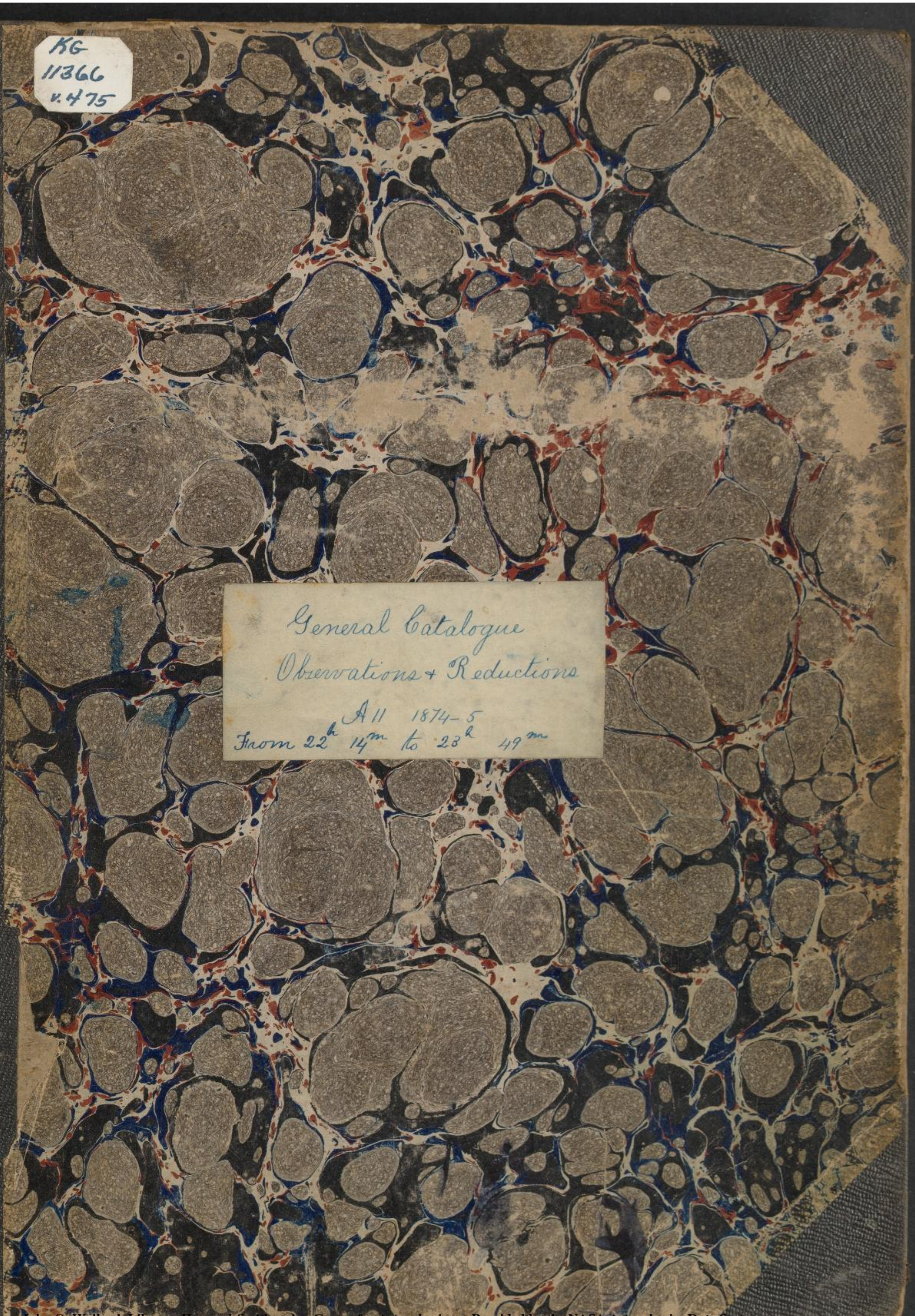
KG
11366
v.475



General Catalogue
Observations + Reductions
A11 1874-5
From 22^h 14^m to 23^h 49^m

G.C. 1874-5

Observations ~ Reductions

A 11

From 22^h 14^m to 23^h 49^m

ρ Aquarii
h m sec
22 13 37

− 8° 26′

ζ = + 50° 49′
ζ sin ζ = +.77

1874 | 1875
α − | 13 37.24
δ | 26 54.74
dα/dt | + 3.159
dδ/dt | + 17.91

l sin δ 9.16631n

l cos δ 9.99528 | 9.99528
l C 0.10460 | 12552
l C′ 0.09988 | 0.12080

l C′ 0.09662

1874

corr α = | .77 | 13 | 37.28 | 26 | 53.8
corr δ = | .78 | | 37.24 | | 54.0
| .80 | | 37.26 | | 52.9
tang δ = −.15 | .82 | | 37.26 | | 54.9
| .86 | | 37.25 | | 53.6
I = 2.08 (s) | .88 | | 37.21 | | 53.3
K = −.016 (s) | 82 | | 37.250 (6) | | 53.75 (6)
| | | 0 | | 0

1874

Oct. 6		Oct. 10		Oct. 18		Oct. 27		Nov. 8		Nov. 18	
−.275		~~−.280~~ −.283		−.227		−.324		+ 1s ~~−.152~~ −.146		−.154	
22 13 37.8	13 30.3	13 38.4	13 29.5	13 37.1	13 25.2	13 30.6	13 17.8	13 22.8	13 13.2	13 14.3	13 2.0
39.9	32.0	40.4	32.3	39.2	27.8	32.7	20.0	25.0	15.0	16.4	3.4
42.0	34.0	42.6		41.4	29.4	34.8	22.0	27.0	16.7	18.4	5.2
46.0		46.7		48.5		39.0		31.1		22.6	
48.1		48.8		47.6		41.0		33.2		24.7	
50.3		50.9		49.9		43.1		35.3		26.8	
52.4	14 12.2	53.0	3.0	51.8	14 8.0	45.2	13 54.8	37.4	14 0.7	28.8	13 48.7
54.5	14.6	53.7	5.0	53.9	10.4	47.2		39.5	3.4	31.0	50.7
58.0	16.2	59.2	6.6	58.0	12.5	51.3		43.7	4.7	35.0	53.0
0.8		1.4		0.0		53.6		45.7		37.2	
2.9		3.4		2.2		55.7		47.8		39.3	
4334		4399		4266		4742		3885		2945	
120		120		120							
5534	13 32.10	5599	13 30.90	5466	13 27.47		13 19.93		13 14.97		13 3.53
13 50.309	14 14.33	13 50.900	14 4.87	13 49.691	14 16.30	13 43.109	13 54.80	13 36.318	14 2.93	13 26.773	13 50.80
50.293		50.884		49.675		43.093		36.302		26.757	
−13.30		−13.96		~~−13.77~~ −12.79		−6.33		+ 0.33		+ 9.71	
+ .04		+ .04		+ .03		+ .05		+ .02		+ .02	
− 2.91	+0.249	− 2.88	+0.279	− 2.81	+0.349	− 2.71	+0.449	− 2.56	+0.599	− 2.44	+0.709
− 16.17		− 16.80		− 15.57		− 8.99		− 2.21		+ 7.29	
13 50.29		13 50.88		13 49.67		13 43.09		13 36.30		13 26.76	
13 34.12		13 34.08		13 34.10		13 34.10		13 34.09		13 34.05	
13 37.279		37.239		37.259		37.259		37.249		37.209	
										84.090	

6 + 18.21	− 24.02	+ 20.00	− 13.97	+ 22.22	− 20.61	+ 23.18	− 11.69	+ 21.35	− 26.61	+ 23.24	− 24.03
50		50		50		50		50		50	
− 2.43		− 2.43		− 2.48		− 2.53		− 2.68		− 2.77	
0 7.3	0 59.8	0 9.0	0 50.3	0 6.2	0 59.7	0 9.0	0 52.2	0 10.4	1 9.4	0 7.9	1 7.0
25.1	17.1	26.4	8.3	25.2	18.0	27.1	11.0	28.8	27.9	26.1	25.1
324	1369	354	1186	314	1377	361	1232	392	373	340	321
50 0 16.20	51 1 8.45	50 0 17.70	50 0 59.30	50 0 15.70	51 1 8.85	50 0 18.05	51 1 1.60	50 0 19.60	51 1 18.65	50 0 17.00	51 1 16.05
1.26031	1.38057n	1.30103	1.14520n	1.34674	1.31408n	1.36511	1.06781n	1.32940	1.42504n	1.33624	1.38075n
1.36019	1.48045n	1.40091	1.24508n	1.44662	1.41396n	1.46499	1.16769n	1.42602	1.52166n	1.46286	1.47737n
+ 22.92	− 30.23	+ 25.17	− 17.58	+ 27.97	− 25.94	+ 29.17	− 14.71	+ 26.67	− 33.26	+ 29.03	− 20.02
−8° 50 39.12	50 38.22	50 42.87	50 41.72	50 43.67	50 42.91	50 47.22	50 46.89	50 46.27	50 45.39	50 46.03	50 46.03
27 50.77	49.87	27 54.52	53.37	27 55.32	54.56	27 58.87	58.54	27 57.92	57.04	27 57.68	57.68
50.32		53.94		54.94		58.71		57.48		57.68	
+ 50 48 9	49 1									48 10	49 9
1.84820	1.84840									1.84820	1.84840
+ 803		− 919		+ 298		− 525		+ 752		+ 962	
1.85623	1.85643	1.83901	1.82921	1.85118	1.85138	1.84295	1.84315	1.85572	1.85592	1.85782	1.85802
− 71.82	− 71.85	− 69.03	− 69.06	− 70.99	− 71.02	− 69.65	− 69.68	− 71.73	− 71.77	− 72.09	− 71.11
0	0	0	0	0	0	0	0	0	0	0	0
+ .02	+ .01 + .04	+ .08	.00 + .01	+ .03	+ .02 + .03	+ .04	+ .01 + .01	+ .03	+ .01 + .04	+ .04	+ .02 + .04
− .01	− .03	− .01	− .03	− .01	− .03	− .01	− .03	− .01	− .04	− .01	− .04
− 1 11.81	− 1 11.84	− 1 9.01	− 1 9.08	− 1 10.97	− 1 11.02	− 1 9.62	− 1 9.70	− 1 11.71	− 1 11.77	− 1 12.06	− 1 11.11
−8 29 258	1.71	29 353	2.45	29 629	5.58	29 849	8.24	29 963	8.81	29 9.74	8.79
+ 2 5.18	3.31	+ 5.65	3.78	+ 9.40	7.50	+ 9.42	7.48	+ 11.08	9.02	+ 10.92	8.79
− 1.84	+ 5.06	− 1.87	+ 5.19	− 1.90	+ 5.51	− 1.94	+ 5.94	− 2.06	+ 6.58	− 2.13	+ 7.17
− 12.85		− 12.72		− 12.40		− 11.94		− 11.33		− 10.74	
+ 1 50.46	27 12.12	+ 51.06	12.47	+ 55.10	11.19	+ 55.51	12.98	+ 57.69	11.94	+ 58.05	11.69
	11.25		11.39		10.48		12.43		11.12		10.74
	27 11.68		11.93		10.83		12.85		11.53		11.22
	26 53.77		54.02		52.92		54.94		53.62		53.31

1875

.79	13	37.29	26	53.35
.80		37.50]		52.91
.84		37.28		53.52
.84		37.28		53.30
.85		37.35		54.95
.92		37.17		54.66
.85		37.274 ± 21 37.272/3	(5)	53.78 ± 0
				(6)

1875

Oct 14		Oct 19		Nov 2		Nov 4		Nov 7		Dec 1		Dec 2	
-345 14 16.3 18.3 22.3 24.5 26.6 28.8 30.9 32.9 37.1 39.1 41.0 3158	14 16.8 18.9 19.9 14 48.1 50.6 52.1	-453 14 19.0 21.3 23.3 27.4 29.6 31.7 33.8 36.0 40.0 42.3 44.3 3487	14 8.1 10.3 11.8 14 40.4 42.6 44.5	-250 14 27.2 29.2 31.3 35.5 37.6 39.6 41.7 43.8 47.9 50.0 52.1 4359	14 22.0 24.1 26.2 15 4.5 6.1 8.0	-260 14 28.0 30.1 32.0 36.4 38.5 40.6 42.7 44.6 48.9 51.1 53.2 4461	14 21.7 24.0 25.1 14 51.5 53.5 54.9	-250 14 29.1 31.2 33.3 37.3 39.6 41.7 43.8 45.9 49.9 52.0 54.3 4581	14 21.1 23.2 25.2 15 2.1			-051 13 30.2 32.3 34.5 38.6 40.8 42.9 45.0 47.1 51.1 53.3 55.3 4711	13 24.0 26.5 28.0 13 58.7
14 28.709 28.693 -48.25 + .05 - 3.20 -51.40 14 28.69 13 37.29	14 18.47 14 50.27	14 31.700 31.684 - 51.10 + .07 - 3.15 - 54.18 14 31.68 13 37.50]	14 10.07 14 42.50	14 39.627 39.611 - 59.38 + .04 - 2.99 - 62.33 14 39.61 13 37.28	14 24.10 15 6.20	14 40.555 40.539 - 60.33 + .04 - 2.97 - 63.26 14 40.54 13 37.28	14 23.60 14 53.30	14 41.645 41.629 - 61.39 + .04 - 2.93 - 64.28 14 41.63 13 37.35	14 23.17 15 2.10			13 42.827 42.811 - 2.96 + .01 - 2.69 - 5.64 13 42.81 13 37.17 37.274	13 26.17 13 58.70
+ 10.24 30 -2.86 1 39.3 48.9 88.2 31 44.10	- 21.56 2 22.6 31.8 54.4 32 27.20	+ 21.63 30 -2.90 1 23.9 36.1 60.0 31 30.00	- 10.80 2 6.5 18.4 24.9 32 12.45	+ 15.53 30 -2.97 1 35.3 40.2 75.5 31 37.75	- 26.57 2 30.6 34.8 65.4 32 32.70	+ 16.95 30 -2.98 1 34.0 36.9 70.9 31 35.45	- 12.75 2 13.6 15.5 9.1 32 14.55	+ 18.47 30 -3.01 1 33.5 38.4 71.9 31 35.95	- 20.46 2 27.7 31.1 58.8 32 29.40	30 -3.14 1 39.8 32.0 11.8 31 35.90	2 30.8 23.9 54.7 32 27.35	+ 16.66 -3.15 1 38.9 33.2 12.1 31 36.05	- 15.87 2 23.3 16.5 39.8 32 19.90
1.01030 1.13110 +13.52 31 57.62	1.33365n 1.45445n -28.48 31 58.72	1.33506 1.45586 +28.57 31 58.57	1.03342n 1.15422n -14.26 31 58.19	1.19117 1.31197 +20.51 31 58.26	1.42432n 1.54512n -35.09 31 57.61	1.22917 1.34997 +22.38 31 57.83	1.10551n 1.22631n -16.84 31 57.71	1.26647 1.38727 +24.39 32 0.34	1.31091n 1.43171n -27.03 32 ~~2.37~~	31 57.90		1.22167 1.34247 +22.00 31 58.05	1.20058n 1.32138n -20.96 58.94
9 9.27 9.82 47 56 1.84810 +1359 1.86169 -72.73 0 +.02 -.25 -1 12.96 10 22.23 -16 14.19 — 2.20 -14.12 -16 30.51	10.37 48 39 1.84830 1.86189 -72.76 0 -.28 +.03 -.36 -1 13.09 23.46 16.39 52.74 53.97 26 53.35	9 10.22 9.98 +937 1.85747 -72.02 - 0 +.03 -.21 -1 12.20 10 22.42 -14.46 - 2.23 -13.91 - 30.60	9.84 1.85767 -72.06 0 -.24 +.01 -.31 -1 12.36 22.20 16.69 53.02 52.80 52.91	9 9.91 9.59 +1872 1.86682 -73.59 - 1 +.02 -.10 -1 13.68 10 23.59 -14.69 - 2.28 -13.25 - 30.22	9.26 1.86702 -73.62 - 1 -.10 +.04 -.15 -1 13.74 23.00 16.97 53.81 53.22 53.52	9 9.48 9.42 +1625 1.86435 -73.17 - 1 +.02 -.10 -1 13.26 10 22.74 -15.15 - 2.29 -13.14 - 30.58	9.36 1.86455 -73.21 - 1 -.10 +.01 -.13 -1 13.34 22.70 17.44 53.32 53.28 53.30	9 11.99 +1357 1.86167 -72.72 - 0 +.02 -.10 -1 12.80 10 24.79 -14.87 - 2.31 -12.98 - 30.16	14.02 1.86187 -72.76 0 -.10 +.03 -.15 -1 12.88 17.18 54.95	9.52 -12.67 —		9 9.70 10.14 47 48 1.84810 +4181 1.88991 -77.61 - 1 +.02 -.24 -1 17.84 10 27.54 — 12.65 — 2.42 -11.64 — 21.61	10.59 48 32 1.84830 1.89011 -77.64 - 1 -.32 +.01 -.34 -1 17.98 28.57 +18.07 54.15 55.18 54.66

25

γ Aquarii
h m sec
22 15 12

−2° 1′
γ = + 44° 24′
γ sin γ = +.70

α 8ˢ.860
δ −1′ 17″.29
dα/dt +3ˢ.101
dδ/dt +18″.005
log sin δ 8.54642n
log cos δ 9.99973
log C 0.10460
log C′ 0.10433

0.10107

1874					
Oct.	7	15ᵐ 11ˢ.64		1′ 2″.9	
	12	11.60	−.04	2.9	+.0
	17	11.55	.05	3.0	.1
	22	11.50	.05	3.1	.1
	27	11.45	.05	3.2	.1
Nov.	1	11.40	.05	3.3	.1
	6	11.34	.06	3.5	.2
	11	11.28	.06	3.7	.2
	16	11.21	.07	4.0	.3

corr α =
corr δ =
tang δ = −.031 1.00
I = 2ˢ.06
K = −.015ˢ

1874			
.77	15 12.00	0	59.8
.78	11.93		0.2
.78	12.09		59.6
.80	11.97		59.1
.82	12.00		0.5
.86	11.99		0.1
.88	11.95		0.2
.81	11.990 (γ)		59.93

1874

	Oct. 6 −.17 −.07		Oct. 10 −.21 −.07		Oct. 12 −.23 −.07		Oct. 18 −.24		Oct. 27 −.24 −.08		Nov. 8 −.15	
c 2	−.275		~~−.280~~ −.283		−.302		−.227		−.327		+1ˢ ~~.152~~ −.146	53.7
3 240	22 15 12.6	15 7.5	15 13.0	15 7.6	15 13.9	15 7.6	15 11.9	15	15 5.4	14 56.3	14 57.6	14 ~~56.7~~
265	14.6	9.3	15.2	9.5	16.0	9.6	14.0		7.5	58.2	59.7	
28.0	16.8	10.9	17.3	11.4	18.1	11.3	16.2		9.6	0.1	1.8	
	20.9		21.4		22.3		20.3		13.7		3.9	
	23.0		23.4		24.4		22.3		15.7		7.9	
	25.0		25.6		26.5		24.4		17.8		10.1	
3 58.7	27.0	15 52.5	27.6	15 50.8	28.5	15 37.5	26.4	15 53.3	20.0	15 33.0	12.1	15 32.9
	29.1	54.7	29.7	53.0	30.6	39.6	28.4	55.7	22.0		14.1	34.6
	33.2	56.7	33.9	54.6	34.7	41.0	32.5	57.2	26.1		18.3	36.3
	35.3		36.0		36.8		34.7		28.1		20.3	
	37.4		38.0		38.8		36.7		30.2		22.5	
	27 49		2811		2906		2678		1961		2303 120	
2617		15 9.23		15 9.50		15 9.50				14 58.20	1103	14 53.70
58.70	15 24.991	15 54.73	15 25.555	15 52.80	15 26.418	15 39.37	15 24.345	15 55.40	15 17.827	15 33.00	15 11.027	15 34.60
	24.976	−13.26	25.540	−13.87	26.403	−14.60	24330	−12.75	17.812	−6.23	11.012	+0.38
	15 11.65	+.01	15 11.62	+.01	15 11.60	+.01	15 11.54	+.01	15 11.45	+.01	15 11.331	+.00
	+13.33	− .07	+13.92	− .07	+14.80	.07	+12.79		+6.36	−.08	−0.31	
		−2.79		−2.76		−2.74		−2.68		−2.59		−2.45
	− 13.30	15 8.87	− 13.96	8.85	− 14.68	9.00	− 12.79	8.91	− 6.33	8.92	+ 0.33	8.94
	+ .01		+ .01		+ .01		+ .01		+ .01		+ .00	
	− 2.759	+0.311	− 2.76	+0.341	− 2.74	+0.361	− 2.68	+0.421	− 2.59	+0.511	− 2.465	+0.651
	− 16.08		− 16.71		− 17.41		− 15.46		− 8.91		− 2.182	
	15 24.98	− 3′ 6.86″	15 25.54	7.72″	15 26.40	10.79	15 24.33	10.46	15 17.81	12.09	15 11.01	13.56
		+2 5.48		+2 5.68		+2 9.40		+2 9.39		+2 9.39		+2 11.32
	15 8.90	−1.70	15 8.83	−1.80	15 8.99	−1.8	15 8.87	−1.80	15 8.90	−1.80	15 8.89	−1.90
	15 12.001	−14.40	11.931	−14.40	12.091	−14.40	11.971	−14.30	12.001	−14.10	11.981 4	−13.70
	−2	1 ~~21.26~~ 17.48		1 18.24		1 17.59		1 17.17		1 18.60		1 17.84
1587	20 + 15ˢ.76	− 29.74	20 +16.05	− 27.25	20 +16.92	− 12.95	20 −31.06	− 31.06	20 +19.63	− 15.17	20 + 17.33	− 23.57
	−2.43		−2.43		−2.45		−2.48		−2.53		−2.68	
2 233	4 29.8	0 27.7	4 32.0	0 27.5	4 32.4	0 9.1	4 55.5	0 33.4	4 32.1	0 14.4	4 34.2	0 25.9
165	45.3	43.9	47.7	44.8	47.6	27.8	14.2	49.8	47.7	33.5	49.9	44.0
398	75.1	71.6	79.7	72.3	80.0	36.9	12.97	83.2	79.8	47.9	84.1	69.9
32 1990	24 4 37.55	25 0 35.80	24 4 39.85	25 0 36.15	24 4 40.00	25 0 18.45	25 5 4.85	25 0 41.60	24 4 39.90	25 0 23.95	24 4 42.05	25 0 34.95
0058n	1.19756	1.47334n	1.20548	1.43537n	1.22840	1.11227n		1.49220n	1.29292	1.18099n	1.23880	1.37236n
2138n	1.30189	1.57767n	1.30981	1.53970n	1.33273	1.21660n		1.59653n	1.39725	1.28532n	1.33987	1.47343n
20.96	+ 20.04	−37.81	+ 20.41	−34.65	+21.52	−16.47		−39.49	+24.96	−19.29	+ 21.87	−29.75
5894	24 57.59	24 57.99	25 0.26	25 1.50	25 1.52	25 1.98		25 2.11	25 4.86	25 4.66	25 3.92	25 5.20
10.59 −2°	2′ 9.24″	9.64	2 11.91	13.15	2 13.17	13.63		2 13.76	2 16.51	16.31	2 15.57	16.85
	9.44		12.53		13.40				16.41		16.21	
8 32	+44 22 30	23 29										
84834	1.75030	1.75060										
	+807		−917		+737		+299		−522		+753	
9011	1.75837	1.75867	1.74113	1.74143	1.75767	1.75797	1.75329	1.75359	1.74508	1.74538	1.75783	1.75813
−77.64	−57.83	−57.37	−55.20 10	−55.14	−57.23	−57.27	−56.66	−56.70	−55.60	−55.64	−57.26	−57.30
32 +01	+.010	−.07 +.012	+.010	−.07 +.042	+.010	−.14 +.010		.00 +.042	+.02	−.06 +.01	+.010	−.07 +.031
−34	−.14	−.02	−.14	−.02	−.14	−.01	.00	−.02	−14	−.01	−.14	−.02
17.98	− 57.47	− 57.37	− 55.24	− 55.14	− 57.37	− 57.42		− 56.70	− 55.73	− 55.64	− 57.40	− 57.31
28.57	3 6.71	7.01	7.15	8.29	10.54	11.05		10.46	12.24	11.95	12.97	14.16
3.07	1 2.9		2.9		2.9		3.0		3.2		3.6	
	+2 3.8	4.1	4.2	4.4 5	7.6	8.1		7.46	9.0	8.7	9.4	10.6
	+2 3.95		4.80		4.85			7.46	8.85		10.00	
54.15	+2 5.18	1 17.63	+ 5.65	3.95 17.60	+ 9.33	7.62 17.32	+ 9.40	7.66	+ 9.42	7.65 18.69	+ 11.08	9.30 17.41
55.18	− 1.70	3.48 + 3.61 17.93	− 1.70	+ 3.61 18.74	− 1.71	+ 3.61 17.83	− 1.74	+ 3.71	− 1.77	+ 3.91 18.40	− 1.88	+ 4.31 18.66
	− 14.40		− 14.40		− 14.40		− 14.30		− 14.10	54	− 13.70	
54.66	+1 44.08	1 17.78	+ 49.55	18.17	+ 53.22	17.51	+ 53.36	17.10	+ 53.56	18.68	+ 55.50	18.06
		0 59.78		0.17		59.57		59.10		~~1.60~~ 0.54		0.06

1875
s
11.961
− 0' 59.28
+3.101 s
+18".007

l δ 9.99973
l C. 12552
l C' 0.12525

1875		m s		' "		1875			1874.0 α	δ	1875.0 α	δ
Oct.	7	15 15.11		0 43.3		.79	12.04	0.6	8.90		12.04	
	12	15.07	−.04	43.3	+.0	.80	11.98	0.2	.83		11.98	
	17	15.02	.05	43.4	.1	.82	11.92	0.3	.99		92	
	22	15.97	.05	43.5	.1	.84	11.98	59.9	.87		98	
	27	14.92	.05	43.6	.1	.84	11.93	59.7	.90		93	
Nov.	1	14.87	.05	43.8	.2	.92	11.97	1.4	.88			
	6	14.81	.06	44.0	.2				.85			
	11	14.75	.06	44.2	.2	.84	11.970	~~60.35~~	8.889		11.970	
	16	14.69	.06	44.4	.2		(6)	60.35	.860	17.29	.961	59.28
	21	14.64	.05	44.6	.2				+.029		+.009	
	26	14.58	.06	44.9	.3							
Dec.	1	14.53	.05	45.2	.3							
	6	14.47	.06	45.5	.3							

1875

Nov. 18 −.13		Oct-14 −.24 −~~12~~ 12		Oct-18 −.35 −.08		Oct-27 −.34		Nov 2 −.21 −.08		Nov 4 −.25	
−.154		−.345		−.430		−.330		−.250		−.260	
22 14 49.1	14 44.0	15 51.1	15 44.2	15 53.4	15 44.3	15 57.9	15 49.3	16 1.8	15 59.0	16 2.8	15 54.7
51.2	46.0	53.1	46.5	55.4	46.0	16 6.2	51.0	3.9	1.3	4.9	57.0
53.2	48.4	55.1	48.6	57.4	48.2	2.2	52.7	6.0	3.0	6.9	58.8
57.3		59.2		16 1.5		6.3		10.2		11.0	
59.4		16 1.4		3.7		8.3		12.1		13.0	
1.5		3.4		5.7		10.4		14.3		15.1	
3.5	15 32.4	5.4	16 12.6	7.8	16 23.2	12.3	16 27.0	16.4	16 39.0	17.1	16 24.8
5.6	34.3	7.4	14.3	9.8	25.0	14.5	29.4	18.4	40.9	19.3	
9.8	35.8	11.6	15.3	14.0	27.0	18.7	31.2	22.5	43.1	23.4	
11.8		13.7		16.1		20.7		24.7		25.6	
13.8		15.8		18.1		22.7		26.7		27.5	
3162		2772		2429		1742		1570		1666	
300		240		180		60					
162	14 46.13	372	15 46.43	629	15 46.17	1142	15 51.00		15 1.10		15 56.83
15 1.473	15 34.17	16 3.382	16 14.07	16 5.718	16 25.07	16 10.382	16 29.20	16 14.273	16 41.00	16 ~~15.236~~	16 24.80
1.458	+9.73	3.367	−48.11	5.703	−50.56	10.367	−55.42	14.258	−59.28	15.145 15130	−1 −0.28
15 11.18	+0.00	15 15.05	+.01	15 15.01	+.01	15 14.92	+.01	15 14.86	+.01	15 14.83	+.01
−9.72		+48.32	−.12	+50.69	−.08	+55.45		+59.40	−.08	+60.30	
	−2.32		−3.09		−3.05		−2.96		−2.90		−2.87
+ 9.71	15 8.87	− 48.25	15 12.06	− 50.68	12.02	− 55.50	12.00	− 59.39	12.01	− 60.34	11.99
+ .00		+ .01		+ .01		+ .01		+ .001		+ .001	
− 2.32	+07.81	− 3.09		− 3.05		− 2.96		− 2.90		− 2.87	
+ 7.39		− 51.33		− 53.72		− 58.45		− 62.28		− 63.20	
15 1.46	3 13.83	16 3.37	44 28.37	16 5.70	27.50	16 10.37	27.84	16 14.26	27.60	16 15.13	27.05
	+2 10.99		−16 14.35		−16 15.07		−16 14.58		−16 14.58		−16 15.00
15 8.85	−2.00	15 12.04	−1.90	15 11.98	−1.90	15 11.92	−1.90	15 11.98	−1.90	15 11.93	−1.90
15 11.951	−13.20		−16.00		−15.90		−15.70		−15.50		−15.40
−	1 18.04		1 0.52		1 0.37		1 0.02		0 59.58		0 59.35
s +15.34	−32.70	+16.95	−10.69	+19.55	−19.35	+19.38	−18.82	+13.17	−26.73	+18.31	−9.66
20		5		5		5		5		5	
−2.77		−2.86		−2.88		−2.93		−2.97		−2.98	
4 36.8	0 36.9	0 50.1	1 26.9	0 45.3	1 38.2	0 47.5	1 38.5	0 56.8	1 56.0	0 50.2	1 28.0
53.3	54.1	1.8	38.4	59.4	52.0	58.9	49.9	2.2	55.7	54.2	32.2
90.1	91.0	111.9	65.3	104.7	90.2	106.4	88.4	119.0	57	44	60.2
4 45.05	25 0 45.50	55 55.95	6 32.65	5 52.35	6 45.10	5 53.20	6 44.20	5 59.50	6 52.85	5 52.20	6 30.10
1.18583	1.27455	1.22917	1.02898n	1.29115	1.28668	1.28735	1.27462n	1.11959	1.42700n	1.26269	0.98498n
1.28690	1.61562n	1.35442	1.15423n	1.41640	1.41193	1.41260	1.39987n	1.24484	1.55225n	1.38794	1.11023n
+19.36	−41.27	+22.62	−14.26	+26.09	−25.82	+25.86	−25.11	+17.57	−35.69	+24.43	−12.89
25 4.41	25 4.23	6 18.57	6 18.39	6 18.44	6 19.28	6 19.06	6 19.09	6 17.07	6 17.16	6 16.63	6 17.21
2 16.06	15.88	43 30.22	30.04	43 30.09	30.93	43 30.71	30.74	43 28.72	28.81	43 28.28	28.86
15.97		30.13		30.51		30.72		28.76		28.57	
22 38	23 38	22 8	22 48							22 4	22 42
1.75040	1.75060	1.75030	1.75040							1.75020	1.75040
+966		+1361		+412		+594		+1874		+1628	
1.76006	1.76126	1.76391	1.76401	1.75442	1.75452	1.75624	1.75634	1.76904	1.76914	1.76648	1.76668
−57.55	−57.71	−58.07	−58.08	−56.81	−56.82	−57.05	−57.06	−58.75	−58.77	−58.41	−58.43
+.010	−.29 +.052	+.010	−.17 +.01	+.021	−.17 +.021	+.021	−.06 +.021	+.010	−.07 +.042	+.01	−.06 +.0
−.52	.38 −.09	−.13	−.22	−.13	−.24	−.05	−.10	−.06	−.11	−.05	−.09
−58.07	−57.65	−58.20	−58.29	−56.93	−57.05	−57.09	−57.15	−58.81	−58.86	−58.45	−58.52
3 14.13	13.53	44 28.42	28.33	27.02	27.98	27.80	27.89	27.53	27.67	26.73	27.38
+8 41		0 43.3		43.4		43.6		43.8		43.9	
+2 10.0	9.4	−16 14.9	15.0	16.4	15.4	15.8	15.7	16.3	16.1	17.2	16.5
+2 9.70		−16 14.95		15.90		15.75		16.20		16.85	
+2 10.92	18.35	−16 14.19	16.19 0.61	− 14.77	16.78 59.70	− 14.70	16.75 0.25	− 14.69	16.77 59.80	− 15.15	17.24 59.37
− 1.94	8.98 17.75	− 2.00	0.52	− 2.01	60.60	− 2.05	0.34	− 2.08	59.94	− 2.09	0.02
− 13.20	+4.81	16.00		− 15.90		− 15.70		− 15.50		− 15.40	
+1 55.78	1 18.05	−16 32.19	1 0.56	− 32.68	0.18	− 32.45	0.30	− 32.27	59.87	− 32.64	59.70
	1 0.19										

B.A.C. 7803
h m sec
22 16 41
+43° 8′

ζ = − 0° 45′
ζ sin ζ = −.01

	1874	1875
α −		16 41.70
δ		6 56.98
dα/dt		+2.527
dδ/dt		+ 18.02

corr α =
corr δ =

long δ = +.96
I = 2.82
s
k = −.021

1874
.82 41.60 56.15
.88 41.66 55.69

.85 41.630 (2) 55.95 2

l sin δ 9.83486

l cos δ 9.86318
l C′ 10460
l C′ 9.96778

l C′ 9.96452

h m s
22 − 15 = 12

γ Aquarii

X

1874
Oct. 27
−.324
22 16 30.8 16 39.2
33.6
36.4
42.0
44.9
47.7
50.5
53.4
58.9
1.8
4.7

4047
120
5247 16 39.20
16 47.700
47.679

− 6.33
− .31
− 1.97 +0.557
− 8.61
16 47.68

16 39.07
41.597

s
+ 8.50
15′
− 2.53
2 42.2
53.2
95.4
17′ 2 47.70

0.92942
0.89720
+ 7.89
17 55.59

+43° 4′ 52.″76

− 0 44 19
9.87100n
−518
9.86582
+ 0.73

− 2 − 10
−.08
+ 0.63
~~+ 1.30~~
+ 43 4 ~~54.06~~ 53.39
+ 2 9.42 9.44
− 24.70 − 6.68
+ 02
+ 1 44.74
6 38.13
6 56.15

1874
Nov. 18
−.154
16 14.0 16 32.0
16.7
19.3
25.4
28.3
31.1
34.0 16 57.0
36.7 0.1
42.3 2.8
45.2
48.1

3401

101 16 32.00
16 31.283 16 59.97
31.262
18

+ 9.71
− .14
− 1.52 +1.007
+ 8.08
16 31.08

39.13
41.657
39.10

− 0.72 − 28.69
15
− 2.77
2 50.4 3 16.3
2.2 27.9
11.26 44.2
17 2 56.30 18 3 22.10

9.85733n 1.45773n
9.82185n 1.42225n
− 0.66 − 26.44
17 55.64 17 55.66

4 52.71 52.69
52.70

44 11 43 45
9.87000n 9.86500n
+ 973
9.87973 9.87473
+0.76 + 0.75

− 0 − 45 − 27
−.32 −.37
+0.44 + 0.16
~~+ 0.88~~ ~~+ 0.32~~
4 ~~53.09~~ 53.15 ~~53.01~~ 52.85
+10.92 10.95
− 26.28 8.26
+ 03 37.82
+ 44.67 37.52
37.67
55.69

−04
1875
Dec 2
−0.51
15 5.1 14 52.1
7.2 55.0
9.3 57.1
13.5
15.4
17.3
19.6 15 32.6
21.6 36.3
25.8 38.2
27.9
29.9

1926

14 54.73
15 17.509 15 35.70
17.488 − 2.94
15 14.52 + 00
+ 2.97
− 2.56
− 2.96 15 ~~12.49~~ 11.99
+ .00
− 2.56
5.52
15 17.49 44 32.53
−16 11.93
15 11.97 − 1.9
− 14.00
1 0.36

+ 22.78 − 18.19
5
− 3.15
0 50.2 1 46.1
44.8 40.9
95.0 7.0
5 47.50 6 43.50

1.35755 1.25983n
1.48280 1.38508n
+ 30.49 − 24.27
6 17.99 6 19.23

~~16 30.36 29.12~~
43 29.64 30.88
30.36
~~+44 21 59 22 55~~
~~1.75020 1.75050~~
+4181
~~1.79201 1.79231~~
− 61.95 − 61.99

− 14 − 9 − 9
− 12 36 − 25
− 62.27 − 62.33
44 31.85 33.21
0 45.3
16 12.65 14.85
− 2.20
− 11.00 0.70
− 16 28.85 2.06

1 13.8

1874 1874 1874

3 Lacertae

h	m	sec.
22	18	39

+51° 36'

γ = − 9° 13'

sin ζ = −.16

		1874									
α	36.449	Oct. 7	18	38.73		35	75.2		Corr α = +.005	.77	38.84	11.5
δ +35	53.55	12		38.63	−.10		76.4	+1.2	Corr δ = −.34"	.78	38.76	12.2
dα/dt	+2.349	17		38.55	.10		77.4	1.0		.82	38.75	12.7
dδ/dt	+17.927	22		38.42	.11		78.3	.9	tang δ = +1.26 1.61	.87	38.62	13.1
		27		38.31	.11		79.1	.8		88	38.80	13.5
		Nov. 1		38.19	.12		79.8	.7	I = 3.32			
log sin δ	9.89415	6		38.07	.12		80.4	.6		.82	38.754	(5) 12.60
		11		37.94	.13		80.9	.5	k = −.025			
log cos δ	9.79319	16		37.80	.14		81.2	.3				
l ε	10460											
l ε'	9.89779											
l ε'	9.89453											

4

1874 Oct. 6 −17 −.07		Oct. 12 −23 −.07		Oct. 27 −24 −.08		Nov. 12 −21		1874 Nov. 18 −13		1875 Oct-18 −35 −.08	
−.275		−.302		−.324		−.245		−.154		−430	
22 18		18 33.9	18 27.8	18 23.0	18 11.0	18 12.5	18 4.3	18 28.2 8.3	17 53.2	19 —	19 22.9
45.5		37.0	31.1	28.4	14.5	15.7	6.6	30 11.6	58.4	—	
47.5		40.4	34.5	31.8	16.6	19.0	8.8	28 15.0	0.9	—	
49.1		47.0		38.4		25.7		—		—	
51.0		50.5		41.7		29.0		—		25.6	
52.5		53.5		45.0		32.3		—		28.9	
54.2	18 56.5	57.0	19 23.3	48.3	18 57.3	35.6	19 3.0	—		32.3	
55.5	59.5	0.4	26.8	51.7	54.8	38.8	6.3	—		35.4	
57.5	1.3	7.0	29.5	58.3	57.4	45.7	9.3	—		38.9	
59.0		10.1		1.6		48.8		—		—	
		13.5		5.0		52.0		—		—	
4721		3503		3752		3551				1611	
		240		120							
		590 3	18 31.13	495 2	18 14.03		18 6.57		17 58.17		19 22.90
18 52.456	18 59.10	18 53.664	19 26.53	18 45.018	18 54.50	18 32.282	19 6.20	18 28.2331		19 32.220	
52431	−1326	53639	−14.60	44993	−6.23	32257	+5.81	28208	+9.73	32195	−50.56
18 38.754	−.21	18 38.652	−.29	18 38.30	−.30	18 37.980	−.26	18 37.753	−.16	18 41.084	−.44
+13.689	−.11	+15.012	−.11	+6.689	−.13	−5.7264		−9.542		+51.135	−.13
	−229		−217		−185		−145		−128		−224
− 13.80	18 36.56	− 14.68	36.47	− 6.38	36.48	+ 5.77	36 36	+ 9.71	36.50	− 50.68	38.83
− .35		− .38		− .41		− .31		− .19		− .54	
− 2.29	+0.059	− 2.17	+0.179	− 1.85	+0.499	− 1.45	+0.899	− 1.28	+1.069	− 2.24	
− 15.94		− 17.23		− 8.59		+ 4.01		+ 8.24		− 53.46	
18 52.43	33 34 ~~42.62~~ 9.47	18 53.64	34 7.48	18 44.99	10.54	18 32.26	10.94	18 28.21	33 12.04	19 32.19	52 52.01
	+2 54.8		+2 9.40		+2 9.39		+2 11.12		+2 10.99		−16 15.07
18 36.49	+ .40	18 36.41	+ .40	18 36.40	+ .40	18 36.27	+ .40	18 36.45	+ .40	18 38.43	+ .40
18 38.834	−21.50	38.759	−22.90	38.749	−25.60	38.619	−27.40	38.799	−27.80		−25.50
+51	35 ~~27.00~~ 53.85		35 54.38		35 54.73		35 55.06		35 55.63		36 11.84

s									
− 6.64	+ 22.53	− 32.87	+ 30.99	− 9.48	+ 25.71	− 33.92	+ 30.06		+ 9.32

45'		45		45		45		45		25
−2.43		−2.45		−2.53		−2.72		−2.77		−2.88
3 49.5	4 16.1	3 27.6	4 10.5	3 18.0	3 49.2	3 22.8	4 11.2	3 17.6	4 4.8	4 47.7
57.5	24.6	38.1	20.4	26.9	59.1	29.1	17.7	27.9	15.8	7.0
107.0	40.7	65.7	30.9	44.9	108.3	51.9	28.9	45.5	20.6	11'47
3' 48 53.50	49 4 20.35	48 3 32.85	49 4 15.45	48 3 22.45	48 3 54.15	48 3 25.95	49 4 14.45	48 3 22.75	49 4 10.30	29 57.35

	0.82217n	1.35276	1.51680n	1.49122	0.97681n	1.41010	1.53046n	1.47799	0.96942
	0.71956n	1.25065	1.41459n	1.38901	0.87460n	1.30463	1.42499n	1.37252	0.88813
−5.25	− 3.25	+ 17.81	− 25.98	+ 24.49	− 7.49	+ 20.17	− 26.61	+ 22.52	+ 7.73
48 ~~4~~ 45.25	49 15.10	48 50.66	48 49.47	48 46.94	48 46.66	48 46.12	47.84	48 45.27	30 5.08
+51°	33' 34 ~~33.25~~ 01.0	33 57.69 58.28	58.88	34 1.41 1.55	1.69	34 2.23 1.37	0.51	34 3.08	52 43.27
−9 13	14 12 47					13 41	12 53		13 51
0.97070n	0.97030n					0.97110n	0.97040n		0.97110n
+818		+750		−513		+2579		+980	+419

0.97888	0.97848	0.97820	0.97780	0.96557	0.96517	0.99689	0.99619	0.98090	0.98020	0.97529
+9.52	+9.52	+9.51	+9.50	+9.24	+9.23	+9.93	+9.91	+9.57	+9.55	+9.45

	−12 −.15	−.13	−.31 −.27	−.24	−.24 −2	−.17	−.34 −.29	−.24 −.61		−2 −.71
−.12	−.13	−.10	−.13	−.10	−.12	−.10	−.13	−.37	−.46	−.69
	+9.37	+9.28	+9.10	+8.90	+9.09	+9.66	+9.49	+8.96		+8.74
	33 34 ~~42.62~~	34 6.97	7.98	10.31	10.78	11.89	10.00	12.04	52	52.01
36 15.0	15.0 9.47	16.5		19.1		21.0		21.3	36	37.0
	~~+2 6.76~~ +2	9.5	8.5	8.8	8.3	9.1	11.0	9.3	−16	15.0
9.47	+2 ~~22.40~~ +2	9.00		8.55		10.05		9.30	−16	15.00
	+2 32.1	8.7	53.79	8.2	54.53	9.7	56.10	9.0	−16	15.3
+2 518	5.56	+ 9.33	9.725480	+ 9.42	9.825500	+ 11.18	11.61 54.21	+ 10.92	11.36 −16	14.77 1431
+ .38	3.570353	+ .39	−4.97	+ .40	7.67	+ .43	−9.47	+ .44	−9.87 +	.46
− 2150	[35 ~~34.8~~]	− 22.90	35 54.30	− 25.60	54.76	− 27.40	55.15	− 27.80	55.60 −	25.50 36 12.20
+1 41.06	11.46	+ 46.82	36 12.23	+ 44.22	12.69	+ 44.21	13.08	+ 43.56	13.53 −16	34.81

1875

		m	s		'	"	
Oct.	7	18	41.27		36	34.6	
	12		41.17	-.10		35.8	+1.2
	17		41.07	.10		36.8	1.0
	22		40.96	.11		37.7	.9
	27		40.85	.11		38.6	.9
Nov.	1		40.73	.12		39.3	.7
	6		40.61	.12		39.9	.6
	11		40.48	.13		40.4	.5
	16		40.35	.13		40.7	.3
	21		40.22	.13		40.8	.1
	26		40.09	.13		40.8	.0
Dec.	1		39.96	.13		40.8	.0
	6		39.83	.13		40.8	.0

1875
α 38.798 s
δ + 36' 11.48"
dα/dt +2.349 s
dδ/dt +17.928"

log ρ 9.79319
log C .12552
log C' 9.91871

1875

80	38.73	12.2
80	38.74	12.4
82	38.76	11.7
84	38.90	11.6
85	38.79	12.7
92	38.84	12.4
93	38.78	
85	38.791 (7)	12.17 (6)

+ -.38 -.07 Oct-19 | -.34 + Oct-27 | -.25 Nov 4 + | -.22 + Nov 7 | -.04 Dec 2 × | -.13 Dec. 6 ×

-.453 | -.330 | -.260 | -.250 | -.051 | -.136

19 12.7 18 58.0 19 16.7 19 21.8 19 21.5 19 12.3 19 22.4 19 7.9 18 23.0 18 4.8 18 20.2 18 3.1
15.9 0.4 20.0 24.4 24.9 15.6 25.6 14.2 26.4 8.3 23.5 6.5
19.3 2.9 23.6 27.0 28.0 18.0 28.9 29.6 10.5 26.8 9.4
26.0 30.0 34.8 35.6 36.3 33.6
29.4 33.4 38.2 39.0 39.9 36.8
32.6 36.7 41.5 42.3 43.0 40.2
36.0 19 45.1 40.2 20 4.7 44.7 20 0.1 45.7 20 5.4 46.5 18 49.0 43.4 18 57.0
39.4 48.0 43.4 8.0 48.1 4.1 49.0 9.5 49.8 52.2 46.8 59.5
46.0 51.3 50.0 10.3 54.7 6.8 55.7 12.1 56.3 55.0 53.4 3.1
49.3 53.4 57.9 58.9 59.6 56.8
52.7 56.7 1.6 2.3 2.8 59.9

3593 | 4041 | 3959 60 | 4054 60 | 4132 60 | 4414

19 0.43 | 19 24.40 | 4559 19 15.30 | 4654 19 11.05 | 4732 18 7.87 | 18 6.33
19 32.664 19 48.13 19 36.736 20 7.67 19 41.445 20 3.67 19 ~~41.400~~ 20 9.00 18 43.018 18 52.07 18 40.127 18 59.87
32639 -57.125 36711 -53.42 41.420 -1 -0.29 42.309 -1 -1.36 42.993 -2.94 40.162 -0.01
18 41.042 -48 18 40.864 -43 18 40.675 -32 18 42.284 40.578 -28 18 39.943 -05 18 39.842 -16
+51.682 -11 +55.857 +60.757 +61.6970 +3.056 +0.268

-222 | -204 | -185 | -178 | -113 | -102

-51.11 18 38.68 - 55.50 38.82 - 60.34 38.96 - 61.40 38.86 - 2.96 38.87 - 0.13 38.91
- .57 - .41 - .33 - .31 - .06 - .17
2.22 - 2.04 - 1.85 - 1.78 - 1.13 - 1.02
- 53.90 - 57.95 - 62.52 - 63.49 - 4.15 - 1.32
19 32.64 5211 19 36.71 5301 19 41.42 5453 19 42.28 5574 18 42.99 5383 18 40.10
-16 1419 38.76 -16 1458 -16 1500 -16 1467 -16 1193 ~~-16 1358~~
18 38.74 +.40 18 38.76 +.50 18 38.90 +.40 18 38.79 +.40 18 38.84 +.50 18 38.78 ~~+.50~~
-2570 -2710 -2820 -2860 -2930
36 12.62 36 11.83 36 11.73 36 12.87 36 13.10

+32.23 - 15.47 + 12.34 - 30.93 + 26.14 - 22.23 + 31.26 - 26.69 + 35.15 - 8.95 + 33.80 - 19.74
25 | 25 | 25 | 25 | 25
-2.90 | -2.93 | -2.98 | -3.01 | -3.15 | -3.16
4 29.9 0 8.8 4 45.5 0 21.5 4 36.9 0 17.2 4 30.9 0 17.8 4 35.4 0 11.6
4.5 27.2 — 38.9 45.9 26.4 42.6 28.7 33.8 12.9
7.4 36.0 60.4 82.8 43.6 73.5 46.5 9.2 4.5
29 38.70 30 18.00 30 30.20 29 41.40 30 21.80 29 36.75 30 23.25 29 34.60 30 12.25

1.50826 1.18949n 1.09132 1.49038n 1.41731 1.34694n 1.49499 1.42636n 1.54593 0.95182n 1.52892 1.29535n
1.43697 1.10820n 1.01003 1.40909n 1.33602 1.26565n 1.41370 1.34506n 1.46464 0.87053n 1.44763 1.21406n
+26.72 -12.83 +10.23 -25.65 +21.68 -18.43 +25.92 -22.14 +29.15 -7.42 +28.03
30 5.42 30 5.17 30 2.55 30 3.08 30 3.37 30 2.67 30 1.11 30 3.75 30 4.83

52 42.93 43.18 52 43.80 52 45.27 44.98 52 45.68 47.24 52 44.60 43.52
43.05 45.13 46.46 44.06
14 9 13 30 | 14 13 13 36
0.97140n 0.97090n | 0.97150n 0.97100n
+950 | +598 | +1637 | +1357 | +4181 | +1751
0.98090 0.98040 0.97738 0.97688 0.98777 0.98727 0.98497 0.98447 1.01331 1.01281 0.98901 0.98851
+9.57 +9.56 +9.49 +9.48 +9.72 +9.71 +9.66 +9.65 +10.31 +10.30 +9.75 +9.74

-.27 -.50 -.06 -.04 -.24 -.27 -.18 -.30 -.13 -.26 -.37 -.18 -.33 -.53 -.2 -.29 -.10
-.64 -.04 -.03 -.28 -.02 -.28 -.02 -.69 -.03
+8.66 +9.46 +9.21 +9.26 +9.56 +9.12 +9.45 +9.29 +10.25
51.59 52.64 53.01 54.53 54.54 54.80 56.69 53.89 53.71
37.2 38.6 39.7 40.1 40.8 40.8
14.4 15.4 14.4 14.8 14.8 14.7 16.6 13.1 13.0
14.90 14.40 14.80 15.65 13.05
15.2 11.89 14.7 15.7 11.65 16.0 11.81 13.4 12.44
-16 14.46 14.00 12.94 - 14.70 14.24 - 15.15 14.68 11.66 - 14.87 14.39 13.70 - 12.65 12.15 12.32 -13.77
+ .46 + .46 + .47 + .48 + .50 + .50
- 25.70 12.41 - 27.10 11.67 - 28.20 11.65 - 28.60 12.75 - 29.30 12.38
- 39.70 - 41.34 - 42.88 - 42.99 - 41.45

π Aquarii
h m sec
22 18 54
+0° 45′
φ = +41° 38′
ρ sin z = +.66

	1874	1875
α		18 53.58
δ		44 37.22
		+3.064
		+18.11
l sin δ	8.11693	
l cos δ	9.99996	9.99996
l C	.10460	12552
l C′	0.10456	0.12548
l C″	0.10130	

corr α =
corr δ =
l tang δ = +.01
I = 2.06 s
k = −.015 s

1874	α	δ	1875	α	δ
.78	53.57	36.5	82	53.50	35.8
80	53.58	38.3	84	53.71	36.5
86	53.55	36.7	85	53.60	35.9
81	53.567	37.17	84	53.603	36.07
	+0 (3)	−0		−1 (3)	+1
				53.602	36.08

ζ =

1874 Oct. 10		Oct. 18		1874 ~~Oct.~~ Nov. 8		1875 Oct-25		Nov 2		Nov 6	
~~.250~~ −.283		−.227		+1s ~~.152~~ −.146		−.463		~~.253~~ −.250		−.310	
22 18 53.0	18 46.4	18 53.5	18 44.1	18 39.3	18 35.0	19 38.4	19 49.2	19 43.5	19 30.8	19 44.8	19 54.3
56.9	48.0	55.7	46.0	41.4	37.4	40.6	51.3	45.6	32.8	47.1	56.3
59.0	49.9	57.8	48.1	43.4	39.0	42.5	52.6	47.7	34.8	48.9	58.4
8.1		1.8		47.5		46.7		51.9		53.3	
5.1		4.0		49.6		48.8		53.9		55.3	
7.2		6.1		51.6		50.9		56.0		57.5	
9.3	19 27.6	8.1	19 21.4	53.7	19 14.2	52.9	20 19.2	58.0	20 15.8	59.5	20 21.6
11.3	29.6	10.1	23.5	55.7	16.3	55.0	21.3	0.1	18.0	1.7	23.5
15.5	32.0	14.2	25.6	59.4	18.0	59.0	23.1	4.4	19.9	5.7	25.9
17.5		16.3		1.9		1.1		6.2		7.7	
19.6		18.3		4.0		3.3		8.3		9.8	
2595		2459		4478		4392		3756		3914 3	
180		180		120		120		240		240	
795	18 48.10	659	18 46.07	5678	18 37.13	5592	19 51.03	6156	19 32.80	6314 3	19 56.33
19 7.252	19 29.73	19 5.991	19 23.50	18 52.618	19 16.17	19 50.836	20 21.20	19 55.964	20 17.90	19 57.400	20 23.67
7.217		5.976		52.603		50.821		55.949	[20]	57.391	
										57.376	
− 13.96		− 12.78		+ 0.33		− 54.38		− 57.39		− 60.98	
− .00		− .00		− .00		− .00		− .00		− .00	
− 2.05	+0.314	− 2.68	+0.384	− 2.44	+0.624	− 2.94		− 2.85		− 2.80	
− 16.71		− 15.46		− 2.11		− 57.32		− 62.24		− 63.78	
19 7.22		19 5.98		18 52.60		19 50.82		19 55.95		19 57.38	
18 50.51		18 50.52		18 50.49		18 53.50		18 53.71		18 53.60	
18 53.574		53.584		53.554						53.603	
				50.507							

		s									
+ 19.13	− 22.50	+ 19.92	− 17.51	+ 15.49	− 23.55	− 0.19	− 30.36	+ 23.16	− 21.94	+ 1.06	− 26.28
35		35		35		20		20		20	
− 24.3		− 248		− 268		− 292		− 297		− 300	
3 56.7	4 49.3	3 57.0	4 43.7	3 5.0	4 53.0	0 41.7	1 21.2	0 11.3	1 11.2	0 41.2	1 16.5
11.7	5.1	12.1	57.3	18.9	11.0	56.9	37.0	18.1	17.1	46.9	23.1
1284	1144	1291	1010	239	1240	986	582	94	83	81	396
4′ 39 4″20	39 4 57.20	39 4 4.55	39 4 50.50	38 3 (39) 11.95	~~39~~ 40 2.00	20 49.30	21 29.10	20 14.70	21 14.15	20 44.05	21 19.80
1.28171	1.35218n	1.29929	1.24329n	1.19005	1.37199n	9.27875n	1.48230n	1.36474	1.34124n	0.02531	1.41963n
1.38627	1.45674n	1.40385	1.34785n	1.29135	1.47329n	9.40423n	1.60778n	1.49022	1.46672n	0.15079	1.54511n
+24.34	− 28.62	+25.34	− 22.28	+19.56	− 29.74	− 0.25	− 40.53	+30.92	− 29.29	+ 1.42	− 35.08
39 28.54	39 28.58	39 29.89	39 28.22	38 (39) 31.57	39 32.26	20 49.05	20 48.57	20 45.62	20 44.86	20 45.47	20 44.72
43 19.81	+0° 19.77	43′ 18.46	20.13	43 16.84	16.09	1 59.30	59.78	2 2.73	3.49	2 2.88	3.63
19.79		19.30		16.46		59.54		3.11		3.25	
+41 36 57	37 50			37 5	37 55	37 1	37 41			36 56	37 32
1.70850	1.70870			1.70850	1.70880	1.70850	1.70870			1.70850	1.70860
− 911		+302		+760		− 600		+1880		+1861	
1.69939	1.69959	1.71152	1.71172	1.71610	1.71640	1.70250	1.70270	1.72730	1.72750	1.72711	1.72721
− 50.05	− 50.07	− 51.47	− 51.49	− 52.01	− 52.05	− 50.41	− 50.43	− 53.37	− 53.40	− 53.35	− 53.36
−.02 0	−.13 −.02 0	−.03 0	−.13 −.01 0	−.01 0	−.14 −.03 0		−.16 −.04 0	−.03 0	−.04 −.02 0	0 0	−.06 −.03 0
−.12	−.15	−.12	−.14	−.13	.00	−.11	−.21	−.01	−.07	−.04	−.08
− 50.17	− 50.22	− 51.59	− 51.63	− 52.14	−15 − 52.20	− 50.52	− 50.64	− 53.38	− 53.47	− 53.39	− 53.44
42 29.64	29.55	42 26.87	28.50	42 24.70	23.89	1 8.78	9.14	1 9.35	10.02	1 9.49	10.19
+2 5.65	4.05	+ 9.40	7.77	+ 11.08	9.32	− 16 14.52	16.44	− 14.69	16.65	− 15.48	17.46
− 1.60	+2.85	− 1.63	+3.86	− 1.76	+3.12	− 1.92		− 1.96		− 1.98	
− 15.26		− 15.25		− 14.98		− 16.75		− 16.54		− 16.44	
+1 48.79	44 18.43	+ 52.52	19.39	+ 54.33	19.03	− 16 33.19	35.59	− 33.22	36.13	− 33.90	35.59
	18.34		21.02		18.12		35.95		36.80		36.29
	44 18.38		20.21		18.57		44 35.77		36.46		35.94
	44 36.49		38.32		36.68						

δ
35.8
36.5
35.9

36.07
+1
36.08

ζ Aquarii med.
h m sec
22 22 23

− 0° 39′

ζ = + 43″.2
ζ sin ζ = +.68

1874 | 1875
α | 22 23.75
δ | 39 31.96
$\frac{d\alpha}{dt}$ | +3.090
$\frac{d\delta}{dt}$ | +18.29
l sin δ 8.05478n |
l cos δ 9.99997 | 9.99997
l C 10460 | 12552
l C′ 0.10457 | 0.12549
l C″ 0.10131 |

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

1874
.77 23.72 33.0
.78 23.73 33.0
.78 23.66 32.3
.80 23.70 31.9
.82 23.71 34.1
.84 23.81 32.8
.86 23.67 33.1
.87 23.71 33.2

.82 23.714 32.93
+2 (8) +1
23.716 32.92

1874

Oct. 6

22 22 ~~−.275~~
24.3 24.6 22 55.2
26.6 26.8 55.0
28.5 28.7
32.6 32.8
34.8 35.0
36.8 37.0
38.8 22 15.7
40.9 41.1 18.7
45.0 45.2
47.0 47.2
49.1

4044 22 56.60
22 36.764 22 17.20
36.749

− 13.30
+ .00 .00
− 2.82 ~~+0.180~~ 0.270
− 16.12
22 36.75

22 20.63
23.720

Oct. 10

~~−.230~~ −.283
22 25.0 22 17.6
27.0 20.0
29.2
33.3
35.4
37.5
39.4 23 3.9
41.6 7.0
45.7
47.7
49.8

4116 22 18.80
22 37.418 23 5.15
37.403

− 13.97
+ .00
− 2.79 +0.300
− 16.76
22 37.40

22 20.64
23.730

Oct. 11

22 ~~−.364~~ −.367
25.6 26.0 22 18.2
27.7 28.0 21.0
29.7 30.0
33.7 34.0
36.0
38.0
40.0 22 57.5
42.0 42.2 59.7
46.0
48.0 48.3
50.0 50.3

4167 22 19.60
37.882 22 58.60
37.867

− 14.52
+ .00
− 2.48 +0.310
− 17.30
37.87

22 20.57
23.660

Oct. 12

Oct. 18

−.727
22 23.8 20 19.0
25.9
27.9
32.0
34.0
36.1
38.1 22 57.4
40.2
44.3
46.5
48.6

39742 22 19.00
22 36.127 22 57.40
36.112

− 12.78
+ .00
− 2.72 +0.370
− 15.50
36.11

20.61
23.700

Oct. 27

−.327
22 17.3 22 13.0
19.3 15.8
21.3
25.5
27.5
29.5
31.7 22 48.2
33.7 57.1
37.8
39.8
42.0

32542 22 1.44
22 29.582 22 49.65
29.567

− 6.33
+ .00
− 2.62 +0.470
− 8.95
29.57

20.62
23.710

s
− 19.84 + 19.56 + 18.62 − 28.03 + 18.28 − 20.72 + 17.13 − 21.27 + 28.14 − 20.07
0 0 0 0 0 0 0

−2.43 −2.43 −2.44 −2.48 −2.33

3 0.5 3 50.4 3 3.8 4 4.7 3 5.1 3 54.5 3 42.0 3 4.6 3 6.5 3 56.0 3 11.0 3 55.9
15.8 6.4 19.1 19.5 22.6 11.7 59.5 21.9 23.8 12.2 27.5 13.3
16.3 116.8 22.9 24.2 27.7 126.2 101.5 26.5 30.3 128.2 38.5 129.2
3 8.15 3 58.40 3 11.45 4 12.10 3 13.85 4 3.10 3 50.75 3 13.25 3 15.15 4 4.10 3 19.25 4 4.60

1.29754n 1.29137 1.26998 1.44762n 1.26198 1.31639n 1.23376 1.32777n 1.44932 1.30255n
1.42211n 1.39594 1.37455 1.53219n 1.36655 1.42096n 1.33833 1.43234n 1.53389 1.40712n
~~−26.24~~ +24.88 +23.69 −35.66 +23.26 −26.36 +21.79 −27.06 +35.50 −25.53
2 42.91 ~~−24.58~~ 23.28 3 35.14 3 36.44 3 37.11 3 36.74 3 36.94 3 37.04 3 55.05 3 39.07

33.16
− 0° 39′ 40 44.81 40 46.79 48.09 40 48.76 48.39 40 48.59 48.69 50.72
47.44 48.58 48.64

+43 1 51 1 4 2 5 1 4 1 56
1.73000 1.72980 1.73000 1.72980 1.73000
+829 −907 +31 +304 −505
1.73829 1.72073 1.72093 1.73011 1.73031 1.73284 1.73304 1.73485 1.73565
−54.74 −52.57 −52.59 −53.72 −53.74 −54.05 −54.08 −54.31 −54.33

−.12 +.020 +.020 −.11 +.040 +.010 −.11 +.020 +.010 −.11 +.020 −.12 0 +.02
−12 −10 −13 −.10 −.12 −10 −12 −.12
−54.86 −52.67 −52.72 −53.82 −53.86 −54.15 −54.20 54.45
41 39.67 39.46 40.81 41 42.58 42.25 41 42.74 42.89 45.17

+2 5.18 3.53 +5.65 4.00 +8.60 6.95 +9.40 7.72 +9.42 7.70
− 1.65 +3.18 −1.65 +3.17 −1.65 +3.17 −1.68 +3.22 −1.72 +3.40
−15.11 −15.12 −15.12 −15.04 −15.07 ~~−14.89~~ −14.89

+1 48.42 + 48.88 50.58 + 51.83 50.75 + 52.63 50.11 + 52.81
51.93 50.42 50.26

39 51.25 51.26 50.58 50.18 52.36
39 32.96 32.97 32.29 31.88 34.07

1875

.82	23.71	34.4
.82	22.69	33.0
.84	23.80	33.2
.84	23.69	33.0
.85	23.70	34.3
.85	23.69	33.6
.92	23.77	34.1
.93	23.81	
.86	23.733	33.64
	-10(8)	-3(7)
	23.723	33.67

1874 | 1875

Nov. 4	Nov. 8	Nov. 12	Oct-25	Oct-27	Nov 2
-173	+ 1s ~~152~~ -.146	-.245	-.463	-.330	-.250
22 22 13.0 22 2.6	22 9.4 22 0.2	22 4.9 21 53.2	23 8.7 23 1.9	23 9.8 23 6.8	23 13.9 23 12.4
14.8 3.3	11.5	7.0	10.9	11.8 9.0	15.9
16.9 6.9	13.4	9.0	12.9	13.9 11.4	17.8
21.0	17.6	13.1	17.0	18.1	22.0
23.2	19.7	15.3	19.0	20.1	23.9
25.3	21.7	17.3	21.1	22.2	26.1
27.2 22 49.4	23.8 22 48.3	19.5 22 45.0	23.1 23 40.2	24.3 23 56.6	28.1 24 0.9
29.3	25.9	21.4	25.1	26.3	30.2
33.4	30.0	25.6	29.3	30.4	34.3
35.4	32.1	27.6	31.3	32.4	36.4
37.5	34.2	29.4	33.5	34.5	38.5
27.70 22 4.93	23.93 22 0.20	19.04 21 53.20	23.19 23 1.90	24.39 8 23 9.07	28.71 23 12.40
22 25.182 22 49.40	22 22.755 22 48.30	22 17.309 22 45.00	23 21.082 23 40.20	23 ~~22.173~~ 23 56.60	23 26.100 24 0.90
25.167	22.740	17.294	21.067	22.164 22.149	26.085
- 1.94	+ 0.33	+ 5.77	- 54.38	- 55.50	- 59.39
+ .00	+ .00	+ .00	+ .00	+ .00	+ .00
- 2.53 +0.560	- 2.49 +0.600	- 2.44 +0.650	- 2.98	- 2.96	- 2.89
- 4.43	- 2.16	+ 3.33	- 57.36	- 58.46	- 62.28
22 25.17	22 22.74	22 17.29	23 21.07	23 22.15	23 26.08
22 20.72	22 20.58	22. 20.62	22. 23.71	22 23.69	22 23.80
23.810	23.670	23.710			
		20.624			

	S				
+ 20.25 - 29.22	+ 22.55 - 25.55	+ 24.11 - 27.69	+ 19.18 - 19.12	+ 13.09 - 34.44	+ 13.70 - 34.80
0	0	0	40	40	40
-2.68	-2.68	-2.72	-2.92	-2.93	-2.97
3 4.1 3 56.7	3 3.2 3 3.8	2 59.8 4 6.2	4 24.5 0 13.1	4 31.0 0 32.9	4 30.9 0 36.2
18.8 11.3	19.5 20.3	15.2 20.4	39.7 28.0	41.3 45.9	36.3 42.0
22.9 12.50	22.7 24.1	13.50 26.6	64.2 41.1	72.3 78.8	72 78.2
3 11.45 4 4.00	3 11.35 3 12.05	3 ~~7.50~~ 6.75 4 13.30	44 32.10 45 20.65	44 36.15 45 39.40	44 33.60 45 39.10
1.30643 1.38447n	1.35315 1.40739n	1.38220 1.44232n	1.28285 1.28149n	1.11694 1.53706n	1.18672 1.54158n
1.40774 1.48548n	1.45446 1.50870n	1.48351 1.54363n	1.40834 1.40698n	1.24243 1.66255n	1.26221 1.66707n
+ 25.57 - 30.58	+ 28.48 - 32.26	+ 30.45 - 34.97	+ 25.61 - 25.54	+ 17.48 - 45.98	+ 18.29 - 46.46
3 37.02 3 33.42	3 39.83 3 39.79	3 37.20 3 38.33	44 57.71 44 55.01	44 53.63 44 53.42	44 51.89 44 52.64
40 48.67	40 5.148 51.44	40 48.85 49.98	2~~1~~ 2 9.36 6.66	22 5.28 5.07	22 3.54 4.29
	51.46	49.41	8.01	5.17	3.91
		1 0 2 6	0 44 1 33		0 46 1 51
		1.72980 1.73000	1.72970 1.72990		1.72980 1.73000
+ 1142	+ 764	+ 2579	- 585	+ 601	+ 1886
1.74122 1.74142	1.73744 1.73764	1.75559 1.75579	1.72385 1.72405	1.73571 1.73591	1.74866 1.74886
- 55.11 - 55.13	- 54.63 - 54.66	- 56.96 - 56.99	- 52.95 - 52.97	- 54.41 - 54.44	- 56.06 - 56.09
+.02	+.02 -.10 +.03	+.03 -.11 +.04	+.02 -.33 +.02	+.01 -.16 +.06	+.01 -.16 +.07
-.10	-.10 =.10	-.09 -.13	-.63 -.04	-.28 -.04	-.28 -.04
-55.21	-54.73 -54.76	-57.05 -57.12	-53.58 -53.01	-54.69 -54.48	-56.34 -56.13
41 43.88	41 46.21 46.20	41 45.90 47.10	23 2.94 59.67	22 59.97 59.55	22 59.88 0.42
+2 9.19 7.41	+11.08 9.26	+11.18 9.34	-16 14.52 16.50	-14.70 16.69	-14.69 16.70
- 1.78 +3.64	- 1.82 +3.80	- 1.84 +3.98	- 1.98	- 1.99	- 2.01
-14.65	-14.49	-14.31	-16.56	-16.52	-16.36
+1 52.76	+ 54.77 51.44	+ 55.03 50.87	-16 33.06 39 36.00	- 33.21 33.18	- 33.06 32.94
	51.43	52.07	32.73	32.76	33.48
39 51.12	51.43	51.47	39 34.36	32.97	33.21
32.83	33.14	33.18			

Nov 4

	-.260		
23	14.6	23	8.9
	16.5		
	18.6		
	22.9		
	25.0		
	26.9		
	28.9	23	50.1
	31.0		
	35.1		
	37.2		
	39.4		
	29.61	23	8.90
23	26.918	23	50.10
	26.903		
-	60.34		
+	.00		
-	2.84		
-	63.21		
23	26.90		
22	23.69		

Nov 6

	-.310		
23	15.1	23	11.4
	17.8		
	19.4		
	23.4		
	25.5		
	27.6		
	29.6	23	57.9
	31.6		
	35.7		
	37.9		
	40.0		
	30.31	23	11.40
23	27.555	23	51.90
	27.540		
-	60.99		
+	.00		
-	2.85		
-	63.84		
23	27.54		
22	23.70		

Nov 7

	-.250		
23	15.4	23	9.8
	17.6		12.1
	19.6		13.9
	23.9		
	26.2		
	28.0		
	30.0	23	44.6
	32.2		
	36.1		
	38.2		
	40.2		
	30.74	23	11.93
23	27.945	23	44.60
	27.930		
-	61.40		
+	.00		
-	2.84		
-	64.24		
23	27.93		
22	23.69		

Dec 1

Dec 2

	-.051		
22	16.9	22	11.8
	19.0		
	21.0		
	25.1		
	27.2		
	29.3		
	31.3	22	52.0
	33.5		
	37.5		
	39.9		
	41.7		
	32.22	22	11.80
22	29.291	22	52.00
	29.276		
-	2.96		
+	.00		
-	2.55		
-	5.51		
22	29.28		
22	23.77		

Dec 6

	-.136		
22	14.1	22	5.6
	16.2		
	18.1		
	22.3		
	24.4		
	26.6		
	28.5	22	46.2
	30.6		
	34.7		
	36.8		
	38.8		
	29.11	22	5.60
22	26.464	22	46.20
	26.449		
-	0.13		
+	.00		
-	2.51		
-	2.64		
22	26.45		
22	23.81		
	23.732		

+18.02	-23.18	+16.15	-24.35	+16.01	-16.66			+17.49	-22.71	+20.86	-19.74
40		40		40		40		40			
-2.98		-3.00		-3.01		-3.14		-3.15		-3.16	
4 26.1	0 20.5	4 29.3	0 21.5	4 29.4	0 12.1	4 23.6	0 25.9	4 32.6	0 26.1		
30.0	24.9	34.6	27.5	34.3	18.8	16.6	21.0	26.5	22.1		
561	54	639	90	637	109	402	69	591	82		
44 28.05	45 22.70	44 31.95	45 24.50	44 31.85	45 15.45	44 20.10	45 23.45	44 29.55	45 24.10		
1.25575	1.36511n	1.20817	1.38650n	1.20489	1.22167n			1.24279	1.35622n	1.31931	1.29535n
1.38124	1.49060n	1.33326	1.51199n	1.32988	1.34716n			1.36828	1.48171n	1.44480	1.42084n
+24.06	-30.95	+21.56	-32.51	+21.37	-22.24			+23.35	-30.32	+27.85	-26.36
44 52.11	44 51.75	44 53.57	44 51.99	44 53.22	44 53.21			44 52.90	44 53.78		
22 3.76	3.40	22 5.16	3.64	22 4.87	.4.86			22 4.55	5.43		
3.58		4.40		4.87				4.99			
								0 31	1 36		
								1.72970	1.72990		
+1646		+1870		+1357				+4181		+1757	
1.74626	1.74646	1.74850	1.74870	1.74337	1.74357			1.77151	1.77171	1.74727	1.74747
-55.75	-55.78	-56.04	-56.07	-55.38	-55.41			-59.09	-59.12	-55.88	-55.91
+.01	-.14 +.03	+.01	-.15 +.03	+.01	-.14 +.01			+.01	-.36 +.02	+.02	+.02
-.27	-.02	-.27	-.02	-.27	-.02			-.67	-.06		
-56.02	-55.80	-56.31	-56.09	-55.65	-55.43			-59.76	-59.18	~~-55.88~~	~~-55.91~~
22 59.78	59.20	23 1.47	59.73	23 0.52	0.29			23 4.31	4.61		
-16 15.15	17.17	-15.48	17.52	-14.87	16.91	-12.67		-12.65	14.79	-13.77	15.91
-2.02		-2.04		-2.04				-2.14		-2.14	
-16.29		-16.21		-16.14				-14.89		-14.64	
-33.46	33.24	-33.73	35.20	-33.08	33.60			-29.68	33.99	-30.55	
	32.66		33.46		33.37				34.29		
	32.95		34.33		33.48				34.14		

g H. Draconis L.C.

