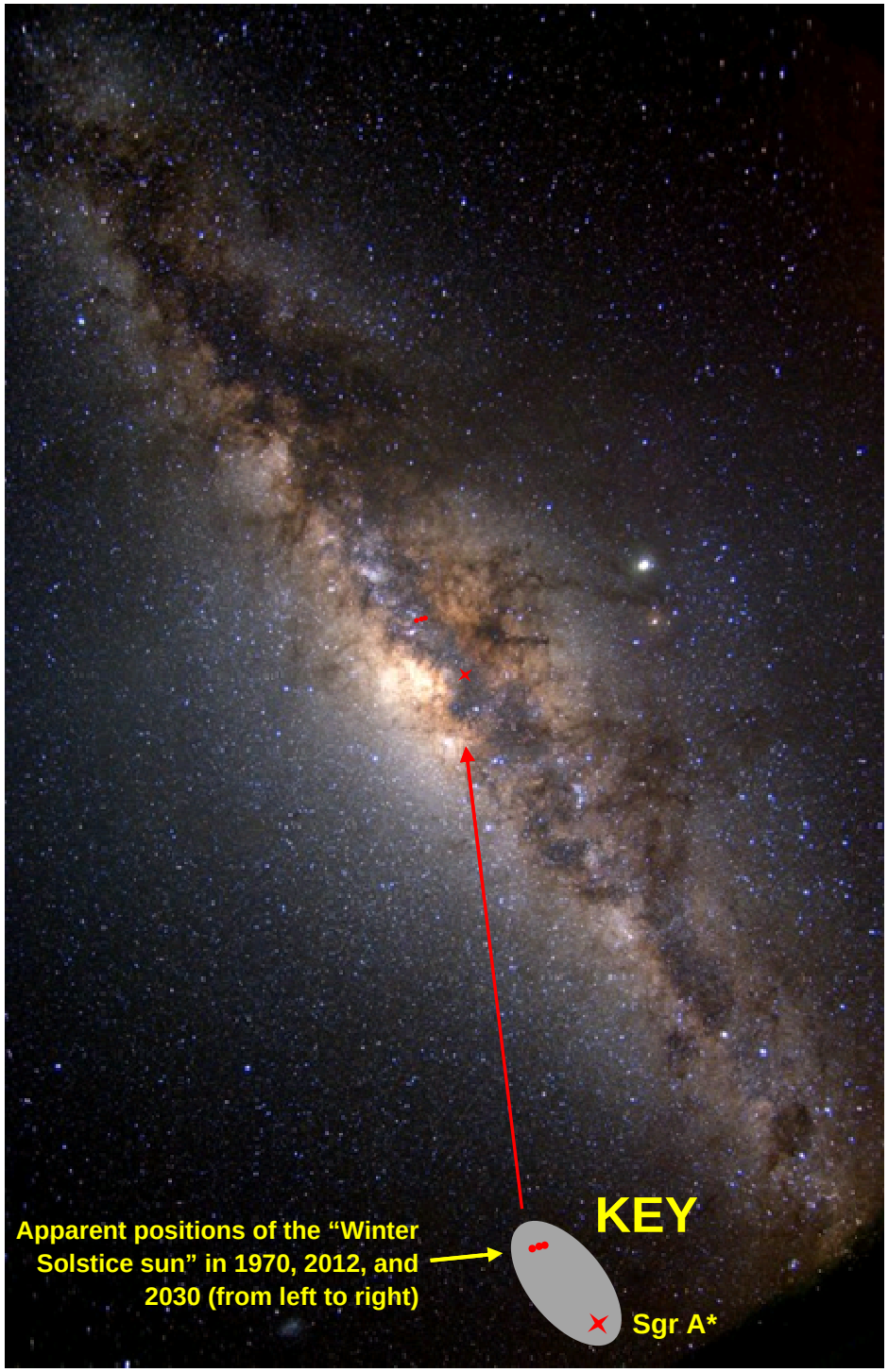

Clearing up the Sky of 2012

An explanation of the astronomical alignment on its Winter Solstice

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If the words "astronomical alignment of 2012" ring a bell, I probably don't need to spend much time explaining that the "alignment" concerns where the sun will appear to be, with respect to the center of the Galaxy (that is, the Milky Way) on December 21, 2012.

