KG
11366
v.678

Instrumental Constants
Clock Errors
from Oct. 9 1883 to

Reduction of Fundamental Stars
for
Revision of Zone.

2

1883phae.proj.1682.

Oct. 9, 1883.

12h c = .00
18 c = −.03
22 = −.05

− h′ = +.022 − h′ = +.019

66.07

14.92

m	δ		T − RA	Tan. δ sec δ		c sec δ	T − RA + c sec δ				
12.8 48	+56.6	0 = +	65.25	+ 1.52	+2.5	−00	+65.25	+.82	+66.07	+.10	+66.17
13.7 42	+49.9	+	65.50	1.19	1.6	−00	65.50	+.64	.14	+.08	.22
14.2 10	+19.8		65.93	0.36	1.1	−01	65.92	+.19	.11	+07	.18
16.4 22	+61.8		64.82	1.86	2.1	−02	+1 64.99	+1.00	65.99	+.03	.02
17.5 28	+52.4		65.37	1.30	1.6	−03	65.34	+.70	66.04	+.01	.05
17.9 54	+51.5		65.52	1.26	1.6	−05	65.47	+.68	.15	−.00	.15
18.5 32	+38.7		65.75	0.80	13	−04	65.71	+.43	.14	−.01	.13
22.3 19	+51.7		5.56	1.27	1.6	−08	5.48	+.68	.16	−.08	.08
22.4 26	+49.7		5.~~58~~67	1.18	1.5	−07	5.60	+.64	.24	−.08	.16
22.6 34	+38.4		5.~~92~~82	+ 0.79	1.3	−06	5.76	+.43	.19	−.09	.10
17.83				+1.15			+65.48 50		66.18		+66.126

20.74

18.2 + 16.83 + 57.32 − .01 + 57.31
13.3 − 43.71 + 90.00 + .10 + 90.10

n	m	δ		tan δ sec δ			
18.2	10	+ 86.6	0 = + 57.82	+16.83	+168	−.50	+57.32
13.3	18	+ 88.7 L.C.	0 = + ~~29.80~~ 90.00	−43.71	−43.7	+00	+ ~~30.00~~ 90.00

0 = + 15.68 − 8.18
− 4.86 + 24.60

n = +.52
+.55
+.54

Oct. 10

14h = −.06
15 = −.05
16 −.03
17 −.01
18 = +.00

19h = −.01
20 = −.02
21 = −.04
22 = −.05

− h′ = +.017 − h′ = +.017

+5.91

17.08

13.7 43	+ 49.9	0 = +	5.49	+ 1.19	+1.6	−10	+5.39	+.56	+5.95	+.08	+ 6.03
17.9 54	+ 51.5		5.39	1.26	1.6	+00	5.39	+.59	98	+.01	5.99
18.3 15	− 2.9		5.94	−0.05	1.0	+00	5.94	−.02	92	+.01	5.93
18.4 22	+ 58.7		~~4.75~~ 5.01	1.64	1.9	+00	~~4.75~~ 5.01	+.77	78	+.00	5.78
18.5 33	+ 38.7		5.67	0.80	1.3	−01	5.66	+.38	6.04	−.00	6.04
19.4 25	+ 27.7		5.68	0.53	1.1	−01	5.67	+.25	5.92	−.01	5.91
21.1 8	+ 29.7		5.69	0.57	1.1	−04	5.65	+.27	.92	−.04	5.88
21.3 16	+ 62.1		5.17	+ 1.89	2.1	−.08	5.09	+.89	.98	−.05	5.93
18.58				+0.98			+5.448		+5.96		+5.936

20.08

20.9 + 6.11 + 3.63 − .04 + 3.59
21.4 + 2.75 + 4.62 − .04 + 4.58
13.3 − 43.71 + 28.54 + .09 + 28.63

20.9 53	+ 80.7	0 = + ~~4.39~~ 3.88	+6.11	+62	−.25	+ ~~4.14~~ 3.63
21.4 27	+ 70.0	0 = + 4.78 4	+2.75	+29	−12	+ 4.62
13.3 18	+ 88.7 L.C.	+25.92	−43.71	−43.7	+262	+28.54

0 = + 5.13 − 1.89
+ 1.77 − 0.90
− 44.69 + 23.15

n = +.37
+.51
+.52
+.47

Oct. 11

17h c = −.05
18 = −.06
19 = −.07
20 = −.08
22 = −.08

− h′ = +.040 − h′ = +.040

+5.79

17.97

17.5 28	+52.4	0 = +	5.21	+ 1.30	+1.6	−08	+5.13	+.61	+5.74	+.10	+ .584
17.9 54	+51.5		5.34	1.26	1.6	−10	5.24	+59	.83	+.08	.91
18.5 33	+38.7		5.49	0.80	1.2	−08	5.41	+38	.79	+.06	.85
22.3 19	+51.7		5.44	1.27	1.6	−13	5.31	+60	.91	−09	.82
22.4 26	+49.7		5.58	1.18	1.5	−12	5.46	+.55	6.01	−.10	.91
22.6 34	+38.4		5.72	+ 0.79	1.3	−10	5.62	+.37	5.99	−.10	.89
20.08 2				+1.10			+5.36		+5.97		+5.870

22.43

18.2 + 16.83 + 33.01 + .07 + 33.08

18.2	10	+86.6	0 = ~~+ 34.01~~ −1.01	+16.83	+168	−.10	~~+33.01~~ −2.01
~~13~~	~~18~~						

0 = + 15.73 − 7.37 n = +.47

Oct. 15

13h c = −.04
18 c = +.02
19 +.01
20 +.00
21 −.01
22 −.02

− h′ = −.003 − h′ = −.003

+4.90

16.10

13.7 43	+ 49.9	0 = +	4.46	+ 1.19	+1.6	−06	+4.40	+.59	+4.99	−.02	+4.97
18.5 33	+ 38.7		4.39	0.80	1.3	+01	4.40	+.40	.80	−00	.80
22.3 18	+ 51.7		4.27	1.27	1.6	−03	4.24	+.64	.88	+01	.89
22.4 26	+ 49.7		4.3~~2~~6	1.18	1.5	−03	4.33	+59	.92	+01	.93
22.6 37	+ 29.6		4.58	+ 0.57	1.1	−02	4.56	+28	.84	+01	.85
19.90				+1.00			+4.39		+4.88		+4.888

22.43

~~18.4 23 + 72.7 0 = + 12.76 + 3.21 + 33 + 07 + 12.63~~ −3.54 (−3.47)

n = +.50

Oct. 16

13h c = −.06
18 +.00
20 −.02
22 −.04

− h′ = +.016 − h′ = +.015

+4.54

16.45

22.6 34	+ 38.4	0 +	4.24	+ 0.79	+1.3	−05	+4.19	+.42	+4.61	−04	+4.57
13.7 43	+ 49.9	0 = +	4.01	1.19	1.6	−10	3.91	+.63	.54	+.08	.62
14.2 11	+ 19.8		4.40	0.36	1.1	−07	4.33	+.19	.52	+07	.59
18.5 33	+ 38.7		4.09	0.80	1.3	+00	4.09	+.42	.51	+01	.52
19.4 26	+ 27.7		4.34	0.53	1.1	−01	4.33	+28	.61	−00	.61
19.6 33	+ 49.9		3.97	1.19	1.6	−02	3.95	+.63	.58	−01	.57
22.3 19	+ 51.7		4.13	1.27	1.6	−06	4.07	+.67	.74	−05	.69
22.4 26	+ 49.7		3.98	+ 1.18	1.5	−06	3.92	+.63	.55	−05	.50
19.09				+0.91			+4.10		+4.62		+4.584

21.72

18.4 + 3.21 + 2.83 + .01 + 2.84
13.3 − 43.73 + 28.20 + .09 + 28.29

18.4	23	+ 72.7	0 = + 2.83	+3.21	+33	+00	+2.83
13.3	18	+ 88.7 L.C.	+25.58	−43.73	−43.7	+262	+28.20

0 = + 2.30 − 1.26
− 44.64 + 24.19

n = +.55
+.52
+.53

18h c = +.00   9.8 c = +00
22 -.04   12.0 +.06
-h' = -.009   -h' = -.005
+3.95

Oct. 17 1883

1895 h m   δ₀   Π-R.A   tan δ sec δ   c sec δ   Π-R.A + c sec δ   h m   tan δ sec δ

5736 3000

18.5 33 | + 38.7 | 0 = + | 3.45 | + 0.80 +1.3 +00 +3.45 +39 +3.84 -01 +3.83 | 21.8 51 | +73.1 | 0 = + 2.32 +3.29 +34 -14 +2.18
19.4 26 | + 27.7 | | 3.81 | 0.53 1.3 -01 3.80 +26 4.06 -00 4.06 | ~~22.5 30~~ | ~~+75.6~~ | ~~+ 1.13 +3.89 +40 -16 +0.96~~
19.6 33 | + 49.9 | | 3.50 | 1.19 1.6 -02 3.48 +58 4.06 -.00 4.06 | 21.3 20 | + 98.2 | + 6.61 -6.94 -7.0 +21 +6.82
[20.8 49] | + 27.6 | | 4.02 | [0.52] 1.1 -02 [4.00] +25 (4.25) +00 (4.25) | 22.9 56 | +117.6 | + 4.51 -1.91 -22 +09 +4.60
21.1 8 | + 29.8 | | 3.69 | 0.57 1.2 -04 3.65 +28 3.93 +00 3.93 | 13.3 18 | +88.7 L.C. | + 31.22 -43.73 -4.37 -2.62 +28.60
22.8 45 | + 65.6 | | 2.84 | + 2.20 2.4 -10 2.74 +108 3.82 +01 3.83
20.28   + ~~4.94~~ +1.06   +3.52 .42   +3.94   +3.942

21.17

21.8 + 3.29 +2.18 +01 +2.19
~~22.5 + 3.89 +0.96 +02 +0.98~~
21.3 - 6.94 +6.82 +01 +6.83
22.9 - 1.91 +4.60 +02 +4.62
13.3 - 43.73 +28.60 -.06 +28.74

0 = +2.23 - 1.25   n = +.56
~~+2.83 - 2.44   (+.86)~~
-8.00 + 3.41   +.43
-2.97 + 1.20   +.40
-44.79 +25.32   +.57
+.49

13.7 c = -13
19 -06
21 -08
23 -11
-h' = +.005   -h' = +.005
+3.61

Oct. 18

16.45

13.7 43 | + 49.9 | 0 = + | 3.12 | + 1.19 +1.6 -19 +2.93 +.75 +3.68 +02 +3.70 | ~~19.2 12~~ | ~~+67.5~~ | ~~0 = + 0.44 +2.41 +26 -16 +0.28~~
19.2 14 | + 53.2 | | 2.81 | 1.34 1.7 -10 2.71 +84 .55 -00 .55 | 13.3 18 | +88.7 L.C. | + 25.32 -43.73 -4.37 +5.68 +31.00
19.4 27 | + 51.5 | | 2.89 | 1.26 1.6 -10 2.79 +.79 .58 -00 .58
19.6 33 | + 49.9 | | 2.97 | 1.19 1.6 -10 2.87 +.75 .62 -00 .62
22.9 56 | + 41.7 | | 3.28 | + 0.89 1.3 -14 3.14 +.56 .70 -02 .68
18.96   +1.17   +2.89   +3.63   +3.626

~~3.63~~
~~4.14~~
4.62
28.54

20.63

~~19.2 + 2.41 +0.28 +.00 +0.28~~
13.3 - 43.73 +31.00 +03 +31.03

~~0 = +1.24 - 2.61   n = +~~
-44.90 +28.14   +.63

-h' = +.012   -h' = +.012

18h c = +.00   10.8 c = +.01
20 -.03   13.7 -.02
22 -.06   13.9 -.03

Oct. 22

+2.35

1883

18.5 33 | + 38.7 | 0 = + | 1.83 | + 0.80 +1.3 +00 +1.83 +.46 +2.29 +.02 +2.31 | 19.2 12 | + 67.5 | 0 = + ~~0.99~~ 1.00 +2.41 +26 -13 +0.97
18.8 51 | + 43.8 | | 1.84 | 0.96 1.4 -01 1.83 +.56 .39 +.02 .41 | 13.3 18 | + 88.7 L.C. | + 27.06 -43.75 -4.37 +.87 +27.93
19.2 14 | + 53.1 | | 1.64 | 1.33 1.7 -03 1.61 +.77 .38 +.01 .39
19.6 33 | + 49.9 | | 1.81 | 1.19 1.6 -03 1.78 +.69 .47 +01 .48
19.4 26 | + 27.7 | | 2.22 | 0.53 1.3 -02 2.20 +.31 .51 -01 .50
22.9 56 | + 41.7 | | 1.87 | 0.89 1.3 -08 1.79 +.52 .31 -03 .28
23.1 7 | + 56.5 | | 1.44 | + 1.51 1.8 -11 1.33 +.88 .21 -03 .18
20.21   +1.03   +1.77   +2.38   +2.364

2.01
~~3.01~~

21.25

19.2 +2.41 +0.97 +.01 +0.97
13.3 -43.75 +27.93 +07 +28.00

0 = +1.38 - 0.80   n = +.58
-44.78 +26.23   +.59
+.58

14.4h c = -.06
19h c = +.00
21 = -.03
23 = -.05
-h' = +.030   -h' = +.029
-0.29

Oct. 30

19.50

19.4 26 | + 27.7 | 0 = ~~+~~ - | 0.56 | + 0.53 +1.1 -00 -0.56 +28 -0.28 +.09 -0.19 | 0.6 38 | + 74.3 | 0 = -1.75 +3.56 +3.7 -18 -1.93
19.6 33 | + 49.9 | | 0.90 | 1.19 1.6 -02 0.92 +.62 .30 +08 .22 | 13.3 18 | + 88.7 L.C. | + 22.26 -43.77 -4.38 +2.63 +24.89
0.1 3 | + 58.5 | | 0.87 | 1.63 1.9 -09 0.96 +.85 .11 -05 .16
~~0 26~~ | ~~+ 62.3~~ | | | ~~1.90~~
0.5 30 | + 53.2 | | 0.80 | 1.34 1.7 -08 0.88 +.70 .18 -06 .24
0.6 33 | + 55.9 | | 0.83 | + 1.48 1.8 -09 0.92 +.77 .15 -06 .21
22.44   +1.23   -0.85   -0.15   -0.204

3.47
~~2.83~~

0+40

0.6 +3.56 -1.93 -07 -2.00
13.3 -43.77 +24.89 +28 +25.17

0 = +2.33 - 1.15   n = +.49
-45.00 +26.02   +.57
+.52

14.4 +.00
~~Nov.~~ 19 c = +.00
21 -.02
23 -.04
-h' = +.011   -h' = ~~+.014~~ 020
-0.65

~~Oct.~~ Nov. 1

1960

19.6 33 | + 49.9 | 0 = - | 1.34 | + 1.19 +1.6 -02 -1.34 + .69 0.65 +.03 -0.62 | ~~23.1 42~~ | ~~+67.2~~ | ~~0 = -1.71 +2.38 +26 -10 -1.81~~
22.4 26 | + 45.7 | | 1.19 | 1.02 18 1.4 -05 1.24 +.68 .56 -01 .57 | 23.8 49 | + 73.7 | - 2.58 +3.42 +36 -14 -2.72
0.1 3 | + 58.5 | | 1.47 | + 1.63 1.9 -08 1.55 +.95 .60 -.04 .64 | 13.3 18 | + 88.7 L.C. | + 21.44 -43.78 -4.38 +00 +21.44
~~0 26~~ | ~~+ 62.3~~ | | | ~~+1.28~~ 1.33   -1.38
[23.7 42] | + 67.2 | | - 1.71 | + 2.38 2.6 -10 -03 -1.84] +1.38 (.46) +02 (.44)
22.03   -0.60   ~~-0.617~~ -0.603

283
8.20

+23.25

23.8 +3.42 -2.72 -02 -2.74
13.3 -43.78 +21.44 +09 +21.53

0 = +2.09 - 1.36   n = +.65
-45.06 +22.91   +.58 1
~~+.60~~
+.58

Nov 5 1883

19h c = +00
21 −02
23 −04

115 c = +00
136 c = −06

−h' = −.013
−h' = −.013
−2.16

2115

h m	δ	Ⅱ−RA	tanδ secδ	c secδ		Ⅱ−RA +c secδ					
19.4 26	+27.7	0 = −2.36	+0.53	+1.1	+.00	−2.36	+.25	−2.11	−.03	−2.14	
19.6 33	+49.9	2.66	1.19	1.6	+00	2.66	+.567	09	−.03	.12	
19.9 52	+52.1	2.71	1.28	1.6	−.02	2.73	+.601	.12	−.03	.15	
0.3 33	+58.5	3.08	1.63	1.9	−.04	3.12	+.778	.34	+03	.31	
~~0.2 26~~	~~+62.3~~		~~+.90~~								
0 30	+53.2	2.73	1.34	1.7	−07	2.80	+.634	.16	+03	.13	
0.6 33	55.9	2.91	1.48	1.8	−07	298	+.701	.27	+03	24	
22.02			+1.24			−2.77		−2.21		−2.182	

0.55

19.8 + 2.75 − 3.46 + 03 − 3.439
20.0 − 2.58 − 1.11 + 03 − 1.0814
13.3 − 43.80 + 21.60 + 20 + 21.40 80

h	m		tanδ secδ		c secδ	Ⅱ−RA +c secδ	
19.8	48	+ 70.0	0 = − 3.43 + 2.75 + 2.9		− 03	− 3.46	
20.0	1	+ 111.2	− 1.14 − 2.58 + 2.7		+ 03	− 1.11	
~~0~~	~~9~~	~~+ 76.3~~	~~− 43.80~~				
13.3	18	88.7	+ 18.97 − 43.80 − 4.38		+ 2.63	+ 21.60	

0 = + 1.51 − 0.6672
− 3.82 + 1.683
− 45.04 + 24.47 57

n = + .447
+ .443
+ .54
+ .478

Nov. 6

14h c = −06
22 c = −03
0 −05
2 −07

h' = −.038 h' = −.033

2230

−2.18

22.1 6	+ 57.6	0 = − 3.53	+ 1.58	+ 1.9	− 06	− 3.59	+ 1.11	(− 2.48)	− (07)	− (2.55)	
22.3 19	+ 51.6	3.01	1.26	1.6	− 05	306	+ .88	− 2.18	− 06	− 2.24	
0.1 3	+ 58.5	3.25	1.63	1.9	− .09	334	+ 1.14	.20	+ .01	.19	
0.5 30	+ 53.3	3.13	1.34	1.7	− 09	322	+ .94	.28	+ 02	.26	
0.6 33	+ 55.9	3.21	1.48	1.8	− .09	330	+ 1.04	.26	+ 02	.24	
23.88			+ 1.463			− 3.30 23		− 2.25		− 2.252 32	

0.40

13.3 − 43.80 + 27.92 + 51 + 28.43

~~0 26 + 62.3~~ 0 = ~~1.90~~
13.3 18 88.7 + 25.23 − 43.80 − 4.38 + 2.69 + 27.92

0 = − 45.23 + 31.66 n = + .70

− h' = − .005 h' = − .005

Nov. 7

19h c = + 01
21 − 02
23 − 05
0 − 05

{c 122 c = + 00
136 = − 07}

− 2.91

−20.00

19.6 33	+ 49.9	0 = − 3.51	+ 1.19	+ 1.6	− 02	− 3.56	+ 61	− 2.92	− 01	− 2.93	
19.9 52	+ 52.1	3.62	1.28	1.6	− 02	3.64	+ .65	.99	− 01	3.00	
20.2 10	+ 46.4	3.43	1.05	1.4	− 01	3.44	+ .54	.90	− 01	2.91	
20.3 18	+ 39.9	3.22	0.84	1.6	− 03	3.25	+ .43	.82	− 01	2.83	
23.3 20	+ 61.6	3.69	1.85	2.1	− 10	3.79	+ 94	.85	+ 01	2.84	
0.6 38	+ 47.6	3.36	1.09	1.5	− .07	3.43	+ .56	2.87	+ 01	2.86	
0.8 50	+ 60.51	3.85	1.774	2.0	− .12	3.97 4.06	+ .89	3.08	+ 02	3.06	
21.81			+ 1.29			− 3.578		− 2.93		− 2.919	

−0.23

19.8 + 2.75 − 4.41 − .01 − 4.42
20.2 + 4.44 − 5.15 − 01 − 5.16
1.3 + 43.80 − 23.88 + 02 − 23.86
13.3 − 43.80 + 22.81 + 08 + 22.89

19.8	48	+ 69.9	0 = − 4.38 + 2.75 + 2.9		− 03	− 4.41	
20.2	12	+ 77.3	5.10 + 4.44 + 4.6		− 05	− 5.15	
1.3	18	+ 88.7	− 21.19 + 43.80 + 4.38		− 2.69	− 23.88	
13.3	18	88.7	+ 19.74 − 43.80 − 4.38		+ 3.07	+ 22.81	

0 = + 1.46 − 0.84
+ 3.15 − 1.58
+ 42.51 − 20.28
− 45.09 26.46

n = + .57
+ .50
+ .48
+ .58
+ .51

19h c = − .03
21 − 05
23 − 07
1 − .09 h = − .018 h' = − .018

Nov. 8

19.6 33	+ 49.9	0 = − 3.69	+ 1.19	+ 1.6	− 05	− 3.74	+ .81	− 2.93	− 01	− 2.94	
19.7 41	+ 44.8	3.70	0.99	1.4	− .06	3.76	+ .67	3.09	− 00	3.09	
19.9 52	+ 52.1	3.79	1.28	1.6	− 06	3.85	+ .87	2.98	− 00	2.98	
20.2 10	+ 46.4	3.70	1.05	1.4	− 06	3.76	+ .71	3.05	+ 01	3.04	
20.3 18	+ 39.9	3.41	0.84	1.3	− 05	3.46	+ .57	289	+ .01	288	
19.94			+ 1.07			− 3.69				− 2.986	

19.8 + 2.75 − 4.83 .00 − 4.83

19.8 48 + 70.0 0 = − 4.71 + 2.75 + 2.9 − .12 − 4.83
~~− 43.82~~

0 = + 1.68 − 1.14 n = + .68

Nov. 12

20 c = 00 h = − .049 h' = − .047
22 − 03
0 − 05 − 4.52 for (ΔⅡ + m) for zone 5h see p 59

21.15

20.6 37	+ 44.9	0 = − 5.09	+ 1.00	+ 1.4	− .01	− 5.10	+ .53	− 4.58	− .18	− 4.76	
(21.0) 2	+ 38.2	4.78	0.79	1.3	− 03	4.81	+ 42	(39)	− 17	(56)	
21.7 42	+ 48.8	5.03	1.14	1.5	− 03	5.06	+ .60	.46	− 15	.61	
0.6 38	+ 47.6	5.13	1.09	1.5	− 07	5.20	+ .58	.62	− 02	.64	
1.1 3	+ 35.0	4.95	0.70	1.2	− 07	5.02	+ .37	.65	+ 00	.65	
1.3 18	+ 59.6	5.74	1.70	2.0	− 12	5.86	+ .90	.84	+ 01	.83	
23.46		61	+ 1.0713			− 5.17 23		− 4.70		− 4.698	

1.00

20.5 + 3.10 − 6.08 ~~+ 03~~ −.15 − ~~6.05~~ 6.23
21.1 + 4.55 − 6.99 ~~+ 02~~ −.12 − ~~6.97~~ 7.11

20.5	30	+ 72.1	0 = − 6.04 + 3.10 + 3.5		− 04	− 6.08	
21.1	7	+ 77.6	− 6.90 + 4.55 + 4.6		− .09	− 6.99	
			− 43.82				

0 = + 1.97 − ~~0.82~~ 1.00
+ 3.42 − 1.74 88

n = ~~+ .42~~ + .51
~~+ .51~~ .55
~~+ .46~~ + .53

20h c = +.00
22 -.03
0 -.05
2 -.06

127 c = +.00
h = +.043 h' = +.045
-5.04

Nov. 14. 1883

20.43

h m δ ° π R.A. tan δ ... tan δ sec δ

20.3 18 + 39.9 0 = - 5.58 + 0.84 + 1.3 - 00 - 5.58 + 49 - 5.09 + .11 - 4.98
20.4 27 + 62.6 6.14 1.93 2.2 - 02 6.16 + 112 5.04 + 11 .93
20.6 37 + 44.9 5.55 1.00 1.4 - 01 5.56 + 58 4.98 + 10 .88
21.7 42 + 48.8 5.23 1.14 1.5 - 04 5.27 + 66 (61) + (05) (56)
23.5 32 + 42.6 5.20 0.92 1.4 - 06 5.26 + 53 4.73 - 03 .76
0.6 38 + 47.6 5.33 1.10 1.5 - 08 5.41 + 64 4.77 - 08 .85
1.1 3 + 35.0 5.23 0.70 1.2 - 07 5.30 + 41 4.89 - 10 .99
1.3 18 + 59.6 5.88 1.70 2.0 - 12 6.00 + 99 5.01 - 11 5.12

22.83 +1.17 -5.57 61 -4.85 -4.930

0.62

20.2 + 4.44 - 7.56 + 01 - 7.55 45
1.3 + 43.82 - 27.68 - 01 - 27.69 .79
13.3 - 43.82 + 24.59 - 06 62 + 24.53 28.97

20.2 13 + 77.3 0 = - 7.46 56 + 4.44 + 46 - 00 - 7.56
1.3 17 + 88.7 - 24.99 + 43.82 + 438 - 269 - 27.68
13.3 18 88.7 + 24.59 - 43.82 - 43.8 + 0.0 + 24.59

0 = + 3.27 - 1.94 8
+ 42.65 - 22.08
- 44.99 + 30.14 29.58

n = + .596
+ .572
+ .676
+ .598

139 c = +00
20h c = +0.00
22 -.03
0 -.04
1 -.05

Nov 17

h = -.028 h' = -.028
-6.20

21.05

20.6 37 + 44.9 0 = - 6.95 + 1.00 + 1.4 - 00 - 6.95 + 68 - 6.27 - .06 - 6.33
20.9 53 + 40.7 6.79 0.86 1.3 - 01 6.80 + 58 22 - .06 .28
21.0 1 + 38.2 6.63 0.79 1.3 - 03 6.66 + 54 12 - .05 .17
21.7 42 + 48.8 6.92 1.14 1.5 - 04 6.96 + 78 .18 - 03 .21
0.1 3 + 58.5 7.34 1.63 1.9 - 08 7.42 + 111 .31 + 03 .28
0.6 38 + 47.6 6.89 1.10 1.5 - 06 6.95 + 75 .20 + 05 .15
1.0 3 + 35.0 6.69 0.70 1.2 - 06 6.75 + 48 .27 + 06 .21
1.3 18 + 59.6 7.48 + 1.70 2.0 - 10 7.58 + 116 .42 + 07 .35

22.90 +1.11 -7.01 -6.30 -6.248

0.75

21.1 + 4.55 - 9.34 - 05 - 9.39
1.3 + 43.83 - 34.01 + 07 - 33.94
13.3 - 43.83 + 26.44 - 40 + 26.04

21.1 8 + 77.6 0 = - 9.29 + 4.55 + 4.6 - .05 - 9.34
1.3 17 88.7 - 31.82 + 43.83 + 438 - 219 - 34.01
13.3 18 88.7 + 26.44 - 43.83 - 43.8 + 0.0 + 26.44

0 = + 3.44 - 2.38
+ 42.72 - 26.93
- 44.94 + 33.05

n = + .69
+ .63
+ .73
+ .68

20h c = +.00
22 -.02
20 -.04
1 -.05

Nov 21

h = +.061 h' = +.060
-8.71

20.82

20.7 41 + 33.5 0 = - 9.26 + 0.66 + 1.2 - 01 - 9.27 + 46 - 8.81 + 10 - 8.71
20.7 43 + 61.4 9.98 1.83 2.1 - 02 10.00 + 128 .72 + 10 .62
20.9 53 + 40.7 9.26 0.86 1.3 - 01 9.27 + 60 67 + 08 59
21.0 1 + 38.2 9.17 0.79 1.3 - 01 9.18 + 55 63 + 08 55
(22.0 1 + 62.2 9.50 1.90 2.2 - 04 9.54 + 133 (21 + 02 .19
22.1 7 + 57.6 9.36 1.58 1.9 - 04 9.40 + 111 29) + 01 28)
0.1 3 + 58.5 9.49 1.63 1.9 - 08 9.57 + 114 43 - 10 .54
0.5 30 + 53.2 9.40 1.34 1.7 - 07 9.47 + 94 .53 - 13 .66
0.6 34 + 55.9 9.50 + 1.48 1.8 - 07 9.57 + 104 .53 - 14 .67

22.34 +1.34 23 -9.47 8 -8.50 -8.620

0.40

13.3 + 43.85 - 39.62 + 55 - 39.07 -40.17

1.3 17 88.7 0 = - 37.43 + 43.85 + 438 - 219 - 39.62

0 = + 42.62 - ~~29.59~~ 36.69

n = + .70

16h c = -.02
205 c = +.00
220 -.03
230 -.04

Nov 22

h = -.025 h' = -.025

n = + .66

22.3 19 + 51.6 0 = - 9.89 + 1.26 + 1.6 - 05 - 9.94 + 83 - 9.11 00 - 9.11
22.6 34 + 38.4 9.58 + 0.79 1.3 - 04 9.62 + 52 .10 00 .10

22.45 +1.02 -9.78 -9.105

16h c = -.03
21 +.00
23 -.02
1 -.04
2 -.04

130 c = +.03
135 = -.02

Nov 27

h = -.066 h' = -.066
-12.01

21.40

21.0 1 + 38.2 0 = - 12.53 + 0.79 + 1.3 - 00 - 12.53 + 49 - 12.04 - .20 - 12.24
21.5 32 + 39.9 12.51 0.84 1.3 - 00 12.51 + 52 11.99 - 17 .16
21.7 42 + 48.8 12.70 1.14 1.5 - 01 12.71 + .71 12.00 - 15 .15
1.8 46 + 63.1 13.42 1.97 2.2 - 09 13.51 + 122 12.28 + 12 .17
1.9 57 + 41.8 12.81 0.89 1.3 - 05 12.86 + .55 12.31 + 13 .18
2.0 0 + 22.9 12.50 0.42 1.1 - 04 12.54 + .26 12.28 + 13 15
2.0 2 + 34.4 12.72 0.68 1.2 - 05 12.77 + .42 12.35 + 13 .22

23.99 +0.97 -12.78 -12.301 -12.199
12.181

1.92

21.1 + 4.55 - 14.92 - 11 - 14.81
1.9 + 3.04 - 14.30 + .13 - 14.17
1.3 + 43.86 - 33.41 + 09 - 33.32
13.3 - 43.86 + 19.98 + 70 + 20.68

21.1 8 + 77.6 0 = - 14.92 + 4.55 + 46 - .00 - 14.92
1.9 53 + 71.8 14.17 + 3.04 + 3.2 - .13 - 14.30
1.3 17 88.7 - 31.65 + 43.86 + 439 - 176 - 33.41
13.3 17 88.7 + 19.10 - 43.86 - 439 + 0.88 + 19.96

0 = + 3.58 - 2.03
+ 2.07 - 1.39
+ 42.89 - 20.54
- 44.83 + 33.46

n = + .57
+ .67
+ .48
+ .74
+ .62

6

16h c = −.03
20.3 = +.03
22.0 = +.00
0 = −.03 −12.59
2 = −.04
~~13.0 c = +.02~~
13.5 = +.01
h' = −.020

Nov 28 1883 h = −.017

21.1

h m | δ 0 | T. RA. tan δ sec δ

21.5 32 +39.9 0 = −13.15 +0.84 +1.3 +03 −13.12 +.50 −12.62 −.05 −12.67
21.7 42 +48.8 13.23 1.14 1.5 +01 13.22 +.68 .54 −04 58
2[illegible] 26 +49.7 13.31 1.18 1.5 +00 13.31 +.71 .60 −03 63
0.[illegible] 38 +47.6 13.22 1.10 1.5 −04 13.26 +.66 .60 +01 59
1.3 3 +35.0 13.11 0.70 1.2 −04 13.15 +.42 .73 +02 71
1.[illegible] 46 +63.1 13.79 1.97 2.2 −09 13.88 +1.18 .70 +04 66
1.[illegible] 57 +41.8 13.10 +0.89 1.3 −05 13.15 +.53 .62 +04 58
23.86 +1.12 −13.30 −12.66 −12.63
1.35

21.1 +4.55 −15.40 −04 −15.44
1.9 +3.04 −14.38 +04 −14.34
1.3 +43.86 −37.06 +03 −37.03
13.3 −43.86 +18.40 +24 +18.64

tan δ sec δ
21.1 8 +77.6 0 = −15.49 +4.55 +46 +.09 −15.40
1.9 53 +71.8 14.25 +3.04 +33 −.13 −14.38
1.3 17 88.7 −35.30 +43.86 +4.39 −1.76 −37.06
13.3 17 88.7 +18.84 −43.86 −4.39 +0.44 +18.40

0 = +3.43 −2.14 n = +.62
+1.92 −1.04 +.54
+42.74 −23.73 +.55
−44.98 +31.94 +.71
+.60

135 c = −.04
18.0 c = −.20
20.0 −.02
22.0 −.04
0.0 −.05
2.7 −.07
−15.10
h' = −.046

Dec 3 h = −.046

21.60

21.5 32 +39.9 0 = −15.84 +0.84 +1.3 −04 −15.68 +.68 −15.08 −.15 −15.20
21.7 42 +48.8 15.96 1.14 1.5 −06 16.02 +.86 .16 −14 .30
(22.0 1 +62.2 16.30 [1.90] 2.1 −08 [16.38] +1.92 [14.96] (−12 .08]
22.3 18) +51.6 15.96 [1.26] 1.6 −06 16.02 +.94 15.08] −11) .19]
1.1 3 +35.0 15.73 0.70 1.2 −07 15.80 +.52 .28 +.01 .27
2.0 2 +34.4 15.71 0.68 1.2 −07 15.78 +.51 .27 +.05 .22
2.1 5 +66.0 16.80 2.25 2.5 −15 16.95 +1.69 .26 +06 .20
2.6 36 +48.7 16.14 1.14 1.5 −10 16.24 +.86 .38 +08 .30
2.8 46 +52.3 16.24 +1.29 1.6 −11 16.35 +.97 .38 +09 .29
0.83 +1.24 15 −16.183 −15.31 −15.254
2.12

