1853phae.proj..240

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240

L.2

Reduction B.
of
Zone Observations
1853.

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1853phae.proj..24

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Zone 40

H 273.59

a 108.45 Sin δ 7.46373

H+a 22.44 cos. H+a 9.96488

h +18.74 h 1.27277

8.70138

dα = +0.30 dδ-dδ' = -0.05

dα cos δ +0.02

dr +0.32

ds +2.76

ds-dr +2.44

dδ-dδ' -0.05

d = -2.49

Zone 41

H 270.44

a 108.45

19.29

+18.74

dα +0.30

dα cos δ +0.04

dr +0.34

ds +2.28

ds-dr +1.94

dδ-dδ' -0.05

d = -1.99

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Reduction of Wones 40 & 41

Wone 40

March 16, 1853 Sid. time 7h 36m Bar. 30.270 Att. therm. 64° Ext. therm. 22.5°
" " 9h 40m " 30.320 " " " 68° " " " 21.1

Wone 41

March 19, 1853 Sid. time 8h 24m Bar. 30.064 Att. therm. 62° Ext. therm. 31.2
" " 10h 27m " 30.090 " " " 60° " " " 29.1

Wone 40

$t_0 = 6^h 10^m$ $k'_0 = 0.000$ $d'_0 = -0.25^s$

6h 17m	$+0.24 = x_{40} + 0.12\, x'_{40}$	$+1.0 = y_{40} + 0.12\, y'_{40}$	2
6h 20m	$+0.26 =$ " $+ 0.17$ "	$+0.8 =$ " $+ 0.17$ "	1
6h 31m	$-0.33 =$ " $+ 0.35$ "	$-2.5 =$ " $+ 0.35$ "	1
6h 31m	$-0.13 =$ " $+ 0.35$ "	$-2.3 =$ " $+ 0.35$ "	1
6h 36m	$-0.22 =$ " $+ 0.43$ "	$-3.9 =$ " $+ 0.43$ "	1
6h 37m	$-0.32 =$ " $+ 0.68$ "	$+0.4 =$ " $+ 0.68$ "	1
6h 37m	$-0.17 =$ " $+ 0.68$ "	$-2.7 =$ " $+ 0.68$ "	1
6h 52m	$+0.02 =$ " $+ 0.70$ "	$+0.2 =$ " $+ 0.70$ "	1
6h 53m	$-0.24 =$ " $+ 0.72$ "	$-0.6 =$ " $+ 0.72$ "	1
6h 53m	$-0.23 =$ " $+ 0.72$ "	$-0.3 =$ " $+ 0.72$ "	1
6h 54m	$-0.17 =$ " $+ 0.73$ "	$-4.4 =$ " $+ 0.73$ "	1
6h 56m	$-0.82 =$ " $+ 0.77$ "	$+1.8 =$ " $+ 0.77$ "	1
6h 57m	$-0.24 =$ " $+ 0.78$ "	$-3.0 =$ " $+ 0.78$ "	1
6h 58m	$+0.87 =$ " $+ 0.80$ "	$-5.0 =$ " $+ 0.80$ "	1
6h 59m	$+0.08 =$ " $+ 0.82$ "	$-2.1 =$ " $+ 0.82$ "	2
7h 00m	$-0.45 =$ " $+ 0.83$ "	$-0.7 =$ " $+ 0.83$ "	2
7h 01m	$-0.13 =$ " $+ 0.85$ "	$-3.9 =$ " $+ 0.85$ "	1
7h 10m	$-0.31 =$ " $+ 1.00$ "	$-3.8 =$ " $+ 1.00$ "	1
7h 11m	$-0.42 =$ " $+ 1.02$ "	$-3.5 =$ " $+ 1.02$ "	1
7h 11m	$-0.13 =$ " $+ 1.02$ "	$+1.0 =$ " $+ 1.02$ "	1
7h 12m	$-0.54 =$ " $+ 1.03$ "	$-6.0 =$ " $+ 1.03$ "	1
7h 13m	$-0.38 =$ " $+ 1.05$ "	$-4.3 =$ " $+ 1.05$ "	1
7h 28m	$-0.40 =$ " $+ 1.30$ "	$-2.8 =$ " $+ 1.30$ "	1
7h 29m	$-0.27 =$ " $+ 1.32$ "	$-2.1 =$ " $+ 1.32$ "	1
7h 29m	$-0.08 = x_{40} + 1.32\, x'_{40}$	$-3.4 = y_{40} + 1.32\, y'_{40}$	1

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Zone 40.

7h 33m	−0.81 = x40 + 1.42 x'40	−6.0 = y40 + 1.42 y'40	1
7h 36	−0.36 = " + 1.43 "	−7.5 = " + 1.43 "	1
7h 46	−0.61 = " + 1.66 "	−4.8 = " + 1.60 "	1
~~7h 46~~	" + ~~1.93~~ 1.93 "	" + 1.93 "	1
7h 47	−0.44 = " + 1.62 "	" + 1.62 "	1
7h 53	−0.34 = " + 1.72 "	−3.8 = " + 1.72 "	1
7h 54	−0.57 = " + 2.05 "	−3.3 = " + 2.05 "	3
8h 13	−0.58 = x40 + 2.05 x'40	−2.3 = " + 1.73 "	1
		−6.2 = y40 + 2.05 y'40	2

Zone 41

t_0 = 6h 10m k = 0.000 d = −0.20s

~~6h 17~~	+0.24 = x41 + 0.12 x'41	+1.0 = y41 + 0.12 y'41	2
6h 20	[illegible]	+0.9 = y41 + 0.17 y'41	1
6h 31	−0.23 = " + 0.35 "	−2.6 = " + 0.35 "	1
6h 31	−0.13 = " + 0.35 "	−1.3 = " + 0.35 "	1
6h 36	−0.32 = " + 0.43 "	−4.0 = " + 0.43 "	1
6h 37	−0.42 = " + 0.68 "	+6.1 = " + 0.68 "	1
6h 37	−0.27 = " + 0.68 "	−1.0 = " + 0.68 "	1
6h 52	−0.68 = " + 0.70 "	−0.2 = " + 0.70 "	1
6h 53	−0.39 = " + 0.72 "	−0.9 = " + 0.72 "	1
6h 53	−0.48 = " + 0.72 "	−1.7 = " + 0.72 "	1
6h 54	−0.47 = " + 0.73 "	−4.2 = " + 0.73 "	1
6h 56	−0.57 = " + 0.77 "	+1.0 = " + 0.77 "	1
6h 57	−0.39 = " + 0.78 "	−1.2 = " + 0.78 "	1
6h 58	+0.87 = ? + 0.80 "	−4.1 = " + 0.80 "	1
6h 59	−0.07 = " + 0.82 "	−2.5 = " + 0.82 "	2
7h 00	−0.65 = " + 0.83 "	−1.0 = " + 0.83 "	2
7h 01	−0.23 = " + 0.85 "	−4.1 = " + 0.85 "	1
7h 10	−0.61 = " + 1.00 "	−3.9 = " + 1.00 "	1
7h 11	−0.52 = " + 1.02 "	−3.9 = " + 1.02 "	1
~~7h 11~~	[illegible]	[illegible]	~~X~~
7h 12	−0.52 = " + 1.03 "	−3.2 = " + 1.03 "	1
7h 13	−0.48 = " + 1.05 "	−4.5 = " + 1.05 "	1
7h 28	−0.75 = " + 1.30 "	−1.3 = " + 1.30 "	1
7h 29	−0.47 = " + 1.32 "	−2.3 = " + 1.32 "	1
7h 29	−0.33 = " + 1.32 "	−3.6 = " + 1.32 "	1
7h 35	−1.11 = " + 1.42 "	−4.2 = " + 1.42 "	1
7h 36	−0.56 = x41 + 1.43 x'41	−5.0 = y41 + 1.43 y'41	1

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~~7h 40~~	——— =	x_{41} +	1.60 x'_{41}	———	y_{41} + 1.60 y'_{41}
~~7 40~~		" +	1.60 "		" + 1.60 "
7h 47	−0.79 = r	" +	1.62 "	−4.1 = r	" + 1.62 "
7 53	−0.69 = r	" +	1.72 "	−3.8 = r	" + 1.72 "
7 54	−1.02 = r	" +	1.73 "	−4.5 = r	" + 1.73 "
~~7 54~~	~~−1.02 = r~~	" +	1.73 "	~~−4.5 = r~~	" + 1.73 "
8 13	−0.95 =	x_{41} +	2.05 x'_{41}	−7.0 =	y_{41} + 2.05 y'_{41}

Zone 40

$d' = -0''.25$

t_0	h m	k s	d 0′	1′	2′	3′	4′	5d	6′	7′	8′	9′	10′
	6h 10	+ 0.04	+ 0″.2	+0.05	−0.30	−0.55	−0.80	−1.05	−1.30	−1.55	−1.80	−2.05	−2.30
	.20	0.00	− 0.3	−0.55	−0.80	−1.05	−1.30	−1.55	−1.80	−2.05	−2.30	−2.55	−2.80
	.30	− .05	− 0.7	−0.95	−1.20	−1.45	−1.70	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20
	.40	− .10	− 1.2	−1.45	−1.70	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70
	.50	− .15	− 1.7	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20
	7h 00	− .20	− 2.2	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70
	.10	− .24	− 2.7	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70	−4.95	−5.20
	.20	− .29	− 3.2	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70	−4.95	−5.20	−5.45	−5.70
	.30	− .33	− 3.6	−3.85	−4.10	−4.35	−4.60	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10
	.40	− .38	− 4.1	−4.35	−4.60	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10	−6.35	−6.60
	.50	− .43	− 4.6	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10	−6.35	−6.60	−6.85	−7.10
	8h 00	− .48	− 5.2	−5.45	−5.70	−5.95	−6.20	−6.45	−6.70	−6.95	−7.20	−7.45	−7.70
	.10	− .52	−5.7	−5.95	−6.20	−6.45	−6.70	−6.95	−7.20	−7.45	−7.70	−7.95	−8.20

Zone 41.

$d' = -0''.20$

t_0	h m	k s	d 0	1	2	3	4	5d	6	7	8	9	10
	6h 10	± 0.00	+ 0″.6	+0.40	+0.20	0.00	−0.20	−0.40	−0.60	−0.80	−1.00	−1.20	−1.40
	.20	− .07	+ 0.1	−0.10	−0.30	−0.50	−0.70	−0.90	−1.10	−1.30	−1.50	−1.70	−1.90
	.30	− .14	− 0.4	−0.60	−0.80	−1.00	−1.20	−1.40	−1.60	−1.80	−2.00	−2.20	−2.40
	.40	− .21	− 1.0	−1.20	−1.40	−1.60	−1.80	−2.00	−2.20	−2.40	−2.60	−2.80	−3.00
	.50	− .28	− 1.6	−1.80	−2.00	−2.20	−2.40	−2.60	−2.80	−3.00	−3.20	−3.40	−3.60
	7h 00	− .35	− 2.1	−2.30	−2.50	−2.70	−2.90	−3.10	−3.30	−3.50	−3.70	−3.90	−4.10
	.10	− .43	− 2.7	−2.90	−3.10	−3.30	−3.50	−3.70	−3.90	−4.10	−4.30	−4.50	−4.70
	.20	− .50	− 3.2	−3.40	−3.60	−3.80	−4.00	−4.20	−4.40	−4.60	−4.80	−5.00	−5.20
	.30	− .57	− 3.7	−3.90	−4.10	−4.30	−4.50	−4.70	−4.90	−5.10	−5.30	−5.50	−5.70
	.40	− .65	− 4.2	−4.40	−4.60	−4.80	−5.00	−5.20	−5.40	−5.60	−5.80	−6.00	−6.20
	.50	− .73	− 4.8	−5.00	−5.20	−5.40	−5.60	−5.80	−6.00	−6.20	−6.40	−6.60	−6.80
	8h 00	− .80	− 5.3	−5.50	−5.70	−5.90	−6.10	−6.30	−6.50	−6.70	−6.90	−7.10	−7.30
	.10	− .87	−5.9	−6.10	−6.30	−6.50	−6.70	−6.90	−7.10	−7.30	−7.50	−7.70	−7.90

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Zone 40.

7h 35	$-0.81 = x_{40} + 1.42\,x'_{40}$	$-6.0 = y_{40} + 1.42\,y'_{40}$	1
7h 36	$-0.36 =$ " $+ 1.43$ "	$-7.5 =$ " $+ 1.77$ "	1
7h 46	$-0.61 =$ " $+ 1.66$ "	$-4.8 =$ " $+ 1.93$ "	1
~~7h 46~~	" $+ 1.93$ "	" $+ 1.93$ "	"
7h 47	$-0.44 =$ " $+ 1.62$ "	$-3.8 =$ " $+ 1.62$ "	1
7h 53	$-0.34 =$ " $+ 1.72$ "	$-3.3 =$ " $+ 1.72$ "	3
7h 54	$-0.57 =$ " $+ 1.73$ "	$-2.3 =$ " $+ 1.73$ "	1
8h 13	$-0.58 = x_{40} + 2.05\,x'_{40}$	$-6.2 = y_{40} + 2.05\,y'_{40}$	2

Zone 41

$t_0 = 6^h.10$ $\quad k = 0.000$ $\quad d = -0.20s$

~~6h 17~~ 6.17	$+0.24 = x_{41} + 0.12\,x'_{41}$	$+1.0 = y_{41} + 0.12\,y'_{41}$	2
6h 20	~~$= x_{41} + 0.17\,x'_{41}$~~	$+0.9 =$ ~~$y_{41} + 0.17\,y'_{41}$~~	1
6h 31	$-0.23 =$ " $+ 0.35$ "	$-2.6 =$ " $+ 0.35$ "	1
6h 31	$-0.13 =$ " $+ 0.35$ "	$-1.3 =$ " $+ 0.35$ "	1
6h 36	$-0.32 =$ " $+ 0.43$ "	$+4.0 =$ " $+ 0.43$ "	1
6h 37	$-0.42 =$ " $+ 0.68$ "	$+1.1 =$ " $+ 0.68$ "	1
6h 51	$-0.27 =$ " $+ 0.68$ "	$-1.0 =$ " $+ 0.68$ "	1
6h 52	$-0.68 =$ " $+ 0.70$ "	$-0.2 =$ " $+ 0.70$ "	1
6h 53	$-0.39 =$ " $+ 0.72$ "	$-0.9 =$ " $+ 0.72$ "	1
6h 53	$-0.48 =$ " $+ 0.72$ "	$-1.7 =$ " $+ 0.72$ "	1
6h 54	$-0.47 =$ " $+ 0.73$ "	$-4.2 =$ " $+ 0.73$ "	1
6h 56	$-0.87 =$ " $+ 0.77$ "	$+1.0 =$ " $+ 0.77$ "	1
6h 57	$-0.39 =$ " $+ 0.78$ "	$-1.2 =$ " $+ 0.78$ "	1
6h 58	$+0.87 =$ " $+ 0.80$ "	$-4.1 =$ " $+ 0.80$ "	1
6h 59	$-0.07 =$ " $+ 0.82$ "	$-2.5 =$ " $+ 0.82$ "	2
7h 00	$-0.65 =$ " $+ 0.83$ "	$-1.0 =$ " $+ 0.83$ "	2
7h 01	$-0.23 =$ " $+ 0.85$ "	$-4.1 =$ " $+ 0.85$ "	1
7h 10	$-0.61 =$ " $+ 1.00$ "	$-3.9 =$ " $+ 1.00$ "	1
7h 11	$-0.52 =$ " $+ 1.02$ "	$-3.9 =$ " $+ 1.02$ "	1
~~7h 11~~	~~" $+ 1.02$ "~~	~~" $+ 1.02$ "~~	~~x~~
7h 12	$-0.52 =$ " $+ 1.03$ "	$-3.2 =$ " $+ 1.03$ "	1
7h 13	$-0.48 =$ " $+ 1.05$ "	$-4.8 =$ " $+ 1.05$ "	1
7h 28	$-0.95 =$ " $+ 1.30$ "	$-1.3 =$ " $+ 1.30$ "	1
7h 29	$-0.47 =$ " $+ 1.32$ "	$-2.3 =$ " $+ 1.32$ "	1
7h 29	$-0.33 =$ " $+ 1.32$ "	$-3.6 =$ " $+ 1.32$ "	1
7h 35	$-1.11 =$ " $+ 1.42$ "	$-4.2 =$ " $+ 1.42$ "	1
7h 36	$-0.56 = x_{41} + 1.43\,x'_{41}$	$-5.0 = y_{41} + 1.43\,y'_{41}$	1

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~~7h 40~~	———	=	x_{41} + 1.60 x'_{41}	———	y_{41} + 1.60 y'_{41}		~~x~~
~~7h 46~~			" + 1.60 "		" + 1.60 "		~~x~~
7h 47	− 0.79 = r		" + 1.62 "	− 4.1 = r	" + 1.62 "		1 r
7h 53	− 0.69 = r		" + 1.72 "	− 3.8 = r	" + 1.72 "		3 r
7h 54	− 1.02 = r		" + 1.73 "	− 4.5 = r	" + 1.73 "		1 r
~~7h 56~~	~~− 0.76~~ =		" + 1.75 "	~~− 4.4~~ =	" + 1.75 "		~~1~~
δ 13	− 0.95 =	x_{41} + 2.05	x'_{41}	− 7.0 =	y_{41} + 2.05	y'_{41}	2

Zone 40

$d' = -0''.25$

h m	k s	d 0′	1′	2′	3′	4′	5d	6′	7′	8′	9′	10′
		+ 0″.2	+0.05	−0.30	−0.55	−0.80	−1.05	−1.30	−1.55	−1.80	−2.05	−2.30
		− 0.3	−0.55	−0.80	−1.05	−1.30	−1.55	−1.80	−2.05	−2.30	−2.55	−2.80
		− 0.7	−0.95	−1.20	−1.45	−1.70	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20
		− 1.2	−1.45	−1.70	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70
		− 1.7	−1.95	−2.20	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20
		− 2.2	−2.45	−2.70	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70
		− 2.7	−2.95	−3.20	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70	−4.95	−5.20
		− 3.2	−3.45	−3.70	−3.95	−4.20	−4.45	−4.70	−4.95	−5.20	−5.45	−5.70
		− 3.6	−3.85	−4.10	−4.35	−4.60	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10
		− 4.1	−4.35	−4.60	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10	−6.35	−6.60
		− 4.6	−4.85	−5.10	−5.35	−5.60	−5.85	−6.10	−6.35	−6.60	−6.85	−7.10
		− 5.2	−5.45	−5.70	−5.95	−6.20	−6.45	−6.70	−6.95	−7.20	−7.45	−7.70
		− 5.7	−5.95	−6.20	−6.45	−6.70	−6.95	−7.20	−7.45	−7.70	−7.95	−8.20

Zone 41.

$d' = -0''.20$

h m	k s	d 0	1	2	3	4	d5	6	7	8	9	10
		+ 0″.6	+0.40	+0.20	0.00	−0.20	−0.40	−0.60	−0.80	−1.00	−1.20	−1.40
		+ 0.1	−0.10	−0.30	−0.50	−0.70	−0.90	−1.10	−1.30	−1.50	−1.70	−1.90
		− 0.4	−0.60	−0.80	−1.00	−1.20	−1.40	−1.60	−1.80	−2.00	−2.20	−2.40
		− 1.0	−1.20	−1.40	−1.60	−1.80	−2.00	−2.20	−2.40	−2.60	−2.80	−3.00
		− 1.6	−1.80	−2.00	−2.20	−2.40	−2.60	−2.80	−3.00	−3.20	−3.40	−3.60
		− 2.1	−2.30	−2.50	−2.70	−2.90	−3.10	−3.30	−3.50	−3.70	−3.90	−4.10
		− 2.7	−2.90	−3.10	−3.30	−3.50	−3.70	−3.90	−4.10	−4.30	−4.50	−4.70
		− 3.2	−3.40	−3.60	−3.80	−4.00	−4.20	−4.40	−4.60	−4.80	−5.00	−5.20
		− 3.7	−3.90	−4.10	−4.30	−4.50	−4.70	−4.90	−5.10	−5.30	−5.50	−5.70
		− 4.2	−4.40	−4.60	−4.80	−5.00	−5.20	−5.40	−5.60	−5.80	−6.00	−6.20
		− 4.8	−5.00	−5.20	−5.40	−5.60	−5.80	−6.00	−6.20	−6.40	−6.60	−6.80
		− 5.3	−5.50	−5.70	−5.90	−6.10	−6.30	−6.50	−6.70	−6.90	−7.10	−7.30
		− 5.9	−6.10	−6.30	−6.50	−6.70	−6.90	−7.10	−7.30	−7.50	−7.70	−7.90

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1853phae.proj..24

Vone 42

H 25° 59′ 57″

a 13 15 sin δ 7.46373

H+a 31 12 cos H+a 9.93215

h +18.78 h 1.27370

8.66958

dx_0 +0.30 $d\delta - d\delta' = -0.046$

$d_1 r$ +0.02

dr +0.32

d_2 +1.92

$d_2 - dr$ +1.60

$d\delta - d\delta'$ −0.05

d −1.65

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1853phae.proj.247

Reduction of Zone 42&43

Zone 42

March 29, 1853 Sid. Time 9h 13m Bar. 30.100 Att. therm. 69 Ext. therm. 38.3
" " 11h 26m " 30.060 " " 66 " " 34.5

Zone 43

March 29, 1853 Sid. Time 9h 13m Bar. 30.100 Att. therm. 69 Ext. therm 38.3
11h 26m 30.060 " " 66 " " 34.5

Form 2 Equations only

* Zone 42

$t_0 = 7^h 40^m$ $k'_4 = 0.000$ $d = -0.16s$

7h 47m	$-1.08 = x_{42} + 0.12\,x'_{42}$	$-66''.0 = y_{42} + 0.12\,y'_{42}$	2
7h 48m	$-1.06 = r$ " $+ 0.13$ "	$-68.4 = r$ " $+ 0.13$ "	1
7h 49m	$-1.05 = r$ " $+ 0.15$ "	$-65.4 = r$ " $+ 0.15$ "	1
8h 03m	$-1.08 = r$ " $+ 0.38$ "	$-67.7 = r$ " $+ 0.38$ "	1
8h 06m	$-1.52 = r\ x_{42} + 0.43\,x'_{42}$	$-67.9 = r\ y_{42} + 0.43\,y'_{42}$	1
~~8h 15m~~			
~~8h 18m~~			
~~8h 18m~~			

* Zone 43

t_0 7h 40m $k'_4 = 0.000$ $d = -0.16s$

7h 47m	$-1.16 = x_{43} + 0.12\,x'_{43}$	$-63.0 = y_{43} + 0.12\,y'_{43}$	2
7h 48m	$-1.16 = r$ " $+ 0.13$ "	$-65.4 = r$ " $+ 0.13$ "	1
7h 49m	$-1.15 = r$ " $+ 0.15$ "	$-62.4 = r$ " $+ 0.15$ "	1
8h 03m	$-1.43 = r$ " $+ 0.38$ "	$-63.7 = r$ " $+ 0.38$ "	1
8h 06m	$-1.87 = r\ x_{43} + 0.43\,x'_{43}$	$-65.0 = r\ y_{43} + 0.43\,y'_{43}$	1
~~8h 15m~~			
~~8h 18m~~			

* The connection of Zones 42 & 43 with those next following in right ascension is wanting.

