 6

52 18.5 52 11.1 52 27.0 52 16.1 52 24.6 52 20.0 52 23.9 52 15.8 52 22.8 52 15.5 52 16.5 52 6.8 52
20.9 12.7 29.3 16.8 27.0 21.6 26.2 18.1 25.1 17.0 18.6 8.7
23.3 14.2 31.7 19.9 29.4 23.6 28.6 20.0 27.5 19.3 21.1 9.8
27.9 38.0 36.5 20.8 34.0 65.2 33.4 53.9 32.1 51.8 25.9
30.3 38.9 73.1 36.5 35.9 34.7 28.3
32.8 41.2 39.0 38.2 37.1 30.7
35.0 43.8 53 3.0 41.2 40.6 39.1 33.0
37.5 46.1 4.5 43.6 42.9 42.0 35.4
42.2 50.8 6.4 48.4 47.6 46.7 40.2
44.8 52 12.7 53.2 52 18.3 50.8 52 21.7 50.0 52 17.9 49.0 52 17.3 42.6
47.0 55.5 18.3 53.1 52.5 51.5 45.0
36 0 2 4338 53 47 427.6 4198

32.75 32.745 52 39.43 39.61 41.25 38.87 38.873 38.16 38.164 37.10

sin 9.70093

cos 9.99687
12669
.06356

25 4 8 6.7 | 4 25 53 30 | 4 25 40.2 | 4 48 3 | 4 33.7
22.9 | 27.20 12.6 | 27.3 | 25.3 | 21.1
13.5 | 28.1 19.8 | 17.9 | 23.0 | 12.6
18.35 | 24.65 | 20.10 | 24.15 | 16.85
+20.1 | +30 | +17.2 | +20.2 | +19.8
1.30103 | 1.38165 .36170 | 1.23332 | 1.30749 | 1.29670
1.36459 | 139784 142526 | 1.29908 | 1.37105 | 1.36026
+2315 | +242 +2663 | + 1991 | +2350 | +2292
29 18.35 | 29 24.65 24.65 | 29 20.10 | 29 24.15 | 29 16.85
54 41.50 | 29 4[illegible] 51.28 | 29 40.01 | 29 48.65 | 29 39.77
−30 6 53.15 | 7 [illegible] 076 −23.4 | 6 51.66 ✓ | 6 59.30 | 6 51.42

1.36922
1.43298
27.08
30 16.20
49.11

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Dec. 6

52 17.552 11.1
19.9 12.6
22.2 14.2
27.0
29.3
31.7
34.1
36.7
41.3
43.7 52 12.6
46.1
3495

3177 31.773

38.2
254250
13.2?
1210
+17.2
1.28330
1.34686
+2223
29 1810
30 41.33

6 5.298

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-0.20

0 Androm

22 56 02 56 59.3/(+.05) 59.36

+ 41 38

Oct 7	22 56	1.86	1.86		41° 37′	78″.5	1.1
12		.77	81	5		79.6	.9
17		1.68	1.75	6		80.5	.8
22		60	68	7		81.3	.8
27		1.61	1.61	7		82.1	.7
Nov 1		.52	52	9		82.8	.6
6		1.48	1.43	9		83.4	.5
11		3.9	34	9		83.9	.3
16		1.23	1.23	9		84.2	.2
21		16	16	9		84.4	.2
26		06	06	10		84.6	.0
Dec 1			96	10		84.6	
6		86	86	10		84.5	1

+36 -15 +21 -18 -8 -7 -14

1871 Dec. 5 (+01 +89) · Oct. 4 (+24 +373) · Oct. 8 (+07 +059) · Oct. 29 (+07 +065) · Nov. 13 (+11 +119) · Nov. 23 (+21 +220) (+18 +180)

Dec. 5
55 | 55 48.3
53.4
56.1
59.1
61.7
64.5
29 48
55 48.3
0
55 58.96 | 58.96
0.88 | 58.84
1.92 | 83
+1.66 | +.99
+30 | 2.10
-1.51 | 58.94
59.44 | +1.68 +.38 -1.51
59.44
46

Oct. 4
55 54.8 | 55 38.8
54.5 27 | 40.7
57.2 27 | 42.7
2.8 56 | 122.2
5.4 26
-8.3 29
11.1 56 | 31.3
13.7 26 | 33.2
19.2 55 | 34.5
22.0 28 | 40.7
24.8
270.8
18.8
90.8
56 6.25 | 8.255
1.89 | 8.24
6.35 | 1.84
| 6.40
-6.39 | 8.24
+6 | -6.37
-2.52 | +.05
59.40 | -2.52
59.40
42

Oct. 8
55 52.3 | 56 38.7
55.1 28 | 40.7
58.0 29 | 42.9
33.3 53 | 122.3
6.0 27
8.7
11.4 57 | 32.7
14.2 | 33.8
19.7 55 | 35.7
22.5 28 | 40.8
25.0 25
270.2
18
96.2
57 8.78 | 8.745
1.84 | 8.72
6.91 | 1.79
| 6.83
-6.96 | 8.72
+6 | -6.92
-2.47 | +.05
59.38 | -2.47
59.39
40

Oct. 29
55 54.4 | 55 42.4
57.0 | 43.7
59.8 | 45.4
5.4 | 131.5
8.1
10.8
13.6
16.8
21.8
24.7 55 | 43.8
27.4
299.8
180
119.8
56 10.89 | 10.891
1.58 | 10.89
9.31 | 1.63
| 9.36
-9.41 | 10.89
+.10 | -9.42
-2.21 | +.11
59.37 | -2.21
59.37
39

Nov. 13
56 52.0 | 55 42.8
54.6 | 46.4
57.5 | 59.2
2.9 54
5.8 29
8.5 28
11.3 28
14.0 27
19.5 55
22.25 25 | 44.6
24.9 27
273.2
180
93.2
8.47 | 8.473
1.30 | 8.46
7.17 | 1.25
| 7.21
-7.40 | 8.46
+.18 | -7.41
-1.93 | +.20
59.32 | -1.93
59.32
34

Nov. 23
55 49.0
51.5 | 55 36.9
54.4 | 39.3
59.9 | 41.6
2.6 | 117.8
5.3
8.1
10.9
16.4
19.1 55 | 39.3
21.8
299.0
240
59.0
56 5.36 | 5.364
1.12 | 5.35
4.24 | 1.07
| 4.28
-4.51 | 5.35
+.16 | -4.49
-1.75 | +.16
59.26 | -1.75
59.27
28

sin 9.82240

cos 9.87356
12669
.00025

Dec. 5: 29.4; 45 0 22.6; 6.8; 14.70; +16.7; 1.02938; 1.02963; +1070; 45 1470; 45 2540; +41° 37′ 22″.95 − .87; 37 22.1, 38 24.5; −02 + 1 2.4 2.4; δ′ = 41 37 22.95 − 25.40

Oct. 4: 7.6; 0 2.4; 5.2; 3.80; +27.5; 1.43933; 1.43958; +27.52; 45 3.80; 45 31.32; 37 17.03 − .96; 37 16.1, 38 17.9; +1 1.8 1.8; 37 17.03 − 14.30

Oct. 8: 1.8; 0 55.2 0 0.9; 57.8 0.9; 0.90; +27.9; 1.44560; 1.44585; +27.92; 45 0.90; 45 28.82; 37 19.53 − .99; 37 18.5, 38 18.78; +1 0.3 0.3; 37 19.53 − 20.20

Oct. 29: −1.1; 0 55.0 0 1.0; 55.5 −2.1; −0.55; +27.1; 1.43296; 1.43321; +27.12; 44 59.45; 45 26.57; 37 21.78 − 0 1.84; 37 19.9, 38 22.4; +1 2.5 2.5; 37 21.78 − 23.80

Nov. 13: 2.8; 0 5.8; −3.0; 1.40; +83.9 +23.9; 1.92376 1.37840; 1.92401 1.37865; + +23.91; 45 1.40; 45 25.31; 37 23.04 − .97; 37 22.1, 38 24.0; +1 1.9 (1.8); 37 23.04 − 25.40

