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New proper-motion stars with declination between −5° and −30° and right ascension between 9h and 13h 30m⋆

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Abstract. Data are given for 492 new stars with proper motion larger than 0.15 arcsec/year found on 21 areas covering 25 square degrees each. These are located between −5° and −30° in declination and between 9h and 13h 30m in right ascension. Photographic magnitudes range from 9.5 to 18.5. Four stars have proper motions larger than 0.5 arcsec/year, in a magnitude range between 15.5 and 17.5.

Key words: astrometry — stars: kinematics — Galaxy: halo

1. Introduction

First epoch plates for a proper-motion program were taken in 1969-1970 using the 70/100/210 cm Double Meniscus Maksutov Astrograph at Estación Astronómica de Cerro El Roble de la Universidad de Chile by H. Potter and A. Lokalov. The 164 southern hemisphere areas of the program were selected by A.N. Deutsch, according to the criterion of having enough galaxies to be used as a local reference frame. Although the proper motion program assumes a minimum time-base of 20 years, in August 1985 we began taking second-epoch plates of the areas south of declination −40°, with the purpose of searching for large proper motion stars. These southern areas were chosen because the Bruce Proper Motion Survey, the principal source south of declination −33° of the LHS proper motion Catalogue (Luyten 1979), reaches only to about $m = 16$, and our plates limit is approximately $m = 20$. A time-base of 15 to 20 years has been shown to be adequate for determining, from plates with scale 100 arcsec/mm, proper motions equal to or larger than 0.15 arcsec/year for stars fainter than 10 and brighter than 20 photographic magnitude.

⋆ Figure 2 (finding charts) is available in electronic form only via http://www.ed-phys.fr

The present work is the fifth part of a program determining proper motion of southern stars. In this part, we do not include the Luyten Catalogue stars found in this survey. The work includes 21 areas, each with two plate pairs. Some areas have a fraction of the 5×5 degrees flat field overlapped. Figure 1 shows the distribution of the searched areas on the sky. Table 1 gives the coordinates of the centers of the areas for 1950.0 and the time-base in years corresponding to each plate pair.

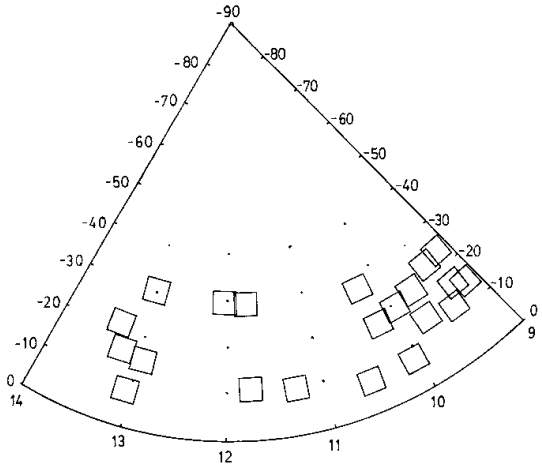

Fig. 1. The searched areas

2. Observational material, reduction procedure and errors

The areas were exposed 30 minutes on Kodak 103a-0 plates and 40 minutes on baked Kodak IIIa-J plates, near culmination and in good seeing conditions.

Large proper motion stars were identified with a Zeiss-Jena plate blink comparator, and their coordinates were determined to 1 micron (0.1 arcsec at the plate scale) with the two-coordinates Zeiss-Jena Ascorecord

Table 1. The areas

Nr.	A.R. (1950.0) D.				T		Nr.	A.R. (1950.0) D.				T	
	h	m	0	′	y	y		h	m	0	′	y	y
60	09	09.1	−14	36	23.0	24.0	79	10	32.8	−07	00	23.1	23.8
61	09	10.1	−23	58	22.1	24.0	84	11	18.1	−09	58	24.1	24.0
62	09	15.8	−16	12	23.6	23.6	86	11	45.5	−10	41	24.1	23.9
63	09	21.2	−22	58	23.1	23.8	87	11	45.9	−29	10	25.1	24.9
64	09	24.0	−11	47	24.1	24.0	89	12	04.3	−29	33	24.3	25.1
66	09	41.6	−20	39	24.0	24.0	95	12	57.7	−14	35	24.7	24.0
67	09	43.4	−14	08	23.1	24.0	97	13	00.4	−30	18	21.0	21.2
70	09	57.0	−19	16	24.2	24.1	98	13	03.1	−07	45	24.2	24.2
71	10	02.8	−07	28	24.2	24.2	100	13	12.4	−16	04	23.4	24.0
73	10	16.2	−17	44	24.8	24.1	101	13	17.5	−20	57	25.0	25.0
74	10	16.3	−26	27	22.7	24.1							

measuring machine, both of the Observatorio Astronómico de Cerro Calán.

In each area, 35 to 40 reference stars uniformly distributed over the plates, were selected having magnitudes about 16. A six term quadratic equation was used in each coordinate:

$$M_x + ax + by + cx^2 + dxy + ey^2 + f = m_x.T.$$

A similar one was used for y.

M_x is the movement detected in x between the first and second epoch plates of each pair, m_x is the annual proper motion in x and T is the time-base. To determine the constants, the reference stars were selected from those with no detectable proper motion, such that $m_x = m_y = 0$.

In computing proper motions, reference stars giving residuals equal to or greater than 0.9 arcsec in x or y were discarded. The annual proper motions in x and in y were calculated for J2000.0, from which the total proper motions and position angles were determined.

The total annual proper motions and the position angles, given in Table 2 are the means of the two values obtained from the plates pairs. Twenty-six proper-motion stars are common to two overlapped areas; for them the results given in Table 2 (indicated by (*) in column Remarks) correspond to the means of the values obtained from four plate pairs. The stars indicated by (1), (2) and (3) are probably companions of LTT 3462, LTT 3528 and Perth 10627 respectively, as it could be inferred just from proper motions and position angles.

Photographic magnitudes, accurate to 0.5 magnitude, were determined using the photoelectric sequence of Ardeberg et al. (1987).

The determination of positions and the computation of error in proper motions were explained in Wroblewski et al. (1989).

3. Results

This survey found 492 stars with proper motions larger than 0.15 arcsec/year wich are not listed in southern proper motion catalogues. Four stars have proper motions larger than 0.5 arcsec/year, in magnitude range between 15.5 and 17.5, close to the photographic magnitude of the Bruce Proper Motion Survey.

Our results are presented in Table 2, where the content of the columns is as follows:
Column 1: Our list number.
Column 2: Location number where the first two or three digits refer to the area number and the other digits refer to the star number in the area.
Column 3: Estimated photographic magnitudes.
Columns 4 and 5: Positions for B1950.0.
Columns 6 and 7: Positions for J2000.0.
Column 8: Annual proper motions referred to equinox J2000.0.
Column 9: Errors.
Column 10: Position angles referred also to equinox J2000.0.
Column 11: Remarks.

Figure 2 shows the finder charts, where North is up and theEast is on the left.

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Table 2. Positions and relative proper motions

