# Section 1.1

# Introduction to the Hipparcos and Tycho Catalogues

# 1.1. Introduction to the Hipparcos and Tycho Catalogues

### 1.1.1. Overview of the Hipparcos Mission

The Hipparcos mission was the first space experiment dedicated to astrometry, and was accepted within the ESA scientific programme in 1980. The primary objective of the mission was the determination of accurate astrometric data—positions, annual proper motions and absolute trigonometric parallaxes, at levels of some 2 milliarcsec—for about 100 000 stars.

The Hipparcos Catalogue, the primary result of the observations and reductions of the satellite-acquired data, contains 118 218 entries with median astrometric precision of around 1 milliarcsec, and specific results for double and multiple systems. In 1982 the Hipparcos mission was extended to include the transmission, and subsequent reduction, of data from the satellite's star mapper. As a result the Tycho Catalogue, of slightly more than 1 000 000 objects, has been constructed in parallel with the construction of the Hipparcos Catalogue, and has a median astrometric precision of 7 milliarcsec for $V < 9$ mag, and 25 milliarcsec at $V = 10 - 11$ mag. The majority of stars contained in the Hipparcos Catalogue are also contained in the Tycho Catalogue. The complete stellar content of both catalogues is mapped in Volumes 14–16.

Accurate broad-band photometry at an average of some 110 epochs was acquired for all objects in the Hipparcos Catalogue, and two-colour photometry for nearly all objects in the Tycho Catalogue. The precision of median Hipparcos magnitudes, for constant stars, is in the range $0.0004-0.007$ mag (over the interval $2-12$ mag) with corresponding individual transit errors in the range $0.003-0.05$ mag. The typical precisions, at around 8 mag, are around 0.0015 mag on the median, and 0.011 mag on the individual errors. The precision of mean Tycho magnitudes is typically 0.012 mag for $V < 9$ mag, and around 0.06 mag for fainter stars.

The Hipparcos and Tycho Catalogues are based on data that were acquired and reduced in different ways, resulting in data content and astrometric and photometric accuracies which reflect these differences. Each catalogue comprises accurate astrometry, combined with fully calibrated photometry; the Hipparcos Catalogue comprises milliarcsec positions, parallaxes, and proper motions, while the Tycho Catalogue also provides homogeneous positions and proper motions in the Hipparcos reference frame, and parallaxes, although of lower precision than the Hipparcos Catalogue.

The results are available for immediate astrophysical application: in particular, the positions and proper motions are on a common, rigid, and quasi-inertial reference system, and the parallaxes are absolute. Formal astrometric standard errors, and correlations between the parameters, are provided, with the former believed to be a close representation of the true external errors. The positions and proper motions are on the same system as the extragalactic reference system defined by the IAU based on the directions to compact radio sources. Systematic errors in positions, parallaxes, and annual proper motions are believed to be below one or two tenths of a milliarcsec in the case of the Hipparcos Catalogue.

Observations of solar system objects, made either by the Hipparcos main mission or as part of the Tycho observations, have been treated separately, and are published independently from the stellar observations. Details are given in Section 2.7.

**Satellite operational principle:** The optical telescope on-board the satellite measured the signal from stars crossing the instrument's fields of view, modulated by a one-dimensional grid in the focal surface. The satellite attitude was monitored by a separate 'star mapper' detection chain. Two fields of view, about 1 degree square, and separated by about 58° on the sky, were superimposed in the focal surface. As the satellite scanned the sky in a complex series of precessing great circles, maintaining a constant inclination to the Sun's direction, a continuous pattern of one-dimensional measurements was built up. In the data reduction process, these measurements were brought together into a common system of astrometric parameters of all stars observed repeatedly over the operational lifetime. The principles of the satellite operation, and the corresponding data reductions, are described in Volumes 2–4.

**Observations leading to the Hipparcos Catalogue:** Data processed to form the Hipparcos Catalogue were based on observations using the 'main mission' detection system, described more fully in Volume 2. A detailed description of the theory and construction of the Hipparcos Catalogue is given in Volume 3.

The operation of the relevant instrument was such that 'programme' stars were observed individually, and had to be carefully selected in advance of the satellite launch. The limiting magnitude of individual observations, combined with the overall observing time available to a scanning satellite, meant that the set of stars observed comprises some 60 000 objects complete to about 7.3–9 mag depending on galactic latitude and spectral type, with the remainder representing a dedicated (and incomplete) sampling of objects down to a limiting magnitude of about 12 mag. The stellar density of the catalogue is roughly constant at about 3 stars per square degree, and the observing programme constituted a list of stars optimised in terms of satellite operations, requirements for an astrometric reference frame, and scientific importance of individually selected stars. The list of stars observed by the satellite was compiled and fixed before launch, and is referred to as the 'Hipparcos Input Catalogue'.

Each Hipparcos Catalogue entry (the term 'entry' is used to draw attention to the fact that many entries are themselves double or multiple) was observed at some 100–150 or so distinct epochs (i.e. crossings of the telescope's fields of view) throughout the three-year operational period, corresponding to some 25–60 distinct scanning configurations. The latter is more relevant to the resulting quality of the astrometric and multiple star solutions than the number of individual observations: it is significantly smaller because of the slow precession of the satellite's scanning motion. The precise epochs and pattern of observations, and the resulting astrometric accuracies, depended on the position of the object on the sky and its relationship with the ecliptic-based 'scanning law'. The astrometric data processing collected all of the observations and, for single objects, derived five astrometric parameters per object: the two positional components, the two proper motion components, and the trigonometric parallax. A rigorous estimate of the standard errors and correlation coefficients was derived at the same time.

Many catalogue entries were known *a priori* to be, or subsequently found to be, double or multiple. For such systems, including astrometric binaries, more than five parameters per object were used to characterise the astrometry. Disentangling of the components was possible in many cases, the instrument having also been optimised for the detection and classification of double systems. Nevertheless, results for double or multiple systems were more complex to derive, and more intricate to present in any uniform manner. The results depend upon the sky coordinates (and hence scanning geometry) and the

separation, magnitude difference, multiplicity, component variability, and the presence of non-linear photocentric motion. The interplay of all these aspects sometimes made it difficult to specify a unique interpretation of the observations, especially for large magnitude differences between components. Handling of the resulting uncertainties, and resolving discrepancies with respect to existing ground-based observations, has been a major challenge within the timescale set for the catalogue production.

Results from the photometric analysis of the same data entering the astrometric catalogue yielded a precise, calibrated, photoelectric magnitude at each of the observed epochs, in a broad-band photometric system (referred to as $Hp$) for objects observed by the main mission. The Hipparcos Catalogue includes median magnitudes and related statistical indicators characterising the variability of the entries.

The reduced data from these observations together constitute the Hipparcos Catalogue. Annexes contain information on double and multiple stars (the Double and Multiple Systems Annex, itself divided into five parts), calibrated photometry at each epoch of observation (referred to as the Hipparcos Catalogue Epoch Photometry Annex), derived information on photometric variability (the Variability Annex), observations of solar system objects, and certain intermediate astrometric data defined at the level of the individual 'reference great circles' traced out by the scanning motion.

**Observations leading to the Tycho Catalogue:** Data processed to form the Tycho Catalogue were based on observations using the 'star mapper' detection system, described more fully in Volume 2. A detailed description of the theory and construction of the Tycho Catalogue is given in Volume 4.

The satellite's star mapper provided a continuous estimate of the satellite's attitude, necessary to direct the main mission observations. In parallel, this star mapper provided a continuous stream of data which resulted in a second catalogue of astrometric and photometric data for slightly more than one million objects—including 97 per cent of the entries in the Hipparcos Catalogue. This is referred to as the 'Tycho experiment'. Although of lower astrometric quality than the Hipparcos Catalogue, the resulting Tycho Catalogue provides astrometry in the same reference system: positions and proper motions are given in a quasi-inertial reference frame, parallaxes are absolute, and systematic errors are believed to be below about one milliarcsec.

The Tycho astrometric data are complemented by two-colour photometric data, referred to as Tycho magnitudes, $B_T$ and $V_T$, and closely approximating $B$ and $V$ in the Johnson UBV system. The Tycho Catalogue has a limiting magnitude of about $B_T = 12.2$ mag and $V_T = 11.5$ mag for stars of typical colour index $(B - V) = 0.7$ mag, and is largely complete to a limit of about $V_T = 10.5$ mag. Due to the lower astrometric precision of the Tycho Catalogue, results for double and multiple stars are not presented as a comprehensive annex of double star data. Resolved objects are presented as distinct Tycho Catalogue entries, while suspected double systems are flagged accordingly. Similarly, the lower photometric precision means that it has not been considered appropriate to provide 'epoch photometry' for all entries—the Tycho Catalogue Epoch Photometry Annex contains a subset of the Tycho Catalogue entries selected amongst bright stars, photometric standards, and candidate variables.

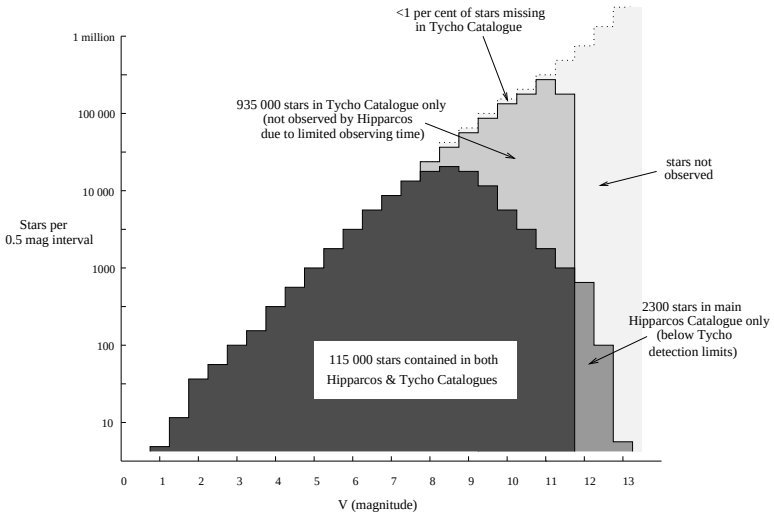


***Figure 1.1.1.*** *The overlap and completeness of the 118 218 entries of the main Hipparcos Catalogue and the Tycho Catalogue. The former is largely complete to around $V = 7.3 - 9$ mag, depending on galactic latitude and spectral type. Other stars, with a roughly constant density over the celestial sphere, are included down to the observability limit at around $V = 12.5$ mag. The Tycho Catalogue is largely complete to around $V = 10.5$ mag, and contains objects down to the limit of the Tycho observations, at around $V = 11 - 11.5$ mag. Consequently, most Hipparcos entries are contained in the Tycho Catalogue, except for some 2300 entries below the Tycho detection threshold.*

**The relationship between the Hipparcos and Tycho Catalogues:** The completeness and overlap of the Hipparcos and Tycho Catalogues are illustrated in Figure 1.1.1. Only 6301 components contained in the Hipparcos Catalogue, corresponding to the faintest 2300 entries plus a small number of brighter stars, were not observed by Tycho. Objects contained in the Hipparcos Catalogue, including the components contained in Part C of the Double and Multiple Systems Annex, are cross-referenced in the Tycho Catalogue.

The Hipparcos Catalogue contains 118 218 entries corresponding to 129 332 stellar components, including those in the Part C of the Double and Multiple Systems Annex. 123 031 of these were observed by Tycho, and contained in 117 130 entries of the Tycho Catalogue, with small separation double systems merged into one 'star' when observed by Tycho (there are 5895 affected entries with two Hipparcos components, and 3 entries with three components). The remaining 6301 Hipparcos components not observed by Tycho are of three kinds: 4484 components (amongst which are the faintest 2300 Hipparcos entries) too faint to be observed by Tycho ($Hp > 11$ mag); 1247 probably disturbed by other stars; and 570 missed by Tycho for various other reasons. These 'missing' stars have been included in the Tycho Catalogue, with a flag referring to the Hipparcos Catalogue. A total of 1 052 031 entries were successfully observed by Tycho. It follows that 934 901 entries in the Tycho Catalogue are not contained in the Hipparcos Catalogue (not including the 263 Hipparcos entries without astrometry among the 118 218 entries in the Hipparcos Catalogue). The completeness of the Tycho Catalogue compared with entries in the main Hipparcos Catalogue with $Hp < 11$ mag is approximately 99 per cent.

For objects observed by both the main mission and Tycho, Tycho adds little or no astrometric weight. However, the Tycho astrometric results for objects not observed by the main detector are extensive, and are provided within the same astrometric reference frame as for the Hipparcos Catalogue. Tycho provides two-colour photometry for nearly all objects in the Tycho Catalogue, including entries from the Hipparcos Catalogue above the limit of detectability of Tycho.

