The Tychos – Our Geoaxial Binary System

14 October 2019, 4:12 am[1]

The Tychos clarifies the stellar parallax confusion

The question of stellar parallax is a rather tough and complex subject matter. In fact, my head almost exploded the other day as I realized that astronomers working in different hemispheres (northern *vs.* southern) may very well reach opposite conclusions with regard to stellar parallax. All in all though, and in spite of its somewhat daunting complexity, I think you'll find this to be a truly fascinating journey of discovery. In any event, this is certainly my own case: the Tychos model keeps clarifying things, every step of the way. I shall now share with you my latest realizations concerning one of the most spiny and confusing areas of astronomy: the question of stellar parallax and, more specifically, the well-documented and undeniable existence of negative stellar parallax. Of course, negative parallax cannot exist under the Copernican/heliocentric paradigm. Since Earth is believed to revolve around the Sun, we should see all the stars moving in the same direction, at all times. Only positive stellar parallax can physically exist under the Copernican model. Let me quote from a fine treatise of historical astronomy:
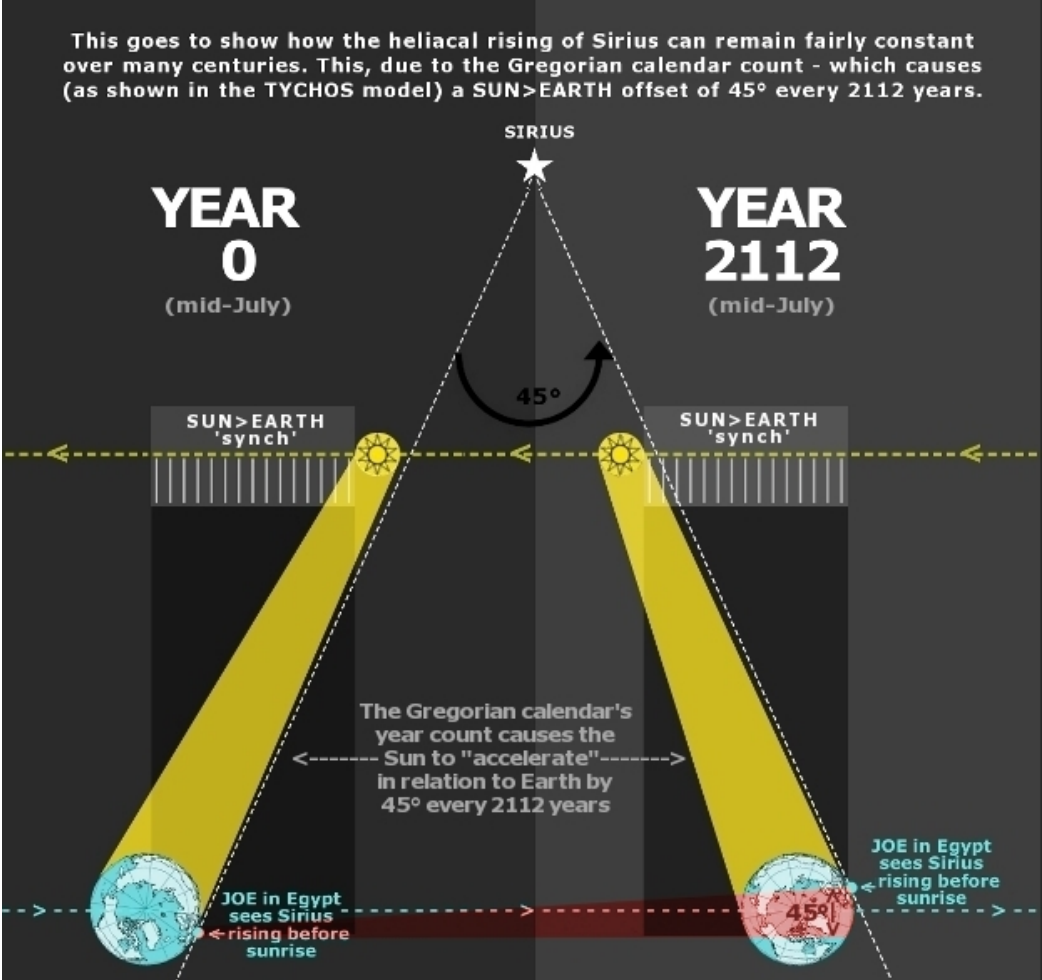
> *"In 1674 the first of Robert Hooke's Cutlerian lectures was published. Entitled 'An attempt to prove the movement of the Earth from observations', it concerned what Hooke called an experimentum crucis, the outcome of which was intended to establish the truth of the Copernican system. The 'proof' was to consist of a measurement of annual stellar parallax. There is no doubt about Hooke's motive in this case: he wished to provide evidence which, he believed, would demolish the arguments of the 'anti-Copernicans'. In order to do this he gave serious thought to the type of instrument he should use and to the choice of star to observe."* [2]

Clearly, the question of stellar parallax was no petty matter in the late 17th century. As it were, the entire Copernican heliocentric theory was at stake. Yet, at the time no stellar parallax had been observed. In 1838, however, when Friedrich Bessel finally announced that the star 61Cygni exhibited some parallax, the world's scientific community took it as a firm confirmation of the Copernican model. We shall now see how the Tychos model can provide more sensible answers as to the cause of the observed stellar parallax and, more importantly, to the existence of so-called negative parallax.

Let us start by looking at how our current Gregorian year count of solar and sidereal years causes the Sun to slowly "slip out of synch" with Earth's motion around its PVP orbit. This is because the Gregorian calendar was devised by the Church to prevent Easter from slipping out of synch with our earthly calendar. In fact, the ancient Sothic cycle also attempted to keep Sirius rising "in synch" with the Egyptian civil calendar. The Egyptians, we may say, had far more luck with their choice of star as a marker for their calendar, since Sirius has a large (though "negative") proper motion. In other words, Sirius moves transversally (i.e. its proper motion) very much in the same "clockwise" direction as Earth slowly moves around its PVP orbit (at 1 mph) and, therefore, its heliacal rise dates have remained remarkably "stable" for several millennia, as documented in this chart:

TABLE 1. Heliacal rise dates for Sirius from Egypt.

