KG
11366
v.676

Clock Errors.
Instrumental Constants.
General Catalogue.
1874 – 1875.

Charles W. Sever, University Bookstore, Cambridge.

Jan 15 1874

T		tang δ	T−RA	n tang δ	(ΔT+m)
h	m	✓	s	n=+.232	✓
4	29	+ 0.29	0 = − 8.45	+.07	− 8.38
4	35	+ 0.42	8.52	+.10	8.42
4	38	+ 1.51	8.77	+.35	8.42
4	39	− 0.06	8.46	−.01	8.47
4	49	+ 0.65	8.56	+.15	8.41
4	56	+ 0.39	8.44	+.09	8.35
24	246	320	320		245
4	41	+.533	− 8.533		− 8.408

0 = − 8.533 + .124 = − 8.409

h = −.012 s
−.012

h m
16 59   − 7.33   0 = − 6.71 + .00 = − 6.71
− 6.71 + .00 + 8.41

0 = + 1.82 − 7.86 n   n = + .232
+ 1.70 − 7.33 n   .232

Jan. 17 n = +.230

2	56	+ 0.06	0 = − 8.92	+.01	− 8.91
3	0	+ 0.85	9.14	+.20	8.94
3	15	+ 1.19	9.16	+.26	8.90
4	49	+ 0.65	9.09	+.15	8.94
4	56	+ 0.39	9.12	+.09	9.03
5	3	− 0.16	8.98	−.04	9.02
5	5	+ 0.79	9.18	+.18	9.00
5	7	+ 1.03	9.30	+.24	9.06
5	9	− 0.15	8.99	−.03	9.02
33	185	346	72		8082
~~4~~	~~31~~	~~+.433~~	− 9.090		− 8.980
4	22	+.514	− 9.099		

0 = − 9.099 + .118 = − 8.981

h = −.040
−.023

3 5   + 4.42   − 9.96 − .05 = − 10.01   9.99
16 59   − 7.33   − 7.29 + .02 = − 7.27   7.28

0 = − .91 + 3.91 n   n = + .23
+ 1.83 − 7.88 n   + .23

n = + .230

0 = − 9.99 + 8.98 + 4.42 n   n = + .228
− 7.28 + 8.98 − 7.33   = .232
+ .230

Jan. 18 n = +.245

2	33	− 0.00	0 = − 9.80	−.00	− 9.80
2	36	+ 1.14	9.98	+.28	9.70
2	43	+ 0.50	9.80	+.12	9.68
2	45	+ 1.29	9.95	+.31	9.64
2	56	+ 0.01	9.72	+.00	9.72
2	57	+ 0.79	9.93	+.19	9.74
3	00	+ 0.85	9.90	+.21	9.69
4	13	+ 0.27	9.94	+.07	9.87
4	21	+ 0.34	9.94	+.08	9.86
4	35	+ 0.42	9.86	+.10	9.76
4	38	+ 1.51	10.22	+.37	9.85
4	39	− 0.06	9.93	−.01	9.94
4	49	+ 0.65	10.08	+.16	9.92
4	56	+ 0.39	9.93	+.10	9.83
5	3	− 0.16	9.92	−.04	9.96
5	5	+ 0.79	10.08	+.19	9.89
5	7	+ 1.03	10.14	+.25	9.89
5	9	− 0.15	9.94	−.04	9.98
63	945	961	1716		1472
4	0	+.534	− 9.953		− 9.818

0 = − 9.953 + .133 − 9.820

h = −.040
−.035

2 50   + 5.10   − 11.09 − .04 = − 11.13
14 51   − 3.65   8.83 − .04 = 8.87
3 5   + 4.42   10.77 − .04 = 10.810
16 59   − 7.33   8.13 + .04 = 8.09 10

0 = − 1.18 + 4.57 n   n = + .26
+ 1.08 − 4.18 n   + .26
− .86 + 3.89 n   + .22
+ 1.86 − 7.86 n   + .24

n = + .260
45

0 = − 1.31 + 5.10 n   n = + .257
− .95 + 3.65   + .260
− .98 + 4.42   + .222
− 1.72 + 7.35   + .234
+ .243

Jan 20

T h	T m	tang δ	T − R.A.	n tang δ n = +.177	(ΔT + m)
			s		s
2	22	+ 0.14	0 = − 11.46	+ .02	− 11.44
✓4	49	+ 0.65	− 11.65	+ .11	11.54
✓4	53	+ 0.95	− 11.70	+ .17	11.53
✓4	56	+ 0.39	− 11.59	+ .07	11.52
✓5	3	− 0.16	− 11.45	− .03	11.48
✓5	7	+ 1.03	− 11.84	+ .18	11.66
✓5	9	− 0.15	− 11.53	− .03	11.56
29	199	285	42.2		373
4	37	+.407	− 11.603		− 11.533

0 = − 11.603 + .072 = − 11.531

h = −.033 s

−033

h	m				
			s		s
2	19	+ 2.33	0 = − 11.88	− .07 =	− 11.95
2	26	+ 3.13	− 11.97	− .06 =	12.03
✓16	59	− 7.33	− 10.17	+ .01 =	10.16

0 = − .35 + 1.92 n n = + .18

= − .43 + 2.72 n = + .16

= + 1.44 − 7.74 n = + .19

n = + .177

Feb. 1

n = + .330 n = + 0.33

h = −.042

−029

4	13	+ 0.27	− 20.49	+ .09	− 20.40
4	16	+ 0.32	20.51	+ .11	20.40
4	21	+ 0.34	20.47	+ .11	20.36
✓4	29	+ 0.29	20.51	+ 10	20.41
16	79	122	198		157
4	20	+ 0.305	− 20.495		− 20.392

0 = − 20.495 + .101 = − 20.394

Feb. 4

n = + .347

h = −.040

−036

✓4	49	+ 0.65	− 22.57	+ .23	− 22.34
✓4	56	+ 0.39	22.48	+ .14	22.34
✓6	0	+ 0.26	22.57	+ .09	22.48
✓6	7	+ 0.41	22.59	+ .14	22.45
✓6	30	+ 0.30	22.55	+ .10	22.45
26	142	201	276		206
5	40	+ 0.402	− 22.552		− 22.412

0 = − 22.552 + .139 = − 22.413

✓6	5	+ 2.66	− 23.39	+ .02 =	− 23.37
✓18	13	− 16.83	16.27	+ .02 =	16.25
✓6	25	+ 5.50	24.23	+ .03 =	24.20

0 = − .82 + 2.26 n n = + .35

= + 6.30 − 17.23 n = + .37

= − 1.65 + 5.10 n = + .32

n = + .347

Feb 5 1874

n = +0.33

h = -.042 s
40

T'		tang δ	T'−R.A.	n tang δ n = +.330	(ΔT+m)
h	m		s		
4	0	+ 1.09	0 = −23.68	+.36	−23.32
4	6	− 0.13	23.38	−.04	23.42
4	21	+ 0.34	23.50	+.11	23.39
✓ 4	29	+ 0.29	23.51	+.10	23.41
✓ 4	35	+ 0.42	23.50	+.14	23.36
✓ 4	38	+ 1.51	23.97	+.50	23.47
✓ 4	39	− 0.06	23.56	−.02	23.58
28	168	346	410		295
4	24	+.494	−23.586		−23.421

0 = −23.586 + .163 −23.423

Feb 10

h = −.037
32

				n = +.320	
✓ 5	7	+ 1.03	−28.16	+.33	− 27.83
✓ 5	9	− 0.15	27.75	−.05	27.80
✓ 5	12	− 0.12	27.81	−.04	27.85
✓ 6	7	+ 0.41	27.99	+.13	27.86
✓ 6	30	+ 0.30	27.84	+.10	27.74
27	65	147	455		8
5	37	+0.294	−27.910		− 27.816

0 = −27.910 + .095 = − 27.815

✓ 18	13	−16.83	−22.78 + 02 = −22.76
✓ 6	25	+ 5.50	29.54 + 03 = 29.51
✓ 6	41	+ 20.69	35.21 + 04 = 35.17

0 = + 5.15 − 17.12 n n = +.30
= −1.60 + 5.21 n = +.31
= −7.26 + 20.40 n = +.35

n = +.320

Feb. 11

h = −.027
31

				n = +.277	
✓ 4	29	+0.29	−28.60	+.08	− 28.52
✓ 4	35	+ 0.42	28.53	+.12	28.41
✓ 5	7	+ 1.03	28.79	+.28	28.51
✓ 5	9	− 0.15	28.41	−.04	28.45
✓ 6	7	+ 0.41	28.56	+.11	28.45
✓ 6	30	+ 0.30	28.60	+.08	28.52
30	117	230	349		28 6
5	19	+0.383	−28.582		− 28.477

0 = − 28.582 + .106 = −28.476

✓ 6	5	+ 2.66	− 29.30 + 02 = −29.28
✓ 18	13	− 16.83	23.74 + 03 = 23.71
✓ 6	41	+ 20.69	33.52 + 04 = 33.48

0 = −.70 + 2.28 n n = +.30
= +4.87 − 17.21 n +.29
= −4.90 + 20.31 n +.24

n = +.277

Feb 12

T		tang δ	T − R.A.	n tang δ n = +.294	(ΔT + m)
h	m		s		s
✓ 4	38	+ 1.51	0 = −29.86	+.45	−29.41
✓ 4	39	− 0.06	29.25	−.02	29.27
✓ 4	49	+ 0.65	29.51	+.19	29.32
✓ 4	56	+ 0.39	29.41	+.11	29.30
✓ 5.	3	− 0.16	29.28	−.05	29.33
✓ 5	5	+ 0.79	29.54	+.23	29.31
✓ 5	7	+ 1.03	29.59	+.30	29.29
✓ 5.	9	− 0.15	29.23	−.04	29.27
✓ 5	18	+ 0.54	29.44	+.16	29.28
✓ 6	30	+ 0.30	29.40	+.09	29.31
47	254	484	451		309
5	7	+0.484	−29.451		−29.309

0 = −29.451 + .142 = −29.309

h = −.035 s
36

✓ 16	59	− 7.33	0 = −27.08 − .00 = −27.08
✓ 6	5	+ 2.66	30.08 + 03 = 30.05
✓ 18	13	− 16.83	24.50 + 04 = 24.46
✓ 6	25	+ 5.50	31.10 + 04 = 31.06
✓ 6	41	+ 20.69	35.24 + 05 = 35.19

0 = +2.37 − 7.81 n n = +.30
−.60 + 2.18 n = +.28
+4.99 − 17.31 n = +.29
−1.61 + 5.02 n = +.32
−5.74 + 20.21 n = +.28

n = +.294

Feb. 14

T		tang δ	T − R.A.	n = +.107	(ΔT + m)
3	54	+ 0.21	− 31.08	+.02	− 31.06
4	6	− 0.13	31.12	−.01	31.13
4	13	+ 0.27	31.09	+.03	31.06
4	16	+ 0.32	31.05	+.03	31.02
✓ 4	38	+ 1.51	31.31	+.16	31.15
✓ 4	39	− 0.06	31.16	−.01	31.17
✓ 4	49	+ 0.65	31.11	+.07	31.04
✓ 4	53	+ 0.95	31.16	+.10	31.06
✓ 4	56	+ 0.39	31.12	+.04	31.08
✓ 5	7	+ 1.03	31.25	+.11	31.14
✓ 5	9	− 0.15	31.02	−.02	31.04
✓ 5.	12	− 0.12	31.06	−.01	31.07
✓ 5	18	+ 0.54	31.12	+.06	31.06
✓ 5	26	− 0.01	31.12	−.00	31.12
✓ 5	30	− 0.02	31.05	−.00	31.05
✓ 5	32	− 0.05	31.02	−.01	31.01
✓ 5	36	+ 1.18	31.32	+.13	31.19
75	494	651	216		145
4	54	+0.383	−31.127		−31.085

0 = −31.127 + .041 = −31.086

h = −.037
33

✓ 16	59	− 7.33	−30.37 − .00 = −30.37
✓ 5	23	+ 3.72	31.53 + .02 = 31.51
✓ 18	13	− 16.83	29.77 + .05 = 29.72
✓ 6	41	+ 20.69	34.19 + .07 = 34.12

0 = +.76 − 7.71 n n = +.09
−.38 + 3.34 n +.11
+1.41 − 17.21 n +.08
−2.99 + 20.31 n +.15

n = +.107

Feb. 16

T		tang δ	T − R.A.	n = +.175	(ΔT + m)
✓ 5	48	+ 0.13	− 32.59	+.02	−32.57
✓ 5	50	+ 1.00	32.74	+.17	32.57
✓ 6	30	+ 0.30	32.53	+ .05	32.48
16	128	143	186		162
6	3	+0.477	−32.620		−32.540

0 = −32.620 + .081 = − 32.539

h = −.032
28

✓ 6	25	+ 5.50	−33.73 + .01 = −33.72
✓ 6	41	+ 20.69	35.24 + .01 = 35.23

0 = −1.10 + 5.02 n n = +.22
−2.61 + 20.21 n +.13

n = +.175

Feb 17 1874

T'		tang δ	T−R.A.	n tang δ n = +.240	(ΔT+m)
h	m		s		s
√5	5	+ 0.79	0 = −33.35	+.19	−33.16
√5	7	+ 1.03	33.49	+.25	33.24
√5	9	− 0.15	33.10	−.04	33.14
√5	12	− 0.12	33.10	−.03	33.13
√5	18	+ 0.54	33.22	+ .13	33.09
√5	26	− 0.01	33.20	−.00	33.20
√5	30	− 0.02	33.14	−.00	33.14
√5	32	− 0.05	33.17	−.01	33.16
√6	46	+ 1.64	33.69	+.39	33.30
√6	57	+ 0.38	33.28	+.09	33.19
52	242	403	274		175
5	36	+0.403	−33.274		−33.175
			0 = −33.274	+.097	−33.177

$h = -.027^{s}$
28

√5 23 +3.72 0 = −33.95 − .00 = −33.95
√8 13 −16.83 28.29 + .01 = 28.28
√6 41 +20.69 38.02 + .03 = 37.99

0 = −.68 + 3.32 n = +.20
+4.99 − 17.23 +.29
−4.72 + 20.29 +.23

n = +.240

Feb. 18

T'		tang δ	T−R.A.	n tang δ n = +.205	(ΔT+m)
√5	3	− 0.16	+26.18	−.03	+ 26.15
√5	5	+ 0.79	25.96	+ .16	26.12
√5	7	+ 1.03	25.87	+ .21	26.08
√5	9	− 0.15	26.31	−.03	26.28
√5	12	− 0.12	26.20	−.02	26.18
√5	18	+ 0.54	25.99	+.11	26.10
√5	26	− 0.01	26.09	−.00	26.09
√5	30	− 0.02	26.18	−.00	26.18
√5	32	− 0.05	26.29	−.01	26.28
√7	3	+ 0.82	25.87	+.17	26.04
√7	9	+ 0.87	25.94	+.18	26.12
√7	11	+ 0.30	25.99	+.06	26.05
66	165	384	87		167
5	44	+0.320	~~+26.725~~ 26.073		+26.139
			0 = +26.073	+.066 =	+26.139

h = −.028
31

√5 23 +3.72 +25.45 − .01 = +25.44
√6 41 +20.69 21.58 + .03 21.61

0 = −0.63 + 3.40n n = +.19
−4.46 + 20.37n +.22

n = +.205

Feb 24

T'		tang δ	T−R.A.	n tang δ n = +.190	(ΔT+m)
√5	36	+ 1.18	+20.88	+.22	+21.10
√6	30	+ 0.30	21.11	+.06	21.17
√7	9	+ 0.87	21.07	+.17	21.24
√7	11	+ 0.30	21.09	+.06	21.15
25	86	265	15		66
6	36	+0.662	+21.375 21.037		+21.165
			0 = +21.037	+.126 =	+21.162

h = −.035
33

√5 23 +3.72 +20.41 − .04 = +20.37
√6 25 +5.50 20.28 − .01 20.27

0 = −.67 + 3.06n n = +.22
−.77 + 4.84n +.16

n = +.190

Feb. 26

T	tang δ	T − R.A	n tang δ n = +.223	ΔT + m
h m		s		s
✓5 32	− 0.05	0 = +19.77	−.01	+ 19.76
✓5 36	+ 1.18	19.37	+.26	19.63
✓5 48	+ 0.13	19.65	+.03	19.68
✓5 50	+ 1.00	19.43	+.22	19.65
✓5 51	+ 0.76	19.45	+.17	19.62
✓6 0	+ 0.26	19.60	+.06	19.66
✓6 7	+ 0.41	19.55	+.09	19.64
✓6 30	+ 0.30	19.58	+.07	19.65
43 254	399	440		49
5 54	+0.499	+19.550		+ 19.661

0 = + 19.550 + .111 = + 19.661

$h = -.031^{s}$

33

✓6 5	+ 2.66	0 = + 19.04 + .00 = + 19.04
✓18 13	− 16.83	23.55 + .01 = 23.56
✓6 25	+ 5.50	18.06 + 01 = 18.07

0 = −.51 + 2.16 n n = + .25
+ 4.01 − 17.33 n + .23
− 1.48 + 5.00 n + .19

n = + .223

Mar. 1

T	tang δ	T − R.A	n = +.190	ΔT + m
✓4 29	+ 0.29	+ 17.26	+.06	+ 17.32
✓4 35	+ 0.43	17.25	+.08	17.33
✓4 49	+ 0.65	17.20	+.12	17.32
✓4 54	+ 0.87	17.23	+.17	17.40
✓5 3	− 0.16	17.25	−.03	17.22
✓5 7	+ 1.03	17.04	+.19	17.23
✓5 9	− 0.15	17.33	−.03	17.30
✓6 7	+ 0.41	17.17	+.08	17.25
✓6 57	+ 0.38	17.20	+.07	17.27
✓7 38	+ 0.54	17.09	+.10	17.19
50 288	428	202		283
5 29	+0.428	+17.202		+17.283

0 = + 17.202 + .081 = + 17.283

h = −.033

32

✓16 59	− 7.33	+ 18.81 + .02 = + 18.83
✓6 5	+ 2.66	+ 16.86 + .02 = 16.88
✓18 13	− 16.83	+ 21.04 + .02 = 21.06
✓7 45	+ 3.55	+ 16.57 + .07 = 16.64
✓7 49	− 53.13	+ ~~28.08~~ 29.64 + .07 = ~~28.15~~ 29.71

0 = + 1.63 − 7.76 n n = + .21
− .32 + 2.23 n + .14
+ 3.86 − 17.26 n + .22
− .56 + 3.12 n + .18
+ ~~10.95~~ 12.51 − 53.56 n + .20

n = + .1902

Mar. 2 n = +.120

✓6 0	+ 0.26	+ 16.49	+.03	+ 16.52
✓6 7	+ 0.41	16.46	+.05	16.51
✓6 57	+ 0.38	16.44	+.05	16.49
✓7 37	+ 0.54	16.38	+.06	16.44
25 101	159	177		196
6 40	+0.397	+16.442		+16.490

0 = + 16.442 + .047 = + 16.489

h = −.033

30

✓6 5	+ 2.66	+ 16.10 − .02 = + 16.08
✓18 13	− 16.83	18.71 − .01 = 18.70
✓7 45	+ 3.55	16.16 + .03 = 16.19
✓7 49	− 53.13	22.49 + .03 = 22.52

0 = − .36 + 2.26 n n = + .16
+ 2.26 − 17.23 n + .13
− .25 + 3.15 n + .08
+ 6.08 − 53.53 n + .11

n = + .120

Mar. 3

n = + 0.100

			n = +.100	
✓5 48	+ 0.13	15.78	+ .01	+ 15.79
✓5 50	+ 1.00	15.63	+ .10	15.73
✓5 51	+ 0.76	15.81	+ .08	15.89
✓6 0	+ 0.26	15.79	+ .03	15.82
21 149	215	301		323
5 52	+0.537	+15.752		+ 15.808

0 = + 15.752 + .054 = + 15.806

h = −.028

Mar. 4 1874

T		tang δ	T-R.A.	n tang δ n = +.030	(ΔT+m)
✓5	m 48	+0.13	0 = +15.14	+.00	+15.14
✓5	50	+1.00	15.04	+.03	15.07
✓6	0	+0.26	15.11	+.01	15.12
✓6	4	+0.41	15.14	+.01	15.15
✓6	57	+0.38	15.09	+.01	15.10
✓7	3	+0.82	15.06	+.03	15.09
✓7	9	+0.87	15.09	+.03	15.12
✓7	11	+0.30	15.10	+.01	15.11
✓7	13	+0.41	15.17	+.01	15.18
✓7	18	+0.53	15.03	+.02	15.05
✓7	20	+0.15	15.09	+.00	15.09
✓7	37	+0.54	15.00	+.02	15.02
77	273	580	106		124
6	48	+0.483	+15.088		+15.104

0 = +15.088 +.014 = +15.102

h = -.029 (s above)

29

✓6	5	+2.66	0 = +15.10 - .02 = +15.08
✓18	13	-16.83	16.17 - .01 +16.16

0 = -.01 + 2.18n n = +.00

+1.07 - 17.31n +.06

n = +.030

Mar. 5

				n = +.140	
✓4	49	+0.65	+14.44	+ .09	+14.53
✓4	53	+0.95	14.48	+ .13	14.61
✓4	54	+0.87	14.43	+ .12	14.55
✓4	56	+0.39	14.49	+ .05	14.54
✓5	5	+0.79	14.49	+ .11	14.60
✓5	7	+1.03	14.46	+ .14	14.60
✓5	9	-0.15	14.55	- .02	14.53
✓5	12	-0.12	14.48	- .02	14.46
✓5	18	+0.54	14.47	+ .08	14.55
✓5	26	-0.01	14.47	- .01	14.46
✓7	13	+0.41	14.51	+ .06	14.57
✓7	18	+0.53	14.28	+ .07	14.35
✓7	20	+0.15	14.38	+ .02	14.40
✓7	37	+0.54	14.29	+ .08	14.37
74	377	657	622		712
5	44	+0.469	+14.444		+14.509

0 = +14.444 +.065 = +14.509

h = -.025

28

✓16	59	-7.33	+15.07 - .02 = +15.05
✓7	45	+3.55	13.79 + .05 = 13.84
✓7	49	-53.13	22.32 + .05 = 22.37

0 = +.61 - 7.80n n = +.08

+.60 + 3.08n +.19

+7.93 - 53.60n +.15

n = +.140

Mar. 8 n = +.144

✓4	56	+0.39	+12.35	+.06	+12.41
✓5	7	+1.03	12.14	+.15	12.29
✓5	9	-0.15	12.32	-.02	12.30
✓5	12	-0.12	12.28	-.02	12.26
✓5	18	+0.54	12.22	+.08	12.30
✓5	26	-0.01	12.25	-.00	12.25
✓6	30	+0.30	12.24	+.04	12.28
✓6	46	+1.64	12.09	+.23	12.32
✓6	57	+0.38	12.18	+.05	12.23
✓7	9	+0.87	12.19	+.12	12.31
✓7	11	+0.30	12.21	+.04	12.25
✓7	13	+0.41	12.20	+.06	12.26
✓7	18	+0.53	12.14	+.08	12.22
✓7	20	+0.15	12.29	+.02	12.31
✓7	37	+0.54	12.18	+.08	12.26
89	369	680	328		425
6	21	+0.453	+12.219		+12.283

0 = +12.219 +.065 +12.284

h = -.031

28

✓16	59	-7.33	+13.89 -.04 = +13.85
✓5	23	+3.72	11.99 -.03 = 11.96
✓6	41	+20.69	10.34 +.01 = 10.35
✓7	45	+3.55	11.67 +.04 = 11.71
✓7	49	-53.13	21.62 +.04 = 21.66

0 = +1.63 - 7.78n n = +.21

-.26 + 3.27n +.08

-1.87 + 20.24n +.09

-.51 + 3.10n +.16

+9.44 - 53.58n +.18

n = +.144

Mar. 12

T		tang δ	T - RA	n tang δ n = +.237	(ΔT + m)
h	m		s		
✓ 6	30	+ 0.30	0 = + 9.84	+.07	+ 9.91
✓ 7	20	+ 0.15	9.79	+.04	9.83
✓ 7	37	+ 0.54	9.71	+.13	9.84
20	87	99	284		18
7	9	+0.330	+9.880 +9.780		+9.860

0 = +9.780 +.078 = +9.858

h = -.025
21

✓ 6	41	+20.69	0 = + 5.20 - .01 = + 5.19
✓ 7	18	+ 2.57	9.25 + .00 = 9.25
✓ 7	45	+ 3.55	8.96 + .01 = 8.97

0 = -4.59 + 20.36n n = +.22
-.53 + 2.24n +.24
-.81 + 3.22n +.25

n = +.237

Mar. 16 n = +.180

✓ 7	21	+ 0.62	+ 6.27	+.11	+ 6.38
✓ 7	37	+ 0.54	6.19	+.10	6.29
14	58	116	46		67
7	29	+0.580	+6.230		+6.335

0 = +6.230 +.104 = +6.334

h = -.037
34

✓ 7	18	+2.57	+ 5.88 - .01 = + 5.87
✓ 7	45	+3.55	5.99 + .01 = 6.00
✓ 7	49	-53.13	21.27 + .01 = 21.28

0 = -.36 + 1.99n n = +.18
-.23 + 2.97n +.08
+15.05 - 53.71n +.28

n = +.180

Mar. 21 n = +.005

✓ 6	46	+ 1.64	+2.64	+.01	+ 2.65
✓ 7	3	+ 0.82	2.63	00	2.63
✓ 7	9	+ 0.87	2.63	00	2.63
✓ 7	11	+ 0.30	2.64	00	2.64
✓ 7	13	+ 0.41	2.60	00	2.60
✓ 8	25	+ 0.38	2.58	00	2.58
✓ 8	38	+ 0.34	2.62	00	2.62
✓ 8	40	+ 0.12	2.58	00	2.58
✓ 8	47	+ 0.60	2.63	00	2.63
✓ 8	49	+ 0.11	2.57	00	2.57
74	281	459	12		13
7	52	+0.459	+2.612		+2.613

0 = +2.612 +.003 = +2.615

h = -.031
26

✓ 6	41	+20.69	+ 2.73 - .04 = + 2.69
✓ 8	20	+ 1.81	2.59 + .01 = 2.60

0 = +.08 + 20.13n n = +.00
-.01 + 1.25n +.01

n = +.005

Mar. 22 n = +.077

✓ 8	10	+ 0.17	+2.08	+.01	+ 2.09
✓ 8	25	+ 0.38	2.07	+.03	2.10
✓ 8	38	+ 0.34	2.11	+.03	2.14
✓ 8	40	+ 0.12	2.08	+.01	2.09
✓ 8	47	+ 0.60	2.12	+.05	2.17
✓ 8	49	+ 0.11	2.03	+.01	2.04
✓ 8	51	+ 1.13	2.06	+.09	2.15
56	260	285	55		78
8	37	+0.407	+2.079		+2.111

0 = +2.079 +.031 +2.110

h = -.029
24

✓ 6	41	+20.69	+ 1.69 - .05 = + 1.64
✓ 20	13	- 4.45	2.78 - .00 = 2.78
✓ 8	20	+ 1.81	1.95 - .01 = 1.94
✓ 8	59	+ 2.43	1.96 + .01 = 1.97

0 = -.44 + 20.28n n = +.02
+.70 - 4.86n +.14
-.14 + 1.40n +.10
-.11 + 2.02n +.05

n = +.077

Mar. 23 1874

T		tang δ	T − R.A.	n tang δ n = +.120	− (ΔT + m)
h	m		s		s
√8	38	+ 0.34	0 = + 1.41	+ .04	+ 1.45
√8	40	+ 0.12	1.41	+ .01	1.42
√8	47	+ 0.60	1.37	+ .07	1.44
√8	49	+ 0.11	1.39	+ .01	1.40
√8	51	+ 1.13	1.30	+ .13	1.43
√8	55	+ 1.10	1.36	+ 13	1.49
48	280	340	224		23
8	47	+0.567	+1.373		+1.438
			0 = +1.373	+.067 =	+1.440

h = −.028 s
27

√8 26   + 3.50   0 = + 1.02 − .01 = + 1.01

√8 59   + 2.43   1.14 + 00   1.14

0 = −.36 + 2.93 n   n = +.12
−.23 + 1.86 n   + 12

n = +.120

Mar. 24

T		tang δ	T − R.A.	n tang δ n = +.168	− (ΔT + m)
√7	20	+ 0.15	+ 0.75	+ .03	+ 0.78
√7	21	+ 0.62	0.66	+ .10	0.76
√8	55	+ 1.10	0.64	+ .18	0.82
√9	8	+ 0.05	0.72	+ .01	0.73
√9	11	+ 0.76	0.73	+ .13	0.86
√9	12	+ 0.33	0.69	+ .06	0.75
√9	13	+ 0.70	0.67	+ .12	0.79
58	140	371	486		59
8	37	+0.530	+0.694		+0.784
			0 = +0.694	+.089	+ 0.783

h = −.027
30

√8 59   + 2.43   + 0.36 + .01 = + 0.37

0 = −.32 + 1.90 n   n = +.168

Mar. 25

T		tang δ	T − R.A.	n tang δ n = +.233	− (ΔT + m)
√7	21	+ 0.62	− 0.10	+ .14	+ 0.04
√7	37	+ 0.54	0.13	+ .13	+ 0.00
√8	10	+ 0.17	0.06	+ .04	− 0.02
√8	38	+ 0.34	0.14	+ .08	− 0.06
√8	40	+ 0.12	0.11	+ .03	− 0.08
38	146	179	54		
8	5	+0.358	− 0.108		− 0.024
			0 = − 0.108	+ .083 =	− 0.025

h = −.034
33

√7 18   + 2.54   − 0.58 − .02 = − 0.60
√7 45   + 3.55   0.72 − .01 = − 0.73
√8 4   + 4.05   0.86 − .00 = − 0.86
√20 13   − 4.45   + 1.29 + .00 = + 1.29
√8 26   + 3.50   − 0.97 + .01 = − 0.96
√7 49   − 53.13   + 12.23 − .01 = + 12.22

0 = − 49 + 2.21 n   n = + .22
− 62 + 3.19 n   + .19
− .75 + 3.69 n   + .20
+ 1.40 − 4.81 n   + .29
− 85 + 3.14 n   + .27
+ 12.33 − 53.49 n   + .23

h = −.032   n = +.233
33

Mar. 30

T		tang δ	T − R.A.	n tang δ n = +.030	− (ΔT + m)
6	54	+ 0.38	− 3.82	+ .01	− 3.81
√7	9	+ 0.87	3.83	+ .03	3.80
√7	11	+ 0.30	3.79	+ .01	3.78
√7	13	+ 0.41	3.90	+ .01	3.89
√7	20	+ 0.15	3.86	+ .00	3.86
√7	21	+ 0.62	3.87	+ .02	3.85
√8	10	+ 0.17	3.90	+ .01	3.89
√9	46	+ 0.50	3.87	+ .01	3.86
√9	54	+ 0.15	3.95	+ .00	3.95
√10	1	+ 0.31	3.91	+ .01	3.90
√10	2	+ 0.22	3.95	+ .01	3.94
87	241	408	965		73
8	17	+0.371	−3.877		−3.866
			0 = −3.877	+.011	−3.866

√6 41   + 20.69   − 2.96 − .05 = − 3.01
√7 18   + 2.54   3.91 − .03 = 3.94
√20 13   − 4.45   3.87 − .00 = 3.37
√9 47   + 3.36   4.01 + .05 = 3.96

0 = + .87 + 20.32 n   n = − .04
− .06 + 2.20 n   + .03
+ .51 − 4.82   + .10
− .08 + 2.99 n   + .03

n = +.030

Apr. 1

$h = -.035^s$
35

	T h	T m	tang δ	T − R.A. n = +.090	n tang δ	ΔT + m
✓	9	39	+ 0.45	0 = − 5.53	+.04	− 5.49
✓	9	42	+ 1.70	5.77	+.15	5.62
	18	81	215	130		111
	9	40	+ 1.075	− 5.650		− 5.555
				0 = − 5.650	+.096 =	− 5.554

	h	m	tang δ	
✓	21	27	− 2.75	0 = − 5.53 − .00 = − 5.53
✓	9	32	+ 2.72	5.88 − .00 = 5.88

$0 = +.12 - 3.82\,n \qquad n = +.04$
$ -.23 + 1.65\,n \qquad +.14$

$n = +.090$

Apr. 2

$h = -.036$
34

n = +.063

	h	m	tang δ	T − R.A.	n tang δ	ΔT + m
✓	8	10	+ 0.17	− 6.37	+.01	− 6.36
✓	9	34	+ 0.19	6.43	+.01	6.42
✓	9	39	+ 0.45	6.47	+.03	6.44
✓	9	42	+ 1.70	6.61	+.11	6.50
✓	9	46	+ 0.50	6.45	+.03	6.42
✓	9	54	+ 0.15	6.47	+.01	6.46
✓	10	1	+ 0.31	6.45	+.02	6.43
✓	10	2	+ 0.22	6.45	+.01	6.44
	73	228	369	370		347
	9	36	+0.461	− 6.463		− 6.483
				0 = − 6.463	+.029 =	− 6.434

	h	m	tang δ	
✓	21	27	− 2.75	− 6.40 − .00 = − 6.40
✓	9	32	+ 2.72	6.69 − .00 = 6.69
✓	9	44	+ 3.36	6.68 + .01 = 6.67

$0 = +.06 - 3.21\,n \qquad n = +.02$
$ -.23 + 2.26\,n \qquad +.10$
$ -.21 + 2.90\,n \qquad +.07$

$n = +.063$

Apr. 4

$h = -.031$
34

n = +.206

	h	m	tang δ	T − R.A.	n tang δ	ΔT + m
✓	8	38	+ 0.34	− 7.94	+.07	− 7.87
✓	8	40	+ 0.12	7.95	+.02	7.93
✓	8	47	+ 0.60	7.99	+.12	7.87
✓	8	49	+ 0.11	8.02	+.02	8.00
✓	8	51	+ 1.13	8.14	+.24	7.90
✓	9	12	+ 0.33	7.93	+.07	7.86
✓	9	13	+ 0.70	7.92	+.14	7.78
✓	9	21	− 0.14	7.88	−.03	7.91
✓	9	34	+ 0.19	7.89	+.04	7.85
✓	9	39	+ 0.45	7.96	+.09	7.87
✓	9	42	+ 1.70	8.28	+.35	7.93
✓	9	46	+ 0.50	7.99	+.10	7.89
✓	9	54	+ 0.15	7.97	+.03	7.94
✓	10	1	+ 0.31	8.00	+.06	7.94
✓	10	2	+ 0.22	8.00	+.04	7.96
	132	489	671	1486		1350
	9	21	+0.447	− 7.991		− 7.899
				0 = − 7.991	−.092 =	− 7.899

	h	m	tang δ	
✓	9	23	+ 2.81	− 8.43 + .00 = − 8.43
✓	21	27	− 2.75	7.36 + .00 = 7.36
✓	9	32	+ 2.72	8.42 + .00 = 8.42
✓	21	40	− 2.86	7.29 + .01 = 7.28
✓	9	47	+ 3.36	8.66 + .01 = 8.65

$0 = -.44 + 2.36\,n \qquad n = +.19$
$ +.63 - 3.20\,n \qquad +.20$
$ -.43 + 2.27\,n \qquad +.19$
$ +.71 - 3.31\,n \qquad +.21$
$ -.66 + 2.91\,n \qquad +.24$

$n = +.206$

Apr. 6 1874

T		tang δ	T – R.A.	n tang δ n = +.080	(ΔT+m)
h	m				s
√8	10	+ 017	0 = – 964	+.01	– 9.66
√9	39	+ 045	9.67	+.04	9.63
√9	42	+ 170	9.73	+.14	9.59
√9	46	+ 050	9.63	+.04	9.59
√9	54	+ 015	9.69	+.01	9.68
√10	1	+ 0.31	9.69	+.02	9.67
√10	2	+ 0.22	9.66	+.02	9.64
64	194	350	54		26
9	36	+0.500	– 9.677		– 9.637

0 = – 9.677 + .040 = – 9.637

$h = -\overset{s}{.036}$
39

√20	13	– 445	0 = – 8.89 – .05 = – 8.94
√21	40	– 2.86	9.47 + .00 = 9.47
√9	47	+ 3.36	9.76 + .01 = 9.75

0 = + .74 – 4.95 n   n = + .15
+ .21 – 3.36 n   + .06
– .07 + 2.86 n   + .03

n = + .080

Apr 13

				n = –.015	
√9	39	+ 0.45	– 16.34	– .01	– 16.35
√9	42	+ 1.70	16.40	– .03	16.42
√9	46	+ 0.50	16.41	– .01	16.42
√9	54	+ 0.15	16.46	– .00	16.46
√10	1	+ 0.31	16.40	– .00	16.40
√10	2	+ 0.22	16.43	– .00	16.43
56	184	333	244		8
9	51	+0.555	– 16.407		– 16.413

