

space situational awareness

→ NEAR-EARTH OBJECTS

Current NEO statistics

The discovery rate in 2018 is so far in line with the average of the last two years.

- Known NEOs: 17 780 asteroids and 107 comets
- NEOs in risk list*: 716
- Number of NEOs designated during last month: 151
- NEOs discovered since 1 January 2018: 312

Focus on

In our newsletter of December last year, we devoted this section to the discovery of asteroid 1997 XF11. Twenty years ago, on 11 March 1998, astronomer B. Marsden released an IAU Circular stating that the asteroid would pass within 0.002 au of Earth on 26 October 2028. He also released a Press Information Sheet stating that there was a "small" chance that the asteroid could actually hit the Earth. The announcement sparked a lot of attention from the media that immediately spread the news to the public in a very dramatic way. Within a matter of hours several independent groups determined that the possibility of impact on Earth was actually zero, but the presumed threat had been already aired to the world. In subsequent circulars, Marsden updated the status of the asteroid, recognising it as a non-threatening NEO. The case of 1997 XF11 was the subject of an intense debate in the scientific community on how the information on asteroid threat would need to be released to the public. As a positive consequence, it fostered initiatives both in Europe and USA to develop applications to accurately compute asteroid threats. The modern asteroid threat monitoring systems at ESA (in the process of being taken over from the University of Pisa) and NASA/JPL are a heritage of the 1997 XF11 scoop.

Upcoming interesting close approaches

A newly discovered object will pass closer than the Moon in March.

- 2018 DV1, with its estimated 9 m diameter, will pass at ~0.3 lunar distances on 2 March.

Recent interesting close approaches

February was a busy month in the vicinity of the Earth.

- 2018 CF2, 2018 DQ, 2018 CC, 2018 DU, 2018 CS1 and 2018 CD3 all came closer than the Moon in February.
- On 9 February two unrelated asteroids, 2018 CB and 2018 CN2, both approached the Earth at 0.2 lunar distances reaching magnitudes brighter than 13.

News from the risk list

A large asteroid claimed a place in the top 10 positions of our risk list.

- 2018 DA1, with an estimated diameter of ~800 m, entered our Risk List with a Palermo Scale higher than -3. Being a large object with low impact probability, it will likely drop out of the list soon when new observations are obtained.

* 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/web/guest/risk-page>

In other news

- 15 February marked the 5th anniversary of the Chelyabinsk Event. As in previous occasions, this date was used to kick-off the preparatory activities for this year's Asteroid Day by means of a Google Hangout event where many Planetary Defense specialists participated.

Upcoming events

Three international meetings will happen over the next two months.

- Planetary Defense session at the 2018 IEEE Aerospace Conference, 3–10 March 2018, Big Sky, USA
<http://www.aeroconf.org>
- Division of Dynamical Astronomy Meeting , 15–19 April 2018, San Jose, USA
<https://dda.aas.org/meetings/2018>
- Asteroid Science Intersections with In-Space Mine Engineering, 16–17 April 2018, Esch sur Alzette, Luxembourg
<https://asime.uni.lu>

Table

NEO close approaches that came closer than the Moon distance in the past month. All objects were discovered during February 2018 by the Catalina Sky Survey.

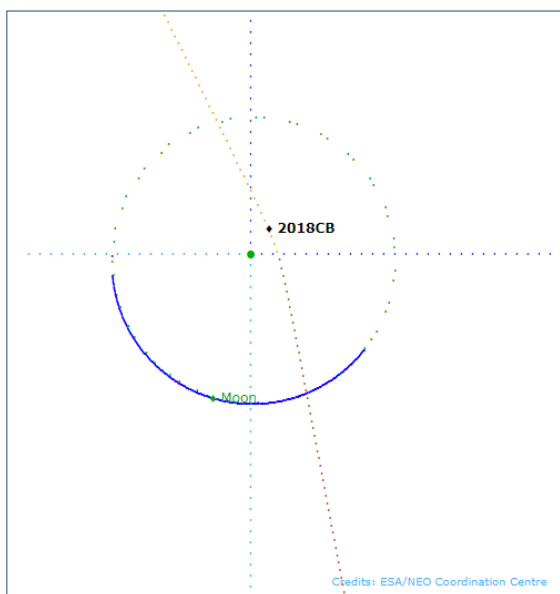
Object name	Close approach date	Miss distance in lunar distances	Miss distance in Earth radii	Miss distance in km	Size in m	H magnitude
2018 CB	2018-02-09	0.165	9.9	63 400	~ 28	25.9
2018 CN2	2018-02-09	0.165	10.0	63 500	~ 12	27.7
2018 CF2	2018-02-06	0.236	14.3	90 900	~ 10	28.0
2018 DQ	2018-02-21	0.245	14.8	94 100	~ 6	29.1
2018 CC	2018-02-06	0.475	28.7	182 800	~ 21	26.5
2018 DU	2018-02-25	0.723	43.6	277 800	~ 9	28.3
2018 CS1	2018-02-04	0.879	53.0	337 800	~ 10	28.2
2018 CD3	2018-02-15	0.907	54.7	348 700	~ 8	28.7

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-geocentric projection plot of the Earth close approach by 2018 CB on 9 February 2018.

Image Credit: ESA NEOCC

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