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Thread intervals for the reduction of the broken transits of the Polar Catalogue observed between June 11 1872 and Dec 31 1873

From η Draconis $\alpha = 16^h\ 22^m\ 17^s$ $\delta = +61°\ 48'$ log cos δ 9.67448

1872

Date	July 3	July 15	July 16	July 25	July 29	Aug 4	Means.	log i = intervals	i
Spaces:	s.	s.	s.	s.	s.	s.	s.		s.
1	2.1	2.3	2.3	2.3	2.1	2.3	2.23	0.34830	1.05
2	2.3	2.2	2.1	2.2	2.3	2.1	2.20	.34242	1.04
3	2.1	2.1	2.3	2.3	2.1	2.5	2.22	.34635	1.05
4	2.1	2.2	2.2	2.0	2.3	2.2	2.17	.33646	1.03
5	2.3	2.2	2.2	2.2	2.2	2.2	2.22	.34635	1.05
6	2.1	2.2	2.2	2.2	2.1	2.3	2.18	.33846	1.03
7	2.2	2.1	1.9	2.2	2.2	2.0	2.10	.32222	0.99
8	2.1	2.3	2.3	2.2	2.2	2.2	2.22	.34635	1.05

1873

	July 23	24	30	Aug 4	Means.	i
	s.	s.	s.	s.	s.	s.
1	2.1	2.4	2.3	2.2	2.25	1.06
2	2.1	2.1	2.0	2.2	2.18	1.03
3	2.2	2.1	2.2	2.1	2.15	1.02
4	2.2	2.2	2.3	2.3	2.28	1.06
5	2.1	2.2	2.1	1.9	2.05	.97
6	2.3	2.3	2.1	2.2	2.15	1.02
7		2.3	2.2	2.5	2.40	1.13
8		2.1	2.1	2.1	2.08	.98

From A Draconis $\alpha = 16^h\ 28^m\ 14^s$ $\delta = +69°\ 3'$ log cos δ = 9.55334

1872

	Aug 1	3	7	9	15	24	25	27	28	29	Aug 4	Means.	log i	log i corr	i s.
1	2.6	2.7	2.8	3.0	3.0	2.8	2.8	3.0	3.0	2.8	3.0	2.86	0.45637	0.00971	1.02
2	3.2	2.7	3.0	2.7	2.9	3.1	2.9	3.0	2.7	2.9	2.8	2.90	.46240	.01574	1.04
3	2.6	3.2	2.9	3.0	2.7	2.7	3.0	2.9	3.2	2.7	2.8	2.90	.46240	.01574	1.04
4	3.2	3.1	2.6	2.9	3.1	2.8	2.7	2.7	2.5	2.9	2.8	2.85	.45484	.00818	1.02
5	2.8	2.6	3.0	2.8	2.8	3.0	3.0	2.7	3.1	2.7	3.1	2.87	.45788	.01122	1.03
6	3.0	3.0	3.0	2.8	3.0	2.9	2.8	3.0	3.1	3.0	3.0	2.96	.47129	.02463	1.06
7	3.0	2.7	3.0	3.0	2.9	2.7	2.9	2.9	2.8	2.9	2.9	2.87	.45788	.01122	1.03
8	3.0	2.9	2.9	2.9	2.7	3.0	2.7	2.7	2.8	2.9	2.8	2.83	.45179	.00513	1.01

1873

	July 22	23	24	Aug 4	Means.	log.	log i	i
	s.	s.	s.	s.	s.			s.
1	2.7	2.8	2.4	3.3	2.82	0.45025	.00355	1.01
2	2.7	2.9	3.2	2.7	2.84	.45332	.00666	1.02
3	3.0	3.0	3.1	2.7	2.94	.46835	.02169	1.05
4	2.9	2.8	2.7	3.0	2.84	.45332	.00666	1.02
5	2.8	2.9	2.8	3.0	2.86	.45637	.00971	1.02
6	2.8	2.9	3.0	2.9	2.92	.46588	.01872	1.04
7	2.8	2.8	3.0	2.7	2.80	.44716	.00050	1.00
8	3.2	2.8	3.0	3.0	3.00	.47712	.03046	1.07

From ε Urs. Min. $\alpha = 16^h\ 59^m\ 4^s$ $\delta = +82°\ 14'\ 33''$ log cos δ = 9.13038

1872

	July 1	3	6	7	9	11	14	16	20	22	24	25	Means	log i	i
1	7.6	7.7	7.5	7.7	7.3	7.5	7.8	7.4	7.8	7.3	7.6	8.1	7.65	0.88138	.04176	1.03
2	7.1	7.3	7.6	7.6	8.1	7.6	8.0	7.6	7.9	7.3	7.5	7.9	7.62	.88195	.01233	1.03
3	7.6	7.4	7.9	7.3	6.8	7.3	7.1	8.1	7.2	8.0	7.7	7.1	7.54	.87737	.00775	1.02
4	8.0	6.5	7.7	7.9	8.3	7.4	8.1	6.9	7.6	7.6	7.3	7.2	7.56	.87852	.00890	1.02
5	7.7	8.4	7.2	7.7	7.6	7.7	7.6	7.3	7.8	7.6	7.7	8.0	7.69	.88593	.01631	1.04
6	7.2	8.0	8.3	7.2	7.5	7.3	7.7	7.9	7.5	8.1	7.9	7.4	7.67	.88480	.01518	1.04
7	7.4	7.6	7.0	7.8	7.5	8.4	7.5	8.1	7.6	7.6	8.1	7.7	7.69	.88593	.01631	1.04
8	7.9	7.5	7.6	8.0	8.1	7.7	7.9	7.8	8.0	7.2	7.3	7.8	7.73	.88818	.01856	1.04

1872

	July 27	28.	29.	Aug. 6	7.	8.	Means. wt = ½	Means. wt = 1		log i	i
							s.	s.			s.
1	7.2	8.1	7.7	7.8	6.9	7.8	7.53	7.61	7.58	.87967	.01005	1.02
2	8.2	7.2	7.5	7.8	7.5	7.4	7.61	7.62	7.62	.88195	.01233	1.03
3	7.8	7.4	7.3	7.1	8.2	7.9	7.63	7.56	7.57	.87910	.00948	1.02
4	8.0	7.5	7.9	8.4	7.6	7.3	7.79	7.69	7.74	.88309	.01347	1.03
5	7.3	8.0	7.5	7.2	7.5	7.8	7.56	7.64	7.65	.88366	.01404	1.03
6	7.7	8.1	7.8	8.0	7.9	7.7	7.89	7.69	7.74	.88874	.01912	1.04
7	7.5	7.0	7.5	7.8	7.5	7.5	7.39	7.54	7.52	.88024	.01062	1.02
8	7.3	7.9	7.9	7.6	7.6	7.8	7.64	7.73	7.65	.88366	.01404	1.03

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From ε Draconis. 1873

Date	July 23	24	26	Aug. 4	6	9	11	Means.			
Spaces.								s			
1	7.0	7.8	7.4	7.7	7.5	7.3	7.6	7.47	0.87332	.00376	1.61
2	8.5	7.6	7.4	7.4	7.6	8.3	7.2	7.71	.88705	.01743	1.04
3	7.4	7.5	7.8	8.2	7.6	6.8	7.9	7.60	.88081	.01119	1.03
4	7.3	7.5	7.4	7.7	7.9	8.7	7.4	7.70	.88649	.01687	1.04
5	8.0	7.1	7.0	7.5	7.2	7.6	8.2	7.66	.88423	.01461	1.03
6	7.4	7.5	8.3	7.1	8.1	7.6	7.5	7.56	.87852	.00890	1.02
7	7.5	8.4	7.9	7.2	7.4	7.4	7.5	7.61	.88138	.01176	1.03
8	7.1	7.8	7.4	8.1	7.9	7.9	7.7	7.70	.88649	.01687	1.04

From η Ursæ Min. 96 6 Lb. 1872

$\alpha = 5^h\ 22^m\ 45^s$ $\delta = +74^\circ\ 57'$ log cos δ = 9.41441

	July 30	July 6.	7.	9.	11.	16.	20.	22.	25.	27.	28.	Aug. 4	6.	7.	8.	Means.	log cos δ	i
1	3.9	4.2	4.8	3.8	4.0	3.9	4.1	3.8	4.4	4.0	3.8	4.0	4.2	3.9	3.7	4.00	1.05	
2	3.8	4.0	3.9	4.0	3.8	3.8	3.7	3.7	4.2	3.9	4.0	4.1	4.0	4.4	4.0	3.95	1.02	
3	4.3	4.0	3.8	4.1	3.9	3.9	4.1	4.2	4.0	3.9	3.8	4.0	4.0	3.7	3.8	3.97	1.02	
4	3.7	3.9	4.3	3.8	4.1	3.8	3.9	3.9	4.1	4.0	4.2	4.1	3.9	4.3	4.0	3.99	1.02	
5	4.1	4.0	3.4	4.0	4.2	3.6	3.9	3.9	4.2	4.0	3.9	3.9	3.8	3.9	3.8	3.92	1.04	
6	4.0	4.1	3.9	3.9	4.2	3.7	3.9	4.1	3.7	3.7	3.6	3.9	4.2	3.8	4.0	4.0	3.93	1.03
7	3.7	3.9	4.0	3.9	3.8	4.0	3.9	3.8	3.8	4.3	3.8	4.3	3.8	3.9	4.0	3.93	1.03	
8	4.3	3.9	4.1	4.1	4.3	4.3	4.2	4.2	4.1	3.5	4.2	3.6	4.0	3.8	4.1	4.08	1.04	

From η Ursæ Min. 96 6 1873 Lb.

	July 14	26.	—	Aug. 4.	10.	Means.		log i (for Lb)	i
1	3.8	3.7	3.8	3.9	4.1	3.86	.58659	.00100	1.06
2	4.0	4.2	4.2	4.0	4.0	4.08	.61066	.02507	0.99
3	3.1	4.0	3.8	4.0	4.2	3.82	.58206	.98647	1.01
4	4.2	3.8	3.9	3.7	3.8	3.88	.58883	.00324	1.01
5	3.9	4.1	4.1	3.8	3.5	3.88	.58883	.00324	1.01
6	4.1	3.9	4.5	3.8	3.5	3.90	.59106	.00547	0.97
7	3.8	4.0	3.6	3.6	4.0	3.80	.57978	.99419	1.06
8	3.9	4.1	3.7	4.3	4.0	4.10	.61278	.02719	1.00

From ψ Draconis 1872 $\alpha = 17^h\ 44^m\ 12^s$ $\delta = +72^\circ\ 13'$ log cos δ = 9.48490

	July 25	27.	29.	30.	Aug. 1.	6.	7.	8.	10.	Means.			
										s			
1	3.2	3.1	3.4	3.3	3.5	3.1	3.1	3.1	3.4	3.24	.51064	.99544	3.79
2	3.1	3.5	3.2	3.4	3.4	3.6	3.8	3.5	3.4	3.43	.53529	.02019	1.65
3	3.5	3.3	3.7	3.3	3.4	3.2	3.1	3.2	3.3	3.33	.52244	.00834	1.02
4	3.7	3.3	3.3	3.3	3.1	3.6	3.4	3.6	3.3	3.40	.53148	.01638	1.04
5	3.1	3.4	3.3	3.3	3.5	3.1	3.2	3.3	3.6	3.31	.51983	.00483	1.01
6	3.5	3.3	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.43	.53529	.02019	1.05
7	3.3	3.7	3.4	3.2	3.2	3.4	3.2	3.2	3.3	3.24	.52875	.00865	1.02
8	3.3	3.1	3.4	3.3	3.4	3.3	3.4	3.3	3.4	3.32	.52114	.00604	1.01

From ψ Draconis 1873

	Aug. 4	5.	Sept. 8.	9.	Means.			
1	3.4	3.1	3.2	3.0	3.42	.53403	.01893	1.04
2	3.6	3.8	3.8	3.8	3.75	.57403	.05893	1.14
3	3.2	3.5	3.2	3.4	3.32	.52114	.00604	1.01
4	3.1	3.1	3.3	3.2	3.18	.50243	.98733	0.97
5	3.7	3.4	3.1	3.5	3.42	.53403	.01893	1.04
6	3.2	3.5	3.5	3.2	3.35	.52504	.00994	1.02
7	3.1	3.2	3.1	3.1	3.12	.49415	.97905	0.95
8	3.6	3.5	3.7	3.6	3.60	.55630	.04120	1.10

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log cos δ = 8.77222

From Nuz. Minoris 1872

July 22 . 24 . 27 . Aug. 6 . 7 . 8 . 10 . 20 . Means. $\alpha = 18^h 13^m 18^s$ $\delta = +86^\circ 36' 25''$

	July 22	24	27	Aug. 6	7	8	10	20	Means.	log i	i
1	17.8	16.3	18.2	17.2	19.6	16.7	16.6	16.6	16.3 (17.51)	17.03	1.231 21 . .00343	1.01
2	15.5	17.2	16.6	19.1	16.2	17.7	17.5	18.4	17.2 17.5	16.93	1.228 66 .00088	1.00
3	19.7	18.4	18.4	18.2	19.1	16.6	17.5	18.4	18.4 17.6	17.03	1.231 21 .00843	1.01
4	15.8	17.3	16.8	16.9	18.4	18.3	19.1	17.3	17.1 17.4	17.19	1.235 28 .00750	1.02
5	19.3	16.8	18.2	17.9	15.9	17.3	16.7	18.2	18.2 17.3	17.58	1.245 42 .01824	1.04
6	17.9	17.9	16.7	16.9	17.3	17.0	17.3	16.9	16.0 16.6	17.20	1.235 53 .00885	1.02
7	15.4	17.1	16.5	15.1	17.3	17.8	15.2	15.8	18.2 17.3	17.38	1.240 45 .01223	1.03
8	17.3	18.3	18.4	18.3	17.7	19.7	18.1	17.1	16.2 17.8	17.49	1.242 79 .01501	1.04

From Nuz. Minoris 1873

Aug. 9 . 28 . Sept. 3 6 . Means. log i i

1	17.0	17.0	17.0	18.9	17.3	17.44	1.241 55	.01377	1.03
2	16.3	17.2	17.0	17.5	18.8	17.36	1.239 55	.01177	1.03
3	19.3	16.1	16.3	17.9	19.5	17.82	1.250 91	.02313	1.05
4	17.3	17.6	19.3	16.4	16.0	17.32	1.238 55	.01077	1.03
5	15.5	19.2	16.5	17.1	17.0	16.86	1.226 86	.99908	1.00
6	19.7	17.7	16.6	17.4	17.6	18.00	1.255 27	.02749	1.06
7	16.9	18.0	18.7	17.4	16.2	17.48	1.242 54	.01476	1.03
8	17.0	18.1	18.5	17.7	17.4	17.74	1.248 95	.02177	1.05

log cos δ = 8.68319

From 51 Cephei H. 1872 (2.6) $\alpha = 6^h 40^m 3^s$ $\delta = +87^\circ 14' 11''$

	July 22	24	27	Aug. 1	6	7	Oct 2	9	14	Means	log i	i
1	21.1	22.4	21.7	20.1	20.9	21.9	21.2	20.1	23.0	22.1	21.45	1.331 43	.07462	1.04
2	20.3	22.5	20.6	21.8	21.2	22.8	21.7	22.2	24.1	19.8	21.70	.33041	.01360	1.02
3	23.3	19.6	23.5	20.1	22.8	19.2	20.8	20.9	21.7	21.9	21.38	.33001	.01320	1.02
4	21.3	20.1	21.9	21.9	22.2	22.6	22.3	22.3	19.0	21.2	21.48	.33203	.01522	1.02
5	19.4	23.4	20.3	22.3	19.7	20.1	20.4	20.9	22.1	22.5	21.11	.32449	.00768	1.01
6	21.7	21.1	21.6	21.7	22.5	21.3	21.4	21.9	21.9	21.3	21.64	.33526	.01845	1.03
7	20.8	20.8	20.9	20.2	20.1	23.4	21.8	20.2	22.3	21.5	21.20	.32634	.00953	1.03
8	22.6	22.1	22.6	21.9	21.6	19.7	21.3	22.2	20.6	21.0	21.66	.33365	.01684	1.03

From 51 Cephei No 1873 (2.6)

	Aug. 9	28	Sept 3	6	Means.	log i (42°) =	i
1	19.6	22.4	22.7	20.2	21.22	1.326 75	.00984	1.10
2	22.7	20.9	21.1	23.0	21.92	.34084	.02403	0.99
3	19.5	22.7	21.1	22.2	21.37	.32980	.01299	1.06
4	23.3	21.7	21.4	21.3	21.92	.34084	.02403	0.99
5	18.5	20.8	19.6	19.3	19.55	.29115	.97434	1.06
6	24.2	19.8	22.4	21.5	21.98	.34203	.02522	0.99
7	20.0	21.6	20.7	20.3	20.65	.31492	.99811	1.06
8	22.3	23.6	21.9	23.6	22.35	.35289	.04208	1.02

From 6 Draconis 1872 $\alpha = 19^h 48^m 36^s$ $\delta = +69^\circ 57'$

log cos δ = 9.53509

	Sept 28	Oct 2	21	Means.			
1	2.7	2.8	3.1	2.87	0.45788	9.99287	0.98
2	2.6	3.1	3.0	2.90	.46240	.99749	0.99
3	2.7	3.1	3.0	2.93	.46687	.00196	1.00
4	2.8	2.9	3.0	2.90	.46240	.99749	0.99
5	3.0	3.0	2.7	2.90	.46240	.99749	0.99
6	3.2	3.2	3.3	3.23	.50920	.04429	1.11
7	3.0	2.9	3.2	3.03	.48144	.01653	1.04
8	3.2	3.1	3.1	3.13	.49554	.03063	1.07

From 6 Draconis 1873

	Sept 1	Oct 5	9	21	22	23	27	Nov 2	Means		log i	i
1	3.0	2.9	3.1	2.9	3.1	3.3	2.9	3.1	3.04	0.48287	.01796	1.04
2	3.0	3.3	3.2	3.0	2.8	3.0	3.0	3.0	3.04	.48287	.01796	1.04
3	3.0	3.2	2.8	3.0	3.1	3.0	2.8	3.0	2.99	.47567	.01076	1.02
4	2.8	2.9	3.1	3.1	2.9	3.1	3.0	3.0	2.99	.47567	.01076	1.02
5	3.2	2.9	3.0	2.9	3.1	2.9	3.3	3.2	3.06	.48572	.02081	1.05
6	2.8	3.1	3.1	3.3	3.2	2.9	3.7	2.7	3.16	.49936	.02645	1.06
7	3.0	2.9	3.0	2.9	2.9	2.9	2.8	3.1	2.94	.46835	.00344	1.01
8	3.1	3.1	2.8	2.9	2.8	2.9	3.2	2.9	2.96	.47129	.00638	1.01

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1872 From τ Cephei $\alpha = 22^h 13^m 7^s$ $\delta = +77^\circ 26'$ log cos $\delta = 9.3410$

	Sept 21	23	Nov 1	2	Means.		log i	i
	s	s	s	s	s			
1	5.2	4.6	4.7	4.6	4.78	0.67943	.02043	1.05
2	4.6	4.6	5.0	4.5	4.68	.67025	.01125	1.03
3	4.9	4.7	4.9	4.8	4.84	.68484	.02584	1.06
4	4.7	4.6	4.1	4.5	4.50	.65321	.99401	.99
5	4.4	4.6	5.0	4.8	4.98	.69723	.03823	1.09
6	4.9	4.8	4.4	4.5	4.68	.67025	.01125	1.03
7	4.6	5.0	4.8	4.6	4.74	.67578	.01678	1.04
8	4.7	4.6	4.8	4.8	4.76	.67761	.01861	1.04

From 76 Draconis 1872 $\alpha = 20^h 51^m 39^s$ $\delta = +82^\circ 2'$ log cos $\delta = 9.13994$

	Nov 16	19	21	Means.			i
	s	s	s	s			
1	(6.1)	8.0	7.3	7.65	0.88366	.02360	1.05
2	8.3	7.6	7.8	7.90	.89763	.03757	1.09
3	7.2	7.6	7.5	7.43	.87099	.01093	1.03
4	8.2	7.4	7.0	7.53	.87679	.01673	1.04
5	7.1	7.7	8.0	7.60	.88081	.02075	1.05
6	7.1	7.4	7.0	7.17	.85552	.99546	.99
7	7.5	(9.1)	7.8	7.65	.88366	.02360	1.06
8	7.7	(6.7)	7.3	7.50	.87506	.01500	1.04

From 76 Draconis 1873

	Oct 22	22	28	Nov 1	2	Means.			i
	s	s	s	s	s	s			
1	7.5	7.8	7.6	7.1	8.0	7.60	0.88041	.02075	1.05
2	7.6	7.8	7.5	7.2	7.3	7.48	.87390	.01384	1.03
3	7.4	7.7	7.0	8.0	7.6	7.54	.87737	.01731	1.04
4	7.5	7.4	8.3	7.8	7.1	7.62	.88195	.02189	1.05
5	7.8	7.0	7.6	7.0	7.2	7.32	.86451	.00445	1.01
6	7.4	7.7	7.2	7.0	7.6	7.38	.86806	.00800	1.02
7	7.1	7.3	8.1	8.0	7.2	7.54	.87737	.01731	1.04
8	7.3	7.6	7.7	7.7	8.0	7.66	.88423	.02417	1.06

From 11 Cephei 1872 $\alpha = 21^h 40^m 3^s$ $\delta = +70^\circ 44'$ log cos $\delta = 9.5149$

	Oct 2	Nov 19	21		Nov 2	Nov 4	Means.			i
	s	s	s	s	s	s	s			
1	2.8	3.3	3.7	3.2	3.2	3.1	3.27	0.51455	.03802	1.08
2	3.1	3.0	3.1	3.0	3.0	3.2	3.07	.48714	.00561	1.01
3	2.7	3.1	3.1	3.2	3.1	3.0	2.97	.47276	.99128	0.98
4	3.6	3.0	3.1	3.0	3.0	3.1	3.23	.50920	.02767	1.07
5	3.0	3.2	3.1	3.4	3.3	3.1	3.10	.49136	.00983	1.02
6	3.3	3.1	2.9	3.1	2.5	3.2	3.10	.49136	.00983	1.02
7	2.7	3.5	3.1	3.0	3.3	3.1	3.10	.49136	.00983	1.02
8	3.4	3.1	3.4	3.2	3.3	3.0	3.30	.51851	.03698	1.09

From 11 Cephei 1873

	Oct 13	14	Nov 2	4				i
	s	s	s	s	s			
1	2.9	3.2	3.2	3.1	3.10	0.49136	.00983	1.02
2	3.2	3.0	3.0	3.2	3.10	.49136	.00983	1.02
3	3.1	3.2	3.1	3.0	3.10	.49136	.00983	1.02
4	3.1	3.0	3.0	3.1	3.05	.48430	.00277	1.01
5	3.2	3.4	3.3	3.1	3.25	.51188	.03035	1.07
6	3.4	3.1	2.8	3.1	3.10	.49136	.00983	1.02
7	2.9	3.0	3.3	3.1	3.07	.48714	.00561	1.01
8	3.0	3.2	3.3	3.0	3.12	.49415	.01262	1.03

From 79 Draconis 1872 $\alpha = 21^h 51^m 17^s$ $\delta = +73^\circ 6'$ log cos $\delta = 9.4634$

	Sept 28	Oct 2	12	19	21	23				i
	s	s	s	s	s	s	s			
1	3.5	3.4	3.2	3.6	3.5	3.1	3.38	0.52892	9.99237	0.98
2	3.9	3.6	3.7	3.5	3.5	3.4	3.60	.55630	.01975	1.05
3	3.2	3.2	4.0	3.5	3.8	3.5	3.53	.54777	.01122	1.03
4	3.7	3.6	3.3	3.6	3.2	3.6	3.50	.54424	.00769	1.02
5	3.4	3.9	3.4	3.5	3.7	3.7	3.60	.55638	.01975	1.05
6	3.3	3.3	3.5	3.5	3.4	3.6	3.48	.54168	.00503	1.01
7	4.0	3.7	3.5	3.6	3.6	3.6	3.67	.56467	.02812	1.07
8	3.1	3.7	3.2	3.8	3.5	3.5	3.47			1.02

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From 79 Draconis 1873 $\log\cos\delta = 9.946345$

	Oct 14	21	Nov 2	4	Means.			i
	s	s	s	s	s			s
1	3.6	3.5	3.6	3.4	3.52	0.546 54	.00 999	1.02
2	3.4	3.7	3.3	3.8	3.55	.550 23	.01 368	1.03
3	3.8	3.2	3.6	3.4	3.50	.544 07	.00 752	1.02
4	3.5	3.6	3.5	3.3	3.48	.541 58	.00 503	1.01
5	3.5	3.6	3.5	3.9	3.62	.558 71	.02 216	1.05
6	3.5	3.4	3.7	3.5	3.52	.546 54	.00 999	1.03
7	3.5	3.5	3.5	3.6	3.52	.546 54	.00 999	1.03
8	3.8	3.7	3.5	3.3	3.58	.553 88	.01 733	1.04

From 24 Cephei ($22^h\,7^m$) 1872 $\alpha = 22^h\,7^m\,22^s$ $\delta = +71^\circ\,43'$ $\log\cos\delta = 9.49654$

	Sept 28	Nov 17	19	20	23	Dec 7	Means.			
	s	s	s	s	s	s	s			
1	3.2	3.3	3.1	3.1	3.2	3.1	3.17	0.501 06	.99760	0.99
2	3.2	3.3	3.2	3.6	3.5	3.3	3.35	525 04	.02158	1.05
3	3.3	3.4	3.3	3.6	3.1	3.4	3.35	525 04	.02158	1.05
4	3.2	3.2	3.4	3.1	3.2	3.2	3.22	507 86	.00440	1.01
5	3.3	3.4	3.0	3.2	3.5	3.3	3.28	515 87	.01241	1.03
6	3.4	3.0	3.5	3.6	3.4	3.0	3.32	521 14	.01768	1.04
7	3.1	3.1	3.2	3.3	3.1	3.5	3.22	507 86	.00440	1.01
8	3.7	3.3	3.3	3.4	3.2	3.6	3.42	534 03	.03057	1.07

From 24 Cephei ($22^h\,7^m$) 1872

	Oct 21	Nov 5	6	9	Means.			
	s	s	s	s	s			
1	3.3	3.3	3.1	3.4	3.27	0.514 55	.01108	1.03
2	3.2	3.5	3.4	3.5	3.40	531 48	.02802	1.07
3	3.1	3.1	3.3	3.3	3.20	505 15	.00169	1.00
4	3.4	3.4	3.0	3.2	3.25	513 46	.00842	1.02
5	3.3	3.4	3.3	3.4	3.35	525 04	.02158	1.05
6	3.2	3.6	3.4	3.0	3.15	498 31	.99485	0.99
7	3.5	3.4	3.3	3.4	3.40	531 48	.02802	1.07
8	3.2	3.1	3.3	3.1	3.17	501 06	.99760	0.99

From 226 B Cephei 1872 $\alpha = 22^h\,30^m\,02^s$ $\delta = +75^\circ\,34'$ $\log\cos\delta = 9.39664$

	Sept 28	Nov 4	16	17	20	Dec 7	Means.			
	s	s	s	s	s	s	s			
1	4.6	4.2	4.0	4.0	3.8	4.2	4.13	0.615 95	.01259	1.03
2	3.7	4.2	4.1	4.0	4.3	4.5	4.18	621 18	.01782	1.04
3	3.9	4.0	3.9	4.6	4.3	3.7	4.07	609 59	.00623	1.02
4	4.7	4.0	4.5	4.0	4.2	4.3	4.28	631 44	.02808	1.07
5	3.7	4.4	3.7	4.1	4.1	3.5	3.97	598 79	.99548	0.99
6	4.4	4.2	4.7	3.8	3.9	4.3	4.22	625 31	.02195	1.05
7	4.0	4.4	4.1	5.0	4.4	4.3	4.37	640 48	.03712	1.09
8	4.2	3.8	4.0	4.2	3.9	4.3	4.07	609 59	.00623	1.01

From 226 B Cephei 1873

	Oct 5	8	22	Nov 3	9	10	Means.			
	s	s	s	s	s	s	s			
1	4.3	4.0	4.4	4.0	4.0	4.0	4.12	0.614 90	.01154	1.03
2	4.4	4.2	3.8	4.3	4.1	4.4	4.20	623 25	.01989	1.05
3	4.3	4.0	4.4	3.9	4.2	4.2	4.17	620 14	.01678	1.04
4	3.8	4.3	3.7	4.1	4.0	4.0	3.98	599 58	.99632	0.99
5	4.3	4.0	4.6	4.4	4.2	4.3	4.30	633 47	.03011	1.04
6	3.7	4.1	4.1	4.2	4.2	3.7	4.00	602 06	.00870	1.00
7	3.9	4.4	3.6	4.0	3.9	4.2	4.00	602 06	.00870	1.00
8	4.3	4.0	4.4	4.0	4.2	4.2	4.18	621 85	.01782	1.04

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From 31 Cephei 1872

$\alpha = 22^h 32^m 38^s$ $\delta = +75° 2'$ log cos δ = 9.46635

	Nov.4	16	17	20	Dec.7				
	Nov.4 s	s	s	s	s	s			i
1	3.8	3.4	3.4	3.7	3.9	3.64	.561 10	.02745	1.07
2	3.5	3.3	3.4	3.4	3.2	3.36	.526834	.99269	0.98
3	3.3	3.8	3.6	3.5	3.4	3.52	.546541	.01289	1.03
4	3.4	3.5	3.5	3.5	3.5	3.48	.541588	00793	1.02
5	3.8	3.6	3.5	3.6	3.4	3.58	.553888	.02023	1.05
6	3.5	3.5	3.4	3.3	4.2	3.58	.553888	.02023	1.05
7	3.6	3.5	3.4	3.7	3.3	3.50	.544077	.01042	1.02
8	3.1	3.4	3.8	3.5	3.7	3.50	.544077	.01042	1.02

From 31 Cephei 1873

	Oct.5	8	22	28	Nov.3	9	10	means.			i
1	3.7	3.5	3.8	3.6	3.2	3.4	3.1	3.47	0.540333	.00668	1.02
2	3.4	3.5	3.1	3.6	3.3	3.5	3.5	3.41	.532785	9.99910	1.00
3	3.4	3.6	3.1	3.7	3.8	3.6	3.5	3.53	.547777	.01412	1.03
4	3.6	3.3	3.6	3.5	3.0	3.4	3.4	3.40	.531485	9.99783	0.99
5	3.7	3.7	3.2	3.0	3.6	3.6	4.0	3.54	.549000	.01535	1.04
6	3.6	3.5	3.5	3.7	3.6	3.5	3.0	3.53	.547777	.01412	1.03
7	3.1	3.5	3.5	3.7	3.5	3.6	4.1	3.57	.552629	.01902	1.04
8	3.8	3.5	3.5	3.6	3.6	3.6	3.2	3.54	.549000	.01535	1.04

From i Cephei 1872

$\alpha = 22^h 45^m 10^s$ $\delta = +6° 32'$ log cos δ = 9.61717

	Nov.4	16	17	20	Dec.7	means.			i
	s	s	s	s	s	s			
1	2.4	2.2	2.8	2.7	2.4	2.50	0.397 94	.01511	1.04
2	2.7	2.6	2.3	2.8	2.5	2.58	.411 62	.02879	1.07
3	2.5	2.7	2.6	2.4	2.4	2.52	.401 40	.01857	1.04
4	2.4	2.3	2.5	2.6	2.5	2.46	.390 94	.00811	1.02
5	2.2	2.1	2.4	2.2	2.5	2.34	.369 22	.98639	0.97
6	2.9	2.7	2.2	2.7	2.2	2.54	.404 83	.02200	1.05
7	2.3	2.5	2.6	2.3	2.4	2.42	.383 82	.00099	1.00
8	2.5	2.7	2.6	2.7	2.6	2.62	.418 30	.03547	1.08

From i Cephei 1873

	Oct.8	22	28	29	Nov.3	Means.			i
1	2.6	2.6	2.5	2.7	2.6	2.60	.414 97	.03214	1.08
2	2.3	2.4	2.6	2.4	2.6	2.46	.390 94	.00811	1.02
3	2.5	2.5	2.6	2.4	2.4	2.48	.394 45	.01162	1.03
4	2.6	2.4	2.3	2.5	2.5	2.46	.390 94	.00811	1.02
5	2.4	2.5	2.3	2.6	2.4	2.44	.387 39	.00456	1.01
6	2.6	2.3	2.7	2.4	2.6	2.52	.401 40	.01857	1.04
7	2.4	2.7	2.1	2.5	2.5	2.44	.387 39	.00456	1.01
8	2.6	2.4	2.4	2.4	2.4	2.44	.387 39	.00456	1.01

From 23 Pass. 1873

$\alpha = 0^h 39^m 16^s$ $\delta = +74° 9'$ 9.43635

	Dec.7	15	16	17	Means.				i
				'					
1	3.7	3.8	3.5	3.7	3.67	0.564 67	.00102		1.00
2	3.9	4.2	3.8	4.0	3.98	.599 88	.03623	✓	1.08
3	3.8	3.5	3.8	3.5	3.65	.562 29	.99864		1.00
4	3.7	3.8	3.8	3.7	3.75	.574 03	.01088		1.02
5	3.9	3.7	3.6	4.1	3.82	.582 06	.01841		1.04
6	3.6	3.7	3.8	3.2	3.57	.552 62	9.98892		0.97
7	3.6	3.5	4.0	4.3	3.85	.585 46	.02181		1.06
8	4.2	4.0	3.6	3.6	3.85	.585 46	.02181		1.06

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From 44 Cephei H. 1873

$\alpha = 1^h\ 1^m\ 23^s$ $\delta = +79^\circ\ 0'$

log cos δ = 9.25060

	Jan 4	Nov 4	Dec. 1	3	7	15	16	Means.			
	s	s	s	s	s	s	s	s			i s
1	(6.3)	5.8	5.6	5.2	5.3	5.2	5.1	5.37	0.72997	.01057	1.02
2	5.4	5.1	5.9	5.6	5.1	6.0	5.4	5.50	74036	.02096	1.05
3	5.1	5.4	5.2	5.2	5.5	4.9	5.2	5.21	41684	.99744	0.99
4	5.3	5.4	5.8	5.1	5.8	5.0	5.2	5.37	72997	.01057	1.02
5	5.7	5.7	5.2	6.1	5.3	5.4	5.6	5.57	74586	.02646	1.06
6	5.5	5.3	5.4	5.2	5.6	4.8	5.4	5.31	72509	.00569	1.01
7	5.3	5.6	5.6	5.6	5.2	6.1	5.7	5.59	74741	.02801	1.07
8	(5.4)	5.2	5.5	5.0	5.6	5.2	5.3	5.31	72509	.00569	1.01

From Polaris 1872

$\alpha = 1^h\ 12^m\ 18^s$ $\delta = +88^\circ\ 38'$

log cos δ = 8.37750

	Nov. 13	Nov 25	Dec 10	19	Means.			
					s			i
1	43	38.5	45.5	46.8	44.10	1.64444	.02194	1.05
2	44.0	42.2	44.0	46.3	45.38	1.65686	.03436	1.08
3	43.3	42.5	41.4	40.3	41.88	1.62201	.99951	1.00
4	44.4	40.6	41.6	44.9	42.88	1.63225	.00975	1.02
5	40.6	45.1	43.9	47.7	44.33	1.64670	.02420	1.06
6	42.0	44.2	45.0	46.3	44.38	1.64719	.02469	1.06
7	43.8	42.7	44.2	43.3	43.50	1.63849	.01599	1.04
8	43.4	41.1	43.3	44.7	43.12	1.63468	.01218	1.03

From Polaris 1873

	Nov 8	19	Dec 3	7	9	10	15	16	17	18	means.			
											s			i
1	44.9	48.0	41.8	41.6	42.5	44.1	48.2	43.5	40.6	42.2	43.74	1.64088	.01838	1.04
2	45.0	43.0	42.2	45.3	45.0	40.1	40.0	45.0	46.6	44.1	43.63	1.63979	.01729	1.04
3	42.3	42.0	42.7	43.2	42.5	46.5	44.2	41.7	40.1	42.8	43.30	1.63649	.01399	1.03
4	42.4	39.2	39.7	46.4	46.2	43.2	44.1	45.8	44.2	43.0	43.42	1.63769	.01519	1.03
5	42.8	43.4	46.1	39.6	40.7	41.8	41.7	44.5	43.8	42.2	42.66	1.63020	.00770	1.02
6	41.8	42.5	42.1	44.3	43.1	43.0	40.6	40.8	40.5	45.0	42.87	1.63215	.00965	1.02
7	41.8	38.1	40.8	40.5	45.7	43.0	45.9	43.7	44.6	43.8	42.79	1.63134	.00884	1.02
8	45.8	45.2	45.2	44.0	44.2	45.2	43.1	44.1	43.6	44.7	44.51	1.64846	.02596	1.06

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11 (Fine) Fine Intervals.