Nov. 23: −0.9; 0 3.9; −4.8; −0.45; +26.1; 1.41664; 1.41689; +26.12; 44 59.55; 45 25.67; 37 22.68 − 1.30; 37 21.4, 38 24.5; +1 3.1 3.1; 37 22.68 − 25.90

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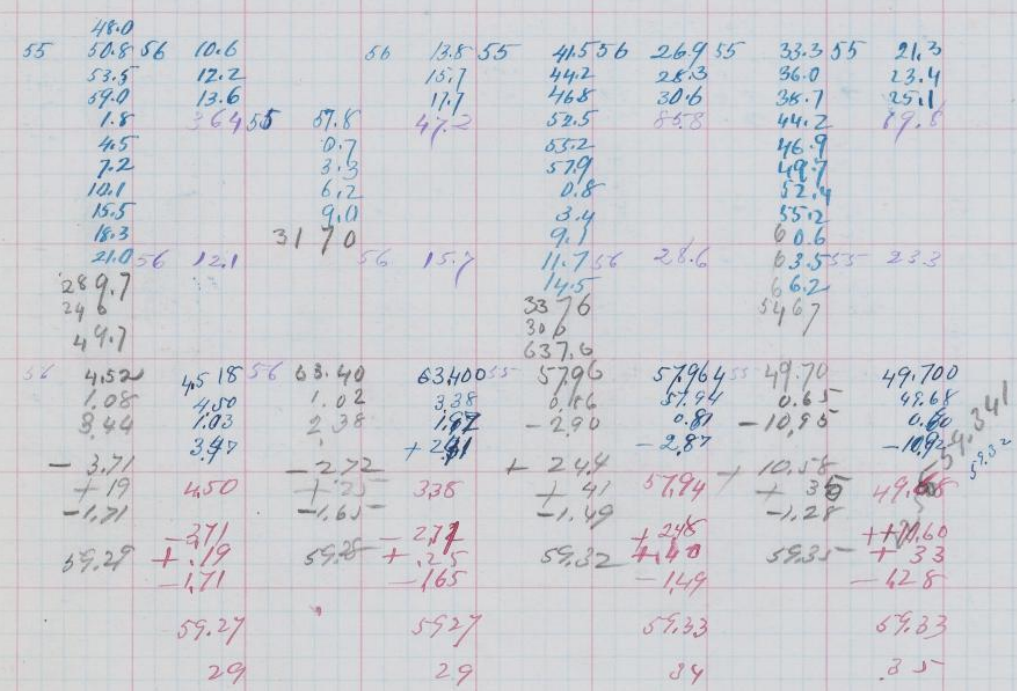
1871phae.proj.1451.

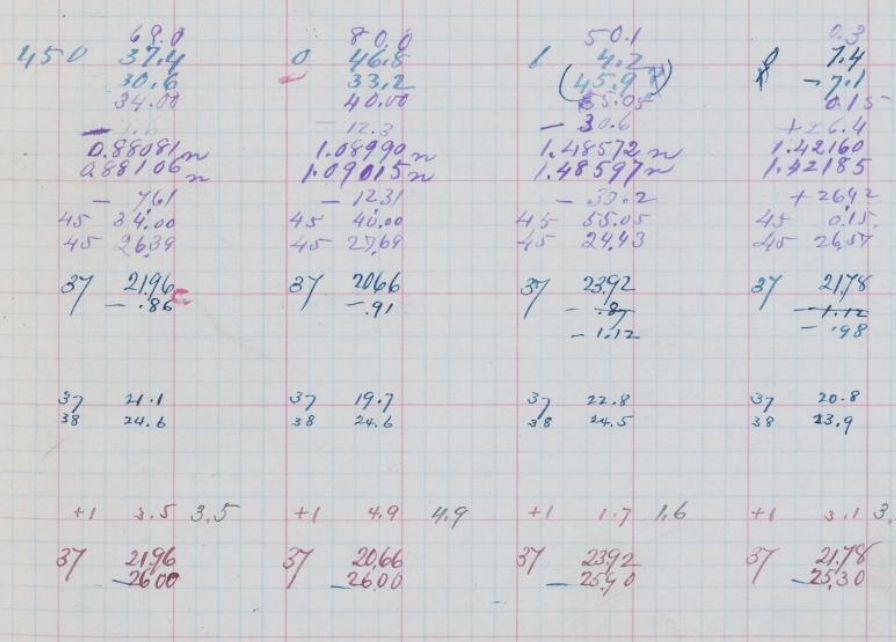
$\delta = +41^\circ\ 3'\ 58.6''$

Dec 6 22 56 086
11 176 10
16 67
21 58
26 48 10

84.5 -.2
84.3 -.3
84.0 -.4
83.6 -.5
83.1

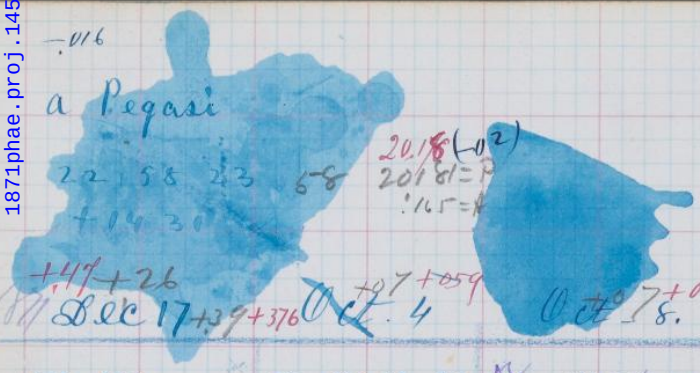
Nov 25 Nov 28 Dec. 6 Dec. 17





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1871phae.proj.1451.



a Pegasi

22 58 23 68

+14 30

+47 +26

Dec 17 +39 +376 Oct. 4

20.18(02)

20181=?

!165=?

