1878phae.proj..1492.

KG
11366
v.488

Fundamental Stars
Observations and Reductions.
From 0^h to 5^h 19^m
B 1 1878

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1978pbac.proj..152.

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1878phae.proj.1492.

α Andromedæ.

0h 2m 5s
+28° 25′ 1″
+13° 57′ 47″

1878

			α₀	4.990s	1	log sin δ	9.67750		log R₁	1.41181		
									" R₂	1.11114		
			corr. α	+.021 / +.034		" cos δ	9.94424		R₁	25.81		
			dα/dt			" 15 cos δ tan	0.05031n		R₂	12.92		
									I	2.36		
			δ₀	0.69″		tan δ	+.54					
			corr. δ	−.24		sin z	+.24					
			dδ/dt									
	Oct. 29			Nov. 2			Nov. 3			Nov. 4		
h m s	m s	m s	m s									
0	5 38.6	5 41.24	5 54.20	5 39.7	5 49.80	6 2.78	5 43.3	5 52.05	6 4.80	6 4.0	5 53.80	6 6.88
	40.4	43.80	56.70	41.5	52.18	5.00	45.4	54.32	7.30	6.0	56.14	9.18
	42.4	46.23	59.00	43.5	54.50	7.40	47.6	56.80	9.62	8.3	58.53	11.49
	44.6	48.45	1.50	45.8	56.87	9.70	50.0	59.00	11.85	10.4	0.80	13.60
	46.8	51.00	3.90	48.2	59.26	12.10	53.3	1.48	14.25	12.7	3.35	16.10
	6 52.7	33.10	7.44	6 56.6	6 41.43	15.63	6 51.8	—	17.85	6 59.3	6 45.48	19.62
	55.6	35.40	9.80	59.1	43.71	18.00	53.8	—	20.05	1.5	47.90	22.00
	57.0	37.80	12.00	1.1	46.05	20.32	55.9	—	22.30	3.2	50.18	24.48
	58.9	40.10	14.40	3.3	48.52	22.70	58.0	—	24.70	4.9	52.50	26.80
	1.5	42.50	16.68	5.5	50.84	25.10	0.2	—	27.24	6.7	55.00	28.98
		46.14	20.17		54.51	28.53		56.73 22.54	30.67		58.52	32.54
		59.06	22.50		7.40	30.80		9.56 .48	32.84		11.45	34.80
		12.06	24.90		20.35	33.20		22.43 .43	35.30		24.38	37.25
		24.83	27.00		33.22	35.63		35.26 .34	37.50		37.21	39.47
		37.78	29.60		46.11	37.92		—	40.00		50.21	42.00
TS	5 42.56	5987		5 43.74	10159		5 47.92			6 8.28	12177	
TS Tm	6 57.12		6 11.974	7 1.12		6 20.318	6 55.94		6 22.448	7 3.12		6 24.354
App. place			2 9.217			9.19			9.19			9.18
T−R.A.			+4 2.78 (66)			4 11.13			4 13.26			4 15.17
Corr'd (")			+4 2.74			4 11.11			4 13.24			4 15.15
			2.73			11.10			13.23			15.14
ΔT+m			−4 2.08			−4 10.49			−4 12.53			−4 14.50
n tan δ			− .65			− .60			− .65			− .62
Red to 1878.0			− 4.23			− 4.20			− 4.20			− 4.19
Σ			−4 6.96			−4 15.29			−4 17.38			−4 19.31
R.A. 1878.0			2m 5.01s			5.03			5.07			5.04
Tm−TS	+29.41s	−45.15s		+36.58	−40.80		+34.53	−33.49		+16.07	−38.77	
log (")	1.46850	1.65466n		1.56324	1.61066n		1.53820	1.52492		1.20602	1.58850n	
" Rin.	1.51881n	1.70497		1.61355n	1.66097		1.58851n	1.57523		1.25633n	1.63881	
	0′ 1′	0′ 0′		0 1	0 0		0 1	0 0		0 1	0 0	
E	33.1″ +48	8.2″ +13		39.9 +33	14.9 +31		40.4 +32	24.8 +48		20.7 +50	20.0 +42	
F	39.1 +25	13.7 +09		45.9 +41	20.1 +08		45.1 +40	30.2 +03		25.1 +19	24.2 +05	
G	53.6 −38	27.7 −11		59.7 +10	34.2 −+18		67.3 −04	40.2 −48		33.9 −10	32.0 −11	
H	48.4 +40	25.6 +45		56.6 +30	32.0 +50		53.9 +32	39.9 +51		31.3 +64	31.0 +50	~~26.00~~
	43.35 +75	+56	19.95	49.80 +114	+109	24.55	48.85 +100	+59	32.50	27.30 +123	+86	26.00
Mean	1 43.55	0 18.60		1 50.52	0 25.30		1 49.18	0 33.78		1 27.75	0 26.80	
Rin	− 33.02	50.69		− 41.07	45.81		− 38.77	37.60		− 18.04	43.53	
Corr'd Reading	1 10.53	1 9.49		1 9.45	1 11.11		1 10.41	1 11.38		1 9.71	1 10.33	
δ +28°	21′ 37.82″	38.86″		38.90	37.24		37.94	36.97		38.64	38.02	
z = +13	57 0	8										
μ + log tan z	1.15540											
B+T+y	+1444			+710			+2104 (40)			+2249		
log Ref.	1.16984			1.16250			1.17644 (80)			1.17789		
Ref	−14.79			−14.54			−15.012			−15.06		
Rmd	− .18	− .46		− .29	− .38		− .27	− .26		− .06	− .34	
Rrc	− .17	− .03	−0.54	− .20	− .04	−0.77	− .20	− .06	−0.72	− .15	− .04	−0.52
Rdv	− .19	− .14	−0.60″	− .28	− .27.18	−0.60	− .25	− .14	−0.46	− .31	− .22	−0.60
Σ	−15.33	−15.42		−15.31	−15.14		−15.74	−15.48		−15.58	−15.66	
Corr'd δ	21 22.49	23.44″		21 22.59	22.10		21 22.20	21.49		21 23.06	22.36	
Mean	21 22.96			22.84			21.84			22.71		
App. δ	25 33.45	+4′ 10.54″	Req	33.9	+4 10.80		34.0	+4 11.58		34.1	+4 11.30	
		− .17	Rf I +4 10.57		− .18	+4 10.62		− .18	+4 11.40		− .18	+4 11.12
Δ	+4′ 11.5 (19″)	− 32.80	Red to 1878.0	4 11.1	− 33.20		4 12.2	− 33.30		4 11.4	− 33.40	
Corr'd Δ	10.3	+3 37.57	Σ	10.9	+3 37.42		12.0	+3 38.10		11.2	+3 37.72	
Dec. 1878.0		25′ 0.5″			0.3			59.9			0.4	

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	α			δ		
	m	s		′	″	
Oct. 27	2	9.23		25	33.2	
			3			6
Nov. 1		.20			33.8	
			3			5
6		.17			34.3	
			4			4
11		.13			34.7	
			5			4
16		9.08			35.1	
			5			3
21		9.03			35.4	
			5			2
26		8.98			35.6	
			5			1
Dec. 1		.93			35.7	
			6			0
6		8.87			35.7	

Nov. 5			Nov. 6			Nov. 12			Nov. 13		
5 43.3	5 55.50	6 8.45	6 50.5	—	—	6 39.0	—	6 19.95	6 0.5	6 8.81	6 21.60
45.5	57.93	10.70	52.5	—	—	41.3	—	22.28	2.4	11.17	24.00
47.0	0.25	13.10	54.6	—	—	43.6	—	24.70	4.3	13.55	26.38
49.0	2.58	15.45	56.5	—	—	45.4	—	27.00	6.6	15.83	28.70
51.3	4.95	17.85	57.0	—	—	47.4	—	29.38	8.4	18.18	31.00
7 0.6	46.92	21.35		6 48.90	—		58.72	32.90	7 18.0	0.35	34.52
2.3	49.50	23.70		51.00	—		1.00	35.30	20.4	2.65	36.87
4.4	51.80	26.00		53.45	—		3.42	37.62	22.3	5.80	39.20
6.8	54.00	28.42		55.86	—		5.80	39.90	24.5	7.35	41.55
9.3	56.52	30.72		58.29	—		8.15	42.38	26.3	9.60	43.90
	0.24	34.28		—	6 35.90		—	45.85		13.51	47.40
	13.11	36.50		—	38.18		24.66 37.58	48.18		26.34	49.80
	26.04	38.80		—	40.60		37.62 .62	50.52		39.21	52.00
	38.90	41.32		40.66 27.68	42.95		50.53 .61	52.88		52.09	54.45
	51.75	43.60		53.50 .69	45.38		3.42 .61	55.20		4.99	56.80
5 47.22	13004		6 54.22			6 43.34			6 4.44	19614	
7 4.68		6 26.008			6 27.685			6 37.605	7 22.30		6 39.228
		9.175			9.168			9.118			9.108
		4 16.83			4 18.52			4 28.49			4 30.12
		4 16.81			4 18.50			4 28.47			4 30.10
		16.80			18.49			28.46			30.09
		−4 16.22			−4 17.93			−4 27.83			−4 29.49
		− .59			− .62			− .64			− .60
		− 4.18			− 4.18			− 4.13			− 4.12
		−4 20.99			−4 22.73			−4 32.60			−4 34.21
		5.02			4.95			5.00			5.02
+3879	−3867		−2654			−574			+3479	−4307	
1.58872	1.58737n		1.42390n			0.75891n			1.54145	1.63417n	
1.63803n [9]	1.63768		1.47421			0.80922			1.59176n	1.68448	
0 1	0 0		0 0			0 0			0 1	0 0	
47.6 +19	20.3 +42		32.5 +46			52.8 +14			39.4 +35	10.9 +20	
51.5 +43	24.5 +05		36.1 +05			57.3 +22			43.5 +37	16.3 +09	
58.9 +07	33.7 −16		46.2 −66			12.2 −27			55.6 −17	27.6 −12	
58.1 +30	32.2 +50	27.00	43.9 +51			10.1 +73			53.4 +33	26.3 +45	
53.25 +99	+81		39.35 +36			~~12.57~~ 2.50 +82			47.50 +88	~~19.25~~ +62	19.25
1 54.02	0 27.68		0 29.68			1 3.10			1 47.98	0 20.28	
− 43.45 [5]	43.42		29.80			6.44			− 39.06	48.36	
1 10.57 [4]	1 11.10		1 9.48			1 9.54			1 8.92	1 8.64	
21 37.78 [8]	37.25		38.87			38.81			39.43	38.71 [9]	
+2140			+1823			−3			+1042		
1.17681			1.17363			1.15537			1.16583		
−15.03 [82]			−14.92			−14.30			−14.65		
− .34	− .34		− .16			− .01			− .28	− .42	
− .23	− .05	−0.82	− .08	−0.33		− .13	−0.34		− .23	− .04	−0.73
− .25	− .20	−0.59	− .09			− .20			− .22	− .16	−0.72
−15.84	−15.61		−15.25			−14.64			−15.38	−15.27	
21 22.04	21.64		21 23.62			21 24.17			21 24.05	24.44	
21.84			23.62			24.17			24.24		
34.2	+4 12.07		34.3	+4 11.29		34.8	+4 11.12		34.9	+4 10.41	
	− .18	+4 11.89		− .19	+4 11.10		− .21	+4 10.91		− .21	+4 10.20
+4 12.4	− 33.50		4 10.7	− 33.60		4 10.6	− 34.10		4 10.7	− 34.20	
12.2	+3 38.39		10.5	+3 37.50		10.4	+3 36.81		10.5	+3 36.00	
	0.2			1.1			1.0			0.2	

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1878

	Dec. 6		Dec. 11		Dec. 16		Dec. 21		Dec. 26	
	m	s	m	s	m	s	m	s	m	s
	2	8.87	2	.81	2	.74	2	.68	2	8.61
	6		7		6		6		7	
	25′	35.7	25′	35.7	25′	35.6	25′	35.4	25′	35.1
	0		0		1		2		3	

1878

	Nov. 14					Nov. 23				Dec. 6				Dec. 17			
	m	s	m	s	m	s	m	s		m	s			m	s		
0	6	15	6	10.20	6	22.85	6	1.23	6	20.10	6	32.85	6	19.5	6	35.30	48.15
		3.2		12.40		25.25		14.1		22.30		35.10		21.0		37.60	50.48
		4.9		14.90		27.65		16.0		24.60		37.60		22.8		39.78	52.83
		7.5		17.00		29.85		18.2		27.10		39.80		24.4		42.30	55.15
		9.4		19.40		32.30		20.3		29.44		42.30		26.9		44.64	57.61
	7	17.7		1.64		35.75				11.82		45.67				26.72	1.05
		19.5		4.00		38.18				13.82		48.10				29.14	3.53
		21.2		6.38		40.45				16.26		50.54				31.62	5.78
		22.9		8.70		42.90				18.50		52.84				33.95	8.00
		25.0		11.20		45.18				20.95		55.20				36.25	10.35
				14.82		48.61				24.71		58.73				39.92	13.98
				27.58		51.10				37.53		1.00				52.84	16.28
				40.49		53.42				50.47		3.30				5.44	18.58
				53.37		55.61				3.34		5.68				18.66	21.00
				6.38		58.10				16.23		8.00				31.54	23.48
	6	5.30	20	64			6	16.18	25	28			6	22.92	28	70	
	7	21.26			6	40.528					6	50.456					7	5.740
					2	9.10						9.01					8	8.87
					+4	31.43					4	41.45					4	46.87
					+4	31.41					4	41.43						5
						31.40						41.42					+4	4.684
					−4	30.86					−4	40.89					−4	56.31
					−	.61					−	.58					−	.56
					−	4.11					−	4.02					−	3.88
					−4	35.58					−4	45.49					−5	0.75
					2	4.95						4.97						4.99

	Dec. 17					
	m	s				
	6	49.1	6	47.46		59.80
		52.7		49.82		2.60
		56.2		52.22		4.95
		58.9		54.58		7.35
		1.0		57.00		9.77
	7	56.9		28.95		13.00
		59.3		41.34		15.50
		1.4		43.72		18.00
		3.6		46.15		20.30
		5.7		48.52		22.60
				52.22		26.20
				4.89		28.58
				17.88		30.90
				30.81		33.00
				43.74		25.37
	6	5558		8964		
	8	1.38			7	17.908
						8.73
					5	9.18
					+6	9.15
					−5	8.62
					−	.50
					−	3.74
					−5	12.86
						5.05

	s		s			s			s	
	+35.23		−40.73			+34.28			+42.82	
	1.54691		1.60991			1.53504			1.63165	
	1.59722		1.66022			1.58535			1.68196	
	0′	1″	0′	0″		0	1		0	1
E	41.7	+30	16.7	+35		38.0	+37		50.5	+14
F	46.1	+21	21.6	+06		42.2	+34		53.4	+40
G	55.9	−13	30.8	−08		52.0	+47		0.6	+12
H	58.9	+32	29.2	+49		51.9	+35		0.9	+33
	48.80	+70		82	2375	45.00	89		55.55	99
	1	49.40	0	24.58		1	46.02		1	56.35
	−	34.56		45.73		−	38.49		−	48.08
	1	9.84	1	10.31		1	7.53		1	8.27
+28°	21′	38.51		38.04			40.82			40.08
		+23.89					+102			+19.91
		1.17929					1.15642			1.17531
		−15.11					−15.01			−14.97
		− .28		− .37			− .27			− .42
		− .23		− .05	−0.69		− .22	−0.64		− .19
		− .18		− .20	−0.62		− .15			− .25
		−15.80		−15.73			−15.65			−15.83
	21′	22.71		22.31			25.17			24.25
	21	22.51					25.17			24.25
	25	34.9	+4′	12.04			35.5	+4 10.10		35.7 +4 10.66
		"	−	.22	+4 11.82		−	.25 +4 9.85		− .30 +4 10.36
	+4′	12.4	−	34.26		4	10.3	− 34.80		11.5 − 35.00
		12.2	+3	37.62			10.1	+3 35.05		11.3 +3 35.36
			25′	0.1				0.2		59.6

	+ 22.33		− 43.47							
	1.34889		1.63819							
	1.39920		1.68850							
	0	1	0	0						
E	26.7	+53	13.3	+27						
F	31.1	+17	17.2	+09						
G	37.9	−29	23.3	−29						
H	36.8	+57	24.6	+13						
	32.30	1598	40.00	50	18.30					
	1	33.12	0	19.60						
	−	25.07	+	48.81						
	1	8.05	1	8.41						
		40.30		39.94						
		+25.90								
		1.18134								
		−15.18								
		− .11		− .43						
		− .19		− .34	−0.54					
		− 38.24		− 12	−0.59					
		−15.72		−15.77						
		24.43 58		24.17						
		24.38								
		35.6	+4	11.10						
		2	−	.32	+4 10.78					
		11.3	−	34.90						
		11.1	+3	35.88						
		0		0.3						

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γ Pegasi.

Oh 60m 57s
+14° 30' 18"
+27 52 30
1878

α_0 57s.273 — log sin δ 9.39875
corr. α +.003 +.012 — " cos δ 9.98593
$\frac{d\alpha}{dt}$ — " 15 sec tan 0.09200 n
δ_0 18".24
tan δ +.26
corr. δ +.41
$\frac{d\delta}{dt}$
sin z +.47

	Nov. 2		Nov. 3		Nov. 4		Nov. 5	
	h m s	m s	m s	h m s	h m s	h m s	h m s	h m s
0	10 38.3	10 44.62	10 56.30	10 38.6	10 46.50	10 58.47	10 38.1	10 48.60	11 0.27	10 40.1	10 50.28	11 2.00
	40.2	46.60	58.44	40.2	48.80	0.58	40.5	50.60	2.39	42.2	52.40	4.00
	42.1	48.86	0.63	42.0	50.87	2.60	42.2	52.85	4.48	43.8	54.53	6.20
	44.0	50.98	2.72	44.0	53.00	4.80	43.8	55.10	6.60	45.4	56.70	8.32
	46.0	53.20	4.87	46.0	55.30	6.90	46.0	57.00	8.84	47.6	58.80	10.52
	11 47.3	11 31.53	8.00	11 51.8	11 33.63	10.10	11 55.3	11 35.20	12.05	11 53.0	37.10	13.72
	49.0	33.66	10.05	53.3	35.60	12.05	56.9	37.50	14.20	54.7	39.32	15.85
	50.6	35.77	12.40	54.6	37.85	14.30	58.7	39.60	16.30	56.2	41.37	17.92
	52.7	37.82	14.43	56.9	39.90	16.40	1.0	41.85	18.34	58.1	43.50	20.00
	54.5	40.00	16.57	58.3	42.15	18.55	3.5	44.10	20.55	0.1	45.70	22.20
		48.85	19.72		50.89	21.90		52.81	23.79		54.54	25.45
		0.59	21.87		2.67	23.95		4.52	26.05		6.21	27.52
		12.29	24.00		14.28	26.35		16.29	28.10		17.94	29.68
		23.99	26.05		26.07	28.18		28.03	30.00		29.67	31.80
		35.76	28.33		37.83	30.29		39.63	32.20		41.40	34.00
	10 40.12	6148		10 42.16	7174		10 42.12	8128		10 43.82	8976	
	11 50.82		11 12.296	11 54.98		11 14.348	11 59.08		11 16.256	11 56.42		11 17.982
			7 1.694			1.498			1.49			1.485
			+4 10.80			4 12.85			4 14.77			4 16.47
			10.78			12.84			14.76			16.46
			−4 10.60			−4 12.54			−4 14.51			−4 16.23
			− .29			− .32			− .30			− .28
			− 4.23			− 4.22			− 4.22			− 4.21
			−4 15.02			−4 17.08			−4 19.03			−4 21.72
			6m 57.28			57.27			57.23			57.23
	+3018	−3852		+3219	−4063		+3414	−4282		+3413	−3847	
	1.47972	1.58569m		1.50772	1.60885m		1.53326	1.63165m		1.53314	1.58512m	
	1.57172m	1.67769		1.59972m	1.70085		1.62526m	1.72365		1.62514m	1.67712	
	55 1	50 4		55 1	50 4		55 1	50 4		55 1	50 4	
G	3.5 +16	38.8 +33		6.4 +20	35.8 +40		10.5 +29	34.6 +44		11.8 +32	41.0 +29	
H	11.1 +25	45.3 +18		14.2 +25	42.8 +14		18.1 +25	40.9 +10		18.0 +25	46.8 +20	
I	26.9 −09	0.6 +01		28.4 −06	56.4 −20		28.1 −07	50.9 −56		28.9 −05	56.1 −21	
K	19.3 +67	55.0 −01		21.5 +66	50.2 +04		21.2 +66	45.4 +09		22.5 +65	51.8 +02	
	19.20 99	157	49.70	17.40 105	38	46.10	19.30 113	07	42.75	20.35 117	30	48.55
	56 14.20	54 49.92		56 17.62	54 46.30		56 19.48	54 42.95		56 20.30	54 48.92	
	− 37.30	47.61		− 39.79	50.22		− 42.19	52.92		− 42.18	47.53	
	55 37.90	55 37.53		55 37.83	55 36.52		55 37.29	55 35.87		55 38.12	55 36.47	
+14°	27 10.45	10.82		10.52	11.83		11.06	12.48		10.23	11.88	
+27	51 28											
	1.48330											
	+717			+2150			+2259			+2148		
	1.49047			1.50480			1.50589			1.50478		
	−30.14			−31.97			−32.05			−31.97		
	− .12	− .19		− .13	− .21		− .15	− .24		− .15	− .19	
	− .13	− .53	−0.50	− .14	− .53	−0.53	− .14	− .51	−0.57	− .16	− .58	−0.60
	− .25	− .13	−0.85	− .26	− .10	−0.84	− .28	− .02	−0.87	− .29	− .08	−0.85
	−31.44	−31.79		−32.50	−32.81		−32.62	−32.82		−32.57	−32.82	
	26 39.01	39.03		38.02	39.02		38.44	39.66		37.66	39.06	
	26 39.02	"		38.52			39.05			38.36		
	30 49.1	+4 10.80		49.2	+4 11.58		49.2	+4 11.30		49.3	+4 12.07	
	"	− .35	+4 10.45		− .35	+4 11.23		− .35	+4 10.95		− .36	+4 11.61
	+4 10.1	− 30.90		4 10.7	− 31.00		4 10.2	− 31.00		4 10.9	− 31.10	
	10.5	+3 39.55		11.1	+3 40.23		10.6	+3 39.95		11.3	+3 40.61	
		30' 18.6			18.7			19.0			19.0	

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	α			δ	
	m s			' "	
Oct. 27	7 1.53			30 48.9	
Nov. 1	1.51	2		49.1	2
6	1.48	3		49.3	2
11	1.45	3		49.4	1
16	1.41	4		49.5	1
21	1.37	4		49.5	0
26	1.33	4		49.4	1
Dec. 1	1.28	5		49.3	1
6	1.23	5		49.2	1

Nov. 12 | Nov. 13 | Nov. 14 | Nov. 23

10 49.5	11 2.00	13.62	10 53.2	11 36.0	11 15.30	10 57.4	11 48.0	11 16.68	11 8.4	11 14.83	11 26.57
52.0	4.00	15.76	55.2	57.0	17.40	59.6	6.85	18.84	10.2	17.00	28.70
53.9	6.18	17.88	57.2	7.85	19.60	1.8	9.10	21.00	12.1	19.00	30.80
55.9	8.30	20.00	58.8	9.97	21.60	3.8	11.30	23.14	14.0	21.24	32.85
57.8	10.45	22.18	0.7	12.00	23.85	7.1	13.40	25.10	16.2	23.36	35.10
	13.13										
12 4.8	48.80	25.32	12 7.1	50.45	27.10	12 8.1	51.85	28.33		1.80	38.17
6.5	50.90	27.56	8.7	52.57	29.15	10.3	54.00	30.37		3.88	40.30
8.4	53.05	29.62	10.6	54.80	31.29	12.5	56.10	32.80		5.95	42.42
10.2	55.23	31.70	12.5	56.90	33.40	14.1	58.20	34.90		8.10	44.60
12.0	57.40	33.90	14.7	59.00	35.50	15.7	0.40	37.00		10.25	46.77
		~~33.90~~									
	6.19	37.05		7.82	38.65		9.09	40.10		19.09	50.00
	17.89	39.22		19.55	40.85		20.95	42.18		30.80	52.10
	29.62	41.32		31.29	43.00		32.68	44.53		42.45	54.30
	41.34	43.50		42.98	45.10		44.42	46.55		54.26	56.40
	53.08	45.66		54.74	47.30		56.11	48.75		6.00	58.50

10 53.82	14812		10 57.02	15638		11 1.94	16325		11 12.18	21260	
12 8.38		11 29.624	12 10.72		11 31.276	12 12.14		11 32.650			11 42.520
		1.44			1.432			1.42			1.35
		4 28.18			4 29.84			4 31.23			4 41.17
		28.17			29.83			31.22			41.16
		−4 27.84			−4 29.50			−4 30.87			−4 40.90
		− .31			− .29			− .30			− .28
		− 4.17			− 4.16			− 4.15			− 4.08
		−4 32.32			−4 33.95			−4 35.32			−4 45.26
		57.30			57.33			57.33			57.26

+3580	−3876	+3426	−3944	+3071	−3949	+3034	
1.55388	1.58838_n	1.53479	1.59594_n	1.48728	1.59649_n	1.48202	
1.64588_n	1.68038	1.62679_n	1.68794	1.57928_n	1.68849	1.57402_n	
55 1	50 4	55 1	50 4	55 1	50 4	55 1	
11.7 +32	38.8 +33	9.4 +27	36.7 +38	6.5 +20	40.3 +30	5.0 +18	
18.9 +24	46.1 +19	16.1 +25	43.2 +15	12.2 +26	46.0 +19	11.2 +25	
34.7 −14	1.1 +02	30.9 −03	56.9 −12	25.9 −12	57.4 −11	24.4 −21	
28.1 +65	56.2 −02	23.9 +66	51.9 +02	18.6 +67	53.1 +01	19.0 +67	
23.20 107	52 4995	20.15 115	41 4680	16.20 101	39 4885	14.70 89	
56 23.35	54 50.55	56 20.08	54 48.18	56 15.80	54 49.20	56 14.90	
− 44.25	47.90	− 42.34	48.75	− 37.95	48.81	− 37.50	
55 39.10	55 38.45	55 37.74	55 35.93	55 37.85	55 38.01	55 37.40	
27 9.25	9.90	10.61	12.42	10.50	10.34	10.95	

+12			+1051			+2401			+108		
1.48342			1.49381			1.50731			1.48438		
−30.44			−31.17			−32.16			−30.51		
− .17	− .19		− .15	− .19		− .12	− .20		− .12		
− .18	− .62	−0.62	− .17	− .62	−0.61	− .17	− .62	−0.54	− .14	−0.48	
− .27	− .13	−0.94	− .29	− .10	−0.91	− .25	− .10	−0.92	− .22		
−31.06	31.38		−31.78	−32.08		−32.70	−33.08		−30.99		
38.19	38.52		38.83	40.34		37.80	37.26		39.96		
38.36			39.58			37.53			39.96		
49.4	+4 11.12		49.1	+4 10.41		49.5	+4 12.04		49.5	+4 10.10	
	− .41	+4 10.71		− .42	+4 9.99		− .43	+4 11.61		− .49	+4 9.61
+4 11.0	− 31.20		4 9.8	− 31.20		4 12.0	− 31.30		4 9.5	− 31.30	
11.4	+43 39.51		10.2	+3 38.79		12.4	+3 40.31		9.9	+3 38.31	
	17.9			18.4			17.8			18.3	

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	Nov. 30			Dec. 8			Dec. 11			Dec. 12		
	Dec. 6	7 m 1.23		30 1 49.2								
	11	.18	5	49.0	2							
	16	.13	5	48.8	2							
	21	.08	5	48.5	3							
	26	1.02	6	48.2	3							
h	m s	m s	m s									
0	11 12.3	11 22.98	11 34.62	11 21.2	11 32.40	44.00	11 35.3	11 35.56	47.33	11 26.5	11 36.88	48.50
	146	25.40	36.66	24.0	34.40	46.05	37.0	37.82	49.48	28.7	39.10	50.60
	164	27.10	38.95	25.5	36.60	48.30	38.9	40.00	51.52	30.6	41.18	52.80
	179	29.30	41.10	27.1	38.72	50.52	40.3	42.00	53.70	32.8	43.37	54.98
	20.0	31.47	43.00	28.8	40.96	52.60	42.5	44.20	55.82	34.9	45.40	57.02
		9.75	46.35		19.28	55.70	12 37.3	22.57	59.00	12 36.5	23.61	0.20
		1.92	48.40		21.32	57.90	39.6	24.63	1.30	37.7	25.77	2.25
		1.398	50.60		23.43	0.03	41.6	26.83	3.30	39.3	28.00	4.45
		16.23	52.90		25.52	2.15	43.3	28.92	5.48	41.2	30.00	6.66
		18.35	54.95		27.82	4.30	45.1	31.00	7.62	43.6	32.23	8.74
		27.17	58.20		36.62	7.55		39.92	10.76		41.19	12.00
		38.87	0.30		48.29	9.70		51.57	13.00		52.78	14.05
		50.64	2.38		0.02	11.84		3.34	15.00		4.46	16.16
		2.40	4.50		11.80	13.90		15.07	17.22		16.19	18.29
		14.05	6.60		23.47	16.00		26.79	19.38		27.92	20.53
	11 16.24	25313		11 25.32	020		11 38.80	1669		11 30.70	2254	
			11 50.626			12 0.040	12 41.38		12 3.338	12 39.46		12 4.508
			7 1.29			7 1.21			1.18			7 1.17
			+ 4 49.34			+ 4 58.83			+ 5 2.16			+ 5 3.34
			49.33			+ 4 58.82			+ 5 2.15			3.33
			-4 48.93			-4 58.58			-5 1.87			-5 2.98
			- .30			- .26			- .28			- .27
			- 4.02			- 3.94			- 3.91			- 3.90
			-4 53.25			-5 2.78			-5 6.06			-5 7.15
			m s 6 57.38			57.26			57.28			57.36
	s											
	+ 3439			+ 3472			+ 2454	− 38.04		+ 3381	− 3495	
	1.53643			1.54058			1.38987	1.58024		1.52905	1.54345	
	1.62843			1.63258			1.48187	1.67824		1.62105	1.63545	
	' '											
	55 1			55 1			55 0	50 4		55 1	50 4	
E	9.6 +27			12.7 +35			57.9 +13	40.2 +31		9.4 +27	43.6 +23	
F	16.5 +25			17.9 +25			5.6 +23	47.1 +20		15.9 +25	49.9 +19	
G	28.1 -07			26.7 -10			17.1 -42	58.7 -04		26.9 -04	59.8 00	
H	24.1 +66			20.0 +66			11.5 +72	53.7 -01		21.6 +65	55.0 -01	
	18.85 111			19.70 116			7.50 66	46	49.45	18.15 108	41	51.70
	56 19.58			56 19.32			56 8.02	54 49.92		56 18.45	54 62.08	
	− 41.84			− 42.91			− 30.33	+ 46.80		− 41.79	43.20	
	55 38.04			55 36.41			55 37.69	55 36.72		55 36.66	55 35.28	
+14°	27 10.31			27 11.94			27 10.66	27 11.64		11.69	13.07	
	11.27											
	+ 2063			+ 3210			+ 969			+ 2012		
	1.50393			1.51548			1.49299			1.50342		
	− 31.91			− 32.76			− 31.12			− 31.87		
	− .15			− .16			− .08	− .18		− .15	− .16	
	− .13	− 0.56		− .13	− 0.58		− .11	− .48	− 0.35	− .14	− .54	− 0.56
	− .28			− .29			− .16	− .11	− 0.77	− .27	− .10	− 0.80
	+ 32.44			− 33.34			− 31.47	− 31.87		− 32.43	− 32.67	
	26 38.80			38.60			39.19	39.52		39.26	40.40	
	26 38.80			38.60			39.35			39.83		
	30 49.3	+ 4 11.13		49.2	+ 4 11.46		49.0	+ 4 10.45		49.0	+ 4 10.07	
	"	− .55	+ 4 10.58	"	− .60	+ 4 10.86		− .61	+ 4 9.84		− .62	+ 4 9.45
	+ 4 10.5	− 31.10		10.6	− 30.90		9.6	− 30.80		9.2	− 30.80	
	10.9	+ 3 39.48		10.9	+ 3 39.90		10.0	+ 3 39.04		9.6	+ 3 38.65	
		' " 30 18.3			18.5			18.4			18.5	

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For Dec. 25
v. J. 13

Dec. 17

11 34.3	11 42.40		54.10
35.9	44.38		56.30
38.6	46.50		58.42
40.0	48.63		0.57
41.7	50.90		2.62
12 48.7	29.22		5.95
50.6	31.38		8.00
52.5	33.48		10.00
54.6	35.70		12.10
57.3	37.90		14.22
	46.56		17.50
	58.40		19.73
	10.05		21.88
	21.76		23.70
	33.54		26.00
11 37.98	50.31		
12 52.74		12 10.062	
		1.12	
		+5 8.94	
		+5 8.93	
		−5 8.63	
		− .24	
		− 3.85	
		−5 12.72	
		57.34	
+ 3208	− 4268		
1.50623	1.63022		
1.59823	1.72222		
55 1	50 4		
8.2 +24	36.3 +39		
13.4 +26	42.5 +13		
23.6 −25	51.2 −56		
17.9 +67	46.1 +08		
15.90 92	+04	43.75	
56 15.78	54 44.02		
− 39.65	52.75		
55 36.13	36.77		
27 1222	27 1158		
+2594			
1.50924			
−32.30			
− .13	− .24		
− .15	− .67	− 0.51	
− .23	− .01	− 0.82	
−32.81	−33.12		
39.41	38.46		
38.94			
48.7	+4 11.10		
	− .63	+4 10.47	
9.8	− 30.50		
10.2	+3 39.97		
	18.9		

Dec. 18

11 43.5	11 43.18		54.90
46.0	45.43		56.97
48.0	47.60		59.12
50.0	49.62		1.32
51.3	51.82		3.45
12 43.1	30.00		6.60
45.1	32.20		8.72
46.9	34.37		10.80
48.1	36.42		12.90
50.2	38.65		15.10
	47.53		18.30
	59.15		20.48
	10.82		22.57
	22.59		24.70
	34.33		26.90
11 47.76	54.42		
12 46.68		12 10.884	
		1.11	
		+5 9.77	
		+5 9.76	
		−5 9.54	
		− .23	
		− 3.84	
		−5 13.61	
		57.27	
+ 2312	− 3580		
1.36299	1.55388		
1.45599	1.64588		
55 0	50 4		
57.9 +13	44.6 +21		
3.7 +20	50.2 +19		
13.2 −30	58.5 −04		
7.1 +72	54.7 −01		
5.55 75	35	51.55	
56 5.48	54 52.00		
− 28.58	44.25		
55 36.90	36.25		
27 1144	1210		
+ 2144			
1.50474			
−31.97			
− .07	− .17		
− .13	− .59	− 0.39	
− .19	− .09	− 0.85	
−32.36	−32.92		
39.09	39.28		
39.18			
48.5	+4 10.24		
	− .64	+4 9.60	
9.5	− 30.50		
9.9	+3 39.10		
	18.3		

Dec. 23

11 37.1	11 46.00		57.58
38.6	48.00		59.70
40.2	50.05		1.90
42.3	52.33		4.00
44.0	54.50		6.00
12 44.6	32.73		9.30
46.0	34.70		11.50
47.9	37.10		13.62
49.7	39.20		15.67
51.7	41.35		17.80
	50.18		21.00
	1.84		23.05
	13.58		25.20
	25.24		27.23
	37.02		29.60
11 40.44	6.86		
12 47.98		12 13.572	
		1.46	
		+5 12.57	
		+5 12.50	
		−5 12.23	
		− .27	
		− 3.79	
		−5 16.24	
		57.28	
+ 3313	− 3441		
1.52022	1.53668		
1.61222	1.62868		
55 1	50 4		
9.6 +27	44.2 +22		
15.2 +25	50.2 +19		
24.1 −22	68.4 −05		
19.4 +67	54.7 −01		
16.85 +97	+ 35	57.30	
56 17.08	54 51.85		
− 40.95	42.53		
55 36.13	34.41		
27 1222	1394		
+2549			
1.50879			
−32.27			
− .14	− .15		
− .16	− .63	− 0.54	
− .24	− .09	− 0.87	
−32.81	−33.14		
39.41	40.80		
40.10			
48.4	+4 10.61		
	− .65	+4 9.96	
8.3	− 30.20		
8.7	+3 39.76		
	19.9		

Dec. 24

11 39.4	11 46.35		58.05
41.7	48.40		0.29
43.7	50.58		2.37
45.3	52.62		4.40
47.2	54.62		6.38
12 44.6	33.40		9.70
46.5	35.15		11.80
48.4	37.53		13.92
50.0	39.57		16.10
51.8	41.64		18.15
	50.51		21.32
	2.28		23.52
	13.43		25.75
	25.70		27.90
	37.46		30.00
11 43.46	1988		
12 48.26		12 13.996	
		1.44	
		+5 12.94	
		+5 12.93	
		−5 12.64	
		− .24	
		− 3.77	
		−5 16.65	
		57.33	
+ 3052	− 3428		
1.48458	1.53504		
1.57658	1.62704		
55 1	50 4		
6.7 +20	46.2 +18		
12.4 +26	50.8 +18		
21.4 −34	59.5 −02		
15.4 +70	54.9 −01		
14.05 +82	+ 33	52.85	
56 13.98	54 52.85		
− 37.72	42.37		
55 36.26	35.22		
27 1209	1313		
+ 2625			
1.50956			
−32.33			
− .12	− .15		
− .16	− .63	− 0.48	
− .20	− .08	− 0.86	
−32.81	−33.19		
39.28	39.74		
39.61			
48.3	+4 9.70		
	− .65	+4 9.05	
8.4	− 30.10		
9.1	+3 38.95		
	18.6		

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κ Cassiopeiæ.

$0^h\ 26^m\ 5^s$

$+62°\ 15'\ 30''$

$\mp 19°\ \ 56'\ 42''$ (56 struck through, corrected 52)

1878

α_0	$26^m\ 4^s.580$	
Corr. α	−.030 (red: +.052)	
$\frac{d\alpha}{dt}$	+ 3.362	
δ_0	15′ 29″.77	
Corr. δ	−.52	
$\frac{d\delta}{dt}$	+ 19″.94	

log sin δ	9.94697	
" cos δ	9.66791	
" 15 cos δ tan i	9.79269	for Jan.
	9.77398m	for Nov. Dec.
tan δ	+ 1.90	
tan z / sin	−34	

R_c	1.38747
R_c	1.68814
$R_2 c$	2440
$R_1 c$	48.77
I	4.44
½ I	2.22

Jan. 5

h	m	s	m	s
0	24	43.5	25	9.67
		47.3		13.88
		50.7		18.57
				27.45
				31.78
				36.00
	26	8.4		40.78
		12.0		45.18
		15.6		54.00
				58.50
				2.90
				33.71
				39.71
	24	47.17		
	26	12.00	25	35.79 (red 36.246)
			26	4.05
				−27.80
				−27.77
				27.85 (red)

\+ 29.06
− 1.31
\+ 0.53
\+ 28.28

26ᵐ 4ˢ.53

Nov. 6 — Nov. 23 — Nov. 24

29 9.4	29 56.8	30 20.9	30 25.2	30 18.9	30 43.5	30 37.5	30 —	30 45.1
13.4	58.8	22.8	28.4	21.3	45.5	43.1	—	47.2
20.0	0.8	25.2	32.8	23.7	48.0	46.8	—	49.5
24.0	2.9	27.3	36.3	25.6	50.0	51.0	29.2 27.0	51.7
28.0	5.2	29.5	40.4	28.0	52.3	54.4	.4 29.4	53.9
	7.4	32.0		30.2	54.4		.3 31.5	56.0
31 7.6	9.8	34.2		32.4	56.7	31 33.7	.5 33.9	58.3
10.9	12.0	36.4		34.5	58.8	38.4	.4 36.1	0.7
14.0	479 14.2	2672 38.9		2513 36.7	4703 1.1	41.5	.1 38.0	4854 3.0
16.5						46.2		
22.4	5.32	45.5		27.92	7.8	49.5	29.32	9.4
	29.69	47.5		52.26	10.1		53.93	11.5
	54.17	49.5		16.69	12.2		18.18	13.8
		51.7			14.4			16.0
	8918	54.2		15687	16.7		16143	18.1
		56.4			18.9			20.3
		58.7			21.1			22.6
		0.9			23.3			24.8
29 18.96		4875 3.1	30 32.62		1502 25.5	30 46.56		1636 27.1
31 14.28		30 29.727			30 52.290	31 41.86		30 53.810
		26 9.656			9.32			9.29
		+ 4 20.07			+ 4 42.97			4 44.52
		+ 4 20.10			+ 4 43.00			4 44.55
		20.02 (red)			42.92 (red)			44.47 (red)
		− 4 17.97			− 4 40.93			− 4 42.41
		− 2.19			− 2.05			− 2.13
		− 5.08			− 4.74			− 4.71
		− 4 25.24			− 4 47.72			− 4 49.25
		4.49			4.57			4.56

Reductions

Jan. 5		Nov. 6		Nov. 23	Nov. 24	
+ 49ˢ.08	− 35ˢ.75	+ 7077	− 4455	+ 1967	+ 725	− 4805
1.69090	1.55328n	1.84985	1.64885n	1.29380	0.86034	1.68169n
1.48359	1.34597n	1.62383n	1.42283	1.06778n	0.63432n	1.45567
10′ 2′	10′ 2′	10 1	10 0	10 1	10 1	10 0
E 4″.9 +.13	58.4 +.16	52.7 +10	44.6 +26	15.0 +40	8.9 +26	35.6 +41
F 12.5 +.34	5.8 +.30	51.9 +42	42.7 +21	14.2 +25	8.4 +24	35.3 +04
G 58.2 +.04	51.5 −.50	1.9 +14	53.0 −54	26.2 −12	20.6 −36	47.2 −68
H 4.4 +.43	58.9 +.22	1.8 +35	53.8 +51	27.8 +65	20.2 +66	48.0 +51
12′ 1.55 ″.94 (red)	54.1 ″.18 54.95 (red)	57.30 101 (red)	44 48.80 (red)	20.60 118 (red)	14.75 80 (red)	28 41.40 (red)
14 5.00	12 58.65	11 57.08 (red 47.06)	10 48.52	11 20.80	11 14.52	10 41.52
30.45	− 22.18	− 43.04	26.47	− 11.69	− 4.31	28.55
12 35.45	12 36.47	11 14.04 (red 15.02)	11 14.99	11 9.11	11 10.21	11 10.07
+62° 10′ 12″.90	10′ 11″.88	11 34.31 (red 35.33)	33.36	39.24	38.14	38.28
−19° 53′ 14″	52′ 20″	−19 52 55				
1.31867	1.31833	1.31850				
+ 2840	+ 2840	+ 1860		+ 139	+ 1103	
1.34707	1.34673	1.33710		1.31989	1.32953	
+ 22″.24	+ 22″.22	+ 21.73		+ 20.89	+ 21.36	
− .54	− .29	− 1.13	− .45	− .09	− .02	− .52
− .21	− .38	− .23	− .10	− .16	− .14	− .08
− .24	− .04	− .25	− 22.11	− .30	− .20	− .07
+ 21.725	+ 21.539	+ 20.12	+ 21.07	+ 20.34	+ 21.00	+ 20.69
10 34.15	33.47	11 53.45	54.43	59.58	59.14	58.97
10 33.81		11 53.94		59.58	59.06	
15 51.8	+ 4 18.09	16 6.1	+ 4 11.29	9.9	+ 4 10.10	10.1	+ 4 10.48
	+ .48		+ .27		+ .36		+ .36
+ 5 18.0	− 22.00	4 12.2	− 36.30	4 10.3	− 40.10	4 11.0	− 40.30
17.5	+ 4 56.57	11.7	+ 3 35.26	9.8	+ 3 30.36	10.5	+ 3 30.54
	15 3 40.4		29.2		29.9		29.6

Red marginal results: − 0.98, − 0.63 (Jan. 5); − 1.61, − 0.66 (Nov. 6); − 0.55 (Nov. 23); − 0.36, − 0.67 (Nov. 24); + 5 18.57 (Jan. 5); + 4 11.46 (Nov. 6); + 4 10.46 (Nov. 23); + 4 10.74 (Nov. 24)

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	α		δ	
	26m		15'	
Jan. 0	4.24s	18	52.0"	2
5	4.06	17	51.8	3
10	3.89	17	51.5	4
15	3.72	17	51.1	5
20	3.55	16	50.6	6
25	3.39	16	50.0	8
30	3.23	15	49.2	9
Feb. 4	3.08	15	48.3	10
9	2.93		47.3	

	α		δ	
	26m		16'	
Oct. 27	9.78s	5	3.3"	14
Nov. 1	.73	7	4.7	13
6	.66	8	6.0	12
11	.58	10	7.2	12
16	9.48	11	8.4	11
21	.37	12	9.5	9
26	.25	13	10.4	8
Dec. 1	9.12	14	11.2	7
6	8.98		11.9	

Nov. 26

30	45.5	30	—	30	47.2
	50.0	31.9	25.2		49.6
	53.2	.8	27.4		51.9
	55.8	.9	29.7		54.0
	1.3	.7	31.7		56.0
		.7	33.9		58.4
31	32.0	.9	36.3		0.7
	35.1	.8	38.5		3.0
	37.7	.8	40.7	506.0	5.2
	42.4				
	46.2	31.81			11.5
		56.22			13.9
		20.71			16.2
					18.5
		168.74			20.7
					23.0
					25.4
					27.5
30	53.76			186.4	29.7
31	38.68			30	56.247
					9.244
				4	47.00
				4	47.03
					46.95
				−4	44.76
				−	2.18
				−	4.66
				−4	51.60
					4.65

+249 −4243
0.39620 1.62767n
0.17018n 1.40165

10	1	10	0
8.1	+23	40.8	+32
8.1	+24	40.7	+15
19.9	−38	51.7	−60
18.7	+67	53.0	+51
14.00	76	38	46.25
11	13.70	10	48.55
—	1.48		25.21
11	12.22	11	11.76
.11	36.13		36.59

+2237
1.34087
+21.92
.20 — .41
— .13 — .09 −0.32
— .19 — .10 −0.60
+21.60 +21.32
57.73 57.91
57.82
10.4 +4 11.24
+4 12.6 + .37 +4 11.61
12.1 − 40.60
+3 31.01
28.8

Nov. 30

30	18.4	30	27.00	30	51.6
	22.0		29.2		53.9
	25.8		31.5		56.0
	29.7		33.6		58.0
	34.1		35.8		0.4
			38.2		2.9
31	34.2		40.4		4.8
	37.0		42.5		6.8
	40.5	323.1	44.9	38	9.4
	44.3				
	48.4	35.90			15.7
		0.42			17.9
		24.69			20.2
					22.6
		101			24.7
					27.0
					29.1
					31.4
30	26.00			222.2	33.6
31	40.88			31	0.337
					9.14
				4	51.20
				4	51.23
					51.15
				−4	48.94
				−	2.19
				−	4.56
				−4	55.69
					4.65

+3434 −4054
1.53588 1.60788n
1.30978n 1.38186n

10	1	10	0
25.1	+53	40.9	+32
25.1	+19	41.0	+16
36.1	−20	52.0	−59
37.2	+57	53.2	+51
30.60	109	40	46.45
11	30.88	10	46.78
—	20.41		24.09
11	10.47	11	10.87
	37.88		37.48

+2136
1.33986
+21.87
— .27 — .37
— .15 — .08 −0.69
— .27 — .10 −0.55
+21.18 +21.32
59.06 58.80
58.93
11.1 +4 11.13
4 12.2 + .39 +4 11.52
11.7 − 41.30
+3 30.22
29.2

Dec. 1

30	17.3	30	28.2	30	52.2
	21.9		30.7		54.5
	25.2		32.2		56.5
	30.5		34.7		59.0
	35.1		36.6		1.3
			38.8		3.3
31	40.3		41.3		5.5
	43.0		43.6		7.6
	46.1	331.5	45.9	99.	10.0
	50.0				
	53.0	36.83			16.6
		1.10			18.7
		25.51			20.9
					23.2
		344			25.7
					27.8
					29.9
					32.3
30	26.00			229.6	34.5
31	46.48			31	1.147
					9.113
				4	52.03
				4	52.06
					51.98
				−4	50.03
				−	2.09
				−	4.53
				−4	56.65
					4.50

+3515 −4533
1.54593 1.65639n
1.31998n 1.43037

10	1	10	0
26.9	+53	38.8	+36
27.1	+19	38.0	+09
37.5	−27	48.1	−68
37.8	+57	49.8	+51
32.20	102	28	43.45
11	32.20	10	43.68
—	20.89		26.94
11	11.31	11	10.62
	37.04		37.73

+2756
1.34606
+22.19
— .28 — .53 .46
— .15 — .12 .07 −0.69
— .26 — .07 −0.60
+21.50 +21.59
58.54 59.32
58.93
11.2 +4 11.52
4 12.3 + .40 +4 11.92
11.8 − 41.40
+3 30.52
29.4

Dec. 7

30	35.4		59.9	30	47.2
	37.7		2.0		52.0
	39.8		4.3		55.9
	41.8		6.5		58.5
	44.2		8.7		3.3
	46.5		10.9		
	48.7		13.3	31	48.1
	51.1		15.5		50.7
398.2	53.0	787	17.6		54.6
					59.7
44.24			24.1		2.4
8.74			26.3		
33.04			28.6		
			30.8		
266.2			33.0		
			35.2		
			37.7		
			39.7		
30	55.38	297.4	42.0		
31	55.10	31	8.673		
		26	8.94		
		4	59.73		
		4	59.76		
			59.68		
		−4	57.55		
		−	2.18		
		−	4.36		
		−5	4.09		
			4.58		

+1329 −4643
1.12352 1.66680n
0.89750n 1.44078

10	1	10	0
16.1	+41	39.8	+34
14.4	+25	38.9	+11
23.5	−25	46.3	−66
21.7	+65	46.3	+51
19.80	106	30	43.05
11	18.92	10	42.82
—	7.90		27.59
11	11.02	11	10.41
	37.33		37.94

+2974
1.34824
+22.30
— .04 — .49
— .13 — .07 −0.43
— .26 — .08 −0.64
+21.87 +21.66
59.20 59.60
59.40
12.0 +4 11.82
4 12.6 + .42 +4 12.24
12.1 − 42.20
+3 30.04
29.4

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	α		δ	
	m s		′ ″	
Dec. 6	26 8.98		16 11.9	
11	.83	15	12.5	6
16	.67	16	12.9	4
21	.50	17	13.2	3
26	8.33	17	13.3	1

1878

Dec. 8

h m s	m s	m s
0 30 54.3	30 36.0	0.7
57.2	38.3	3.0
1.2	40.6	5.1
5.9	43.0	7.3
10.0	45.0	9.8
	47.1	11.6
32 0.1	49.3	13.8
3.0	51.6	16.1
6.4	53.9	18.1
10.0		
12.3		24.9
		27.5
	4498	29.2
	950	31.6
	33.82	33.7
		36.0
	2830	38.2
		40.5
31 1.72		42.8
32 6.36		31 9.433
		26 891
		+5 0.52
		+5 0.47
		−4 58.59
		− 1.92
		− 4.33
		−5 4.84
		26m 4s.59

+ 7s.71 − 56s.93

0.88705 1.75534n

0.66103n 1.52932

10′ 1′ 10′ 0′

E	12″.4 +34	33″.8 +45
F	10.9 +25	31.3 +03
G	19.9 −38	38.8 −42
H	18.4 +67	40.8 +51
	10.15 +88	+57 34.30
	11 15.40	10 36.18
	− 4.58	33.83
	11 10.82	10.01
+62°	11′ 37″.53	38″.34

+3246

1.35096

+22″.44 | ″

− .01 | − .73

− .12 | − .06 | −0.35

− .22 | − .14 | −0.93

+22.09 | +21.51

59.62 | 59.85

′ 59.74 | ′ ″

16 12.2 | +4 11.46

+4′ 12.5 | + .43 | +4 11.89

12.4 | − 42.40

11.9 (12.0) | +3 29.49

15′ 29″.2

Dec. 11

m s	m s		
30 37.3	30 39.5		—
40.7	41.6		—
44.5	48.38 44.0		—
47.6	.26 46.1		—
52.5	.44 48.4	31 12.7	
	.32 .40 51.0	12.70 15.0	
32 19.3	.78 —	.78 17.0	
22.2	—	.56 19.6	
25.2	—	.94 .92 21.8	
27.7			—
30.8			—
	48.43	12.83	—
	12.78	12.78	—
	——		—
30 44.52			—
32 25.04		31 12805	
		882	
		+5 3.98	
		+5 3.93	
		−5 1.89	
		− 2.02	
		− 4.24	
		−5 8.15	
		4.65	

+ 28.28 − 72.24

1.45148 1.85878n

1.22546n 1.63276

10 1 10 0

18.6 +46 | 18.8 +40

19.2 +24 | 19.0 +09

29.6 −04 | 29.6 −08

29.1 +65 | 31.9 +50

24.10 +131 | +91 24.20

11 24.12 | 10 24.82

− 16.81 | 42.93

11 7.31 | 7.75

11 41.04 | 40.60

+996

1.32846

+21.30

− .18 | − 1.16

− .14 | − .04 | −0.65

− .33 | − 23 | −1.43

+20.65 | +19.87

1.69 | 0.47

1.08

12.5 | +4 10.45

| + .44 | +4 10.89

11.4 | − 42.70

10.9 | +3 28.19

29.3

Dec. 25

m s	m s	
30 37.3	30 25.3	49.9
41.3	29.9	54.1
45.2	34.3	58.6
50.0	38.6	3.0
53.3	43.2	7.6
32 22.2	3.0	14.0
26.0	7.5	18.7
29.4	11.9	23.2
33.4	16.3	27.5
36.9	20.9	32.0
	34.26	38.7
	58.64	43.0
	23.08	47.5
	47.50	52.0
	11.92	56.3
30 45.42	11540	
32 29.58		31 23080
		836
		+5 14.72
		+5 14.67
		−5 12.96
		− 1.72
		− 3.78
		−5 18.46
		4.62

+ 37.66 − 66.50

1.57588 1.82282n

1.34986n 1.59680

10 1 10 0

27.2 +53 | 24.2 +47

25.6 +19 | 22.6 +06

32.9 −07 | 29.2 −09

32.2 +63 | 31.0 +50

30.05 +128 | +94 26.70

11 29.48 | 10 26.75

− 22.38 | 39.52

11 7.10 | 6.27

11 41.25 | 47.08

+2191

1.34041

+21.90

− .32 | − .99

− .21 | − .06 | −0.85

− .32 | − .23 | −1.28

+21.05 | +20.62

+21 2.30 | +20 2.70

2.50

13.3 | +4 9.96

| + .48 | +4 10.44

10.8 | − 43.50

10.3 | +3 26.94

29.4

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γ Pegasi
v. p. 9

Dec. 25

11	38.3	11 46.50	58.27
	40.3	48.62	0.35
	42.0	50.72	2.48
	43.9	52.90	4.60
	45.6	55.00	6.80
12	47.9	33.50	9.88
	49.4	35.60	12.00
	51.0	37.63	14.10
	52.7	39.78	16.88
	54.5	41.80	18.46
		50.75	21.67
		2.50	23.75
		14.26	25.83
		25.89	28.00
		37.66	30.20
11	42.02	7.06	
12	51.10		

12	14.212
7	1.03
+5	13.18
+5	13.17
+5	13.17
−5	12.94
−	.24
−	3.76
−5	16.94
6	57.27

+3219 − 3689
1.50772 1.56691
1.59972 1.65891

55 1 60 4

10.1 +28	43.8 +22
14.8 +25	48.8 +19
23.3 −26	66.8 −15
17.9 +17	67.8 −02
16.70 +94	+.34 2450.30
56 16.52	54 51.80
− 39.78	45.59
55 36.74	37.37
27 1161	1096

+2154
1.50484
−31.98
− .13 − .18
− .18 − .68 −0.84
− .23 − 08.00 −0.92
− 32.52 − 32.20
26 39.09 38.04
38.58 .6
30 48.3 +4 9.96
— .66 +4 9.30
9.7 − 39.10
12.1 +3 40.20 40.82
30 17.8

γ Cassiopeiæ
v. p. 14

Dec. 26

38	15	38 6.10	38 26.38
	40	9.80	30.00
	76	13.50	33.72
	11.0	17.00	37.22
	13.9	20.75	40.85
39	26.2	26.87	46.53
	30.9	30.62	50.15
	33.1	34.38	53.90
	36.2	38.00	57.48
	39.7	41.88	1.18
		13.43	6.68
		33.62 3	10.40
		53.85	13.94
		14.05	17.85
		34.35	21.40
38	7.60	21.38	
39	33.22		

38	53.86
32	39.50
+5	14.36
+5	14.38
−5	13.09
−	1.29
−	3.94
−5	18.32
33	35.54

+4626 − 3936
1.66521 1.59506
1.52033 1.45018

30 4 30 3

54.6 +.02	52.6 +.22
58.6 +.14	62.1 +.31
69.9 .00	67.8 +.07
0.3 +.01	69.1 +.03
57.25 +.17	+.63 55.20
34 57.10	33 55.40
− 33.14	28.20
34 23.96	23.60
48 24.39	24.75

+2258
1.16298
+1455
− .53 − .38
− .69 − .55 −1.26
− .04 − .16 −1.09
+13.29 +13.46
48 37.68 38.21
37.94
52 46.2 +4 9.80
8.3 + 42.35
8.2 − 34.70
8.9 +3 27.82
9.0
52 5.8

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14

α Cassiopeiæ.

