

APPARENT PLACES OF FUNDAMENTAL STARS 2026

for 64 Stars selected from the
Sixth Catalogue of Fundamental Stars

Astronomisches Rechen-Institut
Zentrum für Astronomie
der Universität Heidelberg



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PREFACE

This booklet, published annually, is the continuation of the series of volumes “Apparent Places of Fundamental Stars”, (APFS) which was first published in 1941. The compilation and publication of the first nineteen volumes was undertaken by H. M. Nautical Office, Royal Greenwich Observatory. In accordance with a recommendation of the I.A.U. (Dublin meeting 1955) this task was taken over by the Astronomisches Rechen-Institut, Heidelberg, from the twentieth volume onwards. Starting with the edition of the year 2000, the extensively large books were replaced by the present small booklet. Starting in 2006 only the introductory remarks concerning the CIO-based (celestial intermediate origin) and the equinox-based method are provided. The apparent places for 64 stars reduced with the equinox-based method are given in the printed version; the data for 878 fundamental stars (FK6) and for Polaris are provided via the Internet in consideration of both methods (<http://www.ari.uni-heidelberg.de/ariapfs>). IAU 2000/2006 precession-nutation is used for intermediate and apparent positions. The underlying precession-nutation model is recommended by IAU 2006 Resolution B1.

Since the year 2000 the apparent and mean places have been based on the so-called single-star solution of the Sixth Catalogue of Fundamental Stars (FK6, Wielen et al., Veröff. Astron. Rechen-Institut, Heidelberg, No. 35, 1999). This catalogue is on the astrometric system defined by the HIPPARCOS catalogue (ESA SP-1200, 1997), which has been adopted as the primary celestial reference frame at optical wavelengths since 1998 (*Trans. IAU*, **23B**, 39, 1999). In FK6 we have improved the HIPPARCOS proper motions by combining the HIPPARCOS observations with the data given in FK5.

In the online version we provide the intermediate and apparent places reduced by the *CIO-based* and by the *equinox-based* method, which differ only in right ascension. The entries corresponding to sidereal days divisible by ten (corresponding in the printed volumes) are marked by an asterisk.

Intermediate and apparent places can also be obtained conveniently within the framework of the “German Astrophysical Virtual Observatory” (GAVO). The corresponding web page is accessible via the ARI APFS web pages or directly by <http://vo.uni-hd.de/apfs>. Apparent and intermediate places for 878 stars of the FK6 Part I and 3272 stars of the FK6 Part III can be retrieved conveniently. This service is completed by Hipparcos-based apparent and intermediate places of additional stars, and by using data from Gaia Data Release 3 (<https://www.cosmos.esa.int/web/gaia/dr3>; Gaia Data Release 3: Summary of the contents and survey properties, Gaia Collaboration (Vallenari, A., Brown, A. G. A., et al. 2023, *A&A* 674, A1). A facility to compute the Earth Rotation Angle (ERA), Greenwich Apparent Sidereal Time (GAST) and Greenwich Mean Sidereal Time (GMST) is available on a related web page. Some introductory remarks and references can be found in the corresponding service info. Any comments would be appreciated.

R. W. SCHMIDT E. K. GREBEL J. WAMBSGANSS D. WYLEZALEK

Heidelberg, October 2025

Astronomisches Rechen-Institut am Zentrum für Astronomie der Universität Heidelberg

Preface

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INTRODUCTION

This booklet provides examples for the reduction of 64 mean star places to apparent places for the year 2026. In view of the high accuracy of the mean positions and proper motions in the FK6 and in the HIPPARCOS catalogue we have increased the number of significant digits in the tabulated apparent places by one compared with the volumes before 2000. Since no “short period terms” are included in the apparent places following 2005 there exists no interpolation to intermediate dates based on the printed version. The internet version listing “daily” apparent places should be used for an approximate interpolation.

In this booklet we present apparent places for only a few fundamental stars as examples. The intermediate and apparent places for a large number of fundamental stars are provided by the Astronomisches Rechen-Institut at the URL:

<http://www.ari.uni-heidelberg.de/ariapfs>

We tabulate the intermediate and apparent places for *daily* upper culminations at Greenwich. Those entries that would have been published according to the conventions of the printed volumes are marked by an asterisk in the online version. It may be noted here that we can easily use the program for transits over other meridians just by subtracting the longitude of an observer from the Greenwich sidereal date of the transit.

At its 23rd General Assembly in 1997, the International Astronomical Union decided (*Trans. IAU* **23B** 39, 1999) to adopt an International Celestial Reference System (ICRS). The ICRS is realized at optical wavelengths by stars in the Hipparcos Catalogue, in particular by those having reliable proper motions. This subset - comprising more than 80 per cent of the stars of the Hipparcos Catalogue - constitutes the Hipparcos Celestial Reference Frame (HCRF).

The new highly accurate IERS-observing technique (VLBI) has recommended to adopt a new zero point for the equatorial system. Guinot’s non-rotating origin (Guinot, B., 1979, In: McCarthy, D.D., Pilkington, J.D. (eds.), *Time and the Earth’s Rotation*. D. Reidel Publ. Co., p. 7) was adopted for substituting the classical equinox. This origin is stable in such a way that there are merely motions of the new zero point in right angles to the instantaneous equator. With this new definition the rotation of the Earth is given directly as the difference between the non-rotating origin and the terrestrial origin. This difference is directly proportional to UT1 and no precession-nutation terms are included.

In addition to the CIO-based procedure we also give the apparent places using the classical equinox as the origin in right ascension; this older method may still be used in many applications. No differences in declination occur since the equator remains unchanged.

Precession and nutation reductions agree with IAU2000/2006 precession-nutation in accordance with IAU 2006 Resolution B1 (see e.g. Capitaine & Wallace, *A&A* 450, 855 (2006)).

Software Routines from the IAU SOFA Collection were used. Copyright © International Astronomical Union Standards of Fundamental Astronomy (<http://www.iausofa.org>). DE430/LE430 ephemerides (<ftp://ssd.jpl.nasa.gov/pub/eph/planets/README.txt>) are used for GAVO.

Introduction

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From VLBI observations it has been found that there exists a “celestial pole offset” between a CIO-based and a J2000 right ascension that has to be applied before making use of the precession-nutation terms. This bias is described more explicitly in Feissel, M., Mignard, F. (A&A 331, L33 (1998)) and in Hilton, J.L., Hohenkerk, C.Y. (A&A 413, 765 (2004)). It is, however, included already in the SOFA subroutines, and no changes to the input files were applied.

The input data are the HIPPARCOS and the FK6 catalogue. The parallaxes used are those from the HIPPARCOS catalogues, and the radial velocities are taken from the machine readable version of the FK6.

In our work on the FK6 we have shown that the HIPPARCOS proper motions are “instantaneous motions” that may differ in many cases significantly from the mean (centre of mass) motion. With the combination of the HIPPARCOS data and the FK5 catalogue (reduced to the HIPPARCOS system) we have derived proper motions in the FK6 which describe much better the mean motion. As part of our reduction process we have also obtained additional information on possible double stars as well as on stars that can be regarded with high probability as single star candidates. Single star candidates are best suited to maintain the International Reference System, and from the year 2000 onwards we only give apparent places for the single star candidates (except Polaris, see p. 7-8). For comparison we provide the differences between the given SI-solution with respect to the HIPPARCOS data and to the long-term prediction (LTP) in the FK6. This table is given on pages 34-35.

Apparent Places of 10-Day Stars (Pages 11-25)

Examples for the apparent places of the stars with declinations between $\pm 81^\circ$ are given for every tenth upper transit at Greenwich on pages 11-25. The choice of the data is fixed by the moment for which the integral part of the Greenwich sidereal date is divisible by 10. In this booklet we give the equinox-based right ascension, which has a much larger difference from date to date than those determined with the CIO-based method. The CIO-based method is given additionally in the internet version.

The column U.T. gives the approximate time of transit for the first star on the page; it is rounded to the nearest tenth of a day. For transits over other meridians the column U.T. can be regarded as the “local” mean solar date for that transit. For transits of other stars on that page the right ascension difference of the star from the first star should be taken into account.

The right ascension and declination are referred to the true equator and equinox, or non-rotating origin in the CIO-based method. Since the equator does not change merely the right ascensions are affected and the declinations remain unchanged.

From 1984 onwards (see Preface to APFS 1984) the mean positions of the stars in the FK6 or the HIPPARCOS catalogue are freed from the term of elliptic aberration (E-terms), which depends on the eccentricity of the Earth’s orbit. This term is now included in the reduction to the apparent place.

The hours and minutes of right ascension and the degrees and minutes of declination given at the head of the columns are adjusted so that the seconds never change sign, though this may involve their exceeding 60.

Immediately below the tabulated right ascension and declination we provide:

- (I) the mean place for the middle of the year.
- (II) $\sec \delta$ and $\tan \delta$ corresponding to the mean place.
- (III) the day upon which the star transits twice in upper culmination.

In the volumes prior to 2006, examples were given for interpolating the apparent place for other meridians, including in particular the short period terms of nutation. In the present booklet we do not to give any interpolation and the user should enter his or her subroutine using the appropriate time. An approximate transit could also be obtained from the daily positions given in the internet version.

Apparent Places of Circumpolar Stars (Pages 26-33)

Examples for the apparent places of circumpolar stars with declinations exceeding $\pm 81^\circ$ are given for every upper transit at Greenwich on pages 26-33. Polaris (HIPPARCOS No. 11767, FK6 No. 907) is not included in the FK6 Part I, because it is a binary. The apparent places given on pages 26 and 27 are based on the retrograde orbit derived by Wielen et al. (A&A **360**, 399, (2000)). Each two facing pages are devoted to a star. In the left hand column only the day of the month is given without the fraction of the day. The right ascension and declination are referred to the true equator and equinox (and additionally the non-rotating origin in the Internet version), short period terms of nutation are included. Three decimals of a second are only given for the right ascensions. On the one day during the year when there are two upper transits at Greenwich both are shown.

The values of $\sec \delta$ and $\tan \delta$ are given for every month and refer to the apparent place on the 16th day of the month. The footnotes, repeated on each page, give the mean right ascension and declination in the middle of the year and the date of double lower transit.

Reduction to the HIPPARCOS catalogue Reduction to the FK6 (Long-term prediction) Reduction to GAIA DR3 (Pages 34-35)

The FK6 is the result of combining the FK5 with the HIPPARCOS observations. Various solutions have been derived in the FK6, adopting different models for the star's kinematic behaviour, which leads to different weighting schemes in the least squares solutions. Two of these solutions are briefly mentioned here. For details please refer to the FK6.

The apparent places given in this booklet and in the internet version are based on the so-called single-star solution (abbreviated as SI) of the FK6 assuming that the star can be treated as a single star. Stars with no indication of a binary nature are best suited to maintain the International Celestial Reference System (ICRS). We have therefore restricted the stellar sample in this booklet mainly to such candidates, which are called "astrometrically excellent stars of the highest rank (***)" in the FK6. A few non-excellent stars are also included because of their brightness, their large foreshortening effects or their special importance (Polaris, a binary not included in the FK6, Part 1). Starting in 2006 we added ten other excellent stars, including two circumpolar stars.

In the FK6 long-term prediction (LTP) we admit a possible (but still undetected) binary nature of a star. In this case HIPPARCOS observed, more or less, an instantaneous proper motion, depending on the star's observational period. Combining the HIPPARCOS observations with highly-weighted FK5 data yields an FK6 proper motion that describes much

better the star's position for epochs differing significantly from the HIPPARCOS epoch, about 1991.25. In addition for a subset of 45 stars solutions are available from the Gaia Data Release 3 (Gaia Collaboration, Vallenari, A., Brown, A. G. A., et al. 2023, A&A 674, A1). For these stars we give the reduction of SI solutions to the resulting GAIA DR3 positions.

The table on pages 34-35 provides the differences of the FK6 single-star solution (SI) with the HIPPARCOS data, with the long-term prediction in the FK6 (LTP), and, if possible, with GAIA DR3. The data in the table hold for the middle of the year. Columns one to three list the FK6, HIPPARCOS and GAIA DR3 source identifier. Column four gives the difference in right ascension between the HIPPARCOS data and the single-star solution of the FK6 in units of 0.0001 seconds of time, column five the corresponding differences in declination in 0.001 arcsec. The differences between the long-term prediction as well as the GAIA DR3 positions and the single-star solutions in the FK6 are given similarly in the columns six through nine. Polaris (FK6 No. 907) is a binary and needs a special treatment. The small table at the end of page 35 provides the data to reduce the apparent place of Polaris from the FK6 (p. 26-27) to the HIPPARCOS catalogue.

These data permit, for any date in the year, the computation of the corrections that have to be added to the tabulated apparent places in order to get from the SI position the positions based on the HIPPARCOS catalogue, the long-term prediction in the FK6 or GAIA DR3.

Table UT-ST (Pages 36-39)
Sidereal Time at 0^h U.T.

On these pages are given in order of 0^h U.T. on each day of the year:

- (I) the apparent (or true) sidereal time to 0^s001
- (II) the mean (or uniform) sidereal time, given as seconds and decimals only, the hours and minutes being the same as in the first column
- (III) difference Apparent – Mean (app–mean) in units of 0^s001

In the APFS volumes preceding 1960, the equation of equinoxes was designated as the nutation in right ascension.

Conversion of Mean Solar Time to Sidereal Time
Conversion of Sidereal Time to Mean Solar Time

The following relations derived from the expressions between mean solar time and mean sidereal time as given in *Trans. I.A.U.* **18B**, 72 (1983) are used. Both relations can be used in the following two examples.

$$1 \text{ mean solar day} = 24^{\text{h}}03^{\text{m}}56^{\text{s}}.5553679 \text{ in mean sidereal time} \quad (1a)$$

$$1 \text{ mean sidereal day} = 23^{\text{h}}56^{\text{m}}04^{\text{s}}.0905308 \text{ in mean solar time} \quad (1b)$$

The time dependence of these relations has been ignored, since it is of no practical importance in the present development.

In using the above relations for passing from mean solar time to apparent sidereal time and vice versa, we also must use the apparent sidereal time at 0^h taken from the last table on page 36-39. It must be remembered that a correction should be applied for the change of the equation of equinoxes between 0^h and the given U.T.

Thus the local apparent sidereal time at Heidelberg (Longitude = 0^h34^m53^s.190) at U.T. 7^h 21^m 36^s.572 on 2026 January 16 is obtained as:

Mean solar interval at 0 ^h		7 ^h 21 ^m 36 ^s .572
Correction to mean solar time	}	+ 1 12.445
to given sidereal time		+ 0.100
Apparent sidereal time at 0 ^h (Table p. 36)		7 41 47.325
Change in the equation of equinoxes from 0 ^h to 7 ^h (Table p. 36)		+ 0.003
		15 04 36.445
Sum = Greenwich apparent sidereal time		15 04 36.445
Longitude Heidelberg		+ 0 34 53.190
		15 39 29.635
Sum = Heidelberg apparent sidereal time		15 39 29.635

Similarly the U.T. on 2026, January 16 corresponding to an apparent sidereal time at Heidelberg of 15^h39^m29^s.635 is obtained as:

Heidelberg apparent sidereal time		15 ^h 39 ^m 29 ^s .635
Longitude Heidelberg		- 0 34 53.190
		15 04 36.445
Difference = Greenwich apparent sidereal time		15 04 36.445
Apparent sidereal time at 0 ^h (Table p. 36)		7 41 47.325
		7 22 49.120
Sidereal interval		7 22 49.120
Correction to sidereal time	}	- 1 12.445
to given mean solar time		- 0.100
Change in the equation of equinoxes from 7 ^h to 0 ^h (Table p. 36)		- 0.003
		7 21 36.572
Sum = required U.T.		7 21 36.572

Apparent places for different longitudes

Suppose the apparent position needs to be obtained for a star at upper transit in Heidelberg ($\lambda = +0^{\text{h}} 34^{\text{m}} 53^{\text{s}}.190$, i.e. the star culminates 0.581 hours or 0.0242 days earlier than in Greenwich). We would use the apparent place subroutine for this, using as input date the Heidelberg transit which is 0.581 hours (or 0.0242 days) earlier than the corresponding transit in Greenwich. This information can be directly included in the subroutine.