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1564	60-04	14.0	09 00 44.7	-14 59 55	09 03 05.3	-15 11 53	0.167	0.012	248.9	
1565	60-10	15.0	09 00 59.2	-15 03 44	09 03 20.6	-15 15 45	0.158	0.012	138.6	
1566	61-03	15.0	09 02 18.8	-24 57 02	09 04 29.5	-25 09 12	0.427	0.012	239.6	
1567	60-16	15.0	09 03 22.7	-12 45 08	09 05 45.3	-12 57 23	0.313	0.012	219.1	
1568	61-15	18.0	09 06 56.0	-21 59 05	09 09 10.6	-22 11 12	0.229	0.009	304.6	
1569	60-28	15.5	09 07 28.4	-14 01 51	09 09 50.2	-14 14 02	0.160	0.015	301.0	(*)
1570	61-18	15.0	09 08 00.1	-23 45 13	09 10 13.6	-23 57 41	0.246	0.010	194.8	
1571	60-26	11.5	09 08 10.2	-12 29 54	09 10 33.4	-12 42 15	0.154	0.020	234.4	
1572	60-27	16.0	09 08 10.6	-13 14 33	09 10 33.1	-13 26 53	0.170	0.010	246.3	
1573	60-29	17.5	09 08 11.4	-13 59 52	09 10 32.9	-14 12 06	0.257	0.008	285.2	(*)
1574	60-32	15.0	09 08 42.9	-14 23 58	09 11 04.4	-14 36 17	0.164	0.008	270.4	(*)
1575	60-33	11.0	09 09 03.5	-13 57 28	09 11 25.9	-14 09 56	0.178	0.015	188.1	(*)
1576	61-21	16.5	09 09 31.0	-24 50 08	09 11 43.4	-25 02 47	0.396	0.010	200.8	
1577	61-22	17.5	09 09 48.6	-24 36 28	09 12 01.9	-24 48 42	0.164	0.008	18.2	
1578	62-10	15.0	09 10 13.2	-16 58 55	09 12 32.2	-17 11 22	0.293	0.010	254.7	
1579	60-41	16.5	09 12 10.7	-16 34 39	09 14 30.6	-16 47 03	0.191	0.010	298.8	(*)
1580	62-15	17.5	09 12 14.3	-14 03 00	09 14 37.1	-14 15 37	0.174	0.009	156.2	(*)
1581	60-43	16.5	09 12 40.4	-14 33 02	09 15 02.8	-14 45 43	0.232	0.010	156.8	(*)
1582	61-35	17.0	09 12 47.9	-24 07 06	09 15 02.2	-24 19 49	0.276	0.009	152.5	(*)
1583	60-44	13.0	09 12 51.3	-15 50 16	09 15 11.9	-16 02 54	0.211	0.014	225.6	(*)
1584	61-34	18.0	09 13 06.0	-21 36 33	09 15 23.0	-21 49 20	0.400	0.009	140.2	(*)
1585	61-39	16.0	09 13 38.4	-22 03 51	09 15 54.7	-22 16 32	0.202	0.011	138.4	(*)
1586	60-46	17.5	09 13 43.8	-13 33 54	09 16 08.0	-13 46 29	0.341	0.011	97.3	
1587	60-49	13.5	09 14 04.9	-16 56 55	09 16 24.5	-17 09 23	0.228	0.014	302.5	(*)
1588	64-01	11.5	09 14 40.0	-11 27 58	09 17 04.2	-11 40 33	0.161	0.013	280.0	
1589	61-45	16.5	09 15 20.3	-21 36 54	09 17 36.4	-21 49 44	0.250	0.009	189.8	(*)
1590	60-55	16.0	09 16 01.6	-16 04 46	09 18 23.1	-16 17 35	0.204	0.010	157.8	(*)
1591	63-17	15.5	09 16 01.6	-21 09 09	09 18 18.7	-21 21 58	0.212	0.011	155.8	
1592	63-19	18.5	09 16 02.9	-24 11 09	09 18 17.3	-24 23 58	0.199	0.008	159.4	
1593	63-20	16.5	09 16 18.9	-25 02 51	09 18 32.0	-25 15 24	0.159	0.010	335.2	(*)
1594	61-52	11.5	09 16 44.4	-22 50 20	09 18 59.0	-23 03 04	0.224	0.014	262.5	(*)
1595	64-06	16.5	09 16 46.9	-12 51 45	09 19 10.6	-13 04 37	0.194	0.008	184.2	
1596	63-24	16.0	09 16 49.7	-20 57 30	09 19 07.3	-21 10 25	0.298	0.010	150.2	
1597	64-07	18.0	09 17 28.6	-10 57 21	09 19 53.5	-11 09 57	0.199	0.009	319.8	
1598	60-59	13.0	09 17 33.7	-12 49 12	09 19 57.0	-13 01 58	0.161	0.012	253.2	
1599	64-08	14.0	09 17 46.9	-10 58 14	09 20 12.8	-11 11 07	0.227	0.013	130.7	
1600	61-55	17.5	09 18 26.4	-25 13 51	09 20 40.7	-25 26 43	0.281	0.009	114.8	
1601	61-54	17.0	09 18 29.9	-26 09 16	09 20 42.7	-26 22 11	0.182	0.010	154.3	
1602	62-33	18.0	09 18 40.6	-16 29 34	09 21 02.0	-16 42 39	0.383	0.008	161.2	
1603	62-34	16.0	09 18 40.6	-14 30 28	09 21 02.7	-14 43 11	0.167	0.010	300.2	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0) DEC.		R.A. (2000.0) DEC.		P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1604	60-64	10.0	09 18 43.9	-15 42 06	09 21 04.9	-15 54 56	0.188	0.017	250.4	(*)
1605	62-35	9.5	09 18 55.2	-16 47 42	09 21 15.8	-17 00 20	0.209	0.017	349.0	
1606	64-15	15.5	09 19 34.1	-13 38 31	09 21 56.5	-13 51 20	0.279	0.009	274.8	
1607	63-31	17.0	09 19 40.3	-23 08 16	09 21 55.8	-23 21 18	0.228	0.008	170.0	(*)
1608	63-32	17.0	09 19 43.8	-21 47 16	09 21 59.6	-21 59 58	0.250	0.010	309.4	
1609	61-60	16.0	09 19 47.8	-23 33 35	09 22 03.3	-23 46 32	0.186	0.011	136.0	(*)
1610	62-45	11.5	09 20 10.1	-14 01 52	09 22 32.6	-14 14 48	0.193	0.016	243.1	
1611	62-46	18.0	09 20 10.9	-14 01 51	09 22 33.3	-14 14 48	0.208	0.009	236.8	
1612	64-16	16.0	09 20 17.7	-09 51 53	09 22 44.6	-10 04 54	0.268	0.011	134.2	
1613	64-19	13.0	09 20 35.2	-12 25 01	09 23 00.0	-12 38 03	0.227	0.014	140.8	
1614	63-35	15.0	09 21 17.5	-20 53 20	09 23 35.5	-21 06 20	0.184	0.012	122.0	
1615	63-36	17.0	09 21 39.0	-21 09 29	09 23 55.7	-21 22 17	0.218	0.010	310.6	
1616	64-24	17.0	09 21 42.7	-11 27 56	09 24 06.9	-11 40 49	0.262	0.008	281.4	
1617	62-52	17.0	09 21 55.3	-15 47 15	09 24 16.3	-16 00 12	0.220	0.007	264.8	(1)
1618	63-37	15.5	09 22 24.9	-24 26 06	09 24 39.0	-24 38 58	0.180	0.011	314.4	
1619	63-40	17.0	09 22 48.0	-22 51 17	09 25 03.4	-23 04 20	0.166	0.009	241.2	
1620	64-29	13.0	09 22 48.3	-12 50 05	09 25 11.8	-13 03 02	0.172	0.011	285.1	
1621	64-27	17.0	09 22 54.8	-10 19 52	09 25 20.6	-10 33 04	0.274	0.008	194.2	
1622	62-56	16.0	09 22 55.8	-17 54 32	09 25 15.3	-18 07 27	0.193	0.010	297.4	
1623	63-38	16.5	09 23 09.1	-24 55 44	09 25 23.5	-25 08 57	0.280	0.009	162.2	
1624	62-58	16.5	09 23 15.2	-15 16 36	09 25 36.8	-15 29 37	0.178	0.008	262.6	
1625	62-61	15.0	09 23 37.7	-15 17 26	09 25 59.3	-15 30 28	0.200	0.009	265.2	
1626	64-32	18.0	09 23 49.4	-10 08 58	09 26 14.9	-10 21 53	0.245	0.008	299.5	
1627	63-39	17.5	09 23 50.4	-24 16 41	09 26 04.4	-24 29 41	0.219	0.007	277.2	
1628	64-31	18.0	09 23 51.4	-09 57 24	09 26 18.1	-10 10 40	0.299	0.008	160.6	
1629	62-63	15.5	09 23 59.5	-18 04 27	09 26 18.8	-18 17 18	0.292	0.012	314.8	
1630	63-43	18.0	09 24 18.5	-21 35 30	09 26 35.1	-21 48 31	0.155	0.007	278.6	
1631	63-45	17.0	09 25 32.8	-23 54 15	09 27 47.4	-24 07 25	0.214	0.009	249.8	
1632	64-38	16.5	09 25 44.7	-12 18 59	09 28 08.0	-12 32 10	0.400	0.008	260.0	
1633	64-37	14.5	09 25 53.3	-12 09 23	09 28 17.5	-12 22 27	0.181	0.011	289.5	
1634	63-51	18.0	09 25 55.9	-23 26 29	09 28 11.9	-23 39 43	0.162	0.008	150.6	
1635	63-53	16.5	09 25 57.2	-20 48 29	09 28 14.7	-21 01 44	0.199	0.010	211.8	
1636	64-39	13.0	09 26 16.5	-11 56 28	09 28 41.6	-12 09 56	0.397	0.012	173.4	
1637	63-56	18.5	09 26 49.4	-24 15 48	09 29 03.8	-24 29 04	0.240	0.009	235.0	
1638	64-40	13.0	09 27 43.4	-09 59 35	09 30 10.0	-10 12 56	0.190	0.013	160.4	
1639	64-41	16.5	09 27 44.3	-12 19 28	09 30 08.4	-12 32 29	0.268	0.010	321.7	
1640	64-42	15.5	09 28 00.5	-09 50 38	09 30 26.5	-10 03 51	0.167	0.009	266.2	
1641	63-61	16.5	09 29 34.7	-22 05 55	09 31 51.0	-22 19 01	0.316	0.011	313.3	
1642	64-51	13.5	09 30 05.5	-12 49 34	09 32 29.3	-13 02 52	0.186	0.009	271.8	
