

space situational awareness

→ NEAR-EARTH OBJECTS

Current NEO statistics

The discovery rate in 2017 started as in 2016, however the number of total discoveries is currently lower by about 10%.

- Known NEOs: 16 344 asteroids and 106 comets
- NEOs in risk list*: 639
- New NEO discoveries since last month: 93
- NEOs discovered since 1 January 2017: 936

Focus on

Near-Earth asteroid 3122 Florence will have a close pass by Earth on 1 September when it will be at a closest distance of 0.0472 au (18.4 LD), which makes it a Potentially Hazardous Asteroid (PHA). This Amor object, named after nurse Florence Nightingale (1820-1910), has an estimated diameter of ~4.35 km and was discovered in March 1981 by S. J. Bus at Siding Spring Observatory. Its orbital period is 2.35 years whereas its orbit eccentricity is 0.423 (perihelion at 1.02 au and aphelion at 2.52 au). The asteroid will reach a minimum visual magnitude of 8.6, thus visible with a small telescope by experienced observers. It is the best observable event in the next year among the currently expected asteroid close passes. Radar measurements of Florence are planned in order to improve the knowledge on the asteroid size and shape.

Upcoming interesting close approaches

As discussed before, asteroid 3122 Florence will have an observable pass by Earth at the end of this period.

- 2011 CC22 is a ~200-metre object which will fly by at ~15 LD on 4 August.
- 3122 Florence is a ~4.35-kilometre object which will fly by at ~18 LD on 1 September.

Recent interesting close approaches

Three objects reached a magnitude brighter than 14.5 in July.

- 2017 OO1 is a small object that came within less than half a lunar distance on 21 July. It reached magnitude 11.4 at its brightest.
- 2017 NT5 is a ~100-metre that had a close fly-by in mid-July at ~1 lunar distance, reaching magnitude 12.9.
- 2017 NN6 is a moderately big object, ~400-metre in diameter that approached our planet at about 7.5 LD, reaching magnitude 14.2.

News from the risk list

An object remained in our risk list despite observations one month after discovery.

- 2017 MB1 is an object discovered in June that reached a moderately high ranking in our risk list, with a value on the Palermo Scale of -4. The object is now unobservable for a few months, but it should become visible again in fall, when new observations will improve the risk assessment.

* 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

- Last 30 June, for the third consecutive year, the international asteroid community celebrated the Asteroid Day. ESA had a relevant role in the activities with a number of talks and interviews which were transmitted from ESA's Space Operation Centre (ESOC) in Germany.
<https://asteroidday.org/video/live-from-esa/>

Upcoming events

List of relevant meetings in the near future.

- Summer School on Natural Space Risks, 28 August–1 September 2017, Paris Observatory, France
<https://nsr-2017.sciencesconf.org/>
- CELMEC VII, 3–9 September 2017, San Martino al Cimino (VT), Italy
<http://adams.dm.unipi.it/~simca/celmecVII/index.html>
- European Planetary Science Congress, 17–22 September 2017, Riga, Latvia
<http://www.epsc2017.eu/>
- AAS Division for Planetary Sciences Meeting, 15–20 October 2017, Provo, UT, USA
<http://dps.aas.org/meetings/current>

Top-10 table of risky objects

The first ten entries of the risk list with impact probability within next 100 years as currently displayed on our web-portal.

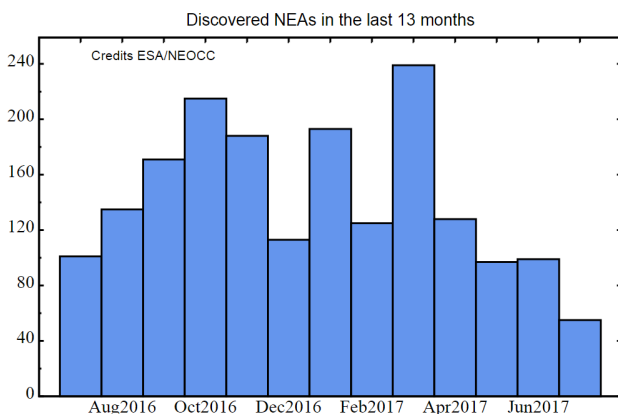
Object name	Size in m	Date of possible impact	Impact probability	Palermo Scale	Torino Scale	Velocity in km/s
2010 RF12	7-16	2095-09-05	1/16	-3.26	0	12.29
1979 XB	600-1300	2113-12-14	1/1800000	-3.28	0	26.04
2000 SG344	30-80	2071-09-16	1/2100	-3.63	0	11.26
(99942) Apophis	375	2068-04-12	1/500000	-3.67	0	12.62
2009 JF1	11-25	2022-05-06	1/4000	-3.75	0	26.41
2006 QV89	26-60	2019-09-09	1/11000	-3.79	0	12.32
2008 UB7	50-110	2060-10-31	1/40000	-3.83	0	21.57
2006 JY26	6-14	2074-05-03	1/90	-3.91	0	11.57
2017 MB1	400-1000	2098-01-19	1/1000000	-3.92	0	24.83
2012 QD8	70-160	2047-03-08	1/190000	-3.95	0	23.58

Links for more information

Website: <http://neo.ssa.esa.int>

Close approaches: <http://neo.ssa.esa.int/web/guest/close-approaches>

Risk List: <http://neo.ssa.esa.int/web/guest/risk-page>



NEA discovery rates in the last 13 months.

The same plot last year showed a much clearer hill shape with maximum detection rates in winter. However, in these last 13 months unusually low discovery rates were present in December 2016 and February 2017.

neo.ssa.esa.int

To subscribe or unsubscribe to this newsletter and for further information please send an email to neocc@ssa.esa.int

