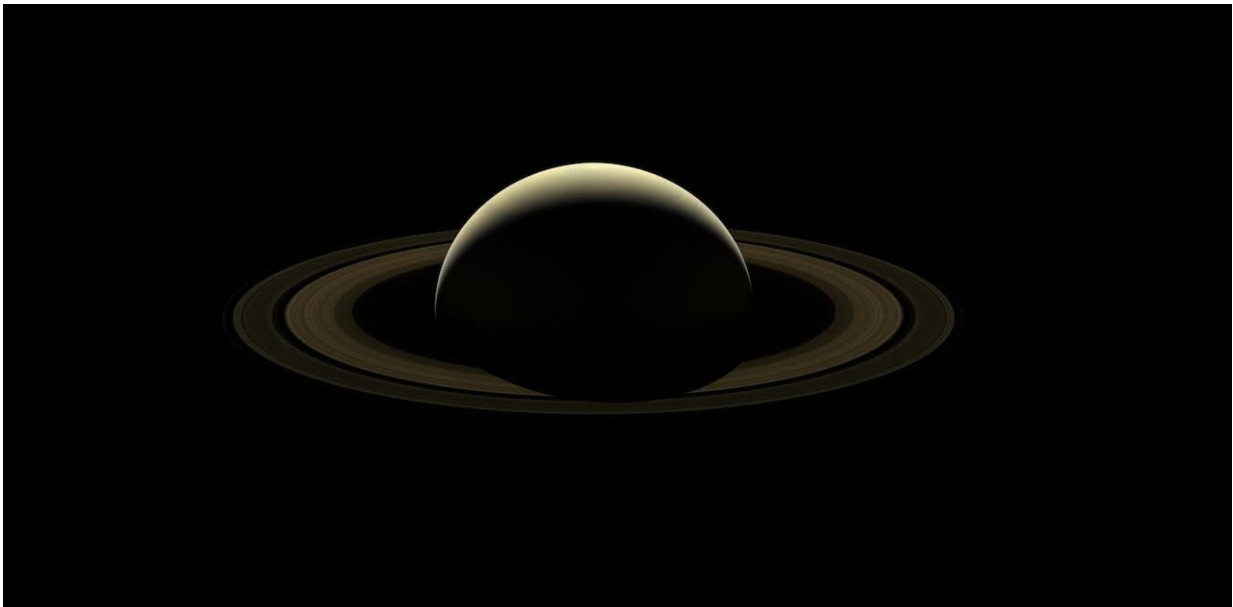


Will Saturn's rings really 'disappear' by 2025? An astronomer explains

November 10 2023, by Jonti Horner



Credit: NASA/JPL-Caltech/Space Science Institute

If you can get your hands on a telescope, there are few sights more spectacular than the magnificent ringed planet—[Saturn](#).

Currently, Saturn is [clearly visible in the evening sky](#), at its highest just after sunset. It's the ideal time to use a telescope or binoculars to get a good view of the solar system's sixth planet and its famous rings.

But in the past few days, a slew of articles have run like wildfire through social media. Saturn's rings, those articles claim, [are rapidly disappearing](#)—and will be gone by 2025!

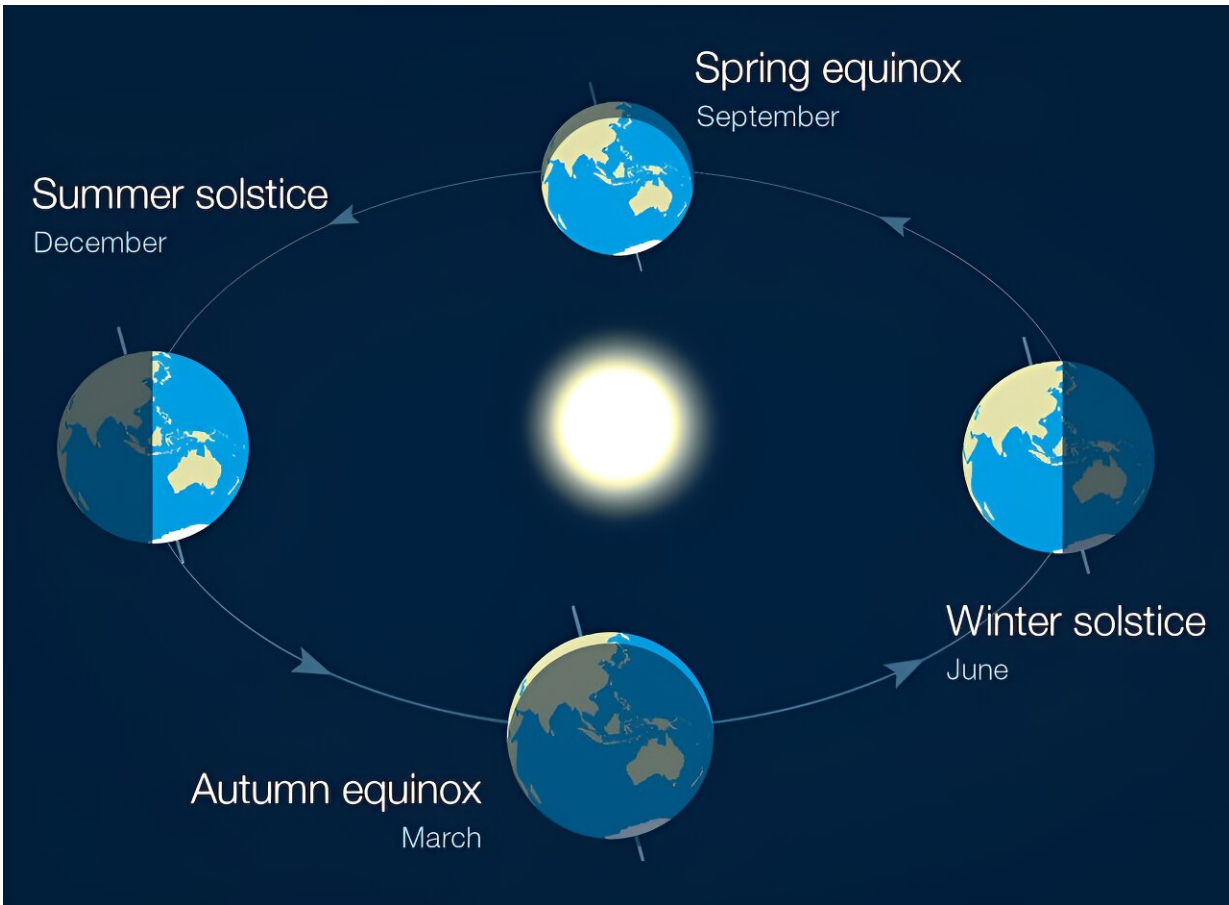
So what's the story? Could the next couple of months, before Saturn drops out of view in the evening sky, really be our last chance to see its mighty rings?

