

→ NEWSLETTER APRIL 2025

ESA's NEO Coordination Centre

Current NEO statistics

During the month of March, we crossed the threshold of 38 000 known NEOs.

- Known NEOs: 38 063 asteroids and 123 comets
- NEOs in risk list*: 1767
- NEOs designated during last month: 275
- NEOs discovered since 1 January 2025: 795

Focus on

ESA's NEO Coordination Centre (NEOCC) relies on the Aegis software to track and assess asteroid impact risks. Aegis has now reached a significant milestone with the [release of its latest version](#), bringing major improvements in scientific accuracy and computational efficiency. One key update is the improved treatment of visual magnitudes, thanks to a new debiasing scheme. The software is also prepared to handle next-generation telescope data from missions like the Vera Rubin Observatory, Flyeye, and NEO Surveyor. Additionally, Aegis has been redesigned to operate in highly virtualized environments, making it faster, more resilient, and scalable. This version played a crucial role in analyzing asteroid 2024 YR4, the highest-risk object in 20 years. With these upgrades, Aegis enhances ESA's planetary defence efforts, ensuring more effective monitoring of potentially hazardous asteroids.

Upcoming interesting close approaches

None of the objects known at the end of March are expected to come closer than the Moon during the month of April.

Recent interesting close approaches

Two statistically infrequent close approaches happened during the month of March. Both objects became brighter than magnitude 14 at their closest approach.

- 2018 RC2, with a diameter of roughly 100 metres, got closer than 2 lunar distances in early March.
- 2025 EF4, a Tunguska-sized asteroid discovered on 11 March, flew-by a bit farther than the Moon just four days later.

News from the risk list

No new objects entered or left the top positions of the risk list in March.

- 2024 YR4, the highlight of the first part of the year, has now dropped to very low risk ratings, mostly for a residual small chance of impact in 2047. The possibility of an impact with the Earth in 2032 is now fully excluded, although a small chance of impact with the Moon for the same date still remains.

*The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <https://neo.ssa.esa.int/risk-list>

In other news

- ESA's HERA mission had a successful fly-by with Mars and Deimos on 12 March, with all instruments performing nominally.

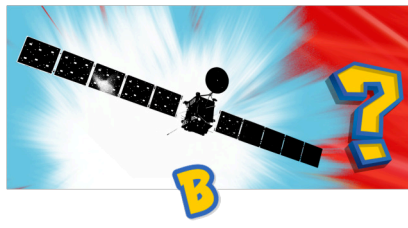
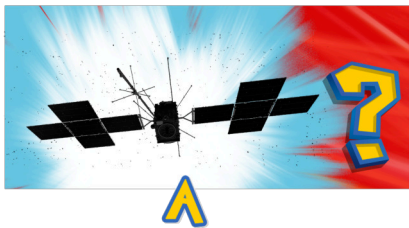
Upcoming events

- Apophis T-4 Years: Knowledge Opportunity for the Science of Planetary Defense, 9-10 April , 2025, Tokyo, Japan <https://www.hou.usra.edu/meetings/apophis2025>
- 9th IAA Planetary Defense Conference, 5-9 May 2025, Stellenbosch, South Africa <https://iaaspace.org/event/9th-iaa-planetary-defense-conference-2025/>
- Meteoroids 2025, 7-11 July 2025, Perth, Australia <https://meteoroids2025.gfo.rocks>
- Europlanet Science Congress (EPSC) 2025 (joint meeting with the 57th Annual Meeting of the AAS Division for Planetary Sciences), 7-12 September 2025, Helsinki, Finland <https://www.epsc-dps2025.eu/>

A fine collection of “Asteroids” that were actually not

Notable “Asteroids” that turned out to be actually spacecraft. Juice narrowly avoided inclusion on this list!

MPC Designation	Actual Identity	Status Update
2007 VN84	Rosetta	Became the first, second and third mission to successfully land on a comet.
2015 HP116	Gaia	Earned a well-deserved retirement on a stable orbit around the Sun. Farewell, Gaia!
2018 CN41	Elon Musk's Tesla Roadster	Last seen photobombing a Starlink train.
2020 GL2	BepiColombo	With thrusters equivalent to 250 ants pushing the spacecraft, it is still en route to Mercury, engines allowing.
2020 S0	Surveyor 2 booster	Half a century later, it came back for a surprise visit.
2020 XA1	Spektr-RG	Commonly seen by asteroid observers worldwide.
2022 UQ1	Lucy booster	Last seen ghosting Earth on a flyby.



Are you a good observer? Can you identify the spacecraft?

[Credit: ESA / PDO]



Answers: A. Juice B. Rosetta C. BepiColombo D. Venera 2

Links for more information

Website: <https://neo.ssa.esa.int>

Close approaches page: <https://neo.ssa.esa.int/close-approaches>

Risk List: <https://neo.ssa.esa.int/risk-list>

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