$0^h\ 33^m\ 36^s$

$+55°\ 52'\ 4''$

$-13°\ 29'\ 16''$

1878

α_0 33^m 35.^{s}560	log sin δ 9.91784 (90)	log R_1 1.60700
Corr. α −.047, −.015	" cos δ 9.74917 (05)	" R_2 1.30633
$\frac{d\alpha}{dt}$ +3.^{s}366	" 15 cos δ tan i 9.87395 (83) for Jan. 1	R_1 40.46
	9.85512$_n$ for Nov. Dec.	R_2 20.25
δ_0 52′ 3.″87		I 3.68
Corr. δ +.70	tan δ +1.47 (8)	
$\frac{d\delta}{dt}$ +19.″78	tan z / sin −.23	

Jan. 1 — Nov. 6 — Nov. 13 — Nov. 23

L	m s	m s									
0	32 46.0	32 49.20	37 22.1	37 11.90	37 32.60	37 34.4	37 —	37 44.00	37 31.5	37 35.00	37 55.10
	49.6	52.85	24.4	16.00	36.00	38.8		47.70	34.1	38.70	58.90
	52.2	56.33	27.5	19.65	—	42.3	31.00 31.00	51.50	39.1	42.30	2.65
		3.90	32.8	23.27	43.50	45.7	.02 34.70	55.00	41.5	46.00	6.20
		7.45	35.0	27.00	47.10	49.8	.04 38.40	58.75	44.6	49.90	9.95
		11.23									
	33 34.4	13.28	38 50.6	38 33.17	52.80		44.62	4.10		55.80	15.40
	36.0	15.18	53.0	36.80	56.48		48.32	7.85		59.61	19.00
	39.7	18.65	55.9	—	0.05		52.00	11.60		3.21	22.62
		25.85	0.0	44.30	3.70		55.76	15.35		6.90	26.40
		29.60	3.2	48.00	7.38		59.40	18.95		10.78	30.20
		33.20									
		30.344		39.56	13.00		31.02	24.35		42.38	35.75
	32 49.27	18.344	37 28.36	40.57	16.70	37 42.20	51.39	28.00	37 38.16	2.56	39.30
	33 36.70	33 11.222	38 56.54	39.80	20.22		11.57	31.90		22.72	43.00
		33 35.495		0.08	24.00		31.79	35.50		43.03	46.70
		−24.27		20.38	28.00		52.02	39.20		3.26	50.40
		−24.22									
		−24.25		0.39			57.79			113.95	
					38 0.078			38 11.558			38 22.790
					33 40.478			40.39			40.24
					+4 19.60			4 31.17			4 42.55
					+4 19.65			4 31.22			4 42.60
					19.62			31.19			42.57
		+ 25.27			−4 17.99			−4 29.55			−4 40.94
		− 1.86			− 1.71			− 1.65			− 1.60
		+ .06			− 4.92			− 4.83			− 4.68
		+ 24.27			−4 24.62			−4 36.03			−4 47.22
		33^m 35.^{s}49			35.46			35.53			35.57

	+ 21.95 (38.05)	− 85.48 (25)		+31.72	−56.46	+29.36	+44.63
1.34143	1.58035 +	1.93186 −	1.40620$_n$	1.50133	1.75174$_n$	1.46776	1.64963
1.21526	1.45430 + (18)	1.80581$_n$ (69)	1.28003$_n$	1.35645$_n$	1.60687	1.32288$_n$	1.50475$_n$
	35′ 0″	35′ 7″		30 4	30 3	30 4	30 4
E	38.″5+36	12.″5+34		50.9 +07	47.2 +31	44.2 +22	52.9 +04
F	48.1+30	22.7+21		50.1 +19	46.7 +34	44.8 +18	54.0 +13
G	35.3−24	9.8−16		59.3 −02	56.2 −06	55.8 −22	3.9 +03
H	39.8+51	14.4+71		59.6 00	56.3 +03	57.2 −03	6.0 +17
	36.90 ,, 93	,, 110	11.15	55.10 24	62 51.70	50.00 15	58.40 37
	35 40.42	36 14.85		34 54.98	33 51.60	34 50.50	34 59.20
	− 25.46 (16.47)	− 63.95	19.06	− 22.72	40.44	− 21.03$_n$	− 81.97
	35 14.96 (56.84)	35 10.98 (55.79)		34 32.26	34 32.04	34 29.47	34 27.23
+55°	47′ 36.″39 (46′ 51.61)	47′ 37.″48 (46′ 52.56)		48 16.09	16.31	18.88	21.12
−13°	29′ 39″	29′ 4″		−13 29 38			
	1.14043	1.14073		1.14040			
	+ 1938	+1938		+1870		+1109	+149
	1.15984	1.15954		1.15910		1.15149	1.14189
	+14.″45	+14.44		+14.92		+14.17	+13.86
	− .36	−1.85	−0.66	− .25	− .81	−0.90 − .22	− .50
	− .04	− .12		− .59	− .46	− .62	− .60
	− .23	− .28	−2.28	− .06	− .15	−1.42 − .04 −0.88	− .09 −1.19
	+ 13.79	+ 12.19		+ 13.52	+ 13.00	+ 13.29	+ 12.67
	47′ 50.18 5.30	47.62 4.75		48 29.61	29.31	32.17	33.79
	47 49.97 5.02	″		48 29.46		32.17	33.79
	52 25.0	+5 20.11		52 39.7	+4 11.29	41.2 +4 10.41	43.1 +4 10.10
	+5′ 20.0	+ .33	+5 20.44		+ .18 +4 11.47	+ .20 +4 10.61	+ .24 +4 10.34
	+4 35.1	− 21.10		4 10.2	− 35.80	4 9.0 − 37.30	4 9.3 − 39.20
	20.7	+4 59.34		10.9	+3 35.67	9.7 +3 33.31	10.0 +3 31.14
		52′ 4.″4			5.1	5.5	4.9

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	α		δ		α		δ			
	m s		′ ″		m s		′ ″			
Jan. 0	33 35.53	14	52 25.0	1	Oct. 27	33 40.56		52 37.1	13	
5	35.39	14	24.9	3	Nov. 1	.52	4	38.4		
10	35.25	13	24.6	4	6	.48	4	39.6	12	
15	35.12	13	24.2	5	11	.42	6	40.7	11	
20	34.99		23.7		16	40.36	6	41.8	11	
					21	.28	8	42.7	9	
					26	.20	8	43.5	8	
					Dec. 1	.10	10	44.2	7	
					6	40.00	10	44.9	7	
	Nov. 24		Nov. 26			Nov. 30			Dec. 1	

37	21.8	37	36.75	37	56.66	37	52.0	37	38.70	37	59.00	38	2.45	37	—	38	3.00	37	3.50	37	44.00	38	4.35	
	24.8		40.23		0.37		54.7		42.50		2.75		2.76		—		6.70		3.78		47.70		7.70	
	27.3		43.75		4.00		58.3		46.00		6.40		3.15		—		10.45		4.07		51.35		11.45	
	31.8		47.50		4.62		8.2		49.79		10.20		3.46		—		14.22		4.44		54.90		15.15	
	35.1		51.15		11.50		6.7		53.46		13.65		3.86		—		17.90		4.73		58.70		19.10	
39	19.7		57.33		16.85	39	17.7		57.80		19.25	39	7.8		3.80		23.30	38	4.65		—		24.50	
	23.8		1.00		20.54		20.2		3.48		23.00		10.2		4.50		29.10		5.02		—		28.12	
	27.4		4.62		24.31		23.3		7.07		26.60		13.3		10.90		30.68		5.32	12.20	12.20		31.82	
	30.6		8.40		27.95		26.6		10.80		30.30		17.4		14.80		34.27		5.71	.32	16.00		35.50	
	33.4		12.10		31.67		28.7		14.55		33.90		19.9		18.60		38.15		6.0	.44	19.80		39.28	
					37.24										10.45	30.70	43.55				51.33	31.79	44.85	
37	28.16		43.88		40.76	37	58.98		46.09		39.45				30.70	.70	47.37	37	48.04		11.59	.84	48.30	
39	26.98		4.03		44.45	38	23.70		6.40		43.10	38	31.36		30.70	.70	47.37	37	48.04		11.59	.84	48.30	
			24.26		48.17		30		26.61		46.90	39	13.72		50.98	.73	51.00	38	53.46		31.83	.83	52.10	
			44.52		52.00				46.81		50.50				11.12	.66	54.60				52.05	.80	55.55	
			4.69						7.14		54.10						58.40				12.32		59.15	
			121.38						133.05												15.912			
				38	34.276					38	26.610					38	30.698					38	31.834	
					40.23						40.20						40.115						40.095	
				4	44.05					4	46.41					4	50.58					4	51.73	
				4	44.10					4	46.46					4	50.63					4	51.78	
					44.07						46.43						50.60						51.75	
				−4	42.42					−4	44.78					−4	48.95					−4	50.03	
				−	1.65					−	1.70					−	1.70					−	1.63	
				−	4.67					−	4.64					−	4.56					−	4.54	
				−4	48.74					−4	51.12					−4	55.21					−4	56.20	
					35.54						35.49						35.49						35.62	
	+5612		−6270				+2763		−5669				−4302						+5078		−2164			
	1.74912		1.79727$_n$				1.44138		1.75351$_n$		9.81954$_n$		1.63367$_n$						1.70569		1.33526$_n$			
	1.60424$_n$		1.65239$_n$				1.29650$_n$		1.60863		9.07466		1.48879						1.56081$_n$		1.19038			
	35 0		30 3				30 4		30 3		30 4		30 3						30 4		30 4			
	0.8 +01		35.2 +52				43.0 +24		42.2 +40		21.6 +52		51.3 +24						58.9 +02		8.8 +30			
	1.7 +02		36.2 +15				43.9 +17		42.4 +27		23.6 +08		52.2 +31						59.9 00		9.5 +19			
	14.8 −36		47.6 −50				43.2 −48		42.5 −38		23.4 00		1.2 +17						8.1 −06		17.2 −29			
	11.7 +32		47.2 +14				52.9 +01		51.6 +08		23.2 +22		4.0 +34						9.2 +20		19.9 +21			
	7.60 −01		31.41.40				48.10 −06		37.07.35		27.50 82		106.56.25						3.50 16		41.13.00			
	35 7.25		33 41.65				34 48.25		33 47.18		34 27.95		33 57.18						35 4.02		34 13.85			
	− 40.20		44.91				− 19.79		40.61		0.47		30.82						− 36.38		15.50			
	34 27.05		34 26.46				34 28.46		34 27.79		34 28.42		34 28.00						34 27.64		34 29.35			
	48 2130		2189				1989		2056		1993		2035						2071		1900			
	+1120						+2257				+2163								+2767					
	1.15160						1.16294				1.16203								1.16807					
	+14.18						+14.55				+14.52								+14.73					
	− .79		− .99				− .19		− .80		.60		− .47						− .65		− .12			
	− .01		− .46		−0.80		− .53		− .42		−0.72		− .34		−0.64				− .51		− .42		−1.30	
	.00		− .08		−1.53		+ .02		− .09		−1.31		− .26		−1.12				− .04		− .10		−0.64	
	+13.38		+12.65				+13.85		+13.24				+13.40						+13.53		+14.09			
	3468		3484				3374		3380		3381		3378						3424		3309			
	34.61						33.77				33.78								3366					
	43.2		+4 10.48				43.5		+4 11.24		44.1		+4 11.13						44.2		+4 11.52			
			+ .24		+4 10.72				+ .25		+4 11.49		+ .27		+4 11.40						+ .27		+4 11.79	
	+4 8.6		− 39.30				4 9.7		− 39.60		4 10.3		− 40.20						4 10.5		− 40.30			
	9.3		+3 31.42				10.4		+3 31.89		11.0		+3 31.20						11.2		+3 31.49			
			6.0						6.7				5.0								5.2			

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Dec. 7 | Dec. 8 | Dec. 12 | Dec. 14

	Dec. 7	Dec. 8	Dec. 12	Dec. 14
	m s	m s	m s	m s
	38 8.2	38 0.3	37 41.8	38 6.4
	10.5	4.8	44.4	10.0
	14.0	8.5	47.3	13.7
	18.3	11.5	51.8	17.3
	22.0	15.2	55.3	21.0
	39 5.3	39 4.4	39 36.7	38 37.5
	8.5	6.7	40.4	42.4
	11.8	11.2	42.8	45.8
	14.5	14.2	45.2	49.5
	18.5	18.0	47.8	52.0
	38 14.60	38 8.06	37 48.12	38 13.68
	39 11.72	39 10.90	39 42.58	38 45.44

	Dec. 7	Dec. 8	Dec. 12	Dec. 14
	s	s	s	s
	+ 24.54	+ 31.98	+ 56.31	+ 32.67
	− 32.53	− 30.94	− 58.15	− 29.71
	1.38076	1.50447	1.75059	1.51415
	1.51228	1.49052	1.76455	1.77151
	1.23588	1.35589	1.60571	1.36927
	1.36740	1.34564	1.61967	1.62663
	30 4	30 4	30 4	30 4
	30 4	30 4	30 3	30 3

	Dec. 7	Dec. 8	Dec. 12	Dec. 14
E	42.1 +26	46.8 +16	69.7 08	44.7 +20
	2.3 +22	2.2 +20	37.8 +47	38.2 +47
F	42.9 +15	46.1 +19	0.7 +08	45.4 +18
	1.2 +16	1.8 +17	38.8 +20	38.6 +14
G	49.7 −58	53.4 −47	10.1 −02	53.8 −43
	7.8 +10	7.0 +12	47.2 −50	47.0 −50
H	47.9 +06	51.9 +02	8.9 +20	53.7 −01
	8.1 +21	9.0 +22	48.8 +12	47.2 +14
	45.90 −11	50.10 −10	4.90 18	49.25 −06
	1.69 0.05	4.60 +70	29 42.50	42.60 30
	34 45.65	34 49.85	35 4.85	34 49.40
	34 4.85	34 5.00	33 43.15	33 42.75
	− 17.21 61	− 22.84	− 40.34	− 23.40
	23.30	22.16	41.65	42.33
	34 28.44	34 26.66	34 24.51	34 26.00
	34 28.15	34 27.16	34 24.80	34 25.08
	.04	.70		
	+55 48 19.91	48 21.68	2384	22.35
	20.31	48 21.19	23.55	23.27

	Dec. 7	Dec. 8	Dec. 12	Dec. 14
	+ 2985	+ 3261	+ 2038	+ 2388
	1.10025	1.17301	1.16078	1.16428
	+ 14.80	+ 14.89	+ 14.48	+ 14.60
	− .16	− .26	− .80	− .27
	− .27	− .24	− .85	− .88
	− .48	− .48	− .56	− .53
	− .41	− .41	− .41	− .41
	+ .03	+ .02	− .04	+ .02
	− .17	− .18	− .07	− .08
	+ 14.19	+ 14.17	+ 13.08	+ 13.82
	+ 13.95	+ 14.06	+ 18.15	+ 13.23
	48 34.50	35.82	36.92	36.17
	34.15	35.25	36.78	36.50
	48 34.32	35.54	36.81	36.34
	52 45.0	45.1	45.5	45.7
	+ 11.82	+ 11.46	+ 10.07	+ 10.63
	+ .29	+ .29	+ .30	+ .31
	+ 41.10	− 41.20	− 41.60	− 41.60
	+ 12.11	+ 11.75	+ 10.37	+ 10.84
	11.4	10.5	9.4	10.1
	+ 31.02	+ 30.55	+ 26.77	+ 29.04
	52 5.3	6.1	6.6	5.4

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To Dec. 26
or 7.13

Dec. 16

37	45.3	38	1.00		21.03	37	52.0	38	1.90		22.00	37	59.9	39	3.72	38	23.92	37	59.9	38	6.10		26.10
	49.8		4.58		24.65		54.9		5.62		26.70		4.0		7.48		27.75		2.8		9.70		30.00
	52.1		8.40		28.50		57.0		9.00		29.40		6.0		11.28		31.05		6.5		13.30		33.70
	56.1		12.05		32.20		0.6		12.80		33.20		9.0		14.62		34.80		10.0		17.00		37.33
	59.3		15.85		36.08		3.8		16.52		36.70		14.0		18.48		38.48		12.7		20.60		41.00
39	17.4		21.87		41.30	39	37.9		22.80		42.50	39	37.8		24.90		43.90	39	44.8		27.00		46.40
	20.3		25.57		45.04		40.1		26.52		46.00		40.4		28.30		47.68		48.1		30.68		50.15
	23.5		29.18		48.78		43.0		30.38		49.90		42.9		32.00		51.80		50.9		34.33		53.80
	26.8		32.95		52.55		46.0		34.05		53.40		46.1		36.12		55.20		54.0		37.95		57.53
	29.7		36.54		56.20		50.0		37.50		57.20		50.1		39.42		59.00		56.5		41.88		1.20
			8.38		1.85				9.17		2.65				11.12		4.50				13.34		6.70
			28.49		5.40				29.40		6.20				31.16		8.30				33.63		10.33
			48.77		9.00				49.80		9.92				51.52		11.80				53.82		14.00
			9.08		12.75				0.93		13.68				11.82		15.50				14.06		17.76
			29.22		16.40				30.25		17.20				32.15		19.00				34.36		21.52
37	52.32	24394				37	57.66	248.55				38	6.58	25.111				39	6.38	26.92			
39	23.54			38	48.788	39	43.40			38	49.710	39	43.46			38	51.554	39	50.86			38	53.842
					39.764						39.74						39.69						39.53
				5	9.02					+5	9.97					+5	11.86					+5	14.31
				5	9.07																		
					9.024					+5	9.99					+5	11.88					+5	14.33
				−5	7.53					−5	8.67					−5	10.49					−5	12.96
				−	1.45					−	1.36					−	1.40					−	1.34
				−	4.20					−	4.18					−	4.13					−	3.97
				−5	13.18					−5	14.21					−5	16.02					−5	18.27
					35.61						35.50						35.53						35.57
	+5647		−3475				+5205		−5469				+4497		−5791				+4746		−5702		
	1.75182		1.54095 m				1.71642		1.73791 m				1.65292		1.71525 m				1.64633		1.75603 m		
	1.60694 m		1.39607				1.57154 m		1.59303				1.50804 m		1.57037				1.53145 m		1.61115		
	35 0		30 3		30		30 4		30 3				30 4		30 3				30 4		30 3		
	2.2 +01		57.8 +20				59.6 00		43.8 +36				54.1 +03		44.0 +36				58.2 +02		41.1 +42		
	3.1 +03		57.7 +21				59.9 00		42.9 +29				54.9 +11		43.9 +31				54.1 +13		39.6 +21		
	11.7 −24		4.0 +17				6.1 00		49.8 −47				2.1 +03		50.2 −46				59.8 −.01		46.0 −.48		
	9.8 +30		6.8 +22				7.1 +18		57.8 +07				2.1 +05		51.2 +09				0.2 .00		46.8 +.15		
	6.95 10		80	0.90			2.85 +.18		+.25	46.80			58.10 +.22		+.32	47.10			57.50 +.14		+.30	43.55	
	35 6.70		34 1.58				35 3.18		33 47.08				34 58.30		33 47.32				34 57.32		33 43.38		
	− 40.45		24.84				− 37.29		39.18				− 32.21		37.18				− 34.00		43.77		
	34 26.25		34 26.47				34 25.89		34 26.26				34 26.09		34 24.50				34 23.32		34 27.15		
	48 2210		2188				48 2246		2209				48 22~~33~~ 26		2385				48 2503		2412		
	+2836						+2594						+3073						+2207				
	1.16876						1.16634						1.17113						1.16247				
	+1475						+1467						+1483						+1454				
	−.81		−.31	−0.841			−.4668		−.75	−1.33			−.51		−.68	−1.16			−.57		−.82	−1.29	
	−.01		−.48				−.61		−.46				−.60		−.45				−.69		−.52		
	−.02		−.20	−0.99			L .04		−.06	−1.27			−.05		−.08	−1.21			−.03		−.07	−1.41	
	+13.91		+13.76				+13.53 ~~.34~~		+13.40				+13.67		+13.62				+13.25		+13.13		
	3601		3564				3599 ~~.80~~		3549				~~3600~~ 3593		3747				38.28		37.25		
	3582						35.24						36.74						37.76				
	45.8	+4	10.75				45.9	+4	11.10				46.0	+4	10.56				46.2	+4	9.96		
		+	.81	+4	11.06			+	.31	+4	11.41			+	.31	+4	10.87			+	.32	+4	10.28
+4	10.0	−	41.90				10.5	−	42.00				9.3	−	42.10				8.4	−	42.30		
	10.7	+3	29.16				~~10.9~~ 11.0	+3	29.41				10.0	+3	28.77				9.1	+3	27.98		
			5.0						6.0						5.5						5.7		

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η Cassiopeiae

$0^h\ 41^m\ 43^s$

$+57^\circ\ 10'\ 5''$

$-14^\circ\ 47'\ 17''$

1878

α_0	41^m	$43^s.500$
Corr α		+ .184 / + .091
$\frac{d\alpha}{dt}$		+ 3.584
δ_0	10′	5.14″
Corr δ		+ .82
$\frac{d\delta}{dt}$		+ 19.24″

log sin δ	9.92442
" cos δ	9.73414
" 15 cos δ tan i	9.85892 for Jan.
	9.84021 " Nov. Dec.
tan δ	+ 1.55
sin z	− .26

log R₁	1.62191
" R₂	1.32124
R₁	41.87
R₂	20.95
I	3.81

Jan. 1

L	m s	m s
0	40 39.8	40 56.70
	43.3	0.50
	45.5	4.43
		11.78
		15.75
		19.58
	41 47.7	23.20
	50.6	27.10
	54.6	34.75
		38.50
		42.45
		27474
	40 42.87	21474
	41 50.97	41 19.522
		41 43.505
		− 23.98
		− 24.16
		− 24.07
		+ 25.27
		− 1.11
		.00
		+ 24.16
		41 43.68

Nov. 6

45 1.9	45 19.20	45 —
5.6	23.00	47.71 43.90
8.4	26.80	.85 47.85
11.7	30.68	.76 51.57
16.7	34.48	.87 55.49
46 48.2	46 43.00	1.20
51.0	47.00	4.85
54.7	50.50	8.70
57.7	54.37	12.45
1.4	58.25	16.20
	26.83	22.00
	47.80	25.80
	8.68	29.60
	29.64	33.50
	50.62	37.25
45 8.86	4357	
46 54.60		46 8.714
		41 48.728
		+ 4 19.99
		+ 4 19.81
		19.90
		− 4 18.00
		− 1.79
		− 5.23
		− 4 25.02
		43.69

Nov. 23

45 31.6	—	46 2.90
35.1	—	[6.60] 5.60
38.2	—	10.33
41.6	—	14.12
45.4	—	18.00
	—	23.70
	—	27.60
	—	31.20
	—	35.25
	—	38.52
		44.80
	10.39	48.40
	31.33	52.29
	52.30	56.00
	40	0.00
	93.22	
45 38.38		46 31.340
		48.51
		4 42.83
		4 42.65
		42.74
		− 4 40.95
		− 1.67
		− 5.01
		− 4 47.63
		43.71

Nov. 24

45 29.7	45 43.40	46 4.35
33.2	47.17	8.00
36.8	50.90	11.90
40.6	54.79	15.65
44.0	58.48	19.50
46 46.9	4.20	25.23
50.6	11.00	29.00
53.5	14.90	32.94
58.0	18.65	36.80
59.7	22.30	40.38
	50.95	46.35
	11.88	50.10
	32.87	54.00
	53.85	57.55
	14.81	1.25
45 36.86	16436	
46 53.74		46 32.872
		48.49
		4 44.38
		4 44.20
		44.29
		− 4 42.42
		− 1.73
		− 4.99
		− 4 49.14
		43.73

Reductions

Jan. 1			Nov. 6			Nov. 23		Nov. 24		
+ 36.65	− 31.45		+ 5985	− 4589		+ 3296		+ 5601	− 2087	
1.56407	1.49762n		1.77706	1.66172n		1.72395		1.74827	1.31952n	
1.42299	1.35654n		1.61727n	1.50193		1.56416m		1.58848m	1.15973	
15′ 2′	15′ 3′		15 2	15 0		15 1		15 2	15 1	
e 28.7+53	16.7+48		9.4 +08	56.8 +13		58.7 +07		1.2 +14	8.3 +24	
f 38.2+25	26.7+24		9.8 +34	57.2 +22		59.4 +30		2.2 +30	9.7 +25	
g 26.5−04	13.3−22		19.9 −29	7.3 −07		10.4 −07		13.6 −21	20.8 −35	
h 29.1+48	17.4+36		17.8 +47	6.1 +71		10.3 +73		12.5 +49	29.8 +66	
27.60 122	84	15.00	14.65 60	99	2.05	34.55 103		7.40 72	80	14.55
17 30.62	18 18.52		17 14.22	16 1.85		17 4.70		17 7.38	16 14.65	
26.48	− 22.73		− 41.43	31.76		− 36.66		− 38.77	14.45	
17 57.10	17 55.79		16 32.79	16 33.61		16 28.04		16 28.61	16 29.10	
+57° 4′ 51.25″	4′ 52.56″		6 15.56	14.74		20.31		19.74	19.25	
−14° 47′ 48″	47′ .0″	−14	47 37							
1.18210	1.18170		1.18200							
+ 1959	+ 1959		+ 1883			+ 162		+ 1146		
1.20169	1.20129		1.20083			1.18362		1.19346		
+ 15.91	+ 15.90		+ 15.88			+ 15.26		+ 15.61		
− .34	− .25	− 0.99	− .89	− .52	− 1.30	− .70	− 1.21	− .78	− .11	− 1.21
− .38	− .43	− 0.80	− .26	− .12	− 0.89	− .25		− .25	− .14	− 0.45
− .30	− .22		− .15	− .25		− .26		− .18	− .20	
+ 14.94	+ 15.00		+ 14.58	+ 14.99		+ 14.05		+ 14.40	+ 15.16	
5 6.27	7.66		6 30.14	29.73		34.36		34.14	34.41	
5 6.96			6 29.94			34.36		34.28		
10 26.8	+ 5 20.11		10 40.2	+ 4 11.29		43.8	+ 4 10.10	44.0	+ 4 10.48	
	+ .38	+ 5 20.49		+ .21	+ 4 11.50		+ .27 / + 4 10.37		+ .28	+ 4 10.76
+ 5 19.8	− 21.70		4 10.3	− 35.10		4 9.4	− 28.70	4 9.7	− 38.90	
20.6	+ 4 58.79		11.1	+ 3 36.40		10.2	+ 3 31.67	10.5	+ 3 31.86	
	10′ 5.8″			6.3			6.0		6.1	

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α

Jan. 0	41m 43.54
5	43.40
10	43.26
15	43.12
20	42.98

14	
14	
14	
14	

δ

	10′ 26.8
	26.7
	26.5
	26.2
	25.7

1	
2	
3	
5	

Oct. 27	
Nov. 1	
6	
11	
16	
21	
26	
Dec. 1	
6	

α

m 41	s 48.79
	.77
	.73
	.68
	48.62
	.55
	.46
	.36
	48.26

2	
4	
5	
6	
7	
9	
10	
10	

δ

10′	37.5
	38.8
	40.1
	41.3
	42.4
	43.4
	44.3
	45.1
	45.8

13	
13	
12	
11	
10	
9	
8	
7	

Nov. 26 — Nov. 30 — Dec. 1 — Dec. 7

45	23.4	45	45.88	46	6.55	45	59.8	45	49.50	46	10.75	45	37.2	45	51.80	46	11.80	45	38.5	45	58.30	19.40
	26.7		49.69		10.43		8.7		53.70		14.40		39.3		54.47		15.40		44.0		2.00	23.00
	29.7		53.30		14.35		7.1		57.40		18.25		44.2		58.55		19.30		48.0		6.35	27.00
	32.9		56.97		18.16		11.3		1.25		22.00		48.1		2.66		22.90		50.8		9.80	30.65
	37.2		0.80		21.90		14.0		5.10		—		51.6		6.70		26.70		56.0		13.60	34.50
47	21.6		9.58		27.57				—		39.22 3160	47	24.1		14.30		32.75	47	27.8		22.10	40.25
	24.1		13.50		31.40				—		—		26.7		18.38		36.60		31.1		26.00	43.90
	26.7		17.28		35.35				—		—		28.8		22.40		40.50		34.0		29.90	47.95
	29.0		21.10		39.07				—		—		31.0		25.74		43.95		36.6		33.65	51.57
	32.5		24.87		42.70				—		—		36.2		30.80		47.95		42.0		37.35	55.40
			53.33		48.50				57.396	39.26	—				58.50		53.75				6.01	1.24
			14.28		52.47				18.24	.21	—				19.26		57.37				26.91	5.30
			35.20		56.20				39.22	.22	—				40.35		1.30				47.81	9.00
			56.19		59.90				—		—				1.30		5.10				8.86	12.35
			17.25		3.88				—		—				22.16		9.50				29.80	16.40
45	29.98		17625			46	7.08				230	45	44.08		20157			45	47.46		239.39	
47	26.78			46	35.250					46	39.223	47	29.36			46	40.314	47	34.30			46 47.878
					48.46						48.38						48.355					48.23
				4	46.79					4	50.85					4	51.96					4 59.65
				4	46.61					4	50.67					4	51.78					4 57.47
					46.70						50.76						51.87					59.56
				−4	44.79					−4	48.95					−4	50.04					−4 57.57
				−	1.78					−	1.78					−	1.71					− 1.78
				−	4.96					−	4.88					−	4.86					− 4.73
				−4	51.53					−4	55.61					−4	56.61					−5 4.10
					43.72						43.62						43.70					43.78
			+ 6527		− 51.53				+ 3215				+ 5623		− 49.05				+ 6042		− 46.42	
			1.81471		1.71206m				1.50718				1.74997		1.69064m				1.78118		1.66671m	
			1.65492m		1.55227				1.34739m				1.59018m		1.53085				1.62139m		1.50692	
			15 2		15 0				15 1		15 0		15 2		15 0				15 2		15 0	
			9.1 +22		48.9 +19				46.7 +22		42.4 +29		3.8 +11		50.7 +16				8.6 +20		54.9 +13	
			9.3 +35		49.0 +30				46.5 +11		43.0 +22		4.1 +31		50.2 +30				7.9 +34		53.2 +25	
			20.9 −26		57.5 −21				58.1 +03		63.0 −54		13.7 −22		58.8 −10				15.9 −29		8.0 −05	
			17.9 +47		57.8 +53				57.1 +30		64.8 +52		13.5 +49		1.8 +62				12.2 +49		59.9 +57	57.745
			15.00 78		43.30 − 81	53.20			57.90 96		47.70 49	47.70	8.75 +64		54.75 98	54.75			12.25 74		93	57.45
			17 14.30		15 43.30				16 51.85		15 48.30		17 8.78		15 55.38				17 11.15		15 57.00	
			− 45.18		35.67				− 22.25				− 38.92		33.95				− 41.82		32.13	
			16 29.12		16 28.97				16 29.60				16 29.86		16 29.33				16 29.33		16 29.13	
			6 19.23		19.38				18.75				18.49		19.02				19.02		19.22	
			+ 2274						+ 2194				+ 2780						+ 2997			
			1.20474						1.20394				1.20980						1.21197			
			+ 16.02						+ 15.99				+ 16.21						+ 16.29			
			− 1.06		− .66		−1.50		− .26		−0.69		− .79		− .60		−1.17		− .91		− .54	−1.31
			− .24		− .10				− .19				− .21		− .09				− .22		− .09	
			− .20		− .20		−0.96		− .24				− .17		− .24		−0.93		− .18		− .23	−0.86
			+ 14.52		+ 15.06				+ 15.30				+ 15.04		+ 15.28				+ 14.98		+ 15.43	
			33.75		34.44				34.05				33.53		34.30				34.00		34.65	
			34.10						34.05				33.92						34.32			
			44.3	+4	11.24				45.0	+4	11.13		45.1	+4	11.52				45.9	+4	11.84	
				+	.29	+4	11.53			+	.30	+4	11.43		+	.30	+4	11.82			+	.32	+4 12.14
		+4	10.2	−	39.20			4	11.0	−	39.90		4 11.2	−	40.00			4	11.6	−	40.80	
			11.0	+3	32.33				11.8	+3	31.53		12.0	+3	31.82				12.4	+3	31.34	
					64						56				57						57	

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	α m s	δ ′ ″
Dec. 6	41 48.26	10 46.8
11	.15	46.4
16	48.03	46.8
21	47.90	47.1
26	47.77	47.2

11	12	13
6	4	3
4	3	1

Dec. 8

h	m	s	m	s	m	s
0	45	38.7	45	59.0		20.1
		41.1		3.0		24.0
		45.8		6.9		27.9
		49.2		10.5		31.6
		51.9		14.3		35.5
	47	32.3		23.0		41.0
		35.0		27.0		44.9
		37.2		30.8		48.4
		41.7		34.3		52.4
		44.0		38.0		56.4
				6.74		2.0
				27.82		5.6
				48.62		9.6
				9.56		13.3
				30.62		17.3
	45	43.34	24	33.61		
	47	38.04			46	48.672
					41	48.21
					+5	0.116
					+5	0.37
					−4	58.60
					−	1.57
					−	4.71
					−5	4.88
					41 m	43.79
		s		s		
		+63.33		−49.37		
		1.80161		1.69346 m		
		1.64182 m		1.53367		
		15′ 2′		15′ 0′		

ε	9.0	+22	51.8	+15
Ψ	8.3	+34	50.2	+30
1	15.8	−28	56.3	−25
H	14.1	+49	57.9	+53
	12.40	+177		+113 54.05
	17	11.80	15	54.05
	−	43.84		34.17
	16	27.96	16	28.22
	6′	20.39	6′	20.13
		+3275		
		1.21475		
		+1640		
		− .99	−	.60 −1.40
		− .22	−	.09
		− .19	−	.18 −0.87
		+15.00	+15	.53
		35.39	3	5.66
		3552		
	10′	46.0″	+4′	11.46
		" 6	+	.33 +4 11.79
	4	10.8	−	41.00
		11.3	+3	30.79
		4	10′	6.3

Dec. 11

45	52.9	46	—		23.2
	57.3	10.21	6.4		27.2
	59.9	.00	10.0		31.0
	2.6	.19	14.0		34.9
	7.4	.18	17.8		38.8
47	51.0		—		44.3
	54.9		—		48.2
	58.0		—		52.0
	1.6		—		55.8
	6.0		—		59.4
	23.0	10.14	52.01		—
	27.0	31.02	51.97		—
	30.8	51.94	51.94		—
	3	—			—
		—			—
46	0.10				
47	58.30			46	51.973
					48.14
				+5	3.83
				+5	3.74
				−5	1.92
				−	1.65
				−	4.64
				−5	8.21
					43.76
		+5197		−6633	
		1.71575		1.82171 m	
		1.55596 m		1.66142	
		15 1		15 0	

	56.6	+07	33.2	+46
	58.3	+32	34.9	+04
	8.4	+03	45.0	−64
	7.8	+48	45.7	+51
	2.50	+90		+37 39.10
	17	2.65	15	89.70
	−	35.97		45.91
	16	26.68	16	25.61
	6	21.67		22.74
		+1020		
		1.19220		
		+1557		
		− .67	−	1.09 −1.69
		− .20	−	.07 −1.25
		− 22	−	.09
		+14.48	+14	.32
		36.15		37.06
		3660		
		46.4	+4	10.45
		9.8	+	.34 +4 10.79
		13.6	−	41.30
			+3	29.49
				6.1

Dec. 14

45	46.5	46	5.65	26.35
	50.2		9.30	30.10
	54.0		13.10	34.00
	57.7		16.90	37.90
	1.5		20.70	41.58
47	21.0		29.38	47.40
	25.0		33.00	51.25
	27.5		36.85	55.05
	31.5		40.65	58.75
	33.8		44.40	2.50
			13.13	8.35
			33.99	12.08
			54.99	16.10
			16.02	19.85
			36.84	23.70
45	53.98	27	49.7	
47	27.76			46 54.994
				48.07
				5 6.92
				5 6.74
				6.83
				−5 5.03
				− 1.72
				− 4.57
				−5 11.32
				43.67
		+6101		−3277
		1.78540		1.51548 m
		1.62561 m		1.35569
		15 2		15 1

	4.1	+11	0.4	+13
	4.6	+32	0.2	+17
	14.2	−23	8.3	−10
	13.4	+49	9.2	+73
	9.15	69		93 4.35
	17	9.08	16	4.52
	−	42.23		22.68
	16	26.85	16	27.20
	6	21.50		21.15
		+2397		
		1.20597		
		+1607		
		− .93	−	.27 −1.33
		− .23	−	.11 −.61
		− .17	−	.23
		+14.74	+15	.46
		6 36.24		36.61
		6 36.42		
	10	46.7	+4	10.53
			+	.35 +4 10.88
	4	10.3	−	41.60
		11.1	+3	29.28
				5.7

Dec. 16

45	46.6	46	7.65	28.60
	49.8		11.55	32.40
	54.0		15.65	36.17
	57.6		19.35	40.20
	0.3		23.15	44.07
47	53.6		31.70	49.75
	56.4		35.56	53.48
	0.1		39.22	57.30
	3.3		42.80	1.20
	6.4		46.88	5.00
			15.47	10.68
			36.29	14.34
			57.35	18.05
			18.14	21.94
			39.23	25.70
45	53.66	28	6.48	
47	59.96			46 57.296
				48.024
				5 9.27
				5 9.09
				9.18
				−5 7.54
				− 1.52
				− 4.52
				−5 13.58
				43.72
		+6354		−6276
		1.80305		1.79768 m
		1.64326 m		1.63789
		15 2		15 0

	7.4	+18	40.8	+32
	8.1	+34	39.4	+12
	16.6	−30	48.8	−67
	14.8	+48	47.8	+51
	12.00	70		28 44.80
	17	11.72	15	44.20
	−	43.98		43.44
	16	27.74	16	27.64
		2061		2071
		+2858		
		1.21058		
		+1624		
		− 100	−	.98 −1.44
		− .26	−	.23.08 −1.13
		− .18	−	.07
		+14.80	+15	.11
		3541		3582
		3562		
		46.8	+4	10.75
			+	.35 +4 11.10
	4	11.2	−	41.70
		12.0	+3	29.40
				5.0

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Dec. 19			Dec. 25			Dec. 26		
45 56.5	46 10.54	31.50	46 5.0	46 12.85	33.82	46 3.1	46 13.28	34.00
1.0	14.33	35.33	8.6	16.72	37.70	6.0	16.73	37.72
3.4	18.12	39.05	11.6	20.55	41.63	9.7	20.53	41.68
7.5	21.37	42.90	14.7	24.28	45.25	13.6	24.50	45.60
11.5	25.60	46.50	18.8	28.18	49.20	17.0	28.10	49.23
47 56.5	34.15	52.44	47 51.4	36.70	54.85	47 52.6	36.80	55.00
59.2	38.00	56.00	54.9	40.50	58.67	56.9	41.68	58.62
1.6	42.00	0.00	58.9	44.32	2.40	0.0	44.48	2.55
5.8	45.75	4.00	2.0	48.10	6.28	2.1	48.00	6.28
9.0	49.58	7.70	4.8	52.00	10.10	5.2	52.32	10.07
	17.99	13.52		20.52	15.62		20.63	15.80
	39.06	17.00		41.52	19.46		41.65	19.63
	0.03	20.90		2.46	23.32		2.50	23.70
	20.94	24.80		23.34	27.15		23.56	27.40
	41.90	28.50		44.32	31.15		44.46	31.28
46 3.98	299.92		46 11.74	12.16		46 9.88	12.80	
48 2.42		46 59.984	47 58.40		47 24.32	47 59.36		47 2.560
		47.95			47.79			47.76
		+5 12.03			+5 14.64			+5 14.80
		+5 11.94			+5 14.55			+5 14.71
		−5 10.50			−5 12.97			−5 13.10
		− 1.47			− 1.41			− 1.35
		− 4.45			− 4.29			− 4.26
		−5 16.42			−5 18.67			−5 18.71
		43.56			43.76			43.85
+5600	−6244		+5069	−5597		+5268	−5680	
1.74819	1.79546n		1.70492	1.74796n		1.72165	1.75435n	
1.58840n	1.63567		1.54513n	1.58817		1.56186n	1.59456	
15 2	15 0		15 1	15 0		15 1	15 0	
1.9 +.08	39.8 +.34		58.5 +.07	44.1 +.27		58.6 +.07	42.0 +.30	
2.1 +.30	40.2 +.14		56.9 +.35	42.8 +.22		57.9 +.33	41.6 +.18	
10.4 −.07	47.8 −.68		3.9 +.14	49.6 −.66		4.4 +.14	49.0 −.67	
9.4 +.50	47.7 +.51		2.2 +.36	49.9 +.51		3.8 +.38	49.2 +.51	
6.15 +.81	+.31	43.80	1.20 +.92	~~46.85~~ +.34	46.85	1.50 +.92	+.32	45.50
17 5.95	15 43.88		17 0.38	15 46.60		17 1.18	15 45.45	
− 38.76	43.22		− 35.09	38.74		− 36.46	39.32	
16 27.19	16 27.10		16 25.29	16 25.34		16 24.72	16 24.77	
6 21.16	21.25		6 23.06	23.01		6 23.63	23.58	
+3087			+2221			+2272		
1.21287			1.20421			1.20472		
+16.33			+16.00			+16.02		
− .78	− .97	−1.23	− .64	− .78	−1.15	− .69	− .80	−1.20
− .25	− .08	−1.13	− .28	− .11	−0.97	− .28	− .10	−0.98
− .20	− .08		− .23	− .08		− .23	− .08	
+15.10	+15.20		+14.85	+15.03		+14.82	+15.04	
36.26	36.45		37.91	38.04		38.45	38.62	
36.36			37.98			38.54		
47.0	+4 10.56		47.2	+4 9.96		47.2	+4 9.80	
	+ .35	+4 10.91		+ .36	+4 10.32		+ .36	+4 10.16
10.6	− 41.90		9.2	− 42.10		8.7	− 42.10	
11.4	+3 29.01		10.0	+3 28.22		9.5	+3 28.06	
	5.4			6.2			6.6	

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β Andromedae.

α_0 54.325 — log cos δ 9.75830 — log R_1 1.44255

1878 — δ_0 +34° 58′ 24″ — " cos δ 9.91350 — R_1 27.70 — R_2 13.86 — I 2.52

Nov. 26 — Dec. 7 — Dec. 11 — Dec. 14

	Nov. 26			Dec. 7			Dec. 11			Dec. 14		
	h m s	m s	m s	m s	m s	s	m s	m s	s	m s	m s	s
	1 47 8.5	47 12.00	47 25.72	7 12.1	7 24.40	38.30	7 18.5	7 28.70	42.58	7 27.3	7 32.00	45.75
	10.5	14.30	28.20	13.9	26.95	40.70	21.4	31.30	45.00	30.3	34.50	48.30
	12.7	16.80	30.65	15.7	29.40	43.40	23.9	33.78	47.52	33.0	37.00	50.70
	14.8	19.50	33.20	17.7	32.00	46.00	26.2	36.30	50.00	35.0	39.45	53.25
	17.3	22.00	35.65	19.8	34.58	48.40	28.1	38.80	52.56	37.3	42.00	55.80
								42				
	8 17.7	7.10	39.48	—	—	52.15	8 41.1	24.10	56.38		27.30	59.55
	19.2	9.65	42.00	—	—	54.59	42.9	26.65	58.90		29.80	2.10
	21.7	12.15	44.53	—	—	57.12	44.9	29.20	1.40		32.38	4.65
	23.8	14.60	47.02	—	—	59.70	47.1	31.68	3.90		34.90	7.10
	25.9	17.30	49.70	—	—	2.25	49.0	34.10	6.50		37.35	9.68
		16.92	53.52		29.47 57.17	6.06		33.78	10.07		36.99	13.37
		30.68	55.90		43.36 .22	8.45		47.53	12.77		50.76	15.85
		44.54	58.30		57.16 .16	11.00		1.42	15.20		4.62	18.55
		58.40	0.90		11.02 .16	13.60		15.22	17.75		18.44	20.84
		12.16	3.40		—	16.05		29.15	20.30		32.35	23.60
	7 12.76	22270		7 15.84			7 23.62	710		7 32.58	2316	6
	8 21.66		7 44.540			7 57.178	8 45.00		8 1.420			8 4.832
			½ 58.97			½ 58.88			½ 58.84			58.81
			+4 45.57			4 58.30			+5 2.58			5 5.82
			+4 45.59			4 58.32						5 5.84
			45.54			58.30			+5 2.58			5.82
			−4 44.81			−4 57.63			−5 1.94			−5 5.06
			− .80			− .80			− .74			− .78
			− 4.65			− 4.56			− 4.52			− 4.49
			−4 50.26			−5 3.27			−5 7.20			−5 10.33
			m s									
			2 54.28			54.19			54.22			54.30
		s										
	+3.178	−3.712		+4.134			+3.780	−4.358		+3.205		
	1.50215	1.56961n		1.61637			1.57749	1.63929n		1.50583		
	1.52172n	1.58918		1.62594n			1.59706n	1.65886		1.52540n		
				3								
	25 3	25 2		25 3			25 3	25 1		25 3		
ζ	18.0 +51	7.0 +17		28.9 +60			21.7 +57	56.1 +08		15.9 +47		
η	21.3 +24	10.0 +14		31.6 +15			26.1 +18	0.9 +29		19.9 +25		
ι	31.4 +05	19.9 −29		38.8 −28			36.8 −17	10.2 −18		28.9 +04		
M	30.7 +34	19.8 +46		37.8 +27			35.6 +30	11.4 +49	3.15	28.1 +34		
	2.470 .114	1 168	13.45	33.85 74			29.25 88	68	3.15	22.40 110		
	28 25.35	27 14.18		28 34.28			28 30.05	27 4.65		28 23.20		
	− 33.24	− 38.83		− 43.26			− 39.54	− 45.59		− 33.53		
	27 52.11	27 53.01		27 51.02			27 50.51	27 50.24		27 49.67		
				51.04								
+34°	54′ 56.24	55.34		56.33			54 57.84	54 58.11		50.68		
				57.31						58.28		
+7	23 42											
	0.87360											
	+2323			+3028			+1050			+2419		
	1.24523	0.89683		1.21228	0.90388		0.88410			1.20619	0.89779	
	−16.04	− 7.89		−16.30	8.01		− 7.66			−16.08	7.90	
	− .26	− .35	−0.91	− .44	−0.98		− .37	− .49	−0.94	− .26	−0.91	
	− .37	− .24	−0.76	− .36			− .35	− .21	−0.87	− .37		
	− .28	− .17		− .18			− .22	− .17		− .28		
	− 8.80n	− 8.65n		− 8.99			− 8.60	− 8.53		− 8.81		
	54 47.44	46.69		48.32			49.24	49.58		49.87		
	54 47.36			48.32			49.41			49.87		
	58 59.4	+4′ 11.24		60.1	+4 11.82		60.3	+4 10.45		60.4	+4 10.53	
		− .14	+4 11.10		− .16	+4 11.66		− .17	+4 10.28		− .17	+4 10.35
	+4 12.3	− 35.40		4 11.8	− 36.10		10.9	− 36.30		4 10.5	− 36.40	
	12.0	+3 35.70		11.5	+3 35.56		10.6	+3 33.98		10.2	+3 33.96	
		58′ 22.8			23.9			23.4			23.8	

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	m	s		δ ′	″	
Nov. 16	2	69.03	3	58	58.4	5
21		59.00			58.9	5
26		58.97	3		59.4	5
Dec 1		.93	4		59.8	4
6		58.89	4		60.1	3
11		.84	5		60.3	2
16		58.79	5		60.5	2
21		.73	6		60.6	1
26		58.66	7		60.6	0

Dec. 19

75	7	25.5	7	37.20		50.74	7	24.0	7	39.00		53.00	7	32.0	7	39.60		53.37	7	46.9	7	39.75		53.57
30		27.3		39.60		53.52		25.6		41.45		55.22		34.3		42.10		56.90		49.3		42.15		55.98
70		30.0		42.23		56.06		27.5		43.95		57.83		36.5		44.57		58.28		51.3		44.80		58.50
25		31.8		44.57		58.66		29.3		46.50		0.40		38.6		47.00		0.85		52.8		47.25		0.90
80		33.8		47.12		1.00		31.2		49.05		2.90		41.0		49.58		3.48		54.9		49.82		3.58
55	8	34.2		32.54	8	4.86	8	51.0		34.30		6.60	9	48.6		24.90		7.10	8	52.0		35.00		7.45
10		36.7		35.10		7.38		52.7		36.90		9.20	[8]	58.2		27.42		9.65		53.7		37.60		9.90
65		38.6		37.54		9.87		54.8		39.40		11.70		52.5		40.00		12.05		55.7		40.25		12.42
10		40.9		39.95		12.44		56.9		42.00		14.22		54.5		42.55		14.64		57.7		42.62		14.92
68		43.8		42.70	[7]	14.93		59.0		44.50		16.80		56.8		45.00		17.40		54.9		45.10		17.40
37				42.14	23.81	18.77	23.87			43.99		20.50				44.57		21.08				44.75		21.20
85				5.00	.74	21.22				57.87		23.00				58.38		23.60				58.49		23.73
55				9.90	.90	23.90	23.89			11.70		25.52				12.167		26.10				12.41		26.21
84				23.82	.83					25.53		28.05				26.06		28.50				26.224		28.73
60				31.57		28.87				39.42		30.67				39.987		31.10				40.07		31.32
	7	29.68		49.43			7	27.52		58.51			7	36.48		6.115			7	50.04		6.194		
32	8	38.84			8	9.886	8	54.88			8	11.702	9	52.46			8	12.230	8	55.80			8	12.382
21						58.75						58.70	[8]	52				58.67						58.66
82					+5	11.14					+5	13.00					+5	13.56					+5	13.73
84																								
82					+5	11.14					+5	13.00					+5	13.56					+5	13.73
06					−5	10.51					−5	12.28					−5	12.98					−5	13.11
78					−	.66					−	.72					−	.63					−	.61
49					−	4.43					−	4.38					−	4.35					−	4.34
33					−5	15.60					−5	17.38					−5	17.96					−5	18.06
30						2 54.39						54.32						54.27						54.33

	+ 40.21		− 28.95				+ 44.18		− 43.18				+ 35.75		− 40.29				+ 21.35		− 43.41			
	1.60433		1.46165 n				1.64523		1.63528 n				1.55328		1.60620 n				1.32940		1.63759			
	1.62390 n		1.48122				1.66480 n		1.65485				1.57285 n		1.62477				1.34897 n		1.65716			
	25 3		25 2				25 3		25 1				25 3		25 2				25 3		25 1			
	26.4	+61	13.2	+32			29.5	+59	58.8	+07			21.5	+57	2.8	+09			6.4	+24	58.2	+07		
	29.3	+16	16.8	+32			32.3	+15	2.3	+30			23.9	+19	4.8	+33			8.1	+30	0.4	+29		
	37.5	−21	24.4	−13			40.4	−34	10.2	−.06			31.2	+05	12.0	−14			16.9	−30	8.4	+03		
	36.8	+28	24.3	+47			39.9	+24	9.7	+50			30.2	+34	11.6	+49			14.8	+38	7.7	+49		
	31.95	+84		+98	18.80		34.95	+64		+81	4.50		26.35	+115		+77	7.40		11.15	+62		+88	3.30	
	28	32.50	27	19.68			28	35.52	27	5.25			28	26.70	27	7.80			28	11.30	27	3.68		
	−	42.06		30.28			−	46.22		45.17			−	37.40		42.15			−	22.33		45.41		
	27	50.44	27	49.96			27	49.30	27	50.42			27	49.30	27	49.95			27	48.97	27	49.09		
	54	57.91		58.39			54	59.05		57.93			54	59.05		58.40			54	59.38		58.26		
	+ 31.29						+ 26.43						+ 22.61						+ 23.14					
	0.90487						0.90003						0.89621						0.89674					
	− 8.03						− 7.94						− 7.87						− 7.88					
	− .41		− .22				− .50		− .47				− .32		− .42				− .11		− .48			
	− .42		− .28		−1.04		− .47		− .27		−1.13		− .48		− .29		−1.09		− .45		− .29		−0.71	
	− .21		− .24		−0.74		− .16		− .20		−0.94		− .29		− .19		−0.90		− .15		− .22		−0.99	
	− 9.07		− 8.77				− 9.07		− 8.88				− 8.96		− 8.77				− 8.59		− 8.87			
	18.84		49.62				49.98		49.05				50.09		49.63				50.79		49.37			
	49.23						49.52						49.86						50.57		50			
	60.6	+4	10.56				60.6	+4	10.61				60.6	+4	9.96				60.6	+4	9.80			
	−		.18	+4	16.38		−		.18	+4	10.43		−		.18	+4	9.74		0		.18	+4	9.62	
	11.4	−	36.60				11.1	−	36.60				10.7	−	36.60				10.8	−	36.60			
	11.1	+3	33.78				10.8	+3	33.83				10.4	+3	33.18				9.7	+3	33.02			
			23.0						23.4						23.0						22.6			

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Jan 0	2 58.59		58 60.5
5	58.51	8	60.1 4
10	58.43	8	59.8 3
15	58.35	8	59.5 3
20	58.28	7	59.3 2

1878 1879.

Dec. 31 Jan. 5 Jan. 6 Jan. 7

h	m	s	m	s	m	s					
1	7	30.3	7	38.52	7	52.00	—	7	36.82	50.70	
		32.4		41.02		54.38	—		39.42	53.40	
		34.3		43.30		56.85	—		41.72	55.67	
		36.5		45.75		59.53	—		44.52	58.32	
		38.8		48.32		2.07	—		47.05	1.00	
				33.50		5.90			—	4.50	
				36.02		8.40			—	7.00	
				38.53		10.87			—	9.62	
				41.20		13.48			—	12.05	
				43.80		15.78			—	14.70	
			43.38			19.66	41.95	9.65		18.40	
			56.95			22.20	55.82	9.68		21.00	
			10.89			24.70	9.57	9.57		23.40	
			24.69			27.10	23.46	9.60		26.00	
			38.61			29.80	—			28.50	
	7	34.46	54.52								
				8		10.904			8	9.625	
				2		58.54			2	58.51	
				+5	12	11.31			+5	11.11	
				+5		11.31			+5	11.11	
				−5		11.70			−5	10.57	
				−		.62			−	.60	
				−		4.27			−	4.19	
				−5		14.59			−5	15.36	
				2	m s	54.31				54.26	

+ 3644
1.56158
1.58115

25′ 3′ 25 3 25 2

E	22.0	+.58	R.A. only
F	23.8	+.19	
G	32.7	+.02	
H	32.9	+.33	
	27.85	+1.12	
	28	27.85	
	−	38.12	
	27	49.73	
	54′	58.62	

26.6			41.1
27.4			42.0
34.2			48.9
35.3			50.2

+ 2978
0.70358
− 8.01
− .34 −1.13
− .51
− .28
− 9.14
49.48

49.48			
58′ 60.5	+4′	10.26	69.7
	−	.18	+4 10.08
+4′ 11.0	−	36.50	
10.7	+3	33.58	
	58′	23.1	

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δ Cassiopeiæ.

