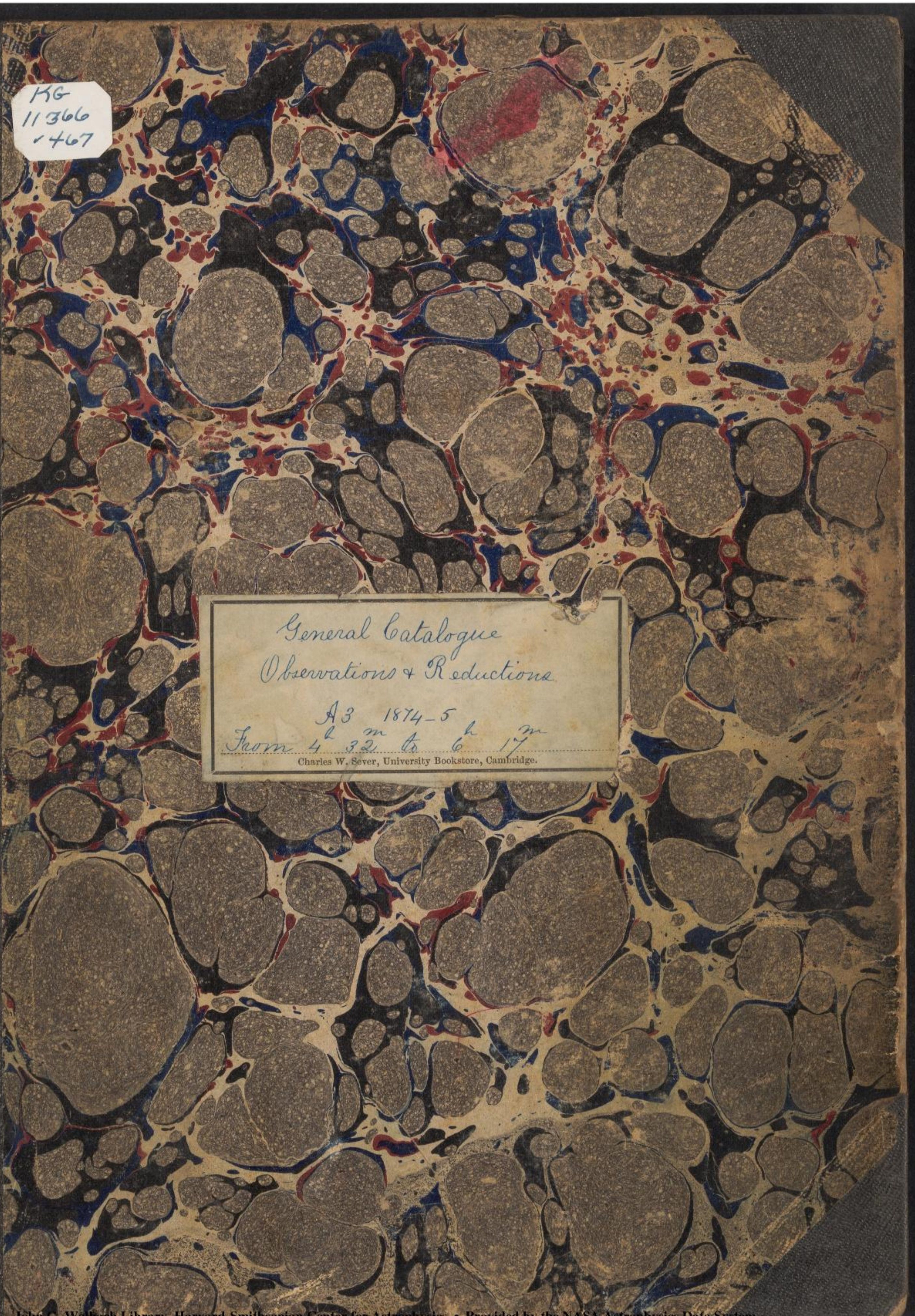
KG
11366
r467



General Catalogue
Observations & Reductions

A3 1874-5
From $4^h\ 32^m$ to $6^h\ 17^m$

Charles W. Sever, University Bookstore, Cambridge.

~~B.S.P.~~ G.C. 1874-5
~~B.S.R., 1874-5~~

Observations and ~~Polo~~ Reductions
A3
From $4^h\ 32^m$ to $6^h\ 14^m$.

The means of the wires, in A.R. and δ and the circle readings here
placed in this book have been taken independently and checked by a third party, by W.A.R. pa 1874

The means of the wires, in A.R. and δ and the circle readings same for 1874 printed in this book have been taken independently and checked by a third party. (by W.A.R.)

53 Eridani

sin δ 9.40006 n

h m sec
4 32 26
− 14° 33′
ζ = + 56 50 sin ζ = +.84
from Jan 15 1874 to Mar 12 1874 = 4 ° ′ ″ 59.8

log tang i = 8.54069
1.17609
.11678

	1874	1874	1875
cos δ	9.98584 ~~.11874~~ ~~.10155~~	9.98584 11678 ,10262	9.98584 .12552 .11136

1874
α
δ
dα/dt
dδ/dt

1875
32, 27.40
33′ 0.03
+ 27.48
+ 7.31

corr α =
corr δ =
tang δ = −.26
I = 2.13 s
S
K = −.016

1874 Feb 12
+.294
4 32 50.5 — 32 35.6
52.6 — 38.0
54.7 — 40.7
59.0
33 1.2
3.3
5.4
7.5
11.8
13.8
16.0
27 58
240
3 5 8 — 32 38.10
33 3.255
3.239
+ 29.28
− .08
− 0.26 +2.49
+ 28.94
33 3.24
33 32.18
33 34.93

s
+ 25.15
45
δ/ψ = − 2.98
4 39.7
24.8
64.5
49 32.25
1.40054
1.50316
+ 31.85
50 4.10
− 14° 27′ 15.75″
+56
+ 29.93
1.29488
94.38
+.08 +.17
+.27 +.35
− 1 34.03
− 14 28 49.78
− 7 31.16
2.50 33.66
+ 4.84 +12.15
− 7 28.82
− 14 36 18.60
36 11.29

Feb. 14
+.104
31 41.0 — 31 29.8
43.3 — 31.4
45.4 — 33.8
49.7
51.8
53.8
56.0 — 32 12.9
58.1 — 14.7
2.4 — 17.6
4.5
6.6
41 26
180
59.26 — 31 31.67
31 53.873 — 32 14.87
53.857
+ 31.08
− .03
− 0.21 +2.54
+ 30.84
31 53.86
32 24.70
32 27.45

+ 22.20 — − 21.00
45
− 3.80
1 30.1
23.3
53.4
46 26.70
1.34635
1.44897
+ 28.12
46 54.82
24 6.47
53 59
1.94495
+ 17.79
1.96274
− 91.78
+.06 +.07
+.08 +.14
− 1 31.64
25 38.11
− 7 31.07
252 33.59
+ 4.92 +12.23
− 7 28.67
33 6.78
32 59.47

1874 Mar 1
+.192
32 29.2 — 32 57.?
31.3 — 59.6
33.5 — 2.3
37.7
39.9
42.0
44.0
46.4
50.6
52.6
54.8
46 20
32 59.97
32 42.000
41.984
− 17.31
− .05
+ 0.06 +2.81
− 17.30
32 41.98
32 24.68
32 27.43

− ~~+~~ 17.97
45
3.17
2 24.6
16.3
40.9
47 20.45
1.25455
1.35715
− + 22.76
~~47 43.21~~
46 57.69
24 ~~54.86~~
24 9.34
54 52
1.94520
+ 11.99
1.95919
− 90.61
+.06 +.04
+.02 +.08
− 1 30.53
25 39.87
− 7 30.40
2.66 33.06
+ 5.37 +12.68
− 7 27.69
33 4.56
33 0.25

1875 Jan 20
+.23
+.230
31 40.4 — 31 37.5
42.4 — 39.3
44.5
48.8
50.8
53.2
55.4
57.5
1.7
3.9
6.0
40 46
180
58.46 — 31 38.40
31 53.145
53.129
+ 35.14
− .06
− 0.81
+ 34.30
31 53.13
32 27.43

+ 14.74
35
− 3.35
2 39.6
37.8
77.4
37 38.70
1.16850
1.27986
+ 19.05
37 57.75
15 9.40
53 51
1.94493
+ 47.82
1.99275
− 98.35
+.03 −.16
−.36 −.33
− 1 38.68
16 48.08
− 16 9.28
− 2.81 — 18.09 +7.88
+ 0.57
− 16 11.52
32 55.5? 60

1875 Feb 2
+.24
+.210
31 25.6
27.8
29.8
34.0
36.2
38.4
40.5
42.7
46.9
49.0
51.2
42 21
31 38.373
38.357
+ 49.49
− .05
− 0.66
+ 49.08
31 38.36
32 27.44

+ 25.84 50
35
− 3.57
2 26.6
32.3
58.9
37 29.45
1.40654
1.57790
+ 32.96
38 2.41
15 14.06
+ 30.40
1.97533
− 94.48
+.08
−.27 −.19
− 1 34.67
16 48.73
− 16 11.08
− 2.99 — 14.07 +9.29
+ 1.98
12.07
33 0.82

31 11.0
12.9
14.7
31 12.53 12.87
3 44.9
49.2
94.1
38 41.05
−.42

1875 Feb 9
+.32
+.335
32 17.4 — 32 44.4
19.8 — 7.0
22.2 — 9.0
26.2
28.3
30.5
32.6 — 32 50.0
34.7 — 52.0
39.0 — 54.6
40.8
43.1
33 46
32 30.418 — 32 52.20 −6.84 6.80
30.402
− 2.35
− .09
− 0.56
− 3.00
32 30.40
32 27.40
27.418

+ 23.58 62 — − 21.78
35
− 3.70
2 26.9 — 3 25.6
26.3 — 23.7
53.2 — 49.5
37 26.60 — 38 24.65
1.37328 — 1.33826
1.48464 — 1.44942
+ 30.52 — − 28.15
37 57.12 — 37 56.50
15 8.77 8.46 — 8.15
53 39 — 54 37
1.94487 — 1.94572
+ 54.80
1.98887 — 1.99912
− 99.74 — − 99.80
+.07 −.54 — +.06 −.61
−.50
− 1 40.17 — − 1 40.45
16 48.94 — 48.60
− 16 8.97
3.10 — 12.07 +9.85
+ 2.54
9.53
58.47 — 58.13
58.30

Gr 848

4h 32m 03s

+75 43

z = −33 20

−.55

Sin δ 9.98636

Cos δ 9.39220

.12552

9.51772

α 2.798

δ +42 32.72

dα/dt +7.949

dδ/dt +7.377

1875

Jan	m	s		′	″	
10	31	65.50		42	51.7	
15		65.31	−.19		52.8	+1.1
20		65.08	.23		53.9	1.1
25		64.82	.26		54.8	.9
30		64.53	.29		55.7	.9

corr α = +.140s

corr δ = +.22″

Long δ = +3.92s 4.05

I = 8.35s

k = −.061s

+.32 1875

Jan 11

+.305

4 31 | 31 18.7

22.4
25.9
29.4
33.8
38.6
42.3
46.8
50.2
55.0

3444

31 18.70

31 38.267
38.206
32 5.475
−27.284 +26.13
− 27.40 +1.26
38
+ 26.11 −2.66
+ 1.20 32 2.94
−2.66
+24.65
31 38.21
32 2.86 40 31.67
+2 17.63
+18
− 19.28
+75 42 31.82

+19.57s

40′

Hqδ = −3.19
2 54.2
48.9
10.31
42′ 51.55
1.29159
0.80931
+6.45
42 58.00

+75° 39′ 50.35″

−33 19 15
1.57770n
+ 4475
1.62245
+41.92

+.05 ~~−.25~~
−.55 ~~−.50~~ −.60
+41.52
40 31.67
42 52.0
+2 20.3
+2 21.7 9
+2 18.19 18.04
+ 1.75 −11.90
− 19.28
+2 0.66
42 32.33

+.20 −.08

Jan 14

+.110

31 — 31 59.1
— 44
— 10.5
44.8 36.46
49.0 6.49
52.8 6.12
32 9.7 6.20
18.9 7.05
26.3 6.10

32 46.7

31 36.403
36.342
32 5.364
−29.020 +28.88
−29.164 +.79
−.32
+ 28.81 −2.55
+ .43 3.14
−2.55
+26.69
31 36.34
3.03 58 55.72
−16 6.56
+17
−19.68
42 31.18

~~+~~ −28.27

20

−3.23
4 45.7
37.2
8.29
24 41.45
1.45133
0.96905
+9.31 24 32.14
~~7.66~~
24 8.76
57 57.59 58 16.21

19 7
1.57790n
+ 2964
1.60754
+40.51

~~+.11~~ −.39
−.89 ~~−.78~~ −1.00
+39.51
58 37.16 55.72
42 52.6 31
15 34.5
L J
−16 7.00 6.23
+ 1.77 −12.30
− 19.68
−16 24.91
42 30.81

+.23 −.08

Jan 16

+.160

31 No V)
17.5
21.5
25.6
29.8
34.2
38.0
42.5
46.5
50.8

3064

31 34.044
33.983
32 5.276
−31.298 +30.79
−31.42 +.90
−.32
+ 30.73 −2.47
+ .63 2.88
−2.47
+28.89
31 33.98
2.87
−16 5.36
+18

20

−3.27
4 32.6
23.2
5.58
24 27.90

+3856
1.61596
+41.30

+
−.85

−16 5.56
+

58

1874 1874 1875

T Tauri

h m s
4 34 45
+ 22 43

η = + 19 40
+.34

Sin δ 9.58678
Cos δ 9.96493
ll .11678
.08264
ll' .08171

		s		'	"	
Jan	20	34 41.37		42'	53.8	
	25	41.32	−.05		53.8	+.0
	30	41.27	.05		53.8	.0
Feb.	4	41.21	.06		53.8	.0
	9	41.14	.07		53.8	.0
	14	41.07	.07		53.8	.0
	19	40.99	.08		53.7	−.1
	24	40.91	.08		53.7	.0
Mar.	1	40.82	.09		53.6	−.1

1875
α 44.611
δ +42 53.75
dα/dt +3.593
dδ/dt +7.264

log cos δ 9.96493
ll .12552
ll' .09045

Corr = +.010 s
corr +.50"
long = +.42 1.08
I = 2.23 s
k = −.017 s

1874
α 41.018 s
δ +42 46.48
dα/dt +3.593
dδ/dt +7.269

1874 Jan 15 +.24		Jan 18 +.25		Feb 5 +.35		Feb 11 +.30		× 1874 Mar 1 +.20		1875 Jan 11 +1.32	
+.232		+.245		+.330		+.277		+.192		+.305	
34 19.6	34 11.2	34. 18.1	34 7.9	34 4.3	33 32.0	33 39.2	33 49.0	34 44.7	34 34.7	34 5.7	33 51.2
21.8	13.2	20.3	9.9	6.6	33.7	1.4	51.2	47.0	36.8	7.8	53.2
24.0	15.3	22.6	11.8	8.9	35.9	3.7	53.6	49.2	38.6	10.8	55.2
28.6		27.1		13.1		8.1		53.6		14.7	
30.8		29.4		15.5		10.4		55.8		16.8	
32.9		31.6		17.7		12.7		58.2		19.2	
35.1	34 57.9	33.8	34 54.6	20.0	34 33.5	14.9	34 26.6	0.4		21.3	
37.3	54.4	36.1	56.5	22.3	36.1	17.0	28.0	2.6		23.6	
41.8	56.8	40.6	58.1	26.6	38.4	21.5	29.0	7.0		28.0	
44.0		42.7		28.9		23.7		9.2		30.3	
46.3		44.9		31.0		26.1		11.5		32.6	
3622		3472		1949		1987		3391		2103	
						60		300			

34 13.23 34 9.87 33 53.87 1387 33 51.27 6391 34 36.70 33 53.20
34 32.927 34 54.37 34 31.564 34 56.40 34 17.718 34 36.00 34 12.609 34 27.87 34 58.100 34 19.118
32.910 +8.43 31.547 +9.86 17.701 +23.41 12.592 +28.46 58.083 −17.30 19.101 +26.13
34 41.42 +.10 34 41.40 +.11 34 41.20 19 +.15 34 41.11 +.13 34 40.82 +.08 34 45.85 +.13
−8.51 −9.85 −23.50 49 −28.52 +17.26 −26.25
−8.52 −0.40 −9.86 −0.38 −23.510 −0.17 −28.53 −0.09 +17.25 +0.20 −26.26 −0.74
34 41.04 41.14 41.09 41.09 41.06 44.62
+ 8.41 + 9.84 + 23.13 + 28.46 − 17.31 + 26.11
+ .10 + .10 + .14 + .12 + .08 + .13
−0.40 +3.193 −0.38 +3.213 −0.17 +3.423 −0.09 +3.503 +0.20 +3.793 −0.74
+ 8.11 50 27.60 + 9.56 27.08 + 23.40 25.61 + 28.49 26.10 − 17.03 50 24.98 + 25.50 40 46.28
34 32.91 −7 32.67 34 31.55 −7 32.12 34 17.10 −7 31.35 34 12.59 −7 31.43 34 58.08 −7 30.15 34 19.10 +2 17.63
−1.10 −1.00 −1.00 −1.00 −1.00 −1.20
34 41.02 −7.30 34 41.11 −7.30 34 41.10 −7.30 34 41.08 −7.30 34 41.05 −7.10 34 44.60 −9.40
44.613 +22 42 46.53 44.703 42 46.66 44.693 42 45.96 44.673 42 ~~47.27~~ 46.37 44.643 42 46.73 42 53.31
6.3

s
+ 19.70 − 21.44 + 21.69 − 24.84 + 23.85 − 18.28 + 21.34 − 15.26 + 21.40 + 25.92
30 30 30 30 30 40
Hel = −" 2.30 −2.36 −2.79 −2.97 3.17 −3.19
1 39.7 2 28.8 1 38.1 2 34.1 1 37.4 2 28.4 1 41.1 2 24.7 1 39.0 1 8.3
30.0 19.7 27.7 24.1 24.7 15.9 28.9 12.9 33.7 7.1
69.7 48.5 65.8 58.2 62.1 44.3 70.0 37.6 72.7 15.4
31 34.85 32 24.25 31 32.95 32 29.10 31 31.05 32 22.15 31 35.00 32 18.80 31 36.35 41 7.70
1.29447 1.33122 1.33626 1.39515 1.37749 1.26198 1.32919 1.18355 1.33041 1.41363
1.37618 1.41293 1.41791 1.47686 1.45920 1.34364 1.41090 1.26527 1.41212 1.50405
49534
+ 33.78 − 25.88 + 26.18 − 29.88 + 28.79 − 22.06 +25.76 − 18.42 +25.83 +31.92
31.28
31 58.63 31 58.37 31 59.13 31 59.12 31 59.84 32 0.09 32 0.76 32 0.38 32 2.18 41 39.62
38.98

+22 50 49.92 49.78 50 49.22 49.23 50 48.51 50 48.26 50 47.59 47.77 50 46.17 41 ~~8.73~~ 9.37
49.825 49.22 48.38 47.78
+19 39 7 39 56 39 7 39 51 39 1
1.31300 1.31340 1.31300
+3392 +3269 +4504 +2426 +1206 +4475
1.34692 1.34732 1.34569 1.34609 1.35804 1.35844 1.33726 1.33766 1.32506 1.32546 1.~~62600~~ 35775
−22.23 −22.25 −22.17 −22.19 −22.81 −22.83 −21.74 −21.76 −21.14 −21.16 −22.79

−.07 −.01 −.07 −.07 +.04 −.09 −.08 +.05 −.05 −.07 +.07 −.03 −.07 ~~+.02~~ −.05 −.09 ~~−.15~~ −.30
+.05 +.07 +.09 +.15 +.09 +.14 +.10 +.14 +.02 −.21
−22.25 −22.25 −22.15 −22.13 −22.80 −22.74 −21.71 −21.65 −21.19 −23.09
50 27.47 27.53 50 27.07 27.10 50 25.71 25.52 50 25.88 26.32 50 24.98 40 46.28
42 53.8 7 53.8 53.8 53.8 53.6 43 3.1
−7 33.7 33.9 −7 33.3 33.3 31.9 31.7 32.4 32.5 31.4 +2 16.8
−7 33.8 −7 33.3 31.8 32.3 31.4 +2 16.8
−7 33.3 42 46.39 32.8 46.60 31.3 46.20 31.8 45.52 30.9 46.41 +2 17.8 8.69
−7 33.01 46.65 −7 32.37 46.63 −7 31.27 ~~45.91~~ 48.01 −7 32.06 45.96 −7 30.40 +2 18.19 42 53.99
− .77 33.78 − .80 33.17 − .94 32.21 46.11 1.00 33.06 − 1.07 31.47 − 1.08 17.11
− 7.30 −0.03 46.52 − 7.30 −.03 46.61 − 7.30 −.03 ~~46.46~~ − 7.30 −.03 45.74 − 7.10 +.17 46.41 − 9.40 −2.14 53.79
−7 41.05 42 53.79 −7 40.48 53.88 −7 35.51 ~~53.2~~ 53.38 40.36 53.01 38.57 53.68 +2 7.71

1875

		m	s		′	″	
Jan	0	34	45.36		43	3.0	
	5		45.36	−.00		3.1	+.1
	10		45.35	.01		3.1	.0
	15		45.33	.02		3.2	.1
	20		45.30	.03		3.2	.0
	25		45.26	.04		3.2	.0
	30		45.21	.05		3.2	.0
Feb	4		45.15	.06		3.2	.0
	9		45.08	.07		3.2	.0
	14		45.00	.08		3.2	.0
	19		44.92	.08		3.1	.1

+20 −08 1875 +23 + +24 +32 +30 +12 +20

Jan 14 Jan 20 Feb 2 Feb 9 Feb 14 Feb 18

+110 +.230 +.210 +335 +.410 +.178

34 — 34 34.4 33 56.6 33 53.3 33 41.9 33 21.8 34 33.9 34 16.9 34 27.4 34 13.9 34 22.7 34 25.4
— 36.1 58.8 55.0 44.0 24.3 36.2 19.0 29.8 16.2 25.0 26.9
— 38.4 1.2 56.9 46.4 26.5 38.4 21.9 31.9 18.7 27.2 28.6
— 5.7 50.8 43.0 36.2 31.8
— 8.0 53.0 45.1 38.7 343 36.1
16.4 16.40 .46 10.1 55.4 47.3 40.9 38.2
18.7 ~~37~~ .47 12.4 57.6 34 17.1 49.7 35 5.4 43.1 34 59.1 40.6 35 1.4
21.0 ~~34~~ .54 14.7 59.9 19.2 52.0 7.9 45.4 1.6 45.0 4.8
25.4 .58 .48 19.0 4.3 22.1 56.4 9.7 49.8 3.6 47.1 6.2
27.7 .65 .55 21.4 6.4 58.7 52.0 49.7
30.0 .02 .62 23.7 8.9 0.9 54.4

2316 4286 4616 4496 3977
120 180 60

34 36.30 1116 33 ~~54.73~~ 55.07 6086 33 24.20 5216 34 19.10 34 16.27 34 26.97
34 16.~~240~~ 34 10.145 33 55.327 34 ~~19.47~~ 34 47.418 35 ~~7.33~~ 34 40.873 ~~35 1.43~~ 34 36.155 35 3.97
.51 +28.89 +35.20 19.13 7.67 +3.99 +8.72
.49 +4.979
16.193 +.08 10.128 +.10 55.310 +.10 47.401 −2.36 40.856 +.13 36.138 +.08
34 45.33 −.09 34 45.30 34 45.197 34 45.08 +.13 34 45.00 +.13 34 44.943
−29.14 28.84 −0.72 −35.17 −0.69 −49.876 −0.56 +2.32 −0.47 −4.14 −0.39 −8.809 −0.32
−29.15 28.85 34 44.65 −35.18 44.74 −49.897 44.64 +2.31 44.70 −4.15 44.72 −8.80 44.62

+ 28.81 + 35.17 + 49.80 − 2.~~32~~ 34 + 4.~~15~~ .07 + 8.~~82~~ 73
+ .04 + .10 + .09 + .14 + .17 + .57
−0.72 59 11.19 −0.69 59 13.43 −0.56 59 16.11 −0.47 59 15.10 −0.39 59 14.59 −0.82 59 12.89
+ 28.13 −16 6.56 + 34.58 −16 8.55 + 49.33 −16 10.93 − 2.67 −16 9.28 + ~~4.29~~ 3.85 −16 9.59 + 8.48 −16 8.26
34 16.49 − 1.2 34 10.13 − 1.2 33 55.31 − 1.2 34 47.40 − 1.2 34 40.86 − 1.2 34 36.14 − 1.2
− 9.50 − 9.50 − 9.50 − 9.50 − 9.50 − 9.40
34 44.62 42 53.93 34 44.71 42 54.18 34 44.64 42 54.48 34 44.73 42 55.12 34 ~~45.15~~ 44.71 42 ~~54~~ 39 34 44.62 42 54.03
54 ~~37~~.30
0

−19.79 15.07 +15.41 +31.13 23.80 −24.14 +28.32 20.25 −19.91 +24.60 −20.56 +9.18 −27.82
20 20 20 20 20 20

−3.23 −3.35 −3.57 −3.70 −3.75 −3.80
3 42.2 2 52.6 2 27.9 3 34.9 2 34.9 3 33.1 2 37.4 − ~~3.24~~ 3 1.6 3 45.4
35.3 53.3 35.5 42.5 35.9 33.1 42.8 8.7 1.9 45.8
77.5 105.9 63.4 77.4 70.8 66.2 80.2 12.1 3.5 91.2
23 38.75 22 52.95 22 31.70 23 38.70 22 35.40 23 33.10 22 40.10 6.05 23 1.75 23 45.60

1,29645ₙ 1.17811 1.49318 1.37658ₙ 1.45222 1.30643ₙ 1.39094 1.37302ₙ 0.96284 1.44436ₙ
1,38690 1.36856 1.58363 1.46703ₙ 1.54270 1.39688ₙ 1.48139 1.40547ₙ 1.05329 1.53481ₙ
+24.37 +18.56 +38.34 −29.31 +34.89 −24.94 +30.37 −25.42 +11.30 −34.27
~~3.42~~
23 14.38 23 11.51 23 10.04 23 9.39 23 10.29 23 8.16 23 10.47 23 13.05 23 11.33

59 33.94 59 36.84 59 38.31 38.96 59 38.06 40.19 59 37.88 59 35.30 37.02
38.63 39.12 36.16

39 51 39 5 39 14 39 58

1,31310 1,31340
+2964 +4792 +3052 +5413 ~~1.36723~~ +4153 +4076
1,34304 1,36102 1,34362 1,34392 1,36723 1,36753 1,35463 1,35493 1,35386 1,35416
−22.03 −22.96 −22.06 −22.08 −23.29 −23.31 −22.63 −22.64 −22.59 −22.60

−.04 −.37 −.04 −.22 −.15 −.45 −.08 −.12 −.73 −.06 −.09 −.66 −.06 −.02 −.67 −.11
−.68 −.74 −.41 −.45 −.27 −.40 −.55 −.73 −.57 −.54 −.68
−22.78 −23.41 −22.48 −22.56 −23.96 −24.10 −23.29 −23.15 −23.39
59 11.19 59 13.~~10~~ 13.43 59 15.83 16.40 59 14.10 16.09 59 14.59 59 12.15 13.63
43 3.2 43 3.2 3.2 3.2 3.2 3.1
−16 8.0 16 10.2 16 12.6 13.2 10.9 12.9 11.4 9.0 10.5
−16 8.0 10.2 12.9 11.9 11.4 10.2
−16 7.5 9.7 12.4 11.4 10.9 9.7
−16 7.00 53.60 −16 9.28 53.52 −16 11.08 54.06 −16 8.97 54.38 −16 9.82 54.00 −16 8.49 52.97
— 10.9 8.09 — 11.3 10.41 — 12.1 12.29 54.61 — 12.5 12.23 56.37 — 12.7 11.19 — 12.9 54.45 9.78
−2.24 −2.24 2.24 2.24 −2.24 −2.14
— 9.50 53.60 — 9.50 53.52 — 9.50 54.33 — 9.50 55.37 — 9.50 54.00 — 9.40 53.71
−16 17.57 19.91 21.79 16.72 20.57 16.18

63

4 Camelop.

h m s
4 37 36
+ 56° 32′

z = − 1~~3~~4 9
− .24

Sin δ	9.92127	
Cos δ	9.74151	
	.11678	
	~~9.85~~	
	9.85829	

1874		m	s		′	″	
Jan	20	37	31.52		31	64.3	
	25		31.42	− .10		65.0	+ .7
	30		31.31	.11		65.6	.6
Feb.	4		31.19	.12		66.1	.5
	9		31.07	.12		66.5	.4
	14		30.93	.14		66.8	.3
	19		30.79	.14		67.0	.2
	24		30.63	.16		67.1	.1
Mar.	1		30.47	.16		67.1	.0

corrα = −.052 s
corrδ = +.09″
longd = +1.51 1.81
t = 3.73 s
K = −.028 s

1874
α 30.882
δ +31 48.65
$\frac{d\alpha}{d\tau}$ +4.972
$\frac{d\delta}{d\tau}$ +6.906

1874

×

+24 Jan 15 +.232		+.25 Jan 18 +.245		+35 Feb 5 +.330		+35 −.04 Feb 12 +.294		+.25 Feb 14 +.107		+.20 Mar 1 +.192	
37 0.3	36 57.2	36 58.8	36 52.0	36 44.6	36 49.6	36 38.8	36 21.3	36 37.0	36 17.5	37 25.1	37 11.6
4.0	53.6	2.5	54.8	48.3	54.7	42.0	26.0	40.9	21.0	28.9	13.8
8.0	58.0	6.4	58.1	52.4	58.5	46.0	29.3	44.7	23.6	32.6	17.4
15.4		13.9		59.6		53.5		52.1	40.0	?	?
18.9		17.7		3.4		57.5		33.8	43.7		
22.6		21.4		7.0		1.0		59.7	49.5		
26.6	37 32.5	25.0	37 42.8	11.0	37 34.3	5.0	37 20.6	3.4	57.2		
30.3		28.8	46.7	14.6	38.3	8.5	26.0	7.1	55.0		
37.7		36.1	49.3	22.3	42.7	16.0	29.4	14.6	2.4		
41.7		40.1		26.0		20.0		18.2	6.1		
45.3		43.7		29.7		23.8		22.0	9.9		
2518		2944 60		3189 240		3121 300		3555 300	3179 180		

Ex.

36 54.93 2344 36 54.97 789 36 54.27 121 36 25.53 6555 ~~36~~ 4979 37 28.87 37 14.27
37 22.818 37 32.50 37 21.309 37 46.27 37 7.173 37 38.43 37 1.100 37 25.33 36 59.591 36 45.264 1 Feb. 14
+8.43 +9.8 x6 +23.41 +29.33 5 −17.30 +31.14
22.790 +.36 21.281 +.38 7.145 +.53 1.072 +.53 59.563 45.236 +.30 +.38
37 31.621 37 31.585 37 31.176 37 30.098 −.07 37 30.942 37 30.486
− 8.822 −.073 − 10.227 −.067 − 24.032 −.028 − 29.921 −.010 − 31.386 − 45.272 +0.42 −.004
− 8.787 37 30.85 − 10.232 30.85 − 23.987 30.81 − 29.886 30.78 − 31.331 − 45.197 28.66 ~~28.08~~
38 31.04

+ 8.41 + 9.84 + 23.43 + 29.28 + 31.08 − 17.31
+ .35 + .37 + .50 + .44 + .16 + .29
−0.73 +4.242 39 35.15 −0.64 +4.302 39 35.33 −0.28 +4.692 39 36.49 −0.10 +4.872 39 37.54 −0.04 +4.932 +.04 +5.392 .98
+ ~~8.64~~ 8.03 −7 32.67 + 9.584 −7 32.12 + 23.7565 −7 31.35 + 29.5862 −7 30.84 + 31.20 − 16.60 −7 30.75
37 22.79 + .70 37 21.28 + .70 37 7.14 + .7 37 1.07 + .7 36 59.56 36 45.24 + .8
−15.00 −15.40 −17.60 −18.10
37 ~~31.68~~ 30.82 31 48.18 37 30.~~78~~82 31 48.51 37 30.~~84~~79 31 48.24 37 30.659 31 49.30 37 30.76 36 28.64
~~36.652~~ 35.792 ~~35.752~~ 35.792 ~~35.862~~ 35.782 35.622 6 35.732 33.612

s
+27.89 − 9.68 + 26.34 − 24.96 + 12.90 ± 31.26 + 35.57 ~~+~~ 24.23 − 48.61 +14.60
40 40 40 40 40 40
Refl. = − 2.30 − 2.36 − 2.79 − 2.98

3 12.1 3 41.0 3 14.3 3 51.1 3 24.1 3 56.5 3 6.4 3 47.9 2 58.1 3 22.1 3 3.6
4.1 32.1 5.7 41.8 12.5 45.5 56.8 38.1 56.8 21.2 0.7
16.2 73.1 20.0 92.9 36.6 102.0 123.2 86.0 114.9 43.3 4.3
43 8.10 43 36.55 43 10.00 43 46.45 43 18.30 43 51.00 43 1.60 43 43.00 42 57.45 43 21.65 43 2.15
1.44545 0.98558n 1.42062 1.39724 1.11059 1.49499 1.55108 1.38435n
1.30374 0.84417n 1.27891 1.25535n 0.96888 1.35328 1.40937 1.24264n
+ 20.13 − 6.98 + 19.01 − 18.01 + 9.31 − 22.56 + 25.55 − 17.48

43 28.23 43 29.57 43 29.01 43 28.44 43 27.61 43 28.44 43 27.05 43 25.52

+56° 39′ 20.″12 18.78 39 19.34 19.91 39 20.74 19.91 39 21.20 22.83
19.45 19.62 20.32 22.01
− 134 9 20 8 51 9 26 8 45
1.~~12900~~n 1.~~12870~~n
1.16210n 1.16180n +3272 +4504 +3001
+3396
1.19606 1.19576 1.19482 1.19452 1.20914 1.20684 1.19211 1.19181
+15.71 +15.69 +15.66 +15.65 +16.07 +16.10 +15.56 +15.55

−.18 .00 −.02 −.17 +.04 −.16 −.04 +.07 −.24 −.31 −.03 −.15
+.09 +.11 +.19 +.23 +.20 +.23 +.18 +.22
+15.62 +15.78 +15.68 +15.72 +16.23 +16.09 +15.43 +15.62
39 35.74 34.56 39 35.02 35.63 39 36.94 36.00 39 36.63 38.45
32 36 40 62 67
−7 32.1 31.0 31.0 31.6 30.78 29.8 29.9 31.8
−7 31.65 31.30 30.30 30.85
−7 31.5 31.2 29.4 30.8 08
−7 33.01 31 48.28 −7 32.37 47.81 −7 31.27 48.76 −7 31.16 48.~~28~~
+ .55 32.46 47.60 + .56 31.81 48.42 + .66 30.61 47.79 + .71 30.45 50.~~09~~
− 15.00 −8.09 47.~~54~~59 − 15.40 −8.49 48.11 − 17.60 −10.69 48.27 − ~~17.91~~ 18.10 −11.19 49.90
−7 ~~47.56~~ 31 54.50 −7 47.21 55.02 −7 48.21 55.18 −7 48.~~36~~ 55 ~~49.18~~ 48.99
~~56.09~~ 55.90

45.4
45.8
91.2
45.60
4436n
3481n
34.27
11.33
37.02
58
116
260
−.11
−.68
23.39
13.63
16.5
7
5 97
1 −2.14

26.97
3.97
8.72
+.08
−0.32
44.62
12.89
8.26
1.2
9.40
4.03
27.82

1875

		m	s		'	"	
Jan	0	37	37.11		31	69.8	
	5		37.09	−.02		70.8	+1.0
	10		37.05	.04		71.7	.9
	15		36.99	.06		72.5	.8
	20		36.92	.07		73.3	.8
	25		36.83	.09		74.0	.7
	30		36.73	.10		74.6	.6
Feb.	4		36.61	.12		75.1	.5
	9		36.48	.13		75.5	.4
	14						

1875
α 35.854
δ +31 55.55
$\frac{d\alpha}{d\tau}$ +4.972
$\frac{d\delta}{d\tau}$ +6.899

$\log\cos\delta$ 9.74151
ℓ6 .12552
ℓ6' 9.86703

+.32 1875 +.20 −.08 +.23 −.08 +.23 +.24 +.32

Jan 11
+.305
36 48.2 36 34.6
52.0 38.5
55.3 41.2
37 2.8
6.7
10.4
14.3
17.9
25.5
29.4
33.0
295.5
180
115.5 36 38.10
37 10.500
+26.13
+.48
10.472
37 37.04
−26.57 −1.19
−26.52 37 35.89
+26.11
+ .46
−1.19 29 51.08
+25.38 +2 17.63
37 10.47 +.8
−16.30
37 35.85 31 53.21
s
+32.40
50
−3.19
2 49.1
46.0
95.1
52 47.55
1.51055
1.37758
+23.86
53 11.41
29 36.94
9 19
1.12900
+4484
1.17384
+14.92
−.25 ~~−.39~~ −.78
−.53
+14.14
29 51.08
32 11.9
+2 20.8
+2 20.8
+2 20.9 31 53.73
+2 18.19
+ .76 18.95 −9.40
− 16.30 53.73
+2 2.61

Jan 14
+.110
36 45.4 36 28.0
49.3 30.8
53.0 34.4
37 0.5
4.2
8.1
11.8
15.7
22.8
26.7
30.4
267.9
180
87.9 36 31.07
37 7.991
+28.89
+.30
7.963
37 37.00 −.14
−29.04 −1.15
−28.99 35.86
+28.81
+ .16
−1.15 48 18.28
+27.82 −16 6.56
37 7.96 +.8
−16.80
37 35.78 31 55.72
+36.92
30
−3.23
4 19.1
13.2
32.3
34 16.15
1.56726
1.43429
+27.18
34 43.33
48 5.02
+2964
1.15864
+14.41
−.33 ~~−.57~~ −1.15
−.82
+13.26
48 18.28
32 12.4
−16 5.9
−16 5.9
−16 5.8 ~~41.31~~ 55.25
−16 7.00
+ .77 6.23 −9.90
− 16.80 55.25
−16 23.03

Jan 16
+.160
36 36 53.2
58.5 56.8
37 0.4 58.8
2.0
4.2
5.9
7.5
9.7
11.4
13.4
113.3
60
53.3 36 55.93
37 5.922
+30.80
+.35
5.894
37 36.987 −.14
−31.078 −1.12
−31.043 35.78
+30.73
+ .24
−1.12 48 17.00
+29.85 −16 5.36
37 5.89 +.8
−17.10
37 35.74 31 55.34
+9.99
30
−3.27
4 40.7
34.7
75.6
34 37.80
0.99957
0.86660
+7.35
34 45.15
48 3.20
+3843
1.16743
+14.70
−.03 ~~−.45~~ −.90
−.87
+13.80
48 17.00
12.7
4.3
4.3
4.2 55.12
−16 6.56
+ .78 4.78 −10.20
− 17.10 55.72
21.88

Jan 26
+.230
36 37 18.9
53.8 21.7
55.6 24.3
58.5
59.4
1.5
3.2
5.0
7.0
8.8
251.8
240
11.8 37 21.63
37 1.311
+35.20
+.35
1.283
37 36.92
−35.64 −1.07
−35.59 35.76
+35.17
+ .34
−1.07 48 21.75
+34.44 −16 8.55
37 1.28 +.8
−17.70
37 35.72 31 56.30
−20.32
30
−3.35
4 55.3
56.3
111.6
34 55.80
1.30792
1.17495
−1496
34 ~~10.76~~
40.84
48 7.51
+4799
1.17699
+15.03
−.10 ~~−.39~~ −.79
−.69
+14.24
48 21.75
13.3
8.4
8.4
8.3 55.57
−16 9.28 8.46
+ .80 10.80
− 17.70 55.57
26.18

Feb 2
+.210
36 24.0 36 6.1
27.9 9.1
31.7 13.2
39.0
42.8
46.6
50.2 37 21.0
54.1 25.4
1.6 28.0
5.0
9.0
332.0
180
512.0 36 9.13
36 46.545 37 24.80
+49.79
+.86
46.517
37 36.686
+9.846 5.009 −0.81
+9.89 35.86
+49.80
+ .32
−0.81 48 25.64
+49.31 −16 10.93
36 46.52 +.8
−19.30
37 35.83 31 56.21
+37.41 −38.26
30
−3.57
4 4.6 0 0.9
12.2 9.8
16.8 10.7
34 8.40 35 5.35
1.57299 1.58274
1.44002 1.44977
+27.55 −28.17
34 35.95 34 37.18
48 12.40 11.17
11.78
9 40 8 43
1.12920 1.12860
+3055
1.15975 1.15915
+14.45 +14.43
−.35 −.58 −.36
−.45 −.01
+13.65 +14.06
48 26.05 25.23
14.9
11.1 10.3
10.70
10.6 56.52
−16 11.08 55.70
+ .85 10.23
− 19.30 12.40 56.11
29.53

Feb 9
+.335
37 36 57.5
31.0 59.8
32.7 3.3
34.6
36.4
38.5
40.4 37 55.0
42.1 58.6
43.9 1.9
46.0
~~34.26~~
34.56
37 0.20
37 38.~~178~~ 36 58.50
400 37 −2.36
+.48
38.372
37 36.477
+1.890 −0.62
+1.935 35.87
−2.34
+ .50
−0.62 48 23.57
−2.46 −16 9.28
37 38.34 +.8
−19.90
37 35.91 31 55.19
−20.10
38.20
+~~37.48~~ +~~39.68~~
30
−3.70
4 10.1 4 54.1
10.8 53.7
20.9 107.8
34 10.45 34 53.90
1.58206 1.60097 30320
1.44909 1.46800
+28.12 +29.38
34 38.57 35 23.28
39.10
48 9.78 9.25
9.51
+5420
1.18340 1.18280
+15.26 +15.23
−.36 −1.18 −.10
−.88 −1.03
+14.02 +14.10
48 23.80 23.35
15.75
8.3 7.9
8.10
8.0 55.81
−16 8.97 55.36
+ .88 8.09 13.00
− 19.90 55.58
−27.99

	+.30	+.12	
	Feb 14		
	+.410		
37		37	3.7
	23.9		7.9
	26.3		11.0
	28.0		
	30.1		
	31.8		
	33.7	37	46.0
	35.6		48.8
	37.4		52.6
	39.3		
	2861		
		37	7.53
37	31.789	37	49.13
			+3.99
	31.761		+.45
37	36.353		+.22
	−4.597		−0.48
	−4.542		35.94
+	4.07		
+	.62		
	−0.48	48	25.11
+	4.21	−16	9.59
37	31.76	+	.8
			−20.20
37	35.97	31	56.12
	+24.26		−17.34
30			
	−3.75		
4	17.1	4	47.5
	21.1		51.9
	38.2		99.4
34	19.10	34	49.70
	1.38489		1.23905m
	1.35172		1.10608m
	+17.86		−12.77
34	36.96	34	36.93
48	11.39		11.42
	11.40		
9	29	8	58
	1.12910m		1.12880m
	+4158		
	1.17068		1.17038
	+14.81		+14.80
	−.15	−1.10	−.08
	−.97		−1.01
	+15.69		+13.71
48	25.08		25.13
	15.98		
	9.3		9.3
	9.30		
	9.2		5556
−16	9.82		56.01
+	.90	892	
		−1330	53.78
−	20.20		
−16	29.12		

65

1874

μ Eridani

h m s
4 39 15
− 3° 29'

φ = + 45 52
+ .72

Sin δ 8.78360n
Cos δ 9.99920
.11678
.11598

Jan	20	39m 12.71		28' 7.50		
	25	12.66	−.05	7.54	+ .4
	30	12.61	.05	7.58	.4
Feb.	4	12.55	.06	7.62	.4
	9	12.49	.06	7.65	.3
	14	12.42	.07	7.67	.2
	19	12.35	.07	7.69	.2
	24	12.27	.08	7.71	.2
Mar.	1	12.18	.09	7.72	1

1874
α 12.241
δ − 29 15.27
$\frac{d\alpha}{d\tau}$ + 3.000
$\frac{d\delta}{d\tau}$ + 6.902

1874
+.24 Jan 15 +.232
+.25 Jan 18 +.248
+.35 Feb 5 +.330
+.35 −.04 Feb 12 +.294
× +.25 Feb 14 +1.07
Mar 1

38 57.9 | 38 42.9 | 38 50.4 | 38 44.8 | 38 36.8 | 39 4.7 | 30.9 | 38 19.9 | 38 — | 38 55.6
54.0 | 45.2 | 52.6 | 46.5 | 38.7 | 6.6 | 33.0 | 21.8 | — | 57.7
56.1 | 47.5 | 54.6 | 48.0 | 40.6 | 8.4 | 35.0 | 23.8 | — | 0.0
59.9 | 58.7 | 44.8 | 39.1 | 37.1
39 2.3 | 0.8 | 46.9 | 41.2 | 39.1
4.4 | 2.8 | 49.1 | 43.2 | 41.2
6.6 | 39 31.5 | 4.9 | 39 23.9 | 51.3 | 45.2 | 38 56.3 | 43.5
8.4 | 33.7 | 6.9 | 25.6 | 53.0 | 47.3 | 57.9 | 45.5
12.4 | 35.3 | 11.0 | 27.6 | 57.3 | 51.4 | 59.8 | —
14.6 | 13.2 | 59.3 | 53.6 | —
16.8 | 15.2 | 1 2 | 55.5 | —

2874 | 2711 | 4790 | 4754 | 2064
240 | 240 | 60

474 38 45.20 | 31 1 38 46.43 | 53.90 39 6.57 | 38 21.83 | 38 57.77
39 4.309 39 33.50 | 39 2.827 39 25.70 | 38 49.000 | 38 43.218 | 38 58.00 | 38 41.280
4.294 +8.43 | 2.812 +9.86 | 48.985 +23.41 | 43.203 +29.35 | 41.265 +31.14
39 12.765 −.01 | 39 12.734 −.02 | 39 12.54 −.02 | 39 12.45 −.02 | 39 12.42 −.02
−8.456 | −9.923 | −23.56 | −29.25 −.04 | −31.16
−0.51 | −0.50 | −0.30 | −0.21 | −0.18

+ 8.41 39 12.20 | + 9.84 12.15 | + 23.43 12.08 | + 29.28 12.28 | + 31.08 12.21
− .01 | − .01 | − .02 | − .02 | − .01
−0.51 +2.490 | −0.50 +2.500 | −0.30 +2.700 | −0.21 +2.790 | −0.18 +2.820
+ 7.89 | + 9.33 | + 23.11 | + 29.05 | + 30.89

39 4.29 21 40.13 | 39 2.81 41.09 | 38 48.98 43.09 | 38 43.20 43.74 | 38 41.26 21 44.17
−7 32.67 | −7 32.12 | −7 31.35 | −7 30.84 | −7 30.98
39 12.18 −2.1 | 39 12.14 −2.1 | 39 12.09 −2.1 | 39 12.25 −2.1 | 39 12.15 −2.1
15.18 −0.70 | 15.14 −0.40 | 15.09 +1.00 | 15.25 +1.30 | 15.15 +1.40
−3 28.9 15.60 | 29 15.71 | 29 15.54 | 29 15.38 | 29 15.85

s
+19.11 −29.19 | +16.40 −22.87 | −17.57 | +21.39 −14.78 | −16.49
40 | 40 | 40 | 40 | 40 | 40
Refl = −2.30″ | −2.36 | −2.79 | −2.98 | −3.00

3 4.9 | 4 10.7 | 3 10.4 | 4 2.9 | 3 56.9 | 3 7.5 | 3 55.1 | 3 55.8 | 4 4.8
52.1 | 56.7 | 56.9 | 49.7 | 40.9 | 53.8 | 41.5 | 49.3 | 56.3
117.0 | 127.4 | 127.3 | 112.6 | 97.8 | 121.3 | 96.6 | 105.1 | 121.1
43 58.50 | 44 3.70 | 43 3.65 | 43 36.30 | 43 48.90 | 43 0.65 | 43 48.30 | 43 52.55 | 44 0.55
1.28126 | 1.46523 | 1.21484 | 1.35927 | 1.24477 | 1.33021 | 1.16967 | 1.21722
1.39724 | 1.58127n | 1.33082 | 1.47525n | 1.36075n | 1.44619 | 1.28565n | 1.33320n

+24.96 −38.13 | +21.42 −29.87 | −22.95 | +27.94 −19.30 | −21.54
43 23.46 43 25.57 | 43 25.07 43 26.43 | 43 25.95 | 43 28.59 43 29.00 | 43 31.01

3° 20 35.11″ 37.22 | 20 36.72 20 38.08 | 20 37.60 | 20 40.24 40.65 | 20 42.66
36.16 | 37.40 | 40.44
+
45 50 31 51 26 | 50 33 51 20
1.77260 1.77280 | 1.77260 1.77280
+ 3398 | +3273 | +4504 | +3003 | +1797
1.80658 1.80678 | 1.80533 1.80553 | 1.81764 1.81784 | 1.80263 1.80283 | 1.79057 1.79077
−64.06 −64.09 | −63.88 −63.90 | −65.71 −65.74 | −63.48 −63.51 | −61.74 −61.77
− .01 − .01 | − .01 − .01 | − .01 − .01 | − .01 − .01 | .00
+.02 +.12 +.02 | +.01 +.21 +.03 | +.01 +.12 | +.02 +.21 +.01 | +.01 +.12
+.09 +.12 | +.18 +.23 | +.23 +.24 | +.18 +.23 | +.23 +.24

−1 3.97 −1 3.96 | −1 3.71 −1 3.64 | −1 5.49 | −1 3.30 −1 3.29 | −1 1.51
21 39.08 41.18 | 21 40.43 41.75 | 21 43.09 | 21 43.54 43.94 | 21 44.17
29 14.6 | 14.9 | 16.3 | 16.6 | 16.7
−7 35.5 33.4 | 34.5 33.2 | 33.2 | 33.1 32.7 | 32.5
−7 34.4 | 33.8 | 33.2 | 32.9 | 32.5
−7 33.01 29 14.44 | −7 32.37 14.85 | −7 31.27 15.36 | −7 31.16 15.54 | −7 31.07 16.00
1.65 34.66 16.54 | 1.69 34.06 16.21 | 2.00 33.27 | 2.14 33.30 15.94 | 2.16 33.23
0.70 +6.20 | 0.40 +6.50 | + 1.00 +7.00 | + 1.30 +8.30 | + 1.40 +8.30
−7 35.36 15.49 | −7 34.46 15.55 | 32.27 15.36 | ~~34.40~~ 15.74 | 31.83 16.00
29 8.59 | 8.65 | 8.46 | −7 32.00 8.84 | 9.10

1875		m	s		'	"	
Jan	0	39	16.08		28	63.8	
	5		16.07	−.01		64.4	+.6
	10		16.06	.01		65.0	.6
	15		16.03	.03		65.5	.5
	20		16.00	.03		66.0	.5
	25		15.96	.04		66.4	.4
	30		15.91	.05		66.8	.4
Feb.	4		15.85	.06		67.2	.4
	9		15.79	.06		67.5	.3
	14		15.72	.07		67.7	.2
	19		15.64	.08		67.9	.2

1875

α 15.241

δ −29 8.37

$\frac{d\alpha}{dT}$ +3.000

$\frac{d\delta}{dT}$ +6.898

log cos δ 9.99920

log .12552

log' .12472

corr α =

corr δ =

tang δ = −.06 1.00

I = 2.07 s

K = −.015 s

+20 −.08 1875 Jan 14		+23 −.08 Jan 16		+.32 Feb 9		+.30 +.12 Feb 14		+.20 Feb 18	
+.110		+.160		+.335		+.410		+.148	
38 34.5	38 56.9	38 32.9	38 29.9	39 5.7	38 51.1	39 —	39 19.5	38 54.5	38 46.7
36.6	58.7	35.0	31.7	7.8	53.8	—	22.3	56.5	48.7
38.7	0.6	37.0		9.9	55.9	—	23.7	58.7	50.1
42.9		41.2		14.0		7.4		39 2.9	
45.0		43.1		16.0		9.5		5.0	
47.1		45.3		18.1		11.5 13.6		7.0	
49.2		47.5		20.2	39 49.2	15.8		9.0	39 32.3
51.3		49.5		22.3	51.6	—		11.0	34.8
53.5		53.6		24.1	53.6	—		15.1	36.9
57.4		55.5		28.4		—		17.1	
59.6		57.6		30.6				19.2	
5778		4980		1991		578		2560	
								180	
38 58.73		38 30.80			53.60 ~~38 55.40~~ ~~51.47~~		~~39 21.83~~	760	38 48.50
38 47.073		38 45.273		39 18.100	39 32.20	39 11.560		39 6.909	39 34.67
47.058	+28.89	45.258	+30.80	18.085	−2.36	11.545	+3.99	6.894	+8.72
39 16.04	−.01	39 16.02	−.01	39 15.79	−.02	39 15.72	−.02	39 15.665	−.01
−28.98	−.08	−30.76	−.08	+2.29		−4.18	+.12	−8.776	
	−0.80		−0.78		−0.55		−0.48		−0.41
+ 28.82	38 15.06 9	+ 30.73	~~15.29~~ 15.19	− 2.38	15.16	+ 4.07	15.16	+ 8.74	15.19
− .01		− .01	.19	− .02		− .02		− .01	
−0.80		−0.48		−0.55		−0.48		−0.41	
+ 28.01		+ 29.94		− 2.91		+ 3.57		+ 8.32	
38 47.06	12 55.77	38 45.26	13 1.25	39 18.08	12 55.36	39 11.54		39 6.89	52.88
	−16 6.56		−16 5.36		−16 9.28		−16 ~~8.20~~ 9.59		−16 8.26
39 15.07	−2.2	39 15.20	−2.2	39 15.17	−2.3	39 15.11	−2.3	39 15.21	−2.4
	−3.00		−2.80		−0.90				−0.50
29 7.53		29 11.61		29 7.84				29 8.04	
−11.66		s +14.47		24.50 +22.70	−33.37 ~~−34.10~~		−10.27	+18.41	−27.76
25 30		30		30		30		30	
−3.23		−3.27		−3.70		−3.75		−3.80	
0 0.3		4 29.6		4 2.9	0 20.8	4 51.1	0 17.7	4 15.9	0 17.1
50.3		19.7		1.6	20.4	52.0	19.5	14.5	16.3
110.6		49.3		4.5	41.2	103.1	37.2	30.4	33.4
34 55.30		34 24.65		34 2.25	35 20.60	34 51.55	35 18.60	34 15.20	35 16.70
1.06670		1.16047	1.38917	1.52336n	Cand-solve	1.01157		1.26505	1.44342n
1.19142		1.28519	1.51389	1.64808n		1.13629		1.38977	1.56819n
−15.54		+19.38	+32.65	−44.47		−13.69		+24.53	−37.00
34 39.76		34 44.03	34 34.90	34 36.13		4.91		34 39.73	34 39.70
11 51.41		11 55.68	11 46.55	47.78				11 51.38 51.36	51.35
		50 37						50 27	51 29
								1.77260	1.77280
+2964		+3847		+5423				+4083	
1.80224		1.81107	1.81127	1.82683	1.82703			1.81343	1.81363
−63.42		−64.72	−64.75	−67.12	−67.15			−65.08	−65.71
−.01		−.01	−.01	−.01	−.01			−.01	−.01
+.01	+.01	+ ~~.41~~	+.03	+.01 .43	+.02		+.01	+.01 .41	−.01
−.93 −.93	~~−.84~~	−.84 .84	−.84	−.84	−.06	−1.03	−.06	−.77	−.05
−1 4.36		−1 5.57	−1 4.59	−1 7.96	−1 7.20			−1 5.86	−1 5.17
12 55.77		13 1.25	55.14	12 ~~54.54~~ 55.74	54.98			12 57.24	12 56.52
29 5.4		29 5.6		29 7.5				7.9	
−16 9.6		−16 4.47		−16 11.8	12.5			10.8	11.4
−16 9.6		4.4		12.1				11.1	
−16 7.00 29 8.09		−16 5.56	11.59	−16 8.97	8.28	−16 9.82		−16 8.49	8.96
− 2.32 9.32		− 2.35 7.91		2.66 11.63	7.51	−		− 2.73 11.22	8.24
− 3.00 +3.90		− 2.80 +4.10		−0.90 +6.00				− 0.50 +6.40	8.60
−16 12.32		−16 10.71	1.46	12.53	7.89	~~9.82~~		11.92	

9(α) Camelop.

h m s
4 41 38
+ 66° 08'
z = −23 45
− 40

Sin δ 9.96118
Cos δ 9.60704
.11678
9.72382

1874
α 32.034
δ +7. 30.40
dα/dτ +5.912
dδ/dτ +6.752

1874

Jan 20	41m 33.05s		7'	47.7"	
25	32.91	−.14		48.6	+.9
30	32.75	.16		49.4	.8
Feb. 4	32.58	.17		50.0	.6
9	32.40	.18		50.6	.6
14	32.20	.20		51.0	.4
19	31.99	.21		51.3	.3
24	31.77	.22		51.5	.2
Mar. 1	31.53	.24		51.6	.1

corr α =
corr δ =

tang δ = +2.26 247
8
I = 5.08
5
K = −.037

1874 Jan 15 +.24 +.232 | Jan 18 +.25 +.245 | Jan 20 +.24 +.177 | Feb 12 +35 −.04 +.294 | × Feb 14 +.25 +.107 | × 1874 Mar 1 +20 +.192

41 16.5 40 57.4 | 41 — 40 35.8 | 41 11.1 41 12.7 | 40 32.3 40 14.0 | 40 57.0 40 27.7 | 41 38.4 41 30.2
21.6 53.5 | 12.6 43.3 | 13.8 | 54.8 17.9 | 58.4 82.0 | 41.0
26.8 58.9 | 15.2 48.5 | 16.2 | 57.4 23.0 | 55.8 37.8 | 43.5
37.0 | 17.8 | 18.5 | 59.8 | 58.4 | 46.1
42.1 | 20.4 | 21.1 | 2.4 | 1.0 | 48.7
47.0 | 22.9 | 23.6 | 5.0 | 3.6 | 51.2
52.0 42 58.9 | 25.3 41 45.6 | 26.3 41 25.0 | 7.4 41 31.0 | 6.1 41 9.2 | 53.7
57.5 58.4 | 27.9 49.3 | 29.0 27.8 | 10.1 35.1 | 8.6 15.0 | 56.3
7.9 1.6 | 30.5 54.7 | 31.4 31.8 | 12.7 39.4 | 11.3 18.3 | 58.7
3.0 | 33.1
18.9
2057 | 1910 | 2619 | 2492 | 4376
240
3394 | 21.9 | 92
18.0

51.94 40 55.27 | 40 42.53 | 41 12.70 | 40 18.30 | 40 32.50 | 41 30.20
41 47.218 42 57.97 | 41 22.856 41 49.87 | 41 21.222 41 28.20 | 41 2.433 41 35.17 | 41 1.022 41 14.17 | 41 48.622
47.181 | 22.819 +9.86 | 21.185 +11.51 | 2.396 +29.34 | 0.985 +31.14 | 48.585 −17.30
41 33.20 16 | 41 35.120 +.57 | 41 33.064 +.54 | 41 32.297 +.79 | 41 32.24 19 +.57 | 41 31.542 +.45
+12.98 | −10.30 28 | −11.886 | −29.877 −.10 | −31.231 | +16.046
14.07 | −1.07 | −1.01 | −.024 | −0.16 | 17.06 +0.51
41 32.18 | 32.23 | 32.19 | 32.54 | 32.25

+ 8.41 | + 9.85 | + 11.53 | + 29.29 | + 31.08 | − 17.31
+ .52 | + .55 | + .40 | + .66 | + .24 | + .43
−1.13 | −1.07 +4.842 | −1.01 +4.902 | −.24 +5.672 | −0.16 +5.752 | +0.51 +6.422
+ 7.81 | + 9.33 15 18.23 | + 10.92 18.33 | + 29.71 20.85 | + 31.16 20.53 | − 16.37 20.77
41 47.18 | 41 22.82 −7 32.12 | 41 21.18 −7 31.55 | 41 2.40 −7 30.84 | 41 0.98 −7 30.98 | 41 48.58 −7 30.15
+ 1.3 | + 1.3 | + 1.2 | + 1.2 | + 1.2
41 54.99 | 32.15 −17.00 | 41 32.10 −17.30 | 41 32.11 −20.50 | 41 32.14 −20.60 | 41 32.21 −21.20
38.062 +66 7 30.41 | 38.012 7 30.78 | 38.022 7 30.71 | 38.052 7 30.15 | 38.122 7 31.62

5
+ 51.95 − 70.75 | + 40.33 − 27.01 | + 8.52 − 6.98 | +44.13 −32.74 | + 28.52 − 13.15 | + 18.42
0 | 5 | 5 | 5 | 5 | 5
Hafl = | − 2.36 | − 2.38 | − 2.98 | − 3.00 | − 3.17

1 45.9 2 51.1 | 2 41.1 3 26.4 | 3 5.9 | 2 36.3 3 17.3 | 2 40.0 3 3.0 | 2 45.5
37.5 41.8 | 30.8 7.1 | 57.0 | 25.5 6.9 | 37.7 0.2 | 42.2
83.4 92.9 | 71.9 33.5 | 12.29 | 61.8 24.2 | 77.7 3.2 | 87.7
1 41.70 2 46.45 | 7 35.95 8 16.75 | 8 1.45 | 7 30.90 8 12.10 | 7 38.85 8 1.60 | 7 43.85
1.71539 1.84973 | 1.60563 1.43152n | 0.93044 0.84386 | 1.64473 1.51508n | 1.45575 1.11893 | 1.26529
1.43941 1.57355 | 1.32945 1.15534 | 0.65426 0.56768n | 1.36855 1.23890 | 1.17597 0.84275 | 0.98911
+ 27.51 − 37.46 | + 21.35 − 14.30 | + 4.51 − 3.70 | + 23.36 − 17.33 | + 15.10 − 6.96 | + 9.75

2 9.21 2 8.99 | 7 57.30 8 2.45 | 8 5.96 7 57.75 | 7 54.26 54.77 | 7 53.95 7 54.64 | 7 53.60

+66 20 39.14 39.36 | 14 51.05 50.97 14 45.90 50 | ~~14 42.39~~ 14 50.60 | 14 54.09 53.83 53.58 | 14 54.40 54.05 14 53.71 | 14 54.75

+23 | 44 57 44 66 | 44 49 44 26 | 44 44
1.40370 1.40340 | 1.40360 1.40350
+3067n | +1806n

+3401 | +3276 | +3698 | | | +1223
1.43771 1.43741 | 1.43646 1.43616 | 1.44068 1.44038 | 1.43377 1.43347 | 1.42166 1.42156 | 1.41583 1.41573
+27.40 +27.38 | +27.32 +27.30 | +27.59 +27.57 | +27.15 +27.13 | +26.40 +26.40 | +26.05 +26.05

−.62 −1.01 | −.32 −.05 −.14 | ~~−.02~~ ~~+.08~~ −.02 | −.39 −.12 −.19 | −.15 +.08 −.03 | −.06 ~~.01~~ −.03
+.05 +.08 | +.16 +.20 | ~~+.18~~ +.16 +.18 | +.15 +.19 | +.16 +.18 | +.03
+26.93 +26.45 | +27.16 +27.36 | ~~+27.75~~ +27.47 | +26.91 +27.13 | +26.41 +26.55 | +26.02
21 8.07 5.81 | 15 18.21 18.26 | 15 ~~18.14~~ 15 ~~18.01~~ 18.33 | 15 21.00 20.71 | 15 20.81 15 20.26 | 20.77
7 46.8 | 7 47.4 | ~~47.7~~ | 7 50.9 | 51.0 | 51.6
30.8 30.9 | ~~32.4~~ 30.3 30.3 | −7 30.1 30.0 29.8 | 29.8 29.6 29.3 | 29.2 29.6
−7 32.37 7 29.78 | −7 31.44 ~~30.22~~ | −7 31.16 30.53 | −7 31.07 30.34 | −7 30.40 30.43
+ .94 29.83 | + .95 30.49 30.54 | + 1.19 29.97 30.24 | + 1.20 29.87 29.79 | + 1.26 29.14
− 17.00 31.43 −10.23 | − 17.30 −10.55 | − 20.50 −13.75 | − 20.60 −13.85 | − 21.20 −14.45
−7 48.43 29.80 | −7 47.79 ~~30.22~~ | −7 50.47 30.38 | −7 50.47 30.06 | 50.34 30.43
36.55 | ~~31.02~~ 37.29 | 37.13 | 36.81 | 37.18

1875

		m	s		'	"	
Jan	0	41	39.77		7	52.3	
	5		39.72	-.05		53.5	+1.2
	10		39.66	.06		54.6	1.1
	15		39.57	.09		55.6	1.0
	20		39.47	.10		56.6	1.0
	25		39.34	.13		57.4	.8
	30		39.19	.15		58.2	.8
Feb.	4		39.02	.17		58.8	.6
	9		38.82	.20		59.4	.6
	14		38.60	.22		59.8	.4
	19		38.38	.22		60.0	.2

1875
2 37.946
δ +7 37.15
+5.913
dδ/dt +6.744

log 8 9.60704
l 6 .12552
l 6' 9.73256

+32 1875 Jan 11 +.305 | +20 -08 Jan 14 +.110 | +23 -08 Jan 16 +.160 Wrong star | +.23 Jan 20 +.230 | +.32 Feb 9 +.335 | +30 +12 Feb 14 +.410

41 | 40 5.1 | 41 | 40 44.0 | 41 | 40 52.7 | 41 16.3 | 40 31.6 | 41 | 40 31.0 | 41 | 41 4.9
3.0 | 10.0 | 0.6 | 47.3 | 20.9 | 56.4 | 19.1 | 30.6 | 35.8 | 23.5 | 8.1
5.3 | 14.6 | 3.0 | 52.4 | 23.5 | 0.6 | 21.4 | 33.2 | 39.3 | 29.0 | 13.1
8.0 | 5.6 | 26.1 | 24.0 | 35.7 | 34.2
10.4 | 8.4 | 28.6 | 26.6 | 41 11.5 | 38.6 | 39.2
13.4 | 10.6 | 31.2 | 29.1 | 40.9 | 44.6
15.9 | 13.2 | 34.0 | 31.6 | 43.2 | 41 44.7 | 41 57.2
18.6 | 15.7 | 36.5 | 34.3 | 45.7 | 56.3 | 56.0
20.9 | 18.5 | 39.2 | 37.0 | 48.6 | 59.0
23.3 | 20.8 | 41.9 | 50.9
2394 | 3674
1188 | 964 | 2819

40 9.90 | 40 47.90 | 40 56.57 | 26.600 | 40 31.60 | 40 35.37 | 41 8.70
41 13.200 | 41 10.711 | 41 31.322 | 41 ~~26.489~~ | 41 11.504 | 41 40.822 | 41 50.50 | 41 34.080 | 41 55.40
13.163 | 10.674 | 31.285 | 26.563 | 40.785 | 34.043
41 39.64 | 41 39.548 | 41 39.55 | 41 39.486 | 41 38.831 | 41 38.64 +.57
-26.48 | +26.14 | -28.94 | +28.89 | -8.27 | +30.80 | -12.920 | +35.20 | +1.953 | -2.35 | -4.575 | +3.99
+.72 | +.45 | +.52 | +.52 | +.72 | +.68
+26.12 | +28.82 | -.20 | +30.43 | -.20 | +35.17 | -2.34 | +4.07 | +.30
+.69 | -1.69 | +.25 | -1.63 | +.36 | 42m -1.60 | +.52 | -1.51 | +.76 | -0.86 | +.93 | -0.64
-1.69 | 41 38.33 | -1.63 | 38.18 | -1.60 | 42 0.81 | -1.51 | 42 0.77 | -0.86 | 38.30 | -0.84 | 38.37
+25.12 | +27.44 | +29.49 | +34.18 | -2.44 | +4.36
41 13.16 | 41 10.67 | 41 31.28 | 41 26.56 | 41 40.78 | 41 34.04

41 38.28 | 5 37.19 | 41 38.11 | 23 59.89 | 42 0.77 | 29 47.22 | 42 0.74 | 29 51.30 | 41 38.34 | 24 6.09 | 41 38.40 | 7.99
+2 17.63 | -16 6.56 | -16 5.36 | -16 8.65 | -16 9.28 | -16 9.59
+1.3 | +1.3 | +1.3 | +1.3 | +1.3 | +1.3
-17.70 | -18.20 | -18.70 | -19.40 | -22.20 | -22.60
7 38.42 | 7 36.43 | 13 24.46 | 13 24.65 | 7 ~~54.47~~ 35.77 .91 | 7 ~~56.28~~ 37.10

s
+63.30 | +22.81 | +34.75 | +~~54.89~~ 50.0 | +~~14.99~~ 15.10 | +65.45 | -9.68 | +25.38 | -21.32
15 | 55 | 50 | 50 | 55 | 55
-3.19 | -3.23 | -3.27 | -3.35 | -3.70 | -3.75
2 8.7 | 4 6.8 | 3 12.2 | 2 54.4 | 3 33.9 | 4 15.4 | 3 51.5 | 4 16.7
3.0 | 58.0 | 6.2 | 55.9 | 33.3 | 15.9 | 55.7 | 20.8
11.7 | 124.8 | 18.4 | 110.3 | 67.2 | 31.3 | 107.2 | 37.5
17 5.85 | 59 2.40 | 53 9.20 | 52 55.15 | 58 33.60 | 59 15.65 | 58 53.60 | 59 18.75

1.80140 | 1.35813 | 1.54095 | 1.74036 | 1.17898 | 1.81591 | 0.98588 | 1.40449 | 1.32879
1.53396 | 1.09069 | 1.27351 | 1.47292 | 0.91154 | 1.54847 | 0.71844 | 1.13705 | 1.06135
+34.79 | +12.32 | +18.77 | +29.71 | +8.16 | +35.36 | -5.23 | +13.71 | -11.52
17 ~~40.64~~ 39.36 | 59 14.72 | 53 27.77 | 53 24.86 | 59 8.96 | 59 10.42 | 59 7.31 | 7.23

5 ~~8.31~~ 8.99 | 23 33.63 | 29 20.38 | 29 23.49 | 23 39.39 38.66 | 37.93 | 23 41.04 41.08 | 41.12
-23 45 1 | 45 14 | 44 32
Cp.
1.40340 | 1.40350
+4487 | +2964 | +3855 | +4708 | +5428 | +4164
1.44857 | 1.44837 | 1.43334 | 1.43314 | 1.44225 | 1.44205 | 1.45078 | 1.45058 | 1.45798 | 1.45778 | 1.44534 | 1.44514
+29.41 | +29.40 | +27.13 | +27.11 | +27.68 | +27.67 | +28.23 | +28.22 | +28.71 | +28.69 | +27.88 | +27.87

-81 -~~60~~ -121 | -11 -~~43~~ | -23 -~~42~~ | -01 -42 | -04 | -87 -126 | -02 | -12 -96 | -08
-40 | -76 -87 | -61 -84 | -41 | -76 | -88 | -82 | -90
+28.20 | +26.26 | +26.84 | +27.81 | +27.08 | +27.79 | +26.94 | +26.89
5 37.19 | 23 59.89 | 29 47.22 | 29 51.30 | 24 6.47 | 5.72 | 24 7.98 | 8.01
7 54.8 | 55.4 | 55.9 | 56.6 | 59.4 | 59.8
+2 17.7 | -16 4.5 | 13 | 7.1 | 6.3 | 8.2 | 8.2
+2 17.7 | -16 4.5 | 6.7 | 8.2
+2 18.19 | 7 38.96 | -16 7.00 | 35.98 | -16 6.56 | 24.27 | -16 9.28 | 23.96 | -16 8.77 | 36.78 | -16 9.82 | 37.06
+ 1.28 | 19.47 | + 1.29 | 5.71 | + 1.31 | 4.25 | + 1.34 | 7.94 | + 1.48 | 7.49 36.03 | + 1.50 | 37.09
- 17.70 | -10.96 | - 18.20 | -11.46 | - 18.70 | -11.96 | - 19.40 | -12.66 | - 22.20 | -15.46 | - 22.60 | 8.32 -13.86
+2 1.77 | 38.96 | -16 23.91 | 35.98 | 22.95 | 27.34 | 29.69 | 36.40 | 30.92 | 37.07

+.20
Feb 18
+.178

44 41 41.1
17.0 43.2
21.5 44.4
24.6
26.9
29.3
32.1 42 10.6
34.7 15.4
37.5 19.0
39.7

2653
41 42.90
41 29478 42 15.00
29441
41 38.421
−8.977 +8.72
+.45
+ 8.44
+ .40 −0.46
−0.46 38.15
+ 8.68
41 39.44

41 38.12 7.08
−16 8.26
+1.3
~~−2280~~
7 37.32

− 13.42 − 45.52
55
1 − 3.80
4 14.1 4 31.7
16.4 33.8
30.5 ~~75~~.5
59 15.25 59 ~~25.25~~
32.75

1.12775 1.65820
0.86031 1.39076
− 7.25 − 24.59
59 8.00 59 8.16
23 40.35 40.19
4027
44 33 44 15
1.40350 1.40340
+4088
1.44438 1.44428
+27.82 +27.81

−.03 −1.00 −.40
−.76 −.81
+ 27.03 + 26.60
24 7.38 6.79
60.0
~~17.4~~ ~~15.8~~
7.4 6.8
7.1 37.61
−16 8.49 37.02
+ 1.52 6.97
− 22.80 −16.06
37.31
29.77

