

ESA'S NEO Coordination Centre

Current NEO statistics

May will likely be the last month before summer with an average rate of NEO discoveries. Starting in June, most surveys in the South-West of the United States will likely temporarily decrease their productivity due to the summer monsoon season.

- Known NEOs: 20 186 asteroids and 107 comets
- NEOs in risk list*: 865
- Number of NEOs designated during last month: 164
- NEOs discovered since 1 January 2019: 891

Focus on

This June marks the 15-year anniversary of the discovery of the asteroid nowadays known as (99942) Apophis. Discovered on 19 June 2004, it was followed up for just two nights and provisionally designated 2004 MN4, and subsequently lost for about 6 months.

The observations collected during these two days were not sufficient to prove the object was indeed an NEO. For this reason, it did not receive enough attention from observers, and no further follow-up was obtained.

It was then rediscovered in December of the same year: all of a sudden it went from a 2-day to a 6-month arc, and the orbit was good enough to realise that it was coming very close to the Earth in 2029. For the rest of the story, come back in December!

Upcoming interesting close approaches

June will see a close approach of a numbered asteroid.

- (441987) 2010 NY65 is a 230-metre asteroid that will come within 8 lunar distances of the Earth on 24 June. It will reach magnitude 16 around the time of fly-by.

Recent interesting close approaches

An international campaign to observe a May close approacher is ongoing.

- (66391) 1999 KW4 reached its closest approach to our planet on 25 May, and it is now being observed worldwide as part of a dedicated campaign coordinated by the International Asteroid Warning Network (IAWN).

News from the risk list

The risk list saw a number of changes.

- 2019 GD1 went from being the top-ranked object of our risk list to zero risk during the month of May, thanks to additional follow-up reported by various observers.
- 2006 QV89 is one of the top-rated objects in our risk list, for a very low probability impact that can happen in September this year. In an effort to better quantify the chances, some archival images obtained during the 2006 discovery apparitions are being remeasured with modern tools, and with reference to the new Gaia catalogue. So far, the impact assessment remains roughly unchanged, with an impact probability of about 1 in 7 000 (or 0.014 %).

* 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 venue for the 7th Planetary Defence Conference (PDC) has been announced. The conference will be held in Vienna, Austria, in April 2021.
- For a few days, initial observations of a new object discovered by the ATLAS survey suggested it could have been an interstellar object in a highly hyperbolic orbit. Subsequent observations, including some obtained by our team, ruled out the possibility, confirming it is a regular long period comet originating in our Solar System. The object is now designated C/2019 K1 (ATLAS).

Upcoming events

Relevant international meetings over the next months.

- Meteoroids 2019, 17–21 June 2019, Bratislava, Slovakia
<https://fmph.uniba.sk/en/microsites/daa/division-of-astronomy-and-astrophysics/meteoroids-2019/>
- EPSC-DPS Joint Meeting 2019, 15–20 September 2019, Geneva, Switzerland
<https://www.epsc-dps2019.eu/home.html>

Current risk list

The first ten entries of the risk list with impact probability within the next 100 years as currently displayed in our web-portal.

Object name	Size in m	Date of possible impact	Impact probability	Palermo Scale	Torino Scale	Velocity in km/s
2010 RF12	6–12	2095-09-05 23:50	1 / 16	-3.26	0	12.29
1979 XB	500–1200	2113-12-14 18:07	1 / 1 800 000	-3.28	0	26.04
2019 DS1	20–50	2082-02-26 19:15	1 / 800	-3.35	0	15.32
2006 QV89	23–50	2019-09-09 07:03	1 / 7 000	-3.63	0	12.32
2000 SG344	29–70	2071-09-16 00:26	1 / 2 100	-3.63	0	11.26
(999942) Apophis	375	2068-04-12 15:13	1 / 500 000	-3.67	0	12.62
2009 JF1	10–23	2022-05-06 08:12	1 / 4 000	-3.75	0	26.41
2008 UB7	40–100	2060-10-31 18:26	1 / 40 000	-3.83	0	21.57
2006 JY26	6–13	2074-05-03 01:00	1 / 90	-3.91	0	11.57
2008 JL3	23–50	2057-05-01 09:07	1 / 13 000	-3.95	0	14.01

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>



Image of (66391) 1999 KW4 obtained with VLT's high-resolution Adaptive Optics (AO) instrument SPHERE during its close approach to Earth at the end of May. Thanks to the extremely well known orbit of this object, VLT was able to centre the target inside the incredibly tiny 2-arcsecond field of view of SPHERE, obtaining an image that clearly shows the two components of the binary pair. At the time of the observation, the two objects were located only 2.6 km apart, and they were flying-by at a distance of more than 5 million km from Earth.

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