~~22~~ 10 h 24 m 25 sec

103° 39′
76° 21′

ζ = − 61° 16′

sin ζ = −.88

1874
α 19.644 s
δ +21′ 38.55 — 38 21.45
dα/dt +5.301 s
dδ/dt −18.365″

1875
24.944 s
+21 20.18 — 39.82
+5.298 s
−18.369″

corr α = −.134 s
corr δ = ~~~~

tang δ = −4.12 — 4.24

I = 8.71 s

K = +.065 s

1874 (m s)
Oct 7 — 24 20.92
12 — 21.29 — +.37
17 — 21.69 — .40
22 — 22.12 — .43
27 — 22.57 — .45
Nov 1 — 23.04 — .47
6 — 23.54 — .50
11 — 24.06 — .52
16 — 24.59 — .53

log sin δ 9.98756

log cos δ 9.37289 n — 9.37289 n
log C 10.460 — 12552
log C′ 9.47749 n — 9.49841 n

log C″ 9.47423 n

1874
Oct. 6 (−.17 −.07) — −.275

Oct. 11 (−.29 −.07) — ~~−.344~~ −.367

Oct. 12 (−.23 −.07) — −.302

Nov. 8 (−.15) — + 1 s ~~−.152~~ −.146

1874 Nov. 18 (−.13) — −.154

1875 + (−.21 −.08) Nov 2 — −.250

Oct. 6: 22 24 — ; — ; — ; — ; 33.50 33.8 ; 3.85 37.5 ; 3.00 41.7 ; 2.15 45.2 ; 2.80 50.2 — 24 58.6 ; 9.2 ; 18.2 ; 25 41.4 ; 47.8 ; 54.6

Oct. 11: 24 16.0 ; 20.6 ; 24.7 ; 29.4 ; 33.7 ; 38.2 ; 42.9 ; 47.0 ; 51.3 — 23 40.0 ; 53.4 ; 1.6 ; 24 38.7 — 3038

Oct. 12: 24 16.8 ; 21.3 ; 25.4 ; 30.0 ; 34.4 ; 38.8 ; 43.1 ; 47.5 ; 52.0 — 23 55.4 ; 24 1.5 ; 10.1 ; 25 3.0 — 3093

Nov. 8: — ; — ; — ; — ; 4.30 4.3 ; 3.85 8.2 ; 4.50 13.2 ; 3.65 17.7 ; 4.00 21.4 — 24 5.7 ; 11.2 — Cant — Molnout — Rej

Nov. 18: 23 57.3 ; 1.0 ; 5.6 ; 10.4 ; 14.1 ; 18.8 ; 23.0 ; 27.5 ; 31.8 — 23 49.0 ; 58.1 ; 4.0 ; 24 38.7 ; 48.6 ; 56.6 — 1895 ; 60

Nov 2: 25 9.6 ; 14.5 ; 18.8 ; 23.2 ; 27.1 ; 31.9 ; 36.6 ; 40.6 ; 44.8 — 24 54.0 ; 25 39.7 — 2477

24 8.67 — 23 51.67 — 24 2.33 — 24 8.45 — 1295 — 23 57.03 — 24 54.00

24 33.120 — 25 47.98 ×3 — 24 33.756 — 24 38.70 — 24 34.367 — 25 3.00 — 24 4.060 — 24 14.389 — 24 47.97 — 25 27.522 — 25 39.70

33.185 — 33821 — 34432 — 4125 — 14454 — 27587

24 20.79 83 — 24 21.16 20 — 24 21.22 7 — 24 23.67 72 — 24 24.72 7 — 24 29.1×6

+12.3 95 −13.27 — +12.68 2 −14.42 — +13.20 16 −14.60 — −19.54 9 +0.38 — −10.27 32 +9.73 — +58.48 8 −59.29

+12.48 +.70 — +12.75 +1.19 — +13.29 +.95 — −19.46 +.62 — −10.19 +.54 — +58.56 +.87

+.30 — +.30 — +.30 — +.34

− 10.80 −1.19 — − 14.52 −1.56 — − 14.68 −1.63 — + 0.35 −4.08 — + 9.41 −5.13 — − 59.39 −4.22

+ 1.13 24 19.72 — + 1.51 19.33 — + 1.24 19.45 — + .60 1.04 — + .63 19.5 ~~20~~ 29 — + 1.03 25.29

+ 1.19 + 4.111 — + 1.56 + 3.741 — + 1.63 + 3.671 — + 4.08 + 1.221 — + 5.13 + 0.871 — + 4.22

− ~~15.62~~ 13.36 — − ~~17.59~~ 14.57 — − ~~17.63~~ 7.50 — − ~~4.30~~ 3.15 — + ~~3.95~~ 5.21 — − ~~64.64~~ 62.58

24 33.18 — 24 33.82 — 24 34.43 — 24 4.12 — 24 14.45 — 25 27.59

36 46.90 — 27.59 — 27.79 — 36 33.18 — 55 16.94

24 ~~17.56~~ +2 5.48 — 24 ~~16.23~~ +2 8.76 — 24 ~~16.88~~ +2 9.40 — 9.77 +2 1×82 — 24 ~~18.40~~ +2 10.99 — 24 ~~32.90~~ −16 14.58

14.82 + 2.20 — 19.25 + 2.20 — 19.36 + 2.20 — + 2.20 — 19.66 + 2.40 — 25.01 + 2.50

24 25.121 −17.20 — 24.551 −18.80 — 24.661 −19.10 — 24.961 −28.20 — −26.40

103 38 27.38 Rej — 38 19.75 — 38 20.29 — 38. 18.37 — 38 38.46

s

+ 24.45 — 14.81 — + 42.09 — 4.94 — + 32.04 — 28.63 — − 4.39 — + 17.36 — 33.58 — + 33.52 — 12.18

45 — 45 — 45 — 45 — 45 — 25

−2.43 — −2.44 — −2.45 — −2.68 — −2.77 — −2.97

2 53.7 ; 57.1 ; 110.8 — 2 41.7 ; 45.1 ; 86.8 — 3 15.9 ; 21.2 ; 37.1 — 2 1.1 ; 5.7 ; 6.8 — 3 13.8 ; 19.4 ; 33.2 — 2 56.1 ; 0.6 ; 116.7 — 3 1.4 ; 6.9 ; 8.3 — 3 3.5 ; 10.9 ; 14.4 — 2 48.4 ; 55.0 ; 103.4 — 4 25.5 ; 36.0 ; 61.5 — 4 11.9 ; 21.7 ; 33.6

47 3 55.40″ — 47 2 43.40 — 48 3 18.55 — 48 2 3.40 — 48 3 16.60 — 47 2 58.35 — 48 3 4.15 — 48 3 7.20 — 47 2 51.70 — 29 30.75 — 29 16.80

1.38828 — 1.17056 n — 1.62418 — 0.69373 n — 1.30569 — 1.45682 n — 0.64246 n — 1.23956 — 1.52608 n — 1.52530 — 1.08565 n

0.86577 n — 0.64805 — 1.10167 n — 0.17122 — 0.98318 n — 0.93431 — 0.11995 — 0.71379 n — 1.00031 — 1.02371 n — 0.58406

− 7.34 — + 4.45 — − 12.64 — + 1.48 — − 9.62 — + 8.60 — + 1.32 — − 5.17 — + 10.01 — − 10.56 — + 3.84

47 48.06 — 47 47.85 — 48 5.91 — 48 4.88 — 48 6.98 — 48 6.95 — 48 5.47 — 48 2.63 — 48 1.71 — 29 20.19 — 29 30.64

35 0.29 ; 0.39 — 0.50 — ~~25 17.56~~ 34 42.44 ; 42.95 — ~~16.53~~ 43.47 — ~~25 18.63~~ 34 41.37 ; 41.38 — ~~18.60~~ 41.40 — 34 42.88 — ~~25 14.28~~ 34 46.32 ; 46.48 — ~~13.36~~ 46.64 — ~~6 31.84~~ 53 28.16 ; 27.93 — ~~32.29~~ 27.71

−61 14 12 — 14 24 — 14 0 — 14 15 — 14 17 — 14 31

2.01914 n — 2.01920 n — 2.01908 n — 2.01917 n — 2.01917 n — 2.01923 n

+836 — + 38 — + 770 — + 767 — +1003 — +1890

2.02750 — 2.02756 — 2.01952 — 2.01958 — 2.02684 — 2.02690 — 2.02681 — 2.02911 — 2.02920 — 2.03807 — 2.03813

+ 106.54 — + 106.55 — + 104.60 — + 104.61 — + 106.38 — + 106.39 — + 106.37 — + 106.93 — + 106.96 — + 109.16 — + 109.18

+ .00 — .00 — .00 — .00 — .00 — .00 — .00 — .00 — + .02 — + .02

+.07 — −.03 +.03 — +.23 — +.03 0 — +.13 — +.02 +.10 — + 1 — +.04 — −.24 +.14 — +.14 — −.18 +.02

−.09 — −.08 — −.10 — −.06 — −.10 — −.09 — −.34 — −.32 — −.27 — −.26

+1 46.52 — +1 46.50 — +1 44.73 — +1 44.55 — +1 46.41 — +1 46.40 — +1 46.63 — +1 46.78 — +1 49.05 — +1 48.96

36 46.81 — 47.00 — 27.17 — 28.02 — 27.78 — 27.80 — 32.95 — 33.42 — 55 17.21 — 16.67

21 21.4 — 19.8 — 19.5 — 13.5 — 10.4 — 20 5.38

38 38.6 — ~~23.6~~ — 40.2 — 6.2 — 40.5 — 8.3 — 49.6 — 23.2 — 39 6.2

1 51.8 — 51.6 +2 — 13.0 — 12.2 — 12.8 — 12.7 — 16.7 — 16.2 −16 — 8.5 — 10.5

+1 51.7 38 36.92 +2 — 12.6 — 19.11 — 12.8 — 20.1 — 16.4 — 18.10 −16 — 9.5 — 38 38.73

+2 51.8 7.31 37.11 — + 8.60 10.74 19.96 — + 9.33 11.48 20.18 — + 11.08 — + 10.92 13.35 18.57 −16 — 14.69 12.08 38.19

+ 2.13 + 1.17 — + 2.14 −0.43 — + 2.15 −0.73 — + 2.35 — + 2.43 −9.83 — + 2.61

− 17.20 38 37.02 — − 18.80 — 19.53 — − 19.10 — 20.17 — − 28.20 — 18.33 — 26.40 — 38 38.46

+1 50.11 — 55.38 + — 51.94 — 37.90 + — 52.38 — 38.54 — + 45.15 — 36.70 −16 — 38.48

1874 1875–

′	″						m	s	
21	21.0		.77	25.12	37.0]	Oct 27	24	28.62	
	19.4	−1.6	.78	24.55	37.9	Nov 1		29.09	+.47
	17.9	1.5	.78	24.66	38.5	6		29.58	.49
	16.5	1.4	.88	24.96	36.7	11		30.09	.51
	15.1	1.4	.58	24.96		16		30.62	.53
	13.9	1.2	.80	24.823	~~37.57~~	21		31.16	.54
	12.7	1.2		(4)	37.70	26		31.71	.55
	11.7	1.0			(3) Dec	1		32.27	.56
	10.7	1.0				6		32.83	.56

′	″		1874.0 α		δ	1875.0 α		δ
20	55.2		17.56	19.82		22.95	25.01	
	54.0	−1.2	16.23	19.25		22.36	24.92	
	52.8	1.2	16.88	19.36		23.49	24.87	
	51.8	1.0	18.40	19.60		24.40	24.82	
	50.8	1.0				23.68	24.80	
	50.0	.8	17.267	19.508		23.376	24.84	
	49.3	.7	19.644	19.644	38.55	24.944	24.884	20.18
	48.8	.5	−2.377	−.136		−1.568	−.080	
	48.4	.4						

1875

84	25.01	38.5
.85	24.92	38.4
.90	24.87	37.3
.92	24.82	38.8
.93	24.80	
.89	24.884	38.75
	(5)	(4)

+ + × ×

−.28 Nov 6		−.17 Nov 24		Dec 1	−.44 Dec 2		−.13 Dec 6	
−.310		−.167			−.051		−.136	
25	24	24	23 41.2		24	24 18.4	24	24 0.9
11.7	46.2	18.9	45.2		17.6	26.7	14.8	10.3
16.2	50.2	22.8	54.0		22.5	32.4	19.0	16.4
20.4	56.7	27.7			25.4		23.3	
25.0		31.9			30.6		27.7	
29.1		36.5			35.2		31.4	
33.3		41.3			39.5		36.6	
38.0	25 27.5	44.6	25.6		43.3	24 51.2	41.4	24 40.0
42.2		49.5	32.5		48.0	56.7	45.5	48.0
46.7		54.0	42.8		52.1	7.9	49.8	54.9
2626		3272			3142		2895	

	24 51.03		23 46.80		24 25.83		24 9.20
25 29.178	25 27.50	24 36.356	24 33.63	24 34.911	24 58.60	24 32.167	24 47.63
29.243		30.421		34.976		32.232	
24 29.585	m	24 31.486		24 32.305		24 32.7480	
+51.4469	−1 −0.95	+5.04 4.96	−5.70	+26.83	−2.94	−0.517	−0.01
+59.82	+1.15	+5.09	+.70	+2.76	+.16	−0.44	+.54
−60.99	−4.61	−5.72	−6.52	−2.96	−7.41	−0.13	−7.86
+1.28	24.83	+.69	18.90 24	+.21	24.79	+.56	24.950
−4.61		−6.52		−7.41		−7.86	
−~~66.88~~ 64.32		−~~12.93~~ 11.55		−~~10.58~~ 10.16		−~~8.55~~ 7.43	
25 29.24		24 36.42 24.87		24 34.98		24 32.23	
	18.56		21.93		20.16		
24 ~~23.36~~ 24.97	−16 15.34	24 ~~23.49~~ 24.87	−16 14.58	24 ~~24.40~~ 24.82	−16 11.93	24 ~~23.68~~ 24.80	−16 13.58
	+2.45		+2.08		+~~2.7~~ 30		+~~27~~ 80
	−27.30		−30.60		−31.50		−31.80
	38 38.~~36~~ .02		38 39.55		38 39.73		

+38.15	+1.68	+49.56	+2.73	+9.08	−23.69	+22.97	−15.46
25		25		25	25		
−3.08		−3.12			−3.15		−3.16

4 26.0	4 13.9	4 26.2	4 11.0	4 31.1	4 14.1	4 24.7	4 15.7
37.3	22.9	35.7	20.1	30.1	12.2	25.9	15.9
6.33	36.8	61.9	31.1	12	63	106	10
29 31.65	29 18.40	29 30.95	29 15.55	29 30.60	29 13.15	29 25.30	29 15.50

1.58149	0.22531	1.69513	0.43616	0.95809	1.37457n	1.36116	1.18921n
1.07990n	9.72372n	1.19354n	9.93457n	0.45650n	0.87298	0.85957n	0.68762
−12.02	−0.53	−15.62	−0.86	−2.86	+7.46	−7.24	+4.87
29 19.63	29 17.87	29 15.33	29 14.68	29 22.44	29 22.96		
6 ~~31.28~~	~~29.52~~	6 ~~26.98~~	~~26.33~~	6 ~~34.09~~	~~34.61~~		
53 28.72	30.48	53 33.02	33.67	53 25.91	25.39		
29.60		33.34		25.65			
				14 23	14 33		
				2.01920n	2.01923n		
+1875		+1852		+4181		+1761	
2.03792	2.03798	2.03769	2.03775	2.06101	2.06104	2.03681	2.03684
+109.12	+109.14	+109.07	+109.08	+115.08	+115.09	+108.85	+108.86
+.01	+.01	+.01	+.01	+.04	+.04	+.02	+.02
+.18	−.17 +0	+.31	−.50 +0	+1	−.61 +.07	+.07	+.03
−.27	−.26	−.67	−.64	−.66	−.64		
+1 49.04	+1 48.89	+1 48.72	+1 48.45	+1 55.47	+1 59.56		
17.76	19.37	21.74	22.12	20.38	19.95		
52.9		49.6		48.7		48.4	
7.1		10.4		11.3		11.6	
8.2	9.8	11.3	11.7	9.1	8.6		
9.0	37.62	11.5	39.15	8.8	39.00		
−16 15.48	13.84 39.23	−14.73	11.99 39.53	−12.65	9.88 38.57	−13.77	10.99
+2.64		+2.74		+2.77		+2.78	
−27.30	38.42	−30.60	~~40.57~~	−31.50	38.79	−31.80	
−40.14		−42.59	39.34	−41.38		−42.79	

β Picis Australis

h m sec
22 24 24,
− 32° 59'
+ 75° 22'
sin z = +.97

	1874	1875
l		24 23.73
δ		59 10.05
dα/dt		+ 3.427
dδ/dt		+ 18.29
l sin δ	9.73591n	
l cos δ	9.92367	9.92367
l C	10460	12562
l C'	0.02827	0.04919
l C''	0.02501	

corr =
corr =
log δ = −.65
s
I = 2.46
s
K = −.019

1874		
.80	23.76	8.2
.82	23.79	9.8
.84	23.77	9.2
.87	23.63	11.7
.94	23.34	10.0
.85	23.658	9.78
	+1 (5)	−1
	23.659	9.79

1874 Oct. 18		Oct. 27		Nov. 4		Nov. 12		1874 Dec. 8		1875 Oct-25	
−.224		−.327		−.173		−.245		−.055		−.463	
— — 24 — 31.3 33.8 36.6 38.8 41.5 — — —	24 24 495	24 15.0 17.5 20.1 25.0 27.3 29.7 32.2 34.6 39.6 42.2 44.6	24 5.0 7.4 9.2 24 57.3 53.6 53.5	24 20.5 23.0 25.3 27.7 30.3 ≡	24 48.8 51.0 52.9	24 — — — 12.4 14.9 17.3 19.8 22.4 — — —	24 29.1 34.7 38.0	24 — — — 8.7 11.1 13.9 16.4 18.9 — — —	24 24.0 26.5 28.6	25 6.7 9.3 11.9 16.7 19.1 21.6 24.0 26.5 31.5 33.8 36.3	25 2.9 5.9 8.3 25 45.2 47.2 50.0
1820 24 36.400 36.381	24 49.50	3278 24 29.800 39.781	24 7.20 24 ~~55.47~~ 53.47	1268 24 25.360 25.341	24 50.90	868 24 17.360 17.341	24 33.93	690 24 13.800 13.781	24 26.37	2374 25 21.582 21.563	25 5.70 25 47.47
− 12.78 + .15 ± 3.42 +0.077 − 16.05 24 36.38		− 6.33 + .21 ± 3.30 +0.127 − 9.42 24 39.78		− 1.92 ± .11 ± 3.19 +0.237 − 5.00 24 25.34		+ 5.77 + .16 − 3.07 +0.357 + 2.86 24 17.34		+ 9.01 + 3 ± 2.91 +0.517 + 6.13 24 13.78		− 54.38 + .30 ± 3.74 − 57.82 25 21.56	
24 20.33 24 23.757		24 30.36 23.757		24 20.34 23.767		24 20.20 23.627 20.308		24 19.91 23.337		24 23.74	

	S										
−13.10 20	−13.10 20	+22.60	−23.67 ~~−25.67~~ 20	−25.54		−16.57 20		−12.57 20		0 + 15.88	− 25.89
−2.48		−2.53		−2.63		−2.72		−2.92		−2.92	
0 45.0 59.1 104.1 0 20 52.05	∩	0 12.8 29.4 42.2 20 0 21.10	0 1.1 18.0 19.1 20 0 9.55 (21)	0 57.2 9.9 127.1 21+ 3.55		0 43.9 59.2 103.1 20 0 51.55		0 48.5 1.9 110.4 20 0 55.20		1 35.8 52.5 88.3 1 44.15	2 21.5 40.1 61.6 2 30.80
1.11727n 1.14554n −13.98 20 38.07	~~1.11727n~~ ~~1.14554n~~ ~~13.98~~	1.35411 1.38238 + 24.12 20 45.22	1.37420n 1.40247n −25.25 20 44.30	1.40722n 1.43223n − 27.06 20 36.49		1.21932n 1.24433n − 17.55 20 34.00		1.09934n 1.12436n − 13.32 20 41.88		1.20085 1.25004 + 17.79 2 1.94	1.41313n 1.46232n − 28.99 2 1.81
59 49.72		57 56.87 56.41	55.95	57 48.14		57 45.65		57 53.53		39 13.59 13.52	13.46
75 18 45 2.33473 +305 2.33778 − 217.66 − 4 +.04 −.03	+01 ~~+04~~	18 14 2.33448 −498 2.32950 −213.55 − 9 +11 −.01	19 2 2.33488 2.32990 − 213.75 − 9 +.10 +.14 −.04	18 56 2.33483 +1146 2.34629 −221.97 − 4 +.15 +.121 −.03		18 45 2.33473 +2579 2.36052 −229.36 − .24 +.06 +.03 −.03		18 48 2.33478 +1642 2.35120 −224.50 − .19 +.03 −.08 −.11		17 56 2.33433 − 575 2.32858 −213.10 − 11 +.06 −.18 −.24	18 43 2.33473 2.32898 −213.30 − .11 +.16 −.35
−3 37.69 −3 31 27.41 +2 9.40 − 2.40 −6.06 +2 0.94	7.00 +12.23	−3 33.54 30.41 + 9.42 6.97 − 2.45 +13.33 −4.96 + 2.01	−3 33.74 29.69 28.40 27.68	−3 41.89 1 30.03 +9.19 6.64 −2.55 +14.22 −4.07 + 2.57		−3 49.57 1 35.42 +11.18 8.55 −2.63 +14.98 −3.31 + 5.24		−3 44.77 1 38.30 +14.79 11.96 − 2.83 +~~15.49~~ 16.29 −2.00 + 9.96		−3 33.39 42 46.98 −16 14.52 17.35 − 2.83 −6.84 −16 24.19	−3 33.60 47.06 59 11.17 11.25
	59 26.47 59 8.18		28.04 9.75	27.46 9.17		29.98 11.69		28.34 10.05		59. 11.21	

1875

82 23.74 11.2
84 23.78 8.2

83 23760 9.70
− 3 (2) +3
23.757 9.67

Nov 4

−260
25 12.9 24 57.5
15.2 0.0
17.7 1.7
22.7
25.3
27.7
30.0 25 28.8
32.4
37.2
39.8
42.4

31 3.3 24 59.73
25 27.573 25 28.80
27.554

− 60.34
+ .17
− 3.60
− 63.77
25 27.55

24 23.78

23.760

+ 27.84 − 1.23
0
− 2.98
1 13.6 1 46.4
20.5 53.1
34.1 99.5
1 17.05 1 49.75

1.44467 0.08991n
1.49386 0.13910n
+31.18 − 11.38
1 48.23 48.37

38 59.88 0.02
59.95
17 29 18 21
2.33413 2.33438
+16.52
2.35065 2.35690
−224.21 −224.34
− .19 − .19
+.18 −.01 + 0
−.08 −.11
−3 44.30 −3 44.64
42 44.18 44.66
− 16 15.15 18.04
− 2.89
−5.42
− 23.76 7.94
8.42

8.18

44 1874 1874 1874

7 = (8) Lacertae

h	m	sec	α 6.065	
22	26	9	δ +38″ 5.86	
+49°	38′		dα/dt +2.458	
			dδ/dt +18.380	
γ = −7°	15′	l sin δ	9.88191	
γ sin γ = −.13				
		l cos δ	9.81136	
		l C	10460	
		l C′	9.91596	
		l C″	9.91270	

Oct.	7	26	8.43		38	27.7	
	12		8.34	−.09		28.9	+1.2
	17		8.25	.09		29.9	1.0
	22		8.15	.10		30.8	.9
	27		8.05	.10		31.6	.8
Nov.	1		7.94	.11		32.3	.7
	6		7.82	.12		32.9	.6
	11		7.70	.12		33.4	.5
	16		7.58	.12		33.7	.3
	21		7.46	.12		33.8	.1
	26		7.34	.12		33.9	.1
Dec.	1		7.22	.12		33.9	+.0
	6		7.09	13		33.8	−.1

1874

corr α =

corr δ =

tang δ = +1.17 159

I = 3.18

K = −.024

.78	58.93
.78	58.99
.79	59.05
.80	59.03
.80	59.04
.82	59.03
.86	59.07
.88	58.97
.94	59.07
.83	59.053

1874

Oct. 11 −.29 −.07 Oct. 12 −.23 −.07 Oct. 15 −.21 Oct. 18 −.24 Oct. 20 −.17 Oct. 21

22 ~~364~~ −.367 −.302 −.235 −.227 ~~470~~ −.168

26 — 26 164 25 548 25 364 25 51.3 25 45.3

— 579 396 546

— 1.0 418 57.6

7.3 7.5 26 6.3 26 5.2 4.1

10.5 10.7 9.7 8.8 7.2

13.9 13.8 12.9 11.8 10.5

17.0 17.0 26 225 16.2 26 12.2 15.0 26 25.8 13.6 26 38.8

20.0 20.4 19.2 14.0 18.2 29.3 16.8 43.0

— 26.7 — — 32.0 23.1 45.5

— 29.7 — — 26.4

— 33.0 — — 29.6

687 2725 643 590 2948

120 180

26 16.40 152.5 25 39.27 1148 25 45.30

26 13.740 26 13.864 26 22.50 26 12.860 26 13.10 26 11.800 26 29.03 26 10.436 26 42.80

13.716 −144.2 13.840 −14.61 12.836 −13.76 11.776 −12.75 10.412 −11.47

26 8.365 −.34 26 8.34 −.27 26 8.298 −.25 26 8.23 −.28 26 8.198 −.20

+5.387 −.11 +5.50 −.11 +4.556 +3.55 +2.283

−.229 −.228 −.222 −.217 −.212

− 14.52 − 14.68 − 13.76 − 12.78 − 11.51

− .43 − .35 − .27 − .26 − .20

− 2.29 +0.168 − 2.28 +0.178 − 2.22 +0.238 − 2.17 +0.288 − 2.12 +0.338

− 17.24 − 17.31 − 16.25 − 15.21 − 13.83

26 13.72 26 13.84 26 12.84 26 11.78 26 10.41 ~~+2.881~~

+2 876 +2 940 +3 894 +2 939 +2.881

25 56.48 +.3 25 56.53 +.3 25 56.59 +.3 25 56.57 +.3 25 56.58 +.3

25 58.933 58.988 59.098 59.028 59.038

s

−2.66 +34.59 −8.64 −0.24 −18.03 +25.14 −32.36

40′ 40 40 40 40 40

+2.44 −2.45 −2.46 −2.48 −2.50

1 34.4 0 3.2 1 38.5 1 34.0 1 46.3 1 11.7 1 57.7 1 9.0 1 47.3

43.3 13.1 46.6 40.9 53.5 16.7 2.5 15.9 55.2

777 163 851 749 998 284 1202 249 1025

41 38.85 40 8.15 41 42.55 41 37.45 41 49.70 41 14.20 42 0.10 41 12.45 41 51.25

49.90

0.42488 1.53895 0.93651 9.38021n 1.25600n 1.40037 1.51001

0.34084 1.45491 0.85247 9.29617n 1.17196n 1.31633 1.42597

− 2.19 + 28.50 − 7.12 − 0.20 − 14.86 + 20.72 − 26.66

41 36.66 40 36.65 41 35.43 41 37.25 41 35.04 41 34.92 41 33.44

41 11.69 42 11.70 12.92 41 11.10 41 13.31 41 13.43 14.91

(ex) 12.31 14.17

−7 20 28 21 59 20 25

+42 +776 +861 +307 +125

−.31 − −.09 −.17 −.27

−.05 −.06 −.05 −.05 −.05 −.04 −.06

~~+2~~ ~~8.60~~

38 28.7 29.0 29.6 30.1 30.5

+2 8.60 8.91 +9.33 9.64 +8.78 9.09 +9.40 9.72 +8.81 9.13

+ .31 −4.42 + .31 −4.72 + .31 −5.32 + .32 −5.82 + .32 −6.22

− 22.80 − 23.10 − 23.70 − 24.20 − 24.60

+1 46.11 + 46.54 + 45.39 + 45.52 + 44.53

1875 1875 1875

α 8.523
δ +38′ 24.24
dα/dt +2.458
dδ/dt +18.382

l cos δ 9.81136
l c 12552
l c′ 9.93688

.82	8.56	25.0
.82	8.58	25.7
.84	8.66	25.8
.84	8.65	25.3
.85	8.53	25.5
.85	8.58	26.1
.86	8.55	25.0
.84	8.587	25.49

(7)

Oct.	27	26	10.72		38	51.5
Nov.	1		10.61	−.11		52.2 +.7
	6		10.49	.12		52.8 .6
	11		10.38	.11		53.3 .5
	16		10.26	.12		53.7 .4
	21		10.14	.12		53.9 .2
	26		10.02	.12		54.0 .1
Dec.	1		9.90	.12		54.0 ±.0
	6		9.77	.13		53.9 −.1

1874 1875 + +

Oct. 27 −.24 −.08 Nov. 8 −.15 Nov. 18 −.13 Dec. 8 −.05 −.43 Oct. 25 −.34 Oct. 27

−.327 +1^s ~~.152~~ −.146 −.154 −.055 −.463 −.330

25 – 25 9.7 25 38.2 25 32.9 25 29.4 25 32.1 25 29.5 25 ~~29.5~~ 26 — 26 59.9 26 47.5 26 34.0
– 41.1 36.0 32.4 32.7 37.2 — 2.2 50.8 36.8
– 44.3 39.0 35.6 36.0 40.9 — 5.2 53.8 39.7
59.0 50.7 42.0 42.2 43.2 59.6 27 0.3
26 2.0 53.9 45.3 45.6 27 2.4 3.5
5.2 57.3 48.5 48.6 5.7 6.7
8.5 26 38.6 0.3 26 29.8 51.6 26 23.4 51.9 26 11.0 8.9 27 30.4 9.7
11.7 42.2 3.6 34.6 53.0 26.7 ~~58.3~~ 13.3 12.1 32.7 13.1
— 44.6 9.9 37.3 1.2 29.6 1.3 17.5 — 35.9 19.4
— 13.2 4.5 4.6 — 22.7
— 16.5 7.7 7.8 — 25.8

6
844 3290 3532 3585 887 2535
60 300 180 180 60 180
284 25 9.70 6290 25 35.97 5332 25 32.10 5385 25 40.43 287 27 2.43 735 26 36.83
26 ~~4.880~~ 26 41.80 25 58.182 26 33.90 25 48.473 26 26.57 25 48.955 26 13.93 27 5.740 27 33.00 27 6.682
5.280 5.256 −6.23 58.158 +0.38 48.449 +9.73 48.931 +9.65 5.716 −54.36 6.658 −53.42
26 8.05 −.28 26 7.787 −.18 26 7.543 −.15 26 7.053 −.06 26 10.776 −.50 26 10.731 −.40
−2.79 −.12 −9.621 −19.098 −18.120 +54.956 +55.935
−1.99 −1.71 −1.47 −0.97 −2.24 −2.19

− 6.32 + 0.33 + 9.41 + 9.01 − 54.38 8.62 − 55.50 8.65
− .38 − .17 − .18 − 6 − .54 − .39
− 1.99 +0.468 − 1.71 +0.748 − 1.47 +0.988 − 0.97 +1.488 − 2.24 − 2.19
− 8.69 − 1.55 + 8.06 + 7.98 − 57.16 − 58.08
26 5.26 25 58.16 25 48.45 25 48.93 27 5.72 55 61.3 27 6.66 73.2
+2 9.39 +2 11.32 +2 10.99 +2 14.91 −16 14.45 −16 14.58
25 56.57 +.4 25 56.61 +.3 25 56.57 +.4 25 56.91 +.4 26 8.56 +.40 26 8.58 +.3
59.028 59.068 58.968 59.368 −27.00 −27.38
39 25.08 39 25.74

~~+55.58~~ −36.52
+ ~~55.16~~ − ~~36.92~~ + 22.21 − 35.72 + 16.37 − 38.10 + 8.52 − 24.98 + 3.31 − 27.26 + 29.85
40 40 40 40 25 25
−2.53 −2.68 −2.77 −2.92 −2.92 −2.93

1 32.8 1 59.3 1 11.9 1 58.1 1 15.6 1 30.0 1 26.7 1 53.8 2 36.1 3 1.8 2 13.9
42.5 8.0 20.1 7.1 25.4 8.0 33.9 0.7 56.1 21.2 30.4
75.3 127.3 32.0 125.2 41.0 80 60.6 114.5 92.2 23.0 44.6
41 37.65 42 3.15 41 + 16.00 42 2.60 41 + 20.50 41 + 4.00 41 30.30 41 + 57.25 27 46.10 28 11.50 27 22.30
3.65

1.74492 1.56253 1.34655 1.55291 1.21405 1.58092 0.93044 1.39759n 0.51983 1.43553n 1.47494
1.66088 1.47849 1.25925 1.46561 1.12675 1.49362n 0.84314 1.31229n 0.45671 1.37241n 1.41182
+45.80 −30.10 +18.17 −29.22 +13.39 −31.16 +6.97 −20.53 +2.86 −23.68 +25.81
42 23.45 41 33.53 41 34.17 41 33.38 41 33.89 41 32.84 41 37.27 41 36.72 27 48.96 27 48.92 27 48.11

40 [illegible] 41 14.80 41 14.18 14.97 41 14.46 15.51 41 11.08 11.63 54 59.39 59.43 55 0.24
14.57 14.98 11.35 59.41
20 37 20 10 16 2 15 37
0.86590 0.86550n o.k.
−494 +771 +1011 +1642 −570 +605
0.86020 0.85980 0.87195 0.87155
+7.25 +7.24 +7.45 ~~+7.44~~

−.30 −.13 −.34 −.07 −.39 −.17 − 0 −.52 −.20 −.23 −.37
−.06 −.04 −.06 −.14 −.01 −.18 −.22 −.39 −.45 −.14
+6.86 +6.59 +7.08
55 6.25 55 6.02 55 7.32
31.6 33.2 33.7 33.8 38 51.2 51.5
−16 15.0 14.8 15.8
−16 14.9 15.8
+2 9.42 9.74 +11.08 11.42 +10.92 11.28 +14.79 15.16 −16 14.92 14.15 25.10 −14.70 14.33
+ .32 −7.32 + .34 −8.92 + .36 −9.42 + .37 −9.52 + .37 24.87 + .37
− 25.70 − 27.30 − 27.80 − 27.90 − 27.00 − 27.30
+ 44.04 + 44.12 + 43.48 + 47.26 −16 41.15 38 24.98 − 41.63 25.69

-.21 -08 + -.25 + -.28 + -.22 + -.23 + -12

Nov 2 Nov 4 Nov 6 Nov 7 Nov 9

-.250 -.260 -.310 -.250 -.352

27 — 26 59.0 27 — 26 52.8 26 59.7 26 53.0 26 40.1 26 53.9 26 51.7
— — 56.0 2.7 56.3 42.2 57.0 55.1
— — 59.2 5.1 59.4 45.0 27 01 57.4
4.0 5.0 27 5.3 27 5.8 6.5
7.3 8.2 8.7 9.0 9.7
10.4 11.3 11.8 12.4 13.1
13.6 27 30.2 14.5 27 .29.0 15.0 27 37.4 15.5 27 33.6 16.2 27 24.7
16.8 17.6 32.2 18.2 40.2 18.7 36.5 19.6 27.4
— — 34.8 24.7 42.9 25.0 38.9 25.5 30.8
— — 27.8 28.1 28.6
— — 31.0 31.4 32.1

521 566 3105 3146 2623
180 180 120
26 59.00 1305 27 2.50 1346 26 42.43 1423 26 54.73
27 10.420 27 30.20 27 11.320 27 32.00 27 11.864 27 40.17 27 12.236 27 ~~36.67~~ 36.33 27 12.936 27 27.63
10.396 -59.29 11.296 -1ᵐ -0.29 11.840 -1ᵐ -0.95 12212 -1ᵐ -1.34 12912 -1ᵐ -1.90
26 10.~~00~~58 -.25 26 10553 -.29 26 10.50 48 -.33 26 10486 -.26 26 10.482 -.27
+59.802 -.12 +61.757 +61.346 +61.735 +62.489 -.18
-2.06 -2.01 -1.96 -1.94 -1.90
— 59.39 26 8.68 — 60.34 8.71 — 60.99 8.60 — 61.40 8.65 — 62.05 8.66
— .29 — .30 — .36 — .29 — .41
— 2.06 — 2.01 — 1.96 — 1.94 — 1.90
— 61.74 — 62.65 — 63.31 — 63.63 — 64.36
27 10.40 55 831 27 11.30 845 27 11.84 916 27 12.21 926 27 12.91 748
-16 1458 -16 1500 -16 1534 -16 1467 -16 1386
26 8.66 +.40 26 8.65 +.30 26 8.83 +.40 26 8.58 +.38 26 8.55 +.40
-2820 -2840 5 -2860 -2870 -2900
39 2593 39 2535 39 2562 39 2619 39 2502

+11.40 -19.78 -20.68 +9.36 -28.31 +29.81 -24.09 +18.21 -14.69
25 25 25 25 25
-2.97 -2.98 -3.00 -3.01 -3.02
2 33.6 2 59.1 3 0.3 2 32.4 3 6.1 2 14.4 3 1.6 2 25.9 2 55.9
42.4 16.2 9.9 43.7 16.8 26.2 13.1 37.4 6.1
7.50 12.93 10.2 7.61 22.9 4.06 14.7 6.33 12.20
27 37.50 28 4.65 28 5.10 27 38.05 28 11.45 27 20.30 28 7.35 27 31.65 28 1.00

1.05690 1.29623n 1.31555n 0.97128 1.45194n 1.47436 1.38184n 1.26031 1.16702n
0.99378 1.23311n 1.25243n 0.90816 1.38882n 1.41124 1.31872n 1.19719 1.10390n
+9.86 -17.10 -17.88 +8.09 -24.48 +25.78 -20.83 +15.75 -12.70
27 47.36 27 47.55 27 47.22 27 46.14 27 46.97 27 46.08 27 46.52 27 47.40 27 49.30

55 0.99 0.80 55 1.13 55 2.21 55 1.38 55 2.27 1.83 55 0.95 54.05
0.89 1.80 2.05 0.00
16 16 15 47
0.86590n 0.86550n 0.86620n 0.86570n
+1892 +1655 +1878 +1357 +2189
0.88482 0.88442 0.88245 0.88205 0.88468 0.88428 0.87947 0.87907 0.88809 0.88759
+7.67 +7.66 +7.63 +7.62 +7.67 +7.66 +7.58 +7.57 +7.73 +7.72

-.03 -.24 -.11 -.12 -.31 -.13 -.30 -.22 -.24 -.36 -.15 -.09 -.24 -.06
-.16 -.19 -.19 -.16 -.19 -.14 -.19 -.15 -.18
+7.48 +7.36 +7.32 +7.48 +7.25 +7.20 +7.23 +7.49 +7.48
55 8.47 8.16 8.45 9.69 8.63 9.47 9.06 8.04 6.53
52.4 52.6 52.8 52.9 53.2
16 16.1 15.8 15.8 16.9 15.8 16.6 16.1 15.2 13.3
-16 15.95 15.8 16.3 16.4 14.2
-16 14.69 14.31 25.96 -15.15 14.77 -15.48 15.09 26.00 -14.87 14.48 26.29 -13.91 13.52 25.92
+ 38 25.65 + 38 + 39 24.94 + 39 25.88 + 39 24.01
— 28.20 -28.40 -28.60 -28.70 -29.00
-16 42.51 38 25.80 - 43.17 25.28 - 43.69 25.47 - 43.18 26.08 - 42.52 24.96

48

η Aquarii
h m sec
22 28 56
−0° 46′
ζ = +43° 9′
ζ sin ζ = +.68

1874				
Oct. 7	28m 55.68s		45 43.5″	
12	55.64	−.04	43.5	+.0
17	55.60	.04	43.5	.0
22	55.55	.05	43.5	.0
27	55.50	.05	43.6	.1
Nov. 1	55.45	.05	43.8	.2
6	55.39	.06	44.0	.2
11	55.33	.06	44.2	.2
16	55.26	.07	44.5	.3
21	55.20	.06	44.8	.3
26	55.14	.06	45.1	.3
Dec. 1	55.09	.05	45.4	.3
6	55.05	.04	45.7	.3

1874
α 52.832s
δ −45′ 58.86″
dα/dt +3.083s
dδ/dt +18.438
log sin δ 8.12647n
log cos δ 9.99996
lC .10460
lC′ 0.10456
lC″ 0.10130

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

1874

	Oct. 6 −17 −07		Oct. 10 −21 −07		Oct. 11 −29 −07		Oct. 12 −23 −07		Oct. 15 −21		Oct. 18 −24	
	−.275		~~−280~~ −283		~~−364~~ −.367		−.302		−.235		−.227	
22	28 56.5	28 49.4	28 57.3	28 47.6	28 57.9	28 50.8	28 58.0	28 48.7	28 57.0	28 43.9	28 56.0	28 46
	58.8	51.6	59.3	49.5	0.0	53.0	0.0	51.2	59.0	46.6	58.1	48.5
	0.8	53.3	1.4	51.1	2.0	53.4	2.3	53.2	1.3	48.3	0.2	50.2
	5.0		5.6		6.2		6.2		5.3		4.3	
	7.0		7.7		8.2		8.3		7.4		6.4	
	9.0		9.7		10.2		10.3		9.4		8.4	
	11.2	29 28.4	11.8	29 28.8	12.0	29 27.7	12.3	29 19.2	11.5	29 23.9	10.5	29 22.4
	13.2	30.5	13.8	30.9	14.3	29.6	14.6	21.8	13.6	26.4	12.6	24.3
	17.2	32.1	18.0	32.6	18.4	31.2	18.7	23.4	17.7	28.5	16.6	26.3
	19.4		20.0		20.6		20.8		19.8		18.8	
	21.4		22.1		22.7		22.8		21.5		20.9	
	2198		2267		1725		1745		2238		2128	
	120		120		60		60		120		120	
	998	28 51.43	1067	28 49.40	1125	28 53.07	1145	28 50.87	1038	28 46.27	928	28 48.23
29	9.073	29 30.33	29 9.700	29 30.77	29 10.227	29 29.50	29 10.409	29 21.47	29 9.436	29 26.27	29 8.436	29 24.33
	9.058	−1827	9.685	−1887	10.212	−1442	10.394	−1461	9.421	−1376	8.421	−1275
28	55.69	+.00	28 55.685	+.00	28 55.65	+.00	28 55.64	+.00	28 55.681	+.00	28 55.59	+.00
	+13.37	−.07	+14.083	−.07	+14.56	−.07	+14.75	−.07	+13.881		+12.53	
		−286		−282		−282		−281		−278		−276
	− 13.30	28 52.86	− 13.97	52.92	− 14.52	52.90	− 14.68	52.90	− 13.76	52.88	− 12.78	52.91
	+ .00		+ .00		+ .00		+ .00		+ .00		+ .00	
	− 2.86	+0.223	− 2.82	+0.263	− 2.82	+0.263	− 2.81	+0.273	− 2.78	+0.303	− 2.76	+0.323
	− 16.16		− 16.79		− 17.34		− 17.49		− 16.54		− 15.54	
	29 9.06	47 4681	29 9.68	4800	29 10.21	5052	29 10.39	5007	29 9.42	5213	29 8.42	5042
		+2 548		+2 568		+2 876		+2 940		+2 894		+2 939
	28 52.90	−1.70	28 52.89	−1.70	28 52.87	−1.70	28 52.980	−1.70	28 52.88	−1.70	28 52.88	−1.80
	55.983	−1540	55.973	−1540	55.953	−1540	~~56.003~~ 55.983	−1540	55.963	−1540	55.963	−1540
	−0	45 5843		45 59.42		45 58.86		45 57.77		456 0.29		45 58.23
	+ 18.64 5	− 21.26	+ 20.30 5	− 21.07	+ 17.16 5	− 19.27	+ 19.54 5	− 11.06	+ 23.17 5	− 16.83	+ 20.21 5	− 15.89
	−2.43		−2.43		−2.44		−2.45		−2.46		−2.48	
	4 9.5	4 59.3	4 9.2	0 2.7	4 14.2	4 0.7	4 10.1	4 48.0	4 8.9	4 57.6	4 10.7	4 56.1
	25.9	14.9	25.4	18.7	31.0	18.7	27.9	6.1	23.2	13.7	26.5	13.4
	354	1342	346	214	452	194	380	1141	321	1313	372	1295
	9 4 17.70	10 5 7.10	9 4 17.30	10 0 10.70	9 4 22.60	10 4 9.70	9 4 19.00	9 4 57.05	9 4 16.05	10 5 5.65	9 4 18.60	10 5 4.75
	1.24650	1.32777n	1.30750	1.32366n	1.23452	1.28488n	1.29092	1.04376n	1.36474	1.22608n	1.30557	1.20112n
	1.35106	1.43233n	1.41206	1.42822n	1.33908	1.38944n	1.39548	1.14832n	1.46930	1.33064n	1.41013	1.30568n
	+ 22.44	− 27.06	+ 25.83	− 26.81	+ 21.83	− 24.52	+ 24.86	− 14.07	+ 29.47	− 21.41	+ 25.71	− 20.31
	9 40.14	9 40.04	9 43.13	9 43.89	9 44.43	9 45.18	9 43.86	9 42.98	9 46.52	9 44.24	9 44.31	9 44.44
− 0°	46′ 51.79″	51.69	46 54.78	55.54	46 56.08	56.83	46 55.51	54.63	46 58.17	55.89	46 55.96	56.09
	51.74		55.16		56.45		55.07		57.63		56.22	
+ 43	7 11	8 0									7 12	7 58
	1.73130	1.73150									1.73130	1.73150
	+841		−898		+49		+785		+865		+308	
	1.73971	1.73991	1.72232	1.72252	1.73179	1.73199	1.73915	1.73935	1.73995	1.74015	1.73438	1.73458
	− 54.92	− 54.94	− 52.76	− 52.79	− 53.92	− 53.95	− 54.85	− 54.87	− 54.95	− 54.97	− 54.25	− 54.27
	+.01	−.14 +.02	+.02	−.07 +.02	+.01	−.13 +.02	+.02	−.14 +.01	+.03	−.14 +.01	+.02	−.14 +.01
	−.13	.00	−.13	−.01	−.13	−.13	−.13	−.15	−.13	.00 −.13	−.13	.00 −.15
	− 55.05	− 55.09	− 52.89	− 52.80	− 54.05	− 54.08	− 54.98	− 55.02	− 55.08	− 55.12	− 54.38	− 54.42
47	46.84	46.78	47.87	48.34	50.13	50.91	50.49	49.65	53.25	57.01	50.34	50.51
45	43.5		43.5		43.5		43.5		43.5		43.5	
+ 2	3.3	3.3	4.2	4.8	6.6	7.4	7.0	6.1	9.7	7.5	6.8	8.0
+ 2	3.3		4.5		7.0		6.5		8.6		7.4	
+ 2	5.18	45 58.71	+ 5.65	4.00 59.07	+ 8.60	6.95 58.58	+ 9.33	7.67 58.22	+ 8.78	7.11 61.54	+ 9.40	7.72 58.02
−	1.65	3.53 58.65	− 1.65	+3.04 59.74	− 1.65	+3.04 59.36	− 1.66	+3.04 57.38	− 1.67	+3.04 59.30	− 1.68	+3.04 58.19
−	15.40	+3.04	− 15.40		− 15.40		− 15.40		− 15.40		− 15.40	
+ 1	48.13	45 58.62	+ 48.60	59.40	+ 51.55	58.97	+ 52.27	57.80	+ 51.71	0.42	+ 52.32	58.10
		45 40.24		40.96		40.53		39.36		41.98		39.66 ~~40.16~~

1874		
.77	55.98	40.2
.78	55.91	41.0
.78	55.95	40.5
.78	55.98	39.4
.79	55.96	42.0
.80	55.96	39.7
.80	55.90	
.80	55.92	41.4
.82	55.95	41.3
.84	56.04	40.4
.86	55.92	40.2
.87	55.99	41.2
.88	56.00	40.6
1874 .94	55.93	41.5
.82	55.961	40.72

Oct 19 -22 | (13) (14) Oct. 20 -17 | -24 -08 Oct. 27 | -16 Nov. 4 | -15 Nov. 8 | -21 Nov. 12

-.245 | ~~-.170~~ -.168 | -.327 | -.173 | + 1^s ~~-.145~~ -.146 | -.245

— | 28 54.8 28 45.1 | 28 49.5 28 39.4 | 28 45.1 28 57.7 | 28 41.7 28 40.7 | 28 37.1 28 25.0
— | 56.8 47.4 | 37.6 41.5 | 47.1 | 43.8 42.5 | 39.3 27.0
— | 58.9 49.2 | 53.6 43.5 | 49.2 | 45.8 44.1 | 41.4 28.8
29 3.6 | 3.0 | 57.7 | 53.4 | 50.0 | 45.5
5.7 | 5.0 | 59.8 | 53.5 | 52.0 | 47.6
7.8 | -7.1 | 1.9 | 57.4 | 54.1 | 49.7
9.8 | 9.1 29 22.4 | 3.9 29 22.4 | 59.6 29 17.9 | 56.2 29 21.2 | 51.7 29 7.0
11.8 | 11.2 24.1 | 6.0 24.7 | 1.5 20.0 | 58.1 22.9 | 53.8 8.6
— | 15.3 26.6 | 10.1 26.7 | 5.7 21.8 | 2.3 24.7 | 57.8 10.4
— | 17.4 | 12.2 | 7.8 | 4.2 | 59.9
— | 19.5 | 14.3 | 9.8 | 6.4 | 2.1

387 | 2581 | 3206 | 3921 | 4146 | 4859
180 | 300 | 240 | 180 | 60
781 28 47.23 | 206 28 41.47 | 6321 28 57.70 | 5946 28 42.43 | 5459 28 26.93
29 7.740 | 29 7.100 29 24.37 | 29 1.873 29 24.60 | 28 57.464 29 19.90 | 28 55.055 29 22.93 | 28 49.627 29 8.67
7.725 -12.11 | 7.085 -11.47 | 1.858 -6.23 | 57.449 -1.90 | 55.040 +0.38 | 49.612 +5.82
28 55.58 +.00 | 28 55.57 +.00 | 28 55.50 +.00 | 28 55.41 +.00 | 28 55.376 +.00 | 28 55.321 +.00
+12.14 | +11.51 | +6.36 -.08 | +2.04 | -0.332 | -5.7×0

-2.75 | -2.74 | -2.67 | -2.58 | -2.53 | -2.48
- 12.15 28 52.86 | - 11.50 52.87 | - 6.32 52.88 | - 1.91 52.97 | + 0.33 ~~52.73~~ 89 | + 5.78 52.95
+ .00 | + .00 | + .00 | + .08 | + .00 | + .00
- 2.75 +0.333 | - 2.74 +0.343 | - 2.67 +0.413 | - 2.58 +0.503 | - 2.53 +0.553 | - 2.48 +0.603
- 14.90 | - 14.24 | - 8.99 | - 4.89 | - 2.20 | + 3.30
29 7.72 | 29 7.08 47 51.60 | 29 1.86 52.16 | 28 57.45 51.23 | 28 55.04 53.06 | 28 49.61 54.39
+2 8.56 | +2 8.81 | +2 9.39 | +2 9.40 | +2 11.32 | +2 11.12
28 52.82 -1.8 | 28 52.84 -1.80 | 28 52.87 -1.80 | 28 52.96 ~~53.06~~ -1.80 | 28 52.84 -1.90 | 28 52.91 -1.90
28 55.903 | 55.923 -15.40 | 55.953 -15.30 | 56.043 -15.00 | 55.923 -14.80 | 55.993 -14.60
- 0° 45 59.99 | 45 59.87 | 45 58.63 8 | 45 58.44 | 45 59.77

+ 19.87 -17.27 | + 20.40 -22.73 | - 0.24 -22.44 | + 12.62 -27.88 | + 22.70 -19.04
5 | 5 | 5 | 5 | 5 | 5
-2.49 | -2.50 | -2.53 | -2.63 | -2.68 | -2.72
4 47.8 | 4 13.7 4 1.2 | 4 13.0 0 7.3 | 4 37.7 0 6.5 | 4 20.3 0 13.1 | 4 9.7 4 2.1
2.0 | 26.5 15.1 | 30.0 24.3 | 50.4 19.4 | 39.9 31.2 | 23.4 17.3
109.8 | 40.2 16.3 | 43.0 31.6 | 88.1 25.9 | 60.2 44.3 | 33.1 19.4
49 54.90 | 94 20.10 ~~94~~ (10) 8.15 | 94 21.50 100 15.80 | 94 44.05 100 12.95 | 94 30.10 100 22.15 | 94 16.55 ~~94~~ 10 9.70

1.29820 1.23729n | 1.30963 1.35660n | 0.38021n 1.35102n | 1.10106 1.44529n | 1.35603 1.27967n
1.40276 1.34185n | 1.41419 1.46116n | 0.48151n 1.45232n | 1.20236 1.54659n | 1.45733 1.38097n
+ 25.28 -21.97 | + 25.95 -28.92 | -3.01 -28.34 | + 15.94 - 35.20 | + 28.67 - 24.04
9 45.38 9 46.18 | 9 47.45 9 46.88 | 9 43.75 9 44.61 | 9 46.04 9 46.95 | 9 45.22 9 45.66

46 57.03 57.83 | 46 59.10 58.53 | 46 55.40 56.26 | 46 57.69 58.60 | 46 56.87 57.31
57.43 | 58.81 | 55.83 | 58.14 | 57.09
7 13 8 1
1.73130 1.73150
+128 | - 487 | +1151 | +774 | +2579
1.73258 1.73278 | 1.72643 1.72663 | 1.74281 1.74301 | 1.73904 1.73924 | 1.75709 1.75729
-54.02 -54.05 | -53.26 -53.29 | -55.31 -55.34 | -54.83 -54.86 | -57.16 -57.19

+.02 -.14 +.01 | +.02 -.07 +.03 | .00 -.01 +.02 | +.01 -.07 +.04 | +.03 -.13 +.02
-.15 | -.13 .00 | -.13 -.01 | -.14 -.01 | -.13 -.01 | -.13 -.13
-54.15 -54.20 | -53.39 -53.30 | -55.45 -55.35 | -54.96 -54.87 | -57.29 -57.32
47 51.18 52.03 | 52.49 51.83 | 50.85 51.61 | 52.65 53.47 | 54.16 54.63
43.5 | 43.6 | 43.9 | 44.1 | 44.3
+2 7.7 8.5 | 8.9 8.2 | 6.9 7.7 | 8.5 9.4 | 9.9 10.3
+2 8.1 | 8.5 | 4.3 | 8.9 | 10.1

+2 8.59 | + 8.81 7.11 59.41 | + 9.42 7.70 0.09 | + 9.19 7.41 58.44 | + 11.08 9.26 58.19 | + 11.18 9.34 59.42
- 1.69 | - 1.70 +3.04 60.32 | - 1.72 +3.14 59.43 | - 1.78 +3.44 59.20 | - 1.82 +3.68 59.01 4 | - 1.84 +3.84 59.89
- 15.40 | - 15.30 | - 15.00 | - 14.80 | - 14.60
+1 51.71 45 59.86 | + 52.40 59.76 | + 52.41 58.82 | + 53.46 58.60 | + 54.74 59.65
45 41.42 | 41.32 | 40.38 | 40.16 ~~39.16~~ | 41.21 ~~40.21~~

1875 s
α 55.915
δ −45′ 40.″42
$\frac{d\alpha}{dt}$ +3.^{s}083
$\frac{d\delta}{dt}$ +18.″440

l cos δ 9.99996
.12552
0.12548

1875

		m	s		′	″				
Oct.	27	28	58.91		45	23.5		.82	55.99	41.2
Nov.	1		58.86	−.05		23.7	+.2	.82	56.10	40.2
	6		58.80	.06		23.9	.2	.84	55.98	40.9
	11		58.75	.05		24.1	.2	.84	55.97	40.8
	16		58.69	.06		24.3	.2	.85	55.98	40.4
	21		58.64	.05		24.5	.2	.85	55.93	42.0
	26		58.58	.06		24.8	.3	.86	56.085	40.6
Dec.	1		58.53	.05		25.1	.3			
	6		58.47	.06		25.4	.3	.84	~~55.997~~ 56.000 (7)	40.87

1875

1874 1875 + × ×

−.13 Nov. 18 −.05 Dec. 8 −.43 Oct-25 −.34 + Oct-27 −.21 −.08 Nov 2 −.25 Nov 4 ×

−.164 −.055 −.463 −.330 −.250 −260

28 33.2 28 25.6 28 33.8 28 19.0 29 41.0 29 33.8 29 .46 42.2 29 36.4 29 — 30 9.4 29 47.0 29 39.0
35.4 27.5 35.8 20.7 43.2 35.7 .50 44.2 38.5 — 11.3 49.0 41.2
37.4 29.4 38.0 22.4 45.2 37.8 .54 46.3 40.9 — 13.4 51.0 42.7
41.4 42.0 49.3 .72 50.6 — 55.1
43.5 43.9 51.3 .76 52.7 56.4 58.46 57.2
45.7 46.0 53.4 .60 54.6 58.4 40 59.2
47.7 29 12.2 48.0 29 7.6 55.5 30 12.8 .64 56.7 30 0.3 24 1.2 30 19.2
49.7 14.3 50.1 9.7 57.6 14.4 — 2.3 18 3.3 21.3
53.9 16.2 54.3 11.8 1.6 15.8 — 6.6 36 7.5 23.0
56.0 56.3 3.6 — 8.6 30 9.5
58.0 58.4 5.8 — 10.7 34 11.6

5019 5066 4075 3516
180 300

28 27.50 28 20.70 5875 29 35.77 29 38.60 30 11.37 6516 29 40.97
28 45.627 29 14.23 28 46.055 29 9.70 29 53.409 30 ~~14.00~~ 14.33 29 54.617 29 58.326 29 59.236 30 21.17
45.612 +9.73 46.040 +9.05 53.394 54.602 −55.42 58.311 −59.29 59.221 −1 −0.29
28 55.243 +.00 28 55.03 +.00 28 58.93 +.00 28 58.91 +.00 28 58.85 +.00 28 58.82 +.00
−9.632 −8.99 +54.46 −54.36 +55.69 +59.46 −.08 +60.40
−240 −220 −302 −300 −294 −291
+ 9.71 52.94 + 9.01 52.89 − 54.38 56.01 − 55.50 56.18 − 59.39 56.00 − 60.34 56.02
+ .00 + .00 + .00 + .00 + .00 + .00
− 2.40 +0.683 − 2.20 +0.883 − 3.02 − 3.00 − 2.94 − 2.91
+ 7.31 + 6.81 − 57.40 − 58.50 − 62.33 − 63.25
28 45.61 5376 28 46.04 47 5971 29 53.39 29 772 29 54.60 664 29 58.31 754 29 59.22 704
+2 1099 42 1491 −16 1445 −16 1458 −16 1458 −16 1500
28 52.92 −1.90 28 52.85 −2.10 28 55.99 −1.80 28 56.10 −1.80 28 55.98 −1.80 28 55.97 −1.90
56.003 −1430 55.933 −1300 −1700 −1690 −1670 −1660
45 58.97 45 59.90 45 40.97 45 39.92 45 40.62 45 40.54

s
5′ +18.13 −28.60 5 +25.35 −23.65 50 + 17.84 − 20.92 50 + 16.02 50 −13.04 50 + 18.27 − 21.83
−2.97 −2.92 −2.92 −2.93 −2.97 −2.98
4 14.7 0 14.4 4 12.7 0 14.2 0 32.1 1 23.1 0 32.1 1 14.2 0 32.7 1 26.3
32.1 31.9 26.9 29.2 46.4 38.1 45.7 19.7 37.9 30.3
46.8 46.3 39.6 43.4 78.5 61.2 77.8 13.9 10.6 56.6
94 23.40 10 23.15 94 19.80 10 21.70 50 39.25 51 30.60 50 38.90 51 16.95 50 35.30 51 28.30

1.25840 1.45687n 1.40398 1.37383n 1.24650 1.32056n 1.20466 1.11528n 1.26174 1.34104n
1.35970 1.55817n 1.50528 1.47513n 1.37198 1.44604n 1.33014 1.24076n 1.38722 1.46652n
+23.00 −36.15 +32.01 −29.87 +23.55 −27.93 +21.39 −17.41 +24.39 −29.28
9 46.40 9 47.00 9 51.81 9 51.83 51 2.80 50 2.67 51 0.29 50 59.54 50 59.69 50 59.02

46 58.05 58.65 47 3.46 3.48 28 14.45 14.32 28 11.94 28 11.19 28 11.34 10.67
58.35 3.47 14.38 11.00
7 13 8 15 6 51 7 43
1.73130 1.73160 1.73130 1.73140
+1020 +1642 −558 +608 +1898 +1663
1.74150 1.74170 1.74772 1.74802 1.72572 1.72582 1.73738 1.73748 1.75028 1.74793 1.74803
−55.14 −55.17 −55.94 −55.98 −53.18 −53.19 −54.62 −54.64 −56.27 −55.97 −55.98

+.07 −.26 +.07 +.03 −.28 +.03 +.07 −.15 +.07 +.07 −.08 +.07 −.08 +.07 −.07 +.07
−.48 −.04 −.52 −.05 −.10 −.21 −.08 −.08 −.04 −.09
−55.62 −55.21 −56.46 −56.03 −53.28 −53.40 −54.70 −56.35 −56.01 −56.07
53.67 53.86 59.92 59.57 29 7.73 7.72 6.64 7.54 7.35 6.74
44.6 45.9 45 23.4 23.5 23.7 23.8
9.1 9.3 14.0 13.6 −16 15.7 15.7 16.9 16.2 16.5 17.1
9.2 13.8 −16 15.7 16.9 16.2 16.8
+2 10.99 9.04 58.93 + 14.79 12.81 0.11 −16 14.52 16.50 41.23 − 14.70 16.69 − 14.69 16.70 − 15.15 17.17 41.15
− 1.88 +4.14 59.12 − 1.98 +5.44 59.70 − 1.98 41.22 − 1.99 − 2.01 − 2.02 40.51
− 14.30 − 13.00 17.00 − 16.90 − 16.70 − 16.60
54.74 59.02 + 59.71 59.90 −16 33.50 45 41.22 − 33.59 40.23 − 33.40 40.94 − 33.77 40.83
40.58 41.46

−28 +		−.22 +		−.23	−12 +
Nov 6		Nov 7		Nov 9	
−.310		−.250		−.352	
29 47.4	29 41.4	29 47.9	29 42.9	29 48.7	29 43.7
49.6	43.5	49.9	44.6	50.6	45.5
51.6	45.3	52.0	46.3	52.8	47.2
55.7		56.1		56.9	
57.7		58.2		58.9	
59.9		30 0.2		1.1	
2.0	30 19.9	2.2	30 18.1	3.1	30 21.0
4.1	22.2	4.4	19.7	5.1	22.8
8.1	24.2	8.4	21.0	9.1	25.1
10.2		10.5		11.2	
12.3		12.7		13.2	
3586		3025		3107	
300		300		300	
6586	29 43.40	2 5	29 44.60	107	29 45.47
29 59.873	30 22.10	30 0.227	30 19.60	30 0.973	30 22.97
59.858	1m −0.96	0.212	1m −1.37	0.958	1m −1.91
28 58.80	+.00	28 58.79	+.00	28 58.77	+.00
+61.06		+61.42		+62.19	−12
	−289		−288		−286
− 60.99	28 56.01	− 61.40	57.96	− 62.05	56.07
+ .00		+ .00		+ .00	
− 2.89		− 2.88		− 2.86	
− 63.88		− 64.28		− 64.91	
29 59.86	29 6.40	30 0.21	8.60	30 0.96	8.19
	−16 13.34		−16 14.67		−16 13.86
28 55.98	−1.90	28 55.93	−1.90	28 56.05	−1.90
	−16.50		−16.50		−16.40
	45 40.14		45 41.67		45 40.35
+ 16.47	− 22.23	+ 15.63	− 19.37	+ 15.50	− 22.00
50		50		50	
−3.00		−3.01		−3.02	
0 33.7	1 25.9	0 36.8	1 24.3	0 35.7	1 26.4
39.0	30.5	43.6	30.5	42.0	32.5
12.7	56.4	80.4	54.8	77.7	58.9
50 36.35	51 28.20	50 40.20	51 27.40	50 38.85	51 29.45
1.21669	1.34694n	1.19396	1.28713	n1.19033	1.34242n
1.34217	1.47242n	1.31944	1.41261n	1.31581	1.46790n
+21.99	−29.68	+20.87	−25.86	+20.70	−29.37
50 58.34	50 58.52	51 1.07	51 1.54	50 59.55	51 0.08
28 9.99	10.17	28 12.72	13.19	28 11.20	28 11.73
10.08		12.95		11.46	
				6 51	7 41
				1.73130	1.73140
+1884		+1357		+2195	
1.75014	1.75024	1.74487	1.74497	1.75325	1.75335
−56.25	−56.26	−55.57	−55.59	−56.66	−56.67
+.01	−.06 +.02	+.01	−.07 +.02	+.01	−.06 +.02
−.04	−.09	−.04	−.09	−.04	−.09
−56.29	−56.35	−55.61	−55.68	−56.70	−56.76
29 6.28	6.52	8.33	8.87	7.90	8.49
23.9		23.9		24.0	
−16 17.6	17.4	15.6	15.0	16.1	15.5
−16 17.5		15.3		15.8	
−16 15.48	17.52 40.30	− 14.87	16.91 41.74	− 13.91	15.96 40.26
− 20.4	40.54	− 20.4	42.28	− 20.5	40.85
− 16.50		− 16.50		− 16.40	
−16 34.02	40.42	− 33.41	42.01	− 32.36	40.55

chk

226 β Cephei
h m sec
22 30 4.
+75° 35′

Z = −33° 12′
sin z = −.55

	1874	1875
α	30.3 326	30 427
δ	34 37.38	34 55.98
dα/dt	+1.083	+1.075
dδ/dt	+18.52	+18.49

l sin δ 9.98610

l cos δ	9.39615	9.39615
l c	10 460	12552
l c′	9.50075	9.52167
l c″	9.49749	

corr α =
corr δ =
l tang δ = +3.89 4.02
I = 8.~~30~~ 27 s
k = −.061

	1874 Oct. 6 (−17 −07)		Oct. 10 (−21 −07)		Oct. 11 (−29 −07)		Oct. 12 (−23 −07)		Oct. 15 (−21)		Oct. 19 (−22)	
	−.275		~~−.280~~ −.283		~~−.364~~ −.367		−.302		−.285		−.245	
22.	30 3.3	30 34.5	30 4.1	30 40.5	30 4.7	29 53.6	30 4.8	30 27.3	30 3.2	29 57.7	30 1.4	
	7.5		8.3	50.1	8.8	1.0	8.9	35.2	7.2		5.5	
	11.6		12.4	57.3	13.0	6.5	12.8	41.7	11.2		9.5	
	15.6		16.4		17.2		17.0		15.6		13.8	
	20.1		20.4		21.6		21.1		19.4		17.9	
	23.5		24.9		25.5		25.2		23.8		22.2	
	28.9	31 2.0	29.0	31 15.7	29.4	30 41.9	29.1	30 55.0	28.4	30 45.3	26.7	
	32.7	9.9	33.1	23.8	34.0		33.6	4.3	32.3	50.4	30.9	
	36.6	16.1	37.4	30.8	38.0		37.7	1.06	36.7	58.0	34.7	
	1800	30 34.80	1860	30 49.30	1922	~~29~~ 30 0.37	1902	30 34.73	1778	29 57.70	1626	
30	20000	31 9.33	30 20667	31 23.43	30 21.356	30 41.90	30 21.133	31 3.30	30 19.756	30 51.23	30 18.067	
	19939		20.606		21.295		21.072		19.695		18.006	
	− 13.30		− 13.97		− 14.52		− 14.68		− ~~12.73~~ −13.76		− 12.15	
	− 1.07		− 1.10		− 1.43		− 1.17		− .91		− .95	
	− 2.59	−1.515 −28	− 2.38	−1.305 −28	− 2.32	−1.255 −28	− 2.26	−1.185 −28	− 2.10	−1.025	−1.60	−0.775
	− 16.96	−66	− 17.48	−82	− 18.27	−113	− 18.11	−89	− 16.77	−82	− 14.95	−86
	19.94	−13.27	20.61	−13.87	21.29	−14.42	21.07	−14.61	19.70	−13.76	18.01	−12.11
30	2.98	−259	3.16	−238	3.62	−232	2.96	−226	2.93	−210	3.06	−185
30	4.055	30 3.14	4.235	3.26	4.095	3.15	4.035	3.03	4.005	3.02	4.135	3.19
		32 52.98		51.29		50.01		49.70		50.26		
		+2 5.48		+2 5.68		+2 8.76		+2 9.40		+2 8.94		+2 8.56
		+1.40		+1.30		+1.40		+1.30		+1.40		+1.30
		−20.80		−22.00		−22.80		−22.60		−23.50		
	+75	34 39.06		34 36.27		34 37.87		34 37.80		34 37.10		
	− 14.80	−49.33	− 28.63	− 62.76	+ 20.99	− 20.54	−13.60	−42.17	s +22.06	−31.47		
50		50		50		50		50		50		
	−243		−243	51	−244		−245		−246		−249	
	0 34.5	0 46.6	0 41.9	0 46.7	0 25.1	0 38.6	0 36.9	0 46.0	0 26.8	0 43.7	0 34.1	0 48.5
	40.7	53.1	44.8	53.9	33.4	46.5	45.8	54.1	31.9	49.1	39.5	52.1
	75.2	99.7	86.7	100.6	58.5	85.1	82.7	100.1	58.7	92.8	73.6	100.6
	50 0 37.60	50 0 49.85	50 0 43.35	50 0 52.30	50 0 29.25	50 0 42.55	50 0 41.35	50 0 50.05	50 0 29.35	50 0 46.40	50 0 36.80	50 0 50.30
	1.17026n	1.69311n	1.45682n	1.79768n	1.32201	1.31260n	1.13854n	1.62500n	1.34361	1.49790n		
	0.67101n	1.19386n	0.95757n	1.29843n	0.82276	0.81335n	0.63929n	1.12575n	0.84436	0.99865n		
	−4.69	−15.63	−9.07	−19.88	+6.65	−6.51	−4.36	−13.36	+6.99	−9.97		
	50 32.91	50 34.22	50 34.28	50 ~~30.42~~ 32.42	50 35.90	50 36.04	50 36.99	50 36.69	50 36.34	50 36.43		
	32 15.44	14.13	32 14.07	15.43	32 12.43	12.31	32 11.36	11.66	32 12.01	11.92		
	14.78		14.75		12.38		11.51		11.96			
−33	11 29	11 17							11 38	11 21		
	1.57580n	1.57580n										
	+852		−896		+52		+789		+867			
	1.58432	1.58432	1.56684	1.56684	1.57632	1.57632	1.58369	1.58369	1.58447	1.58447		
	+38.40	+38.40	+36.88	+36.88	+37.70	+37.70	+38.34	+38.34	+38.41	+38.41		
	−.03	−.20 −.33	−.11	−.33 −.51	−.06	−.07 −.05	−.02	−.15 −.24	−.07	−.11 −.13		
	−.02	−.02	−.02	−.03	−.01	−.02	−.02	−.02	−.01	−.02	−.02	−.02
	+38.35	+38.05	+36.75	+36.84	+37.63	+37.63	+38.30	+38.08	+38.33	+38.26		
+75	32 53.79	52.18	32 50.82	51.77	32 50.08	49.94	32 49.66	49.74	32 50.34	50.18		
+2	5.18	6.51	+5.65	6.98	+8.60	9.94	+9.33	10.67	+8.78	10.13	+8.59	
+	1.33	−2.31	+1.33	−3.51	+1.34	−3.81	+1.34	−4.11	+1.35	−5.01		
−	20.80		−22.00		−22.30		−22.60		−23.50			
+1	45.71	34 39.50 +	44.98	35.80 +	47.64	37.72 +	48.07	37.73 +	46.63	36.97		
		37.89		36.75		37.58		37.81		36.81		
		34 38.69		36.27		37.65		37.77		36.89		
		57.19		54.77		56.15		56.27		55.39		

1874

	m	s		°	'	
Oct-7	29	6580		34	58.5	
12		65.53	-.027		60.0	+15
17		65.24	29		61.4	1.4
22		64.92	32		62.7	1.3
27		64.58	34		63.9	1.2
Nov. 1		64.22	36		65.0	1.1
6		63.85	37		66.0	1.0
11		63.47	38		66.8	.8
16		63.07	40		67.5	.7
21		62.66	41		68.0	.5
26		62.25	41		68.5	.5
Dec. 1		61.84	41		68.7	.2
6		61.42	42		68.8	.1

1874

.77	4.06	57.2
.78	4.24	57.8
.78	4.10	56.2
.78	4.04	56.3
.79	4.01	55.4
.80	4.14	
.80	4.07	57.7
.81	3.90	57.0
.82	3.91	57.2
.86	3.87	56.3
.87	3.57	56.7
.88	4.35	56.3
.94	3.7~~5~~6	57.2

1875

Oct-26	29	65.67		34°	83.8	
31		65.32	-.35		85.0	+12
Nov. 5		64.95	37		86.0	1.0
10		64.57	38		86.9	.9
15		64.18	39		87.6	.7

1874 Oct. 20 -.17   Oct. 21 -.24   Oct. 27 -.24 -.08   .82 4.001 -2 3.999 (13) Nov. 4 56.53 -1 56.52 (12) -.16   Nov. 11 -.26   Nov 12 -.21

~~-.170~~ -.168   -.230   -.327   -.173 Ch. J.   -.264   -.245

30 0.3 30 21.8 30 — 30 33.7 30 — 30 23.0   29 42.4 29 47.4 29 — 30 22.6
4.5 — — 47.0 — 29.3
8.6 — — 50.8 — 34.1
13.0 — — 54.8 —
17.0 16.07 20.2 20.20 11.86 16.0 59.0 57.80 57.8
21.0 15.94 24.2 20.06 .72 20.0 31 0.3 3.1 7.96 2.1
25.4 30 32.1 .91 28.3 20.02 .88 24.3 7.7 7.2 30 20.6 8.02 6.3 30 45.6
29.4 39.1 .68 32.5 19.78 .94 28.3 15.0 11.3 7.58 10.0 52.1
33.7 31 7.1 ~~36.0~~ 19.44 15.4 58.7

1529   2910 240 531

30 21.80 30 33.70 30 23.00   0.29 47.40 30 28.67
30 16.989 30 59.43 30 ~~19~~ 15 .900 30 11.800 31 7.67   29 59.000 0.30 20.60 29 57.840 30 52.13
16.928 ~~18~~ 15 .839 11.739   58.939 57.779

- 11.50 -11.47 - 10.40 -10.36 - 6.32 -6.23   + 5.09 +5.14 + 5.48 +5.82
- .65 -.66 - .89 -.93 - 1.27 -.93 -.32   - 1.04 -1.01 - .95 -.82
-1.79 -0.715 -1.73 -0.655 -1.32 -0.255   -0.20 +0.875 -0.12 +0.955
-13.94 -1.79 - 13.02 -1.73 - 8.91 -1.32   + 2.55 -0.20 + 3.71 -0.12
16.93 30 3.01 15.84 2.82 11.74 2.94   58.96 30 2.87 57.78 2.66
2.99 2.82 2.83   2.99 2.49
4.065 3.895 3.905   3.865 3.565

32 53.78   52.91   54.32   55.03   55.00
+3 8.81 +2 9.79 +2 9.39   +2 10.77 +2 11.12
+1.40 +1.40 +1.40   +1.60 +1.50
-24.80 -25.00 -26.50   -29.40 -29.50
34 39.19 34 38.50 34 38.61   34 38.00 34 38.12

- 4.81 - 42.44 - 13.80 (7) - 11.20 - 55.87   + 11.60 - 21.60 - 30.83 - 54.29
50 50 50 50   50 50
-2.60 -2.50 -2.53 -2.63   -2.71 -2.72
0 31.3 0 43.7 0 36.8 0 31.4 0 44.4 0 38.3   0 23.3 0 34.0 0 40.4 0 47.5
36.1 47.6 43.1 38.9 51.9 42.5   32.9 42.1 45.8 51.9
674 913 799 703 963 808   562 761 862 994
50 33.70 50 45.65 50 39.95 50 35.15 50 48.15 50 40.40   50 28.10 50 38.05 50 43.10 50 49.70

0.68215n 1.62778n 1.13988n 1.25042n 1.04922n 1.74718n   1.06446 1.58445 n1.48897n 1.73472n
0.18290n 1.12853n 0.64063n 0.75117n 0.54997n 1.24793n   0.56195 0.83194 n0.98646n 1.23221n
- 1.52 - 13.44 - 4.37 - 5.64 - 3.55 - 17.70   + 3.65 - 6.79 - 9.69 - 17.07
50 32.18 50 32.21 50 ~~35.58~~ 34.31 50 31.60 50 30.45   50 31.75 50 31.26 50 33.41 50 32.63

32 16.17 16.14 32 ~~13.77~~ 14.04 32 16.75 17.90   32 16.60 17.09 32 14.94 15.72
16.16 17.32   16.84 15.83
11 33 11 21
1.57580n 1.57580m
+130 +1423 -484   +676 +2579
1.57710 1.57710 1.59063 1.57096 1.57096   1.58256 1.58256 1.60159 1.60159
+37.77 +37.77 +38.91 +37.24 +37.24   +38.24 +38.24 +39.95 +39.95

- 1 -.14 -.24 -.02 -.04 -.02 -.24 43   -.02 -.05 -.06 -.12 -.28 -.40
-.02 -.02 -.02 -.02 -.02   -.01 -.02 -.02 -.02
+37.74 +37.51 +38.87 +37.20 +36.69   +38.21 +38.16 +39.81 +39.53
32 53.91 53.65 32 ~~51.64~~ 52.91 32 53.95 54.69   32 54.81 55.25 32 54.75 55.25
+2 8.81 10.18 + 9.19 10.56 + 9.42 10.83 +9.19   + 10.61 12.12 +11.18 12.70
+ 1.37 -6.31 + 1.37 -6.51 + 1.41 -8.01   + 1.51 -10.91 + 1.52 -11.01
- 24.80 - 25.00 - 26.50   - 29.40 - 29.50
+1 45.38 34 39.29 + 45.56 37.20 + 44.33 38.28   + 42.72 37.53 + 43.20 37.95
39.03 38.47 39.02   37.97 38.45

34 39.16 38.47 ~~37.20~~ 38.65   37.75 38.20
57.66 56.97 ~~55.70~~ 57.15   56.25 56.70

12
10
.9
.7

1875

82	4.25	56.4
84	3.96	56.4
84	3.84	55.4
85	3.78	55.3
86	3.82	57.0

.84 3.930 (5) 56.10
+ 7 + 3
3.937 56.13

1874 1875

-13 Nov. 18 -05 Dec. 8 -43 Oct-25 -21 Nov 2 -08 -257 Nov 4 -28 Nov 6:

-.154 -.055 -.463 -.250 -.260 -310

29 — 30 14.7 29 — 30 17.5 30 455 31 10.8 31 — 31 20.0 30 491 30 557 31 — 31 8.7
— 21.2 — 496 17.1 — 532 — 16.4
— 29.5 — 533 23.1 — 57.5 — 23.9
— — 577 — 31 1.8 —
— — 31 2.3 5.4 5.10 6.2 6.40 6.4
53.56 57.7 51.56 55.7 6.0 9.3 .10 9.9 .56 10.7
.62 1.9 30 45.2 2.12 0.4 31 0.2 10.3 31 36.2 13.6 .32 14.3 31 26.0 .52 14.8 31 41.6
38 5.8 13.0 1.58 4.4 5.5 13.9 43.5 17.5 .08 18.6 33.8 .38 18.8 45.9
.74 10.3 1.6 2.14 8.7 12.8 18.4 50.3 21.9 .34 22.8 39.5 .94 23.5 54.7

2570 2334
240 0 180
30 21.80 30 17.50 170 31 17.08 31 20.00 53.4 30 55.70 31 16.33
29 53.575 30 53.93 29 51.950 31 6.17 31 1.889 31 43.33 31 5.200 31 59.33 31 33.10 31 6.560 31 47.40
53.514 51.889 1.828 5.139 5.872 6.499

+ 9.71 +9.73 + 9.01 +9.05 − 54.38 −54.36 − 59.39 −59.29 − 60.34 −1 −0.29 − 60.99 −1 −0.96
− .60 −.51 − .21 −.19 − 1.80 −1.67 − .97 −.82 − 1.01 −.97 − 1.20 −1.09
+ .65 + 1.725 + 2.00 +3.075 − 1.40 − 0.82 −.32 − 0.68 − 0.53
+ 9.76 +.65 + 10.80 +2.00 − 57.58 −1.40 − 62.18 −0.82 − 63.03 −0.68 63.72 −0.53
53.51 30 3.378 51.89 2.75 1.83 4.40 5.14 3.89 5.87 3.93 6.50 3.92
~~2.97~~ 2.69 4.25 3.96 3.84 3.78
~~4.045~~ 3.27 3.765
4.345 2.899

5567 32 5367 57 3690 3883 3868 3929
+2 10.99 +2 1491 −16 1445 −16 1458 −16 1500 −16 1534
+ 1.60 + 1.70 + 1.50 + 1.40 + 1.50 + 1.40
−3030 −3140 −2760 −2940 −2980 −3020
34 37.96 34 38.88 34 56.35 34 56.25 34 55.38 34 ~~54.75~~ 55.15
55.15

− 28.23 − 60.36 − 25.55 − 74.22 − 15.11 − 41.44 − 14.80 + 10.23 − 27.17 − 9.77 − 40.84
50 50 30 30 30 30

−2.87 −2.92 −2.92 −2.97 −2.98 −3.00
0 35.3 0 46.1 0 38.2 0 52.6 1 44.5 1 53.5 1 49.8 1 42.1 1 54.1 1 47.8 1 57.2
43.9 53.8 45.1 59.9 2.0 10.5 67.5 49.1 0.5 65.0 5.1
79.2 99.9 83.3 112.5 106.5 124.0 107.3 112 114.6 102.8 122.3
50 39.60 50 49.95 50 41.65 50 56.25 31 53.25 32 2.00 31 53.65 31 45.60 31 57.30 31 51.40 32 1.15

1.45071n 1.78075n 1.40739n 1.87052n 1.17926n 1.61742n 1.17026n 1.00988 1.43409n 0.98989n 1.61109n
0.94820n 1.27824n 0.90488n 1.36801n 0.70093n 1.13909n 0.69193n 0.53155 0.95576n 0.51156n 1.13276n
−8.88 −18.98 −8.03 −23.33 −5.02 −13.77 −4.92 +3.40 −9.03 −3.25 −13.58
50 30.72 50 30.97 50 33.62 50 32.92 31 48.23 31 48.23 31 48.73 31 49.00 31 48.27 31 48.75 31 47.57

32 17.63 17.38 32 14.73 15.43 51 0.12 0.12 50 59.62 50 59.35 0.08 59.60 0.78
17.50 15.08 0.12 59.76 0.19

11 25 11 11 11 55 11 46
1.57580n 1.57580n 1.57590n 1.57590n
+1025 +1642 −553 +1900 +1666 +1887
1.58605 1.58605 1.59222 1.59222 1.57037 1.57037 1.59490 1.59490 1.59256 1.59256 1.59477 1.59477
+38.55 +38.55 +39.11 +39.11 +37.18 +37.18 +39.35 +39.35 +39.13 +39.13 +39.33 +39.33

−.11 −.38 −.48 −.08 −.51 −.96 −.03 −.40 −.22 −.03 −.14 −.01 −.16 −.10 −.1 −.22 −.21
−.08 −.09 −.08 −.11 −.27 −.28 −.11 −.11 −.11 −.11 −.12
+38.36 +37.98 +38.95 +38.24 +36.88 +36.68 +39.21 +39.01 +38.92 +39.21 +39.00
32 55.99 55.36 32 53.68 53.67 51 37.00 36.78 51 38.83 51 38.36 39.00 51 38.81 39.78
+2 10.92 12.47 +14.79 16.42 −16 14.52 12.89 −14.69 13.03 −15.15 13.49 −15.48 13.80
+ 1.55 −11.81 + 1.63 −12.91 + 1.63 + 1.66 + 1.66 + 1.68
− 30.30 − 31.40 − 27.60 − 29.40 − 29.80 − 30.20
+1 42.17 38.16 +1 45.02 38.70 −16 40.49 34 56.51 − 42.43 − 43.29 55.07 − 44.00 54.81
37.53 38.69 56.31 55.71 55.78

37.84 38.70 34 56.41 56.40 55.39 55.30
56.34 57.20

-.23 -.12
Nov. 9.
-352
31 — 31 35.4
43.3
—
50.8
—
—
—
8.36 12.5
8.82 16.1 31 59.4
7.48 19.9 9.4
7.54 24.1 16.3

31 43.27
31 8.050 32 8.37
7.989

— 6.205 -1 -1.91
— 1.37 -.89
— 0.30 -.48
— 6.472 -0.30
7.99 30 4.41
49.27

3.820 51 39.92
-16 13.86
+1.50
-30.70
34 56.86

— 35.22 — 60.32
30
-3.02
1 57.1 2 42
42 .84
121.3 12.6
32 0.65 32 6.30

1.54679n 1.78046n
1.06846n 1.30213n
-11.71 -20.05
31 48.94 31 46.25

50 59.41 51 2.10
51 0.75
11 47 11 42
1.57590n 1.57580n
+2198
1.59788 1.59778
+39.62 +39.61

-.17 -.45 -.48
-.12 -.13
+39.33 +39.00
51 38.74 41.10
-16 13.91 12.22
+ 1.69
— 30.70
-16 42.92 55.82
58.18

34 57.00

54

31 Cephei

h m sec
22 32 41
+73° 0'

Z = − 30° 37'
$\log \sin z$ −.51

α 39.218s
δ +59 20.99
dα/dt +1.482
dδ/dt +18.611

l sin δ 9.98060
l cos δ 9.46594
l C 10460
l C' 9.57054
l C'' 9.56728

1874		32			59		
Oct.	7		41.78		42.3		+ 1.5
	12		41.56	−.22	43.8		1.4
	17		41.32	.24	45.2		1.3
	22		41.06	26	46.5		1.2
	27		40.79	.27	47.7		1.1
Nov.	1		40.50	.29	48.8		.9
	6		40.19	.31	49.7		.8
	11		39.88	.31	50.5		.7
	16		39.55	.33	51.2		.6
	21		39.21	.34	51.8		.4
	26		38.87	.34	52.2		.3
Dec.	1		38.53	.34	52.5		.1
	6		38.18	.35	52.6		

corr α = +.009s
corr δ = +.92"

tang δ = +3.27 3.63
I = +.05s
K = −.052s

1874

Oct. 6 −17 −.07 | Oct. 10 −21 −.07 | Oct. 11 −29 −.07 | Oct. 12 −23 −.07 | Oct. 15 −21 | Oct. 19 −22

−.245 | ~~.280~~ −.283 | ~~.364~~ −.367 | −.302 | −.235 | −.245

32 42.3 32 10.3 | 32 42.6 32 23.1 | 32 43.2 31 33.6 | 32 43.2 32 14.2 | 32 42.0 32 18.7 | 32 40.2 32 21.0
46.0 15.5 | 46.0 28.1 | 46.9 | 46.6 21.0 | 45.4 17.4 | 43.7 24.5
48.9 21.0 | 49.6 34.0 | 50.5 | 50.6 26.4 | 48.7 22.9 | 47.1 30.0
53.0 | 53.2 | 54.0 | 53.8 | 52.3 | 50.6
56.1 | 56.8 | 57.5 | 57.6 | 56.0 | 54.2
59.8 | 59.9 | 0.9 | 0.6 | 59.4 | 57.8
31 33 4.8 | 3.6 33 24.5 | 4.3 33 24.6 | 4.2 32 52.0 | 3.3 33 15.7 | 1.1 33 7.4
6.7 12.7 | 7.2 32.5 | 7.9 29.0 | 8.0 57.4 | 6.4 | 4.8 11.0
10.4 19.6 | 10.8 39.1 | 11.5 36.7 | 11.6 6.3 | 10.2 | 8.5 14.2

3263 | 3294 | 2767 | 2762 | 3237 | 3080
180 | 180 | 240 | 240 | 180 | 180
5063 32 15.70 | 5094 32 28.40 | 5167 31 33.60 | 5162 32 20.53 | 5037 32 17.00 | 4880 32 26.17
32 56.256 33 ~~12.03~~ 12.37 | 32 56.600 33 32.03 | 32 57.411 33 30.10 | 32 57.356 32 59.23 | 32 55.967 33 15.70 | 32 54.222 33 10.87
56204 | 56548 | 57359 | 57304 | 55915 | 54170
32 41.831 | 32 41.684 | 32 41.6459 | 32 41.575 | 32 41.481 | 32 41.230
+14379 −1327 | +148991 −1387 | +15757 −1442 | +15735 −1461 | +14850 −1376 | +12947 −1211
+14.38 −.56 | +14.90 −.69 | +15.76 −.95 | +15.74 −.75 | +14.49 −.69 | +12.96 −.72
−.25 | −.25 | −.25 | −25
− 13.30 −2.59 | − 13.97 −2.42 | − 14.52 −2.37 | − 14.68 −2.33 | − 13.76 −2.19 | − 12.15 −1.98
− .90 32 39.53 | − .92 38.32 | − 1.20 39.37 | − .99 39.36 | − .77 39.28 | − .80 39.36
− 2.579 −1.108 | − 2.42 −0.9389 | − 2.37 −0.888 | − 2.323 −0.848 | − 2.19 −0.708 | − 1.98 −0.498
− 16.79 | − 17.31 | − 18.09 | − 18.00 | − 16.72 | − 14.93
32 56.20 | 32 56.55 | 32 57.36 | 32 57.30 | 32 55.91 | 32 54.17

57 3605 | 3787 | 3422 | 3833 | 3493 | 3596
32 39.41 +2 548 | 32 39.24 +2 568 | 32 39.27 +2 876 | 32 39.30 +2 940 | 32 39.19 +2 894 | 32 39.24 +2 856
32 40.892 +1.30 | 40.722 +1.20 | 40.752 +1.30 | 40.782 +1.20 | 40.672 +1.30 | 40.722 +1.20
−2110 | −2230 | −2260 | −2290 | −2370 | −2480
+7.82 59 21.73 | 59 22.45 | 59 21.68 | 59 21.03 | 59 21.53 47 | 59 20.92

s
+ 40.56 −16.11 ~~−15.77~~ | + 28.20 −35.43 | + 23.81 −32.69 | + 36.83 − 1.87 | + 38.97 −19.73 | + 29.05 −16.65
25 | 25 | 25 | 25 | 25 | 25

−243 | −243 | −244 | −245 | −246 | −249
0 28.6 0 49.9 | 0 29.2 0 53.0 | 0 13.1 0 56.7 | 0 31.5 0 46.0 | 0 31.4 0 53.1 | 0 34.9 0 51.2
35.1 55.7 | 37.4 0.4 | 19.9 4.1 | 40.7 54.1 | 35.9 57.3 | 38.8 55.0
637 1056 | 666 1134 | 330 1208 | 722 1001 | 673 1104 | 737 1062
0' 25 31.85 25 0 52.80 | 25 0 33.30 25 0 56.70 | 25 0 16.50 26 + 0.40 | 25 0 36.10 25 0 50.05 | 25 0 33.65 25 0 55.20 | 25 0 36.85 25 0 53.10

1.60810 1.20710n | 1.45025 1.54937n | 1.92330 1.51441n | 1.56620 0.27184n | 1.59073 1.29513n | 1.46316 1.22141n
1.17864 0.77764n | 1.02079 1.11991n | 1.49384 1.08495n | 1.13674 9.84238n | 1.16127 0.86567n | 1.03369 0.79195n
+ 15.09 − 5.99 | +10.49 −13.18 | +30.47 −12.16 | +13.70 − 0.70 | +14.50 − 7.35 | +10.81 − 6.19
25 46.94 25 46.81 | 25 43.79 25 43.52 | 25 46.97 25 48.24 | 25 49.80 25 49.35 | 25 48.15 25 47.85 | 25 47.66 25 46.91

57 1.41 1.54 | 57 4.56 4.83 | 57 1.38 0.11 | 56 58.55 59.00 | 57 0.20 0.50 | 57 0.69 1.44
1.47 | 4.69 | 0.74 | 58.77 | 0.35 | 1.06
−30 36 35 36 14 | | | | | 36 30 36 14
1.53220n 1.53210n | | | | | 1.53220n 1.53210n
+859 | −893 | +58 | +798 | +871 | +1201
1.54079 1.54069 | 1.52327 1.52317 | 1.53278 1.53268 | 1.54018 1.54008 | 1.54091 1.54081 | 1.54421 1.54411
+34.74 +34.73 | +33.36 +33.35 | +34.10 +34.09 | +34.69 +34.68 | +34.75 +34.74 | +35.01 +35.00

−.24 −.16 −.04 | −.12 −.18 −.19 | −1.03 −.62 −.16 | −.20 −.125 0 | −.22 −.16 −.05 | −.13 −.11 −.04
−.01 −.03 | −.02 −.03 | −.01 −.03 | −.02 −.03 | −.02 −.03 | −.02 −.03
+34.49 +34.66 | +33.22 +33.13 | +33.06 +33.90 | +34.47 +34.65 | +34.51 +34.66 | +34.86 +34.93
57 35.90 36.20 | 37.78 37.96 | 34.44 34.00 | 34.02 33.65 | 34.71 35.16 | 35.53 36.37
59 42.1 42.7 | 43.3 | 43.6 | 43.9 | 44.7 | 45.8
+2 6.2 5.9 | 5.5 5.3 | 9.2 9.6 | 10.9 10.3 | 10.0 9.5 | 10.3 9.4
+2 6.0 | 5.4 | 9.4 | 10.6 | 9.7 | 9.8
+2 6.9 59 21.23 | 6.3 22.36 | 10.3 21.68 | 11.5 20.69 | 10.6 21.04 | 10.7 20.60
+2 5.18 6.41 21.51 | + 5.65 6.88 22.54 | + 8.60 9.84 21.24 | + 9.33 10.57 21.32 | + 8.78 10.03 21.49 | + 8.59 9.85 21.42
+ 1.23 −2.49 | + 1.23 −3.69 | + 1.24 −3.99 | + 1.24 −4.29 | + 1.25 −5.09 | + 1.26 −6.19
− 21.10 59 21.36 | − 22.30 22.45 | − 22.60 21.46 | − 22.90 21.00 | − 23.70 21.27 | − 24.80 21.01
+1 45.21 59 39.97 | + 44.58 41.06 | + 47.24 40.07 | + 47.67 39.61 | + 46.33 39.88 | + 45.05 39.62

1874

	x	δ
.77	40.89	40.0
.78	40.72	41.1
78	40.75	40.1
.78	40.78	39.6
.79	40.67	39.9
.80	40.72	39.6
80	40.75	40.7
.81	40.80	40.9
.82	40.74	40.9
.84	40.76	39.8
.86	40.83	40.0
.86	40.63	40.0
.87	40.92	40.7
.88	40.74	39.9
.94	40.49	40.3
.83	40~~.79~~ .746 (15)	40.23

1874

	Oct. 20		Oct. 21		Oct. 27		Nov. 4		Nov. 8		Nov. 11	
	-17		-24		-24	-08	-16		-15		-26	
	~~.140~~ -.168		-.230		-.324		-.173		+ 1s ~~-.152~~ -.146		-.264	
22	32 39.4	32 14.0	32 38.1	32 3.7	32 34.3	32 5.0	32 29.0	32 10.5	32 25.3	31 59.0	32 21.6	31 57.6
	43.0	20.5	42.4	14.2	37.6	10.3	32.1	15.0	28.9	5.3	25.0	58.8
	46.3	26.1	45.1	19.2	41.2	15.1	35.8	21.1	32.3	10.7	28.7	3.7
	49.9		48.7		44.8		39.4		35.8		32.4	
	53.3		52.4		48.3		42.7		39.3		35.6	
	56.7		53.8		51.7		46.4		42.8		39.1	32
	0.0	32 58.8	59.5	32 40.1	55.4	32 35.0	50.0	33 3.5	46.6		42.6	40.4
	3.7		8.0	46.4	58.7		53.4	14.3	50.0		46.0	47.1
	7.4		6.6	53.4	2.4		57.1	19.0	53.4		49.6	54.0
	2997		3516		3744		3859		3544		3206	
	180		120		60							58.03
	4797	32 20.20	4716	32 13.03	4344	32 10.13		32 15.53		3x² 5.00		31 ~~57.97~~
	32 53.300	32 58.80	32 52.400	32 46.63	32 48.267	32 35.00	32 42.878	33 12.93	32 40.378		32 35.622	32 47.17
	53248		52348		48.215		42826		40326		35570	
	32 41.175		32 41.120		32 40.8078		32 40.330		32 40.085		32 39.~~90~~86	
	+12.0810	-11.47	+11.235	-10.36	+7.443	-6.23	+2.503	-1.89	+0.248	+0.38	~~43.33~~29	+5.14
	+12.09	-.56	+11.24	-.78	+7.42	-.78	+2.52	-.52	+0.27	-.49	-4.30	-.85
						-.29						
	- 11.50	-1.93	- 10.40	-1.88	- 6.32	-1.56	- 1.91	-1.08	+ 0.33	-0.83	+ 5.09	-0.64
	- .55	32 39.29	- .75	39.33	- 1.07	32 39.346	- .56	39.34	- .48	39.39	- .87	39.22
	- 1.93	-0.448	- 1.88	-0.398	- 1.56	-0.078	- 1.08	+0.402	- 0.83	+0.652	- 0.64	+0.842
	- 13.98		- 13.03		- 8.95		- 3.55		- 0.98		+ 3.58	
	32 53.25		32 52.35		32 48.21		32 42.83		32 40.33		32 35.57	
		57 3707		3716		3839		3905		3806		3889
	32 39.27	+2 881	32 39.32	+2 919	32 39.26	+2 939	32 39.28	+2 940	32 39.35	+2 1132	32 39.15	+2 1077
	32 40.752	+1.30	40.802	+1.20	40.742	+1.40	40.762	+1.30	40.832	+1.40	40.632	+1.40
		-2510		-2530		-2680		-2840		-2910		-2950
	+72°	59 22.08		59 22.25		59 22.38		59 21.35		59 21.68		59 21.56
	s										+37.59	
	+33.10	-5.50	+39.37	+8.77	+38.14	+13.27	+27.35	-30.05	+35.38		+~~37.65~~	-11.55
25			25		25		25		25		25	
	-2.50		-2.50		-2.53		-2.63		-2.68		-2.71	
	0 30.9	0 45.1	0 28.1	0 41.0	0 34.6		0 31.8	0 53.1	0 27.8	0 27.8	0 25.7	0 44.9
	35.9	48.9	34.9	47.4	42.7		36.6	57.0	35.6	35.1	33.9	51.9
	668	940	630	884	773		684	1101	634	629	596	968
	0 25 33.40	25 0 47.00	25 0 31.50	25 0 44.20	25 0 38.65	38.65	25 0 34.20	25 0 55.05	25 0 31.70	25 0 31.45	25 0 29.80	25 0 48.40
	1.51983	0.74036n	1.59517	0.76118	~~1.58138~~	1.12287	1.43696	1.47784n	1.54876		1.57507	1.06258n
	1.09037	0.31090n	1.16571	0.33172	~~1.15192~~	0.69341	1.00424	1.04512n	1.11604		1.14235	0.62986n
	+12.31	-20.0	+14.65	+2.15	~~+14.19~~	+4.94	+10.10	-11.10	+13.07		+13.88	-4.26
	25 45.71	25 44.95	25 46.15	25 42.35	25 ~~53.84~~	25 43.59	25 44.20	25 43.95	25 44.77		25 43.68	25 44.14
	57 2.64	3.40	57 2.20	2.00	56 ~~55.51~~	57 4.76	57 4.05	4.40	57 3.58		57 4.67	4.21
	3.02		2.10		4.76		4.22		3.58		4.44	
	36 34	36 20										
	1.53220n	1.53210n										
	+133		+1429		-478		+1157		+780		+679	
	1.53353	1.53343	1.54649	1.54639	1.52742	1.52732	1.54377	1.54367	1.54000	1.53990	1.53899	1.53889
	+34.16	+34.15	+35.20	+35.19	+33.68	+33.68	+34.98	+34.97	+34.68	+34.67	+34.59	+34.58
	-17	-10 - 0	-23	-13 - 0	-22	-05 -03	-11	-.14 -13	-19	-20	-21	-13 -02
	-.02	-.02	-.01	-.02	-.02	-.02	-.02	-.03	-.01	-.01	-.01	-.02
	+33.97	+34.13	+34.96	+35.17	+33.44	+33.63	+34.85	+34.81	+34.48		+34.37	+34.54
57	36.61	39.53	37.16	37.17		38.39	38.90	39.21	38.06		39.04	38.75
59	46.1		46.3		47.8		49.4		50.1		50.5	
+2	9.5	7.6	9.1	9.1		9.4	10.5	10.2	12.0		11.5	11.8
+2	8.55		9.10			9.40	10.35		12.00		11.65	
+2	9.5	21.59	10.0	22.32		10.3	11.3	21.03	12.9		12.6	21.55
+2	8.81	10.08 22.51	+ 9.19	10.46 22.33	+ 9.42	10.71	+ 9.19	10.53 21.34	+ 11.08	12.44	+ 10.61	12.01 21.26
+	1.27	-6.49	+ 1.27	-6.69	+ 1.29	-8.19	+ 1.34	-9.79	+ 1.36	-10.49	+ 1.40	-10.89
-	25.10	59 22.05	- 25.30	22.32	- 26.80	22.30	- 28.40	21.18	- 29.10	21.40	- 29.50	21.40
+1	44.98	59 40.66	+ 45.16	40.93	+ 43.91	40.91	+ 42.13	39.79	+ 43.34	40.01	+ 42.51	40.01

1875
α 40.700^s
δ +59' 39.60"
$\frac{d\alpha}{dt}$ + 1.482^s
$\frac{d\delta}{dt}$ + 18.612"

1875	α	δ
.82	40.71	40.9
.84	40.56	40.1
.84	40.88	39.5
.85	40.53	40.4
.85	40.76	40.5
.86	40.63	39.7
.84	40.678	40.18

(6)

1875		m	s			"	
Oct.	27	32	42.27		59'	67.9	+ 1.1
Nov.	1		41.98	- .29		69.0	1.0
	6		41.68	.30		70.0	.8
	11		41.37	.31		70.8	.7
	16		41.05	.32		71.5	

l cos δ 9.46594
l C 12552
l C' 9.59146

1874 — 1875 + — × — ×

Nov. 12 (-.21, -.245) — Nov. 18 (-.13, -.152) — Dec. 8 (-.05, -.055) — Oct. 25 (-.43, -.463) — Nov 2 (-.21, -.08, -.250) — Nov 4 (-.25, -.260)

32 20.7 31 46.6 32 16.0 31 42.0 32 14.9 31 37.0 33 24.4 32 35.7 33 28.3 32 50.6 33 29.0 32 43.1
24.4 55.4 19.7 48.8 18.4 56.3 27.7 41.7 31.3 56.7 32.7 51.4
28.0 0.6 23.4 53.9 22.0 1.6 31.2 47.3 35.0 2.3 36.6 56.1
31.7 26.7 25.5 34.8 38.4 39.8
35.2 30.1 29.0 38.6 42.0 43.4
38.7 33.8 32.6 41.8 45.5 46.6
42.3 33 2.8 37.4 32 48.0 36.3 32 45.8 45.4 33 13.6 49.0 33 38.8 52.5 34 5.4
45.5 10.8 41.0 54.5 39.7 52.0 48.7 20.3 52.5 53.6 12.7
49.3 15.0 44.4 2.2 43.0 58.5 52.3 25.6 56.2 57.2 14.7

3158 2725 2614 3449 3782 3888

41.57
31 34.20 31 48.23 31 56.30 32 41.43 32 56.53 32 49.87
32 35.089 33 9.53 32 30.278 32 54.90 32 29.044 32 52.10 33 38.322 33 19.83 33 42.022 33 38.80 33 43.200 34 12.00
35.037 30.226 28.992 38.270 41.970 43.148
32 39.830 32 39.430 32 38.063 32 42.4037 32 41.930 32 41.8178
-4.79 +5.82 -9.20 +9.73 -9.074 +9.05 +55.87 -54.36 +60.04 -59.29 +61.34 -1 -0.29
-4.80 -.69 -9.21 -.43 -9.08 -.16 +55.86 -1.41 +60.03 -.69 +61.33 -.82
-.29

+ 5.78 -1.58 + 9.41 -0.18 + 9.01 +1.19 - 54.38 -1.67 - 59.39 -1.20 - 60.34 -1.08
- .80 ~~32~~ 39.59 - .50 39.35 - .18 39.07 - 1.51 40.83 - .8X 40.50 - .85 40.96
- 0.58 +0.902 - 0.18 +1.302 + 1.19 +2.672 - 1.67 - 1.20 - 1.08
+ 4.40 + 9.03 + 10.02 - 57.56 - 61.41 - 62.27
32 35.04 32 30.23 32 28.99 32 38.27 33 41.97 33. 43.15

3919 3940 57 3711 +16 2202 2292 2320
32 39.44 +2 11.12 32 39.26 +2 10.99 32 39.01 +2 14.91 32/31 40.71 -16 14.45 32 40.56 -16 14.58 32 40.88 -16 15.00
40.922 +1.40 40.742 +1.40 40.492 +1.70 + 1.30 + 1.40 +1.30
-29.70 -30.50 -31.70 -28.10 -29.70 -30.10
59 22.01 59 21.29 59 22.02 0/59 40.78 59 40.04 59 39.20
7 4

~~+ 40.64~~ +40.89 - 34.44 + 42.05 - 24.62 + 32.74 - 23.06 + 56.75 + 18.49 + 45.49 + 3.22 + 53.33 - 28.80
25 25 25 5 5 5

-2.72 -2.77 -2.92 -2.92 -2.97 -2.98
0 27.5 0 56.9 0 24.2 0 49.1 0 31.0 0 52.5 1 28.7 1 44.8 1 40.1 1 56.6 1 35.9 2 8.9
31.8 59.3 32.1 56.0 36.8 58.1 45.5 0.1 46.4 7.9 42.8 13.9
59.3 116.2 56.3 105.1 67.8 110.6 74.2 104.9 65 118.5 78.7 22.8
25 a 29.65 25 a 58.10 25 a 28.15 25 52.55 25 a 33.90 25 a 55.30 6 31.10 6 52.45 6 43.25 6 59.25 6 39.35 7 11.40

1.61162 1.53706n 1.62377 1.39129n 1.51508 1.36286n 1.75397 1.26694 1.65792 0.50786 1.72697 1.45939n
1.17890 1.10434n 1.19105 0.95867n 1.08236 0.93014n 1.34543 0.85840 1.24938 0.09932 1.31843 1.05085n
+15.10 -12.72 +15.53 - 9.09 + 12.09 - 8.51 + 22.15 + 7.22 + 17.76 + 1.26 + 20.82 - 11.24
25 44.75 25 46.38 25 43.68 25 43.46 25 45.99 25 46.79 6 59.25 6 59.67 7 1.01 7 0.51 7 0.17 7 0.16

57 3.60 2.97 57 4.67 4.89 57 2.36 1.56 15 49.10 48.68 15 47.34 47.84 15 48.18 48.19
3.28 4.78 1.96 48.89 47.59 48.18
36 33 36 12 37 11 36 56
1.53220n 1.53210n 1.53240n 1.53230n
+2579 +1034 +1642 -543 +1904 +1672
1.55799 1.55789 1.54254 1.54244 1.54862 1.54852 1.52697 1.52687 1.55144 1.55134 1.54912 1.54902
+36.14 +36.13 +34.88 +34.87 +35.37 +35.36 +33.65 +33.64 +35.60 +35.59 +35.41 +35.40

-.24 -.23 -.18 -.27 -.25 -.09 -.16 -.21 -.08 -.48 -.51 -.05 -.30 -.26 - 0 -.43 -.39 -.12
-.01 -.03 -.05 -.10 -.07 -.11 -.22 -.27 -.10 -.12 -.10 -.13
+35.89 +35.92 +34.56 +34.68 +35.14 +35.17 +32.95 +33.32 +35.20 +35.47 +34.88 +35.15
39.49 38.89 39.23 39.57 37.50 36.73 16 22.05 22.00 22.54 23.31 23.06 23.34
50.7 51.5 52.7 0 7.7 9.3 9.7
+2 11.2 11.8 12.3 11.9 15.2 16.0 -16 14.3 14.3 13.2 14.0 13.4 13.6
+2 11.50 12.10 15.60 -16 14.30 13.60 13.50
+2 12.4 22.38 13.0 21.09 16.5 22.10 -16 13.4 59 40.94 12.7 39.69 12.6 39.35
+2 11.18 12.59 21.78 + 10.92 12.36 21.43 + 14.79 16.30 21.33 -16 14.52 13.01 40.89 - 14.69 13.15 40.46 - 15.15 13.61 39.63
+ 1.41 -11.09 + 1.44 -11.89 + 1.51 -13.09 + 1.51 + 1.54 + 1.54
- 29.70 22.08 - 30.50 21.26 - 31.70 21.72 - 28.10 59 40.92 - 29.70 40.07 - 30.10 39.49
+ 42.89 40.69 + 42.86 39.87 + 44.60 40.33 -16 44.11 - 42.85 - 43.71

1874phae.proj.1479.