π³ Orionis   Sin δ 9.07018

h m s
4 43, 6 3   Cos δ 9.99698
+6° 45′   .11678
.11376
= +35 38
sin z = +.58

1875
α   43, 3.33 corr α =
δ   44 28.87 corr δ =
dα/dt   +3.254
dδ/dt   +6.637   tang δ = +.12
I = 2.08ˢ
K = −.016ˢ
log cos δ 9.99698
l.C .12552
l.C′ 0.12250

1874   1874   1875   +.32   +.30 - +12

Jan 18   Jan 20   Feb 12   Jan 10   Feb 9   Feb 14
+.245   +.177   +.294   Ch f.   +.335   +.410

4 42 38.1 42 30.4   42 36.5 42 29.8   42 18.5 42 25.3   42 53.7 42 44.7   42 47.2 42 33.0
40.2 32.1   38.5 31.8   20.7 27.2   55.9 47.7   49.3 34.7
42.3 34.0   40.7 33.7   22.7 29.2   58.0 49.6   51.4 36.5
46.5   44.8   26.8   2.0   55.5
48.6   46.9   28.8   4.0   57.7
50.4   49.0   30.9   6.8   59.8
52.7 43 13.9   51.0 42 8.7   32.9 43 0.4   8.3 43 26.6   1.8 43 13.4
54.8 16.1   53.1 10.1   35.0 2.1   10.4 28.8   3.8 14.9
58.9 17.6   57.3 11.4   39.2 3.9   14.5 31.0   8.1 16.5
1.0   59.3   41.3   16.7   10.2
3.1   1.5   43.3   18.6   12.3

4369   4786   3401   2484   3571
120   60   180   300   73
5569 42 32.17   5386 42 31.77   42 27.23   684 42 47.33   6571 42 34.83
42 50.627 43 15.87   42 48.964 42 10.07   42 30.918 43 2.13   43 6.218 43 28.80   42 59.736 43 15.03
50.611   48.948   30.902   6.202   59.720

+ 9.85   + 11.53   + 29.29   − 2.34   + 4.07
+ .03   + .02   + .03   + .04   + .05
− 0.44 +2.814   − 0.43 +2.824   − 0.18 +3.074   − 0.53   − 0.46
+ 9.44   + 11.12   + 29.14   − 2.83   + 3.66
42 50.61   42 48.95   42 30.90   43 6.20   42 59.72

43 0.05   43 0.07   43 0.04   43 3.37   43 3.38
3.304   3.324   [illegible] 3.294   3.375

2501
+18.46 −25.24   +17.19 +38.89   +3.69 −31.21   +18.89 −22.58   +24.91 −15.29
25   25 Jan 20   30   20   20
Refl = −11.36   −2.38   −2.98   −3.70   −3.75

4 47.7 0 42.0   4 48.7 4 48.7   — — 0 7.9 0 54.2   1 39.8   0 51.7 1 46.6   0 41.7 1 37.0
34.1 31.7   37.9 37.9   26.7 55.2 42.0   40.7   51.8 47.4   46.3 44.4
81.8 73.7   86.6 86.6   123.1 96.2   80.5   103.5 94.0   88.0 78.4
29 40.90 30 36.85   29 43.30 29 43.30   30 1.55 30 48.10   31 40.25   20 51.75 21 47.00   20 44.00 21 39.20
1.26623 1.40209ₙ   1.23528 1.23528   1.58984 0.56703 1.49429   1.27623 1.35372ₙ   1.39811 1.18441ₙ
1.37999 1.51555ₙ   1.34904 1.34904   2.70360 0.68079 1.60805ₙ   1.39873 1.47622ₙ   1.52061 1.30691ₙ
+23.99 −32.80   +22.34 +22.34   +50.54 +4.79 −40.56   +25.05 −29.94   +33.16 −20.27
30 4.89 30 4.05   30 5.64 30 5.64   30 6.34 30 7.54   21 16.80 21 17.06   21 17.16 21 18.93

6° 52′ 43.46″ 44.30   52 42.71   52 42.01 52 40.81   1 31.55 31.29   1 31.19 29.42
43.88   41.41   31.42   30.30
+35 37 13 38 9   37 34 38 20   37 4 37 59   36 56 37 51
1.61530 1.61550   1.61520 1.61550
+3271   +3700   +3009   +5432   +4167
1.64801 1.64821   1.65230 1.65250   1.64539 1.64559   1.66952 1.66982   ~~9599~~ 1.65688 1.65718
−44.47 −44.48   −44.91 −44.93   −44.20 −44.22   −46.72 −46.76   −45.48 −45.41

−.02 +.13 −.04   −.02 +.26 −.09   −.00 .00 −.06   −.02 −.31 −.03   −.04 −.28 −.01
+.28 +.04   +.28   .00 +.05   −.19 −.38   −.15 −.36
−44.21 −44.48   −44.65   −44.20 −44.23   −46.93 −47.17   −45.67 −45.78
+5 51 59.25 59.82   51 58.06   51 57.81 51 55.58 6   0 44.62 44.12   0 45.52 43.64
−7 32.37   −7 31.44   −7 31.16   −16 8.97   −16 9.82
− 1.36 33.73   − 1.38 32.82   − 1.72 32.88   − 2.14 11.11   − 2.17 11.99
+3.55   +3.66   +4.66   +2.48   +2.64
−3.09   −2.99 8   −1.98   −4.16   −4.00
−7 36.82 22.49   35.80 22.26   −7 34.86 22.95   −16 15.27 29.35   15.99 29.53
23.00   21.72   28.85   27.65

22.71   22.26   22.33   29.10   28.57
44 28.35   28.94   28.58

a

o' Orionis

h m s
4 45 23
+14° 02'
φ = + 28 21
Zen. dist. = + 47

Sin δ 9.38469
Cos δ 9.98684
.11678
.10362

corr α =
corr δ =
tang δ = +.25
I = 2.12 s
K = −.016 s

1874

Jan 15
+232
45 3.6 | 44 48.0
5.7 | 49.8
8.0 | 51.6
12.0
14.1
16.4
18.4 | 45 37.5
20.7 | 39.0
24.7 | 41.0
26.9
29.1
1796
44 49.80
45 16.327 | 45 39.17
16.311
+ 8.41
+ .06
− 0.45 +2938
+ 8.08 2
45 16.31
45 24.34 3
27.728

Jan 17
+230
45 3.1 | 44 54.1
5.0 | 56.0
7.1 | 58.1
11.4
13.7
15.8
17.9 | 45 35.5
20.0 | 37.3
24.1 | 39.0
26.2
28.5
1728
44 56.07
45 15.709 | 45 37.27
15.693
+ 8.99
+ .06
− 0.434 +2948
+ 8.61
45 15.69
45 24.30
27.688

Jan 18
+245
45 2.0 | 44 46.6
4.3 | 48.6
6.5 | 50.6
10.6
12.7
14.9
17.0 | 45 32.0
19.1 | 33.7
23.4 | 35.4
25.4
27.6
1635
44 48.60
45 14.864 | 45 33.77
14.848
+ 9.85
+ .06
− 0.43 +2958
+ 9.48
45 14.85
45 24.33
27.718

Jan 20
+.177
45 0.5 | 44 48.1
2.6 | 49.1
4.7 | 50.9
8.9
11.0
13.0
15.2 | 45 27.6
17.4 | 29.2
21.7 | 31.7
23.8
26.0
14.48
44 49.37
45 13.164 | 45 29.50
13.148
+ 11.53
+ .04
− 0.42 +2.968
+ 11.15
45 13.15
45 24.30
27.688

Feb 4
+.317
44 49.4 | 44 39.7
51.5 | 41.5
53.6 | 42.8
58.0
0.0
2.1
4.3 | 45 27.4
6.4 | 29.5
10.6 | 31.2
12.7
14.9
2635
240
23.5 | 44 41.33
45 2.136 | 45 29.37
2.120
+ 22.38
+ .09
− 0.27 +3.118
+ 22.20
45 2.12
45 24.32
27.708

Feb 12
+.294
44 42.4 | 44 32.7
44.6 | 34.4
46.7 | 36.2
51.0
53.2
55.1
57.3 | 45 10.0
59.4 | 12.1
3.7 | 14.3
5.8
7.9
4271
180
60.71 | 44 34.43
44 55.191 | 45 12.13
55.175
+ 29.29
+ .07
− 0.17 +3.218
+ 29.19
44 55.17
45 24.36
27.748

(Jan 15)
10 +26.53 " −22.84
26' = " − 2.30
1 46.9 | 2 52.9
33.9 | 39.1
808 | 920
11 40.40 | 12 46.00
1.42374 | 1.35870 "
1.52756 | 1.46232 "
+33.68 | −28.99
12 14.08 | 12 17.01
+14° 10' 34.27 | 31.34
32.80
+28 19 12 | 20 18
1.49170 | 1.49200
+3407
1.52577 | 1.52607
−33.56 | −33.58
−.07 .00 | −.087
+.05 | +.08
−33.58 | −33.57
+14 10 0.69 | 57.11
−7 33.01
1.08 34.09
+1.27
−5.09
−7 ~~40~~ 39.18 | 2 21.57
18.59
20
~~14~~.05
25.41

(Jan 17)
10 +19.64 | −21.56
−2.34
1 59.4 | 2 51.3
41.4 | 35.8
1008 | 871
11 50.40 | 12 43.55
1.29314 | 1.33365 "
1.39676 | 1.43727 "
+24.95 | −27.37
12 15.33 | 12 16.18
10 33.02 | 32.17
32.59
+4397
1.53567 | 1.53597
−34.33 | −34.35
−.04 +.01 | −.087
+.05 | +.08
−34.32 | −34.34
9 58.70 | 57.83
−7 33.50
1.09 34.59
+1.33
−5.03
−7 35.62 | 19.08
18.21
18.64
2506

(Jan 18)
10 +26.26 | −18.91
−2.36
1 50.5 | 2 49.5
37.1 | 36.9
876 | 864
11 43.80 | 12 43.20
1.41929 | 1.27669 "
1.52291 | 1.38031 "
+33.34 | −24.01
12 17.14 | 12 19.19
10 31.21 | 29.16
30.18
+3280
1.52450 | 1.52480
−33.46 | −33.48
−.07 +.08 | −.03
+.10 | +.16
−33.43 | −33.35
9 57.78 | 55.81
−7 32.37
1.10 33.47
+1.36
−5.00
−7 38.47 | 19.31
17.34
18.33
24.69

Jan. 20
10 +23.79 | −16.34
−2.38
1 56.0 | 2 46.7
40.9 | 33.0
969 | 797
11 48.45 | 12 39.85
1.37639 | 1.21325
1.48001 | 1.31687
+30.20 | −20.74
12 18.65 | 12 19.11
10 29.70 | 10 29.24
29.47
+3705
1.52875 | 1.52905
−33.79 | −33.81
−.06 +.09 | −.03
+.11 | +.16
−33.74 | −33.68
9 55.96 | 55.56
−7 31.44
1.11 32.55
+1.41
−4.95 | −4.95
37.50 | 18.46
18.06
18.26
24.62

Feb. 4
10 +20.81 | −27.23
−2.73
1 0.4 | 2 2.7
44.0 | 46.7
1044 | 1094
11 52.20 | 12 54.70
1.31827 | 1.43505 "
1.42189 | 1.53867 "
+26.42 | −34.57
12 18.62 | 12 20.13
10 29.73 | 10 28.22
28.97
+2988
1.52158 | 1.52188
−33.23 | −33.26
−.04 +.08 | −.08
+.11 | +.17
−33.16 | −33.17
9 56.57 | 53.05
−7 31.65
1.28 32.93
+1.76
4.60 | − 4.60
−7 37.53 | 19.64
17.52
18.28
24.64

(Feb 12)
10 +20.76 | −16.94
−2.98
1 0.0 | 2 48.5
45.3 | 35.0
105.3 | 83.5
11 52.65 | 12 41.75
1.31723 | 1.22891 "
1.42085 | 1.33253 "
+26.35 | −21.50
12 19.06 | 12 20.25
10 29.35 | 28.10
28.72
+3013
1.52183 | 1.52213
−33.25 | −33.28
−.04 +.10 | −.03
+.11 | +.16
−33.18 | −33.15
9 56.17 | 54.95
−7 31.16
1.40 32.56
+1.93
−4.43
3~~8~~99 | 9
6 | 1~~8~~.16
16.96
7
8
17.57
23.63

1875

α	45 27.77
δ	2' 25.35
$\frac{d\alpha}{dt}$	+ 3.388
$\frac{d\delta}{dt}$	+ 6.36

Log δ 9.98684
L6 .12552
L6' 0.112x6 3

1874

Feb 14
+.107

44 40.8	44 23.3
42.7	25.1
45.0	27.6
49.1	
57.3	
53.4	
55.4	45 0.6
37.6	2.6
1.9	4.6
4.0	
6.1	
40.73	
180	
58.73	44 25.33
44 53.391	45 2.6045
53.375	
+ 31.08	
+ .03	
− 0.14	3.248
+ 30.98	
44 53.34	
45 24.~~56~~ 34	
27.728	

Mar 5
+.140

45 26.0	45 16.6
28.0	18.9
30.2	20.7
34.4	
36.6	
38.9	
40.8	
43.0	
47.1	
49.3	
57.6	
42.59	
	45 18.73
38.718	
38.702	
− 14.54	
+ .03	
± 0.17	~~+3.218~~ 3.558
− 14.34	
45 38.70	
45 24.36	
24.331	27.748

1875

+.23 −.08
Jan 16
+.160

44 44.8	44 37.3
47.1	39.0
49.3	40.5
53.4	
55.4	
57.9	
59.9	
2.0	
6.2	
8.4	
10.6	
39.53	
240	
63.53	44 38.93
44 57.755	
57.739	
+ 30.43	
+ .04	
− 0.76	
+ 30.01	
44 57.74	
45 27.75	

+.23
Jan 20
+.230

44
49.0
51.2
53.3
53.4
57.6
~~59.7~~
1.8
4.0
6.0
33.80
180
51.80
44 57.556
~~57.540~~
53.30
+ 35.18
+ .06
− 0.74
+ 34.60
44 ~~57.54~~ 63.30
45 32.04
27.80
9

No 6

+.32
Feb 9
+.335

45 17.8	45 2.7
19.9	5.0
22.1	7.0
26.4	
28.4	
30.5	
32.7	45 42.3
34.9	44.8
37.1	46.5
41.3	
43.4	
33.65	
	45 4.90
45 30.591	45 44.53
30.575	
− 2.33	
+ .08	
− 0.54	
− 2.79	
45 30.57	
45 27.78	

+.30 +.12
Feb 14
+.410

45 11.5	45 0.0
13.6	1.7
15.5	3.8
20.0	
22.0	
24.1	
26.2	45 38.0
28.4	40.1
32.8	41.6
34.7	
36.9	
26.57	
	45 1.83
45 24.155	45 39.90
24.139	
+ 4.07	
+ .10	
− 0.47	
+ 3.70	
45 24.14	
45 27.84	

10 + 28.06	− 9.21
− 3.00	
1 47.8	2 35.8
41.9	29.3
89.7	65.1
11 44.85	12 32.55
1.49809	0.96426
1.55171	1.06758
+ 35.62	− 11.69
12 20.47	12 20.86
10 27.88	27.49
27.68	
19 17	20 5
+ 1816	
1.50986	1.51016
− 32.35	− 32.37
− .09 + .07	− .1
+ .10	+ .15
− 32.34	− 32.23
9 55.54	55.26
− 7 31.07	
− 1.41	32.48
	+ 1.97
− 4.39	
36.87	18.67
	18.39
	18.53
	24.89

10 + 19.99	
− 3.22	
1 59.2	
52.2	
111.4	
11 55.70	
1.30081	
1.40443	
+ 25.38	
12 21.08	
10 27.27	
+ 1850	
1.51020	1.51050
− 32.37	− 32.40
− .04 + .04	
+ .13 + .09	
32.28	
9 54.99	
− 7 30.40	
− 1.51	31.91
	+ 2.28
− 4.08	
35.99	19.06
	19.00
	25.86

0 + 18.82	
− 3.27	
3 14.9	
5.3	
20.2	
3 10.10	
1.27462	
1.38678	
+ 24.36	
3 34.46 ?	
19 13.89	
19 22	
1.49170	1.49190
+ 38.70	
1.53040	1.53060
− 33.89	− 33.93
− .03 ~~− .32~~	
− .61 − .64	
− 34.53	
18 39.36	
− 16 5.56	
− 1.53	7.09
	− .82
− 7.18	
14.27	25.09
	25.09

0	
− 3.35	
3 45.1	
44.9	
90.0	
3 45.00	
+ 4717	
1.53887	1.53907
− 34.58	− 34.60
7.53	
− 16 9.28	
− 4.57	
− 7.04	
17.92	

0 + 25.69	− 13.94
− 3.70	
2 57.1	3 48.9
55.9	47.6
113.0	96.5
2 56.50	3 48.25
1.40976	1.14426n
1.52192	1.25642n
+ 33.26	− 18.05
3 29.76	3 30.20
19 18.59	19 18.15
18.34	
19 8	20 0
+ 5437	
1.54607	1.54627
− 35.16	− 35.18
− .07 − .75	− .02
− .61	− .80
− 35.84	− 36.06
18 42.75	42.15
− 16 8.97	
− 1.73	10.70
	− .20
− 6.06	
17.26	25.49
	24.89
	25.19

0 + 22.32	− 15.75
− 3.75	
3 1.7	3 51.1
2.5	53.0
4.2	104.1
3 2.10	3 52.05
1.34869	1.19728n
1.46085	1.30944n
+ 28.90	− 20.89
3 31.00	3 31.66
19 17.35	16.69
17.02	
+ 4171	
1.53341	1.53361
− 34.15	− 34.17
− .06 − .76	− .02
− .63	− .82
− 34.83	− 35.01
18 42.52	41.68
− 16 9.82	
− 1.76	11.58
	− .09
− 6.45	
18.03	24.49
~~24.45~~	23.65
	24.07

+20
Feb 18
+178

45 6.6 44 55.4
8.6 57.5
10.9 59.2
15.3
17.4
19.4
21.5 45 32.7
23.7 34.5
27.7 36.1
30.0
32.0

21.31 44 57.37
45 19.373 45 34.43
19.357

+ 8.74
+ .04
− 0.40
+ 8.38
45 19.36

45 27.74
27.782

0 +22.00 −15.06
−3.80
3 5.1 3 53.0
4.7 49.8
9.8 102.8
3 4.90 3 51.40

1.34242 1.19782
1.45458 1.28998
+28.48 −19.49
3 33.38 3 31.91

19 14.97 16.44
15.70
19 17 20 3
+
+40.96
1.53266 1.53286
−34.09 −34.11

−.05 −.66 −.02
−.56 −.70
−34.70 −34.83
18 40.27 41.61
−16 8.49
1.78 10.27
−6.37 −.01
−16 16.64 23.63
24.97

24.30

ι Aurigae

h m s
4 48 5.1
+32° 58′

z = + 9 25
+.16

Sin δ 9.73572
Cos δ 9.92376
.11678
.04054

1874 s
α 47.396
δ +57 51.01
$\frac{d\alpha}{d\tau}$ + 3.897
$\frac{d\delta}{d\tau}$ + 6.120

1874

	m s		′ ″	
Jan 20	48 47.86		57 60.8	+.4
25	47.81	−.05	61.2	.3
30	47.75	.06	61.5	.1
Feb. 4	47.68	.07	61.6	.1
9	47.61	.07	61.7	.1
14	47.53	.08	61.8	.1
19	47.44	.09	61.9	.1
24	47.35	.09	61.9	.0
Mar. 1	47.25	.10	61.9	.0
6				

1874

+.24 Jan 15 +.232		+.22 Jan 17 +.230		+.25 Jan 18 +.245		+.24 Jan 20 +.177		+.36 Feb 4 +.347		+35 Feb 12 +.294	−.04
48 24.6	48 18.0	48 24.0	48 14.8	48 23.1	48 13.0	48 21.4	48 14.7	48 10.5	47 52.4	48 3.3	47 52.8
27.1	21.1	26.5	16.9	25.6	15.7	24.0	16.3	12.9	54.2	5.8	54.7
29.5	23.5	29.0	18.5	28.0	17.6	26.4	18.4	15.3	56.7	8.3	56.6
34.4		34.0		32.8		31.3		20.1		13.0	
36.9		36.3		35.3		33.8		22.7		15.6	
39.4		38.7		37.8		36.3		25.0		18.1	
41.9	49 5.0	41.3	48 41.6	40.2		38.7	48 52.7	27.6	48 34.0	20.6	48 42.8
44.4	8.1	43.6		42.8		41.1	55.0	30.0	36.4	23.0	44.9
49.1	9.5	48.6		47.6		46.0	57.1	35.0	38.7	28.0	46.9
51.6		51.0		50.1		48.5		37.5		30.3	
54.1		53.9		52.6		51.0		39.5		32.8	
4 4330	48 20.87	48 4269	48 16.73	48 4159	48 15.43	3985	48 16.47	2764	47 54.43	1988	47 54.70
48 39.364	49 7.53	48 38.809	48 41.60	48 37.809		48 36.227	48 54.93	48 25.127	48 36.37	48 18.073	48 44.87
39.345		38.790		37.790		36.208		25.108		18.054	
48 47.920		48 47.898		48 47.887		48 47.86		48 47.68		48 47.56	
− 8.576	+8.43	− 9.1009	+9.02	− 10.098	+9.86	− 11.65	+11.57	− 22.57	+22.37	− 29.51	+29.34
	+.16		+.14		+16		+16		+23		+23
+ 8.41		+ 9.00		+ 9.85		+ 11.53		+ 22.38		+ 29.29	−.05
+ .15	48 0.50	+ .15	−0.48	+ .16	−0.47	+ .11	−0.46	+ .22	−0.28	+ .19	−0.16
−0.50	+3.397 47.44	−0.48	+3.417 47.47	−0.47	+3.427 47.34	−0.46	+3.437 47.42	−0.28	+3.617 47.43	−0.16	+3.737 47.41
+ 8.06	48	+ 8.67		+ 9.54		+ 11.18		+ 22.32		+ 29.32	
48 39.34		48 38.79		48 37.47		48 36.21		48 25.11		48 18.05	
48 47.40	5 34.27	48 47.46	34.49	48 46.33	33.28	48 47.39	33.16	48 47.43	34.55	48 47.37	33.77
51.297	−7 32.67	51.357	−7 33.30	51.227	−7 32.12	51.287	−7 31.55	51.327	−7 31.56	51.267	−7 30.84
	−.5		−.5		−.5		−.5		−.4		−.4
	−9.40		−9.60		−9.70		−9.80		−10.60		−10.80
+ 32	57 51.70		57 50.89		57 50.96		57 51.31		57 51.99		57 51.73

26,–

15 +18.49″	−28.17	15 +22.08	−2.79	15 +22.38		15 +19.76	−18.70	15 +30.70	−11.24	15 +23.37	−26.80
− ″2.30		−2.34		−2.36		−2.38		−2.73		−2.88	
1 47.6	2 40.7	1 45.5	2 13.3	1 46.2		1 48.4	2 31.0	1 36.1	2 23.5	1 43.7	2 39.7
36.8	30.9	31.0	1.0	34.2		36.4	21.0	22.0	9.9	32.4	29.0
84.4	71.6	76.5	14.3	80.4		84.8	52.0	58.1	33.4	76.1	68.7
16 42.20	17 35.80	16 38.25	17 7.15	16 40.20		16 42.40	17 26.00	16 29.05	17 16.70	16 38.05	17 34.35
1.26694	1.44979n	1.34400	0.44560n	1.34986		1.29579	1.27184n	1.48714	1.05077n	1.36866	1.42818n
1.30748	1.49033n	1.38454	0.48614n	1.39040		1.33633	1.31238n	1.52768	1.09131n	1.40920	1.46867n
+20.30	−30.93	+24.24	−3.06	+24.57		+21.79	−20.53	+33.70	−12.34	+25.66	−29.42
17 2.50	17 4.87	17 2.49	17 4.09	17 4.77		17 4.19	17 5.47	17 2.75	17 4.36	17 3.71	17 4.93
33° 5 45.85	43.48	5 45.86	44.26	5 43.58		5 44.16	42.88	5 45.60	43.99	5 44.64	43.42
44.66		45.06				43.52		44.79		44.03	
+9 24 14	25 8										
0.97940	0.98010										
+3412		+4406		+3283		+3710		+2994		+3018	
1.01352	1.01422	1.02346	1.02416	1.01223	1.01293	1.01650	1.01720	1.00934	1.01004	1.00958	1.01028
−10.32	−10.33	−10.56	−10.57	−10.28	−10.30	−10.39	−10.40	−10.22	−10.24	−10.22	−10.24
−.08 −.07	−.19	−.12 .00	−0	−.12 −.01		−.09 +.03	−.08	−.22 −.01	−.03	−.14 .02	−.17
+.05	+.08	+.05	+.06	+.10 −.02		+.10	+.14	+.09	+.14	+.10	+.16
−10.35	−10.44	−10.63	−10.51	−10.30		−10.38	−10.34	−10.35	−10.13	−10.26	−10.25
5 35.50	33.04	5 35.23	33.75	5 33.28		5 33.78	32.54	5 35.25	33.86	5 34.38	33.17
58 0.4		0.6		0.7		0.8		1.6		1.7	
−7 35.1	32.6	34.6	33.1	32.6		33.0	31.7	33.6	32.3	32.6	31.4
−7 33.8		33.9		32.6		32.3		33.0		32.0	
−7 33.01		−7 33.50		−7 32.31		−7 31.44		−7 31.65		−7 31.18	
− .36	33.37 57 52.73	− .37	33.87 51.76	− .37	32.74 50.84	− .38	31.82 52.16	− .43	32.08 52.57	− .47	31.63 51.95
− 9.40	−3.28 50.27	− 9.60	−3.48 50.28	− 9.70	−3.58	− 9.80	−3.68 50.92	− 10.60	−4.48 51.18	− 10.80	−4.68 50.74
−7 42.77	51.50	−7 43.49	51.02	−7 42.44	50.84	−7 41.62	51.54	−7 42.68	51.87	−7 42.43	51.34
	57.62		57.14		56.96		57.66		57.99		57.46

1875

corr α =
corr δ =

tang δ = +.65 1.19

I = 2.45 s

K = -.019

		m s		' "	
Jan	0	48 52.16		58 7.8	
	5	52.16	-.00	8.2	+.4
	10	52.16	.00	8.5	.3
	15	52.14	.02	8.8	.3
	20	52.11	.03	9.1	.3
	25	52.07	.04	9.3	.2
	30	52.02	.05	9.5	.2
Feb.	4	51.95	.07	9.7	.2
	9	51.88	.07	9.8	.1
	14	51.80	.08	9.9	.1
	19	51.72	.08	9.9	.0

X X ×1874 1875

+.25 +.20 +.13 +.32 +.20 -.08 +.23 -.08

Feb 14 Mar 1 Mar 5 Jan 11 Jan 14 Jan 16

+.107 +.192 +.140 +.305 +.110 +.160

4 48 1.7 47 50.3 48 57.4 ~~48 56.8~~ 48 46.9 48 40.8 48 11.1 47 58.2 48 8.5 48 0.2 48 6.6 47 52.7
4.1 52.6 49 0.7 49.3 43.1 13.5 0.9 10.9 1.8 9.1 55.0
6.6 55.2 1.9 51.8 45.7 15.8 3.5 13.5 3.8 11.5 57.1
11.4 3.3 36.7 20.9 18.3 16.4
13.9 4.5 57.1 23.6 20.8 18.9
16.5 3.7 1.6 25.8 23.2 21.5
18.9 48 32.9 7.0 49 17.6 4.1 28.4 25.0 23.7
21.4 34.5 8.2 19.5 6.6 30.7 28.3 26.4
26.3 36.4 9.4 22.4 11.5 35.6 33.0 31.0
28.4 13.9 38.2 35.6 33.5
31.3 16.4 40.5 38.0 36.1

1808 1001 3179 2843 2557 2347
16.436 60 300

47 52.70 401 48 58.80 17.9 48 43.20 47 0.87 48 1.93 47 54.93
48 16.436 48 34.60 49 4.456 49 19.83 49 1.627 48 25.845 48 23.245 48 21.336
16.417 +31.14 4.437 -17.30 1.608 -14.54 25.826 +26.14 23.226 +28.90 21.317 +30.80
48 47.53 +.16 48 47.254 +13 48 47.2117 +.08 48 52.16 +21 48 52.14 +13 48 52.13 +.15
- 31.11 + 17.4920 + 14.484 -26.33 -28.91 -.10 -30.81 -.10
-0.13 +0.16 +0.23 -0.87 -0.85 -0.84
+ 31.08 48 47.59 - 17.31 47 ~~47~~.43 - 14.554 47.38 + 26.12 51.31 + 28.82 51.31 + 30.734 51.33
+ .07 48 + .12 .43 + .09 + .20 + .07 + .10
-0.13 +3.761 +0.16 4.057 +0.23 4.127 -0.87 -0.85 -0.84
+ 31.02 - 17.03 - 14.22 + 25.45 + 28.04 + 30.00
48 16.42 5 33.24 49 4.44 33.35 49 1.61 5 33.06 48 25.83 55 51.30 48 23.23 14 17.26 48 21.32 14.74
-7 30.98 -7 30.15 -7 30.28 +2 17.63 -16 6.56 -16 5.36
48 47.44 - .5 48 47.41 - .4 48 47.39 - 5 48 51.28 -.6 48 51.27 - .6 48 51.32 - .6
51.337 -10.80 51.307 -10.90 51.287 -10.90 -11.50 -11.70 -11.80
57 50.96 57 51.90 57 51.38 57 56.83 57 58.40 57 56.98

15 +23.74 " -18.16 15 +5.66 -15.37 15 +18.43 25 +24.97 5 +21.31 5 +26.41
Hg!! = " 3.00 -3.17 -3.22 -3.19 -3.23 -3.27
1 40.3 2 27.0 2 25.2 1 47.1 1 18.1 2 60.4 2 57.1
37.0 24.1 18.8 43.2 19.2 52.3 50.0
77.3 511 4840 903 373 1127 1071
16 38.65 17 25.55 17 27.00 17 22.00 16 45.15 26 18.65 7 56.35 7 53.55
1.37548 1.25912 0.75282 1.18667 1.26553 1.39742 1.32868 1.42177
1.41602 1.29966 0.79336 1.22721 1.30603 1.43796 1.37786 1.47165
+26.06 -19.94 + 6.21 - 16.87 +20.23 +27.41 +23.87 +28.91
17 4.71 17 5.61 ~~17 10.79~~ 17 5.13 17 5.38 26 ~~46.62~~ 8 20.22 8 22.46
46.06
5 43.64 42.74 5 ~~37.56~~ 5 43.22 5 42.97 56 ~~1.73~~ 14 28.13 14 25.89
43.19 2.29
+9 24 -11 24 58 24 12
0.97940 0.98010 0.979410
+1824 +1242 +1865 +4495 +2964 +3880
0.99764 .99836 .99182 .99252 .99805 1.02435 1.00904 1.01820
-9.95 -9.96 -9.81 -9.83 -9.95 -10.58 -10.21 -10.43

-.14 +.01 -.08 - -.06 ~~-.07~~ -.08 ~~+.02~~ -.16 ~~-.28~~ -.11 ~~-.33~~ -.17 ~~-.36~~
+.10 +.14 +.02 +.02 -.04 +.12 +.04 -.25 -.41 -.55 -.66 -.55 -.72
-9.99 -9.90 -9.84 - 9.87 -9.91 -10.99 -10.84 -11.15
5 33.65 32.84 5 33.35 5 33.06 55 51.30 14 17.26 14 14.74
58 1.8 1.9 1.9 58 8.6 8.8 8.9
-7 31.8 31.0 31.5 31.2 +2 17.3 -16 8.4 -16 5.8
-7 31.4 31.5 31.2 +2 17.3 -16 8.4 5.8
-7 31.07 -7 30.40 -7 30.40 +2 16.19 -16 7.00 -16 5.56
- .48 31.555130 - .50 30.905155 - .51 30.915125 - .51 17.6857.48 - .51 7.51 58.05 - .52 56.86
- 10.80 4.6850.49 - 10.90 -4.78 - 10.90 -4.78 - 11.50 -5.39 - 11.70 -5.59 - 11.80 6.08 -5.69
-7 42.35 -7 41.80 -7 41.81 +2 ~~20.20~~ 6.18 -16 19.21 -16 17.88
50.90 51.55 51.25 57.45 58.05 56.86
57.02 57.67 57.37

1875

α 51.294
δ +57 57.13
dα/dt +3.898
dδ/dt +6.114

l cos δ 9.92376
l C .12552
l C′ .04928

	1874.0 α	δ	1875.0 α	δ
	47.40		51.28	
	.46		27	
	.33		32	
	.39		32	
	.43		33	
	.37		40	
	.44			
	.41			
	39			
	47.402		51.320	
	.396	51.01	.294	57.13
	+.006		+.026	

		+.32				+30		+.12		+.20		
Jan 20 Ch. f.		Feb 9				Feb 14				Feb 18		
		+.335				+.410				+.148		
	48	39.2	48	15.3	48	32.8	48	14.2	48	28.2	48	14.6
		41.8		17.4		35.3		16.9		30.7		17.1
		44.2		19.2		37.7		18.7		33.3		19.3
		49.0				42.6				38.3		
		51.6				45.0				40.5		
		54.1				47.3				43.0		
		56.5	49	20.5		50.0	49	0.5		45.4	49	7.0
		59.0		22.0		52.5		3.0		47.9		9.8
		3.9		24.4		57.4		4.5		52.8		12.0
		6.2				59.7				55.2		
		8.9				2.4				57.8		
		4144				4627				4731		
		180				65						
		5944	48	17.30		5227	48	16.60			48	17.00
	48	54.036	49	22.30	48	47.518	49	~~3.33~~	48	43.009	49	9.60
		54.017		−2.34		47.499		2.67		42.990		+8.73
	48	51.88		+21	48	51.80		~~+4.00~~	48	51.743		+13
		+2.14				−4.30		+.20		−8.934		
	−	2.33		−0.59	+	4.08		+.14	+	6.74		−0.44
	+	.22		51.30	+	.26		−0.51	+	.11		51.41
		−0.59				−0.51		51.33		−0.44		
	−	2.76			+	3.83			+	8.41		
	48	54.02			48	47.50			48	47.99		
				19.53				19.16				18.24
	48	51.32	−16	9.28	48	51.33	−16	9.59	48	51.40	−16	8.26
				−.6				−.6				−.6
				−12.70				−12.80				−12.80
			57	56.95			57	56.17			57	56.58
5	5	+36.74		−8.26 2	5	+30.92		−15.84 15	5	+26.01		−26.59
′ ″		−3.70				−3.75				−3.80		
2 43.3	2	34.0	3	47.1	2	40.7	3	32.8	2	49.8	3	48.6
45.2		37.9		50.2		45.1		37.6		50.2		48.1
88.5		71.9		97.3		85.8		70.4		100.0		96.7
7 44.25	7	35.95	8	48.65	7	42.90	8	35.20	7	50.00	8	48.35
		1.56514		1.45117 ~~0.91719n~~		1.49024		1.18048		1.41514		1.42472n
		1.61442		~~0.96637n~~ 1.50045		1.53952		1.22969		1.46442		1.47400n
		+41.16		~~−9.26~~ 34.61		+34.64		−16.97		+29.14		−29.79
	8	17.11	8	~~14.34~~ 17.00	8	17.54	8	18.23	8	19.14	8	18.56
	14	31.24		~~28.96~~	14	30.81		30.12	14	29.21		29.79
		31.29		31.35		30.46				29.50		
	23	48	25	1					24	2	25	0
		0.97900		0.98000						0.97920		0.98000
		+5443				+4176				+4101		
		1.03343		1.03443		1.02076		1.02176		1.02021		1.02101
		−10.83		−10.83		−10.49		−10.57		−10.48		−10.51
		−.33 −.93		−.19		−.22 −.80		−.06		−.17 −.76		−.17
		−.55		−.80		−.57		−.76		−.50		−.68
		−11.71		−11.82		−11.28		−11.33		−11.15		−11.36
	14	19.53		~~21~~.53 19	14	19.53		18.79	14	18.06		18.43
		9.8				9.9				9.9		
		9.7		9.7		9.6		9.9		8.2		8.5
	−16	9.7				9.2				8.3		
	−16	8.97		57.27	−16	9.82		56.31	−16	8.49		56.17
	−	.59		9.565 57.27	−	.60		0.425 55.57	−	.60		9.095 56.54
	−	12.70		−6.59	−	12.80		6.69		12.80		−6.69
		22.26		57.27		23.22		55.94		21.89		56.35

87

10 Camelop.

h m s
4 52 18
+ 60° 15'

δ = − 17 52
− ,31

Sin δ 9.93862
Cos δ 9.69567
,11678
9.81245

1874
α 13.089
δ +15 16.78
$\frac{d\alpha}{dt}$ +5.312
$\frac{d\delta}{dt}$ +5.837

1874

		m	s		'	"	
Jan	20	52	13.97		15	32.7	
	25		13.88	−.11		33.5	+ .8
	30		13.77	.11		34.3	.8
Feb	4		13.64	.13		35.0	.7
	9		13.51	.13		35.4	.4
	14		13.36	.15		35.8	.4
	19		13.20	.16		36.2	.4
	24		13.02	.18		36.4	.2
Mar.	1		12.84	.18		36.5	.1

1874 +24 Jan 15 +232 | +22 Jan 17 +230 | +25 Jan 18 +245 | +24 Jan 20 +177 | +36 Feb 4 +.347 | +35 −.04 Feb 12 +.294

51 40.0 | 51 44.8 | 51 43.9 | 51 24.8 | 51 | 51 47.5 | 51 53.6 | 51 17.7 | 51 25.6 | 51 5.7 | 51 | 51 13.1
44.2 | 47.8 | 48.1 | 28.3 | 55.1 | 50.0 | 56.0 | 20.1 | 29.9 | 9.8 | 35.2 | 15.7
48.4 | 54.3 | 56.4 50.3 | 32.0 | 57.4 | 52.3 | 57.8 | 23.6 | 33.9 | 12.8 | 37.3 | 18.8
56.9 | 4.6 | 59.6 | 59.9 | 42.4 | 39.3
52 1.0 | 8.5 | 1.4 | 2.0 | 46.5 | 41.3
5.0 | 13.0 | 8.5 | 4.2 | 50.6 | 43.6
9.4 | 52 37.4 | 21.0 | 52 31.3 | 5.7 | 6.3 | 52 5.0 | 54.8 | 52 4.1 | 45.7 | 51 57.2
13.5 | 40.8 | 25.6 | 37.0 | 7.8 | 8.4 | 9.8 | 59.0 | 6.7 | 47.7 | 1.4
21.9 | 43.7 | 29.3 | 39.8 | 10.0 | 10.4 | 13.4 | ~~57~~ 3 | 10.1 | 50.0 | 5.9
25.9 | 12.0 | 11.3 | 52.0
80.2 | 15.6

2964 | 2898 | 2125 | 2586 | 3769 | 3921
240 | 240 | 180 | 240 | 180

56.4 51 47.97 | 49.8 51 28.37 | 32.5 51 49.93 | 18.6 51 20.47 | 55.69 51 9.43 | 51 15.87
52 5.127 52 40.63 | 52 4.527 52 36.03 | 52 3.611 | 52 2.067 52 9.40 | 51 50.627 52 6.97 | 51 43.567 52 1.50
5.096 +8.43 | 4.496 +9.02 | 3.580 +9.84 | 2.036 +11.51 | 50.596 +22.37 | 43.536 +29.83
52 14.10 .08 +42 | 52 14.06 4 +.39 | 52 14.03 2 +.44 | 52 13.99 7 +42 | 52 13.65 3 +.63 | 52 13.13 2 +.61
− 8.98 | − 9.54 | − 10.454 | − 11.983 | − 23.053 | − 29.8 | −.08
−0.99 | −0.95 | −0.93 | −0.88 | −0.54 | −0.33
+ 8.41 52 12.96 | + 9.00 12.96 | + 9.86 12.96 | + 11.54 13.09 | + 22.38 13.06 | + 29.29 13.07
+ .41 | + .40 | + .43 | + .31 | + .61 | + .51
−0.99 +4.322 | −0.95 +4.362 | −0.93 +4.383 | −0.88 +4.432 | −0.54 +4.772 | −0.33 +4.982
+ 7.83 | + 8.45 | + 9.30 6 | + 10.97 | + 22.45 | + 29.47
52 5.10 23 34.1 | 52 4.50 37.2 | 52 3.58 33.5 | 52 2.04 31.4 | 51 50.60 52.9 | 51 43.54 64.8
−7 32.67 | −7 33.50 | −7 32.12 | −7 31.55 | −7 31.56 | −7 30.84
52 12.93 + .9 | 52 12.95 +1.0 | 52 12.~~88~~ 94 + .9 | 52 13.01 +1.0 | 52 13.05 + .9 | 52 13.01 + .9
18.242 −15.10 | 18.262 −15.50 | ~~18.192~~ 18.252 −15.60 | 18.322 −15.90 | 18.362 −18.20 | 18.322 −18.90
+60 15 16.54 | 15 15.72 | 15 16.53 | 15 16.69 | 15 16.43 | 15 18.14

0 +17.16 −35.50 | 55 +36.16 −31.50 | 0 +13.68 | 55 +41.60 −7.33 | 55 +41.20 −1~~5~~6.34 | 55 +27.70 −17.93
Refr " −2.30 | −2.34 | −2.36 | −2.38 | −2.73 | −2.98
0 58.3 0 32.0 | 4 47.0 0 32.1 | 0 1.3 | 4 42.8 0 15.9 | 4 42.0 0 18.7 | 4 47.9 0 17.7
49.9 23.3 | 34.9 19.9 | 51.5 | 32.7 5.6 | 29.4 7.8 | 39.0 7.9
108.2 55.3 | 81.9 52.0 | 112.8 | 75.5 21.5 | 71.4 26.5 | 86.9 25.6
0 9 54.10 0 27.65 | 59 40.95 0 26.00 | 0 9 56.40 | 59 37.75 0 10.75 | 59 35.70 0 13.25 | 59 43.45 0 12.80
1.23452 1.55023 n | 1.55823 1.49831 n | 1.13609 | 1.61909 0.86510 n | 1.61490 1.18583 n | 1.44248 1.25358 n
1.04697 1.36268 n | 1.37068 1.31076 n | 0.94854 | 1.43154 0.67755 n | 1.42735 0.99828 n | 1.25493 1.06603 n
+11.14 −23.05 | +23.48 −20.45 | + 8.88 | +27.01 − 4.76 | +26.75 − 9.96 | +17.99 −11.64
0 5.24 0 4.60 | 0 4.43 0 5.55 | 0 5.28 | 0 4.76 0 5.99 | 0 2.45 0 3.29 | 0 1.44 0 1.16

+60° 22' 43".11 43.75 | 22 43.92 42.80 | 22 43.07 | 22 43.59 42.36 | 22 45.90 45.06 | 22 46.91 47.19
43.43 | 43.36 | 42.97 | 45.48 | 47.05

−17 52 34 52 0
1.26880 n 1.26860 n
+3417 | +4416 | +3286 | +3717 | +3001 | +3024
1.30297 1.30277 | 1.31296 1.31276 | 1.30166 1.30146 | 1.30597 1.30577 | 1.29881 1.29861 | 1.29904 1.29884
+20.09 +20.08 | +20.56 +20.55 | +20.03 +20.02 | +20.23 +20.22 | +19.90 +19.89 | +19.91 +19.90

−.07 −.10 −.29 | −.31 −.19 −.23 | −.04 ~~+.12~~ | −.40 −.06 − | −.40 −.08 −.06 | −.16 +.03 −.07
+.15 +.01 | +.14 +.01 | +.29 +.25 | +.28 +.01 | +.28 +.01 | +.28 +.01
+20.17 +19.80 | +20.39 +20.33 | +20.28 | +20.11 +20.22 | +19.78 +19.84 | +20.03 +19.84
23 3.28 3.55 | 23 4.31 3.13 | 23 3.35 | 23 3.70 2.58 | 23 5.68 4.90 | 23 6.94 7.03
15 31.9 | 32.3 | 32.4 | 32.7 | 35.0 | 35.7
−7 31.4 31.7 | 32.0 30.8 | 30.5 | 31.0 29.9 | 30.7 29.9 | 31.2 31.3
−7 31.5 | 31.4 | 30.9 | 30.4 | 30.3 | 31.2
−7 33.01 | −7 33.50 32.78 | −7 32.37 31.64 | −7 31.44 30.71 | −7 31.65 30.81 | −7 31.16 30.24
+ .70 15 15.87 | + .72 16.03 | + .73 16.11 | + .73 16.69 | + .84 16.57 | + .92 36.60
− 15.10 32.31 16.14 −9.26 | − 15.50 14.85 | − 15.60 −9.76 | − 15.90 16.97 | − 18.20 15.89 | − 18.90 30.09
−7 47.41 | −7 48.28 −9.66 | −7 47.24 | −7 45.61 −10.06 | −7 49.61 −12.36 | −7 35.54 −18.06 17.86
16.00 | 15.44 | 16.11 | 16.53 | 16.28 | 49.14 17.89
15 21.84 | 21.28 | 21.95 | 22.33 | 22.12 | 23.68 17.04

corr α =
corr δ =

tang δ = +1.75 201
I = 4.16 s
K = −.031 s

1875
α 18.401
δ +15 22.61
$\frac{d\alpha}{dt}$ +5.312
$\frac{d\delta}{dt}$ +5.830

log cos δ 9.69567
log t .12552
log t′ 9.82119

1875

		m	s		′	″	
Jan.	0	52	19.95		15	36.6	+1.1
	5		19.93	−.02		37.7	1.1
	10		19.90	.03		38.8	.9
	15		19.84	.06		39.7	.9
	20		19.77	.07		40.6	.8
	25		19.67	.10		41.4	.7
	30		19.57	.10		42.1	.6
Feb	4		19.44	.13		42.7	.6
	9		19.30	.14		43.3	.4
	14		19.15	.15		43.7	.3
	19		18.99	.16		44.0	

× Feb 14 +.25 +.107 | + Mar 1 +.20 +.192 | × 1874 Mar 5 +.13 +.140 +.110 | 1875 Jan 14 +.20 −.08 No V | +.23 −.08 +.160 | Jan 16 | Feb 18 +.20 +.178

51 | 50 47.3 | 52 | 52 14.7 | 52 | 51 | 51 | 51 3.0 | 52 | 51 26.2
33.8 | 50.0 | 21.4 | 19.2 | 18.6 | 42.3 | 40.2 | 7.2 | 1.4 | 28.9
35.7 | 33.7 | 23.5 | 22.6 | 20.7 | 44.5 | 42.3 | 11.0 | 3.3 | 33.2
37.7 | 25.6 | 22.8 | 46.5 | 44.6 | 5.5
40.0 | 27.6 | 24.8 | 48.6 | 46.7 | 7.6
42.1 | 29.7 | 27.0 | 50.7 | 48.6 | 9.8
44.1 | 51 4.3 | 31.8 | 29.0 | 52.0 | 50.8 | 11.9
46.3 | 9.2 | 33.9 | 31.1 | 54.6 | 53.0 | 13.9
48.3 | 12.5 | 36.0 | 33.2 | 57.1 | 55.0 | 16.0
50.3 | 38.1 | 35.3 | 59.0 | 57.2 | 18.0

3783 | 2676 | 2425 | 4566 | 4384 | 874

50 50.33 | 52 18.83 | ~~51 7.30~~ | 51 29.43
51 42.033 | 51 8.67 | 52 29.733 | 52 26.944 | 51 50.733 | 1874 Mar 5 | 1875 Jan 14 | 51 48.711 | 52 9.711
42.002 | +31.13 | 29.702 | −17.29 | 26.913 | 50.702 | 48.680 | +30.81 | 9.680 | +8.73
52 13.375 | +.44 | 52 12.853 | +.35 | 52 12.7468 | 52 19.85 | −14.54 | +28.90 | 52 19.882 | +.40 | 52 19.021 | +.35
−31.375 | −43.183 | −45.8044 4.23 | −29.15 | +.23 | +.35 | −.16 | −30.184 | −.16 | −9.323
−0.26 | +0.26 | .41 | +0.41 | −1.45 | −1.42 | −0.61
+ 31.09 | 13.31 | − 17.30 | 13.02 | − 14.54 | + 28.83 | 1301 | 1834 | + 30.74 | 1831 | + 8.74 | 18.15
+ .19 | + .34 | + .24 | + .19 | + .28 | + .31
−0.26 +5.052 | +0.26 +5.572 | +0.44 5.722 | −1.45 | −1.42 | −0.61
+ 31.02 | − 16.70 | − 13.89 | + 27.57 | + 29.60 | + 8.44
51 42.00 | 6.42 | 52 29.70 | 23 6.38 | 52 26.91 | 51 50.70 | 51 48.68 | 52 9.68 | 31 51.12
−7 30.98 | −7 30.15 | −16 6.56 | −16 5.36 | −16 8.26
52 13.02 | +.9 | 52 13.00 | +.9 | 52 13.02 | 52 18.27 | +1.0 | 52 18.28 | +1.0 | 52 18.12 | +1.1
18.332 | −19.00 | 18.312 | −19.70 | 18.332 | −21.40
15 17.34 | 15 17.43 | 15 22.56

55 +51.70 | +33.36 | 55 +11.91 | +36.21 | −7 30.28 | +41.41 50 | 50 +40.28
+ 3.00 | − 3.17 | A. R. | A. R. | − 3.80
4 28.0 | 4 41.3 | 4 54.8 | 0 60.3 | 0 48.8
25.9 | 38.9 | 53.3 | 52.9 | 52.1
59 53.9 | 80.2 | 108.1 | 113.2 | 100.9
59 26.95 | 59 40.10 | 59 54.05 | 49 56.60 | 50 50.45
1.71349 | 1.52323 | 1.03743
1.52594 | 1.33568 | 0.84988 | 1.55883 | 1.61711 | 1.60509
+33.57 | +21.66 | + 7.07 | 1.38002 | 1.43830 | 1.42628
0 0.52 | 0 1.76 | 0 1.12 | +23.99 | +27.44 | +27.44 | +26.68
24.04 | 51 17.13

22 47.83 | 46.59 | 22 47.23 | 31 31.22
47.21
53 1 | 52 48 | 52 58
1.26900n | 1.26890n | 1.26900n
+1834 | +1250 | 1.31188
1.28734 | 1.28024 | 1.28150 | 1.28140 | +20.42
+ 19.38 | +19.37 | +19.12 | +19.12 | 20

−.62 −.16 | −.26 | −.02 ~~+.01~~ | −.31 | −.38 ~~−.26~~
+.26 | +.28 | +.05 +.03 | −.14 −.52
+19.02 | +19.40 | +19.15 | +19.90
23 6.85 | 5.99 | 6.38 | 31 57.12
35.8 | 36.5 | 15 44.0
31.0 | 30.2 | 29.9 | −16 7.1
30.6 | 29.9 | −16 7.1
−7 31.07 | 30.14 | −7 30.40 | 29.42 | −16 8.49
+ .93 | 17.71 | + .98 | 17.26 | + 1.17 | 7.32 22.46
− 19.60 | 16.45 | − 19.70 | −13.86 | − 21.40 | −15.67
−7 49.14 | −16.18 | −7 49.12 | −16 28.72
17.28 | 17.26
23.12 | 23.10

88

ε Aurigae

h m s
4 53 00
+43° 38′
z = −31 15
−.02

1875 α 0.022 δ +38 9.13 $\frac{d\alpha}{dt}$ +4.291 $\frac{d\delta}{dt}$ +5.777

1874 α 55.732 δ +38 3.35 $\frac{d\alpha}{dT}$ +4.291 $\frac{d\delta}{dT}$ +5.783

	1874	1875
Sin δ	9.83887	
Cos δ	9.85960	9.85960
	.11678	−.12552
	9.97638	9.98512

corr α =
corr δ =
tang δ = +.95 1.38
I = 2.84^s ×
K = −.021^s +.25

1874

		m s		′ ″	
Jan	20	52 56.30		38 15.8	
	25	56.24	−.06	16.3	+.5
	30	56.17	.07	16.7	.4
Feb.	4	56.09	.08	17.1	.4
	9	56.01	.08	17.4	.3
	14	55.92	.09	17.6	.2
	19	55.82	.10	17.8	.2
	24	55.71	.11	17.9	.1
Mar.	1	55.59	.12	17.9	.0
	6				

1875

		m	s	′ ″	
Jan	0	52	61.05	38 21.2	
	5	−.00	61.05	21.9	+.7
	10	.01	61.04	22.5	.6
	15	.03	61.01	23.1	.6
	20	.03	60.98	23.6	.5
	25	.05	60.93	24.1	.5
	30	.06	60.87	24.5	.4
Feb.	4	.08	60.79	24.9	.4
	9	.09	60.70	25.2	.3
	14	.09	60.61	25.4	.2
	19	.10	60.51	25.5	.1

1874 Jan 17 Ch. J.

Jan 20 +.24 +.177
52 — — —
43.3 44.72
44.7 .70
46.0 .58
47.3 .46
49.0 .44
50.2 .52

52 53.6 56.8 59.0

Feb 14 +.25 +.107
52 7.6 10.7 13.4 19.0 21.8 24.7 27.7 30.5 36.1 39.1 42.0
2726

52 12.3 15.2 17.4

× 1874 Mar 5 +.13 +.140
52 52.8 55.7 58.5 4.2 7.0 10.0 13.0 15.8 21.4 24.2 27.2
2898
180
1.098

+.20 −.08 +.110
52 15.0 17.9 20.9 26.4 29.4 32.2 35.0 37.9 43.6 46.4 49.3
3540

1875 Jan 14
52 19.8 22.4 24.8

Feb 18 +.20 ~~+.2…~~ +.178
52 34.7 37.5 40.2 45.9 48.9 51.7 54.4 57.4 3.0 6.0 8.8
3885
180
5.685

52 34.0 36.6 39.1

52 44.620 43.599 52 56.50 −12.70
52 56.47 +11.57 +.23 +0.57
52 24.782 24.761 52 55.92 −31.16
52 14.97 +31.13 +.24 −0.19
53 9.982 9.961 52 55.4~~7~~8 +14.478
52 32.182 32.161 53 1.02 −28.86
52 22.33 Jan 14 +28.90 +.19 −.11 −1.00
Mar. 5 −14.54 +.12 +0.25
52 56.85 52 51.682 51.661 53 0.53 −8.87
52 36.57 +8.73 +.19 −0.51

+ 11.54 + .17 +0.54 + 12.28
52 43.60
52 55.88 0.171 +43
52 55.91 4.861
45 46.55 −7 31.55 +.1 −12.50 38 2.60
+ 31.09 + .10 −0.19 + 31.00
52 24.76
52 55.76 0.051
55.94 4.101
45 48.51 −7 30.98 +.1 −14.30 38 3.33
− 14.53 + .13 +0.25 − 14.15
53. 9.96
52 55.81 0.101
+ 28.83 + .10 4.541 −1.00 + 27.93
52 32.16
53 0.09
53 53 0.14
53 ~~53~~ 55.79
54 30.14 −16 6.56 + .0 −13.90 38 9.68
+ 8.45 + ~~.26~~ .17 −0.53 + 8.41
53 53 0.07
52 51.66
53 0.07
34.09 −16 8.26 +.1 −16.40 38 9.53

55
4 ~~46.5~~ 33.1

−11.85
35″
lg l = 1 − 2.38
2 19.9
9.0
1 28.9
37 14.45
1.07372
1.05010
− 11.25
37 3.20
45 45.15 +43

+ 9.81
35 + ~~9.81~~
− 3.00
1 54.3
49.6
10.39
36 51.95
1.99167
1.96805
+ 9.29
37 1.24
45 47.11

A.R.
−7 30.28

+ 9.85
25
− 3.23
3 13.9
5.3
19.2
28 9.60
1.99344
1.96982
+ 9.33
18.93
28
54 29.42

25 + 15.11
− 3.80
3 0.7
0.2
0.9
28 0.45
1.17926
1.16438
+ 14.60
28 15.05
55 33.30

− 31 15 14
0.~~51500~~
0.10040 +3718
.13758
+1.37

15 36
0.~~51590~~
0.10250 +1836
.12086
+1.32

15 .38
0.~~51590~~
10250 +2964
.13214
+1.36

15 48
0.~~51640~~
.10262 +4109
.14371
+1.39

−.04 ~~+01~~
+.07 +.03
+1.40
45 46.55
38 15.8
−7 30.7
−7 31.44 31.39
+ .05 −6.72
− 12.50 38 2.66
−7 43.39
38 8.44

− 3 ~~+04~~
+.11 +.08
+1.40
48.51
17.6
30.9
−7 31.07 31.01
+ .06 8.52
− 14.30 3.20
45.31
8.98

− 3 ~~−.32~~
−.61 −.64
+ 0.72
54 30.14
23.0
−16 7.1
−16 7.00 6.94
+ 0.6 −8.12
− 13.90 ~~10.30~~
20.84 9.30

−.06 ~~−.30~~
−.54 −.60
+0.79
34.09
25.5
8.6
−16 8.49 8.41
+ .08 −10.62
− 16.40 9.28
24.81

ζ Aurigae

1874.0		1875.0	
α	δ	α	δ
40.46		44.54	
38		62	
~~54~~			
40.420		44.580	
.361	21.50	.543	27.21
+.059		+.037	

9

3 Aurigae

h m s
4 53 45
+ 40° 53'
z = + 1 30
+ 01

1875	1874
α 44.543	α 40.361
δ +53 27.21	δ +53 21.50
dα/dt +4.182	dα/dt +4.182
dδ/dt +5.709	dδ/dt +5.715

	1874	1875
sin δ	9.81592	
cos δ	9.87855	9.87855
	.11678	.12552
	9.99533	.00407

corr α =
corr δ =
tang δ = +.87 1.32
I = 2.73 s
+20 K = -.020 s

1874		m	s		′	″		1875		m	s		′	″	
Jan	20	53	40.90		53	33.3		Jan	20	53	45.47		53	41.0	
	25		40.84	-.06		33.7	+.4		25		45.42	+.05		41.4	+.4
	30		40.78	.06		34.1	.4		30		45.36	.06		41.8	.4
Feb	4		40.71	.07		34.4	.3	Feb.	4		45.29	.07		42.1	.3
	9		40.63	.08		34.7	.3		9		45.21	.08		42.4	.3
	14		40.54	.09		34.9	.2		14		45.12	.09		42.6	.2
	19		40.45	.09		35.1	.2		19		45.03	.09		42.8	.2
	24		40.34	.11		35.2	.1		24		44.92	.11		42.9	.1
Mar.	1		40.23	.11		35.2	.0	Mar.	1		44.81	.11		42.9	.0

1874
Jan 17
Ch. f. 4
53 41.1
43.8
46.6
52.0
54.7
57.5
0.2
3.0
8.3
11.1
13.8

3321
300
6321
53 57.464
57.444
53 40.2 ~~47~~
+ 17.2
-1729 +17
+0.15
- 17.30 53 40.47
+ .17
+0.15 ~~+43.32~~
- 16.98
53 ~~40.21~~ 57.44 1 6.08
-7 30.15
53 40.46 - .0
44.642 -1370
+40 53 22.23

+20 Mar 1
+.192
53 31.4
33.8
36.5
53 33.90

1874
Mar 5
+.13
53 38.3
41.0
43.5
49.1
51.9
54.6
57.2
0.0
5.5
8.3
11.0

3604
240
6004
53 54.582
54.562
53 40.1
+ 14.4
-1454 +11
+0.23
- 14.53 40.36
+ .12
+0.23 +44.12
- 14.18
53 ~~40.13~~ 54.56 1 5.67
-7 30.28
53 40.38 - .0
44.562 -1370
53 21.69

+140
54 13.0
54 13.00

1875
Jan 16
+.23 -.08
+160
52 58.2
0.9
3.7
9.2
12.0
14.8
17.3
20.2
25.5
28.3
31.0
52 56.7

2211
60
1611 52 56.70
53 14.645
14.625 +30.81
53 45.5
- 30.8
+.20
-.11
-0.96
+ 30.14 44.57
+ .14
-0.96
+ 29.92
53 ~~45.50~~ 14.62 9 45.06
-16 5.36
54 44.54 - .1
-1350
53 26.10

+20 Feb 18
+.178
53 19.6
22.6
25.3
30.7
33.7
36.5
38.7
41.6
47.4
50.0
52.5

3986
53 36.236
36.216
53 45.05
- 8.8
+ 8.75
+ .15
-0.50
+ 8.40
53 ~~45.04~~ 36.22 -16 8.26
53 44.62 - .1
-1660
53 27.38

53 23.1
26.4
28.3
54 16.1
19.1
21.1
53 25.93
54 18.77
+8.73
+.17
-0.50
44.6 2

55 + 20 +23.56
Refl = -3.17
4 46.5 1 19.2
33.1 15.4
79.6 34.6
59 39.80 21 17.30
1.37218
1.36751
+23.31
21 40.61
+ 41° 1′ 7.74″
+1 28 49
0.17250
+ 1254
.18504
-1.53
-.14 ~~-.06~~
+.01 -.13
- 1.66
1 6.08
53 35.2
-7 30.5
-7 30.9
-7 30.40
- .03 53 21.75
- 13.70 30.43
-7 44.13 -7.99
27.60

-18.42
20 + ~~41.58~~
-3.22
2 1.7
58.2
119.9
21 59.95
(20) 1.61888
1.61421
+41.14
22 (21) 41.09
20 (1) 7.26
29 32
0.17590
+1891
.19481
-1.54
-.09 ~~-.01~~
+.07 -.02
- 1.59
1 5.67
35.2
30.5
30.5
-7 30.40
- .03 21.54
- 13.70 30.43
44.13 -7.99
27.26

+17.94 10
-3.27
2 46.2
39.7
85.9
12 42.95
1.25382
1.25789
+18.11
13 1.06
9 47.29
28 55
0.17300
+3896
.21196
-1.63
-.09 ~~-.30~~ -.9 -.60
-.51 -.51
- 2.23
9 45.06
53 40.7
-16 4.4
-16 4.4
-16 5.56
- .03 25.99
- 13.50 5.59
17.09 -7.79
25.97

10 +10.31 -42.53
-3.80
2 42.2 3 36.4
45.7 38.9
87.9 75.3
12 43.95 13 37.65
1.01326 1.62870
1.01733 1.63277
+10.41 -42.93
12 54.36 12 54.72
9 53.99 53.63
53.81
28 56 29 50
0.17300 0.17740
+4110
.21410 .21850
-1.64 -1.65
-.03 -.82 -.47
-.49 -.65
- 2.16 - 2.77
9 51.83 50.86
42.8
9.0 8.1
-16 8.5
-16 8.49
- .04 27.70
- 15.60 8.53 26.73
24.13 -9.89
27.21

93

i, Tauri

h m s
4 55 38
+ 21° 25'
ȝ = + 20 58
+ .36

Sin δ 9.56247
Cos δ 9.96893
.11678
.08571

1874

Jan. 20	55	34.40		24'	34.8"	-.0
25		34.36	-.04		34.8	.0
30		34.31	.05		34.9	.1
Feb. 4		34.26	.05		34.9	.0
9		34.20	.06		34.9	0
14		34.13	.07		34.9	0
19		34.06	.07		34.9	0
24		33.98	.08		34.9	0
Mar. 1		33.89	.09		34.8	1
6		33.80	.09		34.8	.0

Corr α = -.040 s
Corr δ = -.21"
tang δ = +.39 1.07
I = 2.21 s
K = -.016 s

1874 s
α 33.940
δ +24 27.90
$\frac{d\alpha}{d\tau}$ + 3.580
$\frac{d\delta}{d\tau}$ + 5.524

1874
4.24 Jan 15 +.232
+22 Jan 17 +.230
+25 Jan 18 +.245
+24 Jan 20 +.177
+36 Feb 4 +.344
+35 -.04 Feb 12 +.294

Jan 15		Jan 17		Jan 18		Jan 20		Feb 4		Feb 12	
55 12.6	55 4.7	55 —	55 33.2	55 11.1	55 1.1	55 9.4	55 54.6	54 58.4	54 47.9	54 54.6	54 36.6
15.0	6.9	—	35.7	13.3	3.6	11.7	56.1	0.7	30.0	75 53.7	39.0
17.2	9.0	—	38.2	15.6	5.0	14.0	58.2	2.8	32.0	74 53.9	41.0
21.5		21.0		20.0		18.4		7.3		62 0.2	
23.6		23.1		22.3		20.6		9.6		71 2.5	
26.0		25.3		24.5		22.8		11.8		70 4.7	
28.1	55 50.4	27.4		26.7	55 56.1	25.0	55 32.8	14.0	55 35.8	69 6.9	55 32.0
30.6	52.2	28.6		28.9	58.3	27.1	34.8	16.2	37.8	68 9.1	33.9
34.8	54.8	—		33.3	0.2	31.7	36.9	20.7	39.8	—	35.8
37.1		—		35.5		33.9		22.8		—	
39.2		—		37.8		36.1		25.0		—	
28.57		12.64		26.90		25.07		18.93			
								60			

55 6.87 55 35.70 55 3.23 54 56.30 129.3 54 49.97 4.72 54 38.87
55 25.973 55 52.47 55 25.280 55 24.456 55 58.20 55 22.791 55 34.83 55 11.755 55 37.80 4.70 55 33.90
25.957 +8.43 25.264 +9.03 24.440 +9.87 22.775 +11.51 11.739 +22.38 55 4.70 +29.33
55 34.44 +.09 55 34.42 +.09 55 34.421 +.10 55 34.40 +.09 55 34.26 +.14 55 34.165 +.14
-8.48 -9.16 -9.987 -11.63 -22.52 -29.45 -.04
-8.44 -0.50 -9.12 -0.48 -9.943 -0.47 -11.59 -0.46 -22.48 -0.31 29.41 -0.21
55 33.98 33.90 33.94 33.92 33.95 33.92
+ 8.41 + 9.00 + 9.86 + 11.64 + 22.39 + 29.30
+ .09 + .09 + .09 + .07 + .13 + .11
-0.50 +3.080 -0.48 +3.100 -0.47 +3.110 -0.46 +3.120 -0.31 +3.270 -0.21 +3.370
+ 8.00 32 10.14 + 8.61 9.16 + 9.48 7.77 + 11.15 6.79 + 22.21 6.67 + 29.20 7.35
55 25.96 -7 32.67 55 25.26 -7 33.50 55 24.44 -7 32.12 55 22.77 -7 31.55 55 11.74 -7 31.56 55 4.70 -7 30.84
-1.1 -1.1 -1.1 -1.1 -1.0 -1.0
55 33.96 -6.90 55 33.87 -6.90 55 33.92 -6.90 55 33.92 -6.90 55 33.95 -7.00 55 33.90 -7.00
37.540 +21.24 29.47 37.450 24 27.66 37.500 24 27.65 37.500 24 27.24 37.530 24 27.11 37.480 24 28.51

45 +19.10 -26.50 50 -10.42 45 +21.23 -33.74 45 +26.49 -12.04 45 +21.78 -26.05 45 +25.85 -29.18
$\frac{\varphi}{\varphi'}$ = -2.30 -2.34 -2.36 -2.38 -2.73 -2.98
4 56.1 0 53.9 0 34.9 4 57.0 0 3.7 4 52.0 0 38.5 4 58.1 0 57.3 4 51.7 0 59.1
44.5 40.8 20.0 45.0 52.0 39.1 25.6 44.3 43.1 39.9 46.9
100.6 94.7 54.9 102.0 115.7 91.1 64.1 102.4 100.4 91.6 106.0
49 50.30 50 47.35 50 27.45 49 51.00 50 57.85 49 45.55 50 32.05 49 51.20 50 50.20 49 45.80 50 53.00
1.28103 1.42325 1.01787 1.32695 1.52815 1.42308 1.08063 1.33806 1.41581 1.41246 1.46508
1.36674 1.50896 1.10358 1.41266 1.61386 1.50879 1.16634 1.42377 1.50152 1.49817 1.55079
+23.27 -32.28 -12.69 +25.86 -41.10 +32.27 -14.67 +26.53 -31.73 +31.49 -35.55
50 13.57 50 15.07 50 14.76 50 16.86 50 16.75 50 17.82 50 17.38 50 17.73 50 18.47 50 17.29 50 17.40

+21° 32' 34.78" 33.28 32 33.59 32 31.49 32 31.60 32 30.53 32 30.97 32 30.62 29.88 32 31.66 30.90
34.03 31.54 30.75 30.25 30.98

+ 20 57 22 58 19
1.34350 1.34380
+34.21 +44.26 +32.90 +37.23 +30.09 +30.30
1.37771 1.37801 1.38776 1.38806 1.37640 1.37670 1.38073 1.38103 1.37359 1.37389 1.37380 1.37410
-23.86 -23.88 -24.42 -24.44 -23.79 -23.81 -24.03 -24.05 -23.64 -23.65 -23.65 -23.66

-07 -02 -13 -02 -00 -.08 +03 -20 -13 +08 -03 -08 +06 -13 -12 +03 -16
+.14 +.02 +.01 -01 +.29 +.05 +.29 +.03 +.29 +.05 +.29 +.05
-23.49 -23.99 -24.43 -23.58 -23.66 -23.87 -24.05 -23.43 -23.73 -23.48 -23.77
32 10.79 9.29 32 9.16 32 7.91 7.64 32 6.66 6.92 32 7.19 6.15 32 7.58 8.13
24 34.8 34.8 34.8 34.8 34.9 34.9
-7 36.2 34.5 34.4 33.1 32.8 31.9 32.1 32.3 31.2 32.0 32.2
-7 35.35 34.40 32.95 32.00 31.75 32.45
-7 35.6 34.6 33.2 32.2 32.0 32.7
-7 33.01 24 30.25 -7 33.50 27.92 -7 32.37 27.80 -7 31.44 27.47 -7 31.65 27.56 -7 31.16 28.35
- .83 28.55 - .84 34.34 - .84 27.53 - .85 27.73 - .98 26.52 - 1.07 27.90
- 6.90 33.84 -1.38 - 6.90 -1.38 - 6.90 33.21 -1.38 - 6.90 32.29 -1.38 - 7.00 32.63 -1.48 - 7.00 32.23 -1.48
-7 40.74 29.40 41.24 27.42 40.11 27.66 39.19 27.60 39.63 27.04 39.23 28.12
34.92 33.44 33.16 33.12 32.56 33.64

1875

α 37.520
δ + 24 33.42
dα/dt + 3.581
dδ/dt + 5.519

l cos δ 9.96893
l b .12552
l b' .09445

1875

Jan	0	55	38.35		24	42.3	
	5		38.35	−.00		42.4	+.1
	10		38.35	.00		42.4	.0
	15		38.34	.01		42.4	.0
	20		38.32	.02		42.4	.0
	25		38.28	.04		42.4	.0
	30		38.24	.04		42.4	.0
Feb.	4		38.18	.06		42.4	.0
	9		38.12	.06		42.4	.0

× × × 1874 1875

+25 Feb 14 | +13 Mar 5 | +17 Mar 8 | +.32 Jan 11 | +.20 −.08 Jan 14 | +.23 −.08 Jan 16

+107 | +140 | +144 | +305 | +110 | +160
54 49.7 54 31.3 | 55 35.0 55 30.3 | 55 33.0 55 21.4 | 54 58.7 54 47.6 | 54 56.2 55 11.8 | 54 54.2 55 24.4
52.0 33.5 | 37.2 32.0 | 35.0 23.4 | 55 1.0 49.2 | 58.2 12.9 | 56.4 26.2
54.1 35.3 | 39.4 33.8 | 37.2 25.1 | 3.3 51.2 | 55 0.5 14.7 | 58.8 28.0
58.6 | 43.8 | 41.6 | 7.7 | 4.9 | 3.1
0.8 | 46.1 | 43.9 | 9.9 | 7.2 | 5.3
3.0 | 48.3 | 46.1 | 12.1 | 9.5 | 7.6
5.3 55 15.5 | 50.4 | 48.2 | 14.2 | 11.7 | 9.7
7.5 18.0 | 52.8 | 50.5 | 16.4 | 14.0 | 12.0
11.7 19.5 | 57.2 | 54.8 | 21.0 | 18.2 | 16.3
14.1 | 59.4 | 57.2 | 23.0 | 20.5 | 18.5
16.1 | 1.5 | 59.4 | 25.3 | 22.9 | 20.9

2729 | 4711 | 5069 | 1926 | 2238 | 2630
240 | 60 | | 60 | 120 | 180
329 54 33.37 | 53.11 55 32.03 | 55 23.30 | 132.6 ~~54 49.33~~ | 103.8 55 12.80 | 83.0 55 26.20
55 2.991 55 17.67 | 55 48.282 | 55 46.082 | 55 12.055 | 55 9.436 | 55 7.545
2.975 + 31.13 | 48.266 − 14.53 | 46.066 − 12.33 | 12.039 + 26.14 | 9.420 + 28.90 | 7.529 + 30.81
55 34.13 +.10 | 55 33.821 +.05 | 55 33.76 +.07 | 55 38.35 +12 | 55 38.34 +.08 | 55 38.34 +.09
− 31.16 | + 14.45 | +12.31 | −26.31 | − 28.92 −.09 | − 30.81 −.09
− 31.12 −0.19 | + 14.49 +0.13 | + 12.35 +0.18 | − 26.27 −0.83 | − 28.88 −0.82 | − 30.77 −0.82
55 34.02 | 33.92 | 33.99 | 37.47 | 37.49 | 37.51 2
2
+ 31.09 | − 14.53 | − 12.32 | + 26.13 | + 28.83 | + 30.74
+ .04 | + .05 | + .06 | + .12 | + .04 | + .06
−0.19 +33.90 | +0.13 +37.10 | +0.18 +37.60 | −0.83 | −0.82 | −0.82
+ 30.94 32 6.57 | − 14.35 5.21 | − 12.08 32 5.91 | + 25.42 | + 28.05 40 50.60 | + 29.98 48.31
55 29.7 −7 31.98 | 55 48.27 −7 30.28 | 55 46.07 −7 30.12 | 55 12.04 +2 17.63 | 55 9.42 −16 6.56 | 55 7.53 −16 5.36
−1.0 | −1.0 | −1.0 | −1.2 | −1.2 | −1.2
55 33.91 −7.00 | 55 33.92 −6.90 | 55 33.99 −6.90 | 55 37.46 | 55 37.47 −9.00 | 55 37.51 −9.00
37.490 24 27.53 | 37.500 24 27.03 | 37.570 24 27.89 | | 24 23.84 | 24 32.75 5
5

14.68
45 + 29.62 −[illegible] | 50 + 16.25 | 45 + 22.78 | + ~~22.72~~ 55 + 23.93 | − 3.36 40 | − 18.66 40
Hg 1 = −1.300 | − 3.22 | − 3.23 | | − 3.23 | − 3.27
4 44.5 0 39.7 | 0 2.4 | 4 56.6 | 4 31.5 | 1 41.5 | 1 62.4
39.8 35.1 | 58.1 | 48.2 | 30.9 | 34.5 | 54.9
84.3 74.8 | 120.5 | 104.8 | 62.4 | 76.0 | 117.3
49 42.15 50 37.40 | 50 0.25 | 49 52.40 | 59 31.20 | 41 38.00 | 41 58.65
1.47159 1.24~~7~~ 1.66678 | 1.21085 | 1.35755
1.55730 1.33291 | 1.29656 | 1.44326 | 1.35641 | 0.52634n | 1.27090n
+36.08 −21.53 | +19.80 | +27.75 | 1.45086 | 0.62079n | 1.36535n
50 18.23 50 ~~15.87~~ | 50 20.05 | 50 20.15 | +28.24 | −41.76 −4.18 | −23.19 23.19
19.52
41 33.82 | 41 35.46
32 30.12 ~~32.48~~ | 32 28.30 | 32 28.20 | 41 14.53 | 41 12.89
29.47 28.83
+20 57 14 58 9 | 57 50
+1844 | +1902 | +933 | 1.34370
1.36194 1.36224 | 1.36252 1.36282 | 1.35283 1.35313 | +2964 | +3904
−23.01 −23.03 | −23.04 −23.06 | −22.54 −22.55 | 1.37334 | 1.38274
−23.63 | −24.14

−16 +.06 −.04 | −.05 ~~−.12~~ −.05 | −.09 ~~+.12~~ +.25 | −.10 | 0 ~~−.06~~ ~~−.22~~ | −.16
+28 +.04 | .00 | +.34 | | −.30 −.30 | −.38 −.44
−22.79 −23.03 | −23.09 | −22.29 | | −23.93 | −24.58
32 7.23 5.80 | 32 5.21 | 32 5.91 | | 40 50.60 | 40 48.31
24 34.9 | 34.8 | 34.8 | | 42.4 | 42.4
−7 32.9 (31.60) ~~31.9~~ 30.9 | 30.4 | 31.1 | | −16 8.2 | 5.6
−7 31.80 | 30.6 | 31.3 | | −16 8.0 | 5.7
−7 31.07 24 28.08 | −7 30.40 26.76 | −7 30.48 27.37 | | −16 7.00 33.44 | −16 5.56 32.58
− 1.08 26.65 | − 1.15 31.53 | − 1.16 31.64 | | − 1.16 8.16 | − 1.17 6.7 ×3
− 7.00 32.15 | − 6.90 −1.38 | − 6.90 −1.38 | | − 9.00 −3.48 | − 9.00 −3.48
−1.48
− 39.15 27.37 | 38.45 26.76 | 38.54 27.37 | | 17.16 33.44 | 15.73 32.58
32.89 | 32.28 | 32.89

+.20 +.30 +.24

Jan 25 Jan 26 Feb 2

+.200 +.266 +.210

54 43.7 54 30.5 54 — 54 29.6 54 35.0 54 42.7
45.9 32.6 — 31.4 37.3 45.5
48.2 34.3 — 33.5 39.5 47.6
52.6 51.6 44.2
54.8 53.8 46.1
57.0 55.9 48.4
59.2 58.2 55 19.6 50.4 55 28.4
1.5 0.3 21.6 52.7 30.1
6.9 — 23.6 57.2 32.1
8.1 — 59.3
10.3 — 1.5

16
3872 2198 47~~18~~
240 60 60 6
627.2 54 32.47 2798 54 31.57 531~~8~~6 54 45.27
54 57.018 54 55.960 ~~55 21.60~~ 54 48.345 55 30.20
57.002 +41.20 55.944 +42.27 48.3~~41~~27 +49.80
55 38.28 +.08 55 38.27 +.12 55 38.20 +.09
−41.28 −42.33 −49.89
−41.24 −0.76 −42.29 −0.75 −49.85 −0.68
~~54~~ 55 37.52 37.5~~8~~8 37.52
+ 41.20 55 + 42.25 8 + 49.81
+ .08 + .10 + .08
−0.76 −0.75 −0.68
+ 40.52 5350 + 41.60 5371 + 49.21 5528
54 57.00 −16 10.29 54 55.94 −16 10.76 54 48.31 −16 10.93
−1.3 −1.3 −1.3
55 37.52 −9.00 55 37.54 −9.00 55 37.52 −9.00
24 32.91 24 32.65 24 34.05

6 4 7
40 +24.55 40 +24.39 −25.64 40 +3.08 −31.86
−3.43 −3.47 −3.57
.0 59.5 2 0.7 0 59.1 1 54.2 1 22.1 2 17.7
1.5 1.9 0.7 55.8 29.3 23.5
1210 2.6 1198 1100 514 412
41 0.50 42 1.30 40 59.90 41 55.00 41 25.70 42 20.60

62190
+1.39005 1.39005 1.40892n 0.48572 1.~~50338~~n
1.48450 1.48450 1.50337n 0.58017 1.~~59783~~n
+30.51 +30.52 −31.87 +38.03 1.71933 ~~39.61~~
41 31.01 41 30.42 41 23.13 41 ~~2.33~~ 41 ~~40.99~~
41 17.34 41 17.93 41 25.22 41 29.50 28.56
8.85 19.79
1932

57 12 58 13
1.34340 1.34380
+2923 +3672 +3079
1.37263 1.37308 1.38012 1.38052 1.37419 1.37459
−23.59 −23.61 −24.00 −24.02 −23.67 −23.69

−.11 ~~−.17~~ −.11 ~~−.27~~ −.12 −0 −.35 −.31
−.14 −.25 −.28 −.11 −.22 −.21 −.15 −.25
−23.84 −24.22 −24.35 −23.82 −24.25
40 53.50 40 53.71 0.87 40 55.03 55.44
424 424 424
111 113 126 (12.85) 13!
10.9 11.1 12.6
−16 9.61 33.66 −16 11.32 32.15 −16 11.08 33.67
− 1.23 10.84 − 1.24 12.56 − 1.28 12.36 34.18
− 9.60 −3.48 − 9.60 −3.48 − 9.60 −3.48
19.84 33.66 21.56 32.15 21.36 33.92

14
.258
.113
.18
2.58

98

ε Ursæ Minoris.