From Bootis 1873 $\alpha = 14^h\ 21^m$ $\delta = +52^\circ\ 26'$ log cos $\delta = 9.788510$

	June 10	15	16	25	26	29	July 6	Means.	log i	i
	s	s	s	s	s	s	s	s		s
1	3.5	3.4	3.8	3.4	3.2	3.2	3.4	3.41	0.582745	.31785	2.08
2	3.3	3.2	3.4	3.4	3.5	3.5	3.3	3.37	.527463	.31273	2.05
3	6.8	6.9	6.7	6.7	6.7	6.8	6.8	6.77	.830569	.61569	4.13
4	3.5	3.3	3.4	3.4	3.4	3.3	3.4	3.39	.530200	.31530	2.07
5	3.2	3.3	3.2	3.3	3.5	3.3	3.2	3.29	.517200	.30230	2.01
6	3.3	3.5	3.5	3.5	3.3	3.4	3.4	3.41	.532755	.31785	2.08
7	3.5	3.4	3.5	3.2	3.4	3.4	3.5	3.41	.582755	.31785	2.08
8	6.3	6.7	6.8	6.9	6.7	6.7	6.7	6.69	.825433	.61053	4.08
9	3.4	3.4	3.3	3.2	3.3	3.5	3.4	3.36	.526344	.31144	2.05
10	3.2	3.4	3.4	3.5	3.4	3.4	3.5	3.40	.531485	.31658	2.07

From Gr. 2296. 1873 $\alpha = 15^h\ 55^m$ $\delta = +5^\circ\ 6'$ log cos $\delta = 9.975751$

	July 29	Aug 3	12	13	20	21	22				
	s	s	s	s	s	s	s	s			
1	3.7	3.9	3.7	3.5	3.7	3.6	3.6	3.67	0.564677	.32218	2.10
2	3.6	3.7	3.5	3.7	3.4	3.8	3.6	3.61	.557551	.31502	2.06
3	7.0	7.0	7.2	7.1	7.4	7.1	7.2	7.14	.853770	.61121	4.08
4	3.6	3.9	3.7	3.7	3.5	3.7	3.6	3.67	.564677	.32218	2.10
5	3.7	3.5	3.4	3.6	3.7	3.4	3.7	3.57	.552677	.31018	2.024
6	3.7	3.7	3.8	3.6	3.6	3.5	3.4	3.61	.557551	.31502	2.06
7	3.5	3.5	3.4	3.5	3.6	3.7	3.9	3.59	.555009	.31260	2.05
8	7.3	7.1	7.2	7.3	7.1	7.2	7.1	7.19	.856773	.61424	4.11
9	3.5	3.7	3.8	3.5	3.7	3.6	3.7	3.64	.561107	.31861	2.08
10	3.5	3.6	3.5	3.7	3.5	3.7	3.4	3.56	.551455	.30896	2.024

From Gr. 2377 1872 $\alpha = 16^h\ 43^m$ $\delta = +5^\circ\ 1'$ log cos $\delta = 9.773591$

	July 3	20	28	Aug 1	4	6	7	10				
	s	s	s	s	s	s	s	s	s			
1	3.9	3.6	3.7	3.8	3.7	3.7	3.8	3.7	3.74	0.572857	.30878	2.024
2	3.9	4.0	3.8	3.6	3.8	3.8	3.6	3.8	3.79	.578664	.31455	2.06
3	7.4	7.2	7.6	7.9	7.5	7.5	7.8	7.6	7.56	.878552	.61443	4.12
4	3.9	4.0	3.6	3.6	3.8	3.9	3.7	3.7	3.77	.576334	.31225	2.05
5	3.7	3.8	3.9	3.8	3.8	3.8	3.7	3.8	3.79	.578664	.31455	2.06
6	3.7	3.8	4.0	3.8	3.9	3.7	3.9	3.9	3.84	.584333	.32024	2.09
7	3.7	3.7	3.7	3.6	3.9	3.7	3.8	3.9	3.77	.576334	.31225	2.05
8	7.5	7.5	7.6	7.7	7.4	7.6	7.6	7.4	7.55	.871995	.61386	4.11
9	3.8	3.8	3.7	3.8	3.5	3.7	3.8	3.7	3.76	.575119	.31110	2.05
10	3.8	3.7	3.8	3.8	3.7	4.0	3.7	3.9	3.80	.584979	.31570	2.07

From β Draconis 1872 $\alpha = 17^h\ 28^m$ $\delta = +52^\circ\ 24'$ log cos $\delta = 9.7893$

	July 6	7	9	11	20	24	25	27	28	29	Aug 4	6				
	s	s	s	s	s	s	s	s	s	s	s	s	s			
1	3.2	3.4	3.2	3.4	3.3	3.2	3.3	3.5	3.5	3.4	3.5	3.3	3.35	0.525024	.31047	2.04
2	3.4	3.4	3.5	3.3	3.6	3.5	3.6	3.4	3.4	3.4	3.5	3.4	3.45	.537852	.32325	2.10
3	6.7	6.7	6.7	6.9	6.8	6.7	6.7	6.7	6.7	6.9	6.7	6.7	6.74	.828666	.61409	4.11
4	3.4	3.4	3.5	3.2	3.3	3.4	3.3	3.3	3.4	3.2	3.3	3.3	3.33	.522444	.30787	2.03
5	3.4	3.3	3.3	3.5	3.3	3.4	3.4	3.4	3.4	3.6	3.5	3.3	3.40	.531485	.31691	2.07
6	3.4	3.5	3.5	3.5	3.3	3.3	3.4	3.3	3.3	3.3	3.2	3.4	3.37	.525763	.31306	2.06
7	3.2	3.4	3.3	3.3	3.3	3.5	3.4	3.5	3.3	3.4	3.5	3.3	3.37	.525763	.31306	2.06
8	6.9	6.8	6.6	6.8	6.9	6.8	6.7	6.7	6.8	6.6	6.7	6.8	6.76	.829965	.61538	4.12
9	3.4	3.4	3.5	3.4	3.3	3.2	3.4	3.3	3.5	3.4	3.6	3.4	3.40	.531485	.31691	2.07
10	3.4	3.2	3.3	3.3	3.6	3.4	3.4	3.3	3.5	3.4	3.3	3.3	3.37	.525763	.31306	2.06

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From β Draconis 1873 α

	July 24	26	25	Aug 6	4	10	10	means	log	log	c
	s	s	s	s	s	s	s	s			s
1	3.4	3.6	3.4	3.8	3.4	3.5		3.46	0.539408	.324 51	2.11
2	3.3	3.4	3.4	3.4	3.2	3.3		3.33	.522 44	.307 87	2.03
3	6.7	6.7	6.7	6.7	7.0	6.7		6.75	.829 30	.614 73	4.12
4	3.3	3.4	3.5	3.4	3.2	3.2		3.33	.522 44	.307 87	2.03
5	3.6	3.3	3.2	3.4	3.4	3.4		3.38	.528 92	.314 35	2.06
6	3.4	3.4	3.5	3.3	3.3	3.5		3.40	.531 48	.316 91	2.07
7	3.3	3.3	3.2	3.6	3.4	3.4		3.37	.527 63	.313 06	2.06
8	6.7	6.8	7.0	6.6	6.7	6.7		6.75	.829 30	.614 73	4.12
9	3.4	3.4	3.3	3.5	3.5	3.3		3.40	.531 48	.316 91	2.07
10	3.3	3.5	3.4	3.3	3.2	3.4		3.35	.525 04	.310 47	2.04

From γ Draconis 1872 $\alpha = 17^h\ 54^m$ $\delta = +51^\circ\ 30'$ log cos $\delta = 9.79415$

	July 20	22	25	27	29	30	Aug 1	6	7	10				
											s			s
1	3.2	3.4	3.4	3.6	3.3	3.2	3.5	3.3	3.4	3.2	3.35	0.525 07	.319 19	2.08
2	3.2	3.2	3.1	3.2	3.4	3.4	3.3	3.2	3.3	3.3	3.26	.513 22	.307 37	2.03
3	6.8	6.6	6.7	6.5	6.5	6.7	6.6	6.6	6.6	6.7	6.63	.821 51	.615 66	4.13
4	3.3	3.3	3.4	3.3	3.4	3.1	3.4	3.4	3.4	3.3	3.33	.522 44	.316 89	2.07
5	3.3	3.3	3.4	3.4	3.3	3.4	3.2	3.4	3.2	3.3	3.32	.521 14	.315 29	2.07
6	3.3	3.4	3.1	3.5	3.2	3.4	3.4	3.1	3.2	3.4	3.30	.518 51	.312 66	2.05
7	3.2	3.3	3.4	3.2	3.4	3.2	3.3	3.3	3.4	3.3	3.30	.518 51	.312 66	2.05
8	6.6	6.4	6.7	6.5	6.6	6.8	6.5	6.6	6.6	6.6	6.59	.818 89	.613 04	4.10
9	3.3	3.5	3.1	3.5	3.3	3.1	3.5	3.4	3.3	3.4	3.34	.523 75	.317 90	2.08
10	3.3	3.3	3.4	3.1	3.1	3.3	3.3	3.3	3.4	3.2	3.27	.514 55	.308 70	2.04

From γ Draconis 1873

	Aug 4	5	28	Sept 6			
1	3.3	3.3	3.4	3.2	3.30	0.518 51	0.312 66	2.05
2	3.3	3.2	3.3	3.3	3.27	.514 54	.308 69	2.04
3	6.5	6.7	6.5	6.7	6.60	.819 54	.613 69	4.11
4	3.7	3.3	3.5	3.4	3.47	.540 33	.334 48	2.16
5	3.1	3.5	3.3	3.2	3.27	.514 55	.308 70	2.04
6	3.3	3.2	3.3	3.3	3.27	.514 55	.308 70	2.04
7	3.2	3.2	3.2	3.5	3.27	.514 55	.308 70	2.04
8	6.7	6.6	6.6	6.5	6.60	.819 54	.613 99	4.11
9	3.2	3.3	3.3	3.4	3.30	.518 51	.312 66	2.05
10	3.3	3.3	3.4	(3.0)	3.33	.518 51	.312 66	2.05

From ϑ Cygni 1873 $\alpha = 19^h\ 33^m$ $\delta = +44^\circ\ 56'$ log cos $\delta = 9.84167$

	Sept 1	6	8	9	13	Nov 2				
1	3.3	3.3	3.1	3.2	3.0	3.2	3.18	0.502 43	.311 10	2.05
2	3.3	3.1	3.2	3.2	3.3	3.1	3.20	.505 16	.313 82	2.06
3	6.3	6.4	6.4	6.3	6.3	6.5	6.37	.804 14	.612 81	4.10
4	3.2	3.1	3.2	3.3	3.2	3.1	3.18	.502 43	.311 10	2.05
5	3.1	3.2	3.2	3.2	3.3	3.4	3.23	.509 20	.317 87	2.08
6	3.3	3.2	3.2	3.1	3.2	3.0	3.17	.501 06	.309 73	2.04
7	3.3	3.1	3.2	3.2	3.3	3.4	3.25	.511 88	.320 55	2.09
8	6.3	6.5	6.3	6.5	6.1	6.2	6.32	.800 72	.609 39	4.02
9	3.3	3.1	3.3	3.2	3.3	3.3	3.25	.511 88	.320 55	2.09
10	3.2	3.2	3.2	3.2	3.3	3.2	3.22	.507 86	.316 53	2.07

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1 Tauri Herculis 1872 $\alpha = 17^h 36^m$ $\delta = +46^\circ 4'$ log cos $\delta = 9.84125$

	July 20	24	29	30	Aug 1	6	7	8	10		log i	i
	°	s	s	s	s	s	s	s	s			s
1	3.0	3.2	3.0	3.0	3.0	2.8	3.0	3.0	2.9	2.99	0.475647	.31692	2.07
2	2.9	3.0	2.9	2.9	2.9	2.8	3.1	3.0	3.0	2.94	.46836	.30960	2.04
3	6.1	5.9	6.0	6.0	6.1	6.1	5.9	6.0	5.9	6.00	.77815	.61940	4.16
4	2.9	2.9	3.0	3.1	2.8	3.0	2.9	2.9	3.0	2.94	.46835	.30960	2.04
5	2.9	3.0	3.0	3.0	3.0	2.9	3.0	3.0	3.0	2.98	.47422	.31547	2.07
6	2.9	2.8	2.9	2.9	3.0	3.0	3.1	3.0	2.8	2.93	.46687	.30812	2.03
7	3.1	3.1	3.0	2.9	3.0	3.0	2.8	3.0	3.1	3.00	.47712	.31837	2.08
8	5.8	6.0	6.0	6.1	6.1	6.0	5.9	5.8	6.0	5.97	.77597	.61722	4.14
9	2.9	2.9	2.9	2.8	2.8	2.9	3.0	3.0	3.0	2.91	.46384	.30514	2.02
10	3.2	3.0	3.0	3.0	2.9	2.7	3.0	2.8	2.7	2.94	.46835	.30960	2.04

1 Tauri Herculis 1873

	Aug 4	5	6	10	12	Sept 19			log i	i
1	3.0	3.1	3.0	2.8	3.1	3.0	3.00	.47712	.31837	2.08
2	2.8	3.1	3.0	3.3	3.0	2.8	3.00	.47712	.31837	2.08
3	6.0	5.6	5.8	6.0	5.7	6.0	5.85	.76716	.60841	4.06
4	3.0	3.1	3.0	2.7	3.2	3.0	3.00	.47712	.31837	2.08
5	3.0	2.9	3.0	3.1	2.8	3.0	2.97	.47276	.31401	2.06
6	3.0	3.0	3.1	2.9	3.0	3.0	3.00	.47712	.31837	2.08
7	3.0	3.0	2.9	2.9	3.0	3.0	2.98	.47422	.31547	2.07
8	5.9	5.9	5.9	6.0	5.9	5.7	5.88	.76938	.61063	4.08
9	3.0	3.0	3.0	3.1	3.0	3.2	3.05	.48430	.32655	2.12
10	2.9	3.1	3.0	3.0	3.0	2.9	2.98	.47422	.31547	2.07

2 Tauri Herculis 1872 $\alpha = 17^h 51^m$ $\delta = 5^\circ 5'$ log cos $\delta = 9.73777$

	July 25	27	29	Aug 1	7	8	10				log i	i
1	3.6	3.7	3.6	3.9	3.6	3.7	3.7	3.69	.56703	.30828	.30480	2.02
2	4.0	3.8	3.7	3.8	3.8	3.7	3.8	3.80	.57978	.32103	.31705	2.07
3	7.2	7.6	7.6	7.3	7.6	7.5	7.5	7.47	.87332	.61457	.60059	4.08
4	3.8	3.6	3.8	3.9	3.9	3.8	3.8	3.80	.57978	.32103	.31705	2.07
5	3.7	4.0	3.9	3.9	3.6	3.8	3.7	3.80	.57978	.32103	.31705	2.07
6	3.8	3.7	3.7	3.9	3.9	3.6	4.0	3.80	.57978		.31705	2.07
7	3.8	3.9	3.8	3.5	3.7	3.8	3.7	3.74	.57287		.31014	2.04
8	7.6	7.3	7.5	7.4	7.6	7.6	7.4	7.49	.87448		.61175	4.09
9	3.8	3.8	3.8	3.9	3.7	3.8	3.9	3.81	.58093		.31820	2.08
10	3.6	3.7	3.7	3.7	3.9	3.7	3.7	3.71	.56937		.30664	2.03

2 Tauri Herculis 1873

	Aug 5	28	Sept 19				log i	i
1	3.9	3.9	3.8	3.87	.58771	.32498		2.11
2	3.8	3.7	3.9	3.80	.57978	.31705		2.07
3	7.3	7.5	7.4	7.40	.86923	.60650		4.02
4	3.9	3.8	3.7	3.80	.57978	.31705		2.07
5	3.8	3.8	3.8	3.80	.57978	.31705		2.07
6	3.7	3.7	3.8	3.73	.57171	.30898		2.02
7	4.0	3.8	3.7	3.83	.58320	.32047		2.09
8	7.4	7.6	7.4	7.47	.87332	.61059		4.08
9	3.7	3.8	3.8	3.77	.57634	.31361		2.05
10	3.9	3.7	4.0	3.87	.58771	.32498		2.11

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From o Cygni 1872 $\alpha = 20^h\ 10^m$ $\delta = +46^\circ\ 21'$ log cos δ = 9.83901

	Sept 28	Oct 2	12				
	s	s	s	s	log r	log $\frac{r}{\Delta}$	s
1	2.8	3.1	3.1	3.00	.47712	.31613	2.07
2	3.0	2.9	2.9	2.93	.46687	.30588	2.02
3	6.0	6.1	6.0	6.03	.78032	.61933	4.16
4	3.1	3.1	3.1	3.10	.49136	.33037	2.141
5	3.0	2.8	3.1	2.97	.47276	.31177	2.05
6	2.9	3.0	3.0	2.97	.47276	.31177	2.05
7	3.0	3.0	2.8	2.93	.46687	.30588	2.02
8	6.1	6.0	6.2	6.10	.78533	.62434	4.21
9	2.9	3.0	2.8	2.90	.46240	.30141	2.00
10	3.0	2.9	3.1	3.00	.47712	.31613	2.07

From o Cygni 1873

	Sept 1	Oct 5	9	13	21	23	Nov 1	2				
1	3.2	3.0	3.1	3.1	3.1	3.0	3.1	2.9	3.06	.48572	.32473	2.11
2	2.8	3.0	3.1	3.2	2.9	3.0	2.9	3.0	2.99	.47567	.31468	2.06
3	6.0	6.0	5.7	5.9	6.0	6.0	6.1	6.0	5.96	.77525	.61426	4.11
4	3.0	3.0	3.1	2.9	2.9	3.0	2.8	3.0	2.96	.47179	.31030	2.04
5	2.9	2.9	3.0	3.0	3.1	3.0	3.0	3.0	2.99	.47567	.31468	2.06
6	3.1	3.0	2.9	3.0	2.9	2.9	3.1	2.9	2.97	.47276	.31177	2.05
7	2.9	3.0	3.0	3.1	2.9	3.0	2.9	3.0	2.97	.47276	.31177	2.05
8	6.1	6.0	5.9	5.8	6.0	6.0	6.0	6.0	5.97	.77597	.61498	4.12
9	2.9	3.0	3.1	3.0	2.8	3.0	3.0	3.0	2.97	.47276	.31177	2.05
10	2.8	3.0	3.0	3.0	3.1	2.9	3.0	3.0	2.97	.47276	.31177	2.05

From π^2 Cygni 1873 $\alpha = 21^h\ 42^m$ $\delta = +48^\circ\ 43'$ log cos δ = 9.81940

	Oct 13	14	Nov 2	4				
								s
1	3.2	3.1	3.1	3.1	3.12	.49415	.31355	2.06
2	3.2	3.2	2.9	3.2	3.12	.49415	.31355	2.06
3	6.0	6.1	6.3	6.2	6.15	.78885	.60828	4.06
4	3.2	3.0	3.2	3.2	3.15	.49831	.31771	2.08
5	3.0	3.2	3.1	3.0	3.07	.48714	.30654	2.03
6	3.3	3.3	3.1	3.1	3.20	.50515	.32455	2.11
7	3.1	3.1	3.1	3.1	3.10	.49136	.31076	2.05
8	6.3	6.1	6.3	6.2	6.22	.79379	.61319	4.10
9	3.1	3.2	3.1	3.2	3.15	.49831	.31771	2.08
10	3.0	3.1	3.2	3.1	3.10	.49136	.31076	2.05

From 3 Lacertae 1872 $\alpha = 22^h\ 19^m$ $\delta = +51^\circ\ 36'$. log cos δ = 9.79319

	Oct 5	Nov 3	5	6	9				
1	3.3	3.4	3.3	3.3	3.2	3.30	.51851	.31170	2.05
2	3.2	2.9	3.3	3.3	3.3	3.20	.50515	.29834	1.99
3	6.8	6.8	6.8	6.7	6.7	6.76	.82995	.62314	4.20
4	3.2	3.2	3.3	3.2	3.3	3.24	.51054	.30373	2.01
5	3.3	3.6	3.2	3.3	3.3	3.34	.52375	.31694	2.07
6	3.5	3.1	3.3	3.3	3.4	3.32	.52114	.31433	2.06
7	3.2	3.2	3.5	3.4	3.2	3.30	.51851	.31170	2.05
8	6.7	6.9	6.5	6.7	6.6	6.68	.82478	.61797	4.05
9	3.1	3.2	3.3	3.3	3.2	3.22	.50786	.30105	2.00
10	3.3	3.3	3.3	3.2	3.5	3.32	.52114	.31433	2.06

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From 7 Lacertae 1872 $\alpha = 22^h\ 26^m$ $\delta = 49° 3'$ log cos $\delta = 9.81136$

	Sept 28	Nov 4	20	23		log i'	s	i
	s	s	s	s				s
1	3.1	3.3	3.2	3.1	3.17	.50106	.31242	2.05
2	3.2	3.2	3.1	3.2	3.17	.50106	.31242	2.05
3	6.5	6.3	6.4	6.4	6.40	.80618	.61754	4.15
4	3.2	3.2	3.2	3.1	3.17	.50106	.31242	2.05
5	3.2	3.1	3.3	3.2	3.20	.50515	.31651	2.07
6	3.2	3.0	3.2	3.2	3.15	.49831	.30968	2.04
7	3.0	3.5	3.2	3.2	3.22	.50786	.31922	2.08
8	6.3	6.2	6.2	6.3	6.25	.79588	.60724	4.05
9	3.3	3.3	3.3	3.2	3.27	.51455	.32591	2.12
10	3.4	3.2	3.1	3.3	3.25	.51188	.32324	2.10

From 7 Lacertae 1873

	Oct 5	22	28	Nov 6				i
								s
1	3.2	3.5	3.3	3.0	3.25	.51188	.32324	2.10
2	3.3	3.2	3.1	3.2	3.20	.50515	.31651	2.07
3	6.3	6.3	6.3	6.3	6.30	.79934	.61070	4.08
4	3.1	3.2	3.3	3.2	3.20	.50515	.31651	2.07
5	3.3	3.3	3.1	3.4	3.27	.51455	.32591	2.12
6	3.1	3.2	3.2	3.2	3.17	.50106	.31242	2.05
7	3.1	3.0	3.2	3.0	3.07	.48714	.29850	1.99
8	6.4	6.5	6.4	6.3	6.40	.80618	.61754	4.15
9	3.2	3.3	3.1	3.3	3.22	.50786	.31922	2.09
10	3.1	3.0	3.1	3.3	3.12	.44415	.30551	2.02

From 22 Andromedae 1872 $\alpha = 0^h\ 49^m$ $\delta = 45° 22'$ log cos $\delta = 9.84669$

	Nov 20	Dec 4	7	25				i
								s
1	3.1	3.0	3.0	3.0	3.02	.48001	.32630	2.12
2	2.9	2.9	2.9	2.9	2.90	.46240	.30909	2.04
3	5.9	6.0	5.8	5.9	5.90	.77085	.61754	4.15
4	2.9	2.9	2.8	2.7	2.82	.45025	.29694	1.98
5	3.0	2.9	2.8	3.1	2.95	.46982	.31651	2.07
6	2.9	2.8	3.2	3.1	3.00	.47712	.32381	2.11
7	2.9	2.9	3.0	2.8	2.90	.46240	.30909	2.04
8	5.8	5.9	5.8	5.8	5.82	.76492	.61161	4.09
9	3.1	2.8	2.9	3.1	2.97	.47276	.31945	2.09
10	2.8	3.1	3.0	2.9	2.95	.46982	.31651	2.07

From 22 Andromedae 1873

	Dec 1	6	10	15				i
								s
1	2.9	2.9	3.1	3.1	3.00	.47712	.32381	2.11
2	3.0	2.9	2.8	2.7	2.85	.45484	.30153	2.00
3	5.9	5.7	5.9	6.0	5.87	.76864	.61533	4.12
4	2.8	3.1	2.9	2.9	2.92	.46538	.31207	2.05
5	3.1	2.9	3.0	2.9	2.97	.47276	.31945	2.09
6	2.8	3.0	3.0	2.8	2.90	.46240	.30909	2.04
7	3.0	2.8	3.0	3.1	2.97	.47276	.31945	2.09
8	6.0	5.9	5.8	5.9	5.90	.77085	.61754	4.15
9	3.0	2.9	2.8	3.1	2.95	.46982	.31651	2.07
10	2.9	3.0	2.9	2.9	2.92	.46538	.31207	2.05

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From α Cass. 1872 $\alpha = 0^h 33^m$ $\delta = 55^\circ 50'$ log cos $\delta = 9.74943$

	Nov 16	20	25	Dec 10				
	s	s	s	s			log	s
1	3.6	3.4	3.7	3.5	3.55	.55023	.29566	1.99
2	3.5	3.8	3.6	3.8	3.67	.56467	.31410	2.06
3	7.5	7.3	7.3	7.1	7.30	.86332	.61295	4.16
4	3.5	3.7	3.7	3.7	3.65	.56229	.31172	2.08
5	3.6	3.7	3.6	3.8	3.67	.56467	.31410	2.06
6	3.7	3.6	3.7	3.8	3.70	.56826	.31763	2.08
7	3.8	3.7	3.6	3.7	3.70	.56820	.31763	2.08
8	7.3	7.4	7.5	7.4	7.40	.86923	.61866	4.16
9	3.6	3.5	3.6	3.6	3.57	.55267	.30210	2.00
10	3.9	3.8	3.8	3.6	3.77	.57634	.32577	2.12

From η Persei 1873 $\alpha = 2^h 41^m$ $\delta = 55^\circ 22'$ log cos $\delta = 9.75459$

	Jan 7	9	12	14	Feb 2				
								log	s
1	3.5	3.7	3.3	3.7	3.7	3.58	.55388	.30847	2.03
2	3.7	3.6	3.7	3.6	3.6	3.64	.56110	.31569	2.07
3	7.0	7.2	7.4	7.3	7.3	7.24	.85974	.61433	4.11
4	3.5	3.8	3.3	3.5	3.5	3.52	.54654	.30113	2.00
5	3.7	3.5	4.1	3.8	3.7	3.70	.56820	.32279	2.10
6	3.8	3.7	3.2	3.8	3.5	3.70	.56820	.32279	2.10
7	3.5	3.7	3.7	3.4	3.6	3.58	.55388	.30847	2.03
8	7.3	7.2	3.9	7.3	7.3	7.26	.86094	.61553	4.13
9	3.7	3.7	3.6	3.5	3.8	3.66	.56348	.31807	2.08
10	3.6	3.6	3.9	3.5	3.5	3.62	.55871	.31330	2.06

From 1 Camel. 1873 $\alpha = 4^h 2^m$ $\delta = 53^\circ 38'$ log cos $\delta = 9.77302$

	Jan 4	4	6	6	9	22	29	Feb 6				
											log	s
1	3.5	3.6	3.3	3.4	3.4	3.2	3.4	3.3	3.39	.53020	.30828	2.01
2	3.4	3.4	3.6	3.4	3.6	3.3	3.2	3.5	3.43	.53529	.30831	2.03
3	7.1	7.0	7.0	7.0	6.7	7.2	6.8	6.8	6.95	.84198	.61500	4.12
4	3.4	3.6	3.6	3.7	3.5	3.6	3.8	3.6	3.60	.55830	.32932	2.13
5	3.6	3.3	3.3	3.3	3.5	3.5	3.0	3.6	3.39	.53020	.30822	2.01
6	3.4	3.5	3.6	3.5	3.6	3.4	3.7	3.2	3.49	.54283	.31585	2.07
7	3.6	3.4	3.3	3.3	3.3	3.5	3.7	3.6	3.46	.53908	.31210	2.05
8	6.9	7.1	7.0	7.1	7.0	6.8	6.8	6.9	6.95	.84198	.61506	4.12
9	3.4	3.4	3.5	3.4	3.6	3.6	3.5	3.7	3.51	.54531	.31833	2.08
10	3.5	3.5	3.5	3.3	3.3	3.5	3.3	3.4	3.41	.53275	.30577	2.02

From 15 Lyncis 1873 $\alpha = 6^h 46^m$ $\delta = 58^\circ 35'$ log cos $\delta = 9.71705$

	Feb 11	17	March 10	13				
							log	s
1	3.7	3.9	4.1	4.0	3.92	.59329	.31034	2.04
2	4.0	3.7	3.7	3.8	3.80	.57978	.29683	1.98
3	7.8	8.1	8.1	7.9	7.97	.90146	.61851	4.15
4	4.1	4.0	3.9	3.7	3.92	.59329	.31034	2.04
5	4.0	3.8	4.0	3.6	3.85	.58546	.30251	2.01
6	4.0	4.0	4.1	3.5	3.90	.59106	.30811	2.03
7	3.9	3.9	3.9	4.0	3.92	.59329	.31034	2.04
8	7.9	8.0	7.7	7.9	7.87	.89597	.61302	4.10
9	3.8	4.0	4.0	4.0	3.95	.59660	.31365	2.06
10	4.1	3.9	4.0	3.8	3.95	.59660	.31365	2.06

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Discussion of the wire intervals for the Polar Catalogue observed in 1872-3

The wires for 1872 were cut with the Clark screw.
The wires for 1873 were cut with the Rogers screw.

Polar Groups.

Intervals for 1872

Star	No. Obs.	1	2	3	4	5	6	7	8
		s	s	s	s	s	s	s	s
Polaris	4	1.05	1.08	1.00	1.02	1.06	1.06	1.04	1.03
η Draconis	6	5	4	5	3	5	3	99	5
ν Draconis	11	2	4	4	2	3	6	3	1
2 Urs. Min.	19	2	3	2	3	3	4	2	3
41. 966 L.C.	15	5	2	2	2	4	3	3	4
Ψ¹ Draconis	9	99	5	2	4	1	5	2	1
5 Urs. Min.	10	1	0	1	2	4	2	3	4
51 Cephei L.C.	10	4	2	2	2	4	3	3	3
ε Draconis	3	98	99	0	99	99	11	4	7
76 Draconis	3	5	9	3	4	5	99	6	4
11 Cephei	3	8	1	98	7	2	2	2	9
19 Draconis	6	98	5	3	2	5	1	7	2
24 Cephei	6	99	5	5	1	3	4	1	7
226 B Cephei	6	3	4	2	7	99	5	9	1
31 Cephei	5	7	98	3	2	5	5	2	2
1 Cephei	5	4	7	4	2	99	5	0	8

Means by weights

	1	1.026		
	2	1.032		
	3	1.024		
1.027	4	1.027	Mean 1.030	2.060
	5	1.030		
	6	1.039		
	7	1.029		
1.033	8	1.035		

Probable error of single observation of wires = .018

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Polar Groups.

Intervals for 1873

Star	No. obs.	1	2	3	4	5	6	7	8
		s	s	s	s	s	s	s	s
28 Cassiopeiae	4	1.00	1.09	1.00	1.02	1.04	0.97	1.05	1.05
44 Cephei	7	2	5	99	2	6	1	7	1
Polaris	10	4	4	3	4	2	2	2	6
ν Draconis	4	6	3	2	6	97	2	13	98
λ Draconis	5	1	2	5	2	2	4	0	7
δ Ursæ Min.	7	1	4	3	4	3	2	3	4
Gr. 966 L.C.	5	6	99	1	1	1	99	6	0
ξ Draconis	4	4	14	1	97	4	2	95	10
ε Ursæ Min.	5	3	3	5	3	0	6	8	5
51 Cephei L.C.	4	10	99	6	94	6	3	6	2
ε Draconis	8	4	4	2	2	5	6	1	1
ι Cephei	5	5	3	6	99	9	3	4	4
56 Draconis	5	5	3	4	5	1	2	4	6
11 Cephei	4	2	2	2	1	7	2	1	3
79 Draconis	4	2	3	2	1	5	3	3	4
24 Cephei	4	3	7	0	2	5	99	7	99
226 B Cephei	6	3	5	4	99	7	0	0	4
81 Cephei	7	2	0	3	99	4	3	4	4
i Cephei	5	3	2	3	2	1	4	1	1

Means by weights.

1	$i = 1.036$	
2	1.036	
3	1.027	Mean
4	1.015	1.030
5	1.037	
6	1.023	
7	1.033	
8	1.034	

s 1.029

s 1.032

s 2.060

Adopted mean of polar groups. (See 4th page following)

1	1.031
2	1.134
3	1.026
4	1.028
5	1.028
6	1.031
7	1.031
8	1.034

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Equatorial Groups.
Intervals for 1872

	Nos. obs.	1	2	3	4	5	6	7	8	9	10
22 Androm.	4	2.12	2.04	4.15	1.98	2.07	2.11	2.14	4.09	2.09	2.07
α Cass.	4	99	6	10	5	6	8	8	16	0	12
Gr. 2377	9	4	6	12	5	6	9	5	11	5	7
β Draconis	12	4	10	11	3	7	6	6	12	7	6
γ Draconis	10	8	3	13	7	7	5	5	10	8	4
i Herculis	9	7	4	16	4	7	3	8	14	2	4
ξ Draconis	7	2	7	8	7	7	7	4	9	8	9
o Cygni	3	7	2	16	14	5	5	2	21	0	7
3 Lacertae	5	5	99	20	1	7	6	5	15	0	6
7 Lacertae	4	5	5	15	5	7	4	8	5	12	10
		61									

Means by weights.

1	$i = 2.053$	
2	.053	
3	.065	
4	.049	
5	.067	2.057
6	.062	
7	.056	
8	.059	
9	.055	
10	.058	2.058

Mean 2.058

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Equatorial Groups.

Intervals for 1873

Star.	No. Obs.	1	2	3	4	5	6	7	8	9	10
22 Androm.	4	2.11	2.00	4.12	2.05	2.09	2.04	2.19	4.15	2.07	2.05
p Persei	5	3	7	11	0	10	10	3	13	8	6
1 Camel.	8	1	3	12	13	1	7	5	12	8	2
15 Lyncis	4	4	98	15	4	1	3	4	10	6	6
ε Bootis	7	8	5	13	7	1	8	8	8	5	7
Gr. 2296	7	10	6	8	10	4	6	5	11	8	4
Gr. 2377	6	11	3	12	3	6	7	6	12	7	4
β Draconis	—	—	—	—	—	—	—	—	—	—	
i Herculis	6	8	8	6	8	6	8	7	8	12	7
ε Draconis	3	11	7	4	7	7	4	9	8	6	11
g Draconis	4	5	4	11	16	4	4	4	17	5	5
ε Cygni	6	5	6	10	5	8	4	9	7	9	7
δ Cygni	8	11	6	11	4	6	5	5	12	5	5
π^2 Cygni	4	6	6	6	8	3	11	5	10	8	5
7 Lacertae	4 / 76	10	7	8	7	12	5	99	15	9	2

Means by weights.

1	$i = 2^s.073$	
2	.048	
3	.051	
4	.070	
5	.052	$2^s.059$
6	.063	
7	.056	
8	.054	
9	.074	
10	.054	$2^s.060$

Mean $2^s.059$

A Aquilæ.

1	$i = 2^s.056$	
2	2.057	
3	4.116	
4	2.058	
5	2.059	
6	2.062	
7	2.056	
8	4.113	
9	2.060	
10	2.056	

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Probable Error of Observation

v is derived by comparing each result by the constants 1.03 or 2.06

Polar Group in Ra		Polar Group 1873		Equatorial Group in Ra		Equatorial Group in Dec		
v	v	v	v	v	v	v	v	v
s	s	s	s	s	s	s	s	s
.02	.04	.03	.01	.01	.06	.02	.05	.05	.06
2	1	1	2	1	7	1	3	5	0
3	1	3	5	2	2	4	5	2	1
3	3	2	0	4	2	2	2	0	3
2	2	3	9	3	2	2	4	0	1
4	0	1	1	1	1	1	5	1	2
2	1	0	4	2	5	0	2	2	3
1	2	7	2	2	1	1	2	0	1
5	1	1	2	3	1	2	0	3	0
2	4	2	1	5	1	2	4	6	4
5	2	1	4	4	1	2	0	2	0
5	1	1	4	1	2	0	4	2	1
4	2	0	1	3	0	4	1	2	2
0	0	1	3	7	4	1	0	1	2
4	4	0	1	2	3	3	2	2	1
1	2	1	6	1	2	2	1	2	5
1	5	1	0	0	1	2	0	1	1
1	3	0	2	1	4	1	0	0	2
0	0	1	1	4	1	0	0	0	1
1	3	1	4	2	2	1	1	1	2
2	1	1	1	1	0	2	0	1	1
3	0	0	1	2	3	8	3	0	3
1	2	2	1	1	8	1	1	4	0
4	3	1	1	1	1	3	6	0	6
6	1	1	1	1	2	1	2	8	8
8	2	1	1	1	1	8	1	1	1
2	4	1	1	1	1	5	2	2	7
2	1	1	1	1	1	1	1	1	3
1	3	1	1	1	1	1	1	6	1
5	1	1	1	1	1	1	1	4	0
4	2	1	1	1	1	1	0	1	2
3	2	1	1	1	1	0	1	0	4
2	2	1	1	1	1	1	5	1	1
1	1	1	1	1	1	2	3	0	2
1	1	1	1	1	1	3	0	1	2
1	1	1	1	1	1	1	3	1	2
2	1	1	1	1	1	1	1	0	1
1	1	1	1	1	1	0	2	1	2
3	1	1	1	1	1	1	0	3	2
0	1	1	1	1	1	1	4	1	1
5	1	1	1	1	1	1	1	7	3
0	1	1	1	1	1	1	1	3	1
2	1	1	1	1	1	1	1	1	0
1	1	1	1	1	1	1	1	2	2
0	1	1	1	1	1	1	1	4	4
1	1	1	1	1	1	1	1	1	1
0	1	1	1	1	1	1	1	0	4
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	0	2
1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	0	1
1	1	1	1	1	1	1	1	1	2
4	1	1	1	1	1	1	1	0	1
1	1	1	1	1	1	1	1	1	2
2	1	1	1	1	1	1	1	0	1
6	1	1	1	1	1	1	1	1	2
4	2	1	1	1	1	1	1	0	1
.01	.05	1	1	1	1	1	1	1	2
									1

Prob. error of single observation of N wires = .018s

Prob. error of single observation of S wires = .020s

Prob. error of single observation of N wires = .021s

Prob. probable error of single observation = .019s

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Special Note.

In order to ascertain whether intervals 4 and 5 of the polar group and 1 and 2 of the equatorial group really vary from the mean value 2.060 as the observations seem to indicate, the following additional determinations are made for these intervals.

Equatorial Group

81 Leonis $\alpha = 10^h\ 20^m$ $\delta = +37^\circ\ 22'$ log cos δ 9.90024

											log i	i	Δ
I	2.5	2.4	2.7	2.6	2.6	2.4	= 2.53		= 2.53	0.40312	.30336	2.01	
II	2.7	2.6	2.5	2.6	2.5	2.5	= 2.57		= 2.57	40993	.31017	2.04	

41 Leonis 10 36 + 23 52 9.96118

I	2.2	2.2	2.5	2.2	2.4	2.2	2.3	2.2	2.1	= 2.26	0.35411	.31529	2.07	.07
II	2.2	2.3	2.2	2.2	2.3	2.2	2.3	2.3	2.2	= 2.26	35218	.31336	2.06	.02

42 Leonis 10 39 + 31 22 9.93138

I	2.4	2.5	2.5	2.4	2.4	2.4	2.1	2.4	2.2	= 2.37	0.37475	.30613	2.02	.08
II	2.5	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	= 2.41	38270	.32408	2.11	.04

46 Leonis 10 46 + 34 56 9.91381

I	2.5	2.4	2.9	2.4	2.6	2.5	2.5	2.4		= 2.52	0.40140	.31521	2.07	.01
II	2.5	2.6	2.5	2.4	2.5	2.6	2.5	2.6		= 2.52	40140	.31521	2.07	2.0415

B Mus. Maj. 10 52 + 67 4 9.73533

I	3.6	3.7	3.7	3.8	3.8	3.8	3.8	3.7		= 3.74	0.57287	.30820	2.03	II 9
II	3.7	3.9	3.8	3.9	3.8	3.9	4.0	3.8		= 3.85	.58526	32079	2.09	2.04

V Mus. Maj 11 2 + 45 12 9.84796

I	2.9	3.0	3.0	2.8	2.7	3.0	3.1	2.9	2.8	= 2.91	0.46389	.31185	2.05	.09
II	2.9	2.9	3.0	3.1	3.1	2.8	2.9	3.0	3.1	= 2.98	.47422	.32218	2.09	.09

Gr. 1757 11 9 + 58 11 9.80641

I	3.3	3.3	3.2	3.2	3.3	3.0	3.5	3.2	3.2	3.3	= 3.25	0.51188	.31829	2.08	.03
II	3.4	3.3	3.2	3.3	3.2	3.4	3.0	3.2	3.2	3.2	= 3.24	.51055	.31696	2.07	.11

W Mus. Maj 11 11 + 33 48 9.91959

I	2.5	2.6	2.4	2.8	2.4	2.5	2.3	2.5	2.4	2.5	= 2.46	0.39094	.31053	2.04	.11
II	2.5	2.5	2.4	2.5	2.5	2.5	2.6	2.5	2.5	2.2	= 2.47	39270	.31229	2.05	2.074

9 Mus. Maj 11 47 + 54 24 9.76501

I	3.6	3.5	3.5	3.6	3.5	3.6	3.6	3.5	3.3	3.5	= 3.52	0.54654	.31155	2.05	
II	3.5	3.6	3.7	3.5	3.5	3.2	3.6	3.6	3.7	3.5	= 3.54	54900	.31401	2.06	

ν Can. Ven. 12 9 + 41 23 9.87524

I	2.6	2.8	2.5	2.7	2.7					= 2.72	0.43457	.30981	2.04	
II	2.8	2.7	2.6	2.6	2.8					= 2.70	43136	.30660	2.03	

6 Can. Ven. 12 19 + 39 44 9.88594

I	2.6	2.8	2.7	2.6	2.5	2.6				= 2.63	0.41996	.30590	2.02	
II	3.0	3.0	2.7	2.7	2.4	2.7				= 2.78	43933	.32527	2.11	

ε Virginis 12 56 + 11 37 9.99096

I	2.0	2.0	2.3	2.0	2.0	2.1	2.1	2.1	2.2	2.2	= 2.10	0.32222	31318	2.06	
II	2.2	2.1	2.1	2.2	2.3	2.1	2.2	2.2	2.1	2.3	= 2.16	33244	.33340	2.11	

No. of pairwires = 100

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Polar Group.