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Zone 42.

	k	d	d' = −0.16s									
h m	s	0	1	2	3	4	5	6	7	8	9	10
t0 7 40	0.97	−65.7	−5.86	−6.02	−6.18	−6.34	−6.50	−6.66	−6.82	−6.98	−7.14	67.30
.50	1.11	−66.7	−6.86	−7.02	−7.18	−7.34	−7.50	−7.66	−7.82	−7.98	−8.14	8.30
8 00	1.24	−67.5	−7.66	−7.82	−7.98	−8.14	−8.30	−8.46	−8.62	−8.78	−8.94	−9.10
.10	1.39	−68.5	−8.86	−8.82	−8.98	−9.14	−9.30	−9.46	−9.62	−9.78	−9.94	−70.10
.20	1.55	−69.3	−9.46	−9.62	−9.78	−9.94	−70.10	−70.26	−70.42	−70.58	−70.74	−70.90

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Zone 43.

	h m	k s	d 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
													$d' = -0''.16$
t_0	7 h 40	− 0,99	− 63.0	− 3.16	− 3.32	− 3.48	− 3.64	− 3.80	− 3.96	− 4.12	− 4.28	− 4.44	− 4.60
	50	− 1.21	− 63.6	− 3.76	− 3.92	− 4.08	− 4.24	− 4.40	− 4.56	− 4.72	− 4.88	− 5.04	− 5.20
	8 h 00	− 1.43	− 64.1	− 4.26	− 4.42	− 4.58	− 4.74	− 4.90	− 5.06	− 5.22	− 5.38	− 5.54	− 5.70
	10	− 1.65	− 64.6	− 4.76	− 4.92	− 5.08	− 5.24	− 5.40	− 5.56	− 5.72	− 5.88	− 6.04	− 6.20
	20	− 1.87	− 65.2	− 5.36	− 5.52	− 5.68	− 5.84	− 6.00	− 6.16	− 6.32	− 6.48	− 6.64	− 6.80

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Zone 44

H 258.55

a	139.00	sin δ	7.46373
H+a	37.55	cos. H+a	9.89702
h+18.80		h	1.27416
			8.63491

$d\alpha$ +0.30	$d\delta - d\delta'$ −0.043
$d\mu$ 0.00	
dr +0.30	
ds +1.09	
$ds - dr$ +0.79	
$d\delta - d\delta'$ −0.04	
d −0.83	

Zone 45

H 256.46

a	139.00	sin δ	7.46373
H+a	35.46	cos. H+a	9.90924
h+18.81		h	1.27439
			8.64736

$d\alpha$ +0.30	$d\delta - d\delta'$ −0.044
$d\mu r$ +0.01	
dr +0.31	
ds +1.92	
$ds - dr$ +1.61	
$d\delta - d\delta'$ −0.04	
d −1.65	

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1853phae.proj.244

Reduction of Zones 44 & 45

Zone 44

March 30, 1853 Sid. time 8h 25m Bar. 29.744 Att. therm. 72° Ext. therm. 51.2
" " 10h 30 " 29.750 " " 72 " " 48.1

Zone 45

April 1, 1853 Sid time 9h 00 Bar. 29.910 Att. therm. 63° Ext. therm. 35.6
" " 11h 15 " 29.956 " " 64 " " 36.0

Zone 44

t_0 8h 10 $k'_4 = 0.000$ $d = -0.085$

8h 18	$0.00 = r + x_{44} + 0.13\ x'_{44}$	$+1.2 = r + y_{44} + 0.13\ y'_{44}$	1
8h 21	$+0.56 = r$ " $+ 0.18$ "	$-1.2 = r$ " $+ 0.18$ "	1
8h 20	$+0.42 = r$ " $+ 0.17$ "	$+1.8 = r$ " $+ 0.17$ "	1
8h 30	$+0.28 = r$ " $+ 0.33$ "	$0.0 = r$ " $+ 0.33$ "	1
8h 33	$+0.11 = r$ " $+ 0.38$ "	$+1.8 = r$ " $+ 0.38$ "	1
8h 33	$+0.20 = r$ " $+ 0.38$ "	$-5.8 = r$ " $+ 0.38$ "	1
8h 34	$+0.34 = r$ " $+ 0.40$ "	$-2.2 = r$ " $+ 0.40$ "	1
[illegible]	[illegible]	[illegible]	[illegible]
8h 46	" "	" "	11
8h 49	$-0.09 = r$ " $+ 0.65$ "	$-0.7 = r$ " $+ 0.65$ "	1
8h 54	$+0.03 = r$ " $+ 0.73$ "	$-0.8 = r$ " $+ 0.73$ "	1
8h 54	$+0.19 = r$ " $+ 0.73$ "	$-0.2 = r$ " $+ 0.73$ "	1
8h 54	$+0.44 = r$ " $+ 0.73$ "	$-1.6 = r$ " $+ 0.73$ "	3
8h 57	$+0.18 = r$ " $+ 0.78$ "	$-2.7 = r$ " $+ 0.78$ "	1
9h 11	$-0.12 = r$ " $+ 1.02$ "	$+1.9 = r$ " $+ 1.02$ "	1
9h 27	$-0.09 = r$ " $+ 1.28$ "	$+0.7 = r$ " $+ 1.28$ "	1
9h 39	$-0.36 = r$ " $+ 1.48$ "	$+4.6 = r$ " $+ 1.48$ "	1
9h 40	$-0.23 = r$ " $+ 1.50$ "	$+6.7 = r$ " $+ 1.50$ "	1
9h 41	$-0.15 = r$ " $+ 1.52$ "	$-1.2 = r$ " $+ 1.52$ "	1
10h 16	$-0.59 = x_{44} + 2.10\ x'_{44}$	$-2.2 = y_{44} + 2.10\ y'_{44}$	2

Zone 45

$t_0 = 8h\ 10$ $k'_4 = 0.000$ $d'_4 = -0.16$

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Zone 45

8h 18	−0.05 = r	x_{45} + 0.13 x'_{45}	+0.5 = r	y_{45} + 0.13 y'_{45}	1 r
8„ 21	−0.04 = r	„ + 0.18 „	−0.7 = r	„ + 0.18 „	1
8„ 28	+0.12 = r	„ + 0.30 „	+0.9 = r	„ + 0.30 „	1 r
8„ 30		„ + 0.33 „	−0.4 =	„ + 0.33 „	1
8„ 33	−0.04 = r	„ + 0.38 „	+2.3 = r	„ + 0.38 „	1
8„ 38	− − =	„ + 0.38 „	− − =	„ + 0.38 „	X
8„ 34	+0.19 = r	„ + 0.40 „	−1.0 = r	„ + 0.40 „	1 r
8„ 48	−0.11 = r	„ + 0.60 „	+0.2 = r	„ + 0.60 „	X r
8„ 49		„ + 0.68 „		„ + 0.68 „	X
8„ 49	−0.19 = r	„ + 0.65 „	−1.0 = r	„ + 0.65 „	1 r
8„ 54	−0.27 = r	„ + 0.73 „	−0.7 = r	„ + 0.73 „	1
8„ 54	−0.21 = r	„ + 0.73 „	−0.9 = r	„ + 0.73 „	1
8„ 54	+0.14 = r	„ + 0.73 „	−0.2 = r	„ + 0.73 „	3
8„ 57	−0.02 = r	„ + 0.78 „	−1.0 = r	„ + 0.78 „	1
9„ 11	−0.27 = r	„ + 1.02 „	+1.9 =	„ + 1.02 „	1 r
9„ 27	−0.39 = r	„ + 1.28 „	+1.5 = r	„ + 1.28 „	1
9„ 39	−0.56 = r	„ + 1.48 „	+3.9 = r	„ + 1.48 „	1
9„ 40	−0.58 = r	„ + 1.50 „	+7.0 = r	„ + 1.50 „	1 r
9„ 41	−0.50 = r	„ + 1.52 „	+0.3 = r	„ + 1.52 „	11
10„ 16	−0.76 =	x_{45} + 2.10 x'_{45}	−1.7	y_{45} + 2.10 y'_{45}	2

Zone 44.

k

h m	ks
8„ 10 +	0.47
.20 +	.40
.30 +	.32
.40 +	.24
.50 +	.16
9„ 00 +	.08
.10	.00
.20 −	.08
.30 −	.16
.40 −	.24
.50 −	.32
10„ 00 −	.39
.10 −	.46

d d' = −″.08

d	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
0″	−1.6	−1.68	−1.76	−1.84	−1.92	−2.00	−2.08	−2.16	−2.24	−2.32	−2.40
	−1.3	−1.38	−1.46	−1.54	−1.62	−1.70	−1.78	−1.86	−1.94	−2.02	−2.10
	−1.0	−1.08	−1.16	−1.24	−1.32	−1.40	−1.48	−1.56	−1.64	−1.72	−1.80
	−0.7	−0.78	−0.86	−0.94	−1.02	−1.10	−1.18	−1.26	−1.34	−1.42	−1.50
	−0.4	−0.48	−0.56	−0.64	−0.72	−0.80	−0.88	−0.96	−1.04	−1.12	−1.20
	−0.2	−0.28	−0.36	−0.44	−0.52	−0.60	−0.68	−0.76	−0.84	−0.92	−1.00
	±0.0	−0.08	−0.16	−0.24	−0.32	−0.40	−0.48	−0.56	−0.64	−0.72	−0.80
	+0.3	+0.22	+0.14	+0.06	−0.02	−0.10	−0.18	−0.26	−0.34	−0.42	−0.50
	+0.6	+0.52	+0.44	+0.36	+0.28	+0.20	+0.12	+0.04	−0.04	−0.12	−0.20
	+0.8	+0.72	+0.64	+0.56	+0.48	+0.40	+0.32	+0.24	+0.16	+0.08	0.00
	+1.1	+1.02	+0.94	+0.86	+0.78	+0.70	+0.62	+0.54	+0.46	+0.38	+0.30
	+1.3	+1.22	+1.14	+1.06	+0.98	+0.90	+0.82	+0.74	+0.66	+0.58	+0.50
	+1.6	+1.52	+1.44	+1.36	+1.28	+1.20	+1.12	+1.04	+0.96	+0.88	+0.80

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Zone 45.

	k		d	d′ = −0.″16									
	h m	ks	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
t_0	8h10m	+ 0.21	−0.″7	−0.86	−1.02	−1.18	−1.34	−1.50	−1.66	−1.82	−1.98	−2.14	−2.30
	.20	+ .13	− 0.4	−0.56	−0.72	−0.88	−1.04	−1.20	−1.36	−1.52	−1.68	−1.84	−2.00
	.30	+ .06	− 0.2	−0.36	−0.52	−0.68	−0.84	−1.00	−1.16	−1.32	−1.48	−1.64	−1.80
	.40	− .02	± 0.0	−0.16	−0.32	−0.48	−0.64	−0.80	−0.96	−1.12	−1.28	−1.44	−1.60
	.50	− .10	+ 0.2	+0.04	−0.12	−0.28	−0.44	−0.60	−0.76	−0.92	−1.08	−1.24	−1.40
	9h00	− .18	+ 0.4	+0.24	+0.08	−0.08	−0.24	−0.40	−0.56	−0.72	−0.88	−1.04	−1.20
	.10	− .26	+ 0.6	+0.44	+0.28	+0.12	−0.04	−0.20	−0.36	−0.52	−0.68	−0.84	−1.00
	.20	− .34	+ 0.8	+0.64	+0.48	+0.32	+0.16	0.00	−0.16	−0.32	−0.48	−0.64	−0.80
	.30	− .41	+ 1.0	+0.84	+0.68	+0.52	+0.36	+0.20	+0.04	−0.12	−0.28	−0.44	−0.60
	.40	− .49	+ 1.2	+1.04	+0.88	+0.72	+0.56	+0.40	+0.24	+0.08	−0.08	−0.24	−0.40
	.50	− .57	+ 1.4	+1.24	+1.08	+0.92	+0.76	+0.60	+0.44	+0.28	+0.12	−0.04	−0.20
	10h00	− .65	+ 1.6	+1.44	+1.28	+1.12	+0.96	+0.80	+0.64	+0.48	+0.32	+0.16	0.00
	.10	− .73	+1.8	+1.64	+1.48	+1.32	+1.16	+1.00	+0.84	+0.68	+0.52	+0.36	+0.20

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Zone 46

H 249°.20

a 137.02 sin δ 7.46373

H+a 26.20 cos H+a 9.95242

h +18".94 h 1.27738

8.69353

$d\gamma_0$ +0.30

$d\mu$ +0.02

$d\nu$ +0.32

ds +1.40

$ds-d\nu$ +1.08

$d\delta-d\delta'$ −0.05

d −1.13

$d\delta-d\delta'$ = −0.049

Zone 47

H

$d\gamma_0$ +0.30

$d\mu$ +0.01

$d\nu$ +0.31

ds +1.12

$ds-d\nu$ +0.81

$d\delta-d\delta'$ −0.05

d = −0.86

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Reduction of Zones 46 & 47

For 47 & 48 See Book E

Zone 46

April 8, 1853 Sid. Time 9ʰ 49ᵐ Bar. 29.890 Att. Therm. 66 Ext. Therm. 45.5
" " 10ʰ 57ᵐ " 29.874 " " 64 " " 44.0

Zone 47

April 9, 1853 Sid. Time 9ʰ 07ᵐ Bar. 29.800 Att. Therm. 67 Ext. Therm 57.5
11ʰ 18ᵐ 29.867 " " 68 " " 47.3

Zone 46

t_0 8ʰ 00ᵐ $\quad k'_4 = 0.000 \quad d'_4 = -0.''11s$

8ʰ 09ᵐ	$+0.^s66 = x_{46} + 0.15\, x'_{46}$	$+5.''0 = y_{46} + 0.15\, y'_{46}$	2
8ʰ 15ᵐ	$+0.64 =$ " $+ 0.25$ "	$+2.6 =$ " $+0.25$ "	1
8ʰ 22ᵐ	$+0.48 =$ " $+ 0.37$ "	$+1.6 =$ " $+0.37$ "	2
~~8ʰ 24ᵐ~~	$- - - =$ " $+$ ~~0.40~~ "	$- - - =$ " $+$ ~~0.40~~ "	+
8ʰ 37ᵐ	$+0.17 =$ " $+ 0.62$ "	$+1.9 =$ " $+0.62$ "	1
~~8ʰ 38ᵐ~~	$- - - =$ " $+$ ~~0.63~~ "	$- - - =$ " $+$ ~~0.63~~ "	+
8ʰ 38ᵐ	$+0.28 =$ " $+ 0.63$ "	$+1.4 =$ " $+0.63$ "	1
8ʰ 39ᵐ	$+0.19 =$ " $+ 0.65$ "	$+6.8 =$ " $+0.65$ "	1
8ʰ 39ᵐ	$+0.57 =$ " $+ 0.65$ "	$+5.8 =$ " $+0.65$ "	1
9ʰ 02ᵐ	$+0.06 =$ " $+ 1.03$ "	$+8.5 =$ " $+1.03$ "	1
9ʰ 03ᵐ	$-0.10 =$ " $+ 1.05$ "	$+3.4 =$ " $+1.05$ "	1
9ʰ 13ᵐ	$-0.05 = x_{46}$ " $+ 1.25\, x'_{46}$	$+3.0 = y_{46} + 1.25\, y'_{46}$	2
9ʰ 20ᵐ	$- - - =$ " $+ 1.33$ "	$- - - =$ " $+ 1.33$ "	
9ʰ 30ᵐ	$- - - =$ " $+ 1.50$ "	$- - - =$ " $+ 1.50$ "	
9ʰ 36ᵐ	$- - - =$ " $+ 1.60$ "	$- - - =$ " $+ 1.60$ "	
9ʰ 38ᵐ	$- - - =$ " $+ 1.63$ "	$- - - =$ " $+ 1.63$ "	
9ʰ 49ᵐ	$- - - =$ " $+ 1.82$ "	$- - - =$ " $+ 1.82$ "	
9ʰ 57ᵐ	$- - - =$ " $+ 1.95$ "	$- - - =$ " $+ 1.95$ "	
10ʰ 00ᵐ	$- - - =$ " $+ 2.00$ "	$- - - =$ " $+ 2.00$ "	
10ʰ 17ᵐ	$- - - =$ " $+ 2.28$ "	$- - - =$ " $+ 2.28$ "	
10ʰ 18ᵐ	$x_{46} + 2.32\, x'_{46}$	$y_{46} + 2.32\, y'_{46}$	

Zone 47

t_0 8ʰ 00ᵐ $\quad k'_4 = 0.000 \quad d'_4 = -0.''09s$

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Zone 47.

8h14m	+0.34	= x_{47} + 0.23 x'_{47}	+7.5	= y_{47} + 0.23 y'_{47}	2
8 15	+0.19	= " + 0.25 "	+4.2	= " + 0.25 "	1
8 22	+0.23	= " + 0.37 "	+4.6	= " + 0.37 "	2
8 24	+0.18	= " + 0.40 "	+6.5	= " + 0.40 "	1
8 37	−0.13	= " + 0.62 "	+5.8	= " + 0.62 "	1
8 38	−0.09	= " + 0.63 "	+5.8	= " + 0.63 "	1
8 38	+0.08	= " + 0.63 "	+6.1	= " + 0.63 "	1
8 39	+0.39	= " + 0.65 "	+4.4	= " + 0.65 "	1
8 39	R +0.22	= " + 0.65 "	R +7.8	= " + 0.65 "	3
9 02	−0.24	= " + 1.03 "	+11.5	= " + 1.03 "	1
9 03	−0.45	= " + 1.05 "	+6.3	= " + 1.05 "	1
9 15	−0.22	= " + 1.25 "	+7.4	= " + 1.25 "	1
9 20	−0.84	= " + 1.33 "	+5.3	= " + 1.33 "	1
9 30	−0.49	= " + 1.50 "	+6.1	= " + 1.50 "	3
9 36	−0.72	= " + 1.60 "	+8.5	= " + 1.60 "	1
9 38	−0.60	= " + 1.63 "	+7.5	= " + 1.63 "	1
9 49	−0.55	= " + 1.82 "	+8.3	= " + 1.82 "	1
9 57	−1.19	= " + 1.95 "	+7.3	= " + 1.95 "	1
10.00	−0.68	= " + 2.00 "	+6.2	= " + 2.00 "	13
10.17	−1.12	= " + 2.28 "	+8.1	= " + 2.28 "	3
10.19	−1.22	= x_{47} + 2.32 x'_{47}	+6.5	= y_{47} + 2.32 y'_{47}	2

Zone 46.

k = s

d = 0.11 d'

h m	k	d = 0'	1'	2'	3'	4'	0.5'	6'	7'	8'	9'	10
8h00m	+ 0.74	+ 3.2	+3.09	+2.98	+2.87	+2.76	+2.65	+2.54	+2.43	+2.32	+2.21	+2.10
.10	+ .63	+ 3.4	+3.29	+3.18	+3.07	+2.96	+2.85	+2.74	+2.63	+2.52	+2.41	+2.30
.20	+ .53	+ 3.6	+3.49	+3.38	+3.27	+3.16	+3.05	+2.94	+2.83	+2.72	+2.61	+2.50
.30	+ .41	+ 3.9	+3.79	+3.68	+3.57	+3.46	+3.35	+3.24	+3.13	+3.02	+2.91	+2.80
.40	+ .30	+ 4.2	+4.09	+3.98	+3.87	+3.76	+3.65	+3.54	+3.43	+3.32	+3.21	+3.10
.50	+ .18	+ 4.4	+4.29	+4.18	+4.07	+3.96	+3.85	+3.74	+3.63	+3.52	+3.41	+3.30
9h00m	+ .06	+ 4.6	+4.49	+4.38	+4.27	+4.16	+4.05	+3.94	+3.83	+3.72	+3.61	+3.50
.10	− .06	+ 4.9	+4.79	+4.68	+4.57	+4.46	+4.35	+4.24	+4.13	+4.02	+3.91	+3.80
.20	− .18	+ 5.1	+4.99	+4.88	+4.77	+4.66	+4.55	+4.44	+4.33	+4.22	+4.11	+4.00
.30	− .30	+ 5.3	+5.19	+5.08	+4.97	+4.86	+4.75	+4.64	+4.53	+4.42	+4.31	+4.20
.40	− .42	+ 5.6	+5.49	+5.38	+5.27	+5.16	+5.05	+4.94	+4.83	+4.72	+4.61	+4.50
.50	− .54	+ 5.8	+5.69	+5.58	+5.47	+5.36	+5.25	+5.14	+5.03	+4.92	+4.81	+4.70
10h00m	− .66	+ 6.0	+5.89	+5.78	+5.67	+5.56	+5.45	+5.34	+5.23	+5.12	+5.01	+4.90

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Zone 47.

	k	d	d' = − 0.09									
h m	s	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10
t_0 8.00	+ 0.49	+ 5.6	+5.51	+5.42	+5.33	+5.24	+5.15	+5.06	+4.97	+4.88	+4.79	+4.70
.10	+ .37	+ 5.8	+5.71	+5.62	+5.53	+5.44	+5.35	+5.26	+5.17	+5.08	+4.99	+4.90
.20	+ .26	+ 6.0	+5.91	+5.82	+5.73	+5.64	+5.55	+5.46	+5.37	+5.28	+5.19	+5.10
.30	+ .14	+ 6.1	+6.01	+5.92	+5.83	+5.74	+5.65	+5.56	+5.47	+5.38	+5.29	+5.20
.40	+ .02	+ 6.2	+6.11	+6.02	+5.93	+5.84	+5.75	+5.66	+5.57	+5.48	+5.39	+5.30
.50	− .10	+ 6.3	+6.21	+6.12	+6.03	+5.94	+5.85	+5.76	+5.67	+5.58	+5.49	+5.40
9.00	− .21	+ 6.4	+6.31	+6.22	+6.13	+6.04	+5.95	+5.86	+5.77	+5.68	+5.59	+5.50
.10	− .33	+ 6.6	+6.51	+6.42	+6.33	+6.24	+6.15	+6.06	+5.97	+5.88	+5.79	+5.70
.20	− .44	+ 6.7	+6.61	+6.52	+6.43	+6.34	+6.25	+6.16	+6.07	+5.98	+5.89	+5.80
.30	− .56	+ 6.8	+6.71	+6.62	+6.53	+6.44	+6.35	+6.26	+6.17	+6.08	+5.99	+5.90
.40	− .68	+ 7.0	+6.91	+6.82	+6.73	+6.64	+6.55	+6.46	+6.37	+6.28	+6.19	+6.10
.50	− .79	+ 7.1	+7.01	+6.92	+6.83	+6.74	+6.65	+6.56	+6.47	+6.38	+6.29	+6.20
10.00	− .91	+ 7.2	+7.11	+7.02	+6.93	+6.84	+6.75	+6.66	+6.57	+6.48	+6.39	+6.30

Zone 47. N° 2.

