

→ NEWSLETTER AUGUST 2021

ESA's NEO Coordination Centre

Current NEO statistics

The annual monsoon-driven shut-down of the surveys in the US South West will likely drive the discovery rates down during the summer months. Two new near-Earth comets have recently been announced.

- Known NEOs: 26 204 asteroids and 115 comets
- NEOs in risk list*: 1182
- Number of NEOs designated during last month: 124
- NEOs discovered since 1 January 2021: 1548

Focus on

The implementation activities for ESA's Flyeye observatory infrastructure atop of Monte Mufara, in the Madonie National Park (Sicily, Italy), have been kicked off last July. Following an 18-month long design phase, the negotiations with EIE Space technologies were concluded and the construction phase was formally started. The observatory will show a monolithic design which integrates seamlessly with the park landscape, featuring a 56 t, 13 m diameter dome, able to rotate at very high speeds in order to cope with the demanding needs of the Flyeye survey telescope. While the manufacturing of the dome components will start without delay, the site activities will commence as soon as the official building permit has been granted. The last formal step after the signature of the loan agreement for the land was completed by the local authorities back in June 2021. The current schedule would allow an installation of the Flyeye telescope on Monte Mufara starting early 2023.

Upcoming interesting close approaches

A large object will pass nearby in August.

- 2016 AJ193 is a large kilometre-sized NEO which will have a fly-by at 9 lunar distances during the second half of August. It is expected to become brighter than magnitude 14, an easy target for both optical imaging and radar observations.

Recent interesting close approaches

Three known objects came closer than the Moon in July, all new discoveries.

- 2021 NA was probably the most interesting close approach, it is a 5 to 10 metre object that flew by at less than 0.2 lunar distances. Due to the small size, it only peaked at magnitude 15 during the close approach.

News from the risk list

Two objects discovered this year are in the top positions of our list.

- 2021 NQ6 is a new addition in the fourth place of our risk list. It is an object of about 200 metres, with possible impacts beginning in year 2039.
- 2021 MK1, announced last month, is still in our risk list, rated with a Palermo Scale of about -4, despite additional observations collected over the month of July.

* 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 30 July, NASA's first spacecraft to explore the Trojan asteroids arrived at the agency's Kennedy Space Center (KSC) in Florida. Lucy is now in a cleanroom at nearby Astrotech, ready to begin final preparations for its October launch.

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>

List of future closest approaches with Venus

List of the closest approaches of known NEAs to planet Venus in the next five years, ordered by miss distance from the centre of the planet.

Object name	Close approach date	Miss distance in au	Miss distance in km	Size range in m	H magnitude
2002 JE9	2021-11-05	0.0049	740 000	140 – 300	21.4
2010 XA11	2025-04-20	~ 0.0060	~ 900 000	16 – 40	26.1
2020 TQ3	2022-08-19	~ 0.0064	~ 1 000 000	13 – 29	26.5
2020 TQ3	2025-02-02	~ 0.0064	~ 1 000 000	13 – 29	26.5
(436037) 2009 NJ	2022-07-30	0.0076	1 135 000	500 – 1100	18.7
(162361) 2000 AF6	2023-06-12	0.0092	1 380 000	250 – 600	20.1
2019 CH1	2025-02-05	0.0093	1 390 000	160 – 400	21.1
2012 PS4	2026-07-21	0.0096	1 440 000	150 – 300	21.3

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>



Infographic providing a representation of the Flyeye telescope building atop the Mount Mufara summit.

[Credit: ESA/PDO]

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