+87 +059

Oct 8. +065

+017 1079

Oct. 15

Oct. 29 +11 +119 Nov. 12

+14° 30' 59".9

60.3 .4

60.6 .3

60.9 .3 12

61.1 .2

61.2 .1 -10

61.3 0 +2

61.3 0

61.3 -1 -10

61.2 -2

61.0 -2 8

60.8 -2

60.5 -3 -8

15

22 58 22.51

48 03

44 4

40 4

22.35 5

30 5

24 6

18 6

22.12 6

6 6

00 6

94

+14° 30' 59".9

60.3 .4

60.6 .3

60.9 .3 12

61.1 .2

61.2 .1 -10

61.3 0 +2

61.3 0

61.3 -1 -10

61.2 -2

61.0 -2 8

60.8 -2

60.5 -3 -8

15

57 58.3

0.3

2.5

6.7

8.9

11.1

13.1

15.3

19.4

21.7

23.8

18.11

60

132.1

58 16.2

18.3

20.4

24.6

26.8

29.0

31.0

33.1

35.3

39.4

41.6

317.6

58 9.3

10.8

12.1

33.2

48.3

48.6

50.6

58 10.7

58 16.9

18.9

21.0

25.1

26.3

29.4

31.4

33.6

38.0

42.1

322.7

58 7.0

8.6

10.0

25.6

44.3

46.0

47.0

58 8.5

58 25.7

27.8

29.9

32.2

34.2

149.8

58 39.8

41.0

42.2

123.0

58 41.0

58 19.0

21.0

23.2

27.4

29.6

31.7

33.8

36.0

40.2

42.3

44.5

348.7

58 12.0

13.4

15.0

40.4

13.4

58 17.4

19.5

21.6

25.9

28.0

30.1

32.3

34.5

38.6

40.8

42.9

331.6

58 19.4

19.5

21.6

53.9

55.1

56.1

165.1

58 56.0

11.01

21.75

10.74

× 10.58

+10

−1.57

20.12

11.009

10.99

21.23

− 10.74

10.99

+1060

+.10

−157

20.12

14

58 28.57

22.58

6.35

− 6.39

+ 2

−2.35

20.15

58 28.873

28.86

22.51

+ 6.85

28.86

− 6.37

+.02

−2.35

20.16

18

58 29.34

22.50

6.84

−6.96

+ 2

− 2.32

20.08

58 29.336

29.32

22.48

6.84

29.32

−.692

+.102

−2.32

20.10

11

29.996

22.46

7.50

−7.49

+2.27

20.21

29.960

29.54

22.43

7.57

29.94

−7.51

+.02

−20.27

20.18

19

3170

22.33

9.37

−9.41

+ 3

− 2.15

21.68

31.700

31.64

22.31

9.37

−9.42

+.103

−2.15

20.14

16

30.15

22.17

7.98

−10.1

+ 1.99

20.20

30.145

30.13

22.15

7.98

−8.99

+.06

−8.91

20.18

20

Sun 9.39907

Moon 9.98591

12669

.11260

50 1 11.32

53.2 2

0.10

56.60

+18.2

1.26007

1.37267

+23.57

51 56.60

52 20.19

+14° 30 28.16

− 31.11

29 57.0

30 59.6

44.7 1

50.2

48.2 2

52.0

50.10

+20.8

1.31806

1.43066

+ 26.96

51 50.10

52 17.06

30 31.29

− 31.96

29 59.3

30 60.0

36.2 2

40.1

32.7

40.6

36.6

−11.0

1.04139m

1.15399m

− 14.25

52 36.65

52 22.40

30 25.95

− 31.82

29 54.1

30 60.5

1 104.5

51.1

52.8

52.25

+18.3

1.26245

1.37505

+ 23.72

51 52.25

52 18.77

30 32.38

− 32.10

30 00.3

30 61.1

2 96.5

52.0

44.5

48.25

− 24.9

1.39619m

1.50879m

− 32.27

52 48.25

52 15.98

30 32.37

− 33.16

29 59.2

30 61.3

−.44 +1 2.67 2.3

+1 0.7 0.2

+1 6.4 6.0

+1 00.8 0.4

+1 2.1 1.6

δ = +14 30 28.16

− 17.40

30 31.29

− 17.70

30 25.95

− 18.20

30 32.38

− 18.80

30 32.37

− 19.06

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$\delta = +14^\circ 30' 42.3''$

Nov. 13. +21 +220 Nov. 23. +15 +180 Nov. 25 +22 +214 Nov. 28 +28 +280 Dec. 5 +34 +373 Dec 6 +46 +450

16.8	56	10.5	58	13.7	58	6.7	58	12.9	58	4.3	58	11.9	58	2.1	58	W.7	58	2.3	58	6.6	57	56.2	
19.0		11.8		16.0		8.0		15.0		5.7		14.0		3.5		9.5		3.6		8.7		58.2	
21.0		13.5		18.1		9.3		17.2		7.6		16.1		5.2		11.7		7.6		10.8		59.6	
25.3		35.8		22.3		24.0		21.4		17.6		20.3		19.8		15.8		13.5		15.1		1.40	
27.4				24.9				23.6				22.4				18.0				17.2			
29.6				26.5				25.7				24.5				20.2				19.4			
31.7				28.7				27.8				26.7				22.3				21.6			
33.7				30.7				29.9				28.7				24.3				23.5			
38.0				34.9				34.1				33.1				28.5				27.8			
40.1	58	11.9		37.1	58	8.0		36.3	58	5.9		35.3	58	3.6		30.7	58	4.5		29.9	57	58.0	
42.1				39.1				38.4				37.3				32.8				31.9			
32 47				29 1.5				28 2.3				27 0.3				22 1.3				21 2.5			

29.52		29.518		26.50		26.500		25.66		25.664		24.57		24.573		20.21		20.12		19.32		19.318	
22.16		29.50		22.03		26.48		22.01		25.65		21.98		24.56		21.89		20.19		21.88		19.30	
7.36		22.14		4.47		22.01		3.65		21.58		2.60		21.85		1.68		21.89		−2.56		21.86	
		7.36				4.47				3.66				+ 2.61				−1.68				−2.56	
−0.89				− 4.57				− 3.70				− 2.72				+ 1.66				+ 2.44			
+ 1.58		29.50		+ 1.07		26.48		+ 6		25.65		+ 7		24.56		+ 9		20.17		+ 12		17.30	
		− 7.41		− 1.21		− 4.49		− 1.83		− 3.71		− 1.79		− 2.78		− 1.71		+ 1.68		− 1.70		+ 2.48	
20.20		+ .06		20.19		+ .05		20.19		+ .06		20.15		+ .07		20.25		+ .10		20.16		− 1.70	
		− 1.98				− 1.85				− 1.83				− 1.79				− 1.71				20.20	
		20.17				20.19				20.17				20.18				20.26					
		18				20				19				15				18				22	

108.0		101.7		104.7		103.9		109.5		99.5													
1 57.2		1 53.0		1 54.4		1 56.8		1 59.8		1 55.6													
51.3		48.7		50.3		47.0		49.7		43.9													
59.25		50.85		52.35		51.50		54.15		49.75													
+ 17.6		+ 18.5		+ 19.5		+ 21.0		+ 15.7		− 58.7													
1.24551		1.26717		1.29666		1.32221		1.19589		1.58771													
1.35811		1.37977		1.40926		1.43481		1.30849		1.71031													
+ 22.81		+ 23.98		+ 25.66		+ 27.21		+ 20.35		− 54.33													
5-1 54.25		5-1 50.85		5-1 52.35		5-1 54.50		5-1 54.75		5-													
5-2 17.06		5-2 14.88		5-2 18.01		5-2 18.71		5-2 15.10															
30 31.29		30 33.52		30 30.34		30 29.64		30 33.25															
− 32.76		− 33.06		− 32.47		− 33.53		− 22.94															
29 58.5		30 00.5		29 57.9		29 56.1		30 00.3															
30 61.3		30 61.1		30 61.0		30 60.9		30 60.5															
+1 2.8	2.4	+1 00.6	0.1	+1 3.1	2.7	+1 4.8	4.3	+1 0.2	+0 57.8														
30 31.29		30 33.52		30 30.34		30 29.64		30 33.25															
−19.00		−18.80		−18.70		−18.60		−18.20															

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1871phae.proj.1491.

55 Pegasi

23 0 36

+ 8 43

+.15

1871 Dec. 5 | Oct. 15 | Nov 13 | Nov. 23. | Nov. 25 | Nov. 28

Dec. 5		Oct. 15		Nov 13		Nov. 23.		Nov. 25		Nov. 28	
18.1	8.8	27.7	16.3	27.4	14.5	24.3	18.4	[illegible]	[illegible]	22.5	14.3
20.1	10.5	29.7	18.6	29.4	16.0	26.4	19.7	[illegible]	[illegible]	24.4	15.9
22.2	12.0	31.8	19.8	31.6	17.8	28.5	21.1	23.5	[illegible]	26.6	15.0
26.3	21.3	38.0	54.7	36.7	48.3	32.5	57.2	25.5	16.8	30.8	48.2
28.3		40.1		37.8		34.6		27.6	18.3	32.9	
30.4		42.2		39.8		36.7		31.8	19.6	34.8	
32.5		44.2		41.9		38.7		33.9	54.7	36.9	
34.6		46.3		44.0		40.9		34.0		38.0	
38.7		50.5		48.1		45.0		38.0		43.2	
40.8	10.4	52.5	18.2	50.2	16.1	47.1	19.7	40.1	18.2	45.2	16.1
43.0		44.1		52.3		49.1		44.3		47.3	
3350				4362		404.0		46.4		3824	
								48.4			
								3935			
30.45	30.455	40.10	40.100	39.84	39.836	36.72	36.727	35.77	35.773	38.27	34.773
										3	34.76

Sin 9.11055

cos 9.99495
12669
.12164

35	4	76.7		382.6		386.1		380.4		385.9		380.9			
		43.7	4	35.0	4	35.9	4	42.6	4	45.9	4	45.0			
		33.0		44.6		30.2		37.8		41.6		35.9			
		3835		41.30		33.05		40.20		43.75		40.45			
		+20.1		+21.9		+22.7		+17.0		+17.6		+18.5			
		1.30319		1.340 44		1.37474		1.23044		1.24551		1.29225	.2718 0		
		1.42483		1.462 08		1.49638		1.35208		1.36715		1.43389	1.39344		
		+2660		+2898		+31.36		+2249		+2329		+2373	+2454		
	39	38.35	39	41.30	39	33.05	39	40.20	39	43.75	39	40.45	4045		
	40	4.95	40	10.28	40	04.41	40	2.69	40	7.04	40	5.28	5.19		
18°	42	43.40	42	3807	42	43.94	42	4566	42	41.31	42	43.16			