21.4 +2.76 −17.24 −~~08~~ 16 −17.~~32~~40
1.3 +43.88 −42.88 +0~~1~~2 −42.8~~7~~6
13.3 −43.88 +20.75 +~~30~~ 58 +~~21.05~~ 21.33

21.4 27 +70.1 0 = −17.15 +2.76 +30 −.09 −17.24
1.3 17 88.7 −40.25 +43.88 +4.39 −2.63 −42.88
13.3 17 88.7 +18.99 −43.88 −4.39 +1.76 +20.75

0 = +1.61 −1.19 27 n = +.74 8
+42.73 −26.74 3 +.63
−45.03 +37.18 46 +.82 3
+.72 5

18.0 c = −.04
22.5 +.00
23.5 −.02 h' = −.038

Dec 4 h = −.036

(21.7 42 +48.8 0 = −16.43 +1.14 +15 −.01 −16.44] +.80 (−15.64)
22.0 1 +62.2 16.60 1.90 2.1 −01 16.61 +1.33 −15.28 −01 −15.29
22.3 19 +51.6 16.20 1.26 16 +00 16.20 +.88 .32 00 .32
(22.4 26 +49.7 25.85 ~~(1.18) 15 +00 (25.85)~~ +83 (25.02)
22.6 34 +38.4 15.85 +0.79 1.3 +00 15.85 +.55 .30 +.01 .29
22.30 ~~+4.27~~ 1.32 −16.282 −15.300

n = +.70

13.5 c = +.00
23 c = .00
1.5 −.02
3.5 −.04 h' = −.053
−16.97

Dec 6 h = −.042

22.87

22.6 37 +29.6 0 = −17.46 +0.57 +1.1 −00 −17.46 +.37 −17.09 −.12 −17.31 21
22.9 56 +41.7 17.54 0.89 1.3 −00 17.54 +.58 16.96 −.11 .07
23.1 7 +56.5 17.91 1.51 1.8 −00 17.91 +.98 16.93 −09 .02
1.6 36 +50.1 17.92 1.20 1.6 −03 17.95 +.78 17.17 +04 .13
2.6 36 +48.7 17.88 1.14 1.5 −04 17.92 +.74 17.18 +09 .09
2.7 43 +26.8 17.29 0.51 1.1 −03 17.32 +.33 16.99 +.10 16.89
2.8 45 +52.3 18.10 +1.29 1.6 −05 18.15 +.84 17.31 +10 17.20
0.90 +1.02 −17.75 −17.16 −17.101 .087
2.42

23.1 +3.66 −19.34 −08 −19.42
1.3 +43.88 −42.30 +.02 −42.28
13.3 −43.88 +15.13 +52 +15.65

23.1 4 +74.7 0 = −19.34 +3.66 +38 +.00 −19.34
1.3 17 88.7 −41.42 +43.88 +4.39 −.88 −42.30
13.3 17 88.7 +15.13 −43.88 −4.39 +.00 +15.13

0 = +2.64 −1.67 n = +.63
+42.86 −24.53 +.57
−44.90 +33.40 +.74
+.65

13.5 c = −.01
1.0 c = −.08
2.0 −.10
2.5 = −.12

Dec 10 h = −.016 h' = −.016

1.6 36 +50.1 0 = −20.64 +1.20 +16 −14 −20.78 +.92 −19.86 −.01 −19.87
2.6 36 +48.7 20.46 1.14 1.5 −18 20.64 +.88 .76 +00 .76
2.6 38 +9.6 19.82 0.17 1.0 −12 19.94 +.13 .81 +00 .81
2.8 46 +52.3 20.65 1.29 1.6 −19 20.84 +.99 .85 +00 .85
2.9 56 +53.1 20.68 +1.38 3 1.7 −20 20.88 +1.08 2 .82 6 +01 .83 5
2.50 +1.04 −20.62 −19.8248

1.3 +43.90 −56.61 −02 −56.63
13.3 −43.90 +10.65 +17 +10.82

1.3 17 88.7 0 = −53.10 +43.90 +4.39 −3.51 −56.61
13.3 17 88.7 +10.21 −43.90 −4.39 +0.44 +10.65

0 = +42.86 −36.01 n = +.84
−44.94 +31.44 +.70
+.77

07 c = -07 137 c = -.06
22 -.10

Dec 11 1883 h = -.021 h' = -.023

h m δ T - R.A tan δ sec δ

1.957 +41.8 0 = -20.65 + 0.89 + 1.3 -.12 - 2077 +.66 - 20.11 -.00 - 20.11
2.0 0 +22.9 20.47 + 0.42 1.1 -.10 2057 +.31 .26 00 .26
2.0 2 +34.4 20.71 + 0.68 1.2 -.12 20.83 +.50 .33 00 .33
1.97 +0.66 -20.72 -20.233

2.1 + 2.25 -21.94 + 00 -21.94
1.3 +43.90 -48.27 -.01 -48.28
13.3 -43.90 +16.12 + 24 +16.36

~~146 c = -.15~~
187 = c = -.03 136 c = +.01
220 -.05 197 = +.01
23.0 -.07
0.0 -.07
2.0 -.08

Dec 12 h = -.039 h' = -.039
-22.60 -20.68

22.6 34 +38.4 0 = -21.16 + 0.79 + 1.3 -08 - 21.24 +.56 - 20.68 -.10 - 20.78
[23.1 7 +56.5 21.47 1.51 1.8 -13 21.60] +1.01 (.53] (-05) .58]
1.8 48 +20.2 21.01 0.37 1.1 -09 21.10 +.26 .84 +.03 .81
1.9 57 +41.8 21.30 0.89 1.3 -10 21.40 +.63 .77 +.03 .74
2.0 0 +22.9 21.01 + 0.42 1.1 -09 21.10 +.30 .80 +.04 .76
1.08 +0.80 -21.28 -20.80 -20.772
-1.90 62

23.7 +2.37 -22.36 -05 -22.41
1.3 +43.90 -52.18 +01 -52.17
13.3 -43.90 +13.15 +48 +13.63

216 c = +.14
227 +.01
238 -.05
0.0 -.05

Dec 13 h = -.021 h' = -.021
~~-21.28~~
~~0.87~~

[23.7 42 +67.2 -22.71 +2.37 +26 -13 -03 -22.87] +1.78 (-21.09) -(03) -(21.12)
23.1 7 +56.5 0 = -22.26 +1.51 +18 -.09 -22.35 +1.13 -21.22 -04 -21.26
1.6 36 +50.1 22.23 1.20 16 -.08 22.31 +.90 .41 -01 .42
1.9 57 +41.8 21.82 0.89 13 -.06 21.88 +.67 .21 +01 .20
2.0 0 +22.9 21.60 0.42 11 -.06 21.66 +.32 .34 +01 .33
2.0 2 +34.4 21.87 + 0.68 12 -07 21.94 +.51 .43 +01 .42
~~23.7 42 +67.2 22.71 +2.37 26 -13-03 22.87~~
1.32 +0.94 -22.03 ~~-21.34~~ -21.326
~~2.00~~

22.8 +2.20 -23.04 -.05 -23.059
2.1 +2.25 -22.98 +.02 -22.986
1.3 +43.90 -52.47 .00 -52.47

13.0 c = -.15
22.2 c = -.11
23.0 -.12
2.7 -.18

Dec 22 h = -.023 h' = -.023
23.15 -25.79

23.1 7 +56.5 0 = -26.88 +1.51 +1.8 -22 -27.10 +1.24 -25.86 -.05 -25.91
-23.2 15 +23.1 25.92 0.43 1.1 -14 26.06 +.35 .71 -.05 .76
2.6 36 +48.7 26.47 1.14 1.5 -27 26.74 +.93 .81 +.03 .78
2.7 43 +26.8 26.04 0.51 1.4 -20 26.24 +.42 .82 +.03 .79
2.8 46 +52.3 26.76 1.29 1.6 -29 27.05 +1.06 .99 +.03 .96
(2.9 56 +53.1 26.90 +1.33 1.7 -32 27.22] +1.09 (26.13) +(04) (26.09)
1.28 +1.030 -26.73 -25.87 -25.840
2.70 64

1.3 +43.92 -60.24 +.00 -60.24
13.3 -43.92 +13.17 +28 +13.45

188 c = +.03
195 +.02
218 +.04

Dec 26 h = -.004 h' = -.004
1860 -28.37

-18.6 33 +38.7 0 = -28.97 +0.80 +1.3 -04 -29.01 +.64 -28.37 -.02 -28.39
23.1 7 +56.5 29.75 1.51 1.8 +07 29.68 +1.21 .47 +.01 .46
23.2 15 +23.1 28.68 +0.43 1.1 +04 28.64 +.34 .30 +.01 .29
21.63 +0.91 -29.11 -28.39 -28.380
23.15

q
-.25 -21.94
-.351 -48.27
+2.63 +16.12

f tan δ sec δ

2.1 5 +66.0 0 = -21.69 + 2.25 + 25
1.3 17 88.7 -44.76 +43.90 +4.39
13.3 17 88.7 +13.49 -43.90 -4.39

0 = +1.59 -1.22 n = +.76
+43.24 -27.56 +.64
-44.56 +37.08 +.83
+.74

-.18 -22.33
-.351 -52.18
-.044 +13.15

23.7 42 +67.1 0 = -22.15 + 2.37 + 26
1.3 17 88.7 -48.67 +43.90 +4.39
13.3 17 88.7 +13.59 -43.90 -4.39

0 = +1.75 -1.20 n = +.69
+43.28 -30.96 +.73
-44.52 +34.84 +.72
+.71

-.02 -23.04
~~-.13 -22.84~~
-.12 -22.98
-.219 -52.47

22.8 46 +65.6 0 = -23.02 + 2.20 + 24
~~23.7 42 +67.1 22.71 + 2.37 + 26~~
2.1 5 +66.0 22.86 + 2.25 + 25
1.3 17 -88.7 -50.28 +43.90 +4.39

0 = +1.26 -1.026 n = +.82
+1.31 -0.953 +.71
+42.96 -30.44 +.71
+.75

-.702 -60.24
+.658 +13.17

1.3 17 88.7 0 = -53.22 +43.92 +4.39
13.3 17 88.7 +6.59 -43.92 -4.39

0 = +42.92 -33.60 n = +.78
-44.92 +39.09 +.87
+.82

n = +.80

8

Dec 29 1883 h = +.052 225 G = +.02 3.0 −.02 −29.95 h' = +.035

22 23 0 1 2 3

5 +02 +01 +0 −01 −01

m	δ	T−R.A	tan δ sec δ							
(23.7)42	+67.1	−32.06	+3.37	+26	+00−03	−32.09	+185	(30.24)	+09	−(30.15)
(2.5)32	+42.6	0 = −30.82	+0.92	+14	+01	−30.81	+72	(−30.09)	+09	(−30.00)
850	+60.1	31.29	1.74	20	−02	31.31	+136	−29.95	+04	−29.91
3.18	+59.6	31.26	1.70	20	−02	31.28	+133	.95	+02	.93
6.36	+50.1	30.90	1.20	16	−02	30.92	+94	.98	+01	.99
6.36	+48.7	30.69	1.14	15	−02	30.71	+89	.82	−02	.80
8.46	+52.3	30.82	1.29	16	−03	30.85	+101	.84	−03	.81
2.9 56	+53.1	30.99	+1.33	1.7	−03	31.02	+104	.98	−03	.95
2.00 2.48			+1.33 40			~~−30.99~~ −31.02	−29.90			−29.898

1.3 +43.92 −64.33 −04 −64.37

~~23.742 +67.1 0 = −32.06 +2.37+26+00 −32.06~~ −03

1.3 17 88.7 −63.89 +43.92 +4.39 −.44 −64.33

tan δ sec δ

0 = +42.52 −33.35 n = +.78

Jan 3 1884 h' = −.003 1h c = −.07 4h −.09 −32.70 h' = −.003

0.62

0.530	+53.2	0 = −33.89	+1.34	+1.7	−.12	−34.01	+1.17	−32.84	−00	−32.84
0.634	+55.9	33.90	1.48	20	−.14	34.04	+1.29	.75		.75
0.638	+47.6	33.50	1.10	1.5	−.11	33.61	+.96	.65	−	.65
0.849	+60.1	33.92	1.74	20	−.14	34.06	+1.51	.55	−	.55
3.847	+60.8	34.13	1.79	2.1	−.19	34.32	+1.56	.76	+01	.75
4.00	+47.4	33.47	+1.09	15	−.14	33.61	+.95	.66	+01	.65
1.72 3.90			+1.42			−33.94		32.71	32.701	−32.699

1.3 +43.93 −71.08 00 −71.08

1.3 17 88.7 0 = −68.01 +43.93 +4.39 ~~−7~~ ~~−1.68~~ ~~−69.65~~ 3.07 −71.08

0 = +42.51 −37.14 n = +.87

Jan. 10 h' = +.010 1.0 c = −.07 3.8 c = −.09 37.42 h' = +.018

0.47

0.13	+58.5	0 = ~~−21.13~~ −38.87	+1.63	+1.9	−.13	~~−21.00~~ −39.00	+1.56	−37.44	+04	−37.40
0.531	+53.2	−38.51	1.34	1.7	−.12	−38.63	+1.29	.34	+.03	.31
0.850	+60.1	39.02	1.74	20	−.14	39.16	+1.67	.49	+02	.47
3.635	+47.4	38.32	1.09	1.5	−.14	38.46	+1.05	.41	−03	.44
3.637	+42.2	38.15	0.91	1.3	−.12	38.27	+.87	.40	−03	.43
3.850	+39.7	37.99	+0.83	1.3	−.12	38.11	+.80	.31	−03	.34
2.07 3.67			+1.26			−38.60		37.37	37.398	−37.398

1.3 +43.93 −80.28 +.01 −80.27

1.3 17 88.7 0 = −77.21 +43.93 +4.39 −3.07 −80.28

0 = +42.67 −41.67 n = +.96

Jan 16 h' = +.000 c = −.12

~~1 46~~	~~+63.1~~	~~0 = −42.35~~								
2.00	+22.9	−41.28	+0.42	+1.1	−.13	−41.41	+.36	−41.05	00	−41.05
2.02	+34.4	41.45	+0.68	1.2	−.14	41.59	+.58	.01	00	.01
2.00			+0.55			−41.50			41.030	−41.030

1.8 +1.97 −42.61 +00 −42.61

1.3 +43.93 −81.26 00 −81.26

1.8 46 +63.1 0 = −42.35 +1.97 +2.2 −.26 −42.61

1.3 17 88.7 −75.99 +43.93 +4.39 −5.27 −81.26

0 = + 1.42 −1.11 n = +.78

+43.38 39.76 .92

+.85

Jan 17 h' = −.001 0.0 c = −.17 1.4 = −.20

1.318	+59.6	0 = −42.89	+1.70	+2.0	−.40	−43.29	+1.55	−41.74	−00	−41.74
1.631	+48.0	42.37	1.11	1.5	−.30	−42.67	+1.05	.626		.626
1.634	+50.1	42.28	+1.20	1.6	−.32	−42.60	+1.14 09	.4651	00	.4651
~~1.50~~			+1.34			−42.85			41.607	−41.607 37

1.6 +2.40 −43.77 00 −43.77

1.3 +43.93 −83.29 00 83.29

1.634 +67.4 0 = −43.27 +2.40 +2.6 −.50 −43.77

1.3 17 88.7 −74.51 +43.93 43.9 −8.78 −83.29

0 = +1.06 − 0.92 n = +.87

+42.59 −40.44 .95

+.91

Jan 21 1884 h' = +.004 0.7 c = -.05
5.0 c = -.06
-.09
-44.30 h' = +.012
2.23
n m o δ T-RA tanδ 2cδ tanδ secδ
1.3 18 +59.6 0 = -45.79 + 1.70 +20 -.10 -45.89 +1.43 -44.46 +03 -44.43
2.6 36 +48.7 45.05 1.14 15 -.11 -45.16 +.96 .20 +01 .19
2.8 46 +52.3 45.22 1.29 16 -.11 -45.33 +1.08 .25 +01 .24
4.5 38 +56.6 45.17 35 1.52 18 -.16 -45.33 51 +1.28 .23 -01 .24
4.9 53 +60.3 45.69 1.75 20 -.18 -45.87 +1.47 .40 -02 .42
4.9 58 +41.1 44.79 +0.87 13 -.12 -44.91 +.73 .18 -02 .20
3.52 +1.38 -45.44 44.27 44.287 -44.287
4.80
1.3 +43.93 -81.25 +01 -81.24

1.3 17 +88.7 0 = -78.84 +43.93 +4.39 -2.41 -81.25
0 = +42.55 -35.80 n = +.84

Jan. 22 h' = -.005 0.3 -.04
2.3 c = -.13
3.0 -.15
[1.3] 18 +59.6 0 = -46.60 +(1.70) +20 -.18 -(46.78) +1.43 45.35]
2.6 36 +48.7 45.93 1.14 15 -.20 -46.13 +.96 .17 00 -45.17
2.8 46 +52.3 45.95 1.29 16 -.22 -46.17 +1.08 .09 .09
2.9 56 +53.1 46.04 + 1.33 1.7 -.26 -46.30 +1.12 .18 00 .18
2.40 77 +1.39 25 -46.34 20 45.~~148~~ ~~140~~ 147 -45.147
1.3 +43.93 -82.26 -.01 -82.27

1.3 17 +88.7 0 = -79.31 +43.93 +4.39 -~~4.40~~ 3.95 -~~83.11~~ 82.26
0 = +42.54 .68 -35.93 36.07 n = +.84

Jan 26 h' = -~~.029~~ .000 0.7 c = -.12
5.3 -.19
h' = -.029
2.93 -47.92
1.9 57 +41.8 0 = -48.56 +0.89 +1.3 -.17 -48.73 +.82 -47.91 -06 -47.97
3.3 16 +49.5 48.76 1.17 15 -.23 -48.99 +1.08 47.91 -02 47.93
3.6 35 +47.4 48.70 1.09 15 -.23 -48.93 +1.00 47.93 -00 47.93
4.9 58 +41.1 48.60 0.87 1.3 -.25 -48.85 +.80 48.05 +03 48.02
5.1 8 +45.9 48.59 +1.03 14 -.27 -48.86 +.95 47.91 +04 47.87
[5.3] +63.0 49.55 +1.96 2.2 -.42 49.97 +1.80 [48.17] +04 [48.13]
~~4.07~~ 3.76 +1.01 -48.87 -47.98 47.942 47.944
5.00
1.3 +43.93 -88.20 -00 -88.20

~~5.3 19 +63.0 0 = -49.55 +1.96 +22 -.42 -49.97~~
1.3 17 +88.7 -82.49 +43.93 +4.39 -5.71 -88.20
0 = +42.76 - 39.33 n = +.92

Feb. 2 h' = -.018 0.9 c = -.07
5.0 -.11
1.9 57 +41.8 0 = -53.40 +0.89 +13 -.10 -53.50 +.74 -52.76 -03 -52.79
5.3 19 +28.5 53.14 +0.54 1.1 -.12 -53.26 +.45 .81 +03 .78
3.60 +0.72 -53.38 52.785 -52.785
1.8 +1.97 -54.37 -.03 -54.40
1.9 +3.04 -55.17 -.03 -55.20
1.3 +43.93 -91.73 -.04 -91.77

1.8 46 +63.1 0 = -54.19 +1.97 +22 -.18 -54.37
1.9 53 +71.8 -54.91 +3.04 +3.2 -.26 -55.17
1.3 17 88.7 -88.66 +43.93 +4.39 -3.07 -91.73
0 = +1.25 -1.02 n = +.82
+2.32 -1.82 .78
+43.21 -38.39 .89
+.83

Feb 9 h = +.010 8.7 c = -.14
7.80 58 +51.8 0 = -58.27 +1.27 +1.6 -.22 -58.49 +1.03 -57.46 +.01 -57.45
8.3 20 +61.1 58.74 1.81 2.1 -.29 -59.03 +1.47 .56 +00 56
9.2 14 +34.9 58.01 +0.67 1.2 -.17 -58.18 +.54 .64 -01 65
~~[9.0 +67.6 59.58 +2.43 2.6 -.36 -59.94 +1.97 [.97]~~ 96]
8.43 +1.25 -58.54 57.553 -57.553
8.1 +4.04 -60.79 +00 -60.79
~~9.0 +2.43 -59.94 -00 -59.94~~

8.1 5 +76.1 0 = -60.22 +4.04 +41 -.57 -60.79
~~9.0 0 +67.6 59.68 +2.43 +26 -.36 -59.94~~ 59.94
0 = +2.79 - 2.45 n = +.81

Feb 16 h' = +.010 5.0 c = -.13
8.0 c = -.13
-61.75 h' = +.021
5.27
5.1 5 +38.3 0 = -62.30 +0.79 +1.3 -.17 -62.47 +.69 -61.78 +02 -61.76
5.1 8 +45.9 62.52 1.03 1.4 -.18 -62.70 +.90 .80 +02 78
5.6 37 +49.8 62.48 1.18 1.6 -.21 -62.69 +1.03 .66 +.01 65
7.2 13 +55.5 +28! 62.77 +5.53 1.46 1.8 [-.23 -14 -63.00 62.93 +1.27 +46 .73 67 02 .75 .65]
7.9 7.80 59 +51.8 [62.5] 62.55 +1.27 1.6 -.21 -62.76 +1.10 .66 -04 .70
6.20 +1.15 -62.72 -61.70 61.726 -61.728
7.60
7.3 +2.56 -64.07 +.01 -64.06
7.8 +3.53 -64.63 +02 -64.61

7.3 19 +68.7 0 = -63.87 72 +2.56 +27 -35 -~~63.52~~ 64.07
7.8 46 +74.2 64.15 +3.53 +27 -.48 -64.63
0 = +1.41 -1.34 n = +.95
+2.38 -1.89 +.79
+.87

10

Feb 20 1884   h' = +.000   h 3.5 c = -.01 / ~~7.3 c = .00~~ / 8.0 -.05   -63.92   h' = -.023

4.53

h m	δ	T-R.A	tan δ sec δ							
7.0 0	+47.4	0 = -64.99	+1.09	+15	-.02	-65.01	+1.02	-63.99	-.04	-64.03
7.9 53	+43.6	64.69	0.95	14	-.03	64.72	+.89	63.83	-.02	63.85
8.50 58	+41.1	64.74	0.87	13	-.03	64.77	+.82	63.95	-.03	63.98
8.1 4	+39.5	64.77	0.82	13	-.05	64.82	+.77	64.05	+03	64.02
8.2 13	+55.5	65.14	1.46	18	-.07	65.21	+1.37	63.84	+03	63.81
8.4 27	+32.2	64.39	+0.63	12	-.06	-19 64.45	+.59	64.05	+03	64.02
5.93			+0.97			-64.836		-63.98	63.952	-63.952

7.23

6.1 +2.65 -66.37 +00 -66.37
7.3 +2.56 -66.42 00 66.42

6.16 +69.3   0 = -66.27 +2.65 +2.8 -.10 -66.37
7.319 +68.7   66.31 2.56 +2.7 -.11 -66.42

tan δ sec δ

0 = +1.68 -1.54¹   n = +.94⁰
+1.59 -1.596
~~1.00~~
0.98
+.94

Feb 21   h' = +.009   4.0 c = ~~+.06~~ .00 ?   -64.62   h' = -.029

2.20

1.8 48	+20.2	0 = -64.83	+0.37	+1.1	+.00	-64.83	+.29	-64.54	-.03	-64.57
1.9 57	+41.8	65.24	0.89	1.3	+	65.24	+.69	.55	-.03	.58
2.9 56	+53.1	65.80	1.33	1.7	+	65.80	+1.04	.76	-.00	.76
3.3 16	+49.4	65.49	1.17	1.5	+	65.49	+.91	58	+.01	57
3.6 35	+47.4	65.44	1.09	1.5	+	65.44	+.85	.59	+.02	57
3.8 47	+31.5	65.04	+0.61	1.2	+.00	65.04	+.48	.56	+.03	53
2.88			+0.91			-65.31		-64.58	64.597	-64.597

3.57   1.3 +43.91 -98.71 +01 -98.70

1.3 16 +88.7   0 = -98.71 +43.91 +4.39 -00 -98.71

0 = +43.00 -33.39   n = +.78

Feb 27   h' = +.032   0.8 c = +.01 / 8.7 c = -.02 / 9.0 -.03   68.03   h' = +.032

1.85

1.8 48	+20.2	0 = -68.27	+0.37	+1.1	+.01	-68.26	+.30	-67.96	+.10	-67.86
1.9 57	+41.8	68.81	0.89	1.3	.00	68.81	+.71	68.10	+.10	68.00
8.0 0	+51.8	68.71	1.27	1.6	-.03	68.74	+1.02	67.72	-.10	67.82
8.2 15	+43.6	68.66	+0.95	1.4	-.03	68.69	+.76	67.93	-.10	68.03
4.98			+0.87			-68.62		67.83	67.928	-67.928

8.10   1.3 +43.89 -103.08 +09 -102.99

1.3 16 +88.7   0 = -103.52 +43.89 +4.39 +.44 -103.08

0 = +43.02 -34.37   n = +.80

0.8 c = +.05
5.7 c = -.04
6.7 -.06

Mar 1   h' = ~~+.027~~ +.017

~~[4.50 42]~~	~~+66.1~~	~~71.36~~	~~[+2.26]~~	~~+2.5~~	~~-.08~~	~~71.44~~	~~+2.06~~	~~[69.38]~~		~~[69.38]~~
4 58	+41.1	0 = -69.97	+0.87	+13	-.04	-70.01	+79	69.22	+00	-69.22
5.8 50	+54.3	70.15	+1.39	1.7	-.07	70.22	+1.26	68.96	-01	68.97
~~4.7~~		71.36 19	~~+1.13~~ 2.26	+2.5	+.27 .08	~~70.12~~ 71.09	+2.06	69.03	+00	69.03
~~5.40~~ 5.10								69.070		-69.073

~~4.7 +2.26 -71.44 +.01 -71.43~~
5.1 +5.19 -74.11 +.00 -74.11
1.3 +43.88 -106.61 +04 -106.57

~~4.7 42 +66.1 0 = -71.36 +2.26 +2.5 -.08 -71.44~~
5.1 3 +79.1 -73.95 +5.19 +5.3 -.16 -74.11
1.3 16 88.7 -108.57 +43.88 +4.39 +1.76 ~~-110.13~~ -106.61

~~0 = +1.13 -1.31~~   ~~n = +1.15~~
+4.06 -3.99   + .98
+42.75 -36.45   + .85
+.91

0.8 c = -.01
6.0 c = -.05
~~4.7 c = -.08~~
9.0 c = -.10

Mar 3   h' = +.004   -70.19   h' = .000

5.80

5.8 49	+7.4	0 = -70.25	+0.13	+1.0	-.05	-70.30	+.11	-70.19	00	-70.19
8.0 0	+51.8	71.24	1.27	1.6	-.13	71.37	+1.12	.25		.25
8.2 15	+43.6	70.96	0.95	1.4	-.11	71.07	+.84	.23		.23
8.3 20	+61.1	71.64	1.81	2.1	-.19	71.83	+1.59	.24		24
8.4 25	+38.4	70.63	+0.79	1.3	-.12	70.75	+.70	.05	00	.05
7.74			+0.99			-71.06		-70.19	70.192	-70.192

8.22

6.1 +2.66 -72.57 +01 -72.56
6.2 -16.83 -55.59 +.01 -55.58
1.3 +43.88 -107.93 +02 -107.91

6.1 6 +69.4   0 = -72.43 +2.66 +2.8 -.14 -72.57
6.2 10 +93.4   -56.43 -16.83 -1.68 +.84 -55.59
1.3 16 +88.7   -107.49 +43.88 +4.39 -.44 -107.93

0 = +1.67 -1.50   n = +.90
-17.82 +15.48   +.87
+42.89 -36.85   +.86
+.88

~~0.2 c = .04~~
4.5 c = .00
5.0 c = -.03
7.3 c = -.10

Mar 4 1884 h' = +.030 h' = -.007
4.80 -70.87
h m δ T - R.A tan δ sec δ

4 5 29 + 16.3 0 = -71.04 +0.29 +10 -.00 -71.04 +26 -70.78 - 01 -70.79
4 8 49 + 33.0 71.42 0.65 12 -.02 71.44 +58 .86 - 01 87
4 9 53 + 60.3 72.48 1.75 20 -.06 72.54 62 +156 .98 - 01 99
4 50 58 + 41.1 71.58 0.87 13 -.04 71.58 + .77 85 - 00 85
7 4 27 + 32.2 71.08 0.63 12 -.12 -19 71.58 + 56 83 + 01 82
7 6 38 + 28.3 71.31 + 0.54 11 -.12 71.43 + 48 .95 + 02 93
5.70 +0.79 -71.58 70.59 70.875 -70.875
7.50

4.7 + 2.26 - 72.93 + .03 - 72.90
7.3 + 2.56 - 73.09 - .05 - 73.14

tan δ sec δ
4.7 42 + 66.1 0 = -72.90 +2.26 +25 -.03 -72.93
7.3 19 + 68.7 72.82 +2.56 +27 -.27 -73.09

0 = + 1.47 - 1.32 n = + .90
+ 1.77 - 1.56 + .88
+ .89

10 c = +.02
15 c = -.01
3.9 c = -.03
5.0 -.05

Mar 10 h' = +.017
3.15 74.94

1 9 57 + 41.8 0 = - 75.60 + 0.89 + 1.3 -.01 -75.61 + 76 - 74.85 + 03 - 74.82
3 3 16 + 49.4 75.91 1.17 15 -.03 75.94 +161 74.93 + 01 74.92
3 6 34 + 47.4 75.90 1.09 15 -.04 75.94 + 94 75.00 + 01 74.99
3 8 47 + 31.5 75.47 0.61 1.2 -.04 75.51 + 52 74.99 + 00 74.99
4 8 49 + 33.0 75.52 0.65 1.2 -.06 75.58 + 56 75.02 - 01 75.03
5 1 8 + 45.9 75.90 1.03 14 -.07 75.97 + 89 75.08 - 02 75.10
5 3 19 + 28.5 75.51 + 0.54 11 -.07 75.58 + 46 75.12 - 02 75.14
3.97 +0.85 -75.73 75.07 74.999 - 74.999
5.07

4.7 + 2.26 - 76.98 - 02 - 77.00
1.3 + 43.86 - 111.15 + 05 - 111.10

For (ΔT + m) for Zone obs see p 59.

