

ESA'S NEO Coordination Centre

Current NEO statistics

On 27 April new NEOs were announced and brought the total number of known NEAs above 20 000.

- Known NEOs: 20 022 asteroids and 107 comets
- NEOs in risk list*: 851
- Number of NEOs designated during last month: 208
- NEOs discovered since 1 January 2019: 731

Focus on

The number of known NEAs reached the round total of 20 000 at the end of last month. This group of asteroids is steadily growing at a pace of roughly 160 new discoveries each month, thanks to the work done by the main asteroid surveys. It has taken less than six years to double the population of known NEAs, compared to the 115 years it took to discover the first 10 000, starting with Eros in 1898. Currently, the major contributors to the discovery quest are the NASA funded Pan-STARRS and Catalina sky surveys. ESA will contribute to such discovery effort to find the millions of NEAs that are still waiting to be detected by putting into action a first Flyeye telescope in 2020, operating from Sicily in Italy. This NEA discovery workhorse will be followed in the near future by a second telescope in the Southern hemisphere.

Upcoming interesting close approaches

A close approach of a large binary is triggering an international campaign.

- (66391) 1999 KW₄ will be the highlight close approach in May. It is a well known binary asteroid, similar in size and separation to (65803) Didymos, the planned target of the DART and Hera missions. For these reasons, it has been chosen as the target of a worldwide observing campaign organised by the International Asteroid Warning Network (IAWN).

Recent interesting close approaches

Three 20-metre objects came close in April.

- 2019 GC₆, 2019 HE and 2019 GN₂₀ were the only three known asteroids coming closer than the Moon in April. They all had a diameter of approximately 20 meters, and reached a peak brightness between magnitude 15 and 16.

News from the risk list

Two objects reached high-ranked positions in our risk list.

- 2019 GD₁ is the new top-ranked object in our risk list, for a possible very low probability impact in 2115. Its high rating is due to its size, estimated to be between 300 m and 500 m.
- 2019 DS₁ is an older object that has been increasing its ranking due to new observations, including our own obtained with the 10.4 m GTC telescope. It has multiple impact chances starting in 2082, for an overall impact probability of about 1 in 800 over the next century.

* 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 6th IAA Planetary Defense Conference is being held in College Park, Maryland, USA.
- The Hayabusa2 spacecraft successfully released its Small Carry-on Impactor and confirmed the successful impact with subsequent images of the impact site.

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>

List of closest approaches of known asteroids

Since the advent of NEO surveys, 12 objects have been discovered that came closer than two Earth radii from the Earth surface, including the three that collided with it. One of them has been discovered during the current year.

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
2008 TC3	2008-10-07	0	0	0	4	30.3
2014 AA	2014-01-02	0	0	0	2–4	30.9
2018 LA	2018-06-02	0	0	0	2–5	30.5
2011 CQ1	2011-02-04	0.014	0.9	5 500	1–2	32.0
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	2–5	30.5
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	30.9
2011 MD	2011-06-27	0.032	1.9	12 300	6	28.0

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>

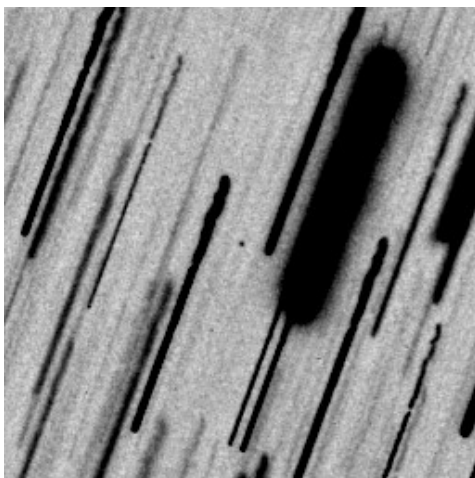


Image of 2019 DS1 obtained with the 10.4 m Gran Telescopio Canarias (GTC) at the Roque de los Muchachos Observatory, Canary Islands, Spain. This is the first observation of an NEO obtained by a collaboration between our team and the Instituto de Astrofísica de Canarias (IAC). At the time of the observation the object had a visual magnitude of approximately 25.7. This image is a stack of 74 single exposures, each 45 s long. However, the object is visible in most individual frames at much lower signal to noise ratio. The corresponding high-precision astrometry extracted from this images resulted to an increase of the impact probability for the 2082 encounter.

[Credits: J. Licandro, A. Cabrera-Lavers, S. Geier (IAC / GTC) / M. Micheli, D. Koschny (ESA NEOCC)]

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