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Dec. 6 Dec. 17 Dec. 20

17.10	22.30	9.0 59	36.1 0	7.0 0	2.0
19.2	23.6	11.0	57.4	9.0	3.2
21.2	25.0	13.1	58.7	11.2	4.7
25.4	70.9	17.2	172.2	15.2	9.9
27.6		19.2		17.4	
29.6		21.3		19.4	
31.7		23.4		21.5	
33.8		25.6		23.6	
37.8		29.7		27.7	
39.9 0	23.6	31.7 59	57.4	29.70	3.3
42.0		33.8		31.9	
3253		2350		2136	

29.57 29.573 21.36 21.364 19.42 19.418

38	357.0	40 9.07
40 05.0	42.1	0 51.7
−8.18	309	354 39.0
−1.90	80.50	45.85
+6.0	+ 24.0	+16.1
0.77815	1.38021	1.20682
0.89979	1.50185	1.32846
+ 794	+ 21.76	+ 2131
39 58.10	21 36.50	39 45.35
40 6.04	40 8.26	40 6.66
42 4231	42 4009	42 4169

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C_2 Aquarii π Cephei 23 03

The S of this star is — but it was observed as ft?
Examine this star carefully.
Is it C_2 Aquarii

23 02 36
−21 52
+40

1871

Wrong #
Oct 3 | Oct. 29 | Nov. 13 | Nov. 23 | Nov. 25

2	26.5	2	15.3	2	32.5	2	26.0	2	30.6	2
	28.5		19.7		34.7		27.9		32.7	
	30.6		21.0		36.9		29.6		34.8	
	34.7		58.0		41.4		83.5		39.1	
	36.8				43.7				41.5	
	39.0				45.8				43.8	
	41.1				48.0				46.0	
	4 31?				50.3				48.1	
	47.3				54.6				52.6	
	49.3	2	19.4		57.0	2	27.8	2	54.9	2
	51.4				59.2				57.1	
	5				504.1				481.2	

2	22.8	2	27.4	2	17.6	2	26.6	2	19.5	
	24.4		29.6		19.2		28.8		21.2	
	26.1		31.8		21.3		31.0		23.2	
	79.3		36.9		58.1		35.4		63.9	
			38.5				37.6			
			40.6				39.9			
			43.0				42.1			
			45.1				44.2			
			48.4				48.6			
2	24.4	2	51.7	2	19.4	2	50.9	2	21.3	
			53.9				53.1			
			447.3				438.2			

42.83
3.894

2	45.83		45.827		43.75		43.745		40.67	
	40.664		39.84		39.836					

sin 9.57107

cos 9.96757
12669
.09426

35	4	33.3	10	1067.1		1063.3		1049		1094
		38.6	3	32.1	3	32.1	8	26.3	3	29.7
		44.1	+	25.0		31.2		25.6		29.5
		41.65		33.55		31.65		25.95		29.70
				+18.0		+19.3		+21.3		+18.5
40.7		13.3		1.25527		1.28555		1.32837		1.26717
1.60960		23560		1.34953		1.37981		1.42263		1.36148
1.70386		1.37886		+2236		+2398		+2646		+2299
−5057		+2398	13	33.55	13	31.65	13	25.95	13	29.70
41.65	39	41.65	13	5091	13	5563	13	5291	13	5268
	40	5.63	51	7.56	16	7.28	16	4.06	16	4.34

−21

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Nov. 28 Dec. 6. Dec. 17 Dec. 20

2	28.6	2	19.1	2	20.3	2	13.8	2	11.8	2	12.6	2	10.1	2	7.7
	27.6		20.7		22.5		16.1		14.1		13.2		12.3		8.8
	29.9		22.0		24.7		17.7		16.5		[illegible]		14.5		10.6
	34.3		61.8		29.1		47.6		20.9		25.8		17.0		27.1
	36.6				31.3				23.2				21.2		
	38.8				33.6				25.4				23.4		
	41.1				35.8				27.6				25.7		
	43.2				38.1				29.8				27.7		
	47.6				42.5				34.2				32.3		
	49.7	2	20.6		44.8	2	15.9		36.4	2	12.9		34.5	2	9.0
	62.1				47.0				38.7				36.7		
	4265				3697				2786				2574		
	38.77		38.773		33.61		33.604		25.83				23.40		23.400

	10.88				10.97				10.94				10.65		
3	55.3			3	37.6			3	49.7			3	42.5		
	30.5				30.6				42.7				34.0		
	32.90				34.85				46.20				38.28		
	+18.2				+17.7				+12.4				+14.4		
	1.26007				1.24797				1.30207.09340				1.15836		
	1.35433				1.34223				+.22456 LL.8766				1.25262		
	+ 2261				+ 2198				+ 1677		+1541		+ 1789		
13	2.90			13	34.85			13	46		4620	13	38.25		
13	55.51			13	36.83			13	[illegible]		3961.61	13	36.14		
16	7.16			16	8.48			16	13.26			16	7.79		

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59 Pegasi

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+14

1871

Oct 3	Oct 29	Nov 13	Nov 23	Nov 25
5 9.6	5 1.8	5 12.6	5 5.2	5 10.5	5 5.7	5 7.4	4 58.5	6.6	4 56.1
3.6	5	14.7	6.6	12.6	7.1	9.5	59.8	8.7	57.6
13.3	5.0	16.9	8.1	14.6	8.6	11.6	1.7	10.8	59.0
17.7	10.4	20.9	19.9	18.8	21.4	15.7	2.9	14.8	172.7
19.9		23.0		20.8		17.7	242.9	16.9	
22.0		25.0		22.8		19.9		19.0	
24.0		27.1		25.0		21.9		21.1	
26.1		29.2		27.0		24.0		23.1	
30.2		33.4		31.1		28.1		27.3	
32.3 5	3.5	35.5 5	6.6	33.3 5	7.1	30.1 5	60.7	29.3 4	57.6
34.5		37.6		35.3		32.2		31.4	
		2759		2518		2181		2090	
21.91		5 25.08	25.082	22.80		22.891 5	19.83	19.827	19.00	19.000

Sin √ 9.14445

cos √ 9.99573

12669

.12242

20.1	35.5		27.8		84.5		28.5		23.8					
	14.3		13.1	1	20.3	1	15.3	1	13.7	1				
	21.2		14.1		14.2		10.2		10.1					
	17.75		13.90		17.25		12.75		11.90					
	18.5		+18.5		+15.8		+7.1		+21.4					
	1.26948	1.26480	1.26717		1.19865		1.89817	1.28100	1.33041					
	1.38972	1.38722	1.38959		1.32107		2.02089	1.40392	1.45283					
	+466	+24.39												
			+24.52		+20.85		+10.49	+25.32	+28.9					
21	17.75	17.75	21 13.90	21	17.25	21	12.75	21 12.75	21 11.90					
21	42.47	42.14	21 38.92	21	38.20	21	28.24	21 38.07	21 40.27					
							10.28							
+8°	1	6.21	1	9.93	1	10.15	1	10.38	1	8.08				

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Dec. 17 Dec. 20

4	52.1	4 43.0	4 50.1	4 41.0
	54.1	44.1	52.1	42.6
	56.2	45.7	54.2	43.8
	05 23.4	132.8	56.5	127.4
	4.5		0.6	
	6.5		2.5	
	8.6		4.7	
	12.8		6.8	
	14.9		10.9	
	16.8	4 443	13.0	4 42.5
	22 9	3	15.0	
	18 10		2684	
	49.3		240	
			28.4	
	4.48	4.482	2.58	2.581

	3 07		2 [illegible]
1	20.6	1	20.2
	9.6		7.0
	15.10		13.60
	+ 202		+ 20.1
	1.30535		1.30313
	1.42777		1.42561
	+ 2678		+ 2661
21	15.10	21	13.60
21	4.88	21	4.025
1	6.47	1	8.10

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1871phae.proj.1451.