4.7 42 + 66.1 0 = - 76.86 + 2.26 + 2.5 -.12 - 76.98
1 3 16 88.7 - 111.15 + 43.86 + 43.9 -.00 - 111.15

0 = + 1.41 - 1.27 n = + .90
+ 43.01 - 35.38 .82
+ .86

Mar 12 h' = +.020 10ʰ c = -.10

10 2 10 + 43.5 0 = - 77.28 + 0.95 + 14 -.14 - 77.42 + 67 - 76.75 + 01 - 76.74
10 3 15 + 42.1 77.13 + 0.90 13 -.13 - 77.26 + 64 .62 - .01 63
10.25 + 0.92 - 77.34 76.685 - 76.685

10.4 + 4.10 - 79.62 + .00 - 79.62

10.4 25 + 76.3 0 = - 79.20 + 4.10 + 42 -.42 - 79.62

0 = + 3.18 - 2.28 n = + .71

5.0 c = -.02
9.0 c = -.15

Mar 15 h' = +.021

7 2 13 + 55.5 0 = - 79.02 + 1.46 + 18 -.14 - 79.16 + 111 - 78.05 + .02 - 78.03
7 6 33 + 59.0 79.20 + 1.66 19 -.17 79.37 + 126 .11 + 01 .10
8 8 51 + 48.5 78.86 1.13 15 -.22 79.08 + 86 .22 - 01 .23
8 9 53 + 42.2 78.73 0.91 1.3 -.20 78.93 + 69 .24 - 01 .25
8 9 55 + 47.6 78.90 + 1.10 15 -.23 79.13 + 84 .29 - 01 .30
8.28 + 1.25 - 79.13 78.182 - 78.182

6.1 + 2.66 - 80.27 + .05 - 80.22
7.3 + 2.56 - 80.13 + 02 - 80.11

For (ΔT + m) for Zone obs see p 59

6.1 6 + 69.4 0 = - 80.13 + 2.66 + 28 -.14 - 80.27
7.3 19 + 68.7 79.89 + 2.56 27 -.24 - 80.13

0 = + 1.41 - 1.09 n = + .77
1.31 0.98 + .75
+ .76

10 c = .00
5.4 c = -.03
6.0 -.05

Mar 16 h' = +.020
4.65 -78.84

4 5 29 + 16.3 0 = - 79.01 + 0.29 + 1.0 -.00 - 79.01 + .17 - 78.84 + 01 - 78.83
4 8 49 + 33.0 79.22 0.65 12 -.01 79.23 + 39 78.84 + 00 78.84
5 1 7 + 45.9 79.58 1.03 1.4 -.03 79.61 + 61 79.00 - 00 79.00
5 3 18 + 28.5 79.15 + 0.54 1.1 -.03 79.18 + 32 78.86 - 01 78.87
5 4 26 - 0.4 78.73 - 0.01 1.0 -.03 78.76 - .01 78.77 - 01 78.78
5.02 + 0.50 - 79.16 78.91 78.862 - 78.864
5.27

0.8 + 1.74 - 79.89 + .08 - 79.81
1.3 + 43.84 - 107.68 + 07 - 107.61

0 8 50 + 60.1 0 = - 79.89 + 1.74 + 2.0 .00 - 79.89
1.3 16 + 88.7 - 107.68 + 43.84 + 43.8 .00 - 107.68

0 = + 1.24 - 0.65 n = + .52
+ 43.34 - 28.45 + .66
+ .59

1°.c = +.04
40 = +.07
90 = −.07

March 18. 1884. $h' = -.015$

$h' = -.023$

5.04

−80.12

h	o.δ	τ−RA	tanδ secδ							
0.0	+58.5	0= −81.05	+1.63	+1.9	+.15	−80.90	+.98	−79.92	−.11	−80.03
0.8	+60.1	−81.15	1.74	2.0	+.10	81.05	+1.04	80.01	−.11	12
4.5	+16.3	80.24	0.29	1.0	−.07	80.31	+.17	80.14	−.02	16
4.8	+33.0	80.49	0.65	1.2	−.08	80.57	+.39	80.18	−.02	20
5.1	+45.9	80.88	1.03	1.4	−.10	80.98	+.62	80.36	−.01	37
7.2	+53.5	80.82	1.45	1.8	−.13	80.95	+.87	80.08	+.04	04
8.9	+48.5	80.88	1.13	1.5	−.10	80.98	+.68	80.30	+.08	22
8.9	+42.2	80.68	0.91	1.4	−.10	80.78	+.55	80.23	+.08	15
8.9	+47.6	80.74	1.10	1.5	−.10	80.84	+.66	80.18	+.08	10
5.46			+1.10			−80.82		80.20		
8.48									80.155	−80.155

1.3 +43.83 −106.39 −.06 −106.45

1.3 +88.7 0 = −107.70 +43.83 +43.8 +1.31 −106.39

0 = +42.73 −25.63 n = +.60

10 c = .00
~~c = .12~~
7.2 c = −.03
10.0 = −.12

March 22 $h' = +.012$

$h' = +.012$

7.04

−82.56

h	o.δ	τ−RA	tanδ secδ							
~~7.9~~	~~+41.8~~	~~−82.71~~	~~+0.89~~	~~+1.3~~	~~+.00~~	~~−82.71~~	~~+.52~~	~~(82.19)~~		
6.4	+61.6	83.71	1.85	2.1	−.02	−83.73	+1.09	82.64	+.02	−82.62
7.0	+20.7	82.91	0.38	1.1	−.02	82.93	+.22	.71	+.01	.70
7.1	+39.5	83.03	0.82	1.3	−.04	83.07	+.48	.59	+.01	.58
7.2	+55.5	83.27	1.45	1.8	−.05	83.32	+.86	.46	+.01	.45
7.5	+32.2	82.54	0.63	1.2	−.05 −19	82.54 .28	+.37	.41	+.01	.40
7.6	+28.3	82.73	0.54	1.1	−.06	82.79	+.32	.47	+.01	.46
9.7	+59.6	83.36	1.70	2.0	−.20	83.56	+1.00	.56	−.01	.57
10.2	+43.5	82.90	0.95	1.4	−.17	83.07	+.56	.51	−.03	.54
10.3	+42.1	82.95	0.90	1.3	−.17	83.12	+.53	.59	−.03	.62
8.11			+1.02			−83.15		82.53	82.549	−82.549
9.46										

6.7 +20.64 −94.69 +.02 −94.67

6.7 +87.2 0 = −94.48 +20.64 +20.7 −.21 −94.69

0 = +19.62 −11.52 n = +.59

8.5 c = −.02
10.5 c = −.05
18.5 = +.08
21.7 = −.02
0.3 = +.03

March 24 $h' = -.005$

$h' = -.010$

9.80

−83.73

h	o.δ	τ−RA	tanδ secδ							
8.7	+29.0	−83.95	+0.55	+1.1	−.02	−83.97	+.26	−83.71	−.04	−83.75
8.9	+47.6	84.33	1.10	1.5	−.04	84.37	+.53	.84	−.04	88
10.2	+43.5	84.03	0.95	1.4	−.06	84.09	+.46	.63	−.03	66
10.3	+42.5	84.07	0.92	1.4	−.07	84.14	+.44	.70	−.03	73
10.3	+37.3	83.96	0.76	1.3	−.07	84.03	+.36	.67	−.03	70
10.4	+56.6	84.44	1.52	1.8	−.09	84.53	+.73	.80	−.03	83
18.5	+38.7	84.38	0.80	1.3	+.10	84.28	+.38	.90	+.05	85
19.4	+27.7	84.10	0.52	1.1	+.06	84.04	+.25	.79	+.06	73
21.1	+29.8	84.14	0.57	1.2	+.00	84.14	+.27	.87	+.08	79
21.3	+62.1	85.01	1.89	2.1	−.02	85.03				
0.0	+58.3	84.87	1.62	1.9	−.08	84.89		83.85	83.768	−83.769
13.09			+0.85			−84.18				
19.67										

10.3 +2.27 −84.88 −.01 −84.89
10.4 +4.10 −85.71 −.01 −85.72

10.3 +66.2 −84.78 +2.27 +2.5 −.10 −84.88
10.4 +76.3 85.54 +4.10 +4.2 −.17 85.71

0 = +1.42 −0.71 n = +.50
+3.25 −1.54 +.47

+.48

7.8
8.82
10.48
21.75

1-46.29

March 25 1884 h' = −.014   h' = .000

1.04 .06
4.2 c = +.02
6.0 −.01
7.2 −.07
8.5 −.15

4.65 h	δ	π−Ra	tanδ secδ							
								−84.04		
4.5	+16.3	0=−84.19	+0.29+	1.0	+.02	−84.17	+.14	−84.03	00	−84.03
4.8	+33.0	84.39	0.65	1.2	+.01	84.38	+.32	.06		.06
7.5	+32.2	84.02	0.63	1.2	−.10 −19	84.15 33	+.31	.01		.01
7.6	+5.5	84.04	0.10	1.0	−.09	84.13	+.05	.08		.08
7.6	+28.3	84.21	0.54	1.1	−10	84.31	+27	.04	00	.04
6.40			+0.44			−84.26		8404	84.044	−84.044

7.5   1.3 +43.80 −106.93 −.07 −107.00

h	δ	π−Ra	tanδ secδ
1.3	+88.7	0=−104.30 +43.80 +43.8 −2.63 −106.93	

0 = +43.36 − 22.74   n = +.50

.60 c = +.03
7.2 +.02
7.7 +.01
8.5 −.07
10.3 −.05
0.0 −.06

March 31 h' = .000   h' = +.005

6.98								−86.10		
6.3	+22.6	−86.46	+0.42+	1.1	+.03	−86.43	+.31	−86.12	+01	−86.11
6.5	+16.5	86.34	0.30	1.0	+03	86.31	+.22	.09	+.01	08
7.5	+32.2	86.32	0.63	1.2	+.02 −19	86.30 39	+.46	.03	+00	03
7.6	+5.5	86.26	0.10	1.0	+.01	86.25	+.07	.18	+00	18
7.6	+28.3	86.57	0.54	1.1	+.01	86.56	+39	.17	+00	17
7.9	+28.1	86.44	0.53	1.1	−.01	86.45	+39	.06	+00	06
8.0	+51.8	86.93	1.27	1.6	−03	86.96	+93	.03	+00	03
~~9.4~~	~~+52.3~~		~~1.29~~	~~1.6~~						
10.2	+43.5	86.72	0.95	1.4	−07	86.79	+69	.10	−01	.11
10.3	+42.1	86.70	0.90	1.3	−07	86.77	+66	.11	−01	.12
[0.2]	+58.5	87.56	[1.63]	1.9	−.11	[87.67]				
~~7.99~~			+0.63			−86.56		−86.09	86.099	−86.099
8.80										

9469

10.3 + 2.27 −87.75 −.00 −87.75

10.3	+66.2	0 = −87.63 +2.27 +2.5 −.12 −87.75

0 = +1.64 − 1.19   n = +.73

0.8 c = −.04
1.5 −.15
1.6 −.10
6.0 −.05
8.2 +.02

April, 1   h' = +.018 ~~+.004~~   h' = −.000

4.10								−86.36		
~~1.9~~	~~+41.8~~	~~−86.79~~	~~+0.89+~~	~~1.3~~	~~−08~~	~~−86.79~~	~~+.63~~	~~−86.16~~		
6.3	+22.6	86.82	0.42	1.1	−04	86.86	+30	.56	00	−86.56
8.4	+38.4	87.02	0.79	1.3	+.03	86.99	+56	.43		43
8.9	+48.5	87.14	1.13	1.5	+.04	87.10	+80	.30	00	30
7.87 ~~6.38~~			+0.81			−86.94		−86.36	86.430	−86.430

−8488
8571

8.65   1.3 +43.79 −117.46 +.09 −117.37

1.3	+88.7	0 = −111.77 +43.79 +43.8 −5.69 −117.46

0 = +42.98 − 30.43   n = +.71

7.2 c = −.04
8.2 −.04
9.5 −.17
11.0 −.21
21.0 −.17
0.3 −.09

April 12   h' = −.030   h' = −.030 ~~h' = −.034~~

									90.96		
8.82	8.4	+38.4	−91.33	+0.79+	1.3	−.08	−91.41	+47	−90.94	−.15	−91.09
	8.7	+29.2	91.22	0.54	1.4	−.13	91.35	+.32	91.03	−14	91.17
	8.8	+48.5	91.49	1.13	1.5	−18	91.67	+67	91.00	−14	91.14
	9.4	+52.2	91.46	1.29	1.6	−26	91.72	+.76	90.96	−12	91.08
	9.7	+59.6	91.74	1.70	2.0	−36	92.10	+1.00	91.10	−11	91.21
	10.3	+42.1	91.21	0.90	1.3	−25	91.46	+.53	90.93	−09	91.02
10.48	10.4	+56.6	91.45	1.52	1.8	−35	91.80	+.90	90.90	−09	90.99
	10.9	+62.4	91.81	1.91	2.2	−44	92.25	+1.13	91.12	−07	91.19
	11.1	+45.1	91.28	1.00	1.4	−.29	91.57	+59	90.98	−07	91.05
	20.6	+44.9	91.69	1.00	1.4	−.25	91.94	+.59	91.35	+22	91.13
	21.1	+29.8	91.43	0.57	1.2	−19	91.62	+.34	91.28	+23	91.05
21.75	21.3	+62.1	92.15	1.89	2.1	−32	92.47	+1.11	91.36	+24	91.12
	0.0	+58.5	91.92	1.63	1.9	−.19	92.11	+.96	91.15	+32	90.83
	13.28			+1.22			−91.81		91.01	~~90.995~~ 91.085	−91.082
									91.28		

9.8 +3.35 −92.97 −.10 −93.07

9.8	+73.4	−92.31 +3.35 +3.5 −.66 −92.97

0 = +2.13 − 1.26   n = +.59

April 14 - 1884

l' = −.015

7.0 c = −.05
8.5 −.15
9.1 −.18
9.5 −.16
9.9 −.15
11.1 −.16

20.3 c = −.09
l' = −.010

8.48 h	δ	T−RA	tan δ	sec δ				9209		
7.5	+ 32.2	0 = −92.10	+0.63+	1.2	−12 −19	92.22	+.33	−92.08	−.02	−92.10
7.6	+ 28.3	92.28	0.54	1.1	−12	92.40	+.29	.11	−02	13
8.4	+ 63.6	92.80	2.01	2.2	−35	93.15	+107	.08	−00	08
9.4	+52.2	92.53	1.29	1.6	−26	92.79	+.68	.11	−00	11
9.7	+ 59.6	92.74	1.70	2.0	−32	93.06	+.90	.16	+00	16
10.3	+ 47.1	92.30	0.90	1.3	−20	92.50	+.48	.02	+01	01
10.4	+ 56.6	92.57	1.52	1.8	−27	92.84	+81	.03	+01	02
10.9	+ 62.4	92.99 90	1.91	2.2	−35	93.34 25	+101	# .24	+01	23
11.1	+ 45.1	92.50	1.00	1.4	−22	92.72	+53	.19	+01	18
19.8	+ 8.6	92.20	0.16	1.0	−.10	92.30				
9.59			−1.28			−92.79		−92.11 −92.113		−92.113
10.42	9.8 + 3.35	−93.89	00	−93.89						

h	δ	T−RA	tan δ sec δ
9.8	+73.4	0 = −93.37	+3.35 + 3.5 −52 −93.89

0 = +2.07 − 1.10 n = + .53

2.2 c = +.04
8.0 c = +.10
9.3 +.07
11.7 −.04
20.5 +.08

April 23

l' = ~~+.032~~ +.025

9.4	+ 52.2	− 96.41	+1.29+	1.6	+.11	−96.30	+.76	−95.54	+02	−95.52
9.7	+ 59.6	96.53	1.70	2.0	+12	96.41	+1.00	.41	+02	39
10.2	+ 43.5	95.99	0.95	1.4	+04	95.95	+.56	.39	+00	39
10.4	+ 56.6	96.28	1.52	1.8	+02	96.26	+.90	.36	−00	36
10.9	+ 62.4	96.66	1.91	2.2	+00	96.66	+1.13	.53	−01	54
11.7	+48.4	96.05	1.13	1.5	−06	96.11	+.67	.44	−03	47
20.6	+44.9	96.58	1.00	1.4	+11	96.47				
20.7	+33.5	96.52	0.66	1.2	+.10	96.42				
10.38			+1.42			−96.28		95.445		−95.445
	1.3 + 43.73	−121.59 + .22	−121.37							

1.3	+88.7	0 = −122.90	+43.73 +43.7 +1.31 −121.59

0 = +42.31 − 25.09 n = + .59

April 26

l' = ~~.000~~ +.027

9.5 c = ~~+.20~~ +.12
9.6 ~~+.20~~ +.12
11.8 ~~−.01~~ −.01

9.7	+ 59.6	− 97.84	+1.70+	2.0	+.24	−97.60	+.92	−96.68	+.02	−96.66
10.2	+ 43.5	97.33	0.95	1.4	+.11	97.22	+.51	.71	+.01	70
10.4	+ 56.6	97.49	1.52	1.8	+14	97.35	+.82	.53	+00	53
10.9	+ 62.4	97.73	1.91	2.2	+09	97.64	+1.03	.61	−.01	62
11.1	+ 45.1	97.24	1.00	1.4	+04	97.20	+.54	.66	−.02	68
11.7	+ 48.4	96.96	[1.13]	1.5	+00	96.96	+.61	[35]		37]
10.46			+1.42			−97.40		−96.638		−96.638
	9.8 + 3.35	−98.46 + 02	−98.44							

9.8	+ 73.4	− 98.88	+3.35 +3.5 +42 −98.46

0 = + 1.93 − 1.04 n = + .54

7.7 c = +.07
10.9 −.01

April 28

~~+.033~~ +.037

7.6	+ 28.3	− 97.96	+0.54+	1.1	+.08	−97.88	+.29	−97.59	+09	−97.50
11.1	+ 45.8	98.17	1.030	1.4	−.01	98.18	+.564	.62 4	−.02	64 2
11.2	+ 33.7	98.02	0.67	1.2	−.02	98.04	+.36	.68	−.02	70
12.2	+ 57.7	98.63	0.58	1.9	−.06	98.69	+.85	.84	−.05	89
10.52			+0.96			−98.70		97.682		−97.682 78
	11.4 + 2.75	−99.16 + 09	−99.17							

11.4	+ 70.0	− 99.10	+2.75 +29 −.06 −99.16

0 = + 1.79 − .97 n = + .54

April 30 - 1884.

h′ = −.030 | 77 c = +05 | 11.3 +.02 | 21.0 +.00 | 0.0 +.00 | −98.42 | h′ = −.031

10.45

h	δ₀	T−RA	tan δ	sec δ						
7.6	+28.3	0 = −98.67	+0.54	+1.1	+06	−98.61	+.28	−98.33	−24	−98.57
10.9	+62.4	99.55	1.91	2.2	+084	99.52	+.97	.55	−.15	.70 69
11.1	+45.1	99.02	1.00	1.4	+03	98.99	+.51	.48	−14	62
12.2	+57.7	99.16	1.58	1.9	+04	99.12	+.81	.31	−.09	40
20.6	+44.9	99.60	1.00	1.4	+00	99.80	+.51	.79	+.16	63
21.3	+62.1	99.78	1.89	2.1	+00	99.78	+.96	.82	+.18	64
0.8	+60.5	99.62	1.77	2.0	+00	99.62	+90	.72	+28	44
1550			+1.38			−99.28		98.78	98.571	−98.570
22.23										

11.4 +2.75 −99.91 −04 −99.95

12.1 +4.83 −101.02 −10 −101.12

h	δ₀	T−RA	tan δ sec δ			
11.4	+70.0	−99.97	+2.75	+2.9	+.06	−99.91
12.1	+78.3	101.12	4.83	+4.9	+.10	−101.02

0 = +1.37 − 0.67   n = + .49

+3.45   1.84   + .53

+.51

May 12

h′ = −.053 | 90 c = +05 | 115 +.02 | 12.7 −.06 | 102.44 | h′ = −.053

11.12

10.9	+57.0	−103.19	+1.54	+1.8	+.05	−103.14	+85	−102.29	−05	−102.34
10.9	+62.4	103.61	1.91	2.2	+.07	103.54	+105	.49	−04	53
11.0	+45.1	103.05	1.00	1.4	+.03	103.02	+.55	.47	−04	51
11.7	+48.4	103.12	1.13	1.5	+.01	103.11	+.62	.49	−00	49
12.5	+42.0	102.86	0.90	1.3	−06	102.92	+.49	.43	+04	39
12.6	+63.3	103.58	1.99	2.2	−13	103.71	+109	.62	+04	58
12.8	+56.6	103.26	1.52	1.8	−11	103.37	+84	.63	+05	48
11.77			+1.43			−103.26		102.52	102.474	−102.474
12.63										

11.4 +2.75 −103.96 −02 −103.98

11.4 + 70.0 −104.02 +2.75 +2.9 +.06 −103.96

0 = + 1.32 − 0.72   n = + .55

May 24

h′ = +.043 | 47 c = −02 | 120 −.09 | 13.9 −.17 | 109.48 | h′ = +.044

11.15

11.0	±45.1	−109.66	+1.00	+1.4	−.11	−109.77	+.33	−109.44	+04	−109.40
11.2	+33.7	109.63	0.67	1.2	−.10	.73	+.22	.51	+04	47
11.7	+48.4	109.78	1.13	1.5	−13	.91	+.37	.54	+01	53
11.8	+54.7	109.80	1.41	1.7	−15	.95	+.47	.48	+01	47
12.8	+56.6	109.58	1.52	1.8	−23	.81	+.50	.31	−03	34
13.7	+49.9	109.47	1.19	1.6	−26	.73	+.39	.34	−07	41
12.03			+1.15			−109.82		10947	109.437	−109.437
12.50										

133 −43.66 −94.96 −06 −95.05

13.3 −88.7 −101.52 −43.66 −4.57 +6.56 −94.96

0 = −44.81 +14.77   n = + .33

May 26

h′ = −.018 | 12.3 −.09 | 14.5 −.10 | h′ = −.000

110.00

12.37 11.8	+54.3	−110.49	+1.39	+1.7	−.15	−110.64	+.54	−110.10	00	−110.10
12.5	+42.0	110.25	0.90	1.3	−.12	.37	+.35	110.02		110.02
12.8	+56.6	110.33	1.52	1.8	−16	.49	+.59	109.90		109.90
13.7	+49.9	110.26	1.19	1.6	−16	.42	+.46	109.96		109.96
14.2	+46.6	110.23	1.06	1.5	−15	.38	+.41	109.97		109.97
14.3	+52.4	110.52	1.30	1.6	−16	.59 .68	+.51	110.08	00	110.08
13.22		43	+1.23			−110.48		−110.00	−110.008	−110.005
14.07										

140 +2.14 −110.85 +01 −110.84

14.0 + 65.0 −110.61 +2.14 +2.4 −.24 −110.85

0 = + 0.91 −0.34   n = + .39

May 31 - 1884 h' = +.007
106 c = -.02
14.0 -.13
h' = +.029

12.10
h δ₀ π RA tan δ sec δ
111.95
12.5 + 42.0 0 = -112.43 +0.90 + 1.3 - 08 - 112.51 +45 - 112.06 + 03 - 112.03
12.8 + 56.6 112.46 1.52 1.8 - 16 .62 +76 111.86 + 02 111.84
12.8 + 39.0 112.21 0.81 1.3 - 12 .33 +40 111.93 + 01 111.92
13.7 + 49.9 112.32 1.19 1.6 - 19 .51 +59 111.92 - 01 111.93
14.2 + 46.6 112.19 1.06 1.5 - 21 .40 +53 111.87 - 02 111.89
14.3 + 52.4 112.34 1.30 1.6 - 22 .56 .68 + .65 111.91 - 03 111.94
13.38 +1.13 -112.49 111.90 111.925 - 111.925
14.40

14.0 + 2.14 - 113.00 + 00 - 113.00

h δ π RA tan δ sec δ
14.0 + 64.9 0 = -112.69 +2.14 + 2.4 - .31 - 113.00

0 = +1.01 - 0.51 n = + .50

June 3. h' = +.034
11.0 c = -.05
12.9 -.11

12.6 + 63.3 - 114.03 +1.99 + 2.2 - 22 - 114.25 + 78 - 113.47 + 01 - 113.46
12.8 + 56.6 113.84 1.52 1.8 - 20 114.04 + 59 .45 + 00 45
12.8 + 39.0 113.64 0.81 1.3 - ~~20~~ 14 113.~~84~~ 78 + 32 .53 6 + 00 586
13.3 + 55.5 113.82 1.46 1.8 - 22 114.04 + .57 .47 - 01 48
12.88 +1.44 -114.04
- 113.480 - 113.488

133 - 43.65 - 96.21 - .01 - 96.22

13.3 - 88.7 0 = -101.44 - 43.65 - 4.36 + 5.23 - 96.21

0 = -45.09 + 17.82 n = + .39

June 4 h' = -.027
13.8 c = -.12
14.7 -.13
h' = +.020

-113.82
12.77
12.8 + 39.0 - 113.99 +0.81 + 1.3 - 14 114.13 + 28 - 113.85 + 02 - 113.83
13.53 + 55.5 114.08 1.46 1.8 - 22 .30 + .51 .79 + 01 78
13.7 + 49.9 114.08 1.19 1.6 - .19 .27 + .42 .85 + 00 85
14.3 + 52.4 113.98 ~~114.13~~ 1.30 1.6 - 21 .19 .34 + .46 .73 - 01 74
14.8 + 59.8 114.12 1.72 2.0 - 26 .38 + .60 78 - 02 80
13.82 78 +1.30 -114.25 -113.79 -113.800 -113.800
14.27

14.0 + 2.14 - 114.55 + .01 - 114.54

14.0 + 64.9 + 114.26 + 2.14 + 2.4 - 29 - 114.55

0 = + 0.84 - 0.29 n = + .35

June 5 h' = +.033
10.8 c = 0.0
13.0 (-.11 / -.12.5) = -1.36
13.3 - 1.36

12.8 + 56.6 - 114.66 + 1.52 + 1.82 - 18 - 114.84 + .50 70 - 114.34 14 + 01 - 114.33
12.8 + 39.0 114.53 0.81 1.3 28 - 13 114.66 + 37 27 .39 29 + 01 38
13.3 + 55.5 112.30 1.45 1.7 1.8 - 24 25 114.75 + .48 23 24 - 01 24 24
13.7 + 49.9 112.54 1.19 1.5 1.6 - 21 18 114.62 5 + .39 26 27 - 01 24 27
~~12.80~~ ~~+1.16~~ ~~114.75~~ 114.215
13.15 +1.24 - 114.72 - 114.308 - 114.3085

133 - 43.65 - ~~94.18~~ + 02 - ~~94.16~~
-100.05 -100.04

13.3 - 88.7 0 = - ~~99.41~~ - 43.65 - 4.36 + 5.23 - ~~94.18~~
-159.41 +59.36 - 102.05

0 = ~~-44.84 + 20.59~~ ~~n = + .46~~
0 = - 44.89 + 14.68 n = +.33

11.8 c = -.09
15.0 -.20

June 9 h′ = +.025

h	δ₀	τ - RA	tan δ	sec δ							h	δ₀	τ - RA	tan δ sec δ
14.8	+ 59.8	0 = -116.11	+1.72	+ 2.0	-38	-116.49	+ 46	-116.03	+ 00		14.0	+ 64.9	0 = -116.26	+2.14 +2.4 -.41 -116.67
15.0	+ 40.8	116.01	0.86	1.3	-26	.27	+ 23	.04						
15.2	+ 33.8	116.07	0.67	1.2	-25	.32	+ 18	.14	- 00					
15.00			+1.08			-116.36				116.070				
	140 + 2.14	-116.67 +.02	-116.65								0 = +1.06	- 0.29	n = +.27	

12.0 c = -.02
15.0 -.12

June 14 h′ = +.037

13.7	+ 49.9	-118.21	+1.19	+ 1.6	-.17	-118.32	+.44	-117.88	+ 02	-117.86	14.0	+ 64.9	118.33	+2.14 +2.4 -.22 -118.55
14.3	+ 52.4	118.~~30~~13	1.30	1.6	-16	118.29	+.48	.81	+ 00	81				
14.8	+ 59.8	118.17	1.72	2.0	-22	118.39	+ 64	.75	- 02	77				
15.0	+ 40.9	117.74	0.87	1.32	-16	117.90	+.32	58]		[60]				
~~14.45~~ 128 14.27			+1.27			-118.22		-117.813		-117.813	0 = +0.87	- 0.32	n = +.37	
	140 + 2.14	-118.55 +.01	-118.54											

For (ΔT + m) for zone obs see p 59

12.2 c = -.02
13.8 -.06
16.0 -.13

June 16 h′ = +.040 h′ = +

14.17 13.7	+ 49.9	-119.16	+1.19	+ 1.6	-10	-119.26	+.18	-119.08 -119.50	+ 05	-119.03	14.0	+ 64.9	-119.13	+2.14 +2.4 -.14 -119.27
14.3	+ 52.4	118.85 ~~119.02~~	1.30	1.6	-11	118.96 ~~119.13~~	+.20	118.76	+ 02	118.74				
14.5	+ 38.8	118.74	0.80	1.3	-10	118.84	+.12	118.62	+ 01	118.61				
15.9	+ 27.2	118.76	0.51	1.1	-13	118.89	+.08	118.81	- 04	118.85				
16.0	+ 58.9	119.14	1.66	1.9	-25	119.39	+.25	119.14	- 04	[119.18]	0 = +1.05	-0.16	n = +.15	
14.88 15.95			+1.09			-119.07		-118. 118.882		-118.882				
	140 + 2.14	-119.27 +.04	-119.23											

For ΔT + m for zone obs see p 59

12.2 c = -.10
15.8 -.17

June 17 h′ = +.033 h′ = +.054

14.00 13.7	+ 49.9	-119.52	+1.19	+ 1.6	-.21	-119.73	+.13	-119.52 -119.60	+.06	-119.54	14.0	+ 65.0	-119.47	+2.14 +2.4 -.31 -119.78
14.3	+ 52.4	119.~~34~~36	1.30	1.6	-22	.58 ~~.56~~	+.14	.44	+ 03	41				
14.5	+ 38.8	119.~~08~~18	0.80	1.3	-18	.36 ~~.26~~	+.09	.27	+ 02	(25)				
15.9	+ 27.2	119.27	0.51	1.1	-19	.46	+.06	.40	- 05	.45				
16.0	+ 58.9	119.50	1.66	1.9	-34	.84	+.18	.66	-.06	72	0 = +1.05	- 0.16	n = +.11	
14.88 15.47			+1.09			-119.59		-119.44 -119.474		-119.474				
	140 + 2.14	-119.78 +.03	-119.75											

For (ΔT + m) for zone obs see p 59

18

June 18 - 1884 h' = +.043 118 c = -.11 h' = +.058

15.4 -.17

~~14.10~~

h	δ₀	π RA	tan δ sec δ							
14.3	+ 52.4	0 = -119.88	+1.30 + 1.6	- 26	~~-120.14~~ 119.96	+ .18	-119.78	+ .03	- 119.75	
14.5	+ 38.8	119.65	0.80 1.3	- 21	119.86	+.11	.75	+ .01	74	
14.8	+ 59.8	119.63	1.72 2.0	- 32	.95	+.24	.71	+ .00	71	
15.0	+ 40.8	119.59	0.86 1.3	- 22	.81	+.12	.69	- .01	70	
15.4	+ 41.2	119.65	0.88 1.3	- 22	.87	+.12	.75	- .03	78	
14.80			+1.11		119.89		-119.76	-119.72 119.736	-119.736	
15.07										

15.2 + 2.45 - 120.05 - 02 - 120.07

h	δ₀	π RA tan δ sec δ			
15.2	67.8	0 = - 119.61 + 2.45 + 2.6	- .44	-120.05	
0 = + 1.34	- 0.18	n = + .14			

140 -.14

16.0 -.19

n = + .14

June 19 h' = +.031

15.4	+ 41.2	- 120.14	+0.88 + 1.3	- 22	-120.36	+.12	-120.24	+ 01	- 120.23	
16.0	+ 58.7	120.37	1.64 1.9	- 36	69.73	+ 23	46	+ 00	46	
16.3	+ 46.6	119.95	1.06 1.5	- 30	.25	+.15	.10	- 01	11	
15.90			+1.19		-120.43				- 120.267	

123 c = -.10

16.5 -.18

June 21 h' = +.036

15.3	+ 37.8	- 120.59	+0.78 + 1.3	- 19	-120.78	+ .16	-120.62	+ 02	- 120.60	
15.4	+ 41.2	120.79	0.88 1.3	- 19	120.98	+ 18	.80	+ 01	.79	
16.3	+ 46.6	120.69	1.06 1.5	- 25	120.94	+ 21	.73	- 02	.75	
16.4	+ 61.8	120.87	1.86 2.1	- 38	121.25	+ 37	.88	- 02	.90	
15.85			+1.14		120.99				- 120.760	

15.2 + 2.45 - 121.04 + .02 - 121.02

15.2 + 67.8 -120.65 + 2.45 + 2.6 - .39 - 121.04

Assume n = +.20

0 = +1.31 ~~- 0.03~~ ~~n = +.02~~

122 c = -.08

15.0 -.14

June 23 h' = +.039

~~14.3~~ ~~+ 52.4~~ ~~+1.30 + 1.6~~

15.0 + 40.8 - 121.52 +0.86 + 1.3 - 18 - 121.70 +.19 - 121.51 +00 -121.510

13.3 - 43.64 - 111.79 +07 - 111.72

13.3 - 88.7 0 = - 116.15 - 43.64 - 43.6 + 43.6 - 111.79

0 = - 44.50 + 9.98 n = + .22

128 c = -.02

16.5 -.12

June 24b h' = +.044

15.9	+ 27.2	- 122.76	+0.51 + 1.1	- 11	- 122.87	+ .10	- 122.77	+ 02	- 122.75	
16.4	+ 21.8	122.74	0.40 1.1	- 13	.87	+ .08	.79	- 00	79	
16.5	+ 42.7	122.73	0.92 1.4	- 17	.90	+ .18	.72	- 01	73	
16.27			+0.61		-122.88					

- 122.760 - 122.757

16.5 + 2.60 - 123.33 + 01 - 123.32

16.5 + 69.0 - 122.99 + 2.60 + 2.8 - .34 - 123.33

0 = + 1.99 - 0.44 n = + .20

.15.5 c = +.00
16.5 -.12

June 30 - 1884 h' = +.047

h δ₀ π Ra tan δ sec δ

15.4 + 59.4 0 = -125.05 +1.69 + 2.0 +.02 -125.03 +.08 -124.95 +.02 -124.98
15.4 + 41.2 125.06 0.88 1.3 +.01 .05 +.04 125.01 +.02 4.99
16.5 + 42.7 124.91 0.92 1.4 -.17 .08 +.05 125.03 -.04 5.07
15.77 +1.16 -125.05 -125.000 4.997 -124.997

15.8 + 4.79 -124.88 -.00 -124.88
16.5 + 2.60 -125.24 -.03 -125.27

For (ΔT + m) for June etc see p 60

h δ π Ra tan δ sec δ
15.8 + 78.2 0 = -124.68 +4.79 +4.9 -.20 -124.88
16.5 + 69.0 124.90 2.60 +2.8 -.34 125.24

0 = + 3.63 +0.17 n = -.05
+1.44 - 0.22 +.15
+0.50

16.5 c = +.17

July 1. h' = +.044

16.4 + 61.8 -125.31 +1.86 + 2.1 -.36 -125.67 +.02 125.65 +.00 -125.65
16.5 + 42.7 125.12 0.92 1.4 -.24 .36 +.01 .35 +.00 35
16.6 + 39.2 125.28 0.82 1.3 -.22 .50 +.01 .49 -.00 49
16.50 +1.20 -125.51 125.497 -125.497

16.5 + 2.60 -125.50 .00 -125.50

16.5 + 69.0 -125.02 +2.60 +2.8 -.48 -125.50

0 = +1.40 -.01 n = +.01

127 c = -.11
160 -.15
170 -.20

July 3. h' = +.042

15.4 + 59.4 -125.81 +1.69 + 2.0 -.28 -126.09 +.12 125.97 +.03 -125.94
15.4 + 41.2 125.95 0.88 1.3 -.18 .13 +.06 6.07 +.02 6.05
15.5 + 27.1 126.18 0.51 1.1 -.15 .33 +.04 6.29 +.02 6.27
16.3 + 46.6 125.79 1.06 1.5 -.24 .03 +.07 5.96 -.01 5.97
16.4 + 61.8 126.00 1.86 2.1 -.36 .36 +.13 6.23 -.02 6.25
16.9 + 31.1 125.90 0.60 1.2 -.24 .14 +.04 6.10 -.04 6.14
15.981 +1.10 -126.18 126.103 -126.103