### 1.1.2. Catalogues and Documentation before Satellite Launch

The following material summarises the status of the Hipparcos mission before launch:

- a comprehensive pre-launch description of the Hipparcos mission, given in the three-volume ESA Special Publication ESA SP–1111, including an overview of the satellite and its planned operations (Volume I), a detailed description of the preparation of the 'Hipparcos Input Catalogue' (Volume II), and the methods foreseen for the data reductions (Volume III);

- the Hipparcos Input Catalogue, constructed pre-launch, and published in printed form in March 1992 (ESA SP–1136, Volumes 1–7). It is also available, in machine-readable form, from the CDS (Strasbourg). It was released on a specifically created CD-ROM with dedicated interrogation software in August 1994;

- the Tycho Input Catalogue of three million stars, compiled pre-launch, and available in machine-readable form from the CDS (Strasbourg).

**The Hipparcos Input Catalogue:** In the case of the Hipparcos Catalogue, the Hipparcos Input Catalogue was necessary for the conduct of the observations—for the object selection, for the detector pointing, and (based on the magnitude) for the observing time allocation.

The Hipparcos Input Catalogue contained the list of stars and solar system objects constituting the detailed satellite observing programme. It represented a compilation of ground-based data necessary for the definition and execution of the optimised scientific observing programme, along with additional information of astronomical or astrophysical value. The published Hipparcos Input Catalogue (ESA SP–1136) consisted of Volumes 1–5 comprising the main catalogue, including principal cross-identifications, Volume 6 providing information on double and multiple stars, and Volume 7 providing identification charts.

Each entry was identified by its Hipparcos Input Catalogue (HIC) identifier. The same numbering system is strictly adhered to in the final catalogue, so that the Hipparcos Catalogue (HIP) number is the same as the HIC number for any given entry. Components of multiple systems which have been treated as a single target for the satellite observations, and entries previously considered as single objects but discovered to be double or multiple, are flagged accordingly, and treated separately in an annex.

Although the HIC and HIP identifers with the same running number refer to the same object, the HIC identifier is strictly identified with the pre-launch catalogue compilation (and corresponding ground-based data), while the HIP identifier is strictly identified with the final mission products based on the satellite data.

**The Tycho Input Catalogue:** While the Tycho observations themselves were not based on an *a priori* observing list, and a starting catalogue was not strictly necessary for the conduct of the observations, the Tycho Catalogue construction was greatly facilitated by the availability of a list of objects, rather complete to limits beyond the Tycho detection threshold, and with coordinates accurate to about 1 arcsec. This list constituted the 'Tycho Input Catalogue'. The Tycho data analysis resulted in the Tycho Catalogue of approximately one million stars, referred to by their TYC identifiers.

### 1.1.3. The Hipparcos and Tycho Catalogues and Products

The products of the mission are as follows:

- the present collection of 16 printed volumes, describing the contents of the final Hipparcos and Tycho Catalogues, the satellite performance and data reduction procedures, and the printed part of the Hipparcos Catalogue;
- the Hipparcos Catalogue, deposited with the CDS (Strasbourg), and released on CD-ROMs in ASCII format. These accompany the printed catalogue as Volume 17. In addition to the data in the printed catalogue, the machine-readable version includes the complete photometric and double/multiple star annexes, certain cross-identifications, and additional files containing results from intermediate stages of the astrometric data processing;
- the Tycho Catalogue, deposited with the CDS (Strasbourg), and also released on CD-ROMs in ASCII format. In addition, the ASCII CD-ROMs include a Tycho Epoch Photometry Annex, providing the individual photometric observations for a selection of the Tycho Catalogue stars. These also accompany the printed Hipparcos catalogue as Volume 17. A larger selection of the individual photometric observations, called Tycho Epoch Photometry Annex B and comprising about half of all Tycho stars, will also be deposited with the CDS, but not distributed with the printed catalogue. There is no printed version of the Tycho Catalogue;
- the Hipparcos and Tycho Catalogues, released on a specifically created CD-ROM with a compressed data format, and with dedicated interrogation software designed for specific computer platforms. This is referred to collectively as the *Celestia 2000* package, to distinguish it from the primary (ASCII) CD-ROM data products. Specific target platforms and specific interrogation facilities mean that this product will have a limited lifetime, but is intended nevertheless to make the Hipparcos and Tycho Catalogues more easily accessible to users in the short term.

The final data products were generated as illustrated in Figure 1.1.2.

**Hipparcos and Tycho Catalogue numbering system:** The Hipparcos Catalogue entries are referred to by their HIP running number, and the Tycho Catalogue entries by their TYC (3-component) running number. The HIP running number is the same as the HIC (Hipparcos Input Catalogue) number for a given entry. The TYC number is derived from the numbers assigned to stars in the Hubble Space Telescope's Guide Star Catalog (B. Lasker *et al.*, 1990, *Astronomical Journal*, 99, 2019); entries resolved into two or more components as part of the Tycho data processing were allocated new numbers consistent with this numbering scheme. The HIP and TYC acronyms are registered for the Hipparcos and Tycho Catalogues respectively within the Centre de Données astronomiques de Strasbourg (CDS).

**Content of the Hipparcos Catalogue:** While the stellar content of the Hipparcos Input Catalogue and the final Hipparcos Catalogue is nominally the same, the catalogues are of very different nature. The Hipparcos Input Catalogue is a compilation of observational catalogues or *ad hoc* observations, while the Hipparcos Catalogue resulting from the satellite observations is a primary observational catalogue.

The same general layout of the printed versions of both the Hipparcos Input Catalogue and the final Hipparcos Catalogue was adopted to allow the data contents of both catalogues to be consulted in parallel with relative ease.

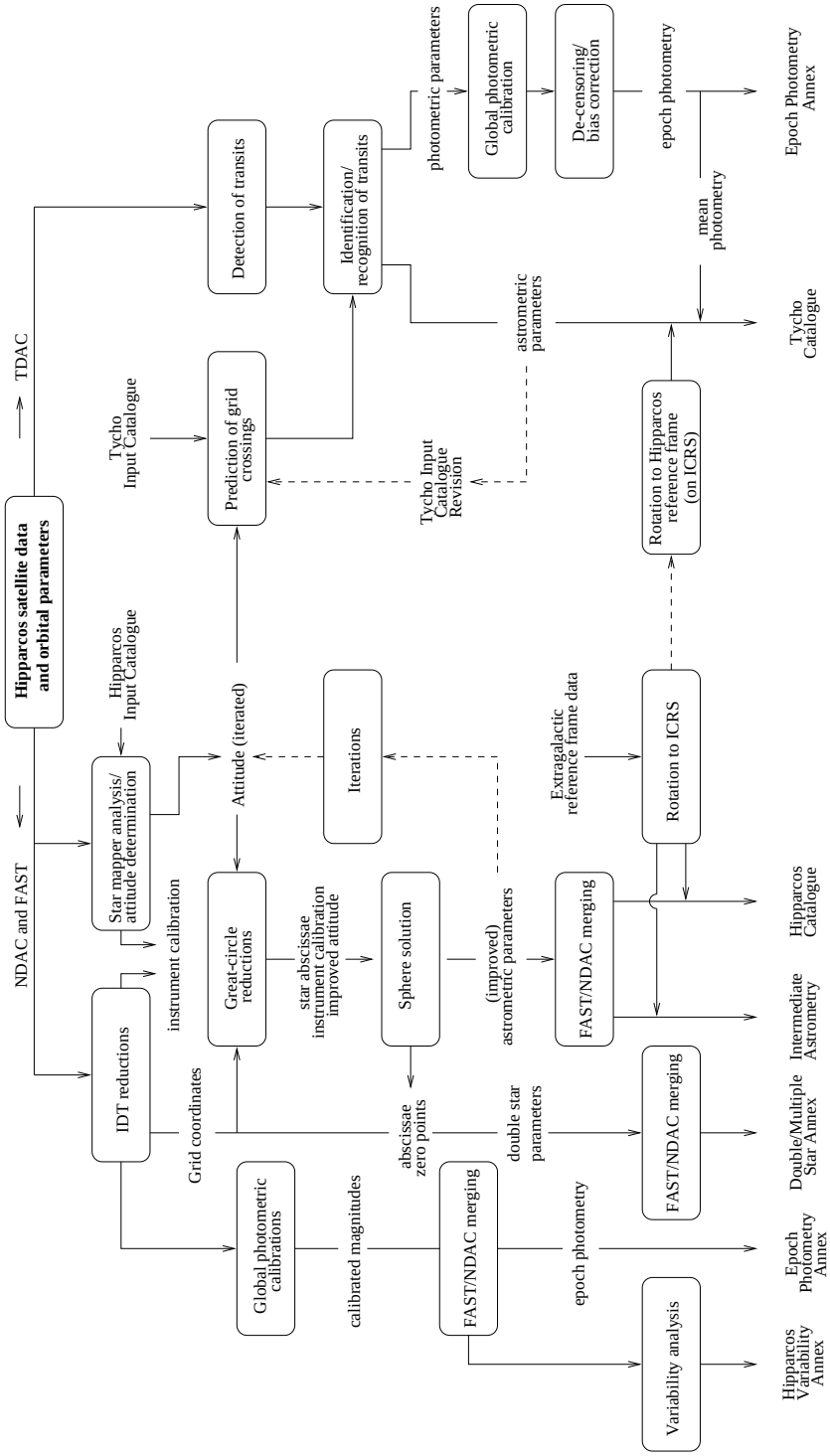


***Figure 1.1.2.*** *The relationship between the input data, the data processing, and the final products.*

The Hipparcos Catalogue contains primary data obtained directly from the satellite observations, with few other data included. A clear distinction has thus been maintained between the Hipparcos data, and complementary data acquired from ground-based observations or from other data bases (which may be expected to change with time).

The astrometric and photometric data contained in the Hipparcos Input Catalogue are largely superseded (but, especially in the case of the photometric data, not completely so) by the values given in the final Hipparcos Catalogue. Cross-identifications and certain other auxiliary data (in particular the radial velocity, spectral type, variability type, and multiplicity data) provided in the Hipparcos Input Catalogue apply equally to the final Hipparcos Catalogue.

**Content of the Tycho Catalogue:** Because the Hipparcos Catalogue is incomplete down to its observability limit, and because this observability limit is itself slightly fainter than the Tycho Catalogue observability limit, there are a (relatively small) number of stars in the Hipparcos Catalogue not contained within the Tycho Catalogue. Conversely, since the Tycho Catalogue is rather complete down to its observability limit, most of the Hipparcos Catalogue stars are contained within the Tycho Catalogue.

For objects contained in both catalogues, the Hipparcos Catalogue invariably provides astrometric data, multiplicity information, and photometric and variability information all of a higher precision than corresponding data from the Tycho Catalogue. The two-colour Tycho Catalogue photometry nevertheless represents independent photometric information for such objects.

The considerable similarities between the two final catalogues have led to a high degree of congruence imposed on the Hipparcos and Tycho Catalogue formats. Many of the fields of the printed and machine-readable versions apply to the two catalogues in both precise format and meaning.

**Content of *Celestia 2000*:** In addition to the data in the printed Hipparcos Catalogue, *Celestia 2000* also includes: (a) the Tycho astrometry and mean photometry; (b) auxiliary files containing non-Hipparcos data, extracted principally from an updated version of the Hipparcos Input Catalogue, considered sufficiently extensive or sufficiently important for basic astrophysical interpretation of the Hipparcos data (including cross-identifications to other catalogues, spectral types, radial velocities, and identification charts); (c) interrogation software for accessing and extracting data from the *Celestia 2000* CD-ROM.

### 1.1.4. How to Use the Hipparcos and Tycho Catalogues

Table 1.1.1 gives a summary of the various data products, and indicates which of the products are provided within the printed, ASCII, or *Celestia 2000* media.

Some of the data—for example, photometry, colour indices, etc.—are 'distributed' amongst the various data products. Figure 1.1.3 provides an overview of the main categories of astrometric and photometric data provided in either of the Hipparcos or Tycho Catalogues, and indicates where a description of the data is given, and where the data are to be found. It complements Table 1.1.1.