																				Means.	i
31 Cephei	α=10h 32m	+72° 59′	(4)	3.8	3.6	3.6	3.6	3.7	3.5	3.6	3.7									3.64	0.56110	1.07
	Equat. 9.46635		(5)	3.4	3.7	3.4	3.5	3.3	3.5	3.2	3.4									3.42	.53403	1.00
β_2 1508	10 50	+78 28	(4)	5.3	5.3	5.4	5.2	4.9	4.9	5.3	5.0	5.0	4.8							5.11	0.70842	1.02
	9.30090		(5)	4.9	5.0	5.1	5.3	5.0	4.8	5.2	5.3	5.4	5.2							5.12	.70927	1.01
α Ursæ Maj.	10 56	+62 27	(4)	2.0	2.2	2.5	2.4	2.3	2.3	2.1	2.3	2.3	2.0	2.2	2.3					2.26	0.35411	1.05
	9.66513		(5)	2.3	2.3	2.2	2.2	2.2	2.0	2.1	2.0	2.1	2.3	2.3	2.3					2.19	.34044	1.01
ℓ_{11} 1771	11 15	+65 2	(4)	2.5	2.4	2.5	2.4	2.4	2.1	2.2	2.7	2.4								2.40	38021	1.01
	9.62541		(5)	2.4	2.5	2.4	2.4	2.8	2.1	1.9	2.4									2.36	.37291	1.02
λ Draconis	11 24	+70 2	(4)	3.0	2.7	3.2	3.5	3.2	3.0	3.0	3.2	3.1	3.2	3.0	3.1					3.10	49136	1.06
	9.53336		(5)	3.0	2.5	2.9	2.9	2.7	2.9	2.9	2.8	3.0	3.0	2.7	3.2					2.78	.44404	.95
γ Cephei	11 34	+76 55	(4)	4.6	4.5	4.6	4.5	4.5	4.2	4.0	4.2									4.50	6.65321	1.02
	9.35481		(5)	4.6	4.7	4.6	4.7	4.2	4.5	4.11	4.6									4.49	.65225	1.02
4 Draconis	12 6	+78 20	(4)	5.5	5.4	5.11	4.8	(6.2)	4.0	5.1	5.2	5.3	5.4							8.19	.91517	1.05
	9.30582		(5)	4.8	4.9	5.11	4.9	5.2	5.3	5.7	4.7	5.0	4.5							8.04	.69897	1.01
κ Draconis	12 28	+70 30	(4)	3.1	3.2	3.3	3.2	3.2												3.25	.51188	1.08
	9.25250		(5)	3.2	2.9	2.8	2.9	3.3												3.02	.48001	1.01
23 Lacaz.	12 39	+74 10	(4)	4.1	3.7	3.8	3.8	3.8	3.5											3.78	.57749	1.08
	9.43591		(5)	3.4	3.8	3.7	3.5	3.8	3.8											3.67	.56467	1.00
ℓ_{11} 1927	12 41	+81 20	(4)	7.2	7.1	6.5	6.6	6.8												6.84	.83506	1.03
	9.17807		(5)	6.5	6.3	7.0	6.5	7.1												6.68	.82478	1.01
32 Camel	12 48	+30 6	(4)	9.4	9.8	11.0	10.7	9.2	9.4											9.92	99657	1.02
	9.01196		(5)	10.5	10.7	9.7	9.3	11.3	9.9											10.07	1.00303	1.03

Equatorial Group.

	Spaces	s	Mean s
1st Series	I	= 2.073	
2nd Series	I	2.045	2.059
1st Series	II	= 2.048	
2nd Series	II	= 2.074	2.061

Polar Group.

Spaces.	s	Means s	s
(4)	= 1.015		
(5)	1.040	1.028	2.056
(4)	1.037		
(5)	1.014	1.026	2.052

(4)	(5)
1.07	1.00
.02	.01
.05	.02
.01	(.95)
.16	.02
.02	.01
.05	.01
.08	.00
.03	.01
.03	.03
.02	.03
1.046	1.014

It is therefore obvious that the apparent small discordances are due to errors of observation and not to errors of the ruling. The discordances being considerably less than the means of observation it is safe to assume that the lines are ruled more accurately than it is possible to observe. .01 s corresponds to about $\frac{1}{12000}$ in. with the screw. As the screw has been found in various trials and by various methods to have errors quite within this value, it will be assumed that the spaces are equal in the Reduction of the Polar Catalogue. In any event there is no sensible value for the reduction to the mean of the wires.

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Final discussion of results.

Equatorial values of i for 40 divisions of the screw head.

First discussion	1871-2	$i = 2.062$
Second "	" "	$i = 2.060$
Polar group	1872	$i = 2.060$
Polar group	1873	$i = 2.060$
Equatorial group	1872	$i = 2.058$
Equatorial group	1873	$i = 2.059$

Mean 2.0598

The value hitherto adopted is 2.060 and this value will be used until further notice.

Tabular reduction & mean of wires.

Equatorial Group.

$A+1$	1	+ 12.360
	2	+ 10.300
	3	+ 8.240
A	1	+ 4.120
	2	+ 2.060
	3	+ 0.000
	4	− 2.060
	5	− 4.120
$A-1$	1	− 8.240
	2	− 10.300
	3	− 12.360

Polar Group.

$A+1$	1	+ 12.360
	2	+ 10.300
	3	+ 8.240
A.	1	+ 4.120
	2	+ 3.090
	3	+ 2.060
	4	+ 1.030
	5	+ 0.000
	6	− 1.030
	7	− 2.060
	8	− 3.090
	9	− 4.120
$A-1$	1	− 8.240
	2	− 10.300
	3	− 12.360

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Mean intervals from 0° to 80°

i°	i″	Δ
0	2.06	
		.5
5	2.07	.01
10	2.09	.02
15	2.13	.04
20	2.19	.06
25	2.27	.08
30	2.38	.11
35	2.52	.14
40	2.69	.17
		.08
42	2.77	
44	2.86	.09
46	2.96	.10
48	3.08	.12
50	3.21	.13
52	3.35	.14
54	3.50	.15
56	3.68	.18
58	3.89	.21
60	4.12	.23

i°	i″	Δ1	Δ2
60	4.12		
		.13	
61	4.25		.01
		14	
62	4.39		0
		14	
63	4.53		3
		17	
64	4.70		0
		17	
65	4.87		2
		19	
66	5.06		2
		21	
67	5.27		2
		23	
68	5.50		2
		25	
69	5.75		2
		27	
70	6.02		4
		31	
71	6.33		3
		34	
72	6.67		4
		38	
73.	7.05		4
		42	
74	7.47		7
		49	
75	7.96		7
		56	
76	8.52		8
		64	
77	9.16		11
		75	
78	9.91		14
		89	
79	10.80		17
		106	
80	11.86		

Logarithms of Intervals.

Equatorial Group.

		log i″
A_{+1}	1	1.09202
	2	1.01284
	3	0.91593
A	1	0.61490
	2	0.31387
	3	0.00000
	4	0.31388$_n$
	5	0.61494$_n$
A_{-1}	1	0.91593$_n$
	2	1.01284$_n$
	3	1.09202$_n$

Polar Group.

		log i″
	1	0.61490
	2	0.48996
	3	0.31387
A	4	0.01284
	5	0.00000
	6	0.01284$_n$
	7	0.31387$_n$
	8	0.48996$_n$
	9	0.61490$_n$

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δ	tang δ	Δ	x	δ	tang δ	Δ	x	δ	tang δ	Δ	x
°			s	°			s	°			s
0	0.000		− .015	60	1.732		−.031	70	2.748		−.041
1	.017	17	.015	10	1.744	12		10	2.773	25	.042
2	.034	17	.015	20	1.756	12		20	2.798	25	.043
3	.052	18	.015	30	1.768	12		30	2.824	26	.043
4	.070	18	.015	40	1.780	12		40	2.850	26	.044
5	.087	17	.016	50	1.792	13		50	2.877	27	.044
6	.105	18	.016	61	1.804	12	.032	71	2.904	27	.045
7	.123	18	.016	10	1.817	13		10	2.932	28	.045
8	.141	18	.016	20	1.829	12		20	2.960	28	.046
9	.159	18	.016	30	1.842	13		30	2.989	29	.046
10	.176	17	.016	40	1.855	13		40	3.018	29	.047
11	.194	18	.016	50	1.868	13		50	3.048	30	.048
12	.213	19	.016	62	1.881	13	.033	72	3.078	30	.049
13	.231	18	.016	10	1.894	13		10	3.109	31	.049
14	.250	19	.016	20	1.907	13		20	3.140	31	.050
15	.268	18	.016	30	1.921	14		30	3.172	32	.050
16	.287	19	.016	40	1.935	14		40	3.204	32	.051
17	.306	19	.016	50	1.949	14		50	3.237	33	.051
18	.325	19	.016	63	1.963	14	.034	73	3.271	34	.052
19	.344	19	.016	10	1.977	14		10	3.305	34	.052
20	.364	20	.016	20	1.991	14		20	3.340	35	.053
21	.384	20	.017	30	2.006	15		30	3.376	36	.053
22	.404	20	.017	40	2.020	14		40	3.413	37	.054
23	.424	20	.017	50	2.035	15		50	3.450	37	.054
24	.445	21	.017	64	2.050	15	.035	74	3.488	38	.055
25	.466	21	.017	10	2.066	16		10	3.526	38	.055
26	.488	22	.018	20	2.081	15		20	3.566	40	.056
27	.510	22	.017	30	2.097	16		30	3.606	40	.057
28	.532	22	.018	40	2.112	15		40	3.647	41	.057
29	.554	22	.018	50	2.128	16		50	3.689	42	.058
30	.577	23	.018	65	2.145	17	.036	75	3.732	43	.059
31	.601	24	.018	10	2.161	16		10	3.776	44	.059
32	.625	24	.019	20	2.178	17		20	3.821	45	.060
33	.650	25	.019	30	2.194	16		30	3.867	46	.061
34	.675	25	.019	40	2.211	17		40	3.914	47	.061
35	.701	26	.019	50	2.229	18		50	3.962	48	.062
36	.727	26	.019	66	2.246	17	.037	76	4.011	49	.063
37	.754	27	.020	10	2.264	18		10	4.061	50	.064
38	.781	27	.020	20	2.282	18		20	4.113	51	.065
39	.810	29	.020	30	2.300	18		30	4.166	53	.066
40	.839	29	.020	40	2.318	18		40	4.220	54	.067
41	.869	30	.020	50	2.337	19		50	4.275	55	.068
42	.900	31	.021	67	2.356	19	.038	77	4.332	57	.069
43	.933	33	.021	10	2.375	19		10	4.390	58	.069
44	.967	34	.021	20	2.395	20		20	4.449	59	.070
45	1.001	34	.022	30	2.414	19		30	4.511	62	.071
46	1.036	35	.022	40	2.434	20		40	4.574	63	.072
47	1.073	37	.023	50	2.455	21		50	4.638	64	.073
48	1.111	38	.023	68	2.475	20	.039	78	4.705	67	.074
49	1.151	40	.023	10	2.496	21		10	4.773	68	.075
50	1.192	41	.024	20	2.517	21		20	4.843	70	.076
51	1.235	43	.024	30	2.539	22		30	4.916	73	.077
52	1.280	45	.025	40	2.561	22		40	4.990	74	.078
53	1.326	46	.025	50	2.583	22		50	5.066	76	.079
54	1.375	49	.026	69	2.605	22	.040	79	5.145	79	.080
55	1.427	52	.027	10	2.628	23		10	5.226	81	.081
56	1.482	55	.027	20	2.651	23		20	5.309	83	.082
57	1.540	58	.028	30	2.675	24		30	5.396	87	.084
58	1.600	60	.029	40	2.699	24		40	5.485	89	.085
59	1.664	64	.030	50	2.723	24		50	5.576	91	.086
60°	1.732	68	−.031	70°	2.748	24	.041	80°	5.671	95	−.088

$\frac{1}{2}$ tang 81° 18′ 49″

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S	Tang S	Δ	x
80°	5.671		−.088
10′	5.769	.098	.080
20	5.871	.102	.091
30	5.976	.105	.093
40	6.084	.108	.094
50	6.197	.113	.096
81	6.314	.117	.098
10	6.435	.121	.100
20	6.561	.126	.102
30	6.691	.130	.104
40	6.827	.136	.106
50	6.968	.141	.108
82	7.116	.148	.110
10	7.269	.153	.112
20	7.429	.160	.115
30	7.596	.167	.117
40	7.771	.175	.120
50	7.953	.182	.123
83	8.145	.192	.126
10	8.345	.200	.129
20	8.556	.211	.132
30	8.777	.221	.135
40	9.010	.233	.139
50	9.255	.245	.142
84	9.514	.259	.146
10	9.788	.274	.150
20	10.078	.290	.155
30	10.385	.307	.160
40	10.712	.327	.165
50	11.059	.347	.170
85°	11.430	.371	.175
2′	11.507	.077	.176
4	11.585	.078	.177
6	11.665	.080	.178
8	11.745	.080	.179
10	11.826	.081	.181
12	11.909	.083	.182
14	11.992	.083	.183
16	12.077	.085	.185
18	12.163	.086	.186
20	12.250	.087	.188
22	12.339	.089	.190
24	12.429	.090	.191
26	12.520	.091	.193
28	12.612	.092	.193
30	12.706	.094	.195
32	12.801	.095	.196
34	12.898	.097	.197
36	12.996	.098	.199
38	13.096	.100	.201
40	13.197	.101	.202
42	13.299	.102	.204
44	13.404	.105	.205
46	13.509	.105	.207
48	13.618	.109	.208
50	13.727	.109	.210
52	13.838	.111	.212
54	13.951	.113	.214
56	14.065	.114	.215
58′	14.182	.117	.217
86°	14.301	.119	−.219

S	Tang S	Δ	x
86°	14.301		−.219
1′	14.361	.060	.220
2	14.422	.061	.221
3	14.483	.061	.222
4	14.544	.061	.223
5	14.606	.062	.224
6	14.669	.063	.225
7	14.732	.063	.226
8	14.796	.064	.227
9	14.860	.064	.228
10	14.925	.065	.229
11	14.990	.065	.230
12	15.056	.066	.231
13	15.122	.066	.232
14	15.189	.067	.233
15	15.257	.068	.234
16	15.325	.068	.235
17	15.394	.069	.237
18	15.464	.070	.238
19	15.534	.070	.239
20	15.605	.071	.240
21	15.676	.071	.241
22	15.748	.072	.242
23	15.821	.073	.243
24	15.895	.074	.244
25	15.969	.074	.245
26	16.044	.075	.246
27	16.120	.076	.247
28	16.196	.076	.248
29	16.273	.077	.249
30	16.350	.077	.250
31	16.429	.079	.251
32	16.508	.079	.252
33	16.588	.080	.254
34	16.668	.080	.255
35	16.750	.082	.256
36	16.832	.082	.258
37	16.915	.083	.259
38	16.999	.084	.260
39	17.084	.085	.261
40	17.169	.085	.263
41	17.256	.087	.264
42	17.343	.087	.266
43	17.432	.089	.267
44	17.521	.089	.268
45	17.611	.090	.270
46	17.702	.091	.271
47	17.794	.092	.273
48	17.886	.092	.274
49	17.980	.094	.276
50	18.075	.095	.277
51	18.172	.097	.278
52	18.269	.097	.280
53	18.367	.098	.281
54	18.465	.098	.283
55	18.565	.100	.284
56	18.666	.101	.286
57	18.768	.102	.287
58	18.871	.103	.289
59′	18.976	.105	.291
87°	19.081	.105	−.292

S	Tang S	Δ	x
87°	19.081		−.292
1′	19.188	.107	.293
2	19.296	.108	.295
3	19.405	.109	.297
4	19.516	.111	.299
5	19.628	.112	.300
6	19.740	.112	.302
7	19.855	.114	.304
8	19.970	.116	.306
9	20.087	.117	.307
10	20.206	.119	.309
11	20.326	.120	.311
12	20.447	.121	.313
13	20.569	.122	.315
14	20.693	.124	.317
15	20.819	.126	.319
16	20.946	.127	.321
17	21.075	.129	.323
18	21.205	.130	.325
19	21.337	.132	.327
20	21.470	.133	.329
21	21.605	.135	.331
22	21.742	.137	.333
23	21.881	.139	.335
24	22.022	.141	.337
25	22.164	.142	.339
26	22.308	.144	.342
27	22.453	.146	.344
28	22.602	.148	.346
29	22.752	.150	.348
30	22.904	.152	.351
31	23.058	.154	.353
32	23.214	.156	.355
33	23.372	.158	.357
34	23.532	.160	.360
35	23.694	.162	.362
36	23.859	.165	.365
37	24.026	.167	.367
38	24.196	.170	.370
39	24.368	.172	.373
40	24.542	.174	.376
41	24.719	.177	.378
42	24.898	.179	.381
43	25.080	.182	.384
44	25.264	.184	.387
45	25.451	.187	.389
46	25.642	.191	.392
47	25.835	.193	.395
48	26.031	.196	.398
49	26.230	.199	.401
50	26.432	.202	.404
51	26.637	.205	.407
52	26.845	.208	.411
53	27.057	.212	.414
54	27.272	.215	.417
55	27.490	.218	.420
56	27.712	.222	.424
57	27.938	.225	.427
58	28.167	.230	.431
59′	28.400	.233	.434
88°	28.636	.236	−.438

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S	tang S	A_1	A_2	x	S'
88°	28636				− .438
1	28877	.241	4		.442
2	29122	.245	4		.446
3	29371	.249	4		.449
4	29624	.253	5		.453
5	29882	.258	5		.457
6	30145	.263	6		.461
7	30412	.267	4		.465
8	30683	.271	6		.469
9	30960	.277	5		.473
10	31242	.282	5		.478
11	31529	.287	5		.482
12	31821	.292	5		.487
13	32118	.297	6		.491
14	32421	.303	6		.496
15	32730	.308	5		.501
16	33045	.314	7		.506
17	33.366	.321	6		.510
18	33.693	.327	7		.515
19	34.027	.334	7		.520
20	34.368	.341	7		.526
21	34.716	.348	6		.531
22	35.070	.354	7		.537
23	35.431	.361	8		.542
24	35.800	.369	8		.548
25	36.177	.377	8		.553
26	36.562	.385	9		.559
27	36.956	.394	8		.565
28	37.358	.402	9		.571
29	37.769	.411	9		.577
30	38.189	.420	9		.584
31	38.618	.429	10		.590
32	39.057	.439	10		.597
33	39.506	.449	10		.604
34	39.965	.459	11		.611
35	40.435	.470	12		.618
36	40.917	.482	12		.626
37	41.411	.494	12		.633
38	41.916	.505	12	.5	.641
39	42.433	.517	14		.649
40	42.964	.531	13		.657
41	43.508	.544	14		.665
42	44.066	.558	15		.674
43	44.639	.573	14		.683
44	45.226	.587	16		.692
45	45.829	.603	17		.701
46	46.449	.620	16		.710
47	47.085	.636	18		.720
48	47.739	.654	18		.730
49	48.412	.673	19		.740
50	49.104	.692	20		.751
51	49.816	.712	21		.762
52	50.549	.733	21		.773
53	51.303	.754	23		.785
54	52.080	.777	25		.797
55	52.882	.802	25		.809
56	53.709	.827	26		.821
57	54.562	.853	27		.834
58	55.442	.880	29		.848
59	56.351	.909	31		.862
89°	57.291	.940			− .876

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Investigation of the Flexure of the Meridian Circle.

Let R_f = The reduction for Flexure.

Suppose the circle reading of the South Collimator $= 90° + x = z$, reckoning from the zenith South.
" " North Collimator $= 270° + x = z'$ " " " "

Let $R_f = y \sin z$, y being the constant part of correction for flexure

Then the reading of the South Collimator $= 90° + x + y \sin z = z$
" " " " North " $= 270 + x + y \sin z' = z'$

But $\sin z = \cos y$
$\sin z' = -\cos x$

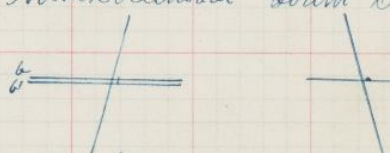
$$z = 90° + x + y \cos x$$
$$z' = 270° + x - y \cos x$$
$$z' - z = 180 - 2y \cos x$$
$$z' - z - 180 = -2y$$
$$\frac{z' - z - 180°}{2} = -y.$$

R_f when applied to the circle readings (as South zenith distances) is positive when the reading of the North Collimator is greater than that of the South collimator.

R_f when applied to the declinations is positive when the reading of the South Collimator is greater than the reading of the North Collimator for all stars South of the zenith and negative for all stars North of the zenith.

Measures for Flexure.

Date		Mean of Ex $\frac{b}{a}$ I	Mean of Ex $\frac{a}{b}$ II	N.b. − S.b. I	N.b. − S.b. II	Remarks.
Feb 17, 1876	N.C. =	45° 1′ 19.14″	1′ 16.89″	+1.15″	+1.23	The measures of this date were made with the lines inclined by which have been in use in the Collimators for the last 5 years.
	S.b. =	1 18.00	1 15.66	+0.59	+0.62	
Mar. 6 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 28.69	1 31.33	+1.15	+1.30	Messrs Searle & Lowe put in a system of lines in the Collimators arranged thus:-
	S.b. =	27.54	1 30.03	+0.57	+0.65	
Mar 7 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 32.34	1 34.53	+1.76	+1.99	
	S.b. =	30.58	32.54	+0.88	+0.99	
Mar 13 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 32.23	1 32.90	+3.45	+2.88	
	S.b. =	28.78	30.02	+1.72	+1.44	
Mar 14 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 ——	1 31.17	2.14		
	S.b. =	——	29.03	+1.07		
Mar 15 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 ——	1 31.22	+2.04		
	S.b. =	——	29.18	+1.02		
Mar 18 $\left(\frac{b}{a}, \frac{a}{b}\right)$	N.b. =	1 30.63	1 32.36	+2.23	+2.94	
	S.b. =	28.40	29.42	+1.14	+1.47	



To get Coincidence the wire a is first set Midway between b and b'
The circles are then read for each Collimator.
In a few cases a is then set on b' by superposition and the circle readings are then taken for this position.
In the first case the observation is marked $\left(\frac{b}{a}, \frac{a}{b'}\right)$ and in the second $\left(\frac{a}{b}, \frac{b}{a'}\right)$

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Date		Mean of E & G = I	Mean of F & H = II	Mb − Sb. I	Mb − Sb. II
1876 Mar 21	Mb. = (b, a, b')	45° 1′ 29.56″	1′ 33.07	+1.42	+2.20
	Sb. =	28.14	30.67	+.71	+1.10
Mar 22	Mb. = (b, a, b')	1 30.87	1 33.70	+2.43	+1.69
	Sb. =	28.44	32.01	+1.21	+.85
Mar 22	Mb. = (b, a, b')	1 30.45	1 33.12	+1.59	+1.64
	Sb. =	28.86	31.48	+.80	+.82
Mar 27	Mb. = (b, a, b')	1 31.12	1 33.57	+1.49	+1.77
	Sb. =	29.63	31.82	+.74	+.88
Mar 27	Mb. = (a, b,	1 32.54	1 33.00	+1.89	+1.27
	Sb. =	30.65	31.73	+0.90	+0.69
Mar 29	Mb. = (a, b')	1 29.91	1 30.57	+1.24	+1.13
	Sb. =	28.67	29.44	+.62	+.57

Results.

For the Meridian Circle of Harvard College Observatory

Positive when applied to south zenith distances. — negative when applied to north zenith distances.

For Declinations.

R_f is negative for all stars south of the zenith and positive for all stars north of the zenith.

	From E & G	From F & H
Feb. 17	+0.″59 ———	+0.62″ ———
Mar 6	+0.57 +173	+0.65 +123
Mar 7	+0.88 +144	+0.99 +144
Mar 13	+1.72 +76	+1.44 +76
Mar 14	+1.07 +85	+1.07 +85
Mar 15	- - - +84	+1.02 +84
Mar 16	+1.14 +85	+1.47 +85
Mar 21	+0.71 +87	+1.10 +87
Mar 22	+1.21 +104	+0.85 +104
Mar 22	+0.80 +104	+0.82 +104
Mar 27	+0.74 +142	+0.85 +142
Mar 27	+0.90 +142	+0.64 +142
Mar 29	+0.62 +150	+0.57 +150
Means	+0.92 +110	+0.93″ +110

Mean Value adopted from Nov 10 1870 to Apr 11 1876

$$R_f = 0.93'' \sin z = +2.03'' \sin z$$

Note. Mode Dec 25 1876. The values of the flexure given above are incorrect. The telescope was not set for the line of no collimation when pointed on the collimators. The values given have therefore to be corrected by the difference between the readings for the north and south collimators multiplied by tang z. The true values are given in red.

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Eleyure.

Tabular values of $\rho \sin \zeta$ for horizontal eleyure = 0".63

For Zenith Distances

ζ	ρ sin ζ	ζ	ρ sin ζ
0	0.00"	45	0.65"
1	.02	46	.66
2	.03	47	.67
3	.05	48	.68
4	.06	49	.69
5	.08	50	.71
6	.09	51	.72
7	.10	52	.73
8	.12	53	.74
9	.14	54	.75
10	.16	55	.76
11	.17	56	.77
12	.19	57	.78
13	.21	58	.79
14	.22	59	.80
15	.24	60	.81
16	.26	61	.81
17	.27	62	.82
18	.29	63	.82
19	.30	64	.83
20	.32	65	.84
21	.33	66	.85
22	.35	67	.85
23	.36	68	.86
24	.37	69	.86
25	.39	70	.87
26	.40	71	.87
27	.42	72	.88
28	.44	73	.88
29	.45	74	.89
30	.46	75	.90
31	.48	76	.90
32	.49	77	.90
33	.51	78	.91
34	.52	79	.91
35	.53	80	.92
36	.54	81	.92
37	.56	82	.92
38	.58	83	.92
39	.59	84	.93
40	.60	85	.93
41	.61	86	.93
42	.62	87	.93
43	.63	88	.93
44	.64	89	.93
45	.65	90	.93

For Declinations

δ	ρ sin ζ	δ	ρ sin ζ
+ 0	0.62"	+ 45	
1		46	
2		47	
3		48	
4		49	
5		50	
6		51	
7		52	
8		53	
9		54	
10		55	
11		56	
12		57	
13		58	
14		59	
15		60	
16		61	
17		62	
18		63	
19		64	
20		65	
21		66	
22		67	
23		68	
24		69	
25		70	
26		71	
27		72	
28		73	
29		74	
30		75	
31		76	
32		77	
33		78	
34		79	
35		80	
36		81	
37		82	
38		83	
39		84	
40	.03	85	− 40
41	+ .01	86	
42	− .00	87	
43		88	
44		89	
+ 45		+ 90	

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Equations for finding the Nominal flexure, H_{fl}.

$$H_{fl} = \frac{R'_{z'} - R_{z'}}{\sin z - \sin z'}$$

in which

$R'_{z'}$ = the equator point-correction for stars north of the zenith.
$R_{z'}$ = " " " " " " south " " "

$\Delta c = \Delta H_{fl}$ = correction from stars above pole to the assumed value $0''.93$
$\Delta c' = \Delta H_{fl}$ = " " " below " " " " " "

By reference to the preceding pages it will be seen that the value $0''.93$ derived from the collimators showed $0''.203$

1872phae.proj.1699R

Apr 26 1871

	So	z	sin z	I'-I	Red.	I
I	-0.3	+42.7	+.68	-8.8	+0.9	-7.9
II						
III						
IV						
V	+78.3	-35.7	-.59	-6.7	-0.6	-7.3
VI						

Δc = +1.66

Apr 29

	S	z	sin z	I-I''	Red	I
I	+0.0	+42.4	+.67	-6.8	+0.9	-5.9
II						
III						
IV						
V	+78.3	-35.9	-.59	-6.0	-0.8	-6.8
VI						

Δc = +.63″

May 2

	So	z	sin z	I'-I	Red	I
I	-0.2	+42.7	+.68	-8.2	+0.8	-7.4
II	+11.6	+30.8	+.51	-7.7	+0.7	-7.0
III	+39.0	+5.4	+.06	-8.2	+0.1	-8.1
IV	+56.6	-14.2	-.25	-6.6	-0.3	-6.3
V	+79.3	-36.9	-.60	-5.3	-0.8	-4.5
VI						

Δc = +2.15″

June 21

I						
II	+15.5	+26.9	+.45	+49.3	+0.6	+49.9
III	+28.3	+14.1	+.24	+49.1	+0.3	+49.4
IV	+64.9	-22.5	-.38	+49.4	-0.5	+48.9
V						
VI	+113.1	-70.7	-.94	+51.1	-1.3	+49.8

Δc = +1.29″

June 25

I						
II	+12.1	+30.3	+.50	+49.7	+0.7	+50.4
III	+32.3	+10.1	+.18	+49.3	+0.2	+49.5
IV	+58.6	-16.2	-.28	+49.6	-0.4	+49.2
V	+79.6	-37.2	-.60	+49.8	-0.8	+49.0
VI	+113.1	-70.7	-.94	+52.6	-1.2	+51.4

June 27

I						
II	+9.5	+32.9	+.54	+48.2	+0.7	+48.9
III	+35.7	+6.7	+.12	+47.7	+0.2	+47.9
IV	+56.1	-13.7	-.24	+49.0	-0.3	+48.7
V	+79.6	-37.2	-.60	+49.0	-0.8	+49.2
VI	+113.1	-70.7	-.94	+50.7	-1.2	+49.5

Δc = +2.26″

July 13

I	-5.0	+47.4	+.74	+48.0	+1.0	+49.0
II	+10.3	+32.1	+.53	+48.7	+0.7	+49.4
III	+34.8	+7.6	+.13	+48.8	+0.2	+49.0
IV	+57.0	-14.6	-.25	+48.2	-0.3	+47.9
V	+79.2	-38.8	-.53	+49.8	-0.7	+49.1
VI						

Δc = +1.42″

July 20

Δc = +0.10″
Δc' = +2.01″

I	-3.6	+46.0	+.72	+47.1	+1.0	+48.1
II	+12.3	+30.1	+.50	+47.1	+0.7	+47.8
III	+34.9	+7.5	+.13	+46.7	+0.2	+46.9
IV	+57.9	-15.5	-.27	+47.7	-0.4	+47.3
V	+78.2	-35.8	-.59	+48.3	-0.8	+47.5
VI						

Δc = +0.92″

July 22

Δc = +1.58″
Δc' = +1.69″

I	-4.0	+46.4	+.72	(+45.7)	+1.0	+46.7
II	+14.5	+27.9	+.47	(+47.6)	+0.6	+49.2
III						
IV	+57.0	-14.6	-.25	+46.5	-0.3	+46.2
V	+76.2	-33.8	-.56	+49.0	-0.7	+48.3
VI						

Aug 2

I	-3.0	+45.4	+.71	+47.0	+0.9	+47.9
II	+10.7	+31.7	+.53	+46.3	+0.7	+47.0
III	+34.0	+8.4	+.15	+46.5	+0.2	+46.7
IV	+58.8	-16.4	-.28	+47.2	-0.4	+46.8
V	+77.2	-34.8	-.67	+49.8	-0.8	+49.0
VI						

Δc = +2.19″

Aug 3

Δc = +0.92″

I	-3.0	+45.4	+.71	+45.1	+0.9	+46.0
II	+12.4	+30.0	+.50	+45.3	+0.7	+46.0
III	+31.8	+10.6	+.18	+45.6	+0.2	+45.8
IV	+58.3	-17.9	-.31	+45.3	-0.4	+44.9
V	+69.0	-26.6	-.45	+46.2	-0.6	+45.6
VI						

Δc = +0.95″

Aug 9

Δc = +1.64″

I						
II	+13.5	+28.9	+.48	+45.5	+0.6	+46.1
III	+36.9	+5.5	+.10	+46.4	+0.1	+46.5
IV	+52.4	-10.0	-.17	+45.1	-0.2	+45.9
V	+75.5	-33.1	-.55	+46.7	-0.7	+46.0
VI						

Δc = +1.14″

Aug 11

I						
II	+13.1	+29.3	+.49	+44.4	+0.6	+45.0
III	+36.9	+5.5	+.10	+44.3	+0.1	+44.4
IV	+40.1	+2.3	+.04	+43.6	+0.1	+43.7
V	+82.2	-39.8	-.64	+47.2	-1.0	+46.2
VI						

Δc = +2.48″

Sept 2

I	-2.9	+45.3	+.71	+47.8	+1.0	+48.8
II	+14.9	+27.5	+.46	+47.0	+0.6	+47.6
III	+30.2	+12.2	+.21	+47.1	+0.3	+47.4
IV	+43.8	-1.4	-.02	+46.4	-0.0	+46.4
V						
VI	+92.7	-50.3	-.77	(+50.1)	-1.0	+49.1

Sept. 3

I						
II						
III	+29.2	+13.2	+.23	+47.5	+0.3	+47.8
IV	+58.7	-16.3	-.28	+50.6	-0.4	+50.2
V	+72.2	-29.8	-.51	+48.0	-0.7	+47.3
VI	+92.7	-60.3	-.77	(+50.6)	-1.0	+49.6

Sept. 6

I						
II	-2.9	+45.3	+.71	+47.2	+0.9	+48.1
III	+14.9	+27.5	+.46	+46.6	+0.6	+47.2
IV	+30.6	+11.8	+.20	+47.5	+0.3	+47.8
V	+51.2	-8.8	-.15	+47.4	-0.2	+47.2
VI						
	+92.7	-50.3	-.77	(+50.0)	-1.0	+49.0

Oct. 4

Δc = +1.56″

Oct. 5

Δc = +0.69″
Δc' = +0.10″

Oct. 8 W.A.R.

