→ NEWSLETTER JUNE 2023

ESA's NEO Coordination Centre

Current NEO statistics

The number of known NEOs crossed the threshold of 32 000 in May.

- Known NEOs: 32 099 asteroids and 121 comets
- NEOs in risk list*: 1487
- NEOs designated during last month: 233
- NEOs discovered since 1 January 2023: 1071

Focus on

ESA's NEO Coordination Centre completed its first decade of activity last month. Ten years ago, on 22 May 2013, the Centre was officially inaugurated in Frascati, Italy, inside ESA's ESRIN establishment. The official start of the Centre's activities happened just a few months after the Chelyabinsk event. The commitment of the Agency to the topic of impact threat goes back to many years earlier, with the establishment of the Space Situational Awareness Programme, of which our current Space Safety Programme is the direct successor. Over this decade, the number of known NEOs has tripled, and so has the staff of the Centre. Our web portal now offers many more services, and more data is analysed and produced daily. The Centre also recently got a new dedicated building, with more office space.

Upcoming interesting close approaches

Three NEAs will become brighter than magnitude 14 in June.

- 2023 HO18 is a recently discovered 30-metre asteroid coming to about one lunar distance on 4 June. It should become brighter than magnitude 14 during its closest approach.
- (488453) 1994 XD and 2020 DB5 are much larger half-kilometre asteroids, which will come to 8 and 11 lunar distances respectively in June. Despite the larger approach distance, thanks to their larger size they will also become brighter than magnitude 14.

Recent interesting close approaches

Three small objects came close during the month of May.

- 2023 JO, 2023 JA3 and 2023 KT were the three closest known approachers for the month of May. All new discoveries, all smaller than about 10 metres, and all coming closer than half the lunar distance.

News from the risk list

A new Torino Scale 1 object entered our risk list, and was subsequently degraded thanks to new observations.

- 2023 JE5 reached Torino Scale 1 and the top spot of our risk list just after discovery. Observations obtained by our team with ESA's OGS telescope lowered the impact rating to average levels.

*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 be streamed from Luxembourg on June 30 and July 1 and independently hosted all over the world on June 30. You can read about the initiative, schedule of events, and speakers at https://asteroidday.org/.

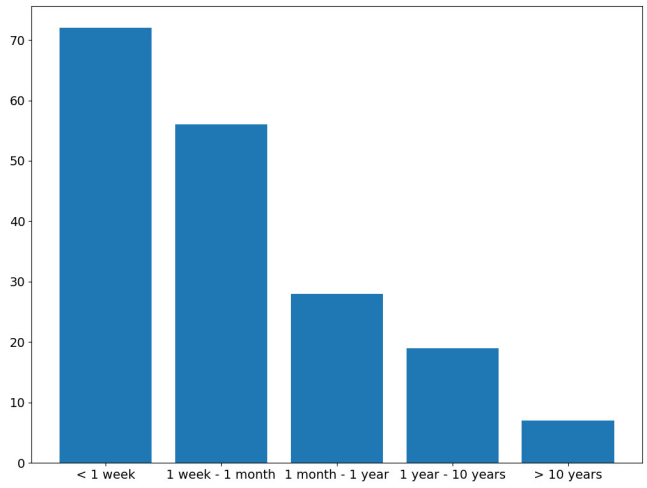
Upcoming events

- Asteroids, Comets, Meteors Conference, 18-23 June 2023, Flagstaff, USA
  https://www.hou.usra.edu/meetings/acm2023/
- 42nd International Meteor Conference, 31 August-3 September 2023, Redu, Belgium
  https://imc2023.imo.net/
- 55th Annual Meeting of the AAS Division for Planetary Sciences (joint meeting with the Europlanet Science Congress (EPSC) 2023), 1-6 October 2023, San Antonio, USA
  https://dps.aas.org/meetings/future

Yearly number of known NEAs during the last decade

Number of known NEAs at 1-year steps during the decade since the establishment of ESA's NEOCC. The size ranges are approximate, computed from the absolute magnitude with an assumed albedo of 0.14.

Date	Number of known NEAs	Number of known NEAs larger than 1 km	Number of known NEAs larger than 140 m
31 May 2013	9 967	825	5 712
31 May 2014	11 231	836	6 127
31 May 2015	12 793	848	6 650
31 May 2016	14 479	852	7 158
31 May 2017	16 260	856	7 648
31 May 2018	18 274	863	8 131
31 May 2019	20 266	867	8 567
31 May 2020	23 014	871	9 078
31 May 2021	26 011	874	9 557
31 May 2022	29 080	879	10 010
31 May 2023	32 099	883	10 440



The histogram presents some statistics on the time an object typically remains on our risk list, based on the cases of the last year.

Most objects enter the list right after discovery, and are quickly removed within a few days, once follow-up observations are collected. Other cases are harder to remove, and require two apparitions of the object to exclude all impact solutions. In very rare cases, as it happened for (99942) Apophis, many decades of accurate data are required, often due to peculiarities in the orbit of the asteroid, such as frequent close approaches, making the dynamical evolution of the object harder to predict.

[Credit: 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