1643	64-49	16.5	09 30 09.4	-10 38 23	09 32 34.9	-10 51 41	0.197	0.008	274.7	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1644	63-62	17.0	09 30 17.3	-23 37 32	09 32 33.6	-23 50 58	0.166	0.009	154.4	
1645	64-52	16.5	09 30 35.5	-09 36 23	09 33 02.5	-09 49 51	0.173	0.010	163.0	
1646	63-65	16.5	09 30 52.5	-21 00 39	09 33 10.6	-21 14 08	0.160	0.009	193.0	
1647	63-63	17.0	09 31 07.3	-24 14 13	09 33 21.9	-24 27 30	0.270	0.009	285.5	
1648	64-55	16.5	09 31 14.7	-09 49 53	09 33 40.7	-10 03 17	0.224	0.009	259.1	
1649	64-59	17.5	09 31 55.9	-12 49 38	09 34 21.1	-13 03 09	0.250	0.009	131.0	
1650	66-03	15.5	09 31 58.2	-20 51 53	09 34 17.1	-21 05 22	0.167	0.011	130.6	
1651	64-62	16.5	09 32 16.8	-11 59 37	09 34 41.6	-12 13 06	0.153	0.010	229.4	
1652	66-06	16.5	09 32 27.9	-20 28 43	09 34 47.1	-20 42 12	0.157	0.010	131.7	
1653	64-60	11.0	09 32 32.2	-11 34 40	09 34 57.4	-11 48 13	0.184	0.018	211.7	
1654	66-07	16.5	09 32 36.4	-20 28 02	09 34 55.4	-20 41 34	0.151	0.010	157.2	
1655	64-63	12.5	09 32 45.5	-10 05 01	09 35 11.7	-10 18 34	0.194	0.016	217.2	(2)
1656	64-65	11.0	09 33 02.2	-11 01 49	09 35 28.0	-11 15 06	0.188	0.016	346.0	
1657	66-10	16.0	09 33 08.3	-22 18 34	09 35 25.1	-22 31 56	0.186	0.010	303.0	
1658	66-12	15.5	09 33 52.7	-20 52 55	09 36 11.4	-21 06 31	0.158	0.010	163.9	
1659	66-13	10.0	09 34 01.4	-20 48 25	09 36 19.6	-21 01 49	0.162	0.019	305.2	
1660	67-01	17.0	09 34 39.4	-14 36 52	09 37 02.4	-14 50 17	0.173	0.010	311.4	
1661	66-17	17.0	09 34 49.0	-18 33 25	09 37 09.4	-18 47 05	0.192	0.007	183.8	
1662	66-20	16.0	09 36 34.4	-21 52 35	09 38 52.3	-22 06 18	0.152	0.008	188.2	
1663	66-29	15.5	09 38 18.4	-21 05 56	09 40 36.6	-21 19 36	0.179	0.008	270.4	
1664	66-23	15.5	09 38 19.7	-18 34 24	09 40 39.6	-18 48 04	0.254	0.008	267.2	
1665	66-25	17.5	09 38 22.8	-19 06 21	09 40 43.7	-19 20 08	0.194	0.009	135.2	
1666	66-28	16.0	09 38 23.5	-20 06 26	09 40 43.5	-20 20 15	0.216	0.010	147.2	
1667	66-24	15.5	09 38 38.3	-18 46 18	09 40 58.4	-18 59 52	0.172	0.011	309.6	
1668	66-27	17.0	09 38 41.2	-19 54 07	09 41 00.4	-20 07 46	0.182	0.008	279.6	
1669	67-12	15.5	09 38 54.1	-14 42 07	09 41 17.3	-14 55 52	0.150	0.011	237.3	
1670	66-34	15.5	09 39 01.8	-22 35 47	09 41 19.4	-22 49 37	0.162	0.009	192.2	
1671	67-14	17.0	09 39 09.6	-13 50 51	09 41 33.1	-14 04 32	0.222	0.007	275.7	
1672	66-35	17.0	09 39 21.5	-21 43 49	09 41 40.8	-21 57 45	0.365	0.009	139.7	
1673	67-17	17.5	09 39 32.5	-14 43 31	09 41 55.9	-14 57 23	0.191	0.008	197.8	
1674	67-18	16.0	09 39 45.3	-14 54 33	09 42 08.2	-15 08 20	0.194	0.010	243.8	
1675	66-41	15.5	09 39 58.4	-21 28 39	09 42 16.8	-21 42 39	0.340	0.009	191.5	
1676	67-19	14.0	09 40 04.0	-14 08 17	09 42 27.7	-14 21 55	0.151	0.013	314.8	
1677	66-43	11.0	09 40 10.9	-22 05 02	09 42 29.8	-22 18 49	0.193	0.015	108.6	
1678	66-50	15.5	09 40 38.9	-19 14 29	09 42 58.6	-19 28 19	0.234	0.011	243.2	
1679	66-47	15.5	09 40 39.9	-22 46 37	09 42 56.9	-23 00 25	0.211	0.010	256.0	
1680	66-55	16.5	09 41 17.3	-19 31 59	09 43 38.6	-19 45 42	0.309	0.009	73.8	
1681	66-56	14.5	09 41 17.8	-19 32 01	09 43 39.1	-19 45 44	0.311	0.011	73.9	
1682	67-22	17.0	09 41 19.1	-14 50 19	09 43 42.3	-15 04 06	0.154	0.007	271.2	
1683	67-29	15.5	09 42 29.6	-12 07 05	09 44 54.2	-12 20 55	0.309	0.008	272.5	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1684	67-27	18.5	09 42 31.5	-14 10 22	09 44 55.1	-14 24 11	0.199	0.006	272.2	
1685	67-30	17.0	09 43 11.4	-11 49 21	09 45 36.6	-12 03 23	0.283	0.010	223.8	
1686	66-65	17.0	09 43 20.3	-19 49 21	09 45 39.7	-20 03 10	0.232	0.008	285.3	
1687	66-66	15.5	09 43 51.7	-19 13 28	09 46 11.8	-19 27 19	0.201	0.010	284.4	
1688	67-33	18.5	09 44 02.7	-12 14 59	09 46 27.8	-12 28 59	0.210	0.009	228.6	
1689	67-34	16.0	09 44 11.5	-12 52 49	09 46 36.4	-13 06 50	0.165	0.010	212.2	
1690	67-35	17.0	09 44 34.5	-12 53 51	09 46 59.0	-13 07 46	0.196	0.007	268.6	
1691	67-36	16.0	09 44 34.7	-12 54 00	09 46 59.2	-13 07 56	0.201	0.008	265.0	
1692	66-72	15.0	09 45 00.7	-19 02 14	09 47 21.3	-19 16 19	0.195	0.011	208.8	
1693	67-39	15.5	09 45 31.3	-15 21 24	09 47 54.3	-15 35 20	0.157	0.009	276.0	
1694	66-77	15.5	09 45 57.1	-22 53 42	09 48 15.0	-23 07 53	0.277	0.010	197.2	
1695	66-78	16.0	09 46 16.5	-22 47 16	09 48 35.0	-23 01 27	0.240	0.010	171.5	
1696	66-79	17.0	09 46 52.2	-20 09 55	09 49 11.8	-20 23 51	0.219	0.009	294.5	
1697	67-42	18.0	09 47 15.6	-15 13 53	09 49 39.2	-15 28 02	0.168	0.008	208.8	
1698	66-81	15.0	09 47 53.9	-22 00 10	09 50 12.9	-22 14 25	0.233	0.009	181.8	
1699	66-84	15.0	09 47 56.3	-18 29 27	09 50 16.7	-18 43 16	0.448	0.012	310.8	(*)
1700	67-47	17.0	09 48 15.1	-14 00 25	09 50 39.2	-14 14 30	0.159	0.007	264.1	
1701	67-49	18.5	09 48 16.8	-12 02 10	09 50 42.8	-12 16 34	0.393	0.006	178.7	
1702	66-83	15.0	09 48 43.4	-21 38 16	09 51 02.1	-21 52 20	0.213	0.009	276.1	
1703	67-55	17.0	09 48 46.6	-16 21 22	09 51 09.3	-16 35 19	0.216	0.009	322.8	
1704	67-54	17.0	09 48 46.6	-14 25 27	09 51 11.2	-14 39 39	0.152	0.010	155.8	
1705	66-91	17.0	09 50 15.3	-19 12 34	09 52 35.9	-19 26 44	0.194	0.008	259.6	(*)
1706	67-57	15.0	09 50 18.3	-15 21 58	09 52 41.8	-15 36 14	0.206	0.012	218.8	
1707	66-92	16.5	09 50 23.1	-19 32 07	09 52 44.5	-19 46 22	0.163	0.010	141.4	(*)
1708	67-62	18.5	09 50 49.7	-13 57 26	09 53 13.7	-14 11 35	0.245	0.007	275.4	
1709	70-07	17.0	09 50 51.2	-18 29 54	09 53 11.6	-18 44 09	0.422	0.008	256.8	
1710	67-61	15.5	09 51 01.1	-14 24 35	09 53 25.2	-14 38 45	0.158	0.008	267.4	
1711	67-67	14.5	09 51 56.5	-12 38 42	09 54 21.9	-12 52 46	0.208	0.013	326.0	
1712	70-13	18.0	09 52 51.5	-18 57 45	09 55 13.5	-19 12 10	0.227	0.008	157.4	
1713	70-11	17.0	09 52 56.0	-17 55 06	09 55 17.6	-18 09 26	0.253	0.009	245.6	
1714	67-71	17.0	09 52 58.3	-13 20 57	09 55 23.6	-13 35 21	0.193	0.007	181.6	
1715	67-72	18.5	09 53 00.6	-13 20 51	09 55 26.0	-13 35 14	0.170	0.007	179.2	
1716	67-73	16.0	09 53 06.1	-15 06 09	09 55 29.5	-15 20 28	0.260	0.009	253.8	
1717	70-15	17.0	09 53 26.6	-18 06 12	09 55 48.4	-18 20 26	0.154	0.008	283.0	
1718	71-04	17.5	09 53 42.9	-07 39 38	09 56 10.8	-07 53 54	0.335	0.006	270.2	
1719	70-18	11.0	09 55 52.7	-20 11 57	09 58 13.9	-20 26 29	0.216	0.015	172.0	
1720	70-20	16.0	09 56 28.4	-18 02 52	09 58 50.4	-18 17 13	0.155	0.009	283.2	
1721	70-19	15.0	09 56 50.8	-17 11 48	09 59 14.1	-17 26 25	0.274	0.010	172.2	
1722	70-21	17.0	09 56 55.1	-19 06 21	09 59 16.2	-19 20 47	0.225	0.008	255.4	