0 = – 16.407 – .007 = – 16.414

h = – .040
48

√9	32	+ 2.73	– 16.43 – .01 = – 16.44
√9	40	– 2.86	16.55 – .01 = 16.56

0 = – .03 + 2.17 n   n = + .01
– .15 – 3.41 n   – .04

n = – .015

Apr 16

				n = –.060	
√8	47	+ 0.60	– 19.38	– .04	– 19.42
√8	49	+ 0.11	19.52	– .01	19.53
√8	51	+ 1.13	19.41	– .07	19.48
√8	55	+ 1.10	19.35	– .07	19.42
√9	8	+ 0.05	19.63	– .00	19.63
√9	11	+ 0.76	19.40	– .05	19.45
√9	21	– 0.14	19.43	+ .01	19.42
√10	43	+ 0.20	19.51	– .01	19.52
√10	59	+ 0.14	19.53	– .01	19.54
√11	3	+ 1.01	19.42	– .06	19.48
90	347	496	458		489
9	35	+0.496	– 19.458		– 19.489

0 = – 19.458 – .030 = – 19.488

h = – .043
43

√8	59	+ 2.43	– 19.25 – .02 = – 19.27
√9	23	+ 2.81	19.37 – .01 = 19.38
√21	27	– 2.75	19.52 – .00 = 19.52
√10	50	+ 4.87	19.16 + .05 = 19.11

0 = + .19 + 1.93 n   n = – .10
+ .08 + 2.31 n   – .04
– .06 – 3.25 n   – .02
+ .35 + 4.37 n   – .08

n = – .060

Apr. 21

√9	11	+ 0.76	– 24.65	+ .01	– 24.64
√9	13	+ 0.70	24.68	+ .01	24.67
√9	21	– 0.14	24.79	+ .00	24.79
27	45	132	212		30
9	15	+ 0.440	– 24.707		– 24.700

0 = – 24.707 – .004 = – 24.703

h = – .043
44

√8	59	+ 2.43	– 24.64 – .01 = – 24.65
√9	23	+ 2.81	24.82 + 00 = 24.82
√21	27	– 2.75	24.73 + 01 = 24.72

0 = + .06 + 1.99 n   n = – .03
– .11 + 2.37 n   + .05
– .01 – 3.19 n   + .00

n = + .010

Apr. 22

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
h	m		s	n = −.030	s
√ 8	47	+ 0.60	0 = −25.71	−.02	−25.73
√ 8	49	+ 0.11	25.81	−.00	25.81
√ 8	51	+ 1.13	25.74	−.03	25.77
√ 8	55	+ 1.10	25.65	−.03	25.68
√ 9	11	+ 0.76	25.65	−.02	25.67
√ 9	12	+ 0.33	25.78	−.01	25.79
√ 9	13	+ 0.70	25.72	−.02	25.74
√ 10	43	+ 0.20	25.81	−.01	25.82
69	281	493	587		601
9	13	+0.616	−25734		−25.751

0 = −25.734 −.018 = −25.752

$h = -\overset{s}{.045}$

42

√ 8	59	+ 2.43	0 = −25.61 − .01 = −25.62
√ 9	28	+ 2.81	25.64 + .00 = 25.64
√ 21	27	− 2.75	25.87 + .01 = 25.86
√ 10	50	+ 4.87	25.87 + .06 = 25.81

2

0 = + .11 + 1.81 n n = −.06
+ .09 + 2.19 n −.04
− .13 − 3.37 n −.04
− .08 + 4.25 n + .02

n = −.030

Apr. 27

n = −.019

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
√ 9	54	+ 0.15	0 = −30.55	−.00	−30.55
√ 10	1	+ 0.31	30.55	−.01	30.56
√ 10	2	+ 0.22	30.51	−.00	30.51
√ 10	10	+ 0.95	30.45	−.02	30.47
√ 10	15	+ 0.90	30.51	−.02	30.53
√ 10	21	+ 0.76	30.53	−.01	30.54
√ 10	26	+ 0.17	30.46	−.00	30.46
√ 10	39	+ 0.61	30.52	−.01	30.53
√ 10	43	+ 0.20	30.54	−.00	30.54
89	211	427	462		19
10	17	+0.474	−30.515		−30.521

0 = −30.515 −.008 = −30.523

h = −.040

37

√10 24 + 4.13 −30.44 + 00 = −30.44

0 = + .07 + 3.65 n n = −.019

Apr. 30

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
√ 9	54	+ 0.15	−33.02	−.01	−33.03
√ 10	1	+ 0.31	33.03	−.02	33.05
√ 10	2	+ 0.22	33.05	−.01	33.06
√ 10	10	+ 0.95	32.92	−.05	32.97
√ 10	15	+ 0.90	33.01	−.05	33.06
√ 10	21	+ 0.76	32.93	−.04	32.97
√ 10	26	+ 0.17	32.95	−.01	32.96
√ 11	39	+ 1.13	32.98	−.06	33.04
√ 11	43	+ 0.27	33.06	−.01	33.07
√ 11	47	+ 1.40	33.24	−.07	33.31
102	258	626	19		52
10	38	+0.626	−33.190 −33.019		−33.052

0 = −33.019 − 033 = −33.052

h = −.035

35

√ 9	47	+ 3.36	−32.73 − .03 = −32.76
√ 10	24	+ 4.12	32.84 − .01 = 32.85
√ 11	24	+ 2.75	32.99 + .02 = 32.97

0 = + .26 + 2.73 n n = −.09
+ .17 + 3.49 n −.05
+ .05 + 2.12 n −.02

n = −.053

May 5 1874

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
h	m			n = −.152	
√10	39	+ 0.61	0 = −37.19	−.09	−37.28
√10	43	+ 0.20	37.29	−.03	37.32
√10	59	+ 0.14	37.29	−.02	37.31
√11	3	+ 1.01	37.05	−.15	37.20
√11	7	+ 0.39	37.25	−.06	37.31
√11	31	− 0.00	37.26	+ 00	37.26
√11	39	+ 1.13	37.08	−.17	37.25
√11	43	+ .27	37.26	−.04	37.30
√11	44	+ .04	37.18	−.01	37.19
√11	47	+ 1.40	37.14	−.21	37.35
107	355	519	199		277
11	17	+0.519	−37.199		−37.277

0 = −37.199 −.079 = −37.278

h = −.135 s
34

√10 50 + 4.87 0 = −36.77 −.01 = −36.78
√11 15 + 2.15 36.99 −.00 = 36.99
√11 24 + 2.75 36.82 +.00 = 36.82
√23 34 − 4.31 38.21 +.01 = 38.20

0 = +.42 + 4.35 n n = −.10
+.21 + 1.63 n −.13
+.38 + 2.23 n −.17
−1.00 − 4.83 n −.21

n = −.152

May 7

				n = −.105	
√10	59	+ 0.14	0 = −38.85	−.01	−38.86
√11	3	+1.01	38.64	−.11	38.75
√11	7	+ 0.39	38.77	−.04	38.81
√11	59	+ 0.17	38.88	−.02	38.90
√12	14	+ 0.00	38.75	−.00	38.75
55	142	171	389		407
11	28	+0.342	−38.778		−38.814

0 = −38.778 −.036 = −38.814

h = −.032
34

√10 50 + 4.87 −38.36 −.02 = −38.38
√12 6 4.84 38.28 +.02 = 38.26

0 = +.40 + 4.53 n n = −.09
+.52 + 4.50 n −.12

n = −.105

May 10

				n = −.199	
√10	26	+0.17	−41.40	−.03	−41.43
√10	39	+ 0.61	41.41	−.12	41.53
√11	3	+ 1.01	41.29	−.20	41.49
√11	7	+ 0.39	41.49	−.08	41.57
√11	15	+ 0.12	41.41	−.02	41.43
√11	31	− 0.00	41.44	+.00	41.44
√11	39	+ 1.13	41.27	−.22	41.49
√11	43	+ 0.27	41.44	−.05	41.49
√11	44	+ 0.04	41.46	−.01	41.47
√11	47	+ 1.40	41.26	−.28	41.54
√11	59	+ 0.17	41.50	−.03	41.53
√12	14	+ 0.00	41.54	−.00	41.54
131	367	531	491		595
11	26	+0.443	−41.409		−41.495

0 = −41.409 −.088 = −41.497

h = −.037
38

√10 34 + 2.70 −41.02 −.03 = −41.05
√10 50 + 4.87 40.79 −.02 = 40.81
√11 24 + 2.75 40.93 −.00 = 40.93
√23 34 − 4.31 42.60 +.00 = 42.60
√11 35 + 2.40 41.09 +.00 = 41.09
√12 6 + 4.84 40.12 +.03 = 40.15

0 = +.36 + 2.26 n n = −.16
+.60 + 4.43 n −.13
+.48 + 2.31 n −.20
−1.19 − 4.75 n −.25
+.32 + 1.96 n −.16
+1.26 + 4.40 n −.29

n = −.199

May 11

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
h	m			n = −.155	
✓ 10	39	+ 0.61	0 = − 42.28	−.09	− 42.37
✓ 10	43	+ 0.20	42.43	−.03	42.46
✓ 10	59	+ 0.14	42.42	−.02	42.44
✓ 11	3	+ 1.01	42.32	−.16	42.48
✓ 11	7	+ 0.39	42.33	−.06	42.39
✓ 11	59	+ 0.17	42.49	−.03	42.52
✓ 12	14	+ 0.00	42.43	−.00	42.43
75	224	252	270		309
11	15	+0.360	− 42.386		− 42.441

0 = − 42.386 − .056 = − 42.442

s
h = −.039
43

✓ 10 34 + 2.70 0 = − 42.07 − .03 = − 42.10
✓ 12 6 + 4.84 41.59 + .03 = − 41.56

0 = +.29 + 2.34 n n = −.12
+.83 + 4.48 n −.19

n = −.155

May 12

✓ 10	59	+ 0.14	− 43.58	−.01	− 43.59
✓ 11	3	+ 1.01	43.37	−.10	43.47
✓ 11	7	+ 0.39	43.54	−.04	43.58
✓ 11	15	+ 0.12	43.60	−.01	43.61
✓ 11	31	+ 0.00	43.55	+.00	43.55
54	115	166	264		280
11	11	+ 0.332	− 43.528		− 43.560

0 = − 43.528 − .033 = − 43.561

h = −.047
45

✓ 10 50 + 4.87 − 43.03 − .01 = − 43.04
✓ 10 56 + 1.91 43.34 − .01 = 43.35
✓ 11 15 + 2.15 43.40 + .00 = 43.40
✓ 11 24 + 2.75 43.31 + .01 = 43.32
✓ 23 34 − 4.31 44.10 + .01 = 44.11

0 = +.49 + 4.54 n n = −.11
+.18 + 1.58 n −.11
+.13 + 1.82 n −.07
+.21 + 2.42 n −.09
−.58 − 4.64 n −.12

n = −.100

May 13

				n = −.164	
✓ 11	59	+ 0.17	− 44.65	−.03	− 44.68
✓ 12	14	+ 0.00	44.63	−.00	44.63
✓ 12	35	− 0.01	44.68	+.00	44.68
✓ 12	49	+ 1.52	44.40	−.25	44.65
✓ 12	50	+ 0.81	44.50	−.13	44.63
✓ 12	56	+ 0.21	44.66	−.03	44.69
71	263	270	352		36
12	34	+0.450	− 44.587		− 44.660

0 = − 44.587 − .074 = − 44.661

h = −.045
37

✓ 12 6 + 4.84 − 43.85 − .02 = − 43.87

0 = + 72 + 4.39 n n = − .164

May 14

✓ 10	59	+ 0.14	− 45.35	−.04	− 45.39
✓ 11	3	+ 1.01	45.04	−.29	45.33
✓ 11	7	+ 0.39	45.25	−.11	45.36
✓ 11	15	+ 0.12	45.25	−.03	45.28
✓ 11	31	− 0.00	45.39	−.00	45.39
✓ 12	35	− 0.01	45.25 45.45		
54	115	166	128		25
11	11	+0.332	− 45.256		− 45.350

0 = − 45.256 − .095 = − 45.351

h = −.028
27

✓ 10 50 + 4.87 − 43.98 − .01 = − 43.99
✓ 11 24 + 2.75 44.64 + .00 = − 44.64
✓ 23 34 − 4.31 46.75 + .01 = 46.74

0 = + 1.27 + 4.54 n n = −.28
+.62 + 2.42 n −.26
−1.48 − 4.64 n −.32

n = −.287

May 19 1874

T	tan δ	T − R.A.	n tan δ	(ΔT + m)
			n = −.265	
h m		s		
√ 11 7	+ 0.39	0 = − 48.02	− .10	− 48.12
√ 11 31	− 0.00	48.05	+ .00	48.05
√ 11 39	+ 1.13	47.90	− .30	48.20
√ 11 43	+ 0.27	48.03	− .07	48.10
√ 11 44	+ 0.04	48.00	− .01	48.01
√ 11 47	+ 1.40	47.75	− .37	48.12
√ 12 50	+ 0.81	47.89	− .21	48.10
√ 13 3	− 0.09	48.06	+ .02	48.04
√ 13 6	+ 0.54	48.00	− .14	48.14
104 270	449	7170		88
12 3	+0.499	− 47.967		− 48.098

0 = − 47.967 − .132 = − 48.099

h = − .023 s
21

T	tan δ	
√ 11 24	+ 2.75	0 = − 47.39 − .01 = − 47.40 (s)
√ 23 34	− 4.31	49.18 − .01 = 49.19
√ 11 15	+ 2.15	47.56 − .02 = 47.58
√ 13 12	− 41.95	61.48 + .02 = 61.46

0 = + .57 + 2.25 n   n = − .25
− 1.22 − 4.81 n   − .25
+ .39 + 1.65 n   − .24
− 13.46 − 42.45 n   − .32

n = − .265

May 24

T	tan δ	T − R.A.	n tan δ	(ΔT + m)
			n = − .268	.272
√ 11 39	+ 1.13	− 50.20	− .30	− 50.50
√ 11 43	+ 0.27	50.47	− .07	50.54
√ 11 47	+ 1.40	50.17	− .37	50.54
√ 11 59	+ 0.17	50.50	− .04	50.54
√ 12 14	+ 0.00	50.55	− .00	50.55
√ 12 35	− 0.01	50.56	+ .00	50.56
√ 12 49	+ 1.52	50.06	− .41	50.47
√ 12 56	+ 0.21	50.52	− .06	50.58
√ 13 3	− 0.09	50.56	+ .02	50.58
√ 13 6	+ 0.54	50.44	− .14	50.58
118 351	514	403 ~~353~~		44
12 23	+0.514	− ~~50.353~~ − 50.403		− 50.544

0 = − 50.403 − .138 = − 50.541

h = − .029
19

T	tan δ	
√ 11 24	+ 2.75	− 49.63 − .03^{2} = − 49.66^{5}
√ 12 6	+ 4.84	49.35 − .01 = 49.36
√ 12 28	+ 2.82	49.85 + .00 = 49.85
√ 12 50	+ 2.26	50.00 + .01 = 49.99
√ 13 12	− 41.95	63.22 + .02 = 63.20

0 = + .74 + 2.24 n   n = − .33
+ 1.04 + 4.33 n   − .24
+ .55 + 2.31 n   − .24
+ .41 + 1.75 n   − .23
− 12.80 − 42.46 n   − .30

n = − .268

0 = + + .89 + 2.75 n   n = − .324
+ 1.18 + 4.84   .244
+ .69 + 2.82   .245
+ .55 + 2.26   .243
+ 12.66 + 41.95   .302
− .272

May 26

T	tan δ	T − R.A.	n tan δ	(ΔT + m)
			n = − .280	
√ 11 31	− 0.00	− 51.36	+ .00	− 51.36
√ 11 39	+ 1.13	51.02	− .32	51.34
√ 11 43	+ 0.27	51.26	− .08	51.34
√ 11 44	+ 0.04	51.29	− .01	51.30
√ 11 47	+ 1.40	51.00	− .39	51.39
√ 12 56	+ 0.21	51.26	− .06	51.32
√ 13 3	− 0.09	51.37	+ .02	51.35
√ 13 6	+ 0.54	51.21	− .15	51.36
93 269	350	177		36
12 11	+0.438	− 51.221		− 51.345

0 = − 51.221 − .123 = − 51.344

h = − .017
16

T	tan δ	
√ 23 34	− 4.31	− 52.25 − .01 = − 52.26
√ 11 35	+ 2.40	50.58 − .01 = 50.59
√ 13 12	− 41.95	63.99 + .02 = 63.97

0 = − 1.04 − 4.75 n   n = − .22
+ .63 + 1.96 n   − .32
− 12.75 − 42.39 n   − .30

n = − .280

May 27

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
h	m			n = −.283	
✓11	39	+ 1.13	0 = −51.32	−.32	−51.64
✓11	43	+ 0.27	51.56	−.08	51.64
✓11	44	+ 0.04	51.60	−.01	51.61
✓11	47	+ 1.40	51.29	−.40	51.69
✓13	43	+ 1.19	51.45	−.34	51.79
✓13	49	+ 0.34	51.64	−.10	51.74
70	265	437	286		51
12	24	+0.728	−51.477		−51.685

0 = −51.477 − .207 = −51.684

$h = -.0\overset{s}{1}5$

15

✓11 35 +2.40 0 = −51.07 − .01 = −51.08
✓11 59 +4.55 50.30 − 00 = 50.30
✓12 6 +4.84 50.23 + 00 = 50.23

0 = +.40 + 1.67 n n = −.24
+1.18 + 3.82 n −.31
+1.25 + 4.11 n −.30

n = −.283

May 28

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
				n = −.297	
✓12	14	+ 0.00	−52.04	−.00	−52.04
✓13	43	+ 1.19	51.76	−.36	52.12
✓13	49	+ 0.34	52.00	−.10	52.10
38	106	153	580		26
13	15	+0.510	−51.933		−52.087

0 = −51.933 − .151 = −52.084

h = −.017

16

✓11 59 + 4.55 −50.61 − .02 = −50.63
✓12 6 + 4.84 50.49 − .02 = 50.51
✓13 48 + 2.17 51.52 − .01 = 50.53

0 = +1.30 + 4.04 n n = −.32
+1.42 + 4.33 n −.33
+.40 + 1.66 n −.24

n = −.297

June 1

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
				n = −.355	
✓13	28	+ 0.00	−53.59	−.00	−53.59
✓13	43	+ 1.19	53.17	−.42	53.59
✓13	49	+ 0.34	53.50	−.12	53.62
✓13	55	+ 0.04	53.54	−.01	53.55
✓14	5	+ 0.47	53.46	−.17	53.63
66	180	204	226		298
13	48	+0.408	−53.452		−53.596

0 = −53.452 − 145 = −53.597

h = −.016

16

✓13 34 + 3.06 −52.30 − .00 = −52.30
✓13 48 + 2.17 52.87 − .00 = 52.87
✓14 1 + 2.14 52.96 + .00 = 52.96
✓14 9 + 4.74 51.80 + 00 = 51.80

0 = +1.15 + 2.65 n n = −.43
+.58 + 1.76 n −.33
+.49 + 1.73 n −.28
+1.65 + 4.33 n −.38

n = −.355

June 2

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
				n = −.220	
✓12	49	+ 1.52	−53.55	−.33	−53.88
✓12	56	+ 0.21	54.04	−.05	54.09
✓14	5	+ 0.47	53.91	−.10	54.01
✓14	10	+ 0.36	53.87	−.08	53.95
✓14	21	+ 1.30	53.66	−.29	53.95
66	141	386	403		1988
13	40	+0.772	−53.806		−53.976

0 = −53.806 − .170 = −53.976

h = −.018

16

✓12 50 + 2.26 −53.48 − .02 = −53.50
✓14 1 + 2.14 53.49 + 00 = −53.49

0 = +.31 + 1.49 n n = −.21
+.32 + 1.37 n −.23

n = −.220

June 8 1874

T		tang δ	T − R.A.	n tang δ	(ΔT + m)
	m		s	n = −.324	
√12	49	+ 1.52	0 = −55.94	−.49	−56.43
√13	43	+ 1.19	56.15	−.39	56.54
√13	49	+ 0.34	56.45	−.11	56.56
√14	21	+ 1.30	56.01	−.42	56.43
52	162	435	55		196
13	40	+ 1.087	− 56.137		−56.490

0 = −56.137 − .352 = −56.489

h = −.017 (s) 1.0

			s
√14	1	+ 2.14	0 = −55.82 + 00 = −55.82

0 = +.34 + 1.05 n n = −.324

June 9

n = −.420

√12	49	+ 1.52	− 55.93	+ 4.07 −.64	+ 3.43
√14	5	+ 0.47	56.34	3.66 −.20	3.46
√14	10	+ 0.36	56.35	3.85 −.15	3.50
√14	21	+ 1.30	56.04	3.96 −.55	3.41
54	85	365	66	334	20
13	51	+0.912	− 56.165	+3.835	+ 3.450

0 = +3.835 − 384 = +3.451

h = −.003 000

√12	50	+ 2.26	+ 4.36 − .00 = + 4.36
√14	51	+ 3.65	5.08 + .00 = 5.08
√14	56	+ 2.29	4.40 + .00 = 4.40

0 = + .53 + 1.35 n n = −.39
+1.25 + 2.74 n −.46
+.57 + 1.38 n −.41

n = −.420

June 10 n = −.405

√12	50	+ 0.81	+ 3.87	−.33	+ 3.54
√12	56	+ 0.21	+ 3.59	−.08	3.51
√13	3	− 0.09	3.53	+.04	3.57
√13	6	+ 0.54	3.66	−.22	3.44
√14	5	+ 0.47	3.68	−.19	3.49
√14	21	+ 1.30	4.01	−.53	3.48
78	141	324	434		303
13	24	+0.540	+3.723		+3.505

0 = +3.723 − .219 = + 3.504

h = +.002 − 4

√13	12	−41.95	− 11.87 + .00 = −11.87
√14	50	+ 3.66	+ 5.20 − .00 = + 5.20

0 = +15.59 + 42.49 n = −.37
+1.48 + 3.11 −.44

n = −.405

June 15

n = −.317

√13	28	+ 0.00	+ 2.59	−.00	+ 2.59
√13	43	+ 1.19	2.92	−.38	2.54
√14	5	+ 0.47	2.77	−.15	2.62
√14	10	+ 0.36	2.77	−.11	2.66
√14	21	+ 1.30	3.05	−.41	2.64
√14	26	+ 0.60	2.69	−.19	2.50
82	133	392	1679		355
14	2	+0.653	+2.798		+2.592

0 + 2.798 − .207 = + 2.591

h = −.017 4

√13	12	− 41.95	−12.31 − .00 = −12.31
√13	48	+ 2.17	+ 3.23 − .00 = + 3.23
√14	1	+ 2.14	+ 3.27 − .00 = + 3.27

0 = − 15.11 − 42.60 n n = −.35
+ .43 + 1.52 n −.28
+ .47 + 1.49 n −.32

n = −.317

June 17

	T h	T m	tang δ	T−R.A.	n tang δ n = −.410	(ΔT+m)
√	13	6	+0.54	0 = +3.60	−.22	+3.38
√	13	19	+1.46	+4.08	−.61	3.47
√	16	16	+0.35	+3.59	−.14	3.45
√	16	20	+0.25	+3.52	−.10	3.42
√	16	37	+0.62	+3.64	−.25	3.42
√	16	39	+0.81	+3.78	−.33	3.45
	90	137	403	424		19
	15	23	+0.672	+3.707		+3.432

0 = +3.707 −.275 = +3.432

$h = +.^{s}017$
24

√ 13 12 −41.95 0 = −12.14 + .03 = −12.11
√ 16 28 + 2.61 + 4.61 − .02 = + 4.59

0 = −15.82 − 42.62 n n = −.37
+.88 + 1.94 n −.45

n = −.410

June 18

	h	m	tang δ	T−R.A.	n tang δ n = −.410	(ΔT+m)
√	13	43	+1.19	0 = +4.61	−.49	+4.12
√	14	40	+0.04	4.21	−.02	4.19
√	15	10	+0.67	4.41	−.27	4.14
√	15	23	+0.57	4.41	−.23	4.18
√	15	26	+0.88	4.58	−.36	4.22
√	15	27	+0.88	4.62	−.36	4.26
√	15	29	+0.51	4.42	−.21	4.21
	102	198	474	326		132
	15	3	+0.677	+4.466		+4.189

0 = +4.466 −.277 = +4.189

h = +.028
26

√ 13 48 + 2.17 + 5.00 + .03 = + 5.03
√ 15 13 + 2.45 5.25 − .00 = 5.25

0 = +.56 + 1.49 n n = −.38
+.78 + 1.77 n −.44

n = −.410

June 22

	h	m	tang δ	T−R.A.	n tang δ n = −.367	(ΔT+m)
√	14	57	+0.87	+6.45	−.32	+6.13
√	14	59	+0.52	6.28	−.19	6.09
	28	116	139	73		22
	14	58	+0.695	+6.365		+6.110

0 = +6.365 −.255 = +6.110

h = +.020
18

√ 13 12 −41.95 − 8.40 + .03 = − 8.37
√ 14 51 + 3.65 + 7.51 + .00 = + 7.51
√ 14 56 + 2.29 + 6.94 + .00 = + 6.94

0 = −14.73 − 42.64 n n = −.35
+ 1.15 + 2.96 n −.39
+.58 + 1.60 n −.36

n = −.367

June 23

	h	m	tang δ	T−R.A.	n tang δ n = −.446	(ΔT+m)
√	15	26	+0.88	+6.90	−.39	+6.51
√	15	27	+0.88	6.90	−.39	6.51
√	15	29	+0.51	6.70	−.23	6.47
√	15	38	+0.12	6.54	−.05	6.49
√	15	40	+0.28	6.58	−.12	6.46
√	15	43	−0.05	6.44	+.02	6.46
√	15	45	+0.09	6.52	−.04	6.48
√	15	51	+0.29	6.56	−.13	6.43
√	15	55	+1.43	7.08	−.64	6.44
√	16	00	+1.66	7.35	−.73	6.62
√	16	12	−0.08	6.51	+.03	6.54
√	16	16	+0.35	6.64	−.16	6.48
√	16	20	+0.25	6.63	−.11	6.52
√	16	39	+0.81	6.82	−.36	6.46
	215	441	742	1017		687
	15	53	+0.530	+6.726		+6.491

0 = +6.726 −.236 = +6.490

h = +.016
17

√ 15 21 + 3.13 + 7.65 + .00 = + 7.65
√ 15 49 + 4.78 8.72 + .00 = 8.72
√ 16 14 + 4.07 8.18 − .00 = 8.18
√ 16 28 + 2.61 7.73 − .01 = 7.72
√ 16 36 + 4.59 8.59 − .01 = 8.58

0 = +.92 + 2.60 n n = −.35
+1.99 + 4.25 n −.47
+1.45 + 3.54 n −.41
+.99 + 2.08 n −.47
+2.15 + 4.06 n −.53

n = −.446

June 24 1874

T	m	tang δ	T − R.A.	n tang δ n = −.395	(ΔT + m)
√13	43	+ 1.19	0 = + 7.31 s	−.47	+ 6.84
√13	49	+ 0.34	6.99	−.13	6.86
√13	55	+ 0.04	6.86	−.01	6.85
√14	5	+ 0.47	7.10	−.19	6.91
√14	10	+ 0.36	7.05	−.14	6.91
67	162	240	31		37
13	56	+0.480	+7.062		+ 6.874

0 = +7.062 − .190 = + 6.872

h = +.016 s

15

√13 48   + 2.17   0 = + 7.77 + .00 = + 7.77

√14 1   + 2.14   7.76 + .00 = 7.76

√15 21   + 3.13   7.98 − .02 = 7.96

√15 49   + 4.78   8.82 − .03 = 8.79

0 = + .71 + 1.69 n   n = − .42

+ .70 + 1.66 n   − .42

+ .90 + 2.65 n   −.34

+ 1.73 + 4.30 n   − .40

n = − .395

June 25

				n = −.403	
√13	43	+ 1.19	+ 7.66	−.48	+ 7.18
13	43	+1.190	+7.660		+ 7.180

0 = +7.660 − .480 = + 7.180

h = +.020

√13 12   − 41.95   − 9.72 + .01 = − 9.71

0 = − 17.37 − 43.14 n   n = − .403

June 28

				n = −.427	
√13	43	+ 1.19	+ 9.26	−.51	+ 8.75
√13	49	+ 0.34	8.91	−.14	8.77
√13	55	+ 0.04	8.83	−.02	8.81
√14	5	+ 0.47	9.02	−.20	8.82
√14	10	+ 0.36	8.95	−.15	8.80
√14	21	+ 1.30	9.37	−.56	8.81
√14	27	+ 0.81	9.06	−.35	8.71
√15	10	+ 0.67	9.02	−.29	8.73
√15	40	+ 0.28	8.93	−.12	8.81
√15	43	− 0.05	8.75	+.02	8.77
√15	51	+ 0.29	8.86	−.12	8.74
√16	~~8~~ 12	− 0.08	8.77	+.03	8.80
√16	16	+ 0.35	8.96	−.15	8.81
√16	20	+ 0.25	8.89	−.11	8.78
203	402	622	1358		1091
14	59	+0.444	+8.970		+ 8.779

0 = + 8.970 − 190 = + 8.780

h = +.020

22

√13 48   + 2.17   + 9.77 + .03 = + 9.80

√14 1   + 2.14   9.71 + .02 = 9.73

√15 13   + 2.45   9.81 − .00 = 9.81

√15 21   + 3.13   10.09 − .00 = 10.09

√15 49   + 4.78   10.81 − .01 = 10.80

√16 14   + 4.07   10.38 − .02 = 10.36

0 = + .83 + 1.73 n   n = − .48

+ .76 + 1.70 n   − .45

+ .84 + 2.01 n   − .42

+ 1.12 + 2.69 n   − .41

+ 1.83 + 4.34 n   − .42

+ 1.39 + 3.63 n   − .38

n = − .427

June 30

$h = +\overset{s}{.022}$ 26

T	tang δ	T − R.A.	n tang δ n = −.555	(ΔT + m)
h m		s		
✓14 10	+ 0.36	0 = + 10.01	−.20	+ 9.81
✓14 21	+ 1.30	10.54	−.72	9.82
✓14 26	+ 0.60	10.17	−.33	9.84
✓14 35	+ 0.31	9.99	−.17	9.82
✓15 38	+ 0.12	9.93	−.07	9.86
✓15 40	+ 0.28	10.05	−.15	9.90
✓15 45	+ 0.09	9.92	−.05	9.87
✓15 51	+ 0.29	9.98	−.16	9.82
✓16 37	+ 0.62	10.14	−.34	9.80
✓16 39	+ 0.81	10.30	−.45	9.85
48 342	478	103		39
15 22	+0.478	+10.103		+ 9.839

0 = +10.103 − .265 = + 9.838

✓15 49 +4.78 0 = $+\overset{s}{12.44}$ − .01 = + 12.43

✓16 28 + 2.61 + 11.33 − .02 = + 11.31

0 = + 2.33 + 4.30 n n = −.54

+ 1.21 + 2.13 n −.57

n = −.555

July 1

$h = +.029$ 23

T	tang δ	T − R.A.	n tang δ n = −.523	(ΔT + m)
✓14 26	+ 0.60	+ 10.85	−.31	+ 10.54
✓14 35	+ 0.31	10.76	−.16	10.60
✓15 29	+ 0.51	10.82	−.27	10.55
✓15 38	+ 0.12	10.67	−.06	10.61
✓15 40	+ 0.28	10.64	−.15	10.49
✓15 43	− 0.05	10.54	+.03	10.57
✓15 45	+ 0.09	10.58	−.05	10.53
✓15 51	+ 0.29	10.66	−.15	10.51
118 307	215	$\overset{5}{572}$		440
15 23	+0.269	~~+10.715~~ +10.690		+10.550

0 = +10.690 − .140 = +10.550

✓15 49 +4.78 + 13.06 − .01 = + 13.05

0 = + 2.36 + 4.51 n n = −.523

July 6

$h = +.016$ 11

T	tang δ	T − R.A.	n tang δ n = −.473	(ΔT + m)
✓14 59	+ 0.52	+ $\overset{12}{2}$.66	−.25	+ 12.41
✓15 26	+ 0.88	12.89	−.42	12.47
✓15 29	+ 0.51	12.72	−.24	12.48
✓15 38	+ 0.12	12.59	−.06	12.53
✓15 40	+ 0.28	12.66	−.13	12.53
✓15 45	+ 0.09	12.52	−.04	12.48
✓15 55	+ 1.43	13.19	−.67	12.52
✓16 8	− 0.06	12.51	+.03	12.54
120 300	377	$\overset{5}{474}$		396
15 38	+0.471	+12.593 +12.718		+12.495

0 = +12.718 − .222 = +12.496

✓14 51 + 3.65 + 14.21 + .01 = + 14.22

✓14 56 + 2.29 13.70 + .01 = 13.71

✓15 49 + 4.78 14.50 − .00 = 14.50

0 = + 1.50 + 3.18 n n = −.47

+ .99 + 1.82 n −.54

+ 1.78 + 4.31 n −.41

n = −.473

July 7 1874

T'	tang δ	T' − RA.	n tang δ n = −.415	(ΔT + m)
√14 26 ᵐ	+ 0.60	0 = + 12.89 ˢ	−.25	+ 12.64
√14 59	+ 0.52	12.84	−.22	12.62
√15 10	− 0.16	12.57	+.07	12.64
√15 23	+ 0.57	12.79	−.24	12.55
√15 26	+ 0.88	13.02	−.37	12.65
√15 27	+ 0.88	13.09	−.37	12.72
√15 29	+ 0.57	12.84	−.21	12.63
√16 8	− 0.06	12.66	+.02	12.68
√16 12	− 0.08	12.67	+.03	12.70
√16 16	+ 0.35	12.81	−.14	12.67
√16 20	+ 0.25	12.73	−.10	12.63
167 256	426	891		713
15 34	+0.387	+12.810		+12.648

0 = +12.810 − .161 = +12.649

h = +.007
13

√14 51	+ 3.65	0 = + 14.24 + .00 = + 14.24
√15 13	+ 2.45	13.63 + .00 = 13.63
√15 21	+ 3.13	13.84 + .00 = 13.84
√16 14	+ 4.07	14.43 − .01 = 14.42

0 = +1.43 + 3.26 n   n = −.44
+.82 + 2.06 n   −.40
+1.03 + 2.74 n   −.38
+1.61 + 3.68 n   −.44

n = −.415

July 8

			n = −.457	−.461
√14 57	+ 0.87	+ 13.51	−.40	+ 13.11
√14 59	+ 0.52	13.36	−.24	13.12
√15 10	− 0.16	13.07	+.07	13.14
√15 23	+ 0.57	13.35	−.26	13.09
√15 26	+ 0.88	13.56	−.40	13.16
√15 29	+ 0.57	13.38	−.23	13.15
√15 38	+ 0.12	13.23	−.05	13.18
√15 40	+ 0.28	13.26	−.13	13.13
√15 43	− 0.05	13.06	+.02	13.08
√15 45	+ 0.09	13.19	−.04	13.15
√15 51	+ 0.29	13.26	−.13	13.13
√15 55	+ 1.43	13.82	−.65	13.17
√16 8	− 0.06	13.13	+.03	13.16
√16 12	− 0.08	13.22	+.04	13.26
√16 16	+ 0.35	13.35	−.16	13.19
√16 20	+ 0.25	13.32	−.11	13.21
242 532	581	507		243
15 41	+0.363	+13.317		+13.152

0 = +13.317 − .166 = +13.151

h = +.014
26

√15 13	+ 2.45	+14.28 + .01 = + 14.29
√15 21	+ 3.13	14.45 + .00 = 14.45
√15 49	+ 4.78	15.45 − .00 = 15.45
√16 14	+ 4.07	15.13 − .01 = 15.12

0 = +.97 + 2.09 n   n = −.46
+1.13 + 2.77 n   .41
+2.13 + 4.42 n   .48
+1.80 + 3.71 n   48

n = −.457

0 = +1.14 + 2.45 n   = − .465
1.30 + 3.13   .415
2.30 + 4.78   .481
1.97 + 4.07   .484
− .461

