

→ NEWSLETTER JULY 2021

ESA's NEO Coordination Centre

Current NEO statistics

During the month of June we crossed the threshold of 26 000 known NEOs.

- Known NEOs: 26 080 asteroids and 114 comets
- NEOs in risk list*: 1164
- Number of NEOs designated during last month: 184
- NEOs discovered since 1 January 2021: 1425

Focus on

Almost exactly 30 years ago, in response to a mandate from the US House of Representatives, NASA initiated a series of international workshops and a study group to address the threat posed by near-Earth objects. The goal of this effort was the establishment of dedicated observational programmes to dramatically increase the discovery and detection rate of asteroids that may pose a threat to Earth. Three international workshops were organised, inviting two dozen experts from all over the world. The deliberations of this team formed the basis for a formal report, published the following year, which led to a formal mandate from the US Congress to NASA to locate at least 90% of the km-sized asteroids within a decade, a task later known as the "Spaceguard Survey" goal. This was the challenge that sparked the birth, later in that decade, of many of the dedicated NASA-funded asteroid surveys that still operate today. The results were impressive: within a decade, the annual discovery rate of new NEOs spiked from about 30 to nearly 500 per year, and kept growing during the following decades to the current number of almost 3000 per year.

Upcoming interesting close approaches

None of the asteroids known in June are expected to come closer than the Moon in July, nor to reach a magnitude brighter than 16 during a close approach.

Recent interesting close approaches

Nine newly discovered asteroids came closer than the Moon in June. They were all small, roughly 5 to 15 metres in diameter.

- 2021 MU was probably the most significant close approach of the month, reaching magnitude 15 while passing us at less than half the distance of the Moon.

News from the risk list

Three objects entered the top-10 of the risk list in June.

- 2021 LD6 is an object of about 10 meters that reached an impact probability of almost 1% a few days after discovery, for a possible impact in 2079. Subsequent observations lowered the probability to less than 1 in a million.
- 2021 MX and 2021 MK1 are two other new objects, with a much larger diameter between 100 and 200 metres. Despite having impact probabilities of just a few per million, their larger sizes still result in an significant threat, and a Palermo Scale rating higher than -4 for impacts in June 2066 and June 2111, respectively.

* 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

- On 11 June, NASA authorised the NEO Surveyor mission to proceed to the preliminary design phase. Launch is currently scheduled for the first half of 2026.
- On 30 June, NASA's NEOWISE mission was extended for two more years.

Upcoming events

One event in the list of relevant international meetings over the next months.

- 53rd Annual Meeting of the AAS Division for Planetary Sciences, 3-8 October 2021, virtual
<https://dps.aas.org/meetings/current>

Statistics on NEA discoveries during last year lunations

The table shows the total number of discovered NEAs during each lunation of the last year, and the percentage that this value represents compared to the total number of NEAs discovered in the year (taking 13 lunations).

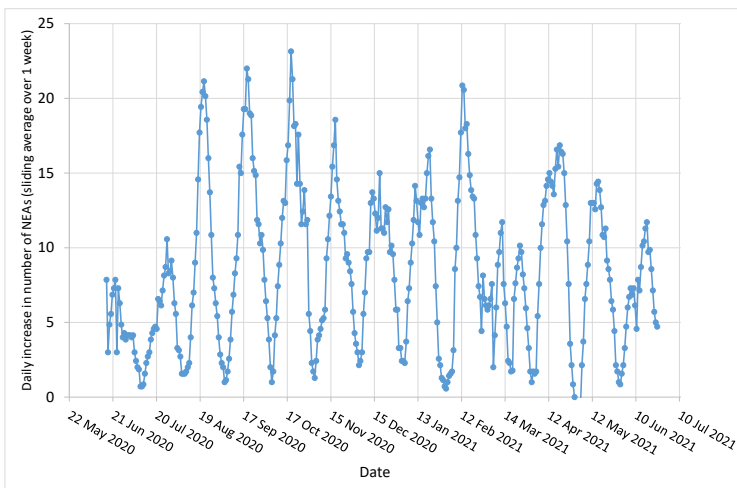
Full moon date	Total known NEAs at the full moon	Number of discovered NEAs during the previous lunation	Percentage on the total NEAs discovered in the year
2020-06-05	22904	210	6.2%
2020-07-06	23022	118	3.5%
2020-08-04	23167	145	4.3%
2020-09-02	23424	257	7.6%
2020-10-02	23768	344	10.2%
2020-10-31	24099	331	9.8%
2020-11-29	24360	261	7.7%
2020-12-29	24628	268	7.9%
2021-01-28	24890	262	7.8%
2021-02-26	25153	263	7.8%
2021-03-28	25363	210	6.2%
2021-04-26	25664	301	8.9%
2021-05-26	25887	223	6.6%
2021-06-25	26068	181	5.4%

Links for more information

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

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

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



Daily number of discovered NEOs (averaged over one week) in the last year. Vertical grid lines are provided at the new moons, to highlight the periods where more discoveries are typically performed every lunation.

The “Focus on” in the newsletter for the month of July 2020 provided the relevant information for the understanding of this figure.

[Credit: ESA/NEOCC]

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