

→ NEWSLETTER MAY 2023

ESA's NEO Coordination Centre

Current NEO statistics

The rate of discovery this year is a bit lower than last year at the same time. This is likely due to poor weather conditions that affected many survey sites during the spring.

- Known NEOs: 31 866 asteroids and 120 comets
- NEOs in risk list*: 1477
- NEOs designated during last month: 263
- NEOs discovered since 1 January 2023: 837

Focus on

Our web portal has offered a search functionality to extract objects from our database for a long time. Recently, a major update to its search capabilities has been made available, and it is accessible to the public at <https://neo.ssa.esa.int/advanced-search>. The system provides some advanced query capabilities, including a few options that are probably unique among similar tools already existing online. For example, it is now possible to combine orbital queries with filters based on the current observability of objects. This allows, for instance, for users to search for all Atira asteroids (an orbital property) that are currently brighter than magnitude 21 (an observational characteristic). In addition to orbital and observational properties, users can also combine some of the available physical properties and quantities related to the risk assessment of that specific object. The latter functionality makes it easy to select currently observable objects from our risk list. These advanced search functionalities can be extremely useful for observers who need to select targets for a current telescope run, since they allow an easy filtering of detectable objects that also match other constraints relevant for the specific science case at hand.

Upcoming interesting close approaches

None of the objects known at the beginning of May are going to have any significant close approach during the month.

Recent interesting close approaches

Only a couple of asteroids had notable close approaches during the month of April.

- 2023 GQ was the closest known approacher for the month, reaching 0.35 lunar distances on 11 April.
- 2006 HV5 is a 300-metre asteroid that came to about 6 lunar distances on 26 April.

News from the risk list

An object reached noticeably high risk ratings in April, but was subsequently excluded.

- 2023 GQ2 was a new discovery that reached the top spot of our risk list during the month, peaking at a Torino Scale level of 1 and a Palermo Scale rating of -0.6 , one of the highest in recent years. Finding archival data at past apparition quickly led to the complete demotion of the risk.

*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

- The annual Asteroid Day events will be streamed from Luxembourg on June 30 and July 1 and independently hosted all over the world on June 30. You can read about the initiative, schedule of events, and speakers at <https://asteroidday.org/>.
- Many NEO experts and UN representatives from the entire worldwide community attended the Planetary Defense Conference in Vienna in early April. During the event, many interesting results were presented, including a thorough discussion of the first results of the DART and LICIACube missions.

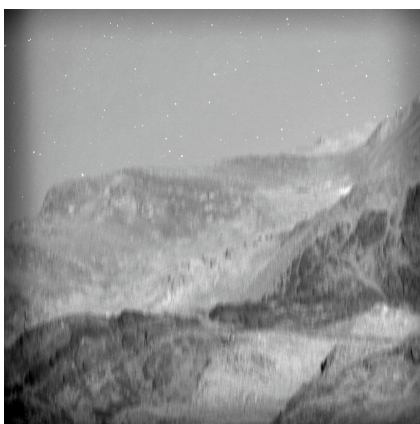
Upcoming events

- Asteroids, Comets, Meteors Conference, 18-23 June 2023, Flagstaff, USA
<https://www.hou.usra.edu/meetings/acm2023/>
- 55th Annual Meeting of the AAS Division for Planetary Sciences (joint meeting with the Europlanet Science Congress (EPSC) 2023), 1-6 October 2023, San Antonio, USA
<https://dps.aas.org/meetings/future>

Advanced search table

The following table is an example of the kind of complex searches that can now be executed from our portal, demonstrating how different classes of parameters can be combined into a single query. It shows all known NEOs of the Apollo group (an orbital property) currently brighter than magnitude 24, with an elongation larger than 60 degrees and an ephemeris uncertainty smaller than 30 arcminutes (current observational characteristics) with a diameter of less than 1000 m (a physical property) and a Palermo Scale higher than -8 (a filter based on the object's current risk assessment). This is of course just an example, similar queries can now be performed combining dozens of other parameters.

Object name	Diameter in km	Palermo Scale	V magnitude	Elongation in degrees	Sky Plane Unc. in arcminutes
(101955) Benu	484	-5.19	23.23	78.45	0.000
2019 TK5	~12	-7.27	24.00	107.84	5.373
2022 W07	~40	-5.65	23.79	81.13	4.211
2023 HD6	~12	-5.41	22.65	156.23	0.004
2023 HM4	~11	-7.01	21.13	150.17	0.004
2023 HT4	~80	-5.71	20.61	76.35	0.542
2023 HX2	~30	-7.24	21.92	119.37	0.004
2023 HZ5	~9	-7.89	21.92	120.23	0.079



This is a slightly more unusual image coming from one of our telescopes. It was taken with our Test-Bed Telescope on La Silla, Chile.

The telescope has the ability to point as low over the horizon as desired. For this test, we pointed it right at the edge between the sky and the ridge of the nearby peaks of the Andes. A 10 s exposure, together with some moonlight, was sufficient to clearly reveal the surrounding landscape and the starry sky.

The apparent blurring of the land portion of the image is due to the telescope following the movement of the sky. As a result, the stars remain point sources, while the ground trails in the opposite direction.

[Credit: ESA / PDO]

Links for more information

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

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

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

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