July 9

			n = −.465	
√14 57	+ 0.87	+ 14.31	−.40	+ 13.91
14 57	+ 0.870	+14.310		+ 13.910

0 = + 14.310 − .040 = + 13.910

h = +.030
33

√14 56   + 2.29   + 14.97 − .00 = + 14.97

0 = +.66 + 1.42 n   n = − .465

July 13

T		tang δ	T − R.A.	n tang δ n = −.418	(ΔT′ + m)
✓ 16	38	+ 0.12	0 = + 17.36	−.05	+ 17.31
✓ 15	40	+ 0.28	17.39	−.12	17.27
✓ 15	43	− 0.05	17.26	+.02	17.28
✓ 15	49	+ 0.09	17.27	−.04	17.23
✓ 15	51	+ 0.29	17.40	−.12	17.28
✓ 15	55	+ 1.43	17.97	−.60	17.37
✓ 16	8	− 0.06	17.30	+.03	17.33
✓ 16	39	+ 0.81	17.66	−.34	17.32
✓ 16	43	+ 1.54	18.00	−.65	17.35
✓ 16	46	+ 0.27	17.51	−.11	17.40
✓ 16	52	+ 0.17	17.52	−.07	17.45
✓ 16	55	+ 0.60	17.57	−.25	17.32
✓ 17	4	+ 0.86	17.71	−.36	17.35
✓ 17	9	+ 0.26	17.50	−.11	17.39
220	532	661	742		465
16	21	+0.472	+17.530		+17.332

0 = + 17.530 − .197 = +17.333

h = +.030
33

✓ 15 49 + 4.78 0 = +19.32 + .01 = + 19.33

0 = +1.80 + 4.31 n n = −.418

July 14

T		tang δ	T − R.A.	n tang δ n = −.452	(ΔT′ + m)
✓ 15	10	− 0.16	+ 17.96	+.07	+ 18.03
✓ 15	23	+ 0.57	18.24	−.26	17.98
✓ 15	26	+ 0.88	18.47	−.40	18.07
✓ 15	27	+ 0.88	18.52	−.40	18.12
✓ 15	29	+ 0.51	18.28	−.23	18.05
✓ 15	38	+ 0.12	18.13	−.05	18.08
✓ 15	40	+ 0.28	18.17	−.13	18.04
✓ 15	43	− 0.05	17.97	+.02	17.99
✓ 15	45	+ 0.09	18.07	−.04	18.03
✓ 15	55	+ 1.43	18.70	−.65	18.05
✓ 16	00	+ 1.66	18.83	−.75	18.08
✓ 16	8	− 0.06	18.04	+.03	18.07
✓ 16	12	− 0.08	18.04	+.04	18.08
✓ 16	39	+ 0.81	18.40	−.37	18.03
214	395	688	382		70
15	45	+0.491	+18.273		+18.050

0 = + 18.273 − .222 = +18.051

h = +.042
36

✓ 15 13	+ 2.45	+ 19.18 + .02 =	+ 19.20
✓ 15 21	+ 3.13	19.35 + .02 =	19.37
✓ 15 49	+ 4.78	20.16 − .00 =	20.16
✓ 16 14	+ 4.07	20.01 − .02 =	19.99

0 = + .93 + 1.96 n n = −.47
+1.10 + 2.64 n −.42
+1.89 + 4.29 n −.44
+1.72 + 3.58 n −.48

n = −.452

July 15

T		tang δ	T − R.A.	n tang δ n = −.508	(ΔT′ + m)
✓ 15	10	+ 0.67	+ 19.33	−.34	+ 18.99
✓ 15	26	+ 0.88	19.54	−.45	19.09
✓ 15	27	+ 0.88	19.55	−.45	19.10
✓ 15	29	+ 0.51	19.32	−.26	19.06
✓ 15	38	+ 0.12	19.14	−.06	19.08
✓ 15	40	+ 0.28	19.21	−.14	19.07
✓ 15	43	− 0.05	19.00	+.03	19.03
✓ 15	45	+ 0.09	19.04	−.05	18.99
✓ 15	51	+ 0.29	19.22	−.15	19.07
✓ 15	55	+ 1.43	19.80	−.73	19.07
✓ 16	00	+ 1.66	19.95	−.84	19.11
✓ 16	8	− 0.06	19.04	+.03	19.07
✓ 16	12	− 0.08	19.15	+.04	19.19
✓ 16	16	+ 0.35	19.29	−.18	19.11
✓ 16	20	+ 0.25	19.26	−.13	19.13
✓ 16	25	+ 0.04	19.02	−.02	19.00
246	445	726	486		116
15	50	+0.454	+19.304		+19.073

0 = +19.304 − .231 = +19.073

h = +.042
40

✓ 15 13	+ 2.45	+ 20.36 + .02 =	+ 20.38
✓ 15 21	+ 3.13	20.50 + .02 =	20.52
✓ 15 49	+ 4.78	21.48 + .00 =	21.48
✓ 16 14	+ 4.07	21.17 − .01 =	21.16
✓ 16 28	+ 2.61	20.49 − .02 =	20.47

0 = + 1.08 + 2.00 n n = −.54
+1.22 + 2.68 n −.45
2.18 + 4.33 n −.50
1.86 + 3.62 n −.51
1.17 + 2.16 n −.54

n = −.508

37

54

July 18 1874

T h	m	tang δ	T − R.A.	n tang δ n = −.500	(ΔT + m)
√15	55	+ 1.43	+ 22.50	−.71	+ 21.79
√16	8	− 0.06	21.82	+ .03	21.85
√16	12	− 0.08	21.79	+ .04	21.83
√16	39	+ 0.81	22.23	−.40	21.83
63	114	+ 210	34 41		8
16	13	+0.525	+22.102 +22.085		+21.820

h = +.038 s
41

√ 15 49 + 4.78 0 = +24.26 + .01 = + 24.27
√ 16 14 + 4.07 23.93 − .00 = 23.93
√ 16 36 + 4.59 24.02 − .01 = 24.01

0 = + 2.19 + 4.26 n n = −.51
+ 1.85 + 3.55 n −.52
+ 1.93 + 4.07 n −.47

n = −.500

July 19

n = −.526

T h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
√15	26	+ 0.88	+ 23.25	−.46	+ 22.79
√15	27	+ 0.88	23.30	−.46	22.84
√15	29	+ 0.51	23.11	−.27	22.84
√15	38	+ 0.12	22.95	−.06	22.89
√15	40	+ 0.28	23.03	−.15	22.88
√15	43	− 0.05	22.81	+ .03	22.84
√15	45	+ 0.09	22.87	−.05	22.82
√15	51	+ 0.29	22.94	−.15	22.79
√15	55	+ 1.43	23.59	−.76	22.83
√16	0	+ 1.66	23.72	−.87	22.85
√16	8	− 0.06	22.83	+ .03	22.86
√16	12	− 0.08	22.88	+ .04	22.92
√16	25	+ 0.04	22.80	−.02	22.78
√16	39	+ 0.81	23.26	−.43	22.83
√16	43	+ 1.54	23.63	−.81	22.82
√16	52	+ 0.17	23.01	−.09	22.92
√16	55	+ 0.60	23.14	−.32	22.82
93	588	911	212		72
16	3	+0.536	+23.125		+22.842

0 = +23.125 − .282 = +22.843

h = +.042
46

√ 15 49 + 4.78 + 25.27 + .01 = + 25.28
√ 16 14 + 4.07 25.04 − .01 = 25.03
√ 16 36 + 4.59 25.28 − .02 = 25.26

0 = + 2.16 + 4.24 n n = −.51
+ 1.91 + 3.53 n −.54
+ 2.14 + 4.05 n −.53

n = −.526

July 21

n = −.520

T h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
√15	43	− 0.05	+ 25.20	+ .03	+ 25.23
√15	45	+ 0.09	25.26	−.05	25.21
√15	55	+ 1.43	25.87	−.74	25.13
√16	12	− 0.08	25.24	+ .04	25.28
√16	39	+ 0.81	25.60	−.42	25.18
√17	28	+ 1.30	25.91	−.68	25.23
√17	29	+ 0.23	25.44	−.12	25.32
√17	42	+ 0.53	25.56	−.28	25.28
48	293	426	408		186
16	37	+0.532	+25.510		+25.232

0 = +25.510 − .277 = +25.233

h = +.050
44

√ 15 49 + 4.78 + 28.00 + .04 = + 28.04
√ 16 14 + 4.07 27.44 + .02 = 27.46
√ 16 36 + 4.59 27.77 + .00 = 27.77
√ 17 32 + 2.50 26.49 − .05 = 26.44
√ 17 38 + 2.58 26.48 − .05 = 26.43

0 = + 2.53 + 4.25 n n = −.59
+ 1.95 + 3.54 n −.52
+ 2.26 + 4.06 n −.56
+ .93 + 1.97 n −.48
+ .92 + 2.05 n −.45

n = −.520

July 22

T h	m	tang δ	T − R.A. s	n tang δ n = −.505	(ΔT + m)
✓ 15	51	+ 0.29	0 = + 26.29	−.15	+ 26.14
✓ 15	55	+ 1.43	26.90	−.72	26.18
✓ 16	0	+ 1.66	27.09	−.84	26.25
✓ 16	8	− 0.06	26.12	+.03	26.15
✓ 16	12	− 0.08	26.14	+.04	26.18
✓ 16	16	+ 0.35	26.37	−.18	26.19
✓ 16	20	+ 0.25	26.34	−.13	26.21
✓ 16	39	+ 0.81	26.55	−.41	26.14
✓ 16	43	+ 1.54	26.95	−.78	26.17
✓ 16	52	+ 0.17	26.34	−.09	26.25
✓ 16	55	+ 0.60	26.55	−.30	26.25
64	351	696	564		211
16	21	+0.633	+26.513		+26.192

0 = + 26.513 − .320 = + 26.193

h = +.041 s
41

✓ 15	49	+ 4.78	0 = + 28.67 + .02 = + 28.69
✓ 16	14	+ 4.07	28.20 + .00 = 28.20

0 = + 2.18 + 4.15 n   n = −.52
+ 1.69 + 3.44 n   −.49

n = −.505

July 23

n = −.460

T h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
✓ 15	40	+ 0.28	= + 27.28	−.13	+ 27.15
✓ 15	43	− 0.05	27.15	+.02	27.17
✓ 15	45	+ 0.09	27.24	−.04	27.20
✓ 15	51	+ 0.29	27.25	−.13	27.12
✓ 15	55	+ 1.43	27.81	−.66	27.15
✓ 16	0	+ 1.66	27.80	−.76	27.04
✓ 16	8	− 0.06	27.14	+.03	27.17
✓ 16	12	− 0.08	27.18	+.04	27.22
✓ 16	136	+ 0.35	27.38	−.16	27.22
✓ 16	20	+ 0.25	27.30	−.11	27.19
✓ 16	39	+ 0.81	27.55	−.37	27.18
✓ 16	48	+ 1.54	27.87	−.71	27.16
67	372	6.51	495		197
16	6	+0.543	+27.413		+ 27.164

0 = + 27.413 − .250 = + 27.163

h = +.040
46

✓ 15	49	+ 4.78	+ 29.31 + .01 = + 29.32
✓ 16	14	+ 4.07	29.07 − .00 = 29.07

0 = + 1.91 + 4.24 n   n = −.45
+ 1.66 + 3.53 n   −.47

n = −.460

July 27

n = −.46

T h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
✓ 16	25	+ 0.04	+ 32.19	−.02	+ 32.17
✓ 16	46	+ 0.27	32.37	−.12	32.25
32	71	31	56		42
16	35	+ 0.155	+ 32.280		+ 32.210

0 = + 32.280 − .071 = + 32.209

h = +.052
48

July 28

n = −.473

T h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
✓ 16	20	+ 0.25	+ 32.32	−.12	+ 32.20
✓ 16	39	+ 0.81	32.53	−.38	32.15
✓ 16	43	+ 1.54	32.84	−.73	32.11
✓ 16	55	+ 0.60	32.47	−.28	32.19
24	157	320	216		65
16	39	+ .0800	+ 32.540		+ 32.162

0 = + 32.540 − .378 = + 32.162

h = +.046
46

✓ 16	28	+ 2.61	+ 33.47 + .01 = + 33.48
✓ 17	44	3.12	33.64 − .05 = 33.59
✓ 17	55	4.33	34.18 − .05 = 34.13

0 = + .94 + 1.81 n   n = −.52
+ 1.05 + 2.32 n   −.45
+ 1.59 + 3.53 n   −.45

n = −.473

July 30 1874

T'		tang δ	T'-R.A.	n tang δ n = -.480	(ΔT+m)
h	m				
√16	00	+ 1.66	+35.09	-.79	+34.30
√16	8	- 0.06	34.20	+.03	34.23
√16	12	- 0.08	34.16	+.04	34.20
√16	20	+ 0.25	34.39	-.12	34.27
√16	25	+ 0.04	34.21	-.02	34.19
√16	39	+ 0.81	34.59	-.39	34.20
√16	43	+ 1.54	34.95	-.74	34.21
√16	46	+ 0.27	34.39	-.13	34.26
√16	55	+ 0.60	34.55	-.29	34.26
√18	15	- 0.05	34.33	+.02	34.35
√18	33	+ 0.80	34.69	-.38	34.31
70	296	578	555		278
16	49	+0.525	+34.505		+34.253

0 = +34.505 -.252 = +34.253

h = + .043 s
46

√16 14 +4.07 0 = +36.07 +.02 = +36.09
√18 23 2.95 35.72 -.06 = 35.66
√18 23 3.21 35.93 -.06 = 35.87
√18 12 +16.838 42.86 -.05 = 42.81

0 = +1.59 + 3.55 n n = -.45
+1.16 + 2.43 n -.48
+1.37 + 2.69 n -.51

n = -.480

Aug 2

n = -.488

√16	8	- 0.06	+37.65	+.03	+37.68
√16	12	- 0.08	37.63	+.04	37.67
√16	16	+ 0.35	37.85	-.17	37.68
√16	20	+ 0.25	37.77	-.12	37.65
√16	25	+ 0.04	37.62	-.02	37.60
√16	39	+ 0.81	38.01	-.40	37.61
√16	43	+ 1.54	38.42	-.75	37.67
√16	46	+ 0.27	37.85	-.13	37.72
√16	52	+ 0.17	37.87	-.08	37.79
√16	55	+ 0.60	37.91	-.29	37.62
√18	15	- 0.05	37.81	+.02	37.83
√18	18	+ 0.40	38.15	-.19	37.96
√18	33	+ 0.80	38.14	-.39	37.75
84	382	528	1168		923
16	57	+0.388	+37.898		+37.710

0 = +37.898 -.188 = +37.710

h = +.046
43

√16 14 +4.07 +39.55 +.04 = +39.59
√16 28 +2.61 39.05 +.03 = 39.08
√16 36 +4.59 39.80 +.01 = 39.81
√18 32 +16.838 46.20 -.05 = 46.15
√18 23 +2.95 39.18 -.06 = 39.12
√18 23 +3.21 39.41 -.06 = 39.35

0 = +1.69 + 3.68 n n = -.46
+1.18 + 2.22 n -.53
+1.91 + 4.20 n -.45
+8.25 + 16.49 n -.50
+1.22 + 2.56 n -.48
+1.45 + 2.82 n -.51

n = -.488

Aug 3

n = -.515

√16	25	+ 0.04	+38.65	-.02	+38.63
√16	37	+ 0.62	38.86	-.32	38.54
√16	39	+ 0.81	39.01	-.42	38.59
√16	43	+ 1.54	39.24	-.79	38.45
√16	46	+ 0.27	38.79	-.14	38.65
√16	52	+ 0.17	38.82	-.09	38.73
√16	55	+ 0.60	38.89	-.31	38.58
√17	9	+ 0.26	38.79	-.13	38.66
√17	11	+ 0.75	38.88	-.39	38.49
√18	3	+ 0.55	38.99	-.28	38.71
64	320	5.61	8.92		603
16	56	+0.561	+38.892		+38.603

0 = +38.892 -.289 = +38.603

h = +.037
31

√17 55 + 4.33 +40.87 -.04 = +40.83

0 = +1.94 + 3.77 n n = -.515

Aug 4

T′ h	m	tang δ	T − R.A.	n tang δ n = −.500	(ΔT + m)
✓18	3	+ 0.55	0 = + 39.52	−.27	+ 39.25
✓18	15	− 0.05	39.27	+.02	39.29
✓18	18	+ 0.40	39.39	−.20	39.19
✓18	33	+ 0.80	39.64	−.40	39.24
	69	1.70	1.82		17
18	17	+0.425	+39.480 +39.455		+39.242

0 = +39.455 −.213 = +39.242

$h = +\overset{s}{.}027$

27

✓18	12	+16.838	0 = +46.95 +.00 = +46.95
✓18	23	+ 2.95	40.70 − .00 = 40.70
✓18	23	+ 3.21	40.94 − .00 = 40.94

0 = + 7.50 + 16.45 n n = − .46
+ 1.25 + 2.52 n − .50
+ 1.49 + 2.78 n − .54

n = −.500

Aug 5

h	m	tang δ	T − R.A.	n tang δ n = −.508	(ΔT + m)
✓16	16	+ 0.35	+39.98	−.18	+ 39.80
✓16	20	+ 0.25	40.07	−.13	39.94
✓16	39	+ 0.81	40.22	−.41	39.81
✓16	43	+ 1.54	40.56	−.78	39.78
✓16	46	+ 0.27	40.18	−.14	40.04
✓16	52	+ 0.17	40.16	−.09	40.07
✓16	55	+ 0.60	40.19	−.30	39.89
✓17	9	+ 0.26	40.12	−.13	39.99
✓17	11	+ 0.75	40.17	−.38	39.79
✓17	28	+ 1.30	40.60	−.66	39.94
✓17	29	+ 0.23	40.08	−.12	39.96
✓17	42	+ 0.53	40.08	−.27	39.81
77	390	7.06	2.41		1082
16	58	+0.588	+40.208		+39.902

0 = + 40.201 −.299 = +39.902

h = +.027

80

✓16	28	+ 2.61	+ 41.29 + .01 = + 41.30
✓16	36	+ 4.69	42.39 + .01 = 42.40
✓17	32	+ 2.50	41.01 − .01 = 41.00
✓17	44	+ 3.12	41.54 − .02 = 41.52

0 = + 1.10 + 2.02 n n = −.54
+ 2.20 + 4.00 n −.55
+ .80 + 1.91 n −.42
+ 1.32 + 2.53 n −.52

n = −.508

Aug 6

h	m	tang δ	T − R.A.	n tang δ n = −.480	(ΔT + m)
✓16	25	+ 0.04	− 19.39	−.02	−19.41
✓16	37	+ 0.62	19.10	−.30	19.40
✓16	39	+ 0.81	18.95	−.39	19.34
✓16	43	+ 1.54	18.66	−.74	19.40
✓16	55	+ 0.60	19.08	−.29	19.37
✓17	4	+ 0.86	18.98	−.41	19.39
✓17	9	+ 0.26	19.18	−.12	19.30
✓17	11	+ 0.75	19.06	−.36	19.42
✓18	3	+ 0.55	19.07	−.26	19.33
✓18	15	− 0.05	19.27	+.02	19.25
67	241	5.98	.74		361
17	6	+0.598	−19.074		−19.361

0 = −19.074 −.287 = −19.361

h = +.0321

33

✓16	28	+ 2.61	−17.91 + .02 = − 17.89
✓18	12	+ 16.838	− 12.82 − .03 = − 12.85

0 = + 1.18 + 2.01 n n = −.58
+ 6.22 + 16.28 n −.38

n = −.480

45

Aug 10 1874

T	tang δ	T − R.A.	n tang δ n = −.427	+ (ΔT + m)
h m		s		
√16 55	+ 0.60	0 = −15.66	−.26	−15.92
√17 9	+ 0.26	15.84	−.11	15.95
√18 15	− 0.05	15.93	+.02	15.91
√18 18	+ 0.40	15.74	−.17	15.91
√18 33	+ 0.80	15.57	−.34	15.91
√18 45	+ 0.65	15.56	−.28	15.84
45 175	2.66	4.30		4
17 59	+0.443	−15.717		−15.907

0 = −15.717 −.189 = −15.906

h = +.035 (s)
35

√18 12 +16.83⁸ 0 = − 8.57 − .00 = − 8.57
√18 36 + 4.49 13.79 − .02 = 13.81
√6 41 − 20.69 23.81 − .02 = 23.83

0 = + 7.15 + 16.44 n n = −.43
+1.91 + 4.05 n −.47
− 8.11 − 21.13 n −.38

n = −.427

Aug. 19 n = −.422

T	tang δ	T − R.A.	n tang δ	+ (ΔT + m)
√17 9	+ 0.26	−8.22	−.11	−8.33
√17 28	+ 1.30	7.81	−.55	8.36
√17 29	+ 0.23	8.22	−.10	8.32
√17 42	+ 0.53	8.18	−.23	8.41
√18 3	+ 0.55	8.06	−.23	8.29
√18 15	− 0.05	8.30	+.02	8.28
√18 18	+ 0.40	8.11	−.17	8.28
52 145	3.22	0.90		227
17 46	+0.460	−8.129		−8.324

0 = − 8.129 −.194 = − 8.323

h = +.035
36

√17 32 + 2.50 − 7.29 + .01 = − 7.28
√17 38 + 2.58 7.31 + .00 = 7.31
√17 44 + 3.12 6.98 + .00 = 6.98
√17 55 + 4.33 6.45 − .01 = 6.46
√18 12 +16.83⁸ 0.87 − .02 = 0.89

0 = +.85 + 2.04 n n = −.42
+.82 + 2.12 n −.39
+1.15 + 2.66 n −.43
+1.67 + 3.87 n −.43
+7.24 + 16.42 n −.44

n = −.422

Aug. 20

T	tang δ	T − R.A.	n tang δ n = −.475	+ (ΔT + m)
√18 15	− 0.05	−7.43	+.02	−7.41
√18 18	+ 0.40	7.28	−.19	7.47
√18 33	+ 0.80	7.08	−.38	7.46
√18 45	+ 0.65	7.11	−.31	7.42
√19 0	+ 0.24	7.26	−.11	7.37
√19 12	+ 0.20	7.31	−.09	7.40
50 133	2.24	1.47		13
18 40	+0.373	−7.245		−7.422

0 = −7.245 −.177 = −7.422

h = +.038
39

√18 12 + 16.83⁸ + 0.50 + .02 = + 0.52
√18 23 + 2.95 − 6.07 + .01 = − 6.06
√18 23 + 3.21 − 5.78 + .01 = − 5.77
√18 36 + 4.49 − 5.38 + .00 = − 5.38

0 = +7.76 + 16.51 n n = −.47
+1.18 + 2.58 n −.46
+1.47 + 2.84 n −.52
+1.86 + 4.12 n −.45

n = −.475

Aug. 22 n = −.430 −.433

T	tang δ	T − R.A.	n tang δ	+ (ΔT + m)
√17 29	+ 0.23	−5.30	−.10	−5.40
√18 18	+ 0.40	5.20	−.17	5.37
√18 33	+ 0.80	5.01	−.34	5.35
√18 45	+ 0.65	5.11	−.28	5.39
√18 52	+ 0.96	4.89	−.41	5.30
√18 54	+ 0.27	5.28	−.12	5.40
√19 0	+ 0.24	5.21	−.10	5.31
√19 12	+ 0.20	5.24	−.09	5.33
65 243	3.75	134 2		45
18 38	+0.469	~~−5.168~~ −5.155		−5.356

0 = −5.155 −.201 = −5.356

h = +.042
32

√18 12 + 16.83⁸ + 1.96 + .02 = + 1.98
√18 23 + 2.95 − 4.20 + .01 = − 4.19
√18 23 + 3.21 − 3.82 + .01 = − 3.81
√18 36 + 4.49 − 3.48 + .00 = − 3.48
√6 41 − 20.69 − 14.31 − .00 = − 14.31

0 = +7.13 + 16.41 n n = −.43
+.96 + 2.48 n −.39
+1.34 + 2.74 n −.49
+1.67 + 4.02 n −.41
−9.16 − 21.16 n −.43

n = −.430

0 = +7.33 + 16.88 n = −.434
1.17 + 2.95 .396
1.55 + 3.21 .483
1.88 + 4.49 .419
8.98 + 20.69 .432

433

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Aug. 23

T		tang δ	T – R.A.	n tang δ n = –.422	– (ΔT + m)
h	m				
√17	28	+ 1.30	0 = – 4.33	– .55	– 4.88
√17	29	+ 0.23	4.70	– .10	4.80
√17	42	+ 0.53	4.65	– .22	4.87
√18	3	+ 0.55	4.69	– .23	4.92
√19	26	+ 0.53	4.68	– .22	4.90
√19	40	+ 0.18	4.77	– .08	4.85
47	168	3.32	382		42
18	18	+ 0.553	– 4637		– 4.870

0 = – 4.637 – 233 = – 4.870

h = +.020 (s)
22

√17 32	+ 2.50	0 = – 3.95 + .02 =	– 3.93
√17 38	+ 2.58	4.03 + .01 =	4.02
√17 44	+ 3.12	3.68 + .01 =	3.67
√17 55	+ 4.33	2.72 + .01 =	2.71
√19 18	+ 3.29	3.17 – .00 =	3.17

0 = + .71 + 1.95 n n = – .37
+ .62 + 2.03 n – .31
+ .97 + 2.57 n – .38
+ 1.93 + 3.78 n – .51
+ 1.47 + 2.74 n – .54

n = – .422

Aug. 24

n = – .400

n = – 0,40

h = +.025
19

√18	3	+ 0.55	– 4.09	– .22	– 4.31
√19	12	+ 0.20	4.16	– .08	4.24
√19	14	+ 1.33	3.78	– .53	4.31
√19	19	+ 0.05	4.18	– .02	4.20
√19	26	+ 0.53	4.10	– .21	4.31
44	74	2.66	0.31		137
18	63	+ 0.532	– 4.062		– 4.274
19	3				

0 = – 4.062 – .213 = – 4.275

Aug. 25

n = – .375

h = +.015
12

√19	19	+ 0.05	– 3.90	– .02	– 3.92
√19	26	+ 0.53	3.78	– .20	3.98
√19	40	+ 0.18	3.81	– .07	3.88
√19	45	+ 0.15	3.85	– .06	3.91
	130	0.91	3.34		9
19	32	+ 0.228	– 3.835		– 3.922

0 = – 3.835 – .086 = – 3.921

√19 18	+ 3.29	– 2.64 + .00 =	– 2.64
√19 49	+ 2.74	2.92 – .00 =	2.92

0 = + 1.19 + 3.06 n n = – .39
+ .91 + 2.51 n – .36

n = – .375

Aug. 26

n = – .326

h = +.010
13

√17	28	+ 1.30	– 3.30	– .42	– 3.72
√17	29	+ 0.23	3.67	– .07	3.74
√17	42	+ 0.53	3.60	– .17	3.77
√18	3	+ 0.55	3.49	– .18	3.67
√19	12	+ 0.20	3.56	– .06	3.62
√19	14	+ 1.33	3.12	– .44	3.56
√19	19	+ 0.05	3.55	– .02	3.57
√19	26	+ 0.53	3.53	– .17	3.70
65	173	4.72	3.82		535
18	29	+ 0.590	– 3.478		– 3.669

0 = – 3.478 – .192 = – 3.670

√17 32	+ 2.50	– 3.10 + .01 =	– 3.09
√17 38	+ 2.58	2.92 + .01 =	2.91
√17 55	+ 4.33	2.43 + .00 =	2.43
√19 13	+ 2.40	2.64 – .01 =	2.65
√19 18	+ 3.29	2.40 – .01 =	2.41

0 = + .39 + 1.91 n n = – .20
+ .57 + 1.99 n – .29
+ 1.05 + 3.74 n – .28
+ .83 + 1.81 n – .46
+ 1.07 + 2.70 n – .40

n = – .326

Aug. 27 1874

T	tang δ	T – R.A.	n tang δ n = –.342	–(ΔT+m)
√ 17 28^m	+ 1.30	0 = – 2.91	–.44	– 3.35
√ 17 29	+ 0.23	3.24	–.08	3.32
√ 17 42	+ 0.53	3.11	–.18	3.29
√ 19 12	+ 0.20	3.22	–.07	3.29
√ 19 19	+ 0.05	3.29	–.02	3.31
39 130	2.31	.47		6
1~~7~~8 ~~7~~4	+ 0.4621	– 3.154		– 3.312

0 = – 3.154 – .158 = – 3.312

h = + .022 3
16

√ 17 32	+ 2.50	0 = – 2.46 + .01 = – 2.45
√ 17 38	+ 2.58	2.64 + .01 = 2.63
√ 17 55	+ 4.33	1.81 + .00 = 1.81
√ 19 13	+ 2.40	2.48 – .02 = 2.50
√ 19 18	+ 3.29	1.89 – .02 = 1.91

0 = + .70 + 2.04 n   n = –.34
+ .52 + 2.12 n   –.25
+ 1.34 + 3.87 n   –.35
+ .65 + 1.94 n   –.33
+ 1.24 + 2.83 n   –.44

n = –.342

Aug. 31

n = –.480

√ 18 3	+ 0.55	– 1.40	–.26	– 1.66
√ 19 12	+ 0.20	1.45	–.10	1.55
√ 19 14	+ 1.33	0.86	–.64	1.50
√ 19 19	+ 0.05	1.52	–.02	1.54
√ 19 26	+ 0.53	1.36	–.25	1.61
√ 19 40	+ 0.18	1.52	–.09	1.61
√ 19 45	+ 0.15	1.51	–.07	1.58
√ 19 46	+ 0.01	1.59	–.00	1.59
√ 19 49	+ 0.11	1.48	–.05	1.53
√ 20 5	– 0.02	1.54	+ .01	1.53
9 ~~8~~0 259	3.09	4.23		70
~~18 26~~ 19 26	+ 0.309	– 1.423		– 1.570

0 = – 1.423 – .148 = – 1.571

h = + .018
18

√ 19 13	+ 2.40	– 0.34 + .00 = – 0.34
√ 19 18	+ 3.29	– 0.00 + .00 = – 0.00
√ 19 29	+ 5.32	+ 0.92 – .00 = + 0.92
√ 19 49	+ 2.74	– 0.23 – .00 = – 0.23
√ 19 49	+ ~~52.88~~ 53.59	+ 22.36 – .00 = + 22.36

0 = + 1.08 + 2.09 n   n = –.51
+ 1.42 + 2.98 n   –.48
+ 2.34 + 5.01 n   –.47
+ 1.19 + 2.43 n   –.49
+ 23.78 + 53.28 n   –.45

n = –.480

Sept. 1

n = –.430

√ 18 3	+ 0.55	– 0.95	–.24	– 1.19
√ 19 46	+ 0.01	1.08	–.00	1.08
√ 19 49	+ 0.11	1.08	–.05	1.13
26 98	0.67	.11		40
18^9 ~~1~~3	+ 0.223	– 1.037		– 1.133

0 = – 1.037 – .096 = – 1.133

h = + .018
20

√ 17 55	+ 4.33	+ 0.71 + .02 = + 0.73
√ 19 49	+ 2.74	+ 0.10 – .01 = 0.09
√ 19 49	+ ~~52.88~~ 53.59	+ 20.99 – .01 = 20.98

0 = + 1.77 + 4.11 n   n = –.43
+ 1.13 + 2.52 n   –.45
+ 22.02 + 53.37 n   –.41

n = –.430

Sept 2

n = –.450

√ 18 3	+ 0.55	– 0.36	–.25	– 0.61
√ 18 15	– 0.05	0.61	+ .02	0.59
√ 19 26	+ 0.53	0.46	–.24	0.70
√ 19 40	+ 0.18	0.46	–.08	0.54
√ 19 45	+ 0.15	0.49	–.07	0.56
√ 19 46	+ 0.01	0.50	–.00	0.50
√ 19 49	+ 0.11	0.47	–.05	0.52
61 224	1.48	3.35		402
18^9 ~~7~~5	+ 0.211	– 0.479		– 0.574

0 = – 0.479 – .095 = – 0.574

h = + .023
25

√ 18 12	+ 16.88^8	+ 6.97 + .02 = + 6.99
√ 19 29	+ 5.32	+ 2.03 – .00 = + 2.03
√ 19 49	+ 2.74	+ 0.73 – .01 = + 0.72
√ 19 49	+ ~~52.88~~ 53.59	+ 20.62 – .01 = + 20.61

0 = + 7.47 + 16.67 n   n = –.45
+ 2.51 + 5.11 n   –.49
+ 1.20 + 2.53 n   –.47
+ 21.09 + 53.38 n   –.39

n = –.450

Sept. 6

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
h	m			n = −.398	
√18	15	− 0.05	0 = + 2.00	+.02	+ 2.02
√18	18	+ 0.40	2.10	−.16	1.94
√18	33	+ 0.80	2.27	−.32	1.95
	66	1.13^{5}	.37		21
18	22	+ ~~0.376~~ 0.383	+2.123		+ 1.970

0 = + 2.123 − .153 = + 1.970

$h = +.026^{s}$ 28

√18	12	$+16.83^{8}$	0 = + 8.64 + .00 = + 8.64
√18	23	+ 2.95	+ 3.18 − .00 = + 3.18
√18	23	+ 3.21	+ 3.40 − .00 = + 3.40
√18	36	+ 4.49	+ 3.76 − .00 = + 3.76
√6	41	− 20.69	− 5.10 − .01 = − 5.11

0 = + 6.52 + 16.50 n n = − .39
+ 1.06 + 2.57 n − .41
+ 1.28 + 2.83 n − .45
+ 1.64 + 4.11 n − .40
− 7.23 − 21.07 n − .34

n = − .398

Sept. 7 n = − .430

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
√18	15	− 0.05	+ 2.70	+.02	+ 2.72
√18	18	+ 0.40	2.80	−.17	2.63
√~~18~~ 19	26	+ 0.53	2.90	−.23	2.67
√19	40	+ 0.18	2.73	−.08	2.65
√19	45	+ 0.15	2.82	−.06	2.76
√19	49	+ 0.11	2.80	−.05	2.75
52	193	1.32	4.75		418
18^{9}	72	+0.220	+2.792		+ 2.697

0 = + 2.792 − .095 = + 2.697

h = + .023 35

√19	49	+ 2.74	+ 3.98 − .02 = + 3.97 6
√19	49	+ ~~52.88~~ 53.59	+ 24.05 − .02 = 24.04 3

0 = + 1.18 + 2.52 n n = − .47
+ 21.25 + 53.37 n − .39

n = − .430

0 = 1.26 + 2.74 n = − .440
21.33 + 53.59 − .398
− .429

Sept. 9

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
√18	15	− 0.05	+ 4.66	+ .02	+ 4.68
√18	18	+ 0.40	4.75	− .16	4.59
√19	26	+ 0.53	4.85	− .21	4.64
√19	40	+ 0.18	4.80	− .07	4.73
√19	45	+ 0.15	4.82	− .06	4.76
√19	46	+ 0.01	4.78	− .00	4.78
√19	49	+ 0.11	4.79	− .04	4.75
61	199	1.33	5.45		493
18^{9}	71	+0.190	+4.779		+ 4.704

h = + .042 40

√18	12	$+16.83^{8}$	+ 11.75 + .04 = + 11.79
√19	49	+ ~~52.88~~ 53.59	+ 25.11 − .02 = 25.09

0 = + 7.01 + 16.69 n n = − .42
+ 20.31 + 53.40 n − .38

n = − .400

Sept. 10

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
				n = − .463	
√18	45	+ 0.65	+ 5.85	− .30	+ 5.55
√18	52	+ 0.96	6.04	− .44	5.60
√18	54	+ 0.27	5.72	− .13	5.59
√19	12	+ 0.20	5.71	− .09	5.62
√19	14	+ 1.33	6.28	− .62	5.66
√19	19	+ 0.05	5.69	− .02	5.67
√19	26	+ 0.53	5.78	− .25	5.53
√19	40	+ 0.18	5.71	− .08	5.63
69	262	4.17	6.78		485
18^{9}	70	+ 0.521	+ 5.848		+ 5.606

0 = + 5.848 − .242 = + 5.606

h = + .038 39

√19	13	+ 2.40	+ 6.73 − .00 = + 6.73
√19	18	+ 3.29	7.08 − .00 = 7.08
√19	29	+ 5.32	8.11 − .01 = 8.10

0 = + .88 + 1.88 n n = − .47
+ 1.23 + 2.77 n − .45
+ 2.25 + 4.80 n − .47

n = − .463

Sept. 12 1874

T	tang δ	T − R.A.	n tang δ − (ΔT + m) n = −.475	
√[illegible] 33m	+ 0.80	0 = + 7.80	−.38	+ 7.42
√20 3	− 0.02	0 = + 7.67	+.01	7.68
√20 18	+ 0.84	7.90	−.40	7.50
√20 27	+ 0.19	7.73	−.09	7.64
√18 45	+ 0.65	7.78	−.31	7.47
96 128	2.46	3.88		271
19 38	+0.492	+7.776		+ 7.542

0 = +7.776 −.234 = +7.542

h = +.042 s
28

~~√18 33 +0.80 0 = +7.80~~
~~18 45 +0.65 7.78~~
√6 41 −20.69 0 = −1.60 + 04 = −1.567 (3)
18 36 +4.49 +9.79 + 043 = −9.183

0 = −9.34 − 21.18 n n = −.44
+2.05 + 4.00 n n = −.51

n = −.475

0 = 9.11 + 20.69 n n = 440
2.28 + 4.49 508
−.474

Sept. 13

			n = −.450	n = −0.45
√18 54	+ 0.27	+ 7.97	−.12	+ 7.85
√19 0	0.24	8.06	−.11	7.95
17 54	11	.03		180
18 57	+0.255	+8.015		+7.900

