New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Rafael Caballero

Agrupación Astronómica Hubble,
Martos, Jaén, Spain

Email: rafa@sip.ucm.es

Abstract: This paper presents 310 new common proper-motion pairs obtained by data mining the recently released UCAC-3 in positive declinations. The pairs were selected by using statistical criteria and have been confirmed by checking the photographic plates.

Introduction

The purpose of this research was to find new common proper-motion pairs (CPMPs from now on) in the UCAC3 catalog (Zacharias N. et al., 2009). CPMPs are pairs of stars where the two components share noticeable and very similar proper motion. Although not all the CPMPs need to correspond to orbiting binaries, their similar motion is a first clue that points out these pairs as possible candidates to true binaries.

The UCAC3 catalog extends the previous version UCAC2 (Zacharias N. et al., 2004) by covering the complete sky and improving some aspects, such as photometry and proper motion data. In 2004, J. Greaves data-mined UCAC2 finding 705 uncataloged pairs. The goal of this work was to check if the improvements in the new release would allow the detection of new pairs.

First list of candidates

The process was started by selecting an initial subset of UCAC3. The conditions were:

- Positive declination, thus restricting the search to the northern hemisphere.
- Proper motion > 50 mas/yr. This is one of the Halbwachs' criteria (Halbwachs, 1986).
- UCAC fit model (579-642nm) magnitude, also called f.mag in VizieR, < 22. Our goal was finding new pairs with optical magnitude V < 15, but UCAC3 does not include V. The condition f.mag <22 was obtained after browsing a subset of more than 100 000 arbitrary stars from UCAC3 and finding their corresponding V magnitudes in the Guide Star Catalog, version 2.3.2 (GSC 2.3) (Lasker B. et al. 2008). It was found that the condition f.mag<22 in UCAC3 was sufficient for ensuring V<15 in GSC 2.3.

The resulting set consisted of more than one million stars. From this subset of UCAC3 we formed our initial set of candidate pairs considering every star A such that it was possible to find another star B verifying:

- Separation between 5 and 122 seconds.
- Proper motions differences did not exceed 30 mas/yr neither in RA nor in Dec.
- Both stars with optical magnitude V<15 (V obtained from GSC 2.3).

The first point ensured that the two stars were neither too far nor too close. Although close pairs are especially interesting, they are very difficult to recognize in the photographic plates. Therefore an arbitrary limit of 5 seconds was established. The second condition discarded pairs with very different proper motions, while the last point checked that our initial constraint of V<15 was satisfied. Moreover, all the stars lying in a radius of 60 seconds of any primary

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star in the WDS (Washington Double Star Catalog, Mason B. et al, 2003) were removed to avoid duplications. A list of 2100 pairs was obtained after this initial selection.

Halbwachs' criteria

The set of candidates was reduced by considering the three criteria proposed by Halbwachs for distinguishing physical and optical pairs from their proper motion:

$$(\mu_1 - \mu_2)^2 < -2\,(\sigma_1^2 + \sigma_2^2) \ln (0.05)$$
$$|\mu_1|,\ |\mu_2| \geq 50\ \text{mas/yr}$$
$$\rho/|\mu_1|,\ \rho/|\mu_2| < 1000\ \text{yr}$$

where μ_1, μ_2 are the two proper motion vectors, σ_i is the mean error of the projections on the coordinate axes of μ_i, and ρ is the angular separation of the two stars. The first condition indicates whether the hypothesis $\mu_1 = \mu_2$ is admissible with a 95% confidence considering the given errors σ_1 and σ_2. This criterion selected 1600 out of the initial 2100 pairs. The second condition establishes that the proper motion must be ≥ 50 mas/yr for both components of the pair. This condition was satisfied by all the pairs in our list because this was an initial constraint. The third condition is an empirical way of relating the separation and the modulus of the proper motion vector. After applying the third condition, 1060 pairs remained as CPMP candidates, including many pairs with large proper motion differences. Therefore an additional condition was considered, keeping only those pairs whose proper motion difference in each coordinate was either smaller than 10 mas/yr, or smaller than the 10% of the minimum of the two values. This filter reduced the number of pairs to 900 candidates.

Reduced Proper Motion Discriminator

The Reduced Proper Motion (RPM) diagram and its associated RPM discriminator h were introduced by Salim & Gould (2003) and have been proposed for discriminating binaries in Chanamé and Gould (2004). The discriminator h is defined as $h = V_{RPM} - 3.1\,(V\text{-}J) - 1.47|\sin b| - 2.73$, with and b the Galactic latitude of the star and $V_{RPM} = V + 5 \log m$, m the star proper motion. According to this discriminator, stars are classified as disk (or main sequence, MS) if $h < 0$, as halo (or subdwarf, SD) if $0 < h < 5.15$ and as white dwarf (WD) if $h > 5.15$. The idea is that both components of a binary must have similar metallicities and proper motions, although possibly different luminosities. The criterion used in Chanamé and Gould (2003) is that the members of a pair are considered unrelated when:

1. the pair is composed of one MS and one SD.
2. the pair is composed of two MS or two SD stars, but the line connecting the two points in the RPM diagram is not approximately parallel to their corresponding MS or SD track for disk and halo binaries (Figure 12 of Salim and Gould, 2003).

Applying the first item reduced the set of candidates from 900 to 841. It is worth noticing that all the pairs kept after this filter verified that both components were MS. The second point didn't exclude any other pair: the few cases where the lines were clearly not parallel to their corresponding track (red lines in the Figure 1) corresponded to pairs already discarded by the first item. In some cases the length of the lines connecting the points was too short to discriminate clearly whether the line was correctly oriented.

Checking the photographic plates

Finally each of the 841 candidates was introduced in VizieR (Allende & Dambert 1999) looking for WDS stars in a radius of 10 minutes. The idea was that some of these new pairs could be actually WDS neglected doubles
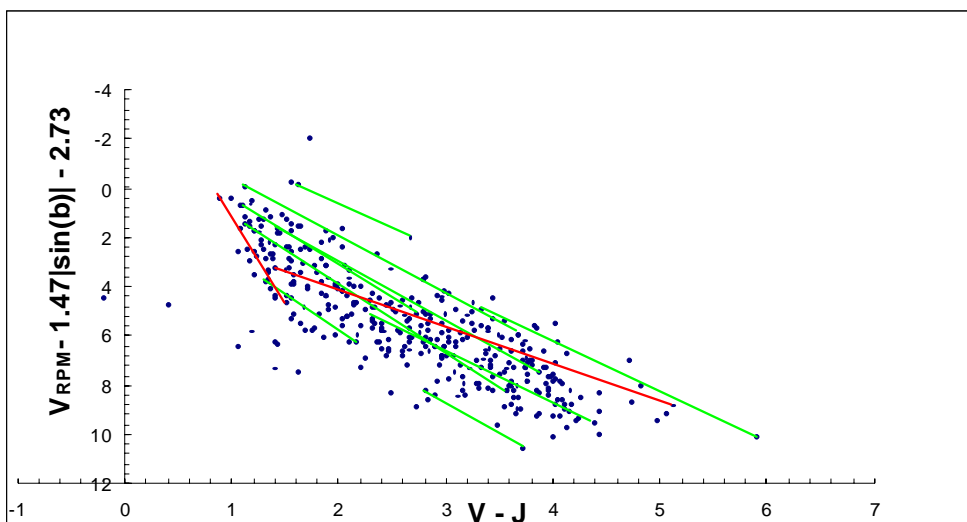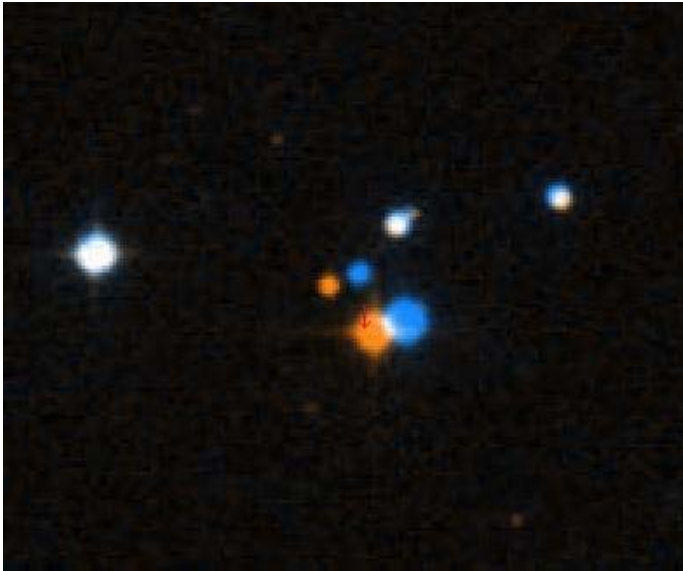

Figure 1: RPM diagram including some of the lines connecting the new CPMPs

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Figure 2: ALADIN composite image showing the movement of the pair 01 50 28.06 +18 17 46.5 between 1954 (blue) and 1991 (red)

with erroneous coordinates. Each WDS pair found by this query was examined individually. In most of the cases, the data of the WDS pairs found had no relation with the CPMPs extracted from UCAC3, but 9 WDS pairs matched quite well the astrometry of pairs in this set. These pairs corresponded to old Luyten pairs with only one observation in WDS: LDS1922, LDS3573, LDS3664, LDS4604, LDS4763, LDS5946, LDS1049, LDS4868, and LDS1014. The corresponding pairs in our set were removed.

The rest of the pairs were examined individually using the photographic plates of the first and second Palomar Observatory Sky Surveys (Reid I.N. et al., 1991) available at ALADIN (Bonnarel, F. et al., 2000). For every pair, POSSI and POSSII images were selected and combined, either by the RGB or by the blink utilities available at ALADIN, observing whether two stars with noticeable movement and the same astrometry data really existed in the expected position. See Figure 2 for an example. All the uncertain cases were discarded, leaving a final set of 310 systems. Most of the fake CPMPs corresponded to positions in crowded areas, where the PM data stored in the catalogs is often erroneous.

Results

The main result of this research was a set of 310 new CPMPs which can be found in Table 1. The first two columns of the table are the UCAC3 identifiers of the two components of each pair. The list includes

pairs with the following characteristics:
- Optical magnitudes ranging from 6.54 to 15.
- Proper motion between 50 and 259 mas/yr.
- Separations between 6.8 and 122 seconds.

Among the most remarkable systems of the list are:
- The bright pairs 03 29 50.60+50 10 11.7, with mags. 8.89/10.96, and 03 45 22.39+23 12 17.4, with mags. 8.48/10.81, located less than 1 degree from Alpha Persei and in the limit of the Pleiades star cluster, respectively.
- The pairs 14 59 32.92+45 27 51.0 with mags 8.7/10.76, and 21 41 01.38+11 15 46.9, with mags. 9.32/12.62. According to Hipparcos (Perryman 1997) the two pairs are at a distance of 105 and 107 light-years, respectively. These are the closest pairs to our solar system that can be found in the list.
- The pair 09 50 37.83+39 50 19.1. The secondary looks clearly elongated in the plates, showing that it is likely a triple system. However the third star is not in the catalogs and the system is listed here as double.
- The triple 12 28 03.64 +59 48 39.8. The B component was found in the photographic plates while checking the pair A-C. Although its PM is not in the catalogs this component seems to move together with the A-C system and it has been included in the list.

As explained above, the photometry was obtained from the GSC 2.3 catalog. For the astrometry the UCAC3 data seemed the natural choice, but there was a problem: the UCAC3 registered epochs were often very different for the two pair components, or even different in RA and Dec for the same star. While this poses no problem for stars will small PM, in our case it could result in erroneous astrometry. Therefore, in those cases the astrometry from the 2MASS catalog was preferred. It is worth noticing that for every pair in the list, the dates for both components in the 2MASS catalog were usually the same and that when this was not the case, the values were so close that choosing one or another didn't affect the date displayed in the table. The data of Table 1 is complemented by the list of proper motions and errors in Table 2. Observe that in a few cases UCAC3 does not provide error bounds for the PM data.

Conclusions and Future Work

The release of UCAC3 provides an interesting new source for finding CPMPs not included in the WDS.

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However one must be careful because indiscriminate data mining would produce a large and almost useless set of mostly unrelated stars. The different criteria fulfilled by the pairs included in this paper indicate that they could be physical pairs. It also must be noticed that the data mining process cannot replace the final and time-consuming phase of checking the photographic plates.

Future work can be seen in two different directions. First, we plan to image and study in detail the new pairs, in order to discriminate whether they constitute physical systems. Second, similar techniques can be applied to other catalogs, looking for other uncataloged CPMPs.

