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Three-dimensional structure of the Upper Scorpius association with the Gaia first data release

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ABSTRACT

Using new proper motion data from recently published catalogs, we revisit the membership of previously identified members of the Upper Scorpius association. We confirmed 760 of them as cluster members based on the convergent point method, compute their kinematic parallaxes and investigate the 3D structure and geometry of the association using a robust covariance method. We find a mean distance of 141 ± 3 pc and show that the morphology of the association defined by the brightest (and most massive) stars yields an prolate ellipsoid with dimensions of $78 \times 37 \times 30$ pc^3, while the faintest cluster members define a more elongated structure with dimensions of $96 \times 28 \times 21$ pc^3. We suggest that the different properties of both populations is an imprint of the star formation history in this region.

Key words: open clusters and associations: individual: Upper Scorpius – Galaxy: kinematics and dynamics – stars: distances – proper motions – methods: statistical.

1 INTRODUCTION

The Upper Scorpius association, located at a distance of about 145 pc, is the youngest ($\sim 5-10$ Myr; Preibisch et al. 2002; Pecaut & Mamajek 2016) and best-studied subgroup of the Scorpius-Centaurus complex. Despite its close proximity to the Ophiuchus star-forming clouds there are no indications of ongoing star formation activity. The molecular clouds in this region have already been dispersed so that cluster members of different masses are still present and can be easily observed. de Zeeuw et al. (1999) investigated the high-mass stellar population of the association ($M \geq 2M_{\odot}$) and identified most of the group members with spectral types B, A and F. Later studies focused on the low-mass content of the association, identifying hundreds of late-type stars and brown dwarfs (see e.g. Preibisch & Zinnecker 1999; Preibisch et al. 2002; Luhman & Mamajek 2012; Rizzuto et al. 2015; Lodieu 2013; Cook et al. 2017).

The age estimate of Upper Scorpius is controversial. While previous works reported an age of ~ 5 Myr with very little spread (Preibisch & Zinnecker 1999; Preibisch et al. 2002; Slesnick et al. 2008), more recent studies indicate an older median age (10-11 Myr) with a spread as large as ~ 7 Myr (Pecaut et al. 2012), with a possible dependence on position (Pecaut & Mamajek 2016), effective temperatures (Rizzuto et al. 2016), or the presence of circumstellar disk (Donaldson et al. 2017). Whether this age spread is real or not (see e.g. Fang et al. 2017) remains under debate.

In this context, another important aspect is the intrinsic size of the association and the spread of individual distances which causes the stellar luminosities (and ages) to be over- or under-estimated with respect to the mean distance of the association. De Zeeuw et al. (1999) derived a mean distance of 145 ± 2 pc based on trigonometric parallaxes from the *Hipparcos* catalog (ESA 1997) of 120 bright cluster members. The spread of distances for this sample amounts to about 32 pc, which is consistent with the projected diameter of the association of $\sim 14°$ that roughly corresponds to 35 pc. Thus, based on these data we may assume that the bright stars' spatial distribution has a spherical shape (see also Preibisch & Mamajek 2008). Recent studies led by Fang et al. (2017) and Cook et al. (2017) estimated a mean distance of 144 and 145 ± 2 pc, and a spread along the line of sight of about ± 15 and ± 13 pc, respectively. However, a complete study of the 3D geometry of the Upper Scorpius association and its dependence with stellar masses is still lacking. This situation will improve dramatically in the near future with the trigonometric parallaxes delivered by the Gaia satellite down to $G \simeq 20$ mag. In this paper we use the first data release of the Gaia satellite (Gaia-DR1) together with the more recent ground-based surveys to investigate the 3D structure and membership of the association.

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2 SAMPLE OF UPPER SCORPIUS STARS

The first step in our analysis is to build a complete census of known members in the Upper Scorpius association. We have compiled a list of 1291 stars that were identified in previous studies to be likely members of the association based on youth diagnostics and proper motions (de Zeeuw et al. 1999; Preibisch & Zinnecker 1999; Preibisch et al. 2002; Luhman & Mamajek 2012; Rizzuto et al. 2015; Pecaut & Mamajek 2016). Of course, this sample of candidate members will undergo revision as soon as more data from ongoing and upcoming surveys (e.g. Gaia, LSST) become available. In the following, we searched the current databases to access the more recent data available for this sample that will be useful to investigate the structure in the association.

The Tycho-Gaia Astrometric Solution (TGAS, Lindegren et al. 2016) that has just been delivered by Gaia-DR1 provides trigonometric parallaxes and proper motions for only 129 stars. On the other hand, the recently published "Hot Stuff for One Year" (HSOY, Altmann et al. 2017) and UCAC5 proper motion catalogs provide proper motion measurements for 995 stars and 537 stars in our sample, respectively. Both catalogs combine the stellar positions from Gaia-DR1 with ground-based astrometry from the PPMXL (Roeser et al. 2010) and UCAC4 (Zacharias et al. 2013) catalogs, and represent the best present-day compromise for this work between the number of sources in our sample and proper motion precision. In addition, we also complement these two sources of proper motions with data from the SPM4 (Girard et al. 2011) catalog for 756 stars. We use the TGAS proper motions to construct our catalog and took the most precise proper motion value among the other sources (HSOY, UCAC5 and SPM4) for the stars in our sample with multiple proper motion measurements. Doing so, we find proper motion data for 1097 stars of our initial sample.

We also searched the literature for radial velocity information using the data mining tools available at the CDS/SIMBAD databases (Wenger et al. 2000). Our search for radial velocities is based on: Barbier-Brossat & Figon (2000); Nordström et al. (2004); Gontcharov (2006); Torres et al. (2006); Kharchenko et al. (2007); White et al. (2007); Holmberg et al. (2007); Chen et al. (2011); Dahm et al. (2012); Song et al. (2012); Kordopatis et al. (2013); Malo et al. (2014); Mann et al. (2016). We found radial velocities for 141 stars.

3 KINEMATIC PARALLAXES AND MEMBERSHIP ANALYSIS

The small number of stars with measured trigonometric parallaxes (i.e., 10% of the sample) and the scarcity of radial velocity measurements are the main limitations in this work to investigate the structure and kinematics of Upper Scorpius. In this context, individual parallaxes for comoving members of the association sharing the same space motion can be inferred from the moving-cluster method (de Bruijne 1999a; Galli et al. 2012). The so-derived kinematic parallaxes are not as precise as the trigonometric parallaxes from the TGAS catalog, but they still provide useful information to complement the forthcoming analysis.

To begin with, we take the sample of 1097 stars with known proper motions and perform a 3σ clipping on the distribution of both proper motion components to remove obvious outliers. This step reduces the sample to 915 stars. Then, we apply the convergent point search method (CPSM) as described in Sect. 2 of Galli et al. (2017). The method takes a distance estimate and velocity dispersion of the cluster as input parameters. We use the distance of 145 pc and velocity dispersion of $\sigma_v \simeq 1.5$ km/s derived by de Bruijne (1999b). Doing so, the CPSM selects 760 stars that we consider to be confirmed members of the Upper Scorpius association. Table 1 lists their kinematic parameters.[1] The corresponding convergent point solution is located at $(\alpha_{cp}, \delta_{cp}) = (95.5^\circ, -42.1^\circ) \pm (1.9^\circ, 2.2^\circ)$ with $\chi^2_{red} = 1.04$ and correlation coefficient of $\rho = -0.99$.

We note that 107 stars among the confirmed moving group members have trigonometric parallaxes, but only 53 stars exhibit complete data (proper motion, radial velocity and trigonometric parallax). We convert their trigonometric parallaxes into distances as described by Bailer-Jones (2015), and use them to calculate the three-dimensional Galactic spatial velocities UVW from the procedure described by Johnson & Soderblom (1987). Then, we perform an iterative 3σ clipping in the distribution of the UVW spatial velocities and we end up with 42 stars that define our control sample, indicated in Table 1. We argue that these stars are secure members of the association based on (i) the membership analysis performed with the CPSM and (ii) their common space motion as derived directly from proper motions, radial velocities and trigonometric parallaxes. We provide in Table 2 the spatial velocity of the Upper Scorpius association as derived from our control sample.

Table 2. Spatial velocity of the Upper Scorpius association derived from our control sample of 42 stars with complete data. We provide for each velocity component the mean, standard error of the mean (SEM), median, mode and standard deviation (SD).

	Mean ± SEM (km/s)	Median (km/s)	Mode (km/s)	SD (km/s)
U	-5.0 ± 0.1	-4.9	-4.7	2.2
V	-16.7 ± 0.1	-16.9	-16.7	1.5
W	-6.7 ± 0.1	-6.6	-6.5	1.6
V_{space}	18.8 ± 0.1	18.8	18.8	1.6

We calculate kinematic parallaxes for the 760 stars identified as moving group members in our analysis using the formalism described in Sect. 2.1 of Galli et al. (2017). We decided to compute the kinematic parallaxes using Eq. 2 of Galli et al. (2017) that is written in terms of the spatial velocity of the cluster. Although this procedure applies to all stars in the sample (including, binaries and cluster members without radial velocity measurements), the so-derived parallaxes are less accurate than the results obtained directly from Eq. 1 of Galli et al. (2017) based on the radial velocity of individual stars. To overcome this issue we performed a number of 1000 Monte Carlo simulations by resampling the input parameters (proper motion, spatial velocity of the cluster and angular distance to the convergent

[1] **Table 1 is only available in electronic form at the CDS.**

point position) in Eq. 2 of Galli et al. (2017) from Gaussian distributions where mean and variance correspond to the observed parameters and their uncertainties. We report for each star in Table 1 the mean and standard deviation of the distribution of simulated kinematic parallaxes. The comparison with the trigonometric parallaxes in our control sample for the sample in common (42 stars) yields a mean difference of -0.01 mas (in the sense "trigonometric" minus "kinematic") and r.m.s. of 0.5 mas. The mean error of the kinematic parallaxes derived in this work is 0.8 mas while the mean error of the TGAS trigonometric parallaxes in our sample is 0.5 mas. The systematic errors of 0.3 mas in the TGAS trigonometric parallaxes reported by Lindegren et al. (2016) were added quadratically to the parallax uncertainties in our analysis. We conclude that both samples (trigonometric and kinematic parallaxes) are consistent between themselves within their errors.

We obtain a mean parallax of $\pi = 7.09 \pm 0.08$ mas for our control sample (42 stars), which corresponds to a distance of $d = 141 \pm 3$ pc given a confidence interval of 95%. We consider this value as our final distance result, because it is based on a sample with complete data and the stellar spatial velocities define a core comoving group of the Upper Scorpius association. In comparison, the mean parallaxes obtained from all the TGAS trigonometric parallaxes (107 stars) and the kinematic parallaxes (760 stars) are, respectively, $\pi = 6.85 \pm 0.07$ mas and $\pi = 6.91 \pm 0.03$ mas. They yield a distance estimate of $d = 146 \pm 3$ pc and $d = 145 \pm 1$ pc, and are consistent with our previous result.

4 3D STRUCTURE

To investigate the structure of the association we use the stellar parallaxes derived above to calculate the three-dimensional position XYZ of the selected group members in our sample. This reference system has its origin at the Sun, where X points to the Galactic center, Y points in the direction of Galactic rotation and Z points to the Galactic north pole.

To derive the main 3D global geometrical properties of the Upper Scorpius association, we use a multivariate statistical method based on estimators of the covariance matrix of the 3D spatial distribution. The idea is that the envelope of any 3D distribution of points may be approximated by an ellipsoid. The center of the ellipsoid is the centroid of the stars of the cluster, and the 3x3 covariance matrix of this distribution of points contains the structural information of its orientation and its major directions of scatter in the 3 dimensions. Indeed, the eigenvectors of the covariance matrix C constitute an orthonormal system of maximal variance, i.e. it gives the 3 main axes along which the data vary the most. The eigenvalues λ_i of the covariance matrix are related to the dispersion of the data along those principal axes. The semi-axes a_i of the ellipsoid are then defined as:

$$a_i = (\chi^2(\alpha, d)\, \lambda_i)^{1/2}\,, \tag{1}$$

where χ^2 is the chi-squared function, d is the dimension of the space in which the data are embedded (i.e., $d = 3$), and α the quantile that defines the proportion of data that are contained within the ellipsoid.

To derive the vector and the angle of the rotation operation that brings the XYZ coordinate system in the orthonormal system of the optimal ellipsoid, we use the following equation:

$$C \cdot V = V \cdot \Gamma\,, \tag{2}$$

where V is the matrix whose columns are composed by the 3 eigenvectors ($\vec{u_{X'}} = \{V_{i1}\}$, $\vec{u_{Y'}} = \{V_{i2}\}$, $\vec{u_{Z'}} = \{V_{i3}\}$; $i = 1, 2, 3$)) of the covariance matrix C, and Γ is a diagonal matrix composed of the corresponding ordered eigenvalues. The matrix V represents the rotation transformation matrix and $\Gamma^{1/2}$ the scale matrix such that we have

$$C = V \cdot \Gamma^{1/2} \cdot \Gamma^{1/2} \cdot V^{-1}\,. \tag{3}$$

In other words we define the linear transformation $T = V \cdot \Gamma^{1/2}$, such that the covariance matrix is defined as $C = T \cdot {}^tT$, where ${}^tT$ is the transpose matrix of T. Applying the covariance matrix on any set of white noise will transform the set of white data into the rotated and scaled data that fit the ellipsoid.

The inclination angle i of the most elongated principal axis of the ellipsoid (oriented along the vector $\vec{u_{X'}} = \{V_{i1}\}$, $i = 1, 2, 3$) with respect to the Galactic plane is estimated from:

$$i = \mathrm{atan}\left(V_{31}/(V_{11}^2 + V_{21}^2)^{1/2}\right)\,. \tag{4}$$

We define two lines of nodes as the intersection of the Galactic plane with the principal planes of the ellipsoid, respectively ($\vec{u_{X'}}$, $\vec{u_{Y'}}$) and ($\vec{u_{X'}}$, $\vec{u_{Z'}}$). Their direction may be obtained from the cross product of $\vec{u_Z}$ and the normal vectors of each plane (respectively $\vec{u_{Z'}}$ and $\vec{u_{Y'}}$) and the longitudes of the ascending nodes Ω, Λ are

$$\Omega = \mathrm{atan}((\tilde{u_Z} \times \tilde{u_{Z'}})_Y/(\tilde{u_Z} \times \tilde{u_{Z'}})_X) = \mathrm{atan}(-V_{13}/V_{23})\,, \tag{5}$$

$$\Lambda = \mathrm{atan}((\tilde{u_Z} \times \tilde{u_{Y'}})_Y/(\tilde{u_Z} \times \tilde{u_{Y'}})_X) = \mathrm{atan}(-V_{12}/V_{22})\,, \tag{6}$$

where $\times$ stands for the cross product of vectors.

In the standard covariance method, all data are taken into account to compute the covariance matrix C, which is fine for a homogeneous distribution. But when the distribution of points is more complex, as for example a compact region with sparse and diffuse tails or the presence of noise and outliers (as in our data), the need for a robust estimator of the covariance matrix is required. In order to define the main optimal properties of the ellipsoid (location, orientation and scatter), we choose the minimum covariance determinant (MCD) estimator as it is the most robust in presence of a high proportion of outliers (Rousseeuw & Driessen 1999; Rousseeuw & Hubert 2011), when compared for example to the Minimum Volume Ellipsoid (MVE) estimator (Van Aelst & Rousseeuw 2009). The MCD estimator searches for the ellipsoid with the smallest determinant that covers a specified "good" fraction of the data. No less than half of the data has to be used. Since the data are not homogeneously distributed, the method may lead to local attractors if the fraction of data is inadequate. We found that taking 80% as the minimum required fraction of data used in the MCD estimator allows to get rid of the outliers and ensures the uniqueness and stability of the solution.

We then apply this method to 3 different subsamples of our list of 760 stars considered as cluster members from the CPSM (see previous section): the TGAS stars only, corresponding to the brightest stars (S_1, $n_1 = 107$ stars); all

Table 3. Description of the star sample, the parallaxes and the bootstrap technique used for each numerical experiment.

Experiments	Sample	N stars	Parallax	Bootstrap
E_1	S_1	107	TGAS	B_1
E_2	S_1	107	Kinematic	B_1
E_3	S_2	760	Kinematic	B_1
E_4	S_2	760	Kinematic	B_2
E_5	S_3	653	Kinematic	B_1
E_6	S_3	653	Kinematic	B_2

the stars of our catalog having a kinematic parallax estimate (S_2, $n_2 = 760$ stars); and finally the stars that have a kinematic parallax estimate but are not in TGAS (S_3, $n_3 = 653$ stars). From those samples, we perform 6 calculations (see Table 3) depending on whether we use the trigonometric or kinematic parallaxes to compute the 3D Galactic coordinates of the stars in sample S_1 (respectively experiments E_1 and E_2), and depending on the bootstrap technique we used for the samples S_2 and S_3 (experiments E_3 to E_6).

Indeed, in order to derive the geometrical properties in a statistical and robust way, we implement two different bootstrap iterative methods (5000 iterations). The first bootstrap technique (B_1) is based on a Monte Carlo sampling applied to the coordinates (right ascension, declination and parallax), taking into account their normally distributed uncertainties to compute their Galactic coordinates. This bootstrap technique aims at evaluating the effect of the individual uncertainties of the star positions on the global structure of the association. The second bootstrap method (B_2) takes into account the fact that the sample sizes are different. When comparing the distribution of the 107 brightest (and therefore most massive assuming they are located approximately at the same distance) stars from sample S_1 to the 653 less bright (less massive) stars (sample S_3), we need to estimate the possible bias introduced by the different sample size. We thus realize a Monte Carlo sampling of 107 stars within the S_2 and S_3 samples, to which we apply the B_1 bootstrap method to compute the Galactic coordinates. For each of the experiments, we derive the mean center, the lengths and direction of the main axes of the ellipsoid, the inclination of the most elongated axis of the ellipsoid with respect to the Galactic plane and the longitude of the ascending nodes (see Table 4). The 3D spatial study of the Upper Scorpius association has been performed in the *R environment* (R Core Team 2017) using the *MASS* package (Venables & Ripley 2002) and the *rgl* package for the 3D spatial analysis and visualization.

5 DISCUSSION AND CONCLUSION

Despite the different data sets used in E_1 and E_2 (trigonometric and kinematic parallaxes, see Table 3) we confirmed that the global 3D distributions are similar. In both cases, the geometry of the S_1 sample is an prolate structure elongated mainly along the X axis (oriented towards the Galactic center) with the dimensions $\sim 39 \times 19 \times 15$ pc^3, and an inclination of $i = 21°$-$24°$ with the Galactic plane. The computed centers of the ellipsoids are about 2 pc away from each other and are located at a distance of 145.2 and 143.4 pc for

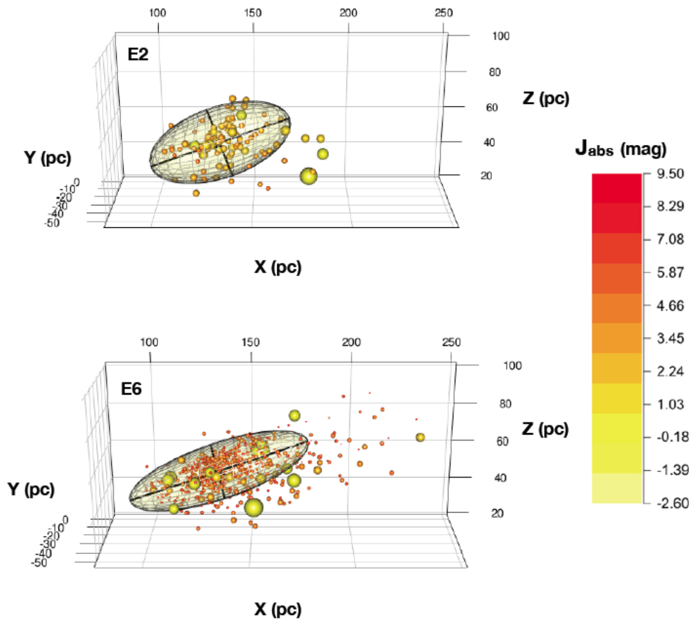

Figure 1. 3D structure of the Upper Scorpius association obtained for the experiments E_2 (upper panel) and E_6 (lower panel). The color and size of the points are related to the absolute magnitude of the stars computed from the 2MASS J filter.

E_1 and E_2 respectively. The average value is consistent with our distance estimates derived in Sect. 3. We note that intriguingly the inclination i obtained in this work is very close to the one derived for the overall structure of the Gould's belt (Perrot & Grenier 2003; Palouš & Ehlerová 2017).