0 = +8.015 −.115 = +7.900

h = +.012
14

Sept. 14 n = −.465

√18 45	+ 0.65	+ 8.51	−.30	+ 8.21
√20 5	− 0.02	8.30	+.01	8.31
√20 18	+ 0.84	8.45	−.39	8.06
√20 27	+ 0.19	8.34	−.09	8.25
78 95	1.66	1.60		83
19 54	+0.415	+8.400		+8.208

0 = +8.400 −.193 = +8.207

h = +.012
12

√19 49 + ~~52.88~~ 53.59 +32.98 + 00 = +32.98
√20 13 + 4.45 10.30 − 01 = 10.29

0 = +24.58 + 53.18 n n = −.46
+1.89 + 4.04 n −.47

n = −.465

Sept. 28 n = −.500

√19 26	+ 0.53	+39.69	−.26	+39.43
√19 40	+ 0.18	39.46	−.09	39.37
√19 45	+ 0.15	39.55	−.07	39.48
√19 46	+ 0.01	39.52	−.01	39.51
√19 49	+ 0.11	39.58	−.05	39.53
206	0.98	2.80		232
19 41	+0.196	+39.560		+39.464

0 = +39.560 −.098 = +39.462

h = .000
12

√19 13 + 2.40 + 40.54 + 00 = + 40.54
√19 18 + 3.29 41.12 + 00 = 41.12
√19 29 + 5.32 42.37 + 00 = 42.37

0 = +.98 + 2.20 n n = −.45
+1.56 + 3.09 n −.50
+2.81 + 5.12 n −.55

n = −.500

19 26	+0.53	+42.36
19 40	+0.18	42.62
19 45	+0.15	42.79
19 46	+0.01	42.91
19 49	+0.11	42.84
206	98	352
19 41	+0.196	+42.704

19 12	+2.40	+ 40.54
19 18	+3.29	39.84
19 29	+5.32	38.47
19 49	+42.37	56.83

0 = −1.16 + 2.20 n n = −.53
−2.86 + 3.09 n −.90
−4.23 + 5.12 n
+14.13 + 42.17 n

Oct. 3

T	tang δ	T − R.A.	n tang δ n = −.276	$-(\Delta T + m)$
h m		s		
✓19 49	+ 0.11	0 = + 13.22	−.03	+ 13.19
✓20 5	− 0.02	13.20	+.01	13.21
✓20 18	+ 0.84	13.40	−.23	13.17
✓20 27	+ 0.19	13.30	−.05	13.25
✓21 25	− 0.11	13.26	+.03	13.29
✓21 38	+ 0.16	13.30	−.04	13.26
✓21 42	+ 1.14	13.54	−.31	13.23
142 204	2.31	2.22		20
20 46	+ 0.330	+ 13.317		+ 13.229

0 = + 13.317 − .091 = + 13.226

h = +.007
3

✓19 49	~~+52.88~~ +53.59	0 = + 25.43 + 01 = + 25.44
✓20 13	+ 4.45	14.47 + 00 = 14.47
✓21 8	+ 4.55	14.47 − 00 = 14.47
✓21 23	− 2.80	12.22 − 00 = 12.22
✓21 27	+ 2.75	13.93 − 00 = 13.93

0 = + 12.12 + 53.26 n   n = −.23
+ 1.15 + 4.12 n   −.28
+ 1.15 + 4.22 n   −.27
− 1.10 − 3.13 n   −.35
+ 61 + 2.42 n   −.25

n = −.276

Oct. 4 n = −.301

✓20 27	+ 0.19	+ 13.44	−.06	+ 13.38
✓20 32	+ 0.25	13.53	−.08	13.45
✓20 41	+ 0.66	13.51	−.20	13.31
✓21 59	− 0.02	13.35	+.01	13.36
✓22 1	+ 0.46	13.48	−.14	13.34
✓22 4	+ 0.10	13.41	−.03	13.38
✓22 6	+ 1.58	13.95	−.47	13.48
7 170	3.22	3.67		270
21 24	+ 0.460	+ 13.524		+ 13.386

0 = + 13.524 − .138 = + 13.386

h = +.000
3

✓20 33	+ 3.61	+ 14.47 + .00 = + 14.47
✓~~20 43~~	~~+ 1.83~~	~~13.63 + .00 = 13.63~~

0 = + .95 + 3.15 n   n = −.301

Oct. 5 n = −.240

✓18 54	+ 0.24	+ 13.42	−.06	+ 13.36
✓19 0	+ 0.24	13.51	−.06	13.45
✓19 14	+ 1.33	13.72	−.32	13.40
✓19 26	+ 0.53	13.43	−.13	13.30
✓19 40	+ 0.18	13.38	−.04	13.34
✓19 46	+ 0.01	13.40	− 00	13.40
53 180	2.56	286		225
18 ~~80~~ 19 20	+ 0.427	+ 13.477		+ 13.375

0 = + 13.477 − .102 = + 13.375

h = −.003
2

✓19 13	+ 2.40	+ 13.94 − 00 = + 13.94
✓19 18	+ 3.29	14.18 − 00 = 14.18
✓19 29	+ 5.32	14.68 + 00 = 14.68
✓19 49	+ 2.74	14.04 + 00 = 14.04

0 = + .46 + 1.97 n   n = −.23
+ .70 + 2.86 n   −.24
+ 1.20 + 4.89 n   −.25
+ .56 + 2.31 n   −.24

n = −.240

Oct. 6 1874

T		tang δ	T − R.A.	n tang δ n = −.275	−(ΔT+m)
	m	−			
√21	1	+0.78	0 = +13.52	−.21	+13.31
√21	8	+0.57	13.37	−.16	13.21
√21	10	+0.77	13.44	−.21	13.23
√21	59	−0.02	13.32	+.01	13.33
√22	1	+0.46	13.39	−.13	13.26
√22	4	+0.10	13.37	−.03	13.34
√22	6	+1.58	13.68	−.43	13.25
√22	10	−0.15	13.32	+.04	13.36
√22	15	−0.03	13.33	+.01	13.34
√22	19	+1.26	13.689	−.35	13.34
√22	29	−0.01	13.37	+.00	13.37
		531 ~~2.25~~			
18	162		480		334
21	53	+0.295 +0.483	+13.436		+13.304

0 = +13.436 − .132 = +13.304

$h = +.007^s$ 2

√ ~~21 15~~ ~~+1.89~~ 0 = ~~+13.57~~
√22 24 − 4.12 + 12.48 − .00 = + 12.48
√22 33 + 3.27 14.38 − .00 = 14.38

0 = −.95 − 4.60 n n = −.21
+.95 + 2.79 n −.34

n = −.275

Oct. 10

n = −.280 −.283

T		tang δ	T − R.A.	n tang δ	−(ΔT+m)
√20	49	+0.52	+14.07	−.14	+13.93
√21	1	+0.78	14.18	−.22	13.96
√21	59	−0.02	13.97	+.01	13.98
√22	1	+0.46	14.10	−.13	13.97
√22	4	+0.10	13.97	−.03	13.94
√22	6	+1.58	14.46	−.43	14.03
√22	10	−0.15	13.91	+.04	13.95
√22	15	−0.03	13.92	+.01	13.93
√22	29	−0.01	14.03	+.00	14.03
√22	35	+0.18	14.05	−.05	14.00
√22	37	+0.57	14.05	−.16	13.89
18	246	+~~2~~3.98	.71		1061
2x²	20	+0.271 +0.362	+14.065		+13.965

0 = +14.065 − .101 = +13.964

h = +.000 + 15

√20 53 + 5.72 + 15.49 + .00² = + 15.49 47
√22 7 + 3.02 14.85 + .00 = 14.85
√22 33 + 3.27 14.90 + .01 = 14.90 1

0 = +1.43 + 5.36 n n = −.27
+.79 + 2.66 n −.29
+.84 + 2.91 n −.28

n = −.280

0 = +1.57 + 5.72 n n = −.264
0.89 + 3.02 .294
0.95 + 3.27 .290
−.283

Oct. 11

n = −.364 −.367

T		tang δ	T − R.A.	n tang δ	−(ΔT+m)
√20	18	+0.84	+14.77	−.31	+14.46
√20	27	+0.19	14.63	−.07	14.56
√20	32	+0.25	14.62	−.09	14.53
√20	37	+0.99	14.82	−.36	14.46
√20	41	+0.66	14.69	−.24	14.45
√20	49	+0.52	14.60	−.19	14.41
√21	1	+0.78	14.73	−.28	14.45
22	29	−0.01	14.56	+.00	14.56
√22	35	+0.18	14.64	−.07	14.57
√22	37	+0.57	14.68	−.21	14.47
7	306	4.97	6.74		492
26	73	+0.497	+14.674		+14.492

0 = +14.674 − .181 = +14.493

h = .000 + 0.15

√20 13 + 4.45 + 16.03 + .00¹ = + 16.03 4
√20 33 + 3.61 15.79 + .00¹ = 15.79 80
√20 53 + 5.72 16.29 + .00 = 16.29
√22 24 − 4.12 12.75 + .00 = 12.75
√22 33 + 3.27 15.76 + .01 = 15.76 5

0 = +1.36 + 3.95 n n = −.34
+1.12 + 3.11 n −.36
+1.62 + 5.22 n −.31
−1.92 − 4.62 n −.42
+1.09 + 2.77 n −.39

n = −.364

0 = 1.55 + 4.45 n n = −.348
1.31 + 3.61 .363
1.80 + 5.72 .315
1.74 + 4.12 .422
1.26 + 3.27 .386
−.367

Oct. 12

T h	T m	tang δ	T - RA	n tang δ n = -.302	(ΔT + m)
✓ 20	18	+ 0.84	0 = + 14.88	-.25	+ 14.63
✓ 20	27	+ 0.19	14.74	-.06	14.68
✓ 20	32	+ 0.25	14.80	-.08	14.72
✓ 20	49	+ 0.52	14.73	-.16	14.57
✓ 21	1	+ 0.78	14.92	-.24	14.68
✓ 22	15	- 0.03	14.80	+.01	14.81
✓ 22	19	+ 1.26	15.02	-.38	14.64
✓ 22	29	- 0.01	14.75	+.00	14.75
✓ 22	35	+ 0.18	14.71	-.05	14.66
✓ 22	37	+ 0.57	14.79	-.17	14.62
11	262	4.55	8.14		676
21	32	+0.455	+14.814		+14.676

0 = + 14.814 - .138 = + 14.676

$h = \pm.008^{s}$
2

h	m		
✓ 20	33	+ 3.61	0 = + 15.65 + .01 = + 15.66
✓ 20	43	+ 1.83	15.16 + 00 = 15.16
✓ 20	53	+ 5.72	16.52 + 00 = 16.52
✓ 22	24	- 4.12	13.29 - 00 = 13.29
✓ 22	33	+ 3.27	15.74 - 01 = 15.73

0 = + .85 + 3.16 n   n = -.27
+ .35 + 1.38 n   -.26
+ 1.71 + 5.27 n   -.32
- 1.52 - 4.57 n   -.33
+ .92 + 2.82 n   -.33

n = -.302

Oct. 15

T h	T m	tang δ	T - RA	n tang δ n = -.235	(ΔT + m)
✓ 20	49	+ 0.52	+ 13.93	-.12	+ 13.81
✓ 21	1	+ 0.78	13.95	-.18	13.77
✓ 21	8	+ 0.57	13.83	-.13	13.70
✓ 22	29	- 0.01	13.81	+.00	13.81
✓ 22	37	+ 0.57	13.86	-.13	13.73
✓ 22	38	+ 0.88	14.02	-.21	13.81
✓ 22	41	+ 0.42	13.88	-.10	13.78
✓ 22	44	+ 0.44	13.85	-.10	13.75
12	247	4.17	7.13		616
21	21	+0.521	+13.891		+13.770

0 = + 13.891 - .122 = + 13.769

h = -.012
12

h	m		
✓ 20	53	+ 5.72	+ 15.19 - .00 = + 15.19
✓ 22	33	+ 3.27	14.49 + .00 = 14.49
✓ ~~22~~	~~45~~	+ 2.20	~~14.07 + .01~~ = ~~1408~~

0 = + 1.30 + 5.20 n   n = -.25
+ .60 + 2.75 n   -.22

n = -.235

Oct. 18

T h	T m	tang δ	T - RA	n tang δ n = -.227	(ΔT + m)
✓ 21	1	+ 0.78	+ 13.03	-.18	+ 12.85
✓ 21	8	+ 0.57	12.83	-.13	12.70
✓ 21	10	+ 0.77	12.91	-.17	12.74
✓ 21	25	- 0.11	12.81	+.02	12.83
✓ 21	38	+ 0.16	12.78	-.04	12.74
✓ 21	42	+ 1.14	13.07	-.26	12.81
✓ 21	59	- 0.02	12.82	+.00	12.82
✓ 22	1	+ 0.46	12.88	-.10	12.78
✓ 22	4	+ 0.10	12.79	-.02	12.77
✓ 22	6	+ 1.58	13.20	-.35	12.85
✓ 22	10	- 0.15	12.74	+.03	12.77
✓ 22	15	- 0.03	12.79	+.01	12.80
✓ 22	29	- 0.01	12.83	+.00	12.83
6	248	5.24	11.48		1029
21	47	+0.403	+12.883		+12.792

0 = + 12.883 - .092 = + 12.791

h = -.014
19

h	m		
✓ 20	53	+ 5.72	+ 14.24 - .01 = + 14.23
✓ 21	15	+ 1.89	13.21 - 00 = 13.21
✓ 22	7	+ 3.02	13.43 + 00 = 13.43

0 = + 1.35 + 5.32 n   n = -.25
+ .33 + 1.49 n   -.22
+ .55 + 2.62 n   -.21

n = -.227

Oct. 19 1874

T	tang δ	T − R.A.	n tang δ	−(ΔT+m)
h m		s	n = −.245	
✓22 29	−0.01	0 = +12.14	+.00	+12.14
✓22 35	+0.18	12.24	−.04	12.20
✓22 37	+0.57	12.19	−.14	12.05
✓22 38	+0.88	12.33	−.22	12.11
✓22 41	+0.42	12.24	−.10	12.14
✓22 46	−0.15	12.~~25~~16	+.04	12.20
✓22 56	+0.89	12.35	−.22	12.13
✓23 11	+0.05	12.17	−.01	12.16
1 293	2.83	1.82		103
22 44	+0.354	+12.228		+12.141

0 = +12.228 − 087 = +12.141

h = −.026 s
26

✓22 33 +3.27 0 = +12.96 − .01 = +12.95
✓23 4 +3.66 13.04 + .01 = 13.05

0 = +.72 + 2.92 n n = −.25
+.82 + 3.31 n −.24

n = −.245

Oct. 20

			n = −.170	−.168
✓20 49	+0.52	+11.59	−.09	+11.50
✓21 1	+0.78	11.67	−.13	11.54
✓21 10	+0.77	11.64	−.13	11.51
✓22 29	−0.01	11.51	+.00	11.51
✓22 35	+0.18	11.61	−.03	11.58
✓22 37	+0.57	11.55	−.10	11.45
✓22 38	+0.88	11.67	−.15	11.52
✓22 41	+0.42	11.60	−.07	11.53
12 240	4.11	4.84		14
21 60	+0.514	+11.605		+11.517

0 = +11.605 − .087 = +11.518

h = −.026
36

✓20 53 +5.72 +12.56 − .03 4 = +12.53 2
✓21 8 +4.55 12.35 − .02 3 = 12.33 2
✓21 15 +1.89 11.81 − .02 3 = 11.79 8
✓22 33 +3.27 12.09 + .07 2 = 12.18 1

0 = +.93 + 5.21 n n = −.18
+.73 + 4.04 n −.18
+.19 + 1.38 n −.14
+.50 + 2.76 n −.18

n = −.170

0 = 1.00 + 5.72 n n = −.175
.80 + 4.55 −.176
.26 + 1.89 −.138
.59 + 3.27 −.180
−.168

Oct. 21

			n = −.230	
✓20 41	+0.66	+10.57	−.15	+10.42
✓20 49	+0.52	10.54	−.12	10.42
✓21 1	+0.78	10.69	−.18	10.51
✓21 10	+0.77	10.62	−.18	10.44
✓22 35	+0.18	10.53	−.04	10.49
✓22 37	+0.57	10.51	−.13	10.38
✓22 38	+0.88	10.54	−.20	10.34
✓22 41	+0.42	10.49	−.10	10.39
✓22 44	+0.44	10.49	−.10	10.39
✓22 56	+0.89	10.59	−.20	10.39
✓22 58	+0.26	10.43	−.06	10.37
16 408	6.3~~5~~7	6.00		454
21 64	+0.57~~7~~9	+10.545		+10.413

0 = +10.545 − .133 = +10.412

h = −.046
44

✓20 43 +1.83 +10.80 − .06 = +10.74
✓20 53 +5.72 11.60 − .05 = 11.55
✓21 8 +4.55 11.65 − .04 = 11.61
✓~~21 15~~ ~~+1.89~~ 10.81
✓22 33 +3.27 11.24 + .02 = 11.26
✓22 45 +2.20 10.92 + .03 = 10.95

0 = +.20 + 1.25 n n = −.16
+1.01 + 5.14 n −.20
+1.07 + 3.97 n −.27
+.72 + 2.69 n −.27
+.41 + 1.62 n −.25

n = −.230

Oct. 22

T	tang δ	T-RA	n tang δ	-(ΔT+m)
h m			n = -.210	
√ 20 37	± 0.99	0 = +9.69	-.21	+9.48
√ 20 41	+ 0.66	9.57	-.14	9.43
√ 21 1	+ 0.78	9.62	-.16	9.46
√ 21 8	+ 0.57	9.51	-.12	9.39
√ 21 10	+ 0.77	9.59	-.16	9.43
√ 21 25	- 0.11	9.39	+.02	9.41
√ 22 46	- 0.15	9.37	+.03	9.40
√ 22 56	+ 0.89	9.47	-.19	9.28
√ 22 58	+ 0.26	9.37	-.05	9.32
10 282	476	458		360
21 338	+0.529 +0.518	+9.509		+9.400

0 = +9.509 - .109 = +9.400

5
h = -.042
36

√ 20 43	+1.83	0 = +9.82 - .05 = +9.77
√ 20 53	+5.72	11.04 - .04 = 11.00
√ 21 15	+1.89	9.83 - .03 = 9.80
√ 21 23	-2.80	8.83 - .02 = 8.81
√ 21 27	+2.75	9.87 - .02 = 9.85
√ 22 45	+2.20	9.70 + .03 = 9.73

0 = +.26 + 1.31 n n = -.20
+1.49 + 5.20 n -.29
+.39 + 1.37 n -.28
-.70 - 3.32 n -.21
+.34 + 2.23 n -.15
+.22 + 1.68 n -.13

n = -.210

Oct. 26

√ 20 49	+ 0.52	+ 6.68	-.15	+ 6.53
√ 21 1	+ 0.78	6.83	-.22	6.61
√ 21 8	+ 0.57	6.63	-.16	6.47
√ 21 10	+ 0.77	6.79	-.22	6.57
√ 21 25	- 0.11	6.61	+.03	6.64
√ 22 46	- 0.15	6.64	+.04	6.68
√ 22 56	+ 0.89	6.84	-.25	6.59
√ 22 58	+ 0.26	6.65	-.07	6.58
√ 23 11	+ 0.05	6.66	-.01	6.65
√ 23 14	+ 0.42	6.71	-.12	6.59
- 16 278	400	7.05 4		591
21 64	+0.400	+6.705 4		+6.591

0 = +6.704 - .114 = +6.590

h = -.011
20

√ 20 53	+ 5.72	+7.97 - .01 = +7.96
√ 21 15	+ 1.89	7.11 - .01 = 7.10
√ 21 23	- 2.80	5.76 - .01 = 5.75
√ 21 27	+ 2.75	7.28 - .00 = 7.28
√ 22 45	+ 2.20	7.20 + .01 = 7.21
√ 23 4	+ 3.66	7.86 + .01 = 7.87

0 = +1.26 + 5.32 n n = -.24
+.40 + 1.49 n -.27
-.95 - 3.20 n -.30
+.58 + 2.35 n -.25
+.51 + 1.80 n -.29
+1.17 - 3.26 n -.36

n = -.285

Oct. 27

√ 22 4	+ 0.10	+ 6.34	-.03	+ 6.31
√ 22 6	+ 1.58	6.76	-.51	6.25
√ 22 10	- 0.15	6.34	+.05	6.39
√ 22 15	- 0.03	6.36	+.02	6.38
√ 22 19	+ 1.26	6.69	-.41	6.28
√ 22 29	- 0.01	6.36	+.00	6.36
√ 22 35	+ 0.18	6.44	-.06	6.38
√ 22 37	+ 0.57	6.45	-.19	6.26
√ 22 38	+ 0.88	6.55	-.29	6.26
√ 22 41	+ 0.42	6.51	-.14	6.37
√ 22 44	+ 0.44	6.49	-.14	6.35
√ 22 46	- 0.10	6.35	+.05	6.40
√ 22 56	+ 0.89	6.57	-.29	6.28
√ 22 58	+ 0.26	6.37	-.08	6.29
√ 23 14	+ 0.42	6.44	-.14	6.30
1 452	666	7.02		486
22 434	+0.444	+6.467		+6.324

0 = +6.467 - .145 = +6.322

h = -.011
12

√ 22 7	+ 3.02	+ 7.22 - .00 = + 7.22
√ 22 33	+ 3.27	7.42 - .00 = 7.42
√ 22 45	+ 2.20	7.06 + .00 = 7.06
√ 23 4	+ 3.66	7.59 + .00 = 7.59

0 = +.75 + 2.58 n n = -.29
+.95 + 2.83 n -.34
+.59 + 1.76 n -.33
+1.12 + 3.22 n -.35

n = -.327

Oct. 28 1874

T	tang δ	T–R.A.	n tang δ –	(ΔT + m)
h m		s	n = –.305	
23 46	+0.33	0 = +6.06	–.10	+5.96
√23 53	+0.11	6.07	–.03	6.04
0 2	+0.54	6.15	–.16	5.99
0 4	+1.01	6.28	–.31	5.97
0 13	–0.17	5.93	+.05	5.98
0 24	–0.08	6.00	+.02	6.02
0 33	+1.47	6.36	–.45	5.91
26 175	3.21	.85		57
23 59	+0.459	+6.121		+5.981

0 = +6.121 –.140 = +5.981

h = –.018 s
14

0 26 +1.90 0 = +6.60 + 01 = +6.61
12 28 –2.82 5.24 + 01 = 5.25

0 = +.49 + 1.44 n n = –.34
–.87 – 3.28 n –.27

n = –.305

Nov. 2

			n = –.345	
23 48	+1.53	+4.42	–.53	+3.89
√23 46	+0.33	+4.165	–.11	4.04
√23 53	+0.11	4.16	–.04	4.12
147	1.97	.73		5
23 49	+0.657	+4.243		+4.017

0 = +4.243 –.226 = +4.017

h = –.043
26

√23 34 +4.30 +5.73 –.00 = +5.723
√23 42 2.37 4.72 –.00 = 4.72

0 = +1.48 + 3.64 n n = –.41
+.48 + 1.71 n –.28

n = –.345

Nov. 3

			n = –.137	
~~23 48~~	~~+1.63~~	~~+4.42~~		
0 24	–0.08	+3.17	+.01	+3.18
0 23	+1.47	3.27	–.20	3.07
0 41	+0.44	3.14	–.06	3.08
98	1.83	.58		33
0 33	+0.610	+3.193		+3.110

0 = +3.193 –.083 = +3.110

h = –.050
46

~~0 26~~ ~~+1.90~~ ~~+2.38~~
12 28 –2.82 +2.72 – 00 = +2.72

0 = –.47 – 3.43 n n = –.137

Nov. 4

			n = –.173	
√21 38	+0.16	+2.04	–.03	+2.01
√21 42	+1.14	2.15	–.20	1.95
√21 47	+0.47	2.00	–.08	1.92
√21 59	–0.02	1.98	+.00	1.98
√22 1	+0.46	2.00	–.08	1.92
√22 29	–0.01	2.04	+.00	2.04
√22 35	+0.18	1.81	–.03	1.78
√22 37	+0.57	2.01	–.10	1.91
√22 38	+0.88	2.05	–.15	1.90
√22 41	+0.42	1.97	–.07	1.90
√22 44	+0.44	1.96	–.08	1.88
22 56	+0.89	1.96	–.15	1.81
√23 33	+0.09	1.93	–.02	1.91
23 500				
~~10~~ ~~400~~	5.67	12.90		21
22 47	+0.436	+1.992		+1.916
25				

0 = +1.992 –.075 = +1.917

h = –.050
54

√22 33 +3.27 +2.52 + .00 = +2.52
√23 24 –2.75 1.44 + .05 = 1.49
√23 34 +4.30 2.61 + 05 = 2.66

0 = +.53 + 2.83 n n = –.19
–.50 – 3.19 n –.16
+.67 + 3.86 n –.17

n = –.173

Nov. 5

T		tang δ	T − R.A.	n tang δ − (ΔT + m)	
h	m		s	n = −.213	
0	2	+ 0.54	0 = + 0.81	− .12	+ 0.69
0	4	+ 1.01	0.83	− .21	0.62
0	7	+ 0.26	0.78	− .06	0.72
0	13	− 0.17	0.75	+ .04	0.79
0	33	+ 1.47	0.92	− .31	0.61
0	41	+ 0.44	0.63	− .09	0.54
	110	3.55	4.72		37
0	18	+ 0.592	+ 0.787		+ 0.662

0 = + 0.787 − .126 = + 0.661

s
h = − .052
.07

0	9	+ 4.09	0 = + 1.53 + .00 = + 1.53
0	26	1.90	1.08 + .00 = 1.08
0	37	3.56	1.41 + .01 = 1.42

0 = + .74 + 3.50 n n = − .21
+ .29 + 1.31 n − .22
+ .63 + 2.97 n − .21

n = − .213

Nov. 7

n = − .265 − .271

√21	38	+ 0.16	− 1.03	− .04	− 1.07	
√21	42	+ 1.14	0.88	− .30	1.18	
√21	47	+ 0.47	1.02	− .12	1.14	1.142
√21	59	− 0.02	1.15	+ .01	1.14	
√22	1	+ 0.46	1.06	− .12	1.18	
√23	33	+ 0.09	1.22	− .02	1.22	
√23	46	+ 0.33	1.14	− .09	1.23	
√23	48	+ 1.53	0.96	− .41	1.37	
√23	53	+ 0.11	1.20	− .03	1.23	1.283
0	2	+ 0.54	1.14	− .14	1.28	
0	4	+ 1.01	1.10	− .27	1.37	
26	373	5.82	.90		241	
22	56	+ 0.529	− 1.082		− 1.219	

0 = − 1.082 − .139 = − 1.221

Assume h = − .077
h = − .040 .07

− 0.10

√23	34	+ 4.30	+ 0.40 + .025 = − 0.085
√23	42	+ 2.87	− 0.49 + .036 = − 0.463
0	6	− 4.83	− 2.38 + .049 = − 2.3429
0	9	+ 4.09	− 0.31 + .049 = − 0.2722

0 = + 1.00 + 3.77 n n = − .27
+ .62 + 1.84 n − .33
− 1.26 − 5.36 n − .23
+ .81 + 3.56 n − .23

n = − .265

0 = + 1.17 + 4.30 n n = − .270
+ .79 + 2.87 .333
+ 1.07 + 4.83 .235
+ 1.00 + 4.09 .244
− .271

Nov. 8

n = − .146

√21	38	+ 0.16	− 0.34	− .02	− 0.36
√21	42	+ 1.14	0.12	− .17	0.29
√21	59	− 0.02	0.31	+ .00	0.31
√22	1	+ 0.46	0.29	− .07	0.36
√22	6	+ 1.58	0.10	− .24	0.34
√22	10	− 0.15	0.38	+ .02	0.36
√22	15	− 0.03	0.31	+ .00	0.31
√22	29	− 0.01	0.32	+ .00	0.32
√22	35	+ 0.18	0.31	− .03	0.34
√22	37	+ 0.87	0.32	− .09	0.41
√22	38	+ 0.88	0.23	− .13	0.36
√22	41	+ 0.42	0.20	− .06	0.26
√22	44	+ 0.44	0.28	− .07	0.35
√22	46	− 0.15	0.34	+ .02	0.32
11	441	5.47	3.85		49
22	19	+ 0.391	− 0.275		− 0.335

0 = − 0.275 − .059 = − 0.334

h = (− .037)
000

√21	23	− 2.80	− 0.63 − .03 = − 0.66
√21	27	+ 2.75	− 0.06 − .03 = − 0.09
~~√22~~	~~24~~	~~4.65~~	~~1.46~~
√22	33	+ 3.27	+ 0.27 + .01 = + 0.28
√22	45	+ 2.20	+ 0.13 + .01 = + 0.14

0 = − .39 − 3.19 n n = − .12
+ .18 + 2.36 n − .08
+ .55 + 2.88 n − .19
+ .41 + 1.81 n − .22

n = − .152

0 = + .30 + 2.80 n = − .107
.27 + 2.75 .098
.60 + 3.27 .171
.46 + 2.20 .209
− .146

Nov. 9 1874

T		tangδ	T−R.A.	n tangδ	−(ΔT+m)
h	m		s	n = −.162	
0	2	+0.54	0 = −0.75	−.09	−0.84
0	4	+1.01	0.69	−.16	0.85
0	13	−0.17	0.90	+.03	0.87
0	24	−0.08	0.83	+.01	0.82
	43	1.30	3.17		18
0	11	+0.325	−0.792		−0.845

0 = −0.792 −.053 = −0.845

h = −.021 s 2

.000

			s
0	6	−4.83	0 = −1.58 − .00 = −1.58
0	9	+4.09	0.19 − .00 = 0.19
0	26	+1.90	0.50 + .00 = 0.50
12	28	−2.82	1.29 + .00 = 1.29

0 = −.79 − 5.15 n   n = −.15

+.60 + 3.77 n   −.16

+.29 + 1.58 n   −.18

−.50 − 3.14 n   −.16

n = −.162

Nov. 10 n = −.150

n = −0.15

h = −.015

14

√21	38	+0.16	−4.73	−.02	−4.75
√21	42	+1.14	4.56	−.17	4.73
√21	59	−0.02	4.78	+.00	4.78
√22	1	+0.46	4.67	−.07	4.74
1	140	1.74	2.74		20
21	50	+0.435	−4.685		−4.750

0 = −4.685 −.065 = −4.750

Nov. 11

n = −.267

√22	35	+0.18	−5.03	−.05	−5.08
√22	37	+0.57	5.04	−.15	5.19
√22	38	+0.88	4.88	−.23	5.11
√22	41	+0.42	4.99	−.11	5.10
√22	44	+0.44	4.99	−.12	5.11
√22	46	−0.15	5.04	+.04	5.00
√22	56	+0.89	4.92	−.24	5.16
0	2	+0.54	4.99	−.14	5.13
0	4	+1.01	4.87	−.27	5.14
0	7	+0.26	5.05	−.07	5.12
0	13	−0.17	5.16	+.05	5.11
0	24	−0.08	5.10	+.02	5.08
0	33	+1.47	4.75	−.39	5.14
38	380	6.26	12.81		147
23	25	+0.481	−4.985		−5.113

0 = −4.985 −.128 = −5.113

h = −.015

28

22

√22	33	+3.27	−4.30 − .01 = −4.31
√22	45	+2.20	4.48 − .01 = 4.49
0	9	+4.09	4.02 + .01 = 4.01
12	28	−2.82	5.91 + .01 = 5.90

0 = +.67 + 2.79 n   n = −.24

+.49 + 1.72 n   −.28

+.97 + 3.61 n   −.27

−.92 − 3.30 n   −.28

n = −.267

Nov. 12

n = −.245

√22	19	+1.26	−5.64	−.30	−5.94
√22	29	−0.01	5.70	+.00	5.70
√22	35	+0.18	5.74	−.04	5.78
√23	11	+0.05	5.70	−.01	5.71
1	94	1.48	278		33
22	38	+0.370	−5.695		−5.782

0 = −5.695 −.090 = −5.785

h = −.039

28

34

√22	33	+3.27	−4.80 + .00 = −4.80
√23	4	3.66	5.06 + .01 = 5.05

0 = +.89 + 2.90 n   n = −.30

+.64 + 3.29 n   −.19

n = −.245

Nov. 16

T	tang δ	T-R.A.	n tang δ	-(ΔT+m)
			n = -.183	
h m				
√22 56	+0.89	0 = -9.55	-.16	-9.71
√22 58	+0.26	9.64	-.05	9.69
0 24	-0.08	9.52	+.01	9.51
0 33	+1.47	9.50	-.27	9.77
0 41	+0.44	9.59	-.08	9.67
16 212	298	.30		335
23 54	+0.596	~~-9.506~~ -9.560		-9.670

0 = -9.560 -.180 = -9.670

h = -.002
.1

√23 4 +3.66 0 = -8.99 - 00 = -8.99
12 28 -2.82 9.91 + 00 = 8.91
0 37 +3.56 9.02 + 00 = 9.02

0 = +.57 + 3.06 n n = -.18
+.65 - 3.42 n -.19
+.54 + 2.96 n -.18

n = -.183

Nov. 18

T	tang δ	T-R.A.	n tang δ	-(ΔT+m)
			n = -.154	
√21 59	-0.02	-9.70	+.00	-9.70
√22 4	+0.10	9.70	-.01	9.71
√22 10	-0.15	9.74	+.02	9.72
√22 15	-0.03	9.72	+.00	9.72
√22 19	+1.26	9.52	-.19	9.71
√22 29	-0.01	9.62	+.00	9.62
√22 35	+0.18	9.63	-.03	9.66
√22 37	+0.57	9.70	-.09	9.79
√22 38	+0.88	9.58	-.13	9.71
√22 41	+0.42	9.65	-.06	9.71
√22 44	+0.44	9.64	-.07	9.71
√22 46	-0.15	9.65	+.02	9.63
√22 56	+0.89	9.54	-.14	9.68
√22 58	+0.26	9.65	-.04	9.69
0 24	-0.08	9.72	+.01	9.71
0 33	+1.47	9.54	-.23	9.77
0 41	+0.44	9.73	-.07	9.80
39 589	6.47	1103		14
22 52	+0.381	-9.649		-9.708

0 = -9.649 -.059 = -9.708

h = +.008
3

√22 24 -4.15 -10.19 + .00 = -10.19
√22 33 +3.27 9.21 + .00 = 9.21
√22 45 +2.20 9.32 + .00 = 9.32
√23 4 +3.66 9.02 - .00 = 9.02
12 28 -2.82 10.06 - .00 = 10.06

0 = -.54 - 4.53 n n = -.12
+.44 + 2.89 n -.15
+.33 + 1.82 n -.18
+.63 + 3.28 n -.19
-.41 - 3.20 n -.13

n = -.154

Nov. 19

T	tang δ	T-R.A.	n tang δ	-(ΔT+m)
			n = -.115	
√22 37	+0.57	-9.50	-.07	-9.57
√22 38	+0.88	9.47	-.10	9.57
√22 41	+0.42	9.47	-.05	9.52
√22 44	+0.44	9.58	-.05	9.63
√22 46	-0.15	9.40	+.02	9.38
√23 53	+0.11	9.54	-.01	9.55
0 2	+0.54	9.36	-.06	9.42
0 4	+1.01	9.42	-.12	9.54
0 7	+0.26	9.46	-.03	9.49
25 276	4.08	420		467
23 17	+0.453	-9.467		-9.519

0 = -9.467 -.052 = -9.519

h = +.012
13
10

√22 45 +2.20 -9.31 + .01 = -9.30
√23 24 -2.75 9.89 - .00 = 9.89

0 = +.17 + 1.75 n n = -.10
-.42 - 3.20 n -.13

n = -.115

Nov. 21 1874

T		tang δ	T−R.A.	n tang δ	−(ΔT+m)
	m			n = −.095	
√22	56	+0.89	0 = −8.86	−.08	−8.94
√22	58	+0.26	8.91	−.02	8.93
√23	11	+0.05	8.80	−.00	8.80
0	33	+1.47	8.83	−.14	8.97
0	41	+0.44	8.84	−.04	8.91
15	199	3.11	27		5
23	40	+0.622	−8.854		−8.910

0 = −8.854 −.059 = −8.913

s
h = +.015
14

√23 4 +3.66 0 = −8.51 + .01 = −8.50
0 37 +3.56 8.69 − .01 = 8.60

0 = +.35 + 3.04 n n = −.11
+.25 + 2.94 n −.08

n = −.095

Nov. 22

				n = −.157	
√23	11	+0.05	−8.52	−.01	−8.53
23	~~54~~ 14	+0.42	8.58	−.07	8.65
	25	47	10		118
23	13	+0.235	~~−8.505~~ −8.550		−8.590

