→ NEWSLETTER MAY 2026

ESA's NEO Coordination Centre

Current NEO statistics

April saw a reduced number of discoveries worldwide, with roughly 200 new NEOs identified. However, thanks to the significant discovery rates during the previous three months, we remain above the numbers recorded during the same period last year.

- Known NEOs: 41 608 asteroids and 124 comets
- NEOs in risk list*: 1969
- NEOs designated during last month: 208
- NEOs discovered since 1 January 2026: 1079

Focus on

On 5 July 2026, JAXA's Hayabusa2# – the name of the extended Hayabusa2 mission – will fly by the near-Earth asteroid (98943) Torifune, making it the next asteroid in history to be visited by a spacecraft. Torifune is an Apollo-type near-Earth asteroid with an orbital period of about 383 days and an inclination of only 4.8 degrees. Ground-based observations suggest an equivalent diameter of roughly 450 m and an elongated shape, with a rotation period about 5 hours. Recent spectroscopic studies classify it as Sq-type, likely related to ordinary chondrites, making it compositionally similar to asteroids Itokawa and Eros.

The flyby will take place at 5.25 km/s, with a closest approach distance of 1–10 km from the asteroid centre. This would rank among the closest flybys of a small body ever performed at high speed. The challenge is considerable: Hayabusa2# was designed for rendezvous operations, not fast flybys, and has limited ability to slew its instruments during the encounter. Observations will therefore be restricted to the approach phase only. During the flyby, five onboard instruments will be operated to characterise the asteroid shape, surface composition, and thermal properties. The mission is also relevant for planetary defence, serving as a demonstration of fast reconnaissance technology for characterising a potentially hazardous object under tight time constraints. Full details can be found in this paper.

Upcoming interesting close approaches

None of the objects known at the beginning of May will come closer than 1 million kilometres during the month.

Recent interesting close approaches

A newly discovered small object came close in April.

- 2026 HZ4 was the closest known approacher of the month. It has a diameter of about 5 metres, and it flew by at a distance just below the geostationary ring on 24 April, reaching magnitude 14.

News from the risk list

Two objects rose to prominent positions in our risk list, but were subsequently lowered thanks to new observations.

- 2026 GK2 and 2026 HW2 entered the risk list immediately after discovery, reaching Palermo Scale values close to -3. Thanks to subsequent observations, including several from our team, they have now dropped below -6.

*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

- The annual Asteroid Day events will happen in Luxembourg on 26 and 27 June 2026, with many additional asteroid-themed events organised all over the world. You can read about them at https://asteroidday.org/.

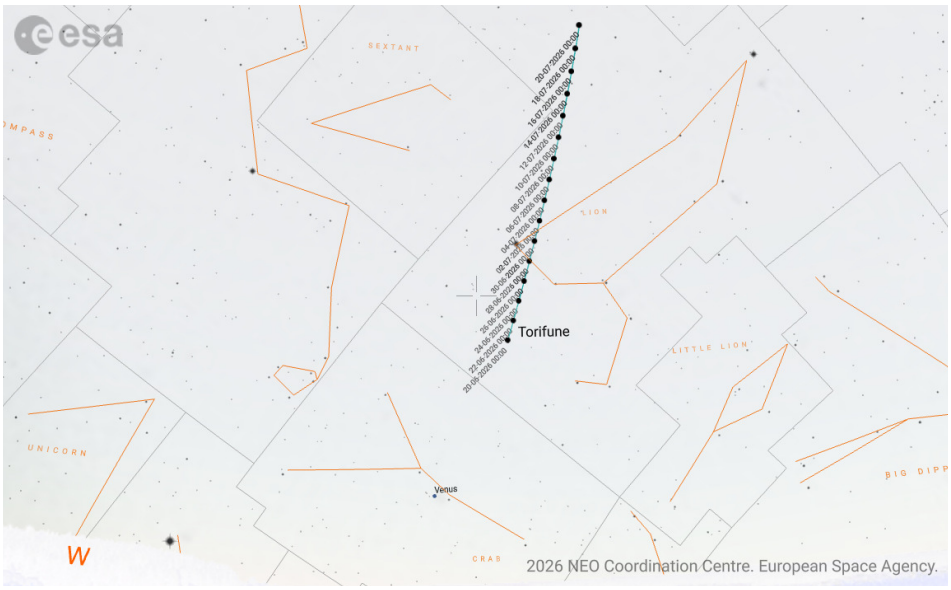
Upcoming events

- Asteroids, Comets, Meteors Conference, 6-10 July 2026, Poznań, Poland
  https://acm2026.eu/
- Europlanet Science Congress (EPSC) 2026, 6-11 September 2026, The Hague, Netherlands
  https://www.epsc2026.eu/
- 58th Annual Meeting of the AAS Division for Planetary Sciences (DPS), 25-30 October 2026, Spokane, USA
  https://aas.org/meetings/58th-dps-meeting

Diameter of Torifune

Torifune has been the subject of several physical characterization studies. The table reports diameter estimates obtained in the last year, using different observational techniques and type of data. The spread in values reflects the difficulty of characterising sub-kilometre asteroids from the ground and highlights the importance of direct spacecraft observations during the Hayabusa2# flyby on 5 July 2026, which is expected to provide a more accurate estimate of the asteroid's diameter.

Reference	Data source	Diameter in m
Arimatsu et al. 2024	Stellar occultation	420^{+80}_{-60}
Fornasier et al. 2024	Spitzer Space Telescope	465^{+15}_{-15}
Popescu et al. 2025	Lightcurve inversion	440^{+60}_{-60}
López-Oquendo et al. 2025	NASA Infrared Telescope Facility	433^{+36}_{-34}
Wright et al. 2025	NEO Wide-field Infrared Survey Explorer (NEOWISE)	337^{+37}_{-27}



Torifune will be visible during Hayabusa2#'s fly-by. The asteroid will have a magnitude of about 20.5, and it will pass through the Leo constellation.

The picture shows the predicted path from 20 June to 20 July, as seen from the ESA TBT Telescope in La Silla (Chile).

[Credits: ESA / PDO]

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