9 Aquarii

23 7 41
−6 45
−.12

1871 | Oct 3 | Oct 9 | Oct 29 | Nov 13 | Nov 23

	Oct 3	Oct 9	Oct 29	Nov 13	Nov 23
	7 22.8	7 35.4	7 24.0	7 37.8	7 30.6
	24.1	37.5	25.3	39.9	31.9
	25.1	39.5	26.9	41.9	33.5
7	42.9	43.5	76.2	46.1	96.0
	44.9	45.6		48.0	
	46.9	47.7		50.2	
	49.1	48.8	8 9.5	52.2	
	51.2	51.9	10.6	54.3	
	23 5 0	56.1	11.7	58.5	
	7 24.0	58.2	7 26.4	60.6	7 32.0
		60.3		62.6	
		525.5		5521	

	Nov 13	Nov 23
	35.7	7 28.7
	37.7	28.9
	39.9	28.6
	43.9	81.2
	46.1	
	48.1	
	50.2	
	52.3	
	56.4	
	58.6	7 27.1
	60.5	
	5294	

	Oct 3	Oct 9	Oct 29	Nov 13	Nov 23
Sun ☉ 9.07018 m	7 47.00	47.000	7 47.77	47.7737	50.19

	Oct 3	Oct 9	Oct 29	Nov 13	Nov 23
					50.191
					46.13
					48.127
					44.96
					44.964

Earth ♁ 9.99698 m
12669
.12367 m

	Oct 3	Oct 9	Oct 29	Nov 13	Nov 23
	7.38		82.0	64.8	81.8
5	1 32.1	1 34.2	2 33.2 1 40.1	1 35.9	1 42.0
	41.7	46.3	40.9 41.7	35.9	39.8
	36.90	37.75	41.00	37.40	40.90
	+25.0	+22.4	+18.2	+21.0	+17.1
	1.36172	1.35024	1.26007	1.32221	1.23299
	1.48539 m	1.47391 m	1.38374 m	1.44588 m	1.35666 m
	+ 30.54	+25.98	+24.19	+ 27.92	+ 22.72
	6 36.90	6 37.75	6 41.00	6 37.40	6 40.80 40.90
	7.48	7.53	579	9 5.32	3.62
			16.84		
−6°	44 19.13	44 19.18	44 16.74	44 16.97	44 15.27

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Nov. 25		Dec. 6		Dec. 17		Dec. 20	
31.8	23.6	25.3	18.7	17.1	11.5	15.3	7.1
33.8	25.1	26.5	20.0	19.3	12.8	17.4	8.3
35.5	26.7	29.6	21.1	21.4	14.4	19.4	9.5
39.9	75.4	33.7	39.8	29.5	38.7	23.7	24.9
42.1		35.5		27.6		25.6	
44.2		37.9		24.6		27.7	
46.1		39.9		36.7		29.5	
48.3		42.0		33.18		32.0	
52.4		46.2		38.0		35.9	
54.4	25.1	48.1	19.9	40.0	12.9	38.0	8.3
56.5		50.2		42.1		40.2	
4853		4152		3261		3050	
44.12	44.118	37.75	37.745	29.65	29.645	27.72	27.727

86.5	856	970	806
5 1 43.9	1 48.6	1 53.5	1 45.6
42.6	37.0	43.5	35.0
43.28	42.80	48.50	39.80
+19.0	+17.8	+16.7	+19.4
1.27875	1.25042	1.22271	1.28780
1.40242 m	1.37409 m	1.34638 m	1.41147 m
+ 25.26	+ 23.66	+ 2220	+ 2578
6 43.25	6 42.80	6 48.50	6 40.30
6 15.37	6 6.46	6 10.70	6 6.09
44 20.16	44 18.11	44 2135	44 17.74

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+ 235

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Oct 7	23 10 31.06	3	2° 34′ 56″.2	
12	03	3	56.3	-1
17	00	3	56.3	0
22	97	3	56.3	0
27	30.83	4	56.2	-1
Nov 1	88	5	56.1	-1
6	83	5	56.0	-2
11	78	5	55.8	-2
16	30.73	5	55.6	-2
21	68	5	55.3	-3
26	63	5	55.0	-3
1	58		54.7	-3
6	53		54.4	

Oct 9 | Oct 29 | Nov 13 | Nov 23 | Nov 25

Oct 9		Oct 29		Nov 13		Nov 23		Nov 25	
10 25.7	10 15.9	10 28.1	10 19.7	10 26.0	10 17.0	10 22.8	10 15.9	10 22.1	10 17.0
27.7	17.0	30.2	20.7	28.0	18.6	24.9	17.7	24.1	18.7
29.7	18.2	32.1	21.8	30.1	20.0	27.0	19.1	26.2	20.1
33.8	51.1	36.3	62.2	34.1	55.6	30.9	52.7	30.4	55.8
35.9		38.3		36.1		33.0		32.4	
38.0	11 1.3	40.4		38.2		35.2		34.4	
40.0	2.9	42.4		40.4		37.2		36.5	
42.1	4.1	44.5		42.5		39.2		38.6	
46.2		48.7		46.5		43.3		42.6	
48.3	10 17.0	50.7	10 20.7	48.7	10 18.5	45.4	10 17.6	44.8	10 18.6
50.3		52.8		50.8		47.6		46.8	
417.7	11 2.8	444.5		421.4		386.5		378.9	
10 37.97	37.973	40.41	40.409	38.36	38.309	35.14	35.136	34.45	34.445
31.05		30.90		30.76		30.66		30.64	
6.92	37.96	9.50	40.39	7.55	38.29	4.48	35.12	3.81	34.43
	31.08		30.93		30.79		30.69		30.67
-6.95	6.88	-9.41	9.46	-7.40	7.50	-4.57	4.43	-3.70	3.76
0	37.96	0	40.39	+ 1	38.29	+ 1	35.12	+ 1	34.43
-2.39		-2.24		-2.10		-2.00		-1.98	
28.63	-6.91 +.00 -2.39	28.76	-9.41 +.00 -2.24	28.82	-7.40 +.01 -2.10	28.64	-4.49 +.01 -2.00	28.78	-3.71 +.01 -1.98
	28.66		28.74		28.79		28.64		28.76
	68		76		80		66		77

sin √ 8.65391

cos √ 9.99956

.12669
.12625

Oct 9		Oct 29	Nov 13	Nov 23	Nov 25
83.9		68.4	72.2	75.0	83.6
45 2 48.5	3 34.7	2 35.0	2 39.3	2 40.0	2 44.6
39.1	34.8	33.4	32.9	35.0	39.0
41.45	747	34.20	36.10	37.50	41.80
+21.0	37.35	+19.7	+19.8	+17.5	+15.8
1.32221	1.39445	1.29446	1.29666	1.24303	1.19866
1.44846	1.52070	1.42071	1.42291	1.36928	1.32490
+28.08	-248	+26.35	+26.48	+23.41	+21.13
47 41.45	48 37.35	47 34.20	47 36.10	47 37.50	47 41.80
48 1.53	48 4.18	48 0.55	48 2.58	48 0.91	48 2.93
+2° 34 38.82	34 44.17	34 47.80	34 45.77	34 47.44	34 45.42
-49.8	-49.18	-50.37	-51.92	-51.89	-50.95
33 49.6	33 56.99	33 57.4	33 54.4	33 55.6	33 54.5
34 56.2	56.2	34 56.2	34 55.7	34 55.1	34 55.0
-.60 +1 6.6	59.2 58.6	+0 58.8 58.2	+1 1.3 0.7	+0 59.6 59.0	+1 0.5 +0 59.9

δ′ = +2 34 44.17 (38.82) −16.00 | 34 47.80 −16.00 | 34 45.77 −15.50 | 34 47.44 −15.00 | 34 45.42 −14.80

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+2
+10
+14
+0
+14
+7
+7
-1
+6

DIC 6 H71 23 10 30 52 +2° 34'
11 47
16 42
21 37
26 30,31

δ = +2° 34' 40.2"