0 = −8.550 −.037 = −8.587

h = +.010
17

√23 4 +3.66 ~~−11.91~~ −8.01 + .00 = −8.01

0 = +.54 + 3.43 n n = −.157

Nov. 24

				n = −.052	
√23	11	+0.05	−7.98	−.00	−7.98
0	56	+0.13	8.15	−.01	8.16
1	3	+0.70	8.09	−.04	8.13
1	18	−0.15	8.10	+.01	8.09
1	25	+0.26	8.03	−.01	8.04
22	113	+0.99	.35		40
0	47	+0.198	−8.070		−8.080

0 = −8.070 −.010 = −8.080

h = +.006
13

√23 4 +3.66 −7.74 + .01 = −7.73
√23 24 −2.75 8.18 + .01 = 8.17
√23 34 +4.30 7.88 + .01 = 7.87
√23 42 +2.37 7.98 + .01 = 7.97
1 2 +5.14 7.77 − .00 = 7.77
1 13 +42.35 7.19 − .00 = 7.19

0 = +.34 + 3.46 n n = −.10
−.10 − 2.95 n −.03
+.20 + 4.10 n −.05
+.10 + 2.17 n −.05
+.30 + 4.94 n −.06
+.88 + 42.15 n −.02
n = −.052

Nov. 26

				n = −.058	
23	3	+0.70	−7.70	−.04	−7.74
23	18	−0.15	7.87	+.01	7.86
23	25	+0.26	7.81	−.01	7.82
1	30	+1.11	7.85	−.06	7.91
1	35	+0.09	7.78	−.01	7.79
	111	2.01	401		412
1	22	+0.402	−7.802		−7.824

0 = −7.802 −.023 = −7.825

h = −.001
2

√23 24 −2.75 −~~7.58~~ 8.09 + .00 = −8.09
√23 34 +4.30 −~~8.09~~ 7.58 + .00 = 7.58
√23 42 +2.37 7.58 + .00 = 7.58
1 13 +42.35 5.11 + .00 = 5.11
1 17 +2.41 7.86 + .00 = 7.86

0 = −.29 − 3.15 n n = −.09
+.22 + 3.90 n −.06
+.22 + 1.97 n −.11
+.269 + 41.95 n −.06
−.06 + 2.01 n +.03

n = −.058

Nov. 29

T' h	m	tang δ	T – R.A.	n tang δ	–(ΔT + m)
				n = –.085	
1	25	+0.26	0 = –7.83	–.02	–7.85
1	30	+1.11	7.79	–.09	7.88
1	35	+0.09	7.91	–.01	7.92
1	48	+0.37	7.88	–.03	7.91
1	56	+0.89	7.85	–.08	7.93
2	0	+0.42	7.95	–.04	7.99
1	194	3.14	5.21		8
1	42	+0.523	–7.868		–7.913

0 = –7.868 –.044 = –7.912

$\overset{s}{h} = +.007$
–.001
3

1	33	+2.40	0 = –7.69 + 00 = –7.69
1	53	+3.05	7.69 – 00 7.69

0 = +.18 + 1.88 n   n = –.10
+.18 + 2.53 n   –.07

n = –.085

Nov. 30

h	m	tang δ	T – R.A.	n tang δ	–(ΔT + m)
				n = –.077	
√23	46	+0.33	–7.82	–.02	–7.84
√23	48	+1.53	7.67	–.12	7.79
√23	53	+0.11	7.69	–.01	7.70
1	18	–0.15	7.69	+.01	7.68
1	25	+0.26	7.61	–.02	7.63
19	190	2.08	48		14
0	26	+0.416	–7.696		–7.728

0 = –7.696 –.032 = –7.728

+.008
h = +.010
0

1	2	+5.14	–7.53 + 00 = –7.53
1	13	+42.35	–4.11 + 00 = 4.11
1	17	+2.41	–7.52 + 01 = 7.51

0 = +.17 + 4.72 n   n = –.04
+3.59 + 41.93 n   –.09
+.19 + 1.99 n   –.10

n = –.077

Dec. 2

h	m	tang δ	T – R.A.	n tang δ	–(ΔT + m)
				n = +.012	
√23	19	+0.42	–8.24	+.01	–8.23
√23	46	+0.33	8.22	+.00	8.22
√23	48	+1.53	8.18	+.02	8.16
1	3	+0.70	8.26	+.01	8.25
1	18	–0.15	8.18	–.00	8.18
1	25	+0.26	8.16	+.00	8.16
1	30	+1.11	8.17	+.01	8.16
1	35	+0.09	8.19	+.00	8.19
34	224	4.29	160		155
0	43	+0.536	–8.200		–8.193

0 = –8.200 +.006 = –8.194

h = –.009
4

√23	24	–2.75	–7.85 + 00 = –7.85
√23	34	+4.30	8.29 + 00 = 8.29
√23	42	+2.37	8.03 + 00 = 8.03
1	13	+42.35	8.72 – 01 = 8.72

0 = +.35 – 3.29 n   n = +.11
–.09 + 3.76 n   +.02
+.17 + 1.83 n   –.09
–.52 + 41.81 n   +.01

n = +.012

Dec. 3

h	m	tang δ	T – R.A.	n tang δ	–(ΔT + m)
				n = –.013	
√23	19	+0.42	–8.18	–.01	–8.19
√23	46	+0.33	8.20	–.00	8.20
√23	48	+1.53	8.21	–.02	8.23
	113	2.28	.59		2
23	38	+0.760	–8.196		–8.207

0 = –8.196 –.010 = –8.206

h = –.007
3

√23	24	–2.75	–8.09 +.00 = –8.09
√23	34	+4.30	8.11 +.00 = 8.11
√23	42	+2.37	8.13 –.00 = 8.13

0 = +.11 – 3.51 n   n = +.03
+.09 + 3.54 n   –.03
+.07 + 1.61 n   –.04

n = –.013

31

34

Dec. 8 1874

T	tang δ	T−R.A.	n tang δ n = −.055	−(ΔT + m)
m √[illegible] 29	−0.01	s 0 = −8.99	+.00	−8.99
√22 35	+0.18	8.96	−.01	8.97
√22 37	+0.57	9.07	−.03	9.10
√22 41	+0.42	8.99	−.02	9.01
√22 44	+0.44	8.99	−.02	9.01
√23 19	+0.42	9.03	−.02	9.05
√23 33	+0.09	9.00	−.00	9.00
2 238	2.11	7.03		13
22 51	+0.301	−9.004		−9.019

0 = −9.004 −.016 −9.020

s
h = −.011
8

√22 33 +3.27 0 = −9.08 −.00 = −9.08
√23 24 −2.75 9.22 +.00 = 9.22
√23 34 +4.30 8.76 +.01 = 8.75
√23 42 +2.37 ~~14.04~~ 8.76 +.01 = 8.75

0 = −.08 + 2.97 n n = +.03
−.22 − 3.05 n −.07
+.25 + 4.00 n −.06
+.25 + 2.07 n −.12

n = −.055

Dec. 9 n = −.008

0 33	+1.47	−9.25	−.01	−9.26
0 41	+0.44	9.29	−.00	9.29
0 56	+0.13	9.32	−.00	9.32
1 3	+0.70	9.32	−.01	9.33
1 48	+0.37	9.22	−.00	9.22
1 56	+0.89	9.18	−.01	9.19
2 0	+0.42	9.30	−.00	9.30
5 287	4.42	1.88		191
1 17	+0.621	−9.269		−9.273

0 = −9.269 −.005 = −9.274

h = −.012
12

0 37 +3.56 −9.31 −.01 = −9.32
1 2 +5.14 9.18 −.00 = 9.18
1 13 +42.35 10.15 −.00 = 10.15
1 53 +3.05 9.16 +.01 = 9.15

0 = −.05 + 2.94 n n = +.02
+.09 + 4.52 n −.02
−.88 + 41.73 n +.02
+.12 + 2.43 n −.05

n = −.008

Dec. 10 n = −.090

√23 53	+0.11	−9.58	−.01	−9.59
0 2	+0.54	9.54	−.05	9.59
0 4	+1.01	9.64	−.09	9.73
0 7	+0.26	9.55	−.02	9.57
0 13	−0.17	9.50	+.01	9.49
19 79	1.75	2.81		29 7
0 4	+0.350	−9.562		−9.594

0 = −9.562 −.032 = −9.594

h = −.014
13

0 9 +4.09 −9.09 +.00 = −9.09
1 13 +42.35 −7.04 +.01 = −7.03

0 = +.47 + 3.74 n n = −.12
+2.43 + 42.00 n −.06

n = −.090

Dec 12

n = +.003

0 41	+0.44	−10.28
0 56	+0.13	10.28
1 25	+0.26	10.30
2 43	+0.50	10.33
2 45	+1.29	10.18
2 56	+0.06	10.13
7 266	2.68	1.50
1 04	+0.447	−10.250

h = −.005
5

0 49 +1.73 −10.27 −.01 = −10.28
1 2 +5.14 10.27 −.00 = 10.27
1 13 +42.35 9.64 −.00 = 9.64

0 = −.03 + 1.28 n n = +.02
−.02 + 4.69 n +.00
+.61 + 41.90 n −.01

n = +.003

Dec. 14

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
h	m			n = −.035	
0	33	+1.47	0 = −10.35	−.05	−10.40
0	41	+ 0.44	10.53	−.02	10.55
0	56	+ 0.13	10.47	−.00	10.47
1	3	+ 0.70	10.56	−.02	10.58
1	133	2.74	1.91		200
0	48	+0.685	−10.478		−10.500

0 = −10.478 − .023 = −10.501

h = −.010 s
7

1	2	+5.14	0 = −10.30 + .00 = −10.30
1	13	+42.35	8.88 + .00 = 8.88

0 = +.18 + 5.46 n   n = −.03
+1.60 + 41.67 n   −.04

n = −.035

Dec. 15

1	30	+ 1.11	−10.70	−.01	−10.71
1	35	+ 0.09	10.69		10.69
1	48	+ 0.37	10.76		10.76
2	0	+ 0.42	10.74		10.74
2	2	+ 0.68	10.79		10.79
2	5	+ 1.21	10.74	−.01	10.75
2	10	+ 0.66	10.72		10.72
2	11	− 0.12	10.60		10.60
2	22	+ 0.14	10.64		10.64
6	163	4.56	6.38		10
1	58	+0.507	−10.709		−10.711

0 = −10.709 − .002 = −10.711

h = −.031
10

1	13	+42.35	−11.61 − .02 = −11.63
2	19	+ 2.33	10.67 + .01 = 10.66

0 = −.92 + 41.84 n   n = +.02
+.05 + 1.82 n   −.03

n = −.005

Dec. 16

n = +.163

0	33	+1.47	−11.69	+.24	−11.45
0	41	+ 0.44	11.57	+.07	11.50
0	56	+ 0.13	11.51	+.02	11.49
1	3	+ 0.70	11.57	+.11	11.46
2	43	+ 0.50	11.49	+.08	11.41
3	176	3.24	2.83		31
1	11	+0.648	−11.566		−11.462

0 = −11.566 + .105 = −11.461

h = −.016
12

0	49	+ 1.73	−11.74 − .00 = −11.74
1	2	+ 5.14	12.26 − .00 = 12.26
1	13	+42.35	19.04 + .00 = 19.04

0 = −.17 + 1.08 n   n = +.16
−.69 + 4.49 n   +.15
−7.47 + 41.70 n   +.18

n = +.163

Dec. 21

n = −.040

1	3	+ 0.70	−13.56	−.03	−13.59
1	25	+ 0.26	13.50	−.01	13.51
1	48	+ 0.37	13.46	−.01	13.47
2	0	+ 0.42	13.49	−.02	13.51
2	33	− 0.00	13.44	+.00	13.44
2	36	+ 1.14	13.42	−.05	13.47
2	37	+ 0.05	13.43	−.00	13.43
2	56	+ 0.06	13.40	−.00	13.40
8 13	238	3.00	50		382
2	7	+0.375	−13.463		−13.478

0 = −13.463 − .015 = −13.478

h = −.023
19

1	2	+5.14	−13.05 − .02 = −13.07
1	13	+42.35	11.47 − .02 = 11.49
1	53	+ 3.05	13.35 − .01 = 13.36
2	26	+ 3.13	13.48 + .01 = 13.47
2	34	+ 2.39	13.40 + .01 = 13.39

0 = +.39 + 4.77 n   n = −.08
+1.97 + 41.98 n   −.05
+.10 + 2.68 n   −.04
−.01 + 2.76 n   +.00
+.07 + 2.02 n   −.03

n = −.040

Dec. 23 1874

T		tang δ	T − R.A.	n tang δ + (ΔT + m)
	m		s	
1	35	+ 0.09	0 = − 14.55	
2	0	+ 0.42	14.53	
2	2	+ 0.68	14.60	
2	10	+ 0.66	14.65	
2	11	− 0.12	14.42	
2	13	− 0.06	14.51	
2	22	+ 0.14	14.53	
2	33	− 0.00	14.61	
2	37	+ 0.05	14.52	
2	43	+ 0.50	14.69	
2	45	+ 1.29	14.52	
10	251	3.65	6.01	
2	17	+0.332	−14.546	

h = −.021 s
21

1	33	+ 2.40	0 = − 14.49 − .02	=	− 14.51
~~2~~	~~0~~	+ ~~2.24~~	~~14.93 − .01~~	=	14.74
2	19	+ 2.33	14.38 + .00	=	14.38
2	26	+ 3.13	14.49 + .00	=	14.49

0 = + .04 + 2.07 n   n = − .02
~~− .19 + 1.91 n~~   ~~+ .10~~
+ .17 + 2.00 n   − .08
+ .06 + 2.80 n   − .02

n = − .015

Dec. 27

n = − .010

1	48	+ 0.37	−16.53	− .00	− 16.53
1	56	+ 0.89	16.49	− .01	16.50
2	0	+ 0.42	16.57	− .00	16.57
2	2	+ 0.68	16.59	− .01	16.60
2	10	+ 0.66	16.56	− .01	16.57
2	11	− 0.12	16.48	+ .00	16.48
4	127	2.90	3.22		3.25
2	1	+0.483	−16.536		− 16.542

0 = − 16.536 − .005 = − 16.541

h = − .020
21

1	53	+ 3.05	− 16.52 − .00	=	− 16.52
2	5	+ 2.24	16.51 + .00		16.51

0 = + .02 + 2.57 n   n = − .01
+ .02 + 1.76 n   − .01

n = − .010

Jan 5 1875

T	tang δ	T−R.A.	n tang δ n = +.117	−ΔT+m
h m				
2 43	+ 0.50	0 = − 21.63	+.06	− 21.57
2 45	+ 1.29	21.64	+.15	21.49
2 56	+ 0.06	21.50	+.01	21.49
3 24	+ 0.22	21.65	+.02	21.63
3 27	− 0.17	21.55	−.02	21.57
3 34	+ 1.09	21.65	+.12	21.53
3 40	+ 0.44	21.58	+.05	21.53
18 269	+ 3.43	13		31
3 13	+ 0.490	− 21.602		− 21.544

0 = − 21.602 + .057 = − 21.545

h = −.034 s
+.035

3 31 + 1.95 0 = − 21.74 + .01 = − 21.73
3 37 + 2.89 21.91 + .01 = 21.90
3 46 + 1.78 21.79 + .02 = 21.77

0 = − .13 + 1.46 n n = + .09
− .30 + 2.40 n + .13
− .17 + 1.29 n + .13

n = + .117

Jan. 9 n = +.050

1 56	+ 0.89	− 24.84	+ .04	− 24.80
2 0	+ 0.42	24.89	+ .02	24.87
3 56	+ 131	13		7
1 58	+ 0.655	− 24.865		− 24.835

0 = − 24.865 + .032 = − 24.833

h = −.023
28

1 53 + 3.05 − 24.74 − .00 = − 24.74
2 5 + 2.24 25.10 + .00 = − 25.10

0 = + .12 + 2.40 n n = − .05
− .24 + 1.59 n + .15

n = + .050

Jan. 10 n = +.125

2 22	+ 0.14	− 25.35	+ .02	− 25.33
2 33	− 0.00	25.44	− .00	25.44
2 36	+ 1.14	25.54	+ .14	25.40
2 37	+ 0.05	25.29	+ .01	25.28
2 43	+ 0.50	25.41	+ .06	25.35
2 45	+ 1.29	25.46	+ .16	25.30
4 13	+ 0.27	25.40	+ .03	25.37
4 16	+ 0.32	25.42	+ .04	25.38
16 245	+ 3.71	331		285
2 31	+ 0.464	− 25.414		− 25.356

h = −.030
25

2 19 + 2.23 − 25.62 − .01 = − 25.63
2 26 + 3.13 25.75 − .00 = 25.75

0 = − .22 + 1.87 n n = + .12
− .34 + 2.67 n + .13

n = + .125

Jan. 11 n = +.305

4 13	+ 0.27	− 26.20	+ .08	− 26.12
4 16	0.32	26.18	+ .10	26.08
4 35	0.42	26.26	+ .13	26.13
4 38	1.51	26.52	+ .46	26.06
4 49	0.65	26.33	+ .20	26.13
4 56	0.39	26.27	+ .12	26.15
207	+ 3.56	176		67
4 35	+ 0.593	− 26.293		− 26.112

0 = − 26.293 + .181 = − 26.112

h = −.041
36

4 32 + 3.93 − 27.38 − .00 = − 27.38
4 59 − 7.33 23.96 + .01 = 23.95

0 = − 1.09 + 3.34 n n = + .32
+ 2.34 − 7.92 n + .29

n = + .305

Jan. 12 1875

T'		tang δ	T-R.A.	n tang δ n = +.100	-(ΔT+m)
h	m				
2	32	+0.39	0 = -27.15	+.04	-27.11
2	36	+1.14	27.26	+.11	27.15
2	37	+0.05	27.02	+.01	27.01
	15	158	43		27
2	35	+0.527	-27.143		-27.090

0 = -27.143 +.053 = -27.090

h = -.036 s
39

2 19 +2.33 0 = -27.32 - 00 = -27.32

0 = -.18 + 1.80 n n = +.100

Jan. 14

T'		tang δ	T-R.A.	n tang δ n = +.110	-(ΔT+m)
2	37	+0.05	-28.69	+.01	-28.68
2	43	+0.50	28.71	+.06	28.65
2	45	+1.29	28.87	+.14	28.73
4	35	+0.42	28.85	+.05	28.80
4	38	+1.51	28.99	+.17	28.82
4	39	-0.06	28.98	-.01	28.99
4	49	+0.65	28.91	+.07	28.84
4	53	+0.95	28.86	+.10	28.76
4	56	+0.39	28.88	+.04	28.84
5	3	-0.16	28.81	-.02	28.79
5	5	+0.79	29.06	+.09	28.97
5	7	+1.03	28.99	+.11	28.88
5	9	-0.15	28.77	-.02	28.75
50	419	+7.21	1137		1050
4	23	+0.555	-28.869		-28.808

0 = -28.869 +.061 = -28.808

h = -.040
37

14 51 -3.65 -28.25 - .06 = -28.31
4 32 +3.93 29.14 + .00 = 29.14
16 59 -7.33 27.94 + .02 = 27.95

0 = +.56 - 4.20 n n = +.13
-.27 + 3.38 n +.08
+.92 - 7.88 n +.12

n = +.110

Jan. 16

T'		tang δ	T-R.A.	n tang δ n = +.160	-(ΔT+m)
4	16	+0.32	-30.73	+.05	-30.68
4	21	+0.34	30.78	+.05	30.73
4	38	+1.51	31.03	+.24	30.79
4	39	-0.06	30.76	-.01	30.77
4	49	+0.65	30.81	+.10	30.71
4	54	+0.84	30.88	+.14	30.74
4	56	+0.39	30.77	+.06	30.71
5	5	+0.79	30.90	+.13	30.77
5	7	+1.03	30.90	+.16	30.74
5	9	-0.15	30.68	-.02	30.70
43	294	+5.69	824		34
4	47	+0.569	-30.824		-30.734

0 = -30.824 - .090 = -30.734

h = -.031
37

4 32 +3.93 -31.42 - .01 = -31.43
16 59 -7.33 29.66 + .00 = 29.66
5 2 +5.19 31.54 + .01 = 31.53

0 = -.61 + 3.36 n n = +.18
+1.16 - 7.90 n +.15
-.71 + 4.62 n +.15

n = +.160

Jan. 17

T'		tang δ	T-R.A.	n tang δ n = +.270	-(ΔT+m)
3	40	+0.44	-31.67	+.12	-31.55
3	54	+0.21	31.66	+.06	31.60
4	13	+0.27	31.67	+.07	31.60
10	107	92	20		175
3	56	+0.307	-31.667		-31.583

0 = -31.667 + .083 = -31.584

h = -.047
42

3 37 +2.89 -32.37 - .02 = -32.39
15 48 -4.78 30.38 - .05 = 30.33

0 = -.72 + 2.58 n n = +.28
+1.34 - 5.09 n +.26

n = +.270

Jan. 18

T h	T m	tang δ	T – R.A.	n tang δ n = +.270	−ΔT + m
3	15	+ 1.17	0 = −33.05	+.31	−32.74
3	24	+ 0.22	32.82	+.06	32.76
3	27	− 0.17	32.64	−.05	32.69
3	34	+ 1.09	33.01	+.29	32.72
3	40	+ 0.44	32.80	+.12	32.68
	140	+275	1432		9
3	28	+0.550	− 32.864		−32.718

0 = −32.864 + .148 = −32.716

h = −.044
40

2 50 +5.10 0 = −34.06 − .02 = −34.08
14 51 −3.65 31.75 − .02 = 31.77
3 5 +4.42 33.92 − .01 = 33.93

0 = −1.22 + 4.55 n n = +.27
+1.09 − 4.20 n +.26
−1.07 + 3.87 n +.28

n = +.270

Jan. 19 n = +.350

T h	T m	tang δ	T – R.A.	n tang δ	−ΔT + m
3	15	+ 1.17	−34.16	+.41	−33.75
3	34	+ 1.09	34.05	+.38	33.67
3	54	+ 0.21	33.88	+.07	33.81
4	6	− 0.13	33.86	−.05	33.91
4	13	+ 0.27	33.80	+.09	33.71
4	22	+ 1.36	34.22	+.48	33.74
21	144	397	597		39
3	54	+ 0.662	− 33.995		−33.765

0 = −33.995 + .232 = −33.763

h = −.056
50

3 5 +4.42 −35.39 − .05 = −35.44
3 31 +1.95 34.37 − .02 = 34.39

0 = −1.45 + 3.76 n n = +.39
−.40 + 1.29 n +.31

n = +.350

Jan 20 n = +.230

T h	T m	tang δ	T – R.A.	n tang δ	−ΔT + m
2	56	+ 0.06	−35.04	+.01	−35.03
2	57	+ 0.79	35.22	+.18	35.04
3	0	+ 0.85	35.29	+.20	35.09
3	15	+ 1.17	35.41	+.27	35.14
4	38	+ 1.57	35.59	+.35	35.24
14	166	+438	155		54
3	21	+0.876	−35.310		−35.108

0 = −35.310 + .201 = −35.109

h = −.050
53

2 50 +5.10 −35.92 − .02 = −35.94
14 57 −3.65 34.12 − .02 = 34.14
3 5 +4.42 36.30 − .01 = 36.31

0 = −.63 + 4.22 n n = +.15
+1.17 − 4.53 n +.26
−1.00 + 3.54 n +.28

n = +.230

Jan. 25 n = +.200

T h	T m	tang δ	T – R.A.	n tang δ	−ΔT + m
3	15	+ 1.17	−41.35	+.23	−41.12
3	18	+ 0.15	41.19	+.03	41.16
4	56	+ 0.39	41.24	+.08	41.16
5	5	+ 0.79	41.23	+.16	41.07
5	7	+ 1.03	41.45	+.21	41.24
5	9	− 0.15	41.20	−.03	41.23
5	26	− 0.01	41.25	−.00	41.25
5	30	− 0.02	41.25	−.00	41.25
5	32	− 0.05	41.19	−.01	41.20
5	36	+ 1.18	41.51	+.24	41.27
45	234	+448	286		195
4	53	+0.448	−41.286		−41.195

0 = −41.286 + .090 = −41.196

h = −.051
47

16 59 −7.23 −39.69 + .00 = −39.69
5 2 +5.19 42.25 + .00 = 42.25

0 = +1.60 − 7.78 n n = +.20
−.96 + 4.74 n +.20

n = +.200

Jan. 26 1875

T		tang δ	T − R.A.	n tang δ	− ΔT + m
h	m			n = +.266	
2	5	+1.21	0 = −42.32	+.32	−42.00
2	11	−0.12	42.06	−.03	42.09
2	13	−0.06	42.12	−.02	42.14
2	22	+0.14	42.14	+.04	42.10
2	32	+0.39	42.25	+.10	42.15
2	37	+0.05	42.24	+.01	42.23
2	43	+0.50	42.23	+.13	42.10
2	45	+1.29	42.38	+.34	42.04
4	56	+0.39	42.29	+.10	42.19
5	3	−0.16	42.31	−.14	42.35
5	5	+0.79	42.51	+.21	42.30
5	7	+1.03	42.63	+.28	42.35
5	9	−0.15	42.23	−.04	42.27
40	288	530	371		231
3	27	+0.408	−42.285		−42.178

0 = −42.285 + .108 = −42177

s
h = −.043
44

2	19	+2.33	0 = −42.54 − .04 =	−42.58
2	26	+3.13	42.81 − .04 =	42.85
2	34	+2.39	42.86 − .04 =	42.90
2	50	+5.10	43.69 − .02 =	43.71
14	51	−3.65	40.83 − .02 =	40.85
16	59	−7.33	40.34 + .06 =	40.28
5	2	+5.19	43.69 + .06 =	43.63

0 = −.30 + 1.92 n	n =	+.15
−.57 + 2.72 n		+.21
−.62 + 1.98 n		+.31
−1.43 + 4.69 n		+.30
+1.43 − 4.06 n		+.35
+2.00 − 7.74 n		+.26
−1.35 + 4.78 n		+.28

n = +.266

Jan 27

T		tang δ	T − R.A.	n tang δ	− ΔT + m
				n = +.270	
1	56	+0.89	−43.38	+.24	−43.14
2	0	+0.42	43.28	+.11	43.17
2	2	+0.68	43.22	+.18	43.04
2	5	+1.21	43.45	+.32	43.13
2	10	+0.66	43.36	+.18	43.18
2	11	−0.12	43.14	−.03	43.17
2	13	−0.06	43.14	−.02	43.16
2	22	+0.14	43.20	+.04	43.16
2	32	+0.39	43.27	+.10	43.17
2	33	−0.00	43.22	−.00	43.22
2	36	+1.14	43.47	+.31	43.16
2	37	+0.05	43.18	+.01	43.17
2	43	+0.50	43.27	+.13	43.14
2	45	+1.29	43.51	+.35	43.16
5	5	+0.79	43.53	+.21	43.32
5	7	+1.03	43.61	+.28	43.33
5	9	−0.15	43.32	−.04	43.36
5	12	−0.12	43.35	−.03	43.38
5	18	+0.54	43.45	+.15	43.30
52	376	928	635		386
3	5	+0.488	−43.334		−43.203

0 = −43.334 + .132 = −43.202

h = −.044
43

2	5	+2.24	−43.80 − .04 =	−43.84
2	19	+2.33	43.65 − .03 =	43.68
2	26	+2.13	43.91 − .02 =	43.93
2	50	+5.10	44.72 − .01 =	44.73
14	57	−3.65	42.00 − .01 =	42.01
16	59	−7.33	41.21 + .08 =	41.12
5	2	+5.19	44.71 + .08 =	44.63

0 = −.51 + 1.75 n	n =	+.29
−.35 + 1.84 n		+.19
−.60 + 2.64 n		+.23
−1.40 + 4.61 n		+.30
+1.32 − 4.14 n		+.32
+2.20 − 7.82 n		+.28
−1.30 + 4.70 n		+.28

n = +.270

Jan 30

T		tang δ	T − R.A.	n tang δ	− ΔT + m
				n = +.196	
2	22	+0.14	−46.29	+.03	−46.26
2	32	+0.39	46.35	+.08	46.27
2	36	+1.14	46.42	+.23	46.19
2	43	+0.50	46.30	+.10	46.20
2	45	+1.29	46.40	+.25	46.15
4	0	+1.09	46.45	+.21	46.24
4	6	−0.13	46.48	−.03	46.51
5	8	−0.16	46.54	−.03	46.57
5	7	+1.03	46.65	+.21	46.44
5	9	−0.15	46.50	−.03	46.53
5	12	−0.12	46.46	−.02	46.48
5	18	+0.54	46.51	+.11	46.40
43	233	556	535		424
3	54	+0.463	−46.446		−46.353

0 = −46.446 + .091 = −46355

h = −.047
44

2	34	+2.39	−46.85 − .06 =	−46.91
2	50	+5.10	47.32 − .05 =	47.37
14	57	−3.65	45.69 − .05 =	45.74
16	59	−7.33	44.96 + .05 =	44.91
5	2	+5.19	47.31 + .05 =	47.26

0 = −.46 + 1.93 n	n =	+.24
−.92 + 4.64 n		+.20
+.71 − 4.11 n		+.17
+1.54 − 7.79 n		+.20
−.81 + 4.73 n		+.17

n = +.196

Feb. 1

T	tang δ	T − R.A.	n tang δ n = +.155	−(ΔT + m)
h m				
3 54	+0.21	0 = −48.64	+.03	−48.61
4 0	+1.09	48.67	+.17	48.50
4 6	−0.13	48.57	−.02	48.59
5 18	+0.54	48.70	+.08	48.62
5 30	−0.02	48.60	−.00	48.60
5 32	−0.05	48.54	−.01	48.55
5 36	+1.18	48.87	+.18	48.69
5 48	+0.13	48.70	+.02	48.68
36 224	295	529		484
4 58	+0.369	−48.661		−48.605

0 = −48.661 + .057 = −48.604

h = −.049 s 48

15 48 −4.78 0 = −47.53 − .05 = −47.58
5 23 +3.72 49.01 + .02 = 48.99

0 = +1.08 − 5.15 n n = +.21
−.33 + 3.35 n +.10

n = +.155

Feb. 2 n = +.210

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
4 38	+1.51	−50.09	+.32	−49.77
4 56	+0.39	49.85	+.08	49.78
5 3	−0.16	49.79	−.03	49.82
5 5	+0.79	49.97	+.17	49.80
5 7	+1.03	50.07	+.22	49.85
5 9	−0.15	49.77	−.03	49.80
5 12	−0.12	49.79	−.02	49.81
5 18	+0.54	49.94	+.11	49.83
5 26	−0.01	49.88	−.00	49.88
5 30	−0.02	49.86	−.00	49.86
48 204	380	901		20
5 8	+0.380	−49.901		−49.820

0 = −49.901 + .080 = −49.821

h = −.040 45

5 2 +5.19 −51.07 − .00 = −51.07
5 23 +3.72 50.40 − .01 = 50.39
15 48 −4.78 48.59 − .05 = 48.64

0 = −1.17 + 4.81 n n = +.24
−.49 + 3.34 n +.15
+1.26 − 5.16 n +.24

n = +.210

Feb. 4 n = +.283

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
4 6	13 −0.80	+8.32	−.04	+8.28
4 13	+0.27	8.33	+.08	8.41
4 16	+0.32	8.25	+.09	8.34
5 3	−0.16	8.29	−.04	8.25
5 5	+0.79	8.05	+.22	8.27
5 7	+1.03	8.03	+.29	8.32
5 9	−0.15	8.33	−.04	8.29
5 48	+0.13	8.20	+.04	8.24
5 50	+1.00	7.90	+.28	8.18
42 157	310 293	170		258
4 57	+0.326 0.344	+8.189		+8.287

0 = +8.189 + .098 +8.287

h = −.046 43

16 59 −7.33 +10.07 + .00 = +10.07
5 2 +5.19 + 6.84 + .00 = 6.84
17 44 −3.12 + 9.26 + .04 = 9.30

0 = +1.88 − 7.67 n n = +.25
−1.35 + 4.85 n +.28
+1.11 − 3.46 n +.32

n = +.283

Feb. 8 n = +.330

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
3 00	+0.85	+3.64	+.28	+3.92
3 15	+1.17	3.44	+.39	3.83
3 18	+0.15	3.72	+.05	3.77
3 24	+0.22	3.71	+.07	3.78
3 27	−0.17	3.88	−.06	3.82
3 34	+1.09	3.53	+.36	3.89
118	331	392		21
3 20	+0.552	+3.653		+3.835

0 = +3.653 + .182 = +3.835

h = −.063

3 5 +4.42 +2.02 − .01 = +2.01
3 31 +1.95 +3.29 + .02 = 3.31

0 = −1.64 + 3.87 n n = +.42
−.34 + 1.40 n +.24

n = +.330

Feb 9 1875

T		tang δ	T - R.A.	n tang δ n = +.335	−ΔT + m
h	m				
4	35	+0.42	0 = +2.31	+.14	+2.45
4	38	+1.51	1.95	+.51	2.46
4	39	−0.06	2.29	−.02	2.27
4	49	+0.65	2.14	+.22	2.36
5	3	−0.16	2.38	−.05	2.33
5	5	+0.79	2.04	+.26	2.30
5	7	+1.03	2.02	+.35	2.37
5	9	−0.15	2.29	−.05	2.24
5	12	−0.12	2.31	−.04	2.27
5	18	+0.54	2.04	+.18	2.22
46	175	445	177		326
4	53	+0.445	+2.177		+2.326

0 = +2.177 +.149 = +2.326

h = −.056 (s) 60

16 59 −7.33 ·0 = +4.85 +.00 = +4.85
5 2 +5.19 0.60 +.01 = 0.61

0 = +2.67 − 7.77 n n = +.34
−1.57 + 4.75 n +.33

n = +.335

Feb 10

				n = +.273	
2	56	+0.06	+0.99	+.02	+1.01
2	57	+0.79	0.77	+.22	0.99
3	00	+0.85	0.72	+.23	0.95
3	15	+1.17	0.64	+.32	0.96
3	18	+0.15	0.95	+.04	0.99
13	146	302	407		40
3	5	+0.604	+0.814		+0.980

0 = 0.814 +.165 = +0.979

h = −.056 57

14 51 −3.65 +1.98 −01 = +1.97

0 = +1.16 − 4.25 n n = +.273

Feb. 13

				n = +.287	
3	24	+0.22	−3.00	+.06	−2.94
3	27	−0.17	−2.84	−.05	2.89
3	34	+1.09	3.14	+.31	2.83
5	30	−0.02	3.05	−.01	3.06
5	32	−0.05	3.02	−.01	3.03
5	36	+1.18	3.34	+.34	3.00
5	48	+0.13	3.08	+.04	3.04
5	50	+1.00	3.36	+.29	3.07
6	0	+0.26	3.21	+.07	3.14
6	7	+0.41	3.25	+.12	3.13
46	288	405	129		13
5	5	+0.405	−3.129		−3.013

0 = −3.129 +.116 = −3.013

h = −.045 50

5 23 +3.72 −4.14 +.01 = −4.13
17 44 −3.12 2.08 +02 2.06
6 5 +2.66 3.70 +04 3.66

0 = −1.10 + 3.32 n n = +.33
+1.07 − 3.52 n +.30
−.53 + 2.26 n +.23

n = +.287

Feb 14

				n = +.410	
4	35	+0.42	−4.15	+.17	−3.98
4	38	+1.51	4.52	+.62	3.90
4	49	+0.65	4.30	+.27	4.03
5	3	−0.16	4.16	−.07	4.23
5	18	+0.54	4.34	+22	4.12
5	30	−0.12	4.13	−.01	4.14
5	48	+0.13	4.25	+.05	420
32	221	307	~~225~~ 185		60
5	6	+0.439	~~−4.321~~ −4.264		−4.086

0 = −4.264 +.180 = −4.084

h = −.049 46

5 2 +5.19 −6.30 −.00 = −6.30
5 23 +3.72 5.54 +.01 = 5.53

0 = −2.04 + 4.75 n n = +.43
−1.27 + 3.28 n +.39

n = +.410

Feb. 15

T		tang δ	T − R.A.	n tang δ n = +.350	−(ΔT + m)
h	m		s		
6	7	+0.41	0 = −5.35	+.14	−5.21
6	45	+0.68	5.56	+.24	5.32
	52	109	91		53
6	26	+0.545	−5.455		−5.265

0 = −5.455 +.190 = −5.265

h = −.055 51

			s
6	0	+2.22	0 = −6.01 − .02 = −6.03
18	13	−16.83	+0.04 − .01 = +0.03
6	41	+20.69	−13.31 + .01 = −13.30