k	d
	0′
+ 0.40	+ 6.2
+ .30	+ 6.3
+ .19	+ 6.3
+ .09	+ 6.4
− .02	+ 6.5
− .13	+ 6.6
− .24	+ 6.6
− .35	+ 6.7
− .45	+ 6.7
− .55	+ 6.8
− .66	+ 6.9
− .76	+ 6.9
− .87	+ 7.0

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Zone 49

H 22^h 55^m

a 192 00 sin δ 7.46373

H+a 61 55 cos H+a 9.67280

h +19 37 h 1.28713

8.42366

$d\alpha_0$ +0.30 dδ+dδ' −0.026

$d_h r$ 0.00

dr +0.30

ds +1.30

ds−dr +1.00

dδ−dδ' −0.03

d −1.03

Zone 50

$d\alpha_0$ +0.30

$d_h r$ −0.01

dr +0.29

ds +0.99

ds−dr +0.70

dδ−dδ' −0.03

d −0.73

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Reduction of Zones 49 & 50

For 47 & 48 See Book E

Zone 49

April 27, 1853 Sid. time 12h 12m Bar. 30.150 Att. therm. 63 Ext. therm. 48.1
" " 14h 14 " 30.182 " " 64 " " 44.2

Zone 50

April 28, 1853 Sid. time 10h 53m Bar. 30.134 Att. therm. 65 Ext. therm. 53.4
" " 13h 12 " 30.136 " " 63 " " 49.3

Zone 49

$t_0 = 11^h 50^m$	k'_4 0.000	$d'_4 = -0.10s$	
11h 53	+0.40 = x_{49} + 0.05 x'_{49}	+2.0 = y_{49} + 0.05 y'_{49}	2
11h 53	+0.30 = " + 0.05'	+0.8 = " + 0.05"	1
12h 02	+0.42 = " + 0.20'	+1.9 = " + 0.20.	1
12h 02	+0.21 = " + 0.20'	+2.1 = " + 0.20.	1
12h 11	+0.45 = " + 0.35'	+4.5 = " + 0.35"	3
12h 12	+0.25 = " + 0.37"	+4.6 = " + 0.37.	4
12h 39	+0.45 = " + 0.82"	+4.5 = " + 0.82.	2
12h 43	+0.25 = " + 0.88"	+3.3 = " + 0.88"	1
12h 46	+0.09 = " + 0.93"	+11.2 = " + 0.93.	1
12h 55	+0.09 = " + 1.08"	+3.5 = " + 1.08.	3
12h 59	+0.27 = " + 1.15"	−0.2 = " + 1.15.	2
13h 10	+0.06 = " + 1.33"	+1.5 = " + 1.33.	3
13h 16	−.06 +0.39 = " + 1.43"	+1.0 = " + 1.43.	1
13h 27	+0.21 = " + 1.62"	+2.0 = " + 1.62"	3
13h 49	−.05 +0.15 = x_{49} + 1.98 x'_{49}	+3.2 = y_{49} + 1.98 y'_{49}	2

Zone 50

$t_0 = 11^h 50^m$	$k'_4 = 0.000$	$d'_4 = -0.07s$	
11h 53	+0.73 = x_{50} + 0.05 x'_{50}	+4.3 = y_{50} + 0.05 y'_{50}	2
11h 53	+0.30 = " + 0.05"	+2.6 = " + 0.05.	1
12h 02	+0.62 = " + 0.20"	+4.7 = " + 0.20.	1
12h 02	+0.46 = " + 0.20"	+3.0 = " + 0.20.	1
12h 11	+0.95 = " + 0.35.	+5.4 = " + 0.35.	3
12h 12	+0.50 = " + 0.37"	+5.3 = " + 0.37.	4
12h 39	+0.80 = " + 0.82.	+5.3 = " + 0.82.	2
12h 43	+0.75 = x_{50} + 0.88 x'_{50}	+14.2 = y_{50} + 0.88 y'_{50}	1

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12h46		+0.54 = r	$x_{50} + 0.93\ x'_{50}$	+4.1 = r	$y_{50} + 0.93\ y'_{50}$	1
12h55		+0.54 = r	" + 1.08 "	+6.5 = r	" + 1.08 "	3
12h59		+0.67 = r	" + 1.15 "	+0.5 = r	" + 1.15 "	2
13h08		+0.71 = r	" + 1.33 "	+3.7 = r	" + 1.33 "	3
13h16	+.49	+0.54 = r	" + 1.43 "	+1.9 = r	" + 1.43 "	1
13h27		+0.51 = r	" + 1.62 "	+5.7 = r	" + 1.62 "	3
13h29	+.25	+0.45 =	$x_{50} + 1.98\ x'_{50}$	+5.0 =	$y_{50} + 1.98\ y'_{50}$	2

Zone 49.

h m	k s	d 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
		d′ = −0″.10										
11h50	+ 0.40	+3.7	+3.60	+3.50	+3.40	+3.30	+3.20	+3.10	+3.00	+2.90	+2.80	+2.70
12h00	+ .37	+3.5	+3.40	+3.30	+3.20	+3.10	+3.00	+2.90	+2.80	+2.70	+2.60	+2.50
.10	+ .34	+3.4	+3.30	+3.20	+3.10	+3.00	+2.90	+2.80	+2.70	+2.60	+2.50	+2.40
.20	+ .30	+3.2	+3.10	+3.00	+2.90	+2.80	+2.70	+2.60	+2.50	+2.40	+2.30	+2.20
.30	+ .27	+3.0	+2.90	+2.80	+2.70	+2.60	+2.50	+2.40	+2.30	+2.20	+2.10	+2.00
.40	+ .23	+2.8	+2.70	+2.60	+2.50	+2.40	+2.30	+2.20	+2.10	+2.00	+1.90	+1.80
.50	+ .20	+2.6	+2.50	+2.40	+2.30	+2.20	+2.10	+2.00	+1.90	+1.80	+1.70	+1.60
13h00	+ .16	+2.4	+2.30	+2.20	+2.10	+2.00	+1.90	+1.80	+1.70	+1.60	+1.50	+1.40
.10	+ .13	+2.2	+2.10	+2.00	+1.90	+1.80	+1.70	+1.60	+1.50	+1.40	+1.30	+1.20
.20	+ .10	+2.0	+1.90	+1.80	+1.70	+1.60	+1.50	+1.40	+1.30	+1.20	+1.10	+1.00
.30	+ .07	+1.8	+1.70	+1.60	+1.50	+1.40	+1.30	+1.20	+1.10	+1.00	+0.90	+0.80
.40	+ .03	+1.6	+1.50	+1.40	+1.30	+1.20	+1.10	+1.00	+0.90	+0.80	+0.70	+0.60
.50	− .01	+1.4	+1.30	+1.20	+1.10	+1.00	+0.90	+0.80	+0.70	+0.60	+0.50	+0.40

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Zone 50.

	k	d	d' = −0.07									
	h m	s	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
t₀	11 50 +	0.67	+5.1	+5.03	+4.96	+4.89	+4.82	+4.75	+4.68	+4.61	+4.54	+4.47	+4.40
	12 00 +	.66	+5.0	+4.93	.86	.79	.72	.65	.58	.51	.44	.37	+4.30
	.10 +	.64	+5.0	+4.93	.86	.79	.72	.65	.58	.51	.44	.37	+4.30
	.20 +	.62	+4.9	+4.83	.76	.69	.62	.55	.48	.41	.34	.27	+4.20
	.30 +	.61	+4.9	+4.83	.76	.69	.62	.55	.48	.41	.34	.27	+4.20
	.40 +	.60	+4.9	+4.83	.76	.69	.62	.55	.48	.41	.34	.27	+4.20
	.50 +	.59	+4.9	+4.83	.76	.69	.62	.55	.48	.41	.34	.27	+4.20
	13 00 +	.57	+4.8	+4.73	.66	.59	.52	.45	.38	.31	.24	.17	+4.10
	.10 +	.56	+4.8	+4.73	.66	.59	.52	.45	.38	.31	.24	.17	+4.10
	.20 +	.55	+4.8	+4.73	.66	.59	.52	.45	.38	.31	.24	.17	+4.10
	.30 +	.54	+4.8	+4.73	.66	.59	.52	.45	.38	.31	.24	.17	+4.10
	.40 +	.53	+4.7	+4.63	.56	.49	.42	.35	.28	.21	.14	.07	+4.00
	.50 +	.51	+4.7	+4.63	+4.56	+4.49	+4.42	+4.35	+4.28	+4.21	+4.14	+4.07	+4.00

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Zone 51

H 225° 05′

a 221° 00 sin. δ 7.46373

H+a 86° 05 cos. H+a 8.83446

h +19″.47 h 1.28937

7.58756

dr_0 +0.30 $d\delta - d\delta' = -0.00387$

dr_1 +.08

dr +0.38

ds +1.30

$ds - dr$ +0.92

$d\delta - d\delta'$ −0.06

d = −0.92

Zone 52

dr_0 +0.80

dr_1 +0.02

dr +0.82

ds +1.49

$ds - dr$ +1.67

$d\delta - d\delta'$ −0.00

d −1.67

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Reduction of Wones 51 & 52

Wone 51

May 2, 1853 Sid. Time 11h 15m Bar. 30.180 Att. Therm. 62 Ext. Therm. 48.6
" " 13.30 " 30.200 " " 59 " " 44.1

Wone 52

May 4, 1853 Sid. time 12h 11m Bar. 30.176 Att. Therm. 60 Ext. Therm. 43.5
" " 14.18 " 30.170 " " 58 " " 42.4

Wone 51

t_0 = 13h 40m k'_4 = 0.000 d'_4 = − 0.09 s

			wt
~~13h 43m~~ 13.53	+0.41 = x_{51} + 0.22 x'_{51}	−0.7 = y_{51} + 0.22 y'_{51}	2
13.56	+0.13 = " + 0.27 "	+1.3 = " + 0.27 "	2
14.02	+0.30 +0.43 = " + 0.37 "	−3.7 = " + 0.37 "	1
14.15	+0.21 = " + 0.58 "	−1.1 = " + 0.58 "	3
~~14.16~~	" + 0.60 "	" + 0.60 "	~~1~~
~~14.30~~	" + 0.63 "	" + 0.63 "	~~1~~
14.46	+0.01 +0.46 = " + 1.10 "	−1.1 = " + 1.10 "	1
~~15.10~~	" + 1.13 "	" + 1.13 "	~~2~~
15.25	−0.40 = " + 1.75 "	−0.5 = " + 1.75 "	1
~~15.35~~	" + 2.25 "	" + 2.25 "	~~1~~
15.53	−0.14 = x_{51} + 2.22 x'_{51}	+0.5 = y_{51} + 2.22 y'_{51}	2

Wone 52

t_0 = 13h 40m k'_4 = 0.000 d'_4 = − 0.12 s

13.53	−0.26 = x_{52} + 0.22 x'_{52}	+0.8 = y_{52} + 0.22 y'_{52}	2
~~13.40~~	" + "	" + "	~~2~~
13.56	−0.52 = " + 0.27 "	+2.5 = " + 0.27 "	2
14.02	−.35 +0.10 = " + 0.37 "	−1.6 = " + 0.37 "	1
14.15	−0.24 = " + 0.58 "	+0.9 = " + 0.58 "	3
14.26	−.67 −0.83 = " + 0.77 "	+0.9 = " + 0.77 "	1
14.30	−.34 +0.06 = " + 0.83 "	+0.1 = " + 0.83 "	1
14.46	−.46 −0.01 = " + 1.10 "	+0.3 = " + 1.10 "	1
~~15.13~~	" + 1.55 "	" + 1.55 "	~~2~~
15.25	−0.80 = " + 1.75 "	−0.2 = " + 1.75 "	1
15.56	+0.82 = x_{52} + 2.25 x'_{52}	+0.9 = y_{52} + 2.25 y'_{52}	1
15.53	−0.71 = x_{52} + 2.22 x'_{52}	+1.5 = y_{52} + 2.22 y'_{52}	2

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Lone 57.

	k		d	d' = −0".09									
	h m	k	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
			"										
t_0	13.40	+ 0.36	− 0.8	− 0.89	− 0.98	− 1.07	− 1.16	− 1.25	− 1.34	− 1.43	− 1.52	− 1.61	− 1.70
	.60	+ .31	− 0.7	− 0.79	− 0.88	− 0.97	− 1.06	− 1.15	− 1.24	− 1.33	− 1.42	− 1.51	− 1.60
	14.00	+ .27	− 0.7	− 0.79	− 0.88	− 0.97	− 1.06	− 1.15	− 1.24	− 1.33	− 1.42	− 1.51	− 1.60
	.10	+ .22	− 0.7	− 0.79	− 0.88	− 0.97	− 1.06	− 1.15	− 1.24	− 1.33	− 1.42	− 1.51	− 1.60
	.20	+ .17	− 0.7	− 0.79	− 0.88	− 0.97	− 1.06	− 1.15	− 1.24	− 1.33	− 1.42	− 1.51	− 1.60
	.30	+ .12	− 0.6	− 0.69	− 0.78	− 0.87	− 0.96	− 1.05	− 1.14	− 1.23	− 1.32	− 1.41	− 1.50
	.40	+ .07	− 0.6	− 0.69	− 0.78	− 0.87	− 0.96	− 1.05	− 1.14	− 1.23	− 1.32	− 1.41	− 1.50
	.50	+ .02	− 0.5	− 0.59	− 0.68	− 0.77	− 0.86	− 0.95	− 1.04	− 1.13	− 1.22	− 1.31	− 1.40
	15.00	− .02	− 0.5	− 0.59	− 0.68	− 0.77	− 0.86	− 0.95	− 1.04	− 1.13	− 1.22	− 1.31	− 1.40
	.10	− .07	− 0.4	− 0.49	− 0.58	− 0.67	− 0.76	− 0.85	− 0.94	− 1.03	− 1.12	− 1.21	− 1.30
	.20	− .12	− 0.4	− 0.49	− 0.58	− 0.67	− 0.76	− 0.85	− 0.94	− 1.03	− 1.12	− 1.21	− 1.30
	.30	− .17	− 0.3	− 0.39	− 0.48	− 0.57	− 0.66	− 0.75	− 0.84	− 0.93	− 1.02	− 1.11	− 1.20
	.40	− .22	− 0.3	− 0.39	− 0.48	− 0.57	− 0.66	− 0.75	− 0.84	− 0.93	− 1.02	− 1.11	− 1.20

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Zone 52.

h m	k	d 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
		d′ = −0″.125									
13 40	− 0.30	+ 0.8	+0.68	+0.56	+0.44	+0.32	+0.20	+0.08	−0.04	−0.16	−0.28	−0.40
50	− .33	+ 0.9	+0.78	+0.66	+0.54	+0.42	+0.30	+0.18	+0.06	−0.06	−0.18	−0.30
14 00	− .36	+ 1.0	+0.88	+0.76	+0.64	+0.52	+0.40	+0.28	+0.16	+0.04	−0.08	−0.20
10	− .40	+ 1.0	+0.88	+0.76	+0.64	+0.52	+0.40	+0.28	+0.16	+0.04	−0.08	−0.20
20	− .43	+ 1.1	+0.98	+0.86	+0.74	+0.62	+0.50	+0.38	+0.26	+0.14	+0.02	−0.10
30	− .46	+ 1.2	+1.08	+0.96	+0.84	+0.72	+0.60	+0.48	+0.36	+0.24	+0.12	0.00
40	− .50	+ 1.3	+1.18	+1.06	+0.94	+0.82	+0.70	+0.58	+0.46	+0.34	+0.22	+0.10
50	− .53	+ 1.3	+1.18	+1.06	+0.94	+0.82	+0.70	+0.58	+0.46	+0.34	+0.22	+0.10
15 00	− .56	+ 1.4	+1.28	+1.16	+1.04	+0.92	+0.80	+0.68	+0.56	+0.44	+0.32	+0.20
10	− .60	+ 1.5	+1.38	+1.26	+1.14	+1.02	+0.90	+0.78	+0.66	+0.54	+0.42	+0.30
20	− .63	+ 1.6	+1.48	+1.36	+1.24	+1.12	+1.00	+0.88	+0.76	+0.64	+0.52	+0.40
30	− .67	+ 1.7	+1.58	+1.46	+1.34	+1.22	+1.10	+0.98	+0.86	+0.74	+0.62	+0.50
40	− .70	+ 1.8	+1.68	+1.56	+1.44	+1.32	+1.20	+1.08	+0.96	+0.84	+0.72	+0.60

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Zone 63

H 218..22

α 210 „ 00 — sin δ 7.46373

H+α 68 „ 22 — cos H+α 9.56663

h+ 19.71 — h 1.29469

8.32505

dδ − dδ' − 0.021

dr₀ +0.30
dλr +0.00
dr +0.30
ds +0.84
ds+dr+ 0.54
dδ−dδ' −0.02
d −0.56

dr₀ +0.30
dλr +0.00
dr +0.30
ds +1.49
ds−dr+1.19
dδ−dδ' −0.02
d −1.21

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1853phae.proj...24

Reduction of Wones 53 & 54

May 9, 1853 Sid. time

Wone 53

May 9. 1853 Sid. time 12h 22m Bar. 29.960 Att. Therm. 62 Ext. Therm. 54.9
" " 14h 35m " 29.960 " " 66 " " 52.0

Wone 54

May 11, 1853 Sid. time 12h 12m Bar. 30.100 Att. Therm. 66 Ext. Therm 46.6
" " 14h 45m " 30.110 " " 60 " " 41.3

Wone 53

$t_0 = 12^h 5^m 0$ k'_4 0.000 $d'_4 - 0''.06$ s

13h 03	−0.39	$= x_{53} + 0.22\,x'_{53}$	$-0''.9 = y_{53} + 0.22\,y'_{53}$ 2
~~13h 08~~		~~" + 0.30~~	~~" + 0.30~~
13h 15	−.20	" + 0.42	−1.6 " + 0.42 " 1
13h 18	−.21	" + 0.47	−6.6 " + 0.47 " 1
~~13h 34~~		~~" + 0.73~~	~~" + 0.73~~
13h 49	−0.49	" + 0.98	−1.8 " + 0.98 2
13h 57	−0.07	" + 1.12	+0.1 " + 1.12 3
13h 57	−0.46	" + 1.12	−0.4 " + 1.12 2
14h 34	−.13	" + 1.73	−5.2 " + 1.73 1
14h 40	−.30	" + 1.83	−0.9 " + 1.83 1
14h 46	−.44	" + 1.93	−3.1 " + 1.93 1
14h 46	−0.57	" + 1.93	−3.4 " + 1.93 3
14h 51	−.53	" + 2.02	−1.0 " + 2.02 1
15h 01	−1.22	$= x_{53} + 2.18\,x'_{53}$	$-3''.1 = y_{53} + 2.18\,y'_{53}$ 2

Wone 54

$t_0 = 12^h 5^m 0$ $k'_4 = 0.000$ $d'_4 = -0''.12$ s

13h 03	−.13	$= x_{54} + 0.22\,x'_{54}$	$-0''.1 = y_{54} + 0.22\,y'_{54}$ 2
~~13h 08~~		~~" + 0.30~~	~~" + 0.30~~
13h 15	−0.30	" + 0.42	−3.5 " + 0.42 " 1
13h 18	−0.16	" + 0.47	−5.0 " + 0.47 " 1
~~13h 34~~		~~" + 0.73~~	~~" + 0.73~~
13h 49	−0.54	" + 0.98	−1.2 " + 0.98 " 2
13h 57	−0.27	" + 1.12	+0.7 " + 1.12 " 3
13h 57	−0.31	" + 1.12	+0.9 " + 1.12 " 2
14h 34	−0.18	$= x_{54} + 1.73\,x'_{54}$	$-5''.1 = y_{54} + 1.73\,y'_{54}$ 1

Over

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On preceding page 1853phae.proj..24

Zones 53 & 54.

53.

h	m			wt
14	40	+ 0.15	− 0.9	1
14	46	+ 0.01	− 3.1	1
14	46	− 0.57	− 3.4	3
14	57	+ 0.08	− 1.6	1
15	01			

Zone 54 Continued

			wt
14.40	−.35 + [illegible] =	$x_{54} + 1.83\,x'_{54}$	$-0.3 = y_{54} + 1.83\,x'_{54}$	1
14.46	−.34 + [illegible] =	" + 1.93 "	$-3.0 =$ " + 1.93 "	1
14.46	−0.61 =	" + 1.93 "	$-2.3 =$ " + 1.93 "	2
14.57	−.42 + [illegible] =	$x_{54} + 2.02\,x'_{54}$	$-1.7 = y_{54} + 2.02$ "	1
15.01	−1.15 =	$x_{54} + 2.18\,x'_{54}$	-4.4 $y_{54} + 2.18\,y'_{54}$	2

Zone 53.

$+1''.6 = y_{53} - y_{54}$

$d' = -0.06$

h	m	k s	d' 1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
12	50	− 0.21	− 0.9	1.96	1.02	1.08	1.14	1.20	1.26	1.32	1.38	1.44	1.50
13	00	− .24	− 1.0	1.06	1.12	1.18	1.24	1.30	1.36	1.42	1.48	1.54	1.60
	10	− .27	− 1.0	1.06	1.12	1.18	1.24	1.30	1.36	1.42	1.48	1.54	1.60
	20	− .30	− 1.1	1.16	1.22	1.28	1.34	1.40	1.46	1.52	1.58	1.64	1.70
	30	− .33	− 1.2	1.26	1.32	1.38	1.44	1.50	1.56	1.62	1.68	1.74	1.80
	40	− .36	− 1.2	1.26	1.32	1.38	1.44	1.50	1.56	1.62	1.68	1.74	1.80
	50	− .39	− 1.3	1.36	1.42	1.48	1.54	1.60	1.66	1.72	1.78	1.84	1.90
14	00	− .42	− 1.3	1.36	1.42	1.48	1.54	1.60	1.66	1.72	1.78	1.84	1.90
	10	− .44	− 1.4	1.46	1.52	1.58	1.64	1.70	1.76	1.82	1.88	1.94	2.00
	20	− .48	− 1.4	1.46	1.52	1.58	1.64	1.70	1.76	1.82	1.88	1.94	2.00
	30	− .50	− 1.5	1.56	1.62	1.68	1.74	1.80	1.86	1.92	1.98	2.04	2.10
	40	− .53	− 1.6	1.66	1.72	1.78	1.84	1.90	1.96	2.02	2.08	2.14	2.20
	50	− .57	− 1.7	1.76	1.82	1.88	1.94	2.00	2.06	2.12	2.18	2.24	2.30

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Zone 54.