54.4 -3
54.1 -4
53.7 -4
53.4 -3
53.0 -4

Dec. 6 +76 +450

10	15.7	10	11.9	10	7.5	10	0.2	10	5.6	9	56.0
	17.8		13.0		9.6		1.8		7.7		57.9
	19.8		14.2		11.7		3.6		9.7		59.1
	23.9		15.2		15.8		5.6		13.9		1.3.0
	26.6		5 4.3		17.8		-		15.8		
	28.1				19.9				17.9		
	30.2				21.9				20.0		
	32.3				24.0				22.1		
	36.3				25.1				26.1		
	38.4	10	13.6		30.1	10	1.9		28.3	9	57.7
	40.5				32.1				30.3		
	3090				2185				1974		

Dec. 17 +38 +376

	28.04		28091		19.86		19.864		17.95		17.945
	30.56		28.07		30.41		32.45		30.38		17.93
	-2.43		30.55		-10.53		32.44		-12.43		30.41
			2.48				10.59				12.48
	+2.44				+10.58				+12.48		
	+ 2		28.07		+ 2		19.85		1		17.94
	-1.86				-1.71				-1.72		
			+1.98				+1.69				+12.41
	28.69		+1.02		28.71		+.01		28.67		+.01
			-1.86				-1.75				-1.72
			28.71				28.71				28.69
			73				73				.69

Dec. 20 +30 +305

	87.2				83.1				71.3		
4/5	2 52.4			2	47.6			2	42.6		
	36.8				35.5				28.7		
	43.60				41.55				35.65		
	+14.5				+18.0				+20.2		
	1.16136				1.26527				1.30535		
	1.28761				1.38152				1.43160		
	+1939				+ 2407				+ 2701		
	17 43.60			47	41.55			47	35.65		
	48 2.99			48	5.62			48	2.66		
	34 4536			34	4273			34	4569		
	-52.24				-50.95				-53.32		

33	53.1			33	57.8			33	53.4		
34	54.2			34	58.6			34	58.4		

+1	1.3	0.7		+1	1.8	1.2		+1	0.0	+5	59.4
34	45.36			34	42.73			34	4569		
	-14.20				-13.40				-13.20		

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ψ3 Aquarii obsns. 23 13

23 12 17
− 10 19
−.15

1871	Oct 3	Oct 9	Oct. 29	Nov. 13	Nov. 23
	12 11.1 12 0.5	12 17.9 12 3.4 12	22.6 12 32.0 12	12.3 12 53.7 12	9.0 12 7.1
	13.2 3.0	13.9 4.6	24.7 33.0	14.3 54.9	11.1 5.3
	15.3 5.0	16.0 5.7	26.7 34.0	16.5 56.7	13.2 9.3
	19.4 8.5	20.2 13.7	28.9 99.0	20.6 165.3	17.4 24.7
	21.5	22.3	31.0	22.7	19.6
	23.7	24.4	1339	24.7	21.7
	25.7	26.5 12 48.9		26.9	23.8
	27.8	28.6 60.1		28.8	25.7
Sun V 9.25307	32.0	32.7 57.0		33.3	30.0
	34.1 12 2.8	34.8 12 4.6	2 12 33.0	35.1 12 58.1	32.1 12 8.2
	36.2	36.9		37.3	34.2
	26 0.0	26 6.2		27 2.5	23 7.5
Corr 9.88282					
12669	12 23.63	23636 12 24.38	24.38242 26.76	26.780 24.77	24773 21.62 21.618
.11961					

	1025	1021	459	1057	1137
40	0 46.3	0 46.7 1	46.2.1 20.7	1 54.0	0 57.1
	56.2	55.4	53.2 25.2	51.2	56.6
	51.25	50.55	22.95	52.60	56.85
	+20.8	+19.8	−6.2	−30.3	+13.4
	1.31806	1.29666	0.79239 n	1.48144 n	1.12710
	1.43767	1.41627	0.91206 m	1.60105 m	1.24671
	+27.39	+ 26.05	+ 8.17	−39.90	+17.65
	40 51.25	40 51.05	41 23.95	41 52.60	40 56.85
	41 18.64	41 17.63	41 14.78	41 12.70	41 14.50
−10°	18 30.29	18 28.78	18 26.43	18 24.35	18 26.15

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Nov. 25	Dec. 6	Dec 12	Dec. 17	Dec. 20
12 8.3	12 4.9	12 1.9	12 23.8	
10.3	6.9	4.1	25.7	
12.4	8.4	6.1	27.2	
16.6	2 0.2	10.3	16.7 12	
18.7		12.4		
20.8		14.5		
22.9		16.5		
25.0		18.7		
29.1		22.8		
31.2	12 6.7	24.9	12 25.6	
33.3		27.1		
2286		15 9 3		
20.78	20.782	14.48	14.482	

12	31.0	11	53.7	11	52.87	11	57.211		49.6	
	32.7		55.7		54.1		54.0		51.0	
	34.2		57.7		55.1		56.0		52.6	
10.2	97.9		2.1		162.0		0.2		162.2	
12.4			4.1				2.2			
14.4			6.3				4.5			
16.7			8.4				6.5			
20.8			10.4				8.7			
22.0			14.6				12.8			
12	32.6		16.7	11	54.0	11	14.9	11	54.1	
			18.8				17.0			
			2487				2288			
			180				180			
			68.7				48.8			
		12	6.25		6.245	12	4.44		4.436	

	113.7		69.8		92.2		73		58.2	
40	0 57.8	1	45.10	1	46.7	1	7.5	1	3.8	
	55.9		24.8		43.3		−0.2		54.4	
	56.85		34.90		46.10		3.65		27.10	
	+ 1.1		− 11.1		−18.2		+12.2		+15.2	
	1.14921		1.04532m		1.26010		1.08635		1.12385	
	1.26882		1.16493n		1.37991		1.20596		1.24346	
	+ 18.7		− 14.62		− 23.97		+ 16.06		+ 17.52	
40	56.85	41	34.80	41	46.10	41	3.65	40	59.1	
41	15.42	41	20.28	41	22.13	41	19.71	41	16.62	
							3136			
18	27.07	18	31.93	18	33.78	18	21.36	18	2827	

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T Pegasi

23 14 18 14 15 26 -.02
15.26
+23 02

+33 +42

oct 7	23 14 17.66		23°	1'	82".3 .16
12	63	3			82.9 .5
17	60	3			83.4 .5
22	56	4			83.9 .5
27	17.52	4			84.4
nov 1	47	5			84.8 .3
6	41	5			85.1 .2
11	35	6			85.3 .1
16	17.29	6			85.4 .0
21	23	6			85.4 .0
26	16	7			85.4 -1
	10	6			85.3
	08				85.1

1871 Oct 9 — Oct 16 — Nov 13 — Nov 23 — Nov 25

+03 +003 +.05 .07 +24 .20 +180 +214

sin √ 9.59247

cos √ 9.96392
12669
.09061

Oct 9		Oct 16		Nov 13		Nov 23		Nov 25	
14 11.1	14 1.1	14 12.1	14 2.0	14 4.3	14 42.1	14 8.2	14 0.0	14 7.4	14 1.8
13.3	2.2	14.3	3.3	13.4	44.8	10.5	1.9	9.6	3.3
15.6	3.9	16.4	4.9	15.7	46.6	12.7	3.9	11.7	4.7
20.0	7.2	20.9	10.2	20.1	48.0	17.3	5.8	16.3	9.8
22.3		23.1		22.5	18 1.5	19.5		18.4	
24.6		25.4		24.7		21.6		20.8	
26.7	14 48.8	27.7	14 51.9	26.8		24.0		23.0	
29.0	50.4	29.9	53.2	29.1		26.3		25.2	
33.4	52.0	34.9	54.5	33.6		30.6		29.6	
35.8	14 2.4	36.7	3.4	35.9	14 45.4	32.9	14 1.9	31.9	14 3.3
38.0		38.9		38.0		35.1		34.2	
269.7		279.8		271.1		238.7		228.1	
14 24.52	24518	14 25.44	25.436	24.65	24645	21.70	21.700	20.74	20.736
17.65	24.50	17.60	25.42	17.32	24.63	17.20	21.68	17.17	20.72
6.87	17.63	7.84	17.59	7.33	17.30	4.50	17.18	3.57	17.15
	+6.87		7.83		7.33		4.50		+3.57
-6.95		-7.80		-7.89		-4.58		-3.70	
+1	24.50	+2	25.42	+9	24.63	+7	21.68	+9	20.72
-2.39		-2.35		-2.06		-1.94		-1.91	
15.19	-6.91	15.31	-7.86	15.29	-7.40	15.32	-4.49	15.22	-3.70
	+.00		+.03		+.09		+.08		+.09
	-2.39		-2.35		-2.06		-1.94		-1.91
	15.20		15.24		15.26		15.34		15.19
	22		26		27		36		21