0 = −.58 + 1.68 n   n = +.35
+5.48 − 17.37 n   +.31
−7.85 + 20.15 n   +.39

n = +.350

Feb. 16

				n = +.300	
5	48	+0.13	−6.61	+.04	−6.57
5	50	+1.00	6.94	+.30	6.64
5	51	+ ~~1.00~~ 0.76	6.81	+.23	6.58
6	0	+0.26	6.67	+.08	6.59
6	7	+0.41	6.63	+.12	6.51
6	30	+0.30	6.68	+.09	6.59
33	186	286	434		48
6	1	+0.477	−6.723		−6.580

0 = −6.723 +.143 = −6.580

h = −.041 48

6	5	+2.66	−7.23 + .00 = −7.23
18	13	−16.83	0.77 + .01 = 0.76
6	25	+5.50	8.61 + .01 = 8.60
6	41	+20.69	12.14 + .02 = 12.12

0 = −.51 + 2.18 n   n = +.23
+5.96 − 17.31 n   +.34
−1.88 + 5.02 n   +.37
−5.40 + 20.21 n   +.26

n = +.300

Feb. 17

				n = +.313	
6	30	+0.30	−7.67	+.09	−7.580

0 = −7.670 + .094 = −7.576

h = −.050 47

18	13	−16.83	−1.47 − .01 = −1.48
6	25	+5.50	9.41 − .00 = 9.41
6	41	+20.69	13.11 + .01 = 13.10

0 = +6.19 − 17.13 n   n = +.35
−1.74 + 5.20 n   +.33
−5.43 + 20.39 n   +.26

n = +.312

Feb. 18

				n = +.178	
4	35	+0.42	−8.80	+.07	−8.73
4	39	−0.06	8.76	−.01	8.77
4	49	+0.65	8.74	+.12	8.62
4	53	+0.95	8.87	+.17	8.70
4	54	+0.87	8.82	+.15	8.67
5	5	+0.79	8.99	+.14	8.85
5	7	+1.03	9.02	+.18	8.84
5	9	−0.15	8.70	−.03	8.73
6	46	+1.64	9.10	+.29	8.81
6	57	+0.38	8.97	+.07	8.90
47	354	652	877		762
5	17	+0.652	−8.877		−8.762

0 = −8.877 +.116 = −8.761

h = −.047 49

6	41	+20.69	−12.51 + .06 = −12.45

0 = −.357 + 20.04 n   n = +.178

Feb. 22 1875

T h	 m	tang δ	T - R.A. s	n tang δ n = +.067	-(ΔT + m)
5	7	+0.41	0 = -13.16	+.03	-13.13
7	11	+0.30	13.30	+.02	13.28
7	13	+0.41	13.29	+.03	13.26
7	18	+0.53	13.33	+.04	13.29
7	20	+0.15	13.29	+.01	13.28
33	69	180	137		24
6	50	+0.360	-13.274		-13.248

0 = -13.274 + .024 = -13.250

h = -.046 s
46

6	0	+2.22	0 = -13.34 - .04 = -13.38
6	5	+2.66	13.12 - .03 = 13.15
18	13	-16.83	9.94 - .02 = 9.96

0 = -.11 + 1.86 n   n = +.06
+.12 + 2.30 n   -.05
+3.31 - 17.19 n   +.19

n = +.067

Feb. 24

h	m	tang δ	T - R.A.	n tang δ n = -.035	-(ΔT + m)
5	26	-0.01	-15.40	+.00	-15.40
5	30	-0.02	15.36	+.00	15.36
5	32	-0.05	15.37	+.00	15.37
5	36	+1.18	15.33	-.04	15.37
5	48	+0.13	15.43	-.00	15.43
5	50	+1.00	15.41	-.03	15.44
5	57	+0.76	15.43	-.03	15.46
6	0	+0.26	15.45	-.01	15.46
6	7	+0.41	15.43	-.01	15.44
7	9	+0.87	15.50	-.03	15.53
7	11	+0.30	15.51	-.01	15.52
7	13	+0.41	15.50	-.01	15.51
7	18	+0.53	15.49	-.02	15.51
7	20	+0.15	15.48	-.00	15.48
7	21	+0.62	15.44	-.02	15.46
7	37	+0.54	15.45	-.02	15.47
96 ~~101~~	409	708	698		421
6	~~44~~ 25	+0.442	-15.436		-15.451

0 = -15.436 - .015 = -15.451

h = -.039
43

5	23	+3.72	-15.30 - .04 = -15.34
6	5	+2.66	15.22 - .01 = 15.23
18	13	-16.83	15.52 - .01 = 15.52
6	25	+0.50	15.35 - .00 = 15.35

0 = +.10 + 3.28 n   n = -.03
+.21 + 2.22 n   -.09
-.08 - 17.27 n   -.00
+.09 + 5.06 n   -.02

n = -.035

Feb. 28

h	m	tang δ	T - R.A.	n tang δ n = +.246	-(ΔT + m)
5	5	+0.79	-19.35	+.19	-19.16
5	7	+1.03	19.31	+.25	19.06
5	9	-0.15	19.02	-.04	19.06
6	46	+1.64	19.61	+.40	19.21
6	57	+0.38	19.36	+.09	19.27
7	9	+0.87	19.30	+.21	19.09
7	11	+0.30	19.36	+.07	19.29
7	13	+0.41	19.31	+.10	19.21
48	157	527	262		135
6	20	+0.659	-19.328		-19.169

0 = -19.328 + .161 = -19.167

h = -1.050
44

6	41	+20.69	-24.27 + .02 = -24.25

0 = -4.92 + 20.03 n   n = +.246

Mar. 4

T		tang δ	T − R.A.	n tang δ n = +.140	−(ΔT + m)
h	m		s		
7	27	+0.63	0 = −23.87	+.09	−23.78
7	37	+0.54	24.19	+.08	24.11
			206		
	64	117			789
7	32	+0.585	−24.030		−23.945

0 = 24.030 −.082 = −23.948

h = −.050 s
49

18	13	−16.83	0 = −20.63 − .07 = −20.70
6	41	+20.69	25.91 − .04 = 25.95

0 = +3.33 − 17.41 n n = +.19
−1.92 + 20.11 n +.09

n = +.140

Mar. 8

5	50	+1.00	−28.77	+.01	−28.76
6	0	+0.26	28.66	+.00	28.66
6	7	+0.41	28.70	+.00	28.70
6	30	+0.30	28.64	+.00	28.64
6	46	+1.64	28.81	+.02	28.79
8	10	+0.17	28.80	+.00	28.80
8	38	+0.34	28.84	+.00	28.84
8	40	+0.12	28.85	+.01	28.84
8	47	+0.60	28.83	+.00	28.83
8	49	+0.11	28.89	+.00	28.89
8	51	+1.13	28.77	+.01	28.76
77	368	608	856		851
7	33	+0.553	−28.778		−28.774

0 = −28.778 + .005 = −28.773

h = −.043
46

6	5	+2.66	−28.70 − .06 = −28.76
18	13	−16.83	28.65 − .05 = 28.70
6	41	+20.69	27.94 − .04 = 27.98
20	13	−4.45	28.48 + .03 = 28.45
8	26	+3.50	28.92 + .04 = 28.88

0 = +.02 + 2.11 n n = −.01
+.18 − 17.38 n +.00
+.80 + 20.14 n −.04
+.33 − 5.00 n +.06
−.10 + 2.95 n +.04

n = +.010

Mar. 11

6	30	+0.30	−31.80	+.01	−31.79
6	46	+1.64	31.74	+.08	31.66
8	10	+0.17	31.87	+.01	31.86
8	25	+0.38	31.96	+.02	31.94
8	38	+0.34	31.95	+.02	31.93
8	40	+0.12	31.89	+.01	31.88
8	47	+0.60	31.94	+.03	31.91
8	51	+1.13	31.89	+.06	31.83
8	55	+1.10	31.85	+.05	31.80
68	382 4	578	789		760
8	7 11	+0.642	−31.877		−31.844

0 = −31.877 + .032 = −31.844

h = −.038
42

6	41	+20.69	−30.95 − .06 = −31.01
20	13	−4.45	31.36 + .00 31.36
8	20	+1.81	31.88 + .00 31.88
8	26	+3.50	32.16 + .01 32.15
7	49	−53.29	26.48 − .01 26.49

0 = +.87 + 20.05 n n = −.04
+.52 − 5.09 n +.10
+.00 + 4.17 n −.00
−.27 + 2.86 n +.09
+5.39 − 53.93 n +.10

n = +.050

Mar. 17 n = +.076

6	7	+0.41	−37.35	+.03	−37.32
7	27	+0.63	37.19	+.05	37.14
7	37	+0.54	37.42	+.04	37.38
8	10	+0.17	37.61	+.01	37.60
28	81	175	157		144
7	20	+0.437	−37.392		−37.360

0 = −37.392 + .033 = −37.359

h = −.044
41

18	13	−16.83	−36.12 − .04 = −36.16
6	41	+20.69	35.19 − .02 = 35.21
7	45	+3.55	37.64 + .02 = 37.62
8	4	+4.05	37.79 + .03 = 37.76
20	13	−4.45	36.30 + .04 = 36.26
8	26	+3.50	37.55 + .04 = 37.51
7	49	−53.29	31.65 + .02 = 31.63

0 = +1.23 − 17.27 n n = +.07
+2.18 + 20.25 n −.10
−.23 + 3.11 n +.08
−.37 + 3.61 n +.10
+1.13 − 4.89 n +.23
−.12 + 3.06 n +.04
+5.76 − 53.73 n +.11

n = +.076

Mar. 18 1875

h = -.053 s
48

T	tang δ	T - R.A.	n tang δ n = +.170	-ΔT + m
m				
7 27	+0.63	0 = -38.43	+.11	-38.32
7 37	+0.54	38.48	+.09	38.39
8 10	+0.17	38.47	+.03	38.44
8 25	+0.38	38.54	+.06	38.48
30 99	172	192		163
7 55	+0.430	-38.480		-38.408

0 = -38.480 +.073 = -38.407

18 13	-16.83	0 = -35.88 - .07 = -35.95
6 41	+20.69	41.24 - .06 = 41.30
7 45	+3.55	39.03 - .00 = 39.03
8 4	+4.05	39.08 + .00 = 39.08
20 13	-4.45	37.45 + .01 = 37.44
7 49	-53.29	29.94 + .00 = 29.94

0 = +2.53 - 17.26 n	n = +.15
-2.82 + 20.26 n	+.14
-.55 + 3.12 n	+.18
-.60 + 3.62 n	+.17
+1.04 - 4.88 n	+.22
+8.54 - 53.72 n	+.16

n = +.170

h = -.057
58

Mar. 22

n = +.116

5 50	+1.00	-43.36	+.12	-43.24
5 51	+0.76	43.38	+.09	43.29
6 7	+0.41	43.38	+.05	43.33
7 9	+0.87	43.60	+.10	43.50
7 11	+0.30	43.48	+.03	43.45
7 13	+0.41	43.49	+.05	43.44
7 20	+0.15	43.51	+.02	43.49
7 37	+0.54	43.56	+.06	43.50
8 47	+0.60	43.61	+.07	43.54
8 49	+0.11	43.66	+.01	43.65
8 51	+1.13	43.61	+.13	43.48
8 55	+1.10	43.53	+.13	43.40
83 400	738	617		531
7 28	+0.615	-43.514		-43.443

0 = -43.514 +.071 = -43.443

6 5	+2.66	-43.43 - .07 = -43.50
18 13	-16.83	41.95 - .07 = 42.02
7 18	+2.57	43.88 - .01 = 43.89
7 46	+3.55	44.05 + .02 = 44.03
8 59	+2.43	43.82 + .08 = 43.74

0 = +.01 + 2.05 n	n = -.00
+1.49 - 17.44 n	+.08
-.38 + 1.96 n	+.19
-.52 + 2.94 n	+.18
-.23 + 1.82 n	+.13

n = +.116

Mar. 23

n = +.150

n = +.15

h = -.054
5

7 9	+0.87	-44.88	+.13	-44.75
7 11	+0.30	44.89	+.04	44.85
7 13	+0.41	44.95	+.06	44.89
7 18	+0.53	44.97	+.08	44.89
7 20	+0.15	44.80	+.02	44.78
7 21	+0.62	44.92	+.09	44.83
7 37	+0.54	44.91	+.08	44.83
9 8	+0.05	44.90	+.01	44.89
9 11	+0.76	44.89	+.11	44.78
9 12	+0.33	44.88	+.05	44.83
9 21	-0.14	44.92	-.02	44.90
85 181	442	991		922
8 0	+0.402	-44.901		-44.838

0 = -44.901 +.061 = -44.840

Mar. 25

$h = -.054^{s}$
55

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
			n = +.140	
h m				
7 20	+0.15	0 = −47.50	+.02	−47.48
7 21	+0.62	47.50	+.09	47.41
7 37	+0.54	47.56	+.08	47.48
8 55	+1.10	47.48	+.15	47.33
9 11	+0.46	47.53	+.11	47.42
9 12	+0.33	47.66	+.05	47.61
47 156	350	323		273
8 16	+0.583	−47.538		−47.455

0 = −47.538 + .082 = −47.456

7 18	+2.57	0 = −47.76 − .05 = −47.81
7 45	3.55	47.97 − .03 = 48.00
8 59	2.43	47.80 + .04 = 47.76

0 = −.27 + 1.99 n   n = +.14
−.46 + 2.97 n   +.16
−.22 + 1.85 n   +.12

n = +.140

Mar. 27 n = −.073

7 37	+0.54	−49.90	−.04	−49.94
8 25	+0.38	50.02	−.03	50.05
8 38	+0.34	50.05	−.02	50.07
8 40	+0.12	50.03	−.01	50.04
8 47	+0.60	49.99	−.04	50.03
8 49	+0.11	50.09	−.01	50.10
47 236	209	08		23
8 29	+0.348	−50.013		−50.038

0 = −50.013 − .025 = −50.038

h = −.046
50

7 45	+3.55	−49.83 − .03 = −49.86
21 27	−2.75	50.33 + .05 = 50.28
7 49	−53.29	54.44 − .03 = 54.41

0 = +.15 + 3.20 n   n = −.05
−.27 − 3.10 n   −.09
−4.40 − 53.64 n   −.08

n = −.073

Mar. 28

n = −.063

7 37	+0.54	−51.03	−.03	−51.06
8 25	+0.38	51.12	−.02	51.14
8 38	+0.34	51.19	−.02	51.21
8 40	+0.12	51.20	−.01	51.21
8 49	+0.11	51.14	−.01	51.15
8 51	+1.13	51.05	−.07	51.12
47 240	262	73		89
8 30	+0.4357	−51.122		−51.148

0 = −51.122 − .027 = −51.149

h = −.046
47

8 26	+3.50	−50.89 − .00 = −50.89
21 27	−2.75	−51.18 + .05 = −51.13
7 49	−53.29	−57.05 − .03 = −57.08

0 = +.23 + 3.06 n   n = −.08
−.01 − 3.19 n   −.00
−5.96 − 53.73 n   −.11

n = −.063

Mar. 29 n = +.000

6 46	+1.64	−52.31	+.13	−52.18
6 57	+0.38	52.15	+.03	52.12
7 9	+0.87	52.12	+.07	52.05
7 11	+0.30	52.22	+.02	52.20
7 13	+0.41	52.18	+.03	52.15
8 10	+0.17	52.29	+.01	52.28
8 38	+0.34	52.32	+.03	52.29
8 40	+0.12	52.34	+.01	52.33
8 47	+0.60	52.31	+.05	52.26
8 49	+0.11	52.37	+.01	52.36
9 34	+0.19	52.39	+.02	52.37
9 39	+0.45	52.41	+.04	52.37
91 393	558	341		296
8 8	+0.465	−52.284		−52.247

0 = −52.284 + .037 = −52.247

h = −.056
50

8 4	+4.05	−52.30 − .00 = −52.30
9 32	+2.72	52.33 + .07 = 52.26
21 40	−2.86	51.58 + .07 = 51.51

0 = −.02 + 3.59 n   n = +.01
+.02 + 2.26 n   −.01
+.~~79~~ − 3.~~32~~ n   ~~+.24~~

n = +.000

Mar. 30 1875

T h	m	n tang δ	T − R.A.	n tang δ n = −.028	−(ΔT + m)
8	10	+0.17	0 = −53.55 s	−.00	−53.55
8	49	+0.11	53.66	−.00	53.66
9	39	+0.45	53.64	−.01	53.65
9	46	+0.50	53.56	−.01	53.57
9	54	+0.15	53.58	−.00	53.58
43	198	138	299		301
9	16	+0.276	−53.598		−53.602

0 = −53.598 − .007 = −53.605

h = −.050 s
52

7	49	−53.29	0 = −54.01 s − .07 = −54.08
8	4	+ 4.05	53.91 − .06 = 53.97
20	13	− 4.45	53.60 − .05 = 53.65
21	40	− 2.86	54.06 + .02 = 54.04
9	47	+ 3.36	53.38 + .02 = 53.36

0 = − .48 − 53.57 n   n = −.01
− .37 + 3.77 n   +.10
− .05 − 4.73 n   −.01
− .44 − 3.14 n   −.14
+ .24 + 3.08 n   −.08

n = −.028

Mar. 31

T h	m	n tang δ	T − R.A.	n tang δ n = −.033	−(ΔT + m)
8	25	+0.38	+16.13	−.01	+16.12
8	40	+0.12	16.10	−.00	16.10
8	51	+1.13	16.17	−.04	16.13
9	34	+0.19	16.01	−.01	16.00
33	150	182	41		35
8	53	+0.455	+16.103		+16.088

0 = +16.103 − .015 +16.088

h = −.040
52

8	26	± 3.50	+16.12 − .02 = +16.10
21	27	− 2.75	15.72 + .02 = 15.74
9	32	+ 2.72	16.05 + .02 = 16.07

0 = − .00 + 3.05 n   n = +.00
− .36 − 3.20 n   −.11
− .03 + 2.27 n   +.01.

n = −.033

Apr. 5

T h	m	n tang δ	T − R.A.	n tang δ	−(ΔT + m)
8	10	+0.17	+3.48	−.02	+3.46
8	25	+0.38	3.50	−.05	3.45
8	38	+0.34	3.45	−.04	3.41
8	40	+0.12	3.50	−.02	3.48
8	51	+1.13	3.63	−.15	3.48
9	34	+0.19	3.26	−.02	3.24
9	39	+0.45	3.42	−.06	3.36
9	42	+1.70	3.63	−.22	3.41
9	46	+0.50	3.47	−.06	3.41
10	10	+0.95	3.09	−.03	3.06
10	15	+0.90	3.00	−.03	2.97
10	21	+0.76	3.05	−.03	3.02
10	26	+0.17	3.03	−.01	3.02
76	325	418	434		10
9	3	+0.553	+3.482		+3.411
	72	278	17		7
10	18	+0.695	+3.042		+3.017

h = −.040
23

21	27	− 2.75	+ 2.93 + .02 = + 2.95
9	32	+ 2.72	3.67 + .02 = 3.69
9	40	− 2.86	3.17 − .02 = 3.15
10	24	+ 4.12	3.38 + .00 = 3.38

0 = − .53 − 3.30 n   n = −.16
+ .21 + 2.17 n   −.10
n = −.130

0 = + .11 − 3.55 n   n = +.03
+ .34 + 3.43 n   −.10
n = −.035

Apr. 7

n = −.011

T h	m	n tang δ	T − R.A.	n tang δ	−(ΔT + m)
8	25	+0.38	+1.00	−.00	+1.00
9	8	+0.05	1.49	−.00	1.49
9	11	+0.76	1.61	−.01	1.60
9	12	+0.33	1.46	−.00	1.46
9	13	+0.70	1.60	−.01	1.59
9	21	−0.14	1.61	+.00	1.61
9	34	+0.19	1.53	−.00	1.53
9	39	+0.45	1.49	−.00	1.49
9	46	+0.50	1.54	−.00	1.54
80	209	31~~7~~ 22	433		431
9	17	~~+0.352~~ +0.358	+1.481		+1.~~478~~ 539

0 = +1.481 − .004 = +1.477

1.00 tie $9^h 8^m$

h = −.010
22

8	59	+ 2.43	+1.38 − .00 = + 1.38
9	23	+ 2.81	1.39 + .00 = 1.39
21	27	− 2.75	1.33 + .00 = 1.33
9	32	+ 2.72	1.55 + .00 = 1.55
9	40	− 2.86	1.30 + .00 = 1.30

0 = − .10 + 2.07 n   n = +.05
− .09 + 2.45 n   +.04
− .15 − 3.11 n   −.05
+ .07 + 2.36 n   −.03
− .18 − 3.22 n   −.06

n = −.010

Apr. 10

T	tang δ	T − R.A.	n tang δ n = −.120	− (ΔT + m)
h m				
8 25	+ 0.38	0 = + 0.79	−.05	+ 0.74
8 38	+ 0.34	0.80	−.04	0.76
8 51	+ 1.13	0.93	−.13	0.80
9 8	+ 0.05	0.81	−.01	0.80
9 11	+ 0.76	0.95	−.09	0.86
9 12	+ 0.33	0.82	−.04	0.78
9 13	+ 0.70	0.95	−.08	0.87
9 21	− 0.14	0.74	+.02	0.76
10 15	+ 0.90	0.81	−.11	0.70
10 21	+ 0.76	0.79	−.09	0.70
10 26	+ 0.17	0.82	−.02	0.80
99 241	538	921		87
9. 22	+0.489	+0.837		+0.779

0 = +0.837 − .058 = + 0.779

$h = -.007^{s}$

9

8 59	+2.43	0 = +1.18 − .00 = + 1.18
9 23	+2.81	1.11 + .00 = 1.11
10 24	+ 4.12	1.16 + .01 = 1.17

0 = + .34 + 1.94 n   n = −.17

+ .27 + 2.32 n   −.11

+ .33 + 3.63 n   −.08

n = −.120

Apr. 11

n = −.250

9 11	+ 0.76	+ 0.81	−.19	+ 0.62
9 13	+ 0.70	0.83	−.17	0.66
9 21	− 0.14	0.63	+.03	0.66
9 39	+ 0.45	0.63	−.11	0.52
84	177	290		6
9 21	+0.443	+0.725		+0.615

0 = +0.725 − .111 = + 0.614

h = −.010

5

8 59	+ 2.43	+ 1.45 − .00 = + 1.45
9 23	+ 2.81	+ 1.19 + .00 = + 1.19
9 32	+ 2.72	+ 1.14 + .00 = + 1.14
9 40	− 2.86	− 0.08 + .00 = − 0.08

0 = + .73 + 1.99 n   n = −.37

+ .47 + 2.37 n   −.20

+ .42 + 2.28 n   −.19

− .80 − 3.30 n   −.24

n = −.250

Apr. 14

n = −.015

9 11	+ 0.76	+ 0.44	−.01	+ 0.43
9 12	+ 0.33	0.30	−.00	0.30
9 13	+ 0.70	0.42	−.01	0.41
9 21	− 0.14	0.39	+.00	0.39
10 15	+ 0.90	0.40	−.01	0.39
10 21	+ 0.76	0.39	−.01	0.38
10 26	+ 0.17	0.40	−.00	0.40
10 39	+ 0.61	0.37	−.01	0.36
10 43	+ 0.20	0.28	−.00	0.28
86 201	429	339		334
9 56	+0.477	+0.377		+0.371

0 = +0.377 − .007 = +0.370

h = −.010

6

8 59	+2.43	+ 0.39 − .01 = + 0.38
9 23	2.81	0.43 − .01 = 0.42
10 24	4.12	0.65 + .00 = 0.65
10 34	2.70	0.31 + .01 = 0.32

0 = + .00 + 1.95 n   n = −.00

+ .04 + 2.33 n   −.02

+ .27 + 3.64 n   −.07

− .06 + 2.22 n   + .03

n = −.015

Apr. 15

n = −.030

8 55	+ 1.10	+ 0.29	−.03	+ 0.26
9 11	+ 0.76	0.26	.02	0.24
9 12	+ 0.33	0.10	.01	0.09
9 13	+ 0.70	0.20	.02	0.18
9 21	− 0.14	0.09	.00	0.09
10 15	+ 0.90	0.12	.03	0.09
10 21	+ 0.76	0.10	.02	0.08
64 148	4 451	116		103
9 30	+~~0.644~~ 0.630	+0.166		+0.147

0 = + 0.166 − .019 = + 0.147

h = −.005

6

9 23	+ 2.81	+ 0.23 − .00 = + 0.23
10 24	+ 4.12	+ 0.28 + .00 = 0.28

0 = + .06 + 2.18 n   n = −.03

+ .11 + 3.49 n   −.03

n = −.030

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n = ,000

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
h	m				
10	1	+ 0.31	0 = − 0.24	~~+.03~~ =	~~− 0.21~~
10	2	+ 0.22	0.21	~~+.0[illegible]~~ =	~~0.19~~
10	10	+ 0.95	0.20	~~+.0[illegible]~~ =	~~0.11~~
	13	148	65		
10	4	+0.493	− 0.217		−0.[illegible]

Apr. 20

h = +.095

9	13	+ 0.70	− 0.24	+ .07	− 0.17
9	21	− 0.14	0.30	− .01	0.31
11	3	+ 1.01	0.33	+ .10	0.23
11	7	+ 0.39	0.36	+ .04	0.32
40	44	196	123		103
10	11	+0.490	− 0.307		− 0.258

0 = − 0.307 + .047 = − 0.260

h = − .013 (7)

9 23 + 2.81 0 = − 0.52 − .01 = − 0.53

0 = − .22 + 2.32 n n = +.095

Apr. 21

h = +.093

9	39	+ 0.45	− 0.61	+ .04	− 0.57
9	46	+ 0.50	0.67	+ .05	0.62
10	39	+ 0.61	0.58	+ .06	0.52
10	43	+ 0.20	0.59	+ .02	0.57
10	58	+ 0.14	0.62	+ .01	0.61
11	3	+ 1.01	0.52	+ .09	0.43
11	7	+ 0.39	0.66	+ .04	0.62
70	235	330	425		394
10	34	+0.471	− 0.607		− 0.563

0 = − 0.607 + .044 = − 0.563

h = − .010 (11)

9	32	+ 2.72	− 0.91 − .01 = − 0.92
9	47	+ 3.36	0.89 − .01 = 0.90
10	50	+ 4.87	0.79 + .00 = 0.79

0 = − .31 + 2.25 n n = +.14

− .29 + 2.89 n +.10

− .18 + 4.40 n +.04

n = +.093

Apr. 22

n = +.008

9	39	+ 0.45	− 0.83	+.00	− 0.83
9	46	+ 0.50	0.77	+.00	0.77
10	39	+ 0.61	0.82	+.00	0.82
10	43	+ 0.20	0.85	+.00	0.85
10	58	+ 0.14	0.82	+.00	0.82
11	3	+ 1.01	0.74	+.01	0.73
11	7	+ 0.39	0.89	+.00	0.89
70	235	330	572		11
10	34	+0.471	− 0.817		− 0.816

h = +.004 (6)

9	32	+ 2.72	− 0.86 − .00 = − 0.86
9	40	− 2.86	0.85 − .00 = 0.85
9	47	+ 3.36	0.86 − .00 = 0.86
10	50	+ 4.87	0.88 + .00 = 0.88

0 = − .04 + 2.25 n n = + .02

− .03 − 3.33 n − .01

− .04 + 2.89 n + .01

− .06 + 4.40 n + .01

n = +.008

Apr. 24

T h	T m	tang δ	T – R.A.	n tang δ n = –.160	–(ΔT + m)
9	21	– 0.14	0 = – 0.99	+.02	– 0.97
9	54	+ 0.15	0.90	–.02	0.92
10	1	+ 0.31	0.86	–.05	0.91
10	2	+ 0.22	0.84	–.03	0.87
11	7	+ 0.39	0.87	–.06	0.93
11	15	+ 0.12	0.91	–.02	0.93
60	100	105	537		13
10	17	+0.175	– 0.895		–0.922

0 = –0.895 – .028 = –0.923

h = +.003

9 47 +3.36 0 = –0.38 + 00 = – 0.38

0 = +.51 + 3.19 n n = –.160

Apr. 25
n = –.173

9	42	+ 1.70	– 0.60	–.29	– 0.89
9	46	+ 0.50	0.74	–.09	0.83
9	54	+ 0.15	0.80	–.03	0.83
10	1	+ 0.31	0.77	–.05	0.82
10	2	+ 0.22	0.75	–.04	0.79
11	7	+ 0.39	0.83	–.07	0.90
11	15	+ 0.12	0.87	–.02	0.89
69	167	339	536		35
10	15	+0.484	– 0.766		–0.850

0 = –0.766 –.084 = –0.850

h = –.004

9 40 – 2.86 – 1.45 – 00 = – 1.45
9 47 + 3.36 0.25 – 00 = 0.25
11 15 + 2.15 0.54 + 00 = 0.54

0 = –.68 – 3.34 n n = –.20
+.52 + 2.88 n –.18
+.23 + 1.67 n –.14

n = –.173

Apr. 26
n = –.085

10	10	+ 0.95	– 0.84	–.08	– 0.92
10	39	+ 0.61	0.90	–.05	0.95
10	43	+ 0.20	0.94	–.02	0.96
	92	176	268		13
10	31	+0.587	–0.893		–0.943

0 = –0.893 –.050 = –0.943

h = –.003

10 34 + 2.70 – 0.73 + 00 = – 0.73
10 50 + 4.87 0.50 + 00 = 0.50

0 = +.16 + 2.11 n n = –.08
+.39 + 4.28 n –.09

n = –.085

Apr. 27
n = –.182

9	42	+ 1.70	– 0.67	–.31	– 0.98
9	46	+ 0.50	.85	–.09	0.94
9	54	+ 0.15	.98	–.03	1.01
10	1	+ 0.31	.94	–.06	1.00
10	2	+ 0.22	.94	–.04	0.98
10	10	+ 0.95	.74	–.17	0.91
11	31	– 0.00	.98	+.00	0.98
11	39	+ 1.13	.84	–.21	1.05
11	43	+ 0.27	1.02	–.05	1.07
90	268	523	796		82
10	30	+0.581	– 0.884		– 0.991

0 = – 0.884 – .106 = – 0.990

h = +.002

9 40 – 2.86 – 1.71 + 00 = – 1.71
9 47 + 3.36 0.39 + 00 = 0.39
11 24 + 2.75 0.45 – 00 = 0.45
23 34 – 4.31 1.87 – 00 = 1.87
11 35 + 2.40 0.72 – 00 = 0.72

0 = –.83 – 3.44 n n = –.24
+.49 + 2.78 n –.18
+.43 + 2.17 n –.20
–.99 – 4.89 n –.20
+.16 + 1.82 n –.09

n = –.182

May 3 1875

T	tang δ	T−R.A.	n tang δ	−(ΔT+m)
h m		s	n = −.237	
9 54	+0.15	0 = −0.68	−.04	−0.72
10 1	+0.31	0.66	−.07	0.73
10 2	+0.22	0.68	−.05	0.73
11 31	−0.00	0.78	+.00	0.78
11 39	+1.13	0.61	−.27	0.88
11 43	+0.27	0.71	−.06	0.77
11 44	+0.04	0.70	−.01	0.71
11 47	+1.40	0.42	−.33	0.75
84 261	352	524		47
~~10 50~~	~~−0.352~~	−~~0.524~~		−0.759
11 2	+0.440	−0.655		

0 = −0.655 −.104 = −0.759

h = +.002
2

11 24 +2.75 0 = −0.02 − 00 = −0.02
23 34 −4.31 1.86 00 = −1.86
11 35 +2.40 0.31 00 = 0.31

0 = +.63 + 2.31 n n = −.27
−1.21 − 4.75 n −.26
+.34 + 1.96 n −.18

n = −.237

May 4

10 39	+0.61	−0.53	−.15	−0.68
10 43	+0.20	0.68	−.05	0.73
82	81	121		141
10 41	+0.405	−0.605		−0.705

0 = −0.605 −.100 = −0.705

h = +.010
6

10 34 +2.70 0 = −0.03 + 00 = −0.03

0 = +.57 + 2.30 n n = −.248

May 5

			n = −.513	
10 39	+0.61	−0.16	−.31	−0.47
10 43	+0.20	−0.33	−.10	0.43
11 15	+0.12	−0.34	−.06	0.40
11 43	+0.27	−0.28	−.14	0.42
11 44	+0.04	−0.35	−.02	0.37
11 47	+1.40	+0.17	−.72	0.55
11 59	+0.17	−0.39	−.09	0.48
12 14	+0.00	−0.37	−.00	0.37
87 304	281	205 ~~239~~		349
11 30	+0.351	−~~0.299~~		−0.436
		−0.256		

0 = −0.256 −.180 = −0.436

h = −.006
3

10 34 +2.70 +1.03 − 00 = +1.03
11 15 +2.15 +0.68 − 00 = 0.68
12 6 +4.84 +2.12 − 00 = 2.12

0 = +1.29 + 2.35 n n = −.51
+.94 + 1.80 n −.50
+2.38 + 4.49 n −.53

n = −.513

May 12

			n = −.320	
12 14	+0.00	−1.46	−.00	−1.46
12 35	−0.01	1.47	+.00	1.47
12 49	+1.52	0.94	−.49	1.43
12 50	+0.81	1.16	−.26	1.42
148	232	103		18
12 37	+0.580	−1.257		−1.445

0 = −1.257 −.186 = −1.443

h = −.006
6

12 6 +4.84 +0.05 − 00 = +0.05
12 28 +2.82 −0.51 − 00 −0.51

0 = +1.31 + 4.26 n n = −.31
+.75 + 2.24 n −.33

n = −.320

May. 13

T h m	tang δ	T − R.A.	n tang δ n = −.310	−(ΔT + m)
11 43	+ 0.27	0 = −1.50	−.08	−1.58
11 44	+ 0.04	1.50	−.01	1.51
11 47	+ 1.40	1.21	−.43	1.64
12 14	+ 0.00	1.51	−.00	1.51
12 35	− 0.01	1.69	+.00	1.69
12 56	+ 0.21	1.49	−.07	1.56
69 239	191	290		349
12 10	+0.318	− 1.483		− 1.582

$0 = -1.483 - .099 = -1.582$

$h = -.004$ s

5

11 59	+ 4.55	0 = − 0.21 − .00 = − 0.21
12 6	+ 4.84	− 0.04 − .00 = 0.04

$0 = +1.27 + 4.23\,n \quad n = -.30$
$+1.44 + 4.52\,n \quad -.32$

$n = -.310$

May. 14 / n = −.340

10 43	+ 0.20	− 1.80	−.07	− 1.87
10 58	+ 0.14	1.89	−.05	1.94
11 3	+ 1.01	1.47	−.34	1.81
11 43	+ 0.27	1.86	−.09	1.95
11 44	+ 0.04	1.87	−.01	1.88
11 47	+ 1.40	1.54	−.48	2.02
12 35	− 0.01	1.97	+ 00	1.97
12 49	+ 1.52	1.48	−.52	2.00
12 56	+ 0.21	1.84	−.07	1.91
13 3	− 0.09	1.98	+.03	1.95
113 381	469	770		930
11 56	+0.469	− 1.770		− 1.930

$0 = -1.770 - .159 = -1.929$

$h = -.004$

4

10 56	+ 1.91	− 1.22 − .00 = − 1.22
11 24	+ 2.75	1.09 − .00 = 1.09

$0 = +.55 + 1.44\,n \quad n = -.38$
$+68 + 2.28\,n \quad -.30$

$n = -.340$

May. 22

11 44	+ 0.04	− 2.33	−.02	− 2.35
12 35	− 0.01	2.54	+ .00	2.54
12 49	+ 1.52	1.81	−.65	2.46
12 50	+ 0.81	2.13	−.34	2.47
12 56	+ 0.21	2.36	−.09	2.45
13 3	− 0.09	2.45	+ .04	2.41
13 6	+ 0.54	2.31	−.23	2.54
85 243	302	193		322
12 43	+0.431	− 2.276		− 2.460

$0 = -2.276 - .183 = -2.459$

$h = -.015$

9

23 34	− 4.31	− 4.22 − .01 = − 4.23
13 12	− 42.14	21.16 + .00 = 21.16

$0 = -1.95 - 4.74\,n \quad n = -.41$
$-18.88 - 42.57\,n \quad -.44$

$n = -.425$

May 23
n = −.500

11 39	+ 1.13	− 2.19	−.56	− 2.75
11 44	+ 0.04	2.76	−.02	2.78
11 47	+ 1.40	2.20	−.70	2.90
12 56	+ 0.21	2.70	−.10	2.80
13 3	− 0.09	2.78	+ .04	2.74
13 6	+ 0.54	2.65	−.27	2.92
71 195	323	328		489
12 22	+0.538	− 2.547		− 2.815

$0 = -2.547 - .269 = -2.816$

$h = -.006$

10

23 34	− 4.31	− 4.60 − .00 = − 4.60
11 35	+ 2.40	1.60 − .00 = 1.60
12 28	+ 2.82	1.32 + .00 = 1.32
13 12	− 42.14	25.11 + .00 = 25.11