For example the apparent position of 94 Piscium (FK6 No. 1039) may be required at upper transit in Heidelberg for 13th May 2026. We include the longitude of Heidelberg into the subroutine and we find an apparent position of

$$\begin{aligned} \alpha &= 1^{\text{h}} 28^{\text{m}} 06^{\text{s}}.4503 \quad (\text{EQUINOX-based}) \\ \alpha &= 1^{\text{h}} 26^{\text{m}} 45^{\text{s}}.0314 \quad (\text{CIO-based}) \\ \delta &= 19^{\circ} 22' 31''.368 \quad (\text{CIO-based} = \text{EQUINOX-based}) \end{aligned}$$

Diurnal Aberration

The diurnal aberration must be added to the right ascension for upper transits. Alternatively, it can be subtracted from the time of transit. In the case of lower transits the sign of the correction has to be reversed. With declination δ and latitude ϕ the given correction is

$$\text{Diurnal Aberration} = 0^{\text{s}}.0213 \cos \phi \sec \delta$$

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APPARENT PLACES OF STARS, 2026
 TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	10		22		44		1039	
HIP-No.	1599		3419		5661		6732	
Name	ζ Tucanae		β Ceti		102 G. Sculptoris		94 Piscium	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	0^h21^m	− 64° 42′	0^h44^m	− 17° 50′	1^h13^m	− 37° 42′	1^h28^m	+ 19° 22′
12 31 ^d .7	25 ^s 6703	96 [′] 552	54 ^s 1220	43 [′] 709	58 ^s 0625	78 [′] 716	06 ^s 7402	37 [′] 920
1 10.7	25.3175	95.654	54.0193	44.065	57.9074	79.014	06.6350	37.575
1 20.7	24.9656	94.162	53.9196	44.171	57.7455	78.894	06.5313	37.053
1 30.7	24.6179	92.270	53.8046	44.152	57.5645	78.477	06.4056	36.246
2 9.6	24.3333	90.032	53.6875	43.952	57.3885	77.693	06.2570	35.326
2 19.6	24.1388	87.165	53.6171	43.275	57.2588	76.285	06.1476	34.555
3 1.6	23.9850	83.890	53.5777	42.286	57.1536	74.484	06.0777	33.767
3 11.5	23.8533	80.679	53.5188	41.356	57.0350	72.657	05.9829	32.728
3 21.5	23.8425	77.154	53.5083	40.044	56.9748	70.357	05.9256	31.938
3 31.5	23.9388	73.271	53.5736	38.237	56.9909	67.569	05.9526	31.521
4 10.5	24.0529	69.555	53.6481	36.430	57.0169	64.821	06.0001	31.053
4 20.4	24.2528	65.947	53.7524	34.489	57.0841	61.953	06.0709	30.740
4 30.4	24.5787	62.344	53.9216	32.240	57.2287	58.824	06.2059	30.853
5 10.4	24.9647	58.837	54.1429	29.802	57.4276	55.613	06.4080	31.297
5 20.4	25.3910	55.657	54.3896	27.367	57.6581	52.520	06.6457	31.922
5 30.3	25.8732	53.030	54.6408	25.092	57.9110	49.687	06.8814	32.711
6 9.3	26.4451	50.573	54.9489	22.632	58.2314	46.787	07.1753	33.986
6 19.3	27.0415	48.428	55.2958	20.142	58.5920	44.034	07.5259	35.567
6 29.2	27.5985	47.129	55.6023	18.148	58.9232	41.931	07.8402	37.023
7 9.2	28.1978	46.313	55.9154	16.298	59.2768	40.085	08.1529	38.731
7 19.2	28.8237	45.754	56.2692	14.401	59.6736	38.364	08.5173	40.836
7 29.2	29.3643	45.917	56.5819	12.991	60.0300	37.305	08.8549	42.787
8 8.1	29.8468	46.781	56.8470	12.062	60.3468	36.850	09.1440	44.607
8 18.1	30.3236	48.013	57.1121	11.298	60.6700	36.683	09.4311	46.624
8 28.1	30.7256	49.612	57.3568	10.813	60.9681	36.929	09.7098	48.621
9 7.1	31.0074	51.705	57.5495	10.786	61.2070	37.758	09.9506	50.358
9 17.0	31.2003	54.309	57.6808	11.247	61.3870	39.143	10.1258	51.857
9 27.0	31.3425	56.966	57.7969	11.832	61.5480	40.695	10.2849	53.378
10 7.0	31.3867	59.589	57.8987	12.532	61.6781	42.432	10.4472	54.812
10 16.9	31.2838	62.526	57.9201	13.742	61.7182	44.697	10.5335	55.757
10 26.9	31.1261	65.354	57.9062	15.081	61.7197	47.031	10.5737	56.552
11 5.9	30.9390	67.690	57.9076	16.212	61.7228	49.114	10.6312	57.437
11 15.9	30.6390	69.808	57.8654	17.492	61.6653	51.286	10.6524	57.962
11 25.8	30.2706	71.645	57.7785	18.866	61.5548	53.423	10.6203	58.154
12 5.8	29.9107	72.928	57.6897	20.036	61.4387	55.195	10.5687	58.318
12 15.8	29.5350	73.529	57.6048	20.942	61.3140	56.545	10.5163	58.394
12 25.8	29.1207	73.573	57.5053	21.700	61.1612	57.589	10.4486	58.206
12 35.7	28.6961	73.280	57.3668	22.464	60.9700	58.436	10.3219	57.679
Mean Place	26.0323	69.436	55.1014	29.677	58.4858	60.018	07.8853	36.915
sec δ, tan δ	+2.342	−2.117	+1.051	−0.322	+1.264	−0.773	+1.060	+0.352
Dble. Trans.	September 26		October 2		October 9		October 13	

Apparent places of ten-day stars

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APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	1045		80		110		119	
HIP-No.	7513		10642		14240		15510	
Name	<i>v</i> Andromedae		67 Ceti		μ Hor		92 G. Eridani	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	1^h38^m	+ 41°32'	2^h18^m	– 6°17'	3^h04^m	– 59°37'	3^h20^m	– 42°57'
12 31 ^d 8	20 ^s 4936	21 ^{''} 729	17 ^s 9203	69 ^{''} 756	16 ^s 2090	83 ^{''} 493	59 ^s 6978	82 ^{''} 684
1 10.8	20.3334	21.836	17.8325	70.431	15.9028	84.860	59.5471	84.206
1 20.7	20.1762	21.537	17.7335	71.027	15.5462	85.792	59.3617	85.397
1 30.7	19.9963	20.709	17.6029	71.613	15.1453	86.307	59.1330	86.255
2 9.7	19.7838	19.559	17.4490	71.991	14.7423	86.193	58.8844	86.534
2 19.7	19.6134	18.334	17.3248	71.965	14.3561	85.316	58.6505	86.120
3 1.6	19.4982	16.865	17.2229	71.787	13.9703	84.003	58.4203	85.332
3 11.6	19.3614	14.977	17.0914	71.665	13.5862	82.446	58.1696	84.314
3 21.6	19.2638	13.181	16.9948	71.106	13.2624	80.180	57.9569	82.598
3 31.5	19.2686	11.622	16.9701	70.130	13.0046	77.369	57.8042	80.350
4 10.5	19.3117	09.911	16.9562	69.210	12.7725	74.529	57.6646	78.061
4 20.5	19.3867	08.320	16.9676	68.067	12.6082	71.372	57.5649	75.416
4 30.5	19.5302	07.176	17.0418	66.482	12.5449	67.789	57.5398	72.291
5 10.4	19.7590	06.352	17.1766	64.705	12.5503	64.127	57.5750	69.046
5 20.4	20.0382	05.745	17.3455	62.879	12.6181	60.537	57.6551	65.811
5 30.4	20.3150	05.410	17.5240	60.996	12.7639	57.018	57.7769	62.544
6 9.4	20.6560	05.679	17.7670	58.786	13.0046	53.374	57.9759	59.077
6 19.3	21.0705	06.380	18.0646	56.521	13.3081	49.971	58.2336	55.780
6 29.3	21.4502	07.136	18.3365	54.588	13.6414	47.162	58.4969	52.970
7 9.3	21.8212	08.330	18.6229	52.563	14.0437	44.502	58.8035	50.209
7 19.2	22.2520	10.113	18.9654	50.417	14.5080	42.084	59.1714	47.616
7 29.2	22.6610	11.948	19.2866	48.698	14.9693	40.445	59.5343	45.721
8 8.2	23.0146	13.855	19.5731	47.305	15.4355	39.414	59.8885	44.348
8 18.2	23.3594	16.178	19.8706	45.931	15.9334	38.726	60.2692	43.243
8 28.1	23.6969	18.677	20.1641	44.826	16.4163	38.648	60.6483	42.705
9 7.1	23.9985	21.085	20.4223	44.209	16.8523	39.365	60.9952	42.927
9 17.1	24.2210	23.444	20.6282	43.976	17.2533	40.705	61.3069	43.724
9 27.1	24.4176	25.972	20.8254	43.847	17.6277	42.363	61.6080	44.829
10 7.0	24.6220	28.514	21.0206	43.983	17.9431	44.528	61.8865	46.466
10 17.0	24.7422	30.665	21.1430	44.690	18.1652	47.397	62.0914	48.820
10 27.0	24.7987	32.719	21.2270	45.517	18.3313	50.407	62.2550	51.344
11 5.9	24.8677	34.875	21.3249	46.263	18.4509	53.385	62.4065	53.899
11 15.9	24.8971	36.645	21.3800	47.342	18.4699	56.673	62.4926	56.841
11 25.9	24.8597	38.011	21.3817	48.603	18.4039	59.981	62.5131	59.877
12 5.9	24.7858	39.263	21.3664	49.694	18.2933	62.913	62.5033	62.612
12 15.8	24.7044	40.285	21.3429	50.680	18.1189	65.505	62.4577	65.115
12 25.8	24.6057	40.856	21.2929	51.713	17.8668	67.859	62.3594	67.489
12 35.8	24.4320	40.913	21.1849	52.777	17.5557	69.863	62.2005	69.588
Mean Place sec δ , tan δ	21.8548 +1.336	13.235 +0.886	18.4674 +1.006	64.286 –0.110	14.5064 +1.978	68.632 –1.707	59.1295 +1.367	71.489 –0.932
Dble. Trans.	October 16		October 26		November 6		November 11	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No. HIP-No. Name	120 15863 α Persei		153 19095 174 G. Eridani		1116 19513 44 Tauri		173 22361 Groombridge 848	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	3^h26^m	+ 49° 57'	4^h06^m	- 27° 34'	4^h12^m	+ 26° 32'	4^h52^m	+ 75° 58'
12 31 ^d 9	13 ^s 0947	23 ^{''} 776	43 ^s 4306	54 ^{''} 946	26 ^s 6925	60 ^{''} 155	28 ^s 5401	77 ^{''} 251
1 10.8	12.9766	25.047	43.3580	56.660	26.6674	60.582	28.3462	80.079
1 20.8	12.8326	25.871	43.2525	58.202	26.6149	60.772	28.0286	82.459
1 30.8	12.6294	26.134	43.0976	59.533	26.5043	60.675	27.5238	84.260
2 9.8	12.3595	26.126	42.9057	60.345	26.3360	60.606	26.8285	85.787
2 19.7	12.1110	25.918	42.7206	60.588	26.1793	60.574	26.1106	86.942
3 1.7	11.8975	25.190	42.5359	60.585	26.0343	60.230	25.4025	87.298
3 11.7	11.6333	23.932	42.3149	60.367	25.8334	59.613	24.5573	86.988
3 21.6	11.3957	22.630	42.1152	59.486	25.6486	59.168	23.7289	86.391
3 31.6	11.2618	21.226	41.9694	58.142	25.5362	58.733	23.0760	85.289
4 10.6	11.1589	19.390	41.8297	56.765	25.4312	57.977	22.4733	83.459
4 20.6	11.0862	17.501	41.7140	54.992	25.3425	57.289	21.9298	81.307
4 30.5	11.0938	15.867	41.6586	52.689	25.3159	56.904	21.5567	79.095
5 10.5	11.2036	14.260	41.6610	50.244	25.3634	56.517	21.4025	76.565
5 20.5	11.3773	12.632	41.7021	47.744	25.4537	56.107	21.4027	73.726
5 30.5	11.5609	11.235	41.7686	45.057	25.5440	55.899	21.4705	70.986
6 9.4	11.8375	10.317	41.9064	42.076	25.7206	56.002	21.7650	68.506
6 19.4	12.2180	09.598	42.1062	39.198	25.9765	56.179	22.3115	65.962
6 29.4	12.5786	08.941	42.3050	36.631	26.2131	56.309	22.8846	63.466
7 9.3	12.9542	08.811	42.5381	33.951	26.4711	56.839	23.5505	61.495
7 19.3	13.4267	09.174	42.8382	31.350	26.8129	57.626	24.4663	59.891
7 29.3	13.8982	09.600	43.1395	29.318	27.1532	58.264	25.4457	58.402
8 8.3	14.3304	10.245	43.4312	27.652	27.4671	58.960	26.4121	57.278
8 18.2	14.7810	11.439	43.7519	26.131	27.8086	59.983	27.4764	56.814
8 28.2	15.2484	12.880	44.0842	25.104	28.1700	61.006	28.6254	56.725
9 7.2	15.6944	14.307	44.3983	24.772	28.5157	61.800	29.7783	56.793
9 17.2	16.0700	15.951	44.6816	24.902	28.8146	62.639	30.8414	57.386
9 27.1	16.4355	17.968	44.9660	25.309	29.1192	63.661	31.9140	58.601
10 7.1	16.8239	20.035	45.2505	26.291	29.4467	64.513	33.0472	60.017
10 17.1	17.1236	21.936	45.4750	27.971	29.7063	65.074	34.0223	61.616
10 27.0	17.3565	24.036	45.6656	29.830	29.9257	65.765	34.8662	63.759
11 6.0	17.6080	26.356	45.8614	31.819	30.1713	66.562	35.7301	66.305
11 16.0	17.8090	28.423	46.0098	34.292	30.3784	67.056	36.4700	68.867
11 26.0	17.9232	30.314	46.0999	36.941	30.5209	67.428	37.0040	71.552
12 5.9	17.9845	32.326	46.1621	39.382	30.6324	67.997	37.3917	74.610
12 15.9	18.0208	34.216	46.1981	41.744	30.7286	68.531	37.6721	77.714
12 25.9	18.0135	35.693	46.1894	44.138	30.7865	68.794	37.8011	80.515
12 35.9	17.8940	36.856	46.1124	46.337	30.7545	68.978	37.6505	83.217
Mean Place sec δ , tan δ	13.7619 +1.554	11.522 +1.190	43.0442 +1.128	50.957 -0.522	27.0179 +1.118	52.361 +0.500	27.2966 +4.129	63.113 +4.006
Dble. Trans.	November 12		November 22		November 24		December 4	