**Table 1.1.1.** The location of the various data sets

| Information | Description (Section) (Volume 1) | Printed Catalogue (Vols 1–16) | CD-ROMs ASCII (Vol. 17) | CD-ROMs *Celestia 2000* |
|---|---|---|---|---|
| Introduction and Guide to the Data | | √ (1) | √ | – |
| The Hipparcos Satellite Operations | | √ (2) | √ | – |
| Construction of the Hipparcos Catalogue | | √ (3) | √ | – |
| Construction of the Tycho Catalogue | | √ (4) | √ | – |
| The Hipparcos Catalogue[a] | 2.1 | √ (5–9) | √ | √ |
| The Tycho Catalogue[b] | 2.2 | – | √ | √ |
| Hipparcos Double & Multiple Systems Annex[c] | 2.3 | √ (10) | √ | √ |
| „ (supplementary details)[d] | 2.3 | – | √ | – |
| Hipparcos Variability Annex[e] | 2.4 | √ (11) | √ | √ |
| Hipparcos Light Curves[f] | 2.4 | √ (12) | √ | √ |
| Hipparcos Epoch Photometry Annex[g] | 2.5 | – | √ | – |
| Tycho Epoch Photometry Annex[h] | 2.6 | – | ‡ | – |
| Solar system objects[i] | 2.7 | √ (10) | √ | – |
| Hipparcos intermediate astrometry[j] | 2.8 | – | √ | – |
| Hipparcos transit files[k] | 2.9 | – | ‡ | – |
| Identification charts[l] | 2.10 | √ (13) | √ | √ |
| Identification tables | 2.10 | √ (13) | √ | √ |
| Star atlas (with Sky Publishing Corporation) | | √ (14–16) | – | – |
| Hipparcos Input Catalogue data[m] | | – | ‡ | ‡ |
| Interrogation software[n] | | – | √ | √ |

‡ subset of data only

(a) astrometry (Hipparcos), mean photometry (Hipparcos and Tycho), and summary double star data
(b) astrometry and mean photometry from Tycho
(c) includes configuration charts for each double or multiple system
(d) supplementary double/multiple star parameters, including correlation coefficients
(e) parameters derived from analysis of the Hipparcos epoch photometry (periodic and unsolved)
(f) light curves or folded light curves constructed from the Hipparcos epoch photometry
(g) 'epoch photometry' for all Hipparcos entries, i.e. photometric data at each epoch of observation
(h) 'epoch photometry' for specific Tycho entries, i.e. photometric data at each epoch of observation
(i) includes observations from both Hipparcos and Tycho
(j) astrometric data (Hipparcos) at the level of the reference great circles
(k) astrometric data (Hipparcos) at the level of the transit files (subset of stars)
(l) charts for faint stars and/or stars in clusters
(m) relevant (sometimes updated) parameters, including cross-identifiers to major catalogues
(n) C code record extraction (ASCII); menu-driven platform-dependent (*Celestia 2000*)

Table 1.1.2 lists the identifiers that are used for fields in the printed or machine-readable files. The corresponding file names are given in Section 2.11.2.

Figures 1.1.4(a,b) give an extract of the main Hipparcos Catalogue, with a summary of the meaning of the fields included.

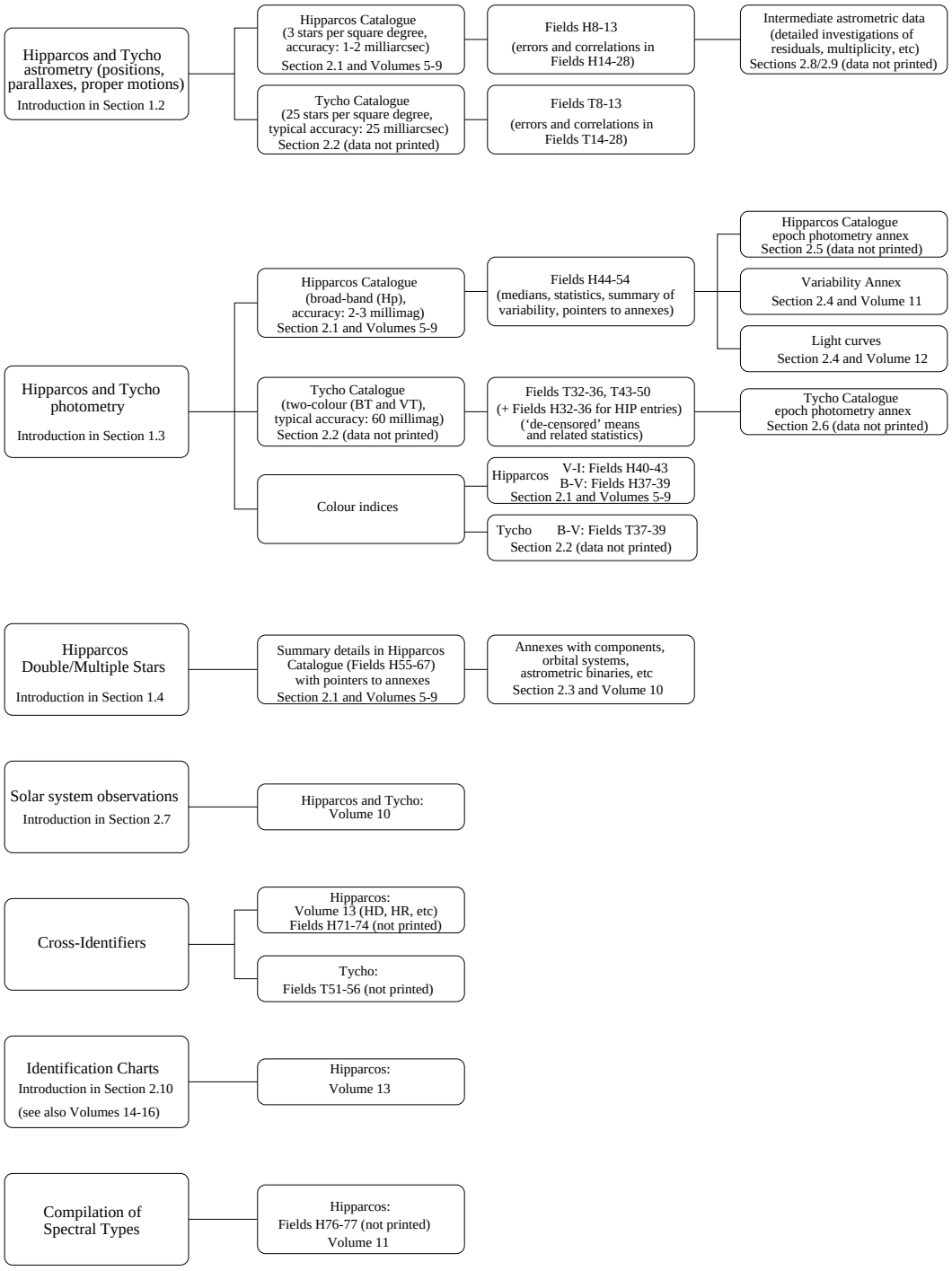


***Figure 1.1.3.*** *The contents of the Hipparcos and Tycho Catalogues, and where to find the data.*

**Table 1.1.2.** Identifiers for fields in the printed or machine-readable files (listed alphabetically)

| Id. | Data Content | Description | Printed Volume(s) |
|---|---|---|---|
| DC | Hipparcos Double & Multiple Systems Annex: components | 2.3 | 10 |
| DG | Hipparcos Double & Multiple Systems Annex: accelerations | 2.3 | 10 |
| DO | Hipparcos Double & Multiple Systems Annex: orbits | 2.3 | 10 |
| DV | Hipparcos Double & Multiple Systems Annex: variability | 2.3 | 10 |
| DX | Hipparcos Double & Multiple Systems Annex: stochastic | 2.3 | 10 |
| H | Hipparcos Catalogue | 2.1 | 5–9 |
| HH | Hipparcos Epoch Photometry Annex: header record | 2.5 | – |
| HHE | Hipparcos Epoch Photometry Annex Extension: header record | 2.5 | – |
| HT | Hipparcos Epoch Photometry Annex: transit record | 2.5 | – |
| HTE | Hipparcos Epoch Photometry Annex Extension: transit record | 2.5 | – |
| IA | Hipparcos Intermediate Astrometry: abscissa | 2.8 | – |
| IH | Hipparcos Intermediate Astrometry: header | 2.8 | – |
| IR | Hipparcos Intermediate Astrometry: reference data | 2.8 | – |
| JH | Hipparcos Transit Data: header record | 2.9 | – |
| JP | Hipparcos Transit Data: pointing record | 2.9 | – |
| JT | Hipparcos Transit Data: transit record | 2.9 | – |
| P | Hipparcos Variability Annex: periodic variables | 2.4 | 11 |
| SHA | Solar System Objects: Hipparcos astrometry | 2.7 | 10 |
| SHP | Solar System Objects: Hipparcos photometry | 2.7 | 10 |
| ST | Solar System Objects: Tycho astrometry and photometry | 2.7 | 10 |
| T | Tycho Catalogue | 2.2 | – |
| TH | Tycho Epoch Photometry Annex: header record | 2.6 | – |
| TT | Tycho Epoch Photometry Annex: transit record | 2.6 | – |
| U | Hipparcos Variability Annex: unsolved variables | 2.4 | 11 |

**$19^h\ 11^m\ 39^s$ - $19^h\ 12^m\ 46^s$** **1896**
**94301 - 94400**

HIP identifier (same as HIC identifier); * implies that the entry is out of order with respect to its right ascension.

Proximity flag: derived from nearby HIP or TYC entries; indicates that caution is needed in using it as an astrometric reference.

Sexagesimal identifier: provided 'for information' and derived from the definitive position. Epoch is J1991.25. Reference system is ICRS.

Johnson V magnitude, variability flag, and source of magnitude. These provide an indication of magnitude and possible variability, derived from information given in other fields.

The Hipparcos position, at epoch J1991.25, within the ICRS reference system. General considerations related to the astrometric parameters are given in Section 1.2. Derivation of positions at different epochs (within ICRS) is considered in Section 1.5. Positions, and the other astrometric parameters, were derived from a merging of the data from the two consortia. Intermediate data are described in Sections 2.8–2.9.

If the entry is double, the flag indicates whether the astrometric data in these (and subsequent) fields refer to a component or photocentre, or (rarely) the centre of mass for an orbital system.

The Hipparcos parallax in milliarcsec (negative values arise from measurement errors).

The Hipparcos proper motion, at epoch J1991.25, in milliarcsec per year, both components expressed in great-circle measure.

The standard errors of the five primary astrometric parameters: position, parallax, and proper motion components, respectively.

The correlation coefficients between the five astrometric parameters.

Statistical indicators of the quality of the astrometric solution: percentage of data rejected from the final astrometric model, and resulting (gaussianised) goodness-of-fit, respectively.

Checksum. See Section 2.11.3.