$0 = -2.05 - 4.85\,n \quad n = -.42$
$+.95 + 1.86\,n \quad -.51$
$+1.23 + 2.28\,n \quad -.54$
$-22.56 - 42.68\,n \quad -.53$

$n = -.500$

May. 26 1875

h = −.003 3
5

T		tang δ	T − R.A	n tang δ	−(ΔT + m)
				n = −.552	
h	m		s		
11	31	− 0.00	0 = − 3.16	+.00	− 3.16
11	39	+ 1.13	2.63	−.63	3.26
11	44	+ 0.04	3.20	−.02	3.22
12	56	+ 0.21	3.10	−.12	3.22
13	3	− 0.09	3.23	+.05	3.18
13	6	+ 0.54	2.98	−.30	3.28
71	179	183	30		12
12	20	+0.305	− 3.050		− 3.220

0 = − 3.050 − .169 = − 3.219

23 34 − 4.31 0 = − 5.78 − .00 = − 5.78
12 28 + 2.82 1.63 + .00 = 1.63
13 12 − 42.14 28.59 + .00 = 28.59
13 23 + 3.29 1.69 − .00 = 1.69

0 = − 2.73 − 4.61 n n = − .59
+ 1.42 + 2.52 n − .56
− 25.54 − 42.44 n − .60
+ 1.36 + 2.99 n − .46

n = − .552

May. 27 n = −.510

h = +.005
0

h	m	tang δ	T − R.A	n tang δ	−(ΔT + m)
11	39	+ 1.13	− 2.78	−.57	− 3.35
11	59	+ 0.17	3.24	−.09	3.33
12	14	+ 0.00	3.19	−.00	3.19
12	49	+ 1.52	2.49	−.77	3.26
13	43	+ 1.19	2.69	−.61	3.30
59	204	401	439		143
12	29	+0.802	− 2.878		− 3.286

12 6 + 4.84 − 0.91 + .00 = − 0.91
13 12 − 42.14 26.31 − .00 = 26.31
13 34 + 3.06 1.76 − .01 = 1.77

0 = + 1.97 + 4.04 n n = − .49
− 23.43 − 42.94 n − .55
+ 1.11 + 2.26 n − .49

n = − .510

May. 29 n = −.488

h = +.010
7

h	m	tang δ	T − R.A	n tang δ	−(ΔT + m)
12	49	+ 1.52	− 2.45	−.75	− 3.20
12	50	+ 0.81	2.68	−.39	3.07
12	56	+ 0.21	3.00	−.10	3.10
13	3	− 0.09	3.03	+.04	2.99
13	6	+ 0.54	2.91	−.26	3.17
13	28	+ 0.00	3.04	−.00	3.04
13	43	+ 1.19	2.64	−.58	3.22
13	49	+ 0.34	2.95	−.17	3.12
101	284	452	670		91
13	13	+0.565	−2.838		− 3.114

13 34 + 3.06 − 1.62 − .00 = − 1.62

0 = + 1.22 + 2.50 n n = − .488

June 1 n = −.0500

h = +.001
6

h	m	tang δ	T − R.A	n tang δ	−(ΔT + m)
11	59	+ 0.17	− 2.30	−.01	− 2.318
12	14	0.00	2.38	.00	2.38
2					
23	73	17	68		9
12	6	+0.085	− 2.340		− 2.345 − 2.380

0 = − 2.340 − .004 = − 2.346

June 8

T h	m	tang δ	T − R.A. s	n tang δ n = −.485	−(ΔT + m)
12	35	− 0.01	0 = −2.14	+.00	−2.14
12	49	+ 1.52	1.31	−.74	2.05
12	50	+ 0.81	1.66	−.39	2.05
13	3	− 0.09	2.14	+.04	2.10
13	6	+ 0.54	1.90	−.26	2.16
13	28	+ 0.00	2.04	−.00	2.04
13	43	+ 1.19	1.62	−.58	2.20
13	49	+ 0.34	1.97	−.16	2.13
13	55	+ 0.04	2.07	−.02	2.09
14	5	+ 0.47	1.95	−.23	2.18
14	10	+ 0.36	1.97	−.17	2.14
14	21	+ 1.30	1.51	−.63	2.14
14	26	+ 0.60	1.90	−.29	2.19
40	380	7~~10~~ 07	1118		161
13	34	+0.5464	−1.860		−2.124

0 = −1.860 − .264 = −2.124

h = +.005 s
3

13	12	−42.14	0 = −23.53 + 00 = −23.53
13	23	+ 3.29	− 0.53 + 00 = 0.53
13	34	+ 3.06	0.37 + 00 = − 0.37
13	48	+ 2.17	1.10 − 00 = 1.10
14	1	+ 2.14	1.12 − 00 = 1.12
14	9	+ 4.74	0.00 − 00 = 0.00

0 = −21.67 − 42.68 n n = −.51
+1.33 + 2.75 n −.50
+1.49 + 2.52 n −.59
+.76 + 1.63 n −.47
+.64 + 1.60 n −.40
+1.86 + 4.20 n −.44

n = −.485

June 10

				n = −.442	
14	5	+ 0.47	−1.66	−.21	−1.87
14	10	+ 0.36	1.71	−.16	1.87
14	21	+ 1.30	1.35	−.57	1.92
14	26	+ 0.60	1.62	−.27	1.89
14	27	+ 0.81	1.64	−.36	2.00
14	35	+ 0.31	1.77	−.14	1.91
	124	385	375		546
14	21	+0.642	− 1.625		−1.910

0 = −1.625 − .285 = −1.910

h = +.002
3

13	12	−42.14	−19.67 + 00 = −19.67
14	1	+ 2.14	0.98 + 00 = 0.98
14	9	+ 4.74	0.00 + 00 = 0.00
14	51	+ 3.65	0.04 − 00 = 0.04

0 = −18.05 − 42.78 n n = −.42
+.64 + 1.50 n −.43
+1.62 + 4.10 n −.40
+1.58 + 3.01 n −.52

n = −.442

June 14

				n = −.440	
13	28	+ 0.00	−1.70	−.00	−1.70
13	48	+ 1.19	1.16	−.52	1.68
14	5	+ 0.47	1.44	−.21	1.65
14	10	+ 0.36	1.48	−.16	1.64
14	21	+ 1.30	1.11	−.57	1.68
14	26	+ 0.60	1.46	−.26	1.72
14	27	+ 0.81	1.50	−.36	1.86
14	35	+ 0.31	1.54	−.14	1.68
30	195	504	339		561
14	9	+0.630	− 1.424		−1.701

0 = −1.424 − .277 = −1.701

h = +.010
6

13	12	−42.14	−20.83 + .01 = −20.82
14	9	+ 4.74	~~− 9.65~~ + 0.35 + .00 = ~~− 9.65~~ + 0.35

0 = −19.40 − 42.77 n n = −.45
+ 1.77 + 4.11 n −.43

n = −.440

June 15

				n = −.453	
13	43	+ 1.19	−0.88	−.54	−1.42
14	10	+ 0.36	1.27	−.16	1.43
14	21	+ 1.30	0.88	−.57	1.47
14	26	+ 0.60	1.20	−.27	1.47
15	100	345	423		19
14	10	+0.862	− 1.058		−1.447

0 = −1.058 − .390 = −1.448

h = +.008
9

13	23	+ 3.29	+0.01 + .01 = +0.02
14	1	2.14	−0.41 + 00 = −0.41
14	9	4.74	+ 0.55 + 00 = + 0.55

0 = +1.08 + 2.43 n n = −.44
+.65 + 1.28 n −.51
+1.61 + 3.88 n −.41

n = −.453

June 20 1875

T		tang δ	T – R.A.	n tang δ n = –.508	– (ΔT + m)
	m				
13	43	+ 1.19	0 = + 0.08	– .60	– 0.52
13	49	+ 0.34	– 0.34	– .17	0.51
13	55	+ 0.04	– 0.35	– .02	0.37
14	57	+ 0.87	+ 0.03	– .44	0.41
14	59	+ 0.52	– 0.14	– .26	0.40
15	10	+ 0.67	– 0.19	– .34	0.53
22	273	363	91		274
14	26	+0.605	– 0.152		– 0.457

0 = – 0.152 – .307 = – 0.459

h = ~~+.000~~ + 4 (s)

13 34 +3.06 . 0 = +1.13 + .00 = +1.13
13 48 +2.17 0.56 + .00 = 0.56
14 1 +2.14 0.68 + .00 = 0.68
14 51 +3.65 1.49 + .00 = 1.49
14 56 +2.29 0.68 + .00 = 0.68

0 = +1.28 + 2.46 n n = –.52
+.71 + 1.57 n –.45
+.83 + 1.54 n –.54
+1.64 + 3.05 n –.54
+.83 + 1.69 n –.49

n = –.508

June 21

n = –.493

13	55	+ 0.04	– 0.36	– .02	– 0.38
14	57	+ 0.87	0.05	– .43	0.48
14	59	+ 0.52	0.19	– .26	0.45
15	10	+ 0.67	0.20	– .33	0.53
16	181	210	80		184
14	45	+0.525	– 0.200		– 0.460

0 = – 0.200 – .259 = – 0.459

h = ~~+.004~~ 5

14 1 + 2.14 + 0.63 + .00 = + 0.63
14 51 + 3.65 1.48 + .00 = 1.48
14 56 + 2.29 0.56 + .00 = 0.56

0 = +.83 + 1.62 n n = –.51
+1.68 + 3.13 n –.54
+.76 + 1.77 n –.43

n = –.493

June 24

n = –.647

13	43	+ 1.19	+ 0.52	– .77	– 0.25
13	49	+ 0.34	+ 0.06	– .22	0.16
13	55	+ 0.04	– 0.11	– .03	0.14
14	5	+ 0.47	+ 0.19	– .30	0.11
14	10	+ 0.36	+ 0.07	– .23	0.16
14	26	+ 0.60	+ 0.23	– .38	0.15
14	27	+ 0.81	+ 0.28	– .52	0.24
14	57	+ 0.87	+ 0.36	– .56	0.20
14	59	+ 0.52	+ 0.11	– .34	0.23
15	23	+ 0.57	+ 0.10	– .37	0.27
15	26	+ 0.88	+ 0.34	– .57	0.23
15	27	+ 0.88	+ 0.42	– .57	0.15
15	29	+ 0.51	+ 0.14	– .33	0.19
53	436	8~~2~~4 0	271		248
14	38	+0.634 0.619	+0.208		– 0.191

0 = +0.208 – .399 = – 0.191

h = +.007

13 48 + 2.17 +1.27 + .01 = + 1.28
14 1 + 2.14 1.25 + .00 = 1.25
15 21 + 3.13 1.64 – .00 = 1.64

0 = +1.07 + 1.55 n n = –.69
1.04 + 1.52 n –.68
1.43 + 2.51 n –.57

n = –.647

June 27

n = –.565

14	57	+ 0.87	+ 0.91	– .49	+ 0.42
14	59	+ 0.52	0.64	– .29	0.35
15	10	+ 0.67	0.68	– .38	0.30
15	23	+ 0.57	0.63	– .32	0.31
15	26	+ 0.88	0.83	– .50	0.33
15	27	+ 0.88	0.87	– .50	0.37
15	29	+ 0.51	0.61	– .29	0.32
33	231	490	517		30
15	16	+0.700	+0.739		+ 0.343

0 = + 0.739 – .396 = + 0.343

h = +.012 12

14 51 + 3.65 + 2.52 + .00 = + 2.52
14 56 + 2.29 1.53 + .00 = 1.53
15 13 + 2.45 1.83 + .00 = 1.83
15 21 + 3.13 2.05 – .00 = 2.05

0 = +1.78 + 2.95 n n = –.60
+.79 + 1.59 n –.50
+1.09 + 1.75 n –.62
+1.31 + 2.43 n –.54

n = –.565

June 28

T h	m	tang δ	T − R.A.	n tang δ − n = −.530	(ΔT + m)
14	5	+0.47	0 = +0.91	−.25	+0.66
14	10	+0.36	0.84	−.19	0.68
14	26	+0.60	0.94	−.32	0.62
14	27	+0.81	1.05	−.43	0.62
14	57	+0.87	1.10	−.46	0.69
15	23	+0.57	0.83	−.30	0.53
15	26	+0.88	1.10	−.47	0.63
15	28	+0.88	1.18	−.47	0.71
15	29	+0.51	0.86	−.27	0.59
40	231	595	889		33
14	52	+0.661	+0.988		+0.637

0 = +0.988 − .351 = +0.637

h = +.010
10

15 21 +3.13 0 = +2.30 − 00 = +2.30

0 = +1.31 + 2.47 n   n = −.530

June 30 n = −.535

h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
14	21	+1.30	+1.86	−.70	+1.16
14	26	+0.60	1.45	−.32	1.13
14	35	+0.31	1.25	−.17	1.08
14	40	+0.04	1.13	−.02	1.11
14	57	+0.87	1.58	−.47	1.11
14	59	+0.52	1.38	−.28	1.10
	238	364	265		9
14	40	+0.607	+1.442		+1.115

0 = +1.442 − .325 = +1.117

h = +.007
15

14 51 +3.65 +3.18 − 00 = +3.18
14 56 +2.29 2.28 − 00 2.28

0 = +1.74 + 3.04 n   n = −.57
+.84 + 1.68 n   −.50

n = −.535

July 1 n = −.545

h	m	tang δ	T − R.A.	n tang δ	(ΔT + m)
14	57	+0.87	+2.00	−.47	+1.53
14	59	+0.52	1.69	−.28	1.41
15	10	−0.16	1.49	+.09	1.58
15	23	+0.57	1.72	−.31	1.41
15	26	+0.88	1.95	−.48	1.47
15	27	+0.88	2.01	−.48	1.53
15	29	+0.51	1.77	−.28	1.49
15	38	+0.12	1.60	−.07	1.53
15	40	+0.28	1.70	−.15	1.55
15	43	−0.05	1.46	+.03	1.49
15	45	+0.09	1.49	−.05	1.44
15	51	+0.29	1.61	−.16	1.45
58	448	480	849		108
15	27	+0.400	+1.708		+1.490

0 = +1.708 − .218 = +1.490

h = +.011
11

14 56 +2.29 +2.76 + 00 = +2.76
15 13 +2.45 2.96 + 00 = 2.96
15 21 +3.13 3.05 + 00 = 3.05
15 49 +4.78 3.99 − 00 = 3.99

0 = +1.05 + 1.89 n   n = −.56
+1.25 + 2.05 n   −.61
+1.34 + 2.73 n   −.49
+2.28 + 4.38 n   −.52

n = −.545

July 3 1875

T	tang δ	T − R.A.	n tang δ n = −.590	−(ΔT + m)
m 40	+0.04	0 = +2.09	−.02	+2.07
16 0	+1.66	3.05	−.97	2.08
16 8	−0.06	1.98	+.04	2.02
16 12	−0.08	2.03	+.05	2.08
16 20	+0.25	2.14	−.15	1.99
16 25	+0.04	2.02	−.02	2.00
16 43	+1.54	2.83	−.91	1.92
16 46	+0.27	2.17	−.16	2.01
16 55	+0.60	2.24	−.35	1.89
52 209 4	426	255		16
16 ~~9~~ 14	+0.473	+2.283		+2.007

0 = +2.283 − .278 = +2.005

h = −.005
2
4

14 51	+2.65	0 = +4.23 − .01 = +4.22
16 14	+4.07	4.32 + .00 = 4.32

0 = +1.94 + 3.18 n n = −.61
+2.04 + 3.60 n −.57

n = −.590

July 7 n = −.584

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
14 57	+0.87	+2.03	−.51	+1.52
14 59	+0.52	1.96	−.30	1.66
15 10	−0.16	1.57	+.09	1.66
15 23	+0.57	1.88	−.33	1.55
15 26	+0.88	2.10	−.51	1.59
15 27	+0.88	2.10	−.51	1.59
15 29	+0.51	1.87	−.30	1.57
15 38	+0.12	1.66	−.07	1.59
15 40	+0.28	1.78	−.16	1.62
15 43	−0.05	1.57	+.03	1.60
15 45	+0.09	1.61	−.05	1.56
15 51	+0.29	1.66	−.17	1.49
15 55	+1.43	2.37	−.84	1.53
16 8	−0.06	1.59	+.04	1.63
16 12	−0.08	1.59	+.05	1.64
16 16	+0.35	1.75	−.20	1.55
16 20	+0.25	1.81	−.15	1.66
16 39	+0.81	2.02	−.47	1.55
16 43	+1.54	2.40	−.90	1.50
16 46	+0.27	1.72	−.16	1.56
16 55	+0.60	1.87	−.35	1.52
111 742	991	3891		1214
15 52	+0.475 2	+1.853		+1.578

0 = +1.853 − .275 = +1.578

h = −.011
7

14 56	+2.29	+2.96 − .01 = +2.95
15 13	+2.45	3.02 − .00 = 3.02
15 21	+3.13	3.26 − .00 = 3.26
15 49	+4.78	4.43 − .00 = 4.43
16 14	+4.07	4.04 + .00 = 4.04

0 = +1.10 + 1.82 n n = −.60
+1.17 + 1.98 n −.59
+1.41 + 2.66 n −.53
+2.58 + 4.31 n −.60
+2.19 + 3.60 n −.60

n = −.584

July 8

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
15 26	+0.88	+1.81	−.54	+1.27
15 27	+0.88	1.90	−.54	1.36
15 29	+0.57	1.54	−.31	1.23
15 38	+0.12	1.53	−.07	1.46
15 40	+0.28	1.46	−.17	1.29
15 45	+0.09	1.42	−.06	1.36
15 51	+0.29	1.52	−.18	1.34
15 55	+1.43	2.24	−.89	1.35
16 8	−0.06	1.21	+.04	1.25
16 12	−0.08	1.30	+.05	1.35
16 16	+0.35	1.61	−.22	1.39
16 20	+0.25	1.51	−.15	1.36
16 25	+0.04	1.29	−.02	1.27
16 39	+0.81	1.82	−.50	1.32
16 43	+1.54	2.23	−.96	1.27
16 46	+0.27	1.55	−.17	1.38
16 55	+0.60	1.59	−.37	1.22
94 575	2 830	2753		547
16 6	+0.488 2	+1.619		+1.322

0 = +1.619 − .297 = +1.322

h = −.011
11

15 49	+4.78	+4.20 − .00 = +4.20
16 14	+4.07	3.85 + .00 = 3.85
16 36	+4.59	4.22 + .00 = 4.22

0 = +2.58 + 4.30 n n = −.60
+2.23 + 3.59 n −.62
+2.60 + 4.11 n .63

n = −.617
6

July 10

T h m	tang δ	T − R.A.	n tang δ	(ΔT·m)
15 23	+0.57	0 = +1.12	−.34	+0.78
15 26	+0.88	1.33	−.52	0.81
15 29	+0.51	1.11	−.30	0.81
15 38	+0.12	0.87	−.07	0.80
15 40	+0.28	0.96	−.17	0.79
15 45	+0.09	0.82	−.05	0.77
15 51	+0.29	0.95	−.17	0.78
15 55	+1.43	1.75	−.85	0.90
16 0	+1.66	1.85	−.98	0.87
16 8	−0.06	0.77	+.04	0.81
16 12	−0.08	0.83	+.05	0.88
16 16	+0.35	1.03	−.21	0.82
16 20	+0.25	1.00	−.15	0.85
16 25	+0.04	0.78	−.02	0.76
16 37	+0.621	1.03	−.37	0.66
16 39	+0.81	1.26	−.48	0.78
16 43	+1.54	1.70	−.92	0.78
94 507	930	1916		1365
16 2	+0.547	+1.127		+0.803

0 = +1.127 − .325 = 0.802

h = −0.001 6

15 13	+2.45	0 = +2.24 − .00 = +2.24
15 21	+3.13	2.50 − .00 = 2.50
15 49	+4.78	3.75 − .00 = 3.75
16 14	+4.07	3.32 + .00 = 3.32
16 28	+2.61	2.41 + .00 = 2.41

0 = +1.11 + 1.90 n n = −.58
+1.37 + 2.58 n −.53
+2.62 + 4.23 n −.62
+2.19 + 3.52 n −.62
+1.28 + 2.06 n −.62

n = −.594

July 11

15 10	−0.16	+0.74	+.10	+0.84
15 23	+0.57	1.15	−.36	0.79
15 26	+0.88	1.31	−.55	0.76
15 29	+0.51	1.11	−.32	0.79
15 38	+0.12	0.88	−.08	0.80
15 40	+0.28	0.96	−.18	0.78
15 45	+0.09	0.81	−.06	0.75
15 51	+0.29	0.92	−.18	0.74
15 55	+1.43	1.71	−.90	0.81
16 0	+1.66	1.86	−.104	0.82
16 16	+0.35	1.00	−.22	0.78
16 20	+0.25	0.92	−.16	0.76
16 25	+0.04	0.76	−.02	0.74
16 39	+0.81	1.26	−.51	0.75
16 43	+1.54	1.63	−.96	0.67
16 46	+0.27	0.95	−.17	0.78
16 52	+0.14	0.95	−.11	0.84
16 55	+0.60	1.13	−.38	0.75
99 603	9 ~~8~~70	2005		1395
16 4	~~+0.483~~ +0.539	+1.114		+0.775

0 = +1.114 − .337 = +0.777

h = +0.003

15 13	+2.45	+2.34 + .00 = +2.34
15 21	+3.13	2.66 + .00 = 2.66
15 49	+4.78	3.64 + .00 = 3.64
16 14	+4.07	3.32 − .00 = 3.32
16 36	+4.59	3.77 − .00 = 3.77

0 = +1.23 + 1.91 n n = −.64
+1.55 + 2.59 n −.60
+2.53 + 4.24 n −.60
+2.21 + 3.53 n −.63
+2.66 + 4.05 n −.66

n = −.626

July 12 1875

T	tang δ	T−R.A.	n tang δ n = −.587	−(ΔT+m)
h m		s		
4 59	+0.52	0 = +1.08	−.31	+0.77
15 26	+0.88	1.35	−.52	0.83
15 29	+0.51	1.13	−.30	0.83
15 38	+0.12	0.93	−.07	0.86
15 40	+0.28	1.00	−.16	0.84
15 43	−0.05	0.84	+.03	0.87
15 45	+0.09	0.83	−.05	0.78
15 55	+1.43	1.76	−.84	0.92
16 8	−0.06	0.88	+.04	0.92
16 12	−0.08	0.81	+.05	0.86
16 16	+0.35	1.08	−.21	0.87
16 20	+0.25	1.00	−.15	0.85
16 25	+0.04	0.83	−.02	0.81
16 37	+0.62	1.09	−.36	0.73
16 39	+0.81	1.36	−.48	0.88
16 46	+0.27	1.02	−.16	0.86
16 52	+0.17	1.06	−.10	0.96
16 55	+0.60	1.18	−.35	0.83
99 645	675	123		1527
16 6	+0.375	+1.068		+0.848

0 = +1.068 − .220 + 0.848

$h = +.003$ (2, 3)

15 21	+3.13	0 = +2.66 + .00 = +2.66
15 49	+4.78	3.78 + .00 = 3.78
16 14	+4.07	3.30 − .00 = 3.30
16 28	+2.61	2.32 − .00 = 2.32

0 = +1.59 + 2.76 n n = −.58
+2.71 + 4.41 n −.61
+2.23 + 3.70 n −.60
+1.25 + 2.24 n −.56

n = −.587

July 31

			n = −.627	
17 9	+0.26	+2.64	−.16	+2.48
17 11	+0.75	2.81	−.47	2.34
17 28	+1.30	3.26	−.81	2.45
17 29	+0.23	2.62	−.14	2.48
17 42	+0.53	2.72	−.33	2.39
119	307	405		214
17 24	+0.614	+2.810		+2.428

0 = +2.810 − .384 = +2.426

$h = +.002$ (3)

17 32	+2.50	+4.03 − .00 = +4.03
17 44	+3.12	4.38 − .00 4.38
17 55	+4.33	5.09 − .00 5.09

0 = +1.22 + 1.89 n n = −.64
+1.57 + 2.51 n −.63
+2.28 + 3.72 n −.61

n = −.627

Aug. 4

			n = −.636	
16 16	+0.35	+2.94	−.22	+2.72
16 20	+0.25	2.84	−.16	2.68
16 25	+0.04	2.69	−.03	2.66
16 37	+0.62	3.00	−.39	2.61
16 39	+0.81	3.19	−.52	2.67
137	207	466		34
16 27	+0.414	+2.932		+2.668

+2.932 − .264 = +2.668

$h = +.017$ (7)

16 28 +2.61 +4.33 − .00 = +4.33

0 = +1.40 + 2.20 n n = −.636

Aug. 7

T	tang δ	T − R.A.	n tang δ n = −.640	−(ΔT + m)
h m				
16 25	+0.04	0 = +3.85	−.03	+3.82
16 39	+0.81	4.40	−.52	3.88
16 46	+0.27	4.19	−.17	4.02
16 52	+0.17	4.05	−.11	3.94
16 55	+0.60	4.18	−.38	3.80
18 3	+0.55	4.20	−.35	3.85
18 15	−0.05	3.93	+.03	3.96
46 235	239	2880		627
17 8	+0.341	+4.114		+3.896

0 = +4.114 −.218 = +3.896

h = +.022
18

16 36 +4.59 0 = +6.84 +.01 = +6.85
18 12 +16.88 +14.64 −.02 = 14.62

0 = +2.74 + 4.25 n n = −.64
+10.51 + 16.54 n −.64

n = −.640

Aug. 8 −.640

n = −.640

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
16 12	−0.08	+4.33	+.05	+4.38
16 16	+0.35	4.54	−.22	4.32
8	27	87		10
16 14	+0.135	+4.435		+4.350

0 = +4.435 −.086 = +4.349

h = +.008
11

Aug. 9 n = −.647

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
16 20	+0.25	+4.62	−.16	+4.46
16 25	+0.04	4.42	−.03	4.39
16 39	+0.81	4.98	−.52	4.46
16 43	+1.54	5.30	−1.00	4.30
16 46	+0.27	4.64	−.17	4.47
18 3	+0.55	4.78	−.36	4.42
18 15	−0.05	4.49	+.03	4.52
18 18	+0.40	4.69	−.26	4.43
54 239	381	592		345
17 15	+0.476	+4.740		+4.431

0 = +4.740 −.309 = +4431

h = +.010
7

16 28 +2.61 + +6.20 +.01 = +6.21
16 36 +4.57 7.50 +.00 = 7.50
18 12 +16.88 14.19 −.01 = 14.18

0 = +1.47 + 2.13 n n = −.69
+2.76 + 4.09 n −.67
+9.44 + 16.40 n −.58

n = −.647

Aug. 10 n = −.617

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
16 16	+0.35	+4.90	−.22	+4.68
16 20	+0.25	4.84	−.15	4.69
16 25	+0.04	4.63	−.02	4.61
16 39	+0.81	5.18	−.50	4.68
16 43	+1.54	5.56	−.96	4.60
16 46	+0.27	4.93	−.17	4.76
16 52	+0.17	4.85	−.10	4.75
16 55	+0.60	4.99	−.37	4.62
17 29	+0.23	4.79	−.14	4.65
18 15	−0.05	4.75	+.03	4.78
18 33	+0.80	5.20	−.49	4.71
71 73	501	1062		93
17 1	+0.455	+4.965		+4.685

0 = +4.965 −.281 = +4.684

h = +.018
14

16 14 +4.07 +7.14 +.01 = +7.15
16 36 +4.59 7.95 +.01 = 7.96
18 12 +16.88 13.61 −.01 = 13.60

0 = +2.19 + 3.62 n n = −.60
+3.00 + 4.14 n −.72
+8.64 + 16.43 n −.53

n = −.617

Aug. 14 1875

T h m	tang δ	T − R.A.	n tang δ n = −.585	−(ΔT + m)
16 46	+0.27	0 = +6.65	−.16	+6.49
16 52	+0.17	6.61	−.10	6.51
16 55	+0.60	6.75	−.35	6.40
17 4	+0.86	6.96	−.50	6.46
17 9	+0.26	6.57	−.15	6.42
17 11	+0.75	6.80	−.44	6.36
17 28	+1.30	7.28	−.76	6.52
17 29	+0.23	6.54	−.13	6.41
53 234	444	616		37
17 7	+0.550	+6.770		+6.446

0 = +6.770 − .322 = +6.418

h = +.029
23

17 32	+2.50	0 = +7.96 − .01 = +7.95
17 38	+2.58	7.92 − .01 = 7.91

0 = +1.18 + 1.95 n   n = −.61
+1.14 + 2.03 n   −.56

n = −.585

Aug. 25

			n = −.660	
18 18	+0.40	+14.45	−.26	+14.19
18 38	+0.80	14.76	−.53	14.23
51	120	121		42
18 25	+0.600	+14.605		+14.210

0 = +14.605 − .396 = +14.209

h = +.023
26

18 12	+16.88	+25.74 + .00 = +25.74
18 23	+2.95	16.07 + .00 = 16.07
18 36	+4.49	17.22 − .00 = 17.22
6 41	−20.69	0.26 − .00 = 0.26

0 = +11.14 + 16.28 n   n = −.68
+1.47 + 2.35 n   −.62
+2.62 + 3.89 n   −.67
−14.34 − 21.29 n   −.67

n = −.660

Aug. 26

16 52	+0.17	+14.95	−.10	+14.85
16 55	+0.60	15.01	−.36	14.65
17 9	+0.26	14.93	−.16	14.77
17 11	+0.75	15.03	−.45	14.58
17 28	+1.30	15.48	−.78	14.70
17 29	+0.23	14.94	−.14	14.80
18 15	−0.05	14.89	+.03	14.92
18 18	+0.40	15.04	−.24	14.80
18 38	+0.80	15.16	−.48	14.68
18 45	+0.65	15.21	−.39	14.82
18 52	+0.96	15.52	−.57	14.95
18 54	+0.27	14.89	−.16	14.73
88 401	634	6105		925
17 53	+0.528	+15.087		+14.771

0 = +15.087 − .315 = +14.772

h = +.030
27

18 12	+16.88	+24.83 − .01 = +24.82
18 23	+2.95	16.66 − .01 = 16.65
18 36	+4.49	17.54 − .02 = 17.52
6 41	−20.69	3.41 − .03 = 3.38

0 = +9.73 + 16.35 n   n = −.59
+1.56 + 2.42 n   −.64
+2.43 + 3.96 n   −.61
−11.71 − 21.22 n   −.55

n = −.597

Aug. 28

			n = −.570	
17 42	+0.53	+16.52	−.30	+16.22
18 33	+0.80	16.62	−.46	16.16
19 12	+0.20	16.40	−.11	16.29
19 19	+0.05	16.28	−.03	16.25
19 26	+0.53	16.51	−.30	16.21
42 132	213	233		113
18 50	+0.426	+16.466		+16.226

0 = +16.466 − .241 = +16.225

h = +.040
34

17 32	+2.50	+17.48 + .05 = +17.53
17 38	+2.58	17.77 + .04 = 17.81
17 44	+3.12	17.99 + .04 = 18.03
18 36	+4.49	18.46 + .01 = 18.47
6 41	−20.69	4.90 + .01 = 4.91
19 13	+2.40	17.86 − .01 = 17.85
19 18	+3.29	18.04 − .02 = 18.02

0 = +1.06 + 2.08 n   n = −.51
+1.34 + 2.16 n   −.62
+1.56 + 2.70 n   −.58
+2.60 + 4.07 n   −.49
−11.56 − 21.11 n   −.55
+1.38 + 1.98 n   −.70
+1.55 + 2.87 n   −.54

n = −.570

Aug. 29

T h	T m	tang δ	T − R.A. s	− (ΔT + m) n = −.574	
17	28	+ 1.30	0 = + 17.96	−.75	+ 17.21
17	29	+ 0.23	17.28	−.13	17.15
17	42	+ 0.53	17.37	−.30	17.07
18	33	+ 0.80	17.49	−.46	17.03
19	12	+ 0.20	17.36	−.11	17.25
19	19	+ 0.05	17.25	−.03	17.22
19	26	+ 0.53	17.43	−.30	17.13
56	189	364	314		106
18	27	+0.520	+17.449		+ 17.151

0 = + 17.449 − .298 = + 17.151

h = +.035 s
37

17 32	+ 2.50	0 = + 18.59 s + .03 = + 18.62
17 38	+ 2.58	18.65 + .03 = 18.68
18 36	+ 4.49	19.70 − .01 = 19.69
19 13	+ 2.40	18.53 − .02 = 18.51
19 18	+ 3.29	19.01 − .03 = 18.98

0 = + 1.17 + 1.98 n n = −.59
+ 1.23 + 2.06 n −.60
+ 2.24 + 3.97 n −.57
+ 1.06 + 1.88 n −.56
+ 1.53 + 2.77 n −.55

n = −.574

Aug. 30 n = −.675

17	42	+ 0.53	+ 18.27	−.36	+ 17.91
18	33	+ 0.80	18.48	−.54	17.94
19	12	+ 0.20	18.28	−.13	18.15
19	19	+ 0.05	18.06	−.03	18.03
19	26	+ 0.53	18.32	−.36	17.96
42	132	211	141		499
18	50	+0.422	+18.282		+ 17.998

0 = + 18.282 − .284 = + 17.998

h = +.037
36

17 38	+ 2.58	+ 19.66 + .04 = + 19.70
17 44	+ 3.12	20.21 + .04 = 20.25
17 55	+ 4.33	20.83 + .04 = 20.87
18 36	+ 4.49	20.72 − .01 = 20.71
19 13	+ 2.40	19.70 − .01 = 19.69
19 18	+ 3.29	20.27 − .02 = 20.25

0 = + 1.42 + 2.16 n n = −.66
+ 1.97 + 2.70 n −.73
+ 2.59 + 3.91 n −.66
+ 2.43 + 4.07 n −.60
+ 1.41 + 1.98 n −.71
+ 1.97 + 2.87 n −.69

n = −.675

Aug. 31 n = −.680

17	42	+ 0.53	+ 19.11	−.36	+ 18.75
18	3	+ 0.55	19.21	−.37	18.84
18	33	+ 0.80	19.45	−.54	18.91
19	12	+ 0.20	19.12	−.14	18.98
19	14	+ 1.33	19.75	−.90	18.85
19	19	+ 0.05	19.01	−.03	18.98
19	26	+ 0.53	19.27	−.36	18.91
19	40	+ 0.18	19.03	−.12	18.91
68	189	417	195		713
18	54	+0.521	+19.244		+18.891

0 = + 19.244 − .354 = + 18.890

h = +.033
35

17 44	+ 3.12	+ 21.11 + .03 = + 21.14
18 36	+ 4.49	21.85 + .01 = 21.86
19 13	+ 2.40	20.55 − .01 = 20.54
19 18	+ 3.29	21.02 − .02 = 21.00

0 = + 1.90 + 2.60 n n = −.73
+ 2.62 + 3.97 n −.66
+ 1.30 + 1.88 n −.69
+ 1.76 + 2.77 n −.64

n = −.680

Sept. 1 n = −.636

18	3	+ 0.55	+ 19.93	−.35	+ 19.58
18	10	− 0.05	19.75	+ .03	19.78
18	33	+ 0.80	20.12	−.51	19.61
19	19	+ 0.05	19.81	−.03	19.78
19	26	+ 0.53	19.94	−.34	19.60
19	40	+ 0.18	19.79	−.11	19.68
19	45	+ 0.15	19.75	−.10	19.65
60	181	221	609		468
19	0	+0.316	+19.870		+ 19.669

0 = + 19.870 − .201 = + 19.669

h = +.036
34

17 44	+ 3.12	+ 21.81 + .04 = + 21.85
17 55	+ 4.33	22.32 + .04 = 22.36
18 36	+ 4.49	22.24 + .01 = 22.25
18 12	+ 16.88	30.70 + .02 = 30.72
6 41	− 20.69	6.63 + .01 = 6.64

0 = + 1.98 + 2.80 n n = −.71
+ 2.49 + 4.01 n −.62
+ 2.38 + 4.17 n −.57
+ 10.85 + 16.56 n −.65
− 13.23 − 21.01 n −.63

n = −.636

Sept. 4 1875

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
h m		s	n = −.610	
18 3	+0.55	0 = +22.56	−.34	+22.22
18 33	+0.80	22.72	−.49	22.23
19 19	+0.05	22.30	−.03	22.27
19 40	+0.18	22.40	−.11	22.29
19 45	+0.15	22.36	−.09	22.27
19 46	+0.01	22.31	−.01	22.30
52 186	174	265		38
19 11	+0.290	+22.442		+22.263

0 = +22.442 − .177 = +22.265

h = +.044 s
40

17 55	+4.33	0 = +24.96 + .05 = +25.01
18 12	+16.88	33.50 + .04 = 33.54
6 41	−20.69	10.87 + .02 = 10.89
19 49	+53.78	51.88 − .02 = 51.86
19 49	+2.74	24.05 − .02 = 24.03