APPARENT PLACES OF STARS, 2026
 TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	201		203		210		223	
HIP-No.	25336		25769		26311		27628	
Name	γ Orionis		17 Cam		ϵ Orionis		β Col	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	5^h26^m	+ 6°22'	5^h32^m	+ 63°05'	5^h37^m	- 1°10'	5^h51^m	- 35°45'
12 31 ^d 9	33 ^s 2910	23''503	41 ^s 4127	19''555	33 ^s 7105	67''877	54 ^s 5736	31''509
1 10.9	33.3268	22.821	41.4436	21.996	33.7499	69.004	54.5712	34.196
1 20.9	33.3291	22.060	41.3993	24.114	33.7547	70.175	54.5224	36.826
1 30.9	33.2687	21.267	41.2299	25.820	33.6973	71.319	54.4096	39.250
2 9.8	33.1483	20.795	40.9381	27.425	33.5806	72.071	54.2392	41.073
2 19.8	33.0268	20.555	40.6315	28.773	33.4604	72.529	54.0510	42.388
3 1.8	32.8997	20.194	40.3110	29.426	33.3320	73.035	53.8456	43.489
3 11.8	32.7109	19.859	39.8781	29.567	33.1431	73.427	53.5913	44.198
3 21.7	32.5259	19.907	39.4464	29.515	32.9562	73.360	53.3340	44.177
3 31.7	32.3920	20.065	39.1078	28.982	32.8159	73.119	53.1099	43.720
4 10.7	32.2525	20.053	38.7680	27.776	32.6692	72.978	52.8852	43.109
4 20.6	32.1193	20.269	38.4446	26.293	32.5278	72.541	52.6709	41.954
4 30.6	32.0354	20.852	38.2155	24.737	32.4332	71.685	52.5009	40.169
5 10.6	32.0106	21.416	38.1039	22.812	32.3945	70.815	52.3827	38.207
5 20.6	32.0183	21.950	38.0650	20.542	32.3871	69.935	52.3015	36.074
5 30.5	32.0334	22.753	38.0515	18.346	32.3881	68.752	52.2450	33.516
6 9.5	32.1200	23.842	38.1773	16.314	32.4586	67.277	52.2555	30.609
6 19.5	32.2766	24.835	38.4464	14.094	32.5970	65.912	52.3331	27.781
6 29.5	32.4219	25.759	38.7120	11.868	32.7265	64.615	52.4253	25.024
7 9.4	32.5956	26.998	39.0377	10.081	32.8851	63.014	52.5573	22.005
7 19.4	32.8504	28.265	39.5224	08.501	33.1228	61.424	52.7644	19.087
7 29.4	33.1112	29.233	40.0354	06.932	33.3686	60.169	52.9957	16.626
8 8.3	33.3591	30.156	40.5374	05.654	33.6047	58.994	53.2364	14.379
8 18.3	33.6435	31.206	41.1131	04.908	33.8780	57.751	53.5194	12.249
8 28.3	33.9560	32.020	41.7491	04.408	34.1802	56.811	53.8346	10.648
9 7.3	34.2632	32.417	42.3867	03.969	34.4793	56.351	54.1569	09.745
9 17.2	34.5418	32.722	42.9780	03.990	34.7536	56.045	54.4699	09.236
9 27.2	34.8378	32.998	43.5993	04.537	35.0460	55.846	54.7982	09.106
10 7.2	35.1611	32.845	44.2725	05.174	35.3655	56.155	55.1452	09.749
10 17.2	35.4332	32.288	44.8546	05.970	35.6375	56.933	55.4557	11.115
10 27.1	35.6801	31.758	45.3817	07.294	35.8862	57.744	55.7419	12.758
11 6.1	35.9564	31.141	45.9516	08.960	36.1629	58.715	56.0372	14.796
11 16.1	36.2023	30.125	46.4589	10.644	36.4104	60.138	56.2976	17.494
11 26.0	36.3945	29.001	46.8563	12.514	36.6063	61.702	56.5039	20.481
12 6.0	36.5628	28.082	47.1916	14.808	36.7785	63.087	56.6753	23.410
12 16.0	36.7169	27.133	47.4833	17.205	36.9355	64.524	56.8140	26.480
12 26.0	36.8318	25.997	47.6896	19.398	37.0533	66.146	56.9021	29.747
12 35.9	36.8639	24.994	47.7295	21.650	37.0906	67.607	56.9123	32.810
Mean Place sec δ , tan δ	33.2450 +1.006	17.480 +0.112	40.8501 +2.209	0 7.907 +1.970	33.5742 +1.000	73.483 -0.021	53.7237 +1.232	35.334 -0.720
Dble. Trans.	December 12		December 14		December 15		December 19	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	1166		243		245		254	
HIP-No.	29134		30324		30438		32246	
Name	ν Doradus		β Canis Majoris		α Carinae		ϵ Geminorum	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	6^h08^m	– 68°50'	6^h23^m	– 17°57'	6^h24^m	– 52°42'	6^h45^m	+ 25°06'
1 1 ^d 0	37 ^s 9744	50 ^{''} 582	52 ^s 4444	68 ^{''} 212	34 ^s 1166	32 ^{''} 986	33 ^s 8216	16 ^{''} 520
1 10.9	37.8009	53.882	52.5071	70.384	34.1001	36.280	33.9493	16.755
1 20.9	37.5137	57.131	52.5307	72.575	34.0182	39.563	34.0359	16.902
1 30.9	37.1244	60.146	52.4898	74.638	33.8603	42.637	34.0445	17.015
2 9.9	36.6523	62.511	52.3860	76.180	33.6324	45.086	33.9767	17.429
2 19.8	36.0983	64.330	52.2681	77.349	33.3627	47.032	33.8982	17.921
3 1.8	35.4882	65.875	52.1339	78.443	33.0614	48.740	33.7994	18.122
3 11.8	34.8510	66.932	51.9386	79.221	32.7136	49.963	33.6163	18.297
3 21.8	34.1890	67.180	51.7357	79.402	32.3481	50.406	33.4244	18.660
3 31.7	33.5282	66.920	51.5667	79.302	31.9996	50.373	33.2749	18.845
4 10.7	32.8937	66.408	51.3883	79.135	31.6552	50.091	33.1040	18.714
4 20.7	32.2949	65.258	51.2101	78.517	31.3215	49.175	32.9265	18.631
4 30.6	31.7529	63.398	51.0697	77.369	31.0272	47.556	32.7923	18.677
5 10.6	31.2760	61.292	50.9783	76.130	30.7840	45.697	32.7142	18.479
5 20.6	30.8790	58.939	50.9155	74.773	30.5865	43.582	32.6623	18.086
5 30.6	30.5802	56.079	50.8623	72.993	30.4295	40.930	32.6112	17.885
6 9.5	30.3696	52.832	50.8731	70.903	30.3398	37.888	32.6378	17.790
6 19.5	30.2594	49.630	50.9491	68.914	30.3253	34.878	32.7400	17.427
6 29.5	30.2627	46.444	51.0245	66.920	30.3541	31.834	32.8312	17.110
7 9.5	30.3631	42.975	51.1310	64.615	30.4359	28.477	32.9372	16.958
7 19.4	30.5620	39.617	51.3146	62.389	30.5987	25.216	33.1525	16.776
7 29.4	30.8604	36.714	51.5155	60.516	30.8117	22.365	33.3773	16.404
8 8.4	31.2456	34.028	51.7169	58.739	31.0591	19.684	33.5931	16.120
8 18.3	31.7104	31.495	51.9595	56.988	31.3604	17.126	33.8588	16.023
8 28.3	32.2368	29.543	52.2373	55.658	31.7076	15.122	34.1665	15.795
9 7.3	32.8157	28.339	52.5222	54.901	32.0828	13.829	34.4778	15.316
9 17.3	33.4379	27.581	52.7942	54.385	32.4694	12.941	34.7690	14.977
9 27.2	34.0703	27.291	53.0890	54.143	32.8745	12.506	35.0943	14.755
10 7.2	34.7012	27.868	53.4148	54.587	33.3007	12.934	35.4631	14.221
10 17.2	35.3209	29.244	53.7061	55.608	33.7073	14.131	35.7872	13.565
10 27.2	35.8962	30.989	53.9798	56.806	34.0886	15.691	36.0973	13.143
11 6.1	36.4122	33.241	54.2800	58.360	34.4641	17.779	36.4538	12.714
11 16.1	36.8553	36.244	54.5565	60.499	34.8023	20.625	36.7879	12.082
11 26.1	37.2067	39.612	54.7863	62.871	35.0810	23.844	37.0715	11.537
12 6.0	37.4581	42.998	54.9912	65.169	35.3073	27.104	37.3371	11.311
12 16.0	37.5915	46.602	55.1780	67.624	35.4793	30.619	37.5943	11.127
12 26.0	37.6071	50.448	55.3243	70.304	35.5848	34.408	37.8100	10.824
12 36.0	37.5125	54.102	55.3922	72.786	35.6034	38.022	37.9331	10.789
Mean Place sec δ , tan δ	34.0669 +2.771	55.795 –2.585	52.0503 +1.051	75.164 –0.324	32.4341 +1.651	39.849 –1.313	33.6959 +1.104	0 8.690 +0.468
Dble. Trans.	December 23		December 27		December 27		January 1	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	306		323		348		354	
HIP-No.	39429		42452		45238		46390	
Name	ζ Puppis		Groombridge 1460		β Carinae		α Hydrae	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	8^h04^m	− 40° 04′	8^h41^m	+ 52° 36′	9^h13^m	− 69° 49′	9^h28^m	− 8° 46′
12 22 ^d .1	31 ^s .4009	26 [″] .490	14 ^s .8923	60 [″] .263	30 ^s .1354	09 [″] .738	52 ^s .9248	14 [″] .869
1 1.1	31.5934	29.893	15.2424	61.146	30.5896	13.069	53.1844	17.180
1 11.0	31.7430	33.245	15.5789	62.408	30.9180	16.660	53.4305	19.448
1 21.0	31.8464	36.763	15.8534	63.796	31.1585	20.646	53.6489	21.802
1 31.0	31.8787	40.188	16.0135	65.378	31.2905	24.726	53.8031	23.992
2 9.9	31.8298	43.108	16.0720	67.380	31.2708	28.496	53.8824	25.714
2 19.9	31.7419	45.764	16.0992	69.421	31.1255	32.246	53.9399	27.300
3 1.9	31.6234	48.325	16.0612	71.159	30.9081	36.025	53.9690	28.871
3 11.9	31.4350	50.386	15.8894	72.943	30.5966	39.324	53.9129	29.982
3 21.8	31.2105	51.824	15.6857	74.726	30.1641	42.141	53.8241	30.703
3 31.8	30.9943	52.957	15.4966	76.039	29.6767	44.733	53.7456	31.380
4 10.8	30.7625	53.808	15.2400	76.927	29.1730	46.963	53.6323	31.888
4 20.8	30.5129	54.041	14.9494	77.625	28.6117	48.552	53.4878	32.003
4 30.7	30.2753	53.641	14.6928	78.064	28.0041	49.491	53.3482	31.801
5 10.7	30.0744	53.024	14.4758	77.927	27.4189	50.127	53.2352	31.613
5 20.7	29.8959	52.086	14.2633	77.317	26.8622	50.295	53.1244	31.294
5 30.6	29.7189	50.478	14.0453	76.632	26.3040	49.618	52.9911	30.502
6 9.6	29.5905	48.491	13.9197	75.645	25.7667	48.478	52.9011	29.607
6 19.6	29.5258	46.477	13.8682	74.054	25.3165	47.131	52.8608	28.860
6 29.6	29.4734	44.158	13.7954	72.331	24.9391	45.189	52.8001	27.840
7 9.5	29.4489	41.410	13.7797	70.651	24.5929	42.666	52.7544	26.543
7 19.5	29.5006	38.708	13.8838	68.578	24.3417	40.037	52.7798	25.445
7 29.5	29.5919	36.160	14.0054	66.269	24.2149	37.281	52.8206	24.434
8 8.5	29.7014	33.541	14.1341	64.036	24.1705	34.221	52.8584	23.295
8 18.4	29.8589	30.930	14.3503	61.848	24.2040	31.024	52.9389	22.187
8 28.4	30.0711	28.728	14.6366	59.529	24.3579	28.067	53.0685	21.385
9 7.4	30.3196	27.023	14.9391	57.092	24.6432	25.400	53.2214	20.882
9 17.3	30.5785	25.511	15.2483	54.960	25.0084	22.760	53.3742	20.386
9 27.3	30.8739	24.406	15.6333	53.024	25.4433	20.499	53.5736	20.172
10 7.3	31.2228	24.123	16.0859	50.918	25.9971	19.005	53.8349	20.579
10 17.3	31.5696	24.426	16.5063	49.058	26.6373	17.990	54.0890	21.240
10 27.2	31.9119	25.086	16.9463	47.676	27.2915	17.401	54.3537	22.056
11 6.2	32.2866	26.401	17.4683	46.420	27.9792	17.605	54.6785	23.387
11 16.2	32.6594	28.476	17.9782	45.330	28.7117	18.634	55.0158	25.176
11 26.2	32.9983	30.962	18.4475	44.688	29.4225	20.213	55.3355	27.124
12 6.1	33.3085	33.647	18.9227	44.589	30.0651	22.226	55.6542	29.148
12 16.1	33.5993	36.781	19.4018	44.779	30.6561	24.943	55.9846	31.473
12 26.1	33.8528	40.333	19.8282	45.158	31.1958	28.290	56.2980	34.036
12 36.0	34.0259	43.788	20.1506	46.139	31.6216	31.738	56.5428	36.349
Mean Place	30.9693	44.542	14.5549	59.177	28.7782	35.844	53.3712	28.933
sec δ, tan δ	+1.307	−0.841	+1.647	+1.309	+2.900	−2.722	+1.012	−0.154
Dble. Trans.	January 21		January 31		February 8		February 12	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	363		1260		1275		422	
HIP-No.	47594		49339		52098		54872	
Name	Groombridge 1564		193 G. Hydrae		37 LMi		δ Leonis	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	$9^{\text{h}}44^{\text{m}}$	$+ 69^{\circ}06'$	$10^{\text{h}}05^{\text{m}}$	$- 24^{\circ}24'$	$10^{\text{h}}40^{\text{m}}$	$+ 31^{\circ}49'$	$11^{\text{h}}15^{\text{m}}$	$+ 20^{\circ}22'$
12 22 ^d 2	29 ^s 5016	49 ^{''} 379	33 ^s 8487	34 ^{''} 142	11 ^s 7548	76 ^{''} 419	29 ^s 9990	43 ^{''} 916
1 1.1	30.1417	50.315	34.1417	36.836	12.1005	75.346	30.3306	42.259
1 11.1	30.7726	51.713	34.4173	39.668	12.4534	74.564	30.6722	40.777
1 21.1	31.3048	53.408	34.6691	42.710	12.7798	74.032	30.9975	39.494
1 31.0	31.6677	55.487	34.8605	45.672	13.0345	73.952	31.2631	38.649
2 10.0	31.8991	58.089	34.9728	48.255	13.2178	74.463	31.4632	38.364
2 20.0	32.0659	60.787	35.0580	50.791	13.3834	75.170	31.6498	38.261
3 2.0	32.0929	63.290	35.1160	53.312	13.5019	75.955	31.7993	38.311
3 11.9	31.9177	65.951	35.0890	55.332	13.5145	77.204	31.8521	38.909
3 21.9	31.6789	68.583	35.0196	56.974	13.4936	78.663	31.8714	39.758
3 31.9	31.4067	70.692	34.9534	58.526	13.4713	79.932	31.8900	40.514
4 10.9	30.9955	72.411	34.8532	59.789	13.3852	81.209	31.8511	41.428
4 20.8	30.5124	73.874	34.7144	60.572	13.2544	82.576	31.7670	42.537
4 30.8	30.0519	74.918	34.5682	60.956	13.1253	83.824	31.6773	43.619
5 10.8	29.6007	75.276	34.4434	61.232	13.0070	84.711	31.5958	44.465
5 20.7	29.1197	75.062	34.3176	61.226	12.8703	85.376	31.4943	45.234
5 30.7	28.6337	74.625	34.1608	60.610	12.7027	86.084	31.3546	46.144
6 9.7	28.2625	73.668	34.0365	59.801	12.5822	86.438	31.2506	46.763
6 19.7	27.9584	71.954	33.9588	58.990	12.4971	86.272	31.1763	46.982
6 29.6	27.6319	70.019	33.8610	57.733	12.3750	86.082	31.0612	47.284
7 9.6	27.4065	67.931	33.7695	56.116	12.2755	85.787	30.9569	47.506
7 19.6	27.3365	65.253	33.7439	54.598	12.2496	84.945	30.9151	47.228
7 29.6	27.2951	62.280	33.7386	53.027	12.2256	83.863	30.8723	46.782
8 8.5	27.2907	59.304	33.7319	51.228	12.1956	82.760	30.8184	46.338
8 18.5	27.4347	56.216	33.7642	49.418	12.2205	81.413	30.8085	45.630
8 28.5	27.6884	52.932	33.8494	47.868	12.2967	79.716	30.8448	44.575
9 7.4	27.9748	49.543	33.9673	46.546	12.3873	77.794	30.8945	43.311
9 17.4	28.3155	46.445	34.0895	45.209	12.4846	75.933	30.9465	42.040
9 27.4	28.7948	43.498	34.2602	44.205	12.6475	73.894	31.0588	40.491
10 7.4	29.3680	40.414	34.5024	43.845	12.8754	71.462	31.2367	38.501
10 17.3	29.9291	37.701	34.7503	43.762	13.0953	69.123	31.4111	36.542
10 27.3	30.5630	35.511	35.0126	43.954	13.3477	66.914	31.6165	34.572
11 6.3	31.3247	33.475	35.3383	44.799	13.6825	64.478	31.9026	32.241
11 16.3	32.0837	31.770	35.6887	46.209	14.0349	62.053	32.2136	29.821
11 26.2	32.8165	30.668	36.0293	47.921	14.3822	59.910	32.5258	27.558
12 6.2	33.5930	30.188	36.3688	49.897	14.7556	58.027	32.8645	25.391
12 16.2	34.3860	30.128	36.7237	52.362	15.1596	56.256	33.2390	23.197
12 26.1	35.1030	30.449	37.0694	55.206	15.5501	54.693	33.6106	21.130
12 36.1	35.7055	31.550	37.3494	57.943	15.8814	53.751	33.9313	19.582
Mean Place sec δ , tan δ	28.2581 +2.805	53.797 +2.621	34.4968 +1.098	52.905 -0.454	12.2935 +1.177	76.003 +0.621	30.8499 +1.067	41.120 +0.371
Dble. Trans.	February 16		February 21		March 2		March 11	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH

EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	423		426		1307		455	
HIP-No.	54879		55282		57939		59747	
Name	ϑ Leonis		δ Crateris		Groombridge 1830		δ Crucis	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	11^h15^m	+ 15°16'	11^h20^m	- 14°55'	11^h54^m	+ 37°31'	12^h16^m	- 58°53'
12 22 ^d .2	36 ^s .7907	67 ^{''} .992	38 ^s .9301	05 ^{''} .460	28 ^s .9268	41 ^{''} .156	31 ^s .7104	20 ^{''} .563
1 1.2	37.1150	66.209	39.2518	07.747	29.3160	39.478	32.2515	22.092
1 11.2	37.4479	64.554	39.5726	10.211	29.7267	38.090	32.7724	24.257
1 21.1	37.7659	63.052	39.8832	12.814	30.1227	37.078	33.2956	26.962
1 31.1	38.0263	61.952	40.1426	15.266	30.4579	36.674	33.7707	29.921
2 10.1	38.2209	61.385	40.3305	17.381	30.7334	36.914	34.1365	32.971
2 20.1	38.4024	60.979	40.5013	19.504	30.9961	37.420	34.4577	36.436
3 2.0	38.5497	60.717	40.6483	21.571	31.2095	38.195	34.7571	40.111
3 12.0	38.6026	61.006	40.7075	23.118	31.3184	39.581	34.9480	43.489
3 22.0	38.6219	61.553	40.7258	24.408	31.3920	41.206	35.0469	46.886
3 31.9	38.6418	62.029	40.7460	25.685	31.4528	42.728	35.1219	50.394
4 10.9	38.6073	62.689	40.7239	26.651	31.4393	44.416	35.1501	53.585
4 20.9	38.5284	63.576	40.6558	27.233	31.3719	46.232	35.0921	56.431
4 30.9	38.4431	64.479	40.5727	27.582	31.2932	47.888	34.9644	59.021
5 10.8	38.3672	65.189	40.5023	27.891	31.2087	49.221	34.8346	61.427
5 20.8	38.2728	65.869	40.4185	27.967	31.0896	50.379	34.6775	63.400
5 30.8	38.1394	66.741	40.2894	27.558	30.9283	51.507	34.4286	64.685
6 9.8	38.0401	67.370	40.1842	27.120	30.7996	52.164	34.1638	65.736
6 19.7	37.9713	67.649	40.1137	26.728	30.6873	52.293	33.9341	66.494
6 29.7	37.8621	68.059	40.0059	25.907	30.5273	52.363	33.6584	66.453
7 9.7	37.7611	68.432	39.8941	24.866	30.3817	52.160	33.3399	65.929
7 19.6	37.7215	68.347	39.8392	24.010	30.2946	51.295	33.0724	65.229
7 29.6	37.6815	68.129	39.7912	23.051	30.2000	50.164	32.8342	63.999
8 8.6	37.6297	67.940	39.7305	21.866	30.0952	48.917	32.5856	62.201
8 18.6	37.6194	67.512	39.7019	20.743	30.0402	47.256	32.3595	60.148
8 28.5	37.6552	66.752	39.7209	19.843	30.0322	45.171	32.2098	57.974
9 7.5	37.7045	65.811	39.7656	19.054	30.0354	42.864	32.1344	55.560
9 17.5	37.7541	64.835	39.8089	18.200	30.0488	40.514	32.0753	52.824
9 27.5	37.8629	63.573	39.9036	17.654	30.1323	37.854	32.0863	50.251
10 7.4	38.0376	61.858	40.0734	17.622	30.2811	34.800	32.2321	47.987
10 17.4	38.2095	60.148	40.2497	17.701	30.4311	31.852	32.4388	45.674
10 27.4	38.4104	58.392	40.4491	18.015	30.6273	28.938	32.6870	43.636
11 6.3	38.6904	56.235	40.7243	18.933	30.9142	25.739	33.0440	42.260
11 16.3	38.9962	53.942	41.0345	20.245	31.2312	22.607	33.4957	41.341
11 26.3	39.3030	51.752	41.3474	21.751	31.5601	19.778	33.9818	40.825
12 6.3	39.6343	49.606	41.6748	23.518	31.9326	17.145	34.4821	40.878
12 16.2	40.0007	47.374	42.0354	25.712	32.3515	14.644	35.0381	41.695
12 26.2	40.3656	45.215	42.4018	28.165	32.7709	12.469	35.6338	43.105
12 36.2	40.6793	43.524	42.7143	30.463	33.1504	10.960	36.1702	44.769
Mean Place sec δ , tan δ	37.6866 +1.037	63.495 +0.273	40.0847 +1.035	20.309 -0.266	29.9361 +1.261	42.152 +0.768	34.1299 +1.936	46.253 -1.657
Dble. Trans.	March 11		March 12		March 21		March 26	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	464		468		479		1357	
HIP-No.	60823		61084		62131		67057	
Name	σ Centauri		γ Crucis		330 G. Hydrae		83 Vir	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	12^h29^m	– 50° 22'	12^h32^m	– 57° 15'	12^h45^m	– 28° 27'	13^h45^m	– 16° 18'
12 22 ^d .3	26 ^s 8375	14''240	36 ^s 5759	15''766	23 ^s 7363	51''864	53 ^s 7667	31''722
1 1.2	27.2981	15.781	37.1026	17.136	24.0971	53.648	54.0943	33.371
1 11.2	27.7524	17.917	37.6174	19.152	24.4675	55.850	54.4468	35.362
1 21.2	28.2131	20.528	38.1403	21.695	24.8459	58.319	54.8181	37.460
1 31.2	28.6318	23.331	38.6199	24.488	25.1876	60.770	55.1634	39.399
2 10.1	28.9588	26.192	38.9961	27.396	25.4598	63.121	55.4540	41.210
2 20.1	29.2575	29.430	39.3356	30.738	25.7219	65.686	55.7484	43.162
3 2.1	29.5405	32.827	39.6576	34.287	25.9713	68.245	56.0366	44.969
3 12.0	29.7243	35.900	39.8728	37.554	26.1330	70.369	56.2435	46.301
3 22.0	29.8368	38.984	40.0020	40.877	26.2487	72.426	56.4160	47.587
3 32.0	29.9375	42.169	40.1117	44.331	26.3649	74.527	56.5940	48.887
4 11.0	29.9939	45.024	40.1741	47.474	26.4378	76.265	56.7274	49.782
4 20.9	29.9771	47.548	40.1518	50.302	26.4543	77.678	56.8079	50.410
4 30.9	29.9073	49.850	40.0621	52.916	26.4395	78.935	56.8602	50.995
5 10.9	29.8394	51.988	39.9702	55.360	26.4302	80.088	56.9147	51.508
5 20.9	29.7460	53.718	39.8486	57.386	26.3975	80.914	56.9404	51.745
5 30.8	29.5702	54.815	39.6328	58.760	26.2976	81.252	56.8959	51.668
6 9.8	29.3876	55.734	39.4009	59.932	26.2044	81.559	56.8559	51.709
6 19.8	29.2360	56.397	39.2007	60.816	26.1362	81.750	56.8310	51.696
6 29.7	29.0332	56.312	38.9473	60.911	26.0138	81.368	56.7414	51.245
7 9.7	28.7935	55.811	38.6484	60.553	25.8664	80.756	56.6224	50.763
7 19.7	28.6013	55.189	38.3972	60.027	25.7633	80.204	56.5384	50.455
7 29.7	28.4237	54.077	38.1674	58.958	25.6582	79.330	56.4382	49.899
8 8.6	28.2274	52.444	37.9206	57.322	25.5279	78.101	56.3025	49.112
8 18.6	28.0499	50.613	37.6922	55.440	25.4152	76.857	56.1767	48.457
8 28.6	27.9341	48.692	37.5346	53.417	25.3471	75.662	56.0840	47.900
9 7.6	27.8716	46.546	37.4438	51.120	25.3065	74.347	56.0047	47.214
9 17.5	27.8133	44.109	37.3632	48.488	25.2587	72.865	55.9095	46.442
9 27.5	27.8159	41.855	37.3504	46.005	25.2619	71.649	55.8606	45.977
10 7.5	27.9326	39.900	37.4686	43.786	25.3508	70.764	55.8878	45.762
10 17.4	28.0896	37.884	37.6418	41.477	25.4548	69.829	55.9217	45.472
10 27.4	28.2818	36.138	37.8562	39.428	25.5880	69.151	55.9780	45.394
11 6.4	28.5747	35.034	38.1812	38.012	25.8103	69.076	56.1320	45.805
11 16.4	28.9457	34.342	38.5999	37.008	26.0876	69.325	56.3374	46.429
11 26.3	29.3445	34.013	39.0544	36.381	26.3833	69.819	56.5648	47.192
12 6.3	29.7619	34.223	39.5279	36.317	26.7032	70.743	56.8261	48.333
12 16.3	30.2347	35.146	40.0625	36.998	27.0757	72.215	57.1489	49.885
12 26.3	30.7436	36.595	40.6408	38.245	27.4759	74.014	57.5069	51.579
12 36.2	31.2002	38.251	41.1643	39.744	27.8328	75.847	57.8335	53.228
Mean Place	29.1252	37.548	39.1649	40.527	25.6786	68.326	55.9156	40.921
sec δ , tan δ	+1.568	–1.208	+1.849	–1.555	+1.138	–0.542	+1.042	–0.293
Dble. Trans.	March 29		March 30		April 3		April 18	