Acknowledgements

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Table 1: Measures of the new pairs

3UC Id.		RA DEC			MAGS	PA	SEP	DATE	NOTES
280-003272	280-003273	00 10 45.61 +49 44 41.0	AB		13.51 14.80	1.34	53.97	1998.848	(2)
298-007963	298-007968	00 26 46.93 +58 48 57.0	AB		13.06 14.65	172.82	40.17	1998.985	(2)
303-010568	303-010612	00 27 06.72 +61 09 33.7	AB		12.71 13.81	130.33	52.72	2000.765	(2)
309-009942	309-009948	00 36 41.69 +64 22 30.8	AB		12.07 12.38	31.66	19.72	1999.869	(2)
229-004263	229-004266	00 50 30.30 +24 06 27.3	AB		14.06 14.81	91.29	40.12	1997.827	(2)
248-005615	248-005622	00 52 21.03 +33 54 41.4	AB		10.55 13.63	112.05	50.07	1997.917	(2)
301-024034	301-024030	00 57 23.93 +60 26 50.7	AB		13.89 14.15	261.67	6.81	2000.888	(2)
201-003358	201-003356	01 01 27.70 +10 23 55.6	AB		11.85 12.45	201.60	21.67	2000.748	(2)
287-018883	287-018881	01 01 40.35 +53 29 35.0	AB		13.91 14.35	350.26	19.13	1998.916	(2)
252-008010	252-008007	01 06 16.87 +35 54 16.1	AB		12.55 13.87	285.16	19.65	2000.795	(2)
232-005667	232-005670	01 07 38.59 +25 57 28.2	AB		10.67 12.71	24.98	62.60	1997.829	(2)
252-008880	252-008881	01 13 45.71 +35 41 31.7	AB		13.70 14.91	93.28	16.05	1999.968	(2)
284-021513	284-021528	01 15 53.09 +51 52 50.2	AB		13.46 13.52	142.61	43.54	1998.916	(2)
218-005470	218-005474	01 19 31.32 +18 49 58.0	AB		11.75 11.86	94.41	78.80	1997.780	(2)
309-021190	309-021197	01 23 28.66 +64 11 44.3	AB		13.64 14.10	91.28	14.57	1999.020	(2)
295-035708	295-035716	01 31 51.10 +57 08 48.2	AB		14.33 14.34	100.13	22.07	1999.790	(2)
255-012371	255-012363	01 39 45.48 +37 10 01.6	AB		11.63 13.32	279.14	43.92	1998.837	(2)
233-008358	233-008355	01 39 59.19 +26 11 08.1	AB		11.22 13.65	231.97	8.14	2001.600	(1)
206-005846	206-005847	01 41 19.51 +12 45 42.9	AB		12.00 14.35	147.67	31.42	1998.717	(2)
255-013451	255-013447	01 47 45.90 +37 24 14.1	AB		11.07 12.76	295.26	15.02	1997.884	(2)
217-007337	217-007339	01 50 28.06 +18 17 46.5	AB		11.02 14.36	44.36	18.79	2000.880	(1)
249-011974	248-011597	01 51 24.54 +34 00 18.3	AB		11.02 14.52	232.70	85.29	1997.859	(2)
245-012584	245-012583	01 57 34.70 +32 02 08.2	AB		9.00 13.37	316.60	19.26	1999.845	(2)
242-011968	242-011961	02 02 06.27 +30 31 17.1	AB		12.30 12.30	215.49	53.05	1997.955	(2)
251-014545	251-014550	02 02 52.89 +35 25 21.4	AB		12.46 13.97	86.44	15.01	1997.955	(2)
194-006325	194-006331	02 03 25.89 +06 48 01.0	AB		13.74 14.37	58.42	110.76	2000.742	(2)
277-028062	277-028053	02 03 45.49 +48 22 57.0	AB		13.37 14.56	299.61	20.02	1998.927	(2)
274-027335	274-027323	02 04 18.62 +46 47 51.0	AB		10.61 14.10	252.96	28.44	1998.823	(2)
186-006247	186-006244	02 06 17.34 +02 37 41.2	AB		9.90 12.24	308.88	67.19	2000.907	(2)
286-036701	286-036693	02 07 18.36 +52 45 22.8	AB		11.40 11.88	237.79	14.55	1998.927	(2)
284-040160	284-040134	02 16 49.60 +51 45 44.4	AB		11.90 13.35	287.65	34.84	1998.927	(2)
220-009171	220-009172	02 18 01.44 +19 57 39.3	AB		11.34 11.65	6.96	76.02	1997.802	(2)
293-049864	293-049847	02 18 02.11 +56 16 00.9	AB		11.76 14.01	321.45	29.87	1999.782	(2),(5)
208-008351	208-008353	02 20 08.44 +13 33 29.8	AB		12.09 12.88	85.92	28.38	1997.710	(2)
184-006787	184-006788	02 20 26.07 +01 35 21.5	AB		9.04 14.58	156.25	52.46	2000.658	(2)
237-012990	237-012989	02 21 51.38 +28 27 34.1	AB		12.41 14.57	194.14	25.32	1997.854	(2)
263-021491	263-021488	02 24 05.49 +41 16 31.4	AB		12.86 14.20	186.16	18.82	1998.774	(2)
308-042385	308-042390	02 24 18.72 +63 42 57.9	AB		13.91 14.91	155.99	11.22	1999.012	(2)
255-018971	255-018973	02 24 53.12 +37 02 49.0	AB		11.43 14.66	17.35	34.52	1998.774	(2)
233-012322	233-012320	02 25 04.44 +26 12 05.5	AB		9.15 12.53	339.02	41.4	1997.854	(2)
302-052915	302-052898	02 25 55.49 +60 48 59.7	AB		10.85 14.98	285.67	62.15	1999.012	(2)
260-022902	260-022889	02 36 02.73 +39 56 41.0	AB		12.82 14.16	292.99	35.63	1998.782	(2)
290-055108	290-055088	02 39 17.74 +54 34 58.0	AB		12.70 12.97	330.72	41.17	1997.772	(2)
234-014522	234-014523	02 47 47.16 +26 35 05.0	AB		11.76 11.80	58.41	10.36	1999.897	(2)
262-026037	262-026040	02 47 53.43 +40 55 56.7	AB		9.48 14.20	5.91	19.08	1999.755	(2)
250-022229	250-022225	03 06 13.04 +34 57 01.3	AB		10.44 14.80	246.99	21.43	1998.032	(2)
250-022739	250-022741	03 09 28.75 +34 37 09.7	AB		12.18 13.55	24.97	28.06	1998.032	(2)
258-028892	258-028868	03 13 36.18 +38 53 59.3	AB		13.80 13.86	273.54	65.77	1998.826	(2)
246-022344	246-022351	03 22 18.85 +32 36 40.7	AB		10.24 11.20	108.28	52.61	1998.054	(2)

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Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC		MAGS	PA	SEP	DATE	NOTES
201-011079	201-011074	03 24 32.01 +10 02 41.3	AB	12.14 12.86	261.17	51.69	1999.935	(2)
302-064333	302-064334	03 29 43.21 +60 30 14.4	AB	11.46 12.35	15.82	19.51	1999.812	(2)
188-010836	188-010828	03 29 44.38 +03 55 39.4	AB	10.82 12.70	266.71	94.15	2000.110	(2)
281-056701	281-056707	03 29 50.60 +50 10 11.7	AB	8.89 10.96	162.71	28.82	1999.998	(2)
244-021306	244-021305	03 30 27.77 +31 52 57.0	AB	12.70 13.30	203.90	14.77	1998.059	(2)
213-013620	213-013618	03 32 15.17 +16 13 02.6	AB	10.97 12.33	228.89	19.66	1997.745	(2)
246-023955	246-023953	03 37 12.45 +32 51 26.3	AB	13.14 14.58	244.69	26.22	1998.761	(2)
262-039079	262-039073	03 44 44.75 +40 41 50.7	AB	13.47 14.27	335.88	37.57	1998.777	(2)
227-017613	227-017618	03 45 22.39 +23 12 17.4	AB	8.48 10.81	140.42	57.44	1998.859	(2)
251-030086	251-030085	03 49 26.17 +35 26 59.2	AB	12.99 13.88	187.74	10.6	1998.067	(2)
190-012141	190-012140	03 49 43.99 +04 38 09.8	AB	13.54 13.77	321.42	19.24	2000.050	(2)
181-012106	181-012102	03 53 04.15 +00 02 49.9	AB	12.57 14.06	268.96	58.72	2000.126	(2)
258-037122	258-037117	03 54 40.27 +38 40 31.1	AB	10.41 14.64	300.62	28.74	2000.022	(2)
181-012215	181-012214	03 55 04.67 +00 03 07.8	AB	12.08 14.07	323.00	23.53	2000.058	(2)
236-023146	236-023150	03 56 05.91 +27 57 58.9	AB	12.87 13.71	130.41	42.85	1998.785	(2)
331-015669	331-015664	03 57 55.66 +75 16 54.9	AB	10.41 14.72	232.90	25.59	2000.751	(2)
300-069680	300-069678	03 59 57.69 +59 41 38.5	AB	12.57 12.77	186.14	13.38	1999.034	(2)
278-058643	278-058647	04 01 27.42 +48 45 44.8	AB	9.77 11.46	173.93	25.24	1999.782	(2)
189-013340	189-013334	04 03 27.83 +04 17 31.0	AB	12.34 12.35	293.09	46.87	2000.060	(2)
296-073651	296-073661	04 07 06.83 +57 56 17.2	AB	12.76 13.60	68.61	17.77	1999.034	(2)
199-013874	199-013873	04 07 39.45 +09 29 38.5	AB	11.28 13.66	222.47	26.11	1999.946	(2)
187-014934	186-015157	04 30 40.93 +03 00 04.8	AB	11.48 13.32	101.50	49.00	2000.069	(2)
222-022240	222-022236	04 37 06.92 +20 43 08.6	AB	13.86 14.80	262.19	24.57	1998.755	(2)
310-047623	310-047589	04 42 58.08 +64 38 21.2	AB	12.84 13.11	245.23	95.34	1999.001	(2)
270-067345	270-067339	04 44 33.54 +44 53 14.4	AB	13.08 13.91	208.78	23.03	1999.774	(2)
270-067666	270-067672	04 45 37.72 +44 43 42.8	AB	12.03 12.69	116.79	18.53	1999.774	(2)
217-024477	216-024264	04 56 29.45 +18 00 08.6	AB	9.09 14.26	105.05	34.59	1997.838	(2)
263-061067	263-061063	05 00 22.97 +41 04 56.6	AB	12.55 12.68	318.81	15.58	1998.766	(2)
272-070757	272-070741	05 04 16.19 +45 46 45.7	AB	6.54 12.73	321.85	44.46	1999.853	(2)
295-089559	295-089556	05 05 33.30 +57 09 32.8	AB	9.83 14.51	351.11	35.97	1998.990	(2)
245-041142	245-041147	05 10 43.84 +32 29 13.4	AB	11.55 11.79	130.12	29.45	1999.905	(2)
210-025818	210-025817	05 17 43.17 +14 43 01.9	AB	10.41 12.39	190.02	23.01	1997.781	(2)
219-029978	219-029979	05 24 58.51 +19 11 34.2	AB	10.10 11.17	175.40	18.39	1997.846	(2)
199-026133	199-026131	05 26 13.92 +09 06 25.6	AB	12.67 13.29	334.46	17.41	1999.933	(2)
336-016186	336-016187	05 31 08.04 +77 52 48.0	AB	10.09 11.40	170.61	19.49	2000.751	(2)
216-037683	216-037704	05 39 41.70 +17 41 51.8	AB	11.41 13.28	77.34	34.95	1998.744	(2)
240-048792	240-048796	05 41 11.08 +29 39 01.1	AB	11.45 14.87	4.88	41.31	1997.961	(2)
247-058491	247-058509	05 46 01.56 +33 16 21.2	AB	12.07 13.83	120.40	25.75	1998.892	(2)
245-054095	245-054102	05 47 28.21 +32 19 52.0	AB	12.43 13.51	75.30	11.05	1998.892	(2)
204-036789	204-036783	05 58 35.86 +11 43 55.6	AB	10.74 11.65	336.19	18.57	1999.714	(2)
265-092983	265-092978	06 00 23.34 +42 06 29.9	AB	11.96 12.75	227.54	11.48	1998.843	(2)
343-011292	343-011297	06 00 32.43 +81 24 20.1	AB	13.00 13.23	48.27	14.36	1999.163	(2)
187-030817	187-030850	06 01 07.98 +03 21 54.4	AB	11.74 13.20	75.47	88.76	1999.801	(2)
259-078347	259-078346	06 06 36.35 +39 05 43.9	AB	8.79 13.04	197.96	22.82	1998.799	(2)
220-056444	220-056453	06 27 09.33 +19 32 53.2	AB	11.67 12.42	163.56	19.58	2000.855	(2)
193-049763	193-049768	06 37 00.94 +06 21 56.2	AB	12.99 13.80	119.36	9.42	1999.815	(2)
340-016131	340-016137	06 38 07.35 +79 34 46.5	AB	12.95 13.19	118.67	20.26	1999.889	(2)
244-072452	245-076984	06 40 48.76 +31 59 22.4	AB	10.11 10.32	37.40	55.56	1998.892	(2)
267-107336	267-107337	06 42 19.75 +43 14 53.4	AB	13.22 14.63	170.10	12.25	1999.788	(2)

Table continued on next page.