16 ~~4~~ᵸ 58ᵐ 51ˢᵉᶜ

97° 46′
82 14

z = − 55 23
− 82

sin δ 9.99600
cos δ 9.13078n
.11678
9.24756n

tg δ 9.99600
cos δ 9.13078
9.12678
lg 11.75″ 6.73672
log C = 5.86350

	P	N.H.
corr α =	+.077ˢ	−0.05ˢ
corr δ =	—	

tang δ = −7.383 7.38

I = 15.24

k = +.113ˢ

1874	P	N.H.
α	57.156ˢ	57.285
δ +14	27.55	28.05 31.55
dα/dT	−6.382n	
dδ/dT	−5.296	

Corr δ = −0.x

+

1874

+.24	+.22	+.25	+24	+35 −04	+25
Jan. 15	Jan. 17	Jan. 18	Jan. 20	Feb. 12	Feb. 14
+.232	+.230	+.245	+.177	+.294	+.101
58 14.6 58 24.3 22.2 30.1 36.8 44.2 51.1 59.4 59 4.0 59 8.3 20.6 14.3 29.3	58 12.6 56 38.1 21.7 57 5.2 29.0 19.4 36.6 44.0 52.0 59.0 59 19.0 7.6 14.9	58 13.1 57 12.1 20.2 28.8 28.0 38.8 35.3 43.3 51.6 58.8 58 49.0 6.6 55.5 18.8	58 11.3 56 58.6 18.6 14.5 25.5 20.0 33.8 41.5 49.3 56.8 58 53.6 4.9 2.0 12.5 15.2	57 57.1 56 47.6 58 4.8 58.4 12.8 15.0 19.7 27.4 35.3 42.8 58 45.6 50.6 59.6 58.7 59 13.4	57 53.8 56 54.2 58 2.3 57 41 9.3 17.0 16.6 24.8 32.8 39.7 58 41.7 47.7 44.7 55.3
281.0 120 401.0 58 24.30 58 44.556 59 17.97	277.8 4 120 397.8 57. 7.57 58 44.156 59 19.00	270.7 120 390.7 57 26.57 58 43.411 58 52.25	254.4 120 374.4 56 13.70 58 41.600 59 3.60	309.2 60 249.2 57 0.33 58 27.689 58 59.53	282.3 60 222.3 57 5.10 58 24.700 58 43.20
44669 58 51.43 +8.43 − 6.76 −1.76 − 6.71 +5.85 + 8.41 58 57.19 − 1.70 +5.43 −0.53 + 12.56 58 44.67 53 23.10 −7 32.67 58 57.23 +23 50.85 −1900 +97 45 33.73	44269 58 51.61 +9.03 − 7.34 −1.61 − 7.29 +5.67 + 9.00 57.36 − 1.68 +5.55 −0.71 + 12.49 58 44.27 21.46 −7 33.50 58 57.26 +2.3 50.88 −1930 45 30.96	43524 58 51.70 +9.87 − 8.18 −1.83 − 8.13 +5.58 + 9.86 57.14 − 1.79 +5.46 −0.80 + 13.65 58 43.52 20.97 −7 32.12 58 57.17 +2.3 50.79 −1960 45 31.55	41713 58 51.93 +11.51 − 10.22 −1.76 − 10.17 +5.35 + 11.54 56.81 − 1.30 +5.35 −1.03 + 15.59 58 41.71 20.48 −7 31.55 58 57.30 +23 50.92 −2000 45 31.23	27802 58 54.93 +29.33 − 27.13 −2.57 − 27.08 +.30 +2.35 + 29.30 57.21 − 2.15 +2.35 −4.03 + 29.50 58 27.80 26.55 −7 30.84 58 57.30 +23 50.92 −2570 45 32.91	24813 58 55.23 +31.13 − 30.42 −1.83 − 30.37 +2.05 + 31.09 56.16 − .18 +2.05 −4.33 + 32.36 58 24.81 26.37 −7 30.98 58 57.17 +2.4 50.79 −2550 45 32.29
+20.26 −33.41 30 H/p = −.230″ 0 2.7 0 54.6 53.6 45.8 1 116.3 100.4 29 58.15 30 50.20 1.30664 1.52388n 0.55414 0.77144 + 3.58 + 5.91 30 54.57 30 56.11 8 ~~6.22~~ 8 ~~4.76~~ 51 53.78 52.24 53.61 −55 21 30 21 38 1.91990 1.91990n +3425 1.95415 1.95415 +89.98 +89.98 + 02 + 02 + 4 +.09 + 10 +03 +.02 +1 30.07 +1 30.12 9 ~~36.29~~ 37.88 53 23.85 22.36 14 9.0 45 51.0 −7 32.8 31.4 −7 32.1 −7 50.13 31.6 45 33.72 −7 33.01 31.17 32.23 + 1.88 14.70 32.97 + − 1900 3 [illegible] −	9 30 +16.59 −34.84 − 2.34 1 22.9 0 58.3 10.9 46.4 33.8 105.7 31 16.90 30 52.85 1.56336 1.54208n 0.83249n 0.78964 −6.47 +6.16 30 14.43 30 59.01 59.82 8 ~~22.08~~ ~~10.66~~ 51 11.47 49.34 48.53 48.93 +4435 1.96425 1.96425 +92.10 +92.10 + .01 + .01 + .68 +.42 + .9 +.04 +.03 +1 32.83 +1 32.23 9 44.30 42.89 53 21.36 21.57 8.7 51.8 30.1 30.3 30.2 − 50.89 29.7 30.47 −7 33.50 31.50 30.68 + 1.91 −1400 30.57 + 1936 35.87	7 30 +16.84 −8.84 − 2.36 1 15.1 0 0.7 6.5 51.3 21.6 112.0 31 10.80 29 56.00 1.22634 0.94645n 0.47598n 1.19401 −2.97 +15.63 30 7.83 30 11.63 57.21 57.56 8 ~~19.48~~ ~~23.28~~ 51 8.86 9.21 51.14 50.79 50.96 +3293 1.95283 1.95283 +89.71 +89.71 + .01 + .01 + .44 +.28 + 1 +.07 +.05 +1 30.23 +1 29.78 9 39.04 38.99 53 21.37 20.57 8.4 51.6 29.8 29.0 29.4 − 50.04 28.9 31.33 −7 32.3 30.44 30.53 + 1.93 −1430 30.93 1960 36.23	8 30 +14.790 −22.00 − 2.38 1 19.7 0 59.4 9.7 49.9 29.4 109.3 31 14.70 30 54.65 1.16967 1.34242 1.41753 0.58998 −15.64 +3.89 30 59.16 30 58.57 8 10.81 8 10.19 51 49.19 47.81 49.50 +3729 1.95719 1.95719 +90.61 +90.61 + .01 + .01 + 5.7 +.36 + 3 +.07 +.05 +1 30.76 +1 30.70 9 31.26 40.89 53 20.45 20.51 8.0 52.0 28.4 28.5 28.4 −49.49 27.9 30.96 −7 31.44 29.49 31.02 + 1.95 −1470 30.99 + 2000 36.29	8 30 +17.36 −31.84 − 2.98 1 11.5 0 50.0 2.9 40.6 14.4 90.6 31 7.20 30 45.30 1.40472 1.50297 0.68468n 0.75055 −4.83 +5.63 31 2.37 30 50.93 51.76 8 ~~3.41~~ 8 ~~2.58~~ 51 56.59 57.42 57.00 21 21 21 43 1.91980 1.91990 +3035 1.95015 1.95025 +89.16 +89.17 + .01 + .01 + 5.6 +.37 + 7 +.07 +.05 +1 29.80 +1 29.30 9 33.21 31.88 53 26.39 26.72 2.9 57.1 29.3 29.6 29.5 −53.82 29.0 32.57 −7 31.16 28.72 32.90 + 2.44 −1980 32.73 + 2510 38.03 −	7 30 +19.60 −18.50 − 3.00 0 4.0 0 45.9 3.0 44.9 7.0 90.8 31 3.50 30 45.40 1.29226 1.26717 0.54298n 0.51473 −3.46 +3.27 30 0.04 30 48.67 49.42 8 1.07 0.32 51 58.93 54.68 59.30 +1853 1.93833 1.93843 +86.76 +86.78 00 00 + 4.7 +.30 2 +.06 +.05 +1 27.29 +1 26.85 9 28.36 27.14 53 26.22 26.38 2.5 57.5 28.7 29.0 28.8 −54.11 28.3 32.11 −7 31.07 28.61 32.42 + 2.46 −2020 32.96 25.50 37.56

	1874				1875				
N. A	m s		δ		α	𝔐	δ		
			′ ″		m s		′ ″		
Jan 10.9	58 57.03		14 10.8		Jan 9.9 58 44.14	(14	3.9		
15	51.47 .44		9.2	− 16	14. 44.56	42	2.3	16	
20	51.98 .51		7.8	14	19 45.05	49	0.9	14	
25	52.55 .57		6.5	13	24 45.61	56	59.5	14	
30	53.17 .62		5.3	12	29 46.21	60	58.3	12	
Feb. 4	53.85 .68		4.2	11 Feb. 3	46.87	66	57.2	11	
9	54.56 .71		8.3	9	8 47.57	70	56.3	9	
14	55.31 .75		2.5	8	13 48.31	74	55.5	8	
19	56.08 .77		1.9	6	~~18~~ 18 49.07	76	54.8	7	
Mar	56.88 .80		1.4	5					
1	57.68 .80		1.1	3					
6	58.49 .81		1.0	1					
11	59.31 .82		1.0	0					

1875
α 50.776
δ +14 22.25
$\frac{d\alpha}{dt}$ − 6.378
$\frac{d\delta}{dt}$ − 5.305

N. A
50.907
27.77
~~37.20~~

l cos δ 9.13078 n
l c .12552
l c′ 9.25630 n

	×		×		+ 1874		1875		
Feb. 17	+.20 March 1		+.13 March 5		+.17 March 8		+.32 Jan. 11		+.20 −.08 Jan. 14
	+1.92		+1.40		+1.44		+.305		+.110
Ch. f.	58 45.8	57 53.0	58 42.5	58 39.4	58 42.0	57 53.6	57 49.8	57 32.7	57 45.9	58 6.2
	52.9		50.1		49.3	4.3	56.8	41.0	54.0	11.7
	59 1.4		57.5		57.3	16.7	4.2	46.0	1.9	
	8.6		5.9		4.8		12.9		8.2	
	15.8		13.2		12.4		20.0		15.4	
	23.5		20.9		20.0		27.6		24.0	
	31.9		28.6		27.4		36.0		31.4	
	39.3		36.0		35.6		43.1		39.7	
	47.1		43.7		43.4		50.9		47.5	
	2663		2984		2922		3012		2678	
	120		180		180		120		120	
	1463	57 53.00	1184	58 39.40	1122	58 4.87	1812	57 39.90	1475	58 8.95
	59 16.256		59 13.156		59 12.467		58 20.133		58 ~~16.278~~	
									58 16.389	
	16.363		13.269		12.580		20.246		16.502	
	58 57.60	−17.29	58 58.25	−14.53	58 58.74	−12.33	58 44.26	+26.14	58 44.52	+28.91
	~~41.24~~	−1.47	+15.02	−.95	+13.84	−1.25	~~5.99~~	−2.35	−28.02	−1.47
	+18.96		+15.07		+13.89		−24.01		−27.99	+.59
	18.81	−0.32		−0.94		−1.46	23.96	+6.65		+6.39
	− 17.30	57.28	− 14.53	56.85	− 12.32	57.54	+ 26.13	50.69	+ 28.83	50.92
	− 1.41		− 1.02		− 1.05		− 2.23		− .80	
	−0.44 −.32	−6.70	~~+.09~~ −.96	7.32	−1.58 −1.46	−7.84	+6.53 6.55		+6.26 6.38	
	− 19.03		− ~~17.49~~ 16.49		− 14.83		+ 30.45		+ 34.42	0.83
	59 16.36		59 13.27	25.78	59 12.58	53 27.88	58 20.25	43 37.36	58 16.50	2 ~~12.65~~
	÷7 30.15		56.78	−7 30.28	57.75	−7 30.12	50.80	+2 17.63		−16 6.56
	58 57.33	+24	58 55.78	+2.4	58 57.67	+2.4	58 ~~50.69~~	+2.5	58 50.92	+2.5
	50.95		50.40	−27.00	57.37	−27.00		−19.40		−20.30
				45 36.90		45 33.16		45 38.09		45 ~~48.29~~
										36.47

+ 83.26
30

+67.60

30		30 +33.76	30 67.60	+40.2340		+7.3320 .44
′ ″		−3.22	−3.23		−3.19	−3.23
0 45.7	A. R.	0 56.5	0 59.1		0 54.6	2 20.1
40.3		54.7	55.8		46.3	14.8
86.0		111.2	114.9		100.9	34.9
30 43.00		30 55.60	30 57.45		40 50.45	22 17.45
1.92044		1.52840	1.82995			0.87157
1.16800 n		0.77596 n	1.07751	1.60455	−7.26	0.86510
−14.72		−5.97	−11.95	0.86085 n		0.12143 n
30 28.28		30 49.63	30 45.50	−7.26	40 43.19	−1.32
7 39.83		~~8 12.8~~	~~7 54.15~~		~~14 54.84~~	22 ~~13.16~~ 1.34
52 20.07		51 58.72	52 2.85		42 5.16	~~4.7~~ 16.11
						59 ~~15.74~~
						0 ~~44.06~~
						32.24

+ 19.17		+ 9.39		+ 45.04		+ 29.64	
1.93897	1.93907	1.92919	1.92929	1.96484	1.96494	1.94944	1.94954
+86.89	+86.91	+84.96	+84.97	+92.22	+92.24	+89.01	+89.03
+ .01	+ .01	00	00	+ .02	+ .02	+ .01	+ .01
+ 10 ~~+.08~~		+ 1 ~~+.03~~		+ 11 ~~−.02~~		+ 1 ~~−.21~~	
+.06 +.16		+.06 +.07		−.15 −.04		−.44 −.43	
+1 27.06		+1 25.03		+1 32.20		+1 28.59	
9 ~~28.34~~		9 ~~22.18~~		19 ~~27.04~~		0 ~~44.53~~	
53 25.78		53 27.88		43 37.36		2 ~~12.65~~ 0.83	
1.0		1.0		14 34		2.5	
59.0		59.0		45 56.6		57.5	
26.8		28.9		+ 2 19.2		−16 15.1	
26.8	−7 54.76	28.9	− 54.84	+ 2 19.2		−16 15.1	
26.3		28.4		18.9	45 38.76	15.6	49.99
−7 30.40	27.76	−7 30.48	27.84	+2 18.19	20.80	−16 7.00	4.36
+ 2.64	−21.70 31.02	+ 2.64	−21.70 33.04	+ 2.61	+7.91	+ 2.64	+7.94
− 27.00	36.32	− 27.00	38.34	− 15.40		−20.30	

5.42
41
17.0
41.7
44.7
5.10
43.20
−31.13
−1.83
+2.05
56.16
33
26.37
30.78
+ 2.4
− 25.80
32.29
18.50
45.9
44.9
90.8
45.40
26.717
51.473
+ 3.27
48.67
0.32
59.68
8.43
86.78
00
2
+.05
26.85
27.14
26.58
29.0
54.11
32.11
13.242
32.26
37.56

+.23 -.08 +.20 +.30 +.31 +.25 -.06 +.24

Jan. 16 Jan. 25 Jan. 26 Jan. 27 Jan. 30 Feb. 2

+160 +200 +.266 +.240 +.196 +.210

58 58 2.3 57 57 14.0 57 55 59.4 57 57 23.6 57 58 24.9 57 56 58.7

34.8 34.5 34.3 31.3 ~~28.9~~ 1.4

43.0 43.0 41.2 38.9 ~~28.9~~ 44

— 50.8 50.0 49.8 46.0 35.3

6.6 14.22 58.6 58 25.1 57.0 58 41.1 57.0 58 28.0 53.3 42.9

15.4 15.40 58 5.7 58 4.8 58 4.5 58 1.4 50.0

23.0 15.38 13.4 13.2 12.1 8.9 58.3

30.6 15.36 22.6 20.6 19.6 15.9 58 6.5

37.2 14.34 29.0 28.2 27.0 23.6 14.1

45.2 14.72 37.0 36.2 35.2 31.0 22.0

29.2 4 28.7 5 28.0 7 25.0.3 28.0 9 22.91

240 240 240 180 18 / 40.91

~~58 21.30~~ 5.2 4 57 14.00 47 5 55 59.40 40 7 57 23.60 10.3 58 24.90 46.0 9 57 1.50

58 14.870 58 5.822 58 25.10 58 5.278 58 41.10 58 4.522 58 28.00 58 1.144 57 ~~51.211~~ 58.443

14.983 59.35 5.391 4.635 1.237 ~~51.324~~ 58.556

58 44.69 +30.81 58 45.67 +41.21 45.78 +42.27 45.90 +43.28 46.27 +46.49 58 46.67 +49.80

– 29.71 –1.69 – 39.74 –1.47 – 40.35 –2.20 – 41.26 –2.27 – 45.01 –1.83 – ~~45.35~~ 48.11 –1.76

– 29.66 +.59 – 39.69 – 40.34 – 41.21 – 44.96 +.44 – ~~45.30~~

+6.22 +5.24 +5.73 +5.01 +4.64 +4.24

+ 30.74 50.91 + 41.20 50.92 + 42.25 50.59 + 43.28 50.66 + 46.40 51.00 + 49.81 50.84

– 1.17 – 1.47 – 1.95 – 1.97 – 1.44 – 1.54

+6.09 22 +5.11 24 +5.80 13 +4.88 5.01 +4.61 .64 +4.11 24

+ 35.79 + 44.97 + 45.43 + 46.32 + 49.60 + 52.51 52.51

58 14.98 2 58 5.93 2 7.98 58 5.39 9.15 58 4.63 7.83 58 1.26 7.69 57 ~~57.32~~ 58.556 9.54

–16 5.36 –16 10.29 –16 10.76 –16 10.05 –16 10.47 –16 10.93

58 50.77 + 2.5 58 50.90 + 2.5 58 50.82 + 2.5 58 50.95 + 2.5 58 50.86 + 2.5 58 ~~43.83~~ 51.07 +2.5

– 23.40 – 23.70 – 24.00 – 24.60 – 25.30

45 36.79 45 37.19 45 36.28 45 35.12 45 35.81

+56.94

20 –9.43 20 +61.82 –19.28 20 +135.88 –35.82 20 +40.92 –23.48 20 –2.376 20 + ~~49.71~~

– 3.43 – 3.47 – 3.49 – 3.52 – 3.57

2 22.4 2 16.9 2 3.2 2 32.6 2 3.1 2 16.7 2 4.9 2 1.2 2 14.1 ~~2 2.9~~

45.2 21.0 7.2 36.0 5.1 18.2 8.0 8.1 22.5 11.7

67.6 37.9 10.4 68.6 8.2 34.9 12.9 9.3 36.6 14.6

22 33.80 22 18.95 22 5.20 22 34.30 22 4.10 22 17.45 22 6.45 22 4.65 22 18.30 ~~22 7.30~~

0.87821 1.71450 1.28511n 2.13322n 1.55413n 1.61194 1.37070n 1.37585n ~~1.69644~~ 1.75542

.06451 0.97080n 0.57141 1.38952 0.81043 0.86824n 0.62700 0.63218 ~~0.90274n~~ 1.01172

+.16 –9.35 + 3.48 – 24.52 + 6.46 – 7.38 + 4.24 + 4.29 ~~– 8.97~~ – 10.27

22 34.66 22 9.60 22 8.68 22 9.78 22 10.56 22 10.07 22 10.69 22 8.94 ~~22 9.32~~ 22 8.03

97 ~~59 21.25~~ ~~59 20.33~~ ~~59 21.43~~ ~~59 22.21~~ ~~59 21.72~~ ~~59 22.34~~ ~~20.59~~ ~~59 20.98~~ 40.32

0 38.75 39.67 0 38.57 37.79 0 37.28 37.66 0 39.41 ~~0 39.02~~

39.71 21 38.18 37.97

–55 21 29 21 43

1.91990 1.91990n

+2927 +3677 +3430 +2687 +3083

1.94917 1.94917 1.95667 1.95667 1.95420 1.95420 1.94677 1.94677 1.95073 1.95073

+88.96 +88.96 +90.50 +90.50 +89.99 +89.99 +88.46 +88.46 +89.28 +89.28

+ .01 + .01 + .01 + .01 + .01 + .01 + .01 + .01 + .01 + .01

+ 19 –20 + 2 +1.39 –.46 + 9 + 12 –16 + 5 + 4 –09 + 15 –03

–.32 –.29 –.29 –.23 –.25 –.23 –.23 –.19 –.25 –.07

+1 28.84 +1 28.70 +1 31.54 +1 30.37 +1 29.87 +1 29.85 +1 28.28 +1 29.22

~~0 50.09~~ ~~49.03~~ ~~0 53.00~~ ~~52.58~~ ~~0 51.59~~ ~~52.19~~ ~~0 48.87~~ 0 50.20

2 7.59 8.37 2 10.14 8.16 2 8.15 7.51 2 7.69 2 ~~8.24~~ 9.54

59.4 59.1 58.8 55.2 57.5

–16 ~~46~~ ~~8.2~~ 0.6 ~~9.0~~ ~~11.0~~ 0.5 ~~9.1~~ ~~9.3~~ 1.2 ~~8.7~~ ~~9.5~~ 1.8 ~~10.7~~ 2.5

–16 7.0 7.8 9.2 7.3 7.0 6.3 9.9 5.7

–16 7.4 37.39 8.2 37.96 6.7 36.80 5.9 35.51 5.7 ~~34.78~~

–16 7.9 38.17 8.7 35.58 7.2 36.16 6.4 6.2

∓16 9.61 6.80 –18.12 ∓16 11.32 8.48 ∓16 10.21 7.35 ∓16 10.46 7.58 ∓16 11.08 8.16 36.08

2.81 37.78 2.84 18.40 36.97 2.36 –18.70 36.46 2.88 19.30 35.51 2.92 –20.00 ~~34.75~~

–24.60 –25.30

α	1874.0	δ	α	1875.0	δ
57.23			50.80		
26			.92		
17			77		
30			90		
30			82		
17			95		
57 33			86		
56.78			51.~~830~~7		
57.75			57		
			93 59		
57.254			50.888		
.156		27.55	776		22.25
+.098			+.~~054~~		
			+.083		

+26 +32

Feb. 4 Feb. 9

+.283 +.335

58 56 44.0 58 59 29.1

2.56

34.0

41.5

49.4 59 29.3

57.0

59 4.7 59.5 51.88

12.1 59 8.4 53.16

28.3 14.9 52.04

27.0 22.7 52.22

2716

240

5116 56 44.00 59 29.10

58 56.844 59 29.30 58 52.325

56957 52438

46.94 − ~~+~~8.49 58 47.64 −2.33

− 49.98 −1.91 +4.80 −2.35

− 49.93 +4.85

+18.07 +3.97 +3.27

− 8.29 50.53 − 2.32 51.03

− 2.07 − 2.46

+3.84.97 +3.14.27

− 6.39 − 1.51

58 56.96 866 58 52.44 656

−16 1148 −16 928

58 50.57 + 2.5 58 50.93 + 2.5

− 25.90 − 26.60

45 33.78 45 33.18

20 +13284 −32.46 20 − 3678

−361 − 370

2 30.7 2 0.2 2 7.7

39.6 9.9 10.5

70.3 10.1 18.2

22 35.15 22 5.05 22 9.10

2.12336 1.51135n 1.56561

1.37966 0.76765 0.82191

23.97 +5.86 + 6.64

22 11.18 22 10.91 15.74

59 ~~22.83~~ 59 ~~22.56~~ 59 ~~27.39~~

0 37.17 37.44 0 32.61

37.30

21 13 21 43

1.91980 1.91990n

+3875 +5465

1.95855 1.95865 1.97445 1.97455

+90.90 +90.92 +94.29 +94.31

+ .02 + .02 + .02 + .02

+1.29 +2.43 + 9 + 10 ~~18~~ + 10

−29 −23 −46 −36 46

+1 31.92 +1 30.80 +1 33.95 +1 33.97

0 ~~54.95~~ ~~53.36~~ 0 ~~57.34~~

2 9.09 8.24 2 6.56

5.69 56.2

~~12.2~~ 3.1 ~~11.3~~ ~~10.4~~ 3.8

6.0 5.1 2.8

5.6 34.24 2.8 34.02

6.1 33.99 3.3

∓16 11.31 835 ∓16 8.97 594

2.96 20.60 34.43 3.93 21.30 34.02

−3.54 −3.26

1875

1875

19 H. Camelop.
5h 1m 59sec
79° 5′
~~100~~ 55
δ = − 36 42
− .60

Sin δ 9.99207
α 59.495
δ + 4 53.59
dα/dt + 9.745
dδ/dt + 5.165

l sin δ 9.99207
cos δ 9.27734
9.26941
6.73672
6.00613

l.cos 9.27734
l.b′ .12552
l.b′ 9.40286

Jan. 20	1m	63.50s		4′	73.9″	
25		63.20	−.30		75.0	+1.1
30		62.86	.34		76.1	1.1
Feb. 4		62.48	.38		77.0	.9
9		62.06	.42		77.9	.9
14		61.61	.45		78.6	.7
19		61.13	.48		79.1	.5

corr α = +.306s
corr δ = +.97″
tang δ = +5.19 5.29
I = 16.91s
K = −.079s

+.23 −.08 | +.20 | +.30 | +.31 | +.25 −.06 | +.24

1875

Jan. 16 +.160 | Jan. 25 +.200 | Jan. 26 +.266 | Jan. 27 +.270 | Jan. 30 +.196 | Feb. 2 +.210

1 0 42.0 0 59 31.1 0 0 5.2 0 59 0.1 0 59 52.4 0 58 52.9
10.9 49.6 59.6 42.0 58.4 15.0 57.0 7.9 53.8 0 0.9 49.9 1.2
16.2 52.7 1 5.0 50.4 1 3.3 24.8 1 2.4 15.1 1 59.2 9.7 53.5 9.9
21.3 10.2 8.8 7.9 5.4 1 1.3
27.0 16.1 14.5 13.2 10.7 6.0
32.1 20.9 20.0 18.4 16.0 12.1
38.5 26.9 0 44.7 25.3 24.3 2 18.5 21.2 1 5.9 17.2
43.5 32.0 53.8 30.2 29.7 27.0 13.3 23.1
49.0 37.7 1 6.4 36.2 35.0 32.0 23.8 28.5
54.5 43.5 41.7 40.7 38.0 33.9

2930 2519 2384 2286 2633 2275
60 60 60 120 0 1.00 120
0 48.~~45~~ .10 1919 59 41.17 1784 0 ~~44.67~~ 15.00 1686 59 7.70 1433 0 ~~1.33~~ 1075 59 1.33
1 22.556 1 21.322 0 54.971 19.822 1 18.733 2 18.501 15.922 1 14.33 1 11.944
32.477 21.243 19.743 18.654 15.843 11.865
2 3.741 +30.81 2 3.2118 +41.212 3.1422 +42.27 2 3.075 +43.28 2 2.874 +46.50 2 2.652 +49.80
− 31.263 +1.19 − 41.984 +1.04 − 43.4038 +1.56 − 44.420 +1.61 − 47.086 +1.30 − 50.786 +1.25
− 31.574 + .42 − 42.285 − 43.769 − 44.731 − 47.341 + .32 − 51.7007
−4.22 −3.69 −3.63 −3.56 −3.35 −3.13

+ 30.74 2² 0.68 + 41.20 1 59.80 + 42.25 59.94 + 43.28 59.98 + 46.40 2 2 0.61 + 49.81 1 59.79
+ .83 + 1.04 + 1.38 + 1.40 + 1.02 + 1.09
−4.22 −3.69 −3.63 −3.56 −3.35 −3.13
+ 27.35 + 38.55 + 40.00 + 41.12 + 44.07 + 47.77
1 32.48 21 18.57 1 21.24 25.94 1 19.74 25.55 1 18.65 24.68 1 15.84 28.51 (5) 1 11.86 25.34
−16 5.36 −16 10.29 −16 10.76 −16 10.05 −16 10.47 −16 10.93
1 59.83 + 1.9 19.50 1 59.79 + 1.9 1 59.74 + 1.9 1 59.77 + 1.9 1 59.91 + 1.9 1 59.63 + 1.9
45.73 − ~~23.10~~ 25.36 − 21.50 27.85 − 21.70 − 21.90 − 22.60 − 23.10
+79 4 55.61 4 56.05 4 54.97 4 54.63 4 54.34 4 53.21

.46 26.35 4.82 +131.03 −59.77 +74.92 + 1.59 +130.61
0 + 44.~~13~~ 0 .10015 + ~~24.33~~ 0 + 65.15 0 0 0
− 3.27 − 3.43 − 3.47 − 3.49 − 3.52 − 3.57
2 8.4 1 40.7 2 0.9 1 52.1 1 33.3 2 22.7 1 46.0 2 5.1 1 28.3
1.4 44.6 3.8 53.7 37.1 26.1 52.0 10.1 36.9
9.9 85.3 4.7 105.8 70.4 48.8 98.0 15.2 65.2
2 4.90 1 42.65 2 2.35 1 52.90 1 35.20 2 24.40 1 49.00 2 7.60 1 32.60

7.97
1.64473 2.00065 1.32879 (42.078) 1.81171 (81171) 2.11728 1.77648n 1.87460 0.20140 2.13386
1.05083 1.40351 0.78165 (.82364) 1.21457 (.21457) 1.52014 1.17934n 1.27746 9.60426 1.53672
+11.16 (11.24) +25.32 + 6.66 +16.39 +33.13 −15.11 +18.94 +0.40 +34.42
2 16.06 2 7.97 2 7.74 2 9.29 2 8.33 2 9.29 2 7.94 2 8.00 2 7.02
16.14 7.01
79° 19 ~~32.29~~ 20 40.38 20 ~~40.61~~ 39.06 20 40.02 39.06 20 40.41 40.35 20 41.33
20 32.21 40.86 41.34 39.54 40.38

− 36 42 13 41 24
1.63250n 1.63220n

+ 3925 + 2932 + 3682 + 3433 + 2694 + 3086
1.67175 1.67145 1.66182 1.66152 1.66932 1.66902 1.66683 1.66653 1.65944 1.65914 1.66336 1.66306
+46.96 +46.93 +45.90 +45.87 +46.70 +46.67 +46.43 + 46.40 +45.65 +45.62 + 46.06 +46.03

−.20 ~~−.30~~ −1.12 −.80 −.07 − .0 ~~−.10~~ − 1.74 −1.27 .37 − .57 −.50 − 0 − 1.88 ~~−1.02~~ 2.05
−.40 −.60 −.24 −.28 −.21 −.21 −.18 −.26 −.20 −.23 −.17
+ 46.36 + 44.64 + 45.52 + 46.49 + 44.51 + 45.27 + 44.88 + 45.39 + 44.01
21 18.57 25.02 28.86 21 25.55 21 24.53 24.83 21 25.29 25.74 21 25.34
5 13.1 15.1 15.3 15.5 16.2 16.7
−16 5.5 9.5 11.8 10.2 9.0 ~~8.3~~ 9.3 9.1 9.5 8.6
−16 5.5 10.85 10.20 9.15 9.30 8.60
−16 4.5 4 55.47 9.9 55.57 9.2 54.61 8.2 54.51 8.3 54.34 7.6 53.30
−16 5.56 3.60 −16 9.61 57.81 (7.55) −16 11.82 9.24 −16 10.21 54.81 (8.12) −16 10.46 54.79 (8.30) −16 11.08 8.94
+ 1.96 −14.34 + 2.06 −16.34 + 2.08 −16.54 + 2.09 −16.74 + 2.11 −17.44 + 2.14 −17.94
− 19.50 55.47 − 21.50 56.89 − 21.70 54.61 − 21.90 54.66 − 22.60 54.56 − 23.10 53.30
−16 23.10 29.05 30.94 30.02 30.95 32.04

+.26 +.32 +.30 +.12

Feb. 4 Feb. 9 Feb. 14

+.283 +.335 +.410

1 1 51.0 1 0 46.7 1 1 4.7
480 2 4.3 40.9 5.9 338 12.2
533 11.2 47.0 4.3 394 21.6
586 52.1 45.2
2 3.3 57.5 504
9.0 2 3.0 55.5
15.2 8.4 2 1.2 2 19.2
20.9 14.0 6.7 24.6
264 19.4 12.4 35.4
32.3 25.0 16.5

2670 2673 2611
180 240 240
870 2 2.17 273 0 55.63 5011 1 12.83
2 9.667 2 3.033 1 55.678 2 26.73
.40

9.588 −~~×~~8.49 29.54 −2.33 55.599 +4.01
2 2.~~50~~46 +1.35 2 20.84 +1.66 2 1.63 59 +1.56
+~~7.08~~7.15 + 0.~~84~~91 −~~6.03~~5.99 −~~×~~.63
+6.78 −2.97 + 0.56 −2.55 − 6.340 −2.10
84 66
∓ 8.29 1 59.48 ∓ 2.32 59.72 + 4.08 ~~0.78~~ 58.44
± 1.47 ± 1.74 + 2.13 58.44
−2.97 sum −2.55 −2.10
− 9.79 − 3.13 + 4.11
2 9.59 26.49 2 2.95 24.78 1 55.60 26.73
−16 11.48 −16 9.28 −16 9.59
1 59.80 +1.9 1 59.82 +1.9 1 59.71 +1.9
−23.40 −24.30 −25.00
4 53.51 4 53.10 4 54.04

5 6
+7.60 +7.40 +42.85 −30.72
0 0 0
−3.61 −3.70 −3.75
1 ~~29.0~~ 2 2.5 1 53.7 2 12.4 1 54.9 2 13.9
~~38.0~~ 10.9 55.0 15.1 59.6 18.8
1 ~~67.0~~ 13.4 108.7 ~~27.5~~ 114.5 32.7
1 ~~33.50~~ 2 6.70 1 54.35 2 ~~13.75~~ 1 57.25 2 16.35
87506
0.~~88081~~ 1.82866 1.63195 1.48742 n
0.~~23367~~ 1.~~29166~~ 1.03481 0.89028 n
+1.90 +1.90 1.23 +11.57 +10.84 −7.77
1 ~~35.40~~ 2 8.60 2 + ~~13.94~~ 2 8.09 2 8.58
11.35
~~21 12.43~~ 20 34.43 20 40.26 39.77
20 37.75 36.96 40.02
41 51 41 32
1.63240 1.63230 n
+38.93 +54.72 +41.98 n
1.67143 1.67113 1.68722 1.68692 1.67438 1.67428
+46.93 +46.90 +48.67 +48.63 +47.25 +47.24

− 1 − 45 −.18 −57 −.09
−.18 −.19 ~~−.23~~ −.40 −.85 −.46 −.40 −.48
+46.74 +47.82 +46.77 +46.67
21 26.49 21 24.78 21 27.03 26.44
17.0 17.9 18.6
9.5 6.9 8.4 7.8
9.50 6.90 8.10 5
8.5 53.95 5.9 53.73 7.0 34.46
−16 11.31 9.14 −16 8.97 6.75 −16 9.82 53.87
+ 2.17 −18.24 + 2.22 −19.14 + 2.25 7.57
− 23.40 53.95 − 24.30 53.73 − 25.00 −19.84 54.16
− 32.54 31.05 32.57

λ Eridani.

5h 3m 10sec

− 8° 55′

ζ = + 51 18
+.78

sin δ 9.19033

cos δ 9.99472
.46678
.11150

1874

Jan 20	3m	7.67		54′	64.1″	
25		7.63	−.04		64.7	+.6
30		7.58	.05		65.2	.5
Feb. 4		7.52	.06		65.6	.4
9		7.46	.06		66.0	.4
14		7.39	.07		66.3	.3
19		7.32	.07		66.6	.3
24		7.24	.08		66.8	.2
Mar 1		7.15	.09		66.9	.1

1874 s
α 7.071
δ −55 3.65
$\frac{d\alpha}{dt}$ +2.871
$\frac{d\delta}{dt}$ +4.896

1874

+.22 Jan. 17 +.230		+.25 Jan. 18 +.245		+.24 Jan. 20 +.177		+.35 −.04 Feb. 12 +.294		X +.28 Feb. 18 +.205		+ 1874 +.20 March 1 +.192	
5 2 46.2	2 48.7	2 45.3	2 32.2	2 43.6	2 35.3	2 —	2 53.0	3 21.0	3 5.5	3 11.9	3 43.3
48.3	50.9	47.4	35.0	45.7	37.0	—	55.3	23.1	7.0	14.0	45.3
50.5	52.2	49.5	38.0	47.8	39.6	—	56.8	25.3	9.6	16.1	48.2
54.6		53.6		52.0 54.1		34.0		29.4		20.2	
56.7		55.7		56.1		36.1		31.5		22.3	
58.8		57.8		58.3		38.2		33.4		24.1	
3 0.9	3 17.8	59.8	3 19.7	0.3	3 17.6	40.2		35.4	3 48.3	26.5	
2.4	20.0	2.0	21.0	4.4	18.8	42.3		37.7	51.0	28.7	
7.0	22.5	6.1	23.1	6.6	21.0	—		41.9	53.2	32.8	
9.0		8.1		9.3		—		44.0		34.8	
11.1		10.2				—		46.1		36.9	

3460 3955 3786 1908 3688 2686

300 240 240

6460 2 50.60 | 6355 2 35.07 | 6186 2 37.30 | 2 55.03 | 3 7.37 | 3 45.60.

2 58.727 3 20.10 | 2 57.773 3 21.27 | 2 56.236 3 19.13 | 2 38.160 | 3 33.527 3 50.833 | 24.418

58.711 +9.03 | 57.757 +9.87 | 56.220 +11.51 | 38.144 +29.32 | 33.511 −26.20 | 24.402 −17.29

3 7.69 −.04 | 3 7.698 −.04 | 3 7.67 −.04 | 3 7.42 −.06 | 3 7.33 −.04 | 3 7.15 −.03

−8.98 | −9.932 | −11.45 | −29.28 −.04 | +26.18 | +17.25

−0.62 | −0.61 | −0.60 | −0.35 | −0.26 | −.008

+ 9.00 3 ~~7.8~~ 7.08 | + 9.86 6.98 | + 11.54 ~~7.8~~ 7.09 | + 29.30 7.02 | − 26.16 7.01 | − 17.30 ~~7.06~~ 7.00 ~~.01~~

− .04 7.08 | − .04 | − .03 7.09 | − .05 | − .03 | − .03

−0.62 +2751 | −0.61 +2761 | −0.60 +2771 ~~451~~ | −0.35 +2521 | −0.26 +2611 | −0.08 +2791

+ 8.34 | + 9.21 | + 10.91 | + 28.90 | − 26.45 | − 17.41

2 58.71 47 2739 | 2 57.76 2999 | 2 56.272 3026 | 2 38.14 3408 | 3 33.57 3374 | 3 24.40 47 3455

−7 3350 | −7 3212 | −7 3155 | −7 3084 | −7 3006 | −7 3015

3 7.05 −23 | 3 6.97 −22 | 3 7.153 −2.2 | 3 7.04 −2.3 | 3 7.06 −2.3 | 3 6.99 −2.3

9.921 +0.20 | 9.841 +0.80 | 10.021 +0.50 | 9.911 +2.60 | 9.931 +3.00 | 9.861 +3.30

−8 545 3.19 | 55 4.01 | 55 3.51 | 55 4.62 | 55 3.10 | 55 3.70

8
+ 8.13 −21.37 | +22.70 −23.50 | +18.94 −22.89 | −16.87 | +26.16 −17.30 | −21.18

5 | 5 | 5 Jan. 20 | 5 | 5 | 5

7.06 = −7.34″ | −2.36 | −2.38 | −2.98 | −3.07 | −3.17

3 54.8 | 3 39.2 4 37.8 | 3 44.0 4 38.2 | 4 34.2 | 3 38.9 4 34.4 | 4 41.6

37.5 | 25.2 24.9 | 27.8 23.2 | 19.1 | 25.3 21.1 | 31.5

1 92.3 | 64.4 62.7 | 71.8 61.4 | 54.3 | 64.2 45.5 | 73.1

8 46.15 | 8 32.20 9 31.35 | 8 35.90 9 30.70 | 9 27.15 | 8 32.10 9 27.75 | 9 36.55

0.91009 | 1.35603 1.37107 | 1.27738 1.35965 | 1.22712 | 1.41764 1.23805 | 1.32593

1.02159 | 1.46753 1.48257 | 1.38888 1.47115 | 1.33862 | 1.52914 1.34955 | 1.43743

+10.57 | +29.35 −30.35 | +24.48 −29.59 | −21.31 | +33.82 −22.36 | −27.38

8 56.66 | 9 1.55 9 0.97 | 9 0.38 9 1.11 | 9 5.84 | 9 5.92 9 ~~8~~0.39 | 9 9.17

−8° 46′ 8.31″ | 46 13.20 12.62 | 46 12.03 46 12.76 | 46 17.49 | 46 17.57 12.04 | 46 20.82

12.91 | 12.39 | 17.30

+51 16 4 17 3 | 16 4 16 17 56

1.85530 1.85560

+4446 | +3297 | +3736 | +3041 | +2955 | +1279

1.89976 | 1.88828 1.88857 | 1.89266 1.89296 | 1.88571 1.88601 | 1.88485 1.88515 | 1.86809 1.86839

−79.39 | −77.32 −77.37 | −78.10 −78.16 | −76.86 −76.92 | −76.71 −76.76 | −73.81 −73.86

− .01 | − .01 − .01 | − .01 − .01 | − .01 − .01 | − .01 − .01 | .00

+ 1 1 +.12 +.03 | +.03 +.27 +.04 | + 3 +.28 +.025 | +.03 +.02 ~~+.14~~ +.28 | +.04 ~~+.24~~ +.31 +.02 ~~+.20~~ | +.03 ~~+.04~~ +.08

+.11 | +.21 +.27 | +.22 +.27 | +.26 | +.24 +.31 | +.05

−1 19.28 | −1 17.09 −1 17.07 | −1 17.86 −1 17.84 | −1 16.59 | −1 16.43 −1 16.44 | −1 13.73

47 27.59 | 47 30.29 29.69 | 47 29.89 30.63 | 47 34.08 | 47 34.00 ~~28~~ 33.48 | 47 34.55

55 3.8 | 3.9 | 4.1 | 6.2 | 6.6 | 6.9

−7 36.2 | 33.6 34.2 | 34.2 33.5 | 32.1 | 32.6 33.1 | 32.4

−7 36.2 | 33.9 | 33.9 | 32.1 | 32.8 | 32.4

−7 33.50 55 2.71 | −7 32.37 4.10 | −7 31.44 2.68 | −7 31.16 4.56 | −7 30.33 3.72 | −7 30.40 4.12

− 7.82 35.32 +5.10 | − 1.84 34.21 3.50 +5.20 | − 1.85 33.29 3.42 | − 2.32 33.48 | − 2.39 32.73 3.20 | − 2.44 32.87

+ 0.20 | + 0.30 | + 0.50 +5.40 | + 2.60 +7.50 | + 3.60 +7.90 | + 3.30 +8.20

−7 35.12 2.71 | 33.81 3.80 | 32.79 3.05 | 30.88 4.96 | 29.72 3.46 | −7 29.57 4.12

54 57.81 | 58.90 | 58.15 | 60.06 | 58.56 | 59.22

1875

		α		δ	
Jan	0	3m 10.88s		54' 54.4"	
	5	10.88	.00	55.2	+.8
	10	10.88	.00	55.9	.7
	15	10.86	.02	56.6	.7
	20	10.83	.03	57.2	.6
	25	10.79	.04	57.8	.6
	30	10.75	.04	58.3	.5
Feb.	4	10.69	.06	58.7	.4
	9	10.62	.07	57.1	.4
	14	10.55	07	59.4	3

1875
α 9.942
δ − 54 58.76
$\frac{d\alpha}{dt}$ + 2.871
$\frac{d\delta}{dt}$ + 4.892

l cos δ 9.99472
l.6 .12552
l.6' .12024

corr α =
corr δ =
tang δ = −.16 1.01
I = 2.09s
K = −.016s

+20 −08
1875

Jan. 14
+.110
2 29.5 2 39.0
31.4
33.7
38.0
40.0
42.0
44.2
46.3
50.4
52.5
54.7
46.27
42.064
2 39.00
2 42.064
42.048 +28.91
3 10.86 −.03
− 28.81 −.08
−0.92
+ 28.83 9.93
− .02
−0.92
+ 27.89
2 42.05 38 47.50
−16 6.56
3 9.94 −2.5
−2.30
54 58.86
+3.06
0
− 3.23
0 19.8
10.2
30.0
0 15.00
0.48572
0.60596
+ 4.04
0 19.04
37 30.69
16 27
1.85550 1.85530
+ 2964
1.88514 1.88494
−76.76 −76.73
− .01 − .01
+ 0 + 0
−.04 −.04
−1 16.81
38 47.50
54 56.5
−16 9.0
−16 9.0
−16 7.00 ~~16.25~~
− 2.51 ~~54.71~~
× − 2.30 −9.51 + 2.59 5931
~~−16 7.21~~
−16 11.81

+30
Jan. 26
+.266
2 16.0 2 23.0
18.0
20.1
24.4
26.4
28.?
30.6
32.6
36.8
38.9
40.9
31.34
2 28.491
2 23.00
2 28.491
28.475 +42.27
3 10.78 −05
− 42.31
−0.84
+ 42.25 9.86
− .04
−0.84
+ 41.37
2 28.47 47.75
−16 10.76
3 9.84 − 2.5
−0.90
585 1.91
+ 5.49
0
− 3.47
0 10.8
10.8
21.6
0 10.80
0.73957
0.85981
+ 7.24
0 18.04
37 29.69
+3684
1.89234 1.89214
−78.04 −78.01
− .01 − .01
+ 1 ~~.00~~
− .02 −.01
−1 18.06
38 47.75
57.9
10.2
10.2
−16 11.32 ~~34.63~~
− 2.70 ~~60.87~~
× − 0.90 −11.02 + 3.99
~~13.2~~ ~~24.9~~
− 14.92 26.7

+25 −06
Jan. 30
+.196
2 11.7 1 59.8
13.8 2.5
16.0 4.9
19.9
22.2
24.2
26.8
28.4
32.5
34.6
36.9
26.65
2 24.227
2 2.40
2 24.227
24.211 +46.50
3 10.75 −04
− 46.54 −.06
−0.81
+ 46.40 9.80
− .03
−0.81
+ 45.56
2 24.21 46.69
−16 10.47
3 9.77 −2.5
−0.50
55 0.16
+21.83
55
− 3.52
4 49.0
49.9
98.9
59 49.45
1.33905
1.45929
+ 28.79
0 18.24
37 29.89
+2697
1.88247 1.88227
−76.29 −76.26
− .01
+.03 ~~.25~~
−.53 −.50
−1 16.80
38 46.69
58.3
11.86
11.6
−16 10.46 ~~33.94~~
− 2.74 ~~55.37~~
× − 0.50 + 4.89 13.20
~~12.70~~ 0.39
−13.70

+.24
Feb. 2
+.210
2 8.4 No V
10.5
12.7
16.9
19.0
21.2
22.5
25.1
29.2
31.4
33.4
23.03
2 20.936
2 20.936
20.920 +49.80
3 10.71 −04
− 49.79
−0.77
+ 49.81 9.91
− .03
−0.77
+ 49.01
2 20.92
−16 10.93
3 9.93 − 2.5
0
0 17.1
20.9
38.0
0 19.00
+
−.03

+.26
Feb. 4
+.283
3 6.5 3 34.8
8.6 37.6
10.7 39.7
14.9
16.9
19.0
21.0
23.2
27.3
29.5
31.4
20.90
3 19.000
3 37.37
3 19.000
18.984 ~~+8.49~~
3 10.69 −04
+ 8.29
−0.75
− 8.29 9.70
− .04
−0.75
− 9.08
3 18.98
−16 11.48
3 9.90 − 3.5
−18.37
55
− 3.61
4 46.3 0 36.1
49.4 38.7
95.7 74.8
59 47.85 0 37.40
1.26417n
1.38433n
−24.23
59 23.62
36 35.27
16 0
+5901
1.89451 1.89431
−78.44 −78.40
− .01 − .01
+.02 ~~.25~~ +
−.53 −.51 −.07
−1 18.96
37 54.23
58.7
45
45
−16 11.31 ~~40.21~~
− 2.87 ~~58.25~~
× − 0.10 9.45
~~14.07~~
− 14.22

+.32
Feb. 9
+.335
3 — 3 41.7
— 43.9
— 46.0
—
—
—
15.1 13.01
17.1 12.92
21.4 13.04
23.6 13.15
25.5 12.96
102.7
3 43.87
3 24.540 13.016
20.524 13.00 −2.83
3 10.62 −.05
+ 9.90
2.38
−0.68
− 2.32 9.94
− .05
−0.68
− 3.05
3 13.00
−16 9.28
3 9.95 − 2.5
−23.33
55
− 3.70
4 53.8 4 56.8
52.8 55.1
106.6 111.9
59 53.30 59 55.95
1.36791n
1.48815n
− 30.77 −30.77
59 22.53 0 25.18
36 34.18 37 36.83
+5474
1.91024 1.91004
−81.33 −81.29
− .01 −.01
+.04 −.99 +
−1.03 ~~1.03~~
−1 22.32
37 56.51
57.1
26
26
−16 8.97 45.36
− 2.88 ~~58.66~~
+ 0.30 8.06
~~12.15~~
− 11.55

+.30 +12
1875
Feb. 14
+4.10
2 ~~53.9~~ 3 2.8
560 4.9
581
3 2.2
4.3
6.4 3 35.6
8.6 39.2
10.7 40.9
14.4
17.0
18.9

25 0.5

7 0.5 3 3.85
3 6.409 3 38.57
- 6.343 +4.01
3 10.55 -.05
- 4.16 +.12
-0.61
+ 4.08 9.86
- .06
-0.61
+ 3.41
3 6.39 38 45.72
-16 9.59
3 9.80 - 2.5
+ 0.60
54 57.21

+ 2.56 - 32.16
0

- 3.75
0 15.8 0 57.7
16.5 57.7
32.3 115.4
0 16.15 0 57.70

0.40824 1.50782n
0.52848 1.62756n
+ 3.38 - 42.42
0 ~~14~~53 0 1528
37 37.18 37 26.93
16 28 17 10
1.85550 1.85570
+4200
1.89750 1.89770
- 7898 - 7902
- .01 - .01

+ 0 - 16 -07
- .06 -.19
-1 19.05 -1 19.29
38 ~~51~~.28 ~~46~~.22
54 59.4 ~~57~~.
16 9.2 8.2
-16 8.7
-16 9.82 ~~54.0~~ 57.37
- 2.92 ~~57.53~~ 58.36
+ 0.60 12.74
-16 ~~13.34~~ +5.49 ~~54.56~~ 57.86
12.17

006

u Aurigae.
5h 4m 53sec
+38° 20′

ζ = + 4 3
+ .07

Sin δ 9.79256
Cos δ 9.89455
11678
.01133

1874
α 48.485
δ +19 57.45
dα/dt +4.097
dδ/dt +4.715

1874					
Jan. 20	4m 49.07s	-.05	20′	8.4″	
25	49.02	.05		8.8	+.4
30	48.97	.06		9.2	.4
Feb. 4	48.91	.07		9.5	.3
9	48.84	.08		9.8	.3
14	48.76	.09		10.0	.2
19	48.67	.10		10.1	.1
24	48.57	.11		10.2	.1
Mar. 1	48.46			10.3	.1
6				10.4	

corr α = +.001s
corr δ = -.95″
tang δ = +.79 1.27
I = 2.63s
K = -.020s

	1874 +22 Jan. 17		+.25 Jan. 18		+35 -.04 Feb. 12		X +.29 Feb. 17		X +.28 Feb. 18		X +.13 March 5	
	+.230		+.245		+.294		+.240		+.205		+.140	
5	4 24.2	4 22.0	4 23.2	4 15.7	4 3.6	4 8.0	3 59.6	4 5.6	4 59.0	4 54.0	4 47.0	x4 31.3
	26.9	24.5	25.9	18.0	6.2	10.7	4 2.3	7.7	1.6	57.1	49.7	33.6
	29.7	27.2	28.6	20.1	8.8	13.1	5.0	9.6	4.2	59.7	52.5	35.4
	34.7		33.8		14.0		10.1		9.2		57.7	
	37.3		36.3		16.6		12.8		11.9		0.2	
	39.7		39.1		19.3		15.4		14.7		2.8	
	42.5	5 1.4	41.6	4 59.5	21.9	4 49.3	18.0		17.2	4 29.7	5.5	
	45.0	4.0	44.1	1.6	24.5	51.6	20.4		19.9	32.0	8.2	
	50.4	6.3	49.6	4.0	29.8	54.6	25.7		25.0	34.8	13.3	
	58.0		52.3		32.3		28.7		27.9		16.0	
	53.7		54.8		35.0		31.1		30.7		18.7	
	4393		4293		2120		2291		2213		2716	
							60		60		240	
		4 24.57		4 17.93		4 10.60	1691	4 7.63	1613	4 56.93	316	5 33.43
	4 39.936	5 3.904	4 39.027	5 1.704	19.273	4 51.834	4 15.373		5 14.664	4 32.17	5 2.873	4
	39.916	+9.03	39.007	+9.87	19.253	+29.82	15.353	+33.12	14.644	-26.20	2.853	-14.53
	4 49.10	+.17	4 49.09	+.20	4 48.79	+.28	4 48.740	+.23	4 48.698	+.22	4 48.376	+.10
	-9.18		-10.08		-29.54	-.05	-33.385		+25.956		74.489	
		-0.62		-0.61		-0.31		-0.22		-0.20		+0.12
	+ 9.00	4 48.50	+ 9.86	48.47	+ 29.30	48.49	+ 33.16	48.48	- 26.16	48.46	- 14.53	48.54
	+ .18		+ .19		+ .23		+ .19		+ .16		+ .11	
	-0.62	+3.471	-0.61	+3.487	-0.31	+3.787	-0.22	+3.871	-0.20	+3.897	+0.12	4.217
	+ 8.56		+ 9.44		+ 29.22		+ 33.13		- 26.20		- 14.30	
	4 39.92	27 42.04	39.01	40.24	19.25	41.30	15.35	41.32	5 14.64	4 20.75 x5	2.80	41.33
		-7 33.50		-7 32.12		-7 30.84		-7 31.33		-7 30.66		-7 30.28
	4 48.48	-.2	4 48.45	-.3	4 48.47	-.2	4 48.48	-.2	4 48.44	-.2	5 4 48.55	-.3
	52.577	-10.80	52.547	-10.90	52.567	-12.50	52.577	-12.70	52.537	-12.70	52.647	-13.00
	+38	19 57.54		19 56.89		19 57.76		19 57.09		19 57.79		19 57.75
	50 +15.37s	-23.96	50 +21.10	-22.67	55 +8.67	-32.56	50 +7.74		50 +17.73	-17.51	50 +29.44	
H_g =	-2.34		-2.36		-2.98		-3.04		-3.07		-3.22	
	4 52.1	4 33.5	4 47.9	0 30.1	0 59.3	0 42.0	4 56.9		4 49.9	0 25.6	4 34.7	
	39.1	20.1	38.1	22.2	47.9	30.2	53.3		40.5	16.9	30.5	
	91.2	53.6	86.0	52.3	107.2	72.2	110.2		90.4	42.5	65.2	
	54 45.60	54 26.80	54 43.00	55 26.15	55 53.60	55 36.10	54 55.10		54 45.20	55 21.25	54 32.60	
	1.18667	1.37967	1.32428	1.35545	0.93802	1.51268	0.88874		1.24871	1.24329	1.46894	
	1.19800	1.39190	1.33561	1.36678	0.94935	1.52401	0.90007		1.26004	1.25462	1.48027	
	+15.78	-24.65	+21.66	-23.27	+8.89	-33.42	+7.94		+18.20	-17.97	+30.22	
	55 1.38	55 2.15	55 4.66	55 2.38	55 2.49	55 2.68	55 3.04		55 2.40	55 3.28	55 2.82	
+38°	27 46.97 46.58	46.20	27 43.69 44.58	45.47	27 45.86 45.76	45.67	27 45.31		27 44.95 45.01	45.07	27 45.53	
+4	2 18	2 57							2 17	2 53		
	0.60910	0.61040							0.60910	0.61020		
	+4452		+3299		+3044		+2517		+2959		+1947	
	0.65362	6.5492	.64209	.64339	.63954	.64084	.63428	.63558	.63869	.63979	.62857	.62967
	-4.50	-4.52	-4.39	-4.40	-4.36	-4.37	-4.31	-4.32	-4.35	-4.36	-4.25	-4.26
	-.07 -.03	-.15	-.12 ~~+.14~~ +.02	-.13	- 2 -.10	-.27	- 2 ~~+.16~~		-.08 +.10	-.08	-.22 ~~+.14~~	
	+.14	+.01	+.28	+.02	+.05	+.04	+.34 +.32		+.34	+.02	+.27 +.05	
	-4.43	-4.66	-4.23	-4.71	-4.33	-4.60	-3.99		-4.09	-4.42	-4.20	
	27 42.54	41.54	27 39.46	40.96	27 41.53	41.07	27 41.32		27 40.86	40.65	41.33	
	20 8.2		8.3		9.9		10.1		10.1		10.4	
	-7 34.3	33.3	31.2	32.7	31.6	31.2	31.2		30.8	30.5	30.9	
	-7 33.8		31.9		31.4		31.2		30.6		32.9	
	-7 34.7		32.9		32.3		32.2		31.5		31.9	
	-7 33.50	19 58.08	-7 32.37	56.63	-7 31.16	57.66	-7 31.57	56.96	-7 30.38	57.62	-7 30.40	57.71
	-.16	57.08	-.16	57.53	-.21	57.20	-.21	31.72	-.21	57.41	-.22	30.62
	-10.80	33.66 -6.09	-10.90	32.53 -6.19	-12.50	31.37 -7.79	-12.70	-7.99	-12.70	30.34 -7.99	-13.00	-8.29
	-7 44.46	57.58	43.43	56.78	43.80	57.43	44.42	56.90	43.21	57.51	43.62	57.71
		20 2.29		1.49		2.14		1.61		2.22		2.42

1875
L 52.582
δ +20 216
$\frac{d\alpha}{dT}$ + 4.097
$\frac{d\delta}{dT}$ + 4.709

L cos δ 9.89455
LC .12552
LC' .02007

1875		m	s		'	"	
Jan	0	4	53.58		20	13.1	
	5		53.59	+.01		13.6	+.5
	10		53.59	+.00		14.1	.5
	15		53.57	−.02		14.6	.5
	20		53.55	.02		15.0	.4
	25		53.51	.04		15.4	.4
	30		53.46	.05		15.8	.4
Feb	4		53.39	.07		16.1	.3
	9		53.32	.07		16.4	.3
	14		53.24	.08		16.6	.2
	19		53.15	.09		16.7	.1
	24		53.05	.10		16.8	.1
	.1		52.95	−.10		16.9	.1

1874
March 8
Ch. J.

1875

+20 −08 Jan. 14 +110 | +23 −08 Jan. 16 +160 | +.20 Jan. 25 +.200 | +.30 Jan. 26 +.266 | +.31 Jan. 27 +.270

4 8.8 4 12.3 4 7.0 4 7.7 4 6.8 4 8.8 3 55.3 3 40.5 3 54.2 3 45.2
11.7 14.5 9.6 9.6 11.4 57.9 42.7 56.8 47.3
14.1 16.4 12.2 12.1 0.5 45.0 59.5 50.0
19.2 17.4 14.7 5.8 4 4.8
21.9 20.1 17.3 8.3 7.3
23.7 22.7 11.0 4 32.7 10.0
27.2 25.4 13.6 35.2 12.6
29.9 27.8 16.2 37.7 15.3
35.1 33.3 21.6 20.6
37.8 35.8 24.1 23.0
40.4 38.4 26.8 25.7

2698 2496 2411 2898
120 180

4 14.40 4 7.70 4 10.10 1211 3 42.73 1098 3 47.50
4 24.527 4 22.691 4 12.100 4 11.009 4 35.204 9.982
24.507 +28.91 22.671 +30.81 12.080 +41.21 10.989 +42.2~~7~~8 9.962 +43.29
4 53.57 +16 4 53.57 +18 4 53.51 +16 4 53.50 +.24 4 53.49 +24
−29.06 −.10 −30.90 −.10 −41.43 −42.51 −43.53
−0.99 −0.99 −0.93 −0.92 −0.91
+ 28.83 4 52.49 + 30.74 52.57 + 41.20. 52.52 + 42.25 52.59 + 43.28 52.~~60~~58
+ .09 + .13 + .16 + .21 + .21 .58
−0.99 −0.99 −0.93 −0.92 −0.91
+ 27.93 + 29.88 + 40.43 + 41.54 + 42.58
4 24.51 36 21.28 4 22.67 22.38 4 12.08 24.08 4 10.99 25.78 4 9.96 25.54
−16 6.56 −16 5.36 −16 10.29 −16 10.76 −16 10.05
4 52.44 − .4 4 52.55 − .3 4 52.51 − .4 4 52.53 − .3 4 52.54 −4 −.4
−12.30 −12.50 −13.20 −13.~~8~~30 −13.40
20 20.2 20 42.3 20 ~~1~~01.9 20 14.2 20 16.9

~~+ 200~~
+2.00
+10.13 +14.99 +28.28 −24.19 +22.48
55 45 45 45 45 45
−3.23 −3.27 −3.43 −3.47 −3.49
' "
0 24.5 1 15.3 1 9.7 1 16.2 1 53.5 0 46.6 1 41.9 0 53.3 2 0.1
18.5 8.4 1.4 19.1 55.7 49.1 45.1 56.0 2.5
' 43.0 23.7 11.1 35.3 10.2 95.7 87.0 109.3 2.6
55 21.50 46 11.85 46 5.55 46 17.65 46 54.60 45 47.85 46 43.50 45 54.65 47 1.30

1.00561 1.17580 0.30103 1.45148 1.38364n 1.35180
1.02568 1.19587 0.32110. 1.47155 1.40371n 1.37187
+10.61 +15.70 +2.09 +29.62 −25.33 +23.04
46 22.46 46 21.25 46 19.75 46 17.47 46 18.17 46 18.19

36' 25.89" 36 27.10 36 28.60 36 30.88 30.18 36 30.16
30.53

+4 2 20 2 55
0.60860 0.61020

+2964 +3935 +2936 +3687 +3437
.63824 .64795 .63796 .64547 .64707 .64297 .64457
−4.35 −4.45 −4.34 −4.42 −4.44 −4.39 −4.41

−.03 −.13 −.06 −.13 − 0 −.21 −.32 −.15 −.13 −.23
−.23 −.26 −.21 −.27 −.18 −.18 −.27 −.09 −.19 −.10 −.22
−4.61 −4.72 −4.52 −4.72 −4.78 −4.62
36 21.28 36 22.38 36 24.08 36 26.16 25.40 36 25.54
20 14.5 14.7 15.4 15.5 15.6
−16 6.8 7.7 8.7 10.7 9.9 9.9
−16 6.80 7.70 8.70 10.30 9.90
−16 7.7 2 1.75 8.7 4.09 9.6 1.03 11.3 1.30 10.8
−16 7.00 7.23 −16 5.56 5.79 −16 9.61 9.85 −16 11.32 0.54 −16 10.21 1.69
− .23 −7.59 − .23 −7.79 − .24 −8.49 − .24 11.56 −8.59 − .24 10.45 8.69
− 12.30 1.75 − 12.50 4.09 − 13.20 1.03 − 13.30 0.91 − 13.40 1.69
19.53 18.29 23.05 24.86 23.85

+.25 .06
Jan. 30
+.196
3 51.1 3 48.9
53.7
56.4
1.6
4.2
6.9
9.6
12.2
17.4
20.0
22.4

2555
180
755 3 48.90
4 6.864
6844 +46.50
4 5346 +20
−46.62 −.08
−0.88
+ 46.40 52.58
+ .15
−0.88
+ 45.67
4 6.84 ~~26~~ 2647
−16 1047
4 5251 − .3
−1360
20 210

+17.96
45
−3.52
0 55.9 1 47.3
1.2 53.2
117.1 1005
45 58.55 46 50.25

1.25431
1.27438
+18.81
46 17.36
36 30.99

+2703
.63563 .63723
−4.32 −4.34
−.09 −.20
−.11 −.20
−4.52
36 26.47
15.8
10.7
10.70
11.7 20 2.16
−16 10.46 10.71
− .25 −8.89
− 13.60 2.16
24.31

+.24
Feb. 2
+.210
3 47.7 3 34.7
50.4 37.6
53.0 39.1
58.2
0.9
3.4
6.0 4 23.8
8.7 26.3
13.8 28.3
16.6
19.3

278.0
240
380 3 37.13
4 3.456 4 26.135
3.436 +49.81
4 53.421 +19
−49.987
−0.83
+ 49.81 52.601
+ .17
−0.83
+ 49.15
3.424 2731
−16 1093
4 52.579 − .3
−1880
20 2.28

+26.33 −22.67
45
−3.57
0 44.8 1 35.9
53.2 43.9
980 798
45 49.00 46 39.90

1.42045 1.35545n
1.44052 1.35552n
+41.74 −35.94
46 ~~37.74~~ 46 3.96
16.58 16.16
36 31.77 32.19
31.98

+3090
.63950 .64110
−4.36 −4.38
−.18 −.29 −.13
−.09 −.19
−4.63 −4.70
36 27.14 27.49
16.0
11.1 11.5
11.30
12.2
−16 11.08 2.01
− .25 2.36
− 13.80 −9.09 2.19
11.33
25.13

+.26
Feb. 4
+.283
4 45.7 4 33.3
48.2 36.0
51.0 38.0
56.4
58.6
5 16
4.1 5 23.9
6.7 26.5
11.9 28.8
14.6
17.3

3161
300
161 4 35.77
1.464 5 26.40
1.444 −8.49
4 5339 +21
+8.05
−0.81
− 8.29 52.85
+ .22
−0.81
− 8.88
5 1.44 2855
−16 1148
4 5256 − .3
−1390
2.87

+25.69 −24.94
45
−3.61
0 44.3 1 37.0
51.9 45.4
962 824
45 48.10 46 41.20

1.40976 1.39690
1.42983 1.41697
+26.91 −26.12
46 15.01 46 15.08
36 33.34 33.27
33.30