In this article, we'll see (1) why the sun always "aligns" with the center of the Galaxy in December; (2) what defines the "Winter Solstice"; and (3) why the sun appears to be in a slightly different position each year, with respect to the center of the Galaxy, at the Winter Solstice.

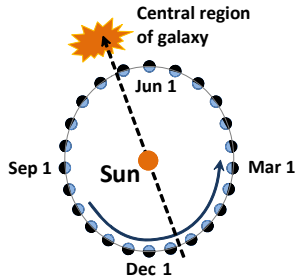
Having seen all that, we'll examine a photo of the galaxy to make our own judgments about the "uniqueness" of the "alignment of 2012". Finally, we'll learn that the ancient Maya apparently never said anything about the alignment.

Why does the sun always align with the center of the Galaxy in December of each year?

It's important to see that this has nothing to do with any real movement of the sun itself.

What happens is that every December, the Earth crosses the extension of the line of sight between the sun and the center of the Galaxy. (See Figure 1.)

From our point of view, the sun aligns with the center of the Galaxy, but it's really the Earth that "gets in line".

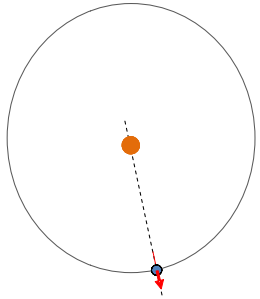


1. The Earth's orbit, showing why the sun appears to align with the center of the Galaxy in December of each year.

What defines the instant that we call the "Winter Solstice"?

We laymen think of the Winter Solstice as a day, but it's really an instant in time. More about this key distinction later.

What defines that "instant"? Imagine that you're above the orbit of the Earth in Figure 1, and that you can see the Earth's axis of rotation. At the instant we call the Winter Solstice, you'd see something like Figure 2, in which the point of the arrow is the "North" end of the axis of rotation.



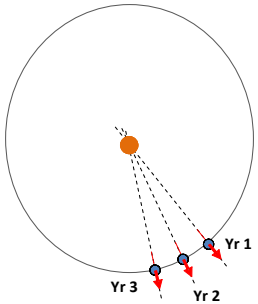
2. The "Winter Solstice Condition".

From your point of view, the axis would coincide with the line that connects the centers of the Earth and sun.

For future reference, we'll call this the "Winter Solstice condition".

Why does the sun appear to be in a slightly different position each year with respect to the Galaxy's center, at the instant of the Winter Solstice? This is caused by *precession*, which is demonstrated in this short video: *www.youtube.com/watch?v=J9Chu4-VIT0*.

In brief, the orientation of the earth's axis changes slowly from year to year. As a result, the Earth is in a different position each year when the "Solstice condition" is met. (See Figure 3.) According to our modern calendar, it always happens in December.



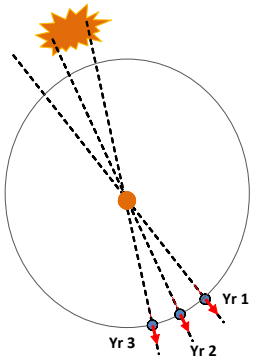
3. How precession causes the "Winter Solstice condition" to occur at a different point in the Earth's orbit each year.

This change in the *real* position of the Earth causes a corresponding change in the *apparent* position of the Sun with respect to the center of the Galaxy. (Figure 4)

If you're thinking that it looks as though the "Winter Solstice condition" sometimes occurs when the sun is aligned with the center of the Galaxy, very good! That's been the case for the last 500 years or so, and will be for another 500.

Now, you can decide

On the back page of this article, you'll see a photo of the central region of the galaxy. On it are shown the apparent positions of the sun at the instant of the Winter Solstice in the years 1970, 2012, and 2030.



