

ESA's NEO Coordination Centre

Current NEO statistics

With still one month to go in 2019, the record of the number of discovered asteroids in a year has already been beaten.

- Known NEOs: 21 429 asteroids and 108 comets
- NEOs in risk list*: 982
- Number of NEOs designated during last month: 175
- NEOs discovered since 1 January 2019: 2144

Focus on

Not considering the four recognised impactors that were observed prior to their collision with the Earth, the second closest approach of an NEO was recorded the last day of October. Asteroid 2019 UN13 had a closest approach with our planet at 6 200 km from its surface on 31 October 14:45 UT. This asteroid is rather small, having a diameter of 1-2 m. During the close approach the asteroid reached a visual magnitude of 14.

The actual number-one recorded closest approach can be attributed to asteroid 2011 CQ1. This NEO, with a very similar size as 2019 UN13, passed by the Earth on 4 February 2011 around 19:39 UT and at a distance of 5 500 km from the surface. Including the four impactors, there have been only 14 objects that have been observed in space and passed below two Earth radii from its surface.

Upcoming interesting close approaches

Two numbered NEOs are having a fly-by in December.

- (216258) 2006 WH1 is a 300-metre object that will pass by the Earth at 15 lunar distances on 20 December.
- (310442) 2000 CH59, a 400-metre object, will reach magnitude 16.5 on 26 December, despite a fly-by distance 19 times further than the Moon.

Recent interesting close approaches

Nine known small asteroids came closer than half the Lunar distance in November.

- 2019 WG2, 2019 WH and 2019 VS4 are the brightest of the known close approachers of the month, both reaching a magnitude brighter than 14 during the fly-by.
- 2019 VA, 2019 VR, 2019 VD, 2019 VF5, 2019 UG11, 10-metre objects, and 2019 VB5, a 2-metre object, had a fly-by at less than 0.5 lunar distances in the first ten days of November.

News from the risk list

There is a new addition in the top ten part of the list.

- 2019 WW4 is a large new object that entered the top ten of our risk list at the start of the month, for a possible impact with very low probability of occurring in year 2055. The object has a diameter of approximately 400 m.

* 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 ESA Ministerial Council took place in Seville, Spain, on 27–28 November. Budgets for the different ESA programmes were approved for the next three years during the meeting. In particular, the Space Safety Programme (S2P) has been adopted as a successor to the Space Situational Awareness (SSA) Programme.
- Furthermore, ESA's Planetary Defence contribution to the AIDA mission has been adopted. This includes the approval for implementation of the Hera mission for a nominal launch in October 2024.
- The Hayabusa-2 spacecraft left asteroid Ryugu on 13 November and initiated its return flight to Earth. It will come back to our planet at the end of 2020. It will then deliver the samples gathered at the asteroid.

Upcoming events

Relevant international meetings over the next months.

- Asteroids, Comets, Meteors Conference, 14–19 June 2020, Flagstaff, USA
<https://www.hou.usra.edu/meetings/acm2020/>

List of closest approaches of known asteroids

Since the advent of NEO surveys and not counting the four known Earth impactors, 10 objects have been discovered that came closer than two Earth radii from the Earth surface.

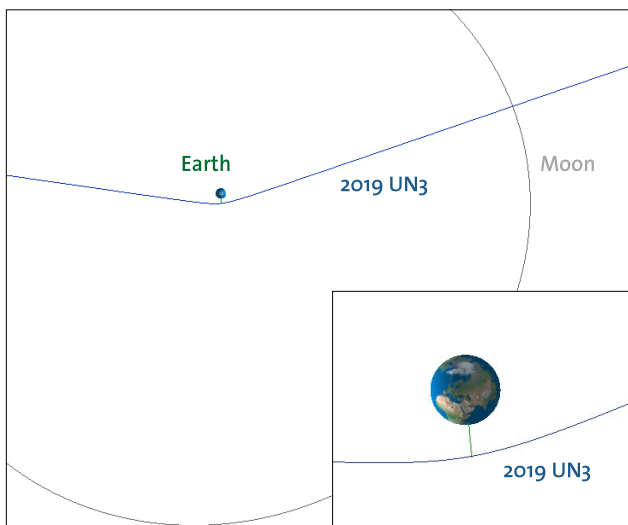
Object name	Close approach date	Miss distance in lunar distances	Miss distance in Earth radii	Miss distance in km	Size range in m	H magnitude
2011 CQ1	2011-02-04	0.014	0.9	5 500	1–2	31.9
2019 UN13	2019-10-31	~ 0.016	~ 0.9	~ 6 200	1–2	32.2
2008 TS26	2008-10-09	~ 0.017	~ 1.0	~ 6 400	~ 1	33.2
2004 FU162	2004-03-31	~ 0.017	~ 1.0	~ 6 500	5–11	28.7
2018 UA	2018-10-19	0.019	1.1	7 300	3–6	30.1
2016 DY30	2016-02-25	0.021	1.2	7 900	2–4	30.7
2019 AS5	2019-01-08	0.023	1.4	8 700	1–2	32.3
2017 GM	2017-04-04	0.026	1.5	9 900	3–6	29.9
2017 UJ2	2017-10-20	0.030	1.8	11 500	2–4	31.0
2011 MD	2011-06-27	0.032	1.9	12 300	6	28.3

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>



Graphical representation of the swing-by of 2019 UN13 near the Earth on 31 October 2019, at less than 1 Earth radius from the surface. In blue the asteroid trajectory, in grey the Moon trajectory.

[Credits: ESA/NEOCC]

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