15.8 + 4.79 -126.43 -.01 -126.44

15.8 + 78.2 -125.70 +4.79 +4.9 -.73 -126.43

0 = +3.69 -0.26 n = +.07

14.0 c = -.03
16.2 -.06
17.0 -.09

July 10 h' = +.042

15.7 + 15.8 -128.42 +0.28 + 1.0 -.05 -128.47 +.03 -128.44 +.04 -128.40
16.0 + 58.9 128.52 1.66 1.9 -.11 .63 +.18 .45 +.02 43
16.3 + 46.6 128.40 1.06 1.5 -.09 .49 +.12 .37 +.01 36
16.9 + 31.1 128.38 0.60 1.2 -.11 .49 +.07 .42 -.02 44
17.2 + 36.9 128.42 0.75 1.2 -.12 .54 +.09 .45 -.03 48
17.1 + 65.8 128.67 +2.22 2.4 -.22 .89 +.24 .65 -.02 67
16.53 +1.09 -128.58 128.463 -128.463

16.2 + 4.07 -128.92 +.01 -128.91

16.2 + 76.2 -128.67 +4.07 +4.2 -.25 -128.92
~~17.1 + 65.8 128.67 2.22 +2.4 -.22 .89~~

0 = 2.98 - 0.33 n = +.11

14.2 c = -.05
15.9 -.09

July 14 h' = +.045

15.4 + 41.2 - 129.49 +0.88 + 1.3 -.10 -129.59 +.13 -129.46 +.04 -129.42
16.3 + 46.6 129.36 1.06 1.5 -.15 .51 +.16 .35 +.00 35
16.4 + 61.8 129.50 1.86 2.1 -.21 .71 +.28 .43 -.01 44
16.9 + 31.1 129.41 0.60 1.2 -.13 .54 +.09 .45 -.03 48
16.25 +1.10 -129.59 129.422 -129.422

15.8 + 4.79 -130.17 +.02 -130.15

15.8 + 78.2 -129.73 +4.79 +4.9 -.44 -130.17

0 = +3.69 -0.56 n = +.15

July 15 - 1884 h' = +.043

140 c = −.03
180 −.15

l	δ_0	T − Ra	$\tan\delta \sec\delta$							
16.0	+ 58.9	0 = −129.70	+1.66	+ 1.9	−.17	−129.87	+.18	−129.69	+ 04	− 129.65
16.3	+ 46.6	129.58	1.06	1.5	−.15	.73	+.12	.61	+ 03	58
16.4	+ 61.8	129.75	1.86	2.1	−21	.96	+.20	.76	+ 03	73
16.9	+ 31.1	129.67	0.60	1.2	−14	.81	+07	.74	+ 00	74
17.6	+ 46.1	129.74	1.04	1.4	− 20	.94	+.11	.83	− 02	85
17.9	+ 37.3	129.67	0.76	1.3	− 19	.86	+.08	.78	− 04	82
18.0	+ 57.5	129.67	1.26	1.6	− 24	.91	+.14	.77	− 04	81
17.01			+1.18			−129.87		129.740		−129.740

158 + 4.79 −130.34 +.05 −130.29

for (ΔT + m) for Zone sts see p. 60

h	δ_0	T − Ra	$\tan\delta \sec\delta$			
15.8	+ 78.2	0 = − 129.95	+4.79	+4.9	−39	−130.34

0 = +3.61 − 0.42

n = +.11

July 16 h' = +.042

137 c = −01 −90 = −91
173 −.10 −90 −1.00

16.3	+ 46.6	−128.38	+1.06	+ 1.46	−144	−129.82	+ 30	−129.52	+ 02	− 129.50
16.6	+ 39.2	128.69	0.82	1.29	−1.26	.95	+ 23	.72	+ 00	72
16.7	+ 57.0	128.04	1.521	1.84	−182	.86	+ 43	.43	+ 00	43
17.2	+ 36.9	128.62	0.75	1.25	−1.25	.87	+ 21	66	− 02	68
16.70			1.04			−129.88		129.582		−129.582

17.6 + 2.58 −130.28 −.04 −130.32

17.6	+ 68.8	− 127.52	+2.58	+2.76	−2.76	−130.28

0 = +1.54 − 0.44

n = +.28

July 17 h' = +.045

13.3 c = −.26
18.3 −.00

17.6	+ 46.1	−130.02	+1.04	+ 1.4	−32	−130.84	+28	−129.71	+ 02	− 129.72
17.9	+ 51.5	129.97	1.26	1.6	−38	.35	+ 34	.63	+ 00	63
18.3	+ 21.7	129.98	0.40	1.1	−29	.27	+.11	.87	− 01	88
18.4	+ 58.7	129.95	1.64	1.9	−49	.44	+ 44	.51	− 02	53
18.05		−129.98	+1.08							−129.690

18.2 + 16.91 −134.24 −.01 −134.25

Assume n = +.27

~~18.2 + 86.6 − 137.87 +16.91 +16.9 −4.39 −142.26~~

134.24 +16.91 +16.9 −

0 = +15.83 − 4.27 n = +.27

July 21 h' = +.048

140 c = −.05
172 −.12

17.2	+ 36.9	− 131.52	+0.75	+ 1.2	−14	−131.66	+.19	−131.47	+.04	− 131.43
17.5	+ 52.4	131.46	1.30	1.6	−21	.67	+.34	.33	+.03	30
17.6	+ 46.1	131.45	1.04	1.4	−18	.63	+.27	.36	+.02	34
18.5	+ 38.7	131.29	0.80	1.3	−19	.48	+.21	.27	− 02	29
18.8	+ 43.8	131.27	0.96	1.4	−21	.48	+.25	.23	− 03	26
19.2	+ 53.2	131.31	1.34	1.7	−27	.58	+.35	.23	−.04	27
18.13			+1.03			−131.58		131.315		−131.315

19.2 + 2.41 −131.89 −.05 −131.94

19.2	+ 67.5	− 131.48	+2.41	+ 2.6	−41	−131.89

0 = +1.38 − .36

n = +.26

145 c = −06
185 −~~1~~8

July 22-1884 h′ = +.025 h′ = +.031

16.68 h	δ₀	T−RA	tan δ	sec δ				−131.70		
16.5	+42.7	0=−131.75	+0.92	+1.4	−17	−131.92	+.29	−131.63	+02	−131.61
16.6	+39.2	131.76	0.82	1.3	−16	131.92	+.26	.66	+02	64
16.7	+57.0	131.93	1.54	1.8	−23	132.16	+.49	.67	+02	65
16.9	+31.1	131.85	0.60	1.~~7~~2	−~~22~~16	1320~~7~~1	+.19	.8~~8~~2	+01	8~~7~~1
17.6	+46.1	131.76	1.04	1.4	−21	131.97	+.33	.64	−01	65
17.8	+56.9	131.92	1.53	1.8	−28	132.20	+.49	.71	−01	72
17.9	+51.5	131.71	1.26	1.6	−26	131.97	+.40	.57	−02	59
18.~~5~~	+38.7	131.76	0.80	1.3	−23	131.99	+.26	.73	−03	76
17.31			+1.06			132.02		−131.66 131.6~~86~~72		−131.6~~88~~79
17.95	18.4 +3.21	−132.68−.03	−132.71							

h	δ₀	T−RA	tan δ sec δ
18.4	+72.7	0=−132.07	+3.21 +3.4 −.61 −132.68

0=+2.15 −0.69 n=+.32

147 c = −07
185 −.17

July 26 h′ = +.051

[16.4]	+61.8	−133.52	+1.86	+2.1	−19	−133.71	+.24	−133.47	(+04)	(−133.43)
16.5	+42.7	133.09	0.92	1.4	−13	.22	+.12	.10	+0~~6~~5	133.05
17.6	+46.1	133.02	1.04	1.~~4~~	−20	.22	+.14	.08	−0~~1~~	09
17.8	+56.9	133.27	1.53	1.8	−25	.52	+.20	.32	−0~~2~~	34
17.9	+51.5	132.98	1.26	1.6	−24	.22	+.16	.06	−02	08
17.~~24~~ .45			+1.32			−133.38				−133.140
	17.0 +7.30	−134.14+.01	−134.13							

17.0 +82.2 −133.33 +7.30 +7.4 −.81 −134.14

0=+5.98 −0.75 n=+.13

150 c = −08
183 −09
20.5 −.18

July 28 h′ = +.004 h′ = +.015

16.90								−133.83		
16.5	+42.7	−133.89	+0.92	+1.4	−11	−134.00	+.09	−133.91	+02	−133.89
16.6	+39.2	133.78	0.82	1.3	−10	133.88	+.08	.80	+02	78
16.7	+57.0	133.86	1.54	1.8	−14	134.00	+.15	.85	+02	83
17.8	+56.9	133.75	1.53	1.8	−16	133.91	+.15	.76	+00	76
17.9	+51.5	133.68	1.26	1.6	−14	133.82	+.13	.69	+00	69
~~[20.2]~~	~~+46.4~~	~~153.12~~	~~1.05~~	~~1.4~~	~~−24~~	~~[153.36]~~				
20.3	+39.9	133.65	0.84	1.3	−22	133.87	+.08	.79	−03	82
20.5	+62.6	133.68	1.93	2.2	−40	134.08	+.19	.89	−03	.92
18.04			+1.26			−133.94		133.79	133.81~~2~~3	−133.813
19.57	18.2 +16.91	−135.51+.00	−135.51							

18.2 +86.6 −133.99 +16.91 +16.9 −1.52 −135.51

0=+15.65 −1.57 n=+.10

153 c = −05
180 −.15

July 30 h′ = +.052

Assume n=+14

17.8	+56.9	−134.88	+1.53	+1.8	−.25	−135.13	+.21	−134.92	+00	−134.92
17.9	+51.5	134.58	1.26	1.6	−24	134.82	+18	.64	00	.64
17.85			+1.40			−134.98		−134.780		−134.780

17.78

Aug. 2 - 1884 h' = +.038 55 c = −.07 / 20.7 −.16 / 17.7 −.08 h' = +.032

135.39

h	δ₀	T−RA	tan δ sec δ				
17.6	+ 46.1	0 = −135.44	+1.04 + 1.4	−.11 −135.55	+ 16 −135.39	+ 06 −135.	33
17.7	+ 27.8	135.39	0.53 1.1	−09 .48	+.08 40	+ 05	35
17.9	+ 56.9	135.52	1.53 1.8	−.14 .66	+23 43	+ 05	38
17.9	+ 51.5	135.38	1.26 1.6	−.15 .53	+.19 34	+ 04	30
18.5	+ 38.7	135.37	0.80 1.3	−13 .50	+ 12 .38	+ 02	36
18.8	+ 59.3	135.27	1.68 2.0	−22 .49	+.25 .24	+01	23
20.5	+ 62.6	135.14	1.93 2.2	−.35 .49	+.29 .20	−05	25
20.6	+ 44.9	135.27	1.00 1.4	−.22 .49	+.15 .34	−06	40
20.7	+ 33.5	135.28	0.66 1.2	−19 .47	+.10 .37	−06	43
20.7	+ 36.1	135.31	0.73 1.2	−19 .50	+ .11 .39	−06	45
19.09			+1.12	−135.52	135.32	=135.348	−135.348
19.97	20.6 + 3.63	−135.83 − .06	−135.89				

h	−δ₀	T−RA	tan δ sec δ		
20.6	+ 74.6	0 = −135.16	+3.63 + 3.8	− .67	−135.83

0 = + 2.51 − 0.37 n = + .15

18.65

Aug. 6 h' = +.000 11.7 c = −.17 / 19.7 −.18 h' = .000

−136.64

18.4	+ 58.7	−136.73	+1.64 + 1.9	−32 −137.05	+.44 −136.61	00
18.9	+ 43.8	136.68	0.96 1.4	−24 136.92	+26 .66	
19.2	+ 37.9	136.58	0.78 1.3	−22 136.80	+.21 .59	
19.2	+ 53.2	136.67	1.34 1.7	−31 136.98	+.36 .62	
19.4	+ 51.5	136.71	1.26 1.6	−29 137.00	+.34 .66	
19.7	+ 44.8	136.72	0.99 1.4	−25 136.97	+.27 .70	00
19.13			+1.16	−136.95	136.64	136.640
19.38	18.2 + 16.92	−141.24 .00	−141.24			

18.2	+ 86.6	− 138.37	+16.92 + 16.9	− 2.87	−141.24

0 = + 15.76 − 4.29 n = + .27

Aug 9 h' = +.050 16.0 c = −.11 / 18.3 −.12 / 20.4 −.13 h' = +.010

18.18

−137.40

17.9	+ 56.9	−137.66	+1.53 + 1.8	−.22 −137.88	+31 137.57	+01	−137.56
17.9	+ 51.6	137.44	1.26 1.6	−19 .63	+25 .38	+01	37
18.4	+ 58.7	137.27	1.64 1.9	−23 .50	+33 .17	+01	16
18.5	+ 38.7	137.46	0.80 1.3	−16 .62	+16 46	+01	45
19.9	+ 52.1	137.40	1.28 1.6	−19 .59	+26 .33	−01	34
20.2	+ 46.4	137.42	1.05 1.4	−18 .60	+.21 .39	−01	40
20.5	+ 62.6	137.58	1.85 2.2	−29 .87	+39 .48	−.02	50
19.04			93 +1.36	−137.67	137.397		−137.397
20.20					137.38		

18.2 + 16.92 − 140.66 −.01 −140.67

~~18.2 + 86.6 − 138.63 +16.92 + 16.9 − 2.03 − 140.66~~

~~Assume n = +.20~~

0 = +15.56 − 3.00 n = +.20

Jan. 8 1885 c = 00 n = +.80 h′ = +.024

h	δ₀	T − RA	tan δ	sec δ	c sec δ	T-RA n tan δ			
3.3	+59.6	0 = +2.61	+1.70			+1.36	+3.97	+00	+3.97
3.4	+12.6	3.83	+.22			+.18	4.01		4.01
3.8	+31.6	3.61	+.62			+.50	4.11	+00	4.11
3.50							+4.027		+4.027

Jan 10 c = −.02 n = +.53 h′ = +.000 h′ = +.000 +4.15

3.12 2.8	−21.5	0 = +4.49	−.39	+1.1	−02	+4.47	−.21	+4.26	+00	+4.26 −
2.8	−9.4	4.33	−.17	1.0	−02	4.31	−.09	4.22		22 −
3.0	+38.4	3.64	+.79	1.3	−03	3.61	+.42	4.03		03*
3.3	+49.5	3.43	+1.17	1.5	−03	3.40	+.62	4.02		02
3.7	+23.8	3.99	+.44	1.1	−02	3.97	+.23	4.20		20*
3.8	+31.6	3.77	+.62	1.2	−02	3.75	+.23	4.08		08*
3.9	+5.7	4.19	+.10	1.0	−02	4.17	+.05	4.22		22 −
4.0	+47.4	3.56	+1.09	1.5	−03	3.53	+.58	4.11		11
4.3	+17.3	4.01	+.31	1.0	−02	3.99	+.16	4.15		15*
4.4	+18.9	4.05	+.34	1.1	−02	4.03	+.18	4.21	+00	21*
4.08 3.60								+4.15 +4.150		+4.150

h	δ	T − RA	tan δ	sec δ		
3.1	+77.3	0 = +1.77	+4.44	+4.5	−.09	+1.68
15.3	+72.2	~~+3.41~~ 5.64	−3.12	−3.3	+.07	~~+3.48~~ +5.71

3.1 +4.44 + 1.68 +00 0 = +4.72 − 2.71 n = +.57
3.3 −3.12 + 5.71 +00 −2.84 + 1.32 + .46

0 = +4.14 − 2.36 n = +.57
−3.42 + 1.67 +.49

0 = +3.52 − 1.89 n = +.54
−4.04 + 2.14 +.53
+.53 h′ = +.031

2.8 −.39 +4.47
2.8 −.17 4.31
2.8 −.28 +4.39

3.7 +.44 +3.97
3.9 +.10 4.17
4.3 +.31 3.99
4.4 +.34 4.03
4.1 +.30 +4.04

3.0 +.79 +3.61
3.3 +1.17 3.40
3.8 +.62 3.75
4.0 +1.09 3.53
3.5 +.92 +3.57

Jan 13 c = .00

2.6	+9.6	0 = +5.22	+.17	+.11	+5.33	+01	+5.34
2.8	+52.3	4.45	+1.29	+.80	5.25	+00	.25
3.0	+40.5	4.80	+.85	+.53	5.33	−01	.32
2.80					+5.303		+5.303

14.8 +74.6 0 = +7.52 − 3.63

2.6 +.17 +5.22

2.8 −3.63 + 7.52 0 = −3.80 + 2.30 n = +.61

2.8 +1.29 +4.45
3.0 +.85 4.80
2.9 +1.07 +4.62

0 = −4.70 + 2.90 n = +.62
+.62

Jan 14 c = 00 h′ = +.040 h′ = +.040 +5.47

3.22 2.8	+52.3	0 = +4.58	+1.29	+.83	+5.41	+04	+5.45
3.0	+38.4	4.91	+.79	+.51	5.42	+.03	.45 x
3.4	+12.6	5.39	+.22	+.14	5.53	+.01	54
3.7	+23.8	5.24	+.44	+.28	5.52	+00	52 x
3.9	+5.7	5.50	+.10	+.06	5.56	−.01	55
4.0	+47.4	4.75	+1.09	+.70	5.45	−.01	44
4.3	+17.3	5.31	+.31	+.20	5.51	−.02	49 x
4.4	+18.9	5.21	+.34	+.22	5.43	−.02	41 x
4.5	+16.3	5.31	+.29	+.19	5.60	−.03	57 x
4.22 3.78					+5.51 +5.492		+5.491

14.8 +74.6 0 = +7.93 − 3.63
3.1 +77.3 +2.75 +4.44
~~15.3 +72.2 −0.16 −3.12~~

28 −3.63 + 7.93 I +.05 I +02 0 = −3.91 + 2.~~60~~ 65 n = + .~~66~~ 68
3.1 +4.44 + 2.75 +04 +01 +4.16 − 2.~~58~~ 54 + .~~62~~ 61

0 = −4.69 + 3.~~16~~ 18 n = + .~~67~~ 68
+3.38 − ~~2.00~~ 1.99 + .59 59
+.64

3.4 +.22 +5.39
3.7 +.44 5.24
3.9 +.10 5.50
4.3 +.31 5.31
4.4 +.34 5.21
4.5 +.29 5.31
4.0 +.28 +5.33

2.8 +1.29 +4.58
3.0 +.79 4.91
4.0 +1.09 4.75
3.3 +1.06 +4.75

Jan. 17 1885 c = 00

h' = +.012 −.039 h' = +.012

+.664

3.44 3.49 h	o	2 tan δ sec δ			
3.0	+38.4	0 = +6.16 + 0.79	+ .46	+ 6.62 +01	+ 6.63 x
3.3	+ 8.6	6.61 + .15	+ .09	6.70 +00	.70
3.4	+12.6	6.53 + .22	+ .13	6.66 +00	66
3.7	+ 23.8	6.35 + .44	+ .26	6.61 +00	61 x
3.8	+ 31.6	6.26 + .62	+ .36	6.62 −00	62 x
4.25 4.00 4.0	+47.4	5.95 + 1.09	+ .63	6.58 −00	58
4.5	+16.3	6.55 + .29	+ .17	6.72 −01	.71 +
3.67				+6.65 +6.652	+6.652

2.8	−3.63	+ 8.78	0 = −3.91 + 2.27	n = + .58
3.1	+4.44	+ 3.96	+4.16 − 2.55	+ .61
3.3	− 3.12	+ 8.28	− 3.40 + 1.77	+ .52
			0 = −4.46 + 2.66	n = + .60
			+3.61 − 2.16	+ .60
			−3.95 − 2.16	+ .55
				+ .58

h	o	2 tan δ sec δ
14.8	+ 74.6	0 = + 8.78 − 3.63
3.1	+ 77.3	+3.96 + 4.44
15.3	+ 72.2	+8.28 − 3.12

3.3 +.15 +6.61
3.4 +.22 6.53
3.7 +.44 6.35
4.5 +.29 6.55
3.7 +.28 +6.51

3.0 +.79 +6.16
3.8 +.62 6.26
4.0 +1.09 5.95
3.6 +.83 +6.12

Jan 18 c = .00

For Jan 18 see page 58

h' = +.066 +6.93 h' = +.066

1.53 1.5	+48.1	0 = +6.27 + 1.12	+ .63	+ 6.90 +08	+ 6.98
(1.6)	+67.5	[5.40] + 2.41	+ 1.35	[6.75]	
1.6	+50.1	6.29 + 1.20	+ .67	6.96 +07	7.03
~~1.8~~	~~+63.1~~	~~5.93 + 1.97~~			
2.8	+52.3	6.27 + 1.29	+ .72	6.99 −01	6.98
2.9	+53.1	6.22 + 1.33	+ .74	6.96 −02	6.94
3.3	+ 8.6	7.07 + .15	+ .08	7.15 −05	7.10
3.20 3.8	+31.6	6.70 + .62	+ .35	7.05 −08	6.97
2.65				+7.04 +7.002	+7.000

1.8	+1.97	+ 5.93	0 = +1.59 − .95	n = + .60
2.8	−3.63	+ 9.13	−4.01 + 2.25	+ .56
3.1	+4.44	+ 4.52	+4.06 − 2.36	+ .58
3.3	− 3.12	+ 8.78	−3.50 + ~~2.10~~ +1.90	+ ~~.60~~ .54
			0 = + .73 − .33	n = + .45
			−4.87 + 2.87	.59
			+3.20 − 1.74	.54
			−4.36 + 2.52	.58
				+.56

1.8	+ 63.1	0 = + 5.93 + 1.97
14.8	+ 74.6	0 = + 9.13 − 3.63
3.1	+ 77.3	+ 4.52 + 4.44
15.3	+ 72.2	+ 8.78 − 3.12

3.3 +.15 +7.07
3.8 +.62 6.70
3.6 +.38 +6.88

1.5 +1.12 +6.27
1.6 +1.20 6.29
2.8 +1.29 6.27
2.9 +1.33 6.22
2.2 +1.24 +6.26

Jan 19 c = 00

h' = +.009 h' = +.009 +7.31

3.80 3.3	+ 8.6	0 = +7.20 + .15	+ .11	+ 7.35 +01	+ 7.36
3.8	+31.6	6.79 + .62 x	+ .45	7.24 +01	.25 x
4.3	+17.3	7.10 + .31 x	+ .23	7.33 +00	.33 x
4.5	+16.3	7.16 + .29 x	+ .21	7.37 −00	.37 x
4.8	+33.0	6.79 + .65 x	+ .47	7.26 −00	.26 x
5.1	+38.3	6.76 + .79	+ .58	7.34 −01	.33 x
4.88 5.1	+45.9	6.54 + 1.03	+ .75	7.29 −01	.28
4.41				+7.37 +7.311	+ 7.311

3.1 +4.44 + 4.06 0 = +4.19 − 3.09 n = + .74

0 = + 3.67 − 2.66 n = + .72

+.73

3.1 +77.3 0 = + 4.06 + 4.44

3.3 +.15 +7.20
4.3 +.31 7.10
4.5 +.29 7.16
4.0 +.25 +7.16

3.8 +.62 +6.79
4.8 +.65 6.79
5.1 +.79 6.76
5.1 +1.03 6.54
4.7 +.77 +6.72

Jan 20 c = 00

n = +.56

h' = +.030

3.3	+8.6	0 = +7.56 + .15	+ .08	+7.64 +00	+ 7.64
3.4	+12.6	7.43 + .22	+ .12	7.55 00	.55
~~3.35~~ 3.4				+7.595	+7.595

Jan 21 c = 00

h' = +.025

3.0	+38.4	0 = +7.25 + .79	+ .44	+7.69 +01	+ 7.70 x
3.3	+ 8.6	7.81 + .15	+ .08	7.89 +01	.90 +
4.4	+18.9	7.60 + .34	+ .19	7.79 −02	.77 x
(5.1)	+45.9	6.96 + 1.03	+ .58	7.54]	[.50]
3.57				+7.790	+7.790

3.1	+4.44	+5.11 +02 +02 I	0 = +4.20 − 2.59 7	n = + .61
3.3	−3.12	+9.37 +01 +02	−3.36 + 1.67 8	+ .50
			0 = + 3.53 − 1.97	n = + .56
			− 4.03 + 2.29	+ .57
				+.56

3.1	+77.3	0 = +5.11 + 4.44
15.3	+ 72.2	+9.37 − 3.12

3.3 +.15 +7.81
4.4 +.34 7.60
3.8 +.24 +7.70

3.0 +.79 +7.25
5.1 +1.03 +6.96
4.0 +.91 +7.10

Jan 22 1885 c = 00 Stet h' = +.027 n = ~~.80~~

h	o	e	tan δ sec δ						
2.6	+48.7	0 = +7.12	+1.14	.91	+ .75	+7.87	+.01	+ ~~7.88~~	× 8.03
2.8	+52.3	6.90	+1.29	1.03	+ .85	7.75	+.00	.75	× 7.63
3.6	+47.4	7.19	+1.09	.87	+ .72	7.91	−.01	.90	× 8.06
3.0						+7.843		+7.843 Stet	8.007

h	o	e	tan δ sec δ
14.8	+74.6	0 = +10.18	−3.63
3.1	+77.3	+4.89	+4.44

		I			
2.8	−3.63	+10.18 +.01	0 = −4.80	+3.1x²	n = + .65
3.1	+4.44	+4.89 −.01	+3.27	−2.18 9	+ .67
					+.66 Stet

2.6	+1.14	+7.12
2.8	+1.29	6.90
3.6	+1.09	7.19
3.0	+1.17	+7.07

Jan 26 c = +.03 For Jan 26 see page 58

h' = +.113 +8.84 h' = +.113

3.00 2.8	+52.3	0 = +7.78	+1.29	+1.6	+.05	+7.83	+ 1.03	+8.86	+.15	+ 9.01
2.9	+53.1	7.67	+1.33	1.7	.05	7.72	+ 1.06	8.78	+.14	8.92
3.0	+40.5	8.16	+ .85	1.3	.04	8.20	+ .68	8.88	+12	9.00
3.3	+59.5	7.42	+1.70	2.0	.06	7.48	+ 1.36	8.84	+09	8.93
— 5.1	+45.9	8.27	+1.03	1.4	.04	8.31	+ .82	9.13	−11	9.02
5.8	+54.3	7.96	+1.39	1.7	.05	8.01	+ 1.11	9.12	−19	8.93
5.8	+44.9	8.32	+1.00	1.4	.04	8.36	+ .80	9.16	−19	8.97
5.57 4.10								+9.13 +8.967		+8.969

14.8	+74.6	0 = +11.75	−3.63 −.38 −.11	+11.64
3.1	+77.3	+5.15	+4.44 +.45 +.13	5.28

2.8	−3.63	+11.64	0 = −4.86	+3.65	n = + .75
3.1	+4.44	+5.28	+3.21	−2.71	+ .84
					+.80

2.8	+1.29	+7.83
2.9	+1.33	7.72
3.0	+ .85	8.20
3.3	+1.70	7.48
5.1	+1.03	8.31
5.8	+1.39	8.01
5.8	+1.00	8.36
4.1	+1.23	+7.99

Jan 27 c = .00 h' = +.026

2.9	+53.1	0 = +8.34	+1.33	+ .61	+8.95	+.00	+ 8.95
3.0	+40.5	8.74	+ .85	+ .39	9.13	+.00	9.13
~~2.95~~ 3.0					+9.040		+9.040

14.8	+74.6	0 = +10.84	−3.63
3.1	+77.3	+7.08	+4.44

		I			
2.8	−3.63	+10.84 +.01	0 = −4.72	+2.30 1	n = + .49
3.1	+4.44	+7.08 +.00	+3.35	−1.46	+ .44
					+.46

2.9	+1.33	+8.34
3.0	+ .85	8.74
3.0	+1.09	+8.54

Jan 29 c = +.10 h' = −.007 +9.50 h' = −.007

2.90 2.8	+52.3	0 = +8.57	+1.29	+1.6	+.16	+8.73	+ .70	+9.43	+.01	+ 9.44
2.9	+53.1	8.59	+1.33	1.7	+.17	8.76	+ .72	9.48	+.01	49
3.0	+40.5	9.01	+ .85	1.3	+.13	9.14	+ .46	9.60	+.01	61
— 5.6	+49.8	8.70	+1.18	1.5	+.15	8.85	+ .64	9.49	−.01	48
5.8	+54.3	8.55	+1.39	1.7	+.17	8.72	+ .75	9.47	−.01	46
(6.0)	+14.8	9.46	+ .26	1.0	+.10	[9.56]	+ .14	[9.70]	+9.494	+9.496
5.70 4.02								+9.48		

14.8	+74.6	0 = +12.10	−3.63 −.38 −.38	+11.72
3.1	+77.3	+6.77	+4.44 +.45 +.45	+7.22

		I			
2.8	−3.63	+11.72 −.01	0 = −4.84	+2.88 9	n = + .59
3.1	+4.44	+7.22 −.01	+3.23	−1.62 3	+ .50
					+.54

2.8	+1.29	+8.73
2.9	+1.33	8.76
3.0	+ .85	9.14
5.6	+1.18	8.85
5.8	+1.39	8.72
4.0	+1.21	+8.84

Jan 31 c = ~~+.16~~ or 00 h' = +.00 h' = +.000 +9.49

3.00 2.8	−21.5	0 = +9.80	− .39	+1.1	− .29	+9.51	+.00	+ 9.51 −
2.8	−9.3	9.63	− .16	1.0	− .12	9.51	+.00	51 −
2.9	+53.1	8.34	+1.33	1.7	+ 1.00	9.34	+.00	34
3.0	+40.5	8.85	+ .85	1.3	+ .64	9.49	+.00	49
— 3.5	−9.8	9.75	− .17	1.0	− .13	9.62	+.00	62 −
4.5	−14.5	9.71	− .26	1.0	− .20	9.51	−.00	51 −
5.6	+49.8	8.59	+1.18	1.5	+ .88	9.47	−.00	47
5.8	+54.3	8.30	+1.39	1.7	+ 1.04	9.34	−.00	34
6.1	+22.5	9.33	+ .41	1.1	+ .31	9.64	−.00	64
5.50 4.11						+9.419	+9.492	+9.492

3.1	+77.3	0 = +6.16	+4.44 +.45
~~6.1~~	~~+69.4~~	~~+8.09~~	~~+2.66 .28~~

3.1	+4.44	+6.16	0 = +4.68	+3.56	n = + .76
			0 = +3.81	+2.93	n = + .77
			0 = +3.14	+2.25	n = + .72 +.75

2.8	− .39	+9.80
2.8	− .16	9.63
3.5	− .17	9.75
4.5	− .26	9.71
3.4	− .24	+9.72

3.0	+ .85	+8.85
6.1	+ .41	9.33
4.6	+ .63	+9.09
2.9	+1.33	+8.34
5.6	+1.18	8.59
5.8	+1.39	8.30
4.8	+1.30	+8.41

Feb. 2 1885 c = +.10

~~h' = +.060~~ 57 h' = +.057

+9.79

3.17 h	o	s	tan δ sec δ						
3.0	+38.4	0 = +9.05	+ .79 +1.3	+.13 +9.18	+ .68²	+9.78⁸⁰	+03	+9.83	
3.0	+40.5	8.95	+ .85 1.3	.13 9.08	+ .65⁶	9.73⁴	+03	.77	
3.5	− 9.8	9.87	− .17 1.0	.10 9.97	− .13	9.84	+.01	85	−
3.9	− 13.9	9.91	− .25 1.0	.10 10.01	− .19	9.81	−.01	80	−
4.0	+47.4	8.83	+ 1.09 1.5	.15 8.98	+ .83⁵	9.81³	−.02	81	
4.5	−14.5	9.98	− .26 1.0	.10 10.08	− .20	9.88	−.07	84	−
~~5.0~~	~~−5.2~~	~~10.01~~	~~= .09 1.0~~	~~.10 10.11~~	~~− .07~~	~~10.04~~	+9.817	+9.817	
~~5.3~~	~~+63.0~~	~~8.12~~	~~+ 1.96 .20~~	~~22 8.34~~		+9.84			

~~4.05~~ 4.10 ~~3.6~~

I II

3.1 +4.44 +6.40 +.05 +.01 0 = +4.67 −3.57 n = + .786
3.3 −3.12 +12.21 +.04 +.00 −2.89 +2.23 + .787
5.3 +1.96 +8.34 −.07 −.11 +2.19 −1.75 + .780

0 = +3.53 −2.67 n = + .76
−4.03 +3.13 + .78
+1.05 − .74,85 + .81
+ .788

3.1 +77.3 0 = +5.95 +4.44 +45 +45 +6.40
1.53 +72.2 +12.54 −3.12 −33 −33 12.21
5.3 +63.0 8.12 +1.96 +22 +22 8.34

3.5 − .17 +9.97
3.9 − .25 10.01
4.5 − .26 10.08
4.0 − .23 10.02

3.0 + .79 +9.18
3.0 + .85 9.08
4.0 +1.09 8.98
3.3 + .91 +9.08

Feb 3 c = .00

h' = +.040 +9.82 h' = +.040

2.80								
2.6	−14.3	0 = +10.11	− .25	− .18	+9.93	+03	+9.96	−
2.8	−21.5	10.15	− .39	− .28	9.87	+.02	.89	−
2.8	− 9.3	9.91	− .16	− .11	9.80	+02	.82	−
3.0	+38.4	9.12	+ .79	+ .56	9.68	+.01	69	
3.0	+40.5	9.08	+ .85	+ .60	9.68	+.01	69	
3.5	− 9.8	10.07	− .17	− .12	9.95	−.01	94	−
3.9	−13.9	10.16	− .25	− .18	9.98	−.02	96	−
4.8	+33.0	9.38	+ .65	+ .46	9.84	−.06	78	
3.80 3.30					+9.86	+9.841	+9.841	

I II

3.1 +4.44 +6.64 +.00 −.02 0 = +4.68 −3.44 n = +.73

0 = +3.68 −2.55 57 n = +.69 70
+.71

3.1 +77.3 0 = +6.64 +4.44
~~4.7 +66.1 +31.44 +2.26~~

2.6 − .25 +10.11
2.8 − .39 10.15
2.8 − .16 9.91
3.5 − .17 10.07
3.9 − .25 10.16
3.1 − .24 +10.08