1723	70-24	17.5	09 57 17.7	-21 19 01	09 59 37.5	-21 33 27	0.190	0.007	261.4	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0) DEC.		R.A. (2000.0) DEC.		P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1724	71-10	16.0	09 57 35.8	-07 23 35	10 00 04.8	-07 38 06	0.169	0.010	221.4	
1725	70-25	17.0	09 57 48.4	-17 17 21	10 00 11.0	-17 31 52	0.197	0.009	239.4	
1726	70-26	18.0	09 57 54.4	-18 52 19	10 00 16.4	-19 06 56	0.225	0.007	194.6	
1727	70-28	17.0	10 00 28.6	-17 15 54	10 02 52.4	-17 30 41	0.327	0.009	160.4	
1728	70-29	18.0	10 01 13.2	-17 22 33	10 03 35.7	-17 37 05	0.272	0.007	276.0	
1729	71-22	15.0	10 01 20.8	-06 48 45	10 03 50.1	-07 03 25	0.194	0.011	224.9	
1730	71-20	12.0	10 01 24.9	-08 48 15	10 03 53.1	-09 02 57	0.208	0.016	216.1	
1731	71-25	18.0	10 02 49.2	-08 53 05	10 05 18.2	-09 07 58	0.338	0.007	164.4	
1732	70-33	18.5	10 03 08.8	-17 40 06	10 05 31.5	-17 54 38	0.219	0.009	303.3	
1733	71-28	15.5	10 03 54.2	-06 11 44	10 06 23.5	-06 26 35	0.357	0.011	226.4	
1734	71-30	16.5	10 04 21.7	-05 15 46	10 06 52.5	-05 30 36	0.203	0.008	176.0	
1735	70-39	16.0	10 04 44.9	-17 50 48	10 07 07.6	-18 05 25	0.199	0.010	293.0	
1736	70-40	18.0	10 04 44.9	-18 48 11	10 07 08.2	-19 03 01	0.221	0.009	144.8	
1737	70-41	17.0	10 04 59.6	-19 47 36	10 07 21.1	-20 02 16	0.195	0.007	275.4	
1738	70-43	17.0	10 05 37.5	-18 32 33	10 08 00.7	-18 47 31	0.323	0.008	173.6	
1739	71-34	16.0	10 05 38.8	-08 22 28	10 08 07.1	-08 37 08	0.213	0.010	286.2	
1740	71-35	10.0	10 05 45.8	-08 08 02	10 08 14.5	-08 22 45	0.154	0.013	267.6	
1741	71-38	16.5	10 05 52.5	-06 19 38	10 08 21.9	-06 34 17	0.240	0.009	289.2	
1742	71-37	15.5	10 05 53.0	-07 16 54	10 08 22.6	-07 31 45	0.176	0.009	190.2	
1743	70-45	14.0	10 05 54.8	-20 24 21	10 08 16.2	-20 39 07	0.170	0.012	247.6	
1744	70-46	15.5	10 06 13.5	-17 26 52	10 08 37.6	-17 41 43	0.174	0.011	151.0	
1745	70-48	16.5	10 07 03.1	-19 04 40	10 09 25.3	-19 19 40	0.345	0.010	210.6	
1746	74-08	11.5	10 07 11.1	-26 13 58	10 09 28.7	-26 28 43	0.170	0.012	276.1	
1747	70-49	18.0	10 07 13.3	-20 37 08	10 09 35.0	-20 52 01	0.160	0.008	200.6	
1748	74-17	17.5	10 07 28.0	-28 42 17	10 09 44.8	-28 57 15	0.244	0.008	164.8	
1749	73-04	15.0	10 07 33.8	-18 30 11	10 09 57.4	-18 45 04	0.167	0.012	142.2	(*)
1750	73-05	16.0	10 07 34.0	-18 30 04	10 09 57.6	-18 44 57	0.167	0.010	142.2	(*)
1751	74-14	16.5	10 08 02.6	-24 45 41	10 10 21.3	-25 00 28	0.178	0.008	268.2	
1752	74-15	16.5	10 08 04.4	-26 13 26	10 10 23.0	-26 28 23	0.198	0.009	163.5	
1753	74-16	17.5	10 08 04.5	-26 13 23	10 10 23.1	-26 28 20	0.198	0.008	163.5	
1754	74-22	16.5	10 08 32.2	-27 27 42	10 10 49.2	-27 42 27	0.154	0.010	297.2	
1755	73-08	16.0	10 08 36.0	-16 09 37	10 11 01.2	-16 24 32	0.181	0.011	137.0	
1756	71-44	16.0	10 08 51.2	-06 09 26	10 11 21.0	-06 24 19	0.169	0.010	244.4	
1757	74-24	12.0	10 09 24.6	-24 10 43	10 11 45.1	-24 25 35	0.166	0.013	100.9	
1758	73-10	15.5	10 09 33.2	-19 14 24	10 11 55.5	-19 29 09	0.219	0.011	301.6	
1759	73-09	16.0	10 09 40.2	-18 28 41	10 12 01.9	-18 43 34	0.508	0.008	264.8	
1760	74-28	17.5	10 09 48.1	-28 36 27	10 12 06.2	-28 51 38	0.505	0.010	144.8	
1761	71-46	15.0	10 10 17.8	-09 11 13	10 12 46.6	-09 26 16	0.227	0.009	177.4	
1762	71-47	10.5	10 10 34.6	-09 06 07	10 13 03.2	-09 21 07	0.160	0.017	199.6	
1763	73-14	14.5	10 11 01.8	-18 31 48	10 13 24.6	-18 46 38	0.205	0.011	288.2	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1764	73-15	16.5	10 11 04.3	-18 31 52	10 13 27.2	-18 46 42	0.199	0.009	288.6	
1765	71-56	16.0	10 11 09.9	-07 19 26	10 13 40.0	-07 34 35	0.326	0.009	161.2	
1766	73-16	18.0	10 11 22.5	-17 16 31	10 13 45.5	-17 31 17	0.402	0.008	293.6	
1767	71-58	16.5	10 11 34.9	-06 33 02	10 14 04.7	-06 48 01	0.174	0.010	239.1	
1768	71-60	9.5	10 11 55.6	-08 16 00	10 14 25.4	-08 30 57	0.155	0.016	104.2	
1769	71-59	16.0	10 11 59.2	-06 14 31	10 14 28.4	-06 29 25	0.351	0.008	275.5	
1770	73-18	15.0	10 12 37.8	-19 26 52	10 14 59.8	-19 41 35	0.435	0.011	307.6	
1771	73-17	17.0	10 12 39.0	-17 30 00	10 15 03.9	-17 45 03	0.225	0.009	122.4	
1772	73-21	14.0	10 13 04.1	-18 56 52	10 15 28.0	-19 11 56	0.178	0.013	135.1	
1773	74-40	15.0	10 13 10.4	-27 52 59	10 15 28.6	-28 08 04	0.177	0.011	154.7	
1774	73-20	14.0	10 13 11.7	-16 13 34	10 15 35.3	-16 28 24	0.452	0.011	291.0	
1775	74-43	16.5	10 13 29.8	-28 34 02	10 15 46.8	-28 48 55	0.185	0.010	300.1	
1776	73-25	16.5	10 14 29.5	-15 22 12	10 16 54.1	-15 37 14	0.271	0.008	264.0	
1777	74-46	13.0	10 14 37.7	-24 23 08	10 16 57.6	-24 38 03	0.167	0.014	305.0	
1778	73-26	13.5	10 14 50.0	-16 15 00	10 17 15.0	-16 29 54	0.155	0.013	338.4	
1779	74-48	16.5	10 15 59.2	-25 54 40	10 18 18.9	-26 09 53	0.203	0.009	168.2	
1780	74-50	16.5	10 16 15.5	-27 00 08	10 18 35.0	-27 15 30	0.400	0.010	156.2	
1781	73-32	12.0	10 18 29.1	-19 22 07	10 20 53.3	-19 37 17	0.155	0.014	112.9	
1782	74-59	16.0	10 18 48.1	-24 37 15	10 21 08.2	-24 52 18	0.188	0.010	305.0	
1783	74-61	16.5	10 18 52.5	-27 11 01	10 21 12.6	-27 26 26	0.410	0.010	143.2	
1784	73-35	15.5	10 19 02.0	-16 06 07	10 21 26.9	-16 21 23	0.237	0.011	235.8	
1785	73-36	12.0	10 19 03.5	-16 06 18	10 21 28.4	-16 21 33	0.223	0.015	238.0	
1786	73-38	16.5	10 19 15.5	-18 25 21	10 21 40.6	-18 40 41	0.295	0.010	136.1	
1787	74-62	14.0	10 19 37.4	-28 02 09	10 21 55.6	-28 17 15	0.168	0.012	297.7	
1788	74-63	10.5	10 19 40.5	-27 39 41	10 22 00.0	-27 54 56	0.162	0.019	130.0	
1789	74-71	14.0	10 20 18.9	-25 35 19	10 22 38.7	-25 50 25	0.164	0.013	307.7	
1790	74-72	14.5	10 20 19.0	-25 35 24	10 22 38.9	-25 50 30	0.170	0.012	307.4	
1791	74-70	15.5	10 20 36.9	-27 07 17	10 22 55.8	-27 22 28	0.155	0.009	275.4	
1792	74-73	17.5	10 20 42.2	-24 09 45	10 23 04.2	-24 25 06	0.284	0.009	134.2	
1793	73-41	11.0	10 21 46.9	-19 56 54	10 24 10.7	-20 12 15	0.154	0.015	171.3	
1794	73-40	16.5	10 21 48.7	-16 46 41	10 24 13.4	-17 02 01	0.248	0.010	242.4	
1795	74-74	17.0	10 21 53.8	-28 01 05	10 24 11.8	-28 16 29	0.342	0.010	235.1	
1796	74-75	10.5	10 22 12.8	-27 23 10	10 24 31.4	-27 38 24	0.249	0.012	270.3	
1797	73-43	17.5	10 22 30.0	-17 31 00	10 24 56.2	-17 46 28	0.418	0.009	129.8	
1798	73-44	17.0	10 23 07.6	-16 58 20	10 25 31.8	-17 13 29	0.380	0.009	292.2	
1799	74-82	17.0	10 23 46.5	-26 53 22	10 26 07.0	-27 08 43	0.157	0.009	118.8	
1800	79-04	18.5	10 24 15.2	-05 36 09	10 26 46.4	-05 51 36	0.168	0.008	167.2	
1801	79-06	17.0	10 24 25.4	-08 40 55	10 26 54.0	-08 56 05	0.334	0.010	298.7	
1802	74-86	16.5	10 24 57.8	-28 19 44	10 27 16.3	-28 35 02	0.221	0.008	276.6	