$1^h\ 17^m\ 51^s$
$+59°\ 36'\ 2''$
$-17°\ 13'\ 14''$
1878

α_0	50.905^s	log sin δ	9.93577
Corr α	−.035	" cos δ	9.70417
$\frac{d\alpha}{dt}$		" 15 cos δ tan i	9.81024n
δ_0	1.66″	tan δ	+1.70
Corr δ	+.63	sin Z	−.30
$\frac{d\delta}{dt}$			

log R_1	1.65188
" R_2	1.35121
R_1	44.86
R_2	22.45
I	4.08

Nov. 24 — Nov. 26 — Nov. 30 — Dec. 1

h	Nov. 24 m s	m s	m s	Nov. 26				Nov. 30			Dec. 1		
1	22 6.1	22 10.4	22 32.7	22 18.0	21 —	—	22 12.70	22 35.4	—	—	22 37.2	—	—
	9.4	12.3	34.9	22.9		—	16.80	38.2	—	—	40.7	—	—
	13.7	14.7	37.0	25.7	58.10	58.10	20.70	42.0	—	22 24.72	43.3	—	22 26.00
	16.8	16.5	38.9	29.5	.42	2.50	24.92	45.0	—	24.72 / 25.02 29.10	46.4	—	26.00 / 25.64 29.72
	21.0	18.6	41.0	32.4	.31	6.47	29.00	49.3	—	.19 33.25	50.9	—	.84 34.00
		20.6	43.0										
	23 23.6	22.7	44.9	23 33.0		20.00	34.90	23 34.9	24.20	39.35	23 48.7	25.24	40.15
	27.0	24.7	46.9	36.9		24.05	39.15	38.7	28.15	43.20	51.9	29.48	44.23
	30.2	1671 26.6	3684 49.1	39.3		28.25	43.23	41.9	32.20	47.50	54.9	33.85	48.29
	33.3			42.8		32.35	47.00	45.2	36.25	51.35	58.1	37.80	52.34
	37.2	18.57	55.1	45.9		36.37	51.50	47.9	40.40	55.55	1.4	41.61	56.69
		40.93	57.1										
		3.30	59.2		58.28		[57.30] 56.30		—	1.70		—	2.57
			1.2		20.82		1.50		24.98 47.43	5.70		25.83 48.28	6.72
		12280	2.4		43.16		5.70		47.39 .39	9.80		48.34 .34	10.65
			5.5		5.63		9.85		9.78 .33	13.70		10.75 .30	14.80
			7.4		28.20		13.80		32.24 .38	18.00		33.40 .54	19.00
			9.4										
	22 13.40		297 11.4	22 25.70	21609			22 41.98			22 43.70	~~8.32~~	
	23 30.26		22 40.933	23 39.58			22 43.218	23 41.72		22 47.382	23 55.00		22 48.365
			17 56.63				56.606			56.54			56.526
			+ 4 44.30				4 46.61			4 50.84			4 51.84
			44.34				46.65			50.88			51.88
			−4 42.45				−4 44.83			−4 48.97			−4 50.06
			− 1.90				− 1.95			− 1.96			− 1.85
			− 5.73				− 5.71			− 5.64			− 5.63
			−4 50.08				−4 52.49			−4 56.57			−4 57.57
			17m 50.85s				50.73			50.81			50.79

	Nov. 24			Nov. 26			Nov. 30			Dec. 1		
	+27.53s	−49.33s		+17.52	−56.36		+5.40	−54.34		+4.66	−66.64	
	1.43981	1.69311n		1.24358	1.75097n		0.73239	1.73512n		0.66839	1.82373n	
	1.25005n	1.50335		1.05377n	1.56121		0.54263n	1.54536		0.47863n	1.63397	
	50′ 0′	45′ 4′		50 0	45 4		50 0	45 4		50 0	45 4	
ε	49.6″ +.18	59.4″ .00		46.2 +.24	57.1 +.01		34.9 +.43	56.0 +.01		35.9 +.40	48.8 +.11	
F	50.0 +.30	59.8 .00		46.4 +.28	56.8 +.07		36.4 +.06	56.0 +.09		36.4 +.06	48.7 +.19	
G	1.5 −.02	9.4 −.12		56.6 −.23	5.3 +.01		47.1 −.68	5.2 +.01		46.9 −.68	67.4 −.14	
H	0.0 +.57	10.8 +.20		54.9 +.52	5.3 +.16		44.9 +.51	5.8 +.17		44.9 +.51	58.2 −.02	
	55.55 1.03	.08	4.40	51.40 81	~~1.90~~ 25	1.20	41.60 32	28	0.60	41.40 29	14	53.40
	50 ~~45~~.28	50 4.85		50 51.02	50 1.12		50 40.82	50 0.75		50 41.02	49 53.28	
	− 17.79	31.87		− 11.32	36.41		− 3.49	35.10		− 3.01	43.05	
	50 37.49	50 36.72		50 39.70	50 37.53		50 37.33	50 35.85		50 38.01	50 36.33	
+59°	32′ 10.86″	11.63″		8.65	10.82		11.02	12.50		10.34	12.02	
−17	13 33											
	1.25170											
	+12.44			+23.58			+23.21			+28.36		
	1.26414			1.27528			1.27494			1.28006		
	+18.37″			+18.85			+18.83			+19.06		
	− .18	− .58	−0.55	− .07	− .75	−0.37	− .01	− .70	−0.16	.00	− 1.05	−0.14
	− .11	− .01		− .10	.00		− .07	.00		− .07	− .49	
	− .26	− .02	−0.61	− .20	− .06	−0.81	− .08	− .07	−0.77	− .07	− .04	−1.58
	+17.82	+17.76		+18.48	+18.04		+18.67	+18.06		+18.92	+17.48	
	32 28.68	29.39		27.13	28.86		29.69	30.56		29.26	29.50	
	32 29.04			28.50			30.12			29.38		
	36 39.2	+4′ 10.48″		39.6	+4 11.24		40.4	+4 11.13		40.6	+4 11.52	
		+ .32	+410.80		+ .33	+411.57		+ .35	+411.48		+ .35	+411.87
	+4′ 10.2″	− 37.50		4 11.6	− 37.90		4 10.3	− 38.70		4 11.2	− 38.90	
	10.8	+3 33.30		12.2	+3 33.67		10.9	+3 32.78		11.8	+3 32.97	
		36′ 2.3″			1.7			2.9			2.4	

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Nov. 16 17 56.72 36 37.4
21 .67 38.5
26 56.61 39.6
Dec. 1 .53 40.6
6 56.44 41.5
11 .34 42.3
16 .22 42.9
21 56.09 43.4
26 55.96 43.8

Dec. 14

21	51.3	22	10.20		32.30																		
	56.7		14.05		36.47																		
	0.1		18.20		40.75																		
	3.3		22.42		44.59																		
	7.6		26.20		48.78																		
23	54.0		39.76		54.80																		
	56.0		43.80		59.05																		
	1.4		47.80		3.05																		
	4.9		52.09		7.20																		
	7.8		56.05		11.25																		
			18.21		17.29																		
			40.58		21.34																		
			3.07		25.60																		
			25.46		29.40																		
			47.90		33.65																		
21	59.80	1522																					
24	1.22			23	3.044																		
				17	56.26																		
				5	6.78																		
					6.82																		
				-5	5.09																		
				-	1.84																		
				-	5.36																		
				-5	12.34																		
					50.70																		

Dec. 16

22	27.9	22	34.9		57.3																		
	32.6		36.8		59.4																		
	35.8		39.0		1.4																		
	39.5		41.1		3.4																		
	44.0		43.0		5.4																		
			45.1		7.3																		
23	45.0		47.0		9.3																		
	48.0		49.3		11.4																		
	51.3		51.3	38.5		48.5	13.6																
	54.7																						
	57.7		43.06		19.7																		
			5.39		21.7																		
			27.88		23.8																		
					25.8																		
			1633		27.7																		
					29.9																		
					32.0																		
					34.0																		
		22	35.98				2509	36.3															
23	51.34						23	5.443															
								56.214															
							5	9.23															
								9.27															
							-5	7.58															
							-	1.67															
							-	5.31															
							-5	14.56															
								50.88															

Dec. 18

[22]		[22]																					
25	27.0	25	—		36.9																		
	29.7	22.2	18.1		40.7																		
	33.9	.4	22.4		44.8																		
	37.9	.4	26.5		48.9																		
	41.0	4	29.6		53.0																		
			[30.6]																				
26	55.5		44.0		59.0																		
[23]	59.3		48.0		3.1																		
	3.7		52.0		7.3																		
	7.0		56.2		11.1																		
	10.8		0.2		15.3																		
		22.35			21.5																		
		44.86			25.7																		
		7.36			29.7																		
		29.76			33.9																		
		52.08			38.0																		
[23]																							
22	33.90	3621																					
24	3.26			23	7.242																		
				17	56.16																		
				+5	1.08																		
				+5	11.12																		
				-5	9.61																		
				-	1.48																		
				-	5.26																		
				-5	16.35																		
					50.89																		

Dec. 19

23	20.1	22	—	22	42																		
	23.9		46		41																		
	25.9		46	45.6	45.6																		
	29.4		46	.7	49.8																		
	33.3		—	.8	54.0																		
24	6.9		45.3		0.2																		
	9.0		49.1		4.1																		
	15.8		53.3		8.0																		
	19.9		57.2		12.2																		
	22.1		1.44		16.5																		
			—		22.7																		
			45.70	8.15	26.8																		
			8.20	.20	30.8																		
			30.82	.37	34.9																		
			53.26	.40	38.9																		
23	26.52																						
24	14.74			23	8.280																		
					36.14																		
				+5	12.14																		
				+5	12.18																		
				-5	10.52																		
				-	1.61																		
				-	5.24																		
				-5	17.37																		
					50.91																		

+6324		−5818						+2948		−4590				+ 3334		− 5602				− 18.24		− 66.46	
1.80099		1.76477 m						1.46953		1.68181 m				1.52257		1.74834 m				1.26102 m		1.82256 m	
1.61123 m		1.57501						1.27977 m		1.41205				1.33321 m		1.55858				1.07126		1.63280	
50	1	45	4					50	0	50	0			50	0	45	4			50	0	45	4
10.8	+.30	51.7	+.05					50.6	+.16	1.3	+.01			52.8	+.14	53.7	+.03			18.9	+.40	47.2	+.16
10.5	+.25	51.8	+.16					49.6	+.30	1.2	+.01			52.2	+.29	52.9	+.15			19.1	+.09	46.0	+.19
20.6	−.36	58.9	−.03					57.7	−.14	9.8	−.15			1.2	−.03	59.0	−.03			268	−.14	53.5	−.46
18.3	+.47	59.7	+67.00					66.9	+.32	9.1	+.29			59.7	+.56	0.9	+.02			25.3	+.44	54.2	−.01
15.70	.86		85	18	55.30			54.15	.84		16	5.55		57.00	.96		17	56.35		22.85	+.79		−12	50.35
51	15.05	49	55.52					50	53.70	50	5.35			50	56.48	49	56.62			50	22.52	49	50.22
−	40.85		37.59					−	19.04		25.63			−	21.54		36.19				11.78		42.98
50	34.20	50	33.11					50	34.66	50	31.18			50	34.94	50	32.81			50	34.30	50	33.18
											35.00												
32	14.15		15.24						13.69		17.17			32	13.41		15.54			32	14.05		15.20
											19.35												15.17

+2435								+2955						+2210						+3157			
1.27605								1.28125						1.27380						1.28377			
+18.88								+19.11						+18.78						+19.20			
− .95		− .80		— 1.30				− .20		− .50		— 0.52		− .27		− .75		— 0.82		− .08		− 1.06		— 0.33
− .13		− .54						− .11		− .01				− .11		− .59				− .05		− .88		
− .22		− .84		— 1.38				− .21		− .04		— 0.53		− .24		− .04		— 1.38		− .20		+ .03		— 1.67
+17.58		+17.50						+18.59		+18.56				+18.16		+17.40				+18.87		+17.59		
31.73		32.74						32.28		31.91				31.57		32.94				32.92		32.76		
32.24								32.10						32.26						32.86				
42.7	+4	10.53						42.9	+4	10.75				43.1	+4	10.24				43.2	+4	10.56		
	+	.40		+4 10.93					+	.40		+4 11.15			+	.41		+4 10.65			+	.41		+4 10.97
+4 10.5	−	41.90						4 10.8	−	41.20				10.8	−	41.40				10.4	−	41.50		
11.1	+3	29.93						11.4	+3	29.95				11.4	+3	29.25				10.9	+3	29.47		
		2.2								2.0						1.5						2.3		

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Dec. 23 | Dec. 24 | Dec. 25

Ch. f.

Dec. 24				Dec. 25			
22 40.6	22 —		39.60	22 34.2	22 —		40.0
44.3	—		43.85	37.1	25.6	21.5	44.0
48.5	25.40	25.40	47.90	40.4	.4	25.4	48.1
52.1	.27	29.35	51.80	44.7	.5	29.6	52.3
55.0	.19	33.35	57.00	49.5	.7	33.9	56.2
23 56.6		47.00	2.05	24 0.1		47.1	2.3
0.3		51.00	5.90	2.8		51.4	6.3
4.4		55.00	10.30	6.5		55.1	10.5
8.0		59.00	14.42	9.8		59.7	14.5
12.0		3.30	18.47	13.2		3.7	18.9
	25.29		24.50		25.55		24.9
	48.08		28.50		48.12		29.0
	10.23		32.77		10.53		32.9
	32.12		37.00		32.98		37.0
	55.06		40.85		55.40		41.1
22 48.10	51.33			22 48.18	52.55		
24 4.26		23	10.266	24 6.48		23	10.510
		17	56.01				53.98
		+5	14.26			+5	14.53
		+5	14.30			+5	14.57
		−5	12.70			−5	12.99
		−	1.60			−	1.54
		−	5.11			−	5.08
		−5	19.41			−5	19.61
			50.86				50.90

			+ 2287	− 53.99	+ 2933	− 55.97	
			1.34778	1.73231	1.46731	1.74796	
			1.15796	1.54255	1.27755	1.55820	
	50′ 0″	45′ 4″	50 0	45 4	50 0	45 4	
E	52.7	53.6	44.9 +.25	53.7 +.03	49.3 +.18	53.7 +.03	
F	52.1	53.3	43.4 +.23	53.7 +.14	48.2 +.30	52.2 +.16	
G	59.3	69.0	51.6 −.61	59.1 −.04	55.6 −.32	58.0 −.06	
H	58.1	59.9	49.1 +.51	59.6 −.01	53.9 +.51	57.9 −.02	
			48.25 +.38	+.12 56.40	52.45 +.67	55.85 +.11	
	50′ 55.88	49′ 56.45	50 47.25	49 56.52	50 51.75	49 55.45	
			− 14.37	34.88	− 18.95	36.16	
			50 32.86	50 31.40	50 32.80	50 31.61	
			32 17.42	16.94	32 15.55	16.74	
			+2625		+2284		
			1.27795		1.27454		
			+18.96		+18.82		
			− .12	− .70	− .20	− .75	
			− .10	− .64	− .12	− .69	−0.31
			− .09	− .03	− .17	− .03	−1.37
			+18.65	+17.59	+18.33	17.35	
			34.07	34.53	33.88	34.09	
			34.30		33.96		
			36 43.6	+4′ 9.70	43.7	+4 9.96	
				+ .42	+410.12	+ .42	+410.38
			9.3	− 41.90	9.7	− 42.00	
			9.9	+3 28.22	10.3	+3 28.38	
				36′ 2.5		2.4	

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η Piscium.

η 1h 24m 57s
+14° 42' 59"
+27° 39' 49"
1878

α_0 57s.334
corr α +.049
$\frac{d\alpha}{dt}$ +.062
δ_0 58".60
corr δ −.31
$\frac{d\delta}{dt}$

log sin δ 9.40490
" cos δ 9.98551
" 15 cos δ sin 1s 0.09158n
tan δ +.26
sin z +.46

log R_1 1.37054
" R_2 1.06987
R_1 23s.47
R_2 11.75
I 2.14

Nov. 13 — Nov. 23 — Dec. 11 — Dec. 12

L	m	s	m	s	m	s	m	s	m	s	m	s	m	s		m	s								
1	28	58.8	29	4.24	29	15.95	29	9.2	29	15.70	29	27.37	29	30.2	29	36.52		48.13	30	16.4		—		—	
		0.5		6.40		18.00		10.8		17.70		29.45		31.9		38.73		50.25		18.3		—		—	
		2.8		8.40		20.20		12.8		19.80		31.60		33.5		40.76		52.40		20.7		—		—	
		4.8		10.62		22.30		14.6		21.98		33.70		35.7		42.80		54.50		22.5		—		—	
		6.0		12.73		24.46		16.8		24.10		35.90		37.8		45.00		56.70		24.2		—		—	
				57.00		27.65				2.50		39.10	30	39.5		23.33		0.02	30	37.6	30	24.67	30	0.90	
				58.20		29.79				4.60		41.18		41.7		25.50		2.03		40.0		26.63		3.20	
				55.40		31.89				6.75		43.33		43.4		27.60		4.20		42.0		28.78		5.30	
				57.50		34.00				8.88		45.60		45.3		29.74		6.30		44.0		30.90		7.48	
				59.78		36.10				11.17		47.78		47.1		31.97		8.45		46.3		33.00		9.60	
			8.48			39.32			19.86			50.50			40.76		11.65				—		12.87	
			20.18			41.53			31.60			52.93			52.40		13.78				—		15.10	
			31.89			43.70			43.39			54.90			4.20		16.02			5.30	5.30		17.30	
			43.64			45.82			55.04			57.20			15.92		18.00			17.18	.43		19.55	
			55.88			47.85			6.78			59.36			27.63		20.18			28.78	.31		21.40	
	29	2.58	15.957				29	12.84	21.667				29	33.82	2.091				30	20.42					
				29	31.914						29	43.334	30	43.40			30	4.182	30	41.96			30	5.347	
				25	1.94							1.93					25	1.84					25	1.88	
				+ 4	29.97						4	41.40					+ 5	2.34					5	3.51	
				+ 4	29.92						4	41.35											5	3.47	
					29.91							41.34					+ 5	2.28						3.46	
				− 4	29.63						− 4	41.02					− 5	1.97					− 5	3.08	
				−	0.29						−	0.28					−	.18					−	.27	
				−	4.61						−	4.60					−	4.51					−	4.50	
				− 4	34.53						− 4	45.90					− 5	6.76					− 5	7.85	
				24m	57.38							57.43						57.42						57.50	
		+ 29.33						+ 30.49					+ 30.26		− 39.22			− 15.07			− 36.61				
		1.46731						1.48416					1.48230		1.59351			1.17811			1.56360				
		1.55889n						1.57574n					1.57388n		1.68509			1.26969			1.65518				
		40 3						40 3					40 3		40 2			40 2			40 2				
G		23.9	+60					26.8	+61				24.8	+61	0.0	+07									
F		31.0	+15					33.7	+14				33.1	+15	7.1	+34									
J		43.9	−45					46.2	−48				45.2	−47	17.7	−30									
H		39.0	+26					41.2	+23				38.6	+26	13.8	+49									
		33.90	.56					1.650	.60				35.00	.55	8.85	.60		38.70	.54			62	11.70		
		43	34.45					43	36.98				43	35.42	42	9.65		42	38.60	42	12.08				
		−	36.21					−	37.65				−	37.49		48.43			18.61		45.20				
		42	58.24					42	59.33				42	57.93	42	58.08		42	57.21	42	57.28				
	0																								
+14	39	50.11						39	49.02				39	50.42		50.27		39	51.14		51.07				
+27	38	48																							
		1.47930																							
		+ 12.14						+ 2.25					+ 10.80					+ 21.87							
		1.49144						1.48155					1.49010					1.50117							
		− 31.01						− 30.31					− 30.91					− 31.71							
		− .11		−0.72				− .12		−0.67			− .12		− .21		−0.62	− .03			− .19		−0.46		
		− .47						− .43					− .36		− .22			− .29			− .24				
		− .14						− .12					− .14		− .15		−0.58	− .11			− .16		−0.59		
		− 31.73						− 30.98					− 31.53		− 31.49			− 32.17			− 32.30				
	39	18.38						18.04					18.89		18.78			18.97			18.77				
	39	18.38						18.04					18.84					18.87							
	43	28.9	+ 4	10.41				29.1	+ 4	10.10			28.9	+ 4	10.45			28.9	+ 4	10.07					
		−		.41	+ 4	10.00			−	.48	+ 4	9.52		−	.60	+ 4	9.85		−	.60	+ 4	9.47			
	+ 4	10.5	−	30.80			4	11.1	−	30.50			10.1	−	30.30			10.0	−	30.30					
		10.2	+ 3	39.70				10.8	+ 3	39.12			9.8	+ 3	39.55			9.7	+ 3	39.17					
			42'	58".1						57.2					58.4					58.6					

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α

	m	s		
Oct. 27	25	1.91	2	
Nov. 1		1.93	1	
6		1.94	0	
11		1.94	0	
16		1.94	0	
21		1.93	1	
26		1.92	1	
Dec. 1		1.90	2	
6		1.87	3	

δ

	′	″		
	43	28.4	2	
		28.6	2	
		28.8	2	
		28.9	1	
		29.0	1	
		29.1	1	
		29.1	0	
		29.1	0	
		29.0	1	

α

	m	s		
Dec. 6	25	1.87	3	
11		1.84		
16		1.80	4	
21		1.76	4	
26		1.71	5	

δ

	′	″		
	43	29.0	1	
		28.9		
		28.7	2	
		28.5	2	
		28.3	2	

Dec. 14

29	33.1	29	39.70		51.29			
	34.8		41.80		53.45			
	36.5		43.90		55.50			
	38.6		46.10		57.64			
	40.4		48.20		0.00			
30	35.6		26.47		3.05			
	37.4		28.63		5.20			
	39.4		30.70		7.46			
	41.0		32.90		9.57			
	43.2		35.15		11.70			
			43.94		14.70			
			5558		17.00			
			7.40		19.10			
			19.06		21.20			
			30.77		23.30			
29	36.68		36.75					
30	39.32			30	7.350			
					1.81			
				5	5.54			
				5	5.49			
					5.48			
				−5	5.10			
				−	.29			
				−	4.48			
				−5	9.87			
					57.48			

Dec. 24

30	48.8		33.90		—			
	50.4		36.00		—			
	52.3		38.00	1482	14.82			
	54.7		40.20	.66	16.80			
	57.0		42.48	.72	19.00			
			51.27		22.10			
			2.95		24.40			
			14.73		26.30			
			26.46		28.70			
			38.12		30.80			
30	52.64		4353					
				30	14.706			
					1.73			
				+5	12.98			
					12.92			
				−5	12.70			
				−	.24			
				−	4.40			
				−5	17.34			
					57.37			

Dec. 25

29	29	36.4		47.48		59.00		
		38.3		49.50		1.10		
		40.6		51.73		3.40		
		42.4		53.72		5.40		
		44.7		55.95		763		
				34.10		10.70		
				36.34		12.90		
				38.52		15.00		
				40.66		17.10		
				42.87		19.38		
						2262		
				51.68		22.62		
				3.31		24.65		
				15.02		26.73		
				26.77		28.83		
				38.50		31.00		
29	40.48		7528					
				30	15056			
					1.72			
				+5	13.34			
					13.28			
				−5	13.00			
				−	.24			
				−	4.39			
				−5	17.63			
					57.43			

Dec. 26

29	33.9	29	47.40	29	59.23			
	35.9		49.58		1.20			
	37.6		51.70		3.52			
	39.7		53.87		5.77			
	41.2		56.10		7.75			
30	52.9		34.50		11.00			
	54.7		36.52		13.40			
	56.4		38.62		15.20			
	58.0		40.82		17.40			
	02		43.02		19.48			
			51.73		22.60			
			3.79		24.67			
			15.22		26.90			
			26.85		28.92			
			38.59		31.18			
29	37.66		7598					
30	56.44			30	15196			
					1.71			
				+5	13.49			
				+5	13.43			
				−5	13.13			
				−	.28			
				−	4.38			
				−5	17.74			
					57.46			

+3067	−3197			−3793		+3458	+3754	−4124
1.48671	1.50474m			1.57898m		1.53882	1.57447	1.61532m
1.57829m	1.59632			1.67056		1.63040m	1.66607m	1.70690
40 3	40 2		40 3	40 2		40 3	40 3	40 1
26.8 +.61	9.1 +.22		35.8 +.50	2.9 +.09		33.0 +.56	35.1 +.52	58.7 +.07
33.2 +.15	14.7 +.33		41.8 +.26	7.5 +.34		38.1 +.18	41.4 +.24	4.0 +.31
43.6 −.44	24.7 −.11		50.2 −.46	15.8 −.28		46.5 −.49	49.8 −.47	12.7 −.18
36.7 +.25	20.0 +.46		43.9 +.18	11.6 +.49		39.7 +.25	44.0 +.18	8.0 +.49
35.20 .60	.90	16.90	43.00 +.48	+.64	9.35	39.75 +.50	+.47	+.64 5.70
48 35.08	42 17.12		43 42.92	42 9.45		43 39.32	43 42.58	42 5.85
− 37.87	39.48			4683		− 42.70	− 46.35	50.92
42 57.21	42 5660			42 56.28		42 56.62	42 56.23	42 56.77
39 5114	5175			39 5207		39 5173	39 5212	5168
+2442				+2625		+2294	+2353	
1.50342				1.50555		1.50224	1.50283	
−31.96				−32.03		−31.79	−31.83	
− .13	− .14	−0.68		− .20	−0.65	− .17	− .20	− .23
− .40	− .24			− .29		− .52	− .52	− .29 −0.84
− .15	− .22	−0.60		− .16		− .12	− .12	− .17 −0.69
−32.58	−32.50			−3268		−32.60	−32.67	−32.52
18.56	19.25			19.39		19.13	19.45	19.06
18.90				19.39		19.13	19.26	
28.8	+4 10.53			28.4 +4	9.70	28.3 +4	9.96	28.3 +4 9.80
	− .61	+49.92		− .24	+49.06	− .64	+49.32	− .64 +4 9.16
+4 9.9	− 30.24			9.0 −	29.80	9.2 −	29.70	9.0 − 29.70
9.6	+3 39.72			8.7 +3	39.26	8.9 +3	39.62	8.7 +3 39.46
	58.6				58.6		58.8	58.7

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v Persei			α_0	30ˢ.566		log sin δ	9.87114		R_c 1.52062			
			corr. α	+.041 +.092		" cos δ	9.82543		R_{1c} 1.22995			
1ʰ 30ᵐ 31ˢ			$\frac{d\alpha}{dt}$			" 15 cos δ tan i	9.93150n		R_{2c}	33.93		
+48° 0′ 33″			δ_0	5′ 33.30					R_{1c}	16.98		
									I	3.08		
−5° 37′ 45″			Corr δ	+.38		tan δ	+1.11					
1878		arrng	star $\frac{d\delta}{dt}$			sin z	−.10					
	Nov. 13			Nov. 23			Nov. 30			Dec. 1		
h	m s	m s	m s									
1	34 39.5	—	34 28.50	34 24.3	34 38.03	34 55.00	34 32.3	34 46.28	35 3.15	34 58.4	34 —	35 4.23
	42.9	—	31.45	26.3	41.10	58.18	36.7	49.40	6.30	1.2	53.08 58.00	7.15
	46.0	—	34.65	29.4	44.20	1.20	40.2	52.40	9.25	4.7	.40 53.40	10.25
	48.0	—	37.77	32.6	47.40	4.20	43.5	55.35	12.20	7.7	.42 56.50	13.20
	50.4	34 23.80	40.73	35.1	50.40	7.35	45.5	58.38	15.20	9.7	.14 59.30	16.35
		19.10	45.60		45.90	12.00	36 0.8	54.00	19.90	36 14.0	54.92	21.00
		22.19	48.59		49.10	15.00	3.8	57.25	23.20	16.0	57.90	24.00
		25.20	51.58		52.15	18.10	6.0	0.25	26.30	18.6	1.15	27.10
		28.30	54.78		55.27	21.10	9.0	3.30	29.40	21.3	4.22	30.20
		31.40	57.75		58.30	24.35	11.2	6.40	32.55	23.7	7.22	33.25
		17.64	2.30		44.23	28.93		52.36	37.15		53.26	37.90
		34.62	5.30		1.19	32.10		9.22	40.00		10.24	41.00
		51.66	8.35		18.11	35.18		26.27	43.40		27.11	44.05
		8.42	11.50		35.17	38.24		43.28	46.30		44.09	47.20
		25.24	14.65		52.14	41.38		0.24	49.55		1.08	50.28
	34 45.36	25758		34 29.54	9084		34 39.64	13137		35 4.34	13578	
			34 51.516			35 18.168	36 6.16		35 26.274	36 18.72		35 27.156
			30 35.93			35.89			35.836			35.83
			+4 15.59			4 42.28			4 50.44			4 51.33
			+4 15.55			4 42.24			4 50.40			4 51.29
			15.50			42.19			50.35			51.24
						−4 41.03			−4 48.98			−4 50.07
						− 1.20			− 1.28			− 1.22
						− 5.32			− 5.27			− 5.26
						−4 47.55			−4 55.53			−4 56.55
						30ᵐ 30ˢ.62			30.74			30.62
	+ 6ˢ.16			+48.63			+46.63	−39.89		+22.82	−41.56	
	0.78958			1.68690			1.66867	1.60086n		1.35832	1.71231n	
	0.77108n			1.61840n			1.60017n	1.53236		1.28982n	1.64381n	
	35 4 ~~40 3~~			25 1			25 1	25 0		25 1	25 0	
[illegible]	8.3″			29.0 +.52			28.0 +.53	13.9 +.29		8.9 +.26	5.2 +.06	
[illegible]	9.8			31.2 +.17			29.6 +.17	15.7 +.09		9.4 +.25	5.7 +.07	
[illegible]	20.9			42.2 −.46			39.9 −.40	25.2 −.21		19.5 −.39	15.7 −.39	
[illegible]	20.3			40.8 +.51			39.6 +.54	26.0 +.45		18.1 +.67	15.9 +.33	
	14.60 ″			35.60 .74			33.95 .84	~~19.55~~ .62	19.55	14.20 .79	~~10.45~~ .07	10.45
	39 14.82			26 35.80			26 34.28	25 20.20		26 13.98	25 10.62	
	− 5.26			− 41.53			− 39.83	34.07		− 19.49	44.04	
	39 8.56			25 54.27			25 54.45	25 54.27		25 54.49	25 54.66	
+47	43 39.79			57 54.08 (6)			53.90	54.08		53.86	53.69	
			−5	38 16								
				0.75480								
				+234			+2367			+2854		
				0.75714			0.77847			0.78334		
				+ 5.72			+ 6.00			+ 6.07		
				− .64			− .59	−.43		− .14	−.72	
				− .19	−0.91		− .16	−.03	−0.96	− .12	−.02	−0.46
				− .18			− .21	−.16	−0.62	− .20	−.02	−0.76
				+ 4.71			+ 5.04	+ 5.38		+ 5.61	+ 5.31	
				56 58.79			58.94	59.46		59.47	59.00	
				56 58.79			59.20			59.24		
				1 8.7	+4′ 10.10″		9.9	+4 11.13		10.0	+4 11.52	
					+ .10	+416.26		+ .12	+411.25		+ .12	+411.64
				+4 9.9	− 35.40		4 10.7	− 36.60		4 10.8	− 36.70	
				10.3	+3 34.80		11.1	+3 34.65		11.2	+3 34.94	
					0′ 33.6″			33.8			34.2	

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	α m s		δ ′ ″			α m s		δ ′ ″	
Oct. 27	30 35.89		1 3.1	12	Dec. 6	30 35.78	6	1 10.7	6
Nov. 1	.92	3	4.3		11	.72		11.3	6
6	.93	1	5.4	11	16	.65	7	11.8	
11	.93	0	6.4	10	21	.57	8	12.2	4
16	35.92	1	7.4	10	26	35.49	8	12.5	3
21	.90	2	8.3	9					
26	.87	3	9.2	9	1879				
Dec. 1	.83	4	10.0	8	Jan 0	30 35.40		12.6	
6	35.78	5	10.7	7					

Dec. 26						Dec. 30						Dec. 31					
23	35	8.2	25	9.50	26.45	36	0.3	—	—	—	—	34	55.0	35	8.00	25.20	
25		6.0		12.90	29.68		3.5	—	—	—	—		58.3		11.10	28.20	
25		8.8		15.90	32.60		5.1	—	—	—	—		1.0		14.20	31.28	
20		11.5		17.00	33.67		9.0	—	—	—	—		4.1		17.30	34.20	
35		14.5		22.00	36.97		11.9	—	—	—	—		6.7		20.20	37.40	
70	36	19.7		17.52	43.67			17.18	35	43.15	35				16.80	42.00	
70		22.1		20.63	46.70			20.20		46.27					19.80	45.70	
10		24.6		23.80	49.62			23.27		49.48					22.80	48.10	
20		27.8		26.99	52.72			26.30		52.40					25.50	51.40	
25		30.0		29.75	56.00			29.57		55.62					28.42	54.40	
70				15.86	0.55			—		6.51	0.35				14.16	58.90	
72				32.67	8.67			—		.28	3.20				31.26	2.07	
5				49.74	6.87			49.38	.38		—				48.18	5.20	
10				6.74	9.68			6.37	.39	.30	9.38				5.16	8.27	
28				23.74	12.95			23.30	.37	.38	12.54				22.14	11.15	
	35	8.80	24	8.75		36	6.08					35	1.02	24	0.90		
26	26	24.74			35 49.750					35	49.380					35 48.180	
3					30 35.49						35.42					35.41	
3					+5 14.26					+5	13.96					+5 12.47	
9																	
24					+5 14.17					+5	13.87					+5 12.68	
7					−5 13.13					−5	12.91					−5 11.71	
2					− .97					−	.97					− .99	
26					− 4.92					−	4.85					− 4.84	
25					−5 19.02					−5	18.73					−5 17.54	
1																	
02					30.73						30.65					30.64	
		+ 40.95		− 34.99			− 16.70						+ 47.16				
		1.61225		1.54394 m			1.22272 m						1.67357				
		1.54375 m		1.47544			1.15422						1.60507 m				
	25	1	25	0		25	0					25	1				
	22.8	+51	16.6	+35		30.8	+47					26.3	+53				
	22.1	+22	16.3	+09		31.8	+03					26.1	+19				
	29.8	+03	24.7	−23		38.9	−.43					34.3	−.12				
	28.0	+65	23.3	+41	30.65	40.6	+.51					32.9	+62				
	26.30	+1.35		+.62	20.65		+.58	34.85					+1.22	30.30			
	26	25.68	25	20.22		25	35.52					26	29.90				
	−	34.97		29.88			14.26					−	40.28				
	25	50.71	25	50.10		25	49.78					25	49.62				
	56	57.64		58.25		56	58.57					56	58.73				
		+ 23.64					+ 26.49						+ 30.19				
		0.77844					0.78129						0.78499				
		+ 6.50					+ 6.04						+ 6.10				
16		− .44		− .33			− .08						− .60				
6		− .20		− .04	− 1.00		− .09	− 0.31					− .22	− 1.12			
		− .34		− .15	− 0.52		− .14						− .30				
		+ 5.03		+ 5.48			+ 5.73						+ 4.98				
		264		363			4.30						3.71				
		3148		7			4.30						3.71				
4	1	12.5	+4	9.80			12.6	+4	8.95				12.6	+4	10.26		
		3	+	.14	+ 49.94			+	.14	+ 49.09				+	.14	+ 40.40	
		9.4	−	39.20			8.3	−	39.30				8.9	−	39.30		
		9.8 7	+3	30.74			8.7	+3	29.79				9.3	+3	31.10		
				33.9					34.1						34.8		

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o Piscium.

$1^h\ 38^m\ 57^s$
$+8^\circ\ 32'\ 34''$
$+33^\circ\ 50'\ 14''$
1878

do $38^m\ 57^s.276$
Corr.a $-.136$ $-.139$
$\frac{da}{dt}$ $+3^s.162$
δ_o $32'\ 34''.23$
Corr.δ $+.57$
$\frac{d\delta}{dt}$ $+18''.25$

log sin δ 9.17187
" cos δ 9.99576
" 15 cos tan i 0.11994 for Jan.
0.10123n " Nov. Dec.
tan δ +0.15
$\frac{z}{\sin}$ +.56

Jan. 5

h	m	p	m	p
1	38	5.1	38	16.58
		6.8		18.82
		8.8		20.82
				25.00
				27.00
				29.00
	38	44.9		31.28
		46.9		33.35
		48.4		37.50
				39.65
				41.65
				32065
	38	6.90		
	38	46.78	38	29.150
			38	58.17
				−29.02
				−28.88
				28.88

	+ 29.10
	− .10
	− .89
	+ 28.11
	$38^m\ 57^s.26$
	$+22^s.25$
	1.34733
	146727
	50′ 4′
ε	6".84.26
F	21.94.10
e	6.34.13
′	9.04.22
	16.55.11.71
	54 11.00
	29.33
	54 40.33
	+8° 28′ 8".02
	+33° 48′ 52"
	1.58606
	3088
	1.61692
	−41.39
	−.04
	−.89
	−.18
	−42.30.03
	27 25.99
	27 26.54
	32 42.0
	+ 5 15.4
	15.9

	58".7 00
	12.9+.06
	57.2−.12
	1.0+.02
	1 ".04 5795
	55 2.45
	−23.17
	54 39.28
	28′ 9".07
	49′ 43"
	1.58624
	3088
	1.61710
	−41.41
	−.03
	−.70 — 0.64
	+.01 −0.54
	−42.13
	27.14
	+5′ 18".09
	−.78 +517.31
	− 7.80
	+5 9.51
	32 36.1

Jan. 7

38	9.6	38	14.00
	12.1		16.00
	14.5		18.25
			22.15
			24.45
			26.45
38	52.2		28.70
	53.8		30.68
	55.9		34.68
			36.80
			39.00
			29116
38	12.07		
38	53.97	38	26.469
		38	58.143
			−31.67
			−31.53

	+ 31.74
	− .10
	− .86
	+ 30.78
	57.25
	−27.50
	1.43933n
	1.55927n
	50′ 4′
	55 0
	18.2+.48 12.44.24
	31.6+.02 24.8+.04
	16.2−.27 11.5−.22
	30.5+.23 21.0+.38
	1720.46 44 11.95
	54 24.12 55 17.42
	18.98 −36.25
	54 43.10 54 41.17
	28′ 5.25 28′ 7.18
	49′ 5 49′ 58
	1.58612 1.58630
	+5164 +5164
	1.63776 1.63794
	−43.43 −43.44
	−.02 −.06
	−.62 −.04 −0.58
	−.12 −.11 −0.30
	−44.19 −43.65
	21.24 23.54
	22.39
	41.9 +5 21.23 +520.45
	−.78
	19.5 − 7.70
	20.0 +5 12.75
	36.1

Jan. 13

37	57.6	38	6.40
	59.9		8.35
	1.6		10.48
			14.68
			16.70
			18.72
38	34.9		20.92
	36.6		23.00
	38.0		27.20
			29.30
			31.42
			20717
37	59.70		
38	36.50	38	18.834
		38	58.08
			−39.25
			−39.11

	+ 39.19
	− .08
	− .80
	+ 38.31
	57.11
	−17.67
	1.24724n
	1.36718n
	50 4
	50 4
	9.1+30 58.3 00
	25.9+.06 14.2+.05
	16.1−.27 3.3+.03
	29.9+.23 19.5+.18
	12.60.32 26 0.80
	54 20.25 55 8.82
	25.21 −23.29
	54 45.46 54 45.53
	28 2.89 28 2.82
	49 1 49 50 48
	1.58610 1.58626
	+ 1676 + 1676
	1.60286 1.60302
	−40.07 −40.09
	−.03 −.03
	−.60 −.57 −0.54
	−.08 −.06 −0.60
	−40.78 61 −40.76 69
	22.28 22.13
	22.20
	41.5 +5 20.41 +519.64
	− .77
	19.3 − 7.30
	19.8 +5 12.34
	34.5

Jan. 16

37	49.4	38	3.50
	51.4		5.95
	53.3		8.10
			12.00
			14.10
			16.32
38	37.5		18.40
	39.0		20.50
	40.6		24.68
			26.78
			28.80
			17943
37	51.37		
38	39.03	38	16.312
		38	58.05
			−41.78
			−41.59

	+ 41.60
	− .09
	− .76
	+ 40.75
	57.06
	−22.72
	1.35641n
	1.47635n
	50 4
	55 0
	1.5+.20 3.2+.02
	17.8+.15 20.0+.08
	3.1+.18 7.2−.14
	13.1+.23 15.2+.33
	2.30.76 39 5.20
	54 8.88 55 11.40
	32.87 −29.95
	54 41.75 54 41.45
	28 6.60 28 6.90
	48 50 49 52
	1.58605 1.58628
	+4018 +4018
	1.62623 1.62646
	−42.29 −42.31
	−.05 −.04
	−.57 −.03 −0.61
	−.19 −.10 −0.16
	−43.70 −42.38
	23.70 24.43
	2406
	41.3 +5 20.93 +520.17
	− .76
	17.2 − 7.10
	17.7 +5 13.07
	37.1

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α

Jan. 0	38° 58'.22	5
5	58.17	6
10	58.11	5
15	58.06	6
20	58.00	6
25	57.94	6
30	57.88	6
Feb 4	57.82	6
9	57.76	

δ

32° 42'.3		3
	42.0	3
	41.7	3
	41.4	3
	41.1	3
	40.8	3
	40.5	3
	40.2	3
	39.9	

Jan. 17

37 51.9	38 2.60	
53.4	4.85	
55.0	6.92	
	11.10	
	12.95	
	15.10	
38 36.1	17.30	
38.0	19.30	
40.4	23.30	
	25.60	
	27.60	
	16662	
37 53.43		
38 38.17	38 15.147	
	38 58.04	
	−42.89	
	−42.75	

Jan. 19

37 47.0	38 0.00	
49.0	2.00	
50.5	4.00	
	8.10	
	10.32	
	12.37	
38 29.88	14.50	
31.48	16.70	
32.88	20.70	
	22.78	
	24.95	
	13642	
37 48.83		
38 31.33	38 12.402	
	38 58.07	
	−45.61	
	−45.47	

Jan. 22

37 44.1	37 56.92	
46.4	58.95	
48.0	1.12	
	5.18	
	7.30	
	9.40	
38 35.8	11.50	
38.3	13.56	
39.9	17.78	
	19.90	
	22.00	
	22361	
	10361	
37 46.17		
38 38.00	38 9.419	
	38 57.98	
	−48.56	
	−48.41	

Nov. 24

43 5.1	43 17.30	43 28.64			
6.5	19.35	30.82			
8.7	21.45	32.89			
10.6	23.50	34.99			
12.6	25.60	37.08			
44 1.45	3.30	40.00			
1.72	5.25	42.30			
1.91	7.30	44.47			
2.07	9.48	46.55			
2.23	11.60	48.58			
	21.44	51.79			
	32.88	53.60			
	44.37	55.90			
	55.86	58.00			
	7.39	0.22			
43 8.70	22194				
44 18.76		43 44.388			
		39 1.89			
		+ 4 42.49			
		+ 4 42.33			

This star & α Ur. Min. are only observations of this date.

+		
	+ 45.67	
	− .68	
	− .73	
	+ 44.86	
	57.26	
		−4 42.47
		− .17
		− 4.61
		−4 47.25
		57.14

+ 21.72	− 23.02	+ 23.57	− 18.93	+ 23.25	− 28.58	+ 35.69	− 34.37		
1.33686	1.36211 m	1.37236	1.27715 m	1.36642	1.45606 m	1.55255	1.53618 m		
1.45680	1.48205 m	1.49230	1.39709 m	1.48636	1.57600 m	1.65378 m	1.63741		
50 4	55 0	50 4	55 0	50 4	55 0	50. 3	50 2		
6.3+.25	6.4+.09	6.1+.25	3.0+.02	7.0+.26	14.9+.31	50.2 +.25	21.2 +.17		
12.9+.19	12.24.10	12.5+.19	8.4+.05	14.1+.18	22.3+.06	57.4 +.22	28.7 +.23		
22.9−.19	22.8−.32	24.1−.14	22.3−.33	27.5−.01	35.6−.25	9.1 +.04	38.7 −.31		
15.6+.22	15.9+.33	17.4+.21	15.4+.33	20.1+.21	27.4+.46	4.6 +.15	35.3 +.15		
14.60 47	20 14.60	15.10 51	10 12.65	17.25 64	58 25.25	59.65 69	86 29.95		
54 14.42	55 14.32	54 15.02	55 12.28	54 17.18	55 25.05	54 0.32	52 30.98		
28.63	−30.34	31.07	−24.95	30.64	−37.67	− 45.06	43.39		
54 43.05	54 43.98	54 46.09	54 47.33	54 47.82	54 47.38	53 15.26	53 14.37		
28 5.30	28 4.34	28 2.26	28 1.02	28 0.53	28 0.97	29 33.09	33.98		
48 55	49 55	48 56	49 53	48 58	50 6	+33	49 5		
1.58607	1.58628	1.58607	1.58628	1.58610	1.58633		1.58610		
+ 3347	+ 3347	+ 1478	+ 1478	+ 0635	+ 0635		+ 1302		
1.61954	1.61975	1.60085	1.60106	1.59245	1.59268		1.59912		
−41.64	−41.66	−39.89	−39.91	−39.12	−39.15		−39.73		
− .04	− .05	− .05	− .03	− .05	− .06		− .09	− .09	
− .38	− .03 − 0.50	− .34	− .04 − 0.52	− .47	− .04 − 0.55		− .48	− .30	− 0.74
− .12	− .05 − 0.12	− .13	− .02 − 0.07	− .16	− .14 − 0.23		− .17	− .22	− 0.61
−42.35 14	−41.78 22.59	−40.57 41	−40.04 21.04	−39.88 67	−39.38 21.59		−40.47 28 52.62	−40.34 53.64	
2316		21.85		20.86			28 53.13		
2288		21.44		21.22			33 3.0	+4 10.48	
41.3		41.2	+5 20.01	41.0	+5 20.95			− .59	+49.89
+5 184			− .76 +5 19.26		− .74 +5 20.21		4 9.9	− 28.80	
18.9		19.8	− 7.00	19.8	− 6.80		10.4	+3 41.09	
		20.3	+5 12.26	20.3	+5 13.41			24.2	
			33.7						
			39.7		24.6				

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1878

	Nov. 26	Dec. 7	Dec. 8	Dec. 14
1	43 10.2	43 19.88	43 31.15	43 20.0
	11.9	21.85	33.19	21.3
	13.7	24.00	35.27	23.0
	15.6	26.10	37.40	25.3
	18.0	28.00	39.57	27.7
	44 23.2	5.18	42.75	
	25.2	7.17	44.87	
	26.9	9.80	46.30	
	28.7	12.00	48.53	
	30.5	14.00	50.95	
		23.87	54.22	
		35.32	56.28	
		46.86	58.30	
		58.36	0.50	
		9.87	2.50	
	43 13.88	23.48	7	43 23.46
	44 26.90		43 46.86	
			39 1.89	
			+4 44.89	
			+4 45.13	
			−4 44.86	
			− .17	
			− 4.61	
			−4 49.64	
			m s 38 57.24	
	+33.00	−40.02		+36.17
	1.51851	1.60228		1.55835
	1.61974	1.70351		1.65958
	50 3	50 2		50 3
E	47.9 +29	15.4 +38		54.2 +21
F	54.1 +28	22.0 +28		0.3 +16
G	4.3 +17	31.3 +03		6.1 +14
H	58.6 +03	27.3 +47		0.9 +06
	56.10 1.77	1.16 23.35		0.15 57
	53 56.22	52 24.00		54 0.38
	− 41.66	50.53		− 45.66
	53 14.56	53 14.53		53 14.72
+8	29 33.79	33.82		33.63
	+24.06			+30.82
	1.62318	1.61016		1.62994
	−41.00	−40.75		−42.65
	− .18	− .12		− .09
	− .43	− .26	− 0.70	− .40
	− .19	− .29	− 0.67	− .14
	−41.45	−41.40		−42.02
	28 52.34	52.40		57.61
	28 52.37			51.61
	33 2.9	+4 11.24		25
	' "	− .62	+4 10.62	− .70
	+4 10.5	− 28.70		4 10.9
	11.0	+3 41.92		11.4
		32 34.3		

	Dec. 8	Dec. 14
	43 19.9	43 33.40
	21.1	35.48
	22.5	37.70
	24.9	39.70
	26.4	41.88
		19.42
		21.87
		23.68
		25.73
		27.62
		37.63
		49.08
		0.46
		12.12
		23.56
	43 22.96	0.285
	43 59.26	44 0.570
	39 1.842	1.84
	4 57.78	+4 58.73
	4 57.92	+4 58.87
	−4 57.69	−4 58.65
	− .17	− .15
	− 4.56	− 4.56
	−5 2.42	−5 3.36
	57.21	57.21
	+33.61	
	1.57530	
	1.67653	
	50 3	
	55.9 +20	
	1.1 +16	
	8.4 +09	
	3.0 +13	
	2.15 58	
	54 2.10	
	− 47.48	
	53 14.62	
	29 33.73	
	+33.80	
	1.62090	
	−41.68	
	− .12	
	− .40	− 0.66
	− .14	
	−42.34	
	51.39	
	2.4	+4 11.46
		− .71
	11.0	− 28.20
	11.5	+3 42.55
		33.9

	Dec. 14	
	43 29.4	43 39.90
	30.8	42.00
	32.6	44.05
	34.7	46.20
	36.4	48.30
	44 42.6	25.80
	44.4	27.80
	46.5	29.98
	48.0	32.10
	50.0	34.10
	44.09	
	55.51	
	7.07	
	18.47	
	29.96	
	43 32.78	35.10
	44 46.30	
	+34.24	−39.28
	1.53453	1.59417
	1.63576	1.69540
	50 3	50 2
	48.7 +28	15.2 +38
	54.9 +26	21.9 +28
	3.4 +18	30.2 +04
	59.0 +03	26.9 +47
	56.05 .98	22.90 1.17 22.70
	53 56.50	52 28.55
	− 43.23	49.54
	53 13.27	53 13.14
	35.08	35.21
	+24.57	
	1.62369	1.61067
	−42.04	−40.80
	− .09	− .12
	− .43	− .26
	− .19	− .29
	−41.51	−41.47
	53.57	53.74
	53.66	
	2.1	+4 10.53
		− .74
	4 8.4	− 27.90
	8.9	+3 41.89
		35.5

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Dec. 16 | Dec. 19 | Dec. 23 | Dec. 24

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43	47.8	43	42.25	43	53.80	43	35.1	43	45.38		56.10	43	40.3	43	47.05		58.50		
	49.7		44.25		55.80		36.6		47.28		58.93		42.1		49.18		0.70		
	51.9		46.45		58.00		38.2		49.53		0.70		43.9	[51]	50.40		2.70		
	53.2		48.50		0.00		39.9	[51]	50.53		2.94		46.0		53.38		4.85		
	55.0		50.80		2.05		41.3		53.62		5.00		47.6		55.48		6.90		
44	44.9		28.05		5.35	44	45.8		31.00		8.10	44	49.0		32.92		9.97		
	46.5		30.18		7.28		47.1		33.20		10.18		50.8		35.05		12.05		
	48.0		32.20		9.50		48.7		35.32		12.20		52.3		37.00		14.15		
	49.5		34.45		11.50		50.5		37.35		14.40		54.3		39.20		16.18		
	51.9		36.60		13.70		52.4		39.40		16.50		56.8		41.30		18.43		
			46.45		16.70				49.47		19.63				51.30		21.40		
			47.93		18.85				0.73		21.70				2.73		23.62		
			49.47		20.88				12.28		23.75				14.16		25.58		
			20.89		23.00				23.78		25.88				25.63		27.67		
			32.30		25.00				35.25		27.95				37.09		29.90		
43	51.52		47.04			43	38.22		61.51			43	43.98		49.91				
44	48.16			44	9.408	44	48.90			44	12.302	44	52.64			44	14.182		
				39	1.79						1.76						1.73		
				5	7.62					+5	10.54					+5	12.45		
				5	7.76					+5	10.68					+5	12.59		
				-5	7.61					-5	10.54					-5	12.32		
				-	.15					-	.14					-	.15		
				-	4.51					-	4.48					-	4.45		
				-5	12.27					-5	15.16					-5	16.92		
					57.14						57.14						57.26		

+ 1789		− 3875				+ 3408		− 3660				+ 3020		− 3846					
1.25261		1.58827				1.53250		1.56348				1.48001		1.58501					
1.35381		1.68950				1.63373		1.66471				1.58124		1.68624					
50	3	50	2			50	3	50	2			50	3	50	2			50	3	50	2
28.8	+60	17.2	+41			48.8	+27	20.6	+14			44.8	+34	18.1	+44			43.7	20.3
34.7	+14	23.1	+27			55.9	+25	26.9	+24			50.2	+34	23.7	+26			49.3	26.3
43.6	-44	30.8	+03			3.4	+18	34.6	-09			58.1	+09	30.2	+04			56.4	32.1
37.9	+27	28.2	+47			58.7	+03	30.6	+48			53.2	+06	27.9	+47			51.9	29.0
36.20	57		1184.00			56.10	+73		+112 27.60			51.45	+83		+121 24.15			~~49~~ 50.05	26.20
53	36.25	52	24.82			53	56.70	52	28.18			53	57.58	52	24.98			53	50.32	52	26.97
−	22.59		48.92			−	43.03		46.21			−	38.13		48.86						
53	13.66	53	13.74			53	13.67	53	14.39			53	13.45	53	13.54						
29	3469		3461			29	3468		3396			29	3490		3481						
	+3012						+ 3178						+ 2703								
	~~1.62924~~		1.61622				1.61808						1.61313								
	~~4258~~		−41.83				−4150						−4103								
	− .02		− .12				− .10		− .12				− .08		− .12						
	− .43		− .29		− 0.59		− .47		− .30		− 0.75		− .57		− .31		− 0.80				
	− .14		− .30		− 0.71		− .18		− .28		− 0.70		− .21		− .30		− 0.73				
	− 41.92		− 42.04				− 42.25		− 42.20				− 41.83		− 41.76						
	52.77		52.57				52.43		51.76				53.07		53.05						
	52.67						52.10						53.06								
	12.0	+4	10.75				1.8	+4	10.56				1.6	+4	10.61						
		−	.75	+4	10.00			−	.76	+4	9.80			−	.78	+4	9.83				
+4	9.3	−	27.80				9.7	−	27.60				8.5	−	27.40						
	9.8	+3	42.20				10.2	+3	~~43.72~~ 43.72				9.0	+3	~~42.68~~ 42.78						
			34.9						34.3						35.5						

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B. Arietis.