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC			MAGS	PA	SEP	DATE	NOTES
259-089076	259-089075	06 43 08.90 +39 20 44.9	AB		10.70 12.76	349.77	56.33	2000.746	(2)
290-096662	290-096656	06 55 45.43 +54 33 08.0	AB		10.26 11.77	316.38	35.63	1999.012	(2)
255-084186	255-084196	06 55 52.82 +37 15 53.1	AB		9.17 12.24	90.12	32.15	1998.84	(2)
254-084271	254-084280	06 57 05.49 +36 59 34.7	AB		12.85 13.36	148.92	26.84	1998.84	(2)
277-099321	277-099327	06 57 50.03 +48 25 41.0	AB		10.43 12.93	57.69	33.17	1998.947	(2)
252-083088	252-083084	06 58 06.94 +35 34 42.7	AB		12.42 13.06	224.66	14.56	1998.163	(2)
276-102182	276-102187	06 58 43.68 +47 38 58.3	AB		11.43 11.50	147.38	20.59	1998.846	(2)
216-080787	216-080774	07 03 38.09 +17 51 30.1	AB		10.59 13.34	240.02	23.51	1997.876	(2)
277-100331	277-100334	07 05 42.93 +48 27 02.2	AB		9.47 10.74	59.48	19.82	1998.947	(2)
273-103418	273-103431	07 09 42.68 +46 01 32.8	AB		12.92 12.93	71.77	35.07	1999.971	(2)
188-062178	188-062169	07 13 19.74 +03 58 47.3	AB		10.11 14.97	224.44	22.04	1999.946	(2)
193-073132	193-073125	07 15 04.43 +06 04 50.0	AB		8.97 12.26	252.5	12.92	1999.924	(2)
203-082532	203-082540	07 16 13.12 +11 21 45.4	AB		13.31 14.57	30.64	31.94	1999.924	(2)
249-087859	249-087851	07 17 19.45 +34 06 45.0	AB		10.20 12.69	214.61	27.75	1999.91	(2)
188-066234	188-066237	07 22 06.48 +03 35 10.4	AB		11.49 13.62	1.77	64.97	1999.938	(2)
255-089557	255-089559	07 27 26.88 +37 27 33.0	AB		12.38 12.81	76.22	9.34	1998.286	(2)
219-082189	219-082195	07 28 50.24 +19 03 02.4	AB		10.61 14.44	141.44	28.93	1997.923	(2)
200-096552	200-096560	07 34 59.58 +09 54 44.0	AB		13.16 14.37	22.34	55.76	1999.889	(2)
226-087969	226-087971	07 35 58.68 +22 36 21.7	AB		12.50 12.73	144.18	24.25	1997.926	(2)
344-012930	344-012929	07 38 12.91 +81 35 05.5	AB		11.52 13.92	190.29	28.95	1999.157	(2)
244-087452	244-087460	07 47 10.14 +31 56 15.4	AB		8.61 13.34	125.13	60.73	1998.172	(2)
205-097079	205-097077	08 14 32.09 +12 16 58.8	AB		13.19 14.66	345.51	32.1	1997.841	(2)
278-108421	278-108420	08 25 33.13 +48 41 24.3	AB		12.90 13.57	199.12	8.52	1999.818	(2)
200-109275	200-109281	08 28 55.61 +09 40 23.7	AB		14.62 14.80	95.32	27.54	2000.181	(2)
295-109915	295-109911	08 34 16.97 +57 28 34.0	AB		11.91 13.57	251.5	23.23	2000.012	(2)
190-091842	190-091831	08 34 54.35 +04 50 48.6	AB		9.94 12.62	265.27	27.29	2000.888	(2)
229-098927	229-098931	08 35 26.86 +24 15 39.4	AB		11.37 13.02	92.11	32.93	1998.092	(2)
263-111338	262-112210	08 38 29.14 +41 00 01.6	AB		10.45 12.64	160.45	50.95	1998.253	(2)
198-111124	198-111123	08 41 09.36 +08 36 57.2	AB		12.56 12.72	281.27	21	2000.181	(2)
273-111192	273-111191	08 45 23.93 +46 10 15.8	AB		7.97 11.67	358.92	32.32	1998.925	(2)
202-105592	202-105595	08 45 26.81 +10 54 46.7	AB		11.69 14.88	60.35	13.62	2000.116	(2)
222-097774	222-097773	08 46 30.68 +20 51 22.0	AB		13.41 13.94	229.78	16.9	1998.81	(2)
251-097276	251-097275	08 46 52.62 +35 21 02.2	AB		13.03 13.07	325.64	13.89	1998.194	(2)
226-099172	226-099166	09 00 19.56 +22 35 08.7	AB		10.90 14.08	228.36	47.72	1998.849	(2)
202-107142	202-107141	09 00 54.51 +10 34 41.0	AB		11.41 14.49	352.14	11.54	2000.14	(2)
210-105987	210-105982	09 04 06.68 +14 35 06.5	AB		12.58 12.91	250.99	47.85	2000.252	(2)
191-097202	191-097204	09 04 35.96 +05 12 21.2	AB		12.87 14.13	155.00	34.3	2000.083	(2)
325-041277	325-041278	09 19 27.20 +72 22 06.1	AB		12.83 14.33	178.21	50.2	1999.31	(2)
278-111047	278-111046	09 19 59.40 +48 39 08.1	AB		12.37 13.87	325.17	19.09	2000.004	(2)
278-111388	278-111390	09 28 22.77 +48 47 09.7	AB		11.15 14.56	32.33	57.93	1998.982	(2)
261-108447	261-108445	09 36 54.52 +40 24 34.6	AB		13.89 14.05	340.03	29.24	1998.256	(2)
324-042285	324-042282	09 42 32.31 +71 53 25.0	AB		13.65 14.43	279.49	13.83	1999.168	(2)
212-108227	212-108230	09 45 26.05 +15 40 39.8	AB		10.13 12.31	69.32	35	1997.912	(2)
280-113728	280-113721	09 46 02.03 +49 51 32.5	AB		11.83 12.33	250.47	26.86	1999.859	(2)
251-100549	251-100555	09 47 02.35 +35 13 09.7	AB		10.14 13.14	55.89	65.42	1998.183	(2)
331-029543	331-029544	09 47 43.55 +75 03 42.3	AB		11.12 12.12	2.22	30.64	1999.239	(2)
318-045950	318-045951	09 48 37.51 +68 50 28.8	AB		13.68 14.16	63.39	20.61	1999.168	(2)
235-100239	235-100241	09 49 02.94 +27 00 08.9	AB		13.98 14.32	16.58	13.47	1999.078	(2)
260-109225	260-109227	09 50 37.83 +39 50 19.1	AB		12.03 14.71	144.37	24.39	2002.14	(1),(4)

Table continued on next page.

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC			MAGS	PA	SEP	DATE	NOTES
251-100932	251-100934	09 55 27.79 +35 00 08.9	AB		10.74 13.40	59.42	31.29	1998.183	(2)
237-103705	237-103704	10 00 39.89 +28 10 25.1	AB		7.99 13.99	341.09	56.64	1998.914	(2)
246-103109	246-103116	10 01 25.73 +32 39 06.9	AB		11.77 14.43	72.19	48.56	1998.218	(2)
202-111786	202-111788	10 03 23.68 +10 45 15.3	AB		10.00 13.14	162.08	18.48	2000.154	(2)
202-111812	202-111815	10 03 40.98 +10 48 52.2	AB		10.91 12.84	85.05	37.51	2000.154	(2)
211-109503	211-109498	10 03 56.57 +15 26 32.9	AB		13.11 14.50	191.37	15.81	2000.913	(2)
250-099913	250-099911	10 05 20.93 +34 43 11.1	AB		12.97 14.62	221.33	47.25	1998.947	(2)
293-109929	293-109928	10 10 20.70 +56 29 12.8	AB		12.47 14.54	199.52	14.5	1999.054	(2)
260-110005	260-110003	10 10 41.16 +39 54 39.9	AB		9.51 11.31	190.34	82.78	1998.246	(2)
280-114620	280-114621	10 10 44.00 +49 51 36.2	AB		12.12 14.37	124.17	14.75	2000.17	(2)
275-116426	275-116427	10 15 17.83 +47 25 47.9	AB		12.31 13.88	52.62	47.88	1998.325	(2)
274-115424	274-115423	10 21 45.41 +46 50 55.4	AB		10.38 11.87	187.72	13.07	1999.176	(2)
289-111122	289-111120	10 29 56.31 +54 23 08.4	AB		14.48 14.60	243.00	21.68	2000.026	(2)
231-103328	231-103329	10 30 24.63 +25 14 14.5	AB		11.50 12.25	83.46	11.77	1998.164	(2)
283-109688	283-109687	10 39 01.53 +51 04 24.8	AB		10.32 14.01	294.92	17.63	1998.936	(2)
245-103671	245-103669	10 39 40.30 +32 27 07.0	AB		12.98 14.41	316.65	48.73	2001.32	(1)
282-110658	282-110661	10 42 17.65 +50 55 25.8	AB		13.32 14.50	106.14	29.63	1998.936	(2)
210-112049	210-112048	10 43 59.65 +14 44 22.0	AB		12.26 13.63	256.02	9.08	2000.296	(2)
213-107039	213-107038	10 48 17.14 +16 24 12.0	AB		11.52 11.71	353.28	11.01	1997.956	(2)
196-117811	196-117807	10 52 39.12 +07 56 01.9	AB		10.88 12.19	223.37	33.45	2000.165	(2)
197-123028	197-123030	11 18 05.63 +08 10 10.6	AB		11.35 12.21	146.94	38.05	2000.173	(2)
256-102475	256-102477	11 24 35.50 +37 52 25.1	AB		10.8 11.00	29.62	16.27	1998.281	(2)
246-106851	246-106850	11 38 57.73 +32 53 09.6	AB		12.45 13.42	270.92	34.19	2000.277	(2)
256-103103	256-103100	11 44 50.74 +37 51 19.9	AB		13.17 14.48	233.32	8.41	1998.284	(2)
198-123402	198-123405	11 45 00.99 +08 38 25.6	AB		12.12 13.39	57.62	62.42	2000.184	(2)
185-110565	185-110570	11 49 49.04 +02 21 33.5	AB		9.78 11.92	106.01	69.76	2000.116	(2)
267-128272	267-128269	12 09 44.83 +43 26 43.1	AB		12.70 13.96	346.49	59.12	2000.214	(2)
256-104117	256-104119	12 15 37.29 +37 48 55.2	AB		12.67 13.74	155.77	45.96	2000.034	(2)
252-104938	252-104939	12 16 24.44 +35 41 45.1	AB		11.73 14.92	29.32	24.91	1998.191	(2)
186-107854	186-107857	12 22 46.95 +02 46 18.2	AB		12.79 13.00	53.36	40.85	2000.151	(2)
300-106346	300-106347	12 28 03.64 +59 48 39.8	AB		10.95 ?	121.32	5.81	1999.382	(2),(3)
300-106346	300-106342	12 28 03.64 +59 48 39.8	AC		10.95 12.34	221.07	45.58	1999.382	(2),(3)
266-128982	266-128979	12 28 59.91 +42 47 03.2	AB		12.94 13.12	258.25	30.16	1999.395	(2)
187-104686	187-104685	12 29 42.14 +03 06 28.0	AB		10.93 11.18	303.98	34.48	2000.151	(2)
258-107248	258-107249	12 31 07.59 +38 36 29.3	AB		9.98 12.07	137.07	21.89	2000.283	(2)
296-112770	296-112773	12 31 12.95 +57 47 10.9	AB		13.34 14.64	37.02	78.21	1999.294	(2)
263-120077	263-120082	12 32 13.88 +41 02 44.4	AB		13.19 14.13	146.77	112.06	2000.255	(2)
343-018495	343-018496	12 42 18.18 +81 04 56.8	AB		13.12 13.54	20.54	7.16	2000.192	(2)
205-115661	205-115655	12 55 35.02 +12 18 41.9	AB		11.95 12.84	214.25	92.53	1998.063	(2)
267-129844	267-129843	13 03 03.97 +43 27 02.6	AB		11.80 12.85	185.89	65.4	1999.1	(2)
209-116522	209-116518	13 05 02.91 +14 29 58.2	AB		11.39 12.84	205.83	47.82	1998.063	(2)
290-112249	290-112248	13 05 22.89 +54 52 24.1	AB		13.20 14.41	183.91	43.33	1999.193	(2)
305-095847	305-095846	13 16 48.29 +62 22 03.0	AB		11.45 12.17	332.07	71.51	1999.161	(2)
257-108988	257-108990	13 19 56.59 +38 22 08.6	AB		8.34 11.33	52.61	61.93	1998.292	(2)
206-121674	206-121675	13 53 44.49 +12 40 48.4	AB		8.64 13.35	144.64	20.8	1998.333	(2)
204-119835	204-119837	13 56 20.38 +11 48 04.2	AB		11.01 12.55	127.45	45.49	2000.233	(2)
312-058195	312-058197	13 57 43.05 +65 44 22.5	AB		13.04 13.72	98.89	16.18	1999.343	(2)
188-108413	188-108415	14 00 08.33 +03 56 13.2	AB		10.92 11.87	138.43	21.54	2000.187	(2)
259-114654	259-114653	14 00 22.48 +39 24 27.2	AB		13.15 13.43	212.96	32.55	1998.298	(2)

