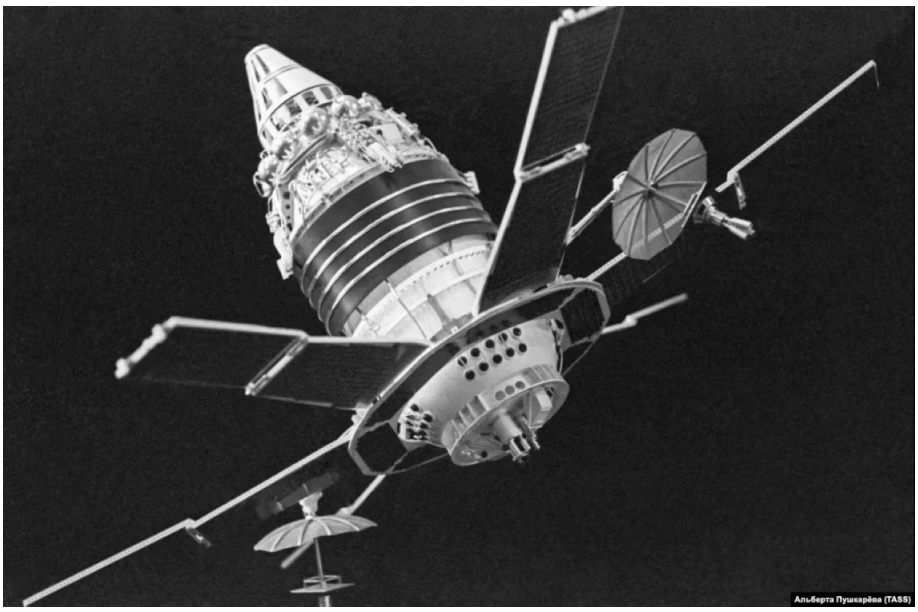


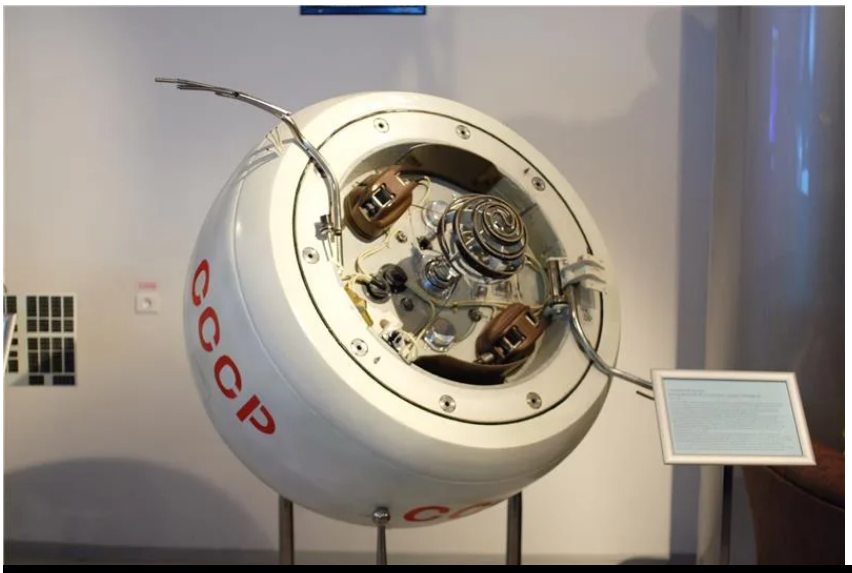
Out of Danger: The Soviet Probe Kosmos 482 Falls into the Indian Ocean

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The Soviet probe Kosmos 482, originally designed to explore Venus, has concluded its long 53-year journey with an uncontrolled re-entry into Earth's atmosphere. **Launched in 1972 during the Cold War, the mission had great ambitions: while its twin spacecraft Venera 8 managed to reach Venus and transmit scientific data, Kosmos 482 was not so fortunate**. After launch, the probe was supposed to activate a propulsion system to head towards Venus. However, a critical engine failure forced it to remain trapped in an elliptical orbit between 210 and 9800 kilometers above Earth.

Over the years, part of the probe disintegrated during atmospheric re-entry, but the landing capsule, weighing about 500 kg and protected against the intense temperatures and pressures of Venus, continued to orbit Earth until today. This piece of the probe, characterized by an armored shell designed to withstand temperatures above 450°C and pressures up to 90 times

those of Earth's atmosphere, stood as a testament to the Soviet technological capability of the era. The object completed a slow descent cycle before finally plunging into the Indian Ocean, in the stretch of sea west of Jakarta, on May 10, 2025.