We check that no bias is introduced by sample size effect in our analysis as the experiments using different bootstrap techniques (E_3 and E_4, and E_5 and E_6) give the same results within the standard errors. And we then compare the shape of the ellipsoids that we obtain for the stars present in the TGAS catalog (S_1 sample), corresponding in majority to the brightest ($G < 12$ mag) and therefore most massive stars, to the fainter and less massive S_3 sample. The ellipsoid associated with the faintest stars (E_6 experiment) has a 3D dimension of $\sim 48 \times 14 \times 10$ pc^3. It is about 20% longer and 25% and 33% slimmer for the second and third principal axis respectively, than the ellipsoid obtained for E_2 (see Fig. 1). The inclination is about 21° in both cases but Λ is $\sim 40°$ less for E_6. The center of the latter ellipsoid is ~ 3 pc closer in the Y direction and ~ 2.5 pc farther in the Z direction. These results suggest that maybe the formation of the more massive stars took place first, before the formation of the less massive stars, which would favour a real age spread, and may reveal a tangential (rotational?) movement.

The anisotropy of the shape of both ellipsoids suggest that the Upper Scorpius association is not dynamically relaxed. Indeed, using a one-dimensional velocity dispersion of 2.2 km/s for the brightest stars sample (see Table 2) and 11 Myr (Pecaut et al. 2012) as the estimated age of the region, the crossing distance is of the order of ~ 25 pc, which is less than the largest dimension of the ellipsoid. We thus conclude that the shape of the Upper Scorpius association is an imprint of its star formation history. This study repre-

Table 4. Geometrical properties of the Upper Scorpius association obtained in each experiment (see Table 3). We provide the coordinates of the centroid C_0 of the ellipsoid (errors < 1%), the eigenvectors of the covariance matrix, the semi-axes of the ellipsoids (errors < 0.1 pc), inclination angle (errors < 1°) and the longitude of the ascending nodes (errors < 1°).

	x_0, y_0, z_0 (pc)	$u_{\vec{X'}}$	$u_{\vec{Y'}}$	$u_{\vec{Z'}}$	a_1 (pc)	a_2 (pc)	a_3 (pc)	i (°)	Ω (°)	Λ (°)
E_1	134.5,-22.2,49.9	0.897,-0.144,0.417	-0.395,0.160,0.905	-0.197,-0.977,0.086	37.18	19.56	16.70	24.7	348.6	248.0
E_2	132.7,-21.7,49.9	0.932,-0.041,0.359	-0.350,0.147,0.925	-0.091,-0.988,0.123	39.06	18.65	14.83	21.1	354.7	247.2
E_3	133.8,-19.3,52.1	0.924,-0.110,0.365	-0.268,0.493,0.828	-0.271,-0.863,0.427	47.81	14.89	11.08	21.4	342.6	208.5
E_4	133.6,-19.2,52.1	0.925,-0.110,0.365	-0.268,0.488,0.831	-0.270,-0.866,0.422	47.31	14.83	10.97	21.3	342.7	208.8
E_5	133.7,-18.9,52.5	0.922,-0.116,0.369	-0.261,0.518,0.815	-0.285,-0.848,0.447	48.61	14.22	10.54	21.6	341.4	206.7
E_6	133.6,-18.9,52.4	0.923,-0.115,0.368	-0.261,0.515,0.816	-0.284,-0.849,0.445	48.26	14.16	10.37	21.6	341.5	206.9

sents an important step towards understanding the complex history of the star formation process in this region. The more accurate parallaxes from Gaia-DR2 for the faintest cluster members will allows us to build on this scenario.

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Table 1. Kinematic properties of the 760 stars selected by the CPSM.

