

ESA's NEO Coordination Centre

Current NEO statistics

Since the beginning of the year 270 objects more than last year in the same period have been discovered.

- Known NEOs: 23 160 asteroids and 110 comets
- NEOs in risk list*: 1062
- Number of NEOs designated during last month: 155
- NEOs discovered since 1 January 2020: 1485

Focus on

During the second half of July the top position of our risk list was held by 2020 NK1, a newly discovered object which also held the classification of Torino Scale 1 for most of its permanence at the top. 2020 NK1 is now gone from the list, but it gives us the opportunity to quickly remind the reader of the rarely seen “Torino Scale”. It is the simplest of the scales commonly used to estimate the impact threat for an asteroid, and it has been devised mostly as a “communication tool” for the public. It ranks potential impactors in eleven levels, marked from 0 to 10. Level 0 includes all “routine” objects, which are either too small to cause major damage, or too unlikely to hit. Level 1, the value reached by 2020 NK1 and almost all other non-zero objects so far, are common cases meriting some attention from scientists, but still sufficiently routine and low-probability to not warrant any public concern. The higher levels deal with progressively higher probabilities, or higher threats in case of a collision. So far only two objects reached levels greater than one since the scale was defined: the well-known alert surrounding (99942) Apophis in 2004, which peaked at level 4, and (144898) 2004 VD17 which reached level 2 in 2006.

Upcoming interesting close approaches

No object known at the end of July will have any significant close approach during the month of August.

Recent interesting close approaches

A tiny new asteroid discovered well before its closest approach.

- 2020 OY4 flew by on 28 July at just a tenth of the distance of the Moon. It was a tiny object, only a few meters in diameter, and therefore only reached magnitude 15 at its peak. It had been discovered by the Catalina Sky Survey 2 days earlier, when it was still 1.9 million km away from Earth, an impressive distance for an object so small.

News from the risk list

A new object remained on top of the risk list for two weeks

- 2020 NK1, briefly discussed above, reached Torino Scale 1 and a cumulative Palermo Scale value of -1.4 during the second half of July. These high ratings were mostly due to possible impacts in year 2093 and 2101. Radar observations obtained by the Arecibo telescope led to the complete exclusion of all impact threats on 31 July.

* The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <http://neo.ssa.esa.int/risk-page>

In other news

- The date of re-entry of the Hayabusa2 sample capsule has been finalized as 6 December 2020. The capsule will land at the Woomera Test Range in Australia. A mission extension for the spacecraft itself, to fly-by another small asteroid, is under consideration.
- We are releasing the third PDO riddle with this newsletter and with a deadline on 25 August. Find the release information here: <http://neo.ssa.esa.int/neocc-riddles>.

Upcoming events

Relevant international meetings over the next months.

- Apophis T-9 Years, 9–10 November 2020, Nice, France
<https://www.hou.usra.edu/meetings/apophis2020/>
- Hera Community Workshop, 11–13 November 2020, Nice, France
<https://www.cosmos.esa.int/web/hera-community-workshop/>

List of objects that reached Torino Scale 1

The table shows the list of the objects which reached Torino Scale 1 in the last 3 years. The impact probability and Palermo Scale are the maximum values reached by the objects.

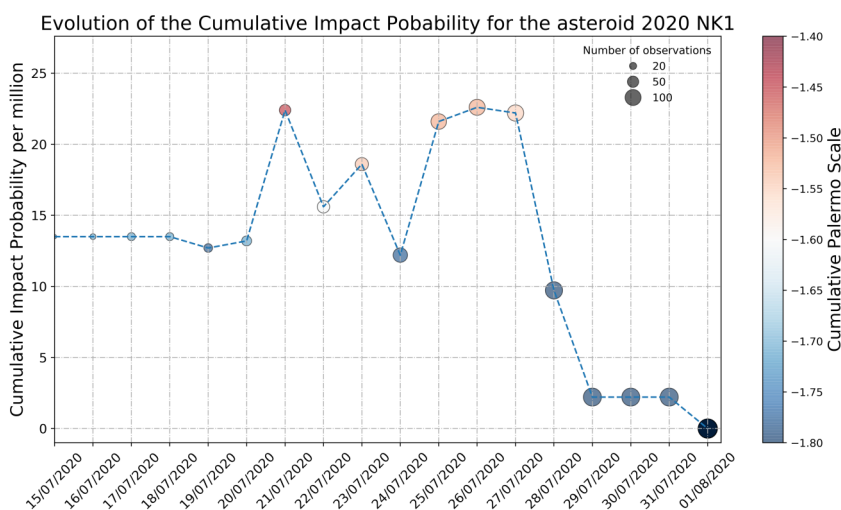
Object name	Impact Date	Impact Probability	Palermo Scale	Size range	H magnitude	Discovery date	First day with Torino Scale =1	Last day with Torino Scale =1	Removed from the risk list
2020 NK1	2093-08-03	1/90 000	-1.74	400–900	19.1	2020-07-13	2020-07-17	2020-07-28	2020-08-01
2020 DR2	2081-09-09	1/70 000	-1.69	500–1 000	18.8	2020-02-20	2020-02-27	2020-03-08	2020-03-11
2020 BW14	2046-10-14	1/40 000	-1.09	600–1 300	18.3	2020-01-28	2020-02-05	2020-02-09	2020-02-10
2020 AN3	2106-01-15	1/11 000	-1.88	210–500	20.5	2020-01-14	2020-01-16	2020-01-16	2020-05-29
2018 LB1	2031-08-06	1/6 000	-0.98	300–600	20.1	2018-06-03	2018-06-07	2018-06-13	2018-06-15
2017 YZ1	2047-06-30	1/5 000	-1.27	220–500	20.4	2017-12-20	2018-01-05	2018-01-08	2018-01-09
2017 X02	2057-04-28	1/6 000	-2.36	90–200	22.4	2017-12-10	2018-01-20	2018-01-27	2018-01-28
2017 LU	2056-07-31	1/40 000	-1.48	500–1 100	18.6	2017-06-08	2017-06-15	2017-06-23	2017-06-26
2017 CH1	2095-06-04	1/500 000	-2.29	700–1 600	17.9	2017-02-01	2017-02-07	2017-02-09	2017-02-15
2017 BL30	2029-08-03	1/900	-1.70	60–130	23.3	2017-01-28	2017-02-03	2017-02-10	2017-10-02
2017 AM4	2024-08-01	1/180 000	-1.12	400–900	19.2	2017-01-03	2017-01-19	2017-01-19	2017-01-23

Links for more information

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

Close approaches: <http://neo.ssa.esa.int/close-approaches>

Risk List: <http://neo.ssa.esa.int/risk-page>



Plot of the cumulative impact probability evolution for the asteroid 2020 NK1 with respect to the impact monitoring computation date.

Number of observations for each computation date is represented by the dot size and the corresponding cumulative Palermo Scale is showed by the color code.

[Credit: ESA/NEOCC]

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