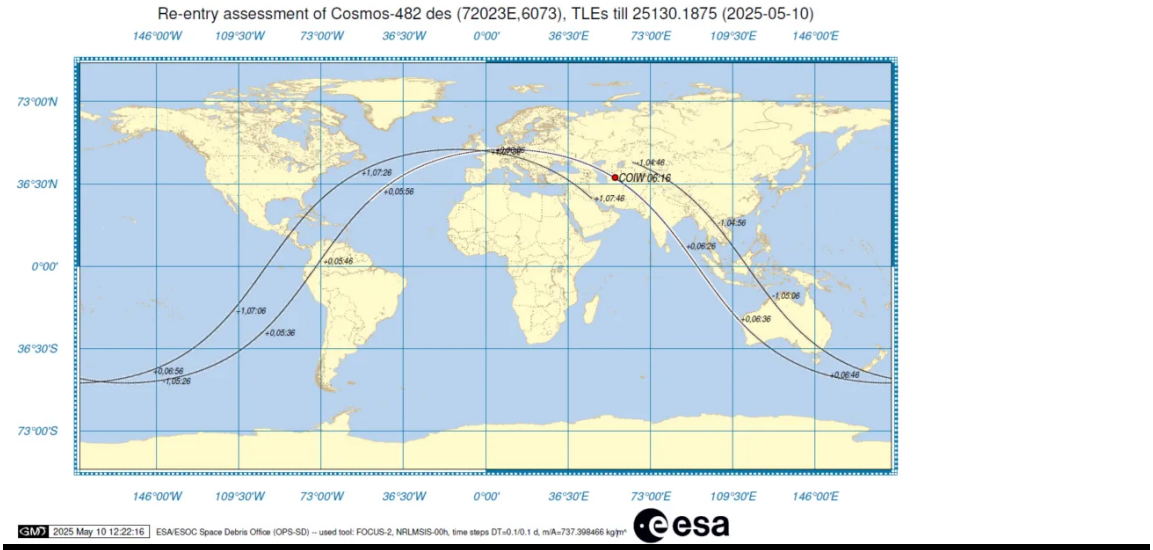


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The Re-entry and Uncertainties about the Impact Point

Estimates on the precise impact point of Kosmos 482 were a source of uncertainty. According to the Russian space agency Roscosmos, the probe fell into the Indian Ocean, near the Indonesian capital Jakarta. However, for several days, re-entry forecasts had caused confusion, with the US Space Force suggesting a fall in the Pacific, while other estimates indicated Europe. In particular, the European Space Surveillance and Tracking Consortium (Eu-SST) had monitored the probe's passage over Germany, continuously updating the forecasts. However, on May 10, ESA confirmed that the re-entry occurred between 06:04 UTC and 07:32 UTC, with an uncertainty window extending up to +/- 0.36 hours.

In the end, the impact point was located in the Indian Ocean, but initial estimates could not account for the complexity of the re-entry, linked to atmospheric factors and the unpredictable orbit of the spacecraft. The uncertainty was also fueled by the inability to gather direct visual observations during the last pass.



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The Future of Space Monitoring and the Story of Kosmos 482

The probe Kosmos 482, which spent over five decades in orbit, represents a piece of history from the Soviet space race. Its name derives from the Soviet tradition of naming missions that failed to leave Earth's orbit as "Kosmos," a term that concealed the true nature of many of these missions.

Although never officially acknowledged, Kosmos 482 was part of a series of Soviet missions directed towards Venus, a goal never reached by this probe. The technology and resilience of the capsule, designed to withstand the intense landing conditions on Venus, were an indirect success, allowing the probe to remain in orbit for over half a century.

With its fall, Kosmos 482 concluded a long history of attempts and failures in the space race, but also an important lesson on monitoring and controlling space objects. Experts continue to improve space surveillance techniques to address similar uncontrolled re-entries, which could become increasingly frequent with the rise in the number of satellites and space missions in orbit. The probe, a symbol of Soviet scientific perseverance, is now part of history.

News link: https://it.euronews.com/2025/05/10/la-sonda-sovietica-cosmos-482-cade-nelloceano-indiano-dopo-mezzo-secolo-in-orbita-incontro