Year	DSVE*	Julian Date
3500 B.C.	87.8	July 16.4
3000 B.C.	92.3	July 16.9
2500 B.C.	95.8	July 16.6
2000 B.C.	100.3	July 17.3
1500 B.C.	104.8	July 17.8
1000 B.C.	108.2	July 17.2
500 B.C.	112.9	July 18.2
A.D. 1	117.3	July 18.3
A.D. 500	123.0	July 20.3

Note that the average year in both the Gregorian and the Sothic calendars have similar year-count reckonings of about 365.25 days. Hence, we have a clear explanation as to why Sirius' heliacal rise date has remained pretty stable since ancient times: Sirius has "stayed with us" for a few thousand years due its proper motion that "follows" Earth, but also due to the Gregorian calendar letting Earth rotate annually by a bit more (+0.021308°) than 360°, as will be explained further on.


This goes to show how the heliacal rising of Sirius can remain fairly constant over many centuries. This, due to the Gregorian calendar count - which causes (as shown in the TYCHOS model) a SUN>EARTH offset of 45° every 2112 years.

SIRIUS

YEAR 0 (mid-July)

YEAR 2112 (mid-July)

45°

SUN>EARTH 'synch'

SUN>EARTH 'synch'

The Gregorian calendar's year count causes the Sun to "accelerate" in relation to Earth by 45° every 2112 years

JOE in Egypt sees Sirius rising before sunrise

JOE in Egypt sees Sirius rising before sunrise

However, here's the problem: neither the Gregorian nor the Sothic calendars are sustainable over longer periods of time, as they cannot forever keep compensating for the fact that Earth moves around its PVP orbit. In the long run, both calendars will run into trouble because they let the Sun "drift too much eastwards"—or, perhaps more correctly put, they let Earth rotate "too much eastwards". This following graphic illustrating the difference between a "solar" (or "tropical") year and a "sidereal" year should make the point clear:
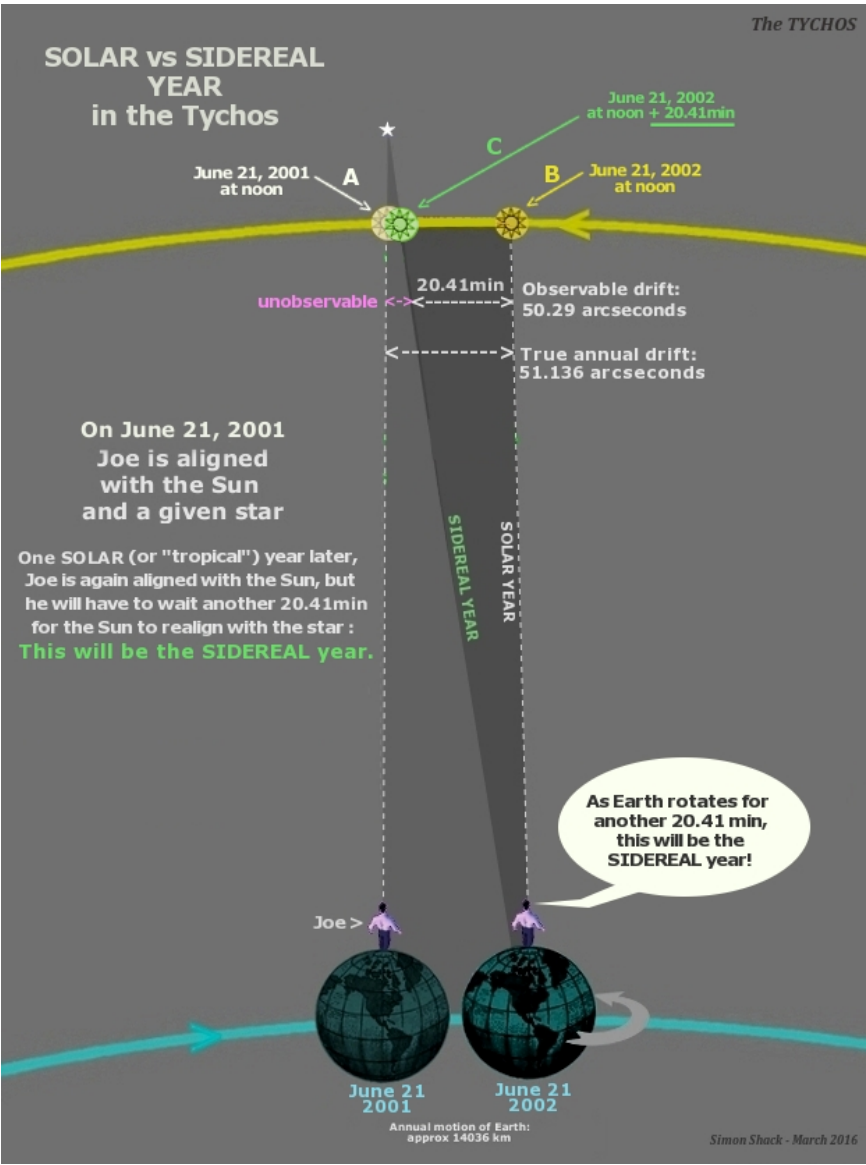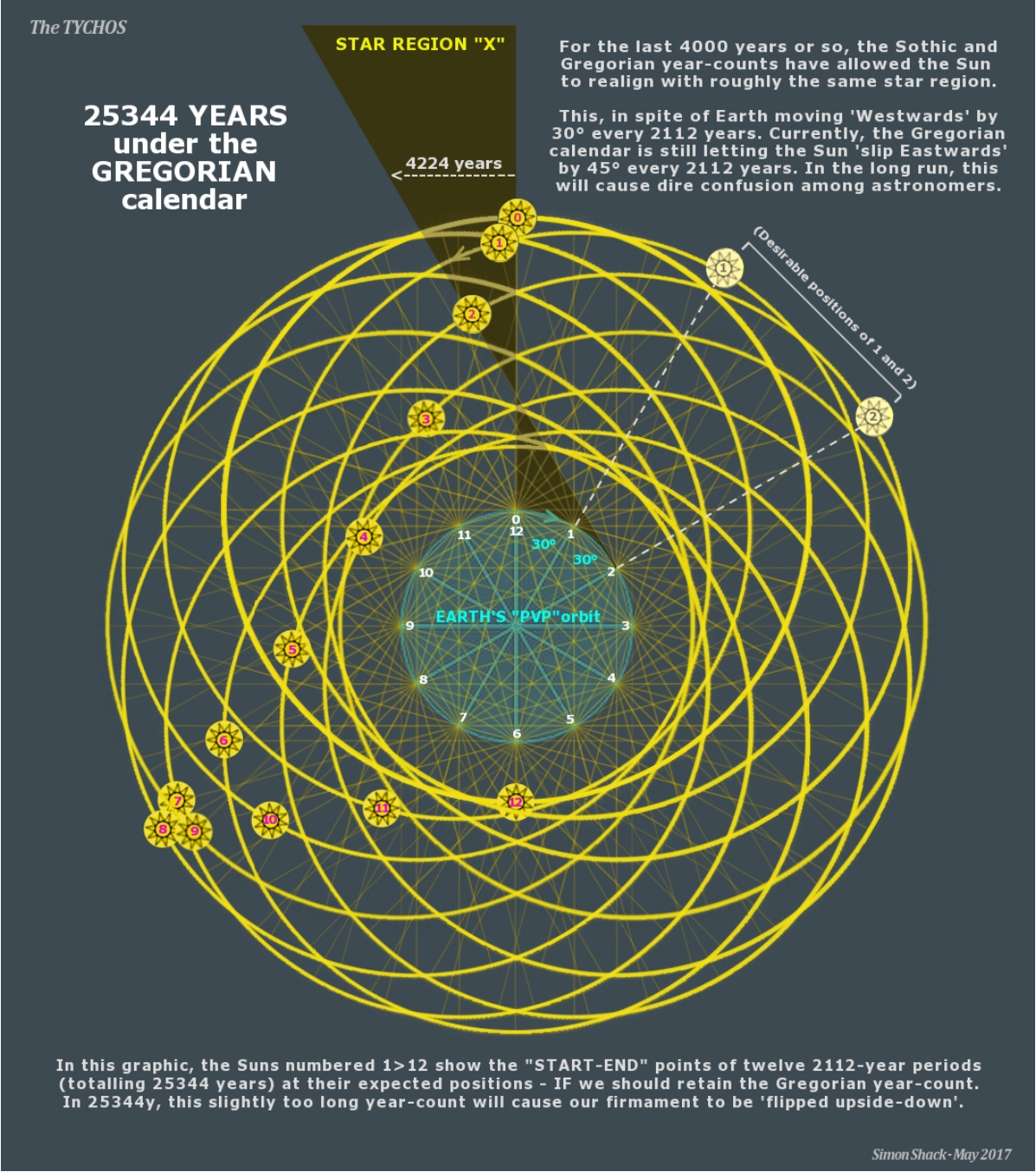