Δc' = +1.89″

I	-4.9	+47.3	+.73	+60.9	+1.0	+61.9
II	+8.3	+34.1	+.56	+61.3	+0.7	+62.0
III	+29.7	+12.9	+.22	+61.7	+0.3	+62.0
IV	+53.9	-11.5	-.20	+61.0	-0.3	+60.7
V	+75.4	-33.0	-.54	+62.6	-0.7	+61.9
VI	+98.4	-56.0	-.83	+61.2	-1.1	+60.1

I						
II	+7.4	+35.0	+.57	+61.6	+0.8	+62.4
III	+33.5	+8.9	+.16	+63.2	+0.2	+63.4
IV	+57.2	-14.8	-.26	+61.7	-0.3	+61.4
V	+69.9	-27.5	-.46	+62.5	-0.6	+61.9
VI	+98.1	-55.7	-.83	+61.3	-1.1	+60.2

I						
II	-1.2	+43.6	+.69	+61.0	+0.9	+61.9
III	+11.9	+30.5	+.51	+62.3	+0.7	+63.0
IV	+33.7	+8.7	+.15	+61.4	+0.2	+61.6
V	+53.1	-10.7	-.19	+60.0	-0.3	+59.7
VI	+75.4	-33.0	-.54	+62.5	-0.7	+61.8

Oct. 23

Δc = +1.34″
Δc = +0.19″

Oct. 29

Δc = +0.87″
Δc' = −0.22″

Oct. 31

Δc = +1.21″

I	-3.6	+46.0	(+.72)	(+60.7)	+1.0	+64.7
II	+9.6	+32.8	(+.54)	(+63.2)	+0.7	+63.9
III	+33.9	+8.5	+.15	+63.5	+0.2	+63.7
IV	+54.6	-12.2	-.21	+62.8	-0.3	+62.5
V	+88.9	-46.5	(+.73)	(+67.5)	-1.0	+66.5
VI	+98.1	-55.7	-.83	(+57.6)	-1.1	+56.5

I	-3.3	+45.7	+.72	+60.2	+1.0	+61.2
II	+10.2	+32.2	+.53	+59.8	+0.7	+60.5
III	+31.0	+11.4	+.20	+61.8	+0.3	+62.1
IV	+52.5	-10.1	-.17	+61.9	-0.2	+61.7
V	+73.4	-31.0	-.52	+62.4	-0.7	+61.7
VI	+109.9	-67.5	-.92	+64.5	-1.2	+63.3

I	-3.8	+46.2	+.72	+62.1	+1.0	+63.1
II	+7.8	+34.6	+.57	+62.6	+0.8	+63.4
III	+27.5	+14.9	+.26	+62.0	+0.3	+62.3
IV	+52.6	-10.2	-.18	+61.2	-0.2	+61.0
V	+70.3	-27.9	-.47	+61.7	-0.6	+61.1
VI	+103.6	-60.2	-.87	+62.8	-1.2	+61.6

Δc = +0.58″

Δc = +1.80″
Δc = +2.64″

Δc = −0.12″
Δc' = +0.43″

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May 10

δ	z	sin z	I I	Red	I ″
− 1.8	+44.2	+.70	−15.2	+ 10	− 14.1
+11.6	+30.8	+.51	−14.8	+ 0.8	− 13.5
+33.7	+ 8.7	+.15	−14.5	+ 0.2	− 14.3
+56.1	− 13.7	−.24	−13.7	− 0.4	− 14.1
+91.3	−48.9	−.75	−10.3		

June 29 Δc = +3.38

+19.0	+23.4	+.40	+48.5	+0.6	+49.1
+113.1	−70.7	−.94	+52.1	−.14	+50.7

July 23 Δc = +2.69″

− 3.6	+46.0	+.72	+47.8	+ 1.0	+ 48.8
+10.0	+ 32.4	+.54	+48.3	+ 0.8	+ 49.1
+34.9	+ 7.5	+.13	+47.0	+ 0.2	+ 47.2
+55.5	− 13.1	−.23	+46.8	− 0.3	+ 46.5
+77.2	− 34.8	−.57	+47.6	− 0.9	+ 46.7

Aug 5 Δc = −0.15

+13.1	+ 29.3	+.49	+46.0	+ 0.7	+ 46.7
+34.7	+ 7.7	+.13	+46.8	+ 0.2	+ 47.0
+57.0	− 14.6	−.25	+46.8	− 0.4	+ 46.4
+82.2	− 39.8	−.64	+47.9	− 0.0	+ 46.9

Δc = +1.68

June 21

δ	z	sin z	I I	Red	I
+15.5	+26.9	+.45	+49.3	+ 0.7	+ 50.0
+28.3	+ 14.1	+.24	+49.1	+ 0.4	+ 49.5
+44.9	− 22.5	−.38	+49.4	+ 0.6	+ 48.8
+113.1	− 70.7	−.94	+51.1	− 1.4	+ 49.7

Δc = 1.29

July 27

− 4.0	+46.4	+.72	+46.5	+1.1	+ 47.6
+7.2	+ 35.2	+.58	+48.3	+0.9	+ 49.2
+77.2	− 34.8	−.57	+48.6	−0.8	+ 47.8

Δc = +1.63

Aug 6

+10.8	+31.6	+.52	+45.8	+ 0.8	+ 46.6
+38.9	+ 3.5	+.06	+45.7	+ 0.1	+ 45.8
+61.8	− 19.4	−.33	+46.3	− 0.5	+ 45.8
+73.3	− 30.9	−.51	+47.1	− 0.8	+ 46.3
+113.8	− 71.4	−.95	(+50.7)	− 1.4	+ 47.3

Δc = +1.26″
Δ'c = +0.33

June 25

δ	z	sin z	I I	Red	I
+ 12.1	+30.3	+.50	+49.7	+ 0.8	+ 50.5
+ 32.3	+ 10.1	+.18	+49.3	+ 0.3	+ 49.6
+ 58.6	− 16.2	−.28	+49.6	− 0.4	+ 49.2
+ 78.6	− 37.2	−.60	+47.8	− 0.9	+ 48.9
+113.1	− 70.7	−.94	+52.6	− 1.4	+ 51.2

Δc = +0.09″
Δ'c = +2.01

Aug 10

+10.4	+32.0	+.53	+45.3	+ 0.8	+ 46.1
+34.0	+ 8.4	+.15	+46.1	+ 0.2	+ 46.3
+54.7	− 12.3	−.21	+44.4	− 0.3	+ 44.1
+75.6	− 33.2	−.55	+45.6	− 0.8	+ 44.8

Δc = +2.8″

Sept. 25

− 1.2	+43.6	+.69	+19.2	+ 1.0	+ 20.2
+11.3	+ 31.1	+.52	+18.5	+ 0.8	+ 19.3
+27.7	+ 14.7	+.26	+18.9	+ 0.4	+ 19.3
+53.1	− 10.7	−.19	+17.5	− 0.3	+ 17.2
+71.5	− 29.1	−.49	+20.0	− 0.7	+ 19.3

Oct. 8 A. M. Δc = +0.69″

− 4.6	+47.0	+(.73)	+61.0	+ 1.0	+ 62.0
+ 7.4	+ 35.0	+(.57)	+59.2	+ 0.8	+ 60.0
+31.1	+ 11.3	+.20	+60.4	+ 0.3	+ 60.7
+56.1	− 13.7	−.24	+60.0	− 0.4	+ 59.6
+70.3	− 27.9	−.47	+59.5	− 0.7	+ 58.8
+103.8	− 61.4	−.88	+58.5	− 1.3	+ 57.2

Δc = −0.54
Δ'c = −1.05

Sept. 27

− 3.6	+46.0	+.72	+16.4	+ 1.1	+ 17.5
+ 7.7	+ 34.7	+.57	+15.7	+ 0.8	+ 16.5
+36.9	+ 5.5	+.10	+16.7	+ 0.1	+ 16.8
+77.3	− 34.9	−.57	+16.4	− 0.8	+ 15.6

Δc = +1.10″

Oct. 16, A. M.

− 3.8	+46.2	+.72	+60.0	+ 1.1	+ 61.1
+12.0	+ 30.4	+.51	+60.5	+ 0.8	+ 61.3
+23.5	+ 18.9	+.32	+60.2	+ 0.5	+ 60.7
+52.4	− 10.0	−.17	+61.4	− 0.3	+ 61.1
+76.9	− 34.5	−.57	+61.5	− 0.8	+ 60.7
+109.9	− 67.5	−.92	+64.4	− 1.4	+ 63.0

Δc = +1.16″
Δ'c = +2.68

Sept. 30

+10.0	+32.4	+.54	+60.8	+ 0.8	+ 61.6
+34.0	+ 8.4	+.15	+62.4	+ 0.2	+ 62.6
+53.4	− 11.0	−.19	+64.1	− 0.3	+ 63.8
+69.9	− 27.5	−.46	+62.7	− 0.7	+ 62.0

Δc = +1.90″

Oct. 22, A. M.

− 4.7	+47.1	+.73	+62.4	+ 1.0	+ 63.4
+11.1	+ 31.3	+.52	+62.5	+ 0.8	+ 63.3
+29.9	+ 12.5	+.22	+62.5	+ 0.3	+ 62.8
+63.7	− 21.3	−.36	+60.4	− 0.5	+ 59.9
+69.9	− 27.5	−.46	+60.6	− 0.7	+ 59.9
+106.6	− 64.2	−.90	+63.0	− 1.3	+ 61.7

Δc = −1.51″
Δ'c = +1.36

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Nov. 2

	δ	s	Lin.s	I'-I	Red.	I
	°			"		"
I	-1.2	+43.6	(+.69)	+(62.2)	+1.0	+632
II	+10.1	+32.3	(+.53)	+61.3	+0.8	+62.1
III	+34.2	+8.2	+.14	+62.5	+0.2	+62.7
IV	+53.1	-10.7	-.19	+62.9	-0.3	+62.6
V	+75.4	-33.0	-.54	+62.4	-0.8	+61.6
VI						

Δe = +.61"

Nov. 5

	δ	z	Lin.z	I'-I	Red.	I
				"		"
I	-4.6	+47.0	+.73	+625	+1.1	+636
II	+8.6	+23.8	+.56	+622	+0.8	+630
III	+35.1	+7.3	+.13	+634	+0.2	+636
IV	+53.1	-10.7	-.19	+62.7	-0.3	+62.4
V	+73.6	-31.2	-.52	+613	-0.8	+60.5
VI	+112.3	-69.9	-.94	+63.9	-1.4	+62.5

Δe = -11.96
Δ'e = +0.84

Nov 14

	δ	z	Lin.z	I'-I	Red.	I
				"		"
I	-3.0	+45.4	+.71	+624		
II						
III	+21.5	+20.9	+.36	+626		
IV	+53.8	-11.4	-.20	+641		
V	+67.3	-24.9	-.42	+627		
VI	+89.6	-67.2	-.92	+662		

Δe = +1.15"
Δ'e = +2.33

Nov 28

I	-3.0	+45.4	+.71	+61.9	+1.0	+629
II	+11.3	+31.1	+.52	+62.6	+0.8	+634
III	+35.5	+6.9	+.12	+64.4	+0.2	+64.6
IV	+53.5	-8.1	-.14	+64.1	-0.2	+639
V	+76.9	-34.5	-.57	+65.4	-0.8	+646
VI	+109.6	-67.2	-.92	+64.5	-1.4	+63.1

Δe = +1.60"
Δ'e = +2.74

Dec 6 W.A.R.

I	-8.3	+50.7	(+.77)	+(62.9)	+1.1	+640
II	+9.4	+33.0	(+.54)	+61.6	+0.8	+62.4
III	+32.4	+10.0	+.17	+61.9	+0.3	+622
IV	+52.7	-10.3	-.18	+62.3	-0.3	+62.0
V	+70.7	-28.3	-.47	+61.8	-0.7	+61.1
VI	+109.9	-67.5	-.92	+64.2	-1.4	+62.8

Δe = -.036"
Δ'e = +1.27

Dec 6 A.M.

I	-9.5	+51.9	+.79	+603	+1.2	+615
II	+14.3	+28.1	+.47	+615	+0.7	+622
III	+36.6	+11.8	+.20	+623	+0.3	+626
IV	+45.3	-2.9	-.05	+636	-0.1	+635
V	+71.8	-29.4	-.49	+637	-0.7	+630
VI	+101.6	-59.2	-.86	+64.7	-1.3	+634

Δe = +2.66
Δ'e = +2.67

Dec 12

I						
II	+18.0	+32.4	+.54	+608		
III	+25.1	+17.3	+.30	+624		
IV	+48.9	-6.5	-.11	+629		
V	+67.6	-23.2	-.46	+624		
VI	+109.9	-67.5	-.92	+659		

Δe = +1.60
Δ'e = +3.52

Dec 28

I	-4.8	+47.2	+.73	+61.8	+1.1	+628
II	+10.2	+32.2	+.58	+62.1	+0.8	+629
III	+31.2	+11.2	+.19	+62.4	+0.3	+627
IV	+50.4	-8.0	-.14	+63.4	-0.2	+632
V	+67.4	-25.0	-.42	+64.1	-0.6	+635
VI	+106.1	-63.7	-.90	+65.5	-1.5	+640

Δe = +2.10"
Δ'e = +2.89

Dec 29

I	-9.9	+52.3	+.79	+(63.3)	+1.2	+655
II	+6.4	+36.0	+.59	+61.2	+0.8	+620
III	+29.5	+12.9	+.22	+620	+0.3	+623
IV	+54.8	-12.4	-.21	+627	-0.3	+624
V	+72.0	-29.6	-.49	+631	-0.7	+624
VI	+105.3	-62.9	-.89	+666	-1.3	+653

Δe = +.077
Δ'e = +2.72

Jan 1 1872

I						
II	+7.0	+35.4	+.58	+61.8	+0.9	+62.7
III	+30.7	+11.7	+.20	+63.1	+0.3	+63.4
IV	+52.5	-8.1	-.14	+63.1	-0.2	+629
V	+71.5	-29.1	-.49	+64.1	-0.7	+63.4
VI	+106.4	-64.0	-.90	+64.7	-1.4	+63.3

Δe = +1.96"
Δ'e = +2.15

Jan 10

I	-6.1	+48.5	+.75	+620	+1.1	+63.2
II	+12.9	+29.5	+.49	+615	+0.7	+622
III	+34.0	+8.4	+.15	+629	+0.2	+63.1
IV	+53.7	-11.3	-.20	+634	-0.3	+63.1
V	+78.0	-33.6	-.58	+619	-0.8	+61.0
VI	+101.5	-59.1	-.86	+65.7	-1.3	+64.4

Δe = -.005
Δ'e = +2.30

Jan 23

I						
II	+15.8	+26.6	+.45	+56.7		
III	+39.3	+3.1	+.05	+57.1		
IV						
V						
VI	+105.3	-62.9	-.89	+58.1		

Δe = +1.05

Feb 2

I	-8.9	+51.3	+.78	+399	+1.2	+41.1
II	+11.1	+31.3	+.52	+41.2	+0.8	+42.0
III	+22.5	+19.9	+.34	+42.1	+0.5	+42.6
IV	+44.9	-2.5	-.04	+42.3	-0.1	+42.2
V	+69.3	-26.9	-.45	+42.2	-0.7	+41.5
VI	+95.4	-53.0	-.80	+44.0	-1.2	+42.8

Δe = +.195
Δ'e = +2.60

Feb 5

I	-2.0	+44.4	+.70	+416	+1.1	+42.7
II	+12.9	+29.5	+.49	+416	+0.7	+42.3
III	+30.8	+11.6	+.20	+42.4	+0.3	+42.7
IV	+47.3	-4.9	-.09	+419	-0.1	+41.8
V	+70.9	-32.5	-.54	+41.1	-0.8	+40.3
VI	+102.2	-59.8	-.86	+43.9	-1.3	+42.6

Δe = -.046
Δ'e = +1.47

Feb 17

I	-6.1	+48.5	+.75	+40.4		
II						
III	+32.6	+9.8	+.17	+41.7		
IV	+48.6	-6.2	-.11	+41.7		
V	+74.9	-32.5	-.54	+43.2		
VI	+97.7	-55.3	-.82	+44.2		

Δe = +.217
Δ'e = +2.42

Feb 27

I	-6.0	+48.4	+.75	+26.0	+1.1	+27.1
II	+33.8	+8.6	+.15	+26.3	+0.2	+26.5
III						
IV	+52.2	-9.8	-.17	+24.8	-0.2	+24.6
V	+81.0	-38.6	-.62	+26.4	-0.9	+25.5
VI	+103.1	-60.7	-.87	+27.1	-1.3	+25.8

Δe = +.24
Δ'e = +.68

Feb 28

I	-7.9	+50.3	+.77	+26.6	+1.1	+27.7
II	+16.5	+23.9	+.44	+26.4	+0.7	+27.1
III	+25.7	+16.7	+.29	+26.4	+0.4	+26.8
IV	+57.2	-14.8	-.26	+27.0	-0.4	+26.6
V	+76.6	-34.2	-.56	+26.6	-0.8	+25.8
VI	+105.0	-62.6	-.89	+28.6	-1.3	+27.3

Δe = +.120
Δ'e = +1.21

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Nov 13

δ	z	sin z	I'I	Red. I
-3.4	+45.8	+(.72)	+(61.7)	
+9.1	+33.3	+.53	+62.1	
+29.6	+12.8	+.22	+62.3	
+51.6	-9.2	-.16	+63.2	
+110.6	-68.2	-.93	+66.0	

Δc = +2.30″

Nov 22

δ	z	sin z	I'I	Red. I
-3.7	+46.1	+.72	+60.8	
+10.1	+32.3	+.53	+61.3	
+30.5	+11.9	+.21	+62.3	
+51.5	-9.1	-.16	+63.7	
+102.6	-60.2	-.87	+64.0	

Δc = +2.01

Nov 25

δ	z	sin z	I'I	Red. I
-0.8	+43.2	+(.68)	+(63.7)	
+9.1	+33.3	+.55	+62.8	
+27.9	+14.5	+.25	+63.0	
+47.6	-5.2	-.09	+61.3	
+71.2	-28.8	-.48	+63.2	
+109.9	-67.5	-.92	+65.6	

Δc = +0.18″
Δ'c = +1.69

Dec 17

+8.6	+33.8	+.56	+61.5
+30.0	+12.4	+.21	+62.6
+53.3	-10.9	-.19	+63.3
+73.2	-30.8	-.51	+63.0
+109.9	-67.5	-.92	+63.9

Δc = +1.40
Δ'c = +1.62

Dec 18

-0.2	+42.6	+.68	+61.1
+7.2	+35.2	+.58	+60.8
+29.5	+12.9	+.22	+62.2
+50.1	-7.7	-.13	+62.4
+78.0	-35.6	-.58	+62.0
+103.7	-61.3	-.88	+62.6

Δc = +0.71
Δ'c = +0.96

Dec 20

-7.0	+49.4	+.76	+61.8
+7.8	+34.6	+.57	+61.6
+28.9	+13.5	+.23	+62.5
+57.1	-14.7	-.25	+64.1
+76.9	-34.5	-.57	+65.3
+104.5	-67.1	-.92	+65.6

Δc = +2.63
Δ'c = +2.26

Jan 30 W. A. K.

-9.9	+52.3	+(.79)	+(41.9)
+11.1	+31.3	+(.52)	+(40.7)
+28.1	+14.3	+.25	+41.1
+50.6	-8.2	-.14	+42.1
+78.2	-35.8	-.58	+42.1
+102.9	-58.5	-.85	+42.5

Δc = +.65″
Δ'c = +.81

Jan 31

-7.0	+49.4	+(.76)	+(41.9)
+12.3	+30.1	+(.50)	+(40.7)
+35.3	+7.1	+.12	+42.4
+87.2	-44.8	-.70	+42.1
+109.5	-58.1	-.85	+44.5

Feb 8

-3.2	+45.6	+.71	+41.7
+12.9	+29.5	+.49	+43.5
+32.9	+9.5	+.16	+42.8
+47.7	-5.3	-.09	+42.3
+77.1	-34.7	-.57	+42.5
+106.5	-63.1	-.89	+44.8

Δc = +.63″
Δ'c = +1.93

Feb 14

Δc = +.66″
Δ'c = +2.16

-9.9	+52.3	+(.78)	+(39.1)
+12.1	+30.3	+(.50)	+(40.7)
+27.4	+15.0	+.26	+41.0
+56.2	-13.8	-.24	+42.9
+74.2	-31.8	-.53	+43.8
+102.1	-59.7	-.86	+44.1

Δc = +3.01
Δ'c = +2.50

Feb 18

-1.5	+43.9	+(.69)	+(45.2)
+14.5	+27.9	+(.47)	+(44.7)
+28.8	+13.9	+.24	+44.2
+47.3	-4.9	-.09	+43.7
+74.9	-32.5	-.54	+44.5
+109.4	-67.0	-.91	+44.8

Δc = -.45″
Δ'c = -.15

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Mar 3

	S	z	sin z	I°	Red I
I	-1.5	+43.9	+.69	+25.9	
II	+11.2	+31.2	+.52	+25.7	
III	+28.8	+13.6	+.23	+26.0	
IV	+47.8	-5.4	-.09	+25.6	
V	+81.0	-38.6	-.62	+25.8	
VI	+109.1	-66.7	-.92	+28.8	

Δc = −0.08″
Δ'c = +1.80 Apr 1

Mar 14

	S	z	sin z	I°	Red I
I	-16.5	+58.9	+.86	+23.8	
II	+11.6	+30.8	+.51	+23.7	
III	+28.4	+17.0	+.29	+23.6	
IV					
V	+78.2	-35.8	-.58	+25.4	
VI	+95.7	-53.3	-.80	+26.0	

Δc = +1.11″
Δ'c = +1.34 Apr 6

Mar 21

	S	z	sin z	I°	Red I
I					
II	+11.6	+30.8	+.51	+28.1	
III	+25.9	+12.5	+.22	+28.3	
IV					
V					
VI	+99.9	-57.5	-.84	+32.2	

Δc = +3.04″
Apr 17

	S	z	sin z	I°	Red I
I					
II	+10.5	+31.9	+.53	+23.7	
III	+30.8	+11.6	+.20	+24.4	
IV					
V	+69.0	-26.6	-.45	+25.0	
VI	+106.7	-64.3	-.90	+28.6	

Δc = +1.33″
Δ'c = +3.36 Apr 26

	S	z	sin z	I°	Red I
I	-8.1	+50.5	+.77	+23.4	
II	+6.7	+35.7	+.58	+22.9	
III	+30.8	+11.6	+.20	+25.8	
IV	+59.6	-17.2	-.30	+23.3	
V	+70.5	-28.1	-.47	+24.2	
VI	+105.4	-63.0	-.89	+26.8	

Δc = +1.65
Δ'c = +2.86 Apr 27

	S	z	sin z	I°	Red I
I					
II	+11.4	+41.0	+.66	+34.2	
III	+32.6	+9.8	+.17	+34.9	
IV					
V	+73.2	-30.8	-.51	+34.2	
VI	+107.7	-65.3	-.91	+36.7	

Δc = +0.69″
Δ'c = +2.11 Apr 29

	S	z	sin z	I°	Red I
I					
II	+8.4	+34.0	+.56	+33.3	
III	+35.7	+6.7	+.12	+33.7	
IV	+50.8	-8.4	-.15	+33.4	
V	+74.9	-32.5	-.54	+33.2	
VI	+103.0	-60.6	-.87	+35.7	

Δc = −0.29″
Δ'c = +0.85

Δc = −0.09″
Δc = +1.68

Δc = +0.0
Δ'c = +1.19

Stars above pole have the same weight as those below pole.

	ΔR_b	wt.		
1871 Apr-May.	+2.02″	(5)	100.8	2.95
June.	+1.56	(6)	93.6	2.49
July.	+1.09	(5)	54.5	2.02
Aug.	+1.67	(8)	133.1	2.60
Sept.	+1.40	(7)	98.2	2.33
Oct.	+.60	(6)	9.4	1.53
Nov.	+1.31	(11)	144.6	2.24
Dec.	+1.80	(16)	259.2	2.73
1872 Jan.	+1.29	(9)	115.7	2.22
Feb.	+1.25	(16)	200.0	2.18
Mar.	+.92	(8)	73.8	1.85
Apr.	+1.18	(17)	200.0	2.11
		(127)	1596.9	

$\Delta R_b = +1.26''$
$R_t = +.93$
$R_b = +2.19$

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Mar 24

δ	z	sin z	I°	Red I
+18.6	+23.8	+.40	+25.7	
+32.3	+10.1	+.18	+24.9	
+101.8	−39.4	−.86	+26.6	

Δc = +0.71"

Apr 19

+10.5	+31.9	+.53	+34.3	
+25.9	+14.5	+.25	+33.9	
+63.8	−11.4	−.20	+34.8	
+18.5	−33.1	−.55	+34.8	
+107.6	−65.2	−.91	+38.6	

Δc = +0.46
Δc = +2.91

Mar 28

δ	z	sin z	I°	Red I
−16.5	+58.0	+.85	+25.2	
+22.5	+19.9	+.34	+25.5	
+59.1	−16.7	−.29	+24.3	
+69.0	−26.6	−.45	+24.3	
+112.4	−70.0	−.94	+25.5	

Δc = −0.69
Δc = +0.17

Apr 22

+9.7	+32.7	+.54	+32.2	
+32.8	+9.6	+.17	+34.6	
+53.8	−11.4	−.20	+34.9	
+73.1	−30.7	−.51	+34.2	

Δc = +.95

Apr 24

+8.9	+33.5	+.55	+33.8	
+31.7	+10.7	+.19	+33.6	
+49.8	−7.4	−.13	+33.2	
+69.6	−27.2	−.46	+33.7	
+103.0	−60.6	−.87	+36.5	

Δc = −0.09"
Δc = +1.88

Results by months.

Weights proportional to the number of observations.

Apr. May

Δc	Δ'c
+1.66"	—
+.63	—
+2.15	+2.26
—	+3.38
(3) +1.48	(2) +2.82

June.

—	+1.29
+0.10	+2.01
+1.58	+1.69
—	+2.69
(2) +0.84	+1.92 (4)

July.

+1.42	—
+.92	—
+1.64	—
−.15	—
+1.63	—
(5) +1.09	

Aug.

+2.19	
+0.95	
+1.17	
+1.68	
+1.26	+3.33
+.28	
+2.48	
(7) +1.93	+3.33 (1)

Sept.

Δc	Δ'c
—	+1.56"
+.69	+3.10
—	+1.89
+.69	—
+.00	—
+1.90	—
(4) +.82	+2.18 (3)

Oct.

+1.34	+.19
+.89	−.22
+1.21	—
−.51	−1.05
+1.16	+2.68
−1.51	+.36
+.58	—
+1.80	+2.64
−.42	+.43
(9) +.50	+.72 (7)

Nov.

+1.61	—
−.96	+.84
+1.15	+2.33
+2.30	—
+2.07	—
+.18	+1.69
+1.60	+2.74
(7) +.98	+1.90 (4)

Dec.

Δc	Δ'c
−.036"	+1.27"
+2.66	+2.67
+1.60	+3.52
+1.40	+1.62
+0.71	+.96
+2.63	+2.26
+2.00	+2.29
+.77	+3.72
(8) +1.43	+2.16 (4)

Jan.

+1.96	+2.15
−.8	+2.30
—	+1.05
+.65	+.81
+.60	+2.16
(7) +.78	+1.69 (5)

Feb.

+1.95	+2.60
−.40	+1.47
+2.17	+2.42
+.63	+1.93
+3.01	+2.50
−.45	−.15
+.29	+.68
+.20	+1.21
(8) +.92	+1.58 (5)

Mar.

Δc	Δ'c
−.08	+1.80
+1.11	+1.34
—	+3.04
—	+.71
−.69	+.17
(5) +.11	+1.45

+1.33	+3.36
+.65	+2.06
+.69	+2.11
+.46	+2.91
+.95	—
−.09	+1.88
−.09	+1.65
−.29	+.85
+.60	+1.59
(8) +.40	+2.05 (4)

Dec.

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Finde Volue of ΔR_f

Volues of ΔR_f by months.

Stars below pole have twice the weight of those above pole.

	wt × ΔR_f	wt.
1871 May.	157.2"	(7)
June	171.4	(10)
July	54.5	(5)
Aug.	166.7	(9)
Sept.	163.6	(10)
Oct.	145.8	(23)
Nov.	220.6	(15)
Dec.	460.0	(24)
1872 Jan.	200.2	(14)
Feb.	326.4	(24)
Mar.	144.3	(13)
Apr.	364.0	(25)
	2573.7	(179)

$\Delta R_f = +1.44$

$R_{f_0} = +.93$

$R_f = 2.37"$

Until further investigation the volue of the horizontal flexure adopted is

$+2.37"$

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Tabular values of $R_{\zeta inz}$ for horizontal flexure 1.″44

$+\delta$	$R_{\zeta inz}$	$-\delta$		$+\delta$		$+\delta$		$+\delta$	
$+1^\circ$	−0.″95	-0°	−0.″97	34	−0.″21	72	+0.″70	110	+1.″33
2	.93	1	.99	35	.19	73	.73	111	1.34
3	.91	2	1.01	36	.16	74	.75	112	1.35
4	.89	3	1.02	37	.14	75	.77	113	1.36
5	.87	4	1.04	38	.11	76	.79	114	1.37
6	.85	5	1.06	39	.09	77	.81	115	+1.37
7	.83	6	1.07	40	.06	78	.83		
8	.81	7	1.09	41	.03	79	.85		
9	.79	8	1.11	42	−.01	80	.87		
10	.77	9	1.12	43	+.01	81	.89		
11	.75	10	1.14	44	.03	82	.91		
12	.73	11	1.16	45	.06	83	.93		
13	.70	12	1.17	46	.09	84	.95		
14	.68	13	1.18	47	.11	85	.97		
15	.66	14	1.20	48	.14	86	.99		
16	.64	15	1.21	49	.16	87	1.01		
17	.62	16	1.23	50	.19	88	1.02		
18	.59	17	1.24	51	.21	89	1.04		
19	.57	18	1.25	52	.23	90	1.06		
20	.55	19	1.26	53	.26	91	1.07		
21	.52	20	1.28	54	.28	92	1.09		
22	.50	21	1.29	55	.31	93	1.11		
23	.48	22	1.30	56	.33	94	1.12		
24	.45	23	1.31	57	.35	95	1.14		
25	.43	24	1.32	58	.38	96	1.16		
26	.41	25	1.33	59	.41	97	1.17		
27	.38	26	1.34	60	.43	98	1.18		
28	.35	27	1.35	61	.45	99	1.20		
29	.33	28	1.36	62	.48	100	1.21		
30	.31	29	1.37	63	.50	101	1.23		
31	.28	30	1.37	64	.52	102	1.24		
32	.26	31	1.38	65	.55	103	1.25		
33	−0.23	32	1.39	66	.57	104	1.26		
		33	1.39	67	.59	105	1.27		
		34	1.40	68	.62	106	1.29		
		35	1.40	69	.64	107	1.30		
		36	1.41	70	.66	108	1.31		
		37	1.42	71	+0.68	109	+1.32		

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On the inclination of the declination wires

General Catalogue 1871–2

Notes.

Spider lines used from Jan 1871 to May 14 1871
Glass micrometer " " May 14 " to May 25 "
New set lines on glass " May 25 " " June 2 "
New set " " " " June 2 " " June 7 "
New set " " " " June 7 " " June 19 "
Put-back set June 2 or June 21
Diaphragm taken out and cleaned on July 11
Old set broken. New set put in July 19
Diaphragm taken out and cleaned Oct. 23 1871
New set put in — double lines Jan 25 1872
Diaphragm taken out and cleaned Feb. 22 1872

Let i = the inclination of the declination wire to the horizon

Spider lines to May 14 1871 From Jan 10 1870 to May 14 1871

First Group.		Second Group.	
9 Coronæ	gives $i = 4^\circ\ 42'$	B.A.C. 4287	gives $i = 4^\circ\ 36'$
4 N Draconis	42		37
γ Coronæ	44		42
η Virginis	41		38
12 Comæ	44		36
β Comæ	43		34
5 Coronæ	44		41
	4 43		39
			4 38

Adopted $i = 4^\circ\ 40'$

From May 25 1871 to June 2 1871

γ Coronæ	gives $i = 5^\circ\ 14'$
9 Coronæ	5 12
γ Coronæ	5 5
η Virginis	5 12
	5 9

Adopted $i = 5^\circ\ 8'$

From June 2 to June 19 (not inclusive)

$i = 4^\circ\ 52'$
48
55
54
56
45

adopted $i = 4^\circ\ 52'$

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From June 19 1871 to July 11 1871

χ Virginis	$i = 5^\circ\ 21'$
d Bootis	14
14 Bootis	17
2 Bootis	10
λ Virginis	15
2 Librae	22
Θ Bootis	13

Adopted $i = 5^\circ\ 16'$

(Omitted Above)

From June 1 to June 7

43 Comae	$i = 4^\circ\ 52'$
B.D. 6463	5 4
ε Virginis	6
γ Virginis	4 57
B.D. 4513	5 4

Adopted $i = 5^\circ\ 1'$

From July 11 to July 19 1871

β Librae	$i = 5^\circ\ 12'$
ε Librae	16
ζ Bootis	22
α Coronae	17
ψ Lupi	16
β Serpentis	14
Lu. 966	18

Adopted $5^\circ\ 17'$

The volue $5^\circ\ 16'$ from June 19 to July 11 will be continued.

From July 19 to Oct. 23 1871

B.D. 6579	$i = 5^\circ\ 6'$
ξ Herculis	11
π Herculis	2
Lu. 9377	6
49 Herculis	11
i Ophiuchi	2
β Draconis	5
κ Draconis	4
ζ Cephei	2
ο Cygni	3
χ Cephei	5
ε Cygni	6
β Cephei	8
β Cassiopeiae	10

Adopted $5^\circ\ 6'$
a progression $= \pm 2,2'$

From Oct. 23 1871 to Jan 25 1872 $i = 5^\circ\ 6'$

From Jan 25 1872 to Feb. 22 1872

ε Persei	$i = 5^\circ\ +4'$
β Tauri	+2
γ Tauri	+4
ι Camelop.	−3
δ Eridani	−3
53 Tauri	−4
ε Tauri	+5
ν Eridani	+2
π Orionis	+6
ηι Orionis	−3
β Tauri	−9

ν Orionis	$i = 5^\circ\ -9'$
Lu. 966	+1
α Orionis	+6
ω Orionis	+7
γ Orionis	−2
κ Orionis	+4
ζ Geminorum	−1

Adopted and continued until the end of Feb.
$i = 5^\circ\ 0'$

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The Average distance from the middle wire of which a star on the Equator is observed for declination is about 22^s.

With an inclination of $5^\circ\ 6'$ and $\Delta\alpha = 22^s$, a variation of $10'$ in the inclination will produce a variation of $0.97''$ in the reduction.

One may judge of the accuracy of the observations for declination by the method of Transits from the probable errors of the values for the inclination.

Thus for the probable error of a single determination:

				no. stars
From	Apr 26 1871	to May 25 1871	ε = 2.1	15
	May 25	to June 1	= 4.4	5
	June 1	to June 7	= 5.9	5
	June 7	to June 19	= 2.7	6
	June 19	to July 11	= 2.7	7
	July 11	to July 19	= 2.0	7
	July 19	to Oct. 23	= 2.2	14
	Jan. 25 1872	to Feb. 23 1872	= 2.2	18

Neglecting the dates May 25 and June 1, when the glass lines were first used experimentally, we may safely assume the probable error of a single determination for i to be about $2.3'$. This corresponds to the angle $0.23''$. The probable error is probably somewhat larger than this.

Dates			i	$\log \sin i$
From ~~Apr 26 1871~~ ~~Nov 10 1870~~		to ~~May 18 1871~~ May 18	$-4^\circ\ 46'$	0.08794n
From ~~May 18 1871~~ May 18		to ~~Oct 25 1871~~ May 29	5 8	.12953
From June 1		to June 6	5 1	.11949
From June 7		to June 19	4 52	.10625
From June 20		to July 11	5 16	.14073
From July 11		to July 19	5 16	.14073
From July 20		to Oct 23	5 6	.12669
From Oct 23 1871		to Jan 24 1872	5 6	.12669
From Jan 25 1872		to May 9 1872	5 0	.11804n

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Inclination of the declination wire for the Polar Catalogue.

From June 11 1872 to Sept 24 1872

The plate used in the latter part of the General Catalogue is retained. But few observations for inclination were made.

i Bootis	June 19	given	$i = 5^\circ\ 1'\ 20''$	
θ Bootis	"	"	$i = 4\ 56\ 50$	
5 M Ursæ Maj	"	"	$i = 5\ 1\ 10$	
ρ^1 Bootis	June 11	"	$i = 4\ 54\ 30$	Mean $i = 4'\ 58''$
ρ^1 Bootis	July 7	"	$i = 4\ 55\ 10$	
α Coronæ	June 11	"	$i = 4\ 59\ 00$	
i Herculis	July 12	"	$i = 4\ 54\ 40$	

From Sept. 25 1872 to Oct 29 1872

New Plate.

Lu 2919	Sept. 28	given	$i = 4^\circ\ 44'\ 30''$	
λ Cygni	"	"	$i = 4\ 41\ 20$	
Lu. 1408	"	"	$i = 4\ 46\ 10$	
θ^1 Cygni	"	"	$i = 4\ 45\ 0$	
Lu. 3241	Oct 3	"	$i = 4\ 42\ 20$	
γ^3 Draconis	Oct. 12	"	$i = 4\ 41\ 30$	
α Cygni	Oct 3	"	$i = 4\ 40\ 0$	
α Cygni	Oct 12	"	$i = 4\ 43\ 20$	Adopted $i = 4^\circ\ 43'\ 1''$
β Cephei	Oct 12	"	$i = 4\ 37\ 30$	
74 Cygni	Oct 12	"	$i = 4\ 44\ 10$	$\log i = 8.91623$
13 H Cephei	Oct 2	"	$i = 4\ 42\ 30$	$\log 15 = 1.17609$
13 H Cephei	Oct 12	"	$i = 4\ 43\ 50$	$.09302$
π^2 Cygni	Oct 2	"	$i = 4\ 43\ 10$	
π^2 Cygni	Oct 12	"	$i = 4\ 40\ 50$	
Lu. 1426	Sept. 28	"	$i = 4\ 41\ 0$	
79 Draconis	"	"	$i = 4\ 48\ 10$	
2 Cygni	"	"	$i = 4\ 45\ 0$	
2 Cygni	Oct 12	"	$i = 4\ 42\ 50$	
20 Cephei	Sept. 28	"	$i = 4\ 50\ 10$	
24 Cephei	Oct 12	"	$i = 4\ 42\ 20$	

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From Oct. 30 1872 to Dec. 31 1873.

On Oct. 30 1872 put back the plate used from June 11 to Sept. 25

α Pegasi	Nov. 16 1872	given	i =	4° 5′ 30″	
β Pegasi	Nov. 27	"	i =	4 55 0	
ω Piscium	Dec. 4	"	i =	4 58 0	
α Androm	Dec. 4	"	i =	4 54 20	
23 Cass.	Nov. 17	"	i =	4 52 50	
ρ Piscium	Dec. 15 1873	"	i =	4 54 20	
(o Piscium	Dec. 9 "	"	i =	4 46 40)	
ε Piscium	Dec. 15 "	"	i =	5 4 30	
o Piscium	Dec. 22 "	"	i =	4 55 40	Mean i = 4° 58′ 33″
α Arietis	Dec. 22 "	"	i =	4 57 10	
ε Persei	Dec. 18 "	"	i =	4 59 0	
η Arietis	Dec. 18 "	"	i =	4 58 10	
γ Arietis	Dec. 29 "	"	i =	4 56 20	
χ Persei	Dec. 18 "	"	i =	4 55 20	
χ Persei	Dec. 29 "	"	i =	4 56 00	
η Piscium	Dec. 18 "	"	i =	4 56 40	
ε Piscium	Dec. 29 "	"	i =	4 57 30	
9 H. Camel	Dec. 29 "	"	i =	4 58 40	

As this value differs but little from the value from June 11 to Sept. 25

The mean (by weight) $4^{\circ}\ 58'\ 24''$

will be used for all the dates of the polar Catalogue

except: from Sept. 25 1872 to Oct. 29 1872

$\log \tan i = 8.93962$

$\log \sin 15'' = 1.17609$

$\log 15 \tan i = 1.11571_n$

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Investigation of the inclinations i for the General Catalogue 1874

In general those observations are selected in which the base line $\times (T_m - T_s)$ is large

From Jan 15 1874 to Apr. 12 1874

Preliminary value.

		wt = No. Obs.			wt = No. Obs.
χ Persei gives	$i = 4^\circ\ 5'\ 0''$	1	λ Tauri gives	$i = 4^\circ\ 55'\ 10''$	1
ζ Persei "	4 56 50	1	σ Tauri "	4 54 0	2
β Persei "	5 0 20	2	o^2 Eridani "	5 0 20	2
δ Arieti "	4 59 30	2	ζ Tauri	4 58 10	2
ε Persei "	4 56 30	1			
	4 58 17			4 57 10	

Mean = $4^\circ\ 57'\ 43''$

Second Series — from Jan. 15 1874 to Apr. 12 1874

η Geminorum	$i = 4^\circ\ 59'\ 23''$	3	63 Aurigae	$i = 4^\circ\ 59'\ 10''$	3
13 Monocerotis	$i = 4\ 59\ 37$	3	22 Monocerotis	$i = 4\ 57\ 17$	4
ζ Geminorum	$i = 5\ 0\ 0$	1	λ Geminor.	$i = 4\ 59\ 8$	3
55 Aurigae	$i = 5\ 0\ 13$	6	ι Geminor	$i = 5\ 0\ 47$	3
θ Geminorum	$i = 4\ 59\ 10$	3	66 Aurigae	$i = 5\ 0\ 4$	1
	4 59 50		by weights	4 59 22	

$i = 4^\circ\ 59'\ 36''$ wt = 42

$i = 4\ 57\ 43$ wt = 14

Final value adopted = $4^\circ\ 59'\ 8''$

Returned Apr. 13 1874. New setting for i.

				wt = No. obs.	
42 Leo. gives	$i =$	$4^\circ\ 56'\ 3''$	8	From Apr. 27	to May 11
ι Leonis "	$i =$	4 54 57	3	" Apr. 16	to May 11
ζ Leonis "	$i =$	4 54 42	5	" May 5	" May 26
χ Ursae Maj. "	$i =$	4 53 57	6	" Apr. 30	" May 27
β Leonis "	$i =$	4 55 55	6	" "	" " "
β Virginis "	$i =$	4 53 30	2	" "	" " "
γ Ursae Maj. "	$i =$	4 53 43	6	" "	" " "
ε Corvi "	$i =$	4 51 40	3	" May 7	" " 28
ζ Corvi "	$i =$	4 53 8	6	" May 10	" " 28
η Virginis "	$i =$	4 54 45	6	" May 7	" " 28
12 Comae	$i =$	4 54 50	5	" "	" " "
ζ Comae	$i =$	4 56 36	4	" "	" " "

Mean = $4^\circ\ 54'\ 28''$

Over

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Before the reversal of the Meridian Circle in Jan 1873, it was found by inspecting the telescope over the North Collimator that the central vertical line did not traverse the intersection. The inclination of the vertical thread was found by estimating the extreme variation and by measuring with a pair of dividers the whole length of the line. The triangle, whose length was the length of the vertical thread and whose altitude was the estimated deviation of the extremity gave $4^c = 11'$. As there was no known disturbance of the plate between Apr 13 1874 and Dec 31 1874, it will be necessary to make a close examination in order to ascertain whether the change took place gradually or suddenly.