+3913
.64973 .64933
−4.44 −4.46
−.17 −.30 −.16
−.09 −.19
−4.70 −4.81
36 28.64 28.46
16.1
12.5 12.4
12.45
13.4
−16 11.31 3.18
25 11.56 3.00
− 13.90 −9.19 3.09
25.46

+.32
Feb. 9
+.335
4 39.7 4 65.7
42.8
44.8
50.1
52.8 5 30.1
55.5 32.9
58.1 34.9
0.6
5.7
8.4
11.1

369.2
240
609.2 4 55.70
4 55.382 5 32.63
55.362 −2.83
4 5332 +25
+2.04
−0.74
− 2.31 52.54
+ .26
−0.74
− 2.79
4 55.36 2621
−16 9.28
4 5257 − .3
−1420
20 2.43

−0.32 −37.25
45
−3.70
1 16.9 1 54.9
18.7 56.8
356 1117
46 17.80 46 55.85

9.50515n 1.57113n
9.70522n 1.59120n
−0.51 −59.05 39.01
46 ~~17.29~~ 45 ~~56.80~~
17.47 16.54
36 30.88 31.81
31.34

+5478
.66338 .66498
−4.61 −4.62
−.51 −.36
−.27 −.40
−4.88 −5.38
36 26.00 26.43
16.4
9.6 10.0
4.80
10.7
−16 8.97 2.57
.26 9.23 3.00
14.20 −9.49 2.78
23.43

+.30 +.12
Feb. 14
Chf.
0 51.7 —
55.8 40.6
1075
45 53.75

+.20
Feb. 18
+.178
4 — 4 56.7
— 59.4
— 1.8
—
20 44.2
27 46.9 5 28.1
24 49.5 30.9
18 54.7 32.1
05 57.2
22 0.0

4 59.30
4 44.193 5 30.37
44.173 +8.74
4 53.176 +.16
−9.00 8.99
−0.58
+ 8.76 5249
+ .14
−0.58
+ 8.32
4 44.17 2633
−16 8.26
4 5249 − .3
−14.50
20 3.27

−15.11 −46.18
45
−3.80
1 32.3 2 2.9
34.9 5.8
672 87
46 33.60 47 4.35

1.17926n 1.66445n
1.19933n 1.68452n
−23.95 −78.20
46 ~~9.65~~ 46 ~~51.15~~
−15.62 17.78 15.99
36 30.87 32.36
31.46
2 46 3 16
0.61000 0.61090
+4131
.65181 .65221
−4.48 −4.49
−.07 −.65 −.56
−.29 −.38
−4.94 −5.43
36 ~~25.83~~ 25.74 26.93
16.7
13.0 10.2
9.60
10.6 2.48
−16 8.49 3.67
− .27 8.76
14.50 −9.79 3.07
23.26

+.10
1875
Feb. 28
4 +.46 4 490
510
53.2
285
308
33.4
36.2
09.0

1682

4 51.07
4 33.640

33.620 +19.18²
4. 52.97 +.08
-19.35
-.039
+ 19.10 52.43
+ .19
-.039
+ 18.90
4 33.62 36 25.91
-16 7.17
4 52.52 -.31
-14.70
20 3.74

-17.43
45
-3.89
1 33.5 1 54.8
38.0 58.6
~~71.5~~ 1134
46 ~~36.25~~ 46 56.70
~~35.75~~

1.24130m
1.26137m
-18.26
46 17.49

3' 6 30".86

.61000
+4331
.65331
-4.50

-.08 -.45 -.44
-.37
-4.95
36 25.91
16.9
-16 9.0
-16 9.9
-16 7.54 7.81
.27 3.40
14.70 -9.99
22.51 3.40

12

α Aurigae
$5^h\ 7^m\ 27^{sec.}$
$+45°\ 52'$

$\mathfrak{Z} = -3\ \ 29$
−.06

Sin δ 9.85596
Cos δ 9.84282
.11678
9.95960

1874 s
α 23.028
δ +52 11.2
$\frac{d\alpha}{dT}$ +4.423
$\frac{d\delta}{dT}$ +4.143

1874

Jan.	20	7^m	23.74^s		52′	18.7″	
	25		23.68	−.06		14.3	+.6
	30		23.61	.07		14.8	.5
Feb.	4		23.53	.08		15.2	.4
	9		23.45	.08		15.6	.4
	14		23.35	.10		15.9	.3
	19		23.25	.10		16.2	.3
	24		23.14	.11		16.4	.2
Mar.	1		23.02	.12		16.5	.1
	6		22.89	13		16.5	.0

corr α =
corr δ =
tang δ = +1.03 1.44
$I = 2.96^s$
$K = -.022^s$

1874

+.22 Jan. 17 +.230 | +.25 Jan. 18 +.245 | +.24 Jan. 20 +.177 | +.33 Feb. 10 +.320 | +.30 Feb. 11 +.294 | +.35 −.04 Feb. 12 +.294

5 6 56.7 6 43.2 | 6 55.9 6 40.0 | 6 54.1 6 26.6 | 6 37.6 6 19.9 | 6 36.9 6 19.3 | 6 35.9 6 11.1
59.6 45.3 | 58.8 42.1 | 57.0 29.2 | 49.5 22.3 | 39.9 22.2 | 39.0 14.1
7 2.7 47.4 | 7 1.6 44.3 | 0.2 31.5 | 43.4 24.9 | 42.8 24.2 | 42.0 16.7
8.8 | 7.8 | 6.0 | 49.4 | 48.7 | 47.8
11.8 | 10.6 | 8.8 | 52.4 | 51.7 | 50.9
14.5 | 13.8 | 11.9 | 55.3 | 54.6 | 53.8
17.4 7 11.0 | 16.6 | 15.0 7 4.9 | 58.3 | 57.6 | 56.8 7 8.0
20.4 12.5 | 19.3 | 17.8 8.1 | 1.1 | 0.6 | 59.8 9.8
26.3 | 25.6 | 23.8 11.6 | 7.1 | 6.5 | 7 5.8 12.7
29.1 | 28.4 | 26.8 | 10.1 | 9.4 | 8.7
32.1 | 31.3 | 29.7 | 13.0 | 12.4 | 11.5

2794 | 2701 | 2511 | 3682 | 3611 | 4120
120 | 120 | 120 | 240 | 240 | 180
1594 6 45.30 | 1501 6 42.13 | 1311 6 29.10 | 6082 6 22.37 | 6011 6 21.90 | 5920 6 13.97
7 14491 7 11.757 | 13.645 7 | 11.918 7 8.20 | 6 55.291 | 6 54.645 | 6 53.818 7 10.17
14.469 +9.04 | 13.623 +9.88 | 11.896 +11.51 | 55.269 +27.79 | 54.623 +28.46 | 53.796 +29.82
7 23.787 +.23 | 7 23.76 +.26 | 7 23.74 +.25 | 7 23.43 +.34 | 7 23.41 +.31 | 7 23.39 +.36
−9.30 | −10.14 | −11.84 | −28.16 | −28.79 | −29.59 −.06
−0.74 | −0.73 | −0.71 | −0.40 | −0.38 | −0.86

+ 9.00 7 23.00 | + 9.86 23.03 | + 11.54 22.95 | + 27.80 23.00 | + 28.47 23.01 | + 29.30 23.06
+ .24 | + .25 | + .18 | + .33 | + .28 | + .30
−0.74 +3.683 | −0.73 +3.693 | −0.71 +3.713 | −0.40 4.023 | −0.38 4.043 | −0.36 +4.063
+ 8.50 | + 9.38 | + 11.01 | + 27.73 | + 28.37 | + 29.24
7 14.47 59 45.61 | 7 13.62 45.19 | 7 11.90 45.13 | 6 55.27 47.77 | 6 54.62 48.63 | 6 53.80 47.89
−7 33.50 | −7 32.12 | −7 31.55 | −7 31.45 | −7 31.43 | −7 30.84
7 22.97 + .2 | 7 23.00 + .2 | 7 22.91 + .2 | 7 23.00 + .2 | 7 22.99 + .2 | 7 23.04 + .2
27.393 −12.30 | 27.423 −12.40 | 27.333 −12.60 | 27.423 −14.60 | 27.413 −14.70 | 27.463 −14.70
+45 52 0.01 | 52 0.87 | 52 1.18 | 52 1.93 | 52 2.70 | 52 2.55

+ 29.19 +2.74 | 20 +31.51 | 20 +42.82 +3.72 | 20 +32.92 | 20 +32.74 | 20 +39.85 −16.35
20
K_f = −.2.34 | −2.36 | −2.38 | −2.93 | −2.97 | −2.98
2 45.8 2 11.0 | 2 43.3 | 2 32.7 3 9.0 | 2 40.3 | 2 39.0 | 2 33.1 3 24.3
33.5 57.9 | 33.0 | 22.0 59.4 | 28.0 | 28.0 | 22.0 14.4
79.3 118.9 | 76.3 | 54.7 128.4 | 68.3 | 67.0 | 55.1 38.7
22 39.65 22 59.45 | 22 38.15 | 22 27.35 23 4.20 | 22 34.15 | 22 33.50 | 22 27.55 23 19.35
23 4.45 | 1.49845 | 1.63165 0.57054 | 1.51746 | 1.51508 | 1.60043 1.21356
1.46523 0.43775 | 1.45805 | 1.59125 0.53014 | 1.47706 | 1.47468 | 1.56003 1.17312
1.42483 0.39735 | +28.71 | +39.02 +3.39 | +30.00 | +29.83 | +36.31 −14.90
+26.60 +2.50 | 23 6.86 | 23 6.37 23 7.59 | 23 4.15 | 23 3.33 | 23 3.86 23 4.45
23 6.25 23 6.95
+45 59 42.10 +45 | 59 44.9 | 59 41.98 40.76 | 59 44.20 | 59 45.02 | 59 44.49 43.90
41.75 59 41.40 | 41.87 | 44.19
−3 29 48 29 24
0.54640 0.54550

+4460 | +3302 | +3745 | +2033 | +2519 | +3049
.59100 .59010 | .57942 .57852 | .58385 .58295 | .56603 .56513 | .57159 .57069 | .57689 .57599
+3.90 +3.89 | +3.80 +3.79 | +3.84 +3.83 | +3.69 +3.68 | +3.73 +3.72 | +3.77 +3.77

−23 −.03 −.1 | −.26 −.05 −.10 | −48 −.07 −.1 | −28 −.06 −.12 | −28 −.06 −.12 | −43 −.07 −.07
+.08 +.09 | +.16 | +.15 +.19 | +.16 | +.16 | +.15 +.20
+ 3.75 + 3.97 | + 3.70 | + 3.51 + 4.01 | + 3.57 | + 3.61 | + 3.49 + 3.90
59 45.85 45.37 | 59 45.19 | 59 45.49 41.77 | 59 47.77 | 59 48.63 | 59 47.98 47.80
52 13.4 | 13.5 | 13.7 | 15.7 | 15.8 | 15.8
−7 32.4 32.0 | 31.7 | 31.8 31.1 | 32.1 | 32.8 | 32.2 32.0
−7 32.2 | 31.7 | 31.4 | 32.1 | 32.8 | 32.1
−7 33.50 | −7 32.37 | −7 31.44 | −7 31.44 31.26 | −7 32.00 31.82 | −7 31.16 30.98
+ .14 51 60.19 | + .14 60.56 | + .14 31.30 61.55 | + .18 61.91 | + .18 62.11 | + .18 62.30
− 12.30 3.336 59.71 | − 12.40 32.23 | − 12.60 −8.46 60.87 | − 14.60 −10.46 | − 14.70 −10.56 | − 14.70 −10.56 62.12
−7 45.66 −8.16 | 44.63 −8.26 | 43.90 | 45.86 | 46.52 | 45.68
59.98 | 60.56 | 61.23 | 61.91 | 62.11 | 62.21
52 4.09 | 4.70 | 5.30 | 6.05 | 6.25 | 6.35

+ + + + + + 1874

+.25 Feb. 14 +.29 Feb. 17 +.28 Feb. 18 +.20 March 1 +.13 March 5 +.17 March 8

+.107 +.240 +.205 +.192 +.140 +.144

5 6 34.3 6 18.7 6 32.0 6 5.3 7 31.6 7 2.0 7 22.2 8 19.7 8 8.6 7 17.1 7 1.0
37.3 16.2 35.1 7.8 34.5 4.3 25.2 22.6 10.9 20.1 3.7
40.4 18.8 38.0 10.2 37.3 7.6 28.4 25.6 13.8 23.1 6.2
46.2 43.8 43.1 34.1 31.3 29.0
49.1 46.9 46.4 37.1 34.5 32.0
52.2 49.9 49.1 40.0 37.4 35.0
55.0 52.7 7 8.6 52.0 7 44.5 43.1 40.4 37.9
58.2 55.8 11.5 55.0 48.0 46.0 43.3 40.9
7 4.0 7 1.6 15.0 8 0.9 52.4 52.0 49.2 47.0
6.8 4.6 4.0 54.9 52.2 47.9
9.9 7.6 6.9 58.0 55.1 52.9

3934 3680 3608 4410 4113 3849
180 180 180

.5734 6 16.23 5480 6 7.77 5408 7 4.63 8 11.10 7 3.63
6 52.127 6 49.818 7 11.707 49.164 7 48.307 7 40.091 8 37.391 7 34.991
52.105 +31.13 49.796 +33.12 49.142 −26.20 40.069 −17.29 37.369 −14.53 34.969 −12.33
7 23.35 +.26 7 23.29 +30 7 23.27 +29 7 23.031 +21 7 22.951 +.13 7 22.883 +18
−31.25 −33.49 √ −34.13 − ~~42.96~~ + 17.04 + 14.462 +12.134
−0.32 −0.26 −0.24 +0.02 +0.12 +0.20
+ 31.09 7 23.18 + 33.16 22.96 − 26.16 22.99 − 17.30 23.01 − 14.53 23.09 − 12.32 23.02
+ .11 + .25 + .21 + .20 + .14 + .15
−0.32 +4103 −0.26 +4163 −0.24 +4183 +0.02 +4443 +0.12 +4543 +0.20 +4623
+ 30.88 + 33.15 − 26.19 − 17.08 − 14.27 − 11.97
6 52.10 59 47.72 6 49.80 47.87 7 49.14 47.27 8 40.07 − 8 37.37 − 7 34.97
−7 30.98 −7 31.33 −7 30.06 −7 30.15 −7 30.28 −7 30.12
8 2298 +.2 7 2295 +.2 7 2295 +2 8 2299 8 2310 +.2 7 2300 + .2
7 27.403 −1480 27.373 −1500 27.373 −1500 27.413 27.523 27.423
52 2.14 52 1.74 52 2.41

S
+35.90 +42.05 −21.88 +44.53 + 0.86 +26.29 +31.36
20 20 20

−3.00 −3.04 −3.07
2 32.9 3 12.0 2 27.8 3 27.1 2 28.4 3 8.2 A. R. A. R. A. R.
29.9 9.1 22.9 21.9 19.9 59.9
1 62.8 21.1 50.7 49.0 48.3 128.1
22 31.40 23 10.55 22 25.35 23 24.50 22 24.15 23 4.05
1.55509 1.62377 1.34005n 1.64865 9.93450
1.51469 1.58337 1.29965n 1.60825 9.89410
+32.71 +38.31 −19.94 +40.57 +0.78
23 4.11 23 3.66 23 4.56 23 4.72 23 4.83
+45°
59 44.24 59 44.69 43.79 59 43.63 43.52
44.24 43.57
−3 30 4 29 24
0.54700n 0.54550n

+1877 +2525 +2966
.56577 .56427 .57225 .57075 .57666 .57516
+3.68 +3.67 +3.73 +3.72 +3.77 +3.76

−.35 ~~−.10~~ −.48 −.09 −.12 −.53 −.07 − 0
+.15 −.20 +.17 +.24 +.17 +.22
+ 3.48 + 3.42 + 3.84 + 3.41 + 3.98
59 47.72 59 48.11 47.63 59 47.04 47.50
52 15.9 16.1 16.1
−7 31.8 32.0 31.5 30.9 31.4
−7 31.8 31.7 31.1
−7 31.07 36.89 −7 31.51 31.33 −7 30.33 30.15
+ .18 ~~45.64~~ + .18 −17.86 + .18 −10.86
− 14.50 −10.66 2.03 − 15.00 1.78 − 15.00 1.89
45.69 46.33 1.30 45.75 2.35
2.03 1.54 2.142
6.17 5.68 6.246

1875

		m	s		′	″	
Jan	0	7	28.60		52	17.0	
	5		28.60	−.00		17.8	+.8
	10		28.60	.00		18.5	.7
	15		28.59	.01		19.1	.6
	20		28.56	.03		19.7	.6
	25		28.51	.05		20.3	.6
	30		28.45	.06		20.8	.5
Feb.	4		28.38	.07		21.2	.4
	9		28.29	.09		21.6	.4
	14		28.20	.09		21.9	.3
	19		28.10	.10		22.2	.3
	24		27.99	.11		22.4	.2
Mar	1		27.87	.12		22.5	.1

1875

1875
ζ 27.452
δ +52 526
$\frac{d\alpha}{dt}$ +4.424
$\frac{d\delta}{dt}$ +4.137

l.cos δ 9.84282
l b .12552
l b′ 9.96834

+.20 −.08
Jan. 14
+.110
6 41.7 No √
44.8
48.0
53.7
56.6
59.6
2.6
5.5
11.5
14.4
17.4

35 58
300
6558
6 59.618
59.596 +28.91
7 28.59 +.21
−28.99 −.12
−1.14
+ 28.83 7 27.46
+ .11
−1.14
+ 27.80
6 59.60
−16 6.56
7 27.40 +.2

A.R.

+.23 −.08
Jan. 16
+.160
6 39.8 No √
42.8
45.9
51.8
54.8
57.6
0.7
3.8
9.5
12.4
15.6

.3347
300
6347
6 57.700
57.678 +30.81
7 28.38 +24
−30.90 −.12
−1.13
+ 30.44 27.48
+ .16
−1.13
+ 29.77
6 57.68
−16 5.36
7 27.45 +.2

A.R.

+.20
Jan. 25
+.200
6 28.3 6 18.2
32.2 21.0
35.3 23.6
41.0
44.1
47.1
50.0
53.0
59.0
1.9
5.0

3979
120
5179 6 20.93
6 47.052
47060 +41.21
7 28.51 +21
−41.45
−1.06
+ 41.20 27.42
+ .21
−1.06
+ 40.35
6 47.06 8 30666
−16 10.29
7 27.41 +.2
−1500
52 5.57

+26.15
10
′ −3.43
3 56.2
56.6
′ 112.8
13 56.40

1.41747
1.38581
+24.31
14 20.71

+46° 8 27.64

29 51 0.54660m
+2940
.57600
+3.77

−.20 ~~−.37~~
−.55 −.75
+3.02
8 30.66
52 20.3
−16 10.4
−16 10.4
−16 9.61 9.41
+ .20 6.25
− 15.00 −10.86
24.41

+.30
Jan. 26
+.266
6 28.0 6 9.5
31.1 13.1
34.0 15.9
40.0
42.8
45.9
49.0
52.0
57.7
0.8
3.5

3848
120
5048 6 12.83
6 45.891
45.869 +42.28
7 28.50 +.31
−42.63
−1.05
+ 42.25 27.41
+ .27
−1.05
+ 41.47
45.87 30.97
−16 10.76
7 27.34 +.2
−1510
52 5.31

+33.06
10 1
−3.47
3 49.0
50.5
99.5
13 49.75

1.51930
1.48764
+30.74
14 20.49

8 27.86

+36.92
.58352
+3.83

−.30 ~~−.36~~
−.42 −.72
+3.11
8 30.97
20.4
10.8 6
10.6 ~~4~~ 6
−16 11.32 11.11
+ .21 4.76
− 15.10 −10.96
26.21

+.31
Jan. 27
+.270
6 27.1 6 6.2
30.0 9.4
33.0 11.2
39.0
42.0
44.8
47.8
50.9
56.7
59.8
2.7

4338
60
4938 6 8.93
6 44.891
44.869 +43.29
7 28.498 +32
−43.621
−1.03
+ 43.28 27.45
+ .28
−1.03
+ 42.53
6 44.87 3145
−16 10.05
7 27.40 +.2
−1520
52 6.40

+35.96
10
−3.49
3 44.9
48.1
93.0
13 46.50

1.55582
1.52416
+33.43
14 19.93

8 28.42

+34.41
.58101
+3.81

−.36 ~~−.39~~
−.42 −.78
+3.03
8 31.45
21.5
11.0
11.0
−16 10.21 10.00
+ .21 6.25
− 15.20 −11.06
25.20

+.25 −.06
Jan. 30
+.196
6 23.8 6 5.4
27.0 8.5
30.0 10.8
35.9
38.8
41.8
44.9
47.8
53.6
56.7
59.7

4600
6 8.23
6 41.818
41.796 +46.50
7 28.45 +.26
−46.65 −.09
−1.00
+ 46.40 27.47
+ .20
−1.00
+ 45.60
6 41.80 3155
−16 10.47
7 27.40 +.2
−1550
52 5.78

+33.69
10
−3.52
3 46.1
51.1
97.2
13 48.60

1.52621
1.49455
+31.23
14 19.83

8 28.52

+27.11
.57937
+3.75

−.30 ~~−.36~~
−.42 −.72
+3.03
8 31.55
20.8
10.5
10.8
−16 10.46 10.25
+ .21 5.80
− 15.50 −11.36
25.75

1.0
.7
.2
3.63
233
+18
0.20
302
3012
.2

1874.0 α	δ	1875.0 α	δ
22.97		27.40	
23.00		45	
22.91		41	
23.00		34	
22.99		40	
23.04		40	
22.98		41	
22.95		48	
22.95		50	
22.99		36	
23.10		49	
23.00			
22.990		27.422	
23.028	+.10 1.12	.452	5.26
−.038		−.030	

3

Feb. 2 +.24 — Feb. 4 +.26 — Feb. 9 +.32 — Feb. 18 +.20 — Feb. 28 +.10

+.210 — +.283 — +.335 — +.178 — +.246

6 22.5 5 53.6 7 18.7 6 59.0 7 12.6 6 52.9 7 1.66 6 37.7 6 50.8 6 24.8
23.4 54.2 21.6 1.7 15.8 56.1 4.5 41.6 53.8 27.7
26.5 56.4 24.7 4.3 18.4 58.1 7.5 43.4 56.9 30.0
32.5 30.5 24.4 13.0 7 2.9
35.6 33.4 29.2 16.1 5.6
38.4 36.4 30.5 19.0 8.6
41.3 6 29.0 39.2 7 52.0 33.4 22.0 7 16.9 11.5
44.3 31.6 42.3 36.1 24.9 19.4 14.5
50.2 33.7 48.4 42.1 30.9 23.0 20.3
53.1 51.3 45.0 34.0 23.3
56.2 54.3 48.2 36.9 26.4

4220 — 4008 — 33 37 — 21 04 — 27 46

180

5 53.73 — 7 1.67 — 6 55.70 — 6 40.90 — 946 6 27.50

6 38.364 6 31.437 36.436 7 52.007 30.336 7 19.127 7 19.777 8.600

38.342 +49.81 36.414 −~~1~~8.498 30.314 −2.32 19.105 +8.75 8.578 +19.182

7 28.41 +.25 7 28.38 +27 7 28.29 +33 7 28.12 +21 7 27.4089 +.10

−50.07 + 8.03 + 2.02 − 9.02 −19.381

+ 49.81 −0.96 − 8.29 −0.93 − ~~0.84~~ −2.31 −0.84 + 8.45 −0.67 + 19.10 −0.44

+ .22 77 27.44 + .29 27.27 + .34 27.48 + .18 27.39 + .25 27.36

− 0.96 − 0.93 − 0.84 − 0.67 − 0.44

+ 49.07 − 8.93 − 2.81 + 8.26 + 18.91

6 38.34 7 36.41 4 30.31 4 19.10 4 8.58

8 3243 — 3340 — 3012 — 3103 — 2912

7 27.41 −16 1093 7 27.48 −16 1148 7 27.50 −16 928 7 27.36 −16 826 7 27.49 −16 717

+.2 — +.2 — +.2 — +.2 — +.2

−1580 — −1590 — −1630 — −1690 — −1720

52 5.90 — 52 6.22 — 52 ~~5.4~~ 4.74 — 52 6.07 — 4.95

4

s

+44.63 +6.93 — +34.77 −15.56 — +34.64 — +38.23 −0.64 — +41.10

10 — 10 — 10 — 10 — 10

−3.57 — −3.61 — −3.70 — −3.80 — −3.89

3 33.3 4 9.0 3 41.5 4 28.1 3 48.1 4 24.5 3 43.9 4 20.5 3 41.2
40.9 16.9 48.9 34.4 49.7 26.9 45.5 21.3 46.0
742 259 904 625 978 514 894 418 872

13 37.10 14 12.95 13 45.20 14 31.25 13 48.90 14 25.70 13 44.70 14 20.90 13 43.60

1.64963 0.84073 1.54120 1.19201n 1.53958 — 1.58240 9.80618n 1.61384
1.61797 0.80907 1.50954 1.16035n 1.50792 — 1.55074 9.77452 1.58218
+41.49 +6.44 +32.33 −14.47 +32.21 — +35.54 −0.59 +38.21
14 18.39 14 19.39 14 17.33 14 18.78 14 21.11 — 14 20.24 14 20.31 14 21.81

+46° 8 29.76 28.96 8 30.82 29.57 8 27.24 — 8 28.11 28.04 8 26.54
29.36 — 30.19 — 28.07

−3 30 11 29 35 — 30 3 29 27

0.54720n 0.54600n — 0.54700 0.54570

+3094 — +3931 — +5485 — +4136 — +4335

.57814 .57694 .58651 .58531 .60205 .60085 .58836 .58706 .59035 .58903

+3.79 +3.77 +3.86 +3.85 +4.00 +3.99 +3.88 +3.86 +3.89 3.88

−.54 −.91 − 2 −.32 −.64 − 7 −.32 — −.39 −.91 − 0 −.46

−.40 −.46 −.41 −.27 49 −.80 −1.12 −.92 −.67 −.77 −.85 −1.31

+2.85 +3.29 +3.13 +3.39 +2.88 +2.82 +3.09 +2.58

8 32.61 32.25 8 33.95 32.86 8 30.12 8 30.93 30.13 8 29.12

52 21.1 21.2 21.6 22.2 22.5

−16 11.5 11.1 12.7 11.7 8.5 8.7 8.9 6.6

−16 11.3 12.2 8.5 8.8 6.6

−16 11.08 10.87 5.94 −16 11.31 11.09 6.96 −16 8.97 5.07 −16 8.49 5.77 −16 7.54 4.61

+ .21 5.58 + .22 5.87 + .22 8.75 + .23 5.97 + .23 7.31

− 15.88 11.66 − 15.90 11.76 − 16 30 −12.16 − 16.90 −12.76 8.76 − 17.20 −13.06

−16 26.67 5.76 — 26.99 6.43 — 25.05 5.07 — 25.16 5.87 — 24.51 4.61

δ

14

β Orionis.
5h 8m 32sec
– 8° 21′
ζ = + 50 44
+.77

Sin δ 9.16203n
Cos δ 9.99537
.11678
.11215

1874 s
α 28.994
δ – 20 57.39
dα/dm +2.882
dδ/dm +4.456

1874

Jan	20	8m 29.61s		20′ 57.6″	
	25	29.57	–.04	58.2	+.6
	30	29.52	.05	58.7	.5
Feb.	4	29.47	.05	59.1	.4
	9	29.41	.06	59.5	.4
	14	29.34	.07	59.8	.3
	19	29.27	.07	60.1	.3
	24	29.19	.08	60.3	.2
Mar.	1	29.10	.09	60.5	.2
	6	29.00	.10	60.6	.1

corr α =
corr δ =
log ζ δ = –.15 1,01
I = 2.08s
K = –.016s

5.26

1874

+22
Jan. 17
+.260
5 8 8.0 8 11.3
10.2
12.3
16.5
18.6
20.6
22.8 8 45.2
24.9 47.3
29.0 49.7
31.0
33.3
22 7.2

8 11.30
8 20.655 8 47.40
20.639 +9.04
8 29.63 –.03
–8.99
–064
+ 9.00 8 2901
– .03
–0.64 +2.242
+ 8.33
8 20.64 13 2061
–7 3350
8 28.97 – 2.2
31.852 –010
– 8 20 5641

+ 9.35s –26.75
30
Hg = –2.34
4 47.1 0 45.9
28.9 18.0
7.60 6.39
34 38.00 35 26.95
0.97081 1.42732n
1.08296 1.53947n
+12.10 –34.63
34 50.10 34 52.32
–8° 1′2 1.75″ 3.97
2.86
+50 42 10 42 57
1.84660 1.84680
+4462
1.89122 1.89142
–77.82 –77.88
– .01 – .01
+ 1 +.10 +.05
+.14 +.01
–1 17.68 –1 17.83
13 19.43 21.80
20 57.3
–7 34.9 35.5
–7 36.7
–7 33.30
– 1.80 20 54.83
– 0.10 57.20
–7 36.40 35.30 +4.36
56.01
51.55

+.25
Jan. 18
+.245
8 7.3 7 58.8
9.2 1.3
11.3 3.7
13.4
17.6
19.7
21.8 8 42.6
24.0 45.0
28.1 47.0
30.1
32.2
21 6.7

8 1.27
8 19.700 8 44.87
19.684 +9.88
8 29.632 –04
–9.954
–063
+ 9.86 2889
– .04
–0.63 +2.252
+ 9.19
8 19.68 2270
–7 3212
8 28.87 – 2.3
31.752 +0.80
20 5712

30 +18.43 –25.17
–2.36
4 38.1 0 36.0
24.0 21.0
6.21 5.70
34 31.05 35 28.50
1.26553 1.40088n
1.37768 1.51303n
+23.86 –32.59
34 54.91 34 53.91
12 6.56 7.56
7.06
+3302
1.87962 1.87982
–75.79 –75.83
– .01 – .01
+.02 +.18 +.04
+.27 +.03
–1 15.51 –1 15.77
13 22.04 23.33
57.4
35.5 34.1
34.8
–7 32.37
1.81 56.25
0.80 57.51
–7 34.18 34.18 +4.46
56.28
52.49 42

+.24
Jan. 20
+1.77
8 8 27.0
14.0 29.3
15.0 31.3
16.0
17.1
18.1
19.1
20.1
21.2
22.3
16.2 9

8 29.20
8 18.100
18.084 +11.57
8 29.61 –.04
–11.53
–062
+ 11.54 2893
– .03
–0.62 +2.262
+ 10.89
8 18.08 2484
–7 3155
8 28.97 – 2.2
31.852 +0.20
20 5889

35 –11.10
–2.38
0 19.0
3.0
22.0
35 11.00
1.04532n
1.15747n
–14.37
34 56.63
12 8.28
+3746
1.88406 1.88426
–76.57 –76.61
– .01 – .01
+.01 +.01
+.01 +.02
–1 16.56
13 24.84
57.6
32.8
32.8
–7 31.44
– 1.83 33.27 57.91
+ 0.20 +4.66
–7 33.07
57.91
53.45

+.33
Feb. 10
+.320
8 — 8 21.2
— 23.0
— 25.3
—
—
1.7 1.70
3.7 .62
5.8 .64
10.0 .68
12.1 .70
14.1 .62

8 1.660 8 23.17
1.644 +27.79
8 29.48 39 –.05
– 27.785
–040
+ 27.80 2898
– .05
–0.40 +2.482
+ 27.35
8 1.64 26.91
–7 3145
8 28.99 – 2.3
31.872 +2.20
20 5846

35 +21.51
–2.93
0 38.1
21.0
5.91
35 29.55
1.33264n
1.44479n
–27.85
35 1.70
12 13.35
+2034
1.86694 1.86714
–73.61 –73.65
– .01 – .01
+.03 +.03
+.03 +.06
–1 13.56
13 26.91
59.6
32.7
32.7
–7 31.44
– 2.25 33.69 38.40
+ 2.20 +6.66
–7 31.49
58.40
53.94

+.30
Feb. 11
+.277
7 48.5 7 44.7
50.6
52.7
56.7
58.9
1.0
3.1 8 28.0
5.1 30.3
9.3 32.2
11.4
13.6
31 09
300

109 7 44.70
8 0.991 8 30.178
0.975 +28.46
8 29.38 –05
–28.41
–039
+ 28.47 ~~28.98~~ 29.00
– .04 9
–0.39 +2.492
+ 28.04
8 0.97 2568
–7 3143
8 29.01 – 2.2
31.892 +2.20
20 5711

30 +16.29 –29.18
–2.97
4 46.8 0 46.0
30.0 29.6
7.68 7.56
34 38.40 35 37.80
1.21192 1.46509n
1.32407 1.57724n
+21.09 –37.78
34 59.49 35 0.02
12 11.14 11.67
11.40
+2521
1.87181 1.87201
–74.44 –74.48
– .01 – .01
+.07 +.19 +.05
+.28 +.04
–1 14.15 –1 14.40
13 25.29 26.07
59.6
34.8 33.5
33.9
–7 32.06 34.34
– 2.28 57.43
+ 2.20 +6.66 58.21
32.14
57.82
53.36

+.35 –.04
Feb. 12
+.294
7 47.6 7 42.9
49.8 44.8
51.7 46.8
56.0
58.1
0.2
2.2 8 18.0
4.3 20.0
8.5 22.3
10.6
12.7
30 17
300

17 7 44.83
0.155 8 20.10
0.139 +29.32
8 29.37 –.05
–29.23 –.04
–038
+ 29.30 2899
– .04
–0.38 +2.502
+ 28.88
8 0.14 2563
–7 3084
8 29.02 – 2.3
31.902 +2.30
20 5647

30 +15.32 –19.95
–2.98
4 46.0 0 33.3
30.9 16.9
7.69 20.2
34 38.45 35 25.10
1.18526 1.29994n
1.29741 1.41209n
+19.83 –25.83
34 58.28 34 59.27
12 9.93 11 55.92
9.92 10.92
+3050
1.88015 1.88030
–75.36 –75.39
– .01 – .01
+.02 +.17 +.03
+.28 +.02
–1 15.07 –1 15.35
13 25.00 26.27
57.7
34.7 334
34.1
–7 31.16 33.45
– 2.29 +6.76 56.15
+ 2.30 57.42
–7 31.15
56.78
52.32

×
+25 Feb. 14
+104
57. 45.8 7 41.2
47.9 43.2
50.0 45.2
54.3
56.2
58.3
8 0.5 8 22.1
2.5 23.6
6.6 26.5
8.8
10.8

3417
300
6417 7 43.20
37 58336 8 24.077
58320 +31.13
8 29.34 -.04
-31.02
-0.35
+ 31.09 8 29.06
- .02
-0.35 +2532
+ 30.72
7 58.32 13 2629
-7 3098
8 29.04 - 2.2
31922 + 240
20 57.07

S +15.14
7 -25.63
30
26 -1300
4 45.4 0 39.2
37.1 31.3
825 705
34 41.25 35 35.25
1.18013 1.40875
1.29228 1.52090
+19.60 - 33.18
35 0.85 35 207
-8°
12 1250 1372
13.11
42 13 43 7
1.84660 1.84686
+1879
1.86539 1.86555
-7335 -7338
.00 .00
+.01 +.18 +.04
+.28 +.04
-1 13.06 -1 13.30
13 25.56 27.02
30 59.8
-7 342 328
-7 33.5
-7 3107
- 231 33385654
+ 2.40 16.865800
-7 30.98
57.27
52.81

×
+29 Feb. 17
+240
7 43.7 7 47.0
45.7 49.3
47.9 51.0
52.1
54.2
56.2
58.3
8 0.3
4.5
6.7
8.8

3784
240
6184 7 49.10
56.218
56.202 +3312
8 29.30 -.04
-33.10
-0.31
+ 33.16 28.97
- .04
-0.31 +2572
+ 3281
7 56.20 2614
-7 3133
8 29.01 - 2.3
31892 + 260
20 57.17

+ 7.12
30
-304
4 56.3
46.0
102.3
34 51.15
0.85248
0.96463
+ 9.22
35 0.37
12 12.02
+2526
1.87186 1.87206
-7445 -7448
- .01 - .01
+ .00 +.34 +
+.34
-1 14.12
13 26.14
21. 0.0
339
339
-7 3151
- 234 5739
+ 2.60 33.85 +7.06
-7 31.25
57.39
52.93

×
+28 Feb. 18
+205
8 43.0 8 28.9
45.2 31.0
47.4 32.8
51.5
53.5
55.5
57.6 9 6.5
59.9 8.8
3.8
6.0
8.3

4317
180
6117 8 30.90
8 55.609 9 7.658
55593 -2619
8 29.28 -.04
- 33.39
6
-0.29
- 26.16 2907
- .03
-0.29 +2592
- 26.48
8 55.61 2837
59
-7 3006
8 29.131 -2.2
~~32.012~~ +270
31.992 20 5793

+24.71 -12.04
30
-307
4 36.2 0 23.9
23.0 10.8
592 347
34 29.60 35 17.35
1.39287 1.08063
1.50502 1.19278
+31.99 -15.59
35 1.59 35 1.76
12 13.24 13.41
13.32
+2967
1.87627 1.87647
-7521 -7524
-.01 -.01
+.04 +.19 +.01
+.31 +.02
-1 14.87 -1 15.22
13 28.11 28.63
6.1
321 315
318
-7 3033
- 236 3269 5810
+ 2.70 +7.16 5862
-7 29.99
58.36
53.90

+
+20 March 1
+192
8 33.9 9 7.7
36.0 10.0
38.1 12.2
42.2
44.4
46.4
48.5
50.7
54.8
57.0
58.9

5109
9 9.97
8 46.445
46.429 -17.29
8 29.10 -0.3
+17.33
-0.11
- 17.30 29.00
- .03
-0.11 +2772
- 17.44
8 46.43 2776
-7 3015
8 28.99 - 2.3
31.872 +310
20 57.11

35 -23.53
-317
0 39.6
28.9
685
35 34.25
1.37162
1.48377
-30.46
35 3.79
12 15.44
+1295
1.85955 1.85973
-7237 -7240
.00
+.04 ~~+.02~~
+.01 +.05
-1 12.32
13 24.76
0.5
327
327
-7 3040
- 249 5750
+ 3.10 32.94 +7.56
29.74
57.50
53.04

×
+13 March 5
+140
8 31.0 8 22.6
33.2 24.8
35.2 26.9
39.4
41.5
43.6
45.7
47.8
51.9
54.0
56.0

4793
8 24.77
8 43573
43.557 -14.52
8 29.021 -0.2
+ 14.585
-0.02
- 14.53 29.00
- .02
-0.02 2862
- 14.57
8 43.56 2620
-7 3028
8 28.99 - 2.2
31.872 + 320
20 55.48

+18.80
30
-322
4 41.3
32.8
741
34 37.05
1.27416
1.38631
+24.34
35 1.39
12 13.04
+1965
1.86625 1.86645
-7349 -7353
- .01
+.02 ~~+.17~~
+.32 +.34
-1 13.16
13 26.20
0.6
344
344
-7 3040
- 247 2587
+ 3.20 32.87 +7.66
29.67
55.87
51.41

× 1874
+17 March 8
+144
8 28.7 8 22.2
31.0 23.7
33.0 25.1
37.0
39.1
41.3
43.5 8 34.6
45.5
49.7
51.6
53.8

4542
8 23.77
8 41.291 8 34.60
41.275 -12.83
8 28.985 -.03
+ 12.312
+0.04
- 12.32 28.96
- .02
+ 0.04 +2.922
- 12.30 2
8 41.27 13 2677
-7 3012
8 28.97 - 2.3
31.852 + 330
20 55.89

+ 17.52 +6.69
30
- 323
4
4 56.3
35.7
920
34 48.00
1.24353
1.35568
+ 22.68
35 8.68
5
12 20.33
15
+950
1.85610 1.85630
-71.80 -71.83
.00
+.02 ~~+.18~~
+.34 +.36
-1 11.44
13 26.77
0.7
289 33.9
289
-7 3048 32.96
- 248 5643
+ 3.30 +7.76
29.66
56.43
51.97

1875

		m	s		° '	"	
Jan	0	8	32.82		20	48.5	
	5		32.82	−.00		49.1	+.8
	10		32.82	.00		49.9	.8
	15		32.80	.02		50.6	.7
	20		32.78	.02		51.2	.6
	25		32.74	.04		51.8	.6
	30		32.70	.04		52.4	.6
Feb.	4		32.64	.06		52.8	.4
	9		32.58	.06		53.2	.4
	14		32.51	.07		53.5	.3
	19		32.44	.07		53.8	.3
	24		32.36	.08		54.0	.2
Mar	1		32.28	.08		54.2	.2

1875
α 31.876
δ −20 52.94
$\frac{d\alpha}{dT}$ +2.882
$\frac{d\delta}{dT}$ +4.452

l. cos δ 9.99537
l.6 .12552
l.6' .12089

1875

+20 −08
Jan. 14
+110
7 51.6
53.8
55.8
59.8
8 1.9
4.0
6.0
8.2
12.3
14.5
16.6

7 45.2
47.1
49.3

2845
240
445 7 47.20
8 40.45
40.29 +28.91
8 32.80 −.03
− 28.77 −.08
−0.92
+ 28.83 8 31.91
− .02
−0.92
+ 27.89
8 4.03 4 40.19
2 −16 6.56
8 31.92 − 2.5
−2.40
20 51.65

+16.84
25
− 3.23
0 56.1
45.8
101.9
25 50.95

1.22634
1.34723
+22.25
26 13.20

−8° 3' 24.85"

1,84660 1,84680
+2964
1,87624 1,87644
−7520 −7523
−.01
+.02 −.06
−.15 −.13
−1 15.34
4 40.19
20 50.5
−16 10.3
−16 10.3
−16 7.00 52.07
− 2.48 9.48
− 2.40 +2.05
−16 11.88 52.07

+.23 −.08
Jan. 16
+160
7 49.6
51.8
53.8
57.9
8 0.0
2.1
4.2
6.3
10.4
12.6
14.8

7 44.7
47.5
49.2

2635
240
235 7 47.13
8 2.136
2.120 +30.81
8 32.80 −03
− 30.68 −.08
−0.92
+ 30.74 31.90
− .02
−0.92
+ 29.80
8 2.12 43.93
−16 5.36
8 31.92 −24
−2.20
20 53.89

+15.01
25
−3.27
0 59.6
51.1
110.7
25 55.35

1.17638
1.29727
+19.83
26 15.18

3 26.83

+3947
1,88607 1,88627
−76.93 −76.96
−.01
+.01 −.08
−.17 −.16
−1 17.10
4 43.93
50.7
16.8
16.8
−16 5.56 54.20
2.51 8.07
2.20 +2.25
10.27 54.20

+.20
Jan. 25
+.200
7 39.2
41.0
43.3
47.4
49.4
51.5
53.7
55.7
59.8
1.2 0
4.1

7 27.7
30.1
32.0
8 13.0
15.3
17.7

4471
120
7 5671 7 29.93
51.555 8 15.33
51.539 +41.21
8 32.74 −03
− 41.20
−0.86
+ 41.21 31.86
− .03
−0.86
+ 40.32
7 52.54 39.96
−16 10.29
8 32.86 − 2.5
−1.10
20 53.85

+21.62 −23.78
25 25
−3.43
0 44.6 1 48.0
44.2 43.4
88.8 87.4
25 44.40 26 46.20
43.70
1.33486 1.37621
1.45575 1.49710
+28.56 −30.70
26 12.96 26 15.00
13.00

3 24.61 ~~27.15~~
24.63 24.65
41 56 42 56

+2941
1.87601 1.87621
−75.77 −75.20
−.01 − 01
+.03 −.13 +.04
−.10 −.24
−1 15.25 −1 15.41
4 39.86 40.06
51.8
11.9
11.9 12.25
−16 9.61 53.21
2.64 53.41
1.10 +3.35
13.35 53.31

+.30
Jan. 26
+266
7 38.0
40.2
42.4
46.3
48.4
50.4
52.5
54.7
58.9
0.9
30

7 29.9
32.2
34.1

4357
120
5557 7 32.07
7 50.518
50.502 +42.28
8 32.73 −.05
−42.23
−0.85
+ 42.25 31.88
− .04
−0.85
+ 41.36
7 50.50 38.58
−16 10.76
8 31.86 − 2.4
−1.00
20 52.74

+18.45
25
−3.47
0 46.4 1 42.1
45.6 42.1
92.0 84.2
25 46.00 26 42.10
1.26600
1.38689
+24.37
26 10.37

3 22.02

+3693
1.88353 1.88373
−76.48 −76.51
− .01
+.02 −.07
−.09 −.19
−1 16.56
4 38.58
51.9
13.3
13.3
−16 11.32 53.57
− 2.67 13.99
− 1.00 +3.45
− 14.99 53.57

+.31
Jan. 27
+270
7 36.9
38.8
41.1
45.2
47.4
49.4
51.5
53.7
57.7
59.9
2.0

7 24.5
26.8
28.7

4836
60
5436 7 26.67
7 49.418
49.402 +43.29
8 32.72 −.05
− 43.32
−0.84
+ 43.28 31.82
− .04
−0.84
+ 42.40
7 49.40 40.65
−16 10.05
8 31.80 − 2.5
−0.90
20 ~~53.80~~ 54.20
×

+22.75
25
−3.49
0 42.9 2 2.9
42.8 1.6
85.7 4.5
25 42.85 27 2.25
1.35898
1.47787
+30.00
26 12.90

3 24.55

+3442
1.88102 1.88122
−76.04 −76.07
−.01
+.03 −.05
−.08 −.22
−1 16.10
4 40.65
52.0
11.4
11.4
−16 10.21 54.44
− 2.68 12.89
− 4.90 +3.55
13.79 54.44

+.25 −.06
Jan. 30
+196
7 33.6
35.8
37.9
42.0
44.1
46.3
48.2
50.4
54.6
56.7
58.8

7 25.5
27.3
28.9
8 4.3
6.5
8.5

5084
7 27.23
7 46.218 8 6.43
46.202 +46.31
8 32.70 −.04
−46.50 −.06
−0.82
+ 46.40 31.79
− .03
−0.82
+ 45.55
7 46.20 39.78
−16 10.47
8 31.75 − 2.4
−0.50
20 53.15

+18.99 −20.21
25
−3.52
0 47.3 1 39.1
48.7 41.0
96.0 80.1
25 48.00 26 40.05
1.27852 1.30557
1.39941 1.42646
+25.09 −26.70
26 13.09 26 13.35

3 24.74 25.00
24.87

+2713
1.87373 1.87393
−74.77 −74.81
−.01
+.02 −.11 +.03
−.09 −.19
−1 14.85 −1 14.97
4 39.59 39.97
52.4
12.8 12.4
12.6
−16 10.46 13.175 53.26
− 2.41 53.64
− 0.50 +3.95
− 13.67 53.16

+.24 Feb. 2		+.26 Feb. 4		+.32 Feb. 9		Feb. +.20 18		Feb 28 +.10	
+.210		+.283		+.335		+.178		+.246	
7 30.3	7 21.3	8 28.5	8 19.7	8 22.5	8 10.4	8 11.3	8 4.8	8 6.6	8 20.3
32.4	23.2	30.6	21.6	24.4	13.2	13.4	6.8	2.7	22.9
34.6	25.1	32.7	23.4	26.6	15.7	15.5	8.8	4.9	25.0
38.8		36.7		31.0		19.5		9.0	
40.9		38.8		32.9		21.7		11.3	
43.0		41.1		34.4		- 23.7 -		13.3	
45.1	8 11.1	43.1	8 58.3	36.0	8 52.7	25.3	8 36.2	15.4	8 45.6
47.0	13.0	45.2	0.0	38.9	55.0	27.9	43.7	17.4	48.1
51.2	15.0	49.3	1.4	43.1	56.9	32.1	47.7	21.8	50.2
53.3		51.4		45.3		34.2		23.9	
55.4		53.5		47.4		35.3		25.8	
						225.1		146.1	
47.20	7 23.20	45.09	8 21.57	38.37	8 13.10	26.1.4	8 6.80		8 22.73
7 42.909	8 13.03	8 40.991	8 59.90	8 34.882	8 54.87	8 23.764	8 42.53	8 13.282	8 47.97
42.893	+49.81	40.975	~~-+~~ 8.488	34.866	-2.32	23.748	+8.75	13.266	+19.12
8 32.66	-.04	8 32.64	-.04	8 32.58	-.05	8 32.45	-.03	8 32.30 29	-.02
-49.77		+8.33		+2.29		-8.70		-19.032	
	-0.78		-0.76		-0.70		-0.57		-0.41
+ 49.82	8 31.88	- 8.29	31.70	- 2.31	31.80	+ 8.46	31.90	+ 19.11	31.96
- .03		- .04		- .05		- .03		- .04	
-0.78		-0.76		-0.70		-0.57		-0.41	
+ 49.01		- 9.09		- 3.06		+ 8.16		+ 18.66	
7 42.89	34 37.86	8 40.97	37.44	8 34.87	42.25	8 23.45	43.99	8 13.27	44.60
	-16 10.93		-16 11.48		-16 9.28		-16 8.26		-16 7.17
8 31.90	-2.5	8 31.88	-2.4	8 31.81	-2.5	8 31.91	-2.5	8 31.93	-2.6
	-0.20		-0.10		+0.30		+0.90		+1.30
	~~20~~ 51.49		20 51.42		20 ~~54.33~~ 53.73		20 55.~~05~~ 85		20 ~~55.67~~ 53.07
			8		3.73		8		3.07
25 +19.74 Feb 2	-30.12	25 +19.42 Feb 4	-18.91	25 +24.78 Feb 9	-19.99	25 +16.96	-18.77	25 -9.45	-34.69
1 -3.57		-3.61		-3.70		-3.80		-3.89	
0 43.7	1 49.7	0 42.6	1 31.5	0 43.5	1 37.4	0 51.1	1 42.8	1 27.1	2 1.3
48.9	52.9	46.2	33.4	41.7	35.3	50.3	40.0	27.7	0.3
92.6	102.6	88.8	64.9	85.2	72.7	101.4	82.8	54.8	1.6
25 46.30	26 51.30	25 44.40	26 32.45	25 42.60	26 36.35	25 50.70	26 41.40	26 27.40	27 0.80
1.24969	1.47885n	1.28825	1.27669n	1.33806	1.30081	1.22943	1.27346n	0.97543n	1.54020n
1.37058	1.59974n	1.40914	1.39758n	1.45895	1.42170	1.35032	1.39435n	1.09632n	1.66109n
+23.47	-39.79	+25.65	-24.98	+28.77	-26.41	+22.40	-24.79	-1.2~~5~~8	-45.82
26 9.77	26 11.51	26 10.05 √	26 7.47 √	26 11.37	26 9.94	26 13.10	26 16.61	26 ~~26.15~~ 14.92	26 14.98
-8° 3 21.42	23.16	3 21.70	19.12	3 23.02	3 21.59	3 24.75	28.26	3 26.57	24.63
22.29		20.41		22.30		26.50		26.60	
								42 39	43 13
+30.95		+39.35		+54.86		+41.37		+43.36	
1.87755	1.87775	1.88595	1.88615	1.90146	1.90166	1.88797	1.88817	1.88996	1.89016
-75.43	-75.47	-76.90	-76.94	-79.70	-79.74	-77.26	-77.29	-77.62	-77.65
- .01	- .01	- .01	- .01	- .01	- .01	- .01	- .01	- .01	- .01
+.02 -.11	+.05	+.02 -.10	+.02	+.03 -.21	+.03	+.02 -.20	+.02	+ .1 -.35	+.09
-.09	-.20	-.08	-.16	-.15	-.34	-.14	-.31	-.35	-.46
-1 15.51	-1 15.63	-1 16.97	-1 17.09	-1 19.83	-1 20.06	-1 17.39	-1 17.59	-1 17.97	-1 18.03
4 36.93	38.99	4 38.67	36.21	4 42.85	41.65	4 42.14	45.85	4 44.54	44.66
52.7		52.8		53.2		53.8		54.3	
-16 15.8	13.9	14.1	16.6	10.4	11.6	11.7	8.0	9.7	9.5
-16 14.8		15.3		11.0		9.8		9.6	
-16 11.08	18.87	-16 11.31	14.08	-16 8.97	11.31	-16 8.49	11.41	-16 7.54	10.53
- 2.74	+42.5 50.95	- 2.77	+43.5 52.~~7~~85	- 2.84	+47.5 54.26	- 2.92	5~~4~~2.65	- 2.99	53.77
- 0.20	52.81	- 0.10	50.39	+ 0.30	53.06	+ 0.90	5~~4~~3.36	+ 1.30	53.89
-16 14.02		14.18		11.45		~~6.51~~ 10.51	+5.35	9.25	+5.75
	51.88		~~51.59~~ 51.62		53.~~10~~ 76		53.50 4		53.83

T Orionis.
5h 11m 32sec
− 6° 58′
z = + 49° 21′
+.76

Sin δ 9.08383
Cos δ 9.99678
.11678
.11356

1874 s
α 29.376
δ − 58 57.12
dα/dT + 2.914
dδ/dT + 4.189

1874		m s		′ ″	
Feb.	9	11 29.80		58 58.7	+ .3
	14	29.73	−.07	59.0	.3
	19	29.66	.07	59.3	.2
	24	29.58	.08	59.5	.1
Mar.	1	29.50	.08	59.6	.1
	6	29.42	.08	59.7	.1
	11	29.33	.09	59.7	+ 0
	16	29.24	.09	59.7	−.0
	21	29.15	.09	59.6	−.1

corr α =
corr δ =
tang δ = −.12 1.01
I = 2.08
K = −.016

1874 +.33 Feb. 10 | × +.25 Feb. 14 | × +.29 Feb. 17 | × +.28 Feb. 18 | × +.13 March 5 | × 1874 +.17 March 8

+.320 | +.107 | +.240 | +.205 | +.140 | +.144

10 49.6 10 44.7 10 46.4 10 30.5 10 44.1 10 29.3 11 43.4 11 26.8 12 31.5 12 16.9 11 29.2 11 20.8
51.6 47.4 48.3 32.2 46.2 31.0 45.5 28.6 33.6 18.7 31.3 22.8
53.7 49.2 50.4 34.1 48.3 33.2 47.6 30.2 35.7 20.4 33.3 24.6
58.0 54.5 52.4 51.8 39.8 37.6
59.9 56.6 54.5 53.8 41.8 39.5
2.0 58.7 56.6 56.0 43.9 41.7
4.1 0.7 11 19.5 58.7 11 12.0 57.9 12 9.3 46.0 43.7
6.1 2.9 21.0 11 0.7 13.5 0.0 10.8 48.0 45.8
10.2 7.0 22.9 4.8 15.5 4.0 12.6 52.2 50.0
12.3 9.0 7.0 6.3 54.3 52.1
14.4 11.1 9.2 8.4 56.4 54.2

32 19 | 34 5 6 | 38 33 25 | 37 4 7 | 48 3 2 | 45 8 4
30 0 | 30 0 | 240 25 | 240

2 19 10 47.10 | 645 6 10 32.27 | 623 5 10 31.17 | 614 7 11 28.53 | 12 18.67 | 11 22.73
11 1.991 | 10 58.691 11 21.13 | 10 56.591 11 13.67 | 11 55.882 12 10.90 | 12 43.927 | 11 41.673
1.975 +27.79 | 58.675 +31.13 | 56.575 +33.12 | 55.866 −26.19 | 43.911 −14.52 | 41.657 −12.33
11 29.798 −.04 | 11 29.73 −03 | 11 29.688 −.03 | 11 29.67 −03 | 11 29.443 −.02 | 11 29.38 −.07
− 27.821 | −31.06 | − 33.120 | +26.20 | 14.48 | + 12.28
−.040 | −.035 | −.030 | −.029 | −.005 | −.000

+ 27.81 11 29.33 | + 31.10 29.43 | + 33.14 29.37 | − 26.15 29.36 | − 14.52 29.32 | − 12.31 29.31
− .04 | − .01 | − .03 | − .02 | − .02 | − .02
−.040 +2.514 | −0.35 +2.564 | −0.30 +2.614 | −0.29 +2.624 | −0.05 +2.864 | −.000 +2.914
+ 27.37 | + 30.74 | + 32.84 | + − 26.86 | − 14.59 | − 12.33
11 1.97 51 25.48 | 10 58.67 25.32 | 10 56.57 24.96 | 11 55.87 26.64 | 12 43.91 25.76 | 11 41.66 28.00
−7 31.45 | −7 30.98 | −7 31.33 | −7 30.06 | −7 30.28 | −7 30.12
11 29.34 − 2.2 | 11 29.41 − 2.2 | 11 29.41 − 2.2 | 11 29.41 − 2.2 | 12 29.32 − 2.2 | 11 29.33 − 2.2
32.254 +180 | 32.324 +200 | 32.324 +220 | 32.324 +230 | 32.234 +270 | 32.244 +270
−6 58 57.33 | 58 56.50 | 58 56.29 | 58 56.60 | 58 55.54 | 58 57.62

s
10 + 14.89 | 10 + 26.42 − 22.44 | 10 + 25.42 − 17.08 | 10 + 27.35 − 15.02 | 10 + 25.26 | 10 + 18.94
Hgt = − 2.93 | − 3.08 | − 3.04 | − 3.07 | − 3.22 | − 3.23
2 32.9 | 2 32.1 3 37.3 | 2 34.7 3 28.9 | 2 33.9 3 28.9 | 2 35.2 | 2 48.4
36.1 | 25.1 31.1 | 24.9 20.1 | 22.2 17.1 | 27.7 | 38.7
89 0 | 57 2 68 4 | 59 6 49 0 | 56 1 46 0 | 62 9 | 87 1
12 44.50 | 12 28.60 13 34.20 | 12 29.80 13 24.50 | 12 28.05 13 23.00 | 12 31.45 | 12 43.55
1.17289 | 1.42193 1.35102 | 1.40518 1.23249 | 1.43696 1.17667 | 1.40243 | 1.27738
1.28645 | 1.53549 1.46458 | 1.51874 1.34605 | 1.55052 1.29023 | 1.51599 | 1.39094
+ 14.34 | + 34.31 − 29.15 | + 33.02 − 23.18 | + 35.52 − 19.51 | + 32.81 | + 24.60
13 3.84 | 13 2.91 13 5.05 | 13 2.82 13 3.32 | 13 3.57 13 3.49 | 13 4.26 | 13 8.15

− 6° 50′ 15.49″ | 50 14.56 16.70 | 50 14.47 13.97 | 50 15.22 50 15.14 | 50 15.91 | 50 19.80
15.63 | 14.72 | 15.18
+ 49 20 1 21 6 | 20 0 20 55
1.82560 1.82580

+2041 | +1887 | +2534 | +2973 | + 1981 | + 953
1.84601 1.84621 | 1.84447 1.84467 | 1.85094 1.85114 | 1.85533 1.85553 | 1.84541 1.84561 | 1.83513 1.83533
−70.15 −70.18 | −69.90 −69.93 | −70.95 −70.98 | −71.67 −71.70 | −70.05 −70.08 | −68.41 −68.44
− .01 | .00 .00 | − .01 − .01 | − .01 − .01 | − .01 | .00
+.01 ~~+.06~~ | +.04 +.22 +.03 | +.04 +.23 +.02 | +.05 +.23 +.01 | +.04 ~~+.10~~ | +.02 ~~+.11~~
+.16 +.17 | +.15 +.22 | +.17 +.24 | +.17 +.24 | +.17 +.21 | +.19 +.21
−1 9.99 | −1 9.71 −1 9.68 | −1 10.75 −1 10.73 | −1 11.46 −1 11.46 | −1 9.85 | −1 8.10
51 25.48 | 51 24.27 26.38 | 51 25.22 24.70 | 51 26.68 26.60 | 51 25.76 | 51 28.00
58 58.8 | 59.0 | 59.2 | 59.3 | 59.7 | 59.7
−7 33.3 | 34.7 32.6 | 34.0 34.5 | 32.6 32.7 | 33.9 | 31.5
−7 33.3 | 33.6 | 34.2 | 32.7 | 33.9 | 31.5
−7 31.44 33.66 | −7 31.07 33.35 | −7 31.51 33.62 | −7 30.93 32.66 | −7 30.90 32.84 | −7 30.48 32.93
− 2.22 +5.99 | − 2.28 +6.19 56.62 | 2.31 +6.39 56.84 | − 2.33 +6.49 57.04 | − 2.44 +6.89 55.90 | 2.45 +6.89 56.23
+ 1.80 | + 2.00 57.73 | + 2.20 56.32 | 2.30 56.96 + | 2.70 | + 2.70
−7 31.86 58 57.34 | 31.35 | 31.62 | 30.36 | 30.14 | 30.23
53.15 | s 56.657 | 56.58 | 57.00 | 55.90 | 56.23
52.468 | 52.39 | 52.81 | 51.81 | 54.04

1875		h m s		° ' "	
Jan	20	11 33 19		58 50.6	
	25	33.15	−.04	51.2	+.6
	30	33.11	.04	51.7	.5
Feb.	4	33.06	.05	52.2	.5
	9	33.00	.06	52.6	.4
	14	32.93	.07	52.9	.3
	19	32.86	.07	53.2	.3
	24	32.78	.08	53.4	.2
Mar.	1	32.70	.08	53.6	.2

1875
α 32.290
δ −58 52.83
dα/dt +2.914
dδ/dt +4.185

Lan δ 999678
cc .12562
cc' 0.12230

1875

+31 | +25 −06 | +24 | +32

Jan. 27 | Jan. 30 | Feb. 2 | Feb. 9

+270 | +196 | +210 | +335

```
5, 10.  37.4  10  31.7  10  34.4  11  24.5  10  30.9  10  ~~27.7~~  11  22.9  11  11.6
        39.4      33.5      36.3      26.1      33.0      28.8          24.8      13.8
        41.5      35.9      38.4      27.8      35.0      31.2          27.1      15.7
        45.0                42.5                39.0      31.9          31.1
        47.7                44.6                41.3                    33.1
        49.7                46.6                43.3                    35.2
        51.9  11  27.2      48.9  11   5.1      45.4  11   6.7          37.4  11  47.2
        54.0      29.8      50.7       6.7      47.4       8.7          39.6      49.1
        58.0      31.3      54.9       8.5      51.6      10.8          43.9      51.0
         0.3                57.0                53.7                    45.7
         2.3                59.2                55.8                    48.0

        4278                5133                4764                    3886
         120
        5478  10  33.70             10  26.13           10  30.30                 11  13.70
10    49.800  11  29.27  10  46.664  11  6.77  10  43.309  11  8.73  11  35.327  11  49.10
      49.784     +43.29      46.648     +46.51     43.293     +49.81     35.311      −2.32
11     33.13       −.04  11   33.11      −.03  11   33.08       −03  11  33.00        −04
      −43.35                 −46.46      −.06      −49.79                +2.31
                  −0.84                 −0.82                 −0.79                 −0.71
+      43.29  11  32.19  +     46.41    32.25  +    49.82     32.28  −   2.81       32.24
−        .03             −       .02           −      .02            −    .04
       −0.84                   −0.82                −0.79                −0.77
+      42.42             +     45.57           +    49.01            −   3.06
10     49.78  42  39.41  10    46.65    39.38  10   43.29     38.66  11  35.31      40.53
         −16      10.05           −16   10.47         −16     10.93         −16      9.28
10     32.20       −24   11    32.22     −24   11   32.30      −24   11  32.25       −25
                  −130                  −110                  −080                  −020
          58      53.16            58   53.35          58     52.79          58     ~~23~~
                                                                                    52.51

         +16.10    −39.47     +20.53    −20.11     +13.01    −25.42     +21.63    −13.77
      0                    0                    0                    0
         −3.49                −3.52                −3.57                −3.70
      3  53.7   0   8.1   3  47.6   4  42.4   3  55.1   4  46.7   3  45.8   4  30.8
         52.7       7.9      50.2      42.7      59.8      49.9      42.9      27.9
        106.4      16.0      97.8      85.1     114.9      96.6      88.7      58.7
      3  53.20  5   8.00  3  48.90  4  42.55  3  57.45  4  48.30  3  44.35  4  29.35

       1.20683   1.59627n   1.31239   1.30341n   1.11428   1.40518n   1.33506   1.13893n
       1.32913   1.71857n   1.43469   1.42571    1.23658   1.52748n   1.45736   1.26123n
        +21.34    −52.31     +27.21    −26.65     +17.24    −33.69     +28.67    −18.25
      4  14.54  4  15.69  4  16.11  4  15.90  4  14.69  4  14.61  4  13.02  4  17.10

−6°  41  26.19  41  27.34  41  27.76  41  27.55      26.34  41  26.26      24.67  41  22.75
         26.76              27.65                  26.30                  23.71
     20   5     21  20                                               19  56     20  41
     1.82560    1.82580
      +3446                 +2721                 +3098                 +5493
     1.86006    1.86026     1.85281    1.85301    1.85658    1.85678    1.88053    1.88073
     −72.45     −72.49      −71.26     −71.29     −71.88     −71.91     −75.95     −75.99
     −  .01     −  .01      −  .01     −  .01     −  .01     −  .01     −  .01     −  .01
       +.01 −16   +.10        +.03 −44   +03        +.01 −45   +04        +.03 −84   +01
       −.43       −.01        −.42       −.52       −.43       −.53       −.78       −.95
 −1  12.88  −1  12.41  −1  11.66  −1  11.49  −1  12.31  −1  12.41  −1  16.71  −1  16.94
 42  39.07      39.75  42  39.42      39.34  42  38.65      38.67  42  41.38      39.69
 58  51.45             51.7                  52.0                  52.6
−16  12.4       11.8       12.3       12.4       13.4       13.3       11.2       12.9
−16  12.1                  12.3                  13.4                  12.0
−16  10.21  53.23  −16  10.46  53.35  −16  11.08  53.24  −16   8.97  53.35
             6
−     2.65  53.51        2.67  53.67         2.71  53.26          2.80  51.66
−     1.30  12.86        1.10  13.13         0.80  13.79          0.20  11.77
           + 2.58              +3.08               +3.38                +3.98
                                   5
−16  14.16  53.57       14.33  53.71        14.59  53.25         11.97  52.51
                            2      61
```

V Leporis.

h m sec 5 14 10	Sin δ 9.33362n	1875	cor α =
− 12° 27′	Cos δ 9.98967 .11478 .10645	α 14 11.10 δ 26 44.42 dα/dt + 2.782 dδ/dt + 3.99	cor δ =
ζ = + 54° 50′		Cos δ 9.98967 C .12552 C′ .11579	tang δ = −22 I = s 2.11 k = s −.016
Sin ζ = +.82			

1874 Feb. 12		Feb. 18		March 5		1874 March 8		1875 Jan. 27		Jan. 30	
								+.31		+.25 −.06	
+.294		+.205		+.140		+.144		+.270		+.196	
5 13 26.8 28.9 31.0 35.2 37.3 39.5 41.5 43.7 48.0 50.0 52.3	13 46.1 48.9 50.8	14 22.3 24.1 26.5 30.7 32.8 34.9 37.1 39.2 43.3 45.5 47.5	14 36.6 41.3 43.8	14 10.1 12.3 14.4 18.6 20.8 23.0 25.0 27.0 31.3 33.5 35.6	14 5.6 7.9 9.7	14 8.0 10.1 12.2 16.4 18.6 20.7 22.7 24.0 29.1 31.2 33.3	14 1.8 3.9 6.0	13 16.0 18.1 20.0 24.4 26.5 28.7 30.8 32.9 37.0 39.2 41.4	13 2.2 3.9 6.2 13 57.0 0.3 2.7	13 13.2 15.0 17.1 21.2 23.2 25.5 27.7 29.7 34.0 36.0 38.2	13 11.6 13.9 15.3 13 47.3 49.7 51.4
434 2	13 48.60	383 9	14 41.23	251 6	14 7.73	227 3	14 3.90	31 50	13 4.10	28 08	13 13.60
13 39.473		14 34.900		14 22.873		14 20.664		13 28.636	14 0.67	13 25.527	13 49.47
39.457		34.884		22.857		20.648		28.620		25.511	
+ 29.31		− 26.15		− 14.52		− 12.31		+ 43.29		+ 46.41	
− .06	−0.42	− .04		− .03		− .03		− .06		− .04	
− 0.42 +2.362		− 0.33 +2.452		− 0.07 +2.712		− 0.07 +2.762		± 0.89		∓ 0.86	
+ 28.83		− 26.52		− 14.62		− 12.36		+ 42.34		+ 45.51	
13 39.46		14 34.88		14 22.86		14 20.65		13 28.62		13 25.51	
14 8.29		14 8.36		14 8.24		14 8.29 11.072		14 10.96		14 11.02	
11.072		11.142		11.022		8.295				10.76	

s − 9.13		− 6.33		+ 15.14		+ 16.76		+ 24.54	− 32.03	+ 11.93	− 23.94
40		40		40		40		30		30	
$\mathcal{H}_{fl}$ = , − 2.98		− 3.07		− 3.22		− 3.23		− 3.49		− 3.52	
0 57.5 43.2 1007		0 55.8 42.9 987		0 26.3 18.7 450		0 28.7 19.1 478		1 20.5 20.9 414	2 34.6 33.6 682	1 36.2 38.5 747	2 23.5 25.9 494
40 50.35		40 49.35		40 22.50		40 23.90		31 20.70	32 34.10	31 37.35	32 24.70
0.96047n		0.80140n		1.18013		1.22427		1.38987	1.50556n	1.07664	1.37912n
1.06692n		0.90785n		1.28658		1.33072		1.50506	1.62075	1.19183	1.49431n
− 11.67		− 8.08		+ 19.35		+ 21.42		+ 31.99	− 41.76	+ 10.55	− 31.21
40 38.68		40 41.27		40 41.85		40 45.32		31 52.69	31 52.34	31 52.90	31 53.49
− 12° 17′ 50.33″		17 52.92		17 53.50		17 56.97		9 4.34 4.16	3.99	9 4.55 4.84	5.14
+ 54 48 22								47 33	48 46		
1.91090								1.91070	1.91100		
+ 3059		+ 2980		+ 1996		+ 957		+ 3450		+ 2729	
1.94149		1.94070		1.93086		1.92047		1.94520	1.94550	1.93799	1.93829
− 87.40		− 87.24		− 85.28		− 83.27		− 88.15	− 88.21	− 86.69	− 86.75
− 1		− 1		− 1		0		− 1	− 1	− 1	− 1
+ 1	~~+03~~	+ 1	~~+03~~	+.02	~~+02~~	+.03	~~+03~~	+.06 −.13	+.11	+.01 −.18	+.06
+.05	+.06	+.06	+.07	+.03	+.05	+.03	+.06	−.14	−.29	−.18	−.26
− 1 27.35		− 1 27.20		− 1 25.24		− 1 23.21		− 1 28.24	− 1 28.50	− 1 26.87	− 1 26.96
− 12 19 17.68		19 20.18		19 18.74		19 20.18		10 32.58	32.89	10 31.42	32.10
− 7 31.16		− 7 30.33		− 7 30.40		− 7 30.48		− 16 10.21		− 16 10.46	
− 2.44	33.60	− 2.51	32.84	− 2.64	33.04	− 2.64	33.12	− 2.86	13.07	− 2.88	13.34
	+ 7.34		+ 7.73		+ 8.28		+ 8.32		+ 3.88		+ 4.19
+ 3.35		+ 3.74		+ 4.29		+ 4.33		− 0.11		+ 0.20	
− 7 30.25	26 47.93	− 7 27.10	49.20	28.95	47.49	28.75	48.57	13.18	45.96 45.57	− 16 13.14	44.51 45.24
	47.93 43.94		49.20 45.21		47.49 43.50		41.97 44.98		45.66 ~~41.12~~		44.90

+.32

Feb 9

+3.35 13 42.3
14 1.5 44.2
3.6 47.0
5.7
9.9
12.0
14.1
16.2 14 35.8
18.4 38.3
22.6 40.1
24.6
26.9

15.53 13 44.50
14 14.118 14 38.07
14.102

− 2.31
− .07
~~+~~ 0.74
− 3.12
14 14.10

14 10.98
10.2
10.217 C+

+29.62 −23.95
30

−3.70
1 10.3 2 21.0
11.2 21.2
215 422
31 10.75 32 21.10

1.47195 1.37931n
1.58714 1.49450n
+38.65 −31.23
31 49.40 31 49.87

−12° 9 1.05 1.52
1.28
47 23 48 33
1.91070 1.91100
+5499
1.96569 1.96598
− 92.40 −92.47
− 2 − 2
+.07 −29 +.06
−25 −48
−1 32.58 −1 32.91
−12 10 33.63 34.43
−16 8.97
− 3.03 12.00
+1.21 +5.20
−16 10.79 44.42
45.22

~~44.42~~
44.82

m* Orionis.

h m sec
5 16 16
+3° 26'
z = +38° 57'
sin z = +.63

Sin δ 8.77733
cos δ 9.99922
.11678
.11600

corr α =
corr δ =
tang δ = +.06
I = 2.07 s
k = −.015

1874 — 1874

Feb. 12		Feb. 14		Feb. 17		Feb. 18		March 5		March 8	
+.294		+.107		+.240		+.205		+.140		+.144	
5 15 3.15	15 14.1	15 29.6	15 21.5	15 27.5	15 14.4	16 27.0	16 8.2	16 14.9	16 1.5	16 12.7	15 53.6
33.5	16.1	31.8	23.0	29.6	16.1	29.0	10.2	17.0	3.1	14.7	58.0
35.5	17.7	33.8	24.5	31.6	18.0	31.0	12.1	19.0	4.8	16.8	59.6
39.6		37.9		35.6		35.3		23.1		20.9	
41.7		39.9		37.8		37.3		25.1		23.0	
43.7		42.0		39.9		39.3		27.2		25.0	
45.8	16 8.0	44.1	15 46.7	41.9	16 4.5	41.4	16 51.0	29.2		27.1	
47.9	9.9	46.1	48.3	44.0	6.7	43.5	53.0	31.4		29.1	
52.0	11.9	50.3	49.7	48.1	8.5	47.6	53.5	35.5		33.2	
54.0		52.4		50.0		49.8		37.6		35.3	
56.8		54.4		52.3		51.7		39.7		37.4	
48.15	15 15.97	46.23	15 23.00	43.83	15 16.17	43.29	16 10.17	29.97	16 3.13	27.52	15 57.73
15 43.773	16 9.93	15 42.027	15 48.23	15 39.845	16 6.57	16 39.355	16 53.57	16 27.245		16 25.018	
43.758		42.012		39.830		39.340		27.230		25.003	
+ 29.31		+ 31.10		+ 33.19		− 26.15		− 14.62		− 12.81	
+ .02		+ .01		+ .01		+ .01		+ .01		+ .01	
− 0.37	+2.781	− 0.34	+2.811	− 0.29	+2.861	− 0.28	+2.871	− 0.05	+3.101	+ 0.01	+3.161
+ 28.96		+ 30.77		+ 32.89		− 26.42		− 14.56		− 12.29	
15 43.76		15 42.01		15 39.83		16 39.34		16 27.23		16 25.00	
16 12.72		16 12.78		16 12.72		16 12.92		16 12.67		16 12.71	
15.871		15.931		15.871		16.071		15.821		12.753	15.861

s +27.80	−26.16	+19.03	−6.20	+23.67	−26.73	+29.18	−13.82	+24.11		+27.29	
45		45		45		45		45		45	
2/4 = 1 − 2.98		−3.00		−3.04		−3.07		−3.22		−3.23	
3 37.9	3 49.4	3 45.3	4 19.3	3 42.0	4 48.1	3 36.6	4 33.4	3 41.3		3 39.8	
24.1	36.9	41.0	15.9	34.8	39.9	26.0	22.2	35.9		31.8	
1 62.0	86.3	86.3	35.2	76.8	88.0	62.6	55.6	77.2		71.6	
48 31.00	48 43.15	48 43.15	49 17.60	48 38.40	49 44.00	48 31.30	49 27.80	48 38.60		48 35.80	
1.44404	1.41764n	1.27944	0.79239n	1.37420	1.42700n	1.46509	1.14061n	1.38220		1.43600	
1.56004	1.53364n	1.39544	0.90839n	1.49020	1.54300n	1.58109	1.25661n	1.49820		1.55200	
+36.31	−34.17	+24.86	−8.09	+30.92	−34.92	+38.11	−18.05	+31.49		+35.65	
49 7.31	48 8.98	49 8.01	49 9.51	49 9.32	49 9.08	49 9.41	49 9.75	49 10.69		49 11.45	
+3° 33' 41.04"	39.37	33 40.34	38.84	33 39.03	39.27	33 38.94	38.60	33 38.26		33 36.90	
40.20		39.59		39.15		38.77					
+38 56 3	57 15					56 3	57 0				
1.66730	1.66760					1.66730	1.66760				
+3062		+1908		+2541		+2983		+2005		+959	
1.69792	1.69822	1.68630	1.68660	1.69271	1.69301	1.69713	1.69743	1.68735	1.68765	1.69689	1.69719
−49.88	−49.91	−48.57	−48.60	−49.28	−49.32	−49.81	−49.82	−48.68	−48.71	−47.52	−47.55
−.04 +.23	−.03	−.04 +.23	0	−.03 +.28	−.04	−.04 +.27	−.01 +.27	−.03		−.04	~~+.12~~
+.21	+~~.22~~ .28	+.22	+.26	+.25	+.33	+.24	+.31	+.25		+.25	+.24
−49.68	−49.64	−48.36	−48.34	−49.04	−49.00	−49.58	−49.51	−48.44		−47.28	
+3 32 51.36	49.73	32 51.98	50.50	32 49.99	50.27	32 49.36	49.09	32 49.82		32 49.62	
−7 31.16	33.03	−7 31.07	32.96	−7 31.51	33.42	−7 30.33	32.26	−7 30.40	32.42	−7 30.48	32.51
− 1.87	+2.52	− 1.89	+2.60	− 1.91	+2.70	− 1.93	+2.74	− 2.02	+3.08	− 2.03	+3.12
−1.29		−1.24		−1.10		−1.07		−0.73		−0.69	
−7 34.32	25 17.04 15.41	34.17	17.81 16.33	34.53	15.46 15.74	33.33	16.03 15.76	33.15	16.67	33.20	16.42
	16.22 2003		17.07 2088		15.60 1881		15.90 1871		16.67 2048		16.42 2023

1875
16 15.91
25 20.49
+ 3.151
+ 3.61

9.99922
.12552
.12474

?