Obk.

	+		+		+
-.28 Nov 6		-.22 Nov 7		-.23 Nov 9	-.12
-.310		-.250		-.352	
33	32 44.7	33	32 36.8	33	32 46.2
29.4	50.1	30.0	41.4	30.4	52.5
33.1	56.2	33.4	47.2	34.0	57.4
36.7		36.8		37.7	
39.9		40.4		41.1	
43.6		43.9		44.7	
47.1	33 32.1	47.1	33 48.4	48.2	33 31.0
50.6	38.5	50.9	53.1	51.8	38.2
54.1	44.2	54.6	0.4	55.3	42.2
57.4		58.3		58.8	
3919		3954		4020	
	32 50.33		32 41.80		32 52.03
33 43544	33 38.27	33 43.983	33 53.97	33 ~~43.556~~	33 37.13
43492		43.881		~~44667~~	
				44615	
32 41.696	m -1 -0.96	32 41.630	m -1 -1.37	32 41.50 48	m -1 -1.91
+61.883	-.92	+62.258	-.72	+63.173	-.75
+61.82		+62.27		+63.12	-.44
	-0.96		-0.90		-0.78
- 60.99	32 40.65	- 61.40	40.89	- 62.05	40.74
- 1.01		- .82		- 1.15	
- 0.96		- 0.90		- 0.78	
- 62.96		- 63.12		- 63.98	
33 43.49	16 2477	33 43.88	2441	33 44.61	2307
	-16 1534		-16 1467		-16 1386
32 40.53	+ 1.30	32 40.76	+ 1.40	32 40.63	+ 1.30
	- 3040		- 3060		- 3100
	59 40.33		59 40.54		59 39.51
+ 53.21	+ 5.27	+ 62.13	- 10.04	+ 52.64	+ 7.54
5		5		5	
-3.00		-3.01		-3.02	
1 34.2	1 54.3	1 29.2	1 58.8	1 36.3	1 54.2
41.3	59.9	38.0	8.0	44.4	1.3
75.5	14.2	67.2	12.68	80.7	11.55
6 37.75	6 57.10	6 33.60	7 3.40	6 40.35	6 57.75
1.72599	0.72181	1.79330	1.00173n	1.72132	0.87737
1.31745	0.31327	1.38476	0.59319n	1.31278	0.46883
+ 20.77	+ 22.06	+ 24.25	- 3.92	+ 20.55	+ 2.94
6 58.52	6 59.16	6 57.85	6 59.48	7 0.90	7 0.69
15 49.83	49.19	15 50.50	48.87	15 47.45	47.66
47.51		49.68		47.55	
				37 8	36 50
1.53240n	1.53230m			1.53230n	1.53220n
+ 1897		+ 1357		+ 2203	
1.55137	1.55127	1.54597	1.54587	1.55433	1.55423
+ 35.59	+ 35.58	+ 35.15	+ 35.14	+ 35.84	+ 35.83
-.43	-.32 -.10	-.59	-.41 -.02	-.41	-.31 -.1
-.10	-.11	-.10	-.12	-.10	-.11
+ 35.06	+ 35.47	+ 34.46	+ 35.60	+ 35.33	+ 35.71
16 24.89	24.66	24.96	23.87	22.78	23.37
10.0		10.2		10.6	
-16 14.9	14.7	14.8	13.7	12.2	12.8
-16 14.80		14.25		12.50	
-16 13.9	40.54	13.3	41.02	11.6	39.41
-16 15.48	13.95 40.31	- 14.87	13.34 39.93	- 13.91	12.37 40.00
+ 1.53		+ 1.53		+ 1.54	
- 30.40	40.42	- 30.60	40.47	- 31.00	39.70
-16 44.35		- 43.94		- 43.37	

ζ Pegasi
h m sec
22 35 14
+10° 11'
ζ = +32° 12'
ζ sin ζ = +.53

			1874					
α	s 10.641	Oct. 7	m 35	s 13.35		' 10	" 45.2	
δ	+10 27.29	12		13.31	-.04		45.4	+2
dα/dt	+2.988	17		13.27	.04		45.6	.2
dδ/dt	+18.706	22		13.23	.04		45.8	.2
		27		13.18	.05		45.9	.1
		Nov. 1		13.13	.05		45.9	+0
l sin δ	9.24748	6		13.07	.06		45.9	-0
		11		13.01	.06		45.8	.1
l cos δ	9.99310	16		12.95	.06		45.7	.1
l c	10 460	21		12.90	.05		45.5	.2
l c'	0.09770	26		12.84	.06		45.3	.2
		Dec. 1		12.78	.06		45.1	.2
l c''	0.09444	6		12.72	.06		44.8	-.3

corr α =
corr δ =
tang δ = +.18 1.02
I = s 2.09
K = s -.016

1874		
.78	13.66	45.2
.78	13.67 8	45.5
.78	13.61	47.0
.80	13.69	46.0
.80	13.71	44.6
.81	13.73	45.6
.82	13.69	45.1
.84	13.50	46.0
.86	13.62	45.4
.86	13.64	46.4
.87	13.63	44.9
.88	13.68	45.8
.94	13.67	45.8
.83	13.655 5	45.44

1874

Oct. 10 -21	-.07	Oct. 11 -29	-.07	Oct. 12 -23	-.07	Oct. 19 -22		Oct. 20 -17		Oct. 21 (13)	-24
~~-.280~~ -.283		~~-.364~~ -.367		-.302		~~-.245~~		~~-.170~~ -.168		-.230	
22 35 14.9	35 10.2	35 15.4	35 0.6	35 15.5	35 4.3	35 13.0	35 2.5	35 12.4	35 1.0	35 11.2	35 1.4
16.9	12.0	17.5	3.0	17.6	35 6.2	15.0	4.6	14.4	3.0	13.3	3.2
19.0	14.2	19.7	5.0	19.7	8.1	17.2	6.8	16.5	4.9	15.4	5.3
23.2		23.9		23.8		21.3		20.7		19.7	
25.3		25.8		26.0		23.4		22.7		21.7	
27.4		27.9		28.0		25.5		25.0		23.8	
29.4	35 45.7	30.0	35 41.0	30.2	35 46.0	27.7	35 42.6	27.0	35 27.4	25.8	35 35.5
31.6	48.1	32.2	41.9	32.2	49.0	29.6	44.6	29.0		28.0	37.6
33.7	50.2	36.4		36.2	51.0	33.8	47.5	33.1		32.0	39.7
37.9		38.4		38.6		36.0		35.3		34.4	
40.0		40.5		40.6		38.1		37.4		36.4	
3013	35 12.13	3077	35 2.87	3084	36 6.20	2806	35 4.63	2735	35 2.97	2617	35 3.30
35 27.391	35 48.00	35 27.973	35 41.46	35 28.036	35 48.67	35 25.509	35 44.90	35 24.864	35 27.40	35 23.791	35 37.60
27.375		27.957		28.020		25.493		24.848		23.775	
35 13.332		35 13.321		35 13.31		35 13.25		35 13.254		13.24	
+14.045	-13.87	+14.64	-14.42	+14.71	-14.61	+12.24	-12.11	+11.601	-11.47	+10.53	-10.35
	-.04		-.05		-.04		-.04		-.03		-.04
~~-14.54~~	-13.97 .07	~~-14.68~~ -14.52	-.07	- 14.68	-.07	- 12.14		- 11.50		- 10.39	
- 5	-2.68	- 7	-2.68	- 5	-2.67	- 4	-2.61	- 3	-2.60	- 4	-2.60
- 2.68	+0.308 35m 10.72	- 2.68	+0.308 10.94 74	- 2.67	+0.318 10.63	- 2.61	+0.378 10.73	- 2.60	+0.388 10.75	- 2.60	+0.388 10.79
- 16.70		- 17.27	7	- 17.40		- 14.79		- 14.13		- 13.03	
35 27.37		35 27.96		35 28.02		35 25.49		35 24.85		35 23.77	
35 10.67	8 40.10	35 10.69	37.60	35 10.62	38.32	35 10.70	38.42	35 10.72	36.83	35 10.74	37.56
35 13.658	+2 5.68	13.678	+2 8.76	13.608	+2 9.40	13.688	+2 8.56	13.708	+2 8.81	13.728	+2 9.17
	-1.40		-1.40		-1.40		-1.40		-1.40		-1.50
	-18.00		-18.10		-18.10		-18.40		-18.40		-18.50
+10	10 26.38		10 26.86		10 28.22		10 27.18		10 25.84		10 26.75
s 10' + 15.26	-20.31 6	10 +25.10	-13.48	10 +21.84	-20.63	10 +20.88	-19.39	10 +21.90	-2.53	10 +20.49	-13.81
-2.43		-2.44		-2.45		-2.49		-2.50		-2.50	
3 6.2	3 51.5	2 56.3	3 43.1	2 59.0	3 50.1	3 0.1	3 51.2	3 0.5	3 32.3	3 0.8	3 44.0
20.2	5.9	11.3	57.5	14.5	5.2	12.7	2.4	12.7	42.8	14.8	56.5
26.4	117.4	127.6	100.6	133.5	115.3	12.8	113.6	13.2	73.1	15.6	100.5
3 13 13.20	13 3 58.70	13 3 3.80	13 3 50.30	13 3 6.75	13 3 57.65	13 3 6.40	13 3 56.80	13 3 6.60	13 3 37.55	13 3 7.80	13 3 50.25
1.18355	1.31408n	1.39967	1.12969n	1.33925	1.31450n	1.31973	1.28758n	1.34044	0.40312n	1.31154	1.14019n
1.28125	1.41178n	1.49737	1.22739n	1.43695	1.41220n	1.41743	1.38528n	1.43814	0.50082n	1.40924	1.23789n
+ 19.11	-25.81	+31.43	-16.88	+27.35	-25.83	+26.15	-24.28	+27.43	-3.17	+25.66	-17.29
13 32.31	13 32.89	13 35.23	13 33.42	13 34.10	13 31.82	13 32.55	13 32.52	13 34.03	13 34.38	13 33.46	13 32.96
+10° 9' 16.04	15.46	9 13.12	14.93	9 14.25	16.53	9 15.80	15.83	9 14.32	13.97	9 14.89	15.39
15.75		14.02		15.39		15.81		14.14		15.14	
+32 11 6	11 52									11 1	11 43
1.55900	1.55930									1.55900	1.55920
-889		+66		+809		+1205		+137		+1437	
1.55011	1.55041	1.55966	1.55996	1.56709	1.56739	1.57105	1.57135	1.56037	1.56067	1.57337	1.57357
- 35.49	- 35.52	- 36.28	- 36.30	-36.91	-36.93	-37.24	-37.27	-37.18	-37.21	- 37.44	-37.46
-.02	-.14 -.04	-.06	-.13 -.01	-.04	-.14 -.04	-.04	-.14 -.03	-.04	-.12 0	-.04	-.12 -.01
-.10	-.12	-.09	-.11	-.09	-.12	-.09	-.12	-.09	-.11	-.09	-.11
- 35.61	-35.68	-36.43	-36.42	-37.04	-37.09	-37.37	-37.42	-37.31	-37.32	-37.57	-37.58
8 40.43	39.78	36.69	38.57	37.21	39.44	38.43	38.41	37.01	36.65	37.82	37.81
10 45.3		45.4		45.4		45.7		45.7		45.8	
+2 4.9	5.5	8.6	6.9	8.2	6.0	7.3	7.3	8.7	9.1	8.5	8.0
+2 5.2		4.45		7.1		7.3		8.9		8.3	
+2 5.65	10 26.80	+8.60	7.31 25.90	+ 9.33	8.04 27.15	+ 8.59	7.28 27.31	+ 8.81	7.49 26.10	+ 9.19	7.87 26.64
- 1.28	4.37 26.15	- 1.29	+ .61 27.31	- 1.29	+ .61 29.38	- 1.31	+ .31 27.29	- 1.32	+ .31 25.74	- 1.32	+ .21 27.18
- 18.00	+ .71	- 18.10		- 18.10		- 18.40		- 18.40		- 18.50	
+1 46.37	10 26.47	+ 49.21	26.80	+ 49.94	28.26	+ 48.88	27.30	+ 49.09	25.92	+ 49.37	26.93
	10 45.18		45.51 ~~45.57~~		46.97		46.01		44.63		45.64

1874

-24 -08 -16 -15 -26 -21 -13

Oct. 27 Nov. 4 Nov. 8 + 1.5 ~~-132~~ -146 Nov. 11 Nov. 12 Nov. 18

-.304 -.143 -.264 -.245 -.154

35 7.1 34 53.4 35 — 35 23.8 34 59.3 34 46.4 34 53.4 34 42.6 34 54.7 34 44.6 34 50.8 34 44.0
9.2 57.8 — 25.7 1.3 48.6 57.5 45.2 56.8 46.6 52.9
11.3 59.5 — 27.6 3.3 50.4 59.6 47.0 58.8 48.4 55.0
15.5 10.0 7.5 3.8 3.0 59.1
17.5 13.0 9.7 6.0 5.1 1.3
19.6 15.1 11.8 8.0 7.3 3.3
21.7 35 39.0 17.2 13.8 35 33.0 10.1 35 34.0 9.5 35 26.6 5.4 35 34.7
23.8 41.2 19.3 15.9 34.8 12.1 36.0 11.6 29.0 7.5 36.7
28.0 43.0 — 20.1 36.9 16.4 37.8 15.7 31.4 11.6 38.7
30.1 — 22.2 18.5 17.7 13.7
32.2 — 24.3 20.6 19.8 15.9

2160 746 1892 2680 2600 2765
60 180 180 240

34 57.57 35 25.70 1292 34 48.47 880 34 44.93 800 34 46.53 365 34 44.00
35 19.636 35 41.07 35 14.920 35 12.745 35 ~~34.97~~ 34.96 35 8.000 35 35.93 35 7.273 35 29.00 35 3.318 35 36.77
19.620 -6.23 14.904 -1.89 12.729 7.984 7.257 3.302
35 13.18 -.04 35 13.09 -.03 35 13.054 -.03 35 13.01 -.05 35 13.00 -.04 35 12.93 -.02
+6.44 -.08 +1.81 -0.321 +0.38 -5.03 +5.14 -5.74 +5.82 -9.63 +9.73
-254 -245 -240 -237 -236 -229
-6.32 35 10.73 -1.91 10.53 +0.33 10.678 +5.09 10.70 +5.78 10.68 +9.71 10.72
-6 -3 -3 -5 -4 -3
-2.54 +0.448 -2.45 +0.538 -2.40 +0.588 -2.37 +0.618 -2.36 +0.628 -2.29 +0.698
-8.92 -4.39 -2.10 +2.64 +3.38 +7.39
35 19.62 8 3688 35 14.90 3808 35 12.73 3566 35 7.98 3705 35 7.26 3494 35 3.30 3594
+2 939 +2 940 +2 1132 +2 1077 +2 1112 +2 1099
35 10.70 -1.40 35 10.57 -1.50 35 10.63 -1.50 35 10.65 -1.50 35 10.64 -1.50 35 10.69 -1.60
35 13.688 -1860 13.498 -1860 13.618 -1860 13.638 -1850 13.628 -1850 13.678 -1830
+10° 10 2627 10 2738 10 2688 10 2782 10 2606 10 ~~2773~~ .03
.03

5
+22.07 -21.43 -10.78 +24.27 -22.16 ~~22.23~~ +23.07 -27.93 +20.74 -21.73 +19.32 -33.45
10 10 10 10 10 10
-2.93 -2.63 -2.68 -2.71 -2.72 -2.77

3 0.4 3 54.6 3 40.8 2 58.5 3 55.3 2 58.8 4 1.9 3 2.7 3 56.1 3 2.7 4 8.5
15.7 9.6 52.0 13.4 10.1 12.9 15.8 14.2 8.7 20.1 23.1
16.1 12.42 9.28 13.19 12.54 13.17 17.7 16.9 12.48 22.8 31.6
13 8 8.05 14 4 2.10 13 3 46.40 13 3 5.95 14 4 2.70 13 3 5.85 14 4 8.85 13 3 8.45 14 4 2.40 13 3 11.40 14 4 15.80

1.34380 1.38102n 1.03262n 1.38507 1.34557n 1.36305 1.44607n 1.31681 1.33706n 1.28601 1.52440n
1.44150 1.42872n 1.12706n 1.47957 1.44001n 1.45749 1.54054n 1.41125 1.43150n 1.38045 1.61884n
+27.64 -26.84 -13.46 +30.17 -27.54 +28.67 -34.72 +25.78 -27.01 +24.01 -41.58
13 35.69 13 35.26 13 32.94 13 36.12 13 35.16 13 34.52 13 34.13 13 34.23 13 35.39 13 35.41 13 34.22

9 12.66 13.09 9 15.41 9 12.23 13.19 9 13.83 14.22 9 14.12 12.96 9 12.94 14.13
12.87 12.71 14.02 13.54 13.53
11 1 11 55
1.55900 1.55930
-471 +1161 +784 +682 +2579 +1046
1.55429 1.55459 1.57061 1.57091 1.56684 1.56714 1.56582 1.56612 1.58479 1.58509 1.56946 1.56976
-35.83 -35.86 -37.21 -37.23 -36.88 -36.91 -36.80 -36.82 -38.44 -38.47 -37.11 -37.13

-.04 -.14 -.04 -.01 -.11 -.05 -.15 -.04 -.05 -.16 -.07 -.04 -.14 -.04 -.03 -.48 -.10
-.09 -.12 -.11 -.09 -.12 -.09 -.12 -.09 -.12 -.35 -.47
-35.96 -36.02 -37.33 -37.02 -37.07 -36.94 -37.01 -38.57 -38.63 -37.49 -37.60
8 36.70 37.07 38.08 35.21 36.12 36.89 37.21 35.05 34.33 35.45 36.43
459 459 459 458 458 456
+2 9.2 8.8 7.8 10.7 9.8 8.9 8.6 10.3 11.5 10.2 9.2
+2 9.0 7.8 10.2 8.8 10.9 9.9
+2 9.42 8.08 26.18 +9.19 7.80 +11.08 9.66 26.27 +10.61 9.18 27.57 +11.18 9.74 26.79 +10.92 9.46 26.61
-1.34 +.11 26.55 -1.39 +.11 -1.42 +.11 27.18 -1.43 +.21 24.89 -1.44 +.21 25.57 -1.46 +.41 27.59
-18.60 -18.60 -18.60 -18.50 -18.50 -18.30
+1 49.98 10 2636 +49.20 2728 +51.06 2672 +50.68 2773 +51.24 2618 +51.16 27.10
10 4507 4599 4593 4644 4489 4581

	1875	1875		m	s		′	″			α 1875	δ
α	13.629 s	Oct.	27	35	16.49		10	66.3		82	13.68	46.1
δ	+10′ 46.00″	Nov.	1		16.44	−.05		66.3	−.0	.84	13.65	45.4
dα/dt	+2.988 s		6		16.38	.06		66.3	.0	.84	13.68	46.5
dδ/dt	+18.708		11		16.32	.06		66.3	.0	.85	13.72	45.5
			16		16.26	.06		66.2	.1	.85	13.65	45.2
			21		16.21	.05		66.0	2	.86	13.74	45.9
			26		16.15	.06		65.8	.2			
l cos δ	9.99310	Dec.	1		16.09	.06		65.5	.3	.84	13.687	45.77
l c	.12552		6		16.03	.06		65.2	.3		(6)	
l c′	0.11862											

	1874		1875 +			+		×		×		×
	−.05		−.43		−.21	−.08	−.25		−.28		−.22	
	Dec. 8		Oct 25		Nov 2		Nov 4		Nov 6		Nov 7	
	−.055		−.463		−.250		−.260		−.310		−.250	
	34 57.2	34 43.6	35 58.5	35 46.6	36 3.3	36 10.6	36 4.3	35 58.1	36 5.0	35 58.3	36 5.3	35 57.2
	53.3	46.6	36 0.7	48.6	5.4		6.4	59.9	7.1	0.6	7.4	57.0
	53.4	48.5	2.7	50.2	7.7		8.5	1.8	9.2	1.8	9.4	0.7
	59.6		6.8		11.7		12.7		13.3		13.7	
	1.6		8.8		13.7		14.8		15.3		15.8	
	3.8		11.1		16.0		16.9		17.4		17.8	
	3.9	35 22.5	13.2	36 28.0	17.9	36 44.2	18.9	36 34.7	19.6	36 34.1	20.0	36 30.9
	8.0	23.8	15.3	30.1	20.0		21.0	36.6	21.8	35.8	22.0	33.0
	12.0	25.9	19.3	32.3	24.3		25.1	38.4	25.9	38.0	26.2	35.1
	14.1		21.4		26.4		27.4		28.6		28.3	
	16.3		23.6		28.4		29.4		30.2		31.4	
	2812		1814		1748		1854		1928		1963 .	
	240		60									
	41 2	34 46.23	1214	35 48.47		36 10.60		35 59.93		36 0.23		35 58.97
	35 3.745	35 24.07	36 11.036	36 30.13	36 15.891	36 44.20	36 16.855	36 36.57	36 17.527	36 35.97	36 17.845	36 33.60
	3.729	+9.05	11.020	−54.36	15.875	−59.29	16.839	−1 −0.30	17.511	−1 −0.96	17.829	−1 −1.37
	35 12.70 69	−.01	35 16.51	−.08	35 16.432	−.04	35 16.40	−.05	35 16.38	−.05	35 16.37	−.04
	−8.986		+54.51		+59.445	−.08	+60.44		+61.13		+61.46	
		−2.05		−2.88		−2.79		−2.77		−2.75		−2.74
	+ 9.01	10.77 5 2	− 54.38	13.70	− 59.39	13.68	− 60.34	13.72	− 60.99	13.75	− 61.40	13.68
	− 1	2	− 8		− 4		− 5		− .05		− .04	
	− 2.05 +0.938		− 2.88		− 2.79		− 2.737		− 2.75		− 2.74	
	+ 6.95		− 57.34		− 62.22		− 63.16		− 63.789		− 64.18	
	35 3.73	8 31.43	36 11.02	27 22.47	36 15.87	21.96	36 16.84	23.54	36 17.51	22.84	36 17.83	22.00
		+2 14.91		−16 14.45		−16 14.58		−16 15.00		−16 15.34		−16 14.67
	35 10.68	− 1.70	35 13.68	− 1.50	35 13.65	− 1.50	35 13.68	− 1.50	35 13.75 2	− 1.50	35 13.65	− 1.53
	13.668	−17.60		−20.30		− 20.30		−20.30		− 20.30		−20.30
		10 27.04		10 46.22		10 45.58		10 46.74		10 45.70		10 45.53
	s											
10′	+17.51	−20.33	+ 22.57	− 19.09	+ 5.29	− 28.31	+ 16.92	− 19.72	+ 17.30	− 18.44	+ 18.87	−15.16
10			50		50		50		50		50	
	−2.92		−2.92		−2.97		−2.98		−3.00		−3.01	
	3 11.4	3 57.3	4 13.3	0 7.9	4 39.0	0 23.3	4 22.3	0 11.0	4 21.3	0 8.9	4 19.7	0 5.8
	23.7	9.8	27.2	23.4	42.9	28.7	26.0	16.0	28.0	14.8	26.6	13.4
	351	1271	405	313	879	120	83	70	93	237	463	192
13′	17.55″	14 3.55	54 20.25	55 15.65	54 40.95	55 26.00	54 24.15	55 13.50	54 24.65	55 11.85	54 23.15	55 9.60
	1.24329	1.30814n	1.35358	1.28081n	0.72346	1.45194n	1.22840	1.29491n	1.23805	1.26576n	1.27577	1.18070n
	1.33743	1.40258n	1.47215	1.39943n	0.84208	1.57056n	1.34702	1.41353n	1.35667	1.38438n	1.39439	1.29932
	+21.77	−25.27	+ 29.66	−25.09	+6.95	−37.20	+ 22.24	−25.91	+ 22.73	−24.23	+24.80	−19.92
	13 39.32	13 38.28	54 49.91	54 49.36	54 47.90	54 48.80	54 46.39	54 47.59	54 47.38	54 47.62	54 47.95	54 49.68
9	9.03	10.07	27 58.44	58.79	28 0.45	59.55	28 1.96	0.76	28 0.97	0.73	28 0.40	58.67
	9.55		58.61		0.00		1.36		0.85		59.53	
	11 10	11 56	10 32	11 28								
	1.55910	1.55930	1.55880	1.55910								
	+1642		−530		+1909		+1679		+1900		+1357	
	1.57552	1.57572	1.55350	1.55380	1.57789	1.57819	1.57559	1.57589	1.57780	1.57810	1.57237	1.57267
	−37.63	−37.65	−35.77	−35.80	−37.83	−37.86	−37.63	−37.66	−37.83	−37.85	−37.36	−37.38
	−.03	−.47 −.04	−.04	−.35 −.03	−.1	−.19 −.07	−.03	−.17 −.04	−.03	−.16 −.03	−.03	−.16 −.02
	−.40	−.48	−.60	−.04	−.28	−.02	−.26	−.01	−.26	−.01	−.26	−.01
	−38.06	−38.17	−36.41	−35.87	−38.12	−37.95	−37.92	−37.71	−38.12	−37.89	−37.65	−37.41
	30.97	31.90	27 22.03	22.92	22.33	21.60	24.04	23.05	22.85	22.84	22.75	21.26
	44.9		11 6.3		6.3		6.3		6.3		6.3	
+2	13.9	13.0	−16 15.7	16.6	16.0	16.3	17.7	16.7	16.5	16.5	16.4	15.0
+2	13.5		−16 16.2		15.8		17.2		16.6		15.7	
+2	14.79	13.25 26.62	−16 14.52	16.06 45.67	−14.69	16.26 45.77	−15.15	16.72 47.02	−15.48	17.07 45.48	−14.87	16.46 45.79
−	1.54 +1.11	27.55	− 1.54	46.56	− 1.57	45.04	− 1.57	46.03	− 1.59	45.47	− 1.59	44.50
−	17.60		− 20.30		− 20.30		− 20.30		− 20.30		− 20.30	
+	55.65	27.08	−16 36.36	10 46.12	− 36.56	45.10	− 37.02	46.52	− 34.34	45.47	− 36.76	45.24
		4.579										

-23 -12
Apr. 9 +
-.352
36 60 35 516
80 542
102 556
143
164
187
207 36 282
228 300
270 321
291
311

2043

35 5280
36 18573 36 30.10
18557 -1 -1.91
35 16.34 -.04
+62.22 -.12
-2.71
- 62.05 35 13.78
- 6
- 2.71
- 64.82
36 18.56 27 2167
+16 1386
35 12.74 - 7.50
-2030
10 4601

+ 24.77 - 11.53
50 +3.02
4 12.3
17.7 0 1.5
7.3
10.0 18.8
54 15.00 55 4.40

1.39393 1.06183
1.31255 1.18045
+32.55 - 15.15
54 47.55 54 49.25

28 0.80 57.10
59.95
10 27 11 16
1,55880 1,55910
+2209
1,58089 1,58119
-38.10 -38.12

-.06 -16 -.01
-.25 -.01
- 38.41 -38.14
27 22.39 20.96
6.3
-16 16.1 14.7
-16 15.4
-16 13.91 15.51 46.58
— 1.60 45.15
— 20.30
-16 35.81 45.86

62

1874 1874

η Pegasi
h m sec
22 37 9
+29° 34'
γ = +12° 49'
ζ sin ζ = +22

	α 5.871s
	δ +33' 46.11"
	dα/dt +2.805s
	dδ/dt +18.733"
l sin δ	9.69323
l cos δ	9.93941
l ℓ	.10460
l ℓ'	0.04401
l ℓ"	0.04075

Oct.	7	37m 8.41s		33' 66.7"	+.7
	12	8.36	-.05	67.4	.7
	17	8.31	.05	68.1	.7
	22	8.26	.05	68.7	.6
	27	8.20	.06	69.2	.5
Nov.	1	8.13	.07	69.6	.4
	6	8.06	.07	69.9	.3
	11	7.99	.07	70.1	.2
	16	7.91	.08	70.3	.2
	21	7.84	.07	70.3	+0
	26	7.77	.07	70.3	-.0
Dec.	1	7.70	.07	70.1	.2
	6	7.62	.08	69.9	-.2

cos α =
cos δ =
tang δ = +.57 1.15
I = 2.37s
K = -.018s

1874

.78	8.60	53.8]
.78	8.63	5.0
.78	8.62	5.2
.79	8.65	5.2
.80	8.59	5.4
.80	8.63	4.5
.81	8.67	5.3
.82	8.62	6.0
.84	8.68	5.5
.86	8.61	5.8
.86	8.58	5.0
.88	8.60	4.9
.89	8.64	4.9
.94	8.59	4.1

1874

	Oct. 10 -.21	-.07	Oct. 11 -.29	-.07	Oct. 12 -.23	-.07	Oct 15 -.21		Oct. 19 -.22		.83 Oct. 20 8.622 (14)	5.14 (13) -.17
	~~-.250~~ -.283		~~-.364~~ -.367		-.302		-.235		-.245		~~-.170~~ .168	
22 37	8.3 36	53.3	37 9.0 36	53.2	37 9.0	37 1.3	37 7.9	37 1.0	37 6.3 36	47.5	37 5.7 36	53.0
	10.6	56.0	11.2	57.8	11.3	3.3	10.4	2.8	8.5	49.7	8.0	57.8
	13.0	57.8	13.6	60.0	13.6	5.0	12.7	4.8	11.0	51.8	10.5	59.8
	17.8		18.3		18.5		17.5		15.7		15.1	
	20.0		20.7		20.8		19.8		18.1		17.4	
	22.4		23.0		23.2		22.2		20.5		19.7	
	24.8 37	45.4	25.4 37	38.4	25.5	37 47.1	24.5	37 32.7	22.9 37	38.4	22.2 37	26.6
	27.1	47.1	27.8	41.0	27.8	49.8	27.0	34.6	25.3	40.7	24.6	28.4
	32.0	49.4	32.5	43.5	32.7	51.8	31.8	37.8	30.0	43.0	29.4	30.8
	34.3		34.9		35.0		34.0		32.4		31.6	
	36.6		37.3		37.4		36.5		34.8		34.0	
	2469 36	55.10	2537 36	57.67	2548 37	3.20	2443 37	2.87	2255 36	49.61	2182 36	57.53
	37 22.445 37	47.30	37 23.064 37	40.97	37 23.164 37	49.57	37 22.209 37	34.77	37 20.500 37	40.70	37 19.836 37	28.60
	22.427		23.046		23.146		22.191		20.482		19.818	
	37 8.38		37 8.37		37 8.36		37 8.33		37 8.29		37 8.28	
	+ 14.05	-13.87	+14.68	-14.42	+14.79	-14.61	+ 13.86	-13.76	+12.19	-12.10	+11.55	-11.47
		-.12		-.17		-.13		-.12		-.13		-.10
	- 13.94	-.08	- 14.52	-.08	- 14.68	-.08	- 13.76		- 12.14		- 11.50	
	- .16	-2.51	- .21	-2.53	- .17	-2.49	- .13	-2.46	- .14	-2.42	- 9	-2.41
	- 2.51	+0.293 37m 5.85	- 2.50	+0.305 5.88	- 2.49	+0.315 5.84	- 2.48	+0.345 5.85	- 2.42	+0.385 5.83	- 2.41	+0.395 5.84
	- 16.64		- 17.23		- 17.34		- 16.35		- 14.70		- 14.00	
	37 22.43		37 23.05		37 23.15		37 22.19		37 20.48		37 19.82	
	37 5.79	31 51.00	37 5.82	59.36	37 5.81	58.93	37 5.84 32	0.00	37 5.78	0.89	37 5.82	59.84
	37 8.595	+2 5.68	8.625	+2 8.76	8.615	+2 9.40	8.645	+2 8.94	8.585	+2 ~~9.39~~ 8.56	8.625	+2 8.81
		-.60		-.6		-.6		-.6		-.6		-.6
		-21.10		-21.20		-21.30		-21.80		-22.30		-22.40
	+29 33	34.98 rej.	33	46.32	33	46.43	33	46.54	33	46.55	33	45.70
	s +36.74	-14.86	+25.39	-17.91	+19.96	-26.41	+ 19.34	-12.56	+30.83	-20.20	+22.31	-8.76
	50		45		50		50		45		50	
	-2.43		-2.44		-2.45		-2.46		-2.49		-2.50	
	0 58.5	0 55.3	4 2.1	0 49.3	0 7.4	0 59.0	0 10.0	0 43.5	4 56.4	0 52.9	0 6.1	0 40.7
	9.1	6.0	13.9	0.8	20.1	11.5	18.5	52.7	3.0	59.2	14.8	49.4
	127.6	121.3	160	110.1	275	1305	285	962	1194	1121	209	901
	~~1~~ (50) 3.80	51+ 0.65	~~4~~ 50 4 8.00	50 0 55.05	50 0 13.75	51+ 5.25	50 0 14.25	50 0 48.10	49 4 59.70	50 0 56.05	50 0 10.45	50 0 45.05
	1.56514	1.17202n	1.40466	1.25310n	1.30016	1.42177n	1.28646	1.09899n	1.48897	1.30535n	1.34850	0.94250n
	1.60915	1.21603n	1.44867	1.29711n	1.34417	1.46578n	1.33047	1.14300n	1.53258	1.34936n	1.39257	0.98651n
	+40.66	-16.45	+28.10	-19.77	+22.09	-29.23	+21.40	-13.90	+34.11	-22.35	+24.69	-9.69
	~~51~~ (50) 44.46	50 44.20	50 36.10	50 35.28	50 35.84	50 36.02	50 35.60	50 34.20	50 33.81	50 33.70	50 35.14	50 35.36
+29°	32 3.89"	4.15	32 12.25	13.07	32 12.51	12.33	32 12.70	14.15	32 14.54	14.65	32 13.21	12.99
	4.02		12.66		12.42		13.42		14.59		13.10	
+12	47 57	48 54									48 3	48 38
	1.11670	1.11720									1.11670	1.11710
	-886		+71		+815		+879		+1206		+139	
	1.10784	1.10834	1.11741	1.11791	1.12485	1.12535	1.12549	1.12599	1.12876	1.12926	1.11809	1.11849
	-12.82	-12.83	-13.10	-13.12	-13.33	-13.35	-13.35	-13.36	-13.45	-13.47	-13.12	-13.14
	-.30	-.19 -.05	-.15	-.19 -.08	-.09	-.14 -.16	-.08	-.07 -.03	-.21	-.24 -.09	-.11	-.08
	.00	-.03	-.12	-.03	-.01	-.03	-.01	-.02	-.15	-.03	-.01	-.02
	-13.12	-12.91	-13.37	-13.23	-13.43	-13.54	-13.44	-13.41	-13.81	-13.59	-13.24	-13.18
31	50.77	51.24	58.88	59.84	59.08	58.79	59.26	0.74	0.73	1.06	59.97	59.81
34	7.2		7.3		7.4		7.9		8.4		8.5	
2	16.4	16.0	8.4	7.5	8.6	8.6	8.6	7.2	7.7	7.3	8.5	8.7
+2	16.2		8.0		8.6		7.9		4.5		8.6	
+2	5.65	33 34.79	+ 8.60	8.07 45.75	+ 9.33	8.80 46.58	+ 8.78	8.24 45.70	+ 8.59	8.0 46.48	+ 8.81	8.26 45.83
-	.53	5.12 35.26	- .53	2.41 46.71	- .53	-2.57 46.29	- .54	-3.07 47.18	- .54	-3.57 46.81	- .55	-3.67 45.67
-	21.10 -2.37		- 21.20		- 21.30		- 21.80		- 22.30		- 22.40	
+1	44.02	33 35.02	+ 46.87	46.23	+ 47.50	46.43	+ 46.44	46.44	+ 45.75	46.64	+ 45.86	45.75
		53.7 57		496 ~~49.67~~		516		517		537		448

-24		-24	-08	-16		-15		-26		-13	
Oct. 21		Oct. 27		Nov. 4		Nov. 8		Nov. 11		Nov. 18	
-.230		-.327		-.173		+ 1s ~~-.152~~ -.146		-.267		-.154	
22 37 4.4	36 53.5	37 0.5	36 57.7	36 53.8	36 41.5	36 52.6	36 42.6	36 48.7	36 42.6	36 44.0	36 34.3
7.0	56.6	2.8		58.3	43.7	55.0	45.2	51.2	45.0	46.3	36.0
9.3	59.0	5.1		0.6	46.3	57.3	47.6	53.5	47.2	48.8	38.7
14.0		10.0		5.4		1.9		58.3		53.4	
16.5		12.3		7.8		4.2		0.6		55.9	
18.8		14.7		10.1		6.7		3.0		58.1	
21.2	37 36.1	17.1	37 33.0	12.4	37 29.2	9.0	37 24.2	5.3	37 32.0	0.6	37 25.7
23.7	38.3	19.4	35.2	14.9	31.4	11.5	26.4	7.7	34.6	3.0	27.5
28.3	40.7	24.1	37.3	19.6	33.4	16.3	29.0	12.4	36.6	7.7	30.0
30.6		26.5		22.0		18.6		14.8		10.0	
33.0		28.9		24.4		20.9		17.2		12.4	
2068		1614		2313		2540		2727		3402	
				120		180		240		300	
	36 56.37		36 51.70	1113	36 43.83	740	36 45.13	327	36 44.93	6402	36 36.33
37 18.800	37 38.37	37 14.673	37 35.17	37 10.118	37 31.33	37 7.727	37 26.53	37 2.973	37 34.40	36 58.200	37 27.73
18.782	-1035	14.655	-623	10.100	-189	7.709	+038	2.955	+514	58.182	+973
37 8.27	-.14	37 8.20	-.14	37 8.09	-.09	37 8.03	-.09	37 7.99	-.15	37 7.88	-.07
+10.51		+6.45	-09	+2.01		-0.32		-5.04		-9.70	
	-240		-233		-222		-216		-212		-201
- 10.39	37 5.89	- 6.32	5.87	- 1.91	5.90	+ 0.33	5.84	+ 5.09	5.83	+ 9.71	5.83
- .13		- .19		- 10		- 8		- 15		- 9	
- 2.40	+0.405	- 2.33	+0.475	- 2.22	+0.585	- 2.16	+0.645	- 2.12	+0.685	- 2.01	+0.795
- 12.92		- 8.84		- 4.23		- 1.91		+ 2.82		+ 7.61	
37 18.79	32 042	37 14.65	148	37 10.10	187	37 7.71	042	37 2.95	028	36 58.18	005
	+2 919		+2 939		+2 940		+2 1132		+2 1077		+2 1099
37 5.86	-.6	37 5.81	-.6	37 5.87	-.6	37 5.80	-.6	37 5.77	-.6	37 5.79	-.7
37 8.665	-2250	8.815	-2310	8.675	-2370	8.605	-2390	8.575	-2400	8.595	-2420
	33 46.51		33 47.17		33 46.97		33 47.24		33 46.45		33 46.14
s											
, +22.43	-19.57	+22.97	-20.50	+26.29	-21.21	+22.60	-18.80	+18.04	-31.43	+21.87	-29.53
50		45		50		50		50		50	
, -2.50		-2.53		-2.63		-2.68		-2.71		-2.77	
0 5.1	0 50.5	4 1.9	0 51.5	0 0.2	0 52.1	0 4.1	0 50.3	0 10.0	1 3.9	0 4.9	1 1.1
15.2	0.0	13.1	3.0	7.9	0.2	16.2	59.0	20.0	13.9	16.5	13.0
20.3	1105	150	1145	81	1123	203	1093	300	178	214	141
0 50 10.15	50 0 55.25	~~47~~ 50 7.50	50 0 57.25	50 0 4.05	50 0 56.15	50 0 10.15	50 0 34.65	50 0 15.00	51 1 8.90	50 0 10.70	51 1 7.05
1.35083	1.29159 n	1.36116	1.31175 n	1.41979	1.32654 n	1.35411	1.27416 n	1.25624	1.49734 n	1.33985	1.47026 n
1.39484	1.33560 n	1.40517	1.35576 n	1.46054	1.36729 n	1.39486	1.31491 n	1.29699	1.53809 n	1.38060	1.51101 n
+24.82	-21.66	+25.42	-22.69	+28.88	-23.30	+24.82	-20.65	+19.81	-34.62	+24.02	-32.44
60 34.97	50 33.59	32.92	50 34.56	50 32.93	50 32.85	60 34.97	60 34.00	60 34.81	50 34.38	50 34.72	50 34.61
32 13.38	14.76	15.43	13.79	32 15.42	15.50	32 13.38	14.35	32 13.54	13.97	32 13.63	13.74
14.07		14.61		15.46		13.86		13.76		13.68	
48 3	48 48										
1.11670	1.11720										
+1442		-466		+1164		+787		+684		+1053	
1.13112	1.13162	1.11204	1.11254	1.12834	1.12884	1.12457	1.12507	1.12354	1.12404	1.12723	1.12773
-13.52	-13.54	-12.94	-12.96	-13.44	-13.45	-13.32	-13.34	-13.29	-13.31	-13.40	-13.42
-.11	-.12 -.08	-.11	-.17 -.09	-.16	-.14 -.10	-.11	-.12 -.08	-.08	-.17 -.22	-.10	-22 -.20
-.01	-.03	-.12	-.03	.00	-.03	-.01	-.03	-.01	-.03	-.02	-.12
-13.64	-13.65	-13.17	-13.08	-13.60	-13.58	-13.44	-13.45	-13.38	-13.56	-13.52	-13.74
31 59.74	1.11	2.26	0.71	1.82	1.92	59.94	0.90	0.16	0.41	0.11	0.00
34 8.6		9.2		9.8		10.0		10.1		10.3	
+2 8.9	7.5	6.9	8.5	8.0	7.9	10.1	9.1	9.9	9.7	10.2	10.3
+2 8.2		7.7		7.9		9.6		9.8		10.3	
+2 9.19	33 45.88	+ 9.42	48.03	+ 9.19	8.624674	+ 11.08	10.504654	+ 10.61	10.024618	+ 10.92	10.324623
- .55	8.64 47.25	- .55	8.87 46.48	- .57	-4.97 46.84	- .58	-5.174 47.50	- .59	-5.27 46.43	- .60	-5.47 46.12
- 2250	-3.77	- 2310	-4.37	- 2370		- 2390		- 2400		- 2420	
+1 46.14	33 46.56	+ 45.77	47.25	+ 44.92	46.79	+ 46.60	47.02	+ 46.02	46.30	+ 46.12	46.17
	34 5.29		5.98		5.53 ~~6.53~~		5.75 ~~6.75~~		5.03		4.90

1874phae.proj.1479.

1875

α 8.677
δ +34° 4.84
dα/dt +2.806
dδ/dt +18.734

l cos δ 9.93941
l C 12552
l C' 0.06493

1875

Oct.	27	37	11.28		34'	29.6		.82	8.58	3.4
Nov.	1		11.21	-.07		30.0	+.4	.84	8.61	3.5
	6		11.14	.07		30.3	.3	.85	8.55	4.8
	11		11.07	.07		30.5	.2	.85	8.62	4.3
	16		11.00	.07		30.7	.2	.86	8.57	4.6
	21		10.93	.07		30.7	+.0	.86	8.62	4.8.
	26		10.85	.08		30.7	-.0			
Dec.	1		10.78	.07		30.6	.1	.85	8.592 (6)	4.23
	6		10.70	.08		30.4	-.2			

1875

Nov. 19 -.10 | 1874 Dec. 8 -.05 | 1875 Oct 25 -.43 + | Nov 21 -.21 + -.08 | Nov 4 -.25 | Nov 6 -.28 ×

-.115 | -.065 | -.463 | -.250 | -.310

36 44.1 36 31.4 36 44.3 36 31.1 37 51.7 37 39.4 37 56.4 37 46.0 Sh f. 37 58.0 37 48.7
46.6 33.6 46.6 32.8 54.1 42.2 58.8 47.7 38 0.3 50.8
48.9 36.1 49.0 35.0 56.5 44.1 38 1.2 49.6 2.8 52.4
53.6 53.8 38 1.1 5.9 7.5
56.0 56.1 3.3 8.3 9.8
58.5 58.5 5.7 10.9 12.2
0.7 37 14.8 1.0 37 23.7 8.3 38 7.6 13.0 38 26.4 14.6 38 35.9
8.0 16.8 3.3 26.2 10.7 9.5 15.5 28.0 16.9 37.4
8.0 18.8 8.0 28.6 15.3 11.6 20.1 30.4 21.7 40.2
10.2 10.4 17.7 22.5 24.1
12.6 12.8 20.2 25.0 26.4

3422 3438 2446 2374 1943
300 300 180 126 60
6422 36 33.70 6438 36 32.97 646 37 41.90 1174 37 47.77 1.3422 37 50.63
36 58.382 37 16.80 36 58.527 37 26.17 38 5.873 38 9.57 38 10.673 38 28.27 38 12.200 38 37.77
58364 +9.57 58509 +9.05 5.855 -54.36 10655 -59.29 12182 -1 -0.96
37 7.876 -.06 37 7.648 -.03 37 11.31 -.25 37 11.20 19 -.12 37 11.14 -.16
-9.510 -9.087 +54.54 +59.436 -.09 +61.04
-1.99 -1.71 -2.63 -2.51 -2.46
+ 9.52 37 5.88 + 9.01 5.82 - 54.38 37 8.62 - 59.39 8.65 - 60.99 8.60
- 6 - 3 - 26 - .14 - .18
- 1.99 +0.815 - 1.71 +1.095 - 2.63 - 2.51 - 2.463
+ 7.47 + 7.27 - 57.27 - 62.04 - 63.643
36 58.36 32 6.55 36 58.51 31 54.92 38 5.85 50 43.30 38 10.65 44.12 38 12.18 46.39
+2 10.59 +2 14.91 -16 14.45 -16 14.58 -16 15.34
37 5.83 -.7 37 5.78 -.7 38 8.58 -.7 38 8.61 -.7 38 8.55 -.7
8.635 -24.20 8.585 -23.70 7 -24.70 7 -25.30 7 -25.50
33 46.24 33 45.43 34 3.45 34 3.54 34 4.85

s
+24.68 -18.42 +25.56 -27.64 +23.97 - 3.70 +22.90 - 17.60 +21.57 -25.57
50 50 30 30 30 30
-2.78 -2.92 -2.92 -2.97 -2.98 -3.00
0 5.1 0 51.5 0 6.9 1 5.5 1 14.1 1 46.8 1 18.1 2 9.7 1 22.5 2 2.0 1 18.2 2 13.9
9.9 54.7 16.0 14.5 33.8 5.5 27.1 14.2 32.2 11.1 26.9 22.5
15.0 106.2 22.9 20.0 47.9 112.3 45.2 23.9 54.7 13.1 45.1 36.4
0 50 7.50 50 0 53.10 50 0 11.45 51 1 10.00 31 23.95 31 56.15 31 22.60 32 11.95 31 27.35 32 6.55 31 22.55 32 18.20

1.39235 1.26529n 1.40756 1.44154n 1.37967 0.56820n 1.35984 1.24557n 1.33385 1.40773n
1.43310 1.30604n 1.44831 1.48229n 1.44460 0.63313n 1.42477 1.31044n 1.39878 1.47266n
+27.11 -20.23 +28.08 -30.36 +27.84 -4.30 +26.59 -20.44 +25.05 -29.69
50 34.61 50 32.87 50 39.53 50 39.64 31 51.79 31 57.85 31 49.19 31 51.51 31 47.60 31 48.51

32 13.74 15.48 32 8.82 8.71 50 56.56 56.50 50 59.16 56.84 51 0.75 59.84
14.61 8.76 56.53 58.00 0.30
48 4 49 3 47 36 48 8
1.11670 1.11730 1.11650 1.11680
+2572 +1642 -523 +1912 +1904
1.14242 1.14292 1.13312 1.13372 1.11127 1.11157 1.13562 1.13592 1.13554 1.13584
-13.88 -13.90 -13.59 -13.64 -12.92 -12.93 -13.67 -13.68 -13.66 -13.67

-.14 -.16 -.08 -.15 -.24 -.17 -.14 -.30 0 -.12 -.20 -.07 -.10 -.23 -.15
-.01 -.10 -.02 -.14 -.20 -.27 -.08 -.13 -.08 -.14
-14.03 -14.08 -13.76 -13.92 -13.26 -13.20 -13.87 -13.88 -13.84 -13.96
31 59.7 1.40 31 55.06 54.79 50 43.30 43.30 45.29 42.96 46.9 45.88
10.3 9.8 34 29.5 30.1 30.3
+2 10.6 8.9 14.7 14.9 -16 13.8 13.8 15.2 12.9 16.6 15.6
+2 9.8 14.8 -16 13.8 14.0 16.1
+2 10.46 33 45.36 +14.79 14.15 45.51 -16 14.52 15.16 3.44 - 14.69 15.34 4.65 -15.15 -15.48 16.14 5.27
- .61 9.85 47.05 - .64 -4.97 45.24 - .64 3.44 - .65 2.32 - .66 4.24
- 24.20 -5.47 - 23.70 - 24.70 - 25.30 - 25.50
+1 45.65 33 46.20 + 50.45 45.38 -16 39.86 34 3.44 - 40.64 3.48 - 41.64 4.75
4.93 4.11 4.16

1874.0 α	δ	1875.0 α	δ
5.79		8.58	
.82		.61	
81		.5~~8~~45	
84		.62	
78		.57	
82		.62	
86			
81			
87			
80			
77			
79			
83			
78			
5.812		8.5908	
.871	46.11	.677	4.84
−.059		−.087	
		−.085	

−.22 + −.23 + −.23 −.12 +

Nov 7 Nov 8 Nov 9

−.250 −.243 −.352

37 58.4 38 2.2 37 58.6 37 53.1 37 59.0 37 45.2
0.8 38 1.0 55.1 38 1.5 47.1
3.1 3.4 56.9 3.9 48.8
7.9 8.2 8.4
10.2 10.4 10.9
12.6 12.9 13.2
15.0 38 33.6 15.2 38 36.6 15.7 38 24.5
17.4 35.1 17.6 38.6 18.2 26.7
22.0 37.0 22.5 40.2 22.8 29.3
24.4 24.9 25.2
27.0 27.2 27.6

1988 2019 2064
60 60 60
138.8 38 220 141.9 37 55.03 146.4 37 47.03
38 12.618 38 35.23 38 12.900 38 38.43 38 13.309 38 26.83
12.600 −1 −1.37 12.882 −1 −1.74 13.291 −1 −1.91
37 11.182 −.13 37 11.11 −.13 37 11.10 −.13
+61.478 +61.77 +62.19 −.14
−244 −243 −242
− 61.8940 37 8.66 − 61.73 8.~~68~~58 − 62.05 8.69
− .14 − 15 5 − .20
− 2.44 − 2.43 − 2.42
− 63.98 − 64.31 − 64.67
38 12.60 50 45.37 38 12.88 44.20 38 13.29 44.92
−16 14.67 −16 13.12 −16 13.86
38 8.62 −.7 38 8.57 −.7 38 8.66 −.7
7 −25.50 7 −25.60 7 −25.60
34 4.50 34 4.78 34 4.76

+10.42 − 22.61 + 17.87 − 25.53 + 26.28 − 13.52
30 30 30
−3.01 −3.02 −3.02
1 31.3 2 11.0 1 23.9 2 15.2 1 13.2 2 1.0
42.9 20.5 34.3 25.0 23.0 11.0
74.2 31.5 58.2 40.2 36.2 12.0
31 37.10 32 15.75 31 29.10 32 20.10 31 18.10 32 6.00

1.01787 1.35430n 1.25212 1.40705n 1.41963 1.13098n
1.08280 1.41923n 1.31705 1.47198n 1.48456 1.19591n
+12.10 −26.26 +20.75 −29.64 +30.53 −15.70
31 49.10 31 49.49 31 49.85 31 50.46 31 48.62 31 50.30

50 59.25 58.86 50 58.50 57.89 50 59.73 58.05
59.05 58.19 58.89
47 30 48 18
1.11650n 1.11680n 1.11640 1.11690
+13.57 +20.64 +22.13
1.13007 1.13037 1.13714 1.13744 1.13853 1.13903
−13.49 −13.50 −13.71 −13.72 −13.75 −13.77

−.02 −.18 −.11 −.07 −.22 −.15 −.16 −.20 −.04
−.10 −.14 −.09 −.14 −.08 −.13
−13.61 −13.75 −13.87 −14.01 −13.99 −13.94
50 45.64 45.11 44.53 43.88 45.74 44.11
30.3 30.4 30.4
−16 15.3 14.8 14.1 13.5 15.3 13.7
−16 15.0 13.8 14.5
−16 14.87 15.53 4.61 − 13.37 14.03 4.90 − 13.91 14.57 5.57
− .66 4.08 − .66 4.25 − .66 3.94
− 25.50 − 25.60 − 25.60
−16 41.03 4.34 − 39.63 4.57 − 40.17 4.75

13 Lacertae
h m sec
22 38 31
+ 41° 10'
z = + 1° 13'
sin z = +.02

1874		m s		° ' "	
Oct.	7	38 30.97		9 52.1	
	12	30.91	−.06	53.1	+1.0
	17	30.84	.07	54.1	1.0
	22	30.77	.07	54.9	.8
	27	30.69	.08	55.6	.7
Nov.	1	30.61	.08	56.2	.6
	6	30.52	.09	56.8	.6
	11	30.43	.09	57.2	.4
	16	30.33	.10	57.5	.3
	21				
	26				

1874
α 28.485 s
δ +9' 30.60"
dα/dt +2.664 s
dδ/dt +18.811"

l sin δ 9.81839
l cos δ 9.87668
l C 10460
l C' 9.98128
l C'' 9.97802

corr α = −.029 s
corr δ = −1.55"
tang δ = +.88 1.33
I = 2.74 s
k = −.020 s

1874

Oct. 15 −.21 | Oct. 19 −.22 | Oct. 20 −.17 | Oct. 21 −.24 | Oct. 27 −.24 −.08 | Nov. 4 −.16

−.235 | −.245 | ~~−.140~~ −.168 | −.230 | −.327 | −.173

38 28.5 | 38 25.6 | 38 26.8 | 38 22.6 | 38 26.0 | 38 15.7 | 38 24.9 | 38 13.0 | 38 20.9 | 38 19.0 | 38 16.3 | 38 14.4
31.2 | 28.5 | 29.5 | 25.0 | 28.7 | 18.1 | 27.7 | 15.2 | 23.4 | | 19.0 | 17.0
33.8 | 31.5 | 32.2 | 27.5 | 31.4 | 20.8 | 30.4 | 17.0 | 26.3 | | 21.6 | 18.5
39.4 | | 37.7 | | 37.0 | | 35.8 | | 31.7 | | 27.0 |
42.0 | | 40.3 | | 39.7 | | 38.6 | | 34.4 | | 29.7 |
44.9 | | 43.1 | | 42.4 | | 41.3 | | 37.3 | | 32.6 |
47.6 | 39 5.1 | 45.9 | 39 8.6 | 45.3 | 39 2.5 | 44.0 | 39 1.6 | 40.0 | 39 9.0 | 35.4 | 38 54.8
50.3 | 7.7 | 48.6 | 11.2 | 48.0 | 4.7 | 46.8 | 4.1 | 42.8 | 12.5 | 38.1 | 56.8
55.8 | 9.6 | 54.1 | 14.3 | 53.4 | 7.2 | 52.2 | 6.9 | 48.2 | 15.5 | 43.6 | 59.0
58.6 | | 56.8 | | 56.3 | | 54.9 | | 50.9 | | 46.2 |
1.3 | | 59.4 | | 58.9 | | 57.8 | | 53.6 | | 48.0 |

4336 | 4744 | 4671 | 4544 | 4095 | 3585
60

4936 38 28.63 | 38 25.03 | 38 18.20 | 38 15.07 | 38 19.00 | 38 16.63
38 44.873 39 7.47 | 38 43.127 39 11.37 | 38 42.464 39 4.80 | 38 41.309 39 4.20 | 38 37.227 39 12.33 | 38 32.591 38 56.87
44.853 −13.76 | 43.107 −12.10 | 42.444 −11.47 | 41.289 −10.35 | 37.207 −6.23 | 32.571 −1.89
38 30.876 −.18 | 38 30.81 −.19 | 38 30.80 −.15 | 38 30.78 −.21 | 38 30.69 −.21 | 30.565 −.14
+13.989 | +12.30 | +11.64 | +10.51 | +6.52 −.11 | +2.042
+14.02 −2.38 | +12.33 −2.33 | +11.67 −2.32 | +10.54 −2.30 | +6.55 −2.21 | +2.05 −2.07
38 28.53 | 28.49 | 28.50 | 28.4~~4~~3 | 28.45 | 28.47

− 13.76 | − 12.76 .14 | − 11.60 | − 10.39 | 3 − 6.32 | − 1.91
− .21 | − .21 | − .15 | − .20 | − .29 | − .15
− 2.38 +0.284 | − 2.33 +0.334 | − 2.32 +0.344 | − 2.30 +0.364 | − 2.21 +0.454 | − 2.07 +0.594
− 16.35 7 4363 | − 14.68 3992 | − 13.97 4464 | − 12.89 4442 | − 8.82 4538 | − 4.13 4643
38 44.85 +2 8.94 | 38 43.11 +2 8.56 | 38 42.44 +2 8.81 | 38 41.29 +2 9.19 | 38 39.21 +2 9.39 | 38 32.57 +2 9.40
−.1 | −.1 | −.1 | −.1 | −.1 | −.1
38 28.50 −2310 | 38 28.43 −2390 | 38 28.47 −2410 | 38 28.40 −2420 | 38 28.39 −2500 | 3 38 28.44 −2600
38 31.1644 9 29.37 | 31.094 9 24.4~~6~~8 8 | 31.134 9 29.25 | 31.064 9 29.31 | 31.054 9 29.67 | 31.104 9 29.73

s
+16.24 −22.60 10 | +18.10 −28.24 10 | +24.26 −22.34 10 | +26.24 −22.89 10 | +18.23 −35.10 10 | +15.96 −24.28 10

−2.46 | −2.49 | −2.50 | −2.50 | −2.53 | −2.63
4 43.0 0 20.2 | 4 41.4 0 34.3 | 4 35.9 0 18.3 | 4 32.5 0 18.6 | 4 37.9 0 28.4 | 4 40.3 0 18.8
52.7 29.5 | 48.4 33.1 | 43.8 27.4 | 43.3 28.9 | 50.0 41.9 | 49.9 28.7
95.7 49.7 | 89.8 67.4 | 79.7 45.7 | 75.8 47.5 | 87.9 70.3 | 90.2 47.5
14 4 47.85 15 0 24.85 | 14 4 49.90 15 0 33.70 | 14 4 39.85 15 0 22.85 | 14 4 37.90 15 0 23.75 | 14 4 43.95 15 0 35.15 | 14 4 45.10 15 0 23.75

1.21059 1.35411 | 1.25768 1.45086 | 1.38489 1.34908 | 1.41896 1.35965 | 1.26079 1.54531 | 1.20303 1.38525
1.19187 1.33539 | 1.23896 1.43214 | 1.36617 1.33036 | 1.40024 1.34093 | 1.24207 1.52659 | 1.18105 1.36324
+15.55 −21.65 | +17.33 −27.05 | +23.24 −21.40 | +25.13 −21.92 | +17.46 −33.62 | +15.18 −23.08
15 3.40 15 3.20 | 15 7.23 15 6.65 | 15 3.09 15 1.45 | 15 3.03 15 1.83 | 15 1.41 15 1.53 | 15 0.28 15 0.67

+41° 7 44.95" 45.15 | 7 41.12 41.70 | 7 45.26 46.90 | 7 45.32 46.52 | 7 46.94 46.82 | 7 48.07 47.68
45.05 | 41.41 | 46.08 | 45.92 | 46.88 | 47.87
+1 12 41 13 18 | | | | | 12 38 13 17
0.08560 0.08920 | | | | | 0.08500 0.08920
+881 | +1208 | +141 | +1445 | −463 | +1166
0.09441 0.09801 | 0.09768 0.10128 | 0.08701 1.09061 | 0.10005 0.10365 | 0.08097 0.08457 | 0.09666 0.10086
−1.24 −1.25 | −1.25 −1.26 | −1.22 −1.23 | −1.26 −1.27 | −1.20 −1.21 | −1.25 −1.26

−.07 −.17 −.13 | −.09 −.23 −.21 | −.15 −.22 −.13 | −.18 −.23 −.13 | −.09 −.29 −.33 | −.07 −.18 −.15
−.14 −.01 | −.14 −.02 | −.14 −.01 | −.14 −.01 | −.14 −.02 | −.14 −.01
−1.45 −1.39 | −1.48 −1.49 | −1.51 −1.37 | −1.58 −1.41 | −1.43 −1.56 | −1.46 −1.42
7 43.50 43.76 | 39.64 40.21 | 43.75 45.53 | 43.74 45.11 | 45.51 45.26 | 46.61 46.26
9 53.7 | 54.5 | 54.7 | 54.8 | 55.6 | 56.6
+2 10.2 9.9 | 14.9 14.3 | 11.0 9.2 | 11.1 9.7 | 10.1 10.3 | 10.0 10.3
+2 10.05 | 14.60 | 10.1 | 10.4 | 10.2 | 10.15
+2 8.5 9 29.13 | 13.1 24.28 | 8.5 28.41 | 8.9 28.68 | 8.6 29.88 | 8.6 29.75
+2 8.78 8.73 29.39 | +8.59 8.54 24.85 | +8.81 8.76 30.19 | +9.19 9.14 30.05 | +9.42 9.37 29.63 | +9.19 9.14 29.40
.05 −4.29 | − .05 −5.09 | − .05 −5.29 | .05 −5.39 | − .05 6.19 | − .05 7.19
− 23.10 9 29.26 | − 23.90 24.56 | − 24.10 29.30 | − 24.20 29.36 | − 25.00 29.75 | − 26.00 29.57
+1 45.63 9 48.07 | + 44.64 43.37 | + 44.66 48.11 | + 44.94 48.17 47.64 | + 44.37 48.56 | + 43.14 48.38

1874

.79	31.16	48.1
.80	31.09	43.4
.80	31.13	48.1
.81	31.06	48.2
.82	31.05	48.6
.84	31.10	48.4
.86	31.09	48.5
.86	31.09	48.2
.88	31.11	48.2
.89	31.06	49.2
.84	31.094	48.39
	(10)	(9)

1875

α 31.149 s
δ +9' 49.41"
$\frac{d\alpha}{dt}$ +2.664 s
$\frac{d\delta}{dt}$ +18.812"

log cos δ 9.87668
log c 12552
log c' 0.00220

-.15 Nov. 8 | -.26 Nov. 11 | -.13 Nov. 18 | -.10 Nov. 19 | 1874 -05 Dec. 8 | 1875 -43 Oct. 25 x

+1 ~~-.152~~ -.146 | -.264 | -.154 | -.115 | Cl. f. | -463

22 38 12.8 38 9.7 38 9.2 37 57.4 38 — 38 34.0 38 4.4 38 0.3 | 39 12.0 38 59.7
15.5 12.2 11.8 — 36.7 7.0 2.6 | 14.8 2.3
18.2 14.2 14.6 — 39.4 9.9 4.7 | 17.4 4.0
23.8 20.0 15.2 15.4 | 22.9
26.5 22.7 18.0 18.0 | 25.6
29.3 25.5 20.6 20.9 | 28.3
32.1 38 50.3 28.3 38 49.0 23.4 23.6 38 47.0 | 31.2 39 47.8
34.7 53.4 31.0 51.5 26.3 26.1 48.4 | 33.9 50.0
40.2 55.8 36.5 53.6 — 31.7 49.7 | 39.4 52.7
42.9 39.3 — 34.4 | 42.2
45.7 42.0 — 37.2 | 44.9

32.17 38 12.03 | 28.09 37 57.40 | 10.35 38 36.70 | 22.86 38 2.53 | 31.26 39 1.90
38 30.245 38 53.17 | 38 25.536 38 51.37 | 38 20.700 | 38 20.782 38 48.37 | 39 28.418 39 50.17
30.225 | 25.516 | 20.680 | 20.762 | 28.398
38 30.48 | 38 30.43 | 38 30.29 | 30.276 | 38 33.63
-0.26 +0.38 | -4.91 +5.14 | -9.61 +9.73 | -9.550 +9.57 | +54.77 -54.37
-0.23 -.13 | -4.88 -.23 | -9.58 -.11 | -9.47 -.09 | +54.80 -.38

+ 0.34 -2.00 | + 5.09 -1.95 | + 9.71 -1.81 | + 9.52 -1.78 | - 54.38 -2.48
- .13 38 28.47 | - .23 28.48 | - .13 28.49 | - .10 28.46 | - .41 38 31.17
- 2.00 +0.664 x | - 1.95 +0.714 | - 1.81 +0.854 | - 1.78 +0.884 | - 2.48
- 1.79 | + 2.91 | + 7.77 | + 7.64 | - 57.27
38 30.22 | 38 25.52 | 38 20.68 | 38 20.76 | 39 28.40

7 45.03 | 45.41 | 45.42 | 7 47.01 | 26 29.20
38 28.43 +2 11.32 | 38 28.43 +2 10.77 | 38 28.43 +2 10.99 | 38 28.40 +2 10.59 | 38 31.13 -16 14.45
38 31.094 -.1 | 31.094 -.1 | 31.114 -.1 | 31.064 -.1 | -.1
-26.40 | -26.60 | -27.00 | -27.00 | -26.50
9 29.85 | 9 29.48 | 9 29.31 | 9 30.50 | 9 48.15

s
+18.21 -22.93 | +28.14 -25.83 | -16.00 | +18.25 -27.59 | + 26.52 - 21.75
10 | 10 | 15 | 10 | 10 | 55

-2.68 | -2.71 | -2.77 | -2.78 | -2.92
4 39.1 0 16.9 | 4 29.8 0 19.2 | 0 10.7 | 4 40.0 0 23.9 | 4 1.1 0 42.0 | 0 42.2 1 31.3
50.6 24.9 | 41.9 30.4 | 22.9 | 44.1 28.4 | 11.1 52.9 | 59.9 47.5
89.7 66.8 | 71.7 49.6 | 33.6 | 84.1 52.3 | 12.2 94.9 | 102.1 78.8
14 44.85 15 33.40 | 14 35.85 15 24.80 | 15 16.80 | 14 42.05 15 26.15 | 14 6.10 15 47.45 | 55 51.05 56 39.40

1.26031 1.36040n | 1.44932 1.41212n | 1.20412n | 1.26126 1.44075n | 1.42357 1.33746n
1.23833 1.33842n | 1.42734 1.39014n | 1.18214n | 1.23928 1.41877n | 1.42577 1.33966n
+17.31 -21.80 | +26.75 -24.55 | -15.21 | +17.35 -26.23 | +26.65 -21.86
15 2.16 15 31.60 | 15 2.60 15 0.25 | 15 1.59 | 14 59.40 14 59.92 | 56 17.70 56 17.54

7 46.19 7 46.75 | 7 45.75 48.10 | 7 46.76 | 7 48.55 48.43 | 26 30.65 30.81
46.47 | 46.92 | 48.69 | 30.73
12 38 13 16 | 12 35 13 19 | 12 3 12 51
0.08500 0.08920 | 0.08500 0.08920 | 0.08200 0.08620
+789 | +686 | +1057 | +1208 | -518
0.09289 0.09709 | 0.09186 0.09666 | 0.09557 0.09977 | 0.09708 0.10128 | 0.07682 0.08102
-1.24 -1.25 | -1.24 -1.25 | -1.25 -1.26 | -1.25 -1.26 | -1.19 -1.20

-.09 -.19 -.14 | -.21 -.27 -.18 | -.06 -.09 | -.09 -.42 -.20 | -.18 -.33 -.13
-.14 -.01 | -.14 -.01 | -.03 | -.52 -.04 | -.11 -.24
-1.47 -1.40 | -1.59 -1.44 | -1.34 | -1.86 -1.50 | -1.48 -1.57
44.72 45.35 | 44.16 46.66 | 45.42 | 47.09 46.93 | 26 29.17 29.24
57.0 | 57.2 | 57.6 | 57.6 | 10 15.9
+2 12.3 11.7 | 13.0 10.5 | 12.2 | 10.5 10.7 | -16 13.3 13.3
+2 12.0 | 11.75 | 12.2 | 10.6 | -16 13.3
+2 10.5 29.35 | 10.2 28.12 | 10.6 | 9.1 30.50 | -16 14.8 9 48.09
+2 11.08 11.03 29.98 | + 10.61 10.56 29.62 | + 10.92 10.87 | + 10.46 10.41 30.34 | -16 14.52 14.58 48.16
- .05 -7.59 | - .05 -7.79 | - .05 -8.19 | - .05 -8.19 | - .06
- 26.40 29.66 | - 26.60 29.37 | - 27.00 29.29 | - 27.00 30.42 | - 26.50 9 48.12
+1 44.63 48.47 | + 43.96 48.18 | + 43.37 48.80 | + 43.41 49.23 | -16 48.08

1875 1875

Oct.	27	38^m	33.60^s		9′	76.1″		.82	31.13	48.1
Nov.	1		33.52	−.08		76.7	+.6	.84	31.06	48.2
	6		33.43	.09		77.3	.6	.85	31.16	47.5
	11		33.34	.09		77.7	.4	.85	31.16	48.4
	16		33.25	.09		78.1	.4	.86	31.14	48.4
	21		33.16	.09		78.3	.2	.86	31.08	48.4
	26		33.06	.10		78.4	+.1			
Dec.	1		32.97	.09		78.3	−.1	.85	31.122	48.17
	6		32.87	.10		78.2	.1		(6)	

−.21 −.08 + Nov 2 −.28 + Nov 6 −.22 + Nov 7 −.23 + Nov 8 −.23 −.12 + Nov 9

−.250 −.310 −.250 −.273 −.352

39 16.6 39 11.4 39 18.2 39 6.3 39 18.6 39 21.1 39 18.9 39 19.7 39 19.5 39 14.9
19.3 14.2 21.1 8.3 21.4 23.5 21.7 22.4 22.0 17.2
22.1 16.3 23.6 11.3 24.1 25.9 24.5 24.8 24.8 19.7
27.5 29.2 29.5 29.9 30.2
30.3 31.9 32.3 32.6 33.0
33.1 34.6 35.0 35.5 35.7
35.8 39 54.9 37.4 39 53.0 37.8 39 57.8 38.2 40 5.3 38.4 39 47.9
38.6 40.4 54.8 40.6 0.2 40.9 7.5 41.0 50.6
44.1 45.8 57.0 46.0 2.2 46.2 10.0 46.6 52.5
46.8 48.4 48.8 48.9 49.3
49.4 51.3 51.6 51.8 52.0

36.36 39 13.97 38.19 39 8.63 38.57 39 23.50 38.91 39 22.30 39.25 39 17.27
39 33.055 39 54.90 39 34.718 39 54.93 39 35.064 40 0.07 39 35.373 40 7.60 39 35.682 39 50.33
33.035 34.698 35.044 35.353 35.662
38 33.50 38 33.43 38 33.41 38 33.39 38 33.387
+59.53 −59.30 +61.27 −1^m −0.96 +61.63 −1^m −1.87 +61.96 −1^m −1.74 +62.289 −1^m −1.91
+59.56 −.18 +61.30 −.25 +61.66 −.19 +61.99 −.20 +62.32 −.20
−.11 −.16
− 59.40 −2.35 − 60.99 −2.28 − 61.40 −2.26 − 61.73 −2.24 − 62.05 −2.22
− .22 38 31.~~09~~10 − .27 31.21 − .22 31.22 − .24 31.17 − .31 31.17
− 2.35 10 − 2.28 − 2.26 − 2.24 − 2.22
− 61.97 − 63.54 − 63.88 − 64.21 − 64.58
39 33.03 39 34.70 39 35.04 39 35.35 39 35.66

3031 3096 3132 2988 3060
38 31.06 −16 1458 38 31.16 −16 1534 38 31.16 −16 1467 38 31.14 −16 1312 38 31.08 −16 1386
−.1 −.1 −.1 −.1 −.1
−2740 −2790 −2800 −2810 −2820
9 48.23 9 47.62 9 48.55 9 48.56 9 48.44

+ 19.08 − 21.85 + 26.09 − 20.21 + 11.56 − 25.01 + 13.07 − 32.23 + 18.41 − 14.65
55 55 55 55 55
−2.97 −3.00 −3.01 −3.02 −3.02
0 53.4 1 35.1 0 45.9 1 31.7 0 59.0 1 36.1 0 59.9 1 45.1 0 53.9 1 27.0
0.9 42.5 53.1 41.1 8.4 45.9 8.4 52.9 1.4 35.5
11.43 77.6 99.0 72.8 127.4 82.0 128.3 98.0 115.3 62.5
55 57.15 56 38.80 55 49.50 56 36.40 56 3.70 56 41.00 56 4.15 56 49.00 56 (55) 57.65 56 31.25

1.28058 1.33945n 1.41647 1.30557n 1.06296 1.39811n 1.11628 1.50826n 1.26505 1.16584n
1.28278 1.34166n 1.41867 1.30777n 1.06516 1.40031n 1.11848 1.51046n 1.26725 1.16804n
+19.18 − 21.96 +26.22 − 20.31 + 11.62 − 25.14 + 13.14 − 32.39 +18.50 −14.73n
56 16.33 56 16.84 56 15.72 56 16.09 56 15.32 56 15.86 56 17.29 56 16.61 56 16.15 56 16.52

26 32.02 31.51 26 32.63 26 32.26 26 33.03 32.49 26 31.06 31.74 26 32.20 31.83
31.76 32.44 32.76 31.40 32.02
12 10 12 43
0.08260 0.08560
+1914 +1906 +1357 +2066 +2215
0.10114 0.10534 0.10106 0.10526 0.09557 0.09977 0.10266 0.10686 0.10875 0.10775
− 1.26 − 1.27 − 1.26 − 1.27 − 1.25 − 1.26 − 1.27 − 1.28 − 1.27 − 1.28

−.10 −.19 −.13 −.18 −.22 −.11 −.03 −.18 −.17 −.05 −.24 −.27 −.09 −.14 −.05
−.05 −.10 −.05 −.10 −.06 −.10 −.06 −.11 −.05 −.09
−1.41 −1.50 −1.49 −1.48 −1.34 −1.53 −1.38 −1.66 −1.41 −1.42
30.61 30.01 31.14 30.78 31.69 30.96 29.68 30.08 30.79 30.41
16.8 17.3 17.4 17.5 17.6
−16 13.8 13.2 13.8 13.5 14.3 13.6 12.2 12.6 13.2 12.8
−16 13.5 13.65 13.95 12.4 13.0
−16 15.1 48.46 15.2 47.70 15.5 48.76 13.9 48.15 14.9 48.62
−16 14.69 14.75 47.86 − 15.48 15.54 47.34 − 14.87 14.93 48.03 − 13.37 13.43 48.55 − 13.91 13.97 48.24
− .06 − .06 − .06 − .06 − .06
− 27.40 48.16 − 27.90 47.52 − 28.00 48.40 − 28.10 48.35 − 28.20 48.43
−16 42.15 − 43.44 − 42.93 − 41.53 − 42.17

