

Joshua miracle of the Sun standing still: An Earth-Sun short lived resonance

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Abstract

This paper explains the biblical miracle described in the book of Joshua about the sun and the moon standing still in the perspective of a one-one resonance and explain why some previous interpretations may be missing the point. The best way to explain how the sun and the moon stood still is to assume a slowing down of earth's rotation to match earth revolution. This article shows how this phenomenon is not unique to Earth and how it has happened to our neighboring planet Venus.

Introduction

The story recorded in Joshua 10 describes a situation where Israel is fighting five kings that has attached Gibeon, a city allied with Israel. After defeating them, Israel pursued their enemy. Joshua commanded the sun and the moon to stand still until they have avenged themselves. The moon and the sun stood still for about a day. Some writers have questioned the roll of the moon in the story. It is obvious from the story that Joshua wanted brightness in order to effectively fight his enemy. We know that the light received on Earth comes primary from the sun during day and from the moon in the night. Since the moon and the sun happened to be in the sky, he wanted the light from both celestial bodies. Some have suggested that the event recorded is a total or an annular solar eclipse (*Daniel Vainstub, 2020*). There are elements that discounts this theory. The goal of the prayer was to provide a longer day to allow them to finish the job. A solar eclipse reduced brightness and would not help Israel. Moreover, Joshua prayed for the sun to stand above Gibeon and the moon to stand over the Valley of Aijalon. This description shows that the two celestial bodies are located in different areas of the celestial sphere. Moreover, a solar eclipse last minutes to hours, not for about a whole day as described in the text. Another view is that the mention of stand still means that the sun

Miracle as a 1:1 resonant

The view presented in the article is a variation of the idea presented where the miracle is presented as God stopping Earth rotation to answer Joshua prayer. If Earth rotation was to cease, the sun would still be moving slowly in the sky due to Earth revolution. The best way to have a complete "standstill" of the sun would be for Earth rotation to slow down and match Earth revolution. Instead of a twenty-three hours and fifty-six minutes Earth rotation, it would be the 365.25 current days. This phenomenon is called a 1:1 resonance and is common for moons around planets. The obvious case is our moon which shows us the same side due to tidal forces, the same force that causes tides on Earth. For an observer on the moon, Earth does not rise or set,

but stays almost in the same location in the sky. One could argue that Earth stands still in the moon's sky every day of the year. The other object that has seen the miracle of the sun standing still is Venus. This planet has a rotation that is clockwise while its revolution is counterclockwise. Other planets orbit the sun and rotate around their axis in the same counterclockwise direction. The most accepted explanation is a collision that may have slowed down the planet, sending it to rotate in the opposite direction. For an observer on Venus witnessing the event, he/she would see the sun slowing down in its East-West motion, then stand still for a moment and eventually slowly move from West to East. Can we assume a similar event ever happened to Earth (Earth colliding with two objects: one to slowing it down and another to pushing it to resume a normal rotation)? This would be a very low probability event or a real miracle. Such an event would dramatically change Earth's momentum and people would notice. A person at Israel's latitude is moving with Earth's rotation at about 900 miles per hour. A change in speed quickly would cause everyone to fall to the ground, buildings may collapse. The record in the Bible does not record any other observation except that the moon and the sun stood still.

Moon standing still in an Earth-Sun 1:1 resonance

A question that has been asked before is the role of the moon in the Joshua story. As earlier mentioned, Joshua wanted as much light to fight his enemies. But how would a resonance of Earth and sun affect the moon? The moon would move very slowly in the sky, resembling to a standing still of the moon. Since the moon revolves around Earth in about 27.3 days, the moon would move for about 13 degrees in the sky during the whole day that the miracle lasted. The change would not be noticeable for most observers on Earth. The mention of the moon was a confirmation of the change in Earth's rotation and was easy to observe but had no significance in the Joshua miracle.

Conclusion

It is interesting to imagine this famous miracle in a scientific term. But the more it was analyzed, the more we realize that many events had to coincide. Earth had to be struck by two objects in an interval of twenty-four hours. We know that such events happen in the solar system, but they are rare. Also, such events would have triggered other noticeable events on Earth that Joshua could have noticed. After this analysis, we are still left wondering how the miracle happened physically (unless we assume that the miracle changed Joshua's perception of time).

References

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