4. How differences in the Earth's <u>real</u> position cause differences in the sun's <u>apparent</u> position.

Note two features of the region of the Galaxy shown in the photo: (a) the Dark Rift (that is, the dark band that runs diagonally across the photo); and (b) the location of the object Sgr A*, which appears to be an immense Black Hole. Sgr A* is at the true center of the Galaxy. It's not visible to us, even with the largest telescopes. Its existence was inferred from many careful observations and analyses.

The controversy about the "alignment of 2012" revolves around whether there's anything unique about the apparent position of the Sun (with respect to Sgr A* and the Dark Rift) when the Solstice condition is met that year. You can examine the photo, comparing the positions of the three suns, and decide for yourself.

It should be mentioned that promoters of the "unique, extraordinary alignment of 2012" resist presenting this sort of evidence, on the grounds that it's "misleading". Instead, they present crude maps of the Milky Way. (See, for example, *alignment2012.com/images/aligncover.jpg*)

I promised to say more about the Winter Solstice being an "instant". The Earth orbits the sun continually, so the sun appears to drift continually with respect to the Galaxy, along a path called the ecliptic. (This is also the line on which the three suns lie in our photo.) The sun drifts along the ecliptic as much in 24 hours as the distance between the 1970 and 2030 "Winter Solstice suns" in our photo. That's why it's meaningless to talk about "the" position of the sun on any given "day".

An equally important result of the suns' drifting is that for any given point on the ecliptic, there are at least 120 years in which the sun will appear to cross that point within ±24 hours of the "Winter Solstice condition".

Therefore, the sun will appear to be at its unremarkable "2012" position at some time on the "Winter Solstice day" of more than 100 years besides 2012. You can verify this using the free on-line resources mentioned at the end of this article.

What about the Maya?

To most people's surprise, there's no convincing evidence that the Maya predicted that the 2012 Winter Solstice would be astronomically noteworthy. In my opinion, those experienced sky watchers would never have said something so absurd.

So if the Maya never said it, then where did this idea come from? Mainly from someone named "John Major Jenkins". Besides making demonstrably erroneous claims about 2012, he holds that the Maya kings *really did* project their consciousness to any place they wanted: to other realities, dimensions, planets, and planes of existence. Moreover, he writes that they could conjure up quantum anomalies at will, and travel into them. As a result, he says, "to [the Maya kings], the work of modern physics would seem like child's play". (*Maya Cosmogenesis 2012*, 1998, pp. 318 y 321).*

I'll leave it to the reader to decide whether these extraordinary claims really honor the ancient Maya. What's certain is that these claims do the modern Maya no good at all.

We mustn't fool ourselves about this. Like all people in rural Mexico and Guatemala who are threatened by globalization, the Maya live a precarious existence. Some people would gladly take away the Maya's lands and livelihoods, not to mention their human rights. To prevent this from happening, the Maya need effective, sustained international support. Therefore, they can't afford to look ridiculous just because some of us put the label "Maya" on nonsense about 2012.

About the photo:

The photo itself was taken by Serge Brunier in the Atacama Desert in the Andes of northern Chile, at an altitude of 5,000 m (16,500 ft). The center of the Galaxy was directly overhead. The bright "star" to the right of center in the photo is the planet Jupiter. The photo can be viewed and downloaded at *http://antwrp.gsfc.nasa.gov/apod/ap080104.html*.

The author added the positions of the "solstice suns". To find those positions, the author used the free astronomy program "*SkyCharts*", Version 2.76c. It's available at *http://www.astrosurf.com/astropc*.

The positions of Sgr A* and the "2012 sun" were checked against the diagram in *http://www.starrynighteducation.com/sntimes/2008/06/#art1*. Dates and times of Winter solstices can be found at *http://home.iprimus.com.au/foo7/equinox.html*.

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* Jenkins now claims that he wrote about the uniqueness of the alignment of 2012 "mythopoetically", according to the cosmovision of the Maya and Izapans. This claim is belied by his numerous statements that clearly communicate otherwise, including those he maintains on line at *alignment2012.com/mc-intro.html*.

Apparently forgetting what he wrote about the supernatural abilities of the Maya kings, Jenkins also says, now, that it's unreasonable to expect the Maya to have predicted the "true" year of the alignment accurately. (See *The 2012 Story*, 2009, p. 143.)