Note that the "unobservable" part of the annual/constant "eastward drift" of the stars (which is nothing but the so-called "general precession", or "the precession of the equinoxes") represents ~1.68% of the total drift. It is "unobservable" because Copernican astronomers are unaware of Earth's yearly "westward" displacement of 14,036 km. And, in fact, the difference between the currently observed annual precession (50.29″) and the true annual precession, i.e. Earth's annual motion (51.136″ as of the Tychos), is ~1.68%. This is also why the Tychos model's estimation of the duration of a Great Year (25,344 years) is 1.68% shorter than the officially estimated duration of 25,771 years.
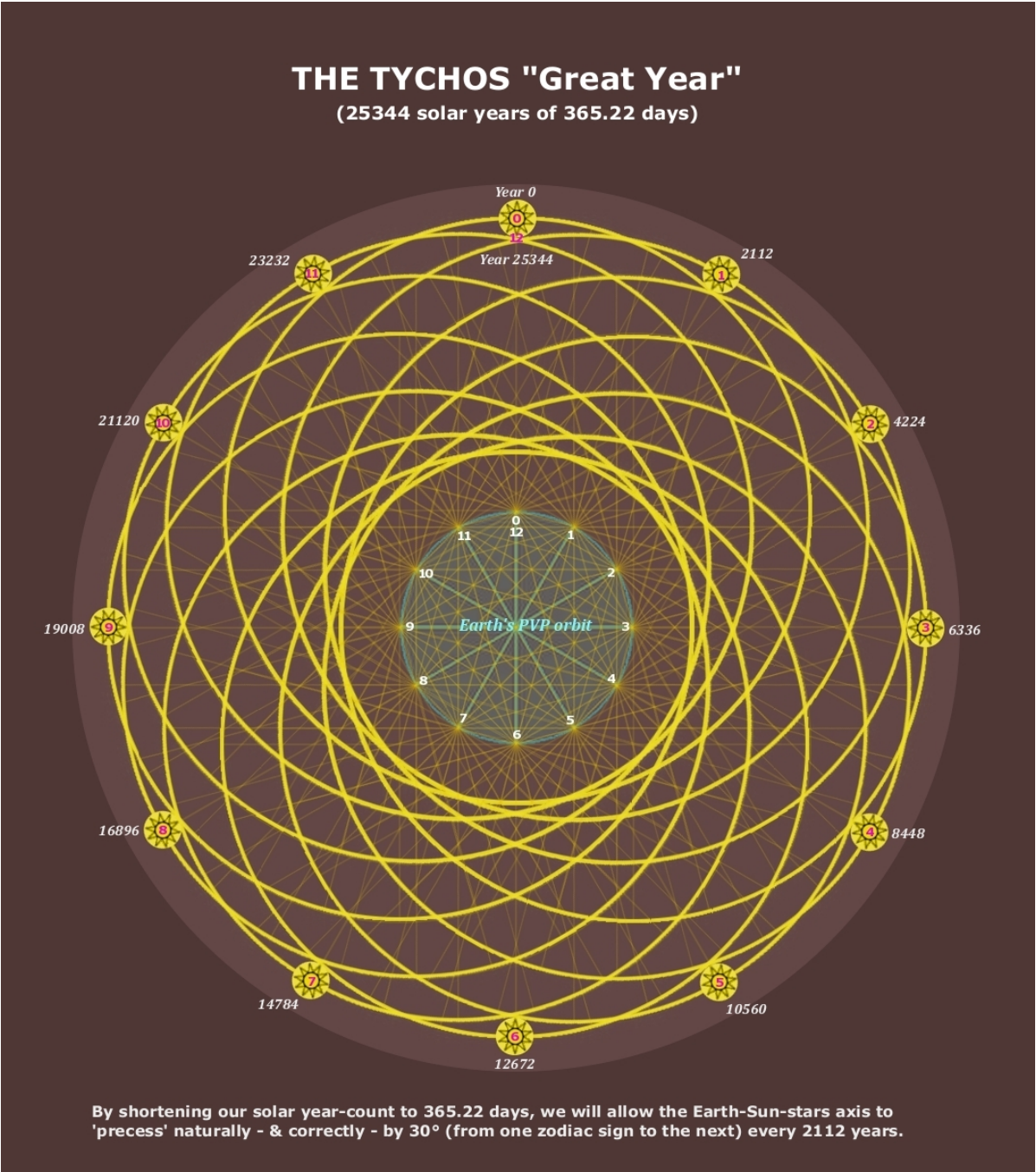
Note also that the observed precession has not always been 50.29″, but has kept "mysteriously" increasing in the last centuries. This is actually one of the great unsolved riddles of astronomy, and one which caused much trouble to the famed astronomer/mathematician Simon Newcomb, who in vain tried to compute a fixed/constant increase of the secular precession. As all modern astronomers know full well, the rate of increase is not constant or linear, but exponential. Yet, they have no rational explanation for it. In Chapter 30 of my book on the Tychos model, you will find this graphic which, I dare say, neatly resolves the long-standing conundrum:
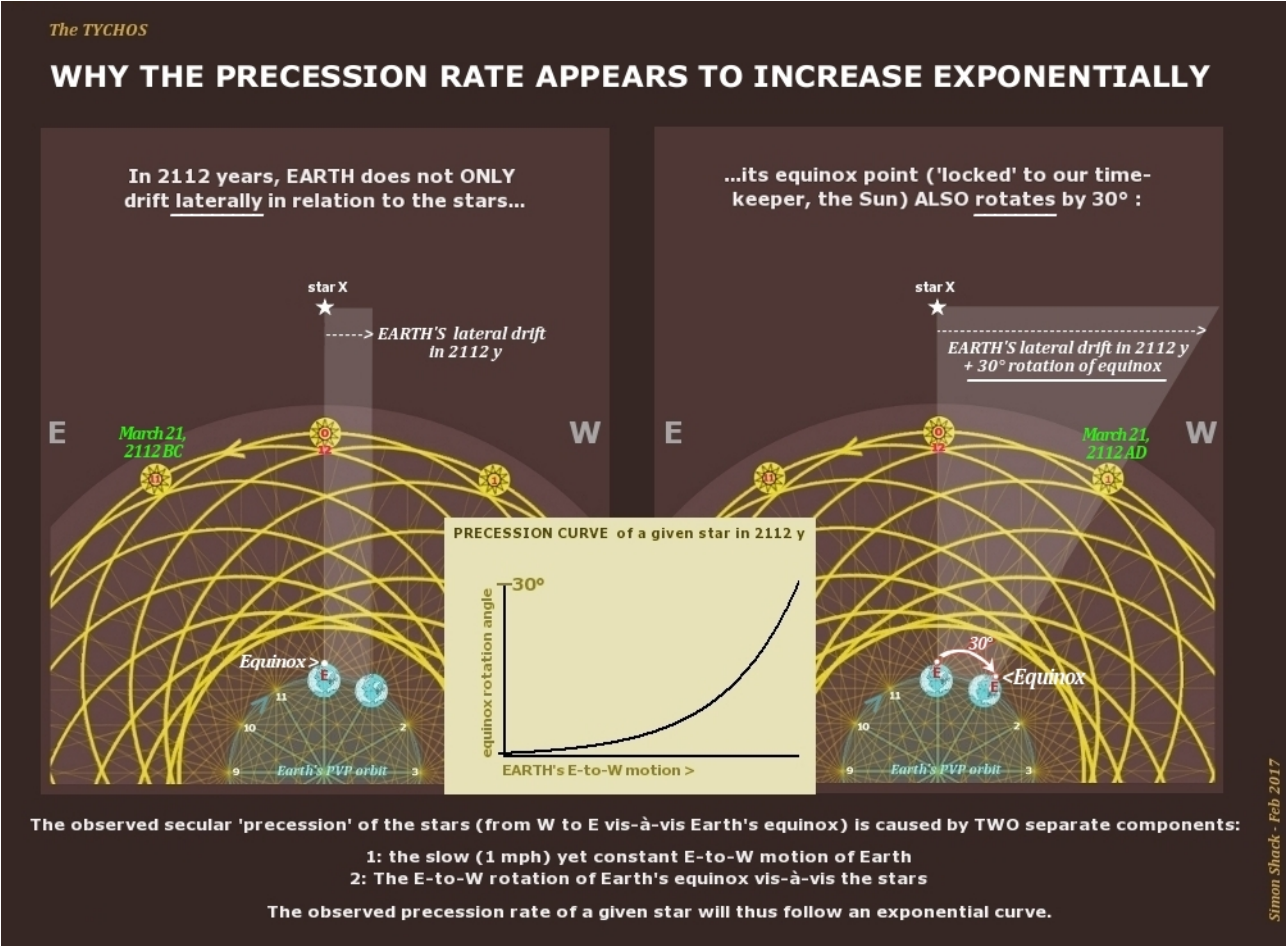