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Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC		MAGS	PA	SEP	DATE	NOTES
219-108294	219-108297	14 05 06.65 +19 17 18.8	AB	11.94 13.53	46.44	20.98	1998.369	(2)
202-124288	202-124290	14 14 32.50 +10 44 15.4	AB	11.68 12.13	84.94	13.3	2000.247	(2)
265-129304	265-129305	14 16 32.73 +42 09 06.8	AB	11.36 12.63	158.41	41.29	1998.394	(2)
280-122154	280-122153	14 21 05.50 +49 42 19.9	AB	12.22 12.80	316.84	9.66	1999.39	(2)
292-113146	292-113145	14 32 41.31 +55 53 28.0	AB	12.18 12.21	192.53	15.08	2000.263	(2)
209-121233	209-121234	14 38 08.34 +14 02 58.0	AB	11.79 13.57	21.22	18.82	1998.334	(2)
221-114647	221-114652	14 41 49.15 +20 25 43.6	AB	9.90 11.96	101.47	30.46	1997.441	(2)
210-123093	210-123092	14 46 50.55 +14 53 25.7	AB	12.30 13.10	290.25	18.1	2000.012	(2)
188-112265	188-112268	14 58 38.15 +03 55 18.5	AB	10.03 14.90	65.68	38.78	2000.28	(2)
217-122110	216-122449	14 59 26.46 +18 00 06.3	AB	12.09 13.30	200.43	37.33	1997.451	(2)
271-125121	271-125119	14 59 32.92 +45 27 51.0	AB	8.70 10.76	202.94	63.11	2000.133	(2)
295-121225	295-121226	15 02 42.31 +57 06 03.1	AB	14.31 14.93	170.08	13.48	1999.155	(2)
187-114183	187-114178	15 09 18.11 +03 11 35.8	AB	11.15 14.07	313.83	47.82	2000.28	(2)
214-122862	214-122863	15 15 56.80 +16 43 10.8	AB	11.93 12.67	106.78	27.35	2000.34	(2)
267-134593	267-134594	15 18 46.24 +43 13 51.9	AB	13.51 13.90	27.76	16.2	1999.396	(2)
221-116860	221-116854	15 20 27.64 +20 12 41.0	AB	12.47 12.64	259.41	27.26	1997.452	(2)
215-126270	215-126272	15 20 37.98 +17 06 36.1	AB	13.92 14.41	167.42	48.85	2000.034	(2)
224-121847	224-121848	15 23 41.28 +21 57 36.7	AB	10.72 13.20	26.34	28.03	2000.201	(2)
293-118854	293-118849	15 23 53.87 +56 09 32.1	AB	11.49 12.02	248.07	67.96	1999.278	(2)
314-055121	314-055119	15 24 28.68 +66 55 15.1	AB	14.27 14.30	291.23	18.58	1999.437	(2)
220-116054	220-116053	15 24 35.98 +19 46 24.6	AB	9.28 12.68	220.29	39.72	2000.174	(2)
311-069564	311-069566	15 32 27.20 +65 22 19.8	AB	12.36 14.40	20.43	29.34	2000.157	(2)
257-114265	257-114261	15 33 45.19 +38 17 52.0	AB	13.37 13.52	211.16	68.48	1998.312	(2)
272-123657	272-123659	15 42 32.07 +45 32 47.5	AB	13.57 13.79	95.12	14.65	1999.193	(2)
265-133022	265-133015	15 45 35.05 +42 05 06.6	AB	13.97 14.41	253.67	60.79	1999.194	(2)
238-116855	238-116858	15 49 45.51 +28 39 13.6	AB	12.24 12.65	60.07	9.81	2000.133	(2)
192-127706	192-127707	15 51 08.44 +05 37 49.6	AB	13.73 14.35	178.03	16.56	2000.326	(2)
290-117644	290-117646	15 56 47.77 +54 59 11.2	AB	9.23 12.77	68.40	22.23	1999.303	(2)
240-119395	240-119394	16 03 51.30 +29 35 18.9	AB	11.84 14.24	318.04	28.72	1999.428	(2)
196-139380	196-139381	16 23 42.61 +07 41 49.7	AB	12.05 13.76	5.67	17.19	2000.267	(2)
233-119052	233-119051	16 26 48.10 +26 21 38.4	AB	11.95 14.94	312.16	13.17	2001.58	(1)
198-142704	198-142698	16 27 32.63 +08 31 47.4	AB	12.48 14.49	315.97	53.88	2000.392	(2)
242-119916	242-119918	16 34 29.50 +30 34 20.8	AB	12.57 14.84	51.42	31.34	1998.26	(2)
259-122290	259-122286	16 38 45.74 +39 23 20.5	AB	11.86 14.43	226.76	17.44	1998.328	(2)
209-131973	209-131972	16 39 19.65 +14 23 59.6	AB	14.35 14.63	207.03	31.55	2000.187	(2)
300-114895	300-114902	16 46 57.72 +59 54 21.4	AB	12.23 13.32	122.88	50.28	2000.171	(2)
276-129175	276-129171	16 52 06.06 +47 50 35.6	AB	12.05 14.04	272.34	11.73	1998.429	(2)
319-054492	319-054490	17 14 10.95 +69 04 01.5	AB	11.61 12.43	340.07	50.96	1999.379	(2)
190-137937	190-137938	17 18 15.11 +04 58 48.6	AB	10.20 12.11	176.88	18.56	2000.422	(2)
204-140531	204-140536	17 19 52.08 +11 55 08.3	AB	13.32 13.32	107.44	18.82	1998.164	(2)
210-140085	210-140071	17 22 28.31 +14 40 43.2	AB	8.77 11.99	225.44	77.29	1998.342	(2)
263-133587	263-133588	17 22 56.90 +41 12 35.5	AB	9.35 13.54	165.27	44.67	1998.358	(2)
260-129029	260-129034	17 29 09.19 +39 33 18.7	AB	13.26 13.58	115.02	34.97	1998.361	(2)
258-122121	258-122123	17 29 45.13 +38 41 45.2	AB	13.89 14.67	167.56	15.74	2000.193	(2)
331-039490	331-039491	17 33 46.66 +75 02 43.5	AB	13.24 14.74	1.57	13.65	1999.391	(2)
272-132906	272-132917	17 52 36.11 +45 30 55.3	AB	12.07 12.71	94.41	24.27	1998.437	(2)
214-147166	214-147157	17 54 44.23 +16 33 19.0	AB	9.12 12.09	204.68	32.61	2000.168	(2)
324-055413	324-055412	18 02 09.22 +71 50 31.8	AB	10.56 12.97	352.99	32.54	1999.377	(2)
281-134256	281-134255	18 09 26.10 +50 18 54.0	AB	11.04 11.10	322.75	13.47	2000.324	(2)

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Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC		MAGS	PA	SEP	DATE	NOTES
316-059616	316-059619	18 12 47.28 +67 37 05.1	AB	11.59 14.48	172.42	57.05	1999.434	(2)
240-137406	240-137414	18 17 02.81 +29 36 45.4	AB	9.35 11.83	66.37	48.8	1998.522	(2)
319-057207	319-057202	18 22 29.36 +69 23 40.1	AB	11.19 13.99	264.12	23.84	2000.226	(2)
272-137234	272-137222	18 24 11.43 +45 39 47.7	AB	8.91 11.75	314.27	63.57	1999.407	(2)
262-152018	262-152022	18 56 46.54 +40 38 40.5	AB	12.67 13.61	145.36	14.78	1998.391	(2)
187-186482	187-186483	18 57 21.01 +03 01 51.6	AB	13.50 14.11	179.78	19.86	1999.606	(2)
187-186544	187-186546	18 57 50.91 +03 15 14.3	AB	12.96 13.98	90.53	10.95	1999.606	(2)
297-132795	297-132778	19 11 14.90 +58 23 39.5	AB	13.42 13.60	260.17	38.42	2000.327	(2)
322-061922	322-061927	19 22 09.85 +70 50 45.4	AB	12.08 14.34	172.62	53.81	1999.432	(2)
269-173852	269-173821	19 47 27.30 +44 06 43.1	AB	11.38 13.03	252.59	47.22	1998.449	(2)
261-172811	261-172835	19 49 17.28 +40 05 24.1	AB	10.69 13.98	30.82	40.51	1998.394	(2)
216-241128	216-241058	19 49 21.88 +17 44 36.2	AB	13.20 14.33	243.92	32.03	1999.811	(2)
220-257358	220-257382	20 15 16.29 +19 37 29.5	AB	8.54 13.29	164.92	83.44	2000.704	(2)
184-251018	184-251007	20 16 44.29 +01 58 27.9	AB	13.08 15.00	250.79	25.21	2000.65	(1)
220-270707	220-270738	20 30 36.61 +19 31 44.1	AB	11.30 12.44	37.66	39.88	2000.322	(2)
185-266509	185-266514	20 41 55.13 +02 17 37.7	AB	14.06 14.59	164.14	62.85	2000.477	(2)
248-236255	248-236234	20 42 01.65 +33 49 16.5	AB	12.21 14.38	202.66	42.43	1998.76	(2)
277-185181	277-185180	20 45 24.35 +48 16 25.9	AB	8.37 11.97	181.19	17.84	1999.467	(2)
220-283672	220-283665	20 50 53.66 +19 52 44.5	AB	13.83 14.89	262.66	11.95	1999.369	(2)
241-273822	241-273849	21 07 40.74 +30 22 11.7	AB	8.79 11.10	67.20	48.11	1999.754	(2)
246-259374	246-259381	21 09 08.25 +32 32 15.0	AB	12.64 12.82	37.66	9.65	1999.754	(2)
236-269319	236-269314	21 19 48.98 +27 30 16.6	AB	8.35 12.82	331.18	13.87	1997.821	(2)
261-222252	261-222295	21 20 52.28 +40 09 49.8	AB	13.04 13.52	109.23	54.77	1999.699	(2)
241-281470	241-281459	21 23 32.60 +30 11 45.3	AB	11.96 13.78	242.55	33.33	1998.462	(2)
213-299708	213-299715	21 27 28.18 +16 17 49.6	AB	12.72 14.43	151.52	48.32	2000.898	(2)
263-215171	263-215161	21 28 38.77 +41 01 51.0	AB	13.15 13.61	199.42	48.4	2000.762	(2)
271-233893	271-233962	21 33 38.21 +45 22 06.0	AB	10.27 14.27	63.95	66.16	1998.905	(2)
283-191045	283-191044	21 37 55.05 +51 22 43.9	AB	13.83 14.22	180.50	10.26	2000.764	(2)
203-312575	203-312568	21 41 01.38 +11 15 46.9	AB	9.32 12.62	282.82	17.31	2000.516	(2)
200-310214	200-310199	21 53 27.04 +09 42 27.2	AB	11.00 14.04	221.90	122.08	2000.51	(2)
273-259694	273-259676	21 58 47.91 +46 18 53.0	AB	9.68 10.66	247.21	17.02	2000.442	(2)
261-238034	261-238042	22 01 22.53 +40 08 27.9	AB	10.63 13.57	157.33	13.51	1999.948	(2)
307-145076	307-145099	22 07 40.63 +63 02 22.5	AB	11.90 12.26	46.99	51.83	1999.746	(2)
201-314637	201-314642	22 10 59.25 +10 20 23.0	AB	12.75 12.87	155.33	42.05	2000.532	(2)
280-238794	280-238803	22 15 56.53 +49 31 22.0	AB	11.92 13.23	123.96	12.02	1999.765	(2)
201-315608	201-315600	22 19 12.13 +10 11 21.7	AB	11.21 13.14	309.96	57.52	2000.595	(2)
233-285037	233-285041	22 23 27.00 +26 21 04.1	AB	10.38 13.88	109.96	10.48	1997.854	(2)
267-248931	267-248924	22 24 03.15 +43 23 58.9	AB	10.72 13.52	317.57	11.71	1998.777	(2)
220-309173	220-309175	22 35 39.45 +19 38 54.7	AB	12.20 12.77	117.78	14.23	1997.758	(2)
225-302304	225-302305	22 37 19.58 +22 24 59.2	AB	12.23 13.86	168.35	15.33	1997.758	(2)
215-329017	215-329015	22 47 32.56 +17 13 25.9	AB	13.36 14.74	342.39	14.92	1998.881	(2)
188-297404	188-297407	22 47 55.50 +03 36 07.3	AB	11.40 11.40	154.24	23.2	2000.608	(2)
248-294467	248-294473	22 50 22.85 +33 43 42.7	AB	11.80 12.96	48.54	19.65	1999.754	(2)
183-267791	183-267787	22 58 15.06 +01 24 14.1	AB	11.17 12.71	241.75	37.06	2000.709	(2)
215-330607	215-330604	23 04 09.83 +17 15 04.0	AB	9.32 14.40	306.64	16.35	1997.728	(2)
258-265109	258-265105	23 05 05.62 +38 40 57.8	AB	12.50 13.94	236.73	19.52	1999.699	(2)
280-269697	280-269707	23 09 32.80 +49 58 24.9	AB	12.44 14.13	32.25	14.63	1998.938	(2)
232-284928	232-284932	23 13 49.67 +25 35 44.7	AB	10.77 12.39	139.08	49.49	1998.749	(2)
216-336720	216-336729	23 16 19.99 +17 50 32.0	AB	8.43 13.49	94.26	59.65	1998.73	(2)