68 1874 1874

α Pegasi
h m sec
22 40 31
+22° 55'
φ +19° 28'
φ in z = +.33

	α 27.768	Oct.	7	40 30.38		54	30.9	
	δ +54' 11.02		12	30.34	-.04		31.5	+.6
	$\frac{d\alpha}{dt}$ +2.882		17	30.29	.05		32.1	.6
	$\frac{d\delta}{dt}$ +18.848		22	30.24	.05		32.5	.4
			27	30.19	.05		32.9	.4
		Nov.	1	30.13	.06		33.2	.3
sin δ	9.59039		6	30.07	.06		33.4	.2
			11	30.01	.06		33.5	.1
l cos δ	9.96429		16	29.94	.07		33.6	.0
l C	10460		21	29.88	.06		33.6	+.0
l C'	0,06889		26	29.81	.07		33.5	-.1
		Dec.	1	29.75	.06		33.3	.2
l C''	0,06563		6	29.68	.07		33.0	-.3

corr α =
corr δ =
tang δ = +.42 1.09
I = .224 s
K = -.017 s

1874

Oct. 15 -.21		Oct. 19 -.22		Oct. 20 -.17		Oct. 21 -.24		Oct. 27 -.24 -.08		Nov. 4 -.16	
-.235		-.245		~~-.140~~ -.168		-.230		-.327		-.173	
40 30.8	40 24.7	40 29.1	40 14.8	40 28.5	40 17.1	40 27.4	40 19.3	40 23.3	40 12.0	40 18.7	40 6.1
33.0	27.0	31.3	16.5	30.7	18.8	29.5	21.4	25.5	14.3	20.9	8.6
35.2	29.0	33.6	18.0	33.0	20.8	31.8	23.6	27.8	16.1	23.1	10.2
39.7		38.1		37.4		36.3		32.2		27.6	
42.0		40.3		39.6		38.5		34.5		29.8	
44.1		42.6		41.9		40.7		36.7		32.1	
48.4	40 52.4	44.8	41 1.7	44.2	41 2.0	42.0	40 57.3	38.9	40 48.7	34.3	40 56.3
48.7	55.0	47.0	3.4	46.3	4.7	45.2	59.6	41.1	50.6	36.6	58.7
53.3	57.2	51.5	6.1	50.8	6.5	49.7	1.7	45.7	53.0	41.1	0.8
55.4		53.6		53.0		52.0		48.0		43.3	
57.7		53.9		53.3		54.3		50.2		45.4	
4863	40 26.90	4678	40 16.43	4607	40 18.90	4483	40 21.43	4039	40 14.13	3529	40 8.30
40 44.209	40 54.87	40 42.527	41 3.73	40 41.882	41 4.40	40 40.755	40 59.53	40 36.718	40 50.77	40 32.082	40 58.60
44192		42510		41865		40738		36701		32.065	
40 30.31		40 30.27		40 30.26		40 30.25		40 30.19		40 30.09	
+13.88	-13.76 -.09	+12.24	-12.10 -.09	+11.60	-11.46 -.07	+10.49	-10.32 5 -.10	+6.51	-6.23 -.10	+1.97	-1.89 -.07
- 13.76		- 12.14		- 11.60		- 10.39		- 6.32	-.09	- 1.9x0	
- .10	-2.54	- .10	-2.50	- .7	-2.49	- .10	-2.48	- .14	-2.42	- 7	-2.32
- 2.54	+0.392 27.880	- 2.50	+0.382 27.82	- 2.49	+0.392 27.84	- 2.48	+0.402 27.81	- 2.42	+0.462 27.86	- 2.32	+0.562 27.78
- 16.40		- 14.74		- 14.06		- 12.97		- 8.88		- 4.29	
40 44.19		40 42.51		40 41.86		40 40.74		40 36.70		40 32.06	
40 27.79	52 2377	40 27.77	2545	40 27.80	2395	40 27.77	2460	40 27.82	2460	40 27.77	2517
40 30.672	+2 894	30.652	+2 856	30.682	+2 881	30.652	+2 919	30.702	+2 939	30.652	+2 940
	-1.0		-.9		-1.0		-.9		-1.0		-.9
	-2090		-2130		-2140		-2140		-2190		-2230
+22	54 10.81		54 11.81		54 10.36		54 11.49		54 11.09		54 11.37
s +17.31	-10.66	+26.10	-21.20	+22.98	-25.52	+19.32	-18.78	+22.59	-14.05	+23.78	-26.52
25		25		25		25		25		25	
-246		-249		-250		-250		-253		-263	
4 39.5	0 12.1	4 28.3	0 22.1	4 33.5	0 25.9	4 35.5	0 19.5	4 31.8	0 14.0	4 30.1	0 28.2
46.8	20.8	34.8	30.5	41.9	32.9	45.1	28.9	42.7	25.4	38.9	37.5
863	329	631	526	754	588	806	484	745	394	698	657
29 4 43.15	30 0 16.45	29 4 31.55	30 0 26.30	29 4 37.70	30 0 29.40	29 4 40.30	30 0 24.20	29 4 37.25	30 0 19.70	29 4 34.50	30 0 37.85 32.85
1.23830	1.02776n	1.41664	1.32634n	1.36135	1.35257n	1.28601	1.27370n	1.35392	1.14768n	1.37621	1.42857n
1.30719	1.09665n	1.48553	1.39523n	1.43024	1.42146n	1.35490	1.34259n	1.42281	1.21657n	1.44184	1.48920n
+20.29	-12.49	+30.59	-24.84	+26.93	-26.39	+22.64	-22.01	+26.47	-16.47	+27.66	-30.85
30 3.44	30 3.96	30 2.14	30 1.46	30 4.65	30 3.01	30 2.94	30 2.19	30 3.43	30 3.23	30 2.16	30 2.00
+22° 52 44.91	44.39	52 46.21	46.89	52 43.72	45.34	52 45.41	46.16	52 44.62	52 45.12	52 46.19	46.35
44.65		46.55		44.53		45.78		44.87		46.27	
+19 27 36	28 9									27 27	28 26
1.30840	1.30870									1.30840	1.30880
+885		+1211		+144		+1452		-457		+1169	
1.31725	1.31755	1.32051	1.32081	1.30984	1.31014	1.32292	1.32322	1.30383	1.30413	1.32009	1.32049
-20.76	-20.77	-20.92	-20.93	-20.41	-20.42	-21.03	-21.05	-20.13	-20.14	-20.90	-20.92
-.05	-.11 -.02	-.13	-.17 -.08	-.09	-.16 -.09	-.07	-.14 -.06	-.09	-.13 -.03	-.10	-.19 -.13
-.14	-.01	-.13	-.01	-.14	-.01	-.14	-.01	-.14	-.01	-.14	-.01
-20.95	-20.80	-21.18	-21.02	-20.64	-20.52	-21.24	-21.12	-20.36	-20.18	-21.14	-21.06
52 23.96	23.59	25.03	25.87	23.08	24.82	24.17	25.04	24.26	24.94	25.05	25.29
54 31.9		32.3		32.4		32.4		32.9		33.3	
+2 7.9	8.3	7.3	6.4	9.3	7.6	8.2	7.4	8.6	8.0	8.3	8.0
+2 8.1		6.8		8.5		7.8		8.3		8.1	
+2 8.78	54 11.05	+ 8.59	7.77 11.50	+8.81	7.99 9.67	+9.19	8.37 11.14	+ 9.42	8.59 10.95	+ 9.19	8.33 11.08
- .81	7.97 10.66	- .82	-2.45 12.34	- .82	-2.55 11.41	- .82	-2.55 12.01	- .83	-3.05 11.63	- .86	-3.45 11.32
- 20.90	-2.05	- 21.30		- 21.40		- 21.40		- 21.90		- 22.30	
+1 47.07	54 10.85	+ 46.97	11.92	+ 46.59	10.54	+ 46.97	11.57	+ 46.69	11.29	+ 46.03	11.20
	54 29.70		30.77 ~~30.42~~		29.39		30.42		30.14		30.05

	1874			1875	δ
.79	30.67	29.7	.80	30.65	30.3
.80	30.65	30.8	.82	30.66	29.1
.80	30.68	29.4	.84	30.67	29.4
.81	30.65	30.4	.84	30.70	29.6
.82	30.70	30.1	.85	30.69	29.0
.84	30.65	30.1	.85	30.64	29.1
.86	30.75	29.5	.86	30.69	29.6
.86	30.64	29.1			
.88	30.65	29.4	.84	30.671	29.44
.89	30.65	31.1		(7)	
.94	30.66	29.6			
.85	30.668 (11)	29.93			

Nov. 8 −15		Nov. 11 −.26		Nov. 18 −.13		Nov. 19 −10		1874 Dec. 8 −05		1875 × −.35 −08 Oct. 18	
+ 1ˢ ~~.152~~ −.146		−.267		−.154		−.115		−.055		−.430	
40 15.3	40 0.4	40 11.6	40 0.6	40 6.9	39 53.8	40 7.0	39 38.0	40 7.3	39 54.1	41 11.0	41 7.8
17.6	2.2	13.9	2.7	9.0	56.0	9.1	1.0	9.6	56.2	13.2	10.0
19.8	4.2	16.1	4.8	11.4	58.2	11.3	2.3	11.7	58.0	15.4	11.6
24.3		20.6		15.8		16.0		16.2		19.9	
26.6		22.7		18.0		18.2		18.6		22.0	
28.8		25.0		20.3		20.5		20.7		24.3	
31.0	40 45.1	27.3	40 48.7	22.5	40 35.8	22.7	40 40.2	22.9	40 40.2	26.5	41 45.7
33.3	47.7	29.6	51.2	24.7	38.1	25.0	43.1	25.1	42.6	28.8	
37.8	49.5	34.0	52.7	29.2	40.2	29.4	44.9	29.7	44.7	33.3	
39.8		36.2		31.5		31.7		31.7		35.5	
42.9		38.4		33.7		34.0		34.0		37.9	
3166 40	2.27	2754 40	2.70	2230 39	56.00	2249 40	0.43	2275 39	56.10	2678 41	9.80
40 29.873 40	47.43	40 25.036 40	50.87	40 20.273 40	38.03	40 20.445 40	42.73	40 20.682 40	42.50	41 24.345 41	45.70
29.856		25.019		20.256		20.428		20.665		24.328	
40 30.054		40 30.01		40 29.921		40 29.90		40 29.65		40 33.487	
− 0.~~17~~20	+10.38 −.06	− 4.99	+5.14 −.11	− 9.665	+9.73 −.05	− 9.47	+9.56 −.04	− 8.99	+9.05 −.02	+50.83~~5~~6	−50.57 −.15
+ 0.34		+ 5.09		+ 9.41		+ 9.52		+ 9.02		− 50.68	−.09
— 6	−2.27	— .11	−2.24	— 6	−2.14	— 5	−2.13	— 2	−1.88	— .18	−2.82
− 2.27	+0.612 40 27.91	− 2.24	+0.642 27.81	− 2.14	+0.742 27.80	− 2.13	+0.752 27.82	− 1.88	+1.002 27.81	− 2.82	30.70
− 1.99		+ 2.74		+ 7.51		+ 7.34		+ 7.12		− 53.68	
40 29.86		40 25.02		40 20.26		40 20.43		40 20.66		41 24.33	
40 27.87 52	2284	40 27.76	2306	40 27.77	2314	40 27.77	2527	40 27.78 52	1882	40 30.66 11	891
30.752 +2	1132	30.642 +2	1077	30.652 +2	1099	30.652 +2	1059	30.662 +2	1491	−16	1507
	−1.0		−1.0		−1.0		−1.0		−1.1		−1.0
	−2240		−2250		−2260		−2260		−2190		−2290
54	1076	54	1033	54	1053	54	1226	54	1070	54	2994
S +27.60	−17.56	+22.34	−25.83	+24.27	−17.76	+20.01	−22.29	+24.58	−21.82	+14.54	−21.36
25		25		25		25		25		10	
−2.68		−2.71		−2.77		−2.78		−2.92		−2.88	
4 27.3	0 19.2	4 33.0	0 29.0	4 30.4	0 18.2	4 36.1	0 25.5	4 35.5	0 29.0	0 55.3	1 35.5
38.1	30.5	43.9	39.9	41.5	30.7	39.3	28.9	43.1	37.9	9.7	52.8
654	497	769	689	719	489	754	544	786	669	1230	883
29 4 32.70	30 0 24.85	29 4 38.45	30 0 34.45	29 4 35.95	30 0 24.45	29 4 37.70	30 0 27.20	29 4 39.30	30 0 33.45	11 1.50	11 44.15
1.44091	1.24452n	1.34908	1.41212n	1.38507	1.24944n	1.30125	1.34811n	1.39058	1.33885n	1.16256	1.32960n
1.50654	1.31015n	1.41471	1.47775n	1.45070	1.31507n	1.36688	1.41374n	1.45621	1.40448n	1.25337	1.41941n
+32.10	−20.42	+25.98	−30.04	+28.23	−20.66	+23.27	−25.93	+28.69	−25.38	+17.88	−26.27
30 4.80	30 4.43	30 4.43	30 4.41	30 4.18	30 3.79	30 0.97	30 1.27	30 7.89	30 8.07	11 19.38	11 17.88
52 43.55	43.92	52 43.92	43.94	52 44.17	44.56	52 47.38	47.08	52 40.46	40.28	11 28.97	30.47
43.73		43.93		44.36		47.23		40.37		29.72	
								27 32	28 26	27 13	27 56
								1.30840	1.30880	1.30830	1.30860
+792		+689		+1066		+2576		+1642		+464	
1.31632	1.31672	1.31529	1.31569	1.31906	1.31946	1.33416	1.33456	1.32482	1.32522	1.31294	1.31324
−20.72	−20.74	−20.67	−20.69	−20.85	−20.87	−21.59	−21.61	−21.13	−21.15	−20.56	−20.57
−.14	−.16 −.05	−.09	−.18 −.12	−.11	−.36 −.06	−.07	−.35 −.09	−.11	−.40 −.08	−.03	−.25 −.08
−.13	−.01	−.14	−.02	−.51	−.04	−.51	−.04	−.55	−.07	−.14	−.24
−20.99	−20.80	−20.90	−20.83	−21.41	−20.94	−22.17	−21.74	−21.79	−21.30	−20.73	−20.89
23.56 2256	23.12	23.02	23.11	22.70	23.59	25.21	25.34	18.67	18.98	11 8.24	9.58
33.4		33.5		33.6		33.6		32.9		54 528	
+2 10.8	10.3	10.5	10.4	10.9	10.0	8.4	8.3	14.2	13.9	−16 15.4	16.8
+2 10.6		10.5		10.4		8.3		14.0		−16 16.7	
+2 11.08	10.20 10.36	+10.61	9.72 10.24	+10.92	10.01 10.11	+10.46	9.55 12.16	+14.79	13.83 10.60	−16 14.77	54 29.62
− .88	−3.55 10.92	− .89	−3.65 10.33	− .91	−3.75 11.00	− .91	−3.75 12.29	− .96	−3.05 10.91	— .95	15.72 31.96
− 22.40		− 22.50		− 22.60		− 22.60		− 21.90		→ 22.90	
+ 47.80	10.64	+ 47.22	10.28	+ 47.41	10.55	+ 46.95	12.22	+ 51.93	10.75 −16	38.62 54	30.29
	29.49		29.13		29.40		31.07		29.60		

1875

Oct. 27	40m	33.37		54'	53.5"	
Nov. 1		33.31	−.06		53.8	+.3
6		33.25	.06		54.0	.2
11		33.19	.06		54.1	.1
16		33.12	.07		54.2	+.1
21		33.06	.06		54.1	−.1
26		32.99	.07		54.0	.1
Dec. 1		32.93	.06		53.9	.1
6		32.86	.07		53.7	−.2

1875

α 30.650s

δ +54' 29.87"

dα/dt +2.882s

dδ/dt +18.849"

l cos δ 9.96429

l c .12552

l c' 0.08981

1874.0 α	δ	1875.0 α	δ
27.79		30.65	
77		66	
80		67	
77		71	
82		69	
77		64	
87		69	
76			
77			
77			
78			
27.788		30.673	
.768	11.02	.650	29.87
+.020		+.023	

−.43 +		−.21	−.08 +	−.25	+	−.28	+	−.22	×	−.23	×
Oct. 25		Nov 2		Nov 4		Nov 6		Nov 7		Nov 8	
−.463		−.250		−.260		−.310		−.250		−.273	
41 14.5	41 4.4	41 19.4	41 10.4	41 20.4	41 11.8	41 21.0	41 14.2	41 21.3	41 12.0	41 21.6	41 13.8
16.7	7.0	21.6	12.0	22.6	14.0	23.2	16.1	23.6	14.0	23.9	16.2
19.0	9.0	23.9	13.9	24.9	16.4	25.6	18.3	25.8	15.7	26.1	18.1
23.5		28.3		29.4		30.0		30.2		30.8	
25.8		30.6		31.5		32.2		32.5		32.8	
28.0		32.9		33.7		34.3		34.8		35.0	
30.3	41 48.6	35.1	41 46.0	36.0	41 47.9	36.5	41 45.0	37.0	41 47.5	37.6	41 37.9
32.6	50.5	37.3	48.5	38.3	49.6	38.8	47.1	39.2	49.9	39.7	40.1
35.0	52.4	41.7	52.8	42.8	51.1	43.5	49.2	43.6	52.0	44.1	42.1
39.1		44.1		44.9		45.7		45.9		46.3	
41.4		46.3		47.2		47.9		48.3		48.4	
3079		3612		3717		3787		3822		3863	
	41 6.80		41 12.10		41 14.07		41 16.20		41 13.90		41 16.03
41 27.991	41 50.50	41 32.836	41 48.43	41 33.791	41 49.53	41 34.427	41 47.10	41 34.745	41 49.80	41 35.118	41 40.03
27.974	−54.37	32819	−59.80	33.774	−1m −0.30	34.410	−1 −0.96	34.728	−1 −1.37	35101	−1 −1.75
40 33.39	−.16	40 33.30	−.09	40 33.27	−.11	40 33.25	−.12	40 33.24	−.09	40 33.20 2	−.10
+54.58		+59.52	−.09	+60.50		+61.16		+61.49		+61.878	
	−2.74		−2.65		−2.62		−2.60		−2.59		−2.57
− 54.38	40 30.68	− 59.40	30.69	− 60.34	30.74	− 60.99	30.73	− 61.40	30.68	− 61.43	30.68
− .19		− .10		− .11		− .13		− .10		− .11	
− 2.74		− 2.65		− 2.62		− 2.60		− 2.59		− 2.57	
− 57.31		− 62.15		− 63.087		− 63.72		− 64.09		− 64.41	
41 27.97	11 8.08	41 32.82	8.93	41 33.77	9.77	41 34.41	9.52	41 34.73	9.04	41 35.10	8.09
	−16 14.45		−16 14.58		−16 15.00		−16 15.34		−16 14.67		−16. 13.12
40 30.66	−1.0	40 30.67	−1.0	40 30.70	−1.0	40 30.69	−1.1	40 30.64	−1.0	40 30.69	−1.1
	−23.50		−23.90		−24.00		−24.10		−24.10		−24.10
	54 29.13		54 29.45		54 29.77		54 28.98		54 29.27		54 29.77
+ 21.19	− 22.51	+ 20.74	− 15.59	+ 19.72	− 15.74	+ 18.23	− 12.67	+ 20.84	− 15.06	+ 19.09	− 4.91
10		10		10		10		10		10	
−2.92		−2.97		−2.98		−3.00		−3.01		−3.02	
0 45.0	1 38.9	0 48.6	1 34.0	0 49.8	1 32.9	1 51.7	1 29.1	0 48.3	1 32.2	0 51.8	1 19.8
2.9	56.0	55.7	41.1	56.3	40.4	59.2	37.9	56.6	41.4	0.3	28.5
1079	949	1043	751	1061	733	109	670	1049	736	1121	483
10 53.95	11 47.45	10 52.15	11 37.55	10 53.05	11 36.65	11 ~~55.45~~ 54.50	11 33.50	10 52.45	11 36.80	10 56.05	11 24.15
1.32613	1.35238n	1.31681	1.19285n	1.29491	1.19700n	1.26079	1.10278n	1.31890	1.17782n	1.28081	0.69108n
1.41594	1.44219n	1.40662	1.28266n	1.38472	1.28681n	1.35060	1.19259n	1.40871	1.26763n	1.37062	0.78089n
+26.06	−27.68	+25.51	−19.17	+24.25	−19.36	+22.42	−15.58	+25.63	−18.52	+23.48	−6.04
11 30.01	11 19.77	11 17.66	11 18.38	11 17.30	11 17.29	11 16.92	11 17.92	11 18.08	11 18.28	11 19.53	11 18.11
11 28.34	28.58	11 30.69	29.97	11 31.05	31.06	11 31.43	30.43	11 30.27	30.07	11 28.82	30.24
28.46		30.33		31.05		30.93		30.17		29.53	
										27 8	27 36
1.30830	1.30860									1.30820	1.30840
−508		+1918		+1693		+1911		+1357		+2071	
1.30322	1.30352	1.32748	1.32778	1.32523	1.32553	1.32741	1.32771	1.32187	1.32217	1.32891	1.32911
−20.10	−20.11	−21.26	−21.27	−21.15	−21.16	−21.25	−21.27	−20.98	−21.00	−21.33	−21.34
−.08	−.27 −.09	−.07	−.13 −.04	−.07	−.13 −.04	−.06	−.14 −.02	−.08	−.13 −.04	−.07	−.10 1
−.13	−.25	−.05	−.10	−.05	−.10	−.11	−.10	−.05	−.10	−.05	−.08
−20.31	−20.45	−21.38	−21.41	−21.27	−21.30	−21.42	−21.39	−21.11	−21.14	−21.45	−21.43
11 8.03	8.13	9.31	8.56	9.78	9.76	10.01	9.04	9.16	8.93	7.37	8.81
54 53.4		53.8		53.9		54.0		54.0		54.0	
−16 14.6	14.7	15.5	14.8	15.9	15.9	16.0	15.0	15.2	14.9	13.4	14.8
−16 14.6		15.1		15.9		15.5		15.0		14.1	
−16 14.52	15.48 29.05	− 14.69	15.67 29.74	− 15.15	16.13 29.65	− 15.48	16.47 29.44	− 14.87	15.86 29.20	− 13.37	14.36 28.91
− .96	29.15	− .98	28.99	− .98	29.63	− .99	28.47	− .99	28.97	− .94	30.35
− 23.50		− 23.90		− 24.00		− 24.10		− 24.10		− 24.10	
− 16 38.98	54 29.10	− 39.57	29.36	− 40.13	29.64	− 40.57	28.95	− 39.96	29.08	− 38.96	29.63

μ Pegasi 73

22h 43m 58sec

+23° 57'

ζ = +18° 26'

ζ sin ζ = +.32

1874

		α		δ	
Oct.	7	43 58.00		56' 31.9"	
	12	57.96	-.04	32.5	+.6
	17	57.92	.04	33.1	.6
	22	57.87	.05	33.5	.4
	27	57.82	.05	33.9	.4
Nov.	1	57.76	.06	34.2	.3
	6	57.70	.06	34.5	.3
	11	57.64	.06	34.6	.1
	16	57.57	.07	34.7	.1
/	21	57.51	.06	34.7	+.0
	26	57.44	.07	34.6	-.1
Dec.	1	57.37	.07	34.5	.1
	6	57.30	.07	34.3	-.2

1874

α 55.388s

δ +56' 11.77"

dα/dt +2.876

dδ/dt +18.932

l sin δ 9.60846

l cos δ 9.96090

l c 10460

l c' 006550

l c'' 0.06224

corr α =

corr δ =

tang δ = +.44 1.09

I = 2.25s

k = -.017s

1874

Oct. 15 -.21		Oct. 21 -.24		Oct. 27 -.24 -.08		Nov. 4 -.16		Nov. 8 -.15		Nov. 11 -.26	
-.235		-.230		-.327		-.173		+1s ~~.152~~ -.146		-.267	
43 58.2	43 50.2	43 54.8	43 46.0	43 50.8	43 38.3	43 46.2	43 30.0	43 42.9	43 29.0	43 39.0	43 30.6
0.6	52.6	57.0	48.3	53.0	41.2	48.4	32.0	45.1	31.3	41.4	32.6
2.8	54.5	59.4	51.6	55.3	43.0	50.6	33.6	47.5	33.0	43.7	34.7
7.2		3.9		59.8		53.1		51.9		48.1	
9.5		6.1		2.1		57.4		54.1		50.4	
11.8		8.4		4.4		59.8		56.3		52.7	
14.0	44 29.0	10.7	44 34.0	6.6	44 18.2	1.9	44 20.2	58.6	44 18.2	55.0	44 14.5
16.3	32.0	12.9	36.6	8.9	20.1	4.3	22.3	1.0	20.6	57.1	17.3
20.9	34.2	17.4	38.4	13.3	22.0	8.7	24.7	5.4	22.8	1.7	19.2
23.0		19.7		15.6		11.0		7.7		4.0	
25.5		22.0		17.8		13.3		10.0		6.2	
1898		2723		2876		3567		3805		3993	
60		180		240		300		240		180	
1298	43 52.43	923	43 48.63	476	43 40.83	6567	43 31.87	6205	43 31.10	5793	43 32.63
44 11.800	44 31.13	44 8.391	44 36.33	44 4.327	44 20.10	43 59.700	44 22.40	43 57.409	44 20.53	43 52.664	44 17.00
11.783	-13.76	8.374	-10.35	4.310	-6.23	59.683	-1.88	57.392	+0.38	52.647	+5.74
43 57.943	-.09	43 57.88	-.11	43 57.82	-.11	43 57.72	-.07	43 57.687	-.07	43 57.64	-.11
+13.845		+10.49		+6.49	-.09	+1.96		-0.288		-4.99	
	-254		-249		-243		-233		-228		-225
- 13.76	43 55.39	- 10.39	55.42	- 6.32	55.45	- 1.89 90	55.40	+ 0.34	55.42	+ 5.09	55.43
- .10		- .10		- .14		- 8		- 6		- .12	
- 2.54	+0.336	- 2.49	+0.386	- 2.43	+0.446	- 2.33	+0.546	- 2.28	+0.596	- 2.25	+0.626
- 16.40		- 12.98		- 8.89		- 4.31		- 2.00		+ 2.72	
44 11.78	54 25.76	44 8.37	24.63	44 4.31	25.28	43 59.68	25.95	43 57.39	24.34	43 52.65	24.40
	+2 8.94		+2 9.19		+2 9.39		+2 9.40		+2 11.32		+2 10.77
43 55.38	-.9	43 55.39	-.9	43 55.42	-.9	43 55.37	-.9	43 55.39	-.9	43 55.37	-1.0
43 58.256	-21.10	58.266	-21.60	58.296	-22.10	58.246	-22.60	58.266	-22.70	58.246	-22.80
+23	56 12.70		56 11.32		56 11.67		56 11.85		56 12.06		56 11.37
+18.37s	-19.93	+19.76	-27.94	+23.50	-15.77	+27.83	-22.70	+26.31	-23.12	+20.03	-24.34
25'		25		25		25		25		25	
-2.46		-2.50		-2.53		-2.63		-2.68		-2.71	
2 36.7	3 21.5	2 36.5	3 30.3	2 30.6	3 15.9	2 26.8	3 24.0	2 28.7	3 25.5	2 35.9	3 27.1
46.3	30.7	46.0	40.9	43.5	27.7	34.9	32.4	41.0	36.5	45.9	38.1
83.0	52.2	82.5	71.2	74.1	43.6	61.7	56.4	69.7	62.0	81.8	65.2
27' 2 41.50"	28 3 26.10	27 2 41.25	28 3 35.60	27 2 37.05	28 3 21.80	27 2 30.85	28 3 28.20	27 2 34.85	28 3 31.00	27 2 40.90	28 3 32.60
1.26411	1.29951n	1.29579	1.44623n	1.37107	1.19783n	1.44451	1.35603n	1.42012	1.36399n	1.30168	1.38632n
1.32961	1.36550n	1.36129	1.51173n	1.43657	1.26333n	1.50675	1.41827n	1.48236	1.42623n	1.36392	1.44856n
+ 21.36	- 23.18	+ 22.98	- 32.49	+ 27.32	- 18.34	+ 32.13	- 26.20	+ 30.37	- 26.69	+ 23.12	- 28.09
28 2.86	28 2.92	28 4.23	28 3.11	28 4.37	28 3.46	28 2.98	28 2.00	28 5.22	28 3.31	28 4.02	28 4.51
+23° 54' 45.49"	45.43	54 44.12	45.24	54 43.98	44.89	54 45.37	46.35	54 43.13	45.04	54 44.33	43.84
45.45		44.69		44.43		45.86		44.08		44.09	
+18 25 34	26 19									25 34	26 26
1.28290	1.28320									1.28290	1.28330
+890		+1460		-465		+1165		+788		+685	
1.29180	1.29210	1.29750	1.29780	1.27825	1.27855	1.29455	1.29485	1.29078	1.29108	1.28975	1.29015
-19.58	-19.59	-19.84	-19.85	-18.98	-18.99	-19.70	-19.72	-19.53	-19.55	-19.49	-19.51
-.07	-.16 -.08	-.08	-.20 -.14	-.10	-.16 -.05	-.14	-.20 -.09	-.13	-.20 -.10	-.08	-.18 -.11
-.08	-.10	-.08	-.11	-.08	-.10	-.07	-.10	-.08	-.10	-.08	-.10
-19.73	-19.77	-20.00	-20.10	-19.16	-19.14	-19.91	-19.91	-19.74	-19.75	-19.65	-19.72
54 25.76	25.76	24.12	25.14	24.82	25.75	25.46	26.44	23.39	25.29	24.68	24.12
56 32.9		33.4		33.9		34.4		34.5		34.6	
+2 7.1	7.1	9.3	8.3	9.1	8.2	8.9	8.0	11.1	9.2	9.9	10.5
+2 7.1		8.8		8.6		8.5		10.2		10.2	
+2 8.78	56 12.66	+9.19	8.40 10.92	+9.42	8.62 11.34	+9.19	8.35 11.21	+11.08	10.23 10.92	+10.61	9.75 11.63
- .78	8.00 12.66	- .79	-2.67 11.94	- .80	-3.17 12.27	- .84	-3.67 12.19	- .85	-3.77 12.82	- .86	-3.87 11.07
- 21.10	-2.07	- 21.60		- 22.10		- 22.60		- 22.70		- 22.80	
+1 46.90	56 12.66	+ 46.80	11.46	+ 46.52	11.80	+ 45.75	11.70	+ 47.53	11.87	+ 46.95	11.35
	56 31.59		30.36		30.73		30.63		30.80		30.28

1874

79	58.26	31.6
.81	58.27	30.4
.82	58.30	30.7
.84	58.25	30.6
.86	58.27	30.8
.86	58.25	30.3
.88	58.27	30.6
.89	58.16	31.6
.94	58.28	29.6
.85	58.257	30.69

(9)

1875

α 58.264 s

δ +56 30.70

$\frac{d\alpha}{dt}$ +2.876

$\frac{d\delta}{dt}$ +18.933

l cos δ 9.96090

l C, 1.2552

l C' 0.08642

1875

		m	s		'	"	
Oct.	7	44	117		56	52.5	
	12		1.13	-.04		53.1	+.6
	17		1.08	.05		53.7	.6
	22		1.03	.05		54.2	.5
	27		0.98	.05		54.6	.4
Nov.	1		0.92	.06		54.9	.3
	6		0.86	.06		55.2	.3
	11		0.80	.06		55.4	.2
	16		0.73	.07		55.5	.1

-13 Nov. 18		-10 Nov. 19		1874 -.05 Dec. 8		1875 -.35 -.08 + Oct. 18		-.21 -.08 + Nov 2		-.25 + Nov 4	
-.154		-.115		-.055		-.430		-.250		-.260	
22 43 34.4	43 25.5	43 34.5	43 17.7	43 34.9	43 26.7	44 38.5	44 24.6	44 46.9	44 36.3	44 47.8	44 36.0
36.7	27.8	36.8	20.3	37.0	28.5	40.9	26.8	49.1	38.5	50.1	37.7
38.9	30.0	38.9	22.3	39.3	30.3	43.0	28.3	51.4	40.7	52.4	40.4
43.4		43.3		43.7		47.5		56.0		57.0	
45.7		45.7		46.0		49.9		58.1		59.2	
48.0		47.9		48.3		52.0		0.5		45 1.5	
50.1	44 13.0	50.1	44 7.7	50.4	44 10.0	54.3	45 8.8	2.7		3.7	45 16.3
52.4	15.1	52.5	9.2	52.9	12.5	56.6		4.9		5.7	18.1
56.9	17.2	57.0	10.9	57.4	14.3	1.1		9.4		10.3	19.8
59.2		59.4		59.6		3.4		11.7		12.7	
1.4		1.5		1.8		5.6		14.0		15.0	
4671		4676		4713		3928		3047		3156	
60		60		60		180		300		300	
5271	43 27.77	5276	43 20.10	5313	43 28.60	5728	44 26.57	47	44 38.50	156	44 38.03
43 47.918	44 15.10	43 47.964	44 9.27	43 48.300	44 12.27	44 52.073	45 8.80	45 0.427		45 1.418	45 18.07
47.901	+9.73	47.947	+9.56	48.283	+9.05	52056	-50.57	0.410	-59.30	1.401	-1 -0.30
43 57.554	-.06	43 57.53	-.04	43 57.27	-.02	44 1.07	-.15	44 0.91	-.09	44 0.88	-.11
-9.654		-9.58		-8.99		+50.99	-.09	+59.50	-.09	+60.52	
	-215		-214		-188		-281		-265		-262
+ 9.71	43 ~~55.42~~ ~~40.38~~	+ 9.52	55.33	+ 9.02	55.43	- 50.68	58.44	- 59.40	58.28	- 60.34	58.37
- 7		- 5		- 2		- .19		- .11		- .11	
- 2.15	+0.726	- 2.14	+0.736	- 1.88	+0.996	- 2.81		- 2.65		- 2.62	
+ 7.49		+ 7.83		+ 7.12		- 53.68		- 62.16		- 63.07	
43 47.90	54 2448	43 47.95	2600	43 48.28	54 1919	44 52.06	13 8.98	45 0.41	1143	45 1.40	1035
	+2 1099		+2 1059		+2 14.91		-16 15.07		-16 14.58		-16 15.00
43 55.39	-1.0	43 55.28	-1.0	43 55.40	-1.0	43 58.38	-1.0	43 58.25	-1.0	43 58.33	-1.0
58.266	-2290	58.156	-2290	58.276	-2240		-2310		-2430		-2440
	56 17.67		56 12.69		56 10.70		56 29.81		56 31.55		56 29.95

S											
+20.15	-27.18	+27.86	-21.31	+19.80	-23.97	+25.50	-16.73	+21.93		+23.39	-16.65
25		25		25		5				5	
-2.77		-2.78		-2.92		-2.88		-2.97		-2.98	
2 34.9	3 28.1	2 27.8	3 24.0	2 42.1	3 31.6	3 40.5	4 32.0	3 46.9		3 45.4	4 34.9
47.3	40.9	32.3	27.0	50.9	40.2	54.2	48.4	52.7		52.4	41.7
82.2	69.0	60.1	51.0	93.0	71.8	67	80.4	99.6		97.8	76.6
27 2 41.10	28 3 34.50	27 2 ~~30.15~~ 30.05	28 3 25.50	27 2 46.50	28 3 35.90	8 43.35	9 40.20	8 49.80		8 48.90	9 38.30
1.30428	1.43425	1.44448	1.32858	n 1.29667	1.37967	n 1.40654	1.22350 n	1.34104		1.36903	1.22141 n
1.36652	1.49649 n	1.50722	1.39082	1.35891 n	1.44191	n 1.49296	1.30992 n	1.42746		1.45543	1.30783 n
+23.26	-31.37	+32.15	-24.60	+22.85	-27.66	+30.41	-20.41	+26.76		+28.54	-20.81
28 4.36	28 3.13	28 2.20	28 0.90	28 9.35	28 8.14	9 13.76	9 19.79	9 16.56		9 17.44	9 17.99
54 43.99	45.22	54 46.15	47.45	54 39.00	40.21	13 29.59	28.56	13 31.79		13 30.91	30.36
44.61		46.80		39.60		29.08				30.63	
				25 39	26 29	25 0	25 52				
				1.28290	1.28330	1.28270	1.28310				
+1055		+2572		+1642		+470		+1923		+1700	
1.29345	1.29385	1.30862	1.30902	1.29932	1.29972	1.28740	1.28780	1.30193		1.29970	1.30010
-19.65	-19.67	-20.35	-20.37	-19.92	-19.94	-19.38	-19.40	-20.04		-19.94	-19.96
-.08	-.46 -.14	-.14	-.43 -.09	-.08	-.48 -.11	-.12	-.70 -.05	-.09	-.32	-.10	~~-.66~~ -.33 -.05
-.30	-.40	-.27	-.37	-.34	-.43	-.53	-.71	-.23		-.23	-.28
-20.03	-20.21	-20.46	-20.83	-20.34	-20.48	-20.03	-20.16	-20.36		-20.27	-20.29
23.96	25.01	25.39	26.62	18.66	19.73	13 9.56	8.40	11.43		10.64	10.07
56 34.7		34.7		34.2		56 53.8		55.0		55.1	
+2 10.7	9.7	9.3	8.1	15.85	14.5	-16 15.8	14.6	16.4		15.5	15.0
+2 10.2		8.7		15.0		-16 15.2		16.4		15.3	
+2 10.92	10.04 11.10	+ 10.46	9.58 12.07	+ 14.79	13.86 10.12	-16 14.77	15.69 30.77	- 14.69	15.64	- 15.15	16.10 30.14
- .88	-3.97 12.15	- .88	-3.97 13.28	- .93	-3.47 11.19	- .92	29.61	- .95		- .95	29.57
- 22.90		- 22.90		- 22.40		- 23.10		- 24.30		- 24.40	
+1 47.14	11.62	+ 46.68	12.67	+ 51.46	10.65	-16 38.79	56 30.19	- 37.94	31.49	- 40.50	29.85
	56 30.55		31.60		29.58						

1874phae.proj.1479.

1875	~	δ
.80	58.38	30.2
.84	58.25	31.5
.84	58.33	29.9
.85	58.24	31.8
.85	58.29	30.6
.86	58.17	30.1
.84	58277	30.68

(6)

× -28 Nov 6 × -.22 Nov 7 × -.23 Nov 8

-.310 -.250 -.273

44 485 44 40.1 44 49.0 44 39.4 44 492 44 396
507 41.8 51.1 41.2 51.3 41.4
53.1 44.1 53.4 42.9 53.6 440
57.4 57.9 58.0
59.7 0.2 45 0.4
45 2.0 2.4 2.7
4.2 4.6 25 12.7 4.9
6.6 7.0 15.0 7.2
11.0 11.4 17.2 11.6
13.2 13.5 13.7
15.6 15.9 16.2

32 20 2664 2688
300 240 240
220 44 42.00 264 44 41.17 288 44 ~~41.33~~ 41.67
45 2.000 45 2.400 45 14.97 45 2.618
1,983 -1 -0.96 2.383 -1 -1.37 2.601 -1 -1.75
44 0.86 -.12 44 0.854 -.10 44 0.843 -.10
+61.12 +61.534 +61.787

-260 -258 -257
-61.00 43 58.~~32~~30 - 61.40 58.33 - 61.74 58.18
- .14 0 - .11 - .12
- 2.60 - 2.58 - 2.57
-63.74 - 64.09 - 64.43
45 1.98 1275 45 2.38 1034 45 2.60 906
-16 1534 -16 1467 -16 1312
43 58.24 -1.0 43 58.29 -1.0 43 58.17 -1.0
-2450 -2450 -2460
56 3191 56 3017 56 3034

+20.00 +21.23 - 12.57 +20.95
5 5 5
-3.00 -3.01 -3.02
3 467 3 474 4 29.1 3 493
550 554 38.6 573
1017 1028 67.7 1066
8' 50.85 8 51.40 9 33.85 8 53.30

1.30103 1.32695 1.09934 1.32118
1.38745 1.41337 1.18576 1.40760
+24.40 +25.90 -15.34 +25.56
9 16.25 9 17.30 9 18.57 9 18.86

13 33.10 13 31.05 29.84 13 25.49
29.67 9
25 3 25 46
1.28270 1.28300
+19.18 +13.57 +20.78
1.30188 1.29627 1.29657 1.30348
-20.04 -19.78 -19.80 -20.11

-.08 -.31 -.09 -.31 -.03 -.09 -32
-.23 -.23 -.28 -.23
-20.35 -20.10 -20.11 -20.43
12.75 10.95 9.73 9.06
552 552 553
-16 17.5 15.7 14.5 ~~16.8~~ 13.8
-16 17.5 15.1 13.8
-16 15.48 16.44 -14.87 15.83 62 -13.37 14.33
- .96 - .96 - .96
- 24.50 - 24.50 - 24.60
- 40.94 31.81 - 40.33 30.62 - 38.93 30.13

.75 1874 1874 1874

ι Cephei α 11.902 Oct. 7 45m 14.48s 32′ 37.3″   corr α = .79 13.81 35.9
h m sec δ +32′ 15.81″ 12 14.34 −.14 38.8 +1.5   corr δ = .81 14.04 31.9
22 45 14 dα/dt +2.117s 17 14.20 .14 40.2 1.4   .81 13.90 35.0
+65° 33′ dδ/dt +18.857″ 22 14.04 .16 41.5 1.3   tang δ = +2.20 2.42 .82 14.02 36.5
−23° 10′ 27 13.88 .16 42.6 1.1   .82 14.04 36.5
  Nov. 1 13.70 .18 43.6 1.0   I = 4.98s .86 14.17 36.1
sin ζ = −.39 l sin δ 9.95920 6 13.51 .19 44.6 1.0   .86 14.05 35.0
  11 13.31 .20 45.4 .8   K = −.037s .88 14.07 36.0
l cos δ 9.61689 16 13.09 .22 46.1 .7   .89 13.98 37.4
l C 10460
l C′ 9.72149   .84 14.009 35.59
  (9)
l C″ 9.71823

1874
Oct. 15 −.21 Oct. 21 −.24 Oct. 22 −.15 −.07 Oct. 26 −.21 −.08 Oct. 27 −.24 −.08 Nov. 4
−235 −.230 −210 −.285 −.3??
45 18.6 45 3.2 45 ~~14.0~~ 45 50.0 45 13.7 44 54.0 45 11.1 44 47.6 45 11.0 45 8.5 Ch. J.
21.0 14.7 0.7 16.2 57.3 13.5 52.2 13.5
23.4 17.4 8.3 18.8 1.5 16.0 55.8 16.0
26.1 20.0 21.3 18.7 18.5
28.4 22.8 23.8 21.3 21.1
30.8 25.4 26.5 23.8 23.4
33.4 45 44.5 27.4 28.6 26.1 26.0
35.8 47.9 30.0 31.2 28.6 28.4
37.7 52.0 32.3 33.8 31.1 30.8
  33.2
25.62 22.52 21.39 19.02 18.87

45 3.20 45 59.67 44 57.60 44 51.87 46 8.50
45 28.356 45 18.13 45 25.022 45 5 45 23.767 45 21.133 45 20.967
28.319 24.985 23.730 21.096 20.930
45 14.275 45 14.086 45 14.053 45 13.920 45 13.877
+14.057 −13.76 +10.902 −10.35 +9.6870 −9.31 +7.1820 −6.52 +7.046 −6.23
−46 −.53 −.33 −.46 −.53
− 13.56 − 10.39 − 9.36 −.17 − 6.54 −.19 − 6.32 −.19
− .52 −.235 − .51 −.216 − .46 −.213 − .63 −.200 − .72 −1.97
− 2.35 −0.233 45 11.725 − 2.16 −0.043 11.934 − 2.13 +0.013 11.79 − 2.00 +0.117 11.93 − 1.97 +0.147 12.01
− 16.63 5 − 13.06 5 − 11.95 − 9.20 − 9.01
45 28.32 45 24.98 45 23.73 45 21.10 45 20.93

45 11.69 30 31.23 45 11.92 28.33 45 11.78 31.80 45 11.90 33.82 45 11.92 34.16
45 13.807 +2 8.94 14.037 +2 9.19 13.897 +2 9.36 14.017 +2 9.61 14.037 +2 9.39
+ 1.0 + 1.0 + 1.0 + 1.1 + 1.0
− 23.90 − 25.50 − 25.80 − 26.60 − 26.90
+65 32 17.27 32 13.02 32 16.36 32 17.93 32 17.65

s
+ 25.16 − 19.77 − 34.65 + 26.17 + 29.26 + 12.47
50′ 50′ 50 50 50 50
−246 −250 −251 −252 −253
2 25.9 2 50.2 2 ~~30.7~~ 2 0.9 2 24.3 2 20.3 2 27.8 2 47.2
31.0 55.5 36.9 5.9 31.1 28.3 36.0 51.1
56.9 105.7 67.6 6.8 55.4 48.6 63.8 98.3
52 2 28.45 52 2 52.85 52 2 33.80 53 3.40 52 2 27.70 52 2 24.30 52 2 31.90 52 2 49.15

1.40071 1.29601n 1.53970n 1.41780 1.46627 1.09587
1.12220 1.01750n 1.26119n 1.13929 1.18776 0.81736
+ 13.25 − 10.41 − ~~18.20~~ − 18.25 + 13.77 + 10.41 + 6.57
52 41.70 52 42.44 ~~52 15.50~~ 52 45.15 52 41.47 52 39.71 52 38.47
+65°, ″
30 6.65 5.91 30 ~~32.80~~ 30 3.20 30 6.88 30 8.64 30 9.88
6.28 3.20 6.88
−23 9 39 9 14
1.39140n 1.39130n
+892 +1463 +884 +389 −446
1.40032 1.40022 1.40603 1.40593 1.40024 ~~1.40014~~ 1.40529 ~~1.39519~~ 1.38694
+25.14 +25.13 +25.47 +25.46 +25.13 +25.43 +24.38

−.13 −.18 −.08 −.24 −.33 −.24 −.14 −.21 −.18 −.25 −.03 −.10
−.07 −.09 −.08 −.09 −.07 −.07 −.07
+ 24.94 + 24.96 + 25.13 + 24.92 + 25.18 + 24.28
30 31.57 30.87 28.33 31.80 33.82 34.16
32 39.7 41.3 ~~13.0~~ 41.6 42.4 42.7
+2 8.1 ~~7.8~~ 8.8 13.0 9.8 8.6 8.5
+2 8.5 13.0 9.8 8.6 8.5
+2 8.78 32 17.42 + 9.19 10.16 + 9.20 10.17 + 9.39 10.37 + 9.42 10.40
+ .95 9.73 16.70 + .97 −6.64 + .97 −6.94 + .98 −7.74 + .98 −8.04
− 23.90 −5.04 − 25.50 − 25.80 − 26.60 − 26.90
+1 45.83 32 17.06 + 44.66 12.99 + 44.37 16.17 + 43.77 17.59 + 43.50 17.66
32 35.92 31.85 35.03 36.45 36.52

δ
5.9
31.9
35.0
36.5
36.5
36.1
35.0
36.0
37.4
5.59

1875

α 14.019
δ +32 34.67
dα/dt +2.117
dδ/dt +18.858

l cos δ 9.61689
l C 12552
l C' 9.74241

1875

	α	δ
.82	14.10	35.5
.84	14.09	37.3
.84	13.95	35.6
.85	14.12	35.9
.85	13.98	35.1
86	14.01	35.6
84	14.042	35.83

(6)

1875

		m	s		'	"	
Oct.	27	45	16.11		32	63.2	
Nov.	1		15.93	−.18		64.3	+1.1
	6		15.74	.19		65.2	.9
	11		15.54	.20		66.0	.8
	16		15.34	.20		66.7	.7
	21		15.13	.21		67.3	.6
	26		14.92	.21		67.7	.4
Dec.	1		14.70	.22		67.9	.2
	6		14.47	.23		68.1	.2

Nov. 8 −.15

+1s ~~−152~~ −.146
45 24.4 44 54.3
5.1 58.0
7.6 1.4
10.2
12.7
15.2
17.5
20.1
22.5

1133

45 13.589 44 57.90
13.552
45 13.442
+0.143 +0.38
−.33
+ 0.34
− .32 −1.52
− 1.52 +0.597 45m 12.08
− 1.50
45 13.55

45 12.05 3431
14.167 +2 1132
+ 1.1
−2920
32 17.53

s
+15.69
50

−2.68
2 27.0
34.6
61.6
2 52 30.80

1.19562
0.91885
+ 8.20
52 39.00

30 9.35

9 36

+798
1.39938
+25.08

−.05 +.12
−.07
+24.96
34.31
45.0
+2 10.7
+2 10.7
+2 11.08 12.12
+ 10.4 −10.34
− 29.20
+1 42.92 17.23
36.09

Nov. 11 −.26

−.267
44 59.0 44 56.5
1.4 0.5
4.0 3.0
6.5
8.9
11.3
13.7
16.1
18.8

1397
60
79745 0.67
45 8.856
8.819
45 13.320
− 4.5048 +5.14
−.57
+ 5.10
− .59 −1.40
− 1.40 +0.717 11.99
+ 3.11
45 8.82

45 11.93 3410
14.047 +2 1077
+ 1.1
−2960
32 16.37

+ 8.19
50

−2.71
2 31.4
38.4
69.8
52 2 34.90

0.91328
0.63151
+ 4.28
52 39.18

30 9.17

9 32

+693
1.39833
+25.02

− 1 −.09
−.08
+24.93
34.10
45.4
11.3
11.3
+ 10.61 11.66
+ 105 −10.74
− 29.60
+ 42.06 16.16
35.02

Nov. 18 −.13

−.154
44 54.0 44 56.6
56.1 0.2
59.0 4.3
1.1
3.7
6.3
8.6
11.1
13.6

2134
180
33445 0.37
45 3.711
3.674
45 ~~13.01~~ 12.99
− 9.342 +9.73
−.29
+ 9.41
− .34 −1.09
− 1.09 +1.027 12.02
+ 8.28
45 3.67

45 11.95 3571
14.067 +2 1099
+ 1.1
−3060
32 17.20

+ 3.34
50

−2.77
2 31.7
39.8
71.5
52 2 35.75

1.52375
1.24198
+ ~~11.40~~ 11.75
52 ~~52.20~~ 37.50

~~29~~ 30 ~~55.15~~ 10.85

9 31

+1083
1.40223
+25.15

− 0 −.29
−.29
+24.86
35.71
46.4
10.7
10.7
+10.92 12.00
+ 108 −11.74
− 30.60
+ 41.40 17.11
35.97

1874 Nov. 19 −.10

−.115
44 53.9 44 46.8
56.3 48.6
58.7 50.9
1.0
3.2
6.3
8.6
11.3
13.8

2131
180
331 44 48.77
45 3.678
3.641
45 12.975
− 9.331 +9.56
−.22
+ 9.52
− .25 −1.05
− 1.05 +1.067 11.93
+ 8.22
45 3.64

45 11.86 30 3769
13.977 +2 1059
+ 1.1
−3070
32 18.68

+14.91
50

−2.78
2 29.2
28.2
57.4
52 2 28.70

1.17348
0.89161
+ 7.79
52 36.49

30 11.86

9 38
1.39140n
+2582
1.41722
+26.14

−.04 −.31
−.27
+25.83
37.69
46.5
8.8
8.8
+10.46 11.54
+ 108 −11.84
− 30.70
+ 40.84 18.53
37.39

1875 Oct. 25 −.43

×

−.463
46 1.9 46 2.8
4.3 6.3
7.0 9.6
11.4
14.0
16.5
18.9 10.5
21.5 14.9

46 6.23
11.69 12.70
46 11.65
45 16.197
+ 55.468 −54.37
−.95
− 54.38
− 1.02 −2.15
− 2.15 14.18
− 57.55
46 11.65

45 14.10 49 17.23
−16 1445
+ 1.1
−28.30
32 35.58

+ 5.46
30

− 2.92
3 42.9
0.9
103.8
33 51.90

0.73719
0.47960
+3.02
33 54.92

48 53.43

9 56
1.39160n
−491
1.38669
+24.36

− 1 −.56
−.55
+23.80
49 17.23
33 30
−16 14.2
−16 14.2
−16 14.52 13.39
+ 1.13
− 28.30
−16 41.69 32 35.54

Nov. 2 −.21 −.08

×

−.250
46 5.8 45 44.0
8.3 47.2
11.1 52.0
13.5
15.8
18.5
21.0
23.4
26.0

1434

45 47.73
46 15.933
15.896
45 15.9088
+60.082 −59.30
−.46
− 59.40 −.19
− .55 −1.86
− 1.86 14.44
− 61.81 0.09
46 15.90

45 14.09 2061
−16 1458
+ 1.0
−2980
32 37.23

+ 28.20
30

−2.97
3 34.4
40.9
75.3
33 37.65

1.45025
1.19266
+15.58
33 53.23

48 55.12

10 10
1.39170n
+ 1925
1.41096
+25.76

−16 −.27
−.11
+25.49
20.61
45
16.1
16.1
− 14.69 13.54
+ 1.15
− 29.80
− 43.34 37.27

λ

1874.0 α δ
11.69
92
78
90
92
12.05
11.93
95
86
11.~~880~~
902 1581
−.013

1875.0 α δ
14.10
09
13.95
14.12
13.98
14.01
14.05~~8~~ 42
.019 34.67
+.03~~4~~
.023

ζ=

−.25 + Nov 4
−.260
46
69
9.4
11.9
14.1
16.5
19.3 46 34.8
21.4 38.4
24.1 42.1
26.6
15.02

−.28 + Nov 6
−.310
46 45 49.7
7.4 53.2
10.1 58.1
12.4
15.0
17.4
20.3
22.6
25.0
27.7
15.79
45 53.67

−.22 + Nov 7
−.250
46 46 14.0
7.9 17.86 16.7
10.3 77
12.5 48
15.1 59
17.6 60
—
—
27.5 .54
46 15.35

−.23 + Nov 8
−.243
46 45 45.7
8.1 58.0
10.6 53.0
12.9
15.7
18.0
20.3 46 34.6
23.0 37.4
25.4 42.8
28.2
16.22
45 49.57

Nov 4:
46 16.689 46 38.53
16652
45 15.831 m −1 −0.30
+60.824 −.55
− 60.34 −1.79
− .57 45 14.00,01
− 1.79
− 62.70
46 16.65
45 13.95 49 −16 1975 1500
+1.1
−3020
32 35.65

Nov 6:
46 17.544
17.507
45 15.753 m −1 −0.97
+61.768 −.62
− 61.00 −1.71
.68 14.21
− 1.71
− 63.39
46 17.51
45 14.12 −16 2068 1534
+1.1
−3050
32 35.94

Nov 7:
46 17.640
17.603
45 15.7469 m −1 −1.37
+61.8991 −.48
− 61.40 −1.67
− .55 14.08
− 1.67
− 63.62
46 17.60
45 13.98 −16 1953 1467
+1.1
−3070
32 35.26

Nov 8:
46 18.022 46 38.27
17.985
45 15.675 m −1 −1.75
+62.3+3 −.51
− 61.74 −1.63
− .60 14.09
− 1.63
− 63.97
46 17.98
45 14.01 −16 1870 1312
+1.1
−3090
32 35.78

Nov 4:
− 21.84
30
−2.98
4 3.3
8.4
11.9
34 59.5
1.33925 n
1.08166 n
−12.07
33 53.88
48 54.47
+17.03
1.40873
+25.63
−.18 −.35
−25
+25.28
49 19.75
33 4.9
−16 14.8
−16 14.8
−16 15.15 13.99
+ 1.16
− 30.20
−16 44.19 32 35.56

Nov 6:
+ 23.87
30
−3.00
3 35.7
44.1
79.8
33 39.90
1.37803
1.12044
+13.20
33 53.10
48 55.25
+19.21
1.41091
+25.76
−.11 −.33
−.22
+25.43
20.68
5.2
15.5
15.5
−15.48 14.31
+ 1.17
− 30.50
− 44.81 35.87

Nov 7:
+ 2.29
30
−3.01
3 48.8
56.7
105.5
33 52.75
0.35984
0.10225
+1.27
33 54.02
48 54.33
+13.57
1.40527
+25.43
− 0 −.23
−.23
+25.20
19.53
5.4
14.1
14.1
− 14.87 13.70
+ 1.17
− 30.70
− 44.40 35.13

Nov 8:
+ 28.45 − 20.~~8~~25
30
−3.02
3 34.0 4 3.6
42.9 11.0
76.9 14.6
33 38.45 34 7.30
1.45408 1.30643 n
1.19649 1.04884 n
+15.72 −11.19
33 54.17 33 56.11
48 54.18 52.24
53.21
10 10 9 41
1.39170 n 1.39150 n
+20.81
1.41251 1.41231
+25.85 +25.84
−.16 −.35 −.08
−.22 −.25
+25.47 +25.51
19.65 17.75
5.6
14.0 12.1
13.1
− 13.37 12.20 36.55
+ 1.17 34.65
− 30.90
− 43.10 35.60

λ Aquarii

h m sec
22 46 5

−8° 15′

ζ = +50° 38′

ζ sin ζ = +.77

1874

		m	s		′	″	
Oct.	7	46	5.37		14	43.5	
	12		5.34	−.03		43.7	+.2
	17		5.30	.04		43.9	.2
	22		5.26	.04		44.1	.2
	27		5.22	.04		44.4	.3
Nov.	1		5.17	.05		44.7	.3
	6		5.12	.05		45.0	.3
	11		5.06	.06		45.3	.3
	16		5.00	.06		45.6	.3
	21						
	26						

1874
α 2.362 s
δ −14 58.50
dα/dt +3.131 s
dδ/dt +19.056

log sin δ 9.15683n

log cos δ 9.99548
l C 10460
l C′ 0.10008

l C″ 0.09882

corr α =
corr δ =

tang δ = −.15 +1.01

I = 2.08 s

K = −.016 s

1874

Oct. 19 −22		Oct. 22 −.15	−07	Oct. 26 −21	−08	Oct. 27 −24	−08	Nov. 8 −15		Nov. 11 −26	
−.245		−.210		−.285		−.324		+1s ~~.152~~	−.146	−.264	
46 5.0		46 2.1	46 0.0	45 59.5	46 0.9	45 59.0	46 41.0	45 51.4	46 2.0	45 47.4	45 43.1
7.2		4.1	1.6	1.5	3.9	1.2	43.3	53.4		49.6	45.0
9.0		6.3	3.1	3.6	5.4	3.3	45.0	55.5		51.6	46.9
13.4		10.5		7.7		7.4		57.7		53.9	
15.4		12.6		9.7		9.5		1.6		58.0	
17.6		14.7		11.9		11.6		3.6		0.1	
20.4		16.8	46 33.1	13.9	46 32.7	13.7		5.8	46 26.4	2.1	46 25.8
21.6		18.9	34.9	16.0	34.7	15.8		7.9	28.7	4.2	28.1
25.7		23.0	37.2	20.3	37.1	20.0		12.1	30.3	8.4	29.6
27.7		25.0		22.2		22.0		14.2		10.5	
30.0		27.1		24.4		23.9		16.3		12.6	
193 0 2		161 1		190 7 60		187 4 60		281 5 240		300 4 300	
			46 1.57	130 7	46 3.40	127 4	46 43.10	41 5	46 2.00	0 4	45 45.00
46 17.~~543~~ 455		46 14.645	46 35.07	46 11.882	46 34.83	46 11.582		46 4.773	46 28.47	46 0.036	46 27.83
17.529	−12.10	14.629	−9.31	11.866	−6.52	11.566	−6.23	4.757	+0.38	0.020	+5.14
46 5.28	+.03	46 5.26	+.02	46 5.23	+.03	46 5.22	+.04	46 5.10 09	+.02	46 5.06	+.04
+12.25 16		+9.37	−.07	+6.64	−.08	+6.35	−.08	−0.343		−5.04	
	−2.93		−2.90		−2.87		−2.86		−2.73		−2.70
−12.14	46 2.46	−9.36	2.37	−6.54	2.~~50~~43 43	−6.32	2.44	+0.34	2.43	+5.10	2.50
+.04		+3		+4		+5		+2		+4	
−2.92	+0.211	−2.90	+0.231	−2.87	+0.261	−2.86	+0.271	−2.73	+0.401	−2.70	+0.431
−15.02		−12.23		−9.40		−9.13		−2.37		+2.44	
46 17.44		46 14.63	16 51.23	46 11.87	51.94	46 11.57	52.92	46 4.76	55.52	46 0.02	53.88
	+2856		+2936		+2961		+2939		+21132		+21077
46 2.42	−2.0	46 2.40	−1.9	46 2.47	−2.0	46 2.44	−2.0	46 2.39	−2.1	46 2.46	−2.1
46 5.551		5.531	−1440	5.601	−1410	5.571	−1410	5.521	−1340	5.591	−1320
		−8	14 58.17		14 58.43		14 59.63		14 59.70		14 58.41

	35 +13.07 s	−20.43	35 +8.48	−22.95	35 −31.52		35 +2.77	−23.70	35 +15.04	−27.79
	−2.51		−2.52		−2.53		−2.68		−2.71	
A. R.	3 3.2	3 44.7	3 9.7	3 49.9	3 39.8	4 2.2	3 19.1	3 53.0	3 4.0	3 57.2
	20.9	1.7	27.6	7.5	59.1	19.0	38.0	10.8	20.7	14.1
	24.1	106.4	37.3	117.4	98.9	21.2	57.1	124.8	24.7	131.3
	38 3 12.05	38 3 53.20	38 3 18.65	38 3 58.70	38 3 49.45	39 4 10.60	38 3 28.55	39 4 2.40	38 3 12.35	39 4 5.65
	1.11628	1.31027n	0.92840	1.36078n	1.49859n		0.44248	1.37476n	1.17725	1.44389n
	1.21936	1.41035n	1.02848	1.46086n	1.59867n		0.54930	1.47157n	1.27407	1.54071n
	+16.57	−25.73	+10.68	−28.90	−39.69	−39.69	+3.54	−29.62	+18.80	−34.73
	38 28.62	38 27.47	38 29.33	38 29.80	38 ~~29.76~~	38 31.91	38 32.09	38 32.88	38 31.15	38 30.92
−8°	15′ 40.27″ 39.69:	39.12	15 40.98 41.22	15 41.45	15 ~~21.41~~ 43.56	15 43.56	15 43.74 44.13	44.53	15 42.80 42.68	42.47
+50	36 5	36 46								
	1.84580	1.84520								
	+889		+393		−446		+798		+695	
	1.85389	1.85409	1.84893	1.84913	1.84054	1.84074	1.85298	1.85318	1.85195	1.85215
	−71.43	−71.46	−70.62	−70.65	−69.27	−69.30	−71.28	−71.31	−71.11	−71.15
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	+.01	−.09 +.03	+.0	−.09 +.03	+.07	−.06 +.07	+.0	−.09 +.04	+.02	−.07 +.06
	−.10	−.12	−.10	−.12	−.11	−.13	−.10	−.12	−.10	−.12
	−1 11.52	−1 11.55	−1 10.71	−1 10.74		−1 9.36	−1 11.38	−1 11.39	−1 11.19	−1 11.21
	16 51.79	50.67	51.69	52.19		52.92	55.12	55.92	53.99	53.78
	14 44.1		44.4		44.4	~~8.5~~	45.1	8	45.3	
	+2 7.7	6.6	7.3	7.8		8.5	10.0	10.8	8.7	8.5
	+2 7.2		7.6			8.5	10.4		8.6	
	+2 9.20	14 58.92	+9.39	7.45 58.34	+9.42	7.48	+11.08	9.02 59.50	+10.61	8.53 58.66
	−1.93	7.27 57.80 +4.66	−1.94	+4.96 58.84	−1.94	+4.96	−2.06	+5.66 0.30	−2.08	6.86 58.45
	−14.40		−14.10		−14.10		−13.40		−13.20	
	+1 52.87	14 58.36	+53.35	58.59	+53.38	59.54	+55.62	59.90	+53.33	58.55
		14 39.30		39.53		40.48		40.84		39.49

1875		1874 ″	δ	1875		m	s		′	″		1875	″	
α 5.493s	.80	5.55												
δ −14 39.44	.81	5.53	39.3	Oct.	27	46	8.70		14	23.5		.82	5.62	40.3
dα/dt +3.131	.82	5.60	39.5	Nov.	1		8.65	−.05		23.8	+.3	.84	5.56	40.1
dδ/dt +19.058	.82	5.57	40.5		6		8.60	.05		24.1	.3	.84	5.47	39.5
	.86	5.52	40.8		11		8.55	.05		24.4	.3	.85	5.61	40.7
	.86	5.59	39.5		16		8.49	.06		24.7	.3			
	.88	5.57	40.3		21		8.44	.05		25.0	.3	.84	5.565	40.15
	.89	5.63	40.5		26		8.38	.06		25.3	.3			
log δ 9.99548				Dec.	1		8.33	.05		25.6	.3		(4)	
l c 12552	.84	5.570	40.06		6		8.27	.06		25.9	.3			
l c 0.12100		(8)	(7)											

−13 Nov. 18 — 1874 −.10 Nov. 19 — 1875 −.43 Oct-25 + — + −.21 −.08 Nov 2 — + −.25 Nov 4 — + −.28 Nov 6

−.154 −.115 −.463 −.250 −.260 −.310

22 45 42.8 45 31.0 45 43.1 45 40.1 46 50.6 46 51.2 46 55.6 46 58.7 47 — 46 57.1 46 51.0

45.0 32.5 45.1 52.8 53.4 57.8 0.5 — 59.2 53.2

47.0 34.3 47.3 55.0 55.6 59.7 1.9 — 47 1.4 55.3

51.1 51.4 59.0 47 3.9 4.7 5.5

53.2 53.5 47 1.2 5.9 6.8 7.6

55.3 55.6 3.1 8.1 8.9 9.7

57.4 46 25.3 57.6 46 21.0 5.2 47 23.3 10.3 47 27.4 11.0 47 13.6 11.9 47 22.8

59.6 27.4 59.7 22.6 9.3 25.1 12.2 13.2 13.8 24.3

3.7 29.1 4.0 26.1 11.5 27.0 16.4 — 17.9 26.3

5.7 6.0 13.6 18.4 — 20.2

7.9 8.0 15.6 20.6 — 22.2

4287 4313 2749 2689 446 2265

180 180 240 180 120

6087 45 32.60 6113 45 40.10 349 46 53.40 889 46 0.37 1065 46 53.17

45 55.336 46 27.27 45 55.573 46 23.23 47 3.173 47 25.13 47 8.082 47 27.40 47 8.920 47 13.60 47 9.683 47 24.47

55.320 +9.73 55.557 +9.56 3.157 −54.37 8.066 −59.30 8.904 −1 −0.80 9.666 −1 −0.97

46 4.987 +.02 46 4.96 +.02 46 8.72 +.06 46 8.64 +.03 46 8.62 +.04 46 8.60 +.04

−9.685 −9.40 +54.44 +59.43 −.08 +60.28 +61.07

−2.61 −2.60 −3.23 −3.15 −3.13 −3.11

+ 9.71 46 2.46 + 9.52 2.58 − 54.38 5.62 − 59.40 5.57 − 60.34 5.51 − 61.00 5.63

+ 2 + 2 + .07 + 4 + 4 + 5

− 2.61 +0.521 − 2.60 +0.531 − 3.23 − 3.15 − 3.13 − 3.11

+ 7.12 + 6.94 − 57.54 − 62.51 − 63.43 − 64.06

45 55.32 16 55.40 45 55.56 16 55.27 47 3.16 58 7.53 47 8.07 7.63 47 8.90 6.66 47 9.67 7.65

+2 10.99 +2 10.59 −16 14.45 −16 14.58 −16 15.00 −16 15.34

46 2.44 −2.2 46 2.50 −2.1 46 5.62 −2.1 46 5.56 −2.1 46 5.47 −2.2 46 5.61 −2.2

46 5.571 −12.70 5.631 −12.60 −16.00 −15.50 −15.40 −15.30

14 59.31 14 59.38 14 40.08 14 39.81 14 39.26 14 40.49

s

+22.74 −31.93 +15.47 −27.66 + 9.77 − 21.96 + 8.71 − 19.82 − 4.68 + 16.51 − 14.79

35 35 15 15 15 15

−2.77 −2.78 −2.92 −2.97 −2.98 −3.00

2 54.1 4 2.1 3 4.2 3 58.4 4 28.0 0 8.4 4 31.6 0 3.5 4 47.1 ∩ 4 19.2 0 0.0

13.1 20.2 13.9 9.8 39.9 21.3 33.1 12.9 49.1 22.7 4.5

12.72 22.3 18.1 12.82 67.9 29.7 47 26.4 16.2 41.9 4.5

38 3.60 39 4 11.15 38 3 9.05 39 4 4.10 19 33.95 20 14.85 19 32.35 20 17.20 19 48.10 19 20.95 20 2.25

1.35679 1.50420n 1.18949 1.44185n 0.98989 1.34163n 0.88706 1.28401n 0.67025n 1.21775 1.16997n

1.45361 1.60102n 1.28631 1.53867n 1.11089 1.46263n 1.00805 1.40701n 0.79125n 1.33875 1.29097n

+28.42 −39.91 +19.33 −34.57 +12.91 −29.02 +10.19 −20.53 −6.18 +21.82 −19.54

38 32.02 38 31.24 38 28.38 38 29.53 19 46.86 19 45.83 19 42.54 19 48.67 19 41.92 19 42.77 19 42.71

15 43.67 42.89 15 40.03 41.18 56 58.51 58.48 56 54.19 ~~54.32~~ 56 53.57 56 54.42 54.36

45.28 40.60 58.00 54.39

36 2 36 57 35 46 36 27 35 33 36 14

1.84500 1.84530 1.84500 1.84520 1.84490 1.84510

+1088 +2584 −486 +1927 +1706 +1924

1.85588 1.85608 1.87084 1.87114 1.84014 1.84034 1.86427 1.86447 1.86206 1.86226 1.86414 1.86434

−71.76 −71.79 −74.27 −74.33 −69.21 −69.24 −73.16 −73.19 −72.79 −72.82 −73.14 −73.17

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

+.03 −.34 +.07 +.02 −.35 +.06 +.01 −.32 +.03 0 −.27 +0 −.29 +.02 −.11 +.02

−.33 −.46 −.35 −.44 −.64 −.03 −.27 −.29 −.26 .00

−1 12.06 −1 12.18 −1 14.61 −1 14.72 −1 9.84 −1 9.24 −1 13.44 −1 13.09 −1 13.38 −1 13.15

16 50.73 55.07 54.64 55.90 58 8.35 6.72 7.63 6.66 7.80 7.51

45.8 45.9 14 23.4 23.9 24.0 24.1

+2 9.9 9.3 8.7 10.0 −16 15.1 16.7 16.3 17.3 16.3 16.6

+2 9.6 9.3 −16 15.9 16.3 17.3 16.4

+2 10.92 8.78 59.65 +10.46 8.32 58.92 −16 14.52 16.76 41.11 −14.69 16.97 −15.15 17.44 −15.48 17.79 40.89

− 2.14 +6.36 58.99 − 2.14 +6.46 0.18 − 2.24 39.98 − 2.28 − 2.29 − 2.31 40.60

− 12.70 − 12.60 − 16.00 − 15.50 − 15.40 − 15.30

+1 56.08 14 59.32 + 55.72 59.55 −16 32.76 14 40.30 − 32.47 40.10 − 32.84 39.50 − 33.09 40.74

14 40.26 40.49

δ Aquarii

h m sec
22 48 1
− 16° 29′
ζ = + 58° 52′
sin ζ = +.86

	1874	1875
α		48 0.91
δ		29 7.07
dα/dt		+3.190
dδ/dt		+19.04
l sin δ	9.45292	
l cos δ	9.98177	9.98177
l C	10460	12552
l C′	0.08637	0.10729
l C″	0.08311	

1874

corr α =
corr δ =
tan δ = −.30
I = 2.15 s
k = −.016 s

	α	δ
.79	0.95	6.5
.81	0.98	7.0
.81	0.90	6.4
.82	0.97	6.8
.82	0.94	7.1
.84	1.01	7.0
.86	0.89	6.3
.86	0.96	5.7
.88	0.93	6.2
.89	1.06	6.5
.84	0.959	6.55
	−0 (10)	+0

1874

Oct. 15		Oct. 21		Oct. 22		Oct. 26		Oct. 27		Nov. 4	
−.235		−.230		−.210		−.285		−.324		−.173	
48 1.6 1.460 3.7 .45 6.6 .60 10.3 .60 12.4 .55 14.6 .60 16.7 .55 19.6 .70 — — —	[47] 46.3 49.0 50.9	47 58.3 0.3 2.6 7.0 9.1 11.2 13.3 13.4 19.9 22.0 24.0	47 54.3 56.4 58.8 48 28.6 30.6 ? 32.0	47 — — — 48 5.7 8.0 10.0 12.2 14.4 — — —	48 24.6	47 54.3 56.5 58.8 3.0 5.1 7.3 9.5 11.6 13.8 18.1 20.3	47 48.0 50.2 52.7 48 22.0 24.0 26.1	47 54.1 56.2 58.4 2.7 4.9 6.9 9.1 11.3 15.6 17.8 19.9	47 ? 42.0 ? 44.0 ? 46.0 48 30.5 32.4 34.0	47 49.7 51.7 54.0 58.3 0.4 2.6 4.8 7.0 11.3 13.4 15.5	47 57.4 59.9 2.1 48 24.6 26.2 28.1
		1831 60 1231		504		2603 180 803		2569 180 769		2687 240 287	
48 14.581 14.565	47 48.73	48 11.191 11.175	47 56.50 48 30.40	48 10.080 10.064	48 24.60	48 7.300 7.284	47 50.30 48 24.03	48 6.991 6.975	47 44.00 48 32.30	48 2.609 2.593	47 59.80 48 26.30
− 13.76 + 7 − 3.11 − 16.80 48 14.56	+0.080	− 10.39 + 7 − 3.016 − 13.38 48 11.17	+0.130	− 9.36 + 6 − 3.05 − 12.35 48 10.06	+0.140	− 6.54 + 8 − 3.01 − 9.50 48 7.28	+0.180	− 6.32 + .10 − 3.00 − 9.22 48 6.97	+0.190	− 1.90 + 5 − 2.92 − 4.77 48 2.59	+0.270
47 57.76 48 0.95		47 57.79 0.98		47 57.71 0.90		47 57.78 0.97		47 57.75 0.94		47 57.82 1.01	

	Oct. 15		Oct. 21		Oct. 22		Oct. 26		Oct. 27		Nov. 4	
	50 + 25.85		50 + 15.69	− 19.21	50 s −14.52		50 +17.00	−16.73	50 + 22.99	− 25.31	50 + 2.81	−23.69
	−246		−250		−251		−252		−253		−263	
	1 51.1 7.8 11.89 51 59.45	2 34.5 49.8 84.3 52 2 42.15	2 3.9 19.9 23.8 52 1 11.90	2 44.0 0.4 104.4 52 2 52.20	2 41.0 57.9 98.9 52 2 49.45		2 4.8 22.7 27.5 52 2 13.75	2 44.9 2.0 106.9 52 2 53.45	1 59.9 17.8 137.7 52 2 8.85	2 57.7 14.5 132.2 53 3 6.10	2 21.4 37.3 58.7 52 2 29.35	2 53.4 8.9 122.3 53 3 1.15
−16	1.41246n 1.49883n + 31.54 51 ~~27.91~~ 52 30.99 ~~28 38.56~~ 29 42.64	−31	1.19562 1.28199 +19.14 52 31.04 29 42.69	1.28353n 1.36990n −23.44 52 28.76	1.16197n 1.24834n −17.72 52 31.73 29 43.38		1.23045 1.31682 + 20.74 52 34.49 29 46.14 45.41	1.22350n 1.30987n −20.41 52 33.04 44.69	1.36154 1.44791 +28.05 52 36.90 29 48.55 47.71	1.40329n 1.48966n −30.88 52 35.22 29 46.87	0.44871 0.53182 + 3.40 52 32.76 29 44.40 44.25	1.37457n 1.45768n −28.69 52 32.46 44.11
+58	49 52 1.97728	50 35 1.97748									50 22 1.97742	50 54 1.97756
	+897 1.98625 −96.88 0	1.98645 −96.93 0	+1471 1.99199 −98.17 0	1.99219 −98.22 0	+896 1.98624 −96.88 0		+399 ≠ 1.98127 −95.78 0	1.98147 −95.82 0	−438 1.97290 −92.95 0	1.97310 −92.99 0	+1179 1.98921 −97.55 0	1.98935 −97.58 0
	+.09 +.03 −.06	−.08	+.03 −.01 −.04		+.03 −.05 −.08		+.04 −.04 −.07	+.04 −.09	+.07 .00 −.06	+.08 −.09	−0 −.04 −.07	+.08 −.09
−16	−1 36.85 31 ~~15.41~~ 19.49	−1 ~~37.01~~	−1 38.18 31 20.87		−1 36.93 31 20.31		−1 35.81 31 21.95	−1 35.87 20.56	−1 33.94 31 22.49	−1 34.00 31 20.87	−1 37.62 31 22.02	−1 37.59 21.70
+2	8.78 − 2.11 −12.73	6.67 +6.31	+9.19 −2.14 −12.22	7.05 +6.82	+9.20 −2.15 −12.14	7.05 +6.90	+9.39 −2.16 −11.81	7.23 +7.23	+9.42 −2.17 −11.73	7.25 +7.31	+9.19 −2.26 −11.04	6.93 +7.97
	+1 53.94	29 ~~24.41~~ 25.55	54.83		+ 54.91		+ 55.42	26.53 25.14	+55.52	26.97 25.35	+55.86	26.16 25.84
		29 6.51		26.04 7.00		25.46 6.36		25.83 6.79		26.16 7.12		26.17 6.96

	α	δ
82	0.94	6.6
84	0.89	5.7
84	0.88	5.5
85	0.91	6.2
85	1.01	5.1
84	0.926	5.82
	+ 3	(5) +2
	0.929	5.80

1874 | 1875

Nov. 8		Nov. 11		Nov. 18		Nov. 19		Oct-25		Nov 2	
+1ˢ ~~+62~~ −.146		−.264		−.154		−.115		−.463		−.250	
22 47 46.3	47 35.8	47 42.6	47 38.5	47 37.8	47 27.2	47 38.2	47 27.1	48 45.7	48 35.2	48 50.4	48 43.1
48.5	38.2	44.6	41.2	40.0	29.2	40.3	29.6	47.8	37.2	52.9	45.0
50.6	39.7	46.7	43.6	42.1	31.3	42.6	31.2	49.9	39.6	55.0	47.3
53.0		51.1		46.5		46.8		54.3		50.3	
57.0		53.4		48.6		48.9		56.5		49 1.4	
59.2		55.5		50.8		51.0		58.5		3.5	
1.3	48 10.6	57.6	48 25.5	53.0	48 24.0	53.2	48 9.0	0.8	49 12.7	5.7	49 26.3
3.5	12.6	59.8	28.0	55.1	26.5	55.4	10.7	3.0	14.4	7.9	27.9
7.8	14.5	4.0	29.9	59.3	28.4	59.6	12.1	5.2	16.3	12.0	29.9
9.9		6.2		1.4		1.8		9.3		14.3	
12.2		8.4		3.7		4.0		11.6		16.3	
3513		4299		4383		4418		3446		2790	
300		180		120		120		300		240	
651 3	47 37.90	609 9	47 41.10	558 3	47 29.23	561 8	47 29.30	644 6	48 37.33	39 0	48 45.13
48 0.209	48 12.67	47 55.445	48 27.80	47 50.755	48 26.30	47 51.073	48 10.60	48 58.600	49 14.47	49 3.545	49 28.03
0.193		55.429		50.739		51.057		58.584		3.529	
+ 0.34		+ 5.10		+ 9.71		+ 9.52		− 54.39		− 59.40	
+ 4		+ 8		+ 4		+ 3		+ .14		+ 7	
− 2.87	+0.320	− 2.84	+0,350	− 2.75	+0.410	− 2.74	+0.450	− 3.39		− 3.31	
− 2.49		+ 2.34		+ 7.00		+ 6.81		− 57.64		− 62.64	
48 0.19		47 55.43		47 50.74		47 51.06		48 58.58		49 3.53	
47 57.70		47 57.77		47 57.74		47 57.87		48 0.94		48 0.89	
48 0.89		0.96		0.93		1.06 57.754					

s +22.31	−12.36	+14.34	−32.36	+21.52	−35.55	+21.77	−19.53	+ 21.27	− 15.87	+ 18.41	− 24.49
50		50		50		50		30		30	
−2.68		−2.71		−2.77		−2.78		−2.92		−2.97	
1 58.9	2 40.9	2 9.6	3 5.3	2 0.1	3 8.2	1 59.9	2 49.7	3 16.0	4 38	3 19.0	4 14.2
17.2	59.0	25.3	21.0	18.8	25.2	10.4	58.9	28.8	17.0	22.9	17.0
136.1	99.9	34.9	26.3	18.9	33.4	130.3	108.6	44.8	10.8	41.9	11.2
52 2 8.05	52 2 49.95	52 2 17.45	53 3 13.15	52 2 9.45	53 3 16.70	52 2 5.15	52 2 54.30	33 22.40	34 ~~15~~.40 10	33 20.95	34 15.60
1.34850	1.09202n	1.15655	1.51001n	1.33284	1.55082n	1.33786	1.29070n	1.32777	1.20058n	1.26505	1.38899n
1.43161	1.17513n	1.23966	1.59312n	1.41595	1.63393n	1.42097	1.37387n	1.43006	1.30787n	1.37234	1.49628n
+27.02	−14.97	+17.36	−39.19	+26.06	−43.05	+26.86	−23.65	+27.23	−20.32	+23.57	−31.85
53 35.07	52 34.98	52 34.81	52 33.96	52 35.57	52 33.65	52 31.51	52 30.65	33 49.63	33 ~~35~~.08 50.	33 44.52	33 44.35
29 46.72 46.67	46.63	29 45.46 46.03	44.61 5	29 47.16 46.23	45.30	29 43.16 42.73	42.30	11 1.28 1.50	1.73	10 56.17 56.03	55.90
						49 58	50 47	49 34	50 22		
1.97742	1.97756					1.97731	1.97753	1.97719	1.97742		
+803		+697		+1095		+2587		−479		+1930	
1.98545	1.98559	1.98439	1.98453	1.98837	1.98851	2.00318	2.00340	1.97240	1.97263	1.99649	1.99672
−96.70	−96.74	−96.47	−96.50	−97.36	−97.39	−100.74	−100.79	−93.84	−93.89	−99.20	−99.25
0	0	0	0	− 1	− 1	− 2	− 2	− 1	− 1	− 2	− 2
+.07	−.02 +02	+03	+01 +15	+07	−.22 +19	+07	−22 +05	+07	−48 +03	+05	−16 +08
−06	−08	−07	−.10	−24	−36	−23	−32	−48	−.59	−.20	−26
−1 36.69	−1 36.80	−1 36.51	−1 36.45	−1 37.54	−1 37.57	−1 40.92	−1 41.08	−1 34.26	−1 34.46	−1 39.37	−1 39.45
31 23.41	23.43	31 22.97	22.06	31 24.70	22.87	31 24.08	23.38	12 35.54	36.19	12 35.54	35.35
+2 11.08	8.78	+ 10.61	8.28	+ 10.92	8.54	+ 10.46	8.07	−16 14.52	17.03	− 14.69	17.24
− 2.30	+8.30	− 2.33	+8.53	− 2.38	+9.07	− 2.39	+9.15	− 2.51		− 2.35	
−10.74		−10.57		−9.97		−9.89		−13.72		−13.06	
+1 58.04	25.37 25.39	+ 57.77	25.20 24.29	+ 58.57	26.13 24.30	+ 58.18	25.90 25.20	−16 30.75	6.29 6.84	− 30.30	5.84 5.65
	29 25.38 29 6.34		24.74 5.70		25.22 6.18		25.55 6.51		29 6.56		5.74

	Apr 4				Apr 6				Apr 8		
	-.260				-.310				-.243		
48	51.5	48	42.6	48	52.2	48	44.1	48	53.0	48	47.3
	53.8		45.3		54.3		46.0		55.1		49.3
	55.9		47.2		56.4		48.1		57.3		51.1
49	0.1			49	0.8			49	1.7		
	2.2				3.0				3.8		
	4.5				5.1				6.0		
	6.6	49	8.2		7.2	49	16.8		8.2	49	25.8
	8.9				9.4		19.3		10.2		27.6
	13.0				13.7		21.6		14.6		30.2
	15.1				15.9				16.7		
	17.3				18.1				18.6		
	2289				2361				2452		
	180				180				181		
	489	48	45.03		561	48	46.07		652	48	49.23
49	4.445	49	8.20	49	5.100	49	19.23	49	5.927	49	27.87
	4.429				5.084				5.911		
−	60.35			−	61.00			−	61.74		
+	8			+	9			+	8		
−	3.28			−	3.26			−	3.24		
−	63.55			−	64.17			−	64.90		
49	4.43			49	5.08			49	5.91		
48	0.88			48	0.91			48	1.01		
									0.926		

+	19.41	−	3.76	+	19.03	+	14.13	+	16.70	−	21.94
30				30				30			
	−2.98				−3.00				−3.02		
3	18.1	3	47.8	3	18.1	4	0.8	3	21.2	4	11.0
	21.5		49.8		21.7		4.1		26.1		15.7
	39.6		17.6		39.8		4.9		7.3		6.7
33	19.80	33	48.80	33	19.90	34	2.45	33	23.65	34	13.35
	1.28803		0.57519n		1.27944		1.15014		1.22272		1.34124n
	1.39532		0.68248n		1.38673		1.25743		1.33001		1.44853n
	+24.85		−4.81		+24.36		−18.09		+21.43		−28.09
33	44.65	33	43.99	33	44.26	33	44.36	33	45.08	33	45.26
10	56.30		55.64	10	55.91	10	56.01	10	56.73		56.91
	55.97				55.96				56.82		
								49	36	50	25
									1.97719		1.97742
	+1711				+1928				+2088		
	1.99430		1.99453		1.99647		1.99670		1.99807		1.99830
	−98.70		−98.75		−99.19		−99.24		−99.56		−99.61
−	2	−	2	−	1	−	1	−	1	−	1
	+05	−.19	− 0		+05	−.18	+03		+03	−.17	+07
	−20		−23		−20		−24		−20		−25
−1	38.87	−1	39.00	−1	39.35	−1	39.46	−1	39.74	−1	39.80
12	35.17		34.64	12	35.26		35.47	12	36.47		36.71
−16	15.15		17.71		−15.48		18.06		−13.37		15.96
−	2.56				−2.58				−2.59		
	−12.89				−12.73				−12.54		
−16	30.60		5.77		30.79		6.05	−	28.53		5.00
			5.24				6.26				5.24
			5.50				6.15				5.12