The value already found, viz. $4^\circ\ 54'\ 28''$ seems to hold good from Apr. 13 to May 28

The following series of determinations extends from May 19 to June 30

	α Virginis	δ Virginis	η Ursæ Maj	β Ursæ	λ Ursæ	γ Bootis	δ Bootis	ε Bootis	θ Bootis	b.f.e. 47 57
$c = 4^\circ$	52' 40"	47' 0"	45' 50"	53' 0"	51' 30"	51' 0"	51' 10"	50' 30"	62' 20"	58' 30"	48' 0"
	51 30	50 10	57 10	61 0	42 10	59 10	53 0	56 40	54 30	52 30	58 20
	52 50	50 20	58 10	53 40	45 20	47 0	44 10	51 20	56 00	56 50	47 50
			48 0	46 0	51 50	52 10	51 40	55 10	52 30	57 00	47 50
			48 10			50 0		55 10	49 10	52 40	
			51 20					49 30		49 20	
			52 20					48 20			
			45 10								
Means	51' 48"	49' 10"	50' 46"	53' 25"	47' 42"	51' 52"	50' 110"	52' 40"	54' 54"	53' 27"	50' 31"

Mean by weights $= 4^\circ\ 51'\ 44''$

From June 23 1874 to July 30 1873

	α Coronæ	ε Serpentis	β Serpentis	μ Serpentis	λ Libræ	γ Serpentis	ζ Scorpii	ν Ophiuchi
4°	53' 40"	56' 20"	47' 40"	47' 30"	57' 30"	54' 30"	53' 20"	52' 00"
	51 00	51 50	48 40	52 20	63 20	54 30	54 50	56 40
	45 10	51 50	43 40	44 30	51 50	57 0	44 40	57 10
	55 20	54 40	54 40	51 50	47 20	54 20	47 40	52 0
	46 30	55 40	51 30	44 0	50 00	49 40	48 30	48 30
	50 10	43 10	53 50	52 40	52 30	54 20	56 10	53 30
	50 20		52 30		47 30	52 20	58 10	
	53 50		57 40			55 30	50 10	
	(9) 51 20	(6)	101 53 00	(6)	(7)	(8)	(8)	(6)
			47 40					
4°	51' 10"	52' 15"	51' 5"	49' 28"	52' 52"	54' 1"	51' 41"	53' 18"

Mean by weights $= 4^\circ\ 51'\ 57''$

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From Aug 3 1874 to Sept 10 1874

B.B.C. 617	o Herculis	h Herc.	109 Herc.	1 Aquilae	ζ Lyrae	β Lyrae	δ' Lyrae	ζ Cygni	π Sagit.	ρ Sagit	κ Cygni
$i = 48^\circ\ 50''$	$56'\ 10''$	$54'\ 52''$	$52'\ 30''$	$50'\ 50''$	$52'\ 50''$	$46\cdot 20''$	$50'\ 10''$	$53'\ 30''$	$47'\ 40''$	$44'\ 20''$	$57'\ 0''$	$47'\ 40''$
41 30	48 40	43 30	45 50	61 30	58 0	46 20	53 50	55 0	58 0	48 0	60 10	55 40
40 30	57 30	44 50	55 50	47 50	58 10	47 40	51 20	51 50	54 40	49 40	51 0	53 50
46 10	54 10	51 40	53 10	43 30	49 40	49 30			58 2	56 30	54 40	
	56 50	54 0	53 50	46 0	56 40	52 40						
	61 20	53 10	59 10									
	47 30		41 00									
	57 40											
	48 40											
$i = 44^\circ\ 15'$	$58'\ 37''$	$52'\ 00''$	$51'\ 37''$	$49\ 56$	$55'\ 4''$	$48'\ 30''$	$51'\ 47''$	$53\ 27$	$54'\ 35''$	$49'\ 52''$	$55'\ 42''$	$52'\ 23''$

Mean by weights = $4^\circ\ 51'\ 49''$

From Sept. 10 1874 to Oct. 28 1874

3 Draconis	ε Cygni	μ Aquarii	32 Pegasi	h Capricorni	41 Cyg.	ζ Equulei	τ Cygni	σ Cygni	b Capricorni
$i = 4^\circ\ 56'\ 40''$	$49'\ 10''$	$51'\ 40''$	$52'\ 10''$	$49'\ 40''$	$48'\ 0''$	$51'\ 50''$	$44'\ 20''$	$51'\ 40''$	$45'\ 00''$
59 10	48 30	46 10	55 0	47 10	54 50	56 0	45 50	48 20	45 40
54 50	45 50	47 40	58 30	45 40	54 0	47 40	45 30	51 40	60 50
51 40		50 10	49 30	54 20	57 20	51 40	62 40	46 0	56 00
47 10		47 30		47 40	50 50	46 0	46 20	44 20	
		51 10			48 20	51 30	49 10	52 30	
					52 20	49 10			
					50 40				
					65 20				
$58'\ 54''$	$47'\ 50''$	$49'\ 3''$	$53'\ 48''$	$48'\ 54''$	$53'\ 25''$	$50'\ 33''$	$48'\ 58''$	$49'\ 10''$	$51'\ 52''$

Mean by weights = $4^\circ\ 50'\ 54''$

Thus far there appears to be no decided evidence of a change of inclination

From Oct 28 to Dec. 10 1874

	no. obs.		
α Andromedae	7	gives	$i = 4^\circ\ 47'\ 43''$
22 Andromedae	5		$i = 4\ 50\ 12$
i Ceti	5		$i = 4\ 50\ 10$
12 Ceti	5		$i = 4\ 47\ 52$
κ Cass.	4		$i = 4\ 51\ 5$

Mean = $4^\circ\ 49'\ 24''$

From Oct. 28 to Dec. 21

κ Cass.	7	$i = 4\ 48\ 41$
2 Andromedae	7	$i = 4\ 45\ 36$
31 Ceti	3	$i = 4\ 44\ 33$
ε Piscium	4	$i = 4\ 45\ 36$
β Andromedae	3	$i = 4\ 44\ 22$

Mean = $4^\circ\ 45'\ 43''$

It appears from this preliminary value that the change in the value of i took place sometime between Nov. and Dec. As there are some indications that it took place after Dec 10, the following additional determinations are made.

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From Oct. 28 to Dec 1. 1874

	No. Obs.			
ν Andromedae	1	Nov. 19	$i =$	4° 49′ 50″
22 Andromedae	1	Nov. 19	$i =$	50 0
ϑ Reyasi	1	Nov. 19	$i =$	52 0
ϑ Andromedae	1	Nov. 19	$i =$	48 30
c Orti	1	Nov. 19	$i =$	48 0
12 Orti	5	Oct. 28 – Nov. 18	$i =$	47 50
B.A.C. 160	4	Oct. 28 – Nov. 18	$i =$	46 32
κ Cass.	3	Nov. 11 – Nov. 21	$i =$	44 53
μ Andromedae.	1	Nov. 3 – Nov. 21	$i =$	55 20
B Orti	1	Nov. 3	$i =$	45 40
20 Orti	1	Nov. 3	$i =$	50 40
ρ Piscium	2	Nov. 24 – Nov. 29	$i =$	48 35
37 Orti	2	Nov. 24 – Nov. 30	$i =$	43 15
10 Andromedae.	2	Nov. 24 – Nov. 26	$i =$	50 15
η Piscium	2	Nov. 24 – Nov. 26	$i =$	50 50
ε Arietis	1	Nov. 29	$i =$	48 50
ν Piscium	2	Nov. 16 – Nov. 29	$i =$	47 30

Mean by weights = 4° 48′ 4″

Mean = 4° 48′ 4″

From Dec. 10 to Dec. 31 1874

ν Androm.	1	Dec. 10	$i =$	4° 39′ 10″
22 Androm.	1	Dec. 10	$i =$	48 40
ϑ Reyasi	1	Dec 10	$i =$	49 0
ϑ Androm.	1	Dec. 10	$i =$	52 0
c Orti	1	Dec. 10	$i =$	50 50
B.A.C. 160	2	Dec 9 – Dec 16	$i =$	48 30
κ Cass	3	Dec. 9 – Dec 16	$i =$	40 30
B Orti	2	Dec. 14 – Dec. 16	$i =$	42 20
μ Androm.	4	Dec 9 – Dec 16	$i =$	41 20
B.A.C. 237	3	Dec 12 – Dec 16	$i =$	45 13
20 Orti	4	Dec 9 – Dec. 16	$i =$	40 2
ε Piscium	4	Dec. 9 – Dec. 16	$i =$	45 30
β Androm.	5	Dec. 2 – Dec. 21	$i =$	44 22
ρ Piscium	6	Dec. 2 – Dec 21	$i =$	40 32
37 Orti	6	Dec. 2 – Dec 21	$i =$	39 47
ω Androm.	1	Dec. 2	$i =$	39 0
η Piscium	1	Dec. 2	$i =$	47 50
ρ Piscium	2	Dec. 15 – Dec. 23	$i =$	48 20
ε Arietis	3	Dec. 9 – Dec. 23	$i =$	47 3

Mean = 4° 43′ 22″

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Values of i adopted for 1874

From Jan. 15 to Apr. 12 $i = +4^\circ\ 59'\ 8''$

Reversal.

From Apr. 13 to May 28 $i = +4\ 54\ 28$

From May 29 to Sept. 10 $i = +4\ 51\ 50$

From Sept. 11 to Oct. 28 $i = +4\ 50\ 54$

From Oct. 29 to Dec. 10 $i = +4\ 48\ 44$

From Dec. 11 to Dec. 31 $i = +4\ 43\ 22$

Value of 1 div. Russian Transit-level $= 0.13^{M}$

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Precession constants for the fundamental stars of the General Catalogue.

	α Andromedæ α = 0h 02m		22 Andromedæ α = 0h 04m		γ Pegasi α = 0h 07m	
	$\frac{d\alpha}{dt}$	$\frac{d\rho}{dt}$ u = −0.″1450	$\frac{d\alpha}{dt}$	$\frac{d\rho}{dt}$ u = +0.″0008	$\frac{d\alpha}{dt}$	$\frac{d\rho}{dt}$ u = −0.″0130
1810		+20.″0581		+20.″0582		+20.″0559
			−7		−9	
20		20.0574		.0573		.0544
			8		11	
30		20.0566		.0562		.0527
			9		12	
40		20.0557		.0550		.0509
			10		14	
50		20.0547		.0536		.0490
			11		15	
60		20.0536		.0521		.0470
			12		17	
70		20.0524		.0504		.0448

	i Ceti α = 0 13		12 Ceti α = 0 24		κ Cassiop α = 0 26	
		u = −0.″0640		u = −0.″0240		u = +0.″0130
1810		+20.″0399		+19.″9792		+19.″9633
			−26		−48	
20		.0373		.9744		.9578
			28		49	
30		.0345		.9695		.9521
			30		51	
40		.0315		.9644		.9463
			32		52	
50		.0283		.9592		.9402
			33		54	
60		.0250		.9538		.9340
			35		55	
70		.0215		.9483		.9276

	a Cassiop α = 0 33		21 Cassiop α = 0 37		ξ Andromedæ α = 0 41	
		u = −0.″0540		u = −0.″0450		u = −0.″0810
1810		+19.″8890		+19.″8466		+19.″7933
			−72		−88	
20		.8818		.8378		.7850
			73		90	
30		.8745		.8288		.7765
			75		92	
40		.8670		.8196		.7679
			77		95	
50		.8593		.8101		.7592
			78		97	
60		.8515		.8004		.7504
			81		99	
70		.8434		.7905		.7414

	π Cassiop α = 0 41		γ Cassiop α = 0 49		ε Piscium α = 0.50.	
		u = −0.″4830		u = −0.″0250		u = +0.″0320
1810		+19.″7874		+19.″6669		+19.″5224
			−92		−108	
20		.7782		.6561		.5112
			94		111	
30		.7688		.6450		.4998
			96		113	
40		.7592		.6337		.4884
			99		115	
50		.7493		.6222		.4767
			101		117	
60		.7392		.6105		.4650
			103		120	
70		.7289		.5985		.4531

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Fundamental stars

β Androm α = 1h 1m 03

	dα/dt	dδ/dt u = −0.″0920	
18 10		+19.″3971	
20		.3829	142
30		.3688	141
40		3547	141
50		.3406	141
60		3266	140
70		.3127	139

γ Piscium α = 1h 1m 05

	dα/dt	dδ/dt u = −0.″0330	
		+19.″3457	
		3327	130
		.3197	130
		3062	135
		.2924	138
		.2782	142
		.2638	144

Polaris α = 1h 1m 12

	dα/dt	dδ/dt u = +0.″0200	
		+19.″191	
		.3840	
		.2531	

θ Ceti α = 1 18

	dα/dt	dδ/dt u = −0.″2070	
18 10		+18.″0071	
20		18.9922	149
30		18.9773	149
40		9622	151
50		.9471	151
60		9318	153
70		.9165	153

A Cassiop α = 1 22

	dα/dt	dδ/dt	
		+18.″9315	
		.8851	
		.8408	
		7987	

η Piscium α = 1 25

	dα/dt	dδ/dt u = +0.″0100	
		+18.″8079	
		7921	168
		.7742	179
		7570	172
		.7397	173
		7221	176
		.7044	177

τ Persei α = 1 30

	dα/dt	dδ/dt u = −0.″1180	
18 10		+18.6501	
20		.6298	203
30		.6093	205
40		5887	206
50		.5678	209
60		5468	210
70		.5256	212

ν Piscium α = 1 35

	dα/dt	dδ/dt u = 0.″000	
		+18.4790	
		4606	184
		.4419	187
		4232	187
		.4043	189
		3853	190
		.3662	191

ο Piscium α = 1 39

	dα/dt	dδ/dt u = +0.″0370	
		+18.3476	
		3276	200
		.3075	199
		2877	198
		.2679	198
		2485	194
		.2289	196

ζ Arietis α = 1 48

	dα/dt	dδ/dt u = −0.″0950	
18 10		+18.″0217	
20		17.9999	218
30		.9779	220
40		9558	221
50		.9335	223
60		9111	224
70		.8885	226

50 Cassiop α = 1 53

	dα/dt	dδ/dt u = +0.″0250	
		+17.8637	
		.8604	333
		.8270	334
		.7931	339
		.7591	340
		.7246	345
		.6900	346

γ Androm α = 1 56

	dα/dt	dδ/dt u = −0.″0510	
		+17.6983	
		.6728	255
		.6470	258
		6210	260
		.5948	262
		.5683	265
		.5417	266

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Fundamental stars

α Arietis α = 2h 00m

	$\frac{df}{dt}$	$\frac{d\delta}{dt}$ u = −0.″1370	
1810		+17.″5227	
20		.4980	247
30		.4733	247
40		.4484	249
50		.4233	251
60		.3981	252
70		.3727	254

β Trianguli α = 2h 02m

	$\frac{df}{dt}$	$\frac{d\delta}{dt}$ u = −0.″0340	
		+17.4433	
		4183	250
		3933	255
		3675	258
		3410	265
		.3139	271
		.2863	276

55 Cassiop α = 2h 04m

	$\frac{df}{dt}$	$\frac{d\delta}{dt}$ u = −0.″0101	
1810		+17.3824	
20		3485	339
30		.3145	340
40		.2800	345
50		.2452	348
60		.2100	352
70		.1745	355

6 Persei α = 2 05

		″ u = −0.″1799	
1810		+17.3251	
20		.2956	295
30		.2659	297
40		.2359	300
50		.2057	302
60		.1752	305
70		.1445	307

γ Trianguli α = 2 10

		″ u = −0.″0396	
		+17.0998	
		.0722	276
		.0443	279
		.0163	280
		16.9882	281
		.9600	282
		.9315	285

67 Ceti α = 2 11

		″ u = −0.″1160	
		+17.0295	
		17.0061	234
		16.9827	234
		.9594	233
		.9359	235
		.9126	233
		.8892	234

o Ceti α = 2 13

		″ u = −0.″2410	
1810		+16.9287	
20		.9041	246
30		.8797	244
40		.8551	246
50		.8303	248
60		.8055	248
70		.7805	250

i Cassiop α = 2 19

		″ u = −0.″0270	
		+16.7461	
		.7073	388
		.6680	393
		.6283	399
		.5883	400
		.5479	404
		.5070	409

ξ Ceti α = 2 21

		″ u = −0.″0070	
1810		+16.5269	
20		4999	270
30		.4729	270
40		.4457	272
50		.4184	273
60		.3909	275
70		.3634	275

ν Arietis α = 2 32

		″ u = −0.″0194	
1810		+16.0168	
20		15.9863	305
30		15.9556	307
40		.9249	307
50		.8940	309
60		.8631	309
70		.8320	311

σ Ceti α = 2 33

		″ u = −0.″0100	
		+15.9265	
		.8985	280
		.8704	281
		.8483	281
		.8141	282
		.7859	282
		.7576	283

θ Persei α = 2 35

		″ u = −0.″1050	
1810		+15.8441	
20		.8072	364
30		.7709	368
40		.7339	370
50		.6964	375
60		.6587	377
70		.6206	381

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Fundamental stars

γ Ceti α = 2h 3m

	dα/dt	dδ/dt	dδ/dt u = −0.″1440	
1810			+15.7266	
				287
20			.6979	
				288
30			.6691	
				289
40			.6402	
				290
50			.6112	
				291
60			.5821	
				292
70			.5529	

41 Arietis α = 2h 12m

	dδ/dt u = −0.″1240	
	+15.4312	
		338
	.3979	
		334
	.3645	
		336
	.3309	
		337
	.2972	
		339
	.2633	
		340
	.2293	

ρ Persei α = 2h 115m

	dδ/dt u = −0.″0200	
	+15.3161	
		395
	.2766	
		399
	.2367	
		403
	1964	
		406
	.1558	
		410
	.1148	
		414
	.0734	

47 H. Cephei α = 2 49

		u = −0.″0056	
1810		+15.2836	
			700
20		.2136	
			711
30		.1425	
			720
40		.0705	
			731
50		14.9974	
			740
60		.9234	
			751
70		14.8483	

a Ceti α = 2 56

		u = −0.″1080	
		+14.6481	
			318
		.6163	
			318
		.5845	
			320
		5525	
			320
		5205	
			322
		.4883	
			322
		.4561	

ρ Persei α = 2 57

		u = −0.″0780	
		+14.4062	
			380
		.5682	
			384
		.5298	
			387
		.4911	
			391
		.4520	
			395
		.4125	
			397
		3728	

β Persei α = 3 00

		u = +0.″0040	
1810		+14.4379	
			397
20		.3982	
			399
30		.3583	
			401
40		.3182	
			402
50		.2780	
			404
60		.2376	
			406
70		.1970	

48 H. Cephei α = 3 04

		u = −0.″0658	
		+14.3859	
			731
		3728	
			735
		.2389	
			748
		1641	
			756
		0885	
			765
		14.0120	
			774
		13.9346	

S Arietis α = 3 04

		u = +0.″0150	
		+14.1344	
			357
		.0987	
			360
		.0627	
			361
		.0266	
			363
		13.9903	
			365
		.9538	
			366
		9172	

a Persei α = 3 15

		u = −0.″0630	
1810		+13.4979	
			461
20		.4518	
			462
30		.4056	
			465
40		.3591	
			467
50		.3124	
			470
60		2654	
			471
70		.2183	

o Tauri α = 3 18

		u = −0.″0860	
		+13.2507	
			355
		.2152	
			356
		.1796	
			358
		.1438	
			360
		.1078	
			362
		.0716	
			363
		.0353	

ε Tauri α = 3 20

		u = −0.″0640	
		+13.1004	
			362
		.0642	
			363
		.0279	
			365
		12.9914	
			365
		12.9549	
			367
		.9182	
			368
		.8814	

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Fundamental stars

ξ Tauri $\alpha = 3^h\ 24^m$

	$\frac{d\alpha}{dt}$	$\frac{d\alpha}{dt}$ u = −0.″0170	
1810		+12.″8667	
			376
20		.8291	
			376
30		.7915	
			377
40		.7538	
			378
50		.7160	
			379
60		.6781	
			379
70		.6402	

ε Eridani $\alpha = 3^h\ 27^m$

	$\frac{d\alpha}{dt}$	$\frac{d\alpha}{dt}$ u = −0.″0220	
		+12.″6241	
			326
		.5915	
			327
		.5588	
			326
		.5262	
			327
		.4935	
			326
		.4609	
			327
		.4282	

Groom 716 $\alpha = 3^h\ 31^m$

	$\frac{d\alpha}{dt}$	$\frac{d\alpha}{dt}$ u = +0.″0590	
1810		+12.″5015	
			588
20		.4427	
			590
30		.3837	
			593
40		.3244	
			595
50		.2649	
			598
60		.2051	
70		1.1451	

σ Persei $\alpha = 3\ 34$

		u = −0.″0570	
1810		+12.″2487	
			493
20		.1994	
			494
30		.1500	
			496
40		.1004	
			498
50		.0506	
			500
60		12.0006	
			501
70		11.9505	

η Tauri $\alpha = 3\ 40$

		u = −0.″0440	
		+11.″7750	
			424
		.7326	
			425
		.6901	
			426
		.6475	
			427
		.6048	
			428
		.5620	
			429
		.5191	

9 Hb. Camel. $\alpha = 3\ 46$

		u = −0.″0000	
		+11.″4302	
			604
		3698	
			607
		.3091	
			611
		.2480	
			614
		.1866	
			618
		.1248	
			621
		.0627	

ζ Persei $\alpha = 3\ 46$ V

		u = −0.″0270	
1810		+11.″3456	
			455
20		.3001	
			457
30		.2544	
			458
40		2086	
			459
50		.1627	
			461
60		.1166	
			461
70		.0705	

ε Persei $\alpha = 3\ 49$

		u = −0.″0200	
		+11.″1339	
			490
		.0849	
			491
		0358	
			492
		10.9866	
			493
		10.9373	
			495
		.8878	
			496
		.8382	

κ Tauri $\alpha = 3\ 54$

		u = −0.″0190	
		+10.″7648	
			412
		.7236	
			412
		.6824	
			414
		.6410	
			414
		.5996	
			416
		.5580	
			416
		5164	

c Persei $\alpha = 3\ 59$

		u = −0.″0470	
1810		+10.″4122	
			542
20		.3580	
			543
30		.3037	
			545
40		.2492	
			547
50		.1945	
			549
60		.1396	
			550
70		.0846	

δ Eridani $\alpha = 4\ 06$

		u = +0.″0820	
		+9.″8319	
			377
		7942	
			378
		.7564	
			378
		.7186	
			378
		.6808	
			378
		.6430	
			379
		.6051	

γ Tauri $\alpha = 4\ 13$

		u = −0.″0140	
		+9.″3395	
			441
		2954	
			443
		2511	
			444
		.2067	
			445
		.1622	
			446
		.1176	
			448
		.0728	

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Fundamental stars

ζ Tauri $\alpha = 4^h\ 16^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$ u = −0,0″260	
1810		+9.″1065	451
20		,0614	451
30		,0163	453
40		8.9710	453
50		,9257	455
60		,8802	455
70		,8347	

ε Tauri $\alpha = 4^h\ 21^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$ u = −0,0″180	
		+8.″6717	462
		,6255	463
		5792	464
		5328	465
		,4863	466
		,4397	467
		,3930	

l Camelop. fill. $\alpha = 4^h\ 22^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$ u = −0,0″097	
		+8.″7119	623
		,6496	625
		,5871	626
		,5245	627
		,4618	628
		,3990	630
		,3360	

α Tauri $\alpha = 4\ 29$

		u = −0,″1650	
1810		+8.″6757	461
20		,0296	462
30		7.9834	463
40		,9371	463
50		,8908	464
60		,8444	465
70		,7979	

ν Eridani $\alpha = 4\ 30$

		u = −0,0″150	
		+7.″9309	403
		,8906	403
		,8503	404
		,8099	405
		,7694	406
		,7288	406
		,6882	

τ Tauri $\alpha = 4\ 35$

		u = −0,0″243	
		+7.″6063	485
		,5578	487
		,5091	488
		,4603	489
		,4114	490
		,3624	492
		,3132	

4 Camelop. $\alpha = 4\ 37$

		u = −0.″1563	
1810		+7.″4954	672
20		,4282	673
30		,3609	676
40		,2933	677
50		,2256	680
60		,1576	681
70		,0895	

ν Eridani $\alpha = 4\ 39$

		u = −0,0″220	
		+7.″1869	409
		,1460	409
		,1051	411
		,0640	411
		,0229	413
		6,9816	413
		,9403	

9(a) Camelop. $\alpha = 4\ 41$

		u = +0,0″200	
		+7.″2510	809
		,1701	809
		,0892	810
		,0082	811
		6,9271	812
		,8459	812
		,7647	

ι Aurigae $\alpha = 4\ 49$

		u = −0.″0110	
1810		+6.″4774	540
20		,4234	540
30		,3694	541
40		3153	541
50		,2612	543
60		2069	543
70		,1526	

10(β) Camelop. $\alpha = 4\ 52$

		u = −0,0070	
		+6.″3173	734
		,2439	735
		,1704	738
		0966	739
		,0227	742
		5.9485	743
		,8742	

ε Aurigae $\alpha = 4\ 53$

		u = −0,0020	
		+6.″1682	596
		,1086	597
		,0489	598
		5,9891	599
		,9292	600
		,8692	601
		,8091	

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Fundamental stars

	ζ Aurigae $\alpha = \frac{h}{4}\ \frac{m}{54}$			i Tauri $\alpha = \frac{h}{4}\ \frac{m}{55}$			λ Eridani $\alpha = \frac{h}{5}\ \frac{m}{23}$	
	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$		$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$		$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$
		$\mu = -0.''0080$			$\mu = -0.''0396$			$\mu = -0.''0300$
1810		+6.''0968	583		+5.''3850	500		+5.''1862
20		.0385	583		8350	500		1457
30		5.9802	584		.7850	502		.1051
40		.9218	585		7348	502		0645
50		.8633	586		6846	504		.0238
60		.8047	586		.6342	504		4.9831
70		.7461			.5838			.9423
	μ Aurigae $\alpha = 5\ 05$			a Aurigae $\alpha = 5\ 07$			β Orionis $\alpha = 5\ 08$	
		$\mu = -0.''0677$			$\mu = -0.''4200$			$\mu = -0.''0140$
1810		+5.''1534	575		+4.''9852	626		+4.''7324
20		0959	577		.9026	627		6914
30		.0382	579		.8399	628		.6503
40		4.9803	580		.7771	628		6493
50		.9223	582		.7143	628		.5682
60		.8641	584		.6515	631		.5272
70		.8057			.5884			.4861
	τ Orionis $\alpha = 5\ 11$			β Tauri $\alpha = 5\ 18$			Groom 966 $\alpha = 5\ 23$	
		$\mu = -0.''0240$			$\mu = -0.''1940$			$\mu = +0.''0190$
1810		+4.''4770	405		+3.''9742	543		+3.''9591
20		.4365	406		.9199	544		.8474
30		.3959	412		.8655	544		.7351
40		.3547	413		.8111	544		.6219
50		.3134	418		.7567	544		.5083
60		.2716	420		.7023	545		.3938
70		.2296			.6478			.2787
	σ Orionis $\alpha = 5\ 25$			ε Orionis $\alpha = 5\ 30$			δ Orionis $\alpha = 5\ 32$	
		$\mu = -0.''0400$			$\mu = -0.''0100$			$\mu = -0.''0180$
1810		+3.''2830	435		+2.''9143	438		+2.''6863
20		.2395	436		.8705	438		6427
30		.1959	439		.8267	439		.5991
40		.1520	441		.7828	440		.5555
50		.1079	444		.7388	441		.5119
60		.0635	445		.6947	441		.4683
70		.0190			.6506			.4247

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Fundamental stars

o Aurigae $\alpha = 5^h\ 36^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$	
		$\mu = -0.''0318$	
1810		+2.''5140	669
20		.4471	671
30		2.3805	673
40		.3130	671
50		2.2459	676
60		.1783	675
70		2.1108	

ν Aurigae $\alpha = 5^h\ 43^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$	
		$\mu = +0.''0460$	
		+1.8939	603
		.8236	604
		.7632	604
		.7028	604
		.6524	604
		.5920	605
		.5315	

α Orionis $\alpha = 5^h\ 48^m$

	$\frac{d\alpha}{dt}$	$\frac{d\delta}{dt}$	
		$\mu = -0.''0000$	
		+1.''3206	468
		.2738	469
		.2269	471
		.1798	472
		.1326	474
		.0852	475
		.0377	

β Aurigae $\alpha = 5\ 50$

		$\mu = -0.''0090$	
1810		+1.''2595	638
20		.1957	639
30		.1318	640
40		.0678	641
50		.0037	642
60		0.9395	643
70		.8752	

θ Aurigae $\alpha = 5\ 51$

		$\mu = -0.''1090$	
		+1.''1569	593
		.0976	594
		.0382	595
		0.9787	595
		.9192	596
		.8596	597
		.7999	

τ Orionis $\alpha = 6\ 00$

		$\mu = -0.''0200$	
		+0.''2862	497
		.2365	498
		.1867	499
		.1368	499
		.0869	500
		+.0369	501
		−.0132	

η Geminorum $\alpha = 6\ 07$

		$\mu = -0.''0010$	
1810		−0.''2985	527
20		.3512	528
30		.4040	527
40		.4567	528
50		.5095	527
60		.5622	528
70		.6150	

γ Geminorum $\alpha = 6\ 30$

		$\mu = -0.''0490$	
		−2.''3350	498
		.3848	499
		.4347	500
		.4847	500
		.5347	501
		.5848	502
		.6350	

51 Hev. Cephei $\alpha = 6\ 41$

		$\mu = -0.''0800$	
		−2.''	
		.5967	
		.4917	
		.3735	

β Geminorum $\alpha = 6\ 44$

		$\mu = -0.''0300$	
1810		−3.''5057	565
20		.5622	565
30		.6187	565
40		.6752	566
50		.7318	566
60		.7884	566
70		.8450	

15 Lyncis $\alpha = 6\ 46$

		$\mu = -0.''1513$	
		−3.''5512	747
		.6259	747
		.7006	746
		.7752	747
		.8499	746
		.9245	746
		.9991	

ζ Geminor. $\alpha = 6\ 57$

		$\mu = -0.''0020$	
		−4.''5835	503
		.6338	503
		.6841	503
		.7344	502
		.7846	502
		.8348	502
		.8850	

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Fundamental stars

63 Aurigae α = 7h 7m 03

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
		$u = +0.0185$	
1810		−5.0714	577
20		.1291	577
30		.1868	579
40		.2447	579
50		.3026	581
60		.3607	581
70		.4188	

64 Aurigae α = 7h 7m 09

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
		$u = +0.0185$	
		−5.6962	585
		.6547	585
		.7132	583
		.7715	583
		.8298	581
		.8879	581
		.9460	

λ Geminor α = 7h 11m

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
		$u = -0.0390$	
		−5.7945	480
		.8425	480
		.8905	479
		9384	479
		.9863	478
		6.0341	478
		.0819	

ι Geminor α = 7 12

		$u = -0.0090$	
1810		−5.9285	499
20		.9784	498
30		b.0282	497
40		.0779	496
50		.1275	495
60		.1770	494
70		.2264	

i Geminor α = 7 18

		$u = -0.0880$	
		−6.3574	514
		.4088	514
		.4602	513
		.5115	512
		.5627	511
		.6138	511
		.6649	

β Can. Min α = 7 20

		$u = -0.0520$	
		−6.5985	454
		6439	452
		6891	448
		7339	446
		.7785	442
		8227	440
		.8667	

ρ Geminor α = 7 21

		$u = +0.1873$	
1810		−6.6037	525
20		.6562	525
30		.7087	527
40		.7614	527
50		.8141	529
60		8670	529
70		.9199	

a^2 Geminor α = 7 26

		$u = -0.0770$	
		−7.0616	525
		.1141	523
		.1664	521
		.2185	519
		.2704	517
		.3221	515
		3736	

a Can Min α = 7 33

		$u = -1.0480$	
		−7.6232	423
		.6655	422
		.7077	420
		.7497	419
		.7916	417
		.8333	416
		.8749	

δ Geminor α = 7 37

		$u = -0.0600$	
1810		−7.9717	492
20		.0209	490
30		8.0699	488
40		1187	487
50		.1674	485
60		2159	483
70		.2642	

Groom 1374 α = 7 45

		$u = -0.0349$	
		−8.2550	974
		3524	972
		.4496	969
		5465	969
		.6432	967
		7396	963
		.8359	

β Cancri α = 8 10

		$u = -0.0470$	
		(−10.4948)	406
		.5354	404
		.5758	401
		.6159	399
		.6558	396
		.6954	394
		.7348	

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Fundamental stars

o Urs. Maj $\alpha = 8^h\ 20^m$

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
1810		$-11.''0966$	$u = -0.''1430$
			623
20		.1589	
			617
30		.2206	
			612
40		.2818	
			605
50		.3423	
			600
60		.4023	
			594
70		.4617	

η Cancri $\alpha = 8^h\ 25^m$

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
		$-11.''6269$	$u = -0.''0410$
			409
		.6678	
			408
		.7086	
			407
		.7493	
			406
		.7899	
			405
		.8304	
			404
		.8708	

S Cancri $\alpha = 8^h\ 37^m$

	$\frac{dt}{dt}$	$\frac{d\delta}{dt}$	
			$u = -0.''2400$
		$-12.''4755$	
			390
		.5155	
			384
		.5544	
			386
		.5930	
			384
		.6314	
			382
		.6696	
			379
		.7075	

ε Hydrae $\alpha = 8\ 40$

1810		$-12.''0715$	$u = -0.''0230$
			353
20		.1068	
			352
30		.1420	
			352
40		.1772	
			351
50		.2123	
			351
60		.2474	
			350
70		.2824	

Σ Hydrae $\alpha = 8\ 49$

		$-13.''2472$	$u = -0.''0070$
			345
		.2817	
			344
		.3161	
			342
		.3503	
			340
		.3843	
			338
		.4181	
			337
		.4518	

i Urs. Maj $\alpha = 8\ 50$

			$u = -0.''2710$
		$-13.''3012$	
			446
		.3458	
			445
		.3903	
			443
		.4346	
			441
		.4787	
			439
		.5226	
			438
		.5664	

K Ursa. Maj. $\alpha = 8\ 55$

			$u = -0.''1000$
1810		$-13.''5876$	
			445
20		.6321	
			443
30		.6764	
			439
40		.7203	
			438
50		.7641	
			431
60		.8072	
			430
70		.8502	

σ^2 Ursa Maj. $\alpha = 8\ 59$

			$u = -0.''0777$
		$-13.''7740$	
			576
		.8316	
			572
		.8888	
			566
		.9454	
			562
		14.0016	
			556
		.0572	
			552
		.1124	

θ Hydrae $\alpha = 9\ 08$

			$u = -0.''3220$
		$-14.''4581$	
			306
		.4887	
			306
		.5193	
			306
		.5499	
			307
		.5806	
			307
		.6113	
			307
		.6420	

38 Lyncis $\alpha = 9\ 11$

			$u = -0.''0890$
1810		$-14.''6099$	
			366
20		.6465	
			365
30		.6830	
			365
40		.7195	
			364
50		.7559	
			364
60		.7923	
			363
70		.8286	

83 Cancri $\alpha = 9\ 12$

			$u = -0.''1370$
		$-14.''6909$	
			329
		.7238	
			328
		.7566	
			326
		.7892	
			324
		.8216	
			323
		.8539	
			320
		.8859	

a Lyncis=40 $\alpha = 9\ 13$

			$u = -0.''0050$
		$-14.''7568$	
			352
		.7920	
			353
		.8273	
			355
		.8628	
			357
		.8985	
			358
		.9343	
			359
		.9702	

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Fundamental stars.

a Hydrae $\alpha = 9^h\ 21^m$

	$\frac{ds}{dt}$		$\frac{d\delta}{dt}$	
			$\mu = +0.''0380$	
1810	$-15.''2665$	274	$-15.''9668$	276
20	.2939	272	.9943	274
30	.3211	271	[illegible].0217	273
40	.3482	269	.0490	273
50	.3751	268	.0763	272
60	.4019	266	.1035	271
70	.4285		.1306	

o Leonis $\alpha = 9^h\ 34^m$

	$\frac{ds}{dt}$		$\frac{d\delta}{dt}$	
			$\mu = -0.''0360$	
1810	$-15.''9668$	276	$-16.''1787$	286
20	.9943	274	.2073	286
30	[illegible].0217	273	.2359	284
40	.0490	273	.2643	284
50	.0763	272	.2927	282
60	.1035	271	.3209	282
70	.1306		.3491	

ε Leonis $\alpha = 9^h\ 39^m$

	$\frac{ds}{dt}$		$\frac{d\delta}{dt}$	
			$\mu = -0.''0250$	
1810	$-16.''1787$	286	$-16.''4866$	458
20	.2073	286	.5324	455
30	.2359	284	.5779	450
40	.2643	284	.6229	446
50	.2927	282	.6675	441
60	.3209	282	.7116	438
70	.3491		.7554	

v Ursae Maj. $\alpha = 9\ 42$

			$\mu = -0.''2000$	
1810	$-16.''2975$	366	$-16.''5269$	279
20	.3341	363	.5548	277
30	.3704	360	.5825	274
40	.4064	356	.6099	273
50	.4420	353	.6372	270
60	.4773	350	.6642	268
70	.5123		.6910	

μ Leonis $\alpha = 9\ 45$

			$\mu = -0.''0560$	
1810	$-16.''5269$	279	$-16.''4866$	458
20	.5548	277	.5324	455
30	.5825	274	.5779	450
40	.6099	273	.6229	446
50	.6372	270	.6675	441
60	.6642	268	.7116	438
70	.6910		.7554	

Gr. 1586 $\alpha = 9\ 47$

			$\mu = -0.''0428$	
1810	$-16.''4866$	458	$-17.''6109$	243
20	.5324	455	6352	245
30	.5779	450	.6600	244
40	.6229	446	6844	241
50	.6675	441	.7085	240
60	.7116	438	7325	239
70	.7554		.7564	

η Leonis $\alpha = 10\ 00$

			$\mu = +0.''0040$	
1810	$-17.''2365$	238	$-17.''2933$	230
20	.2603	236	.3165	228
30	.2839	235	.3393	227
40	.3074	233	.3620	225
50	.3307	232	.3845	224
60	.3539	230	.4069	222
70	.3769		.4291	

ζ Leonis $\alpha = 10\ 02$

			$\mu = +0.''0170$	
1810	$-17.''2933$	230	$-17.''6109$	243
20	.3165	228	6352	245
30	.3393	227	.6600	244
40	.3620	225	6844	241
50	.3845	224	.7085	240
60	.4069	222	7325	239
70	.4291		.7564	

λ Ursae Maj. $\alpha = 10\ 09$

			$\mu = -0.''0890$	
1810	$-17.''6109$	243	$-18.''1269$	329
20	6352	245	.1598	326
30	.6600	244	.1924	321
40	6844	241	.2245	317
50	.7085	240	.2562	312
60	7325	239	.2874	309
70	.7564		.3183	

μ Ursae Maj. $\alpha = 10\ 15$

			$\mu = +0.''0040$	
1810	$-17.''8310$	233	$-18.''2813$	182
20	.8543	231	.2995	180
30	.8774	230	.3175	179
40	.9004	228	.3354	178
50	.9232	227	.3532	177
60	.9459	225	.3709	175
70	.9684		.3884	

9 H. Draconis $\alpha = 10\ 24$

			$\mu = -0.''0350$	
1810	$-18.''1269$	329	$-18.''2813$	182
20	.1598	326	.2995	180
30	.1924	321	.3175	179
40	.2245	317	.3354	178
50	.2562	312	.3532	177
60	.2874	309	.3709	175
70	.3183		.3884	

ρ Leonis $\alpha = 10\ 26$

			$\mu = -0.''0110$	
1810	$-18.''2813$	182	$-18.''5269$	279
20	.2995	180	.5548	277
30	.3175	179	.5825	274
40	.3354	178	.6099	273
50	.3532	177	.6372	270
60	.3709	175	.6642	268
70	.3884		.6910	

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Fundamental stars

(48 Leonis $\alpha = 10^h\ 28^m$)

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
1810		$-18.''$ u = −
20		
30		3906
40		
50		4284
60		
70		

42 Leonis Min $\alpha = 10^h\ 39^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″475
		$-18.''7029$ 170
		.7199 169
		.7368 166
		.7534 165
		.7699 162
		.7861 161
		.8022

l Leonis $\alpha = 10^h\ 43^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″200
		$-18.''8284$ 139
		8423 142
		8565 145
		8710 150
		8860 153
		9013 156
		9169

(54 Leonis $\alpha = 10\ 49$)

1810		$-19.''$
20		
30		.0311
40		
50		.0593
60		
70		.1109

a Ursa Maj. $\alpha = 10\ 56$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″890
		$-19.''1790$ 155
		.1945 153
		.2098 150
		.2248 148
		.2396 145
		.2541 143
		.2684

χ Leonis $\alpha = 10\ 58$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″600
		$-19.''2616$ 120
		.2736 118
		.2854 116
		.2970 114
		.3084 112
		.3196 110
		.3306

ψ Ursa Maj. $\alpha = 11\ 02$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″820
1810		$-19.''3503$ 124
20		.3627 122
30		.3749 120
40		.3869 118
50		.3987 116
60		.4103 114
70		.4217

δ Leonis $\alpha = 11\ 07$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″1520
		$-19.''4612$ 110
		.4722 108
		.4830 104
		.4934 102
		.5036 99
		.5135 95
		.5230

ξ Ursa Maj. $\alpha = 11\ 11$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″5860
		$-19.''5450$ 95
		.5545 95
		.5640 93
		.5733 93
		.5826 91
		.5917 91
		.6008

σ Leonis $\alpha = 11\ 15$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″0100
1810		$-19.''6080$ 86
20		.6166 85
30		.6251 84
40		.6335 82
50		.6417 81
60		.6498 80
70		.6578

ν Leonis $\alpha = 11\ 30$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = +0.″0400
		$-19.''8533$ 56
		.8589 55
		.8644 53
		.8697 51
		.8748 49
		.8797 48
		.8845

χ Ursa Maj. $\alpha = 11\ 39$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		u = −0.″0060
		$-19.''9476$ 44
		.9520 41
		.9561 38
		.9599 35
		.9634 32
		.9666 29
		.9695

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Fundamental stars.

