

ESA'S NEO Coordination Centre

Current NEO statistics

Discovery rates for the first three months of 2019 are in line with last year.

- Known NEOs: 19 814 asteroids and 107 comets
- NEOs in risk list*: 835
- Number of NEOs designated during last month: 122
- NEOs discovered since 1 January 2019: 502

Focus on

The first edition of the Planetary Defense Conference (PDC) managed by the International Academy of Astronautics happened exactly 10 years ago, in the week of 27–30 April 2009 (before the IAA became involved, there were two other PDCs, both in the USA). The conference was held in Granada, Spain, and was the first of a biennial IAA series that is continuing this month, with the 6th conference being held in College Park, USA.

Over the past decade, the PDC became a leading event for the NEO community. It brings together expertise from a variety of fields, ranging from scientists to civil protection agencies, and providing an overall view of the current management of the NEO threat from discovery to mitigation. Among the highlights of the conference is an impact exercise, presenting attendees with a simulated scenario of a future impact threat to form the basis for discussion of possible strategies and mitigation options.

Upcoming interesting close approaches

A new 100-metre object will have a close approach at 5.3 lunar distances this month.

- 2019 FU is a newly discovered 100 m NEO that will reach magnitude 17 this month.

Recent interesting close approaches

A small object had a very close approach in early March.

- 2019 EH₁ flew-by the Earth on 1 March 2019, at just 2.6 Earth radii from the surface. Despite a size of just a few meters, it reached magnitude 13 at the time of close approach.

News from the risk list

Two new objects reached top positions in the list, but they were subsequently removed, together with the two high rated ones from last month.

- 2018 EA₂, a newly discovered 30-metre asteroid, in mid-March reached an impact probability as high as 1 in 700 for a possible impact in 2114. New observations first lowered the impact probability to about 1 in a million, and then fully removed it.
- 2019 ET₁ reached an impact probability of 1 in 2800 and a Palermo Scale of -2.6 for an impact in 2106, but any risk has now been excluded thanks to new observations.
- 2019 CE₄, the new addition to the list reaching a Palermo Scale of -2.5 in February, is now off the list due to additional observations collected during the month.
- 2019 CM₄, the other high-rated object which reached a Palermo Scale of -3.3 , is still in the list, but with a negligible impact probability of less than 1 in 100 millions.

* 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

- On 18 December 2018 an asteroid of ~10 metres fell over the Bering Sea, about 500 km offshore of the Kamchatka Peninsula in Russia. The impact is the largest to occur after the Chelyabinsk event in 2013. Due to the remoteness of the area, the event went unnoticed until infrasound-based detections were reported in March.
- Our NEOCC newsletter was issued for the first time four years ago, in April 2015.

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/>
- EPSC-DPS Joint Meeting 2019, 15–20 September 2019, Geneva, Switzerland
<https://www.epsc-dps2019.eu/home.html>

March closest approach

Five objects were discovered coming closer than the Moon during the month of March.

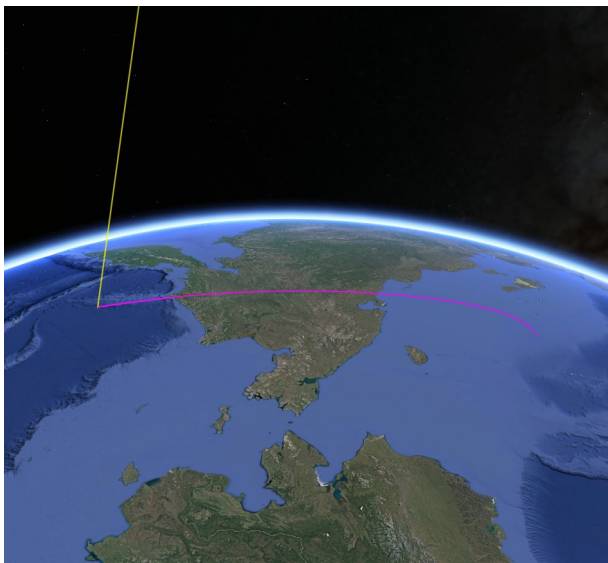
Object name	Close Approach Date	Miss distance in lunar distances	Miss distance in Earth radii	Miss distance in km from Earth surface	Size range in m	H magnitude	Discovery date
2019 EH1	2019-03-01	0.04	3	17 000	3–6	30.1	2019-03-01
2019 FA	2019-03-16	0.58	35	224 000	5–11	28.7	2019-03-16
2019 EA2	2019-03-22	0.78	47	300 000	17–38	26.0	2019-03-09
2019 FQ	2019-03-23	0.84	51	323 000	10–23	27.1	2019-03-25
2019 EN2	2019-03-13	0.84	51	325 000	8–18	27.6	2019-03-14

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>



Trajectory of the object that caused the Bering Sea fireball last December, as derived from the fireball information provided by NASA’s Jet Propulsion Laboratory. The trajectory is represented by the yellow line and its groundtrack in the last hour before impact is projected as the magenta curve over the Earth.

[Fireball trajectory data: NASA / JPL
Map data: Google, IBCAO, Landsat / Copernicus]

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