α Picis Australis

h m sec
22 50 43

− 30° 17′

φ + 72° 40′
sin z = +.95

1874
α 50 41.048
δ 17 21.21
dα/dt + 3.329
dδ/dt + 18.99

l sin δ 9.70267
l cos δ 9.93628
l C 10460
l C′ 0.04088
l C″ 0.03762

	α 1874	δ
.79	44.51	1.7
.81	44.46	3.2
.81	44.41	1.7
.82	44.50	2.1
.82	44.52	3.5
.84	44.44	1.7
.86	44.48	0.0
.88	44.44	1.2
.89	44.46	2.6
.84	44.469	1.97
	+ 4 (9)	− 3
	44.473	2.00

1875
50 44.43
17 2.13
+ 3.329
+ 18.96
9.93628
12552
0.06180

corr α =
corr δ =
tang δ = −.58 + 1.16
I = 2.39 s
k = −.018 s

	α 1875	δ
.82	44.47	3.0
.84	44.51	2.8
.84	44.39	3.2
.84	44.44	0.7
.85	44.45	2.4
.86	44.48	1.2
.84	44.457	2.22
	− 21 (6)	+ 14
	44.436	2.08

1874

Oct. 15 −.21		Oct. 21 −.24		Oct. 22 −.15	−.07	Oct. 26 −.21	−.08	Oct. 27 −.24	−.08	Nov. 4 −.16	
−.235		−.230		−.210		−.285		−.327		−.173	
50 440	50 313	50 406	50 29.2	50 39.4	50 25.4	50 36.5	50 29.0	50 36.3	50 26.1	50 31.8	50 17.2
464	350	430	31.6	418	28.0	39.0	31.0	38.7	29.0	34.2	19.4
48.8	375	45.2	33.6	441	30.4	41.4	32.8	41.1	31.4	36.4	21.9
53.5		50.1		48.9		46.1		45.9		41.4	
55.0		52.4		51.4		48.5		48.3		43.9	
58.3		54.9		53.8		51.0		50.7		46.2	
0.5	50 59.5	57.3	51 22.0	56.1	51 16.0	53.2	51 10.7	53.0	51 12.2	48.5	51 12.6
31		59.7	25.0	58.5	18.8	55.1	12.7	55.5	14.6	51.0	14.7
78		4.2	27.1	3.3	21.0	1.4	14.7	0.3	17.0	53.7	17.0
10.3		6.6		5.6		3.0		2.7		58.1	
12.6		9.0		8.1		5.3		5.1		0.6	
3412		4230		4110		3805		3776		4480	
300		180		180		180		180		60	
6412	50 34.60	6030	50 31.47	5910	50 28.03	5605	50 30.93	5576	50 28.83	5080	50 19.56
50 58.291	50 59.50	50 54.818	51 24.70	50 53.727	51 18.60	50 50.955	51 ~~12.37~~ 12.70	50 50.691	51 14.60	50 46.182	51 14.77
58.273	− 13.76	54.800	− 10.35	53.709	− 9.31	50.937	− 6.52	50.673	− 6.23	46.164	− 8.88
	+ .12		+ .14		+ .09		+ .12		+ .14		+ 1.09
− 13.76		− 10.39		− 9.35	− .08	− 6.54	− .09	− 6.32	− .09	− 1.90	
+ .14	− 3.47	+ .13	− 3.41	+ .12	− 3.40	+ .16	− 3.36	+ .19	− 3.35	+ .10	− 3.25
− 3.47	− 0.141	− 3.41	− 0.081	− 3.40	− 0.071	− 3.36	− 0.031	− 3.35	− 0.021	− 3.25	+ 0.079
− 17.09	50 41.16	− 13.67	50 41.18	12.63	50 41.01	9.77	50 41.09	9.48	50 41.14	− 5.05	50 41.12
58.27		54.80		53.41		50.94		50.67		46.16	
41.18	19 17.94	41.13	19 20.60	41.08	19 19.18	41.17	19 20.23	41.19	19 20.99	41.11	19 20.54
50 44.509	+2 8.94	44.459	+2 9.19	44.409	+2 9.36	44.499	+2 9.61	44.519	+2 9.39	44.439	+2 9.40
	− 2.5		− 2.5		− 2.5		− 2.4		− 2.4		− 2.4
	− 9.20		− 8.40		− 8.30		− 7.80		− 7.70		− 6.80
	17 20.70		17 22.31		17 20.62		17 20.82		17 21.70		17 20.34
s + 23.69	− 1.21	+ 23.35	− 29.88	+ 25.70	− 24.87	+ 20.02	~~− 21.42~~ − 21.75	+ 21.86	− 23.91	+ 26.68	− 28.59
35		55		35		35		35		35	
− 2.46		− 2.50		− 2.51		− 2.52		− 2.53		− 2.63	
3 27.0	3 55.1	3 27.7	4 29.9	3 25.9	4 21.7	3 35.0	4 20.2	3 39.0	4 28.0	3 26.9	4 26.6
41.4	9.7	41.4	39.0	42.5	37.9	52.4	36.4	54.4	43.5	39.8	39.2
684	1248	691	689	684	596	874	566	934	715	667	658
38 ~~3~~ 34.20	39 ~~4~~ 2.40	38 ~~3~~ 34.55	39 ~~4~~ 34.45	38 ~~3~~ 34.20	39 ~~4~~ 29.80	38 ~~3~~ 43.70	39 ~~4~~ 28.30	38 ~~3~~ 46.70	39 ~~4~~ 35.75	38 ~~3~~ 33.35	39 ~~4~~ 32.90
1.37457	0.08279n	1.36829	1.47538n	1.40993	1.39563n	1.30146	1.33746n	1.33965	1.37858n	1.42619	1.45621n
1.41545	0.12367	1.40917	1.51626	1.45081	1.43651	1.34234	1.37834	1.38053	1.41946	1.46381	1.49383
+ 26.03	− 1.33	+ 25.66	− 32.83	+ 28.24	− 27.32	+ 21.99	− 23.89	+ 24.02	− 26.27	+ 29.10	− 31.18
39 0.23	39 1.04	39 0.21	39 1.62	39 2.44	39 1.48	39 5.69	4.41	39 10.72	9.48	39 2.45	1.72
−30° 16′ 11.88	12.72	16 11.86	16 13.27	16 14.09	13.13	16 17.34	16.06	16 22.37	21.13	16 14.10	13.37
12.30		12.56		13.61		16.70		21.75		13.73	
+72 36 27	36 52									36 26	37 26
2.25940	2.25962									2.25940	2.25983
+ 901		+ 1478		+ 906		+ 407		− 432		+ 1183	
2.26841	2.26863	2.27418	2.27440	2.26846	2.26868	2.26347	2.26369	2.25508	2.25530	2.27123	2.27166
− 185.53	− 185.62	− 188.01	− 188.11	− 185.55	− 185.65	− 183.43	− 183.53	− 179.92	− 180.01	− 186.74	− 186.92
− 2	− 2	− 2	− 2	− 1	− 1	− 3	− 3	− 4	− 4	− 2	− 2
+ .14	− .04 + 0	+ 13	+ .04 + 21	+ .16	+ .03 + .15	+ .09	− .02 + .11	+ .11	.00 + .14	+ .17	+ .06 + .19
− .11	± .12	− .11	− .14	− .11	− .13	− .11	− .13	− .11	− .14	− .11	− .13
−3 5.52	−3 5.76	−3 8.01	−3 8.06	−3 5.51	−3 5.64	−3 3.48	−3 3.58	−2 59.96	−3 0.05	−3 6.70	−3 6.88
−30 19 17.40	18.48	19 19.87	19 21.33	19 19.60	18.77	19 20.82	19.64	19 22.33	21.18	19 20.80	20.25
+ 2 8.78	6.45	+ 9.19	6.82	+ 9.20	6.82	+ 9.39	7.00	+ 9.42	7.02	+ 9.19	6.70
− 2.33	+ 9.76	− 2.37	+ 10.56	− 2.38	+ 10.66	− 2.39	+ 11.16	− 2.40	+ 11.26	− 2.49	+ 13.16
− 9.20		− 8.40		− 8.30		− 7.80		− 7.70		− 6.80	
+ 1 57.25	17 20.15	+ 58.42	21.45	+ 58.52	21.08	+ 59.20	21.62	+ 59.32	23.01	+ 59.90	20.90
	21.23		22.91		20.25		20.49		21.86		20.35
	17 20.69		22.18		20.66		21.03		22.43		20.62
	1.71		3.20		1.68		2.05		3.45		1.66

1874	m	s		′	″	
Oct 17	50	4450		17	12.2	
22		44.45	−.05		12.9	+.7
27		44.40	5		13.5	.6
Nov 1		44.34	6		14.1	.6
6		44.27	7		14.7	.6
11		44.20	7		15.3	.6
16		44.13	7		15.8	5
21		44.06	7		16.2	.4
26		43.99	7		16.6	.4

1875	m	s				
Oct 26	50	48.13		16	52.6	
31		48.07	−.06		53.2	+.6
Nov. 5		48.01	6		53.8	.6
10		47.94	7		54.3	.5
15		47.87	7		54.8	.5

				1874		1875					
−.26		−.13		−.10		−.43		−.21 −.08		−.28	
Nov. 11		Nov. 18		Nov. 19		Oct 25		Nov 2		Nov 3	
−.267		−.154		−.115		−.463		−.250		−.284	
50 24.9	50 12.6	50 19.9	50 6.0	50 20.3	50 10.0	51 28.0	51 17.5	51 33.1	51 19.8	51 33.4	51 51.7
27.1	15.0	22.4	8.5	22.7	12.6	30.4	19.2	35.7	23.1	35.8	
29.5	17.7	24.9	11.5	25.1	15.0	32.8	22.2	37.9	25.6	38.0	
34.2		29.6		29.7		37.5		42.7		43.0	
36.6		32.0		32.1		39.9		45.0		45.3	
39.1		34.4		34.6		42.4		47.5		47.9	
41.4	50 59.1	36.8	50 57.3	37.0	50 55.0	44.6	51 57.2	49.7	52 9.9	50.3	52 13.9
43.8	1.5	39.1	0.2	39.3	56.7	47.2	59.3	52.2	11.6	52.4	15.8
48.7	3.8	43.9	3.0	44.2	58.8	52.1	2.5	57.0	13.7	57.4	17.2
57.0		46.4		46.6		54.4		59.5		59.8	
58.4		48.8		49.0		56.8		1.9		2.0	
4297		3782		3806		4661		4622 60		4653 60	
	50 15.10		50 8.67		50 12.53		51 19.63	5222	51 22.83	5253	51 51.70
50 39.064	51 1.47	50 34.382	51 0.17	50 34.600	50 56.83	51 42.373	51 59.67	51 47.473	52 11.73	51 47.753	52 15.63
39.046	+ 5.14	34.364	+ 9.73	34.582	+ 9.56	42.355	− 54.37	47.455	− 59.30	47.737	− 59.85
	+ .15		+ .08		+ .06		+ .25		+ .12		+ .16
+ 5.10		+ 9.71		+ 9.52		− 54.39		− 59.41	− .09	− 59.86	
+ .15	− 3.15	+ 9	− 3.05	+ 7	− 3.04	+ .27	− 3.76	+ .14	− 3.67	+ 17	− 3.66
− 3.15	+0.179	− 3.00	+0.279	− 3.04	+0.289	− 3.76		− 3.67		− 3.66	
+ 2.10	50 41.19	+ 2.75	50 42.12	+ 2.55	50 41.16	− 57.88	50 44.48	− 62.94	50 44.52	63.35	50 44.39
39.05		34.36		34.58		42.35		47.45		47.74	
41.15	19 21.13	41.11	19 23.30	41.13	19 24.25	44.47	0 36.08	44.41 5	0 35.58	44.39	0 36.49
44.479	+2 10.77	44.439	+2 10.99	44.459	+2 10.59		−16 14.45		−16 14.58		−16 15.24
	− 26		− 26	41.128	− 2.7	~~44~~	− 2.7		− 2.7		− 2.7
	− 5.90		− 5.20		− 5.10		− 9.60		− 8.70		− 8.60
	17 18.86		17 20.41 11		17 21.46		17 2.23 83		17 1.56		17 3.03
s + 23.96	− 22.41	+ 25.71	− 25.79	+ 22.07	− 22.23	+ 22.74	− 17.30	+ 24.64	− 24.26	− 3.95	− 27.88
35		35		35		15		15		20	
− 2.71		− 2.77		− 2.78		− 2.92		− 2.97		− 2.98	
3 30.8	4 21.5	3 29.2	4 23.7	3 31.2	4 18.7	4 52.4	0 35.8	4 42.6	0 38.8	0 16.5	0 45.8
45.9	37.2	45.7	40.9	40.0	27.1	6.4	51.9	48.0	44.9	22.9	51.8
76.7	58.7	74.9	64.6	71.2	45.8	106.8	87.7	106	83.7	39.4	97.6
38 38.35	39½ 29.35	38 37.45	39½ 32.30	38 35.60	39½ 22.90	19 ~~54.90~~ 58.40	20 43.85	19 45.30	20 41.85	20 19.70	20 48.80
1.37949	1.35844n	1.41010	1.41146n	1.34380	1.34694n	1.35679	1.23805n	1.39164	1.38489n	0.59660	1.44529n
1.41711	1.38806n	1.44772	1.44907n	1.38142	1.38456n	1.41859	1.29985n	1.45344	1.44669n	0.65840	1.50709n
+ 26.13	− 24.44	+ 28.04	− 28.12	+ 24.07	− 24.24	+ 26.22	− 19.937	+ 28.41	− 27.94	− 4.55	− 32.14
39 4.48	39 4.91	39 5.49	39 4.18	38 59.67	38 58.66	21 24.62	20 23.90	20 13.71	20 13.88	20 15.15	20 16.66
16 16.13	16.56	16 17.14	15.83	16 11.32	10.31	57 36.27	57 34.35 5	57 25.36	25.53	57 26.80	28.31
16.34		16.48		10.82		35.91		25.44		27.55	
				36 29	37 16	36 10	36 56				
				2.25944	2.25979	2.25932	2.25962				
+ 700		+ 1104		+ 2590		− 469		+ 1934		+ 1675	
2.26640	2.26683	2.27044	2.27087	2.28534	2.28569	2.25463	2.25493	2.27866	2.27894	2.27607	2.27637
− 184.67	− 184.86	− 186.40	− 186.59	− 192.90	− 193.06	− 179.73	− 179.86	− 189.96	− 190.08	− 188.83	− 188.96
− 3	− 3	− 3	− 3	− .13	− .13	− 7	− 7	− 9	− 9	− .10	− .10
+ .14	+ .01 + .11	+ .16	− .28 + .16	+ .11	− .33 + .11	+ .12	− .30 + .07	+ .15	− .02 + .14	+ 8	+ .06 + .18
− .11	− .13	− .40	− .49	− .40	− .48	− .70	− .10	− .29	− .04	− .02	− .05
−3 4.67	−3 4.91	−3 6.67	−3 6.95	−3 13.32	−3 13.56	−3 0.38	−2 59.96	−3 10.19	−3 10.07	−3 8.94	−3 8.93
19 20.80	21.47	19 23.81	22.78	19 24.64	23.87	0 36.65	0 35.51	35.55	35.60	0 35.74	37.24
+2 10.61	8.04	+ 10.92	8.29	+ 10.46	7.82	−16 14.52	17.29	− 14.69	17.51	− 15.25	18.08
− 2.57	+ 13.06	− 2.63	+ 13.76	− 2.64	+ 13.86	− 2.77		− 2.82		− 2.83	
− 5.90		− 5.20		− 5.10		− 9.60		− 8.40		− 8.60	
+2 2.14	17 18.66	+ 3.09	20.72	+ 2.72	21.92	−16 26.89	17 3.54	− 26.21	1.76	− 26.68	2.42
	19.33		19.69		21.15		2.40		1.81		3.92
	17 19.00		20.20		21.53		17 2.97		1.79		~~3.27~~
	0.02		1.22		2.55						3.17

	−25				−28				−23		
	Nov 4				Nov 6				Nov 8		
	−.260				−.310				−.273		
51	34.0			51	34.7	51	22.5	51	35.4	51	24.0
	36.4				36.9		25.3		37.7		26.7
	38.9				39.4		27.9		40.1		28.1
	43.5				44.1				44.9		
	45.9				46.4				47.2		
	48.3				48.9				49.8		
	50.7	52	11.9		51.2	52	3.9		52.1	52	8.0
	53.1		14.8		53.6		6.0		54.4		10.6
	57.7		16.5		58.6		8.0		59.2		13.1
	0.2				1.0				1.6		
	26				3.2				4.0		
	41/3				4180				4264		
	120				120				120		
	531 3				5380	51	2523		54.64	51	26.27
51	48.300	52	14.40	51	48.909	52	5.97	51	49.673	52	10.57
	48.282	−1	0.30		48.891	−1	0.97		49.655	−1	1.75
		+	.14			+	.16			+	.13
−	60.35			−	61.00			−	61.44		
+	.15	−	3.64	+	.18	−	3.62	+	.16	−	3.59
	−3.64			−	3.62		6	−	3.59		4
	−63.84	50	4448	−	64.44	50	4442	−	65.17	50	4435
	48.28				48.89				49.61		
	4444	0	3433		44.45	0	3585		44.48	0	3694
		−16	15.00			−16	15.34		44.440	−16	13.12
		−	2.7			−	2.7			−	2.8
		−	8.40			−	8.20			−	8.00
		17	0.43			17	2.09			17	0.86
		−	26.10	+	23.68	−	17.06	+	23.40	−	20.90
15				15				15			
	−298				−300				−302		
4	44.8	0	40.8	4	43.8	0	30.2	4	44.5	0	35.7
	47.9		46.5		49.4		37.5		51.0		42.9
	127		873		132		77		955		786
19	46.35	20	43.65	19	46.60	20	33.85	19	47.75	20	38.30
			1.41664n		1.37438		1.23198n		1.36922		1.32015n
			1.47844n		1.43618		1.29378n		1.43102		1.38195n
			−30.09		+27.30		−19.67		+26.98		−24.09
		20	13.56	20	13.90	20	14.18	20	14.75	20	14.21
		57	25.21	57	25.55		25.83	57	26.38		25.86
					25.69				26.12		
								36	0	36	50
									2.25923		2.25957
	+17.17				+1933				+2093		
	2.27649		2.27679		2.27865		2.27895		2.28016		2.28050
	−189.01		−189.14		−189.96		−190.09		−190.62		−190.77
		−	.10	−	8	−	8	−	8	−	8
		+12	+.16		+14	−.06	+07		+13	−.05	+10
	−.29		−.04		−.29		−.04		−.29		−.04
		−3	9.12	−3	10.19	−3	10.14	−3	10.86	−3	10.~~81~~79
		0	34.33	0	35.74		35.97	0	37.24		36.65
−16	15.15		17.98		−15.48		18.33	−	13.37		16.33
−	2.83			−	2.85			−	2.86		
−	8.40			−	8.20				8.00		
−16	26.38			−	26.53		2.27	−	29.23		1.47
							2.50				0.88
		17	0.71				2.38				1.17

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		1874	1875	1874		
B. A. C. 8002	α		52 45.42	.81 45.36		corr α =
h m sec	δ		7 52.11	.81 45.41	52.5	corr δ =
22 52 46	dα/dt		+3.298	.82 45.36	53.5	
−30° ~~24~~ 9′	dδ/dt		+19.29	.82 45.39	55.1	tang δ = −.59
				.86 45.46		
z = +72° ~~47~~ 41′ 32				.89 45.24	54.4	I = 2.39 s
sin z = +.95	l sin δ	9.70418		.84 45.34~~3~~ 70	53.88 (6) +1 / 53.87 (4)	k = −.018 s
	l cos δ	9.93577	9.93577			
	l C	10460	12552			
	l C′	0.04037	0.06129			
1874	l C″	0.03711				

Oct. 21		Oct. 22		Oct. 26		Oct. 27		Nov. 11		Nov. 18	
−.230		−.210		−.285		−.327		−.267		−.154	
52 —		52 40.5	52 39.0	52 37.5	52 46.1	52 37.1	52 38.0	52 —	52 23.0	—	52 36.0
—		42.9	42.0	39.9		39.6		—	27.2?	Ch.f.	
—		45.1	44.2	42.2		42.0		—			
51.0		50.0		47.0		46.8		—			
53.4		52.3		49.5		49.2		—			
55.7		54.8		51.8		51.6		25.0 25.6			
58.1		57.1	53 10.8	54.1	53 11.4	54.0	53 10.2	.61 28.0	52 49.6		
0.5		59.6	13.2	56.6	13.7	56.3	12.3	.62 30.7	52.0		
—		4.4	15.7	1.4	16.0	1.2	14.2	.74 35.3	54.6		
—		6.7		3.8		3.6		.75 37.7			
—		9.1		6.3		6.0		—			
2187		4225		3901		3874					
60		180		180		180					
2787		6025	52 41.73	5701	52 46.10	5674	52 38.00	40.06	52 25.10		52 36.00
52 55.740		52 54.773	53 13.03	52 51.827	53 13.70	52 51.582	53 12.23	52 25.724	52 52.07		
55.722		54.755		51.809		51.564		~~25.706~~ 40.04			
−10.38		−9.35		−6.54		−6.32		+5.10			
+.14		+.12		+.17		+.19		+.16			
−3.42	−0.122	−3.41	−0.112	−3.35	−0.052	−3.34	−0.042	−3.14	~~−0.858~~ +0.158		
−13.66		−12.64		−9.75		−9.47		+2.12			
52 55.72		52 54.75		52 51.88		52 51.56		52 ~~25.71~~ 40.04 ~~40.04~~			
52 42.06		52 42.11		52 42.06		52 42.09		52 ~~25.83~~ 42.16			
52 45.358		45.408		45.358		45.388		45.458			

		+13.04 s	−18.26	+5.73	−21.87	+13.58	−20.65	+ ~~0.62~~ +14.94	~~−26.35~~ −17.16	
25		25		25		25		25		25
−250		−251		−252		−253		−271		
4 36.0	0 33.8	4 32.1	0 5.7	4 43.3	0 13.9	4 41.6	0 16.2	4 36.1		4 55.3
49.1	39.0	48.2	22.8	59.1	31.9	56.6	34.5	51.5		12.1
851	728	803	285	1024	458	982	507	876		1274
29 4 42.55	30 0 36.40	29 4 40.15	30 0 14.25	29 4 51.20	30 0 22.90	29 4 49.10	30 0 25.35	29 4 43.80		30 5 3.70
		1.11528	1.26150 n	0.75815	1.33983 n	1.13290	1.31492 n	1.17435	~~1.08027 n~~	
		1.15565	1.30187 n	0.79852	1.38022 n	1.17327	1.35529	1.21146	1.11738 n	
		+14.31	−20.04	+6.29	−24.00	+14.90	−22.46	+16.27	−13.10	−28.70
		29 54.46	29 54.21	29 57.49	29 58.90	30 4.00	30 2.69	30 0.07	1.70	~~30.00~~
		7 6.11	5.86	7 9.14	10.55	7 15.65	14.34	7 ~~11.72~~		
		5.98		9.84		15.00				
	7 c	(9x) 27 33								
		2.25556								
		+915		+414		−426		+703		
		2.26471		2.25970		2.25130		2.26259		
		−183.95	−183.95	−181.85	−181.85	−178.36	−178.36	−183.16		
		−1	−1	−3	−3	−4	−4	−4		
		+.04	−10 +.08	+.1	−.02 +.11	+.04	−.01 +.09	+.05		+16
−.14	−.02	−.14	−.01	−.14	−.01	−.14	−.01	−.14		
		−3 4.06	−3 3.89	−3 2.01	−3 1.78	−2 58.50	−2 58.32	−3 3.19		
		10 10.17	9.75	10 11.16	12.33	10 14.15	12.66	10 14.91		
+2 9.19	6.82	+9.20	6.82	+9.39	7.00	+9.42	7.02	+10.61	8.04	
−2.37	+10.56	−2.38	+10.69	−2.39	+11.22	−2.40	+11.33	−2.54	+13.11	
−8.43		−8.60		−8.04		−7.94		−6.08 18		
+1 58.09		+58.22	8 11.95	+58.93	12.23	+59.08	15.07	+1.86	16.77	
			11.53		13.40		13.58			
			8 11.74		12.81		14.38 2		57.48	
			7 52.45		53.52		~~55.7~~			

1875

.84	45.37	53.8
.85	45.38	54.0
.86	45.50	53.2
.85	45.417	53.67
	−2	−8
	45.415 (3)	53.75

1874 1875

Nov. 19					Nov 4				Nov 6				Nov 8			
		−.116				−.260				−.310				−.273		
22	52	21.0	52	19.53	53	35.0	53	30.2	53	35.6	53	34.4	53	36.4	53	34.2
		23.5				37.3		32.0		38.0		36.7		38.7		35.7
		26.0				39.6		33.8		40.3		38.5		41.0		38.0
		30.7				44.3				45.1				45.9		
		33.1				46.8				47.4				48.4		
		35.4				49.1				49.8				50.7		
		38.0	53	6.6		51.7	54	4.5		52.2	54	7.9		53.0	54	3.9
		40.3		9.0		54.1		6.2		54.6		9.6		55.4		7.2
		44.6		11.4		58.7		9.0		59.2		11.7		0.2		9.5
		47.3				1.1				1.7				2.7		
		49.5				3.7				4.1				5.1		
		3894				4214				4280				3775		
						120				120				180		
			52	19.50		5414	53	32.00		5480	53	36.53		5575	53	35.97
	52	35.400	53	9.00	53	49.218	54	6.57	53	49.818	54	9.73	53	50.682	54	6.87
		35.382				49.200				49.800				50.664		
		+ 9.52				− 60.35				− 61.00				− 61.74		
		+ 7				+ .15				+ .18				+ .16		
		− 3.03	+0.268			− 3.63				− 3.60				− 3.58		
		+ 6.56				− 63.83				− 64.42				− 65.16		
	52	35.38			53	49.20			53	49.80			53	50.66		
	52	41.94			52	45.37			52	45.38			52	45.50		
		45.238														
		42.073												45.417		

S	3						
+ 15.90	− ~~2~~3.60	+ 17.22	− 17.35	+ 13.29	− 19.91	+ 14.71	− 16.19
25	10		10		10		
′ ″	− 278	2.98		− 300		− 302	
4 2.8	0 25.0	0 45.0	1 25.1	0 48.7	1 26.4	0 47.8	1 23.0
12.1	34.9	51.7	30.3	54.8	33.9	55.2	29.4
1.49	59.9	96.7	55.4	103.5	60.3	103.0	12.4
4 29 7.45	30 a 29.95	10 48.35	11 27.70	10 51.75	11 30.15	10 51.50	11 26.20
1.20140	1.52634n	1.23603	1.23920n	1.12352	1.29907n	1.16761	1.20925n
1.28857	1.56345n	1.29732	1.31059n	1.18481	1.36036n	1.22890	1.27054n
+ 17.32	− 36.60	+ 19.83	− 19.98	+ 15.31	− 22.93	+ 16.94	− 18.64
29 24.74	29 53.35	11 8.18	11 7.72	11 7.06	11 7.22	11 8.44	11 7.56
6	7 5.00	48 19.83 19.60	19.37	48 18.71 18.79	18.87	48 20.09 19.65	19.21
		72 27 0 2.25535					
+ 25.93		+ 17.23		+ 19.38		+ 20.98	
	2.28149	2.24258		2.27473		2.27633	
	− 191.20	− 187.32	− 187.32	− 188.25	− 188.25	− 188.94	− 188.94
	− 11	− 8	− 8	− 7	− 7	0	0
	+22 +27	+07	.00 +07	+04	−01 +09	+05	−01 +06
	− 05	− 05	− 09	− 05	− 09	− 05	− 08
	− 3 11.09	− 3 7.38	− 3 7.42	− 3 8.35	− 3 8.82	− 3 8.94	− 3 8.96
	10 16.09	51 27.21	26.49	51 27.04	27.19	51 29.03	28.17
7.82	+ 2 10.46	− 16 15.15	17.98	− 15.48	18.33	− 13.37	16.23
+ 13.86	− 2.64	− 2.83		− 2.85		− 2.86	
− 5.43		− 8.82		− 8.60		− 8.38	
+ 2 2.39		− 16 26.80	7 54.01	− 26.93	53.97	− 24.61	53.64
8 13.70			53.59		59.12		52.78
7 54.41			7 53.80		54.04		53.21

o Andromedae

94

h	m	sec
22	56	10

+41° 39'

γ = +0° 44'

γ sin γ = +.01

1874

		m s		' "	
Oct.	7	56 10.20		38 77.9	
	12	10.15	-.05	79.0	+1.1
	17	10.09	.06	80.0	1.0
	22	10.03	.06	80.9	.9
	27	9.96	.07	81.7	.8
Nov.	1	9.89	.07	82.4	.7
	6	9.81	.08	83.0	.6
	11	9.72	.09	83.5	.5
	16	9.63	.09	83.9	.4

1874

α 7.611s

δ +38' 56.30"

$\frac{d\alpha}{dt}$ +2.746s

$\frac{d\delta}{dt}$ +19.253"

corr α =

corr δ =

tang δ = +.89 1.34

I = 2.72s

K = -.021s

l sin δ 9.82255

l cos δ 9.87345

l c 10460

l c' 9.97805

l c'' 9.97479

1874

	Oct. 19 -22		Oct. 21 -24		Oct. 22 -15	-07	Oct. 26 -21	-08	Oct. 27 -24	-08	Nov. 4 -16	
	-.245		-.230		-.210		-.285		-.327		-.173	
22	56 5.9	56 2.4	56 4.1	55 54.5	56 3.0	55 54.1	56 0.4	55 43.2	56 0.0	55 47.7	55 55.3	55 43.6
	8.7	4.7	6.8	56.8	5.9	57.1	3.0	46.5	2.8	50.1	58.1	46.8
	11.5	7.3	9.5	59.0	8.4	59.0	5.8	48.8	5.6	52.2	0.7	48.8
	16.9		13.1		14.0		11.3		11.0		6.2	
	19.6		18.0		16.7		14.1		13.8		9.0	
	22.5		20.6		19.6		16.8		16.6		11.9	
	25.2	56 44.2	23.6		22.2	56 41.3	19.6	56 27.5	19.4	56 20.0	14.7	56 36.8
	28.0		26.1		25.0	45.0	22.3	30.0	22.1	22.7	17.3	38.8
	33.3		31.8		30.5	47.7	27.9	32.8	27.5	24.6	22.7	41.3
	36.2		34.4		33.3		30.6		30.3		25.6	
	39.0		37.2		36.1		33.4		33.0		28.5	
	2468		2272		2147		1852		1821		2500	
											120	
		56 4.80		55 56.77		55 56.73		55 46.17		55 50.00	1300	55 46.40
	56 22.436	56 44.20	56 20.655		56 19.518	56 44.67	56 16.836	56 30.10	56 16.555	56 32.43	56 11.818	56 38.97
	22415	-12.10	20634	-1034	19497	-9.31	16815	-6.52	16534	-623	11797	-1.88
	56 10.076	-.20	56 10.04	-.21	56 10.03	-.13	56 9.97	-.19	56 9.96	-.21	56 9.84	-.14
	+12.345		+10.59		+9.47	-.09	+6.84	-.11	+6.57	-.11	+1.96	
		-245		-243		-242		-236		-2.35		-223
	- 12.13	56 7.67	- 10.38	7.665	- 9.35	7.55	- 6.54	7.64	- 6.32	7.63	- 1.90	7.55
	- .22		- .20	5	- .19		- .25		- .29		- .15	
	- 2.45	+0.296	- 2.43	+0.316	- 2.42	+0.326	- 2.36	+0.386	- 2.35	+0.396	- 2.23	+0.516
	- 14.80		- 13.01		- 11.96		- 9.18		- 8.96		- 4.28	
	56 22.41	37 1208	56 20.63	1149	56 19.50	1160	56 16.81	1183	56 16.53	1166	56 11.80	1418
		+2 856		+2 919		+2 936		+2 961		+2 939		+2 940
	56 7.61	-.1	56 7.62	-.0	56 7.54	-.1	56 7.63	-.0	56 7.57	-.1	56 7.52	-.0
	56 10.356	-2410	10.366	-2450	10.286	-2460	10.376	-2530	10.316	-2540	10.266	-2650
	+41	38 5644		38 5618		38 5626		38 5614		38 5555		38 5708
	s +17.64	-21.76	+ 23.88		s +22.79	-25.15	+30.67	-13.26	+26.55	-5.88	+25.42	-27.15
45			45		45		45		45		45	
	-2.49		-2.50		-2.51		-2.52		-2.53		-2.63	
	0 14.9	0 51.9	0 8.3	0 49.9	0 8.2	0 53.7	0 0.5	0 42.1	0 4.5	0 35.2	0 4.8	0 54.9
	23.3	59.1	18.2	59.8	20.1	5.8	13.3	53.5	17.5	46.9	14.1	2.3
	382	1110	265	1097	283	1195	138	956	220	821	89	1172
	0 45 19.10	45 0 55.50	45 0 13.25	45 0 54.85	45 0 14.15	45 0 59.75	45 0 6.90	45 0 47.80	45 0 11.00	45 0 41.05	45 0 4.45	45 0 58.60
	1.24650	1.33766n	1.37803		1.35774	1.40054n	1.48671	1.12254n	1.42406	0.76938n	1.40518	1.43377n
	1.23455	1.31571n	1.35608		1.33579	1.37859n	1.46476	1.10059n	1.40211	0.74743n	1.37997	1.40856n
	+16.77	-20.69	+22.70		+21.67	-23.91	+29.16	-12.61	+25.24	-5.59	+23.99	-25.62
	45 35.87	45 34.81	45 35.95		45 36.82	45 35.84	45 36.06	45 35.19	45 36.24	45 35.46	45 ~~35.44~~ 33.	45 32.98n
+41°	37 12.48 13.01	13.54	37 12.40		37 12.53 12.52	12.51	37 12.29 12.72	13.16	37 12.11 12.50	12.89	37 ~~14.91~~ 14.91 15.14	15.37
+0	43 12	43 48									43 2	43 52
	9.86000	9.86600									9.85800	9.86700
	+1228		+1495		+929		+426		-417		+1191	
	9.87228	9.87828	1.87495	9.88095	9.86929	9.87529	1.86426	9.87026	9.85583	9.86183	9.86991	9.87891
	-0.74	-0.76	-0.75	-0.76	-0.74	-0.75	-0.73	-0.74	-0.77	-0.73	-0.74	-0.76
	-.09	-.13 -.13	-.15	-.16	-.14	-.17 -.17	-.20	-.16 -.05	-.18	-.12 -.2	-.17	-.20 -.20
	-.01	-.03	-.01	-.03	-.01	-.03	.00	-.02	-.01	-.02	-.01	-.03
	-0.84	-0.92	-0.91		-0.89	-0.95	-0.98	-0.81	-0.91	-0.77	-0.92	-0.99
	37 11.64	12.52	11.49		11.64	11.56	11.31	12.35	11.20	12.12	13.99	14.38
	39 20.4		20.8		20.9		21.6		21.7		22.8	
	+2 8.8	7.9	9.3		9.3	9.3	10.3	9.3	10.5	9.6	8.8	8.4
	+2 8.3		9.3		9.3		9.8		10.1		8.6	
	+2 8.59	8.57 56.11	+ 9.19	9.17	+9.20	9.18 56.22	+ 9.39	9.37 55.38	+ 9.42	9.40 55.20	+ 9.19	9.16 56.65
	- .02	-4.85 56.99	- .02	-5.25	- .02	-5.35 56.14	- .02	-6.05 56.42	- .02	-6.15 56.12	- .03	-7.25 57.04
	- 2410		- 2450		- 2460		- 2530		- 2540		- 26.50	
	+1 44.47	38 56.55	+ 44.67	56.16	+ 44.58	56.18	+ 44.07	55.90	+ 44.00	55.66	+ 42.66	56.84
		39 15.80		15.41		15.43		15.15		14.91		16.09

1875

s
α 10.35~~7~~
δ +39 15 55
$\frac{dt}{dt}$ +2.746
$\frac{d\delta}{dt}$ +19.254

l cos δ 9.87345
l C .12552
l C' 9.99897

1874

	α	δ
.80	10.36	15.8
.81	10.37	15.4
.81	10.29	15.4
.82	10.38	15.7
.82	10.32	14.9
.84	10.27	16.1
.86	10.30	15.6
.88	10.32	15.3
.88	10.39	15.4
.89	10.34	16.0
.84	10.334	15.51

(10)

1875

		m	s		′	″	
Oct.	27	56	12.96		39	42.8	
Nov.	1		12.88	−.08		43.7	+.9
	6		12.80	.08		44.3	.6
	11		12.72	.08		44.7	.4
	16		12.63	.09		45.0	.3
	21		12.54	.09		45.3	.3
	26		12.45	.09		45.5	.2
Dec.	1		12.36	.09		45.5	.0
	6		12.27	.09		45.5	.0

1874 | 1875 X | X

−.26 Nov. 11 | −.13 Nov. 16 | −.13 Nov. 18 | −.08 Nov. 21 | −.21 −.08 Nov 2 | −.28 Nov 3

−.267 | −.183 | −.154 | −.095 | −.250 | −.284

55 48.3 55 35.0 55 43.6 55 30.8 55 43.3 55 30.2 55 44.1 56 40.9 56 55.9 56 39.9 57 — 57 18.7
57.0 38.0 46.4 33.6 46.2 32.0 46.9 45.0 58.8 41.7 — 21.0
53.8 40.1 49.2 36.2 48.8 34.0 49.8 47.6 57 1.4 44.8 — 23.0
59.3 54.5 54.5 55.0 7.0 4.4
20 57.1 58.3 57.9 9.7 10.2
48 0.0 0.0 0.7 12.4 12.9
7.6 56 38.4 2.8 56 12.0 2.7 56 26.0 3.4 56 37.3 15.3 57 28.0 15.6
10.3 41.8 5.6 15.0 5.6 28.4 6.2 41.5 18.0 30.2 18.4
15.8 43.9 11.3 17.5 11.1 30.6 11.7 44.0 23.5 34.0 —
18.7 14.0 13.8 14.5 26.4 —
21.4 16.6 16.5 17.4 29.0 —

2930 | 3011 | 3008 | 3076 | 2574 | 645
240 | 300 | 300 | 300 | 126

53 0 55 37.70 | 1 1 55 33.53 ~~43.53~~ | 0 8 55 32.07 | 76 55 44.50 | 1374 56 42.13 | 57 20.90
56 4.818 56 41.37 | 56 0.100 56 14.83 | 56 0.073 56 28.33 | 56 0.691 56 40.93 | 57 12.491 57 30.73 | 57 12.900
4.797 +5.14 | 0.079 +9.68 | 0.052 +9.73 | 0.670 +8.92 | 12.470 −59.31 | 12.879 −59.85
56 9.72 −.23 | 56 9.63 −.12 | 56 9.59 −.12 | 56 9.543 −.07 | 56 12.86 −.19 | 56 12.854 −.25
−4.92 | −9.55 | −9.54 | −8.876 | +59.61 −.11 | +60.034

−2.11 | −2.02 | −1.98 | −1.92 | −2.50 | −2.48

+ 5.10 56 7.60 | + 9.64 7.62 | + 9.71 7.68 | + 8.92 7.60 | − 59.41 10.36 | − 59.86 10.30
− .24 | − .16 | − .14 | − 8 | − .22 | − .25
− 2.11 +0.636 | − 2.02 +0.726 | − 1.98 +0.766 | − 1.92 +0.826 | − 2.50 | − 2.48
+ 2.75 | + 7.49 | + 7.59 | + 6.92 | − 62.13 | − 62.59
56 4.80 1295 | 56 0.08 1287 | 56 0.05 1300 | 56 0.67 37 1388 | 57 12.47 55 58.06 | 57 12.88 59.16
+2 1077 | +2 10.71 | +2 10.99 | +2 10.89 | −16 14.58 | −16 15.24
56 7.55 −.1 | 56 7.57 −.1 | 56 7.64 −.1 | 56 7.59 −.1 | 56 10.34 −.1 | 56 10.29 −.8
10.296 −27.20 | 10.316 −27.60 | 10.386 −27.70 | 10.336 −27.90 | −28.40 | −28.40
38 56.42 | 38 55.88 | 38 56.19 | 38 56.77 | 39 14.98 | 39 15.52

s
+27.12 −36.55 | +26.57 ~~+16.57~~ −14.73 | +28.00 −28.26 | +16.19 −40.24 | + 30.36 − 18.24 | − 8.00 ∫
45 | 45 | 45 | 45 | 25

−2.74 | −2.74 | −2.77 | −2.79 | −2.97 | −2.98
0 2.9 0 3.2 0 6.4 0 44.8 0 2.0 0 55.0 0 16.3 1 9.7 1 14.8 2 3.7 1 52.5
14.4 14.9 12.7 52.0 13.9 6.9 19.8 13.1 22.6 11.8 0.1
17.3 18.1 19.1 96.8 15.9 121.9 36.1 22.8 37.4 15.5 112.6
45 a 8.65 45 a 9.05 45 a 9.55 45 a 48.40 45 a 7.95 46 x 0.95 45 n 18.05 46 x 11.40 26 18.70 27 7.75 26 56.30

1.48329 1.56289n 1.42439 1.16820 1.44716 1.45117n 1.20925 1.60466n 1.48230 1.26102n 0.90309n
1.40808 1.53768n 1.39918 1.14299n 1.42195 1.42596n 1.18404 1.57945n 1.48127 1.25999n 0.90206n
+25.59 −34.49 +25.07 −13.88 +26.42 −26.66 +15.28 −37.94 +30.29 −18.20 −7.98
45 34.24 45 34.56 45 34.62 45 34.52 45 34.37 45 34.29 45 33.33 45 33.43 26 48.99 26 49.55 26 48.32

37 14.11 13.79 37 13.73 13.83 37 13.98 14.06 37 15.02 14.92 55 59.36 55 58.80 56 0.03
13.95 13.78 14.02 14.97 59.08
43 11 44 4 42 31 43 20
9.86000 9.87000 9.85200 9.86100

+706 +2290 +1127 +1672 +1945 +1685
9.85094 9.85994 9.88090 9.88990 9.86927 9.87827 9.87672 9.88672 9.87145 9.88045 1.86885 1.87785
−0.71 −0.72 −0.76 −0.78 −0.74 −0.76 −0.75 −0.77 −0.74 −0.76 −0.74 −0.75

−.20 −.28 −.35 | −.19 −.14 −.06 | −.20 −.26 −.21 | −.07 −.33 −.43 | −.24 −.27 −.09 | −.2 −.13
.00 −.01 | −.01 −.02 | −.01 −.11 | −.03 −.13 | −.08 −.13 | −.11
−0.91 −1.08 | −0.96 −0.86 | −0.95 −1.08 | −0.85 −1.33 | −1.06 −0.98 | −0.87
13.20 12.71 | 12.77 12.97 | 13.03 12.98 | 14.17 13.59 | 55 58.30 57.82 | 59.16
23.5 | 23.9 | 24.0 | 24.2 | 39 42.9 | 44.0
+2 10.3 10.8 | 11.1 10.9 | 11.0 11.0 | 10.0 10.6 | −16 14.4 13.9 | 15.2
+2 10.5 | 11.0 | 11.0 | 10.3 | −16 14.1 | 15.2
+2 10.61 10.58 56.58 | + 10.81 10.78 55.95 | + 10.92 10.89 56.22 | + 10.76 10.73 57.00 | −16 14.69 14.72 15.18 | − 15.25 15.28
− .03 −7.95 56.09 | − .03 −8.35 56.15 | − .03 −8.45 56.187 | − .03 −8.65 56.92 | .03 14.70 | − .03
− 27.20 | − 27.60 | − 27.70 | − 27.90 | − 28.40 | − 28.40
+ 42.38 56.33 | + 43.18 56.05 | + 43.19 56.19 | + 42.83 56.11 | −16 43.12 39 14.94 | − 43.68 15.48
15.58 | 16.30 | 15.49 | 15.96

	1875	
.84	10.34	14.9
.84	10.29	15.5
.84	10.29	15.1
.85	10.29	15.1
.86	10.43	16.1
.89	10.42	14.9
.90	10.37	16.0
.86	~~11.776~~ 10.347 (7)	15.37

−.25 +
Nov 4
−.260
56 56.9 56 42.9
59.7 44.0
57 2.3 47.1
7.8
10.6
13.3
16.0 57 31.0
19.0 33.5
24.4 37.1
27.1
29.9
26 70
120
1470 56 45.17
57 13364 57 33.87
13343 −1m −0.31
56 12.83 −.22
+60.51
−247
− 60.35 56 10.34
− .23
− 2.47
− 63.05
57 13.34 55 58.85
−16 15.00
56 10.29 −.17
−2860
39 15.15
+ 28.19 − 20.51
25
− 2.98
1 16.2 2 5.8
23.5 13.1
39.7 18.9
26 19.85 27 9.45
1.45010 1.31197n
1.44907 1.31094n
+ 28.12 − 20.46
26 47.97 26 48.99
56 0.38 59.36
55 59.87
9.85200 9.86100
+1732
9.86932 9.87832
− ~~7.40~~ − ~~7.56~~
− 0.74 − 0.76
−.21 −.26 −.11
−.08 −.13
−1.03 −1.00
55 59.35 58.36
44.1
−16 15.2 14.3
16 14.7
−16 15.15 15.18 15.57
− .03 14.58
28.60
−16 43.78 39 15.07

−.28 +
Nov 6
−.310
56 57.5 56 45.7
57 0.3 47.8
2.9 49.9
8.5
11.3
14.0
16.8 57 27.2
19.5 29.5
25.1 31.4
27.9
30.6
2144
60
1544 56 47.80
57 14036 57 29.87
14015 −1m −0.97
56 12.80 −.25
+61.21
−244
− 61.00 10.36
− .28
− 2.44
− 63.72
57 14.01 59.34
−16 15.34
56 10.29 −.0
−2870
39 15.30
+ 26.24 − 15.33
25
− 3.00
1 17.9 1 59.2
25.7 7.6
43.6 12.68
26 21.80 27 3.40
1.41896 1.18554
1.41793 1.18451n
+ 26.18 − 15.20
26 47.98 26 48.70
56 0.37 0.25
0.31
+1947
9.87147 9.88047
− ~~7.44~~ − ~~7.59~~
− 0.74 − 0.76
−.18 −.22 −.06
−.08 −.12
−1.00 −0.94
59.37 59.31
44.3
15.1 15.0
15.1
− 15.48 15.51 15.16
− .03 15.10
− 28.70
− 44.21 15.13

−.23 +
Nov 8
−.273
56 58.3 56 51.8
57 0.9 53.8
3.8 55.7
9.3
12.2
14.7
17.5 57 31.8
20.4 34.7
26.0 36.5
28.7
31.3
2231
60
1631 56 53.77
57 14827 57 34.33
14806 −1m = 1.75
56 12.776 −.20
+62.045
−240
− 61.74 10.46
− .24
− 2.40
− 64.38
57 14.81 58.53
−16 13.12
56 10.43 −.1
−2900
39 42.41
16.31
+ 21.06 − 19.50
25
− 3.02
1 23.2 2 4.0
31.9 13.2
53.1 17.2
26 27.55 27 8.60
1.32346 1.29003
1.32243 1.28900
+ 21.01 − 19.46
26 48.56 26 49.14
55 59.79 59.21
59.50
+2107
9.87307 9.88207
− ~~7.47~~ − ~~7.62~~
− 0.75 − 0.76
−.12 −.21 −.10
−.09 −.12
−0.96 −0.98
58.83 58.23
44.5
14.3 13.7
14.0
− 13.37 13.40 16.43
− .03 15.83
− 29.00
− 42.40 16.13

−.27 +
Nov 22
−.220
56 2.6 56 19.0
5.3 21.0
8.0 23.0
13.3
16.1
18.8
21.5 56 48.8
24.4 51.7
29.8 54.0
32.6
35.5
2079
56 21.00
56 18.900 56 51.50
18879 −6.03
56 12.52 −.24
+6.36
−2.16
− 6.10 10.45
− .19 20
− 2.16
− 8.46
56 18.88 58.04
−16 13.27
56 10.42 −.0
−29.70
39 15.07
− 2.10 − 32.60
25
− 3.12
1 49.5 2 19.1
53.4 23.9
102.9 43.0
26 51.45 27 21.50
0.32222n 1.51322n
0.32119n 1.51219n
− 2.09 − 32.52
26 49.36 26 48.98
55 58.99 59.37
59.18
+3907
9.89107 9.90007
− ~~7.78~~ − ~~7.94~~
− 0.78 − 0.79
− 0 −.35 −.28
−.19 −.24
−0.97 −1.31
58.02 58.06
45.3
12.7 12.8
12.7
− 13.43 13.46 14.86
− .03 14.90
− 29.70
− 43.16 14.88

+ −.17
Nov 24
−.167
56 1.9 56 3.2
4.6 5.7
7.4 8.0
12.8
15.5
18.4
21.1 56 42.4
24.0 45.3
29.5 48.0
32.1
34.8
2021
56 5.63
56 18.373 56 45.23
18352 −5.71
56 12.488 −.15
+5.867
−2.12
− 5.71 10.37
− .15
− 2.12
− 7.98
56 18.35 56 0.66
−16 14.58
56 10.37 −.1
−29.90
39 16.08
2.
+ 13.74 − 26.86
25
− 3.12
1 30.9 2 11.2
36.8 16.4
67.7 6.6
26 33.85 27 13.30
1.10517 1.42911n
1.10414 1.42808n
+ 12.71 − 26.80
26 46.56 26 46.50
56 1.79 1.85
1.82
42 46 43 25
9.85600 9.86200
+1852
9.87452 9.88052
− ~~7.49~~ ~~7.59~~
− 0.75 − 0.76
−.04 −.40 −.19
−.24 −.33
−1.03 −1.28
0.76 0.57
45.4
15.4 15.2
15.3
− 14.73 14.76 16.10
− .03 15.91
− 29.90
− 44.66 16.00

97

α Pegasi
h m sec
22 58 32
+14° 32'
ζ = +27° 51'
ζ sin ζ = +.47

1874						
Oct.	7	58m 31.89s		31'	59.7	
	12	31.86	-.03		60.1	+.4
	17	31.83	.03		60.5	.4
	22	31.79	.04		60.8	.3
	27	31.75	.04		61.0	.2
Nov.	1	31.70	.05		61.1	.1
	6	31.65	.05		61.2	.1
	11	31.60	.05		61.2	.0
	16	31.54	.06		61.2	.0

1874
α 29.137s
δ +31 40.25"
dα/dt +2.985s
dδ/dt +19.325"

l sin δ 9.39958
l cos δ 9.98588
l C .10460
l C' 0.09048
l C'' 0.08722

corr α =
corr δ =
tang δ = +.26 1.03
I = .213s
K = -.016s

1874
Oct. 21 -.24 | Oct. 22 -.15 -.07 | Oct. 26 -.21 -.08 | Oct. 27 -.24 -.08 | Nov. 16 -.13 | Nov. 18 -.13

-.230 | -.210 | -.285 | -.324 | -.183 | -.154

58 29.5 58 22.5 | 58 28.5 58 18.8 | 58 25.6 58 16.5 | 58 25.4 58 15.8 | 58 9.2 58 0.8 | 58 9.1 57 58.9
31.4 42.28 24.6 | 30.6 21.2 | 27.8 18.6 | 27.4 17.7 | 11.2 2.9 | 11.2 1.2
33.8 .05 .32 26.6 | 32.7 22.7 | 29.9 20.7 | 29.6 19.8 | 13.3 4.6 | 13.3 3.1
38.0 .26 | 36.9 | 34.1 | 33.9 | 17.6 | 17.6
40.0 .13 | 39.0 | 36.3 | 36.0 | 19.8 | 19.7
42.3 .30 | 41.1 | 38.4 | 38.1 | 21.9 | 21.8
44.5 .37 | 43.2 58 57.0 | 40.6 58 55.1 | 40.2 58 57.5 | 24.0 58 43.2 | 24.0 58 40.1
— | 45.4 59.4 | 42.7 57.3 | 42.4 53.3 | 26.1 45.6 | 26.3 42.1
— | 49.6 1.7 | 47.0 59.1 | 46.7 54.8 | 30.4 47.7 | 30.4 44.3
— | 57.9 | 49.1 | 48.8 | 32.7 | 32.6
— | 54.0 | 51.2 | 51.0 | 34.9 | 34.6

58 24.57 | 45.29 58 20.90 | 42.27 58 18.60 | 41.95 58 17.77 | 24.11 58 2.77 | 24.06 58 1.07
58 42.249 | 58 41.173 58 59.37 | 58 38.427 58 57.17 | 58 38.136 58 53.20 | 58 21.918 58 45.50 | 58 21.873 58 42.17
58 42228 | 41.157 | 38.411 | 38.120 | 21.902 | 21.857
58 31.80 | 58 31.79 | 58 31.76 | 58 31.75 | 58 31.54 | 58 31.51
+10.43 -10.34 -.06 | +9.37 -9.31 -.04 | +6.65 -6.52 -.05 | +6.37 -6.23 -.06 | -9.64 +9.68 -.03 | -9.685 +9.73 -.03
- 10.38 | - 9.35 -.07 | - 6.57 -.08 | - 6.32 -.08 | + 9.65 | + 9.71
- .06 -2.66 | - 5 -2.65 | - 7 -2.62 | - 8 -2.61 | - 5 -2.40 | - 4 -2.37
- 2.66 +0.325 58m 29.17 | - 2.65 +0.335 29.09 | - 2.62 +0.365 29.14 | - 2.61 +0.375 29.~~13~~14 | 2.40 +0.585 29.15 | - 2.37 +0.615 29.19
- 13.10 | - 12.05 | - 9.26 | - 9.01 | 4 + 7.22 | + 7.30
58 42.23 | 58 41.16 | 58 38.41 | 58 38.12 | 58 21.90 | 58 21.86

58 29.13 29 51.60 | 58 29.11 52.72 | 58 29.15 51.86 | 58 29.11 51.53 | 58 29.12 51.37 | 58 29.16 51.12
58 32.115 +2 9.19 | 32.095 +2 9.36 | 32.135 +2 9.61 | 32.095 +2 9.39 | 32.105 +2 10.71 | 32.145 +2 10.99
- 13 | - 1.3 | - 13 | - ~~+~~ 13 | - ~~+~~ 14 | - ~~+~~ 1.4
- 20.60 | - 20.50 | - 21.70 | - 20.70 | - 21.00 | - 20.90
+14 31 38.89 | 31 40.28 | 31 39.47 | 31 38.92 | 31 39.68 | 31 39.81

s
50 + 17.67 | 50 +20.27 -18.20 | 50 +19.83 -18.74 | 50 +20.37 -15.06 | 50 +19.15 -23.58 | 50 +20.80 -20.30

-2.50 | -2.51 | -2.52 | -2.53 | -2.74 | -2.77
1 55.8 2 35.0 | 1 52.5 2 38.7 | 1 54.1 2 40.1 | 1 54.5 2 36.1 | 1 56.2 2 48.9 | 1 52.4 2 42.2
10.9 48.8 | 7.9 53.6 | 9.9 55.9 | 10.7 52.0 | 6.0 58.9 | 8.8 58.2
126.7 83.8 | 120.4 92.3 | 124.0 96.0 | 125.2 88.1 | 122.2 107.8 | 121.2 100.4
2 52 3.35 2 52 41.90 | 52 2 0.20 52 2 46.15 | 52 2 2.00 52 2 48.00 | 52 2 2.60 52 2 44.05 | 52 2 1.10 52 2 53.90 | 52 2 0.60 52 2 50.20

1.24652 | 1.30685 1.26007n | 1.29732 1.27277n | 1.30899 1.17782n | 1.28217 1.37254n | 1.31806 1.30750n
1.33700 | 1.39733 1.35055n | 1.38780 1.36325n | 1.39947 1.36830n | 1.36939 1.45976n | 1.40528 1.39472n
+ 21.84 | +24.96 -22.43 | +24.42 -23.08 | +25.09 -18.55 | +23.41 -28.83 | +25.42 -24.82
52 ~~39.51~~ 25.19 | 52 25.16 52 23.73 | 52 26.42 52 24.92 | 52 27.69 52 25.50 | 52 24.51 52 25.07 | 52 26.02 52 25.38
30 ~~884~~ 23.16 +14° | 30' 23.19" 24.62 23.90 | 30 21.93 23.43 22.68 | 30 20.66 ~~45.75~~ 21.75 | 30 23.84 23.28 23.56 | 30 22.33 22.97 22.65
+27 49 56 | 49 53 50 39
1.48280 | 1.48280 1.48300
+1502 | +936 | +432 | -412 | +2295 | +1134
1.49782 | 1.49216 1.49236 | 1.48712 1.48732 | 1.47868 1.47888 | 1.50575 1.50595 | 1.49414 1.49434
-31.46 | -31.06 -31.07 | -30.70 -30.71 | -30.11 -30.12 | -32.04 -32.06 | -31.20 -31.21

-.04 -.10 | -.05 -.12 -.04 | -.05 -.12 -.04 | -.05 -.11 -.03 | -.05 -.13 -.07 | -.06 -.32 -.05
-.06 -.08 | -.06 -.08 | -.06 -.08 | -.06 -.08 | -.06 -.09 | -.22 -.31
29 -31.56 | -31.17 -31.19 | -30.81 -30.83 | -30.22 -30.23 | -32.15 -32.22 | -31.48 -31.54
51.60 | 52.02 53.48 | 51.12 52.60 | 50.44 52.62 | 51.69 51.06 | 50.85 51.40
32 0.8 | 0.8 | 0.9 | 1.0 | 1.2 | 1.2
+2 9.2 | 8.8 7.4 | 9.8 8.3 | 10.6 8.4 | 9.5 10.1 | 10.4 9.8
+2 9.2 | 8.1 | 9.1 | 9.5 | 9.8 | 10.1
+2 9.19 8.02 | +9.20 8.03 39.55 | +9.29 8.21 38.63 | +9.42 8.24 37.98 | +10.81 9.53 40.22 | +10.92 9.62 39.57
- 1.17 - 1.27 | - 1.17 - 1.17 40.96 | - 1.18 - 1.37 40.11 | - 1.18 - 1.37 40.16 | - 1.28 - 1.67 39.59 | - 1.30 - 1.57 40.12
20.60 | 20.50 | - 20.70 | - 20.70 | - 21.00 | - 20.90
+1 47.42 31 39.02 31 58.34 | 47.53 40.25 59.57 | 47.51 39.37 58.69 | 47.54 39.07 58.39 | 48.53 39.90 59.22 | 48.72 39.84 59.16

1875	1875			1874		1875
s		m s	′ ″	α ′ δ		
α 32.123	Oct. 27	58 35.04	32 22.0	.81 32.12 58.3		.84 32.18 59.0
δ +31′ 59.58	Nov. 1	34.99 -.05	22.2 +.2	.81 32.10 59.6		.84 32.13 57.4
$\frac{d\alpha}{dt}$ +2.986	6	34.94 .05	22.3 .1	.82 32.14 58.7		.84 32.08 59.2
$\frac{d\delta}{dt}$ +19.327	11	34.89 .05	22.4 .1	.82 32.10 58.4		.85 32.07 59.8
	16	34.84 .05	22.4 +0	.88 32.11 59.2		.86 32.13 59.4
	21	34.79 .05	22.3 -.1	.88 32.15 59.2		.89 32.12 59.1
	26	34.73 .06	22.1 .2	.89 32.12 58.5		.90 32.19 59.0
log cos δ 9.98588	Dec. 1	34.67 .06	21.9 .2			.93 32.14
log C 1.2552	6	34.67 .06	21.6 -.3	.84 32.120 58.84	(7)	
log C′ 0.11140						.87 32.130 58.99 (8) (7)

1874		1875	+	+		+		+		+	
-08		-21	-08	-28		-25		-28		-23	
Nov. 21		Nov 2		Nov 3		Nov 4		Nov 6		Nov 8	
-.095		-.250		-.287		-.260		-.310		-.273	
22 58 9.7	58 0.7	59 21.8	59 9.0	59 22.3	59 9.9	59 22.6	59 14.1	59 23.2	59 16.2	59 24.0	59 14.2
12.0	2.5	23.9	11.5	24.4	12.2	24.7	15.6	25.4	18.3	26.0	16.0
14.1	4.0	25.9	13.4	26.6	15.0	26.9	17.4	27.5	19.8	28.2	17.7
18.2		30.3		30.7		30.9		31.7		32.3	
20.4		32.3		32.8		33.2		33.8		34.7	
22.5		34.5		34.8		35.3		35.9		36.8	
24.7	58 38.2	36.9	59 51.9	37.1	59 33.5	37.4	59 46.8	38.1	59 53.9	38.9	59 50.0
26.7	40.2	38.8	54.3	39.0		39.6	48.8	40.3	55.3	41.0	52.2
31.3	42.7	43.0	55.9	43.3		43.9	51.3	44.4	57.9	45.4	53.9
33.3		45.1		45.6		46.2		46.7		47.4	
35.4		47.3		47.6		48.2		48.8		49.6	
2483 58	2.40	3798 59	11.30	3842 59	12.37	3889 59	15.70	3958 59	18.10	4043 59	15.97
58 22.573	58 40.37	59 34.527	59 34.03	59 34.927	59 33.50	59 35.355	59 48.97	59 35.982	59 55.70	59 36.755	59 52.63
22557		34511		34911		35339		35966		36939	
58 31.487		58 34.98		58 34.97		58 34.96		58 34.94		58 34.92	
-8.981	+8.92	+59.53	-59.31	+59.94	-59.85	+60.378	-1^{m} -0.31	+61.03	-1^{m} -0.97	+61.82	-1^{m} -1.75
	-.02		-.05		-.07		-.07		-.07		-.06
+ 8.92		- 59.41	-.08	- 59.86		- 60.35		- 61.00		- 61.74	
- 2	-2.33	- 6	-2.86	- 7	-2.85	- 7	-2.84	- 8	-2.82	- 7	-2.80
- 2.33	+0.65 58^{m} 29.13	- 2.86	32.21	- 2.85	32.14	- 2.84	32.12	- 2.82	32.11	- 2.80	32.13
+ 6.57		- 62.33		- 62.78		- 63.26		- 63.90		- 64.61	
58 22.56		59 34.51		59 34.91		59 35.34		59 35.97		59 36.74	
58 29.13	29 50.77	58 32.18	48 37.72	58 32.13	36.63	58 32.08	38.47	58 32.07	39.40	58 32.13	36.85
32.115	+2 10.89		-16 14.58		-16 15.24		-16 15.00		-16 15.34		-16 13.12
	-4 1.4		-1.4		-1.3		-1.4		-1.4		-1.4
	-21.00		-22.60		-22.60		-22.70		-22.70		-22.70
	31 39.26		31 59.14		31 ~~27.97~~ 67.49		31 ~~29.37~~ 59.37		31 59.96		31 59.63
s											
+20.17	-17.80	+23.23	-19.50	+22.56	+1.43	+19.65	-13.62	+17.88	-19.72	+20.78	-15.28
50		30		30		30		30		30	
-2.79		-2.97		-2.98		-2.98		-3.00		-3.02	
1 57.8	2 43.9	3 7.3	4 1.9	3 8.8	3 36.2	3 11.4	3 55.7	3 12.1	4 0.5	3 10.4	3 56.9
4.4	50.8	9.9	5.5	13.0	39.5	14.0	56.0	16.9	3.9	14.9	0.9
122.2	94.7	17.2	7.4	21.8	15.7	54	110	90	44	53	11.78
52 1.10	52 47.35	33 8.60	34 3.70	33 10.90	33 37.85	33 12.70	33 55.50	33 14.50	34 2.20	33 12.65	33 58.90
1.30471	1.25042n	1.36605	1.29003n	1.35334	0.15534	1.29336	1.13418n	1.25237	1.29491n	1.31765	1.18412n
1.39193	1.33764n	1.47745	1.40143n	1.46474	0.26674	1.40476	1.24558n	1.35377	1.40631n	1.42905	1.29552n
+24.66	-21.76	+30.02	-26.20	+29.16	+1.85	+25.40	-17.60	+22.58	-25.49	+26.86	-19.75
52 25.76	52 25.59	33 38.62	33 38.50	33 40.06	33 39.70	33 38.10	33 37.90	33 37.08	33 36.71	33 39.51	33 39.15
30 22.59	22.76	49 9.73	9.85	49 8.29	8.65	49 10.25	10.45	49 10.27	11.64	49 8.84	9.20
22.67		9.79		8.47		10.35		11.45		9.02	
49 54	50 40	49 21	50 16								
1.48280	1.48300	1.48260	1.48290								
+1674		+1949		+1689		+1739		+1952		+2112	
1.49954	1.49974	1.50209	1.50239	1.49949	1.49979	1.49999	1.50029	1.50212	1.50242	1.50372	1.50402
-31.59	-31.60	-31.78	-31.80	-31.59	-31.61	-31.62	-31.64	-31.78	-31.80	-31.90	-31.92
-.05 -.31	-.04	-.07 -.27	-.05	-.07 -.24		-.05 -.25	-.03	-.04 -.26	-.05	-.06 -.26	-.03
-.22	-.31	-.19	-.24	-.19	-.22	-.19	-.23	-.19	-.24	-.19	-.24
-31.86	-31.95	-32.04	-32.09	-31.85	-31.83	-31.86	-31.90	-32.01	-32.09	-32.15	-32.19
29 50.73	50.81	48 37.69	37.76	36.44	36.82-8	38.39	38.55	39.26	39.55	36.69	37.01
12		32 222		222		223		223		223	
+2 10.5	10.4 -16	15.5	15.6	14.2	14.6	16.1	16.2	17.0	17.2	14.4	14.7
+2 10.5	-16	15.6		14.4		16.1		17.1		14.6	
+2 10.76	31 39.18 -16	14.69	31 59.01	-15.25	16.65 57.19	-15.15	16.55 59.14	-15.48	16.89 59.67	-13.37	14.78 59.21
- 1.31	9.45 -1.67 39.26 -	1.39	16.08 59.08	-1.40	57.57	-1.40	59.30	-1.41	59.96	-1.41	59.53
29.00		- 22.60		-22.60		-22.70		-22.70		-22.70	
+1 48.45	+31 39.22 -16	38.68	39 59.04	39.25	57.38	39.25	59.22	39.59	59.81	37.48	59.37
	31 58.54										

1874.0		1875.0	
α	δ	α	δ
29.13		32.18	
11		13	
15		08	
11		07	
12		13	
16		12	
13		19	
		14	
29.130		32.130	
.137	40.25	.123	59.58
−.007		+.007	

×	=27 Nov 22			+	−17 Nov 24			+	−13 Dec 6		
	−.220				−.167				−.136		
58	28.1	58	17.6	58	27.9	58	21.0	58	22.0	58	18.3
	30.4		20.0		30.0		23.0		24.1		19.8
	32.5		22.0		32.0		24.4		26.3		21.5
	36.8				36.3				30.4		
	38.7				38.5				32.7		
	40.9				40.6				34.9		
	43.1	59	4.6		42.7	58	55.1		36.9	59	6.2
	45.2		7.0		44.8		56.6		39.0		8.5
	49.4		8.7		49.0		58.3		43.4		10.4
	51.5				51.3				45.5		
	53.8				53.4				47.5		
	4504	58	19.87		4465	58	22.80		3827	58	19.87
58	40.945	59	6.77	58	40.591	58	56.67	58	34.791	59	8.37
	40.929				40.575				34.775		
58	34.787			58	34.75			58	34.61		
	+6.156		−6.03		+5.82		−5.71		+0.16		−0.01
			−.07				−.04				−.03
−	6.10			−	5.41			−	0.11		
−	.06		−2.65	−	4		−2.63	−	3		−2.49
−	2.65	58	32.18	−	2.63		32.20	−	2.49		32.25
−	8.81			−	8.38			−	2.63		
58	40.93			58	40.57			58	34.77		
58	32.12	−48	3665	58	32.19		3778	58	32.14		
		−16	1327			−16	1458			−16	1358
			−1.5				−1.5				−1.5
			−2270				−2260				−22.00
		31	59.18			31	59.10			81	
+	21.07	−	25.83	+	17.79	−	16.08	+	14.92	−	33.58
30				30							
	−3.12				−3.12				−3.16		
3	10.1	4	11.3	3	14.2	3	58.4				
	10.5		12.4		16.2		59.9				
	″6		37		10.4		18.3				
33	10.30	34	11.85	33	15.20	33	59.15				
	1.32366		1.41212n		1.25018		1.20629n		1.17377		1.52608n
	1.43506		1.53352n		1.36158		1.31769n		1.28517		1.63748n
+	27.23	−	33.38	+	22.99	−	20.78	+	19.28	−	43.40
33	37.53	33	38.47	33	38.19	33	38.37				
49	10.82		9.88	49	10.16		9.98				
	10.35				10.07						
				49	27	50	11				
					1.48260		1.48290				
	+3910				+1852				+1799		
	1.52170		1.52200		1.50112		1.50142		1.50059		1.50089
	−33.24		−33.27		−31.70		−31.73		−31.66		−31.69
	−.06	−.45	−.09		−.04	−.58	−.03		−.03		−.15
	−.32		−.42		−.48		−.60				
	−33.62		−33.78		−32.22		−32.36				
	37.20		36.10		37.94		37.62				
	22.3				22.2				21.6		
−16	14.9		13.8		15.7		15.4				
−16	14.4				15.5						
−16	13.4	3 14.89	59.61	−	14.7	3 16.19	59.15	−	13.77		15.25
−	1.46		58.51	−	1.46		58.83	−	1.48		
−	22.70			−	22.60			−	22.00		
−16	37.59		59.06		38.79		58.99		37.25		

55 Pegasi
h m sec
23 0 42
+ 8° 44'
φ = + 33° 39'
φ sin z = + .55

	1874		1875
	α		0 42.44
	δ		44 3.99
	dα/dt		+ 3.019
	dδ/dt		+ 19.36
l sin δ	~~9.99429~~ 9.15137		
l cos δ	9.~~20671~~ 99463		9.~~20671~~ 99463
l C	~~.10460~~	.09953	12552
l C'	9.~~37151~~	.09627	9.~~33245~~ .12045
l C"	9.~~30825~~		

corr α =
corr δ =
tang δ = + .15
I = 2.09 s
k = − .016 s

1874

Oct. 19		Oct. 26		Oct. 27		Nov. 12		Nov. 16		Nov. 18	
− .245		− .285		− .327		− .245		− .183		− .154	
23 0 41.9	0 29.0	0 36.3	0 31.1	0 36.0	0 26.7	0 23.7	0 20.0	0 19.9	0 9.2	0 19.7	0 9.9
44.0	30.8	38.4	33.0	38.0	28.4	25.9	22.1	22.0	11.8	21.9	11.9
46.0	32.9	40.4	35.1	40.1	30.0	27.9	23.5	24.0	14.0	24.0	14.1
50.1		44.8		44.3		32.1		28.2		28.1	
52.2		46.7		46.5		34.2		30.3		30.2	
54.4		48.8		48.5		36.1		32.4		32.2	
56.5	1 16.6	50.9	1 15.1	50.6	1 13.3	38.2	0 59.3	34.5	0 59.2	34.3	0 57.1
58.5	18.1	53.0	17.1	52.8	15.3	40.4		36.5	1.2	36.5	59.8
2.7	20.5	57.1	19.1	56.9	17.0	44.6		40.7	3.1	40.5	2.1
4.7		59.2		59.0		46.7		42.8		42.7	
6.8		1.2		1.0		48.7		45.0		44.8	
4178		4768		4737		3985		3563		3549	
180		60		60							
5978 0	30.90	5368 0	33.07	5337 0	28.37		0 21.87		0 11.67		0 11.97
0 54.345 1	18.23	0 48.800 1	17.10	0 48.518 1	15.20	0 36.227 0	59.30	0 32.391 1	1.17	0 32.264 0	59.67
54.329		48.784		48.502		36.211		32.375		32.248	
− 12.13		− 6.54		− 6.32		+ 5.79		+ 9.64		+ 9.71	
− 4		= 4		= 5		− 4		− 3		− 2	
− 2.75	+0.269	− 2.69	+0.329	− 2.68	+0.339	− 2.53	+0.489	− 2.48	+0.539	− 2.46	+0.559
− 14.92		− 9.30		− 9.05		+ 3.22		+ 7.16		+ 7.23	
0 54.33		0 48.78		0 48.50		0 36.21		0 32.37		0 32.25	
0 39.41		0 39.48		0 39.45		0 39.43		0 39.53		0 39.48	
0 42.429		42.499		42.469		42.449		42.549		42.999	

35 + 23.44 s	− 23.89	35 + 15.73	− 28.30	35 + 20.15	− 26.68	35 + 14.36	− 23.07	35 + 20.72	− 28.78	35 + 20.29	− 27.41
− 249		− 252		− 253		− 272		− 274		− 277	
4 36.2	0 35.9	4 45.7	0 40.9	4 41.8	0 39.6	4 49.0	0 35.1	4 40.9	0 43.0	4 39.5	0 40.3
46.8	47.3	0.7	56.7	55.9	55.9	0.6	48.0	49.3	52.3	54.9	56.0
83.0	83.2	1064	976	977	955	1096	831	902	953	944	963
39 4 41.50	40 0 41.60	39 4 53.20	40 0 48.80	39 4 48.85	40 0 47.75	39 4 54.80	40 0 41.55	39 4 45.10	40 0 47.65	39 4 47.20	40 48.15
1.36996	1.37822n	1.19673	1.45179n	1.30428	1.42619n	1.15715	1.36305n	1.31639	1.45909n	1.30728	1.48791n
0.68147	0.68973n	0.50824	0.76330n	0.61579	0.73770n	0.46540	0.67130n	0.60464	0.76734n	0.61553	0.74616n
~~+4.80~~ ~~+29.98~~ 39 ~~40.5~~	~~−4.89~~ ~~−30.03~~ ~~36.71~~	~~+2.22~~ ~~+19.78~~ ~~56.42~~	~~−5.80~~ ~~−35.59~~ ~~45.00~~ 39	~~+4.13~~ ~~+25.34~~ ~~52.78~~	~~−5.44~~ ~~−33.55~~ ~~42.28~~	~~+2.92~~ ~~+18.06~~ ~~57.72~~	~~−4.69~~ ~~−29.01~~ ~~36.86~~	+ 4.21 ~~49.31~~	~~−5.85~~ ~~41.80~~	~~+4.13~~ ~~+25.51~~ ~~51.33~~	~~−5.94~~ ~~−34.47~~ ~~42.50~~
+8° 40 10.98	11.57	12.98	13.21	14.19	14.20	12.86	12.54	+26.06	−36.19	12.71	13.68
4 3/2 37.37	36.78	42 35.37	35.14	42 34.16	34.15	42 35.49	35.81	42 11.16 37.19	11.46 36.89	42 35.64	34.67
37.07		35.25		34.16		35.65		37.04		35.16	
+33 37 34	38 35							37 38	38 41		
1.58300	1.58320							1.58300	1.58320		
+1232		+.440		− 405		+2579		+ 2302		+ 1143	
1.59532	1.59552	1.58740	1.58760	1.57895	1.57915	1.60879	1.60899	1.60602	1.60622	1.59443	1.59463
− 39.39	− 39.40	− 38.67	− 38.69	− 37.93	− 37.94	− 40.62	− ~~41.11~~ 40.64	− ~~41.31~~ 40.37	− 40.39	− 39.31	− 39.32
− .04	− .12 − .04	− .02	− .12 − .06	− .03	− .12 − .04	− .02	− .12 − .04	− .03	− .12 − .06	− .03	− .35 − .06
− .14	− .02	− .15	− .02	− .14	− .02	− .15	− .02	− .14	− .02	− .53	− .09
− 39.57	− 39.46	− 38.84	− 38.77	− 38.10	− 38.00	− 40.79	− 40.70	− 40.54	− 40.47	− 39.87	− 39.47
+8 41 57.80	57.32	41 56.53	56.37	41 56.06	56.15	41 54.70	55.11	41 56.65	56.42	41 55.77	55.20
+2 8.59	7.23	+ 9.39	8.01	+ 9.42	8.03	+ 11.18	9.69	+ 10.81	9.31	+ 10.92	9.40
− 1.36	+ .16	− 1.38	+ .01	− 1.39	+ .00	− 1.49	+ .65	− 1.50	+ .14	− 1.52	+ .19
− 19.20		− 19.35		− 19.36		− 19.31		− 19.22		− 19.17	
+1 48.03	43 45.83	48.66	45.19	48.67	44.73	50.38	45.08	50.09	46.74	50.23	46.00
	45.35		45.03		44.82		45.49		46.51		45.43
	43 45.59		45.11		44.77		45.28		46.62		45.71
	44 4.95		4.47		4.13		4.64		5.98		5.07

1874		
.80	42.43	5.0
.82	42.50	4.5
.82	42.47	4.1
.87	42.45	4.6
.88	42.55	6.0
.88	42.50	5.1
.89	42.54	5.0
.90	42.45	4.9
.86	42.~~511~~ .486 (8)	4.90

1875		
.84	42.55	4.1
.84	42.53	4.3
.85	42.49	4.4
.89	42.52	4.9
.90	42.49	4.2
.93	42.55	
.87	42.~~438~~ 522 (6)	4.38 (5)
	−1	+1
	42.521	4.39

1874 1875

Nov. 21		Nov. 24		Nov 2		Nov 3		Nov 6		Nov 22	
−.095		−.052		−.250		−.287		−.310		−.220	
0 20.6	0 13.2	0 21.2	0 7.8	1 32.5	1 24.2	1 32.8	1 24.8	1 33.9	1 29.2	0 39.0	0 30.2
22.6	14.6	23.3	10.0	34.5	26.4	34.9	27.4	36.1	30.8	41.1	32.0
24.7	16.8	25.3	12.5	36.6	28.1	37.1	29.0	38.1	32.5	43.1	33.6
28.8		29.5		40.9		41.3		42.3		47.2	
30.9		31.7		42.9		43.3		44.3		49.3	
33.1		33.8		45.0		45.5		46.4		51.4	
35.2	1 0.0	35.8	0 53.5	47.0	1 58.8	47.5	2 9.4	48.5	1 58.5	53.5	1 11.7
37.3	2.1	37.9	55.7	49.1		49.5	11.5	50.7	1.0	55.5	13.9
41.3	4.0	42.0	58.1	53.3		53.7	14.4	54.8	2.8	59.7	16.1
43.5		44.3		55.4		55.8		57.0		1.8	
45.6		46.3		57.4		57.9		59.0		3.9	
3636		3711		4946		4993		5111		4455 120	
	0 14.87		0 10.10		1 26.23		1 27.07		1 30.83	565.5	0 31.93
0 33.055	1 2.03	0 33.736	0 55.77	1 44.964	1 58.80	1 45.391	2 11.77	1 46.464	2 0.77	0 51.409	1 13.90
33.039		33.720		44.948		45.375		46448		51.393	
+ 8.92		+ 8.11		− 59.41		− 59.86		− 61.00		− 6.10	
− 1		− 1		− 4		− 4		− 5		− 3	
− 2.43	+0.589	− 2.39	+ 0.629	− 2.95		− 2.94		− 2.91		− 2.74	
+ 6.48		+ 5.71		− 62.40		− 62.84		− 63.96		− 8.87	
0 33.04		0. 33.72		1 44.95		1 45.37		1 46.45		0 51.39	
0 39.52 42.539		0 39.43 42.449 39.466		0 42.55		0 42.53		0 42.49		0 42.52	

s											
+ 18.18	− 28.98	+ 23.64	− 22.03	+ 18.73	− 13.84	+ 18.32	− 26.38	+ 15.63	− 14.31	+ 19.48	− 22.49
35		35		20		20		20		20	
− 2.79		− 2.81		− 2.97		− 2.98		− 3.00		− 3.12	
4 46.3	0 45.8	4 39.8	0 36.3	0 59.0	1 42.5	0 59.2	1 58.1	1 0.7	1 41.9	0 58.1	1 53.0
52.9	53.0	55.3	51.7	41	47.7	6.3	1.7	7.9	47.7	1.9	56.0
99.2	98.8	95.1	88.0	123.1	10.2	125.5	119.8	8.6	9.6	120.0	9.0
39 49.60	40 49.40	39 47.55	40 44.00	21 1.55	21 45.10	21 2.75	21 59.90	21 4.30	21 44.80	21 0.00	21 54.50
1.25959	1.46210	1.57365	1.34301	1.27254	1.14114	1.26293	1.42127	1.19396	1.15564	1.28959	1.35799
0.56784	0.77035	0.68190	0.65126	0.58079	0.47357	0.59536	0.75370	0.52639	0.48807	0.62202	0.68442
~~+ 5.70~~	~~− 5.89~~	~~+ 4.82~~	~~− 4.48~~	~~+ 3.81~~	~~− 2.77~~	~~+ 3.94~~	~~− 5.67~~	~~+ 3.36~~	~~− 3.08~~	~~+ 4.17~~	~~− 4.53~~
53.30	43.57	57.36	0 39.52	21 5.36	21 48.07	6.69	54.33				
+ 22.69	− 36.17	+ 29.51	− 27.50	~~+ 23.38~~ + 24.72	~~− 17.27~~ − 18.26	~~+ 22.17~~ + 24.18	~~− 32.93~~ − 34.81	~~+ 19.57~~ + 20.62	~~− 17.86~~ − 18.88	~~+ 29.31~~ + 25.71	~~− 21.60~~ − 29.68
40 12.29 42 38.06 35.59	13.23 35.12	42 19.06 31.29 37 31.57 41	16.50 31.85 38 37	21 26.27 1 22.08 37 21.93	26.84 24.51 37 57	1 26.53 21.42 22.34	25.09 23.26	24.92 1 23.49 22.93	25.92 22.43	25.71 1 22.64 23.08	24.82 23.53
		1.58300	1.58320	1.58290	1.58310						
+ 1675		+ 924		+ 1952		+ 1692		+ 1956		+ 3913	
1.59975	1.59993	1.59224	1.59244	1.60242	1.60262	1.59982	1.60002	1.60246	1.60266	1.62203	1.62223
− 39.79	− 39.81	− 39.11	− 39.12	− 40.03	− 40.05	− 39.80	− 39.81	− 40.04	− 40.06	− 41.88	− 41.90
− .02	− .35 − .06	− .04	− .34 − .03	− .02	− .10 − .01	− .02	− .12 − .05	− .02	− .10 − .02	− .03	− .18 − .03
− .53	− .09	− .53	− .08	− .06	− .10	− .06	− .12	− .06	− .10	− .10	− .19
− 40.34	− 39.96	− 39.68	− 39.23	− 40.11	− 40.16	− 39.88	− 39.98	− 40.12	− 40.18	− 42.01	− 42.12
41 55.72	55.16	41 51.61	52.62	0 41.97	41.35	0 41.54	43.28	0 43.31	42.25	0 40.63	41.41
+ 2 20.76	9.23	+ 13.91	12.37	− 16 14.69	16.32	− 15.25	16.88	− 15.48	17.13	− 13.43	15.14
− 1.53	+ .29	− 1.54	+ .41	− 1.63		− 1.63		− 1.65		− 1.71	
− 19.04		− 18.95		− 21.28		− 21.28		− 21.27		− 20.94	
+ 1 50.16	43 45.88 45.32	53.42	45.03 46.04	− 16 37.60	44 4.37 3.75	38.16	3.38 5.12	38.40	4.91 3.85	36.08	4.55 5.33
	43 45.60 4.96		45.53 4.89		4.06		4.25		4.38		4.94

Nov 24 Dec 6

-.167 -.136

0 38.4 0 31.3 0 32.8 0 16.6
40.5 33.0 34.9 18.3
42.7 35.1 36.9 19.9
46.7 41.2
48.9 43.2
51.0 45.3
53.0 1 12.4 47.4 1 0.9
55.2 49.4 2.6
59.3 53.5 5.8
1.4 55.6
3.4 57.9

4405 4981
120
560.5 0 33.13 0 18.27
0 50.955 1 12.40 0 45.282 1 3.10
50.939 45.266

- 5.41 - 0.11
- 2 - 2
- 2.72 - 2.59
- 8.43 - 2.72
0 50.94 0 45.27

0 42.49 0 42.55

42.522

.+ 17.82 - 21.45 + 27.01 - 17.82
20
.- 3.12 - 3.16
1 0.9 1 53.2
4.9 56.9
5.8 10.1
21 2.90 21 55.05

1.25091 . 1.33143n 1.43152 1.25091n
~~0.58334~~ 0.66286n 0.76395 0.58334n
~~+3.88~~ -4.61 ~~+5.81~~ ~~-3.83~~
2.73 ~~56.44~~
+2352 -28.30 +35.64 -23.51
21 26.42 26.75
21.93 21.60
21.76
37 15 38 7
1.58290 1.58310
+18.52 +18.20
1.60142 1.60162 1.60110 1.60130
-39.94 -39.96 -39.91 -39.93

-.02 -.24 -.03 -.06 -.02
-.15 -.28
-40.11 -40.27 ~~-39.97~~. ~~-39.95~~
0 41.82 41.33
-16 14.73 16.47 - 13.77 15.53
- 1.74 - 1.76
-20.84 -20.29
-16 37.34 4.48 35.82
3.99

44 4.23

c² Aquarii

h m sec
23 2 46

− 21° 51′

ζ = + 64° 14′
ζ sin ζ = +.90

	1874	1875
α		2 46.85
δ		51 2.38
dα/dt		+ 3.207
dδ/dt		+ 19.44
l sin δ	9.57075	
l cos δ	9.96762	9.96762
l C	.10460	12552
l C°	0.07222	0.09314
l C″	0.06896	

corr α
corr δ

tang δ − .40
s
I = 2.20
s
K = −.017

	1874	
.80	46.84	1.9
.82	46.81	2.6
.82	46.83	4.6
.87	46.82	2.3
.88	46.99	0.5
.88	46.78	2.9
.89	46.86	0.8
.89	46.89	0.6
.90	46.83	1.6
.86	46.850	1.98
	(9)	