$1^h\ 47^m\ 54^s$
$+20^\circ\ 12'\ 39''$
$+22^\circ\ 10'\ 9''$
1878

α_0 $47^m\ 54^s.132$
Corr. α +.013 +.026
$\frac{d\alpha}{dt}$ +3.302
δ_0 $12'\ 39''.23$
Corr. δ −.20
$\frac{d\delta}{dt}$ +14".78

$\log \sin \delta$ 9.53842
" $\cos \delta$ 9.97240
" $15 \cos \delta \tan \mu$ 0.09718 for Jan.
0.07847m " Nov. Dec.
$\tan \delta$ +0.37
$\frac{n}{\sin 1''}$ +.38

R_c 1.38365
$R_2 c$ 1.08298
$R_2 c$ 24.19
$K_2 c$ 12.11
I 2.20

Jan. 1

h	m	s	m	s			m	s			m	s			m	s			m	s		
1	47	4.9	47	16.90	47	4.1	47	13.00														
		7.1		19.13		6.5		15.25														
		9.0		21.35		8.4		17.48														
				25.73				22.00														
				27.90				23.95														
				30.00				26.20														
	47	45.1		32.15	47	39.0		28.48														
		47.0		34.50		43.6		30.60														
		48.8		38.80		46.0		34.95														
				41.00				37.10														
				43.38				39.50														
				33.84				28.51														
	47	7.00			47	6.33																
	47	46.97	47	30.076	47	42.87			47	26.228			47	23.545					47	15.968		
			47	55.07					47	55.43			47	55.07					47	54.94		
				−24.99						−28.80				−31.48						−38.97		
				−25.60						−28.81				−31.47						−38.98		
				−25.82						−28.83				−31.49						−39.00		
				+ 25.29						+ 29.11				+ 31.75						+ 39.19		
				− .26						− .26				− .24						− .20		
				− .94						− .90				− .88						− .81		
				+ 24.09						+ 28.00	3795			+ 30.63						+ 38.18		
			m	s																		
			47	54.17						54.18				54.17						54.15		
			s																			
	+	23.08	−	16.89			+	19.90	−	16.64	+	19.11	−	39.83			+	22.77	−	18.20		
		1.36324		1.22763 n				1.29885		1.22115 n		1.25126		1.60021 n				1.35736		1.26007 n		
		1.46042		1.32481 n				1.39603		1.31833 n		1.37844		1.69739 n				1.45454		1.35725 n		
				10' 4'				15' 0'				10 4		15 0				10 4		15 0		
δ		17".4+.45		7".9+.13				21.1+.57		6.3+.09		23.9+.54		37.7+.37				15.2+.43		5.8+.08		
F		31.3+.02		23.2+.06				35.2+.01		20.3+.08		35.1+.01		49.2+.30				31.1+.02		21.2+.07		
q		18.9−.29		9.8−.15				19.9−.27	[66]	16.6−.02		17.9−.30		35.8−.26				21.4−.24		13.3−.31		
μ		21.9+.20		12.4+.32				22.1+.20		9.5+.30	[33.2]	+.22		48.5+.51				34.1+.21		25.2+.44		
		18.15	38		36	8.85		20.50	46				47		92	36.75		18.30	42		28	9.55
	14	22.38	15	13.32			14	24.58	15	13.18	14	27.52	15	42.80			14	25.45	15	16.38		
		28.87		−21.13				24.89		−20.81		23.90		−49.82				28.48		−22.76		
	14	51.25	14	52.19			14	49.47	14	52.37	14	51.42	14	52.98			14	53.93	14	53.62		
										49.87												
+20°	7	57.10	7	56.16			7	58.88	7	58.48	7	56.93	7	55.37			7	54.42	7	54.73		
+22°	9	3	9	54			9	6	9	52	9	9	10	24			9	6	9	57		
		1.36992		1.37026				1.36994		1.37025		1.36996		1.37042				1.36994		1.37028		
		+ 2093		+ 2093				+ 3113		+ 3113		+ 5192		+ 5192				+ 1688		+ 1688		
		1.39085		1.39119				1.40107		1.40138		1.42188		1.42234				1.38682		1.38716		
		−24.60		−24.61				−25.18		−25.20		−26.42		−26.44				−24.37		−24.39		
		−.09		−.05				−.07		−.05		−.06		−.28				−.09		−.06		
		−.57		−.03		−0.63		−.62		−.03	−0.63	−.65		−.45	−0.63			−.62		−.14	−1.23	
		−.10		−.09		−0.16		−.12		−.11	−0.18	−.12		−.23	−0.58			−.10		−.07	−0.16	
	−25.	36	−24.	78			−25.	49	−25.	38		−27.	22	−27.	82		−25.	18	−24.	56		
	4	31.87		31.39				33.07		33.10			29.88		28.35			29.42		30.18		
	4	31.63						33.08					29.12					29.80				
	12	51.4	+5	20.11				51.2	+5	18.09			51.1	+5	21.23			50.9	+5	20.41		
		"		−.55	+5	19.56				−.53	+5	17.46			−.53	+5	20.70			−.52	+5	19.89
	+5	19.8		−12.20				18.1		−12.53			22.0		−11.90			21.1		−11.74		
		19.6	+5	7.36				17.9	+5	5.56			21.8	+5	8.80			20.9	+5	8.19		
			12'	39.0						38.6					37.9					38.0		

Jan. 7

Jan. 13

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	α		δ			α		δ			α		δ		
											1879				
Jan. 0	47m 55s.08		12° 51".4		Nov. 16	47m 58s.93		13° 9".5			Jan 0	47m 58s.71	13° 9".7		
5	55.03	5	51.2	2	21	.93	0	9.7	2						
10	54.98	5	51.0	2	26	.93	0	9.8	1						
15	54.92	6	50.8	2	Dec. 1	.92	1	9.9	1						
20	54.86	6	50.5	3	6	58.90	2	9.9	0						
25	54.79	7	50.2	3	11	.87	3	9.9	0						
30	54.72	7	49.8	4	16	.84	3	9.9	0						
Feb. 4	54.65	7	49.4	4	21	.80	4	9.9	0						
9	54.59	6	49.0	4	26	58.76	4	9.8	1						
	Jan. 22		Nov. 24			Nov. 26					Dec. 7				
	46 44.3		52 35.9		52 —	52 25.35		52 5.2		52 15.75	52 27.90		52 19.5	52 28.50	40.59
	45.8		38.1		17.73 1553	27.60		6.9		17.95	29.80		21.8	30.70	42.72
	47.9		40.0		.75 17.75	29.73		8.5		20.15	32.05		23.8	32.80	44.91
			42.4		.59 19.99	31.90		10.0		22.30	34.30		25.7	35.10	47.10
			43.6		.60 2207	34.17		11.1		24.50	36.50		28.0	37.30	49.30
	47 46.1		53 14.2		1.72	37.40		53 22.6		4.14	39.90		53 35.1	16.80	52.57
	48.0		15.7		3.92	39.72		24.6		6.28	42.20		37.9	19.00	54.82
	50.0		17.4		6.05	41.90		26.5		8.38	44.35		39.9	21.10	57.00
			19.3		8.17	44.00		28.3		10.70	46.54		41.8	23.40	59.20
			21.5		10.40	46.20		30.9		12.95	48.75		43.8	25.60	1.40
						4									
					17.67	49.50				20.13	52.05			32.88	4.68
	46 46.00				29.75	51.74				32.11	54.10			44.92	6.85
	47 48.03				41.84	53.91				44.35	56.38			57.00	9.10
					53.88	56.13				56.37	58.53			9.12	11.36
					6.05	58.14				8.49	0.77			21.18	13.60
			52 40.00	20919				52 8.34	22145				52 23.76	28510	
			53 17.62			52 41.838		53 26.40			52 44.290		53 39.70		52 57.020
						47 58.93					58.93				47 58.89
						+ 4 42.91					+ 4 45.36				4 58.13
						+ 4 42.90					+ 4 45.35				4 58.12
						42.88					45.33				58.10
		+ 48.52				− 4 42.47					− 4 44.87				− 4 57.71
		− .21				− .41					− .42				− .43
		− .70				− 4.80					− 4.80				− 4.76
		+ 47.61				− 4 47.68					− 4 50.09				− 5 2.90
		54.16				54.16					54.20				54.12
	+ 20.55	− 41.48		+ 184	− 3578			+ 3593	− 4211				+ 3326	− 4268	
	1.31281	1.61784 m		0.26482	1.55364 m			1.55570	1.62439 m				1.52192	1.63022 m	
	1.40999	1.71502 m		0.34329 m	1.63211			1.63417 m	1.70286				1.60039 m	1.70869	
	10 4	15 0		10 3	10 2			10 4	10 2				10 3	10 2	
	19.8+51	87.6+37		17.8 +50	31.7 +51			0.9 +20	26.2 +54				58.6 +20	27.8 +54	
	25.8+06	43.8+24		24.1 +19	38.2 +25			5.1 +19	30.7 +21				2.9 +17	32.9 +21	
	38.9−34	56.3−25		34.6 −01	49.1 −56			16.1 −27	40.8 −40				9.8 −01	38.0 −28	
	30.0+23	50.3+51		31.9 +33	47.0 +31			12.8 +23	38.7 +40				5.4 +20	34.9 +45	
	29.35 46	87 46.95		25.95 98	51 40.40			8.50 .35	7533.50				4.20 56	92 32.90	
	14 28.62	15 47.00		13 24.98	12 41.50			14 8.72	12 34.10				17 4.18	12 32.40	
	25.70	− 51.88		− 2.20	42.87			− 43.07	50.45				− 39.85	51.13	
	14 54.32	14 55.12		13 24.78	13 24.37			13 25.65	13 24.55				13 24.33	13 24.53	
	7 54.03	7 53.23		9 23.57	2398			2270	2380				2402	2382	
	9 10	10 28	+20 22	9 15											
	1.36967	1.37044		1.32490	1.37000										
	+ 9832	+ 9293		+ 1327				+ 2427					+ 3096		
	1.37659	1.37706		1.33817	1.38327			1.39417	1.39427				1.36586	1.40096	
	−23.80	−23.83		− 24.79	− 24.17			− 22.34	− 24.79				− 20.69	− 25.17	
	− .08	− .80		− .00	− .23			− .23	− .31				− .19	− .32	
	− .49 .38	− .09 .56	− 0.56	− .41	− .32	− 0.66		− .45	− .29	− 0.77			− .40	− .26	− 0.73
	− .12	− .22	− 0.58	− .25	− .13	− 0.68		− .09	− .19	− 0.79			− .14	− .23	− 0.81
	−24.49 36	− 24.44 41		− 24.83	− 24.85			− 25.56	− 25.58				− 25.90	− 25.98	
	29.67	28.82		8 58.74	59.18			57.14	58.22				58.12	57.84	
	29.24			8 58.93				57.68					57.98		
	50.4	+ 5 20.95		13 9.8	+ 4 10.48			9.8	+ 4 11.24				9.9	+ 4 11.82	
	− .50		+ 5 20.45	− .40		+ 4 10.08		− .42		+ 4 10.82			− .48		+ 4 11.34
	+ 5 21.2	− 11.20		4 10.9	− 31.60			4 12.1	− 30.60				4 11.9	− 30.70	
	21.0	+ 5 9.20		10.7	+ 3 39.48			11.9	+ 3 40.22				11.7	+ 3 40.64	
		38.4			38.4				37.9					38.6	

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1878

Dec. 8 | Dec. 16 | Dec. 18 | Dec. 19

	Dec. 8			Dec. 16				Dec. 18				Dec. 19			
1	m s	m s	m s	m s	m s	m s		m s	m s			m s		m s	
	52 14.3	52 29.30	41.42	52 30.0	52 38.20	52 50.37		55 48.5	55 40.10	56.72	52.32	52 31.3	—	52 —	
	15.9	31.50	43.68	31.8	40.47	52.64		[52] 51.0	[52] 42.38	.73	54.53	34.9	—	—	
	17.3	33.68	45.90	33.2	42.56	54.73		53.0	44.58	—		35.0 33.2	—	—	
	19.1	35.90	48.00	35.7	44.80	56.98		55.0	46.78	.72	58.92	35.0 35.0	—	57.70	57.70
	20.5	38.05	50.25	37.5	47.05	59.30		56.9	49.00	.70	1.10	35.0 36.8	—	.65	59.85
												—	—	.60	2.00
	53 33.5	17.83	53.48	53 36.8	26.67	2.60		56 44.5	28.60		4.40	53 45.2	29.82		5.25
	35.2	19.92	55.72	38.9	28.73	4.64		[53] 46.0	30.68		6.60	p 46.1	31.80		7.40
	37.3	22.10	57.95	41.2	31.00	6.81		48.0	32.95		8.82	47.0	33.73		9.66
	39.2	24.28	0.12	42.9	33.00	9.00		50.5	35.20		11.00	48.7	36.00		12.00
	41.3	26.50	2.22	44.5	35.60	11.17		52.6	37.42		13.10	50.4	38.35		14.22
												52.1			
		33.69	15.72		42.62	14.57			44.54		16.42		—		17.48
		45.85	17.90		54.80	16.68			56.72		18.67		5.65 9.76		19.53
		57.90	10.00		6.84	18.88			8.78		20.82		9.71 1.71		21.80
		10.04	12.10		18.89	21.04			20.85		23.00		21.77 .66		23.83
		22.13	14.50		31.00	23.30			32.97		25.32		33.88 .69		26.20
												34.98			
	52 17.42	28961		52 33.64	3415			52 52.88	4389			52 33.26			
	53 37.32		52 57.22	53 40.86		53 6.830		53 48.32			53 8.778	53 48.25		53	9.705
			47 58.89			47 58.84					58.82				58.81
			+4 59.03			5 7.99				+5	9.96			+5	10.89
			+4 59.00			5 7.98				+5	9.93			+5	10.86
						7.96									
			−4 58.66			−5 7.62				−5	9.64			−5	10.54
			− .37			− .36				−	.32			−	.35
			− 4.76			− 4.71				−	4.69			−	4.68
			−5 3.79			−5 1.269				−5	14.65			−5	15.57
			m s												
			47 54.13			54.14					54.13				54.13
		s	s												
		+40.50	−39.40		+ 3319	−3403			+ 15.90	−39.54			+ 31.72	−38.55	
		1.60746	1.59550 m		1.52107	1.53186 m			1.20140	1.57704 m			1.54058	1.58602 m	
		1.68593 m	1.67397		1.59948 m	1.61033			1.27987 m	1.67551			1.61905 m	1.66449	
		′ ′	′ ′		[37]										
		10 4	10 2		10 4	10 2			10 3	10 2			10 3	10 2	
		"	"												
E		7.7 +27	30.7 +52		56.1 +20	35.6 +45			36.0 +50	29.3 +53			59.1 +20	29.8 +52	
F		11.4 +19	34.8 +01		1.1 +16	39.5 +28			40.6 +22	34.6 +21			4.1 +18	35.2 +21	
G		18.5 −30	41.7 −43		9.1 +04	47.8 −57			48.8 −19	41.7 −43			12.1 −11	42.3 −45	
H		14.1 +23	39.3 +40		5.2 +19	46.2 +32			48.9 +16	38.6 +41			8.9 +22	40.0 +39	
		13.40 +39	+50	36.20	7.60 59	48	41.70		42.40 +39	+.72	35.50		5.60 +49	+.67	36.05
		14 12.92	12 36.62		14 2.88	12 42.28			13 42.82	12 36.05			14 6.05	12 36.82	
		− 4852	+ 4720		− 39.76	40.77			− 19.05	47.37			− 41.60	46.18	
		13 24.40	13 23.82		13 23.12	13 23.05			13 23.77	13 23.42			13 24.45	13 23.00	
		′ "	"												
		9 23.95	24.53		9 25.23	25.30			9 24.58	24.93			9 23.90	25.35	
		+3397			+3036				+2239				+3215		
		1.40397			1.35526	1.40036			1.39239				1.40215		
		−25.35	"		−22.66	−25.14			−24.68				−25.24		
		− .29	− .27		− .19	− .20			− .04	− .28			− .21	− .26	
		− .42	− .26	−0.81	− .48	− .32	−0.82		− .44	− .31	−0.58		− 2549	− 2831	−0.82
		− .10	− .12	−0.65	− .15	− .12	−0.64		− .10	− .18	−0.77		− .12	− .17	−0.74
		−26.16	−26.00		−25.96	−25.98			−25.26	−25.45			−25.82	−25.88	
		57.79	58.53		8 59.27	59.52			59.32	59.48			58.08	57.84	59.40
		58.16			8 59.40				59.40				58.74	60	37
	13	9.9 +4	11.46		13 9.9	+4 10.75			9.9 +4	10.24			9.9	+4 10.56	
		−	.48	+4 10.98		− .51	+4 10.24			− .52	+4 10.73		3	− .52	+4 10.04
	+4	11.4 −	30.70		4 10.5	− 30.70			10.5 −	30.70			11.8	− 30.70	
		11.5 +3	40.28		10.3	+3 39.54			10.3 +3	39.02			11.1	+3 39.34	
		′ "													
		12 38.4				38.9				38.4				37.9	

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	52	34.8	52	43.20	55.05	52	32.4	52	42.18	54.36
		37.0		45.20	57.30		34.3		44.43	56.65
70		39.0		47.40	59.50		36.0		46.60	58.88
85		41.4		49.70	1.72		38.0		48.80	1.03
00		44.0		51.85	3.93		41.6		51.00	3.15
25	53	47.5		31.52	7.10				30.53	6.38
40		49.5		33.72	9.20				32.75	8.68
66		51.6		35.88	11.70				34.95	10.90
00		53.5		38.00	13.90				36.44	13.27
22		55.5		40.05	16.00				39.25	15.40
48				47.48	19.35				46.60	18.58
53				59.50	21.50				58.82	20.80
80				11.58	23.70				10.93	22.88
83				23.70	25.93				22.94	24.98
20				35.83	28.00				34.88	27.18
	52	39.24		5809		52	36.30		64.17	
705	53	51.52			53 11.618					53 10.831
881					58.78					58.72
87					+5 12.84					+5 12.11
86					+5 12.81					+5 12.08
54					−5 12.33					−5 11.71
35					− .38					− .33
68					− 4.65					− 4.59
57					−5 17.36					−5 16.63
13					54.26					54.20
		+ 3238		− 3990			+ 3453			
		1.51028		1.60077 m			1.53820			
		1.58875 m		1.67944			1.61667 m			
		10 3		10 2			10 3			
		56.2 +20		28.2 +54			57.9 +20			
		0.8 +16		33.7 +21			1.2 +16			
		7.5 +10		40.2 −38			9.8 .00			
		4.8 +18		37.0 +43			7.4 +22			
		1.85 +64		+.80	34.20		+.58	3.85		
		14 2.32		12 34.78			14 4.08			
		− 38.79		47.80			− 41.87			
		13 23.53		13 22.58			13 22.71			
		9 2482		2577			9 2564			
		+ 2718					+ 3046			
		1.37718					1.40046			
		− 24.96					− 25.15			
2		− .18		− .28			− .21			
4		− .2652		− .34	− 0.86		− .2560		− 0.95	
		− .16		− .20	− 0.82		− .14			
		− 25.5682		− 2578			− 2582		26.10	
		59.2600		59.99			59.82			
		59.0244					59.8254			
		9.9 +4	10.61				9.7 +4	10.26		
4		−	.53	+ 4 10.08			−	.64	+ 4 9.72	
		10.85 −	30.70				9.9	10.2	−30.50	
		10.2 +3	39.38				9.7	10.0 +3	39.22	
		3								
			38.8						38.8	

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50 Cassiopeiae.

1878

$1^h\ 53^m\ 3^s$
$+71°\ 49'\ 47''$
$-29°\ 26'\ 59''$

α_0 $53^m\ 2^s.791$ — log sin δ 9.97778
Corr. α +.104, +.160 — " cos δ 9.49393
$\frac{d\alpha}{dt}$ +4s.988 — " 15 cos δ sin 1 9.61871 for Jan., 9.60000 " Dec.
δ_0 49° 46''.89 — tan δ +3.08
Corr. δ −.25 — $\frac{\sin z}{\sin}$ −.49
$\frac{d\delta}{dt}$ +17''.68

Jan. 13

	m	s
1	50	56.5
		1.2
		5.9
	51	42.3
		48.8
		53.9
	50	1.20
	51	48.33

	m	s
	52	12.5
		15.9
		19.0
		22.5
		25.9
		29.3
		32.5
		36.9
		39.1
		2326
	52	25.844
	52	63.268
		−37.42
		−37.52
		−37.58

	+	39.19
	−	1.66
	−	.48
	+	37.02
	53m	2.86
	+84s.64	+37s.51
	1.92758	1.57415
	1.54629	1.19288
	35°	2' 35° 3'

E	46''.9	+26 6''.9 +26
F	57.9	+30 17.4 +27
G	47.8	−57 6.4 +06
H	5.9	+39 27.3 +34
	47'35''.38	813 66.65
	37° 54.62	38° 14.50
	35.18	15.59
	38 29.80	38 30.09
+71°	44' 18''.65	44' 18''.26
−29°	27' 24''	27' 5''
	1.51202	1.51193
	+1697	+1697
	1.52899	1.52890
	+33''.81	+33''.80
	−1.16	−.23 −1.55
	−.41	−.45 −0.76
	−.10	−.20
	+32.14 26	+32.13
	44' 50''.81	51''.40
	44 57.10	
	50 12.7	+5' 20''.41
	+	.68 +521.09
	+5' 2'16	− 25.80
	21.4	+4 55.29
		49' 46''.4

Jan. 16

	m	s
	51	3.3
		7.5
		10.7
	51	58.5
		3.0
		8.8
	51	7.17
	52	3.43

	m	s
	52	10.1
		13.6
		16.7
		20.2
		23.5
		26.8
		29.9
		33.4
		36.7
		2109
	52	23.433
	52	63.10
		−39.67
		−39.77
		−39.83

	+	41.61
	−	1.86
	−	.31
	+	39.44
		2.87
	+76s.26	+20s.00
	1.88230	1.30103
	1.50102	0.91973
	35°	2 35° 3

E	57.4	+16 22.6 +59
F	6.8	+30 32.6 +15
G	52.5	−46 17.7 −32
H	8.1	+40 35.9 +30
	51'35''.40	72 20.15
	38° 1.20	38° 27.20
	31.70	8.31
	38 32.90	38 35.51 √
	44° 15.45	44° 12.84
	27° 18	26° 52
	1.51199	1.51186
	+4043	+4043
	1.55242	1.55229
	+35''.68	+35''.67
	−.95	−.07 −1.12
	−.30	−.44 −0.56
	−.10	−.18
	+34.33	+34.28
	44' 49''.81	47''.95 rej.
	44 48.8	
	50 12.8	+5' 20''.93
	+	.67 +521.60
	+5' 2'39	23.0 − 25.90
	23.6	22.8 +4 55.70
		45.5

Jan. 19

	m	s
	51	23.6
		29.5
		35.9
	52	33.6
		37.8
		41.6
	51	29.67
	52	39.00

	m	s
	52	5.90
		9.46
		12.42
		16.00
		19.25
		22.58
		25.70
		29.30
		32.40
		17301
	52	19.223
	52	62.932
		−43.71
		−43.81
		−43.87

	+	45.67
	−	1.70
	−	.14
	+	43.83
		3.05
	+49s.55	−19s.78
	1.69504	1.29623
	1.31376	0.91498
	35°	3 35° 3

E	3.3	+19 31.7 +57
F	4.7	+29 33.0 +15
G	[16.3] 6.3	−30 43.5 −44
H	12.8	+39 42.1 +21
	9.28	45'49''.60
	38° 6.98	38° 37.58
	20.59	− 8.22
	38 27.57	38 29.36
	29.87	
	44° 18.48	44° 18.99
	27° 10	26° 41
	1.51195	1.51180
	+1503	+1503
	1.52698	1.52683
	+33''.65	+33''.64
	−.40	−.07
	−.37	−.43 −0.79
	−.14	−.24.12 −0.48
	+32.74 86	+32.16
	51.34	52.15
	51.74	
	12.9	+5' 20''.01
	+	.66 +520.67
	21.2	− 26.80
	21.0	+4 54.67
		46.4

Jan. 22

	m	s
	51	9.2
		16.8
		21.5
	52	29.7
		34.7
		41.4
	51	15.83

	m	s
	51	36.6
t_{+1}		43.1
		49.6
		3.0
		6.1
		9.6
		12.8
		16.1
		19.4
		22.5
		26.1
		29.5
		145.1
	52	16.122

	+	60.29
	−	19.15
	1.78025	1.28217
	1.39896	0.90088
	35°	2 35° 3

E	58.0	+16 31.1 +58
F	59.1	+28 32.7 +15
G	10.9	−11 43.5 −44
H	6.9	+40 40.8 +23
	4'45''.73	52'37''.30
	38° 3.72	38° 37.02
	25.06	− 7.96
	38 28.78	38 29.06
	44° 19.57	44° 19.29
	27° 15	26° 42
	1.51197	1.51181
	+679	+679
	1.51876	1.51860
	+33''.02	+33''.01
	−.59	−.06
	−.33	−.39 −1.02
	−.18	−.13 −1.48
	+32.92	+32.83
	51''.57	57''.82
	51.70	
	12.9	+5' 20''.95
	+	.65 +521.60
	21.2	− 26.03
	20.9	+5 55.60
		47.3

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	α		δ			α		δ		
					Dec. 6	53 m 10.75		50 ′ 25.2		
Jan. 0	52 m 63.97	25	49 ′ 71.″7	5	11	.60	15	26.3	11	
5	63.72	27	72.2	4	16	10.42	18	27.4	11	
10	63.45	28	72.6	2	21	.22	20	28.3	9	
15	63.17	28	72.8	1	26	10.00	22	29.1	8	
20	62.89	29	72.9	1	31	.76	24	29.8	7	
25	62.60	29	72.8	2	36	9.51	25	30.3	5	
30	62.31	29	72.6	3						
Feb. 4	62.02	29	72.3	5						
9	61.74	28	71.8							

Dec. 7				Dec. 8				Dec. 16				Dec. 19			
56 50.0	57 22.3		58.8	56 41.3	57 23.0	57 59.6		56 58.5	57 31.8	58 8.0		57 38.2	57 34.0		8.6
54.2	25.5		2.3	47.4	26.3	2.6		3.7	35.2	11.1		48.1	37.9		10.7
59.4	29.3		5.4	52.4	29.5	6.0		11.2	38.2	14.6		50.2	41.1		14.0
6.0	32.2		8.9	56.4	33.1	9.3		19.2	41.6	17.7		1.4	43.9		17.2
13.5	35.8		12.1	3.1	36.5	12.6		24.5	44.6	21.0		8.6	47.4		20.2
	39.0		15.2		39.5	15.9			48.3	24.5			50.9		23.9
58 53.9	42.3		18.5	58 37.3	42.7	19.6		59 9.8	51.6	27.7		59 16.4	54.1		27.0
0.1	45.4		22.0	40.5	45.7	22.7		16.0	54.5	31.0		20.0	57.1		30.0
6.1	3207 48.9	1084	25.2	46.3	49.5	25.9		21.3	4035 57.7	1896 34.0		22.3	0.3		33.7
12.0				54.3				27.6				28.4			36.8
16.3	35.63		35.0	0.1	36.20	58 36.0		34.0	4483	44.7		33.1	47.41		47.0
	12.04		38.4		12.69	38.9			21.07	48.0			25.72		50.0
	48.54		41.7		49.13	42.5			57.77	51.0			0.38		53.6
			45.3			45.9				54.6					56.8
	3621		48.6		3802	49.0			6367	57.6			7181		0.0
			51.9			52.3				0.8					3.7
			55.3			55.7				4.3					7.5
			57.0			59.2				7.7					11.0
57 0.62		4369	1.8	56 52.12		2.7		57 11.42		5199 11.2		57 58.30			13.8
59 5.68		58	12.070	58 47.70		58 12.693		59 21.74		58 21.223		59 24.04		58	23.837
		53	10.71			53 10.68				53 10.41					10.29
		5	1.36			+ 5 1.99				5 10.81				+ 5	13.55
		5	1.26							5 10.71					
			1.20			+ 5 1.83				10.65				+ 5	13.39
		−4	57.72			− 4 58.66				−5 7.62				−5	10.555
		−	3.50			− 3.09				− 2.49				−	2.89
		−	7.92			− 7.89				− 7.62				−	7.50
		−5	9.14			−5 9.64				−5 18.23				−5	20.94
			2.93				3.03				2.99				2.90
	+ 7145		− 5361		+ 8055		− 3503		+ 6980		− 6057		+ 3054		− 6020
	1.85400		1.72925 m		1.90607		1.54444 m		1.84386		1.78190 m		1.48487		1.77960 m
	1.45400 m		1.32925		1.50607 m		1.14444		1.44386 m		1.38190		1.08487 m		1.37960
	35 2		35 1		35 2		35 1		35 2		35 1		35 2		35 1
	35.4 +45		47.2 +20		39.0 +40		54.2 +09		31.2 +52		38.8 +35		16.1 +39		38.7 +36
	33.6 +21		44.8 +40		37.1 +23		50.8 +14		29.8 +22		37.2 +21		15.9 +33		38.2 +23
	40.4 −38		50.8 −51		44.7 −52		57.2 −03		37.3 −23		44.6 −53		22.9 −20		45.3 −54
	39.7 +40		51.2 +36		43.9 +34		57.7 +31		38.1 +12		46.8 +42		23.2 +17		47.0 +42
	37.90 68		49.00 45		41.85 + .45		+ .79 55.70		34.25 93		45 41.70		19.50 + 99		+ .47 42.00
	37 37.28		36 48.50		37 41.18		36 55.48		37 34.10		36 41.85		37 19.52		36 42.30
	− 28.45		21.34		− 32.07		13.95		− 27.79		24.09		− 12.16		28.97
	37 8.83		37 9.84		37 9.11		37 9.43		37 6.31		37 5.94		37 7.36		37 6.27
	45 39.52		38.51		45 39.24		38.92		42.04		42.41		45 30.99		42.08
													40.		
	−29 27 1														
	1.51190														
	+ 8105				+ 3407				+ 3051				+ 3226		
	1.54295				1.54597				1.54241				1.54416		
	+ 3491				+ 3515				+ 3487				+ 3501		
	− .85	− .47			− 1.04	− .20			− .80	− .60			− .15	− .58	
2	− .26	− .18	− 1.18		− .27	− .19	− 1.42		− .31	− .20	− 1.34		− .28	− .20	− 0.68
8	− .17	− .11	− 0.76		− .11	− .20	− 0.59		− .23	− .11	− 0.91		− .25	− .12	− 0.98
	+ 3363	+ 34.15			+ 33.73	+ 34.56			+ 33.53	+ 33.96			+ 34.33	+ 34.11	
	46 13.15	12.66			12.97	13.48			15.57	16.37			15.32	16.19	
	46 12.90				13.22				15.91				15.75		
0	51 25.5	+ 4 11.82			25.87	+ 4 11.46			27.4	+ 4 10.75			28.0	+ 4 10.56	
	+ .61		+ 4 12.43		+ .62		+ 4 12.08		+ .66		+ 4 11.41		+ .67		+ 4 11.23
	+ 4 12.6	− 38.60			12.49	− 38.80			4 11.4	− 40.50			12.2	− 41.10	
	12.4	+ 3 33.83			12.49	+ 3 33.28			11.21	+ 3 30.91			12.0	+ 3 30.13	
		46.7				46.5				46.9				46.9	

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Dec. 23

	m	s	m	s	m	s
4						
1	56	5.4	56	36.1		12.5
	[57]	11.7	[57]	39.6		15.8
		18.0		42.9		19.3
		23.7		46.0		22.6
		29.9		49.2		26.0
				52.3		29.1
	57	44.3		56.0		32.7
	[58]	50.6		59.3		35.9
		56.4	4442	2.8		39.1
		2.9		36		
		7.0		19.64		49.1
				25.89		52.3
				2.34		55.9
				59		59.1
				7.784		2.3
						5.9
						9.0
						12.0
	[57]					
	56	17.74			[55]	15.85
	57	56.24			57	25.[illegible]
	[58]				53	10.72
					+ 5	15.74
					+ 5	15.58
					- 5	12.33
					-	3.12
					-	7.33
					- 5	22.78
					m 53	s 3.08

	s	s
	+ 68.12	- 30.38
	1.83327	1.48259 m
	1.43327 m	1.08259
	′ ″	′ ″
	35 2	35 1

6	28.9	+.53	50.8	+.13	
7	28.3	+.23	49.9	+.43	
9	34.1	-.06	55.9	-.13	
H	35.0	+.45	57.9	+.30	
	31.50	+ 1.15	53.35	+.73	53.35
	37	31.58	36	53.62	
		27.12		12.09	
	37	4.46	37	5.71	
		′ ″		′ ″	
	45	43.89		42.64	

	+ 27.28			
	1.53918			
	+ 34.61			
	- .74	- .14		
	- .33	- .34		- 1.36
	- .29	- .18		- 0.56
	+ 33.25	+ 33.75	34.15	
	17.14	16.39		
	16.92	16.69		
	28.67	+ 4 ′ 10.61		
	" +	.68		+ 4 ″ .29
	11.8	- 41.80		
	11.6	+ 3 29.49		
		′ ″		
		49 46.4		

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50

β Trianguli

$2^h\ 2^m\ 17^s$

$+34^\circ\ 24'\ 33''$

$+7^\circ\ 58'\ 15''$

1878

α_0	$2^m\ 17^s.225$	log sin δ	9.75212
Corr. α	+.001 / +.076	" cos δ	9.91647
$\frac{d\alpha}{dt}$	+3.549	" 15 cos δ tan i	0.04125 for Jan. / 0.02254 n " Dec.
δ_0	24' 33".12		
Corr δ	+.09	tan δ	+0.68
$\frac{d\delta}{dt}$	+17".23	sin z	+.14

	Jan. 13		Jan. 19		Jan. 22		Dec. 8		
h	m s	m s							
2	1 10.1	1 24.35	1 12.2	1 17.80	1 2.6	1 14.88	6 35.1	6 49.32	3.00
	11.9	26.90	14.3	20.30	4.8	17.40	37.2	51.90	5.42
	13.9	29.40	16.4	22.82	7.0	19.85	39.3	54.28	8.00
		34.35		27.78		24.82	42.0	56.82	10.50
		36.88		30.35		27.40	44.0	59.33	12.95
		39.32		32.90		29.82			
	1 57.9	41.90	1 53.8	35.40	1 54.0	32.42	7 59.7	44.18	16.80
	0.2	44.38	55.6	37.78	56.8	34.90	0.5	46.80	19.28
	2.2	49.40	57.7	42.80	59.0	39.95	2.6	49.32	21.76
		51.90		45.32		42.40	4.8	51.82	24.32
		54.45		47.82		44.91	7.0	54.40	26.90
		43323		36107		32875		54.33	30.52
	1 11.97		1 14.30		1 4.80		6 39.52	7.97	33.00
	2 0.10	1 39.385	1 55.70	1 32825	1 56.60	1 29.886	8 2.92	21.81	35.52
		2 18.098		2 18.002		2 17.954		35.53	38.00
		−38.71		−45.18		−48.07		49.30	40.60
		−38.79		−45.26		−48.15		10894	
									7 21.788
									2 22.39
									+4 59.40
									+4 59.32
		+ 39.19		+ 45.67		+ 48.52			−4 58.67
		− .38		− .38		− .38			− .69
		− .88		− .78		− .73			− 5.17
		+ 37.93		+ 44.51		+ 47.41			−5 4.53
		m s 2 17.31		17.33		17.30			17.26

	Jan. 13			Jan. 19			Jan. 22			Dec. 8		
	+27.41	−20.72		+18.52	−22.88		+25.09	−26.71		+42.27	−41.13	
	1.43791	1.31639n		1.26764	1.35946n		1.39950	1.42667n		1.62603	1.61416n	
	1.47916	1.35764n		1.30889	1.40071n		1.44075	1.46792n		1.64857n	1.63670	
	0' 2'	0' 3'		0 2	0 3		0 2	0 3		0 2	0 0	
E	31".1+.52	23.9+.60		42.9+.32	28.1+.61		35.3+.45	32.6+.56		23.4 +.52	55.9 +13	
F	45.1+.41	37.6+.17		45.2+.41	30.9+.15		39.6+.28	36.1+.15		25.7 +.25	58.3 +20	
G	36.4−.18	27.8+.01		56.7−.10	43.2−.43		52.1−.48	49.0−.49		33.7 −.05	4.0 −.01	
H	51.7+.25	45.0+.17		54.4+.26	40.2+.24		47.3+.31	44.2+.18		32.5 +.47	5.3 +.70	
	33.75 100	25.85 95	25.85	49.80 86	57	35.65	43.70 56	40.80 40	40.80	28.55 +119	+102	59.95
	2 41.08	3 33.58		2 49.80	3 35.60		2 43.58	3 40.48		2 28.82	1 0.88	
	30.14	−22.78		20.37	−25.16		27.59	−29.37		− 44.52	43.32	
	3 11.22	3 10.80		3 10.17	3 10.44		3 11.17	3 11.11		1 44.30	1 44.20	
+34°	19' 37".13	19' 37".55		19 38.18	19 37.91		19 37.18	19 37.24		21 4.05	21 4.15	
+7°	57' 22"	58' 15"		57 31	58 17		57 25	58 21		57 34	34	
	0.9057	0.9068		0.9058	0.9066		0.9057	0.9066		+3423		
	+171	+171		+152	+152		+70	+70		0.94013		
	0.9228	0.9236		0.9210	0.9218		0.9127	0.9136				
	−8".37	−8".39		−8.34	−8.35		−8.18	−8.20		−8.71		
	−.19	−.11	−0.72	−.08	−.14		−.16	−.18		− .45	− .42	
	−.38	−.50	−0.72	−.34	−.43	−0.52	−.30	−.41	−0.52	− .25	.10	−1.00
	−.25	−.24		−.22	−.14	−0.57	−.14	−.10	−0.57	− .30	.25	−0.77
	−9.1408	−9.2411		−8.886	−9.06		−8.7870	−8.8977		−9.71	9.48	
	19 28".05	28".44		29.32	28.99		28.48	28.47		54.34	54.67	
	19 28.24			29.16			28.48			54.50		
	24 49.6	+5 20".41		49.4	+5 20.01		49.3	+5 20.95		25 6.8	+4 11.46	
		− .19	+5 20.22		− .19	+5 19.82		− .18	+5 20.77		− .18	+4 11.28
	+5 21".4	− 16.50		20.2	− 16.30		20.8	− 16.20		11.8	− 33.20	
	21.5	+5 3.72		20.3	+5 3.52		20.9	+5 4.57		11.9	+3 38.08	
		24' 32".0			32.7			33.0			32.6	

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	α	δ		α	δ
Jan. 0	2m 18.27	24′ 49.″7	Dec. 6	2 22.40	25 6.1
5	18.21	49.7	11	.37	6.5
10	18.14	49.7	16	34	6.8
15	18.07	49.6	21	30	7.0
20	17.99	49.4	26	22.25	7.2
25	17.91	49.1			
30	17.83	48.8	1879		
Feb. 4	17.74	48.4	Jan 0	2 22.19	25 7.3
9	17.66	48.0			

Dec. 16 — Dec. 18 — Dec. 31

6	46.1	6	58.20		12.00	10	0.0	10	0.25		13.80	8	15.9	7	22.6		1590
	48.0		0.68		14.40	[7]	2.3	[7]	2.65		16.30		17.9		4.70		18.33
	50.4		3.05		16.90		4.6		5.10		18.82		19.7		7.10		2085
	52.3		5.70		19.42		7.0		7.58		21.33		21.9		9.62		23.40
	54.6		8.20		21.90		9.2		10.00		23.80		24.7		12.10		2543
8	11.2		53.30		25.77	11	9.7		55.10		27.60				57.15		2950
	12.9		55.67		28.22	[8]	11.3		57.62		30.00				59.67		3249
	15.4		58.28		30.78		13.4		0.20		32.60				2.10		3447
	17.1		0.70		33.29		15.8		2.62		35.05				4.60		3700
	19.2		3.80		35.69		17.8		5.10		37.52				7.10		39.69
			3.17		39.65				5.12		41.30				7.14		4338
			16.92		41.80				18.81		43.82				20.88		4585
			30.75		44.55				32.56		46.40				34.53		48.35
			44.46		46.89				46.54		48.80				48.35		5078
			58.25		49.47				0.13		51.40				2.12		5340
									16295								
6	50.28	153.55				7	4.62		16.76		540	8	20.02	17302			
8	15.16			7	30.710	8	13.60			7	32.62					7	34604
				2	22.34						22.32						2220
				5	8.37					+5	10.27					+5	1248
					18.29					+5	10.17					+5	12.82
				−5	7.63					−5	9.65					−5	11.71
				−	.67					−	.59					−	.60
				−	5.72					−	5.10					−	4.98
				−5	13.42					−5	15.34					−5	17.29
					17.29						17.25						17.31

	+4043		−4445				+2797		−4101				−4548				
	1.60670		1.64787				1.44669		1.61289	m			1.65702	m			
	1.62924	m	1.67041				1.46923	m	1.63543				1.67960				
	0	2	0	0			0	2	0	0			0	0			
	19.8	+18	51.2	+17			6.4	+16	53.4	+14			48.8	+19			
	22.3	+28	52.1	+29			9.8	+35	56.7	+23			50.7	+30			
	30.1	+04	0.2	−05			17.9	−30	4.3	−02			58.9	−09			
	30.8	+18	0.7	+56			17.1	+47	4.4	+68			58.2	+53			
	24.95	128		99	55.20		12.15	+68		+103	58.85		53.85	+93			
	2	25.75	0	55.80			2	12.68	0	59.70			0	54.15			
	−	42.58		46.82			−	29.46		43.20				47.82			
	1	43.17	1	42.62			1	43.22	1	42.90			1	41.99			
	21	5.18		5.73			21	5.13		5.45			21	6.36			
X																	
+7	67	33															
	0.90590																
	+3071						+2252						+3068				
	0.93664						0.92842						0.93658				
	−8.64						−848						−864				
	−	41	−	50			−	20	−	42			−	52			
	−	29	−	11	−1.02		−	26	−	12	−0.63		−	14	−0.89		
	−	32	−	25	−0.86		−	17	−	26	−0.80		−	23			
	−9.66		−9.50				−9.11		−9.28				−9.53				
	20	55.52		56.23				56.02		56.17				56.83			
	20	55.88						56.10						56.83			
	25	6.8	+4	10.75				6.9	+4	10.24				7.3	+4	10.26	
			−	.19	+4 10.56				−	.19	+4 10.05				−	.20	+4 10.06
	+4	10.9	−	33.70				10.8	−	33.50				10.5	−	34.20	
		11.0	+3	36.86				10.9	+3	36.25				10.6	+3	35.86	
				32.7						32.3						32.7	

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36 H. Cassiopeiae.

$2^h\ 26^m\ 28^s$
$+72°\ 16'\ 58''$
$-29°\ 54'\ 10''$
1878

α_o $26^m\ 27^s.936$ — log sin δ 9.97890
Corr α +.146 +.278 — " cos δ 9.48333
$\frac{d\alpha}{dt}$ +3.554 — " tan δ 9.60811 / 9.58940n — for Jan. 1878 / Dec. 1878 Jan. 1879
δ_o 16' 57".82 — tan δ +3.130
Corr δ +.40 — $\frac{\tan z}{\sin}$ −.50
$\frac{d\delta}{dt}$ +16".09

Jan. 1		Jan. 5		Jan. 7		Jan. 13	
h m s	m s						
2 24 59.7	25 53.30	24 48.4	25 48.5	25 15.8	25 46.9	25 4.5	25 38.5
8.7	56.70	54.4	52.9	21.0	50.1	10.2	42.0
11.7	0.15	0.6	56.6	27.0	53.3	15.2	45.1
201	3.40		59.7		57.0	[48.6]	—
	7.00		3.0		0.2		52.0
	10.45		6.6		3.2		55.5
26 19.0	13.80	26 6.1	9.8	25 46.0	6.6	26 15.1	59.0
26.5	17,60	12.0	13.8	54.6	9.8	21.8	2.1
31.8	20.35	18.8	16.7	59.5	13.9	25.6	5.6
	18275		2671		2410		3484
25 6.70	26 6275	24 54.47	271	25 21.27	1.0	25 9.97	4684
26 25.77	25 6972	26 12.80	26 3.011	25 53.37	26 0.111	26 20.83	25 52.044
	26 29.882		26 29.70		26 29.60		26 29.286
	−22.91		−26.69		−28.49		−37.24
	−23.06		−26.84		−29.64		−37.39
	−23.19		−26.97		−29.77		−37.52
	+ 25.29		+ 29.12		+ 31.76		+ 39.19
	− 2.23		− 2.16		− 2.02		− 1.73
	− 1.94		− 1.76		− 1.66		− 1.35
	+ 21.12		+ 25.20		+ 28.08		+ 36.11
	m s 26 28.09		28.21		28.19		28.15
	+ 60.27		+ 68.54	− 9.29	+ 38.84	+ 6.74	+ 42.07	− 28.79
	1,78010	1,27416n	1,83594	0,96602n	1,58928	0,82866	1,62397	1,45924n
	1,38821	0,88227n	1,44405	0,57613n	1,19739	0,43677	1,23208	1,06735n
	10' 0'	10' 1'	10 0	10 1	10 1	10 1	10 0	10 1
ε	54.14.13	27.2+53	52.5+14	24.4+53	6.7+20	[216] 57.6+51	54.8+13	23.2+52
F	2.24.18	35.7+19	59.1+19	32.34.18	12.2+26	26.5+19	5.4+22	33.34.18
G	50.1−65	21.1+35	45.4−65	17.2+42	57.9−14	12.8−29	55.0+39	23.8+24
H	54.14.51	28.4+65	51.0+51	22.2+65	15.1+70	27.9+65	9.8+73	42.3+49
	52.40 17	102 24.45	48.95 19	94 20.80	230 102	106	54.90 69	95 23.85
	10 55.12	11 28.18	10 52.02	11 24.02	11 8.98	11 22.20	11 1.25	11 30.65
	24.45	− 7.63	27.80	− 3.77	15.75	2.73	17.06	− 11.68
	11 19.57	11 20.55	11 19.80	11 20.25	11 23.73	11 24.93	11 18.31	11 18.97
+72°	11' 28".78	11' 27".80	11 28.55	11 28.10	11 24.62	11 23.42	11 30.04	11 29.38
−29°	54' 24"	53' 51"	54 27	53 55	54 11	53 57	54 18	53 48 50
	1.51992	1.51977	1.51993	1.51978	1.51986	1.51979	1.51989	1.51976
	+2169	+2169	+3216	+3216	+5296	+5296	+1740	+1740
	1.54161	1.54146	1.55209	1.55194	1.57282	1.57275	1.53729	1.53716
	+34.80	+34.79	+35.65	+35.64	+37.40	+37.39	+34.46	+34.45
	− .58	− .06	− .74	− .01	− .24	− .07	− .28	− .14
	− .09 .12	− .20	− .09 .12	− .20	− .15 .14	− .24	− .14	− .15
	− .04	− .26	− 0.71 − 0.47	− .05	− .24	− 0.88 − 0.39	− .26	− 0.61 − 0.41	− .17	− 0.55 − 0.53
	+34.09	+34.27 32		+34.74 47	+35.14 25		+36.79 59	+36.28	+33.91	+33.69 92
	12' 28".7	2'.72		3.32	3.35		1.41	0.40	3.95	3.30
	12 2.50			3.33			0.90		3.62	
	12 22.25	+5 20.11		22.8	+5 18.09		23.05	+5 21.23	23.7	+5 20.41
	+	+ .72	+520.83		+ .70	+518.79		+ .70	+521.93		+ .69	+521.10
	+ 5 19.8	− 24.50		19.5	− 25.00		22.2	− 25.30	20.1	− 25.90
	20.2	+4 56.33		19.9	+4 53.79		22.6	+4 56.63	20.5	+4 55.21
		16' 58".8			57.1			57.5		58.8

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	α		δ	
Jan. 0	26m 29.94		16′ 82.1	
5	29.71	23	82.8	7
10	29.46	25	83.4	6
15	29.19	27	83.9	5
20	28.91	28	84.2	3
25	28.62	29	84.3	1
30	28.32	30	84.3	0
Feb. 4	28.02	30	84.2	1
9	27.72	30	83.9	3

Jan. 16

24	51.8	25	36.0	24	38.3	25	31.5	24	22.0	24	59.8	24	32.4	25	22.6
	57.7		39.8		44.4		35.1		28.4	A+	6.5		37.6		26.3
	3.5		43.1		50.3		38.5		33.1		13.2		43.9		29.5
			46.5				42.0				27.1				32.7
			49.6				45.0				30.7				36.2
			53.1				48.4				34.2				39.8
26	10.6		56.4	24	57.8		52.0	26	54.6		37.2	26	38.9		42.7
	16.0		4.0		5.1		55.7		58.7		40.9		46.0		46.0
	26.4		3.4		10.5		59.0		4.6		44.1		51.2		49.9
											47.4				
											50.8				
											54.1				
			3279				4072				3665				3257
24	57.67		4479	24	44.33			24	27.83			24	37.97		
26	17.67	25	49.767	25	4.47	25	45.244	26	59.30	25	40.722	26	45.87	25	36.189
		26	29.128			26	25.954			26	28.664				
			−39.36				−43.71				−47.94				
			−39.50				−43.86				−48.09				
			−39.63				−43.99				−48.22				
			+ 41.62				+ 45.67				+ 50.31				+ 54.95
			− 1.91				− 1.44				− 2.14				− 2.57
			− 1.18				− 1.01				− 0.72				− .48
			+ 38.53				+ 42.92				+ 47.45				+ 51.90
			28.30				28.16				28.17				28.09

Jan. 19

Jan. 24

Jan. 28

	+52.10		−27.90		+60.91		+40.77		+72.89		−78.58				+58.22		−69.18
	1.71684		1.44560n		1.78469		1.61034		1.86267		1.89531n				1.76507		1.83998n
	1.32495		1.05371n		1.39280		1.21845		1.47078		1.50342n				1.37318		1.44809n
	10 0		10 1		10 0		10 0		10 0		10 1				10 0		10 1
	57.7+.13		30.0+.50		48.0+.21		56.4+.13		51.8+.15		52.6+.10				53.2+.14		44.1+.26
	5.7+.23		39.3+.26		48.1+.30		56.1+.24		50.1+.30		51.2+.42				53.2+.34		43.2+.36
	52.1+.59		23.9+.23		59.7+.06		8.1+.09		56.2+.25		56.7+.06				1.9+.01		52.3+.46
	4.1+.67		40.2+.53		57.4+.52		5.8+.71		55.5+.52		55.8+.30				0.4+.58		51.3+.36
	54.90 44		106 26.95		58.85 97		99 2.25		56.00 72		76 54.65				57.55 99		4 52 48.20
10	59.90	11	33.35	10	53.30	11	1.60	10	53.40	11	54.08			10	57.18	11	57.72
	21.13		− 11.32		24.71		16.54		29.56		− 31.87				23.61		− 28.06
11	21.03	11	22.03	11	18.01	11	18.14	11	22.96	11	22.21			11	20.79	11	29.66
11	27.32	11	26.32	11	30.34	11	30.21	11	25.39	11	26.14			11	27.56	11	28.69
	54 19		53 46		54 26		54 17		54 26		53 25				54 22		53 31
	1.51989		1.51976		1.51992		1.51989		1.51992		1.51968				1.51992		1.51970
	+4088		+4088		+1553		+1553		+3457		+3457				+2096		+2096
	1.56077		1.56064		1.53545		1.53542		1.55457		1.55427				1.54088		1.54066
	+36.37		+36.36		+34.31		+34.31		+3585		+3583				+34.74		+34.73
	−.43		−.13		−.59		−.26		−.84		−.99				−.53		−.76
	−.93		−.24	− 0.63	−.11		−.12	− 0.90	−.06		−.24	− 1.08			−.97		−.24	− 0.85
	−.13		−.26	− 0.53	−.24		−.25	− 0.59	−.18		−.19	− 1.31			−.25		−.13	− 1.03
	+35.74		+35.76		+33.37		+33.57		+34.737		+34.445				+33.86		+33.647	
	3.06		2.15		3.75		3.93		0.16		0.66				1.45		2.40	
	2.60				3.84				0.41						1.92			
	24.0	+5	20.93		24.1	+5	20.01		24.3	+5	22.21				24.3	+5	20.97	
		+	.68	+5 21.61		+	.67	+5 20.68		+	.66	+5 22.87				+	.64	+5 21.61
+5	21.4	−	26.26		20.3	−	26.30		23.9	−	26.50				22.4	−	26.50	
	21.8	+4	55.41		20.7	+4	54.38		24.3	+4	56.37				22.8	+4	55.11	
			58.0				58.2				56.8						57.0	

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1878

Dec. 6 — α

	m	s
Dec. 6	26	37.15
11		37.03
16		36.89
21		.72
26		36.53
31		.32
36		36.08

12	
14	
17	
19	
21	
24	

Dec. 6 — δ

	′	″
Dec. 6	17	32.9
		34.1
		35.3
		36.3
		37.3
		38.1
		38.9

12
12
10
10
8
8

Jan. 29 — L

	m	s	m	s
2	24	38.3	25	21.1
		43.1		24.6
		47.7		27.9
				31.5
				34.9
				38.2
	25	42.0		41.6
		46.8		44.8
		52.3		48.1
				3127
	24	43.03		
	25	47.03	25	37.744
			26	28.365
				−53.62
				−53.77
				−53.90

Dec. 8

	′	″		′	″		′	″
	29	56.1	30	48.6			25.9	
		2.7		52.0			29.2	
		8.3		55.2			32.8	
		14.0		58.8			36.2	
		21.9		2.1			39.8	
				5.3			42.8	
	32	15.6		9.0			45.9	
		19.1		12.5			49.7	
		28.4		15.6			53.2	
		32.6						
		37.1		2.12		32	3.2	
				39.50			6.3	
				16.70			10.3	
							13.6	
				18832			17.0	
							20.0	
							23.3	
							26.7	
	30	8.60					29.9	
	32	26.56				31	39.440	
						26	37.10	
						+5	2.34	
						+5	2.06	

Dec. 18

	′	″		′	″
	34	10.0	35	58.5	
	[31]	14.1	[30]	2.9	
		20.0		5.3	
		27.2		8.7	
		32.7		12.1	
				15.6	
	35	22.1		19.0	
	[32]	30.9		22.0	
		34.8		26.0	
		41.0			
		45.2		12.13	
				19.39	
				26.76	
				14828	
	31	20.80			
	32	34.80			

Dec. 31 — Chf.

	′	″
		35.6
		39.0
		42.7
		46.0
		49.6
		53.0
		56.1
		59.7
		2.8
		13.1
		16.3
		20.0
		23.2
		26.9
		30.2
		33.7
		37.0
		40.4
	31	49.427
		36.81
	+5	12.62
	+5	12.34

+	56.15	
−	2.30	
−	.42	
+	53.43	
	26m 28.17	
−4	58.69	
−	3.14	
−	9.16	
−5	11.02	
	28.42	
−5	9.68	
−	2.73	
−	8.87	
−5	21.28	
	28.15	

	s	s
	+ 51.71	−12.29
	1.71357	1.08955m
	1.32168	0.69766m
	10′ 1′	10′ 1′
	+ 90.84	− 47.12
	1.95828	1.67321m
	1.54768m	1.26261
	10 0	5 4
	+ 28.63	− 45.37
	1.45682	1.65647
	1.04622m	1.24617
	10 0	5 4
	10 0	

G	0.7	+14	26.2	+53	34.0	+45	40.8	+29	5.0	+06	36.4	+39			16.6	
S	57.44	.22	24.8	+.19	32.1	+.03	38.4	+.05	4.6	+.05	35.2	+.01			14.9	
G	4.1	−.01	31.4	−.04	39.6	−.46	45.4	−.57	11.8	−.24	41.8	−.46			22.7	
A	3.3	+.64	29.6	+.65	38.8	+.52	45.2	+.10	12.3	+.32	42.6	+.12			23.7	
	2.40	.101		.133	28.80	36.80	+ .54	43.10	− .13	43.10	8.40	+ .19		+.06	39.10	
	11	1.38	11	28.00		10	36.12	9	42.45		10	8.42	9	39.00	10	19.48
		20.97		− 4.98		−	35.29		18.31		−	11.12		17.63		
	11	22.35	11	23.02		10	0.83	10	0.76		9	57.30	9	56.63		
+7°	11′	26.00	11′	25.33		12	47.52		47.59		12	51.05		51.92		
−29°	54′	18″	53′	51″		54′	9″									
	1.51989		1.51977			1.51980										
	+ 33.68		+ 33.68			+ 34.67					+ 22.74					
	1.55357		1.55345			1.55447					1.54254					
	+ 35.47		+ 35.46			+ 35.85					+ 34.88					
	− .42		− .02			− 1.35		− .35			− .13		− .33			
	− .11		− .12		−0.75	− .06		− .47		−1.54	− .01		− .56		−0.19	
	− .25		− .33		−0.47	− .13		+ .03		−0.85	− .05		− .01		−0.90	
	+ 34.79		+ 35.25			+ 34.31		+ 35.06			+ 34.69		+ 33.98			
	12′	1.02″		0.62″			21.83		22.65			25.74		25.70		
	12	0.82				13	22.24					25.82				
	17	24.3	+5	22.05		17	33.84	+4	11.46			35.7	+4	10.24		
			+	.64	+5 22.69		2	+	.64	+4 12.10		1	+	.68	+4 10.92	
	+5	23.5	−	26.50			11.7	−	35.60			10.6	−	37.90		
		23.9	+4	56.19			11.56	+3	36.50			10.45	+3	33.02		
			16′	57.0″					58.7					58.6		

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1879
Jan. 6.

10 0

34.5
31.8
38.1
40.8

10 36.30

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θ Persei.
$2^h\ 35^m\ 52^s$
$+48°\ 42'\ 39''$
$-6°\ 19'\ 51''$
1878

α_0 35m 52s.386
Corr α +.076 (+.084)
$\frac{d\alpha}{dt}$ + 4s.062
δ_0 42' 39".27
Corr δ +.44
$\frac{d\delta}{dt}$ + 15".486

log sin δ 9.87586
" cos δ 9.81945
" 15 cos δ tan i 9.94423 for Jan. 1878
9.92552n " Dec. " Jan. 1879
tan δ + 1.14
sin 2 −.11

I 3s.126

	Jan. 1		Jan. 5		Jan. 7		Jan. 13	
	h m s	m s						
2	35 22.3	35 [10.60] [13.73]	35 30.4	35 —	34 48.9	35 4.15	34 39.0	34 56.20
	25.4	16.83	32.4	—	51.2	7.15	42.2	59.40
	28.2	23.15	35.7	—	54.7	10.30	46.5	2.50
		~~24.56~~		—		16.60		8.82
		26.23		—		19.50		11.80
				—		22.72		15.00
	35 52.3	29.50	36 13.5	25.48 25.48		25.82	35 22.7	18.00
	54.6	32.53	16.0	25.57 28.70		28.95	24.4	21.40
	58.9	35.70	19.0	25.55 31.80		35.00	28.0	27.75
		41.78		25.50 38.00		38.38		30.85
		44.80		25.29 40.92		41.40		33.70
		48.20		25.24 44.00				
		323.05				24997		28542
	35 25.30		35 32.83		34 51.60		34 42.57	16542
	35 55.27	35 29.368	36 16.17	35 25.438		35 22.725	35 25.03	35 15.038
		35 53.79		35 53.726		35 53.694		35 53.592
		−24.42		−28.29		−30.97		−38.55
		−24.44		−28.31		−30.99		−38.57
		−24.50		−28.37		−31.05		−38.63
		+25.30		+ 29.12		+ 31.76		+ 39.20
		− .81		− .79		− .74		− .63
		− 1.40		− 1.34		− 1.30		− 1.20
		+23.09		+ 26.99		+ 29.72		+ 37.37
		m s 35 52.46		35 52.43		52.44		52.41

	Jan. 1		Jan. 5		Jan. 7		Jan. 13	
	s + 4.07	s − 25.80	− 7.39	− 50.73	+ 31.12		+ 32.47	− 9.99
	0.60959	1.41330n	0.86864n	1.70526n	1.49304		1.51148	0.99987n
	0.55382	1.35753n	0.81287n	1.64949n	1.43727		1.45571	0.94380n
	45' 0'	45' 0'	45 0	45 0	40 4		40 4	45 0
E	8.2+.14	34.1+.45	17.2+.36	56.6+.13	47.9+.14		37.0+.57	15.2+.34
F	18.1+.09	43.5+.24	27.1+.04	4.9+.22	54.1+.13		48.1+.20	27.1+.04
G	4.9+.01	30.4−.07	13.3−.31	49.7−.66	36.5−.21		37.1−.25	17.3−.42
H	9.7+.30	35.3+.52	16.9+.34	55.0+.52	53.8−.01		54.8−.01	30.8+.50
	6.55 .54	.14 32.25	15.25 43	21 53.15	42.20 05		37.05 31	43 16.25
	45 10.22	45 35.82	45 18.62	45 56.55	44 48.08		44 44.25	45 22.60
	~~33.80~~	− 22.78	− 6.50	− 44.62	27.37		28.56	− 8.79
	45 13.80	45 13.04	45 12.12	45 11.93	45 15.45		45 12.81	45 13.81
+48°	37' 34".55	37' 35".31	37 36.23	37 36.42	37 32.90		37 35.54	37 34.54
−6°	20' 9"	19' 43"	20 0	19 22	20 31		20 35	19 56
	0.8058	0.8053	0.8056	0.8049	0.8062		0.8063	0.8055
	+219	+219	+324	+324	+532		+175	+175
	0.8277	0.8272	0.8380	0.8373	0.8594		0.8238	0.8230
	+ 6.73	+ 6.72	+ 6.89	+ 6.88	+ 7.23		+6.66	+ 6.65
	−.01	− .18	−.02	−.70	−.26		−.28	−.03
	−.03	−.06	−.03	−.13	−.48	−0.75	−.47	−.04
	−.14	−.28	−.11	−.05	−.01		−.08	−.11
	+6.56	+6.20	+6.73	+6.04	+6.48		+5.83	+6.47
	37 41.11	41.51	42.96	42.46	39.38		41.37	41.01
	37 41.31		42.71		39.38		41.19	
	42 59.3	+5' 20".11	59.5	+5 18.09	59.6	+5 21.23	59.9	+5 20.41
		+ .16		+ .15		+ .15		+ .15
	+ 5 18.0	− 20.00	16.8	− 20.20	20.2	− 20.30	18.7	− 20.60
	18.4	+5 0.27	17.2	+4 58.04	20.6	+5 1.08	19.1	+4 59.96
		42' 41".6		40.7		40.5		41.2

Red marginal values: −0.17, −0.52, +5 20.27 (Jan. 1); −0.16, −0.84, +5 18.34 (Jan. 5); −0.75, +5 21.38 (Jan. 7); −0.83, −0.18, +5 20.56 (Jan. 13).

