

→ NEWSLETTER AUGUST 2024

ESA's NEO Coordination Centre

Current NEO statistics

The NEO discovery rate stays low due to the short night and poor weather conditions typical of Northern summers.

- Known NEOs: 35 310 asteroids and 123 comets
- NEOs in risk list*: 1628
- NEOs designated during last month: 136
- NEOs discovered since 1 January 2024: 1282

Focus on

What to do if an asteroid threatens to hit our planet? There are two international groups that deal with this: the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG). The latter is chaired by ESA. SMPAG's task is to prepare a space-based response to a possible impact threat, which could be a reconnaissance mission, or a deflection mission. To prepare for the real case, SMPAG is involved in a simulated "exercise" for the Planetary Defense Conference (PDC) in April 2025 in South Africa. SMPAG will receive a simulated notification of an impact threat meriting their attention. The group will study possible space-based action and, at their next meeting in October 2024, will produce a recommendation for a proposed response. This recommendation will be provided to decision-makers, e.g. agency directors. The exercise will culminate in a session at the PDC 2025, where decision makers will be on the podium. They will be presented with the final recommendation and asked for comments.

Upcoming interesting close approaches

None of the asteroids known at the beginning of the month are expected to come closer than one million kilometers to the Earth during the month of August.

Recent interesting close approaches

Only one small known object had a close fly-by in June.

- 2024 NK3 is the only known object that came closer than the Moon in July. It flew-by at about 120 000 km from the Earth on 11 July, reaching magnitude 10.

News from the risk list

A high-rated object was removed thanks to our observations.

- 2024 NA1 briefly entered the top-10 of our risk list in June. However, observations obtained by our team with the Calar Alto Schmidt telescope led to its complete removal from the list.

*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

- No relevant news to be reported this month.

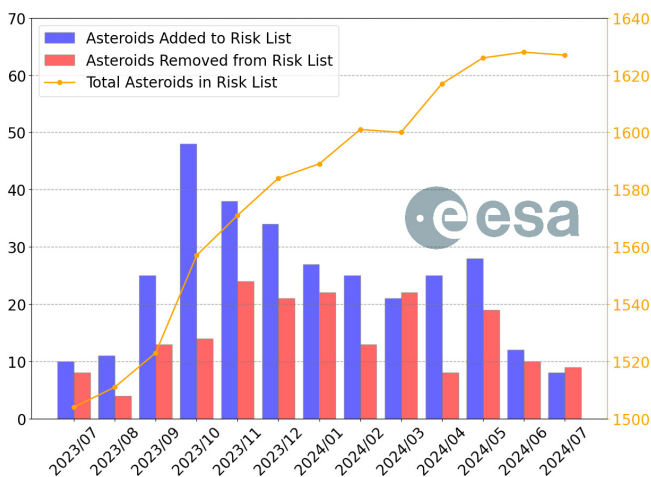
Upcoming events

- Follow-up Observations of Small Bodies in the Solar System in the Era of Large Discovery Surveys, 6 and 8 August 2024, Cape Town, South Africa
<https://sbss2024.sao.ac.za/>
- Europlanet Science Congress (EPSC) 2024, 8-13 September 2024, Berlin, Germany
<https://www.epsc2024.eu/>
- 43rd International Meteor Conference, 19-22 September 2024, Kutná Hora, Czech Republic
<https://imc2024.imo.net/>
- 56th Annual Meeting of the AAS Division for Planetary Sciences (DPS), 6-10 October 2024, Boise, USA
<https://aas.org/meetings/dps56>

Largest objects recently removed from the risk list

The table below presents the largest objects that appeared and were subsequently removed from our risk during the last 2 years, having a cumulative probability higher than $1/10^7$. Most of them had low impact probabilities, but reached a high Palermo scale rating thanks to their large size, and consequently significant expected impact energy.

Designator	Removal date	Size range in m	Cumulative IP max	Cumulative PS max
2023 QF5	2023-09-16	600–1 300	1/180 000	-1.22
2023 GQ2	2023-04-20	300–700	1/17 000	-0.58
2024 NA1	2024-07-11	290–600	1/6 000 000	-3.76
2022 LX1	2022-06-12	270–600	1/50 000	-2.60
2023 TL4	2023-12-07	260–600	1/100 000	-2.28
2022 NH1	2022-07-22	240–500	1/2 700 000	-4.34
2024 ER2	2024-03-15	230–500	1/800 000	-3.17
2023 AJ1	2023-02-08	230–500	1/15 000	-1.54
2022 OH	2022-07-27	190–400	1/900 000	-4.00
2022 UX21	2022-12-11	190–400	1/500 000	-3.87



The histogram shows the number of asteroids added (in blue) and removed (in red) from our risk list, for each of the past 12 months. The cumulative number of risk list-object (also included, in orange) clearly shows that, in general, removals are less than additions, leading to an overall increasing trend to the number of objects remaining in the list.

Nevertheless, most of the objects that remain in the list have very low risk ratings. The overall follow-up capabilities are in general sufficient to properly follow high-risk targets and ensure the rapid clarification of their risk status.

[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>

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