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Stars over Surrey with Rachel Dutton of Guilford Astronomical Society

At some point between seven o'clock and 07:37 UTC Saturday 10th of May. A Venusian probe launched by the USSR 53 years ago landed somewhere on Earth. The probe was part of the Venera program that brought us the first images and sounds from the surface of Venus. However, when it launched, there was a time of malfunction leaving the stricken rocket in Low Earth Orbit, where it eventually broke into pieces, most of which reentered the earth's atmosphere.

Shortly after, however, the main capsule bound for Venus remained in orbit around Earth for 53 years. Slowly de-orbiting until this week when it showed signs of being close to re-entry. Whilst it's even bigger than a lot of the smaller pieces of space junk in April, it'll say that there were over a million pieces of space junk over one centimetre in size alone, and bigger pieces of space junk such as waste ejected from the International Space Station.

Burn up in the atmosphere on a regular basis with very few issues, but this piece of space junk is different now. On rare occasions, we get incidents such as the waste from the ISS that crashed into a house in Florida and parts of Starship test that landed in Turks and Caicos, and a significant part, which was the size of a fridge landing in a garden of Poland.

But these are rare. And anything that has been in low earth orbit for a while that is relatively small, such as a one meter cubed space probe, would be expected to also disintegrate into the atmosphere. But in this case, this probe was built for Venus. Venus has an atmospheric pressure of 90 times that of Earth, a surface tempera 50 degrees centigrade.

An atmosphere pretty much made of all acid, rain clouds. The probes we send need to be built like armoured tanks, and even then they only survive for about two hours on the surface. Kosmos 482 is far more robust by design than standard space junk. And as a result, it may well survive reentry and crash land into the earth.

It weighs around 500 kilograms. So if you got hit, that would be bad news, but it would be for a very local Im localised impact with a greater, that's only a few meters in diameter. It was being tracked, but it was difficult to predict the timing and place of impact due to the lower part of the atmosphere, having different densities.

So the thicker the atmosphere, the more drag, the more it would slow down and foreclose to the earth. The less dense the atmosphere, the more it retains its orbit. The eventual time narrowed down to around 06:30 UTC plus or minus three to four hours, but the location of the impact was a lot less certain with an area expected to be anywhere between 52 degrees north of the equator and 52 degrees south of the equator being possible.

That includes the southernmost tip of America, Australia, and New Zealand, right up to the 52nd parallel, a line that goes through Ipswich, milk and Kings. And across South Wales, the risk of impact was low, as there is a lot of water and most of us landmass is unpopulated. The uncertainty did not make for comfortable weight.

It was being tracked in real time by receivers and failed to be registered by a receiver in Germany at around 07:37, meaning it touched down before that point. There have been no reports so far of meteor strikes, fireballs, or even doorbell cameras of fireballs, and so far no one has found any seismic data showing an impact.

So it's a guessing game as to where it's landed, likely somewhere unpopulated, more likely in an ocean or a body of water, but time will tell. The good news is that it appears that this has had no negative impact and there are no other pieces of space junk in the same category, so this was likely a one-off.

And if you want more space or astronomy news, you can catch stars over, sorry, on the last Tuesday of month at 8:00 PM Rachel Dutton, Stars Over Surrey, on Brookland's Radio. Stars over Surrey. Your Monthly Guide to Astronomy and Developments in Space with Rachel Dutton of Guilford Astronomical Society.

About

Rachel Dutton FRAS is an astronomer and cellist and she looks after outreach at the Guildford Astronomical Society. She presents Stars Over Surrey bringing a monthly review of space news, astronomical matters including a review of the past month's discoveries, events and space missions, Astrocast what to look for in the night sky over the coming month, forthcoming talks and events.

If you want a reminder of when the show is on, and links to the images discussed, you can sign up here for notifications from Rachel.

https://mailchi.mp/f7101b2028fc/spaceastronomy-media-updates

Stars Over Surrey Previous Episodes