→ NEWSLETTER APRIL 2020

ESA's NEO Coordination Centre

Current NEO statistics

The number of new discoveries for the month of March is already being affected by observatory closures due to the COVID-19 emergency.

- Known NEOs: 22 394 asteroids and 109 comets
- NEOs in risk list*: 1037
- Number of NEOs designated during last month: 185
- NEOs discovered since 1 January 2020: 711

Focus on

This month marks the five-year anniversary since the first issue of our newsletter, released to the public in April 2015. Since then, its audience has significantly increased, but the format has remained the same: a simple two-page document with up-to-date and reliable information on what has happened in the NEO world. And a lot of interesting events have occurred during this half-decade: the number of known NEOs nearly doubled and the same happened to the number of objects in our risk list. However, many objects were also removed from the risk list, thanks to the concerted effort of the entire community of worldwide observers. The NEOCC and its collaborators gave a significant contribution to this effort, producing observations of about 500 risk list objects, almost 100 of which led to the direct removal of all impacting solutions for a given object. The key contributor to this effort was our collaboration with ESO, which allowed us to use the Very Large Telescope in Chile to collect the faintest observations of an NEO ever achieved, reaching magnitude 27.

Upcoming interesting close approaches

A large object will have a distant, but well observable fly-by.

- (52768) 1998 OR2 is a 2-kilometre well-known asteroid that will have a distant fly-by at more than 16 lunar distances from our planet at the end of April. It will reach magnitude 11 around the time of close approach, making it visually observable with medium-sized amateur telescopes.

Recent interesting close approaches

Three close fly-bys of newly-discovered objects happened in March.

- 2020 FL2, 2020 FD2 and 2020 FD came closer than the Moon in March. The first of the three, a Chelyabinsk-sized object, became brighter than magnitude 14 during its fly-by on 22 March.

News from the risk list

Two top-rated objects of the risk list were successfully excluded from it in March.

- 2019 ND7, an object that remained near the top of our risk list since last year, has now been removed thanks to observations collected by our team in collaboration with the European Southern Observatory, using the VLT.
- All possible impacts for 2020 DR2, including the ones rated at a Torino Scale level of 1, can now be excluded thanks to subsequent follow-up from many stations.

---

* 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/risk-page

In other news

- The release of our first newsletter coincided with a major international event: the 4th edition of the IAA Planetary Defense Conference. It was held at ESRIN (Frascati, Italy), the ESA centre where the NEOCC is hosted, and attracted 245 among the most important scientific personalities on topics ranging from NEO science, to planetary defence and emergency response to an asteroid threat.
- On 10 April, ESA's Mercury mission BepiColombo will fly by our planet and behave as an artificial near-Earth object. The closest approach is at 04:25 UTC, at a distance of only 12 500 km. This object will follow the path of a typical small, close NEO and can be used as a test for an imminent impactor. More information can be found here.

Upcoming events

Most international conferences scheduled to happen over the next few months have been either cancelled or postponed due to the ongoing COVID-19 pandemic. Here we list the ones that have already been officially postponed.

- Apophis T–9 Years, 9–10 November 2020, Nice, France
  https://www.hou.usra.edu/meetings/apophis2020/
- Hera Community Workshop, 11–13 November 2020, Nice, France
  https://www.cosmos.esa.int/web/hera-community-workshop/

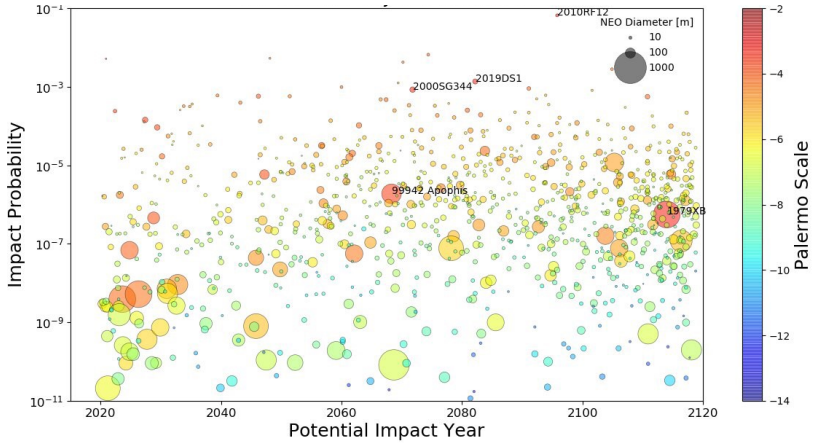
Top-10 table of risky objects

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

Object name	Size range in m	Date of possible impact	Impact probability	Palermo Scale	Torino Scale	Velocity in km/s
2010 RF12	6–14	2095-09-05 23:50	1 / 15	-3.22	0	12.29
1979 XB	500–1200	2113-12-14 18:06	1 / 1 800 000	-3.27	0	26.04
2019 DS1	20–50	2082-02-26 19:15	1 / 700	-3.32	0	15.32
2000 SG344	25–60	2071-09-16 00:58	1 / 1 200	-3.38	0	11.27
(99942) Apophis	375	2068-04-12 15:13	1 / 500 000	-3.67	0	12.62
2008 JL3	24–50	2027-05-01 09:06	1 / 7 000	-3.68	0	14.01
2009 JF1	10–23	2022-05-06 08:12	1 / 4 000	-3.72	0	26.41
2018 VP1	2–4	2020-11-02 01:13	1 / 190	-3.77	0	14.69
2007 KE4	25–60	2029-05-26 00:23	1 / 11 000	-3.82	0	15.03
2012 QD8	70–160	2047-03-08 23:17	1 / 170 000	-3.91	0	23.58

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



Plot of the impact probability associated to all the objects currently in our risk list versus the potential impact year.

Each potential impactor is represented by a circle with its diameter proportional to the object size and coloured in terms of its Palermo Scale value.

[Credit: ESA/NEOCC]

neo.ssa.esa.int
To subscribe to this newsletter fill the form at http://neo.ssa.esa.int/subscribe-to-services
To unsubscribe or for any further information please send an email to neocc@ssa.esa.int