Feb 5
ΔT + m = +10.19
n = +.75

3.0 + .79 +9.12
3.0 + .85 9.08
4.8 + .65 9.38
3.6 + .76 +9.19

Feb 7 c = 00

h' = +.035 h' = +.035
+10.54

3.88								
~~3.3~~	+59.5	0 = [+9.01]	+ 1.70 +2.0	+ 1.41	[+10.42]	+05	[+ 10.47]	
3.5	− 9.8	10.68	− .17 +1.0	− .14	10.54	+04	+ 10.58	−
3.9	−13.9	10.70	− .25 +1.0	− .21	10.49	+03	10.52	−
4.0	+47.4	9.70	+ 1.09 +1.5	+ .90	10.60	+02	.62	
4.1	− 9.1	10.63	− .12 +1.0	− .10	10.53	+02	.55	−
4.8	+33.0	10.05	+ .65 +1.2	+ .54	10.59	−.01	58	
5.7	−14.9	11.01	− .27 +1.0	− .22	10.79	−.04	75	−
5.8	+54.3	9.28	+ 1.39 +1.7	+ 1.15	10.43	−04	39	
6.0	+14.8	10.36	+ .26 +1.0	+ .22	10.58	−05	53	−
5.58 4.72 57				+10.60	+10.549 53		+10.568 .553	

I II III

3.1 +4.44 +6.70 +.02 +.08 +.06 0 = +4.62 −3.77 95 n = + .885
6.1 +2.66 +8.42 −.08 +.02 −.04 +2.84 −2.25 33 + .782

0 = +3.98 −3.50 42 n = + .886
+2.20 −1.78 80 + .812

0 = +3.20 −2.73 n = + .875
+1.42 −1.07 11 + .788
+.83

3.1 +77.3 0 = ~~+7.52~~ +6.70 +4.44 +45
6.1 +69.4 +8.42 +2.66 +28

3.5 − .17 +10.68
3.9 − .25 10.70
4.1 − .12 10.63
3.8 − .18 +10.67

4.8 + .65 +10.05
6.0 + .26 10.36
5.4 + .46 +10.20

4.0 +1.09 +9.70
5.8 +1.39 9.28
4.9 +1.24 +9.49

Feb 8 c = .00

h' = +.031

3.0 +40.5 0 = +9.96 + .85 +.76 +10.72 +00 +10.720 × 3.1 +77.3 0 = +6.77 +4.44

3.1 +4.44 +6.77 0 = +3.59 −3.19 n = + .89

28

Feb. 12 1885

c = 00

h' = ~~+.022~~ ~~−.044~~ .044

+11.32 ~~+11.32~~

h | o | s | tan δ sec δ
2.8 | −9.3 | 0 = +11.53 | − .16 | − .12 +11.41 −.11 +11.30 −
3.5 | −9.8 | 11.45 | − .17 | − .13 11.32 −07 23 −
5.7 | −14.9 | 11.43 | − .27 | − .21 11.22 +02 24 −
[6.3] | +49.3 | [10.13] | + 1.16 | + .89 [11.02] 07]
6.3 | −17.9 | 11.55 | − .32 | − .25 11.30 +05 35 −
~~6.4~~ | ~~+61.6~~ | ~~9.75~~ | ~~+1.85~~
6.5 | +39.5 | 10.52 | + .82 | + .63 11.15 +.06 21
6.6 | +25.2 | 10.82 | + .47 | + .36 11.18 +.06 24

6.47 5.22 | +11.24 ~~+11.21~~ +11.263 +11.262

I II

6.1 +2.66 +9.21 −03 +01 0 = +2.89 − 2.~~28~~31 n = + .~~79~~80
6.4 +1.85 +9.75 −04 +00 +2.08 − 1.7~~4~~8 + .~~84~~86

0 = +2.06 − 1.4~~6~~65 n = + .~~71~~70
+1.25 − 0.92 + .74
+ .77

6.1 +69.4 0 = +9.21 +2.66
6.4 +61.6 9.75 +1.85

2.8 − .16 +11.53
3.5 − .17 11.45
5.7 − .27 11.43
6.3 − .32 11.55
4.6 + .23 +11.49

6.5 + .82 +10.52
6.6 + .47 10.82
6.6 + .60 +10.67

Feb 15

c = 00 n = +.80 h' = +.021

3.5 −9.8 0 = +11.29 − .17 − .14 +11.15 +.02 +11.17
5.8 +54.3 10.17 +1.39 +1.11 11.28 −.02 .26
4.6 +11.215 +11.215

Feb 17

c = 00 h' = +.026

5.5 −17.9 0 = +11.72 − .32 − .23 +11.49 +02 +11.51 —
6.3 +49.3 10.63 +1.16 + .84 11.47 +00 47
6.5 +39.5 11.00 + .82 + .59 11.59 −00 59
6.6 +25.2 11.24 + .47 + .34 11.58 −01 57
6.7 +34.1 10.94 + .68 + .49 11.43 −01 42
6.8 +58.6 10.17 +1.64 +1.18 11.35 −01 34
6.40 +11.485 +11.483

I II

6.1 +2.66 +9.82 −.02 +.01 0 = +2.98 − 1.~~90~~92 n = + .64
6.4 +5.50 +7.13 −.02 +.01 +5.82 − 4.5~~9~~61 + .79

0 = +2.00 − 1.2~~1~~23 n = + .62
+4.84 − 3.9~~3~~92 + .81
+.72

6.1 +69.4 0 = +9.82 +2.66
6.4 +79.7 ~~+4.23~~ +5.50
+7.13

5.5 − .32 +11.72

6.5 + .82 +11.00
6.6 + .47 11.24
6.7 + .68 10.94
6.6 + .66 +11.06

Feb 18

c = 00 h' = +.026

4.8 +33.0 0 = +11.17 + .65 + .47 +11.64 +.0~~3~~4 +11.6~~7~~8
[5.5] −17.9 11.98 − .32 − .23 [11.75] ~~+.01~~ [.76] −
[5.7] −14.9 11.95 − .27 − .19 [11.76] ~~+.01~~ [.77] −
6.1 +22.5 11.34 + .41 + .30 11.64 +.00 64
6.3 +49.3 10.70 +1.16 + .84 11.54 −.0~~0~~ 58 4
6.6 +25.2 11.32 + .47 + .34 11.66 −.01 65
6.6 +13.0 11.54 + .23 + .17 11.71 −.01 70 −
6.7 +34.1 11.12 + .68 + .49 11.61 −.01 60
6.8 +58.6 10.27 +1.64 +1.18 11.45 −.0~~1~~ 4~~3~~4
6.~~12~~27 +11.6~~40~~07 +11.6~~39~~ .607

I II III

6.4 +5.50 +7.67 −.02 −.01 +.00 ~~0 = +5.80 − 4.2~~31 ~~n = + .74~~

0 = +5.01 − 3.~~65~~64 n = + .7~~2~~3

0 = +4.10 − 2.~~81~~80 n = + .6~~9~~8
+.72

6.4 +79.7 0 = +7.67 +5.50

5.5 − .32 +11.98
5.7 − .27 11.95
5.6 − .30 +11.96

4.8 + .65 +11.17
6.1 + .41 11.34
6.6 + .47 11.32
6.6 + .23 11.54
6.7 + .68 11.12
6.2 + .49 +11.30

6.3 +1.16 +10.70
6.8 +1.64 10.27
6.6 +1.40 +10.48

Feb 19

c = 00 h' = +.027

5.5 −17.9 0 = +12.12 − .32 − .25 +11.87 +.01 +11.88 −
5.8 +54.3 10.54 +1.39 +1.10 11.64 +.01 65
6.3 +49.3 10.92 +1.16 + .92 11.84 −.01 83
[6.4] +61.6 [10.62] +1.85 +1.46 [12.08] −.01 [12.07]
6.5 +39.5 11.19 + .82 + .65 11.84 −.01 11.83 −
6.02 +11.798 +11.798

I II

6.1 +2.66 +9.70 −.02 +.02 0 = +2.98 − 2.4~~7~~44 n = + .8~~1~~2

0 = +1.54 − 1.18 n = + .77
+.79

6.1 +69.4 0 = +9.70 +2.66

5.5 − .32 +12.12

5.8 +1.39 +10.54
6.3 +1.16 10.92
6.5 + .82 11.19
6.2 +1.12 +10.88

Feb 21 1885 c = 00

~~h' = +.023~~ h' = +.030
+12.28

	h	o	s stand speed				
6.44	4.9]	+60.3	0 = +1085 + 1.75	+1.14⁵	+11.99]	~~+.07~~	1207]
	5.5	−17.9	1250 − .32	− .21	12.29	+.05	+12.34 −
	5.7	−14.9	1247 − .27	− .18	12.29	+.04	33 −
	6.5	+39.5	1166 + .82	+ .58⁴	12.1~~9~~²⁰	+.02	22
	7.2	+55.5	11.17 + 1.46	+ .9~~5~~⁶	12.1~~2~~³	+.00	13
	7.3	+8.5	1214 + .15	+ .10	1224	−.00	24 − 0
−	[7.4]	+32.1	[1213] + .63	+ .4x²	[12.54~~5~~	−.01	54]
	7.5	−3.8	12.~~5~~³² .07	− .05	1234	−.01	33 − 0
	7.6	+59.0	1109 + 1.66	+ 1.~~08~~¹⁰	12.1~~7~~⁹	−.01	18
	7.6	+24.7	1201 + .46	+ .30	1231	−.01	30 0
	7.7	+33.7	1183 + .67	+ .44	1227	−.02	25
	7.9	+28.1	1189 + .53	+ .3~~4~~⁵	12.23⁴	−.02	22
7.75	8.2	+9.5	1215 + .17	+ .11	1226	−.03	23 − 0
	7.16				+~~12.27~~	+12.251	+12.252

I II III

7.8 +3.53 +9.93 −.04 −.00 −.03 0 = +3.75 − 2.5~~2~~ 56 n = + .~~65~~68
8.1 +4.04 +9.54 −.04 −.01 −.03 +4.26 − 2.9~~1~~ 95 + .68 69

0 = +3.13 − 2.07 n = + .~~66~~68
+3.64 − 2.~~46~~47 + .~~68~~68

0 = +2.11 − 1.2~~6~~29 n = + .~~60~~61
+2.62 − 1.65 68 + .~~63~~64
+.65 +66

h	o	s stand speed
7.8	+74.2	0 = +9.93 + 3.53
8.1	+76.1	+9.54 + 4.04

5.5 − .32 +12.50
5.7 − .27 12.47
7.5 − .07 12.39
6.2 − .22 +12.45

7.3 + .15 +12.14
7.6 + .46 12.01
7.7 + .67 11.83
7.9 + .53 11.89
8.2 + .17 12.15
7.7 + .40 +12.00

4.9 + 1.75 + 10.85
6.5 + .82 11.66
7.2 + 1.46 11.17
7.6 + 1.66 11.09
6.6 + 1.42 + 11.19

h' = +.026 +12.46 12.42 h' = +.011

Feb 23 c = 00

	h	o					
6.40 6.13	[5.5	[−17.9	0 = +1278 − .32]	− .19	+12.59)	−.03)	+12.56 −
	5.7]	−14.9]	[1267] − .27]	− .16	12.51	−.03	48 −
	6.3	+49.4	1163 + 1.17	+ .69	12.32	+.01	32
	6.4	−4.7	1263 − .08	− .05	12.58	+.00	59 − 0
	6.4	+61.6	1123 + 1.85	+ 1.09	12.32	+.00	32
−	6.5	+16.5	1229 + .30	+ .18	1247	+.00	47 0
	6.7	+2.5	1247 + .04	+ .02	1249	+.00	49 − 0
	6.8	+58.6	1128 + 1.64	+ .97	1225	+.00	25
	7.2	+55.5	1150 + 1.46	+ .86	1236	−.00	36
	7.3	+8.5	1243 + .15	+ .09	1252	−.00	52 − 0
	7.5	−3.8	126~~7~~53 .07	− .04	1249	−.01	48 − 0
7.28	8.2	+9.5	1239 + .17	+ .10	1249	−.01	47 − 0
	6.~~71~~93				+12.43	+12.449 429	+12.427

I II

6.1 +2.66 +10.78 −.02 +.02 0 = +2.68 − 1.7~~4~~ 76 n = + .~~65~~66
7.8 +3.53 +10.34 +.03 +.03 +3.55 − 2.1~~8~~ 15 + .~~61~~61

0 = +1.13 − .~~63~~65 n = + .~~56~~57
+2.00 − 1.0~~7~~ 04 + .~~54~~52
7.59

h	o	
6.1	+69.4	0 = +10.78 + 2.66
7.8	+74.2	+10.34 + 3.53

5.5 − .32 + 12.78
5.7 − .27 12.67
6.4 − .08 12.63
6.5 + .30 12.29
6.7 + .04 12.47
7.3 + .15 12.43
7.5 − .07 12.53
8.2 + .17 12.39
6.7 − .02 + 12.52

6.3 + 1.17 + 11.63
6.4 + 1.85 11.23
6.8 + 1.64 11.28
7.2 + 1.46 11.50
6.7 + 1.53 + 11.41

Feb 25 c = 00

h' = +.015
+12.62

	h	o					
5.70	4.6	+56.6	0 = +1159 + 1.52	+ 1.08	+12.67	+.03	+12.70
	4.9	+60.3	1142 + 1.75	+ 1.24	12.66	+.03	69
	6.6	+13.0	1239 + .23	+ .16	12.55	+.00	55 0
	6.7	+2.5	1258 + .04	+ .03	1261	+.00	61 0
−	7.2	+55.5	1163 + 1.46	+ 1.04	1267	−.01	66
	7.3	+8.5	1261 + .15	+ .11	1272	−.01	71 0
	7.5	−3.8	128~~7~~73 .07	− .05	1268	−.01	67 0
	8.0	+51.8	11.7~~8~~80 + 1.27	+ .90	12.60	−.02	58
7.64	8.2	+9.5	1247 + .17	+ .12	1259	−.02	57 0
	6.78				+12.65	+12.639	+12.638

I II

8.1 +4.04 +9.77 −.01 −.03 0 = +3.94 − ~~2.5~~ 2.80 n = + .~~66~~71

0 = +2.54 − 1.~~81~~ 84 n = + .~~71~~72
+.71

h	o	
8.1	+76.1	0 = +9.77 + 4.04

6.6 + .23 + 12.39
6.7 + .04 12.58
7.3 + .15 12.61
7.5 − .07 12.73
8.2 + .17 12.47
7.3 + .10 + 12.56

4.6 + 1.52 + 11.59
4.9 + 1.75 11.42
7.2 + 1.46 11.63
8.0 + 1.27 11.70
6.2 + 1.50 + 11.58

Mar 2 1885 c = −.08 h' = +.059

6.54 l	o	l tand secδ						+13.60			
5.4	−0.4	0 = +13.78	− .01	+1.0	−08	+13.70	− .01	+13.69	+10	+13.79	0
6.3	+49.3	12.86	+ 1.16	1.5	−.12	12.74	+ .88	13.62	+05	67	
6.6	+13.0	13.49	+ .23	1.0	−.08	13.41	+ .17	13.58	+03	61	0
7.2	+16.7	13.43	+ .30	1.0	−.08	13.35	+ .23	13.58	−00	58	0
7.2	+55.5	12.57	+ 1.46	1.8	−14	12.43	+ 1.11	13.54	−01	53	
7.3	+ 8.5	13.56	+ .15	1.0	−08	13.48	+ .11	13.59	−01	58	0
7.5	−3.8	13.~~41~~77	− .07	1.0	−08	13.~~33~~69	− .05	13.64	−02	62	0
7.6	+59.0	12.49	+ 1.66	1.9	−15	12.34	+ 1.26	13.60	−03	57	
8.0	+51.8	12.~~95~~87	+ 1.27	1.6	−13	12.~~82~~74	+ .97	13.71	−06	65	
8.2	+9.5	13.75	+ .17	1.0	−08	13.67	+ .13	13.80	−06	74	0
7.72 7.13								13.67 +13.635		+13.634	

l	o	l tand secδ				
6.4	+79.7	0 = +9.76	+ 5.50	+5.6	−45	+9.31
7.8	+74.2	+11.33	+3.53	+3.7	−30	+11.03

5.4 −	.01	+13.70
6.6 +	.23	13.41
7.2 +	.30	13.35
7.3 +	.15	13.48
7.5 −	.07	13.69
8.2 +	.17	13.67
7.0	+ .13	+13.55

6.3 +	1.16	+12.74
7.2 +	1.46	12.43
7.6 +	1.66	12.34
8.0 +	1.27	12.74
7.3	+1.39	+12.56

			I	II			
6.4	+5.50	+9.31	+04	+05	0 = +5.37	−4.~~24~~20	n = +.~~79~~78
7.8	+3.53	+11.03	−05	−03	+3.40	−2.~~52~~57	+.~~74~~76

0 = +4.11 −3.~~25~~20 n = +.~~77~~78

+2.14 −1.~~53~~56 +.~~71~~73

+.76

Mar 3 C = +.02 h' = +.031

7.2	+16.7	0 = +13.64	+ .30	+1.0	+.02	+13.66	+ .22	+13.88	+.01	+13.89	0
7.3	+ 8.5	13.65	+ .15	1.0	+02	13.67	+ .11	13.78	+01	79	0
7.5	−3.8	1391 ~~14.05~~	− .07	1.0	+02	1393 ~~14.07~~	− .05	13.88	+00	88	0
7.6	+5.5	13.83	+ .10	1.0	+02	13.85	+ .07	13.92	+00	92	0
8.2	+9.5	13.83	+ .17	1.0	+02	13.85	+ .13	13.98	−02	96	0
7.56								+13.888		+13.888	

7.8	+74.2	0 = +11.12	+3.53	+3.7	+07	+11.19
8.1	+76.1	+10.95	+4.04	+4.2	+08	+11.03

7.2 +	.30	+13.66
7.3 +	.15	13.67
7.5 −	.07	13.93
7.6 +	.10	13.85
8.2 +	.17	13.85
7.6	+ .13	+13.79

			I			
7.8	+3.53	+11.19	−01	0 = +3.40	−2.~~60~~61	n = +.~~76~~77
8.1	+4.04	+11.03	−02	+3.91	−2.~~76~~78	+.71

+.74

Mar 4 C = +.03 h' = +.027

[6.4]	+61.6	0 = [+12.91]	+ 1.85	+2.1	+.06	+12.97	+1.00	[+13.97]	+03	[14.00]	
7.2	+55.5	13.31	+1.46	1.8	+05	13.36	+ .79	14.15	+01	+14.16	
7.3	+ 8.5	14.10	+ .15	1.0	+03	14.13	+ .08	14.21	+01	22	0
7.5	− 3.8	14.~~41~~27	− .07	1.0	+03	14.~~44~~2[illegible]	− .04	14.23	+00	23	0
7.6	+ 5.5	14.10	+ .10	1.0	+03	14.13	+ .05	14.18	+00	18	0
8.0	+51.8	13.~~63~~55	+1.27	1.6	+05	13.6~~8~~0	+ .69	14.29	−01	28	
8.2	+9.5	14.17	+ .17	1.0	+03	14.20	+ .09	14.29	−02	27	0
7.63								+14.225		+14.223	

7.8	+74.2	0 = +12.06	+3.53	+3.7	+.11	+12.17
8.1	+76.1	+12.09	+4.04	4.2	+.13	+12.22

7.3 +	.15	+14.13
7.5 −	.07	14.27
7.6 +	.10	14.13
8.2 +	.17	14.20
7.6	+ .09	+14.18

		I	II				
7.8	+3.53	+12.17	−01	−01	0 = +3.44	−2.~~01~~02	n = +.~~58~~59
8.1	+4.04	+12.22	−01	−01	+3.95	−1.~~96~~97	+.~~50~~50

7.2	+1.46	+13.36
8.0	+1.27	13.60
7.6	+1.36	+13.48

0 = +2.17 −1.~~31~~32 n = +.~~60~~61

+2.68 −1.~~26~~27 +.~~47~~47

+.54

Mar 6 C +.02 h' = +.025

7.3	+8.5	0 = +14.23	+ .15	+1.0	+.02	+14.25	+ .08	+14.33	+01	+14.34	0
7.5	−3.8	14.~~55~~39	− .07	1.0	+02	14.~~55~~41	− .04	14.37	+01	.38	0
7.6	+5.5	14.30	+ .10	1.0	+02	14.32	+ .05	14.37	+00	37	0
7.9	+28.1	14.09	+ .53	1.1	+02	14.11	+ .27	14.38	−01	37	
8.2	+9.5	14.28	+ .17	1.0	+02	14.30	+ .09	14.39	−01	.38	0
7.70								+14.368		+14.368	

8.1	+76.1	0 = +12.22	+4.04	+4.2	+.08	+12.30

7.3 +	.15	+14.25
7.5 −	.07	14.41
7.6 +	.10	14.32
8.2 +	.17	14.30
7.6	+ .09	+14.32

		I	II				
8.1	+4.04	+12.30	−01	−00	0 = +3.95	−2.~~02~~03	n = +.51

7.9 + .53 +14.11

0 = +3.51 −1.81 n = +.51

+.51

Mar 8 1885 c = +.02 h' = +.028

h	o	e tan δ sec δ									
7.2	+55.5	0 = +1380	+1.46	+1.8	+04	+1384	+ .89	+14.73	+01	+14.74	
7.3	+8.5	1462	+ 15	1.0	+02	1464	+ .09	14.73	+01	74	0
7.5	−3.8	14~~95~~81	− .07	1.0	+02	14~~97~~83	− .04	14.79	+01	80	0
7.6	+5.5	1460	+ .10	1.0	+02	1462	+ .06	14.68	+00	68	0
7.6	+28.3	1438	+ .54	1.1	+02	1440	+ .33	14.73	+00	73	0
7.9	+28.1	1452	+ .53	1.1	+02	1454	+ .32	14.86	−01	85	
8.0	+51.8	14~~14~~06	+1.27	1.6	+03	14~~17~~09	+ .77	14.86	−01	85	
8.2	+9.5	1466	+ .17	1.0	+02	1468	+ ~~07~~ 16	14.75 8	−01	~~74~~7	0
7.66								+14.766		+14.7~~66~~ 70	

I II III

78 +3.53 +12.63 −01 +00 −00 0 = +3.44 −2.~~06~~07 n = + .60
8.1 +4.04 +12.31 −01 −01 −01 +3.95 −2.~~38~~39 + .60

0 = +2.99 −1.84 n = + .62
+3.50 −2.~~16~~17 + .62

+2.17 −1.~~33~~34 n = + .6~~1~~2
+2.68 −1.~~65~~66 + .62
h' = +.025 + .61

h	o	e tan δ sec δ					
7.8	+74.2	0 = +1256	+3.53	+3.7	+07	+12.63
8.1	+76.1	+1223	+4.04	4.2	+.08	12.31

7.3 + .15 +1464
7.5 − .07 1483
7.6 + .10 1462
8.2 + .17 1468
7.6 + .09 +14.69

7.6 + .54 +1440
7.9 + .53 1454
7.8 + .54 +14.47

7.2 +1.46 +1384
8.0 +1.27 1409
7.6 +1.36 +13.96

Mar 10 c = .00

7.2	+55.5	0 = +1444	+1.46	+ .79	+15.23	+01	+15.24	
7.3	+28.0	1495	+ .53	+ .29	15.24	+01	25	0
7.3	+8.5	1522	+ .15	+ .08	15.30	+01	31	0
7.6	+28.3	1497	+ .54	+ .29	15.26	+00	26	0
7.7	+33.7	1476	+ .67	+ .36	15.12	+00	12	0
8.2	+9.5	15.18	+ .17	+ .09	15.27	−01	26	0
8.3	+43.6	1465	+ .95	+ .51	15.16	−02	14	
7.66					+15.226		+15.226	

I II

78 +3.53 +13.42 −00 −00 0 = +3.37 −1.78 n = + .53
8.1 +4.04 +12.96 −01 −01 +3.88 −2.2~~4~~5 + .58

0 = +2.70 −1.33 n = + .49
+3.21 −1.~~79~~80 + .56
+ .54

7.8	+74.2	0 = +13.42	+3.53
8.1	+76.1	+12.96	+4.04

7.3 + .15 +15.22
8.2 + .17 15.18
7.8 + .16 +15.20

7.2 +1.46 +1444
7.3 + .53 1495
7.6 + .54 1497
7.7 + .67 1476
8.3 + .95 1465
7.6 + .83 +14.75

Mar 12 c = −.05 h' = +.024

7.2	+55.5	0 = +1495	+1.46	+1.8	−.09	+1486	+ .51	+15.37	+.01	+15.38	
7.3	+28.0	15.32	+ .53	1.1	−.06	15.26	+ .19	15.45	+.01	46	0
7.3	+8.5	15.56	+ .15	1.0	−.05	15.51	+ .05	15.56	+.01	57	0
7.6	+28.3	15.35	+ .54	1.1	−.06	15.29	+ .19	15.48	+.00	48	0
7.9	+28.1	15.33	+ .53	1.1	−.06	15.27	+ .19	15.46	−.01	45	0
8.0	+51.8	149~~9~~1	+1.27	1.6	−.08	14.~~91~~83	+ .44	15.27	−.01	26	
8.2	+9.5	15.42	+ .17	1.0	−.05	15.37	+ .06	15.43	−.01	42	0
7.64								+15.431		+15.431	

I II

78 +3.53 +14.30 +00 +00 0 = +3.37 −1.14 n = + .34
8.1 +4.04 +13.92 −01 −01 +3.88 −1.~~52~~53 + .30~~8~~9

0 = +2.66 −0.80 n = + .30
+3.17 −1.~~18~~19 + .3~~7~~8
+ .35

7.8	+74.2	0 = +14.48	+3.53	+3.7	−18	+14.30
8.1	+76.1	+14.13	+4.04	4.2	−.21	+13.92

7.3 + .15 +15.51
8.2 + .17 15.37
7.8 + .16 +15.44

7.2 +1.46 +14.86
7.3 + .53 15.26
7.6 + .54 15.29
7.9 + .53 15.27
8.0 +1.27 14.83
7.6 + .87 +15.10

Mar 14 c = −.05 h' = −.013

7.25 ~~[6.8]~~	~~+58.6~~	~~0 = +1457~~	~~+1.64~~	~~+1.9~~	~~−09~~	~~+1448~~	~~+ .89~~	+15.79 ~~15.37~~	−01	[15.36]	
6.9	+20.7	15.65	+ .38	1.1	−06	15.59	+ .21	+15.80	−.01	+15.79	0
7.2	+55.5	15.10	+1.46	1.8	−09	15.01	+ .79	15.80	−01	79	
7.3	+28.0	15.57	+ .53	1.1	−05	15.52	+ .29	15.81	−00	81	0
7.6	+24.7	15.56	+ .46	1.1	−.06	15.50	+ .25	15.75	+00	75	0
7.9	+28.1	15.52	+ .53	1.1	−05	15.47	+ .29	15.76	+00	76	0
8.0	+51.8	15.~~31~~23	+1.27	1.6	−08	15.~~23~~15	+ .69	15.84	+01	85	
8.2	+9.5	15.71	+ .17	1.0	−05	15.66	+ .09	15.75	+.01	76	0
8.03 7.58								+15.78 +15.787		+15.787	

I II

78 +3.53 +13.92 −00 −00 0 = +3.05 −1.60 n = + .52
8.1 +4.04 +13.60 +01 +01 +3.56 −1.~~92~~91 + .54

0 = +2.17 −1.16 n = + .53
+2.68 −1.~~48~~47 + .55
+ .54

7.8	+74.2	0 = +14.10	+3.53	+3.7	−.18	+13.92
8.1	+76.1	+13.81	+4.04	4.2	−.21	+13.60

6.9 + .38 +1559
7.3 + .53 15.52
7.6 + .46 15.50
7.9 + .53 15.47
7.4 + .48 +15.52

7.2 +1.46 15.01
8.0 +1.27 15.15
7.6 +1.36 +15.08

Mar 16 1885 c = 00 n = +.65 h' = +.022

h	o		e tan δ sec δ					
8.2	+9.5	0 = +16.58	+ .17	+.11	+16.69	+00	+16.69	
8.3	+61.1	15.52	+1.81	+1.18	16.70	+00	.70	
8.25					+16.695		+16.695	

Mar 17 c = +.03 n = +.60 h' = +.00 +16.31

7.64 6.9	+20.7	0 = +16.03	+ .38	+1.1	+.03	+16.06	+ .23	+16.29	+00 +16.29	0
7.2	+22.2	16.02	+ .41	1.1	+.03	16.05	+ .25	16.30	.30	0
7.9	+28.1	16.01	+ .53	1.1	+.03	16.04	+ .32	16.36	.36	
8.0	+51.8	15.48 0	+1.27	1.6	+.05	15.5~~3~~ 45	+ .76	16.21	.21	
8.2	+9.5	16.24	+ .17	1.0	+.03	16.27	+ .10	16.37	.37	0
— 8.4	+20.8	16.04	+ .38	1.1	+.03	16.07	+ .23	16.30	.30	0
8.6	+18.6	16.09	+ .34	1.1	+.03	16.12	+ .20	16.32	.32	0
8.7	+29.2	15.98	+ .56	1.1	+.03	16.01	+ .34	16.35	.35	
8.8	+48.5	15.53	+1.13	1.5	+.04	15.57	+ .68	16.25	.25	
8.9	+47.6	15.63	+1.10	1.5	+.05	15.68	+ .67	16.35 +00	.35	
8.68 8.16								+16.31 +16.310	+16.310	

Mar 18 c = 00 n = +.45 h' = +.030

[7.2]	+55.5	0 = [+15.69]	+1.46	+ .6~~4~~ 6	[+16.~~33~~ 35]	+04 [16.39]		
8.0	+51.8	~~16.01~~ 15.93	+1.27	+ .5~~6~~ 7	16.~~49~~ 50	+02	+16.52	
8.4	+38.4	16.25	+ .79	+ .35	16.60	+00	60	0
8.6	+18.6	16.48	+ .34	+ .15	16.63	−00	63	0
8.8	+6.4	16.44	+ .11	+ .05	16.49	−01	48	0
8.9	+12.3	16.41	+ .22	+ .10	16.51	−01	50	0
[8.9]	+47.6	[15.89]	+1.10	+ .~~48~~ 49	[16.3~~7~~ 8]		[37]	
8.54					+16.546		+16.546	

9.0 +67.6 0 = +15.46 + 2.43

86 + .34 +16.48
8.8 + .11 16.44
8.9 + .22 16.41
8.8 + .22 +16.44

8.0 + 1.27 +15.93
8.4 + .79 16.25
8.2 + 1.03 16.09

9.0 +2.43 + 15.46 $\overset{I}{-01}$ $\overset{II}{-02}$ 0 = +2.21 − 0.~~98~~ 99 n = + .4~~4~~ 5

0 = +1.40 − 0.~~63~~ 65 n = + .45 6

~~+ .44~~
+ .46

Mar 19 c = 00 n = +.45 h' = +.032

8.2	+9.5	0 = +16.77	+ .17	+ .08	+16.85	+01	+16.86	0
8.4	+20.8	16.63	+ .38	+ .17	16.80	+01	81	0
8.6	+18.6	16.69	+ .34	+ .15	16.84	+00	84	0
8.8	+6.4	16.82	+ .11	+ .05	16.87	−01	86	0
8.9	+12.3	16.74	+ .22	+ .10	16.84	−01	83	0
8.58					+16.840		+16.840	

9.3 +81.8 0 = +13.69 +6.97

8.2 + .17 +16.77
8.4 + .38 16.63
8.6 + .34 16.69
8.8 + .11 16.82
8.9 + .22 16.74
8.6 + .24 +16.73

9.3 +6.97 + 13.69 $\overset{I}{-.02}$ 0 = + 6.73 − 3.04 06 n = + .45

Mar 21 c = 00 n = +.50 h' = +.027

8.4	+20.8	0 = +17.23	+ .38	+.19	+17.42	+01	+17.43	0
8.6	+18.6	17.32	+ .34	+.17	17.49	+00	49	0
8.7	+29.2	17.19	+ .56	+.28	17.47	−00	47	
8.8	+6.4	17.37	+ .11	+.06	17.43	−00	43	0
8.9	+12.3	17.30	+ .22	+.11	17.41	−01	40	0
8.68					+17.444		+17.444	

7.8 +74.2 0 = +15.63 +3.53
9.0 +67.6 +16.23 +2.43

8.4 + .38 +17.23
8.6 + .34 17.32
8.7 + .56 17.19
8.8 + .11 17.37
8.9 + .22 17.30
8.7 + .32 +17.28

7.8 +3.53 + 15.63 $\overset{I}{+.02}$ 0 = +3.21 − 1.~~65~~ 63 n = + .51
9.0 +2.43 + 16.23 −.01 +2.11 − 1.~~05~~ .06 + .50

+ .50

Mar 23 1885 c = 00 n = +.46 h′ = +.028

h o s tan δ sec δ
8.2 +9.5 0 = +17.36 + .17
8.4 +20.8 17.33 + .38
8.6 +18.6 17.33 + .34
8.7 +29.2 17.26 + .56
8.8 +6.4 17.43 + .11
8.54

+ .08 +17.44 +.01 +17.45 0
+ .17 17.50 +.00 50 0
+ .16 17.49 −.00 49 0
+ .26 17.52 −.01 51
+ .05 17.48 −.01 47 0
+17.486 +17.484

8.1 +4.04 + 15.54 +.01 0 = +3.73 −~~1.80~~ 1.79
9.3 +6.97 + 14.36 −.02 +6.66 −~~2.98~~ 3.00

n = + .48
+ .45
+.46

h o s tan δ sec δ
8.1 +76.1 0 = +15.54 +4.04
9.3 +81.8 +14.36 +6.97

8.2 + .17 +17.36
8.4 + .38 17.33
8.6 + .34 17.33
8.7 + .56 17.26
8.8 + .11 17.43
8.5 + .31 +17.34

