Twin Sun Calculations
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This is a short report containing my mathematical analysis of the data provided by the Cassiopaea session transcripts on the subject of the twin sun and associated effects. I find the Cassiopaean's statements to be most logical and comprehensive concerning what extrasolar objects may be affecting earth later this decade.

LKJ proposed that the Maunder minimum and passage of the twin sun may be related. All I did was plug in the data points into standard physics equations to see if they correlated. The Cassiopaeans called the twin sun the "brown star", but I will refer to it as the Twin, to give it a name separate from Richard Muller's terminology which relates to a similar but slightly different concept.

Here is thorough listing of the data points I used, derived directly from the Cassiopaean transcripts:

1) Twin has 56% mass of the sun
2) Its nuclear "fire" went out long ago
3) Oort cloud is 510 billion miles away
4) It has already passed through the Oort cloud
5) Punching through the Oort cloud, it drags with it a cluster of comets
6) Orbit is flat elliptical
7) Orbital period is 27 million years
8) Dinosaurs died out 27 million years ago, not 64 million as commonly assumed
9) Twin's closest approach to our sun is no closer than the orbit of Pluto
10) Comet clusters from past encounters still exist, there are many
11) Some of these clusters have "already made the circuit", others yet to come
12) Most of these clusters have an orbit of roughly 3600 years
13) New comet cluster travels faster than usual comets due to following gravity well of Twin.
14) In July 1998, it was located in the constellation Libra
15) Gravity field of twin increases the gravity field of sun during close approach
16) Sun's increase in gravity, via principles not presently known in orthodox physics, causes it to suppress solar flares, and thus diminish sunspot numbers
17) Twin's gravity field would only slightly flatten the sun's otherwise spherical shape
18) Comet clusters orbit in "spirograph" rather than strictly elliptical orbits
19) Most of the approaching clusters will be seen coming from the direction of the Magellanic clouds, southern hemisphere
20) New comet cluster will appear as single body
21) Metal content of some comets: nickel and cobalt
22) Melted comet debris acts as a conductor, possessing magnetic and electric properties: can initiate and channel solar flares toward earth

Here are additional details furnished by LKJ and further researched by members of the associated QFS:

1) One comet need not hit earth to cause damage: a barrage of comet fragments or smaller comets can do the same but not leave a huge impact crater. Also see Velikovsky and McCanney's work for non-impact cataclysmic effects of comets.
2) Maunder minimum lasted from 1645 – 1710, a period of virtually NO sunspot activity
3) Astronomer by name of Flamsteed discovered "Flamsteed's Star" (aka Supra Tau) in the constellation Cassiopeia in 1680.
4) Modern astronomers think his sighting was an error, because even if it was a supernova, there are no traces of it today at that location
5) This star may have been the Twin, illuminated by the Sun as it neared perihelion
6) Another possible date of perihelion is 1630, when two suns during the daytime were sighted – however, I don't think this has as much validity as Flamsteed's star of 1680.

My Quick Analysis of above data:

Mass of Twin, brown star –

The Twin is a brown-colored red dwarf. It is not technically a brown dwarf, because brown dwarfs are stars that never "lit up", while red dwarfs are those that burned out. The laws of astrophysics indicate that brown dwarfs and red dwarfs have a narrow allowable range of mass, each having its own range. The Twin, having a mass 56% that of the sun, is within the range allowed by astrophysical laws (brown dwarf mass limit, Chandrasekhar limit) for a brown-colored red dwarf. Its brown color indicates it's even more burned out than a red dwarf, and suggests it radiates infrared at the least.

Dinosaurs died out 27 million years ago –

Muller's book "The Nemesis Theory" documents the archaeological evidence behind this, except the dating method is off. Isotopes can change in concentration with solar radiation bombardment during cataclysmic times. The date of 65 million is incorrect, and should be shifted to 27 million. This makes a big difference: with 65 million, subtracting 27 twice equals 11 million years, which would indicate the Twin is far away from the sun and there's nothing for us to worry about. But if the date is actually 27 million years, then the Twin is near us.

Comet cluster travels in spirograph fashion -

Correct, because they originate from outside the solar system and are gravitationally affected by the planets during swing through, therefore they won't have the same orientation of orbit twice, thus tracing out a spirograph pattern

Mathematical analysis of data:

Semimajor axis of elliptical orbit –

Mass of .56 solar masses and 27 million years for orbital period allows one to calculate the semimajor axis (half of the length of an ellipse comprising the orbit):

$$G (m1 + m2) P^2 = 4 \pi^2 a^3$$

Where G = gravitational constant
m1 = mass of sun (kg)
m2 = mass of Twin (kg)
P = orbital period (sec)
a = semimajor axis (meters)

Converted to astronomical units (AU), the **semimajor axis = 104,323 AU**

Eccentricity and semiminor axis –

Perihelion, taken to be the distance of Pluto's average orbit (39.4 AU) allows one to calculate eccentricity, and hence semiminor axis:

$$D_p = a (1 – e)$$

Where D_p = perihelion distance
e = eccentricity

The eccentricity is: **.99962236**

$$b^2 = a^2 (1 – e^2)$$

Where b = semiminor axis

Converted to AU, the **semiminor axis = 2867 AU**

36.4 : 1 ratio

Equation of elliptical orbit –

Using the above figures, the equation of the ellipse can be written in polar coordinates, that is: radius from focal point of ellipse as function of angle.