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J15302162-2036481	15 30 21.63	-20 36 48.12	-19.630 ± 0.176	-23.430 ± 0.071	TGAS	-31.3 ± 0.3	1	8.00 ± 0.68	6.84 ± 0.39	$-30.2^{+0.9}_{-0.9}$	$-14.3^{+1.3}_{-1.5}$	$-17.8^{+1.3}_{-1.3}$	N
J15321033-2158004	15 32 10.33	-21 58 00.48	-16.070 ± 1.990	-23.580 ± 1.880	SPM4			7.47 ± 0.83					N
J15351610-2544030	15 35 16.10	-25 44 03.07	-18.428 ± 0.042	-23.482 ± 0.023	TGAS	-2.5 ± 0.6	2	7.68 ± 0.65	7.44 ± 0.62	$-6.0^{+1.1}_{-1.2}$	$-17.9^{+1.6}_{-1.9}$	$-4.7^{+1.8}_{-1.8}$	Y
J15355780-2324046	15 35 57.80	-23 24 04.60	-14.400 ± 1.000	-21.600 ± 1.000	UCAC5			6.77 ± 0.64					N
J15372849-2616474	15 37 28.49	-26 16 47.48	-9.901 ± 0.030	-22.581 ± 0.022	TGAS			6.34 ± 0.55	5.55 ± 0.71				N
J15390006-1943569	15 39 00.06	-19 43 56.92	-14.789 ± 0.057	-18.542 ± 0.031	TGAS			6.30 ± 0.55	5.35 ± 0.55				N
J15392602-2958462	15 39 26.03	-29 58 46.21	-18.246 ± 2.152	-24.352 ± 2.152	HSOY			7.74 ± 0.86					N
J15410679-2656263	15 41 06.79	-26 56 26.31	-17.662 ± 2.280	-26.547 ± 1.166	TGAS	-2.8 ± 1.0	3	8.21 ± 0.89	8.28 ± 0.73	$-5.7^{+2.0}_{-2.2}$	$-17.0^{+3.0}_{-3.5}$	$-5.7^{+3.2}_{-3.3}$	Y
J15413121-2520363	15 41 31.22	-25 20 36.35	-17.696 ± 1.214	-26.289 ± 0.241	TGAS	-6.7 ± 1.0	3	8.20 ± 0.76	7.52 ± 0.47	$-9.0^{+1.7}_{-1.7}$	$-17.7^{+2.0}_{-2.2}$	$-7.4^{+2.1}_{-2.1}$	Y
J15422621-2247458	15 42 26.21	-22 47 45.82	-16.400 ± 0.900	-23.800 ± 0.900	UCAC5			7.58 ± 0.69					N
J15424991-2536406	15 42 49.92	-25 36 40.60	-20.559 ± 1.639	-23.709 ± 0.608	TGAS			8.01 ± 0.79	5.36 ± 0.58				N
J15435905-2622516	15 43 59.06	-26 22 51.64	-18.300 ± 1.200	-22.100 ± 1.200	UCAC5			7.31 ± 0.70					N
J15441334-2522590	15 44 13.34	-25 22 59.10	-15.700 ± 1.000	-24.200 ± 1.000	UCAC5			7.48 ± 0.71					N
J15450970-2512430	15 45 09.71	-25 12 43.06	-13.900 ± 1.000	-22.400 ± 1.000	UCAC5			6.87 ± 0.61					N
J15460529-2920531	15 46 05.29	-29 20 53.11	-14.440 ± 2.320	-24.820 ± 2.190	SPM4			7.40 ± 0.90					N
J15470494-2137403	15 47 04.94	-21 37 40.38	-8.296 ± 2.100	-18.774 ± 2.100	HSOY			5.40 ± 0.72					N
J15471063-1736244	15 47 10.63	-17 36 24.41	-20.200 ± 1.100	-26.900 ± 1.100	UCAC5			8.99 ± 0.80					N
J15474331-1819153	15 47 43.32	-18 19 15.38	-13.100 ± 1.100	-19.800 ± 1.100	UCAC5			6.40 ± 0.65					N
J15480291-2908369	15 48 02.92	-29 08 36.91	-17.780 ± 2.279	-23.857 ± 1.215	TGAS	0.9 ± 1.0	3	7.58 ± 0.84	6.80 ± 0.38	$-3.6^{+1.9}_{-2.0}$	$-20.2^{+2.9}_{-3.2}$	$-3.8^{+3.1}_{-3.0}$	Y
J15485212-2929002	15 48 52.13	-29 29 00.21	-7.344 ± 0.072	-18.947 ± 0.043	TGAS			5.22 ± 0.46	7.83 ± 0.39				N
J15490414-2120150	15 49 04.15	-21 20 15.08	-4.552 ± 2.528	-17.362 ± 2.528	HSOY			4.61 ± 0.77					N
J15492100-2600062	15 49 21.00	-26 00 06.26	-17.016 ± 1.521	-22.988 ± 0.710	TGAS	-5.0 ± 1.0	3	7.36 ± 0.71	6.67 ± 0.40	$-8.0^{+1.8}_{-1.9}$	$-18.7^{+2.4}_{-2.7}$	$-5.5^{+2.6}_{-2.6}$	Y
J15492508-2843527	15 49 25.08	-28 43 52.74	-20.400 ± 1.000	-24.600 ± 1.000	UCAC5			8.09 ± 0.72					N
J15495733-2201256	15 49 57.34	-22 01 25.65	-10.354 ± 2.097	-24.766 ± 2.097	HSOY			7.07 ± 0.84					N
J15495979-2509033	15 49 59.80	-25 09 03.39	-11.850 ± 0.141	-23.211 ± 0.092	TGAS			6.83 ± 0.58	6.76 ± 0.38				N
J15500499-2311537	15 50 04.99	-23 11 53.73	-18.900 ± 0.900	-28.200 ± 0.900	UCAC5			8.89 ± 0.81					N
J15501958-2805237	15 50 19.59	-28 05 23.73	-14.266 ± 3.435	-26.877 ± 3.435	HSOY			7.96 ± 1.10					N
J15505641-2534189	15 50 56.42	-25 34 18.97	-14.736 ± 1.149	-25.210 ± 0.526	TGAS	-6.0 ± 1.6	2	7.61 ± 0.70	7.79 ± 0.61	$-7.6^{+2.1}_{-2.2}$	$-15.9^{+2.3}_{-2.6}$	$-7.1^{+2.5}_{-2.6}$	Y
J15505874-2545046	15 50 58.75	-25 45 04.62	-14.141 ± 0.047	-24.721 ± 0.045	HSOY			7.41 ± 0.63					N
J15510142-1548286	15 51 01.42	-15 48 28.62	-5.700 ± 1.300	-26.000 ± 1.300	UCAC5			6.99 ± 0.72					N
J15510660-2402190	15 51 06.61	-24 02 19.03	-15.300 ± 0.900	-24.400 ± 0.900	UCAC5			7.54 ± 0.69					N
J15511870-2145235	15 51 18.71	-21 45 23.53	-12.150 ± 2.097	-22.112 ± 2.097	HSOY			6.70 ± 0.82					N
J15514032-2146103	15 51 40.32	-21 46 10.39	-11.595 ± 2.097	-26.186 ± 2.097	HSOY			7.60 ± 0.88					N
J15514535-2456513	15 51 45.35	-24 56 51.32	-10.200 ± 1.000	-22.000 ± 1.000	UCAC5			6.35 ± 0.62					N
J15521088-2125372	15 52 10.88	-21 25 37.20	-13.955 ± 2.121	-20.757 ± 2.121	HSOY			6.64 ± 0.80					N
J15530132-2114135	15 53 01.32	-21 14 13.56	-15.610 ± 1.920	-20.520 ± 1.850	SPM4			6.80 ± 0.77					N
J15530683-2247174	15 53 06.84	-22 47 17.40	-12.200 ± 1.200	-22.000 ± 1.200	UCAC5			6.66 ± 0.63					N
J15532089-1923535	15 53 20.90	-19 23 53.58	-11.101 ± 0.080	-21.289 ± 0.055	TGAS	-5.4 ± 0.4	1	6.46 ± 0.53	6.66 ± 0.52	$-5.0^{+0.9}_{-0.9}$	$-16.0^{+1.3}_{-1.6}$	$-7.0^{+1.4}_{-1.5}$	Y
J15532192-2158165	15 53 21.93	-21 58 16.54	-11.121 ± 0.069	-24.075 ± 0.036	TGAS			7.03 ± 0.59	7.16 ± 0.42				N
J15533670-2519378	15 53 36.70	-25 19 37.88	-10.880 ± 4.100	-27.890 ± 4.090	SPM4	-9.3 ± 1.6	4	7.75 ± 1.26					N
J15534211-2049282	15 53 42.12	-20 49 28.22	-14.000 ± 2.390	-19.650 ± 2.280	SPM4			6.40 ± 0.85					N
J15535391-2431592	15 53 53.92	-24 31 59.21	-13.743 ± 0.043	-25.453 ± 0.019	TGAS			7.61 ± 0.67	6.59 ± 0.92				N
J15535586-2358410	15 53 55.87	-23 58 41.03	-14.250 ± 3.480	-23.820 ± 3.460	SPM4			7.20 ± 1.10					N
J15543010-2720190	15 54 30.11	-27 20 19.10	-13.267 ± 0.038	-25.083 ± 0.018	TGAS			7.35 ± 0.61	6.48 ± 0.68				N
J15543190-2221564	15 54 31.90	-22 21 56.47	-3.162 ± 3.383	-23.151 ± 3.383	HSOY			5.80 ± 1.03					N
J15543952-2514375	15 54 39.53	-25 14 37.56	-13.152 ± 0.045	-24.549 ± 0.015	TGAS			7.28 ± 0.61	6.92 ± 0.80				N
J15544159-2245585	15 54 41.60	-22 45 58.52	-13.687 ± 0.042	-22.737 ± 0.017	TGAS			7.00 ± 0.62	6.18 ± 0.72				N
J15550038-1922584	15 55 00.38	-19 22 58.42	-11.588 ± 0.133	-16.004 ± 0.170	HSOY	2.1 ± 1.8	4	5.31 ± 0.47					N
J15550213-2149434	15 55 02.13	-21 49 43.45	-18.850 ± 0.940	-22.980 ± 0.930	SPM4			7.74 ± 0.71					N
J15550513-2026077	15 55 05.13	-20 26 07.74	-14.160 ± 1.380	-22.670 ± 1.330	SPM4			7.17 ± 0.72					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^{\circ}$ $'$ $''$)	$\mu_{\alpha}\cos\delta$ (mas/yr)	μ_{δ} (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J15550624-2521102	15 55 06.24	-25 21 10.22	-14.100 ± 0.900	-25.100 ± 0.900	UCAC5			7.49 ± 0.67					N
J15550852-2318510	15 55 08.52	-23 18 51.10	-15.400 ± 1.400	-25.000 ± 1.300	UCAC5			7.75 ± 0.76					N
J15551758-2322036	15 55 17.59	-23 22 03.68	-18.611 ± 0.080	-28.022 ± 0.041	TGAS			8.82 ± 0.77	8.24 ± 0.43				N
J15552561-1817484	15 55 25.61	-18 17 48.45	-9.876 ± 2.073	-29.717 ± 2.073	HSOY			8.36 ± 0.92					N
J15552980-2544499	15 55 29.81	-25 44 49.94	-8.800 ± 0.900	-29.700 ± 0.900	UCAC5			7.97 ± 0.74					N
J15553928-2053071	15 55 39.28	-20 53 07.17	-10.600 ± 1.970	-20.790 ± 1.890	SPM4			6.26 ± 0.77					N
J15554141-2043150	15 55 41.41	-20 43 15.10	-13.880 ± 1.140	-23.030 ± 1.110	SPM4			7.18 ± 0.66					N
J15554883-2512240	15 55 48.83	-25 12 24.10	-14.724 ± 1.708	-24.060 ± 0.495	TGAS	-3.3 ± 1.0	3	7.38 ± 0.75	7.45 ± 0.55	$-5.1^{+1.7}_{-1.8}$	$-16.8^{+2.3}_{-2.7}$	$-5.5^{+2.6}_{-2.5}$	Y
J15555098-2519393	15 55 50.98	-25 19 39.37	-12.080 ± 2.102	-24.178 ± 2.102	HSOY			7.09 ± 0.85					N
J15560104-2338081	15 56 01.04	-23 38 08.12	-18.505 ± 2.760	-28.722 ± 2.760	HSOY			9.01 ± 1.10					N
J15561978-2423288	15 56 19.79	-24 23 28.88	-15.381 ± 2.543	-25.664 ± 2.543	HSOY			7.86 ± 0.95					N
J15562060-2336099	15 56 20.60	-23 36 09.99	-9.300 ± 1.470	-14.370 ± 1.420	SPM4			4.50 ± 0.56					N
J15562477-2225552	15 56 24.77	-22 25 55.26	-15.590 ± 1.670	-22.720 ± 1.600	SPM4	-6.3 ± 0.9	2	7.27 ± 0.77					N
J15562511-2016159	15 56 25.12	-20 16 15.92	-12.180 ± 2.590	-24.660 ± 2.480	SPM4			7.39 ± 0.93					N
J15562563-2240271	15 56 25.64	-22 40 27.11	-17.300 ± 1.210	-21.680 ± 1.170	SPM4			7.21 ± 0.69					N
J15562941-2348197	15 56 29.42	-23 48 19.75	-13.140 ± 1.020	-29.820 ± 0.990	SPM4			8.55 ± 0.81					N
J15562954-2256581	15 56 29.54	-22 56 58.12	-4.760 ± 1.180	-16.250 ± 1.140	SPM4			4.41 ± 0.49					N
J15563425-2003332	15 56 34.26	-20 03 33.26	-12.094 ± 2.091	-21.895 ± 2.091	HSOY			6.72 ± 0.80					N
J15564244-2039339	15 56 42.45	-20 39 33.97	-13.490 ± 1.960	-24.710 ± 1.880	SPM4			7.55 ± 0.86					N
J15564769-1950077	15 56 47.69	-19 50 07.71	-11.500 ± 1.000	-22.900 ± 1.000	UCAC5			6.93 ± 0.66					N
J15564785-2311026	15 56 47.85	-23 11 02.61	-12.603 ± 0.058	-24.220 ± 0.024	TGAS			7.22 ± 0.64	6.57 ± 0.43				N
J15565307-2912507	15 56 53.07	-29 12 50.76	-16.520 ± 8.730	-24.760 ± 10.320	SPM4			7.40 ± 2.42					N
J15565545-2258403	15 56 55.46	-22 58 40.36	-14.200 ± 1.100	-23.200 ± 1.100	UCAC5			7.13 ± 0.67					N
J15570234-1950419	15 57 02.34	-19 50 41.98	-11.400 ± 1.000	-25.000 ± 1.000	UCAC5			7.37 ± 0.69					N
J15570368-2304484	15 57 03.68	-23 04 48.42	-12.900 ± 1.700	-16.090 ± 1.630	SPM4			5.37 ± 0.65					N
J15570641-2206060	15 57 06.42	-22 06 06.10	-14.692 ± 2.066	-19.547 ± 2.066	HSOY	-6.0 ± 1.8	2	6.45 ± 0.79					N
J15571279-2343465	15 57 12.79	-23 43 46.58	-7.615 ± 2.548	-29.917 ± 2.548	HSOY			7.97 ± 0.95					N
J15571674-2529192	15 57 16.74	-25 29 19.26	-14.560 ± 1.350	-17.690 ± 1.310	SPM4			5.84 ± 0.62					N
J15572391-2051453	15 57 23.92	-20 51 45.37	-12.100 ± 1.600	-21.700 ± 1.600	UCAC5			6.63 ± 0.72					N
J15572454-2038382	15 57 24.55	-20 38 38.24	-11.900 ± 1.800	-22.200 ± 1.700	UCAC5			6.77 ± 0.77					N
J15572575-2354220	15 57 25.76	-23 54 22.01	-14.400 ± 1.800	-16.940 ± 1.760	SPM4			5.70 ± 0.68					N
J15572849-2219051	15 57 28.49	-22 19 05.11	-5.010 ± 2.070	-27.680 ± 1.990	SPM4			7.13 ± 0.84					N
J15572986-2258438	15 57 29.86	-22 58 43.85	-14.327 ± 2.103	-18.265 ± 2.090	HSOY	-1.1 ± 1.0	2	6.03 ± 0.76					N
J15573430-2321123	15 57 34.31	-23 21 12.32	-12.710 ± 1.520	-29.400 ± 1.460	SPM4	-3.7 ± 0.8	2	8.45 ± 0.79					N
J15574046-2058591	15 57 40.46	-20 58 59.19	-9.660 ± 0.035	-21.671 ± 0.014	TGAS			6.31 ± 0.53	6.34 ± 0.91				N
J15574247-2551354	15 57 42.47	-25 51 35.50	-12.301 ± 2.107	-24.033 ± 2.106	HSOY			7.07 ± 0.78					N
J15574661-2229203	15 57 46.62	-22 29 20.32	-13.920 ± 1.540	-22.940 ± 1.480	SPM4			7.17 ± 0.75					N
J15574757-2444121	15 57 47.57	-24 44 12.16	-15.022 ± 2.106	-22.313 ± 2.106	HSOY			7.06 ± 0.83					N
J15575002-2305094	15 57 50.03	-23 05 09.42	-15.480 ± 1.160	-24.260 ± 1.130	SPM4			7.60 ± 0.70					N
J15575934-3143442	15 57 59.35	-31 43 44.23	-15.307 ± 0.034	-26.204 ± 0.021	TGAS			7.80 ± 0.67	6.73 ± 0.49				N
J15580639-2340417	15 58 06.40	-23 40 41.76	-12.201 ± 2.105	-23.206 ± 2.105	HSOY			6.93 ± 0.83					N
J15580694-2623466	15 58 06.95	-26 23 46.62	-12.400 ± 1.600	-27.300 ± 1.600	UCAC5			7.78 ± 0.78					N
J15580815-2405529	15 58 08.15	-24 05 52.97	-18.400 ± 1.000	-24.400 ± 1.000	UCAC5			7.92 ± 0.74					N
J15581270-2328364	15 58 12.71	-23 28 36.41	-14.079 ± 1.423	-23.991 ± 0.446	TGAS	-4.6 ± 0.2	2	7.33 ± 0.70	6.58 ± 0.71	$-5.9^{+1.3}_{-1.4}$	$-19.1^{+2.9}_{-3.6}$	$-6.6^{+3.1}_{-3.1}$	Y
J15581571-2021368	15 58 15.71	-20 21 36.86	-16.351 ± 1.988	-26.583 ± 1.987	HSOY			8.40 ± 0.92					N
J15581884-1915448	15 58 18.84	-19 15 44.85	-10.200 ± 1.600	-20.200 ± 1.600	UCAC5			6.11 ± 0.67					N
J15582054-1837252	15 58 20.55	-18 37 25.20	-19.031 ± 1.252	-20.778 ± 0.607	TGAS			7.38 ± 0.71	5.50 ± 0.64				N
J15582855-2334190	15 58 28.56	-23 34 19.06	-11.542 ± 2.105	-23.161 ± 2.105	HSOY			6.83 ± 0.83					N
J15582981-2310077	15 58 29.81	-23 10 07.72	-12.550 ± 1.380	-26.170 ± 1.330	SPM4			7.70 ± 0.77					N
J15583487-2449531	15 58 34.87	-24 49 53.19	-10.620 ± 2.890	-24.990 ± 3.010	SPM4			7.10 ± 0.98					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J15583620-1946135	15 58 36.20	-19 46 13.58	-13.705 ± 1.987	-23.920 ± 1.987	HSOY			7.45 ± 0.86					N
J15583621-2348018	15 58 36.22	-23 48 01.85	-16.180 ± 1.760	-21.240 ± 1.700	SPM4			6.96 ± 0.75					N
J15583692-2257153	15 58 36.92	-22 57 15.34	-11.514 ± 1.423	-21.241 ± 0.604	TGAS	-0.2 ± 0.8	5	6.41 ± 0.64	6.01 ± 0.46	$-1.4^{+1.7}_{-1.7}$	$-18.5^{+2.5}_{-2.9}$	$-5.2^{+2.7}_{-2.7}$	Y
J15584772-1757595	15 58 47.73	-17 57 59.55	-12.862 ± 0.923	-20.859 ± 0.538	TGAS	-7.2 ± 0.1	2	6.73 ± 0.66	7.08 ± 0.42	$-6.7^{+0.8}_{-0.8}$	$-15.5^{+1.6}_{-1.8}$	$-6.2^{+1.6}_{-1.6}$	Y
J15584813-2141338	15 58 48.13	-21 41 33.88	-15.519 ± 2.066	-30.680 ± 2.066	HSOY			9.19 ± 0.93					N
J15585820-2304352	15 58 58.21	-23 04 35.21	-10.500 ± 1.100	-22.500 ± 1.200	UCAC5			6.57 ± 0.65					N
J15590193-2616329	15 59 01.94	-26 16 32.95	-16.070 ± 2.091	-23.683 ± 2.090	HSOY			7.42 ± 0.84					N
J15590208-1844142	15 59 02.09	-18 44 14.25	-11.730 ± 1.009	-24.089 ± 1.021	HSOY			7.28 ± 0.70					N
J15590864-2600545	15 59 08.64	-26 00 54.55	-16.392 ± 2.090	-22.605 ± 2.090	HSOY			7.27 ± 0.87					N
J15591101-1850442	15 59 11.02	-18 50 44.30	-9.600 ± 1.200	-20.700 ± 1.100	UCAC5			6.19 ± 0.60					N
J15591135-2338002	15 59 11.36	-23 38 00.24	-10.368 ± 3.546	-27.779 ± 3.546	HSOY			7.77 ± 1.13					N
J15591244-2236502	15 59 12.45	-22 36 50.22	-16.667 ± 2.088	-26.469 ± 2.088	HSOY			8.25 ± 0.91					N
J15591452-2606182	15 59 14.52	-26 06 18.25	-12.900 ± 1.000	-23.600 ± 1.000	UCAC5			7.02 ± 0.66					N
J15591839-2210430	15 59 18.39	-22 10 43.08	-15.060 ± 1.740	-18.510 ± 1.670	SPM4	-7.9 ± 0.8	2	6.20 ± 0.71					N
J15593807-2603233	15 59 38.07	-26 03 23.31	-14.529 ± 2.152	-26.889 ± 2.152	HSOY			8.01 ± 0.90					N
J15594426-2029232	15 59 44.26	-20 29 23.29	-12.132 ± 1.987	-25.783 ± 1.987	HSOY			7.67 ± 0.86					N
J15595270-2526292	15 59 52.70	-25 26 29.23	-20.300 ± 0.900	-26.400 ± 0.900	UCAC5			8.63 ± 0.78					N
J15595868-1836520	15 59 58.69	-18 36 52.00	-10.600 ± 2.411	-20.094 ± 2.410	HSOY			6.22 ± 0.81					N
J15595995-2220367	15 59 59.95	-22 20 36.77	-12.700 ± 0.900	-24.200 ± 0.900	UCAC5			7.28 ± 0.65					N
J16000078-2509423	16 00 00.79	-25 09 42.37	-14.094 ± 1.258	-25.447 ± 0.313	TGAS	-1.3 ± 0.3	2	7.65 ± 0.69	7.36 ± 0.44	$-3.0^{+0.9}_{-0.9}$	$-17.8^{+1.7}_{-1.9}$	$-5.5^{+1.8}_{-1.8}$	Y
J16000704-2340487	16 00 07.05	-23 40 48.72	-11.860 ± 2.530	-19.580 ± 2.440	SPM4			6.07 ± 0.83					N
J16001216-2157032	16 00 12.17	-21 57 03.28	-14.600 ± 1.500	-24.700 ± 1.500	UCAC5			7.66 ± 0.78					N
J16001330-2418106	16 00 13.30	-24 18 10.63	-13.400 ± 1.000	-24.800 ± 1.000	UCAC5			7.44 ± 0.68					N
J16001567-2231580	16 00 15.68	-22 31 58.05	-15.770 ± 1.480	-20.320 ± 1.430	SPM4			6.72 ± 0.72					N
J16001844-2230114	16 00 18.44	-22 30 11.49	-6.700 ± 1.900	-23.600 ± 1.900	UCAC5			6.39 ± 0.75					N
J16002669-2056316	16 00 26.70	-20 56 31.61	-7.905 ± 2.411	-17.034 ± 2.411	HSOY			5.04 ± 0.74					N
J16003023-2334457	16 00 30.24	-23 34 45.71	-14.947 ± 2.105	-22.603 ± 2.105	HSOY			7.09 ± 0.85					N
J16003134-2027050	16 00 31.35	-20 27 05.03	-12.800 ± 1.100	-22.900 ± 1.100	UCAC5			7.03 ± 0.65					N
J16004056-2200322	16 00 40.57	-22 00 32.23	-5.901 ± 1.763	-22.104 ± 0.291	TGAS			6.01 ± 0.66	8.00 ± 0.56				N
J16004135-2240416	16 00 41.35	-22 40 41.66	-11.340 ± 1.410	-21.360 ± 1.370	SPM4			6.44 ± 0.65					N
J16004277-2127380	16 00 42.77	-21 27 38.04	-18.700 ± 1.100	-27.400 ± 1.100	UCAC5			8.81 ± 0.81					N
J16004309-2430503	16 00 43.10	-24 30 50.30	-10.931 ± 2.090	-25.677 ± 2.090	HSOY			7.37 ± 0.80					N
J16004465-2343148	16 00 44.65	-23 43 14.82	-15.000 ± 1.770	-19.830 ± 1.700	SPM4			6.50 ± 0.72					N
J16004973-2338432	16 00 49.73	-23 38 43.22	-13.670 ± 1.800	-24.870 ± 1.740	SPM4			7.49 ± 0.81					N
J16004989-1928003	16 00 49.89	-19 28 00.39	-10.600 ± 1.200	-20.700 ± 1.300	UCAC5			6.30 ± 0.63					N
J16005283-2440380	16 00 52.84	-24 40 38.03	-14.500 ± 1.600	-23.600 ± 1.700	UCAC5			7.24 ± 0.74					N
J16010519-2227311	16 01 05.19	-22 27 31.16	-11.700 ± 0.900	-28.200 ± 0.900	UCAC5			8.12 ± 0.72					N
J16010605-2215246	16 01 06.05	-22 15 24.65	-15.370 ± 1.890	-21.000 ± 1.810	SPM4			6.90 ± 0.75					N
J16010801-2113184	16 01 08.01	-21 13 18.48	-12.800 ± 1.000	-21.900 ± 1.000	UCAC5			6.77 ± 0.64					N
J16011037-2222276	16 01 10.38	-22 22 27.60	-12.550 ± 1.440	-24.980 ± 1.380	SPM4			7.46 ± 0.73					N
J16011398-2516281	16 01 13.99	-25 16 28.18	-13.247 ± 2.102	-21.386 ± 2.090	HSOY			6.60 ± 0.82					N
J16011842-2652212	16 01 18.42	-26 52 21.29	-11.510 ± 1.330	-21.700 ± 1.360	SPM4	-5.2 ± 1.0	3	6.40 ± 0.61					N
J16012233-1937222	16 01 22.34	-19 37 22.26	-12.900 ± 1.300	-23.300 ± 1.200	UCAC5			7.17 ± 0.67					N
J16012563-2240403	16 01 25.64	-22 40 40.35	-12.094 ± 1.435	-23.505 ± 0.640	TGAS	-5.0 ± 0.8	5	7.05 ± 0.70	7.07 ± 0.45	$-5.4^{+1.5}_{-1.5}$	$-16.4^{+2.1}_{-2.3}$	$-6.8^{+2.3}_{-2.3}$	Y
J16012664-2511545	16 01 26.64	-25 11 54.54	-11.589 ± 0.052	-25.400 ± 0.023	TGAS			7.33 ± 0.66	5.99 ± 0.50				N
J16012902-2509069	16 01 29.03	-25 09 06.96	-13.000 ± 1.760	-21.750 ± 1.690	SPM4			6.67 ± 0.74					N
J16012985-2248386	16 01 29.85	-22 48 38.67	-9.421 ± 2.051	-19.763 ± 2.051	HSOY			5.87 ± 0.74					N
J16013529-2443365	16 01 35.29	-24 43 36.53	-14.600 ± 1.800	-30.000 ± 1.800	UCAC5			8.75 ± 0.90					N
J16014086-2258103	16 01 40.87	-22 58 10.38	-14.940 ± 1.450	-24.300 ± 1.390	SPM4			7.55 ± 0.75					N
J16014157-2111380	16 01 41.57	-21 11 38.08	-6.509 ± 1.976	-26.784 ± 1.976	HSOY	-12.8 ± 1.0	2	7.16 ± 0.82					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16014743-2049457	16 01 47.43	-20 49 45.80	−13.500 ± 1.100	−22.200 ± 1.100	UCAC5			6.98 ± 0.65					N
J16014769-2441011	16 01 47.70	-24 41 01.13	−9.830 ± 2.514	−25.142 ± 2.514	HSOY			7.07 ± 0.91					N
J16014955-2351082	16 01 49.56	-23 51 08.20	−3.855 ± 2.090	−23.410 ± 2.090	HSOY			5.98 ± 0.74					N
J16015149-2445249	16 01 51.49	-24 45 24.94	−14.000 ± 0.900	−26.300 ± 0.900	UCAC5			7.88 ± 0.71					N
J16015546-2158496	16 01 55.47	-21 58 49.65	−12.092 ± 0.036	−24.125 ± 0.020	TGAS			7.23 ± 0.61	7.09 ± 0.57				N
J16015822-2008121	16 01 58.23	-20 08 12.15	−9.038 ± 0.997	−22.957 ± 0.610	TGAS	−11.7 ± 1.0	3	6.62 ± 0.62	6.49 ± 0.42	$-10.1^{+1.6}_{-1.6}$	$-15.7^{+1.9}_{-2.2}$	$-11.0^{+2.2}_{-2.2}$	Y
J16015987-1843457	16 01 59.87	-18 43 45.72	−11.502 ± 1.976	−22.968 ± 1.976	HSOY			7.01 ± 0.85					N
J16020039-2221237	16 02 00.39	-22 21 23.74	−12.000 ± 0.900	−23.800 ± 0.900	UCAC5			7.10 ± 0.65					N
J16020287-2236139	16 02 02.88	-22 36 13.95	−12.960 ± 1.510	−32.530 ± 1.450	SPM4			9.28 ± 0.87					N
J16020429-2050425	16 02 04.30	-20 50 42.57	−8.026 ± 2.382	−21.639 ± 2.382	HSOY			6.17 ± 0.83					N
J16020757-2257467	16 02 07.58	-22 57 46.78	−15.320 ± 1.220	−23.300 ± 1.190	SPM4			7.35 ± 0.72					N
J16020845-2254588	16 02 08.45	-22 54 58.90	−12.000 ± 1.000	−23.900 ± 1.000	UCAC5			7.10 ± 0.66					N
J16021096-2007495	16 02 10.96	-20 07 49.58	−9.087 ± 1.976	−23.177 ± 1.976	HSOY	−4.3 ± 0.8	2	6.66 ± 0.77					N
J16021356-2241148	16 02 13.56	-22 41 14.89	−12.540 ± 0.043	−23.129 ± 0.026	TGAS			7.01 ± 0.61	6.30 ± 0.43				N
J16021489-2438325	16 02 14.90	-24 38 32.59	−15.620 ± 9.160	−21.990 ± 8.890	SPM4			7.04 ± 2.45					N
J16021628-2131051	16 02 16.28	-21 31 05.15	−9.588 ± 1.976	−21.860 ± 1.976	HSOY			6.37 ± 0.74					N
J16022249-1956538	16 02 22.49	-19 56 53.83	−11.067 ± 1.977	−25.643 ± 1.976	HSOY			7.54 ± 0.82					N
J16022366-2220193	16 02 23.66	-22 20 19.32	−13.300 ± 1.200	−22.600 ± 1.200	UCAC5			6.98 ± 0.69					N
J16022461-2200248	16 02 24.61	-22 00 24.83	−10.000 ± 0.900	−22.400 ± 0.900	UCAC5			6.58 ± 0.64					N
J16023587-2320170	16 02 35.88	-23 20 17.08	−9.560 ± 1.900	−17.810 ± 1.830	SPM4			5.34 ± 0.69					N
J16024142-2248419	16 02 41.43	-22 48 41.91	−8.115 ± 2.051	−30.934 ± 2.051	HSOY			8.32 ± 0.91					N