Reject this date
Mar 25 c = 00 h′ = +.023

8.0 +51.8 0 = +17.~~54~~ 46 +1.27

+ .55 +18.01 +.00 +18.010
+18.010

7.8 +74.2 0 = +16.51 +3.53

7.8 +3.53 + 16.51 +.00 0 = +2.26 −.96

n = + .43

8.0 +1.27 +17.46

Reject this date
Mar 28 c = 00 h′ = +.024

~~7.3 +8.5~~
~~7.6 +5.5 0 = +16.47 + .10~~
8.0 +51.8 ~~17.07~~ 16.99 +1.27

+ .53 +17.52 +.00 +17.520
+17.520

7.8 +74.2 0 = +16.03 +3.53

7.8 +3.53 +16.03 +.00 0 = 2.26 −.96

n = + .42

8.0 +1.27 +16.97

Mar 29 c = 00 n = +.50 h′ = +.029

8.8 +6.4 0 = +17.87 + .11
8.9 +12.3 17.86 + .22
9.1 +2.8 17.92 + .05
9.2 +18.2 17.87 + .33
9.00

+ .06 +17.93 +.01 +17.94 0
+ .11 17.97 +.00 17.97 0
+ .02 17.94 .00 17.94 0
+ .16 18.03 −.01 18.02 0
+17.968 +17.968

9.0 +67.6 0 = +16.62 +2.43
9.3 +81.8 14.90 +6.97

9.0 +2.43 + 16.62 +.00 0 = +2.25 −1.26
9.3 +6.97 + 14.90 −.01 +6.79 −~~2.98~~ 2.99

n = + .56
+ .44
+.50

8.8 + .11 +17.87
8.9 + .22 17.86
9.1 + .05 17.92
9.2 + .33 17.87
9.0 + .18 +17.88

Mar 30 c = .00 n = +.64 h′ = +.019

7.75
7.6 +28.3 0 = +17.57 + .54
~~7.9~~ +28.1 17.58 + .53
8.6 +18.6 17.72 + .34
8.8 +6.4 17.81 + .11
8.9 +48.5 17.29 +1.13
8.80 8.9 +47.6 17.21 +1.10
8.45 +17.53 + .62

~~17.920~~
+ .35 +17.92 +.02 +17.94 0
+ .34 17.92 +.01 17.93 0
+ .22 17.94 −.00 17.94 0
+ .07 17.88 −.01 17.87 0
+ .73 2 18.02 1 −.01 18.00
+ .7 0 17.92 1 −.01 17.90
17.94 +17.930 +17.930

7.8 +74.2 0 = +15.65 +3.53

0 = +2.91 −1.88 7 n = + ~~.65~~ .64

7.8 +3.53 +15.65 +.01 +15.66

Apr 1 1885 C=.00 n=+.45 h' = ~~+.023~~ +.022

h	o	a	tan δ		+17.90			
7.30								
7.1	+39.5	0 = +17.53	+ .82	+.37	+17.90	+.01	+17.91	
7.2	+16.7	17.78	+ .30	+.13	17.91	+01	92	0
7.2	+55.5	17.25	+1.45	+.65	17.90	+01	91	
7.3	+8.5	17.81	+ .15	+.07	17.88	+01	89	6
7.5	+5.5	17.88	+ .10	+.04	17.92	+.01	92	0
7.6	+28.3	17.70	+ .54	+.24	17.94	+00	94	
8.6	+18.6	17.78	+ .34	+.15	17.93	-02	91	0
8.10 8.7	+29.2	17.66	+.56	+.25	17.91	-02	89	
7.6		+17.67	+.53		+17.92 +17.911		+17.911	

h	o	a	tan δ
7.3	+68.7	0 = +16.60	+2.56
7.8	+74.2	+16.52	+3.53

0 = +2.03 − 1.07^6 n = + .52 ~~.53~~

+3.00 − 1.15 + .38

+ .45

7.3	+2.56	+16.60+01	+16.61
7.8	+3.53	+16.52+00	+16.52

Apr 6 C=.00 n=+.33 h' = +.023

8.4	+20.8	0 = +18.43	+ .38	+.13	+18.56	+.01	+18.57	0
8.6	+18.6	18.47	+ .34	+.11	18.58	+00	58	0
8.7	+29.2	18.39	+ .56	+.18	18.57	+00	57	
8.8	+6.4	18.58	+ .11	+.04	18.62	−00	62	0
8.9	+12.3	18.57	+ .22	+.07	18.64	−00	64	0
8.9	+42.2	18.33	+ .91	+.30	18.63	−.00	63	
8.72		+18.46	+.43		+18.603		+18.605	

h	o	a	tan δ
9.3	+81.8	0 = +16.29	+6.97

0 = +6.54 − 2.17^8 n = +.33

9.3	+6.97	+16.29−01	+16.28

Apr 9 C=.00 n=+.40 h' = +.023

8.4	+20.8	0 = +18.82	+.38	+.15	+18.97	+01	+18.98	0
9.4	−8.2	19.01	−.14	−.06	18.95	−01	.94	0
8.90		+18.92	+.12		+18.960		+18.960	

h	o	a	tan δ
8.1	+76.1	0 = +17.35	+4.04

0 = +3.92 − 1.57^5 n = + .40

8.1	+4.04	+17.35+02	+17.37

Apr 14 C=.00 n=+.46 h' = +.025

8.90 8.9	+48.5	0 = +19.12	+1.13	+.52	+19.64	+03	+19.67
10.7	+31.3	19.50	+ .61	+.28	19.78	−01	.77
10.70 11.1	+45.1	19.13	+1.00	+.46	19.59	−02	57
10.20		+19.25	+0.91		+19.69 +19.670		+19.670

+19.64

h	o	a	tan δ
10.9	+62.4	0 = +18.81	+1.91

0 = +1.80 − 0.44^6 n = + ~~.44~~ +.46

10.9	+1.91	+18.81−02	+18.79

Apr 16 C=.00 n=+.30 h' = +.036

+19.67

8.60 8.4	+20.8	0 = +19.52	+ .38	+.11	+19.63	+02	+19.65	a
8.8	+6.4	0 = +19.67	+ .11	+.03	19.70	+00	70	●
9.1	+2.8	19.66	+ .05	+.01	19.67	−01	66	0
9.15 9.2	+34.9	19.51	+ .70	+.21	19.72	−01	71	
8.88		+19.59	+.31		+19.69 +19.680		+19.680	

h	o	a	tan δ
9.0	+67.6	0 = +18.88	+2.43
9.3	+81.8	17.62	+6.97
9.4	+63.6	19.16	+2.01

0 = +2.12 − 0.71 n = +.33

+6.66 − 1.97^8 + .30

+1.70 − 0.43^5 + .25^6

~~+.29~~

+.30

9.0	+2.43	+18.88−.00	+18.88
9.3	+6.97	+17.62−01	+17.61
9.4	+2.01	+19.16−02	+19.14

Apr 25 1885 C = 00 n = +.13 h' = +.016

h	o	z	tan δ
10.2	+421	0 = +17.23	+ .90
10.4	+566	17.31	+1.52
10.9	+570	17.27	+1.54
[10.9]	+624	[17.49]	+[1.91]
~~10.60~~ 50		~~+17.32~~ .27	~~+1.47~~ +1.32

10.4 +4.10 +16.92 +00 +16.92

+ .1~~1~~3	+17.3~~7~~6 +0~~1~~0	+17.~~38~~36
+.2~~3~~0	17.5~~4~~1 +00	~~54~~ 51
+.2~~3~~0	17.~~50~~47 00	~~50~~ 47
+~~.29~~ .21	17.[78] − 00	[78]
	+17.5~~4~~48	~~+17.550~~
	447	+17.447

h	o	z	tan δ
10.4	+76.3	0 = +16.92	+4.10

0 = ~~+2.63~~ ~~− 0.40~~ ~~n = +.15~~

+2.68 − 0.35 n = +.13

Apr 27 C = 00 n = +.30 h' = +.024

11.2	+43.5	0 = +17.34	+ .95
11.1	+21.2	17.44	+ .38
11.2	−14.2	17.65	− .25
10.83		+17.48	+ .36

+28	+17.62 +01	+17.63
+11	17.55 −01	54
−07	17.58 −01	57
	+17.583	+17.580

n = +.30

Apr. 30 C = 00 n = +.28 h' = +.028

11.2	+33.7	0 = +17.72	+ .67
11.2	+6.7	17.97	+ .12
11.7	+15.2	17.76	+ .27
11.37		17.82	+ .35

+.19	+17.91 +01	+17.92
+.03	18.00 +00	18.00
+.08	17.84 −01	17.83
	+17.917	+17.917

11.6	−4.33	+19.19 −01	+19.18
12.1	+4.82	+16.65 −02	+16.63

11.6	+103.0	0 = +19.19	−4.33
12.1	+78.2	+16.65	+4.82

0 = −4.68 − 1.3~~7~~9 n = + ~~.29~~ .30

+4.47 + 1.1~~7~~5 + .26

+.28

May 2 C = 00 n = +.40 h' = +.027

11.1	+21.2	0 = +18.14	+ .38
11.2	+33.7	+18.04	+ .67
11.7	+15.2	18.20	+ .27
11.33		+18.13	+ .44

+.15	+18.29 +01	+18.30
+.27	18.31 +00	31
+.11	18.31 −01	30
	+18.303	+18.303

11.6	−4.33	+19.87 −.01	+19.86
12.1	+4.82	+16.37 −.02	+16.35
12.9	−13.11	+24.07 −.04	+24.03
13.3	−43.86	+35.78 −05	+35.73

11.6	+103.0	0 = +19.87	−4.33
12.1	+78.2	+16.37	+4.82
12.9	+94.3	+24.07	−13.11
13.3	+91.3	+35.78	−43.86

0 = −4.77 + 1.7~~4~~3 n = + .36

+4.38 − 1.7~~6~~8 + .4~~0~~1

−13.55 + 5.9~~4~~0 + .44

−44.30 + 17.6~~5~~0 + .40

+.40

May 3 C = 00 n = +.32 h' = +.027

11.1	−22.2	0 = +18.58	− .41
11.1	+21.2	18.27	+ .38
11.2	+33.7	18.14	+ .67
11.2	−14.2	18.59	− .25
11.7	+48.4	18.05	+1.13
11.7	+15.2	18.44	+ .27
11.33		+18.34	+ .30

−.13	+18.45 +01	+18.46
+.12	18.39 +01	40
+.21	18.35 +00	35
−.08	18.51 +00	51
+.36	18.41 −01	40
+.09	18.53 −01	52
	+18.440	+18.440

11.6	−4.33	+19.83 −.01	+19.82
12.1	+4.82	+17.07 −02	+17.05
12.9	−13.11	+22.94 −04	+22.90
13.3	−43.86	+33.66 −05	+33.61

11.6	+103.0	0 = +19.83	−4.33
12.1	+78.2	17.07	+4.82
12.9	+94.3	22.94	−13.11
13.3	+91.3	33.66	−43.86

0 = −4.63 + 1.4~~7~~8 n = +.32

+4.52 − 1.2~~7~~9 +.2~~8~~9

−13.41 + 4.~~60~~56 +.34

−44.16 + 15.~~32~~27 +.3~~5~~4

+.32

May 9 1885 C = 00 n = +.18 h' = +.031

h	o	s	tan δ
11.7	+48.4	0 = +1907	+1.13
11.7	+15.2	1937	+.27
11.8	+54.3	1910	+1.39
11.73		+19.18	+0.93

+.20	+19.27 +00	+19.27
+.05	19.42 +00	.42
+.25	19.35 −00	35
	+19.347	+19.347

11.6	−4.33	+2021 +.00	+20.21
12.1	+4.82	+1845 −.01	+18.44
12.9	−13.11	+21.16 −.04	+21.12
13.3	−4384	+27.71 −.05	+27.66

h	o	s	tan δ
11.6	+1030	0 = +2021	−4.33
12.1	+78.2	1845	+4.82
12.9	+94.3	2116	−13.11
13.3	+91.3	2771	−4384

0 =	−526	+1.03	n = +.20
	+3.89	−0.734	+.19
	−14.04	+1.984	+.14
	−44.77	−8.~~53~~ .48	+.19
			+.18

May 10 C = 00 n = +16 h' = +.000

10.78			
10.6	−1.1	0 = +1960	−.02
10.7	+31.3	1968	+.61
10.7	+11.2	1973	+.20
11.1	−22.2	1976	−.41
11.1	+21.2	1963	+.38
11.2	+33.7	1955	+.67
11.7	+15.2	1976	+.27
10.45 11.8	+54.3	1949	+1.39
11.11		+1965	+.39

	+19.71	
−.00	+1960 +00	+19.60
+.10	1978	.78
+.03	1976	76
−.07	1969	69
+.06	1969	69
+.11	1966	66
+.04	1980	80
+.22	1971 −00	71
+19.71	+19.711	+19.711

11.6	−4.33	+2064 +00	+20.64
12.1	+4.82	+19.23 +00	+19.23
13.3	−4384	+2600 +00	+26.00

11.6	+1030	0 = +2064	−4.33
12.1	+78.2	1923	+4.82
12.9	+94.3		
13.3	+91.3	+2600	−4384

0 =	−4.72	+0.99	n = +.21
	+4.43	−0.42	+.10
	−44.23	+6.95	+.16
			+.16

May 11 C = 00 n = +.14 h' = +.029

11.2	+33.7	0 = +1995	+.67
11.7	+48.4	1994	+1.13
11.8	+54.2	1983	+1.39
11.57		+19.91	+1.06

+.09	+2004 +01	+20.05
+.16	20.10 −00	10
+.19	20.02 −01	01
	+20.053	+20.053

11.6	−4.33	+2069 +00	+2069
12.1	+4.82	+19.33 −01	+19.32
12.9	−13.11	+21.70 −04	+21.66

11.6	+103.0	0 = +2069	−4.33
12.1	+78.2	1933	+4.82
12.9	+94.3	2170	−13.11

0 =	−5.39	+0.78	n = +.14
	+3.76	−0.5~~8~~9	+.16
	−14.17	+1.7~~9~~5	+.182
			+.14

May 16 C = 00 n = +.04 h' = ~~+.089~~ $\frac{+.124+.032}{2}$ = +.078

11.73 11.7	+48.4	0 = +2122	+1.13
11.7	+15.2	2130	+.27
11.8	+54.3	2111	+1.39
13.50 13.5	−0.0	2147	−.00
12.18		+21.28	+.70

	+21.25	
+.05	+21.27 +04	+21.31
+.01	21.31 +04	35
+.06	21.17 +03	20
−.00	21.47 −10	37
2147	+21.306	+21.308

13.3 −43.83 +23.02 −.10 +22.92

13.3 +91.3 0 = +2302 −43.83

0 = −44.53 ~~+1.74~~ +1.64 n = +.04

May 17 C = 00 n = +.16 h' = +.040

12.4	+21.5	0 = +2152	+.39
12.5	−22.8	2186	−.42
13.5	−0.0	2193	−.00
13.5	+37.8	2166	+.78
12.98		+21.74	+.19

+.06	+2158 +02	+21.60
−.07	2179 +02	81
−.00	2193 −02	91
+.12	2178 −02	76
	+21.770	+21.770

13.3 +91.3 0 = +2863 −43.83

0 = −4402 + 6.88 n = +.16

13.3 −4383 +2863 −01 +2862

May 21 1885 c = 00 n = +.10 h' = -.006

12.02 h ρ ρ tan δ

(11.8) +54.3 0 = +23.54 (+1.39) +14 +23.88 [23.68] [23.67]
12.0 +9.4 +23.86 + .16 +.02 +23.88 -.01 +23.87
13.7 +18.0 23.82 + .32 +03 23.85 +00 85
13.7 +49.9 23.79 +1.19 +.12 23.91 +00 91
13.73 13.8 +19.0 23.83 + .34 +.03 23.86 +00 86
13.70 +23.82 +.50 +23.87 +23.875 +23.872

133 -43.82 +28.38 +00 +28.38

h ρ ρ tan δ
13.3 +91.3 0 = +28.38 -43.82

0 = -44.32 + 4.56 n +.10

May 26 c = .00 n = +.01 h' = +.049

12.8 +39.0 0 = +26.83 + .81 +.01 +26.84 +03 +26.87
13.7 +49.9 26.76 +1.19 +.01 26.77 -01 76
13.8 +19.0 26.86 + .34 +00 26.86 -02 84
13.43 +26.82 + .78 +26.823 +26.823

13.3 +91.3 0 = +27.17 -43.81
14.0 +64.9 26.83 +2.14

0 = -44.59 +0.35 n = +.01
+1.36 ~~+ 0.01~~ - 0.02 +.01
+.01

13.3 -43.81 +27.17 +00 +27.17
14.0 +2.14 +26.83 -.03 +26.80

May 28 c = 00 n = +.03 h' = +.052

13.1 +28.3 0 = +28.00 + .54 +02 +28.02 +03 +28.05
13.7 +18.0 28.10 + .32 +01 28.11 -00 28.11
13.7 +49.9 27.91 +1.19 +04 27.95 -01 27.94
13.8 +19.0 28.11 + .34 +01 28.12 -01 28.11
13.9 +27.9 28.10 + .53 +.02 28.12 -01 28.11
13.64 +28.02 +.58 +28.064 +28.064

n = +.03

June 1 c = 00 n = +.07 h' = +.052

13.1 +28.3 0 = +30.81 + .54 +.04 +30.85 +05 +30.90
14.1 +25.6 30.91 + .48 +.03 30.94 -01 93
14.2 +46.6 30.92 +1.06 +.07 30.99 -01 98
14.4 +52.4 30.90 +1.30 +.09 30.99 -02 97
~~13.95~~ 14.0 +30.88 +.84 +30.943 +30.945

13.3 +91.3 0 = +34.20 -43.80
14.2 +78.1 +30.61 +4.74

0 = -44.64 +3.38 6 n = +.08
+3.90 -0.27 8 +.07
+.07

13.3 -43.80 +34.20 +.04 +34.24
14.2 +4.74 +30.61 -.01 +30.60

June 3 c = 00 n = +.14 h' = +.050

14.1 +25.6 0 = +32.16 + .48 +.07 +32.23 +01 +32.24
14.2 +46.6 32.09 +1.06 +.15 32.24 +00 24
14.4 +52.4 32.04 +1.30 +.18 32.22 -00 22
14.4 +30.9 32.12 + .60 +.08 32.20 -01 .19
14.28 +32.10 +.86 +32.222 +32.222

13.3 +91.3 0 = +37.63 -43.80
14.2 +78.1 31.52 +4.74

0 = -44.66 +5.53 8 n = +.12
+3.88 -0.58 +.15
+.14

13.3 -43.80 +37.63 +.05 +37.68
14.2 +4.74 +31.52 +.00 +31.52

June 8 c = 00 n = +.04 h' = +.053

14.4 +52.4 0 = +35.12 +1.30 +.05 +35.17 +00 +35.170 12.9 +94.3 0 = +35.67 -13.10

0 = -14.40 +0.55 63 n = +.04

12.9 -13.10 +35.67 +08 +35.75

June 9 1885 C = 00 n +.05 h' = +.048

h 1 o a land
14.4 +25.6 0 = +35.79 + .48 +.02 +35.81 +.02 +35.83
14.8 +59.8 35.82 +1.72 +.09 35.91 +00 35.91
15.0 +40.8 35.98 + .86 +.04 36.02 −01 36.01
15.0 +27.4 35.95 + .52 +.03 35.98 −01 35.97
14.80 +35.88 + .90 + 35.930 + 35.930
.72

13.3 −43.79 +40.02 +.07 +40.09
14.2 +4.74 +35.84 +.03 +35.87

h o a land
13.3 +91.3 0 = +40.02 −43.79
14.2 +78.1 35.84 + 4.74

0 = −44.69 + 4.~~74~~ 21 n = +.09
+3.84 − .0~~4~~ 1 +.0~~4~~0
+.05

June 10 C = 00 n = +.00 h' = +.038

13.1 +28.5 0 = +36.15 + .54 +00 +36.15 +04 +36.19
14.1 +25.6 36.29 + .48 36.29 +00 29
14.2 +46.6 36.20 +1.06 36.20 −00 20
14.4 +30.9 36.34 + .60 36.34 −01 33
14.6 +16.9 36.30 + .30 +00 36.30 −02 28
14.08 +36.26 + .60 + 36.256 + 362.56

13.3 −43.79 +38.44 +.03 +38.47
14.2 +4.74 +36.43 −00 +36.43

13.3 +91.3 0 = +38.44 −43.79
14.2 +78.1 36.43 + 4.74

0 = −44.39 + 2.~~78~~ 21 n = +.05
+4.14 + 0.17 −.04
+.00

June 11 C = 00 n = +.04 h' = ~~.016~~ .015

13.33
13.1 +28.5 0 = +36.45 + .54 +.02 +36.47 −.01 +36.46 +36.51
13.4 +60.5 36.41 +1.77 +.07 36.48 −01 47
13.5 +37.8 36.56 + .78 +.03 36.59 −01 58
14.1 +25.6 36.51 + .48 +.02 36.53 +00 53
14.8 +59.8 36.37 +1.72 +.07 36.44 +01 45
14.63 15.0 +40.8 36.47 + .86 +.03 36.50 +02 52
13.98 +36.46 +1.02 +36.49 + 36.502 + 36.502

13.3 −43.79 +38.20 −.01 +38.19

13.3 +91.3 0 = +38.20 −43.79

0 = −44.81 + 1.74 3 n = +.04

June 13 C = 00 n = +.05 h' = ~~.034~~ .033

13.45
13.4 +60.5 0 = +37.16 +1.77 +.09 +37.25 −03 +37.22 +37.29
13.5 +37.8 37.28 + .78 +.04 37.32 −03 29
14.6 +16.9 37.34 + .30 +.01 37.35 +01 36
14.8 +59.8 37.12 +1.72 +.09 37.21 +01 22
15.0 +40.8 37.10 + .86 +.04 37.14 +02 16
14.95 15.4 +41.2 37.20 + .87 +.04 37.24 +03 27
14.~~45~~ 4 +37.20 +1.06 37.24 + 37.252 + 37.252

13.3 −43.79 +39.24 −.04 +39.20
15.1 −4.44 +37.54 +.02 +37.56

~~13~~
13.3 +91.3 0 = +39.24 −43.79
15.1 +102.7 37.54 − 4.44

0 = −44.85 + 20.~~4~~ 0 n = +.04
−5.50 + .3~~4~~ 6 +.06
+.05

June 14 C = 00 n = +.034 h' = ~~.000~~ +.017

13.60
13.4 + 60.5 0 = +37.56 +1.77 +.07 +.11 +37.6~~7~~ 3 +.02 +37.~~64~~ .65 +37.674
13.5 + 37.8 37.64 + .78 +03 +.05 37.69 4 +02 ~~.71~~ .69
13.7 + 49.9 37.60 +1.19 +.05 +.07 37.6~~7~~ 5 01 ~~68~~ .66
13.8 + 19.0 37.61 + .34 +.01 +.02 37.6~~3~~ 7 01 ~~64~~ .63
15.3 + 37.8 37.67 + .78 +.03 +.05 37.7~~2~~ 0 02 ~~70~~ 68
15.4 + 59.4 37.63 +1.69 +.07 +.10 37.7~~3~~ 0 02 ~~71~~ 68
15.37 15.4 + 41.2 37.61 + .87 +.03 +.05 37.6~~6~~ 4 02 ~~64~~ 62
14.36 +37.62 +1.06 ~~37.70~~ 68 + 37.681 + 37.6~~81~~ 68

13.3 −43.79 +39.36 +00 +39.36
14.9 −5.12 +37.17 +00 +37.17

13.3 +91.3 0 = +39.36 −43.79
14.9 +101.0 37.17 − 5.12

0 = −44.85 + 1.74 n = +.04
−6.18 ± .55 −+.09
+.0~~3~~ 4

June 20 1885 C = 00 n = ~~−06~~ +04 h' = +032

h o e land ~~+05 +39.12 +39.120~~ h o e land

14.4 +52.4 0 = +39.07 +1.30 ~~−08 +38.99 +00 +38.990~~ 14.8 +101.0 0 = +38.05 −5.12

−.08 +38.99 +38.990 15.1 +102.7 +39.30 −4.44

14.8 −5.12 +38.05 −01 +38.04

15.1 −4.44 +39.30 −02 +39.28

0 = ~~−6.42 −1.023~~ n = ~~−.16~~ ~~.451~~ −16

−5.74 + .23 +.04 +.04

1 ~~−.06~~ −06

+.04

June 21 C = 00 n = +00 h' = +.033

13.7 +18.0 0 = +38.99 + .32 +00 +38.99 +00 +38.99 13.3 +91.3 0 = +39.03 −43.78

13.8 +19.0 38.92 + .34 +00 38.92 +00 .92

~~13.75~~ .8 +38.96 + .33 +38.955 +38.955

0 = −44.11 +.09 n = +.00

13.3 −43.78 +39.03 +02 +39.05

June 22 C = 00 n = −.07 h' = +.043

15.4 +29.5 0 = +39.21 + .56 −.04 +39.17 +01 +39.18 14.8 +101.0 0 = +38.87 −5.12

15.7 +15.8 39.22 + .28 −.02 39.20 −00 .20 15.8 +78.2 39.58 +4.74

15.7 +18.5 39.24 + .33 −.02 39.22 −00 .22

15.60 +39.22 +.39 +39.197 +39.200

0 = −5.51 −0.35 2 n = −.06

+4.35 +0.36 5 −.08

−.07

14.8 −5.12 +38.87 +03 +38.90

15.8 +4.74 +39.58 −01 +39.57

June 23 C = 00 n = −.01 h' = +.045

14.1 +25.6 0 = +39.51 +.48 −.00 +39.51 +04 +39.55 13.3 +91.3 0 = +40.35 −43.78

14.4 +52.4 +39.58 +1.30 −.01 39.57 +03 .60 14.2 +78.1 39.73 +4.74

15.4 +59.4 39.71 +1.69 −.02 39.69 −02 .67

15.6 +6.8 39.57 + .12 −.00 39.57 −03 .54

15.7 +18.5 39.54 + .33 −.00 39.54 −03 .51

15.04 39.58 + .75 +39.574 +39.5740 = −44.53 +0.77 85 n = +.02

+3.99 +0.15 9 −.045

−.01

13.3 −43.78 +40.35 +.08 +40.43

14.2 +4.74 +39.73 +04 +39.77

+.074

June 24 C = 00 n = −.11 h' = ~~+.210 +.215 +.043~~ 2 ~~= +.129~~

14.50 +39.69

14.4 +52.4 0 = +39.75 +1.30 −.14 +39.61 +14 +39.75 14.8 +101.0 0 = +39.16 −5.12

14.6 +16.9 39.80 + .30 −.03 39.77 +12 39.89 15.1 +102.7 39.56 −4.44

15.3 +37.8 39.88 + .78 −.09 39.79 +02 39.81 15.8 +78.2 40.68 +4.74

16.5 +42.7 39.92 ~~40.36~~ + .92 −10 39.82 ~~40.20~~ −13 ~~39.69~~ 16.0 +94.8 38.66 −12.02

16.13 16.6 +39.1 39.90 ~~40.22~~ + .81 −09 39.81 ~~40.13~~ −14 ~~39.67~~

15.48 ~~39.99~~ 39.85 + .82 ~~+40.07~~ +39.81 ~~+39.900~~ 39.760 ~~+39.902~~ 39.762 =

−5.94 − ~~0.83~~ 0.56 n = ~~−.14~~ .11 −.09

−5.26 − ~~0.47~~ 0.21 − ~~.08~~ .07 −.04

+0.08 + 39.69 +3.92 + ~~0.58~~ 0.77 − ~~.18~~ .16 −.20

14.8 −5.12 +39.16 +.15 +39.31 +07 39.84 −12.84 + ~~1.38~~ ~~1.43~~ 1.29 − ~~.10~~ .11 −.10

15.1 −4.44 +39.56 +08 +39.64 +01 39.80 ~~−.12~~ −.11 −.11

15.8 +4.74 +40.68 −06 +40.62 −07 39.75

16.0 −12.02 +38.66 −10 +38.56 −08 39.73

39.762

June 25 C = 00 n = −.09 h' = +036

15.6 +6.8 0 = +39.90 + .12 −.01 +39.89 +01 +39.90 15.1 +102.7 0 = +39.62 −4.44

15.7 +18.5 39.89 + .33 −.03 39.86 +01 .87 15.8 +78.2 40.42 +4.74

16.1 −3.4 39.92 − .06 +.01 39.93 −01 .92

16.2 −4.4 39.92 − .08 +.01 39.93 −01 .92

15.90 +39.88 + .08 +39.902 +39.902

0 = −4.52 −0.23 3 n = −.085

+4.66 +0.54 −.12

−.09

15.1 −4.44 +39.62 +.03 +39.65

15.8 +4.74 +40.42 +00 +40.42

June 27 1885 c = 00 n = −.12 h′ = +.045

h o a tan δ
15.4 +29.5 0 = +40.46 + .56
16.2 −4.4 40.39 − .08
16.3 +46.6 40.48 +1.06
16.4 −26.2 40.26 − .49
16.5 +42.7 40.43 + .92
16.16 +40.39 +.39

15.1 −4.44 +39.75 +.05 +39.80
15.8 +4.74 +40.94 +.02 +40.96

−.07 +40.39 +.03 +40.42
+.01 40.35 +.00 35
−.13 40.35 −.00 35
+.06 40.32 −.01 31
−.11 40.32 −.01 31
+40.346 +40.348

h o a tan δ
15.1 +102.7 0 = +39.75 −4.44
15.8 +78.2 40.94 +4.74

59
0 = −4.83 − 0.64 n = −.13 2
+4.35 + 0.55 −.13
57
−.12

July 2 c = 00 n = −.11 h′ = +.051

15.4 +29.5 0 = +42.71 +.56
15.5 +27.1 42.65 +.51
~~15.45~~ .4 +42.68 +.54

15.8 +4.74 +43.19 −.02 +43.17

−.06 +42.65 +.00 +42.65
−.06 42.60 .60
+42.625 +42.625

15.8 +78.2 0 = +43.19 +4.74

0 = +4.20 + 0.~~51~~ 49 n = ~~−.12~~ −.11

July 4 c = 00 n = −.08 h′ = +.047

16.1 −3.4 0 = +43.50 − .06
16.9 +9.6 43.54 + .17
16.9 +31.1 43.51 + .60
16.63 +43.52 +.24

15.8 +4.74 +43.84 +.04 +43.88

+.00 +43.50 +.02 +43.52
−.01 43.53 −.01 .52
−.05 43.46 −.01 .45
+43.497 +43.497

15.8 +78.2 0 = +43.84 +4.74

0 = +4.50 + 0.~~33~~ 36 n = −.~~07~~ .08

July 6 c = .00 n = −.05 h′ = +.044

15.2 +33.8 0 = +43.91 + .67
16.2 −4.4 43.97 − .08
15.70 +43.94 +.30

15.1 −4.44 +43.67 +.03 +43.70

−.03 +43.88 +.02 +43.90
+.00 43.97 −.02 95
+43.925 +43.925

15.1 +102.7 0 = +43.67 −4.44

0 = −4.74 − 0.2~~7~~4 n = −.~~06~~ .05

July 8 c = .00 n = −.20 h′ = +.045

15.2 +33.8 0 = +44.47 +.67
15.3 +37.8 44.58 +.78
15.4 +41.2 44.57 +.87
16.8 +15.2 44.62 +.27
16.9 +31.1 44.62 +.60
15.92 44.56 +.64

15.8 +4.74 +45.33 +.00 +45.33
17.1 +2.23 +44.95 −.05 +44.90

−.13 +44.34 +.03 +44.37
−.16 44.42 +.03 .45
−.17 44.35 +.02 37
−.05 44.57 −.04 53
−.12 44.50 −.04 46
+44.436 +44.436

15.8 +78.2 0 = +45.33 +4.74
17.1 +65.9 +44.95 +2.23

0 = +4.10 + 0.77 n = −.19
+1.59 + 0.3~~7~~4 −.2~~5~~1
−.20

July 11 c = .00 n = −.11 h′ = +.050

16.1 −3.4 0 = +45.06 − .06
16.3 +46.6 45.31 +1.06
16.4 +61.8 45.31 +1.86
17.7 +27.8 45.29 + .53
16.62 +45.24 +.80

17.0 +7.33 +45.79 −.02 +45.77
17.6 +2.58 45.53 −.05 +45.48
17.7 +3.12 45.61 −.06 +45.55

+.01 +45.07 +.02 +45.09
−.12 45.19 +.02 21
−.20 45.11 +.01 12
−.06 45.23 −.05 18
+45.150 +45.150

17.0 +82.2 0 = +45.79 +7.33
17.6 +68.8 45.53 +2.58
17.7 +72.2 45.61 +3.12

0 = +6.53 + 0.55 3 n = −.08
+1.78 + 0.2~~8~~4 −.1~~8~~3
+2.32 + 0.3~~7~~1 −.163
−.11

July 12 1885   c = 00   n = −.01   h′ = +.052

h	o	e	tan δ				
16.3	+46.6	0 = +45.55	+1.06	−.01	+45.54	+01	+45.55
16.4	+61.8	45.71	+1.86	−.02	45.69	+01	70
16.5	+42.7	45.65	+.92	−.01	45.64	+01	65
17.2	+25.0	45.60	+.47	−00	45.60	−03	57
16.60		+45.63	+1.08		+45.618	+	45.618

h	o	e	tan δ
17.0	+82.2	0 = +45.73	+7.33
0 =	+6.25	+ 0.~~10~~ 08	n = −.~~02~~ .01

17.0 +7.33 +45.73 −.02 +45.71

July 15   c = 00   n = −.03   h′ = +.049

17.2	+14.5	+46.51	+.26	+.01	46.52	−.01	46.51
16.0	+58.9	0 = +46.55	+1.66	−.05	+46.50	+01	+46.51
16.1	−3.4	46.51	−.06	+00	46.51	+00	51
16.2	−4.4	46.45	−.08	+00	46.45	+00	45
16.3	+46.6	46.56	+1.06	−.03	46.53	−00	53
16.~~15~~ .~~2~~4		+46.52	+0.64		+46.498	+	46.500