APPARENT PLACES OF STARS, 2026
 TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	509		529		1396		564	
HIP-No.	67301		70069		73996		74785	
Name	η Ursae Majoris		ν Cen		45 Bootis		β Librae	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	13^h48^m	+ 49°10'	14^h22^m	- 56°30'	15^h08^m	+ 24°45'	15^h18^m	- 9°28'
12 22 ^d .3	33 ^s .5504	43 ^{''} .920	07 ^s .9666	08 ^{''} .497	25 ^s .8958	56 ^{''} .138	23 ^s .7092	42 ^{''} .932
1 1.3	33.9462	41.514	08.4647	08.473	26.1705	53.492	23.9839	44.386
1 11.3	34.3917	39.361	08.9941	09.140	26.4916	50.823	24.2995	46.153
1 21.2	34.8482	37.733	09.5695	10.263	26.8424	48.490	24.6496	47.894
1 31.2	35.2725	36.892	10.1308	11.636	27.1837	46.762	24.9906	49.383
2 10.2	35.6675	36.718	10.6138	13.324	27.5001	45.451	25.2940	50.797
2 20.2	36.0638	36.932	11.0993	15.574	27.8354	44.395	25.6187	52.295
3 2.1	36.4142	37.737	11.5936	18.047	28.1643	43.952	25.9508	53.494
3 12.1	36.6745	39.347	11.9857	20.405	28.4277	44.257	26.2136	54.226
3 22.1	36.9027	41.282	12.3138	23.087	28.6725	44.838	26.4555	54.950
4 1.0	37.1012	43.349	12.6417	26.040	28.9177	45.685	26.7113	55.607
4 11.0	37.2139	45.869	12.9185	28.769	29.1123	47.144	26.9269	55.795
4 21.0	37.2619	48.635	13.1093	31.428	29.2589	48.946	27.0950	55.765
4 31.0	37.2774	51.276	13.2317	34.163	29.3795	50.755	27.2370	55.779
5 10.9	37.2573	53.767	13.3475	36.831	29.4868	52.663	27.3796	55.683
5 20.9	37.1752	56.241	13.4175	39.198	29.5525	54.806	27.4898	55.311
5 30.9	37.0331	58.619	13.3647	41.193	29.5521	56.986	27.5246	54.802
6 9.9	36.8937	60.459	13.2855	43.190	29.5485	58.815	27.5580	54.507
6 19.8	36.7322	61.871	13.2180	44.916	29.5354	60.535	27.5962	54.133
6 29.8	36.5047	63.181	13.0531	45.962	29.4513	62.334	27.5573	53.456
7 9.8	36.2733	64.002	12.8156	46.761	29.3392	63.744	27.4795	52.941
7 19.7	36.0653	64.087	12.6053	47.409	29.2413	64.660	27.4230	52.639
7 29.7	35.8293	63.868	12.3755	47.441	29.1099	65.473	27.3343	52.139
8 8.7	35.5726	63.377	12.0897	46.922	28.9383	66.108	27.1965	51.538
8 18.7	35.3492	62.228	11.7952	46.184	28.7697	66.169	27.0541	51.202
8 28.6	35.1570	60.540	11.5461	45.152	28.6168	65.811	26.9297	50.977
9 7.6	34.9658	58.601	11.3328	43.613	28.4582	65.329	26.8037	50.595
9 17.6	34.7883	56.393	11.0971	41.649	28.2832	64.547	26.6482	50.237
9 27.6	34.6808	53.649	10.9201	39.692	28.1491	63.188	26.5290	50.224
10 7.5	34.6310	50.505	10.8679	37.656	28.0679	61.502	26.4744	50.322
10 17.5	34.5963	47.381	10.8508	35.254	27.9879	59.767	26.4172	50.292
10 27.5	34.6275	44.066	10.8776	32.968	27.9449	57.649	26.3867	50.543
11 6.4	34.7568	40.357	11.0336	31.070	27.9842	55.033	26.4431	51.202
11 16.4	34.9355	36.720	11.2932	29.251	28.0706	52.361	26.5475	51.903
11 26.4	35.1564	33.315	11.6050	27.615	28.1895	49.686	26.6816	52.726
12 6.4	35.4509	29.936	11.9638	26.477	28.3605	46.743	26.8584	53.912
12 16.3	35.8183	26.666	12.4217	25.914	28.6016	43.671	27.1069	55.390
12 26.3	36.2136	23.838	12.9568	25.719	28.8839	40.850	27.4021	56.846
12 36.3	36.6105	21.632	13.4607	25.797	29.1627	38.325	27.6800	58.272
Mean Place sec δ , tan δ	34.9342 +1.530	54.225 +1.158	11.8666 +1.812	24.968 -1.511	27.9497 +1.101	62.350 +0.461	26.1999 +1.014	44.448 -0.167
Dble. Trans.	April 19		April 27		May 9		May 11	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	560		588		603		622	
HIP-No.	74946		77622		79593		81377	
Name	γ Trianguli A		ϵ Ser		δ Ophiuchi		ζ Ophiuchi	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	15^h 21^m	– 68° 46'	15^h 52^m	+ 4° 23'	16^h 15^m	– 3° 45'	16^h 38^m	– 10° 37'
12 22 ^d .4	19 ^s 2340	16 ^{''} 476	05 ^s 9365	55 ^{''} 614	41 ^s 6292	41 ^{''} 155	34 ^s 4952	10 ^{''} 446
1 1.4	19.8747	15.255	06.1772	53.657	41.8566	42.674	34.7106	11.513
1 11.3	20.5861	14.744	06.4640	51.489	42.1321	44.464	34.9765	12.888
1 21.3	21.3915	14.672	06.7885	49.488	42.4497	46.146	35.2888	14.190
1 31.3	22.2102	14.908	07.1103	47.883	42.7680	47.515	35.6053	15.247
2 10.3	22.9494	15.623	07.4051	46.447	43.0598	48.827	35.8962	16.338
2 20.2	23.7169	17.008	07.7264	45.080	43.3827	50.149	36.2228	17.504
3 2.2	24.5182	18.697	08.0574	44.193	43.7217	51.058	36.5714	18.312
3 12.2	25.1981	20.455	08.3274	43.872	44.0016	51.499	36.8622	18.745
3 22.1	25.8040	22.740	08.5834	43.668	44.2699	51.907	37.1443	19.225
4 1.1	26.4147	25.427	08.8537	43.670	44.5583	52.153	37.4518	19.585
4 11.1	26.9587	28.018	09.0856	44.238	44.8121	51.879	37.7278	19.476
4 21.1	27.3848	30.737	09.2744	45.084	45.0245	51.382	37.9637	19.208
5 1.0	27.7079	33.727	09.4399	45.917	45.2145	50.934	38.1784	19.032
5 11.0	28.0099	36.742	09.6031	46.910	45.4059	50.322	38.3977	18.699
5 21.0	28.2355	39.566	09.7326	48.202	45.5656	49.411	38.5864	18.084
5 31.0	28.2741	42.206	09.7904	49.560	45.6503	48.453	38.6973	17.459
6 9.9	28.2544	44.950	09.8450	50.663	45.7316	47.729	38.8048	17.060
6 19.9	28.2262	47.438	09.8979	51.824	45.8130	46.894	38.9134	16.517
6 29.9	28.0403	49.328	09.8740	53.172	45.8135	45.851	38.9371	15.768
7 9.8	27.7300	51.063	09.8116	54.230	45.7711	45.074	38.9138	15.276
7 19.8	27.4272	52.617	09.7635	54.990	45.7420	44.520	38.9030	14.949
7 29.8	27.0714	53.504	09.6785	55.824	45.6729	43.826	38.8487	14.437
8 8.8	26.6162	53.830	09.5430	56.610	45.5481	43.134	38.7335	13.898
8 18.7	26.1220	53.895	09.3993	56.978	45.4101	42.795	38.6006	13.661
8 28.7	25.6676	53.528	09.2668	57.113	45.2806	42.603	38.4734	13.496
9 7.7	25.2442	52.492	09.1258	57.299	45.1401	42.278	38.3322	13.130
9 17.6	24.7737	50.935	08.9538	57.295	44.9621	42.089	38.1474	12.854
9 27.6	24.3711	49.230	08.8133	56.831	44.8121	42.289	37.9874	12.898
10 7.6	24.1300	47.192	08.7278	56.205	44.7172	42.556	37.8823	12.916
10 17.6	23.9346	44.597	08.6362	55.610	44.6127	42.737	37.7638	12.796
10 27.5	23.8025	41.974	08.5704	54.651	44.5304	43.250	37.6645	12.965
11 6.5	23.8511	39.527	08.5853	53.252	44.5293	44.143	37.6469	13.446
11 16.5	24.0534	36.936	08.6475	51.817	44.5761	45.026	37.6779	13.865
11 26.5	24.3464	34.388	08.7378	50.307	44.6495	45.980	37.7352	14.325
12 6.4	24.7222	32.257	08.8726	48.421	44.7660	47.338	37.8331	15.184
12 16.4	25.2583	30.570	09.0795	46.308	44.9572	48.933	38.0093	16.289
12 26.4	25.9291	29.141	09.3338	44.328	45.1997	50.418	38.2405	17.283
12 36.3	26.5873	28.013	09.5792	42.433	45.4324	51.894	38.4616	18.320
Mean Place	25.4588	28.305	08.3560	59.005	44.2223	38.202	37.2532	0 7.083
sec δ , tan δ	+2.762	–2.575	+1.003	+0.077	+1.002	–0.066	+1.017	–0.187
Dble. Trans.	May 12		May 20		May 26		June 1	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No. HIP-No. Name	625 82273 α Trianguli A		635 83613 60 Herculis		1456 84862 72 Herculis		660 86670 κ Scorpii	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	16^h51^m	− 69°04′	17^h06^m	+ 12°42′	17^h21^m	+ 32°25′	17^h44^m	− 39°02′
12 22 ^d .4	22 ^s .8497	19 [′] .399	33 ^s .9666	15 [′] .506	36 ^s .6414	58 [′] .469	15 ^s .8104	33 [′] .506
1 1.4	23.3206	17.226	34.1392	13.297	36.7922	55.442	16.0040	32.550
1 11.4	23.9091	15.610	34.3644	10.894	37.0009	52.277	16.2675	31.954
1 21.4	24.6238	14.237	34.6370	08.718	37.2623	49.419	16.5982	31.361
1 31.3	25.3809	13.073	34.9208	06.969	37.5454	47.089	16.9457	30.725
2 10.3	26.1005	12.437	35.1916	05.349	37.8293	44.987	17.2721	30.406
2 20.3	26.9019	12.403	35.5004	03.883	38.1539	43.177	17.6563	30.376
3 2.3	27.7689	12.599	35.8316	03.035	38.5020	42.143	18.0827	30.237
3 12.2	28.5345	12.990	36.1176	02.749	38.8166	41.798	18.4502	30.087
3 22.2	29.2749	14.011	36.4009	02.638	39.1319	41.772	18.8202	30.302
4 1.2	30.0581	15.460	36.7066	02.891	39.4632	42.273	19.2350	30.644
4 11.1	30.7822	16.917	36.9841	03.797	39.7666	43.554	19.6222	30.800
4 21.1	31.4116	18.687	37.2272	05.029	40.0370	45.281	19.9701	31.103
5 1.1	31.9667	20.932	37.4511	06.305	40.2838	47.159	20.2994	31.750
5 11.1	32.5114	23.299	37.6745	07.866	40.5203	49.416	20.6413	32.388
5 21.0	32.9774	25.632	37.8668	09.804	40.7200	52.128	20.9512	32.921
5 31.0	33.2536	28.096	37.9888	11.753	40.8507	54.877	21.1656	33.656
6 10.0	33.4828	30.835	38.1034	13.493	40.9638	57.445	21.3765	34.678
6 20.0	33.6893	33.410	38.2112	15.388	41.0569	60.193	21.5887	35.558
6 29.9	33.7029	35.655	38.2395	17.387	41.0718	63.001	21.6910	36.309
7 9.9	33.5829	37.984	38.2231	19.021	41.0390	65.394	21.7292	37.328
7 19.9	33.4538	40.212	38.2099	20.398	40.9956	67.487	21.7763	38.384
7 29.8	33.2240	41.894	38.1515	21.796	40.9031	69.510	21.7604	39.144
8 8.8	32.8540	43.184	38.0351	23.033	40.7535	71.264	21.6589	39.792
8 18.8	32.4187	44.322	37.8983	23.772	40.5781	72.405	21.5232	40.561
8 28.8	31.9834	45.016	37.7599	24.239	40.3940	73.152	21.3823	41.140
9 7.7	31.5246	45.007	37.6030	24.709	40.1881	73.775	21.2123	41.276
9 17.7	30.9730	44.540	37.4052	24.835	39.9452	73.894	20.9734	41.290
9 27.7	30.4646	43.841	37.2264	24.430	39.7174	73.343	20.7521	41.316
10 7.7	30.0799	42.586	37.0903	23.889	39.5238	72.540	20.5877	40.950
10 17.6	29.6909	40.666	36.9407	23.269	39.3217	71.508	20.3940	40.179
10 27.6	29.3505	38.589	36.8096	22.181	39.1418	69.882	20.2135	39.436
11 6.6	29.1861	36.419	36.7496	20.671	39.0272	67.744	20.1258	38.671
11 16.5	29.1533	33.831	36.7326	19.112	38.9570	65.465	20.0913	37.569
11 26.5	29.2059	31.083	36.7435	17.424	38.9221	62.990	20.0862	36.349
12 6.5	29.3597	28.574	36.7976	15.305	38.9363	60.037	20.1302	35.374
12 16.5	29.6956	26.229	36.9243	12.982	39.0247	56.870	20.2693	34.464
12 26.4	30.1809	23.873	37.1038	10.834	39.1706	53.901	20.4795	33.370
12 36.4	30.6751	21.741	37.2839	08.684	39.3323	50.945	20.6823	32.406
Mean Place sec δ , tan δ	29.6882 +2.800	20.203 −2.615	36.4997 +1.025	22.675 +0.225	39.1551 +1.185	66.696 +0.635	19.3865 +1.288	27.022 −0.811
Dble. Trans.	June 4		June 8		June 12		June 17	

APPARENT PLACES OF STARS, 2026
 TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	671		691		700		699	
HIP-No.	87585		90422		90647		91262	
Name	ξ Draconis		α Telescopii		Groombridge 2655		α Lyrae	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	17^h53^m	+ 56°51'	18^h28^m	- 45°57'	18^h28^m	+ 77°33'	18^h37^m	+ 38°48'
12 22 ^d .5	56 ^s .3315	60 ^{''} .352	52 ^s .4076	14 ^{''} .054	21 ^s .8359	49 ^{''} .756	47 ^s .5016	27 ^{''} .305
1 1.5	56.4258	56.832	52.5551	12.528	21.7329	46.319	47.5596	24.263
1 11.4	56.5987	53.162	52.7841	11.269	21.7956	42.658	47.6765	21.003
1 21.4	56.8490	49.802	53.0904	09.939	22.0453	39.227	47.8562	17.967
1 31.4	57.1583	46.975	53.4213	08.556	22.5047	36.224	48.0747	15.332
2 10.4	57.5070	44.377	53.7404	07.528	23.1474	33.346	48.3067	12.781
2 20.3	57.9106	42.138	54.1324	06.768	23.9093	30.781	48.5905	10.509
3 2.3	58.3510	40.769	54.5775	05.909	24.7734	29.049	48.9180	09.024
3 12.3	58.7915	40.129	54.9680	05.145	25.7625	27.969	49.2337	08.124
3 22.2	59.2421	39.900	55.3738	04.799	26.7975	27.280	49.5623	07.558
4 1.2	59.6968	40.339	55.8370	04.614	27.8016	27.293	49.9199	07.644
4 11.2	60.1283	41.655	56.2761	04.336	28.8038	28.187	50.2692	08.547
4 21.2	60.5278	43.514	56.6821	04.310	29.7728	29.637	50.5986	09.945
5 1.1	60.8874	45.637	57.0772	04.715	30.6340	31.407	50.9095	11.610
5 11.1	61.2108	48.265	57.4904	05.167	31.3640	33.763	51.2174	13.819
5 21.1	61.4800	51.448	57.8721	05.608	31.9721	36.739	51.4979	16.604
5 31.1	61.6722	54.716	58.1559	06.391	32.4545	39.843	51.7118	19.470
6 10.0	61.8126	57.892	58.4399	07.511	32.7467	42.957	51.9027	22.325
6 20.0	61.8956	61.340	58.7238	08.534	32.8406	46.456	52.0733	25.549
6 30.0	61.8927	64.848	58.8871	09.558	32.8018	50.057	52.1662	28.850
7 9.9	61.8218	67.949	58.9821	10.926	32.5982	53.319	52.2016	31.806
7 19.9	61.6973	70.798	59.0829	12.339	32.1746	56.448	52.2142	34.642
7 29.9	61.5065	73.551	59.1082	13.514	31.6094	59.540	52.1722	37.450
8 8.9	61.2509	75.983	59.0352	14.644	30.9332	62.343	52.0652	39.982
8 18.8	60.9451	77.763	58.9196	15.905	30.1011	64.562	51.9149	41.958
8 28.8	60.6069	79.100	58.7887	16.952	29.1433	66.401	51.7417	43.598
9 7.8	60.2365	80.245	58.6145	17.544	28.1113	68.077	51.5389	45.115
9 17.8	59.8310	80.770	58.3566	18.025	27.0377	69.130	51.2853	46.049
9 27.7	59.4269	80.539	58.1091	18.441	25.9102	69.453	51.0280	46.314
10 7.7	59.0389	79.996	57.9101	18.358	24.7414	69.499	50.7926	46.369
10 17.7	58.6559	79.090	57.6675	17.824	23.6274	69.141	50.5408	46.071
10 27.6	58.3039	77.472	57.4321	17.231	22.5757	68.034	50.2968	45.084
11 6.6	58.0070	75.278	57.2893	16.462	21.5529	66.355	50.1026	43.594
11 16.6	57.7664	72.845	57.1945	15.235	20.6435	64.388	49.9473	41.874
11 26.6	57.5858	70.110	57.1267	13.794	19.8948	62.039	49.8236	39.817
12 6.5	57.4730	66.813	57.1114	12.487	19.2886	59.058	49.7399	37.169
12 16.5	57.4481	63.251	57.1985	11.103	18.8373	55.752	49.7264	34.237
12 26.5	57.5052	59.850	57.3616	09.447	18.5773	52.525	49.7763	31.406
12 36.5	57.6224	56.386	57.5193	07.892	18.5468	49.107	49.8479	28.383
Mean Place	59.2873	69.121	56.2090	0 3.252	27.2962	56.716	50.1990	35.148
sec δ, tan δ	+1.830	+1.532	+1.438	-1.034	+4.644	+4.535	+1.283	+0.804
Dble. Trans.	June 20		June 29		June 29		July 1	

