

space situational awareness

→ NEAR-EARTH OBJECTS

Current NEO statistics

With still a month to go, we are only 46 NEOs away from the total number of discoveries of last year.

- Known NEOs: 17 249 asteroids and 106 comets
- NEOs in risk list*: 691
- Number of NEOs designated during last month: 246
- NEOs discovered since 1 January 2017: 1842

Focus on

The Spacewatch project, located in Arizona, is probably the oldest of the asteroid surveys still active today. They were the dominant discoverers of new asteroids in the '90s, and the pioneers of using CCDs to find new NEOs.

Almost exactly 20 years ago, on 6 December 1997, one of their observers, Jim Scotti, discovered a new NEO with the 0.9 meter telescope they were operating on Kitt Peak, in Arizona. The pace of follow-up observations at the time was not as fast as today: the first confirming observation happened just three days later, with additional ones taking two more weeks. On 23 December, the Minor Planet Center finally announced the new object, designating it 1997 XF11. At that point, this was just another new discovery of a moderately large km-sized NEO. Over the next few months, however, this object would become the centre of a story that changed the way we see near-Earth objects. It sparked the beginning of the science of NEO impactors as we know it today.

Upcoming interesting close approaches

A famous asteroid related to the Geminids meteor shower will pass reasonably close.

- (3200) Phaethon, the asteroidal object responsible for the Geminids meteoroid stream, will fly-by at 27 lunar distances on 16 December, the closest approach since its discovery in 1983. It will reach magnitude 10 at close approach.

Recent interesting close approaches

Two newly discovered close approachers became bright last month.

- 2017 VL2 became brighter than magnitude 12 during a fly-by at 0.3 lunar distances in early November.
- 2017 WA14 came even closer at 0.2 lunar distances, but being smaller it only reached magnitude 14.

News from the risk list

A Chelyabinsk-sized asteroid appeared in the top positions of our risk list.

- 2017 WE28 entered the top-10 of our risk list with an impact probability of a bit less than 1 in 1000 in year 2051.

* 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

- The first interstellar object, discovered in October, now received an official designation 1/'Oumuamua, introducing a new IAU-sanctioned system that will use the uppercase letter "I" to catalogue interstellar objects.

Upcoming events

The next major international meeting on NEOs will be in the spring of 2018.

- Planetary Defense session at the 2018 IEEE Aerospace Conference, 3–10 March 2018, Big Sky, USA
<http://www.aeroconf.org>

Top-10 positions of our risk list for the next century

Updated table with the first 10 positions of our risk list for impacts in the next 100 years. The new entry 2017 WE28 is present as the tenth entry. The risk is ranked according to the Palermo Scale value.

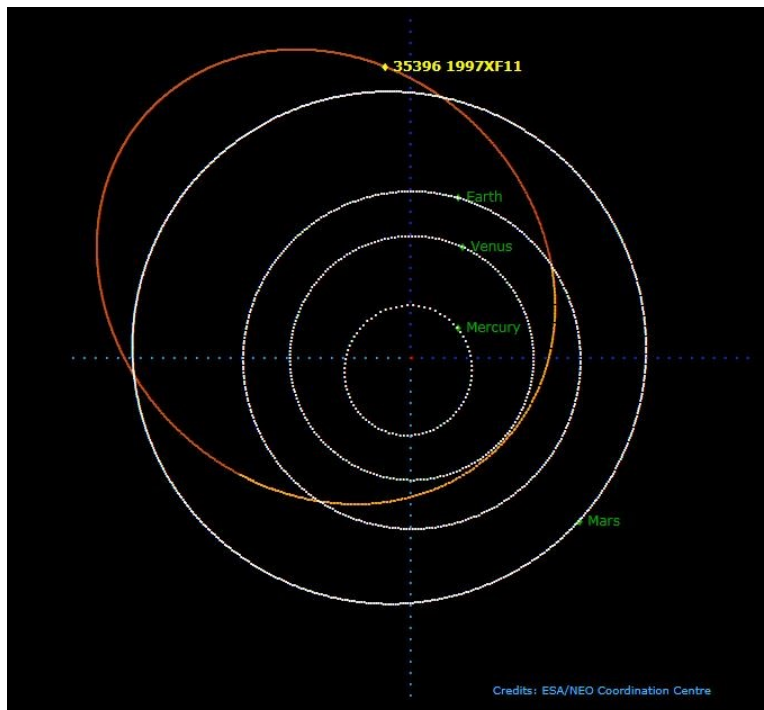
Object name	Size in m	Date of possible impact	Impact probability	Palermo Scale	Torino Scale	Velocity in km/s
2017 RH16	~ 30	2026-08-31 21:26	1/700	-2.36	0	16.98
2010 RF12	~ 9	2095-09-05 23:47	1/16	-3.26	0	12.29
1979 XB	~ 900	2113-12-14 18:07	1/1800000	-3.28	0	26.04
2000 SG344	~ 50	2071-09-16 00:26	1/2100	-3.63	0	11.26
(99942) Apophis	375	2068-04-12 15:13	1/500000	-3.67	0	12.62
2009 JF1	~ 16	2022-05-06 08:12	1/4000	-3.75	0	26.41
2006 QV89	~ 40	2019-09-09 07:03	1/11000	-3.79	0	12.32
2008 UB7	~ 70	2060-10-31 18:26	1/40000	-3.83	0	21.57
2006 JY26	~ 9	2074-05-03 01:00	1/90	-3.91	0	11.57
2017 WE28	~ 19	2051-11-23 22:06	1/1400	-3.91	0	14.29

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>



Orbit of (35296) 1997 XF11 at the time of discovery on 6 December 1997.

Image Credit: ESA NEOCC

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