17.0	+82.2	0 = +46.76	+7.33
0 =	+6.69	+ 0.~~24~~ 20	n = −.~~04~~ .03

17.0 +7.33 +46.76 −.04 +46.72

July 16   c = .00   n = −.04   h′ = ~~+.075~~ +.056 +46.79

16.25	16.1	−3.4	0 = +46.72	−.06	+00	+46.72	+04	+46.76
	16.2	−4.4	46.71	−.08	+00	46.71	+04	75
	16.3	+46.6	46.96	+1.06	−.04	46.92	+03	95
	16.4	+61.8	46.90	+1.86	−.07	46.83	+03	86
	18.0	+28.8	46.88	+.55	−.02	46.86	−06	80
18.20	18.4	+58.7	47.00	+1.64	−.07	46.93	−08	85
	16.90		+46.86	+.83	+46.90	+46.828	+	46.828

17.0	+82.2	0 = +47.04	+7.33
17.9	+77.0	46.93	+4.32
18.2	+86.6	48.61	+16.91
0 =	+6.50	+ 0.~~20~~ 17	n = −.03
	+3.49	~~+ 0.07~~ 001	−.0~~2~~0
	+16.08	+ 1.~~75~~ 65	−.~~11~~0
			−.04

17.0 +7.33 +47.04 −.01 +47.03
17.9 +4.32 +46.93 −.08 +46.85
18.2 +16.91 +48.61 −10 +48.51

July 18   c = .00   n = −.14   h′ = +.046

17.2	+14.5	0 = +47.40	+.26	−.04	+47.36	+01	+47.37
17.2	−24.9	47.27	−.46	+.06	47.33	+01	34
17.6	+46.1	47.41	+1.04	−.15	47.26	−00	26
17.6	+4.6	47.36	+.08	−.01	47.35	−01	34
17.7	+27.8	47.30	+.53	−.07	47.23	−01	22
17.46		+47.35	+.29		+47.306	+	47.306

17.0	+82.2	0 = +48.29	+7.33
0 =	+7.04	+ 0.9~~4~~6	n = −.~~13~~ .14

17.0 +7.33 +48.29 +.02 +48.31

July 19   c = 00   n = −.11   h′ = +.047

17.6	+46.1	0 = +47.63	+1.04	−.11	+47.52	+00	+47.52
17.7	+27.8	47.54	+.53	−.06	47.48		48
[17.9	+56.9	47.49	+1.53]	−.17	[47.32]		
17.6~~2~~5		+47.58	+0.78		+47.500		+47.500

17.7	+72.2	0 = +47.84	+3.12
0 =	+2.34	+0.26	n = −.11

17.7 +3.12 +47.84 +00 +47.84

July 21 1885 C = 00 n = −.15 h = ~~+031~~ +084

h	o	e	tan δ		+47.99		
17.75							
16.7	+57.0	0 = +4821	+1.54	−.23	+47.98	+.13	+48.11
17.6	+46.1	4816	+1.04	−.16	48.00	+.06	.06
18.6	+38.7	4834	+.80	−.12	48.22	−.02	20
18.7	+20.4	4816	+.37	−.06	48.10	−.03	07
18.8	+33.2	4814	+.65	−.10	48.04	−.04	00
18.8	+59.2	4835	+1.68	−.25	48.10	−.04	.06
1882 19.2	+37.9	4831	+.78	−.12	48.19	−.07	12
18.34		+48.24	+.98		+48.13 +48.076		+48.079

h	o	e	tan δ
17.0	+82.2	0 = +49.03	+7.33
17.9	+77.0	48.67	+4.32
18.2	+86.6	51.21	+16.91

0 = +6.35 + 0.~~79~~ 83 n = −.12 3
+3.34 + 0.43 4 −.13
+15.93 + 2.97 −.19
−.15

17.0	+7.33	+49.03	+.04	+49.07
17.9	+4.32	+48.67	+.01	+48.68
18.2	+16.91	+51.21	+.00	+51.21

July 22 C = 00 n = −.13 h′ = +041

					+48.25		
16.70							
16.4	+61.8	0 = +48.62	+1.86	−.24	+48.38	+.06	+48.44
16.7	+57.0	48.30	+1.54	−.20	48.13	+.05	18
16.8	+15.2	48.26	+.27	−.04	48.22	+.05	27
16.9	+31.1	48.34	+.60	−.08	48.26	+.04	30
18.6	+38.7	48.42	+.80	−.10	48.32	−.03	29
18.7	+20.4	48.35	+.37	−.05	48.30	−.03	27
18.8	+33.2	48.41	+.65	−.08	48.33	−.04	29
19.2	+37.9	48.55	+.78	−.10	48.45	−.05	40
18.90 19.2	+53.2	48.46	+1.33	−.17	48.29	−.05	24
17.92		+48.41	+.91		+48.34 +48.298		+48.298

h	o	e	tan δ
17.0	+82.2	0 = +48.81	+7.33
18.8	+92.8	44.59	−20.59
18.2	+86.6	50.51	+16.91

0 = +6.42 + 0.42 4 n = −.07
−21.50 − 3.82 6 −.18
+16.00 + 2.09 −.13
−.13

17.0	+7.33	+48.81	+.04	+48.85
18.8	−20.59	+44.59	−.04	+44.55
18.2	+16.91	+50.51	−.01	+50.50

July 23 C = 00 n = −.17 h′ = ~~+030~~ +.000

					+48.46		
17.07							
16.8	+15.3	0 = +48.48	+.27	−.05	+48.43	+.00	+48.43
16.9	+31.1	48.56	+.60	−.11	48.45	+.00	45
17.5	−15.3	48.45	−.27	+.05	48.50	+.00	50
18.1	+28.7	48.56	+.55	−.09	48.47	−.00	47
18.6	+38.7	48.58	+.80	−.14	48.44	−.00	44
18.7	+20.5	48.51	+.37	−.06	48.45	−.00	45
19.2	+37.9	48.67	+.78	−.13	48.54	−.00	54
18.76 19.2	+53.2	48.64	+1.33	−.23	48.41	−.00	41
18.12		+48.56	+.55		+48.46 +48.461		+48.461

h	o	e	tan δ
17.0	+82.2	0 = +49.51	+7.33
17.9	+77.0	49.17	+4.32
18.4	+100.3	47.28	−5.50

0 = +6.78 + 0.95 8 n = −.14
+3.77 + 0.6x 2 −.16
−6.05 − 1.28 9 −.21
−.17

17.0	+7.33	+49.57	+.03	+49.54
17.9	+4.32	+49.17	+.01	+49.18
18.4	−5.50	+47.28	−.01	+47.27

July 25 C = 00 n = −.14 h′ = +.045

		4895			4889		4890
[18.7]	+20.4	0 = ~~+49.09~~	+ [37]	−.06	~~+49.03~~	+.01	~~+49.04~~
18.9	+43.8	48.91	+.96	−.14 .13	48.7x 8	+.00	48.78
18.9	+32.5	48.88	+.64	−.10 .09	48.78 9	+.00	48.79
19.0	+13.7	48.90	+.24	−.04 .03	48.86 7	−.00	48.87
19.2	+37.9	48.99	+.78	−.12 .11	48.87 8	−.01	48.87
~~18.94~~ ~~19.00~~ 18.94		+48.9~~5~~ 92	+.6~~8~~ 6		+48.8~~62~~ 30		+ ~~48.862~~ ~~.828~~ +48.842

h	o	e	tan δ
18.8	+92.8	0 = +45.87	−20.58

0 = ~~−21.18 − 3.08 n = −.15~~
−21.24 − 3.06 n = −.14

18.8	−20.58	+45.87	~~+.00~~ −.01	+45.8~~7~~ 6

July 27 1885 c = .00 n = −.17 h = +.047 $\frac{+117+047}{2}$ = +.082

17.35

h	o	a	tan δ				
					+49.01		
16.6	+39.1	0 = +49.09	+.81	−.14	+48.95	+.12	+49.07
17.5	−15.3	49.11	−.27	+.05	49.16	+.05	49.21
17.6	+46.1	49.06	+1.04	−.18	48.98	+.04	49.02
17.7	+27.8	49.05	+.53	−.09	48.96	+.03	48.99
18.4	+58.7	49.46	+1.64	−.28	49.18	−.02	49.16
18.9	+32.5	49.27	+.64	−.11	49.16	−.06	49.10
19.0	+13.7	49.29	+.24	−.04	49.25	−.07	49.18
18.88 19.2	+11.4	49.21	+.20	−.03	49.18	−.09	49.09
18.11		+49.19	+.60		~~+49.19~~ +49.103		+49.103

h	o	a	tan δ
18.4	+100.3	0 = +48.64	−5.50
18.8	+92.8	+43.95	−20.58

0 = −6.10 − 0.55 6 n = −.09
−21.18 − 5.24 7 −.25
−.17

18.4 −5.50 +48.64 −.01 +48.63
18.8 −20.58 +43.95 −.03 +43.92

July 28 c = 00 n = −.16 h′ = ~~+.058~~ +.044

16.48

					+49.35		
[16.4]	+61.8	0 = [+49.38]	+[1.86]	−.30	+49.08]	+.[illegible]	+49.16]
16.4	+21.7	49.46	+.40	−.06	49.40	+.07	+49.47
16.5	+42.7	49.41	+.92	−.15	49.26	+.06	32
16.6	+39.1	49.53	+.81	−.13	49.40	+.06	46
~~18.0~~	~~+30.4~~	~~49.32~~	~~+.59~~	~~+.09~~	~~49.23~~		
18.9	+43.8	49.55	+.96	−.15	49.40	−.04	36
18.9	+32.5	49.61	+.64	−.10	49.51	−.04	47
19.0	+13.7	49.51	+.24	−.04	49.47	−.05	42
19.00 ~~18.80~~ 19.2	+11.4	49.48	+.20	−.03	49.45	−.05	40
17.~~76~~ 93		~~+49.44~~ +49.51	~~+.74~~ .60		~~+49.46~~ +49.413		+49.414

h	o	a	tan δ
17.9	+77.0	0 = +49.89	+4.32
18.8	+92.8	44.78	−20.58

0 = ~~+3.58 + 0.42~~ 1 n = ~~−.12~~ 1
~~−21.32 − 4.69~~ .75 ~~−.22~~
−.16

+3.72 + 0.38 n = −.10
−21.18 − 4.72 12 −.22
−.16

17.9 +4.32 +49.89 −.0~~1~~0 +49.88 8
18.8 −20.58 +44.78 −.0~~6~~5 +44.7~~2~~3

Reject this date

July 30 c = 00 n = −.13 h′ = +.057

18.4	+58.7	0 = +50.47	+1.64	−.21	+50.26	+.00	+50.260

h	o	a	tan δ
18.2	+86.6	0 = +52.50	+16.91

18.2 +16.91 +52.50 +.01 +52.51

0 = +15.26 + 2.03 4 n = −.13

Aug 4 c = .00 n = −.09 h′ = +.056

17.5	+12.6	0 = +52.33	+.22	−.02	+52.31	+.04	+52.35
[17.6]	+46.1	[52.26	+1.04]	−.09	[52.17]		[52.20]
17.7	+27.8	52.23	+.53	−.05	52.18	+.03	21
18.6	+38.7	52.39	+.80	−.07	52.32	−.02	30
18.7	+20.4	52.32	+.37	−.03	52.29	−.02	27
18.8	+33.2	52.46	+.65	−.06	52.40	−.03	37
18.26		+52.35	+.52		+52.300		+52.300

h	o	a	tan δ
17.9	+77.0	0 = +52.69	+4.32

0 = +3.80 + 0.36 n = −.09

17.9 +4.32 +52.69 +.02 +52.71

Aug 6 c = 00 n = −.19 h′ = +.057

17.9	+51.5	0 = +53.32	+1.26	−.24	+53.08	+.04	+53.12
~~18.3~~	~~−9.0~~	~~53.32~~	~~−.05~~	~~+.01~~	~~53.33~~	~~+.04~~	
18.6	+38.7	53.16	+.80	−.15	53.01	+.00	53.01
19.4	+27.7	52.97	+.52	−.10	52.87	−.04	52.83
18.63		+53.15	+.86		+52.987		+52.987

h	o	a	tan δ
19.8	+70.0	0 = +53.57	+2.74

0 = +1.88 + 0.35 n = −.19

19.8 +2.74 +53.57 −.07 +53.50

1883phae.proj.1682.

Aug 8 1885 c = .00 n = −.12 h' = ~~+.033~~ +.036

h	a	c	tan δ			+5401	
17.7	+27.8	0 = +54.06	+ .53	−.06	+54.00	+.04	+54.04
17.9	+56.9	54.07	+1.53	−.18	53.89	+.03	53.92
18.6	+38.7	54.25	+ .80	−.10	54.15	+.00	54.15
19.2	+53.2	54.23	+1.33	−.16	54.07	−.02	54.05
19.9	+52.1	54.21	+1.28	−.15	54.06	−.04	54.02
18.66		+54.16	+1.09		+5406 +54.034		+54.036

18.10

17.7	+3.12	+54.29 +.03	+54.32
18.8	−20.58	+50.69 +.00	+50.69

h	a	c	tan δ
17.7	+72.2	0 = +54.29	+ 3.12
18.8	+92.8	50.69	− 20.58

0 = +2.03 + 0.18⁶ n = −.0~~6~~8
−21.67 − 3.47 −.16
−.12

Aug 9 c = .00 n = −.16 h' = +.057

18.6	+38.7	0 = +54.58	+ .80	−.13	+54.45	+.02	+54.47
18.7	+20.4	54.57	+ .37	−.06	54.51	+.02	.53
18.8	+33.2	54.61	+ .65	−.10	54.51	+.01	52
19.9	+52.1	54.76	+1.28	−.20	54.56	−.05	51
19.00		+54.63	+ .78		+54.508		+54.508

19.8	+2.74	+54.98 −.04	+54.94

19.8	+70.0	0 = +54.98	+2.74

0 = +1.96 + 0.3~~5~~1 n = −.~~18~~16

Aug 11 c = .00 n = −.07 h' = +.054

19.2	+37.9	0 = +55.46	+ .78	−.05	+55.41	+.03	+55.44
19.2	+53.2	55.35	+1.33	−.09	55.26	+.03	29
19.8	+6.1	55.34	+ .11	−.01	55.33	+.00	33
19.9	+52.1	55.37	+1.28	−.09	55.28	−.01	27
20.1	−1.2	55.33	− .02	+.00	55.33	−.02	31
20.3	+39.9	55.38	+ .84	−.06	55.32	−.03	29
19.7~~5~~8		+55.37	+ .72		+55.322		+55.322

18.2	+16.92	+56.06 +.09	+56.15
18.4	−5.50	+55.03 +.08	+55.11
18.8	−20.58	+52.73 +.05	+52.78

18.2	+86.6	0 = +56.06	+16.92
18.4	+100.3	55.03	−5.50
18.8	+92.8	52.73	−20.58

0 = +16.20 + 0.6~~9~~78 n = −.0~~4~~5
−6.22 − 0.~~34~~26 −.0~~5~~4
−21.30 − 2.~~64~~59 −.12
−.07

Aug 15 c = .00 n = −.22 h' = +.080

				+56.43				
17.5	+52.4	0 = +56.67	+1.30	−.29	+56.38	+.10	+56.48	⊖
17.6	+46.1	56.64	+1.04	−.23	56.41	+.10	51	⊖
17.7	+27.8	56.63	+ .53	−.12	56.51	+.09	60	
17.9	+51.5	56.79	+1.26	−.28	56.51	+.07	58	⊖
20.2	+24.2	56.78	+ .45	−.10	56.68	−.11	57	
20.3	+39.9	56.85	+ .84	−.18	56.67	−.12	55	⊖
20.5	+62.6	56.97	+1.93	−.42	56.55	−.14	41	⊖
18.81		+56.76	+1.05		+56.60 +56.530		+56.529	

17.60

19.72

18.8	−20.58	+52.07 +.00	+52.07
20.6	+3.63	+57.38 −.06	+57.32

18.8	+92.8	0 = +52.07	−20.58
20.6	+74.6	57.38	+3.63

0 = −21.63 − 4.69 n = −.22
+2.58 + 0.~~62~~56 −.2~~4~~2
−.22

Aug 16 c = .00 n = −.18 h' = +.050

18.9	+43.8	0 = +57.01	+ .96	−.17	+56.84	+.02	+56.86	⊖
18.9	+32.5	56.98	+ .64	−.11	87	+.02	89	
19.4	+27.7	56.94	+ .52	−.09	85	+.00	85	
19.4	+51.5	56.96	+1.26	−.23	73	+.00	73	⊖
19.6	+50.0	57.10	+1.19	−.21	89	−.01	88	⊖
19.9	+52.0	56.92	+1.28	−.23	69	−.03	66	⊖
19.3~~5~~4		+56.98	+ .98		+56.812		+56.812	

18.8	−20.58	+52.82 +.03	+52.85

18.8	+92.8	0 = +52.82	−20.58

0 = −21.56 − 4.13 n = −.18

Aug 18 1885 c = .00 n = -~~.14~~ 12 h' = +.055

h	o		tan δ				
19.8	+6.1	0 = +57.39	+ .11	-.01	+57.38	+~~02~~ 3	+57.~~40~~ .41
[19.9]	+52.1	[57.44]	+1.28]	-.18 5	57.28 9	+0x2	~~27~~ .31]
20.3	+39.9	57.51	+ .84	-.12 0	57.39 41	-0x0	~~38~~ .41
20.5	+62.6	57.64	+1.93	-.27 5	57.34 2	-02 1	~~35~~ .38
[20.6]	+44.9	57.75 ~~57.68~~	+1.00]	-.1 2	[57.63]	-02	.61
20.~~12~~ 30		+~~57.49~~ 57.57	+~~1.04~~ +0.97		+57.350		+57.~~350~~ .452

19.6	+55.19	+61.41 +08 4	+61.44 5
20.6	+3.63	58.06 -03 2	+58.03 4

h	o		tan δ
19.6	+89.0	0 = +61.41	+55.19
20.6	+74.6	58.06	+3.63

0 = +54.~~15~~ 22 + 3.~~95~~ 88 n = -.07

+2.59 66 + 0.54 47 ~~-.21~~ .18

~~.14~~

-.12

Aug 19 c = .00 n = -.14 h' = +.059

20.6	+44.9	0 = +57.92 ~~57.77~~ ~~58.04~~	+1.00	-.14	+57.~~90~~ 85	+02	+57.~~92~~ 87
20.8	+27.6	57.95	+ .52	-.07	57.88	+01	.89
20.9	+40.7	57.92	+ .86	-.12	57.80	+00	80
21.0	+38.2	57.99	+ .79	-.11	57.83	-01	82
21.1	+29.8	57.96	+ .57	-.08	57.88	-01	.87
20.88		+57.9~~6~~ 5	+ .75		+57.858		+57.8~~60~~ 50

20.6	+3.63	+58.21 +.02	+58.23
21.1	+4.55	+58.68 -01	+58.67

20.6	+74.6	0 = +58.21	+3.63
21.1	+77.7	+58.68	+4.55

0 = +2.88 + 0.25 7 n = -.09

+3.80 + 0.7~~8~~ 1 -.19

-.14

Aug 20 c = .00 n = -.15 h' = +.063

18.8	+59.2	0 = +58.41	+1.68	-25	+58.16	+04	+58.20
18.9	+43.8	58.48	+ .96	-.14	58.34	+04	38
18.9	+32.5	58.48	+ .64	-.10	58.38	+04	42
19.2	+53.1	58.46	+1.33	-20	58.26	+02	28
19.4	+27.7	58.38	+ .52	-.08	58.30	+01	31
19.4	+51.5	58.41	+1.26	-.19	58.22	+01	23
19.6	+50.0	58.37	+1.19	-.18	58.19	-01	18
20.8	+27.6	58.44	+ .52	-08	58.36	-08	28
20.9	+40.7	58.43	+ .86	-.13	58.30	-09	21
19.54		+58.43	+ .99		+58.279		+58.277

18.8	-20.58	+54.16 +04	+54.20
19.2	+2.40	+58.53 +.02	+58.55

18.8	+92.8	0 = +54.16	-20.58
19.2	+67.5	58.53	+2.40

0 = -21.57 - 4.2~~7~~ 3 n = -.20

+1.41 + 0.1~~0~~ 2 -.0~~7~~ 9

-.15

Sept 30 c = .00 n = -.16 h' = +.063

[19.2]	+67.5	(+81.31)	(+2.40)	-.38	+[80.93]	+.04	+[80.97]
19.4	+51.5	0 = +80.90	+1.26	-.20	+80.70	+.0~~3~~	+80.73
19.6	+50.0	80.88	+1.19	-.19	80.69	+01	70
19.9	+52.1	80.98	+1.28	-.20	80.78	-01	77
20.3	+39.9	81.06	+ .84	-.13	80.93	-03	90
19.80		+80.96	+1.14		+80.775		+80.775

~~19.2 +2.40 +81.31 +.04 +81.35~~

(~~19.2 +67.5 0 = +81.31 +2.40~~)

0 = +1.26 + 0.35 9 n = -~~.28~~ .31

n = -.16

Oct 1 c = .00 n = -~~.16~~ 11 h' = +.063

20.3	+39.9	0 = +81.65	+ .84	-.09	-.13	+81.5~~2~~ 6	+04	+81.~~56~~ .60
20.5	+62.6	81.85	+1.93	-21	-.31	81.~~54~~ 64	-03	~~54~~ .67
21.0	+38.2	81.71	+ .79	-09	-.13	81.~~58~~ 62	-00	~~58~~ 62
21.1	+29.8	81.80	+ .57	-06	-.09	81.~~71~~ 74	-01	~~70~~ .73
21.5	+39.9	81.81	+ .84	-09	-.13	81.~~68~~ 72	-03	~~65~~ 69
21.7	+48.8	81.75	+1.14	-.13	-.18	81.~~57~~ 62	-04	~~53~~ 58
21.02		+81.76	+1.02			+81.600		+~~81.598~~ +81.648

19.6	+55.32	+85.58 +.09	+85.67
21.5	+2.75	+82.~~70~~ 03 -.03	+82.~~17~~ 00

19.6	+89.0	0 = +85.58	+55.32
21.5	+70.1	82.~~70~~ 03	+2.75

0 = +54.30 + 3.8~~2~~ 91 n = -.07

+1.63 + ~~0.44~~ 0.24 ~~-.27~~ 5 15

~~.16~~

.11

Oct-5 1885 c=.00 n=-.08 h' = ~~+124~~ +.106+.055 / 2 = +.080

+84.57

h	o	s	tan δ				
19.9	+52.1	0=+84.71	+1.29	-.10	+84.61	+.08	+84.69 θ
20.2	+46.4	84.57	+1.05	-.08	84.49	+06	.55 θ
21.0	+38.2	84.66	+.79	-.06	84.60	-01	.59
21.3	+62.1	84.81	+1.89	-.15	84.66	-03	.63 θ
21.5	+39.9	84.80	+.84	-.07	84.73	-05	.68
21.7	+48.8	84.76	+1.14	-.09	84.69	-06	.63 θ
20.93		+84.72	+1.17		+84.69 +84.630		+84.628

21.37 · 21.50

h	o	s	tan δ
19.6	+89.0	0=+90.47	+55.32
21.5	+70.1	84.86	+2.75

0 = +54.15 + 5.~~75~~ 91 n = -.11

+1.58 + 0.~~14~~ .07 -.094

-.08

19.6 +55.32 +90.47+.16 +90.63

21.5 +2.75 +84.86-.07 +84.79

Oct-10 c=.00 n=-.04 h' = ~~+.024~~ +.019

+88.332

20.67

h	o	s	tan δ				
20.5	+162.6	0=+88.50	+1.93	-.08	+88.42	+01	+88.43 θ
20.6	+44.9	88.35	+1.00	-.04	88.31 26	+01	27 ~~31~~ θ
20.9	+40.7	88.30	+.86	-.03	88.27	+00	27 θ
21.0	+38.2	88.37	+.79	-03	88.34	-00	34
21.1	+29.8	88.30	+.57	-02	88.28	-00	28
21.5	+39.9	88.40	+.84	-.03	88.37	-01	36 θ
20.93		+88.34	+1.00		+88.332		+88.~~332~~ .325

21.20 · +88.33

h	o	s	tan δ
20.2	+77.3	0=+88.50	+4.45

0 = +3.45 + 0.134 n = -.04

20.2 +4.45 +88.50 +.00

Oct-11 c=.00 n=-.04 h' = ~~+.039~~ ~~+.038~~ +.057

+88.753

20.83

h	o	s	tan δ					
20.6	+44.9	0=+88.71 66	+1.00	-04	+88.67	+.03	+88.~~70~~	θ .67
20.9	+40.7	88.93	+.86	-.03	88.90	+023	~~92~~	θ .93
21.0	+38.2	88.71	+.79	-.03	88.68	+02	~~70~~	.70
21.3	+62.1	88.76	+1.89	-07	88.69	+01	~~69~~	θ .70
22.0	+62.2	88.98	+1.90	-08	88.90	-023	88	θ .87
22.1	+32.6	88.77	+.64	-02	88.75	-034	72	.71
22.1	+57.6	88.87	+1.58	-06	88.81	-034	78	θ .77
21.43		+88.82	+1.24		88.79 +88.77		+88.770 64	

21.88

h	o	s	tan δ
21.1	+77.7	0=+88.95	+4.59

0 = +3.35 + 0.13 n = -.04

21.1 +4.59 +88.95+.01 +88.96

Oct-12 c=.00 n=-.02 h' = +.042

h	o	s	tan δ				
20.9	+40.7	0=+89.27	+.86	-02	+89.25	+02	+89.27 θ
21.0	+38.2	89.18	+.79	-02	89.16	+02	.18 θ
21.5	+39.9	89.44	+.84	-02	89.42	+00	42 θ
21.7	+48.8	89.23	+1.14	-02	89.21	-01	20 θ
21.8	+25.4	89.33	+.47	-01	89.32	-01	31
22.1	+57.6	89.13	+1.58	-.03	89.10	-02	08 θ
21.50		+89.25	+.95		+89.243		+89.243

h	o	s	tan δ
20.5	+74.6	0=+89.20	+3.61
21.1	+77.7	+89.31	+4.59
21.3	+98.2	+~~88.92~~ 89.47	-6.96

0 = +2.66 - .001 n = +.00

+3.64 + 0.08 -.02

-7.91 - ~~0.45~~ -0.32 -.04

-.02

20.5 +3.61 +89.20+.04 +89.24

21.1 +4.59 89.31+.02 +89.33

21.3 -6.96 ~~88.92~~ 89.47 +.01 +~~88.93~~ 89.48

Oct-14 c=.00 n=+.01 h' = +.041 -.059 +.041 / 2 = ~~-.015~~ -.009

+90.027

20.57

h	o	s	tan δ				
20.2	+46.4	0=+90.07	+1.05	+.01	+90.08	-.01	+90.07 θ
20.6	+44.2	~~90.03~~ 89.98	+1.00	+.01	~~90.04~~ 89.99	-.01	~~90.03~~ θ 89.98
20.9	+40.7	90.14	+.86	+.01	90.15	-01	90.14 θ
22.3	+51.7	89.91	+1.26	+01	89.92	+01	89.93 θ
22.4	+49.7	89.94	+1.18	+01	89.95	+01	89.96 θ
22.6	+38.5	90.00	+.80	+.01	90.01	+01	90.02
21.50		+90.01	+1.02		+89.96 +90.025		+90.0~~25~~ +90.017

22.43

h	o	s	tan δ
20.5	+74.6	0=+90.00	+3.61

0 = +2.59 - .03 n = ~~.00~~ +.01

20.5 +3.61 +90.00 +.04 +90.04

Oct 17 1885 c=.00 n=+.08 h' = ~~+.008~~ +.000
+91.66

h	o	s	tan δ					
20.44								
19.9	+52.2	0=+91.52	+1.29	+.10	+91.62	+.00	+91.62	θ
20.3	+39.9	91.52	+.84	+.07	91.59		59	θ
20.5	+62.6	91.52	+1.93	+.15	91.67		67	θ
20.5	+14.2	91.64	+.25	+.02	91.66		66	
21.0	+38.2	91.68	+.79	+.06	91.74		74	
21.5	+39.9	91.69	+.84	+.07	91.76		76	
21.7	+48.8	91.48	+1.14	+.09	91.57		57	θ
21.8	+25.4	91.59	+.48	+.04	91.63		63	
21.78 22.1	+57.7	91.56	+1.58	+.13	91.69	−.00	69	θ
21.03		+91.58	+1.02		+91.66 +91.659		+91.659	

21.5 +2.75 +91.45 +.00 +91.45

h	o	s	tan δ
21.5	+70.1	0=+91.45	+2.75

0= +1.73 − 0.13 n = +.08

Oct 18 c=.00 n=−.04 h' = +.050

20.5	+14.2	0=+92.28	+.25	−.01	+92.27	+01	+92.28	
20.6	+15.5	92.28	+.28	−.01	92.27	+01	28	
20.6	+44.9	92.25	+1.00	−.04	92.28	+01	2~~7~~2	θ
21.0	+38.2	92.24	+.79	−.03	92.21	−01	20	θ
21.3	+62.1	92.37	+1.89	−.08	92.29	−02	27	θ
20.80		+92.29 8	+.84		+92.260		+92.2~~60~~ 50	

h	o	s	tan δ
20.2	+77.4	0=+92.44	+4.45
20.8	+82.1	92.59	+7.22
21.1	+77.7	92.38	+4.59

0= +3.61 + 0.1~~5~~89 n = −.0~~4~~5
+6.38 + 0.30 31 −.05
+3.75 + 0.0~~7~~8 9 −.0~~3~~2 3
−.04

202 +4.45 +92.44 +.03 +92.47
20.8 +7.22 +92.59 +.00 +92.59
21.1 +4.59 +92.38 −01 +92.37

Oct 19 c=.00 n=+.06 h' = +.047

~~22.1~~	~~+57.6~~	~~0=+92.61~~	~~+1.58~~				
22.6	+38.5	92.96	+.80	+.05	+93.01	+01	+93.02
22.6	+29.6	92.86	+.57	+.03	92.89	+01	92.90
23.1	+56.6	93.06	+1.51	+.09	93.15	−01	93.14
23.2	+23.1	93.07	+.43	+.03	93.10	−01	93.09
22.88		+92.99	+.83		+93.038		+93.038

h	o	s	tan δ
23.1	+74.8	0=+92.83	+3.67

0= +2.84 − 0.1~~8~~7 n = +.06

23.1 +3.67 +92.83 −01 +92.82

Oct 20 c=.00 n=+.08 h' = +.051

20.3	+39.9	0=+93.38	+.84	+.07	+93.45	+.04	+93.49	θ
20.9	+40.7	93.50	+.86	+.07	93.57	+01	58	θ
21.0	+38.2	93.48	+.79	+.06	93.54	+.01	55	θ
21.3	+62.1	93.43	+1.89	+.15	93.58	−01	57	θ
21.5	+39.9	93.49	+.84	+.07	93.56	−02	54	θ
21.7	+48.8	93.39	+1.14	+.09	93.48	−03	45	θ
21.12		+93.44	+1.06		+93.530		+93.530	

h	o	s	tan δ
20.2	+77.4	0=+93.14	+4.45
21.1	+77.7	93.14	+4.59

0= +3.39 − 0.3~~0~~25 n = +.0~~9~~7
+3.53 − 0.30 +.09
+.08

20.2 +4.45 +93.14 +.05 +93.19
21.1 +4.59 +93.14 +.00 +93.14

Reject – no zone obs.
Oct 22 Morning c=.00 n=+.07 h' = +.050

~~10.9~~	+62.4	~~0=+94.86~~	~~+1.91~~	+.13	~~+94.99~~	+.02	+95.01
~~11.8~~	+54.3	~~94.98~~	~~+1.39~~	+10	~~95.08~~	−02	06
11.~~35~~ 4		+94.92	+1.65		+95.035		+95.035

n = +.07

Oct 26 1885 C = .00 n = +.07 h' = ~~+.066~~ +.071

h	o	a	tan δ				
21.40						+96.92	
20.9	+40.7	0 = +9685	+0.86	+.05	+96.91	+08	+96.99 ϑ
21.0	+38.2	9688	+ .79	+.05	96.93	+07	97.00 ϑ
21.7	+48.8	9677	+1.14	+.08	96.85	+02	96.87 ϑ
22.0	+62.2	9684	+1.90	+.13	96.97	+00	96.97 ϑ
22.4	+49.7	9688	+1.18	+.08	96.96	-03	96.93 ϑ
22.9	+41.7	97.00	+ .89	+.06	97.06	-.06	97.00 ϑ
23.3	+61.7	9692	+1.85	+.13	97.05	-.09	96.96 ϑ
22.03		+9688	+1.23	+97.02	+96.961		+96.960

h	o	a	tan δ
21.1	+77.7	0 = +9648	+4.59
23.1	+74.8	9680	+3.67
23.6	+77.0	9688	+4.33
22.8	+65.6	9699	+2.20

0 = +3.36 − 0.34 n = +.10
+2.44 − 0.15 +.06
+3.10 − 0.11 +.04
+0.97 − .05 [+.05]
+.07

21.1	+4.59	+96.48	+.06	+96.54
23.1	+3.67	+96.80	-.07	+96.73
23.6	+4.33	+96.88	-.11	+96.77
22.8	+2.20	+96.99	-.06	+96.93