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 1 (continued): Measures of the new pairs

3UC Id.		RA DEC		MAGS	PA	SEP	DATE	NOTES
224-316429	224-316422	23 21 08.84 +21 48 09.4	AB	13.63 14.96	293.18	69.74	1997.777	(2)
236-296319	236-296330	23 22 50.25 +27 34 28.0	AB	8.82 13.34	146.27	82.92	1997.884	(2)
205-310503	205-310502	23 25 21.95 +12 20 59.9	AB	13.08 13.71	180.22	29.3	1997.745	(2)
225-307459	225-307462	23 25 53.66 +22 10 39.6	AB	12.32 13.34	67.68	39.35	2000.423	(2)
265-257751	265-257738	23 26 20.55 +42 08 14.2	AB	11.33 14.93	274.85	27.76	1998.799	(2)
274-293666	274-293667	23 29 30.84 +46 44 18.7	AB	13.40 14.01	4.61	11.08	2002.79	(1)
316-091811	316-091805	23 36 29.20 +67 41 43.9	AB	12.94 13.66	296.26	13.6	1999.779	(2)
182-267614	182-267615	23 41 10.44 +00 47 24.2	AB	9.99 10.96	124.71	28.27	2000.658	(2)
210-325486	210-325491	23 41 17.43 +14 54 51.9	AB	12.54 13.78	82.80	15.1	2000.87	(1)
199-322540	199-322537	23 41 47.71 +09 14 25.1	AB	12.58 13.19	254.45	29.86	2000.792	(2)
259-266251	259-266255	23 43 36.60 +39 08 14.8	AB	10.50 14.01	9.61	50.7	1999.757	(2)
323-080933	323-080944	23 44 22.25 +71 26 52.5	AB	11.27 14.11	46.40	36.13	2000.469	(2)
254-290935	254-290934	23 49 24.30 +36 54 02.8	AB	10.26 14.18	210.68	20.17	1999.76	(2)
227-287226	227-287228	23 49 30.53 +23 25 45.0	AB	10.36 12.96	130.56	29.44	1999.97	(2)
243-307522	243-307516	23 58 05.47 +31 09 44.5	AB	9.12 13.40	244.89	46.44	1998.78	(2)
184-281828	184-281830	23 58 53.39 +01 48 44.8	AB	14.05 14.64	143.25	37.91	2000.661	(2)

Table Notes:
1. Astrometry from UCAC3
2. Astrometry from 2MASS
3. Triple system, PM of component B not in UCAC3
4. The secondary seems a close pair in the plates
5. The primary seems a close pair in the plates

Table 2: Proper motion of each component (mas/yr)

RA DEC		μ_1	σ_1	μ_2	σ_2
00 10 45.61 +49 44 41.0	AB	(57.0, 3.0)	(2.2, 1.9)	(57.0, 5.4)	(5.2, 4.0)
00 26 46.93 +58 48 57.0	AB	(-69.9, -3.3)	(3.5, 2.3)	(-70.7, -5.0)	(3.2, 3.6)
00 27 06.72 +61 09 33.7	AB	(135.6, 23.8)	(4.8, 3.4)	(132.2, 26.0)	(6.5, 2.6)
00 36 41.69 +64 22 30.8	AB	(60.3, 20.3)	(1.5, 1.5)	(62.4, 19.9)	(1.9, 0.5)
00 50 30.30 +24 06 27.3	AB	(51.1, -25.5)	(10.0, 10.1)	(48.6, -23.3)	(10.4, 10.5)
00 52 21.03 +33 54 41.4	AB	(46.4, -35.6)	(0.8, 0.7)	(42.5, -41.5)	(10.1, 9.6)
00 57 23.93 +60 26 50.7	AB	(-26.7, -45.8)	(1.3, 2.2)	(-26.6, -51.4)	(4.1, 2.2)
01 01 27.70 +10 23 55.6	AB	(-45.0, -52.1)	(2.7, 1.9)	(-49.7, -51.4)	(7.7, 2.4)
01 01 40.35 +53 29 35.0	AB	(-47.0, -77.9)	(7.3, 7.2)	(-50.2, -76.4)	(7.2, 7.2)
01 06 16.87 +35 54 16.1	AB	(-30.5, -55.3)	(3.0, 4.4)	(-31.0, -46.7)	(9.4, 9.4)
01 07 38.59 +25 57 28.2	AB	(93.9, 8.7)	(1.4, 1.0)	(87.8, 16.8)	(11.3, 11.3)
01 13 45.71 +35 41 31.7	AB	(62.5, -15.5)	(9.4, 9.4)	(64.8, -11.9)	(9.5, 9.4)
01 15 53.09 +51 52 50.2	AB	(-25.2, -59.0)	(7.6, 1.4)	(-34.7, -56.6)	(2.7, 4.5)
01 19 31.32 +18 49 58.0	AB	(93.6, -34.2)	(3.5, 2.1)	(89.7, -33.9)	(9.8, 9.7)

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		μ₁	σ₁	μ₂	σ₂
01 23 28.66 +64 11 44.3	AB	(−71.6, 24.2)	(3.8, 3.4)	(−69.8, 18.1)	(4.4, 10.8)
01 31 51.10 +57 08 48.2	AB	(54.6, −33.4)	(3.6, 2.4)	(53.3, −33.9)	(7.6, 3.8)
01 39 45.48 +37 10 01.6	AB	(94.4, 4.7)	(0.9, 0.8)	(99.7, 4.3)	(8.9, 8.6)
01 39 59.19 +26 11 08.1	AB	(150.0, −151.0)		(150.0, −151.0)	
01 41 19.51 +12 45 42.9	AB	(129.6, 21.6)	(3.5, 2.9)	(123.7, 25.6)	(11.2, 11.8)
01 47 45.90 +37 24 14.1	AB	(−56.1, −18.6)	(0.9, 0.5)	(−55.3, −17.4)	(3.2, 2.9)
01 50 28.06 +18 17 46.5	AB	(246.0, −83.0)		(239.0, −77.0)	
01 51 24.54 +34 00 18.3	AB	(138.1, 13.0)	(0.8, 1.4)	(134.3, 15.3)	(9.0, 8.8)
01 57 34.70 +32 02 08.2	AB	(116.7, −88.9)	(1.1, 0.7)	(115.5, −92.5)	(6.4, 6.5)
02 02 06.27 +30 31 17.1	AB	(55.3, −24.1)	(1.6, 2.6)	(63.8, −30.8)	(2.9, 2.4)
02 02 52.89 +35 25 21.4	AB	(60.2, −8.4)	(3.1, 3.3)	(67.9, −4.3)	(8.1, 7.9)
02 03 25.89 +06 48 01.0	AB	(96.0, −103.5)	(10.4, 10.0)	(98.5, −99.4)	(10.3, 10.0)
02 03 45.49 +48 22 57.0	AB	(84.4, −57.8)	(6.9, 6.8)	(74.5, −58.2)	(7.0, 6.8)
02 04 18.62 +46 47 51.0	AB	(57.3, −25.1)	(0.7, 0.7)	(56.1, −21.6)	(8.1, 7.8)
02 06 17.34 +02 37 41.2	AB	(52.6, −66.8)	(0.8, 0.6)	(52.6, −62.1)	(9.3, 8.9)
02 07 18.36 +52 45 22.8	AB	(40.7, −46.9)	(1.5, 0.9)	(38.5, −49.5)	(2.8, 0.7)
02 16 49.60 +51 45 44.4	AB	(141.7, −25.7)	(3.9, 3.5)	(129.7, −33.6)	(14.7, 7.7)
02 18 01.44 +19 57 39.3	AB	(−75.6, −33.3)	(0.7, 1.2)	(−74.9, −32.8)	(9.7, 9.2)
02 18 02.11 +56 16 00.9	AB	(−92.7, −66.8)	(2.4, 2.1)	(−88.2, −75.9)	(3.6, 1.9)
02 20 08.44 +13 33 29.8	AB	(1.3, −53.3)	(10.0, 9.9)	(−2.4, −56.2)	(9.8, 9.7)
02 20 26.07 +01 35 21.5	AB	(150.0, −24.0)		(142.9, −27.3)	(7.5, 10.4)
02 21 51.38 +28 27 34.1	AB	(2.0, −66.8)	(8.2, 7.9)	(0.7, −70.0)	(7.8, 7.8)
02 24 05.49 +41 16 31.4	AB	(49.7, −43.6)	(7.7, 7.7)	(52.6, −43.3)	(7.4, 7.4)
02 24 18.72 +63 42 57.9	AB	(57.4, −33.5)	(4.6, 8.5)	(62.9, −42.1)	(5.6, 9.4)
02 24 53.12 +37 02 49.0	AB	(90.4, −3.1)	(0.9, 0.7)	(86.0, −8.6)	(7.2, 7.5)
02 25 04.44 +26 12 05.5	AB	(55.8, −37.5)	(0.9, 0.7)	(56.7, −30.1)	(6.9, 11.4)
02 25 55.49 +60 48 59.7	AB	(54.7, −87.5)	(1.3, 0.6)	(46.0, −87.5)	(5.9, 6.0)
02 36 02.73 +39 56 41.0	AB	(69.4, −5.2)	(2.2, 1.9)	(67.1, −6.6)	(2.6, 4.2)
02 39 17.74 +54 34 58.0	AB	(138.2, −52.7)	(2.6, 4.1)	(138.0, −58.4)	(1.7, 3.6)
02 47 47.16 +26 35 05.0	AB	(−71.5, −64.6)	(2.4, 6.4)	(−70.3, −61.2)	(2.1, 1.3)
02 47 53.43 +40 55 56.7	AB	(58.8, −16.0)	(0.7, 0.9)	(60.3, −12.7)	(2.8, 6.2)
03 06 13.04 +34 57 01.3	AB	(−48.0, −146.0)		(−50.6, −148.1)	(8.8, 8.8)
03 09 28.75 +34 37 09.7	AB	(71.7, −21.2)	(3.4, 2.8)	(69.5, −29.3)	(8.7, 8.5)
03 13 36.18 +38 53 59.3	AB	(58.0, −42.1)	(3.1, 3.9)	(59.5, −42.8)	(5.0, 1.9)
03 22 18.85 +32 36 40.7	AB	(51.2, −25.7)	(0.6, 0.8)	(51.1, −27.5)	(0.8, 1.2)
03 24 32.01 +10 02 41.3	AB	(−17.4, −56.8)	(2.8, 2.7)	(−17.7, −59.3)	(2.4, 2.9)
03 29 43.21 +60 30 14.4	AB	(30.5, −62.1)	(0.6, 0.7)	(32.2, −63.0)	(0.5, 1.5)
03 29 44.38 +03 55 39.4	AB	(116.9, −4.7)	(1.0, 0.6)	(118.8, −10.1)	(11.1, 11.3)
03 29 50.60 +50 10 11.7	AB	(46.4, −139.9)	(2.9, 1.5)	(53.8, −137.4)	(5.7, 1.4)
03 30 27.77 +31 52 57.0	AB	(58.1, −1.6)	(2.2, 1.2)	(55.4, −7.1)	(3.1, 4.4)
03 32 15.17 +16 13 02.6	AB	(−3.9, −50.1)	(0.6, 0.7)	(−12.5, −51.5)	(11.5, 11.8)
03 37 12.45 +32 51 26.3	AB	(52.1, −74.3)	(5.2, 5.6)	(53.7, −70.6)	(3.5, 9.8)
03 44 44.75 +40 41 50.7	AB	(51.5, −39.5)	(8.5, 8.2)	(47.2, −33.6)	(8.2, 7.8)
03 45 22.39 +23 12 17.4	AB	(−51.4, −58.4)	(10.8, 11.5)	(−55.0, −50.1)	(1.0, 1.2)
03 49 26.17 +35 26 59.2	AB	(57.6, −41.2)	(1.9, 2.2)	(57.1, −43.6)	(3.5, 3.0)
03 49 43.99 +04 38 09.8	AB	(33.6, −44.5)	(11.2, 11.7)	(34.8, −50.6)	(11.2, 11.5)
03 53 04.15 +00 02 49.9	AB	(−15.7, −68.7)	(9.0, 8.7)	(−24.9, −73.3)	(8.5, 9.3)
03 54 40.27 +38 40 31.1	AB	(65.3, −65.3)	(0.9, 1.0)	(74.4, −67.3)	(11.3, 9.9)
03 55 04.67 +00 03 07.8	AB	(−47.0, −90.2)	(9.0, 8.6)	(−41.5, −87.8)	(8.2, 8.3)