APPARENT PLACES OF STARS, 2026
 TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No. HIP-No. Name	725 94834 ω Aql		1517 97290 56 Sagittarii		748 98495 ϵ Pavonis		1533 101101 69 Aquilae	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	19^h19^m	+ 11° 38'	19^h47^m	– 19° 41'	20^h03^m	– 72° 50'	20^h30^m	– 2° 47'
12 22 ^d .6	01 ^s .0610	32 ^{''} .815	51 ^s .6074	57 ^{''} .299	30 ^s .4305	32 ^{''} .701	59 ^s .5848	56 ^{''} .915
1 1.5	01.1062	31.031	51.6460	57.239	30.3514	29.824	59.5778	57.747
1 11.5	01.2033	29.031	51.7476	57.259	30.4629	26.948	59.6201	58.697
1 21.5	01.3556	27.211	51.8906	57.153	30.7346	23.794	59.7153	59.435
1 31.4	01.5328	25.666	52.0694	56.794	31.0890	20.528	59.8315	59.980
2 10.4	01.7077	24.048	52.2396	56.620	31.5012	17.623	59.9440	60.701
2 20.4	01.9357	22.592	52.4725	56.405	32.1015	14.890	60.1164	61.265
3 2.4	02.2101	21.753	52.7556	55.788	32.8237	12.099	60.3421	61.312
3 12.3	02.4604	21.260	53.0054	55.102	33.5067	09.628	60.5451	61.223
3 22.3	02.7270	20.919	53.2787	54.520	34.2899	07.675	60.7738	61.071
4 1.3	03.0390	21.068	53.6105	53.730	35.2092	05.986	61.0621	60.506
4 11.3	03.3470	21.830	53.9364	52.642	36.1054	04.468	61.3551	59.517
4 21.2	03.6410	22.891	54.2503	51.571	36.9908	03.459	61.6442	58.381
5 1.2	03.9310	24.071	54.5696	50.675	37.9059	03.101	61.9427	57.218
5 11.2	04.2382	25.688	54.9165	49.597	38.8576	02.977	62.2729	55.694
5 21.1	04.5314	27.749	55.2516	48.354	39.7561	03.124	62.6003	53.860
5 31.1	04.7624	29.760	55.5213	47.418	40.5166	03.956	62.8724	52.219
6 10.1	04.9911	31.733	55.8012	46.683	41.2921	05.272	63.1553	50.616
6 20.1	05.2214	34.053	56.0904	45.764	42.0368	06.678	63.4515	48.703
6 30.0	05.3740	36.386	56.2913	44.988	42.5601	08.428	63.6715	46.919
7 10.0	05.4765	38.383	56.4434	44.623	42.9751	10.705	63.8462	45.485
7 20.0	05.5774	40.338	56.6035	44.320	43.3664	13.103	64.0275	44.036
7 30.0	05.6270	42.312	56.7044	43.998	43.5765	15.455	64.1564	42.615
8 8.9	05.6082	44.059	56.7267	43.878	43.5871	17.939	64.2132	41.460
8 18.9	05.5520	45.374	56.7118	44.088	43.4970	20.594	64.2315	40.666
8 28.9	05.4787	46.507	56.6788	44.315	43.3214	23.008	64.2295	39.971
9 7.8	05.3735	47.645	56.6040	44.380	42.9964	24.995	64.1885	39.248
9 17.8	05.2058	48.332	56.4533	44.699	42.4864	26.890	64.0733	38.944
9 27.8	05.0339	48.556	56.2990	45.197	41.9521	28.534	63.9468	38.943
10 7.8	04.8878	48.779	56.1707	45.412	41.4196	29.464	63.8393	38.795
10 17.7	04.7086	48.801	55.9935	45.549	40.7492	29.843	63.6830	38.800
10 27.7	04.5251	48.316	55.8075	45.875	40.0676	29.912	63.5102	39.165
11 6.7	04.3931	47.549	55.6800	46.144	39.5045	29.432	63.3819	39.590
11 16.7	04.2893	46.717	55.5755	46.161	38.9724	28.201	63.2694	39.954
11 26.6	04.1999	45.665	55.4787	46.125	38.4707	26.485	63.1585	40.437
12 6.6	04.1383	44.142	55.4111	46.295	38.0752	24.575	63.0655	41.239
12 16.6	04.1406	42.452	55.4134	46.373	37.8585	22.201	63.0300	42.043
12 26.5	04.1955	40.903	55.4680	46.148	37.7700	19.281	63.0401	42.635
12 36.5	04.2484	39.126	55.5128	46.052	37.7157	16.323	63.0378	43.461
Mean Place sec δ , tan δ	03.6347 +1.021	42.120 +0.206	54.3258 +1.062	43.056 –0.358	36.5120 +3.389	11.533 –3.238	62.0115 +1.001	44.538 –0.049
Dble. Trans.	July 11		July 19		July 23		July 30	

APPARENT PLACES OF STARS, 2026

TEN-DAY STARS AT UPPER TRANSIT AT GREENWICH
EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK5-No.	777		1546		1577		855	
HIP-No.	102098		102978		108036		112029	
Name	α Cygni		ω Capricorni		μ Capricorni		ζ Pegasi	
U.T.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	20^h42^m	+ 45°22'	20^h53^m	- 26°49'	21^h54^m	- 13°25'	22^h42^m	+ 10°57'
12 22 ^d .6	17 ^s .4193	31 ^{''} .587	21 ^s .3777	23 ^{''} .847	42 ^s .2249	48 ^{''} .903	45 ^s .2179	66 ^{''} .169
1 1.6	17.3160	29.089	21.3509	23.411	42.1569	49.202	45.1186	65.149
1 11.6	17.2583	26.237	21.3836	22.948	42.1329	49.440	45.0467	64.041
1 21.5	17.2689	23.383	21.4731	22.187	42.1557	49.384	45.0156	63.028
1 31.5	17.3339	20.596	21.5790	21.205	42.1954	49.134	45.0019	62.023
2 10.5	17.4174	17.600	21.6846	20.347	42.2337	49.017	44.9773	60.792
2 20.4	17.5642	14.768	21.8617	19.374	42.3171	48.726	45.0064	59.773
3 2.4	17.7879	12.548	22.0947	18.009	42.4720	47.892	45.0966	59.172
3 12.4	18.0288	10.604	22.3002	16.677	42.6050	47.085	45.1767	58.529
3 22.4	18.3011	08.934	22.5408	15.436	42.7730	46.211	45.2898	58.055
4 1.3	18.6323	07.972	22.8516	13.980	43.0125	44.945	45.4763	58.123
4 11.3	18.9942	07.725	23.1644	12.334	43.2650	43.424	45.6903	58.538
4 21.3	19.3638	07.959	23.4765	10.782	43.5257	41.860	45.9196	59.169
5 1.3	19.7322	08.610	23.8078	09.438	43.8117	40.303	46.1741	60.053
5 11.2	20.1250	09.983	24.1771	07.954	44.1430	38.457	46.4809	61.444
5 21.2	20.5204	12.040	24.5437	06.411	44.4841	36.447	46.8103	63.205
5 31.2	20.8610	14.270	24.8545	05.298	44.7829	34.758	47.1045	64.895
6 10.1	21.1833	16.804	25.1867	04.389	45.1077	33.096	47.4229	66.848
6 20.1	21.5044	19.982	25.5348	03.361	45.4577	31.213	47.7757	69.252
6 30.1	21.7576	23.296	25.7976	02.643	45.7389	29.644	48.0736	71.516
7 10.1	21.9444	26.495	26.0177	02.386	45.9848	28.448	48.3357	73.642
7 20.0	22.1052	29.934	26.2498	02.200	46.2466	27.233	48.6141	76.011
7 30.0	22.2126	33.467	26.4204	02.112	46.4583	26.177	48.8539	78.321
8 9.0	22.2465	36.810	26.5098	02.332	46.5989	25.488	49.0303	80.354
8 19.0	22.2146	39.843	26.5608	02.896	46.7032	25.139	49.1671	82.179
8 28.9	22.1439	42.733	26.5879	03.492	46.7853	24.890	49.2831	83.941
9 7.9	22.0362	45.556	26.5637	03.998	46.8218	24.698	49.3630	85.597
9 17.9	21.8523	47.808	26.4543	04.816	46.7763	24.962	49.3627	86.751
9 27.8	21.6324	49.542	26.3331	05.749	46.7125	25.421	49.3358	87.661
10 7.8	21.4184	51.177	26.2260	06.353	46.6575	25.687	49.3177	88.637
10 17.8	21.1684	52.333	26.0551	06.915	46.5383	26.142	49.2399	89.211
10 27.8	20.8920	52.774	25.8646	07.586	46.3900	26.835	49.1233	89.375
11 6.7	20.6360	52.806	25.7227	08.051	46.2750	27.404	49.0266	89.501
11 16.7	20.4012	52.485	25.5897	08.193	46.1595	27.836	48.9265	89.485
11 26.7	20.1777	51.634	25.4530	08.207	46.0303	28.297	48.8067	89.168
12 6.7	19.9637	50.090	25.3381	08.285	45.9072	28.890	48.6764	88.515
12 16.6	19.8005	48.161	25.2860	08.108	45.8299	29.291	48.5777	87.817
12 26.6	19.6987	46.107	25.2786	07.533	45.7861	29.394	48.5079	87.144
12 36.6	19.6082	43.520	25.2555	07.048	45.7189	29.674	48.4079	86.058
Mean Place	20.1662	33.968	23.8534	0 5.651	44.2668	33.155	47.0805	73.346
sec δ , tan δ	+1.424	+1.013	+1.121	-0.506	+1.028	-0.239	+1.019	+0.194
Dble. Trans.	August 1		August 4		August 20		September 1	

APPARENT PLACES OF STARS, 2026
 NORTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 907 = Hipparcos Star No. 11767 = α Ursae Minoris (Polaris)

Day	January		February		March		April		May		June	
	R.A.	Dec.										
	03 ^h 05 ^m	+ 89°22'	03 ^h 05 ^m	+ 89°22'	03 ^h 04 ^m	+ 89°22'						
1	107.930	41.332	55.881	46.406	62.465	45.578	17.114	39.392	03.491	30.455	24.348	21.553
2	106.896	41.616	53.713	46.504	60.399	45.481	16.053	39.081	03.784	30.114	25.658	21.330
3	105.666	41.915	51.480	46.570	58.335	45.353	15.143	38.765	04.160	29.789	26.908	21.120
4	104.215	42.211	49.261	46.604	56.339	45.197	14.370	38.452	04.575	29.482	28.081	20.918
5	102.572	42.489	47.114	46.610	54.460	45.017	13.700	38.149	04.988	29.192	29.178	20.718
6	100.809	42.739	45.074	46.598	52.719	44.825	13.096	37.859	05.366	28.918	30.216	20.511
7	99.002	42.957	43.146	46.575	51.110	44.628	12.513	37.584	05.683	28.653	31.228	20.292
8	97.218	43.146	41.320	46.551	49.612	44.434	11.915	37.323	05.928	28.391	32.265	20.056
9	95.501	43.314	39.567	46.531	48.188	44.250	11.268	37.073	06.105	28.127	33.385	19.802
10	93.870	43.469	37.854	46.519	46.800	44.077	10.553	36.828	06.237	27.851	34.650	19.535
11	92.325	43.617	36.141	46.519	45.408	43.916	9.761	36.582	06.365	27.559	36.108	19.262
12	90.848	43.767	34.389	46.530	43.974	43.766	8.902	36.326	06.548	27.245	37.776	18.998
13	89.414	43.924	32.561	46.549	42.469	43.622	8.008	36.053	06.854	26.911	39.622	18.757
14	87.984	44.092	30.631	46.571	40.875	43.479	7.133	35.756	07.348	26.563	41.559	18.552
15	86.521	44.272	28.585	46.588	39.190	43.328	6.347	35.434	08.070	26.214	43.476	18.383
16	84.982	44.463	26.432	46.591	37.434	43.160	5.726	35.090	09.007	25.879	45.270	18.244
17	83.334	44.660	24.207	46.572	35.653	42.968	5.324	34.734	10.088	25.573	46.890	18.118
18	81.555	44.858	21.965	46.524	33.915	42.747	5.149	34.381	11.204	25.302	48.348	17.988
19	79.640	45.048	19.780	46.446	32.295	42.498	5.153	34.049	12.245	25.063	49.708	17.840
20	77.610	45.220	17.719	46.341	30.859	42.229	5.243	33.745	13.142	24.841	51.048	17.669
21	75.506	45.369	15.828	46.219	29.634	41.952	5.314	33.470	13.882	24.621	52.442	17.477
22	73.390	45.488	14.117	46.094	28.600	41.683	5.283	33.216	14.506	24.388	53.942	17.271
23	71.328	45.579	12.555	45.977	27.692	41.433	5.113	32.971	15.079	24.136	55.572	17.059
24	69.381	45.647	11.075	45.880	26.819	41.209	4.814	32.719	15.674	23.860	57.334	16.849
25	67.585	45.701	09.592	45.804	25.895	41.006	4.431	32.450	16.352	23.566	59.212	16.650
26	65.944	45.756	08.026	45.747	24.856	40.818	4.026	32.159	17.152	23.258	61.176	16.467
27	64.420	45.822	06.320	45.700	23.679	40.630	3.668	31.844	18.094	22.945	63.189	16.305
28	62.941	45.910	04.458	45.648	22.383	40.431	3.409	31.508	19.176	22.636	65.209	16.165
29	61.414	46.021	02.465	45.578	21.013	40.210	3.288	31.159	20.378	22.338	67.197	16.046
30	59.755	46.150			19.636	39.962	3.317	30.805	21.668	22.056	69.121	15.944
31	57.911	46.283			18.319	39.688	3.491	30.455	23.005	21.795	70.960	15.853
32	55.881	46.406			17.114	39.392			24.348	21.553		
	sec(δ)	tan(δ)										
	92.27	92.26	92.36	92.35	92.21	92.21	91.88	91.88	91.51	91.50	91.20	91.19

Mean R.A. 03^h06^m42^s.624

Double lower transit May 8

Mean Dec. +89°22'24".073

Apparent places of Northern Circumpolar Stars

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APPARENT PLACES OF STARS, 2026
 NORTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 907 = Hipparcos Star No. 11767 = α Ursae Minoris (Polaris)

Day	July		August		September		October		November		December	
	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	03 ^h 05 ^m	+ 89°22'	03 ^h 06 ^m	+ 89°22'	03 ^h 07 ^m	+ 89°22'	03 ^h 08 ^m	+ 89°22'	03 ^h 08 ^m	+ 89°22'	03 ^h 08 ^m	+ 89°22'
1	10.960	15.853	14.237	14.331	20.953	17.366	17.830	24.368	56.189	34.756	62.760	46.068
2	12.708	15.766	16.136	14.343	23.202	17.494	19.790	24.672	56.808	35.169	62.205	46.389
3	14.380	15.676	18.115	14.341	25.569	17.642	21.650	25.005	57.277	35.566	61.719	46.693
4	16.003	15.577	20.220	14.330	27.989	17.819	23.345	25.358	57.662	35.940	61.316	46.991
5	17.623	15.463	22.483	14.319	30.384	18.029	24.850	25.719	58.036	36.289	60.987	47.290
6	19.294	15.334	24.902	14.321	32.671	18.268	26.180	26.073	58.454	36.620	60.703	47.597
7	21.073	15.190	27.440	14.348	34.793	18.526	27.386	26.411	^{58.952} 59.538	^{36.938} 37.255	60.425	47.919
8	23.008	15.040	30.027	14.407	36.730	18.789	28.538	26.726	60.197	37.578	60.108	48.255
9	25.125	14.894	32.574	14.501	38.510	19.044	29.707	27.020	60.893	37.915	59.710	48.606
10	27.415	14.765	34.994	14.624	40.196	19.278	30.949	27.297	61.581	38.270	59.197	48.966
11	29.823	14.666	37.236	14.763	41.868	19.489	32.289	27.568	62.216	38.642	58.549	49.332
12	32.260	14.604	39.299	14.900	43.597	19.681	33.726	27.843	62.758	39.030	57.760	49.696
13	34.621	14.577	41.233	15.022	45.426	19.861	35.232	28.129	63.177	39.430	56.841	50.051
14	36.824	14.574	43.121	15.121	47.369	20.040	36.765	28.433	63.458	39.835	55.815	50.390
15	38.842	14.577	45.044	15.197	49.407	20.229	38.279	28.758	63.599	40.239	54.720	50.711
16	40.707	14.570	47.061	15.258	51.506	20.434	39.730	29.102	63.615	40.635	53.605	51.009
17	42.497	14.542	49.198	15.313	53.621	20.659	41.084	29.463	63.533	41.017	52.522	51.284
18	44.296	14.490	51.450	15.374	55.709	20.906	42.314	29.835	63.396	41.379	51.524	51.542
19	46.174	14.420	53.791	15.448	57.729	21.174	43.411	30.213	63.259	41.721	50.650	51.790
20	48.168	14.340	56.183	15.541	59.651	21.458	44.376	30.590	63.181	42.044	49.915	52.041
21	50.289	14.259	58.585	15.656	61.454	21.753	45.229	30.959	63.217	42.353	49.287	52.307
22	52.524	14.188	60.955	15.793	63.130	22.053	46.004	31.312	63.395	42.661	48.692	52.600
23	54.844	14.132	63.257	15.950	64.688	22.350	46.754	31.647	63.704	42.982	48.021	52.922
24	57.211	14.097	65.463	16.124	66.155	22.637	47.540	31.962	64.077	43.329	47.173	53.265
25	59.587	14.084	67.555	16.307	67.576	22.908	48.424	32.262	64.413	43.708	46.092	53.613
26	61.930	14.093	69.532	16.492	69.010	23.160	49.449	32.556	64.604	44.113	44.790	53.947
27	64.206	14.121	71.411	16.672	70.520	23.395	50.616	32.860	64.580	44.533	43.336	54.252
28	66.389	14.163	73.227	16.840	72.157	23.622	51.881	33.185	64.330	44.950	41.819	54.524
29	68.469	14.213	75.034	16.991	73.942	23.851	53.159	33.541	63.894	45.350	40.322	54.765
30	70.451	14.262	76.889	17.125	75.852	24.097	54.349	33.927	63.345	45.723	38.896	54.984
31	72.360	14.303	78.851	17.247	77.830	24.368	55.372	34.337	62.760	46.068	37.564	55.189
32	74.237	14.331	80.953	17.366			56.189	34.756			36.318	55.391
	sec(δ)	tan(δ)	sec(δ)	tan(δ)	sec(δ)	tan(δ)						
	91.05	91.05	91.08	91.07	91.29	91.28	91.64	91.63	92.11	92.10	92.54	92.53