| Number HIP 1 2 | Descriptor: epoch J1991.25 RA h m s 3 | Dec ±° ′ ″ 4 | V mag 5 6 7 | Position: epoch J1991.25 (ICRS) α deg 8 | δ deg 9 10 | Par. π mas 11 | Proper Motion $\mu_{\alpha*}$ mas/yr 12 | $\mu_\delta$ 13 | Standard Errors α* mas 14 | δ 15 | π mas 16 | $\mu_{\alpha*}$ mas/yr 17 | $\mu_\delta$ 18 | Astrometric Correlations (%) 19 20 21 22 23 24 25 26 27 28 | Soln F1 29 | F2 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94301 | 19 11 39.93 | +19 25 54.2 | 9.32 H | 287.916 356 71 | +19.431 710 10 | 4.36 | 10.76 | 12.29 | 0.88 | 1.03 | 1.47 | 1.11 | 1.55 | +39 −15 −32 − 7 −16 +22 − 8 + 8 −24 +29 | 3 | −0.08 |
| 94302 | 19 11 40.52 | +56 51 32.7 | 5.13 H | 287.918 837 62 | +56.859 095 94 | 9.57 | 48.09 | 48.00 | 0.44 | 0.45 | 0.47 | 0.51 | 0.61 | − 1 + 8 + 3 +17 + 2 − 5 + 1 +16 −11 + 3 | 1 | 0.76 |
| 94303 | 19 11 41.74 | −33 42 31.2 | 10.70 G | 287.923 923 90 | −33.708 672 65 | 5.45 | 3.45 | −18.20 | 2.44 | 1.16 | 2.39 | 4.06 | 1.96 | + 0 −16 −18 +26 +34 −17 + 2 −45 +30 −47 | 0 | 0.43 |
| +94304 | 19 11 41.95 | −81 24 46.5 | 7.60 H | 287.924 807 49 | −81.412 923 39 | 9.72 | 19.40 | 35.91 | 0.54 | 0.59 | 0.70 | 0.64 | 0.76 | − 6 −23 + 5 + 0 −10 − 1 − 8 +13 − 5 −12 | 0 | 0.32 |
| +94305 | 19 11 41.93 | +09 57 06.2 | 8.44 H | 287.924 721 08 | +09.951 709 33 | 3.77 | 1.11 | −8.82 | 1.12 | 0.77 | 1.28 | 1.25 | 0.86 | −14 −12 −19 −26 +26 −28 +16 −39 +37 −22 | 0 | −0.29 |
| 94306 H | 19 11 43.52 | +17 53 01.0 | 8.20 G | 287.931 328 93 | +17.883 612 16 A | 0.57 | 1.30 | −7.00 | 1.31 | 1.17 | 1.58 | 1.83 | 1.60 | +13 − 9 −15 +55 − 9 +15 −15 +20 −11 −10 | 2 | 0.37 |
| 94307 | 19 11 44.21 | −47 11 16.7 | 9.66 H | 287.934 207 13 | −47.187 963 08 A | 7.43 | −13.75 | −8.22 | 1.96 | 1.51 | 1.91 | 2.56 | 1.94 | +39 −14 −18 −11 −19 + 3 −23 −51 +12 +41 | 1 | −0.02 |
| 94308 | 19 11 45.03 | +26 14 57.6 | 7.80 H | 287.937 607 07 | +26.249 326 14 A | 8.34 | 2.81 | −5.67 | 0.67 | 0.85 | 1.09 | 0.72 | 0.93 | −13 −17 + 1 +23 + 6 − 5 + 8 + 0 − 3 −10 | 2 | 2.19 |
| 94309 | 19 11 45.35 | −19 11 21.6 | 8.15 2 H | 287.938 964 02 | −19.189 330 69 | 5.84 | 7.06 | 11.43 | 0.89 | 0.55 | 0.99 | 1.05 | 0.67 | + 8 −14 − 3 − 6 −11 +20 −12 −43 −14 − 3 | 0 | 0.92 |
| 94310 H | 19 11 45.76 | −53 19 22.0 | 8.90 H | 287.940 663 10 | −53.322 766 02 A | 15.39 | 58.23 | −37.78 | 2.31 | 2.49 | 2.32 | 2.74 | 1.81 | +26 − 8 −14 + 3 −11 −24 −28 −44 − 8 + 5 | 1 | 0.68 |
| 94311 | 19 11 46.01 | +31 17 00.5 | 5.93 1 H | 287.941 712 76 | +31.283 463 60 | 3.33 | −3.17 | −3.16 | 0.38 | 0.44 | 0.55 | 0.45 | 0.55 | −11 − 8 −16 + 4 +11 − 2 +11 + 9 +13 −14 | 0 | −1.63 |
| 94312 | 19 11 46.35 | −31 07 45.8 | 12.40 2 H | 287.943 111 87 | −31.129 399 09 | −3.74 | 20.08 | −2.68 | 6.76 | 3.24 | 7.41 | 7.76 | 5.90 | +16 −35 +12 + 2 −15 −10 −22 −55 +18 +16 | 7 | 1.13 |
| 94313 | 19 11 46.62 | +18 05 16.2 | 7.62 H | 287.944 262 91 | +18.087 820 96 | 7.12 | −7.18 | −8.16 | 0.61 | 0.59 | 0.86 | 0.93 | 0.86 | +12 −11 −15 +43 −11 +20 −15 +20 + 1 −15 | 0 | −1.57 |
| 94314 | 19 11 47.24 | +12 52 16.1 | 9.27 H | 287.946 850 59 | +12.871 136 27 | 3.33 | 0.47 | 3.99 | 1.06 | 0.99 | 1.44 | 1.07 | 0.98 | + 2 −28 −22 −26 + 2 +20 + 6 −31 + 5 + 3 | 3 | −0.40 |
| 94315 | 19 11 47.60 | +13 54 33.3 | 8.78 H | 287.948 314 45 | +13.909 261 07 | 3.87 | 0.97 | −9.12 | 0.71 | 0.76 | 1.12 | 0.81 | 0.87 | +27 −11 −15 +10 −29 +15 −30 −14 + 4 +20 | 2 | 0.74 |
| 94316 | 19 11 49.77 | +05 22 38.3 | 7.92 H | 287.957 367 84 | +05.377 298 93 | 3.08 | 22.82 | 12.21 | 0.93 | 0.72 | 1.15 | 1.05 | 0.73 | +12 −14 − 1 −30 −15 −23 −16 −41 + 7 −14 | 0 | −1.10 |
| 94317 | 19 11 50.06 | +08 42 39.3 | 11.25 H | 287.958 570 84 | +08.710 903 69 B | 1.33 | 0.85 | −5.84 | 43.82 | 28.65 | 3.89 | 4.57 | 2.98 | + 3 − 9 − 1 − 1 + 0 − 4 − 2 − 3 +24 + 4 | 1 | −0.07 |
| 94318 | 19 11 50.30 | −70 48 24.4 | 9.36 H | 287.959 564 33 | −70.806 778 51 | 0.28 | 7.80 | −1.98 | 0.57 | 0.87 | 1.26 | 0.75 | 1.00 | −20 −14 − 3 +18 −10 −13 −11 + 6 + 7 −30 | 2 | −1.03 |
| 94319 | 19 11 50.57 | +08 42 18.7 | 9.97 H | 287.960 712 17 | +08.705 205 93 A | 1.33 | 0.85 | −5.84 | 4.62 | 3.06 | 3.89 | 4.57 | 2.98 | + 6 − 6 −16 −27 + 1 − 4 − 1 −30 +24 + 4 | 1 | −0.07 |
| 94320 | 19 11 52.19 | −20 22 51.2 | 8.36 H | 287.967 456 19 | −20.380 887 80 | 2.72 | −7.04 | −2.58 | 0.98 | 0.56 | 1.08 | 1.29 | 0.75 | − 8 − 3 − 3 +15 − 4 +34 − 7 −32 −17 −21 | 2 | 0.19 |
| 94321 | 19 11 53.34 | +14 34 56.1 | 8.05 H | 287.972 257 05 | +14.582 240 63 | 2.50 | 2.58 | −10.03 | 0.60 | 0.60 | 0.95 | 0.66 | 0.69 | +31 −17 − 4 +23 −22 +11 −26 − 8 + 4 +22 | 0 | −0.22 |
| 94322 | 19 11 53.36 | −44 34 13.0 | 10.15 H | 287.972 335 96 | −44.570 291 03 | 8.48 | −35.58 | −113.22 | 1.59 | 1.01 | 1.82 | 1.79 | 1.29 | +16 −41 −12 −26 +18 + 7 +17 −41 + 5 +13 | 0 | 0.70 |
| 94323 | 19 11 54.96 | −14 35 04.4 | 7.04 G | 287.979 014 50 | −14.584 562 45 | 2.94 | 51.08 | 6.06 | 0.79 | 0.50 | 0.94 | 0.88 | 0.58 | +18 −32 −10 −11 − 5 +36 − 5 −33 + 2 + 6 | 0 | −1.39 |
| 94324 | 19 11 56.51 | +43 53 25.9 | 8.01 H | 287.985 457 13 | +43.890 524 95 | 2.65 | 2.14 | −0.79 | 0.58 | 0.61 | 0.66 | 0.59 | 0.79 | − 3 + 8 − 3 +13 +23 − 1 +28 +18 +10 + 5 | 3 | −0.57 |
| 94325 | 19 11 56.86 | −46 08 40.5 | 8.02 H | 287.986 899 66 | −46.144 583 06 | 3.79 | −20.68 | −11.91 | 1.12 | 0.85 | 1.43 | 1.62 | 1.17 | +17 − 2 −37 −36 +21 −36 + 8 −54 +30 − 4 | 0 | 0.42 |
| 94326 | 19 11 57.30 | −39 30 00.9 | 8.80 H | 287.988 748 43 | −39.500 242 33 | 21.37 | 88.74 | −102.48 | 1.29 | 0.79 | 1.45 | 2.11 | 1.07 | + 1 −12 −24 +15 +30 −42 + 5 −36 +35 −41 | 0 | 0.47 |
| 94327 | 19 11 57.47 | +22 07 22.7 | 9.08 H | 287.989 449 37 | +22.122 962 72 | −0.44 | 1.77 | 1.33 | 0.74 | 0.89 | 1.24 | 1.01 | 1.06 | +23 −13 + 0 +20 + 12 +17 + 8 +11 +22 +29 | 0 | 0.79 |
| 94328 | 19 12 00.32 | +39 25 14.6 | 7.50 H | 288.001 317 95 | +39.420 706 01 | 5.17 | 9.15 | 11.53 | 0.52 | 0.53 | 0.63 | 0.61 | 0.68 | − 2 + 4 − 3 +15 + 9 −12 +10 +16 − 4 + 2 | 0 | 0.63 |
| 94329 | 19 12 00.48 | −30 16 13.1 | 10.43 H | 288.001 992 90 | −30.270 310 50 | 2.51 | 7.08 | −1.70 | 2.25 | 1.24 | 2.81 | 3.71 | 1.91 | +19 −22 − 3 − 6 + 0 −54 −20 −61 +20 −20 | 4 | 0.09 |
| 94330 | 19 12 02.85 | +07 55 46.8 | 9.84 H | 288.011 858 21 | +07.929 663 91 | 0.48 | −1.60 | −4.90 | 1.33 | 0.98 | 1.61 | 1.46 | 1.14 | +24 −36 −24 − 4 + 2 + 3 − 9 −24 +21 − 9 | 2 | 0.47 |
| 94331 H | 19 12 03.28 | +02 37 21.4 | 6.94 H | 288.013 660 99 | +02.622 616 58 + | 4.35 | −3.30 | −10.44 | 1.28 | 0.77 | 1.07 | 1.02 | 0.82 | + 6 −24 − 2 −19 + 4 − 2 + 3 −27 + 8 +13 | 1 | 0.22 |
| 94332 | 19 12 03.94 | −31 12 21.3 | 9.12 G | 288.016 434 70 | −31.205 927 04 | 5.42 | 0.89 | −12.97 | 1.60 | 0.74 | 1.65 | 1.84 | 1.17 | +10 −40 − 4 + 6 + 3 −15 −15 −51 +17 −14 | 0 | 0.16 |
| 94333 | 19 12 04.19 | −23 44 25.8 | 8.02 G | 288.017 461 98 | −23.740 509 91 | −0.07 | −1.82 | −8.31 | 1.04 | 0.54 | 0.99 | 1.32 | 0.81 | −31 − 4 −11 −30 +33 − 7 +30 −57 +18 −39 | 0 | −0.43 |
| +94334 | 19 12 04.87 | −43 55 27.2 | 10.19 G | 288.020 286 12 | −43.924 228 35 | 4.36 | 5.06 | −5.76 | 1.61 | 1.17 | 1.98 | 2.13 | 1.54 | + 9 −16 −20 −23 +29 −14 +21 −49 +19 − 5 | 0 | −1.25 |
| +94335 | 19 12 04.86 | +46 19 26.5 | 9.35 2 H | 288.020 260 65 | +46.324 018 65 | 7.69 | −0.82 | 45.43 | 0.75 | 0.71 | 0.89 | 0.88 | 0.75 | + 5 −19 +18 + 5 + 8 −17 +16 −14 −19 +28 | 3 | −0.87 |
| +94336 H | 19 12 05.22 | +49 51 15.3 | 5.85 G | 288.021 731 47 | +49.854 238 07 A | 40.16 | −205.02 | 624.33 | 0.99 | 0.92 | 0.83 | 0.97 | 0.89 | − 1 −24 +12 +12 + 3 − 3 + 5 + 1 + 3 +10 | 7 | 1.21 |
| +94337 | 19 12 05.10 | +69 42 28.5 | 9.00 H | 288.021 240 72 | +69.707 914 48 | 5.81 | 8.31 | 8.77 | 0.65 | 0.58 | 0.65 | 0.77 | 0.69 | +10 −19 − 1 + 9 + 3 − 6 + 2 + 4 + 0 +12 | 0 | −0.44 |
| 94338 H | 19 12 05.81 | −21 55 41.7 | 7.83 H | 288.024 221 48 | −21.928 241 09 A | 3.42 | 5.85 | −5.95 | 1.98 | 1.09 | 1.87 | 1.80 | 1.31 | + 1 − 1 −10 − 4 − 7 + 4 + 1 −34 +25 + 35 | 2 | 0.23 |
| 94339 | 19 12 06.30 | −50 14 38.2 | 8.02 H | 288.026 262 65 | −50.243 956 33 | 0.81 | 15.62 | −34.94 | 0.84 | 0.60 | 0.94 | 1.13 | 0.66 | − 2 −18 − 8 − 3 +20 + 7 +15 −33 − 6 −15 | 0 | −0.03 |
| 94340 | 19 12 06.47 | −28 29 05.8 | 9.49 H | 288.026 951 21 | −28.484 941 29 | 12.86 | −18.38 | −87.28 | 1.98 | 0.76 | 2.02 | 1.95 | 1.09 | + 0 −63 − 4 + 7 +12 −15 − 8 −50 +14 −27 | 2 | 1.25 |
| 94341 | 19 12 08.15 | +24 07 48.2 | 11.22 G | 288.033 953 64 | +24.130 060 36 | 29.35 | −119.82 | −197.53 | 1.78 | 2.07 | 3.13 | 2.33 | 2.56 | − 8 −12 − 3 −22 − 8 + 2 − 9 −23 +12 + 0 | 0 | |
| 94342 | 19 12 08.38 | +36 09 46.4 | 8.78 H | 288.034 905 56 | +36.162 886 37 | 3.01 | 1.84 | −2.13 | 0.63 | 0.69 | 0.82 | 0.71 | 0.79 | − 8 + 8 −11 +13 +17 −18 +16 +10 − 2 − 7 | 1 | −0.02 |
| 94343 | 19 12 09.52 | +41 50 15.5 | 8.20 H | 288.039 675 39 | +41.837 647 01 | 5.79 | 17.57 | −15.61 | 0.63 | 0.64 | 0.76 | 0.67 | 0.88 | − 9 −28 + 4 − 6 + 2 + 6 + 3 +26 + 4 −13 | 0 | −1.19 |
| +94344 | 19 12 09.78 | −37 34 59.1 | 6.55 G | 288.040 738 35 | −37.583 090 57 | 2.37 | 5.47 | −5.95 | 0.83 | 0.47 | 0.85 | 1.09 | 0.60 | + 1 −32 + 8 +26 − 1 + 1 − 10 −35 −11 −21 | 0 | 1.30 |
| +94345 | 19 12 09.72 | −16 25 49.4 | 8.02 G | 288.040 497 17 | −16.430 379 03 | 6.76 | −15.54 | −45.00 | 0.92 | 0.56 | 1.00 | 0.98 | 0.64 | + 1 −26 − 6 − 6 + 2 + 8 + 3 −33 + 7 + 5 | 0 | 0.09 |
| 94346 | 19 12 11.12 | +57 40 15.6 | 7.04 1 G | 288.046 334 48 | +57.670 989 03 | 50.00 | 217.75 | 408.26 | 0.51 | 0.51 | 0.54 | 0.54 | 0.60 | + 6 − 9 +11 +20 +11 − 4 +15 + 6 −12 +21 | 0 | 0.55 |
| 94347 | 19 12 11.15 | −83 29 00.2 | 7.26 H | 288.046 443 34 | −83.483 386 75 | 22.25 | 136.95 | −128.05 | 1.50 | 1.61 | 1.94 | 1.71 | 2.02 | −10 −17 + 3 − 5 + 0 + 0 + 1 −15 −10 −14 | 0 | |
| 94348 | 19 12 13.20 | −52 14 33.0 | 9.96 G | 288.054 985 34 | −52.242 501 53 | 2.68 | −2.29 | −12.40 | 1.62 | 1.47 | 1.70 | 2.22 | 1.72 | +53 + 1 +11 −45 −45 −17 −45 −73 −18 +48 | 2 | −0.11 |
| 94349 | 19 12 13.55 | +02 53 15.6 | 11.09 G | 288.056 468 21 | +02.887 668 13 + | 98.56 | 1789.15 | −520.07 | 2.06 | 1.88 | 2.66 | 2.72 | 2.00 | − 3 −26 +26 − 7 +25 +18 + 0 − 5 + 5 + 5 +21 | 2 | 2.14 |