1874

Oct. 19		Oct. 26		Oct. 27		Nov. 12		Nov. 16		Nov. 18	
−.245		−.285		−.324 Add 1 second		−.245		−.183		−.164	
2 45.6	2 30.9	2 40.0	2 28.2	2 38.6	2 26.0	2 27.3	2 19.6	2 23.6	2 15.8	2 23.4	2 16.5
47.8	32.9	42.1	30.4	40.9	28.0	29.6	21.4	25.9	18.0	25.6	18.6
50.0	34.9	44.4	32.4	43.2	30.0	31.8	23.0	28.1	20.5	27.9	21.1
54.4		48.8		47.6		36.2		32.7		32.2	
56.7		51.1		49.8		38.8		34.7		34.5	
59.0		53.2		52.0		40.9		37.0		36.7	
1.1		55.5		54.2		42.9		39.1		39.0	
3.3		57.6		56.4		45.0		41.4		41.2	
7.8		2.1		0.9		49.7		46.0		45.6	
10.1		4.4		3.1		51.8		48.1		47.8	
12.3		6.6		5.3		54.0		50.4		50.2	
3481		4058		3920		4480		4070		4041	
300		180		180							
6481	2 32.90	5858	2 30.33	5720	2 28.00		2 21.33		2 18.10		2 18.73
2 58.918		2 53.255		2 53.000		2 40.727		2 37.000		2 36.786	
58.901		53.238		52.983		40.710		36.983		36.719	
− 12.13		− 6.57		− 6.32		+ 5.79		+ 9.67		+ 9.71	
+ .10		+ .11		+ .13		+ .10		+ 7		+ 6	
− 3.24	−0.033	− 3.18	+0.027	− 3.17	+0.037	− 2.99	+0.217	− 2.94	+0.267	− 2.92	+0.287
− 15.27		− 9.64		− 9.36		+ 2.90		+ 6.80		+ 6.85	
2 58.90		2 53.24		2 52.98		2 40.71		2 36.98		2 36.72	
2 43.63		2 43.60		2 43.62		2 43.61		2 43.78		2 43.57	
2 46.837		46.807		46.827		46.817		46.987		46.777	
′ +26.02		+22.92		+25.00		+19.40		+18.90		+18.01	
10		10		10		10		10		10	
−2.49		−2.52		−2.53		−2.72		−2.74		−2.77	
3 23.7		3 30.0		3 32.2		3 32.6		3 33.7		3 38.0	
39.0		48.9		50.8		48.9		46.8		56.0	
62.7		78.9		83.0		81.5		80.5		94.0	
13 3 31.35		13 3 39.45		13 3 41.50		13 3 40.75		13 3 40.25		13 3 47.00	
1.41531		1.36021		1.39794		1.28780		1.27646		1.25567	
1.48753		1.43243		1.47016		1.35676		1.34572		1.32447	
+ 30.73		+ 27.06		+ 29.53		+ 22.74		+ 22.16		+ 21.11	
14 2.08		14 6.51		14 11.03		14 3.49		14 2.41		14 8.11	
− 21° 51′ 13.73″		51 18.16		51 22.67		51 15.14		51 14.06		51 19.76	
+64 11 24		11 32		11 34							
2.07365		2.07368		2.07371							
+ 1234		+ 448		− 400		+ 2579		+ 2308		+ 1152	
2.08599		2.07816		2.06971		2.09950		2.09679		2.08523	
−121.90		−119.72		−117.41		−125.75		−124.97		−121.68	
− 2		− 1		− 1		− 4		− 2		− 2	
+.13	+.03	+10	−.01	+12	+.01	+07	−.04	+06	−.05	+06	−.36
−.10		−.11		−.11		−.11		−.11		−.42	
−2 1.89		−1 59.74		−1 57.41		−2 5.83		−2 5.04		−2 2.06	
−21 53 15.62		53 17.90		53 20.08		53 20.97		53 19.10		53 21.82	
+ 2 8.59	6.35	+ 9.39	7.12	+ 9.42	7.15	+ 11.18	8.73	+ 10.81	8.35	+ 10.91	2 8.45
− 2.24	+ 7.41	− 2.24	+ 8.17	− 2.27	+ 8.28	− 2.45	9.90	− 2.46	+ 10.78	− 2.47	+ 10.45
− 12.03		− 11.27		− 11.16		− 9.54		− 9.16		− 8.99	
+ 1 54.32		55.85		56.09		59.19		59.19		59.45	
	51 21.30		22.05		23.99		21.78		19.91		22.37
	51 1.86		2.61		4.55		2.34		0.47		2.92

1875

		δ
.84	4677	3.0
.84	4685	2.3
.85	46.72	2.6
.89	46.95	1.3
.90	46.70	2.0
.86	46.784 98	2.24
	− 3 (5)	− 1
	46.795	2.25

1874 Nov. 21		Nov. 22		1874 Nov. 24		1875 Nov 2		Nov 3		Nov 6	
−.095		−.157		−.052		−.250		−.287		−.310	
23 2 24.3	2 17.7	2 24.7	2 35.1	2 25.0	2 10.0	3 36.3	3 25.0	3 36.9	3 33.0	3 37.7	3 30.7
26.5	20.0	26.9		27.3	12.0	38.5	26.5	39.0	35.2	39.9	33.4
28.7	21.9	29.1		29.5	13.8	40.6	28.1	41.2	37.3	42.1	34.7
33.2		33.0		33.8		45.1		45.5		46.5	
35.3		35.7		36.1		47.3		47.8		48.8	
37.6		38.6		38.4		49.5		50.2		51.0	
39.8	3 0.7	40.2		40.6	2 54.0	51.8		52.3		53.3	
42.0	2.3	42.3		42.8		54.1		54.6		55.6	
46.5	4.6	46.7		47.3		58.6		59.0		0.0	
48.7		49.2		49.5		0.7		1.2		2.0	
50.9		51.3		51.6		2.9		3.3		4.6	
4135	2 1987	4171	2 35.10	4219	2 11.93	5454	3 26.53	5510	3 35.17	5615	3 32.93
2 37.591	3 2.53	2 37.918		2 38.355	2 54.00	3 49.582		3 50.091		3 51.045	
37.574		37.901		38.337		49.565		50.074		51.028	
+ 8.92		+ 8.59		+ 8.11		− 59.41		− 59.86		− 61.00	
+ 4		+ 6		+ .02		+ .10		+ .11		+ .12	
− 2.88	+0.327	− 2.87	+0.337	− 2.85	+0.357	− 3.48		− 3.44		− 3.43	
+ 6.08		+ 5.78		+ 5.28		− 62.79		− 63.22		− 64.31	
2 37.57		2 37.90		2 38.34		3 49.56		3 50.07		3 51.03	
2 43.65		2 43.68		2 43.62		2 46.77		2 46.85		2 46.72	
2 46.857		46.887		46.827							
				43.640							

δ											
10 +17.72	−24.94	10 + 2.82		10 +26.42	−15.65	50 + 23.05		50 + 14.92		50 + 18.11	
−2.79		−2.80		−2.81		−2.97		−2.98		−3.00	
3 38.5		3 53.9		3 30.2		4 47.1		4 56.6		4 51.7	
49.0		4.6		49.6		50.6		0.2		56.5	
87.5		118.5		79.8		97.7		116.8		82	
3 13 43.75		3 13 59.25		13 3 39.90		54 48.85		54 58.40		54 54.10	
1.24846	1.39690	0.45025		1.42193	1.19451	1.36267		1.17377		1.25792	
1.31742	1.46586	0.52247		1.49089	1.26347	1.45581		1.26691		1.35106	
+20.77	29.23	+3.33		+30.96	18.34	+28.56		+18.49		+22.44	
14 4.52		14 2.58		14 10.86		55 17.41		55 16.89		55 16.54	
51 16.17		51 14.23		51 22.51		32 29.06		32 28.54		32 28.19	
				11 33		11 11					
				2.07371		2.07358					
+1677		+2763		+928		+1956		+1696		+1961	
2.09048	2.09048	2.10134	2.10134	2.08299	2.08299	2.09314		2.09054		2.09319	
−123.17	−123.17	−126.28	−126.28	−121.06	−121.06	−123.92		−123.18		−123.94	
− 3	− 3	− 4	− 4	− 3	− 3	− 3		− 3		− 2	
+.06	−.35 +[illegible]	+ 0	−.44	+.13	−.28 +.04	+.10	−.19	+.04	−.26	+.06	−.23
−.41		−.44		−.41		−.29		−.30		−.29	
−2 3.55	~~−2 3.09~~	−2 ~~3.88~~ 6.16	~~−2 6.32~~	−2 1.37	~~−2 1.05~~	−2 4.14		−2 3.47		−2 4.19	
53 19.72		53 20.94		53 23.88		34 33.20		34 32.01		34 32.38	
+2 10.76	8.25	+ 12.13	9.61	+13.91	11.38	−16 14.69	17.36	− 15.25	17.93	− 15.48	18.18
− 2.51	+10.71	− 2.52	+10.78	− 2.53	+10.94	− 2.64		− 2.68		− 2.70	
−8.73		−8.66		−8.50		−12.46		−12.36		−12.05	
+1 59.52		0.95		3.88		−16 29.80		30.29		30.23	
	−51 20.20		19.99		21.00		51 3.00		2.36		2.61
	51 0.76		0.55		1.56						

	Nov 22				Nov 24		
	−.220				−.767		
2	42.1	2	35.7	2	42.2	2	37.0
	45.0		37.4		44.5		38.7
	47.3		38.8		46.7		40.3
	52.0				51.0		
	54.1				53.3		
	56.3				55.6		
	58.4				57.8		
	0.7				0.1		
	5.0				4.5		
	7.3				6.7		
	9.6				8.9		
	6184	2	37.30		6113	2	38.67
2	56.218			2	55.573		
	56.201				55.556		
−	6.10			−	5.41		
+	9			+	7		
−	3.24			−	3.22		
−	9.25			−	8.86		
2	56.20			2	55.56		
2	46.95			2	46.70		
					46.798		
	+ 18.92				+ 16.90		
50				50			
	− 3.12				− 3.12		
4	489			4	561		
	497				581		
	186				142		
54	49.30			54	57.10		
	1.27692				1.22789		
	1.37006				1.32103		
	+ 23.45				+ 20.95		
55	12.75			55	18.05		
32	24.40			32	29.70		
				11	9		
					2.07358		
	+3916				+1852		
	2.11274				2.09210		
	−129.64				−123.63		
−	5			−	2		
	+06	−.42			+06	−.68	
	−48				−74		
−2	10.11			−2	4.33		
34	34.51			34	34.03		
−16	13.43	16.24		−	14.73	17.54	
	2.81				2.81		
	−10.57			—	−10.39		
−16	26.81				27.93		

51 1.32 1.96

1874 1874

π Cephei

h m sec	α 53.691 s	Oct. 17	3m 56.52 s		42' 46.8"	
23 3 56	δ +42' 22.92"	22	56.28	−24	48.3	+1.5
° '	dα/dt +1.887	27	56.02	.26	49.7	1.4
+74° 43'	dδ/dt +19.416	Nov. 1	55.74	.28	51.0	1.3
32° 20'		6	55.43	.31	52.2	1.2
		11	55.12	.31	53.2	1.0
= −.53 l sin δ	9.98436	16	54.78	.34	54.1	.9
		21	54.42	.36	55.9	.8

l cos δ 9.42093
l C 10460
l C' 9.52553
l C'' 9.52227

corr α = −.108 s
corr δ = +.85"
tang δ = +3.66 3.79
I = 7.81 s
K = −.057 s

1874

Oct. 19 −.22		Oct. 26 −.21 −.08		Oct. 27 −.24 −.08		Nov. 12 −.21		Nov. 16 −.13		Nov. 18 −.13	
−.245		−.285		add 1 second −.327		−.245		−.183		−.164	
23 3 53.9	3 48.0	3 48.5	3 33.7	3 46.7	3 41.7	3 —	3 23.6	3 29.8	3 14.0	3 30.0	4 4.2
57.7		52.4		50.8		—		34.3	21.8	34.2	
1.7		56.2		54.6		49.3 41.5		37.8	28.8	37.7	
5.5		59.9		58.8		500 46.1		41.6		41.6	
9.3		3.8		2.6		498 49.8		45.6		45.6	
13.3		7.4		6.6		501 54.0		49.7		49.2	
17.1	4 28.5	11.5	4 31.1	10.3	4 23.2	499 57.7	4 19.6	53.5	4 7.3	53.4	4 13.0
21.1	33.0	15.4	37.7	14.4	29.4	500 1.7	26.7	57.5	14.0	57.2	14.4 ?
25.0	39.1	19.7	44.3	18.1	37.0	504 6.0	34.5	1.7	21.8	1.0	16.6 ?
2046		2748		2629				3515		3499	
120		240		240				60		60	
8463	48.00	3483	3 33.70	2293	3 41.70		3 23.60	4115	3 21.53	4099	4 4.20
4 9.4004	33.53	4 3.867	4 37.10	4 3.5444	29.87	3 49.927	4 26.93	3 45.722	4 14.37	3 45.544	4 14.67
9.443		3.810		3.487		49.870		456.65		45.487	
3 56.481		3 56.086		3 56.081		3 55.074		3 54.~~80~~76		3 54.662	
~~+13.01~~ 12.93	−12.10	+7.725	−6.52	+7.468	−6.24	−5.~~20~~17	+5.83	−9.140	+9.68	−9.143	+9.73
+13.04	−.81	+7.86	−.77	+7.59	−.88	−5.06	−.77	−8.99	−.48	−9.02	−.48
			−30		−30						
−12.13	−2.72	−6.54	−2.37	−6.32	−2.32	+5.79	−1.35	+9.67	−1.07	+9.71	−0.93
−.90	3 53.78	−1.04	53.85	−1.20	53.75	−.90	53.~~68~~	−.67	53.79	−.56	53.81~~7~~
−2.72	−0.833	−2.37	−0.483	−2.32	−0.433	−1.35	+0.537 .58	−1.07	+0.817	−0.93	+0.957
−15.75		−9.98		−9.84		+3.54		+7.93		+8.22	
4 9.34		4 3.81		4 3.49		3 49.87		3 45.66		3 45.49	
	40 3647		3836		3902		3978		4328		4548
3 53.59	+2 8.56	3 53.83	+2 9.61	3 53.65	+2 9.39	3 53.41	+2 11.12	3 53.59	+2 10.71	3 53.71	+2 10.99
3 55.477	+1.3	55.717	+1.4	55.537	+1.4	55.297	+1.5	55.477	+1.4	55.597	+1.5
	−2460		−2660		−2690		−3050		−3120		−3160
+74	42 21.73		42 22.77		42 22.91		42 27.90		42 24.19		42 26.37
s +21.40	−24.13	+30.17	−33.83	+21.84	−26.33	+26.33	−37.00	+24.19	−28.65	−18.66	−29.13
40		40		40		40		40		40	
−2.49		−2.52		−2.53		−2.72		−2.74		−2.77	
2 40.2	2 55.4	2 33.5	2 54.2	2 34.1	2 49.7	2 36.3	2 56.8	2 33.1	2 51.0	2 31.5	2 45.9
44.2	58.8	40.3	0.7	42.5	57.7	41.1	0.9	38.1	54.0	40.0	53.2
844	1142	738	1149	766	1074	774	1177	712	1050	715	991
42 2 42.20	42 2 57.10	42 2 36.90	42 2 57.45	42 2 38.30	42 2 53.70	42 2 38.70	42 2 58.85	42 2 35.60	42 2 52.50	42 2 35.75	42 2 49.55
1.33041	1.38256	1.47958	1.52930n	1.33925	1.42045	n1.42045	1.56820n	1.38364	1.45712n	1.37091n	1.46434n
0.85594	0.90809n	1.00511	1.05485n	0.86478	0.94598	n0.94272	1.09047n	0.90591	0.97939n	0.79318n	0.98661n
+7.18	−8.09	+10.12	−11.34	+7.32	−8.83	+8.76	−12.32	+8.05	−9.66	−6.21	−9.70
42 49.38	42 49.01	42 47.02	42 46.11	42 45.62	42 44.87	42 47.46	42 46.53	42 43.65	42 42.94	42 29.64	42 39.85
+74°											
39 58.97 59.15	59.34	40 1.33 1.78	2.24	40 2.73 3.10	40 3.48	40 0.89 1.35	1.82	40 4.70 5.06	5.41	40 [illegible]	40 8.50
32 19 25	19 10										
1.56130n	1.56130n										
+1236		+452		−397		+2579		+2311		+1157	
1.57366	1.57366	1.56582	1.56582	1.55733	1.55733	1.58709	1.58709	1.58441	1.58441	1.57287	1.57287
+37.47	+37.47	+36.80	+36.80	+36.09	+36.09	+38.64	+38.64	+38.41	+38.41	+37.40	+37.40
−.06	−.15 −.08	−.12	−.22 −.16	−.07	−.16 −.09	−.09	−.22 −.17	−.08	−.18 −.11		−.11 −42
−.08	−.09	−.08	−.09	−.08	−.09	−.08	−.09	−.08	−.09		−.31
+37.33	+37.30	+36.60	+36.55	+35.94	+35.91	+38.47	+38.38	+38.25	+38.21		+36.98
40 36.30	36.64	37.93	38.79	38.67	39.37	39.36	40.20	42.95	43.62		45.48
42 47.5		49.5		49.8		53.4		54.1		54.5	
+2 11.2	10.9	11.6	10.7	11.1	10.4	14.0	13.2	11.2	10.5		9.0
+2 11.05		11.15		10.75		13.60		10.85			9.00
+2 11.9	42 21.60	12.0	22.05	11.6	22.53	19.4	21.48	11.4	24.01		9.9
+2 8.59	9.90 21.94	+9.39	10.72 22.91	+9.42	10.76 28.23	+11.18	12.62 22.82	+10.81	12.26 24.68	+10.92	12.88
+ 1.31	−5.18	+ 1.33	−7.18	+ 1.34	−7.48	+ 1.44	11.08	+ 1.45	+1.78	+ 1.46	−12.18
− 24.60	+42 21.77	− 26.60	22.48	− 26.90	22.88	− 30.50	21.90	− 31.20	24.84	− 31.60	26.26
+1 45.30	42 41.19	44.12	41.90	48.86	42.30	42.12	41.32	41.06	43.76	40.78	45.68

1875

s
α 55.578
δ +42 42.33
dα/dt +1.887
dδ/dt +19.417

l cos δ 9.42093
l C 12552
l C' 9.54645

1874

	α	δ
.80	55.48	41.2
.82	55.72	41.9
.82	55.54	42.3
.87	55.30	41.3
.88	55.48	43.8
.88	55.60	45.7
.89	55.53	41.6
.89	55.49	43.3
.90	55.65	41.2
.86	55.532	42.~~36~~ 48

(9)

1875

.84	55.61	43.1
.84	5665	41.7
.85	55.50	42.4
.89	56.11	41.0
.90	55.56	42.4
.86	55.684	42.12

(5)

1875

Nov. 6	3m	57.35s		42'	73.4"
11		57.03	−.32		74.5 +.11
16		56.70	.33		75.4 .9
21		56.36	.34		76.2 .8
26		56.00	.36		76.9 .7
Dec. 1					
6					
11					

1874

Nov. 21

−.08
−.095
3 29.8 4 8.2
33.6 16.6
37.7 22.7
42.3
46.3
49.5
54.0
57.7
1.6
35.25
60
41.25 4 15.83
3 45.833
45.776
3 54.440
−8.662 +8.91
−8.51 −.29
+ 8.92 −0.71
− .35 3 53.69
− 0.71 +1.177
+ 7.86
3 45.78
4290
3 53.64 +2 1089
55.527 +1.5
−3300
42 22.29

s
−30.00
40
−2.79
2 53.0
52.7
105.7
2 42 52.85

1.47712n
0.99939n
−9.99
42 42.86

40 5.49

+1678
1.57808 1.57808
+37.85 +37.85
−8
−12 −.44
−.32
+37.41
40 43.90 4250
55.9
+2 13.0
+2 13.00
+2 13.8
+2 10.76 12.23
+ 1.47 −13.58
− 33.00 42 22.13
+1 39.23 41.55

Nov. 22

−.12
−.157
3 ~~26.9~~ 3 23.0
30.8
34.1
38.9
42.3
46.5
50.4
53.7
57.7
38.13
3 23.00
3 42.367
42.310 +3.90
3 54.37 3
−12.062 +8.61
−11.91 −.44
−8.01
+ 8.69 −0.64
− .57
− 0.64 +1.247 5374
+ 7.38
3 42.31
46.22
4350
3 49.69 +2 1197
53.60 +7.6
55.487 −3320
42 23.87

+19.37
40
−2.80
2 36.9 2 55.0
35.1 52.7
72.0 107.7
42 2 36.00 42 2 53.85

1.28713
0.80940
+6.44
42 42.44

40 5.91

+2763
1.58893 1.58893
+37.93 +37.93
−05 −.34
−.29 −.32
+37.59
43.50
56.1
126
12.60
13.5
+ 12.13 13.61
+ 1.48 −13.78
− 33.20 23.91
40.41 43.33

1874

Nov. 24

−.04
−.052
3 31.2 3 20.3
34.8
38.7
42.3
46.2
50.0
53.9 4 0.2
57.9 3.4
2.5 6.2
35.75
60
41.75 3 20.30
3 46.389 4 3.27
46.332
3 54.22 18
−7.885 +8.07
−7.74 −.15
+ 8.11 −0.49
− .19 53.76
− 0.49 +1.397
+ 7.43
3 46.33
40 3986
3 53.76 +2 1397
55.647 +16
−3350
42 21.93

+26.09 −16.88
40
−2.81
2 34.5 2 47.5
40.1 53.1
74.6 100.6
42 2 37.30 42 2 50.30

1.41647 1.22734n
0.93874 0.74964n
+8.68 −5.62
42 45.98 42 44.68

40 2.37 3.67
3.02

19 30 19 17
1.56130n 1.56130n
+9.30
1.57060 1.57060
+37.21 +37.21
−10 −.37 −.04
−.29 −.31
+36.82 +36.86
39.19 40.53 59
56.4
17.2 15.9
16.55
17.4 21.08
+ 13.91 15.39 22.42
+ 1.48 −14.08
− 33.50 21.75
41.89 41.17

1875

Nov 2

−.21 −.08
−.250
4 4 40.1
42.2
46.2
50.3
54.2
57.9
5 1.7 5 15.5
5.8
10.2
13.7
28.19
240
52.19 4 40.10
4 57.989 5 15.50
57.932
3 57.63 58
+60.385 −59.31
+60.46 −.77
−.30
− 59.41 −2.00
− .91 55.55
− 2.00
− 62.32
4 57.93 59/43
2646
3 55.61 −16 1458
+1.4
−3020
42 43.08

20
+17.89 −17.51
−2.97
3 50.5 4 3.1
55.5 9.5
6.0 12.6
23 53.00 24 6.30

1.25261 1.24329n
0.79906 0.78974n
+6.30 −6.16
23 59.30 24 0.14

58 49.05 48.21
48.63

19 55 19 42
1.56150n 1.56140n
+1958
1.58108 1.58098
+38.11 +38.11
−04 −.28 −.04
−.23 −.25
+37.84 +37.82
36.89 26.03
43 12.5
−16 14.4 13.5
−16 13.95
−16 13.1 42 43.57
−16 14.69 13.12 42.71
+ 1.57
− 30.20 43.14
−16 [illegible]

Nov 3

−.28
−.287
4 4 48.4
42.7
46.8
51.0
54.3
58.6
5 2.0 5 21.5
6.6
10.3
14.8
28.70
240
52.70 4 48.40
4 58.556 5 21.50
58.499
3 57.562
+60.948 −59.86
+61.09 −1.02
− 59.86 −1.94
− 1.05 55.68
− 1.94
− 62.83
4 58.50
2580
3 55.65 −16 1524
+1.4
−3040
42 41.56

20
+10.16 −22.94
−2.98
3 52.9 4 5.0
59.8 11.9
112.7 16.9
23 56.35 24 8.45

1.00689 1.36059n
0.55334 0.90704n
+5.56 −8.07
23 59.91 24 0.38

58 48.44 47.97
48.21

+1696
1.57846 1.57836
+37.88 +37.88
−01 −.28 −.07
−.23 −.25
+37.64 +37.56
26.08 25.53
12.7
13.4 12.8
13.10
12.3 42.01
− 15.25 13.67 41.46
+ 1.58
− 30.40 41.73
44.07

Nov 6

−.28
−.310
4 4 30.4
43.4 37.6
47.7 42.6
51.4
55.7
59.4
5 3.4 5 17.2
7.6
11.1
14.9
29.49 ~~29.79~~
240 24.0
53.49 ~~53.79~~ 4 36.87
4 ~~59.678~~ 5 19.20
4 59.433
59.376
3 57.37 3
+62.0 +5 −1 −0.98
+62.16 −1.02
− 61.00 −1.75
− 1.13 55.63
− 1.75
− 63.88
4 59.38
2745
3 55.50 −16 1534
+1.4
−3120
42 42.31

20
+22.56 −19.77
−3.00
3 46.0 4 2.3
54.7 9.9
100.7 12.2
23 50.35 24 6.10

1.35334 1.29601n
0.89979 0.84246n
+7.94 −6.96
23 58.29 23 59.14

~~48~~ 5 50.06 49.21
49.63

+1964
1.58114 1.58104
+38.12 +38.11
−07 −.30 −.05
−.23 −.25
+37.82 +37.81
27.88 27.02
13.5
14.4 13.5
13.95
13.1 42.79
− 15.48 13.89 41.93
+ 1.59
− 31.20 42.36
45.09

	+				+		
	-.27 Nov 22				-.17 Nov 24		
	-.220				-.167		
3		3	34.2	3	2	3	49.6
	48.1		40.1		46.6		55.5
	52.3		46.0		50.6		1.1
	55.7				54.7		
	59.9				58.9		
4	3.7			4	2.4		
	7.2	4	16.6		6.4	4	30.7
	11.8		23.4		10.3		37.5
	15.9		30.6		14.3		43.2
	19.1				18.2		
	2737				2624		
	240				240		
	337	3	40.10		224	3	55.40
4	3.744	4	23.53	4	2.489	4	37.13
	3.687				2.432		
3	56.~~31~~27		-6.03	3	56.183		-5.71
	+7.~~38~~42		-.99		+6.2730		-.62
−	6.10		-0.69	−	5.71		-0.55
−	.80	3	55.98	−	.61		55~~7~~55
−	0.69			−	0.55		
−	7.59			−	6.87		
4	3.69			4	2.43		
		59	26.92				29.83
3	56.10	-16	13.27	3	55.56	-16	14.58
			+1.6				+1.5
			-34.10				-34.40
		42	41.15			42	42.35
	+23.64		-19.79	+	7.09		-34.64
20				20			
	-3.12				-3.12		
3	50.9	4	6.2	3	50.9	4	5.8
	54.1		9.4		55.5		10.6
	3.0		15.6		64		16.4
23	52.50	24	7.80	23	53.20	24	8.20
	1.37365		1.29645n		0.85065		1.53958n
	0.92010		0.84290n		0.39710		1.08603n
	+8.32		-6.96		+2.49		-12.19
24	0.82	24	0.84	23	55.69	23	56.01
58	47.53		47.31	58	52.66		52.34
	47.52				52.50		
				19	55	19	40
					1.56150n		1.56140n
	+3918				+1852		
	1.60068		1.60058		1.58002		1.57992
	+39.87		+39.86		+38.02		+38.01
	-.08	-.46	-.05		-.1	-.68	-.16
	-.39		-.41		-.58		-.62
	+3940		+3940		+3743		+3723
59	26.93		26.91		30.09		29.57
43	16.4				16.7		
-16	10.5		10.5		13.4		12.9
-16	10.5				13.15		
-16	9.7	42	41.05		12.3		42.61
-16	13.43	11.78	41.03	−	14.73	13.08	42.09
+	1.65			+	1.65		
−	34.10	42	41.04	−	34.40		42.35
-16	46.88				47.48		

φ Aquarii
h m sec
23 7 51
−6° 43′
ζ = +49° 6′
ζ sin ζ = +.76

	1874	1875
α		7 50.91
δ		43 21.69
dα/dt		+ 3.109
dδ/dt		+ 19.34
l sin δ	9.06804n	
l cos δ	9.99701	9.99701
l C	10460	12552
l C′	0.10161	0.12253
l C″	0.09835	

1874

	α	δ
.80	50.79	21.4
.82	50.95	21.5
.82	50.96	21.8
.87	50.85	20.9
.88	51.06	19.5
.88	50.90	22.0
.89	50.94	22.4
.89	50.91	20.3
.86	50.920	21.23
(8)		− 3
		21.26

cos α =
cos δ =
tang δ = −.12
I = 2.08 s
K = −.016 s

1874

	Oct. 19		Oct. 26		Oct. 27		Nov. 12		Nov. 16		Nov. 18	
	−.245		−.285		−.324		−.245		−.183		−.154	
23	7 57.7	7 50.7	7 44.9	7 39.6	7 44.6	7 32.6	7 32.2	7 22.6	7 28.6	7 16.0	7 28.3	7 20.0
	2.86 0.7	52.8	47.0	42.0	46.6	34.5	34.4	26.2	30.6	17.9	30.4	21.8
	80 2.8	53.5	49.0	44.0	48.7	36.2	36.4	27.8	32.7	19.8	32.5	24.5
	72 4.8		53.1		53.0		40.6		36.9		36.6	
	84 7.0		55.2		55.0		42.7		39.0		38.7	
	78 11.4		57.4		57.0		44.7		41.0		40.8	
	70 13.1	8 16.0	59.4	8 17.0	59.1	8 10.2	46.8	8 7.2	43.0	8 5.2	42.9	8 1.0
	.72 15.2	18.0	1.4	19.1	1.2	12.0	48.9	9.0	45.1	7.1	44.9	3.1
		19.6	5.6	21.1	5.4	13.7	53.0	10.9	49.3	9.2	49.0	5.2
			7.7		7.5		53.7		51.4		51.1	
			9.8		9.6		57.0		53.5		53.3	
			3905 240		3877 240		4918		4511		4485	
	8 2.775 2.759	7 52.67 8 17.87	6305 7 57.318 57.302	7 41.87 8 19.07	6277 7 57.064 57.048	7 34.43 8 11.91	7 44.709 44.693	7 25.53 8 9.03	7 41.009 41.093 09	7 17.90 8 ~~11.7~~ 7.17	7 40.773 40.757	7 22.10 8 3.10
	− 12.13		− 6.54		− 6.32		+ 5.79		+ 9.64		+ 9.71	
	+ .03		+ 3		+ 4		+ 3		+ 2		+ 2	
	− 2.98	+0.129	− 2.92	+0.189	− 2.92	+0.189	− 2.77	+0.339	− 2.73	+0.379	− 2.70	+0.909
	− 15.08		− 9.46		− 9.20		+ 3.05		+ 6.96		+ 7.03	
	8 2.76		7 57.30		7 57.05		7 44.69		7 40.99		7 40.76	
	7 47.68		7 47.84		7 47.85		7 47.74		7 47.95		7 47.79	
	7 50.789		50.949		50.959		50.849		51.059		50.899	
	+ 10.10	− 15.10	+ 15.45	− 21.75	s + 22.63	− 14.91	+ 19.18	− 24.32	+ 23.11	−26.16 ~~−36.16~~	+ 18.67	− 22.33
	5		5		5		5		5		5	
	−2.49		−2.52		−2.53		−2.72		−2.74		−2.77	
	1 52.0	2 22.6	1 45.9	2 31.9	1 38.5	2 25.2	1 42.2	2 35.0	1 36.3	2 37.2	1 43.5	2 34.6
	6.2	37.5	3.3	49.9	55.5	43.3	56.3	49.1	49.8	49.6	2.1	54.0
	118.2	60.1	109.2	101.8	94.0	68.5	98.5	84.1	86.1	86.8	105.6	88.6
	×6 59.10	7/2 30.05	6× 54.60	7/2 50.90 4	6× 47.00	7/2 34.25	6× 49.25	7/2 42.05	6× 43.05	7/2 43.40	6+ 52.80	7/2 44.30
	1.00432	1.17898n	1.18893	1.33746n	1.35468	1.17348n	1.28285	1.38596n	1.36380	1.41764n	1.27114	1.34889n
	1.10593	1.28059n	1.29054	1.43907n	1.45629	1.27509n	1.38120	1.48431n	1.46215	1.51599n	1.36949	1.44724n
	+12.76	−19.08	+19.52	−27.48	+28.59	−18.84	+24.05	−30.50	+28.98	−32.81	+23.41	−28.01
	7 11.86	7 10.97	7 14.12	7 13.42	7 15.59	7 15.41	7 13.30	7 11.55	7 12.03	7 10.59	7 16.21	7 15.29
	~~15 36.49~~ 44 23.51 23.47	~~37.38~~ 22.62	~~15 34.23~~ 44 25.77 25.42	44 ~~34.93~~ 25.07	44 27.24 27.15	27.06	44 24.95 24.08	23.20	44 23.68 22.96	22.24	44 27.86 27.40	26.94
+49	4 52	5 23									4 46	5 37
	1.82180	1.82190									1.82170	1.82190
	+ 1240		+ 464		− 387		+ 2579		+ 2321		+ 1171	
	1.83420	1.83430	1.82644	1.82654	1.81793	1.81803	1.84759	1.84769	1.84501	1.84511	1.83341	1.83361
	− 68.26	− 68.28	− 67.06	− 67.07	− 65.75	− 65.77	− 70.40	− 70.42	− 69.99	− 70.00	− 68.14	− 68.17
	0	0	0	0	0	0	− 1	− 1	0	0	0	0
	+.01	−.05 +.01	+.01	−.05 +.03	+.03	−.04 +.02	+.02	−.04 +.04	+.04	−.02 +.04	+.02	−.23 +.02
	−.06	−.07	−.06	−.08	−.05	−.08	−.05	−.08	−.05	−.08	−.21	−.30
	−1 8.31	−1 8.34	−1 7.11	−1 7.12	−1 5.77	−1 5.83	−1 10.44	−1 10.47	−1 10.00	−1 10.04	−1 8.33	−1 8.45
	45 31.82	30.96	45 32.88	45 32.19	45 33.01	32.89	45 35.39	33.67	45 33.68	32.28	45 36.19	35.39
	+2 8.59	6.70	+ 9.39	7.48	+ 9.42	7.50	+ 11.18	9.12	+ 10.81	8.73	+ 10.92	8.82
	− 1.89	+ 3.34	− 1.91	+ 3.57	− 1.92	+ 3.62	− 2.06	4.55	− 2.08	+ 4.80	− 2.10	+ 4.93
	− 16.00		− 15.75		− 15.72		− 14.79		− 14.54		− 14.41	
	+1 50.70	43 41.12 40.26	51.71	41.17 40.48	51.78	41.23 41.11	54.33	41.06 39.34	54.19	39.49 38.09	54.41	41.78 40.98
		43 40.69 43 21.35		40.82 21.48		41.17 21.83		40.20 20.86		38.79 19.45		41.38 22.04

1875

	α	δ
.84	50.98	23.0
.84	51.05	21.5
.85	50.97	21.4
.89	51.07	20.9
.86	51.018	21.70
	* 2 (4)	± 17
	51.016	21.53

1874 1875

Nov. 21		Nov. 22		Nov 2		Nov 3		Nov 6		Nov 22	
-095		-.157		-.250		-.287		-.310		-.220	
23 7 29.2	7 30.7	7 29.3	7 18.0	8 41.1	8 32.6	8 —	8 47.6	8 42.6	8 36.4	7 47.8	7 43.1
31.2	32.9	31.5	41.78 19.5	43.1	34.2	—	49.2	44.7	38.4	49.9	45.0
33.3	35.5	33.6	.90 22.2	45.3	36.0	—	51.0	46.9	40.0	51.9	47.0
37.4		—	.92	49.4		56.0		51.0		56.1	
39.4		—		51.7		52.0		53.1		58.1	
41.6		—		53.7		54.0		55.1		0.0	
43.7	8 2.8	—		55.6	9 8.2	56.2	9 17.2	57.1	9 16.3	2.1	8 17.3
45.8	4.5	—		57.7	10.0	58.3	18.8	59.2	18.0	4.4	
49.8	7.0	—		1.9	12.5	—	21.2	3.4	20.3	8.4	
52.0		—		3.9		—		5.5		10.6	
54.0		—		6.1		—		7.7		12.5	
4574 7	33.03		7 19.90	4095		205		4263		3018	
7 41.5828	4.77			180				180		300	
7				5895	8 34.27		8 49.27	6063	8 38.27	18	7 45.03
7 41.582		7 41.867		8 53.591	9 10.23	8 54.100	9 19.07	8 55.118	9 18.20	8 0.164	8 17.30
41.566		41.851		53.575		54.084		55.102		0.148	
+ 8.92		+ 8.59		− 59.41		− 59.86		− 61.00		− 6.10	
+ 1		+ 2		+ 3		+ 3		+ 4		+ 3	
− 2.67	+0.439	− 2.66	+0.449	− 3.21		− 3.20		− 3.17		− 3.01	
+ 6.26		+ 5.95		− 62.59		− 63.03		− 64.13		− 9.08	
7 41.57		7 41.85		8 53.57		8 54.08		8 55.10		8 0.15	
7 47.83		7 47.80		7 50.98		7 57.05		7 50.97		7 51.07	
50.939		50.909 47.810								51,018	

S 1 +8.55	−23.19	+21.97		+ 19.32	− 16.64	+ 4.83	− 24.97	+ 16.85	− 23.08	+ 15.13	− 17.14
5		5		45		45		45		45	
−2.79		−2.80		−2.97		−2.98		−3.00		−3.12	
2 1.2	2 38.4	1 40.6	2 34.1	3 1.0	3 48.1	3 18.0	3 58.1	3 1.5	3 54.1	3 3.0	3 46.8
10.9	47.5	50.3	43.2	3.9	50.0	20.1	0.9	4.8	57.0	5.2	47.9
121	859	909	773	49	981	381	1190	63	118	8 2	147
27 6.05	72 42.95	6+ 45.45	72 38.65	48 2.45	48 49.05	48 19.05	48 59.50	48 3.15	48 55.90	48 4.10	48 47.35
0.93197	1.36530n	1.34183		1.28601	1.22115n	0.68395	1.39742n	1.2260	1.36324n	1.17984	1.23401n
1.03032	1.46365n	1.44018		1.40857	1.34368n	0.80648	1.51990n	1.34513	1.48577n	1.30237	1.35654n
+10.72	−29.08	+27.55		+25.62	−22.06	+ 6.40	− 33.11	+ 22.14	− 30.60	+ 20.06	− 22.73
7 16.77	7 13.87	7 13.00		48 28.07	48 26.99	48 25.45	48 26.39	48 25.29	48 25.30	48 24.16	48 24.62
44 28.42	25.52	44 24.65		25 39.72	38.64	25 37.10	38.04	25 36.94	36.95	25 35.81	36.27
26.97				39.18		37.57		36.94		36.04	
4 59	5 36			4 14	5 1					4 16	4 59
1.82180	1.82190			1.82160	1.82180					1.82160	1.82180
+1680		+2763		+1964		+1704		+1972		+3924	
1.83860	1.83870	1.84943	1.84953	1.84124	1.84144	1.83864	1.83884	1.84132	1.84152	1.86084	1.86104
−68.96	−68.98	−70.70	−70.72	−69.38	−69.41	−68.97	−69.00	−69.39	−69.43	−72.58	−72.62
− 1	− 1	− 1	− 1	− 1	− 1	− 1	− 1	0	0	− 1	− 1
+ 1	−.24 +.04	+.03	−.16	+.02	−.11 +.01	+ 0	−.20 +.04	+.01	−.18 +.03	+.01	−.33 +.02
−.23	−.30	−.19	−.29	−.02	−.23	−.20	−.24	−.18	−.23	−.31	−.38
−1 9.19	−1 9.25	−1 10.87	~~+ 11.82~~	−1 9.39	−1 9.64	−1 9.18	−1 9.21	−1 9.56	−1 9.63	−1 12.89	−1 12.99
45 38.61	34.77	45 35.52		26 49.11	48.28	26 46.28	47.25	26 46.50	46.58	26 48.70	49.26
+2 10.76	8.64	+ 12.13	10.00	−16 14.69	16.94	− 15.285	17.51	− 15.48	17.76	− 13.43	15.80
− 2.12	+5.12	− 2.13	+ 5.19	− 2.25		− 2.26		− 2.28		− 2.37	
−14.22		−14.15		−17.33		−17.27		−17.10		−16.12	
+1 54.42	43 43.19	55.85	39.67	−16 34.21	43 23.38	34.82 78	06 21.10	34.86	21.36	31.92	20.62
	40.35				22.55		22.07 3		21.44		21.18
	43 41.77 43 22.43		39.67 2033 ~~20.35~~		22.96		21.58 4		21.40		20.90

1874 1874 18

γ Piscium α 37.981
h m sec δ +35' 38.93
23 10 41 dα/dt +3.807
+2° 36' dδ/dt +19.587
z = +39 47
l sin δ 8.65670
l cos δ 9.99955
l C 10460
l C' 0.10415
l C'' 0.10089

	10m s		35' "	
Oct 7	40.94		57.2	
12	40.92	−.02	57.2	−.0
17	40.90	.02	57.2	.0
22	40.87	.03	54.2	.0
27	40.83	.04	57.2	.0
Nov. 1	40.79	.04	57.1	.1
6	40.75	.04	57.0	.1
11	40.70	.05	56.9	.1
16	40.64	.06	56.7	.2
21	40.58	.06	56.5	.2

1874

	α	
.80	41.13	59.5
.82	41.17	59.6
.82	41.13	58.7
.87	41.17	60.0
.89	41.21	58.6
.89	41.15	57.4
.90	41.22	59.5
.86	41.16~~4~~9	~~57.61~~ 59.04
	(7)	

corr α =
corr δ =
tang δ = +.05 1.00
I = 2.07 s
K = −.015 s

1875

.84	41.24	58.8
.85	41.18	59.8
.89	41.24	59.0
.90	41.08	58.7
.91	41.18	58.7
.88	41.184	59.00
	(5)	

1874 −.22 Oct. 19		−.21 Oct. 26	−.08	−.24 Oct. 27	−.08	−.21 Nov. 12		−.08 Nov. 21		−.12 Nov. 22	
−.245 23 10 40.7 42.9 44.9 49.0 51.0 53.0 55.1 57.1 1.2 3.4 5.5	10 35.0 36.4 38.1 11 10.4	−.285 10 35.1 37.2 39.3 43.4 45.5 47.5 49.6 51.7 53.7 57.8 59.9	10 28.1 30.0 32.1 11 0.9 3.0 5.0	−.324 10 34.8 37.0 39.0 43.0 45.1 47.3 49.3 51.4 55.4 57.6 59.6	10 26.6 28.5 30.1 11 5.5 7.5 9.6	−.245 10 22.5 24.8 26.6 31.0 33.0 35.1 37.1 39.0 43.2 45.2 47.4	10 13.0 15.0 17.5 10 52.5	−.095 10 19.4 21.5 23.6 27.6 29.7 31.8 33.9 36.0 40.0 42.1 44.2	10 6.4 9.0 10.6 10 51.0 53.0 54.6	−.157 10 19.6 32.02 21.6 31.95 23.7 31.98 31.94 27.8 32.07 30.0 32.20 32.2 32.33 34.4 — — — —	10 4.8 8.6 10.2 11 (4.1 5.2 6.3) 2
4038 180		5227		5195		3849		3498			
5838 10 53.073 53058 10 40.89 +12.17	10 36.57 11 10.60 −12.10 −.01 −2.91	10 47.518 47.503 10 40.84 +6.66	10 30.07 11 2.97 −6.52 −.01 −.08 −2.86	10 47.227 47.212 10 40.83 +6.38	10 28.40 11 7.53 −6.24 −.01 −.08 −2.85	10 34.991 34976 10 40.698 −5.710	10 15.17 10 52.50 +5.84 −.01 −2.70	10 31.800 31785 10 40.58 −8.80	10 8.67 10 52.87 +8.91 −.00 −2.60	10 32.070 32053 10 40.57 −8.52	10 7.87 11. ~~5.13~~ (5.20 s) −.01 +8.61 −2.59
− 12.12 − 1 − 2.91 − 15.04 10 53.06 10 38.02 41.127 +2	10 38.04 +0.197 33 51.23 +2 8.56 −1.7 −18.30 35 39.79	− 6.57 − 1 − 2.86 − 9.44 10 47.50 10 38.06 41.167	38.03 +0.247 50.55 +2 9.61 −1.7 −18.30 35 40.16	− 6.32 − 2 − 2.85 − 9.19 10 47.21 10 38.02 41.127	38.03 +0.257 49.58 +2 9.39 −1.7 −18.30 35 38.97	+ 5.79 − 1 − 2.70 + 3.08 10 34.98 10 38.06 41.167	38.11 +0.407 48.96 +2 11.12 −1.8 −18.00 35 40.28	+ 8.92 − 0 − 2.60 + 6.32 10 31.78 10 38.10 41.207	38.09 +0.507 47.59 +2 10.89 −1.9 −17.60 35 38.98	+ 8.59 − 1 − 2.59 + 5.99 10 32.05 10 38.04 41.147	38.07 +0.517 44.97 +2 11.97 −1.9 −17.50 35 37.56
s +16.50 45 −2.49 2 42.1 51.9 94.0 2 47 47.00	−17.53 3 24.1 35.5 59.6 48 3 29.80	+17.45 45 −2.52 2 39.9 54.1 94.0 47 2 47.00	−15.45 3 21.1 37.0 58.1 48 3 29.05	+18.83 45 −2.53 2 40.0 55.1 95.1 47 2 47.55	−20.30 3 29.0 44.4 73.4 48 3 36.70	+19.82 45 −2.72 2 38.3 48.5 86.8 47 2 43.40	−17.51 3 24.2 37.0 61.2 48 3 30.60	+23.13 45 −2.79 2 37.8 44.9 82.7 47 2 41.35	−21.07 3 33.9 40.7 74.6 48 3 37.30	+24.20 45 −2.80 2 38.1 44.9 83.0 2 47 41.50	−33.13 3 24.8 29.3 34.1 48 3 27.05
1.21748 1.33163 +20.97 48 7.97	1.24378n 1.34793n −22.28 48 7.52	1.24180 1.34595 +22.18 48 9.18	1.18898n 1.29313n −19.64 48 9.41	1.27485 1.37900 +23.94 48 11.49	1.30750n 1.41165n −25.80 48 10.90	1.29710 1.39799 +25.00 48 8.40	1.24329n 1.34418n −22.04 48 8.56	1.36418 1.46507 +29.18 48 10.53	1.32366n 1.42455n −26.58 48 10.72	1.38382 1.48471 +30.53 48 12.03	1.52022n 1.62111n −41.79 5
34 40.38 40.60 +39 45 40	40.83 46 23	34 37.17 37.06	38.94	34 36.86 37.16	37.45	34 39.95 39.87	39.79	34 37.82 37.72	37.63	34 36.32	
1.68010 +1244 1.69254 − 49.27	1.68030 1.69274 −49.29	+474 1.68484 − 48.40	1.68504 −48.42	−379 1.67631 −47.46	1.67651 −47.48	+2579 1.70589 −50.80	1.70609 −50.83	+1682 1.69692 −49.76	1.69712 −49.79	+2763 1.70773 −51.02	1.70793 −51.04
−.01 −.08 −49.35 33 51.03 35 57.2 +2 6.2 +2 6.0 +2 8.59 − 1.59 − 18.30 +1 48.70	−.09 −.01 −.10 −49.39 51.44 5.8 35 39.73 7.00 40.14 +1.29 35 39.93 35 59.52	−.01 −.08 −48.48 50.69 54.2 6.5 6.7 +9.39 − 1.61 −18.30 49.48	−.09 −.01 −.10 −48.52 50.42 6.8 7.8 40.17 +1.29 39.90 40.03 59.62	−.01 −.08 −47.54 49.32 57.2 7.9 7.6 + 9.42 − 1.61 − 18.30 49.51	−.10 −.02 −.11 −47.60 49.85 7.4 7.81 38.83 +1.29 39.36 39.09 58.68	−.02 −.08 −50.89 49.06 56.9 7.8 7.9 + 11.18 − 1.74 − 18.80 51.44	−.09 −.01 −.10 −50.93 48.86 8.0 8.944 40.50 +1.59 40.30 40.40 59.99	−.03 −.30 +50.07 47.75 56.5 8.8 8.9 +10.76 − 1.78 − 17.60 51.38	−.36 −.02 −.40 +50.20 47.43 9.1 8.98 39.13 +1.99 38.81 38.97 58.56	−.03 −.30 +51.33 44.99 56.4 11.4 11.4 +12.13 − 1.79 − 17.50 52.84	−.31 −.05 10.34 +2.09 37.83 57.42

1875

α	41.088	
δ	+35′ 58.52″	
dα/dt	+3.107	
dδ/dt	+19.587	
l cos δ	9.99955	
l C	12 552	
l C′	0.12507	

1875

		m	s		′	″		1874.0 α	δ	1875.0 α	δ
Oct.	27	10	44.26		35	78.7		38.02		41.24	
Nov.	1		44.22	-.04		78.6	-.1	06		.18	
	6		44.17	.05		78.5	.1	02		24	
	11		44.13	.04		78.4	.1	06		.08	
	16		44.08	.05		78.2	.2	10		18	
	21		44.03	.05		78.0	.2	04			
	26		43.98	.05		77.8	.2	11			
Dec.	1		43.93	.05		77.5	.3	38.059		41.184	
	6		43.88	.05		77.2	.3	37.984	38.93	.088	58.52
								+.078		+.096	

1874		1875 +		+		+		+		+	
-.04		-.28		-.28		-.27		-.17		-.09	
Nov. 24		Nov 3		Nov 6		Nov 22		Nov 24		Nov 29	
-.052		-.287		-.310		-220		-.164		-.088	
10 20.2	10 7.1	11 31.9	11 30.4	11 32.8	11 25.6	10 38.0	10 31.2	10 37.3	10 43.0	10 36.3	10 24.8
22.2	8.9	34.1	32.5	34.9	27.2	40.0	33.0	39.4	45.0	38.1	27.8
24.3	11.2	35.9	34.7	37.0	28.9	42.2	35.0	41.6	46.9	40.3	28.9
28.4		40.0		41.2		46.1		45.6		44.3	
30.5		42.0		43.2		48.2		47.7		46.4	
32.5		44.3		45.4		50.3		49.8		48.4	
34.6	10 48.2	46.4	12 0.8	47.5	12 1.6	52.3	11 8.3	51.8	11 15.8	50.6	11 15.0
36.7	49.9	48.3	2.7	49.4	3.5	54.3	10.7	53.9	18.1	52.7	17.2
40.9	51.3	52.5	4.4	53.6	5.4	58.7	12.3	57.9	20.1	56.7	19.4
45.0		54.6		55.6		0.6		0.0		58.8	
45.0		56.6		57.7		2.6		2.1		0.7	
3583		4866		4983		4333		4270		4733	
						120		120		60	
	10 9.07		11 32.53		11 27.23	5533	10 33.07	5470	10 44.97	5333	10 27.00
10 32573	10 49.80	11 44.236	12 2.63	11 45.300	12 3.50	10 50.310	11 10.43	10 ~~49545~~	11 18.00	10 48.482	11 17.20
82558	+8.08	44.221	-59.86	45.285	-1 -0.98	50.285	-6.03	49727	-5.71	48.467	-4.38
10 4054	-.00	10 44.20	-.01	10 44.17	-.01	10 44.02	-.01	49712 10 44.00	-.01	10 43.95	-.00
-7.98		+60.02		+61.11		+6.26		+5.71		+4.52	
	-2.56		-3.11		-3.08		-2.93		-2.91		-2.86
+ 8.11	10 38.08	- 59.86	41.24	- 61.00	41.21	- 6.10	41.31	- 5.71	41.08	- 4.43	41.23
— 0		— 1		— 2		— 1		— 1		— 0	
- 2.56	+0.547	- 3.11		- 3.08		- 2.93		- 2.91		- 2.86	
+ 5.55		- 62.98		- 64.10		- 9.04		- 8.63		- 7.29	
10 32.56	33 45.12	11 44.22	52 36.09	11 45.28	37.17	10 50.28	33.93	10 49.71	34.81	10 48.47	34.25
	+2 13.97		-16 15.24		-16 15.34		-16 13.27		-16 14.58		-16 14.22
10 38.11	-1.9	10 41.24	-1.8	10 41.18	-1.8	10 41.24	-1.9	10 41.08	-2.0	10 41.18	-2.0
41.217	-17.40		-20.10		-20.00		-19.50		-19.40		-19.10
	35 39.79		35 58.95		35 6 0.03		35 59.26		35 58.83		35 58.93
+ 23.50	- 17.23	+ 11.71	- 18.39	+ 18.07	- 18.20	+ 17.23	- 20.1$\overset{3}{8}$	+ 4.76	- 28.27	+ 21.48	- 28.72
45		25		25		25		25		25	
-2.81		-2.98		-3.00		-3.12		-3.12		-3.13	
2 38.4	3 27.9	4 4.2	4 44.8	3 54.2	4 42.4	3 57.9	4 47.2	4 15.1	0 +59.3	3 51.9	0 -57.8
52.3	41.3	9.5	48.1	59.1	47.9	59.4	49.5	17.9	34	55.2	2.4
90.7	69.2	13.7	12.9	13.3	10.3	17.3	16.7	13.0	122.7	7.1	120.2
47 45.35	$\overset{48}{8}$ 34.60	29 6.85	29 46.45	28 56.65	29 45.15	28 58.65	29 48.35	29 16.50	30 1.35	28 53.55	30 0.10
1.37107	1.23629n	1.06856	1.24458n	1.25696	1.26007n	1.23629	1.30384n	0.67761	1.45733n	1.33203	1.45818n
1.47196	1.33718n	1.19363	1.38965n	1.38203	1.38514n	1.36136	1.42891n	0.80268	1.57640n	1.45710	1.58325n
+29.65	-21.74	+15.62	-24.53	+24.10	-24.26	+22.98	-26.85	+6.35	-37.71	+28.65	-38.30
48 15.00	48 12.86	29 22.47	29 21.92	29 20.76	29 20.89	29 21.63	29 21.50	29 22.85	29 23.64	29 22.20	29 21.80
34 33.35	35.49	53 25.88	26.43	53 27.60	27.46	53 26.72	26.85	53 25.50	24.71	53 26.15	26.55
34.42		26.15		27.53		26.78		25.10		26.35	
45 38	46 28	45 19	45 58							45 5	46 12
1.68010	1.68030	1.68000	1.68020							1.67990	1.68020
+941		+1709		+1979		+3928		+1852		+3425	
1.68951	1.68971	1.69709	1.69729	1.69979	1.69999	1.71928	1.71948	1.69852	1.69872	1.71415	1.71445
-48.92	-48.95	-49.78	-49.81	-50.09	-50.12	-52.39	-52.42	-49.95	-49.97	-51.78	-51.81
-.031	-.36 -.0x	-.0x	-.27 -.0x	-.01	-.25 -.0x	-.0x	-.44 -.021	00	-.33 -.042	-.021	-.30 -.042
-.31	-.40	-.25	-.29	-.23	-.28	-.40	-.48	-.64	.00	-.58	.00
-49.24	-49.35	-50.03	-50.10	-50.32	-50.40	-52.49	-52.91	-50.59	-49.99	-52.37	-51.83
44.11	46.14	52 35.85	36.33	37.28	37.06	33.93	33.94	34.91	34.72	33.78	34.72
56.3		36 18.6		18.5		18.0		17.9		17.6	
+2 12.2	10.2	-16 17.2	17.7	18.8	18.6	15.9	15.9	17.0	16.8	16.2	17.1
+2 11.2		-16 17.5		18.7		15.9		16.9		18.6	
+2 13.91	12.12 38.83	-16 15.25	35 58.60	- 15.48	17.40 59.88	- 13.43	15.42 59.01	- 14.73	16.72 58.79	- 14.43	16.43 58.25
- 1.79	+2.19 40.[illegible]	- 1.90	17.15 59.08	- 1.92	59.66	- 1.99	59.02	- 1.99	58.60	- 2.00	59.19
- 17.40		- 20.10		- 20.00		- 19.50		- 19.40		- 19.10	
+1 5[illegible]2	39.84 59.43	-16 37.25	35 58.84	37.40	59.77	34.92	59.01	36.12	58.69	35.53	58.72

22 1874 1875 1874 1874

o Cephei α 13 27.612 13 30.049 .80 corr α = Oct-17 13 30.39 25 43.3
h m sec δ 25 19.03 25 38.65 .82 29.89 40.1 corr δ = 22 30.25 −14 44.7 +1.4
23 13 30 dα/dt +24.37 +24.38 .84 29.83 40.6 sec δ = +2.60 27 30.10 15 46.0 1.3
+67° 26′ dδ/dt +19.62 +19.62 .89 29.77 40.6 tang δ = +2.40 Nov 1 29.93 17 47.2 1.2
6 29.74 19 48.3 1.1
z = −25° 3′ l sin δ 9.96541 .83 29.830 40.43 I = 5.36 11 29.54 20 49.3 1.0
sin z = −.42 4 (3) 16 29.34 20 50.2 .9
l cos δ 9.58406 9.58406 K = −.038 21 29.12 22 51.0 .8
l C, .10460 .12552 26 28.90 22 51.6 .6
l C′ 9.68866 9.70958
l C″ 9.68540

1874 1874 1875
−.22 Oct. 19 −.21 −.08 Oct. 26 −.24 −.08 Oct. 27 −.12 Nov. 22 −.21 −.08 Nov 2 −.28 Nov 3
−.245 −.285 −.324 −.157 −.250 −.287
23 13 32.1 13? 2.6 13 26.4 13 2.0 13 26.3 13 7.3 13 10.2 12 18.0 14 14 9.3 14 13 40.0
34.6 6.8 29.1 7.0 29.0 12.3 12.7 23.3 21.7 12.4 22.1 45.9
Sw. 37.6 11.6 32.0 12.7 31.7 15.9 15.2 26.5 24.2 17.8 24.5 50.3
41.2 34.6 34.2 18.0 27.0 27.0
— 37.3 37.0 20.7 29.5 30.1
— 39.9 39.7 23.5 32.2 32.8
+ 42.5 42.4 25.8 13 5.9 34.7 14 52.9 35.4 14 14.3
+ 45.5 45.1 28.6 13.1 37.4 58.2 38.0 19.6
+ 48.0 47.8 31.0 15.9 40.3 2.3 40.7 25.3
43.0 43.4
13 7.00 33.53 13 7.23 33.32 13 11.83 18.57 12 22.60 29.00 14 13.17 29.40 13 45.40
13 37.256 c sec δ = −.21 13 37.022 −.21 13 20.633 13 11.63 14 32.222 14 57.80 14 32.667 14 19.73
−.53 37.218 −.50 ~~37.084~~ 36.9 −.58 20.595 −.29 8.61 32.184 −.50 32.629 −.67
−12.10 −6.52 −6.24 ~~+5.84~~ −59.32 −59.86
− 12.12 − 6.54 −2.52 − 6.32 −2.49 + 8.59 −1.47 − 59.41 −2.43 − 59.86 −2.38
− .59 − .68 13 27.47 − .78 27.46 − .38 27.45 − .60 29.72 − .69 29.72
− 2.52 −0.08 − 2.49 −0.05 − 1.47 +0.97 − 2.43 − 2.38
− 9.77 9.59 + 6.74 − 62.44 − 62.93
13 37.22 13 36.98 13 20.59 14 32.18 14 32.63
23 36.75 37.47 23 39.77 42 23.08 24.40
+2 8.56 13 27.45 +2 9.61 13 27.39 +2 9.39 13 27.33 +2 11.97 13 29.74 −16 14.58 13 29.70 −16 15.24
+1.1 29.89 +1.1 29.83 +1.1 29.77 +1.3 +1.1 +1.1
−26.70 −27.00 −32.10 −30.40 −30.60
+67 25 20.76 25 20.96 25 20.94 25 39.20 25 39.66

s
+30.03 +25.19 +58.03 +9.00 +19.05 −25.58 +47.27 +12.94
55′ 55 55 55 40 40
−2.49 −2.52 −2.53 −2.80 −2.97 −2.98
4 22.1 4 21.1 4 22.1 4 9.8 4 33.8 0 40.0 1 2.5 0 22.9 0 41.5
25.7 26.6 27.9 7.1 30.1 47.0 10.3 30.8 49.8
47.8 47.7 50.0 16.9 63.9 70 12.8 53.7 11.3
59′ 23.90″ 59 23.85 59 25.00 59 8.45 59 31.95 40 43.50 41 6.40 40 26.85 40 45.65
1.47756 1.40123 1.76365 0.95424 1.27989 1.40790n 1.67459 1.11193
1.16622 1.08989 1.44905 0.63964 0.98947 1.11748n 1.38417 0.82151
+14.66 +12.30 +28.12 +4.36 +9.76 −13.11 +24.22 +6.63
59 38.51 59 37.30 59 36.57 59 36.31 40 53.26 40 53.29 40 57.07 40 52.28
+67° 23′ 9.84″ 23 18.05 23 11.78 12.04 41 55.09 55.06 42 57.28 56.07
11.91 55.07 56.67
−25 2 44 2 59 2 35 3 5 2 42
1.42980n 1.42990n 1.42970n 1.42990n 1.42980n
+12.47 +4.84 −3.72 +27.63 +19.74 +17.14
1.44227 1.43464 1.42608 1.45753 1.45733 1.44964 1.44954 1.44704 1.44694
+27.69 +27.21 +26.67 +28.68 +28.66 +28.16 +28.16 +27.99 +27.99
−.17 −.30 −.12 −.25 −.66 −.80 −1 −.07 −.15 −.12 −.43 −.26 −.02
−.13 −.13 −.13 −.45 −.49 −.04 −.07 −.02 −.05
~~+27.56~~ +26.91 +26.42 +27.57 +28.16 +28.05 +27.97 +27.54 +27.92
+2 8.59 +67 23 36.75 23 37.47 23 39.35 40.20 42 23.14 23.03 42 24.82 23.99
+ 1.04 +9.39 10.44 +9.42 10.48 +12.13 13.30 −16 14.69 13.45 −15.25 14.00
+1.05 −7.08 +1.06 −7.38 +1.17 −12.48 + 1.24 + 1.25
−26.70 −27.00 −32.10 −30.40 −30.60
+1 43.74 25 20.49 + 43.48 20.95 + 41.20 20.55 −16 43.85 25 39.29 − 44.60 40.22
c 21.40 39.18 39.39
20.97 25 39.23 39.80
25 40.11 40.57 40.59

1875

	m s		' "	
Oct. 26	13 32.78		25 67.3	
31	32.54	-.17	68.6	+1.3
Nov 5	32.36	18	69.7	1.1
10	32.17	19	70.7	1.0
15	31.97	20	71.6	.9
20	31.75	22	72.4	.8
25	31.53	22	73.0	.6
30	31.31	22	73.5	.5
Dec 5	31.08	23	73.9	.4

1875

.84	29.74	39.2
.84	29.70	39.8
.85	29.72	40.8
.89	30.08	39.3
.90	29.92	40.0
.91	30.01	38.1
.87	29.862	37.53
		(6)

-.28 Nov 6		-.27 Nov 22		-.17 Nov 24		-.09 Nov 29	
-.310		-.220		-.167		-.088	
14	13 28.1	13	12 51.1	13 5.3	12 40.6	13	12 59.6
23.0	33.4	27.3	57.0	10.7	45.8	25.2	4.9
25.7	37.9	30.0	1.0	16.0	50.8	27.8	9.1
28.4		32.9		26.7		30.4	
31.0		36.0		32.1		33.2	
33.7		38.3		37.8		36.2	
36.4	14 3.6	41.0	13 48.7	43.1	13 48.9	38.7	13 31.9
39.1		43.7	53.0	48.4	53.0	41.3	35.1
41.8		46.6	57.9	59.3	57.3	44.3	39.9
44.9		49.4		4.4		46.8	
				9.9			
30.40		34.52					
				41.37		32.3.9	
	13 33.13		12 56.37		12 45.73		13 4.53
14 33.778	14 3.60	13 38.356	13 53.20	13 37.609	13 53.07	13 ~~37.100~~ 35.989	13 35.63
33.740		38.318		37.571		35.951	
	-1^m -0.98		-6.03		-5.71		-4.38
- 61.00	-.67	- 6.10	-.65	- 5.71	-.41	- 4.43	-.22
- .74		- .53		- .40		- .21	
- 2.28	-2.28	- 1.61	-1.61	- 1.54	-1.54	- 1.30	-1.30
- 64.02	13 29.81	- 8.24	30.03	- 7.65	29.91	5.94	30.05
14 33.74		38.32		13 37.57		13 35.95	
13 29.72		13 30.08		13 29.92		30.01	
	42 26.32		25.46		27.68		25.98
	-16 15.34		-16 13.27		-16 14.58		-16 14.22
	+1.2		+1.3		+1.3		+1.3
	-31.30		-34.00		-34.30		-34.80
	25 40.88		25 39.49		25 40.10		25 38.26
' + 60.65	+ 30.18	+ 41.99	- 14.84	+ 51.88	- 15.46	+ 31.46	+ 0.36
40		40		40		40	
' -3.00		-3.12		-3.12		-3.13	
0 13.9	0 30.0	0 27.0	0 57.9	0 17.0	0 52.9	0 31.9	0 48.3
23.0	39.0	32.8	2.9	24.7	0.4	38.9	53.5
136.9	69.0	59.8	120.8	41.7	113.3	70.8	101.8
40 18.45	40 34.50	40 29.90	40 0.40	40 20.85	40 56.65	40 35.40	40 50.90
1.78283	1.47972	1.62315	1.17143n	1.71500	1.18921n	1.49776	9.55630
1.49241	1.18930	1.33273	0.88101n	1.42458	0.89879n	1.20734	9.26588
+31.08	+15.46	+21.56	-7.60	+27.20	-7.92	+16.12	+0.18
40 49.53	40 49.96	40 51.46	40 52.80	40 48.05	40 48.73	40 51.52	40 51.08
41 58.82	58.39	41 56.89	55.55	42 0.30	59.62	41 56.83	57.27
58.60		56.22		59.96		57.05	
						3 13	2 57
1.42990n	1.42980n					1.43000n	1.42990n
+19.86		+39.33		+18.52		+34.37	
1.44976	1.44966	1.46923	1.46913	1.44842	1.44832	1.46437	1.46427
+28.17	+28.16	+29.46	+29.45	+28.08	+28.08	+29.13	+29.13
- 67	-.45 -.17	-33	-.21 -.04	-.50	-.35 -.04	-.18	-.20 0
-.02	-.04	-.05	.00	-.04	-.13	-.09	-.12
~~+28.15~~ +27.48	+27.95	+29.08	+29.41	+27.54	+27.91	+28.86	+29.01
42 26.30	26.34	42 25.97	24.96	42 27.84	27.53	42 25.69	26.28
-16 15.48	14.22	- 13.43	12.12	- 14.73	13.42	- 14.43	13.12
+ 1.26		+ 1.31		+ 1.31		+ 1.31	
- 31.30		- 34.00		- 34.30		- 34.80	
-16 45.52	39.78	- 46.12	39.85	- 44.72	40.12	- 44.92	37.77
	40.82		38.84		39.81		38.36
	25 40.80		39.34		39.96		38.06

24

T Pegasi
23h 14m 27sec
+23° 3'
ζ = +19° 20'
prin ζ = +33

1874						1875					
Oct. 27	14m 26s.77		2' 85".8			Oct. 27	14m 30s.03		3' 47".4		
Nov. 1	26.72	-.05	86.1	+.3		Nov. 1	29.98	-.05	47.7	+.3	
6	26.67	.05	86.4	.3		6	29.93	.05	48.0	.3	
11	26.62	.05	86.6	.2		11	29.88	.05	48.2	.2	
16	26.56	.06	86.8	.2		16	29.83	.05	48.4	.2	
21	26.50	.06	86.8	.0		21	29.77	.06	48.4	.0	
26	26.44	.06	86.8	.0		26	29.71	.06	48.4	.0	
Dec. 1	26.38	.06	86.8	+.0		Dec. 1	29.65	.06	48.4	+.0	
6	26.32	.06	86.7	-.1		6	29.57	.06	48.3	-.1	

1874 ... 1874 ... 1875 + ... +

Oct. 19 Ck. f. | -.21 -.08 Oct. 26 | -.24 -.08 Oct. 27 | -.12 Nov. 22 | -.28 Nov 3 | -.28 Nov 6

-.285 ... -.327 ... -.157 ... -.287 ... -.310

14 20.0 14 12.6 14 19.9 14 19.3 14 4.5 14 12.6 15 16.5 15 22.6 15 17.6 15 4.9
22.2 15.0 22.0 21.7 6.7 14.7 18.7 19.8 6.8
24.5 16.6 24.2 23.6 8.8 17.0 20.9 22.1 8.8
29.0 28.7 13.5 25.5 26.5
31.3 31.0 15.8 27.9 28.6
33.5 33.2 18.0 30.0 31.1
35.7 14 43.8 35.4 14 52.2 20.3 14 51.2 32.3 15 44.0 33.2 15 38.6
38.0 46.0 37.7 54.0 22.3 34.5 48.4 35.5 40.7
42.6 47.8 42.2 56.1 26.8 39.0 40.0 42.5
44.7 44.4 29.0 41.2 42.2
47.0 46.7 31.4 43.4 44.6

3685 14 14.73 3654 14 21.53 1971 14 14.77 3299 15 22.60 341.2 15 6.83
14 33.500 14 46.87 14 33.218 14 54.10 14 17.918 14 51.20 15 29.991 15 46.20 15 31.018 15 40.60
33483 33201 17.901 29.974 31.001
14 26.78 14 26.77 14 26.49 14 29.96 14 29.93
+6.70 -6.52 +6.43 -6.24 -8.59 +8.60 +60.01 -59.86 +61.07 -1 -0.98
+6.71 -.09 +6.44 -.10 -8.58 -.05 +60.02 -.12 +61.08 -.12
-.09 -.09
- 6.58 -2.64 - 6.32 -2.63 + 8.59 -2.35 - 59.44 86 -2.85 - 61.00 -2.82
- .12 14 24.14 - .14 24.14 - 6 24.10 - .12 27.14 - .13 27.08
- 2.64 +0.321 - 2.63 +0.331 - 2.35 +0.611 - 2.865 - 2.82
- 9.33 - 9.09 + 6.18 - 62.83 - 63.95
14 33.48 14 33.20 14 17.90 15 29.97 15 31.00
1 17.71 1636 1 1665 20 357 484
14 24.15 +2 9.61 14 24.11 +2 9.39 14 24.08 +2 11.97 14 27.14 -16 15.24 14 27.05 -16 15.34
14 27.111 -.9 27.071 -.8 27.041 -1.0 -1.0 -1.1
-2280 -2290 -2390 -2530 -2550
+23 3 3.62 3 2.05 3 3.72 3 22.03 3 22.90

s
+18.77 -12.37 +11.69 -20.88 +3.15 -33.28 +7.39 -16.21 +24.19 - 9.58
20' 20 20 20 0 0
-252 -253 -280 -298 -300

' "
0 37.9 1 25.5 0 42.4 1 18.7 0 52.0 1 29.7 1 4.9 1 46.8 2 9.7 2 41.0 1 48.4 2 29.1
45.4 33.3 53.8 30.7 54.1 41.4 7.9 48.1 17.5 47.9 56.0 39.4
83.3 58.8 96.2 49.4 106.1 71.1 12.8 94.9 27.2 89 104.4 68.5
0 20 41.65 x 21 29.40 20 0 48.10 21 x 24.70 20 0 58.05 8 21 x 35.55 21 + 6.40 21 + 47.45 2 13.60 2 44.45 1 52.20 2 34.25

1.27346 1.09237n 1.06781 1.31973n 0.49831 1.52218n 0.86864 1.20978n 1.38364 0.98137n
1.34193 1.16084n 1.13628 1.38820n 0.56352 1.58739n 0.95803 1.29917n 1.47303 1.07176n
+21.98 -14.48 +13.69 -24.45 +3.66 -38.67 +9.08 -19.91 +29.72 -11.80
21 10.08 21 10.22 21 9.74 11 21 11.10 21 11.06 21 8.78 2 22.68 2 24.54 2 21.92 2 22.45

1 38.27 38.13 1 41.61 36 37.25 1 37.29 39.57 20 25.67 23.81 20 26.43 25.90
38.20 36.93 38.43 24.74 26.16
+19 18 41 19 18 18 59 19 41 18 26 18 56
1.30490 1.30510 1.30500 1.30530 1.30480 1.30500
+486 -370 +2763 +1715 +1987
1.30976 1.30996 1.30120 1.30140 1.33263 1.33293 1.32195 1.32215 1.32467 1.32487
-20.41 -20.42 -20.47 -20.48 -21.51 -21.52 -20.99 -21.00 -21.12 -21.13

-.06 -.07 -.02 -.03 -.09 -.08 - 0 -.26 -.20 - 1 -.17 -.05 -.11 -.20 2
-.02 -.04 -.03 -.05 -.12 -.20 -.13 -.16 -.11 -.16
-20.49 -20.48 -20.53 -20.61 -21.63 -21.92 -21.13 -21.21 -21.34 -21.31
1 19.78 17.65 16.08 16.64 15.66 17.65 20 4.54 2.60 5.09 4.59
3 25.7 25.8 26.8 47.8 48.0
+2 7.9 8.1 9.7 9.2 11.1 9.2 -16 16.7 14.8 17.1 16.6
+2 8.0 9.75 10.75 -16 15.45 17.85
+2 8.1 3 3.54 9.6 1.77 10.3 2.97 -16 15.6 3 23.01 16.7 23.12
+2 9.39 8.56 3.41 + 9.42 8.59 2.33 +12.13 11.21 4.96 -16 15.25 16.23 21.07 - 15.48 22.62
- .83 -3.16 - .83 3.26 - .92 -4.26 - .98 - .99
- 22.80 +3 3.47 - 22.90 2.05 - 23.90 3.96 - 25.30 22.04 - 25.50 22.87
+1 45.76 3 23.11 45.69 21.69 47.31 23.60 -16 41.53 41.97

	1874		1875
α	24.145		27.106
δ	+3′ 2.86		+3′ 22.50
dα/dt	+2.961		+2.961
dδ/dt	+19.638		+19.638
l sin δ	9.59277		
l cos δ	9.96387		9.96387
l ζ	.10460		.12552
l ζ′	0.06847		0.08939
l ζ″	0.06521		

corr α = −.011
corr δ = +.15″
tang δ = +.42 1.08
I = 2.24
k = −.017

	1874			1875	
.82	27.11	23.1	.84	27.14	22.0
.82	27.07	21.7	.85	27.05	22.9
.89	27.04	23.6	.89	27.03	23.7
			.91	27.00	23.5
.84	27.073	22.~~77~~80	.87	27.055	23.03
	(3)			(4)	

−.27 + Nov 22 + −.09 Nov 29

−.220		−.088	
14 —	14 48.9	14 20.6	14 48.4
—	51.2	22.8	50.2
—	53.6	25.0	51.7
31.4		29.4	
33.6		31.9	
35.8		34.0	
38.2		36.2	15 3.3
40.4		38.6	5.1
—		43.0	6.6
—		45.3	
—		47.7	
1794		3745	
	14 51.23		14 50.10
14 35.880		14 34.045	15 5.00
35863		34028	
14 29.785	−603	14 29.67	−438
+6.181	÷11	+4.36	÷04
+6.12		+4.37	
	−264		−256
— 6.10	14 27.08	— 4.43	27.05
— 9		— 4	
— 2.64		— 2.56	
— 8.83		— 7.03	
14 35.86	20 4.06	14 34.03	4.81
	−16 13.27		−16 14.22
14 27.03	−1.0	14 27.00	−1.1
	−25.90		−25.90
	3 23.89		3 23.59
− 15.35		− 16.06	− 30.96
0		0	
− 3.12		− 3.13	
2 38.1		2 38.1	2 56.1
43.4		44.1	1.8
81.5		82.2	117.9
2 40.75		2 41.10	2 58.95
1.18611 n		1.20575 n	1.49080 n
1.27550 n		1.29514 n	1.58019 n
−18.86		−19.73	−38.03
2 21.89		2 21.37	2 20.92
20 26.46		20 26.98	27.43
		27.20	
		18 53	19 11
		1.30500	1.30510
+3934		+3439	
1.34414	1.34434	1.33939	1.33949
−22.09	−22.10	−21.85	−21.85
−.04	−.31	−.05	−.54 −.18
−.27		−.40	−.45
−22.40		−22.30	−22.48
2i 4.06		4.68	4.95
48.4		48.4	
−16 15.7		16.3	16.5
−16 15.7		16.4	
−16 15.6		16.2	23.32
−16 13.43	14.45	−14.43	15.76 23.59
− 1.02		− 1.03	
− 25.90	3 23.71	− 25.90	23.45
−16 40.35		41.36	

b' Aquarii

h m sec
23 16 24
-20° 47'
z = +63° 10'
z sin z = +89

	1874	1875
α		16 24.26
δ		46 57.55
dα/dt		+ 3.159
dδ/dt		+ 19.59
l sin δ	9.55003n	
l cos δ	9.97078	9.97078
l c	.10134	12552
l c'	0.07212	0.09630

corr α =
corr δ =
tang δ = -.38
I = 2.20 s
K = -.017 s

1874			1875		
.92	24.29	57.8	.84	24.29	58.8
.92	24.26	59.7	.84	24.22	59.4
			.85	24.28	57.1
.92	24.275	58.75	.84	24.263	58.43
	-1 (2)	-1		+7 (3)	+8
	24.274	58.76		24.270	58.35

1874 Dec. 2		1874 Dec. 3		1875 Nov 2		Nov 3		Nov 6	
+.012		-.013		-.250		-.287		-.310	
23 16 15.7 11.3	16 28.3	16 2.6	15 56.8	17 14.0	17 12.5	17 14.2	17 15.5	17 15.4	17 5.6
.8 13.6	31.0	4.6	59.0	16.2	14.7	16.5	18.1	17.6	7.2
.7 13.7	33.4	6.8	1.1	18.2	15.9	18.7	20.0	19.8	9.0
.8 18.0		11.2		22.8	17.0	23.1		24.3	
.7 20.1		13.5		24.9		25.2		26.3	
.8 24.6		15.7		27.1		27.5		28.6	
.9 26.9	16 58.2	18.0	16 38.6	29.3	17 53.7	29.7	17 45.3	30.8	17 40.1
.6 28.8	1.0	20.1	40.7	31.5	55.4	31.9		33.1	41.5
	3.1	24.4	43.0	36.0	57.8	36.3		37.4	43.8
		26.7		38.1		38.5		39.8	
		29.0		40.4		40.7		41.9	
	16 30.90	17 26	15 58.97	29 85	17 15.02	30 23	17 1787 ~~26.60~~	31 50	17 7.27
16 15.750	~~16~~7 0.77	16 15.691	16 40.77	17 27.136	17 55.63	17 27.482	17 45.30	17 28.636	17 41.80
15.733		15.674		27.119		27.465		28.619	
+ 8.19		+ 8.21		- 59.42		- 59.86		- 61.00	
— 0		+ 0		+ 9		+ .11		+ .12	
- 2.79 +0.369		- 2.78 +0.379		- 3.50		- 3.49		- 3.46	
+ 5.40		+ 5.43		- 62.83		- 63.24		- 64.34	
16 15.73		16 15.67		17 27.12		17 27.46		17 28.62	
16 21.13		16 21.10		16 24.29		16 24.22		16 24.28	
24.289		24.259						24.263	
		21.115							

+ 15.15	- 45.02	+ 16.72	- 25.08	+ 12.12	- 28.49	+ 9.61	- 17.82	+ 21.37	- 13.16
10	5	5	8 50			50		50	
-2.89		-2.90		-2.97		-2.98		-3.00	
0 15.8	0 52.2	4 45.1	0 34.3	1 0.7	1 51.2	1 4.0	1 38.9	0 47.5	1 30.1
39.1	15.1	3.9	54.9	4.5	54.8	9.3	42.2	51.6	32.2
54.9	127.3	109.0	89.2	5.2	60	13.3	81.1	99.1	23
10 27.45	x'' 3.65	9 4 54.50	10 0 44.60	51 2.60	51 53.00	51 6.65	51 40.55	50 49.55	51 31.15
1.18041n	1.65341n	1.22324	1.39933n	1.08350	1.45469n	0.98272	1.25091n	1.82980	1.11926n
1.25253n	1.72553n	1.29536	1.47145n	1.17980	1.55099n	1.07902	1.34721n	1.42610	1.21556n
- 17.89	- 53.15	+ 19.74	- 29.68	+ 15.13	- 35.56	+ 12.00	- 22.25	+ 26.67	- 16.43
10 9.56	10 10.56	10 14.24	10 14.92	51 17.73	51 17.44	51 18.65	51 18.36	51 16.22	51 14.72
47 21.21	-20° 22.15	47' 25.89	26.57	28 29.38	29.09	28 30.30	29.95	28 27.87	26.37
21.68		26.23		29.23		30.13		27.12	
+63 8 20	8 57	7 47	8 38	7 15	8 5	7 19	7 52	7 1	7 43
2.05378	2.05400	2.05363	2.05388	2.05347	2.05372	2.05347	2.05366	2.05338	2.05360
+1994		+680		+1978		+1718		+1991	
2.07372	2.07394	2.06043	2.06068	2.07325	2.07350	2.07065	2.07084	2.07329	2.07351
-118.50	-118.56	-114.98	-115.00	-118.37	-118.44	-117.67	-117.72	-118.39	-118.45
- 5	- 5	- 3	- 3	- 3	- 3	- 3	- 3	- 2	- 2
+.04	+.11 +.36	+.05	-.25 +.11	+.02	.00 +.15	+ 2	-.05 +.06	+.08	-.01 +.03
-.06	-.12	-.59	-.08	-.06	-.11	-.07	-.10	-.05	-.09
-1 58.57	-1 58.37	-1 55.50	-1 55.00	-1 58.44	-1 58.43	-1 57.85	-1 57.79	-1 58.38	-1 58.53
-20 49 19.78	20.52	49 21.39	21.57	30 27.82	27.52	30 28.05	27.74	30 26.25	24.90
+2 14.27	11.70	+ 13.68	11.10	-16 +14.69	17.33	- 15.25	17.90	- 15.48	18.15
- 2.57	+10.62	- 2.58	+10.70	- 2.64		- 2.65		- 2.67	
-8.97		-8.89		-13.75		-13.65		-13.33	
+2 2.73	47 17.05	2.21	19.18	-16 31.08	46 58.90	31.55	59.60	31.48	57.73
	17.79		19.36		58.60		59.29		56.38
	47 17.42		19.27		46 58.75		59.44		57.05
	46 57.83		59.68						

υ Pegasi 32

				1874							1875					
h 23	m 19	sec 9		α 5.547	Dec.	6	19m	7.78s		42′	61.9″	Oct. 27	19m	11.50s	42′	82.7″
				δ +42′ 37.99″		11		7.72	−.06		61.6	Nov. 1		11.46 −.04		83.1 +.4
				dα/dt +2.987		16		7.66	.06		61.3	−.3 6		11.41 .05		83.4 .3
+22°		43′		dδ/dt +19.763		21		7.60	.06		61.0	.3 11		11.36 .05		83.6 .2
+19°		40′				26		7.53	.07		60.6	.4 16		11.31 .05		83.8 .2
				1875								21		11.26 .05		83.9 .1

l sin δ 9.58678

α 8.534s

lcos δ 9.96493

δ +42 57.75″

lcos δ 9.96493

26 11.20 .06 83.9 +0

Dec. 1 11.14 .06 83.8 −.1

6 11.07 .07 83.7 −.1

l C 10134

dα/dt +2.987s

.12552

l C′ 0.06627

dδ/dt +19.764″

0.09045

sin z = +.34

1874				1875		
.92	8.47	57.5	corr α = −.019s	.84	8.52	58.1
.92	8.55	56.8	corr δ = +.10″	.84	8.52	57.9
.94	8.49	58.5		.85	8.45	57.9

lat δ = +.42 1.08

I = 2.23

K = −.017

	1874 Dec. 2 +.02		Dec. 3 +.00		1874 Dec. 8 −.05		1875 −.21 −.08 Nov 2 .93 8.503 57.60 (3)		+ −.28 Nov 3		.84 8.497 57.97 Nov 6 −.28 (3)	
	+.012		−.013		−.055		−.250		−.287		−.310	
23	18 46.2	18 40.8	18 46.3	18 49.7	18 45.5	18 42.3	19 57.6	19 54.5	19 58.0	19 53.0	19 59.0	19 49.4
	48.4	43.6	48.6	51.8	47.5	44.3	59.9	56.3	20 0.2	55.5	20 1.3	51.9
	50.6	45.3	50.7	53.9	49.8	46.0	20 2.0	58.8	2.4	57.1	3.6	53.4
	53.7		53.1		54.2		6.5		7.0		8.0	
	57.4		57.4		56.5		8.8		9.1		10.1	
	59.6		59.6		58.7		10.9		11.6		12.4	
	1.8	19 21.8	1.8	19 18.0	0.9	19 19.2	13.2	20 32.1	13.7	20 25.5	14.7	20 17.8
	4.1	23.5	4.0	20.3	3.1	21.3	15.4	33.9	16.0	27.4	17.0	19.9
	8.5	25.4	8.6	22.1	7.7	24.0	19.9	35.4	20.3	29.4	20.5	22.2
	10.7		10.8		9.9		22.2		22.6		23.4	
	13.0		13.0		12.1		24.3		24.9		25.9	
	3554		3559		3459		2407		1858		1972	
	300		300		300		120		60		60	
	6554	18 43.23	6559	18 [illegible]3.80	6459	18 44.20	1207	19 56.53	1258	19 55.20	1372	19 51.77
18	59.582	19 23.57	18 59.627	19 20.13	18 58.718	19 21.50	20 10.973	20 33.80	20 11.436	20 27.43	20 12.473	20 19.97
	59.565	+8.21	59.610	+8.23	58.701	+9.05	10.956	−59.32	11.419	−59.87	12.456	−1 −0.99
19	7.832	+.01	19 7.821	+.00	19 7.765	−.02	19 11.45	−.09	19 11.44	−.12	19 11.41	−.12
	−8.246		−8.240		−9.055		+59.51	−.09	+59.98		+61.05	
	−8.24	−2.27	−8.18	−2.26	−9.03	−2.20	+59.53	−2.92	+60.00	−2.91	+61.07	−2.88
		19 5.51		5.58		5.53		8.54		8.52		8.47
	+ 8.19		+ 8.21		+ 9.02		− 59.42		− 59.84		− 61.00	
	+ 0		− 0		− 2		− .10		− .12		− .13	
	− 2.27	+0.717	− 2.26	+0.727	− 2.20	+0.787	− 2.92		− 2.91		− 2.88	
	+ 5.92	40 48.59	+ 5.95	48.30	+ 6.80	40 48.61	− 62.44	59 39.33	− 62.90	36.92	− 64.01	40.04
18	59.56	+2 14.43	18 59.61	+2 13.92	18 58.70	+2 14.91	20 10.96	−16 14.58	20 11.42	−16 15.24	20 12.46	−16 15.34
		−7.1		−1.1		−1.1		−1.0		−1.0		−1.1
19	5.48	−24.10	19 6.56	−24.00	19 5.50	−23.70	19 8.52	−25.50	19 8.52	−25.50	19 8.45	−25.60
19	8.467	2242 37.82	8.517	42 37.12	8.487	42 38.72		42 58.25		42 55.18		42 58.00
	+16.35s	−23.99	+ 7.83	−20.50	+ 14.52	−22.78	+ 14.44	− 22.83	+ 16.24	− 15.99	+ 20.70	− 01.50
40′		40		40		20		20		20		
	−2.89		−2.90		−2.92		−2.97		−2.98		−3.00	
	1 12.1	1 59.3	1 24.6	1 57.6	1 16.4	2 0.7	2 26.9	3 11.5	2 23.0	3 .3.4	2 16.5	2 52.4
	26.1	12.1	34.7	8.2	25.2	9.4	32.5	18.8	30.5	11.0	25.4	59.5
	38.2	13.14	59.3	12.58	41.6	10.1	59.4	10.3	53.5	14.4	41.9	11.9
x41	19.10″	42 5.70	41 + 29.65	42 2.90	41 + 20.80	42 5.05	22 29.70	23 15.15	22 26.75	23 7.20	22 20.95	22 55.95
	1.21352	1.38003n	0.89376	1.31175n	1.16197	1.35755n	1.15957	1.35851n	1.21059	1.20385n	1.31597	0.87506n
	1.27979n	1.44630n	0.96003	1.37802n	1.22824	1.42382n	1.25062	1.44896n	1.30104	1.29420n	1.40642	0.96551n
	+19.04	−27.95	+9.12	−23.88	+16.91	−26.54	+17.79	−28.11	+20.00	−19.69	+25.49	−9.24
41	38.14	41 37.75	41 38.47	41 39.02	41 37.71	41 38.51	22 47.49	22 47.04	22 46.75	22 47.51	22 46.44	22 46.71
+22° 41′	10.21″	10.60	41 9.58	9.33	41 10.64	9.84	0 0.86	1.31	0 1.60	0.84	0 1.91	1.64
	10.40		9.45		10.24		1.08		1.22		1.77	
+19	39 12	39 59			39 14	39 56	38 42	39 27			38 33	39 8
	1.31310	1.31340			1.31310	1.31340	1.31290	1.31320			1.31280	1.31300
	+1997		+680		+1642		+1983		+1723		+1998	
	1.33307	1.33337	1.31990	1.32020	1.32952	1.32982	1.33273	1.33303	1.33013	1.33043	1.33278	1.33298
	−21.53	−21.54	−20.89	−20.90	−21.36	−21.37	−21.51	−21.53	−21.39	−21.40	−21.52	−21.53
	−.05	−.28 −.10	+	−.26 −.07	−.03	−.26 −.09	−.03	−.23 −.09	−.04	−.20 −.04	−.08	−.20 −.2
	−.16	−.25	−.18	−.24	−.16	−.25	−.15	−.19	−.14	−.19	−.14	−.17
	−21.74	−21.89	−21.09	−21.21	−21.55	−21.71	−21.69	−21.81	−21.57	−21.63	−21.74	−21.72
41	48.47	48.71	48.49	48.12	49.09	48.13	59 39.17	39.50	40.03	39.21	40.17	39.92
43	2.1		2.0		1.7		43 2.32		2.32		2.34	
2	13.6	13.4	13.5	13.9	12.6	13.6	−16 16.0	16.3	16.8	16.0	16.8	16.5
+2	13.5	42	13.7		13.1		16 16.1		16.4		16.6	
+2	13.6	41 37.66	13.8	37.19	13.2	39.19	16 16.0	42 57.98	16.3	58.27	16.5	58.07
+2	14.27	13.29 37.90	+13.68	12.70 36.82	+14.79	12.80 36.23	16 14.69	15.69 58.31	−15.25	16.26 57.45	−15.48	16.50 57.82
−	.98	−4.34	− .98	−4.24	− .99	−3.94	− 1.00		− 1.01		− 1.02	
−	24.10	41 37.78	− 24.60	37.00	− 23.70	38.71	− 25.50	58.14	− 25.50	57.86	− 25.60	57.94
+1	49.19	42 57.54	48.70	56.76	50.10	58.47	−16 41.19		41.76		42.10	

t Piscium.