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	α		δ	
Jan. 0	35^m 53.81	8	42′ 59.″2	3
5	.73	8	59.5	3
10	53.65	9	59.8	2
15	.56	10	60.0	1
20	53.46	11	60.1	0
25	.35	11	60.1	1
30	53.24	11	60.0	2
Feb. 4	.13	12	59.8	3
9	53.01		59.5	

Jan. 16		Jan. 19		Jan. 23		Jan. 24	
34 31.4	34 54.00	34 34.2	34 49.72	34 29.4	34 46.48	34 32.0	34 45.42
33.8	57.28	36.6	52.88	32.0	49.40	34.1	48.30
36.0	0.20	39.6	56.00	35.3	52.56	39.3	51.48
	6.55		2.12		59.20		57.62
	9.50		5.88		2.18		0.76
	12.62		8.55		5.28		4.00
35 27.3	15.70	35 20.0	11.65	35 29.7	8.80		7.30
29.7	18.88	22.0	14.52	32.4	11.40		10.38
32.6	25.38	25.0	21.00	35.5	17.65		16.68
	28.30		24.36		20.62		19.72
	31.55		27.18		23.66		22.75
	25996		27336		29723		28441
34 33.73	13996	34 36.80	9336	34 32.23	5723	34 35.13	4441
35 29.87	35 12.724	35 22.33	35 8.487	35 32.53	35 5.203		35 4.087
	35 53.535		35 53.475		35 53.39		35 53.367
	−40.81		−44.99		−48.19		−49.33
	−40.83		−45.01		−48.21		−49.35
	−40.89		−45.07		−48.27		−49.41
	+ 41.63		+ 45.68		+ 49.06		+ 50.31
	− .70		− .63		− .82		− .78
	− 1.15		− 1.09		− 1.00		− .98
	+ 39.78		+ 43.96		+ 47.24		+ 48.55
	52.50		52.45		52.44		52.59
+38.99	−17.15	+31.69	−13.84	+32.97	−27.33	+28.91	
1.59095	1.23426n	1.50092	1.14114n	1.51812	1.43664n	1.46105	
1.53518	1.17849n	1.44515	1.08537n	1.46235	1.38087n	1.40528	
40 4	45 0	40 4	45 0	40 4	45 0	40 4	
36.2+39	26.3+49	41.0+29	20.9+44	41.5+28	34.4+48	50.3+08	
47.3+20	36.3+06	41.0+10	21.1+07	44.0+17	36.6+06	48.8+19	
29.9+02	20.7−38	52.1−53	32.1−11	52.6−51	43.7−61	53.5−46	
46.2+08	34.8+52	48.4+06	29.7+50	47.2+07	40.9+51	50.8+03	
33.05 69	69 23.50	46.58 −08	90 26.50	40.09 −03 01	40 39.05	51.90 −16	
44 39.90	45 29.52	44 45.62	45 25.95	44 46.32	45 38.90	44 50.85	
34.29	−15.08	27.87	−12.17	29.00	−24.04	25.43	
45 14.19	45 14.44	45 13.49	45 13.78	45 15.32	45 14.86	45 16.28	
37 34.16	37 33.91	37 34.86	37 34.57	37 33.03	37 33.49	37 32.07	
20 39	19 49	20 33	19 53	20 33	19 40	20 28	
0.8064	0.8054	0.8063	0.8055	0.8063	0.8052	0.8062	
+410	+410	+157	+157	+418	+418	+346	
0.8474	0.8464	0.8220	0.8212	0.8481	0.8470	0.8408	
+ 7.04	+ 7.02	+ 6.64	+ 6.63	+ 7.05	+ 7.03	+ 6.92	
−.41	−.09	−.27	−.05	−.30	−.20	−.23	
−.42	−.04	−.38	−.03	−.48	−.05	−.34	
−.17	−.17	+.02	−.22	+.00	−.00	+.04	
+ 6.04	+ 6.72	+ 6.01	+ 6.33	+ 6.37	+ 6.68	+ 6.39	
40.20	40.63	40.87	40.90	39.40	40.17	38.46	
40.42		40.88		39.78		38.46	
60.0	+5 20.93	60.1	+5 20.01	60.1	+5 20.60	60.1	+5 22.21
	+ .15		+ .15		+ .15		+ .15
+5 19.6	− 20.70	19.2	− 20.80	20.3	− 20.80	21.6	− 20.80
20.0	+5 0.38	19.6	+4 59.36	20.7	+4 59.95	22.0	+5 1.56
	40.8		40.2		39.7		40.0

Red annotations: Jan. 16: −1.00, −1.30, +5 21.08; Jan. 19: −0.67, −0.30, +5 20.16; Jan. 23: −0.68, −0.35, +5 20.75; Jan. 24: −0.61, +5 22.36.

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	α		δ	
	m s		° ′ ″	
Dec. 6	35 58.56	2	43 11.5	8
11	.54	4	12.3	7
16	.50	5	13.0	6
21	.45	5	13.6	6
26	58.40		14.2	

I 3.13

1878

Jan. 28

h m s	m s
2 34 27.4	34 40.60
30.0	43.55
33.4	46.90
	52.93
	56.20
	59.34
35 18.7	2.30
21.5	5.50
23.7	11.83
	14.88
	18.10
	35213
34 30.27	65213
35 21.30	34 59.285
	35 53.279
	− 53.99
	− 54.01
	− 54.07

\+ 54.94
− .94
− .89
\+ 53.11

m s
35 52.39

s	s
+ 29.01	− 22.02
1.46255	1.34282n
1.40678	1.28705n
40′ 4′	45′ 0′

	″	″
E	45.2+.20	30.2+.47
F	45.1+.18	31.3+.03
G	53.4−.46	39.7−.46
H	50.9+.03	38.4+.52
	49.30 −.05	563495
	44 48.65	45 34.90
	25.51	−19.37
	45 14.16	45 15.53
+48°	37′ 34.19″	37′ 32.82″
−6°	20′ 30″	19′ 44″
	0.8062	0.8053
	+215	+215
	0.8277	0.8268
	+ 6.73	+ 6.71
	−.23	−.13
	−.53	−.64
	+.01	−.14
	+ 5.98 / 6.13	+ 6.38 / 6.40
	37 40.36	39.22
	37 39.79	′ ″
	42 60.1	+5 20.97
	+5 20.3	+ .14
	20.7	− 20.80
		+5 0.31
		42′ 40.1″

− 0.58
− 0.31
\+ 5 21.11

Jan. 29

34 25.7	34 39.18
28.5	42.42
31.3	45.48
	51.72
	54.98
	58.00
35 11.0	1.00
14.0	4.28
15.8	10.70
	13.76
	16.70
	33822
34 28.50	63822
35 13.60	34 58.020
	35 53.256
	− 55.24
	− 55.26
	− 55.32

\+ 56.16
− .84
− .87
\+ 54.45

52.47

+ 29.52	− 15.58
1.47012	1.19257n
1.41435	1.13680n
40 4	45 0
47.9+.14	27.2+.49
47.0+.20	27.3+.04
53.1−.48	31.8−.10
50.2+.04	30.6+.50
50.00 −.10	9329.50
44 49.55	45 29.22
25.96	− 13.70
45 15.57	45 16.52
37 32.84	37 32.83
20 29	19 50
0.8062	0.8054
+338	+338
0.8400	0.8392
+ 6.92	+6.90
−.24	−.07
−.55	−.64
+.02	−.23
+ 6.15 / 6.32	+ 6.56
39.16	39.39
39.28	
60.0	+5 22.05
	+ .14
20.7	− 20.70
21.1	+5 1.49
	40.8

− 0.64
− 0.34
\+ 5 22.19

Dec. 7

40 2.6	40 17.00	40.46	34.20
4.2	20.20		—
8.3	23.30	.40	40.40
11.1	26.30	.47	43.60
13.7	29.50	.39	46.65
41 42.0	25.66		51.30
44.0	29.00		54.50
47.6	32.15		57.67
51.1	35.50		0.85
53.7	38.50		4.00
	23.26		8.65
	40.43		11.65
	57.66		14.70
	14.80		18.00
	32.16		21.00
40 7.98	28831		
41 47.68			40 57.662
			35 58.556
			4 59.11
			4 59.09
			59.03

−4 57.80
− 1.31
− 6.17
−5 52.8

52.38

+ 49.68	− 50.02
1.69618	1.69914n
1.62170n	1.62466
40 4	40 3
32.0 +.48	9.2 +.28
30.9 +.02	8.7 +.31
36.5 −.21	13.0 −.21
35.1 +.21	12.0 +.40
34.25 .50	78 11.10
44 33.62	43 10.72
− 41.85	42.14
43 51.77	43 52.86
38 56.58	55.49
−6 20 18	
0.80600	
+3169	
0.83769	
+ 6.88	
− .66	− .67
− .46	− .32
− .12	− .20
+ 5.64	+ 5.69
39 2.22	1.18
39 1.70	
43 11.7	+4 11.82
	+ .14
4 10.0	− 32.40
10.4	+3 39.56
	41.3

−1.24
−1.19
\+ 4 11.96

Dec. 16

40 14.3	40 26.80	43.85
17.4	29.75	47.03
20.1	32.95	50.10
22.6	36.20	53.30
25.9	39.10	56.30
41 58.3	35.45	1.20
0.5	38.55	4.05
2.8	41.85	7.10
5.5	44.75	10.45
8.5	48.10	13.64
	32.96	18.20
	50.12	21.50
	7.29	24.50
	24.51	27.60
	41.72	30.75
40 20.06	3660	
42 3.12		41 7.320
		58.50
		5 8.82
		5 8.80
		8.74

−5 7.68
− 1.12
− 6.11
−5 14.91

52.41

+ 47.26	− 58.80
1.67449	1.74663n
1.60001n	1.67215
40 4	40 3
26.4 +.54	0.5 +.16
26.9 +.05	58.9 +.28
32.3 −.01	5.3 +.15
32.7 +.22	6.9 +.21
29.35 .80	80 2.90
44 29.58	43 2.65
− 39.81	47.01
43 49.77	49.66
58.58	58.69
+3165	
0.83765	
+ 6.88	
− .61	− .84
− .54	− .36
− .20	− .20
+ 5.53	+ 5.48
4.11	4.17
4.14	
13.0	+4 10.75
	+ .15
4 8.9	− 33.70
9.3	+3 37.20
	41.3

−1.35
−1.40
\+ 4 10.90

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1879

Dec. 18 | Dec. 19 | Jan. 6

43	18.6	43	28.68	45.78	40	16.8	40	29.40	46.93		
[40]	21.3	[40]	31.77	48.92		18.8		32.70	49.68		
	23.5		34.80	52.00		20.8		35.68	52.87		
	27.4		38.00	55.18		23.0		39.00	56.00		
	29.9		40.05	58.28		26.1		42.25	58.93		
44	47.8		37.38	2.83	42	0.6		38.20	4.20		
[41]	50.5		40.32	6.05		2.3		41.50	7.10		
	53.0		43.60	9.10		3.8		44.47	10.20		
	55.1		46.90	12.30		6.7		47.68	13.20		
	57.9		50.00	15.50		8.7		50.55	16.53		
			34.86	20.10				35.81	21.38		
			52.03	23.20				52.88	24.33		
			9.16	26.40				10.25	27.43		
			26.40	29.60				27.49	30.60		
			43.64	32.68				44.48	33.73		
40	24.14	46.09			40	20.90	50.91				
41	52.86			41 9.218	42	4.42			41 10.182		
				35 58.48					58.47		
				+5 10.74					+5 11.71		
				+5 10.66					+5 11.63		
				−5 9.69					−5 10.57		
				− 1.00					− 1.08		
				− 6.09					− 6.08		
				−5 16.78					−5 17.73		
				52.44					4 52.55		
		+ 45.08		− 43.41		+ 49.28		− 51.24			
		1.65398		1.62988		1.69267		1.73432			
		1.57950		1.56540		1.61819		1.65984			
40	4	40	3		40	4	40	3		40	4
23.9	+54	9.6	+32		27.6	+53	1.9	+17		27.1	
25.6	+06	9.8	+30		29.3	+03	1.8	+27		26.2	
30.9	+02	16.7	−31		34.2	−08	8.0	+01		30.6	
30.4	+23	16.4	+37		33.6	+22	8.3	+40		33.0	
27.40	+85		+66	13.15	30.90	+70		+85	4.95	28.85	
44	27.70	43	13.12		44	31.18	43	5.00		44	29.22
−	37.98		36.76		−	41.51		4.569			
43	49.72	43	49.88		43	49.67	43	50.69			
38	58.63		58.87		38	58.68		57.66			
		+ 2287				+ 3306					
		0.82864				0.83906					
		+ 6.74				+ 6.90					
		− .65	−	.51		− .66	−	.80			
		− .54	−	.38	−1.30	− .54	−	.37	−1.37		
		− .21	−	.17	−1.06	− .17	−	.21	−1.38		
		+ 5.44	+	5.68		+ 5.53	+	5.52			
		4.07		4.35		4.21		3.18			
		4.1611				3.8970					
		13.23	+4	10.24		13.84	+4	10.56			
		3	+	.15	+4 10.39	7	+	.15	+4 10.71		
		9.8	−	34.06		9.5	−	34.10			
		9.96	+3	36.39		9.4 10.1	+3	36.61			
				40.5				40.3			

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η Persei

$2^h\ 41^m\ 48^s$

$+55°\ 23'\ 16''$

$-13°\ 0'\ 28''$

1878

α_0 $41^m\ 48^s.443$ — log sin δ 9.91540 — I = 3.63

Corr. α −.006 +.021 — " cos δ 9.75436

$\frac{d\alpha}{dt}$ +4.331 — " 1500 sin 1 9.87918 for Jan. 1878.

δ_0 23° 15".78 — " 9.86043 " Dec. 1878; Jan. 1879.

tan δ +1.45

Corr. δ −.72 — sine tan z −.23

$\frac{d\delta}{dt}$ +15".26

	Jan. 1		Jan. 5		Jan. 7		Jan. 16	
h	m s	m s						
2	41 12.5	41 3.82	40 31.0	41 0.15	40 43.0	40 57.38	40 22.8	40 47.38
	15.5	7.46	35.2	3.85	45.5	0.80	24.9	50.92
	18.0	11.32	37.9	7.15	48.6	4.45	28.3	54.40
		18.52		14.48		11.72		1.75
		22.35		18.22		14.32		5.47
		25.95		21.78		19.00		9.10
	41 48.4	29.50	41 33.7	25.48	41 33.0	22.80	41 9.9	12.68
	51.4	33.10	37.5	29.05	38.0	26.00	13.4	16.48
	53.9	40.12	39.7	36.48	41.4	33.58	16.7	23.50
		43.90		40.00 39.62		37.55		27.15
		47.70		43.65		40.90		30.85
		28374		24019		26850		27968
	41 15.83		40 34.70		40 45.70	20850	40 25.33	9968
	41 51.23	41 25.795	41 36.97	41 21.835	41 37.47	41 18.955	41 13.83	41 9.062
		41 50.027		41 49.955		41 49.910		41 49.70
		−24.23		−28.12		−30.95		−40.64
		−24.22		−28.11		−30.86		−40.63
		−24.25		−28.14		−30.88		−40.66
		+ 25.30		+ 29.12		+ 31.76		+ 41.63
		− 1.04		− 1.00		− .94		− .89
		− 1.58		− 1.51		− 1.47		− 1.26
		+ 22.68		+ 26.61		+ 29.35		+ 39.48
		m s						
		41 48.48		4845		48.39		48.54
		+ 10.47		+47.14		+ 33.26		+ 43.73
		−25.43		− 15.13		− 18.51		− 4.27
		1.01995	1.40535 n	1.67339	1.17984 n	1.52192	1.26741 n	1.64078
		0.89909	1.28450 n	1.55254	1.05898 n	1.40106	1.14656 n	1.51992
		0 4	5 0	0 4		0 4	0 4	0 4
6h		33.9+.45	0.3 .00	6.0+.25	53.6+.04	18.1+.48	58.8 .00	8.3+.29
8		43.1+.15	9.8+.09	15.0+.17	2.5+.14	24.5+.08	6.1+.20	18.9+.14
10		28.9+.01	58.2−.06	59.3−.03	47.1−.60	9.7 .00	48.6−.60	2.7+.18
12		34.9+.21	1.7+.06	3.0+.13	52.1+.02	25.5+.22	3.6+.11	16.8+.21
		31.40 .82	59.25	2.65 .52	−.40 50.35	13.90 .78	−.29 53.70	5.50 .82
		4 35.20	5 2.50	4 5.82	4 53.82	4 19.45	4 58.78	4 11.68
		7.93	−19.25	35.69	−11.45	25.18	−14.01	33.11
		4 43.13	4 43.25	4 41.51	4 42.37	4 44.63	4 45.27	4 44.79
+55°		18' 5".22	18' 5".10	18 6.84	18 5.98	18 3.72	18 3.08	18 3.56
−13°		0' 44"	0' 17"	1 13	0 25	1 0	0 20	1 7
		1.12406	1.12385	1.12432	1.12390	1.12420	1.12387	1.12426
		+2202	+2202	+3256	+3256	+5338	+5338	+4111
		1.14698	1.14587	1.15688	1.15646	1.17758	1.17725	1.16537
		+14.00	+13.99	+14.35	+14.34	+15.05	+15.04	+14.63
		−.03	−.16	−.57	−.06	−.28	−.09	−.48
		−.6046 .00	−0.69	−.57	−.69	−.65	−.50 −0.91	−.35
		−.20	−.02 −0.18	−.13	+.10 −0.65	−.20	+.07 −0.66	−.20
		+13.17 31	+13.81	+13.48 24	+13.4969	+14.14	14.22 67	+13.4067
		18 18.53	18.91	20.08	19.67	17.86	17.60	17.13
		18 18.72		19.88		17.73		17.64
		23 37.1	+5 20.11	37.5	+5 18.09	37.7	+5 21.28	38.2
		+ .33	+5 20.44	+ .32	+5 18.41	+ .32	+5 21.55	
		+5 18.4	− 21.30	17.6	− 21.70	20.0	− 21.92	20.6
		17.7	+4 59.14	16.9	+4 56.71	19.3	+4 59.65	19.9
			23' 17".9		16.6		17.4	

	Jan. 16
	40 47.38
	50.92
	54.40
	1.75
	5.47
	9.10
	12.68
	16.48
	23.50
	27.15
	30.85
	27968
	9968
	41 9.062
	41 49.70
	−40.64
	−40.63
	−40.66
	+ 41.63
	− .89
	− 1.26
	+ 39.48
	48.54
	+ 43.73
	− 4.27
	1.64078
	0.63043 n
	1.51992
	0.50958 n
	0 4
6h	8.3+.29
8	18.9+.14
10	2.7+.18
12	16.8+.21
	5.50 .82
	4 11.68
	33.11
	4 44.79
+55°	18 3.56
−13°	1 7
	1.12426
	+4111
	1.16537
	+14.63
	−.48
	−.35
	−.20
	+13.4067
	17.13
	17.64
	38.2
	+5 20.93
	+ .31 +5 21.24
	20.6
	− 22.40
	19.9
	+4 58.84
	16.5

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2

Jan. 0	41m 50.05	9	
5	49.96	11	
10	49.85	12	
15	.73	12	
20	49.61	13	
25	48	14	
30	.34	14	
Feb. 4	.20	14	
9	49.06		

8

23′ 37.0	5	
37.5	4	
37.9	3	
38.2	2	
38.4	1	
38.5	0	
38.5	1	
38.4	3	
38.1		

Jan. 19

40	24.6	40	43.40	
	27.5		46.58	
	30.8		50.15	
			57.40	
			1.00	
			4.80	
41	13.3		8.42	
	16.9		12.05	
	19.6	[1925]	18.28	
			23.00	
			26.62	
			2	
			29130	
40	27.63		5730	
41	16.60	41	4.664	4.755
		41	49.628	
			−44.96	
			87	
			−44.86	
			−44.89	
			+ 45.68	
			− .81	
			− 1.19	
			+ 43.68	
			48.34	

Jan. 23

40	27.9	40	39.63	
	30.7		42.96	
	33.3		46.96	
			54.10	
			58.00	
			1.52	
41	19.1		5.38	
	24.2		8.77	
	27.2		16.00	
		[19.68]	—	
			23.37	
			31637	
40	30.63		1637	
41	23.50	41	1.488	
		41	49.526	
			− 48.04	
			− 48.03	
			− 48.06	
			+ 49.06	
			− 1.04	
			− 1.08	
			+ 46.94	
			48.43	

Jan. 24

40	17.7	40	38.50	
	20.2		42.00	
	25.8		45.42	
			52.78	
			56.35	
			6.00	
41	21.4		3.80	
	24.6		7.58	
	28.2		1442	
			1840	
			22.00	
			30125	
40	21.23		125	
41	24.73	41	0.114	
		41	49.580	
			− 49.39	
			− 49.38	
			− 4941	
			+ 50.31	
			− .99	
			− 1.06	
			+ 48.26	
			48.37	

Jan. 28

40	15.0	40	33.90	
	18.1		3760	
	21.3		41.10	
			48.38	
			51.96	
			55.57	
41	16.1		59.40	
	19.7		2.90	
	23.0		10.02	
			13.90	
			17.28	
			37199	
40	18.13		61199	
41	19.60	40	55.635	
		41	49.389	
			− 53.75	
			− 53.74	
			− 53.77	
			+ 54.94	
			− 1.19	
			− .95	
			+ 52.80	
			48.44	

+37.03	− 11.94	+30.86	− 22.02	
1,568555	1,07700 m	1.48940	1.34262 m	
1,447769	0.95675 m	1.36858	1.22178 m	
0	4	0	4	
0	4	0	4	
8.9+.30	46.44.17	19.6+.50	58.9 00	
10.1+.19	47.14.20	21.0+.11	1.3 00	
20.4−.26	57.4−.10	27.9 00	7.4−.04	
17.5+.21	54.7−.01	23.5+.21	3.8+.11	
14.65 44	265190	23.75 82	073.15	
4 14.22	4 51.40	4 23.00	5 2.85	
28.03	− 9.04	23.36	− 16.66	
4 42.25	4 42.36	4 46.36	4 46.19	
18 6.10	18 5.99	18 1.99	18 2.16	
1 5	0 28	0 56	0 16	
1.12426	1.12394	1.12416	1.12384	
+1578	+1578	+4193	+4198	
1.14004	1.13972	1.16609	1.16577	
+13.81	+13.80	+14.66	+14.65	
− .36	− .04	− .25	− .12	
− .50 34	− .39	− 48	− .42	− 0.80
− 11	− .06	− .20	− .02	− 0 371
+12.84 13.80	+13 1431	+13 7380	+13 14.17	
18 19.10	19.30	15.85	16.27	
19.20		1606		
38.4	+5 20.01	38.5	+5 20.60	
	+ .31		+ .30	+5 20.90
+5 19.2	− 22.60	22.4	− 22.70	
18.5	+4 57.72	21.7	+4 58.20	
	16.9		14.3	

+38.88	− 2462	+37.51	− 23.96	
1,58973	1,39129 m	1.57415	1.37949 m	
1.46883	1,27043 m	1.45329	1.25863 m	
0	4	0	4	
5	0	0	4	
14.54.41	2.94.02	11.6+.35	58.2 00	
13.94.18	2.54.02	12.3+.19	58.8+.03	
19.1−.29	7.1−.03	20.2−.27	6.1 00	
15.2+.23	4.4+.18	16.4+.21	5.7+.16	
16.80 65 53	195.00	15.90 60 48	192.15	
4 15.68	5 4.22	4 15.25	5 2.20	
29.44	− 18.64	25.40	− 18.14	
4 45.12	4 45.58	4 43.65	4 44.06	
18 3.23	18 2.77	18 4.70	18 4.29	
1 3	0 15	1 4	0 17	
1.12423	1.12383	1.12424	1.12385	
+3455	+3455	+2183	+2183	
1.15878	1.15838	1.14607	1.14568	
+14.41	+14.40	+14.00	+13.99	
− .39	− .16	− .36	− .15	
− .32	− .01	− 47	− .38	− 0.78
− .183	− .05	− .152	− .05	− 0.35
+13 1959	+14.18	+13 13227	+13 13944	
1682	16.95	17.92	17.73	
16.88		17.82		
38.5	+5 22.21	38.5	+5 20.97	
	+ .30		+ .80	+5 21.27
21.6	− 22.70	20.7	− 22.70	
20.9	+4 59.81	20.80	+4 58.57	
	16.7		16.4	

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1878

Jan. 29 | Jan. 30 | Dec. 18 | Dec. 19

Dec. 6 41 55.17
11 55.14 +3
16 55.10 4
21 55.04 6
26 54.98 6

23 48.1
490 +.9
49.8 .8
50.6 .8
51.4 .8

Jan. 29

	m	s
1		
2	40	15.5
		18.5
		21.5
	41	3.8
		7.0
		9.7
	40	18.50
	41	6.83

	m	s
	40	32.40
		36.15
		39.76
		46.98
		50.60
		54.33
		57.84
		1.72
		9.00
		12.48
		15.88
		35.14
		59.14
	40	54.285
	41	49.361
		−55.08
		−55.07
		−55.10

Jan. 30

40	4.0	
	7.0	
	10.4	
40	53.3	
	55.9	
	58.4	
40	7.13	
40	55.87	

40	30.95	
	34.83	
	38.35	
	45.40	
	49.40	
	52.70	
	56.45	
	59.92	
	7.55	
	10.90	
	14.58	
	40.103	
	58.103	
40	52.821	
41	49.361	
	−56.51	
	−56.60	
	−56.53	

49	3.7	
[46]	7.1	
	10.1	
	14.1	
	17.0	
50	43.0	
[47]	47.0	
	49.0	
	52.5	
	55.4	
46	10.40	
47	49.38	

Dec. 18

49	18.73	
[46]	22.34	
	26.05	
	29.65	
	33.30	
	38.70	
	42.52	
	46.22	
	49.50	
	53.00	
	26.01	
	45.99	
	6.04	
	26.00	
	45.99	
	3.003	
	47 6.006	
	41 55.07	
	+5 10.94	
	+5 10.92	

	38.70	
	42.30	
	45.95	
	49.72	
	53.28	
	58.72	
	2.38	
	6.00	
	9.70	
	13.38	
	18.68	
	22.22	
	26.10	
	29.62	
	33.38	

Dec. 19

46	11.0	
	13.0	
	15.2	
	18.7	
	22.0	
48	0.5	
	4.0	
	7.6	
	10.1	
	13.4	
46	15.98	
48	7.12	

46	20.00	
	23.15	
	26.90	
	30.72	
	34.17	
	39.90	
	43.40	
	47.10	
	50.82	
	54.40	
	26.99	
	46.96	
	6.95	
	26.93	
	47.06	
	3.489	

	39.62	
	43.40	
	47.00	
	50.65	
	54.12	
	59.67	
	3.40	
	6.70	
	10.60	
	14.40	
	19.67	
	23.30	
	27.00	
	30.43	
	34.25	
	47 6.978	
	41 55.96	
	+5 11.92	
	+5 11.90	

	+ 56.16	
	− 1.07	
	− 0.90	
	+ 54.17	
	m s	
	41 48.45	

	+ 57.63
	− 1.12
	− 0.89
	+ 55.62
	48.44

−5	9.70
−	1.27
−	6.63
−5	17.60
	48.41

−5	10.58
−	1.37
−	6.62
−5	18.57
	48.41

	s	s
	+ 35.78	− 12.55
	1.55864	1.09864m
	1.43278	0.97778m
	0′ 4′	0′ 4′

	+ 45.69	− 3.05
	1.65982	0.48430m
	1.53898	0.36345m
	0 4	0 4

	+ 55.61	− 43.57
	1.74515	1.63711m
	1.60558m	1.49762
	0 3	0 2

	+ 57.00	− 60.14
	1.70757	1.77916m
	1.56800m	1.63959
	0 3	0 2

G	16.1+.44	53.5+.04		
H	15.2+.17	52.3+.16		
G	21.0−.25	56.2−.19		
H	18.6+.21	55.9−.02		
	18.85	−.01	54.85	
	4 17.72	4 54.48		
	27.09	− 9.50		
	4 44.81	4 44.98		
+55°	18′ 3.54″	18′ 3.37″		
−13°	1′ 1″	0′ 25″		
	1.12421	1.12390		
	+3387	+3387		
	1.15808	1.15777		
	+14.39	+14.38		
	−.34	−.04		
	−.44	−.33	− 0.82	
	−.14	00	− 0.47	
	+13.47	+13.87		
	18 14.11	17.28		
	18 14.20			
	23 38.5	+5 22.05		
		+ .29	+5 22.34	
	+5 21.3	− 22.70		
	20.6	+4 59.64		
		23′ 16.8		

	10.5+.33	47.2+.16		
	9.4+.19	45.3+.18		
	15.2−.25	51.0−.56		
	11.7+.23	48.9+.05		
	12.85	−17	49.10	
	4 11.70	4 48.10		
	3459	− 2.31		
	4 46.29	4 45.79		
	18 2.06	18 2.56		
−13°	1 7	0 31		
	1.12427	1.12396		
	+4094	+4094		
	1.16521	1.16490		
	+14.63	+14.62		
	−.52	−.81		
	−.46	−.85	− 0.98	
	−.12	+.04	− 0.43	
	+13.53	+14.00		
	15.71	16.83		
	16.27			
	38.5	+5 22.56		
		+ .29	+5 22.85	
	22.2	− 22.70		
	21.5	+5 0.15		
		16.4		

	57.7 +.20	46.2 +.28		
	58.1 +.23	46.6 +.43		
	4.2 +.17	52.9 −.44		
	4.7 +.18	53.9 +.23		
	0.95	+.76	+.50	4.955
	4 1.18	2 49.90		
	− 40.33	31.45		
	3 20.85	3 21.35		
	19 27.50	19 27.00		
	0 49			
	1.12410			
	+ 2289			
	1.14699			
	+14.03			
	− .79	− .48		
	− .48	− .34	− 1.46	
	− .19	− .12	− 0.94	
	+13.57	+13.09		
	4.307	40.09		
	4.038			
	23 50.7	+4 10.24		
		+ .31	+4 10.55	
	+4 10.8	− 34.40		
	9.5	+3 36.15		
	4	16.2		

	55.5 +.21	33.6 +.19		
	55.8 +.25	33.8 +.21		
	2.3 +.18	39.9 −.37		
	1.5 +.08	40.7 +.38		
	58.85	+.72	+.71	36.75
	3 58.78	2 37.00		
	− 36.98	43.61		
	3 21.80	3 20.61		
	19 26.55	19 27.74		
	+3318			
	1.15728			
	+14.36			
	− .67	− .92		
	− .48	− .31	− 1.33	
	− .18	− .18	− 1.11	
	+13.03	+12.95		
	39.58	40.69		
	40.14			
	50.23	+4 10.66		
		+ .31	+4 10.87	
	10.72	− 34.50		
	9.5	+3 36.37		
	5	16.5		

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1879

Jan. 6

0 3

23.2
22.1
27.9
29.8
25.55

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α Ceti.

$2^h\ 55^m\ 54^s$
$+3°\ 36'\ 35''$
$+38°\ 46'\ 13''$
1878

α_o $55^s\ 54^s.151$
Corr^n $+.029$ $+.013$
$\frac{d\alpha}{dt}$ $+3^s.129$
δ_o $36'\ 34''.89$
Corr^n $+.92$
$\frac{d\delta}{dt}$ $+14''.322$

log sin δ 8.79906
" cos δ 9.99913
" 1sec δ sin z 0.12391 (463) 0.10520
tan δ +0.06
sin z 7.63

for Jan. 1878
for Feb. 14, 1878
" Dec. 1878
Jan. 1879

log Rc 1.35692
" Rc 1.05625
2
Rc 22.75
Rc 11.38
^2I 2.07

Jan. 28 | Jan. 29 | Feb. 14 | Dec. 18 | Subtract 1^s

h	m	s	m	s																
2	54	41.3	54	48.00	54	38.6	54	46.78	55	23.1	55	26.50	38.00	3	48.3	[0] 3	—	—		
		43.6		58.10		40.7		48.85		24.9		28.50	39.95	[0]	58.0	4707	45.00	58.49	56.42	
		45.6		52.15		43.0		50.95		26.0		30.80	41.90		52.0	.00	47.00	.50	58.50	
				56.34				55.12		27.7		32.67	43.97		53.7	.01	49.08	.43	0.50	
				58.37				57.00		29.4		34.60	46.10		56.0	46.98	51.12	.40	2.54	
				0.38				59.20						[1]						
	55	27.2		2.57				1.25	56	28.4		11.95	49.40	4	49.0		28.33		5.62	
		28.9		4.60				3.22		30.7		14.10	51.40	528.9	51.0		30.53		7.80	
		31.3		8.60				7.54		32.6		16.18	53.42	.8	52.8		32.52		9.73	
				10.88				9.45		34.8		18.00	55.53	.2	—		34.55		11.85	
				12.80				11.62		36.4		20.31	57.54		56.0		36.80		13.92	
				30479				35098			55	30.614	0.80				47.02		17.00	
	54	43.80			54	40.77		65098				41.984	2.70				58.46		19.00	
	55	24.13	55	0.435			54	59.180				53.458	4.80				9.18		21.10	
				55.261			55	55.250			56	4.832	6.36				21.09		23.15	
				− 5483				− 56.07				16.108	9.00				32.55		25.22	
				− 54.86				− 56.10							51.00					
				− 54.84				−56.08		55	26.22	146996	266.996	0	5247	4890				
										56	32.58		55 53.399	1	52.08			1	9.780	8.780
													55 55.027		51.68			55	58.98	58.98
													− 1.63					5	10.80	10.80
													− 1.66					+5	10.79	9.79
													−1.64						9.79	
			+	54.94			+	56.17					+ 1.76					−5	9.72	
			−	.05			−	.04					− .05					−	.05	
			−	1.11			−	1.10					− .88					−	4.83	
			+	53.78			+	55.03					+ 0.83					−5	14.60	
			m	s																
			55	54.22				54.21					54.23						54.18	
			s																	
			+ 16.94		− 28.69				+ 18.41				+ 27.18	− 39.18		+ 17.78		− 12.90		
			1.22891		1.45773m				1.26505				1.43425	1.59306m		1.24993		1.63241m		
			1.35282		1.58164m				1.38896				1.53 (223) 888	1.69 (114) 769		1.35513m		1.73766m		
			50	0'	50	1'			50	0			45	4	45	3	45	4	45	3	
			"		"															
6			6.5+.09		6.7+.20				6.9+.10				51.4+.06	25.9+.61		23.9 +.54		7.7 +.27		
F			14.0+.09		14.9+.25				13.5+.10				59.2+.02	33.9+.14		32.5 +.02		16.5 +.29		
G			223−.33		227−.29				19.3−.41				6.1 .00	41.6−.38		37.3 −.24		20.3 −.28		
H			18.1+.35		18.4+.67				13.9+.33				3.1+.09	37.25.28		34.7 +.21		18.7 +.35		
			14.40	.20		.83	14.70		13.10	12			58.75	17	65	33.75	30.60	+.53		+.63	14.00
	50	15.22	51	15.68	50	13.40					49	59.95	48	34.65			49	32.10	48	15.55	
		22.53		−38.16		24.49						−34.58		49.85				− 22.65		54.66	
	50	37.75	50	37.52	50	37.89					49	25.37	49	24.50			49	9.45	49	10.21	
+3°	32'	10.60	32'	10.83	32	10.46					33	22.48	33	23.85			33	38.90	33	38.14	
+38°	44'	56"	45'	57"	44	54					45	51	44	26			44	59			
	1.66448		1.66469		1.66447						1.66466		1.66433				1.66458				
	+2258		+2258		+3402						+ 2346		+2346				+2303				
	1.68706		1.68727		1.69849						1.68812		1.68779				1.68753				
	− 48.65		− 48.67		− 48.81						− 48.77		− 48.73				− 48.70				
	− .88		− .04	− 0.08	− .01						− .04		− .06				− .01		− .05		
	− .03		− .14	− 0.35	− .02		− 0.06				− .04		− .26	− 0.48			− .54		− .40	− 0.68	
	− .05		− .22		− .03						− .04		− .126	− 0.80			− .13		− .16	− 0.61	
	− 48.74	3	− 49.072		− 48.87						− 49.966		− 49.753				− 49.38		− 49.31		
	31	21.87		21.81		21.59					32	33.33		34.32			32	49.52		49.83	
	31	21.84				21.59					32	33.82						49.18			
	36	40.4	+5	20.97		40.4	+5	22.05				39.7	+4	7.75			36	5.73	+4	10.24	
			−	.81	+5	20.16		− .80	+5	21.25			−	.69	+4	7.06			−	.86	+4 9.38
	+ 5	18.6	−	5.50			5	18.8	−	5.5	4	5.9	−	4.80			+4	8.1	−	22.40	
		19.5	+5	14.66				19.7	+5	16.75		6.8	+4	2.26				9.0	+3	46.98	
			36'	36.5				37.3						36.1						36.2	

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	α	δ		α	δ		α	δ
Jan. 20	55m 55.36	36′ 40.″9	Dec. 6	55m 59.01	36′ 58.″3	1879 Jan. 0	55m 58.41	36′ 56.″3
25	30	6	11	58.99	57.9	5	58.90	56.3
30	24	3	16	58.98	57.5	10	58.85	56.4
Feb. 4	17	40.1	21	58.97	57.1	15	58.80	55.3
9	35.10	39.9	26	58.96	56.7	20	58.75	54.9
14	55.03	.7						
19	54.96	.5						
24	57	.3						
Mar. 1	54.82	39.2						

1879

Dec. 19				Jan. 5				Jan. 6		Jan. 20	
0 47.9	0 42.80	54.15		0 35.4	0 42.90	34.00					
50.0	44.77	56.30		37.7	44.80	56.10					
52.0	46.90	58.10		40.1	46.84	58.20					
53.5	49.00	0.23		42.1	44.77	0.30					
55.9	51.15	2.56		44.2	51.00	2.37					
1 41.0	28.18	5.72			28.30	5.52					
42.6	30.30	7.65			30.36	7.50					
44.6	32.37	9.75			32.35	9.56					
46.3	34.40	11.83			34.42	11.62					
48.6	36.55	13.92			36.40	13.73					
	46.92	17.00			46.91	16.84					
	58.267	19.05			58.19	18.90					
	9.44	21.05			9.59	20.92					
	21.06	23.10			20.95	23.00					
	32.36	25.10			32.39	25.10					
0 51.86	48.37	2		0 39.90	48.01						
1 44.62		1 9.674				1 9.602					
		55 58.97				55 58.90					
		+5 10.70				+5 10.70					
		+5 10.69				+5 10.69					
		−5 10.59				−5 10.59					
		− .06				− .05					
		− 4.82				− 4.75					
		−5 15.47				−5 15.39					
		54.20				54.21					
+1781	− 3495			+2970							
1.25066	1.54345			1.47276							
1.35586	1.64865			1.57796							
45 4	45 3			45 4				45 4		45 4	45 3
23.7 +54	15.9 +47			41.9 +26				50.9		45.7	18.4
32.2 +02	23.7 +20			47.9 +20				57.1		51.9	25.7
36.9 −23	28.2 +02			52.3 −52				58.8		56.3	27.8
34.2 +21	27.1 +34			53.0 +01				0.6		58.1	28.8
30.30+54	105	22.05		47.10 −.05				54.85		51.00	23.10
49 31.75	48 23.72			49 48.78							
− 22.69	44.53			− 37.84							
49 9.06	49 8.25			49 ~~11.94~~ 10.94							
32 39.29	40.10			33 37.41							
+3344				+ 2403							
1.69794				1.68853							
− 49.88				− 48.81							
− .01	− .03			− .03							
− 54	− .41	− 0.68		− .77	− 0.81						
− .13	− .26	− 0.70		+ .01							
−50.56	−50.58			− 49.60							
48.43	49.52			47.81							
49.12				47.81							
57.2 +4	10.56			56.0 +4	10.13						
−	.86	+4 9.70		−	.89	+4 9.24					
8.1 −	22.30			8.2 −	21.10						
9.0 +3	47.40			9.1 +3	48.14						
	36.5				36.0						

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1879

Jan. 25

Jan. 26

	45′ 4′	45′ 3′		45 4	45 3	
6	47.8″	14.8″		39.6	15.1	
7	54.9	22.8		46.8	22.1	
8	3.7	31.8		51.6	26.3	
11	3.5	32.0		48.8	24.9	
	55.75		2330	45.60		2070

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β Persei.

3h 0m 14s
+40° 29′ 3″
+ 1° 53′ 46″
1878

Obs. 3 clouds

Jan. 24

α_0 δ_0 14ˢ.066
Corr^a + .077 + .0514
$\frac{d\alpha}{dt}$ + 3ˢ.878
δ_0 29′ 2″.90
Corr$^\delta$ −.07
$\frac{d\delta}{dt}$ + 14″.17

log sin δ 9.81246
″ cos δ 9.88115
″ 15 cos δ sin 1 0.00593 for Jan. 1878
9.98400 m for Fil. 14.″
9.98722 m for Jan. 1879
tan δ + 0.85
sin τ + 0.03

Jan. 30

log R_1 1.47490
log R_2 1.17423
R_1 29ˢ.85
R_2 14.94
I 2.71

Feb. 2

Feb. 3

2	59	8.6	59	9.72			59	7.2	59	2.00			58	32.5	58	58.00			58	29.7	58	56.40		
		11.3		12.00				10.0		4.75				35.4		0.60				31.8		59.16		
		14.2		15.00				13.0		7.50				37.8		3.22				34.2		1.90		
				20 8.34						12.90						8.80						7.32		
				23.00						15.50						11.58						10.0		
				25.40						18.00						14.20						12.65		
	59	53.5		28.34			59	54.6		21.00			59	54.8		16.90			59	46.4		15.48		
		56.4		31.27				57.5		23.65				57.2		19.50				48.3		18.00		
		58.3		36.50				0.2		28.95				0.2		25.10				50.9		23.42		
				39.35						31.80						27.70						26.20		
				42.15						34.60						30.50						28.77		
				28377						20065						21610						25930		
	59	11.37					59	10.07					58	35.23		15610			58	31.90		13930		
	59	56.07	59	25.797			59	57.43	59	18.241			59	57.40	59	14.191			59	48.53	59	12.664		
			0	15.284					0	15.176					0	15.122					0	15.104		
				− 49.49						−56.44						− 60.93						− 62.44		
				−49.51						−56.96						− 60.95						− 62.46		
				−49.54						−56.99						− 60.98						− 62.49		
				rej.																				
				+ 50.30						+ 57.63						+ 61.66						+ 63.08		
				− 58						− .65						− .66						− .55		
				− 1.21						− 1.11						− 1.06						− 1.04		
				+ 48.51						+ 55.87						+ 59.94						+ 61.49		
				0 14.31						m s 0 14.11						14.13						14.15		
				s						s														
		+ 14.43		− 30.27				+ 8.17		− 39.19				+38.96		− 43.21				+40.76		− 35.87		
		1.15927		1.48101 m				0.91222		1.59318 m				1.59062		1.63558 m				1.61023		1.55473 m		
		1.16520		1.48694 m				0.91815		1.59911 m				1.59655		1.64151 m				1.61616		1.56066 m		
				55′ 8′				55 3		55 4				55 3		55 4				55 3		55 4		
6		32″.0+.57		17.3+.47				36.9+.48		23.4+.53				2.5+.18		26.2+.54				0.2+.16		18.1+.48		
D		32.1+.15		17.8+.15				25.9+.18		23.6+.08				3.2+.27		26.9+.05				2.8+.27		19.7+.13		
9		39.4−.31		24.2−.13				45.1−.47		30.7+.02				12.3−.18		35.4−.10				12.3−.18		28.9+.01		
14		33.8+.27		20.5+.21				40.1+.24		28.3+.22				7.4+.40		31.1+.23				6.3+.39		23.8+.21		
		35.55	73	1710	20.75			41.00	43	8652.05				7.40	67	72	30.80			6.25	64	83	23.50	
		58 34.40		59 19.95				58 37.00		59 26.50				58 6.35		59 29.90				58 5.40		59 22.62		
		14.63		− 30.69				8.28		− 39.73				39.50		− 43.80				41.32		− 36.86		
		58 49.03		58 49.26				58 45.28		58 46.77				58 45.85		58 46.10				58 46.72		58 46.26		
+41°		23′ 59.32		23′ 59.09				24 3.07		24 1.58				24 2.50		24 2.25				24 1.63		24 2.09		
+ 1°		53′ 15″		54′ 1″				53 18		54 7				52 47		54 11				52 46		54 4		
		0.2782		0.2812				0.2784		0.2815				0.2765		0.2818				0.2765		0.2814		
		+ 345		+ 345				+ 412		+ 412				+ 370		+ 370				+ 278		+ 278		
		0.3127		0.3157				0.3196		0.3227				0.3135		0.3188				0.3043		0.3092		
		− 2.05		− 2.07				− 2.09		− 2.10				− 2.06		− 2.08				− 2.02		− 2.04		
		−.06		−.24				−.02		−.41				−.41		−.50				−.45		−.35		
		−.48		−.47		− 0.49		−.49		−.48		− 0.42		−.37		−.54		− 0.83		−.37		−.58		− 0.49
		−.18		−.18		− 0.72		−.11		−.21		− 0.91		−.17		−.18		− 1.04		−.16		−.21		− 0.96
		− 2.69	54	− 2.79	79			− 2.82	51	− 3.150	7			− 3.51		− 3.38				− 3.84		− 3.+300		
		23 56.78		56.30				0.56		58.51				59.61		59.13				58.72		59.09		
		23 56.54						59.54						59.37						58.90				
		29 21.2		+5 22.21				21.1		+5 22.56				21.0		+5 21.71				21.0		+5 21.71		
		− .04		− .04				− .04				+5 22.52		− .04				+5 21.67		− .04				+5 21.67
		+ 5 24.7		− 18.30				21.6		− 18.20				21.6		− 18.10				22.1		− 18.10		
		24.6		+5 3.87				21.5		+5 4.32				21.5		+5 3.87				22.0		+5 3.87		
				29 0.47						29′ 3.9						2.9						2.5		
				rej.																				

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	α		δ		1899	α		δ	
	m s		° ′ ″			m s		° ′ ″	
Jan. 20	0 15.36	9	29 21.2	0	Jan 0	0 19.90		29 34.2	
25	.27	9	21.2	0	5	19.84	−6	34.4	.2
30	.18	9	21.1	1	10	19.78	6	34.6	.2
Feb. 4	15.09	10	21.0	1	15	19.71	7	34.8	.2
9	14.99	10	20.8	2	20	19.64	7	34.9	1
14	.89	10	20.5	3	..				
19	.79	10	20.1	4					
24	.69	9	19.7	4					
Mar. 1	14.60		19.2	5					

1879

Feb. 5			Feb. 14				Jan. 5				Jan. 6
-58 47.8	58 54.00		0 6.5	—	59 53.40	4 59.5	4 55.40	10.88			
49.6	56.72		8.7	—	56.30	0.8	58.80	13.50			
52.2	59.63		11.4	—	58.77	3.7	1.42	16.20			
	4.90		13.5	—	1.60	5.9	4.20	18.45			
	7.67		17.4	—	4.30	8.8	6.90	21.67			
	10.48										
59 30.8	13.00		0 54.8	38.43	8.32		55.70	25.66			
33.3	15.90		58.9	41.10	11.10		58.40	28.50			
35.8	21.48		0.4	43.83	13.88		0.90	31.30			
	24.00		2.8	46.38	16.83		3.20	33.95			
	26.70		4.6	49.16	19.40		6.65	36.75			
	29448			—	23.30	6 1.38		41.54			
58 49.87	11448		0 11.50	13.81 58.84	26.00	1.24		43.40			
59 33.30	59 10.407		1 0.30	.91 13.96	28.81	31.23		46.10			
	0 15.065			.84 28.780	31.43	46.11		48.80			
	−64.66			.93 43.780	34.36	1.07		51.75			
	−64.68										
	−64.71					5 3.74	1.608	2			
					0 13.872			3 31.20			
					0 14.885			0 17.84			
					− 1.01			+5 11.37			
					− 1.03						
					− 1.06			+5 11.31			
	+ 65.34				+ 1.76			−5 10.59			
	− .60				− .74			− .43			
	− 1.00				− .82			− 5.77			
	+ 63.74				+ 0.20			−5 17.09			
	14.15				14.07			14.11			
+ 20.54	− 22.89		+ 2.37	− 46.43		+ 2748					
1.31260	1.35965 m		0.37445	1.66680 m		1.43886 70					
1.31853	1.36556 m		0.35575 m	1.65850 m		1.42608 m					
			61 40	345		592					
55 3	55 4		55 2	55 1		55 2					55 1
18.0+57	2.9+21		30.3+51	42.7+25		43.8 +31					27.0
21.4+23	5.3+19		33.3+21	45.1+40		44.3 +39					27.7
32.2+03	17.1−29		44.9+53	56.8−10		52.0 +48					34.0
28.8+34	12.9+23		89.0+41	51.1+36		53.4 +24					36.8
25.10 111	34 10.00		37.60 60	91 49.75		47.90 142 46					30.50
58 25.10	59 9.55		57 36.88	56 48.92		57 48.38					
20.82	− 23.20		− 2.29	45.02		− 26.66					
58 45.92	58 46.35		57 34.60	57 33.87		57 21.72					
			58	94							
24 2.43	24 2.00		25 13.78	25 14.68		25 26.63					
			7	41							
53 6	53 51		53 28	52 40		53 12					
0.2777	0.2805		0.2791	0.2760		0.27810					
+207	+207		+ 236	+ 237		+ 2411					
0.2984	0.3012		0.3028	0.2997		0.30220					
− 1.99	− 2.00		− 2.07	− 1.99		− 201					
− .12	− .14		− .01	− .57		− .20					
− 44	− 56	− 0.74	− 55	− 38	− 0.58	− 45	− 0.77				
− .28	− .08	− 0.64	− .15	− .23	− 1.09	− .3517					
− 2.8373	− 2.7864		− 2.7259	− 3.1708		− 3.4528 278					
59.70	59.36		25 11.18	11.33		23.62					
23 51.53			25 11.26			23.62 85					
21.0	+5 21.56		205	+4 7.75		29 34.4	+4 10.13				
	− .04	+5 21.52		− .03	+4 7.72		− .04	+4 10.09			
+5 21.5	− 18.11		4 9.2	− 17.60		10.86	− 31.50				
21.4	+5 3.42		9.1	+3 50.12		10.75	+3 38.59				
	3.0			1.4			2.4				

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1879

Jan. 20 | Jan. 23 | Jan. 25 | Jan. 26

	55′ 3′	55′ 1′		55 2	55 1		55 2	55 1		55 3	55 1	
E	0″.1	32″.9		54.1	49.0		53.6	34.0		1.1	34.3	
F	1.4	34.3		57.2	51.3		56.1	36.9		2.3	35.2	
G	9.8	41.2		8.1 (?)	1.6		8.4	49.2		10.4	43.2	
H	8.1	42.1		5.9	2.8		6.6	49.2		7.2	43.2	
	4.95		37.05		55.30		1.00		41.60	5.75		38.75

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7.174

48 H Cephei.

$3^h\ 4^m\ 54^s$

$+77^\circ\ 17'\ 0''$

$-34\ 54\ 12$

1878

α_0 $4^m\ 54^s.211$

Corrα -0.016 $+0.094$ $-.043$

$\frac{d\alpha}{dt}$ $+7.369$

δ_0 $17'\ 0''.00$

Corrδ $+0''.80$

$\frac{d\delta}{dt}$ $+13''.81$

$\log \sin \delta$ 9.98921

" $\cos \delta$ 9.34268

" $\log 15 \cos \delta \sin 1''$ 9.46746 for Jan. Feb. 1878

9.44875n " Jan. 1879

$\tan \delta$ $+4.431$

$\sin \log \tan \alpha$ $-.57$

Jan. 1

h	m	s	m	s
3	3	10.7	4	17.1
		17.8		24.7
		25.0		26.9
				31.4
				36.0
				40.8
	4	50.4		48.4
		56.7		49.9
		5.2		54.7
				3239
	3	17.83		
	4	57.43	4	35.989
			4	57.907
				−21.92
				~~−22.02~~
				−21.90
				−21.88
				+ 25.30
				− 3.16
				− 3.70
				+ 18.44
			m	s
			4	54.43

+78.16 1.89298 1.36044

10′ 1′

ε	1.42.14	56.1−.27	4.1+.67
F	9.1+.25	25.1−.16	58.75 .19
g	56.1−.27	33.1+.62	123 28.35
H	4.1+.67		

11 2.68 22.93 11 25.61

+77° 11′ 22.74

−34° 54′ 16″ 1.60375 +2250 1.62625

+42.29 −.72 −.18 −.20 −41.247 12′ 4.01 12 3.96 17 23.7 +5′ 19.7 20.5

Jan. 5

h	m	s	m	s
2	33.6	4	12.9	
	39.8		17.4	
	~~48.6~~		22.2	
			27.0	
			31.8	
			35.8	
3	31.0		41.4	
	42.2		46.0	
	47.0		50.9	
			2854	
2	40.67			
3	40.07	4	31.711	
		4	57.674	
			−25.96	
			~~−26.06~~	
			−25.94	
			− 25.92	
			+ 29.13	
			− 3.06	
			− 3.46	
			+ 22.61	
			54.32	

+11.04 2.04548 1.51294

10′ 0′

ε	51.4+.16	42.2+.30	17.9+.45
F	0.1+.17	52.5+.28	18.1+.25
g	43.4−.60	42.4−.59	29.4−.04
H	51.0+.51	58.9+.55	27.4+.65
	47.40 24	47.30 56	23.80 131
	121 5.00		

10 51.48 32.58 11 24.06

11 24.29

	54 28	54 30	53 56
	1.60380	1.60380	1.60368
	+3314	+1795	+0848
	1.63694	1.62175	1.61211
	+43.34	+41.86	+40.94
	−1.42	−1.52	.00
	−.88 −.12	−.88	−.11 −.15
	−.06	−.14	−.33
	+41.748	+40.912	+40.46 50
	6.07	6.11	6.17
	6.32	5.94	6.12
	245	25.7	269
	18.2	19.8	20.7
	19.0	20.6	21.5

Jan. 13

h	m	s
2	20.0	4 2.0
	25.9	6.5
	34.5	11.1
		16.0
		20.4
		25.0
2	59.4	29.6
	7.4	34.6
	15.2	39.3
		1845
2	26.80	
3	7.33	4 20.500
		4 57.142
		−36.64
		~~−36.74~~
		−36.62
		− 36.60
		+ 39.20
		− 2.45
		− 2.93
		+ 33.82
		54.32

+113.70 2.05576 1.52322

10′ 0′

ε	42.2+.30	52.5+.28	58.9+.55
F	54.7+.13	5.9+.23	13.7+.71
g	54.0−.48	42.4−.59	47.30 56
H	2.08 54.35		

10 49.00 33.36 11 22.36

11 25.99

54 30	54 17	
1.60380	1.60376	
+1795	+1795	
1.62175	1.62171	
+41.86	+41.85	
−1.52	−.63	
−.88	−.88 −.14	−1.74
−.14	−.15	−0.68
+40.912	+40.937	
6.11	5.91	
5.94		
25.7	+5′ 20.41	
	+ .79	+5 20.20
19.8	− 25.40	
20.6	+4 55.50	