| 94350 H | 19 12 14.80 | +32 15 09.9 | 7.37 G | 288.061 662 66 | +32.252 758 91 A | 3.02 | 2.01 | 1.67 | 0.67 | 0.71 | 0.84 | 0.74 | 0.78 | + 0 + 0 − 1 +27 + 6 − 4 + 5 + 4 +25 + 3 | 1 | −0.06 |
| 94351 | 19 12 15.71 | +47 22 30.0 | 6.54 H | 288.065 444 51 | +47.374 992 51 | 1.33 | 3.69 | −1.21 | 0.52 | 0.46 | 0.57 | 0.62 | 0.51 | + 0 + 3 − 9 −16 + 8 −10 + 6 −11 +10 +21 | 4 | −1.61 |
| 94352 | 19 12 15.99 | +48 08 00.6 | 8.56 H | 288.066 627 50 | +48.133 493 55 | 4.26 | −2.06 | 18.08 | 0.72 | 0.68 | 0.77 | 0.82 | 0.78 | +10 −10 −15 −39 + 1 + 3 − 3 −17 +16 +21 | 3 | −0.63 |
| 94353 | 19 12 16.99 | −51 48 43.6 | 8.42 G | 288.070 803 02 | −51.812 117 63 | 4.00 | 1.34 | −27.03 | 0.99 | 0.82 | 1.17 | 1.30 | 0.92 | +19 + 2 +24 −22 −11 −22 − 8 −59 −39 +27 | 0 | −1.19 |
| 94354 | 19 12 17.40 | +41 14 16.0 | 7.08 2 H | 288.072 500 66 | +41.237 772 32 | 3.35 | 1.13 | −16.63 | 0.48 | 0.50 | 0.58 | 0.50 | 0.64 | −12 + 5 − 9 + 4 + 4 − 9 + 4 +25 − 1 −11 | 0 | 0.06 |
| 94355 H | 19 12 18.64 | +21 13 29.0 | 8.24 H | 288.077 652 63 | +21.224 732 22 + | 0.77 | 0.48 | −6.14 | 1.15 | 1.26 | 1.18 | 0.98 | 1.03 | +39 −15 + 0 − 1 − 3 − 1 − 3 + 0 + 2 +29 | 1 | 0.06 |
| 94356 | 19 12 19.25 | −35 56 30.4 | 10.00 G | 288.080 222 33 | −35.941 771 55 | 2.03 | −6.86 | −7.04 | 1.49 | 0.85 | 1.59 | 2.08 | 1.15 | + 8 −28 −13 +23 + 8 −21 −14 −39 +17 −28 | 0 | −0.28 |
| 94357 | 19 12 19.47 | +09 19 22.5 | 9.56 H | 288.081 110 16 | +09.322 929 29 | 1.46 | 5.19 | −7.98 | 1.36 | 1.12 | 1.75 | 1.62 | 1.09 | + 1 −18 −17 −34 +15 −22 + 4 −44 +24 − 6 | 2 | −0.11 |
| 94358 | 19 12 19.73 | −08 56 09.5 | 9.19 H | 288.082 227 00 | −08.935 968 51 | 0.97 | −2.34 | −5.21 | 0.98 | 0.63 | 1.17 | 1.16 | 0.77 | +15 −11 − 7 − 4 + 8 +29 + 9 −17 +13 +11 | 0 | −2.30 |
| 94359 | 19 12 21.44 | +53 56 52.2 | 9.32 H | 288.089 345 97 | +53.947 831 10 | 2.77 | −26.40 | −35.28 | 0.92 | 0.81 | 0.89 | 1.00 | 1.12 | − 9 −20 +12 −37 + 8 − 2 + 7 −18 − 2 +12 | 0 | 1.68 |
| 94360 | 19 12 22.49 | −34 27 47.3 | 8.63 G | 288.093 724 04 | −34.463 089 92 | 0.06 | 5.89 | −3.93 | 1.13 | 0.80 | 1.38 | 1.34 | 1.13 | +40 −28 −20 +10 +26 −24 + 3 + 5 +28 +60 | 4 | 1.34 |
| 94361 | 19 12 22.61 | +73 53 32.3 | 7.26 2 H | 288.094 217 13 | +73.892 314 23 | 2.79 | −1.50 | 16.17 | 0.52 | 0.48 | 0.53 | 0.59 | 0.52 | − 4 −17 +15 − 1 +13 − 3 +13 − 6 + 1 + 9 | 0 | −0.29 |
| 94362 | 19 12 22.79 | +20 30 44.7 | 9.19 H | 288.094 939 81 | +20.512 404 48 | 2.71 | −5.15 | −2.49 | 0.71 | 0.82 | 1.23 | 0.82 | 1.13 | +24 −30 − 3 −12 − 7 + 3 − 2 + 6 −16 +23 | 0 | −0.32 |
| 94363 H | 19 12 23.60 | +30 20 51.9 | 7.65 G | 288.098 342 26 | +30.347 763 71 A | 0.72 | 2.37 | −5.26 | 0.97 | 1.09 | 1.28 | 1.01 | 1.32 | −20 −12 − 6 + 9 +11 − 7 +11 −12 − 3 −26 | 7 | 2.02 |
| 94364 T | 19 12 23.67 | −04 27 28.9 | 11.77 H | 288.098 618 54 | −04.458 039 89 | 4.21 | −25.71 | −21.46 | 5.51 | 3.43 | 6.21 | 7.62 | 5.74 | +36 −11 +10 +14 +11 +28 + 8 + 2 +20 +42 | 9 | 0.25 |
| 94365 | 19 12 24.12 | −51 40 20.0 | 7.06 H | 288.100 511 57 | −51.825 553 37 | 2.80 | 0.85 | −20.68 | 0.78 | 0.65 | 0.89 | 0.69 | 0.69 | +30 + 5 +11 −26 +17 −18 −26 −62 −33 +28 | 0 | 0.47 |
| 94366 | 19 12 24.36 | +36 10 55.9 | 6.95 H | 288.101 491 96 | +36.182 204 82 | 3.03 | 5.86 | 9.59 | 0.43 | 0.52 | 0.60 | 0.49 | 0.64 | − 9 + 8 −12 − 5 +13 −19 +13 +16 − 1 −12 | 0 | −0.82 |
| 94367 H | 19 12 25.20 | −33 03 43.8 | 8.00 G | 288.104 996 81 | −33.062 169 41 A | 15.43 | −44.84 | 33.68 | 2.11 | 1.58 | 1.92 | 2.34 | 1.44 | +15 − 4 −33 − 2 +22 −26 + 7 −38 +42 −28 | 2 | −0.07 |
| 94368 | 19 12 25.55 | −55 52 06.1 | 11.31 G | 288.106 440 51 | −55.868 371 87 | 50.04 | −278.15 | −169.46 | 2.03 | 1.69 | 2.72 | 2.32 | 2.25 | +45 −26 −17 +10 −41 + 1 −34 −44 + 4 +60 | 2 | 3.20 |
| 94369 | 19 12 26.83 | +19 12 30.7 | 8.99 H | 288.111 806 31 | +19.208 530 80 | 1.95 | 6.66 | 3.50 | 0.83 | 0.82 | 1.28 | 1.17 | 1.27 | +29 + 0 −23 +28 − 2 +29 + 2 +20 − 7 +15 | 0 | 0.01 |
| 94370 | 19 12 27.42 | −05 24 51.9 | 8.06 G | 288.114 244 00 | −05.414 414 46 | 19.04 | −9.66 | −52.48 | 0.87 | 0.61 | 1.07 | 0.95 | 0.73 | +24 −25 −21 −23 + 1 +22 + 5 −25 + 9 +17 | 0 | 0.18 |
| 94371 | 19 12 27.46 | +16 51 02.2 | 7.94 H | 288.114 402 11 | +16.850 597 96 | 21.72 | 115.83 | −175.06 | 0.76 | 0.99 | 1.04 | 0.98 | 1.06 | +25 −10 −34 + 0 + 1 +19 + 3 + 3 − 2 +14 | 4 | 0.42 |
| 94372 | 19 12 28.02 | −21 55 41.7 | 6.39 H | 288.116 746 70 | −21.658 327 64 | 3.13 | 31.83 | −22.34 | 0.74 | 0.37 | 0.77 | 0.73 | 0.49 | +17 −33 + 1 − 6 + 6 +18 +14 −37 + 0 − 1 | 3 | −2.03 |
| 94373 | 19 12 28.47 | +18 00 06.8 | 7.45 H | 288.118 608 34 | +18.001 900 61 | 6.00 | 4.16 | 15.93 | 0.58 | 0.55 | 0.83 | 0.86 | 0.86 | +21 −23 −15 +37 − 5 +12 −10 +17 + 6 + 0 | 1 | −0.72 |
| 94374 | 19 12 28.72 | −36 35 04.7 | 8.77 2 H | 288.119 657 17 | −36.584 632 13 | 0.75 | 16.69 | −12.42 | 1.20 | 0.71 | 1.30 | 1.52 | 0.89 | +18 −31 − 9 +21 + 4 −15 −12 −35 +12 −10 | 0 | 1.36 |
| 94375 | 19 12 28.98 | +23 27 33.6 | 8.07 H | 288.120 749 74 | +23.459 331 35 | 2.38 | −1.38 | −3.10 | 0.48 | 0.58 | 0.93 | 0.58 | 0.68 | −27 − 9 − 7 −16 − 7 + 7 − 8 −12 +13 −14 | 0 | 0.96 |
| 94376 | 19 12 33.15 | +67 39 40.7 | 3.07 G | 288.138 145 81 | +67.661 316 95 | 32.54 | 94.49 | 92.30 | 0.47 | 0.41 | 0.46 | 0.47 | 0.45 | −12 −20 + 6 −18 +20 + 5 +18 − 4 + 6 + 6 | 3 | 2.22 |
| 94377 H | 19 12 34.45 | +18 50 47.2 | 6.73 2 G | 288.143 556 04 | +18.846 448 22 A | 3.85 | 2.18 | −11.64 | 1.08 | 1.02 | 1.29 | 1.31 | 1.07 | + 25 − 1 −25 +17 −10 +20 −11 − 2 − 3 + 6 | 2 | 1.07 |
| 94378 | 19 12 34.54 | −37 31 26.4 | 7.15 H | 288.143 924 90 | −37.523 997 61 | 3.41 | −0.68 | −16.01 | 0.86 | 0.49 | 0.91 | 1.04 | 0.60 | − 4 −38 +14 +21 − 1 + 5 − 3 −32 −14 −14 | 0 | 1.71 |
| 94379 | 19 12 34.74 | −58 54 08.3 | 9.20 G | 288.144 742 16 | −58.902 302 60 | 6.76 | 37.92 | −13.60 | 1.00 | 0.70 | 1.41 | 1.35 | 1.15 | + 7 −10 −13 +22 −13 + 4 − 7 −13 +21 +34 | 0 | 2.34 |
| 94380 | 19 12 35.87 | +12 52 58.2 | 9.56 H | 288.149 464 20 | +12.882 829 64 | 2.15 | −6.15 | −0.52 | 1.14 | 1.02 | 1.54 | 1.18 | 1.07 | + 6 −15 −12 −12 + 5 +32 +10 −11 − 5 + 2 | 0 | −0.13 |
| 94381 | 19 12 36.18 | +16 18 18.5 | 9.18 G | 288.150 751 85 | +16.305 138 12 | 4.39 | −13.76 | 5.02 | 0.97 | 0.96 | 1.41 | 1.18 | 1.43 | +33 + 1 + 0 − 3 − 14 +33 −17 −19 + 5 +35 | 0 | −0.13 |
| 94382 | 19 12 36.72 | +21 33 16.4 | 6.02 H | 288.153 018 33 | +21.554 560 41 | 3.24 | 14.51 | 4.79 | 0.42 | 0.45 | 0.64 | 0.53 | 0.54 | +24 −20 −19 + 0 + 2 +10 + 1 − 2 +13 +26 | 1 | −0.58 |
| 94383 | 19 12 37.00 | +06 02 22.3 | 7.46 G | 288.154 177 08 | +06.039 537 20 | 4.58 | −1.00 | −15.20 | 0.83 | 0.60 | 0.92 | 0.88 | 0.61 | +28 −23 −10 −17 −17 −14 −23 −32 +17 − 1 | 0 | −1.06 |
| 94384 | 19 12 40.25 | −06 27 31.6 | 9.12 2 H | 288.167 726 91 | −06.458 791 64 | 1.20 | 0.05 | −4.39 | 0.99 | 0.71 | 1.20 | 1.21 | 0.89 | + 6 −14 −10 −13 + 9 + 6 + 7 −23 − 3 −21 | 2 | −1.36 |
| 94385 | 19 12 40.70 | −07 56 22.2 | 5.35 1 H | 288.169 598 61 | −07.939 500 77 | 2.68 | 12.69 | −7.06 | 0.73 | 0.45 | 0.80 | 0.72 | 0.47 | − 9 −15 −20 −36 +30 − 2 +26 −39 +24 −11 | 0 | −0.04 |
| 94386 | 19 12 42.17 | +13 22 59.8 | 8.42 H | 288.175 728 28 | +13.383 287 96 | 2.86 | 2.94 | −14.74 | 0.88 | 0.80 | 1.10 | 1.06 | 0.87 | − 9 − 6 −11 − 2 + 3 + 5 + 4 −26 +10 − 2 | 2 | 0.15 |
| 94387 H | 19 12 42.40 | +24 34 36.4 | 8.11 H | 288.176 686 96 | +24.576 782 06 + | 13.40 | 68.25 | −5.55 | 1.73 | 2.60 | 1.26 | 0.92 | 1.05 | −22 +10 −20 −28 + 2 −10 + 2 −19 +17 −12 | 1 | 1.98 |
| 94388 | 19 12 42.82 | +39 29 50.3 | 8.28 G | 288.178 403 91 | +39.497 310 83 | 2.68 | 2.09 | −0.88 | 0.59 | 0.57 | 0.69 | 0.69 | 0.75 | − 3 − 1 − 2 +25 + 5 − 2 + 6 +21 −11 + 3 | 0 | −1.57 |
| 94389 | 19 12 43.00 | −25 40 09.7 | 8.57 H | 288.179 156 87 | −25.669 362 17 | 16.93 | 1.89 | −13.72 | 1.25 | 0.65 | 1.17 | 1.34 | 0.86 | −32 −12 −10 −21 +32 − 4 +35 −43 +16 −22 | 0 | 0.48 |
| 94390 | 19 12 43.85 | −11 33 01.3 | 7.61 H | 288.182 728 38 | −11.550 350 58 | 2.42 | 35.76 | 4.16 | 0.79 | 0.45 | 0.99 | 1.00 | 0.72 | +24 −33 − 8 −15 + 6 +36 +11 −19 − 3 + 7 | 0 | 1.81 |
| 94391 | 19 12 43.92 | −33 51 13.8 | 7.79 H | 288.183 007 37 | −33.853 846 93 | 12.07 | 51.61 | −149.66 | 1.38 | 0.64 | 1.42 | 2.37 | 1.04 | +24 −16 −27 +37 +41 −29 −17 −58 +36 −53 | 0 | 2.55 |
| 94392 | 19 12 44.11 | −42 04 52.5 | 10.50 G | 288.183 778 24 | −42.081 253 89 | 1.25 | −11.50 | −16.16 | 2.09 | 1.37 | 2.18 | 2.14 | 1.48 | +47 −55 −26 + 4 −14 − 7 −28 −47 + 6 +12 | 0 | 0.28 |
| 94393 | 19 12 44.13 | −33 50 46.2 | 7.26 H | 288.183 860 83 | −33.846 168 20 | 2.19 | −4.25 | −8.00 | 1.28 | 0.60 | 1.28 | 2.28 | 0.99 | +15 −17 −23 +30 +45 −26 − 9 −58 +32 −58 | 0 | 0.87 |
| 94394 | 19 12 44.16 | −19 14 06.9 | 8.14 H | 288.184 019 56 | −19.235 245 95 | 13.96 | −119.59 | −124.36 | 0.87 | 0.50 | 0.98 | 1.00 | 0.68 | + 4 +20 − 5 − 8 −11 +26 − 4 −35 −39 − 8 +11 | 0 | −1.40 |
| 94395 | 19 12 44.56 | +08 36 37.9 | 7.76 H | 288.185 658 11 | +08.610 514 29 | 4.66 | 6.44 | −0.33 | 0.88 | 0.57 | 1.04 | 0.83 | 0.60 | − 2 −40 −10 −20 + 3 + 5 − 6 −27 +20 −23 | 0 | −1.18 |
| 94396 | 19 12 44.97 | +18 48 44.5 | 10.16 H | 288.187 389 57 | +18.812 349 74 | 17.22 | 113.91 | 166.28 | 1.25 | 1.38 | 1.85 | 1.71 | 2.03 | +47 −13 − 1 +29 +10 +19 +10 +36 + 8 + 21 | 0 | −1.27 |
| 94397 | 19 12 45.52 | −24 29 14.0 | 7.57 H | 288.189 668 63 | −24.487 218 52 | 6.11 | 30.36 | −15.43 | 1.16 | 0.56 | 1.00 | 1.61 | 0.89 | −46 + 2 −11 −33 +48 + 6 +44 −64 +11 −61 | 0 | −1.76 |
| 94398 T | 19 12 46.10 | −50 29 10.7 | 6.12 G | 288.192 072 29 | −50.486 317 35 | 7.13 | 44.73 | −42.12 | 0.66 | 0.48 | 0.76 | 0.83 | 0.46 | + 8 −31 −25 − 4 +18 + 6 +11 −34 − 4 −19 | 0 | −2.21 |
| 94399 | 19 12 46.27 | −24 54 22.5 | 8.87 H | 288.192 798 54 | −24.906 254 58 | 5.34 | 29.10 | 5.56 | 1.37 | 0.72 | 1.27 | 3.03 | 1.40 | −44 −32 +16 −39 +59 +34 + 39 −73 −21 −79 | 0 | −0.74 |
| 94400 | 19 12 46.67 | −58 15 58.4 | 7.80 H | 288.194 475 33 | −58.266 214 06 | 5.76 | −20.38 | −80.06 | 0.74 | 0.56 | 1.08 | 0.96 | 0.87 | − 4 −22 − 6 +39 − 2 − 4 + 6 +15 + 4 +33 | 0 | −0.40 |

