

space situational awareness

→ NEAR-EARTH OBJECTS

Current NEO statistics

In September we reached the threshold of 13 000 known NEOs, with already more than 1000 new ones since the beginning of 2015.

- Known NEOs: 13 036 asteroids and 104 comets
- NEOs in risk list*: 521
- New NEO discoveries since last month: 122
- NEOs discovered since 1 January 2015: 1080

Focus on

During the month of September a news circulated on European media claiming that between 22 and 28 September the Earth would have been hit by meteorites and other cataclysmic events. As often happens in these cases, the claim was entirely false and fabricated; it was not based on any actual evidence, since none of the known objects had any chance of impact for those dates.

This non-existing alert, one among the many that routinely find a place in the media, shows that the topic of NEO impacts needs to be discussed with care, to avoid the risk of confusing reality with fiction in case an actual impact threat would be detected in the future. The NEOCC strives to provide accurate scientific information if an actual threat is detected, through its constantly updated risk list and news articles.

Upcoming interesting close approaches

The most dangerous known NEO will become observable at the end of October.

- (410777) 2009 FD, the highest-rated known asteroids in terms of impact risk, will have a close approach to Earth on 29 October 2015. It is scheduled for radar observations from both Arecibo and Goldstone, and will become easily observable from the ground just after the closest approach.
- 2014 UR, a 20 m object, will come closer than 4 lunar distances on 18 October.

Recent interesting close approaches

An asteroid came exceptionally close to Earth on 22 September, the closest approach of a known object in 2015

- 2015 SK7 was discovered by the Catalina Sky Survey on 24 September, a bit more than a day after an exceptionally close approach to our planet, at about 3 Earth radii from the surface. The last known object to fly-by so close was 2011 MD in February 2011, not counting 2014 AA that hit the Atlantic ocean early last year.
- Six other objects smaller than 40 m came within 3 lunar distances in September.

News from the risk list

The two objects that reached the level of Torino Scale 1 in August are now out of the risk list.

- 2015 PU228 and 2015 NK13, the two objects that reached Torino Scale 1 over the summer, are now safely out of the risk list, thanks to additional observations collected in the past weeks.

* The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <http://bit.ly/neorisklist>

In other news

- A Programme Preparation Workshop between ESA and industry in preparation for the SSA Period 3 was held in Darmstadt, Germany on 9 September.
- The NEOCC added another cooperating telescope into its network, with the successful assignation of IAU code Z84 to the 80 cm Schmidt telescope on Calar Alto, Spain.
- The European Planetary Science Congress is being held from 27 September to 2 October in Nantes, France.

Upcoming events

The next major asteroid conference will be the annual DPS meeting in early November.

- AAS Division for Planetary Sciences Meeting, 8–13 November 2015, National Harbor, USA
<http://aas.org/meetings/dps47>
- Asteroids & Planetary Defense session at the AGU Fall Meeting, 14–18 December 2015, San Francisco, USA
<https://agu.confex.com/agu/fm15/preliminaryview.cgi/Session7518>
- Planetary Defense session at the 2016 IEEE Aerospace Conference, 5–12 March 2016, Big Sky, USA
<http://www.aeroconf.org/>

Upcoming objects with non-negligible impact probability

List of objects with impact probability greater than 1 in a million for the next 5 years.

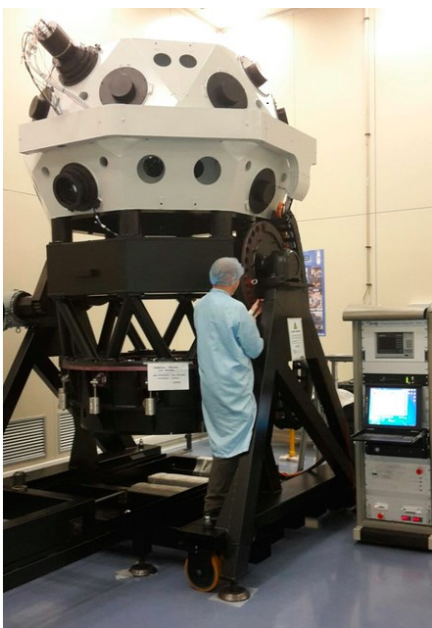
Object name	Size in m	Date/Time of possible impact (UTC)	Impact probability	Palermo Scale	Torino Scale	Velocity in km/s	In list since (days)
2005 BS1	~ 15	2016-01-14 10:03	1/13000	-4.55	0	16.66	3817
2008 EL68	~ 12	2017-02-07 21:16	1/1000000	-6.94	0	11.40	2668
2008 US	~ 2	2018-04-18 01:57	1/100000	-7.13	0	21.73	2512
2014 HD198	~ 5	2018-04-30 21:12	1/750000	-6.78	0	21.76	286
2007 YM	~ 25	2018-11-30 20:21	1/900000	-5.99	0	13.95	2822
2008 EM68	~ 12	2019-03-11 21:22	1/350000	-6.13	0	18.94	2749
2006 QV89	~ 35	2019-09-09 07:03	1/25000	-4.16	0	12.31	3269
2009 TB	~ 6	2020-09-30 17:07	1/900000	-7.21	0	16.72	2164

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> or <http://bit.ly/neorisklist>



First optical tests of the fly-eye telescope breadboard have started at Compagnia Generale per lo Spazio S.p.A., funded by Italy. The image on the left shows the optical tube, with a 1-meter effective aperture mirror at the bottom, the secondary cage on the top. For the test, the instrument is equipped with two identical optical channels.

Image credit: CGS/L. Cibir.

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