To return to the problem of the Gregorian calendar "letting the Sun drift too much eastwards", my next graphic illustrates what this will entail over the coming millennia and, ultimately, over a full Great Year. If we choose the date 21 June (summer solstice in the northern hemisphere) as our "calendar marker" and continue using the Gregorian calendar count, here is how our summer solstice will gradually "slip eastwards":

The TYCHOS

STAR REGION "X"

25344 YEARS
under the
GREGORIAN
calendar

4224 years

For the last 4000 years or so, the Sothic and Gregorian year-counts have allowed the Sun to realign with roughly the same star region.

This, in spite of Earth moving 'Westwards' by 30° every 2112 years. Currently, the Gregorian calendar is still letting the Sun 'slip Eastwards' by 45° every 2112 years. In the long run, this will cause dire confusion among astronomers.

(Desirable positions of 1 and 2)

EARTH'S "PVP" orbit

In this graphic, the Suns numbered 1>12 show the "START-END" points of twelve 2112-year periods (totalling 25344 years) at their expected positions - IF we should retain the Gregorian year-count. In 25344y, this slightly too long year-count will cause our firmament to be 'flipped upside-down'.

Simon Shack - May 2017

This, you may agree, is not exactly convenient. It means that, in 25,344 years' time (see the Sun's position #12 in the above graphic), our winter solstice and summer solstice will be inverted: 21 June will be when the Sun is lowest in the skies of the northern hemisphere. In Chapter 31 of my book, I show how this can be prevented by simply shortening the current duration of the calendar year by about 5.1146 seconds of time (or, what amounts to the same, by ~14 milliseconds per day). This would accomplish a gradual and imperceptible transition of our current calendar count towards a desirable "re-synchronization" of the Sun's and the Earth's respective revolutions, as visualized in the Tychos model. Here is how the Sun and Earth would be harmoniously "re-synchronized" if we were to implement my proposed Tychos calendar year count:

THE TYCHOS "Great Year"
(25344 solar years of 365.22 days)

Year 0

23232   Year 25344   2112

21120   4224

19008   Earth's PVP orbit   6336

16896   8448

14784   10560

12672

By shortening our solar year-count to 365.22 days, we will allow the Earth-Sun-stars axis to 'precess' naturally - & correctly - by 30° (from one zodiac sign to the next) every 2112 years.

I shall now further clarify the rather tricky question of stellar parallaxes and what such measurements would entail within the Tychos model. My next graphic shows the trochoidal path around which any earthly observer (or fixed telescope) will be carried in the course of the year. We may easily imagine how, depending on which time interval (A, B, C or D) is chosen to measure a given star's parallax, astronomers will obtain highly variable and conflicting results. The astronomy literature of the last two centuries is fraught with such discrepancies.
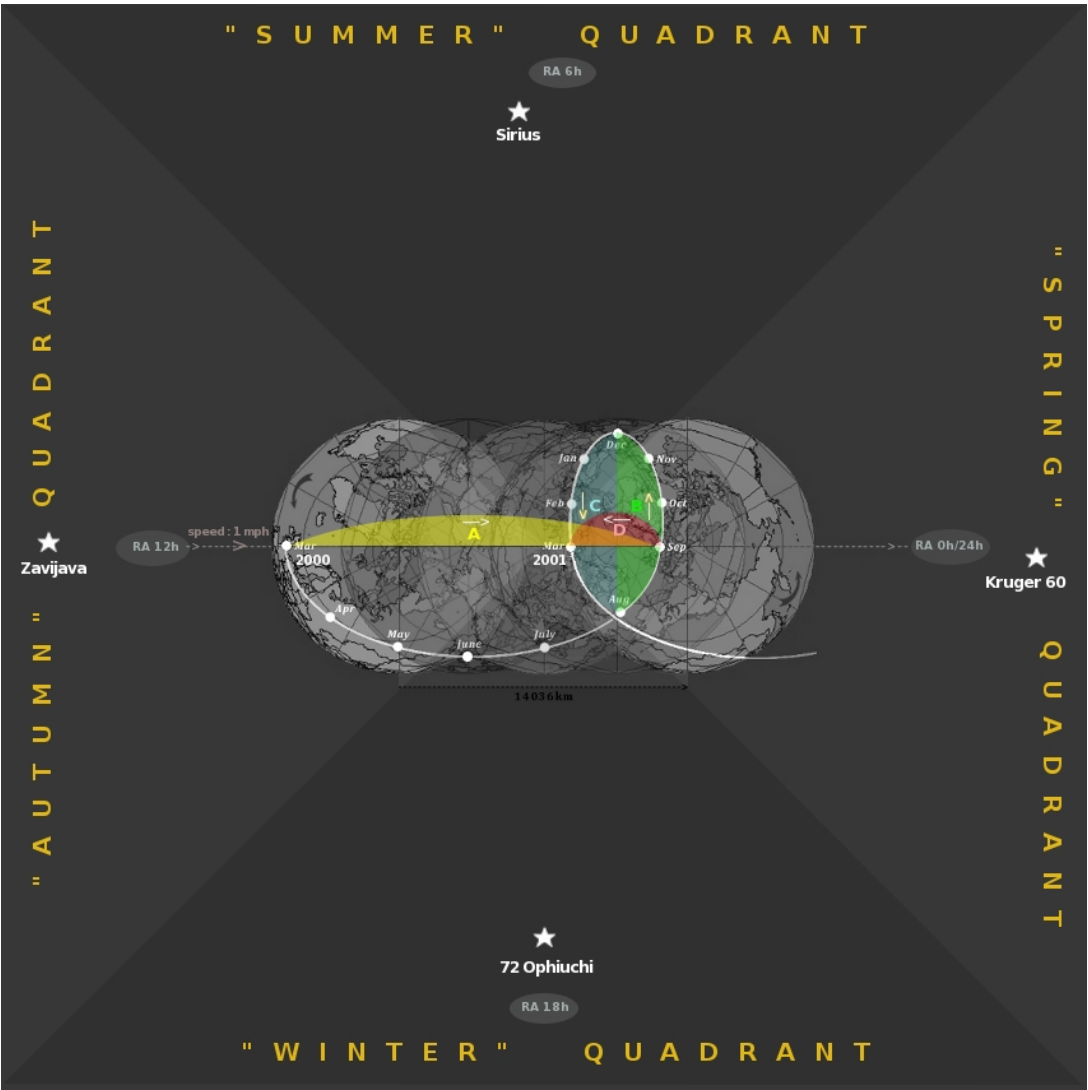
It should be easily envisioned how and why the parallactic displacement of any given "nearby" star will depend on the time interval chosen to measure it (and, of course, on the star's celestial location). Two astronomers observing the same star, but choosing different time intervals to measure it, may well end up with conflicting results. The possible combinations and consequent measurements made by two astronomers monitoring the same star at different times of the year are virtually endless.