Mean R.A. 03^h06^m42^s.624

Double lower transit May 8

Mean Dec. +89°22'24"073

APPARENT PLACES OF STARS, 2026
 NORTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1644 = Hipparcos Star No. 72573 = Grb 2196 UMi

Day	January		February		March		April		May		June	
	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.
	14 ^h 48 ^m	+ 82°23'	14 ^h 48 ^m	+ 82°23'	14 ^h 48 ^m	+ 82°24'						
1	42.889	47.700	47.713	42.657	52.314	43.669	56.065	50.117	57.186	59.325	55.469	08.666
2	43.003	47.422	47.902	42.556	52.484	43.766	56.148	50.434	57.163	59.677	55.374	08.883
3	43.131	47.126	48.093	42.485	52.653	43.893	56.219	50.760	57.134	60.016	55.283	09.089
4	43.275	46.825	48.282	42.446	52.815	44.050	56.282	51.085	^{57.194} _{57.075}	^{60.337} _{60.641}	55.198	09.292
5	43.430	46.538	48.464	42.438	52.967	44.233	56.337	51.403	57.049	60.928	55.115	09.498
6	43.594	46.277	48.637	42.453	53.109	44.433	56.389	51.709	57.027	61.204	55.034	09.714
7	43.758	46.048	48.803	42.480	53.242	44.640	56.439	52.000	57.009	61.474	54.949	09.945
8	43.920	45.849	48.961	42.513	53.367	44.846	56.492	52.276	56.996	61.744	54.857	10.193
9	44.075	45.674	49.114	42.543	53.487	45.046	56.548	52.540	56.984	62.022	54.755	10.456
10	44.224	45.517	49.266	42.566	53.606	45.234	56.608	52.797	56.971	62.315	54.640	10.728
11	44.368	45.368	49.419	42.578	53.726	45.410	56.674	53.053	56.953	62.626	54.511	10.996
12	44.507	45.221	49.575	42.580	53.849	45.575	56.742	53.316	56.926	62.959	54.371	11.247
13	44.644	45.068	49.737	42.573	53.977	45.732	56.812	53.592	56.886	63.308	54.225	11.466
14	44.782	44.906	49.906	42.561	54.111	45.887	56.879	53.890	56.830	63.664	54.081	11.648
15	44.923	44.733	50.082	42.552	54.250	46.046	56.939	54.212	56.760	64.011	53.947	11.795
16	45.071	44.548	50.265	42.552	54.393	46.219	56.987	54.559	56.681	64.334	53.824	11.923
17	45.227	44.356	50.451	42.573	54.536	46.413	57.019	54.921	56.600	64.624	53.711	12.048
18	45.392	44.162	50.637	42.619	54.674	46.634	57.036	55.285	56.524	64.879	53.605	12.187
19	45.566	43.972	50.818	42.696	54.804	46.884	57.042	55.636	56.459	65.111	53.498	12.347
20	45.747	43.797	50.990	42.802	54.920	47.158	57.041	55.961	56.403	65.334	53.385	12.529
21	45.931	43.644	51.149	42.928	55.022	47.445	57.043	56.255	56.355	65.564	53.264	12.728
22	46.115	43.519	51.296	43.063	55.111	47.729	57.051	56.524	56.309	65.813	53.133	12.937
23	46.295	43.422	51.433	43.194	55.191	47.998	57.069	56.780	56.260	66.084	52.992	13.146
24	46.466	43.352	51.566	43.309	55.270	48.243	57.096	57.037	56.203	66.376	52.843	13.347
25	46.627	43.298	51.699	43.403	55.352	48.464	57.126	57.307	56.136	66.683	52.689	13.532
26	46.778	43.250	51.839	43.477	55.443	48.668	57.157	57.598	56.059	66.999	52.533	13.699
27	46.922	43.194	51.988	43.537	55.542	48.866	57.182	57.913	55.971	67.313	52.377	13.843
28	47.063	43.120	52.147	43.597	55.649	49.070	57.199	58.250	55.876	67.619	52.224	13.966
29	47.209	43.023	52.314	43.669	55.759	49.293	57.205	58.603	55.775	67.910	52.077	14.070
30	47.365	42.906			55.868	49.542	57.201	58.964	55.672	68.182	51.935	14.161
31	47.533	42.779			55.971	49.817	57.186	59.325	55.569	68.434	51.799	14.244
32	47.713	42.657			56.065	50.117			55.469	68.666		
	sec(δ)	tan(δ)	sec(δ)	tan(δ)	sec(δ)	tan(δ)						
	7.56	7.49	7.56	7.49	7.56	7.49	7.56	7.49	7.56	7.50	7.56	7.50

Mean R.A. 14^h48^m44^s.073 Double lower transit November 2 Mean Dec. +82°24'04".810

APPARENT PLACES OF STARS, 2026
 NORTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1644 = Hipparcos Star No. 72573 = Grb 2196 UMi

Day	July		August		September		October		November		December	
	R.A.	Dec.										
	14 ^h 48 ^m	+ 82°24'	14 ^h 48 ^m	+ 82°24'	14 ^h 48 ^m	+ 82°24'	14 ^h 48 ^m	+ 82°23'	14 ^h 48 ^m	+ 82°23'	14 ^h 48 ^m	+ 82°23'
1	51.799	14.244	46.860	15.436	41.715	11.837	37.570	64.099	35.231	52.975	35.532	41.569
2	51.668	14.328	46.703	15.421	41.538	11.678	37.443	63.753	35.216	52.551	35.599	41.229
3	51.539	14.419	46.537	15.417	41.358	11.493	37.328	63.384	35.206	52.150	35.661	40.909
4	51.409	14.522	46.360	15.415	41.183	11.275	37.227	63.002	35.196	51.774	35.718	40.599
5	51.275	14.641	46.174	15.405	41.015	11.026	37.138	62.622	35.182	51.419	35.770	40.291
6	51.132	14.774	45.980	15.375	40.861	10.753	37.057	62.256	35.162	51.078	35.820	39.976
7	50.979	14.916	45.785	15.314	40.718	10.470	36.979	61.911	35.136	50.743	35.871	39.650
8	50.814	15.058	45.594	15.218	40.587	10.192	36.898	61.588	35.107	50.404	35.927	39.309
9	50.637	15.187	45.413	15.090	40.461	09.929	36.812	61.284	35.076	50.054	35.990	38.954
10	50.454	15.291	45.244	14.941	40.334	09.689	36.718	60.990	35.048	49.687	36.062	38.587
11	50.270	15.360	45.087	14.787	40.203	09.471	36.619	60.695	35.025	49.303	36.143	38.215
12	50.092	15.392	44.938	14.643	40.064	09.268	36.516	60.392	35.010	48.902	36.235	37.843
13	49.925	15.395	44.791	14.520	39.917	09.068	36.412	60.072	35.005	48.489	36.336	37.478
14	49.771	15.384	44.641	14.420	39.763	08.863	36.312	59.732	35.011	48.069	36.443	37.126
15	49.627	15.377	44.482	14.339	39.607	08.643	36.218	59.373	35.026	47.648	36.554	36.794
16	49.486	15.387	44.315	14.267	39.451	08.404	36.132	58.996	35.049	47.234	36.665	36.483
17	49.344	15.422	44.139	14.193	39.299	08.143	36.056	58.605	35.079	46.832	36.774	36.194
18	49.194	15.477	43.958	14.108	39.153	07.861	35.989	58.208	35.112	46.447	36.877	35.925
19	49.035	15.545	43.774	14.006	39.015	07.561	35.932	57.810	35.145	46.083	36.973	35.668
20	48.867	15.617	43.591	13.882	38.886	07.249	35.882	57.418	35.173	45.740	37.060	35.414
21	48.691	15.683	43.412	13.735	38.766	06.929	35.837	57.038	35.195	45.411	37.142	35.150
22	48.509	15.734	43.239	13.568	38.654	06.610	35.794	56.676	35.208	45.088	37.224	34.862
23	48.325	15.767	43.073	13.383	38.548	06.298	35.747	56.334	35.214	44.758	37.312	34.546
24	48.142	15.777	42.916	13.186	38.444	06.001	35.694	56.009	35.217	44.407	37.413	34.205
25	47.963	15.765	42.766	12.984	38.339	05.721	35.632	55.692	35.225	44.025	37.530	33.854
26	47.789	15.733	42.623	12.785	38.228	05.458	35.562	55.372	35.244	43.614	37.662	33.510
27	47.622	15.685	42.483	12.595	38.109	05.208	35.487	55.035	35.279	43.183	37.804	33.190
28	47.462	15.627	42.343	12.420	37.980	04.958	35.413	54.669	35.329	42.750	37.948	32.904
29	47.308	15.566	42.198	12.262	37.844	04.698	35.347	54.272	35.392	42.331	38.089	32.651
30	47.159	15.510	42.047	12.118	37.706	04.413	35.294	53.849	35.461	41.936	38.223	32.425
31	47.010	15.466	41.885	11.980	37.570	04.099	35.255	53.411	35.532	41.569	38.351	32.215
32	46.860	15.436	41.715	11.837			35.231	52.975			38.473	32.012
	sec(δ)	tan(δ)										
	7.57	7.50	7.56	7.50	7.56	7.50	7.56	7.49	7.56	7.49	7.55	7.49

Mean R.A. 14^h48^m44^s.073 Double lower transit November 2 Mean Dec. +82°24'04".810

APPARENT PLACES OF STARS, 2026
 SOUTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1662 = Hipparcos Star No. 30678 = A Octantis

Day	January		February		March		April		May		June	
	R.A.	Dec.										
	06 ^h 02 ^m	– 88°45′	06 ^h 01 ^m	– 88°45′	06 ^h 01 ^m	– 88°45′	06 ^h 00 ^m	– 88°45′	06 ^h 00 ^m	– 88°45′	06 ^h 00 ^m	– 88°44′
1	35.385	04.947	73.115	13.640	43.139	18.294	66.310	18.904	33.727	15.282	09.591	67.934
2	34.739	05.271	72.198	13.809	42.028	18.340	65.253	18.873	32.775	15.138	08.951	67.646
3	34.101	05.561	71.338	13.989	40.966	18.400	64.161	18.852	31.787	14.984	08.336	67.339
4	33.511	05.827	70.508	14.187	39.925	18.479	63.026	18.832	30.775	14.813	07.764	67.015
5	32.988	06.085	69.679	14.405	38.878	18.577	61.846	18.806	29.753	14.622	07.248	66.680
6	32.524	06.350	68.823	14.640	37.799	18.688	60.627	18.766	28.739	14.408	06.795	66.340
7	32.097	06.631	67.922	14.886	36.675	18.805	59.382	18.707	27.752	14.174	06.406	66.005
8	31.680	06.933	66.964	15.135	35.497	18.921	58.127	18.625	26.807	13.922	06.071	65.683
9	31.244	07.255	65.947	15.380	34.270	19.027	56.878	18.520	25.917	13.658	05.772	65.382
10	30.767	07.592	64.874	15.612	33.000	19.116	55.656	18.393	25.088	13.392	05.481	65.104
11	30.234	07.939	63.756	15.827	31.702	19.184	54.475	18.249	24.320	13.131	05.164	64.849
12	29.638	08.287	62.607	16.020	30.391	19.228	53.349	18.095	23.599	12.886	04.790	64.607
13	28.977	08.630	61.446	16.188	29.088	19.249	52.282	17.941	22.900	12.663	04.345	64.364
14	28.257	08.960	60.291	16.334	27.810	19.248	51.268	17.796	22.189	12.464	03.837	64.101
15	27.489	09.273	59.164	16.461	26.575	19.232	50.288	17.670	21.429	12.283	03.305	63.807
16	26.690	09.563	58.079	16.576	25.393	19.209	49.308	17.569	20.596	12.107	02.800	63.476
17	25.880	09.832	57.042	16.691	24.264	19.191	48.290	17.488	19.690	11.918	02.370	63.117
18	25.080	10.080	56.045	16.815	23.174	19.187	47.204	17.419	18.739	11.699	02.042	62.746
19	24.306	10.314	55.068	16.958	22.096	19.206	46.040	17.343	17.791	11.443	01.816	62.379
20	23.571	10.543	54.081	17.122	20.994	19.247	44.814	17.244	16.894	11.154	01.672	62.028
21	22.873	10.775	53.050	17.306	19.834	19.304	43.564	17.111	16.081	10.843	01.582	61.700
22	22.200	11.021	51.949	17.500	18.598	19.362	42.333	16.942	15.365	10.525	01.515	61.396
23	21.530	11.288	50.766	17.690	17.286	19.406	41.160	16.745	14.737	10.214	01.445	61.110
24	20.833	11.576	49.507	17.863	15.923	19.423	40.066	16.530	14.174	09.919	01.356	60.838
25	20.076	11.883	48.197	18.007	14.543	19.407	39.057	16.312	13.650	09.644	01.238	60.571
26	19.237	12.197	46.871	18.117	13.187	19.356	38.121	16.102	13.138	09.389	01.090	60.302
27	18.305	12.506	45.567	18.195	11.885	19.281	37.237	15.907	12.615	09.148	00.917	60.024
28	17.292	12.795	44.318	18.250	10.656	19.191	36.378	15.730	12.067	08.917	00.731	59.732
29	16.225	13.052	43.139	18.294	09.501	19.099	35.519	15.571	11.487	08.687	00.548	59.422
30	15.147	13.275			08.408	19.017	34.640	15.424	10.874	08.450	00.387	59.094
31	14.101	13.466			07.354	18.951	33.727	15.282	10.238	08.201	00.265	58.750
32	13.115	13.640			06.310	18.904			09.591	07.934		
	sec(δ)	tan(δ)										
	45.94	45.93	46.01	46.00	46.04	46.03	46.02	46.01	45.96	45.95	45.88	45.86

Mean R.A. 06^h01^m10^s.457

Double lower transit June 21

Mean Dec. –88°45′09″320

Apparent places of Southern Circumpolar Stars

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APPARENT PLACES OF STARS, 2026
 SOUTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1662 = Hipparcos Star No. 30678 = A Octantis

Day	July		August		September		October		November		December	
	R.A.	Dec.	R.A.	Dec.								
	06 ^h 00 ^m	– 88°44′	06 ^h 01 ^m	– 88°44′	06 ^h 01 ^m	– 88°44′						
1	00.265	58.750	07.233	49.502	28.672	43.417	56.006	42.442	21.467	46.897	35.146	55.371
2	00.197	58.396	07.838	49.227	29.541	43.350	56.784	42.525	22.105	47.070	35.450	55.675
3	00.193	58.037	08.468	48.978	30.345	43.289	57.543	42.585	22.806	47.250	35.754	56.006
4	00.255	57.683	09.094	48.755	31.089	43.220	58.321	42.623	23.557	47.450	36.027	56.361
5	00.375	57.342	09.687	48.555	31.797	43.133	59.150	42.647	24.332	47.676	36.247	56.734
6	00.539	57.020	10.227	48.367	32.503	43.021	60.047	42.669	25.102	47.931	36.402	57.117
7	00.721	56.723	10.705	48.180	33.246	42.888	61.014	42.704	25.840	48.211	36.486	57.502
8	00.892	56.451	11.131	47.979	34.058	42.743	62.035	42.761	26.524	48.511	36.505	57.879
9	01.023	56.196	11.534	47.754	34.955	42.600	63.081	42.849	27.143	48.822	36.471	58.244
10	01.093	55.949	11.955	47.500	35.931	42.474	64.121	42.968	27.695	49.134	36.400	58.593
11	01.099	55.694	12.437	47.225	36.963	42.376	65.128	43.114	28.190	49.440	36.311	58.924
12	01.060	55.417	13.011	46.941	38.018	42.310	66.083	43.277	28.641	49.735	36.220	59.240
13	01.019	55.108	13.683	46.664	39.065	42.275	66.980	43.450	29.065	50.015	36.144	59.544
14	01.024	54.768	14.436	46.410	40.078	42.263	67.821	43.622	29.480	50.280	36.090	59.843
15	01.118	54.408	15.239	46.186	41.045	42.265	68.618	43.788	29.904	50.535	36.062	60.144
16	01.318	54.047	16.057	45.992	41.964	42.271	69.386	43.942	30.347	50.783	36.055	60.454
17	01.616	53.699	16.861	45.823	42.842	42.274	70.142	44.083	30.818	51.030	36.058	60.779
18	01.983	53.375	17.633	45.672	43.691	42.269	70.903	44.213	31.318	51.285	36.052	61.126
19	02.386	53.080	18.368	45.529	44.528	42.251	71.685	44.334	31.841	51.555	36.011	61.495
20	02.794	52.809	19.066	45.385	45.369	42.221	72.499	44.453	32.371	51.847	35.906	61.885
21	03.187	52.557	19.736	45.235	46.232	42.181	73.351	44.577	32.884	52.166	^{35.711} _{35.411}	^{62.285} _{62.684}
22	03.550	52.316	20.392	45.074	47.130	42.135	74.240	44.713	33.348	52.512	35.015	63.064
23	03.881	52.078	21.049	44.899	48.076	42.089	75.156	44.871	33.733	52.879	34.559	63.413
24	04.183	51.835	21.726	44.710	49.071	42.052	76.077	45.058	34.017	53.253	34.093	63.726
25	04.468	51.581	22.440	44.511	50.111	42.033	76.973	45.276	34.200	53.619	33.666	64.012
26	04.748	51.312	23.204	44.308	51.180	42.041	77.810	45.521	34.310	53.960	33.308	64.286
27	05.042	51.028	24.027	44.108	52.250	42.080	78.563	45.782	34.391	54.271	33.018	64.566
28	05.367	50.730	24.909	43.919	53.289	42.149	79.224	46.045	34.493	54.554	32.775	64.865
29	05.741	50.420	25.838	43.752	54.270	42.241	79.807	46.293	34.649	54.821	32.544	65.188
30	06.174	50.107	26.794	43.612	55.175	42.343	80.348	46.518	34.870	55.089	32.292	65.535
31	06.673	49.798	27.748	43.501	56.006	42.442	80.889	46.717	35.146	55.371	31.992	65.900
32	07.233	49.502	28.672	43.417			81.467	46.897			31.630	66.274
	sec(δ)	tan(δ)	sec(δ)	tan(δ)								
	45.78	45.77	45.70	45.69	45.66	45.65	45.68	45.67	45.75	45.74	45.84	45.83

