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# Sensemaker Daily

## Kessler on Kessler

The most fatherly piece of advice I ever received from my Dad goes as follows: “If you can avoid it, don’t take the M25”, London’s perennially gridlocked orbital motorway.

I thought of this as I read the news of a near collision on a somewhat larger but similarly congested orbital highway, one that transports objects several hundred miles above the Earth at thousands of miles an hour.

LeoLabs, a satellite-tracking firm, predicted that two man-made objects would pass between 50 and 100 feet apart, somewhere above Pittsburgh, Pennsylvania. When you consider how vast even near-Earth space is, that is fairly tight.

There are thousands of satellites, launched into the sky by governments and private businesses. They bring us GPS navigation, telecommunications services and sometimes correctly predict the weather.

But most do precisely nothing. Vanguard 1, launched by NASA in March 1958, months after the Soviet Union shocked the world by with Sputnik 1, is still in the sky.

International guidelines now dictate that satellites in low earth orbit have to be removed within 25 years of being decommissioned. But many satellites were launched before this global best practice was brought in.



If you've seen the movie Gravity, starring Sandra Bullock and George Clooney, you may already know the risks of satellite collisions and going to the cinema on the basis of Rotten Tomatoes reviews.

An impact at thousands of miles an hour could create masses of space debris. Each collision would generate more and more pollution, vastly increasing the probability of future collisions. This could theoretically render satellites in certain orbital ranges impossible. Say goodbye to Google maps, and dust off that A to Z you kept in a wardrobe against the protestations of your partner.

I have a particular interest in this theory – it is named Kessler Syndrome, after the NASA scientist Donald Kessler (no relation). I thought about it when we welcomed into the Tortoise newsroom the legendary cosmologist, the astrophysicist and Astronomer Royal Lord Martin Rees. In his book, Our Final Century, Rees warns:

“More should be done to assess and then minimise the probability of global hazards. We live under their shadow, and they are raising the stakes for humanity.”

Yet private companies are planning to launch ever more satellites into low-orbit to support 5G technologies – SpaceX has received permission to launch 12,000 and has applied for 30,000 more.

Anyway...if you find yourself stuck in traffic on the M25, just look up and think – it could be worse.