1803	79-07	16.0	10 24 54.0	-08 23 38	10 28 24.3	-08 39 01	0.152	0.009	100.3	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0) DEC.		R.A. (2000.0) DEC.		P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1804	79-08	17.5	10 26 23.8	-08 18 57	10 28 53.4	-08 34 26	0.173	0.009	205.8	
1805	79-13	14.5	10 27 27.8	-08 01 20	10 29 58.3	-08 16 50	0.174	0.013	137.2	
1806	79-16	16.5	10 29 10.6	-06 12 11	10 31 41.1	-06 27 42	0.152	0.010	235.8	
1807	79-19	15.0	10 29 37.1	-07 47 24	10 32 07.5	-08 03 00	0.171	0.010	164.6	
1808	79-23	15.5	10 30 21.8	-05 06 02	10 32 53.3	-05 21 41	0.209	0.008	180.7	
1809	79-22	12.5	10 30 36.2	-06 28 09	10 33 06.5	-06 43 38	0.160	0.010	267.2	
1810	79-27	10.5	10 31 49.8	-08 54 21	10 34 19.0	-09 09 48	0.194	0.017	291.0	
1811	79-32	17.5	10 32 37.7	-07 16 48	10 35 08.0	-07 32 37	0.347	0.008	196.0	
1812	79-33	15.5	10 32 40.3	-07 13 29	10 35 11.5	-07 29 04	0.177	0.010	107.1	
1813	79-31	14.0	10 32 42.1	-08 06 42	10 35 11.8	-08 22 12	0.182	0.011	289.6	
1814	79-36	16.5	10 33 06.1	-05 05 54	10 35 37.0	-05 21 23	0.206	0.010	288.6	
1815	79-37	18.5	10 33 30.1	-05 18 10	10 36 01.5	-05 33 56	0.248	0.007	182.1	
1816	79-40	17.0	10 34 20.5	-08 04 34	10 36 50.2	-08 20 10	0.172	0.007	264.6	
1817	79-41	16.5	10 34 25.0	-08 27 19	10 36 55.1	-08 43 07	0.252	0.008	180.4	
1818	79-43	15.5	10 34 35.2	-08 50 39	10 37 04.5	-09 06 13	0.185	0.009	280.0	
1819	79-38	16.5	10 35 01.6	-04 52 16	10 37 32.5	-05 07 52	0.241	0.008	270.7	
1820	79-44	14.5	10 35 25.2	-08 36 54	10 37 55.4	-08 52 40	0.193	0.010	173.2	
1821	79-47	16.5	10 36 50.9	-07 04 15	10 39 20.8	-07 19 56	0.256	0.008	263.2	
1822	79-49	17.0	10 36 53.3	-06 06 49	10 39 24.9	-06 22 35	0.188	0.010	141.2	
1823	79-48	15.0	10 36 56.6	-06 31 09	10 39 27.2	-06 46 53	0.159	0.012	233.0	
1824	79-46	16.5	10 37 16.9	-09 13 37	10 39 46.3	-09 29 15	0.160	0.009	284.6	
1825	79-52	15.5	10 37 46.0	-08 14 54	10 40 16.0	-08 30 39	0.153	0.012	231.2	
1826	79-54	15.5	10 38 35.3	-06 18 23	10 41 06.0	-06 34 08	0.177	0.010	246.6	
1827	79-57	17.0	10 40 39.2	-08 57 15	10 43 02.8	-09 12 41	1.971	0.008	280.6	
1828	84-01	17.0	11 09 14.4	-09 36 53	11 11 44.8	-09 53 11	0.241	0.007	274.4	
1829	84-08	18.0	11 10 54.6	-08 44 02	11 13 26.4	-09 00 29	0.156	0.009	150.6	
1830	84-10	13.5	11 11 03.5	-10 05 15	11 13 34.4	-10 21 42	0.159	0.013	215.1	
1831	84-11	17.0	11 11 39.0	-10 57 51	11 14 09.4	-11 14 13	0.188	0.007	265.0	
1832	84-15	16.5	11 12 29.2	-11 09 56	11 14 59.8	-11 26 15	0.155	0.009	290.3	
1833	84-16	16.5	11 12 30.5	-10 40 03	11 15 00.8	-10 56 22	0.261	0.009	283.1	
1834	84-20	11.0	11 13 14.6	-08 38 03	11 15 45.9	-08 54 31	0.174	0.018	224.8	
1835	84-19	18.0	11 13 35.9	-09 27 56	11 16 08.0	-09 44 26	0.197	0.009	131.0	
1836	84-22	15.5	11 14 36.6	-11 05 54	11 17 06.5	-11 22 25	0.417	0.010	249.0	
1837	84-27	12.0	11 16 13.5	-07 36 40	11 18 45.1	-07 53 10	0.162	0.016	234.0	
1838	84-24	18.0	11 16 20.7	-11 22 35	11 18 52.7	-11 39 05	0.219	0.008	116.0	
1839	84-25	17.0	11 16 21.1	-11 22 26	11 18 53.0	-11 38 56	0.225	0.010	120.1	
1840	84-26	16.0	11 16 38.7	-10 38 19	11 19 09.1	-10 54 42	0.292	0.008	278.8	
1841	84-28	16.5	11 16 42.7	-08 15 14	11 19 13.6	-08 31 38	0.345	0.008	276.7	
1842	84-29	16.5	11 17 07.9	-09 45 09	11 19 39.7	-10 01 45	0.217	0.009	166.8	
1843	84-30	16.0	11 17 13.1	-12 14 10	11 19 44.9	-12 30 30	0.211	0.011	61.0	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1844	84-31	10.5	11 17 38.7	-09 27 07	11 20 09.9	-09 43 33	0.162	0.012	271.4	
1845	84-32	15.0	11 17 40.4	-08 17 50	11 20 11.9	-08 34 17	0.155	0.009	263.4	
1846	84-34	17.5	11 18 28.4	-09 02 52	11 20 59.5	-09 19 20	0.238	0.006	266.1	
1847	84-35	17.0	11 19 41.7	-11 15 46	11 22 12.2	-11 32 17	0.291	0.008	256.6	
1848	84-36	15.0	11 21 32.1	-11 24 11	11 24 03.4	-11 40 51	0.244	0.010	197.6	
1849	84-37	15.0	11 21 40.9	-08 14 58	11 24 13.4	-08 31 35	0.188	0.011	147.6	
1850	84-38	17.0	11 22 47.0	-08 16 32	11 25 18.6	-08 32 59	0.190	0.008	284.2	
1851	84-39	17.5	11 22 50.0	-08 47 39	11 25 21.5	-09 04 03	0.193	0.009	305.2	
1852	84-40	16.0	11 23 15.1	-11 37 12	11 25 46.2	-11 53 43	0.161	0.008	262.4	
1853	84-41	14.0	11 24 22.3	-08 17 49	11 26 54.1	-08 34 19	0.152	0.009	275.2	
1854	84-44	14.5	11 26 22.5	-11 14 19	11 28 54.6	-11 31 04	0.278	0.011	163.6	
1855	84-45	15.0	11 27 22.9	-09 51 01	11 29 54.8	-10 07 43	0.206	0.011	202.0	
1856	87-01	16.0	11 35 30.6	-30 53 02	11 37 59.9	-31 09 50	0.251	0.009	202.2	
1857	87-02	17.0	11 36 11.4	-29 33 52	11 38 40.8	-29 50 27	0.152	0.008	285.4	
1858	87-03	18.5	11 36 21.4	-28 26 01	11 38 50.7	-28 42 32	0.285	0.008	300.8	
1859	86-06	11.0	11 37 26.3	-11 58 53	11 39 58.1	-12 15 27	0.200	0.016	293.8	
1860	86-02	15.0	11 37 27.3	-08 29 50	11 40 00.5	-09 16 35	0.202	0.012	137.3	
1861	86-03	16.5	11 37 29.6	-09 06 11	11 40 01.7	-09 22 49	0.202	0.008	266.8	
1862	87-10	17.5	11 37 34.9	-28 15 06	11 40 04.6	-28 31 40	0.197	0.008	294.8	
1863	87-08	17.0	11 37 35.4	-31 12 51	11 40 04.7	-31 29 31	0.191	0.008	260.7	
1864	86-07	15.5	11 37 36.3	-12 03 27	11 40 08.1	-12 20 02	0.194	0.010	290.0	
1865	87-14	18.0	11 38 35.0	-30 29 57	11 41 04.3	-30 46 47	0.330	0.008	227.0	
1866	86-09	15.5	11 38 38.5	-11 34 23	11 41 11.5	-11 51 07	0.170	0.011	136.3	
1867	87-13	17.0	11 38 46.8	-29 28 46	11 41 16.6	-29 45 25	0.183	0.007	264.2	
1868	87-11	18.0	11 38 49.1	-26 55 52	11 41 18.7	-27 12 30	0.325	0.006	271.1	
1869	87-15	17.0	11 39 56.4	-30 27 39	11 42 25.8	-30 44 22	0.303	0.008	254.4	
1870	86-12	15.5	11 39 57.8	-09 20 02	11 42 31.2	-09 36 46	0.184	0.011	123.0	
1871	86-14	16.0	11 40 04.0	-10 33 39	11 42 35.6	-10 50 16	0.348	0.008	273.8	
1872	86-13	16.0	11 40 04.5	-09 20 46	11 42 37.1	-09 37 36	0.240	0.009	198.1	
1873	87-17	16.0	11 40 20.7	-28 35 39	11 42 50.9	-28 52 15	0.166	0.009	287.7	
1874	87-21	13.5	11 41 44.9	-30 39 29	11 44 15.0	-30 56 11	0.191	0.011	256.6	
1875	86-17	10.5	11 42 12.6	-11 11 35	11 44 44.8	-11 28 16	0.172	0.014	260.6	
1876	87-27	17.0	11 42 24.6	-28 07 12	11 44 56.2	-28 24 00	0.202	0.009	145.6	
1877	86-18	15.0	11 42 25.2	-10 59 13	11 44 57.5	-11 15 53	0.161	0.009	263.4	
1878	87-23	17.0	11 42 28.8	-29 57 36	11 44 59.1	-30 14 09	0.222	0.009	303.4	
1879	86-21	14.5	11 42 55.2	-12 34 53	11 45 28.0	-12 51 41	0.181	0.009	181.1	
1880	86-22	16.0	11 43 19.5	-13 01 26	11 45 51.5	-13 18 11	0.222	0.013	241.8	
1881	87-28	18.0	11 43 33.5	-30 45 51	11 46 03.9	-31 02 32	0.182	0.007	259.8	
1882	86-24	11.5	11 43 50.2	-09 43 23	11 46 22.8	-10 00 10	0.172	0.017	221.4	