Jan. 22

h	m	s
4	4.2	3 51.5
	12.6	56.4
	20.3	1.2
		5.5
		10.5
		14.8
		19.4
		24.5
		29.2
		2130
4	12.37	9.30
		4 10.383
		4 56.460
		−46.13
		~~−46.23~~
		−46.11
		− 46.09
		+ 48.51
		− 2.44
		− 2.25
		+ 43.80
		54.13

−2.04 0.30963n 9.77709n

10 1

ε	17.9+.45		
F	18.1+.25		
g	29.4−.04		
H	27.4+.65		
	23.80 131		

11 23.28 − 0.60 11 22.68

11 25.67

53 56		
1.60368		
+0848		
1.61211		
+40.94		
.00		
−.11 −.15	−0.44	
−.33		
+40.46 50		
6.17		
6.12		
269	+5′ 20.95	
	+ .75	+5 21.70
20.7	− 26.90	
21.5	+4 54.80	

0.7 1.4 1.0

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α

Jan. 0	4m 57.98	29	
5	57.69	32	
10	57.37	35	
15	57.02	38	
20	56.64	40	
25	56.24	41	
30	55.83	42	
Feb. 4	58.41	43	
9	54.98		

Jan. 23

3 25.5	3 52.6	
31.6	56.5	
40.3	1.3	
	6.1	
	10.8	
	15.2	
44.1	20.7	
49.5	24.7	
56.2	30.0	
	2179	
3 32.47	979	
[4] 49.93	4 10,878	
	4 56,380	
	−45.50	
	−45.60	
	−45.48	
	− 4546	
	+ 49.06	
	− 3.18	
	− 2.17	
	+ 43.71	
	54.59	

δ

16′ 83.5″	10	
84.5	8	
85.3	7	
86.0	7	
86.7	5	
87.2	3	
87.5	1	
87.6	1	
87.7		

Jan. 29

3 12.0	3 44.5	
19.1	48.8	
27.6	54.1	
	58.4	
	2.9	
	8.9	
4 26.0	12.9	
30.0	16.8	
39.7	21.7	
	2690	
3 19.90	290	
4 31.90	4 3.222	
	4 55.892	
	− 52.67	
	− 52.77	
	− 52.65	
	− 5263	
	+ 56.17	
	− 3.26	
	− 1.68	
	+ 51.23	
	5445	

Jan. 30

3 1.6	3 43.0	1	44.6	
12.2	47.8		57.5	
18.9	52.6		5.9	
	57.3			
	2.0			
	6.3			
4 14.5	10.9	5	26.8	
22.9	16.1		34.1	
32.6	20.8		45.1	
	2568			
3 10.90	168	1	56.67	
4 23.33	4 1.874	5	35.33	
	1867			
	4 55.809			
	− 53.94			
	− 54.04			
	− 53.92			
	− 53.90			
	+ 57.63			
	− 3.41			
	− 1.60			
	+ 52.62			
	54.49			

Feb. 2

3 [38]32.3	
43.1	
47.7	
52.4	
56.9	
1.3	
6.5	
11.5	
15.6	
2673	2733
5073	5133
3 56.34	3 57.033
4 55.55	4 55.557
− 58.18	− 58.52
− 57.24	− 58.62
59.1	− 58.50
	− 5848
	+ 61.66
	− 3.42
	− 1.35
	+ 56.89
	53.92

Ex. Sheet ✓

+38.41	−39.05	+43.32	−28.68
1.58444	1.59162m	1.63669	1.45758m
1.05190	1.05908m	1.10415	0.92504m
10 1	10 1	10 1	10 1
17.1+43	40.7+32	13.1+35	34.4+46
15.5+25	38.9+25	11.4+26	31.8+18
21.8−33	43.8−51	16.0−40	36.1−20
21.8+65	44.8+45	16.7+68	38.9+55
19.45 100	51 42.25	14.55 89	98 35.25
11 19.05	11 42.05	11 14.30	11 35.30
11.27	− 11.46	12.71	− 8.41
11 30.32 ✓	11 30.59 ✓	11 27.01	11 26.89
11 18.03	11 17.76	11 21.34	11 21.46
54 0	53 37	54 5	53 44
1.60370	1.60358	1.60372	1.60362
+4246	+4246	+3415	+3415
1.64616	1.64604	1.63787	1.63777
+44.28	+44.26	+43.44	+43.43
− .17	− .18	− .22	− .09
− .14	− .14	− .13	− .18 − 0.54
− .25	− .13 − 0.45	− .22	− .24 − 0.46
+43.726	+43.7681	+42.8790	+42.9227
1.79	1.57	4.24	4.43
1.68		4.34	
27.0	+5 20.60	27.4	+5 22.05
	+ .75 +5 20.35		+ .72 +5 21.33
+5 25.3	− 27.60	23.1	− 27.40
26.1	+4 54.35	23.9	+4 55.37
	56.0		59.7

+50.97	−21.46	+119.70	−98.96
1.70731	1.33163m	2.07809	1.99546m
1.17477	0.79909m	1.54555	1.46292m
10 1	10 1	10 0	10 1
11.5+32	32.6+48	46.9+22	51.4+12
9.2+25	31.4+17	45.2+27	49.9+43
14.5−36	34.1−10	51.0−63	55.0−24
14.6+70	37.2+57	50.9+51	55.7+30
13.0091	112 33.35	48.95 37	61 53.20
11 12.45	11 33.82	10 48.50	11 53.80
14.95	− 6.30	35.12	−29.04
11 27.40	11 27.52	11 23.62	11 23.96
11 20.95	11 20.83	11 24.73	11 24.39
54 7	53 45	54 31	53 26
1.60372	1.60362	1.60380	1.60353
+4133	+4133	+3712	+3712
1.64505	1.64495	1.64092	1.64065
+44.16	+44.15	+43.74	+43.72
− .31	− .05	− 1.68	− 1.15
− .13	− .13	− .18	− .23 − 1.83
− .23	− .28 − 0.46	− .09	− .15 − 1.45
+43.4952	+43.4649	+41.8791	+42.1927
4.47	4.52	6.64	6.66
4.50		6.65	
27.5	+5 22.56	27.6	+5 21.71
	+ .72 +5 23.28		+ .71 +5 22.42
23.0	− 27.60	21.8	− 27.60
23.8	+4 55.78	21.8	+4 54.82
	0.3		1.5

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1879

Jan 0 4 6641 17 368
5 6627 −14 37.3 5
10 6612 15 37.8 5
15 6598 16 38.3 5
20 6580 16 38.7 4

1878

Feb. 3

h	m	s	m	s
3	2	33.5	3	36.2
		38.2		41.0
		42.2		45.8
				50.7
				55.3
				60
	5	10.8		4.5
		21.1		9.4
		31.1		14.0
				2569
	2	37.97		4969
	5	21.00	3	55211
			4	55.473
				−60.26
				−60.36
				−60.24
				− 60.22

Feb. 4

	2	28.2	3	35.7
		33.8		40.4
		43.0		45.4
				50.1
				54.4
				59.1
	5	3.3		4.2
		12.7		9.0
		19.7		13.8
				3121
	2	35.04		4921
	5	11.90	3	54678
			4	55.359
				− 60.71
				−60.81
				−60.69
				−60.67

Feb. 5

	1	46.0	3	34.4
		55.2		39.0
		58.6		43.7
				47.9
				52.8
				58.4
	5	3.5		2.4
		10.6		6.7
		14.6		11.4
				2967
	1	53.27		4767
	5	11.98	3	52.967
			4	55.365
				− 62.34
				−62.44
				−62.32
				−62.30

1879

Jan. 5

	9	5.0	9	10.9
		15.5		15.0
		22.9		20.7
		31.0		24.4
		41.3		28.9
				33.7
				39.1
				42.9
			262.5	47.6
				17
				2906
				20.59
				12.24
				6208
				6189
	9	23.14		

	10	2.1	10	20.630.667
		6.5	4	64.26
		10.9	+ 5	14.34.41
		15.3	+ 5	14.38.45
		20.5		
		25.4		
		30.3		
		34.6		
		39.7		
		53.5		
		58.1		
		03		
		7.5		
		12.2		
		16.8		
		21.8		
		26.2		
		30.8		

		+ 63.08		+ 64.31
		− 2.88		− 3.26
		− 1.26		− 1.18
		+ 58.94		+ 59.87
		4m 54.15		57.55

		+ 65.34		−5 10.59
		− 3.14		− 3.78
		− 1.09		− 12.05
		+ 61.11		−5 26.43
		54.08		54.25

	+77.24	−85.79	+79.68	−77.22
	1,88784	1,93344m	1.90135	1.88773m
	1,35530	1,40090m	1,36881	1,35519m
	10′ 0′	10′ 1′	10 0	10 1
ξ	59.2+13	46.2+22	55.9+13	42.1+29
η	58.1+21	45.8+41	56.1+24	42.1+33
ϱ	4.6−02	52.9−42	3.1−.01	50.0−53
H	4.6+69	51.9+35	4.9+.70	50.1+.38
	1.90 1.01	.86 1.9955	59.50 106	47 46.05
	11 1.62	11 49.20	11 000	11 46.08
	22.66	−25.17	23.38	−22.66
	11 24.28	11 24.03	11 23.38	11 23.42
+77°	11′ 24″.07	11′ 24″.32	11 24.97	11 24.93
−34°	54′ 17″	53′ .30″	54 19	53 33
	1.60376	1.60355	1.60376	1.60356
	+2794	+2794	+2081	+2081
	1.63170	1.63149	1.62457	1.62437
	+42.82	+42.80	+42.13	+42.11
	−.72	−.86	−.75	−.70
	−.09 −.12	−.14 −1.06	−.09 −.12	−.14 −1.10
	−.25	−.14 −1.16	−.26	−.12 −1.98
	+41.736	+41.634	+41.083	+41.013
	12 5.83	5.96	6.00	6.06
	12 58.90	′ ″	603	
	17 27.6	+5 21.71	27.6	+5 21.49
		+ .70 +5 22.41		+ .70 +5 22.19
	+5 21.7	− 27.60	21.6	− 27.60
	22.5	+4 54.81	22.4	+4 54.59
		′ ″		
		17 0.7		0.6

	+119.70	−79.01		+57.53
	2,07809	1,89768m		1,75
	1,54555	1,36514m		1,20834m
	10 0	10 1		10 0
ξ	41.9+30	40.7+37		15.9 +33
η	42.9+22	41.1+30		14.2 +09
ϱ	51.4−61	49.9−53		20.0 −40
H	52.2+51	50.9+36		24.7 +43
	46.65 42	435 45.30		17.95 +45
	10 47.10	11 45.65		10 18.70
	35.12	−23.18		− 16.16
	11 22.22	11 22.47		10 2.54
	11 26.13	11 25.88		12 4582
	54 32	53 33		54 8
	1.60380	1.60356		1.60370
	+2085	+2085		+2419
	1.62465	1.62441		1.62789
	+42.14	+42.11		+42.15
	−1.68	−.74		− .39
	−.12 −.88	−.23 −1.86		− .05 −0.35
	−.10	−.09.11 −1.93		− .11
	+40.24	+41.058		+41.90
	6.41	6.96		27.72
	6.68			
	27.6	+5 21.56		13 27.72
		+ .70 +5 22.26		+17 37.3 +4 10.18
	20.9	− 27.60		+ .81 +4 10.94
	21.7	+4 54.66		+ 4 9.6 − 37.30
				10.4 +3 33.64
		1.3		1.4

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Jan. 20

10 0	5 4
29.3	45.6
28.2	43.8
31.9	46.2
37.3	54.0

Jan. 23

10 0	5 4
15.8	31.1
16.4	30.5
24.1	37.8
26.7	41.9

Jan. 25

10 0	5 4
15.4	19.9
15.9	20.2
25.2	28.8
28.6	32.9

Jan. 26

10 0	5 4
27.9	39.7
26.3	37.9
30.9	41.2
34.1	47.2

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α Persei.

$3^h\ 15^m\ 37^p$

$+49^\circ\ 25'\ 30''$

$-7^\circ\ 2'\ 42''$

1878

α_0 $15^m\ 37^s.203$ — log a sin δ 9.88056

Corr. α $-.024$ $-.022$ — " cos δ 9.81321

$\frac{d\alpha}{dt}$ $+4^s.252$ — " 1500 sin 1' 9.93799 / 9.91928n for Jan. 1878 / " " 1879

δ_0 $25'\ 30''.6$ — tan δ +1.17

Corr. δ $+.82$ — log tan 2

$\frac{d\delta}{dt}$ $+13''.2$

Jan. 5 — Jan. 14 — Jan. 16 — Jan. 19

	Jan. 5	Jan. 14	Jan. 16	Jan. 19
	m s	m s	m s	m s
	3 14 29.5	14 51.62	14 22.7	14 40.20	14 21.6	14 38.80	14 18.5	14 34.60
	32.4	54.82	25.4	43.40	24.1	42.10	20.8	37.72
	34.2	58.00	28.6	46.60	27.4	45.30	22.9	40.95
		4.36		52.85		51.58		47.38
		[7.52] —		56.28		54.78		50.50
		10.68		59.20		57.88		53.70
	15 6.4	13.80	14 58.0	2.40		1.10		56.80
	8.3	17.00	0.6	5.60		4.22		0.07
	10.2	23.26	15 3.3	11.90		10.70		6.34
		26.52		15.00		13.70		9.56
		29.58		18.20		17.00		12.78
		29516		35163		33716		35040
	14 32.03	11516	14 25.87	65163	14 24.37	63716	14 21.07	59040
	15 8.30	15 10.460	15 0.63	14 59.239		14 57.924		14 53.673
		15 38.976		15 38.842		15 38.808		15 38.754
		−28.32		−39.60		−40.88		−45.08
		−28.30		−39.58		−40.86		−45.06
		−28.30						
		+ 29.14		+ 40.33		+ 41.65		+ 45.68
		− .81		− .65		− .71		− .65
		− 1.77		− 1.64		− 1.60		− 1.65
		+ 26.76		+ 38.04		+ 39.34		+ 43.48
		m s 15 37.21		37.28		37.26		37.15
		+ 28.62	+ 2.35	+ 33.67	− 1.39	+ 33.55		+ 32.60	
		1.58681	0.37107	1.52724	0.14307 n	1.52569		1.51322	
		1.52480	0.30906	1.46523	0.08100 n	1.46368		1.45121	
		0′ 1′	0′ 2′	0 1	0 2	0 1		0 1	
6		48.9+1.16	20.3+1.48	47.5+1.19	18.0+1.44	53.8+1.09		50.4+1.14	
F		58.0+1.33	29.3+1.23	58.6+1.32	29.6+1.22	2.9+1.30		51.2+1.42	
9		43.6−1.51	14.4−1.24	49.5−1.54	19.4−1.30	47.4−1.56		2.1+1.14	
11		46.8+1.42	19.0+1.46	2.2+1.57	34.2+1.46	0.1+1.31		58.5+1.30	
		46.25 40	17.85	48.50	18.70	58.60 14		56.25 100	
		1 49.32	2 20.75	1 57.95	2 25.30	1 56.05		1 55.55	
		33.48	2.04	29.19	− 1.20	29.09		28.26	
		2 22.80	2 22.79	2 23.64	2 24.10	2 25.14		2 23.81	
	+49°	20′ 25.55	20′ 25.56	20 24.71	20 24.25	20 23.21		20 24.54	
	−7°	3′ 30″	2′ 58″	3 25	2 54	3 23		3 23	
		0.8531	0.8526	0.8530	0.8525	0.8530		0.8530	
		+ 333	+ 333	+ 095	+ 95	+ 416		+ 163	
		0.8864	0.8859	0.8625	0.8620	0.8946		0.8693	
		+ 7.70	+ 7.69	+ 7.29	+ 7.28	+ 7.85		+ 7.40	
		− .40	− .04	− .31	00	− .31		− .28	
		− 25	− 33	− .27	− .34	− 25		− 22	− 0.68
		− .10	− .23	− .08	− .20	− .04	− 0.52	− .25	
		+ 6.925	+ 7.12 22	+ 6.6371	+ 6.7484	+ 7.25 32		+ 6.9472	
		20′ 32.57	32.78	31.42	31.09	30.54		31.26	
		20 32.68		31.26		30.54		31.26	
		25 49.7	+5′ 18.09	50.3	+5 19.66	50.5	+5 20.93	50.6	+5 20.01
		+ .1	+ .1 +5 18.26	+	+ .16 +5 19.82	+	+ .16 +5 21.09	+	+ .16 +5 20.17
		+5′ 17.0	− 19.60	19.0	− 20.20	20.0	− 20.40	19.3	− 20.50
		17.8	+4 58.66	19.8	+4 59.62	20.8	+5 0.69	20.1	+4 59.67
			25′ 31.3		30.9		31.2		30.9

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	α			δ		
Jan. 0	15ᵐ 39.05	7		25′ 49.1	6	
5	38.98	7		49.7	4	
10	.91	8		50.1	3	
15	.83	9		50.4	3	
20	38.74	10		50.7	1	
25	.64	11		50.8	1	
30	.53	11		50.9	0	
Feb. 4	.42	12		50.9	1	
9	38.30			50.8		

1879

Jan. 23			Jan. 24		Jan. 20	Jan. 23
14 22.1	14 31.00		14 28.2	14 30.10		
25.6	34.30		31.9	33.35		
28.6	37.78		34.2	36.33		
	44.20			42.78		
	47.33			45.95		
	50.45			49.12		
15 3.3	53.72		15 ~~0.0~~	52.20		
6.5	56.90		2.7	55.40		
10.1	2.80		5.7	1.88		
	6.15			5.00		
	9.60			8.00		
	37423			36011		
14 25.43	55423		14 31.43	54011		
15 6.63	14 50.385		15 2.80	14 49.101		
	15 38.675			15 38.685		
	−48.29			−49.55		
	−48.27			−49.53		
	+ 49.06			+ 50.31		
	− .84			− .80		
	− 1.47			− 1.45		
	+ 46.75			+ 46.06		
	37.13			37.16		

+24.98	− 16.25		+ 17.67	− 13.70		
1.39707	1.21085ₙ		1,24724	1,13672ₙ		
1.33506	1,14884ₙ		1,18523	1,07471ₙ		
0 2	0 2		0 2	0 2	0 1	0 1
3.1+09	37.3+43		9.8+24	37.0+48	39.1	4.9
3.1+30	35.9+22		8.1+34	35.2+24	38.6	5.2
8.3+04	42.2+45		13.4+21	39.9+36	44.3	15.1
5.9+47	38.4+42		9.2+50	36.1+44	44.9	13.6
5.0 90	62 39.75		11.60 87	72 38.45		
2 5.10	2 38.45		2 10.12	2 37.05		
21.63	− 14.09		15.32	− 11.88		
2 26.73	2 24.36		2 26.44	2 25.17		
20 21.62	20 23.99		20 22.91	20 23.18		
3 14	2 41		3 9	2 42		
0.8528	0.8523		0.8528	0.8523		
+427	+427		+ 345	+ 345		
0.8955	0.8950		0.8873	0.8868		
+ 7.86	+ 7.85		+ 7.71	+ 7.71		
− .17	− .07		− .10	− .05		
− ~~.23~~	− ~~.24~~	− 0.56	− ~~.25~~	− ~~.15~~	− 0.47	
− .22	− .16	− 0.44	− .22	− .18	− 0.41	
+ 7.~~2430~~	+ 7.~~3341~~		+ 7.~~1524~~	+ 7.~~1430~~		
28.92	31.40		30.15	30.48		
30.16			30.32			
50.8	+5 20.60		50.8	+5 22.21		
	+ .16	+5 20.76		+ .16	+5 22.87	
+5 20.6	− 20.70		20.5	− 20.70		
21.4	+5 0.06		21.3	+5 1.67		
	30.2			32.0		

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1879

Jan. 25

Jan. 26

	0 ′ 1 ″	0 ′ 0 ″	0 ′	0 ′
E	15.0	9.1	28.9	13.2
F	15.1	9.3	26.8	11.7
G	25.1	20.4	32.6	18.0
H	26.2	21.0	33.6	19.0

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δ Persei.

$3^h\ 34^m\ 15^s$
$+47°\ 23'\ 44''$
$1878\ -5°\ 0'\ 56''$

α_0 $34^m\ 14^s.571$
Corr. α $+.073$ $+.083$
$\frac{d\alpha}{dt}$ $+4^s.242$
δ_0 $23'\ 43''.54$
Corr. δ $+.64$
$\frac{d\delta}{dt}$ $+11''.85$

log sin δ 9.86691
n cos δ 9.83055
n 1500 sin 1' 9.95533 thro' Feb. 6 1878
9.93340 after Feb. 6
9.93605 "
9.93662 " for Dec. 1878 Jan. 1879
tan δ +1.09
sin tan δ −.09

log R_1 1.52550
log R_2 1.22483
R_1 33.54
R_2 16.78
I 3.04

	Jan. 24		Jan. 30		Feb. 2		Feb. 11			
h	m s	m s								
3	32 57.4	32 8.38	32 45.1	33 1.15	32 32.4	32 56.70	34 36.0	–	–	
	0.4	11.46	48.7	4.05	35.0	0.12	39.4	–	–	
	3.1	14.56	50.7	7.00	37.8	3.00	42.8	–	–	
		20.56		13.10		9.80	45.7	–	–	
		23.47		16.42		12.20	48.3	–	–	
		26.55		19.65		15.18				
	33 44.0	29.56	33 23.2	22.50	33 57.8	18.42	35 0.9	34 41.40	–	
	46.5	32.78	26.0	25.50	59.7	21.42	3.3	44.40	–	
	48.8	38.98	29.4	31.95	29	27.38	6.5	47.50	–	
		42.00		34.68		30.40	8.0	50.48	–	
		45.00		37.68		33.40	10.0	53.72	–	
		29332		21868		22722		—	34 24.70	
	33 0.30		32 48.17		32 35.07	16722	34 42.44	—	2768	
	33 46.43	33 26.668	33 26.20	33 19.425	34 0.13	33 15.202	35 5.54	—	30.80	
		34 16.204		34 16.084		34 16.078		13.97 30.750	33.78	
		−49.54		−56.66		−60.82		13.96 47.587	36.79	
		−49.61		−56.73		−60.89				
		−49.62		−56.74		−60.90				
									34 13.965	
									34 15.820	
									−1.86	
									−1.93	
									−1.94	
		+ 50.31		+ 57.64		+ 61.67			+ 2.70	
		− .74		− .84		− .84			− .84	
		− 1.63		− 1.51		− 1.45			− 1.25	
		+ 47.94		+ 55.29		+ 59.38			+ 0.61	
		m s								
		34 14.60		14.71		14.58			14.57	
		s	s							
		+ 26.86	− 19.77	+ 30.25	− 6.78	+ 40.13	− 44.93	− 28.48	− 51.58	
		1.42095	1.29601 n	1.48073	0.83123 n	1.60347	1.65254 n	1.45484 n	1.71248 n	
		1.37628	1.25134 n	1.43606	0.78656 n	1.55880	1.60787 n	1.38794	1.64853	
								9059	853	
		0' 3'	0' 4'	0 3	0 4	0 3	0 4	0 2	0 2	
6		44.8+34	26.3+54	41.1+42	15.6+43	31.8+57	48.7+13	26.0+54	6.6+16	
F		44.9+32	25.6+06	40.4+22	15.0+17	31.9+15	47.8+20	27.9+23	7.7+34	
q		50.6−45	30.0+02	47.4−50	20.7−26	38.2−25	54.9−34	36.6−20	17.1−29	
H		45.9+16	28.3+22	43.8+18	18.3+21	35.1+31	51.1+03	31.9+47	13.0+49	
		1.47770	1.25134	1.44232	0.78656	1.55878	1.60787	1.38730	1.64770	
		184	28.15	32	55 18.15		02 57.80	104	70 11.85	
	3 46.55	4 27.55	3 43.18	4 17.40	3 34.25	4 50.62	2 30.60	2 11.10		
	23.78	−17.84	27.29	− 6.12	36.21	− 40.54	24.58	44.52		
	4 10.33	4 9.71	4 1047	4 11.28	4 1046	4 10.08	2 55.97	2 55.85		
							18	.62		
+47°	18 38.02	18 38.64	18 37.88	18 37.07	18 37.89	18 38.27	19 53.32	19 57.50		
							17	52.73		
−5°	1 32	0 51	1 36	1 2	1 45	0 28	1 38	1 58		
	0.7046	0.7035	0.7046	0.7038	0.7048	0.7030	0.7046	0.7052		
	+344	+344	+418	+418	+879	+879	+265	+265		
	0.7389	0.7379	0.7464	0.7456	0.7427	0.7409	0.7311	0.7317		
	+ 5.48	+ 5.47	+ 5.58	+ 5.57	+ 5.53	+ 5.51	+ 5.38	+ 5.39		
	−.19	−.11	−.25	−.02	−.44	−.55	−.22	−.32		
	−.36	−.48 −0.54	−.39	−.47 −0.63	−.29	−.38 −0.93	−.35	−.37 −0.83		
	−.09	−.21 −0.63	−.08	−.14 −0.50	−.20	−.00 −0.94	−.26	−.18 −1.21		
	+4.78	+4.67	+4.84	+4.77	+4.46	+4.38	+4.42	+4.07		
	18 42.96	43.48	42.83	42.14	42.49	42.84	19 57.72	56.91		
	18 43.22		42.48		42.66		19 57.32			
	24 3.3	+5 22.21	3.5	+5 22.56	3.5	+5 21.71	3.5	+4 7.37		
	' "	+ .12 +522.33		+ .11 +522.67		+ .11 +521.82		+ .10 +4 7.47		
	+5 2.01	− 19.80	21.0	− 20.00	20.8	− 20.00	4 6.2	− 20.00		
	20.7	+5 2.53	21.6	+5 2.67	21.4	+5 1.82	6.8	+3 47.47		
		23' 45.8		45.2		44.5		44.8		

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α

Jan. 20	34	m 16.28	
25		16.19	9
30		16.09	10
Oct. 4		15.98	11
9		15.87	11
14		.76	11
19		.64	12
24		.52	12
Mar. 1		15.40	12
Feb. 14			

δ

	23	′ ″ 63.1	
		63.3	2
		63.5	2
		63.5	0
		63.5	0
		63.4	1
		63.2	2
		62.9	3
		62.5	4
Dec. 31			

1879

α

Jan. 0	34	m 21.22	
5		21.17	5
10		21.11	6
15		21.04	7
20		20.96	8

δ

	23	′ 72.4	
		72.9	5
		73.4	5
		73.8	4
		74.1	3

1878

Dec 26	34	21.25	0
	23	71.8	7

1879

Jan. 5 — Jan. 20

	33	27.5	33	34.80		52.00	39	28.7			39	11.15	38	48.0	
		30.2		38.12		53.00		22.9				14.15		49.2	
		33.4		41.38		58.25		25.9				17.20		52.1	
		37.4		44.50		1.22		29.3	39	3.50		20.30		52.7	
				47.43		4.12		31.5	0.46	6.50		23.20		55.8	
									.42						
	34	57.0		42.30		9.00				1.42		28.81		14.70	
		59.0		45.52		12.00				4.50		30.90		47.85	
		1.5		48.52		15.00				7.50		34.00		50.90	
		5.2		51.52		18.00				10.54		37.07		53.97	
		6.7		54.60		21.20				13.52		40.07		56.96	
				41.246		25.70			0.44			14.50		59.24	
	33	32.12		58.118		28.60			17.20			47.65		15.95	
	35	1.88		15.040		81.73			33.98			50.70		32.823	
				31.766		34.80			50.69			53.72		49.5049	
				48.492		38.00			7.50			56.90		6.24	
				19.4662		7.466	39	25.92	16.981				38	50.16	16.375

					34	14.932				39	33.962			39	32.750
					34	15.754				34	21.822			34	21.17
					−	0.82				+5	12.14			+5	11.58
					−	0.59				+5	12.63			+5	11.80
						−0.90					.66				
					+	1.72				−5	11.73			−5	10.60
					−	.95				−	.97			−	.93
					−	1.18				−	6.65			−	6.60
					−	0.41				−5	19.35			−5	18.13
						14.52					14.61				14.62

	+42.81		−46.95			+8.04				+42.57					
	1.63155		1.67164 m			0.90526				1.62731					
	1.56495m		1.60224			0.84288m				1.56593m					
	760		769			1									
	0 3		0 2			0 2				0 3				0 3	0 1
	26.4+61		9.8+24			53.7 +16				21.9 +58				22.9	59.4
	28.1+16		11.2+34			53.3 +38				21.2 +23				22.3	58.7
	37.0−18		21.2+29			0.3 +07				27.3 .00				28.1	3.9
	34.1+32		16.2+47			69.2 +22				28.2 +34				28.4	5.9
	31.70 91		76	15.00		57.00 +83				24.60+115				25.50	1.65
	3 31.40		2 14.35			2 56.62				3 24.65					
	− 36.88		40.35			− 6.96				− 36.81					
	2 54.65		2 54.63			2 49.66				2 47.84					
	45		87			7									
	19 53.87		19 53.72			19 5868				20 051					
	76		48												
	0 38		1 55			1 20									
	0.7032		0.7051			0.70420									
	+249		+249			4 3207				+2469					
	0.7281		0.7300			0.73627				0.72889					
	+5.35		+5.37			+5.45				+5.36					
	− .49		− .47 60			− .02				− .49					
3	− .78		− 3.8			− .44		−0.67		− .54		−1.32			
1	− .23		− .19	−1.28		− .21				− .29					
	+ 3.707		+ 4.23	−1.14		+ 4.78				+ 4.04					
	51.47		51.71			20 3.46				4.55					
	51.84					3.46				4.55					
	3.4	+4	7.75			23 72.4	+4	10.26		72.9	+4	10.13			
		+	.10	+4 7.85			+	.13	+4 10.39		+	.13	+4 10.26		
	+4 5.6	−	19.90			8.9	−	28.90		8.5	−	29.40			
	6.2	+3	47.95			9.5	+3	41.49		8.9	+3	40.86			
			45.8					45.0				45.4			

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1879

Jan. 23

	0′ 3′	0′ 2′
E	15.1	1.3
F	15.9	1.7
G	25.9	10.9
H	27.5	10.5

Jan. 25

	0 2	0 1
E	53.3	55.8
F	54.5	57.6
G	5.4	7.4
H	4.9	7.7

Jan. 26

	0 3	0 2
E	28.1	0.2
F	27.4	58.7
G	34.1	4.4
H	33.1	4.1

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ε Persei

$3^h\ 49^m\ 40^s$

$+39°\ 39'\ 19''$

$+2°\ 43'\ 29''$

1878

α_0 40.056 — log cos δ 9.80494 — log R_c 1.46961, $R_{\frac{1}{2}c}$ 1.16894

corr. α +.166 — " cos δ 9.88644

$\frac{d\alpha}{dt}$ — " .15 cos δ sin α 9.99251n — N_c 29.49, $N_{\frac{1}{2}c}$ 14.75

δ_0 19".38 — tan δ +83

corr. δ +.51 — sin π_0 +.05

$\frac{d\delta}{dt}$ — 1879

Dec. 23 — Dec. 31 — Jan. 5 — Jan. 20

	Dec. 23			Dec. 31			Jan. 5			Jan. 20		
4	m s 11.3	m s	m s									
3	54 13.1	54 25.00	54.50	54 11.40	54 24.10	38.90	55 9.9	—	—	54 37.68		
	15.4	27.70	57.00	13.6	26.75	41.48	12.2	—	—	40.47		
	? 16.8	A+2 30.53	A 59.73	16.3	29.53	44.10	14.9	—	—	43.18		
	18.7	32.95	2.52	18.3	32.20	46.86	16.9	—	—	45.75		
	[20.6]	35.65	5.40	20.7	34.80	49.58	19.3	—	—	48.44		
	55 43.2	54 39.75	9.30		23.10	52.72		21.90		52.30		
	46.0	42.52	11.80		25.77	56.20		24.60		55.10		
	? 48.0	A+1 45.10	A-1 14.52		28.35	59.00		24.35		57.80		
	50.0	47.65	17.20		31.15	1.70		30.20		0.52		
	52.0	50.20	19.93		33.90	4.30		32.62		3.30		
	Corr. sum	30.37	24.10		29.48	8.40				7.30		
	weighted	59.83	A-2 26.72		44.18	11.00		43.10	57.85	7.87		
		14.55	29.33		58.98	13.80		57.80	.80	12.60		
		29.34	31.90		13.74	16.46		12.63	.88	15.38		
		45.04	34.66		28.45	19.10		27.29	.85	18.20		
	15.06											
	54 ~~16.02~~	29913		54 16.06	29483		55 14.69					
	55 47.44									54 57.85 32		
			54 59.826			54 58.966				49 46.34		
			49 46.38			46.39				+5 11.58 49		
			+5 13.45			+5 12.58				+5 11.33 32		
			+5 13.28			+5 12.41						
			−5 12.46			−5 11.73				−5 10.60		
			− .85			− .74				− .71		
			− 6.32			− 6.33				− 6.28		
			−5 19.63			−5 18.80				−5 17.59		
			49 40.20			40.17				40.24		
		48.01										
+44.77	~~+.4291~~	− 4761		+4291			−1688					
1.65099	1.63256	~~+1.67770~~ n 1.68133		1.63256			1.22557 n					
1.64350 m	1.62507 n	1.67021	1.67384	1.62507 n			1.21752					
							808					
	45 2	45 1		45 2			45 1			45 2	45 1	
	"	"										
ε	52.5 +.18	20.0 +.49		47.4 +.25			50.2 +.14			40.1	25.8	
G	52.7 +.40	23.1 +.21		48.9 +.43			50.7 +.43			41.1	27.2	
q	59.5 +.04	28.9 −.05		56.3 −.14			57.7 +.01			47.8	32.9	
H	57.9 +.21	28.2 +.65		56.1 +.22			58.7 +.30			47.6	34.2	
	56.00 +.83	+ 13.0	24.45	57.85 +.76			53.95 +.88			4.395		2935
56.65	47 55.65	46 25.05		47 52.18			46 54.32					
44.02	− 42.18	46.80		42.18			16.52					
11.63	47 13.47	47 ~~1.85~~		47 10.00			47 10.84					
	' 36.72	12.24										
+39°	35 34.88	36.11		35 38.35			35 37.51					
	"											
+2°	43' 3"											
	0 43660											
	+ 2920			+3230			+2496					
	0.46580			0.46890			0.46156					
	−2.72	"		−2.94			−2.89					
	− .50	− .62		− .50			− .08					
	− .38	− .18	−1.09	− .44	−1.13		− .30	−0.60				
	− .21	− .32	−1.12	− .19			− .22					
	−4.01	−4.04		−4.07			−3.49					
	35 ~~38.87~~ 32.71	32.07		34.28			34.02					
	35 ~~37.47~~ 32.39			34.28			34.02					
	39 44.1	+4 10.61		44.9	+4 10.26		45.3	+4 10.13				
	"	− .07	+4 10.54	− .07	+4 10.19		− .07	+4 10.06				
	+4 ~~+.26~~ 11.7	− 24.70		10.6	− 28.50		11.3	− 25.90				
	~~13.1~~ 12.2	+3 45.84		11.1	+3 44.69		11.8	+3 44.16				
		39' 18".2			19.0			18.2				

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1879	α h m		δ ° ′ ″		1878	α m s		δ ′ ″	
Jan 0	49 46.37		39 44.9		Dec 6	49 46.34		39 42.2	
5	46.34	3	45.3	4	11	46.36	2	42.8	6
10	46.30	4	45.7	4	16	46.37	1	43.4	6
15	46.25	5	46.0	3	21	46.38	1	43.9	5
20	46.19	6	46.2	2	26	46.39	1	44.4	5

Jan. 23

Jan. 25

Jan. 26

45 2	45 1	45 2	45 1	45 2	45 1
40.2	8.6	48.0	21.4	40.7	23.3
42.5	11.1	50.4	25.2	41.1	24.2
52.6	21.1	1.8	35.9	49.2	30.5
51.8	20.5	1.4	36.6	45.9	30.7

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Groom. 750.

$3^h\ 58^m\ 49^s$

$+85°\ 13'\ 51''$

$-42°\ 51'\ 3''$

1879

Jan. 20

α_0	$48^s.717$	
corr. α	$+.218$	
$\frac{d\alpha}{dt}$	$+.277.347$	
δ_0	$50''.92$	
corr. δ	$-.40$	
$\frac{d\delta}{dt}$		

Jan. 25

log cos δ	9.99850	
" cos δ	8.91982	
" 15 cos δ tan	9.02589 n	
tan δ		

Jan. 26

	$10'\ 3'$	$10'\ 3'$	$10\ 3$	$10\ 2$	$10\ 3$	$10\ 3$
E	8.9	4.1	25.2	56.5	52.2	21.2
F	7.1	1.7	26.7	67.2	49.1	17.5
G	10.3	2.7	33.9	4.5	53.2	20.7
H	12.1	6.9	36.2	7.3	53.7	23.1

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δ Tauri
1878 ar. p. 97

	h	m	s	h	m	s	h	m	s	h	m	s
				Dec 6	15	59.45				15	1	35.2
				11		59.48	3					35.1 1
				16		59.52	4					35.0 1
				21		59.54	2					34.9 1
				26		59.56	2					34.8 1

Dec. 23 — Dec. 26

1/4	20	33.7	20	44.37		56.00	20	39.4	20	45.00		58.95		
		35.9		46.40		58.32		41.4		47.00		59.60		
		38.0		48.52		0.43		43.5		49.30		1.27		
		40.0		50.82		2.58		45.2		51.50		3.38		
		42.0		52.92		4.80		46.6		53.80		5.60		
	21	46.6		31.75		8.00	21	46.4		32.50		8.72		
		48.2		34.00		10.38		48.5		34.65		10.93		
		50.0		36.00		12.43		50.6		36.85		12.98		
		51.9		38.38		14.75		52.0		39.00		15.22		
		53.5		40.30		16.62		53.8		41.27		17.49		
				48.61		19.97				49.36		20.68		
				0.43		21.12				1.24		22.72		
				12.44		24.27				13.06		25.00		
				24.04		26.33				24.95		27.10		
				36.13		28.50				36.85		29.26		
	20	34.92		6.65			20	48.22		6536		84		
		58.04			21	12.30	21	50.26			21	13.02		
					15	59.53						59.56		
					+5	12.80					+5	13.52		
					+5	12.76					+5	13.48		
					−5	12.49					−5	13.24		
					−	.32					−	.27		
					−	5.54					−	5.56		
					−5	18.35					−5	19.07		
					15	53.98						54.01		
		+ 34.41		− 37.71				+ 29.85		− 37.19				
		1.53668		1.57646				1.47444		1.57081				
		1.62275		1.66253				1.56101		1.65650				
		1 1		1 1				16		38				
		10 1		10 0				10 1		10 0				
6		30.3 +50		2.2 +01				24.9 +52		2.3 +01				
7		36.3 +20		6.9 +08				30.1 +17		6.9 +07				
9		44.8 −54		16.1 −.40				37.9 −.30		15.2 −.38				
11		38.8 +65		11.2 +31				32.9 +62		11.1 +31				
		37.85 +79		100	9.15			31.40 +101		+.01	8.75			
		11 37.55		10 9.10				11 31.45		10 8.88				
		− 41.95		45.98				− 36.37		45.32				
		10 55.60		10 55.08				10 55.085		10 54.22				
17°		11 52.75		53.27				11 53.30		54.14				
+25		6 46												
		1.43110												
		+294						+2679						
		1.46074						1.45784						
		−28.84		"				−28.70						
		− .18		− .22				− .14		− .21				
		− .21		− .03		−0.57		− .21		− .01		−0.60		
		− .18		− .00		−0.25		− .25		− .00		−0.23		
		−29.46		−29.14				−29.30		−28.92				
		11 23.29		24.13				24.00		25.22				
		11 23.71		' "				24.61						
		15 34.9	+4	10.61				34.8	+4	9.80				
		' "	−	.65	+4	9.96			−	.66	+4	9.14		
	+4	11.2	−	17.90				10.2	−	17.80				
		11 7	+3	52.06				10 2	+3	51.34				
			15	16.8						16.0				

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	α		δ	
	h m		° ′	
Dec 6	49 9.17		58 30.0	
11	9.23	6	30.4	4
16	9.28	5	30.7	3
21	9.32	4	31.1	4
26	9.36	4	31.4	3

ι Aurigæ
v. p. 106

1878 Dec. 23

53	37.0	53	50.48	4.00	53 42.6	53 51.40	4.83
	39.4		53.00	6.40	44.8	53.82	7.20
	41.5		55.20	9.00	46.8	56.22	9.58
	43.3		57.75	11.62	49.3	58.80	12.17
	45.6		0.88	14.17	52.0	1.10	14.58
55	0.4		4.53	17.60	54 54.1	4.83	18.30
	2.6		6.98	19.93	56.9	7.85	20.70
	4.9		9.33	22.48	59.2	10.30	23.20
	7.3		12.10	25.12	1.0	13.83	25.65
	9.4		14.40	27.60	2.9	15.15	28.10
		55	5.36	31.18		56.29	31.87
			9.04	33.70		9.67	34.37
			22.55	35.94		23.19	36.70
			36.07	38.43		36.78	39.10
			49.43	41.10		50.29	41.85
53	41.36		11.245		53 47.10	11.620	
55	4.92			54 22.498	54 58.96		54 23.240
				49 9.34			9.36
				+5 13.516			+5 13.88
				+5 13.412			+5 13.84
				−5 12.53			−5 13.26
				− .66			− .57
				− 6.35			− 6.37
				−5 19.54			−5 20.20
				49 2.96			3.04

+411	−424				+361	−357			
1.61476	1.62764 n				1.55799	1.55291 n			
1.64347 n	1.65748				1.58780 n	1.58272			
25 3	25 2				25 3	25 2		25 2	25 2
56.8 +20	26.8 +54				50.9 +24	33.6 +49		31.3	11.2
68.1 +21	28.3 +23				52.1 +31	34.9 +21		33.9	13.1
6.1 +14	36.2 −17				0.1 +16	42.8 −47		46.6	23.8
2.9 +13	34.4 +46				57.8 +02	41.2 +37		41.8	21.7
1.45 +.68	+10.6	31.50			0.50 +73	+.60	38.20	38.45	17.50
29 0.98	27 31.42				28 55.22	27 38.12			
− 44.05	45.44				− 38.71	38.26			
28 16.93	28 16.86				28 16.51	28 16.38			
+32 54 31.43	31.50				54 31.84	31.97			

+9 24 7									
0.97930									
+3017					+2740				
1.00947					1.00670				
−10.22					−10.16				
− .42	− .45				− .32	− .32			
− .82	− .82	−1.11			− .55	− .37	−1.05		
− .17	− .26	−1.03			− .18	− .15	−0.84		
−11.63	−11.25				−11.21	−11.00			
54 20.10	20.25				2063	20.97			
20.18					2080				
58 31.2 +4	10.61				31.4 +4	9.80			
−	.24	+4 10.37			−	.24	+4 9.56		
+4 11.0 −	15.80				10.6 −	16.00			
11.0 +3	5457				10.6 +3	5315			
	58 14.8					14.4			

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δ Tauri.

$4^h\ 15^m\ 54^s$
$+17°\ 15'\ 17''$
$+25°\ 7'\ 31''$
1878

α_0 $15^m\ 54^s.004$
Corr. α $+.041$ $+.035$
$\frac{d\alpha}{dt}$ $+3^s.461$
δ_0 $15'\ 16''.98$
Corr. δ $+.03$
$\frac{d\delta}{dt}$ $+8''.77$

$\log a \sin \delta$ 9.47220
" $\cos \delta$ 9.98000
" $15 \cos \delta \tan i$ 0.10478 thro' Feb. 6, 1878.
0.08 ~~285~~ 550 n after Feb. 6
0.08 607 n for Dec 1878/Jan. 1879
$\tan \delta$ + 0.31
$\sin z$ +.47

$\log R_1$ 1.37605
" R_2 1.07538

R_1 $23^s.77$
R_2 11.90
I 2.17

Jan. 5

h	m	s	m	s
4	15	(2) 30.2		—
		32.6		—
		(3) 34.8		—
		36.5		—
				—
			15	26.98
			26.98	
			26.79	25.95
			26.99	31.30
			27.07	35.70
			26.97	37.95
			26.86	39.80
	15	34.67		
			15	26.943
			15	55.79
				−28.85
				−28.89
				−2889
				+ 29.16
				− .21
				− 1.79
				+ 27.16
			m	s
			15	54.10

Jan. 14

14	47.7	15	2.58
	49.3		4.80
	51.4		7.00
			11.22
			13.40
			15.48
15	34.2		17.72
	36.3		20.00
	38.4		24.22
			26.40
			28.56
			17138
14	49.47		
15	36.30	15	15.580
		15	55.745
			−40.16
			−40.20
			+ 40.33
			− .17
			− 1.74
			+ 38.42
			54.00

Jan. 16

14	44.1	15	1.30
	46.8		3.42
	48.8		5.62
			9.90
			12.00
			14.00
15	36.1		16.30
	38.2		18.70
	40.4		23.00
			25.10
			27.15
			15649
14	46.57		
15	38.23	15	14.226
		15	55.734
			−41.51
			−41.55
			+ 41.68
			− .19
			− 1.73
			+ 39.76
			53.99

Jan. 23

14	41.0	14	57.00
	43.9		56.10
	46.0		58.35
			2.62
			4.90
			7.00
15	26.5		9.20
	28.3		11.40
	30.4		15.68
			17.76
			19.95
			25696
			7696
14	43.63		
15	28.40	15	6.996
		15	55.678
			−48.68
			−48.72
			+ 49.04
			− .22
			− 1.67
			+ 47.15
			54.15

	− 7.69		+ 26.11	− 20.72	+ 27.66	− 24.00	+ 23.37	− 21.40
	0.88543 n		1.41681	1.31639 n	1.44185	1.38021 n	1.36866	1.33041 n
	0.99071 n		1.52159	1.42117 n	1.54663	1.48499 n	1.47844	1.43519 n
	10' 2'		10 1	10 2	10 1	10 2	10 1	10 2
ε	15.3+38		29.1+52	29.3+53	30.6+51	35.8+44	37.6+38	35.7+45
ζ	29.3+23		45.4+40	45.5+42	44.4+39	49.1+43	40.7+27	37.7+24
η	16.4−26		36.9−24	35.7−14	29.1−05	34.2−07	48.6−56	44.9−53
Ψ	17.2+47		49.0+39	49.4+28	38.7+55	49.5+28	38.9+55	38.8+41
	15.85 1.82		33.00 107	109 32.50	29.85 140	108 35.00	43.10 64	57 40.30
	12' 19.55		11 40.10	12 39.98	11 36.70	12 42.15	11 41.30	12 39.28
	− 9.79		33.23	− 26.87	35.21	− 30.55	29.75	− 27.24
	12 9.76		12 13.33	12 13.61	12 10.91	12 11.60	12 11.05	12 12.04
+17°	1' 10'' 38.59		10 35.02	10 34.74	10 37.44	10 36.75	10 37.30	10 36.31
+25°	7' 1''		6 21	7 21	6 17	7 23	6 22	7 20
	1.43120		1.43100	1.43130	1.43099	1.43132	1.43101	1.43130
	+3450		+ 946	+ 946	+ 4226	+ 4226	+ 4400	+ 4400
	1.46570		1.44046	1.44076	1.47325	1.47358	1.47501	1.47530
	−29.22		−27.57	−27.59	−29.73	−29.76	−29.85	−29.87
	− .01		− .10	− .06	− .12	− .09	− .08	− .07
	− ~~.32~~ .23	− 0.44	− ~~.17~~ .23	− ~~.38~~ .34	− ~~.24~~ .25	− ~~.24~~ .25	− ~~.14~~ .20	− ~~.31~~ .36 − 0.38
	− .20		− .27	− .27 − 0.54	− .35	− .27 − 0.61	− .16	− .14 − 0.42
	−29.75 66		−28.17 11	−28.34 19	−30.44 34	−30.47 36	−30.28 23	−30.38 29
	10 8.93		6.91	6.55	7.10	6.39	7.07	6.02
	10 8.93		6.73		6.74		6.54	
	15 2.70	+5 1' 18.09	26.8	+5 19.66	26.8	+5 20.93	26.6	+5 20.60
	1' 11''	− .66 + 517.43		− .64 + 5 19.02		− .64 + 5 20.29		− .62 + 5 19.98
	+ 5 18.1	− 10.00	20.1	− 9.80	20.1	− 9.80	20.1	− 9.60
	18.1	+5 7.43	20.1	+5 9.22	20.1	+5 10.49	20.1	+5 10.38
		1' 15 16.4		16.8		17.2		16.9

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	α		δ					
Jan. 0	15m 55.80	1	15° 27.1	1				
5	.79	2	27.0	1				
10	.77	3	26.9	1				
15	.74	3	26.8	1				
20	56.71	5	26.7	1				
25	.66	5	26.6	1				
30	.61	6	26.5	1				
Feb. 4	.55	4	26.4	2				
9	55.48		26.2					
Jan. 29			**Jan. 30**		**Feb. 2**		**Feb. 3**	
14 36.0	14 46.72		14 38.2	14 45.34	14 20.8	14 41.30	14 26.6	14 39.80
38.1	49.00		40.1	47.47	22.6	43.40	28.2	41.80
39.9	51.00		42.7	49.52	24.0	45.34	30.0	44.00
	55.40			54.00		49.90		48.35
	57.47			56.05		52.80		50.70
	59.64			58.28		54.00		52.80
15 16.7	1.80		15 18.6	0.62	15 22.6	56.38	15 25.0	54.73
19.0	4.00		20.2	2.60	24.7	58.45	27.0	57.00
21.0	8.30		22.8	6.90	27.2	2.70	29.0	1.40
	10.27			9.10		5.00		3.65
	12.72			11.20		7.20		5.87
	35632			34188		41567		40010
14 38.00	65.682		14 40.33	64108	14 22.47	59567	14 28.27	58010
15 18.90	14 59.665		15 20.53	14 58.280	15 24.83	14 54.152	15 27.00	14 52.736
	15 55.618			15 55.607		15 55.518		15 55.559
	− 55.95			− 57.33		− 61.42		− 62.82
	−55.99			−57.37		−61.46		−62.86
	+ 56.21			+ 57.64		+ 61.68		+ 63.10
	− .23			− .24		− .24		− .20
	− 1.61			− 1.60		− 1.57		− 1.56
	+ 54.37			+ 55.80		+ 59.87		+ 61.34
	54.03			54.08		54.02		54.08
	+21.66	−19.24	+17.95	−22.25	+31.68	−30.68	+ 24.47	−34.26
	1.33566	1.28421 m	1.25406	1.34733 m	1.50079	1.48686 m	1.38863	1.53479 m
	1.44044	1.38899 m	1.35884	1.45211 m	1.60557	1.59164 m	1.49341	1.63957 m
	10 1	10 2	10 1	10 2	10 1	10 2	10 1	10 2
	40.8+31	33.6+49	46.8+20	37.3+42	28.1+53	47.1+26	37.8+37	51.9+18
	45.1+40	37.6+24	49.8+43	40.2+29	32.5+18	50.6+41	40.2+28	55.9+34
	53.1-47	[45.3]35.3-54	58.0+03	47.4+57	40.8+42	58.6+01	50.5-52	4.8+08
	45.4+45	38.67.42	57.1+36	43.3+35	33.7+61	52.2+25	43.4+48	58.0+21
	4695 69	61	52.40102	49 42.35	34.65 90	93 52.85	46.15 61	81 58.35
	11 46.10	12 ~~36.25~~	11 51.42	12 42.05	11 33.78	12 52.12	11 42.98	12 57.65
	27.57	− 24.49	22.85	− 28.32	40.32	− 39.05	31.15	− 43.61
	12 13.67	12 11.76	12 14.27	12 13.73	12 14.10	12 13.07	12 14.13	12 14.04
		14.26						
	10 34.68	10 34.09	10 34.08	10 34.62	10 34.25	10 35.28	10 34.22	10 34.31
	6 27	7 20	6 32	7 23	6 15	7 33	6 24	7 39
	1.43104	1.43130	1.43105	1.43132	1.43098	1.43186	1.43102	1.43140
	+3497	+3497	+4245	+4245	+3900	+3900	+2975	+2975
	1.46601	1.46627	1.47350	1.47377	1.46998	1.47036	1.46077	1.46115
	−29.24	−29.26	−29.75	−29.77	−29.51	−29.54	−28.69	−28.92
	−.07	−.05	−.05	−.07	−.15	−.14	−.09	−.18
	−~~.20~~.14	−.21 −0.38	−~~.20~~.15	−~~.22~~.17 −0.46	−~~.17~~.13	−~~.33~~.27 −0.49	−~~.27~~.15	−~~.36~~.30 −0.39
	−.17	−.15 −0.41	−.26	−.12 −0.41	−.22	−.23 −0.60	−.15	−.20 −0.65
	−29.6~~52~~	−29.~~75~~67	−30.2~~61~~	−30.2~~61~~18	−30.0~~70~~	−30.2~~61~~14	−29.~~33~~28	−29.~~66~~57
	5.06	4.42	3~~8~~7	4.44	4.25	5.14	4.94	4.74
	4.74		~~3.96~~4.16		4.70		4.84	
	26.5	+5 22.05	26.5	+5 22.56	26.4	+5 21.71	26.4	+5 21.71
		− .60 +5 22.45		− .60 +5 21.96		− .89 +5 21.12		− .58 +5 21.13
	+5 21.8	− 9.50	22.3	− 9.50	21.7	− 9.40	21.6	− 9.40
	21.8	+5 11.95	22.3	+5 12.46	21.7	+5 11.72	21.6	+5 11.73
		16.7		16.6		16.4		16.6

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1878

	Feb. 4		Feb. 5		Feb. 6		Feb. 7		
L	m s	m s							
4	14 19.8	14 38.57	14 23.8 24.9 26.1 27.1 28.8	14 37.60 39.65 41.78 44.05	15 30.4 32.0 34.5	15 37.42 39.52 41.68 45.98	15 17.2 19.0 20.7 22.8	— — — —	15 34.32 36.47 38.60 40.70
	20.9	40.73							
	22.5	42.95							
		47.10							
		49.40		46.35		48.05	24.6	—	42.92
		51.58		50.50		50.26			
	15 20.8	53.62	15 21.5	52.52	16 18.0	52.50	16 22.0	16 9.92	46.15
	22.5	55.70	23.3	54.80	20.5	54.77	23.7	12.00	48.20
	24.4	0.20	25.2	57.90	22.3	58.95	25.9	14.22	50.50
		2.20		1.22		1.00	27.6	16.40	52.57
		4.38		3.35		3.32	29.4	18.58	54.76
								—	58.00
								38.602	50.50 0.32
								50.436	50.44 2.25
								2.374	52.47 4.52
								14.214	50.44 6.78
		38643		43472		43345			
	14 21.07	56643	14 25.97	55472	15 32.30	55345	15 20.86		
	15 22.57	14 57.494	15 23.33	14 50.429	16 20.27	15 50.314	16 25.72		15 50.462
		15 55.546		15 55.532		15 55.518			15 55.504
		− 64.05		− 65.10		− 5.20			− 5.04
		−64.09		−65.14		− 5.24			− 5.08
		+ 64.32		+ 65.35		+ 5.44			+ 5.24
		− .23		− .22		− .21			− .21
		− 1.54		− 1.53		− 1.51			− 1.50
		+ 62.55		+ 63.60		+ 3.72			+ 3.53
		15m 54.04		54.03		54.03			53.99
	s +30.42	s − 31.08	+ 24.46	− 32.90	+ 18.01	− 29.96	+ 29.60	− 35.26	
	1.48316	1.49248m	1.38846	1.51720 m	1.25551	1.47654m	1.47129	1.54728 m	
	1.58794	1.59726m	1.49324	1.62198m	1.36029	1.58132m	1.55479m 679	1.63078 m 278	
	10′ 1″	10′ 2″	10 1	10 2	10 1	10 2	10 1	10 0	
6	29.1+.65	46.7+.32	35.2+.60	48.9+.28	41.9+.49	42.6+.35	25.2+.66	6.8+.25	
57	34.2+.18	51.1+.41	40.3+.28	53.2+.39	47.9+.43	47.9+.43	31.6+.18	12.1+.10	
4	44.2+.52	0.9+.08	51.5+.49	4.6+.09	0.7+.12	1.4+.08	48.5+.56	28.9+.09	
4	38.2+.56	55.6+.22	46.7+.46	58.9+.22	55.0+.31	55.2+.23	41.6+.50	22.2+.34	
	36.65 87	393 53.65	43.35 82	98 56.75	51.30 135	109 51.85	36.85 78	65 17.85	
	11 36.42	12 53.50	11 43.42	12 56.40	11 51.38	12 51.70	11 36.70	10 17.50	
	38.72	− 39.56	31.13	− 41.88	22.92	− 38.13	− 36.44	42.83	
	12 15.14	12 13.94	12 14.55	12 14.52	12 14.30	12 13.57	11 0.26 66	11 0.77 0.43	
+17°	10′ 33.21	10′ 34.41	10 33.80	10 33.83	10 34.05	10 34.78	11 47.77 69	11 48.16 47.92	
+25°	6′ 17″	7′ 34″	6 24	7 37	6 32	7 33	7 28	6 8	
	1.43099	1.43137	1.43102	1.43138	1.43106	1.43136	1.43134	1.43094	
	+ 2331	+ 2331	+ 2295	+ 2295	+ 2044	+ 2044	+ 1171	+ 1171	
	1.45430	1.45468	1.45397	1.45433	1.45150	1.45180	1.44305	1.44265	
	− 28.46	− 28.49	− 28.44	− 28.47	− 28.28	− 28.30	− 27.74	− 27.71	
	− .14	− .15	− .09	− .17	− .05	− .14	− .13	− .19	
	− .14	− .35 − 0.50	− .22	− .35 − 0.46	− .26	− .23 − 0.58	− .24	− .13 − 0.51	
	− .22	− .26 − 0.67	− .20	− .24 − 0.70	− .34	− .27 − 0.70	− .20	− .16 − 0.38	
	− 29.06	− 29.25 16	− 28.905	− 29.2617	− 28.86	− 29.1400	− 28.3425	− 28.1009	
	10 4.25	5.25	4.90	4.66	5.14	5.78	11 19.44	19.83	
	10 4.75		4.78		5.48		11 19.64		
	15 26.4	+5′ 21.49	26.4	+5 21.56	26.3	+5 20.86	26.3	+4 6.64	
	− .56	+ 5 20.91	− .57	+ 5 20.99	− .56	+ 5 20.30	− .56	+ 4 6.08	
	+ 5 21.6	− 9.40	21.6	− 9.40	20.8	− 9.30	4 6.7	− 9.30	
	21.6	+ 5 11.51	21.6	+ 5 11.59	20.8	+ 5 11.07	6.7	+ 3 56.78	
		15′ 16.3		16.4		16.5		16.4	