Oct 27 C = .00 n = +.01 h' = ~~+.007~~ +.008

h	o	a	tan δ				
22.57					+97.27		
22.4	+49.7	0 = +9729	+ ~~.80~~ 1.18	+.01	+97.30	+01	+97.31 ϑ
22.6	+29.6	9721	+ .57	+.01	97.22	+01	23
22.7	+23.0	9728	+ .42	+.00	97.28	+00	28
23.1	+56.6	97.18	+1.51	+.02	97.20	+00	20 ϑ
0.0	+28.5	97.30	+ .54	+.01	97.31	-01	30
0.1	+58.5	97.24	+1.64	+.02	97.26	-01	25 ϑ
23.82 0.1	+14.6	97.33	+ .26	+.00	97.33	-.01	32
23.29		+97.26	+.827	+97.28	+97.271		+97.270

h	o	a	tan δ
22.8	+65.6	0 = +97.45	+2.20
23.1	+74.8	0 = +97.23	+3.67

+1.33 + 0.19 n = [−.14]
0 = +2.85 − 0.23 n = +.01

22.8	+2.20	+97.45	+00	+97.45
23.1	+3.67	+97.23	+00	+97.23

Oct 31 C = .00 n = +.14 h' = +.037

h	o	a	tan δ				
20.3	+39.9	0 = +99.12	+.84	+.12	+99.24	+00	+99.240

20.5 +74.6 0 = +98.75 +3.61

0 = +2.77 − 0.3~~8~~ n = +.~~13~~ 14

20.5 +3.61 +98.75 −.01 +98.74

Nov 4 C = .00 n = +.18 h' = +.035

h	o	a	tan δ				
20.3	+39.9	0 = +100.37	+ .84	+.15	+100.52	+02	+100.54 ϑ
21.0	+38.2	100.41	+ .79	+.14	100.55	+00	55 ϑ
21.3	+62.1	100.20	+ 1.89	+34	100.54	-01	53 ϑ
20.87		+100.33	+1.17		+100.537		+100.540

21.1 +77.7 0 = +99.72 +4.59

0 = +3.42 − 0.62 n = +.18

21.1 +4.59 +99.72 −01 +99.71

Nov 9 C = .00 n = +.07 h' = +.041

h	o	a	tan δ				
[20.6	+44.9	0 = +102.~~26~~ 33	+1.00]	+.07	[+102.~~34~~ 40]		+102.40
23.9	+ 6.2	102.64	+ .11	+.01	102.65	+00	+102.65
0.0	+28.5	102.65	+ .54	+.04	102.69		69
0.1	+58.5	102.41	+1.64	+.13	102.54	-00	~~52~~ 54
~~0.0~~ 23.1		+102.~~59~~ 51	~~+.96~~ +.82		+102.627		~~+102.627~~ +102.565

~~20.1~~ 0.1 +101.8 0 = +102.84 − 4.81

0 = −5.~~57~~ 63 + ~~0.43~~ .25 +0.37 n = ~~+.08~~ +.07

0.1 −4.81 +102.84 +.04 +102.840

Nov 10 C = .00 n = +.07 h' = +.045

h	o	a	tan δ				
20.9	+40.7	0 = +103.08	+.86	+06	+103.14	+00	+103.140 ϑ

n = +.07

Nov 11 1885 c = 00 n = +.~~10~~ .06 h' = ~~−.020~~ +.039/2 = +.010

+103.84

22.57

h	o	d	tan δ						h	o	d	tan δ
22.4	+49.7	0 = +103.82	+1.18	+.07	+103.89	+01	+103.90	⊖	~~20.1~~	~~+101.8~~	~~0 = +104.07~~	~~−4.81~~
22.6	+29.6	103.77	+ .57	+.03	103.80	+00	81	⊖	21.1	+77.7	103.49	+4.59
22.7	+23.0	103.82	+ .42	+.02	103.84	+00	84		23.1	+74.8	103.64	+3.67
0.0	+28.5	103.85	+ .54	+.03	103.88	−01	87	⊖				
0.1	+58.5	103.65	+1.64	+.10	103.75	−01	74	⊖				
6.05 23.16		+103.78	+.87	+103.81	+103.832		+103.832					

0 = ~~−5.68 + 0.27~~3 n = ~~+.05~~4

+3.72 − ~~0.29~~33 0.27 ~~+.089~~ +.07

+2.80 − 0.14 +.05

+.06

~~20.1 −4.81 +104.07 −06 +104.01~~

21.1 +4.59 +103.49 +04 +103.455 1

23.1 +3.67 +103.64 −00 +103.64

Nov 12 c = 00 n = +.10 h' = +.032

h	o	d	tan δ						h	o	d	tan δ
20.5	+62.6	0 = +103.91	+1.93	+.19	+104.10	+01	+104.11	⊖	21.1	+77.7	0 = +103.70	+4.59
20.5	+14.2	104.13	+ .25	+.02	104.15	+01	16					
20.9	+40.7	104.00	+ .86	+.09	104.09	−01	08	⊖				
21.0	+38.2	104.11	+ .79	+.08	104.19	−01	18	⊖				
20.72		+104.04	+.96		+104.132		+104.132					

0 = +3.63 − 0.34 5 n = ~~+.09~~ +.10

21.1 +4.59 +103.70 −.01 +103.69

Nov 15 c = 00 n = +.14 h' = +.029

h	o	d	tan δ						h	o	d	tan δ
20.6	+44.9	0 = +105.~~11~~ 05	+1.00	+.~~15~~ 14	+105.~~26~~ 19	+00	+105.~~26~~ 19	⊖	20.6	+74.6	0 = +104.64	+3.61
20.9	+40.7	104.97	+ .86	+.~~13~~ .12	105.10 02	00	~~10.09~~	⊖				
~~20.75~~ 8		+105.04 1	+.93		+105.18		+105.~~180~~ .140					

0 = +2.68 − 0.~~40~~ 39 36 n = ~~+.15~~ +.14

20.6 +3.61 +104.64 +01 +104.65

Nov 16 c = 00 n = +.14 h' = +.026

h	o	d	tan δ						h	o	d	tan δ
20.6	+44.9	0 = +105.36 1	+1.00	+.14	+105.~~50~~ 45	+00	+105.~~50~~ 45	⊖	20.5	+74.6	0 = +104.89	+3.61
20.7	+36.1	105.27	+ .73	+.10	105.37		37	⊖				
20.8	+27.6	105.35	+ .52	+.07	105.42		42					
20.9	+40.7	105.26	+ .86	+.12	105.38	−00	38	⊖				
20.~~75~~ 8		+105.37 0	+.78		+105.418		+105.4~~18~~ 05					

0 = +2.83 − 0.4~~2~~ 40 n = ~~+.15~~ +.14

20.5 +3.61 +104.89 +.01 +104.90

Nov 17 c = 00 n = +.14 h' = ~~+.016~~ ~~+.018~~ +.024

+105.586

h	o	d	tan δ							h	o	d	tan δ
20.80 20.6	+44.9	0 = +105.~~54~~ 49	+1.00	+.14	+105.68	+.034	+105.~~71~~ 66	⊖	.67	20.5	+74.6	0 = +105.07	+3.61
20.7	+33.5	105.46	+ .66	+.09	105.55	+024	~~58~~		59	21.1	+77.7	104.84	+4.59
20.9	+40.7	105.45	+ .86	+.12	105.57	+023	59	⊖	60	23.1	+74.8	105.20	+3.67
21.0	+38.2	105.39	+ .79	+.11	105.50	+023	~~52~~	⊖	.53	23.7	+67.2	105.52	+2.38
22.6	+29.6	105.55	+ .57	+.08	105.63	−01	~~62~~		62				
22.7	+23.0	105.66	+ .42	+.06	105.72	−01	~~71~~		.71				
23.1	+56.6	105.42	+1.51	+.21	105.63	−02	~~61~~	⊖	.61				
0.0	+28.5	105.50	+ .54	+.08	105.58	−034	~~65~~		54				
23.30 0.1	+58.5	105.31	+1.64	+.23	105.54	−035	~~51~~	⊖	49				
22.19		+105.487	+.89	+105.62	+105.600		+105.~~600~~ .596						

0 = +2.72 − 0.38 7 n = +.14

+3.70 − 0.62 1 +.17

+2.78 − 0.29 8 +.11

~~+1.49~~ + 0.02 3 ~~+.14~~ .01 −.02

+.14

20.5 +3.61 +105.07 +.03 +105.10

21.1 +4.59 +104.84 +02 +104.86

23.1 +3.67 +105.20 −01 +105.19

~~23.7 +2.38 + 105.52 −02 +105.50~~

Nov 28 1885   c = 00   n = +.36   h′ = +.032

h	o	a	tan δ
23.1	+56.5	0 = +110.06	+1.51
0.0	+28.4	110.41	+.54
0.1	+58.5	110.01	+1.64
0.5	+53.3	110.21	+1.34
0.6	+55.9	110.15	+1.48
0.6	+47.6	110.34	+1.10
0.7	+23.6	110.52	+.44
0.23		+110.24	+1.15

+.54	+110.60	+04	+110.64
+.19	110.60	+01	.61
+.59	110.60	+00	.60
+.48	110.69	−01	.68
+.53	110.68	−01	.67
+.40	110.74	−01	73
+.16	110.68	−02	66
	+110.656		+110.656

h	o	a	tan δ
23.1	+74.8	0 = +109.31	+3.67
~~0.1~~	~~+101.8~~		~~−4.81~~

0 = +2.52 − 0.90   n = +.36

23.1   + 3.67   + 109.31   +.03   + 109.34

Nov 29   c = 00   n = +.52   h′ = +.034

21.5	+39.9	0 = +110.86	+.84
21.7	+48.8	+110.61	+1.14
[21.8]	+25.4	[+110.82]	[+.47]
22.0	+62.2	110.41	+1.90
22.1	+57.6	110.62	+1.58
22.4	+49.7	110.65	+1.18
21.94		+110.63	+1.13

+.44	+111.30	+01	+111.31
+.59	111.20	+01	21
+.24	[111.06]		[06]
+.99	111.40	−00	40
+.82	111.44	−01	.43
+.61	111.26	−02	.24
	+111.320		+111.318

21.5   +70.1   0 = +109.79   +2.75

0 = +1.62 − 0.84   n = +.52

21.5   + 2.75   + 109.79

Dec 2   c = 00   n = +.39   h′ = +.035

0.5	+53.3	0 = +112.14	+1.34
0.6	+55.9	112.18	+1.48
0.7	+23.6	112.70	+.44
0.8	+60.1	112.31	+1.74
0.65		+112.33	+1.25

+.52	+112.66	+00	+112.66
+.58	112.76	+00	76
+.17	112.87	−01	87
+.68	112.99	−01	98
	+112.820		+112.818

0.6   +74.4   0 = +111.43   +3.58

0 = +2.33 − 0.90   n = +.39

0.6   + 3.58   + 111.43   +00   +111.43

Dec 3   c = .00   n = +.40   h′ = +.041

0.0	+28.5	0 = +113.28	+.54
0.1	+58.5	112.81	+1.64
0.5	+53.3	112.91	+1.34
0.6	+55.9	113.02	+1.48
0.30		113.00	+1.25

+.22	+113.50	+.01	+113.51
+.66	113.47	+.01	48
+.54	113.45	−.01	44
+.59	113.61	−.01	.60
	+113.508		+113.508

Dec 6   c = 00   n = +.40   h′ = ~~+.022~~ +.026

21.40			
21.3	+62.1	0 = +114.82	+1.89
21.5	+39.9	115.20	+.84
0.1	+14.5	115.59	+.26
0.6	+55.9	114.96	+1.48
0.6	+47.7	115.22	+1.10
0.50 0.7	+23.6	115.58	+.44
[0.8]	+60.1	[115.30]	[+1.74]
23.47		+115.23	+1.00

	+115.56		
+.76	+115.58	+.06	+115.64
+.34	115.54	+.05	.59
+.10	115.60	−.02	.58
+.59	115.55	−.03	.62
+.44	115.66	−.03	63
+.18	115.76	−.03	.73
+.76	~~+115.64~~ [115.81]	[115.05]	
	+115.615		+115.615

21.5   +70.1   0 = +114.49   +2.75

0 = +1.75 − 0.70   n = +.40

21.5   + 2.75   + 114.49   +.04   +114.53

h	o	s	länd	h	o	s	länd

52

Dec 7 1885 c = 00 n = +.41 h′ = +.038

h	o	a	tan δ				
0.6	+55.9	0 = +11567	+1.48	+.61	+116.28	+.00	+116.28
0.6	+47.7	11583	+1.10	+.45	116.28	+.00	.28
0.7	+23.6	11617	+ .44	+.18	116.35	+.00	35
0.8	+60.1	11553	+1.74	+.71	116.24	−.00	24
1.0	+35.0	11600	+ .70	+.29	116.29	−.01	.28
0.74		+115.84	+1.09		+116.288		+116.286

h	o	a	tan δ
~~23.6~~	~~+77.0~~	~~0 = +115.16~~ 114.70	~~+4.33~~
0.9	+85.6	11094	+13.14

0 = ~~+3.24 − 0.64~~ 1.10 n = ~~+.20~~ [.34]
+12.05 − 4.91 + .41

~~23.6~~	~~+4.33~~	~~+ 115.16~~ 114.70	~~+.04~~	~~+115.20~~ 114.74
0.9	+13.14	+ 110.94	−.01	+110.93

Dec 8 Reject- no zone obs. c = 00 n = +.40 h′ = +.033

21.3	+62.1	0 = +11599	+1.89	+.76	+116.70	+.02	+116.72
22.1	+32.6	11656	+ .64	+.26	116.82	−.00	82
22.1	+57.6	11623	+1.58	+.63	116.86	−.00	86
22.3	+51.7	11630	+1.26	+.50	116.80	−.01	.79
21.95 22.0					+116.795		+116.797

Dec 11 Reject- no zone obs. c = 00 n = +.40 h′ = +.026

21.6	+9.3	0 = +11821	+ .16	+.06	+118.27	+.01	+118.28
21.7	+48.8	11779	+1.14	+.46	118.25	+.00	.25
21.8	+25.4	11813	+ .47	+.19	118.32	+.00	.32
22.0	+62.2	11755	+1.90	+.76	118.31	−.01	.30
21.78		+117.92	+.92		+118.288		+118.288

Dec 12. c = 00 n = +.41 h′ = ~~+.027~~ +.028

+118.55

23.20 23.1	+56.5	0 = +11782	+1.51	+.62	+118.44	+.06	+118.50
23.2	+23.1	11843	+ .43	+.18	118.61	+.05	.66
23.3	+61.7	11784	+1.85	+.76	118.60	+.05	.65
— 2.4	+7.9	11863	+ .14	+.06	118.69	−.04	65
2.5	+21.5	11848	+ .39	+.16	118.64	−.04	60
2.68 2.6	+48.7	11803	+1.14	+.47	118.50	−.04	46
2.8	+52.3	11821	+1.29	+.53	118.74	−.05	69
1.13		+118.21	+0.96	+118.64	+118.603		+118.601

h	o	a	tan δ
1.3	+88.7	0 = +10252	+44.21
2.4	+72.3	11719	+3.13
2.8	+79.0	11667	+5.14

0 = +43.25 − 15.69 n = + .36
+2.17 − 1.05 + .48
+4.18 − 1.58 + .38
+.41

1.3	+44.21	+102.52	+.00	+102.52
2.4	+3.13	+117.19	−.03	+117.16
2.8	+5.14	+116.67	−.04	+116.63

Dec 15 c = 00 n = +.35 h′ = +.032

23.8	+18.5	0 = +12038	+ .33	+.12	+120.50	+.03	+120.53
1.1	+35.0	12033	+ .70	+.24	120.57	−.01	56
1.6	+50.1	12016	+1.20	+.42	120.58	−.02	56
0.83		+120.29	+.74		+120.550		+120.550

h	o	a	tan δ
23.6	+77.0	0 = +11893	+4.33
23.7	+67.2	11969	+2.38
1.3	+88.7	10548	+44.22

0 = +3.59 − 1.32 n = + .37
+1.64 − 0.57 + .35
+43.48 − 14.82 + .34
+.35

23.6	+4.33	+118.93	+.04	+118.97
23.7	+2.38	+119.69	+.03	+119.72
1.3	+44.22	+105.48	−.02	+105.46

Dec 16 1885 c = .00 n = +.34 h′ = +.034

	h	o	e	tan δ		+120.90		
23.54	22.3	+ 51.7	0 = +120.48	+1.26	+.43	+120.91	+.14	+121.05
	22.4	+ 49.7	120.46	+1.18	+.40	120.86	+.14	121.00
	22.6	+ 29.6	120.73	+ .57	+.19	120.92	+.13	121.05
~~4~~	1.0	+ 35.0	120.72	+ .70	+.24	120.96	+.05	121.01
	1.6	+ 50.1	120.45	+1.20	+.41	120.86	+.03	120.89
–	5.3	+ 28.5	120.89	+ .54	+.18	121.07	–.10	120.97
	5.9	+ 37.2	120.85	+ .76	+.26	121.11	–.12	120.99
5.82	6.0	+ 14.8	121.00	+ .26	+.09	121.09	–.12	120.97
	6.1	+ 22.5	121.05	+ .41	+.14	121.19	–.13	121.06
	2.36		+120.74	+.76	+121.11	+ 120.997		+120.999

h	o	e	tan δ
22.8	+ 65.6	0 = +120.08	+2.20
1.3	+ 88.7	102.78	+44.20
6.1	+ 69.4	120.37	+2.65
6.2	+ 93.4	125.93	– 16.90

0 =	+ 1.44	– 0.54	n =	+ .38
	+ 43.44	– 17.92		+ .41
	+ 1.89	– 0.50		+ .27
	– 17.66	+ 5.06		+ .29
				+.34

22.8	+ 2.20	+ 120.08	+.12	+120.20
1.3	+ 44.20	+ 102.78	+.04	+102.82
6.1	+ 2.65	+ 120.37	–.13	+120.24
6.2	– 16.90	+ 125.93	–.13	+125.80

Dec 19 c = 00 n = +.37 h′ = +.024

0.1	+ 58.5	0 = +121.28	+ 1.64	+.61	+121.89	+.01	+ 121.90
0.6	+ 55.9	121.41	+ 1.48	+.55	121.96	–.00	.96
0.35 0.4					+ 121.925		+121.930

Dec 20 c = 00 n = +.39 h′ = ~~–.010~~ +.000

						+122.40		
1.00	23.5	+ 42.6	0 = +121.90	+ .92	+.36	+122.26	+.00	+122.26
	23.8	+ 18.5	122.34	+ .33	+.13	122.47		.47
	1.9	+ 41.8	122.20	+ .89	+.35	122.55		55
	2.8	+ 52.3	121.83	+1.29	+.50	122.33		33
–	[2.9]	+ 53.1	[121.75]	+ 1.33]	+.52	122.27		[27]
	3.0	+ 40.5	122.03	+ .85	+.33	122.36		36
	5.1	+ 38.3	122.17	+ .79	+.31	122.48		48
	5.3	+ 28.5	122.14	+ .54	+.21	122.35		35
4.72	5.5	+ 21.1	122.26	+ .39	+.15	122.40	+.00	.40
	2.86		+122.11	+ .75	+122.40	+ 122.400		+122.400

h	o	e	tan δ
23.6	+ 77.0	0 = +120.76	+4.33
2.8	+ 79.0	120.57	+5.14
5.4	+ 75.0	120.82	+3.73

0 =	+ 3.58	– 1.38	n =	+ .39
	+ 4.39	– 1.54		+ .35
	+ 2.98	– 1.27		+ .43
				+ .39

23.6	+ 4.33	+ 120.76	–.03	+120.73
2.8	+ 5.14	+ 120.57	+.00	+120.57
5.4	+ 3.73	+ 120.82	+.02	+120.84

Dec 24 c = 00 n = + 42 h′ = +.021

						+ 122.99		
23.60	23.1	+ 56.5	0 = +122.34	+ 1.51	+.63	+122.97	+.03	+123.00
	23.3	+ 61.7	122.10	+ 1.85	+.78	122.88	+.03	122.91
	23.5	+ 42.6	122.68	+ .92	+.39	123.07	+.03	123.10
	0.0	+ 28.5	122.85	+ .54	+.23	123.08	+.01	123.09
–	0.1	+ 58.5	122.25	+ 1.64	+.69	122.94	+.01	122.95
	[2.9]	+ 53.1	[122.47]	[+1.33]	+.56	123.40	(-.04)	[123.36]
	3.3	+ 49.4	122.58	+ 1.17	+.49	123.07	–.05	123.02
3.45	3.6	+ 47.4	122.60	+ 1.09	+.46	123.06	–.06	123.00
	0.70		+122.49	+1.25	+123.07	+ 123.010		+123.010

h	o	e	tan δ
23.1	+ 74.8	0 = +121.50	+3.67
23.6	+ 77.0	121.16	+4.33
4.0	+ 85.3	118.00	+12.04

0 =	+ 2.42	– 0.96	n =	+ .40
	+ 3.08	– 1.31		+ .43
	+ 10.79	– 4.56		+ .42
				+ .42

23.1	+ 3.67	+ 121.50	+.03	+121.53
23.6	+ 4.33	+ 121.16	+.02	+121.18
4.0	+ 12.04	+ 118.00	–.07	+ 117.93

Dec 28 1885 c = 00 n = +.46 h' = +.021

h	o	c	tan δ				
2.6	+48.8	0 = +123.21	+1.14	+.52	+123.73	+.01	+123.74
2.8	+52.3	123.05	+1.29	+.59	123.64	+.00	64
[2.9]	+53.1	[123.16]	[+1.33]	+.61	[123.77]		[.77]
3.0	+38.4	123.45	+ .79	+.36	123.81	−.00	81
3.0	+40.5	123.52	+ .85	+.39	123.91	−.00	91
3.3	+49.5	123.21	+1.17	+.54	123.75	−.01	74
2.94		+123.29	+1.05		+123.768		+123.768

2.8	+5.14	+121.16	+00	+121.16
3.1	+4.44	+121.90	−00	+121.90

h	o	c	tan δ
2.8	+79.0	0 = +121.16	+5.14
3.1	+77.3	121.90	+4.44

0 = +4.09 − 2.13 n = +.52
+3.39 − [illegible].39 +.41
+.46

Dec 29 c = 00 n = +.38 h' = +.042

3.45

+124.18

[2.9]	+53.0	0 = [+123.45]	[+1.33]	+.57	[123.96]		[124.02]
3.0	+40.5	123.91	+ .85	+.32	+124.23	+.06	+124.29
3.3	+49.4	123.65	+1.17	+.44	124.09	+.05	.14
3.6	+47.4	123.80	+1.09	+.41	124.21	+.03	.24
5.3	+28.5	124.10	+ .54	+.20	124.30	−.04	.26
5.5	+21.1	124.05	+ .39	+.15	124.20	−.05	.15
[55] 5.9	+37.2	124.02	+ .76	+.29	124.31	−.06	.25
4.43		+123.92	+.83		+124.27 +124.223		+124.222

5.4	+3.73	+122.78	+04	+122.82

5.4	+75.0	0 = +122.78	+3.73

0 = +2.90 − 1.10 n = +.38

Jan 6 1886 c = 00 n = h' = +.072

3.5	−9.9	0 = +123.98	−.17	−.07	+123.91	+.11	+124.02
5.2	−8.3	124.16	−.15	−.06	124.10	−.01	4.09
5.5	−17.9	124.25	−.32	−.12	124.13	−.04	4.09
5.7	−14.9	124.08	−.27	−.11	123.97	−.05	3.92
4.98		+124.12	−.23				+124.030

3.3	+49.4	+123.15	+1.17
5.3	+28.5	123.75	+.54
5.5	+21.1	123.67	+.39

5.4	+3.73	+122.62	−03	+122.59

5.4	+75.0	0 = +122.62	+3.73

0 = +3.96 − 1.53 n = +.39

Jan 7 1886 c = 00 n = h' = +.105

h	o	s	tan δ
3.5	−9.9	0 = +12408	− .17
3.8	+31.6	12365	+ .61
5.5	+21.1	12400	+ .39
4.27		+123.91	+ .32
3.6	+ 47.4	+12341	+1.09
3.8	+ 39.7	12359	+ .83
5.6	+ 49.8	12349	+1.18

h o s tan δ

Jan 14 c = .00 n = h' = +.115

3.9	−13.8	0 = +12459	− .25
~~3.9~~	+ 5.8	{12428}	+ .10
4.1	− 7.1	12459	− .12
5.4	−17.9	124.72	− .32
5.5	− 6.0	124.74	− .10
5.7	− 14.9	124.64	− .27
~~4.58~~ 4.92		+124.53	− .16
5.3	+ 28.5	12420	+ .54
5.8	+ 37.2	12382	+ .76

−.12 +12447 +11 +124.58
+05 {124.33} (+11) 44}
−.06 124.53 +09 62
−16 124.56 −06 53
−05 124.69 −07 62
−.13 124.51 −09 42
+124.554

3.8 +60.8 0 = +12293 +1.79
5.4 +75.0 12273 +3.73

0 = +1.95 − 1.51 n = +.77]
+3.89 − 1.85 +.50

3.8 +1.79 +12293 +09 +12302
5.4 +3.73 +12273 −05 +122.68

Jan 17 c = 00 n = h' = +.006

3.4	+12.6	0 = +124.38	+ .22
3.5	−9.9	12450	− .17
3.9	−13.8	124.60	− .25
5.8	− 22.5	124.74	− .41
5.7	− 14.9	12456	− .27
4.30		+124.56	− .18
3.3	+59.6	+12349	+1.70
3.6	+47.4	12388	+1.09
5.3	+28.5	124.08	+ .54
5.5	+21.1	12424	+ .39

+.11 +124.49 +01 +124.50
−.09 124.41 +00 .41
−.13 124.47 +00 .47
−.21 124.53 −00 .53
−.14 124.42 −.01 .41
+124.464

5.1 +79.1 0 = +12186 +5.19
5.4 +75.0 122.50 +3.73

0 = +5.37 − 2.70 n = +.50
+3.91 − 2.07 +.53
+.51

5.1 +5.19 +121.86 −.00 +121.86
5.4 +3.73 +122.50 −01 +122.49

Jan 23 1886 C = 00 n = h' = −.012

h	o	k tanδ				
3.5	−9.9	0 = +12450 − .17	−.08	+124.42	−01	+124.41
3.9	−13.8	124.71 − 25	−.11	124.60	−01	59
5.2	−8.3	12444 − .15	−.07	124.37	+00	37
5.5	−17.9	12463 − 32	−.14	124.49	+01	50
5.7	−14.9	124.58 − .27	−.12	124.46	+01	47
4.76		+124.57 − .25				+124.468

h	o	k tanδ
3.6	+47.4	123.95 + 1.09
5.3	+28.5	12409 + .54
5.5	+21.1	12416 + .39

5.0	−7.32	+127.94 +00	+127.94
5.1	+5.19	+122.29 +00	+122.29

h	o	k tanδ
5.0	+97.8	0 = 127.94 − 7.32
5.1	+79.1	122.29 + 5.19

0 = −7.07 + 3.37 n = +.48
+5.44 − 2.28 +.42
+.45

Jan 26 C = .00 n = h' = +.012

3.9	−13.8	0 = +124.78 − .25	−.12	+124.66	+01	+124.67
4.1	−7.1	12467 − .12	−.06	124.61	+00	.61
4.5	−14.5	12485 − .26	−.13	124.72	−00	.72
5.2	−8.3	12466 − .15	−.08	124.58	−01	.57
4.42		+124.74 − .20				+124.642

5.5	+21.1	+124.43 + .39
5.6	+49.8	12405 + 1.18
5.8	+37.2	12416 + .76

4.0	+12.05	+118.89 +02	+118.89
5.4	+3.73	+122.71 −01	+122.70

4.0	+85.3	0 = +118.89 + 12.05
5.4	+75.0	122.71 + 3.73

0 = +12.25 − 5.85 n = +.48
+3.93 − 2.04 +.52
+.50

Sept 1 C = 00 n = h' = +.000

2.8	−21.5	0 = +12590 − .39	−.19	+125.71	+00	+125.71
2.8	−9.3	125.75 − .16	−.08	125.67		67
2.9	+3.6	125.72 + .06	+.03	125.75		.75
3.5	−9.8	125.80 − .17	−.08	125.72		.72
3.9	−13.8	12582 − 25	−.12	125.70	−00	.70
3.18		+125.80 − .18				+125.710

3.0	+40.5	0 = +125.23 + .85
3.3	+49.5	12494 + 1.17

3.1	+4.44	+123.54 +00	+123.54

3.1	+77.3	0 = +123.54 + 4.44

0 = +4.62 − 2.26 n = +.49

Feb 2 1886

h	o	s	tan δ
3.5	− 9.9	0 = + 125.91	− .17
3.6	+ 47.4	125.04	+ 1.09

Jan 18 1885 c = 00 h' = +.066 h' = +.066

1.55

+6.93

h	o	e	tan δ sec δ sec				
1.5	+48.1	0 = +6.27	+1.12	+ .63	+6.90	+.08	+6.98 ×
[1.6]	+67.5	5.40	+2.41	+1.35	[6.75]		6.82]
1.6	+50.1	6.29	+1.20	+ .67	6.96	+.07	7.03
2.8	+52.3	6.27	+1.29	+ .72	6.99	−.01	6.98
2.9	+53.1	6.22	+1.33	+ .74	6.96	−.02	6.94
3.3	+8.6	7.07	+0.15	+ .08	7.15	−.05	7.10 ×
3.8	+31.6	6.70	+0.62	+ .35	7.05	−.08	6.97 ×
3.20 2.6					+7.04		+7.000

h	o	e	tan δ sec δ sec
1.8	+63.1	0 = +5.93	+1.97
14.8	+74.6	+9.13	−3.63
3.1	+77.3	+4.52	+4.44
15.3	+72.2	+8.78	−3.12

0 = +1.59 − 0.83 n = +.52
−4.01 + 2.30 +.57
+4.06 − 2.33 +.57
−3.50 + 1.92 +.55

3.3 + .15 +7.07
3.8 +.62 +6.70
3.6 +.38 +6.88

			I	II
1.8	+1.97	+5.93	+6.05	+5.96
		+.12	+.03	
2.8	−3.63	+9.13	+9.18	+9.09
		+.05	−.04	
3.1	+4.44	+4.52	+4.55	+4.46
		+.03	−.06	
3.3	−3.12	+8.78	+8.80	+8.71
		+.02	−.07	

1.5 + 1.12 +6.27
1.6 + 1.20 6.29
2.8 + 1.29 6.27
2.9 + 1.33 6.22
2.2 + 1.24 +6.26

0 = +0.73 − 0.30 n = +.41]
−4.87 + 2.83 +.58
+3.20 − 1.80 +.56
−4.36 + 2.45 +.56
+.56

Jan 26 1885 c = +.03 h' = +.113 h' = +.117 + .027 / 2 = +.072

+8.88

3.00

2.8	+52.3	0 = +7.78	+1.29	+16	+.05	+7.83	+1.07	+8.90	+.09	+8.99 ×
2.9	+53.1	7.67	+1.33	1.7	.05	7.72	+1.10	8.82	+.09	8.91 ×
3.0	+40.5	8.16	+ .85	1.3	.04	8.20	+ .71	8.91	+.08	8.99 ×
3.3	+59.5	7.42	+1.70	2.0	.06	7.48	+1.41	8.89	+.06	8.95 ×
5.1	+45.9	8.27	+1.03	1.4	.04	8.31	+ .85	9.18	−.07	9.11 ×
5.8	+54.3	7.96	+1.39	1.7	.05	8.01	+1.15	9.16	−.12	9.04 ×
5.57 5.8	+44.9	8.32	+1.00	1.4	.04	8.36	+ .83	9.19	−.12	9.07 ×
4.10			+1.23			+7.99		+9.18	9.007	+9.009

14.8	+74.6	0 = +11.75 − 3.63 − .38 − .11 + 11.64
3.1	+77.3	+5.15 + 4.44 + 4.5 + .13 − 5.28

0 = −4.86 + 3.80 n = +.78
+3.21 − 2.82 +.88
+.83

2.8 − 3.63 + 11.64 + .15 + 11.79
3.1 + 4.44 − 5.28 + .11 + 5.17

For the Zone observations
of Jan 26 adopt +8.880
for value of (ΔΣ + m)
instead of − 9.009
and h' = 0.00

Feb 2 c = +.10 h' = +.054

3.0	+38.4	0 = +9.05	+ .79	+13	+.13	+9.18
3.0	+40.5	+8.95	+ .85	1.3	.13	9.08
3.5	− 9.8	9.87	− .17	1.0	.10	9.97
3.9	−13.9	9.91	− .25	1.0	.10	10.01
4.0	+47.4	8.83	+1.09	1.5	.15	8.98
4.5	−14.5	9.98	− .26	1.0	.10	10.08

3.1	+77.3	0 = +5.95 + 4.44
15.3	+72.2	+12.54 − 3.12
5.3	+63.0	+8.12

Nov 12 1883

$h' = -.047$

h			
206	-4.58	- .14	- 4.72
(21.0)	(4.39)	-	
21.7	4.46	- .08	.54
0.6	4.62	+ .05	.57
1.1	4.65	+ .07	.58
1.3	4.84	+ .08	.76
23.46			-4.634

Mar 10 1884

$h' = -.017$

1.9	-74.85	-.04	- 74.89
3.3	74.93	-.01	74.94
3.6	75.00	-.01	75.01
3.8	74.99	-.00	74.99
4.8	75.02	+.01	75.01
5.1	75.08	+.02	75.06
5.3	75.12	+.03	75.09
3.97			-74.999

Mar 15 1884

$h' = -.021$

7.2	-78.05	-.02	- 78.07
7.6	.11	-.01	.12
8.8	.22	+.01	.21
8.9	.24	+.01	.23
8.9	.29	+.01	.28
8.28			-78.182

June 14 1884

$h' = +.037$

13.7	-117.88	+.03	-117.85
14.3	.81	+.00	.81
14.8	.75	-.01	.76
15.0	.58	-.02	.60
14.45			-117.755

June 16 1884

$h' = +.040$

13.7	-119.08	+.04	-119.04
14.3	118.76	+.01	118.75
14.5	118.62	+.00	118.62
15.9	118.81	-.05	118.76
14.60			- 118.792

June 17 1884

$h' = +.054$

13.7	-119.60	+.07	- 119.53
14.3	.44	+.04	.40
15.9	.40	-.05	.45
16.0	.66	-.06	.60
14.98			-119.495

June 30 1884

h' = -047

h			
15.4	-124.95	-02	-124.97
15.4	125.01	-02	125.03
16.5	125.03	+04	124.99
15.77			-124.997

July 15 1884

h' = -043

16.0	-129.69	-.04	-129.73
16.3	.61	-.03	.64
16.4	.76	-.03	.79
16.9	.74	-.00	.74
17.6	.83	+.02	.81
17.9	.78	+.04	.74
18.0	.77	+.04	.73
17.01			-129.740

Method of illumination
Progressive values of C