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		μ_1	σ_1	μ_2	σ_2
03 56 05.91 +27 57 58.9	AB	(30.0, −56.8)	(4.0, 6.1)	(36.1, −49.1)	(5.7, 7.4)
03 57 55.66 +75 16 54.9	AB	(35.2, −42.3)	(1.5, 2.0)	(34.9, −43.0)	(8.8, 8.7)
03 59 57.69 +59 41 38.5	AB	(5.9, −77.0)	(1.4, 1.2)	(5.7, −77.0)	(1.3, 1.4)
04 01 27.42 +48 45 44.8	AB	(77.0, −63.4)	(1.1, 1.5)	(77.7, −64.1)	(0.5, 0.8)
04 03 27.83 +04 17 31.0	AB	(−19.5, −63.4)	(3.3, 3.5)	(−21.3, −61.6)	(1.7, 1.8)
04 07 06.83 +57 56 17.2	AB	(27.1, −56.8)	(8.3, 8.3)	(33.0, −51.4)	(7.7, 7.9)
04 07 39.45 +09 29 38.5	AB	(−43.2, −33.9)	(4.2, 2.5)	(−41.7, −36.9)	(10.7, 10.3)
04 30 40.93 +03 00 04.8	AB	(52.2, −57.2)	(1.3, 1.3)	(43.1, −58.6)	(5.4, 5.6)
04 37 06.92 +20 43 08.6	AB	(66.4, −26.7)	(2.4, 3.6)	(66.7, −32.9)	(8.6, 8.8)
04 42 58.08 +64 38 21.2	AB	(−64.2, −112.2)	(8.4, 8.6)	(−60.2, −116.3)	(8.5, 8.6)
04 44 33.54 +44 53 14.4	AB	(0.7, −52.6)	(2.9, 1.5)	(−2.7, −51.6)	(5.8, 2.0)
04 45 37.72 +44 43 42.8	AB	(60.7, −63.2)	(1.0, 1.1)	(56.9, −63.3)	(1.3, 3.4)
04 56 29.45 +18 00 08.6	AB	(−78.5, −82.1)	(1.2, 0.9)	(−83.1, −73.8)	(3.1, 5.5)
05 00 22.97 +41 04 56.6	AB	(−1.2, −75.5)	(5.5, 3.1)	(−8.2, −67.0)	(2.5, 2.0)
05 04 16.19 +45 46 45.7	AB	(17.2, −61.5)	(0.7, 0.7)	(21.1, −62.7)	(3.1, 2.9)
05 05 33.30 +57 09 32.8	AB	(60.2, −103.5)	(0.8, 0.8)	(51.0, −107.2)	(7.7, 7.8)
05 10 43.84 +32 29 13.4	AB	(19.2, −79.6)	(2.2, 1.8)	(15.7, −79.9)	(2.6, 3.4)
05 17 43.17 +14 43 01.9	AB	(−7.2, 54.8)	(0.8, 0.9)	(−7.8, 50.4)	(6.1, 12.8)
05 24 58.51 +19 11 34.2	AB	(67.9, 9.1)	(0.9, 2.6)	(68.9, 6.9)	(0.5, 1.4)
05 26 13.92 +09 06 25.6	AB	(−40.9, −37.2)	(3.3, 4.7)	(−40.9, −39.9)	(4.8, 5.1)
05 31 08.04 +77 52 48.0	AB	(5.7, −51.9)	(2.2, 3.2)	(5.2, −58.4)	(1.5, 1.9)
05 39 41.70 +17 41 51.8	AB	(−1.1, −90.1)	(1.3, 1.4)	(−8.7, −91.8)	(10.7, 10.7)
05 41 11.08 +29 39 01.1	AB	(30.3, −62.6)	(0.8, 2.0)	(27.7, −65.4)	(8.1, 7.9)
05 46 01.56 +33 16 21.2	AB	(−35.7, −81.9)	(1.8, 2.5)	(−33.7, −82.1)	(2.5, 5.2)
05 47 28.21 +32 19 52.0	AB	(19.8, −54.8)	(1.7, 6.1)	(27.3, −55.7)	(1.7, 3.2)
05 58 35.86 +11 43 55.6	AB	(−2.3, −52.6)	(0.8, 1.1)	(−5.5, −52.8)	(14.8, 19.7)
06 00 23.34 +42 06 29.9	AB	(8.0, −67.9)	(3.3, 1.4)	(9.9, −71.4)	(1.9, 1.4)
06 00 32.43 +81 24 20.1	AB	(40.6, 33.0)	(3.8, 6.4)	(38.8, 42.3)	(3.8, 4.2)
06 01 07.98 +03 21 54.4	AB	(17.7, −99.1)	(8.2, 8.1)	(19.3, −92.9)	(7.3, 7.4)
06 06 36.35 +39 05 43.9	AB	(−31.0, −156.0)		(−32.8, −159.1)	(2.3, 2.4)
06 27 09.33 +19 32 53.2	AB	(31.7, −46.3)	(0.8, 1.7)	(32.7, −41.0)	(2.1, 2.7)
06 37 00.94 +06 21 56.2	AB	(−18.9, −63.3)	(4.5, 3.9)	(−22.5, −54.2)	(2.0, 1.5)
06 38 07.35 +79 34 46.5	AB	(−9.5, −63.4)	(4.9, 6.3)	(−14.2, −68.7)	(8.3, 5.4)
06 40 48.76 +31 59 22.4	AB	(57.6, −71.6)	(0.7, 0.7)	(55.5, −71.2)	(1.1, 1.1)
06 42 19.75 +43 14 53.4	AB	(74.3, −16.4)	(8.4, 8.7)	(81.9, −14.3)	(5.6, 8.5)
06 43 08.90 +39 20 44.9	AB	(8.5, −103.1)	(0.7, 1.0)	(4.4, −103.5)	(2.8, 1.6)
06 55 45.43 +54 33 08.0	AB	(−2.4, −64.1)	(0.8, 0.7)	(−4.5, −62.5)	(0.9, 0.6)
06 55 52.82 +37 15 53.1	AB	(4.5, −55.4)	(0.6, 1.0)	(3.7, −56.3)	(1.4, 1.4)
06 57 05.49 +36 59 34.7	AB	(55.1, −30.6)	(8.9, 8.9)	(53.7, −27.5)	(8.8, 8.9)
06 57 50.03 +48 25 41.0	AB	(43.3, −35.4)	(0.7, 0.5)	(44.9, −32.5)	(3.7, 5.0)
06 58 06.94 +35 34 42.7	AB	(52.0, −37.3)	(10.2, 5.8)	(53.0, −35.7)	(8.9, 9.0)
06 58 43.68 +47 38 58.3	AB	(35.9, −66.1)	(1.0, 0.9)	(37.0, −65.2)	(0.9, 0.8)
07 03 38.09 +17 51 30.1	AB	(−40.7, −55.0)	(0.6, 0.6)	(−48.7, −58.7)	(8.8, 8.8)
07 05 42.93 +48 27 02.2	AB	(22.4, −83.4)	(1.3, 0.7)	(22.7, −86.7)	(1.1, 1.4)
07 09 42.68 +46 01 32.8	AB	(−129.6, −65.6)	(2.6, 3.5)	(−123.9, −63.4)	(5.6, 4.0)
07 13 19.74+03 58 47.3	AB	(44.8, −112.9)	(1.4, 0.7)	(40.5, −111.9)	(10.8, 10.0)
07 15 04.43 +06 04 50.0	AB	(26.7, −79.4)	(0.9, 1.8)	(23.0, −71.1)	(7.8, 9.9)
07 16 13.12 +11 21 45.4	AB	(−18.2, −80.5)	(6.6, 6.4)	(−20.7, −71.8)	(6.8, 7.2)
07 17 19.45 +34 06 45.0	AB	(−36.6, −38.4)	(0.8, 0.8)	(−35.0, −40.3)	(3.2, 4.9)

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		μ_1	σ_1	μ_2	σ_2
07 22 06.48 +03 35 10.4	AB	(13.9, −81.7)	(2.2, 2.6)	(5.8, −76.1)	(9.7, 9.8)
07 27 26.88 +37 27 33.0	AB	(−36.5, −46.1)	(2.2, 2.8)	(−30.6, −40.9)	(3.9, 7.5)
07 28 50.24 +19 03 02.4	AB	(25.9, −73.6)	(0.6, 0.7)	(27.3, −76.1)	(8.3, 8.9)
07 34 59.58 +09 54 44.0	AB	(−38.2, 72.5)	(7.5, 3.5)	(−44.8, 65.4)	(10.7, 10.3)
07 35 58.68 +22 36 21.7	AB	(21.7, −54.4)	(8.9, 3.7)	(13.8, −56.2)	(4.1, 4.2)
07 38 12.91 +81 35 05.5	AB	(48.1, 31.3)	(2.7, 2.1)	(43.1, 28.7)	(2.8, 1.2)
07 47 10.14 +31 56 15.4	AB	(33.0, −156.0)		(35.0, −150.7)	(3.8, 2.8)
08 14 32.09 +12 16 58.8	AB	(0.3, −55.8)	(8.2, 8.2)	(−5.1, −53.0)	(7.9, 8.2)
08 25 33.13 +48 41 24.3	AB	(−19.1, −64.7)	(6.5, 4.3)	(−12.0, −56.4)	(1.9, 3.1)
08 28 55.61 +09 40 23.7	AB	(−43.7, −91.4)	(8.5, 9.0)	(−40.0, −101.0)	(8.0, 8.4)
08 34 16.97 +57 28 34.0	AB	(1.0, −108.8)	(1.9, 1.3)	(4.1, −118.0)	(4.6, 8.3)
08 34 54.35 +04 50 48.6	AB	(41.1, −88.0)	(1.9, 1.2)	(42.6, −93.2)	(10.5, 3.0)
08 35 26.86 +24 15 39.4	AB	(−8.8, −101.8)	(1.1, 1.5)	(−2.8, −97.8)	(4.1, 6.0)
08 38 29.14 +41 00 01.6	AB	(−20.3, −54.0)	(0.8, 0.8)	(−24.1, −54.2)	(9.4, 9.0)
08 41 09.36 +08 36 57.2	AB	(43.0, −41.3)	(2.8, 4.4)	(42.6, −44.0)	(1.7, 3.0)
08 45 23.93 +46 10 15.8	AB	(7.5, −77.4)	(0.7, 0.6)	(15.5, −80.2)	(6.2, 6.2)
08 45 26.81 +10 54 46.7	AB	(−226.0, −42.0)		(−220.0, −47.0)	
08 46 30.68 +20 51 22.0	AB	(10.7, −56.3)	(9.1, 8.7)	(9.2, −58.3)	(3.8, 4.3)
08 46 52.62 +35 21 02.2	AB	(−46.7, −36.3)	(6.5, 6.4)	(−55.2, −44.7)	(9.3, 9.2)
09 00 19.56 +22 35 08.7	AB	(16.3, −55.8)	(1.0, 1.2)	(19.1, −52.0)	(3.3, 3.5)
09 00 54.51 +10 34 41.0	AB	(−124.6, −46.6)	(1.0, 1.1)	(−125.8, −41.0)	(2.1, 2.5)
09 04 06.68 +14 35 06.5	AB	(−58.8, −10.5)	(9.1, 8.9)	(−56.3, −7.2)	(9.2, 9.0)
09 04 35.96 +05 12 21.2	AB	(−64.0, 3.8)	(10.0, 10.1)	(−62.5, 3.6)	(9.5, 9.7)
09 19 27.20 +72 22 06.1	AB	(−15.8, −60.5)	(8.6, 5.7)	(−13.5, −55.5)	(14.6, 7.6)
09 19 59.40 +48 39 08.1	AB	(−44.8, −42.1)	(1.9, 2.2)	(−46.2, −35.3)	(4.8, 3.5)
09 28 22.77 +48 47 09.7	AB	(−34.8, −71.7)	(0.8, 0.7)	(−33.0, −81.1)	(10.3, 10.5)
09 36 54.52 +40 24 34.6	AB	(−42.2, −33.0)	(3.3, 3.9)	(−47.3, −33.9)	(3.4, 2.0)
09 42 32.31 +71 53 25.0	AB	(−20.1, −61.3)	(8.9, 9.2)	(−23.5, −59.1)	(9.0, 9.3)
09 45 26.05 +15 40 39.8	AB	(−96.6, 65.8)	(0.8, 1.7)	(−93.9, 67.8)	(10.2, 11.3)
09 46 02.03 +49 51 32.5	AB	(−23.5, −61.0)	(0.8, 2.4)	(−23.3, −68.6)	(7.6, 5.0)
09 47 02.35 +35 13 09.7	AB	(−156.0, 23.0)		(−162.8, 21.0)	(3.6, 1.3)
09 47 43.55 +75 03 42.3	AB	(−39.1, −34.3)	(1.4, 2.1)	(−41.2, −34.5)	(3.2, 1.5)
09 48 37.51+68 50 28.8	AB	(−28.2, −44.4)	(8.9, 9.2)	(−23.1, −47.3)	(9.0, 9.3)
09 49 02.94 +27 00 08.9	AB	(14.0, −52.5)	(11.1, 10.7)	(18.8, −57.5)	(10.4, 10.2)
09 50 37.83 +39 50 19.1	AB	(−142.0, −58.0)		(−142.0, −58.0)	
09 55 27.79 +35 00 08.9	AB	(−35.8, −61.9)	(0.6, 0.7)	(−33.1, −63.3)	(1.8, 2.5)
10 00 39.89 +28 10 25.1	AB	(−42.7, −138.0)	(0.9, 1.3)	(−43.8, −139.1)	(11.6, 11.0)
10 01 25.73 +32 39 06.9	AB	(−70.2, −47.8)	(1.0, 1.0)	(−74.7, −39.2)	(5.0, 5.0)
10 03 23.68 +10 45 15.3	AB	(−74.7, −1.7)	(0.5, 0.5)	(−68.8, 7.0)	(3.6, 13.0)
10 03 40.98 +10 48 52.2	AB	(−87.3, −34.6)	(0.6, 0.6)	(−90.4, −34.7)	(3.3, 4.4)
10 03 56.57 +15 26 32.9	AB	(−84.2, −6.9)	(15.5, 7.5)	(−92.9, −12.2)	(4.8, 3.1)
10 05 20.93 +34 43 11.1	AB	(−67.1, 14.2)	(1.4, 2.3)	(−69.0, 10.5)	(5.1, 4.5)
10 10 20.70 +56 29 12.8	AB	(−91.7, −56.1)	(3.8, 2.5)	(−91.8, −49.2)	(3.8, 3.2)
10 10 41.16 +39 54 39.9	AB	(−44.1, −77.1)	(1.1, 0.5)	(−41.9, −75.9)	(1.4, 1.0)
10 10 44.00 +49 51 36.2	AB	(−97.5, −70.4)	(1.4, 1.0)	(−91.6, −76.1)	(6.3, 6.3)
10 15 17.83 +47 25 47.9	AB	(−77.7, −117.9)	(10.6, 9.8)	(−82.1, −110.4)	(10.9, 10.6)
10 21 45.41 +46 50 55.4	AB	(−91.3, −64.6)	(0.8, 0.6)	(−90.3, −66.7)	(1.9, 1.5)
10 29 56.31 +54 23 08.4	AB	(−51.2, −61.1)	(3.6, 5.2)	(−54.0, −59.8)	(3.6, 4.6)
10 30 24.63 +25 14 14.5	AB	(50.9, −23.5)	(1.7, 1.2)	(50.7, −18.0)	(4.3, 2.3)

