

No, scientists aren't "raising alarms" about SpaceX satellites falling out of the sky

That's what they're supposed to do.

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Look at this shocking, sensational headline:



In this post I'm going to correct some misinformation about Starlink satellites. Since it's a controversial company running a controversial business led by a (to say the least) controversial personality, allow me to start by heading off some of the responses that some of you are already planning:

- I'm correcting misinformation, all of which is harmful. That doesn't mean that I am defending Elon Musk, SpaceX, Starlink, or that I hate astronomers.
 - My opinion of Elon Musk has nothing to do with this, and neither should yours. Mine is probably worse than yours.
 - Starlink satellites — and other LEO constellations like Project Kuiper, SES (O3b/mPOWER), Telesat, and Sfera — are terrible for astronomy. That doesn't justify putting out misinformation.
 - Billionaires, yada yada yada.

The fact is that Starlink satellites are falling out of the sky at a record

pace, and the simple reason is that **they all do that by design** at the end of their lifespan. As more and more of the constellation is launched into orbit, there are more and more of them reaching the end of their lifespan. Most of the planned 12,000 are flying now, but there are still plenty more to launch to complete the constellation.

That's all. The claim “scientists raise alarm” is a nonsense phrase.

Why do they have such a short lifespan?

Their lifespan is short, only about 5 years, for three important reasons:

- 1 They are in a very low orbit, low enough that they are in the atmosphere and experience drag. This ensures that no matter what, they will all re-enter and burn up very soon (even if they brick for any reason), minimizing the chances of increased orbital debris. This is extremely important, as I detailed in [my Skeptoid episode on space junk](#).
- 2 They can carry only so much argon (the reaction mass used by their ion thrusters) for station keeping. When one gets too low, it deliberately does a death-dive into the atmosphere, again, to avoid becoming orbital debris.
- 3 Technology changes and improves rapidly, and cycling new upgraded satellites through the system faster improves everything.

Aren't fleets of plummeting satellites dangerous?

Not these. Starlink satellites (and the other LEO Internet constellations) look basically like a big flat panel. They burn up *very* easily; it's unlikely any noticeable piece would ever make it to the Earth's surface.

Why do astronomers hate them?

Two reasons. First and most obviously, is that they create streaks on telescope pictures as they cross the star field. That's manageable, however, just not what anyone wants to have to do.

Second, they make a ton of radio noise up there, which annoys the radio telescope folks. Not a lot can be done about that except filter out their frequency band, which of course filters out some of what they're trying to see.

So if Starlink satellites *were* indeed falling out of the sky in some shocking manner, scientists would celebrate, they wouldn't "raise alarms".