Correction

h m	δ
12 50	0.09
13 00	.13
.10	.18
.20	.22
.30	.26
.40	.30
.50	.35
14 00	.38
.10	.42
.20	.47
.30	.52
.40	.57
.50	0.61

δ	α = −0″.12 s									
	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
−1°8	1.92	2.04	2.16	2.28	2.40	2.52	2.64	2.76	2.88	3.00	
−1.9	2.02	2.14	2.26	2.38	2.50	2.62	2.74	2.86	2.98	3.10	
−2.0	2.12	2.24	2.36	2.48	2.60	2.72	2.84	2.96	3.08	3.20	
−2.0	2.12	2.24	2.36	2.48	2.60	2.72	2.84	2.96	3.08	3.20	
−2.1	2.22	2.34	2.46	2.58	2.70	2.82	2.94	3.06	3.18	3.30	
−2.2	2.32	2.44	2.56	2.68	2.80	2.92	3.04	3.16	3.28	3.40	
−2.3	2.42	2.54	2.66	2.78	2.90	3.02	3.14	3.24	3.38	3.50	
−2.4	2.52	2.64	2.76	2.88	3.00	3.12	3.24	3.34	3.48	3.60	
−2.5	2.62	2.74	2.86	2.98	3.10	3.22	3.34	3.46	3.58	3.70	
−2.6	2.72	2.84	2.96	3.08	3.20	3.32	3.44	3.54	3.68	3.80	
−2.7	2.82	2.94	3.06	3.18	3.30	3.42	3.54	3.66	3.78	3.90	
−2.8	2.92	3.04	3.16	3.28	3.44	3.52	3.64	3.76	3.88	4.00	
−2.9	3.02	3.14	3.26	3.38	3.50	3.62	3.74	3.86	3.98	4.10	

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Zone 55

H 198°.07

a 240.00 sin δ 7.46373

H+a 78.07 cos. H+a 9.31370

h+2".24 h 1.30621

8.08364

dx +0.30 dδ-dδ' −0.00

dμ +0.01

dr +0.31

ds +1.24

ds-dr +0.93

dδ-dδ' −0.00

d −0.93

Zone 56

dx +0".30

dμ +.01

dr +0.31

ds +1.24

ds-dr +0.93

dδ-dδ' −0.00

d −0.93

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1853phae.proj..24

Reduction of Zones 55 & 56

Zone 55

May 31, 1853 Sid. time 13.59 Bar. 30.300 Att. Therm. 65 Ext. Therm. 48.7
" " 16.00 " 30.305 " " 63 " " 45.0

Zone 56

June 1st, 1853 Sid. time 14.06 Bar. 30.370 Att. Therm. 68 Ext. Therm. 49.0
" " 16.10 " 30.341 " " 67 " " 45.3

Zone 55

$t_0 = 15^h 00^m$ $\quad x'_4 = 0.000s$ $\quad d'_4 = -0''.09s$

15.01	$+0.85 = x_{55} + 0.02\, x'_{55}$	$-3.3 = y_{55} + 0.02\, y'_{55}$	2
15.13	$+0.24 =$ " $+ 0.22$ "	$-8.9 =$ " $+ 0.22$ "	1
15.14	$-0.22 =$ " $+ 0.23$ "	$-5.0 =$ " $+ 0.23$ "	1
~~15.27~~	~~0.45~~	~~0.45~~	
15.29	$+0.15 =$ " $+ 0.48$ "	$= 3.6 =$ " $+ 0.48$ "	1
15.30	$+0.03 =$ " $+ 0.50$ "	$-5.4 =$ " $+ 0.50$ "	1
15.~~50~~	$+0.26 =$ " $+ 0.83$ "	$-2.0 =$ " $+ 0.83$ "	3
15.58	$-0.17 =$ " $+ 0.97$ "	$-9.1 =$ " $+ 0.97$ "	1
15.59	$-0.09 =$ " $+ 0.98$ "	$-1.8 =$ " $+ 0.98$ "	1
16.04	$+0.25 =$ " $+ 1.07$ "	$-6.0 =$ " $+ 1.07$ "	3
16.16	$-0.16 =$ " $+ 1.27$ "	$+.7 =$ " $+ 1.27$ "	1
16.22	$-0.20 =$ " $+ 1.37$ "	$-11.0 =$ " $+ 1.37$ "	1
16.23	$-0.41 =$ " $+ 1.38$ "	$+0.2 =$ " $+ 1.38$ "	1
16.24	$-0.39 =$ " $+ 1.40$ "	$-4.5 =$ " $+ 1.40$ "	1
16.30	$-0.37 =$ " $+ 1.50$ "	$-0.7 =$ " $+ 1.50$ "	1
16.35	$-0.04 =$ " $+ 1.58$ "	$-5.1 =$ " $+ 1.58$ "	1
16.36	$+0.14 =$ " $+ 1.60$ "	$-3.8 =$ " $+ 1.60$ "	1
16.42	$-0.40 =$ " $+ 1.70$ "	$+1.2 =$ " $+ 1.70$ "	1
16.42	$+0.12 =$ " $+ 1.70$ "	$+4.7 =$ " $+ 1.70$ "	3
16.46	$- - - =$ " ~~$+ 1.80$~~ "	$-4.4 =$ " $+ 1.77$ "	3
16.48	$-0.66 =$ " ~~$+ 1.80$~~ "	$-2.4 =$ " $+ 1.80$ "	1
16.54	$-0.16 = x_{55} + 1.90\, x'_{55}$	$-2.3 = y_{55} + 1.90\, y'_{55}$	2

~~Zone 56~~

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Zone 56

$t_0 = 15^h.00^m$		$k'_4 = 0.000$	$d'_4 = -0''.09$	
15.01	$+0.58 = x_{56} + 0.02\,x'_{56}$		$-4.3 = y_{56} + 0.02\,y'_{56}$	2
15.13	$+0.09 =$ " $+ 0.22$ "		$-6.9 =$ " $+ 0.22$ "	1
15.14	$-0.22 =$ " $+ 0.23$ "		$-5.0 =$ " $+ 0.23$ "	1
~~15.07~~	" $+$ ~~0.45~~ "		" $+$ ~~0.45~~ "	~~1~~
15.29	$+0.05 =$ " $+ 0.48$ "		$-4.6 =$ " $+ 0.44$ "	1
15.30	$-0.17 =$ " $+ 0.50$ "		$-5.4 =$ " $+ 0.50$ "	1
15.32	$+0.21 =$ " $+ 0.83$ "		$-1.0 =$ " $+ 0.83$ "	3
15.38	$-0.12 =$ " $+ 0.97$ "		$-7.1 =$ " $+ 0.97$ "	1
15.59	$-0.19 =$ " $+ 0.98$ "		$-3.8 =$ " $+ 0.98$ "	1
16.04	$+0.30 =$ " $+ 1.07$ "		$-4.0 =$ " $+ 1.07$ "	3
16.16	$-0.21 =$ " $+ 1.27$ "		$-1.7 =$ " $+ 1.27$ "	1
16.24	$-0.49 =$ " $+ 1.40$ "		$-1.5 =$ " $+ 1.40$ "	1
16.30	$-0.47 =$ " $+ 1.50$ "		$-0.7 =$ " $+ 1.50$ "	1
16.35	$-0.09 =$ " $+ 1.58$ "		$-4.1 =$ " $+ 1.58$ "	1
16.36	$+0.04 =$ " $+ 1.60$ "		$-0.8 =$ " $+ 1.60$ "	1
16.42	$-0.40 =$ " $+ 1.70$ "		$-0.2 =$ " $+ 1.70$ "	1
16.42	$+0.17 =$ " $+ 1.70$ "		$+4.7 =$ " $+ 1.70$ "	3
16.46	$-0.09 =$ " $+ 1.77$ "		$-2.4 =$ " $+ 1.77$ "	3
16.48	$-0.36 =$ " $+ 1.80$ "		$-2.4 =$ " $+ 1.80$ "	1
16.54	$-0.28 = x_{56} + 1.90\,x'_{56}$		$-2.3 = y_{56} + 1.90\,y'_{56}$	2
16.22	$-0.25 =$ " $+ 1.37$ "		$+1.0 =$ " $+ 1.37$ "	1
16.23	$-0.31 =$ " $+ 1.38$ "		$+0.2 =$ " $+ 1.38$ "	1
~~16.54~~	~~$x_{56} + 1.90\,x'_{56}$~~		~~$y_{56} + 1.90\,y'_{56}$~~	~~2~~

mid set

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1853phae.proj.247

Zone 55.

	h m	k s	d 0′	1′	2′	3′	4′	d 5′	6′	7′	8′	9′	10′
			d″ = −0″.09 s										
t_0	15 00	+ 0.42	−4.7	−4.79	−4.88	−4.97	−5.06	−5.15	−5.24	−5.33	−5.42	−5.51	−5.60
	.10	+ .36	−4.4	−4.49	−4.58	−4.67	−4.76	−4.85	−4.94	−5.03	−5.12	−5.21	−5.30
	.20	+ .30	−4.2	−4.29	−4.38	−4.47	−4.56	−4.65	−4.74	−4.83	−4.92	−5.01	−5.10
	.30	+ .25	−4.0	−4.09	−4.18	−4.27	−4.36	−4.45	−4.54	−4.63	−4.72	−4.81	−4.90
	.40	+ .19	−3.8	−3.89	−3.98	−4.07	−4.16	−4.25	−4.34	−4.43	−4.52	−4.61	−4.70
	.50	+ .13	−3.6	−3.69	−3.78	−3.87	−3.96	−4.05	−4.14	−4.23	−4.32	−4.41	−4.50
	16 00	+ .07	−3.4	−3.49	−3.58	−3.67	−3.76	−3.85	−3.94	−4.03	−4.12	−4.21	−4.30
	.10	+ .01	−3.1	−3.19	−3.28	−3.37	−3.46	−3.55	−3.64	−3.73	−3.82	−3.91	−4.00
	.20	− .05	−2.9	−2.99	−3.08	−3.17	−3.26	−3.35	−3.44	−3.53	−3.62	−3.71	−3.80
	.30	− .10	−2.7	−2.79	−2.88	−2.97	−3.06	−3.15	−3.24	−3.33	−3.42	−3.51	−3.60
	.40	− .16	−2.5	−2.59	−2.68	−2.77	−2.86	−2.95	−3.04	−3.13	−3.22	−3.31	−3.40
	.50	− .22	−2.3	−2.39	−2.48	−2.57	−2.66	−2.75	−2.84	−2.93	−3.02	−3.11	−3.20
	17 00	− .28	−2.1	−2.19	−2.28	−2.37	−2.46	−2.55	−2.64	−2.73	−2.82	−2.91	−3.00

Zone 56

	h m	k s	d 0′	1′	2′	3′	4′	d 5′	6′	7′	8′	9′	10′
			d″ = −0″.09 s										
t_0	15 00	+ 0.27	−5.0	−5.09	−5.18	−5.27	−5.36	−5.45	−5.54	−5.63	−5.72	−5.81	−5.90
	.10	+ 0.22	−4.7	−4.79	−4.88	−4.97	−5.06	−5.15	−5.24	−5.33	−5.42	−5.51	−5.60
	.20	+ .18	−4.3	−4.39	−4.48	−4.57	−4.66	−4.75	−4.84	−4.93	−5.02	−5.11	−5.20
	.30	+ .14	−3.9	−3.99	−4.08	−4.17	−4.26	−4.35	−4.44	−4.53	−4.62	−4.71	−4.80
	.40	+ .10	−3.5	−3.59	−3.68	−3.77	−3.86	−3.95	−4.04	−4.13	−4.22	−4.31	−4.40
	.50	+ .06	−3.1	−3.19	−3.28	−3.37	−3.46	−3.55	−3.64	−3.73	−3.82	−3.91	−4.00
	16 00	+ .02	−2.7	−2.79	−2.88	−2.97	−3.06	−3.15	−3.24	−3.33	−3.42	−3.51	−3.60
	.10	− .02	−2.2	−2.29	−2.38	−2.47	−2.56	−2.65	−2.74	−2.83	−2.92	−3.01	−3.10
	.20	− .06	−1.8	−1.89	−1.98	−2.07	−2.16	−2.25	−2.34	−2.43	−2.52	−2.61	−2.70
	.30	− .10	−1.4	−1.49	−1.58	−1.67	−1.76	−1.85	−1.94	−2.03	−2.12	−2.21	−2.30
	.40	− .14	−1.0	−1.09	−1.18	−1.27	−1.36	−1.45	−1.54	−1.63	−1.72	−1.81	−1.90
	.50	− .18	−0.6	−0.69	−0.78	−0.87	−0.96	−1.05	−1.14	−1.23	−1.32	−1.41	−1.50
	17 00	− .22	−0.2	−0.29	−0.38	−0.47	−0.56	−0.65	−0.74	−0.83	−0.92	−1.01	−1.10

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1853phae.proj..24

Zone 57

H 192.. 45'

α	269.. 00	$\sin\delta$	7.46373
H+α =	101 .. 45'	$\cos$ H+α	$\bar{9}$.30887
	h +20.32	h	1.30792
			$\bar{7}$.08052

$d\gamma_1$ = + 0.30 $\quad d\delta - d\delta'$ = + 0.00

$d_h\gamma$ = + 0.02

$d\gamma$ = + 0.32

ds = + 0.87

$ds - d\gamma$ = + 0.55'

$d\delta - d\delta'$ = + 0.00

d' − 0.55

Zone 58

+ 32

+ 40

+ 58

00

d'_{58} = -0.58

1853phae.proj.:24

Reduction of Zones 57 & 58

Zone 57

June 6, 1853 Sid. Time 15h 25m Bar. 30.040 Att. Therm. 69 Ext. Therm. 54°.5
" " 17h 08 " 30.012 " " 68 " " 53.4

Zone 58

June 6, 1853 Sid. time 15h 23 Bar. 30.190 Att. therm. 68 Ext. therm 54°.9
" " 17h 10 " 30.210 " " 68 " " 50.0

Zone 57

$t_0 = 16^h 50^m$ $k'_4 = 0.000^s$ $d'_4 = -0.05^s$

16h 53m	$-0.29 = x_{57} + 0.05\,x'_{57}$	$+8.3$	$y_{57} + 0.05\,y'_{57}$	2
17h 01m	-0.51 " $+0.18$ "	$+7.9$	" $+0.18$ "	2
17h 21	-0.32 " $+0.52$ "	$+10.0$	" $+0.52$ "	2
17h 23	-0.25 " $+0.55$ "	$+8.5$	" $+0.55$ "	1
17h 25	-0.55 " $+0.58$ "	$+10.0$	" $+0.58$ "	3
17h 49	-0.68 " $+0.98$ "	$+5.1$	" $+0.98$ "	1
17h 52	-0.79 " $+1.03$ "	$+4.7$	" $+1.03$ "	1
18h 06	-0.46 " $+1.27$ "	$+6.8$	" $+1.27$ "	1
18h 07	-0.65 " $+1.29$ "	$+6.2$	" $+1.29$ "	2
18h 08	-0.78 " $+1.30$ "	$+7.0$	" $+1.30$ "	3
18h 16	-0.48 " $+1.43$ "	$+4.5$	" $+1.43$ "	3
18h 21	-0.59 " $+1.52$ "	$+5.0$	" $+1.52$ "	3
18h 22	-0.75 " $+1.53$ "	$+3.5$	" $+1.53$ "	3
18h 23	-0.65 " $+1.55$ "	$+3.3$	" $+1.55$ "	3
18h 24	-0.59 " $+1.57$ "	$+2.8$	" $+1.57$ "	3
~~16h 07m~~	~~-0.66 $x_{57} + 1.29\,x'_{57}$~~	~~$+6.2$~~	~~$y_{57} + 1.29\,y'_{57}$~~	2

Zone 58

$t_0 = 16^h 58^m$ $k' = 0^s.0005$ $d' = -0''.06^s$

17h 01m	$+0.29 = x_{58} + 0.05\,x'_{58}$	-10.1	$y_{58} + 0.05\,y'_{58}$	2
~~17h 17m~~	~~-0.54 " $+0.32$ "~~	~~-10.4~~	~~" $+0.32$ "~~	~~1~~
17h 21	$+0.13$ " $+0.39$ "	-7.0	" $+0.39$ "	2
17h 23	$+0.45$ $x_{58} + 0.42\,x'_{58}$	-10.1	$y_{58} + 0.42\,y'_{58}$	1

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Zone 58.

17h..24m	+0.17	$x_{58} + 0.43\, x'_{58}$	−15.0	$y_{58} + 0.43\, y'_{58}$	3
17..25	+0.05	" + 0.45 "	−9.9	" + 0.45 "	3
17..50	+0.44	" + 0.87 "	−10.8	" + 0.87 "	1
17..52	−0.19	" + 0.90 "	−14.0	" + 0.90 "	1
18..06	+0.09	" + 1.13 "	−11.2	" + 1.13 "	1
→18..07	−0.02	" + 1.15 "	−12.0	" + 1.15 "	2
18..08	−0.08	" + 1.17 "	−11.0?	" + 1.17 "	3
18..15	+0.22	" + 1.29 "	−12.4	" + 1.29 "	3
18..21	+0.16	" + 1.39 "	−11.0	" + 1.39 "	2
18..22	−0.05	" + 1.40 "	−12.5	" + 1.40 "	3
18..23	+0.10	" + 1.42 "	−10.6	" + 1.42 "	3
18..24	+0.06	" + 1.43 "	−13.1	" + 1.43 "	3
~~18..07~~		~~$x_{58} + 1.15\, x'_{58}$~~		~~$y_{58} + 1.15\, y'_{58}$~~	~~2~~

Zone 57.

k	k	a					$a' = -0''.05$				
h m	s	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
16..50	0.34	+10.5	+10.45	+10.40	+10.35	+10.30	+10.25	+10.20	+10.15	+10.10	+10.05	+10.0
17..00	.37	+ 9.8	+9.75	+9.70	+9.65	+9.60	+9.55	+9.50	+9.45	+9.40	+9.35	+9.30
.10	.40	+ 9.2	+9.15	+9.10	+9.05	+9.00	+8.95	+8.90	+8.85	+8.80	+8.75	+8.70
.20	.43	+ 8.5	+8.45	+8.40	+8.35	+8.30	+8.25	+8.20	+8.15	+8.10	+8.05	+8.00
.30	.47	+ 7.8	+7.75	+7.70	+7.65	+7.60	+7.55	+7.50	+7.45	+7.40	+7.35	+7.30
.40	.50	+ 7.2	+7.15	+7.10	+7.05	+7.00	+6.95	+6.90	+6.85	+6.80	+6.75	+6.70
.60	.54	+ 6.5	+6.45	+6.40	+6.35	+6.30	+6.25	+6.20	+6.15	+6.10	+6.05	+6.00
18..00	.58	+ 5.8	+5.75	+5.70	+5.65	+5.60	+5.55	+5.50	+5.45	+5.40	+5.35	+5.30
.10	.61	+ 5.1	+5.05	+5.00	+4.95	+4.90	+4.85	+4.80	+4.75	+4.70	+4.65	+4.60
.20	.65	+ 4.3	+4.25	+4.20	+4.15	+4.10	+4.05	+4.00	+3.95	+3.90	+3.85	+3.80
.30	.69	+ 3.6	+3.55	+3.50	+3.45	+3.40	+3.35	+3.30	+3.25	+3.20	+3.15	+3.10
.40	.72	+ 3.0	+2.95	+2.90	+2.85	+2.80	+2.75	+2.70	+2.65	+2.60	+2.55	+2.50
.50	.75	+ 2.3	+2.25	+2.20	+2.15	+2.10	+2.05	+2.00	+1.95	+1.90	+1.85	+1.80

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Zone 58

	k	d	d' = −0.06									
L m	s	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′
16h 58m +	0.42	−6.9	−6.96	−7.02	−7.08	−7.14	−7.20	−7.26	−7.32	−7.38	−7.44	−7.5
17h 08 +	.37	−7.6	−7.66	−7.72	−7.78	−7.84	−7.90	−7.96	−8.02	−8.08	−8.14	−8.2
.18 +	.33	−8.2	−8.26	−8.32	−8.38	−8.44	−8.50	−8.56	−8.62	−8.68	−8.74	−8.8
.28 +	.29	−8.9	−8.96	−9.02	−9.08	−9.14	−9.20	−9.26	−9.32	−9.38	−9.44	−9.5
.38 +	.24	−9.5	−9.56	−9.62	−9.68	−9.74	−9.80	−9.86	−9.92	−9.98	−10.04	−10.1
.48 +	.20	−10.2	−10.26	−10.32	−10.38	−10.44	−10.50	−10.56	−10.62	−10.68	−10.74	−10.8
.58 +	.16	−10.7	−10.76	−10.82	−10.88	−10.94	−11.00	−11.06	−11.12	−11.18	−11.24	−11.3
18h 08 +	.12	−11.4	−11.46	−11.52	−11.58	−11.64	−11.70	−11.76	−11.82	−11.88	−11.94	−12.0
.18 +	.07	−12.1	−12.16	−12.22	−12.28	−12.34	−12.40	−12.46	−12.52	−12.58	−12.64	−12.7
.28 +	.02	−12.7	−12.76	−12.82	−12.88	−12.94	−13.00	−13.06	−13.12	−13.18	−13.24	−13.3
.38 −	.03	−13.3	−13.36	−13.42	−13.48	−13.54	−13.60	−13.66	−13.72	−13.78	−13.84	−13.9
.48 −	.07	−13.9	−13.96	−14.02	−14.08	−14.14	−14.20	−14.26	−14.32	−14.38	−14.44	−14.5
.58 −	.11	−14.5	−14.56	−14.62	−14.68	−14.74	−14.80	−14.86	−14.92	−14.98	−15.04	−15.1

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59 60

269
168
437
360
77

$d_7 = +.32$ $+.32$

$d_9 = -.21$ $+.23$

$d_9 - d_7 = -.53$ $-.09$

$dd - dd' = 00$

$+.53$ $+.09$

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Reduction of Zones 59 & 60

Zone 59

July 1st, 1853 Sid. Time 16h 05m 30 Bar. 29.900 Att. Therm. 75° Ext. Therm. 72.0
" " 18h 38m 00 " 930 " " 75° 68.5

Zone 60

July 2, 1853 Sid. Time 15h 39 Bar. 30.070 Att. Therm. 72 Ext. Therm. 66.8
" " 18h 14 " 30.100 " " 71 " " 60.0

Zone 59

$t_0 = 15.50$ $K' = 0.000\,3$ $d' = +0''.05\,3$

15h 51m	+0.06 = x_{59} + 0.02 x'_{59}	+2.3	y_{59} + 0.02 y'_{59}	2
15h 55m	−0.27 = " + 0.08 "	+5.9	" + 0.08 "	1
15h 58m	+0.10 = " + 0.13 "	+1.5	" + 0.18 "	1
16h 07m	−0.07 = " + 0.28 "	+0.1	" + 0.28 "	3
16h 15m	+0.08 = " + 0.42 "	+1.2	" + 0.42 "	1
16h 23m	−0.81? = " + 0.55 "	+1.7	" + 0.55 "	1
16h 16m	−0.49 = " + 0.43 "	+2.7	" + 0.43 "	1
16h 33m	−0.14 = " + 0.72 "	+1.5	" + 0.72 "	1
16h 33m	−0.20 = " + 0.72 "	+3.5	" + 0.72 "	1
16h 56m	−0.40 = " + 1.10 "	+2.3	" + 1.10 "	2
17h 02m	−0.42 = " + 1.20 "	−1.1	" + 1.20 "	2
17h 19m	−0.65 = " + 1.28 "	+2.5	" + 1.28 "	1
17h 24m	−0.28 = " + 1.57 "	−3.4	" + 1.57 "	3
17h 21m	−0.92 = " + 1.52 "	−7.5	" + 1.52 "	2
17h 27m	−0.49 = " + 1.62 "	−2.1	" + 1.62 "	1
17h 45m	−0.13 = " + 1.92 "	−1.1	" + 1.92 "	3
17h 49m	+0.27 = " + 1.98 "	+0.3	" + 1.98 "	3
17h 54m	+0.35 = " + 2.07 "	−5.1	" + 2.07 "	1
17h 54m	+0.23 = " + 2.07 "	−2.2	" + 2.07 "	1
17h 55m	−0.06 = " + 2.08 "	−4.2	" + 2.08 "	3
18h 01m	+0.37 = " + 2.18 "	−0.8	" + 2.13 "	3
18h 06m	−0.06 = " + 2.27 "	+1.2	" + 2.27 "	3
18h 06m	+0.04 = " + 2.27 "	−2.3	" + 2.27 "	1
18h 07m	+0.11 = " + 2.28 "	−2.2	" + 2.28 "	3
18h 08m	+0.24 = " + 2.30	−2.8	+ 2.30	1
18h 12m	+0.97 = " + 2.37	−1.7	+ 2.37	2