Oct 9		Oct 16		Nov 13	Nov 23	Nov 25
80.2		73.3		60.0	76.0	84.8
20 0 39.0	1 37.30	36.5	1 36.6	1 35.2	0 42.0	0 46.8
41.2	39.8	36.8	37.5	24.8	34.0	38.0
40.10		36.65		30.00	38.00	42.40
+22.1		+22.0		-20.8	+19.8	+17.4
1.34439		1.34242		1.31806	1.29666	1.24054
1.43500		1.43303		1.40867	1.38727	1.33115
+27.23		+27.10		+25.63	+24.39	+21.44
20 40.10		20 36.65		21 30.00	20 38.00	20 42.40
21 7.33		21 3.75		21 4.37	21 2.39	21 3.84
+23° 1 41.02		1 44.60		1 43.98	1 45.96	1 44.51
-20.81		-21.10		-21.85	-21.98	-21.56
1 20.2		1 23.5		1 22.1	1 24.0	1 23.0
2 22.56		2 23.3		2 25.23	2 25.4	2 25.4
-30 +1 2.4 2.1		+0 59.8 59.5		+1 3.2 2.9	+1 1.4 1.1	+1 2.4 2.1
δ' = +23 1 41.02		1 44.60		1 43.98	1 45.96	1 44.51
-18.60		-19.30		-21.30	-21.40	-21.40

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−4
TC
+1
+10
−5
−5
TS
+2
2

δ = +23° 2′ 4.″0

Dec 6 23 14 1703
11 .87 06
16 1690
21 .84
26 1677

85.1
84.9 −.2
84.6 −3 14
84.2 −4
83.7 −5

+46 +450 Dec. 6 +37 +387 Dec. 12 +39 +376 Dec. 17 +30 +305 Dec. 20

14 14 25.0 13 56.7 14 30.6 13 52.8 13 45.9 13 50.7 13 44.4
26.7 59.0 31.7 54.9 47.2 52.9 45.7
28.0 1.2 33.3 57.1 48.7 55.3 47.0
9.9 79.7 5.7 95.6 4.7 141.3 59.7 137.1
11.9 9.0 3.9 2.0
14.3 −10.2 6.1 4.2
16.6 12.3 8.4 6.5
18.8 14.7 10.6 8.8
21.5 16.7 18.1 13.1
14 26.6 24.3 14 31.9 17.4 13 47.3 15.4 13 45.7
23.6 19.6 17.5
23.87 24.76 28.61
12.07 18.0 24.0
11.27 6.76 46.1
14.30 14,300 4 10.24 10.245 14 6.15 6.145 14 4.19 4.191 −.255
17.03 14.28 16.96 10.28 16.89 6.13 16.85 4.17
−2.73 17.01 −7.66 16.94 10.74 16.87 12.66 16.83
−2.73 6.71 −10.74 −12.66
+2.44 + 6.07 + 10.58 − 12.46
+.19 14,28 + .16 10.23 + .17 6.13 + .13 4.17
−1.77 −1.70 −1.63
+2.49 + 6.60 +10.61 +12.42
15.16 + .19 15.33 + .16 10.29 + .16 16.19 + .13
−1.77 −1.70 −1.63 −1.54
15.19 15.29 +15.27 15.13
21 81 28 (15)

85.7 60.4 88.2 81.0
20 26 1 37.4 0 49.5 0 49.0
9.0 23.0 33.7 32.0
17.85 30.20 41.60 40.50
−12.8 −21.7 +18.8 +15.5
1.08999 m 1.33645 m 1.27415 1.26717
1.18065 m 1.42706 m 1.36476 1.35778
−15.15 −26.73 2.316 2279
21 17.85 21 30.20 20 41.60 20 40.50
21 2.70 21 3.47 21 4.96 21 3.29
1 45.65 1 44.88 1 43.59 1 45.06
−22.04 −22.07 −21.54 −22.12

1 23.6 1 22.8 1 22.0 1 22.9
2 25.1 2 24.98 2 24.5 2 24.3

+1 1.5 1.2 +1 2.0 1.7 +1 2.5 2.2 +1 1.4 1.1
1 45.65 1 44.88 1 43.59 1 45.06
−21.10 −20.80 −20.50 −20.30

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b Aquarii
23 16 19
−20 48
−38

1871 | Oct 3 | Oct 16 | Oct 29 | Nov. 13 | Nov. 23

			16	27.0	16	8.8	16	2.3	16	10.4	16	2.1	16	8.3	16	7.0	16	5.1	15	53.5
				28.7		11.1		3.5		12.5		3.4		10.4		8.6		7.3		56.9
				30.2		13.0		5.1		14.7		5.0		12.6		9.8		9.6		58.3
	16	15.7		85.9		17.5		10.9		19.1		10.5		17.0		25.4		13.8		170.7
		18.0				19.7				21.2				19.2				16.1		
		20.3				21.9				23.3				21.4				18.3		
		22.6				24.3	16	43.0		25.6				23.6				20.6		
		24.8				26.4		45.3		27.8				25.8				22.7		
Sun ☉ 9.88036 m		10 1 4				30.7		46.0		32.3				30.3				27.2		
			16	21.6		32.9	16	3.6		34.4	16	3.5		32.3	16	8.5		29.3	15	56.9
						35.2				36.7				34.6				31.6		
						241.5				256.0				235.5				201.6		
☉ 9.9708																				
12669																				
09742	16	20.28		20.280	16	21.95		21.955	16	23.45		23.455		21.41		21.409		18.33		18.327

19.9

		1019.9	×			5 86.7		10		5 66.8				5 79.8				5 53.7		
10	0	5.7				4 29.6	0	21.5	4	31.0			4	46.1			4	21.5		
		14.2				32.1		29.0		35.8				28.7				26.2		
		9.85				29.35				33.40				39.90				26.85		
		−8.3				+18.4				+19.9				+12.9				+21.4		
		0.91907 m				1.26481				1.29885				1.11058				1.30963		3.30340
		1.01649 m				1.36223				1.39627				1.20800				1.40605		1.42782
		−10.39				+23.03				+24.91				+16.14				+25.47		+26.78
	10	9.95			9	28.35			9	33.40			9	39.90			9	26.85		26.55
	9	59.56			9	56.38			9	58.31			9	56.04			9	53.32		53.63
																		528		
−20°	47	51.21			47	8.03			47	9.96			47	7.69			47	4.28		

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Nov. 25		Dec. 6		Dec. 12		Dec. 17		Dec. 20	
			50.8						
16 4.4	15 58.6	15 58.2	15 52.8	15 53.8	15 55.0	15 49.8	15 46.1	15 48.0	15 48.7
6.5	60.1	0.2	53.8	56.0	57.6	52.0	47.4	50.1	49.6
8.7	61.2	2.5	157.4	58.3	59.1	54.1	48.6	52.2	51.0
13.1	179.9	6.8		2.5	171.7	58.6	142.1	56.6	149.3
15.2		9.0		4.7		0.7		59.0	
17.4		11.2		7.0		3.0		1.1	
19.7		13.4		9.2		5.1		3.3	
21.9		15.7		11.4		7.3		5.4	
26.2		20.1		15.8		11.7		9.8	
28.3	15 57.9	22.3	15 52.5	18.1	15 57.2	14.0	15 47.4	12.1	15 49.8
30.6		24.5		20.3		16.1		14.2	
1920		1839		2571		2724		3118	
		601		180		240		300	
		123.9		77.1		032.4		11.8	
17.45	17.455	16 11.26	11.264	16 7.01	7.009	16 2.94	2.945	16 1.07	1.073

