

→ NEWSLETTER MAY 2021

ESA's NEO Coordination Centre

Current NEO statistics

The monthly average of NEA discoveries this year is ~260 new objects per month.

- Known NEOs: 25 660 asteroids and 113 comets
- NEOs in risk list*: 1164
- Number of NEOs designated during last month: 294
- NEOs discovered since 1 January 2021: 1032

Focus on

The 7th IAA Planetary Defense Conference was successfully held in virtual form between 26–30 April 2021. The conference was hosted by the United Nations Office for Outer Space Affairs, in cooperation with the European Space Agency. Sessions were held on the following NEO aspects: on-going space missions (Hayabusa2 and OSIRIS-REx), planned space missions (DART and Hera), discoveries, characterisation, deflection and disruption testing, mission and campaign design, impact effects, disaster management, decision to act, public education and communication, and a special session on Apophis and other future characterisation opportunities from NEO close approaches. As customary now, an impact tabletop exercise organised by NASA was conducted during the conference. In this occasion a short warning NEO impacting scenario was proposed. NEO discovery would occur just before the time of the conference for a possible impact at the end of October 2021 of an object initially estimated to range between 35 m and 700 m. Given the short time available until the possible impact, the exercise helped in analysing what possible options could be adopted to mitigate such an impending threat.

Upcoming interesting close approaches

A recently discovered asteroid will have a fly-by in May.

- 2021 GK1 is a newly discovered object of about 13 metres in size, which will reach a minimum distance of about 1.5 lunar distances on 11 May.

Recent interesting close approaches

Eighteen known objects flew by the Earth closer than the Moon in April, and two came extremely close.

- 2021 GW4 and 2021 GW16 are two newly discovered asteroids that came closer than the geostationary ring in April. They both had a diameter of just a few metres, but due to the extremely close approach they reached a peak magnitude of about 13 during the fly-by.

News from the risk list

A new object appeared near the top of the list.

- 2021 GX9 is a new entry in the top positions of our risk list. After reaching the first spot in the list just after discovery, it now dropped to the fourth place thanks to some observations we collected with our telescope network. It is a 30-metre object with an impact probability of less than 1 in 10 000 in April 2032.

* The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <https://neo.ssa.esa.int/risk-list>

In other news

- Asteroid Day has started announcing participants for their annual Asteroid Day LIVE broadcast. Airing at 18:00 CET on 30 June, this year's theme explores 25 years of dedicated asteroid missions in light of the NEAR-Shoemaker launch anniversary, and looks into the future. Read more about this year's programme and find out how to watch by visiting asteroidday.org.

Upcoming events

One event in the list of relevant international meetings over the next months.

- 53rd Annual Meeting of the AAS Division for Planetary Sciences, 3-8 October, (TBD) Virtual or Rhode Island Convention Center. Website: <https://dps.aas.org/meetings/current>

List of NEAs in a 1:3 resonance with Earth and small MOID

List of objects with an orbital period close to the 1:3 resonance with the Earth (NEA revolving once about the Sun while the Earth takes three revolutions) and a Minimum Orbit Intersection Distance (MOID) less than 0.1 au. Values are computed at the mean epoch of the observations and ordered by increasing MOID.

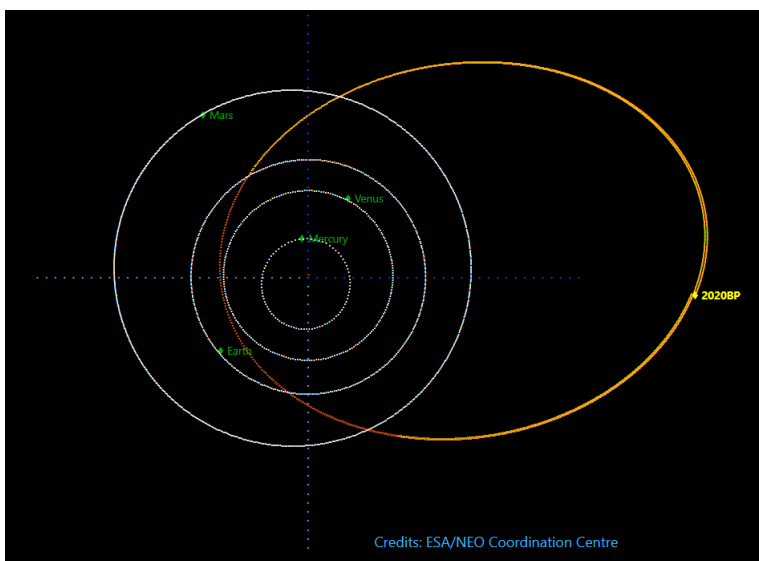
Object name	Perihelion in au	Aphelion in au	Inclination in degrees	MOID in au	Size range in m
2020 BP	0.748	3.412	2.17	0.00139	20–40
2018 BA3	0.982	3.180	6.04	0.00186	15–30
2019 JE	1.015	3.149	3.70	0.00540	16–30
2018 CC14	0.946	3.219	5.83	0.02565	90–190
(518847) 2010 DM	0.333	3.828	5.01	0.03255	400–900
2015 KJ19	0.529	3.629	2.54	0.03596	90–200
2015 FM34	0.878	3.283	4.69	0.04826	90–190
(307493) 2002 XP90	0.862	3.298	23.11	0.05032	1400
2019 HO	1.056	3.103	8.28	0.05249	40–90
2020 AR2	0.980	3.176	7.38	0.05893	110–260
(477719) 2010 FG15	1.088	3.070	0.83	0.08990	24–50

Links for more information

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

Close Approaches List: <https://neo.ssa.esa.int/close-approaches>

Risk List: <https://neo.ssa.esa.int/risk-list>



Ecliptic projection of the orbit of 2020 BP, the first object in our table for this month. It has an orbit with a period very close to the 1:3 resonance with the Earth and the smallest MOID distance with our planet among the objects with a similar resonance.

[Credit: ESA/NEOCC]

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