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Zone 60

$t_0 = 15.50$ $\quad k' = 0.000\,s$ $\quad d' = +0.''01\,s$

15.51	−0.15 =	$x_{60} + 0.02\,x'_{60}$	+1.3	$y_{60} + 0.02\,y'_{60}$	2	
15.55	−0.37	" + 0.08 "	+3.9	" + 0.08 "	1	
15.58	−0.20	" + 0.13 "	+0.5	" + 0.13 "	1	
16.07	−0.22	" + 0.28 "	−2.7	" + 0.28 "	3	
16.15	−0.27 +mm	" + 0.42 "	+0.4	" + 0.42 "	1	
16.17	−0.69	" + 0.45 "	0.0	" + 0.45 "	1	
16.23	−1.01?	" + 0.55 "	−0.9	" + 0.55 "	1	
16.33	−0.14	" + 0.72 "	+0.8	" + 0.72 "	1	
16.33	−0.30	" + 0.72 "	+1.8	" + 0.72 "	1	
16.56	−0.80	" + 1.10 "	+1.5	" + 1.10 "	2	
17.02	−0.62	" + 1.20 "	−1.8	" + 1.20 "	2	
17.19	−0.85	" + 1.48 "	+0.6	" + 1.48 "	1	
17.21	−0.92	" + 1.52 "	−10.1	" + 1.52 "	2	
17.24	−0.43	" + 1.57 "	−6.1	" + 1.57 "	3	
17.27	−0.74	" + 1.62 "	−2.9	" + 1.62 "	1	
17.49	−0.13	" + 1.98 "	−1.7	" + 1.98 "	3	
17.54	+0.15	" + 2.07 "	−6.9	" + 2.07 "	1	
17.54	−0.02	" + 2.07 "	−4.7	" + 2.07 "	1	
17.55	−0.36	" + 2.08 "	−8.5	" + 2.08 "	3	
18.00	+0.12	" + 2.17 "	−3.0	" + 2.17 "	2	
18.06	−0.31	" + 2.27 "	−1.6	" + 2.27 "	3	
18.06	−0.22	" + 2.27 "	−5.3	" + 2.27 "	1	
18.07	−0.24	" + 2.28 "	−5.9	" + 2.28 "	3	
18.08	−0.31	" + 2.30 "	−6.4	" + 2.30 "	1	
18.12	−0.32	$x_{60} + 2.37\,x'_{60}$	−2.7	$y_{60} + 2.37\,y'_{60}$	2	

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Zone 59.

$\alpha' = +0''.05$

	h m	k	0	1	2	3	4	α^5	6	7	8	9	10
t_0	15,,50	− 0.32	+ 2.4	+ 2.45	+ 2.50	+ 2.55	+ 2.60	+ 2.65	+ 2.70	+ 2.75	+ 2.80	+ 2.85	+ 2.90
	16,,00	− .30	+ 2.0	+ 2.05	+ 2.10	+ 2.15	+ 2.20	+ 2.25	+ 2.30	+ 2.35	+ 2.40	+ 2.45	+ 2.50
	,,10	− .28	+ 1.7	+ 1.75	+ 1.80	+ 1.85	+ 1.90	+ 1.95	+ 2.00	+ 2.05	+ 2.10	+ 2.15	+ 2.20
	,,20	− .26	+ 1.4	+ 1.45	+ 1.50	+ 1.55	+ 1.60	+ 1.65	+ 1.70	+ 1.75	+ 1.80	+ 1.85	+ 1.90
	,,30	− .23	+ 1.1	+ 1.15	+ 1.20	+ 1.25	+ 1.30	+ 1.35	+ 1.40	+ 1.45	+ 1.50	+ 1.55	+ 1.60
	,,40	− .20	+ 0.8	+ 0.85	+ 0.90	+ 0.95	+ 1.00	+ 1.05	+ 1.10	+ 1.15	+ 1.20	+ 1.25	+ 1.30
	,,50	− .18	+ 0.4	+ 0.45	+ 0.50	+ 0.55	+ 0.60	+ 0.65	+ 0.70	+ 0.75	+ 0.80	+ 0.85	+ 0.90
	17,,00	− .15	± 0.0	+ 0.05	+ 0.10	+ 0.15	+ 0.20	+ 0.25	+ 0.30	+ 0.35	+ 0.40	+ 0.45	+ 0.50
	,,10	− .13	− 0.4	− 0.35	− 0.30	− 0.25	− 0.20	− 0.15	− 0.10	− 0.05	± 0.00	+ 0.05	+ 0.10
	,,20	− .10	− 0.8	− 0.75	− 0.70	− 0.65	− 0.60	− 0.55	− 0.50	− 0.45	− 0.40	− 0.35	− 0.30
	,,30	− .08	− 1.1	− 1.05	− 1.00	− 0.95	− 0.90	− 0.85	− 0.80	− 0.75	− 0.70	− 0.65	− 0.60
	,,40	− .06	− 1.4	− 1.35	− 1.30	− 1.25	− 1.20	− 1.15	− 1.10	− 1.05	− 1.00	− 0.95	− 0.90
	,,50	− .03	− 1.8	− 1.75	− 1.70	− 1.65	− 1.60	− 1.55	− 1.50	− 1.45	− 1.40	− 1.35	− 1.30
	18,,00		− 2.2	− 2.00	− 2.00	− 1.95	− 1.90	− 1.85	− 1.80	− 1.75	− 1.70	− 1.65	− 1.60

Zone 60

$\alpha' = +0''.015$

	h m	k	0	1	2	3	4	α^5	6	7	8	9	10
t_0	15,,50	− 0.46	+ 1.4	+ 1.41	+ 1.42	+ 1.43	+ 1.44	+ 1.45	+ 1.46	+ 1.47	+ 1.48	+ 1.49	+ 1.50
	16,,00	− .44	+ 0.9	+ 0.91	+ 0.92	+ 0.93	+ 0.94	+ 0.95	+ 0.96	+ 0.97	+ 0.98	+ 0.99	+ 1.00
	,,10	− .43	+ 0.4	+ 0.41	+ 0.42	+ 0.43	+ 0.44	+ 0.45	+ 0.46	+ 0.47	+ 0.48	+ 0.49	+ 0.50
	,,20	− .42	− 0.2	− 0.19	− 0.18	− 0.17	− 0.16	− 0.15	− 0.14	− 0.13	− 0.12	− 0.11	− 0.10
	,,30	− .41	− 0.7	− 0.69	− 0.68	− 0.67	− 0.66	− 0.65	− 0.64	− 0.63	− 0.62	− 0.61	− 0.60
	,,40	− .40	− 1.2	− 1.19	− 1.18	− 1.17	− 1.16	− 1.15	− 1.14	− 1.13	− 1.12	− 1.11	− 1.10
	,,50	− .39	− 1.7	− 1.69	− 1.68	− 1.67	− 1.66	− 1.65	− 1.64	− 1.63	− 1.62	− 1.61	− 1.60
	17,,00	− .38	− 2.3	− 2.29	− 2.28	− 2.27	− 2.26	− 2.25	− 2.24	− 2.23	− 2.22	− 2.21	− 2.20
	,,10	− .37	− 2.7	− 2.69	− 2.68	− 2.67	− 2.66	− 2.65	− 2.64	− 2.63	− 2.62	− 2.61	− 2.60
	,,20	− .35	− 3.2	− 3.19	− 3.18	− 3.17	− 3.16	− 3.15	− 3.14	− 3.13	− 3.12	− 3.11	− 3.10
	,,30	− .33	− 3.7	− 3.69	− 3.68	− 3.67	− 3.66	− 3.65	− 3.64	− 3.63	− 3.62	− 3.61	− 3.60
	,,40	− .32	− 4.2	− 4.19	− 4.18	− 4.17	− 4.16	− 4.15	− 4.14	− 4.13	− 4.12	− 4.11	− 4.10
	,,50	− .31	− 4.7	− 4.69	− 4.68	− 4.67	− 4.66	− 4.65	− 4.64	− 4.63	− 4.62	− 4.61	− 4.60
	18,,00		− 5.2	− 5.19	− 5.18	− 5.17	− 5.16	− 5.15	− 5.14	− 5.13	− 5.12	− 5.11	− 5.10

For Zones 61 & 62 See Book E

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N.B. The α δ are taken from Mr Rumker's Standard Catalogue,
The t's α δ's from the original record books.
Zones 1 and 2

W. T. mag. 7 — 1853.0 α 10h 14m 32.89 (3) δ −0° 00′ 42.9 (3)

An. p.	−3.07		+1.80
1852.0	α 10h 14m 29.82	δ	−0° 00′ 24.9
t_1	14m 27.50	s'	+ 0.05
t_2	14m 29.60	s^2	−0° 00′ 29.
$\alpha - t_1$	+ 2.32	$\delta - s'$	− 00° 29.9
$\alpha - t_2$	+ 0.22	$\delta - s$	+ 00° 04.1
		d'_1	0.0
		d'_2	0.0
			−29.9
			+4.1

7 — 1853.0 α 10h 55m 43.52 (3) δ +0° 02′ 30.9 (3)

An. p.	−3.07		+19.3
α	10h 55m 40.45	δ	+0° 02′ 50.2
t_1	10h 55m 38.70	s_1	3.23
t_2	55m 40.60	s_2	2.54
$\alpha - t_1$	+ 1.75	$\delta - s_1$	− 32.8
$\alpha - t_2$	−0.15	$\delta - s_2$	− 3.8
α		d'_1	− 0.4
		d'_2	−0.5
			−32.4
			−3.3

5·C — 1853.0 α 10h 22m 46.66 (6) δ +0° 06′ 54.7 (6) W

An. p.	−3.07		+18.3
1852.0	α 10h 22m 43.59	δ	+0° 07′ 13.0
t_1	22m 41.70	s'	7.44
t_2	43.65	s_2	7.15
$\alpha - t_1$	+ 1.89	$\delta - s_1$	− 0° 31.0
$\alpha - t_2$	−0.06	$\delta - s_2$	− 0° 02.0
		d'_1	− 0.8
		d'_2	−1.1
			−30.2
			−0.9

9 — 1853.0 α 11h 28m 36.54 (1) δ +0° 07′ 22.2 (1) W.

An. p.	−3.07		+19.9
1852	α 11h 28m 33.47	δ	+0° 07′ 42.1
t_1	11 28m 31.76	s_1	8.12
t_2	28m 33.70	s_2	7.43
$\alpha - t_1$	+ 1.72	$\delta - s_1$	− 29.9
$\alpha - t_2$	−0.23	$\delta - s_2$	− 0.9
		d'_1	−1.0
		d'_2	−1.0
			−28.9
			+0.1

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Zones 1 & 2

4.5 1853.0 α 11h 29m 25s.38 (23) δ −0° 00′ 46″.9 (23)

Am. p.	−3.07		+19.9
1852	α 11h 29m 22s.31	δ	−0° 00′ 26″.0
t_1	29m 20s.80	s_1	+ 0″.05
t_2	29m 22s.66	s_2	− 00″.25
$\alpha - t_1$	+1s.51	$\delta - s_1$	− 00′.31.0
$\alpha - t_2$	−0s.34	$\delta - s_2$	+ 0′.01.0
		$d\delta'$	− 0.0
		$d\delta'_2$	+ +0.0
			−31.0
			+1.0

9 1853.0 α 11h 52m 52s.90 (1) δ +0° 07′ 31″.1 (1)

Am. p	−3.07		+20.0
1852.0	α 11h 52m 49s.83	δ	+0° 07′ 57″.1
t_1	~~52m 50s.30~~	s_1	
t_2	52m 50s.30	s_2	+ 7″.56
$\alpha - t_1$		$\delta - s_1$	
$\alpha - t_2$	−0s.47	$\delta - s_2$	− 0′.04.9
		$d\delta'_1$	
		$d\delta'_2$	− −1.3
			−3.6

W. 7 1853.0 α 11h 33m 23s.98 (1) δ +0° 08′ 24″.4 (1)

Am. p.	−3.07		+19.9
1852.0	α 11h 33m 20s.91	δ	+0° 08′ 44″.3
t_1	33m 19s.60	s_1	+ 9″.19
t_2	33m 21s.15	s_2	+ 8″.48
$\alpha - t_1$	+1s.31	$\delta - s_1$	− 34.7
$\alpha - t_2$	−0s.24	$\delta - s_2$	− 3.7
		$d\delta'_1$	−1.1
		$d\delta'_2$	−1.4
			−33.6
			−2.3

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1852 1853

Comparison of 1 d 2 with 44 d 45 for Beginning 1 d 2

mag.	z-44-	K	Zone 45	K	α 1852.0	pm	α 1852.0
11	10h 15m 25s.30	−0s.20	10h 15m 25s.60	−0s.50	10h 15m 25s.10	+ 3s.07	10h 15m 22s.03
12-13			10h 16m 07s.50	−0s.50	16m 07s.00	+ 3.07	10h 16m 03s.93
11-12	10h 18m 04s.90	−0s.20	10h 18m 04s.45	−0s.50	18m 04s.57	+ 3.07	10h 18m 01s.50

1 d 2 with 49 d 50 for End of 1 d 2

	z-49		Zone 50			
8-9	11h 52m 52s.60	+0s.30	11h 52m 52s.20	+0s.60	10h 52m 52s.85	+ 3s.07	10h 52m 49s.78
11	53m 23s.80	+ .30	53m 23s.50	.60	53m 24s.16	+ 3.07	53m 21s.03
	54m 00s.45	+ .30	54m 00s.15	.60	54m 00s.75	+ 3.07	53m 57s.68
	54m 17s.40	+ .30	54m 16s.95	+ .60	54m 17s.62	+ 3.07	54m 14s.55

1. Beginning

α 1852.0	t_1	t_2	$\alpha - t_1$	$\alpha - t_2$	w	δ 1852.0	s_1	s_2	$\delta - s_1$	$\delta - s_2$
10h 15m 22s.03	−19.80	21.70	+2.23	+0.33		0° 03′ 30″.8	3″.57	3″.27		
10h 16m 03s.93	−1.70	03.70				3′ 19.3	3′.45	3′.15		
10h 18m 01s.50	−59.10	01.10				2′ 58.3	3′.24	2′.53		

Mean

End Zone 1. d 2

α 1852.0	t_1	t_2	$\alpha - t_1$	$\alpha - t_2$	δ 1852	s_1	s_2	$\delta - s_1$	$\delta - s_2$
10h 52m 49s.78		50s.30	−0s.52	0s.52	+0° 07′ 52″.5	~	7′ 56″	− 3″.5	−3″.5
53m 21.03		21.75			5′ 28.5		5′.34	−	−5.5
53m 57.68					8′ 38.5				
54m 14.55					6′ 17.5				

Mean

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Zone 44 — Comparison of 142 with 44245

	d	2 45	d	δ 1853.0	pm	δ 1852.0
0° 3′.09″	+2″.0	3′.09″	+ 3.0	0° 03′ 11″.5	− 19″.3	+0° 03′ 30″.8
- - -		2.57	+ 3.0	0 „ 3.00.0	− 19.3	3.19.7
2.37	+2.0	2.36	+ 3.0	0 „ 2.39.0	− 19.3	2.58.3

Zone 49		Zone 50				
7.31	+1″.5	7.29	+3,5	0 .. 07.32.5	−20.0	+0 „ 7.52.5
5.07	1.5	5.05	3.5	5.08.5	−20.0	5.28.5
8.17	1.5	8.14	3.5	8.18.5	−20.0	8.38.5
5.52	1.5	5.50	+ 3.5	5.53.5	−20.0	6.17.5

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Zones 283

7 1853.0 α 10h 14m 32.89 (3) δ −0° 00′ 42.9 (3)

Am. p.	−3.07		+18.0
1852.0	α 10h 14m 29.82	δ	−0° 00′ 24.9
t_1	14m 29.60	s_2 −	0′ 29.0
t_3	29.60	s_3 −	0 28.0
$\alpha - t_2$	+ 0.22	$\delta - s_2$	+ 4.1
$\alpha - t_3$	+ 0.22	$\delta - s_3$	+ 3.1
		d'_2	+0.1
		d'_3	+0.1
			~~+4.0~~
			+3.0

7 1853.0 α 10h 55m 43.52 (3) δ +0° 02′ 30.9 (3)

Am. p	−3.07		+ 19.3
1852.0	α 10h 55m 40.45s	δ	+0° 02′ 50.2
t_2	55m 40.60	s_2	2′ 54
t_3	55m 40.65s	s_3	2′ 50
$\alpha - t_2$	− 0.15	$\delta - s_2$	− 0′ 3.8
$\alpha - t_3$	− 0.20	$\delta - s_3$	+ 0.2
		d'_2	− 0.5
		d'_3	−0.5
			− 3.3
			+0.7

5.6 1853.0 α 10h 22m 46.66 (6) δ +0° 06′ 54.7 (6)

Am. p.	−3.07		+18.3
α	10h 22m 43.59	δ	+0° 07′ 13.0
t_2	22m 43.65s	s_2	7′ 15
t_3	22m 43.70	s_3	7′ 14
$\alpha - t_2$	− 0.07	$\delta - s_2$	− 02.0
$\alpha - t_3$	− 0.11	$\delta - s_3$	− 01.0
		d'_2	−1.0
		d'_3	−1.2
			−1.0
			+0.2

9 1853.0 α 11h 28m 36.54 (1) δ +0° 07′ 22.2 (1)

Am. p.	−3.07		+19.9
1852.0	α 11h 28m 33.47	δ	+0° 07′ 42.1
t_2	28m 33.70	s_2	7′ 43
t_3	28m 33.75s	s_3	7′ 40
$\alpha - t_2$	− 0.23	$\delta - s_2$	− 0.9
$\alpha - t_2$	− 0.28	$\delta - s_3$	+ 2.1
		d'_2	−1.2
		d'_3	−1.3
			~~+0.3~~
			~~+0.8~~

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Zones 283

4.6 1853.0 a 11ʰ 29ᵐ 25ˢ.38 (23) δ −0° 00′ 45″.9 (23)

Am. p.	−3.07		+19.9
1852.0	a 11ʰ 29ᵐ 22ˢ.31	δ	−0° 60′ 26″.0
t_2	29ᵐ 22ˢ.65	s_2	− 0″.25
t_3	29ᵐ 22ˢ.80	s_3	− 0″.27
$a-t_2$	−0.34	$\delta-s_2$	− 0″.10
$a-t_3$	−0.49	$\delta-s_3$	+ 0″.10
		d'_2	+0.1
		d'_3	+0.1
			−1.1
			+0.9

9 1853.0 a 11ʰ 52ᵐ 52ˢ.90 (1) δ +0° 07′ 31″.1 (1)

Am. p	−3.07		+20.0
1852.0	a 11ʰ 52ᵐ 49ˢ.83	δ	+0° 07′ 51″.1
	t_2 11ʰ 52ᵐ 50ˢ.30	s_2	7″.56
	t_3 11ʰ 52ᵐ 50ˢ.40	s_3	7″.56
$a-t_2$	−0.47	$\delta-s_2$	− 4.9
$a-t_3$	−0.57	$\delta-s_3$	− 4.9
		d'_2	−1.3
		d'_3	−1.4
			−3.6
			−3.5

7 1853.0 a 11ʰ 33ᵐ 23ˢ.98 (1) δ +0° 08′ 24″.4 (1)

	−3.07		+19.9
	a 11ʰ 33ᵐ 20ˢ.91	δ	+0° 08′ 44″.3
t_2	33ᵐ 21.55	s_2	8″.48
t_3	33ᵐ 21.65	s_3	8″.49
$a-t_2$	−0.64	$\delta-s_2$	− 0″.37
$a-t_3$	−0.74	$\delta-s_3$	− 0″.47
		d'_2	−1.4
		d'_3	−1.5
			−2.7
			−3.2

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Comparison of 2 & 3 with 44 & 45

Mag.	Zone 44	K	Zone 45	K	α 1853.	prec.	α 1852.
11 —	10h 15m 25s.30	−0.20	10..15..25..60	−0.50	10.. 15.. 25.10	+3.07	−10..15..22.03
12-13			10..16..07..50	.50	16..07.00	+3.07	− 16..03..93
11-12 —	10..18..04..90	−.20	10..18..04..95	−0.50	18..04.57	+3.07	18..01..50

2 & 3 with 49 & 50

	Zone 49		Zone 50				
8.9 —	11..52..52.60	+.30	11..52..52.20	+.60	11.. 52..52.85	+3.07	−11..52..49.78
11 —	11..53..23.80	.30	11..53..23.50	.60	53..24.10	+3.07	53..21.00
.	11..54..00.45	.30	11..54..00.15	.60	54..00.75	+3.07	53..57.68
	11..54..17.40	+.30	11..54..16.95	+.60	54..17.62	+3.07	54..14.55

Beginning of Zones 2 & 3

α 1852.0	t_2	t_3	$\alpha - t_2$	$\alpha - t_3$	δ 1852.0	s_2	s_3	$\delta - s_2$	$\delta - s_3$
4h 10.. 15.. 22.03	21.70	21.75	+.33	+.28	+0° 03′ 24″.5	3..27	3..23	+ 02.5	+ .06
16..03..93	03.70	03.85	+.23	+.08	3..18.0	3..15	3..12	03.0	..06
18..01.50	01.10	01.15	+.40	+.35	2..57.0	2..53	2..50	0..04	0..07
Mean			+.32	+.35				+3″.2	+6.3

End of 2 & 3.