1883	86-25	14.5	11 43 52.9	-09 17 58	11 46 26.3	-09 34 47	0.211	0.012	156.5	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0) DEC.		R.A. (2000.0) DEC.		P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1884	87-30	17.0	11 44 10.9	-29 48 51	11 46 43.0	-30 05 40	0.257	0.009	134.8	
1885	86-30	15.5	11 45 15.1	-12 19 42	11 47 46.6	-12 36 21	0.392	0.009	274.2	
1886	87-33	17.0	11 45 20.3	-28 32 55	11 47 50.7	-28 49 45	0.383	0.009	240.2	
1887	87-35	16.5	11 45 34.2	-27 01 29	11 48 05.6	-27 18 27	0.375	0.009	198.2	
1888	87-34	16.0	11 45 44.0	-29 01 00	11 48 16.2	-29 17 47	0.176	0.010	131.6	
1889	86-36	16.0	11 46 08.2	-12 33 54	11 48 40.1	-12 50 36	0.284	0.008	265.2	
1890	87-37	11.5	11 46 21.0	-30 46 42	11 48 51.9	-31 03 20	0.198	0.014	289.0	
1891	87-39	17.0	11 46 31.9	-29 05 19	11 49 04.5	-29 21 52	0.284	0.009	53.0	
1892	87-40	18.0	11 46 48.9	-29 31 15	11 49 21.1	-29 48 11	0.314	0.007	159.8	
1893	87-41	16.5	11 46 57.1	-30 08 43	11 49 27.8	-30 25 21	0.279	0.008	282.6	
1894	86-37	15.5	11 47 12.9	-12 58 24	11 49 45.3	-13 15 05	0.153	0.008	267.6	
1895	86-38	17.5	11 47 24.7	-08 59 18	11 49 58.4	-09 16 06	0.203	0.009	135.0	
1896	86-39	15.5	11 47 27.7	-12 16 45	11 49 59.5	-12 33 26	0.352	0.008	269.8	
1897	87-43	16.0	11 47 58.4	-27 53 56	11 50 29.9	-28 10 38	0.159	0.007	266.4	
1898	87-44	11.0	11 48 00.5	-28 11 46	11 50 33.4	-28 28 30	0.207	0.014	107.2	
1899	87-46	18.0	11 48 50.3	-29 08 55	11 51 21.8	-29 25 33	0.193	0.008	293.6	
1900	86-47	16.5	11 48 52.7	-10 28 42	11 51 25.3	-10 45 23	0.169	0.008	275.0	
1901	86-48	16.0	11 48 52.7	-10 45 31	11 51 25.5	-11 02 18	0.175	0.010	224.7	
1902	87-49	16.0	11 49 04.7	-27 15 43	11 51 36.1	-27 32 22	0.229	0.008	283.0	
1903	86-49	17.5	11 49 40.8	-11 32 24	11 52 13.0	-11 49 05	0.303	0.006	270.8	
1904	86-51	10.5	11 50 25.3	-11 51 42	11 52 57.9	-12 08 28	0.191	0.017	244.0	
1905	87-51	10.0	11 50 25.3	-27 03 00	11 52 57.2	-27 19 40	0.173	0.014	277.7	(3)
1906	86-52	16.0	11 50 42.6	-08 24 12	11 53 17.0	-08 40 56	0.278	0.009	98.8	
1907	86-53	15.5	11 50 51.2	-11 41 50	11 53 23.8	-11 58 37	0.219	0.011	239.6	
1908	86-54	17.0	11 51 26.8	-10 17 54	11 54 01.0	-10 34 37	0.240	0.007	96.3	
1909	86-56	16.0	11 51 34.2	-11 17 26	11 54 08.2	-11 34 14	0.245	0.010	121.0	
1910	87-54	15.5	11 51 51.0	-30 33 12	11 54 22.8	-30 49 57	0.214	0.010	247.7	
1911	87-61	16.0	11 52 13.5	-27 20 48	11 54 45.7	-27 37 31	0.153	0.008	263.6	
1912	86-57	15.5	11 52 25.6	-11 43 44	11 54 58.3	-12 00 33	0.262	0.011	231.6	
1913	87-64	17.5	11 53 57.7	-31 28 44	11 56 29.5	-31 45 25	0.287	0.007	274.2	
1914	86-59	12.5	11 54 00.8	-12 17 23	11 56 33.6	-12 34 04	0.190	0.010	272.7	
1915	87-63	16.0	11 54 19.2	-29 29 34	11 56 52.7	-29 46 22	0.153	0.010	138.6	(*)
1916	87-68	14.5	11 55 54.3	-27 23 21	11 58 27.2	-27 40 10	0.180	0.012	216.6	(*)
1917	89-08	15.5	11 56 46.0	-28 42 10	11 59 18.3	-28 58 49	0.276	0.009	284.1	
1918	89-09	15.5	11 57 16.4	-27 37 00	11 59 49.4	-27 53 41	0.171	0.009	276.0	
1919	89-10	17.0	11 57 18.2	-29 14 18	11 59 53.3	-29 31 15	0.355	0.009	149.2	
1920	89-11	16.5	11 57 54.9	-31 13 53	12 00 29.3	-31 30 58	0.456	0.008	171.6	
1921	89-13	16.5	11 58 57.1	-30 43 59	12 01 30.2	-31 00 42	0.201	0.008	261.4	
1922	89-15	16.0	11 59 56.7	-29 52 01	12 02 29.2	-30 08 46	0.369	0.008	262.5	
1923	89-18	16.5	12 00 54.8	-29 06 28	12 03 28.0	-29 22 59	0.324	0.010	310.0	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0) DEC.		R.A. (2000.0) DEC.		P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1924	89-20	14.0	12 02 07.0	-30 40 20	12 04 41.2	-30 57 10	0.160	0.011	192.4	
1925	89-22	11.0	12 04 08.6	-28 44 50	12 06 42.7	-29 01 31	0.156	0.013	282.0	
1926	89-23	17.5	12 04 18.1	-27 39 57	12 06 51.7	-27 56 39	0.251	0.006	270.3	
1927	89-24	16.5	12 04 34.2	-27 12 57	12 07 08.2	-27 29 44	0.203	0.010	238.4	
1928	89-28	15.5	12 05 33.3	-31 49 51	12 08 06.8	-32 06 36	0.381	0.009	258.4	
1929	89-27	15.0	12 05 35.4	-29 23 20	12 08 09.5	-29 40 00	0.214	0.009	278.4	
1930	89-30	15.5	12 05 57.6	-30 03 54	12 08 31.9	-30 20 28	0.223	0.011	308.4	
1931	89-32	16.0	12 06 56.0	-28 00 11	12 09 30.5	-28 16 49	0.177	0.010	300.2	
1932	89-33	16.5	12 07 06.5	-28 20 09	12 09 41.1	-28 36 59	0.210	0.010	217.4	
1933	89-34	15.5	12 07 18.2	-29 03 25	12 09 54.0	-29 20 16	0.261	0.011	137.2	
1934	89-35	10.5	12 08 45.3	-29 37 55	12 11 20.1	-29 54 33	0.167	0.016	289.6	
1935	89-36	18.0	12 08 49.7	-28 46 21	12 11 24.2	-29 03 04	0.214	0.007	264.1	
1936	89-39	11.0	12 09 20.6	-29 50 17	12 11 55.6	-30 06 57	0.162	0.012	276.6	
1937	89-40	13.0	12 09 52.6	-31 23 20	12 12 27.8	-31 40 03	0.153	0.011	257.6	
1938	89-44	17.0	12 12 38.5	-31 45 51	12 15 13.7	-32 02 24	0.319	0.009	296.0	
1939	89-48	16.0	12 14 41.4	-30 27 43	12 17 17.4	-30 44 29	0.190	0.010	230.1	
1940	95-02	10.5	12 49 39.3	-13 11 23	12 52 15.9	-13 27 41	0.175	0.012	270.6	
1941	95-03	16.5	12 49 40.5	-14 35 02	12 52 18.4	-14 51 32	0.250	0.009	161.2	
1942	95-04	15.0	12 50 20.5	-14 58 27	12 52 57.8	-15 14 45	0.155	0.010	256.4	
1943	95-05	16.5	12 50 44.4	-15 28 22	12 53 21.2	-15 44 43	0.360	0.009	253.7	
1944	95-07	16.5	12 51 09.3	-13 06 18	12 53 45.5	-13 22 24	0.378	0.010	300.2	
1945	95-10	15.5	12 52 40.8	-12 13 56	12 55 17.9	-12 30 19	0.173	0.009	186.8	
1946	95-11	16.5	12 53 04.8	-14 46 13	12 55 42.2	-15 02 29	0.170	0.008	258.4	
1947	95-14	17.0	12 53 34.8	-12 48 01	12 56 11.8	-13 04 08	0.163	0.009	318.6	
1948	97-04	17.5	12 54 26.0	-29 52 06	12 57 07.4	-30 08 21	0.427	0.008	264.2	
1949	98-02	11.5	12 54 59.9	-06 47 37	12 57 35.0	-07 03 49	0.172	0.011	268.6	
1950	95-20	17.0	12 55 17.8	-16 12 48	12 57 55.7	-16 29 01	0.187	0.007	265.4	
1951	97-07	16.0	12 55 22.6	-30 49 05	12 58 06.8	-31 05 24	0.223	0.012	136.0	
1952	95-17	16.5	12 55 30.1	-13 07 31	12 58 07.3	-13 23 45	0.154	0.009	248.0	
1953	98-04	11.5	12 55 31.0	-08 04 44	12 58 06.3	-08 20 59	0.268	0.014	254.2	
1954	98-05	17.0	12 55 47.0	-06 58 47	12 58 22.3	-07 15 03	0.174	0.009	235.8	
1955	95-23	16.5	12 56 41.8	-13 53 25	12 59 20.2	-14 09 39	0.169	0.010	119.1	
1956	95-25	16.5	12 56 52.3	-14 10 29	12 59 29.7	-14 26 35	0.199	0.009	290.6	
1957	98-12	17.5	12 57 00.3	-05 58 12	12 59 35.1	-06 14 22	0.244	0.006	271.2	
1958	95-27	15.5	12 57 00.6	-13 30 37	12 59 37.9	-13 46 50	0.152	0.010	248.8	
1959	98-09	14.0	12 57 00.9	-07 54 17	12 59 36.4	-08 10 24	0.203	0.010	280.6	
1960	95-24	17.0	12 57 02.4	-14 57 11	12 59 40.2	-15 13 18	0.156	0.008	286.0	
1961	97-10	12.5	12 57 09.6	-29 37 37	12 59 52.9	-29 53 55	0.164	0.015	191.2	
1962	98-15	15.5	12 57 16.9	-07 14 35	12 59 51.2	-07 30 36	0.501	0.009	290.6	