1875

+.31 Jan. 27 | +.25 -.06 Jan. 30 | +.28 -.06 Feb. 1 | +.24 Feb. 2 | +.32 Feb. 9

+.270 | +.196 | +.155 | +.210 | +.335

5 15 21.0 15 3.1 | 15 17.9 15 3.5 | 15 15.6 15 22.0 | 15 14.5 14 58.1 | 16 6.5 15 43.5
23.0 5.0 | 19.9 5.4 | 17.6 4.1 | 16.5 0.0 | 8.6 46.3
25.1 6.6 | 22.0 7.3 | 19.8 6.3 | 18.6 2.2 | 10.7 48.0
29.2 | 26.0 | 24.0 | 22.7 | 14.9
31.3 | 28.3 | 26.0 | 24.8 | 16.8
33.3 | 30.1 | 28.0 | 26.7 | 18.9
35.4 16 2.0 | 32.3 15 50.4 | 29.9 15 52.4 | 28.8 15 44.2 | 20.9 16 29.7
37.4 3.8 | 34.5 52.0 | 32.0 54.6 | 30.9 46.5 | 23.0 31.8
41.6 5.5 | 38.5 54.0 | 36.3 57.3 | 35.0 48.6 | 27.3 33.2
43.7 | 40.7 | 38.2 | 37.1 | 29.3
45.8 | 42.7 | 40.3 | 39.2 | 31.4
29.48

36.68 15 4.90 | 33.29 15 5.41 | 30.77 15 4.13 | 15 0.10 | 20.84 15 45.93
15 33.345 16 3.77 | 15 30.264 15 52.13 | 15 27.973 15 54.77 | 15 26.800 15 46.436 | 18.945 16 31.57

33.330 | 30.249 | 27.958 | 26.785 | 18.930

+ 43.29 | + 46.41 | + 48.62 | + 49.82 | − 2.30
+ .02 | + .01 | + .01 | + .01 | + .02
− 0.82 | − 0.81 | − 0.80 | − 0.79 | − 0.71
+ 44.13 42.49 | + 47.23 45.61 | + ~~49.43~~ 47.83 | + ~~50.62~~ 49.04 | − ~~1.57~~ 2.99
15 33.33 | 15 30.25 | 15 27.96 | 15 26.78 | 16 18.93

16 17.46 15.82 | 16 17.48 15.86 | 16 17.39 15.79 | 16 17.40 15.82 | 16 ~~17.56~~ 15.94
17.418 15.846

+28.44 | −30.43 | +24.86 | −21.87 | +23.84 | −26.80 | + 26.70 | − 19.63 | +32.01 | −18.63
35 | 35 | 35 | 35 | 35
−3.49 | −3.52 | −3.55 | −3.57 | −3.70

4 43.1 | 1 1.1 | 4 47.0 | 0 49.8 | 4 44.9 | 0 52.3 | 4 42.0 | 0 43.7 | 4 35.3 | 0 36.5
42.9 | 2.9 | 50.7 | 53.3 | 51.0 | 59.0 | 48.4 | 50.1 | 36.3 | 38.1
860 | 40 | 977 | 1031 | 959 | 1113 | 904 | 938 | 716 | 746
39 43.00 | 41 2.00 | 39 48.85 | 40 51.55 | 39 47.95 | 40 55.65 | 39 45.20 | 40 46.90 | 39 35.80 | 40 37.30

1.45393 | 1.48330n | 1.39550 | 1.33985 | 1.37731 | 1.42813 | 1.42651 | 1.29292n | 1.51865 | 1.13450
1.57867 | 1.60804 | 1.52024 | 1.46459 | 1.50205 | 1.55287 | 1.55125 | 1.41766n | 1.64339 | 1.25924
+37.90 | −40.56 | +33.13 | −29.15 | +31.77 | −35.72 | +35.58 | −26.16 | +43.97 | −18.16
40 20.90 | 40 21.44 | 40 21.98 | 40 22.40 | 40 19.72 | 40 19.93 | 40 20.78 | 40 20.74 | 40 19.79 | 40 19.14

+3° 42 27.45 | 42 26.91 | 42 26.37 | 42 25.95 | 42 28.63 | 42 28.42 | 42 27.57 | 27.61 | 42 28.56 | 29.21
27.18 | 26.16 | 28.52 | 27.59 | 28.88
+38 55 55 | 57 14 | 55 48 | 56 49
1.66730 | 1.66760
+3452 | +2734 | +3438 | +3105 | +5503
1.70182 | 1.70212 | 1.69464 | 1.69494 | 1.70168 | 1.70198 | 1.69835 | 1.69865 | 1.72233 | 1.72263
−50.33 | −50.36 | −49.50 | −49.54 | −50.31 | −50.35 | −49.93 | −49.96 | −52.76 | −52.80

−.04 −.32 | −.04 | −.03 −.32 | −.02 | −.03 −.32 | −.03 | −.03 −.31 | −.02 | −.05 −.56 | −.01
−.52 | −.11 | −.53 | −.10 | −.53 | −.10 | −.52 | −.09 | −.97 | −.13
−50.86 | −50.48 | −50.04 | −49.65 | −50.85 | −50.46 | −50.46 | −50.06 | −53.74 | −52.94
+ 3 41 36.59 | 36.43 | 41 36.33 | 41 36.30 | 41 37.78 | 37.96 | 41 37.11 | 37.55 | 41 34.82 | 36.27
−16 10.21 | 12.40 | −16 10.46 | 12.67 | −16 12.02 | 14.25 | −16 11.08 | 13.82 | −16 8.97 | 11.29
− 2.19 | −0.24 | − 2.21 | −.05 | − 2.23 | +.08 | − 2.24 | +.14 | − 2.32 | +.51
−4.05 | −3.86 | − 3.86 | −3.43 | 3.73 | −3.64 | 3.67 | −3.30 | 3.30
−16 16.45 | 15 20.14 | 16.53 | 19.80 | 17.98 | 19.80 | 16.99 | 20.12 | 14.59 | 20.23
19.99 | 19.71 | 19.98 | 20.56 | 21.68

20.06 | 19.78 | 19.89 | 20.34 | 20.95

34

1874

B Tauri. Sin δ 9.67866

h m sec. 5 18 24 Cos δ 9.94390

+28° 30' .12678

.06068

ζ = + 13° 53'

+.24

1874 s

α 19.671

δ +29 53.92

dα/dτ +3.789

dδ/dτ +3.433

		m s		'	"	
Feb.	9	18 20.09		30	3.0	
	14	20.12	-.07		3.2	+.2
	19	19.94	.08		3.3	.1
	24	19.86	.08		3.4	.1
Mar.	1	19.77	.09		3.4	.0
	6	19.68	.09		3.4	.0
	11	19.59	.09		3.4	± .0
	16	19.49	.10		3.3	- .1
	21	19.39	.10		3.2	- .1

corr α =

corr δ =

tang δ = +.54 1.14

I = 2.35

k = -.018

1874 × × × × + 1874

Feb. 12 +35 -.04 | Feb. 14 +.25 | Feb. 17 +.29 | Feb. 18 +.28 | March 5 +13 | March 8 +.17

+.294 +.107 +.240 +.205 +.140 +.144

5 17 36.5 17 18.0 17 34.7 17 23.0 17 32.6 17 15.0 18 31.9 18 14.8 18 20.1 18 5.0 18 17.9 18 0.6

39.0 19.8 37.2 24.7 35.7 17.3 34.3 16.5 22.4 7.2 21.2 2.6

41.2 22.0 39.5 26.5 37.4 19.8 36.7 17.9 24.8 9.1 22.5 4.7

43.9 44.3 42.0 41.1 27.1

48.1 46.6 44.4 43.6 29.4 29.6

50.7 48.9 46.8 46.0 31.8 31.8

53.0 51.3 18 7.4 49.1 17 54.8 48.3 18 56.9 34.2 34.2

55.3 53.6 9.3 51.5 57.2 50.7 59.0 36.6 36.6

18 0.1 58.3 12.2 56.1 59.6 53.3 1 5 38.8 41.2

2.3 18 0.7 58.5 57.7 43.6

4.8 3.0 18 0.9 0.1 46.0

3769 4181 4544 4457 3507

180 120 60 60

5569 17 19.93 5381 17 24.73 5144 17 17.37 5057 18 16.40 18 7.10 18 2.63

17 50.627 17 48.918 18 9.63 17 46.764 17 57.23 18 45.973 18 39.13 18 34.175 18 31.882

50.609 +29.31 48.900 +31.13 46.746 +33.12 45.955 -26.19 34.157 -14.52 31.864 -12.32

18 20.054 +.19 18 20.02 +14 18 19.97 +.16 18 19.965 +15 18 19.7069 +07 18 19.64 +.09

-29.44 -.05 -31.12 -33.22 +25.99 +14.467 +12.22

-0.37 -0.35 -0.30 -0.28 -0.02 +0.03

+ 29.31 18 19.69 + 31.10 19.82 + 33.17 19.73 - 26.15 19.64 - 14.52 19.69 - 12.31 19.66

+ .16 + .06 + .13 + .11 + .08 + .08

-0.37 +3.419 -0.35 +3.439 -0.30 +3.489 -0.28 +3.509 -0.02 +3.769 +0.03 +3.819

+ 29.10 + 30.81 + 33.00 - 26.32 - 14.46 - 12.20

17 50.61 37 35.51 17 48.90 35.80 17 46.76 36.06 18 45.95 35.38 18 34.16 35.33 18 31.86 35.60

-7 30.84 -7 30.98 -7 31.33 -7 30.06 -7 30.28 -7 30.12

18 19.72 -.7 18 19.71 -.7 18 19.75 -.7 18 19.63 -.7 18 19.70 -.7 18 19.656 -.7

23.509 -9.20 23.499 -9.30 23.539 -9.40 23.419 -9.40 23.489 -9.50 23.439 -9.50

+28 449 29 54.77 29 54.83 29 54.63 29 55.22 29 54.85 29 55.28

s

+30.70 + 24.19 - 20.71 + 29.39 - 10.47 + 29.57 - 13.16 + 27.07 + 29.25

40 40 40 40 40 40

ζ = - 2.98 -300 -304 -307 -322 -323

4 26.8 4 30.4 0 23.0 4 24.4 0 11.2 4 26.9 0 17.0 4 28.2 4 26.8

17.9 29.1 20.4 21.9 8.0 19.8 9.7 26.1 22.6

447 495 434 463 192 467 267 543 494

44 22.35 44 24.75 45 21.70 44 23.15 45 9.60 44 23.35 45 13.35 44 27.15 44 24.70

1.48714 1.38364 1.31618 1.46820 1.01995 1.47085 1.11926 1.43249 1.46613

1.54782 1.44432 1.37686 1.52888 1.08063 1.53153 1.17994 1.49317 1.52681

+35.30 +27.82 -23.82 +33.80 -12.04 +34.00 -15.13 +31.13 +33.64

44 57.65 44 57.57 44 57.88 44 56.95 44 57.56 44 57.35 44 58.22 44 58.28 44 58.34

+28° 37 50.70 37 50.78 50.47 37 51.40 50.79 37 51.00 50.13 37 50.07 37 50.01

50.62 51.09 50.56

+ 13 52 2 52 52 51 55 52 45

1.15210 1.15310 1.15270 1.15300

+ 3066 +1906 + 2545 +2988 +2017 +961

1.18336 1.17116 1.17211 1.17815 1.17855 1.18258 1.18288 1.17287 1.17317 1.16231 1.16261

- 15.25 -14.85 -14.86 -15.07 -15.09 -15.22 -15.24 -14.89 -14.90 -14.53 -14.54

-.20 +.03 -.13 +03 -.09 -.19 +.05 -.03 -.19 +.04 -.04 -.16 +.07 -.19 +.06

+.26 +.06 +.27 +.02 +.31 +.01 +.31 +.01 +.30 +.15 +.31 +.12

- 15.19 - 14.71 - 14.93 - 14.95 - 15.11 - 15.10 - 15.27 - 14.74 -14.41

37 35.51 37 36.07 35.54 37 36.45 35.68 37 35.90 34.86 37 35.33 37 35.60

30 3.1 3.2 3.3 3.3 3.4 3.4

-7 32.4 32.9 32.3 33.1 32.4 32.6 31.6 31.9 32.2

-7 32.4 32.6 32.8 32.1 31.9 32.2

-7 31.16 -7 31.07 -7 31.51 -7 30.33 -7 30.40 -7 30.48 31.25

- .71 29 54.44 - .72 31.79 54.98 - .72 32.23 54.82 - .43 31.06 55.44 - .77 31.75 54.66 - .77 54.85

- 9.20 31.87 -5.77 - 9.30 -5.57 4.45 - 9.40 -5.97 54.06 - 9.40 5.97 54.40 - 9.50 -6.07 - 9.50 -6.07

-7 41.07 -7 41.09 41.63 40.46 40.67 40.75

54.44 54.71 54.43 54.92 54.66 54.65

57.87 58.14 57.86 58.35 58.09 58.28

1875

Jan. 20	18	24.42		30	7.6	
25		24.39	−.03		7.8	+.2
30		24.35	.04		8.0	.2
Feb. 4		24.30	.05		8.2	.2
9		24.24	.06		8.3	.1
14		24.17	.07		8.4	.1
19		24.10	.07		8.5	.1
24		24.02	.08		8.6	.1
Mar. 1		23.93	.09		8.6	0

1875
23.460
+29 57 35
+3.789
+3.427

Log 9.94390
.12552
.06942

1875

+.31 Jan. 27 +.25 −.06 Jan. 30 +.28 −.06 Feb. 1 +.24 Feb. 2 Feb. 9 +.32 Feb. 14 +.30 +.12

+.271 +.196 +.155 +.210 +.335 +.410

5 17 26.8 16 57.8 17 23.7 17 0.6 17 21.7 17 8.3 17 20.3 16 57.7 18 12.2 17 47.5 18 5.9 18 0.7
29.2 59.8 26.1 2.6 24.0 10.3 22.7 59.3 14.6 49.7 8.1 3.6
37.6 2.5 28.4 4.6 26.3 11.9 25.0 1.0 17.0 51.7 10.4 5.2
36.2 33.1 31.0 29.7 22.5 15.1
38.5 35.5 33.1 32.0 23.9 17.6
40.9 38.0 35.7 34.5 26.3 19.7
43.3 18 15.2 40.1 17 51.2 37.9 17 51.6 36.8 17 57.2 28.7 18 44.0 22.3 18 42.8
45.8 17.7 42.6 53.0 40.4 54.0 39.0 0.0 31.1 45.5 24.9 45.0
50.3 20.0 47.3 55.1 45.0 56.2 43.9 1.8 35.6 48.0 29.0 47.0
52.7 49.6 47.3 46.0 38.0 31.5
55.0 52.0 49.7 48.5 40.4 34.0

17

45.03 ~~18~~ 0.03 41.64 17 2.60 39.21 17 10.17 ~~10.50~~ 37.84 16 59.33 28.93 17 49.63 21.83 18 3.17
17 40.936 18 17.63 17 37.855 17 53.10 17 35.645 17 53.93 17 34.400 17 59.67 18 26.300 18 45.83 18 19.845 18 44.93
40.918 37.837 35.627 34.382 26.282 19.827
18 24.37 18 24.35 18 24.33 18 24.32 18 24.24 18 24.17
−43.45 +48.29 −46.51 +46.52 −48.70 +48.63 −49.94 +49.81 +2.04 −2.31 −4.34 +4.03
+17 +14 +15 +13 +17 +.16
+ 43.29 + 46.41 −.07 + 48.62 −.07 + 49.82 − 2.30 + 4.4409 +.14
+ .15 −0.91 + .10 −0.89 + .08 −0.84 + .11 −0.86 + .18 −0.78 + .22 −0.71
−0.91 18 23.47 −0.89 23.54 −0.87 23.47 −0.86 23.46 −0.78 23.36 −0.71 23.45
+ 42.53 + 45.62 + 47.83 + 49.87 − 2.90 + 3.60
17 40.92 17 37.84 17 35.63 17 34.38 18 26.28 18 19.83

23.45
18 23.45 46 20.39 18 23.46 20.36 18 23.46 21.66 18 ~~24.25~~ 21.97 18 23.38 20.03 18 23.43 20.64
−16 10.05 −16 10.47 −16 11.24 −16 10.93 −16 9.28 −16 9.59
−.9 −.9 −.9 −.9 −.9 −.91
−10.50 −10.60 −10.70 −10.70 −10.90 −11.00
29 58.94 29 58.39 29 58.82 29 59.44 29 58.96 29 59.15

+40.91 −36.69 +35.25 −15.25 +25.47 −18.29 +35.07 −25.27 +36.67 −19.53 +16.57 −25.09
35 Jan 27 35 Jan 30 35 Feb 1 35 Feb 2 35 35
−3.49 −3.52 −3.55 −3.57 −3.70 −3.75
0 22.4 1 53.5 0 28.0 1 27.7 0 36.8 1 27.7 0 25.2 1 36.7 0 27.0 1 33.5 0 49.5 1 39.0
26.5 56.1 34.0 33.6 45.1 37.7 33.6 44.5 29.8 36.5 53.8 44.0
48.9 109.6 62.0 61.3 81.9 65.4 58.8 81.2 56.8 76.0 103.3 83.0
35 24.45 36 54.80 35 31.00 36 30.65 35 40.93 36 32.70 35 29.40 36 40.60 35 28.40 36 35.00 35 51.65 36 41.50

1.61183 1.56455n 1.54716 1.18327n 1.40603 1.26221n 1.54494 1.40261n 1.56431 1.29070n 1.22194 1.37950n
1.68125 1.63397n 1.61658 1.25269n 1.47545 1.33163n 1.61436 1.47203n 1.63373 1.36012n 1.29136 1.46892n
+48.00 −43.05 +41.36 −17.89 +29.89 −21.46 +41.15 −29.65 +43.03 −22.92 +19.56 −29.44
36 12.45 36 11.70 36 12.36 36 12.76 36 10.84 36 11.24 36 10.55 36 10.95 36 11.43 36 12.08 36 11.21 36 12.06

+28° 46′ 35.90″ 36.60 46 35.99 35.59 46 37.51 37.11 46 37.80 37.40 46 36.92 36.27 46 37.14 36.29
36.25 35.79 37.31 37.60 36.59 36.71
+13 51 36 53 5 52 4 52 53
1.15250 1.15330 1.15270 1.15330
+3455 +2741 +3446 +3108 +5510 +4227
1.18705 1.18785 1.17991 1.18071 1.18696 1.18776 1.18358 1.18438 1.20760 1.20840 1.19497 1.19557
−15.38 −15.41 −15.13 −15.16 −15.38 −15.41 −15.26 −15.29 −16.13 −16.16 −15.67 −15.69

−.37 −.46 −.30 −.29 −.28 −.06 −.17 −.25 −.09 −.29 −.35 −.17 −.30 −.42 −.10 −.07 −.39 −.17
−.04 −.21 −.05 −.16 −.08 −.16 −.05 −.19 −.10 −.34 −.19 −.36
−15.79 −15.92 −15.47 −15.38 −15.63 −15.66 −15.60 −15.65 −16.53 −16.60 −15.93 −16.22
46 20.11 20.68 46 20.52 20.21 46 21.88 21.95 46 22.20 21.75 46 20.39 19.67 46 21.21 20.07
30 7.9 8.0 8.1 8.1 8.3 8.4
−16 12.2 12.8 12.5 12.2 13.8 13.3 14.1 13.6 12.1 11.4 12.8 11.7
−16 12.5 12.4 13.5 13.8 11.7 12.3
−16 10.21 29 58.57 −16 10.46 58.62 −16 12.02 58.31 −16 11.08 59.56 −16 8.97 59.64 −16 9.82 57.45
− 83 11.04 59.14 − 84 11.30 58.31 − 85 12.87 57.88 − 86 11.94 59.11 − .88 58.92 − 90 58.85
− 10.50 −7.07 − 10.60 −7.17 − 10.70 −7.27 − 10.70 −7.27 − 10.90 9.85 −7.47 − 11.00 10.72 −7.57 83
−16 21.54 58.80 21.90 58.46 23.57 58.10 22.64 59.33 20.75 59.28 21.72 ~~57.21~~ 58.92

1874.0		1875.0	
α	δ	α	δ
19.72		23.45	
71		23.46	
75		23.46	
63		.45	
70		38	
65		43	
19.693		23.438	
.671	53.92	.460	57.35
+ .022		− .022	

ψ² Orionis.

5h 20m 18sec

+ 3° 0′

z = + 39° 23′

sin z = +.63

1874
α
δ
dα/dT
dδ/dT

sin δ 8.71880
cos δ 9.99940
.11678
.11618

1875
α 20. 17.34
δ 59. 8.42
dα/dT +3.141
dδ/dT + 8.46

l. cos δ 9.99940
l. c 12552
l. c′ .12492

corr α =
corr δ =

tang δ = +.05
I = 2.07s
k = −.015s

1874 Feb. 14		Feb. 17		Feb. 18		March 5		1874 March 8		1875 Feb. 1	+28 −06
+.107		+.240		28.2	+.205	+.140		+.144		+.156	
5 19 31.0	19 24.9	19 28.9	19 22.0	20 30.4	20 15.2	20 16.4	20 11.0	20 14.3	20 1.8	19 17.0	19 26.0
33.1	25.8	31.0	23.7	32.5	17.1	18.5	12.6	16.2	4.0	19.0	27.7
35.2	27.4	33.1	25.7	36.5	19.1	20.5	14.3	18.3	5.6	21.3	28.8
39.3	28.5	37.2		38.8		24.6		22.3		25.3	
41.5		39.3		40.8		26.8		24.5		27.5	
43.5		41.4		42.9		28.7		26.6		29.4	
45.6		43.5	19 56.0	44.8	21 0.9	30.8		28.6		31.5	
47.7		45.5	58.3	49.0	2.8	32.9		30.6		33.5	
51.6		49.5	20 0.8	51.1	4.7	37.0		34.8		37.4	
53.8		51.7		53.2		39.0		36.8		39.8	
55.8		53.8				41.2		38.9		41.9	
4781		4549		4482		3164		2919		3239	
	19 26.65		19 23.80		20 17.13		20 12.63		20 3.80		19 27.50
19 43.464		19 41.355	19 58.37	20 40.745	21 2.80	20 28.764		20 26.536		19 29.445	
43.449		41.340	~~58.354~~	40.730		28.749		26.521		29.430	
+ 31.10		+ 33.17		− 26.15		− 14.52		− 12.31		+ 48.62	
+ .01		+ .01		+ .01		+ .01		+ .01		+ .01	
− 0.36	+2.781	− 0.32	+2.821	− 0.30	+2.841	− 0.07	+3.071	− 0.02	+3.121	− 0.82	
+ 30.75		+ 32.86		− 26.44		− 14.58		− 12.32		+ 47.81	
19 43.45		19 41.34		20 40.73		20 28.75		20 26.52		19 29.43	
20 14.20		20 14.20		20 14.29		20 14.17		20 14.20	17.341	20 17.24	
17.341		17.341		17.431		17.311		14.212			
s +16.81		+17.55	−17.02	+23.61	−22.06	+16.13		+22.74		+1.94	
15		10		10		15		10		5	
−.300		−3.04		−3.07		−3.22		−3.23		−3.55	
0 0.0		4 1.4	0 46.8	4 55.8	0 56.1	0 3.0		4 57.5		1 24.7	2 3.1
55.4		53.1	38.2	45.4	44.9	58.0		50.1		31.8	10.4
11.54		11.45	8.50	10.02	10.10	12.10		10.76		56.5	13.5
14 57.70		14 57.25	15 42.50	14 50.10	15 50.50	15 0.50		14 53.80		6 28.25	7 6.75
1.22557		1.24428	1.23096	1.37310	1.34361	1.20763		1.35679		1.28780	
1.34175		1.36046	1.34714	1.48928	1.45979	1.32381		1.47297		1.41272	
+21.97		+22.93	−22.24	+30.85	−28.83	+21.08		+29.71		~~+25.87~~ +2.59	
15 19.67		15 20.18	15 20.26	15 20.95	15 21.67	15 21.58		15 23.51		6 ~~34.13~~ 30.84	
+3° 7 28.68″		7 28.17	28.09	7 27.40	26.68	7 26.77		7 24.84		15 ~~54.23~~	
		28.13		27.04						16 17.51	
22 30	+39	22 29	23 14	22 22	23 22						
1.67410	1.67430										
+19.12		+25.50		+29.92		+20.26		+9.63		+34.52	
1.69322	1.69342	1.69960	1.69980	1.70402	1.70422	1.69436	1.69456	1.68373	1.68393	1.70862	1.70882
−49.34	−49.37	−50.07	−50.10	−50.59	−50.61	−49.47	−49.49	−48.28	−48.30	−51.12	−51.15
+.01 +14		+.01 +19	+.01	+.03 +21	+.08	+.01 00		+.03 +17		+	
+.29 +.29		+34	+.05	+.34	+.06	.00		+.34 +.31		−.16	−.16 −.12
−48.05		−49.73	−50.05	−50.24	−50.54	−49.47		−47.93		−51.28	
+3 6 39.63		6 38.44	38.04	6 37.16	36.14	6 37.30		6 36.91		15 36.23	
−7 31.07	32.96	−7 31.51	33.42	−7 30.33	32.26	−7 30.40	32.42	−7 30.48	32.51	−16 12.02	14.25
− 1.89	+2.35	− 1.91	+2.46	− 1.93	+2.50	− 2.02	+2.86	− 2.03	+2.89	− 2.23	−.17
−1.19		−1.00		−0.96		− 0.60		− 0.57		−3.63	
−7 34.0	7 29 55.6	34.42	4.02	33.22	3.94	33.02	4.28	33.06	3.43	17.88	8.35
			3.62		2.92						
	5.56		3.82		3.43		4.24		3.83		8.35
	9.02		7.28		6.85		7.79		7.25		
	2.10										

+.24 +.30 +.12 +.00

Feb. 2 Feb. 14 Feb. 24

+.210 +.410 -.035

19 — 19 3.2 20 1.4 19 48.0 19 50.1 19 44.4
— 6.0 3.4 51.6 52.2 45.8
— 7.8 5.6 53.4 54.2 47.7
24.4 9.7 58.4
26.3 11.8 20 0.5
28.4 13.7 2.5
30.5 19 45.2 15.9 20 27.2 4.6 20 31.5
32.6 47.6 17.8 29.1 6.7 33.4
— 49.2 22.1 31.8 10.7 35.2
— 24.2 12.7
— 26.2 14.9

14.22 15.18 26.75
240

2 19 5.67 19 51.00 27.5 19 45.97
19 28.440 19 47.33 20 13.800 20 29.37 20 2.500 20 33.37
28.425 13.785 2.485

+ 49.82 + 4.09 + 15.40
+ .01 + .02 ∓ .00
− 0.81 − 0.67 − 0.53
+ 49.02 + 3.44 + 14.87
19 28.42 20 13.78 20 -2.48

20 17.44 20 17.22 20 17.35
17.313

+22.77 -18.89 +22.80 -15.57 +16.53 -30.87
5 5 5
−3.57 −3.75 −3.87
0 59.5 1 54.9 1 1.9 1 53.0 1 12.9 2 16.2
6.6 1.1 4.7 54.7 23.1 26.0
126.1 116.0 6.6 107.4 36.0 42.9
6 3.05 6 58.00 6 3.30 6 53.85 6 18.00 7 21.10

1.35736 1.27623n 1.35793 1.19229n 1.21827 1.48954n
1.48228 1.40115n 1.48285 1.31721n 1.34319 1.61446n
+30.36 -25.19 +30.40 -20.76 +22.04 -41.16
6 33.41 6 32.81 6 33.70 6 33.09 6 40.84 6 39.94

16 14.94 15.54 16 14.65 15.26 16 7.51 16 9.41
15.24 14.95 7.96 8
22 15 23 10 22 30 23 33
1.67410 1.67430 1.67410 1.67440
+3110 +4229 +432
1.70520 1.70540 1.71639 1.71659 1.67842 1.67872
-50.72 -50.75 -52.06 -52.07 -47.69 -47.72

-.02 -.17 -.01 -.03 -.32 -.04 -.01 -.32 -.04
-.11 -.22 -.24 23 -.40 -.23 -.41
-50.84 -50.97 -52.29 -52.47 -47.92 -48.14
15 24.10 24.57 15 22.36 22.79 15 19.59 15 20.27
-16 11.08 13.32 -16 9.82 12.18 -16 8.19 10.62
− 2.24 -.11 − 2.36 +.52 − 2.43 +.88
-3.54 -2.94 -2.58
16.89 7.21 15.12 7.24 13.20 6.39
7.68 7.67 7.07

7.44 7.45 6.73

Gr. 966

5h 23m 1sec

+74° 57'

z = − 32° 34'

−.54

Sin δ 9.98484

Cos δ 9.41441

.11678

9.53119

1874 s

α 53.337

δ +57 19.13

dα/dt +7.985

dδ/dt +3.252

1874

			s		'	"	
Feb.	9	22m	55.08		57	40.2	
	14		54.77	−.31		41.0	+.8
	19		54.45	.32		41.6	.6
	24		54.10	.35		42.1	.5
Mar.	1		53.75	.35		42.5	.4
	6		53.39	.36		42.7	.2
	11		53.02	.37		42.9	.2

1875

α 1.322

δ +57 22.38

dα/dt +7.985

dδ/dt +3.240

log cos δ 9.41441

l.b .12552

l.b' 9.53993

× 1874 × + × + 1874 1875

+25 Feb. 14 · +29 Feb. 17 · +28 Feb. 18 · +21 Feb. 24 · +17 March 8 · +28 −06 Feb. 1

+.104 · +.240 · +.205 · +.190 · +.144 · +.155

5 22 7.1 · 21 38.2 · 22 4.7 · 21 4.0 · 23 4.1 · 22 22.2 · 22 58.4 · 23 20.7 · 22 49.1 · 22 5.0 · 21 · 22 20.4

11.0 · 44.2 · 8.7 · 8.2 · 8.1 · 30.5 · 23 2.0 · 28.0 · 53.0 · 10.7 · 59.4 · 27.7

15.1 · 53.1 · 12.3 · 17.3 · 11.9 · 37.8 · 6.0 · 36.2 · 57.0 · 17.4 · 22 2.8 · 34.3

19.1 · 16.2 · 15.7 · 10.3 · 1.0 · 6.9

22.5 · 20.1 · 19.5 · 14.2 · 4.9 · 10.9

26.5 · 24.0 · 23.7 · 18.3 · 8.7 · 14.9

30.8 ~~22 24.5~~ · 28.2 · 23 6.4 · 27.5 · 23 29.0 · 22.4 · 12.5 · 18.8

35.2 · 32.3 · 10.5 · 31.4 · 36.6 · 26.4 · 16.4 · 23.0

39.4 · 36.7 · 15.6 · 35.4 · 41.7 · 30.2 · 20.4 · 27.0

30.9

2067 · 1832 · 1773 · 1882 · 2246 · 1946

60 · 180 · 60

21 45.17 · 21 9.83 · 22 30.17 · 1282 · 23 28.30 · 446 · 22 11.03 · 1346 · 22 27.47

22 22.967 · 22 21.50 · 22 20.356 · 23 10.83 · 23 19.700 · 23 35.77 · 23 14.244 · 23 4.956 · 22 14.956

22.908 · 20.297 · 19.641 · 14.185 · 4.897 · 14.897

22 54.785 +31.13 · 22 54.656 +83.13 · 22 54.530 −26.19 · 22 54.408 −21.19 · 22 53.282 −12.32 · 23 4.232 +48.63

−31.874 +.93 · −34.326 +1.08 · +25.14 +1.04 · +20.056 +.78 · +11.678 +.63 · −49.332 +1.04

−31.583 · −33.985. · +25.485 · +20.341 · +11.959 · −49.031 −.23

−1.41 · −1.22 · −1.16 · −0.74 · +0.12 · −2.90

+ 31.10 22 53.56 · + 33.14 53.29 · − 26.15 53.33 · − 21.17 53.04 · − 12.31 53.83 · + 48.63 23 1.44

+ .40 · + .89 · + .76 · + .74 · + .53 · + .58

−1.41 +6.575 · −1.22 +6.765 · −1.16 +6.825 · −0.84 +7.245 · +0.12 +8.105 · −2.90

+ 30.09 · + 32.84 · − 26.55 · − 21.20 · − 11.66 · + 46.31

22 22.91 5 10.79 · 22 20.30 9.94 · 23 19.64 9.51 · 23 14.18 5 11.37 · 23 4.90 15 9.31 · 22 14.90 13 57.37

−7 30.98 · −7 31.33 · −7 30.06 · −7 31.19 · −7 30.12 · −16 11.24

22 53.00 + 1.6 · 22 53.14 + 1.6 · 22 53.09 + 1.6 · 22 52.98 + 1.6 · 22 53.24 + 1.6 · 23 1.21 ~~+1.6~~ +1.8

0.985 − 21.90 · 1.125 − 22.30 · 1.075 − 22.40 · 0.965 − 23.00 · 1.225 − 23.70 · − 21.70

+74 57 19.61 · 57 17.91 · 57 18.65 · 57 18.78 · 57 17.09 · 57 20.23

s

+ 37.80 · + 1.47 · + 70.53 · − 50.47 · + 49.53 · − 16.07 · − 14.06 · + 53.93 · − 12.51

15 · 15 · 15 · 15 · 15 · 5

10. −3.00 · −3.04 · −3.07 · −3.12 · −3.23 · −3.55

3 4.9 · 3 17.3 · 2 55.9 · 3 37.1 · 3 4.8 · 3 27.8 · 3 24.0 · 2 59.1 · 4 2.1 · 4 37.1

1.4 · 14.9 · 50.3 · 31.6 · 57.9 · 19.9 · 19.0 · 57.2 · 8.9 · 44.1

6.3 · 32.2 · 106.2 · 68.7 · 122.7 · 47.7 · 43.0 · 116.3 · 11.0 · 81.2

18 3.15 · 18 16.10 · 17 53.10 · 18 34.35 · 18 1.35 · 18 23.85 · 18 21.50 · 7 58.15 · 9 5.50 · 9 40.60

1.57749 · 1.16432 · 1.84837 · 1.70303n · 1.69487 · 1.20602n · 1.14799n · 1.73183 · 1.09726n

1.10868 · 0.69851 · 1.37966 · 1.23422n · 1.22666 · 0.73721n · 0.67918n · 1.26302 · 0.63719n

+12.84 · +4.99 · +23.96 · −17.15 · +16.83 · −5.46 · −4.77 · +18.32 · −4.34 · −4.34

18 15.99 · 18 21.09 · 18 17.06 · 18 17.20 · 18 18.18 · 18 18.39 · 18 16.73 · 8 16.47 · 9 1.16 · 9 36.26

+75°

4' 32.36 · 27.26 · 4 31.29 · 31.15 · 4 30.17 · 29.96 · 4 31.62 · 14 31.88 · 13 ~~47.19~~ · 13 12.09

31.22 · 30.06

−32 34 35 33 54

1.56560 1.56540n

+1919n · +2557 · +2997 · +3145 · +966 · +3461

1.58479 1.58459 · 1.59117 1.59097 · 1.59557 1.59537 · 1.59705 1.59685 · 1.57526 1.57506 · 1.60021 1.60001

+38.44 +38.42 · +39.01 +38.99 · +39.41 +39.39 · +39.54 +39.52 · +37.61 +37.59 · +39.83 +39.82

−.19 ~~−.00~~ −.01 · −.67 −.28 −.34 · −.33 +.04 −.03 · −.03 ~~+.10~~ · −.39 −.09 · −.02 · −.02 ~~−.27~~

+.18 · +.20 +.25 · +.21 +.24 · +.24 +.21 · +.21 −.18 · −.45 · −.52 −.54

+38.43 · +38.54 +38.90 · +39.29 +39.60 · +39.465 · +37.43 · +39.36 +39.28

5 10.79 · 5 9.83 10.05 · 5 9.46 9.56 · 5 11.37 · 15 9.31 · 13 51.37

57 41.0 · 41.4 · 41.5 · 42.1 · 42.8 · 44.0

−7 29.8 · 28.4 28.6 · 28.0 28.1 · 29.3 · 26.5 · −16 17.3

−7 29.8 · 28.5 · 28.1 · 29.3 · 26.5 · −16 7.3

−7 34.07 · −7 31.31 29.87 · −7 30.33 28.68 · −7 31.40 29.72 · −7 30.48 28.74 · −16 12.02 10.11

+ 1.62 57 17.41 · + 1.64 −19.03 17.66 · + 1.65 −19.15 18.38 · + 1.62 −19.75 18.65 · + 1.74 −20.45 16.87 · + 1.91 −18.46

− 21.90 29.35 · − 22.30 17.88 · − 22.40 18.48 · − 23.00 · − 23.40 · − 21.70

−7 51.35 −18.65 · 52.17 · 51.08 · 52.82 · 52.44 · −16 31.81 19.56

19.44 · 17.77 · 18.43 · 18.65 · 16.87 · 19.56

22.69 · 21.02 · 21.68 · 21.90 · 20.12

1870

Jan. 30	22^m	64.32^s		57′	43.7″	
Feb. 4		64.08	-.24		44.7	+1.0
9		63.81	.27		45.6	.9
14		63.51	.30		46.3	.7
19		63.19	.32		47.0	.7
24		62.85	34		47.5	.5

corr α = -.309^s
corr δ = —

tang δ = +3.7×2 3.86

I = 7.91^s

K = -.059

1874.0 α	δ	1875.0 α	δ
53.00		1.21	
53.14		1.22	
53.09		0.97	
52.98		1.09	
53.24		0.99	
53.090		1.096	
.337	19.13	.322	22.38
-.247		-.226	

Feb. 2 +.24 Feb 13 +.31 Feb. 14 +.30 +12 Feb. 24 +.00

+.210 354 +.287 +.410 -.035

21 19 423 22 21 17.0 22 22 1.8 22 22 18.9

57.7 478 43.5 22.8 42.0 6.9 31.3 24.3

22 1.6 46.9 29.8 45.5 14.2 35.2 30.1

5.7 51.0 49.4 39.5

8.9 55.2 54.0 43.3

13.5 21 51.6 59.0 57.5 47.6

17.6 55.4 23 3.3 22 31.2 23 1.6 22 54.8 51.0 22 8.8

21.7 3.5 7.3 36.8 6.0 2.9 55.0 14.5

25.3 14.2 45.1 9.7 11.0 59.2 21.9

29.6 15.0 13.6 3.4

18 16 29 24 27 93 36 55

60 240 240 60

1216 19 41.83 53 24 21 23.83 51 93 22 7.63 4255 22 24.43

22 13.511 21 56.83 22 59.156 22 37.70 22 57.700 23 2.90 22 47.278 23 15.00

13.452 59.097 57.641 47.219

23 4.196 +49.82 23 3.585 +3.02 23 5.549 +4.03 23 2.873 +15.36

-50.741 +.89 -4.485 +1.15 -5.885 +1.12 -15.651 .00

-50.430 -4.174 -5.574 +.46 15.340

-2.84 -2.23 -2.17 -1.51

+ 49.83 23 23 1.32 + 3.03 1.04 + 4.10 1.08 + 15.41 1.07

+ .78 + 1.07 + 1.52 - .13

-2.84 -2.23 -2.17 -1.57

+ 47.77 + 1.87 + 3.45 + 13.77

22 13.45 13 53.46 22 59.10 54.13 22 57.64 52.65 22 47.22 53.45

-16 10.93 -16 9.19 -16 9.59 -16 7.93

23 1.22 + 1.8 23 0.97 + 1.8 23 1.09 + 1.8 23 0.99 + 1.8

-21.90 -23.80 -23.90 -25.10

57 22.43 57 22.94 57 20.96 57 22.22

+ ~~151.68~~

+ ~~154.68~~ + 16.68 + 35.33 + 21.46 + 50.07 - 5.20 + 22.85 - 27.72

5 5 5 5

- 3.67 - 3.73 - 3.75 - 3.87

3 58.3 4 25.1 3 57.3 4 23.5 4 16.2 4 35.1 4 17.1 4 35.2

3.9 30.9 1.5 27.9 19.0 39.1 28.4 47.2

12.2.2 36.0 11.8 8 51.4 35.2 74.2 45.5 82.4

9 1.10 9 28.00 8 59.40 9 25.70 9 17.60 9 27.10 9 22.75 9 41.20

1.96227 1.22220 1.97923 1.33163 1.69958 0.71600n 1.35889 1.44279n

1.50220 0.76213 1.51916 0.87156 1.23951 0.25593n 0.89882 0.98272n

+31.78 + 5.78 + 33.05 + 7.44 + 17.36 - 1.80 + 7.92 - 9.61

9 32.88 9 33.78 9 32.45 9 33.14 9 34.96 9 35.30 9 30.67 9 31.59

13 15.47 24.57 13 15.90 15.21 13 13.39 13.05 13 17.68 13 16.76

15.02 14.57 15.55 13.22 17.22

34 47 34 20 34 25 34 7

1.56560 1.56550n 1.56550n 1.56540n

+31.13 +37.71 +42.34 +4.40

1.59673 1.59653 1.60331 1.60311 1.60794 1.60784 1.56990 1.56980

+39.51 +39.49 +40.12 +40.10 +40.55 +40.53 +37.15 +37.14

-~~1.15~~ -1.05 -.03 -~~1.22~~ -1.53 -.07 -.34 -1.11 - 1 -.07 -.91 -.11

-.44 -.49 -.84 -.92 -.90 -.97 -.79 -.85

+ 37.92 + 38.97 + 38.04 + 39.11 + 39.31 + 39.55 + 36.29 + 36.18

13 53.39 53.54 13 53.94 54.32 13 52.70 52.60 13 53.97 52.94

44.3 46.2 46.3 47.5

9.1 9.2 7.4 8.1 6.4 6.3 6.45 5.4

9.1 7.9 6.4 5.9

- 16 17.08 9.16 22.33 - 16 9.21 7.20 22.94 - 16 9.82 7.80 31.02 - 16 8.19 6.11 22.76

+ 1.92 -18.66 22.46 + 2.01 23.32 + 2.02 30.90 + 2.08 21.73

- 21.90 - 23.80 20.56 - 23.90 20.66 - 25.10 21.86

31.06 22.40 31.00 23.13 31.80 20.96 31.21 22.24

4³

δ Orionis.

h m sec.
5 25 37

− 0° 24′

z = + 42° 47′
+.68

Sin δ 7.84393n
Cos δ 9.99999
.11678
.11677

1874 s
α 34.255
δ −23 40.68
+3.067
+2.961

1874			s			′′	
Feb.	9	25	34.72		23′	40.3	
	14		34.65	−.07		40.6	+.3
	19		34.58	.07		40.8	.2
	24		34.51	.07		41.0	.2
Mar.	1		34.43	.08		41.1	.1
	6		34.35	.08		41.2	.1
	11		34.27	.08		41.2	.0
	16		34.19	.08		41.2	.0
	21		34.10	.09		41.2	.0

corr α =
corr δ =
tang δ = −.01 1.00
s
I = 2.06
K = −.015

× 1874 Feb. 14 +.25		× Feb. 17 +.29		× Feb. 18 +.28		× March 5 +.13		× 1874 March 8 +.17		1875 Jan. 25 +.20	
+.104		+.240		+.205		+.140		+.144		+.200	
5 24 57.2	24 43.3	24 49.0	24 37.8	25 48.5	25 31.7	25 36.5	25 22.5	25 34.1	25 13.6	24 44.7	24 37.2
53.3	45.4	51.2	39.9	50.5	33.5	38.6	24.1	36.2	17.4	46.7	39.1
55.3	47.5	53.2	41.7	52.5	35.4	40.6	26.0	38.3	15.6	48.7	41.1
57.3		57.1		56.5		44.7		42.5		52.9	
25 1.5		59.4		58.7		46.7		44.6		55.0	
3.6		25 1.5		0 6		48.9		46.6		57.0	
5.5	25 26.4	3.5	25 21.0	2.7	26 19.7	50.9		48.6		59.0	
7.6	28.5	5.6	22.8	4.9	22.2	53.0		50.7		1.1	
11.8	30.6	9.6	25.2	9 0	25.0	57.0		54.8		5.1	
13.9		11.7		10 8		59.2		56.9		7.3	
16.0		13.8		13 0		1.2		59.0		9.4	
2790		3156		3077		4773		5123		3869	
240		300		300		60				240	
3 90	24 46.40	156	24 39.80	77	25 33.53	537 3	25 24.20		25 17.53	626 9	24 39.13
25 3.545	25 28.50	25 1.418	25 23.00	26 0.700	26 22.30	25 48.845		25 46.573		24 56.991	
3 530	+31.13	1.403	+33.13	0.685	−26.18	48.830	−14.51	46.558	−12.32	56.976	+41.22
25 34.65	− 00	25 34.6×0	00	25 34.59	00	25 34.37 6	00	25 34.32 1	00	25 38.23	00
−31.12		− 33.20		+ 26.09		+14.487		+ 12.235		− 41.25	
	−0.40		−0.35		−0.34		−0.11		−0.06		−0.91
+ 31.10	25 34.26	+ 33.17	34.18 8	− 26.15	34.17	− 14.52	34.21	− 12.31	34.18	+ 41.22	37.29
− .00		− .00	8	− .00		− .00		− .00		− .00	
−0.40 +2.667 ~~+2.467~~		−0.35 +2.717		−0.34 +2.727		−0.14 2.957		−0.06 +3.007		−0.91 ~~+2.457~~	
+ 30.70		+ 32.82		− 26.49		− 14.63		− 12.37		+ 40.31	
25 3.53	16 6.44	25 1.40	6.25	26 0.68	8.18	25 48.83	8.79	25 46.56	16 8.81	24 56.98	×7 21.47
	−7 30.98		−7 31.33		−7 30.06		−7 30.28		−7 30.12		−16 10.29
25 34.23	− 2.0	25 34.22	− 2.0	25 34.19	− 2.0	25 34.20	− 2.0	25 34.19	− 2.0	25 37.29	− 2.2
37.297	−0.10	37.287	+0.00	37.257	+0.10	37.267	+0.50	37.257	+0.50		−3.30
−0	23 39.52		23 39.58		23 40.14		23 40.57		23 40.43		24/3 37.26

s +18.14	−24.96	+21.62	−21.54/8	+27.17	−21.60	+24.64		+29.04		+17.86
35		35		35		35		35		25
Hg = −′ 3.60		−3.04		−3.07		−3.22		−3.23		−3.43
2 38.1	3 35.9	2 34.0	3 31.5	2 29.1	3 34.9	2 33.0		2 29.2		4/3 48.9
31.9	29.5	24.9	23.0	18.0	22.5	25.7		20.8		47.9
′ 70.0	65.4	58.9	54.5	47.1	57.4	58.7		50.0		96.8
37 35.00	38 32.70	37 29.45	38 27.25	37 23.55	38 28.70	37 29.35		37 25.00		28/29 48.40
1.25864	1.39724n	1.33486	1.33325n	1.43409	1.33445n	1.39164		1.46300		1.25188
1.37541	1.51401n	1.45163	1.45002n	1.55086	1.45122n	1.50841		1.57977		1.37739
+23.74	−32.66	+28.29	−28.19	+35.55	−28.26	+32.24		+38.00		+23.84
37 58.74	38 0.04	37 57.74	37 59.06	37 59.10	38 0.44	38 1.59		38 3.00		30/29 12.24
− 0° 15′ 10.39′′	11.69	15 9.39	10.71	15 10.75	12.09	15 13.24		15 14.65		7/6 23.89
11.04		~~9.55~~ 10.05		11.42						
+42 45 7	46 5			44 55	46 1					
1.72570	1.72600									
+1927		+2565		+3004		+2054		+969	1.73569	+2966
1.74497	1.74527	1.75136	1.75165	1.75574	1.75600	1.74624	1.74654	1.73539	~~46~~ 1.73538	1.75536 1.75566
−55.39	−55.62	−56.41	−56.45	−56.98	−57.02	−55.75	−55.79	−54.37	−54.41	−56.92 −56.97
+.01 +.20	+.03	+.02 +.22	+.02	+.04 +.23	+.02	+.03 ~~+10~~		+.04 ~~+10~~		+.01 ~~−.33~~
+.16	+.21	+.17	+.24	+.17	+.24	+.17 +.20		+.17 +.21		−.67 −.66
−55.42	−55.38	−56.22	−56.19	−56.77	−56.76	−55.55		−54.16		−57.68
16 5.81	7.07	16 5.61	6.90	16 7.52	8.85	16 8.79		16 8.81		87 21.47
23 40.6		40.7		40.8		41.2		41.2		34.4
−7 34.8	33.5	35.1	33.8	33.3	32.0	~~33~~ 32.4		32.4		−16 12.9
−7 35.1		34.5		32.6		32.4		32.9		−16 12.9
−7 31.07		−7 31.31		−7 30.33	32.41	−7 30.40	32.58	−7 30.48	32.67	−16 9.61 11.94
− 2.04	23 39.02	− 2.06	39.18	− 2.98	+3.06 39.83	− 2.18	40.87	− 2.19	40.58	− 2.33 36.71
− 0.10	40.28	0.00	40.48	+ 0.10	41.16	+ 0.50	+3.46	+ 0.50	+3.46	− 3.30 −0.34
−7 33.21	33.11 +2.86	33.57	33.57 +2.96	32.31		32.08		32.17		−16 15.24
	31.65		39.82		40.50		40.47		40.98	36.71
	36.69		36.86		37.54		37.91		38.02	

1875						
Jan	20	25 38.26		23 33.9		
	25	38.23	−.03	34.4	+.5	
	30	38.19	.04	34.8	.4	
Feb.	4	38.14	.05	35.2	.4	
	9	38.09	.05	35.5	.3	
	14	38.03	.06	35.8	.3	
	19	37.97	.06	36.0	.2	
	24	37.90	.07	36.2	.2	
Mar.	1	37.82	.08	36.3	.1	

1875
α 37.322
δ −23 37.72
+3.067
+2.957

log 9.99999
.12552
0.12551

+28 −.06 Feb. 1 | +24 Feb. 2 | +.31 Feb. 13 | +30 +12 Feb. 14 | +.00 Feb 24

+1.55 | +2.10 | +2.87 | +4.10 | −0.36

24 37.0 24 34.9 | 24 35.9 24 24.5 | 25 22.5 25 9.9 | 25 21.5 25 7.2 | 25 10.2 25 8.8
39.0 | 38.0 26.6 | 24.7 11.7 | 23.4 9.3 | 12.4 11.2
41.1 | 40.0 28.8 | 26.9 13.8 | 25.4 11.4 | 14.2 13.3
45.1 | 44.2 | 30.8 | 29.7 | 18.4
47.2 | 46.3 | 32.9 | 31.6 | 20.4
49.3 | 48.3 | 34.8 | 33.8 | 22.5
51.3 | 50.4 25 12.7 | 37.0 26 0.0 | 35.9 25 37.2 | 24.7 25 49.0
53.4 | 52.4 14.9 | 39.0 2.0 | 37.8 38.4 | 26.6 50.9
57.8 | 56.5 16.6 | 43.0 4.1 | 41.9 | 30.7 63.0
59.7 | 58.5 | 45.1 | 43.9 | 32.8
1.7 | 0.7 | 47.2 | 46.0 | 34.8

4826 | 4712 | 3839 | 3709 | 2477
60 | 60
5426 24 34.90 | 5312 24 26.63 | 25 11.80 | 25 9.30 | 25 11.10
24 49.327 | 24 48.291 25 14.78 | 25 34.900 26 2.03 | 25 33.718 25 37.80 | 25 22.518 25 50.97
49.312 +48.63 | 48.276 +49.82 | 34.885 +3.03 | 33.703 +4.03 | 22.503 +15.37
25 38.17 00 | 25 38.16 00 | 25 38.04 00 | 25 38.03 00 | 25 37.90 0 0
−48.86 −.06 | −49.88 | −3.16 | −4.33 +.12 | −15.40
−0.85 | −0.84 | −0.72 | −0.71 | −0.58
+ 48.63 25 37.03 | + 49.83 37.26 | + 3.03 37.20 | + 4.10 37.14 | + 15.41 37.29
− .00 | − .00 | − .00 | − .00 | + .00
−0.85 | −0.84 | −0.72 | −0.71 | −0.58
+ 47.78 | + 48.99 | + 2.31 | + 3.39 | + 14.83
24 49.31 7 20.69 | 24 48.28 21.95 | 25 34.88 23.20 | 25 33.70 22.86 | 25 22.50 26.18
−16 11.24 | −16 10.93 | −16 9.19 | −16 9.59 | −16 7.93
25 37.09 −2.2 | 25 37.27 −2.2 | 25 37.19 −2.2 | 25 37.09 −2.2 | 25 37.33 −2.3
−2.70 | −2.60 | −1.90 | −1.90 | −1.50
23 36.83 | 23 37.68 | 23 36.49 | 23 36.55 | 23 37.91

+14.43 | +21.66 −26.44 | +23.10 −27.13 | +24.42 −4.08 | +11.42 −28.45
25 | 25 | 25 | 25 | 25
−3.55 | −3.57 | −3.73 | −3.75 | −3.87
3 48.9 4 58.2 | 3 41.8 4 46.0 | 3 41.1 4 47.7 | 3 39.7 4 15.9 | 4 0.2 0 54.1
54.6 4.3 | 46.9 48.9 | 43.6 49.0 | 40.4 16.6 | 8.8 2.3
1035 1225 | 887 949 | 847 967 | 801 325 | 90 1164
28 51.75 30 1.25 | 28 44.35 29 47.45 | 28 42.35 29 48.35 | 28 40.05 29 16.25 | 29 4.50 29 58.20

1.15927 | 1.33566 1.42226n | 1.36361 1.43345 | 1.38775 0.61066 | 1.05767 1.45408n
1.08478 | 1.46116 1.54777n | 1.48912 1.55896 | 1.51326 0.73617 | 1.18318 1.57959n
+19.27 | +28.92 −35.30 | +30.84 −36.22 | +32.60 −5.45 | +15.25 −37.78
29 11.02 | 29 18.27 29 12.15 | 29 13.19 29 12.13 | 29 12.65 29 10.80 | 29 19.75 29 20.22

−0° 56′ 22.67″ | 6 24.92 6 23.80 | 6 24.84 23.78 | 6 24.30 22.45 | 6 31.40 31.87
24.36 | 24.31 | 23.37 | 31.63
+42 44 56 45 59 | 45 16 46 10
1.72570 1.72600 | 1.72580 1.72600
+3471 | +3117 | +3778 | +4239 | +452
1.76041 1.76071 | 1.75687 1.75717 | 1.76348 1.76378 | 1.76809 1.76839 | 1.73032 1.73052
−57.60 −57.64 | −57.13 −57.17 | −58.01 −58.05 | −58.63 −58.69 | −53.74 −53.77

+.01 −.21 + 1 | +.02 −.44 +.03 | +.03 −.86 +.04 | +.03 −.82 + 0 | +.01 −.79 +.04
−.43 −.42 00 | −.41 −.53 | −.78 −1.01 | −.78 −.90 | −.94 .74 −1.15 .90
−58.02 −57.64 | −57.52 −57.67 | −58.76 −59.02 | −59.38 −59.59 | −54.47 −54.63
7 20.69 | 7 22.44 21.47 | 7 23.60 22.80 | 7 23.68 22.04 | 7 25.87 26.50
23 35.0 | 35.1 | 35.8 | 35.8 | 36.2
−16 14.3 | 12.7 13.6 | 12.2 13.0 | 12.1 13.8 | 10.3 9.7
−16 14.3 | 13.1 | 12.6 | 12.9 | 10.0
−16 12.02 37.82 | −16 11.08 38.54 | −16 9.21 37.24 | −16 9.82 37.95 | −16 8.19 38.19
− 2.41 14.43 | − 2.42 37.50 | − 2.53 36.44 | − 2.55 36.31 | − 2.63 36.88
− 2.70 + .26 | − 2.60 13.50 + .36 | − 1.90 11.74 + 1.06 | − 1.90 12.37 + 1.06 | − 1.50 10.82 + 1.46
17.13 37.82 | 16.10 38.05 | 13.64 36.84 | 14.27 37.13 | 12.32 38.50

α Leporis.
5^h 27^m 13^sec
− 17° 55′
g = + 60° 18′
Sin g = +.87

Sin δ 9.48803n
cos δ 9.97841
:1.678
.09519

1875
α 27 13.09
δ 54 47.77
dα/dt + 2.645
dδ/dt + 2.168

l. cos δ 9.97841
l. b .12552
l. b′ .10393

cos α =
cos δ =
tang δ = −.32
I = 2.16 s
K = −.016 s

1874
Feb. 14
+.107
5 26 26.7 26 53.7
29.0 55.6
31.3 58.0
35.7
37.8
40.0
42.0
44.3
48.6
30.8
52.8
4390

26 39.909 26 55.77
39.893
+ 31.11
− .03
− 0.48 +2.165
+ 30.60
26 39.89
26 10.49
13.135

s
−15.86
5
26 + 11.300
3 47.1
40.7
87.8
8 43.90
1.20030n
1.29549n
−19.75
8 24.15

−17 45 35.80
+60 16 18
2.00211
+1930
2.02141
−10510
− 1
−.03 ~~+09~~
+22 +19
−1 44.92
−17 47 20.72
− 7 31.07 33.68
− 2.61 +7.53
+ 4.~~48~~66
−7 29.02 54 49.74
49.74
46.87

Feb. 17
+2.40
26 24.9 26 48.0
27.0 51.7
29.0 53.9
33.5
35.8
37.8
40.0
42.3
46.5
48.7
50.8
4163

37 26 57.20
26 37.845
37.829
+ 33.14
− .08
− 0.44 +2.205
+ 32.65
26 37.83
26 10.48
13.125

3
−18.36
5
−3.04
3 43.7
34.8
78.5
8 39.25
1.~~26384~~n
1.35586n
2.2994
−22.86
8 16.77
2.228

45 33.93
16 11
2.00208
+2568
2.02776
−10660
− 2
−.03 ~~+11~~
+25 +22
−1 46.40
47 20.33
−7 31.51 34.15
− 2.64 +7.77
+4.90
29.25 49.58
49.58
46.71

1874
Feb. 18
+.205
27 24.0 27 17.5 26 48.4
26.2 20.0 52.5
28.4 22.3 52.9
32.8
35.0
37.2
39.1 27 54.7
41.5 57.1
45.7 59.7
47.9
50.2
4080

27 37.091 27 19.93 26 50.60
27 57.17
37.075
+ ~~23.47~~ −26.15
− .07
− 0.42 +2.225
− 26.64
27 37.07
27 10.43
10.45 13.075

+17.16 −20.08
5
−3.07
3 8.8 3 56.1
57.4 44.1
126.2 110.2
8 3.10 8 50.10
1.23452 1.30276n
1.32971 1.39795n
+21.37 −25.00
8 24.47 8 25.10

45 36.12 36.75
36.48
15 35 16 22
2.00190 2.00214
+3006
2.03196 2.03220
−10760 −10770
− 2 − 2
−.04 +19 −.06
+.21 +27
−1 47.45 −1 47.51
47 23.57 24.26
−7 30.33 33.00
− 2.67 +7.85
+4.98
28.02 51.59
52.28
51.93
49.06

1875
Jan. 25
+.200
26 20.0 26
22.0
24.2
28.6
30.7
33.0
35.1
37.2
41.6
43.8
46.0
3622

26 32.927
32.911
+ 41.22
− .06
− 0.99
+ 40.17
26 32.91
27 13.08

−17.69
55
−3.43
4 57.0
54.8
111.8
59 55.90
1.24773n
1.35166n
−22.47
59 33.43

36 45.08
16 8
2.00205
+2967
2.03172
−10760
− 3
−.04 ~~−.36~~
−.69 −.73
−1 48.36
38 33.44
−16 9.61 12.59
− 2.98 +3.26
+0.39 ~~+1.38~~
−16 12.20 45.~~8~~6~~4~~
45.~~8~~6~~4~~

Feb. 1
+.165
26 — 26 41.5
— 44.2
— 46.6
—
23.2 25.36
27.6 .44
29.7 .38
34.0 .36
36.2 .40
38.5 .54

26 25.413 26 44.10
25.397
+48.63
− .05
− 0.92
+ 47.66
26 25.40
27 13.06

−18.68
55
−3.55
4 53.1
57.0
110.1
59 55.05
1.27138n
1.37531n
− 23.73
59 31.32

36 42.97
+3475
2.03680
−108.80
− 3
−.05 −.29
−.54 −.59
−1 49.42
38 32.39
−16 12.02 15.10
− 3.08 +4.25
+ 1.38 + ~~1.53~~
−16 13.7~~4~~2 46.1~~7~~
11
~~46.17~~
46.11

Feb. 2
+.210
26 11.2 26 2.3
13.4 4.2
15.6 6.0
19.9
22.0
24.3
26.4 26 41.4
28.6 43.2
32.8 45.2
35.0
37.3
2665

26 24.227 26 4.17
26 43.27
24.211
+ ~~48.63~~ 49.83
− .07
− 0.91
+ 48.85
26 24.21
27 13.06

+20.06 −19.04
55
−3.57
4 7.6 0 57.8
11.4 0.5
19.0 118.3
59 9.50 59 59.15
1.30233 1.27964n
1.40626 1.38360n
+25.48 −24.19
59 34.98 59 34.96

−17° 36 46.63 46.61
46.62
15 21 16 12
2.00182 2.00208
+3119
2.03301 2.03327
−107.90 −108.00
− 2 − 2
−.06 −29 −.05
−.46 −.~~55~~ .01
−1 48.44 −1 48.08
38 35.07 34.69
−16 11.08 14.18
3.10 +4.40
+ 1.53
−16 12.65 47.72
47.34
47.53

Feb. 14

+.410

26 (56.7 / 58.9) 27 . 0.2

2.4

27 09 4.8

5.7

7.4

9.7

11.8 27 37.6

140 40.2

18.4 42.9

20.4

227

226.6

120

106.6 27 2.47

27 9.691 27 40.23

9.675

+ 4.10

− .13

− 0.75

+ 3.22

27 9.67

27 12.89

13.022

+ 7.22 − 30.54

55

− 3.75

4 25.21 0 11.8

25.4 13.9

50.6 25.7

59 25.30 0 12.85

0.85854 1.48487n

0.96247 1.58880n

+ 9.17 − 38.80

59 35.47 34.05

36 47.12 45.70

46.41

+ 4241

2.04423 2.04449

− 11070 − 11080

− 5 − 5

− 1 −.55 −.14

.01

−.92 −.04

−1 − 51.68 −1 − ~~51.93~~ 51.03

38 38.80 36.73

−16 9.82

3.26 13.08

− +2.83 +5.70

16.25 47.05

46.98

48.01

1874phae.proj.1471.