α 1852.0	t_2	t_3	$\alpha - t_2$	$\alpha - t_3$	δ 1852.0	s_2	s_3	$\delta - s_2$	$\delta - s_3$
4h 11..52..49.78	50.30	50.40	−0.52	−0.72	0° 7′ 52″.5	7..38	7..36	−..02.0	+3″.5
53..21.00	21.75	21.85	−0.75	−0.85	5..28.5	5..34	5..32	−05.5	+3.5
53..57.68		58.40		−0.72	8..38.5		8..41	~~−3.5~~	+2.5
54..14.55		15.15	—	−0.60	6..13.5		6..18	~~4.5~~	+4.5
			−0.63	−0.72				−4.7	−3″.5

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Zone 44	d	Zone 45	d	δ 1853	prec.	δ 1852
0°..3'..09"	+2".0	0°..3'..09".	+3".0	0°..03'..11".5	−18".0	+0°..03'..29".5
~~		2..57	3.0	3..00.0	−18.0	3..18.0
2..37	+2.0	2..36	+3.0	2..39.0	−18.0	2..57.0

Zone 49		Zone 50				
7..31	+1.5	7..29	+3.5	7..32.5	−20.0	7..52.5
5..07	1.5	5..05	3.5	5..08.5	−20.0	5..28.5
8..17	1.5	8..14	3.5	8..18.5	−20.0	8..38.5
5..52	+1.5	5..50	+3.5	5..53.5	−20.6	6..13.5

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Vones 485

9.10 1853.0 α 10h 39m 13.01 (1) δ +00° 17' 34".7 (1)

An. p.	−3.07		+18.8
1852.0 α	10h 39m 09.94	δ	+00° 17' 53".5
t_4	39m 9.55	s_4	17".56
t_5	39m 10.00	s_5	17".58
$\alpha - t_4$	+0.39	$\delta - s_4$	−2".5
$\alpha - t_5$	+0.06	$\delta - s_5$	−4".5
		d'_4	−1.3 −2.4
		d'_5	−1.3 +3.8
			−1.2
			−3.2

8.9 1853.0 α 11h 47m 29.31 (1) δ +0° 15' 38".9 (1)

An. p.	−3.07		+20.0
1852.0 α	11h 47m 26.24	δ	+0° 15' 58".9
$\alpha - t_4$	47m 26.40	$\delta - s_4$	16".07
$\alpha - t_5$		$\delta - s_5$	
$\alpha - t_4$	−0.16	$\delta - s_4$	−8".1
$\alpha - t_5$		$\delta - s_5$	
		d'_4	−1.0 −2.6
		d'_5	
			−7.1

9 1853.0 α 11h 14m 29.88 (1) δ +0° 10' 39".0 (1)

An. p.	−3.07		+19.7
α	11h 14m 26.81	δ	+0° 10' 58".7
t_4	14m 26.65	s_4	11".03
t_5	14m 27.05	s_5	11".06
$\alpha - t_4$	+0.16	$\delta - s_4$	−4".3
$\alpha - t_5$	−0.24	$\delta - s_5$	−7".3
		d'	−0.2 −1.8
		d'_5	−0.2 −1.9
			−4.1
			−7.1

9 1853.0 α 11h 59m 39.92 (4) δ +0° 11' 15".8 (4)

	−3.07		+20.0
1852.0 α	11h 59m 36.85	δ	+0° 11' 35".8
t_4	59m 36.90	s_4	11".41
t_5		s_5	
$\alpha - t_4$	−0.05	$\delta - s_4$	−0".5
		$\delta - s_5$	
		d'_4	−0.3
		d'_5	
			−4.9

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α Comparison of Zones 485 with Zones 47 & 48

1852 1853

Mag	Zone 47	K	Zone 48	K	α 1853	prec.	α 1852
12	10h 18m 00.25	−0.80	10h 17m 59.95	−0.70	10h 17m 56.35	+3.07	10h 17m 56.28
12	19 10.20	−.80			19 09.40	+3.07	19 06.33
11	20 28.50	−.80			20 27.70	+3.07	20 24.63

Zone 485 with 6 & 7

Mag	Zone 6	K	Zone 7	K	α 1852	prec.	α 1852
11	11h 20m 43.50	−0.30	11h 20m 43.20	+0.10	11h 20m 43.25	+3.07	11h 20m 40.18
11	11 22 02.50	−.30	11 22 02.30	+.10	22 02.30	+3.07	21 59.23
10	11 22 23.40	−.30	11 22 23.20	+.10	22 23.20	+3.07	22 20.13
11:12	11 23 36.95	−.30	11 23 36.60	+.10	23 36.67	+3.07	23 33.60
10	11 24 02.60	−0.30	11 24 02.20	+.10	24 02.30	+3.07	23 59.23

Beginning

	α 1852.0	t_4	t_5	$\alpha - t_4$	$\alpha - t_5$	δ 1852.0	s_4	s_5	$\delta - s_4$	$\delta - s_5$
Beg	10h 17m 56.28	55.60	56.00	+0.68	+.28	+0° 13′ 08″.5	13.07	13.08	+1″.5	−1.5
	19 06.33	5.55	5.95	+.78	.38	11 25.8	11.27	11.28	−10.2	−12.2
	20 24.63	23.90	24.05	+.73	+.58	11 39.8	11.38	11.41	+1.8	−1.6
Mean				+0.73	+.41				0.0	−1.8

End

	α 1852.0	t_4	t_5	$\alpha - t_4$	$\alpha - t_5$	δ 1852.0	s_4	s_5	$\delta - s_4$	$\delta - s_5$
End	11h 20m 40.18	43.20	43.40	−3.02	−3.22	+0° 13′ 57″.0	13.36	13.38	+0″.15.0	+0″.13.0
	21 59.23	2.20	2.60	−2.97	−3.37	14 54.5	14.43	14.46	+0.16.5	0.13.5
	22 20.13	23.10	23.40	−2.97	−3.27	17 55.0	17.40	17.42	+0.15.0	0.13.0
	23 33.60	36.45	~~36.75~~	−2.85		16 21.5	16.08		+13.5	
	~~23 59.23~~	~~43.00~~				~~16 46.5~~	~~9.30~~		~~+0.13.5~~	
				−2.95	−3.29				+15.0	+13.2
				3.07	3.07				−19.5	−19.5
				+0.12	+0.22				−4.5	+6.3

Zone 647 on opposite page to be looked at
I mistake in getting S 1853

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δ Comparison of Zones 485 with Zones 47 & 48

47	d	48	δ 1853	prec.	δ 1852.
0° 2′ 40″	+7″.5	2′ 42″	+7″.0	0° 02′ 48″.2	−18″.3	+0° 03′ 06″.5
1′ 00	+7.5		1′ 07.5	−18.3	1′ 25.8
1′ 14	+7.5		1′ 21.5	−18.3	1′ 39.8

Zone 6 add q′	d	Zone 7 add q′	d	add q′		add q′
3 4′ 39	−8″.0	3 4′ 39	−7″.0	0′ 04′ 31.5	−18.5	0′ 4′ 51.0
4 5′ 47	−8.0	4 5′ 46	−7.0	5′ 39.0	−18.5	5′ 59.5
7 8′ 43	−8.0	7 8′ 43	−7.0	8′ 35.5	−18.5	8′ 55.0
6 6′ 10	−8.0	6 6′ 09	−7.0	6′ 02.0	−18.5	6′ 21.5
1′ 35	−8.0	1′ 34	−7.0	7′ 27.0	−18.5	7′ 46.5

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Jones 687

9 1853.0 α 11h 14m 29.88 (1) δ +0° 10′ 39.0 (1)

Am. p.	−3.07		+18.7
1853.0 α	11h 14m 26.81	δ	+0° 10′ 58.7
t_6	14m 27.00	s_6	11.06
t_7	14m 26.60	s_7	11.05
$\alpha - t_6$	+0.19	$\delta - s_6$	− 7.3
$\alpha - t_7$	+0.21	$\delta - s_7$	− 6.3
		d'_6	−0.2
		d'_7	−0.2
			−7.1
			−6.1

7 1853.0 α 11h 59m 39.92 (4) δ +0° 11′ 15.8 (4)

Am. p.	−3.07		+20.0
1852.0 α	11h 59m 36.85	δ	+0° 11′ 35.8
t_6	59m 37.35	s_6	11.41
t_7	59m 37.00	s_7	11.43
$\alpha - t_6$	− 0.50	$\delta - s_6$	− 8.2
$\alpha - t_7$	− 0.15	$\delta - s_7$	− 7.2
		α'_6	−0.3
		α'_7	−0.3
			−7.9
			−6.9

8.9 1853.0 α 11h 47m 29.31 (1) δ +0° 15′ 38.9 (1)

Am. p.	− 3.07		+20.0
1853.0 α	11h 47m 26.24	δ	+0° 15′ 58.9
t_6	47m 26.70	s_6	16.10
t_7	47m 26.40	s_7	16.09
$\alpha - t_6$	− −0.46	$\delta - s_6$	− 11.1
$\alpha - t_7$	− 0.16	$\delta - s_7$	− 10.1
		d'_6	−1.0
		d'_7	−1.0
			−10.1
			−9.1

9 1853.0 α 12h 11m 41.69 (1) δ +0° 13′ 07.1 (1)

Am. p.	− 3.07		+20.0
1852.0 α	12h 11m 38.62	δ	+0° 13′ 27.1
t_6	11.39.00	s_6	13.35
t_7	11.38.75	s_7	13.34
$\alpha - t_6$	− 0.38	$\delta - s_6$	− 7.9
$\alpha - t_7$	− 0.13	$\delta - s_7$	− 6.9
		d'_6	−0.5
		d'_7	−0.5
			−7.4
			−6.4

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Zones 6 & 7

9 1853.0 α 12h 32m 28.33 (1) δ +0° 16′ 38.6 (1)

An. p.	−3.07		+19.8
1852.0	α 12h 32m 25.26		δ +0° 16′ 58.4
	t_6 32m 26.00	s_6	17.10
	t_7 32m 25.60	s_7	17.10
	$\alpha - t_6$ −0.74	$\delta - s_6$	−11.6
	$\alpha - t_7$ −0.34	$\delta - s_7$	−11.6
		d'_6	−1.1
		d'_7	−1.1
			−10.5
			−10.5

9 1853.0 α 12h 33m 31.61 (1) δ +0° 11′ 18.9 (1)

An. p.	−3.07		+19.8
1852.0	α 12h 33m 28.54		δ +0° 11′ 38.7
	t_6 33m 29.20	s_6	11.46
	t_7 33m 28.90	s_7	11.43
	$\alpha - t_6$ −0.66	$\delta - s_6$	−0 7.3
	$\alpha - t_7$ −0.36	$\delta - s_7$	−4.3
		d'_6	−0.3
		d'_7	−0.3
			−7.0
			−4.0

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α Comparison of 687 with 485 for beginning of 647.

Mag.	Zone 4	K	Zone 5	K	α 1852 prec. 1852
9	– 11.. 13.. 33.00	+.20	11.. 13.. 33.20	−0.20	11.. 13.. 33.10 / 11.. 13.. 33.20
9	13.. 37.90	.20			11.. 13.. 38.10
9	14.. 26.65	.20	14.. 27.05	−.20	26.85 / 54.00
10	15.. 53.80	.20	15.. 54.20	−.20	15.95
11	16.. 15.90	+.20	16.. 16.00	−.20	

Comparison of 67 with 53454 for the End of 687.

	Zone 53		Zone 54		α 1853	prec	α 1852
		−0.20		−0.20			
10-	13.. 00.. 45.60	+0.30	13.. 00.. 45.25	+.30	13.. 00.. 45.72	+3.07	13.. 00.. 42.65
9	13.. 02.. 32.85	.30	13.. 02.. 32.70	+.30	2.. 33.07	+3.07	02.. 30.00
11-12	13.. 05.. 06.60	+0.30	13.. 05.. 06.35	+.30	5.. 06.77	+3.07	5.. 03.70

Beginnings of 687.

α 1852.0	t6	t7	α−t6	α−t7	δ 1852.0	s6	s7	δ−s6	δ−s7
h m s 11.. 13.. 33.10	38.35	33.00	−.25	+.10	+0° 11′ 02.0″	11.07	11.06	−.05	−.04
13.. 38.10	38.40	38.10	−.30	.00	8.. 23.0	8.30	8.30	−.07	−.07
14.. 26.85	27.00	26.60	−.15	+.25	10.. 57.5	11.06	11.05	−6.5	−5.5
15.. 54.00	54.30	54.05	−.30	−.05	9.. 06.5	9.16	9.14	−9.5	−7.5
16.. 15.95	16.00	15.80	−.05	+.15	17.. 28.0	17.33	17.33	−5	−5
Mean			−0.07 −0.21	+0.05				−6.6	−5.8

End of Zones 687.

α 1852.0	t6	t7	α−t6	α−t7	δ 1852.0	s6	s7	δ−s6	δ−s7
h m s 13.. 00.. 42.65	43.00	---	−.35	---	+0° 18′ 34.2″	18.47	18.47	−12.8	−12.8
2.. 30.70	30.30	---	−.80	---	10.. 17.7	10.30	10.31	−13.3	−13.3
5.. 03.20	03.95	---	−.75	---	16.. 20.2	16.33	16.32	−12.8	−11.8
Mean			−0.30 −0.80	---				−12.6	−12.6

4 mistakes in getting α 1852
1 " taken from sheet wrong
Is the prec. applied right?

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δ comparison of Zones 647 with 485 for beginning

Zone 4	d	Zone 5	d	δ 1852	prec	δ 1852
0° 11′ 04″	−4″.0	0° 11′ 10″	−6″.0	0° 11′ 02″.0		
08 27	−4.			8 23.0		
11 03	−4.	11 06	−6.0	10 59.5		
9 10	−4.	9 13	−6.0	9 06.5		
17 31	−4.	17 35	−6.0	17 28.0		

Zone 53	Zone 54	δ 1853	prec	δ 1852
8 19 −4″.0	8 19 −4″.0	0° 08′ 15″.0	−19.2	+0° 08′ 34″.2
0 02 −4.	0 03 −4.0	00 08.5	−19.2	00 17.7
6 04 −4.	6 06 −4.0	6 01.0	−19.2	6 20.2

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Zones 8 & 9

9 1853·0 a 18ʰ 06ᵐ 29ˢ·89 (1) δ +0° 09′ 48″·8 (1)

An. p.	−3·07		−0·6
1852·0	a 18ʰ 06ᵐ 26ˢ·82	δ	+0° 09′ 48″·2
t_8	6ʰ 26ᵐ 60ˢ	s_8	9′ 47″
t_9	26·95	s_9	9′ 51″
$a-t_8$	+0·22	$\delta-s_8$	+ 1″·2
$a-t_9$	−0·13	$\delta-s_9$	— 2″·8
		d'_8	−1·6
		d'_9	−0·3
			+2·8
			−2·5

8.9 1853·0 a 18ʰ 08ᵐ 00ˢ·07 (3) δ +0° 10′ 17″·0 (3)

An. p.	−3·07		−0·7
1852·0	a 18ʰ 07ᵐ 57ˢ·00	δ	+0° 10′ 16″·3
t_8	7ʰ 57ᵐ 00ˢ	s_8	10″·17
t_9	7ʰ 57ᵐ 40ˢ	s_9	10″·20
$a-t_8$	0·00	$\delta-s_8$	− 0″·7
$a-t_9$	−0·40	$\delta-s_9$	− 3″·7
		d'_8	−1·6
		d'_9	−0·3
			+0·9
			−3·4

7.8 1853·0 a 18ʰ 07ᵐ 02ˢ·32 (11) δ +0° 08′ 19″·1 (11)

An. p.	−3·07		−0·6
1852·0	a 18ʰ 06ᵐ 59ˢ·25	δ	+0° 08′ 18″·5
t_8	6ʰ 58ᵐ 86ˢ	s_8	8″·19
t_9	59·40	s_9	8″·21
$a-t_8$	+0·40	$\delta-s_8$	− 0″·5
$a-t_9$	−0·15	$\delta-s_9$	−2″·5
		d'_8	−1·3
		d'_9	−0·2
			+0·8
			−2·3

1853·0 a 18ʰ 14ᵐ 36ˢ·94 (2) δ +0° 05′ 30″·7 (2)

An. p	−3·07		−1·3
	a 18ʰ 14ᵐ 33ˢ·87	δ	+0° 05′ 29″·4
t_8	14ʰ 34ᵐ 00ˢ	s_8	5″·29
t_9	14 34·35	s_9	5″·32
$a-t_8$	−·13	$\delta-s_8$	+ 0″·4
$a-t_9$	−·48	$\delta-s_9$	− 2″·6
		d'_8	−0·9
		d'_9	−0·1
			+1·3
			−2·5

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Zones 8 & 9

8 1853·0 α 18h 19m 31·87 (3) δ + 0° 00′ 27·1
An. p. − 3·07 − 1·7
1852·0 α 18h 19m 28·80 δ + 0° 00′ 25·4

t_8		s_8	
t_9	19m 29·10	s_9	0·32
$\alpha - t_8$		$\delta - s_8$	
$\alpha - t_9$	− 0·30	$\delta - s_9$	− 6·6
		d'_8	— — —
		d'_9	+ 0·0
			— — — —
			− 6.6

8 1853·0 α 18h 20m 18·68 (10) δ + 0° 06′ 50·8 (6)
− 3·07 − 1·8
1852·0 α 18h 20m 15·61 δ + 0° 06′ 49·0

t_8	20m 15·25	s_8	6·49
t_9	20m 15·70	s_9	6·57
$\alpha - t_8$	+ 0·36	$\delta - s_8$	00·0
$\alpha - t_9$	− 0·09	$\delta - s_9$	− 2·0
		d'_8	− 1·1
		d'_9	− 0·2
			+ 1·1
			− 1·8

5 6 1853·0 α 18h 19m 41·41 (15) δ + 0° 06′ 44·9 (16)
An. p. − 3·07 − 1·7
1852·0 α 18h 19m 38·34 δ + 0° 06′ 43·2

t_8	19m 38·00	s_8	6·45
t_9	19m 38·50	s_9	6·47
$\alpha - t_8$	+ 0·34	$\delta - s_8$	− 1·8
$\alpha - t_9$	− 0·16	$\delta - s_9$	− 3·8
		d'_8	− 1·1
		d'_9	− 0·2
			− 0·7
			− 3·6

8 1853·0 α 18h 31m 03·72 (1) δ − 0° 00′ 38·0 (1)
− 3·07 − 2·7
1852·0 α 18h 31m 00·65 δ − 0° 00′ 35·3

t_8	30m 59·96	s_8	− 0° 00′ 38·0
t_9	31m 00·50	s_9	− 0·37·0
$\alpha - t_8$	+ 0·70	$\delta - s_8$	+ 2·7
$\alpha - t_9$	+ 0·15	$\delta - s_9$	+ 2·7
		d'_8	+ 0·1
		d'_9	+ 0·0
			+ 2·6
			+ 2·7

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Wones 8 & 9

8 1853.0 a 18h 32m 08.58 (2) δ +00° 01′ 14.9 (2)

Am. p	− 3.07		−2.8
18520 a	18h 32m 05.51	δ + 0″	1″ 12.1
t_8	32m 05.65	s_8 +	1″ 11.8
t_9	32m 6.20	s_9	1″ 12.3
$a-t_8$	− 0.14	$\delta-s_8$	+ 1.1
$a-t_9$	− 0.69	$\delta-s_9$	+ 0.7
		d'_8	−0.2
		d'_9	−0.0
			+1.3
			+0.1

8 a 18h 34m 46.40 (1) δ +0° 01′ 07.3 (1)

Am. p.	− 3.07		− 3.0
18320 a	18h 34m 43.33	δ + 0″	1″ 04.3
t_8	34m 43.60	s_8	1″ 04
t_9	34m 43.50	s_9	1″ 06
$a-t_8$	+ 0.33	$\delta-s_8$	+ 0.3
$a-t_9$	− 0.17	$\delta-s_9$	− 1.7
		d'_8	− 0.2
		d'_9	− 0.0
			+0.5
			−1.7

9 1853.0 a 18h 33m 57.16 (1) δ +0° 7′ 16.8 (1)

Am. p.	− 3.07		− 3.0
18520	18h 33m 54.09	δ + 0°	7′ 13.8
t_8	33.54.00	s_8	7′ 19
t_9	33m 54.55	s_9	7′ 21
$a-t_8$	+ 0.09	$\delta-s_8$	− 5.2
$a-t_9$	− 0.46	$\delta-s_9$	− 7.2
		d'_8	−1.1
		d'_9	−0.2
			−4.1
			−7.0

8.9 1853.0 a 18h 41m 31.17 (1) δ +0° 08′ 31.9 (1)

Am. p.	− 3.07		− 3.6
18320 a	18h 41m 28.10	δ + 0°	8′ 28.3
t_8	41m 27.80	s_8	8′ 37
t_9	41m 28.30	s_9	8′ 39
$a-t_8$	+ 0.30	$\delta-s_8$	− 8.7
$a-t_9$	− 0.20	$\delta-s_9$	− 10.7
		d'_8	−1.3
		d'_9	−0.3
			−7.4
			−10.4

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Wolves 8 & 9

8.9 1853.0 α 18h 43m 29.92 (1) δ +0° 04′ 42.2 (1)

Am. p.	−3.07		−3.8
1852.0	α 18h 43m 26.85	δ	+0° 04′ 38.4
t_8	43m 26.45	s_8	4.40
t_9	26.85	s_9	4.42
$\alpha - t_8$	+0.40	$\delta - s_8$	−1.6
$\alpha - t_9$	0.00	$\delta - s_9$	−3.8
		d'_8	−0.8
		d'_9	−0.1
			−0.8
			−3.7

9 1853.0 α 19h 06m 48.96 (1) δ +0° 03′ 12.0 (1)

	−3.07		−5.8
1852.0	α 19h 06m 45.89	δ	+0° 03′ 06.2
t_8	~~6m 46.20~~	s_8	~~3.. 4.5~~
t_9	6m 46.20	s_9	3′ 04.5″
$\alpha - t_8$		$\delta - s_8$	
$\alpha - t_9$	−0.31	$\delta - s_9$	+1.7
		d'_8	----
		d'_9	−0.1

			+1.8

8.9 1853.0 α 18h 57m 24.34 (1) δ +0° 00′ 59.3

Am. p.	−3.07		−5.0
1852.0	α 18h 57m 21.27	δ	+0° 00′ 54.3
t_8	57m 21.20	s_8	0.59
t_9	57m 21.60	s_9	1.01
$\alpha - t_8$	+0.07	$\delta - s_8$	−4.7
$\alpha - t_9$	−0.33	$\delta - s_9$	−6.7
		d'_8	−0.2
		d'_9	−0.0
			−4.5
			−6.7

6 (1853.0 α 19h 11m 00.37 (3) δ +0° 09′ 32.5 (3)

Am. p.	−3.07		−6.1
1852.0	19h 10m 57.24	δ	+0° 09′ 26.4
t_8	10m 57.05	s_8	9.33
t_9	10m 57.30	s_9	9.34
$\alpha - t_8$	+0.19	$\delta - s_8$	−6.6
$\alpha - t_9$	−0.06	$\delta - s_9$	−7.6
		d'_8	~~−1.6~~
		d'_9	−0.3
			−5.0
			−7.3

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Comparisons with Zones 59 & 60 for beginning of Zones 8 & 9. 1853 1852

Mag	Zone 59	K	Zone 60	K	α 1853	prec. α 1852
10	18..06..22.45	+.10	18..06..22.70	−0.25	18..06..22.50 −3.06	18h..6m..19.s44
10	18..06..29.85	.10	18..06..30.10	−.25	6..29.90 −3.06	6..26.84
7-8	18..07..02.20	.10	18..07..02.55	−.25	7..02.30 −3.06	6..59.24
9	18..08..00.05	.10	18..08..00.60	−.25	8..02.25 11 −3.06	7..57.19
8	18..14..37.15	+.10	18..14..37.45	−.25	14..37.23 −3.06	18..14..34.17

Comparisons with Zones 14 & 16 for end of Zones 8 & 9

	Zone 14	K	Zone 16		α 1852
10	19..48..46.00	+.00			19..48..46.00
9	19..49..12.10	.00			49..12.10
9	19..57..15.75	.00			57..15.75
9-10	19..55..06.10	.00	19..55..06.50	−0.50	55..06.05

Beginning of Zones 8 & 9.