β Leonis α = 11h 43m

	dδ/dt		dδ/dt
			u = −0.″1020
1810			−19.″9772
		30	
20			.9802
		30	
30			.9832
		28	
40			.9860
		28	
50			.9888
		26	
60			.9914
		26	
70			.9940

β Virginis α = 11h 44m

	dδ/dt		dδ/dt
			u = −0.″2700
			−19.″9879
		30	
			.9909
		28	
			.9937
		27	
			.9964
		25	
			.9989
		24	
			20.0013
		22	
			−20.0035

γ Ursa. Maj. α = 11h 47m

	dδ/dt		dδ/dt
			u = −0.″0440
			−20.″0074
		29	
			.0103
		25	
			.0128
		23	
			.0151
		19	
			.0170
		20	
			.0190
		16	
			.0206

o Virginis α = 11 59

	dδ/dt		dδ/dt
			u = +0.″0350
1810			−20.″0557
		9	
20			.0548
		5	
30			.0543
		4	
40			.0539
		3	
50			.0536
		0	
60			0536
		0	
70			.0536

47 H. Draconis α = 12h 06m

	dδ/dt		dδ/dt
			u = +0.″0110
			−20.″0566
		16	
			0550
		16	
			.0534
		18	
			.0516
		18	
			.0498
		20	
			0478
		20	
			.0458

η Virginis α = 12h 13m

	dδ/dt		dδ/dt
			u = −0.″0220
			−20.″0386
		30	
			0356
		30	
			.0326
		32	
			.0294
		32	
			.0262
		34	
			.0228
		34	
			.0194

κ Draconis α = 12 28

	dδ/dt		dδ/dt
			u = −0.″0170
1810			−19.″9362
		51	
20			.9311
		52	
30			.9259
		53	
40			.9206
		54	
50			.9152
		55	
60			.9097
		55	
70			.9042

γ' Virginis α = 12 35

	dδ/dt		dδ/dt
			u = +0.″0260
			−19.″8626
		70	
			.8556
		72	
			.8484
		73	
			.8411
		74	
			.8337
		75	
			.8262
		77	
			.8185

ε Ursa. Maj. α = 12 48

	dδ/dt		dδ/dt
			u = −0.″0440
			−19.″6611
		80	
			.6531
		84	
			.6447
		86	
			6361
		90	
			.6271
		88	
			.6183
		92	
			.6091

12 Can. Ven. α = 12 50

	dδ/dt		dδ/dt
			u = +0.″0460
1810			−19.″6360
		94	
20			.6266
		95	
30			.6171
		95	
40			.6076
		96	
50			.5980
		96	
60			.5884
		97	
70			.5787

ε Virginis α = 12 56

	dδ/dt		dδ/dt
			u = +0.″0240
			−19.″5301
		109	
			.5192
		110	
			.5082
		111	
			4971
		111	
			.4860
		112	
			.4748
		113	
			.4635

θ Virginis α = 13 03

	dδ/dt		dδ/dt
			u = −0.″0400
			−19.″3714
		123	
			.3591
		124	
			.3467
		127	
			.3340
		129	
			.3211
		132	
			.3079
		133	
			.2946

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Fundamental stars

β Comae $\alpha = 13^h\ 06^m$

	$\frac{d\delta}{dt}$		$\frac{d\delta}{dt}$
			$u = +0.''8940$
1810			$-19.''3069$
		123	
20			.2946
		123	
30			.2823
		124	
40			.2699
		125	
50			.2574
		126	
60			.2448
		126	
70			23.22

ζ Ursae Maj. $\alpha = 13^h\ 19^m$

	$\frac{d\delta}{dt}$		$\frac{d\delta}{dt}$
			$u = -0.''0560$
			$-18.''9564$
		115	
			.9449
		119	
			.9330
		121	
			.9209
		125	
			.9084
		128	
			.8956
		132	
			.8824

ζ Virginis $\alpha = 13^h\ 28^m$

	$\frac{d\delta}{dt}$		$\frac{d\delta}{dt}$
			$u = +0.''0500$
			$-18.''6938$
		170	
			.6768
		170	
			.6598
		172	
			.6426
		172	
			.6254
		174	
			.6080
		175	
			.5905

η Ursae Maj. $\alpha = 13\ 42$

			$u = -0.''0200$
1810			$-18.''1774$
		154	
20			.1620
		155	
30			.1465
		156	
40			.1309
		156	
50			.1153
		157	
60			.0996
		158	
70			.0838

η Bootis $\alpha = 13\ 49$

			$u = -0.''3660$
			$-17.''9649$
		193	
			.9456
		194	
			.9262
		195	
			.9067
		196	
			.8871
		197	
			.8674
		198	
			.8476

τ Virginis $\alpha = 13\ 55$

			$u = -0.''0640$
			$-17.''7107$
		215	
			.8892
		216	
			.6676
		218	
			.6458
		219	
			.6239
		221	
			.6018
		222	
			.5796

α Draconis $\alpha = 14\ 01$

			$u = +0.''0020$
1810			$-17.''4039$
		126	
20			.3913
		127	
30			.3786
		126	
40			.3660
		127	
50			.3533
		126	
60			.3407
		127	
70			.3280

α Bootis $\alpha = 14\ 05$

			$u = -0.''0651$
			$-17.''2944$
		208	
			.2736
		209	
			.2527
		211	
			.2316
		213	
			.2103
		215	
			.1888
		216	
			.1672

α Bootis $\alpha = 14\ 10$

			$u = -1.''7670$
			$-17.''0577$
		223	
			.0354
		222	
			.0132
		221	
			16.9911
		220	
			$-16.''9691$
		219	
			.9472
		219	
			.9253

θ Bootis $\alpha = 14\ 21$

			$u = -0.''4260$
1810			$-16.''4932$
		170	
20			.4762
		171	
30			.4591
		175	
40			.4416
		177	
50			.4239
		181	
60			.4058
		182	
70			.3876

ρ Bootis $\alpha = 14\ 26$

			$u = +0.''1520$
			$-16.''2462$
		229	
			.2233
		230	
			.2003
		230	
			.1773
		231	
			.1542
		231	
			.1311
		232	
			.1079

γ Bootis $\alpha = 14\ 27$

			$u = +0.''1410$
			$-16.''2059$
		216	
			1843
		216	
			.1627
		217	
			.1410
		217	
			.1193
		218	
			.0975
		218	
			.0757

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Fundamental stars

5 Ursae Min. $\alpha = 14^h\ 28^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
1810		$-16.''u=-$
20		
30		.0185
40		
50		.0212
60		
70		

π' Bootis $\alpha = 14^h\ 35^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$	
		$-15.''u=-0.0050$	
		.8174	262
		.7912	262
		.7650	262
		.7388	263
		.7125	263
		.6862	263
		.6599	

ζ Bootis $\alpha = 14^h\ 35^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$	
		$-15.''u=-0.0130$	
		.8020	265
		.7755	265
		.7490	266
		.7224	267
		.6957	268
		.6689	268
		.6421	

109 Virginis $\alpha = 14\ 40$

		$-15.''u=-0.0210$	
1810		5520	284
20		.5236	286
30		.4950	287
40		.4663	288
50		.4375	289
60		.4086	291
70		.3795	

Gr. 2164 $\alpha = 14\ 48$

		$-14.''u=+0.1678$	
		9863	149
		.9714	151
		.9563	154
		.9409	156
		.9253	160
		.9093	161
		.8934	

β Ursae Min. $\alpha = 14\ 51$

		$-14.''u=-0.0420$	
		7063	21
		.7084	21
		.7105	21
		.7126	21
		.7147	21
		.7168	21
		.7189	

β Bootis $\alpha = 14\ 57$

		$-14.''u=-0.0620$	
1810		5021	234
20		.4786	235
30		.4551	235
40		.4316	235
50		.4081	235
60		.3846	236
70		.3610	

ψ Bootis $\alpha = 14\ 59$ ✓

		$-14.''u=-0.0100$	
		4116	
		3846	270
		.3575	271
		3302	273
		.3029	273
		2755	274
		.2487	271

β Librae $\alpha = 15\ 10$

		$-13.''u=-0.0200$	
		7565	348
		.7217	349
		.6868	349
		.6519	350
		.6169	351
		.5818	351
		.5467	

δ Bootis pr. $\alpha = 15\ 10$

		$-13.''u=-0.1040$	
1810		6901	265
20		.6636	266
30		.6370	266
40		.6104	266
50		.5838	266
60		.5572	267
70		.5305	

γ² Ursae Min. $\alpha = 15\ 21$

		$-12.''u=+0.0120$	
		8165	23
		.8188	20
		.8208	16
		.8224	13
		.8237	9
		.8246	6
		.8252	

ν' Bootis $\alpha = 15\ 26$

		$-12.''u=+0.0100$	
		6154	248
		.5906	248
		.5658	250
		.5408	250
		.5158	252
		.4906	252
		.4654	

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Precession constants for stars
not fundamental.

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Stars not fundamental

35 Piscium $\alpha = 0^h\ 8^m$

	$\frac{d\alpha}{dt}+12^s$		$\frac{d\delta}{dt}+1''$	
1800				
10	+3.0739	+6	+20.058	−2
20	.0745	6	.051	2
30	.0751	7	.049	2
40	.0758	7	.047	2
50	.0765	7	.045	3
60	.0772	7	.042	2
70	.0779		.040	
1900	+11		+2	

24 Andromedae $\alpha = 0^h\ 10^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}+1$	
	+3.1021	+27	+20.049	−3
	.1048	26	.046	3
	.1074	26	.043	2
	.1100	26	.041	2
	.1126	26	.039	3
	.1152	27	.036	3
	.1179		.033	
	+11		+2	

Sculptoris i $\alpha = 0^h\ 15^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}+1$	
1810				
20				
30	+3.0267	−14	+20.024	−3
40	.0253	14	.021	4
50	.0239	14	.017	3
60	.0225	13	.014	4
70	.0212		.010	
1900	+11		+2	

12 Cassiopeiae $\alpha = 0^h\ 18^m$

		+12		+1	
1810	+3.2198	+62	+20.019	−4	
20	.2260	62	.015	4	
30	.2322	63	.011	4	
40	.2385	62	.007	5	
50	.2447	63	.002	4	
60	.2510	63	19.998	5	
70	.2573		993		
	+11		+2		

Di 0 79 $\alpha = 0^h\ 22^m$

	+12		+1	
	+2.9938	−16	+19.984	−5
	.9922	16	.979	4
	.9906	15	.975	5
	.9891	16	.970	5
	.9875		.965	
	+11		+2	

Di 0 130 $\alpha = 0^h\ 31^m$

	+12		+1	
1810				
20				
30	+2.9900	−10	+19.900	−6
40	.9890	10	.894	7
50	.9880	10	.887	7
60	.9870	10	880	7
70	.9860		.873	
	+11		+2	

19 Cassiopeiae ζ $\alpha = 0^h\ 35^m$

		+12		+1	
1810	+3.2842	+45	+19.869	−8	
20	.2887	44	.861	8	
30	.2931	43	.853	8	
40	.2974	43	.845	7	
50	.3017	43	838	8	
60	.3060	44	830	8	
70	.3104		822		
	+11		+2		

16 Ceti β $\alpha = 0^h\ 37^m$

	+12		+1	
	+3.0015	−5	+19.838	−8
	.0010	5	.830	8
	.0005	6	.822	7
	2.9999	6	.815	8
	.9993	6	.807	8
	.9987	6	.799	8
	.9981		.791	
	+11		+2	

35 Andromedae γ $\alpha = 0^h\ 43^m$

	+12		+1	
1810	+3.2619	+36	+19.763	−9
20	.2655	36	.754	9
30	.2681	34	.745	10
40	.2715	33	.735	9
50	.2748	33	.726	10
60	.2781	32	.716	10
70	2.813		.706	
	+11		+2	

Sculptoris α $\alpha = 0^h\ 52^m$

	+12		+1	
1810				
20				
30	+2.8999	−11	+19.573	−10
40	.8988	10	.563	10
50	.8978	10	.553	10
60	.8968	10	.543	11
70	.8958		.532	
	+11		+2	

For 1800

30 Cassiopeiae μ $\alpha = 1^h\ 0^m$

	+13		+1	
	+3.5134	+58	+19.467	−14
	.5192	57	.453	15
	.5249	61	.438	14
	.5310	60	.424	14
	.5370	63	.410	16
	.5433	62	.394	16
	.5495		.378	
	+11		+2	

37 Ceti $\alpha = 1^h\ 8^m$

	+12		+1	
1810	+3.0110	+2	+19.261	−13
20	.0112	1	.248	14
30	.0113	1	.234	14
40	.0114	1	.220	15
50	.0115	2	.205	12
60	.0117	2	.193	13
70	.0119		.180	
	+11		+2	

For 1900

Struve = Bessel + 0^s.124 + 0^s.0057 sin α tan δ for $\frac{d\alpha}{dt}$
= Bessel + 0".11 cos α for $\frac{d\delta}{dt}$

Struve = Bessel + 0^s.108 + 0^s.0015 sin α tan δ for $\frac{d\alpha}{dt}$
= Bessel + 0".22 cos α for $\frac{d\delta}{dt}$

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Stars not fundamental

48 Andromedae (ω) α = 1h 20m

	dα/dt +13		dδ/dt +1	
1810	+3.4983		+18.956	
		+42		−18
20	.5025		.938	
		41		18
30	.5066		.920	
		42		18
40	.5108		.902	
		42		18
50	.5150		.884	
		42		19
60	.5192		.865	
		42		18
70	.5234		.847	
	+11		+2	

Pi I 109 α = 1h 27m

	dα/dt +12		dδ/dt +1	
	+2.6933		+18.683	
		−8		−15
	.6927		.667	
		9		15
	.6918		.652	
		9		15
	.6909		.637	
		9		15
	.6900		.622	
	+10		+2	

53 Andromedae P α = 1h 33m

	dα/dt +13		dδ/dt +1	
	+3.4906		+18.552	
		+36		−21
	.4942		.531	
		36		21
	.4978		.510	
		36		20
	.5014		.490	
		36		21
	.5050		.469	
		35		20
	.5085		.449	
		34		21
	.5119		.428	
	+11		+2	

Pi I 170 α = 1h 41m

	dα/dt +13		dδ/dt +1	
1810				
20				
30	+3.4922		+18.227	
		+33		−22
40	.4955		.205	
		33		22
50	.4988		.183	
		34		23
60	.5022		.160	
		35		23
70	.5057		.137	
	+11		+2	

53 Ceti χ(2) α = 1h 43m

	dα/dt +12		dδ/dt +1	
	+2.9532		+18.170	
		+2		−19
	.9534		.151	
		2		20
	.9536		.131	
		2		19
	.9538		.112	
		2		19
	.9540		.093	
		2		19
	.9542		.074	
		2		20
	.9544		.054	
	+11		+2	

55 Ceti g α = 1h 45m

	dα/dt +12		dδ/dt +1	
	+2.9549		+18.102	
		+2		−20
	.9551		.082	
		2		20
	.9553		.062	
		3		19
	.9556		.043	
		2		20
	.9558		.023	
		2		20
	.9560		.003	
		3		20
	.9563		17.983	
	+11		+2	

9 Arietis (ι') α = 1h 51m

	dα/dt +12		dδ/dt +1	
1810	+3.3219		+17.897	
		+20		−23
20	.3239		.874	
		20		22
30	.3259		.852	
		21		23
40	.3280		.829	
		20		23
50	.3300		.806	
		20		23
60	.3320		.783	
		20		24
70	.3340		.759	
	+11		+2	

27 Arietis α = 2h 24m

	dα/dt +12		dδ/dt +1	
	+3.3027		+16.412	
		+17		−29
	.3044		.383	
		17		29
	.3061		.354	
		16		29
	.3077		.325	
		17		28
	.3094		.297	
		17		28
	.3111		.269	
		16		29
	.3127		.240	
	+11		+2	

76 Ceti σ α = 2h 26m

	dα/dt +12		dδ/dt +1	
	+2.8444		+16.274	
		+2		−25
	.8446		.249	
		3		25
	.8449		.224	
		2		25
	.8451		.199	
		3		25
	.8454		.174	
		2		25
	.8456		.149	
		3		25
	.8459		.124	
	+11		+2	

1 Eridani τ' α = 2h 39m

	dα/dt +12		dδ/dt +1	
1810	+2.7733		+15.576	
		+2		−27
20	.7735		.549	
		2		27
30	.7737		.522	
		2		27
40	.7739		.495	
		2		26
50	.7741		.469	
		2		27
60	.7743		.442	
		2		27
70	.7745		.415	
	+11		+2	

Pi III 13 α = 3h 7m

B.A.C. 557

	dα/dt +12		dδ/dt +1	
	+2.5205		+13.878	
		+1		−27
	.5206		.851	
		2		27
	.5208		.824	
		1		28
	.5209		.796	
		2		28
	.5211		.768	
	+10		+2	

13 Eridani ζ α = 3h 10m

	dα/dt +12		dδ/dt +1	
	+2.9065		+13.773	
		+6		−34
	.9071		.739	
		5		34
	.9076		.705	
		5		34
	.9081		.671	
		6		34
	.9087		.637	
		6		34
	.9093		.603	
		6		34
	.9099		13.569	
	+11		+2	

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Stars not Fundamental

96 Ceti K[1] $\alpha = 3^h\ 13^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}+1$	
1810	+3.1156		+13.590	
		+9		−35
20	.1165		.555	
		10		35
30	.1175		.520	
		9		34
40	.1184		.486	
		10		34
50	.1194		.452	
		9		35
60	1203		.417	
		10		34
70	1213		.383	
	+11		+2	

Oj III 183[2] $\alpha = 3\ 44$

	+12		+1	
1810				
20				
30	+2.2039		+11.336	
		+3		−27
40	.2042		.309	
		3		27
50	.2045		.282	
		3		27
60	.2048		.255	
		2		27
70	.2050		.228	
	+10		+1	

Oj III 249[3] $\alpha = 4\ 1$

	+13		+1	
1810				
20				
30	+3.4205		+10.159	
		+13		−43
40	.4213		.116	
		13		43
50	.4226		.073	
		13		44
60	.4239		.029	
		14		44
70	.4253		9.985	
	+11		+1	

64 Tauri $\beta^{(2)}$[4] $\alpha = 4\ 17$

	+13		+0	
1810	+3.4349		+9.016	
		+12		+45
20	.4361		8.971	
		12		44
30	.4373		.925	
		12		45
40	.4385		.880	
		12		44
50	.4397		.834	
		12		45
60	.4409		.789	
		12		47
70	.4421		8.743	
	+11		+1	

23 Eridani δ[7] $\alpha = 3^h\ 37^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}+1$	
	+2.8721		+11.920	
		+6		−34
	.8727		.886	
		6		34
	.8733		.852	
		6		34
	.8739		.818	
		6		35
	.8745		.783	
		6		34
	.8751		.749	
		6		35
	.8757		.714	
	+11		+1	

34 Eridani α[30] $\alpha = 3\ 52$

	+12		+1	
	+2.7881		+10.839	
		+4		−35
	.7885		.804	
		5		35
	.7890		.769	
		5		35
	.7895		.734	
		5		35
	.7900		.699	
		4		36
	.7904		.663	
		5		35
	.7909		.628	
	+10		+1	

44 Tauri β[33] $\alpha = 4\ 3$

	+13		+1	
	+3.6329		+10.084	
		+18		−47
	.6347		.037	
		17		46
	.6364		9.991	
		18		47
	.6382		.944	
		17		46
	.6399		.898	
		17		47
	.6416		.851	
		17		46
	6433		.805	
	+11		+1	

43 Eridani (ν^{35})[36] $\alpha = 4\ 19$

	+12		+0	
	+2.2438		+8.662	
		+5		−30
	.2443		.632	
		3		30
	.2446		.602	
		4		30
	.2450		.572	
		3		30
	.2453		.542	
	+10		+1	

28 Eridani τ^7[28] $\alpha = 3^h\ 42^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}+1$	
	+2.5720		+11.541	
		+4		−31
	.5724		.510	
		3		31
	.5727		479	
		3		32
	.5730		.447	
		3		31
	.5733		.416	
		3		31
	5736		.385	
		3		32
	.5739		.353	
	+10		+1	

47 Persei λ[31] $\alpha = 3\ 57$

	+13		+1	
	+4.4145		+10.594	
		+43		−55
	.4188		.539	
		42		56
	.4230		.483	
		42		55
	.4272		.428	
		42		56
	.4314		.372	
		41		56
	.4353		.316	
		41		56
	.4396		.260	
	+12		+1	

40 Eridani (o^2)[34] $\alpha = 4\ 9$

	+12		+1	
	+2.9055		+9.529	
		+3		−35
	.9058		.494	
		3		35
	.9061		.459	
		3		36
	.9065		.423	
		4		36
	.9069		.387	
		4		36
	.9073		.351	
		4		35
	.9077		.316	
	+11		+1	

80 Tauri[37] $\alpha = 4\ 23$

	+13		+0	
	+3.3989		+8.531	
		+11		−46
	.4000		.485	
		11		45
	.4011		.440	
		11		46
	.4022		394	
		11		45
	.4033		.349	
		11		46
	.4044		.303	
		11		46
	.4055		.257	
	+11		+1	

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Stars not fundamental

85 Tauri [38] $\alpha = 4^h\ 25^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ +0	
1810	+3.4051		+8.396	
		+11		−46
20	.4062		.350	
		11		46
30	.4073		.304	
		10		45
40	.4083		.259	
		11		46
50	.4094		.213	
		11		46
60	.4105		.167	
		11		46
70	.4116		.121	
	+11		+1	

86 Tauri [39] $\alpha = 4^h\ 27^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ +0	
	+3.3837		+8.233	
		+10		−46
	.3847		.187	
		11		46
	.3858		.141	
		10		46
	.3868		8.095	
		10		46
	.3878		.049	
		11		45
	.3889		.004	
		10		46
	.3899		7.958	
	+11		+1	

53 Eridani [40] $\alpha = 4^h\ 32^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +0	
	+2.7464		+7.718	
		+4		−38
	.7468		.680	
		4		37
	.7472		.643	
		4		37
	.7476		.606	
		5		38
	.7481		.568	
		4		37
	.7485		.531	
		4		38
	.7489		.493	
	+10		+1	

Orionis (π¹) [41] $\alpha = 4\ 43$

	+12		+0	
1810	+3.2155		+6.899	
		+8		−45
20	.2163		.854	
		7		45
30	.2170		.809	
		7		45
40	.2177		.764	
		8		45
50	.2185		.719	
		7		45
60	.2192		.674	
		7		45
70	.2199		.629	
	+11		+1	

4 Orionis (o¹) [42] $\alpha = 4\ 45$

	+13		+0	
	+3.3822		+6.713	
		+9		−47
	.3831		.666	
		9		47
	.3840		.619	
		9		47
	.3849		.572	
		8		47
	.3857		.525	
		9		47
	.3866		.478	
		9		47
	.3875		.431	
	+11		+1	

7 Leporis τ [43] $\alpha = 5\ 14$

	+12		+0	
	+2.7796		+4.242	
		+3		−40
	.7799		.202	
		4		41
	.7803		.161	
		4		40
	.7807		.121	
		4		39
	.7811		.082	
		3		40
	.7814		.042	
		4		40
	.7818		.002	
	+11		+0	

23 Orionis m [44] $\alpha = 5\ 16$

	+12.4		+0	
1810	+3.1464		+4.097	
		+5		−45
20	.1469		.052	
		5		45
30	.1474		.007	
		5		46
40	.1479		+3.961	
		5		45
50	.1484		.916	
		5		45
60	.1489		.871	
		5		45
70	.1494		.826	
	+11		+0	

30 Orionis ψ(2) [45] $\alpha = 5\ 20$

	+12		+0	
	+3.1368		+3.751	
		+5		−45
	.1373		.706	
		5		45
	.1378		.661	
		4		46
	.1382		.615	
		5		45
	.1387		.570	
		4		45
	.1391		.525	
		5		45
	.1396		.480	
	+11		+0	

11 Leporis ζ [46] $\alpha = 5\ 27$

	+12		+0	
	+2.6414		+3.107	
		+3		−38
	.6417		.069	
		3		38
	.6420		.031	
		3		39
	.6423		✓992	
		3		38
	.6426		.954	
		3		39
	.6429		.915	
		3		38
	.6432		.877	
	+10		+0	

14 Leporis ζ [47] $\alpha = 5\ 41$

	+12		+0	
1810	+2.7155		+1.892	
		+3		−39
20	.7158		.853	
		3		40
30	.7161		.813	
		3		40
40	.7164		.773	
		2		40
50	.7166		.733	
		3		39
60	.7169		.694	
		2		39
70	.7171		.655	
	+10		+0	

41 Columbae β [48] $\alpha = 5\ 46$

	+12		+0	
	+2.1064		+1.315	
		+4		−31
	.1068		.284	
		4		31
	.1072		.253	
		3		31
	.1075		.222	
		4		31
	.1079		.191	
	+10		+0	

Columbae τ [49] $\alpha = 5\ 53$

	+12		+0	
	+2.1238		+0.743	
		+3		−31
	.1241		.712	
		3		31
	.1244		.681	
		3		31
	.1247		.650	
		3		31
	.1250		.619	
	+10		+0	

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Stars not Fundamental

61 Orionis μ $\alpha = 5^h\ 55^m$ [50]

	$\frac{d\delta}{dt}$ +12		$\frac{dP}{dt}$ +0	
1810	+3.2967		+0.706	
20	.2969	+2	.658	−48
30	.2972	3	.610	48
40	.2974	2	.561	49
50	.2977	3	.513	48
60	.2979	2	.465	48
70	.2982	3	.417	48
	+11		+0	

Di V 327 $\alpha = 5^h\ 58^m$ [51]

	$\frac{dt}{dt}$ +12		$\frac{dS}{dt}$ +0	
	+2.4098	+2	+0.314	−36
	.4100	2	.278	35
	.4102	3	.243	35
	.4105	2	.208	35
	.4107	2	.173	35
	+10		+0	

Columbae σ $\alpha = 6^h\ 2^m$ [52]

	$\frac{d\alpha}{dt}$ +12		$\frac{d\pi}{dt}$ +0	
	+2.0541	+2	−0.149	+30
	.0543	3	.179	30
	.0546	2	.209	30
	.0548	2	.239	30
	.0550	2	.269	30
	+10		+0	

74 Orionis $k^{(2)}$ $\alpha = 6\ 9$ [54]

	+13		+0	
1810	+3.3616		−0.505	
20	.3617	+1	.554	−49
30	.3619	2	.604	50
40	.3620	1	.653	49
50	.3622	2	.702	49
60	.3623	1	.751	49
70	.3624	1	.800	49
	+11		+0	

2 Canis Majoris β $\alpha = 6\ 17$ [55]

	+12		+0	
	+2.6394		−1.253	
	.6397	+3	.292	−39
	.6399	2	.331	39
	.6400	1	.369	38
	.6402	2	.407	38
	.6404	2	.443	36
	.6406	2	.479	36
	+10		+0	

Di VI 110 $\alpha = 6\ 20$ [56]

	+12		+0	
	+2.0794		−1.585	
	.0797	+3	.615	−30
	.0799	2	.645	30
	.0801	2	.675	30
	.0803	2	.705	30
	+10		+0	

18 Geminorum γ $\alpha = 6\ 21$ [57]

	+13		+0	
1810				
20				
30	+3.5635		−1.649	
40	.5634	−1	.701	−52
50	.5633	1	.753	52
60	.5633	0	.805	52
70	.5632	1	.856	51
	+11		+0	

Di VI 136 $\alpha = 6\ 23$ [58]

	+12		+0	
	+2.2229		−1.911	
	.2232	+3	.943	−32
	.2234	2	.975	32
	.2236	2	2.007	32
	.2238	2	.039	32
	+10		+0	

13 Monocerotis $\alpha = 6\ 26$ [59]

	+12		+0	
	+3.2441		−1.977	
	.2441	−0	−.024	−47
	.2441	0	.071	47
	.2441	0	.118	47
	.2441	0	.165	47
	.2441	0	.212	47
	.2440	1	−.259	47
	+11		+0	

Di VI 164 $\alpha = 6\ 28$ [60]

	+12		+0	
1810				
20				
30	+2.2431		−2.296	
40	.2433	+2	.329	−33
50	.2435	2	.361	32
60	.2437	2	.393	32
70	.2439	2	.425	32
	+10		+0	

55 Aurigae (ψ⁴) $\alpha = 6\ 34$ [61]

	+13		+0	
	+4.3820		−2.553	
	.3813	−7	.616	−63
	.3805	8	.679	63
	.3797	8	.742	63
	.3789	8	.805	63
	.3781	8	.868	63
	.3773	8	.931	63
	+12		+0	

9 Camis Majoris $\alpha = 6\ 39$ [62]

	+12		+0	
	+2.6798		−3.205	
	.6798	−0	.243	−38
	.6797	1	.281	38
	.6798	+1	.319	38
	.6798	0	.357	38
	.6798	0	.394	37
	.6799	1	.431	37
	+10		+0	

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Stars not Fundamental

58 Aurigae (χ7) α = 6h 42m

	dα/dt +13		dδ/dt +0	
1810	+4.2575		−3.252	
		−8		−61
20	.2567		.313	
		9		61
30	.2558		.374	
		10		61
40	.2548		.435	
		10		61
50	.2538		.496	
		10		61
60	.2528		.557	
		10		60
70	.2518		.617	
	+12		+0	

16 Camis Majoris o' α = 6h 49m

	dα/dt +12		dδ/dt +0	
	+2.4877		−4.020	
		+2		−36
	.4879		.056	
		1		36
	.4880		.092	
		2		35
	.4882		.127	
		1		35
	.4883		.162	
		2		35
	.4885		.197	
		1		35
	.4886		.232	
	+10		+0	

21 Canis Majoris ε α = 6h 54m

	dα/dt +12		dδ/dt +0	
	+2.3552		−4.440	
		+2		−34
	.3554		.474	
		1		33
	.3555		.507	
		2		34
	.3557		.541	
		1		33
	.3558		.574	
		2		33
	.3560		.607	
		1		33
	.3561		.640	
	+10		+0	

23 Canis Majoris σ α = 6 58

	+12		−0	
1810	+2.7130		−4.781	
		+1		−39
20	.7131		.820	
		1		38
30	.7132		.858	
		0		38
40	.7132		.896	
		1		38
50	.7133		.934	
		0		38
60	.7133		.972	
		1		38
70	.7134		5.010	
	+10		−1	

25 Canis Majoris S α = 7 3

	+12		−0	
	+2.4375		−5.248	
		+2		−34
	.4377		.282	
		1		34
	.4378		.316	
		1		34
	.4379		.350	
		2		33
	.4381		.383	
		0		34
	.4381		.417	
		1		35
	.4382		.452	
	+10		−1	

22 Monocerotis q α = 7 5

	+12		−0	
	+3.0656		−5.374	
		−2		−43
	.0654		.417	
		1		43
	.0653		.460	
		1		42
	.0652		.502	
		2		43
	.0650		.545	
		1		43
	.0649		.588	
		1		42
	.0648		.630	
	+11		−1	

66 Aurigae α = 7 15

	+13		−0	
1810	+4.1780		−6.112	
		−17		−58
20	.1763		.170	
		16		57
30	.1747		.227	
		16		58
40	.1731		.285	
		16		57
50	.1715		.342	
		16		58
60	.1699		.400	
		17		57
70	.1682		.457	
	+12		−1	

31 Canis Majoris η α = 7 19

	+12		−0	
	+2.3713		−6.578	
		+1		−33
	.3714		.611	
		2		32
	.3716		.643	
		1		33
	.3717		.676	
		1		32
	.3718		.708	
		1		32
	.3719		.740	
		1		32
	.3720		.772	
	+10		−1	

6 Canis minoris (o) α = 7 23

	+12		−0	
	+3.3462		−6.795	
		−5		−46
	.3457		.841	
		5		46
	.3452		.887	
		5		46
	.3447		.933	
		5		45
	.3442		.978	
		5		45
	.3437		7.023	
		5		45
	.3432		.068	
	+11		−1	

71 Geminorum σ α = 7 31

	+13		−0	
1810	+3.9401		−7.412	
		−15		−53
20	.9386		.465	
		15		53
30	.9371		.518	
		15		53
40	.9356		.571	
		16		53
50	.9340		.623	
		15		53
60	.9325		.676	
		15		53
70	.9310		.729	
	+12		−1	

26 Monocerotis q α = 7 33

	+12		−0	
	+2.8723		−7.851	
		−1		−38
	.8722		.889	
		1		38
	.8721		.927	
		1		38
	.8720		.965	
		1		38
	.8719		8.003	
		1		38
	.8718		.041	
		1		38
	.8717		.079	
	+11		−1	

4 Navis α = 7 40

	+12		−0	
	+2.7634		−8.254	
		−0		−36
	.7634		.290	
		0		37
	.7634		.327	
		0		36
	.7634		.363	
		1		36
	.7633		.399	
		0		36
	.7633		.435	
		0		36
	.7633		.471	
	+10		−1	

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Stars not Fundamental

Navis o 77 $\alpha = 7^h\ 43^m$

	$\frac{d\alpha}{dt}$		$\frac{d\delta}{dt}$	
1810	+12		−0	
20				
30	+2.4929		−8.557	
		+1		−33
40	.4930		.590	
		1		32
50	.4931		.622	
		1		32
60	.4932		.654	
		2		32
70	.4933		.686	
	+10		−1	