0 = +2.57 + 4.04 n   n = −.63
+11.10 + 16.59 n   −.67
−11.55 − 20.98 n   −.55
+29.42 + 53.49 n   −.55
+1.59 + 2.45 n   −.65

n = −.610

Sept. 5

n = −.600

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
18 3	+0.55	+23.69	−.33	+23.36
18 15	−0.05	23.53	+.03	23.36
18 33	+0.80	23.76	−.48	23.28
19 0	+0.24	23.45	−.14	23.31
19 40	+0.18	23.43	−.11	23.32
19 45	+0.15	23.39	−.09	23.30
19 46	+0.01	23.31	−.01	23.30
19 49	+0.11	23.45	−.07	23.38
69 231	199	381		21
19 6	+0.249	+23.476		+23.326

0 = +23.476 − .149 = +23.327

h = +.037
32

17 55	+4.33	+26.18 + .04 = +26.22
18 12	+16.88	33.69 + .03 = 33.72
19 49	+2.74	24.98 − .03 = 24.95
19 49	+53.78	51.33 − .03 = 51.30

0 = +2.74 + 4.08 n   n = −.67
+10.24 + 16.63 n   −.62
+1.47 + 2.49 n   −.59
+27.82 + 53.53 n   −.52

n = −.600

Sept. 7

n = −.577

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
18 3	+0.55	+25.39	−.32	+25.07
18 15	−0.05	25.13	+.03	25.16
19 0	+0.24	25.27	−.14	25.13
19 40	+0.18	25.18	−.10	25.08
19 45	+0.15	25.15	−.09	25.06
19 46	+0.01	25.14	−.01	25.13
19 49	+0.11	25.19	−.06	25.13
20 5	−0.02	25.12	+.01	25.13
71 203	117	157		89
19 18	+0.146	+25.196		+25.111

0 = +25.196 − .085 = +25.111

h = +.027
28

18 12	+16.88	+35.38 + .03 = +35.41
19 49	+2.74	26.73 − .01 = 26.72
19 49	+53.78	53.43 − .01 = 53.42

0 = +10.21 + 16.73 n   n = −.61
+1.52 + 2.59 n   −.59
+28.22 + 53.63 n   −.53

n = −.577

Sept. 8

n = −.572

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
18 15	−0.05	+25.76	+.03	+25.79
18 18	+0.40	25.90	−.23	25.67
18 52	+0.96	26.34	−.55	25.79
18 54	+0.27	25.88	−.15	25.73
19 40	+0.18	25.84	−.10	25.74
19 45	+0.15	25.82	−.09	25.73
19 46	+0.01	25.73	−.01	25.72
19 49	+0.11	25.82	−.06	25.76
20 5	−0.02	25.77	+.01	25.78
78 324	201	786		41
19 16	+0.223	+25.873		+25.746

h = +.027
26

18 12	+16.88	+35.70 + .03 = +35.73
18 23	+2.95	27.27 + .02 = 27.29
18 23	+3.21	27.71 + .02 = 27.73
19 49	+2.74	27.35 − .01 = 27.34
19 49	+53.78	55.52 − .01 = 55.51

0 = +9.86 + 16.66 n   n = −.59
+1.42 + 2.73 n   −.52
+1.86 + 2.99 n   −.62
+1.47 + 2.52 n   −.58
+29.64 + 53.56 n   −.55

n = −.572

Sept 13

n = −.468

T	tang δ	T − R.A.	n tang δ	−(ΔT + m)
18 45	+0.65	+29.36	−.30	+29.06
18 52	+0.96	29.47	−.45	29.02
97	161	83		8
18 48	+0.805	+29.415		+29.040

h = +.023
26

6 41	−20.69	+19.36 + .00 = +19.36

0 = −10.05 − 21.49 n   n = −.468

Sept. 14

T h	m	tang δ	T − R.A. s	n tang δ n = −.503	−(ΔT + m)
18	52	+0.96	0 = +30.09	−.48	+29.61
18	54	+0.27	29.63	−.14	29.49
19	0	+0.24	29.78	−.12	29.66
19	40	+0.18	29.69	−.09	29.60
19	45	+0.15	29.71	−.08	29.63
19	46	+0.01	29.68	−.01	29.67
19	49	+0.11	29.66	−.06	29.60
20	5	−0.02	29.64	+.01	29.65
20	18	+0.84	29.94	−.42	29.52
20	27	+0.19	29.75	−.10	29.65
91	336	295	757		8
19	34	+0.295	+29.757		+29.608

0 = +29.757 − .149 = +29.608

2
h = +.030
26

19 49	+0.74	0 = + 31.14 − .01 =	+31.13
19 49	+53.78	52.19 − .01 =	52.18
20 13	+4.45	31.99 − .02 =	31.97

0 = +1.37 + 2.45 n   n = −.56
+22.42 + 53.49 n   −.42
+2.21 + 4.16 n   −.53

n = −.503

Sept. 25 n = −.306

18	40	+0.37	+37.51	−.11	+37.40
18	45	+0.65	37.77	−.20	37.57
18	54	+0.27	37.57	−.08	37.49
19	0	+0.24	37.64	−.07	37.57
33	139	153	249		3
18	50	+0.382	+37.622		+37.507

h = +.028 29

6 41   −20.69   +31.16 + .00 = +31.16

0 = −6.46 − 21.07 n   n = −.306

Oct. 4 n = −.418

19	40	+0.18	+43.57	−.08	+43.49
19	46	+0.01	43.53	−.00	43.53
19	49	+0.11	43.58	−.05	43.53
20	5	−0.02	43.53	+.01	43.54
20	18	+0.84	43.88	−.35	43.53
20	27	+0.19	43.67	−.08	43.59
20	37	+0.99	43.94	−.41	43.53
20	41	+0.66	43.76	−.28	43.48
20	49	+0.52	43.74	−.22	43.52
21	1	+0.78	43.94	−.33	43.61
21	8	+0.57	43.75	−.24	43.51
219	321	483	789		36
20	24	+0.439	+43.717		+43.533

0 = +43.717 − .183 = +43.534

h = +.034
31

19 49	+53.78	+63.83 + .02 =	+63.85
20 13	+4.45	45.50 + .01 =	45.51
20 33	+3.61	45.06 − .01 =	45.05
20 53	+5.72	46.04 − .02 =	46.02

0 = +20.13 + 53.34 n   n = −.38
+1.79 + 4.01 n   −.44
+1.33 + 3.17 n   −.42
+2.30 + 5.28 n   −.43

n = −.418

Oct. 5 n = −.577

20	5	−0.02	+44.40	+.01	+44.41
20	18	+0.84	44.78	−.48	44.30
	23	82	118		71
20	12	+0.410	+44.590		+44.355

0 = +44.590 − .236 = +44.354

h = +.020
27

20 13   +4.45   +46.92 + .00 = +46.92

0 = +2.33 + 4.04 n   n = −.577

Oct. 13 n = −.320 −.317

20	5	−0.02	+48.13	+.01	+48.12
21	8	+0.57	48.27	−.18	48.09
21	10	+0.79	48.42	−.25	48.17
21	25	−0.11	48.13	+.04	48.17
21	38	+0.16	48.22	−.05	48.17
21	42	+1.14	48.56	−.36	48.20
5	128	251	173		92
21	11	+0.418	+48.288		+48.153

0 = +48.288 − .134 = +48.154

h = +.032
11

					n
19 49	+53.78	+62.52 + .00 =	+62.52	14.38 =	2.64
20 53	+5.72	49.82 + .00 =	49.82	1.67	2.92
21 8	+4.55	49.77 + .00 =	49.77	1.62	.356
21 27	+2.75	49.13 − .00 =	49.13	.98	.356
					−.317

0 = +14.23 + 53.36 n   n = −.27
+1.53 + 5.30 n   −.29
+1.48 + 4.13 n   −.36
+.84 + 2.33 n   −.36

n = −.320

Oct. 14 1875

T h	m	tang δ	T − R.A.	n tang δ n = −.345	−(ΔT + m)
21	5	−0.02	0 = +48.31	+.01	+48.32
21	8	+0.57	48.27	−.20	48.07
21	10	+0.77	48.40	−.27	48.13
21	25	−0.11	48.29	+.04	48.33
21	38	+0.16	48.31	−.06	48.25
21	42	+1.14	48.49	−.39	48.10
21	47	+0.47	48.34	−.16	48.18
21	59	−0.02	48.27	+.01	48.28
22	1	+0.46	48.42	−.16	48.26
22	4	+0.10	48.30	−.03	48.27
22	10	−0.15	48.25	+.05	48.30
22	15	−0.03	48.32	+.01	48.33
15	264	334	397		282
21	37	+0.278	+48.331		+48.235

0 = +48.331 − .096 = +48.235

h = +.025 s
15

21	23	−2.80	0 = +47.29 + .00 = +47.29
21	27	+2.75	49.19 + .00 = 49.19

0 = −1.04 − 3.08 n n = −.34
+.86 + 2.47 n −.35

n = −.345

Oct. 17 n = −.430

21	8	+0.57	+50.29	−.25	+50.04
21	10	+0.77	50.35	−.33	50.02
21	25	−0.11	50.05	+.05	50.10
21	38	+0.16	50.21	−.07	50.14
21	42	+1.14	50.54	−.49	50.05
21	59	−0.02	50.15	+.01	50.16
22	4	+0.46	50.30	−.20	50.10
8	183	297	189		61
21	35	+0.424	+50.270		+50.087

0 = +50.270 − .182 = +50.088

h = +.025
25

21	23	−2.80	+49.04 + .00 = +49.04
21	27	+2.75	51.39 + .00 = 51.39

0 = −1.23 − 3.22 n n = −.38
+1.12 + 2.33 n −.48

n = −.430

Oct. 18

22	1	+0.46	+50.85	−.20	+50.65
22	4	+0.10	50.69	−.04	50.65
22	7	+1.58	51.30	−.67	50.63
22	10	−0.15	50.63	+.06	50.69
22	15	−0.03	50.69	+.01	50.70
22	19	+1.26	51.15	−.54	50.61
22	41	+0.42	50.86	−.18	50.68
22	44	+0.44	50.99	−.19	50.80
	141	408	716		61
22	18	+0.510	+50.895		+50.676

0 = +50.895 − .219 = +50.676

h = +.017
21

22	7	+3.02	+51.97 + .00 = +51.97

0 = +1.08 + 2.51 n n = −.430

Oct. 19

T h	T m	tang δ	T − R.A.	n tang δ n = −.453	−(ΔT + m)
20	18	+ 0.84	0 = +51.33	−.38	+ 50.95
20	27	+ 0.19	51.19	−.09	51.10
20	32	+ 0.25	51.05	−.11	50.94
20	37	+ 0.99	51.39	−.45	50.94
20	41	+ 0.66	51.18	−.30	50.88
20	49	+ 0.52	51.21	−.24	50.97
22	1	+ 0.46	51.48	−.21	51.27
22	4	+ 0.10	51.29	−.05	51.24
22	7	+ 1.58	51.98	−.71	51.27
22	10	− 0.15	51.21	+.07	51.28
22	19	+ 1.26	51.62	−.57	51.05
10	245	670	393		89
21	17	+0.609	+51.357		+51.081

0 = +51.357 − .276 = +51.081

h = +.025
21

20 13	+ 4.45	0 = +53.31 + .021 =	+ 53.33
20 33	+ 3.61	52.43 + .021 =	52.45
20 53	+ 5.72	53.45 + .01 =	53.46
22 7	+ 3.02	52.64 − .02 =	52.62

0 = +1.97 + 3.84 n n = −.51
+1.09 + 3.00 n −.36
+2.10 + 5.11 n −.41
+1.26 + 2.41 n −.53

n = −.453

Oct. 20

n = −.387

h	m	tang δ	T − R.A.	n tang δ	−(ΔT + m)
20	18	+ 0.84	+51.92	−.33	+ 51.59
20	27	+ 0.19	51.73	−.07	51.66
20	32	+ 0.25	51.80	−.10	51.70
20	37	+ 0.99	52.01	−.38	51.63
20	49	+ 0.52	51.78	−.20	51.58
21	59	− 0.02	51.75	+.01	51.76
22	1	+ 0.46	51.89	−.18	51.71
22	4	+ 0.10	51.73	−.04	51.69
22	7	+ 1.58	52.38	−.61	51.77
22	10	− 0.15	51.71	+.06	51.77
9	244	476	870		86
21	18	+0.476	+51.870		+51.686

0 = +51.870 − .184 = +51.686

h = +.021
23

20 13	+ 4.45	+53.42 + .02 =	+ 53.44
20 33	+ 3.61	53.00 + .01 =	53.01
20 53	+ 5.72	53.89 + .01 =	53.90
22 7	+ 3.02	52.91 − .01 =	52.90

0 = +1.57 + 3.97 n n = −.40
+1.14 + 3.13 n −.36
+2.03 + 5.24 n −.39
+1.03 + 2.54 n −.40

n = −.387

Oct. 21

n = −.433

h	m	tang δ	T − R.A.	n tang δ	−(ΔT + m)
20	18	+ 0.84	+52.50	−.36	+ 52.14
20	27	+ 0.19	52.29	−.08	52.21
20	32	+ 0.25	52.33	−.11	52.22
	77	128	112		57
20	26	+0.427	+52.373		+52.190

0 = +52.373 − .185 = +52.188

h = +.023
2

20 13 + 4.45 +54.11 + .00 = +54.11

0 = +1.74 + 4.02 n n = −.433

Oct. 25 1875

h m		tang δ	T − R.A.	n tang δ n = −.463	−(ΔT + m)
20	27	+0.19	0 = +54.40	−.09	+54.31
20	37	+0.99	54.75	−.46	54.29
20	21	+0.66	54.61	−.30	54.31
20	49	+0.52	54.52	−.24	54.28
21	59	−0.02	54.37	+.01	54.38
22	4	+0.10	54.40	−.05	54.35
22	29	−0.01	54.46	+.00	54.46
22	35	+0.18	54.51	−.08	54.43
22	37	+0.57	54.54	−.26	54.28
22	39	+0.88	54.80	−.41	54.39
22	41	+0.42	54.58	−.19	54.39
22	46	−0.15	54.44	+.07	54.51
15	434	433	638		438
21	507	+0.361	+54.532		+54.365

0 = +54.532 −.167 = +54.365

$h = +\overset{s}{.023}$
22

20 53 +5.72 0 = +56.80 + .02 = +56.82
22 33 +3.27 55.86 − .01 = 55.85
22 45 +2.20 55.48 − .02 = 55.46

0 = +2.29 + 5.36 n n = −.43
+1.32 + 2.91 n −.45
+.93 + 1.84 n −.51

n = −.463

Oct. 27

n = −.330

20	37	+0.99	+55.77	−.33	+55.44
20	41	+0.66	55.59	−.22	55.37
20	49	+0.52	55.55	−.17	55.38
21	1	+0.78	55.77	−.26	55.51
21	10	+0.77	55.70	−.25	55.45
22	15	−0.03	55.45	+.01	55.46
22	19	+1.26	55.85	−.42	55.43
22	39	−0.01	55.69	+.00	55.69
8	201	494	537		373
21	25	+0.617	+55.671		+55.466

0 = +55.671 −.204 = +55.467

h = +.027
25

20 53 +5.72 +57.39 + .01 = +57.39
21 8 +4.55 56.94 + .00 = 56.94

0 = +1.72 + 5.10 n n = −.34
+1.27 + 3.93 n −.32

n = −.330

Oct. 28

21	38	+0.16	+56.25

Nov. 2

T	tang δ	T−R.A.	n tang δ n = −.250	−(ΔT+m)
h m		s		
22 15	−0.03	0 = +59.40	+.01	+59.41
22 29	−0.01	59.46	+.00	59.46
22 35	+0.18	59.45	−.04	59.41
22 37	+0.57	59.46	−.14	59.32
22 39	+0.88	59.56	−.22	59.34
22 41	+0.42	59.52	−.11	59.41
22 44	+0.44	59.50	−.11	59.39
22 46	−0.15	59.43	+.04	59.47
22 56	+0.89	59.61	−.22	59.39
22 59	+0.26	59.53	−.07	59.46
23 19	+0.42	59.53	−.11	59.42
23 420	387	545		8
22 44	+0.352	+59.495		+59.407

0 = +59.495 − .088 = +59.407

h = +.019 23

22 24	−4.12	0 = +58.56 + .01 = +58.57
22 33	+3.27	+60.03 + .00 = 60.03
22 45	+2.20	+60.02 − .00 = 60.02
23 4	+3.66	+60.46 − .01 = 60.45
23 24	−2.75	+58.64 − .02 = 58.62

0 = −.92 − 4.47 n n = −.21
+.54 + 2.92 n −.18
+.53 + 1.85 n −.29
+.96 + 3.31 n −.29
−.87 − 3.10 n −.28

n = −.250

Nov. 3 n = −.287

T	tang δ	T−R.A.	n tang δ	−(ΔT+m)
22 56	+0.89	+60.04	−.26	+59.78
22 59	+0.26	59.94	−.07	59.87
23 11	+0.05	60.02	−.01	60.01
23 14	+0.42	60.02	−.12	59.90
23 19	+0.42	60.00	−.12	59.88
23 34	+0.09	59.94	−.03	59.91
23 46	+0.33	59.90	−.09	59.81
23 48	+1.53	60.15	−.44	59.71
23 53	+0.11	59.95	−.03	59.92
25 340	410	53996		779
23 24	+0.456	+59.996		+59.866

h = +.019 19

23 4	+3.66	+61.09 + .00 = +61.10
23 24	−2.75	59.21 + .00 = 59.21
23 34	+4.30	61.11 − .00 = 61.11
23 42	+2.37	60.54 − .00 = 60.54

0 = +1.10 + 3.20 n n = −.34
−.79 − 3.21 n −.24
+1.11 + 3.84 n −.29
+.54 + 1.91 n −.28

n = −.287

Nov. 4 n = −.260

T	tang δ	T−R.A.	n tang δ	−(ΔT+m)
21 42	+1.14	+60.55	−.30	+60.25
21 47	+0.47	60.38	−.12	60.26
21 59	−0.02	60.27	+.01	60.28
22 1	+0.46	60.46	−.12	60.34
22 4	+0.10	60.30	−.03	60.27
22 7	+1.58	60.74	−.41	60.33
22 10	−0.15	60.27	+.04	60.31
22 15	−0.03	60.30	+.01	60.31
22 19	+1.26	60.77	−.33	60.44
22 29	−0.01	60.40	+.00	60.40
22 35	+0.18	60.44	−.05	60.39
22 41	+0.42	60.50	−.11	60.39
22 44	+0.44	60.52	−.11	60.41
22 46	−0.15	60.28	+.04	60.32
22 56	+0.89	60.51	−.23	60.28
22 59	+0.26	60.38	−.07	60.31
29 514	686	707		529
22 21	+0.429	+60.442		+60.331

0 = +60.442 − .111 = +60.331

h = +.013 17

21 40	+2.86	+61.03 + .01 = +61.04
22 38	+3.27	61.33 − .00 = 61.33
22 45	+2.20	60.84 − .01 = 60.83

0 = +.60 + 2.43 n n = −.25
+.89 + 2.84 n −.31
+.39 + 1.77 n −.22

n = −.260

Nov. 6 1875

T h	m	tang δ	T+R.A.	n tang δ n = -.310	-(ΔT+m)
21	10	+0.74	0 = +61.11 s	-.24	+60.87
21	16	+1.89	61.49	-.58	60.91
22	29	-0.01	61.06	+.00	61.06
22	35	+0.18	61.13	-.06	61.07
22	37	+0.57	61.04	-.18	60.86
22	39	+0.88	61.30	-.27	61.03
22	41	+0.42	61.16	-.13	61.03
22	44	+0.44	61.12	-.14	60.98
22	46	-0.15	61.07	+.05	61.12
22	56	+0.89	61.21	-.28	60.93
22	59	+0.26	61.03	-.08	60.95
23	11	+0.05	61.11	-.02	61.09
23	14	+0.42	61.08	-.13	60.95
23	19	+0.42	61.07	-.13	60.94
29	456	7$\overset{0}{\cancel{1}}$3	198		1379
22	37	+0.50$\cancel{9}$2	+61.141		+60.985

0 = +61.141 - .156 = +60985

h = +.017 s
16

22 24	-4.12	0 = +59.82 s + .00 = +59.82
22 33	+3.27	61.82 + .00 = 61.82
22 45	+2.20	61.78 - .00 = 61.78
23 4	+3.66	62.16 - .00 = 62.16
23 24	-2.75	60.12 - .01 = 60.11

0 = -1.32 - 4.62 n	n = -.28
+.68 + 2.77 n	-.25
+.64 + 1.70 n	-.38
+1.02 + 3.16 n	-.32
-1.03 - 3.25 n	-.32

n = -.310

Nov. 7

T h	m	tang δ	T+R.A.	n tang δ n = -.250	-(ΔT+m)
22	7	+1.58	+61.77	-.39	+61.38
22	10	-0.16	61.37	+.04	61.41
22	19	+1.26	61.70	-.32	61.38
22	29	-0.01	61.42	+.00	61.42
22	35	+0.18	61.46	-.04	61.42
22	37	+0.57	61.48	-.14	61.34
22	39	+0.88	61.66	-.22	61.44
22	41	+0.42	61.49	-.10	61.39
22	44	+0.44	61.54	-.11	61.43
	261	517	489		361
22	29	+0.574	+61.543		+61.401

0 = +61.543 - .143 = +61.400

h = +.014
16

22 33	+3.27	+62.27 - .00 = +62.27
22 45	+2.20	61.91 - .00 = 61.91

0 = +.73 + 2.70 n	n = -.27
+.37 + 1.63 n	-.23

n = -.250

Nov. 8

T h	m	tang δ	T+R.A.	n tang δ n = -.273	-(ΔT+m)
21	47	+0.47	+61.80	-.13	+61.67
21	59	-0.02	61.77	+.01	61.78
22	1	+0.46	61.82	-.13	61.69
22	7	+1.58	62.22	-.43	61.79
22	37	+0.57	61.77	-.16	61.61
22	39	+0.88	61.99	-.24	61.75
22	41	+0.42	61.88	-.11	61.77
22	44	+0.44	61.77	-.12	61.65
22	56	+0.89	62.05	-.24	61.81
22	59	+0.26	61.82	-.07	61.75
18	390	595	889		727
22	27	+0.595	+61.889		+61.727

0 = +61.889 - .162 = +61.727

h = +.013
14

22 45	+2.20	+62.33 - .00 = +62.33

0 = +.44 + 1.61 n n = -.273

Nov. 9

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
h	m			n = −.352	
0	7	+ 0.26	0 = +62.08	−.09	+ 61.99
20	41	+ 0.66	62.14	−.23	61.91
21	38	+ 0.16	62.12	−.06	62.06
22	29	− 0.01	62.19	+.00	62.19
22	35	+ 0.18	62.22	−.06	62.16
22	37	+ 0.57	62.19	−.20	61.99
22	39	+ 0.88	62.32	−.31	62.01
153	226	270	126		31
22	24	+0.386	= +62.180		+ 62.044

0 = +62.180 −

h = +.014 13

20 53	+ 5.72	0 = + 64.14 + .02 = + 64.16
21 8	+ 4.55	63.72 + .02 = 63.74
21 23	− 2.80	61.04 + .01 = 61.05
21 27	+ 2.75	62.96 + .01 = 62.97
21 40	+ 2.86	63.00 + .01 = 63.01
~~21~~ 2 33	+ 3.27	63.12 + .01 = 63.13

0 = + 1.98 + 5.33 n n = − .37
+ 1.56 + 4.16 n − .38
− 1.13 − 3.19 n − .36
+ .79 + 2.36 n − .33
+ .83 + 2.47 n − .34
+ .95 + 2.88 n − .33

n = − .352

Nov. 11

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
				n = −.275	
21	59	− 0.02	+ 62.72	+.01	+ 62.73
22	1	+ 0.46	62.80	−.13	62.67
23	34	+ 0.09	62.70	−.02	62.68
23	46	+ 0.33	62.83	−.09	62.74
23	48	+ 1.53	63.10	−.42	62.68
23	53	+ 0.11	62.78	−.03	62.75
0	2	+ 0.54	62.79	−.15	62.64
159	243	304	572		489
23	18	+0.434	+62.817		+ 62.699

0 = + 62.817 − .119 = + 62.698

h = +.021 17

23 34	+ 4.30	+ 63.94 − .00 = + 63.94
23 42	+ 2.37	63.33 − .01 = 63.32

0 = + 1.12 + 3.87 n n = − .29
+ .50 + 1.94 n − .26

n = − .275

Nov 17

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
				n = −.118	
0	2	+ 0.54	+ 65.79	−.06	+ 65.73
0	4	+ 1.01	65.86	−.12	65.74
0	24	− 0.08	65.68	+.01	65.69
23	31	+ 1.03	65.73	−.12	65.61
23	34	+ 0.09	65.71	−.01	65.70
23	46	+ 0.33	65.75	−.04	65.71
23	48	+ 1.53	65.96	−.18	65.78
23	53	+ 0.11	65.76	−.01	65.75
27	242	456	625 4		11
23	53	+0.570	+65.782 0		+ 65.714

0 = + 65.780 − .067 = + 65.713

h = +.010 17

0 6	− 4.83	+ 65.07 + .00 = + 65.07
12 28	− 2.82	65.62 + .00 = 65.62
23 34	+ 4.30	66.13 + .00 = 66.13
23 42	+ 2.37	66.14 + .00 = 66.14

0 = − .71 − 5.40 n n = − .13
− .16 − 3.39 n − .05
+ .35 + 3.73 n − .09
+ .36 + 1.80 n − .20

n = − .118

Nov 20

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
				n = −.215	
0	24	− 0.08	+ 6.43	+ .02	+ 6.45
0	33	+ 1.47	6.77	− .32	6.45
0	41	+ 0.44	6.49	− .09	6.40
0	56	+ 0.13	6.45	− .03	6.42
	154	196	214		12
0	38	+0.490	+6.535		+ 6.430

0 = + 6.535 − .105 = + 6.430

h = −.001 7

12 28	− 2.82	+ 5.83 − .00 = + 5.83
11 24	− 2.75	5.83 − .00 = + 5.83

0 = − .70 − 3.31 n n = − .21
− .70 − 3.24 n − .22

n = − .215

Nov. 21 1875

T h	T m	tang δ	T − R.A.	n tang δ n = −.235	−(ΔT + m)
0	2	+0.54	0 = +6.51	−.13	+6.38
0	4	+1.01	6.59	−.24	6.35
0	7	+0.26	6.48	−.06	6.42
0	13	−0.17	6.37	+.04	6.41
0	24	−0.08	6.44	+.02	6.46
0	23	+1.47	6.77	−.34	6.43
	83	303	316		5
0	14	+0.505	+6.527		+6.408

0 = +6.527 −.119 = +6.408

2
h = −.014
3

0 9 +4.09 0 = +7.53 −.00 = +7.53
12 28 −2.82 +5.91 −.00 +5.91

0 = +1.00 + 3.59 n n = −.28
−.62 − 3.32 n −.19

n = −.235

Nov. 22

n = ~~−.277~~ .220

h	m	tang δ	T − R.A.	n tang δ	−(ΔT + m)
22	56	+0.89	+6.36	−.20	+6.16
22	59	+0.26	6.16	−.06	6.10
23	14	+0.42	6.12	−.09	6.03
23	31	+1.03	6.42	−.23	6.19
0	41	+0.44	6.18	−.10	6.08
0	56	+0.13	6.13	−.03	6.10
1	3	+0.70	6.15	−.15	6.00
23	260	387	152		66
23	54	+0.553	+6.217		+6.093

0 = +6.217 − .123 = +6.094

h = −.008
4

1 2 +5.14 +7.11 +.01 = +7.12
1 13 +42.53 16.46 +.01 = 16.47
23 4 +3.66 7.42 −.00 = 7.42

0 = +.90 + 4.59 n n = −.20
+10.25 + 41.98 n −.24
~~+1.20 + 3.11 n~~ ~~−.39~~

n = −.218
−.220

Nov. 24

n = −.167

h	m	tang δ	T − R.A.	n tang δ	−(ΔT + m)
22	56	+0.89	+5.87	−.15	+5.72
22	59	+0.26	5.82	−.04	5.78
23	11	+0.05	5.71	−.01	5.70
23	31	+1.03	5.80	−.17	5.63
10	157	223	320		3
23	9	+0.557	+5.800		+5.707

0 = +5.800 −.094 = +5.706

h = −.011
9

22 24 −4.12 +5.09 −.01 = +5.08
23 4 +3.66 6.30 −.00 = 6.30
23 34 +4.30 6.53 +.00 = 6.53

0 = −.72 − 4.68 n n = −.15
+.50 + 3.10 n −.16
+.73 + 3.74 n −.19

n = −.167

Nov. 29

n = −.088

h	m	tang δ	T − R.A.	n tang δ	−(ΔT + m)
23	11	+0.05	+4.52	−.00	+4.52
23	14	+0.42	4.37	−.04	4.33
23	31	+1.03	4.51	−.09	4.42
23	46	+0.33	4.37	−.03	4.34
23	48	+1.53	4.63	−.13	4.50
23	53	+0.11	4.51	−.01	4.50
0	2	+0.54	4.37	−.05	4.32
0	4	+1.01	4.46	−.09	4.37
26	209	502	374		330
23	41	+0.627	+4.468		+4.412

0 = +4.468 −.055 = +4.413

h = −.013
12

0 6 −4.83 +4.03 −.00 = +4.03
0 9 +4.09 4.68 −.00 = 4.68
23 34 +4.30 4.95 +.00 = 4.95
23 42 +2.87 4.61 −.00 = 4.61

0 = −.44 − 5.46 n n = −.08
+.21 + 3.46 n −.06
+.48 + 3.67 n −.13
+.14 + 1.74 n −.08

n = −.088

Nov. 30

h = −.018
2
16

n = −.050

T		tang δ	T − R.A	n tang δ	−(ΔT + m)
h	m				
23	46	+ 0.33	0 = + 4.17	−.02	+ 4.15
23	48	+ 1.63	4.19	−.08	4.11
23	53	+ 0.11	4.14	−.00	4.14
0	2	+ 0.54	4.06	−.03	4.03
0	4	+ 1.01	4.09	−.05	4.04
0	7	+ 0.86	4.11	−.01	4.10
21	160	378 408	76		57
23	57	~~+0.680~~ +0.630	+4.127		+ 4.095

0 = + 4.127 − .032 = + 4.095

Dec. 1

n = −.035

h = −.029
25

T		tang δ	T − R.A	n tang δ	−(ΔT + m)
0	24	− 0.08	+ 3.72	+ 00	+ 3.72
0	33	+ 1.44	3.66	−.05	3.61
	57	139	138		133
0	28	+0.695	+3.690		+ 3.665

0 = + 3.690 − .025 = + 3.665

0	26	+ 1.90	0 = + 3.79 − 00 = + 379
12	28	− 2.82	3.73 − 00 = 373

0 = +.10 + 1.21 n n = −.08
+.04 − 3.51 n +.01

n = −.035

Dec. 2

n = −.051

h = −.030
31

T		tang δ	T − R.A	n tang δ	−(ΔT + m)
22	1	+ 0.46	+ 2.96	− 02	+ 2.94
22	15	− 0.03	2.97	+ 00	297
22	19	+ 1.26	3.06	−.07	2.99
	35	169	899		20
22	12	+0.563	+2.997		+2.967

0 = +2.997 − .029 = +2.968

22 24 − 4.12 + 2.76 + 00 = + 276

0 = − 24 − 4.68 n n = −.051

Dec. 6

n = −.136

h = −.027
28

T		tang δ	T − R.A	n tang δ	−(ΔT + m)
22	19	+ 1.26	+ 0.28	−.17	+ 0.11
22	59	+ 0.26	0.16	−.04	0.12
0	56	+ 0.13	0.05	−.02	0.03
1	25	+ 0.26	0.11	−.04	0.07
1	30	+ 1.11	0.18	−.15	0.03
1	35	+ 0.09	0.08	−.01	0.07
23	224	311	86		+ 0.43
0	27	+0.518	+0.143		+0.072

0 = +0.143 − .070 = +0.073

22 24 − 4.12 − 0.44 − .05 = − 0.49

0 = −.63 − 4.64 n n = − .136

37

Dec. 12 1875

T h	T m	tang δ	T − R.A. s	n tang δ n = −.085	−(ΔT + m)
1	48	+0.37	0 = −3.77	−.03	−3.80
1	56	+0.89	3.59	−.08	3.67
2	0	+0.42	3.79	−.04	3.83
2	5	+1.21	3.69	−.10	3.79
2	10	+0.66	3.68	−.06	3.77
2	11	−0.12	3.76	+.01	3.75
2	13	−0.06	3.75	+.00	3.75
2	22	+0.14	3.70	−.01	3.71
2	32	+0.39	3.69	−.03	3.72
2	33	−0.00	3.80	+.00	3.80
2	36	+1.14	3.63	−.09	3.72
2	37	+0.05	3.72	−.00	3.72
2	43	+0.50	3.69	−.04	3.73
2	45	+1.29	3.55	−.11	3.66
2	56	+0.06	3.74	−01	3.75
3	00	+0.85	3.68	−.07	3.75
31	447	773 8	~~1063~~ 1123		72
2	24	+0.486	~~−3.664~~ −3.702		−3.745

0 = −3.702 −.041 = −3.743

h = −.010 d
1.8

1	53	+3.05 s	0 = −3.47 −.00 = −3.47
2	5	2.24	3.70 −.00 = 3.70
2	19	2.33	3.37 −.00 = 3.37
2	26	3.13	3.38 +.00 = 3.38
2	34	2.39	3.71 +.00 = 3.71
2	50	+5.10	3.39 +.00 = 3.39
14	57	−3.65	4.39 +.00 = 4.39

0 = +.23 + 2.56 n	n = −.09
+.00 + 1.75 n	−.00
+.33 + 1.84 n	−.18
+.32 + 2.64 n	−.12
−.01 + 1.90 n	+.01
+.31 + 4.61 n	−.07
−.69 − 4.14 n	−.17

n = −.085

Dec. 13

n = −.110

0	13	−0.17	−4.02	+.02	−4.00
0	24	−0.08	4.02	+.01	4.01
0	56	+0.13	4.01	−.01	4.02
1	30	+1.11	3.81	−.12	3.93
1	35	+0.09	4.01	−.01	4.02
1	48	+0.37	3.92	−.04	3.96
1	56	+0.89	3.83	−.10	3.93
4	262	234	2762		687
1	12	+0.336	−3.946		−3.981

0 = −3.946 −.036 = −3.982

h = −.023
17

12	28	−2.82	−4.28 −.02 = −4.30
1	33	+2.40	3.75 +.01 = 3.74
1	53	+3.05	3.63 +.02 = 3.61

0 = −.35 − 3.16 n	n = −.11
+.21 + 2.06 n	−.10
+.34 + 2.71 n	−.12

n = −.110

Dec 14

n = −.080

0	2	+0.54	−4.42	−.04	−4.46
0	4	+1.01	4.53	−.08	4.61
0	7	+0.26	4.48	−.02	4.50
0	13	−0.17	4.53	+.01	4.52
	26	164	196		209
0	7	+0.410	−4.490		−4.522

0 = −4.490 −.033 = −4.523

h = −.018
21

Dec 15

n = −.030

0	56	+0.13	−4.93	−.00	−4.93
1	3	+0.70	4.98	−.02	5.00
1	59	83	11		993
0	59	+0.415	−4.955		−4.965

0 = −4.955 −.012 = −4.967

h = −.020
19

1	13	+4.236	−2.08 +.00 = −2.08
1	17	+2.41	4.97 +.00 = 4.97

0 = +2.87 + 41.95 n	n = −.07
−.02 + 2.00 n	+.01

n = −.030

Dec 18

n = -.050

h = .019

T		tang δ	T − R.A.	n tang δ	−(ΔT + m)
h	m				
0	2	+0.54	0 = − 6.38	−.03	− 6.41
0	4	+ 1.01	6.37	−.05	6.42
0	7	+ 0.26	6.36	−.01	6.37
	13	181	21		0
0	4	+0.603	− 6.370		− 6.400

0 = − 6.370 −.030 = − 6.400

Sept 28

h = +.03

n = −.492

19	26	+ 0.53	0 = +39.69	−.26	+39.43
19	45	+ 0.15	39.55	−.06	39.49
19	46	+ 0.01	39.52	−.00	39.52
19	49	+ 0.11	39.58	−.05	39.53
	166	80	234		197
19	41	+ 0.20	+39.585		39.492

0 = +39.585 −.098 = − 39.487

19	13	+2.40	0 = +40.54
19	18	+3.29	+41.12
19	29	+5.32	+42.37
19	49	+53.78	+65.84

0 = +0.96 +2.20 n n = −.44

+1.54 +3.09 n −.50

+2.79 +5.12 n −.54

+26.26 +53.58 n −.49

n = −.492