5 6 72		66.8	93.1	82.1	85.8
4 39.1		4 38.2	4 49.8	4 45.1	4 47.8
28.1		28.6	43.3	37.0	38.0
33.60		33.40	46.55	41.05	42.90
− 42.4	+ 17.6	+ 18.8	+ 9.8		+ 11.3
1.62736	1.24550	1.27415	0.99122	+ 15.5	1.05307
1.72478	1.34292	1.37157	1.08864	1.19033	1.15049
− 58.03	+ 22.03	+ 23.53	+ 12.26	1.28775	+ 14.14
	9 33.60	9 33.40	9 46.55	+ 19.40	9 42.90
	10	9 56.93	9 58.81	9 41.05	9 57.04
	05.63			10 60.45	
47 12.28		47 8.58	47 10.46	47 12.10	47 8.69

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ν 1871
ν Pegasi

23 19 00 18 56.59 (−02)
+ 22 42

+.34 +.42
1871

Oct-4	23	18	58.01			22°	41′	57″.0	.6										
12			58.58	3				57.6	.6	+1.2									
17			58.95	3				58.2	.5										
22			58.91	4				58.7	.4	+.9	+.1								
27			58.87	4				59.1	.4										
Nov. 1			.82	5				59.5	.3	.7									
6			.77	5				59.8	.2										
11			.72	5				60.0	.1	.7	+.1								
16			58.66	6				60.1	0										
21			.60	6				60.1	0										
26			.53	7				60.1	−.1										
1			.47	8				60.0											
Oct. 9			58.40	119		Oct. 16		Oct. 29		Nov. 13		Nov. 23							

	18	52.4	18	44.7	18	53.4	18	42.3	18	54.9	18	45.5	18	52.7	18	40.8	18	49.6	18	41.9
		54.6		45.7		55.6		44.0		57.1		46.2		54.8		42.6		51.7		43.2
		57.0		46.6		57.8		45.4		59.3		47.2		57.1		83.4		54.0		44.6
		1.4		137.0		2.4		131.7		3.7		48.5		1.6				58.5		132.7
		3.6				4.7				6.0		187.4		3.7				0.7		
		5.8				6.8				8.3				6.1				2.9		
	19	8.0	19	37.3	19	9.0	19	30.0		10.5				8.3				5.1		
		10.4		39.0		11.3		31.6		12.7				10.6				7.4		
Sun S 9.58648		13.8		40.3		15.5		32.7		17.1				14.8				11.8		
	18	17.0	18	45.7	18	17.8	18	43.9		19.3	18	45.5	18	17.1	18	41.7	18	14.3	18	43.2
		19.3				20.1				21.6		46.8		19.4				16.4		
		245.8				254.4				270.5				246.2				272.4		
		180				180				180				180				240		
		65.8				74.4				90.5				66.2				32.4		
Earth S 9.96498	17	5.936	17	5.936	17	6.776	17	6.764	17	8.23		8.227	17	6.02		6.018	17	2.94		2.945
12669		5.92		5.92		6.75		6.78		8.21				6.00				2.93		2.53
.09167		5.88		5.88		6.73		6.76		8.19				5.98				2.92		2.51
		6.94		6.94		7.81		7.82		9.38		9.38		7.32		7.32		4.34		4.34
		−6.95				−7.80				−9.41				−7.35				−4.36		
		+1		5.92		+2		6.75		+4		8.21		+9		6.00		+8		2.93
		−2.41				−2.36				−2.26				−2.11				−1.97		
		16.59		+6.91		16.62		+7.86		16.60		+9.40		16.61		+7.40		16.68		−4.48
				+.00				+.04				+.05				+.09				+.08
				−2.41				−2.36				−2.26				−2.11				−1.97
				56.60				56.57				56.58				56.58				56.56
				62				57				60				60				58

40	1	13.3			0	11.7			1	6.3			1	5.2			1	3.0	
		6.8	2	11.3		59.2	1	58.8		4.5				2.7				5.7	
		7.5		13.9		59.5		58.8		59.8				57.5				57.3	
		6.65				59.35				62.15				2.10				1.50	
		+20.2				+22.9				+21.4				+24.3				+19.7	
		1.30535				1.35983				1.28750		33040		1.38560				1.29446	
		1.39702				1.45150				1.37947		1.42207		1.47727				1.38613	
		+24.95				+25.28				+23.96		+2643		+30.01				+2433	
	41	6.65			40	59.35			41	0.15		2.15	40	57.10			41	07.50	
	41	31.60			41	27.63			41	26.11		2858	41	27.11			41	25.83	
+22°	41	16.75			41	20.72			41	19.77			41	21.24			41	22.52	
		− 21.29				− 21.59				− 21.78				− 22.26				− 22.44	
	40	55.5			40	59.1			40	58.0			40	59.0			41	00.1	
	41	57.3			41	58.1			41	59.8			41	60.0			41	60.1	
	−.32	+1	1.8	1.5	+0	59.0	58.7		+1	1.3	0.9		+1	1.0	0.7		+1	00.0	+0 59.7
S′ = +22	41	16.75			41	20.72			41	19.77			41	21.24			41	22.52	
		− 18.60				−19.40				−20.60				−21.30				−21.40	

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+3
+0
T1
T1
-1
-4
-1
-1
T5
0

+22° 41' 38.7"

PPC6 23 18 58 40
11 84 ,06
16 27 7
21 21 6
20 14 7

59.9 -.2
59.7 -.3
59.4 -.4 14
59.0 -.5
58.5

Nov. 25 +22+214 Dec. 6 +46+450 Dec. 12 +37+387 Dec. 17 +39+376

18 48.7 51.0 53.1 57.7 59.9 2.1 4.3 6.5 11.0 13.3 15.6 323.2 300 23.2 — 18 40.7 42.0 43.1 125.8 41.9 — 18 42.3 44.5 46.7 57.3 53.6 55.7 58.0 0.3 4.6 6.9 9.0 37 29 298 6129 — 18 39.6 41.1 42.1 122.8 40.9 — 18 38.3 40.5 42.6 47.1 49.3 51.5 53.8 56.0 62.6 64.9 587.0 569.2 — 18 32.3 34.0 35.2 101.5 33.8 — 18 34.2 36.4 38.7 43.1 45.3 47.5 49.8 52.0 56.5 58.7 60.9 5231 — 18 25.8 27.2 29.0 82.0 27.3

19 2.11 56.54 3.57 −3.70 +.9 −1.95 56.55 — 18 2109 2.69 58.52 +3.54 2.09 −.370 +.09 −1.95 56.53 — 18 55.72 56.40 −2.68 +2.44 +.20 −1.81 56.35 — 18 56.7 56.70 58.38 −2.68 55.70 +.19 −1.81 56.57 — 18 51.66 58.33 −6.67 +6.87 +.15 −1.74 56.54 — 18 51.55 51.54 58.31 −6.78 +6.60 +.16 −1.74 56.56 — 18 47.55 56.25 −10.70 +10.79 +.16 −1.66 56.64 — 18 47.555 47.54 58.23 −10.68 +10.61 +.16 −1.66 56.65

40 1 7.3 6.1 −0.8 5.65 +20.2 1.30535 1.39702 +2495 41 2.60 41 2860 41 19.75 — 22.03 — 1 4.02 18.8 21.4 20.10 14.8 1.11026 1.26123 +1828 41 20.10 38.38 41 9.97 — 1 11.7 12.7 −1.0 5.85 +17.9 1.25285 1.34452 +22.11 41 5.85 41 27.96 41 24.39 — 22.43 — 1 8.3 11.1 −2.8 4.15 +20.3 1.30749 1.39916 +2501 41 4.15 41 29.22 41 19.12 — 22.03

40 57.7 41 60.1 — 40 58.0 41 59.6 — 40 57.1 41 59.3

+1 24 20 — +1 1.6 1.3 — +1 2.2 1.9

41 19.75 −21.40 — 41 9.97 — 41 20.39 −20.90 — 41 19.12 −20.60

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" " Obs. " " " = 436

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