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***Figure 1.1.4(a).*** *Summary interpretation of the left-hand pages of the Hipparcos Catalogue*

**1897** **287°.916 - 288°.194**

**94301 - 94400**

| No. | Tycho Magnitudes | | | | | Colour Indices | | | Magnitude (Hp) | | | | Variability (Hp) | | | | Multiplicity Data | | | | | | | | | Misc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HIP | $B_T$ | σ | $V_T$ | σ | | B–V | σ | | V–I | σ | | Hp | σ | s | N | Max | Min | P | | CCDM | | Flags | AB | θ | ρ | $\sigma_\rho$ | ΔHp | σ | Flags |
| | mag | mag | mag | mag | | mag | mag | | mag | mag | | mag | mag | mag | | mag | mag | days | | | | | | ″ | ″ | | mag | mag | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42-3 | 44 | 45 | 46 | 47 48 | 49 | 50 | 51 | 52-4 | 55 | 56-7 | 58-61 | 62 | 63 | 64 | 65 | 66 | 67 | 68-70 |
| 94301 | 9.612 | 0.015 | 9.360 | 0.018 | | 0.240 | 0.022 | T | 0.27 | 0.03 | L | 9.3896 | 0.0019 | 0.021 | 145 | 9.35 | 9.44 | | | | | 1 | | | | | | | |
| 94302 | 6.422 | 0.004 | 5.246 | 0.002 | | 1.008 | 0.003 | T | 0.98 | 0.00 | L | 5.2950 | 0.0007 | 0.005 | 100 | 5.29 | 5.30 | | | | | 1 | | | | | | | S |
| 94303 | 11.176 | 0.075 | 10.652 | 0.083 | | 0.710 | 0.020 | G | 0.76 | 0.02 | H | 10.8155 | 0.0029 | 0.031 | 84 | 10.76 | 10.86 | | C | | | 1 | | | | | | | G |
| 94304 | 8.029 | 0.008 | 7.629 | 0.008 | | 0.391 | 0.009 | T | 0.46 | 0.01 | L | 7.6877 | 0.0011 | 0.013 | 128 | 7.66 | 7.71 | | | | | 1 | | | | | | | S |
| 94305 | 9.070 | 0.014 | 8.530 | 0.013 | | 0.506 | 0.017 | T | 0.58 | 0.02 | L | 8.5541 | 0.0025 | 0.019 | 86 | 8.52 | 8.59 | | | | | 1 | | | | | | | |
| 94306 | 8.420 | 0.012 | 8.159 | 0.013 | A | 0.108 | 0.140 | G | 0.22 | 0.03 | L + | 8.1913 | 0.0018 | 0.015 | 112 + | 8.17 | 8.22 | | C | 19117+1753 | I 1 | 2 C B | AB | 84 | 1.949 | 0.039 | 3.51 | 0.15 | |
| 94307 | 10.216 | 0.032 | 9.665 | 0.031 | A | 0.522 | 0.033 | T | 0.59 | 0.04 | L | 9.7764 | 0.0142 | 0.022 | 85 A | 9.75 | 9.81 | | C | 19117−4711 | I 1 | 2 C D | AB | 152 | 13.901 | 0.063 | 3.37 | 0.32 | D |
| 94308 | 8.070 | 0.007 | 7.733 | 0.008 | A | −0.016 | 0.009 | G | 0.01 | 0.01 | H | 7.8045 | 0.0066 | 0.029 | 196 A | 7.76 | 7.86 | | D | 19118+2615 | I 1 | 2 C A | AB | 23 | 15.113 | 0.013 | 2.48 | 0.06 | S |
| 94309 | 9.187 | 0.014 | 8.246 | 0.011 | | 0.817 | 0.014 | T | 0.84 | 0.01 | L | 8.2891 | 0.0026 | 0.023 | 107 | 8.25 | 8.33 | | U 2 | 19118−1911 | I 1 | 1 | | | | | | | |
| 94310 | 9.749 | 0.024 | 9.027 | 0.020 | + | 0.649 | 0.023 | T | 0.71 | 0.02 | L + | 9.0311 | 0.0033 | 0.024 | 76 + | 8.99 | 9.07 | | D | 19118−5319 | I 1 | 2 C A | AB | 182 | 0.438 | 0.007 | 1.33 | 0.04 | |
| 94311 | 5.851 | 0.003 | 5.924 | 0.003 | | −0.062 | 0.004 | T | −0.04 | 0.00 | L | 5.9180 | 0.0013 | 0.012 | 130 | 5.90 | 5.93 | | U 2 | | | 1 | | | | | | | S |
| 94312 | | | | | | | | | | | T | 12.5469 | 0.0137 | 0.141 | 104 | 12.06 | 12.73 | | U | | | 1 S | | | | | | | D |
| 94313 | 8.052 | 0.008 | 7.667 | 0.008 | | 0.411 | 0.001 | G | 0.48 | 0.00 | H | 7.7107 | 0.0018 | 0.015 | 145 | 7.69 | 7.74 | | | | | 1 | | | | | | | S |
| 94314 | 10.824 | 0.046 | 9.432 | 0.024 | | 1.177 | 0.041 | T | 1.14 | 0.04 | L | 9.4339 | 0.0038 | 0.022 | 74 | 9.38 | 9.48 | | | | | 1 | | | | | | | G |
| 94315 | 9.010 | 0.013 | 8.814 | 0.016 | | 0.187 | 0.019 | T | 0.21 | 0.02 | L | 8.8400 | 0.0017 | 0.016 | 115 | 8.81 | 8.88 | | C | | | 1 | | | | | | | |
| 94316 | 9.425 | 0.018 | 8.067 | 0.011 | | 1.150 | 0.017 | T | 1.11 | 0.01 | L | 8.0831 | 0.0014 | 0.011 | 68 | 8.06 | 8.11 | | C | | | 1 | | | | | | | |
| 94317 | 11.916 | 0.165 | 10.806 | 0.092 | B | 0.957 | 0.147 | T | 0.94 | 0.11 | L | 11.4548 | 0.1277 | | B | | | | D | 19118+0842 | I 2 | 1 C F D | | | | | | | D |
| 94318 | 9.350 | 0.010 | 9.343 | 0.013 | | 0.007 | 0.014 | T | 0.03 | 0.01 | L | 9.3715 | 0.0018 | 0.026 | 237 | 9.32 | 9.43 | | | | | 1 | | | | | | | |
| 94319 | 10.517 | 0.044 | 9.985 | 0.046 | A | 0.499 | 0.058 | T | 0.57 | 0.06 | L | 10.0790 | 0.0445 | 0.041 | 77 A | 9.94 | 10.13 | | D | 19118+0842 | I 2 | 1 C P D | | | | | | | G D |
| 94320 | 9.764 | 0.022 | 8.501 | 0.013 | | 1.076 | 0.020 | T | 1.04 | 0.02 | L | 8.5268 | 0.0021 | 0.016 | 93 | 8.49 | 8.56 | | | | | 1 | | | | | | | |
| 94321 | 8.014 | 0.007 | 8.049 | 0.009 | | −0.027 | 0.010 | T | −0.01 | 0.01 | L | 8.0475 | 0.0013 | 0.013 | 135 | 8.03 | 8.06 | | C | | | 1 | | | | | | | |
| 94322 | 11.184 | 0.061 | 10.276 | 0.046 | | 0.791 | 0.059 | T | 0.82 | 0.04 | L | 10.2922 | 0.0038 | 0.027 | 99 | 10.25 | 10.35 | | C | | | 1 | | | | | | | G |
| 94323 | 8.890 | 0.015 | 7.176 | 0.007 | | 1.431 | 0.013 | T | 1.48 | 0.02 | A | 7.1618 | 0.0012 | 0.008 | 82 | 7.15 | 7.17 | | | | | 1 | | | | | | | S |
| 94324 | 8.021 | 0.007 | 8.006 | 0.008 | | 0.019 | 0.010 | T | 0.04 | 0.01 | L | 8.0282 | 0.0015 | 0.011 | 121 | 8.01 | 8.05 | | C | | | 1 | | | | | | | S |
| 94325 | 9.607 | 0.019 | 8.160 | 0.011 | | 1.220 | 0.017 | T | 1.18 | 0.02 | L | 8.1787 | 0.0024 | 0.016 | 87 | 8.16 | 8.21 | | | | | 1 | | | | | | | S |
| 94326 | 9.631 | 0.036 | 8.886 | 0.030 | | 0.667 | 0.036 | T | 0.73 | 0.03 | L | 8.9326 | 0.0022 | 0.016 | 72 | 8.91 | 8.96 | | C | | | 1 | | | | | | | |
| 94327 | 9.328 | 0.015 | 9.138 | 0.018 | | 0.182 | 0.022 | T | 0.20 | 0.03 | L | 9.1415 | 0.0023 | 0.026 | 134 | 9.10 | 9.19 | | C | | | 1 | | | | | | | |
| 94328 | 7.578 | 0.007 | 7.510 | 0.007 | | 0.068 | 0.009 | T | 0.08 | 0.01 | L | 7.5329 | 0.0011 | 0.011 | 120 | 7.51 | 7.55 | | | | | 1 S | | | | | | | S |
| 94329 | 11.618 | 0.094 | 10.512 | 0.053 | | 1.050 | 0.020 | G | 1.02 | 0.02 | H | 10.5970 | 0.0040 | 0.029 | 109 | 10.53 | 10.63 | | | | | 1 | | | | | | | G |
| 94330 | 10.129 | 0.028 | 9.816 | 0.032 | | 0.297 | 0.040 | T | 0.34 | 0.05 | L | 9.9123 | 0.0022 | 0.018 | 76 | 9.88 | 9.95 | | C | | | 1 | | | | | | | G |
| 94331 | 7.064 | 0.005 | 6.955 | 0.006 | + | 0.102 | 0.003 | G | 0.12 | 0.00 | R + | 6.9845 | 0.0015 | 0.010 | 76 + | 6.97 | 7.01 | | D | 19121+0237 | I 1 | 2 C A | BA | 184 | 0.248 | 0.003 | 0.48 | 0.05 | S |
| 94332 | 9.791 | 0.022 | 9.178 | 0.020 | | 0.574 | 0.020 | G | 0.65 | 0.02 | H | 9.2481 | 0.0016 | 0.020 | 115 | 9.20 | 9.28 | | | | | 1 S | | | | | | | |
| 94333 | 7.987 | 0.007 | 8.033 | 0.009 | | −0.018 | 0.015 | G | 0.00 | 0.01 | H | 8.0220 | 0.0010 | 0.010 | 118 | 8.01 | 8.05 | | C | | | 1 | | | | | | | S |
| 94334 | 10.707 | 0.037 | 10.165 | 0.035 | | 0.481 | 0.005 | G | 0.55 | 0.01 | H | 10.3138 | 0.0026 | 0.031 | 105 | 10.26 | 10.38 | | | | | 1 | | | | | | | G |
| 94335 | 10.016 | 0.025 | 9.395 | 0.022 | | 0.574 | 0.025 | T | 0.65 | 0.02 | L | 9.4722 | 0.0034 | 0.045 | 101 | 9.43 | 9.67 | 2.18 | P 1 A | | | 1 | | | | | | | |
| 94336 | 7.294 | 0.007 | 6.569 | 0.006 | A | 0.666 | 0.006 | G | 0.73 | 0.01 | R + | 5.9819 | 0.0008 | 0.009 | 109 + | 5.97 | 6.00 | | D | 19121+4951 | I 1 | 2 C A | AB | 208 | 7.648 | 0.003 | 0.15 | 0.01 | S |
| 94337 | 9.348 | 0.016 | 9.038 | 0.017 | | 0.337 | 0.015 | G | 0.39 | 0.02 | H | 9.0852 | 0.0010 | 0.015 | 116 | 9.06 | 9.12 | | D | | | 1 | | | | | | | |
| 94338 | 9.375 | 0.014 | 7.994 | 0.008 | A | 1.000 | 0.495 | G | 1.09 | 0.05 | L + | 7.9990 | 0.0012 | 0.012 | 128 + | 7.98 | 8.02 | | D | 19121−2156 | I 1 | 2 C B | AB | 330 | 7.565 | 0.049 | 3.71 | 0.32 | |
| 94339 | 9.899 | 0.027 | 8.183 | 0.012 | | 1.440 | 0.001 | G | 1.44 | 0.00 | H | 8.1295 | 0.0013 | 0.012 | 90 | 8.11 | 8.15 | | C | | | 1 | | | | | | | |
| 94340 | 10.424 | 0.031 | 9.576 | 0.024 | | 0.760 | 0.020 | G | 0.80 | 0.02 | H | 9.6322 | 0.0022 | 0.021 | 104 | 9.60 | 9.67 | | C | | | 1 | | | | | | | |
| 94341 | | | | | | 1.410 | 0.020 | G | 1.70 | 0.05 | I | 11.3476 | 0.0041 | 0.054 | 193 | 11.25 | 11.43 | | | | | 1 X | | | | | | | G |
| 94342 | 8.764 | 0.011 | 8.785 | 0.014 | | −0.015 | 0.016 | T | 0.01 | 0.01 | L | 8.7802 | 0.0015 | 0.016 | 131 | 8.75 | 8.82 | | | | | 1 | | | | | | | |
| 94343 | 8.541 | 0.010 | 8.232 | 0.011 | | 0.296 | 0.003 | G | 0.34 | 0.00 | H | 8.2745 | 0.0018 | 0.015 | 110 | 8.25 | 8.30 | | | | | 1 | | | | | | | |
| 94344 | 7.821 | 0.007 | 6.682 | 0.006 | | 1.016 | 0.000 | G | 0.99 | 0.00 | H | 6.7166 | 0.0008 | 0.007 | 83 | 6.71 | 6.73 | | C | | | 1 | | | | | | | S |
| 94345 | 8.711 | 0.011 | 8.089 | 0.010 | | 0.596 | 0.015 | G | 0.67 | 0.01 | H | 8.1352 | 0.0010 | 0.012 | 93 | 8.12 | 8.17 | | D | | | 1 | | | | | | | S |
| 94346 | 8.037 | 0.008 | 7.118 | 0.007 | | 0.804 | 0.009 | G | 0.84 | 0.01 | H | 7.1762 | 0.0020 | 0.018 | 100 | 7.15 | 7.21 | | U 2 C | | | 1 | | | | | | | S |
| 94347 | 7.767 | 0.006 | 7.310 | 0.006 | | 0.444 | 0.007 | T | 0.51 | 0.01 | L | 7.3587 | 0.0010 | 0.013 | 133 | 7.34 | 7.38 | | | | | 1 X | | | | | | | S |
| 94348 | 11.973 | 0.139 | 10.101 | 0.042 | | 1.490 | 0.015 | G | 1.49 | 0.02 | A | 10.1047 | 0.0027 | 0.021 | 71 | 10.07 | 10.14 | | C | | | 1 | | | | | | | G |