Mean R.A. 06^h01^m10^s.457

Double lower transit June 21

Mean Dec. –88°45′09″.320

APPARENT PLACES OF STARS, 2026
 SOUTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1666 = Hipparcos Star No. 76996 = ρ Oct

Day	January		February		March		April		May		June	
	R.A.	Dec.	R.A.	Dec.								
	15 ^h 49 ^m	–	15 ^h 49 ^m	–								
		84°32′		84°32′		84°32′		84°32′		84°32′		84°32′
1	28.767	33.223	36.788	30.338	44.582	31.973	52.140	37.988	57.339	46.531	59.724	56.873
2	29.046	33.068	37.049	30.381	44.826	32.146	52.326	38.202	57.473	46.803	59.754	57.220
3	29.314	32.947	37.294	30.408	45.057	32.301	52.523	38.408	57.616	47.087	59.771	57.577
4	29.563	32.846	37.531	30.415	45.284	32.435	52.733	38.616	57.762	47.388	59.770	57.937
5	29.789	32.748	37.770	30.401	45.516	32.550	52.954	38.834	57.908	47.707	59.752	58.294
6	29.996	32.639	38.018	30.373	45.759	32.654	53.182	39.067	58.046	48.045	59.718	58.639
7	30.194	32.510	38.281	30.339	46.015	32.756	53.414	39.320	58.173	48.399	59.672	58.967
8	30.391	32.361	38.558	30.307	46.284	32.864	53.643	39.594	58.285	48.763	59.622	59.272
9	30.595	32.194	38.850	30.286	46.565	32.986	53.864	39.888	58.380	49.132	59.574	59.553
10	30.813	32.016	39.152	30.282	46.853	33.127	54.074	40.198	58.458	49.496	59.538	59.816
11	31.047	31.837	39.462	30.300	47.143	33.291	54.267	40.519	58.520	49.848	59.521	60.069
12	31.297	31.663	39.773	30.341	47.429	33.477	54.444	40.843	58.573	50.181	59.524	60.328
13	31.562	31.502	40.080	30.406	47.708	33.683	54.604	41.162	58.624	50.492	59.544	60.607
14	31.838	31.360	40.379	30.491	47.973	33.906	54.751	41.466	58.683	50.781	59.567	60.917
15	32.121	31.240	40.665	30.591	48.223	34.139	54.892	41.750	58.758	51.056	59.580	61.258
16	32.407	31.144	40.935	30.698	48.456	34.372	55.036	42.011	58.855	51.330	59.569	61.618
17	32.688	31.071	41.190	30.801	48.675	34.597	55.194	42.255	58.971	51.621	59.528	61.981
18	32.960	31.017	41.434	30.893	48.884	34.805	55.373	42.493	59.098	51.941	59.460	62.330
19	33.220	30.973	41.675	30.966	49.092	34.991	55.572	42.741	59.329 59.322	52.295 52.295	59.371	62.653
20	33.466	30.933	41.920	31.021	49.310	35.158	55.787	43.015	59.397	53.068	59.273	62.946
21	33.701	30.886	42.179	31.061	49.546	35.315	56.003	43.321	59.444	53.456	59.175	63.212
22	33.929	30.825	42.458	31.098	49.803	35.475	56.209	43.659	59.468	53.828	59.082	63.457
23	34.158	30.747	42.758	31.145	50.078	35.654	56.393	44.017	59.477	54.176	59.000	63.690
24	34.396	30.652	43.074	31.214	50.363	35.862	56.551	44.384	59.479	54.499	58.929	63.919
25	34.652	30.547	43.399	31.315	50.647	36.102	56.685	44.744	59.483	54.800	58.868	64.152
26	34.931	30.442	43.721	31.449	50.917	36.371	56.799	45.089	59.495	55.085	58.813	64.395
27	35.232	30.351	44.030	31.611	51.167	36.659	56.901	45.411	59.517	55.362	58.760	64.652
28	35.550	30.286	44.317	31.790	51.392	36.952	57.000	45.712	59.549	55.640	58.703	64.924
29	35.877	30.256	44.582	31.973	51.596	37.239	57.103	45.994	59.590	55.926	58.639	65.209
30	36.198	30.261			51.783	37.510	57.215	46.264	59.636	56.225	58.561	65.503
31	36.504	30.293			51.961	37.759	57.339	46.531	59.682	56.540	58.467	65.802
32	36.788	30.338			52.140	37.988			59.724	56.873		
	sec(δ)	tan(δ)	sec(δ)	tan(δ)								
	10.51	10.47	10.51	10.47	10.52	10.47	10.52	10.47	10.52	10.48	10.53	10.48

Mean R.A. 15^h49^m48^s353 Double lower transit November 18 Mean Dec. –84°32′44″509

APPARENT PLACES OF STARS, 2026
 SOUTHERN CIRCUMPOLAR STARS AT UPPER TRANSIT AT GREENWICH
 EQUINOX BASED RIGHT ASCENSION – WHOLE NUTATION

FK6 Star No. 1666 = Hipparcos Star No. 76996 = ρ Oct

Day	July		August		September		October		November		December	
	R.A.	Dec.										
	15 ^h 49 ^m	–										
		84°33′		84°33′		84°33′		84°33′		84°32′		84°32′
1	58.467	05.802	53.998	11.893	47.847	12.885	42.465	08.797	39.561	60.772	40.534	51.681
2	58.357	06.096	53.781	11.995	47.669	12.784	42.363	08.604	39.510	60.520	40.600	51.379
3	58.230	06.379	53.573	12.072	47.508	12.695	42.253	08.432	39.448	60.246	40.678	51.057
4	58.090	06.644	53.378	12.131	47.356	12.628	42.127	08.270	39.384	59.946	40.773	50.725
5	57.944	06.885	53.203	12.182	47.203	12.583	41.982	08.105	39.326	59.621	40.889	50.391
6	57.799	07.102	53.046	12.238	47.037	12.556	41.820	07.924	39.283	59.274	41.023	50.065
7	57.662	07.296	52.904	12.310	46.851	12.535	41.647	07.716	39.259	58.917	41.172	49.753
8	57.540	07.477	52.766	12.406	46.643	12.505	41.474	07.478	39.255	58.557	41.332	49.461
9	57.439	07.654	52.621	12.526	46.417	12.453	41.309	07.212	39.270	58.203	41.498	49.189
10	57.355	07.842	52.458	12.662	46.181	12.370	41.159	06.924	39.299	57.864	41.663	48.937
11	57.282	08.054	52.269	12.799	45.946	12.252	41.029	06.625	39.338	57.542	41.823	48.702
12	57.208	08.295	52.055	12.920	45.721	12.107	40.918	06.324	39.381	57.238	41.975	48.477
13	57.118	08.560	51.823	13.011	45.512	11.942	40.824	06.031	39.421	56.950	42.118	48.256
14	57.002	08.836	51.584	13.069	45.320	11.768	40.742	05.750	39.456	56.673	42.252	48.032
15	56.856	09.104	51.348	13.093	45.145	11.595	40.665	05.484	39.483	56.402	42.381	47.799
16	56.687	09.350	51.123	13.094	44.983	11.430	40.589	05.233	39.502	56.130	42.508	47.553
17	56.504	09.563	50.913	13.080	44.827	11.277	40.509	04.993	39.513	55.851	42.640	47.291
18	56.316	09.744	50.718	13.061	44.674	11.137	40.421	04.760	39.520	55.557	42.785	47.014
19	56.135	09.898	50.535	13.047	44.517	11.009	40.324	04.528	39.528	55.245	42.948	46.726
20	55.964	10.034	50.360	13.041	44.353	10.888	40.218	04.289	39.545	54.913	43.136	46.438
21	55.805	10.161	50.188	13.048	44.179	10.771	40.104	04.036	39.580	54.563	43.351	46.163
22	55.659	10.288	50.014	13.067	43.992	10.649	39.987	03.763	39.638	54.203	43.587	45.915
23	55.521	10.422	49.833	13.096	43.794	10.515	39.874	03.466	39.725	53.846	43.834	45.703
24	55.387	10.567	49.640	13.131	43.589	10.362	39.773	03.145	39.838	53.508	44.078	45.527
25	55.253	10.725	49.435	13.165	43.382	10.183	39.694	02.805	39.968	53.201	44.304	45.377
26	55.113	10.895	49.214	13.191	43.180	09.976	39.641	02.460	40.100	52.928	44.508	45.234
27	54.963	11.076	48.982	13.200	42.994	09.745	39.614	02.122	40.221	52.682	44.690	45.082
28	54.799	11.260	48.741	13.186	42.829	09.500	39.608	01.806	40.324	52.449	44.860	44.908
29	54.619	11.442	48.500	13.144	42.689	09.251	39.611	01.518	40.406	52.213	45.028	44.708
30	54.423	11.612	48.266	13.076	42.570	09.014	39.610	01.257	40.473	51.959	45.206	44.488
31	54.214	11.765	48.047	12.986	42.465	08.797	39.595	01.013	40.534	51.681	45.399	44.256
32	53.998	11.893	47.847	12.885			39.561	00.772		45.610	44.021	
	sec(δ)	tan(δ)										
	10.53	10.49	10.54	10.49	10.53	10.49	10.53	10.48	10.53	10.48	10.52	10.47

Mean R.A. 15^h49^m48^s353 Double lower transit November 18 Mean Dec. –84°32′44″509

**REDUCTION TO HIPPARCOS, FK6(LONG TERM) AND GAIA DR3 2026
FOR MEAN EPOCH AND EQUINOX 2026.5**

FK6-No.	HIP-No.	DR3 source ID	Hip – FK6 (SI)		FK6: LTP – SI		Gaia DR3 – SI	
			$\Delta\alpha$	$\Delta\delta$	$\Delta\alpha$	$\Delta\delta$	$\Delta\alpha$	$\Delta\delta$
10	1599	4900108950849461248	10.8	11.7	-16.8	-11.0	-13.5	-29.0
22	3419	–	-16.2	6.4	2.1	-5.1	–	–
44	5661	4988805179472314368	4.4	8.9	-6.4	-13.4	5.1	26.9
80	10642	2487740376053070592	44.2	-0.6	-4.0	-0.5	15.1	-9.7
110	14240	4726572858838693248	4.7	14.4	-21.2	-18.3	-32.5	26.6
119	15510	4847957293278177024	-6.1	0.2	21.0	4.1	-28.3	6.6
120	15863	–	-1.6	-29.5	-6.9	8.5	–	–
153	19095	4889935410276933504	-5.7	17.2	9.1	-0.3	-5.1	12.6
173	22361	551765484922976000	28.7	20.7	-38.5	-11.2	19.4	7.2
201	25336	–	-13.5	-38.9	-10.3	-5.4	–	–
203	25769	287221784689921280	12.5	8.7	-5.8	-2.7	36.8	4.7
210	26311	–	2.7	16.0	0.3	-2.8	–	–
223	27628	2887731882922767744	-1.8	4.1	3.1	-12.3	-35.9	-0.5
243	30324	–	11.4	-17.3	-12.6	5.4	–	–
245	30438	–	23.9	14.0	-2.4	-4.6	–	–
254	32246	3384529341302871296	-52.0	-21.6	-1.5	-4.1	-19.3	16.4
306	39429	–	-12.6	13.4	9.4	-14.2	–	–
323	42452	1029443226367419904	-7.0	-33.0	-1.9	16.7	-1.1	-18.1
348	45238	–	82.3	28.1	-71.1	-18.8	–	–
354	46390	–	13.9	-16.2	12.8	-10.4	–	–
363	47594	1070945014312759296	4.9	22.3	11.3	-9.8	-17.5	-33.7
422	54872	–	11.7	-18.1	-22.0	3.3	–	–
423	54879	3970052886914547712	31.9	-22.1	-12.9	0.5	7.7	0.2
426	55282	3561350430457837056	-17.0	-8.8	-5.5	3.3	8.5	9.4
455	59747	6071060144089351808	-9.1	-12.0	8.1	15.5	11.5	-14.3
464	60823	6127435678627741824	-10.7	-1.1	17.9	-5.4	-0.9	-31.9
468	61084	–	-1.7	-11.5	-10.5	28.0	–	–
479	62131	3495237758351310208	-29.2	3.3	12.8	15.0	-21.2	-0.6
509	67301	–	46.5	-45.9	-17.9	37.3	–	–
529	70069	5892368991819163136	13.7	-2.1	-22.0	3.7	6.7	5.7
560	74946	5823248090239625088	14.3	-6.7	-42.6	9.1	38.8	9.2
564	74785	–	28.9	-26.5	10.9	5.3	–	–
588	77622	4426032591025363200	21.7	-5.4	2.7	23.1	0.9	0.8
603	79593	4357027756659697664	-16.6	31.5	-2.0	11.7	-12.6	-18.5
622	81377	4337352305320149760	23.1	-4.5	-4.8	-1.4	-1.1	-8.9
625	82273	–	-13.5	25.2	5.0	-14.5	–	–
635	83613	4544196074866779904	17.2	13.9	-13.0	15.7	4.6	-6.6
660	86670	–	1.0	-17.0	-2.0	10.2	–	–
671	87585	1421593566062037120	26.4	14.7	-12.7	-7.2	28.6	23.9
691	90422	6709267613942522496	-0.4	9.4	-4.9	-5.4	-14.8	8.9

Units: 0^s.0001 for $\Delta\alpha$

0^{''}.001 for $\Delta\delta$

**REDUCTION TO HIPPARCOS, FK6(LONG TERM) AND GAIA DR3 2026
FOR MEAN EPOCH AND EQUINOX 2026.5**

FK6-No.	HIP-No.	DR3 source ID	Hip – FK6 (SI)		FK6: LTP – SI		Gaia DR3 – SI	
			$\Delta\alpha$	$\Delta\delta$	$\Delta\alpha$	$\Delta\delta$	$\Delta\alpha$	$\Delta\delta$
699	91262	–	-20.4	28.2	-26.7	-48.0	–	–
700	90647	2293540887145084800	87.3	-27.3	-39.6	9.6	-7.0	-8.3
725	94834	4309904852962852736	-15.8	-20.1	-3.3	2.2	5.0	16.2
748	98495	6368016725517046144	2.3	9.5	3.1	-12.8	13.6	-7.9
777	102098	–	-7.1	15.4	1.1	-2.7	–	–
855	112029	–	-3.0	18.8	5.5	-7.8	–	–
1039	6732	2786205006436020096	-11.5	-6.7	-4.5	-11.2	5.0	34.3
1045	7513	348020482735930112	-12.2	15.0	-6.2	-8.0	-8.5	-5.8
1116	19513	162405533940990080	17.0	-29.1	-4.8	4.6	13.8	7.4
1166	29134	5282761464287879296	-1.9	0.0	7.8	-1.6	-18.1	-24.7
1260	49339	5659603617123861248	4.5	55.6	4.1	-19.5	-12.1	-30.5
1275	52098	736193339116006656	8.0	-11.9	-0.2	1.7	8.6	6.1
1307	57939	4034171629042489088	12.6	14.8	-21.3	24.3	-18.9	10.0
1357	67057	3605275331575431168	-6.9	-8.2	2.5	1.1	-9.2	-21.0
1396	73996	1264630412816366720	-4.4	10.4	-5.9	-28.1	-6.2	-14.0
1456	84862	1333760419707327744	-4.2	16.5	-2.9	-7.4	7.0	13.7
1517	97290	6868679345227206784	0.0	-5.9	-1.3	5.2	-15.6	-30.9
1533	101101	4225598836822831360	15.0	-15.4	-5.8	14.6	-19.3	-10.8
1546	102978	6801963487915169920	18.2	-45.1	-4.4	12.8	-6.7	-40.3
1577	108036	6840706910418152320	37.2	25.9	-3.9	-14.5	-19.9	-3.2
1644	72573	1722385725122129408	91.7	-7.7	-50.9	1.8	69.6	-37.2
1662	30678	5188501986003355136	-138.3	0.6	168.9	1.7	425.9	25.1
1666	76996	5768112564243961856	92.4	24.8	-157.2	-16.5	75.9	-3.6

Units: $0^{\circ}0001$ for $\Delta\alpha$

$0''001$ for $\Delta\delta$

Polaris (FK6 star No. 907) is not included in the list above because it is a double star. In the following table we give for Polaris the corrections from the apparent position based on the FK6 (see p. 26 and 27 of this publication) to the corresponding position based on the HIPPARCOS catalogue for the first day of each month. The corrections for intermediate days may be obtained by interpolation. The HIPPARCOS apparent place is obtained by adding the tabulated data to the FK6-position.

Reduction to HIPPARCOS for Polaris, 2026

Day	Month	Year	$\Delta\alpha[0^{\circ}001]$	$\Delta\delta[0''001]$
1	1	2026	764	83
1	2	2026	766	83
1	3	2026	764	84
1	4	2026	761	85
1	5	2026	760	85
1	6	2026	758	85
1	7	2026	759	84
1	8	2026	763	83
1	9	2026	769	83
1	10	2026	775	82
1	11	2026	783	81
1	12	2026	790	81
1	1	2027	794	81

TABLE UT – ST, 2026
 SIDEREAL TIME AT 0^h U.T.