α 1852.0	t_8	t_9	α−t_8	α−t_9	− δ 1852.0	s_8	s_9	δ−s_8	δ−s_9
18h..06m..19.s44	19.20	19.55	+.24	−.11	+0°..3'..19".4	3.20	3.22	−.6	−2.6
6..26.84	26.60	26.95	+.24	−.11	9..18.4	9.47	9.57	+1.4	−2.6
6..59.24	58.85	59.40	+.39	−.16	8..18.9	8..19	8.21	−.1	−2.1
7..57.19	57.00	57.40	+.19	−.21	10..16.9	10..17	10..20	−.1	−3.1
18..14..34.17	34.00	34.35	+.17	−.18	5..29.9	5.29	5.32	+.9	−2.1
Mean.			+.25	−.15				+.3	−2.5

End of Zones 8 & 9.

α 1852.0 h m s	t_8	t_9	α−t_8	α−t_9	δ 1852.0	s_8	s_9	δ−s_8	δ−s_9
19..48..46.0		46.75		−.75	+0°..2'..39".0		2.46		−7.0
49..12.10		12.70		−.60	5..56.0		6.03		−7.0
57..15.75		16.25		−.55	8..06.0		8.13		−7.0
19..55..06.05		6.80		−.75	3..45.5		3.57		−5.5
Mean.				−.66					−6.6

1 mistake in getting α 1853
1 taken from sheet wrong
Is the prec applied right?

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Comparisons with Zones 59 & 60 for beginning of Zones 84g.

Zone 59	d	Zone 60	d	δ 1853	prec.	δ 1852.
0h 3m 22s	−2.″	3h 25s	−5.0	0° 03′ 20.″0	+0.″6	+0° 3′ 19.″4
9 51	−2	9 54	−5.0	9 49.0	+0.6	9 48.4
8 21	−2	8 25	−5.0	8 19.5	+0.6	8 18.9
10 19	−2	10 23	−5.0	10 17.5	+0.6	10 16.9
5 32	−2	5 36	−5.0	5 30.5	+0.6	5 29.9

Zone 14	Zone 16	δ 1852	prec	δ 1852
2h 49s −10.″0		0° 2′ 39.″0		
6 06 −10		5 56.0		
8 16 −10		8 06.0		
3 55 −10	3 47 −1.″0	3 45.5		

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Vones 889

6 1853.0 α 19h 11m 19.56 (6) δ +0° 04' 32.6 (6)
Am. p. −3.07 −6.1
1852.0 α 19h 11m 16.49 δ +0° 04' 26.5
t_8 11m 16.55 s_8 4.26
t_9 11m 16.95 s_9 4.27
$\alpha - t_8$ −0.06 $\delta - s_8$ +0.5
$\alpha - t_9$ −0.46 $\delta - s_9$ +0.5
d'_8 −0.5
d'_9 −0.1
+1.0
−0.4

9 1853.0 α 19h 18m 46.65 (1) δ +0° 03' 56.3 (1)
Am. p. −3.07 −6.8
1852.0 α 19h 18m 43.58 δ +0° 03' 49.5
t_8 18m 44.20 s_8 3.56
t_9 44.55 s_9 3.58
$\alpha - t_8$ −0.62 $\delta - s_8$ −6.5
$\alpha - t_9$ −0.97 $\delta - s_9$ −8.5
d'_8 −0.6
d'_9 −0.1
−5.9
−8.4

8 1853.0 α 19h 14m 49.75 (6) δ +0° 06' 20.5 (6)
Am. p. −3.07 −6.4
1852.0 α 19h 14m 46.68 δ +0° 06' 14.1
t_8 14m 46.55 s_8 6.17
t_9 14m 46.85 s_9 6.20
$\alpha - t_8$ +0.13 $\delta - s_8$ −2.9
$\alpha - t_9$ +0.17 $\delta - s_9$ −5.9
d'_8 −0.9
d'_9 −0.2
−2.0
−5.7

5b 1853.0 α 19h 19m 00.08 (5) δ +0° 02' 57.6 (11)
Am. p. −3.07 −6.8
1852.0 α 19h 18m 57.01 δ +0° 02' 50.8
t_8 18m 57.00 s_8 2.64
t_9 18m 57.30 s_9 2.66
$\alpha - t_8$ +0.01 $\delta - s_8$ −3.2
$\alpha - t_9$ −0.29 $\delta - s_9$ −5.2
d'_8 −0.5
d'_9 −0.1
−2.7
−5.1

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Zones 8 & 9

7 1853·0 α 19h 30m 50·29 (1) δ +00° 00′ 66·8 (1)
Ann. p. −3·07 −7·7
1852·0 α 19h 30m 47·22 δ +0° 00′ 49·1
t8 30m 47·30 s8 0·54
t9 47·70 s9 0·56
α−t8 −0·08 δ−s8 −4·9
α−t9 −0·48 δ−s9 −6·9
d′8 −0·2
d′9 −0·0
−4·7
−6·9

9 1853·0 α 19h 50m 30·71 (2) δ +0° 06′ 52·6 (2)
Ann. p. −3·07 −9·3
1852·0 α 19h 50m 27·64 δ +0° 06′ 43·3
t8 s8
t9 50m 28·25 s9 6·50
α−t8 δ−s8
α−t9 −0·61 δ−s9 −6·7
d′8
d′9 −0·2
−6·5

9 1853·0 α 19h 49m 15·19 (2) δ +0° 06′ 03·8 (2)
Ann. p. −3·07 −9·2
1852·0 α 19h 49m 12·12 δ +0° 05′ 54·6
t8 s8
t9 4m 12·70 s9 6·03
α−t8 δ−s8
α−t9 −0·58 δ−s9 −8·4
d′8
d′9 −0·2
−8·2

9 1853·0 α 19h 51m 18·83 (2) δ +0° 08′ 14·4 (2)
Ann. p. −3·07 −9·3
α 19h 51m 15·76 δ +0° 08′ 05·1
t8 s8
t9 51m 16·25 s9 8·13
α−t8 δ−s8
α−t9 −0·49 δ−s9 −7·9
d′8
d′9 −0·2
−7·7

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Wolf 1098 11

	h m s	° ′ ″
9 1853·0	α 18 06 29·89 (1)	δ +0 09 48·8 (1)
Am. p.	− 3·07	− 0·6
1852·0	α 18 06 26·82	δ +0 09 48·2
t_0	6 26·70	s_{10} +0 09 48
t_{11}	6 26·05	s_{11} + 00 46·0
$\alpha - t_{10}$	+ 0·12	$\delta - s_{10}$ + 18 [illegible] +0·2
$\alpha - t_{11}$	+ 0·77	$\delta - s_{11}$ + 18 02·2 +2·2
		d'_{10} ± 0·0
		d'_{11} ± 0·0
		+0·2
		+2·2

	h m s	° ′ ″
8 1853·0	α 18 15 57·82 (1)	δ +0 16 21·2 (1)
Am. p.	− 3·06	− 1·4
1853·0	α 18 16 54·46	δ +0 16 19·8
t_{10}	18 16 54·55	s_{10} 6 22
t_{11}	53·75	s_{11} 6 23
$\alpha - t_{10}$	− 0·09	$\delta - s_{10}$ − 2·2
$\alpha - t_{11}$	+ 0·71	$\delta - s_{11}$ − 3·2
		d'_{10} + 0·1
		d'_{11} +0·2
		−3·3
		−3·5

	h m s	° ′ ″
8·9 1853·0	α 18 08 00·07 (1)	δ +0 10 17·0 (1)
Am. p.	− 3·07	−0·7
	α 16 07 57·00	δ +0 10 16·3
t_{10}	7 57·25	s_{10} 0 17
t_{11}	7 56·40	s_{11} 0 14
$\alpha - t_{10}$	− 0·25	$\delta - s_{10}$ − 0·7
$\alpha - t_{11}$	+0·60	$\delta - s_{11}$ + 2·3
		d'_{10} ± 0·0
		d'_{11} +0·0
		−0·7
		+2·3

	h m s	° ′ ″
8 1853·0	α 18 21 45·66 (4)	δ +0 13 58·8 (4
Am. p.	− 3·06	− 1·9
	α 18 21 42·60	δ +0 13 56·9
t_{10}	21 42·90	s_{10} 14 00
t_{11}	21 41·80	s_{11} 13 58
$\alpha - t_{10}$	− 0·30	$\delta - s_{10}$ − 3·1
$\alpha - t_{11}$	+ 0·80	$\delta - s_{11}$ − 1·1
		d'_{10} + 0·1
		d'_{11} +0·2
		−3·2
		−1·3

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Jones 10 & 11

9 1853·0 a 18h 22m 13·65s (3) δ 10° 13′ 04·3 (3)

An. p.	− 3.06		− 1.9
1852·0	a 18h 22m 10·49s	δ	+ 0° 13′ 02·4
t_{10}	22m 10·90	s_{10}	13′ 06
t_{11}	22m 10·90	s_{11}	13′ 02·4
$a - t_{10}$	+ 0.41	$\delta - s_{10}$	− 3·6
$a - t_{11}$	+ 0.41	$\delta - s_{11}$	− 1·6
		d'_{10}	+ 0.1
		d'_{11}	+ 0.1
			− 3.7
			− 1.7

8·9 1853·0 a 18h 23m 24·71s (3) δ + 0° 19′ 55″·3 (3)

An. p.	− 3·06		− 2·0
1853·0	a 18h 23m 21·65s	δ	+ 0° 19′ 53″·3
t_{10}	23m 21·60	s_{10}	0° 19′ 58″
t_{11}	23m 20·75	s_{11}	0° 19′ 58″
$a - t_{10}$	+ 0·15	$\delta - s_{10}$	− 4·7
$a - t_{11}$	+ 0·90	$\delta - s_{11}$	− 4·7
		d'_{10}	+ 0.2
		d'_{11}	+ 0.4
			− 4·9
			− 5·1

8 1853·0 a 18h 23m 06·30s (4) δ + 0° 17′ 05″·0 (4)

An. p.	− 3·06		− 2·0
1852·0	a 18h 23m 03·24s	δ	+ 0° 17′ 03″·0
t_{10}	23m 03·30	s_{10}	7′ 06·6
t_{11}	23m 2·45	s_{11}	7′ 07
$a - t_{10}$	− 0·06	$\delta - s_{10}$	− 3·0
$a - t_{11}$	+ 0·79	$\delta - s_{11}$	− 4·0
		d'_{10}	+ 0.1
		d'_{11}	+ 0.3
			− 3.1
			− 4.3

9 1853·0 a 18h 55m 08·99s (1) δ + 0° 14′ 36″·9 (1)

	− 3·06		− 4·8
	a 18h 55m 05·93s	δ	+ 0° 14′ 32″·1
t_{10}	55m 05·55s	s_{10}	4′ 41
t_{11}	55m 4·90	s_{11}	4′ 38
$a - t_{10}$	+ 0·38	$\delta - s_{10}$	− 8·9
$a - t_{11}$	+ 1·03	$\delta - s_{11}$	− 5·9
		d'_{10}	+ 0.1
		d'_{11}	+ 0.2
			− 9·0
			− 6·1

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Zones 10 & 11

h m s
9 1853·0 α 18ᵐ 55ˢ. 16·94 (1) δ + 0° 18′ 45″·9 (1)
An. p. − 3·06 − 4·8
1852·0 α 18ᵐ 55ˢ. 15·88 δ + 0° 18′ 41″·1

t_{10}	55ˢ. 15·55	s_{10}	18″.48
t_{11}	55ˢ. 14·80	s_{11}	18″.48
$\alpha - t_{10}$	+ 0·33	$\delta - s_{10}$	− 6·9
$\alpha - t_{11}$	+ 1·08	$\delta - s_{11}$	− 6·9
		d'_{10}	+ 0·2
		d'_{11}	+ 0·4
			− 7·1
			− 7·3

h m s
8·9 1853·0 α 19ᵐ 09ˢ. 40·80 (3) δ + 0° 14′ 24″·0 (3)
An. p − 3·06 − 6·0
1852·0 α 19ᵐ 09ˢ 37·74 δ + 0° 14′ 18″·0

t_{10}	9ˢ. 37·75	s_{10}	14″.24
t_{11}	9ˢ. 37·00	s_{11}	14″.22
$\alpha - t_{10}$	− 0·01	$\delta - s_{10}$	− 6·0
$\alpha - t_{11}$	+ 0·74	$\delta - s_{11}$	− 4·0
		d'_{10}	+ 0·1
		d'_{11}	+ 0·2
			− 6·1
			− 4·2

h m s
9 1853·0 α 19ᵐ 05ˢ. 45·95 (1) δ + 0° 18′ 35″·6 (1)
An. p. − 3·06 − 5·7
1852·0 α 19ᵐ 05ˢ. 42·89 δ + 18″.29·9

t_{10}	5ˢ. 42·35	s_{10}	18″.34
t_{11}	5ˢ. 41·45	s_{11}	18″.33
$\alpha - t_{10}$	+ 0·54	$\delta - s_{10}$	− 4·1
$\alpha - t_{11}$	+ 1·44	$\delta - s_{11}$	− 3·1
		d'_{10}	+ 0·2
		d'_{11}	+ 0·3
			− 4·3
			− 3·4

h m s
7 1853·0 α 19ᵐ 11ˢ. 00·31 (3) δ + 0° 09′ 32″·5
− 3·07 − 6·1
1852·0 α 19ᵐ 10ˢ. 57·24 δ + 0° 09′ 26″.4

t_{10}	10ˢ. 57·25	s_{10}	+ 9″.34 − 0″.26
t_{11}	10ˢ. 56·50	s_{11}	+ 32
$\alpha - t_{10}$	− 0·01	$\delta - s_{10}$	~~9″.52·9~~ − 7″.6
$\alpha - t_{11}$	+ 0·74	$\delta - s_{11}$	+ 0° ~~09′ 54″.4~~ − 5″.6
		d'_{10}	− 0.0
		d'_{11}	− 0.0
			− 7.6
			− 5.6

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	h m s	° ′ ″
8 1853.0 a	19 14 05.33 (1)	δ +0 10 12.4 (1)
Am. p.	−3.07	−6.4
1852.0 a	19 14 02.26	δ +0 10 06.0
t_{10}	14 02.40	s_{10} 0.13
t_{11}	14 1.70	s_{11} 0.10
$a-t_{10}$	−0.14	$\delta-s_{10}$ −7.0
$a-t_{11}$	+0.56	$\delta-s_{11}$ −4.0
		d'_{10} +0.0
		d'_{11} +0.0
		−7.0
		−4.0

	h m s	° ′ ″
8.9 1853.0 a	19 31 16.95 (2)	δ +0 16 35.3 (2)
— Am. p.	−3.06	−7.8
a	19 31 13.89	δ +0 16 27.5
t_{10}	31 14.00	s_{10} 6.33
t_{11}	31 13.10	s_{11} 16.32
$a-t_{10}$	−0.11	$\delta-s_{10}$ −5.5
$a-t_{11}$	+0.79	$\delta-s_{11}$ −4.5
		d'_{10} +0.1
		d'_{11} +0.2
		−5.6
		−4.7

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α Comparisons with Zones 57 & 58 for beginning of Zones 10 & 11 (1853) (1852.)

Mag.	Zone 57	k	Zone 58	k	α 1853.	prec.	α 1852
10	18h 06m 30s.35	−0s.60	18h 06m 29s.80	+0s.10	18h 06m 29s.80	+3s.05	18h 06m 26s.75
12	18 06 58.10	− .60	18 06 57.40	+ .10	6 57.50	+3.05	6 54.45
9	18 08 00.85	− .60	18 08 00.15	+ .10	8 00.25	+3.05	7 57.20
11–12	18 10 38.30	− .60	18 10 37.85	+ .10	10 37.82	+3.05	10 34.77

Comparisons with Zones 15 & 17 for the end of 10 & 11. (1852) (1852)

	Zone 15	k	Zone 17	k	α 1852.
10	19h 40m 58s.60	00	19h 40m 57s.55	+0s.40	19h 40m 57s.97 −3.05
9–10	41 39.15	00	41 38.80	+ .40	41 39.17
9–10	42 24.20	00	42 23.80	+ .40	42 24.20
12	43 09.30	00	43 08.80	+ .40	43 09.25

Beginning of Zones 10 & 11.

α 1852.0	t_{10}	t_{11}	$\alpha - t_{10}$	$\alpha - t_{11}$	δ 1852.0	s_{10}	s_{11}	$\delta - s_{10}$	$\delta - s_{11}$
18h 06m 26s.75	26.70	26.05	+.05	+.70	− 0° 00′ 12″.1	−0″.12	−0″.14	00″.0	+ 1.9
6 54.45	54.40	53.75	+.05	+.70	+ 2 27.9	2.29	2.28	−2.1	− .1
7 57.20	57.25	56.60	−.05	+.60	+ 0 15.9	0.17	0.14	−2.1	+1.9
10 34.77	34.80	34.05	−.03	+.72	+ 1 12.9	1.15	1.12	− 2.1	+ .9
Mean.			+.005	+.73				−2.1	+1.2

End of Zones 10 & 11.

α 1852.0	t_{10}	t_{11}	$\alpha - t_{10}$	$\alpha - t_{11}$	δ 1852.0	s_{10}	s_{11}	$\delta - s_{10}$	$\delta - s_{11}$
19h 40m 57s.97	57.80	57.05	+.17	+.92	+0° 01′ 01″.0	5.07	5.05	−6.0	−4.0
41 39.17	39.00	38.75	+.17	+.42	10 04.5	10.10	10.11	−5.5	−6.6
42 24.20	23.95		+.25		9 11.5	9.18		−6.5	
43 09.25	9.05		+.20		5 52.0	5.58		−6.0	
			+.20	+.67				−6.0	−5.2

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δ. Comparisons with Zones 57 & 58 for beginning of Zones 10 & 11.

Zone 57	dc	Zone 58	dc	δ 1853.0	prec.	δ 1852.0
−0° 00′ 18″	+6″.0	0° 00′ 00″	−11″.0	−0° 00′ 11″.5	+0″.6	−0° 00′ 12″.1
2′ 22″	+6″.	2′ 40″	−11″.0	+ 2′ 28″.5	0″.6	+ 2′ 27″.9
0′ 10″	+6″.	0′ 28″	−11″.0	0′ 06″.5	0″.6	+ 0′ 05″.9
1′ 07″	+6″.	1′ 25″	−11″.0	+ 1′ 13″.5	0″.6	+ 1′ 12″.9

Comparisons of Zones 15 & 17 for the end of Zones 10 & 11.

Zone 15		Zone 17		δ 1852
0° 5′ 07″	−6″.0	0° 5′ 07″	−6″.0	+ 0° 05′ 01″.0
10′ 10″	−6″.	10′ 11″	−6″.0	10′ 04″.5
9′ 17″	−6″.	9′ 18″	−6″.0	9′ 11″.5
5′ 57″	−6″.	5′ 59″	−6″.0	5′ 52″.0

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Wonds 13 & 14

9 h m s 19 49 15.19 (2) δ + 0 06 03.8 (2)

Am. p.	− 3.07		− 9.2
1852.0 α	19 49 12.12	δ + 0	05 54.6
t_{13}	49 12.55	s_{13}	6 03.
t_{14}	49 12.10	s_{14}	6 06
$\alpha - t_{13}$	− 0.43	$\delta - s_{13}$	− 8.4
$\alpha - t_{14}$	+ 0.02	$\delta - s_{14}$	− 11.4
		d'_{13}	− 0.5
		d'_{14}	− 0.9
			− 7.9
			−10.5

9 1853.0 α h m s 19 51 18.83 (2) δ + 00 08 14.4 (2)

			− 9.3
1852.0 α	19 51 15.76	δ +	0 08 05.1
t_{13}	51 16.05	s_{13}	8 11
t_{14}	51 15.75	s_{14}	8 16
$\alpha - t_{13}$	− 0.29	$\delta - s_{13}$	− 5.9
$\alpha - t_{14}$	+ 0.01	$\delta - s_{14}$	− 10.9
		d'_{13}	− 0.7
		d'_{14}	− 1.2
			− 5.2
			− 9.7

9 1853.0 α h m s 19 50 30.71 (2) δ + 0 06 52.6 (2)

Am. p.	− 3.07		− 9.3
1852.0 α	19 50 27.64	δ + 0	06 43.3
t_{13}	19 50 28.15	s_{13}	6 48
t_{14}	19 50 27.65	s_{14}	6 56
$\alpha - t_{13}$	− 0.51	$\delta - s_{13}$	− 4.7
$\alpha - t_{14}$	− 0.01	$\delta - s_{14}$	− 12.7
		d'_{13}	− 0.6
		d'_{14}	− 1.0
			− 4.1
			−11.7

8 1853.0 α h m s 19 57 49.47 (2) δ + 0 02 23.1 (2)

Am. p.	− 3.07		− 9.8
1852.0 α	19 57 46.40	δ + 0	02 13.3
t_{13}	57 46.70	s	2 19
t_{14}	57 46.20	s	2 24
$\alpha - t_{13}$	− 0.30	$\delta - s_{13}$	− 5.7
$\alpha - t_{14}$	+ 0.20	$\delta - s_{14}$	− 10.7
		d'_{13}	− 0.2
		d'_{14}	− 0.3
			− 5.5
			−10.4