In fact, in an academic paper from 1966, Stan Vasilevskis (of the famous Lick observatory) reported how the four major American observatories were totally puzzled by the disturbing differences, discrepancies and disagreements between their respective stellar parallax measurements:

> "Parallaxes of the same stars determined by different observers and instruments often disagreed to such an extent that the reality of some parallaxes were in doubt. [...] Although the homogeneity has high statistical merit, the absence of various approaches makes it difficult to investigate and explain discrepancies between various determinations of parallaxes for the same stars. There are disturbing differences, and many investigations to be reviewed later have been carried out on these discrepancies. The present paper is a review of the present material, and a consideration of the possibilities of modifications in the technique of parallax determination in view of past experience and the present status of technology."[3]

To be sure, the history of the extremely difficult and laborious search for stellar parallaxes is riddled with accounts of "inexplicable" conflicting results and of the vexing, yet undeniable, existence of negative stellar parallax. Those accounts, buried in the vast body of relevant astronomy literature, may be somewhat hard to find, but this should be no surprise, since the very existence of negative stellar parallax is the nemesis of the Copernican model: to admit its existence is tantamount to admitting the impossibility of the heliocentric geometry. In the literature, the numerous instances of negative stellar parallax are thus, unsurprisingly, regularly dismissed and swept under the rug with claims of "obvious errors of observation" or other assorted *ad hoc* "explanations".

Up to this day the European Space Agency (ESA) claims that the reason why 25% (i.e., half of the stars which show any parallax at all) listed in their huge million-star "Tycho" catalogue exhibit negative parallax values is due to "systematic errors". One can only wonder how ESA can keep claiming such things while, at the same time, assuring us that their alleged "Hipparcos satellite" (and its successor, the "Gaia satellite") are capable of collecting stellar parallax measurements within an error margin/resolution of "less than 0.001 arcseconds" (that is, 1 milliarcsecond). This glaring contradiction has, thankfully, been noticed by a number of attentive independent researchers in recent years. Does ESA ever reply to these people? Apparently not.

For example, Vittorio Goretti (1939-2016), a distinguished Italian astronomer who with good reason questioned ESA's catalogues for many years, never received a reply from ESA. Here's a short extract from a 2013 paper of his:

> "The Hipparcos Catalogue stars, about 118,000 stars, are a choice from the over 2,000,000 stars of the Tycho Catalogue. As regards the data concerning the same stars, the main difference between the two catalogues lies in the measurement errors, which in the Hipparcos Catalogue are smaller by about fifty times. I cannot understand how it was possible to have such small errors (i. e. uncertainties of the order of one milliarcsecond) when the typical error of a telescope with a diameter of 20÷25 cm [similar to the telescope ESA claims was mounted on their Hipparcos satellite] is comprised between 20 and 80 milliarcseconds (see the Tycho Catalogue). When averaging many parallax angles of a star, the measurement error of the average (root-mean-square error) cannot be smaller than the average of the errors (absolute values) of the single angles."[4]

But this is by no means the only problem that Vittorio Goretti found with ESA's stellar parallax catalogues. I am currently in the process of translating Goretti's best papers to the English language. In short, Goretti made some quite astonishing findings which very seriously question the credibility of ESA, a public institution funded by European taxpayer money, much like NASA is funded by

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[3] http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1966ARA%26A...4...57V&db_key=AST&page_ind=0&plate_select=NO&data_type=GIF&type=SCREEN_GIF&classic=YES
[4] http://www.vittoriogoretti-observatory610.org/2nd-research-2010-2012-pub-jan-2013/

American taxpayers. In spite of Goretti's distinguished astronomy career and credentials (you can read about his discovery of 32 main-belt asteroids in the Wikipedia,[5] and one main-belt asteroid, "7801 Goretti", was named after him), ESA simply ignored his many requests for clarification. This may come as no surprise to most Cluesforum readers, since we now know what NASA ("Never A Straight Answer") has been up to ever since its very inception on 29 July 1958, following which[6] it placed T. Keith Glennan, a former studio director at the Paramount and Goldwyn-Mayer Hollywood studios, at the helm as its first administrator.

In light of this, I trust that most of my readers will understand and appreciate why I am more inclined to trust highly qualified independent voices, like Vittorio Goretti, in serious matters of astronomy. Similarly, I tend to place more trust in the collective work of the best astronomers of yesteryear (prior to the 20th century and before clownish, artificial "geniuses" like Albert Einstein and Stephen Hawking stole the scene) than in our modern-day, arrogant and impermeable-to-critique "science churches", such as NASA and ESA, locked up as they are in their impenetrable ivory towers built in Hollywood.

Bessel's negative stellar parallaxes

Perhaps the most ironic twist of the entire history of stellar parallax detection is the fact that Bessel, the man credited for making the very first "indisputable stellar parallax determination", initially detected and announced negative parallaxes, not only for the star 61Cygni, but also for Cassiopeaie and Polaris, our North Star. Here's an extract from one of the many books written by sharp astronomy historians that I have devoured over the years:

> "But Bessel was to be disappointed again: when he had finished the reduction of the position of 61 Cygni relative to the six different stars he was forced to the conclusion that its parallax was negative! The paper in which this result was announced took the form of a report only, with no explanation of why a negative answer might have been obtained. Bessel gave tables of observations, and results of the application of the method of least squares to these observations for each comparison in turn; he followed this with exactly the same information for μ Cassiopeiae which he had compared with θ Cassiopeiae. For this star also he had a negative, though numerically smaller result. In volume III of the Konigsberg observations Bessel gave another set of observations, this time of the difference of right ascension between α and 61 Cygni from which he deduced an even larger negative result for the parallax of 61 Cygni. A different account may be constructed from Bessel's private correspondence. In a letter to Olbers written at about the time that the first set of negative results for 61 Cygni was published, Bessel stated that:
>
>> 'The negative parallax which one [found] here and there and which [he had] in fact found for the Pole Star from Bradley's observations [was] of course the result of observational errors'".[7]

ESA still claims that "negative stellar parallaxes are just a matter of observational error". So the question becomes: for how long will the astronomy establishment be allowed to get away with this preposterous and indefensible "observational error" excuse?