The short answer is **no**. While it's true the rings will become almost invisible from Earth in 2025, this is neither a surprise nor reason to panic. The rings will "reappear" soon thereafter. Here's why.

Tipping and tilting Earth

To understand why our view of Saturn changes, let's begin by considering Earth on its constant journey around the sun. That journey takes us through the seasons—from winter to spring, summer and autumn, then back again.

What causes the seasons? Put simply, Earth is tilted towards one side, as seen from the sun. Our equator is tilted by about 23.5 degrees from the plane of our orbit.



Earth has seasons because its axis is tilted. The axis always points in the same direction as our planet orbits the sun. Credit: [Bureau of Meteorology](#)

The result? As we move around the sun, we alternately tip one hemisphere and then the other towards our star. When your home hemisphere is tilted more towards the sun, you get longer days than nights and experience spring and summer. When you're tilted away, you get shorter days and longer nights, and experience autumn and winter.

From the sun's viewpoint, Earth appears to "nod" up and down, alternately showing off its hemispheres as it moves around our star. Now, let's move on to Saturn.

Saturn, a giant tilted world

Just like Earth, Saturn experiences seasons, but more than 29 times longer than ours. Where Earth's equator is tilted by 23.5 degrees, Saturn's equator has a 26.7 degree tilt. The result? As Saturn moves through its 29.4-year orbit around our star, it also appears to nod up and down as seen from both Earth and the sun.

What about Saturn's rings? The planet's enormous ring system, comprised of bits of ice, dust and rocks, spreads out over a huge distance—[just over 280,000 km from the planet](#). But it's very thin—in most places, just tens of meters thick. The rings orbit directly above Saturn's [equator](#) and so they too are tilted to the plane of Saturn's orbit.

So why do Saturn's rings 'disappear?'

The rings are so thin that, seen from a distance, they appear to vanish when edge on. You can visualize this easily by grabbing a sheet of paper, and rotating it until it is edge on—the paper almost vanishes from view.

As Saturn moves around the sun, our viewpoint changes. For half of the orbit, its [northern hemisphere](#) is tilted towards us and the northern face of the planet's rings is tipped our way.

When Saturn is on the other side of the sun, its [southern hemisphere](#) is pointed our way. For the same reason, we see the southern face of the planet's rings tilted our way.

The best way to illustrate this is to get your sheet of paper, and hold it horizontally—parallel to the ground—at eye level. Now, move the paper down towards the ground a few inches. What do you see? The upper side of the paper comes into view. Move the paper back up, through your eye

line, to hold it above you and you can see the underside of the paper. But as it passes through eye level, the paper will all but disappear.

That's what we see with Saturn's rings. As the seasons on Saturn progress, we go from having the southern side of the rings tilted our way to seeing the northern side. Then, the planet tips back, revealing the southern side once more.

Twice per Saturnian year, we see the rings edge on and they all but vanish from view.

That's what's happening in 2025—the reason Saturn's rings will seemingly "disappear" is because we will be looking at them edge on.

This happens regularly. The last time was in 2009 and the rings gradually became visible again, over the course of a few months. The rings will be edge on once again in March 2025. Then they'll gradually come back into view as seen through large telescopes, before sliding out of view again in November 2025.

Thereafter, the rings will gradually get more and more obvious, reappearing first to the largest telescopes over the months that follow. Nothing to worry about.

If you want to clearly see Saturn's rings, now is your best chance, at least until 2027 or 2028!

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Provided by The Conversation

Citation: Will Saturn's rings really 'disappear' by 2025? An astronomer explains (2023, November 10) retrieved 30 April 2024 from <https://phys.org/news/2023-11-saturn-astronomer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.