J16024152-2138245	16 02 41.52	-21 38 24.56	−12.126 ± 2.051	−25.061 ± 2.051	HSOY			7.44 ± 0.81					N
J16024448-2543323	16 02 44.48	-25 43 32.31	−11.612 ± 2.090	−20.653 ± 2.090	HSOY			6.19 ± 0.79					N
J16025123-2401574	16 02 51.24	-24 01 57.45	−12.200 ± 1.000	−24.300 ± 1.000	UCAC5	−6.5 ± 0.2	2	7.19 ± 0.64					N
J16025396-2022480	16 02 53.96	-20 22 48.06	−9.710 ± 1.120	−23.590 ± 1.120	SPM4			6.87 ± 0.65					N
J16025512-2247207	16 02 55.13	-22 47 20.73	−9.260 ± 1.650	−25.600 ± 1.580	SPM4			7.21 ± 0.78					N
J16025855-2256495	16 02 58.55	-22 56 49.58	−9.470 ± 1.310	−22.210 ± 1.270	SPM4			6.42 ± 0.66					N
J16030177-2626218	16 03 01.78	-26 26 21.87	−17.300 ± 1.100	−22.900 ± 1.100	UCAC5			7.40 ± 0.68					N
J16030269-1806050	16 03 02.69	-18 06 05.03	−10.434 ± 1.083	−20.791 ± 1.041	HSOY			6.36 ± 0.64					N
J16031329-2112569	16 03 13.30	-21 12 56.91	−10.155 ± 2.007	−24.692 ± 2.007	HSOY			7.14 ± 0.80					N
J16031491-2234454	16 03 14.91	-22 34 45.48	−14.280 ± 1.770	−22.090 ± 1.720	SPM4			6.98 ± 0.75					N
J16031771-2108361	16 03 17.71	-21 08 36.12	−10.300 ± 1.300	−24.800 ± 1.300	UCAC5			7.22 ± 0.68					N
J16032225-2413111	16 03 22.25	-24 13 11.12	−12.480 ± 1.800	−17.420 ± 1.730	SPM4			5.60 ± 0.69					N
J16032367-1751422	16 03 23.68	-17 51 42.26	−15.782 ± 1.068	−24.262 ± 1.068	HSOY			7.85 ± 0.75					N
J16032599-2627320	16 03 25.99	-26 27 32.04	−11.184 ± 2.090	−18.017 ± 2.090	HSOY			5.55 ± 0.75					N
J16032625-2155378	16 03 26.25	-21 55 37.86	−12.047 ± 2.051	−21.346 ± 2.051	HSOY			6.55 ± 0.81					N
J16032787-2153155	16 03 27.87	-21 53 15.53	−12.300 ± 1.300	−23.100 ± 1.200	UCAC5			6.97 ± 0.69					N
J16032940-1955038	16 03 29.41	-19 55 03.82	−11.152 ± 1.976	−19.079 ± 1.976	HSOY			5.94 ± 0.73					N
J16033181-2348583	16 03 31.81	-23 48 58.39	−12.200 ± 1.300	−25.100 ± 1.300	UCAC5			7.38 ± 0.73					N
J16033342-3008133	16 03 33.42	-30 08 13.32	−14.892 ± 0.079	−25.126 ± 0.047	TGAS	−11.3 ± 0.3	1	7.53 ± 0.66	7.50 ± 0.40	$-13.7^{+0.5}_{-0.5}$	$-14.9^{+1.0}_{-1.1}$	$-7.9^{+1.1}_{-1.1}$	N
J16033471-1829303	16 03 34.71	-18 29 30.39	−7.971 ± 1.978	−23.804 ± 1.976	HSOY			6.76 ± 0.80					N
J16033550-2245560	16 03 35.50	-22 45 56.10	−12.942 ± 1.727	−24.166 ± 0.334	TGAS	−10.4 ± 0.2	2	7.27 ± 0.77	6.87 ± 0.45	$-10.6^{+1.0}_{-1.0}$	$-16.9^{+2.1}_{-2.3}$	$-8.7^{+2.2}_{-2.1}$	Y
J16033777-1845083	16 03 37.77	-18 45 08.33	−12.800 ± 1.600	−21.500 ± 1.600	UCAC5			6.78 ± 0.73					N
J16033829-1854076	16 03 38.30	-18 54 07.65	−7.400 ± 1.400	−22.700 ± 1.400	UCAC5			6.42 ± 0.66					N
J16034030-2335237	16 03 40.30	-23 35 23.73	−8.950 ± 2.090	−22.983 ± 2.090	HSOY			6.54 ± 0.78					N
J16034187-2005577	16 03 41.87	-20 05 57.78	−11.000 ± 1.200	−22.300 ± 1.100	UCAC5	−3.7 ± 1.0	2	6.74 ± 0.64					N
J16034334-2015314	16 03 43.35	-20 15 31.48	−11.900 ± 1.200	−23.100 ± 1.200	UCAC5			6.99 ± 0.67					N
J16034695-2245246	16 03 46.95	-22 45 24.65	−12.650 ± 1.220	−24.610 ± 1.180	SPM4			7.40 ± 0.72					N
J16035047-1941214	16 03 50.47	-19 41 21.49	−9.732 ± 1.976	−20.221 ± 1.976	HSOY			6.07 ± 0.77					N
J16035404-2509393	16 03 54.05	-25 09 39.37	−10.282 ± 2.090	−32.417 ± 2.090	HSOY			8.86 ± 0.91					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^\circ$ $'$ $''$)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16035496-2031383	16 03 54.96	-20 31 38.38	-8.930 ± 1.290	-27.880 ± 1.260	SPM4			7.78 ± 0.74					N
J16035652-2357250	16 03 56.53	-23 57 25.03	-9.754 ± 2.514	-21.349 ± 2.514	HSOY			6.25 ± 0.85					N
J16035767-2031055	16 03 57.68	-20 31 05.51	-12.085 ± 1.036	-22.019 ± 1.035	HSOY	-6.7 ± 0.9	2	6.76 ± 0.64					N
J16035793-1942108	16 03 57.94	-19 42 10.82	-12.300 ± 1.500	-23.300 ± 1.500	UCAC5	-3.4 ± 0.2	2	7.15 ± 0.72					N
J16035836-1751041	16 03 58.36	-17 51 04.15	-9.000 ± 1.300	-21.700 ± 1.400	UCAC5			6.41 ± 0.65					N
J16040024-1946029	16 04 00.24	-19 46 02.91	-10.141 ± 0.058	-21.620 ± 0.037	TGAS			6.51 ± 0.58	6.10 ± 0.43				N
J16040453-2346377	16 04 04.54	-23 46 37.71	-9.206 ± 2.090	-25.453 ± 2.090	HSOY			7.15 ± 0.82					N
J16040671-2637070	16 04 06.72	-26 37 07.05	-10.270 ± 1.790	-26.860 ± 1.720	SPM4			7.52 ± 0.75					N
J16041346-2810378	16 04 13.47	-28 10 37.83	-12.600 ± 0.900	-21.900 ± 0.900	UCAC5			6.54 ± 0.60					N
J16041821-1910557	16 04 18.21	-19 10 55.73	-9.987 ± 1.976	-20.177 ± 1.976	HSOY			6.13 ± 0.75					N
J16041893-2430392	16 04 18.93	-24 30 39.26	-10.020 ± 1.860	-22.390 ± 1.820	SPM4			6.47 ± 0.74					N
J16042097-2130415	16 04 20.97	-21 30 41.55	-13.500 ± 1.600	-24.000 ± 1.500	UCAC5			7.36 ± 0.76					N
J16042165-2130284	16 04 21.66	-21 30 28.40	-12.000 ± 1.000	-24.900 ± 1.000	UCAC5	-6.9 ± 0.2	2	7.45 ± 0.68					N
J16042796-1904337	16 04 27.96	-19 04 33.74	-15.440 ± 1.976	-20.730 ± 1.976	HSOY			6.86 ± 0.81					N
J16043916-1942459	16 04 39.17	-19 42 45.97	-11.536 ± 1.976	-20.428 ± 1.976	HSOY			6.32 ± 0.79					N
J16044026-2254323	16 04 40.27	-22 54 32.37	-13.134 ± 3.214	-24.592 ± 3.214	HSOY			7.39 ± 1.09					N
J16044068-1946538	16 04 40.68	-19 46 53.82	-10.101 ± 1.976	-24.853 ± 1.976	HSOY			7.22 ± 0.82					N
J16044075-1936525	16 04 40.76	-19 36 52.57	-3.612 ± 2.382	-20.443 ± 2.382	HSOY			5.41 ± 0.80					N
J16044776-1930230	16 04 47.76	-19 30 23.09	-10.691 ± 1.051	-21.314 ± 0.341	TGAS	-3.2 ± 0.8	5	6.50 ± 0.61	7.13 ± 0.41	$-2.8^{+1.4}_{-1.4}$	$-15.1^{+1.5}_{-1.7}$	$-5.5^{+1.8}_{-1.7}$	Y
J16044997-2038353	16 04 49.97	-20 38 35.38	-11.348 ± 1.976	-25.659 ± 1.976	HSOY			7.57 ± 0.82					N
J16045155-2104169	16 04 51.56	-21 04 16.91	-10.865 ± 1.976	-31.225 ± 1.976	HSOY			8.84 ± 0.94					N
J16045581-2307438	16 04 55.81	-23 07 43.81	-5.285 ± 2.454	-31.047 ± 2.454	HSOY			8.10 ± 0.99					N
J16045644-1940451	16 04 56.44	-19 40 45.15	-10.898 ± 1.976	-21.692 ± 1.976	HSOY			6.59 ± 0.81					N
J16045716-2104160	16 04 57.17	-21 04 16.01	-10.937 ± 1.977	-14.163 ± 1.976	HSOY			4.70 ± 0.67					N
J16050179-2411327	16 05 01.79	-24 11 32.74	-13.690 ± 1.770	-18.690 ± 1.710	SPM4			6.07 ± 0.71					N
J16050213-2035070	16 05 02.14	-20 35 07.03	-8.500 ± 1.200	-23.600 ± 1.100	UCAC5			6.73 ± 0.65					N
J16050231-1941554	16 05 02.32	-19 41 55.44	-11.081 ± 1.976	-22.275 ± 1.976	HSOY			6.73 ± 0.76					N
J16050474-1956274	16 05 04.74	-19 56 27.44	-11.300 ± 1.500	-22.500 ± 1.400	UCAC5			6.81 ± 0.67					N
J16050845-2015320	16 05 08.46	-20 15 32.07	-12.900 ± 1.400	-23.700 ± 1.400	UCAC5			7.29 ± 0.70					N
J16050978-1942146	16 05 09.79	-19 42 14.69	-10.700 ± 1.200	-22.600 ± 1.200	UCAC5			6.76 ± 0.68					N
J16051615-1938310	16 05 16.15	-19 38 31.10	-9.539 ± 1.977	-19.797 ± 1.976	HSOY			5.96 ± 0.76					N
J16051687-1948374	16 05 16.87	-19 48 37.40	-11.100 ± 0.900	-22.900 ± 0.900	UCAC5			6.89 ± 0.63					N
J16051791-2024195	16 05 17.92	-20 24 19.55	-10.000 ± 1.000	-23.100 ± 1.000	UCAC5			6.75 ± 0.63					N
J16051830-1756210	16 05 18.30	-17 56 21.06	-4.748 ± 2.041	-17.438 ± 2.041	HSOY			4.89 ± 0.68					N
J16051915-2340088	16 05 19.16	-23 40 08.84	-10.321 ± 0.047	-24.142 ± 0.027	TGAS			6.97 ± 0.59	6.29 ± 0.49				N
J16052157-1821412	16 05 21.58	-18 21 41.22	-8.900 ± 1.200	-21.500 ± 1.100	UCAC5			6.37 ± 0.65					N
J16052192-1936026	16 05 21.92	-19 36 02.60	-9.400 ± 1.300	-22.700 ± 1.200	UCAC5			6.64 ± 0.69					N
J16052459-1954419	16 05 24.59	-19 54 41.90	-8.800 ± 1.900	-19.900 ± 2.100	UCAC5			5.87 ± 0.74					N
J16052556-2035397	16 05 25.56	-20 35 39.71	-10.017 ± 1.976	-30.414 ± 1.976	HSOY	-3.3 ± 1.8	2	8.58 ± 0.89					N
J16052661-1957050	16 05 26.61	-19 57 05.05	-9.643 ± 2.111	-20.198 ± 2.110	HSOY			6.11 ± 0.80					N
J16052726-1938466	16 05 27.27	-19 38 46.60	-10.300 ± 1.000	-21.800 ± 1.000	UCAC5			6.57 ± 0.62					N
J16052787-2115510	16 05 27.88	-21 15 51.09	-7.701 ± 1.976	-21.665 ± 1.976	HSOY			6.13 ± 0.76					N
J16052852-2010376	16 05 28.53	-20 10 37.62	-10.300 ± 1.200	-22.200 ± 1.200	UCAC5			6.62 ± 0.66					N
J16052877-2230135	16 05 28.77	-22 30 13.58	-14.450 ± 2.040	-20.340 ± 1.960	SPM4			6.58 ± 0.77					N
J16053153-1945435	16 05 31.53	-19 45 43.52	-9.400 ± 0.900	-20.900 ± 0.900	UCAC5			6.21 ± 0.61					N
J16053215-1933159	16 05 32.15	-19 33 15.99	-10.216 ± 1.988	-22.885 ± 1.988	HSOY	-3.4 ± 1.6	2	6.81 ± 0.78					N
J16053815-2039469	16 05 38.16	-20 39 46.97	-10.400 ± 0.900	-26.300 ± 0.900	UCAC5			7.60 ± 0.70					N
J16053936-2152338	16 05 39.36	-21 52 33.83	-12.900 ± 1.300	-26.500 ± 1.300	UCAC5			7.91 ± 0.74					N
J16054266-2004150	16 05 42.67	-20 04 15.03	-10.700 ± 1.000	-32.800 ± 1.000	UCAC5			9.23 ± 0.81					N
J16054338-2150195	16 05 43.39	-21 50 19.59	-12.338 ± 0.059	-21.724 ± 0.032	TGAS			6.69 ± 0.56	8.17 ± 0.87				N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16054778-1945263	16 05 47.79	-19 45 26.34	-8.254 ± 2.180	-24.524 ± 2.180	HSOY			6.94 ± 0.77					N
J16055407-1818443	16 05 54.08	-18 18 44.40	-10.015 ± 2.411	-20.590 ± 2.411	HSOY			6.26 ± 0.83					N
J16055863-1949029	16 05 58.64	-19 49 02.96	-20.627 ± 1.988	-23.129 ± 1.988	HSOY			8.07 ± 0.86					N
J16060171-2226534	16 06 01.72	-22 26 53.42	-11.360 ± 0.760	-20.450 ± 0.760	SPM4			6.22 ± 0.57					N
J16060637-2336226	16 06 06.38	-23 36 22.65	-9.528 ± 0.054	-26.056 ± 0.026	TGAS			7.33 ± 0.61	5.04 ± 0.92				N
J16061144-1935405	16 06 11.44	-19 35 40.56	-12.203 ± 1.989	-23.909 ± 1.988	HSOY			7.31 ± 0.83					N
J16061199-1935331	16 06 12.00	-19 35 33.14	-2.856 ± 1.989	-25.501 ± 1.988	HSOY			6.51 ± 0.78					N
J16061254-2036472	16 06 12.54	-20 36 47.25	-11.300 ± 0.900	-23.000 ± 0.900	UCAC5			6.94 ± 0.66					N
J16061330-2212537	16 06 13.31	-22 12 53.77	-12.040 ± 1.230	-22.870 ± 1.190	SPM4			6.92 ± 0.70					N
J16062277-2011243	16 06 22.78	-20 11 24.40	-12.920 ± 1.988	-19.041 ± 1.988	HSOY	-5.1 ± 0.7	2	6.19 ± 0.74					N
J16062637-2306113	16 06 26.37	-23 06 11.32	-10.415 ± 2.067	-28.191 ± 2.067	HSOY			7.99 ± 0.91					N
J16062860-2043317	16 06 28.60	-20 43 31.77	-15.646 ± 2.124	-26.848 ± 2.124	HSOY			8.34 ± 0.90					N
J16062872-2003571	16 06 28.72	-20 03 57.13	-17.700 ± 1.900	-28.300 ± 1.700	UCAC5			9.00 ± 0.92					N
J16063169-2036232	16 06 31.70	-20 36 23.27	-11.700 ± 0.900	-23.500 ± 0.900	UCAC5			7.10 ± 0.68					N
J16063210-2020538	16 06 32.11	-20 20 53.90	-13.100 ± 2.930	-18.130 ± 2.810	SPM4			6.00 ± 0.91					N
J16063245-2208245	16 06 32.46	-22 08 24.54	-4.790 ± 0.760	-27.710 ± 0.760	SPM4			7.26 ± 0.67					N
J16063461-2255043	16 06 34.62	-22 55 04.39	-9.230 ± 1.860	-24.730 ± 1.790	SPM4			7.00 ± 0.77					N
J16063539-2516510	16 06 35.39	-25 16 51.10	-10.350 ± 2.090	-29.274 ± 2.090	HSOY			8.15 ± 0.93					N
J16063990-2001281	16 06 39.90	-20 01 28.13	-9.500 ± 1.000	-21.800 ± 1.000	UCAC5			6.48 ± 0.63					N
J16064102-2455489	16 06 41.02	-24 55 48.96	-7.078 ± 2.090	-24.820 ± 2.090	HSOY			6.77 ± 0.80					N
J16064115-2517044	16 06 41.16	-25 17 04.44	-4.416 ± 2.137	-19.924 ± 2.137	HSOY			5.25 ± 0.75					N
J16064385-1908056	16 06 43.86	-19 08 05.60	-9.700 ± 0.900	-21.700 ± 0.900	UCAC5	-5.4 ± 0.6	2	6.46 ± 0.61					N
J16064751-2022322	16 06 47.51	-20 22 32.24	-11.400 ± 0.900	-23.500 ± 0.900	UCAC5			7.09 ± 0.68					N
J16064794-1841437	16 06 47.94	-18 41 43.79	-8.100 ± 1.000	-21.100 ± 1.000	UCAC5			6.14 ± 0.58					N
J16064842-2040088	16 06 48.43	-20 40 08.84	-12.440 ± 1.830	-29.100 ± 2.060	SPM4			8.51 ± 0.90					N
J16065436-2416107	16 06 54.36	-24 16 10.79	-5.900 ± 1.300	-25.200 ± 1.300	UCAC5			6.72 ± 0.67					N
J16065502-2200161	16 06 55.03	-22 00 16.10	-10.800 ± 1.700	-21.600 ± 1.700	UCAC5			6.44 ± 0.70					N
J16065795-2743094	16 06 57.95	-27 43 09.44	-13.482 ± 0.209	-24.295 ± 0.250	HSOY			7.25 ± 0.62					N
J16065937-2033047	16 06 59.38	-20 33 04.70	-14.700 ± 1.300	-21.600 ± 1.300	UCAC5			6.98 ± 0.70					N
J16070014-2033092	16 07 00.14	-20 33 09.27	-14.200 ± 1.400	-22.800 ± 1.400	UCAC5			7.22 ± 0.71					N
J16070051-2206362	16 07 00.52	-22 06 36.24	-9.910 ± 1.570	-21.660 ± 1.500	SPM4			6.36 ± 0.70					N
J16070356-2036264	16 07 03.56	-20 36 26.49	-13.720 ± 1.010	-21.360 ± 1.000	SPM4			6.78 ± 0.64					N
J16070373-2043074	16 07 03.73	-20 43 07.43	-9.800 ± 1.100	-24.400 ± 1.100	UCAC5			7.09 ± 0.66					N
J16070393-1911338	16 07 03.94	-19 11 33.87	-10.500 ± 1.100	-24.700 ± 1.000	UCAC5			7.31 ± 0.71					N
J16070468-1656356	16 07 04.68	-16 56 35.68	-10.520 ± 0.049	-20.144 ± 0.030	TGAS			6.27 ± 0.55	7.08 ± 0.56				N
J16070474-2015557	16 07 04.74	-20 15 55.75	-10.794 ± 1.988	-25.819 ± 1.988	HSOY			7.61 ± 0.88					N
J16070700-2515127	16 07 07.00	-25 15 12.74	-9.872 ± 2.090	-23.017 ± 2.090	HSOY			6.58 ± 0.81					N
J16070767-1927161	16 07 07.67	-19 27 16.12	-10.900 ± 1.200	-19.700 ± 1.200	UCAC5			6.10 ± 0.62					N
J16070873-1927341	16 07 08.73	-19 27 34.17	-13.201 ± 1.988	-24.225 ± 1.988	HSOY	-2.0 ± 0.9	2	7.52 ± 0.85					N
J16071199-2123472	16 07 12.00	-21 23 47.21	-9.676 ± 1.988	-24.815 ± 1.988	HSOY			7.14 ± 0.81					N
J16071403-1702425	16 07 14.03	-17 02 42.51	-8.993 ± 2.050	-21.745 ± 2.050	HSOY			6.47 ± 0.80					N
J16071444-2051518	16 07 14.45	-20 51 51.86	-10.700 ± 1.100	-22.800 ± 1.100	UCAC5			6.79 ± 0.67					N
J16071493-1756097	16 07 14.93	-17 56 09.72	-8.169 ± 0.084	-21.657 ± 0.054	TGAS			6.29 ± 0.55	6.85 ± 0.42				N
J16071607-2044437	16 07 16.07	-20 44 43.76	-10.217 ± 1.988	-23.356 ± 1.988	HSOY			6.87 ± 0.79					N
J16071778-2203364	16 07 17.79	-22 03 36.49	-10.808 ± 0.087	-24.574 ± 0.060	TGAS	14.8 ± 0.3	1	7.19 ± 0.64	7.50 ± 0.42	$13.5^{+0.6}_{-0.6}$	$-18.1^{+1.0}_{-1.1}$	$-0.1^{+1.0}_{-1.0}$	N
J16071971-2020555	16 07 19.72	-20 20 55.56	-8.391 ± 1.988	-20.938 ± 1.988	HSOY			6.07 ± 0.75					N
J16072625-2432079	16 07 26.25	-24 32 07.95	-12.160 ± 1.750	-19.120 ± 1.690	SPM4			5.94 ± 0.68					N
J16072747-2059442	16 07 27.48	-20 59 44.21	-6.500 ± 3.040	-22.220 ± 2.910	SPM4			6.20 ± 0.97					N
J16072992-2357023	16 07 29.93	-23 57 02.32	-10.371 ± 0.057	-24.725 ± 0.037	TGAS	-7.9 ± 2.0	2	7.07 ± 0.60	7.36 ± 0.48	$-7.8^{+2.2}_{-2.2}$	$-15.2^{+1.4}_{-1.5}$	$-8.6^{+1.7}_{-1.7}$	Y
J16073037-2546269	16 07 30.38	-25 46 26.99	-14.500 ± 1.700	-23.500 ± 1.700	UCAC5			7.22 ± 0.78					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^\circ$ $'$ $''$)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16073939-1917472	16 07 39.40	-19 17 47.24	-8.700 ± 1.300	-23.700 ± 1.300	UCAC5			6.85 ± 0.69					N
J16074006-2148426	16 07 40.06	-21 48 42.63	-12.500 ± 1.200	-18.800 ± 1.200	UCAC5			5.98 ± 0.62					N
J16074036-2357019	16 07 40.37	-23 57 01.97	-14.117 ± 2.548	-25.267 ± 2.548	HSOY			7.61 ± 0.92					N
J16074200-2107302	16 07 42.00	-21 07 30.23	-9.261 ± 1.996	-20.936 ± 2.011	HSOY			6.15 ± 0.76					N
J16074449-2036030	16 07 44.49	-20 36 03.08	-9.000 ± 1.200	-25.600 ± 1.200	UCAC5			7.27 ± 0.71					N
J16075136-1718231	16 07 51.37	-17 18 23.17	-9.000 ± 1.600	-20.900 ± 1.600	UCAC5			6.28 ± 0.68					N
J16075188-2427443	16 07 51.89	-24 27 44.31	-11.465 ± 0.049	-22.513 ± 0.046	HSOY			6.68 ± 0.56					N
J16075567-2443267	16 07 55.67	-24 43 26.76	-12.580 ± 2.514	-22.515 ± 2.514	HSOY			6.80 ± 0.89					N
J16075850-2039485	16 07 58.51	-20 39 48.59	-17.955 ± 2.411	-23.127 ± 2.411	HSOY			7.71 ± 0.91					N
J16075875-2441319	16 07 58.76	-24 41 31.98	-12.430 ± 1.910	-20.970 ± 1.830	SPM4			6.44 ± 0.76					N
J16080141-2027416	16 08 01.42	-20 27 41.66	-12.700 ± 0.800	-22.300 ± 0.800	UCAC5	-7.1 ± 0.4	2	6.91 ± 0.63					N
J16080217-2259057	16 08 02.18	-22 59 05.77	-10.932 ± 2.067	-23.450 ± 2.067	HSOY			6.94 ± 0.79					N
J16080238-2022338	16 08 02.39	-20 22 33.84	-14.520 ± 1.988	-32.570 ± 1.988	HSOY	-5.8 ± 1.3	2	9.63 ± 1.02					N
J16080245-2531392	16 08 02.46	-25 31 39.26	-12.272 ± 2.090	-25.693 ± 2.090	HSOY			7.46 ± 0.83					N
J16080422-2129195	16 08 04.22	-21 29 19.54	-11.500 ± 1.100	-23.300 ± 1.100	UCAC5			7.00 ± 0.69					N
J16080555-2218070	16 08 05.55	-22 18 07.03	-9.480 ± 1.300	-20.350 ± 1.260	SPM4			6.01 ± 0.61					N
J16081050-2351024	16 08 10.51	-23 51 02.44	-9.768 ± 0.075	-20.635 ± 0.053	TGAS	-4.1 ± 0.7	1	6.05 ± 0.51	6.27 ± 0.42	$-4.6^{+1.0}_{-1.0}$	$-16.0^{+1.2}_{-1.4}$	$-6.6^{+1.3}_{-1.4}$	Y
J16081081-2229428	16 08 10.82	-22 29 42.85	-6.813 ± 2.078	-25.773 ± 2.068	HSOY			6.99 ± 0.81					N
J16081081-1904479	16 08 10.82	-19 04 47.96	-9.200 ± 0.900	-24.600 ± 0.800	UCAC5			7.15 ± 0.67					N
J16081474-1908327	16 08 14.74	-19 08 32.77	-8.537 ± 0.859	-27.628 ± 0.623	TGAS	-4.4 ± 0.8	5	7.80 ± 0.71	7.04 ± 0.40	$-2.4^{+1.3}_{-1.3}$	$-17.6^{+1.7}_{-1.9}$	$-9.5^{+1.8}_{-1.9}$	Y
J16081535-2038111	16 08 15.36	-20 38 11.17	-14.100 ± 2.000	-20.800 ± 1.900	UCAC5			6.76 ± 0.78					N
J16081561-2048022	16 08 15.61	-20 48 02.22	-9.000 ± 1.200	-23.700 ± 1.200	UCAC5			6.81 ± 0.66					N
J16081836-1900594	16 08 18.36	-19 00 59.43	-8.400 ± 2.400	-24.900 ± 2.300	UCAC5			7.06 ± 0.85					N
J16082078-2131234	16 08 20.79	-21 31 23.48	-14.951 ± 2.035	-23.793 ± 2.035	HSOY			7.48 ± 0.85					N
J16082096-1832197	16 08 20.96	-18 32 19.75	-16.192 ± 2.662	-27.106 ± 2.647	HSOY			8.63 ± 1.03					N
J16082229-2217029	16 08 22.29	-22 17 02.90	-14.648 ± 2.067	-24.159 ± 2.067	HSOY			7.47 ± 0.83					N
J16082234-1930052	16 08 22.34	-19 30 05.22	-12.300 ± 0.800	-22.000 ± 0.800	UCAC5			6.86 ± 0.62					N
J16082303-2335293	16 08 23.04	-23 35 29.40	-9.700 ± 1.500	-22.600 ± 1.600	UCAC5			6.56 ± 0.69					N
J16082324-1930009	16 08 23.25	-19 30 00.93	-13.200 ± 0.800	-23.100 ± 0.800	UCAC5			7.22 ± 0.64					N
J16082356-1911315	16 08 23.57	-19 11 31.58	-9.300 ± 1.400	-23.100 ± 1.400	UCAC5			6.73 ± 0.70					N
J16082387-1935518	16 08 23.88	-19 35 51.82	-13.200 ± 0.800	-26.600 ± 0.800	UCAC5			8.07 ± 0.71					N
J16082511-2012245	16 08 25.11	-20 12 24.58	-9.500 ± 0.900	-22.700 ± 0.900	UCAC5			6.65 ± 0.63					N
J16082733-2217292	16 08 27.33	-22 17 29.27	-11.890 ± 1.740	-15.010 ± 1.670	SPM4			5.01 ± 0.64					N
J16082751-1949047	16 08 27.52	-19 49 04.72	-7.114 ± 2.000	-23.543 ± 1.992	HSOY			6.63 ± 0.78					N
J16082870-2137198	16 08 28.70	-21 37 19.88	-12.542 ± 2.067	-26.386 ± 2.067	HSOY			7.81 ± 0.89					N
J16083138-1802414	16 08 31.38	-18 02 41.40	-9.800 ± 1.100	-24.600 ± 1.100	UCAC5	-9.7 ± 0.1	2	7.23 ± 0.69					N
J16083436-1911563	16 08 34.37	-19 11 56.40	-9.400 ± 0.900	-22.300 ± 0.900	UCAC5			6.55 ± 0.63					N
J16083455-2211559	16 08 34.55	-22 11 55.92	-6.971 ± 2.074	-20.871 ± 2.067	HSOY			5.83 ± 0.75					N
J16083514-2045296	16 08 35.14	-20 45 29.64	-9.941 ± 0.083	-23.071 ± 0.057	TGAS	20.0 ± 1.0	3	6.75 ± 0.56	6.05 ± 0.52	$18.8^{+1.5}_{-1.5}$	$-21.1^{+1.7}_{-2.0}$	$1.2^{+1.9}_{-2.0}$	N
J16083659-1802497	16 08 36.59	-18 02 49.75	-11.592 ± 2.653	-26.008 ± 2.653	HSOY			7.77 ± 0.99					N
J16083908-2340055	16 08 39.09	-23 40 05.59	-11.600 ± 1.300	-23.400 ± 1.300	UCAC5			6.91 ± 0.68					N
J16084309-1900519	16 08 43.10	-19 00 51.95	-12.572 ± 1.989	-22.727 ± 1.988	HSOY			7.08 ± 0.82					N
J16084340-2602168	16 08 43.41	-26 02 16.84	-10.717 ± 1.489	-25.327 ± 1.247	TGAS	-6.1 ± 1.0	3	7.21 ± 0.73	6.62 ± 0.59	$-6.9^{+1.7}_{-1.8}$	$-17.7^{+3.0}_{-3.6}$	$-8.8^{+3.2}_{-3.3}$	Y
J16084366-2522367	16 08 43.66	-25 22 36.74	-12.287 ± 0.057	-23.431 ± 0.039	TGAS			6.97 ± 0.60	7.21 ± 0.52				N
J16084371-2341075	16 08 43.72	-23 41 07.58	-10.326 ± 0.032	-25.458 ± 0.018	TGAS			7.30 ± 0.64	5.72 ± 0.69				N
J16084565-2430000	16 08 45.66	-24 30 00.05	-11.017 ± 2.090	-21.225 ± 2.090	HSOY			6.28 ± 0.79					N
J16084606-2246593	16 08 46.07	-22 46 59.30	-12.380 ± 1.530	-16.670 ± 1.480	SPM4			5.42 ± 0.61					N
J16084740-2430150	16 08 47.41	-24 30 15.06	-13.855 ± 2.090	-20.804 ± 2.090	HSOY			6.55 ± 0.81					N