1963	97-11	15.0	12 57 17.6	-28 27 07	13 00 02.0	-28 43 30	0.433	0.013	125.6	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
1964	98-16	17.5	12 57 39.8	-07 48 15	13 00 15.7	-08 04 32	0.179	0.009	208.0	
1965	95-28	15.5	12 58 25.7	-14 48 18	13 01 03.6	-15 04 29	0.154	0.010	249.3	
1966	98-22	18.0	12 59 21.1	-09 07 34	13 01 57.2	-09 23 37	0.162	0.008	293.9	
1967	97-22	15.5	12 59 32.9	-29 57 07	13 02 16.2	-30 13 17	0.184	0.011	250.4	
1968	95-33	16.5	12 59 42.3	-12 57 50	13 02 19.4	-13 13 58	0.220	0.008	263.0	
1969	95-32	14.5	12 59 46.4	-16 12 58	13 02 24.8	-16 29 08	0.160	0.011	248.0	
1970	95-35	16.5	13 00 00.7	-13 40 46	13 02 38.1	-13 56 53	0.223	0.007	270.6	
1971	98-24	18.0	13 00 21.0	-08 29 53	13 02 56.7	-08 46 10	0.320	0.009	229.6	
1972	95-37	17.5	13 00 38.7	-15 32 59	13 03 18.3	-15 49 06	0.232	0.007	98.4	
1973	97-25	13.0	13 00 51.2	-31 16 51	13 03 35.6	-31 32 49	0.176	0.015	336.0	
1974	95-39	13.5	13 00 54.2	-16 40 03	13 03 32.7	-16 56 11	0.198	0.012	251.0	
1975	98-29	16.0	13 01 02.7	-08 46 39	13 03 38.1	-09 03 00	0.473	0.010	228.2	
1976	98-30	14.5	13 01 38.6	-06 13 32	13 04 14.2	-06 29 28	0.184	0.011	342.6	
1977	98-33	15.5	13 01 57.4	-06 48 10	13 04 32.5	-07 04 15	0.261	0.008	268.3	
1978	95-41	15.5	13 01 59.8	-12 40 23	13 04 37.2	-12 56 25	0.170	0.009	282.4	
1979	95-40	16.0	13 02 05.8	-14 43 57	13 04 44.7	-15 00 07	0.164	0.010	148.6	
1980	98-35	14.0	13 02 36.9	-07 27 03	13 05 12.7	-07 43 11	0.160	0.012	230.8	
1981	98-36	12.0	13 03 10.4	-05 54 48	13 05 46.3	-06 10 58	0.156	0.015	161.3	
1982	97-31	15.0	13 03 29.1	-29 40 34	13 06 12.1	-29 56 35	0.379	0.010	274.9	
1983	98-38	16.5	13 03 38.5	-08 24 31	13 06 14.4	-08 40 31	0.197	0.009	286.2	
1984	97-32	10.0	13 03 56.6	-31 59 44	13 06 41.3	-32 15 45	0.209	0.016	277.8	
1985	98-43	16.0	13 04 22.1	-07 42 58	13 06 57.8	-07 58 58	0.227	0.008	278.7	
1986	97-33	15.0	13 04 23.9	-31 35 58	13 07 07.9	-31 51 46	0.458	0.013	304.1	
1987	100-02	11.5	13 04 38.9	-15 07 25	13 07 17.3	-15 23 26	0.158	0.011	268.2	
1988	97-34	16.5	13 04 43.8	-30 10 40	13 07 27.5	-30 26 50	0.359	0.011	240.6	
1989	98-44	17.0	13 04 55.3	-08 34 06	13 07 31.6	-08 50 29	0.482	0.008	196.0	
1990	97-35	16.0	13 05 05.3	-31 34 16	13 07 50.4	-31 50 22	0.162	0.012	227.8	
1991	97-38	15.5	13 05 15.7	-28 15 29	13 07 59.0	-28 31 23	0.239	0.013	302.1	
1992	95-49	11.5	13 05 37.2	-13 22 37	13 08 15.5	-13 38 45	0.175	0.013	182.4	
1993	98-46	15.0	13 05 37.9	-07 34 35	13 08 13.7	-07 50 36	0.181	0.009	262.2	
1994	95-50	16.0	13 05 42.0	-12 54 16	13 08 20.7	-13 10 31	0.337	0.010	157.0	
1995	98-48	16.0	13 06 20.3	-09 18 44	13 08 56.6	-09 34 43	0.216	0.007	271.0	
1996	98-49	15.5	13 06 50.0	-09 09 10	13 09 26.4	-09 25 08	0.169	0.008	273.6	
1997	98-51	17.0	13 06 53.9	-08 13 10	13 09 30.5	-08 29 16	0.162	0.007	185.3	
1998	100-08	17.0	13 07 37.2	-14 41 49	13 10 15.6	-14 57 45	0.176	0.007	273.0	
1999	101-01	12.0	13 07 40.4	-22 23 10	13 10 21.7	-22 39 12	0.204	0.015	242.4	
2000	97-42	14.5	13 07 59.3	-31 29 02	13 10 44.6	-31 44 59	0.169	0.011	264.2	
2001	97-43	17.5	13 08 05.2	-29 48 40	13 10 49.0	-30 04 42	0.384	0.009	254.4	
2002	101-03	16.5	13 08 25.0	-22 02 41	13 11 06.2	-22 18 45	0.252	0.010	232.6	
2003	98-53	12.0	13 08 25.5	-06 58 06	13 11 01.3	-07 14 00	0.160	0.013	282.8	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
2004	100-09	15.0	13 08 30.0	-13 45 36	13 11 08.2	-14 01 28	0.172	0.011	297.9	
2005	97-45	15.0	13 08 32.4	-30 09 58	13 11 17.4	-30 25 57	0.158	0.012	247.0	
2006	97-46	10.0	13 08 55.9	-30 24 13	13 11 41.0	-30 40 11	0.162	0.018	255.2	
2007	100-10	17.0	13 09 01.4	-15 58 52	13 11 39.9	-16 14 46	0.320	0.007	272.2	
2008	98-55	17.0	13 09 07.1	-07 56 29	13 11 43.1	-08 12 31	0.235	0.009	232.0	
2009	100-13	15.0	13 09 18.1	-17 59 55	13 11 58.8	-18 15 58	0.179	0.012	151.6	
2010	97-48	10.5	13 09 36.1	-30 07 58	13 12 21.1	-30 23 51	0.158	0.017	283.2	
2011	97-49	13.5	13 09 38.4	-30 08 01	13 12 23.5	-30 23 53	0.168	0.014	288.6	
2012	101-04	17.5	13 09 42.7	-21 50 26	13 12 23.6	-22 06 20	0.303	0.006	272.2	
2013	98-57	11.0	13 09 44.5	-09 51 02	13 12 22.3	-10 07 07	0.262	0.017	151.2	
2014	101-08	17.0	13 10 05.0	-23 05 34	13 12 46.5	-23 21 31	0.302	0.008	256.5	
2015	97-53	17.0	13 10 11.5	-29 59 03	13 12 56.1	-30 15 01	0.295	0.010	252.6	
2016	101-07	17.0	13 10 18.6	-21 11 55	13 12 59.2	-21 27 53	0.341	0.008	256.1	
2017	97-54	15.5	13 10 23.3	-29 48 34	13 13 07.7	-30 04 32	0.334	0.011	254.4	
2018	98-59	16.5	13 10 33.1	-07 26 13	13 13 09.1	-07 42 16	0.259	0.010	222.0	
2019	98-60	16.5	13 10 33.6	-07 26 05	13 13 09.6	-07 42 09	0.263	0.010	216.9	
2020	101-09	16.0	13 10 37.0	-19 04 52	13 13 17.4	-19 20 38	0.220	0.010	312.0	
2021	100-14	16.5	13 10 44.8	-18 10 42	13 13 25.7	-18 26 45	0.218	0.010	155.2	
2022	98-61	15.0	13 10 50.9	-06 37 39	13 13 26.6	-06 53 30	0.175	0.010	283.2	
2023	100-15	15.5	13 11 17.5	-15 16 04	13 13 55.7	-15 31 57	0.378	0.008	269.0	
2024	98-63	15.5	13 11 18.7	-05 39 29	13 13 54.2	-05 55 28	0.198	0.011	220.6	
2025	100-19	16.5	13 11 29.4	-16 20 19	13 14 09.8	-16 36 18	0.186	0.010	135.6	
2026	100-21	17.0	13 11 34.8	-17 38 13	13 14 16.3	-17 54 22	0.449	0.010	138.8	
2027	100-22	18.5	13 11 49.1	-14 08 44	13 14 27.3	-14 24 32	0.259	0.008	286.8	
2028	98-64	16.0	13 11 50.6	-07 12 08	13 14 26.5	-07 27 57	0.169	0.009	287.0	
2029	101-16	15.5	13 12 57.1	-21 46 27	13 15 39.8	-22 02 24	0.180	0.011	141.3	
2030	100-23	16.0	13 13 04.0	-16 09 23	13 15 43.2	-16 25 23	0.287	0.010	228.2	
2031	101-27	12.0	13 15 28.4	-22 09 21	13 18 10.6	-22 25 10	0.166	0.013	253.4	
2032	100-30	16.0	13 16 23.1	-14 57 52	13 19 03.2	-15 13 52	0.313	0.009	161.6	
2033	101-30	15.0	13 16 33.8	-21 34 59	13 19 15.8	-21 50 44	0.175	0.008	269.1	
2034	101-31	17.0	13 16 42.1	-21 31 47	13 19 24.8	-21 47 55	0.458	0.007	177.2	
2035	101-29	18.0	13 16 48.2	-19 29 11	13 19 29.2	-19 45 04	0.262	0.008	229.6	
2036	100-31	17.5	13 17 19.1	-16 23 12	13 19 58.9	-16 38 57	0.190	0.007	266.0	
2037	101-34	17.0	13 17 30.3	-18 36 53	13 20 11.2	-18 52 38	0.161	0.008	258.5	
2038	101-37	12.0	13 17 40.7	-19 47 57	13 20 23.0	-20 03 47	0.171	0.015	135.8	
2039	100-33	10.5	13 17 56.4	-17 43 29	13 20 36.8	-17 59 07	0.222	0.017	295.8	
2040	100-34	16.0	13 17 58.9	-16 14 47	13 20 38.7	-16 30 32	0.206	0.009	255.7	
2041	101-38	15.5	13 18 01.3	-21 17 58	13 20 43.6	-21 33 36	0.155	0.010	308.9	
2042	101-39	16.5	13 18 26.8	-21 42 22	13 21 09.2	-21 57 57	0.223	0.010	311.6	
2043	100-36	16.5	13 19 03.6	-16 28 36	13 21 43.5	-16 44 17	0.196	0.007	270.2	