ε Orionis
h m sec
5 29 52
− 1° 17′
ϑ = + 43° 40′
+ 69

Sin δ 8.35018n
Cos δ 9.99989
.11678
.11667

1874 s
α 49.247
δ −17 41.9
dα/dτ +3.044
dδ/dτ +2.623

1874

Feb.	9	29m 49s.73		16′	64″.0	
	14	49.67	−.07		64.3	+.3
	19	49.60	.07		64.5	.2
	24	49.53	.07		64.7	.2
Mar.	1	49.45	.08		64.9	.2
	6	49.37	.08		65.0	.1
	11	49.29	.08		65.0	.0
	16	49.20	.09		65.0	.0
	21	49.11	.09		65.0	.0

1875
α 52.291
δ −17 15.7
dα/dτ +3.044
dδ/dτ +2.618

Cos δ 9.99989
C .12552
C′ 0.12541

× 1874 +25 Feb. 14 | +29 Feb. 17 + | × 1874 +28 Feb. 18 | 1875 +20 Jan. 25 | +28 −.06 Feb. 1 | +24 Feb. 2

+.107 | +.240 | +.205 | +.209 | +.155 | +.210
5 29 6.3 28 54.5 | 29 4.2 29 0.3 | 30 3.4 29 48.8 | 28 57.6 28 54.8 | 28 52.3 28 36.3 | 28 51.0 28 32.2
8.3 56.4 | 6.2 | 5.5 50.9 | 29 1.7 57.4 | 54.3 38.5 | 53.0 33.9
10.4 58.0 | 8.2 | 7.7 53.0 | 3.7 59.1 | 56.4 40.8 | 55.0 36.0
14.5 | 12.1 | 11.6 | 7.8 | 29 0.2 | 59.1
16.6 | 14.1 | 13.7 | 9.9 | 2.4 | 1.3
18.7 | 16.5 | 15.8 | 12.0 | 4.5 | 3.3
20.7 29 38.4 | 18.6 29 39.7 | 17.8 30 39.5 | 14.0 | 6.6 29 23.9 | 5.4 29 20.5
22.7 40.4 | 20.7 41.5 | 20.0 41.7 | 16.0 | 8.8 | 7.4 22.6
26.8 42.3 | 24.7 43.1 | 24.1 43.7 | 20.2 | 12.8 | 11.5 24.7
29.0 | 26.4 | 26.1 | 22.3 | 14.9 | 13
31.0 | 28.8 | 28.2 | 24.4 | 17.0 | 15.5

2050 | 1816 | 1739 | 1916 60 | 2302 180 | 2764 240

28 56.30 | 29 0.30 | 29 60.90 | 231.6 28 57.10 | 502 28 38.60 | 364 28 34.03 33.70
29 18.636 29 40.37 | 29 16.509 29 41.43 | 30 15.809 30 41.63 | 29 11.964 | 29 4.564 29 23.90 | 29 3.309 29 22.60
18.624 +31.13 | 16.494 +33.13 | 15.794 −26.18 | 11.949 +41.23 | 4.549 +48.64 | 3.294 +49.82
29 49.67 −01 | 29 49.63 −.01 | 29 49.61 −.01 | 29 52.20 00 | 29 53.15 −01 | 29 53.15 00
− 31.05 | − 33.14 | + 26.18 | − 41.25 | − 48.60 −.06 | − 49.86
−0.42 | −0.38 | −0.36 | −0.91 | −0.86 | −0.86
+ 31.11 29 49.32 | + 33.18 49.23 | − 26.15 49.24 | + 41.22 52.27 | + 48.63 52.26 | + 49.83 52.25
− .00 | − .00 | − .00 | − .00 | − .00 | − .00
−0.42 +2.624 | −0.38 +2.664 | −0.36 +2.684 | −0.91 ~~+2.134~~ | −0.86 | −0.86
+ 30.69 | + 32.79 | − 26.51 | + 40.31 | + 47.77 | + 48.97
29 18.64 2 9 31.62 | 29 16.49 30.43 | 30 15.79 9 32.74 | 29 11.95 0 45.70 | 29 4.55 44.99 | 29 3.29 46.59 +
−7 30.98 | −7 31.33 | −7 30.06 | −16 10.29 | −16 11.24 | −16 10.93
29 49.331 −2.0 | 29 49.28 −2.0 | 29 49.28 −2.0 | 29 52.26 −22 | 29 52.32 −22 | 29 52.26 −2.2
52.374 +010 | 52.324 +020 | 52.324 +030 | ~~324~~ −320 | −250 | −2.40
−1 5 17 4.50 | 17 3.56 | 17 4.50 | 17 1.39 | 17 0.93 | 17 ~~7~~1.2 2

s
+22.34 −21.73 | +16.21 −24.92 | +24.91 −25.82 | +14.86 | +25.96 −19.34 | +29.28 −19.29
30 | 30 | 30 | 20 | 20 | 20
r ″ = −3.00 | −3.04 | −3.07 | −3.43 | −3.55 | −3.57
0″ 56.2 1 54.9 | 0 4.4 1 57.5 | 0 54.2 1 3.0 | 2 15.5 | 1 56.1 2 57.5 | 1 54.6 2 58.9
49.9 48.1 | 55.4 48.1 | 43.4 51.3 | 14.8 | 1.0 2.2 | 58.7 3.9
106.1 103.0 | 119.8 105.6 | 97.6 114.3 | 30.3 | 117.1 119.7 | 113.3 122.8
30 53.05 31 51.50 | 29/30 59.90 31 52.80 | 30 48.80 31 57.15 | 22 15.15 | 21 58.55 22 59.85 | 21 56.65 23 1.40
1.34908 1.33706n | 1.20978 1.39655n | 1.39637 1.41196n | 1.17202 | 1.41430 1.28646n | 1.46657 1.28533
1.46575 1.45373n | 1.32645 1.51322n | 1.51304 1.52863n | 1.29743 | 1.53971 1.41187n | 1.59298 1.41074
+29.22 −28.43 | +21.21 −32.60 | +32.59 −33.78 | +19.84 | +34.65 −25.82 | +39.17 −25.78
31 22.27 31 23.07 | 31 21.11 31 20.20 | 31 21.39 31 23.37 | 22 34.99 | 22 33.20 22 34.03 | 22 35.82 22 35.62

−1° 8′ 33″.92 34.72 | 8 32.76 31.85 | 8 33.04 35.02 | 59 46.64 | 59 44.85 59 45.68 | 59 47.47 47.27
34.32 | 32.30 | 34.03 | | 45.7626 | 47.37

+43 38 25 39 23 | | 38 31 39 29 | 38 27 | 38 10 39 12 |
1.73920 1.73950 | | | 1.73920 1.73940 | |
+1938 | +2576 | +3013 | +2972 | +3486 | +3123
1.75858 1.75888 | 1.76496 1.76526 | 1.76933 1.76963 | 1.76892 1.76912 | 1.77406 1.77426 | 1.77043 1.77063
−57.36 −57.40 | −58.20 −58.25 | −58.79 −58.83 | −58.74 −58.76 | −59.44 −59.47 | −58.94 −58.97

+.020 +.020 | +.010 +.030 | +.030 +.080 | +.010 | +.041 +.020 | +.041 +.020
+05 +.08 +11 | +.07 +.10 +.13 | +.06 +.09 +.13 | −32 −.32 | −.22 −.27 −.33 | −.21 −.26 −.33
− 57.31 − 57.29 | −58.13 − 58.12 | − 58.73 − 58.70 | − 59.06 | − 59.65 − 59.80 | − 59.14 − 59.30
9 31.23 32.01 | 9 30.89 29.97 | 9 31.77 33.72 | 0 45.70 | 0 44.50 45.98 | 0 46.61 46.57
17 4.3 | 4.4 | 4.5 | 16 58.4 | 59.1 | 59.2
−7 33.1 32.3 | 33.5 34.4 | 32.7 ~~31.8~~ 30.8 | −16 12.7 | 14.6 13.6 | 12.6 12.6
−7 32.7 | 33.9 | 31.8 | −16 12.7 | 14.1 | 12.6
−7 31.07 17 4.27 | −7 31.51 4.28 | −7 30.33 33.891 | −16 9.61 17 0.87 | −16 12.02 1.46 | −16 11.08 2.55
− 2.07 33.14 5.05 | − 2.09 33.60 3.36 | − 2.11 32.44 35.846 | − 2.36 1.97 | − 2.44 14.46 2.44 | − 2.46 2.51
+ 0.10 +2.72 | + 0.20 +2.82 | + 0.30 +2.92 | − 3.20 −.58 | − 2.50 +.12 | − 2.40 13.54 +.22
−7 33.04 4.66 2.04 | −7 33.39 3.82 1.20 | −7 32.14 4 4.868 2.26 | 15.17 0.87 | 16.96 ~~1.46~~ 1.95 | 18.94 5 ~~2.46~~ 2.53

1875

		29ᵐ	5ˢ		16′	″
Jan.	20	29	53.23		16	57.9
	25		53.20	-.03		58.4 +.5
	30		53.17	.03		58.9 .5
Feb.	4		53.13	.04		59.3 .4
	9		53.08	.05		59.6 .3
	14		53.02	.06		59.9 .3
	19		52.96	.06		60.2 .3
	24		52.88	.08		60.4 .2
Mar.	1		52.80	.08		60.5 .1
						~~60.5~~

cos α =
cos δ =
tang δ = −.02 1.00
8
I = 2.06
5
K = −.015

	1874.0 α	δ	1875.0 α	δ
	49.33		52.26	
	28		32	
	28		26	
			26	
			25	
			.34	
	49.297		52.282	
	.247	4.19	.291	1.57
	+.050		−.009	

+.31 Feb. 13 +.287				+.30 +.12 Feb. 14 +.410				+.00 Feb. 24 −.035			
29	37.9	29	23.1	29	36.7	29	23.5	29	25.1	29	13.8
	39.6		25.4		38.6		25.7		27.2		15.6
	41.8		27.8		40.6		27.5		29.3		18.4
	45.8				44.9				33.4		
	48.0				46.9				35.3		
	50.0				49.0				37.6		
	51.8	30	3.8		51.0	30	8.0		39.6	29	58.2
	54.0		6.0		53.1		10.6		41.7		0.4
	58.3		8.7		57.0		12.8		45.8		2.0
	0.3		10.9		59.1				47.9		
	2.3 ?				1.1				50.0		
	43 0 0				47 8 0				41 2 9		
	120				60						
	5300	29	25.43		5380	29	25.57			29	15.93
29	50.006	30	7.40	29	48.909	30	10.47	29	37.536	30	0.20
	49.985		+3.03		48.894		+4.04		37.521		+15.37
29	53.03		−.01	29	53.02		−.01	29	52.88		0.0
	−3.05				−4.13		+.12		−15.36		
			−0.74				−0.73				−0.59
±	3.03 ~~2.29~~		52.27	+	4.10		52.31	+	15.41		52.30
−	.01			−	.01			+	.00		
	−0.74				−0.73				−0.59		
+	2.28			+	3.36			+	14.82		
29	49.98	0	49.57	29	48.89		47.33	29	37.52		50.25
		−16	9.19			−16	9.59			−16	7.93
29	52.26		−2.3	29	52.25		−2.2	29	52.34		−2.4
			−17.0				−17.0				−12.0
		17	2.76			17	0.82			17	1.78
	+24.57		−17.40		+23.34		−21.56		+21.61		−22.66
20				20				20			
	−3.73				−3.75				−3.87		
2	2.6	2	59.8	2	3.2	3	3.4	2	8.3	3	8.8
	6.7		1.8		4.1		3.1		18.9		17.4
	9.3		121.6		7.3		6.5		27.2		26.2
22	4.65	23	0.80	22	3.65	23	3.25	22	13.60	23	13.10
	1.39041		1.24055n		1.36810		1.33365n		1.33465		1.35526n
	1.51582		1.36596n		1.49351		1.45906n		1.46006		1.48067n
	+32.80		−23.21		+31.19		−28.78		+28.84		−30.25
22	37.45	22	37.59	22	34.84	22	34.47	22	42.44	22	42.85
59	49.10		49.24	59	46.49		46.12	59	54.09		54.50
	49.17				46.30				54.29		
								38	26	39	25
									1.73920		1.73950
	+37.88				+42.46				+468		
	1.77708		1.77728		1.78166		1.78186		1.74388		1.74418
	−59.85		−59.88		−60.49		−60.51		−55.45		−55.49
	+.08 −.53		+.07		+.03 −.52		+.02 −.51		+.02 −.49		+.02
	−.44		−.63		−.42		−.63		−.40		−.58
−	60.29	−	60.51	−	60.91		−61.14	−	55.85		−56.07
0	49.39		49.75	0	47.40		47.26	0	49.94		50.57
	59.8				59.9				60.4		
	10.5		10.2		12.5		12.6		10.5		9.8
	10.3				12.6				10.1		
−16	9.21		2.87	−16	9.82		1.50	−16	8.19		2.00
−	2.57	11.78	3.23	−	2.58	12.40	1.36	−	2.67	10.86	2.63
−	1.70		+0.92	−	1.70		+.92	−	1.20		+1.42
	13.48		3.05		14.10		1.43		12.06		2.31

σ Orionis.
h m sec
5 32 28
-2° 40'
ζ = +45° 3
+.71

sin δ 8.66769n
cos δ 9.99953
.11578
.11631

1874 s
α 25.240
δ -40 29.10
dα/dt +3.009
dδ/dt +2.384

1874

		α			δ	
Feb.	9	32m 25.74s		40	29.2"	
	14	25.68	-.06		29.5	+.3
	19	25.61	.07		29.8	.3
	24	25.54	.07		30.0	.2
Mar.	1	25.46	.08		30.2	.2
	6	25.38	.08		30.3	.1
	11	25.30	.08		30.3	.0
	16	25.21	.09		30.3	.0
	21	25.12	.09		30.3	.0

1875
α 28.249
δ -40 26.71
dα/dt +3.009
dδ/dt +2.385

l cos δ 9.99953
l C .12552
l C' .12505

× 1874 | × | + | × 1874 | 1875
+.25 Feb. 14 | +.29 Feb. 17 | +.28 Feb. 18 | +.26 Feb. 26 | +.20 Jan. 25 | Feb. +.26 1 -.06
+.107 | +.240 | +.205 | +.223 | +.200 | +.150
5 31 42.4 31 33.0 | — 31 35.6 | 32 39.5 32 28.3 | 32 32.9 32 32.0 | 31 35.4 31 35.0 | 31 28.3 31 18.3
44.5 34.6 | — 37.1 | 41.6 29.9 | 34.8 33.7 | 37.7 36.7 | 30.2 20.2
46.4 36.3 | — 39.5 | 43.6 32.0 | 37.1 35.2 | 39.4 38.4 | 32.4 23.1
50.5 | 48.3 | 47.6 | 41.1 | 43.9 | 36.4
52.6 | 50.4 | 49.9 | 43.4 | 45.9 | 38.5
54.7 | 52.5 | 51.8 | 45.3 | 48.0 | 40.4
56.7 32 19.9 | 54.5 32 5.4 | 54.0 33 15.4 | 47.4 33 11.0 | 50.1 | 42.7
58.8 21.8 | 56.7 8.0 | 56.0 18.1 | 49.4 12.9 | 52.1 | 44.8 31 59.4
2.8 23.8 | — 10.0 | 0.7 20.9 | 53.5 15.9 | 56.3 | 48.9 2.0
5.0 | — | 2.2 | 55.5 | 58.4 | 50.9 5.0
7.0 | — | 4.3 | 57.7 | 0.4 | 53.0

4214 | 2624 | 3912 | 4981 | 4679 | 4465
180 | 180 | 60

6014 31 34.63 ? | 31 37.40 | 5712 32 30.07 | 32 33.63 | 5279 31 36.70 | 31 20.57
31 54.673 32 21.83 31 | 52.480 32 7.80 | 32 51.927 33 18.13 | 32 45282 33 13.26 | 31 47991 | 31 40591 32 2.13 33
54.658 +3113 | 52.465 +3313 | 51.912 -2618 | 45267 -1970 | 47976 +4123 | 40576 +48.64
32 25.68 -.01 | 32 25.643 -.01 | 32 25.62 -.01 | 32 25.510 -.01 | 32 29.17 -.01 | 32 29.12 -.01
-31.02 | -33.187 | +25.29 6 | +19.787 | -41.19 | -48.54 -.06
-0.44 | -0.39 | -0.38 | -0.26 | -0.92 | -0.87
+ 31.11 32 25.34 | + 33.17 25.19 ~~20~~ | - 26.14 25.34 | - 19.67 25.30 | + 41.22 28.28 | + 48.63 28.28
- .00 | - .01 | - .01 | - .01 | - .01 | - .01
-0.44 +2.569 | -0.39 +2.619 | -0.38 +2.629 | -0.26 +2.749 | -0.92 | -0.87
+ 30.67 | + 32.77 | - 26.53 | - 19.94 | + 40.29 | + 47.75
31 54.66 32 57.06 | 31 52.46 32 56.89 | 32 51.91 59.93 | 32 45.27 56.60 | 31 47.98 24 12.34 | 31 40.58 10.16
-7 30.98 | -7 31.33 | -7 30.06 | -7 30.61 | -16 10.29 | -16 11.24
32 25.37 3 - 2.0 | 32 25.23 - 2.1 | 32 25.38 - 2.0 | 32 25.33 - 2.1 | 32 28.27 - 23 | 32 28.33 - 22
28.379 +040 | 28.239 +060 | 28.389 +070 | 28.339 +100 | -290 | -220
-2 3 40 29.64 | 40 29.72 | 40 31.39 | 40 28.31 | 40 27.83 | 40 25.80

s
+20.04 -27.16 | +15.08 -15.32 | +21.86 -26.20 | +11.65 -27.98 | +11.29 | +20.02 -21.74
50. | 50 | 50 | 50 | 45 | 45
-3.00" | -3.04 | -3.07 | -3.13 | -3.43 | -3.55
4 21.7 0 23.9 | 4 28.5 0 8.5 | 4 24.7 0 26.4 | 4 33.6 0 23.8 | ∩ | 0 43.0 | 0 26.1 1 22.2
15.9 18.4 | 20.0 0.7 | 12.3 14.7 | 22.8 15.9 | 44.7 | 32.1 28.1
37.6 42.3 | 48.5 9.2 | 37.0 41.1 | 56.4 39.7 | 87.7 | 58.2 50.3
54 18.80 55 21.15 | 54 24.25 55 4.60 | 54 18.50 55 20.55 | 54 28.20 55 19.85 | 45 43.85 | 45 29.10 46 25.15
1.30190 1.43393n | 1.17840 1.18526n | 1.33965 1.41830n | 1.06633 1.44685n | 1.30146 1.33726n
1.41821 1.55024n | 1.29471 1.30157n | 1.45596 1.53461n | 1.18264 1.56316n | 1.05269 | 1.42651 1.46231
+26.19 -35.50 | +19.71 -20.03 | +28.57 -34.25 | +15.23 -36.57 | 1.17774 | +26.70 -28.99
54 44.99 54 46.65 | 54 43.96 54 44.57 | 54 47.07 54 46.30 | 54 42.43 54 43.28 | +15.06
45 58.91 | 45 55.80 45 56.16
-2°
31 56.64" 57.30 | 31 55.61 56.22 | 31 58.72 57.95 | 31 55.08 54.93
56.97 | 55.91 | 58.33 | 55.00 | 23 10.56 | 23 7.45 7.63 7.81
+45 1 51 2 53 | 2 0 2 52 | 2
1 56 | 41 2 37
~~1.76030 1.76060~~
1.76030 1.76060 | 1.76030 1.76050
+1945 | +2583 | +3018 | +2920 | +2976 | +3494
1.77975 1.78005 | 1.78613 1.78643 | 1.79048 1.79078 | 1.78950 1.78980 | 1.79006 1.79026 | 1.79524 1.79544
-60.22 -60.26 | -61.11 -61.15 | -61.73 -61.77 | -61.59 -61.63 | -61.67 -61.70 | -62.41 -62.44
.00 .00 | - .01 - .01 | - .01 .01 | - .01 - .01 | - .01 | - .01 - .01
+.02 +.14 +.041 | +.00 +.16 +.010 | +.02 +.16 +.031 | +.01 +.02 +.041 | +.00 -.05 -10 | +.02 -.10 +.02
+26 +.02 | +.31 +.01 | +.30 +.02 | +.04 +.00 | -.10 | -.05 -.15
-59.96 -60.23 | -60.81 -61.15 | -61.44 -61.75 | -61.56 -61.63 | -61.78 | -62.47 -62.60
32 56.60 57.53 | 32 56.42 57.37 | 33 0.16 32 59.70 | 32 56.64 56.56 | 24 12.34 | 24 10.92 10.41
40 29.5 | 29.7 | 29.8 | 30.1 | 40 23.8 | 29.5
-16 32.9 32.0 | 33.3 32.3 | 29.7 30.1 | 33.5 33.5 | -16 11.5 | 14.6 14.1
-7 32.5 | 32.8 | 29.9 | 33.5 | -16 11.5 | 14.3
-7 31.07 40 29.40 | -7 31.51 29.48 | -7 30.33 31.96 | -7 30.88 28.74 | -16 9.61 27.28 | -16 12.02 26.66
- 2.13 33.20 30.33 | - 2.15 33.66 30.43 | - 2.17 32.50 31.50 | - 2.22 33.10 28.66 | - 2.43 12.04 | - 2.52 27.15
+ 0.40 +2.79 | + 0.60 +2.99 | + 0.70 +3.09 | + 1.00 +3.39 | - 2.90 -.52 | - 2.20 14.54 +.18
-7 32.80 29.86 | -7 33.06 29.95 | -7 31.80 31.73 | -7 32.10 28.70 | -16 14.94 27.28 | 16.74 26.90
~~32.25~~ 27.47 | ~~32.34~~ 27.56 | ~~34.12~~ 29.34 | ~~31.05~~ 26.31 | ~~29.87~~

1875

Jan	20	32ᵐ	29ˢ20		40′	23″3	
	25		29.17	- .03		23.8	+ .5
	30		29.14	.03		24.3	.5
Feb.	4		29.10	.04		24.7	.4
	9		29.05	.05		25.1	.4
	14		28.99	.06		25.4	.3
	19		28.93	.06		25.7	.3
	24		28.85	.08		25.9	.2
Mar.	1		28.77	.08		26.1	.2

Corr α =
Corr δ =

tang δ = -.05 1.00

I = 2ˢ07

K = -ˢ015

Feb. 13	+.31			+.06 Feb. 24			
	+284				-.035		
32	13.5	32	3.4	32	1.1	31	50.7
	15.7		5.8		3.1		53.3
	17.8		7.7		5.3		55.2
	22.0				9.3		
	24.0				11.4		
	26.0				13.5		
	28.2	32	48.1		15.6	32	32.3
	30.1		50.4		17.7		34.1
	34.1		52.7		21.7		36.4
	36.2				23.8		
	38.4				25.9		
	2660				1484		
		32	5.63			31	53.07
32	26.000	32	50.40	32	13.491	32	34.27
	25.985		+3.03		13.476		+15.37
32	29.00		-02	32	28.85		00
	-3.02				-15.37		
			-0.75				-0.60
+	3.03		28.25	+	15.41		28.25
−	-01			+	.00		
	-0.75				-0.60		
+	2.267			+	14.81		
32	25.98		14.86	32	13.48		15.99
		-16	9.19			-16	7.93
32	28.24 5		-2.3	32	28.29		-2.4
			-1.30				-0.80
		40	27.65			40	27.12
	+20.37		-24.40		+20.42		-20.78
45				45			
	-3.73				-3.87		
0	29.9	1	31.5	0	34.0	1	28.3
	33.9		35.9		43.6		38.7
′	63.8		67.4		77.6		67.0
45	31.90	46	33.70	45	38.80	46	33.50
	1.30899		1.38739n		1.31006		1.31765n
	1.43464		1.51244n		1.43511		1.44270n
	+27.17		-32.54		+27.23		-27.71
45	69.07	46	1.16	46	6.03	45 6	5.79
23	10.72		12.81	23	17.68		17.44
	11.76				17.56		
				1	51	2	45
	+3794				+477		
	1.79824		1.79844		1.76507		1.76527
	-62.87		-62.87		-58.22		-58.25
	4 .01	−	.01		.00		.00
	+.02	-22	+.03		+.02	-20	-.02
	-.10		-.34		-.11		-.29
	-62.98		-63.21		-58.33		-58.54
24	13.70		16.02	24	16.01		15.98
	25.4				25.9		
	11.7		9.4		9.9		9.9
	10.5				9.9		
-16	9.21		26.85	-16	8.19		27.74
−	2.64	11.85	29.17	−	2.74		27.71
−	1.30	+1.08		−	0.80	10.95 -1.58	
	13.15		28.01	16	11.73		27.72

Aurigae

$5^h\ 36^m\ 13^{sec}$

+49° 46′

λ = −7 23

−.13

Sin δ 9.88276

Cos δ 9.81017
.11678
9.92695

1874 s
α 8.369
δ +46. 44.5
$\frac{d\alpha}{dT}$ +4.641
$\frac{d\delta}{dT}$ +2.052

1874

		m s		′ ″	
Feb	9	36 9.13		46 19.4	
	14	9.03	−.10	19.9	+5
	19	8.92	.11	20.4	5
	24	8.81	.11	20.7	3
Mar	1	8.69	.12	21.0	3
	6	8.57	.12	21.2	2
	11	8.44	.13	21.3	1
	16	8.30	.14	21.3	+0
	21	8.16	.14	21.2	−1

1875
α 13.011
δ +46 6.50
$\frac{d\alpha}{dT}$ +4.642
$\frac{d\delta}{dT}$ +2.045

Cos δ 9.81017
t.c .12552
t.c′ 9.93569

× 1874 +25 Feb. 14
+.107
5 35 18.7 | 35 14.2
21.8 | 16.7
24.9 | 19.6
31.4
34.6
37.8
41.0 | 35 52.7
44.1 | 55.7
50.6 | 58.7
53.8
57.0
41 57
35 16.83
35 37.791 | 35 55.70
37.767 +31.13
36 9.032 +.30
−31.256
−31.32 −0.65
36 8.55
+31.11
+ .13
−0.65 +3.991
+30.59 53 52.46
35 37.77 −7 30.98
+.4
36 8.36 −15.50
13.061 46 6.38
s
+20.96 −17.91
25
= 11 −3.00
3 45.9 | 4 19.7
45.1 | 19.5
91.0 | 39.2
28 45.50 | 29 19.60
1.32139 | 1.25310n
1.24834 | 1.18005n
+17.72 | −15.14
29 3.22 | 29 4.46
+49° 53 45.13 | 43.89
44.51
−7 23 43 | 23 8
0.87360n | 0.87300n
+1955
.89315 | .89255
+7.82 | +7.81
−.12 +14 | −.09
+.23 | +.26
+7.93 | +7.98
53 53.06 | 51.87
46 19.9
−7 33.2 | 32.0
−7 32.6
−7 32.0
−7 31.07 46 6.88
+ .39 30.68 5.65
− 15.50 −13.45
−7 46.18 6.28
46 8.33

× +21 Feb. 24
+.190
36 | 36 51.4
23.4 | 55.1
24.9 | 58.0
26.5
28.2
29.7
31.5
33.0
34.4
36.3
26 79
36 54.83
36 29.766
29.742 −21.18
36 8.820 +.25
+20.934
+20.868 −0.43
8.38
−21.16
+ .22
−0.43 +4.211
−21.37 53.76
36 29.74 −7 31.19
+.4
36 8.37 −16.30
13.011 46 6.67
25.07
~~+24.94~~
25
−3.12
4 24.8
22.9
47.7
29 23.85
1.39690n
1.32385n
−21.08
29 2.77
53 45.78
+3163
.90523 | .90463
+8.04 | +8.03
−.17 ~~+.07~~ +.14
+.31
+8.18
53 53.46
20.7
33.1
33.1
32.5
−7 31.40 6.46
+ .40 31.00
− 16.30 −14.25
−7 47.30 6.46
8.51

+ 1874 +26 Feb. 26
+.223
36 9.1 | 35 50.2
12.3 | 58.4
15.5 | 55.7
21.8
24.9
28.2
31.2 | 36 48.0
34.7 | 52.6
41.1 | 55.9
44.1
47.5
31 04
35 53.10
36 28.218 | 36 52.17
28.194 −19.70
36 8.776 +.31
+19.423
+19.367 −0.39
8.41
−19.64
+ .26
−0.39 +4.251
−19.80 53 52.82
36 28.19 −7 30.61
+.5
36 8.39 −16.40
13.031 46 6.31
+35.12 −23.95
25
−3.13
3 36.0 | 4 26.1
31.1 | 21.2
67.1 | 47.3
28 33.55 | 29 23.65
1.54555 | 1.37931n
1.47250 | 1.30626n
+29.68 | −20.24
29 3.23 | 29 3.41
53 45.12 | 44.94
45.03
23 54 | 23 4
0.87380n | 0.87300n
+2916
.90296 | .90216
+8.00 | +7.98
−.33 −.19 | −.14
+.04 | +.04
+7.71 | +7.88
53 52.83 | 52.82
20.8
32.0 | 32.0
32.0
31.4
−7 30.88 5.95
+ .40 30.48 5.94
− 16.40 −14.35
−7 46.88 5.95
8.00

1875 +20 Jan. 25
+.200
35 13.9 | 35 1.4
17.0 | 4.6
20.3 | 7.1
26.4 | 7
29.7
33.0
36.1
39.4
45.4
49.0
52.2
36 27
35 4.37
35 32.973
32.949 +41.23
36 14.40 +.24
−41.45
−41.51 −1.39
13.03
+ 41.23 ~~46.29~~
+ .24
−1.39 ~~+8.251~~
+40.08 2 31.44
35 32.95 −16 10.29
+ .51
36 13.03 −14.70
~~17.611~~ 46 6.95
15 +28.60
−3.43
4 55.7
59.7
115.4
19 57.70
1.45637
1.39306
+24.67
20 22.37
2 25.98
23 50
0.87370n
+2981
.80351 | .90281
+6.36 | ~~+7.99~~ 6.35
−.21 ~~−.15~~ −.10
−.69
+5.46
2 31.94
46 21.2
−16 10.2
−16 10.2
−16 9.6
−16 9.61 7.57
+ .44 9.17
− 14.70 −12.65
23.87 7.57
8.62

+28 −.06 Feb. 1
+.155
35 6.2 | 35 5.6
9.8 | 8.0
12.7 | 11.1
19.1
22.5
25.6
28.6
32.0
38.2
41.5
44.7
28 09
35 25.536 | 35 8.23
25.512 +48.64
36 14.432 +.33
−48.881 −.09
−48.887 −1.31
13.08
+48.564
+ .18
−1.31
+47.51 34.43
35 25.51 −16 11.24
+.4
36 13.02 −15.70
17.661 46 7.89
20 +17.31
−3.55
0 1.9
12.1
14.0
20 7.00
1.23830
1.17399
+14.93
20 21.93
2 26.42
+3507
.90877 | .90807
+8.10 | +8.09
−.08 −.04 −.07
−.01
+8.01
2 34.43
22.2
12.2
12.2
11.6
−16 12.02 ~~7.21~~ 7.17
+ .46 11.56
− 15.70 −13.65
27.26 7.21
7.17 8.26

+31 Feb. 13
+.287
35 51.8 | 35 46.2
54.9 | 49.1
58.0 | 52.2
36 4.4
7.8
10.9
14.2
17.3
23.5
26.8
30.0
29 96
180
11.96 | 35 49.17
36 10.873
10.849 +3.04
36 14.143 +.37
−3.298
−3.354 −1.12
13.14
+3.034
+.34
−1.12
+2.26 32.37
36 10.85 −16 9.19
+.4
36 13.11 −17.00
17.751 46 6.58
15 +21.70
−3.73
4 0.0
8.9
8.9
19 (20) 4.45
1.33646
1.27215
+18.71
20 23.16
3 (2) 25.19
+3802
.91172 | .91102
+8.16 | +8.15
−.12 ~~−.49~~ −.98
−.86
+7.18
2 32.37
23.5
8.9
8.9
8.8
−16 9.21 6.64
+ .48 8.73
− 17.00 −14.95
25.73 6.64
8.67

1875

			m	s		'	''	
Jan	20	36		1444		46	205	
	25			14.40	-.04		21.2	+.7
	30			1435	.05		21.9	.7
Feb.	4			1429	.06		22.5	.6
	9			1421	.08		23.1	.6
	14			14.12	.09		23.6	.5
	19			14.02	.10		24.0	.4
	24			13.91	.11		24.4	.4
Mar.	1			1379	.12		247	.3

corr α = +.059 s
corr δ = +.60"

tang δ = +1.18 1.55
I = 3.20 s
K = -.024 s

+.00 Feb. 24
-.035
35 39.5 35 25.5
42.8 28.4
45.9 30.2
52.4
55.4
58.4
36 1.8
5.0
11.4
14.7
17.8

3454
300
6454 35 28.03
35 58.673
58.649 +15.38
36 13.92 00
-14.27
-15.33 -0.91
1312

+ 15.442
.004
-0.91
+ 14.47 3426
35 58.65 -16 7.93
+4
36 1312 -1790
~~17.61~~ 46 8.83

+30.64
15
-3.87
4 46.3
1.9
108.2
19 54.10

1.48629
1.42198
+26.42
20 20.52

2 27.83

+490
.87860 .87790
+7.56 +7.55

-25 ~~-.56~~
-.88 -1.13
+6.43
2 34.26
24.4
9.9
9.9
9.3
-16 8.19 8.62 7
+ 50 7.69
- 17.90 -15.85
16 25.64 ~~8.6~~ 8.67
58 ~~15.67~~

Draco. L. C.

17 h 37 m 41 sec.
111° 11′
68₀ 49₀
z = −68 48
sin z = −.93

sin δ 9.96962
cos δ 9.55793n
.11678
9.67471n

1874
α 41.395 s
δ +48 56.63
dα/dT −0.358
dδ/dT −1.645

1875
α
δ
dα/dT
dδ/dT

cos δ 9.55793n
log 6 .12552
log 6′ 9.68345n

corr α =
corr δ =
tang δ = −2.58 −2.76
I = 5.70 s
K = +0.40 s

1874 Feb. 14 +.25
1874 Feb. 17 +.29
1875 Feb. 1 +28 −.06
Feb. 13 +.31
Feb 24 +00

+.104 +.240 +.156 +.287 −.035

5 37 14.7 37 35.7 | 36 56.0 37 29.3 | 36 | 36 34.0 37 | 37 9.1 37 | 36 57.6
17.3 88 | 58.8 36.6 | 39.6 | 25.2 13.8 | 13.2 1.6
20.2 88 | 37 1.9 41.5 | 42.2 | 28.4 18.2 | 16.1 9.2
4.6 | 45.4 | 31.2 | 19.0
7.5 | 48.0 37 9.7 | 34.1 | 21.8
31.7 89 | 10.4 | 50.5 | 37.0 | 24.8
13.3 | 53.1 | 39.6 37 53.5 | 27.5 36 35.0
37.3 88 | 16.0 | 56.7 | 42.5 58.8 | 30.3 7 37.7
43.2 90 | 18.8 | 59.7 | 45.4 2.0 | 33.2 41.7
2.1 | 48.5 | 36.1

1873 | 3973 | 3319 | 2220
120 | 60

37 35.70 | 67.3 37 35.80 | 457.3 36 34.00 | 37 13.70 | 37 2.80
37 8.883 | 37 7.478 | 36 50.811 37 9.70 | 37 36.878 37 58.10 | 37 24.667 36 38.13
8.923 | 7.518 | 50.851 | 36.918 | 24.707

+31.13 | +33.13 | +48.64 | +3.04 | +15.38
+ 31.11 − .64 | + 33.18 − .74 | + 48.64 − .72 | + 3.04 − .80 | + 15.42 − .00
− .28 | − .62 | − .40 − .17 | − .74 | + .01
+ 1.66 +1.302 +1.66 | + 1.46 +1.102 +1.46 | + 2.38 + .238 | +1.74 +1.74 | +1.08 +1.08
+32.21 .49 37 41.07 | 34.02 37 41.37 | +50.62 37 40.98 | 4.04 37 40.90 | 16.59 41.17
41.341 | 41.54 | 41.47 | 40.96 | 41.30
~~40.712~~ | 41.182
41.052

18 55.41 | 18 55.53 | 27 32.22 | 27 35.48 | 27 38.69
−7 30.98 | −7 31.33 | −16 11.24 | −16 9.19 | −16 7.93
+ 2.7 | + 2.7 | + 28 | + 28 | + 29
− 25.00 | − 25.60 | − 23.70 | − 26.40 | − 28.30
111 11 2.13 | 11 1.30 | 11 0.06 | 11 2.69 | 5.36

s
−26.82 | −28.32 | +16.81 −18.89 | +23.18 −21.22 | +21.87 +46.54
5 | 5 | 55 | 55 | 55

= ″3.00 | −3.04 | −3.55 | −3.73 | −3.87
1 14.9 | 1 18.8 | 2 56.5 2 40.4 | 2 58.0 2 38.3 | 2 38.3 2 22.8
13.9 | 16.1 | 10.2 52.7 | 9.1 48.5 | 58.9 43.1
1 2.88 | 3.49 | 12.67 9.31 | 12.71 8.68 | 9.72 6.59
6 14.40 | 6 17.45 | 58 3.35 57 46.55 | 58 3.55 57 43.40 | 57 48.60 57 32.95

1.45209
1.42846n | 1.12680 | 1.22557 1.27623n | 1.36571 1.32675n | 1.33985 1.66783
1.10317 | +13.39 | 0.98902n 0.93968 | 1.04886n 1.01020 | 1.02330n 1.35128n
+12.68 | 6 30.84 | −8.11 +9.11 | −11.18 +10.24 | −10.55 −22.45
6 27.08 | 6 30.84 | 57 55.24 57 55.66 | 57 52.37 57 53.64 | 57 38.05? 57 10.50?

111 16 21.27 | ~~110° 43′ 42.49″~~ 16 17.51 | ~~35 6.49~~ 24 53.11 52.90 ~~7.21~~ 52.69 | ~~35 4.02~~ 24 55.98 55.34 ~~5.29~~ 54.71 | ~~34 49.70~~ 25 10.30 ~~34 22.15~~ 37.85

−68 46 14 | 46 11 | 45 45 46 1 | | 45 59 46 15
2.16766n | 2.16766n | 2.16752n 2.16759n | | 2.16759n 2.16770n
+1960 | +3029 | +3513 | +3806 | +497
2.18726 | 2.19795 | 2.20265 2.20272 | 2.20558 2.20565 | 2.17256 2.17267
+15390 | +15770 | +15950 +15950 | +16050 +16060 | +14880 +14880
+ 4 | + 8 | + 9 + 9 | + 10 + 10 | + 1 + 1
+.13 ~~+10~~ | +.15 ~~+12~~ | +.05 −.26 +.06 | +.10 −.51 +.08 | +.08 −.24 +.38
+.07 +.20 | +.09 +.24 | −.33 −.31 | −.63 −.57 | −.50 −.45

+ 2 34.14 | + 2 ~~37.92~~ 38.02 | + 2 39.41 + 2 39.34 | + 2 40.07 + 2 40.21 | + 2 28.39 + 2 28.74
111 18 55.41 | 18 ~~55.43~~ 55.53 | 27 32.42 32.03 | 27 36.65 34.92 | 27 38.69 28 6.59
−7 31.07 28.78 | −7 31.51 28.68 | −16 12.02 8.72 | −16 9.21 5.75 | −16 8.19 4.60
+ 2.79 −23.36 | + 2.83 | + 3.30 −22.06 | + 3.46 −24.76 | + 3.59 −26.66
−25.00 | − 25.60 −23.96 | − 23.70 | − 26.40 | −25.30 5.79
−7 53.28 | 7 54.28 | −16 32.42 11 0.06 | 32.15 3.90 | 32.90 3.69
~~0.86~~ | ~~3.61~~ | 10 59.61 | 2.77 | 9
11 2.13 | 1.25

3.77 | 2.89 8 | 59.80 | 3.33 | 4.74

ζ Leporis
h m sec
5 41 19
— 14° 52'
ζ = + 57° 15'
sin ζ = + 84

sin δ 9.40921ₙ
cos δ 9.98521
.11678
.10199

1874
α
δ
dα/dT
dδ/dT

1875
α 41 17.54
δ 52 13.22
dα/dT + 2.717
dδ/dT + 1.65

l cos δ 9.98521
l 6 .12552
l 6' .11073

corr α =
corr δ =

tang δ = — .27
I = 2.13 s
K = — .016 s

1874 Feb. 17	1874 Feb. 26	1875 Feb. 1	Feb. 13	Feb. 14	Feb. 16
+.240 5 40 29.5 31.5 33.6 37.9 40.0 42.2 44.3 46.5 50.7 52.9 55.0 40 28.9 30.6 32.8	+.223 41 22.4 24.4 26.5 30.9 32.9 35.0 37.2 39.2 43.7 45.7 47.8 41 6.0 8.0 9.7	+.155 40 17.2 19.3 21.5 25.8 28.0 30.0 32.0 34.2 38.5 40.5 42.7 40 7.2 9.8 12.2 40 47.0 49.5 53.3	+.287 41. — — — — 15.3 15.30 17.5 07 19.5 24 — 28.3 .52 Ar √	+.410 41 1.5 3.5 5.7 9.9 12.0 14.0 16.2 18.5 22.6 24.7 27.0 40 57.2 58.9 1.0 41 33.6 35.5 37.4	+.300 40 .58 58.8 40 41 .65 1.0 50.9 .72 3.2 53.5 .66 7.4 56.0 .73 9.6 .80 11.8 .67 13.8 .74 16.0 — — —
4641	3857	3297		1556	
40 42.191 42.175 40 30.77	41 35.064 35.048 41 7.90	40 29.973 29.957 40 9.77 3 40 49.93	41 15.358 15.342	41 14.145 .14.129 40 59.03 41 35.60	41 11.694 11.678 40 53.47
+ 3.318 — .06 — 0.48 +2.237 + 32.64 40 42.17	— 19.67 — .06 — 0.34 +2.371 — 20.07 41 35.05	+ 48.65 — .04 — 0.96 + 47.65 40 29.96	+ 3.04 — .08 — 0.82 + 2.14 41 15.34	+ 4.18 — .11 — 0.80 + 3.20 41 14.13	+ 6.59 — .08 — 0.77 + 5.72 41 11.68
41 14.81 17.527	41 14.98 14.895 — 17.697	41 17.61	41 17.48	41 17.33	41 17.40
s + 11.42 5 ‖ = — 3.04 0 47.9 39.4 1 87.3 5 43.65 1.05767 1.15966 + 14.44 5 58.09	+ 27.16 5 — 3.13 0 29.9 19.4 49.3 5 24.65 1.43393 1.53592 + 34.35 5 59.00	+ 20.24 — 19.96 55 — 3.55 1 40.1 2 34.0 45.9 39.8 86.0 73.8 56 43.00 57 36.90 1.30621 1.30016ₙ 1.41694 1.41089ₙ + 26.12 — 25.76 57 9.12 57 11.14	55 — 3.73 1 34.9 38.2 73.1 56 36.55	+ 15.11 — 21.36 55 — 3.75 1 51.5 52.3 103.8 56 51.90 1.17926 1.28999 + 19.50 57 11.40	+ 18.22 55 — 3.79 1 52.4 52.2 104.6 56 52.30 1.26055 1.37128 + 23.51 57 15.81
1 — 14° 43' 9.74" — + 57 13 16 1.95026 + 2607 1.97633 — 94.70 — .1 + 02 ~~+ 03~~ + 05 + .07 — 1 32.64 1 — 14 44 44.38 — 7 31.51 — 2.55 34.06 + 3.86 + 5.51 — 7 30.20 52 14.58 14.58 12.93	43 10.65 12 57 1.95018 + 2914 1.97932 — 95.35 — 1 + .11 ~~+ .06~~ + .01 + .12 — 1 35.24 44 45.89 — 7 30.88 — 2.62 33.50 + 4.45 + 6.10 29.05 14.94 14.94 13.29	34 20.77 34 22.79 21.78 12 55 13 49 1.95015 1.95040 + 3526 1.98541 1.98566 — 96.70 — 96.75 — 1 — 1 + .06 — .18 + .06 — .19 — .29 — 1 36.84 — 1 36.99 35 57.61 59.78 — 16 12.02 — 2.98 15.00 + 0.45 + 2.10 ~~36 0.14~~ 12.87 14.56 14.34 13.25	— .34 — 9.21 + 1.82 + 3.47	34 23.05 + 4266 1.99281 1.99306 — 98.36 — 98.42 — 2 — 2 + .03 — .18 + .06 — .40 .21 — .21 — 1 38.56 35 51.61 — 16 9.82 12.97 — 3.15 + 3.56 + 1.91 11.06 ~~12.45~~ ~~20.06~~ 12.67 12.49	34 27.46 + 3716 1.98831 — 97.12 — 2 + .04 ~~— .15~~ — .34 — .30 — 1 37.44 36 4.90 — 16 9.49 12.67 — 3.18 + 3.75 + 2.10 10.57 15.47 15.47

Feb. 24

-.035

40 50.0 40 36.6
52.1 38.5
54.4 40.6
58.5
41 0.7
2.8
5.0
7.3
11.7
13.8
~~16.0~~

~~2 7~~2.3
2 40
32.3 40 38.57
41 29.30
2.914

+ 16.42
+ .01
- 0.65
+ 14.78
41 2.91

41 17.69
17.512

+ 24.36
55

+ 3.87
1 47.3
56.0
10.33
56 51.65

1.38668
1.49741
+ 31.44
57 23.09

34 34.74

+ 510
1.9852.5
- 90.21
0
+.03 ~~.16~~
- 34 -.31
- 1 90.52
36 5.26
- 16 8.19 11.44
- 3.25 +4.35
+ 2.70
- 16 3.74 14.00

14.00

V Aurigae. sin δ 9.7996

h m sec.
5 42 50

+39 7

ϑ = +3 16
+.06

9.88978
.11678
.00656

1874
α 45.384
δ +6' 33.52"
dα/dT +4.154
dδ/dT +1.553

1874				
Feb. 9	42m 46.04s		6' 45.5"	
14	45.96	-.08	45.8	+.3
19	45.87	.09	46.1	.3
24	45.78	.09	46.4	.3
Mar. 1	45.69	.09	46.6	.2
6	45.59	.10	46.7	.1
11	45.49	.10	46.8	.1
16	45.38	.11	46.8	.0
21	45.27	.11	46.8	.0

1875
α 49.538
δ +6 35.07
dα/dT +4.154
dδ/dT +1.547

log cos δ 9.88978
log c .12552
log c' .01530

1874 ·1874
Feb. 14
Ch. f. 5

25
' "
4 43.8
43.4
, 87.2
29 43.60

ℋ_fl =

× +.29
Feb. 17
+.240
41 56.6 41 38.1
59.3 40.3
2.0 42.3
7.3
10.0
12.7
15.4
18.0
23.2
25.4
28.6

25.90
12.0
13.90 41 40.33
42 12.636
12.616 +33.13
42 45.940 +.23
-33.298
-0.52
+ 33.18 42 45.46
+ .19
-0.52 +3.634
+ 32.85
42 12.67 14 16.36
-7 31.33
42 45.47 -.2
49.624 -12.50
+39 ~~20~~ 6 32.33

s
+32.31
5
"
-3.04
2 58.3
53.0
111.3
7 55.65
1.50934
1.51590
+32.80
8 28.45

+39° 14' 19.90"
+3 15 28
0.51570
+2611
0.54181
-3.48

-.26 ~~-.03~~
+.20 -.06
-3.54
14 16.36
6 46.0
-7 30.4
-7 30.40
-7 33.9
-7 31.51 6 32.17
.18 33.69
12.50 -10.95
-7 44.19 32.17
33.72

× +.26
Feb. 26
+.223
42 44.5 42 43.0
52.0 44.7
54.8 46.7
0.0
2.7
5.3
8.1 43 29.2
10.7 31.0
16.0 82.7
18.5
21.3

23.89
18.0
5.89 42 44.80
43 5.355 43 30.97
5.335 -19.70
42 45.74 +.21
+19.59
-0.36
- 19.67 45.49
+ .18
-0.36 +3.794
- 19.85
43 5.33 16.25
-7 30.61
42 45.48 -.2
49.634 -13.00
~~20~~ 6 32.44

+20.55 -25.62
5
-3.13
3 10.9 3 58.0
4.6 50.7
15.5 108.7
8 7.75 8 54.35
1.31281 1.40858n
1.31937 1.41514n
+20.86 -26.01
8 28.61 8 28.34

14 19.74 20.01
19.87
+3 15 40 16 26
0.51610 0.51770
+2912
.54522 .54682
-3.51 -3.52

-.11 -.11 -.17
+.03 +.04
-3.59 -3.65
14 15.15 16.36
46.5
29.6 29.8
29.70
32.2
-7 30.88 32.08
.19 32.25
13.00 31.07
-11.45
44.07 32.18
~~3.62~~ 33.73

× 1874 +.04
March 4
+.030
42 44.9 42 38.8
47.5 40.5
50.3 42.2
55.5
58.1
0.8
8.4 43 18.0
6.1 20.1
11.4 22.4
14.1
16.8

30.89
30.0
89 42 40.50
43 0.809 43 20.33
0.789 -15.15
42 45.652 +.03
+15.167
-0.24
- 15.14 45.43
+ .02
-0.24 +3.914
- 15.36
43 0.79 14 16.21
-7 30.74
42 45.43 -.1
49.584 -13.20
~~20~~ 6 32.17

+20.31 -19.52
5
-3.22
3 8.1 3 48.2
8.8 49.4
16.9 97.6
8 8.45 8 48.80
1.30771 1.29048n
1.31427 1.29704n
+20.62 -19.82
8 29.07 8 28.98

14 19.28 19.37
19.33
-379
.51231 .51391
-3.25 -3.26

-.11 +.14 -.10
+.22 +.27
-3.14 -3.09
14 16.14 16.28
46.7
29.4 29.6
29.50
32.0
-7 31.05 ~~45.3~~
.19 31.24 31.70
13.20 -11.65 31.84
44.44 31.77
33.32

1875
+.28 -.06
Feb. 1
+.155
41 — 42 13.3
— 16.2
— 18.5
56.8
59.3
42 2.0
4.6
7.2
—
—

12.99
12.0
9.9 42 16.00
42 1.980
1.960 +48.64
42 50.68 +.23
-48.72 -.08
-1.14
+ 48.65 49.61
+ .12
-1.14
+ 47.63
42 1.96 22 58.51
-16 11.24
42 49.59 -.3
-12.90
6 34.07

-14.02
55
-3.55
4 57.1 0 36.4
4.4 44.7
121.5 81.1
0 0.75 0 40.55
1.14675n
1.16205n
-14.52
59 46.23

23 2.12
16 12
+3530
.55140 .55300
-3.56 -3.57

-.05 ~~-.02~~
.00 -.05 -.08
-3.61
22 58.51
48.0
-16 10.5
-16 10.50
-16 13.0
-16 12.02 33.38
.21 12.23
12.90 -10.35
25.13 33.38

+.31
Feb. 13
+.287
42 31.5 42 15.6
34.1 19.4
36.6 21.2
42.0
44.6
47.5
50.0
52.6
57.9
0.6
3.4

40.08
12.0
52.08 42 18.73
42 47.345
47.325 +3.04
42 50.54 +.25
-3.22
-1.00
+ 3.05 49.63
+ .23
-1.00
+ 2.28
42 47.32 55.40
-16 9.19
42 49.60 -.3
-13.70
6 32.21

+ -28.61
55
-3.73
4 15.9
19.9
35.8
59 17.90
1.45652n
1.47182n
-29.64
59 48.26

23 0.09
15 30
+3816
.55426
-3.58

-.21 ~~-.55~~
-.90 -1.11
-4.69
22 55.40
48.8
6.6
6.60
9.1
-16 9.21 32.20
.22 9.43
13.70 -11.15
23.13 32.27

1875

		m	s		'	"	
Jan.	20	42	50.76		6	46.8	
	25		50.73	−.03		47.3	+.5
	30		50.70	.03		47.8	.5
Feb.	4		50.65	.05		48.2	.4
	9		50.60	.05		48.6	.4
	14		50.53	.07		48.9	.3
	19		50.45	.08		49.2	.3
	24		50.36	.09		49.5	.3
Mar.	1		50.26	.10		49.7	.2

corr α / cos δ = −0.50"

tang δ = +.81 1.29

t = $\overset{s}{2.65}$

k = $-\overset{s}{.020}$

Feb. 14 +.30 +.12

+410

42 30.2 42 13.7

32.8 15.7

35.6 18.3

40.8

43.4

46.1

48.8

51.6

56.8

59.4

2.1

44.76

60

50.76 42 15.90

42 46.145

46.125 +4.05

42. 50.53 +.24

− 4.41 +.15

−0.99

+ 4.18! 49.57

+ .33

−0.99

+ 3.45

42 46.12 5648

−16 9.59

42 49.57 −.3

−13.80

6 32.79

+30.24

55

−3.75

4 14.2

17.4

1 31.6

59 15.80

1.48058

1.49588

+31.32

59 47.12

23 1.23

.15 28

+42.68

.55878

−3.62

−.23 ~~−.56~~

−.90 −1.13

−4.45

22 56.48

48.9

7.6

7.60

10.1

−16 9.82 32.64

− .22 10.04

− 13.80 −12.35

23.84

Feb. 16 +.35

+.300

42 27.7 42 32.3

31.3

33.0

38.5

41.1

43.5

46.4

49.1

54.5

57.0

59.7

48.08

42 32.30

42 43.709

43.689 +6.5~~5~~4

42 50.50 49 +28

−6.80

−0.95

+ 6.56 49.56

+ 24

−0.95

+ 5.85

42 43.69 5641

−16 9.13

42 49.54 −.3

−13.90

6 33.08

+11.64

55

−3.79

4 33.9

37.0

70.9

59 35.45

1.06595

1.08125

+12.06

59 47.57

23 0.84

+37.18

.55328

−3.57

−.03 ~~−.43~~

−.83 −.86

−4.43

22 56.41

49.0

7.4

7.40

9.9

−16 9.49 32.77

− .23 9.72

− 13.90 −12.35

23.62

ψ* Draco. L. C. Aust. rec

73

44 10

107° 47′
7 13

δ = − 65 24 1874
− 91

α 10.887
δ + 12 35 80 = 24.20
dα/dT − 1.087
dδ/dT − 1.649

Sin δ 9.97874
Cos δ 9.48490n
.11678
9.60168n

1874
Mar. 1 44m 9.88 12′ 8.5
6 10.25 + .37 8.20 − .5
11 10.62 .37 7.7 .3
16 10.99 .37 7.6 .1
21 11.37 .38 7.6 .0

1875
α 9.800
δ + 12 34.15 25.45
dα/dT − 1.087
dδ/dT − 1.651

Cos δ 9.48490n
~~9.97874n~~
C.C. .12552
C.C′ ~~0.10426~~
9.61042n

+ 1874	1874	1875			
Feb. 26 +.26	March 4	Feb. 4 +.26	Feb. 13 +.31	Feb. 14 +.30 +.12	Feb. 16 +.35
+.223		+.283	+.284	+.410	+.300

5 44 — 44 38.6 | 44 34.4 44 18 | 43 | 43 32.3 43 | 43 30.3 44 | 44 24.1

30.2 | 6.0 | 52.1 | 46.9 | 51.6 | 32.7
38.5 | 9.5 | 55.5 | | 55.0 |
37.0 | 12.6 | 58.7 | | 58.3 |
40.2 | 16.5 | 44 1.7 | | 44 1.0 |
43.9 | 19.6 | 5.4 | 44 23.3 | 4.9 | 44 19.0
— | 22.8 | 8.8 | 32.0 | 8.4 | 25.7 | 6.2 2.80
| 26.0 | 12.2 | 41.1 | 11.8 | 31.4 | 9.5 .44
| 29.8 | 15.6 | | 15.2 | | 13.0 .88
| | 18.7 | | 18.4 | | 17.3 .78

1848 | 1462 | 2290 180 | 2255 180

44 38.60
44 ~~36.960~~ 30.21
~~37.004~~ 30.26
44 9.58 649.64 − 19.69
+ 27.48 3720.62 − 81

− 19.67 +1.25
− .69 44 11.01
+1.25 + 0.163
− 19.11
44 ~~37.01~~
30.26 55 19.92
44 17.90 − 7 30.61
16813 + 27
675 − 27.70
10.06 10.47 24.31

44 1.80 | 43 39.60 | 4.55 43 31.50 | 44 24.10
44 16.244 | 44 5.444 44 32.13 44 | 5.056 44 25.37 44 2.805
16.293 | 5.493 | 5.105 | 2.854
44 7.023 − 8.45 | 44 7.537 + 3.05 | 44 7.603 + 4.05 44 | 4.737 + 6.54
+ 9.276 − 81 | − 2.048 − 97 | − 2.682 − 94 − 39 | − 4.8892 − 1.09

− 8.26 + 2.77 | + 3.05 + 2.23 | + 4.12 + 2.17 | + 6.54 + 2.03
− .88 9.80 | − .89 9.80 | − 1.28 10.00 | − .94 10.33
+ 2.77 | + 2.23 | + 2.17 | + 2.03
− 6.37 | + 4.39 | + 5.01 | + 7.66
44 16.29 | 44 5.49 | 44 5.10 | 44 2.85

3 57.69 | 56.88 | 55.63 | 3 54.52
44 9.92 − 16 11.48 | 44 9.88 − 16 9.19 | 44 10.11 − 16 9.59 | 44 10.51 − 16 9.13
+ 28 | + 28 | + 28 | + 28
− 24.60 | + 26.70 | − 26.90 | − 27.30
47 24.41 | 47 23.79 | 47 21.94 | 47 20.89

s
− ~~1.64~~ 839
25 | 25 | 20 + 14.44 | 20 + 25.84 − 26.69 | 20 + 33.56 − 20.31 | 20 − 21.30
26 = − 3.13 | | − 3.61 | − 3.73 | − 3.75 | − 3.79

4 40.7 | 4 20.0 | 1 9.5 0 45.0 | 1 13.8 0 53.3 | 1 20.9 0 57.7 | 0 56.4
36.9 | 25.1 | 18.6 55.2 | 22.2 1.6 | 28.1 6.4 | 1.7
1 17.6 | 45.1 | 28.1 100.2 | 36.0 11.49 | 49.0 12.41 | 11.81
29 38.80 | 29 22.55 | 21 14.05 20 50.10 | 21 18.00 20 57.45 | 21 24.50 21 2.05 | 20 59.05

~~0.21484~~
~~9.81644~~ 0.92376
~~+ 0.685~~ 0.52544
+ 3.35
29 ~~39.45~~ 29 42.15

1.15957 | 1.41209 1.42635n | 1.52582 1.30771n | 1.32838n
9.86883n | 1.57653n 1.53874 | 1.63008n 1.21463 | 0.93888
− 18.36 | − 32.85 + 14.59 | − 42.67 + 25.82 | + 8.69
20 55.69 | 20 45.15 21 31.38 | 20 41.82 21 22.7 | 21 7.74
21 8.66 | 21 9.46 21 8.33 | 21 10.81 10.33 | 1 9.98

108°
6 51.10 53 6.20

107 ~~58 7.34~~ | ~~57 56.80~~ ~~58 43.03~~ | ~~57 53.48~~ ~~58 39.52~~ | ~~58 21.63~~
1 14.81 40.19 | ~~58 19.11~~ ~~58 19.98~~ | ~~58 22.46~~ ~~24.98~~ |
22 34 | 1 40.89 40.45 40.02 | 1 31.54 37.78 38.02 | 1 38.37

− 65 22 49
2.09683n | 2.09674n 2.09690
+ 2910 | + 4161 | + 3821 | + 4271 | + 3723
2.12593 | 2.13838 | 2.13498 2.13511 | 2.13948 2.13961 | 2.13400 2.13413
+ 13363 | + 13753 | + 13650 + 13650 | + 13790 + 13790 | + 13620 + 13620
+ .04 | + .07 | + .06 + .06 | + .08 + .08 | + .06
+ ~~.02~~ + .05 | + .03 − .05 | + .09 − .13 + .10 | + .17 − .12 + .08 | + .07 − .05
+ .05 | − .13 − .10 − .09 | − .27 − .19 | − .29 − .21 | − .18 − .11

+ 2 13.72 | + 2 17.50 | + 2 16.38 + 2 16.47 | + 2 17.86 + 2 17.84 | + 2 16.15
~~9 48.2~~ | 0 ~~37.31~~ | 0 ~~35.49~~ 36.45 | 0 ~~40.32~~ 39.82 | 0 34.48
12 8.2 | 12 10.0 | 7.9 | 7.7 | 7.3
47 51.8 | 47 50.0 | 52.1 | 52.3 | 52.7
55 ~~22.62~~ 19.92 − | 3 57.69 | 3 57.27 54.49 | 3 55.40 55.86 | 3 54.52
− 7 ~~31.7~~ 30.7 | − 16 7.7 | 52 4.4 | 3.1 3.6 | 1.8
− 7 30.7 47 ~~24.88~~ 24.18 | − 16 7.7 25.06 | 48 24.75 | 3.4 22.09 | 1.8 21.17
− 7 30.88 28.04 | − 16 11.31 8.03 | − 16 9.21 23.98 | − 16 9.82 22.55 | − 16 9.49 6.05
+ 2.84 − 26.05 | + 3.28 − 22.95 | + 3.39 5.82 − 25.05 | + 3.41 6.11 − 25.35 | + 3.44 − 25.65
− 27.70 ~~28.52~~ | 24.60 25.06 | 26.70 24.36 | 26.10 22.32 | 27.30 21.17
− 7 5.574 25.53 | 16 32.63 | − 16 32.52 | 33.31 | 34.35

1875

		m	s		° '	"	
Jan	30	44	6.76		12	11.3	
Feb.	4		7.04	+.28		9.9	-1.4
	9		7.33	.29		8.7	1.2
	14		7.65	.32		7.6	1.1
	19		7.98	.35		6.7	.9
	24		8.33	.35		6.0	.7

corr α =
corr δ =

tang δ = -3.1~~1~~2 3.27
5
± = 6.75
. 9
K = +.049

+.00 Feb. 24
~~+.410~~
43 -.035 43 14.1
39.6 16.9
42.9 24.9
46.1
49.6
53.0
56.1 44 10.4
59.7 16.4
2.4 24.0
6.4

35.65
120
47.65 43 18.63
43 52.944 44 16.93
52.993
44 8.2831 +15.39
-15.2931 60

+ 15.42 +1.49
+ .11 9.87
+1.49
+ 17.02
43 52.99
~~4~~3 56.81
44 10.01 -16 7.93
+3.0
-28.50
48 23.38
7

+34.31 -23.99
20
-3.87
0 58.1 0 34.9
76.5 4~~5~~3.0
19.4.6 7~~8~~79
21 ~~7~~30 20 ~~43~~.95
2 38.

1.53542 1.38003
1.63~~4~~7~~3~~ 1.48422
+4.362 ± 30.57
20 ~~5~~7.31 20 ~~34~~.77
48. 48.73
~~58 49.6~~ ~~538~~
.1 5~~6~~.04 5~~6~~.62
55.33
22 41 23 4
2.09680 2.09693
+522
2.10202 2.10215
+12650 +12650
+ .01 ~~+.14~~ + .01
+.18 +.09
-.20 -.03 -.13
+2 6.49 +2 6.47
0 ~~11.15~~ ~~11.85~~
6.1
5.39
43 56.58 57.09
7.6 6.2
-16 7.9 4.67
-16 8.19 23.36
+ 3.52 23.92
- 28.56 26.85 23.64

β Columbae. sin δ 9.76712

1875
α 46 33.27
δ 48 59.02
dα/dt +2.111
dδ/dt +1.59

corr α =
corr δ =

5h 46m 34sec
cos δ 9.90906
.11678
.02584

−35° 48′

tang δ = −.72
I = 2.55s
K = −.019

+78° 11

l.cos δ 9.90906
l.C .12562
l.C′ .03458

1874
α
δ
dα/dt
dδ/dt

sin z = +.98

1874 March 3 | 1874 March 4 | 1875 Feb. 1 | Feb. 4 | Feb. 13 | Feb. 14

+.100 | +.030 | +.155 | +.283 | +.287 | +.410

5 46 32.2 46 17.6 | 46 31.5 46 22.7 | 45 30.8 45 24.8 | 46 27.7 46 7.9 | 46 16.4 45 58.1 | 46 15.1 46 7.8
34.8 19.4 | 34.1 24.6 | 33.2 28.7 | 30.0 10.7 | 18.8 0.9 | 17.7 10.3
37.1 21.9 | 36.5 27.5 | 35.9 31.0 | 32.4 14.6 | 21.2 3.8 | 20.0 12.2
42.3 | 41.7 | 41.0 | 37.7 | 26.3 | 25.2
44.9 | 44.1 | 43.4 | 40.0 | 28.9 | 27.8
47.4 | 46.9 | 45.8 | 42.6 | 31.4 | 30.2
50.0 47 12.7 | 49.4 | 48.7 46 12.4 | 45.3 47 0.7 | 34.0 46 55.6 | 32.7 46 46.1
52.4 15.3 | 51.9 | 51.0 15.6 | 47.8 | 36.5 57.8 | 35.4 48.6
57.5 17.6 | 37.0 | 56.0 18.8 | 53.2 | 41.7 0.8 | 40.4 51.9
0.2 | 59.4 | 58.7 | 55.4 | 44.2 | 43.0
2.7 | 2.0 | 1.3 | 58.0 | 46.8 | 45.6

401.5 | 514.5 | 445.6 | 470.1 | 346.2 | 333.1
120 | | 60
521.5 46 19.63 | 46 24.93 | 50.56 45 ~~28.16~~ 28.17 | 46 11.07 | 46 0.93 | 46 9.93
46 47.409 47 15.20 | 46 46.773 | 45.964 46 15.60 | 46 42.736 47 0.70 | 46 31.473 46 58.07 | 46 30.282 46 48.87
47.390 | 46.754 | 45.945 | 42.717 | 31.454 | 30.263

− 15.81 | − 15.143 | + 48.65 | − 8.26 | + 3.05 | + 4.12
− .07 | − .02 | − .11 | − .20 | − .21 | − .29
− 0.36 +1.751 | − 0.4734 1.71′ | − 1.18 | − 1.14 | − 0.98 | − 0.96
− 16.24 | − 15.489 | + 47.36 | − 9.60 | + 1.86 | + 2.87
46 47.39 | 46 46.75 | 45 45.94 | 46 42.72 | 46 31.45 | 46 30.26

46 31.15 | 46 31.33 | 46 33.30 | 46 33.12 | 46 33.31 | 46 33.13
33.261 | 26 33.371 | | | |
| 31.205 | | | |

s
+27.78 − 27.79 +21.84 | + 17.79 −29.64 | +31.67 −17.96 | +30.54 −26.60 | +20.35 −18.59
55 55 | 50 | 50 | 50 | 50
76 r = −″3.20 −3.22 | −3.55 | −3.61 | −3.73 | −3.75

4 27.6 0 25.9 4 35.7 | 0 19.2 1 15.1 | 0 8.5 1 2.1 | 0 16.1 1 17.4 | 0 21.9 1 3.8
27.7 26.3 37.6 | 28.9 24.2 | 15.0 6.8 | 22.9 23.2 | 26.1 8.5
1 55.3 52.2 73.3 | 48.1 39.3 | 23.5 8.9 | 39.0 40.6 | 48.0 12.3
59 27.65 0 26.10 59 36.65 | ~~50 24.05~~ 51 19.65 | 50 11.75 51 4.45 | 50 19.50 51 20.30 | 50 24.00 51 6.15
1.44373
1.46957 1.44389n 1.33925 | 1.25018 1.47188n | 1.50065 1.25431n | 1.48487 1.42488n | 1.30856 1.26928n
+29.48 1.47171n 1.36509 | 1.28476 1.50646n | 1.53523 1.38889n | 1.51945 1.45946n | 1.34314 1.30386n
59 57.13 − 29.63 +23.18 | +19.27 −32.10 | +34.30 −19.45 | +33.07 −28.81 | +22.04 −20.13
−35° ″ 59 56.47 59 59.83 | ~~50 43.32~~? 50 47.55? | 50 45.05 50 45.00 | 50 52.97 50 60.49 | 50 46.04 50 46.02
37 8.78 8.12 37 11.48 | ~~27 54.97~~ 59.20 | 27 56.70 56.65 | 28 4.62 28 2.14 | 27 57.69 57.67
8.45 | ~~54.97~~ 59.20 | 56.67 | 3.38 | 57.68

+78 7 .0 7 58 | | 6 24 7 16
2.42645 2.42705 | | 2.42609 2.42663
+358 −314 | +35.44 | +4176 | +3826 | +4271
2.43003 2.43063 2.42331 2.42351 | 2.46189 2.46249 | 2.46785 2.46839 | 2.46435 2.46489 | 2.46880 2.46934
−269.20 −269.50 −265.00 −265.40 | −289.70 −290.10 | −293.70 −294.00 | −291.30 −291.70 | −294.30 −294.70
− 2 − 2 − 6 − 6 | − .56 − .56 | − .66 − .66 | − .62 − .62 | − .80 − .80
+.20 +.37 +.20 +.12 ~~+.22~~ +.44 | +.08 ~~+.06~~ +.23 +.09 | +.26 +.10 +.08 | +.23 +.03 +.17 | +.11 −.06 +.08
+.31 +.03 +.32 | −.04 −.14 | −.02 −.12 | −.06 −.27 | −.08 −.23
−4 28.71 −4 29.29 −4 24.62 | −4 50.22 −4 50.57 | −4 54.12 −4 54.78 | −4 51.75 −4 52.42 | −4 55.07 −4 55.65
−35 41 37.49 37.41 81 36.10 | 32 45.19 49.77 | 32 50.82 51.35 | 32 56.37 54.56 | 32 52.76 53.32
−7 30.87 34.00 −4 31.05 34.20 | −16 12.02 50.19 15.49 | −16 11.31 14.84 | −16 9.21 12.86 | −16 9.82 13.49
− 3.13 +11.02 − 3.15 +11.07 | − 3.47 +5.55 | − 3.53 +6.11 | − 3.65 +7.58 | − 3.67 +7.70
+9.43 +9.48 | +3.96 | +4.52 | +5.99 | +6.11
−7 24.57 49 2.06 2.472 0.82 | 11.53 ~~1.23~~ ~~1.35~~ | 10.32 1.14 | −16 6.87 3.24 | 16 7.38 0.14
1.98 | 1.30 ~~1.30~~ | 1.67 | 1.43 | 0.70

2.02 0.82 | 130 ~~1.17~~ | 1.40 | 2.32 3 | 0.42
0.43 59.23 | [illegible]

Feb. 16

+.300
46 12.6 45 59.4
15.0 2.2
17.6 3.9
22.8
25.2
27.8
30.5 46 31.8
32.9 33.9
38.0 35.9
40.5
43.0

30 59

46 1.83
46 27.809 46 33.87
27.790

+ 6.59
− .22
− 0.92
+ 5.43
46 27.79

46 33.22

83.216

+25.78 −6.06
50

— 3.19
0 21.2 0 56.2
25.0 59.8
46.2 116.0
50 23.10 50 58.00

1.41464 0.78247
1.44922 0.81705
+28.13 −6.56
50 51.23 50 51.44

28 2.88 3.09
2.98
6 35 7 10
2.42621 2.42657
+3728
2.46349 2.46385
− 29070 − 29100
− .62 − .62
+.17 −.03 + .2
−.07 −.18
−4 51.22 −4 51.78
32 54.10 54.87
−16 9.49
— 3.71 13.20
+6.39 +7.98
16 6.81 0.91
1.68

~~2.28~~ 1.29

α Orionis   Sin δ 9.10893   1874   1875

Feb.	9	48 21.60		22′ 55.3		
	14	21.54	−.06	55.1	−.2	
	19	21.47	.07	54.9	.2	
	24	21.40	.07	54.8	.1	
Mar.	1	21.33	.07	54.7	.1	
	6	21.25	.08	54.6	.1	
	11	21.17	.08	54.6	.0	
	16	21.09	.08	54.6	.0	
	21	21.00	.09	54.6	.0	

α 5h 48m 24sec
δ +7° 23′
φ = +35° 0′
+.57

Cos δ 9.99638
.11678
.11316

1874 s
α 21.042
δ +22 52.47
dα/dt +3.248
dδ/dt +1.019

1875
α 24.290
δ +22 53.49
dα/dt +3.248
dδ/dt +1.014

Cos δ 9.99638
ℓℓ .12552
ℓℓ′ .12190

+ 1874 Feb. 16 +17 | + Feb. 26 +26 | + March 3 +08 | + 1874 March 4 +.04 | 1875 Feb. 1 +.28 −.06 | Feb. 4 +26

+.175   +.223   +.100   +.030   +.155   +.283

5 47 36.5 47 23.3 48 28.6 48 18.1 48 24.6 48 10.5 48 24.0 48 4.6 47 24.0 47 11.3 48 20.9 48 9.2
38.5 25.3 30.6 20.5 26.8 12.1 26.0 7.0 26.2 14.0 23.0 11.2
40.7 27.5 32.8 22.6 28.7 14.0 28.1 9.0 28.2 16.1 25.0 13.1
44.8 36.8 33.0 32.2 32.4 29.3
46.8 38.9 35.0 34.3 34.5 31.4
48.4 41.1 37.1 36.5 36.4 33.4
51.0 43.2 49 1.5 39.2 48 48.0 38.6 48 46.0 38.7 47 54.2 35.5 48 56.0
53.2 45.3 2.9 41.1 49.9 40.6 48.1 40.8 56.1 37.6 58.8
57.3 48.3 4.5 45.4 51.3 44.8 50.1 44.8 58.1 41.7 0.4
59.3 51.3 47.5 46.8 46.9 43.9
48 1.3 53.5 48.5 48.9 49.0 45.9

4783 60   4514   4079   4008   4019   3676

53.83 47 25.57   48 20.40   48 12.20   48 6.87   47 13.80   48 11.17
47 48.936   48 41.036 49 2.97   48 37.082 48 49.73   48 36.436 48 48.07   47 36.536 47 56.13   48 33.418 48 58.40
48.920 +32.53   41.020 −19.69   37.066 −15.81   36.420 −15.14   36.520 +48.64   33.402 −8.45
48 21.57 +.02   48 21.37 +.03   48 21.30 29 +.01   48 21.28 +.01   48 25.22 +.04   48 25.20 +.03
−32.59   +19.65   +15.78   +15.14   −48.70 −.06   +8.20
−.047   −.033   −.025   −.024   −.093   −.091
+32.53 48 21.00   − 19.67 21.03   − 15.81 21.02   − 15.13 21.05   + 48.65 24.21 21   − 8.26 24.07
+ .02   + .03   + .01   + .00   + .02   + .04
−0.47 +2.778   −0.33 +2.918   −0.25 +2.998   −0.24 +3.008   −0.98   −0.91
+ 32.08   − 19.97   − 16.05   − 15.37   + 47.74   − 9.13
47 48.92 30 30.34   48 41.02 28.72   48 37.07 27.69   48 36.42 −30 28.51   47 36.52 39 14.19   48 33.40 12.83
−7 31.90   −7 30.61   −7 30.62   −7 30.74   −16 11.24   −16 11.48
48 21.00 −1.6   48 21.05 −1.6   48 21.02 −1.6   48 21.05 −1.6   48 24.26 −1.8   48 24.27 −1.9
24.248 −2.70   24.298 −2.30   24.268 −2.20   24.298 −2.10   −4.70   −4.50
+7 22 54.14   22 54.21   22 53.27   22 54.07   22 56.46   22 54.95

s
+23.57   +20.64   −21.93   +24.88   −12.65   +29.57   −11.63   +22.74   −19.57   +22.25   −24.98
50   50   50   50   40   40
ℓℓ = −3.02   −3.13   −3.20   −3.22   −3.55   −3.61

1 9.1   1 13.9 2 9.7   1 9.0 1 56.9   0 1.8 1 55.0   2 16.6 3 13.1   2 18.1 3 22.2
3.2   5.0 1.0   7.8 55.1   1.4 55.0   23.7 18.7   23.1 25.8
12.3   18.9 10.7   16.8 112.0   3.2 110.0   40.3 31.8   41.2 48.0
51 6.15   51 9.45 52 5.35   51 8.40 51 56.00   50 (51) 1.60 51 55.00   42 20.15 43 15.90   42 20.60 43 24.00
1.37236   1.31471 1.34104   1.39885 1.10209   1.47085 1.06558   1.35679 1.29159   1.34733 1.39759
1.48552   1.42787 1.45420   1.50901 1.21525   1.58401 1.17874   1.47869 1.41349   1.46923 1.51075
+30.59   +26.78 −28.46   +32.29 −16.42   +38.37 −15.09   +30.11 −25.91   +29.46 −32.42
51 36.74   51 36.23 51 36.89   51 40.69 51 39.58   51 39.97 51 39.91   42 50.26 42 49.99   42 50.06 42 51.58
+7° 31 11.61   31 12.12 ~~11.46~~   31 7.66 8.77   31 8.38 31 8.44   39 58.09 58.36   39 58.29 56.77
~~11.79~~ 11.46   8.21   8.41   58.22   57.53
11.79

+34 58 38   58 40 59 28   58 32 59 26
1.60490   1.60490 1.60510   1.60490 1.60510
+1110   +2909   +358   −328   +3550   +4188
1.61600   1.63399   1.60848 1.60868   1.60162 1.60182   1.64040 1.64060   1.64678 1.64698
−41.31   −43.05 −43.05   −40.60 −40.61   −39.96 −39.98   −43.69 −43.71   −44.34 −44.36

−.04 ~~+.02~~   −.03 ~~−.01~~ −.03   −.04 +.08 −.01   −.05 +.07 −.01   −.03 −.33 −.02   −.03 −.34 −.04
+.08 +.04   +.01 −.02 +.02   +.08 +.13   +.00 .07 +.13   −.25 −.36   −.25 −.37
−41.27   −43.07 43.06   −40.56 −40.49   −39.94 −39.86   −43.97 −44.09   −44.62 −44.77
30 30.34   30 29.05 28.40   30 27.10 28.28   30 28.44 28.58   39 14.12 14.27   39 13.67 12.00
22 55.2   54.8   54.7   54.6   22 58.2   58.0
−7 35.1   34.2   32.4 33.6   33.8 34.0   −16 15.9 15.9 36.1   15.7 34.0
−7 35.1   34.2   33.0   33.9   −16 16.0   14.8
−7 34.7   33.8 54.09   32.6   33.5   −16 15.6   14.4
−7 32.22 22 53.70   −7 30.88 53.44   −7 30.87 52.22   −7 31.05 53.46   −16 12.02 55.38   −16 11.31 55.81
− 1.72 33.94   − 1.78 32.6   − 1.87 32.68 53.40   − 1.83 32.88 53.60   − 2.02 14.0 55.53   − 2.05 13.3 54.14
− 2.70 −1.68   − 2.36 −1.28   − 2.20 −1.18   − 2.10 −1.08   − 4.70 −3.69   − 4.50 −3.49
−7 36.64 53.70   34.96 53.76   34.88 52.81   34.58 53.59   18.72 4 55.47 5   17.86 54.57
54.72   ~~55.11~~ 55.11 54.77   53.83   54.58

1875

Jan. 20	48 25.29		22 58.9	
25	25.27	-.02	58.6	- .3
30	25.24	.03	58.3	.3
Feb. 4	25.20	.04	58.0	.3
9	25.16	.04	57.8	.2
14	25.11	.05	57.6	.2
19	25.05	.06	57.5	.1
24	24.98	.07	57.4	.1
Mar. 1	24.90	.08	57.3	.1

corr α =

corr δ = +0.40

tang δ = +.13 .101

T = 2.08

K = -.016

1874.0 α	δ	1875.0 α	δ
21.00		24.26	
.05		27	
.02		30	
.05		21	
		29	
		28	
21.030		24.268	
.042	52.47	.290	53.49
- .012		- .022	