J16084836-2341209	16 08 48.37	-23 41 20.91	-4.684 ± 2.939	-23.370 ± 2.939	HSOY			6.19 ± 0.97					N
J16084894-2400045	16 08 48.94	-24 00 04.59	-9.060 ± 2.098	-23.354 ± 2.091	HSOY			6.66 ± 0.80					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16085034-2203285	16 08 50.35	-22 03 28.51	-9.144 ± 2.067	-22.735 ± 2.067	HSOY			6.56 ± 0.80					N
J16085408-2034182	16 08 54.09	-20 34 18.24	-13.281 ± 1.997	-20.962 ± 1.989	HSOY			6.66 ± 0.80					N
J16085628-2148489	16 08 56.29	-21 48 48.91	-12.200 ± 1.400	-23.300 ± 1.400	UCAC5			7.08 ± 0.70					N
J16085673-2033460	16 08 56.73	-20 33 46.02	-9.100 ± 1.000	-24.300 ± 0.900	UCAC5	-9.2 ± 0.2	2	6.97 ± 0.68					N
J16085695-2835573	16 08 56.96	-28 35 57.39	-12.100 ± 2.100	-25.800 ± 2.100	UCAC5			7.40 ± 0.86					N
J16085871-2449363	16 08 58.71	-24 49 36.32	-10.884 ± 2.090	-24.498 ± 2.090	HSOY			7.08 ± 0.84					N
J16090002-1908368	16 09 00.02	-19 08 36.84	-10.569 ± 1.988	-27.135 ± 1.988	HSOY	-8.3 ± 1.5	2	7.97 ± 0.87					N
J16090051-2745194	16 09 00.52	-27 45 19.41	-16.790 ± 2.168	-28.810 ± 2.168	HSOY			8.72 ± 0.93					N
J16090071-2029086	16 09 00.72	-20 29 08.67	-10.542 ± 3.946	-22.554 ± 3.919	HSOY			6.77 ± 1.26					N
J16090075-1908526	16 09 00.76	-19 08 52.62	-10.700 ± 1.000	-25.300 ± 1.000	UCAC5	-7.3 ± 0.2	2	7.49 ± 0.70					N
J16090200-2322400	16 09 02.01	-23 22 40.06	-11.800 ± 1.700	-20.900 ± 1.700	UCAC5			6.36 ± 0.69					N
J16090261-1859440	16 09 02.61	-18 59 44.00	-7.328 ± 0.048	-24.012 ± 0.034	TGAS	-18.1 ± 1.9	2	6.78 ± 0.59	7.72 ± 0.45	$-15.3^{+2.0}_{-2.0}$	$-12.7^{+1.0}_{-1.1}$	$-13.2^{+1.5}_{-1.5}$	N
J16090407-2417588	16 09 04.07	-24 17 58.88	-10.390 ± 2.130	-21.190 ± 2.050	SPM4			6.28 ± 0.79					N
J16090457-2418048	16 09 04.57	-24 18 04.90	-12.120 ± 1.760	-21.190 ± 1.690	SPM4			6.43 ± 0.73					N
J16090511-2426282	16 09 05.11	-24 26 28.23	-12.103 ± 2.090	-23.275 ± 2.090	HSOY			6.97 ± 0.83					N
J16090531-2510009	16 09 05.31	-25 10 00.94	-16.672 ± 2.090	-28.546 ± 2.090	HSOY			8.67 ± 0.92					N
J16090844-2009277	16 09 08.45	-20 09 27.80	-9.920 ± 1.780	-22.180 ± 1.720	SPM4			6.63 ± 0.75					N
J16090940-2245590	16 09 09.40	-22 45 59.07	-9.530 ± 1.320	-17.110 ± 1.270	SPM4			5.22 ± 0.60					N
J16091338-1943281	16 09 13.39	-19 43 28.20	-13.500 ± 1.700	-24.800 ± 1.700	UCAC5			7.64 ± 0.77					N
J16091580-1937063	16 09 15.81	-19 37 06.30	-6.933 ± 1.988	-22.724 ± 1.988	HSOY	-4.1 ± 1.1	2	6.39 ± 0.77					N
J16091684-1835226	16 09 16.85	-18 35 22.61	-9.500 ± 1.600	-27.500 ± 1.600	UCAC5			7.89 ± 0.79					N
J16091689-2341324	16 09 16.90	-23 41 32.50	-12.822 ± 2.105	-20.976 ± 2.105	HSOY			6.49 ± 0.77					N
J16092054-1926318	16 09 20.55	-19 26 31.87	-11.887 ± 2.411	-24.806 ± 2.411	HSOY			7.52 ± 0.92					N
J16092063-2222057	16 09 20.63	-22 22 05.70	-11.720 ± 1.490	-20.600 ± 1.430	SPM4			6.35 ± 0.68					N
J16092089-1927259	16 09 20.89	-19 27 25.93	-8.123 ± 0.064	-23.239 ± 0.039	TGAS	-3.7 ± 1.9	2	6.65 ± 0.58	6.75 ± 0.46	$-2.3^{+2.1}_{-2.1}$	$-15.9^{+1.3}_{-1.4}$	$-7.8^{+1.7}_{-1.8}$	Y
J16092136-2139342	16 09 21.37	-21 39 34.28	-16.130 ± 2.800	-28.200 ± 2.680	SPM4	-12.6 ± 0.3	2	8.72 ± 1.05					N
J16092218-2402091	16 09 22.19	-24 02 09.17	-11.170 ± 2.000	-20.250 ± 1.930	SPM4			6.13 ± 0.72					N
J16092619-2403030	16 09 26.20	-24 03 03.07	-7.861 ± 2.090	-25.457 ± 2.090	HSOY			7.02 ± 0.83					N
J16092918-1852536	16 09 29.19	-18 52 53.64	-3.900 ± 1.300	-23.100 ± 1.100	UCAC5			6.17 ± 0.66					N
J16093019-2059536	16 09 30.19	-20 59 53.62	-11.493 ± 2.411	-21.409 ± 2.411	HSOY	-5.1 ± 0.6	2	6.53 ± 0.88					N
J16093030-2104589	16 09 30.30	-21 04 58.93	-9.800 ± 1.000	-23.200 ± 1.000	UCAC5			6.81 ± 0.64					N
J16093035-2443379	16 09 30.36	-24 43 37.91	-11.360 ± 1.320	-18.870 ± 1.290	SPM4			5.78 ± 0.59					N
J16093108-2041460	16 09 31.09	-20 41 46.05	-12.785 ± 1.996	-23.238 ± 1.989	HSOY			7.12 ± 0.79					N
J16093164-2229224	16 09 31.65	-22 29 22.41	-9.520 ± 1.060	-16.040 ± 1.050	SPM4			4.97 ± 0.51					N
J16093245-2405593	16 09 32.46	-24 05 59.35	-7.569 ± 2.514	-27.279 ± 2.514	HSOY			7.43 ± 0.92					N
J16093378-1904562	16 09 33.78	-19 04 56.20	-9.900 ± 1.300	-22.400 ± 1.200	UCAC5			6.70 ± 0.64					N
J16093558-1828232	16 09 35.59	-18 28 23.24	-9.213 ± 1.988	-20.631 ± 1.988	HSOY			6.19 ± 0.76					N
J16093575-2138057	16 09 35.75	-21 38 05.73	-8.600 ± 1.400	-21.600 ± 1.400	UCAC5			6.22 ± 0.63					N
J16093653-1848009	16 09 36.53	-18 48 00.95	-9.046 ± 2.193	-28.379 ± 2.038	HSOY			8.08 ± 0.94					N
J16093969-2200466	16 09 39.70	-22 00 46.60	-9.900 ± 1.100	-25.000 ± 1.100	UCAC5			7.23 ± 0.70					N
J16094098-2217594	16 09 40.99	-22 17 59.44	-15.770 ± 0.700	-22.420 ± 0.690	SPM4			7.26 ± 0.66					N
J16094277-2407585	16 09 42.78	-24 07 58.58	-11.500 ± 1.200	-24.000 ± 1.100	UCAC5			7.03 ± 0.67					N
J16094383-1823032	16 09 43.83	-18 23 03.22	-9.673 ± 1.988	-22.017 ± 1.988	HSOY			6.53 ± 0.76					N
J16094521-2431185	16 09 45.22	-24 31 18.60	-15.770 ± 0.980	-23.230 ± 0.950	SPM4			7.37 ± 0.69					N
J16094644-1937361	16 09 46.44	-19 37 36.11	-8.600 ± 0.900	-23.800 ± 0.900	UCAC5			6.85 ± 0.63					N
J16095107-2722418	16 09 51.08	-27 22 41.88	-9.257 ± 2.514	-27.351 ± 2.514	HSOY			7.52 ± 0.93					N
J16095361-1754474	16 09 53.62	-17 54 47.43	-5.256 ± 2.130	-20.723 ± 2.130	HSOY	-5.3 ± 1.3	2	5.78 ± 0.78					N
J16095441-1906551	16 09 54.41	-19 06 55.11	-14.100 ± 1.100	-22.800 ± 1.100	UCAC5	-6.9 ± 0.2	2	7.25 ± 0.68					N
J16095695-2212027	16 09 56.96	-22 12 02.70	-4.055 ± 2.489	-20.789 ± 2.489	HSOY			5.51 ± 0.81					N
J16095933-1800090	16 09 59.33	-18 00 09.06	-11.448 ± 2.070	-24.734 ± 2.070	HSOY	-6.3 ± 0.8	2	7.48 ± 0.85					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16095990-2155424	16 09 59.91	-21 55 42.50	-11.599 ± 3.290	-23.151 ± 3.290	HSOY			6.98 ± 1.10					N
J16100184-2349432	16 10 01.84	-23 49 43.26	-10.360 ± 1.750	-31.420 ± 1.750	SPM4			8.72 ± 0.87					N
J16100394-2728479	16 10 03.94	-27 28 47.96	-13.211 ± 2.090	-18.892 ± 2.090	HSOY			5.96 ± 0.76					N
J16100501-2132318	16 10 05.02	-21 32 31.81	-12.000 ± 1.000	-23.700 ± 1.000	UCAC5			7.15 ± 0.67					N
J16100541-1919362	16 10 05.42	-19 19 36.26	-8.868 ± 2.645	-27.766 ± 2.645	HSOY			7.90 ± 0.99					N
J16101041-1945398	16 10 10.41	-19 45 39.88	-14.300 ± 1.400	-23.700 ± 1.400	UCAC5			7.49 ± 0.75					N
J16101100-1946040	16 10 11.01	-19 46 04.05	-17.016 ± 1.988	-23.784 ± 1.988	HSOY	-8.5 ± 0.9	2	7.82 ± 0.87					N
J16101264-2104446	16 10 12.65	-21 04 44.67	-8.300 ± 1.000	-23.400 ± 1.000	UCAC5			6.66 ± 0.65					N
J16101445-1951377	16 10 14.45	-19 51 37.72	-8.000 ± 1.300	-24.400 ± 1.300	UCAC5			6.90 ± 0.65					N
J16101473-1919095	16 10 14.74	-19 19 09.55	-10.200 ± 1.400	-23.200 ± 1.400	UCAC5	-6.7 ± 0.2	6	6.86 ± 0.71					N
J16101918-2502301	16 10 19.19	-25 02 30.17	-10.804 ± 1.782	-22.993 ± 0.904	TGAS	-3.6 ± 1.0	3	6.73 ± 0.73	6.62 ± 0.45	$-4.4^{+1.7}_{-1.8}$	$-16.9^{+2.5}_{-2.9}$	$-6.7^{+2.8}_{-2.8}$	Y
J16101942-2331089	16 10 19.43	-23 31 08.92	-5.610 ± 2.548	-22.851 ± 2.548	HSOY			6.13 ± 0.84					N
J16102474-1914074	16 10 24.75	-19 14 07.42	-9.351 ± 2.014	-19.975 ± 1.989	HSOY			5.96 ± 0.73					N
J16102516-2535590	16 10 25.16	-25 35 59.05	-9.745 ± 2.090	-26.865 ± 2.090	HSOY			7.53 ± 0.82					N
J16102535-2306233	16 10 25.35	-23 06 23.35	-19.540 ± 1.630	-26.680 ± 1.690	SPM4			8.66 ± 0.87					N
J16102625-2209105	16 10 26.25	-22 09 10.56	-9.130 ± 1.060	-22.360 ± 1.020	SPM4			6.50 ± 0.59					N
J16102653-2756293	16 10 26.54	-27 56 29.34	-9.540 ± 2.857	-20.507 ± 2.857	HSOY			5.94 ± 0.89					N
J16102819-1910444	16 10 28.20	-19 10 44.49	-11.645 ± 2.437	-25.388 ± 2.414	HSOY			7.56 ± 0.93					N
J16102857-1904469	16 10 28.58	-19 04 47.00	-6.900 ± 1.300	-25.200 ± 1.100	UCAC5			7.05 ± 0.71					N
J16102888-2213477	16 10 28.88	-22 13 47.77	-10.495 ± 0.128	-24.499 ± 0.082	TGAS	-3.8 ± 0.3	1	7.15 ± 0.65	6.49 ± 0.48	$-3.6^{+0.7}_{-0.7}$	$-18.2^{+1.5}_{-1.7}$	$-7.6^{+1.5}_{-1.5}$	Y
J16103008-1839065	16 10 30.08	-18 39 06.55	-8.906 ± 1.988	-26.144 ± 1.988	HSOY			7.52 ± 0.82					N
J16103093-1824229	16 10 30.93	-18 24 22.98	-7.703 ± 1.988	-22.304 ± 1.988	HSOY			6.46 ± 0.77					N
J16103196-1913062	16 10 31.96	-19 13 06.24	-9.600 ± 1.000	-24.400 ± 1.000	UCAC5	-6.9 ± 0.3	2	7.13 ± 0.64					N
J16103525-2029168	16 10 35.25	-20 29 16.86	-8.938 ± 2.411	-25.943 ± 2.411	HSOY			7.33 ± 0.87					N
J16103595-3245427	16 10 35.96	-32 45 42.78	-7.300 ± 0.095	-19.144 ± 0.065	TGAS	-18.0 ± 0.3	1	5.24 ± 0.44	7.11 ± 0.40	$-19.0^{+0.4}_{-0.4}$	$-7.8^{+0.8}_{-0.9}$	$-9.6^{+0.8}_{-0.9}$	N
J16103876-1829235	16 10 38.77	-18 29 23.59	-9.344 ± 2.645	-23.109 ± 2.645	HSOY	-6.8 ± 0.8	2	6.85 ± 0.96					N
J16103956-1916524	16 10 39.57	-19 16 52.46	-11.900 ± 1.700	-18.800 ± 1.600	UCAC5			6.05 ± 0.72					N
J16103978-2037094	16 10 39.78	-20 37 09.42	-9.130 ± 1.500	-23.450 ± 1.450	SPM4			6.78 ± 0.71					N
J16104202-2101319	16 10 42.03	-21 01 32.00	-9.590 ± 0.850	-22.540 ± 0.850	SPM4			6.62 ± 0.61					N
J16104392-1922258	16 10 43.92	-19 22 25.86	-8.800 ± 1.700	-24.900 ± 1.700	UCAC5			7.17 ± 0.77					N
J16104996-2212515	16 10 49.96	-22 12 51.59	-11.686 ± 2.488	-23.857 ± 2.488	HSOY			7.15 ± 0.88					N
J16105240-1937344	16 10 52.41	-19 37 34.44	-10.072 ± 1.988	-24.418 ± 1.988	HSOY	-7.9 ± 1.4	2	7.19 ± 0.80					N
J16105511-2531214	16 10 55.11	-25 31 21.41	-12.282 ± 0.066	-26.160 ± 0.037	TGAS	-2.9 ± 0.3	1	7.62 ± 0.63	7.38 ± 0.45	$-3.9^{+0.6}_{-0.6}$	$-17.3^{+1.1}_{-1.3}$	$-6.6^{+1.1}_{-1.2}$	Y
J16105728-2359540	16 10 57.28	-23 59 54.01	-9.791 ± 2.090	-18.345 ± 2.090	HSOY			5.49 ± 0.73					N
J16105792-2511100	16 10 57.93	-25 11 10.04	-13.170 ± 1.520	-20.850 ± 1.530	SPM4			6.46 ± 0.71					N
J16110212-2335504	16 11 02.12	-23 35 50.46	-8.020 ± 2.105	-29.093 ± 2.105	HSOY			7.95 ± 0.95					N
J16110479-2333166	16 11 04.79	-23 33 16.68	-7.600 ± 1.200	-21.400 ± 1.200	UCAC5			6.01 ± 0.60					N
J16110567-2144032	16 11 05.67	-21 44 03.27	-10.690 ± 1.070	-22.390 ± 1.030	SPM4			6.66 ± 0.63					N
J16110737-2228501	16 11 07.38	-22 28 50.13	-12.420 ± 4.180	-22.930 ± 4.030	SPM4			6.91 ± 1.28					N
J16110744-2503016	16 11 07.45	-25 03 01.63	-11.700 ± 1.400	-23.400 ± 1.300	UCAC5			6.91 ± 0.68					N
J16110890-1904468	16 11 08.91	-19 04 46.86	-10.400 ± 0.900	-24.700 ± 0.900	UCAC5			7.29 ± 0.64					N
J16111237-1927374	16 11 12.38	-19 27 37.44	-10.418 ± 2.431	-26.759 ± 2.413	HSOY			7.83 ± 0.92					N
J16111330-2019029	16 11 13.31	-20 19 02.94	-9.100 ± 1.200	-21.500 ± 1.100	UCAC5			6.30 ± 0.65					N
J16111395-2019188	16 11 13.95	-20 19 18.85	-9.730 ± 1.960	-22.140 ± 1.870	SPM4			6.58 ± 0.79					N
J16111534-1757214	16 11 15.34	-17 57 21.43	-9.400 ± 1.100	-24.800 ± 1.100	UCAC5	-7.2 ± 0.2	2	7.29 ± 0.69					N
J16111662-1939103	16 11 16.63	-19 39 10.35	-18.200 ± 1.600	-23.000 ± 1.200	UCAC5			7.83 ± 0.82					N
J16111687-2639331	16 11 16.87	-26 39 33.13	-11.706 ± 2.127	-27.414 ± 2.127	HSOY			7.86 ± 0.91					N
J16111705-2213085	16 11 17.05	-22 13 08.60	-11.654 ± 2.067	-25.595 ± 2.067	HSOY			7.54 ± 0.84					N
J16111813-1757286	16 11 18.13	-17 57 28.70	-6.200 ± 1.600	-24.800 ± 1.600	UCAC5			6.89 ± 0.75					N
J16112044-1919369	16 11 20.45	-19 19 36.92	-9.300 ± 1.600	-24.500 ± 1.600	UCAC5			7.20 ± 0.76					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16112057-1820549	16 11 20.58	-18 20 54.95	-8.504 ± 2.144	-19.665 ± 2.144	HSOY	-7.9 ± 0.1	2	5.87 ± 0.78					N
J16112305-1905231	16 11 23.05	-19 05 23.15	-11.300 ± 1.700	-26.200 ± 1.800	UCAC5			7.81 ± 0.85					N
J16112399-2253326	16 11 23.99	-22 53 32.60	-16.190 ± 1.320	-22.630 ± 1.300	SPM4			7.31 ± 0.71					N
J16112601-2631558	16 11 26.02	-26 31 55.88	-13.300 ± 1.000	-20.900 ± 1.000	UCAC5			6.45 ± 0.60					N
J16112630-2008242	16 11 26.30	-20 08 24.28	-9.300 ± 0.900	-21.400 ± 0.900	UCAC5			6.30 ± 0.58					N
J16112939-1942246	16 11 29.40	-19 42 24.70	-8.868 ± 1.988	-24.969 ± 1.988	HSOY			7.19 ± 0.84					N
J16112959-1900292	16 11 29.60	-19 00 29.22	-3.791 ± 2.411	-26.397 ± 2.411	HSOY			7.01 ± 0.90					N
J16112979-1850541	16 11 29.80	-18 50 54.17	-12.900 ± 1.900	-22.700 ± 1.800	UCAC5			7.17 ± 0.82					N
J16113180-2237082	16 11 31.81	-22 37 08.23	-7.812 ± 2.067	-21.981 ± 2.067	HSOY			6.22 ± 0.77					N
J16113363-1914003	16 11 33.64	-19 14 00.39	-10.500 ± 1.700	-25.800 ± 1.700	UCAC5			7.62 ± 0.80					N
J16113761-2346147	16 11 37.62	-23 46 14.73	-8.498 ± 2.105	-24.339 ± 2.105	HSOY			6.85 ± 0.81					N
J16113784-2210273	16 11 37.84	-22 10 27.39	-9.040 ± 0.920	-23.270 ± 0.890	SPM4			6.72 ± 0.66					N
J16113837-2307072	16 11 38.37	-23 07 07.27	-11.951 ± 2.489	-31.362 ± 2.489	HSOY			8.99 ± 1.04					N
J16114040-2311347	16 11 40.40	-23 11 34.77	-10.171 ± 2.511	-26.697 ± 2.491	HSOY			7.64 ± 0.91					N
J16114353-2527073	16 11 43.53	-25 27 07.40	-19.330 ± 3.910	-28.480 ± 3.710	SPM4			8.91 ± 1.25					N
J16114387-2526350	16 11 43.87	-25 26 35.03	-14.000 ± 0.900	-22.700 ± 0.800	UCAC5			7.01 ± 0.65					N
J16114534-1928132	16 11 45.34	-19 28 13.23	-12.150 ± 2.645	-21.452 ± 2.645	HSOY			6.67 ± 0.92					N
J16114612-1907429	16 11 46.13	-19 07 42.98	-8.241 ± 1.989	-23.096 ± 1.988	HSOY			6.67 ± 0.82					N
J16114920-1947431	16 11 49.20	-19 47 43.16	-11.280 ± 1.994	-24.652 ± 1.988	HSOY			7.37 ± 0.81					N
J16115091-2012098	16 11 50.92	-20 12 09.89	-11.300 ± 1.900	-19.700 ± 1.900	UCAC5			6.13 ± 0.74					N
J16115266-2232421	16 11 52.66	-22 32 42.16	-9.417 ± 0.077	-24.600 ± 0.052	TGAS			7.02 ± 0.63	7.29 ± 0.40				N
J16115439-2236491	16 11 54.39	-22 36 49.19	-15.889 ± 2.488	-21.441 ± 2.488	HSOY			7.00 ± 0.91					N
J16115551-2106179	16 11 55.52	-21 06 17.99	-9.541 ± 0.118	-23.598 ± 0.082	TGAS	-6.7 ± 0.3	1	6.85 ± 0.60	7.24 ± 0.40	$-5.8^{+0.6}_{-0.6}$	$-15.1^{+0.9}_{-1.1}$	$-7.9^{+1.0}_{-1.0}$	Y
J16115626-1943229	16 11 56.26	-19 43 22.94	-9.100 ± 1.200	-24.500 ± 1.100	UCAC5			7.08 ± 0.67					N
J16115633-2304051	16 11 56.33	-23 04 05.14	-7.230 ± 0.880	-26.440 ± 0.910	SPM4			7.22 ± 0.65					N
J16115858-1927003	16 11 58.59	-19 27 00.31	-7.441 ± 0.210	-20.913 ± 0.250	HSOY	-14.2 ± 1.6	7	6.03 ± 0.52					N
J16115927-1906532	16 11 59.28	-19 06 53.28	-14.700 ± 1.000	-22.900 ± 1.000	UCAC5			7.39 ± 0.69					N
J16115974-1927381	16 11 59.74	-19 27 38.11	-7.266 ± 1.573	-31.319 ± 1.467	HSOY			8.56 ± 0.85					N
J16120505-2043404	16 12 05.05	-20 43 40.49	-9.800 ± 1.100	-23.200 ± 1.200	UCAC5			6.79 ± 0.65					N
J16120668-3010270	16 12 06.69	-30 10 27.09	-13.600 ± 1.000	-25.900 ± 1.000	UCAC5			7.56 ± 0.71					N
J16120989-2355175	16 12 09.89	-23 55 17.54	-11.565 ± 0.059	-22.101 ± 0.032	TGAS			6.64 ± 0.56	7.38 ± 0.66				N
J16121043-1932275	16 12 10.44	-19 32 27.59	-7.198 ± 2.411	-22.457 ± 2.411	HSOY			6.36 ± 0.86					N
J16121185-2047267	16 12 11.86	-20 47 26.72	-6.594 ± 2.411	-25.892 ± 2.411	HSOY			7.13 ± 0.95					N
J16121492-2218038	16 12 14.92	-22 18 03.88	-7.773 ± 2.067	-21.762 ± 2.067	HSOY			6.16 ± 0.75					N
J16121723-2839082	16 12 17.24	-28 39 08.24	-14.334 ± 2.142	-25.743 ± 2.142	HSOY			7.62 ± 0.86					N
J16121821-2755349	16 12 18.21	-27 55 34.96	-10.200 ± 4.770	-32.720 ± 5.640	SPM4			8.90 ± 1.56					N
J16122092-1909041	16 12 20.93	-19 09 04.15	-8.700 ± 1.100	-22.700 ± 1.100	UCAC5			6.64 ± 0.64					N
J16122183-1934445	16 12 21.83	-19 34 44.56	-9.149 ± 0.067	-24.094 ± 0.051	TGAS			7.01 ± 0.58	6.50 ± 0.48				N
J16123352-2543281	16 12 33.53	-25 43 28.11	-9.560 ± 1.710	-25.460 ± 1.700	SPM4			7.20 ± 0.74					N
J16123531-2034339	16 12 35.32	-20 34 33.97	-16.130 ± 1.190	-30.330 ± 1.180	SPM4			9.28 ± 0.84					N
J16123916-1859284	16 12 39.17	-18 59 28.46	-10.000 ± 1.100	-23.900 ± 1.000	UCAC5			7.09 ± 0.64					N
J16123954-2228082	16 12 39.55	-22 28 08.25	-10.820 ± 1.150	-22.780 ± 1.110	SPM4			6.74 ± 0.65					N
J16124051-1859282	16 12 40.51	-18 59 28.29	-9.857 ± 0.803	-21.676 ± 0.534	TGAS	-6.5 ± 1.0	3	6.52 ± 0.63	7.62 ± 0.39	$-5.4^{+1.4}_{-1.4}$	$-13.8^{+1.3}_{-1.5}$	$-6.6^{+1.6}_{-1.6}$	Y
J16124123-1949380	16 12 41.24	-19 49 38.03	-10.700 ± 1.000	-24.600 ± 0.900	UCAC5			7.32 ± 0.69					N
J16124374-2308231	16 12 43.74	-23 08 23.10	-2.784 ± 2.067	-28.315 ± 2.067	HSOY			7.19 ± 0.82					N
J16124410-1930102	16 12 44.11	-19 30 10.24	-6.623 ± 0.077	-24.721 ± 0.049	TGAS	-5.6 ± 0.2	2	6.87 ± 0.59	6.93 ± 0.42	$-3.5^{+0.5}_{-0.5}$	$-15.5^{+1.0}_{-1.1}$	$-9.5^{+1.0}_{-1.0}$	Y
J16124506-2305303	16 12 45.07	-23 05 30.33	-8.964 ± 2.489	-22.594 ± 2.489	HSOY			6.49 ± 0.88					N
J16124682-2213317	16 12 46.82	-22 13 31.72	-7.471 ± 1.451	-24.457 ± 0.817	TGAS			6.79 ± 0.68	7.37 ± 0.40				N
J16124893-1800525	16 12 48.93	-18 00 52.55	-7.114 ± 2.070	-20.358 ± 2.070	HSOY			5.92 ± 0.77					N
J16125265-2319560	16 12 52.66	-23 19 56.01	-9.184 ± 1.003	-24.623 ± 1.107	HSOY			6.99 ± 0.69					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16125528-2226542	16 12 55.28	-22 26 54.24	-13.800 ± 4.270	-23.340 ± 4.100	SPM4			7.26 ± 1.30					N
J16125533-2319456	16 12 55.34	-23 19 45.64	-9.499 ± 0.140	-23.887 ± 0.096	TGAS	-5.0 ± 1.2	2	6.84 ± 0.57	6.57 ± 0.38	$-4.8^{+1.4}_{-1.4}$	$-16.9^{+1.2}_{-1.4}$	$-8.1^{+1.4}_{-1.5}$	Y
J16125588-2518581	16 12 55.89	-25 18 58.16	-13.299 ± 2.090	-24.302 ± 2.090	HSOY			7.32 ± 0.87					N
J16130234-2501460	16 13 02.34	-25 01 46.02	-12.000 ± 1.000	-23.700 ± 1.000	UCAC5			7.03 ± 0.66					N
J16130271-2257446	16 13 02.72	-22 57 44.64	-6.450 ± 0.780	-23.770 ± 0.810	SPM4			6.50 ± 0.61					N
J16130627-2606107	16 13 06.28	-26 06 10.75	-9.398 ± 2.090	-24.182 ± 2.090	HSOY			6.82 ± 0.82					N
J16130978-2044591	16 13 09.79	-20 44 59.14	-11.340 ± 1.800	-16.340 ± 1.730	SPM4			5.29 ± 0.67					N
J16130996-1904269	16 13 09.97	-19 04 26.91	-8.153 ± 1.988	-27.092 ± 1.988	HSOY			7.65 ± 0.84					N
J16131008-2435248	16 13 10.08	-24 35 24.81	-9.888 ± 2.090	-27.749 ± 2.090	HSOY			7.78 ± 0.86					N
J16131082-2313514	16 13 10.83	-23 13 51.41	-13.010 ± 3.280	-25.780 ± 3.140	SPM4			7.72 ± 1.08					N
J16131158-2229066	16 13 11.58	-22 29 06.67	-8.470 ± 0.090	-23.533 ± 0.054	TGAS			6.67 ± 0.58	6.70 ± 0.39				N
J16131856-1529346	16 13 18.57	-15 29 34.66	-9.849 ± 2.166	-21.436 ± 2.166	HSOY			6.60 ± 0.87					N
J16131858-2212489	16 13 18.59	-22 12 48.95	-9.757 ± 2.621	-19.646 ± 1.332	TGAS	-7.0 ± 1.0	3	5.91 ± 0.83	5.86 ± 0.84	$-6.9^{+2.6}_{-2.8}$	$-17.1^{+4.5}_{-6.1}$	$-7.3^{+5.3}_{-5.2}$	Y
J16132054-2229159	16 13 20.54	-22 29 15.93	-11.160 ± 1.000	-19.910 ± 0.970	SPM4			6.11 ± 0.62					N
J16132190-2136136	16 13 21.91	-21 36 13.61	-9.040 ± 1.490	-21.460 ± 1.440	SPM4			6.27 ± 0.68					N
J16132577-1737354	16 13 25.77	-17 37 35.46	-6.994 ± 2.070	-27.868 ± 2.070	HSOY			7.74 ± 0.87					N
J16132809-1924524	16 13 28.09	-19 24 52.43	-13.301 ± 2.411	-27.777 ± 2.412	HSOY			8.40 ± 0.97					N
J16132929-2311075	16 13 29.29	-23 11 07.54	-6.180 ± 0.720	-24.850 ± 0.750	SPM4	-5.0 ± 0.8	5	6.73 ± 0.62					N
J16133279-2044413	16 13 32.80	-20 44 41.40	-12.660 ± 1.510	-22.360 ± 1.450	SPM4			6.90 ± 0.77					N
J16133476-2328156	16 13 34.77	-23 28 15.61	-7.973 ± 2.548	-20.152 ± 2.548	HSOY			5.80 ± 0.85					N
J16133650-2503473	16 13 36.51	-25 03 47.34	-7.480 ± 2.040	-25.880 ± 1.950	SPM4			7.03 ± 0.80					N
J16133688-2327298	16 13 36.89	-23 27 29.80	-13.273 ± 2.153	-22.554 ± 2.153	HSOY			6.91 ± 0.84					N
J16133834-2158518	16 13 38.34	-21 58 51.84	-9.054 ± 2.067	-20.756 ± 2.067	HSOY			6.11 ± 0.76					N
J16134264-2301279	16 13 42.65	-23 01 27.91	-12.398 ± 3.290	-24.743 ± 3.290	HSOY			7.43 ± 1.10					N
J16134366-2214594	16 13 43.66	-22 14 59.45	-8.500 ± 1.100	-19.300 ± 1.000	UCAC5			5.64 ± 0.56					N
