

space situational awareness

→ NEAR-EARTH OBJECTS

Current NEO statistics

The discovery rate for 2017 is slightly lower than 2016 so far.

- Known NEOs: 16 173 asteroids and 106 comets
- NEOs in risk list*: 628
- New NEO discoveries since last month: 85
- NEOs discovered since 1 January 2017: 770

Focus on

Just a few days before the edition of the present newsletter a large bolide crossed the Italian northern sky. The event was observed by many people and in particular by a newly installed fireball network PRISMA (see next page). Such images have been used to determine the trajectory of the entering object. Meteors, bolides and fireballs are common events that occur worldwide and have been observed since the dawn of humankind. In some occasions remnants of the original object reach the ground in the form of meteorites which, if recovered, help the scientists in determining their material components and their origin. It was not until the end of the XVIII century that the occurrence of several of these events allowed arriving to the conclusion that meteorites were actually the result of the entry of matter from space. Such conclusion was proposed by E. Chladni in 1794 and later confirmed by studies done by E. Howard, J.L. de Bournon and J.B. Biot (1803). In an effort to facilitate keeping a centralised log of such events, ESA's SSA-NEO segment is currently planning to deploy a Fireball Information System at the NEOCC.

Upcoming interesting close approaches

A large NEO will fly-by on the first day of the month.

- (418094) 2007 WV₄, 900 m object, is flying-by on 1 June, at 8 lunar distances.

Recent interesting close approaches

Following close approaches were of interest in May.

- 2017 JA, 2017 JB₂ and 2017 JQ₁ are new discoveries that came to less than half a lunar distance in early May.
- 2017 CS₇ and 2017 KY₄ became the brightest close approacher in May. The first one, a 400 m object, reached magnitude ~14 during its close approach at about 8 lunar distances. The second one, a smaller object, about 50 meter in diameter, reached the same magnitude coming at 2.5 lunar distances.

News from the risk list

The risk from an object has been lowered thanks to a reanalysis of existing data.

- 2016 NL₅₆ was an object ranked in the top-10 of our risk list, but unfortunately lost due to lack of follow-up observations. Our team was able to remeasure all the images obtained at the time of discovery, and the increased accuracy of these remeasurements led to a slight decrease of the impact risk.

* 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

- The 5th Planetary Defense Conference was held in Tokyo, Japan, in May. The peculiarity of this conference is the development of an “impact exercise”, where all the participants are involved in a multi-day simulation of the decision-making process that will happen in case of a future impact of an NEO.
- As in past occasions, Asteroid Day will be celebrated on 30 June with a lot of activities planned worldwide <https://asteroidday.org/>

Upcoming events

The venue of the next ACM meeting has been announced. It will be held in Flagstaff in June 2020.

- 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>
- Asteroids, Comets and Meteors (ACM 2020) Conference, 14–19 June 2020, Flagstaff, AZ, USA

NEAs with the highest inclination

The following table lists all known NEAs with orbital inclination greater than 70°. Only two of them are actually retrograde. A few more objects that were originally included in the NEO catalogue later turned out to be active, and were reclassified as comets. One such object was 2007 VA85, now known as comet 333P/LINEAR.

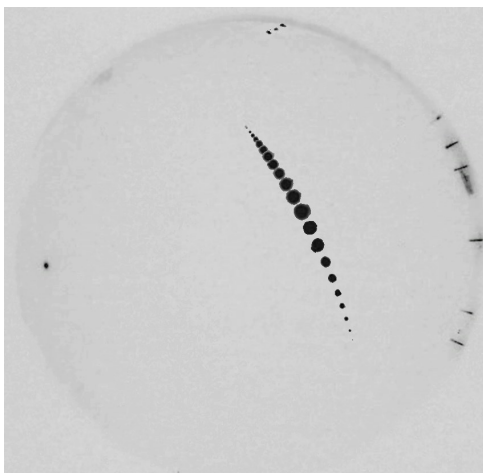
Object name	Inclination in degrees	Size in m	Semi-major axis in au	Eccentricity	Orbit period in days	Absolute magnitude H
(343158) 2009 HC82	154.4	~ 2400	2.53	0.81	1467	16.2
2014 PP69	93.6	~ 400	21.40	0.94	36153	20.1
(466130) 2012 FZ23	75.4	~ 900	2.49	0.61	1435	18.2
2008 GV3	72.9	~ 900	2.40	0.60	1356	18.4
(138925) 2001 AU43	72.1	2410	1.90	0.38	954	15.8
2009 WN25	72.0	~ 900	3.27	0.66	2158	18.4
(467372) 2004 LG	70.9	874	2.07	0.90	1085	18.0
(196256) 2003 EH1	70.8	~ 2400	3.12	0.62	2016	16.2
2011 LD19	70.1	~ 1100	1.98	0.44	1020	18.0

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>



Sequence of detections of the Northern Italy fireball mentioned in the “Focus on” section of this newsletter, as seen from the ITVEo2 Rovigo station of the PRISMA (Prima Rete per la Sorveglianza sistematica di Meteore e Atmosfera) - FRIPON (Fireball Recovery and InterPlanetary Observation Network) network.

The detections were obtained on 30 May 2017, at approximately 21:09 UTC.

Image Credit: PRISMA-FRIPON

neo.ssa.esa.int

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