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		μ_1	σ_1	μ_2	σ_2
10 39 01.53 +51 04 24.8	AB	(−110.6, −28.4)	(0.8, 0.8)	(−115.3, −27.9)	(2.7, 3.5)
10 39 40.30 +32 27 07.0	AB	(114.0, −140.0)		(114.0, −140.0)	
10 42 17.65 +50 55 25.8	AB	(−61.3, −31.8)	(3.0, 2.2)	(−58.9, −28.9)	(3.2, 5.8)
10 43 59.65 +14 44 22.0	AB	(−59.9, −16.8)	(5.8, 3.5)	(−69.5, −20.5)	(3.9, 8.9)
10 48 17.14 +16 24 12.0	AB	(46.2, −39.9)	(1.2, 0.6)	(48.8, −45.1)	(8.6, 1.5)
10 52 39.12 +07 56 01.9	AB	(−62.0, −5.0)	(6.3, 2.5)	(−59.1, −8.9)	(5.6, 3.6)
11 18 05.63 +08 10 10.6	AB	(51.1, −102.7)	(4.0, 6.5)	(42.9, −105.1)	(15.5, 13.5)
11 24 35.50 +37 52 25.1	AB	(−137.8, −1.9)	(0.5, 0.8)	(−138.9, 1.0)	(1.7, 1.3)
11 38 57.73 +32 53 09.6	AB	(42.8, −63.9)	(2.5, 2.9)	(36.8, −59.5)	(13.1, 11.9)
11 44 50.74 +37 51 19.9	AB	(51.0, −34.5)	(2.8, 3.7)	(41.6, −29.3)	(4.6, 4.0)
11 45 00.99 +08 38 25.6	AB	(−77.1, −31.0)	(2.2, 2.2)	(−72.3, −31.6)	(12.6, 11.1)
11 49 49.04 +02 21 33.5	AB	(−80.6, 12.2)	(0.9, 0.8)	(−83.3, 10.1)	(3.1, 3.8)
12 09 44.83 +43 26 43.1	AB	(−61.5, −20.2)	(10.8, 9.7)	(−65.5, −19.8)	(10.1, 9.5)
12 15 37.29 +37 48 55.2	AB	(−83.7, 37.4)	(3.4, 6.0)	(−79.0, 40.1)	(7.0, 6.5)
12 16 24.44 +35 41 45.1	AB	(−137.0, −1.6)	(3.8, 3.7)	(−147.5, −0.8)	(8.8, 8.3)
12 22 46.95 +02 46 18.2	AB	(−68.2, −24.8)	(2.8, 4.8)	(−64.8, −24.4)	(5.4, 4.4)
12 28 03.64 +59 48 39.8	AB	(44.8, −45.3)	(1.8, 1.6)		
12 28 03.64 +59 48 39.8	AC	(44.8, −45.3)	(1.8, 1.6)	(37.8, −45.9)	(3.9, 4.4)
12 28 59.91 +42 47 03.2	AB	(−70.8, 9.3)	(10.0, 9.1)	(−73.0, 3.4)	(9.8, 9.1)
12 29 42.14 +03 06 28.0	AB	(−60.7, −0.5)	(1.4, 1.4)	(−58.4, −1.6)	(1.5, 1.5)
12 31 07.59 +38 36 29.3	AB	(−69.5, −44.6)	(0.7, 0.7)	(−66.6, −48.3)	(1.8, 1.0)
12 31 12.95 +57 47 10.9	AB	(−88.5, −1.7)	(1.7, 2.3)	(−92.6, 2.0)	(1.6, 2.7)
12 32 13.88 +41 02 44.4	AB	(−136.6, 35.2)	(2.0, 4.3)	(−144.0, 44.4)	(11.1, 10.8)
12 42 18.18 +81 04 56.8	AB	(58.5, −57.9)	(2.3, 2.5)	(63.4, −48.4)	(3.4, 2.7)
12 55 35.02 +12 18 41.9	AB	(−120.0, 78.8)	(2.2, 2.7)	(−117.1, 82.9)	(3.2, 3.7)
13 03 03.97 +43 27 02.6	AB	(−115.3, −22.3)	(0.5, 0.5)	(−118.9, −21.5)	(11.9, 11.2)
13 05 02.91 +14 29 58.2	AB	(−53.0, −19.5)	(0.7, 2.4)	(−58.9, −17.6)	(8.4, 10.5)
13 05 22.89 +54 52 24.1	AB	(−70.3, 23.4)	(6.0, 6.8)	(−79.2, 16.1)	(2.7, 3.8)
13 16 48.29 +62 22 03.0	AB	(−98.1, 26.5)	(0.6, 0.6)	(−99.7, 27.0)	(2.9, 1.2)
13 19 56.59 +38 22 08.6	AB	(−74.9, 21.4)	(0.5, 0.5)	(−72.9, 24.2)	(2.5, 2.3)
13 53 44.49 +12 40 48.4	AB	(34.7, −59.7)	(0.6, 0.9)	(34.4, −56.6)	(2.7, 6.1)
13 56 20.38 +11 48 04.2	AB	(−60.5, −5.7)	(1.1, 1.1)	(−52.2, 2.4)	(3.5, 6.9)
13 57 43.05 +65 44 22.5	AB	(−82.9, 21.8)	(4.3, 5.0)	(−78.1, 15.3)	(3.8, 5.8)
14 00 08.33 +03 56 13.2	AB	(62.6, −67.1)	(1.8, 1.6)	(63.7, −67.7)	(6.7, 3.8)
14 00 22.48 +39 24 27.2	AB	(−80.3, 17.5)	(9.5, 8.9)	(−75.8, 14.8)	(9.4, 8.7)
14 05 06.65 +19 17 18.8	AB	(−41.4, 46.6)	(1.0, 0.8)	(−49.5, 49.6)	(10.9, 6.2)
14 14 32.50 +10 44 15.4	AB	(2.0, −58.4)	(2.8, 4.4)	(−0.2, −59.8)	(2.9, 1.7)
14 16 32.73 +42 09 06.8	AB	(31.3, −50.0)	(1.1, 0.9)	(34.1, −52.0)	(1.5, 1.8)
14 21 05.50 +49 42 19.9	AB	(−32.1, −77.8)	(1.7, 0.9)	(−39.6, −74.0)	(3.4, 3.3)
14 32 41.31 +55 53 28.0	AB	(84.3, −88.1)	(3.0, 1.9)	(79.0, −88.9)	(4.0, 2.2)
14 38 08.34 +14 02 58.0	AB	(−34.1, −45.3)	(2.1, 1.9)	(−33.5, −45.4)	(9.8, 11.0)
14 41 49.15 +20 25 43.6	AB	(−58.4, 6.7)	(0.5, 0.6)	(−56.9, 1.3)	(1.6, 1.5)
14 46 50.55 +14 53 25.7	AB	(44.1, −47.3)	(10.3, 10.3)	(42.9, −43.1)	(4.6, 4.8)
14 58 38.15 +03 55 18.5	AB	(−96.1, −13.3)	(1.0, 0.6)	(−102.9, −17.4)	(9.1, 9.1)
14 59 26.46 +18 00 06.3	AB	(−56.4, 15.6)	(1.5, 1.5)	(−57.5, 18.6)	(9.9, 10.9)
14 59 32.92 +45 27 51.0	AB	(−32.9, 100.0)	(0.7, 0.5)	(−33.8, 102.3)	(0.8, 1.1)
15 02 42.31 +57 06 03.1	AB	(54.3, 15.8)	(10.2, 10.1)	(54.6, 15.9)	(10.8, 10.4)
15 09 18.11 +03 11 35.8	AB	(−63.3, −10.8)	(1.2, 1.2)	(−67.3, −5.4)	(4.7, 7.6)
15 15 56.80 +16 43 10.8	AB	(−82.3, 25.7)	(1.2, 1.3)	(−80.6, 20.5)	(2.7, 4.7)