J16134549-2425196	16 13 45.49	-24 25 19.64	-9.529 ± 0.044	-19.187 ± 0.021	TGAS			5.68 ± 0.52	6.25 ± 0.71				N
J16134781-2747340	16 13 47.81	-27 47 34.02	-10.614 ± 0.941	-20.884 ± 0.530	TGAS			6.11 ± 0.56	6.55 ± 0.42				N
J16134880-2509006	16 13 48.81	-25 09 00.69	-4.397 ± 2.514	-25.724 ± 2.514	HSOY			6.69 ± 0.91					N
J16135663-2457566	16 13 56.63	-24 57 56.67	-13.490 ± 1.640	-18.940 ± 1.630	SPM4			6.08 ± 0.65					N
J16135815-1848290	16 13 58.15	-18 48 29.04	-8.500 ± 1.500	-25.500 ± 1.500	UCAC5			7.33 ± 0.77					N
J16140035-2108439	16 14 00.36	-21 08 43.97	-9.300 ± 1.200	-21.000 ± 1.100	UCAC5			6.23 ± 0.64					N
J16140211-2301021	16 14 02.12	-23 01 02.17	-5.480 ± 0.690	-20.140 ± 0.720	SPM4			5.49 ± 0.51					N
J16140380-2453088	16 14 03.81	-24 53 08.84	-11.380 ± 1.450	-17.210 ± 1.450	SPM4			5.40 ± 0.61					N
J16140733-2217321	16 14 07.34	-22 17 32.11	-10.260 ± 0.700	-18.880 ± 0.680	SPM4			5.78 ± 0.52					N
J16141011-2217236	16 14 10.11	-22 17 23.60	-10.700 ± 1.040	-20.290 ± 1.000	SPM4			6.16 ± 0.58					N
J16141107-2305362	16 14 11.08	-23 05 36.24	-11.110 ± 0.750	-23.840 ± 0.790	SPM4	-4.9 ± 1.0	3	7.05 ± 0.65					N
J16141235-2219132	16 14 12.36	-22 19 13.22	-9.780 ± 1.380	-22.570 ± 1.350	SPM4			6.63 ± 0.68					N
J16141259-2454287	16 14 12.59	-24 54 28.76	-6.420 ± 1.330	-15.820 ± 1.340	SPM4			4.51 ± 0.54					N
J16141352-2244578	16 14 13.52	-22 44 57.84	-9.390 ± 2.067	-22.670 ± 2.067	HSOY			6.57 ± 0.75					N
J16141974-2428404	16 14 19.74	-24 28 40.45	-8.510 ± 2.778	-19.653 ± 2.778	HSOY			5.68 ± 0.86					N
J16142029-1906481	16 14 20.30	-19 06 48.14	-4.400 ± 2.000	-22.300 ± 2.100	UCAC5	-6.8 ± 1.8	2	6.04 ± 0.73					N
J16142237-3300398	16 14 22.37	-33 00 39.81	-8.515 ± 0.033	-18.966 ± 0.018	TGAS	-22.6 ± 0.1	7	5.34 ± 0.45	5.24 ± 0.65	$-24.6^{+0.5}_{-0.6}$	$-12.3^{+2.2}_{-2.8}$	$-11.5^{+2.3}_{-2.6}$	N
J16142888-2106274	16 14 28.89	-21 06 27.48	-15.920 ± 3.350	-31.260 ± 3.220	SPM4	-7.8 ± 1.7	4	9.47 ± 1.17					N
J16142893-1857224	16 14 28.93	-18 57 22.46	-6.200 ± 1.100	-24.900 ± 1.200	UCAC5			6.89 ± 0.66					N
J16143287-2242133	16 14 32.87	-22 42 13.35	-10.310 ± 3.290	-22.376 ± 3.290	HSOY			6.63 ± 1.03					N
J16143363-2004299	16 14 33.64	-20 04 29.93	-9.100 ± 1.600	-25.900 ± 1.600	UCAC5			7.42 ± 0.76					N
J16143367-1900133	16 14 33.68	-19 00 13.37	-4.800 ± 1.500	-24.900 ± 1.500	UCAC5			6.74 ± 0.71					N
J16143846-2321372	16 14 38.47	-23 21 37.25	-6.750 ± 1.530	-18.910 ± 1.490	SPM4			5.37 ± 0.63					N
J16143884-2525000	16 14 38.85	-25 25 00.06	-12.500 ± 1.000	-25.800 ± 1.000	UCAC5			7.58 ± 0.72					N
J16144016-2014030	16 14 40.16	-20 14 03.00	-17.353 ± 0.164	-27.721 ± 0.125	TGAS			8.82 ± 0.75	6.64 ± 0.37				N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16144120-2227052	16 14 41.20	-22 27 05.23	-13.050 ± 1.500	-25.220 ± 1.440	SPM4			7.60 ± 0.76					N
J16144989-2139321	16 14 49.89	-21 39 32.11	-8.540 ± 1.540	-24.640 ± 1.480	SPM4			6.94 ± 0.74					N
J16145244-2513523	16 14 52.44	-25 13 52.32	-16.382 ± 2.090	-30.457 ± 2.090	HSOY			9.14 ± 0.93					N
J16145269-2308025	16 14 52.69	-23 08 02.55	-8.790 ± 1.150	-15.830 ± 1.160	SPM4			4.84 ± 0.53					N
J16145343-2528371	16 14 53.43	-25 28 37.12	-10.292 ± 0.079	-20.765 ± 0.045	HSOY			6.15 ± 0.52					N
J16145392-2504305	16 14 53.93	-25 04 30.54	-11.377 ± 2.090	-30.007 ± 2.090	HSOY			8.49 ± 0.90					N
J16145918-2750230	16 14 59.18	-27 50 23.01	-13.141 ± 0.849	-20.536 ± 0.452	TGAS	-0.9 ± 1.0	3	6.30 ± 0.59	6.85 ± 0.37	$-3.1^{+1.3}_{-1.4}$	$-16.4^{+1.6}_{-1.8}$	$-3.4^{+1.8}_{-1.8}$	Y
J16145928-2459308	16 14 59.29	-24 59 30.80	-8.609 ± 2.090	-31.157 ± 2.090	HSOY			8.52 ± 0.96					N
J16150060-2919348	16 15 00.61	-29 19 34.89	-14.000 ± 1.000	-27.900 ± 1.000	UCAC5			8.14 ± 0.75					N
J16150856-1851009	16 15 08.56	-18 51 00.99	-7.800 ± 1.200	-19.600 ± 1.200	UCAC5			5.77 ± 0.62					N
J16150891-2345048	16 15 08.92	-23 45 04.83	-10.054 ± 2.105	-26.325 ± 2.105	HSOY			7.48 ± 0.84					N
J16150927-2345348	16 15 09.27	-23 45 34.82	-8.038 ± 0.113	-23.701 ± 0.065	TGAS			6.63 ± 0.58	6.54 ± 0.42				N
J16151045-2207099	16 15 10.46	-22 07 09.95	-9.716 ± 0.132	-20.114 ± 0.078	TGAS			6.03 ± 0.51	5.97 ± 0.43				N
J16151104-2322425	16 15 11.05	-23 22 42.58	-14.600 ± 1.300	-24.500 ± 1.200	UCAC5			7.58 ± 0.74					N
J16151116-2420153	16 15 11.16	-24 20 15.33	-6.852 ± 2.888	-16.105 ± 2.888	HSOY			4.62 ± 0.87					N
J16151239-2318453	16 15 12.40	-23 18 45.30	-7.950 ± 1.330	-22.580 ± 1.350	SPM4			6.34 ± 0.64					N
J16151361-2304261	16 15 13.61	-23 04 26.12	-13.517 ± 3.290	-29.626 ± 3.290	HSOY			8.75 ± 1.19					N
J16151602-2345103	16 15 16.02	-23 45 10.38	-10.497 ± 2.105	-23.107 ± 2.105	HSOY			6.78 ± 0.81					N
J16151948-2540119	16 15 19.49	-25 40 11.99	-10.100 ± 1.100	-25.500 ± 1.100	UCAC5			7.26 ± 0.68					N
J16152743-2239275	16 15 27.43	-22 39 27.53	-8.640 ± 1.280	-16.510 ± 1.270	SPM4			5.00 ± 0.54					N
J16152750-2627281	16 15 27.51	-26 27 28.11	-14.407 ± 2.092	-25.177 ± 2.090	HSOY			7.60 ± 0.88					N
J16153220-2010236	16 15 32.20	-20 10 23.67	-15.700 ± 1.400	-32.200 ± 1.300	UCAC5			9.73 ± 0.92					N
J16153311-2707587	16 15 33.11	-27 07 58.74	-15.600 ± 1.170	-24.080 ± 1.180	SPM4			7.44 ± 0.72					N
J16153587-2529008	16 15 35.87	-25 29 00.89	-12.600 ± 1.000	-23.200 ± 1.000	UCAC5			6.99 ± 0.66					N
J16153844-2341558	16 15 38.44	-23 41 55.89	-11.480 ± 2.105	-22.091 ± 2.105	HSOY			6.60 ± 0.82					N
J16154416-1921171	16 15 44.16	-19 21 17.14	-6.500 ± 1.200	-25.500 ± 1.100	UCAC5	-5.6 ± 1.0	3	7.07 ± 0.68					N
J16154732-1911184	16 15 47.33	-19 11 18.47	-9.400 ± 1.300	-23.200 ± 1.300	UCAC5			6.86 ± 0.70					N
J16155987-2325043	16 15 59.87	-23 25 04.37	-7.500 ± 0.960	-25.340 ± 1.000	SPM4			6.99 ± 0.64					N
J16160080-2214192	16 16 00.81	-22 14 19.29	-10.456 ± 2.067	-27.739 ± 2.067	HSOY			7.93 ± 0.87					N
J16160292-2430548	16 16 02.92	-24 30 54.90	-7.100 ± 1.100	-23.100 ± 1.100	UCAC5			6.38 ± 0.60					N
J16160856-2041514	16 16 08.56	-20 41 51.42	-10.125 ± 1.988	-26.449 ± 1.988	HSOY			7.61 ± 0.82					N
J16161172-2327050	16 16 11.72	-23 27 05.08	-13.010 ± 2.138	-26.526 ± 2.138	HSOY			7.90 ± 0.88					N
J16161293-2430541	16 16 12.93	-24 30 54.15	-10.801 ± 2.091	-24.460 ± 2.091	HSOY			7.10 ± 0.81					N
J16161423-2643148	16 16 14.24	-26 43 14.86	-13.900 ± 1.400	-28.400 ± 1.300	UCAC5			8.28 ± 0.79					N
J16161720-2609101	16 16 17.20	-26 09 10.16	-13.200 ± 1.000	-22.600 ± 1.000	UCAC5			6.86 ± 0.65					N
J16161795-2339476	16 16 17.95	-23 39 47.68	-8.481 ± 1.417	-22.374 ± 0.404	TGAS	-5.5 ± 1.0	3	6.41 ± 0.64	7.38 ± 0.45	$-5.3^{+1.5}_{-1.5}$	$-13.8^{+1.7}_{-1.9}$	$-7.2^{+1.9}_{-1.9}$	Y
J16161893-2542287	16 16 18.94	-25 42 28.73	-9.030 ± 1.280	-29.890 ± 1.290	SPM4			8.20 ± 0.78					N
J16162518-2459194	16 16 25.18	-24 59 19.45	-12.139 ± 0.058	-21.935 ± 0.039	TGAS	14.6 ± 1.6	2	6.64 ± 0.58	6.27 ± 0.42	$12.3^{+1.8}_{-1.8}$	$-20.6^{+1.5}_{-1.7}$	$0.0^{+1.7}_{-1.7}$	N
J16162531-2412057	16 16 25.31	-24 12 05.72	-5.564 ± 2.515	-21.661 ± 2.515	HSOY			5.85 ± 0.85					N
J16162598-2112227	16 16 25.99	-21 12 22.80	-11.231 ± 2.691	-17.049 ± 2.684	HSOY			5.47 ± 0.90					N
J16163345-2521505	16 16 33.45	-25 21 50.57	-7.540 ± 1.600	-17.920 ± 1.580	SPM4			5.14 ± 0.61					N
J16163346-2552367	16 16 33.46	-25 52 36.78	-11.500 ± 1.200	-19.800 ± 1.200	UCAC5			6.00 ± 0.60					N
J16164163-2315389	16 16 41.63	-23 15 39.00	-16.681 ± 2.142	-30.257 ± 2.138	HSOY			9.21 ± 0.99					N
J16165062-2551466	16 16 50.62	-25 51 46.67	-11.872 ± 0.065	-23.160 ± 0.042	TGAS			6.86 ± 0.59	6.59 ± 0.40				N
J16165130-2433277	16 16 51.30	-24 33 27.77	-13.500 ± 0.990	-21.787 ± 0.633	TGAS			6.74 ± 0.62	6.69 ± 0.42				N
J16165158-2048537	16 16 51.59	-20 48 53.76	-6.922 ± 2.052	-24.726 ± 2.052	HSOY			6.91 ± 0.85					N
J16165430-2459590	16 16 54.31	-24 59 59.03	-10.085 ± 2.093	-21.683 ± 2.091	HSOY			6.35 ± 0.77					N
J16165876-2118147	16 16 58.77	-21 18 14.75	-15.220 ± 0.036	-25.692 ± 0.023	TGAS	-6.4 ± 0.2	2	8.01 ± 0.68	7.76 ± 0.67	$-6.5^{+0.7}_{-0.7}$	$-17.6^{+1.5}_{-1.8}$	$-5.6^{+1.6}_{-1.6}$	Y
J16165984-2154272	16 16 59.84	-21 54 27.27	-14.539 ± 2.138	-26.381 ± 2.138	HSOY			8.13 ± 0.89					N
J16170606-2225414	16 17 06.07	-22 25 41.45	-8.460 ± 1.960	-24.630 ± 1.900	SPM4			6.99 ± 0.77					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^\circ$ $'$ $''$)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16171380-2251584	16 17 13.81	-22 51 58.42	-11.612 ± 2.509	-25.433 ± 2.509	HSOY			7.46 ± 0.90					N
J16171649-2327570	16 17 16.50	-23 27 57.08	-15.330 ± 2.142	-27.095 ± 2.138	HSOY			8.33 ± 0.91					N
J16172162-2325004	16 17 21.62	-23 25 00.44	-10.535 ± 2.143	-26.387 ± 2.138	HSOY			7.63 ± 0.89					N
J16172297-2121119	16 17 22.98	-21 21 11.94	-10.300 ± 1.000	-21.200 ± 0.900	UCAC5			6.39 ± 0.62					N
J16172505-2350380	16 17 25.05	-23 50 38.00	-9.510 ± 2.548	-24.419 ± 2.548	HSOY			7.00 ± 0.93					N
J16172615-2450592	16 17 26.15	-24 50 59.29	-11.583 ± 2.291	-22.477 ± 2.291	HSOY			6.64 ± 0.84					N
J16172769-2421025	16 17 27.69	-24 21 02.59	-6.162 ± 2.091	-26.954 ± 2.091	HSOY			7.22 ± 0.83					N
J16173031-2438390	16 17 30.32	-24 38 39.02	-6.980 ± 2.080	-17.650 ± 2.080	SPM4			5.06 ± 0.71					N
J16173138-2303360	16 17 31.39	-23 03 36.00	-9.437 ± 0.930	-21.369 ± 0.583	TGAS	-3.7 ± 1.0	3	6.27 ± 0.59	7.37 ± 0.39	$-3.7^{+1.4}_{-1.4}$	$-14.0^{+1.5}_{-1.6}$	$-5.7^{+1.7}_{-1.7}$	Y
J16173786-2119159	16 17 37.87	-21 19 15.92	-12.979 ± 2.052	-26.864 ± 2.053	HSOY			8.09 ± 0.91					N
J16181107-2911125	16 18 11.07	-29 11 12.57	-12.612 ± 1.852	-21.915 ± 0.590	TGAS			6.57 ± 0.72	6.45 ± 0.55				N
J16181568-2347084	16 18 15.68	-23 47 08.44	-14.214 ± 2.805	-22.701 ± 2.634	HSOY			7.08 ± 0.98					N
J16181616-2802300	16 18 16.17	-28 02 30.09	-11.132 ± 0.035	-25.238 ± 0.021	TGAS	-3.4 ± 0.6	2	7.23 ± 0.65	7.70 ± 0.62	$-4.8^{+0.8}_{-0.8}$	$-15.6^{+1.4}_{-1.6}$	$-6.4^{+1.4}_{-1.5}$	Y
J16181997-2005348	16 18 19.97	-20 05 34.80	-11.817 ± 1.795	-24.138 ± 0.803	TGAS			7.32 ± 0.79	7.54 ± 0.60				N
J16182825-2316274	16 18 28.25	-23 16 27.47	-11.455 ± 0.049	-26.142 ± 0.029	TGAS			7.64 ± 0.69	6.44 ± 0.46				N
J16183618-2425333	16 18 36.19	-24 25 33.36	-7.696 ± 2.099	-20.775 ± 2.091	HSOY			5.88 ± 0.77					N
J16183914-2135341	16 18 39.15	-21 35 34.18	-10.741 ± 0.109	-25.181 ± 0.044	HSOY	-6.6 ± 0.7	1	7.39 ± 0.62					N
J16184074-2209482	16 18 40.74	-22 09 48.21	-18.878 ± 3.497	-28.664 ± 3.481	HSOY			9.14 ± 1.28					N
J16190214-2138097	16 19 02.15	-21 38 09.79	-11.600 ± 2.000	-25.300 ± 1.900	UCAC5			7.52 ± 0.87					N
J16191217-2550383	16 19 12.18	-25 50 38.32	-13.900 ± 1.000	-22.500 ± 0.900	UCAC5			6.92 ± 0.62					N
J16191473-2532314	16 19 14.74	-25 32 31.45	-13.500 ± 0.900	-22.500 ± 0.900	UCAC5			6.86 ± 0.63					N
J16191521-2417241	16 19 15.22	-24 17 24.15	-13.446 ± 2.052	-25.460 ± 2.049	HSOY			7.65 ± 0.86					N
J16191608-2915126	16 19 16.09	-29 15 12.62	-8.012 ± 2.114	-21.243 ± 2.113	HSOY			5.86 ± 0.75					N
J16192634-2412444	16 19 26.35	-24 12 44.50	-5.953 ± 2.433	-17.472 ± 2.426	HSOY			4.92 ± 0.75					N
J16192923-2124132	16 19 29.24	-21 24 13.25	-11.535 ± 0.144	-25.808 ± 0.050	HSOY	-2.8 ± 0.3	1	7.62 ± 0.64					N
J16193139-2518127	16 19 31.40	-25 18 12.75	-13.800 ± 1.100	-23.500 ± 1.100	UCAC5			7.20 ± 0.67					N
J16193396-2228294	16 19 33.96	-22 28 29.40	-12.410 ± 0.990	-22.030 ± 0.950	SPM4	-2.7 ± 1.0	3	6.78 ± 0.63					N
J16194538-2147577	16 19 45.39	-21 47 57.75	-9.800 ± 1.000	-24.700 ± 1.000	UCAC5			7.15 ± 0.66					N
J16194711-2203112	16 19 47.11	-22 03 11.26	-11.137 ± 2.138	-26.326 ± 2.138	HSOY			7.71 ± 0.89					N
J16194885-2140360	16 19 48.86	-21 40 36.06	-14.525 ± 2.138	-25.554 ± 2.138	HSOY			7.87 ± 0.93					N
J16195068-2154355	16 19 50.69	-21 54 35.53	-8.900 ± 1.000	-20.300 ± 1.000	UCAC5			6.01 ± 0.56					N
J16195143-2241332	16 19 51.44	-22 41 33.28	-10.838 ± 3.938	-17.326 ± 3.947	HSOY			5.39 ± 1.15					N
J16200397-2002413	16 20 03.98	-20 02 41.35	-11.344 ± 0.209	-26.299 ± 0.250	HSOY			7.86 ± 0.69					N
J16200549-2003228	16 20 05.49	-20 03 22.89	-11.627 ± 0.054	-24.710 ± 0.034	TGAS	-4.0 ± 1.4	2	7.42 ± 0.62	7.81 ± 0.45	$-3.3^{+1.6}_{-1.6}$	$-15.9^{+1.0}_{-1.1}$	$-5.7^{+1.3}_{-1.4}$	Y
J16200686-2247320	16 20 06.86	-22 47 32.06	-11.012 ± 2.138	-18.930 ± 2.138	HSOY			5.84 ± 0.78					N
J16202128-2120289	16 20 21.28	-21 20 28.96	-9.529 ± 2.529	-27.133 ± 2.528	HSOY	-5.9 ± 0.9	2	7.77 ± 0.92					N
J16202498-2150240	16 20 24.98	-21 50 24.05	-11.400 ± 1.300	-24.400 ± 1.300	UCAC5			7.25 ± 0.72					N
J16202724-2126068	16 20 27.24	-21 26 06.90	-11.600 ± 1.000	-25.300 ± 1.000	UCAC5			7.56 ± 0.70					N
J16202813-2130324	16 20 28.13	-21 30 32.42	-12.705 ± 0.062	-25.803 ± 0.037	TGAS			7.79 ± 0.67	8.18 ± 0.85				N
J16202930-3254096	16 20 29.30	-32 54 09.60	-14.100 ± 1.000	-26.700 ± 0.900	UCAC5			7.71 ± 0.72					N
J16203246-2257452	16 20 32.46	-22 57 45.26	-2.020 ± 1.900	-20.910 ± 1.890	SPM4			5.37 ± 0.69					N
J16203640-2123120	16 20 36.41	-21 23 12.08	-12.842 ± 2.052	-25.894 ± 2.052	HSOY			7.82 ± 0.88					N
J16204468-2431384	16 20 44.69	-24 31 38.46	-9.200 ± 1.100	-17.500 ± 1.100	UCAC5			5.23 ± 0.52					N
J16204578-2849201	16 20 45.78	-28 49 20.14	-11.200 ± 1.000	-20.400 ± 1.000	UCAC5			6.05 ± 0.59					N
J16204596-2348208	16 20 45.96	-23 48 20.87	-10.600 ± 1.200	-24.900 ± 1.200	UCAC5			7.23 ± 0.72					N
J16205022-2235387	16 20 50.23	-22 35 38.73	-10.283 ± 0.225	-19.941 ± 0.124	HSOY			6.03 ± 0.55					N
J16210983-2535333	16 21 09.83	-25 35 33.38	-4.725 ± 2.277	-20.185 ± 2.277	HSOY			5.43 ± 0.75					N
J16211584-2240045	16 21 15.84	-22 40 04.56	-10.400 ± 1.700	-21.900 ± 1.700	UCAC5			6.53 ± 0.76					N
J16211918-2342287	16 21 19.19	-23 42 28.75	-11.224 ± 0.036	-24.526 ± 0.024	TGAS			7.22 ± 0.61	7.33 ± 0.50				N
J16212488-2426145	16 21 24.88	-24 26 14.51	-7.989 ± 2.480	-18.162 ± 2.480	HSOY			5.32 ± 0.80					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ (° ′ ″)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16212953-2529431	16 21 29.53	-25 29 43.15	-5.700 ± 1.500	-23.900 ± 1.500	UCAC5			6.43 ± 0.68					N
J16212961-2129038	16 21 29.62	-21 29 03.81	-7.016 ± 2.142	-22.624 ± 2.138	HSOY			6.40 ± 0.83					N
J16214126-2212056	16 21 41.27	-22 12 05.61	-10.910 ± 1.850	-17.910 ± 1.800	SPM4			5.61 ± 0.68					N
J16214853-2517266	16 21 48.53	-25 17 26.63	-8.900 ± 2.200	-21.100 ± 2.000	UCAC5			6.11 ± 0.79					N
J16215594-2705034	16 21 55.95	-27 05 03.42	-2.023 ± 2.039	-20.300 ± 2.039	HSOY			5.17 ± 0.67					N
J16215975-2706366	16 21 59.76	-27 06 36.63	-7.730 ± 2.071	-22.177 ± 2.039	HSOY			6.18 ± 0.74					N
J16220587-2121556	16 22 05.88	-21 21 55.64	-12.100 ± 1.300	-24.200 ± 1.200	UCAC5			7.30 ± 0.73					N
J16220658-2127089	16 22 06.58	-21 27 08.94	-9.700 ± 2.100	-24.800 ± 2.100	UCAC5			7.21 ± 0.81					N
J16220858-2915063	16 22 08.58	-29 15 06.32	-8.300 ± 1.000	-27.000 ± 1.000	UCAC5			7.31 ± 0.69					N
J16220894-2140372	16 22 08.94	-21 40 37.22	-13.021 ± 2.141	-22.124 ± 2.138	HSOY			6.90 ± 0.87					N
J16221989-2421482	16 22 19.90	-24 21 48.22	-5.420 ± 2.160	-15.380 ± 2.240	SPM4			4.34 ± 0.69					N
J16222092-2747095	16 22 20.93	-27 47 09.51	-10.000 ± 1.500	-30.600 ± 1.400	UCAC5			8.47 ± 0.81					N
J16223834-2541017	16 22 38.35	-25 41 01.77	-10.464 ± 2.748	-21.591 ± 2.748	HSOY			6.34 ± 0.92					N
J16224408-2142222	16 22 44.08	-21 42 22.26	-9.300 ± 1.800	-20.600 ± 1.900	UCAC5			6.13 ± 0.73					N
J16225177-2307070	16 22 51.78	-23 07 07.08	-11.726 ± 1.160	-25.178 ± 1.130	HSOY			7.49 ± 0.72					N
J16225479-2138091	16 22 54.79	-21 38 09.18	-9.710 ± 2.000	-23.650 ± 1.940	SPM4			6.97 ± 0.80					N
J16230474-2759252	16 23 04.74	-27 59 25.29	-5.400 ± 1.200	-16.300 ± 1.200	UCAC5			4.49 ± 0.52					N
J16230783-2300596	16 23 07.83	-23 00 59.67	-6.960 ± 1.090	-19.680 ± 1.140	SPM4			5.61 ± 0.60					N
J16231741-2159067	16 23 17.42	-21 59 06.80	-11.177 ± 2.174	-24.154 ± 2.156	HSOY			7.20 ± 0.83					N
J16232454-1717270	16 23 24.54	-17 17 27.05	-15.500 ± 1.600	-25.900 ± 1.500	UCAC5			8.37 ± 0.86					N
J16234698-2850023	16 23 46.98	-28 50 02.39	-10.039 ± 1.575	-19.336 ± 1.016	HSOY	-1.3 ± 1.0	3	5.63 ± 0.63					N
J16234716-2616157	16 23 47.17	-26 16 15.75	-9.774 ± 0.078	-20.891 ± 0.050	TGAS			6.09 ± 0.52	6.29 ± 0.42				N
J16235155-2317270	16 23 51.56	-23 17 27.03	-12.444 ± 2.739	-24.854 ± 2.739	HSOY			7.47 ± 0.99					N
J16235385-2946401	16 23 53.85	-29 46 40.13	-13.652 ± 0.068	-26.505 ± 0.045	TGAS	1.7 ± 0.3	1	7.75 ± 0.67	7.63 ± 0.57	$-0.7^{+0.5}_{-0.5}$	$-18.3^{+1.4}_{-1.6}$	$-4.5^{+1.4}_{-1.5}$	Y
J16235484-3312370	16 23 54.84	-33 12 37.04	-10.100 ± 1.300	-22.600 ± 1.200	UCAC5			6.35 ± 0.64					N
J16235509-2330396	16 23 55.09	-23 30 39.69	-9.295 ± 2.140	-27.295 ± 2.139	HSOY			7.69 ± 0.88					N
J16235672-3311578	16 23 56.72	-33 11 57.80	-14.676 ± 0.058	-27.746 ± 0.035	TGAS	-2.1 ± 1.4	7	8.04 ± 0.70	7.43 ± 0.55	$-5.6^{+1.6}_{-1.6}$	$-18.7^{+1.7}_{-1.9}$	$-5.7^{+1.7}_{-1.8}$	Y
J16235723-2620244	16 23 57.24	-26 20 24.49	-10.900 ± 2.130	-22.440 ± 2.150	SPM4			6.61 ± 0.84					N
J16235790-2602296	16 23 57.90	-26 02 29.70	-10.600 ± 1.000	-19.000 ± 1.000	UCAC5			5.75 ± 0.57					N
J16235902-2736037	16 23 59.02	-27 36 03.79	-5.870 ± 2.060	-18.610 ± 2.110	SPM4			5.15 ± 0.73					N
J16240289-2524539	16 24 02.89	-25 24 53.91	-9.841 ± 0.103	-20.207 ± 0.065	TGAS			5.99 ± 0.51	5.06 ± 0.48				N
J16240942-2134075	16 24 09.43	-21 34 07.58	-12.163 ± 2.155	-21.243 ± 2.155	HSOY			6.57 ± 0.80					N
J16242132-2501314	16 24 21.32	-25 01 31.40	-10.773 ± 0.088	-22.359 ± 0.058	TGAS			6.58 ± 0.54	6.52 ± 0.40				N
J16245136-2239325	16 24 51.36	-22 39 32.54	-10.934 ± 1.378	-27.087 ± 0.608	TGAS	-3.4 ± 1.0	3	7.87 ± 0.78	7.10 ± 0.49	$-3.0^{+1.6}_{-1.6}$	$-18.4^{+2.2}_{-2.5}$	$-7.2^{+2.4}_{-2.4}$	Y
J16245915-2521180	16 24 59.15	-25 21 18.00	-9.106 ± 0.078	-24.877 ± 0.052	TGAS			7.04 ± 0.60	6.49 ± 0.67				N
J16252427-2327367	16 25 24.28	-23 27 36.79	-4.640 ± 0.339	-21.187 ± 0.185	HSOY			5.71 ± 0.50					N
J16252860-1658509	16 25 28.60	-16 58 50.94	-9.171 ± 2.890	-19.456 ± 2.890	HSOY			5.94 ± 0.97					N
J16252863-2346265	16 25 28.64	-23 46 26.55	-3.520 ± 1.300	-20.790 ± 1.350	SPM4			5.47 ± 0.59					N
J16252883-2607538	16 25 28.83	-26 07 53.87	-10.880 ± 2.130	-21.670 ± 2.130	SPM4			6.38 ± 0.77					N
J16252969-2214543	16 25 29.70	-22 14 54.38	-8.433 ± 2.636	-20.518 ± 2.636	HSOY			6.00 ± 0.86					N
J16253507-2324186	16 25 35.08	-23 24 18.66	-7.893 ± 0.040	-24.701 ± 0.034	TGAS			6.96 ± 0.58	7.18 ± 0.42				N
J16253849-2613540	16 25 38.49	-26 13 54.03	-7.005 ± 1.098	-23.667 ± 1.075	HSOY	-3.9 ± 0.6	3	6.51 ± 0.63					N
J16254322-2230026	16 25 43.22	-22 30 02.62	-13.755 ± 2.641	-31.737 ± 2.637	HSOY			9.34 ± 1.08					N
J16254925-2554371	16 25 49.26	-25 54 37.20	-10.300 ± 1.920	-23.150 ± 1.940	SPM4			6.73 ± 0.78					N
J16255541-2721242	16 25 55.41	-27 21 24.30	-5.680 ± 1.970	-24.390 ± 1.990	SPM4			6.53 ± 0.75					N
J16261964-2137207	16 26 19.64	-21 37 20.75	-10.000 ± 1.200	-25.700 ± 1.200	UCAC5			7.51 ± 0.72					N
J16261995-2258097	16 26 19.96	-22 58 09.77	-7.947 ± 2.157	-26.567 ± 2.155	HSOY			7.42 ± 0.87					N
J16261998-2233023	16 26 19.98	-22 33 02.35	-7.140 ± 1.680	-25.730 ± 1.670	SPM4			7.12 ± 0.74					N
J16262016-2233124	16 26 20.17	-22 33 12.48	-9.370 ± 2.141	-29.088 ± 2.141	HSOY			8.23 ± 0.91					N
J16262736-2756508	16 26 27.36	-27 56 50.83	-8.258 ± 1.209	-30.506 ± 1.197	HSOY			8.27 ± 0.78					N