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Wones 1314

	h m s	° ′ ″
9 1853·0	α 20 09 32·54 (1)	δ +0 02 20·7 (1)
Am. p.	−3·07	−10·7
	α 20 09 29·47	δ +0 02 10·0
t_{13}	9 30·00	s_{13} 2·12
t_{14}	9 29·70	s_{14} 2·15
$\alpha - t_{13}$	−0·53	$\delta - s_{13}$ −2·0
$\alpha - t_{14}$	−0·23	$\delta - s_{14}$ −5·0
		d'_{13} −0·2
		d'_{14} −0·3
		−1·8
		−4·7

	h m s	° ′ ″
8.9 1853·0	α 20 16 26·17 (1)	δ +0 03 09·1 (1)
	−3·07	−11·2
1852·0	α 20 16 23·10	δ +0 02 57·9
t_{13}	16 19·20	s_{13} 3·02
t_{14}	16 18·90	s_{14} 3·07
$\alpha - t_{13}$	−·10	$\delta - s_{13}$ −4·1
$\alpha - t_{14}$	+20	$\delta - s_{14}$ −9·1
		d'_{13} −0·3
		d'_{14} −0·4
		−3·8
		−8·7

	h m s	° ′ ″
9 1853·0	α 20 11 27·33 (2)	δ +0 08 30·9 (2)
Am. p.	−3·07	−10·9
1852·0	α 20 11 24·26	δ 0 08 20·0
t_{13}	20 11 24·95	s_{13} 8·27
t_{14}	11 24·40	s_{14} 8·31
$\alpha - t_{13}$	−0·69	$\delta - s_{13}$ −7·0
$\alpha - t_{14}$	−0·14	$\delta - s_{14}$ −11·0
		d'_{13} −0·7
		d'_{14} −1·2
		−6·3
		−9·8

	h m s	° ′ ″
9 1853·0	α 20 57 49·23 (2)	δ +0 08 39·5 (2)
Am. p.	−3·07	−14·0
1852·0	α 20 57 46·16	δ +0 08 25·5
t_{13}	57 46·15	s_{13} 8·32
t_{14}	57 45·90	s_{14} 8·37
$\alpha - t_{13}$	+0·01	$\delta - s_{13}$ −6·5
$\alpha - t_{14}$	+0·26	$\delta - s_{14}$ −11·5
		d'_{13} −0·7
		d'_{14} −1·2
		−5·8
		−10·3

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9 1853·0 α 20ʰ 58ᵐ 19ˢ·79 (2) δ + 0° 04′ 29″·4 (2)

An. p	− 3·07		− 14·1
1852·0	α 20ʰ 58ᵐ 16ˢ·72	δ + 0° 04′ 15″·3	
t_{13}	58ᵐ 16ˢ·95	s_{13}	4″·16
t_{14}	58ᵐ 16ˢ·60	s_{14}	4″·20
$\alpha - t_{13}$	− 0·23	$\delta - s_{13}$	− 0·7
$\alpha - t_{14}$	+ 0·12	$\delta - s_{14}$	− 4·7
		α'_{13}	− 0·4
		α'_{14}	− 0·6
			− 0·3
			− 4·1

8·9 1853·0 α 21ʰ 13ᵐ 31ˢ·62 (2) δ + 0° 03′ 20″·4 (2)

An. p.	− 3·07		− 15″
	α 21ʰ 13ᵐ 28ˢ·45	δ + 0° 03′ 05″·4	
t_{13}	13ᵐ 28ˢ·84	s_{13}	3″·10
t_{14}	13ᵐ 28ˢ·65	s_{14}	3″·16
$\alpha - t_{13}$	− 0·35	$\delta - s_{13}$	− 4·6
$\alpha - t_{14}$	− 0·20	$\delta - s_{14}$	− 10·6
		α'_{13}	− 0·3
		α'_{14}	− 0·4
			− 4·3
			− 10·2

9 1853·0 α 21ʰ 04ᵐ 08ˢ·03 (1) δ + 0° 04′ 49″·8 (1)

An. p.	− 3·07		− 14·4
1852·0	α 21ʰ 04ᵐ 04ˢ·96	δ + 0° 04′ 35″·4	
t_{13}	04ᵐ 05ˢ·70	s_{13}	4″·38
t_{14}	04ᵐ 05ˢ·55	s_{14}	4″·44
$\alpha - t_{13}$	− 0·74	$\delta - s_{13}$	− 2·6
$\alpha - t_{14}$	− 0·~~14~~	$\delta - s_{14}$	− 6·6
	− 0·59	α'_{13}	− 0·4
		α'_{14}	− 0·7
			− 2·2
			− 7·9

9 1853·0 α 21ʰ 16ᵐ 44ˢ·82 (1) δ − 0° 00′ 00″·3 (1)

	− 3·07		− 15·2
	α 21ʰ 16ᵐ 41ˢ·75	δ − 0° 00′ 15″·5	
t_{13}	16ᵐ 41ˢ·70	s_{13}	− 0″·12
t_{14}	16ᵐ 41ˢ·80	s_{14}	− 0″·07
$\alpha - t_{13}$	+ 0·05	$\delta - s_{13}$	− 3·5
$\alpha - t_{14}$	− 0·05	$\delta - s_{14}$	− 8·5
		α'_{13}	+ 0·0
		α'_{14}	+ 0·0
			− 3·5
			− 8·5

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Jones 13 & 14

	h m s	° ′ ″
8 1853.0 α	21 39 23.28 (6)	δ + 0 10 36.7
Ann. p.	− 3.07	− 16.4
1852.0 a	21 39 20.21	δ + 0 10 20.3
t_{13}	20.65	s_{13} 10 27.
t_{14}	21 39 20.50	s_{14} 10.33
$a - t_{13}$	− 52	$\delta - s_{13}$ − 6.7
$a - t_{14}$	− 0.37	$\delta - s_{14}$ − 12.7
		d'_{13} .....
		d'_{14} + 0.0

		− 12.7

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Comparisons of 1852. 8 & 9 for beginning of Zones 1852. 13 & 14.

Mag.	Zone 8	K	Zone 9	K	α 1852.
10			19h..48m..46.75s	−0.55	19h..48m..46.20s
9			49.. 12.70	− .55	49.. 12.15
11			49..46.95	− .55	49..46.40
10			50..15.20	− .55	50..14.65
9-10			50..28.25	− .55	50..27.70

Comparisons with Zones 1852. 18 & 19 for the end of Zones 1852. 13 & 14.

	Zone 18	K	Zone 19	K	α 1852
10 −	21h.. 33m..53s.20	−0.40	21h.. 33m..53s.70	−0.50	21h.. 33m.. 53s.00
10 −	34..41.50	− .40	34..41.80	.50	34..41.20
10	34..47.15	− .40	34..47.45	.50	34..46.85
11	36..35.45	− .40	36..35.70	.50	36..35.12
11	36..44.15	− .40	36..44.13	− 0.50	36..43.70

NB- End

End.. Beginning of Zones 13 & 14.

α 1852.0	t_{13}	t_{14}	$\alpha - t_{13}$	$\alpha - t_{14}$	δ 1852.0	s_{13}	s_{14}	$\delta - s_{13}$	$\delta - s_{14}$
21h.. 33m..53s.00	53.70	53.80	−.70	−.80	+0°.. 0'.. 0".0	0..07	0..12	− 6s.5	− 11.5
34..41.20	42.00	41.85	−.80	−.65	10..12.0	10..18	10..14 24? ×	− 6.0	−12.0
34..46.85	47.45	47.30	−.60	−.45	0..02.5	0..09	0..15	− 6.5	− 12.5
36..35.12	35.80	35.80	−.68	−.18	6..27.5	6..32	6..39	− 5.0	− 12.0
21..36..43.70	44.50	44.40	−.80	−.80	6..39.0	6..55	7..03	− 5.5	− 13.5
Mean			−.71	−.57				− 5.9	12.3

Beginning

Beginning of Zones 13 & 14.

α 1852.0	t_{13}	t_{14}	$\alpha - t_{13}$	$\alpha - t_{14}$	δ 1852.0	s_{13}	s_{14}	$\delta - s_{13}$	$\delta - s_{14}$
19h..48m..46s.20	46.55	46.00	−.35	+.20	+ 0°..02'..39".0	2..46	2..49	− 7s.0	− 10s.0
49..12.15	12.55	12.10	−.40	+.05	+ 5..56.0	6..03	6..06	− 7.0	− 10.0
49..46.40	47.10	46.50	−.70	−.10	+ 10..04.0	10..09	10..15	− 5.0	− 11.0
50..14.65	15.10	14.60	−.45	+.05	− 0..20.0	− 0..15	− 0.11	− 5.0	− 9.0
50..27.70	28.15	27.65	−.45	+.05	+ 6..43.0	6..48	6.56	− 5.0	− 13.0
			−.47	.05				−5.8	−10.6

↳ mistaken taken from sheet wrong

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Comparison with Zones 8 & 9 for the beginning of Zones 13 & 14

Zone 8	α	Zone 9	α	δ 1852
		0° 2′ 46″	−7.0	0° 02′ 39″.0
		6.03	−7.1	5.56.0
		10.11	−7.1	10.04.0
		−0.13	−7.1	−0.20.0
		6.50	−7.0	6.43.0

Comparisons with Zones 18 & 19 for the end of Zones 13 & 14

Zone 18	α	Zone 19	α	δ
0° 0′ 06″.07	−6.0	0° 0′ 05″	−5.0	0° 0′ ~~00″.5~~ 04″.0
10.18	−6.0	10.17	−5.0	10.12.0
0.09 08	−6.0	0.07	−5.0	0.~~02.5~~ 02.0
6.32 33	−6.0	6.33	−5.0	6.~~27.0~~ 27.5
6.55 56	−6.0	6.55	−5.0	6.~~49.5~~ 50.0

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Wones 14 & 16

	h	m	s		°	′	″	
9 1853·0	α 19	49	15·19	(2)	δ +0	06	03·8	(2)
			−3·07				−9·2	
1852·0	α 19	49	12·12		δ +0	05	54·6	
	t_{14}	49	12·10		s_{14}		6·06	
	t_{16}				s_{16}		5·58	
	$\alpha - t_{14}$	+ 0·02			$\delta - s_{14}$		− 11·4	
	$\alpha - t_{16}$				$\delta - s_{16}$		− 3·4	
					d'_{14}		−0·9	
					d'_{16}		−1·6	
							−10·5	
							−1·8	

	h	m	s		°	′	″	
9 1853·0	α 19	51	18·83	(2)	δ +0	08	14·4	(2)
An. f.			−3·07				−9·3	
	α 19	51	15·76		δ +0	08	05·1	
	t_{14}	51	15·75		s_{14}		8·26	
	t_{16}				s_{16}		8·08	
	$\alpha - t_{14}$	+ 0·01			$\delta - s_{14}$		− 10·9	
	$\alpha - t_{16}$				$\delta - s_{14}$		− 2·9	
					d'_{14}		−1·2	
					d'_{15}		−2·2	
							−9·7	
							−0·7	

	h	m	s		°	′	″	
9 1853·0	α 19	50	30·71	(2)	δ +0	06	52·6	
An. f.			−3·07				−9·3	
1852·0	α 19	50	27·64		δ +0	06	43·3	
	t_{14}	50	27·65		s_{14}		6·56	
	t_{16}				s_{16}		6·45	
	$\alpha - t_{14}$	− 0·01			$\delta - s_{14}$		− 12·7	
	$\alpha - t_{16}$				$\delta - s_{16}$		− 1·7	
					d'_{14}		−1·0	
					d'_{16}		−1·6	
							−11·7	
							+0·2	

	h	m	s		°	′	″	
8 1853·0	α 19	57	49·47	(2)	δ +0	02	23·1	
An. f.			−3·07				−9·8	
	α 19	57	46·40		δ +0	02	13·3	
	t_{14}	57	46·20		s_{14}		2·24	
	t_{16}				s_{16}		2·16	
	$\alpha - t_{14}$	+ 0·20			$\delta - s_{14}$		− 10·7	
	$\alpha - t_{16}$				$\delta - s_{16}$		− 2·7	
					d'_{14}		−0·3	
					d'_{16}		−0·5	
							−10·4	
							−2·2	

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Wones 14 & 16

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	h	m	s		°	′	″	
9	1853·0	α	20	09	32·54	(1) δ + 0	02	20.7 (1)
	Am. fl.			− 3.07				− 10.7
	1852·0	α	20	09	29.47	δ 0	02	10.0
		t_{14}		9	29.70	s_{14}		2.15
		t_{16}		9	30.00	s_{16}		2.08
		α − t_{14}			− 0.23	δ − s_{14}		− 5.0
		α − t_{16}			− 0.53	δ − s_{16}		+ 2.0
						d'_{14}		− 0.3
						d'_{16}		− 0.5
								−4.7
								+1.5

	h	m	s		°	′	″	
8.9	1853·0	α	20	16	26·17	(1) δ + 0	03	09.1 (1)
	Am. fl.			− 3·07				− 11.2
	1852·0	α	20	16	23.10	δ + 0	02	57.9
		t_{14}		16	18.90	s_{14}		3.07
		t_{16}		16	19.40	s_{16}		3.00
		α − t_{14}			+ .20	δ − s_{14}		− 9.1
		α − t_{16}			− .30	δ − s_{16}		− 2.1
						d'_{14}		− 0.4
						d'_{16}		− 0.7
								− 8.7
								− 1.4

	h	m	s		°	′	″	
9	1853·0	α	20	11	27·33	(2) δ + 0	08	30·9 (2)
	Am. fl.			− 3.07				− 10.9
	1852·0	α	20	11	24·26	δ + 0	08	20.0
		t_{14}		11	24.40	s_{14}		8.31
		t_{16}		11	24·90	s_{16}		8.24
		α − t_{14}			− 0·14	δ − s_{14}		− 11·0
		α − t_{16}			− 0·64	δ − s_{16}		− 4·0
						d'_{14}		− 1.2
						d'_{16}		− 2.1
								− 9.8
								− 1.9

	h	m	s		°	′	″	
8.9	1853·0	α	20	57	49.23	(2) δ + 0	08	39.5 (2)
	Am. fl.			− 3·07				− 14.0
	1852·0	α	20	57	46·16	δ + 0	08	26.5
		t_{14}		57	45·90	s_{14}		8.37
		t_{16}		57	46.25	s_{16}		8.26
		α − t'_{14}			+ 0·26	δ − s_{14}		− 11.5
		α − t_{16}			− 0·09	δ − s_{16}		− 0.5
						d'_{14}		− 1.2
						d'_{16}		− 2.2
								− 10.3
								+1.7

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Jones 14816

	h	m	s		°	′	″	
9 1853·0	α 20	58	19·79	(2)	δ + 0	04	29·4	(2)
An. p.			− 3·07				− 14·0	
1852·0	α 20	58	16·72		δ + 0	04	15·4	
t_{14}		58	16·60		s_{14}		4″20	
t_{16}		58	17·00		s_{16}		4″12	
$\alpha - t_{14}$			+ 0·12		$\delta - s_{14}$		− 4·6	
$\alpha - t_{16}$			− 0·28		$\delta - s_{16}$		+ 3·4	
					d'_{14}		− 0·6	
					d'_{16}		− 1·1	
							−4·0	
							+4·5	

	h	m	s		°	′	″	
8.9 1853·0	α 21	13	31·52	(5)	δ + 0	03	20·4	
An. p.			− 3·07				− 15	
	α 21	13	28·45		δ + 0	03	05·4	
t_{14}		13	28·65		s_{14}		3″16	
t_{16}		13	29·05		s_{16}		3″07	
$\alpha - t_{14}$			− 0·20		$\delta - s_{14}$		− 10·6	
$\alpha - t_{16}$			− 0·60		$\delta - s_{16}$		− 1·6	
					d'_{14}		− 0·4	
					d'_{16}		− 0·8	
							−10·2	
							−1·2	

	h	m	s		°	′	″	
9 1853·0	α 21	04	08·03	(1)	δ + 0	04	49·8	(1)
An. p.			− 3·07				− 14·4	
1852·0	α 21	04	04·96		δ + 0	04	35·4	
t_{14}		04	5·55		s_{14}		4″44	
t_{16}		4	6·00		s_{16}		4″35	
$\alpha - t_{14}$			− 0·59		$\delta - s_{14}$		− 8·6	
$\alpha - t_{16}$			− 1·04		$\delta - s_{16}$		+ 0·4	
					d'_{14}		− 0·7	
					d'_{16}		− 1·2	
							−7·9	
							+1·6	

	h	m	s		°	′	″	
9 1853·0	α 21	16	44·82	(1)	δ − 0	00	00·3	
An. p.			− 3·07				− 15·2	
1852·0	α 21	16	41·75		δ − 0	00	15·5	
t_{14}		16	41·80		s_{14}	−	07	
t_{16}		16	42·10		s_{16}	−	0″15	
$\alpha - t_{14}$			− 0·05		$\delta - s_{14}$		− 8·5	
$\alpha - t_{16}$			− 0·35		$\delta - s_{16}$		− 0·5	
					d'_{14}		+ 0·1	
					d'_{16}		+ 0·3	
							−8·6	
							−0·8	

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Wones 14816

	h m s	° ′ ″
8 1853.0	α 21 39 23.18 (6)	δ + 0 10 36.7 (6)
An. p.	−3.07	− 16.4
	20.13	
α	21 39 20.06	δ + 0 10 20.34
t_{14}	39 20.50	s_{14} 10.33
t_{16}	39 20.90	s_{16} 10.23
	−0.37	
$\alpha - t_{14}$	− 0.44	$\delta - s_{14}$ − 12.76
	−0.77	
$\alpha - t_{16}$	− 0.84	$\delta - s_{16}$ − 2.76
		d'_{14} + 0.1
		d'_{16} + 0.1
		−12.7
		− 2.5

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α Comparisons with Zones 8 & 9 for the beginning of Zones 14 & 16 (1852. / 1852.)

Mag.	Zone 8	K	Zone 9.	K	α 1852.
10	19..54..~~56.45~~	00	19..54..56.45	−0.60	19..54..~~56.45~~ 55.85
9–10	55..06.80	.00	55..06.80	−.60	55..~~06.80~~ 06.20

α Comparisons with Zones 18 & 19 for the end of Zones 14 & 16

	Zone 18	K	Zone 19	K	α 1852
10 —	21..33..53.20	−.40	21..33..53.70	−0.50	21..33..53.00
10	34..41.50	−.40	34..41.60	−.50	34..41.20
10	34..47.15	−.40	34..47.45	−.50	34..46.85

Beginning of Zones 14 & 16.

α 1852.0 (h m ~~s~~)	t_{14}	t_{16}	$\alpha - t_{14}$	$\alpha - t_{16}$	δ 1852.0	s_{14}	s_{16}	$\delta - s_{14}$	$\delta - s_{16}$
19..54..~~56.15~~ 55.85	55.80	56.25	+.05	−.40	+0°..06'..~~35~~.0	6..47	6.38	−~~.2~~.0	−~~.3~~.0
55..~~06.80~~ 06.20	6.10	6.50	+.10	−.30	3..44.0	3..55	3..47	−11.0	−~~.3~~.0

Mean

End of Zones 14 & 16.

α 1852.0 (h m s)	t_{14}	t_{16}	$\alpha - t_{14}$	$\alpha - t_{16}$	δ 1852.0	s_{14}	s_{16}	$\delta - s_{14}$	$\delta - s_{16}$
21..33..53.00	53.80	54.00	−.80	−1.0	0°..00'..~~0~~0".5	0..12	0..04	−11.5	−03.5
34..41.20	41.85	42.20	−.65	−1.0	10..12.5	10..14	10..16	−1.5	−3.5
21..34..46.85	47.30	47.80	−.45	−.45	00..02.5	0..15	0..06	−12.5	−3.5
Mean.			−.63	−.81				−8.5	−3.5

2 mistakes in getting in 1852 why is Zone 8 put down?
2 . . in taking from Sheet

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δ comparisons with Jones 8 & 9 for the beginning of Jones 14 & 16

Zone 8	Zone 9	δ 1852
0° 0′ 06″	−7.0	0° 0′ 06″ 31.0
3 3 47	−7.0	3 4 40

δ comparisons with Jones 18 & 19 for the end of Jones 14 & 16

Zone 18	Zone 19	δ 1852.
0° 0′ 06″	−6.0	0° 0′ 05″ −4.0 ~ 0° 0′ 0″.5
10 18	−6.0	10 17 −4.0 10 12.5
0 08	−6.0	0 07 −4.0 00 02.5

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Revised the (a-t)'s through this Book July 26/53 pm

Zones 1588 17

	h	m	s		°	′	″	
9 1853·0	α	19	45	02.04 (6)	δ + 0	16	32.5 (6)	
Am. p.				−3.06				−8.9
	α	19	44	59.03	δ + 0	16	23.6	
	t_{15}	19	44	59.15	s_{15}		16.31	
	t_{17}	19	44	58.70	s_{17}		16.32	
	α − t_{15}	−	0	0.12	δ − s_{15}	−	7.41	
	α − t_{17}	+	0	0.33	δ − s_{17}	−	8.41	
					d'_{15}	−	1.1	
					d'_{17}	−	1.2	
							−6.0	
							−6.9	

	h	m	s		°	′	″	
9 1853·0	α	19	52	27.01 (1)	δ + 0	15	00.4 (1)	
Am. p.				−3.06				−9.4
	α	19	52	23.95	δ + 0	14	51.0	
	t_{15}		52	24.06	s_{15}		14.57	
	t_{17}		52	24.00	s_{17}		14.58	
	α − t_{15}			−0.11	δ − s_{15}		−06.0	
	α − t_{17}			−0.05	δ − s_{17}		−07.0	
					d'_{15}		−0.9	
					d'_{17}		−1.0	
							−5.1	
							−6.0	

	h	m	s		°	′	″	
9.10 1853·0	α	19	51	35.26 (1)	δ + 0	16	32.0 (1)	
Am. p.				−3.06				−9.4
	α	19	51	32.20	δ + 0	16	22.6	
	t_{15}		51	32.10	s_{15}		16.29	
	t_{17}		51	31.70	s_{17}		16.29	
	α − t_{15}	+		0.10	δ − s_{15}	−	6.4	
	α − t_{17}	+		0.50	δ − s_{17}	−	6.4	
					d'_{15}	−	−1.1	
					d'_{17}		−1.2	
							−5.3	
							−5.2	

	h	m	s		°	′	″	
9 1853·0	α	20	06	45.26 (1)	δ + 0	17	29.8 (1)	
Am. p.				−3.06				−10.5
	α	20	06	42.20	δ + 0	17	19.3	
	t_{15}		6	42.90	s_{15}		17.27	
	t_{17}		6	42.30	s_{17}		17.26	
	α − t_{15}			−0.70	δ − s_{15}	−	7.7	
	α − t_{17}			−0.10	δ − s_{17}	−	6.7	
					d'_{15}		−1.3	
					d'_{17}		−1.4	
							−6.4	
							−5.3	

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Comparison with Zones 10 & 11 for the beginning of Zones 15 & 17 1852. 1852.

Mag.	Zone 10	K	Zone 11	K	α 1852.
10 —	19h.39m.19s.90	−0.10	19h.39m.19s.10	+0.80	19h.39m.19s.85
10 —	39..30.20	− .10			39..30.10
	40..08.15	− .10			40..08.05

Comparison with Zones 61 & 62 for the end of Zones 15 & 17 1853 1853 1852.

Mag.	Zone 61	K	Zone 62	K
11 —	21h.23m.28s.70		21h.23m.28s.90	
12 —	24..10.00		24..10.00	
13 —	24..10.80		24..10.95	
10 —	25..33.05		25..33.05	

See Book C.

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Comparisons of Zones 10 & 11 for the beginning of Zones 15 & 17.

Zone 10	d	Zone 11	d	δ 1852
0° 5′ 08″	−7.0	0° 5′ 08″	−5.0	0° 05′ 02.0
5.07	−7.0			5.00.0
2.17	−7.0			2.10.0

Comparison of Zones 61 & 62 for the end of Zones 15 & 17

Zone 61.	d	Zone 62	d.	δ 1853	prec.	δ 1852.
0° 4′ 56″		0° 4′ 57″				
6.59		7.00				
4.34		4.35				
−0.04		−0.03				

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