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v. p. 92

	2		8		
Feb. 4	15m 55.55s	7	15h 26.4m	2	
9	.48	7	26.2	2	
14	.41	8	26.0	1	
19	.33	8	25.9	2	
24	.25	9	25.7	2	
Mar. 1	55.16		25.5		

Feb. 11

15	18.7	15 25.10	36.92	
	20.7	27.32	39.10	
	22.8	29.28	41.15	
	24.3	31.58	43.46	
	25.8	33.60	45.70	
16	24.1	12.60	48.68	
	26.0	14.62	51.00	
	27.6	17.00	53.00	
	29.6	19.00	55.22	
	81.9	21.30	57.53	
		29.376	0.80	
		41.266	2.90	
		53.086	5.00	
		5.072	7.18	
		16.904	9.48	
15	22.46	145.704	265.704	
16	27.84		15 53.141	
			15 55.448	
			− 2.30	
			− 2.34	
			+ 2.65	
			− .24	
			− 1.44	
			+ 0.97	
			54.11	

+30.68	−34.70			
1,48886	1,54033m			
1,57777m	1,62384			
7236	583			
10 1	10 0			
30.7+64	10.7+21			
36.2+14	16.3+09			
46.1−5	26.2=16			
39.8+53	19.3+36			
38.40 81	60	18.45		
11 38.20	10 18.12			
− 37.36	43.35			
11 .97	11 0.17			
0.84	0.37			
11 47.38	11 48.24			
51	47.98			
7 29	6 9			
1.43135	1.43095			
+ 2745	+ 2745			
1.45880	1.45840			
−28.76	−28.73			
− .14	− .19			
− .37	− .24		−0.56	
− .20	− .09.15		−0.98	
−29.47 32	−29.07 11			
18.19	18.87			
18.53				
26.1	+4 7.37			
	− .44		+4 6.83	
+4 7.6	− 9.10			
1.6	+3 57.73			
	16.3			

Feb. 14

15	15.1	15 26.00	37.80	
	17.3	28.10	40.00	
	19.6	30.38	42.15	
	21.9	32.43	44.30	
	24.2	34.60	46.60	
16	26.5	13.43	49.90	
	28.5	15.65	52.00	
	30.6	17.70	54.20	
	32.2	19.92	56.35	
	33.9	22.10	58.35	
		30.302	1.62	
		42.170	3.80	
		54.160	6.00	
		5.924	8.00	
		17.760	10.20	
15	19.62	150.316	270.316	
16	30.34		15 54.063	
			15 55.406	
			− 1.34	
			− 1.38	
			+ 1.68	
			− .27	
			− 1.40	
			+ 0.01	
			54.07	

+34.44	−36.28			
1,53706	1,55967m			
1,61447m	1,64255			
2256	517			
10 1	10 0			
34.2+61	8.2+27			
40.1+27	14.3+09			
51.2=50	24.4=24			
44.0+47	18.2+35			
42.70 85	47	16.30		
11 42.38	10 16.28			
− 41.62	44.17			
11 0.76	11 0.11			
45	45			
11 47.65	11 48.16			
90	47.40			
7 33	6 7			
1.43136	1.43093			
+ 2633	+ 2633			
1.45769	1.45726			
−28.69	−28.66			
− .18	− .20			
− .30	− .05		−0.66	
− .11 21	− .11		−0.36	
−29.33 85	−29.02 82			
18.80	18.88			
18.672				
26.0	+4 7.75			
	− .52		+4 7.23	
7.3	− 9.00			
7.3	+3 58.23			
	17.0			

Feb. 16

15	23.4	15 26.40	38.18	
	25.5	28.72	40.47	
	28.0	30.78	42.58	
	29.7	32.80	44.78	
	31.6	35.10	46.80	
16	27.5	13.96	50.10	
	29.5	16.00	52.40	
	31.0	18.46	54.48	
	33.8	20.54	56.72	
	35.6	22.63	59.00	
		30.860	2.10	
		42.562	4.20	
		54.540	6.40	
		6.400	8.60	
		18.318	10.70	
15	27.64	152.380	272.380	
16	31.48		15 54.376	
			15 55.374	
			− 0.86	
			− 0.90	
			+ 1.11	
			− .22	
			− 1.37	
			− 0.48	
			54.04	

+26.88	−36.96			
1,43083	1,56722m			
1,51225m	1,65855			
493	323			
10 1	10 0			
23.8+66	6.5+24			
30.2+17	12.2+10			
42.2+47	23.7+28			
35.6+53	18.7+36			
33.0095	42	15.10		
11 32.95	10 15.28			
− 32.73	44.90			
11 0.22	11 0.01			
	0.28			
11 47.93	11 48.34			
48.13	07			
7 24	6 6			
1.43132	1.43093			
+ 1971	+ 1971			
1.45103	1.45064			
−28.25	−28.23			
− .11	− .21			
− .52	− .06		−0.59	
− .06.24	− .47.10		−0.25	
−28.7584	−28.57 78			
19.29	19.49			
19.39				
26.0	+4 7.05			
	− .51		+4 6.54	
6.6	− 9.00			
6.6	+3 57.54			
	16.7			

Feb. 18

15	20.5	15 27.10	38.86	
	22.3	29.26	41.35	
	24.4	31.50	43.45	
	26.3	33.70	45.50	
	27.8	35.75	47.70	
16	27.0	14.72	50.90	
	28.9	16.82	53.00	
	31.0	19.00	55.20	
	33.1	21.14	57.58	
	35.1	23.30	59.60	
		31.462	2.95	
		43.372	4.90	
		55.256	7.10	
		7.166	9.38	
		18.996	11.50	
15	24.26	156.252	276.252	
16	31.02		15 55.250	
			15 55.342	
			− 0.09	
			− 0.13	
			+ 0.38	
			− .26	
			− 1.34	
			− 1.22	
			54.03	

+30.99	−35.77			
1.49122	1.55352m			
1.57407m	1.63674			
672	902			
10 1	10 0			
30.1+65	9.3+25			
36.6+24	14.8+09			
46.9=56	24.9=22			
40.2+58	19.8+37			
38.50 82	58	17.10		
11 38.45	10 17.20			
− 37.73	43.37			
11 0.95	11 0.19			
0.72	0.78			
11 47.40	11 47.86			
63	60			
7 29	6 8			
1.43135	1.43094			
+ 3125	+ 3125			
1.46260	1.46219			
−29.01	−28.99			
− .15	− .20			
− .36	− .07		−0.62	
− .18.20	− .12.13		−0.38	
− 29.73 03	− 29.45 37			
18.50	18.23			
18.12				
25.7	+4 7.44			
	− .49		+4 6.95	
7.8	− 8.90			
7.8	+3 58.05			
	16.2			

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98

α Tauri

$4^h\ 28^m\ 55^s$

$+16°\ 15'\ 45''$

$+26°\ 1'\ 3''$

1878

α_0 $28^m\ 55^s.263$

Corr. α $+.001$ $-.010$

$\frac{d\alpha}{dt}$ $+3^s.437$

δ_0 $15'\ 44''.65$

Corr. δ $-.37$

$\frac{d\delta}{dt}$ $+7''.60$

$\log a \sin \delta$ 9.44734

" $\cos \delta$ 9.98228

" $15 \cos \delta \sin 1''$ 0.10704 (Hour Tab. 6 1878)

0.08 after Tab. 6

0.08834 for Dec.

$\tan \delta$ $+0.29$

Corr. $\alpha \sin z$ $+.49$

$\log R_1$ 1.37878

" R_2 1.07318

R_1 23.65

R_2 11.83

I

Jan. 1

h	m	p
4	28	6.4
		8.3
		10.3
	28	50.7
		52.9
		54.6
		833
28	52.73	

m	p
28	19.20
	21.30
	23.38
	27.72
	29.82
	32.00
	34.35
	36.50
	40.60
	42.77
	44.87
	35251
28	32.046
28	57.11
	−25.06
	−25.05

s
+23.72
1.37511
1.48156
10′ 1′

s
−20.68
1.31555n
1.42289n
10′ 2′

δ	9.9+28	6.8+17
F	24.3+20	20.3+30
G	12.2−27	8.4+03
H	13.1+72	9.8+50
	11.05 93	7.60
	11 14.88	12′ 11.32
	30.35	−26.46
	11 45.23	11 44.86
+16°	11′ 3.12	11′ 3.49
+26°	5′ 56″	6′ 52″
	1.45028	1.45055
	+2419	+2419
	1.47447	1.47474
	−29.82	−29.84
	−.08	−.05
	−.10	−.29
	−.23	−.25
	−30.295	−30.4336
	10 32.87	33.13
	10 33.00	
	15 59.3	+5 20.11
	′ ″	− .71
	+5 21.3	− 9.70
	20.9	+5 9.70
		15′ 42.7

−0.43 −0.52 +5 19.40

Jan. 14

h	m	p
27	53.6	
	55.5	
	57.8	
	55.63	

m	p
28	4.00
	6.10
	8.32
	12.62
	14.78
	16.88
	19.00
	21.15
	25.60
	27.70
	29.80
	18595
28	16.905
28	57.073
	−40.17
	−40.16

s
+21.27
1.32777
1.43482
10 1

δ	8.7+25	
F	24.0+20	
G	15.8−39	
H	26.1+66	
	12.25 72	
	11 18.65	
	27.22	
	11 45.87	
	11 2.48	
	6 0	
	1.45030	
	+947	
	1.45977	
	−28.83	
	−.06	
	−.18	
	−29.2530	
	33.28	
	33.28	
	53.9	+5 19.66
		− .67
	20.6	− 9.80
	20.2	+5 9.69

−0.37 +5 18.99

m	s
28	55.30
	55.26

s
+40.33
− .16
− 1.81
+38.36

Jan. 16

h	m	p
27	54.8	
	56.7	
	59.6	
	57.03	

m	p
28	2.78
	5.00
	7.00
	11.40
	13.40
	15.52
	17.70
	19.85
	24.10
	26.10
	28.45
	17130
28	15.573
28	57.063
	−41.49
	−41.48

s
+18.54
1.26811
1.33816
10 1

δ	16.4+41	
F	28.5+18	
G	14.2−35	
H	22.2+65	
	15.15 89	
	11 20.25	
	23.72	
	11 43.97	
	11 4.38	
	6 1	
	1.45030	
	+4241	
	1.49271	
	−31.10	
	−.04	
	−.15	
	−.22	
	−31.5348	
	32.90	
	32.90	
	53.9	+5 20.93
		− .67
	21.0	− 9.30
	20.6	+5 10.96

−0.38 +5 20.26

m	s
28	41.68
	− .18
	− 1.80
	+39.70
	55.27

Jan. 30

h	m	p
27	37.0	
	39.9	
	41.7	
28	18.7	
	20.6	
	22.5	
27	39.63	
28	20.60	

m	p
27	46.58
	48.96
	50.90
	55.22
	57.45
	59.58
	1.66
	3.90
	8.00
	10.31
	12.44
	85500
	65500
27	59.545
28	56.947
	−57.40
	−57.39

s
+20.01
1.30125
1.40824 30

s
−21.06
1.32346n
1.43050n 51
10 2

δ	15.1+40	8.5+20
F	19.1+24	12.2+34
G	26.8−10	19.9+29
H	19.9+66	14.2+19
	20.98 120	74 14.20
	11 20.22	12 13.70
	25.60	− 26.95
	11 45.82	11 46.75
	11 2.53	11 1.60
	6 1	6 55
	1.45030	1.45057
	+4270	+4270
	1.49300	1.49327
	−31.12	−31.14
	−.05	−.07
	−.11	−.24
	−.30	−.18
	−31.6158	−31.6357
	30.95	30.83
	30.49	
	53.5	+5 22.56
		− .62
	23.0	− 8.90
	22.6	+5 13.04

−0.46 −0.43 +5 22.94

m	s
28	57.64
−	.22
−	1.69
+	55.73
	55.27

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	α		δ	
Jan. 0	28m 57.11s		15' 54.3"	
5	.10	1	54.2	1
10	.09	1	54.1	1
15	.07	2	53.9	2
20	57.04	3	53.8	1
25	57.00	4	53.6	2
30	56.95	5	53.5	1
Feb. 4	56.89	6	53.3	2
9	56.82	7	53.2	1
14	56.75	7	53.0	2

Feb. 2

27 20.7 — 27 42.55
22.8 — 44.88
24.7 — 46.83
50.92
53.30
55.50
28 21.9 — 57.50
24.0 — 59.70
26.0 — 3.80
6.20
8.33

42951
60951
27 55.409

27 22.73
28 23.97 — 27 55.409
28 56.917
− 61.50
− 61.49

+ 61.69
− .22
− 1.65
+ 59.82

55.23

Feb. 7

28 18.8 — 28 24.00 — 28 35.62
21.1 — 26.00 — 37.82
23.3 — 28.00 — 39.95
25.0 — 30.20 — 42.00
26.9 — 32.43 — 44.31
11.10 — 47.50
13.38 — 49.70
15.52 — 51.80
17.58 — 54.00
19.77 — 56.00
28.13 — 59.38
39.94 — 1.46
51.80 — 3.62
3.64 — 5.76
15.47 — 8.00

28 23.02 13898 — 25898
28 51.796
28 56.844
− 5.05
− 5.04

+ 5.23
− .19
− 1.58
+ 3.49

55.26

Feb. 11

28 23.2 — 28 26.77 — 38.30
25.6 — 28.67 — 40.26
27.8 — 30.80 — 42.52
30.0 — 32.83 — 44.57
32.1 — 35.10 — 46.82
13.70 — 50.00
15.76 — 52.40
18.00 — 54.48
20.10 — 56.50
22.32 — 58.70
30.83 — 1.86
42.49 — 4.00
54.42 — 6.00
6.12 — 8.22
17.98 — 10.52

28 27.74 15184 — 27184
28 54.368
28 56.789
− 2.42
− 2.41

+ 2.64
− .22
− 1.53
+ .89

55.26

Feb. 14

29 10.5 — — —
13.0 — — —
15.2 — — —
17.2 — — —
18.5 — — —
29 40.8 — 14.80 — −
16.90 — −
18.90 — −
21.10 — −
23.40 — −
— — 29 2.78
— — 4.95
— — 7.10
7.09 55.26 — 9.20
19.02 55.37 — 11.40

29 14.88
29 40.30
28 55.315
28 56.746
− 1.43
− 1.42

+ 1.67
− .25
− 1.49
± 0.07

55.25

Feb. 2: +32.68 / 1.51428 / 1.621383 / 10 0 — −28.56 / 1.45576n / 1.56288n / 10 2

59.0+13 / 2.9+19 / 11.1−21 / 2.9+65 / 5.05 80 76 — 16.9+41 / 20.9+29 / 28.9+02 / 21.4+46 / 118 22.90

11 3.98 / 41.81 / 11 45.79 / 11 2.56 — 12 22.02 / −36.54 / 11 45.48 / 11 2.87

5 45 / 1.45022 / +3939 / 1.48961 / −30.88 / −.16 / −.13 / −.19 / −31.46 32 — 7 3 / 1.45062 / +3939 / 1.49001 / −30.90 / −.12 / −.29 / −.30 / −31.68 51 — −0.44 / −0.61

10 31.24 / 10 31.30 / 53.4 — 31.36 / +5 21.71 / − .61 / +5 21.10

+5 22.1 / 21.7 — − 8.80 / +5 12.30 / 43.6

Feb. 7: +28.78 / 1.45909 / 1.54428n 686 / 10 0

57.3+13 / 3.6+20 / 18.9+40 / 13.2+72 / 8.10 65

10 8.25 / −35.23 / 10 33.02 / 12 15.33

6 59 / 1.45060 / +1207 / 1.46267 / −29.02 / −.12 / −.16 / −.16 / −29.46 2 — −0.40

11 45.91 / 11 45.91 / 53.2 — +4 6.64 / − .58 / +4 6.06

4 7.3 / 6.9 — − 8.60 / +3 57.46 / 43.4

Feb. 11: +26.63 / 1.42537 / 1.51314n / 10 0

58.7+13 / 3.7+20 / 13.3−31 / 7.6+73 / 6.00 75

11 5.82 / −32.59 / 10 33.23 / 12 15.12

6 57 / 1.45059 / +2780 / 1.47839 / −30.09 / −.10 / −.27 / −.19 / −30.53 — −0.44

11 44.59 / 11 44.59 / 53.1 — +4 7.37 / − .56 / +4 6.81

8.5 / 8.1 — − 8.50 / +3 58.31 / 42.9

Feb. 14: −19.56 / 1.29137n / 1.37914n / 10 0 — −44.98 / 1.65802n / 1.74079 / 5 4

0.9+01 / 6.8+07 / 17.4−42 / 10.3+30 / 9.15 −04 — 28.9+52 / 34.4+01 / 45.4+57 / 37.2+19 / 18 37.15

10 8.85 / 23.94 / 10 32.79 / 12 15.56 — 9 36.48 / 5.05 / 10 31.53 / 12 16.82

6 0 / 1.45030 / +2686 / 1.47716 / −30.00 / −.05 / −.02 / +.01 / −30.06 — 5 27 / 1.45014 / +2686 / 1.47700 / −29.99 / −.30 / −.74 / −.04 / −31.07 — −0.08 / −1.68

45.50 / 45.62 / 53.0 — 45.75 / +4 7.75 / − .54 / +4 7.21

7.4 / 7.0 — − 8.40 / +3 58.81 / 44.4

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	α		δ	
Feb. 9	28m 56.62s		15' 53.2"	
14	.75	7	53.0	2
19	.67	8	52.9	1
24	.59	8	52.7	2
Mar. 1	56.51	8	52.6	1

1878

Feb. 16

h	m s	m s	
4	28 26.8	28 28.00	39.70
	~~28.0~~	30.00	42.00
	29.4	32.05	43.90
	30.5	34.32	46.10
	32.6	36.47	48.33
	35.4		
		15.20	51.70
	29 29.7	17.32	53.80
	31.9	19.45	55.95
	34.0	21.52	57.95
	35.9	23.84	0.28
	37.6		
		32.17	3.48
		44.01	5.62
		55.94	7.73
		7.75	9.92
		19.47	12.00
	28 30.94	159.34	279.34
	29 33.82		28 55.868
			28 56.714
			− 0.85
			− 0.84

+ 1.10
− .21
− 1.45
− 0.55

28m 55.32s

Feb. 18

28 59.8	–	–	
1.6	–	–	
3.7	–	–	
5.8	–	–	
8.0	–	–	
29 31.8	15.82	28 52.47	
33.7	18.00	54.50	
36.0	20.23	56.58	
38.3	22.40	58.75	
40.1	24.56	1.00	
	—	4.20	
	—	6.30	
	56.66 56.66	8.40	
	8.40 56.57	10.50	
	20.20 56.55	12.62	
28 3.78			
29 35.98		28 56.593	
		28 56.682	
		− 0.09	
		− 0.08	

+ 0.37
− .24
− 1.42
− 1.29

55.30

Feb. 19

29 16.8	–	–	
18.5	–	–	
19.9	–	–	
21.9	–	–	
23.8	–	–	
29 42.6	16.22	–	
	18.20	–	
	20.35	–	
	22.43	–	
	24.62	–	
	—	29 4.18	
	—	6.40	
	—	8.58	
	8.52 56.69	10.65	
	20.36 56.71	12.80	
29 20.18			
29 42.60		28 56.700	
		28 56.666	
		+ 0.03	
		+ 0.04	

+ 0.18
− .20
− 1.41
− 1.43

55.27

Feb. 26

28 22.3	28 –	28 43.22
24.2	31.33	45.32
26.3	33.53	47.50
28.1	35.64	49.66
30.2	37.85 40.00	37.80
29 27.3	29 18.65	55.00
29.0	20.81	57.12
30.9	23.00	59.36
32.5	25.20	1.47
34.4	27.19	3.60
	35.67	6.77
	47.50	9.00
	59.31	11.20
	11.17	13.40
	22.97	15.50
28 26.22	176.62	296.62
29 30.82		28 59.324
		28 56.554
		+ 2.77
		+ 2.78

+ 2.55
− .21
− 1.29
− 4.05

55.27

Reductions

	Feb. 16			Feb. 18			Feb. 19			Feb. 26		
	+24.93s	−37.95s		−7.19	−39.39		−23.48	−45.90		+33.10	−31.50	
	1.39672	1.57921n		0.85673n	1.59539n		1.37070n	1.66181n		1.51983	1.49831n	
	1.48[illegible]n	1.66[illegible]		0.94[illegible]	1.68[illegible]		1.45[illegible]	1.74[illegible]		1.60[illegible]n	1.58[illegible]	
	449	498		458	316		847	958		768	608	
	10 0	5 4		10 0	5 4		5 4	5 4		10 1	5 4	
E	54.9+13	37.9+35		15.2+31	36.5+38		56.5+01	29.5+52		5.2+18	46.3+17	
F	0.4+17	43.7+16		20.0+08	41.7+11		0.1 00	34.7+01		11.2+25	51.7+17	
G	13.7−33	54.3−39		30.6−07	51.3−55		10.1−16	42.3−48		23.2−27	2.2+03	
H	5.8+71	48.2+06	46.10	23.1+41	45.0+10		3.1+09	37.7+18		15.3+70	56.9−03	
	4.30 ,68	18	46.10	22.90 73	04	43.90	3.30−06	23	35.90	14.20 86	34	54.25
	11 3.70	9 46.02		10 22.22	9 43.62		10 2.45	9 36.05		11 13.72	9 54.28	
	−30.[illegible]	46.[illegible]		8.[illegible]	[illegible]		28[illegible]	33.84		−40.[illegible]	35.[illegible]	
	10 33.[illegible]	10 32.[illegible]		10 ~~30.97~~ 31.02	10 31.~~54~~ .83		10 31.~~04~~ .19	10 ~~31.89~~ 32.23		10 33.~~46~~ .21	10 32.~~60~~ .84	
+16	12 ~~14.98~~ 15.16	12 ~~[illegible]~~ 15.88		12 17.~~36~~ 33	12 16.~~[illegible]~~ 52		12 17.~~34~~ 16	12 16.~~[illegible]~~ 12		12 ~~14.90~~ 15.14	12 15.~~[illegible]~~ 51	
+26	6 55	5 37		6 13	5 35		5 53	5 27		7 5	5 45	
	1.45057	1.45018		1.45036	1.45018		1.45027	1.45014		1.45062	1.45022	
	+1997	+1997		+3169	+3169		+3227	+3227		+1327	+1327	
	1.47054	1.47015		1.48205	1.48187		1.48254	1.48241		1.46389	1.46349	
	−29.55	−29.52		−30.34	−30.33		−30.38	−30.37		−29.10	−29.07	
	− .09	− .21		− .01	− .22		− .07	− .31		− .16	− .14	
	− .~~23~~ 17	− ~~1.05~~ 77	−0.43	− .0~~4~~	− ~~1.03~~ 80	−0.26	− .~~37~~ 85	− ~~1.01~~ 75	−0.94	− .~~25~~	− ~~1.03~~	−0.56
	− .17	− .04	−1.02	− .18	− .01	−1.03	+ .02	− .06	−1.15	− .22	− .08	−0.96
	− ~~30.04~~ 29.98	−30.8~~[illegible]~~ 54		−30.~~[illegible]~~	−31.59 36		−3~~[illegible]~~ 31.18	31.75 52		−29.~~[illegible]~~ 66	−30.~~[illegible]~~ 03	
	11 45.18	45.34		46.73	45.16		45.88	44.60		45.48	45.48	
	11 45.26			45.94			45.24			45.48		
	15 53.0	+4 7.05	+46.52	5.29	+4 7.44	+46.93	5.29	+4 7.88	+47.38	5.27	+4 7.34	+46.88
		− .53			− .51			− .50			− .46	
	+4' 7.7	− 8.40		7.0	− 8.30		7.7	− 8.30		7.2	− 8.10	
	7.3	+3 58.12		6.6	+3 58.63		7.3	+3 59.08		6.8	+3 58.78	
		15' 43.4			44.6			44.3			44.3	

+2(

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	h	α		δ	
		mm		′	″
Dec 6	28	60.71		15	61.3
11		60.73	2		61.2 1
16		60.76	3		61.0 2
21		60.80	4		60.8 2
26		60.84	4		60.7 1

Dec. 23

34 38.3 — —
40.6 — —
42.5 — —
43.8 — —
45.8 — —

34 83.15 —
85.20 —
87.30 —
89.50 —
41.60 —

37.35 13.70 —

34 42.20

34 13.70
29 0.82
+5 12.88
+5 12.89

−5 12.50
— .30
— 5.56
−5 18.36

55.34

−2850
1.115484
1.54318

5 4

45.2 +.20
48.3 +.20
57.5 −.09
51.8 +.02
+.33 51.75

9 50.70
34.93
10 25.63

12 22.72

+26 6 16
1.45040
+2985
1.48025
−30.22
− .12
− .62 −0.82
− .08
−31.04
11 51.68
11 51.68
15 60.8 +4 10.61
− .68 +4 9.93
4 9.1 − 16.30
8.7 +3 53.73

45.4

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ι Aurigæ.

α_o 4h 49m 3s.87 — log cos δ 9.73577 — I 2.488

Com. α +.007, +.037 — log cos δ 9.92374

$\frac{d\alpha}{dt}$ +3s.898 — log 15 cos δ tan i 0.04852 thro' Ft. 6; 0.02924 after Ft. 6; 0.02981 for Dec.

δ_o 58° 15′ 45″ — tan δ +0.65

Com. δ .00 — $\frac{\sin}{\tan}$ z +.17

$\frac{d\delta}{dt}$ +6″.10

1878 +9° 24′ 83″

	Jan. 5		Jan. 14		Jan. 16		Jan. 23	
	h m s	m s	m s	m s	m s	m s	m s	m s
	4 48 5.7	48 21.65	47 55.0	48 10.40	48 0.1	48 9.10	48 5.2	48 1.87
	7.9	24.18	57.0	12.88	2.2	11.40	7.5	4.50
	9.9	26.60	59.0	15.25	4.4	13.90	9.6	6.80
		31.40		20.15		18.95		11.50
		33.78		22.65		21.45		14.10
		36.38		25.15		23.72		16.40
	48 57.0	38.90	48 44.65	27.65	48 44.2	26.30	48 37.1	18.95
	58.2	41.30	46.50	30.00	46.0	28.43	40.5	21.48
	55.0	46.20	49.20	35.00	48.4	33.86	43.0	26.36
		48.80		37.40		36.00		28.82
		51.30		39.90		38.55		31.55
	48 7.83	40.49		27.43		26.66		18.33
	48 53.07		47 57.00		48 2.23		48 7.43	
		48 36.408	48 46.88	48 25.130	48 46.20	48 23.787	48 40.20	48 16.575
		49 5.13		49 5.113		49 5.103		49 5.048
		−28.72		−39.98		−41.32		−48.47
		−28.73		−39.99		−41.33		−48.48
		−28.76		−40.12		−41.36		−48.51
		+ 29.17		+ 40.33		+ 41.69		+ 49.02
		− .45		− .36		− .40		− .47
		− 2.14		− 2.13		− 2.12		− 2.66
		+ 26.58		+ 37.84		+ 39.17		+ 46.49
		m s						
		49 2.99		2.97		2.96		3.07
		s						
		+ 28.58		+28.13		+21.56		+ 9.15
		− 16.66		− 21.75		−22.41		− 23.62
		1.45606		1.44917		1.38365		0.96142
		1.22167 n		1.33746 n		1.35044 n		1.37328 n
		1.50458		1.49769		1.38217		1.00994
		1.27019 n		1.38598 n		1.39896 n		1.42180 n
		25′ 3′		25 3		25 4		25 4
		25′ 4′		25 4		25 4		25 4
		″						
ℰ		55.4+.21		49.7+.26		3.4+.21		15.7+.44
ℱ		6.2+.20		2.9+.16		13.2+.19		16.1+.17
𝔔		53.0−.36		54.2+.27		58.1+.05		22.5−.20
𝔄		55.9+.03		(6.7)+.22		8.7+.22		15.1+.23
		54.20		37		1.00 67		19.10 64
		46.1+.18		46.1+.18		52.5+.05		54.3+.03
		56.7+.08		58.8+.03		1.8+.01		52.7+.15
		42.2+.48		49.8+.58		46.3−.59		58.5−.05
		47.3+.07		5.0+.19		59.9 00		55.3+.01
		11.15		−.18		−.53		12
		42.15		47.95		49.40		56.40
	28 57.62	29 48.08	28 58.38	29 54.92	29 5.98	29 55.12	29 17.35	29 55.20
	31.96	− 18.63	31.46	− 24.32	24.11	− 25.06	10.23	− 26.41
	29 29.58	29 29.45	29 29.84	29 30.60	29 30.09	29 30.06	29 27.68	29 28.79
+62°	53′ 18.77	53′ 18.90	53 18.51	53 17.75	53 18.26	63 18.29	53 20.77	53 19.56
+ 9°	23′ 39″	24′ 29″	23 39	24 36	23 47	24 36	23 58	24 36
	0.97891	0.97960	0.97891	0.97968	0.97904	0.97968	0.97919	0.97968
	+3506	+3506	+947	+947	+4260	+4260	+4474	+4474
	1.01397	1.01466	0.98838	0.98915	1.02164	1.02228	1.02398	1.02442
	−10.33	−10.34	− 9.74	− 9.75	−10.51	−10.53	− 10.57	− 10.58
	−.20	−.06	−.19	−.11	−.11	−.12	−.02	−.14
	−.56	−.65 − 0.62	−.56	−.69 −0.68	−.53	−.64 −0.65	−.54	−.57 −0.52
	−.02	+.04 − 0.58	−.09	+.04 −0.64	−.17	+.13 −0.69	−.16	−.03 −0.56
	−11.15	−11.13	−10.58 42	−10.5131	−11.36 16	−11.26	−11.29 09	−11.29 14
	53 7.82	8.06	8.09	7.44	7.10	7.33	9.68	8.42
	53 4.94		7.76		7.22		9.05	
	58 2.75	+5 18.09	28.0	+5 19.66	28.1	+5 20.93	28.4	+5 20.60
	′ ″	− .24 +5 17.85	−	− .23 +5 19.43	−	− .23 +5 20.70	−	− .22 +5 20.38
	+ 5 19.6	− 12.10	20.2	− 12.60	20.9	− 12.70	19.4	− 13.00
	19.6	+5 5.75	20.2	+5 6.83	20.9	+5 8.00	19.4	+5 7.38
		58′ 13.7		146		15.2		16.4

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	α		δ			
Jan. 0	49m 5.13s	0	58′ 27.2″	3		
5	5.13	0	27.5	3		
10	5.13	2	27.8	3		
15	5.11	3	28.1	2		
20	5.08	5	28.3	2		
25	5.03	5	28.5	2		
30	4.98	6	28.7	2		
Feb. 4	4.92	7	28.9	1		
9	4.85		29.0			

Jan. 24

48 6.9	48 0.35		47 43.5	47 55.82			
9.3	2.92		45.8	58.50			
11.0	5.30		48.0	0.78			
	10.22			5.63			
	12.63			8.20			
	15.20			10.70			
48 35.7	17.70		48 22.4	13.10			
37.4	20.10		24.8	15.62			
39.6	24.95		26.7	20.48			
	27.50			22.83			
	29.92			25.28			
	16679			23694			
48 9.07			47 45.77	11694			
48 37.57	48 15.163		48 24.63	48 10.631			
	49 5.038			49 4.998			
	−49.88			−54.27			
	−49.89			−54.28			
	−49.92			−54.31			
	+ 50.31			+ 54.92			
	− .44			− .53			
	− 2.05			− 2.01			
	+ 47.82			+ 52.38			
	2.98			3.01			

Jan. 28

Jan. 29

48 3.6	47 54.52						
5.7	56.92						
8.0	59.42						
	4.43						
	6.78						
	9.28						
48 41.8	11.87						
44.2	14.20						
46.4	19.22						
	21.58						
	24.00						
	28222						
48 5.77	10222						
48 44.13	48 9.293						
	49 4.988						
	− 55.70						
	− 55.71						
	− 55.74						
	+ 56.22						
	− .48						
	− 2.00						
	+ 53.74						
	3.13						

Jan. 30

Ch. failed

+ 6.09	− 22.41		+ 24.86	− 14.00		+ 3.52	− 34.84
0.78462	1,35044m		1,39550	1,14613m		0.54654	1,54208m
0.83314	1,39896m		1.44402	1,19465m		0.59506	159060m
25 4	25 4		25 3	25 4		25 4	30 0
28.8+.53	544+.03		57.8+.20	41.7+.27		23.3+.53	6.7+.09
23.6+.08	55.2+.11		0.3+.16	43.0+.15		25.1+.07	7.8+.08
31.1+.02	59.9 ±0		7.5+.10	57.0−.56		32.0 ±0	15.2−.38
25.3+.22	57.1−.03		3.9+.16	48.94.05		27.1+.22	11.3+.31
26.95 836	115715		2.65672	−.09 4635		27.65 82	10.0.95
29 25.70	29 56.65		29 2.38	29 46.15		29 26.88	30 10.25
6.81	− 25.06		27.80	− 15.66		3.94	− 35.96
29 32.51	29 31.59		29 30.18	29 30.49		29 30.82	29 31.29
53 16.84	53 16.76		53 18.17	53 17.86		53 17.53	53 17.06
24 7	24 38		23 43	24 27		24 8	24 51
0.97928	0.97968		0.97896	0.97956		0.97930	0.97988
+3426	+3426		+2858	+2858		+3535	+3535
1.01354	1.01394		1.00754	1.00814		1.01465	1.01523
− 10.32	− 10.33		− 10.18	− 10.19		− 10.34	− 10.36
− .02	− .12		− .15	− .05		− .02	− .30
− .48	− .54	− 0.54	− .44	− .53	− 0.59	− .48	− .02	− 0.57
− .21	− .03	− 0.49	− 10.16	+ .02	− 0.40	− .20	− .02	− 0.34
− 10.83	− 11.03		− 10.97	− 10.75		− 11.04	− 10.70	
4.98	5.91		4.40	7.31		6.62	6.36	
5.46			7.36			6.49		
28.5	+ 5 22.21		28.6	+ 5 20.97		28.7	+ 5 22.05	
− .22		+5 21.99	− .22		+5 20.75	− .22		+5 21.83
+ 5 23.0	− 13.10		21.2	− 13.20		22.2	− 13.30	
23.0	+ 5 8.89		21.2	+ 5 7.55		22.2	+ 5 8.53	
	14.4			14.9			15.0	

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1878

Feb. 2

h	m	s	m	s
4	47	26.0	47	49.10
		28.0	3.83	51.52
		30.4	3.80	54.0
			3.82	54.0
			3.81	58.90
			4.16	1.70
			3.92	3.92
			3.64	6.10
			3.79	8.70
				—
			677	—
				—
	47	28.13		
			48	3.846
			49	4.941
				−61.09
				−61.10
				−61.13
				+ 61.70
				− .50
				− 1.95
				+ 59.25
			m	s
			49	3.18
		s		
		+ 35.72		
		1.55291		
		1.60143		
		25 4	30 1	
Feb. 2		47.7+.30	0.4	
		48.6+.34	2.3	
		56.5+.03	10.4	
		52.1+.07	5.9	
		52.20.68	5.40	
	28	51.22	30	4.75
		39.94		
	29	31.16		
+32°	53′	17.19″		
+9°	23′	32″		
	0.97882			
	+3988			
	1.01870			
	−10.44			
	− .31			
	− .47		−0.79	
	− .17			
	− 11.39			
	53	5.96		
	53	5.96		
	58	28.8		
			+5′	21.71″
			−	.21 + 5 21.50
+5′		22.8″	−	13.40
		22.8	+5	8.10
			58′	14.1″

Feb. 3

47	29.7	47	47.40	
48	32.2		50.00	
	33.9		52.32	
			57.30	
			59.76	
			2.30	
48	35.3		4.68	
49	37.1		7.00	
	39.9		12.00	
			14.52	
			17.00	
			32428	
47	31.93		2428	
48	37.20	48	2.207	
		49	4.929	
			−62.72	
			−62.73	
			−62.76	
			+ 63.12	
			− .42	
			− 1.94	
			+ 60.76	
			2.97	
		+ 30.28	− 34.99	
		1.48116	1.54394 m	
		1.52968	1.59246 m	
		25 3	30 0	
		53.1+.22	4.9+.06	
		53.5+.29	5.9+.07	
		2.8+.18	15.3+.38	
		59.1+.83	11.1+.31	
		57.95.72	.06	10.10
	28	57.12	30	9.30
		33.86		−39.13
	29	30.98	29	30.17
	53′	17.37″	53′	18.18″
	23	38	24	50
	0.97890		0.97986	
	+3061		+3061	
	1.00951		1.01047	
	−10.22		−10.24	
	− .22		− .30	
	− .48		− .01	− 0.76
	− .18		− .02	− 0.33
	− 10.08		− 10.57	
	639		7.61	
	7.00			
	28.9	+5′	21.71″	
		−	.21 + 5 21.50	
	21.9	−	13.50	
	21.9	+5	8.00	
			15.0	

Feb. 4

47	35.1	47	46.32	
	36.6		48.62	
	38.9		51.22	
			56.20	
			58.50	
			1.00	
48	36.4		3.43	
	38.5		5.88	
	41.6		10.92	
			13.38	
			15.78	
			31120	
47	36.87		1120	
48	38.83	48	1.018	
		49	4.917	
			− 63.90	
			− 63.91	
			− 63.94	
			+ 64.34	
			− .48	
			− 1.93	
			+ 61.93	
			~~3.45~~	
			2.95	
		+ 24.15	− 37.81	
		1.38292	1.57761 m	
		1.43144	1.62613 m	
		25 3	30 0	
		58.2+.20	7.4+.11	
		0.2+.16	10.1+.09	
		9.9−.01	20.2−.39	
		7.5+.22	17.1+.34	
		4.05.57	15	13.80
	29	3.95	30	13.70
		27.00		− 42.28
	29	30.95	29	31.42
	53′	17.40″	53′	16.93″
	23	45	24	55
	0.97980		0.97993	
	+2481		+2481	
	1.00851		1.00444	
	−10.08		−10.10	
	− .14		− .35	
	− .37		− .02	− 0.65
	− .14		− .04	− 0.41
	− 10.85		− 10.51	
	6.67		6.42	
	6.54			
	28.9	+5′	21.49″	
		−	.21 + 5 21.28	
	22.4	−	13.50	
	22.4	+5	7.78	
			14.3	

Feb. 5

47	56.5	47	45.38	
	58.7		47.80	
	1.0		50.20	
			55.35	
			57.62	
			0.12	
48	32.3		2.57	
	34.5		4.95	
	36.9		9.90	
			12.20	
			14.60	
			30869	
47	58.73			
48	34.57	48	0.063	
		49	4.902	
			−64.84	
			−64.85	
			−64.88	
			+ 65.36	
			− .46	
			− 1.92	
			+ 62.98	
			3.04	
		+ 1.33	− 34.51	
		0.12385	1.53794 m	
		0.17237	1.58646 m	
		25 4	30 0	
		21.2+.52	2.9+.02	
		24.2+.08	5.3+.06	
		34.9−.12	17.1−.42	
		30.9+.23	13.5+.33	
		28.05.71	−.01	10.00
	29	27.80	30	9.70
		27.49		−38.59
	29	29.29	29	31.11
	53′	19.06″	53′	17.24″
	24	9	24	5
	0.97932		0.97988	
	+2395		+2395	
	1.00327		1.00383	
	−10.68		−10.09	
	− .60		− .28	
	− .45		− .02	− 0.68
	− .18		00	− 0.30
	− 10.84	71	− 10.39	
	8.35		6.85	
	7.60			
	28.9	+5′	21.56″	
		−	.21 + 5 21.35	
	21.3	−	13.50	
	21.3	+5	7.85	
			15.4	

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	α	δ
Jan. 30	49 m 1 4.98	58 ′ 28.″7
Feb. 4	4.72	28.9
9	4.85	29.0
14	4.77	29.1
19	4.68	29.1
24	4.89	29.1
Mar. 1	4.49	29.0

From Dec. 23, 26 and 1879 Jan 22 v. J. 9.3

Feb. 6

48	39.8	48	45.20
	42.3		47.60
	43.8		50.00
			54.96
			57.45
			59.90
49	30.6		2.26
	32.9		4.88
	34.9		9.66
			12.12
			14.70
	41.97		38873
48	43.30		65873
		48	57.~~884~~
			.885
48	41.97		.885
49	32.80	48	57.~~884~~
		49	4.888
		−	5.09 5.00
		−	5.10 5.11
		−	5.04
		+	5.41
		−	.43
		−	1.90
		+	3.08
			2.96
	+17.82		−33.01
	1.25091		1.51865 n
	1.29943		1.56717 n
	25 4		25 4
	1.2+.20		58.4+.00
	4.9+.19		1.9+.01
	18.3−.30		15.2−.37
	13.2+.23		9.9+.20
	9.75 .32		6.80−.16
29	9.40	30	6.35
	19.43		−36.91
29	29.33	29	29.44
	53 19.02	53	18.91
	23 50		24 47
	0.97907		0.97984
	+2079		+2079
	0.99986		1.00063
	−10.00		−10.01
	−.08		−.27
	−.57		−.51 −0.58
	−.08		+.04 −0.82
	−10.~~7088~~		−10.~~2735~~
	8.44		8.16
	8.30		
	28.9	+5	20.86 +5 20.66
		−	.20
+5	20.6	−	13.50
	20.6	+5	7.16
			15.5

Feb. 11

48	24.9	48	30.85
	26.8		33.20
	30.0		35.66
	32.0		38.15
	33.5		40.56
			26.~~00~~
			27.30
			29.86
			32.45
			34.68
			35.68
			49.21
			2.72
			16.35
			29.86
			13382
48	29.44		
	+33.32		
	1.52270		
	1.5~~4927~~ m		
	5194		
	25 3		
	46.8+.31		
	48.4+.34		
	57.5+.05		
	53.9+.05		
	52.15 .75		
28	51.65		
	−35.~~72~~		
28	16.~~33~~		
	.01		
54	32.~~72~~		
	.34		
	24 43		
	0.97976		
	+2822		
	1.00798		
	−10.19		
	−.27		
	−.~~54~~		−1.00
	−.19		
	−11.~~3819~~		
54	21.15		
54	21.15		
	29.0	+4	7.37
		−	.19 +4 7.18
4	7.9	−	13.60
	7.9	+3	53.58
			14.7

Feb. 16

48	19.9	48	32.05
	22.0		34.60
	23.8		36.95
	25.9		39.62
	28.9		42.00
49	29.9		26.32
	32.4		28.72
	33.8		31.30
	35.0		33.56
	36.6		35.95
			37.04
			50.61
			4.05
			17.54
			31.17
48	24.10		14041
49	33.54		
	+39.98		−29.46
	1.60184		1.46923 m
	1.6~~2845~~ m		1.49~~5524~~
	3108		847
	25 3		25 2
	51.4+.23		37.7+.38
	54.9+.26		40.6+.30
	4.9+.16		51.7−.49
	0.8+.06		48.2+.30
	58.15 .71		49 4470
28	58.~~07~~	27	44.55
	−42.~~72~~		31.~~37~~
28	15.~~50~~	28	~~1787~~
	.24		16.06
54	~~33.85~~	54	32.~~48~~
	33.11		.29
	24 49		23 36
	0.97985		0.97888
	+2029		+2029
	1.00014		0.99917
	−10.00		−9.81
	−.40		−.21
	−.~~63~~		−.~~73~~ −1.21
	−.18		−.12 −1.76
	−11.~~4621~~		−10.~~7487~~
	21.90		21.72
	21.81		
	29.1	+4	7.05
		−	.19 +4 6.86
	7.3	−	13.70
	7.3	+3	53.16
			15.0

Feb. 18

48	24.0	48	33.00
	25.8		35.40
	27.4		37.80
	29.6		40.38
	32.4		42.85
49	~~38.0~~ 40.7		27.10
	42.5		29.38
	45.3		31.90
	47.9		34.36
			36.70
			37.87
			51.32
			4.99
			18.44
			31.89
48	27.84		14451
49	42.88		
	+37.06		−37.98
	1.58891		1.57955
	1.59~~5504~~ m		1.60~~6446~~
	815		879
	25 3		25 2
	49.9+.25		30.0+.52
	52.1+.31		32.3+.21
	1.5+.18		41.9−.44
	57.2+.02		38.7+.41
	55.70 .76		39.5 .70
28	55.18	27	38.72
	−39.~~70~~		40.~~82~~
28	15.~~48~~	28	16.~~70~~
	.154		.34
54	32.~~67~~	54	32.~~85~~
	811		01
	24 46		23 27
	0.97983		0.97875
	+3223		+3223
	1.01206		1.01098
	−10.28		−10.26
	−.35		−.36
	−.86		−.~~97~~ −1.20
	−.19		−.18 −0.95
	−11.~~68~~		−11.~~37~~24
	21.~~73~~		20.77
	21.~~05~~		
	29.1	+4	7.44
		−	.18 +4 7.26
	8.1	−	13.70
	8.1	+3	53.56
			14.6

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ζ Aurigæ.

$4^h\ 53^m\ 57^s$	α_0 53m 57.089s	log sec δ	9.81603
$+40°\ 53'\ 44''$	Corr α + .058 / + .054	" cos δ	9.87847
$+1°\ 29'\ 4''$	$\frac{d\alpha}{dt}$ + 4.182s	" 15 cos δ tan i	0.00325 thro' Feb. 6
1878	δ_0 53′ 44.31″		9.98 ~~132~~ 397 n after Feb. 6
	Corr δ +.15		9.98 454 for Dec.
	$\frac{d\delta}{dt}$ +5.69″	tan δ	+ 0.87
		sin. z	+03

h	Jan. 1 m s	m s		Jan. 5			Jan. 14			Jan. 16	
											2.00
4	53 3.0	53 18.35		53 0.2	53 14.60		52 45.2	53 3.25		52 53.4	53 4.65
	6.0	21.10		2.1	17.18		47.4	6.00		55.0	7.50
	8.3	23.90		4.6	20.00		50.3	8.70		58.2	12.90
		29.40			25.62			14.10			15.50
		31.98			28.25			16.88			18.30
		34.68			30.90			19.65			21.05
	53 47.9	37.54		53 51.8	33.60		53 34.2	22.38		53 37.3	23.82
	50.0	40.28		54.0	36.46		36.5	25.00		39.5	29.22
	52.6	45.98		56.7	41.85		38.7	30.60		41.4	32.05
		48.50			44.60			33.40			34.72
		51.32			47.36			36.00			
		38303			34042			21596			20171
	53 5.77			53 2.30			52 47.63			52 55.53	
	53 50.17	53 34.821		53 ~~58~~ 54.17	53 30.947		53 36.47	53 19.633		53 39.40	53 18.337
		53 59.45			53 59.45			53 59.423			53 59.41
		−24.63			−28.50			−39.79			−41.07
		−24.69			−28.56			−39.85			−41.13
		−24.68			−28.55			−39.84			−41.12
		+ 25.32			+ 29.17			+ 40.33			+ 41.69
		− .62			− .60			− .48			− .53
		− 2.36			− 2.36			− 2.33			− 2.32
		+ 22.34			+ 26.21			+ 37.52			+ 38.84
		53m 57.16s			57.16			57.15			57.18

	Jan. 1			Jan. 5			Jan. 14			Jan. 16		
	+ 29.05s	− 15.35s		+ 28.65	− 23.22		+ 32.00	− 16.84		+ 22.81	− 21.06	
	1.46315	1.18611 n		1.45712	1.36586 n		1.50575	1.22634 n		1.35813	1.32846 n	
	1.46640	1.18936 n		1.46037	1.36911 n		1.50840	1.22959 n		1.36138	1.32671 n	
	30′ 3′	30′ 4′		30 3	30 4		30 3	30 4		30 ~~4~~ 3	30 4	
E	37.8″+47	22.4″+52		37.5+48	30.1+51		27.1+61	15.8+44		43.9+36	26.9+54	
F	49.1+34	33.9+01		48.1+34	40.2+08		40.1+21	29.6+02		53.3+29	37.7+04	
G	36.6−10	19.9−27		34.7−05	26.1−06		30.9+06	19.1−29		38.9−28	20.6−26	
H	39.4+25	24.4+21		38.5+26	30.3+23		43.6+18	34.7+21		47.7+13	35.2+21	
	37.20 96	[illegible] 47	21.15	36.10 103	28.10 76	28.10	29.00 106	38	17.45	41.40 50	53	23.75
	33′ 40.72″	34′ 25.15		33 39.70	34 31.68		33 35.42	34 24.80		33 45.95	34 30.10	
	29.27	− 15.47		28.86	− 23.39		32.24	− 16.97		22.98	− 21.22	
	34 9.99	34 9.68		34 8.56	34 8.29		34 7.66	34 7.83		34 8.93	34 8.88	
+40°	48′ 38.36″	48′ 38.67″		48 39.79	48 40.06		48 40.69	48 40.52		48 39.42	48 39.47	
+1°	28′ 22″	29′ 6″		28 21	29 13		28 16	29 6		28 27	29 11	
	0.1703	0.1740		0.1703	0.1745		0.1698	0.1740		0.1708	0.1745	
	+ 247	+ 247		+ 352	+ 352		+ 95	+ 95		+ 427	+ 427	
	0.1950	0.1987		0.2055	0.2097		0.1793	0.1835		0.2135	0.2172	
	− 1.57″	− 1.58″		− 1.61	− 1.62		− 1.51	− 1.53		− 1.63	− 1.65	
	− .23	− .06		− .22	− .14		− .27	− .08		− .14	− .12	
	− .~~48~~ 37	− .~~57~~ 44	− 0.84	− .~~51~~ 37	− .~~63~~ 45	− 0.85	− .~~50~~ 36	− .~~64~~ 4	− 0.89	− .~~47~~ 34	− .~~5?~~ 41	− 0.60
	− .24	− .12	− 0.62	− .26	− .19	− 0.78	− .26	− .10	− 0.62	− .12	− .13	− 0.66
	− 2.~~52~~ 41	− 2.~~33~~ 20		− 2.~~60~~ 46	− 2.~~58~~ 40		− 2.~~54~~ 40	− 2.~~35~~ 16		− 2.~~38~~ 23	− 2.~~49~~ 31	
	48 35.9~~8~~ 85	36.47″		37.33	37.66		38.29	38.37		37.19	37.16	
	48 36.2~~0~~ 1			37.50			38.33			37.18		
	53 57.0	+5′ 20.11″		57.5	+5 18.09		58.4	+5 19.66		58.6	+5 20.93	
		− .04	+5 20.07		− .04	+5 18.05		− .04	+5 19.62		− .04	+5 20.89
	+5′ 20.8″	− 12.70		20.0	− 13.20		20.1	− 14.10		21.4	− 14.30	
	20.9	+5 7.37		20.2	+5 4.85		20.2	+5 5.52		21.6	+5 6.59	
		53′ 43.6″			42.4			43.8			43.8	

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	a			δ								
	m	s										
Jan. 0	53	59.45		53	56.9							
5		45			57.5							
10		44			58.0							
15		42			58.5							
20		59.38			58.9							
25		33			59.3							
30		27			59.6							
Feb. 4		20			59.9							
9		59.12			60.1							
Jan. 23				Jan. 24			Jan. 28			Jan. 29		
52 45.6	52	54.62		52	40.1	52 53.15	52	37.4	52 48.70	52	38.7	52 47.47
48.7		57.43			42.6	55.90		40.5	51.52		40.6	50.00
51.3		0.10			45.7	58.72		42.5	54.14		43.3	52.76
		5.47				4.25			59.78			58.38
		8.50				6.80			2.43			1.08
		10.95				9.66			5.12			3.70
53 33.1		13.68		53	26.3	12.53	53	14.0	7.78			6.43
36.5		16.25			28.5	15.10		16.8	10.62			9.18
38.7		22.00			31.7	20.52		18.4	16.58			14.67
		24.75				23.40			18.68			17.35
		27.60				26.00			21.42			20.00
		24.35				28.03			29.19			28.02
52 48.53		12.35		52	42.80	10.03	52	40.00	5.19	52	40.87	4.02
53 36.10	53	11.032		53	28.83	53 9.639	53	16.40	53 5.108			53 3.729
	53	59.348				53 59.338			53 59.291			53 59.279
		−48.32				−49.70			−54.18			− 55.55
		−48.38				−49.76			−54.24			−55.61
		−48.37				−49.75			− 54.23			−55.60
		+ 49.07				+ 50.31			+ 54.92			+ 56.23
		− .62				− .59			− .72			− .64
		− 2.26				− 2.25			− 2.20			− 2.19
		+ 46.14				+ 47.47			+ 52.50			+ 53.40
		57.17				57.11			57.11			57.13
+22.50		−25.07		+26.84		− 19.19	+ 25.11		− 11.29	+22.86		
1.35218		1.39915 m		1.42878		1.28307 m	1.39985		1.05269 m	1.35908		
1.35543		1.40240 m		1.43203		1.28632 m	1.40310		1.05594 m	1.36233		
30 3	30	4		30	3	30 4	30	3	30 4	30	3	
44.1+36		30.6+50		39.7+45		25.2+54	37.7+47		13.9+41	42.9+38		
43.9+31		30.3+02		41.9+26		27.6+04	39.9+21		16.3+17	44.0+31		
49.4+48		35.2+11		47.4+58		31.1+02	48.4+50		23.2+18	50.8+44		
44.0+18		32.1+23		42.2+21		29.2+23	43.9+18		21.6+20	46.4+15		
4675 37		63 3290		4355 42		83 2815	43.05 36		60 18.55	4685 40		
33 45.35	34	32.05		33	42.80	34 28.28	33	42.48	34 18.75	33	46.02	
22.67		−25.26			27.04	− 19.33		25.30	− 11.87		23.03	
34 8.02	34	6.79		34	9.84	34 8.95	34	7.78	34 7.38	34	9.05	
48 40.33	48	41.56		48	38.51	48 39.40	48	40.57	48 40.97	48	39.30	
28 26	29	13		28	24	29 9	28	23	29 0	28	27	
0.1707	0.1745			0.1706		0.1742	0.1705		0.1735	0.1707		
+449	+449			+342		+342	+289		+289	+354		
0.2156	0.2194			0.2048		0.2084	0.1994		0.2024	0.2061		
− 1.64	− 1.66			− 1.60		− 1.62	− 1.58		− 1.59	− 1.61		
− .14	− .17			− .21		− .10	− .17		− .03	− .14		
− .42	− .56	− 0.53		− .44		− .46 − 0.57	− .42		− .39 − 0.52	− .42	− 0.54	
− .09	− .16	− 0.69		− .10		− .21 − 0.62	− .09		− .15 − 0.48	− .10		
− 2.39 17	− 2.49 36			− 2.32 17		− 2.42 24	− 2.25 10		− 2.24 07	− 2.27 16		
38.16	37.21			36.34		37.16	38.47		38.90	37.15		
58.68				36.75			38.68			37.15		
59.7	+5	20.60		59.2	+5	22.21	59.5	+5	20.97	59.5	+5	22.05
	−	.04	+5 20.56		−	.04 +5 22.17		−	.04 +5 20.93		−	.04 +5 22.01
+5 20.5	−	14.90		22.4	−	14.90	20.8	−	15.20	22.3	−	15.20
20.6	+5	5.66		22.6	+5	7.27	20.9	+5	5.73	22.5	+5	6.81
		44.3				44.0			44.4			44.0