Date		Sidereal Time		Equation of Equinox	Date	Sidereal Time		Equation of Equinox	
		Apparent	Mean	app–mean		Apparent	Mean	app–mean	
				(0 ^s 001)					
Jan.	0	6 ^h 38 ^m 42.369 ^s	42.047 ^s	+ 322	Feb.	15	9 ^h 40 ^m 04.041 ^s	03.594 ^s	+ 447
	1	6 42 38.934	38.602	+ 332		16	9 44 00.599	00.149	+ 449
	2	6 46 35.502	35.158	+ 345		17	9 47 57.153	56.705	+ 448
	3	6 50 32.072	31.713	+ 359		18	9 51 53.704	53.260	+ 444
	4	6 54 28.640	28.268	+ 371		19	9 55 50.253	49.815	+ 438
	5	6 58 25.204	24.824	+ 380		20	9 59 46.801	46.371	+ 430
	6	7 02 21.764	21.379	+ 385		21	10 03 43.348	42.926	+ 422
	7	7 06 18.319	17.934	+ 385		22	10 07 39.898	39.481	+ 417
	8	7 10 14.872	14.490	+ 382		23	10 11 36.452	36.037	+ 415
	9	7 14 11.424	11.045	+ 379		24	10 15 33.010	32.592	+ 417
	10	7 18 07.975	07.601	+ 375		25	10 19 29.571	29.147	+ 423
	11	7 22 04.528	04.156	+ 372		26	10 23 26.134	25.703	+ 431
	12	7 26 01.083	00.711	+ 372		27	10 27 22.697	22.258	+ 439
	13	7 29 57.640	57.267	+ 374		28	10 31 19.258	18.814	+ 445
	14	7 33 54.200	53.822	+ 378	Mar.	1	10 35 15.816	15.369	+ 447
	15	7 37 50.762	50.377	+ 384		2	10 39 12.370	11.924	+ 446
	16	7 41 47.325	46.933	+ 392		3	10 43 08.920	08.480	+ 441
	17	7 45 43.888	43.488	+ 400		4	10 47 05.468	05.035	+ 433
	18	7 49 40.451	40.043	+ 408		5	10 51 02.015	01.590	+ 424
	19	7 53 37.013	36.599	+ 414		6	10 54 58.562	58.146	+ 416
	20	7 57 33.572	33.154	+ 418		7	10 58 55.110	54.701	+ 409
	21	8 01 30.128	29.710	+ 418		8	11 02 51.661	51.257	+ 405
	22	8 05 26.681	26.265	+ 416		9	11 06 48.215	47.812	+ 403
	23	8 09 23.232	22.820	+ 412		10	11 10 44.770	44.367	+ 403
	24	8 13 19.782	19.376	+ 407		11	11 14 41.328	40.923	+ 405
	25	8 17 16.333	15.931	+ 402		12	11 18 37.887	37.478	+ 409
	26	8 21 12.887	12.486	+ 400		13	11 22 34.446	34.033	+ 413
	27	8 25 09.444	09.042	+ 402		14	11 26 31.004	30.589	+ 415
	28	8 29 06.005	05.597	+ 408		15	11 30 27.561	27.144	+ 417
	29	8 33 02.570	02.153	+ 417		16	11 34 24.115	23.700	+ 415
	30	8 36 59.136	58.708	+ 428		17	11 38 20.666	20.255	+ 411
	31	8 40 55.702	55.263	+ 439		18	11 42 17.214	16.810	+ 404
Feb.	1	8 44 52.265	51.819	+ 447		19	11 46 13.760	13.366	+ 395
	2	8 48 48.825	48.374	+ 451		20	11 50 10.306	09.921	+ 385
	3	8 52 45.380	44.929	+ 451		21	11 54 06.854	06.476	+ 378
	4	8 56 41.931	41.485	+ 447		22	11 58 03.406	03.032	+ 374
	5	9 00 38.481	38.040	+ 441		23	12 01 59.962	59.587	+ 375
	6	9 04 35.030	34.595	+ 434		24	12 05 56.521	56.142	+ 379
	7	9 08 31.579	31.151	+ 429		25	12 09 53.083	52.698	+ 386
	8	9 12 28.131	27.706	+ 425		26	12 13 49.646	49.253	+ 393
	9	9 16 24.685	24.262	+ 423		27	12 17 46.207	45.809	+ 398
	10	9 20 21.241	20.817	+ 424		28	12 21 42.765	42.364	+ 401
	11	9 24 17.800	17.372	+ 427		29	12 25 39.319	38.919	+ 400
	12	9 28 14.360	13.928	+ 432		30	12 29 35.870	35.475	+ 395
	13	9 32 10.921	10.483	+ 438		31	12 33 32.418	32.030	+ 388
	14	9 36 07.482	07.038	+ 443	Apr.	1	12 37 28.964	28.585	+ 379
	15	9 40 04.041	03.594	+ 447		2	12 41 25.511	25.141	+ 370

Table UT-ST – Sidereal Time at 0^h UT
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TABLE UT – ST, 2026
SIDEREAL TIME AT 0^h U.T.

Date	Sidereal Time		Equation of Equinox	Date	Sidereal Time		Equation of Equinox
	Apparent	Mean	app–mean		Apparent	Mean	app–mean
			(0 ^o 001)				(0 ^o 001)
Apr. 1	12 ^h 37 ^m 28.964 ^s	28.585 ^s	+ 379	May 17	15 ^h 38 ^m 50.485 ^s	50.132 ^s	+ 352
2	12 41 25.511	25.141	+ 370	18	15 42 47.050	46.688	+ 362
3	12 45 22.059	21.696	+ 363	19	15 46 43.618	43.243	+ 375
4	12 49 18.609	18.252	+ 357	20	15 50 40.185	39.798	+ 386
5	12 53 15.161	14.807	+ 355	21	15 54 36.749	36.354	+ 396
6	12 57 11.717	11.362	+ 354	22	15 58 33.310	32.909	+ 401
7	13 01 08.274	07.918	+ 356	23	16 02 29.866	29.465	+ 402
8	13 05 04.833	04.473	+ 360	24	16 06 26.419	26.020	+ 399
9	13 09 01.392	01.028	+ 364	25	16 10 22.970	22.575	+ 395
10	13 12 57.951	57.584	+ 367	26	16 14 19.521	19.131	+ 390
11	13 16 54.509	54.139	+ 370	27	16 18 16.072	15.686	+ 386
12	13 20 51.064	50.694	+ 370	28	16 22 12.625	12.241	+ 384
13	13 24 47.617	47.250	+ 367	29	16 26 09.180	08.797	+ 384
14	13 28 44.167	43.805	+ 362	30	16 30 05.738	05.352	+ 386
15	13 32 40.715	40.361	+ 354	31	16 34 02.299	01.908	+ 391
16	13 36 37.262	36.916	+ 346	June 1	16 37 58.861	58.463	+ 398
17	13 40 33.810	33.471	+ 339	2	16 41 55.424	55.018	+ 406
18	13 44 30.361	30.027	+ 335	3	16 45 51.987	51.574	+ 414
19	13 48 26.917	26.582	+ 335	4	16 49 48.549	48.129	+ 420
20	13 52 23.477	23.137	+ 340	5	16 53 45.110	44.684	+ 426
21	13 56 20.041	19.693	+ 348	6	16 57 41.668	41.240	+ 428
22	14 00 16.605	16.248	+ 357	7	17 01 38.224	37.795	+ 428
23	14 04 13.169	12.804	+ 365	8	17 05 34.777	34.350	+ 426
24	14 08 09.730	09.359	+ 371	9	17 09 31.328	30.906	+ 422
25	14 12 06.286	05.914	+ 372	10	17 13 27.879	27.461	+ 418
26	14 16 02.839	02.470	+ 370	11	17 17 24.432	24.017	+ 415
27	14 19 59.389	59.025	+ 364	12	17 21 20.988	20.572	+ 416
28	14 23 55.938	55.580	+ 358	13	17 25 17.548	17.127	+ 420
29	14 27 52.486	52.136	+ 350	14	17 29 14.113	13.683	+ 430
30	14 31 49.035	48.691	+ 344	15	17 33 10.681	10.238	+ 443
May 1	14 35 45.587	45.246	+ 340	16	17 37 07.250	06.793	+ 457
2	14 39 42.141	41.802	+ 339	17	17 41 03.818	03.349	+ 469
3	14 43 38.697	38.357	+ 340	18	17 44 60.382	59.904	+ 478
4	14 47 35.256	34.913	+ 343	19	17 48 56.941	56.460	+ 482
5	14 51 31.816	31.468	+ 348	20	17 52 53.496	53.015	+ 482
6	14 55 28.378	28.023	+ 354	21	17 56 50.049	49.570	+ 479
7	14 59 24.939	24.579	+ 360	22	18 00 46.600	46.126	+ 475
8	15 03 21.499	21.134	+ 365	23	18 04 43.152	42.681	+ 471
9	15 07 18.057	17.689	+ 368	24	18 08 39.705	39.236	+ 469
10	15 11 14.613	14.245	+ 368	25	18 12 36.261	35.792	+ 469
11	15 15 11.166	10.800	+ 366	26	18 16 32.819	32.347	+ 472
12	15 19 07.717	07.356	+ 361	27	18 20 29.380	28.902	+ 477
13	15 23 04.266	03.911	+ 355	28	18 24 25.942	25.458	+ 484
14	15 27 00.816	00.466	+ 350	29	18 28 22.505	22.013	+ 492
15	15 30 57.368	57.022	+ 346	30	18 32 19.069	18.569	+ 500
16	15 34 53.924	53.577	+ 347	July 1	18 36 15.632	15.124	+ 508
17	15 38 50.485	50.132	+ 352	2	18 40 12.193	11.679	+ 514

TABLE UT – ST, 2026
SIDEREAL TIME AT 0^h U.T.

Date	Sidereal Time		Equation of Equinox	Date	Sidereal Time		Equation of Equinox
	Apparent	Mean	app–mean		Apparent	Mean	app–mean
			(0 ^s 001)				(0 ^s 001)
July	1 ^h 18 ^m 36 ^s 15.632	15.124	+ 508	Aug. 16	21 ^h 37 ^m 37.255	36.671	+ 584
	2 18 40 12.193	11.679	+ 514		17 21 41 33.804	33.226	+ 578
	3 18 44 08.752	08.235	+ 517		18 21 45 30.355	29.782	+ 573
	4 18 48 05.308	04.790	+ 518		19 21 49 26.908	26.337	+ 571
	5 18 52 01.862	01.345	+ 516		20 21 53 23.464	22.892	+ 571
	6 18 55 58.413	57.901	+ 512		21 21 57 20.022	19.448	+ 574
	7 18 59 54.964	54.456	+ 508		22 22 01 16.581	16.003	+ 578
	8 19 03 51.516	51.012	+ 504		23 22 05 13.141	12.559	+ 582
	9 19 07 48.070	47.567	+ 503		24 22 09 09.701	09.114	+ 587
	10 19 11 44.628	44.122	+ 506		25 22 13 06.259	05.669	+ 590
	11 19 15 41.190	40.678	+ 513		26 22 17 02.816	02.225	+ 591
	12 19 19 37.756	37.233	+ 523		27 22 20 59.369	58.780	+ 589
	13 19 23 34.325	33.788	+ 536		28 22 24 55.920	55.335	+ 585
	14 19 27 30.893	30.344	+ 549		29 22 28 52.469	51.891	+ 578
	15 19 31 27.458	26.899	+ 559		30 22 32 49.016	48.446	+ 570
	16 19 35 24.019	23.454	+ 564		31 22 36 45.563	45.001	+ 562
	17 19 39 20.574	20.010	+ 565	Sept. 1	22 40 42.112	41.557	+ 555
	18 19 43 17.127	16.565	+ 562		2 22 44 38.663	38.112	+ 551
	19 19 47 13.677	13.121	+ 557		3 22 48 35.219	34.668	+ 551
	20 19 51 10.228	09.676	+ 552		4 22 52 31.778	31.223	+ 555
	21 19 55 06.780	06.231	+ 548		5 22 56 28.340	27.778	+ 562
	22 19 59 03.333	02.787	+ 547		6 23 00 24.903	24.334	+ 570
	23 20 02 59.890	59.342	+ 547		7 23 04 21.465	20.889	+ 576
	24 20 06 56.448	55.897	+ 551		8 23 08 18.024	17.444	+ 580
	25 20 10 53.009	52.453	+ 556		9 23 12 14.580	14.000	+ 580
	26 20 14 49.571	49.008	+ 562		10 23 16 11.131	10.555	+ 575
	27 20 18 46.133	45.564	+ 569		11 23 20 07.678	07.111	+ 568
	28 20 22 42.695	42.119	+ 576		12 23 24 04.225	03.666	+ 559
	29 20 26 39.255	38.674	+ 580		13 23 28 00.771	00.221	+ 550
	30 20 30 35.813	35.230	+ 583		14 23 31 57.320	56.777	+ 543
	31 20 34 32.368	31.785	+ 583		15 23 35 53.870	53.332	+ 538
Aug.	1 20 38 28.920	28.340	+ 580		16 23 39 50.424	49.887	+ 536
	2 20 42 25.470	24.896	+ 575		17 23 43 46.980	46.443	+ 537
	3 20 46 22.020	21.451	+ 568		18 23 47 43.537	42.998	+ 539
	4 20 50 18.569	18.006	+ 563		19 23 51 40.096	39.553	+ 542
	5 20 54 15.121	14.562	+ 559		20 23 55 36.655	36.109	+ 546
	6 20 58 11.675	11.117	+ 558		21 23 59 33.212	32.664	+ 548
	7 21 02 08.234	07.673	+ 561		22 0 03 29.768	29.220	+ 549
	8 21 06 04.796	04.228	+ 568		23 0 07 26.322	25.775	+ 547
	9 21 10 01.361	00.783	+ 578		24 0 11 22.873	22.330	+ 542
	10 21 13 57.927	57.339	+ 588		25 0 15 19.421	18.886	+ 535
	11 21 17 54.491	53.894	+ 597		26 0 19 15.968	15.441	+ 527
	12 21 21 51.051	50.449	+ 602		27 0 23 12.514	11.996	+ 517
	13 21 25 47.607	47.005	+ 602		28 0 27 09.061	08.552	+ 509
	14 21 29 44.158	43.560	+ 598		29 0 31 05.611	05.107	+ 504
	15 21 33 40.707	40.116	+ 592		30 0 35 02.165	01.663	+ 503
	16 21 37 37.255	36.671	+ 584	Oct. 1	0 38 58.723	58.218	+ 506

TABLE UT – ST, 2026
SIDEREAL TIME AT 0^h U.T.

Date	Sidereal Time		Equation of Equinox	Date	Sidereal Time		Equation of Equinox
	Apparent	Mean	app–mean		Apparent	Mean	app–mean
			(0 ^o 001)				(0 ^o 001)
Oct. 1	0 ^h 38 ^m 58.723 ^s	58.218 ^s	+ 506	Nov. 16	3 ^h 40 ^m 20.279 ^s	19.765 ^s	+ 514
2	0 42 55.285	54.773	+ 511	17	3 44 16.835	16.320	+ 515
3	0 46 51.847	51.329	+ 519	18	3 48 13.389	12.876	+ 514
4	0 50 48.409	47.884	+ 525	19	3 52 09.941	09.431	+ 510
5	0 54 44.969	44.439	+ 529	20	3 56 06.491	05.986	+ 505
6	0 58 41.525	40.995	+ 530	21	4 00 03.042	02.542	+ 500
7	1 02 38.077	37.550	+ 527	22	4 03 59.594	59.097	+ 497
8	1 06 34.625	34.105	+ 520	23	4 07 56.149	55.652	+ 496
9	1 10 31.172	30.661	+ 511	24	4 11 52.709	52.208	+ 501
10	1 14 27.719	27.216	+ 503	25	4 15 49.273	48.763	+ 510
11	1 18 24.267	23.772	+ 495	26	4 19 45.841	45.319	+ 522
12	1 22 20.817	20.327	+ 490	27	4 23 42.409	41.874	+ 535
13	1 26 17.370	16.882	+ 487	28	4 27 38.976	38.429	+ 546
14	1 30 13.925	13.438	+ 488	29	4 31 35.539	34.985	+ 554
15	1 34 10.483	09.993	+ 490	30	4 35 32.097	31.540	+ 557
16	1 38 07.042	06.548	+ 494	Dec. 1	4 39 28.652	28.095	+ 556
17	1 42 03.602	03.104	+ 498	2	4 43 25.204	24.651	+ 553
18	1 45 60.161	59.659	+ 502	3	4 47 21.755	21.206	+ 549
19	1 49 56.718	56.215	+ 504	4	4 51 18.307	17.761	+ 546
20	1 53 53.274	52.770	+ 504	5	4 55 14.861	14.317	+ 544
21	1 57 49.827	49.325	+ 502	6	4 59 11.417	10.872	+ 545
22	2 01 46.377	45.881	+ 497	7	5 03 07.976	07.428	+ 548
23	2 05 42.926	42.436	+ 490	8	5 07 04.537	03.983	+ 554
24	2 09 39.473	38.991	+ 482	9	5 11 01.100	00.538	+ 561
25	2 13 36.021	35.547	+ 475	10	5 14 57.664	57.094	+ 570
26	2 17 32.572	32.102	+ 470	11	5 18 54.227	53.649	+ 578
27	2 21 29.126	28.657	+ 469	12	5 22 50.790	50.204	+ 586
28	2 25 25.685	25.213	+ 472	13	5 26 47.351	46.760	+ 591
29	2 29 22.248	21.768	+ 480	14	5 30 43.910	43.315	+ 595
30	2 33 18.813	18.324	+ 489	15	5 34 40.466	39.871	+ 596
31	2 37 15.377	14.879	+ 498	16	5 38 37.020	36.426	+ 594
Nov. 1	2 41 11.940	11.434	+ 505	17	5 42 33.573	32.981	+ 591
2	2 45 08.499	07.990	+ 509	18	5 46 30.125	29.537	+ 588
3	2 49 05.053	04.545	+ 508	19	5 50 26.677	26.092	+ 585
4	2 53 01.605	01.100	+ 504	20	5 54 23.232	22.647	+ 585
5	2 56 58.154	57.656	+ 498	21	5 58 19.791	19.203	+ 589
6	3 00 54.703	54.211	+ 492	22	6 02 16.355	15.758	+ 597
7	3 04 51.252	50.767	+ 486	23	6 06 12.922	12.313	+ 609
8	3 08 47.804	47.322	+ 482	24	6 10 09.492	08.869	+ 623
9	3 12 44.359	43.877	+ 481	25	6 14 06.062	05.424	+ 637
10	3 16 40.916	40.433	+ 483	26	6 18 02.628	01.980	+ 648
11	3 20 37.475	36.988	+ 487	27	6 21 59.189	58.535	+ 654
12	3 24 34.037	33.543	+ 493	28	6 25 55.746	55.090	+ 656
13	3 28 30.599	30.099	+ 500	29	6 29 52.300	51.646	+ 654
14	3 32 27.160	26.654	+ 506	30	6 33 48.852	48.201	+ 651
15	3 36 23.721	23.209	+ 511	31	6 37 45.404	44.756	+ 647
16	3 40 20.279	19.765	+ 514	32	6 41 41.957	41.312	+ 645



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