

ESA'S NEO Coordination Centre

Current NEO statistics

The year started well for NEO discoveries, with almost 300 new NEOs announced. A large fraction of them were discovered by Pan-STARRS.

- Known NEOs: 19 563 asteroids and 107 comets
- NEOs in risk list*: 817
- Number of NEOs designated during last month: 288
- NEOs discovered since 1 January 2019: 271

Focus on

This year on 8 February marks the 50th anniversary of the fall of the Allende meteorite, the largest carbonaceous chondrite ever found. The atmospheric entry and impact happened at night local time, and were therefore well observed over the entire Northern Mexico. About 2 tonnes of fragments were later collected on ground in a strewn field of about 50 km size. These fragments provide an invaluable resource for the study of carbonaceous chondrites, an otherwise rare type of meteorite.

Allende, now classified as a CV3 meteorite, is peculiar not just for its large mass, but also for its interesting composition. Among its characteristics, it is abundant in a particular kind of material known as Calcium-Aluminum-rich Inclusions (CAIs), which have been dated to 4.57 billion years ago, older than any material found on Earth.

Upcoming interesting close approaches

No bright close approaches of NEOs known as of today will happen in February.

- 2019 BR3, an approximately 10-metre rock, will be the closest among the known objects, flying-by at about 1.6 lunar distances.
- (455176) 1999 VF22, a much larger 300-metre object, will be the brightest, reaching magnitude 17 despite a fly-by distance 19 times farther than the Moon.

Recent interesting close approaches

Second smallest NEO ever observed.

- 2019 AS5, discovered on 8 January by the Catalina Sky Survey, has an absolute magnitude of 32.4, corresponding to a diameter between 1 and 2 metres. This likely makes it the second smallest NEO ever discovered. It flew-by the Earth at about 8700 km from the surface, the ninth closest object discovered so far.

News from the risk list

An object increased its ranking in our risk list last month.

- 2018 XB4 rose to the 5th position in our risk list after additional observations were reported in January. It currently has a probability of about 1 in 7000 to collide with Earth in year 2092. It is now difficult to observe, but it should be recoverable in the spring.

* 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

- 2019 AQ3, a new kilometre-sized asteroid discovered last month by the Zwicky Transient Facility at Mt. Palomar, gets the record of the shortest orbital period among known asteroids, at just 165 days.
- The “NEO and Debris Detection Conference” was held in Darmstadt in January. The event was an opportunity to discuss possible observational synergies between the two communities.

Upcoming events

Relevant international meetings over the next months.

- EGU General Assembly 2019: “Near Earth Objects and Planetary Defence”, 7–12 April 2019, Vienna, Austria
<https://meetingorganizer.copernicus.org/EGU2019/session/31957>
- IAA Planetary Defense Conference, 29 April–3 May 2019, College Park, USA
<http://pdc.iaaweb.org/>
- Meteoroids 2019, 17–21 June 2019, Bratislava, Slovakia
<https://fmph.uniba.sk/en/microsites/daa/division-of-astronomy-and-astrophysics/meteoroids-2019/>

List of future closest approaches with Venus

List of the ten future closest approaches of known NEAs to planet Venus, ordered by miss distance from the centre of the planet.

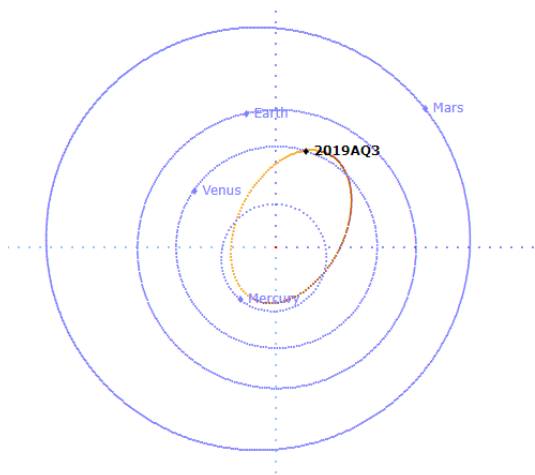
Object name	Close approach date	Miss distance in au	Miss distance in km	Size range in m	H magnitude
(162385) 2000 BM19	2063-03-03	0.00173	260 000	500 – 1200	18.5
(308635) 2005 YU55	2029-01-19	0.00232	350 000	306	21.6
(363599) 2004 FG11	2080-05-07	0.00261	390 000	152	21.0
2015 SJ7	2046-12-20	0.00277	420 000	23 – 50	25.3
2011 YW10	2031-02-18	0.00279	420 000	30 – 70	24.5
2013 UB3	2028-05-20	0.00303	450 000	19 – 40	25.7
2010 XA11	2025-04-20	0.00399	600 000	16 – 40	26.1
2018 WK	2036-08-04	0.00432	650 000	10 – 22	27.1
2004 TD10	2038-05-05	0.00434	650 000	100 – 230	22.1
2018 RW	2055-03-06	0.00454	680 000	3 – 6	29.9

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>



Ecliptic projection of the orbit of 2019 AQ3, the kilometre-sized new NEO with the shortest currently known orbital period.

The black dot marks the position of the asteroid on 4 January 2019, the day of discovery.

The object also has an unusually high inclination of about 47°, not evident from this viewing angle.

[Credit: ESA NEOCC]

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