Negative stellar parallaxes are not observational errors

I shall now address the "mystery" of why the magnitudes of the ~25% negative parallax values listed in the official stellar parallax catalogues are generally far smaller than the magnitudes of the ~25% positive parallax values. To be sure, the Tychos model expects precisely what is observed (and listed in the official catalogues), namely that the values of negative stellar parallaxes are systematically smaller than the values of positive parallaxes. Below are two more graphics which should clarify this matter. But first, a short reminder/computation concerning our Gregorian calendar count is in order:

As expounded above, the Gregorian calendar lets Earth rotate each year by slightly more than 360°. The extra annual rotation amounts to 0.021308°. Under the Gregorian year count (as of the Tychos model), Earth is expected to complete an (undesirable) extra 1.5 full rotations over the course of a Great Year. Hence, the problem could be solved by shortening our annual rotations by 5.1146 seconds, which is equivalent to 0.021308° of one earthly rotation. In fact, in 25,344 years (a Great Year in the Tychos model) this will "trim/eliminate" 1.5 earthly rotations (0.021308° x 25,344 = 540°, or 1.5 x 360°). Now, since we are currently letting Earth rotate a tad more than 360° each year, this will affect/distort our stellar parallax measurements in the manner illustrated below:
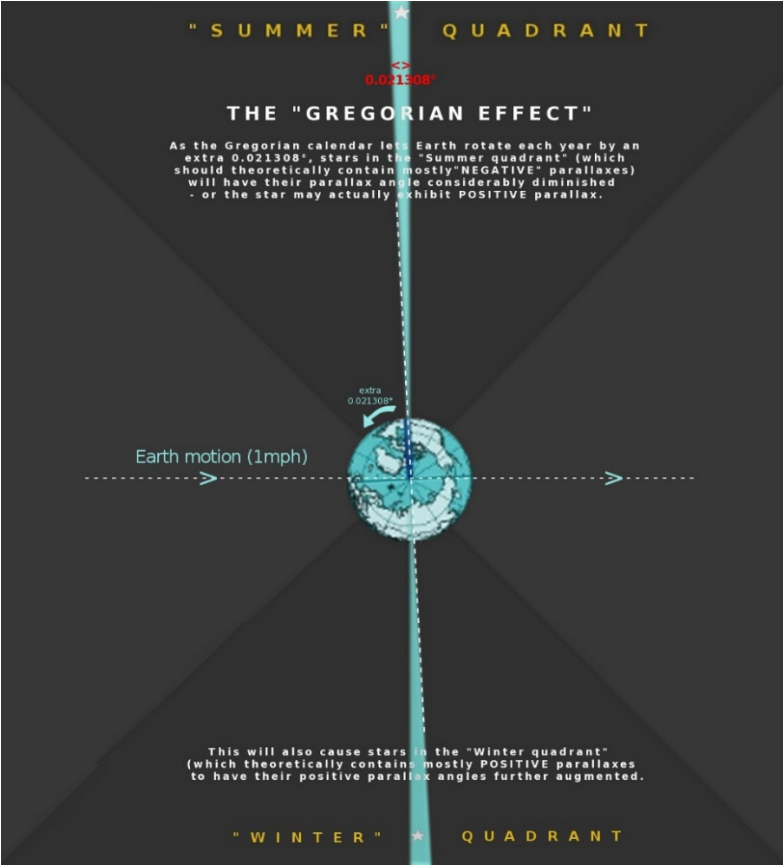
This goes some way to explain why the magnitudes of the observed negative paralax values are generally smaller than the positive parallax values. However, a second geometric cause (related to our yearly trochoidal path)[8] concurs to explain why negative parallaxes are generally smaller:
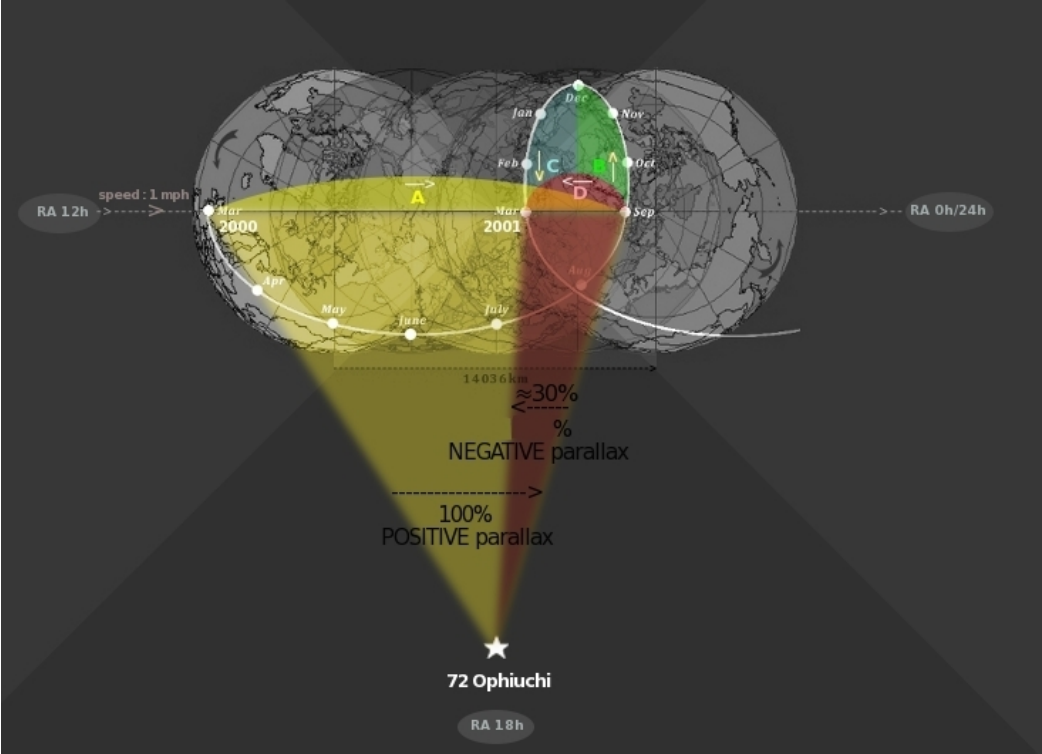
72 Ophiuchi

If two astronomers (Joe and Jim) working in the northern hemisphere were to measure the parallax of the star 72 Ophiuchi, with Joe choosing the period "A" and Jim choosing the period "D", here's what would they would see:

– Joe would find a large 100% positive parallax for the interval March 2000 > September 2000.
– Jim would find a small ~30% negative parallax for the interval September 2000 > March 2001.

However, if Joe and Jim had instead chosen periods B and C, they would probably both have failed to detect any parallax for 72 Ophiuchi. And, in fact, 50% of all the stellar parallax values in ESA's largest "Tycho" catalogue exhibit zero (non-detectable) parallax.