		1874	1875
h m sec 23 21 37	α		21 37.71
° ' + 5 41	δ		41 33.72
	dα/dt		+ 3.041
	dδ/dt		+ 19.73
ζ = +36° 42'	l sin δ	8.99577	
ζ sin ζ = +.60	l cos δ	9.99786	9.99786
	l t	.10134	.12552
	l t'	0.09920	0.12338

cos α =
cos δ =
tang δ = +.10
I = 2.07 s
k = −.016 s

1874			1875		
.84	37.72	34.1	.84	37.66	34.0
.90	37.67	34.3	.84	37.74	32.4
.92	37.65	33.0	.85	37.63	34.5
.92	37.71	32.1	.89	37.67	32.1
.94	37.66	34.2	.89	37.71	34.7
			.91	37.58	33.8
90	37.682	33.54	.87	37.665	33.58
	−1			+7	+3
	37.681 (5)			37.672 (6)	33.61

1874 Nov. 4		Nov. 24		Dec. 2		Dec. 3		1874 Dec. 8		1875 Nor 2	
−.173		−.052		+.012		−.013		−.055		−.250	
23 21 26.9	21 16.8	21 16.7	21 6.6	21 16.5	21 4.6	21 16.4	21 9.0	21 15.6	21 4.0	22 27.8	22 18.1
29.0	19.6	18.7	9.2	18.5	7.0	18.6	11.0	17.7	6.1	29.9	19.9
30.9	21.7	21.0	10.8	20.6	8.9	20.7	12.7	19.8	7.9	32.0	22.0
35.2		25.0		24.7		24.8		23.9		36.0	
37.3		27.0		26.8		26.9		26.0		38.1	
39.3		29.1		29.0		29.0		28.0		40.2	
41.4	22 5.0	31.2	21 52.3	31.0	21 42.5	31.0	21 46.7	30.1	21 37.2	42.2	22 55.4
43.5	6.7	33.2	54.5	33.0	44.3	33.1	49.0	32.1	39.5	44.5	57.2
47.7	8.3	37.3	56.4	37.3	46.2	37.2	50.6	36.3	41.3	48.4	57.6
49.7		39.4		39.3		39.3		38.4		50.6	
51.8		41.5		41.4		41.4		40.5		52.7	
4327	21 19.37	3201	21 8.87	3181	21 6.83	3184	21 10.90	3084	21 6.00	4424	22 20.00
21 39.336	22 6.67	21 29.100	21 54.40	21 28.918	21 44.33	21 28.945	21 48.77	21 [illegible].036	21 39.33	22 40.218	22 57.40
39.320		29.084		28.902		28.929		28.020		40.202	
− 1.87		+ 8.11		+ 8.19		+ 8.21		+ 9.02		− 37.42	
− .02		− .00		+ 0		− 0		− 0		− 2	
− 2.45	+0.291	− 2.56	+0.481	− 2.48	+0.561	− 2.47	+0.571	− 2.42	+0.621	− 3.10	
− 4.64		+ 5.55		+ 5.71		+ 5.74		+ 6.60		− 62.54	
21 39.32		21 29.08		21 28.90		21 28.93		21 28.02		22 40.20	
21 34.68		21 34.63		21 34.61		21 34.67		21 34.62		21 37.66	
37.721		37.671		37.651		37.711		37.661			
								34.642			

s +19.97	−27.33	+20.23	−25.30	+22.09	−15.41	+18.04	−19.83	+22.03	−11.30	+ 20.82	− 17.18
40		40		40		40		40		20	
−263		−281		−289		−290		−292		−297	
2 7.8	3 5.2	2 10.6	3 8.1	2 7.7	2 54.3	2 15.1	3 2.9	2 10.1	2 51.1	3 22.3	4 11.7
19.2	17.9	24.8	21.2	24.9	11.9	30.2	18.7	22.9	4.5	27.1	16.0
27.0	231	354	293	326	1262	453	216	[illegible]0	115 6	94	77
2 42 13.50	43 3 11.55	42 2 17.70	43 3 14.65	42 2 16.30	43 3 3.10	42 2 22.65	43 3 10.80	42 2 16.50	42 2 57.80	23 24.70	24 13.85
1.30038	1.43664n	1.30600	1.40312n	1.34420	1.18780n	1.25624	1.29732n	1.34301	1.05308n	1.30578	1.23502n
1.39958	1.53584m	1.40520	1.50232n	1.44340	1.28700n	1.35544	1.39652n	1.44221	1.15328n	1.42916	1.35840n
+25.09	−34.34	+25.42	−31.79	+27.76	−19.36	+22.67	−24.92	+27.68	−14.23	+26.86	−22.82
42 38.59	42 37.21	42 43.12	42 42.86	42 44.06	42 43.74	42 45.32	42 45.88	42 44.18	42 43.57	23 51.56	23 51.03
40 9.76	11.14	40 5.23	5.49	40 4.29	4.61	40 3.03	2.47	40 4.17	4.78	58 56.79	57.32
10.45		5.36		4.45		2.75		40 44.7	40 51	39 57.37	40 26
+36 40 6	41 4										
1.63190	1.63210							1.63190	1.63210	1.63180	1.63200
+1227		+966		+2000		+680		+1642		+1988	
1.64417	1.64437	1.64150	1.64170	1.65190	1.65210	1.63870	1.63890	1.64832	1.64852	1.65168	1.65188
−44.07	−44.09	−43.80	−43.82	−44.86	−44.88	−43.52	−43.54	−44.50	−44.52	−44.84	−44.86
−.20	−.20 −.04	−.02	−.32 −.03	−.02	−.33 −.01	−.01	−.35 −.02	−.02	−.33 −.01	−.02	−.24 −.01
−.07	−.10	−.25	−.35	−.28	−.36	−.29	−.38	−.28	−.35	−.20	−.25
−44.34	−44.23	−44.07	−44.20	−45.16	−45.25	−43.82	−43.94	−44.80	−44.88	−45.06	−45.12
+5 39 25.42	26.91	39 21.16	21.29	39 19.13	19.36	39 19.21	18.53	39 19.37	19.90	58 11.73	12.20
+2 9.19	7.61	+13.91	12.22	+14.27	12.54	+13.68	11.94	+14.79	13.04	−16 14.69	16.47
− 1.58	+.28	− 1.69	+0.84	− 1.73	+1.23	− 1.74	+1.28	− 1.45	+1.56	− 1.78	
−19.45		−18.89		−18.50		−18.45		−18.14		−21.47	
+1 48.16	13.58	+ 53.33	14.49	+ 54.04	13.17	+ 53.49	12.70	+ 54.87	14.24	−16 34.94	33.79
	15.07		14.62		13.10		12.02		14.77		34.26
	41 14.32		14.55		13.28		12.36		14.50		41 34.02
	41 34.05		34.28		33.01		32.09		39.23		

Nov 3		Nov 6		Nov 11		Nov 20		Nov 22		Nov 29	
−.287		−.310				−.215		−.220		−.088	
22 28.3	22 19.1	22 29.4	22 25.6	Ch f.		21 34.7	21 24.3	21 34.2	21 30.9	21 —	21 56.2
30.4	20.9	31.3	27.7			36.8	26.4	36.4	32.5	—	58.3
32.4	22.3	33.4	29.6			38.8	28.8	38.5	34.6		0.5
36.6		37.7				42.9		42.6		40.8	
38.6		39.7				45.0		44.7		42.8	
40.7		41.7				47.1		46.8		44.9	
42.9	22 51.6	43.8	23 1.7			49.0	22 3.1	48.9	22 8.4	47.0	22 17.8
45.0	53.7	45.9	4.6			51.3	4.7	51.0	10.3	48.9	20.6
49.0		50.1	6.4			55.3	6.5	55.0	12.8	—	22.6
51.2		52.0				57.4		57.1		—	
53.1		54.1				59.5		59.1		—	
4482		4591				5178		5143		244	
	22 20.77		22 27.63				21 26.50		21 32.67		21 58.33
22 40.745	22 52.65	22 41.736	23 4.23			21 47.073	22 4.77	21 46.755	22 10.50	21 44.880	22 20.33
40.729		41.720				47.057		46.739		44.864	
− 59.87		− 61.00				− 6.44		− 6.10		− 4.43	
− 3		− 3				− 2		− 2		− 1	
− 3.09		− 3.06				− 2.93		− 2.91		− 2.84	
− 62.99		− 64.09				− 9.39		− 9.03		− 7.28	
22 40.73		22 41.72				21 47.06		21 46.74		21 44.86	
21 37.74		21 37.63				21 37.67		21 37.71		21 37.58	
										37.658	
+ 19.97	− 11.91	+ 14.11	− 22.49			+ 20.57	− 17.70	+ 14.08	− 23.75	+ 13.45	− 35.45
20		20		20		20		20		20	
− 2.98		− 3.00				− 3.12		− 3.12		− 3.13	
3 22.1	4 7.1	3 27.8	4 17.7	3 25.5	4 17.8	3 23.7	4 14.6	3 29.9	4 20.1	4 6.9	4 34.9
28.0	12.0	34.2	22.8	34.3	26.8	27.4	18.7	33.3	22.5	10.9	38.5
101	191	620	405	598	446	114	133	632	26	178	134
23 25.05	24 9.55	23 31.00	24 20.25	23 29.90	24 22.30	23 25.70	24 16.65	23 31.60	24 21.30	24 8.90	24 36.70
1.30038	1.07591n	1.14953	1.35199n			1.31323	1.24797n	1.14860	1.37566n	1.12872n	1.54962n
1.42376	1.19929n	1.27291	1.47537n			1.43661	1.37135n	1.27198	1.49904n	1.25210n	1.67300n
+ 26.53	− 15.82	+ 18.75	− 29.88			+ 27.33	− 23.52	+ 18.71	− 31.55	− 17.87	− 47.10
23 51.58	23 53.73	23 49.75	23 50.37			23 53.03	23 53.13	23 50.31	23 49.75	23 51.03	23 49.60
48 56.77	54.62	48 58.60	57.98			48 55.32	55.22	48 58.04	58.60	48 57.32	58.75
5 55.69		5 58.29				5 55.27		5 58.32		5 58.04	
										40 21	40 49
1.63180	1.63200									1.63200	1.63210
+ 1727		+ 2003				+ 1877		+ 3944		+ 3466	
1.64907	1.64927	1.65183	1.65203			1.65057	1.65077	1.67124	1.67144	1.66666	1.66676
− 44.57	− 44.59	− 44.86	− 44.88			− 44.73	− 44.75	− 46.91	− 46.93	− 46.41	− 46.43
−.02	−.24 −.01	−.01	−.25 −.02			−.02	−.40 −.01	−.01	−.41 −.03	−.01	−.69 −.06
−.20	−.25	−.21	−.26			−.34	−.43	−.35	−.44	−.62	−.69
−44.79	−44.85	−45.08	−45.16			−45.09	−45.19	−47.27	−47.40	−47.04	−47.18
5 48 11.98	9.77	48 13.52	12.82			48 10.23	10.03	48 10.77	11.20	48 10.28	11.57
−16 15.25	17.02	5 −15.48	17.28			5 −15.12	16.99	5 −13.43	15.30	5 −14.43	16.31
− 1.77		− 1.80				− 1.87		− 1.84		− 1.88	
−21.46		−21.42				−21.08		−21.00		−20.79	
−16 38.48	41 33.50	− 38.70	34.82			− 38.07	32.16	− 36.30	34.47	− 37.10	33.18
	31.29		34.12				31.96		34.98		34.47
	41 32.38		34.47				32.06		34.69		33.82

4

λ Draconis L. C.

h m sec
23 23 58
109° 59′
700 4
ζ = ~~*~~67 36
ζ sin ζ = ~~+~~.92

	1874		1875	
	s		s	
α	53.952		57.590	
δ	+1′ 33.91	58 26.09	+1 14.67	58 45.93
dα/dt	+3.638		+3.637	
dδ/dt	−19.840		−19.841	
l sin δ	9.97303			
l cos δ	9.53370n		9.53370n	
l C	.10134		.12552	
l C′	9.63504n		9.65922n	

corr α = +.087
corr δ = —
tang δ = −2.75 −2.92
I = 6.02 s
K = +.041 s

1874	m	s		′	″	
Nov 6	23	53.80		0	6.83	
11		56.11	+.31		6.69	.14
16		56.44	.33		6.55	.14
21		56.79	.35		6.43	.12
26		57.15	.36		6.31	.12
Dec 1		57.52	.37		6.21	.10
6		57.91	.39		6.12	.9

1874

Nov. 4 −.16 Nov. 19 −.10 Nov. 24 −.04 Nov. 26 −.06 Dec. 2 +.02 Dec. 3 +.00

−.173 −.115 −.052 −.058 +.012 −.013

23 23 45.2 23 18.6 23 35.0 23 17.0 23 36.8 23 33.7 23 36.9 23 44.5 23 37.8 23 19.0 23 37.5 23 41.1
48.2 24.5 38.0 23.0 39.6 40.9 40.2 50.0 40.9 24.4 40.4 47.1
50.8 30.6 40.8 28.6 43.0 50.0 42.8 44.0 30.0 43.7 57.4
53.9 43.7 46.1 46.0 47.0 46.6
57.0 46.7 49.0 49.3 49.6 49.7
0.3 49.6 52.1 52.1 52.7 52.7
3.4 24 15.3 52.8 24 8.0 55.0 24 13.1 55.3 55.6 24 3.6 55.5
6.2 20.6 55.9 17.0 58.0 16.6 58.1 58.6 58.8
9.4 25.4 58.6 23.5 0.5 24.5 1.1 1.8 1.8

2744 4211 3801 3818 3880 3867
240 60 60 60 60
5144 23 24.57 23 22.87 4401 23 41.53 4418 23 47.25 4480 23 24.47 4467 23 46.53
23 57.156 24 20.53 23 46.789 24 16.17 23 48.900 24 18.07 23 49.089 23 49.778 24 3.60 23 49.622
57.197 46.830 48.941 49.130 49.819 49.663
23 55.63 7 23 56.59 63 ~~23 56.99~~ 57.03 23 57.09 .13 23 57.39 58 23 57.62 6
+1.573 −1.86 −9.7680 +9.54 −8.089 +8.08 −~~4.96~~ 800 +7.89 −~~7.54~~ 76 +8.21 −~~7.96~~ 800
+1.44 +.44 −9.89 +.28 −8.18 +.11 −8.09 +.17 −7.85 −.06 −8.09 .00
+8.23

− 1.84 −1.72 + 9.52 −2.68 + 8.10 −3.08 + 7.83 −3.18 + 8.19 −3.63 + 8.21 −3.71
+ .47 23 54.~~09~~.06 + .32 53.97 + .14 54.05 + .16 54.01 − .03 54.34 + .03 54.18
− 1.72 +1.918 6 − 2.78 +0.958 − 3.08 +0.558 − 3.18 +0.458 − 3.63 +0.008 4 − 3.71 −0.072
− 3.12 + 7.16 + 5.16 + 4.81 + 4.63 + 4.53
23 57.20 23 46.83 23 48.94 23 49.13 23 49.82 23 49.66

56 3781 4009 3474 3739 3950 4066
23 54.08 +2 9.40 23 53.97 +2 10.59 23 54.10 +2 13.97 23 53.94 +2 15.07 23 54.35 +2 14.43 23 54.19 +2 13.92
57.718 +24 57.628 +26 57.738 +27 57.578 +27 57.988 +27 57.828 +28
−2490 −2910 −3030 −3070 −3200 −3220
109 58 24.71 58 24.18 58 21.11 58 24.46 58 24.63 58 25.18

s
+32.59 −23.37 +23.92 −29.38 +7.37 −29.17 +1.84 +25.31 −13.82 +3.09
25 25 25 25 25 25
−2.63 −2.78 −2.81 −2.83 −2.89 −2.90

3 47.5 3 22.3 3 48.5 3 25.0 3 36.4 3 22.3 3 57.7 3 36.9 3 41.0 3 23.8 3 50.3 3 26.7
47.0 23.4 43.5 19.1 37.8 24.5 0.9 41.1 48.9 30.5 55.3 31.9
94.5 45.7 92.0 44.1 74.2 46.8 118.6 78.0 ~~90.9~~ 89.9 54.3 105.6 58.6
3 28 47.25 28 3 22.85 28 3 46.00 28 3 22.05 28 3 37.10 28 3 23.40 28 3 59.30 28 3 39.00 28 3 ~~45.45~~ 28 3 27.15 28 3 52.80 28 3 29.30
44.95

1.51308 1.36866n 1.37876 1.46805n 0.86747 1.46494n 0.26482 1.40329 1.14051n 0.48996
1.14812n 1.00370n 1.01380n 1.10309n 0.50251n 1.09998 9.89986n 1.03833n 0.77585n 0.12500n
+14.27 +10.08 +10.32 +12.68 +3.18 +12.59 +0.79 −0.79 +10.92 +5.96 +1.33 −1.33
28 33.18 28 32.93 28 35.68 28 34.73 28 33.92 28 35.99 28 ~~58.51~~ 38.21 28 34.03 28 33.11 28 51.47 27.97

~~110°~~ ~~5′ 44.89″~~ ~~44.58~~ ~~5 47.33~~ ~~46.38~~ ~~5 45.67~~ ~~47.64~~ 8 10.16 54 10.14 ~~5 45.68~~ ~~44.76~~ 6 3.12 54 20.38
110° 54 15.97 15.42 54 12.67 13.62 54 14.43 12.36 54 14.32 15.24
15.20 13.14 13.39 14.78
+67 33 20 33 44
2.14135 2.14149

+1231 +2636 +964 +2757 +2002 +680
2.15366 2.15380 2.16771 2.16785 2.15099 2.15114 2.16892 2.16906 2.16137 2.16151 2.14815 2.14829
+142.45 +142.50 +147.13 +147.18 +141.58 +141.63 +147.55 +147.59 +145.00 +145.05 +140.65 +140.69
+ 01 + .01 + 06 + .06 05 + 05 − 06 + 06 + 05 + 05 − 01 + .01
+.19 +.03 +.09 +10 −.27 +10 + 1 −.30 +10 + 0 −.40 + 0 +11 −.36 +03 + 0 −.43
−.11 −.10 −.42 −.37 −.40 −.37 −.44 −.40 −.44 −.41 −.47 −.42
+2 22.54 +2 22.50 +2 26.87 +2 27.02 +2 21.24 +2 21.46 +2 [illegible] +2 27.25 +2 24.72 +2 24.72 +2 20.[illegible] +2 20.28
56 37.71 37.92 56 39.54 40.64 56 35.67 33.82 56 37.39 56 39.04 39.96 56 40.66
1 9.0 4.8 3.6 3.2 1.9 1.7
58 51.0 +2 13.3 13.2 13.1 51.2 +2 15.1 56.4 +2 18.4 56.8 2 19.4 58.1 2 19.1 58.3 2 21.0
+2 9.19 11.60 +10.46 13.01 +13.91 16.49 +15.01 17.61 +14.27 16.92 +13.68 16.34
+ 2.41 −5.06 24.41 + 2.55 −9.36 23.45 + 2.58 −10.66 21.86 + 2.60 −10.86 + 2.65 −12.16 23.96 + 2.66 −12.36
− 24.90 24.62 − 29.10 24.55 − 30.30 20.01 − 30.70 − 32.00 24.88 − 32.20
+1 46.70 + 43.91 + 46.19 + 46.91 24.30 + 44.92 + 44.14 24.80
58 24.52 24.00 20.93 24.42
58 44.36 43.84 40.77 44.14 44.26 44.64

1875 1874 1874.0 δ 1875.0 δ

m s " α α

Oct-27 23 59.40 0 49.7 .84 57.72 44.4 54.08 57.59

Nov 1 59.67 +27 48.1 - 1.6 .89 57.63 43.8 53.99 81

6 59.96 29 46.5 1.6 .90 57.74 40.8 54.10 64

11 60.27 .31 45.1 1.4 .90 57.58 44.1 53.94 66

16 60.60 .33 43.7 1.4 .92 57.99 44.3 54.35

21 60.94 .34 42.5 1.2 .92 57.83 44.6 54.19

26 61.30 .36 41.3 1.2 .94 57.63 42.2 53.99

.90 57.731 43.46 54.041 57.675

1875 (7) 53.952 33.91 .590 14.07

+.139 +.085

.84 57.59 43.5

.84 57.81 43.1

.85 57.64 43.5

.89 57.66 43.5

.86 57.675 43.40

1874 1875

-.05 -.21 -.08 -.28 -.28 -.28 -.23

Dec. 8 Nov 2 Nov 3 Nov 6 (4) Nov 11 Nov 20

-.055 -.250 -.287 -.310 -.215

23 23 36.7 22 59.0 25 25 17.4 24 24 18.7 24 24 29.3 Ch f 23 54.9 23 49.5

39.8 4.6 — 47.0 24.7 48.2 35.7 57.7

42.9 10.0 — 49.9 34.0 51.0 41.0 24 0.6

45.3 — 52.6 54.1 3.5

48.8 — 56.3 57.1 6.7

52.0 — 59.0 25 0.1 9.7

53.0 23 37.8 1.6 58.59 1.7 3.1 25 14.6 12.8 24 41.7

58.1 41.2 4.3 .28 5.4 6.2 15.8 46.6

1.3 45.3 7.3 .27 8.1 9.0 19.0 51.9

10.5 .46 11.3 12.2 180.7

37.99 291.3 241.0 120.0

60 24.0 240 60.7

43.99 23 4.53 25 17.40 53.13 24 25.80 1.0 24 35.33 23 49.50

23 48.878 23 41.43 24 58.400 24 59.033 25 0.111 25 14.60 24 67.44 24 46.73

48.919 58.441 59.074 0.152 67.85

23 58.045 23 59.6971 23 59.757 23 59.924 m 24 0.826

-9.0913 +9.05 +58.753 -59.33 +59.320 -59.87 +60.231 -1 -0.99 +5.962 -6.39

-9.22 +.14 +58.64 +.58 +59.21 +.77 +60.12 +.77 +5.83 +.63

+ 23

+ 9.02 -4.10 - 59.42 -2.12 - 59.84 -2.18 - 61.01 -2.35 - 6.44 -3.27

+ .15 23 54.01 + .69 57.80 + .79 57.79 + .85 57.~~48~~58 + .59 57.75

- 4.10 -0.462 - 2.12 - 2.18 - 2.35 .5 - 3.27

+ 5.07 - 60.85 - 61.26 - 62.51 - 9.12

23 48.92 24 58.44 24 59.07 25 0.15 24 6.78

56 39.16 15 21.78 22.06 23.68 15 27.00

23 53.99 +2 14.91 23 57.59 -16 14.58 23 57.81 -16 15.24 23 57.64 -16 15.34 23 57.66 -16 14.54

57.628 +2.8 +2.45 +2.45 +2.5 +2.8

-33.00 -26.30 -26.50 -27.50 -31.30

58 23.87 58 43.40 58 42.82 58 43.34 58 43.96

+.4435 + 7.45 -19.40 + 33.23 + 24.78 - 18.49 + 17.24 - 39.99

25 5 5 5 5 5

-2.92 -2.97 -2.98 -3.00 -3.12

3 53.9 3 35.3 4 48.6 4 38.2 4 59.7 4 47.4 4 54.9 4 37.9 4 51.6 4 40.7 4 48.8 4 22.5

55.2 36.4 59.1 47.0 11.4 57.6 6.3 48.7 7.9 55.1 58.1 33.0

109.1 71.7 107.7 85.2 131.1 105.0 121.2 86.6 119.5 95.8 106.9 55.5

3 28 54.55 3 28 35.85 9 53.85 9 42.60 10 5.55 9 52.50 10 0.60 9 43.30 9 59.75 9 47.90 9 53.45 9 27.75

1.64689 0.87216 1.28780n 1.52153 1.39410 1.16107n 1.23654 1.60195n

1.28193n 0.50720n 0.94702 1.18075n 1.05332n 0.82029 0.89576n 1.26117

-19.14 -3.21 +8.85 +8.85 -15.16 -11.31 +6.61 -7.86 +18.25

28 35.41 28 32.64 ~~10 2.70~~ 9 51.45 50.39 9 49.29 9 49.91 9 45.57 9 46.00

~~6 47.06~~ ~~44.29~~ ~~12 45.65~~ 12 56.90 ~~47 2.04~~ ~~47 0.94~~ ~~1.56~~ ~~46 57.24~~ ~~57.65~~

54 12.94 15.71 12 57.96 12 59.06 12 58.44 13 2.76 2.35

14.32 58.75 2.55

33 13 33 31 33 54 34 5 33 55 34 20

2.14132 2.14142 2.14156 2.14163 2.14156 2.14170

+1642 +1992 +1731 +2009 +1888

2.15774 2.15784 2.16148 2.16155 2.15887 2.15894 2.16165 2.16172 2.16044 2.16058

+143.82 +143.83 +145.04 +145.06 +144.17 +144.19 +145.10 +145.12 +144.69 +144.74

+ .04 + 04 + 04 + 04 + .04 + .04 + 04 + 04 + 04 + 04

+ .34 -.27 + 1 +.06 -.22 + 06 +.19 -.11 +.11 -.22 +.03 +.05 -.30 +.28

- .47 - 43 - .29 - .28 - .01 - .29 - .01 - .28 - .49 - .45

-.30 -.30

+2 23.71 +2 23.45 ~~+2 24.68~~ +2 24.88 +2 24.10 +2 24.95 +2 24.91 +2 24.29 +2 24.61

56 36.65 39.16 15 21.78 15 22.06 15 24.01 23.35 15 27.05 26.96

1 0.9 0 47.8 0 47.0 46.6 42.8

58 59.1 +2 27.1 59 1.22 59 1.24 13.4 1 14.2

1.99 -15 9.6 -15 9.7 20.3 -15 10.2 -16 9.8

+2 14.79 17.47 21.12 -16 14.69 11.96 - 15.25 12.51 - 15.48 12.72 43.79 - 15.72 12.25 43.50

+ 2.68 3.16 23.63 + 2.73 + 2.74 + 2.76 43.13 + 2.87 43.41

- 33.00 - 26.30 - 26.50 - 27.50 - 31.30

+1 44.97 58 22.37 -16 38.26 58 43.52 - 39.01 58 43.05 - 40.22 43.46 - 43.55 43.46

42.21

b³ Aquarii

h m sec
23 26 44

−21° 38′

ζ = +64° 01′
sin ζ = +.90

	1874	1875
α		26 44.05
δ		36 18.46
dα/dt		+3.146
dδ/dt		+19.85
l sin δ	9.56663n	
log δ	9.96828	9.96828
l C	.10134	12552
l C′	0.06962	0.09380

corr α =
corr δ =
tang δ = −.40
I = 2.22 s
K = −.017 s

1874		
.84	44.07	18.7
.89	44.03	18.1
.90	44.11	17.9
.90	43.98	17.3
.92	44.00	18.9
.92	44.06	20.5
.94	44.10	17.4
.90	44.050 (7)	18.40

1874

Nov. 4		Nov. 19		Nov. 24		Nov. 26		Dec. 2		Dec. 3	
−.143		−.115		−.052		−.058		+.012		−.013	
23 26 32.6	26 27.6	26 21.0	26 12.0	26 22.5	26 12.8	26 22.5	26 13.3	26 22.2	26 17.2	26 22.2	26 10.5
34.9	29.6	34.32 .30 23.2	14.0	24.8	14.8	24.8	15.3	24.4	20.0	24.4	13.0
37.1	31.8	.18 25.3	16.0	27.0	17.4	27.0	17.2	26.6	21.5	26.6	14.8
41.5		.44 30.0		31.4		31.7		31.1		31.1	
43.7		.42 32.2		33.6		33.7		33.3		33.3	
45.8		.40 34.4		35.8		36.0		35.6		35.6	
48.1	27 0.8	.38 36.6	27	38.0	26 54.3	38.1	27 0.5	37.7	27 4.6	37.8	26 53.9
50.3	3.0	.26 38.7		40.3	56.4	40.4	3.2	40.0	6.3	40.0	56.1
54.8	5.0	–		44.6	57.6	44.8	3.6	44.5	8.6	44.5	57.8
56.9		–		46.8		47.0		46.7		46.8	
59.3		–		49.0		49.2		48.8		48.9	
505.0	26 29.67		26 - 14.00	393.8	26 15.00	395.2	26 15.27	390.9	26 19.57	391.2	26 12.77
26 45.909	27 2.93	26 34.338		26 35.800	26 56.43	26 35.927	27 3.10	26 35.536	27 6.50	26 35.564	26 55.93
45.892		34.321		35.783		35.910		35.519		35.547	
− 1.84		+ 9.52		+ 8.11		+ 7.83		+ 8.19		+ 8.21	
+ 7		+ 5		+ 2		+ 2		− 0		+ 0	
− 3.17	−0.024	− 3.01	+0.136	− 2.95	+0.196	− 2.93	+0.216	− 2.86	+0.286	− 2.85	+0.296
− 4.97		+ 6.56		+ 6.18		+ 4.92		+ 5.33		+ 5.36	
26 45.89		26 34.32		26 35.78		26 35.91		26 35.52		26 35.55	
26 40.92		26 40.88		26 40.96		− 26 40.83		26 40.85		26 40.91	
44.066		44.026		44.106		43.976		43.996		44.056	

s +16.24	−17.02	+ 20.34		s + 20.80	− 20.63	+ 20.66	− 27.17	+ 15.97	− 30.96	+ 22.79	− 20.37
55		55		55		55		55		55	
− 2.63		− 2.78		− 2.81		− 2.83		− 2.89		− 2.90	
3 55.7	4 33.8	3 50.0	4 27.0	3 54.0	4 41.9	3 50.8	4 43.6	3 55.9	4 51.0	3 54.9	4 45.1
10.4	49.9	0.1	37.9	12.9	59.9	9.1	3.1	18.8	14.7	14.9	3.8
126.1	83.7	110.1	64.9	126.9	101.8	119.9	106.7	134.7	125.7	129.8	108.9
~~4~~ 59 3.05	~~4~~ 59 41.85	58 ~~3~~ 55.05	59 ~~4~~ 32.45	59 ~~4~~ 3.45	59 ~~4~~ 50.90	58 ~~3~~ 59.95	59 ~~4~~ 53.35	59 ~~4~~ 7.35	0 5 2.85	59 ~~4~~ 4.90	59 ~~4~~ 54.45
1.21059	1.23096n	1.30835		1.31806	1.31450n	1.31513	1.43409n	1.20330	1.49080n	1.35774	1.30899n
1.28021	1.30058n	1.37797		1.38768	1.38412n	1.38475	1.50371n	1.27292	1.56042n	1.42736	1.37861n
+19.06	−19.98	+23.88		+24.41	−24.22	+24.25	−31.89	+18.75	−36.34	+26.75	−23.91
59 22.11	59 21.87	59 18.93		59 27.86	59 26.68	59 24.20	59 21.16	59 26.10	59 26.51	59 31.65	59 30.54
−21° 36′ 33.76″ 33.64	33.52	36 30.58		36 39.51 38.92	38.33	36 35.85 34.48	33.11	36 37.75 37.95	36 38.16	36 43.30 42.94	42.19
+63 56 56	57 35										
2.06904	2.06926										
+1235		+2640		+969		+2763		+2005		+680	
2.08139	2.08161	2.09544	2.09566	2.07873	2.07895	2.09667	2.09689	2.08909	2.08931	2.07584	2.07606
−120.61	−120.68	−124.58	−124.64	−119.88	−119.94	−124.93	−125.00	−122.77	−122.83	−119.08	−119.14
− 1	− 1	− 4	− 4	− 3	− 3	− 3	− 3	− 2	− 2	− 1	− 1
+.04	−.08 +.05	+.07	−.36	+.08	−.42 +.08	+.08	−.38 +.14	+.05	−.43 +.18	+.09	−.46 +.07
−.12	−.14	−.43	−.49	−.44	−.55	−.44	−.54	−.49	−.60	−.49	−.59
−2 0.70	−2 0.78	−2 4.98	~~−2 5.17~~	−2 0.27	−2 0.44	−2 3.32	−2 5.43	−2 3.23	−2 3.27	−1 59.49	−1 59.67
−21 38 34.46	34.30	38 35.56		38 39.78	38.77	38 41.17	38.54	38 40.98	41.43	38 42.79	41.86
+ 2 9.19	7.82	+ 10.46	7.96	+ 13.91	11.38	+ 15.00	12.45	+ 14.27	11.67	+ 13.68	11.07
− 2.37	+ 7.91	− 2.50	+ 9.49	− 2.53	+ 9.98	− 2.55	+ 10.15	− 2.60	+ 10.64	− 2.61	+ 10.71
− 11.94		− 10.36		− 9.87		− 9.40		− 9.21		− 9.14	
+ 1 55.88	36 38.58	+ 57.60		~~+2~~ 1.51	38.27	+ 2.76	38.41	+ 2.46	38.52 ~~45.44~~	+ 1.93	40.86 ~~47.72~~
	38.42				37.26		35.78		38.95 ~~45.39~~		39.93 ~~45.77~~
	36 38.50		37.96		37.76		37.10		~~45.26~~		~~45.57~~
	36 18.65		18.11		17.91		17.25	38.73	23.81	40.38	24.94

1875

.84	44.10	19.6
.89	44.13	18.5
.90	44.09	19.2
.91	43.91	17.1
.89	44.0~~33~~ 58	18.60
	+ 2 (4)	− 1
	44.060 (4)	18.61

1874 Dec. 8		1875 Nov 3		Nov 11	Nov 22		Nov 24		Nov 29	
−.055		−.287		Chl	−.220		−.167		−.088	
23 26 21.3	26 8.7	27 33.9	27 24.0		26 40.1	26 38.4	26 39.8	26 40.4	26 38.3	26 32.1
23.6	11.0	36.3	26.3		42.4	39.8	42.0	42.5	40.4	34.7
25.8	13.0	38.6	28.0		44.6	41.4	44.3	44.8	42.7	37.2
30.1		42.9			49.1		48.7		47.1	
32.5		45.2			51.6		50.9		49.4	
34.8		47.4			53.4		53.0		51.5	
37.0	26 44.3	49.7	28 8.0		55.7	27 19.4	55.2	27 13.0	53.8	27 20.0
39.2	46.6	52.0	16.3		58.0	21.5	57.5	15.0	56.0	22.2
43.7	49.1	56.3	13.0		2.2	23.6	2.0	17.3	0.4	24.7
45.9		58.6			4.6		4.1		2.7	
48.0		0.7			6.8		6.2		5.0	
38.19 26	10.90	52.16	27 26.10		58.85	26 39.87	58.37	26 42.57	56.73	26 34.67
26 34.718 26	46.87	27 47.418	28 10.43		26 53.500	27 21.50	26 53.064	27 15.10	26 51.573	27 22.30
34.701		47.401			53.483		53.047		51.556	
+ 9.02		− 59.~~42~~ 87			− 6.10		− 5.41		− 4.42	
+ 2		+ 11			+ 9		+ 7		+ 3	
− 2.79 +0.356		− 3.54			− 3.34		− 3.32		− 3.26	
+ 6.25		− 63.30			− 9.35		− 8.96		− 7.65	
26 34.70		27 47.40			26 53.48		26 53.05		26 51.56	
26 40.95		26 44.10			26 44.13		26 44.09		26 43.91	
26 44.096									44.058	
40.904										

s											
+23.82	−11.95	+ 21.32	− 23.01			+ 13.63	− 28.00	+ 10.49	− 22.04	+ 16.90	− 30.73
55		40		40		40		40		40	
−2.92		−2.98				−3.12		−3.12		−3.13	
3 57.1	4 31.4	0 4.9	1 0.7	0 10.5	0 59.3	0 13.0	1 3.3	0 20.5	1 2.7	0 7.3	1 5.2
8.2	48.1	9.6	4.8	18.1	7.4	15.2	4.7	23.0	5.2	11.2	9.1
119.3	79.5	14.5	5.5	8.6	126.7	8.2	8.0	35	7.9	18.5	14.3
3 58 39.65	4 59 39.75	40 7.25	41 2.75	40 14.30	41 3.35	40 14.10	41 4.00	40 21.75	41 3.95	40 9.25	41 7.15
1.37694	1.07737n	1.32879	1.36192n			1.13450	1.44716n	1.02078	1.34321n	1.22789	1.48756n
1.44656	1.14699n	1.42259	1.45572n			1.22830	1.54096n	1.11458	1.43701n	1.32179	1.58136n
+27.96	−14.03	+26.46	−28.56			+16.92	−34.75	+13.02	−27.36	+ 20.98	− 38.14
59 27.61	59 25.72	40 33.71	40 34.19			40 31.02	40 29.25	40 34.77	40 36.49	40 30.25	40 29.01
36 39.26	37.37	17 45.36	45.84			17 42.67	40.90	17 46.42	48.14	17 41.88	17 40.66
38.32		45.60				41.78		47.28		41.27	
56 53	57 33	56 19	57 15							56 21	57 19
2.06904	2.06926	2.06885	2.06917							2.06885	2.06917
+1642		+1735				+3952	+3952	+1852		+3484	
2.08546	2.08568	2.08620	2.08652			2.10837	2.10869	2.08737	2.08769	2.10369	2.10401
−121.75	−121.81	−121.96	−122.05			−128.34	−128.44	−122.28	−122.38	−126.97	−127.06
− 2	− 2	− 3	− 3			− 4	− 4	− 2	− 2	− 5	− 5
+.10	−.46 +.02	+.08	+.05 +.10			+.03	+.03 +.15	+.02	−.05 +.09	+.05	+.02 +.17
−.48	−.56	−.01	−.06			−.02	−.10	−.06	−.16	−.03	−.16
−2 2.15	−2 2.37	−2 1.92	−2 2.04			−2 8.37	−2 8.43	−2 2.34	−2 2.47	−2 7.00	−2 7.10
38 41.41	39.74	19 47.28	47.88			19 51.04	49.33	19 48.76	50.61	19 48.88	19 47.76
+2 14.79	12.46	−16 15.25	17.93			−13.43	16.24	−14.73	17.54	−14.43	17.25
− 2.63	+11.07	− 2.68				−2.81		−2.81		−2.82	
−8.78		−14.11				−12.12		−11.95		−11.50	
+2 3.38	38.98	−16 32.04	19.32			−28.36	19.40	− 29.49	18.25	− 28.75	17.63
	36.36		19.92				17.69		20.10		16.51
	36 37.20		36 19.62				18.54		19.17		17.07
	17.35 ~~14.53~~										

15 Andromedae
h m sec
23 28 31
+39° 33'
ζ = +2° 50'
sin ζ = +.05

1874
α
δ
dα/dt
dδ/dt

1875—
28 30.81
32 49.60
+2.919
+19.82

l sin δ 9.80397
l cos δ 9.88709 | 9.88709
l C 10134 | .12552
l C' 9.98843 | 0.01261

corr α =
corr δ =
tang δ = +.83
I = 2.67 s
k = -.020 s

	1874	
.84	30.81	49.0
.89	30.88	48.6
.90	30.80	48.5
.90	30.78	49.5
.92	30.76	49.7
.92	30.87	48.4
.94	30.84	49.6
.90	30.820	49.04

(7)

1874

Nov. 4		Nov. 19		Nov. 24		Nov. 26		Dec. 2		Dec. 3	
-.173		-.175		-.052		-.058		+.012		-.013	
23 28 16.4	28 1.7	28 4.7	27 44.0	28 6.0	27 53.3	28 6.3	28 3.8	28 5.8	27 56.8	28 5.8	28 1.2
19.2	4.5	7.3	45.4	8.8	57.2	8.9	7.0	8.4	0.8	8.5	3.7
21.8	6.6	10.1	49.0	11.4	59.8	11.6	9.3	10.9	2.3	11.1	6.1
27.0		15.3		16.8		16.6		16.5		16.6	
29.7		18.2		19.4		19.6		19.1		19.3	
32.4		20.9		22.0		22.3		21.8		21.9	
35.2	29 2.3	23.5	28 50.3	24.8	28 44.1	25.1	28 51.3	24.4	28 41.9	24.5	28 48.1
37.8	5.0	26.4	54.0	27.5	46.5	27.9	54.1	27.2	43.0	27.1	51.5
43.2	7.9	31.8	56.8	32.7	49.5	33.0	57.3	32.4	44.1	32.6	54.0
45.8		34.4		35.4		35.6		35.1		35.1	
48.4		37.0		38.1		38.5		37.9		38.0	
356.9	28 4.27	229.6	27 46.13	242.9	27 57.43	245.4	28 6.70	239.5	27 59.97	240.5	28 3.67
28 32.445	29 5.07	28 20.873	28 53.70	28 22.082	28 46.70	28 22.309	28 54.23	28 21.773	28 43.00	28 21.864	28 51.20
32.425		20.853		22.062		22.289		21.753		21.844	
-1.86		+9.52		+8.10		+7.83		+8.19		+8.21	
-.14		-9		-4		-5		+1		-1	
-2.53 +0.389		-2.32 +0.599		-2.24 +0.679		-2.21 +0.709		-2.11 +0.809		-2.09 +0.829	
-4.53		+7.11		+5.82		+5.57		+6.09		+6.11	
28 32.42		28 20.85		28 22.06		28 22.29		28 21.75		28 21.84	
28 27.89		28 27.96		28 27.88		28 27.86		28 27.84		28 27.95	
28 30.809		30.879		30.799		30.779		30.759		30.869	

s +28.17	-32.63	+34.74	-32.83	+24.65	-24.62	+15.61	-31.92	+21.80	-21.23	+18.19	-29.34
50		50		50		50		50		50	
-2.63		-2.78		-2.81		-2.83		-2.89		-2.90	
1 26.8	2 25.6	1 22.8	2 27.2	1 32.0	2 20.7	1 40.4	2 26.9	1 31.7	2 13.5	1 37.0	2 23.1
35.0	34.1	27.9	30.5	42.5	30.6	51.7	38.1	46.4	28.8	49.8	35.9
61.8	59.7	50.7	57.7	74.5	51.3	92.1	65.0	78.1	42.3	86.8	59.0
51 30.90	52 29.85	51 25.35	52 28.85	51 37.25	52 25.65	51 46.05	52 32.50	51 39.05	52 21.15	51 43.40	52 29.50
1.44979	1.51362n	1.54083	1.51627n	1.39182	1.39129n	1.19340n	1.50406n	1.33846	1.32695n	1.25983	1.46746n
1.43822	1.50205n	1.52926	1.50470n	1.38025	1.37972n	1.18183n	1.49249n	1.32289	1.31538	1.24826	1.45589n
+27.43	-31.77	+33.83	-31.97	+24.00	-23.97	+15.20	-31.08	+21.03	-20.67	+17.71	-28.57
51 58.33	51 58.08	51 59.18	51 56.88	52 1.25	52 1.68	52 1.25	52 1.42	52 0.08	52 0.48	52 1.11	52 0.93
+39° 30' 50.02"	50.27	30 49.17	51.47	30 47.10	46.67	30 47.10	46.93	30 48.27	47.87	30 47.24	47.42
50.15		50.32		46.88		47.02		48.07		47.33	
+2 49 24	50 23										
0.45330	0.45580										
+1237		+2642		+971		+2765		+2007		+680	
0.46567	0.46817	0.47972	0.48222	0.46301	0.46551	0.48095	0.48345	0.47337	0.47587	0.46010	0.46260
-2.92	-2.94	-3.02	-3.04	-2.90	-2.92	-3.03	-3.04	-2.97	-2.99	-2.88	-2.90
-.21	-.30 -.28	-.32	-.51 -.28	-.16	-.38 -.16	-.07	-.40 -.27	-.13	-.36 -.12	-.09	-.41 -.23
-.04	-.07	-.15	-.27	-.18	-.26	-.20	-.27	-.19	-.28	-.20	-.30
-3.17	-3.29	-3.49	-3.59	-3.24	-3.34	-3.30	-3.58	-3.29	-3.39	-3.17	-3.43
+39 30 46.85	46.98	45.68	47.88	30 43.86	43.33	30 43.80	43.35	30 44.98	44.48	30 44.07	43.99
+2 9.19	9.06	+10.46	10.32	+13.91	13.77	+15.01	14.87	+14.27	14.13	+13.68	13.54
-.13	-6.94	-.14	-8.51	-.14	-8.83	-.14	-8.93	-.14	-9.13	-.14	-9.14
-26.76		-28.33		-28.65		-28.75		-28.95		-28.96	
+1 42.30	32 29.15	+41.99	27.67	+45.12	28.98	+46.12	29.92	+45.18	30.16	+44.58	28.65
	29.28		29.87		28.45		29.47		29.66		28.57
	32 29.21		28.77		28.71		29.69		29.91		28.61
	32 49.03		48.59		48.53		4951 ~~4961~~		49.43		48.93

1875
˘ δ
.84 30.79 51.3
.89 30.86 49.7
.89 30.86 52.4
.91 30.81 52.1

.88 30.830 51.38
(4) + 4
51.42

1874 1875

Dec. 8 Nov 3 Nov 11 Nov 20 Nov 22 Nov 29

-.055 -.287 -.215 -.220 -.088

23 28 5.0 27 53.2 29 17.7 29 13.4 Ch.f. 28 23.9 28 10.1 28 23.7 28 21.5 28 21.8 28 22.1
7.5 58.0 20.3 15.0 26.7 13.3 26.3 24.1 24.5 23.8
10.3 0.8 23.1 16.4 29.6 15.8 28.8 25.8 27.1 26.3
15.4 28.5 34.7 34.2 32.3
18.3 31.0 37.4 36.9 35.0
21.0 33.7 40.0 39.9 37.8
23.6 28 42.0 36.4 30 1.5 42.8 28 54.1 42.4 28 54.8 40.4 28 56.3
26.5 45.3 39.0 4.0 45.4 57.6 45.2 57.5 43.1 59.8
31.7 47.7 44.4 6.1 50.7 59.9 50.5 59.4 48.5 2.0
34.3 47.1 53.5 53.2 51.1
37.1 49.9 56.2 55.7 53.8

23.07 27 58.00 37.11 29 14.93 44.09 28 13.07 43.68 28 23.80 41.54 28 24.07
28 20.973 28 45.00 29 33.736 30 3.87 28 40.082 28 57.40 28 39.709 28 57.23 28 37.764 28 59.37
20.953 33.716 40.062 39.689 37.744

+ 9.02 - 59.42 87 - 6.44 - 6.10 - 4.42
- 4 - 24 - .18 - .18 - 7
- 2.01 +0.909 - 2.82 - 2.58 - 2.55 - 2.44
+ 6.98 7 - 62.93 - 9.20 - 8.83 - 6.93
28 20.95 29 33.72 28 40.06 28 39.69 28 37.74

28 27.98 2 28 30.79 28 30.86 28 30.86 28 30.81
28 30.839
27.901 ~~30 44.17~~ ~~48 35.28~~ ~~35.42~~ 30.830

s
+22.97 - 24.03 + 18.81 - 30.13 + 27.01 - 17.32 + 15.91 - 17.52 + 13.69 - 21.61
50 30 30 30 30 30

-2.92 -2.98 -3.12 -3.12 -3.13
1 34.3 2 19.2 2 47.9 3 37.0 2 37.1 3 15.2 2 38.8 3 24.0 2 50.0 3 24.8 2 49.8 3 27.2
43.2 28.7 53.3 44.1 47.9 25.9 45.3 30.0 52.9 28.8 55.2 32.3
77.5 47.9 101.2 81.1 85.0 41.1 84.1 54.0 29 13.6 105.0 59.5
51 38.75 52 23.95 32 50.60 33 40.55 32 42.50 33 20.55 32 42.05 33 27.00 32 51.45 33 26.80 32 52.50 33 29.75

1.36116 1.38075n 1.27439 1.47900n 1.43152 1.23855n 1.20167 1.24353n 1.13640 1.33465n
1.34959 1.36918n 1.28780 1.49161n 1.44413 1.25116n 1.21428 1.25614n 1.14901 1.34726n
+ 22.37 - 23.40 + 19.37 - 31.02 + 27.80 - 17.83 + 16.38 - 18.03 + 14.09 - 22.25
53 1.12 52 0.55 33 9.97 33 9.53 33 9.85 33 9.17 33 7.83 33 8.77 33 6.59 33 7.50

30 47.23 47.80 49 38.38 38.82 49 38.50 39.18 49 40.52 39.58 49 41.76 40.85
47.52 38.60 38.84 40.05 41.31
49 32 50 17 49 3 49 52 49 4 49 42
0.45350 0.45560 0.45250 0.45450 0.45250 0.45400
+1642 +1738 +1907 +3954 +3490
0.46992 0.47202 0.46988 0.47188 0.47157 0.47357 0.49204 0.49404 0.48740 0.48890
-2.95 -2.96 -2.95 -2.96 -2.96 -2.98 -3.10 -3.12 -3.07 -3.08

-.14 -38 -.15 -.10 -36 -.24 -.20 -44 -.08 -.07 -39 -.08 -.05 -58 -.13
-.19 -.29 -.17 -.22 -.27 -.34 -.29 -.34 -.44 -.53
-3.28 -3.40 -3.22 -3.42 -3.43 -3.40 -3.46 -3.54 -3.56 -3.74
30 43.95 44.40 48 35.16 35.40 49 35.07 35.78 49 37.06 36.04 49 38.20 37.11
+2 14.79 14.64 -16 15.25 15.40 - 15.12 15.28 - 13.43 13.59 - 14.43 14.59
- .15 - 9.18 - .15 - .16 - .16 - .16
-29.00 -28.63 -30.44 -30.54 -30.93
+1 45.64 29.59 - 16 44.03 51.13 - 45.72 49.35 - 44.16 52.40 45.52 52.68
30.04 51.37 50.06 51.88 51.59

32
~~31~~ 51.25
32 29.82 49.70 52.28 52.13
32 49.64

52

λ Andromdae

		1874	1874						1874			
h m sec 23 31 27	α 24.190	Oct. 27	31m 26.85s		46′ 57.0″		.84	27.05	51.0	corr α =
+45° 47′	δ +46′ 31.18″	Nov. 1	26.79	−.06	54.9	+.9	.85	26.86	57.1	corr δ =
	dα/dt +2.916	6	26.72	.07	58.7	.8	.86	27.03	52.1	
	dδ/dt +19.444	11	26.64	.08	59.4	.7	.90	26.95	50.7	tang δ = +1.03 1.43
		16	26.56	.08	60.0	.6	.90	27.00	50.7	
ζ = −3° 24′	l sin δ 9.85534	21	26.47	.09	60.5	.5	.92	27.00	51.9	I = 2.95s
ζ sin ζ = −.06		26	26.38	.09	60.9	.4	.98	27.04	50.8	
	l cos δ 9.84347	Dec. 1	26.29	.09	61.2	.3	.94	27.03	51.3	K = −.022s
	l C .10134	6	26.19	.10	61.3	.1				
	l C′ 9.94481						.90	26.995	51.20	
								(8)		

1874

Nov. 4	Nov. 7	Nov. 10	Nov. 24	Nov. 26	Dec. 2
−.16	−.18 −.10	−.20	−.04	−.06	+.02
−.173	−.265 −.271	−.150	−.052	−.058	+.012
23 31 11.0 30 58.0 14.0 0.9 17.0 3.2 22.8 25.6 28.7 31.7 31 49.0 34.7 52.2 40.6 53.0 43.6 46.6	31 7.7 30 46.0 10.7 48.3 13.6 52.3 18.6 22.5 25.4 28.5 31 42.6 31.4 45.3 37.4 48.2 40.3 43.2	31 4.3 31 15.3 7.2 18.6 10.1 21.4 – – – – 32 11.2 14.5 33.7 16.7 36.7 39.8	31 0.6 30 43.4 3.5 46.0 6.4 49.0 12.3 15.2 18.2 21.3 31 27.1 24.3 29.6 29.6 32.2 33.0 36.0	31 0.4 30 50.6 3.5 53.4 6.7 53.9 12.4 15.7 18.7 21.6 31 37.7 24.5 41.0 30.4 43.5 33.3 36.5	31 0.2 30 37.6 3.0 39.7 6.2 3.4 12.0 15.0 18.0 21.0 31 56.3 24.0 59.4 30.0 1.6 32.7 35.6
316.3 31 0.70 31 28.755 31 52.07 287.33 31 26.75 +1.98 −1.85 −.16 − 1.86 − .18 −2.56 − 2.56 +0.356 24.16 (39m) − 4.60 31 28.73	280.3 30 48.87 31 25.483 31 45.37 254.60 31 26.70 −1.24 +1.33 −.19 + 1.78 −.14 − .28 −2.57 − 2.51 +0.406 23.95 1.60 52 31 25.46	131.8 31 18.43 31 21.966 32 14.13 219.44 31 26.665 −4.721 +4.84 −.21 + 4.48 − .15 −2.46 2.46 +0.456 24.06 + 2.17 31 21.94	200.4 30 46.13 31 18.218 31 29.63 181.96 31 26.481 − 8.221 +8.09 −.04 + 8.10 − 5 −2.22 − 2.22 +0.696 24.03 + 5.83 31 18.20	203.7 30 53.30 31 18.518 31 40.73 184.96 31 26.38 − 7.88 +7.89 −.06 + 7.83 − 6 −2.19 − 2.19 +0.726 24.14 + 5.58 31 18.50	197.7 31 0.23 31 17.973 31 59.10 179.51 31 26.276 − 8.321 +8.21 +.02 + 8.19 + 1 −2.07 − 2.07 +0.846 24.11 + 6.13 31 17.95
31 24.13 44 49.51 31 27.046 + 2 9.40 +.1 − 27.30 +45 46 31.71	31 23.85 (54) 49.13 26.856 +2 10.22 +.1 − 27.70 46 31.75	31 24.17 50.02 27.626 +2 18.30 +.1 − 28.10 46 32.32	31 24.03 46.77 26.946 + 2 13.97 +.2 − 29.60 46 31.34	31 24.08 45.78 26.996 +2 15.07 +.2 − 29.70 46 31.35	31 24.08 46.00 26.996 +2 14.43 + .2 − 30.00 46 32.63
s +28.05 −23.32 35 −263	+36.61 −19.89 (8) 35 −265	+3.24 −5.216 35 −270	+32.09 −11.41 35 −281	+25.22 −22.21 35 −283	+17.74 −41.13 35 −289
2 34.8 3 18.6 42.0 24.5 76.8 43.1 2 37 38.40 3 38 21.55	2 25.8 3 15.4 35.1 24.1 60.9 39.5 2 37 30.45 38 3 19.75	2 53.2 3 41.4 4.1 52.6 117.3 94.0 37 2 58.65 38 3 47.00	2 33.0 3 10.4 40.3 18.3 73.3 28.7 37 2 36.65 38 3 14.35	2 38.9 3 19.2 49.8 29.7 88.7 48.9 37 2 44.35 38 3 24.45	2 42.3 3 33.5 54.6 43.9 96.9 77.4 37 2 48.45 38 3 38.70
1.44793 1.36773n 1.39274 1.31257n +24.70 − 20.54 38 3.10 38 1.01	1.56360 1.29863n 1.50841 1.24344n +32.24 −17.52 38 2.69 38 2.23	0.51055 1.71734n 0.45536 1.66215n +2.85 −45.94 38 1.50 38 1.06	1.50687 1.05729n 1.45148 1.00210n +28.26 −10.00 38 4.91 38 4.30	1.40175 1.34656n 1.34656 1.29136n +22.21 −19.56 38 6.56 38 4.89	1.24895 1.61416n 1.19376 1.55897n +15.62 −36.22 38 4.07 38 2.48
+45° 44 45.25 47.34 46.29 −3 24 29 23 46 0.53520n 0.53380n +12.42 0.54762 0.53622 +3.53 +3.44	44 45.66 46.12 45.89 +17.07 0.55227 0.55087 +3.57 +3.55	44 46.85 47.29 47.07 +10.9 0.53629 0.53489 +2.44 +3.43	44 43.44 44.05 43.74 +9.76 0.54496 0.54356 +3.51 +2.50	44 41.79 43.46 42.62 +27.71 0.56291 0.56151 +3.65 +3.64	44 44.28 45.87 45.07 +20.10 0.55530 0.55390 +3.59 +3.58
−.31 −.26 −.14 −.08 −.10 +3.24 +3.20 44 48.49 50.54 46 58.5 +2 10.0 8.0 +2 9.0 +2 9.19 9.353054 + .16 −7.863259 27.30 +1 42.05 46 31.56 45 57.00	−.36 −.32 −.11 −.07 −.10 +3.14 +3.34 48.80 49.46 58.9 10.1 9.4 9.4 +10.10 10.263136 + .16 −8.263202 − 27.70 + 42.56 31.69 57.13	−.1 −.48 −.75 −.09 −.11 +3.34 +2.57 57.19 49.86 59.3 9.1 9.4 6.3 +10.55 10.713280 + .16 −8.663241 − 28.10 + 42.61 32.63 52.07	−.28 −.47 −.03 −.29 −.35 +2.94 +3.02 46.38 47.17 60.8 14.4 13.6 14.0 +13.91 14.083086 + .17 −10.163165 − 29.60 + 44.98 31.25 50.69	−.17 −.48 −.13 −.30 −.37 +3.18 +3.44 44.97 46.60 60.9 15.9 14.3 15.1 +15.01 15.183045 + .17 −10.263208 − 29.70 + 45.48 31.26 50.70	−.09 −.66 −.46 −.34 −.43 +3.16 +2.69 47.44 48.56 61.2 13.8 12.6 13.2 +14.27 14.443188 + .17 −10.563300 − 30.80 + 44.44 32.44 51.88

1874phae.proj.1479

1875
s
α 27.106
δ +16' 50.62
dα/dt +2.916
dδ/dt +19.444

log cos δ' 9.84347
log C 12552
log C' 9.96899

1875							1875	
		m s			"		ν	δ
Oct.	27	31 30.02		46'	78.4		.84	27.02	57.6
Nov.	1	29.96	-.06		79.3	+.9	.88	27.00	51.8
	6	29.89	.07		80.2	.9	.89	27.20	52.2
	11	29.82	.07		80.9	.7	.90	27.03	51.1
	16	29.74	.08		81.5	.6	.91	27.11	50.9
	21	29.66	.08		82.0	.5			
	26	29.57	.09		82.4	.4	.88	27.072	51.52
Dec.	1	29.47	.10		82.7	.3			
	6	29.37	.10		82.9	.2			

(5)

1874 1875 + + +

+.00 Dec. 3 −.05 Dec. 8 −.28 Nov 3 −.28 Nov 11 Ch f. −.11 Nov 17 −.27 Nov 22

−.013 −.055 −.287 −.118 −.220

23 31 04.3 30 41.6 30 59.4 30 49.0 32 12.2 32 2.9 32 17.8 32 3.5 31 18.4 31 5.5 31
3.3 44.4 2.4 52.0 15.3 5.7 20.7 5.8 21.3 7.6
6.3 47.1 5.3 55.0 18.3 8.5 23.7 8.6 24.2 10.1
12.0 11.2 24.2 29.4 29.8
15.0 14.1 27.1 32.4 33.0
18.0 17.1 30.1 35.4 36.2
21.0 31 24.8 20.1 31 40.5 32.8 32 54.0 38.4 32 51.3 39.1
23.9 27.0 23.0 43.4 35.9 56.5 41.5 54.3 42.1
29.7 29.3 29.0 46.4 41.8 59.6 47.3 56.7 47.8
32.7 32.0 44.8 50.3 51.0
35.7 34.9 47.8 53.3 54.0

1980 2485 3303 3902 3969
60

30 44.37 188 5 30 52.00 32 5.70 32 5.97 31 7.73
31 18.000 31 27.03 31 17.136 31 43.43 32 30.027 32 56.70 32 35.473 32 54.10 31 36.082 31
17978 +823 17114 +9.05 30005 −59.87 35451 −1m −5.68 36860 −6.04
31 26.25 :00 31 26.15 −.05 31 29.93 −.29 31 29.72 −.11 31 29.64 −.28 31
−8.27 −9.04 +60.07 +65.73 +6.42

−206 −1.96 −2.82 −2.61 −2.53
+ 8.21 31 24.15 + 9.02 24.15 − 59.84 27.02 − 65.72 27.05 − 6.10 27.21 −
− 1 − 6 − 29 − .12 − .23 −
− 2.06 +0.856 − 1.96 +0.956 − 2.82 − 2.61 − 2.53 −
+ 6.14 + 7.00 − 62.98 − 68.45 − 8.86 −
31 17.98 44 4755 31 17.11 44 4697 32 30.00 3 3581 32 35.45 3667 31 36.06 3691 31
+2 1392 +2 1491 −16 1524 −16 1405 −16 1327
31 24.12 +:2 31 24.11 +2 31 27.02 +:1 31 27.00 +:1 31 27.20 +:1 31
31 27.036 −3000 27.026 −3010 −2910 −3100 −3150
46 3167 46 3198 46 5157 46 5172 46 5224

s
+33.63 − 9.03 +25.14 − 26.29 + 24.33 − 26.67 + 29.50 − 18.63 + 28.35 2835 , +
35' 35 15 15 15 15 15
−2.90 −2.92 −2.98 −3.11 −3.12
2 29.1 3 6.9 2 39.0 3 23.7 3 48.8 4 36.3 3 47.7 4 26.0 3 45.0 4 29.5 3 45.9 3
38.9 16.9 46.4 30.5 57.1 44.9 57.8 36.7 50.3 33.8 50.5
68.0 23.8 85.4 54.2 105.9 81.2 105.5 62.7 95.3 63.3 96.4
37 34.00 38 11.90 37 42.70 38 27.10 18 52.95 19 40.60 18 52.75 19 31.35 18 47.65 19 31.65 18 48.20 19

1.52674 0.95569n 1.46037 1.41979n 1.38614 1.42602n 1.46982 1.27021n 1.45255 1.11
1.47155 0.90080n 1.34578 1.36460n 1.35513 1.39501n 1.43881 1.23920n 1.42154 1.08
+29.62 −7.95 +22.14 −23.15 +22.65 −24.84 +27.47 −17.34 +26.40 +
38 3.62 38 3.90 38 4.84 38 3.95 19 15.60 19 15.76 19 15.12 19 14.31 19 14.60 19

44 44.73 44.45 44 43.51 44.40 3 32.75 32.59 3 33.23 34.04 3 33.75 3
44.59 43.95 32.67 33.63
24 24 23 40 24 55 24 7 25 0 24 16
0.53580n 0.53360n 0.53610n 0.53440n
+680 +1642 +1744 +2442 +3960
0.54260 0.54060 0.55142 0.55002 0.55354 0.55184 0.56052 0.55882 0.57570 0.5
+3.48 +3.47 +3.56 +3.55 +3.58 +3.56 +3.63 +3.62 +3.76

−.31 −.51 − 3 −.17 −.54 −.18 −.16 −.43 −.19 −.24 −.58 −.10 −.22 −.60
−.31 −.38 −.32 −.41 −.23 −.28 −.38 −.45 −.38
+2.86 +3.06 +3.07 +2.96 +3.19 +3.09 +3.01 +3.07 +3.16
44 47.59 47.51 46.58 47.36 3 35.94 35.68 36.24 37.11 36.91
61.2 61.3 46 19.7 21.6 22.1
+2 13.6 13.7 14.4 13.9 −16 16.2 16.0 14.6 15.5 14.8
+2 13.6 14.3 −16 16.1 15.0 14.8
+2 13.68 13.85 31.44 +14.79 14.96 31.44 −16 15.25 15.07 51.77 − 14.02 12.83 51.41 − 13.43 13.24
+ .17 −10.56 31.36 + .17 −10.66 32.22 + .18 51.51 + .19 52.28 + .19
− 30.00 − 30.10 − 29.10 − 31.00 − 31.50
+1 43.85 46 31.40 + 44.86 31.83 −16 44.17 46 51.64 − 44.83 51.84 − 44.74 52.17
46 50.84 57.27

1874.0 α	δ	1875.0 α	δ
24.13		27.02	
~~23.85~~94		.00	
24.11		.20	
24.03		.03	
24.08		.11	
24.08			
24.12			
24.11 75			
24.064		27.072	
.190	31.18	.106	50.62
− ~~.126~~		−.034	
− .115			

−.17 X Nov 24 −.164

31 19.6 31 19.8
20.6 22.6
23.7 25.0
29.5
32.5
35.4
38.4 32 6.8
41.4 9.4
47.3 12.1
50.2
53.1

38.97

X −.09 Nov 29 −.088

31 16.3 31 3.8
19.1 5.7
22.5 8.6
28.0
31.1
34.0
37.0 31 55.0
40.0 57.3
45.9 0.8
48.8
51.8

37.45

31 22.47
31 35.427 32 9.43
35.405 −5.72
31 29.680 −.18
+5.7980
−2.49
− 5.71 31 27.01
− .17
− 2.49
− 8.37
31 35.40 37.38
−16 14.58
31 27.03 +.1
−31.70
46 51.20

31 6.03
31 34.045 31 57.70
34.023 −4.89
31 29.51 −.09
+4.51
−2.40
− 4.42 27.14
− .09
− 2.40
− 6.91
31 34.02 37.11
−16 14.22
31 27.11 +.1
−32.00
46 50.99

+ 12.96 −34.00 + 28.01 − 23.66
15 15
−3.17 −3.13

3 39.5 4 41.8 3 44.9 4 31.8
4.8 47.9 51.7 40.1
12.43 9.7 9.66 7.19
19 2.15 19 44.85 18 48.30 19 35.95

1.11261 1.53148n 1.44731 1.37401n
1.08160 1.50047n 1.41630 1.34300n
+ 12.07 − 31.66 +26.08 − 22.03
19 14.22 19 13.19 19 14.38 19 13.92

3 34.13 35.16 3 33.97 34.43
34.64 34.20
25 0 24 12
0.53630n 0.53460n
+18.52 +35.04
0.55462 0.55292 0.57134 0.56964
+3.59 +3.57 +3.73 +3.71

−0.5 −.84 −.32 −.21 −.81 −.15
−.60 −.71 −.57 −.69
+2.94 +2.54 +2.95 +2.84
37.07 37.70 36.92 37.30
22.3 22.6
14.8 15.4 14.3 14.7
15.1 14.5
− 14.73 14.54 50.83 − 14.43 14.24 50.68
+ .19 51.46 + .19 51.06
− 31.70 − 32.00
− 46.24 51.14 − 46.24 50.87

56 1874 1874 1875

ι Piscium α 28.204 Oct. 27 33 31.11 56 55.7 Oct. 27 33 34.51 56 77.2
h m dec δ +56 36.24 Nov. 1 31.07 −.04 55.7 −.0 Nov. 1 34.48 −.03 77.2 −.0
23 33 31 dα/dt +3.085 6 31.03 .04 55.6 .1 6 34.49 .04 77.1 .1
dδ/dt +19.472 11 30.99 .04 55.6 .1 11 34.40 .04 77.0 .1
+4 57 16 30.95 .04 55.3 .2 16 34.36 .04 76.9 .1
+37 26 1875 21 30.91 .04 55.1 .2 21 34.32 .04 76.7 .2
l sin δ 8.93594 26 30.86 .05 54.9 .2 26 34.27 .05 76.5 .2
α 31.290 Dec. 1 30.81 .05 54.7 .2 Dec. 1 34.23 .04 76.3 .2
l cos δ 9.99838 δ +56 55.71 6 30.76 .05 54.4 .3 6 34.18 .05 76.0 .3
l c 10134 dα/dt +3.085 1874 1875
l c' 0.09972 dδ/dt +19.472 .84 31.35 55.8 .84 31.34 57.8 corr α =
.85 31.32 56.7 .86 31.27 57.0 corr δ =
l c" 0.12390 sin z = +.61 .94 31.31 57.8 .88 31.27 57.8 log δ = +.09 1.00
1874 1874 1875 I = 20.7
−.16 −.18 −.10 .88 31.327 −.05 56.77 −.28 .86 31.293 57.53 −.11 K = −.016
Nov. 4 Nov. 7 Dec. 8 (3) Nov 3 −.28 Nov 11 (3) Nov 17
−.173 ~~.265~~ −.271 −.055 −.287 −.245 −.128

23 33 20.6 33 16.2 33 17.4 33 5.0 33 9.3 32 59.3 34 — 34 26.5 34 24.8 34 20.3 34 27.7 34 16.3
22.7 18.3 19.5 7.2 2m .65 11.3 1.6 — 28.8 26.7 22.0 29.7 18.0
24.7 20.0 21.6 9.0 .68 13.4 3.6 — 30.8 28.8 23.8 31.8 19.7
28.8 25.6 .84 17.7 30.4 32.9 35.9
30.9 27.7 .77 19.7 32.4 35.0 37.9
33.0 29.8 .80 21.8 34.4 37.1 40.1
35.1 33 53.0 31.9 33 47.2 .83 23.9 36.4 39.2 42.1
37.1 55.1 34.0 49.4 .76 25.9 38.5 41.3 44.2
41.2 56.9 38.1 57.1 — — 45.3 48.3
43.3 40.1 — — 47.5 50.4
45.4 42.3 — — 49.7 52.7

36.28 33 18.17 32.80 33 7.07 33 1.50 17.21 34 28.70 40.83 34 22.03 44.08 34 18.00
33 32.982 33 55.00 33 29.818 33 49.23 33 21.756 34 34.420 34 37.118 34 40.073
32.966 29.802 21.740 34.404 37.102 40.057
33 31.054 33 31.02 33 30.74 33 34.46 33 34.40 33 34.35
+1.923 −1.85 −1.22 +1.33 −9.00 +9.05 +59.94 −59.88 +62.70 −1 −2.65 +65.71 −1 −5.68
−.01 27 −.02 −.00 −.03 −.03 −.01
− 1.86 + 1.44 −.10 + 9.02 − 59.87 − 62.70 − 65.72
− 1 −2.84 − 2 −2.82 − 0 −2.54 − 2 −3.17 − 2 −3.11 − 1 −3.06
− 2.84 +0.245 28.27 − 2.82 +0.265 28.19 − 2.54 +0.545 28.25 − 3.16 31.32 − 3.11 31.31 − 3.06 31.31
− 4.71 − 1.657 + 6.48 − 63.06 − 65.83 − 68.79
33 32.97 33 29.80 33 21.74 34 34.40 34 37.10 34 40.06

33 28.26 54 48.11 33 28.14 48.17 33 28.22 54 43.15 33 31.34 13 36.37 33 31.27 34.38 33 31.27 34.88
31.345 +2 9.40 31.313 +2 10.22 31.305 +2 14.91 −16 15.24 −16 14.11 −16 14.05
−1.7 −1.7 −2.0 −1.7 −1.8 −1.8
−19.40 −19.40 −18.00 −21.50 −21.30 −21.20
+4 56 36.41 56 37.29 56 38.06 56 57.93 56 57.17 56 57.83

s
+14.81 −22.02 +22.75 −19.41 + 20.26 + 5.72 + 15.09 + 22.00
25 25 25 5 5 5
−2.63 −2.65 −2.68 −2.98 −3.03 −3.11
1 50.5 2 36.2 1 38.9 2 32.0 1 47.6 3 16.0 3 3.9 2 56.6
2.4 48.4 52.3 45.5 59.9 20.7 12.9 58.1
11.29 8.46 9.12 7.75 10.75 3.67 16.8 14.7
26 56.45 27 42.30 26 45.60 27 38.75 26 53.75 8 18.35 8 8.40 7 57.35

1.17056 1.34282 1.35698 1.28803 1.30664 0.75740 1.17869 1.34242
1.27028 1.44254 1.45670 1.38775 1.40636 0.88130 1.30259 1.46632
+ 18.63 −27.70 +28.62 −24.42 +25.49 +7.61 + 20.07 +29.26
27 15.08 27 14.60 27 14.22 27 14.33 27 19.24 8 25.96 8 28.47 8 26.61
+4
55 33.27 33.75 55 34.13 34.02 55 29.11 14 22.39 14 19.88 14 21.74
+37 33.51 34.07
24 49 25 35 24 39 25 32 24 46 24 30 24 20 24 9
1.64360 1.64390 1.64360 1.64390 1.64360 1.64360 1.64350 1.64350
+1245 +1712 +1642 +1747 +1258 +2445
1.65605 1.65635 1.66072 1.66102 1.66002 1.66107 1.65608 1.66795
−45.30 − 45.33 − 45.79 − 45.82 − 45.71 − 45.82 −45.30 −46.55

−.01 −.08 −.02 −.03 −.09 −.02 −.02 −.25 − 0 −.20 −.01 −.20 −.02 −.31
−.06 −.08 −.06 −.08 −.23 −.20 −.19 −.29
−45.37 −45.43 −45.88 −45.92 −45.96 −46.02 −45.50 −46.86
54 47.90 48.32 48.25 48.10 43.15 13 36.37 34.38 34.88
56 55.6 55.6 54.2 57 17.2 17.0 16.9
+2 4.7 7.3 7.4 7.5 11.1 −16 19.2 17.4 18.0
+2 4.5 7.4 11.1 −16 19.2 17.4 18.0
+2 9.19 56 36.09 +10.10 37.34 + ~~11.08~~ 14.79 −16 15.25 17.06 − 14.22 16.06 − 14.02 15.91
− 1.60 7.59 36.51 − 1.61 8.49 37.19 − 1.63 13.16 38.31 − 1.81 − 1.84 − 1.89
− 19.40 +.07 − 19.40 +.07 − 18.00 +1.47 − 21.50 − 21.30 − 21.20
+1 48.19 56 36.30 + 49.09 37.26 + 51.45 ~~34.60~~ −16 38.56 56 57.81 − 37.36 57.02 − 37.11 57.77
56 55.77 56.73 + 55.16 51.18 ~~57.07~~

57

1874 1874 1874

γ Cephei   α 11.462   Nov. 6 34 14.18   55 73.8   corr α = +.113   .84 14.02 8.8
h m sec   δ +55 44.46   11 13.85 −.30   75.1 +1.3   corr δ = ——   .84 13.98 5.1
23 34 14   dα/dt +2.403   16 13.50 .35   76.2 1.1   .85 13.98 5.7
dδ/dt +20.070   21 13.13 .37   77.2 1.0   tang δ = + 4.30 4.42   .90 13.96 5.4
+76° 56′   26 12.73 .40   78.1 .9   .90 13.97 4.7
γ = − 34° 33′   Dec. 1 12.32 .41   78.8 .7   I = 9.49   .92 13.92 5.3
γ sin γ = −.57   l sin δ 9.98861   6 11.90 .42   79.4 .6   11   .92 14.01 5.1
l cos δ 9.35427   K = −.069   .94 13.99 4.9
l C .10184
l C′ 9.45561   .89 13.979 (8) 5.63

1874

Nov. 2 −.19 −.08   Nov. 4 −.16   Nov. 7 −.18 −.10   Nov. 24 −.04   Nov. 26 −.06   Dec. 2 +.02
−.345   −.173   ~~−.265~~ −.291   47.0 −.052   −.058   +.012
35 2.8   34 50.2   34 42.3   33 51.3   32 40.6   33 47.2   32 48.8   33 43.9   33 9.2
57.1   56.3   53.0   57.5   0.2   50.2   17.1
57.1   0.7   59.1   53.5   4.7   53.1   23.6
5.0   0.8   59.8
9.7   5.4   4.2
14.0   9.6   8.6
35 30.7   35 21.4   18.8   33 49.1   15.0   34 25.1   13.4   33 57.7
41.9   31.5   23.7   1.1   19.1   17.6   1.5
34 56.6 20.16   34 53.6 17.16   49.0   34 50.6 15.16   41.7   10.2   23.7   22.2   7.4
5.7 .15   2.6 .05   59.8 .25
~~15.3~~ ~~.54~~   11.7 .04   9.8 .14

2265   2278   2770
180   180   240
35 2.80   34 50.20   34 50.17   46 5 32   50.90   478 32   57.90   37 0 33   17.30
34 20.317 55   34 17.083 35   40.53   34 15.183 35   31.53   34 5.167 34   0.13   34 5.311 34   25.10   34 4.111 34   0.20
20.248 08 −3.99   17.014 −1.85   15.114 +1.33   5.098 +8.09   5.242 +7.89   4.042 +8.21
34 14.481 −.82   34 14.55 29 −.69   34 14.12 0 −.77   34 12.94 87 −.17   34 12.75 1 −.26   34 12.26 2 +.09
+5.78 84 −.35   +2.68 72   +1.01 +01 −.44   −7.81 77   −4.54 47   −8.22 18
+5.73 −2.95   +2.61 −2.83   +0.90 10 −2.64   −7.88 −1.41   −7.58 −1.25   −8.29 −0.76
34 ~~12.10~~ 11.97   11.64   11.59   11.61   11.62   11.58
− 4.03 11.97   − 1.86   + 1.47   + 8.10   + 7.83   + 8.19
− 1.48   − .74   − 1.16   − .23   − .25   + 5
− 2.95 −0.547   − 2.83 −0.427   − 2.64 −0.237   − 1.41 +0.993   − 1.25 +1.153   − 0.76 +1.643
− 8.46 54 6.34   − 5.43 310   − 2.6453 363   + 6.46 307   + 6.33 159   + 7.38 383
34 20.75 68 +2 942   34 17.01 +2 940   34 14.11 +2 1022   34 5.10 +2 1397   34 5.24 +2 1507   34 4.04 +2 1443
+1.5   +1.5   +1.6   +1.7   +1.7   +1.7
34 11.49 62 55 −2830   34 11.58 5 −2880   34 11.49 58 5 −2960   34 11.56 55 −3330   34 11.57 5 −3360   34 11.52 55 −3450
14.023 76 ~~50~~ 4896   13.983 58 45.23   13.983 58 45.85   13.963 58 45.44   13.973 58 44.76   13.923 58 45.46
5   5   5   5   5   5

s
− 42.64   − 33.12   − 33.45   − 35.99   − 77.35   + 74.27   + 5.04   + 67.41   − 19.79   + 46.81   + 3.91
25 23   25   25   25   25   25
− 2.61   − 2.63   − 2.65   − 2.81   − 2.83   − 2.89
4 38.2   4 35.1   4 47.8   4 32.4   4 45.4   4 3.4   4 21.7   4 7.1   4 30.3   4 8.1   4 19.8
41.4   35.2   50.0   38.1   50.2   7.1   26.3   12.9   35.4   16.1   28.5
79.6   70.3   97.8   70.5   95.6   10.5   48.0   ~~17.0~~ 20.0   65.7   24.2   48.3
29 39.80   29 35.15   29 48.90   29 35.25   29 47.80   29 5.25   29 24.00   29 ~~9.50~~ 10.00   29 32.85   29 12.10   29 24.15

1.62 ~~818~~ 982 n   1.52009 n   1.92143 n   1.55618 n   1.88846 n   1.87081   0.70243   1.82872   1.29646 n   1.67034   0.59218
1.08 ~~379~~ 543 n   0.97570 n   1.37704 n   1.01179 n   1.34407 n   1.32642   0.15804   1.28433   0.75206 n   1.12595   0.04779
− 12.19   − 9.46   − 23.83   − 10.27   − ~~17.54~~   + 21.20   + 1.44   + 19.25   − 5.65   + 13.36   + 1.12
29 27.63   29 25.69   29 25.07   29 24.98   29 ~~30.26~~ 25.72   29 26.45   29 25.44   29 29.25   29 27.20   29 25.46   29 25.27
53 20.72   53 22.66   23.28   53 23.37   +7.0 22.63   53 21.90   22.91   53 19.10   21.15   53 22.89   23.08
22.97   23.00   22.40   20.12   22.98
−34 32 32 32 18
1.59790 n 1.59780 n
+1908   +1246   +1713   +981   +2777   +2013
1.66258   1.61036   1.61026   1.61503   1.61493   1.60771   1.60761   1.62567   1.62557   1.61803   1.61793
+45.98   +40.77   +40.76   +41.21   +41.20   +41.47   +41.46   +42.24   +42.22   +41.50   +41.49

−.22 −.36   −.14 −.63   −.84   −.16 −.57   −.71   −.65 −.79   −.1   −.54 −.76   −.4   −.26 −.64   0
−.14   −.14   −.14   −.14   −.14   −.45   −.48   −.46   −.49   −.50   −.53
+ ~~46.34~~ 45.62   +40.49   +39.78   +40.91   +40.35   +40.37   +40.97   +41.24   +41.69   +40.74   +40.96
54 6.34   3.15   3.06   4.28   2.98   2.27   3.88   0.34   2.84   3.63   4.04
56 12.8   13.3   14.1   17.8   18.1   19.0
+2 6.5   10.2   10.2   9.8   11.1   15.5   13.9   17.8   15.3   15.4   15.0
+2 6.5   10.2   10.5   14.7   16.5   15.2
+2 9.20 10.68   +9.19 10.68 45.03   +10.10 11.61 46.29   +13.91 15.51 44.48   +15.01 16.62 43.36   +14.27 15.91 45.84
+ 1.48 −8.23   +1.49 −8.73 44.94   + 1.51 −9.53 44.99   + 1.60 −13.23 46.09   + 1.61 −13.53 45.86   + 1.64 −14.43 45.15
− 28.30   − 28.80   − 29.60   − 33.30   − 33.60   − 34.50
+1 42.38 55 48.72   + 41.88 44.98   + 42.01 45.64   + 42.21 45.28   + 43.02 44.61   + 41.41 45.25
56 8.79   5.15 ~~7.05~~   5.71   5.35   4.68   5.32