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^\circ$ $'$ $''$)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16262803-2526477	16 26 28.04	-25 26 47.79	-7.900 ± 1.200	-20.500 ± 1.300	UCAC5			5.88 ± 0.60					N
J16262991-2741203	16 26 29.92	-27 41 20.32	-11.767 ± 0.095	-24.615 ± 0.062	TGAS	-4.0 ± 0.3	1	7.16 ± 0.62	7.61 ± 0.40	$-5.3^{+0.5}_{-0.5}$	$-15.8^{+0.9}_{-1.0}$	$-5.6^{+1.0}_{-1.0}$	Y
J16263026-2336551	16 26 30.27	-23 36 55.17	-6.927 ± 2.715	-29.818 ± 2.715	HSOY	-12.2 ± 1.2	2	8.10 ± 1.01					N
J16263495-2511409	16 26 34.96	-25 11 40.93	-10.800 ± 1.300	-19.800 ± 1.300	UCAC5			5.97 ± 0.62					N
J16263591-3314481	16 26 35.91	-33 14 48.12	-6.699 ± 1.970	-23.046 ± 1.439	TGAS			6.15 ± 0.74	6.22 ± 0.40				N
J16264120-2200094	16 26 41.21	-22 00 09.48	-12.500 ± 1.000	-24.300 ± 1.100	UCAC5			7.41 ± 0.68					N
J16265280-2343127	16 26 52.80	-23 43 12.71	-1.550 ± 1.290	-23.420 ± 1.350	SPM4			6.00 ± 0.64					N
J16270145-1827225	16 27 01.45	-18 27 22.58	-5.357 ± 1.271	-21.951 ± 1.238	HSOY			6.18 ± 0.64					N
J16270942-2148457	16 27 09.42	-21 48 45.70	-13.168 ± 2.636	-26.287 ± 2.636	HSOY			7.96 ± 0.99					N
J16270950-2618549	16 27 09.51	-26 18 54.91	-12.034 ± 2.081	-23.683 ± 2.091	HSOY			6.99 ± 0.81					N
J16271252-2711219	16 27 12.53	-27 11 21.96	-13.053 ± 0.098	-23.571 ± 0.063	TGAS	-40.3 ± 0.3	1	7.07 ± 0.60	9.17 ± 0.39	$-39.9^{+0.4}_{-0.4}$	$-7.8^{+0.7}_{-0.7}$	$-13.0^{+0.7}_{-0.7}$	N
J16271273-2504017	16 27 12.74	-25 04 01.76	-5.200 ± 1.300	-22.600 ± 1.300	UCAC5			6.12 ± 0.63					N
J16271951-2441403	16 27 19.51	-24 41 40.39	-2.100 ± 1.430	-26.760 ± 1.480	SPM4			6.84 ± 0.71					N
J16272553-2138036	16 27 25.53	-21 38 03.70	-11.371 ± 2.155	-25.298 ± 2.155	HSOY			7.55 ± 0.86					N
J16272766-2821502	16 27 27.66	-28 21 50.30	-11.200 ± 1.400	-23.700 ± 1.400	UCAC5			6.84 ± 0.71					N
J16273320-2821097	16 27 33.21	-28 21 09.70	-11.738 ± 2.109	-24.590 ± 2.109	HSOY			7.14 ± 0.83					N
J16273956-2245230	16 27 39.56	-22 45 23.00	-5.874 ± 0.995	-23.927 ± 0.674	TGAS	-4.4 ± 1.0	3	6.60 ± 0.64	7.65 ± 0.42	$-3.3^{+1.3}_{-1.3}$	$-13.5^{+1.5}_{-1.6}$	$-7.9^{+1.7}_{-1.7}$	Y
J16275794-2524187	16 27 57.94	-25 24 18.72	-14.591 ± 2.081	-26.161 ± 2.076	HSOY			7.90 ± 0.84					N
J16281808-2428358	16 28 18.09	-24 28 35.82	-7.672 ± 2.496	-30.176 ± 2.496	HSOY			8.25 ± 1.00					N
J16284703-2428138	16 28 47.04	-24 28 13.83	-9.066 ± 2.496	-25.220 ± 2.496	HSOY	-10.6 ± 0.5	2	7.19 ± 0.94					N
J16285281-2147410	16 28 52.82	-21 47 41.01	-14.161 ± 2.157	-23.827 ± 2.155	HSOY			7.42 ± 0.87					N
J16293397-2455303	16 29 33.97	-24 55 30.33	-9.950 ± 1.130	-22.370 ± 1.180	SPM4			6.55 ± 0.63					N
J16293662-1708413	16 29 36.62	-17 08 41.31	-9.259 ± 2.197	-25.675 ± 2.197	HSOY			7.65 ± 0.90					N
J16294869-2152118	16 29 48.70	-21 52 11.90	-9.330 ± 0.990	-22.940 ± 0.950	SPM4	-7.6 ± 0.9	5	6.75 ± 0.61					N
J16294879-2137086	16 29 48.79	-21 37 08.69	-14.343 ± 2.637	-24.998 ± 2.637	HSOY			7.72 ± 0.96					N
J16294991-2728498	16 29 49.91	-27 28 49.89	-11.020 ± 0.860	-25.400 ± 0.870	SPM4	-2.9 ± 1.0	3	7.23 ± 0.67					N
J16295459-2458459	16 29 54.59	-24 58 45.99	-14.848 ± 0.047	-25.434 ± 0.044	HSOY			7.78 ± 0.70					N
J16295662-2659182	16 29 56.63	-26 59 18.24	-13.679 ± 2.086	-25.142 ± 2.097	HSOY			7.52 ± 0.84					N
J16300275-2727006	16 30 02.75	-27 27 00.68	-9.570 ± 1.500	-19.430 ± 1.500	SPM4			5.72 ± 0.63					N
J16311542-2657151	16 31 15.42	-26 57 15.11	-8.200 ± 1.400	-19.200 ± 1.400	UCAC5			5.53 ± 0.60					N
J16315346-2636169	16 31 53.46	-26 36 16.91	-10.500 ± 0.900	-25.100 ± 0.900	UCAC5			7.21 ± 0.65					N
J16315668-2846126	16 31 56.69	-28 46 12.68	-10.397 ± 2.098	-19.916 ± 2.109	HSOY			5.86 ± 0.79					N
J16320058-2530287	16 32 00.59	-25 30 28.72	-11.900 ± 1.500	-22.400 ± 1.500	UCAC5			6.69 ± 0.70					N
J16320352-2830179	16 32 03.53	-28 30 17.91	-7.579 ± 0.790	-21.302 ± 0.853	HSOY	-4.0 ± 1.0	3	5.92 ± 0.55					N
J16321179-2440213	16 32 11.79	-24 40 21.37	-5.300 ± 1.440	-17.320 ± 1.460	SPM4			4.86 ± 0.57					N
J16333496-1832540	16 33 34.97	-18 32 54.00	-2.162 ± 2.138	-26.291 ± 2.138	HSOY			7.08 ± 0.86					N
J16333881-2150263	16 33 38.82	-21 50 26.31	-5.200 ± 1.200	-18.900 ± 1.200	UCAC5			5.33 ± 0.57					N
J16340585-2658441	16 34 05.85	-26 58 44.19	-11.000 ± 0.900	-23.100 ± 0.900	UCAC5			6.72 ± 0.63					N
J16343514-2658030	16 34 35.14	-26 58 03.00	-7.997 ± 2.059	-17.478 ± 2.059	HSOY			5.09 ± 0.70					N
J16343826-2835504	16 34 38.27	-28 35 50.44	-9.100 ± 0.900	-20.600 ± 0.900	UCAC5			5.91 ± 0.57					N
J16344629-2606324	16 34 46.29	-26 06 32.45	-10.000 ± 1.000	-22.600 ± 1.000	UCAC5			6.56 ± 0.62					N
J16345314-2518167	16 34 53.14	-25 18 16.79	-12.209 ± 0.949	-25.468 ± 1.018	HSOY	-4.5 ± 0.7	3	7.53 ± 0.69					N
J16350625-2025282	16 35 06.26	-20 25 28.27	-5.440 ± 1.550	-26.750 ± 1.560	SPM4			7.41 ± 0.79					N
J16351188-2845520	16 35 11.89	-28 45 52.01	-10.100 ± 0.800	-24.500 ± 0.800	UCAC5			6.93 ± 0.62					N
J16354573-2711166	16 35 45.74	-27 11 16.63	-8.500 ± 1.400	-23.500 ± 1.400	UCAC5			6.61 ± 0.66					N
J16354836-2148396	16 35 48.36	-21 48 39.69	-4.130 ± 1.210	-17.110 ± 1.210	SPM4			4.76 ± 0.54					N
J16355295-2812576	16 35 52.96	-28 12 57.67	-9.663 ± 0.063	-22.611 ± 0.061	HSOY	1.7 ± 0.8	7	6.46 ± 0.54					N
J16365288-2708187	16 36 52.89	-27 08 18.77	-7.531 ± 1.719	-21.197 ± 1.305	TGAS			5.98 ± 0.69	6.31 ± 0.39				N
J16372167-3006521	16 37 21.67	-30 06 52.19	-7.376 ± 0.979	-25.727 ± 0.115	HSOY			6.95 ± 0.63					N
J16381081-2940401	16 38 10.82	-29 40 40.20	-9.690 ± 0.090	-25.268 ± 0.061	TGAS	-3.2 ± 0.5	1	7.10 ± 0.58	7.11 ± 0.45	$-4.6^{+0.6}_{-0.6}$	$-16.6^{+1.2}_{-1.3}$	$-6.6^{+1.2}_{-1.2}$	Y

