

Weekend reading #1

Accident in space, caused by computers, successfully prevented – adapted from <https://www.theverge.com/2019/9/3/20847243/spacex-starlink-satellite-european-space-agency-aeolus-conjunction-space-debris> – 389 words

For the first time in history, the European Space Agency has been forced to move its satellite to avoid collisions with a larger constellation of satellites.

Their Aeolus, according to calculations, was likely enough (less than 1 in 1,000) to crash with SpaceX's Starlink 44 that a rail change was necessary. Aeolus rose 350 meters, according to ESA.

The event itself is nothing very special, and satellites, as well as the International Space Station, sometimes change their orbit slightly because of the possibility of a collision.

It is important because it is a very crucial procedure for the future. There are well over sixty Starlink satellites in the sky, with the number set to reach 12,000 within a few years. Several other companies are planning similar things, which means that Earth's lower orbit will soon become filled with a lot of so-called space junk. Space will still be huge, but the more objects that swirl around at a speed of 30,000 miles per hour, the greater the chance that paths will intersect. And as an average satellite surrounds Earth in just under two hours, there will be more and more opportunities for a collision.

Things can quickly escalate, the collision of just two satellites can create thousands of smaller pieces, that can cause problems for the next generation of victims, and quickly we have a chain reaction that cripples most human infrastructure and makes any trip to space inappropriately more dangerous for generations.

According to the European Space Agency, the event signaled a need for "traffic rules" for space. Nowadays, if there is a risk of collision, everything is done with a required connection to Earth, where the calculations are done. It is scary that man-made objects in space still rely on human interaction. And a lot of coordination between the human controllers is still done via the plain old E-Mail. When there are tens of thousands of satellites in the sky, established rules and communication channels are essential.

ESA's Aeolus satellite was launched on August 22nd, 2018 on a Vega rocket. The agency describes it as "the first mission to profile Earth's winds globally." Slovenian knowledge is also involved in the project.

Most satellites are in Earth's lower orbit, ranging from just under 200 kilometers to 2,000 kilometers above sea level. Since the launch of Sputnik in 1957, nearly 10,000 have been accumulated, of which nearly two thousand are active. Besides the already mentioned artificial satellites, there are about 30,000 other objects in space, like asteroids, space dust and other solid objects that can collide with satellites. Agencies are trying hard on how to solve the problem of space junk in the long run.