$$r = a (1 – e^2) / (1 + e \cos \theta)$$

Where r = radius

θ = angle

In AU, the equation is:

$$r = 104{,}332\ (1 - .99962236^2) / (1 + .99962236 \cos\theta)$$

Time to orbit partially around ellipse –

Kepler's Law says that equal areas of an ellipse are swept out in equal times. Therefore, if it takes 27 million years to sweep out the full area of the ellipse (π a b), then to sweep out a lesser area will require a proportionately lesser amount of time.

It is possible to calculate the sectional area (A_s) swept by the radius as it points from one angle to another:

$$A_s = \tfrac{1}{2} \int_{\theta 1}^{\theta 2} r^2\, d\theta$$

or

$$A_s = \int_{\theta 1}^{\theta 2} \tfrac{1}{2}\ [a\,(1 - e^2) / (1 + e \cos\theta)]^2\, d\theta$$

This integration is done numerically to give a nearly exact result.

Once A_s is known, the time to traverse that section (T_s) is the simple ratio:

$$T_s = P\ A_s / (\pi\ a\ b)$$

Example: if Sun is located at right focus point of ellipse, then the time required for the Twin to traverse the section consisting of all area to the right of the sun (in other words, going from angle –90° to 90°) is **118 years**. This is approximately how long it would take the Twin to swing around the solar system.

The Maunder Minimum (1645 – 1715) lasted 70 years. This correlates with the 118 year –90° to 90° sweep time.

Using the time period of 70 years, A_s can be calculated, and hence it is possible to figure out what angle the Twin sun may have been when the Maunder Minimum began. Answer: **± 68.4°**

Plugging this into the radial equation tells how close the Twin was to the sun when the Maunder Minimum began. Answer: **57.6 AU.** It would then approach over the next 35 years until reaching perihelion at **39.4 AU**.

Interestingly, Flamsteed sighted his star in 1680. This is the exact middle of the Maunder Minimum. If the Twin caused the Maunder Minimum, then the middle of that period would correspond to the Twin's perihelion. Also, being at perihelion, it would be brightest and therefore more easily discovered. Flamsteed recorded the brightness of the star to be 6th magnitude.

Sweep across the sky:

If the Twin was at perihelion in 1680 and located at the position of Flamsteed's star, and the Cassiopaeans said in 1998 that it was then located in Libra, does that match with the equations above?

Average angular distance between Flamsteed's Star and Libra is **130° – 140°.** This can be determined using an astronomy program, or by using the average center of Libra and the coordinate of Flamsteed's star (August 16, 1680 R.A. 23h 21m 55s; Dec +58h 32.3m) .

Calculation: Time period in question: 1998 – 1680 = 318 years. This gives proportionate area swept (A_s) via the simple ratio equation. From that, angle of sweep can be calculated. Answer: **135°**, exactly as predicted.

This sweep across the sky, if correct, allows one to figure out the Twin's orbital plane inclination to the ecliptic.

Sweep since 1998:

Between July 1998 and July 2003, the Twin has moved .27 degrees from its supposed position in Libra. Because this is a small distance, it is assumable that the **Twin is still in Libra** at this time.

If the assumed distance for 1680 is 39.4 AU, its **present distance would be 272.8 AU**.

Oort cloud intersection:

The Cassiopaeans indicated that the Oort cloud is 510 billion miles away, or 5483 AU. How long does it take the Twin to travel from the Oort cloud to perihelion?

From the sun, the radius of 5483 AU and the equation for Twin's elliptical orbit intersect at two points: where the Twin sun punches through the Oort cloud, and where it exits. The first intersection gives $\theta_1 = 170.4°$ and perihelion is set at $\theta_2 =$

0°. The sectional area A_s between them allows travel time to be calculated: **24,867 years**.

Since then, another 318 years have elapsed, bringing the figure up to 25,167 years. Curiously, this divides by 3600 years almost exactly seven times. This suggests that old and new comet clusters not only have similar orbital periods, but they tend to converge upon the solar system simultaneously as a form of resonance. Thus, we can expect to see multiple comet clusters sighted, especially from the Magellanic clouds (southern hemisphere) as the Cassiopaeans suggested. Curious that Stromlo, the only observatory in the southern hemisphere perfectly equipped to see these coming burned down in a freak Australian brush fire.

What else to calculate – or, what things I did not have time or resources to figure out:

Present magnitude: If in 1680, the Twin was no closer than 40 AU and the Sun's light shining off its surface gave it a magnitude of +6, then given that it is around 270 AU away at present, what is its new magnitude?

Orbital inclination: What is the angle of inclination between the Twin's orbit and the ecliptic, given that at perihelion it was at the location of Flamsteed's star and at present is in Libra?