83 Geminorum 79 $\alpha = 7^h\ 46^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ −0	
	+3.6915		−8.623	
		−12		−49
	.6903		.672	
		13		48
	.6890		.720	
		13		48
	.6877		.768	
		13		48
	.6864		.816	
		12		48
	.6852		.864	
		13		47
	.6839		.911	
	+12		−1	

15 Navis i 81 $\alpha = 8^h\ 2^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −0	
	+2.5592		−9.991	
		+1		−30
	.5593		10.021	
		1		30
	.5594		.051	
		1		32
	.5595		.083	
		1		32
	.5596		.115	
		1		32
	.5597		.147	
		1		31
	.5598		.178	
	+10		−1	

16 Cancri β 82 $\alpha = 8\ 5$

	+13		−1	
1810	+3.4498		−10.128	
		−10		−43
20	.4485		.171	
		10		43
30	.4475		.214	
		10		43
40	.4465		.257	
		10		42
50	.4455		.299	
		10		43
60	.4445		.342	
		11		42
70	.4434		.384	
	+11		−1	

20 Navis $\alpha = 8\ 6$ 83

	+12		−1	
	+2.7584		−10.376	
		−1		−34
	.7583		.410	
		0		34
	.7583		.444	
		0		34
	.7583		.478	
		0		33
	.7583		.511	
		1		34
	.7582		.545	
		0		34
	.7582		.579	
	+10		−1	

Navis w $\alpha = 8\ 16$ 84

	+12		−1	
	+2.3608		−11.121	
		+2		−28
	.3610		.149	
		2		28
	.3612		.177	
		2		28
	.3614		.205	
		2		28
	.3616		.233	
	+10		−1	

B. A. C. 2846 $\alpha = 8\ 22$

	+12		−1	
1810		85		
20				
30	+2.5471		−11.553	
		+2		−30
40	.5473		.583	
		2		30
50	.5475		.613	
		1		29
60	.5476		.642	
		1		30
70	.5477		.672	
	+10		−1	

B. A. C. 2887 $\alpha = 8\ 29$

	+13		−1	
		86		
	+4.5506		−11.904	
		−53		−53
	.5453		.957	
		53		52
	.5400		12.009	
		53		52
	.5347		.061	
		53		52
	.5294		.113	
	+12		−1	

4 Hydrae δ $\alpha = 8\ 31$ 87

	+12		−1	
	+3.1890		−12.043	
		−7		−36
	.1883		.079	
		6		37
	.1877		.116	
		7		36
	.1870		.152	
		6		37
	.1864		.189	
		6		36
	.1858		.225	
		7		36
	.1851		.261	
	+11		−1	

6 Hydrae $\alpha = 8\ 34$ 88

	+12		−1	
1810	+2.8487		−12.282	
		−1		−32
20	.8486		.314	
		1		32
30	.8485		.346	
		0		32
40	.8485		.378	
		1		32
50	.8484		.410	
		1		32
60	.8483		.442	
		1		32
70	.8482		.474	
	+10		−1	

43 Cancri γ $\alpha = 8\ 36$ 89

	+13		−1	
	+3.4982		−12.368	
		−14		−39
	.4968		.407	
		14		40
	.4954		.447	
		14		39
	.4940		.486	
		14		39
	.4926		.525	
		14		39
	.4912		.564	
		15		39
	.4897		.603	
	+11		−1	

13 Hydrae ρ $\alpha = 8\ 42$ 90

1	+12		−1	
	+3.1878		−12.783	
		−7		−35
	.1871		.818	
		7		35
	.1864		.853	
		6		35
	.1858		.888	
		7		35
	.1851		.923	
		7		35
	.1844		958	
		7		35
	.1837		.993	
	+11		−1	

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Stars not fundamental

35 Lyncis [91] α = 8h 43m

	dα/dt +13		dδ/dt −1	
1810	+4.0768	−35	−12.836	−45
20	.0733	36	.881	45
30	.0697	36	.926	45
40	.0661	36	.971	45
50	.0625	36	13.016	45
60	.0589	37	.061	46
70	.0552		.107	
	+12		−1	

Cancri [92] α = 8h 46m

	dα/dt +12		dδ/dt −1	
	+3.6864	−22	−13.068	−40
	.6842	21	.108	40
	.6821	21	.148	40
	.6800	21	.188	40
	.6779	22	.228	40
	.6757	21	.268	40
	.6736		.308	
	+12		−2	

76 Cancri K [94] α = 9h 1m

	dα/dt +12		dδ/dt −1	
	+3.2630	−9	−14.025	−33
	.2621	9	.058	33
	.2612	10	.091	33
	.2602	9	.124	33
	.2593	9	.157	33
	.2584	10	.190	33
	.2574		.223	
	+10		−2	

~~Vidi~~ 265 [95] α = 9h 2m

	+12		−1	
1810				
20				
30	+2.6269	+3	−14.218	−27
40	.6272	3	.245	26
50	.6275	3	.271	26
60	.6278	3	.297	27
70	.6281		.324	
	+10		−2	

Mali (e) [96] α = 9h 4m

	+12		−1	
	+2.5379	+4	−14.351	−25
	.5383	4	.376	25
	.5387	3	.401	25
	.5390	4	.426	25
	.5394		.451	
	+10		−2	

Mali h [97] α = 9h 16m

	+12		−1	
	+2.6524	+3	−15.020	−24
	.6527	4	.044	25
	.6531	3	.069	25
	.6534	4	.094	25
	.6538		.119	
	+10		−2	

42 Lyncis α = 9h 30m

	+13		−1	
1810	+3.7938	−35	−15.723	−33
20	.7903	34	.756	34
30	.7869	35	.790	33
40	.7834	34	.823	33
50	.7800	36	.856	33
60	.7764	36	.889	33
70	.7728		.922	
	+12		−2	

35 Hydrae i [100] α = 9h 33m

	+12		−1	
	+3.0657	−4	−15.921	−27
	.0653	4	.948	26
	.0649	4	.974	26
	.0645	4	16.000	27
	.0641	4	.027	26
	.0637	4	.053	26
	.0633		.079	
	+11		−2	

16 Leonis ψ [101] α = 9h 37m

	+12		−1	
	+3.2820	−12	−16.091	−28
	.2808	11	.119	28
	.2797	12	.147	27
	.2785	11	.174	28
	.2774	11	.202	27
	.2763	12	.229	27
	.2751		.256	
	+11		−2	

Sextantis ν [104] α = 9h 50m

	+12		−1	
1810	+3.1974	−9	−16.743	−25
20	.1965	9	.768	25
30	.1956	8	.793	25
40	.1948	9	.818	24
50	.1939	9	.842	25
60	.1930	10	.867	25
70	.1920		.892	
	+11		−2	

40 Hydrae υ² [104] α = 9h 59m

	+12		−1	
	+2.9214	+1	−17.188	−21
	.9215	2	.209	21
	.9217	1	.230	21
	.9218	2	.251	21
	.9220	1	.272	21
	.9221	2	.293	20
	.9223		.313	
	+11		−2	

41 Hydrae λ [105] α = 10h 4m

	+12		−1	
	+2.9361	+1	−17.429	−20
	.9362	2	.449	20
	.9364	1	.469	20
	.9365	1	.489	21
	.9366	2	.510	20
	.9368	1	.530	19
	.9369		.549	
	+11		−2	

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Stars not fundamental

106 32 Ursae Majoris $\alpha = 10^h\ 9^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ −1	
1810	+ 4.5282		− 17.548	
		−117		−30
20	.5165		.578	
		−118		31
30	.5047		.609	
		117		30
40	.4930		.639	
		117		30
50	.4813		.669	
		116		30
60	.4697		.699	
		118		30
70	.4582		.729	
	+12		− 2	

107 22 Leptantis $\alpha = 10^h\ 11^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
	+ 2.9915		− 17.719	
		− 1		−19
	.9914		.738	
		0		19
	.9914		.757	
		0		20
	.9914		.777	
		0		19
	.9914		.796	
		0		19
	.9914		.815	
		0		19
	.9914		.834	
	+11		− 2	

108 41 Leonis $\delta^{(1)}$ $\alpha = 10^h\ 13^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
1810	+ 3.3053		− 17.771	
		−15		
20	.3038		.792	−21
		15		22
30	.3023		.814	
		15		21
40	.3008		.835	
		15		22
50	.2993		.857	
		14		20
60	.2979		.877	
		15		21
70	.2964		.898	
	+11		− 2	

Antliae 109 γ $\alpha = 10^h\ 18^m$

	+12		− 1	
1810				
20				
30	+ 2.7483		− 18.031	
		+10		−17
40	.7493		.048	
		9		17
50	.7502		.065	
		9		16
60	.7511		.081	
		9		17
70	.7520		.098	
	+10		− 2	

110 31 Leonis Minoris β $\alpha = 10^h\ 20^m$

	+13		− 1	
	+ 3.5190		− 18.061	
		− 30		−21
	.5160		.082	
		30		22
	.5130		.104	
		30		21
	.5100		.125	
		30		21
	.5070		.146	
		29		21
	.5041		.167	
		30		20
	.5011		.187	
	+11		− 2	

111 Antliae α $\alpha = 10^h\ 21^m$

	+12		− 1	
1810				
20				
30	+ 2.7394		− 18.154	
		+ 9		−17
40	.7403		.171	
		10		16
50	.7413		.187	
		9		16
60	.7422		.203	
		10		15
70	.7432		.218	
	+10		− 2	

112 2 Hydrae ψ^3 $\alpha = 10^h\ 32^m$

	+12		− 1	
1810	+ 2.9230		− 18.509	
		+ 5		−16
20	.9235		.525	
		5		15
30	.9240		.540	
		5		15
40	.9245		.555	
		4		16
50	.9249		.571	
		5		15
60	.9254		.586	
		5		15
70	.9259		.601	
	+11		− 2	

113 Piazzi XIII 135 $\alpha = 10^h\ 36^m$

	+13		− 1	
	+ 3.6003		− 18.645	
		−42		−19
	.5961		.664	
		43		18
	.5918		.682	
		42		18
	.5876		.700	
		43		18
	.5833		.718	
	+11		− 2	

114 3 Hydrae (G) $\alpha = 10^h\ 41^m$

	+12		− 1	
	+ 2.9322		− 18.775	
		+ 5		−14
	.9327		.789	
		5		14
	.9332		.803	
		4		14
	.9338		.817	
		5		14
	.9343		.831	
		6		14
	.9349		.845	
		5		13
	.9354		.858	
	+11		− 2	

115 45 Ursae Majoris $\alpha = 10^h\ 47^m$

	+13		− 1	
1810	+ 3.4985		− 18.937	
		−37		−16
20	.4948		.953	
		37		15
30	.4911		.968	
		37		16
40	.4874		.984	
		37		16
50	.4837		19.000	
		37		15
60	.4800		.015	
		36		15
70	.4764		.030	
	+11		− 2	

116 Piazzi XIX 199 $\alpha = 10^h\ 51^m$

	+12		− 1	
	+ 2.7708		− 19.097	
		+15		−11
	.7723		.108	
		15		12
	.7738		.120	
		15		11
	.7753		.131	
		15		11
	.7768		.142	
	+10		− 2	

117 γ Crateris α $\alpha = 10^h\ 54^m$

	+12		− 1	
	+ 2.9455		− 19.144	
		+ 7		−12
	.9462		.156	
		7		11
	.9469		.167	
		6		12
	.9475		.179	
		7		11
	.9482		.190	
		7		12
	.9489		.202	
		6		11
	.9495		.213	
	+11		− 2	

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Stars not fundamental

65 Leonis Sp (3) α = 11h 0m

	dα/dt +12		dδ/dt −1	
1810	+3.0887		−19.310	
		−3		−11
20	.0884		.321	
		3		11
30	.0881		.332	
		3		11
40	.0878		.343	
		3		11
50	.0875		.354	
		2		11
60	.0873		.365	
		3		11
70	.0870		.376	
	+11		−2	

11 Crateris β α = 11h 8m

	dα/dt +12		dδ/dt −1	
	+2.9367		−19.427	
		+9		−9
	.9376		.436	
		10		10
	.9386		.446	
		10		10
	.9396		.456	
		9		9
	.9405		.465	
		10		9
	.9415		.474	
		10		10
	.9425		.484	
	+11		−2	

73 Leonis η α = 11h 9m

	dα/dt +12		dδ/dt −1	
	+3.1497		−19.503	
		−9		−9
	.1488		.512	
		9		10
	.1479		.522	
		8		9
	.1471		.531	
		8		10
	.1463		.541	
		9		9
	.1454		.550	
		8		10
	.1446		.560	
	+11		−2	

12 Crateris δ α = 11h 13m

	dα/dt +12		dδ/dt −1	
1810	+2.9986		−19.680	
		+7		−9
20	.9993		.689	
		7		8
30	3.0000		.697	
		6		8
40	.0006		.705	
		6		9
50	.0012		.714	
		7		8
60	.0019		.722	
		6		8
70	.0025		.730	
	+11		−2	

13 Crateris π α = 11h 17m

	dα/dt +12		dδ/dt −1	
	+2.9843		−19.654	
		+9		−8
	.9852		.662	
		9		8
	.9861		.670	
		9		8
	.9870		.678	
		8		7
	.9878		.685	
		9		7
	.9887		.692	
		8		8
	.9895		.700	
	+11		−2	

15 Crateris γ α = 11h 18m

	dα/dt +12		dδ/dt −1	
	+2.9925		−19.680	
		+8		−7
	.9933		.687	
		8		8
	.9941		.695	
		8		7
	.9949		.702	
		8		7
	.9957		.709	
		8		7
	.9965		.716	
		9		7
	.9974		.723	
	+11		−2	

84 Leonis T α = 11h 21m

	dα/dt +12		dδ/dt −1	
1810	+3.0863		−19.725	
		−2		−7
20	.0861		.732	
		2		7
30	.0859		.739	
		2		7
40	.0857		.746	
		2		7
50	.0855		.753	
		2		7
60	.0853		.760	
		2		7
70	.0851		.767	
	+11		−2	

Di XI 103 α = 11h 27m

	dα/dt +12		dδ/dt −1	
	.9439		.807	
		16		6
	.9455		.813	
		17		5
	+2.9472		−19.818	
		+16		−6
	.9488		.824	
		17		6
	.9505		.830	
		16		5
	.9521		.835	
		17		5
	.9538		.840	
	+11		−2	

20 Crateris α = 11h 28m

B.A.C. 3934

	dα/dt +12		dδ/dt −1	
	+2.9445		−19.829	
		+17		−5
	.9462		.834	
		17		5
	.9479		.839	
		17		5
	.9496		.844	
		17		6
	.9513		.850	
		17		5
	.9530		.855	
		18		5
	.9548		.860	
	+11		−2	

B.A.C. 3973 α = 11h 37m

	dα/dt +12		dδ/dt −1	
1810				
20				
30	+3.2069		−19.933	
		−30		−5
40	.2039		.938	
		30		4
50	.2009		.942	
		30		4
60	.1979		.946	
		30		4
70	.1949		.950	
	+11		−2	

γ Virginis b α = 11h 53m

	dα/dt +12		dδ/dt −1	
	+3.0745		−20.040	
		−1		−1
	.0744		.041	
		1		1
	.0743		.042	
		1		1
	.0742		.043	
		1		0
	.0741		.043	
		0		1
	.0741		.044	
		1		0
	.0740		.044	
	+11		−2	

67 Ursae Majoris α = 11h 56m

	dα/dt +12		dδ/dt −1	
	+3.1126		−20.048	
		−28		−0
	.1098		.048	
		27		0
	.1071		.048	
		28		0
	.1043		.048	
		27		1
	.1016		.049	
		28		0
	.0988		.049	
		27		0
	.0961		.049	
	+11		−2	

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Stars not fundamental

1 Cor. i $\alpha = 12^h\ 1^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
1810	+.0663		−20.058	
		+ 15		+ 1
20	.0678		.057	
		15		1
30	.0693		.056	
		16		0
40	.0709		.056	
		15		1
50	.0724		.055	
		15		1
60	.0739		.054	
		16		2
70	.0755		.052	
	+11		−2	

2 Cor. i $\alpha = 12^h\ 4^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
1810	+3.0706		−20.059	
		+ 14		− +2
20	.0720		.057	
		14		1
30	.0734		.056	
		14		1
40	.0748		.055	
		15		1
50	.0763		.054	
		14		2
60	.0777		.052	
		14		1
70	.0791		.051	
	+11		−2	

4 Cor. i $\alpha = 12^h\ 9^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
1810	+3.0802		−20.052	
		+ 11		+ 3
20	.0813		.049	
		12		2
30	.0825		.047	
		11		2
40	.0836		.045	
		12		3
50	.0848		.042	
		11		2
60	.0859		.040	
		12		3
70	.0871		.037	
	+11		−2	

12 Comae c $\alpha = 12^h\ 16^m$

	+12		−1	
1810	+3.0315		−20.027	
		− 12		+ 4
20	.0303		.023	
		12		4
30	.0291		.019	
		11		3
40	.0280		.016	
		12		4
50	.0268		.012	
		12		4
60	.0256		.008	
		11		4
70	.0245		.004	
	+11		−2	

13 Comae f. $\alpha = 12^h\ 18^m$

	+12		−1	
1810	+3.0256		−20.017	
		− 11		+ 4
20	.0245		.013	
		12		4
30	.0233		.009	
		12		4
40	.0221		.005	
		12		4
50	.0209		.001	
		11		4
60	.0198		19.997	
		12		5
70	.0186		992	
	+11		−2	

15 Comae σ $\alpha = 12^h\ 21^m$

	+12		−1	
	3.0127		20.001	
		13		5
	3.0114		19.996	
	+	13		4
	+3.0101		−19.992	
		− 13		+5
	.0088		.987	
		13		5
	.0075		.982	
		13		4
	.0062		.978	
		12		5
	.0050		.973	
	+11		−2	

7 Corvi $\alpha = 12^h\ 23^m$

	+13		∓1	
1810	+3.1021		−19.982	
		+ 11		+5
20	.1032		.977	
		12		5
30	.1044		.972	
		12		5
40	.1056		.967	
		12		4
50	.1068		.961	
		11		5
60	.1079		.956	
		12		5
70	.1091		.951	
	+11		∓2	

8 Corvi $\alpha = 12^h\ 25^m$

	+13		∓1	
1810	+3.1049		−19.964	
		+ 12		+ 6
20	.1061		.958	
		11		5
30	.1072		.953	
		12		6
40	.1084		.947	
		12		5
50	.1096		.942	
		11		6
60	.1107		.936	
		12		6
70	.1119		.930	
	+11		∓2	

9 Corvi β $\alpha = 12^h\ 28^m$

	+13		−1	
	+3.1283		−19.945	
		+ 16		+6
	.1299		.939	
		16		6
	.1315		.933	
		16		6
	.1331		.927	
		16		6
	.1347		.921	
		17		7
	.1364		.914	
		16		6
	.1380		.908	
	+11		−2	

25 Virginis $\alpha = 12^h\ 30^m$

	+12		∓1	
1810	+3.0829		−19.919	
		+ 7		+6
20	.0836		.913	
		6		6
30	.0842		.907	
		6		7
40	.0848		.900	
		6		6
50	.0854		.894	
		6		7
60	.0860		.887	
		7		7
70	.0867		.880	
	+11		∓2	

26 Virginis $\alpha = 12^h\ 33^m$

	+12		∓1	
1810	+3.0907		−19.893	
		+ 7		+ 7
20	.0914		.886	
		7		7
30	.0921		.879	
		8		7
40	.0929		.872	
		8		7
50	.0937		.865	
		7		7
60	.0944		858	
		8		7
70	.0952		.851	
	+11		∓2	

B.A.C. 4287 = γ_2. $\alpha = 12^h\ 39^m$

	+12		−1	
	+2.8440		−19.794	
		− 22		+8
	.8418		786	
		21		7
	.8397		.779	
		22		8
	.8375		.771	
		23		8
	8352		.763	
	+11		−2	

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Stars not fundamental

35 Virginis $\alpha = 12^h\ 41^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}-1$	
1810	+3.0519		−19.781	
		+2		+9
20	.0521		.772	
		2		8
30	.0523		.764	
		2		9
40	.0525		.755	
		2		8
50	.0527		.747	
		2		9
60	.0529		.738	
		1		9
70	.0530		.729	
	+11		−2	

31 Comae $\alpha = 12^h\ 45^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}-1$	
	+2.9357		−19.716	
		−10		+9
	.9347		.707	
		10		9
	.9337		.698	
		10		9
	.9327		.689	
		10		9
	.9317		.680	
		10		9
	.9307		.671	
		10		10
	.9297		.661	
	+11		−2	

36 Comae $\alpha = 12^h\ 53^m$

	$\frac{d\alpha}{dt}+12$		$\frac{d\delta}{dt}-1$	
	+2.9742		−19.592	
		−4		+10
	.9738		.582	
		4		11
	.9734		.571	
		4		10
	.9730		.561	
		5		10
	.9725		.551	
		4		11
	.9721		.540	
		4		11
	.9717		.529	
	+11		−2	

14 Can. Ven $\alpha = 13\ 00$

	$+12$		-1	
1810	+2.8241		−19.445	
		−13		+11
20	.8228		.434	
		13		12
30	.8215		.422	
		13		11
40	.8202		.411	
		13		11
50	.8189		.400	
		12		11
60	.8177		.389	
		12		12
70	.8165		.377	
	+11		−2	

Pi XIII 27 $\alpha = 13\ 8$

	$+12$		-1	
	+2.7422		−19.255	
		−14		+12
	.7408		.243	
		13		12
	.7395		.231	
		14		13
	.7381		.218	
		14		12
	.7367		.206	
		13		12
	.7354		.194	
		14		13
	.7340		.181	
	+10		−2	

63 Virginis $\alpha = 13\ 16$

	$+12$		-1	
	3.1958		19.053	
		12		14
	3.1970		19.039	
		15		15
	+3.1985		−19.024	
		+14		+15
	2001		.009	
		15		16
	.2016		18.993	
		15		16
	.2031		.977	
		15		16
	.2046		.959	
	+11		−2	

70 Virginis $\alpha = 13\ 22$

	$+12$		-1	
1810	+2.9502		−18.875	
		−0		+16
20	.9502		.859	
		0		16
30	.9502		.843	
		1		15
40	.9501		.828	
		1		16
50	.9501		.812	
		1		16
60	.9501		.796	
		0		15
70	.9501		.781	
	+11		−2	

3.A.C. 4573 fol $\alpha = 13\ 25$

	$+12$		-1	

25 Can Ven $\alpha = 13\ 32$

	$+12$		-1	

82 Virginis m. $\alpha = 13\ 35$

	$+12$		-1	
1810	+3.1405		−18.476	
		+11		+19
20	.1416		.457	
		11		19
30	.1427		.438	
		10		19
40	.1437		.419	
		11		19
50	.1448		.400	
		11		19
60	.1459		.381	
		11		19
70	.1470		.362	
	+11		−2	

83 Virginis $\alpha = 13\ 38$

	$+12$		-1	
	+3.2152		−18.386	
		+15		+20
	.2167		.366	
		15		20
	.2182		.346	
		15		20
	.2197		.326	
		15		20
	.2212		.306	
		15		22
	.2227		.284	
		16		18
	.2243		.266	
	+11		−2	

87 Virginis $\alpha = 13\ 40$

	$+12$		-1	
	+3.2368		−18.285	
		+17		+21
	.2385		.264	
		16		21
	.2401		.243	
		16		20
	.2417		.223	
		16		20
	.2433		.203	
		16		20
	.2449		.183	
		17		22
	.2466		.161	
	+11		−2	

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Stars not Fundamental

9 Bootis [25] $\alpha = 13^h\ 51^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −1	
1810	+2.7415		−17.877	
		−4		+19
20	.7411		.858	
		4		20
30	.7407		.838	
		4		19
40	.7403		.819	
		3		19
50	.7400		.800	
		4		19
60	.7396		.781	
		4		20
70	.7392		.761	
	+10		−2	

10 Virginis λ [27] $\alpha = 14\ 12$

	+12		−1	
1810	+3.2279		−16.971	
		+14		+26
20	.2291		.945	
		14		26
30	.2305		.919	
		14		26
40	.2319		.893	
		14		27
50	.2333		.867	
		14		27
60	.2347		.840	
		14		27
70	.2361		.813	
	+11		−2	

B.A.C 4757 [28] $\alpha = 14\ 15$

	+13		−1	
	+3.5620		−16.813	
		+30		+29
	.5650		.784	
		30		29
	.5680		.755	
		30		30
	.5710		.725	
		31		29
	.5741		.696	
	+11		−2	

2 Librae [29] $\alpha = 14\ 16$

	+12		−1	
	+3.2104		−16.764	
		+13		+27
	.2117		.737	
		13		27
	.2130		.710	
		14		26
	.2144		.684	
		13		27
	.2157		.657	
		13		27
	.2170		.630	
		13		27
	.2183		.603	
	+11		−2	

B.A.C 4797 = ζ_2 [30] $\alpha = 14\ 23$

	+12		−1	
1810				
20				
30	+2.4887		−16.368	
		−3		+22
40	.4884		.346	
		3		22
50	.4881		.324	
		3		22
60	.4878		.302	
		3		22
70	.4875		.280	
	+10		−2	

Pi XIV 135 [31] $\alpha = 14\ 32$

	+13		−1	
	+3.4664		−15.933	
		+23		+32
	.4687		.891	
		23		31
	.4710		.860	
		23		32
	.4733		.828	
		23		32
	.4756		.796	
	+11		−2	

36 Bootis fol ε [32] $\alpha = 14\ 39$

	+12		−1	
	+2.6229		−15.551	
		+0		+26
	.6229		.525	
		0		25
	.6229		.500	
		0		25
	.6229		.475	
		0		25
	.6229		.450	
		0		25
	.6229		.425	
		0		25
	.6229		.400	
	+10		−2	

37 Bootis fol (ξ) [33] $\alpha = 14\ 45$

	+12		−1	
1810	+2.7545		−15.217	
		+2		+27
20	.7547		.190	
		2		27
30	.7549		.163	
		3		27
40	.7552		.136	
		2		28
50	.7554		.108	
		2		27
60	.7556		.081	
		2		27
70	.7558		.054	
	+10		−2	

19 Librae D [34] $\alpha = 14\ 54$

	+12		−1	
	+3.1933		−14.739	
		+12		+32
	.1945		.707	
		12		33
	.1957		.674	
		12		32
	.1969		.642	
		11		33
	.1980		.609	
		12		32
	.1992		.577	
		12		33
	.2004		.544	
	+11		−2	

45 Bootis c [35] $\alpha = 15\ 2$

	+12		−1	
	+2.6188		−14.248	
		+0		+28
	.6188		.220	
		1		28
	.6189		.192	
		1		27
	.6190		.165	
		2		28
	.6192		.137	
		2		29
	.6194		.108	
		1		27
	.6195		.081	
	+10		−2	

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Stars not fundamental

24 Librae i' (36) $\alpha = 15^h\ 3^m$

	$\frac{d\alpha}{dt}$		$\frac{d\delta}{dt}$	
1810	+3.3986	+13	−14.096	−1
20	.4003	+17	.060	+36
30	.4020	17	.024	36
40	.4037	17	13.987	37
50	.4054	17	.951	36
60	.4072	18	.915	36
70	.4089	17	.879	36
	+11		−2	

1 Lupi (37) $\alpha = 15^h\ 7^m$

	$\frac{d\alpha}{dt}$		$\frac{d\delta}{dt}$	
	+13		−13.996	−1
	3.6409	25	.956	+40
	3.6434	25	.918	38
	+3.6459	+25	.879	39
	.6484	26	.840	39
	.6510	25	.801	39
	.6535	25	.761	40
	.6560		−1	
	+12			

2 Lupi (38) $\alpha = 15^h\ 13^m$

	$\frac{d\alpha}{dt}$		$\frac{d\delta}{dt}$	
	+3.8921	+34	−13.619	+42
	.8955	34	.577	43
	.8989	35	.534	43
	.9024	34	.491	42
	.9058	34	.449	43
	.9092	34	.406	42
	9126		.364	

31 Librae ε (39) $\alpha = 15^h\ 17^m$

	+12		−1	
1810	+3.2397	+12	−13.297	+36
20	.2409	12	.261	37
30	.2421	13	.224	36
40	.2434	12	.188	36
50	.2446	12	.152	36
60	.2458	12	.116	36
70	.2470	12	.080	36
	+11		−1	

3 Coronae β $\alpha = 15^h\ 23^m$

	+2.4839	+2	−12.894	+29
	.4841	2	.865	28
	.4843	2	.837	29
	.4845	2	.808	28
	.4847	2	.780	28
	.4849	2	.752	29
	.4851	2	.723	

Lupi (41) $\alpha = 15^h\ 32^m$

	+13		−1	
	+3.7741	+26	−12.368	+44
	.7767	26	.324	45
	.7793	26	.279	44
	.7819	26	.235	44
	.7845	25	.191	45
	7870	26	.146	44
	.7896		.102	
	+12		−1	

Lupi χ² (42) $\alpha = 15^h\ 35^m$

	+13		−1	
1810	+3.7893	+25	−12.168	+44
20	.7918	26	.124.	45
30	.7944	26	.079	46
40	.7970	26	.034	45
50	.7996	26	11.989	45
60	.8022	26	.944	45
70	.8048	26	.899	
	+12		−1	

45 Librae π (43) $\alpha = 15^h\ 46^m$

	+13		−1	
	+3.4623	+16	−11.338	+42
	.4639	15	.296	43
	.4654	16	.253	42
	.4670	15	.211	43
	.4685	16	.168	42
	.4701	15	.126	43
	.4716		.083	
	+11		−1	

7 Scorpii (44) $\alpha = 15^h\ 53^m$

	+13		−1	
	+3.5260	+16	−10.842	+44
	.5276	16	.798	44
	.5292	16	.754	44
	.5308	16	.710	44
	.5324	16	.666	44
	.5340	16	.622	44
	.5356		.578	
	+11		−1	

8 Scorpii δ(1) (45) $\alpha = 15^h\ 58^m$

	+13		−1	
1810	+3.4689	+15	−10.450	+44
20	.4704	14	.406	44
30	.4718	15	.362	44
40	.4733	14	.318	43
50	.4747	15	.275	44
60	.4762	14	.231	44
70	.4776		.187	
	+11		−1	

7 Herculis κ(1) (46) $\alpha = 16^h\ 2^m$

	+12		−0	
	+2.7037	+4	−10.067	+35
	.7041	8	.032	34
	.7046	4	9.998	35
	.7050	4	.963	35
	.7054	4	.928	34
	.7058	4	894	35
	.7062	4	859	
	+10		−1	

14 Scorpii ε(2) (47) $\alpha = 16^h\ 3^m$

	+13		−0	
	+3.4685	+14	−9.956	+45
	.4699	14	.911	45
	.4713	14	.866	44
	.4727	13	.822	45
	.4740	14	.777	44
	.4754	14	.733	45
	.4768		.688	
	+11		−1	

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23 Scorpii τ α = 16h 28m

	dα/dt +13		dδ/dt −0	
1810	+3.7141		−8.154	
		+16		+51
20	.7157		.103	
		16		51
30	.7173		.052	
		16		50
40	.7189		.002	
		16		50
50	.7205		7.952	
		15		50
60	.7220		.902	
		15		50
70	.7235		852	
	+11		−1	

24 Scorpii π α = 16h 34m

	dα/dt +13		dδ/dt −0	
	+3.4565		−7.629	
		+11		+48
	.4576		.581	
		11		48
	.4587		.533	
		10		47
	.4597		.486	
		11		47
	.4608		.439	
		11		47
	.4619		.392	
		11		47
	.4630		.345	
	+11		−1	

25 Ophiuchi i α = 16h 48m

	dα/dt +12		dδ/dt −0	
	+2.8353		−6.445	
		+5		+39
	.8358		.406	
		5		39
	.8363		.367	
		5		40
	.8368		.327	
		4		39
	.8372		.288	
		5		40
	.8377		.248	
		4		40
	.8381		.208	
	+10		−1	

35 Ophiuchi η α = 17h 3m

	dα/dt +13		dδ/dt −0	
1810	+3.4272		−5.234	
		+8		
20	.4280		.185	+49
		8		
30	.4288		.136	49
		7		
40	.4295		.088	48
		8		
50	.4303		.040	48
		8		
60	.4311		4.991	49
		7		
70	.4318		.943	48
	+11		−1	

B.A.C. 5790 α = 17h 4m

	+1.9548		−5.002	
		+4		+28
	.9552		4.974	
		4		28
	.9556		.946	
		4		28
	.9560		.918	
		4		28
	.9564		890	

B.A.C. 5804 α = 17h 7m

	+13		−0	
	+3.9239		−4.838	
		+13		+56
	.9252		.782	
		12		56
	.9264		.726	
		11		56
	.9275		.670	
		12		56
	.9287		.614	
	+12		−1	

42 Ophiuchi θ α = 17h 14m

	+13		−0	
1810	3.6730		4.310	
		+9		52
20	3.6739		4.258	
		+9		52
30	+3.6748		−4.206	
		+9		+52
40	.6757		.154	
		9		53
50	.6766		.101	
		8		53
60	.6774		.048	
		8		52
70	.6782		3.996	
	+11		−1	

(74) Herculis ττ α = 17h 16m

	+12		−0	
	+2.2281		−4.037	
		+5		+32
	.2286		.005	
		5		32
	.2291		3.973	
		4		32
	.2295		.941	
		4		33
	.2299		.908	
		4		32
	.2303		.876	
		4		32
	.2307		.844	
	+10		−0	

44 Ophiuchi (b) α = 17h 19m

	+13		−0	
	6532		3.931	
		+8		+52
	6540		3.879	
		+8		+52
	+3.6548		−3.827	
		+8		+52
	.6556		.775	
		8		53
	.6564		.722	
		8		52
	.6572		.670	
		7		53
	.6579		.617	
	+12		−0	

34 Scorpii σ α = 17h 22m

	+13		−0	
1810	4.0651		3.668	
		11		54
20	4.0662		3.609	
		11		58
30	+4.0673		−3.550	
		+11		+58
40	.0684		.492	
		10		59
50	.0694		.433	
		10		59
60	.0704		.374	
		10		58
70	.0714		.316	
	+12		−0	

35 Scorpii λ α = 17h 25m

	+13		−0	
	+4.0609		−3.421	
		+10		+59
	.0619		.362	
		10		58
	.0629		.304	
		10		59
	.0639		.245	
		10		59
	.0649		.186	
		9		58
	.0658		.128	
		9		59
	.0667		.069	
	+12		−0	

57 Ophiuchi ν α = 17h 31m

	+12		−0	
	+3.2556		−2.833	
		+5		+47
	.2561		.786	
		4		47
	.2565		.739	
		5		48
	.2570		.691	
		4		47
	.2574		.644	
		4		47
	.2578		.597	
		5		47
	.2583		.550	
	+11		−0	

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58 Ophiuchi[60] $\alpha = 17^h 36^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ −0	
1810	+3.5948		−2.440	
		+4		+52
20	.5952		.388	
		5		52
30	.5957		.336	
		6		52
40	.5963		.284	
		5		52
50	.5968		.232	
		5		52
60	.5973		.180	
		5		53
70	.5978		.127	
	+11		−0	

3 Sagittarii[61] (p) $\alpha = 17^h 39^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ −0	
	+3.7692		−2.132	
		+6		+56
	.7698		.076	
		5		55
	.7703		.021	
		5		54
	.7708		1.967	
		5		55
	.7713		.912	
		6		53
	.7719		.857	
		5		55
	.7724		802	
	+12		−0	

Pi XXII 289 $\alpha = 17^h 48^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ −0	
	+1.9486		−1.234	
		+3		+29
	.9489		.205	
		3		29
	.9492		.176	
		3		28
	.9495		148	
		3		29
	.9498		.119	
		3		28
	.9501		.091	
		3		28
	.9504		.063	
	+10		−0	

89 Herculis[63] $\alpha = 17\ 50$

	+12		−0	
1810	+2.4169		−1.071	
		+3		+35
20	.4162		.036	
		2		36
30	.4164		.000	
		3		35
40	.4167		0.965	
		3		36
50	.4170		.929	
		2		35
60	.4172		.894	
		3		35
70	.4175		.859	
	+10		−0	

Pi XXIII 359 $\alpha = 18\ 00$

	+13		−0	
	+3.7947		−0.345	
		+2		+53
	.7949		.290	
		2		53
	.7951		.235	
		2		56
	.7953		.179	
		2		53
	.7955		.124	
		2		53
	.7957		.069	
		2		56
	.7959		.013	
	+12		−0	

13 Sagittarii[65] $\mu^{(1)}$ $\alpha = 18\ 6$

	+13		+0	
	+3.5857		+0.213	
		+1		+51
	.5858		.264	
		1		51
	.5859		.315	
		2		52
	.5861		.367	
		1		52
	.5862		.419	
		1		53
	.5863		.472	
		1		52
	5864		.524	
	+11		+0	

20 Sagittarii[66] η $\alpha = 18\ 9$

	+13		+0	
1810	+4.0701		+0.418	
		+1		+59
20	.0702		.477	
		1		59
30	.0703		.536	
		0		59
40	.0703		.595	
		0		59
50	.0703		.654	
		0		59
60	.0703		.713	
		0		59
70	.0703		.772	
	+12		+0	

19 Sagittarii[67] σ $\alpha = 18\ 13$

	+13		+0	
	+3.8380		+0.885	
		+0		+55
	.8380		.940	
		0		56
	.8380		.996	
		0		56
	.8380		1.052	
		0		56
	.8380		.108	
	+12		+0	

B.A.C. 6318[68] $\alpha = 18\ 26$

	+11		+0	
	+0.8197		+2.215	
		−1		+12
	.8196		.227	
		1		12
	.8195		.239	
		1		12
	.8194		.251	
		1		12
	.8193		.263	
	+8		+0	

1 Aquilae[69] $\alpha = 18\ 28$

	+12		+0	
1810	+3.2652		+2.172	
		+1		+47
20	.2653		.219	
		0		48
30	.2653		.267	
		0		47
40	.2653		.314	
		0		47
50	.2653		.361	
		0		47
60	2653		.408	
		0		47
70	.2653		.455	
	+11		+0	

2 Aquilae[70] $\alpha = 18\ 35-$

	+12		+0	
	+3.2848		+2.780	
		−1		+48
	.2847		.828	
		0		47
	.2847		.875	
		1		47
	.2846		.922	
		0		48
	.2846		2.970	
		1		47
	.2845		3.017	
		1		47
	.2844		.064	
	+11		+0	

B.A.C. 6419[72] $\alpha = 18\ 44$

	+11		+0	
	+1.3391		+3.734	
		+0		+19
	.3391		.753	
		0		19
	.3391		.772	
		−1		19
	.3390		.791	
		−1		19
	.3389		.810	
	+09		+0	