Table 1 – *continued*

2MASS Identifier	α (h:m:s)	δ ($^\circ$ $'$ $''$)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Ref.	V_r (km/s)	Ref.	π_{kin} (mas)	π_{trig} (mas)	U (km/s)	V (km/s)	W (km/s)	CTRL
J16384946-2735294	16 38 49.47	-27 35 29.49	-8.026 ± 0.953	-23.762 ± 1.028	HSOY	-1.6 ± 0.1	3	6.66 ± 0.65					N
J16401792-2353452	16 40 17.92	-23 53 45.21	-4.932 ± 0.103	-19.000 ± 0.054	TGAS			5.25 ± 0.47	6.89 ± 0.42				N
J16420771-3038378	16 42 07.72	-30 38 37.81	-9.097 ± 2.111	-23.281 ± 1.630	TGAS	-1.4 ± 1.0	3	6.50 ± 0.78	6.47 ± 0.37	$-3.1^{+1.4}_{-1.5}$	$-17.2^{+2.9}_{-3.2}$	$-6.0^{+3.0}_{-3.0}$	Y
J16430538-2627307	16 43 05.39	-26 27 30.80	-12.505 ± 0.087	-32.049 ± 0.050	TGAS	-51.7 ± 0.4	1	9.15 ± 0.78	7.36 ± 0.42	$-51.0^{+0.6}_{-0.6}$	$-16.3^{+1.3}_{-1.4}$	$-17.6^{+1.2}_{-1.3}$	N
J16432519-3022477	16 43 25.20	-30 22 47.80	-7.906 ± 1.095	-24.006 ± 1.101	HSOY			6.63 ± 0.65					N
J16452615-2503169	16 45 26.16	-25 03 16.91	-2.143 ± 0.994	-21.968 ± 0.967	HSOY			5.76 ± 0.56					N
J16473710-2014268	16 47 37.11	-20 14 26.88	-6.500 ± 1.000	-21.600 ± 1.000	UCAC5			6.27 ± 0.63					N
J16491221-2242416	16 49 12.21	-22 42 41.66	-6.369 ± 0.159	-22.408 ± 0.108	TGAS	-18.3 ± 1.3	2	6.37 ± 0.55	6.87 ± 0.39	$-16.8^{+1.4}_{-1.4}$	$-14.5^{+1.0}_{-1.1}$	$-10.1^{+1.1}_{-1.2}$	N
J16501069-2644331	16 50 10.70	-26 44 33.13	-9.035 ± 0.054	-27.150 ± 0.036	TGAS			7.61 ± 0.68	7.51 ± 0.47				N
J17042781-2323259	17 04 27.82	-23 23 25.99	-2.374 ± 0.052	-19.534 ± 0.029	TGAS			5.31 ± 0.45	4.84 ± 0.44				N