100% positive versus 30% negative? Well, that is very interesting indeed. It so happens that, back in the days when stellar parallax detection was the most vividly debated topic among top astronomers (e.g., Bessel, Hooke, Bradley, Struve, Huygens, Herschel, Cassini, Maskelyne, Lacaille and Lalande), their first obvious choice of a star to measure was Sirius (the brightest star in our skies). All their Sirius parallax values were conflicting, but it is of great relevance to the Tychos model to compare their reported maximum and minimum measurements: the largest parallax reported for Sirius at the time was 8″ whereas the lowest was 2.5″, albeit in the "wrong" direction.

> "After thus disposing of Lacaille's Cape observations, Lalande referred to a series of observations made at Paris between the summer of 1761 and early 1762, during which time Sirius appeared to have been displaced by a more realistic 2.5". But this displacement could not be owing to parallax because it was in the wrong direction."[9]

If we do a little math, we will see that 2.5″ (the negative parallax of Sirius reported back in those days) is roughly 30% of 8″ (the largest positive parallax reported back in those days). Note also that, due to its "low" declination of -16°42′, Sirius is best viewed in the southern hemisphere. While some of those Sirius observations were made in Paris and London, many others were made in Cape Town (South Africa), at the famous Cape of Good Hope Observatory. Therefore, we may reasonably assume that the reported (and starkly conflicting) maximum and minimum values of Sirius' parallax (8″ positive and 2.5″ negative) originated from observations in the southern hemisphere. Let us see how this would have played out under the perspective of the Tychos model:

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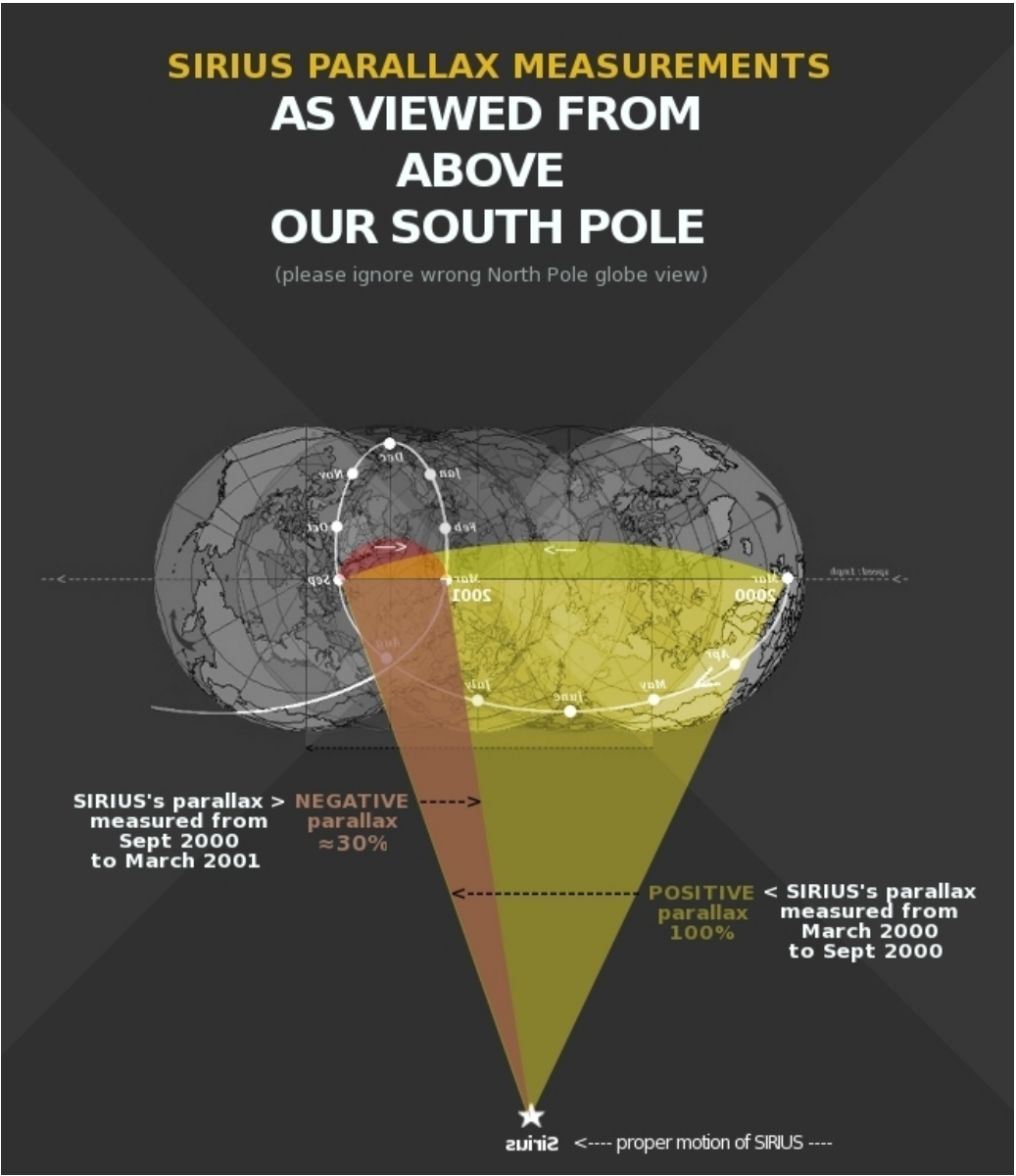
[8] Observers on Earth and their telescopes gyrate annually, tracing a trochoidal loop, as shown in the figure.
[9] http://septclues.com/TYCHOS/Williams-MEW-1981-PhD-Thesis.pdf

Indeed, under the Tychos paradigm, and choosing period A or D, we would expect the largest and smallest parallax of Sirius to be "100% positive" and "30% negative", respectively. However, as we have seen, Sirius also has a fairly large transverse proper motion parallel to the direction of Earth's motion which keeps its heliacal rise date fairly stable. Hence, Sirius is a bit of a special case. In any event, this all goes to show the complexity (and the many possible variables) which come into play when measuring stellar parallax. It is therefore no wonder this caused so much confusion for the astronomers of yesteryear, and continues to do so today.

All in all, it is not unreasonable to anticipate that the Tychos model will eventually solve a great many of the historical puzzles and conundrums of astronomy.