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1878

	Jan. 30		Feb. 3		Feb. 4		Feb. 5	
2	m s	m s	~~57~~ 18.8	~~52~~ 40.30	52 14.2	52 39.20	52 10.4	52 38.10
4	52 32.1	52 46.00	20.5	43.00	16.3	41.70	13.0	40.70
	34.3	48.62	22.5	45.70	18.9	44.50	15.6	43.43
	36.3	51.45		51.14		50.00		49.00
		56.78						
		59.68		53.90		52.80		51.67
		2.30		56.80		55.70		54.50
	53 17.7	5.10	53 ~~54~~ 38.8	59.47	53 32.0	58.30	53 26.0	57.25
	20.0	7.74	41.4	2.00	35.1	1.00	28.3	0.00
	23.2	13.28	43.7	7.70	37.8	6.44	30.2	5.33
		16.00		10.30		9.10		8.00
		19.00		12.92		12.00		10.90
		32595		38323		87074		~~55~~ 48888
	52 34.23	2595	52 20.60	62323	52 16.47	61074	52 13.00	~~59~~ 58888
	53 20.30	53 2.89	53 41.30	52 56.65	53 34.97	52 65522	53 28.17	52 54.444
		53 59.266		53 59.210		53 59.196		53 59.188
		− 56.91		− 62.55		− 63.67		− 64.74
		−56.97		− 62.61		− 63.73		− 64.80
		− 56.96		−62.60		−63.72		−64.79
		+ 57.65		+ 63.12		+ 64.34		+ 65.36
		− .67		− .57		− .64		− .62
		− 2.18		− 2.12		− 2.11		− 2.09
		+ 54.80		+ 60.43		+ 61.59		+ 62.65
		m s						
		53 57.16		57.09		57.11		57.09
	s	s					s	s
	+ 28.13	− 17.94	+ 36.06	− 44.64	+ 39.05	− 39.45	+ 41.44	− 33.83
	1.44917	1.25382m	1.55703	1.64972m	1.59162	1.59605m	1.61742	1.52802m
	1.45242	1.25707m	1.56028	1.65297m	1.59487	1.59930m	1.62067	1.53127m
	′ ″	′ ″						
	30 3	30 4	30 3	30 4	30 3	30 4	30 3	30 4
	″	″						
Log	38.9+.46	23.6+.54	26.4+.61	48.1+.14	24.9+.61	43.1+.24	19.6+.54	35.1+.42
	39.9+.21	25.3+.07	28.2+.16	49.4+.19	26.8+.17	44.9+.18	22.4+.22	38.0+.07
	47.1−.50	31.0+.02	35.9−.12	57.1−.12	34.5−.04	53.8+.43	32.4+.02	48.9−.60
	41.1+.23	27.1+.22	32.1+.33	53.6 00	32.3+.33	51.9+.02	30.8+.34	44.5+.10
	43.00 40	85 27.30	31.15 98	21 52.60	29.70 107	01 48.45	26.00 112	−.04 42.00
	33 41.75	34 26.75	33 30.65	34 52.05	33 29.62	34 48.42	33 26.30	34 41.62
	28.34	− 18.07	36.33	− 44.98	39.34	− 39.75	41.75	− 33.98
	34 10.09	34 8.68	34 6.98	34 7.07	34 8.96	34 8.67	34 8.05	34 7.64
+40°	′ ″ 48 38.26	′ ″ 48 39.67	48 41.37	48 41.28	48 39.39	48 39.68	48 40.30	48 40.71
+1°	′ ″ 28 23	′ ″ 29 8	28 12	29 33	28 11	29 29	28 7	29 23
	0.1705	0.1741	0.1696	0.1762	0.1696	0.1759	0.1691	0.1754
	+431	+431	+308	+308	+247	+247	+241	+241
	0.2136	0.2172	0.2004	0.2070	0.1943	0.2006	0.1932	0.1995
	− 1.64	− 1.65	− 1.59	− 1.61	− 1.56	− 1.59	− 1.56	− 1.58
	− .21	− .09	− .35	− .53	− .41	− .42	− .46	− .31
	− ~~47~~ 39	− ~~48~~ 35 − 0.61	− ~~42~~ 31	− ~~59~~ 44 − 0.90	− ~~42~~ 31	− ~~58~~ 43 − 0.99	− ~~44~~ 33	− ~~62~~ 47 − 1.08
	− .10	− .21 − 0.65	− .24	− .05 − 1.02	− .27	00 − 0.85	− .28	+ .01 − 0.79
	− 2.36 25	− 2.33 30	− 2.66 49	− 2.78 63	− 2.66 55	− 2.59 44	− 2.41	− 2.49 35
	48 36.01	37.37	38.88	38.65	36.84	37.24	37.86	38.36
	48 36.69		38.76		37.04		37.80 38.01	
	53 59.6	′ ″ +5 22.56	59.8	+5 21.71 +5 22.52	59.9	+5 21.49 +5 21.45	59.9	+5 21.56 +5 21.57
	′ ″ +5 22.9	− .04		− .04		− .04		− .04
		− 15.30	21.0	− 15.50	22.9	− 16.60	21.9	− 15.60
	23.0	+5 7.22	21.2	+5 6.17	23.0	+5 5.85	22.1	+5 5.92
		′ ″ 53 43.9		44.9		42.9		43.9

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	α	δ	
Jan. 30	53 59.27	53 59.6	3
Feb. 4	59.20	59.9	2
9	59.12	60.1	2
14	59.03	60.3	2
19	58.93	60.4	1
24	58.83	60.4	0
Mar. 1	58.72	60.4	0

For Dec 26 and 1879 Jan. 22 see p. 119

Feb. 6

53	22.1	53	38.00																
	24.9		40.77																
	27.3		43.50																
			48.82																
			51.62																
			54.42																
54	25.2		57.00																
	27.7		59.90																
	29.6		5.86																
			8.00																
			10.68																
			41807																
53	24.77		59807																
54	27.50																		
53	24.77																		
54	27.50	53	54.370																
		53	59.164																
			− 4.79																
			− 4.85																
			− 4.84																
			+ 5.40																
			− .58																
			− 2.07																
			+ 2.75																
			57.12																
			+29.60		−33.13														
			1.47129		1.52022 m														
			1.47454		1.52347 m														
			30 3		30 4														
			29.5+.59		32.6+.47														
			33.0+.15		36.0+.02														
			47.1−.50		49.2−.60														
			41.8+.21		43.9+.11														
			38.30 45		00	40.90													
		33	37.85	34	40.42														
			29.82		−33.38														
		34	7.67	34	7.04														
		48	40.68	48	41.31														
		28	19	29	21														
			0.1701		0.1752														
			+209		+209														
			0.1910		0.1961														
			− 1.55		− 1.57														
			− .24		− .30														
1.08			− .80		− .00		− 0.71												
.79			− .11		00		− 0.77												
			− 2.4426		− 2.5334														
		48	38.42		38.97														
		48	38.70		60.0	+5	20.86												
3.2			2.13		− .04	+5	20.82												
		+5	2.24		− 15.70														
			21.4	+5	5.12														
					43.8														

Oct. 7

53	14.4	53	19.28		34.00														
	17.0		21.75		36.72														
	19.5		24.49		39.49														
	21.3		27.22		42.25														
	23.9		30.00		45.00														
			19.15		49.10														
			21.90		51.80														
			24.53		54.60														
			27.33		57.32														
			30.00		0.08														
			24.55		4.00														
			39.49		6.72														
			54.58		9.52														
			9.47		12.10														
			24.58		15.00														
		53	19.22	15267		27267													
		53	54.534																
		53	59.148																
			− 4.61																
			− 4.67																
			− 4.66																
			+ 5.20																
			− .58																
			− 2.06																
			+ 2.56																
			57.09																
			+35.31																
			1.54790																
			1.5 3187 m																
			30 3																
			18.3+.58																
			21.8+.22																
			36.1−.18																
			33.5+.32																
			27.2093																
		33	27.42																
			−3 14.03																
		32	53.60 39																
		49	54.75 96																
		29	18																
			0.1750																
			+ 127																
			0.1877																
			− 1.54																
			− .33																
			− .52				− 0.94												
			− .23																
			− 2.6248																
		49	52.48																
		49	5248																
			60.0	+4	6.64														
			− .04	+4	6.60														
		4	4.5	−	15.70														
			4.9	+3	50.90														
					43.4														

Feb. 16

53	15.5?	53	23.00		38.00														
	17.3		26.00		41.10														
	18.7		28.62		43.65														
	20.8		31.26		46.43														
	23.7		34.00		48.95														
			23.27		53.20														
			25.90		56.00														
			28.52		58.72														
			31.38		1.55														
			34.10		4.20														
			28.58		8.25														
			43.63		11.05														
			58.73		13.80														
			13.71		16.33														
			28.63		19.10														
		53	19.20	17328		29328													
		53	58.656																
		53	58.985																
			− 0.33																
			− 0.39																
			− 0.38																
			+ 1.08																
			− .63																
			− 1.89																
			− 1.44																
			57.22																
			+39.46																
			1.59616																
			1.5 8013 m																
			30 3																
			23.4+.59																
			27.1+.17																
			36.9−.17																
			32.8+.33																
			30.15 92																
		33	29.98																
			−3 14.03																
		32	52.18 51.95																
		49	56.17 46																
		29	21																
			0.1752																
			+ 204																
			0.1956																
			− 1.57																
			− .42																
			− .77				− 1.21												
			− .23																
			− 2.78																
			53682																
			53682																
			60.3	+4	7.05														
			− .03	+4	7.02														
			6.7	−	16.00														
			6.8	+3	51.02														
					44.6														

Feb. 18

53	19.67	53	23.80		38.62														
	23.0		26.78		41.50														
	25.2		29.48		44.30														
	28.3		32.10		47.00														
	30.3		34.88		49.90														
54	7.00		23.90		53.75														
	9.6		26.68		56.52														
	13.5		29.58		59.20														
	15.9		32.30		2.05														
	18.4		34.62		4.70														
			29.41		8.90														
			44.26		11.80														
			59.24		14.52														
			14.49		17.25														
			29.42		20.00														
53	25.28	17682			24682														
54	12.88			53	59.364														
				53	58.945														
				+	0.42														
				+	0.36														
				+	0.37														
				+	0.34														
				−	.72														
				−	1.85														
				−	2.23														
					57.13														
			+34.08		−13.52														
			1.53250		1.13098 m														
			1.51 647		1.11 495 m														
			30 3		30 2														
			21.6+.59		35.2+.46														
			24.6+.18		38.3+.26														
			31.9+.03		46.2−.55														
			29.0+.34		43.4+.25														
			26.75 112		52	40.70													
		33	26.78	32	40.78														
			− 32.54		13.03														
		32	54.13 53.94	32	53.73 81														
		49	54.22 41	49	54.62 54														
		29	18	28	32														
			0.1750		0.1712														
			+324		+324														
			0.2074		0.2036														
			− 1.61		− 1.60														
			− .31		− .04														
			− .76		− .55		− 1.17												
			− .28		− .13		− 0.62												
			− 2.78		− 2.36														
			51.63		52.32														
			51.98																
			60.4	+4	7.44														
			− .03	+4	7.41														
			84	−	16.10														
			8.5	+3	51.31														
					43.3														

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α Aurigæ.

$5^h\ 7^m\ 41^s$
$+45°\ 52'\ 18''$
$-3°\ 29'\ 30''$
1878

α₀ $7^m\ 40^s.724$
Corr. α $-.040$ $-.024$
$\frac{d\alpha}{dt}$ $+4^s.424$
δ_0 $52'\ 17''.64$
Corr. δ $+.11$
$\frac{d\delta}{dt}$ $+4''.12$

log sin δ 9.85600
" cos δ 9.84278
" 15208 sin 1" 9.96756 thro' Feb. 6
9.94~~565~~ 828 after Feb. 6
tan δ +1.03
corr. tan −.06

log R_1 1.51327
" R_2 1.21260
R_1 $32^s.60$
R_2 16.32
I 2.96

Jan. 14 | Jan. 23 | Jan. 29 | Feb. 4

h	m	s	m	s																
5	6	30.5	6	45.70			6	24.1	6	37.28		6	14.0	6	29.90		6	21.4	6	21.80
		33.0	3.42	48.68				26.8		40.30			17.0		32.85			25.2		24.62
		35.2	.45	51.48				31.2		42.85			19.0		35.82			28.0		27.72
			.30	57.60						49.00					41.93					33.60
			.51	0.55						52.10					44.70					36.50
			.50	3.50						54.87					47.68					39.40
			.65	6.60			7	13.2		57.82					50.70					42.40
			.51	9.42				15.7		0.70					53.70					45.61
				—				18.9		6.88					59.50					51.40
			384	—						9.88					2.40					54.30
				—						12.60					5.35					57.24
										36428					40453					43458
	6	32.90					6	27.37		60428		6	16.67		52453		6	24.87		
			7	3.480			7	15.93	6	54935				6	47.685				6	39.507
			7	43.313					7	43.248				7	43.179				7	43.086
				−39.83						− 48.31					− 55.50 kg					− 63.58
				−39.79						− 48.27					− 55.45					− 63.54
				−39.81						−48.29					−55.47					−63.56
				+ 40.33						+ 49.02					+ 56.23					+ 64.34
				− .57						− .74					− .76					− .76
				− 2.59						− 2.52					− 2.46					− 2.36
				+ 37.17						+ 45.76					+ 53.01					+ 61.22
			m	s																
			7	40.65						40.70					40.69					40.73
		s																		
		+30.58					+27.57		−20.99			+31.07					+14.64			
		1.48544					1.44014		1.32207 n			1.49150					1.16554			
		1.45300					1.40800		1.28957 n			1.45906					1.13310			
		35° 0'					35 0		35 0			35 0					35 0			
6		2.0+.01					14.7+.30		58.8+.13			9.1+.16					20.7+.43			
I		15.0+.09					12.2+.16		57.2+.22			9.7+.09					22.1+.06			
q		5.2+.01					19.5−.41		2.4−.01			16.8−.42					30.8−.08			
H		16.2+.33					12.9+.33		57.8+.53			10.8+.31					27.1+.46			
		3.60					17.10 32		87 0.60			12.95 14					25.75 87			
		35 9.60					35 14.82		35 59.05			35 8.XX					35 25.18			
		28.38					25.59		− 19.48			28.78					13.59			
		35 37.98					35 40.41		35 39.57			35 48.38					35 38.77			
+45°	47'	10.37					47 7.94		47 8.78			47 7.97					47 9.58			
−3°	30'	9"					30 4		29 20			30 7					29 54			
		0.5471					0.5469		0.5454			0.5470					0.5466			
		+ 95					+ 452		+ 452			+ 356					+ 252			
		0.5566					0.5921		0.5906			0.5826					0.5718			
		+ 3".60					+ 3.91		+ 3.90			+ 3.82					+ 3.73			
		− .26					− .21		− .12			− .26					− .06			
		− .02		− 0.39			− .02		− .08	− 0.31		− .02		− 0.32			− .04		− 0.32	
		− .11					− .08		− .22	− 0.42		− .04					− .22			
		+ 3.21					+ 3.60		+ 3.48			+ 3.50					+ 3.41			
	47'	13.58					11.54		12.26			11.47					12.99			
	47	13.58					11.90					11.47								
	52	31.9	+5	19.66			32.8		+5 20.60			33.4	+5	22.05			33.9	+5	21.49	
		+ .08			+5 19.74				+ .08	+5 20.68			+	.08	+5 22.13			+	.04	+5 21.56
+5	1'	18.3	−	14.30			20.9		− 15.20			21.9	−	15.80			20.9	−	16.20	
		18.4	+5	5.44			21.0	+5	5.48			22.0	+5	6.23			21.0	+5	5.26	
			52'	19".0					17.4					17.8					18.2	

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α

Jan. 0	7m 43.32	1	52' 30.0"
5	43.33	0	30.7
10	43.33	2	31.4
15	43.31	3	32.0
20	43.28	5	32.5
25	43.23	6	33.0
30	43.17	8	33.5
Feb 4	43.09	8	33.9
9	43.01		34.3

Feb. 5

6	59.2	—
	2.0	—
	4.2	—
		—
		—
		—
		—
		—
6		50.20
	38.38	53.05
	.28	
	.40	56.12
7	1.80	
7	1.80	
6	38.353	
7	43.070	
	− 64.72	
	− 64.68	
	−64.70	
	+ 65.36	
	− .73	
	− 2.35	
	+ 62.28	
	40.63	
	−23.45	
	1.37074m	
	1.33770m	
	35 0	
	55.1+.13	
	57.4+.22	
	6.4+.05	
	2.4+.63	
	0.75 93	
36	0.32	
	−21.76	
35	38.56	
47	9.79	
	29 19	
	0.5453	
	+245	
	0.5698	
	+3.71	
	− .15	
	− .13	−0.48
	− .23	
	+3.20	
	13.02	
	34.0	+5 21.56
		+ .07 +5 21.63
+5	21.4	− 16.10
	21.5	+5 5.23
		18.2

δ

	1' 11"		
52	30.0	7	
	30.7	7	
	31.4	6	
	32.0	5	
	32.5	5	
	33.0		
	33.5	5	
	33.9	4	
	34.3	4	

Feb. 6

7	56.7	—
	59.0	—
	2.0	—
		—
		—
		—
		—
		—
7		50.20
	38.38	52.95
	.18	
	.48	56.20
7	59.23	
7	59.23	
7	38.347	
7	43.054	
	− 4.71	
	− 4.67	
	−4.69	
	+ 5.40	
	− .68	
	− 2.33	
	+ 2.39	
	40.74	
	−20.88	
	1.31973m	
	1.28729m	
	35 0	
	50.4+.17	
	53.1+.28	
	5.3+.03	
	59.9+.57	
	57.85 99	
35	57.18	
	− 19.38	
35	37.80	
47	10.55	
	29 22	
	0.5454	
	+210	
	0.5664	
	+3.68	
	− .12	
	− .14	−0.47
	− .25	
	+3.17	
	13.7	
	34.1	+5 20.86
		+ .07 +5 26.93
	20.3	− 16.56
	20.4	+5 4.43
		18.2

Feb. 9	7m 43.01	10	52' 34.8"
14	42.91	10	34.6
19	42.81		34.8

Feb. 16

8	4.3	—	—
	8.3	—	—
	11.2	—	—
	14.7	—	—
		—	—
8	26.8	9.12	—
	31.1	12.18	—
	34.0	15.20	—
	36.5	18.00	—
	38.5	21.00	—
		—	7 52.88
		—	56.00
		—	58.93
		58.96 42.64	1.93
		15.10 42.50	3.05
8	9.62		
8	33.38		7 42.570
			7 42.865
			− 0.29
			− 0.25
			− 0.27
			+ 1.06
			− .74
			− 2.14
			− 1.82
			40.75
	−27.05	− 50.81	
	1.43217m	1.70595m	
	1.37750 ν	1.65188 ν	
	8045	423	
	30 3	30 3	
	52.9+.22	32.6+.56	
	55.3+.26	35.3+.14	
	4.2+.17	43.9−.45	
	0.4+.05	40.5+.24	
	58.50 70	49 38.25	
33	58.20	33 38.08	
	24.91	45.11	
	23.29	17.83	
34	22.79	34 22.91	
	23.19		
48	26.25	48 25.44	
	14	16	
	30 11	30 31	
	0.5472	0.5479	
	+206	+206	
	0.5678	0.5685	
	+3.70	+3.70	
	− .28		
	− .74	− .71	
	− .83	− .80	−1.01
	− .18	− .12	−1.41
	+2.45 69	+2.87 29	
	28.83	27.45	
48	28.14		
	34.7	+4 7.05	
		+ .07 +4 7.12	
4	6.6	− 17.10	
	6.7	+3 50.02	
		18.2	

Feb. 18	8 8.3	—	—
	11.0	—	—
	14.2	—	—
	16.6	—	—
	17.8	—	—
8	38.4	10.10	—
	40.4	13.10	—
	42.6	16.00	—
	45.4	18.85	—
	47.6	22.00	—
		—	7 53.75
		—	56.68
		57.63 43.31	59.60
		16.07 43.41	2.50
			5.63
8	13.58		
8	42.88		7 43.360
			7 42.825
			+ 0.54
			+ 0.58
			+0.56
			+ 0.33
			− .85
			− 2.10
			− 2.62
			40.74
	−30.22	−59.52	
	1.48029m	1.77466m	
	1.42572 ν	1.72220 ν	
	857	294	
	30 3	30 3	
	57.9+.22	25.8+.61	
	53.8+.28	27.7+.16	
	1.1+.17	34.8−.06	
	58.2+.02	33.2+.33	
	56.50 69	104 30.30	
33	56.25	33 30.38	
	26.53	52.54	
34	23.91	34 22.90	
	23.88	23.22	
48	25.44	48 25.45	
	27	13	
	30 13	30 39	
	0.5472	0.5481	
	+328	+328	
	0.5800	0.5809	
	+3.80	+3.81	
	− .25	− .27	
	− .33	− .34	−1.10
	− .17	− .26	−1.83
	+2.54 70	+1.81 98	
	27.97	27.11	
	27.54		
	34.8	+4 7.44	
		+ .06 +4 7.50	
	7.3	− 17.20	
	7.4	+3 50.30	
		17.8	

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1878

	Feb. 19			Feb. 24			Feb. 26			Feb. 28		
L	m s	m s	m s									
5	7 50.6	–	–	8 15.6	–	–	8 17.0	–	–	7 28.7	–	–
	52.7	–	–	18.2	–	–	19.0	–	–	–	–	–
	56.0	–	–	20.0	–	–	21.2	–	–	–	–	–
	58.8	–	–	22.5	–	–	23.5	–	–	34.3	–	–
	2.0	–	–	26.7	–	–	26.6	–	–	36.7	–	–
	8 29.7	10.00	–	8 40.0	8 11.82	–	8 33.0	8 12.65	–	8 27.5	8 –	–
	32.7	12.92	–	42.4	14.85	–	37.7	15.80	–	29.9	–	–
	35.1	16.00	–	45.0	17.83	–	41.1	18.61	–	32.0	–	–
	37.6	19.10	–	47.2	20.58	–	43.3	21.50	–	35.0	19.32 22.28	–
	40.4	22.00	–	50.3	23.64	–	46.0	24.32	–	37.3	19.20 25.12	–
		—	7 53.52			–			7 56.25	—		–
		—	56.63			–			59.30	—		–
		—	59.50			8 1.40			2.30	—		–
		59.56 43.24	2.76		1.45 45.13	1.44 4.40		2.27 45.95	5.24	—		–
		16.00 43.40	5.40		17.76 45.16	1.51 7.43		18.58 45.98	8.24	19.26 46.66		–
	7 56.02			8 20.60			8 21.46			7 33.23		
	8 35.10		7 43.320	8 44.98		7 45.145	8 40.62		7 45.965	8 32.34		7 46.660
			42.805			42.694			42.646			42.598
			+ 0.52			+ 2.45			+ 3.32			+ 4.06
			+ 0.56			+ 2.49			+ 3.36			+ 4.10
			+0.54			+2.47			+3.34			+4.08
			+ 0.12			– 1.65			– 2.56			– 3.31
			– .73			– .81			– .75			– .81
			– 2.08			– 1.97			– 1.92			– 1.87
			– 2.69			– 4.43			– 5.23			– 5.99
			m s									
			7 40.63			40.71			40.73			40.67
	s	s										
	– 12.70	– 51.78		– 35.46	– 59.84		– 35.50	– 54.66		– 45.68		
	1.10880 n	1.71416 n		1.54974 n	1.77699 n		1.55023 n	1.78767 n		1.65973 n		
	1.0~~4945~~ ll	1.6~~5979~~ ll		1.49~~857~~ ll	1.72~~762~~ ll		1.49~~856~~ ll	1.68~~838~~ ll		1.60~~836~~ ll		
	5208	6,244		802	627		851	595		801		
	30 4	30 3		30 3	30 3		30 3	30 3		30 3		
	"	"										
E	6.7+2.6	33.9+5.4		42.8+3.8	21.6+5.7		45.5+3.4	27.9+4.6		35.3+5.7		
F	8.9+1.9	34.8+1.4		46.9+3.4	25.2+1.8		48.1+3.4	30.3+1.5		38.8+2.0		
G	15.9-.2.7	41.5-.3.8		58.5+1.1	35.4-.0.9		57.8+0.7	38.6-2.6		51.8-.4.1		
H	12.1+2.3	40.0+2.4		53.7+0.5	33.7+3.2		53.9+0.5	37.3+2.8		47.7+1.3		
	11.30 41	11 54 37.70		50.65 88	98 28.50		51.65 80	78 33.25		43.55 43		
	34 10.90	33 37.55		33 50.48	33 28.98		33 51.32	33 33.52		33 43.40		
	~~11.70~~ .97	45.~~88~~		31.~~29~~	~~53.12~~		31.~~32~~	48.~~52~~		40.~~20~~		
	34 ~~21.60~~	34 23.~~84~~		34 ~~21.77~~	34 ~~21.78~~		34 22.64	34 ~~21.75~~		34 23.~~70~~		
	22.17	.52		21.66	22.10		83	22.84		95		
+45°	48' 26.~~34~~	48' ~~55.1~~		48 ~~17.06~~	48 26.57		48 25.~~71~~	48 26.~~80~~		48 24.~~65~~		
	18	24.83		26.39	25		52	31		40		
– 3°	29' 58"	30' 31"		30 19	30 40		30 18	30 35		30 26		
	0.5467	0.5479		0.54774	0.54822		0.54744	0.54814		0.54764		
	+ 330	+ 330		+ 118	+ 118		+ 138	+ 138		+ 73		
	0.5797	0.5809		0.55892	0.56040		0.5612	0.5619		0.55549		
	+ 3.80	+ 3.81		+ 3.62	+ 3.63		+ 3.64	+ 3.65		+ 3.59		
	– .24	– .74		– .35	– .98		– .35	– .81		– .57		
	– .~~92~~	– .~~89~~	– 0.85	– .~~85~~	– .~~76~~	– 1.18	– .~~77~~	– .~~78~~	– 1.13	– .~~72~~	– 1.20	
	– .10	– .14	– 1.49	– .22	– .24	– 1.78	– .20	– .20	– 1.54	– .11		
	+ 2.~~74~~95	+ 2.~~14~~32		+ 2.~~23~~44	+ 1.~~88~~		+ 2.~~30~~51	+ 1.~~89~~11		+ 2.~~17~~36		
	48 29.13	27.15		28.83	28.10		28.83	28.42		26.76		
	48 28.14			28.46			28.22					
	52 34.8	+4 7.88		34.9	+4 7.38		34.9	+4 7.34		35.0	+4 8.30	
	+ .06	+ .06	+4 7.94		+ .06	+4 7.39		+ .06	+4 7.40		+ .05	+4 8.35
	+4 6.7	– 17.20		6.4	– 17.30		6.7	– 17.30		8.2	– 17.40	
	6.8	+3 50.74		6.5	+3 50.09		6.8	+3 50.10		8.3	+3 50.95	
		52' 18.9			18.6			18.3			17.7	

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	α			δ			
	m s			′ ″			
Feb. 9	7 43.01			52 34.3			
14	42.91	10		34.6	3		
19	.81	10		34.8	2		
24	.70	11		34.9	1		
Mar. 1	42.58	12		35.0	1/1		
6	46	12		34.9			
11	34	12		34.8	1		
16	.22	12		34.6	2		
21	42.10	12		34.4	2		

1879 Jan. 23

Mar. 4

7	30.2		–		–	8	14.2	–		–	
	33.0		–		–		17.3	–		–	
	34.0		–		–		20.4	–		–	
	38.0		–		–		23.0	–		–	
	40.7		–		–		26.0	–		–	
8	46.6	8	15.05		–	8	43.5	8	13.00		–
	48.4		17.93		–		45.8		18.00		–
	57.1		20.85		–		47.3		20.95		–
	52.9		23.94		–		49.1		23.92		–
	53.3		26.83		–		37.2		26.84		–
			–		–			–			–
			–		–			–			–
			–		–			–			–
			–		–			–			–
			20.92	48.32	–			4.66	48.34	8	7.60
								20.95	48.35	4.64	10.60
										4.68	
7	35.58					8	20.18				
8	50.90			7	48.320	8	47.38			7	48.345
				7	42.502					7	42.478
					+ 5.82						+ 5.87
					+ 5.86						+ 5.91
					+5.84						+5.89
					– 5.04						– 5.21
					– .82						– .68
					– 1.78						– 1.75
					– 7.64						– 7.64
					40.68						40.70
	+ 12.74		– 62.58				– 31.84		– 59.04		
	1.10517		1.79644 m				1.50297 m		1.77115 m		
	1.05 ~~850~~ m		1.74 ~~207~~ ″				1.4 ~~7860~~ ″		1.71 ~~775~~ ″		
	345		472				5125		943		
	4										
	30 3		30 3				30 3		30 3		
	30 4		30 3								
25.0	[35.0] 25.0 + 61		20.0 + 55				48.1 + 29		24.0 + 60		
27.6	37.6 + 17		23.5 + 20				51.2 + 33		27.1 + 17		
39.8	49.8 – 47		34.6 – 05				1.5 + 18		36.8 – 17		
34.8	44.8 + 17		32.0 + 33				57.9 + 02		35.0 + 31		
	37.50 48		103	27.30			54.80 82		91	30.40	
	34										
	~~33~~ 89.38		33 27.52				33 54.68		33 30.72		
	31		56				20		41		
	34 – 11.54		58.22				28.82		52.64		
	~~33~~ 30.56		34 ~~22.74~~				34 22.77		34 ~~22.81~~		
	20.49		23.08				94		23.13		
	48 ~~27.X~~		48 ~~26.61~~				48 ~~25.58~~		48 ~~25.54~~		
	1.86		27				41		22		
	29										
	20 37		30 41				30 14		30 38		
	0.54 ~~60~~		0.54 ~~82~~				0.5472		0.5481		
	+ ~~110~~		+ ~~146~~				+ 193		+ 193		
	0.55 ~~76~~		0.5598				0.5665		0.5674		
	+ 3.61		+ 3.63				+ 3.69		+ 3.69		
	– .05		– 1.07				– .28		– .95		
	– ~~.55~~ 63		– ~~.82~~ 49		– 0.80		– ~~.33~~		– ~~.69~~		– 1.03
	– .12		– .26		– 6.82		– .20		– .23		– 1.67
	+ 2.54		+ 1.82				+ 2.4763		+ ~~2.02~~ 1.84		
	5.81		64 81								
	30.68		27 ~~33~~				28.04		27.24		
	67		08								
	28.98 87		34.9		+4 8.00		27.64		+4 8.02		
	84.9		+ 7.8		+ .05	74 8.05	34.9		+ .05	+4 8.07	
			– 17.30		– 17.30		7.3		– 17.30		
	+4 5.9 60		7.9		+3 50.75		7.4		+3 50.77		
	67										
	rej.				17.8				18.4		

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β Tauri

$5^h\ 18^m\ 35^s$

$+28°\ 30'\ 8''$

$+13°\ 52'\ \text{~~34~~}\ 40''$

1878

α_0	$18^m\ 34^s.827$
Corr α	− .010
	− .004
$\frac{d\alpha}{dt}$	$+3^s.789$
δ_0	30′ 7″.60
Corr. δ	+1.16
$\frac{d\delta}{dt}$	+3″.41

log sin δ	9.67869 (~~9.67870~~)
" cos δ	9.94389
" 15 cos δ tan i	0.06867 thro' Feb. 6, 1878
	0.04674 after Feb. 6 "
	0.04939 for Dec. 1878, Jan. 1879
tan δ	+0.54
sin/tan z	+.25

log R_1	1.41216	
" R_2	1.11149	
R_1	$25^s.83$	
R_2	12.93	
I		

Jan. 14

h	m s	m s
5	17 32.0	17 42.90
	34.2	45.20
	36.3	47.60
		52.30
		54.57
		56.95
	18 11.50	59.28
	13.30	1.65
	15.60	6.30
		8.60
		11.05
		38635
	17 34.17	62635
	18 13.47	17 56.941
		18 37.04
		− 40.10
		− 40.09
		− 40.10

+ 40.33 / − .30 / − 2.21 / + 37.82 / $18^m\ 34^s.76$

Jan. 23

m s	m s
17 26.4	17 34.10
29.4	36.50
32.0	38.83
	43.80
	45.85
	48.50
18 13.3	50.77
15.7	53.00
18.4	57.82
	0.00
	2.46
	41163
17 29.27	53163
18 15.80	17 48.330
	18 37.00
	− 48.67
	− 48.66
	− 48.67

+ 49.02 / − .39 / − 2.17 / + 46.46 / 34.79

Jan. 24

m s	m s
17 19.1	17 32.92
20.6	35.20
23.2	37.60
	42.37
	44.75
	47.10
18 8.5	49.45
10.5	51.70
12.6	56.40
	58.75
	1.15
	45739
17 20.97	51739
18 10.53	17 47.035
	18 36.995
	− 49.96
	− 49.95
	− 49.96

+ 50.31 / − .37 / − 2.17 / + 47.77 / 34.81

Jan. 28

m s	m s
17 18.0	17 28.42
20.1	30.80
21.6	33.08
	37.87
	40.00
	42.48
	44.73
	47.15
	51.90
	54.20
	56.50
	46713
17 19.90	17 42.466
	18 36.964
	− 54.50
	− 54.49
	− 54.50

+ 54.92 / − .44 / − 2.14 / + 52.34 / 34.81

Reductions

	Jan. 14			Jan. 23			Jan. 24			Jan. 28		
	+ 22.77	− 16.53		+ 19.06	− 27.47		+ 26.07	− 23.49		+ 22.67		
	1.35786	1.21827n		1.28012	1.43886n		1.41614	1.37088n		1.35353		
	1.42603	1.28694n		1.34879	1.50753n		1.48481	1.43955n		1.42220		
	55′ 1′	55′ 2′		55 2	55 3		55 2	55 3		55 2		
e	58.2+07	43.6+31		8.8+21	2.3+17		0.9+08	0.8+17		3.2+09		
f	12.1+34	58.1+30		8.2+34	2.3+27		4.9+33	2.9+27		6.3+34		
g	0.5+12	46.3+56		13.9−23	5.4+08		7.6+07	5.2+08		10.7−08		
h	15.6+48	7.0+28		8.9+50	5.2+37		2.5+38	2.9+31		8.8+50		
	6935 191	145	4495	1135 82	89	3.85	425 86	83	3.00	695 85		
	57 6.60	57 52.50		57 9.95	58 3.80		57 3.98	58 2.95		57 7.25		
	26.67	− 19.36		22.32	− 32.18		30.54	− 27.51		26.44		
	57 33.27	57 33.14		57 32.27	57 31.62		57 34.52	57 35.44		57 33.69		
+28°	25′ 15″.08	25′ 15″.21		25 16.08	25 16.73		25 13.83	25 12.91		25 14.66		
+13°	51′ 48″	52′ 33″		51 48 (51)	52 45		51 45	52 44		51 48		
	0.15260	0.15303		0.15253	0.15315		0.15258	0.15314		0.15260		
	+ 947	+ 947		+ 4542	+ 4542		+ 3419	+ 3419		+ 3014		
	0.16207	0.16250		0.19804	0.19857		0.18677	0.18733		0.18274		
	− 14.52	− 14.54		− 15.78	− 15.80		− 15.37	− 15.39		− 15.23		
	− .12	− .06		− .08	− .17		− .16	− .13		− .12		
	− .21	− .30	− 0.58	− .14	− .24	− 0.45	− .14	− .31	− 0.52	− .15	− 0.48	
	− .25	− .36	− 0.71	− .20	− .22	− 0.63	− .24	− .21	− 0.55	− .21		
	− 15.10	− 15.25		− 16.23	− 16.43		− 15.84	− 16.04		− 15.71		
	24 59.98	59.96		59.85	0.30		57.94	56.91				
	24 59.97			0.08			57.46			58.95		
	30 17.8	+5′ 19.66		18.1	+5 20.60		18.2	+5 22.21		18.3	+5 20.97	
		− .34	+5 19.32		− .33	+5 20.27		− .33	+5 21.88		− .32	+5 20.67
	+5′ 17″.8	− 10.20		18.0	− 10.50		20.7	− 10.60		19.3	− 10.70	
	19.0	+5 9.82		19.2	+5 9.77		21.9	+5 11.28		20.5	+5 9.95	
		30′ 9″.1			9.8			8.7			8.9	

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	α		δ		α		δ			
	m s		′ ″			m s	′ ″			
Jan. 0	18 37.01	3	30 17.2	2	Feb. 9	18 36.84	30 18.5			
5	37.04	1	17.4	2	14	.77	18.4	1		
10	37.05	—	17.6	2	19	.69	18.3	1		
15	37.04	1	17.8	2						
20	37.02	2	18.0	2						
25	36.99	3	18.2	2						
30	36.95	4	18.3	1						
Feb. 4	36.90	5	18.4	1						
9	36.84	6	18.5							
	Jan. 30		Feb. 11			Feb. 16			Feb. 18	
	17 16.6	17 25.70	18 5.6	18 4.00	17.00	17 58.3	18 5.62	18.53	18 1.0	18 6.00	19.18
	19.1	28.00	8.0	6.50	19.20	58.2	7.90	20.80	3.4	8.75	21.48
	20.9	30.36	10.2	8.80	21.75	0.1	10.35	23.33	5.6	11.00	23.92
		34.92	12.4	11.20	24.00	2.1	12.62	25.68	7.6	13.46	26.28
		37.43	14.2	13.20	26.46	4.8	15.05	28.00	11.4	15.70	28.43
		39.85									
	18 2.6	42.81		55.80	38.00	19 7.2	37.22	31.37	19 6.6	58.00	32.22
	6.0	44.48		58.28	32.20	9.6	59.60	33.75	8.5	0.25	34.52
	10.2	49.88		0.50	34.76	11.0	1.90	36.00	10.9	2.60	37.00
		57.48		3.00	37.00	13.7	4.18	38.33	13.0	5.00	39.38
		59.72		5.20	39.48	15.7	6.58	40.78	16.0	7.30	41.55
		43.02		8.74	42.80		10.31	44.30		10.98	45.10
				21.68	45.25		23.27	46.48		23.86	47.32
				34.69	47.57		36.05	49.18		36.93	49.85
				47.56	50.00		48.98	51.40		49.78	52.10
				0.56	52.16		1.90	53.52		2.63	54.55
	17 18.87		18 10.08	11323	17323	18 0.30	12051	18051	18 5.80	12418	18418
	18 6.27	17 39.729			18 34.646	19 11.32		18 36.102	19 11.80		18 36.836
		18 36.748			18 36.808			18 36.734			18 36.702
		− 57.22			− 2.16			− 0.63			+ 0.13
		−57.21			− 2.15			− 0.62			+ 0.14
		− 57.22			− 2.16			− 0.63			+ 0.13
		+ 57.65			+ 2.58			+ 1.06			+ 0.32
		− .42			− .41			− .39			− .45
		− 2.12			− 1.98			− 1.91			− 1.88
		+ 55.11			+ 0.19			− 1.24			− 2.05
		34.84			34.84			34.86			34.79
	+20.86	−26.54	+24.57			+35.80	−35.22		+31.04	−34.16	
	1.31931	1.42390m	1.39041			1.55388	1.54679m		1.49192	1.53352m	
	1.38798	1.49257m	1.43715m			1.60062m	1.59353 ϕ		1.53866m	1.58226 ϕ	
			980			327	618		4131	291	
	55 2	55 3	55 1			55 1	55 0		55 1	55 0	
	6.4+.16	3.8+.20	41.9+.29			53.7+.09	33.2+.46		49.9+.14	35.6+.41	
	8.1+.34	5.6+.30	45.7+.41			58.1+.33	37.7+.08		53.3+.40	39.7+.13	
	14.1−.23	8.9−.03	52.3+.46			6.2+.10	46.1−.66		59.9+.11	46.5−.67	
	9.44.50	7.7+.40	49.3+.37			2.9+.39	42.0+.51		56.0+.30	44.7+.51	4
	10.25 77	6.35 87	6.35 47.10 63			59.95 91	39 39.65		54.9095	38 41.25	
	57 9.50	58 6.50	56 47.30			57 0.22	55 39.75		56 54.78	55 41.62	
	24.43	− 31.09	− 27.53			40.11	39.46		− 34.84	38.00	27
	57 33.93	57 35.41	56 19.94			56 20.35	56 18.97		56 20.24	56 19.66	
			77			11	19.21		.80	.89	
	25 14.42	25 12.94	26 28.41			26 28.08	26 29.38		26 28.44	26 28.49	
			58			24	14		35	46	
	51 51	52 47	52 38			52 51	51 31		52 46	51 33	
	0.15262	0.15348	1.15308			1.15321	1.15246		1.15316	1.15248	
	+4348	+4348	+2890			+2080	+2080		+3311	+3311	
	0.19610	0.19696	1.18198			1.17401	1.17326		1.18627	1.18559	
	−15.71	−15.73	−15.20			−14.93	−14.90		−15.36	−15.33	
	− .18	− .16	− .14			− .29	− .28		− .20	− .26	
	− .17	− .35	− .34	− 0.55		− .17	− .14	− 6.84	− .22	− .15	− 0.76
	− .19	− .2142	− 0.46 − .16	− 0.63		− .23	− .10	− 0.49	− .24	− .10	− 0.48
	−16.34 17	−16.4436	− 15.84 75			− 15.84 77	− 15.42 39		− 16.22	− 15.84	
	24 58.25	56.58				12.47	13.75		12.23	12.65	
	24 57.42		26 12.83			13.11			12.44		
	18.3	+5 22.56	18.5	+4 7.37		18.4	+4 7.05		18.3	+4 7.44	
		− .32	+ 5 22.24	− .28	+ 4 7.09		− .27	+ 4 6.78		− .26	+ 4 7.18
	+ 5 20.9	− 10.70	4 57.4	− 10.90		5.3	− 10.80		5.9	− 10.70	
	22.1	+5 11.54	6.9	+3 56.19		6.8	+3 55.98		7.1	+3 56.48	
		9.0		9.0			9.1			8.9	

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1878

	Feb. 19			Feb. 24			Feb. 26			Feb. 27		
h	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s	m s
5	17 57.0	18 6.0	18 19.40	18 3.9	18 8.10	18 21.05	17 58.3	18 9.00	18 21.90	18 8.70	–	–
	59.4	8.70	21.75	5.6	10.50	23.38	1.0	11.40	24.35	8.90	–	–
	1.7	11.15	24.00	7.7	12.23	25.80	3.1	13.63	26.58	41.4	–	–
	3.7	13.33	26.32	9.9	15.23	28.12	5.0	16.05	29.00	43.4	–	–
	6.0	13.84	28.97	12.2	17.53	30.43	7.4	18.42	31.31	46.7	–	–
	18 57.5	18 58.22	18 32.20	19 1.38	18 59.53	18 34.05	19 1.69	19 0.64	18 34.73	19 1.35	19 1.00	18 35.36
	59.9	0.52	34.75	13.6	2.10	36.27	18.5	3.10	37.30	21.9	3.36	37.70
	2.1	2.78	36.86	17.3	4.57	38.63	20.7	5.38	39.30	23.9	5.71	[40.00] 39.00
	4.3	5.20	39.24	18.7	6.82	41.00	22.5	7.70	41.88	25.8	8.00	42.30
	6.5	7.62	41.71	21.3	9.10	43.45	24.8	10.05	44.20	27.9	10.36	44.50
		11.07	18 45.26		12.72	18 47.00		13.70	18 47.71		—	18 48.00
		24.01	47.42		25.76	49.20		26.63	50.00		—	50.41
		36.95	49.88		38.68	51.62		39.52	52.42		39.97 39.97	52.77
		49.92	52.26		51.64	54.00		52.48	54.76		52.80 39.87	55.16
		2.87	54.80		4.47	56.40		5.37	57.15		5.69 39.86	57.66
	18 1.56	12.482	18.482	18 7.86	13.327	19.327	18 2.96	13.765	19.768	18 41.30		
	19 2.06		18 36.964	19 17.34		18 38.654	19 20.68		18 39.558	19 23.80		18 39.900
	~~60.50~~		18 36.886			18 36.606			18 36.570			18 36.552
			+ 0.28			+ 2.05			+ 2.96			+ 3.35
			+ 0.29			+ 2.06			+ 2.97			+ 3.36
			~~+0.28~~			~~+2.05~~			~~+2.96~~			~~+3.35~~
			+ 0.10			– 1.66			– 2.57			– 2.91
			– .38			– .42			+ .39			– .41
			– 1.86			– 1.78			– 1.74			– 1.72
			– 2.14			– 3.86			– 5.00			– 5.04
			m s 18 34.82			34.79			34.83			34.86
	s + 35.40	s –25.10		+ 30.79	– 38.69		+ 36.57	– 41.15		– 1.40	– 43.90	
	1,549 00	1.39967 ~		1.48841	1.58760 ~		1.56312	1.61437 ~		0.14613 ~	1.64246 ~	
	1.59 ~~374~~ ~	1.44 ~~841~~ #		1.53 ~~515~~ ~	1.63 ~~434~~ #		1.6 ~~950~~ ~	1.66 ~~111~~ #		0.19 ~~257~~ #	1.6 ~~590~~ #	
	839	906		780	699		1251	376		552	9185	
	55 1	55 0		55 1	55 0		55 1	55 0		55 1	55 0	
C	54.9+.09	47.2+.22		47.1+.20	28.6+.48		[54.7] +.09	25.9+.49		10.9+.30	23.3+.46	
H	57.6+.34	50.3+.30		57.3+.42	34.3+.04		59.1+.31	31.3+.03		14.9+.25	27.7+.03	
G	3.5+.14	57.1–.18		2.2+.14	44.5–.63		6.6+.09	39.8–.47		26.4–.11	38.8–.42	
N	0.9+.33	53.8+.51		58.1+.30	42.2+.51		4.1+.42	36.2+.52		23.9+.66	38.0+.62	
	59.20 90	85 52.85		54.65 106	36.55 40		91	57 32.85		18.65 110	59 31.06	
	56 59.22	55 52.10		56 54.68	55 37.40		57 1.12	55 33.30		56 19.02	55 31.95	
	– 39.~~66~~	– ~~28.12~~		– 34.~~59~~	56 43.~~35~~		~~56~~ 57.~~47~~	– 40.~~46~~		1.~~58~~	49.~~17~~	
	56 19.~~56~~	56 20.05		56 20.~~39~~	55 ~~60~~ 20.~~40~~		– 40.~~46~~	48.~~63~~		56 20.~~58~~	56 ~~20.84~~	
	50	22		18	:75		56 20.~~44~~	56 19.~~78~~		9	21.14	
+28°	26 28.55	26 28.30		26 ~~27.96~~	26 27.86		15	41		26 27.~~78~~	26 27.~~51~~	
	77	13		28.17	60		26 ~~27.95~~	26 ~~29.23~~		1.~~68~~	21	
							28.20	25.94				
+13°	52 50	51 43		52 46	51 28		52 52	51 24		52 10	51 23	
	1.15320	1.15256		1.15316	1.15244		1.15322	1.15240		1.15280	1.15240	
	+ 3320	+ 3320		+ 1204	+ 1204		+ 1893	+ 1893		+ 807	+ 807	
	1.18640	1.18576		1.16520	1.16448		1.16715	1.16633		1.16087	1.16047	
	–15.72	–15.34		– 14.63	– 14.60		– 14.69	– 14.67		– 14.48	– 14.47	
	– .28	– .14		– .22	– .34		– .30	– .38		00	– .44	
	– .~~34~~	– .~~18~~	– 0.84	– .~~30~~	– .~~15~~	– 0.78	– .~~42~~	– .~~18~~	– 0.83	– .~~28~~	– .~~08~~	– 0.48
	– .22	– .21	– 0.50	– .26	– .10	– 0.54	– .23	– .14	– 0.60	– .28	– .15	0.67
	–16.~~56~~	–15.~~84~~		–15.~~53~~41	–15.~~17~~4		–15.~~45~~2	–15.~~32~~7		–14.~~96~~	– 15.~~14~~6	
	26 12.23	12.29		12.~~48~~6	12.46		1268	13.67		1280	1207	
	26 12.26			1268			13.18			12.44		
	30 18.6	+4 7.88		18.6	+4 7.33		18.6	+4 7.34		18.6	+4 8.06	
	– .26	–	+4 7.62	–	– .24	+4 7.09	–	– .24	+4 7.16	–	– .23	+4 7.83
	+ 4 6.3	– 11.00		6.0	– 11.00		5.4	– 11.00		6.2	– 11.00	
	7.5	+3 56.62		7.2	+3 56.09		6.6	+3 56.10		7.4	+3 56.83	
		30 8.9			8.7			9.3			9.3	

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	α		δ	
Feb. 9	18 36.84		30 18.5	
14	.77	7	18.6	1
19	.69	8	18.6	0
24	.61	8	18.6	0
Mar. 1	36.52	9	18.6	0
6	.43	9	18.6	0
11	.34	9	18.5	1
16	.24	10	18.4	1
21	36.15	9	18.3	1

	α		δ	
Dec 26	18 41.09	.5	30 18.7	.3

Feb. 28			Mar. 4			Mar. 5			Dec. 31		
18 4.4	18 10.00	18 22.63	18 3.0	18 11.47	18 24.33	18 2.0	18 11.48	18 24.47	23 10.0	23 23.70	35.67
6.6	12.10	25.00	5.3	13.80	26.66	3.8	13.95	26.73	11.8	25.44	38.0
8.6	14.50	27.45	7.4	16.05	29.05	5.7	16.23	29.10	14.1	27.63	40.30
10.4	16.78	29.80	9.2	18.37	31.50	7.9	18.58	31.41	16.0	29.80	42.70
12.4	19.10	32.10	11.7	20.80	33.83	10.8	21.05	33.83	18.8	32.10	45.20
19 16.0	19 1.53	18 35.64	19 18.2	19 3.20	18 37.23	19 22.2	19 3.10	18 37.25		14.15	48.70
18.0	3.72	38.00	20.4	5.55	39.63	24.0	5.42	39.61		16.70	50.95
20.2	6.10	40.30	23.0	7.87	41.96	26.9	7.81	42.00		19.10	53.53
22.1	8.30	42.65	25.3	10.05	44.21	28.9	10.23	44.37		21.40	56.75
24.1	10.88	45.00	27.1	12.60	46.61	30.3	12.58	46.68		23.90	58.00
	14.50	18 48.58		16.10	18 50.10		16.26	18 50.23		27.73	1.70
	27.40	50.78		29.07	52.53		29.11	52.53		40.37	4.00
	40.32	53.22		41.93	54.80		41.98	54.90		53.39	6.00
	53.20	55.55		54.83	57.10		54.91	57.30		6.24	8.50
	6.11	57.86		7.85	59.60		7.83	59.38		19.12	11.00
18 8.48	14.53	20.53	18 7.32	14978	20978	18 6.04	15009	21009	23 14.14	26685	
19 20.08		18 40.306	19 22.80		18 41.956	19 26.46		18 42.018			23 53.370
		18 36.534			18 36.462			18 36.444			41.04 12
		+ 3.77			+ 5.49			+ 5.57			+5 12.33 25
		+ 3.78			+ 5.50			+ 5.58			
		+ 3.77			+ 5.49			+ 5.57			+5 12.33 25
		− 3.32			− 5.04			− 5.22			−5 11.74
		− .43			− .43			− .36			− .48
		− 1.71			− 1.64			− 1.62			− 6.29
		− 5.46			− 7.11			− 7.20			−5 18.51
		34.85			34.85			34.82			34.86

+31.82	−39.77		+34.64	−40.84		+35.98	−44.44		+39.23		
1.50284	1.59956 n		1.53958	1.61109 n		1.55606	1.64777 n		1.59362		
1.51955 n 5223	1.64630 # 895		1.58832 n 897	1.68834 # 6048		1.60280 n 545	1.69457 # 716		1.64358 n		
55 1	55 0		55 1	55 0		55 1	55 0		55 2		
49.1+.16	27.2+.49		52.1+.11	26.6+.49		52.9+.10	22.4+.45		2.2 +.08		
52.9+.41	31.4+.03		56.7+.35	31.3+.03		58.0+.33	27.7+.03		4.0 +.31		
4.3+.13	44.3−.63		6.9+.08	41.9−.55		6.9+.08	36.6−.31		9.7 −.04		
2.9+.39	41.5+.57		4.9+.45	38.1+.52		4.1+.42	34.7+.52		10.0 +.50		
56.70 1.09	40	35.75	59.50 .99	49	34.25	59.90 .93	69	29.50	5.95 +.85		
56 57.30	55 36.10		57 0.15	55 34.48		57 0.48	55 30.35		57 6.48		
−35.44 .66	44.22 .56		−38.58 .81	45.48 .76		−40.37 .31	49.49		− 44.01		
56 21.86 .64	56 20.32 .66		56 21.57 .34	56 19.96 20.24		56 20.11 .17	56 20.84 20.14		56 22.47		
26 26.38 .71	26 27.46 .69		26 26.78 27.01	26 28.39 .11		26 27.94 28.18	26 28.51 .21		26 25.88		
52 48	51 27		52 51	51 25		52 51	51 21		52 12		
1.15318	1.15242		1.15321	1.15240		1.15321	1.15237		1.15280		
+756	+756		+1200	+1200		+1958	+1958		+3364		
1.16074	1.15998		1.16521	1.16440		1.17279	1.17195		1.18644		
−14.48	−14.45		−14.63	−14.60		−14.89	−14.86		−16.36		
− .23	− .36		− .28	− .38		− .29	− .45		− .35		
− .37	− .98	−0.77	− .31 .28	− 1.08	−0.81	− .38	− .97	−0.80	− .32	−0.88	
− .27	− .10	−0.54	− .25	− .12	−0.58	− .23	− .17	−0.69	− .21		
−15.37 .25	−15.89		−15.58 .44	−15.23 .21		−15.79	−15.585		−16.24		
17.46	12.70					12.49	12.66		26 9.64		
12.08			11.28 .57	13.19 12.90		12.58			9.64		
18.6	+4 8.30				+4 8.00	18.6	+4 8.02		18.8	+4 10.26	
	− .23	+48.07	12.24		− .22	+47.78	− .21	+47.81		− .36	+49.90
+4 6.5	− 11.00		18.6		− 11.00	6.0	− 11.00		9.2	− 11.20	
7.7	+3 57.07		6.4 7.6		+3 56.78	7.2	+3 56.81		10.4	+3 58.70	
	9.2				9.4		9.4			8.3	

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		α		δ	
		h m s		° ′ ″	
Jan	0	18 41 24		30 18 8	
	5	41.10	2	19.0	2
	10	41.09	1	19.2	2
	15	41.10	1	19.4	2
	20	41.13	3	19.5	1

1879

Jan. 5

K	m	s
5	23	12.9
		14.6
		16.9
		18.4
		21.0
	23	16.76

m	s
23	21.52
	21.80
	26.30
	28.70
	31.05
	13.35
	15.70
	18.00
	20.33
	22.73
	26.31
	39.18
	52.14
	5.07
	18.02
	26.72

Jan. 22

m	s
	34.53
	36.80
	39.10
	41.57
	43.92
	47.40
	49.85
	52.12
	54.52
	56.80
	6.40
	2.70
	5.50
	7.50
	9.76

	m	s
	23	52.144
		41.10
+	5	11.04
+	5	11.04
−	5	10.61
−		.46
−		6.27
−	5	17.34
	18	34.80

+ 35.38

1.54876

1.59872 m

	55	1	55	1	55	0
ζ	58.1	+.07	56.7	+.07	26.9	
η	59.9	+.29	59.8		30.8	
θ	5.0	+.12	6.9		37.8	
ι	6.2	+.47	7.5		38.3	
	1.55	+.95	1.80			32.35

57	2.30	
−	39.69	
56	22.61	
26′	25.74	

+ 2644

1.17924

−	15.11	
−	.29	
−	.32	−1.05
−	.24	
−	15.46	
26′	9.78	
	9.78	
30	19.0	+4′ 10.13
		− .36
4′	9.2	− 11.40
	10.4	+3 58.37
		30′ 8.2

+49.77

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		α		δ	
Dec	6	53 m 63.77		53 ′ 58.1 ″	
	11	63.81	4	58.7	6
	16	63.85	4	59.3	6
	21	63.91	6	59.9	6
	26	63.98	7	60.4	5

G Aurigæ
v. p. 1090

1878 Dec. 26

1879 Jan. 22

58 29.7 58 42.62 5.752
82.7 45.40 0.27
35.4 48.70 3.01
37.7 50.70 5.02
40.2 53.52 8.42

59 51.0 42.67 12.52
53.8 45.28 15.33
56.0 48.10 17.90
58.2 50.75 20.75
04 53.60 23.57

48.05 27.63
2.99 30.27
18.00 33.05
33.03 35.82
48.06 38.40

58 35.10 90.13

59 55.84 59 18.026
59 3.983
+5 14.05.04
+5 14.07
13.99

−5 13.27
− .76
− 6.89
−5 20.92

53 57.11

+ 4293 − 3781
1.63276 1.54761 n
10.61730 10.56215

30 3 30 2 30 3

32.3 +.57 15.6 +.38 25.2
23.9 +.14 17.8 +.32 27.3
41.6 −.38 24.1 −.15 37.3
39.1 +.26 23.2 +.47 36.3
36.95 +.39 +1.02 1.985 31.25
33 36.72 32 20.18
— 4.14 2.65
38 32.58 25.53
32 55.29 56.64
+40 49 53.06 51.68

+1 28 45
0.17250
+.275
0.20001
− 1.58
− .50 − .39
− .50 − .32 −1.15
− .15 − .25 −1.96
− 2.73 − 2.54
50.23 49.14
49 47.74
53 60.4 +4 9.80
− .04 +4 9.76
+4 10.7 − 16.10
10.9 +3 53.66
53 ′ 43.4 ″

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