Feb. 13 +.31		Feb. 14 +.30	+.12	Feb. 16 +.35		+.00 Feb. 24	
+.287		+.410		+.300		-.0357	
48 9.5	47 54.6	48 8.4	47 49.8	48 5.9	48 0.5	47 5.1	47 43.4
11.7	57.4	10.5	51.6	8.0		59.2	45.1
13.7	59.8	12.5	53.2	10.2		48 1.2	47.0
17.8		18.7 16.6		14.4		5.3	
20.0		20.9		16.4	48 38.2	7.5	
22.0		23.0		18.4	39.6	9.6	
24.1	48 34.0	25.1	48 32.2	20.6	41.2	11.7	48 30.4
26.2	35.8	29.3	34.1	22.7		13.8	32.1
30.4	37.4	31.2	36.0	26.7		17.0	34.4
32.5		33.4		29.0		19.9	
34.7				31.0		22.0	
242.6		229.6		203.3		225.2	
						120	
	47 57.27		47 51.53		48 0.50	10.52	47 45.17
48 22.055	48 35.73	48 20.873	48 34.10	48 18.482	48 39.67	48 9.564	48 32.30
22.039	+8.05	20.857	+4.06	18.466	+6.54	9.548	+15.39
48 25.12	+04	48 25.11	+.04	48 25.09	+.05	48 24.98	00
- 3.08		- 4.25	+.12	- 6.62		- 15.43	
	-0.83		-0.82		-0.79		-0.69
+ 3.05	24.30	+ 4.12	24.26	+ 6.57	24.27	+ 15.42	24.25
+ .04		+ .05		+ .04		- .00	
-0.83		-0.82		-0.79		-0.69	
+ 2.26		+ 3.35		+ 5.82		+ 14.73	8.30
48 22.04	39 10.32	48 20.86	10.82	48 18.47	11.28	48 9.55	~~16.60~~
	-16 9.19		-16 9.59		-16 9.13		-16 7.93
48 24.30	-18	48 24.21	-1.9	48 24.29	-1.8	48 24.28	-1.9
	-4.10		-4.10		-4.10		-3.90
	22 55.23		22 55.23		22 56.35		22 54.57
			23				
40 + 24.78	- 13.68	40 +29.34	-13.~~24~~	40 +17.98	-21.19	40 +24.37	-20.74
- 3.73		- 3.75		- 3.79		- 3.87	
2 17.8	3 9.1	2 12.2	3 7.1	2 27.1	3 20.6	2 20.5	3 23.1
22.9	14.6	16.3	12.1	28.4	22.9	32.7	34.2
40.7	23.7	28.5	19.2	55.5	43.5	53.2	57.3
42 20.35	43 11.85	42 14.25	43 9.60	42 27.75	43 21.75	42 26.60	43 28.65
1.39410	1.13609n	1.46746	1.12254n	1.25479	1.32613n	1.38721	1.35679n
1.51600	1.25799n	1.58936	1.24444n	1.37669	1.44803n	1.50911	1.47869n
+32.81	-18.11	+38.85	-17.74	+23.81	-28.06	+32.29	-30.11
42 53.16	42 53.74	42 53.10	42 51.89	42 51.56	42 53.69	42 58.89	42 58.54
39 55.19	~~54.59~~	39 55.25	~~56.31~~	39 56.79	54.66	39 49.46	49.81
54.90	54.61	55.85	39 56.46	55.72		49.63	
						58 39	59 41
+38.30		+42.78		+37.32		+5.37	
1.64320	1.64340	1.64768	1.64788	1.64222	1.64242	1.61027	1.61047
-43.97	-43.99	-44.43	-44.45	-43.87	-43.90	-40.76	-40.78
-.04	-.01	-.05 -.59	-.01	-.02 -.55	-.03	-.04 -.56	-.03
-.48 -.60	-.67	-.46	-.67	-.45	-.61	-.43	-.63
-44.49	-44.67	-44.94	-45.13	-44.34	-44.54	-41.23	-41.44
39 10.70	9.92	39 10.31	11.33	39 12.45	10.12	39 8.23	8.37
57.6		57.6		57.6		57.4	
8.30	8.23	8.27	8.37	8.48	8.25	8.08	8.10
12.7		13.2		13.7		10.9	
12.3		12.8		13.6		10.5	
-16 9.21	55.27	-16 9.82	54.26	-16 9.49	56.70	-16 8.19	53.94
- 2.12 11.33	54.51	- 2.13 11.95	55.28	- 2.16 11.65	54.37	- 2.20 10.39	54.08
- 4.10	3.09	- 4.10	3.09	- 4.10	3.09	- 3.90	2.89
15.43	54.69	16.05	54.77	15.75	55.53	14.29	54.01

β Aurigae.

	h	m	sec
α	5	50	22
δ	+44°	56'	
β	− 2°	33'	
	−.05		

Sin δ 9.84898
Cos δ 9.84999
.11678
9.96677

1874 s
α 17.256
δ +55 54.04
dα/dT +4.402
dδ/dT +0.841

1874

		m	s		'	"	
Feb.	9	50	18.04		55	67.3	
	14		17.95	−.09		67.8	+ .5
	19		17.86	.09		68.2	.4
	24		17.76	.10		68.6	.4
Mar.	1		17.66	.10		68.9	.3
	6		17.55	.11		69.1	.2
	11		17.44	.11		69.2	.1
	16		17.32	.12		69.3	.1
	21		17.19	.13		69.3	.0

1875
α 21.658
δ +55 54.88
dα/dT +4.402
dδ/dT +0.834

L cos δ 9.84999
L C, .12552
L C' 9.97551

×
1874
Feb. 16 +.17
+.175
5 49 | 49 53.3
39.4 | 53.5
40.9 | 58.5
42.3
43.7
45.0
46.7
48.1
49.6
51.0

4067

49 45.189 | 49 55.77
45.167 | +32.53
50 17.91 | +.17
−32.74
−0.65
+ 32.53 | 50 17.22
+ .17
−0.65 +3.752
+ 32.05
49 45.17 | 3 39.71
−7 31.90
50 17.22 | + .2
21.622 | −1400
+44 55 54.01

s
−10.58
15
26 = −3.02
4 23.9
18.8
' 427
19 21.35
1.02449n
0.99126n
− 9.80
19 11.55
+45°
3' 36.80
−2 33 7
0.40930n
+1112
0.42042
+ 2.63
−.03 ~~+.14~~
+.31 7.28
+2.91
3 39.71
56 8.0
−7 31.7
−7 31.7
−7 32.22
+ .15 | 55 53.64
− 14.80 | 32.07 −13.16
−7 46.07
53.64
54.48

+
Feb. 26 +.26
+.223
50 19.6 | 50 6.1
22.6 | 8.3
25.5 | 10.4
31.3
34.3
37.2
40.1
43.0
48.8
51.7
54.7

4088

50 37.164 | 50 8.27
37.142 | −19.69
50 17.721 | +.26
+19.433
−0.45
− 19.67 | 17.26
+ .22
−0.45 +3.952
− 19.44 90
50 37.14 | 3932
−7 30.61
50 17.70 24 | +.2
~~21.62~~ 21.612 | −1470
55 54.21

+28.89
15
−3.13
3 48.0
41.7
897
18 44.85
1.46075
1.42752
+26.76
19 11.61
3 36.74
33 43
0.41100n
+2910
.44010
+ 2.75
−21 ~~−.08~~
+.04 −.17
+2.58
3 39.32
8.7
30.6
30.6
−7 30.88
+ .16 | 53.50
− 14.70 | 30.72 −13.86
−7 45.42
53.90
54.74

×
March 3 +.08
+.100
50 15.8 | 49 49.1
18.7 | 51.6
21.6 | 53.8
27.5
30.3
33.3
36.2 | 50 54.6
39.0 | 57.1
44.4 | 59.9
47.8
50.8

3659

50 33.264 | 49 51.50
| 50 57.20
33.242 | −15.81
50 17.621 | +.08
+15.623
−0.35
− 15.81 | 17.16
+ .10
−0.35 +4.052
− 16.06 | 4
50 33.24 | 2058
−7 30.62
50 17.18 | + .1
21.582 | −1500
55 55.06

+41.76 | −23.94
15
−3.20
3 31.1 | 4 33.1
31.2 | 32.9
623 | 660
18 31.15 | 19 33.00
1.62076 | 1.37912n
1.58753 | 1.34589n
+38.68 | −22.18
19 9.83 | 19 10.82
3 38.52 | 37.53
38.02
−2 33 57 | 32 55
0.41160n | 0.40870n
+358
.41518 | .41228
+2.60 | +2.58
−47 −.03 | −15
+.24 | +.31
+2.37 | +2.74
3 40.89 | 40.27
9.0
31.9 | 31.3
31.6
−7 30.87
+ .16 | 30.71 55.18
− 15.00 | −14.16 54.56
45.71
54.87
55.71

×
1874
March 4 +.94
+.030
50 15.1 | 49 46.9
18.1 | 49.5
21.0 | 51.9
26.8
29.8
32.7
35.5 | 50 52.3
38.5 | 53.4
44.2 | 57.6
47.3
50.2

3592

50 32.655 | 49 49.43
| 50 55.10
32.633 | −15.14
50 17.6059 | +.04
+15.034
−0.33
− 15.14 | 17.20
+ .03
−0.33 +4.072
− 15.43
50 32.63 | 3 40.28
−7 30.74
50 17.20 | + .2
21.602 | −1500
55 54.74

+43.22 | −22.45
15
−3.22
3 29.9 | 4 30.8
31.1 | 32.0
610 | 628
18 30.50 | 19 31.40
1.63568 | 1.35122n
1.60245 | 1.31799n
+40.04 | −20.80
19 10.54 | 19 10.60
3 37.81 | 37.75
37.78
−315
.40845 | .40355
+ 2.56 | +2.54
−52 −.05 | −13
+.24 | +.31
+2.28 | +2.72
3 40.09 | 40.47
9.0
31.1 | 31.5
31.3
−7 31.05
+ .16 | 30.89 54.20
− 15.00 | −14.16 54.58
45.89
54.34
55.22

1875
Feb. 4 +.26
+.283
50 13.5 | 49 55.4
16.2 | 58.4
19.2 | 0.7
25.0
27.8
30.8
33.8 | 49 59.9
36.6 | 2.4
42.5 | 5.2
45.6
48.4

3394

50 30.855 | 49 58.27
| 50 2.50
30.833 | −8.45
50 22.925 | +.26
+7.9190
−1.27
− 8.26 | 21.37
+ .28
−1.27
− 9.25
50 30.83 | 12 21.27
−16 11.48
50 21.58 | + .2
−1430
55 55.69

+32.58 | +28.35
5
−3.61
4 55.6 | 0 57.8
2.8 | 5.9
1184 | 1237
9 59.20 | 10 1.85
1.51295 | 1.45255
1.48846 | 1.42806
+30.79 | +26.80
10 29.99 | 10 28.65
12 18.36 | 19.70
19.03
33 49 | 33 46
0.40130n | 0.40130n
+4199
.44329 | .44329
+ 2.77 | + 2.77
−29 −.53 | −.22
−.55 | .00
+1.93 | +2.55
12 20.29 | 22.25
9.2
−16 11.1 | 13.1
−16 12.1
−16 11.31
+ 18 11.13 55.86
− 13.30 13.47 53.82
24.43
5
~~56.84~~
55.84

Feb. 13 +.31
+.287
50 2.0 | 49 38.9
4.7 | 42.3
7.9 | 45.1
13.6
16.6
19.4
22.5
25.4
31.1
34.0
37.0

2142

50 19.473 | 49 42.10
19.451 | +3.05
50 22.881 | +.31
−3.376
−1.15
+ 3.05 | 21.66
+ .29
−1.15
+ 2.19
50 19.45 | 19.52
−16 9.19
50 21.64 | + .1
−1520
55 55.23

+37.87
5
−3.73
4 52.4
57.3
1097
9 54.85
1.57252
1.54803
+35.32
10 30.17
12 18.18
+3834
.43964 | .43968
+ 2.75 | + 2.70
−38 −.70 1.41
− 4.03
+1.34
12 19.52
10.1
9.4
9.4
−16 9.21
+ .19 | 9.02 55.30
− 15.20 | −14.37
24.22
55.30

1875

Feb	9	50″ 22.88		55′ 69.7″	
	14	22.80	-.08	70.2	+.5
	19	22.71	.09	70.6	.4
	24	22.61	.10	71.0	.4
Mar.	1	22.51	.10	71.3	.3
	6	22.40	.11	71.5	.2
	11	22.29	.11	71.7	.2
	16	22.17	.12	71.7	.0
	21	22.04	.13	71.7	.0

con α =
con δ =

tang δ = + 1.00 1.41
I = 2.91
k = -.022

+.35		+.00		+.02		+.07 +.05	
Feb. 16		Feb. 24		March 8		March 22	
+.300		-.035		+.010		+.116	
49 58.3	49 55.8	49 49.8	49 32.0	49	50 2.4	49	No V
50 1.6	58.7	52.7	34.6	47.7	5.8	32.7	
4.2	1.8	55.4	37.2	49.2	8.3	34.3	
10.0		50 1.3		50.5		35.7	
12.9		4.2		52.1		37.1	
15.8		7.2		53.7		38.7	
18.7		10.2		55.2		40.1	
21.6		13.1		56.5		41.9	
27.5		18.9		58.0		43.1	
30.4		21.8		59.5		44.5	
33.3		24.7					
23 43		25 93		48 2 4		1 34 81	
60		180					
17 43	49 58.77	7 93	49 34.60		50 5.50		
50 15.845	+6.54	50 7.209		49 53.600		49 38.678	
15.823	~~+5.29~~	7.187	+15.39	53.578	+28.68	38.656	+43.29
50 22.76	+.35	50 22.610	00	50 22.875	+.02	50 22.02	+.07
-6.94		-15.424		-28.797		-43.36	+.07
	-1.10		-0.94		-0.69		-0.36
+ 6.57	2161	+ 15.42	2164	+ 28.69	2159	+ 43.30	.2173
+ .30		- .03		+ .01		+ 12	
-1.10		-0.94		-0.69		-0.86	
+ 5.757		+ 14.45		+ 28.01		+ 43.06	
50 18.82	1984	50 7.19	1939	49 53.58	2012	49 38.66	
	-16 9.13		-16 7.93		-16 8.44		-16 6.61
50 21.579	+2	50 21.64	+1	50 21.59	+.2	50 21.72	+.1
	-15.50		-16.10		-16.70		
	55 55.41		55 55.46		55 ~~56.40~~ 55.18 5		

+17.07	+32.61	-11.90	
10	5	10	A.R.
1 -3.79	-3.87	-3.88	
0 13.1	4 52.0	0 39.3	
16.9	7.0	44.7	
30.0	19.0	84.0	
10 15.00	9 59.50	10 42.00	
1.23223	1.51335	1.07555 n	
1.20774	1.48886	1.05106 n	
+16.13	+30.82	-11.25	
10 31.13	10 30.32	10 30.75	
12 17.22	12 18.03	12 17.60	
		33 6	
		0.40930 n	
+3736	+544	+2146	
.43866 .43866	.40674 .40674	.43076	
+2.75 +2.75	+2.55 +2.55	+2.70	
-.09 -.06	-.29 -.59	-.03 -.06	
-.04 -.13	-.90 -1.19	-.15 -.18	
+2.62	+1.36	+2.52	
12 19.84	12 19.39	12 20.12	
10.4	11.0	11.6	
9.4	8.4	8.5	
9.4	8.4	8.5	
-16 9.49	-16 8.19 8.00	-16 8.80 8.61	
+ .19 9.30 55.04	+ .19 55.25	+ .19 54.81	
- 15.50 14.67	- 16.10 -15.27	- 16.70 -15.87	
24.80 55.04	24.10 55.29	25.31 54.81	

65

γ Aurigae.
h m sec
5 51 12
+37° 12′
ζ = + 5° 11′
+ .09

Sin δ 9.78147
Cos δ 9.90120
.11678
.01798

1875
α 11.862
δ +12 466
+4.091
+0.661

cos δ 9.90120
ℓℓ .12552
ℓℓ′ .02672

1874
α 7.771
δ +12 400
+4.091
+0.667

1874	m	s		′	″		1875	m	s		′	″	
Mar. 1	51	8.14		12	16.3		Feb 9	51	12.96		12	17.4	
6		8.03	−.11		16.5	+.2	14		12.89	−.07		17.8	+4
11		7.93	.10		16.6	.1	19		12.81	.08		18.1	.3
16		7.83	.10		16.7	.1	24		12.73	.08		18.5	.2
21		7.73	.10		16.7	0	Mar. 1		12.64	.09		18.5	.2
26		7.63	.10		16.7	+0	6		12.55	.09		18.7	.2
31		7.53	.10		16.6	−.1	11		12.45	.10		18.8	.1
Apr. 5		7.43	.10		16.4	.2	16		12.34	.11		18.8	.0
10		7.34	.09		16.2	.2	21		12.23	.11		18.8	.0

corr α =
corr δ =

tang δ = +.76 1.26
s
I = 2.60
s
k = −.020

1874 Feb. 26	1874 March 3	1875 Feb. 16	Feb 24	Mar 22
+26	+08	+35	+00	+07 +05
+.223	+.106	+.300	−.035	+.116

5 51 12.1 51 17.8 51 19.2 20.4 51 37.2 50 50.5 51 2.8 50 41.8 50 49.5 50 13.4 50 23.0
14.8 19.7 21.6 39.7 53.0 4.9 44.4 51.8 15.
17.3 21.8 22.5 42.0 55.6 7.6 52.1 47.0 53.9 18.5
22.4 23.7 51 0.8 <54.8 23.6
25.0 25.1 3.6 57.3 26.2 50 47.9
27.7 26.3 6.1 59.4 28.8 50.4
30.3 51 53.3 27.6 8.6 51 42.5 2.4 51 41.1 31.5 53.0
33.0 55.6 28.9 11.4 45.6 7.7 43.2 34.2
38.0 38.5 16.4 45.7 10.3 45.6 39.2
40.6 19.0 12.9 41.6
43.3 21.6 44.5

30.45 33.81 24.66 39.05 31.72
180 241

51 19.77 23.922 51 39.63 6.66 51 5.10 6.305 50 51.80 ~~50 23.00~~
51 27.682 51 35.80 51 23.90 51 6.055 51 45.27 50 57.318 51 43.30 50 28.836 50 50.53
27.663 −19.69 23.90 −15.81 6.036 +6.55 57.298 +15.39 28.817 +43.29
51 8.221 +20 51 8.409 +.06 51 12.865 +27 51 12.73 .00 51 12.280 +.05
+19.445 +15.81 −6.821 −15.43 −43.40 38 +.06
−0.44 −0.32 −0.99 −0.87 −0.34
− 19.67 51 7.73 − 15.81 7.83 + 6.54 11.87 + 15.42 11.82 + 43.30 11.88
+ .17 + .08 + .23 ~~+~~ − .03 + .09
−0.44 +36.51 −0.32 +37.71 −0.99 −0.84 −0.34
− 19.94 − 16.05 + 5.81 + 14.52 + 43.05
51 27.66 19 47.30 51 23.90 19 47.62 51 6.04 28 26.92 50 57.30 27.15 50 28.82 26.52
−7 30.61 −7 30.62 −16 9.13 −16 7.93 −16 6.61
51 7.72 −.3 51 7.85 −.2 51 11.85 −.4 51 11.82 −.4 51 11.87 −.3
11.811 −12.20 11.941 −12.40 −13.20 −13.60 −14.10
+37 12 4.19 12 4.40 12 4.19 12 5.22 12 5.51

s
+7.91 −28.12 − 15.71 + 0.95 − 39.22 + 5.52 − 45.98 + 5.84 −21.69
0 0 50 50 50
$\mathcal{H}_0 \ell = n$ 3.13 −3.20 −3.79 −3.87 −3.83
2 51.0 3 28.7 3 12.1 4 13.1 4 54.7 4 2.4 4 56.9 4 37.4
43.1 20.9 11.9 15.1 57.4 15.2 10.8 39.1
9.41 4.96 2.40 2.82 11.21 1.76 12.77 7.65
2 47.05 3 24.80 3 12.00 54 14.10 54 56.05 54 8.80 55 3.85 54 38.25
0.89818 1.44902n 1.19618n 9.97772 1.59351n 0.74194 1.66257n 0
0.91616 1.46700n 1.21416n 0.00444 1.62023n 0.76866n 1.68929n 0.76641 1.33626n
+8.24 −29.31 −16.37 + 1.01 −41.71 + 5.87 −48.90 0.79313 1.36298n
2 55.29 2 55.49 2 55.63 54 15.11 54 14.34 54 14.67 54 14.95 54 + 23.87 / 95.18 −23.07

+37° 19 53.06 52.86 19 52.68 28 33.24 33.97 28 33.68 33.40 28 33.14
52.96 .72 33.62 34.01 33.54
+5 10 19 10 57 10 44 10 26 11 8 10 21 11 16 10 50
0.71700 0.71790 0.71760 0.71720 0.71810 0.71700 0.71840 0.71770
+29.11 + 35.8 +37.37 +5.46 +31.16
.74611 .74701 .72118 .75457 .75547 .72246 .72386 .74885
−5.57 −5.58 −5.26 −5.68 −5.69 −5.28 −5.29 −5.61

− 1 −.08 −.20 −.06 ~~+.04~~ − 0 −1.02 −.40 − 2 −1.10 −.54 −.12 ~~−.52~~
+.03 +.03 +.22 +.16 −.76 −.88 −.74 ~~−.00~~ .90 −.92 −1.04
− 5.56 − 5.75 −5.10 −6.44 −6.97 −6.04 −6.73 −6.65
19 47.50 47.11 19 47.58 28 26.80 27.07 28 27.64 26.67 28 26.52
12 16.2 16.2 17.9 18.3 18.8
−7 31.3 30.9 31.2 −16 8.9 9.1 9.3 8.4 7.7
−7 31.1 31.2 −16 9.0 8.9 7.7
−7 30.88 31.16 −7 30.87 31.16 −16 9.49 9.83 −16 8.19 8.54 −16 7.4 7.11 ~~7.58~~
− 28 12 8.14 .29 31.06 − .34 −12.54 3.77 − .35 −12.94 5.50 − .34 −13.44 ~~2.54~~
− 12.20 −11.53 3.75 − 12.90 −11.73 − 13.20 4.01 − 13.60 4.53 − 14.10 2.84
−7 43.36 − 43.56 33.03 22.14 . 23.18
3.44 4.06 3.89 5.01 − 21.55 ~~2.84~~
4.61 4.73 4.50 4.97

γ Columbae.
5h 53m 6sec
−35° 18′
z = +77° 41′
sin z = +.98

sin δ 9.76182n
cos δ 9.91176
.11676
.02854

1875
α 53 6.42
δ 17 51.46
dα/dt +2.127
dδ/dt +0.65

l cos 9.91176
l C .12552
l C′ .03728

cos α =
cos δ =
tang δ = −.71
I = 2.53s
K = −.019s

1874 1874 1875
Feb. 16 March 4 Feb. 4 Feb. 13 Feb. 16
+1.45 +0.30 +2.83 +2.84 +3.00
5 52 17.5 52 57.3 53 4.8 52 47.3 53 0.6 52 47.2 52 49.4 52 33.4 52 — 53 16.4
19.9 57.4 7.4 50.4 3.2 49.1 51.7 35.8 — 19.7
22.4 1.5 9.8 52.6 5.8 52.4 54.4 38.0 — 22.6
27.6 14.9 10.8 59.4 55.8
30.0 17.2 13.4 53 2.1 58.3
32.7 19.8 15.9 4.6 55 1.0
35.1 22.5 53 43.5 18.3 53 28.1 7.1 53 28.2 3.5
37.6 25.0 46.8 20.8 29.4 9.8 31.2 6.0
42.8 30.0 48.8 26.0 14.8 33.2 —
45.3 32.6 28.5 17.2 —
47.9 35.2 31.0 19.5 —
35.88 21.92 17.43 29.02 12.46
240 120
52 57.73 52 50.10 52 49.57 5.02 52 35.73 46 53 19.57
52 32.618 53 19.927 53 46.37 53 15.845 53 28.75 53 4.564 53 30.87 53 0.920
32.599 19.908 15.826 4.545 0.901
+ 32.54 − 15.13 − 8.25 + 2.05 + 6.54
− .12 − .02 − .20 − .20 − .21
− 0.72 +1.407 − 0.37 +1.757 − 1.15 − 1.00 − 0.94
+ 31.70 − 15.52 − 9.60 + 1.85 + 5.42
52 32.60 53 19.91 53 15.83 53 4.54 53 0.90
53 4.30 53 4.39 53 6.73 53 6.39 53 6.32
6.427 4.345 6.517 6.313

s
−25.11 +29.83 −26.44 +26.27 −12.91 +28.83 −26.31 −18.65
25 25 15 15 20
Hp = −3.72 −3.22 −3.61 −3.73 −3.79
4 21.6 3 30.3 4 30.6 4 13.0 4 54.0 4 19.1 0 19.6 0 12.9 0 40.1
17.0 31.8 31.0 17.1 57.4 24.8 26.5 16.1 43.9
38.6 62.1 61.6 30.1 111.4 43.9 46.1 29.0 84.0
29 19.30 28 31.05 29 30.80 19 15.05 19 55.70 19 21.95 20 23.05 20 14.50 20 42.00
1.39985n 1.47465 1.42226n 1.41946 1.11093n 1.45984 1.42012n 1.27068n
1.42839n 1.50319 1.45080n 1.45674 1.14821n 1.49712 1.45740n 1.30796n
−26.82 +31.85 −28.24 +28.63 −14.07 +31.41 −28.67 −20.32
28 53.48 29 3.90 29 2.56 19 43.68 19 41.63 19 53.36 19 54.38 19 54.18

−35° 6′ 4.13″ 6 14.55 14.21 56 55.33 53.28 57 5.01 57 6.03 57 5.83
14.38 54.30 5.52
+77 36 51 +77 36 3 37 3 35 27 36 8 35 32 36 35 36 17
2.40878 2.40826 2.40884 2.40792 2.40832 2.40797 2.40861 2.40843
+1115 −295 +4214 +3839 +3741
2.41993 2.40531 2.40589 2.45006 2.45046 2.44636 2.44700 2.44584
−26300 −25430 −25460 −28190 −28211 −27950 −27990 −27920
− .23 − 5 − 5 − .59 − .59 − .55 − .55 − .55
+.16 +.22 +.47 +.18 +.18 −.39 +.04 +.21 −.31 +.17 +.08 +.02
+.30 +.46 +.24 +.31 −.46 −.54 −.92 −.08 −.04 −.13

−4 22.77 −4 13.89 −4 14.16 −4 42.77 −4 43.20 −4 40.76 −4 40.36 −4 39.71
−35 10 26.90 10 28.44 28.37 1 38.10 36.48 1 45.77 46.39 1 45.54
−7 32.22 −7 31.05 −16 11.31 −16 9.24 −16 9.49
− 2.95 35.17 − 3.15 34.20 − 3.53 14.84 − 3.65 12.86 − 3.41 13.20
+ 7.78 −8.41 + 9.28 +9.94 + 4.23 +4.89 + 5.72 +6.38 ~~6.15~~ + 6.15 +6.81
−7 27.42 54.32 −7 24.92 53.36 16 10.61 48.71 7.14 52.91 7.05 52.55
53.65 53.29 47.09 53.53
53.32
52.17 47.50 53.22 52.59

μ Orionis.

5h 55m 30sec.

+ 9° 39′

ζ = + 32° 44′

sin ζ = +.54

sin δ 9.22455

cos δ 9.99381

.11678

.11059

1875

α 55 30.42

δ 38 41.46

dα/dτ +3.301

dδ/dτ +0.34

l cos δ 9.99381

lb .12552

lb′ .11933

cos α =

cos δ =

tang δ = +.17

t = 2.09s

k = −.016s

1874

Feb. 16 — +.175

5 54 42.6, 44.6, 46.7, 50.8, 53.0, 55.1, 57.2, 59.3, 55 3.4, 5.5, 7.5 — 54 27.1, 28.8, 31.0

4257

180

6057 — 54 28.97

54 55.064

55.048

+ 32.54

+ .03

− 0.51 +2.791

+ 32.06

54 55.05

55 27.11

30.411

March 2 — +.120

55 —, —, —, 39.7, 41.8, 43.8, 46.0, 48.1, —, —, — — 55 55.3, 57.3, 0.3

2194

55 57.63

55 43.880

43.864

− 16.51

+ .02

− 0.31 +2.991

− 16.80

55 43.86

55 27.06

30.361

March 3 — +.100

55 30.6, 32.7, 34.8, 39.0, 41.0, 43.1, 45.2, 47.3, 51.5, 53.6, 55.8 — 55 13.1, 14.8, 16.5 — 55 58.3, 0.2, 2.2

4746

55 14.80

56 0.23

55 43.145

43.129

− 15.80

+ .02

− 0.29 +3.011

− 16.07

55 43.13

55 27.06

30.361

1874

March 4 — +.030

55 30.0, 32.1, 34.1, 38.4, 40.4, 42.5, 44.7, 46.7, 50.8, 53.0, 55.0 — 55 13.5, 15.3, 17.1 — 56 1.7, 4.1, 6.1

4677

55 15.30

56 3.97

55 42.518

42.502

− 15.13

+ .00

− 0.28 +3.021

− 15.41

55 42.50

55 27.09

30.391

27.080

1875

Feb 4 — +.283

55 27.0, 29.2, 31.1, 35.2, 37.4, 39.5, 41.6, 43.7, 47.9, 50.0, 52.2 — 55 11.5, 13.6, 15.3 — 55 49.7, 51.6, —

4348

55 13.47

55 50.66

55 39.527

39.511

− 8.25

+ .05

− 0.96

− 9.16

55 39.51

55 30.35

Feb. 13 — +.287

55 15.7, 17.9, 19.7, 23.7, 26.0, 28.1, 30.1, 32.2, 36.5, 38.7, 40.7 — 55 10.5, 12.5, 14.1 — 55 55.0, 57.1, 59.1

3093

55 12.37

55 57.07

55 28.118

28.102

+ 3.05

+ .05

− 0.84

+ 2.23

55 28.10

55 30.33

A.R.

+26.09s | −13.75 | +28.34 | −17.09 | +27.22 | −21.45 | +26.06 | −11.12 | +15.75 | −28.95

35 | 35 | 35 | 25 | 25

dδ/dl = −11.318″ | −3.20 | −3.22 | −3.61 | −3.73

1 12.1 | 0 17.9 | (1) 16.0 | 0 20.2 | 1 22.7 | 1 31.2 | 2 18.1 | 1 44.1 | 2 44.8

7.9 | 15.1 | 13.6 | 19.4 | 18.2 | 34.1 | 22.1 | 48.9 | 49.1

20.0 | 33.0 | 29.6 | 39.6 | 40.9 | 65.3 | 40.2 | 93.0 | 93.9

36 10.00 | 35 16.50 | (3) 14.80 | 35 19.80 | 36 20.45 | 26 32.65 | 27 20.10 | 26 46.50 | 27 46.95

1.13830n | 1.45240 | 1.23274n | 1.43489 | 1.33143n | 1.41597 | 1.04610n | 1.19728 | 1.46166n

1.24889n | 1.56299 | 1.34333n | 1.54548 | 1.44202n | 1.53530 | 1.16543n | 1.31661 | 1.58098n

−17.74 | +36.56 | −22.05 | +35.11 | −27.67 | +34.30 | −14.64 | +20.73 | −38.10

35 52.26 | 35 53.06 | 35 52.75 | 35 54.91 | 35 52.78 | 27 6.95 | 27 5.46 | 27 7.23 | 27 8.85

+9° 46′ 56.09″ | 46 55.29 55.44 | 55.60 | 46 53.44 54.50 | 55.57 | 55 41.40 ~~42.54~~ 14 | 42.89 | 55 41.12 40.31 | 39.50

43 42 | +32 42 48 | 43 47 | 42 45 | 43 32

1.56780 1.56810 | 1.56780 1.56810

+1180 | +358 | −272 | +4232 | +3846

1.57990 | 1.57138 | 1.57168 | 1.56508 | 1.56538 | 1.61012 | 1.61042 | 1.60626 | 1.60656

−38.01 | −37.27 | −37.30 | −36.74 | −36.76 | − ~~33.37~~ 40.75 | −40.78 | −40.39 | −40.42

−.05 | −.01 .00 | −.06 +.01 | −.02 | −.06 +.01 | −.03 | −.05 −.23 | −.01 | −.05 .52 | −.06

+.01 | +.02 | +.08 | +.02 | +.09 | −.16 | −.25 | −.38 | −.59

−38.01 | −37.31 | −37.24 | −36.78 | −36.70 | −40.96 | −41.04 | −40.78 | −41.07

+9 46 18.08 | 46 17.98 | 18.36 | 46 16.66 | 18.87 | 55 0.44 | 1.85 | 55 0.34 54 | 58.43

−7 30.27 | −7 30.87 | −7 31.05 | −16 11.31 | −16 9.21

− 1.71 31.98 | − 1.72 32.59 | − 1.73 32.78 | − 1.94 13.25 | − 2.01 11.22

−2.64 | −2.63 | −2.63 | −4.78 | −4.49

−3.19 | −2.98 | −2.97 | −2.97 | −5.12 | −4.83

−7 34.96 38 43.12 | 35.56 42.42 42.80 | 35.75 40.91 43.12 | 18.37 42.07 43.48 | 16.05 44.29 42.38

43.12 43.46 | 42.61 42.95 | 42.02 42.36 | 42.77 | 43.33

	Feb. 16				Feb. 22				March 18		March 22
	+.300				+.064						+.116
55	12.2	54	58.6	55	5.5	55	4.8			54	— 54
	14.2		0.7		7.6		6.9				—
	16.3		2.6		9.7		8.4				—
	20.4				13.1						43.1
	22.4				15.8						45.6
	24.6				18.0						47.5
	26.6	55	35.7		20.1	55	43.5				49.6
	28.8		39.0		22.1		45.1				51.7
	32.9		46.6		26.3		46.6				—
	35.0				28.4						—
	37.3				30.6						—
			063								
	27.07	55	~~6.83~~		19.78	55	6.70				23.75
55	24.609	55	38.43	55	17.982	55	45.07			54	47.500
	21.593				17.966						47.484
+	6.54			+	13.21					+	43.30
+	.05			+	.01					+	.02
−	0.84			−	0.76					−	0.31
+	5.78			+	12.46					+	43.01
55	24.59			55	17.97					54	47.48
55	30.37			55	30.43					55	30.49
											30.392
25	+23.98		−13.82	25	+11.28		−27.09	25		25	
	−3.79				−3.83						
1	37.8	2	27.6	1	55.7	2	45.9	2	41.5	2	31.8
	39.2		28.0		56.5		46.2		44.0		30.6
	77.0		55.6		112.2		92.1		85.5		62.4
26	38.50	27	27.80	26	56.10	27	46.05	27	42.75	27	31.20
	1.37985		1.14051 n		1.05231		1.43281 n				
	1.49918		1.25984 n		1.17164		1.55214 n				
	+31.56		−18.19		+14.85		−35.66				
27	10.06	27	9.61	27	10.95	27	10.39				
55	38.29		38.74	55	37.40		37.96				
	38.51				37.68						
				43	8	43	58				
					1.56790		1.56820				
	+3748				+2343						
	1.60528		1.60558		1.59133		1.59163				
	−40.30	−	40.33		−39.02		−39.05				
	−.04	−.39	−.01		−.01	−.45	−.06				
	−.29		−.45		−.34		−.50				
−	40.63	−	40.79		−39.37		−39.61				
54	57.66		57.95	54	58.03		58.35				
−16	9.49			−16	9.24						
	20.4		11.53		2.06		11.30				
−	−4.74		−4.40	−	−4.59		−4.25				−4.39
	16.27		41.39		15.89		42.14				
			41.68				42.46				
			41.53				42.30				

Piazzi V 327

B. A. C. 1946.

h m sec.
5 58 13

− 26° 17′

ζ = + 68° 40′

sin ζ = +.93

sin δ 9.64622n
cos δ 9.95261
.11678
.06939

1875
α 58 13.46
δ 17 58.2
$\frac{d\alpha}{dt}$ +2.418
$\frac{d\delta}{dt}$ +0.30

l cos δ 9.95261
l c .12552
l c′ .07813

corr α =
corr δ =

tang δ = −.49
I = 2.30
k = −.017

1874 Feb 26 | March 2 | March 4 | 1874 March 13 | 1875 Feb. 16 | Feb. 22

+.223 | +.120 | +.030 | +.300 | +.064

5 58 17.6 58 32.2 58 14.2 58 2.7 58 12.8 57 56.0 57 54.1 57 37.6 57 47.3 57 31.2
19.9 16.5 4.7 15.1 58.1 56.3 40.0 49.7 33.3
22.2 18.8 6.8 17.4 0.5 58.8 42.1 51.9 35.1
26.7 23.4 22.0 58 3.1 56.5
29.1 25.8 24.2 5.6 58.7
31.4 28.1 26.5 7.8 58 1.1
33.6 58 57.6 30.3 58 41.1 29.0 58 39.6 10.2 58 22.6 3.5 58 15.7
35.9 0.2 32.6 42.8 31.1 41.4 12.5 24.7 5.8 17.5
40.4 2.3 37.2 43.6 35.8 43.9 17.1 26.9 10.2 19.7
42.9 39.5 38.0 19.4 12.6
45.0 41.7 40.4 21.8 14.9

3447 3081 2923 2667 3122
180 300
867 122

58 32.20 58 4.73 57 58.20 57 39.90 57 33.20
58 31.336 59 0.02 58 28.009 58 42.83 58 26.573 58 41.63 58 7.882 58 24.70 58 1.109 58 17.63
31.319 27.992 26.556 7.865 1.092

− 19.66 − 16.51 − 15.13 + 6.58 + 13.22
− .11 − .06 − .01 − .15 − .03
− 0.47 +1.948 − 0.38 +2.038 − 0.34 +2.078 − 0.89 − 0.79
− 20.24 − 16.95 − 15.48 + 5.54 + 12.40
58 31.32 58 27.99 58 26.56 58 7.86 58 1.09

58 11.08 58 11.04 58 11.08 58 13.40 58 13.49
13.498 13.458 11.07 13.498 13.450

s
− 0.86 − 28.69 + 23.28 − 14.82 + 28.37 − 15.06 +27.96 − 16.85 +27.91 − 16.52
25 25 25 20 20 20

H_ζ = −3.13 −3.18 −3.22 −3.79 −3.83

4 57.4 0 29.7 4 33.8 0 18.2 4 33.9 0 23.6 0 36.1 1 37.5 0 33.7 1 27.1 0 40.9 1 34.0
48.2 20.0 30.6 15.5 33.6 23.8 40.5 41.6 36.8 28.6 43.1 35.9
105.6 49.7 64.4 33.7 67.5 47.4 76.6 79.1 70.5 55.7 84.0 69.9
29 52.80 30 24.85 29 32.20 30 16.85 29 33.75 30 23.70 20 38.30 21 39.55 20 35.25 21 27.85 20 42.00 21 34.95
0.93450 1.45773 1.36698 1.17085 1.45286 1.17782 1.44685 1.22660n 1.44576 1.21801n
0.00389 1.52712 1.43837 1.24024 1.52225 1.24721 1.52498 1.30473n 1.52389 1.29614n
−1.01 −33.66 +27.25 −17.39 +33.29 −17.67 +33.49 −20.17 +33.41 −19.78
29 42.71 29 51.19 29 59.45 29 59.46 30 7.04 30 6.03 21 8.74 21 7.68 21 15.41 21 15.17
~~54.49~~ ~~57.45~~ ~~6.53~~ ~~8.21~~ ~~13~~

−26° 6 54.36 7 2.84 7 11.10 11.11 7 18.69 17.68 58 20.39 19.33 58 27.06 26.82
7 ~~54.54~~ 3.11 11.10 18.19 19.86 26.94

+68 37 25 37 57.4 37 6 37 56 36 47 37 40
2.16442 2.16460 2.16428 2.16460 2.16421 2.16453
+2907 +1188 −253 +3754 +2343
2.19349 2.19367 2.17630 2.17648 2.16175 2.16207 2.20175 2.20207 2.18764 2.18796
−156.10 −156.20 −150.10 −150.10 −145.10 −145.30 −159.10 −159.30 −154.00 −154.10
− 7 ~~+.01~~ − 7 − 3 ~~+.05~~ − 3 − 1 ~~+.05~~ − 1 − .11 ~~.06~~ − .11 − 5 ~~+.06~~ − 5
+ 0 +11 +17 +.12 +.05 +.17 +28 +.05 +.16 −08 +.06 +.16 +.06
+.05 +.01 +.04 +10 +.02 +.32 +.03 −.11 −.27 −.13 −10 −.29
−2 36.12 −2 36.09 −2 29.97 −2 30.08 −2 24.62 −2 25.23 −2 39.15 −2 39.62 −2 34.02 −2 34.38
−26 9 39.56 38.93 9 41.07 41.19 9 43.31 42.91 0 59.53 58.95 1 1.08 1.20
−7 30.88 33.79 −7 30.27 33.22 −7 31.05 34.04 −16 9.49 13.01 −16 9.24 12.80
− 2.91 +7.28 − 2.95 +7.57 − 2.99 +7.69 − 3.52 +4.73 − 3.56 +5.39
+ 6.98 + 7.27 + 7.39 +4.43 + 4.43 + 5.09
−7 50.81 7 ~~12.3~~ 6.37 ~~2.9~~ 5.74 25.95 7.02 7.14 26.65 9.96 9.56 − 8.58 8.13 7.53 7.71 8.99 8.51

6.05 5.75 7.08 6.78 9.76 9.46 7.83 8.85

Feb. 24

-0.35

57 45.0 57 32.4
47.3 34.1
49.5 36.1
54.1
56.4
59.0
1.1 58 19.4
3.4 21.8
7.9 23.7
10.3
12.6

3466
800
6466 57 34.20
57 58.782 58 21.63
58.765

+ 1543
+ 02
− 0.75
+ 14.70
57 58.76

58 13.46

+24.58 −22.85
20
−3.67
0 48.3 1 44.9
59.1 55.1
107.4 1000
20 53.70 21 50.00

1.39058 1.35889n
1.46871 1.43702n
+29.43 −27.36
21 23.13 21 22.64

58 3478 3429
3453
37 6 38 2
2.16428 2.16464
+573
2.17001 2.17037
−147.90 −148.00
− 1 − 1
+13 −12 +11
−16 −32
−2 27.94 −2 28.22
1. 2.72 2.51
−16 8.19
3.59 11.78
+5.31 +5.61
−16 6.47 9.19
8.98

9.088

16,431

36 Camel.

h m sec
6 0 16

+ 65° 44'

ζ = − 23° 21'
− 40

Sin δ 9.95782
+116
α 16.315
δ +44 20.62
dα/dT + 6.032
dδ/dT − 0.088

l cos δ 9.61382
l.C, 12552
l.C' 9.73934

1875						
Feb. 9	0m	18.63		44'	39.9	
14		18.37	−.16		40.7	+.8
19		18.20	.17		41.5	.8
24		18.02	.18		42.1	.6
Mar. 1		17.83	.19		42.7	.6
6		17.63	.20		43.1	.4
11		17.42	.21		43.4	.3
16		17.20	.22		43.5	.1
21		16.97	.23		43.6	.1

cons α = +.155s
cons δ = +1.36"

tang δ = +2.22

I = 5.00s

K = −.037s

1875

Feb. 15 +.31 | Feb. 22 +.04
+.350 | +.064

0 59 40.2 | 59 | 59 17.5
2.4 45.8 | 55.0 | 21.9
4.9 49.0 | 57.4 | 25.6
7.5 | 0 0.0
10.1 | 2.3
12.6 | 4.8
15.4 0 24.0 | 7.4 0 23.8
17.5 27.5 | 10.1 27.2
19.8 32.1 | 12.4 30.0
22.4 | 15.0

11.26 | 16.44
 | 12.0
59 45.00 | 4.44 59 21.60
0 12.511 0 27.870 | 4.933 0 28.00

12.474 +5.30 | 4.896 +13.19
0 18.552 +.69 | 0 18.1008 +.09
− 5.885 | − 13.2018
− 6.031 −2.01 | − 13.384 −1.77
0 16.45 | 16.41 ✓

+ 5.24 | + 13.22
+ .78 | + .15
− 2.01 | − 1.77
+ 4.01 0 48.69 | + 11.60 51.24
0 12.47 −16 8.30 | 0 4.90 −16 9.00
+1.3 | +1.3
0 16.48 − 20.30 | 0 16.50 − 21.30
+65 44 21.49 | 44 22.24

+27.51 − 15.36 | +43.33 −23.07
20 | 20

− 3.77 | − 3.83
2 9.5 2 33.0 | 1 56.7 2 33.0
12.8 36.9 | 0.7 37.8
22.3 69.9 | 11.74 70.8
22 11.15 22 34.95 | ~~21~~ 21 58.70 22 35.40

1.43949 1.18639n | 1.63679 1.36305n
1.17883 0.92573n | 1.37613 1.10239n
+15.10 − 8.43 | +23.78 − 12.66
22 26.25 22 26.52 | 22 22.48 22 22.74

0 22.10 0 21.83 | 0 25.87 25.61
21.96 | 25.74
− 23 21 37 21 13 | 21 49 21 13
1.39570n 1.39550n | 1.39570n 1.39550n
+4109 | +2343
1.43679 1.43659 | 1.41913 1.41893
+27.34 +27.33 | +26.25 +26.24

− .15 −.60 −.05 | − .36 −.74 −.11
− .46 − .55 | − .54 − .47
+26.73 +26.73 | +25.35 +25.66
0 48.83 48.56 | 0 51.22 51.27
44 40.9 | 41.9
−16 7.9 7.7 | 9.3 9.4
−16 7.80 | 9.35
−16 6.5 21.82 | 8.2 22.21
−16 8.22 21.38 | −16 9.24 22.26
+ 1.51 6.71 | + 1.53 7.71
−20.39 | −21.39
− 20.30 21.68 | − 21.30 22.23
−16 27.01 21.58 | 29.01

V Orionis.
6h 0m 26sec
+ 14° 47′
g = + 27° 36′
+ .46

Sin δ 9.40682
Cos δ 9.98538
.11678
.10216

1874 s
α 22.703
δ +46 52.46
dα/dτ +3.427
dδ/dτ − 0.054

1874	m s		′ ″	
Feb. 9	0 23.32		46 57.2	
14	23.26	−.06	57.1	+.1
19	23.20	.06	57.1	.0
24	23.13	.07	57.1	.0
Mar. 1	23.06	.07	57.1	.0
6	22.99	.07	57.1	.0
11	22.91	.08	57.1	.0
16	22.83	.08	57.1	.0
21	22.74	.09	57.2	.1

1875
α 26.130
δ + 46 52.40
dα/dτ + 3.427
dδ/dτ − 0.058

l.cos δ 9.98538
l.c .12552
l.c′ 0.11090

1874		+		+		×		× 1874		1875	
Feb. 4 +.36		Feb. 26 +.26		March 2 +.42		March 3 +.08		March 4 +.04		Feb. 13 +.31	
+.347		+.223		+.120		+.100		+.030		+.287	
59 45.0	59	0 30.0	0 16.8	0 26.9	0 8.1	0 26.0	0 10.3	0 25.3	0 13.6	0 11.0	59 57.2
50.2		32.1	18.0	28.9	10.0	28.2	11.5	27.5	15.6	13.2	59.3
52.4		34.2	20.4	31.0	11.8	30.4	13.3	29.6	17.3	15.4	1.3
56.5		38.4		35.2		34.5		33.8		19.5	
58.6		40.6		37.3		36.6		36.0		21.8	
0 8		42.8		39.6		38.9		38.1		23.9	
2 9		44.8	0 52.7	41.6	1 3.0	41.0	0 58.7	40.3	0 53.7	26.0	
5 1		47.1	54.8	43.9	5.0	43.1	1 0.9	42.4	53.8	28.1	
9 4		51.2	57.1	48.2	7.0	47.5	3.0	46.7	58.0	32.3	
11 5		53.2		50.2		48.4		48.8		34.5	
13 7		55.5		52.4		51.6		51.0		36.7	
3091 300		4699		4350		4272		4195		2624	
91			0 18.90		0 9.97		0 11.70		0 15.50		5927 59 59.26
0 0.827		0 42.718	0 54.87	0 39.545	1 5.00	0 38.836	1 0.87	0 38.136	0 55.83	0 23.855	
0.811	+2244	42.702	−19.69	39.529	−16.52	38.820	−15.84	38.120	−15.14	23.839	+3.076
0 23.38	+.09	0 23.10	+.07	0 23.054	+.03	0 23.03	+.02	0 23.081	+.01	0 27.05	+.08
−22.57		+19.60		+16.489		+15.79		+15.181		−3.21	
	−0.68		−0.40		−0.34		−0.33		−0.31		−0.92
+ 22.42	0 22.66	− 19.66	22.68	− 16.51	22.70	− 15.80	22.70	− 15.13	22.68	+ 3.06	26.06
+ .09		+ .06		+ .03		+ .03		+ .01		+ .07	
− 0.68	+2.747	−0.40	+3.027	−0.34	+3.087	−0.33	+3.097	−0.31	+3.117	−0.92	
+ 21.83		− 20.00		− 16.82		− 16.10		− 15.43		+ 2.21	
0 0.81		0 42.70	54 28.61	0 39.53	28.71	0 38.82	28.79	0 38.12	28.61	0 23.84	3 9.03
	−7 31.56		−7 30.61		−7 30.06		−7 30.62		−7 30.74		−16 9.19
0 22.64	−.14	0 22.70	−.13	0 22.71	−1.3	0 22.72	−.13	0 22.69	−.13	0 26.05	−.15
26.067		26.127	−4.60	26.137	−4.60	26.147	−4.60	26.117	−4.60		−6.30
		+14	46 52.10		46 52.75		46 52.27		46 51.97		46 52.04

A.R.

	s +23.82	−12.15	+29.57	−25.46	+27.14	−22.03	+22.64	−17.69	+24.58	
Ho/p =	25 ″ , −3.13		25 −3.18		25 −3.20		25 −3.22		15 −3.73	
	2 23.0	3 9.6	2 13.9	3 23.4	2 17.2	3 18.3	2 22.9	3 18.9	3 33.7	4 26.6
	10.8	57.3	8.2	18.7	13.7	15.2	20.0	10.5	34.1	28.6
	338	1269	221	421	309	335	429	244	678	552
	27 16.90	28 3.45	27 11.05	28 21.05	27 15.45	28 16.75	27 21.45	28 12.20	18 33.90	19 27.60
	1.37694	1.08458	1.47085	1.40586	1.43361	1.34301	1.35488	1.24775	1.39058	
	1.47910	1.18674	1.57301	1.50802	1.53577	1.44517	1.45704	1.34989	1.50148	
	+30.14	−15.37	+37.41	−32.21	+34.34	−27.87	+28.64	−22.38	+31.73	
	27 47.04	27 48.68	27 48.46	27 48.84	27 49.79	27 48.88	27 50.09	27 49.82	19 5.63	
+14° 55′	1.31″ 0.79	0.27	54 59.89 59.70	59.51	54 58.56 59.01	59.47	54 58.26 58.39	58.53	3 42.72	
+27	34 49	35 35					34 53	35 44		
	1.47810 42899	1.47840	+1192		+358		1.47820 −234	1.47840	+3863	
	1.50709	1.50739	1.49002	1.49032	1.48168	1.48198	1.47586	1.47606		
	−32.14	−32.17	−30.91	−30.93	−30.32	−30.34	−29.91	−29.93	−32.85	
	−.07 −.02	−.02	−.11 −.07	−.08	−.10 +.11	−.07	−.07 +.14	−.04	−.08 ~~−.42~~ −.84	
	+.02	+.03	+.15 .02	+.23 +.03	+.16	+.23	+.17	+.22	−.76	
	−32.19	−32.16	−31.00	−30.98	−30.26	−30.18	−29.81	−29.75	−33.69	
54	29.12	28.11	54 28.89	28.53	54 28.30	29.29	54 28.45	28.78	9.03	
46	57.1		57.1		57.1		57.1		58.7	
−7	32.0	31.0	31.8	31.4	31.2	32.2	31.3	31.7	−16 10.3	
−7	31.50		31.60		31.70		31.50		−16 10.30	
−7	31.3		31.4		31.5		31.3		−16 10.1	
−7	30.88	46 52.21	−7 30.27	52.56	−7 30.87	~~23.70~~	−7 31.05	23.85	−16 9.21	51.81
−	1.43	32.31 51.20	− 1.46	52.20	− 1.47	32.34 ~~24.19~~ 51.36	− 1.48	32.53 ~~24.18~~ 51.32	− 1.71	10.92
−	4.60	−4.65	− 4.60	31.75 −4.65	− 4.60	−4.65 52.35	− 4.60	−4.65 51.60	6.30	−6.36
−7	36.91	51.70 51.65	36.33	52.38 52.33	36.94	51.85 51.80	37.13	51.48 51.43	17.22	51.80

1875

Feb. 9	0^m	27.09^s		46′	58.7″	
14		27.04	-.05		58.7	-.0
19		26.98	.06		58.6	.1
24		26.91	.07		58.6	.0
Mar. 1		26.84	.07		58.5	.1
6		26.77	.07		58.5	.0
11		26.69	.08		58.5	.0
16		26.60	.09		58.5	.0
21		26.51	.09		58.5	.0

corr α = -.003^s
corr δ = +.23″
tang δ = +.26
I = 213
k = -.016^s

	+.35 Feb. 16				+.00 Feb. 24				+.02 March 8		
	+.300				-.035				+.010		
0	7.6	59	50.6	59	58.7	59	50.9	59	45.3	59	36.9
	9.7	1	52.0	10	0.9		53.1		47.5		38.8
	11.9		53.7		3.0		55.0		49.6		40.4
	16.6				7.1				53.7		
	18.3				9.4				56.0		
	20.3				11.5				58.1		
	22.5	0	36.1		13.6	0	30.0		0.2	0	9.2
	24.6		38.0		15.7		32.1		2.4		10.5
	28.9		40.1		20.0		34.0		6.6		12.7
	31.0				22.1				8.8		
	33.1				24.2				10.8		
	2239				1862				3390		
					60				300		
		59	52.10		1262	59	53.00		6390	59	38.70
0	20.355	0	38.07	0	11.473	0	32.03	59	58.091	0	10.80
	20.339		+6.56		11.457		+15.41		58.075		+28.69
0	27.021		+.09	0	26.91		.00	0	26.743		+.01
	-6.687				-15.45				-28.66		
			-0.88				-0.78				-0.60
+	6.58		2611	+	15.43		2609	+	28.70		2618
+	.08			-	.01			+	.00		
	-0.88				-0.78				-0.60		
+	5.78			+	14.64			+	28.10		
0	20.34	3	916	0	11.46		825	59	58.07		863
		-16	913			-16	793			-16	844
0	26.12		-1.5	0	26.10		-1.6	0	26.17		-1.6
			-630				-620				-610
		46	52.23			46	52.52			46	52.49
15	+28.25		-17.72	15	+18.47		-20.56	15	+19.39		-12.71
	-3.79				-3.87				-3.88		
3	30.0	4	28.9	3	40.4	4	31.2	3	41.3	4	23.1
	29.0		27.0		49.6		39.5		43.7		23.5
	590		559		900		707		850		466
18	29.50	19	27.95	18	45.00	19	35.35	18	42.50	19	23.30
	1.45102		1.24846n		1.26647		1.31302n		1.28758		1.10415n
	1.56192		1.35936n		1.37737		1.42392n		1.39848		1.21505n
	+36.47		-22.88		+23.84		-26.54		+25.03		-16.41
19	5.97	19	5.07	19	8.84	19	8.81	19	7.53	19	6.89
3	42.38		43.28	3	39.51		39.54	3	40.82	3	41.46
	42.83				39.52				41.14		
34	41	35	40					34	54	35	35
	1.47810		1.47840						1.47820		1.47840
	+3857				+582				+2169		
	1.51667		1.51697		1.48392		1.48422		1.49989		1.50009
	-32.86		-32.88		-30.47		-30.49		-31.61		-31.63
	-.11	-.79	-.04		-.04	-.79	-.05		-.05	-.88	-.02
	-.63		-.81		-.67		-.83		-.78		-.92
	-33.60		-33.73		-31.18		-31.37		-32.44		-32.57
3	8.78		9.55	3	8.33		8.17	3	~~7~~8.38		~~7~~8.89
	58.7				58.6				58.5		
	10.1		10.8		9.7		9.6		9.9		10.4
	10.45				9.65				10.15		
	10.2				9.4				9.9		
-16	9.49		51.25	-16	8.19		52.16	-16	8.80		51.70
-	1.74		52.02	-	1.78		52.00	-	1.78		52.23
-	6.30		11.23	-	6.20		9.97	-	6.10		10.58
			-6.36				-6.26				-6.16
	17.53		51.63		16.17		52.08		16.68		51.96

θ Columbae.
6h 3m 15sec
− 37° 14′
z + 79° 37′
sin z = +.98

sin δ 9.78180n
cos δ 9.90101
.11678
.01779

1875
α 3 14.54
δ 14′ 10.37
dα/dt +2.057
dδ/dt −.024

cos δ 9.90101
l c .12552
l c′ .02653

cos α =
cos δ =
tang δ = −.76
I = 2s.60
K = −s.020

1874 March 1		1874 March 2		1874 March 4		1875 Feb. 13		Feb. 16		Feb. 22	
+.192		+.120		+.030		+.287		+.300		+.067	
6 3 14.9	3 16.1 ?	14.0	3 2.1	3 —	3 38.9	2 57.2	2 40.1	2 53.7	2 31.2	2 —	3 47.1
17.4		16.7	4.4	—	43.0	59.7	43.1	56.3	33.2	—	49.0
20.1		19.1	7.0	—	46.0	3 2.3		58.8	35.3		51.3
25.2		24.3		22.8		7.4		3 4.0		57.0	
27.8		26.9		25.4		10.1		6.6		59.8	
30.3		29.5		28.1		12.6	3 38.7	9.2		3 2.4	
33.1	3 57.0	32.1	3 47.3	30.7		15.4		11.9	3 16.6	4.8	
35.6	59.3	34.9	49.6	33.3		17.9		14.5	18.8	7.5	
40.7	1.2	39.8	52.0	—		22.9		19.5	20.8	—	
43.2		42.5		—		25.5		22.1		—	
45.9		45.2		—		28.1		24.7		—	
3342		3250		1403		2591		2813		1315	
						120		180		120	
	3 16.10		3 4.50		3 42.63	1391	2 41.60	.1013	2 33.23	.115	3 49.13
3 30.382	3 59.17	3 29.545	3 49.63	3 28.060		3 12.645	3 38.70	3 9.209	3 18.73	3 2.300	
30.362		29.525		28.040		12.625		9.189		2.280	
− 17.24		− 16.51		− 15.13		+ 3.07		+ 6.58		+ 13.22	
− .14		− .09		− .02		− .22		− .23		− .05	
− 0.51	+1.547	− 0.48	+1.577	− 0.43	+1.627	− 1.06		− 1.00		− 0.87	
− 17.92		− 17.08		− 15.58		+ 1.79		+ 5.35		+ 12.30	
3 30.36		3 29.52		3 28.04		3 12.62		3 9.19		3 2.28	
3 12.44		3 12.44		3 12.46		3 14.41		3 14.54		3 14.58	
14.497		14.497		12.467	14.517						

s
+14.28 −28.79 +25.04 −20.09 −~~+~~14.57 +31.04 −26.06 +35.98 −9.52 −46.83
20 20 20 10 10 15
2/1 = " −3.17 −3.18 −3.22 −3.73 −3.79 −3.83
4 16.0 4 58.9 ~~3~~4 1.1 4 47.3 4 50.7 4 46.1 4 45.3 0 32.9 0 27.0 1 23.0
11.0 53.9 6.6 45.9 51.1 50.0 48.0 36.2 31.5 26.7
27.0 112.8 7.7 93.2 101.8 96.1 93.3 69.1 58.5 49.7
24 13.50 24 56.40 2~~3~~4 3.85 24 46.60 24 50.90 14 48.05 14 46.65 15 34.55 15 29.25 16 24.85
1.15473 1.45924n 1.39863 1.30298n 1.16346n
1.17252 1.47703n 1.41642 1.32077n 1.18125n 1.49192 1.41597n 1.55606 0.97864n 1.67052n
+14.88 −29.99 +26.09 −20.93 −15.18 1.51845 1.44250n 1.58259 1.00517n 1.69705n
24 28.38 24 26.41 24 ~~29.94~~ 27.447 24 25.67 24 35.72 +33.00 −27.70 +38.24 −10.12 −49.78
15 21.05 15 24.89 15 24.43 14 ~~39.47~~ 15 35.07
−37° 1′ 40″.03 1 38.06 1 41.59 37.32 1 47.37
39.04 39.07 38.20
52 32.70 52 36.54 36.08 51 ~~51.12~~ 52 46.72
+79 31 45 32 28 31 36 32 19 31 0 30 36.34 31 46
2.47980 2.48034 2.47934 2.47987
+1447 +1198 −216 +3863 +3765 +2343
2.49427 2.49481 2.49178 2.45232 2.47764 2.47818 2.51797 2.51850 2.51699 2.51752 2.50277 2.50330
−312.10 −312.50 −310.30 −310.70 −300.40 −300.70 −329.60 −330.00 −328.80 −329.30 −318.20 −318.60
− .30 − .30 − .20 − .20 − .8 − 8 − .89 − .89 − .89 − .89 − .39 − .39
+.05 +.17 +.21 +.16 +.18 +.10 +.05 +.39 + .05 +.25 +.17 +.34 .31 + 0 +.86 +.56 ~~+.16~~
+.04 +.05 +.~~28~~ .05 +.~~34~~ .05 +.34 + .34 −1.01 −.76 −.86 −.11 −.09 −.25 +.31
−5 12.31 −5 12.54 −5 10.29 −5 10.75 −5 0.09 −5 0.39 −5 31.25 −5 ~~29.21~~ −5 30.30 −5 18.12 −5 18.68
−37 6 52.34 50.60 6 49.39 48.07 6 47.46 58 3.95 58 30.21 6.75 6.38 57 9.24 58 5.52 40
−7 30.40 −7 30.27 −7 31.05 −16 9.21 −16 9.49 −16 9.24
3.10 33.50 3.11 33.38 3.15 34.20 3.65 12.86 3.71 13.20 3.75 12.99
+8.98 +9.06 +9.21 +5.50 +5.96 +5.78
+9.22 +9.30 +9.45 +5.74 +6.20 +7.02 +7.02
−7 24.28 (4 16.62 24.08 13.47 24.75 12.21 −16 7.12 11.09 7.00 13.75 5.97 11.~~27~~ 37
14.88 12.15 13.38
15.75 12.81 12.21 11.07 13.56 11.~~27~~ 37
[15.42] 13.05 12.45

March 17

+.076

2 22.0 2 9.2
24.6 11.2
27.3 14.3
32.2
35.1
37.6
40.0 2 49.1
42.8 51.9
48.0 54.5
50.5
53.1

41.32

2 11.57
2 37.564 2 51.83
37.544

+ 37.31
— .06
— 0.32
+ 36.93
2 37.54

3 14.47

14.500

15 +25.79 −14.27

−3.87
0 8.2 0 47.3
17.9 55.1
26.1 10.24
15 13.05 15 51.20

1.41481 1.15442
1.44134 1.18095
+27.63 −15.17
15 40.68 15 36.03

52
52 52.33.47 47.68
31 47 25 32 3
2.47960 2.48000
+3205
2.51165 2.51205
−324.80 −325.10
− .66 − 66
+17 .00 +05
−.64 −.17
−5 25.33 −5 25.88
58 17.66 13.56
−16 7.20
10.99
− 3.79
+ 8.37
+ 8.61
2.38 15.04
15.94

15.49

H

22 Camelop.
6h 5m 4sec.
+69° 22'
Z − 26 59
− 45

Sin δ 9.97121
Cos δ 9.54702
.11678
9.66380

1874
α 57.420 s
δ +21 35.73
dα/dt +6.620
dδ/dt −0.544

1874		m s		"	
Feb.	9	4 59.42		21 54.1	
	14	59.23	−.19	55.0	+.9
	19	59.03	.20	55.8	.8
	24	58.82	.21	56.5	.7
Mar.	1	58.59	.23	57.1	.6
	6	58.35	.24	57.5	.4
	11	58.10	.25	57.9	.4
	16	57.84	.26	58.1	.2
	21	57.56	.28	58.2	.1

1875
α 4.040
δ +21 35.18
dα/dt +6.620
dδ/dt −0.554

C cos δ 9.54702
CC .12552
CC' 9.67254

1874

Feb. 4 +36		Feb. 11 +30		Feb. 12 +35	−04	× Feb. 26 +26		+ March 1 +20		+ March 2 +12	
+.347		+.277		+.294		+.223		+.192		+.120	
4 24.5	4 38.1	4 18.6	4 15.0	4 17.23	43.8	5 6.1	4 31.2	5 3.8	4 37.6	5 3.4	4 41.7
27.5	43.3	21.2		20.2	48.4	9.2	38.6	6.8		6.0	46.1
30.6	48.9	24.3		23.5	53.2	11.9	43.3	9.7		8.0	48.7
33.6		27.2		26.3		15.0		12.6		11.6	
36.5		29.8		29.4		17.9		15.5		14.7	
38.8		33.0		32.1		21.0		18.5		17.7	
42.0	5 8.0	36.1	4 57.5	35.2	4 58.4	23.8	5 25.3	21.3	5 38.3	20.8	5 24.9
45.0	12.5	38.9	53.8	38.4	4.1	26.4	31.5	24.3	43.6	23.8	28.2
48.1	17.8	42.0	56.2	41.4	10.0	29.6	36.5	27.2	49.6	26.4	31.4
3266		2711		2637		1609		1397		1324	
4 36.289	4 43.43 5 12.77	4 30122	4 15.00 4 53.83	4 29.300	3 48.47 5 4.17	5 17.878	4 37.70 5 31.10	5 15.522	4 57.60 5 43.83	5 14.711	4 45.83 5 28.17
36.249		30.082		29.260		17838		15.482		14.671	
4 59.640	+22.48 5	4 59.354	+28.47	4 59.320	+29.28	4 58.742	−19.69	4 58.60 58.	−17.2 6	4 58.55 3	−16.52
−23.385	+.96	−29.276	+.80	−30.064	+.93	+19.1008	+.69	+16.8890	+.53	+16.134	+.32
−23.40		−29.31		−30.10 08	−.11	19.064		16.846		16.08 10	
	−2.18		−1.92		−1.88		−1.30		−1.16		−1.11
+ 22.42 44	57.48	+ 28.50	57.43	+ 29.34	~~58.92~~ 57.48	− 19.66	57.54	− 17.24	57.59	− 16.51	57.36
+ .92		+ .74		+ .78		+ .59		+ .51		+ .82	
−2.18	+4.440	−1.92	+4.700	−1.88	+4.720	−1.30	+5.320	−1.16	+5.460	−1.11	+5.510
+ 21.16		+ 27.32		+ 28.24		− 20.37		− 17.92		− 17.30	
4 36.25	29 23.62	4 30.08	24.86	4 29.26	23.98	5 17.84	25.52	5 15.48	26.43	5 14.67	26.15
	−7 31.56		−7 31.43		−7 30.84		−7 30.61		−7 30.15		−7 30.06
4 57.41	+1.4	4 57.40	+1.3	4 57.50	+1.4	5 57.47	+13	5 57.56	+14	5 57.37	+13
4030	−1750	4020	−1880	4120	−1900	4090	−2110	4180	−2140	3990	−2160
+69	21 36.76		21 35.93		21 35.54		21 35.11		21 36.28		21 35.79
s − 7.14	− 36.48	+ 15.12	− 23.71	+ 40.83	− 34.87	+ 40.18	− 13.22	+ 17.92	− 28.31	+ 28.88	− 13.46
50		50		50		50		50		50	
69' = −" 2.73		−2.97		−2.98		−3.13	~~−3.17~~	−3.17		−3.18	
4 6.0	4 18.0	3 54.1	4 11.9	3 42.1	4 18.0	3 38.7	54 4.0	3 45.0	4 6.6	3 38.2	3 58.6
54.1	7.5	41.8	59.4	30.9	6.9	31.9	56.7	42.7	3.9	39.4	58.7
120.1	25.5	95.9	131.3	73.0	24.9	70.6	120.7	87.7	10.5	77.6	117.3
54 0.05	54 12.75	53 47.95	54 5.65	53 36.50	54 12.45	53 35.30	54 0.35	53 43.85	54 5.25	53 38.80	53 58.65
0.55370	1.56205	1.17935	1.37493	1.61098	1.54245	1.60401	1.12123	1.25334	1.45194	1.46060	1.12905
0.51750	1.22585	0.84335	1.03873	1.27478	1.20625	1.26781	0.78503	0.91714	1.11574	1.12440	0.79285
−3.29	−16.82	+6.97	−10.93	+18.83	−16.08	+18.53	−6.10	+8.26	−13.05	+13.32	−6.21
53 56.76	53 55.93	53 54.92	53 54.72	53 55.33	53 56.37	53 53.83	53 54.25	53 52.11	53 53.20	53 52.12	53 52.44
+69° ' " 28 51.59	52.42	28 53.43	53.63	28 53.02	51.98	28 54.52	54.10	28 56.24	56.15	28 56.23	55.91
52.00		53.53		52.50		54.31		56.19		56.07	
−26 58 28	58 15			58 52	58 16						
1.46690	1.46680			1.46780	1.46680						
+3149		+2681		+3140		+2896		+1447		+1206	
1.49839	1.49829	1.49371	1.49361	1.49850	1.49820	1.49606	1.49576	1.48137	1.48127	1.47916	1.47886
+31.50	+31.50	+31.77	+31.16	+31.51	+31.49	+31.34	+31.32	+30.31	+30.29	+30.14	+30.12
− +.12	−.24	−.04 +.17	−.10	−.29 −.01	−.21	−.29 −.12	−.03	−.06 −.06	−.15	−.15 −.05	−.03
+.24	+.25	+.23	+.25	+.22	+.25	+.04	+.04	+.04	+.04	+~~.25~~ .04	+~~.28~~ .04
+31.73	+31.51	+31.36	+31.31	+31.44	+31.53	+31.09	+31.33	+30.29	+30.18	+30.03	+30.13
−.29 23.32	23.93	29 24.79	24.94	29 24.46	23.51	29 25.61	25.43	29 26.53	26.33	29 26.26	26.04
21 53.2		54.5		54.7		56.8		57.1		57.3	
−7 30.1	30.7	30.3	30.4	29.8	28.8	28.5	28.6	29.4	29.2	29.0	28.7
−7 30.40		30.35		29.30		28.70		29.30		28.85	
−7 30.7		30.7		29.6		29.0		29.6		29.2	
−7 31.65	35.39	−7 32.06	35.26	−7 31.16	35.64	−7 30.88	35.03	−7 30.40	36.15	−7 30.27	35.82
+1 1.22	36.00	+ 1.33	35.41	+ 1.34	34.65	+ 1.40	34.85	+ 1.42	35.55	+ 1.43	35.60
− 17.50	30.43 −18.04	− 18.80	30.78 −19.34	− 19.00	29.82 −19.54	− 21.10	29.48 −21.64	− 21.40	29.94 −21.94	− 21.60	28.84 −21.74
−7 47.53	35.69	49.53	35.33	48.82	35.77	50.58	34.44	50.38	36.05	50.44	35.71
	35.15		34.78		34.63		34.40		35.51		35.17

		1875					
con α = +.044				″		″	
con δ = −.32″	Feb. 9	5	6.70		21	55.0	
	14		6.52	−.18		55.9	+.9
tang δ = +2.66 2.84	19		6.32	.20		56.7	.8
	24		6.11	.21		57.3	.6
I = 5.86	Mar. 1		5.88	.23		57.9	.6
	6		5.65	.23		58.4	.5
K = −.040	11		5.40	.25		58.7	.3
	16		5.14	.26		58.9	.2
	21		4.86	.28		59.0	.1