1875
s
α 13.866
δ +56' 4.53
dα/dt +2.404
dδ/dt +20.070

l sin δ
l cos δ 9.35427
l E 12553
l E' 9.47979

1875

	m	s							
Nov 6	34	16.65		55	95.9		34	13.99	5.6
11		16.32	-.33		97.2	+1.3	.86	14.04	5.4
16		15.97	.35		98.3	1.1	.88	13.88	3.7
21		15.60	.37		99.3	1.0	.90	14.08	4.7
26		15.21	.39		100.2	.9	.91	14.14	3.3
							.88	14.026	4.64

(5)

+.00 | 1874 -.05 | 1875 -.28 + | -.28 + | -.11 + | -.17 +
Dec. 3 | Dec. 8 | Nov 3 | Nov 11 | Nov 17 | Nov 24
-.013 | -.055 | -.287 | -.275 | -.118 | -.164

2.23 33 45.9 32 50.1 | 33 44.8 33 42.4 | 34 35 6.4 | 35 35 4.6 | 35 - 35 9.4 | 34 33 4.5
50.4 0.1 | 49.1 | 59.5 14.0 | 2.1 | 3.2 15.6 | 3.9 12.2
54.9 6.4 | 54.0 | 35 4.6 23.8 | 6.5 | 8.2 23.3 | 8.3 19.2
59.4 | 58.5 | 9.4 | 11.4 | 13.1 | 12.8
4.4 | 3.1 | 13.4 | 15.8 | 17.6 | 17.8
8.9 | 7.9 | 18.3 | 20.3 | 22.4 | 22.4
13.4 33 41.3 | 12.4 34 42.5 | 22.4 35 49.9 | 25.0 35 57.8 | 26.9 35 51.0 | 26.5 34 23.0
17.9 48.3 | 17.0 51.2 | 27.1 58.3 | 29.3 8.0 | 31.5 0.3 | 31.1 32.8
22.6 57.0 | 21.4 1.1 | 31.9 5.9 | 34.3 16.7 | 36.1 9.4 | 35.6
36.5 | 39.1 | 40.9 | 40.3
2778 | 2682 | 2231 | 1838 | 1997 | 1985
240 | 240 | 60
37832 5887 | 282 33 42.40 | 1631 35 14.73 | 35 4.60 | 35 1610 | 33 11.97
34 4.200 33 48.87 | 34 3.133 34 51.60 | 35 18.122 35 58.03 | 35 20.422 36 7.50 | 35 22.189 36 0.57 0.213 | 34 22.056 34 27.90
4.131 | 3.064 | 18.053 | 20.353 | 22.120 | 21.987
34 12.173 | 34 11.781 | 34 16.873 | 34 16.340 m | 34 15.9488 | 34 15.395
-8.040 +8.23 | -8.685 +9.05 | +61.1822 -59.88 | +64.0x5 -1 -2.65 | +66.2x4 -1 -5.68 | +6.684 -5.72
-8.11 +.00 | -8.76 -.22 | +61.11 -1.20 | +63.94 -1.20 | +66.13 -.47 | +6.53 -.73
+ 8.21 -.067 | + 9.02 -.025 | - 59.84 -2.96 | - 62.70 -2.43 | - 65.72 -2.01 | - 5.91 -1.48
- 6 34 11.69 | - 24 11.64 | - 1.23 ~~11.01~~ 14.01 | - 1.18 14.07 | - .51 13.96 | - .72 14.06
- 0.66 +1.733 | - 0.25 +2.153 | - 2.96 4. | - 2.43 | - 2.01 | - 1.48
+ 7.48 | + 8.53 | - 64.06 | - 66.31 | - 68.24 | - 7.91
34 4.13 | 34 3.06 | 35 18.05 | 35 20.35 | 35 22.12 | 34 21.99
54 430 | 54 348 | 12 4977 | 5067 | 5008 | 5310
34 11.61 +2 1392 | 34 11.59 +2 1491 | 34 13.99 -16 1524 | 34 14.04 -16 1411 | 34 13.88 -16 1405 | 34 14.08 -16 1458
14.013 +18 | 13.993 +18 | +1.5 | +1.7 | +1.6 | +1.7
55 -3460 | 55 -3510 | -3060 | -3280 | -3410 | -3540
~~55~~ 45.42 | ~~56~~ 45.09 | 56 5.43 | 56 5.46 | 56 3.53 | 56 4.82
5 | 5

s
+65.33 +15.33 | +20.73 -48.47 | +3.39 -39.91 | +15.82 -47.08 | +6.09 -38.04 | +7.09 -5.84
25 | 25 | 10 | 10 | 10 | 10
-2.90 | -2.92 | -2.98 | -3.03 | -3.11 | -3.12
4 1.0 4 16.1 | 4 17.9 4 37.2 | 0 34.9 0 47.9 | 0 27.5 0 47.4 | 0 35.0 0 49.1 | 0 11.9 0 36.0
7.9 23.0 | 21.9 40.1 | 42.9 55.1 | 39.0 58.1 | 40.9 54.4 | 16.5 41.8
8.9 39.1 | 39.8 77.3 | 77.8 103.0 | 66.5 105.5 | 75.9 103.5 | 8.4 77.8
4 29 4.45 29 19.55 | 29 19.90 29 38.65 | 10 38.90 10 51.50 | 10 33.25 10 52.75 | 10 37.95 10 51.75 | 10 14.20 10 38.90
1.81571 1.18554 | 1.31660 1.68547n | 0.53020 1.60108n | 1.19921 1.67284n | 0.78462 1.58024n | 1.84566 0.76641n
1.27072 0.64115 | 0.77221 1.14108n | 0.00999 1.08087n | 0.67900 1.15263n | 0.26441 1.06003n | 1.32545 0.24620n
+18.65 +4.36 | +5.92 -13.84 | +1.02 -12.05 | +4.78 -14.21 | +1.84 -11.49 | +21.16 -1.76
29 23.10 29 23.93 | 29 25.82 29 24.81 | 10 37.92 10 39.45 | 10 38.03 10 38.54 | 10 39.79 10 42.26 | 10 35.36 10 37.14
53 25.25 24.42 | 53 22.53 23.54 | 12 8.43 8.90 | 12 10.32 9.81 | 12 8.56 8.09 | 12 12.99 11.21
24.83 | 23.03 | 8.66 | 10.06 | 8.32 | 12.10
32 47 | 32 28 | 33 9 | 32 57
1.59790n | 1.59780n | 1.59810n | 1.59800n
+680 | +1642 | +1748 | +1259 | +2446 | +1852
1.60470 1.60460 | 1.61432 1.61422 | 1.61558 1.61548 | 1.61069 1.61059 | 1.62256 1.62246 | 1.61662 1.61652
+40.24 +40.24 | +41.15 +41.14 | +41.26 +41.25 | +40.80 +40.79 | +41.93 +41.92 | +41.37 +41.35
-.51 -.77 -.03 | -.05 -.70 -.28 | -0 -.14 -.20 | -.03 -.19 -.26 | -1 -.16 -.17 | -.58 -.35 -1
-.49 -.52 | -.52 -.55 | -.04 -.05 | -.04 -.05 | -.06 -.09 | -.03 -.09
+39.24 +39.69 | +40.58 +40.31 | +41.22 +41.00 | +40.73 +40.48 | +41.86 +41.66 | +40.76 +41.25
54 4.49 4.1 | 3.1 3.85 | 12 49.65 49.90 | 51.05 50.29 | 50.42 49.75 | 53.75 52.46
19.1 | 19.6 | 56 35.1 | 3.73 | 3.86 | 39.9
+2 14.6 15.0 | 16.8 15.8 | -16 14.5 14.8 | 13.4 13.0 | 11.8 11.1 | 13.8 12.6
+2 14.8 | 16.1 | -16 14.7 | 13.4 | 11.4 | 13.2
+2 13.68 15.33 45.22 | + 14.79 16.45 44.46 | -16 15.25 12.56 5.49 | - 14.22 12.50 5.75 | - 14.02 12.25 4.07 | - 14.73 12.96 5.39
+ 1.65 14.53 44.84 | + 1.66 7.50 34.5 20 | + 1.69 5.74 | + 1.72 4.94 | + 1.77 3.40 | + 1.77 4.10
- 34.60 | - 35.10 | - 30.60 | - 32.80 | - 34.10 | - 35.40
+1 40.73 55 45.03 | + 41.35 44.83 | -16 44.16 56 5.62 | - 45.30 5.37 | - 48.35 3.73 | - 44.36 4.74
56 5.10 | 4.90

1874.0 α	δ	1875.0 α	δ
11.79		13.99	
.58		14.04	
.49		13.88	
.56		14.08	
.57		14.14	
.42			
.61			
.59			
11.576		14.026	
.462	44.46	13.866	4.53
+.114		+.160	

+
-.69
Nov 29
-.088
34 32 49.2
22.2 57.0
6.1 4.3
11.0
15.6
20.3
24.7 33 48.0
28.8 55.0
33.6 3.2
38.4
180.7

32 56.83
34 20.078 33 55.40
20.069
34 ~~15.00~~ 14.95
+5.076 -4.39
+4.95 -.39

- 4.42 -1.07
- .38 34 14.16
- 1.07
- 5.87
34 20.61

52.11
34 14.14 -16 14.22
+1.8
- 36.20
56 34.9

+83.25 + 24.68
10
- 3.13
0 9.6 0 28.5
16.8 34.8
26.4 63.3
10 ~~13.35~~ 10 31.65
13.20

1.92038 1.39235
1.40017 0.87214
+25.73 +7.45
10 38.35 10 39.10

12 10.02 9.25
9.63
32 35 33 16
1.59820n 1.59810n
+35.13
1.63333 1.63323
+42.99 +42.98

- ~~.85~~ .51 -.07
- .03 -.07
+42.11 +42.84
52.13 52.09
40.7
11.4 11.4
11.4
-16 14.43 12.65 3.28
+ 1.98 3.24
- 36.20
- 48.85 3.26

1874		1875	
' Aquarii	α	37 43.03	cons.
h m sec 23 37 43	δ	58 13.82	cons δ =
° ' −18 58	dt/dt	+3.118	
	dδ/dt	+ 19.95	tang δ = −.34
° ' +61 21			s I = 2.18
j sin z = +.88	l sin δ 9.51191n		s K = −.016
	l cos δ 9.97576	9.97576	
	l C .10134	.12552	
	l C' 0.07710	0.10128	

1874

Nov. 2		Nov. 7		Nov. 24		Nov. 26		Dec. 2		Dec. 3	
−.345		~~−.25~~ −.271		−.052		−.058		+.012		−.013	
23 37 34.2	37 22.8	37 28.7 41.78	37 21.0	37 21.7	37 10.1	37 22.0	37 12.0	37 21.6	37 10.0	37 21.5	37 6.1
36.3	25.2	30.9 .80	22.8	23.9	12.2	24.0	14.5	23.7	11.6	23.8	8.1
38.5	26.8	33.2 .92	25.0	26.0	14.4	26.0	17.4	25.8	14.6	26.0	10.5
42.8		37.4 .96		30.4		30.6		30.2		30.3	
45.0		39.5 .68		32.6		32.8		32.4		32.5	
47.1		41.7 .70		34.8		34.9		34.7		34.7	
49.4	38 9.0	44.0 .82		36.9	37 49.2	37.0	38 9.8	36.9	37 58.5	36.8	37 53.5
51.6	12.0	46.2 .84		39.0	51.3	39.2	11.5	39.0	0.2	39.0	55.1
53.9	13.7	—		43.4	53.3	43.6	13.3	43.3	1.9	43.3	57.3
58.1		—		45.7		45.9		45.6		45.5	
0.3		—		47.9		48.0		47.7		47.7	
4592				3823		3840		3809		3811	
60											
519 2	37 24.93		37 22.93		37 12.23		37 14.63		37 12.07		37 8.23
37 47.200	38 11.57	37 41.789		37 34.755	37 51.27	37 34.909	38 11.53	37 34.627	38 0.20	37 34.645	37 55.30
47.184		41.773		34.739		34.833		34.611		34.629	
− 4.02		+ 1.14 27		+ 8.09		+ 7.83		+ 8.19		+ 8.21	
± .12		+ 9		+ 2		+ 2		− 0		+ 0	
− 3.17 −0.052		− 3.13 −0.012		− 2.96 +0.158		− 2.94 +0.178		− 2.87 +0.248		− 2.86 +0.258	
− 7.07		− 1.87 77		+ 5.15		+ 4.91		+ 5.32		+ 5.35	
37 47.18		37 41.77		37 34.74		37 34.89		37 34.61		37 34.63	
37 40.11		37 ~~39.90~~ 40.00		37 39.89		37 39.80		37 39.93		37 39.98	
43.228		43.118		43.008		42.918		43.048		43.098	

s 20 ' +22.27	−24.37	20 +18.86		20 +22.52	−16.52	20 +20.28	−36.62	20 +22.56	−25.57	20 +[illegible]41	−20.66
−.261		−.265		−.281		−.283		−.289		−.290	
0 50.2	1 44.6	0 57.0	1 46.1	0 59.0	1 45.4	0 56.9	2 4.2	0 55.0	1 51.9	0 55.9	1 52.5
6.8	1.1	15.1	4.9	17.0	2.9	15.9	24.9	19.0	16.1	17.7	12.8
117.0	105.7	132.1	111.0	136.0	108.3	132.8	29.1	134.0	128.0	133.6	125.3
20 58.50	21 52.85	21 6.05	21 55.50	21 8.00	21 54.15	21 6.40	22 14.55	21 7.00	22 4.00	21 6.80	22 2.65
1.34772	1.38686n	1.27554		1.35257	1.21801n	1.30707	1.56372n	1.35334	1.40773n	1.42177	1.31513n
1.42482	1.46396n	1.35264		1.42967	1.29511n	1.38417	1.64082n	1.43044	1.48483n	1.49887	1.39223n
+ 26.60	− 29.10	+ 22.52		+ 26.89	− 19.73	+ 24.22	− 43.74	+ 26.94	− 30.54	+ 31.54	− 24.68
21 25.10	21 23.75	21 28.57		21 34.89	21 34.42	21 30.62	21 30.81	21 33.94	21 33.46	21 38.34	21 37.97
−18° 58 36.75	35.40	58 40.22		58 46.54	46.07	58 42.27	42.46	58 45.59	45.11	58 49.99	49.62
36.07				46.30		42.36		45.35		49.80	
+61 18 51	19 46										
2.02054	2.02080										
+1904		+1721		+987		+2784		+2017		+680	
2.03958	2.03984	2.03775	2.03801	2.03041	2.03067	2.04838	2.04864	2.04071	2.04097	2.02734	2.02760
−109.54	−109.60	−109.08	~~−109.15~~	−107.25	−107.32	−111.78	−111.85	−109.83	−109.89	−106.50	−106.56
− 1	− 1	0	0	− 2	− 2	− 3	− 3	− 1	− 1	0	0
+08 +.04	+09	+05 +.02		+08 −.10	+04	+06 −.03	+23	+08 −.10	+10	+11 −.10	+06
−03	−06	−03	−.06	−12	−21	−12	−24	−13	−25	−13	−24
−1 49.50	−1 49.58	−1 49.06	~~+1 49.21~~	−1 47.31	−1 47.51	−1 51.87	−1 51.89	−1 49.89	−1 50.05	−1 46.52	−1 46.74
−19 0 26.25	24.98	0 29.28		0 33.85	33.58	0 34.14	34.35	0 35.48	35.16	0 36.51	36.36
+ 2 9.20	6.91	+ 10.10	7.77	+ 13.91	11.44	+ 15.01	12.57	+ 14.27	11.73	+ 12.68	11.13
− 2.29	+ 6.35	− 2.33	+ 6.89	− 2.47	+ 8.62	− 2.49	+ 8.80	− 2.54	+ 9.31	− 2.55	+ 9.39
−13.60		−13.06		−11.33		−11.15		−10.64		−10.56	
+1 53.31	58 32.94	+ 54.71		+2 0.11	33.74	+ 1.37	32.77	+ 1.08	34.40	+ 0.57	35.94
	31.67				33.47		32.98		34.08		35.79
	58 32.30		34.57		33.60		32.87		34.24		35.86
	58 12.35		14.62		13.65 ~~13.55~~		12.92		14.29		15.91

1874			1875		
84	4323	12.4	.84	43.05	11.9
.85	4312	14.6	.86	4301	14.7
.90	4301	13.7	.88	4298	14.9
.90	4292	12.9	.90	4320	13.9
.92	4305	14.3	.91	4286	11.8
.92	4310	15.9			
.94	4309	11.9	.88	43020	13.44
				− 1 (5)	
				43019	
.90	43.074	13.67			
	(7)				

1874 1875

Dec. 8 Nov 3 Nov 11 Nov 17 Nov 24 Nov 29

−.055 −.287 −.275 −.118 −.164 −.088

37 20.7 37 9.6 38 33.2 38 26.0 38 36.0 38 24.4 38 39.0 38 33.8 37 38.8 37 32.4 37 37.5 38 9.1
22.9 12.5 35.5 28.2 38.2 26.3 41.2 35.4 41.0 33.8 39.7 11.2
25.0 14.5 37.7 30.0 40.3 28.8 43.4 37.7 43.3 36.1 41.8 12.8
29.4 42.0 44.8 47.7 47.7 46.2
31.5 44.2 46.9 49.8 49.8 48.5
33.7 46.3 49.2 52.0 52.0 50.6
35.9 38 2.0 48.6 39 4.3 51.2 39 5.9 54.3 39 5.6 54.2 38 4.4 52.7 38 25.2
38.0 3.9 50.8 6.0 53.5 8.7 56.4 7.5 56.3 6.5 54.7 27.7
42.5 5.6 55.1 7.7 57.7 10.9 0.8 9.7 0.7 8.7 59.2 29.9
44.7 57.2 0.0 3.0 3.0 1.4
46.9 59.4 2.1 5.1 5.0 3.6

3712 5100 4199 3927 3918 4359
126 180 180 120
37 12.20 38 28.07 5399 38 26.50 5727 38 35.63 5718 37 34.10 5559 38 11.03
37 33.745 38 3.83 38 46364 39 6.00 38 49.082 39 8.50 38 52064 39 7.60 37 51.982 38 6.53 37 50.536 38 27.60
33.729 46.348 49.066 52.048 51.966 50.520

+ 9.02 − 59.87 − 62.70 − 65.72 − 5.71 − 4.42
+ 2 + .10 + 9 + 4 + 6 + 3
− 2.80 +0.318 − ~~3.39~~ 3.53 − ~~3.33~~ 3.45 − ~~3.29~~ 3.39 − ~~3.23~~ 3.12 − ~~3.18~~ 3.27
+ 6.24 − 63.30 − 66.06 − 69.07 − 8.77 − 7.66
37 33.73 38 46.35 38 49.07 38 52.05 37 51.97 37 50.52

37 39.97 43.088 37 43.05 37 43.01 37 42.98 37 43.20 37 42.86
39.940 43.02 11

s
20 ; + 21.54 30.09 0 + 18.29 − 19.64 0 + 22.58 − 19.42 0 + 16.43 − 15.54 0 + 17.88 − 14.55 0 − 20.49 − 37.06
−29.2 −29.8 −30.3 −31.1 −31.2 −31.3
0 58.1 2 0.5 2 12.1 2 59.8 2 11.5 3 4.0 2 19.3 3 0.6 2 18.1 2 59.7 3 2.6 3 22.5
16.1 18.7 16.5 2.9 18.6 11.5 21.7 0.8 19.8 0.1 1.9 22.4
13.42 19.2 28.6 18.27 10.1 15.5 41.0 14 17.9 11.98 4.5 7
21 7.10 22 9.60 2 ~~12.87~~ 3 1.35 2 15.05 3 7.75 2 20.50 3 0.70 2 18.95 2 59.90 3 2.25 3 22.35
14.30 (2)

1.33325 1.47824n 1.26221 1.29314 n1.35372 1.28825n 1.21564 1.19145n 1.25237 1.16286n 1.31154n 1.56891n
1.41030 1.55334n 1.36349 1.39442 n1.45500 1.38953n 1.31692 1.29273n 1.35360 1.26414n 1.41282n 1.67019n
+ 25.73 − 35.92 + 22.09 − 24.80 + 28.51 − 24.52 + 20.74 − 19.62 + 22.58 − 18.37 − 25.87 − 46.79
21 32.83 21 33.68 2 37.39 2 37.55 2 43.56 ~~3~~ 2 43.23 2 41.24 2 41.08 2 41.53 2 41.53 2 36.38 2 35.56

58 44.48 45.33 39 49.04 49.20 39 55.21 54.88 39 52.89 52.73 39 53.18 53.18 39 48.03 47.21
44.90 49.12 55.04 52.81 53.18 47.62
19 0 20 3 18 26 19 13 18 14 19 34
2.02057 2.02086 2.02039 2.02063 2.02033 2.02074
+1642 +1754 +1263 +2454 +1852 +3527
2.03699 2.03728 2.03793 2.03817 2.03307 2.03326 2.04493 2.04517 2.03891 2.03915 2.05560 2.05601
−108.89 −108.96 −109.13 −109.19 −107.90 −107.96 − 110.90 −110.96 −109.87 −109.43 −113.66 −113.77
− 1 − 1 − 2 − 2 − 1 − 1 − 3 − 3 − 1 − 1 − 4 − 14
+.07 −.08 +.15 +.05 −.10 +.06 +.08 −.09 +.06 +.04 −.22 +.04 +.05 −.35 +.03 +.06 −.26 +.23
−.13 −.26 −.13 −.18 −.13 −.19 −.23 −.30 −.34 −.45 −.30 −.51
−1 48.96 −1 49.08 −1 49.23 −1 49.33 −1 47.96 −1 48.10 −1 51.12 −1 51.25 −1 49.67 −1 49.86 −1 53.94 −1 54.09
0 33.44 34.41 41 38.27 38.53 41 43.17 42.98 41 44.01 42.98 41 42.85 43.04 41 41.97 41.30
+2 14.79 12.23 −16 15.25 17.87 −14.22 16.88 − 14.02 16.75 − 14.73 17.47 − 14.43 17.18
− 2.56 + 9.79 − 2.62 − 2.66 − 2.73 − 2.74 − 2.75
−10.16 −19.89 15.60 −19.33 14.75 −18.90 14.13 −18.39 13.45 −18.07 13.00
+ 2.07 31.37 −16 33.97 11.74 − 31.63 14.80 − 30.88 14.89 − 30.92 13.77 − 30.18 12.15
32.34 12.00 14.61 14.86 13.96 11.48

31.85 58 11.81 14.70 14.88 13.55 11.82
11.90

ψ Andromedae

h m sec
23 39 50

+45° 44′

γ = − 3° 21′
γ sin z = −.06

	1874	1875
α		39 50.64
δ		43 33.95
dα/dt		+2.951
dδ/dt		+19.95
l sin δ	9.85497	
l cos δ	9.84385	9.84385
l C	.10134	,12552
l C′	9.94519	9.96937

corr α =
corr δ =
tang δ = +1.03
I = 2.94 s
K = −.022 s

1874		
84	50.51	34.8
.85	50.65	34.3
.90	50.60	35.3
.90	50.47	34.1
.92	50.70	34.7
.92	50.72	33.9
.94	50.79	34.1
.87	50.634	34.46

(7)

1874

	Nov. 2		Nov. 7		Nov. 24		Nov. 26		Dec. 2		Dec. 3	
	−.345		~~−.345~~ −.271		−.052		−.058		+.012		−.013	
23	39 37.0	39 25.4	39 31.6	39 19.6	39 24.1	39 6.0	39 24.3	39 17.5	39 24.0	39 9.0	39 23.9	39 9.0
	39.8	28.1	34.5	22.0	27.1	9.6	27.1	20.0	26.9	10.6	27.0	12.0
	42.7	30.6	37.4	24.1	30.1	12.0	30.2	21.8	29.9	13.1	29.9	14.6
	48.7		43.4		36.0		36.1		35.8		35.8	
	51.6		46.4		39.0		39.1		38.7		38.8	
	54.6		49.5		42.0		42.0		41.7		41.9	
	57.6	40 17.9	52.2	40 8.1	44.8	39 52.0	44.9	40 16.1	44.7	39 57.4	44.8	39 43.6
	0.5	20.0	55.2	10.4	47.9	54.8	48.1	19.9	47.6	1.5	47.6	46.0
	6.3	22.8	1.0	13.3	53.8	57.1	54.0	23.0	53.6	3.8	53.5	48.1
	9.3		4.1		56.8		56.9		56.5		56.4	
	12.4		7.0		59.7		59.8		59.5		59.4	
	3605		3623		4613		4625		4589		4590	
	240		180									
	6005	39 28.03	5423	39 21.90		39 9.20		39 19.77		39 10.90		39 11.87
	39 54.591	40 20.23	39 49.300	40 10.60	39 41.936	39 54.63	39 42.045	40 19.67	39 41.718	39 0.67	39 41.727	39 45.90
	54.569		49.278		41.914		42.023		41.696		41.705	
	− 4.02		+ 1.77		+ 8.09		+ 7.82		+ 8.19		+ 8.21	
	− .35		− .28		− 5		− 6		+ 1		− 1	
	− 2.64 +0.311		− 2.57 +0.381		− 2.30 +0.651		− 2.26 +0.691		− 2.15 +0.801		− 2.13 +0.821	
	− 7.01		− 1.68		+ 5.74		+ 5.50		+ 6.05		+ 6.07	
	39 54.57		39 49.28		39 41.91		39 42.02		39 41.70		39 41.70	
	39 47.56		39 47.68		39 47.65		39 47.52		39 47.75		39 47.77	
	50.511		50.651		50.601		50.471		50.701		50.721	

	40′ +26.56 s	−25.64	40 +27.40	−21.30	40 +32.74	−12.69	40 +22.27	−37.63	40 +30.82	−18.95	40 +29.86	−4.17
	−261		−265		−281		−283		−289		−290	
	0 31.8	1 37.9	0 50.9	1 32.1	0 47.7	1 28.0	0 57.5	1 50.9	0 48.1	1 31.2	0 49.0	1 18.4
	58.7	45.4	0.3	43.7	55.5	35.9	7.8	0.0	59.1	43.0	0.3	29.8
	110.5	83.3	111.2	75.8	103.2	63.9	125.3	110.9	107.2	74.2	109.3	48.2
	40′ 0 55.25″	41 + 41.65	40 0 55.60	41 + 37.90	40 0 ~~46.0~~ 51.60	41 + 31.95	41 + 26.5	41 + 53.45	40 0 53.60	41 + 37.10	40 0 54.65	41 + 24.10
	1.42423	1.40892 n	1.43775	1.32838 n	1.51508	1.10346 n	1.34772	1.57553 n	1.48883	1.27761 n	1.47509	0.62014 n
	1.36942	1.35411 n	1.38294	1.27357 n	1.46027	1.04865 n	1.39291	1.52072 n	1.43401	1.22380 n	1.42028	0.56533 n
	+ 23.41	−22.60	+ 24.15	− 18.77	+ 28.86	− 11.19	+ 19.63	− 33.17	+ 27.17	− 16.70	+ 26.32	− 3.66
	41 18.66	41 19.05	41 19.75	41 19.13	41 20.46	41 19.76	41 22.28	41 22.28	41 20.77	41 20.40	41 20.97	41 20.44
+45°	41′ 29.69″	29.30	41 28.60	29.22	41 27.89	28.59	41 26.07	26.07	41 27.58	27.95	41 27.38	27.91
	29.49		28.91		28.24		26.07		27.76		27.64	
−3	21 12	20 25										
	0.52810 n	0.52640 n										
	+1902		+1725		+990		+2787		+2019		+680	
	0.54712	0.54542	0.54535	0.54365	0.53800	0.53630	0.55597	0.55427	0.54829	0.54659	0.53490	0.53320
	+ 3.52	+ 3.51	+ 3.51	+ 3.50	+ 3.45	+ 3.43	+ 3.60	+ 3.58	+ 3.53	+ 3.52	+ 3.43	+ 3.41
	−.19 −.22	−.17	−.20 −.20	−.12	−.29 −.30	−.05	−.13 −.41	−.37	−.25 −.32	−.10	−.24 −.26	−.1
	−.03	−.05	−.03	−.05	−.10	−.16	−.11	−.21	−.11	−.19	−.11	−.17
	+3.30	+3.29	+3.28	+3.33	+3.06	+3.22	+3.36	+3.00	+3.17	+3.23	+3.08	+3.23
+45	41 32.99	32.59	41 31.88	32.55	41 30.95	31.81	41 29.43	29.07	41 30.75	31.18	41 30.46	31.14
	+2 9.20	9.36	+ 10.10	10.26	+ 13.91	14.08	+ 15.01	15.18	+ 14.27	14.44	+ 13.68	13.85
	+ .16	−7.31	+ .16	−8.13	+ .17	−10.19	+ .17	−10.35	+ .17	−10.71	+ .17	−10.75
	−27.26		−28.08		−30.14		−30.30		−30.66		−30.70	
	+1 42.10	43 15.09	+ 42.18	14.06	+ 43.94	14.89	+ 44.88	14.31	+ 43.78	14.53	+ 43.15	13.61
		14.69		14.73		15.75		13.95		14.96		14.29
		43 14.89		14.39		15.32		14.13		14.75		13.95
		43 34.84		34.34		35.27		34.08		34.70		33.90

1875

.84 50.59 34.2
.86 50.60 33.6
.88 50.67 34.7
.91 50.68 34.0

.87 50.635 34.13
−1 (4) +2
50.634 34.15

1874 1875

Dec. 8 Nov 3 Nov 11 Nov 17 Nov 29

−.055 −.287 −.275 −.118 −.088

23 39 24.0 39 14.7 40 35.9 40 21.9 40 68.6 40 33.5 40 41.5 40 55.7 39 39.9 39 32.3
26.3 17.2 39.0 25.0 41.5 35.6 44.4 59.7 43.0 35.4
29.0 20.7 41.8 27.1 44.6 37.8 47.3 2.7 45.8 37.6
34.8 47.8 50.5 53.3 51.9
37.8 50.9 53.4 56.3 54.7
40.9 53.6 56.4 59.2 57.7
43.7 39 56.2 56.6 41 15.8 59.4 41 21.2 2.3 41 22.6 0.6 40 10.0
46.7 59.0 59.6 18.0 2.4 23.7 5.2 25.0 3.7 11.8
52.7 1.4 5.5 21.4 8.2 26.7 11.0 27.7 9.6 13.8
55.7 8.4 11.1 14.0 12.4
58.6 11.3 14.1 16.9 15.3

4502 4104 3802 3514 3346
180 240 300 300
39 17.53 5904 40 24.67 6202 40 35.63 6514 40 59.37 6346 39 35.10
39 40.927 39 58.87 40 53.673 41 18.40 40 56.382 41 23.87 40 59.218 41 25.10 39 57.691 40 11.87
40.905 53.651 56.360 59.196 57.669

+ 9.03 − 59.44 87 − 62.70 − 65.72 − 4.42
− 6 − .29 − .28 − .12 − 9
− 2.03 +0.921 − 2.90 − 2.78 − 2.69 − 2.48
+ 6.94 − 63.06 − 65.76 − 68.53 − 6.99
39 40.90 40 53.65 40 56.36 40 59.20 39 57.67

39 47.84 39 50.59 39 50.60 39 50.67 39 50.68
50.791
47.670 50.635

s
40 +23.40 −17.94 20 +29.00 −24.73 20 +20.75 −27.49 20 − 0.15 −28.88 20 +22.59 − 24.18
−.292 −2.98 −3.03 −3.11 −3.13
0 37.1 1 33.1 2 1.1 2 51.5 2 8.1 2 52.5 2 28.8 2 52.9 2 7.0 2 41.1
3.9 42.1 9.8 0.8 18.9 3.5 35.2 57.6 13.3 45.9
12.10 75.2 10.9 11.23 27.0 11.60 64.0 11.05 20.3 7.0
41 0.50 41 37.60 22 5.45 22 56.15 22 13.50 22 58.00 22 32.00 22 55.25 22 10.15 22 43.50

1.36922 1.25382n 1.46240 1.39322n 1.31702 1.43917n 9.17609n 1.41296n 1.35392 1.15168n
1.31441 1.19901n 1.43177 1.36259n 1.28639 1.40854n 9.14546n 1.38233n 1.32329 1.12105n
+ 20.63 − 15.82 + 27.02 − 23.05 + 19.34 − 25.62 − 0.14 − 24.12 + 21.05 − 13.22
41 21.13 41 21.78 22 32.47 22 33.10 22 32.84 22 33.38 22 31.86 22 31.13 22 31.20 22 30.28

41 27.22 26.57 0 15.88 15.25 0 15.51 14.97 0 16.49 17.22 0 17.15 18.07
26.89 15.56 15.24 16.85 17.61
21 4 20 29 21 43 20 52 21 38 21 5
0.52790n 0.52660n 0.52920n 0.52750n 0.52900n 0.52790n
+1642 +1757 +1265 +2458 +3533
0.54432 0.54302 0.54677 0.54507 0.54185 0.54015 0.55378 0.55208 0.56433 0.56323
+3.50 +3.49 +3.52 +3.51 +3.48 +3.47 +3.58 +3.56 +3.67 +3.66

−.14 −.27 −.09 −.23 −.35 −.17 −.12 −.31 −.20 − 0 −.36 −.18 −.14 .46 −.05
−.12 −.19 −.13 −.17 −.13 −.18 −.25 −.29 −.33 −.40
+3.24 +3.21 +3.16 +3.17 +3.23 3.09 +3.33 +3.09 +3.26 +3.21
41 30.46 29.78 0 19.04 18.42 0 18.74 18.06 0 19.82 20.31 0 20.35 21.28
+2 14.79 14.96 −16 15.25 15.07 − 14.22 14.04 − 14.02 13.83 − 14.43 14.24
+ .17 −14.95 + .18 + .18 + .19 + .19
−30.90 −29.49 −30.75 −31.52 −32.60
+1 44.06 14.52 16 44.56 34.48 − 44.79 33.95 − 45.35 34.47 − 46.84 33.51
13.84 33.86 33.27 34.96 34.44

14.18 43 34.17 33.61 34.72 33.97
34.13

1874 1874 1874

41 H. Cephei α 53.789 Oct. 27 41 56.79 6 50.8 cor α = +.062 .84 56.55 44.4
h m sec δ +6 24.10 Nov. 1 56.65 −.14 52.1 +1.3 cor δ = +.22" .85 56.82 43.3
23 41 57 dα/dt +2.821 6 56.50 .15 53.4 1.3 .90 56.66 44.1
dδ/dt +19.984 11 56.33 .17 54.5 1.1 tang δ = +2.37 2.57 .90 56.77 43.5
+67° 7′ 16 56.16 .17 55.6 1.1 .92 56.86 43.2
21 55.97 .19 56.5 .9 I = 5.29 .92 56.72 44.1
ζ = −24 44 l sin δ 9.96440 26 55.77 .20 57.3 .8 .94 56.81 44.1
sin ζ = −.42 Dec. 1 55.56 .21 57.9 .6 K = −.038
l cos δ 9.58979 6 55.34 .22 58.5 .6 .90 56.741 43.81
l C 10134
l C′ 9.69113 (7)

1874

Nov. 2 −.19 −.08	Nov. 7 −.18 −.10	Nov. 24 −.04	Nov. 26 −.06	Dec. 2 +.02	Dec. 3 +.00
−.345	~~.245~~ −.271	−.052	−.058	+.012	−.013
23 41 50.9 41 17.7	41 45.6 40 48.7	41 37.4 41 1.3	41 37.7 41 18.3	41 37.0 41 5.7	41 36.7 40 36.7
53.5 21.0	48.0 52.3	40.0 7.9	40.5 21.7	39.6 8.9	39.4 41.1
56.0 27.0	50.8 57.1	42.6 12.8	43.2 28.4	42.4 13.1	42.1 46.0
59.0	53.4	45.2	45.6	45.0	44.9
1.7	56.0	47.8	48.3	47.6	47.3
3.9	58.8	50.6	50.9	50.0	50.1
6.7 42 10.2	1.2 42 17.6	53.3 41 54.7	53.4 42 2.2	52.7 41 38.5	52.8 41 54.0
9.2	4.1 22.7	56.0 59.3	56.2 7.1	55.5 45.3	55.4 59.0
12.0	6.7 27.7	58.7 4.7	58.7 12.3	58.4 48.8	58.2 4.3
25.29	32.46	43.16	43.45	42.82	42.69
240	180				
12.9 41 21.90	50.46 40 52.70	41 7.33	41 22.80	41 9.23	40 41.27
42 1.433 42 10.20	41 56.067 42 22.67	41 47.956 41 ~~59.65~~ 59.57	41 48.278 42 7.20	41 47.578 41 44.20	41 47.433 41 59.10
1.395	56.029	47.918	48.240	47.540	47.395
41 56.631	41 56.486	41 55.864	41 55.786	41 55.581	41 55.486
+4.728 −3.99	−0.453 +1.34	−7.942 +8.09	−7.542 +7.88	−7.987 +8.21	−8.087 +8.22
+4.72 −.45	−0.49 −.43	−7.98 −.09	−7.58 −.14	−8.03 +.05	−8.13 +.00
−.21	28 −.26				
− 4.02 −2.82	+ 1.14 −2.67	+ 8.09 −2.05	+ 7.82 −1.97	+ 8.19 −1.72	+ 8.21 −1.67
− .82 41 53.93	− .64 ~~57.33~~ 54.01	− .12 53.87	− .14 54.01	+ 3 54.08	− 3 53.95
− 2.82 +0.001	− 2.67 +0.151 4.01	− 2.05 +0.771	− 1.97 +0.851	− 1.72 +1.101	− 1.67 +1.151
− 7.66	− 2.403	+ 5.92	+ 5.71	+ 6.50	+ 6.51
42 1.39	41 56.03	41 47.92	41 48.24	41 47.54	41 47.39
+ 4238	4168	4201	4053	4178	4332
41 53.73 +2 9.42	41 53.89 +2 10.22	41 53.84 +2 13.97	41 53.95 +2 15.07	41 54.04 +2 14.43	41 53.90 +2 13.92
56.551 +1.1	4.00 56.821 +1.2	56.661 +1.3	56.771 +1.3	56.861 +1.3	56.721 +1.3
−2830	−2960	−3300	−3320	−3400	−3410
+67 6 24.60	6 23.50	6 24.28	6 23.70	6 23.51	6 24.44
s +39.53 −8.77	+63.37 −86.60	+40.63 ~~−11.67~~ −11.61	+25.48 −18.92	+38.35 +3.38	+66.16 −11.67
15	15	15	15	15	15
−261	−265	−281	−283	−289	−290
3 12.1 3 36.1	2 59.4 3 44.2	3 11.1 3 36.8	3 20.1 3 41.7	3 10.9 3 27.7	2 55.5 3 23.2
15.4 39.8	5.8 49.3	15.4 39.9	26.1 48.1	19.9 35.7	2.3 40.0
27.5 75.9	125.2 93.5	26.5 76.7	46.2 89.8	30.8 63.4	117.8 63.2
3 18 13.75 3 18 37.95	3 18 2.60 3 18 46.75	3 18 13.25 18 3 38.35	18 3 23.10 18 3 44.90	18 3 15.40 18 3 31.70	17 3 58.90 18 3 36.60
1.59693 0.94300	1.80188 1.42488n	1.60885 1.06483n	1.40620 1.27692n	1.58377 0.52892	1.82060 1.06707n
1.28816 0.63415n	1.49301 1.11601n	1.29998 0.75596n	1.09733 0.96805n	1.27490 0.22005	1.51173 0.75820n
+19.42 −4.31	+31.12 −13.06	+19.95 −5.70	+12.51 −9.29	+18.84 +1.66	+32.49 −5.73
18 33.17 18 33.64	18 33.72 18 33.69	18 33.20 18 32.65	18 35.61 18 35.61	18 34.24 18 33.36	18 31.39 18 ~~35.87~~ 30
4 15.18 14.71	4 14.63 14.66	4 15.15 15.70	4 12.74 12.74	4 14.14 14.99	4 16.96 17.48
14.94	14.64	15.42	12.74	14.55	17.22
−24 43 53 43 29					44 8 43 30
1.42360n 1.42340n					1.42360n 1.42340n
+1900	+1730	+994	+2792	+2021	+680
1.44260 1.44240	1.44090 1.44070	1.43354 1.43334	1.45152 1.45132	1.44381 1.44361	1.43040 1.43020
+27.71 +27.70	+27.60 +27.59	+27.14 +27.12	+28.28 +28.27	+27.79 +27.77	+26.94 +26.93
−.30 −.26 −2	−.78 −.55 −.13	−.31 −.54 −.02	−.12 −.48 −.07	−.28 −.55 −0	−.86 −.83 −.02
−.10 −.11	−.09 −.11	−.35 −.40	−.37 −.41	−.40 −.42	−.36 −.43
+27.31 +27.57	+26.73 +27.35	+26.48 +26.70	+27.79 +27.79	+27.11 +27.35	+25.72 +26.48
4 42.49 42.28	41.36 42.01	41.63 42.40	40.53 40.53	41.22 42.34	42.68 43.96
6 52.4	53.7	57.1	57.3	58.1	58.2
+2 9.9 12.1	+2 12.3 11.7	15.5 14.7	16.8 16.8	16.9 15.8	15.5 14.2
+2 11.0	12.0	15.1	16.8	16.35	14.85
+2 11.2 24.98	12.2 22.97	15.3 23.72	17.0 23.52	16.6 22.70	15.1 23.98
+2 9.20 10.29 24.27	+ 10.10 11.21 23.62	+ 13.91 15.09 24.49	+ 15.01 16.19 23.52	+ 14.27 15.48 23.82	+ 13.68 14.90 24.76
+ 1.09 −8.32	+ 1.11 −9.62	+ 1.18 −13.02	+ 1.18 −13.22	+ 1.21 −14.02	+ 1.22 −14.12
− 28.30 6 24.38	− 29.60 23.30	− 33.00 24.10	− 33.20 23.52	− 34.00 23.26	− 34.10 24.12
+1 41.99 6 44.36	+ 41.61 43.28	+ 42.69 44.08	+ 42.99 43.50 ~~43.60~~	+ 41.48 43.24	+ 40.80 44.10

.44
3.3
4.1
3.5
3.2
4.1
44.1
381

1875 — 1875 — 1875

α 56.610 — Oct. 27 — 59.78 — 6′ 72.8 — .84 56.66 44.9
δ +6′ 44.08 — Nov. 1 — 59.65 −.13 — 74.1 +1.3 — .86 56.65 44.1
dα/dt +2.821 — 6 — 59.50 .15 — 75.4 1.3 — .88 56.81 44.5
dδ/dt +19.984 — 11 — 59.34 .16 — 76.5 1.1 — .91 56.65 43.6
16 — 59.17 .17 — 77.6 1.1
21 — 58.99 .18 — 78.5 .9 — .87 56.693 44.28
26 — 58.79 .20 — 79.3 .8 — (4)
Dec. 1 — 58.58 .21 — 79.9 .6
6 — 58.37 .21 — 80.5 .6

l cos δ 9.58979
l C 12552
l C′ 9.71531

1874 Dec. 8 −.05 −.055 — 1875 Nov 3 −.28 −.284 + — + Nov 11 −.28 −.275 — Nov 17 −.11 −.118 + — + Nov 29 −.09 −.088

41 4 41 54.5 42 — 42 18.5 42 — 42 16.5 42 33.5 42 15.6 41 — 41 13.7
58.5 49.8 22.3 52.1 22.0 38.9 19.0 53.0 18.7
3.0 52.2 26.0 54.7 26.0 44.2 22.7 55.4 23.7
55.0 57.5 54.9 58.0
41.2 41.20 57.4 43 0.1 43 0.2 42 0.6
44.0 .36 43 0.4 2.9 5.2 3.2
46.6 .31 2.9 43 1.7 5.4 42 31.7 10.5 43 25.8 5.7 42 12.2
48.0 .07 5.4 6.8 7.9 35.9 16.1 30.8 8.6 16.4
52.1 .53 8.2 11.9 10.7 40.9 26.2 36.1 11.3 21.1
10.7 13.5 32.0 38.4 14.2
37.2
24.20 20.48 29.89 21.02
41 59.33 240 180 24.0 180

46.580 — 2.0 42 22.27 — 24.8 42 21.50 — 58.9 42 19.43 — 30.2 41 18.70
41 ~~41.294~~ — 43 0.222 43 6.80 — 43 2.756 42 36.17 — 43 5.355 43 32.75 — 42 3.356 42 16.57
~~41.256~~ 46.542 — 0.184 — 2.718 — 5.317 — 3.318
41 55.26 4 +9.05 — 41 59.60 58 −59.88 — 41 59.35 3 −1 −2.66 — 41 59.14 2 −1 −5.69 — 41 58.67 5 −4.39
−8.70 ~~14.06~~ 13.98 −.12 — +60.58 60 −.66 — +63.37 9 −.66 — +66.18 20 −.26 — +4.65 −.21
−14.04 −8.76 — +60.54 — +63.33 — +66.14 — +4.61
+ 9.03 −1.45 — − 59.87 −2.97 — − 62.70 −2.72 — − 65.72 −2.57 — − 4.42 −2.04
− 13 41 54.12 2.02 — .68 57.67 — − .65 56.68 — − .28 56.86 — − .21 56.68
− 1.45 +1.37 .0 — − 2.97 6 — − 2.72 — − 2.51 — − 2.01 4
+ 7.45 — − 63.52 — − 66.07 — − 68.51 — − 6.67
41 ~~41.26~~ — 43 0.18 — 43 2.72 — 43 5.32 — 42 3.32
46.54 4 42.74 — 23 29.49 — 29.55 — 30.88 — 32.32
41 ~~28.71~~ +2 14.91 — 41 42 56.66 −16 15.24 — 41 42 56.65 −16 14.11 — 41 42 56.81 −16 14.05 — 41 42 56.65 −16 14.22
53.99 56.871 +1.3 — +1.1 — +1.2 — +1.2 — +1.3
−34.60 — −30.60 — −32.50 — −33.70 — −36.60
6 24.35 — 6 44.75 — 6 44.14 — 6 44.33 — 6 43.80

−12.75 — + 37.95 − 6.58 — + 41.26 + 26.59 — + 45.92 − 27.42 — + 44.66 − 13.21
15 — 53 — 55 — 55 — 55
−292 — −298 — −303 — −311 — −313
3 36.8 — 4 23.0 4 45.8 — 4 17.7 4 25.8 — 4 18.5 4 56.2 — 4 17.4 4 48.8
41.1 — 30.0 52.9 — 30.0 38.5 — 24.1 .2 — 22.9 53.9
77.9 — 53.0 98.7 — 47.7 64.3 — 42.6 117.4 — 40.3 102.7
18 38.95 — 59 26.50 59 49.35 — 59 23.85 59 32.15 — 59 21.30 59 58.70 — 59 20.15 59 51.35

1.10551n — 1.57921 0.81823n — 1.61553 1.42472 — 1.66200 1.43807n — 1.64992 1.12090n
0.79664n — 1.29452 0.53335n — 1.33084 1.14003 — 1.37731 1.15338n — 1.36523 0.83621n
−6.26 — + 19.70 − 3.42 — + 21.42 + 13.81 — + 23.84 − 14.23 — + 23.19 − 6.86
18 32.69 — 59 46.20 59 45.93 — 59 45.27 59 45.96 — 59 45.14 59 44.47 — 59 43.34 59 44.49

4 15.66 — 23 2.15 2.42 — 23 3.08 2.39 — 23 3.21 3.88 — 23 5.01 3.86
2.28 — 2.73 — 3.54 — 4.43
44 22 43 59 — 44 28 43 57
1.42370n 1.42360n — 1.42370n 1.42360n
+1642 — +1761 — +1268 — +2463 — +3542
1.44002 — 2 1.44131 1.44121 — 1.43638 1.43628 — 1.44833 1.44823 — 1.45912 1.45902
+27.54 — +27.63 +27.62 — +27.31 +27.31 — +28.07 +28.07 — +28.78 +28.78

−.08 −.46 — −.27 −.41 — 1 — −.33 −.49 −.13 — −.39 −.73 −.14 — −.38 −.89 −.03
−.43 — −.26 −.29 — −.26 −.27 — −.44 −.50 — −.64 −.74
+ 27.08 — +27.10 +27.32 — +26.72 +26.91 — +27.24 +27.43 — + 27.16 +28.01
42.74 — 23 29.25 29.74 — 29.80 29.30 — 30.45 31.31 — 32.77 31.87
58.7 — 7 14.7 — 16.6 — 17.8 — 19.7
16.0 — −16 14.5 15.6 — 13.2 12.7 — 12.6 13.5 — 13.1 12.2
16.0 — −16 14.75 — 12.95 — 13.05 — 12.65
16.2 — −16 14.5 44.65 — 12.7 44.35 — 12.8 44.03 — 12.4 44.05
+2 14.79 16.01 — −16 15.25 45.14 14.00 — −14.22 12.95 43.85 — −14.02 12.7 44.89 — −14.43 13.12 43.15
+ 1.22 −14.62 — + 1.25 — + 1.27 — + 1.30 — + 1.31
− 34.60 24.15 — 30.60 6 44.89 — − 32.50 44.10 — − 33.70 44.46 — − 35.60 43.60
+ 48.41 44.13 ~~43.13~~ — −16 44.60 — 45.45 — − 46.42 — − 48.42

Piazzi ~~XXIII~~ 204 . 1874 1875 ~~1876~~

~~B.A.C.~~ 8289

h m sec
23 44 8

+50° 56′

Z = − 8° 33′
Δz = −.15

α
δ
μ
μ′
μδ
μ′δ

l sin δ 9.89009

l cos δ 9.79950 9.79950
l C 10460 12552
l C′ 9.90410 9.92502

l C″ 9.90084

44 7.93
55 37.59
+ 2.948
+19.97

corr α =
corr δ =

tang δ = + 1.23

I = 3.27 s

k = −.024 s

.83	8.00	39.1
.84	7.83	38.8
.85	8.00	38.7
.90	7.93	39.3
.92	7.96	38.6
.92	8.05	39.2
.92	8.10	37.9
.88	7.981	38.80
	− 2	(7)
	7.979	(7)

1874

	Oct. 28		Nov. 2		Nov. 7		Nov. 24		Nov. 26		Nov. 30	
	−.305		−.345		~~−.215~~ −.271				−.058		−.077	
23	43 34.6	43 51.0	43 52.4	43 40.7	43 47.0	43 33.4	Ch. f.		43 39.8	43 25.0	43 39.9	43 27.6
	57.9	53.6	55.7	44.1	50.3	38.1			43.0	27.6	43.1	31.0
	1.1	57.0	59.1	48.0	53.7	41.2			46.4	30.7	46.4	33.5
	7.6		5.4		0.2	~~0.2~~			53.0		53.0	
	10.9		8.7		3.5				56.3		56.3	
	14.3		12.1		6.7				59.6		59.6	
	17.5	44 37.4	15.3	44 29.4	10.0	44 29.1			2.9	44 9.3	2.8	44 16.4
	20.7	40.3	18.6	32.7	13.3	31.6			6.1	12.0	6.1	19.8
	27.3	42.6	25.1	35.7	19.8	34.1			12.5	16.3	12.8	22.1
	30.6		28.4		23.3				16.2		15.9	
	33.6		31.7		26.5				19.0		19.4	
	2761		3125		2543				3548		3553	
	120		180		180				300		300	
	1561	43 53.87	1325	43 44.27	743	43 38.23			6548	43 27.77	6553	43 30.70
	44 14.191	44 40.10	44 12.045	44 ~~38.40~~ 32.40	44 6.755	44 31.60			43 59.527	44 12.53	43 59.573	44 19.50
	14.167		12.021		6.731				59.503		59.549	17.43
	− 5.98		− 4.02		+ 1.47 28				+ 7.82		+ 7.73	
	− .37		− .42		− 33				− 7		− 9	
	− 2.76 +0.183		− 2.69 +0.253		− 2.62 +0.323				− 2.26 +0.683		− 2.17	
	− 9.11		− 7.13		− 1.78 67				+ 5.49		+ 5.47 +0.773	
	44 14.17		44 12.02		44 6.73				43 59.50		43 59.55	
	44 5.06		44 4.89		44 ~~4.95~~ 5.06				44 ~~5.00~~ 4.99		44 5.02	
	8.003		7.833		8.003				~~8.033~~ 7.933		7.963	
	s +20.32	−25.91	+27.77	−20.36 ~~−21.36~~	+28.52	−24.85			+32.76	−13.00	+28.87	−19.93
25′			25		25		25		25		25	
	−2.55		−2.61		−2.65	~~−2.0~~	−2.81		−2.83		−2.88	
	3 0.1	4 37.0	3 56.0	4 32.9	3 53.4	4 35.9	4 18.2		3 52.1	4 28.8	3 37.0	4 34.5
	10.6	46.9	1.4	38.5	1.6	44.0	25.1		59.8	36.8	1.1	40.3
	107	839	1174	714	1150	799	433		1119	656	1181	748
	28 (29) 5.35	29 41.95	28 58.70	29 35.70	28 57.50	29 39.95	29 21.65		28 55.95	29 32.80	28 59.05	29 37.40
	1.30792	1.41347n	1.44358	1.30878n	1.45515	1.39533n			1.50188	1.11394n	1.46045	1.29951n
	1.21202	1.31757n	1.34442	1.20962n	1.35599	1.29617n			1.40272	1.01478n	1.36129	1.20035n
	+16.30	−20.77	+22.10	−16.20	+22.69	−19.78			+25.18	−10.34	+22.98	−15.86
	29 21.65	29 21.18	29 20.80	29 19.50	29 20.19	29 20.17			29 21.13	29 22.46	29 22.03	29 21.54
+50′	53 26.70	27.17	53 27.55	28.85	53 28.16	28.18			53 27.22	25.89	53 26.32	26.81
	26.93		28.20	28.50					26.55		26.56	
− 8	33 2	32 25										
	0.93740n	0.93690n										
	+191		+1899		+1734				+2795		+3557	
	0.93931	0.93881	0.95639	0.95589	0.95474	0.95424			0.96545	0.96485	0.97297	0.97247
	+8.70	+8.69	+9.04	+9.03	+9.01	+9.00			+9.23	+9.22	+9.40	+9.39
	−.11 −27	−.17	−.18 .27	−.11	−.20 −.31	−.16			−.26 −.61	−.05	−.21 .63	−.10
	−.12	−.14	−.12	−.14	−.12	−.14			−.43	−.49	−.44	−.51
	+8.47	+8.38	+8.74	+8.78	+8.69	+8.70			+8.54	+8.68	+8.75	+8.78
+50	53 35.17	35.55	53 36.29	37.63	53 36.85	36.88			53 35.76	34.57	53 35.07	35.59
	+2 10.01	10.39	+ 9.20	9.59	+ 10.10	10.49	+13.91		+ 15.01	15.43	+ 14.47	14.90
	+ .38	−6.68	+ .39	−7.73	+ .39	−8.68			+ .42	−11.31	+ .43	−11.66
	−26.65		−27.70		−28.65				−31.28		−31.63	
	+1 43.74	18.91	+ 41.89	18.18	+ 41.84	18.69			+ 44.15	19.91	+ 43.27	18.34
		19.29		19.52		18.72				18.72		18.86
		55 19.10		18.85		18.70				19.31		18.60
		55 39.07		38.82		38.67				39.28		38.57

1875

.84 8.04 38.2
.86 8.09 41.2
.88 8.12 37.4
.91 8.04 37.7

.87 8.073 38.62
+11 +3
8.084 (4) 38.65

1874 1875

Dec. 2 Dec. 3 Apr 3 Apr 11 5 Apr 17 Apr 29

+.012 -.013 -.287 -.275 -.118 -.088

23 43 39.3 43 27.6 43 39.5 43 21.2 45 — 45 8.6 45 — 45 6.7 44 57.0 44 41.4 43 55.6 43 48.8
42.7 30.0 42.7 24.0 — 11.8 — 9.7 45 0.4 44.1 58.8 51.5
46.0 32.6 46.0 26.5 — 14.9 — 13.0 3.6 46.5 44 1.8 54.2
52.5 52.6 4.7 7.5 10.2 8.6
55.8 55.8 7.9 10.7 13.3 11.9
59.1 59.0 11.2 14.0 16.7 15.0
2.2 44 12.7 2.4 44 8.1 14.6 17.2 45 49.2 19.9 45 30.3 18.3 44 36.7
5.6 16.2 5.7 10.8 17.7 20.4 52.1 23.3 33.6 21.5 39.7
12.1 19.2 12.1 12.7 — — 55.0 29.8 35.6 28.0 42.7
15.5 15.5 — — 33.2 31.4
18.8 18.7 — — 36.3 34.7

3496 3500 561 698 2437 2856
300 300 60 120
6496 43 30.07 6500 43 23.96 45 11.77 45 9.80 1837 44 44.00 1656 43 51.50
43 59.055 44 16.03 43 59.091 44 10.53 45 11.220 45 13.960 45 52.10 45 16.700 45 33.17 44 15.055 44 39.70
59.031 59.067 11.196 13.936 16.676 15.031

+ 8.19 + 8.21 - 59.84 - 62.70 - 65.72 - 4.42
+ 1 - 1 - .35 - .34 - .14 - .11
- 2.12 +0.823 - 2.11 +0.833 - 2.94 - 2.81 - 2.70 - 2.46
+ 6.08 + 6.09 - 63.26 - 65.85 - 68.56 - 6.99
43 59.03 43 59.07 45 11.20 45 13.94 45 16.68 44 15.03

44 5.11 44 5.16 44 ~~7.94~~ 8.04 44 8.09 44 8.12 44 8.04
8.053 8.103 8.048
5.140

s
+28.98 -16.98 +35.19 -11.44 - 0.55 + 4.16 - 38.14 + 32.70 - 16.47 + 23.55 - 24.65
25 25 10 10 10 10
-2.89 -2.90 -2.98 -3.03 -3.11 -3.13
3 52.5 4 29.5 3 48.7 4 25.2 0 29.9 0 23.8 0 2.9 0 43.8 0 8.9 0 49.9
1.9 38.7 57.7 33.9 39.7 30.9 10.1 51.8 15.7 53.9
114.4 68.2 106.4 59.1 69.6 54.7 13.0 95.6 24.6 105.8
~~3~~ 28 57.20 ~~4~~ 29 34.10 28 ~~3~~ 53.20 29 ~~4~~ 29.55 10 34.80 10 27.35 10 6.50 10 47.80 10 12.30 10 52.90

1.46210 1.22994n 1.54642 1.05843n 9.74036 n 0.61909 1.58138n 1.51455 1.21669n 1.37199 1.39182n
1.36294 1.13078n 1.44726 0.95927n 9.66538 n 0.54411 1.50640n 1.43957 1.14171n 1.29701 1.31684n
+23.07 -13.51 +28.01 -9.10 -0.46 +3.50 -32.09 +27.52 -13.86 +19.82 -20.74
29 20.27 29 20.59 29 21.21 29 20.45 10 34.34 10 30.85 10 34.02 10 33.94 10 32.12 10 32.16

53 28.08 27.76 53 27.14 27.90 12 14.01 12 17.50 12 14.33 14.41 12 16.23 16.19
27.92 27.52 14.42 16.21
37
33 14 32 38 33 13 33 21 33 36 32 55
0.93760n 0.93700n 0.93760n 0.93770n 0.93790n 0.93730n
+2023 +1680 +1764 +1270 +2467 +3549
0.95763 0.95713 0.94440 0.94380 0.95524 0.95040 0.96237 0.97339 0.97279
+9.07 +9.06 +8.80 +8.79 +9.02 +8.92 +9.17 +9.17 +9.40 +9.39

-.23 -.66 -.07 -.33 -.68 -.03 -.00 -1 -.04 -.39 -.28 -.29 -.07 -.14 -.22 -.15
-.47 -.55 -.47 -.54 -.04 -.03 -.01 -.22 -.68 -.03 -.13
+8.37 +8.44 +8.00 +8.22 +8.98 +8.88 +8.88 +9.02 +9.23 +9.11
53 36.45 36.20 53 35.14 36.12 12 22.99 12 26.38 12 23.21 23.43 12 25.46 25.30
+2 14.27 14.70 +13.68 14.11 -16 15.25 14.81 -14.22 13.77 -14.02 13.56 -14.43 13.97
+ .43 -11.79 + .43 -11.86 + .44 + .45 + .46 + .46
-31.76 -31.83 -29.94 -31.41 -32.35 -33.69
+1 42.94 19.39 + 42.28 17.42 -16 44.78 - 45.18 - 45.91 37.30 - 47.66 37.80
19.14 18.40 37.52 37.64

55 19.26 17.91 55 38.21 41.20 37.41 37.72
55 39.23 37.88

77.

1874

θ Pegasi

h m sec
23 46 8
+18° 26′
φ + 23° 57′
[illegible] +.44

α 4.783s
δ +25′ 13.92″
dα/dt +3.044s
dδ/dt +19.994″
l sin δ 9.49996
l cos δ 9.97713
l c .10460
l c′ 0.08173
l c″ 0.07847

1874		m s		′ ″	
Oct.	27	46 7.61		25 36.7	
Nov.	1	7.58	−.03	37.0	+.3
	6	7.54	.04	37.3	.3
	11	7.50	.04	37.5	.2
	16	7.46	.04	37.6	.1
	21	7.42	.04	37.6	.0
	26	7.37	.05	37.6	.0
Dec.	1	7.32	.05	37.6	+.0
	6	7.26	.06	37.5	−.1

1874

corr α = +.006s
corr δ = −.14″
lat δ = +.33
I = 2.17s
K = −.016s

	.83	7.81	34.7
	.84	7.85	34.1
	.85	7.88	33.5
105	.92	7.72	34.1
	.92	7.80	34.7
	.92	7.84	33.2
	.88	7.817	34.05
		(6)	

1874

Oct. 28		Nov. 2		Nov. 7		Nov. 30		Dec. 2		Dec. 3	
−.18	−.08	−.19	−.08	−.18	−.10	−.05		+.02		+.00	
−.305		−.345		~~−.265~~ −.271		−.077		+.012		−.013	
23 46 0.6	45 48.0	45 58.8	45 49.4	45 53.5	45 49.1	45 46.5	45 27.8	45 46.1	45 36.7	45 46.1	45 34.5
2.9	50.1	1.0	52.0	55.6	51.6	48.7	30.0	48.3	38.8	48.3	36.6
5.0	52.5	3.1	54.1	57.7	53.8	51.0	32.1	50.5	40.8	50.4	38.3
9.3		7.3		2.0		55.1		54.6		54.8	
11.5		9.5		4.3		57.3		57.0		57.0	
13.7		11.8		6.5		59.5		59.1		59.1	
15.8	46 36.8	13.8	46 38.7	8.6	46 30.5	1.7	46 18.5	1.1	46 18.7	1.3	46 17.9
18.1	38.8	16.0	40.5	10.8	33.3	3.9	20.5	3.4	21.1	3.4	19.8
22.3	40.7	20.5	42.7	15.0	35.2	8.2	23.0	7.9	22.8	7.7	21.9
24.6		22.6		17.2		10.4		10.0		10.0	
26.7		24.8		19.4		12.6		12.2		12.2	
1505		1892		2506		3549		3502		3503	
		60		180		300		300		300	
	45 49.87	1292	45 51.83	706	45 51.50	6549	45 29.97	6502	45 38.77	6503	45 36.47
46 13.682	46 38.77	46 11.745	46 40.63	46 6.418	46 33.00	45 59.536	46 20.67	45 59.109	46 20.87	45 59.118	46 18.87
13.666	−5.92	11.729	−3.99	6.402	+1.35	59.520	+7.80	59.093	+8.21	59.102	+8.22
46 7.60	−.06	46 7.57	−.06	46 7.53	−.06	46 7.33	−.02	46 7.3×0	+.01	46 7.30 29	+.00
+6.07	−.08	+4.16	−.08	−1.13	−.11	−7.81		−8.281		−8.20 19	
+6.06	−2.82	+4.15	−2.79	−1.14	−2.75	−7.82	−2.55	−8.22	−2.52	−8.20	−2.57
	46 4.79		4.81		4.83		~~5.05~~ 4.75		4.79		4.81
−6.98		−4.02		+ 1.17 28		+ 7.73	4.75	+ 8.19		+ 8.21	
− .10		− .11		− 9		− 2		+ 0		− 0	
− 2.82 +0.224		− 2.79 +0.254		− 2.75 +0.294		− 2.55 +0.494		− 2.52 +0.524		− 2.51 +0.534	
− 8.90	23 28.66	− 6.92	29.20	− 1.64 56	27.86	+ 3.16	24.56	+ 5.67	25.32	+ 5.70	23 24.44
46 13.67	+2 10.33	46 11.73	+2 9.42	46 6.40	+2 10.22	45 59.52	+2 14.26	45 59.09	+2 14.43	45 59.10	+2 13.92
	−1.2		−1.1		−1.2		−1.2		−1.3		−1.2
46 4.77	−22.90	46 4.81	−23.20	46 4.73	−23.40	46 4.68	−23.70	46 4.76	−23.70	46 4.80	−23.70
7.814	15 25 [illegible]89	7.854	25 14.~~50~~ 32	7.884	25 13.48	7.724	25 13.92	7.804	25 14.75	7.844	25 13.46
			2								
s +23.81	−25.09	+19.91	−28.89	+14.92	−26.58	+29.57	−21.13	+20.34	−21.76	+22.65	−20.75
55		55		55		55		55		55	
−255		−261		−265		−288		−289		−290	
3 17.7	4 16.0	3 22.3	4 20.6	3 29.5	4 18.7	3 14.1	4 15.1	3 23.4	4 14.8	3 22.9	4 14.4
33.5	31.1	35.0	32.5	43.7	30.8	25.8	26.8	38.0	30.0	38.2	29.5
51.2	47.1	57.3	53.1	73.2	49.5	39.9	41.9	61.4	44.8	61.1	43.9
3 58 25.60	4 59 23.55	58 2 28.65	59 4 26.55	58 2 36.60	59 4 24.75	58 2 19.95	59 4 20.95	58 3 30.70	59 4 22.40	58 3 30.55	59 4 21.95
1.37676	1.39950n	1.29907	1.46075n	1.17377	1.42455n	1.47085	1.32490n	1.30835	1.33766n	1.35507	1.31702n
1.45849	1.48123n	1.37754	1.53922n	1.25224	1.50302n	1.54932	1.40337n	1.38682	1.41613n	1.43354	1.39549n
+28.74	−30.29	+23.86	−34.61	+17.87	−31.85	+35.43	−25.31	+24.37	−26.07	+27.14	−24.86
58 54.34	58 53.26	58 52.51	58 51.94	58 54.47	58 52.90	58 53.38	58 55.64	58 55.07	58 56.33	58 57.69	58 57.09
+18° 23 54.01	55.09	23 55.84	56.41	23 53.88	55.45	23 52.97	52.71	23 53.28	52.02	23 50.66	51.26
54.55		56.12		54.66		52.84		52.65		50.96	
+23 56 19	57 16									56 23	57 15
1.40750n	1.40790n									1.40760n	1.40790n
+197		+1897		+1740		+3561		+2026		+680	
1.40947	1.40987	1.42647	1.42687	1.42490	1.42530	1.44311	1.44351	1.42776	1.42816	1.41440	1.41470
−25.67	−25.70	−26.70	−26.72	−26.60	−26.63	−27.74	−27.77	−26.78	−26.80	−25.97	−25.98
−.08 −.20	−.09	−.06 −.21	−.13	−.03 −.19	−.11	−.14 −.52	−.07	−.06 −.54	−.07	−.07 −.54	−.06
−.10	−.13	−.10	−.13	−.11	−.13	−.36	−.47	−.42	−.53	−.42	−.53
−25.85	−25.92	−26.86	−26.98	−26.74	−26.87	−28.24	−28.31	−27.26	−27.40	−26.46	−26.57
23 28.16	29.17	28.98	29.43	27.14	28.58	24.73	24.41	26.02	24.62	24.20	24.69
25 36.8		37.1		37.3		37.6		37.6		37.6	
+2 8.6	7.6	8.1	7.7	10.2	8.7	12.9	13.2	11.6	13.0	13.4	12.9
+2 8.1		7.9		9.45		13.05		12.3		13.15	
+2 8.0	14.23	7.8	13.91	9.3	12.76	12.9	14.32	12.2	15.41	13.0	12.98
+2 10.01	8.97 15.24	+ 9.20	8.13 14.36	+ 10.10	9.02 14.20	+ 14.47	13.29 13.99	+ 14.27	13.09 14.01	+ 13.58	12.49 13.47
− 1.04 −2.91		− 1.07 −3.21		− 1.08 −3.41		− 1.18 −3.71		− 1.18 −3.71		− 1.19 −3.71	
− 22.90	25 14.73	− 23.20	14.13	− 23.40	13.48	− 23.70	14.15	− 23.70	14.72	− 23.70	13.22
+1 46.07	25 34.72	+ 44.93	34.12	+ 45.62	33.47	+ 49.59	34.14	+ 49.39	34.71	+ 48.98	33.21

1875

		m s		° ′	″	
Oct.	27	46 10.97		25	58.8	
Nov.	1	10.94	−.03		59.1	+.3
	6	10.90	.04		59.4	.3
	11	10.86	.04		59.6	.2
	16	10.82	.04		59.7	.1
	21	10.78	.04		59.7	.0
	26	10.73	.05		59.7	.0
Dec.	1	10.68	.05		59.7	+.0
	6	10.62	.06		59.6	−.1

1875

α 7.827 s

δ +25 33.91″

$\frac{d\alpha}{dt}$ +3.044 s

$\frac{d\delta}{dt}$ +19.994″

1875

.84	7.78	33.1
.86	7.87	33.5
.88	7.83	33.5
.91	7.76	33.2
.92	7.90	32.7
.88	7.828	33.20

(5)

l cos δ 9.97713
l c 1.2552
l c′ 0.10265

1875 +

+ −.28 Nov 3 −.287		+ −.28 Nov 11 −.275		+ −.11 Nov 17 −.118		−.09 + Nov 29 −.088		+ +.00 Nov 30 −.050	
46 57.1	46 54.5	47 0.6	46 45.5	47 3.6	46 57.6	46 2.0	45 52.3	46 1.9	45 53.4
59.9	57.3	2.8	48.4	5.8	59.9	4.3	54.6	4.0	55.5
47 2.2	59.4	5.1	50.0	7.9	1.6	6.4	56.6	6.3	57.1
6.5		9.4		12.2		10.8		10.4	
8.8		11.6		14.4		12.9		12.8	
11.0		13.7		16.6		15.1		14.9	
13.0	47 36.2	15.9	47 27.3	18.8	47 36.9	17.3	46 43.4	17.1	46 38.4
15.2	38.3	18.0	29.0	21.0	38.5	19.5	45.0	19.2	41.0
19.4	40.3	22.4	31.3	25.2	40.5	23.8	46.8	23.6	42.9
21.7		24.6		27.4		25.9		25.7	
23.8		26.8		29.6		28.1		27.8	
239.2		150.9		182.5		166.1		163.7	
120									
119.3	46 57.07		46 47.97		46 59.70		45 54.50		45 55.33
47 10.845	47 38.27	47 13.718	47 29.20	47 16.591	47 38.63	46 15.100	46 45.07	46 14.882	46 40.77
10.829	−59.88	13.702	−1 −2.66	16.575	−1 −5.69	15.084	−4.39	14.866	−4.10
46 10.92	−.09	46 10.86	−.09	46 10.81	−.04	46 10.70	−.03	46 10.69	+.00
+59.8791		+62.84		+65.76		+4.38		+4.18	
+59.90	−3.09	+62.83	−3.03	+65.75	−2.98	+4.37	−2.87	+4.17	−2.86
	46 7.787		7.92		7.87		7.79		7.91
− 59.87 α	7	− 62.71		− 65.72		− 4.42		− 4.09	
− 9		− 9		− 4		− 3		− 2	
− 3.09		− 3.03		− 2.98		− 2.87		− 2.86	
− 63.05	42 14.86	− 65.83	14.67	− 68.74	14.63	− 7.32	14.78	− 6.97	12.55
47 10.83	−16 15.24	47 13.70	−16 14.11	47 16.57	−16 14.05	46 15.08	−16 14.22	46 14.87	−16 12.52
	−1.2		−1.3		−1.3		−1.4		−1.4
46 7.78	−25.30	46 7.87	−25.70	46 7.83	−25.80	46 7.76	−25.80	46 7.90	−25.80
	25 33.12		25 33.56		25 33.48		25 33.36		25 32.83
+ 13.77	− 27.43	+ 25.75	− 15.48	+ 16.89	− 22.04	+ 20.60	− 29.97	+ 19.55	− 25.89
35		35		35		35		35	
−2.98		−3.03		−3.11		−3.13		−3.13	
4 46.3	0 39.2	4 30.1	0 23.0	4 44.0	0 33.0	4 38.4	0 41.9	4 43.2	0 41.2
51.7	43.9	38.1	31.3	45.4	36.0	40.3	44.4	38.9	39.0
98.0	83.1	82	54.3	94	90	78.7	63	82.1	80.2
39 49.00	40 41.55	39 34.10	40 27.15	39 44.70	40 34.50	39 39.35	40 43.15	39 41.05	40 40.10
1.13893	1.43823n	1.41078	1.18977n	1.22763	1.34321n	1.31387	1.47669n	1.29115	1.41313n
1.24158	1.54088n	1.57343	1.29242n	1.33028	1.44586n	1.41652	1.57934n	1.39380	1.51578n
+17.44	−34.74	+32.62	−19.61	+21.39	−27.92	+26.09	−37.96	+24.76	−32.79
40 6.44	40 6.81	40 6.72	40 7.54	40 6.09	40 6.58	40 5.44	40 5.19	40 6.81	40 7.31
42 41.91	41.54	42 41.63	40.81	42 42.26	41.77	42 42.91	43.16	42 42.54	41.04
41.72		41.22		42.01		43.03		41.79	
56 1	56 53							55 53	56 52
1.40740n	1.40780n							1.40740n	1.40780n
+1768		+1273		+2471		+3558		+5126	
1.42508	1.42548	1.42013	1.42053	1.43211	1.43251	1.44298	1.44338	1.45866	1.45906
−26.61	−26.64	−26.31	−26.34	−27.05	−27.07	−27.73	−27.76	−28.75	−28.78
−.03 −.23	−.11	−.10 −.22	−.03	−.04 −.32	−.07	−.06 −.50	−.14	−.05 −.47	−.09
−.29	−.04	−.28	−.03	−.47	−.06	−.71	−.10	−.71	−.10
−26.93	−26.79	−26.69	−26.40	−27.56	−27.20	−28.50	−28.00	−29.51	−28.97
42 14.98	14.75	14.94	14.41	14.70	14.57	14.41	13.16	13.03	12.07
25 59.2		59.6		59.7		59.7		59.7	
−16 15.8	15.5	15.3	14.8	15.0	14.9	14.7	15.5	13.3	12.4
−16 15.65		15.05		14.95		15.1		12.85	
−16 15.8	33.18	15.2	33.75	15.1	33.58	15.2	32.87	13.0	33.15
−16 15.25 16.50	32.95	− 14.22 15.49	33.22	− 14.02 15.32	33.45	− 14.43 15.74	33.62	− 12.77 14.08	32.19
− 1.25		− 1.27		− 1.30		− 1.31		− 1.31	
− 25.30	25 33.06	− 25.70	33.48	− 25.80	33.51	− 25.80	33.24	− 25.80	32.67
−16 41.80		− 41.19		− 41.12		− 41.54		− 39.88	

ι Cassiopeiae
h m sec
23 48 9
° '
+56 48
−14° 25'
ling = −.25 l sin δ

α 5.751
δ +47' 53.68
dα/dt +2.964
dδ/dt +20.816
9.92260
l cos δ 9.73843
l c .10134
l c' 9.83977

1874	m	s		'	"		1875	m	s		'	"	
Oct. 27	48	8.63		47	80.3		Oct. 27	48	11.83		48	42.3	
Nov. 1		8.55	−.08		81.5	+1.2	Nov. 1		11.75	−.08		43.6	+1.3
6		8.46	.09		82.6	1.1	6		11.67	.08		44.7	1.1
11		8.36	.10		83.6	1.0	11		11.57	.10		45.7	1.0
16		8.26	.10		84.5	.9	16		11.47	.10		46.6	.9
21		8.14	.12		85.2	.7	21		11.36	.11		47.3	.7
26		8.02	.12		85.9	.7	26		11.24	.12		48.0	.7
Dec. 1		7.89	.13		86.4	.5	Dec. 1		11.11	.13		48.5	.5
6		7.75	.14		86.9	.5	6		10.97	.14		49.0	.5

1874

−.19 −.08
Nov. 2
−.345
23 47 50.5 47 34.8
54.3 40.0
58.0 42.7
5.4
9.2
12.9
16.8 48 42.0
20.6 46.5
28.1 49.1
31.9
33.8
3235
180
1435 47 39.17
48 13.045 48 45.87
13.017 −3.99
48 8.55 −.29
+4.49 −.15
+4.42 −2.78
48 5.81
− 4.02
− .53
− 2.78 +0.184
− 7.33 46 11.94
48 13.02 +2 9.42
+.7
48 5.69 −28.10
8.654 56 47 53.96
s
+33.87 −32.83
35
−2.61
1 24.6 2 11.9
31.0 17.3
55.6 29.2
36 27.80 37 14.60
1.52982 1.51627
1.36959 1.35604
+23.42 −22.70
36 57.22 36 57.90
+56°
45' 57.13 56.45
56.79
−14 25 39 24 52
1.17070n 1.17030n
+1895
1.18965 1.18925
+15.48 +15.46
−.27 −.31 −.25
−.04 −.07
+15.16 +15.14
46 12.30 11.59
48 21.8
+2 9.5 10.2
+2 9.85
+2 9.3 54.05
+2 9.20 98 55.34
+ .65 −8.08
− 28.10 47 53.69
+1 41.75 48 13.71

−.18 −.10
Nov. 7
~~−.265~~ −.271
47 45.0 47 25.1
48.7 .56 .50 30.0
52.7 .74 33.0
0.1 .62
3.8 .56
7.6 .60
11.3 .54
15.0 .48
—
—
—
47 29.37
48 7.575
7.547 +1.35
48 8.44 −.28
− 0.89 −.18
− 0.96 −2.69
29 5.75
+ 1.17
− .41
− 2.69 +0.274
− 1.4381 12.66
48 7.55 +2 10.22
+.7
48 ~~5.62~~ 74 −29.10
8.704 47 54.48
+38.20
35
−2.65
1 20.7
27.9
48.6
36 24.30
n1.58206
n1.42183
+26.41
36 50.71
45 57.64
+17.44
1.18814
+15.42
−.36 −.40
−.04
+15.02
12.66
22.8
10.1
10.1
9.6
+ 10.10 10.76
+ .66 −9.08
− 29.10 54.32
+ 41.66 14.34

−.05
Nov. 30
−.077
47 37.8 47 23.0
41.5 29.5
45.3 31.3
52.7
56.7
0.3
4.0
7.8
15.4
19.2
23.0
3037
300
37 47 28.60
48 0.336
0.308 +7.80
48 7.981 −.08
− 7.680
− 7.67 −2.16
5.87
+ 7.73
− .12
− 2.16 +0.804
+ 5.45 10.68
48 0.31 +2 14.26
+.8
48 5.76 −32.60
8.724 47 53.14
+31.74
35
−2.88
1 28.9
33.9
62.8
36 31.40
1.50161
1.34138
+21.95
36 53.35
45 55.00
+35.64
2 1.20634
+16.08
−.24 −.40
−.16
+15.68
10.68
26.3
15.6
15.6
15.1
+ 14.47 15.19
+ .72 −12.58
− 32.60 53.27
+ 42.59 13.29

+.02
Dec. 2
+.012
47 47 21.3
52.3 23.8
54.1 26.0
56.0
57.9
59.8
1.7
3.7
5.3
7.2
2980
240
5380 47 23.70
47 59.778
59.750 +8.21
48 7.876 +.03
−8.121
− 8.18 −2.11
5.88
+ 8.19
+ .02
− 2.11 +0.854
+ 6.10 11.97
47 59.75 +2 14.43
+.7
48 5.85 −32.80
8.814 47 54.30
+36.08
35
−2.89
1 21.8
31.1
52.9
36 26.45
1.55724
1.39704
+24.95
36 51.40
45 56.95
+20.28
1 1.19098
+15.52
−.33 −.50
−.17
+15.02
11.97
26.5
14.5
14.5
14.0
+ 14.27 14.99
+ .72 −12.78
− 32.80 54.16
+ 42.19 14.18

1874
+.00
Dec. 3
−.013
47 47 23.6
52.1 27.0
54.1 29.8
56.0
57.9
59.6
1.6
3.5
5.5
7.2
2975
240
5375 47 26.80
47 59.722
59.694 +8.22
48 7.843 +.00
−8.154
− 8.21 −2.08
5.83
+ 8.21
− .02
− 2.08 +0.884
+ 6.11 46 12.81
47 59.69 +2 13.92
+.8
48 5.80 −32.90
8.764 47 54.63
+32.92
35
−2.90
1 22.9
31.9
54.8
36 27.40
1.51746
1.35723
+22.76
36 50.16
45 58.19
25 40
1.17070n
+680
1.17750
+15.05
−.25 −.43
−.18
+14.62
12.81
26.6
13.8
18.8
13.3
+ 13.68 14.41
+ .73 −12.88
− 32.90 54.32
+ 41.51 14.34

1875
−.28 +
Nov 3
−.287
49 — 48 36.4
— 39.0
— 41.2
4.3
8.3
12.0
15.6
19.6
—
—
—
598
48 38.87
49 11.960
11.932 −59.89
48 11.781 −.43
+60.212
+60.15 −3.00
~~11.31~~ 8.61
8.61
− 59.88
− .44
− 3.00
− 63.32 4 59.77
49 11.93 −16 15.24
+.7
48 8.61 −30.40
48 14.83
+ 33.09
15
−2.98
2 35.8
43.0
78.8
17 39.40
1.51970
1.38365
+24.19
18 3.59
4 44.76
26 9
1.17090n
+1771
1.18861
+15.44
−.27 −.43
−.16
+15.01
4 59.77
48 44.1
−16 15.7
−16 15.7
−16 16.2
−16 15.25 14.57
+ .74
− 30.40 48 14.88
−16 44.91

corr α = $\overset{s}{+.073}$
Corr δ = −.52"
long δ = +1.53 1.83
I = $\overset{s}{3.76}$
K = −.028

1875
α 8.715
δ = +48 13.70
$\frac{dα}{dT}$ +2.965
$\frac{dδ}{dT}$ +20.016

l cos δ 9.73843
l b .12552
l b′ 9.86395

1874
.84 8.65 13.7
.85 8.70 14.3
.92 8.72 13.3
.92 8.81 14.2
.92 8.76 14.3
.89 8.728 13.96
(5)

1875
.84 8.61 14.9
.86 8.75 14.1
.88 8.84 13.7
.91 8.86 12.9
.92 8.80 14.1
.88 8.772 13.94
(5)

+ + + Y

−.28 Nov 11 −.11 Nov 17 −.09 Nov 29 +.00 Nov 30
−.275 −.118 −.088 −.050
49 48 29.4 49 48 41.9 48 47 47.6 47 52.8 48 3.2
7.2 32.1 10.0 45.0 8.3 50.4 56.5 5.4
9.1 35.3 11.9 48.0 10.4 52.2 48 0.5 8.6
11.0 13.8 11.9 7.9
13.0 16.7 14.0 11.6
14.8 17.6 15.8 15.2
16.6 48 53.0 19.3 17.7 19.0 48 53.3
18.5 21.1 19.4 23.0 56.5
20.3 23.1 21.7 30.5 0.7
22.4 25.0 23.8 34.5
38.1

1329 1575 1430 2896
120

48 32.27 48 44.97 47 50.07 1696 48 5.73
49 14.767 48 53.00 49 17.500 48 15.889 48 15.418 48 36.83
14.739 −1 −2.67 17.472 −1 −5.69 15.861 −4.39 15.390 −4.10
48 11.57 −.43 48 11.464 −.17 48 11.176 −.14 48 11.153 +.00
+63.14 +68.03 +4.70 +4.26
+63.10 −2.86 +65.96 −2.73 +4.63 −2.45 +4.19 −2.42
48 8.78 8.88 8.88 8.87
− 62.71 − 65.72 − 4.42 − 4.09
− .42 − .18 − .13 − .08
− 2.86 − 2.73 − 2.45 − 2.42
− 65.99 5958 − 68.63.5 604 − 7.00 120 − 6.59 078
49 14.74 −16 1411 49 17.47 −16 1405 48 15.86 −16 1423 48 15.39 −16 1252
+.7 +.7 +.7 +.7
48 8.75 −3200 48 8.84 −3310 48 8.86 −3470 48 8.80 −3470
48 1417 48 1359 48 1298 48 1426
~~34~~

+ 42.50 + 21.77 + 32.53 + 25.82 + 9.69 − 41.41
15 15 15 15
−3.03 −3.11 −3.13 −3.13
2 26.7 2 42.1 2 37.4 2 41.7 2 58.1
38.4 52.9 42.0 45.9 55.3
65.4 95.0 79.4 76 13.4
17 32.70 17 47.50 17 39.70 17 43.80 17 56.70

1.62839 1.33786 1.51228 1.41196 0.98632 1.61711n
1.49234 1.20181 1.37623 1.27591 0.85027 1.48106n
+31.07 +15.92 +23.78 +18.88 +7.08 −30.27
18 3.77 18 3.42 18 3.48 18 2.68 18 3.78

4 44.58 44.93 4 44.87 4 45.67 4 44.57
44.75
26 15 26 1 25 51
1.17100n 1.17090n 1.17080n
+1275 +2475 +3565 +5128
1.18375 1.18365 1.19575 1.20665 1.22208
+15.27 +15.26 +15.69 +16.09 +16.68

−.44 −.43 −.11 −.25 −.52 −.16 −.56 −.3 −.47 −.42
−.15 −.17 −.27 −.40 −.44
+14.68 +14.98 +15.14 +15.53 +16.21
4 59.26 59.91 5 0.04 1.20 0.78
45.7 46.8 48.4 48.4
13.6 14.2 13.2 12.8 12.4
13.9 13.2 12.8 12.4
14.4 1380 13.7 13.3 12.9
−16 14.22 13.96 14.45 − 14.02 13.24 − 14.43 13.65 − 12.77 11.99
+ .76 + .78 + .78 + .78
− 3200 14.13 − 3310 1370 − 3470 1285 − 3470 14.09
− 45.46 − 46.34 − 48.35 − 46.69