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Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		μ_1	σ_1	μ_2	σ_2
15 18 46.24 +43 13 51.9	AB	(−62.9, −65.0)	(12.0, 11.9)	(−65.4, −68.5)	(11.9, 12.2)
15 20 27.64 +20 12 41.0	AB	(−0.1, −73.7)	(4.1, 3.4)	(−3.0, −73.8)	(1.5, 1.6)
15 20 37.98 +17 06 36.1	AB	(−87.9, −31.9)	(2.7, 2.2)	(−86.1, −29.7)	(3.2, 5.0)
15 23 41.28 +21 57 36.7	AB	(−66.9, −38.2)	(0.9, 0.8)	(−66.1, −38.1)	(1.5, 1.9)
15 23 53.87 +56 09 32.1	AB	(70.9, −38.1)	(3.5, 5.9)	(74.1, −39.6)	(3.7, 4.0)
15 24 28.68 +66 55 15.1	AB	(−43.5, 34.9)	(9.7, 9.7)	(−44.2, 36.0)	(9.5, 9.9)
15 24 35.98 +19 46 24.6	AB	(−85.9, 64.5)	(0.8, 0.8)	(−90.3, 61.1)	(16.7, 9.1)
15 32 27.20 +65 22 19.8	AB	(−37.8, 74.6)	(3.6, 2.3)	(−45.2, 65.4)	(9.4, 9.7)
15 33 45.19 +38 17 52.0	AB	(−77.4, 7.4)	(10.8, 10.7)	(−71.5, 6.0)	(10.6, 10.6)
15 42 32.07 +45 32 47.5	AB	(−54.1, 27.9)	(10.0, 10.0)	(−48.5, 23.1)	(10.0, 10.0)
15 45 35.05 +42 05 06.6	AB	(97.1, 3.8)	(10.3, 10.3)	(101.1, 4.2)	(10.0, 10.2)
15 49 45.51 +28 39 13.6	AB	(−95.4, 77.6)	(10.9, 6.8)	(−87.4, 68.6)	(1.8, 2.1)
15 51 08.44 +05 37 49.6	AB	(17.7, −90.2)	(6.3, 4.1)	(10.7, −98.7)	(6.7, 4.9)
15 56 47.77 +54 59 11.2	AB	(−56.9, 32.9)	(2.2, 0.7)	(−49.7, 37.5)	(2.0, 4.2)
16 03 51.30 +29 35 18.9	AB	(−36.4, 80.2)	(1.0, 0.6)	(−41.2, 84.3)	(9.1, 8.9)
16 23 42.61 +07 41 49.7	AB	(−0.7, −81.8)	(1.9, 4.3)	(7.9, −73.1)	(10.7, 9.4)
16 26 48.10 +26 21 38.4	AB	(47.0, −150.0)		(46.0, −143.0)	
16 27 32.63 +08 31 47.4	AB	(112.2, 58.8)	(6.1, 7.4)	(109.9, 61.1)	(8.6, 8.2)
16 34 29.50 +30 34 20.8	AB	(−57.2, 38.4)	(0.8, 1.4)	(−56.6, 40.8)	(8.5, 8.7)
16 38 45.74 +39 23 20.5	AB	(2.7, −63.3)	(0.5, 1.4)	(2.9, −65.1)	(4.5, 3.7)
16 39 19.65 +14 23 59.6	AB	(−45.8, −48.4)	(9.0, 9.0)	(−48.8, −52.6)	(8.8, 9.1)
16 46 57.72 +59 54 21.4	AB	(25.5, −54.4)	(1.7, 1.2)	(28.4, −47.4)	(2.1, 4.0)
16 52 06.06 +47 50 35.6	AB	(−75.5, 4.4)	(1.4, 1.2)	(−76.4, −2.9)	(5.4, 3.2)
17 14 10.95 +69 04 01.5	AB	(−24.0, −51.0)	(1.2, 0.9)	(−24.7, −55.2)	(1.7, 1.6)
17 18 15.11 +04 58 48.6	AB	(65.9, 2.5)	(1.2, 1.2)	(66.8, −1.0)	(3.2, 3.8)
17 19 52.08 +11 55 08.3	AB	(0.0, 77.9)	(9.1, 9.3)	(1.8, 74.1)	(9.2, 9.2)
17 22 28.31 +14 40 43.2	AB	(10.0, −100.7)	(1.1, 2.0)	(7.3, −108.1)	(7.0, 7.7)
17 22 56.90 +41 12 35.5	AB	(39.8, 47.7)	(0.6, 0.5)	(33.5, 50.2)	(3.0, 8.5)
17 29 09.19 +39 33 18.7	AB	(20.5, −46.4)	(1.9, 4.1)	(13.2, −51.8)	(5.3, 1.9)
17 29 45.13 +38 41 45.2	AB	(1.3, −66.2)	(5.0, 5.2)	(7.9, −67.8)	(9.1, 9.3)
17 33 46.66 +75 02 43.5	AB	(5.5, 63.1)	(8.7, 9.4)	(3.9, 68.3)	(8.6, 9.1)
17 52 36.11 +45 30 55.3	AB	(6.9, −57.4)	(3.7, 0.6)	(1.3, −52.8)	(4.8, 2.7)
17 54 44.23 +16 33 19.0	AB	(−55.4, −47.5)	(1.1, 0.9)	(−55.3, −51.3)	(9.8, 2.5)
18 02 09.22 +71 50 31.8	AB	(0.6, −69.1)	(1.9, 1.3)	(−1.4, −63.3)	(4.6, 3.9)
18 09 26.10 +50 18 54.0	AB	(−89.6, 112.2)	(3.2, 2.1)	(−85.2, 112.5)	(0.7, 1.1)
18 12 47.28 +67 37 05.1	AB	(−26.8, −69.2)	(1.1, 2.2)	(−33.9, −78.8)	(8.6, 2.8)
18 17 02.81 +29 36 45.4	AB	(−38.8, −43.1)	(0.7, 1.3)	(−36.2, −37.8)	(1.8, 0.8)
18 22 29.36 +69 23 40.1	AB	(−4.2, 81.3)	(0.8, 1.5)	(−7.7, 85.5)	(3.9, 3.8)
18 24 11.43 +45 39 47.7	AB	(38.6, 123.4)	(0.8, 0.7)	(37.8, 122.6)	(0.5, 1.4)
18 56 46.54 +40 38 40.5	AB	(26.9, −109.1)	(7.5, 7.7)	(24.0, −115.7)	(7.5, 7.7)
18 57 21.01 +03 01 51.6	AB	(60.3, 30.5)	(8.4, 8.9)	(55.0, 29.4)	(8.2, 8.6)
18 57 50.91 +03 15 14.3	AB	(−5.0, −63.9)	(5.0, 3.0)	(0.5, −73.7)	(6.2, 2.6)
19 11 14.90 +58 23 39.5	AB	(−7.6, −88.4)	(8.4, 9.1)	(−9.8, −89.2)	(8.4, 9.0)
19 22 09.85 +70 50 45.4	AB	(38.3, −69.5)	(4.1, 2.5)	(38.0, −62.7)	(7.4, 8.0)
19 47 27.30 +44 06 43.1	AB	(49.9, 19.0)	(0.8, 0.7)	(51.2, 19.1)	(7.4, 7.8)
19 49 17.28 +40 05 24.1	AB	(60.7, −90.0)	(1.3, 0.7)	(59.5, −88.5)	(2.2, 1.5)
19 49 21.88 +17 44 36.2	AB	(−75.5, −20.1)	(8.8, 9.0)	(−76.0, −29.2)	(7.4, 7.9)
20 15 16.29 +19 37 29.5	AB	(−19.4, −118.9)	(1.3, 0.9)	(−21.7, −116.7)	(14.5, 2.3)
20 16 44.29 +01 58 27.9	AB	(39.0, −160.0)		(39.0, −160.0)	

New Northern Hemisphere Common Proper-Motion Pairs from the UCAC-3 Catalog

Table 2 (continued): Proper motion of each component (mas/yr)

RA DEC		m_1	σ_1	m_2	σ_2
20 30 36.61 +19 31 44.1	AB	(−47.7, −16.5)	(2.4, 1.4)	(−51.7, −12.9)	(2.3, 4.5)
20 41 55.13 +02 17 37.7	AB	(75.7, 0.6)	(8.4, 8.9)	(66.5, 4.2)	(8.4, 8.7)
20 42 01.65 +33 49 16.5	AB	(−43.8, 41.8)	(1.0, 1.3)	(−44.3, 41.0)	(2.4, 2.4)
20 45 24.35 +48 16 25.9	AB	(57.9, 86.2)	(1.2, 1.0)	(63.9, 82.1)	(2.9, 3.1)
20 50 53.66 +19 52 44.5	AB	(7.9, −132.9)	(5.2, 3.4)	(12.1, −132.7)	(4.6, 4.1)
21 07 40.74 +30 22 11.7	AB	(−7.1, −70.3)	(0.8, 0.9)	(−6.3, −68.5)	(0.7, 1.0)
21 09 08.25 +32 32 15.0	AB	(−25.8, −96.8)	(2.9, 2.9)	(−25.3, −93.2)	(4.0, 2.4)
21 19 48.98 +27 30 16.6	AB	(98.9, 18.7)	(0.9, 0.7)	(91.6, 22.5)	(2.3, 6.2)
21 20 52.28 +40 09 49.8	AB	(85.8, 59.1)	(7.5, 7.4)	(85.4, 65.0)	(7.5, 7.4)
21 23 32.60 +30 11 45.3	AB	(65.5, 43.4)	(1.5, 0.9)	(65.4, 48.8)	(3.2, 2.3)
21 27 28.18 +16 17 49.6	AB	(−34.1, −61.9)	(2.0, 2.0)	(−27.1, −67.2)	(2.6, 3.6)
21 28 38.77 +41 01 51.0	AB	(63.2, −12.3)	(7.5, 7.5)	(67.5, −19.8)	(7.3, 7.3)
21 33 38.21 +45 22 06.0	AB	(80.8, 19.8)	(1.0, 1.6)	(71.2, 22.5)	(7.3, 7.3)
21 37 55.05 +51 22 43.9	AB	(63.9, 63.6)	(3.4, 7.2)	(71.2, 57.8)	(6.8, 10.0)
21 41 01.38 +11 15 46.9	AB	(−67.1, −123.3)	(0.7, 0.6)	(−71.3, −126.9)	(3.6, 8.2)
21 53 27.04 +09 42 27.2	AB	(35.1, 125.7)	(3.0, 3.9)	(30.7, 131.4)	(4.6, 5.9)
21 58 47.91 +46 18 53.0	AB	(−30.6, −87.7)	(0.7, 1.0)	(−30.0, −91.7)	(1.1, 2.0)
22 01 22.53 +40 08 27.9	AB	(−6.8, −59.7)	(0.8, 1.1)	(−7.1, −53.1)	(8.1, 4.6)
22 07 40.63 +63 02 22.5	AB	(68.4, 29.1)	(3.3, 3.1)	(64.2, 31.3)	(1.9, 2.6)
22 10 59.25 +10 20 23.0	AB	(131.6, −0.9)	(10.3, 10.4)	(133.3, −7.9)	(10.2, 10.4)
22 15 56.53 +49 31 22.0	AB	(39.7, −54.4)	(1.1, 1.3)	(45.8, −53.4)	(4.6, 1.3)
22 19 12.13 +10 11 21.7	AB	(113.8, −58.4)	(2.2, 2.8)	(113.8, −64.4)	(3.7, 7.4)
22 23 27.00 +26 21 04.1	AB	(73.9, −9.4)	(0.8, 1.7)	(76.7, −12.8)	(7.8, 4.7)
22 24 03.15 +43 23 58.9	AB	(−14.9, −55.2)	(0.6, 0.6)	(−14.0, −48.4)	(9.4, 9.5)
22 35 39.45 +19 38 54.7	AB	(47.0, −18.5)	(3.5, 2.1)	(52.3, −26.5)	(7.2, 7.2)
22 37 19.58 +22 24 59.2	AB	(68.9, 10.7)	(10.4, 10.1)	(63.4, 8.5)	(7.7, 7.7)
22 47 32.56 +17 13 25.9	AB	(58.9, 38.0)	(6.4, 5.5)	(53.4, 32.6)	(9.2, 9.6)
22 47 55.50 +03 36 07.3	AB	(68.8, 3.7)	(1.2, 0.5)	(71.5, 5.1)	(1.8, 0.6)
22 50 22.85 +33 43 42.7	AB	(45.9, 28.1)	(1.1, 0.8)	(48.0, 27.7)	(8.3, 8.2)
22 58 15.06 +01 24 14.1	AB	(−46.4, 105.2)	(1.7, 1.2)	(−38.1, 110.5)	(4.6, 12.6)
23 04 09.83 +17 15 04.0	AB	(55.0, −24.9)	(0.8, 1.0)	(56.4, −25.8)	(2.7, 4.1)
23 05 05.62 +38 40 57.8	AB	(−31.1, −55.5)	(0.9, 1.5)	(−32.7, −61.2)	(9.0, 8.8)
23 09 32.80 +49 58 24.9	AB	(−91.1, −109.9)	(6.6, 4.5)	(−97.1, −105.5)	(10.1, 6.0)
23 13 49.67 +25 35 44.7	AB	(70.9, 18.1)	(0.8, 0.5)	(69.5, 15.5)	(2.3, 2.4)
23 16 19.99 +17 50 32.0	AB	(16.4, −112.4)	(0.6, 0.6)	(18.8, −116.1)	(10.8, 10.9)
23 21 08.84 +21 48 09.4	AB	(−59.9, −44.8)	(9.8, 9.8)	(−60.1, −40.4)	(9.8, 9.9)
23 22 50.25 +27 34 28.0	AB	(94.6, −9.1)	(0.6, 0.5)	(96.5, −13.2)	(6.9, 4.9)
23 25 21.95 +12 20 59.9	AB	(−24.2, −55.3)	(4.0, 3.2)	(−19.9, −62.0)	(4.4, 3.9)
23 25 53.66 +22 10 39.6	AB	(53.7, −22.8)	(2.2, 1.7)	(53.9, −28.9)	(9.9, 9.9)
23 26 20.55 +42 08 14.2	AB	(65.4, 0.5)	(0.9, 0.9)	(57.6, 5.1)	(7.4, 7.5)
23 29 30.84 +46 44 18.7	AB	(137.0, −80.0)		(137.0, −80.0)	
23 36 29.20 +67 41 43.9	AB	(−56.0, −39.1)	(7.7, 7.3)	(−64.9, −29.3)	(7.4, 7.3)
23 41 10.44 +00 47 24.2	AB	(−4.0, 59.2)	(1.3, 1.0)	(1.4, 59.3)	(1.3, 1.3)
23 41 17.43 +14 54 51.9	AB	(139.0, 72.0)		(139.0, 72.0)	
23 41 47.71 +09 14 25.1	AB	(−36.1, −45.5)	(2.6, 1.9)	(−33.7, −44.1)	(3.1, 2.4)
23 43 36.60 +39 08 14.8	AB	(−28.9, −42.5)	(1.0, 0.8)	(−37.2, −41.0)	(9.7, 9.4)
23 44 22.25 +71 26 52.5	AB	(−69.8, 3.6)	(1.3, 1.3)	(−72.2, −0.9)	(7.6, 7.2)
23 49 24.30 +36 54 02.8	AB	(115.0, −80.1)	(0.6, 1.1)	(115.1, −80.7)	(11.1, 11.0)
23 49 30.53 +23 25 45.0	AB	(−40.3, −46.9)	(0.7, 0.8)	(−36.8, −56.8)	(7.6, 7.6)
23 58 05.47 +31 09 44.5	AB	(−39.2, 141.6)	(1.9, 1.6)	(−39.0, 145.6)	(10.1, 9.5)
23 58 53.39 +01 48 44.8	AB	(75.9, −30.2)	(7.3, 7.2)	(77.7, −33.0)	(7.5, 7.3)