× 1874 +.04 March 4		1875 +.31 Feb. 13		+.31 Feb. 15		+.35 Feb. 16		+.04 Feb. 22		+.00 Feb. 24	
+.030		+.287		+.350		+.300		+.064		−.035	
5 .52 1.8	4 42.9	4	4 13.2	4	4 12.0	4	4 13.0	4	4 31.7	4	4 1.0
—	49.0	51.6	17.7	49.1	17.0	47.2	17.2	41.2		39.1	6.0
.76 7.9	52.6	54.6	21.6	53.0	21.4	50.8	22.4	44.0		42.2	11.2
—		56.7		54.9		53.0		47.0		45.1	
.70 13.7		59.9		58.0		56.6		49.8	5 29.1	48.0	
—		5 2.4		5 0.7		59.2		52.8	35.0	50.9	
.52 19.4	5 31.0	5.4	5 19.6	3.6	5 17.9	5 2.0	5 19.9	55.8	38.7	53.0	5 3.2
.48 22.7	35.5	9.0	24.7	6.1	22.8	5.1	25.0	58.6		56.8	7.2
.78 23.5	41.3	11.5	29.4	9.5	29.9	8.0	30.4	1.5		59.8	10.9
		14.5		12.4		11.0		4.6		2.8	
		2664		2463		2935		3583		3986	
		240		240		240		120		60	
	4 48.17	264	4 17.80 50	063	4 16.80	5335	4 17.53	4783	4 31.70	4586	4 6.07
5 13.630	5 35.93	5 2.933	5 24.475	0.700	5 28.53	4 59.278	5 25.104	53.144	5 34.274	50.956	5 7.10
13.590		2.893		0.660		59.238		53.104		50.916	
4 58.46 3	−15.13	5 6.57	5 +3.07	5 6.49	7 +5.31	5 6.453	+6.56	5 6.20 18	+13.19	5 6.120	+15.41
+15.136	+11	−3.686	+82	−5.87	+82	−7.21 19	+.93	−13.40 08	+11	−15.20 18	00
15.09 10		−3.720		−5.87 5		−7.258		−13.142		−15.242	
	−1.01		−2.51		−2.43		−2.39		−2.14		−2.06
− 15.13	57.56	+ 3.07	55 4.27	+ 5.20	4.36	+ 6.59	4.34	+ 13.23	4.26	+ 15.43	4.27
+ .08		+ .76		+ .93		+ .80		+ .18		− .09	
−1.01	+5.610	−2.51		−2.43		−2.39		−2.14		−2.06	
− 16.06		+ 1.32		+ 3.75		+ 5.00		+ 11.27		+ 13.28	
5 13.59	29 27.51	5 2.89	38 5.27	5 0.66	3.24	4 59.24	4.21	4 53.10	5.34	4 50.92	5.69
	−7 36.74		−16 9.19		−16 8.20		−16 9.13		−16 9.00		−16 7.93
4 57.53	+ 14	5 4.21	+ 1.5	5 4.41	+ 1.5	5 4.24	+ 1.5	5 4.37	+ 1.5	5 4.20	+ 1.4
4.150	−21.70		−20.60		−20.90		−21.10		−21.90		−22.10
	21 36.51	+69	21 36.98		21 35.64 4		31 33.48		21 36.14		21 37.06
+ 25.46	− 22.30	+45.43	−21.54	+43.90	−22.83	+44.75	−25.82	+21.44	−41.13	+44.89	−16.14
50		40		40		40		40		40	
−3.22		−3.73		−3.77		−3.79		−3.83		−3.87	
3 36.8	3 58.6	4 57.7	0 22.3	4 54.5	0 26.1	4 54.7	0 26.1	4 0.8	0 30.4	4 44.0	0 12.0
39.9	2.3	56.4	29.7	56.7	29.1	56.9	28.9	4.1	35.4	56.9	26.9
76.7	120.9	108.1	52.0	111.2	55.2	111.6	55.0	4.9	65.8	100.9	38.9
53 38.35	54 60.45	44 54.05	45 26.00	44 55.60	45 27.60	44 55.80	45 27.50	44 (45) ~~24.50~~ 2.45	45 32.90	44 50.45	45 19.45
1.40586	1.34830n	1.65734	1.33305n	1.64246	1.35851n	1.62066	1.41196n	1.33122	1.61416n	1.65215	1.28790n
1.06966	1.01210n	1.32988	1.10537n	1.31500	1.03105n	1.29320	1.08450n	1.00376	1.28670n	1.52469	0.88044n
+11.74	−10.28	+21.37	−12.75	+20.66	−10.74	+19.64	−12.15	+10.09	−19.35	+21.12	−7.59
53 50.09	50.17	45 15.42	45 13.25	45 16.26	45 16.86	45 15.44	45 13.35	45 12.54	45 13.55	45 17.57	45 11.86
28 58.26	58.18	37 32.93	35.10	37 32.09	31.49	37 32.91	33.00	38 35.81	37 34.80	37 36.78	37 36.49
58.22		34.01		31.79		32.95		35.30		36.63	
58 50	58 28	58 54	58 22								
1.46710n −201	1.16680n	1.46710n +3868	1.46680	+4126		+3770		+2343		+600	
1.46509	1.46479	1.50578	1.50548	1.50836	1.50806	1.50480	1.50450	1.49053	1.49023	1.47310	1.47280
+29.18	+29.16	+32.05	+32.02	+32.24	+32.22	+31.97	+31.95	+30.94	+30.92	+29.72	+29.70
−.12 +.16	−.09	−.36 −.77	−.08	−.84 −.78	−.09	−.31 −.70	−.12	−.08 .69	−.31	−.35 .65	−.05
+.25	+.28	−1.03	−.08	−1.03	−.10	−.88	−.09	−.72 .90	−.09	−.86	−.05
+29.31	+29.35	+30.66	+31.86	+30.87	+32.03	+30.78	+31.44	+29.96	+30.52	+28.51	+29.60
29 27.57	27.53	38 3.59	6.96	38 2.96	3.52	38 3.69	4.74	38 5.77	5.32	38 5.29	6.09
21 57.4		55.8		56.1		56.3		57.1		57.3	
−7 30.2	30.1	−16 7.8	11.2	6.5	7.4	7.4	8.4	8.7	8.2	8.0	8.8
−7 30.15		−16 9.50		7.15		7.90		8.45		8.40	
−7 30.5	36.26	−16 9.8	35.45	7.5	35.53	8.2	34.86	8.8	36.85	8.7	36.74
−7 31.05	36.22	−16 9.21	38.82	−16 8.22	36.07	−16 9.49	35.85	−16 9.24	35.90	−16 8.69	37.54
+ 1.49	29.61 −22.24	+ 1.67	35.1 −21.15	+ 1.69	6.58 −21.45	+ 1.70	7.79 −21.45	+ 1.72	7.59 −21.46	+ 1.74	1.48 −22.46
− 21.70	86.24	− 20.60	57.13	− 20.90	35.81	− 21.10	35.32	− 21.90	36.12	− 22.10	37.14
51.31	36.70	−16 28.14		29.43		28.09		29.42		28.55	

1874.0 α δ
57.41
40
50
47
56
37
53
~~57~~
57.463
.420 35.73
+.043

1875.0 α δ
4.21
41
24
37
20
12
44
28 ~~84~~
4.284
.040 35.18
+ ~~.219~~
+.244

+.02 March 8
+.010
4 4 18.6 4
25.2 23.5
28.1 29.2
31.2
33.9
36.9
39.9
42.8
45.9
48.8

33.23 4 23.77
4 36.922 4

36.882 +28.69
5 5.564 +.05
– ~~28.686~~
– 28.720 –1.50
55 412
+ 28.91
+ .03
–1.50
6.83
+ 27.24 38 ~~5.09~~
4 36.88 –16 8.44
+ 1.5
5 4.12 – 23.405
21 35.99

40 +13.15
–3.88
4 45.5 0 3.2
50.7 10.0
96.2 13.2
44 48.10 45 6.60

1.11893
0.79147
+ 6.19 6.19
44 54.29 45 12.79

37 54.06 35.58

+ 21.80
1.48890 1.48860
+30.83 +30.80

–.03 ~~–.02~~ –.03 –.05
–1.01 –.02
+ 29.79 +30.75
38 23.85 6.83
58.6 57.6
57 –16 7.7
–16 7.70
–16 8.0
–16 8.70
+ 1.74
– 23.40
–16 30.46 : 35.87

+.01 +.06 March 17
+.076
4 3 45.6 4
16.2 51.1
19.4 55.9
22.1
25.0
28.0
30.8 4 41.7
33.9 45.9
37.0 49.2
39.6

25.20 3 50.80
28.000 4 46.60 4

27.960 +37.32
5 5.097 +.03
– 37.131 +.17
– 37.175 –1.03
445
+ 37.31
+ .20
–1.03
+ 36.48 436
4 27.96 –16 6.91
+ 1.5
4.44 –23.70
21 35.25

40 +37.20 –17.60
–3.87
4 53.4 0 18.7
0.9 27.9
114.3 46.6
44 57.15 45 23.30

1.57054 1.24551
1.24308 0.91805
+ 17.50 –8.28
45 14.65 45 15.02

37 33.70 33.33
33.51
58 51 58 25

+ 32.16
1.49926 1.49896
+31.57 +31.54

–.25 –.70 –.05
–1.03 –.08
+ 30.29 + 31.41
38 3.99 4.74
58.9
~~6~~ 5.1 5.8
5.45
5.8
–16 7.20 34.83
+ 35.87 1.74 35.58 +
.706 5.46
– 23.96 23.70 –23.15 –
27.~~74~~ 16 ~~.71~~ 35.20

+.07 +.05 March 22
+.116
4 4 10.0
9.7
12.8
15.8
18.4
21.3
24.0
27.3
30.5
33.2

19.30 4 10.00
4 21.444

21.404 +43.31
5 4.8179 +.19
– 43.4139 +.14
– 43.453 –0.75
429
+ 43.32
+ .31
–0.75
+ 42.88 438
4 21.40 –16 6.61
+ 1.5
5 4.28 –23.80
21 35.47

45 +11.44
–3.83
0 8.1
12.0
20.1
45 10.05

1.05843
0.73097
+ 5.38
45 15.43

37 32.92

+ 31.55
1.49865 1.49835
+31.52 +31.50

–.07 ~~–.03~~
–.04 –.06
+ 31.46
38 4.38
59.0
5.4
5.40
5.7
–16 7.18 35.15
+ 1.72 5.39
– 23.80 –24.85
29.18 35.11

.12

η Geminori.

h m sec.
6 7 20
+ 22° 32'

ζ = + 19 51
+.34

Sin δ 9.58345
Cos δ 9.96551
.11678
.08229

1874 s
α 16.314
δ +32' 27.54
$\frac{d\alpha}{dT}$ +3.622
$\frac{d\delta}{dT}$ −0.637

1874		m s		' "	
Feb.	9	7 17.00		32' 34.4	
	14	16.94	−.06	34.5	+.1
	19	16.88	.06	34.6	.1
	24	16.81	.07	34.7	.1
Mar.	1	16.74	.07	34.8	.1
	6	16.66	.08	34.9	.1
	11	16.58	.08	34.9	0
	16	16.49	.09	35.2	.1
	21	16.39	.10	35.0	.0

cor α =
cor δ =
long δ = +.41 1.08
I = 2.23 s
K = −.017 s

1874

Feb. 4 +.36		Feb. 10 +.33		Feb. 11 +.30		+ Feb. 26 +.26		× March 1 +.20		× March 2 +.12	
+.347		+.320		+.277		+.223		+.192		+.120	
6 41.1	6 26.2	6 35.7	6 23.7	6 35.0	6 23.6	7 23.0	7 7.8	7 20.5	7 2.0	7 19.7	7 14.3
43.4	28.7	37.9	25.8	37.3	26.0	25.2	9.9	22.8	4.0	22.0	16.3
45.6	30.4	40.1	27.7	39.5	27.7	27.5	11.5	25.0	5.7	24.3	18.5
50.0		44.5		43.9		31.8		29.4		28.7	
52.1		46.7		46.3		34.1		31.7		31.0	
54.5		49.1		48.5		36.3		33.9		33.4	
56.6	7 16.3	51.2	7 8.9	50.7	7 13.7	38.6	7 57.5	36.1	7 45.5	35.4	7 39.3
59.0		53.4	11.1	52.9	16.3	40.8	59.4	38.5	46.8	37.7	41.6
3.4		58.0	13.2	57.3	18.7	45.3	1.9	42.8	49.5	42.0	43.5
5.7		0.2		59.5		47.5		45.2		44.5	
7.9		2.4		1.8		49.7		47.3		46.5	
41.93		41.92		47.47		39.98		37.32		36.52	
180		120		60							
5993	6 25.43	5392	6 25.73	5347	6 25.77		7 9.73		7 3.90		7 16.37
6 54.482	7 16.30	6 49.018	7 11.07	6 48.427	7 16.23	7 36.345	7 59.607	7 33.927	7 47.277	7 33.200	7 41.47
54.465	+22.45	49.001	+27.80	48.410	+28.47	36.328	−19.68	33.910	−17.26	33.183	−16.52
7 17.005	+.15	7 16.99	+.14	7 16.987	+.12	7 16.78	+.11	7 16.74	+.08	7 16.72	+.05
−22.6059		−27.99		−28.576		+19.55		+17.17		+16.46	
	−0.74		−0.68		−0.66		−0.47		−0.43		−0.41
+ 22.42	7 16.33	+ 27.83	16.26	+ 28.50	16.34 4	− 19.66	16.29	− 17.24	16.30	− 16.51	16.30
+ .14		+ .13		+ .11		+ .09		+ .08		+ .05	
−0.74 +2.882		−0.68 +2.942		−0.66 +2.962		−0.47 +3.152		−0.43 +3.192		−0.41 +3.212	
+ 21.82		+ 27.28		+ 27.95		− 20.04		− 17.62		− 16.87	
6 54.46	40 7.04	6 49.00	6.72	6 48.41	7.11	7 36.33	6.12	7 33.91	6.21	7 33.18	6.31
	−7 31.56		−7 31.45		−7 31.43		−7 30.61		−7 30.15		−7 30.06
7 16.28	−1.0	7 16.28	−1.0	7 16.36	−1.0	7 16.29	−1.0	7 16.29	−1.0	7 16.31	−1.0
19.902	−6.80	19.902	−6.90	19.982	−6.90	19.912	−7.20	19.912	−7.30	19.932	−7.30
1 22	32 27.68		32 27.37		32 27.78		32 27.31		32 27.76		32 27.95
s +26.05	−21.82	+23.29	−22.05	+22.66	−27.80	+26.61	−23.26	+30.03	−13.34	+16.83	−8.27
40		40		40		40		40		40	
Z_f l = " −2.73		−2.93		−2.97		−3.13		−3.17		−3.18	
1 54.0	2 52.8	1 58.0	2 53.7	1 57.9	3 0.0	1 51.8	2 52.9	1 46.0	2 39.6	1 1.1	2 32.0
39.1	39.9	44.6	40.1	45.1	46.1	43.1	43.9	41.5	34.9	58.8	30.1
93.1	92.7	102.6	93.8	103.0	106.1	94.9	96.8	87.5	74.5	119.9	62.1
41 46.55	42 46.35	41 51.30	42 46.90	41 51.50	42 53.05	41 47.45	42 48.40	41 43.75	42 37.25	40 (41) 59.95	42 31.05
1.41581	1.33885	1.36717	1.34341	1.35526	1.44404	1.42504	1.36661	1.47756	1.12516	1.22608	0.91751
1.49810	1.42114	1.44936	1.42570	1.43755	1.52633	1.50733	1.44890	1.55985	1.20745	1.30837	0.99980
+31.49	−26.37	+28.14	−26.65	+27.39	−33.60	+32.16	−28.11	+36.30	−16.12	+20.34	−9.99
42 18.04	42 19.98	42 19.44	42 20.25	42 18.89	42 19.45	42 19.61	42 20.29	42 20.05	42 21.13	42 20.29	42 21.06
+22° 40' 30.31	28.37	40 28.91	28.10	40 29.46	28.90	40 28.74	28.06	40 28.30	27.22	40 28.06	27.29
29.34		28.50		29.18		28.40		27.76		27.67	
+19 49 18	50 18										
1.31710	1.31750										
+3154		+2165		+2687		+2894		+1450		+1213	
1.34864	1.34904	1.33875	1.33915	1.34397	1.34437	1.34604	1.34644	1.33160	1.33200	1.32923	1.32963
−22.32	−22.34	−21.81	−21.84	−22.08	−22.10	−22.18	−22.20	−21.46	−21.48	−21.34	−21.36
−.13 +.03	−.08	−.10 +.04	−.09	−.09 +.02	−.14	−.13 −.09	−.10	−.17 −.07	−.03	−.03 −.01	−.1
+.11	+.17	+.11	+.17	+.11	+.17	+.02	+.03	+.02	+.03	+.07 .01	+.02 .17
−22.34	+22.25	−21.80	−21.76	−22.06	−22.07	−22.29	−22.27	−21.61	21.48	−21.38	−21.35
40 7.97	6.12	40 7.11	6.38 4	40 7.40	6.83	40 6.45	5.79	40 6.69	5.74	40 6.68	5.94
32 34.3		34.4		34.4		34.7		34.8		34.8	
−7 33.7	32.8	32.7	31.9	33.0	32.4	31.7	31.1	31.9	30.9	31.9	31.1
33.2		32.3		32.7		31.9		31.4		31.5	
−7 31.65	32.57 28.60	−7 31.44	32.48 27.78	−7 32.06	33.06 27.44	−7 30.88	31.94 27.31	−7 30.40	31.47 27.92	−7 30.27	31.35 28.03
− 92	−7.44 26.75	− 99	−7.57 27.01	− 100	−7.54 26.87	− 106	−7.84 26.65	− 107	−7.94 26.97	− 108	−7.94 27.29
− 6.80		− 6.90		− 6.90		− 7.20		− 7.30		− 7.30	
−7 39.37	27.67	−7 39.33	27.39	39.96	27.16	39.14	26.98	38.07	27.49	38.65	27.66
	27.03		26.75		26.52		26.34		26.50		27.20

1875

Feb. 9	7m 20.98s		32'	35.1"	
14	20.92	-.06		35.2	+.1
19	20.86	.06		35.3	.1
24	20.79	.07		35.4	.1
Mar. 1	20.72	.07		35.5	.1
6	20.64	.08		35.6	.1
11	20.56	.08		35.6	.0
16	20.47	.09		35.7	.1
21	20.38	.09		35.7	.0

1875

α_0 19.936
δ_0 +32 26.90
$\frac{d\alpha}{dt_0}$ + 3.622
$\frac{d\delta}{dt}$ − 0.642

$l.\cos\delta$ 9.96557
$l.b$ .12552
$l.b'$ .09103

+ 1874   1875

+.04 March 4		+.31 Feb. 13		+.31 Feb. 15		+.35 Feb. 16		+.04 Feb. 22		+.00 Feb. 24	
+.030		+.284		+.350		+.300		+.067		-.035	
7 18.4	6 57.3	7 4.5	6 44.4	7 2.3	6 54.1	7 0.9	6 48.3	6 54.3	6 40.3	6 52.0	6 37.2
20.8	59.4	6.6	46.9	4.4	56.0	3.1	50.3	56.5	42.3	54.2	39.0
22.9	7 1.2	8.9	49.0	6.6	57.8	5.4	52.0	58.8	44.0	56.5	41.1
27.4		13.2		11.0		9.9		7 3.1		7 0.9	
29.6		15.3		13.3		12.0		5.4		3.2	
31.8		17.6		15.6		14.2		7.7		5.3	
34.1	7 40.3	19.9	7 44.0	18.0	7 41.8	16.6	7 30.8	9.9	7 19.6	7.6	7 23.6
36.3	42.0	22.2	46.8	20.0	44.4	18.7	32.8	12.2	21.5	9.9	25.4
40.8	44.5	26.6	49.1	24.4	46.1	23.1	34.7	16.7	23.6	14.2	27.4
43.0		28.8		26.7		25.4		18.9		16.5	
45.2		31.1		29.0		27.7		21.0		18.9	
350.3		194.7		171.3		157.0		264.5		289.2	
					55.97			180		180	
	6 59.30		6 46.77		6 ~~25.97~~		6 50.20	84.5	6 42.20	59.2	6 39.10
7 31.845	7 42.27	7 17.700	7 46.63	7 15.573	7 44.10	7 14.273	7 32.77	7 7.682	7 21.57	7 5.382	7 25.47
31.828	-15.13	17.683	+8.07	15.556	+5.81	14.256	+6.56	7.665	+13.20	5.365	+15.41
7 16.69	+.02	7 20.93	+.13	7 20.91	+.13	7 20.90 89	+.14	7 20.82	+.02	7 20.79	00
+15.14		-3.25		-5.35		-6.643		-13.16		-15.43	
	-0.38		-0.99		-0.97		-0.95		-0.88		-0.85
− 15.13	7 16.34	+ 3.04	19.89	+ 5.25	20.03	+ 6.59	20.01	+ 13.23	20.01	+ 15.43	19.93
+ .01		+ .12		+ .14		+ .12		+ .03		− .01	
-0.38	-3.242	-0.99		-0.97		-0.95		-0.88		-0.86	
− 15.50		+ 2.20		+ 4.42		+ 5.76		+ 12.38		+ 14.57	
7 31.83	40 66.3	7 17.68	48 45.99	7 15.56	45.23	7 14.26	45.52	7 7.66	45.73	7 5.36	44.47
	-7 30.74		-16 9.19		-16 8.20		-16 9.13		-16 9.00		-16 7.73
7 16.33	− 1.0	7 19.88	~~1.0~~ -1.2	7 19.98	−1.2	7 20.02	−1.2	7 20.04	−1.2	7 19.93	−1.2
19.952	− 7.40		− 8.30		− 8.30		− 8.30		− 8.50		− 8.50
	32 27.49		32 27.30		32 27.53		32 26.89		32 27.03		32 26.84
s +32.54	−10.43	+30.93	−28.93	+19.60	− +28.53	+24.07	−18.50	+25.48	−13.89	+26.28	−20.09
40 "		30		30		30		30		30	
−3.22		−3.73		−3.77		−3.79		−3.83		−3.87	
1 40.1	2 33.5	2 58.3	4 11.8	3 14.2	4 13.2	3 8.0	4 0.6	3 6.6	3 55.1	3 3.5	4 0.3
42.3	35.0	3.0	16.9	16.1	16.1	11.6	3.8	10.8	58.9	15.8	13.5
82.4	68.5	121.3	28.7	30.3	29.3	19.6	4.4	17.4	114.0	19.3	13.8
41 41.20	42 34.25	33 0.65	34 14.35	33 15.15	34 14.65	33 9.80	34 2.20	33 8.70	33 57.00	33 9.65	34 6.90
1.51242	1.01828n	1.49038	1.46135n	1.29226	1.45530	1.38148	1.26717n	1.40620	1.14270n	1.41963	1.30298n
1.59471	1.10057n	1.58141	1.53238n	1.38329	1.54633	1.47257	1.35820n	1.49723	1.23373n	1.51066	1.39501n
+39.33	−12.61	+38.15	−35.68	+24.17	−35.18	+29.68	−22.81	+31.42	−17.13	+32.41	−24.84
42 20.53	42 21.64	33 38.80	33 38.67	33 39.32	33 39.47	33 39.48	33 39.39	33 40.12	33 39.87	33 42.06	33 42.06
40 27.82	26.71	49 9.55	49 9.68	49 9.03	8.88	49 8.87	8.96	49 8.23	8.48	49 6.29	6.29
27.26		9.61		8.95		8.91		8.35		6.29	
19 49 13	50 6	49 13	50 26								
1.31710	1.31740	1.31710	1.31760								
−183		+38.72		+41.32		+37.75	~~+23.43~~	+23.43		+6.06	
1.31527	1.31559	1.35582	1.35632	1.35842	1.35892	1.35485	1.35535	1.34053	1.34103	1.32316	1.32366
−20.67	−20.68	−22.69	−22.72	−22.83	−22.85	−22.64	−22.67	−21.90	−21.93	−21.03	−21.07
−.20 +.04	−.02	−.17 −.91	−.15	−.07 −.88	−.15	−.11 −.73	−.06	−.12 −.70	−.03	−.13 −.76	−.07
+.12	+.18	−.63	−.88	−.67	−.88	−.58	−.72	−.56	−.70	−.58	−.74
−20.75	−20.52	−23.49	−23.75	−23.57	−23.88	−23.33	−23.45	−22.58	−22.66	−21.76	−21.88
40 7.07	6.19	48 46.06	45.93	48 45.46	45.00	48 45.54	45.51	48 45.65	45.82	48 44.53	44.41
32 34.9		32 35.2		35.2		35.2		35.4		35.4	
−7 32.2	31.3	−16 10.9	10.7	10.3	9.8	10.3	10.3	10.2	10.4	9.1	9.0
−7 31.8		−16 10.8		10.0		10.3		10.3		9.1	
−7 31.05		−16 9.21		−16 8.22		−16 9.49		−16 9.24		−16 8.19	
− 1.09	32.14 27.53	− 1.26	10.47 27.29	− 1.28	9.50 27.66	− 1.28	10.77 26.47	− 1.30	10.54 26.61	− 1.31	9.50 26.53
− 7.40	−8.01 26.65	− 8.30	−8.94 27.16	− 8.30	−8.94 27.20	− 8.30	−8.94 26.44	− 8.50	−9.17 26.78	− 8.50	−9.14 26.41
39.54	−27.09	18.97	27.22	17.80	27.43	19.07	26.45	19.04	26.70	18.00	26.47
	26.45										

+.02 March 8 +.01 +.06 March 17 +.07 +.05 March 22

+.010 +.076 +.116

6 38.6 6 32.3 6 29.8 6 26.0 6 23.6 6 10.1
40.8 34.6 32.0 28.1 25.8 12.0
43.0 36.7 34.2 30.4 28.0 13.7
47.5 38.7 32.6
49.7 40.7 34.7
52.0 43.1 37.0
54.1 7 11.9 45.4 39.3
56.4 14.7 47.5 41.5
0.9 17.1 52.0 46.0
3.0 54.3 48.1
5.1 56.6 50.4

3911 4743 4070
180
5711 6 34.53 6 28.17 6 11.93
6 51.918 7 14.57 6 43.118 6 37.000
51.901 +28.69 43.101 +37.32 36.983 +43.31
7 20.6+0 +.01 7 20.45 .00 7 20.36 +.03
− 28.70 −37.35 +.06 −43.38 +.05
−0.66 −0.51 −0.42
+ 28.41 19.94 + 34.31 19.97 + 43.32 19.95
+ .00 + .03 + .05
−0.66 −0.51 −0.42
+ 28.05 + 36.83 + 42.95
6 51.90 45336 43.10 45016 36.98 4276
−16 844 −16 691 −16 661
7 19.95 −12 7 19.93 −12 7 19.93 −12
−870 −880 −880
32 2699 32 28.10 32 26.15

+17.39 −22.65 +14.95 +25.07
30 30 30
−3.88 −3.87 −3.83
3 16.4 4 5.7 3 21.0 4 18.1 3 10.3
21.8 10.4 26.8 20.2 12.9
38.2 16.1 47.8 33.3 23.2
33 19.10 34 8.05 33 23.90 34 16.65 33 11.60
1.24030 1.35507 1.17464 1.39915
1.33133 1.44610 1.22567 1.49018
+21.45 −27.93 +16.81 +30.91
33 40.55 33 40.12 33 40.71 33 42.57

49 7.80 8.23 49 7.64 49 5.84
8.01
49 31 50 20
1.31710 1.31750
+2185 +2287 +3160
1.33895 1.33935 1.33997 1.34037 1.34870 1.34910
−21.83 −21.85 −21.88 −21.90 −22.32 −22.34

−.05 −.84 −.09 −.04 −.75 −.12 ~~−.38~~
−.69 −.86 −.71 −.90 −.64 −.76
−22.57 −22.80 −22.63 −23.08
48 45.23 45.43 48 45.01 48 42.76
35.6 35.7 35.7
9.6 9.8 ~~14.3~~ 9.3 7.1
9.7 8.2
−16 8.80 −16 7.20 −16 7.11 8.41
− 1.31 10.112642 − 1.31 8.51 27.79 − 1.30 25.55
− 8.70 −9.34 26.62 − 8.80 −9.44 8.80 −9.44
18.81 26.52 17.31 27.70 17.21 21.55

1875

K Orionis ~~Dq~~
h m sec.
6 9 27
+12° 18'
δ = +30 5
sin δ = +.50

sin δ 9.32844
cos δ 9.98991
.11678
.10669

α 9 25.49
δ 18 17.21
dα/dt +3.369
dδ/dt −0.63

log cos δ 9.98991
l.C .12552
l.C' .11543

cos α =
cos δ =
tang δ = +.22
I = 2.11 s
k = −.016

1874

Feb. 4		Feb. 10		Feb. 11		Feb. 26		March 1		March 2	
+.347		+.320		+.277	265	+.223		+.192		+.120	
8 47.7	8 41.0	8 42.3	9 26.9	8 41.6	8 28.4	9 —	9 57.0	27.1	9 23.2	9 26.2	9 13.0
49.8	43.7	44.4	28.5	43.7	30.0	—	59.3	29.2		28.5	14.9
51.9	45.4	46.5	30.4	45.8		—	1.2	31.3		30.7	16.7
56.1		50.6		50.0		38.0		35.6		34.8	
58.3		52.7		52.1		40.1		37.6		36.9	
0.3		54.9		54.2		42.3		39.7		39.0	
2.4	9 17.3	57.0	9 13.0	56.4	9 15.7	44.4		41.8	10 12.3	41.1	10 5.7
4.6	18.4	59.1	15.5	58.5	18.0	46.3		44.0	14.5	43.2	8.0
8.7	19.7	3.3	17.1	2.7	19.5	—		48.2	16.4	47.4	9.5
10.9		5.5		4.8		—		50.3		49.6	
12.9		7.5		6.9		—		52.5		51.7	
3036		4238		4167		2111		4373		4291	
300		180		180							
36	8 43.63	6038	8 28.60	5967	8 28.30		9 59.17		9 23.20		9 14.87
9 0.327	9 18.478	8 54.891	9 15.208	8 54.245	9 17.739	9 42.220		9 39.755	10 14.40	9 39.009	10 7.73
0.311		54.875		54.229		42.204		39.739		38.993	
+ 22.42		+ 27.83		+ 28.50		− 19.66		− 17.24		− 16.51	
+ .08		+ .07		+ .06		+ .05		+ .04		+ .03	
− 0.69 +2.679		− 0.64 +2.729		− 0.63 +2.739		− 0.45 +2.919		− 0.41 +2.959		− 0.39 +2.979	
+ 21.81		+ 27.26		+ 27.93		− 20.06		− 17.64		− 16.87	
9 0.31		8 54.87		8 54.23		9 42.20		9 39.74		9 38.99	
9 22.12		9 22.13		9 22.16		9 22.14		9 22.10		9 22.12	
25.489		25.499		25.529		25.509		25.469		25.489	

s +16.70	−18.14	+26.29	−20.31	+25.94	−23.49	−16.95		+16.55	−34.65	+24.14	−28.72
55		55		55		55		55		55	
Hl = −2.73		−2.93		−2.97		−3.13		−3.17		3.18	
1 0 3.7	1 48.0	0 52.7	1 51.5	0 51.7	1 55.5	1 45.9		~~0~~1 2.7	2 7.9	0 52.1	1 58.1
47.3	32.9	37.7	36.9	37.0	40.8	34.9		55.8	1.1	48.2	54.3
1110	819	904	884	887	963	808		1185	90	1003	1124
55 55.60	56 40.45	55 45.20	56 44.20	55 44.35	56 48.15	56 40.40		~~545~~ 55 59.25	57 4.50	55 50.15	56 56.20
1.22272	1.25864	1.41979	1.30771	1.41397	1.37088	1.22917		1.21880	1.33970	1.38274	1.45818
1.32941	1.36533	1.52648	1.41440	1.52066	1.47757	1.33583		1.32549	1.64639	1.48943	1.56487
+21.35	−23.19	+33.61	−25.97	+33.16	−30.03	−21.67		+21.16	−44.30	+30.86	−36.72
56 16.85 16.8	56 17.26	56 18.81	56 18.23	56 17.51	56 18.12	56 18.73		56 20.41	56 20.20	56 21.01	56 19.48
+12° 26 ~~36.40~~ 31.80 31.29	31.09	26 29.54	30.12	26 30.84	30.23	26 29.62		26 27.94	28.15	26 27.34	28.87
		29.83		30.53				28.04		28.10	
+30 3 27	4 12										
1.52260	1.52290										
+3159		+2170		+2694		+2892		+1451		+1227	
1.55419	1.55449	1.54430	1.54460	1.54954	1.54984	1.55152	1.55182	1.53711	1.53741	1.53482	1.53512
−35.83	−35.85	−35.02	−35.04	−35.44	−35.47	−35.61	−35.63	−34.44	−34.47	−34.26	−34.29
−.03 +.04	−.03	−.07 +.02	−.04	−.07 +.01	−.06	−.03 −.00		−.03 −.07	−.14	−.06 −.05	−.08
+.05	+.10	+.05	+.10	+.04	+.11	+.02		+.01	+.02	+.06 .01	+.13 +.02
−35.85	−35.78	−35.04	−34.98	−35.47	−35.42	−35.62		−34.46	−34.59	−34.31	−34.35
+12 25 55.69	55.31	25 54.50	53.14	25 55.37	54.81	25 54.00		25 53.48	53.56	25 53.03	54.52
−7 31.65	33.01	−7 31.44	32.90	−7 32.06	33.54	−7 30.88	32.44	−7 30.40	31.98	−7 30.27	31.86
1.36	−4.77	1.46	−4.64	1.48	−4.62	1.56	−4.45	1.58	−4.44	1.59	−4.43
−4.14		−4.01		−3.99		−3.82		−3.81		−3.80	
−7 37.15	18 18.54	36.51	17.59	37.53	17.84	36.26	17.74	35.79	17.69	35.66	17.37
	18.16		18.23		17.28				17.97		~~18~~ 17.86
	18.35		17.91		17.56		17.74		17.73		18.11 ~~17.61~~
	17.72		17.24		16.93		17.61		17.10		~~16.98~~ 17.48

1874		1875									
March 4		Feb. 13		Feb. 15		Feb. 16		Feb. 22		Feb. 24	
	+030		+287	+350		+.200		+.064		−.035	
9 25.0	9 13.9	9 10.6	8 52.7	9 8.5	9 3.4	9 7.0	8 54.7	9 0.5	8 50.8	8 58.2	8 54.3
27.1	15.6	12.8	56.9	10.6	5.2	9.3	56.8	2.7	52.5	9 0.3	56.1
29.2	17.4	14.9	58.7	12.7	7.1	11.4	58.4	4.7	54.2	2.3	57.7
33.4		19.0		17.0		15.4		8.9		6.5	
35.5		21.1		18.8		17.6		11.0		8.8	
37.6		23.2		21.0		19.1		13.1		10.9	
39.7	9 47.5	25.3	9 39.0	23.1	9 55.2	21.8	9 35.2	15.2	9 37.0	13.0	9 34.0
41.8	49.5	27.4	40.9	25.2	57.2	24.1	37.0	17.3	38.9	15.1	36.0
46.1	51.5	31.7	42.0	29.6	59.0	28.1	38.4	21.6	41.0	19.2	37.7
48.2		34.0		31.6		30.4		23.7		21.4	
52.4		35.9		33.6		32.5		25.8		23.6	
4140		2559		2317		2173		1445		1795 60 1195	
	9 15.63		8 56.10		9 5.28		8 56.68		8 52.50		8 56.03
9 37.636	9 49.50	9 23.264	9 40.97	9 21.064	9 57.13	9 19.755	9 36.87	9 13.136	9 38.97	9 10.864	9 35.90
37.620		23.248		21.048		19.739		13.120		10.848	
− 15.13		+ 3.04		+ 5.25		+ 6.59		+ 13.23		+ 15.44	
+ .01		+ .06		+ .08		+ .07		+ .01		− .01	
− 0.36	+3.009	− 0.95		− 0.93		− 0.92		− 0.85		− 0.82	
− 15.48		+ 2.18		+ 4.40		+ 5.74		+ 12.39		+ 14.61	
9 37.62		9 23.25		9 21.05		9 19.74		9 13.12		9 10.85	
9 22.14		9 25.43		9 25.45		9 25.48		9 25.57		9 25.46	
22.130	25.309										
S +22.01	−11.86	+27.16	−17.71	+15.83	−36.07	+23.12	−17.12	+20.64	−25.83	+14.83	−25.04
55		45		45		45		45		45	
−3.22		−3.73		−3.77		−3.79		−3.83		−3.87	
0 52.9	1 37.8	2 1.8	2 58.8	2 17.9	3 25.0	2 8.7	2 59.7	2 12.1	3 12.0	2 17.6	3 10.1
52.9	36.9	5.9	2.1	17.8	24.1	10.2	0.0	12.9	14.0	26.7	19.4
1 105.8	747	77	1209	357	491	189	1197	250	260	443	295
55 52.90	56 37.35	47 3.85	48 0.45	47 17.85	48 24.55	47 9.45	47 59.85	47 12.50	48 13.00	47 22.15	48 14.75
1.34262	1.07408	1.43393	1.24822n	1.19948	1.55715n	1.36399	1.23330n	1.31471	1.41212n	1.17114	1.39863n
1.44931	1.18077	1.54936	1.36365n	1.31491	1.67258n	1.47942	1.34893n	1.43014	1.52755n	1.28657	1.51406n
+28.14	−15.16	+35.43	−23.10	+20.65	−47.05	+30.16	−22.33	+26.92	−33.69	+17.35	−32.66
56 21.04	56 22.19	47 39.28	47 37.35	47 38.50	47 37.50	47 39.61	47 37.52	47 39.42	47 39.31	47 41.50	47 42.09
26 27.31	26.16	35 9.07	11.00	35 9.85	10.85	35 8.74	10.83	35 8.93	9.04	35 6.85	6.26
26.73		10.03		10.35		9.78		8.98		6.55	
3 25	4 9	3 16	4 12								
1.52260	1.52290	1.52260	1.52290								
−164		+3876		+4137		+3779		+2343		+610	
1.52096	1.52126	1.56136	1.56166	1.56397	1.56427	1.56039	1.56069	1.54603	1.54633	1.52870	1.52900
−33.19	−33.21	−36.42	−36.45	−36.64	−36.67	−36.34	−36.36	−35.16	−35.18	−33.78	−33.81
−.03 +.06	−.01	−.05 −.56	−.02	−.01 −~~.62~~ 67	−.15	−.04 −.50	−.02	−.03 −.53	−.04	−.01 −.53	−.04
+.06	+.11	−.42	−.63	−.48	−.71	−.40	−.54	−.41	−.58	−.43	−.58
−33.16	−33.11	−36.89	−37.10	−37.13	−37.53	−36.78	−36.92	−35.60	−35.80	−34.22	−34.43
25 54.15	53.05	34 32.18	33.90	34 32.72	33.32	34 31.96	33.91	34 33.33	33.24	34 32.63	31.83
−7 31.05		−16 9.21		−16 8.22		−16 9.49		−16 9.24		−16 8.19	
− 1.61	32.66 −4.48	− 1.86	11.07 −6.02	− 1.88	10.10 −5.98	− 1.89	11.38 −5.97	− 1.91	11.15 −5.88	− 1.93	10.12 −5.86
−3.80		−5.39		−5.35		−5.34		−5.25		−5.23	
36.46	17.69 16.59	16.46	15.92 17.44	15.45	17.22 17.87	16.72	15.24 17.15	16.40	16.93 16.84	15.35	17.28 16.48
	17.14 16.5		16.58		17.57		16.21		16.88		16.58

March 4				March 8				March 17			
	+.140				+.010				+.076		
8	—	9	13.1	8	44.8	8	30.5	8	36.0	8	26.9
	—		15.0		47.0		33.0		38.1		29.0
	—		17.7		49.0		34.7		40.2		30.5
	57.9				53.2				44.4		
9	0.0				55.3				46.6		
	2.1				57.4				48.6		
	4.2				59.6	9	11.9		50.7	9	9.4
	6.4				1.8		15.5		53.0		11.5
	—				5.9		17.5		57.1		14.2
	—				8.1				59.2		
	—				10.2				1.4		
	706				392.3				475.3		
	60				240				60		
	1 06	9	15.27		63.23	8	32.73		535 3	8	28.80
9	2.120			8	57.482	9	14.978		48.664	9	11.70
	2.104				57.466				48.648		
+	23.88			+	28.41			+	37.82		
+	.03			+	.00			+	.02		
−	0.70			−	0.64			-	0.49		
+	23.21			+	28.07			+	36.85		
9	2.10			8	57.47			8	48.65		
9	[25.31]			9	25.54			9	25.50		
									25.460		

—	* 13.15				+24.75		−17.49		+19.86		−23.04
45				45				45			
1	−3.88				−3.88				−3.87		
2	55.7			2	6.1	3	0.9	2	12.4	3	9.1
	56.3				9.8		4.1		17.9		14.0
	112.0				15.9		5.0		20.3		23.1
47	56.00			47	7.95	48	2.50	47	10.15	48	11.55
	1.11893				1.39358		1.24279n		1.29798		1.36248n
	1.23436				1.50901		1.35822n		1.41341		1.47791n
	+17.16				+32.29		−22.81		+25.91		−30.06
48	~~13.16~~			47	40.24	47	39.69	47	41.06	47	41.49
	38.84										
35	35.19			35	8.11		8.66	35	7.29	35	6.86
	9.51				8.38				7.07		
								3	27	4	24
									1.52260		1.52290
	+3613				+2189						+2292
	1.55873		1.55903		1.54449		1.54479		1.54552		1.54582
	−36.20		−36.23		−35.03		−35.06		−35.12		−35.14
	−.01		~~.34~~ −.68		−.06	−.58	−.03		−.04	−.61	−.06
	−.67				−.44		−.63		−.46		−.67
	−36.88				−35.53		−35.72		−35.62		−35.87
39	58.31		32.63	34	32.58		32.94	34	31.67		30.99
−16	8.50			−16	8.80			−16	7.20		
−	1.94		10.44	−	1.94		10.74	−	1.93		9.18
	−5.17		−5.80		−5.15		−5.78		−5.16		−5.79
	15.61		(42.70)		15.89		16.69		14.25		17.38
							17.05				16.70
			17.02				16.87				17.04

δ Urs. Min. Sin δ 9.99923 cos α = −.043 s to P. −.059 s to N.A. N.A. P

18 ~~18~~ 6h 12m 39sec cos δ 8.77310n cos δ = +0.70" α 18 12 58.735 58.719

93° 24' .11678n α tang δ = −16.83 δ 86 36 26.24 25.88 +10

8.88988n dα/dt −19.966

1874 1875 19.415 mean s I = 34.73 dδ/dt +1.18

ζ = − 51 01 dt/dt 1874 dα/dt ~~17.766~~ dα/dt 19.693

− .78 71 19.404 8.77233 1875 dt −19.420 19.417 k = +.258

72 19.406 6.73672

73 19.411 5.50905 1874 dδ/dt +1.18 mean 1.16 dδ/dt

74 19.415 1875 +1.14

75 19.420

1874

+.36	+.33	+.30	+.35 −.04	× +.25	× +.29
Feb. 4	Feb. 10	Feb. 11	Feb. 12	Feb. 14	Feb. 17

+.347 +.320 ≡ +.277 +.294 +.107 +.240

11 16.7 11 8 0 11 11.9 10 54.1 12 4.0 (12 22.8 11 11.3 13 6.0 11 6.0 10 13.2 11 8.0 (10 35.7

11 34.2 42.2 28.7 56.2 12 19.0 21.36 19.00 28.3 23.3 18.8 25.7 11 35.1)

11 51.2 12 13.5 46.3 58.2 12 38.1 20.74 45.3 40.3 22.3 42.6

12 10.0 12 4.8 12 55.1 20.38 12 2.7 57.4 12 0.0

12 27.1 21.6 13 13.6 21.52 21.3 12 15.8 18.8

12 44.5 38.8 13 32.0 22.56 36.5 33.8 35.2

13 1.5 13 23.2 56.7 12 40.8 55.0 50.5 11 41.0 52.4

13 18.9 13 14.2 42.6 13 12.5 13 8.7 13 11.0

13 36.2 32.0 44.1 30.5 24.6 27.8

2403 2550 2434 2604 2215

600 60 120 60

1950 183 4 140 4 161 5

12 26.700 12 21.667 12 20.378 12 15.600 12 17.944

11 41.23 10 56.17 12 22.8 13 6.00 10 18.77 ~~+ 35.10~~

13 23.20 12 42.50 12 20.927 11 41.00

26.958 + 22.45 21.925 + 27.81 21.185 + 28.47 20.636 + 29.27 13.858 + 31.13 18.202 + 33.14

12 43.29 − 6.06 12 44.76 − 5.55 12 44.98 − 5.05 12 45.20 − 5.89 12 45.69 − 4.21 46.55 − 4.88

− 16.33 − 22.84 − 23.80 − 24.56 + .67 − 29.83 − 28.35

− 16.27 + 15.44 − 22.78 + 13.97 − 23.74 + 13.75 − 24.50 + 13.53 − 29.77 + 13.04 − 28.29 + 12.18

12 58.79 58.16 58.36 58.22 55.82 58.64

+ 22.43 + 27.84 + 28.51 + 29.35 + 31.13 + 33.20

− 5.84 − 5.37 − 4.66 − 4.95 − 1.80 − 4.02 4

+ 15.44 − 3.98 + ~~14.03~~ 13.97 − 5.45 + 13.75 − 5.67 + 13.53 − 5.89 + 13.04 − 6.98 + 12.18 − 7.24

+ 32.03 31 22.26 + 36.44 23.98 + 37.60 + 37.93 23.56 + 43.37 24.91 + 41.34 25.25

12 26.96 − 7 31.56 12 21.92 − 7 31.45 12 21.18 12 20.64 − 7 30.84 12 15.86 − 7 30.98 12 18.20 − 7 31.33

+ 2.3 + 2.4 + 2.4 + 2.4 + 2.4

12 58.99 − 20.30 12 58.36 − 21.60 12 58.78 12 58.57 − 22.10 12 58.23 8 − 22.60 12 59.54 − 23.30

~~18.956~~ 23 ~~30.70~~ 32.70 ~~18.326~~ 23 33.33 ~~18.746~~ ~~18.536~~ 23 33.02 ~~19.196~~ 23 33.73 ~~19.506~~ 23 33.02

39.57 2 38.94 39.36 39.04 15 38.81 40.12

s

+45.47 − 56.50 + 85.50 − 20.83 − 45.62 + 116.83 + 34.60 102.84 + ~~72.84~~ + 42.84

50 50 50 50 50 50

Hfl = ″ − 2.73 − 2.93 − 2.97 − 2.98 − 3.00 − 3.04

2 52.1 2 44.6 2 52.0 2 42.9 2 45.1 2 43.7 2 48.8 2 42.0 2 50.3 2 45.2

40.1 32.2 41.0 31.1 38.9 31.9 46.0 39.7 43.9 39.5

92.2 76.8 93.0 74.0 79.0 75.6 94.8 81.7 94.2 84.7

52 46.10 52 38.40 52 46.50 52 37.00 52 39.50 52 37.80 52 47.40 52 40.85 52 47.10 52 42.35

1.65772 1.75205n 1.93197 1.31869n 1.65916n 2.06755 1.53908 2.01216 1.63185

0.54760n 0.64193 0.82185n 0.20857 0.54904 0.95743n 0.42896n 0.90204 0.52173

− 3.52 + 4.38 − 6.63 + 1.61 + 3.54 − 9.06 − 2.68 − 7.98 − 3.32

52 42.58 52 42.78 52 39.87 52 38.61 1.822 52 41.34 52 38.34 52 38.17 52 39.12 39.03

+93° 29 54.23 54.43 29 51.52 50.26 9 29 52.99 29 49.99 49.82 29 53.16

+93 30 5.47 5.61 5.54 30 8.48 9.74 30 7.01 30 10.01 10.18 30 9.23 9.32

− 50 59 4.12 59 50 9.61 10.09 9.28

1.85110n 1.85110n 11

+ 3165 + 2177 + 2702 + 3152 + 2056 + 2706

1.88275 1.88275 1.87287 1.87287 1.87812 1.87812 1.88262 1.88262 1.87166 1.87166 1.87816 1.87816

+ 76.34 + 76.34 + 74.62 + 74.62 + 75.53 + 75.53 + 76.32 + 76.32 + 74.41 + 74.41 + 75.54 + 75.54

+ 1 + 1 + 1 1

+ .07 + .25 + .10 + .20 + .28 + 1 + + .07 ~~+ .12~~ + 44.40 + 4 + 40 + .42 + .06

+ .17 + .16 + .17 + .16 + .16 + .16 + .23 + .17 + .16 + .20 + .19

+ 1 16.58 + 1 16.60 + 1 15.63 + 1 14.80 + 1 16.55 + 1 15.02 + 1 14.61 + 1 ~~15.92~~ 16.15 15.87

~~31 10.81~~ ~~11.43~~ ~~31 6.55~~ ~~5.06~~ ~~31 9.54~~ ~~31 5.01~~ ~~4.43~~ ~~31 9.02~~

36 5.9 4.6 4.4 4.1 3.6 2.9

23 54.1 55.4 55.6 55.5 56.4 57.1

31 22.35 22.17 31 23.51 24.54 31 23.56 31 25.03 24.77 31 ~~22.82~~ 25.38 25.12

− 7 28.2 28.1 28.1 29.1 27.7 28.6 28.4 28.7

− 7 28.1 23 32.52 28.6 32.75 27.7 28.5 33.70 25.7

− 7 28.83 32.34 29.3 33.78 28.4 29.2 33.46 26.4 32.94

−0.2 − 7 31.65 29.53 32.43 − 7 31.47 29.16 33.26 − 7 32.06 29.75 − 7 31.16 28.34 32.62 − 7 31.07 28.73 33.58 − 7 31.51 29.14 32.67

+ 2.12 − 31.48 31.28 + 2.28 − 22.78 32.08 + 2.31 − 22.18 + 2.32 − 23.28 31.44 + 2.34 23.78 + 2.37 24.49 − 32.80

− 20.30 − 21.60 − 21.80 − 22.10 − 23.66 32.40 − 23.30 31.64

1875 — R A,
α 18 12 39.317
δ 86 36 27.41
dα/dt −19420
dδ/dt +1.14

log 8.77310 n
log 0.12562
log′ 8.89862 n

× + × × 1874 1875

+.26 +.20 +.12 +.04

Feb. 26 March 1 March 2 March 4 Feb. Feb. 15

+.223 +.192 +.120 +.030 +.350

12 3.1 10 56.1 12 1.3 11 24.0 12 0.0 11 18.3 11 57.5 11 13.5 11 10 35.8 11 11 1.4
20.9 19.2 15.1 12 13.5 14.6
37.5 36.7 14 22.4 84.0 32.8 28.4
53.7 53.6 52.5 49.7 13 31.0 49.5
13 12.4 13 11.0 13 9.3 13 6.7 12 12 6.1
29.6 13 40.2 28.3 26.5 24.8 22.9
46.8 49.1 45.0 44.9 13 37.5 40.9 43.4
14 4.3 53.6 14 3.1 14 0.0 14 0.1 0.6
22.0 20.1 18.3 16.3 17.6
35.1

2192

1
13 12.511 13 10.922 13 8.956 13 7.144
10 56.10 11 24.00 11 13.30 11 13.50 10 35.80 12 24356 11 1.40
12.768 13 47.63 11.280 14 22.40 9.214 13 37.50 7.402 13 31.00 24614
49.28 −19.68 12 50.20 −17.26 12 50.56 −16.51 12 51.29 −15.13 12 24.57
+ 23.49 − 4.38 + 20.98 − 3.37 + 18.65 − 2.02 + 16.11 − .67 + 0.04
+ 23.55 + 21.04 + 18.71 + 16.17
12 + 9.45 6 + 8.53 + 8.17 + 7.44
− 19.65 12 58.16 − 17.28 59.08 − 16.50 58.85 − 15.12 59.04 + 5.25
− 3.75 − 3.23 − 2.002 − 0.00 0.50 − 5.879
+ 9.45 − 9.97 + 8.53 − 10.89 + 8.17 − 11.25 + 7.46 − 11.98 + 14.93
− 13.95 − 11.96 − 10.35 − 8.18 + ~~25.59~~
13 12.77 31 25.37 13 11.18 27.28 13 9.21 28.05 13 7.40 28.01 12 24.61
−7 30.61 −7 30.15 −7 30.06 −7 30.74 3872
12 58.82 + 2.3 12 59.22 + 2.3 12 58.86 + 2.3 12 59.22 + 2.3 12 ~~50.50~~
~~18786~~ − 24.80 ~~19186~~ − 25.40 ~~18826~~ − 25.60 ~~19186~~ − 25.90
39.40 23 32.26 39.80 23 34.03 39.44 23 34.69 39.80 23 33.67

56
+ 13841 − 35.12 + 106.92 − 71.48 + 115.66 − 28.54 + 113.64 − 23.86 + 32.96
50 50 50 50 40 40
Hyh − 3.13 − 3.17 − 3.18 − 3.22 − 3.77

2 53.1 2 39.3 2 43.8 2 30.0 2 41.9 2 29.4 2 38.9 2 27.1 4 7.8 3 58.3 4 11.9 3 1.3
46.7 33.6 42.7 28.0 44.8 31.7 42.9 31.0 13.3 4.6 15.1 4.4
99.8 72.9 86.5 58.0 86.7 61.1 81.8 58.1 21.1 12.29 27.0 5.7
52 49.90 52 36.45 52 43.25 52 29.00 52 43.35 52 30.55 52 40.90 52 29.05 44 10.55 43 1.45 44 13.50 43 2.85
2.13802 1.54555 n 2.02906 1.85418 n 2.06318 1.45545 n 2.05553 1.37767 n 1.36097
1.02790 n 0.43545 0.91894 n 0.74406 0.95306 n 0.34533 0.94541 n 0.26755 0.25959
− 10.66 + 2.72 − 8.29 + 5.54 − 8.97 + 2.21 − 8.81 + 1.85 + 1.82
52 39.24 52 39.17 52 34.96 52 34.54 52 34.38 52 32.76 52 32.09 52 30.90 44 15.02

~~29 50.89~~ ~~50.82~~ ~~29 46.61~~ ~~46.19~~ ~~29 46.03~~ ~~44.41~~ ~~29 43.74~~ ~~4.55~~ ~~21 16.97~~
30 9.11 9.18 30 13.39 13.81 30 13.97 13.59 30 16.26 17.45 38 33.83
9.14 13.60 14.78 − 50 59 16.85 59 59 59 35
1.85110 n 1.85120 n 1.85110 n 1.85120 n

+ 2890 + 1453 + 1229 − 140 + 4148
1.88000 1.88072 1.86563 1.86563 1.86339 1.84970 1.84980 1.89258 1.89268
+ 7586 + 7586 + 7339 + 7339 + 7301 + 7301 + 7075 + 7076 + 7809 + 78.11
+ 1 + 1 + 1
+ 61 + .35 + 4 + 37 + .29 + 16 + 48 + .26 + 3 + 42 + .40 + 2 + 2 − .86
+ .03 + .03 + .03 + .03 + .19 .03 + .17 .03 + .19 + .17 − .88 − .63
+1 16.51 +1 15.94 +1 13.79 +1 13.58 +1 13.47 +1 13.07 +1 11.36 +1 10.95 +1 17.24
~~31 44.0~~ ~~6.76~~ ~~31 04.0~~ ~~30 59.77~~ ~~30 59.50~~ ~~57.48~~ ~~30 55.10~~ ~~52.50~~ ~~22 44.21~~
36 44 08 06 0.3 35 19.4
23 58.6 59.2 59.4 59.7 36 23 33 56.2
31 25.62 25.12 31 27.18 27.39 31 27.94 28.66 31 27.62 28.90 39 50.27
−7 27.0 26.5 28.0 28.2 28.0 29.3 27.9 28.7 −16 3.6
−7 26.7 28.1 28.7 28.3 −16 3.6
−7 27.4 32.38 28.85 33.85 29.4 34.05 29.0 33.16 −16 4.8
−7 30.88 31.88 −7 30.40 33.06 −7 30.27 33.27 −7 31.05 32.96 −16 8.22
+ 2.44 − 28.44 32.13 + 2.47 27.93 − 26.59 33.45 + 2.48 27.79 − 26.78 34.66 + 2.51 28.54 − 27.08 33.57 + 2.94 2089
− 24.80 30.95 − 25.40 34.57 − 25.60 33.45 − 25.90 32.38 24.10

+.35
Feb. 16
+.300
11 10 25.3
13.1
31.4
49.7
12 6.8
23.6
41.4
58.4
15.0
33.6

2735
60
2135
12 23.722 10 25.30
23.980
12 24.81 +6.57
− 0.83 −5.89
− 0.77
+1451
+ 6.59 12 39.17
− 5.05
+14.51
+ 16.05
12 33.98 40 27.6
−16 9.13
12 40.03 + 25
− 24.30
+93 23 31.83

+11842
40
1 −3.79
4 10.5
13.7
24.2
44 12.10
2.07335
0.97197n
−9.37
44 2.73
~~21 14.38~~
38 45.62

+3786
1.88896 1.88906
+7744 +7746
+ 1
~~+43~~ −16
−76 −.31
+1 17.14
~~22 31.52~~
.91
23 .69
40 27.6
−16 5.9
−16 5.9 31.92
−16 6.61 ~~30.94~~
−16 9.49 6.54
+ 2.95 −25.44
−24.80

+.33
Feb. 17
+.313
11 9 47.9
12.8
32.0
48.5
12 6.1 13 36.8
23.2
40.3
58.4
15.6
32.6

2695
60
2095
12 23.278 9 47.90
23.536 13 36.80
12 24.57 12 +7.55
− 1.03 −5.55
− 1.47
+1425
+ 7.54 39.79
− 5.27
+14.25
+ 16.55
12 23.54 5.74
−16 10.12
12 40.09 + 25
− 24.60
23 33.52

+15538 −13.52
40
−3.80
4 11.3 3 55.0
13.4 54.5
24.7 109.5
44 12.35 43 54.75
2.19119 1.86641
1.08981n 0.46503
−12.30 +2.92
44 0.05 43 57.67
~~21 11.70~~ 6.51
38 48.30 50.68
59 49.44 59 53

+3246
1.88356 1.88366
+76.48 +76.50
+ 1 + 1
+ 78 −.25 + 1
−.76 −.70
+1 16.51 +1 15.98
~~22 28.21~~ 25.30
2.8
5.72
40 4.81 6.66
−16 7.6 9.5
8.5
9.2 32.95
−16 10.22 34.80
+ 2.96 7.26 25.14 33.87 +
−24.80

Jul. 25
+.04
Feb. 22
+.064
11 10 50.0
6.9
24.5
41.8
58.9
12 16.5 12 34.0
33.4
50.1
8.6
26.4

2671
120
1471
12 16.344 10 60.00
14 16.602 12 34.00
12 26.60 +13.20
− 10.00 −.67
− 9.94
+12.72
+ 13.23 39.85
− 1.13
+ 12.72
24.83
12 16.60 4.75
−16 9.00
12 41.43 + 25
− 25.70
23 32.55

+8634 −17.66
40
−3.83
4 2.9 3 53.3
7.8 58.6
10.7 111.9
44 5.35 43 55.95
1.93621 1.24699n
0.83483n 0.14561
− 6.84 + 1.40
43 58.51 43 57.35
21 10.16 9.00
38 47.84 51.00
50.42

+2343
1.87453 1.87463
+74.91 +74.92
+ 1 + 1
+ 24.59 + 1
−.74 −.70
+1 14.42 +1 14.24
~~22 24.58~~ 23.24
1.4
5.83
40 4.26 5.24
6.0 6.9
6.5
7.2 32.30
6.7 33.28
−16 9.24 6.26
+ 2.98 26.84 32.79 +
−26.80

+.00
Feb. 24
−.035
11 10 39.0
1.0
18.9
37.8
54.1 12 18.5
12 11.4
28.6
46.3
4.0
21.0

2231
120
1031
12 11.456 10 39.00
11.714 12 18.50
12 27.29 +15.42
− 15.58 −.00
− 15.52
+12.03
+ 15.44 39.16
+ .59
+ 12.03
+ 28.06
12 11.71 3.20
−16 7.93
12 39.77 + 25
− 26.00
23 31.77

+9246 −7.04
40
−3.87
3 56.6 3 48.3
11.9 3.0
128.5 111.3
44 4.25 43 55.65
1.96596 0.84757n
2.86458n 2.74619
− 7.32 +0.58
43 56.93 43 56.23
21 8.58 7.88
38 51.42 52.12
51.77

+627
1.85737 1.85767
+72.01 +72.02
+ 28 −.58 + 0
−.74 −.70
+1 11.55 +1 11.32
22 20.13 19.20
1.4
5.86
40 2.97 3.44
4.4 3.8 4.8
4.6
5.3 31.79
4.8 32.26
−16 8.19 5.18
+ 3.01 27.14 32.03 +
−26.00

+.17
March 4
+.140
10 10 43.4
58.5
11 16.6
34.3
51.8
12 8.2
25.7
42.6
0.0
17.4

2551
751
12 8.344 10 43.40
8.602
12 27.29 +23.86
− 20.69 −2.86
− 20.63
+10.03
+ 23.88 39.63
− 23.46
+ 10.03
+ 31.55
12 8.60 4.47
−16 8.00
12 40.15 + 2.5
− 27.10
23 31.87

+ 84.94
40
−3.88
4 3.1 3 53.0
11.0 59.9
14.1 112.9
44 7.05 43 56.45
1.92911
0.82773n
− 6.73
44 0.32
21 11.97
38 48.03

+3618
1.88928
+77.14
+ 1
+ .23 −.71
−.94 −.90
+1 16.44
22 ~~28.41~~
0.23
5.97
40 4.47
4.8
4.8
5.50
−16 8.50 5.48
+ 3.02 31.89 +
−27.10 28.24

+.02
March 8
+.010
10 10 55.0
53.7
11 10.1
28.2 12 48.0
43.9
12 0.7
20.0
37.0
54.9
11.6

2601
240
201
12 2.233 10 55.00
2.491 12 48.00
12 31.20 +28.70
− 28.71 −.34
− 28.65
+8.12
+ 28.71 38.97
− 0.17
+ 8.12
+ 36.66
12 2.49 6.07
−16 8.44
12 39.15 + 2.5
− 27.70
23 32.43

6
+17.23 −45.77
40
−3.88
3 59.1 3 50.0
5.9 57.0
125.0 107.0
44 2.50 43 53.50
1.88779 1.66058n
0.78641n 0.53730
− 6.11 + 3.62
43 56.39 43 56.12
21 8.04 7.77
38 51.96 52.23
52.09

+2197
1.87307 1.87317
+74.66 +74.67
+ 1 + 1
+ 18 −.70 + 1
−.84 −.82
+1 14.02 +1 13.93
22 ~~22.06~~ 22 ~~21.70~~
35 5.97
6.3
40 5.18 6.16
5.7 4.9
5.8
6.50 32.50
−16 8.80 32.68
+ 3.02 5.78 28.84 32.59
−27.20

1874.0 α	δ	1875.0 α	δ
58.99		38.72	
58.36		40.03	
58.78		40.09	
58.57		41.43	
59.23		39.77	
59.54		40.15	
58.82		39.15	
59.22		39.18	
58.86		38.84	
59.22		38.71	
58.959		39.607	
.719	25.78	.305	26.92
+.240		+.302	

+.01 +.06 +.10 +.06 +.07 +.05

March 11 March 17 March 18 March 22

+.076 +.170 +.116

10 10 15.3 10 10 30.3 10 9 21.2
46.9 48.7 46.0
11 5.8 11 5.7 11 1.5
22.6 11 50.1 23.9 18.7
41.5 41.2 35.5
59.9 59.2 53.6
12 14.6 12 16.5 12 11.5
32.1 33.2 28.4
48.7 50.9 46.3
7.8 9.0 2.7

2799 2883 2442
240 240 280
519.9 10 15.30 528.3 10 30.30 1984.2 9 21.20
11 57.787 11 58.10 11 58.700 11 54.380
53.800

11 58.025 +37.32 11 58.958 +38.27 11 54.058 +43.32
12 34.20 −.17 12 34.90 −1.68 12 36.07 −1.18
− 36.18 −1.01 − 35.94 −1.01 − 42.01 −.84
− 36.12 +5.12 − 35.88 +4.42 − 41.95 +3.25
39.29 38.96 38.61 -

+ 37.32 + 38.32 + 43.32
− 1.28 − 2.86 − 1.95
+5.12 +4.42 +3.25
+ 41.16 40 27.7 + 39.88 4.35 + 44.62 4.76
11 58.02 −16 6.91 11 58.96 −16 7.29 11 54.06 −16 6.61
+ 26 + 26 + 26
12 39.18 − 27.80 12 38.84 − 28.20 12 38.71 68 − 28.40
23 30.66 23 31.46 23 32.35

10 8
+42.47 + 7.67 +28.40 +152.60
40 40 40 40
1 11 −3.87 −3.86 −3.83
3 39.1 3 35.1 4 1.9 3 55.2 4 3.9 3 58.1 4 10.3
49.1 45.3 12.2 7.1 8.9 2.5 13.6
88.2 80.4 14.1 122.3 12.8 120.6 23.9
43 44.10 40.20 44 7.05 44 1.15 44 6.40 44 0.31 44 11.95

2.01060 1.94645
~~1.62808~~ 0.88480 ~~1.45332~~ 2.18355
0.52670n 9.78342 2.35794n 1.08217n
−.221 −0.61 −.225 −12.08
43 3.6 44 0.54 43 4.12 43 59.87
58.94 59.40

21 ~~15.34~~ ~~12.19~~ 21 ~~15.80~~ 21 ~~1.52~~
38 49.71 47.81 38 48.95 38 48.48
48.61
−50 59 41 59 47
1.85110n 1.85110n
+2299 +2984 +3176
1.87409 1.87409 1.88094 1.88094 1.88286 1.88286
+74.83 +74.83 +76.02 +76.02 +76.36 +76.36
+ + 1 + 1 + 1 + 1
+ 34 −.68 + 0 + 19 ~~−.59~~ + 20 + 75 ~~−.04~~
−.86 −.84 −.82 −.63 −.80 −.84 −.09
+1 14.32 +1 14.80 +1 15.20 +1 15.48 +1 16.28
~~22 24.71~~ ~~26.19~~ ~~22 26.45~~ ~~22 27.80~~
5.96 5.92 5.90
0.4 0.8 1.0
40 3.73 1.81 40 4.35 40 4.16
− 16 3.3 1.4 3.6 3.7
− 16 2.3 31.74 3.6 3.7
− 16 3.0 29.82 4.3 4.4
−41.94 −21.94 ± 16 7.20 30.78 ± 16 7.75 31.41 ± 16 7.11 4.13 32.23
3.01 3.01 −29.34 2.98 −29.54

β Can. Maj.
6h 17m 11sec.
− 17° 53′
ζ = + 6 0 16
sin ζ = + .87

sin δ 9.48725n
cos δ 9.97849
.11678
.09527

1875
α 17 11.80
δ 53′ 42.60
dα/dt +2.642
dδ/dt −1.46

l cos δ 9.97849
l 6 .12552
l 6′ 0.10401

cos α =
cos δ =
tang δ = −.32
I = 2.16s
K = −.016s

92

1874 Feb. 10		1874 Feb. 11		1874 Feb. 12		1874 Feb. 16		1875 Feb. 15		1875 Feb. 17	
+.320		+.277		+.294		+.175		+.350		+.313	
16 —	16 32.3	16 28.7	16 27.1	16 —	16 53.4	16 —	16 56.5	16 54.7	17 21.7	17 —	17 21.2
—	33.6	30.8	29.7	—	57.4	—	58.0	56.6	24.2	—	23.7
—	36.5	32.8	31.6	—	59.8	—	59.9	58.9	27.0	—	26.6
37.7		37.0		36.0		—		17 3.2		1.0	5.32
39.9		39.2		38.5		—		5.4		2.8	4.96
42.1		41.3		40.6		37.1	37.10	7.4		5.1	5.10
44.2		43.4		42.8		39.4	.24	9.7	17 44.3	7.1	4.94
46.4		45.8		44.9		41.6	.28	11.7	46.4	9.5	5.18
—		50.1		—		43.4	.26	16.2	47.8	13.8	5.06
—		52.3		—		48.0	.20	18.4		16.0	5.20
—		54.2		—		50.3	.34	20.5		18.2	5.24
2103		4556		2028				2627 180 827			
16 42.060 42.044	16 55.47	16 41.418 41.402	16 29.47	16 40.560 40.544	16 57.53	16 37.237 37.221	16 58.13	17 7.518 7.502	17 24.30 17 46.17	17 5.129 5.113	17 23.50
+ 27.84		+ 28.51		+ 29.35		+ 32.55		+ 5.25		+ 7.57	
− .10		− .09		− .09		− .06		− .11		− .10	
− 0.74	+1.902	− 0.73	+1.912	− 0.72	+1.922	− 0.66	+1.982	− 0.94		− 0.91	
+ 27.00		+ 27.69		+ 28.54		+ 31.83		+ 4.20		+ 6.56	
16 42.04		16 41.40		16 40.54		16 37.22		17 7.50		17 5.11	
17 9.04 11.682		17 9.09 11.732		17 9.08 11.722		17 9.05 9.05	11.692	17 11.70		17 11.67	

Feb. 10		Feb. 11		Feb. 12		Feb. 16		Feb. 15		Feb. 17	
s −13.41		+11.95		−16.97		−20.89		−16.78	−38.65	−18.37	
5		5		5		5		55	55		
20/f″ = 1 − 29.3		−29.7		−29.8		−30.2		−3.77		−3.80	
2 39.5		2 5.9		2 42.7		2 47.1		3 51.8	4 17.9	3 58.0	4 33.0
23.9		50.0		27.3		38.2		49.5	16.8	55.3	31.4
63.4		115.9		70.0		85.3		101.3	34.7	113.3	64.4
7 31.70		6 57.95		7 35.00		7 42.65		58 50.65	59 17.35	58 56.65	59 32.20
1.12743n		1.07737		1.22968n		1.31994n		1.22479n	1.58715n	1.26411	
1.22270n		1.17264		1.32495n		1.41521n		1.33880n	1.69116n	1.36812	
−16.70		+14.88		−21.14		−26.01		−21.32	−49.11	−23.34	
7 15.00		7 12.83		7 13.86		7 16.64		58 29.33	58 28.24	58 33.31	
−17° 44′ 26.65″		44 24.48		44 25.51		44 28.29		35 40.98 40.43	39.89	35 44.96	
+60 15 4		14 30		15 7				15 3	15 29		
2.00176		2.00159		2.00176				2.00176	2.00188		
+2186		+2899		+3159		+1146		+4164		+3266	
2.02362		2.03058		2.04335		2.01322		2.04340	2.04352	2.03442	2.03454
−10560		−10730		−11050		−10310		−11050	−11050	−10830	−10830
− 2		− 2		− 2		− 2		− 4	− 4	− 3	− 3
+.03 ~~+.09~~		+.02 ~~+.06~~		+.04 ~~+.10~~		+.06 +.12		+.04 −.71	+.23	+.05 −.65	
+.15 +.18		+.11 +.13		+.16 +.20		+.19 +.25		−.80	−.90	~~−.82~~ −.70	~~−.88~~ −.95
−1 45.44		−1 47.19		−1 50.32		−1 42.87		−1 51.30	−1 51.21	−1 48.98	
−17 46 12.09		46 11.67		46 15.83		46 11.16		37 32.28	31.10	37 33.94	
−7 31.44	33.98	−7 32.06	34.64	−7 31.16	33.75	−7 32.22	34.84	−16 8.22	11.49	−16 10.22	13.52
− 2.54	+1.61	− 2.58	+1.74	− 2.59	+1.87	− 2.62	+2.35	− 3.27	+0.87	− 3.30	+1.10
+ 3.07		+ 3.20		+ 3.33		+ 3.81		+ 2.33		+ 2.56	
−7 30.91	53 43.00 53 44.46	31.44	43.11 44.57	30.42	46.25 $\boxed{47.71}$	31.03	42.19 43.65	16 9.16	41.41 40.26	10.96	44.40

~~40.52~~ 40.83

Feb. 24		March 8		March 22	
−.035		+.010		+.116	
16 44.1	16 44.6	16 30.7	16 19.4	16 15.7	16 12.0
46.2	46.0	32.9	21.6	17.9	13.4
48.5	48.0	35.0	24.2	20.2	15.1
52.8		39.2		24.4	
54.9		41.6		26.6	
57.1		43.8		28.8	
59.4	17 28.0	45.9	17 3.3	30.8	
1.5	30.0	48.1	5.1	33.0	
5.6	32.9	52.4	7.0	37.4	
8.0		54.6		39.5	
10.0		56.8		41.6	
3881		4810		3159	
240					
6281	16 46.20		16 21.73		16 13.60
16 57.100	17 30.23	16 43.727	17 5.13	16 28.718	
57.084		43.711		28.702	
+ 15.44		+ 28.71		+ 43.33	
+ .01		− .00		− .04	
− 0.81		− 0.61		− 0.34	
+ 14.64		+ 28.10		+ 42.95	
16 57.08		16 43.71		16 28.70	
17 11.72		17 11.81		17 11.65	
				11.710	

+10.90	−33.13	+22.00	−21.40	+ 15.22	
55		55		55	
−3.87		−3.88		−3.83	
3 24.8	4 20.1	3 10.9	4 5.4	3 21.1	
32.6	27.2	12.6	6.8	17.5	
57.4	47.3	23.5	12.2	38.6	
58 28.70	59 23.65	58 11.75	59 6.10	58 19.30	
1.03743	1.52022n	1.34243	1.33041n	1.18241	
1.14144	1.62423n	1.44643	1.43442n	1.28642	
+13.85	−42.10	+27.95	−27.19	+ 19.34	
58 42.55	58 41.55	58 39.70	58 38.91	58 38.64	
35 54.20	53.20	35 51.35	50.56	35 50.29	
53.70		50.95			
		14 24	15 18		
		2.00156	2.00192		
+644		+2208		+3189	
2.00800	2.00836	2.02364	2.02400	2.03335	2.03380
−101.90	−102.00	−105.60	−105.70	−108.00	−108.10
0	0	− 2	− 2	− 2	
+.02 −.61	+.17	+.07 −.69	+.07	+.03 −.63	
−.63	−.79	−.67	−.86	−.66	
−1 42.51	−1 42.62	−1 46.22	−1 46.51	−1 48.65	
37 36.71	35.82	37 37.57	37.07	37 38.94	
−16 8.19		−16 8.80		−16 7.11	
− 3.36	11.55	− 3.37	12.17	− 3.33	10.44
+ 3.28	+1.82	+ 4.11	+2.65	+ 4.51	+3.05
8.27	44.98	80.6	45.63	5.73	44.87
	44.09		45.10		
	44.53		45.38		44.87