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11 Lyrae P' α = 18h 49m

	dα/dt +12		dδ/dt +0	
1810	+2.0925		+4.092	
20	.0927	+2	.122	+30
30	.0929	2	.152	30
40	.0930	1	.182	30
50	0931	1	.211	29
60	.0933	2	.241	30
70	.0935	2	.271	30
	+10		-0	

Pi XIX 4 α = 19 0

	+13		+0	
1810				
20				
30	+3.5888		+5.386	
40	5882	-6	436	+50
50	.5876	6	.486	50
60	.5870	6	.536	50
70	.5864	6	.586	50
	+11		+1	

4 Cygni α = 19 22

	+12		+0	
1810	+2.1577		+6.803	
20	.1578	+1	.833	+30
30	.1579	1	.862	29
40	.1580	1	.892	30
50	.1581	1	.921	29
60	.1582	1	.951	30
70	.1583	1	.981	30
	+10		+1	

6 Sagittae β α = 19 35

	+12		+0	
1810	+2.6928		+7.879	
20	.6928	+0	.915	+36
30	.6928	0	.951	36
40	.6928	0	986	35
50	.6929	1	8.022	36
60	.6929	0	.057	35
70	.6929	0	.093	36
	+10		+1	

14 Aquilae g α = 18h 56m

	dα/dt +12		dδ/dt +0	
	+3.1600		+4.589	
	.1598	-2	.634	+45
	.1597	1	.678	44
	1596	1	.723	45
	.1594	2	.767	44
	.1593	1	.812	45
	.1591	2	.856	44
	+11		+1	

42 Sagittarii ψ α = 19 8

	+13		+0	
	+3.6850		+5.519	
	.6842	-8	.571	+52
	.6835	7	.622	51
	.6828	7	.673	51
	.6821	7	.725	52
	.6813	8	.777	52
	.6806	7	829	52
	+11		+1	

52 Sagittarii h(2) α = 1929

	+13		+0	
	+3.6585		+7.281	
	.6576	-9	.330	+49
	.6566	10	.380	50
	.6556	10	.429	49
	.6546	10	.478	49
	.6536	10	.527	49
	.6526	10	.576	49
	+11		+1	

Pi XIX 243 α = 19 38

	+13		+0	
	+3.8439		+8.091	
	.8425	-14	.142	+51
	.8410	15	.193	51
	.8396	14	.243	50
	.8381	15	.294	51
	+12		+1	

41 Sagittarii π α = 19h 2m

	dα/dt +13		dδ/dt +0	
	+3.5746		+5.061	
	.5741	-5	.111	+50
	.5736	5	.162	51
	.5730	6	.212	50
	.5725	5	262	50
	.5719	6	.312	50
	.5714	5	.362	50
	+11		+1	

47 Sagittarii χ(1) α = 19 17

	+13		+0	
	+3.6577		+6.840	
	.6569	-8	.390	+50
	.6561	8	.441	51
	.6553	8	.491	50
	.6545	8	.541	50
	.6536	9	.591	50
	.6528	8	.641	50
	+11		+1	

B.A.C. 6737 α = 19 33

	+11		+0	
	+0.6529		+7.912	
	.6512	17	.921	+9
	6494	18	.929	8
			.939	10
			.948	9
	+08		+1	

8 Sagittae g α = 19 43

	+12		+0	
	+2.6606		+8.520	
	.6607	+1	.555	+35
	.6607	0	.590	35
	.6608	1	.624	34
	.6608	0	.659	35
	.6608	0	.694	35
	.6609	1	.728	34
	+10		+1	

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64 Draconis (c) α = 20h 00m

	dα/dt +11		dδ/dt +1	
1810	+0.6610		+9.986	+8
		−20		
20	.6590		.994	8
		19		
30	.6571		10.002	8
		20		
40	.6551		.010	8
		21		
50	.6530		.018	8
		20		
60	.6510		.026	8
		20		
70	.6490		.034	
	+8		+1	

B.A.C. 6924 α = 20h 2m

	dα/dt +11		dδ/dt +1	
+	1.3694	− 5	+10.141	+17
	.3689	5	.158	16
	.3684	6	.174	17
	.3678	5	.191	17
	.3673		.208	
	+9		+1	

20 Vulpeculae α = 20h 7m

	dα/dt +12		dδ/dt +1	
+	2.5128	+ 1	+10.333	+32
	.5129	2	.365	31
	.5131	1	.396	31
	.5132	1	.427	31
	.5133	2	.458	31
	.5135	1	.489	30
	.5136		.519	
	+10		+1	

67 Aquilae Q, α = 20h 8m

	dα/dt +12		dδ/dt +1	
1810	+2.7718		+10.442	+34
		− 0		
20	.7718		.476	34
		1		
30	.7717		.510	34
		0		
40	.7717		.544	34
		0		
50	.7717		.578	34
		0		
60	.7717		.612	34
		1		
70	.7716		.646	
	+10		+1	

9 Capricorni β α = 20h 14m

	dα/dt +13		dδ/dt +1	
+	3.3795	− 9	+10.801	+41
	.3786	9	.842	41
	.3777	9	.883	41
	.3768	10	.924	41
	.3758	9	.965	41
	.3749	9	11.006	40
	.3740		.046	
	+11		+1	

B.A.C. 7008 α = 20h 15m

	dα/dt +12		dδ/dt +1	
+	2.7417	+ 2	+11.076	+26
	.7419	2	.102	26
	.7421	2	.128	26
	.7423	2	.154	26
	.7425		.180	
	+10		+1	

11 Capricorni Θ, α = 20h 22m

	dα/dt +13		dδ/dt +1	
1810	+3.4370		+11.362	+41
		−11		
20	.4359		.403	40
		11		
30	.4348		.443	41
		11		
40	.4337		.484	41
		11		
50	.4326		.525	40
		11		
60	.4315		.565	40
		12		
70	.4303		.605	
	+11		+1	

41 Cygni (i) α = 20h 24m

	dα/dt +12		dδ/dt +1	
+	2.4471	+ 2	+11.622	+28
	.4473	2	.650	29
	.4475	2	.679	28
	.4477	2	.707	29
	.4479	3	.736	28
	.4482	2	.764	29
	.4484		.793	
	+10		+1	

4 Delphini ζ α = 20h 29m

	dα/dt +12		dδ/dt +1	
+	2.8016	− 0	+11.961	+32
	.8016	1	.993	33
	.8015	0	12.026	32
	.8015	0	.058	32
	.8015	0	.090	32
	.8015	1	.122	32
	.8014		.154	
	+10		+1	

75 Aquarii μ α = 20h 46m

	dα/dt +12		dδ/dt +1	
1810	+3.2431		+13.053	+36
		− 8		
20	.2423		.089	35
		8		
30	.2415		.124	35
		8		
40	.2407		.159	35
		8		
50	.2399		.194	35
		8		
60	.2391		.229	35
		8		
70	.2383		.264	
	+11		+1	

Ba XX 429 α = 20h 54m

	dα/dt +12		dδ/dt +1	
+	1.9178	+ 2	+13.746	+19
	.9180	2	.765	20
	.9182	2	.785	20
	.9184	3	.805	20
	.9187		.825	
	+10		+1	

22 Capricorni η α = 20h 57m

	dα/dt +13		dδ/dt +1	
+	3.4350	−14	+13.780	+36
	.4336	14	.816	36
	.4322	15	.852	35
	.4307	14	.887	36
	.4293	14	.923	35
	.4279	14	.958	35
	.4265		.993	
	+11		+1	

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Stars not fundamental

5 Equulei g [98] $\alpha = 21^h\ 4^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
10	+2.9144		+14.251	
		−1		+30
20	.9143		.281	
		1		29
30	.9142		310	
		1		29
40	.9141		.339	
		1		29
50	.9140		.368	
		1		29
60	.9139		.397	
		1		29
70	.9138		.426	
	+11		+2	

67 Cygni δ [99] $\alpha = 21^h\ 12^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
	+2.3483		+14.786	
		+6		+22
	.3489		.808	
		5		23
	.3494		.831	
		6		23
	.3500		.854	
		5		22
	.3505		.876	
		5		22
	.3510		.898	
		6		22
	.3516		.920	
	+10		+2	

(36) Capricorni b [100] $\alpha = 21^h\ 21^m$

	$\frac{d\alpha}{dt}$ +13		$\frac{d\delta}{dt}$ +1	
	+3.4320		+15.245	
		−16		+32
	.4304		.277	
		16		32
	.4288		.309	
		17		32
	.4271		.341	
		16		31
	.4255		.372	
		16		31
	.4239		.403	
		16		31
	.4223		.434	
	+11		+2	

73 Cygni α [101] $\alpha = 21\ 29$

	+12		+1	
1810	+2.2482		+15.744	
		+7		+19
20	.2489		.763	
		7		20
30	.2496		.783	
		7		19
40	.2503		.802	
		7		19
50	.2510		.821	
		8		20
60	.2518		.841	
		7		20
70	.2525		.861	
	+10		+2	

23 Aquarii ξ [102] $\alpha = 21^h\ 31^m$

	+13		+1	
	+3.1960		+15.786	
		−8		+28
	.1952		.814	
		8		28
	.1944		.842	
		8		28
	.1936		.870	
		8		28
	.1928		.898	
		7		27
	.1921		.925	
		7		28
	.1914		.953	
	+11		+2	

110 Capricorni δ [103] $\alpha = 21\ 33$

	+13		+1	
	+3.3273		+15.889	
		−13		+29
	.3260		.918	
		13		29
	.3247		.947	
		13		29
	.3234		.976	
		13		29
	.3221		16.005	
		13		28
	.3208		.033	
		13		28
	.3195		.061	
	+11		+2	

43 Capricorni κ [104] $\alpha = 21\ 35$

	+13		+1	
1810	+3.3583		+16.021	
		−15		+29
20	.3568		.050	
		14		29
30	.3554		.079	
		15		28
40	.3539		.107	
		14		29
50	.3525		.136	
		14		28
60	.3511		.164	
		15		28
70	.3496		.192	
	+11		+2	

49 Capricorni ρ [105] $\alpha = 21\ 40$

	+13		+1	
	+3.3090		+16.256	
		−12		+27
	.3078		.283	
		13		27
	.3065		.310	
		12		28
	.3053		.338	
		13		27
	.3040		.365	
		13		27
	.3027		.392	
		12		27
	.3015		.419	
	+11		+2	

14 Pegasi [106] $\alpha = 21\ 44$

	+12		+1	
	+2.6433		+16.503	
		+7		+21
	.6440		.524	
		6		21
	.6446		.545	
		6		21
	.6452		.566	
		6		21
	.6458		.587	
		7		21
	.6465		.608	
		6		21
	.6471		.629	
	+10		+2	

51 Capricorni ψ [107] $\alpha = 21\ 46$

	+13		+1	
1810	+3.2636		+16.577	
		−11		+26
20	.2625		.603	
		11		26
30	.2614		.629	
		11		26
40	.2603		.655	
		11		26
50	.2592		.681	
		11		25
60	.2581		.706	
		11		26
70	.2570		.732	
	+11		+2	

Pi XXI 336 [108] $\alpha = 21\ 49$

	+12		+1	
	+2.0082		+16.761	
		+8		+16
	.0090		.777	
		8		15
	.0098		.792	
		8		15
	.0106		.807	
		8		16
	.0114		.823	
		8		15
	.0122		838	
		8		15
	.0130		.853	
	+10		+2	

43 Cephei μ [109] $\alpha = 21\ 50$

	+12		+1	
	+2.0051		+16.847	
		+9		+15
	.0060		.862	
		8		15
	.0068		.877	
		8		15
	.0076		.892	
		8		15
	.0084		.907	
		8		15
	.0092		.922	
		8		15
	.0100		.937	
	+10		+2	

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Stars not fundamental

110. 12 Piscis Aust. α = 21h 53m

	dα/dt +13	Δ	dδ/dt +1	Δ
1810	+3.4742		+16.913	
		−22		+26
20	.4720		.939	
		21		26
30	.4699		.965	
		22		26
40	.4677		.991	
		22		26
50	.4655		17.017	
		22		26
60	.4633		.043	
		21		26
70	.4612		.069	
	+11		+2	

111. 31 Aquarii o α = 21h 57m

	dα/dt +13	Δ	dδ/dt +1	Δ
1810	+3.1073		+17.079	
		−5		+23
20	.1068		.102	
		5		22
30	.1063		.124	
		5		23
40	.1058		.157	
		5		23
50	.1053		.170	
		5		23
60	.1048		.193	
		5		22
70	.1043		.215	
	+11		+2	

112. Pi XXII 36 α = 22h 8m

	dα/dt +12	Δ	dδ/dt +1	Δ
30	+2.5583		+17.651	
		+11		+17
40	5594		.668	
		12		17
50	.5606		.685	
		11		16
60	.5617		.701	
		11		17
70	.5628		.718	
	+10		+2	

113. 46 Aquarii e α = 22 13

	+12	Δ	+1	Δ
1810	+3.1649		+17.800	
		−8		+20
20	.1641		.820	
		7		20
30	.1634		.840	
		8		20
40	.1626		.860	
		7		21
50	.1619		.881	
		8		20
60	.1611		.901	
		7		20
70	.1604		.921	
	+11		+2	

114. B.A.C. 7803 α = 22 17

	+12	Δ	+1	Δ
50	+2.5225		+18.012	
		+13		+16
60	.5238		.028	
		14		16
70	.5252		.044	
	+10		+2	

115. 52 Aquarii π α = 22 19

	+12	Δ	+1	Δ
1810	+3.0655		+18.012	
		−3		+19
20	.0652		.031	
		3		18
30	.0649		.049	
		2		19
40	.0647		.068	
		3		19
50	.0644		.087	
		3		18
60	.0641		.105	
		3		18
70	.0638		.123	
	+11		+2	

116. 55 Aquarii ζ α = 22 22

	+12	Δ	+1	Δ
1810	+3.0796		+18.144	
		−3		+18
20	.0793		.162	
		4		18
30	.0789		.180	
		3		18
40	.0786		.198	
		3		18
50	.0783		.216	
		3		18
60	.0780		.234	
		4		18
70	.0776		.252	
	+11		+2	

118. 17 Piscis Aust. β α = 22 24

	+13	Δ	+1	Δ
1810	+3.4389		+18.204	
		−25		+20
20	.4364		.224	
		25		20
30	.4339		.244	
		25		20
40	.4314		.264	
		25		20
50	.4289		.284	
		25		19
60	.4264		.303	
		25		20
70	.4239		.323	
	+11		+2	

119. 7 Lacertae α α = 22 26

	dα/dt	Δ	dδ/dt	Δ
1810	+2.4341		+18.306	
		+16		+14
20	.4357		.320	
		16		13
30	.4373		.333	
		17		14
40	.4390		.347	
		16		13
50	.4406		.360	
		17		14
60	.4423		.374	
		16		13
70	.4439		.387	

120. 18 Piscis Aust. ε α = 22 34

	+13	Δ	+1	Δ
1810	+3.3419		+18.536	
		−20		+17
20	.3399		.553	
		20		18
30	.3379		.571	
		20		17
40	.3359		.588	
		20		18
50	.3339		.606	
		20		17
60	.3319		.623	
		19		17
70	.3300		.640	
	+11		+2	

121. 76 Aquarii δ α = 22 48

	+13	Δ	+1	Δ
1810	+3.2005		+18.982	
		−11		+13
20	.1994		.995	
		11		14
30	.1983		19.009	
		11		14
40	.1972		.023	
		11		14
50	.1961		.037	
		11		14
60	.1950		.051	
		11		14
70	.1939		.065	
	+11		+2	

122. Pi XXII 262 α = 22 52

	+12	Δ	+1	Δ
30	+3.3049		+19.136	
		−21		+13
40	.3028		.149	
		21		14
50	.3007		.162	
		21		13
60	.2986		.176	
		21		13
70	2965		.189	
	+11		+2	

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Stars not fundamental

123 53 Pegasi $\alpha = 23^h\ 1^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+3.0166		+19.316	
		+3		+11
20	.0169		.327	
		3		10
30	.0172		.337	
		3		11
40	.0175		.348	
		3		11
50	.0178		.359	
		3		10
60	.0181		.369	
		3		11
70	.0184		.380	
	+11		+2	

124 88 Aquarii c^2 $\alpha = 23^h\ 3^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+3.2126		+19.359	
		−14		+11
20	.2112		.370	
		14		11
30	.2098		.381	
		14		12
40	.2084		.393	
		14		11
50	.2070		.404	
		14		11
60	.2056		.415	
		13		10
70	.2043		.425	
	+11		+2	

125 59 Pegasi (16) $\alpha = 23^h\ 5^m$

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+3.0247		+19.423	
		+3		+10
20	.0250		.433	
		3		10
30	.0253		.443	
		2		10
40	.0255		.453	
		3		10
50	.0258		.463	
		3		9
60	.0261		.472	
		3		10
70	.0264		.482	
	+11		+2	

126 90 Aquarii ψ $\alpha = 23^h\ 8^m$

	+12		+1	
1810	+3.1096		+19.473	
		−5		+10
20	.1091		.483	
		4		9
30	.1087		.492	
		5		10
40	.1082		.502	
		4		10
50	.1078		.512	
		5		9
60	.1073		.521	
		4		10
70	.1069		.531	
	+11		+2	

127 95 Aquarii ψ^3 $\alpha = 23^h\ 12^m$

	+12		+1	
1810	+3.1252		+19.565	
		−7		+9
20	.1245		.574	
		6		9
30	.1239		.583	
		6		9
40	.1233		.592	
		6		9
50	.1227		.601	
		7		9
60	.1220		.610	
		6		8
70	.1214		.618	
	+11		+2	

128 98 Aquarii β' $\alpha = 23^h\ 16^m$

	+12		+1	
1810	+3.1751		+19.638	
		−12		+8
20	.1739		.646	
		13		8
30	.1726		.654	
		12		9
40	.1714		.663	
		13		8
50	.1701		.671	
		12		8
60	.1689		.679	
		12		8
70	.1677		.687	
	+11		+2	

129 10 Piscium $\alpha = 23^h\ 21^m$

	+12		+1	
1810	+3.0472		+19.728	
		+3		+7
20	.0475		.735	
		2		7
30	.0477		.742	
		3		7
40	.0480		.749	
		2		7
50	.0482		.756	
		3		6
60	.0485		.762	
		3		7
70	.0488		.769	
	+11		+2	

131 101 Aquarii (δ^4) $\alpha = 23^h\ 27^m$

	+12		+1	
1810	+3.1559		+19.802	
		−13		+6
20	.1546		.808	
		14		7
30	.1532		.815	
		13		6
40	.1519		.821	
		12		6
50	.1507		.827	
		12		6
60	.1495		.833	
		12		6
70	.1483		.839	
	+11		+2	

132 15 Andromedae $\alpha = 23^h\ 28^m$

	+12		+1	
1810	+2.9056		+19.830	
		+22		+5
20	.9078		.835	
		22		5
30	.9100		.840	
		22		6
40	.9122		.846	
		22		5
50	.9144		.851	
		22		5
60	.9166		.856	
		22		5
70	.9188		.861	
	+11		+2	

133 106 Aquarii i $\alpha = 23^h\ 38^m$

	+12		+1	
1810	+3.1222		+19.933	
		−10		+4
20	.1212		.937	
		10		4
30	.1202		.941	
		10		4
40	.1192		.945	
		10		4
50	.1182		.949	
		10		3
60	.1172		.952	
		10		4
70	.1162		.956	
	+11		+2	

134 20 Andromedae ψ $\alpha = 23^h\ 40^m$

	+12		+1	
1810	+2.9321		+19.955	
		+28		+3
20	.9349		.958	
		28		3
30	.9377		.961	
		29		3
40	.9406		.964	
		29		3
50	.9435		.967	
		29		3
60	.9464		.970	
		29		3
70	.9493		.973	
	+11		+2	

135 Sculptoris $\alpha = 23^h\ 42^m$

	+12		+1	
1810	+3.1381		+19.975	
		−17		+3
20	.1364		.978	
		16		3
30	.1348		.981	
		17		3
40	.1331		.984	
		16		3
50	.1315		.987	
		15		2
60	.1300		.989	
		15		3
70	.1285		.992	
	+11		+2	

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136 Di XXIII 204 α = 23h 44m

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+2.9345		+19.989	
		+35		+2
20	.9380		.991	
		35		3
30	.9415		.994	
		35		3
40	.9450		.997	
		35		2
50	.9485		.999	
		35		2
60	.9520		20.001	
		35		2
70	.9555		003	
	+11		+2	

137 Di XXIII 237 α = 23h 57m

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+2.9679		+20.029	
		+42		+2
20	.9721		.031	
		41		1
30	.9762		.032	
		42		1
40	.9804		.033	
		41		1
50	.9845		.034	
		41		1
60	.9886		.035	
		42		1
70	.9928		.036	
	+11		+2	

138 30 Piscium α = 23h 58m

	$\frac{d\alpha}{dt}$ +12		$\frac{d\delta}{dt}$ +1	
1810	+3.0755		+20.047	
		−3		+0
20	.0752		.047	
		2		1
30	.0750		.048	
		2		0
40	.0748		.048	
		2		0
50	.0746		.048	
		2		0
60	.0744		.048	
		2		0
70	.0742		.048	
	+11		+2	

139 2 Ceti α = 23 57

	+12		+1	
1810	+3.0814		+20.052	
		−8		−0
20	.0806		.052	
		8		0
30	.0798		.052	
		8		0
40	.0790		.052	
		8		0
50	.0782		.052	
		8		0
60	.0774		.052	
		8		1
70	.0766		.051	
	+11		+2	

140 33 Piscium α = 23 59

	+12		+1	
1810	+3.0728		+20.055	
		−1		−0
20	.0727		.055	
		2		1
30	.0725		.054	
		2		0
40	.0723		.054	
		1		0
50	.0722		.054	
		2		1
60	.0720		.053	
		1		1
70	.0719		.052	
	+11		+2	

ε Sagittae 1931

1810	+2.7136	+7.565
20	7137	.642
30	7137	642
40	7137	
50	7137	751
60	7137	
70	7138	857

1810
20
30
40
50
60
70

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Fundamental stars

ν^2 Bootis $\alpha = 15^h\ 27^m$

	$\frac{d\delta}{dt}$	
	$u = +0.''0110$	
1810	$-12.''5564$	250
20	.5314	250
30	.5064	251
40	.4813	251
50	.4562	252
60	.4310	252
70	.4058	

α Cor. Bor. $\alpha = 15^h\ 29^m$

	$\frac{d\delta}{dt}$	
	$u = -0.''0650$	
	$-12.''4420$	295
	4125	295
	.3830	296
	3534	297
	.3237	298
	.2939	299
	.2640	

α Serpentis $\alpha = 15^h\ 38^m$

	$\frac{d\delta}{dt}$	
	$u = +0.''0610$	
	$-11.''8659$	349
	.8310	351
	.7959	352
	.7607	354
	.7253	355
	.6898	356
	.6542	

β Serpentis $\alpha = 15\ 40$

	$u = -0.''0620$	
1810	$-11.''6887$	332
20	.6555	332
30	.6223	334
40	.5889	334
50	.5555	336
60	.5219	336
70	.4883	

μ Serpentis $\alpha = 15\ 43$

	$u = -0.''0300$	
	$-11.''5252$	377
	.4875	378
	.4497	379
	.4118	380
	.3738	381
	.3357	381
	.2976	

ε Serpentis $\alpha = 15\ 44$

	$u = +0.''0760$	
	$-11.''4077$	363
	3714	363
	.3351	364
	2987	365
	.2622	366
	2256	364
	.1890	

ζ Ursae Min. $\alpha = 15\ 49$

	$u = -0.''0160$	
1810	$-10.''6961$	286
20	.7247	286
30	.7533	284
40	.7817	284
50	.8101	282
60	.8383	282
70	.8665	

γ Serpentis $\alpha = 15\ 51$

	$u = -1.''2700$	
	$-10.''9475$	342
	.9133	343
	.8790	344
	.8446	344
	.8102	345
	.7757	346
	.7411	

Groom. 2296 $\alpha = 15\ 55$

	$u = +0.''1031$	
	$-10.''5330$	180
	.5150	180
	.4970	180
	.4790	180
	.4610	180
	.4430	180
	.4250	

θ Draconis $\alpha = 15\ 59$

	$u = +0.''3290$	
1810	$-10.''1578$	163
20	.1415	158
30	.1257	152
40	.1105	147
50	.0958	141
60	.0817	136
70	.0681	

δ Ophiuchi $\alpha = 16\ 08$

	$u = -0.''1500$	
	$-9.''6938$	405
	.6533	405
	.6128	406
	.5722	406
	.5316	407
	.4909	407
	.4502	

ε Ophiuchi $\alpha = 16\ 12$

	$u = +0.''0290$	
	$-9.''3946$	409
	.3537	411
	.3126	412
	.2714	413
	.2301	414
	.1887	416
	.1471	

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Fundamental stars

19 Ursae Min. $\alpha = 16^h\ 14^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
1810		$-8.''7604$ $u = -0.''0080$
		244
20		.7848
		242
30		.8090
		239
40		.8329
		237
50		.8566
		235
60		.8801
		231
70		.9032

γ Herculis $\alpha = 16^h\ 16^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		$-8.''9857$ $u = +0.''0470$
		349
		.9508
		349
		.9159
		349
		.8810
		350
		.8460
		350
		.8110
		350
		.7760

ω Herculis (Serpentis?) $\alpha = 16^h\ 19^m$

	$\frac{dS}{dt}$	$\frac{dS}{dt}$
		$-8.''8412$ $u = -0.''0311$
		365
		.8047
		365
		.6682
		367
		.6316
		367
		.5948
		369
		.5579
		370
		.5209

η^2 Draconis $\alpha = 16\ 22$

1810		$-8.''3625$ $u = +0.''0960$
		107
20		.3518
		108
30		.3410
		109
40		.3301
		110
50		.3191
		111
60		.3080
		112
70		.2968

λ Ophiuchi $\alpha = 16\ 24$

		$-8.''3706$ $u = -0.''0600$
		406
		3800
		405
		.2895
		404
		2491
		404
		.2087
		403
		1684
		402
		.1282

A Draconis $\alpha = 16\ 28$

		$-7.''8043$ $u = +0.''0340$
		24
		.8067
		23
		.8090
		20
		.8110
		17
		.8127
		14
		.8141
		13
		.8154

ζ Herculis $\alpha = 16\ 36$

1810		$-7.''3407$ $u = +0.''4130$
		308
20		.3099
		309
30		.2790
		309
40		.2481
		310
50		.2171
		310
60		1861
		311
70		1550

η Herculis $\alpha = 16\ 39$

		$-7.''1563$ $u = -0.''0760$
		282
		1281
		283
		.0998
		282
		.0716
		282
		.0434
		281
		.0153
		282
		-6.9871

Groom. 2377 $\alpha = 16\ 43$

		$-6.''7190$ $u = +0.''0558$
		153
		.7037
		153
		.6882
		156
		6726
		158
		.6568
		159
		.6409
		161
		.6248

49 Herculis $\alpha = 16\ 46$

1810		$-6.''5767$ $u = +0.''0074$
		379
20		.5388
		379
30		.5009
		379
40		.4630
		379
50		.4251
		379
60		.3872
		379
70		.3493

κ Ophiuchi $\alpha = 16\ 52$

		$-6.''1282$ $u = +0.''0070$
		384
		.0998
		386
		.0612
		390
		.0222
		392
		-5.9830
		396
		.9434
		398
		.9036

ε Herculis $\alpha = 16\ 55$

		$-5.''7783$ $u = +0.''0290$
		321
		.7462
		321
		.7141
		322
		.6819
		323
		6496
		324
		.6172
		324
		.5848

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Fundamental stars

ε Ursæ Min. α = 16h 59m

	dδ/dt	dδ/dt	
		u = −0.″0180	
1810		−4.6957	918
20		.7875	916
30		.8791	912
40		.9703	911
50		−5.0614	907
60		.1521	905
70		.2426	

ζ' Herculis α = 17h 09m

	dδ/dt	dδ/dt	
		u = +0.″0490	
		−4.6831	388
		.6443	389
		.6054	389
		.5665	390
		.5275	390
		.4885	391
		.4494	

π Herculis α = 17h 10m

	dδ/dt	dδ/dt	
		u = +0.″0140	
		−4.4752	300
		.4452	299
		.4153	299
		.3854	299
		.3555	299
		.3256	298
		.2958	

β Draconis α = 17h 28m

		u = −0.″0020	
1810	−2.9519		195
20	.9324		196
30	.9128		195
40	.8933		196
50	.8737		195
60	.8542		196
70	.8346		

α Ophiuchi α = 17h 29m

		u = −0.″2040	
	−2.9533		396
	.9137		398
	.8739		401
	.8338		404
	.7934		407
	.7527		411
	.7118		

ω Draconis α = 17h 38m

		u = +0.″3026	
	−1.9156		51
	.9207		52
	.9259		52
	.9311		52
	.9363		52
	.9415		53
	.9468		

μ Herculis α = 17h 41m

		u = −0.″7270	
1810	−1.8333		343
20	.7990		342
30	.7648		342
40	.7306		341
50	.6965		341
60	.6624		340
70	.6284		

ψ' Draconis Aust. α = 17h 44m

		u = +0.″2660	
	−1.2858		143
	3001		147
	3147		150
	3297		153
	3450		157
	3607		160
	3767		

γ Draconis α = 17h 54m

		u = −0.″0370	
	−0.6819		200
	6619		200
	.6419		202
	.6219		200
	.6016		201
	5815		206
	5609		

35 Draconis α = 17h 55m

		u = +0.″2346	
1810	−0.1786		385
20	.2171		388
30	.2559		394
40	.2953		397
50	.3350		403
60	.3753		406
70	.4159		

o Herculis α = 18h 03m

		u = +0.″0090	
	+0.0120		340
	0460		341
	0801		341
	1142		340
	1482		341
	1823		341
	2164		

δ Ursæ. Min α = 18h 14m

		u = +0.″0200	
	+2.		
			3694
			+1.8098

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Fundamental Stars

η Serpentis α = 18h 15m

	dδ/dt	dδ/dt
		" u = −0.6880
1810		+1.6045
		452
20		.0497
		451
30		.0948
		451
40		.1399
		450
50		.1849
		450
60		.2299
		449
70		.2748

109 Herculis α = 18h 18m

	dδ/dt	dδ/dt
		" u = −0.2720
		+1.3659
		364
		.4023
		366
		.4389
		368
		.4757
		370
		.5127
		372
		.5499
		374
		.5873

ι Draconis α = 18h 22m

	dδ/dt	dδ/dt
		" u = +0.0552
		+1.4469
		130
		.8599
		128
		.8727
		127
		.8854
		126
		.8980
		125
		.9105
		123
		.9228

χ Draconis α = 18 23

	dδ/dt	dδ/dt
		" u = −0.3830
1810		+2." 1394
		164
20		1230
		163
30		.1067
		159
40		0908
		158
50		0750
		155
60		0595
		152
70		2.0443

α Lyrae α = 18 33

	dδ/dt	dδ/dt
		" u = +0.2880
		+2.6696
		290
		.6916
		291
		.7207
		291
		.7498
		292
		.7790
		292
		.8082
		293
		.8375

110 Herculis α = 18 40

	dδ/dt	dδ/dt
		" u = −0.3600
		+3.2664
		370
		.3034
		369
		.3403
		369
		.3772
		370
		.4142
		370
		.4512
		369
		.4881

β Lyrae α = 18 45

	dδ/dt	dδ/dt
		" u = −0.1080
1810		+3.7471
		316
20		.7787
		316
30		.8103
		315
40		.8418
		315
50		.8733
		314
60		.9047
		314
70		.9361

13R. Lyrae α = 18 51

	dδ/dt	dδ/dt
		" u = +0.0768
		+4.3033
		259
		.3292
		259
		.3551
		258
		.3809
		258
		.4067
		257
		.4324
		257
		.4581

ε Aquilae α = 18 54

	dδ/dt	dδ/dt
		" u = −0.0880
		+4.4273
		383
		.4656
		383
		.5039
		384
		.5423
		384
		.5807
		385
		.6192
		385
		.6577

ζ Aquilae α = 19 00

	dδ/dt	dδ/dt
		" u = −0.1070
1810		+4.9100
		389
20		.9489
		388
30		.9877
		387
40		5.0264
		387
50		+5.0651
		386
60		.1037
		386
70		.1423

ω Aquilae α = 19 12

	dδ/dt	dδ/dt
		" u = +0.0100
		+5.9401
		387
		.9788
		388
		6.0176
		388
		.0564
		388
		.0952
		388
		.1340
		389
		.1729

δ Draconis α = 19 13

	dδ/dt	dδ/dt
		" u = +0.0580
		+6.2400
		395
		2395
		390
		.2390
		390
		.2390
		395
		.2395
		400
		.2400

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Fundamental stars

κ Cygni α = 19h 14m

	dδ/dt		dδ/dt
			u = +0.″1000
1810		+6.″2563	
			192
20		.2760	
			192
30		.2952	
			190
40		.3142	
			190
50		.3332	
			188
60		.3520	
			188
70		.3708	

δ Aquilae α = 19h 19m

	dδ/dt		dδ/dt
			u = +0.″0900
		+6.5231	
			416
		.5647	
			416
		.6063	
			414
		.6477	
			414
		.6891	
			412
		.7303	
			412
		.7715	

β Cygni α = 19h 26m

	dδ/dt		dδ/dt
			u = +0.″0140
		+7.″1111	
			328
		.1439	
			327
		.1766	
			327
		.2093	
			326
		.2419	
			326
		.2745	
			325
		.3070	

κ Aquilae α = 19h 30m

	dδ/dt		dδ/dt
			u =
1810		+7.″	
20			
30		.4924	
40			
50		.5782	
60			
70			

γ Aquilae α = 19h 40m

	dδ/dt		dδ/dt
			u = +0.″0850
		+8.″2563	
			376
		.2939	
			375
		.3314	
			375
		.3689	
			374
		.4063	
			374
		.4437	
			373
		.4810	

δ Sagittae α = 19h 42m

	dδ/dt		dδ/dt
			u = +0.″0330
		+8.″3917	
			347
		.4264	
			347
		.4611	
			348
		.4959	
			349
		.5308	
			350
		.5658	
			350
		.6008	

α Aquilae α = 19h 45m

	dδ/dt		dδ/dt
			u = +0.″3830
1810		+8.5974	
			379
20		.6353	
			379
30		.6732	
			380
40		.7112	
			380
50		.7492	
			381
60		.7873	
			381
70		.8254	

η Aquilae α = 19h 46m

	dδ/dt		dδ/dt
			u = −0.″330
		+8.6967	
			403
		.7370	
			402
		.7772	
			399
		.8171	
			397
		.8568	
			394
		.8962	
			393
		.9355	

ε Draconis α = 19h 49m

	dδ/dt		dδ/dt
			u = −0.″0040
		+9.″7661	
			28
		.1633	
			27
		.1606	
			26
		.1580	
			25
		.1555	
			24
		.1531	
			23
		.1508	

β Aquilae α = 19h 49m

	dδ/dt		dδ/dt
			u = −0.″4800
1810		+8.9481	
			382
20		.9863	
			381
30		9.0244	
			380
40		.0624	
			380
50		.1004	
			379
60		.1383	
			378
70		.1761	

λ Aquilae Mean Min. α = 19h 52m

	dδ/dt		dδ/dt
			u = +0.″8250
		+12.	
		.1942	
		+10.9974	
		+9.5981	

ϕ Aquilae α = 20h 04m

	dδ/dt		dδ/dt
			u = 0.″000
		+10.″1429	
			384
		.1813	
			383
		.2196	
			383
		.2579	
			383
		.2962	
			383
		.3345	
			382
		.3727	

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Fundamental stars

κ Cephei α = 20h 13m

	dδ/dt	dδ/dt
		u = +0.″020
1810		+11.″1509
	238	
20		.1271
	237	
30		.1034
	234	
40		.0800
	233	
50		.0567
	230	
60		.0337
	229	
70		.0108

γ Cygni α = 20h 18m

	dδ/dt	dδ/dt
		u = +0.″0170
		+11.1742
	253	
		.1995
	254	
		.2249
	254	
		.2503
	254	
		.2757
	254	
		.3011
	255	
		.3266

ε Delphini α = 20h 27m

	dδ/dt	dδ/dt
		u = −0.″310
		+11.″7997
	332	
		.8329
	332	
		.8661
	331	
		.8992
	331	
		.9323
	330	
		.9653
	330	
		9983

β Delphini α = 20 32

	dδ/dt	dδ/dt
		u = −0.″390
1810		+12.″1155
	323	
20		.1478
	322	
30		.1800
	321	
40		.2121
	321	
50		.2442
	320	
60		.2762
	319	
70		.3081

α Delphini α = 20 34

	dδ/dt	dδ/dt
		u = +0.″0110
		+12.2674
	315	
		.2989
	314	
		.3303
	314	
		.3617
	314	
		.3931
	314	
		.4245
	313	
		4558

α Cygni α = 20 37

	dδ/dt	dδ/dt
		u = +0.″020
		+12.5521
	227	
		.5748
	227	
		.5975
	226	
		.6201
	226	
		.6427
	225	
		.6652
	225	
		.6877

ε Cygni α = 20 41

	dδ/dt	dδ/dt
		u = +0.″3270
1810		+12.7918
	280	
20		8198
	277	
30		.8475
	272	
40		8747
	269	
50		9016
	264	
60		9280
	261	
70		.9541

η Cephei α = 20 43

	dδ/dt	dδ/dt
		u = +0.″8170
		+12.9881
	128	
		13.0109
	128	
		13.0137
	130	
		.0267
	130	
		.0397
	132	
		.0529
	132	
		.0661

32 Vulpeculae α = 20 49

	dδ/dt	dδ/dt
		u = a″200
		+13.3216
	272	
		.3488
	272	
		.3760
	271	
		.4031
	271	
		.4302
	270	
		.4572
	270	
		.4842

ν² Cygni α = 20 52

	dδ/dt	dδ/dt
		u = +4.″0020
1810		+13.5559
	243	
20		5802
	239	
30		.6041
	234	
40		6275
	230	
50		.6505
	225	
60		6730
	221	
70		.6951

61' Cygni α = 21 01

	dδ/dt	dδ/dt
		u = +3.″2220
		+14.0854
	261	
		1117
	264	
		1381
	267	
		1648
	270	
		.1918
	273	
		2191
	276	
		.2467

ζ Cygni α = 21 07

	dδ/dt	dδ/dt
		u = −0.″0380
		+14.4808
	250	
		.5058
	250	
		.5308
	249	
		.5557
	249	
		.5806
	248	
		.6054
	248	
		.6302

For continuation of Precession constants for the fundamental stars of the General Catalogue see Book.

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