| 94349 | | | | | | 1.542 | 0.051 | G | 2.58 | 0.02 | A | 11.1029 | 0.0033 | 0.038 | 75 | 11.04 | 11.16 | | D | 19122+0253 | I 1 | 1 O | | | | | | | G D |
| 94350 | 7.458 | 0.006 | 7.433 | 0.008 | A | 0.050 | 0.015 | G | 0.03 | 0.01 | L + | 7.4321 | 0.0009 | 0.011 | 133 + | 7.42 | 7.45 | | D | 19122+3215 | I 1 | 2 C A | AB | 147 | 1.083 | 0.016 | 3.25 | 0.08 | S |
| 94351 | 7.839 | 0.007 | 6.643 | 0.005 | | 1.024 | 0.007 | T | 1.00 | 0.01 | L | 6.7040 | 0.0012 | 0.008 | 104 | 6.69 | 6.72 | | | 19123+4723 | I 1 | 1 | | | | | | | S |
| 94352 | 9.958 | 0.025 | 8.663 | 0.014 | | 1.101 | 0.022 | T | 1.06 | 0.02 | L | 8.7285 | 0.0012 | 0.015 | 113 | 8.70 | 8.76 | | C | | | 1 | | | | | | | |
| 94353 | 9.016 | 0.016 | 8.440 | 0.015 | | 0.480 | 0.015 | G | 0.55 | 0.02 | H | 8.5508 | 0.0024 | 0.016 | 79 | 8.52 | 8.58 | | C | 19124−5148 | I 2 | 1 | | | | | | | |
| 94354 | 9.160 | 0.013 | 7.307 | 0.006 | | 1.573 | 0.012 | T | 2.41 | 0.03 | O | 7.1127 | 0.0042 | 0.043 | 124 | 7.05 | 7.18 | | U 2 | | | 1 S | | | | | | | S |
| 94355 | 8.400 | 0.009 | 8.252 | 0.010 | + | 0.142 | 0.012 | T | 0.16 | 0.01 | L + | 8.2949 | 0.0018 | 0.017 | 133 + | 8.26 | 8.32 | | D | 19123+2113 | I 1 | 2 C A | AB | 113 | 0.208 | 0.003 | 0.27 | 0.10 | S |
| 94356 | 9.810 | 0.026 | 9.968 | 0.044 | | −0.130 | 0.015 | G | −0.12 | 0.02 | H | 9.9743 | 0.0035 | 0.027 | 100 | 9.92 | 10.03 | | C | | | 1 | | | | | | | G |
| 94357 | 9.943 | 0.027 | 9.540 | 0.029 | | 0.381 | 0.037 | T | 0.45 | 0.04 | L | 9.6543 | 0.0030 | 0.024 | 78 | 9.62 | 9.69 | | | | | 1 | | | | | | | G |
| 94358 | 9.361 | 0.014 | 9.211 | 0.017 | | 0.144 | 0.021 | T | 0.16 | 0.02 | L | 9.2413 | 0.0022 | 0.015 | 109 | 9.21 | 9.27 | | | | | 1 | | | | | | | |
| 94359 | 10.720 | 0.045 | 9.432 | 0.024 | | 1.096 | 0.040 | T | 1.06 | 0.04 | L | 9.4890 | 0.0018 | 0.021 | 102 | 9.46 | 9.53 | | C | | | 1 | | | | | | | |
| 94360 | 10.143 | 0.033 | 8.695 | 0.018 | | 1.160 | 0.218 | G | 1.52 | 0.11 | S | 8.6798 | 0.0019 | 0.017 | 80 | 8.64 | 8.71 | | R | 19124−0428 | I 2 | 1 | | | | | | | |
| 94361 | 9.438 | 0.017 | 7.495 | 0.007 | | 1.647 | 0.015 | T | 2.44 | 0.04 | O | 7.2945 | 0.0044 | 0.042 | 115 | 7.24 | 7.37 | | U 2 | | | 1 S | | | | | | | S |
| 94362 | 9.663 | 0.014 | 9.225 | 0.014 | | 0.413 | 0.018 | T | 0.48 | 0.02 | A | 9.2841 | 0.0021 | 0.026 | 157 | 9.23 | 9.32 | | | | | 1 | | | | | | | |
| 94363 | 7.603 | 0.007 | 7.591 | 0.011 | + | 0.010 | 0.015 | G | 0.03 | 0.01 | H + | 7.6636 | 0.0014 | 0.013 | 140 + | 7.64 | 7.70 | | D | 19124+3021 | I 1 | 2 C A | AB | 317 | 9.953 | 0.005 | 1.18 | 0.02 | S |
| 94364 | | | | | | | | | | | T | 11.9080 | 0.0159 | 0.144 | 76 | 11.37 | 12.09 | | D | 19124−0428 | I 2 | 1 S | | | | | | | |
| 94365 | 9.023 | 0.018 | 7.231 | 0.009 | | 1.480 | 0.015 | G | 1.44 | 0.03 | L | 7.1933 | 0.0026 | 0.014 | 78 | 7.17 | 7.22 | | | 19124−5148 | I 2 | 1 | | | | | | | S |
| 94366 | 6.912 | 0.005 | 6.947 | 0.006 | | −0.027 | 0.007 | T | −0.01 | 0.01 | L | 6.9487 | 0.0007 | 0.008 | 127 | 6.94 | 6.97 | | C | | | 1 | | | | | | | S |
| 94367 | 8.729 | 0.011 | 8.080 | 0.010 | + | 0.588 | 0.015 | G | 0.66 | 0.01 | H + | 8.1128 | 0.0015 | 0.014 | 116 + | 8.09 | 8.13 | | D | 19124−3304 | I 1 | 2 C B | AB | 23 | 0.387 | 0.002 | 0.10 | 0.02 | S |
| 94368 | | | | | | 1.450 | 0.020 | G | 1.95 | 0.02 | A | 11.3845 | 0.0056 | 0.044 | 107 | 11.29 | 11.45 | | C | | | 1 | | | | | | | G |
| 94369 | 9.121 | 0.012 | 9.027 | 0.014 | | 0.092 | 0.017 | T | 0.10 | 0.02 | L | 9.0312 | 0.0020 | 0.022 | 145 | 9.00 | 9.08 | | | | | 1 | | | | | | | |
| 94370 | 8.714 | 0.011 | 8.128 | 0.010 | | 0.561 | 0.015 | G | 0.63 | 0.01 | H | 8.1716 | 0.0012 | 0.011 | 91 | 8.16 | 8.20 | | C | | | 1 | | | | | | | |
| 94371 | 8.866 | 0.014 | 8.023 | 0.011 | | 0.760 | 0.000 | G | 0.80 | 0.00 | H | 8.0810 | 0.0020 | 0.013 | 84 | 8.06 | 8.10 | | | 19126+1651 | I 2 | 1 G | | | | | | | D |
| 94372 | 7.844 | 0.006 | 6.519 | 0.004 | | 1.129 | 0.001 | G | 1.09 | 0.00 | H | 6.5564 | 0.0007 | 0.007 | 124 | 6.55 | 6.57 | | C | | | 1 | | | | | | | S |
| 94373 | 7.926 | 0.008 | 7.500 | 0.006 | | 0.402 | 0.009 | T | 0.47 | 0.01 | L | 7.5454 | 0.0011 | 0.010 | 146 | 7.53 | 7.56 | | C | | | 1 | | | | | | | S |
| 94374 | 10.953 | 0.054 | 9.046 | 0.019 | | 1.583 | 0.045 | T | 1.60 | 0.05 | L | 8.8884 | 0.0035 | 0.025 | 97 | 8.85 | 8.94 | | U 2 | | | 1 S | | | | | | | |
| 94375 | 8.379 | 0.006 | 8.092 | 0.006 | | 0.273 | 0.008 | T | 0.31 | 0.01 | L | 8.1399 | 0.0013 | 0.016 | 241 | 8.11 | 8.17 | | | | | 1 | | | | | | | |
| 94376 | 4.362 | 0.002 | 3.188 | 0.002 | | 0.990 | 0.018 | G | 0.94 | 0.03 | C | 3.2296 | 0.0005 | 0.004 | 110 | 3.22 | 3.24 | | | 19126+6740 | I 1 | 1 | | | | | | | S |
| 94377 | 6.707 | 0.006 | 6.729 | 0.007 | + | −0.010 | 0.000 | G | 0.01 | 0.00 | H + | 6.7103 | 0.0024 | 0.017 | 89 + | 6.69 | 6.75 | | U 2 | 19126+1651 | I 2 | 2 C A | AB | 137 | 0.664 | 0.002 | 0.83 | 0.01 | S P |
| 94378 | 7.246 | 0.006 | 7.149 | 0.007 | | 0.087 | 0.008 | T | 0.10 | 0.01 | L | 7.1818 | 0.0009 | 0.007 | 89 | 7.17 | 7.19 | | | | | 1 | | | | | | | S |
| 94379 | 9.745 | 0.019 | 9.237 | 0.013 | | 0.493 | 0.014 | T | 0.57 | 0.02 | H | 9.3006 | 0.0026 | 0.020 | 115 | 9.26 | 9.34 | | | | | 1 | | | | | | | |
| 94380 | 9.888 | 0.027 | 9.567 | 0.030 | | 0.305 | 0.038 | T | 0.35 | 0.05 | L | 9.6386 | 0.0036 | 0.027 | 72 | 9.58 | 9.69 | | | | | 1 | | | | | | | G |
| 94381 | 9.677 | 0.023 | 9.185 | 0.022 | | 0.420 | 0.013 | G | 0.49 | 0.01 | H | 9.2760 | 0.0030 | 0.015 | 72 | 9.25 | 9.31 | | C | | | 1 | | | | | | | |
| 94382 | 6.102 | 0.003 | 6.025 | 0.003 | | 0.069 | 0.004 | T | 0.08 | 0.00 | L | 6.0510 | 0.0006 | 0.006 | 138 | 6.04 | 6.06 | | C | | | 1 | | | | | | | S |
| 94383 | 8.231 | 0.012 | 7.537 | 0.010 | | 0.640 | 0.013 | T | 0.70 | 0.01 | L | 7.5784 | 0.0014 | 0.012 | 74 | 7.56 | 7.60 | | C | | | 1 | | | | | | | S |
| 94384 | 9.476 | 0.018 | 8.149 | 0.019 | | 0.391 | 0.007 | G | 0.46 | 0.01 | H | 9.2115 | 0.0041 | 0.041 | 93 | 9.16 | 9.28 | | U 2 | | | 1 | | | | | | | |
| 94385 | 5.475 | 0.002 | 5.371 | 0.002 | | 0.094 | 0.003 | T | 0.11 | 0.00 | L | 5.3864 | 0.0009 | 0.011 | 101 | 5.36 | 5.40 | | U 2 | | | 1 | | | | | | | S |
| 94386 | 9.799 | 0.026 | 8.523 | 0.016 | | 1.086 | 0.024 | T | 1.05 | 0.02 | L | 8.5866 | 0.0018 | 0.017 | 77 | 8.56 | 8.62 | | C | | | 1 | | | | | | | |
| 94387 | 8.784 | 0.009 | 8.217 | 0.008 | + | 0.530 | 0.011 | T | 0.60 | 0.01 | L + | 8.2268 | 0.0014 | 0.018 | 185 + | 8.20 | 8.27 | | D | 19127+2435 | I 1 | 2 C A | AF | 100 | 0.203 | 0.009 | 1.07 | 0.26 | |
| 94388 | 8.195 | 0.009 | 8.296 | 0.012 | | −0.070 | 0.010 | G | −0.05 | 0.01 | H | 8.2753 | 0.0012 | 0.013 | 127 | 8.26 | 8.30 | | | | | 1 | | | | | | | |
| 94389 | 9.276 | 0.014 | 8.648 | 0.013 | | 0.579 | 0.014 | T | 0.65 | 0.01 | L | 8.6930 | 0.0022 | 0.019 | 105 | 8.66 | 8.73 | | | | | 1 | | | | | | | |
| 94390 | 9.026 | 0.011 | 7.739 | 0.007 | | 1.095 | 0.010 | T | 1.06 | 0.01 | L | 7.7785 | 0.0009 | 0.010 | 140 | 7.76 | 7.81 | | | | | 1 | | | | | | | |
| 94391 | 8.232 | 0.012 | 7.801 | 0.013 | | | | | | | T | 7.8394 | 0.0013 | 0.015 | 107 | 7.81 | 7.87 | | D | 19127−3351 | I 2 | 1 S | | | | | | | S |
| 94392 | 11.141 | 0.066 | 10.553 | 0.060 | | 0.516 | 0.020 | G | 0.59 | 0.02 | H | 10.6713 | 0.0054 | 0.037 | 73 | 10.62 | 10.72 | | | | | 1 | | | | | | | G |
| 94393 | 7.249 | 0.011 | 7.353 | 0.015 | | 0.362 | 0.071 | G | 0.42 | 0.08 | R | 7.3481 | 0.0013 | 0.012 | 106 | 7.33 | 7.36 | | D | 19127−3351 | I 2 | 1 S | | | | | | | S |
| 94394 | 8.780 | 0.010 | 8.221 | 0.010 | | 0.528 | 0.010 | T | 0.60 | 0.01 | L | 8.2596 | 0.0014 | 0.014 | 114 | 8.24 | 8.29 | | C | | | 1 | | | | | | | |
| 94395 | 7.944 | 0.007 | 7.788 | 0.010 | | 0.150 | 0.011 | T | 0.17 | 0.01 | L | 7.8187 | 0.0014 | 0.011 | 79 | 7.80 | 7.84 | | C | | | 1 | | | | | | | S |
| 94396 | 11.242 | 0.048 | 10.243 | 0.033 | | 0.873 | 0.043 | T | 0.88 | 0.03 | L | 10.3145 | 0.0032 | 0.038 | 173 | 10.23 | 10.38 | | C | | | 1 | | | | | | | G |
| 94397 | 7.631 | 0.006 | 7.578 | 0.008 | | 0.048 | 0.009 | T | 0.06 | 0.01 | L | 7.5913 | 0.0010 | 0.009 | 115 | 7.58 | 7.61 | | C | | | 1 | | | | | | | S |
| 94398 | 7.349 | 0.006 | 6.224 | 0.003 | | 0.954 | 0.006 | G | 0.94 | 0.00 | H | 6.2771 | 0.0009 | 0.008 | 94 | 6.27 | 6.29 | | C | 19128−5029 | I 1 | 1 | | | | | | | S |
| 94399 | 9.259 | 0.016 | 8.907 | 0.017 | | 0.342 | 0.021 | T | 0.40 | 0.03 | L | 8.9556 | 0.0017 | 0.013 | 100 | 8.93 | 8.98 | | C | | | 1 | | | | | | | |
| 94400 | 8.965 | 0.011 | 7.911 | 0.008 | | 0.915 | 0.010 | T | 0.91 | 0.01 | L | 7.9591 | 0.0012 | 0.012 | 130 | 7.94 | 7.98 | | C | | | 1 | | | | | | | S |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | 04540 | 41532 | |