Table 2. continued

WT	Loc.	mg	R.A. (1950.0)	DEC.	R.A. (2000.0)	DEC.	P.M.	E.	P.A.	Rem.
			h m s	o ′ ″	h m s	o ′ ″	″	″	o	
2044	101-41	17.0	13 19 09.3	-21 16 32	13 21 51.5	-21 32 13	0.161	0.007	268.0	
2045	100-37	16.0	13 19 15.1	-14 08 35	13 21 54.1	-14 24 10	0.221	0.011	301.0	
2046	101-44	18.0	13 19 50.5	-19 48 45	13 22 32.0	-20 04 33	0.268	0.008	321.0	
2047	101-45	17.0	13 20 07.9	-21 51 25	13 22 50.2	-22 07 12	0.263	0.009	235.2	
2048	101-48	17.5	13 20 47.5	-20 15 01	13 23 28.5	-20 30 42	0.406	0.006	263.2	
2049	101-53	15.5	13 22 34.2	-20 33 51	13 25 16.0	-20 49 26	0.284	0.008	271.4	
2050	101-55	17.0	13 23 14.8	-19 40 19	13 25 56.9	-19 56 02	0.193	0.009	208.3	
2051	101-58	16.0	13 24 23.3	-21 40 16	13 27 06.6	-21 55 57	0.176	0.010	207.0	
2052	101-59	10.0	13 24 42.2	-21 23 47	13 27 25.0	-21 39 20	0.187	0.013	266.4	
2053	101-60	15.0	13 24 51.7	-21 24 25	13 27 34.5	-21 39 58	0.197	0.008	269.8	
2054	101-62	16.5	13 25 42.9	-22 08 34	13 28 26.2	-22 24 05	0.191	0.007	268.9	
2055	101-63	14.5	13 25 47.9	-22 50 19	13 28 33.0	-23 05 55	0.263	0.011	115.6	