HIP identifier, as Field 1. Field T31 gives the cross-identification between HIP and TYC for Tycho Catalogue entries.

Photometry from Tycho Catalogue: mean magnitudes, corrected for 'censored' data. Entries without Tycho photometry are blank.

Johnson B-V colour index, from Tycho photometry (transformed using spectral type) or from ground if Tycho photometry was unavailable or imprecise. Values do not necessarily correspond to B-V given for the same entry in the Tycho Catalogue.

Cousins' V-I colour index and related information, from various sources.

Median Hipparcos magnitude in the broad-band Hp system, derived from the Hipparcos Epoch Photometry Annex, described in Section 2.5.

Magnitudes at maximum and minimum luminosity (in Hp) derived from the 5th and 95th percentiles of the epoch photometry. Period (truncated precision) and type of variability are given for identified variables.

1–2 in Field H53 points to tabular data for periodic and unsolved variables (see Section 2.4 and Volume 11) giving further details of the variability, variable star name, period and epoch, references to literature, etc. A–C in Field H54 points to the light curves (Volume 12).

CCDM number assigned to double or multiple systems (either previously, or from Hipparcos). Also given are the origin of the CCDM identifier, and the number of catalogue entries with the same CCDM number.

Classification of the double or multiple star solution, and pointers to relevant sections of the Double and Multiple Systems Annex.

Summary of the astrometric and photometric parameters of a double system, when the Hipparcos observations resolve the system into precisely two components.

Flags indicating 'survey' star, identification chart, or note on the entry: the note flag may point to notes at the end of Volumes 5–9, or for double and multiple systems (Volume 10) or for variables (Volume 11).

Checksum. See Section 2.11.3.

***Figure 1.1.4(b).*** *Summary interpretation of the right-hand pages of the Hipparcos Catalogue*