

## → NEWSLETTER JUNE 2022

### ESA's NEO Coordination Centre

#### Current NEO statistics

At the end of May we crossed the threshold of 29 000 known NEOs.

- Known NEOs: 29 038 asteroids and 117 comets
- NEOs in risk list\*: 1376
- NEOs designated during last month: 189
- NEOs discovered since 1 January 2022: 1233

#### Focus on

This month marks the 20 year anniversary of the so-called Eastern Mediterranean event, an explosion registered over the Mediterranean sea, between Libya and Crete, in the early morning hours of 2 June 2002. The event resulted in an energy release equivalent to about 20 kilotonnes of TNT, and was likely caused by an undetected asteroid of about 10 metres impacting the upper layers of our atmosphere and mostly disintegrating upon entry. This event reminds us that major multi-kilotonne asteroid impacts are not extremely rare. Over the past two decades, a handful of other events of similar or larger scale have been recorded, including the well-known Chelyabinsk event, but also a large impact near Kamchatka in 2018 and one over Sulawesi in 2009.

#### Upcoming interesting close approaches

None of the objects known on the first day of the month are going to have any interesting close approach during this month. However, significant close approachers will likely be discovered during the month, as usual.

#### Recent interesting close approaches

Four tiny asteroids came very close in May, while a larger well-known one attracted some media attention.

- 2022 KP6 came to less than 2 Earth radii from the surface on 25 May, making it one of the 20 closest approaches ever observed for an asteroid.
- 2022 KQ5 also had a very close approach on 30 May, at about 5 Earth radii from the surface.
- 2022 KG1 and 2022 JO1 also had approaches closer than 70 000 km during the month of May.
- (7335) 1989 JA had a distant close approach on 27 May, but reached magnitude 12 thanks to its large size of about 730 m.

#### News from the risk list

Two newly discovered objects reached a high rating in our risk list.

- 2022 KM4 is a roughly 200 metre asteroid that has a probability of about 2 in a million of impacting the Earth during this century.
- 2022 KK5 is a smaller 30 metre object, but its larger impact probability of about 1 in 5000 gives it a comparable risk rating in our list.

\*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 LIVE is back this 30 June for a special 4 hour programme. To learn all about these fascinating and at times alarming celestial bodies from today's leading experts, join the event on 30 June from 11:00-15:00 CEST and watch on <https://asteroidday.org/>.
- Other live events connected to Asteroid Day are being organised worldwide. Please check the website above if you are interested in finding activities near you.
- Hera mission scientists and engineers met in the first week of June in Nice (France) to discuss the progress and future plans of the scientific and operational preparation of the mission.

## Upcoming events

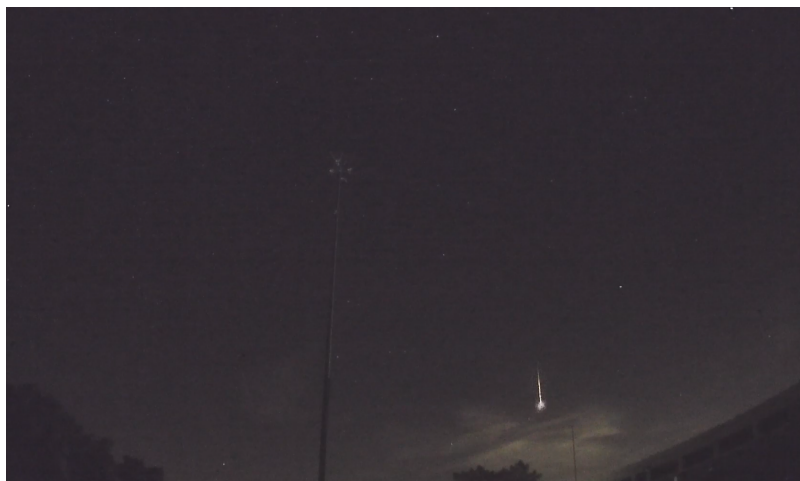
A fireball meeting will happen in summer, and the usual EPSC and DPS meetings will be held in the fall.

- Workshop #3 on Fireballs and their Detection, 13-14 August 2022, Glasgow, UK  
<https://www.europlanet-society.org/workshop-3-on-fireballs-and-their-detection/>
- Europlanet Science Congress (EPSC) 2022, 18-23 September 2022, Granada, Spain  
<https://www.epsc2022.eu>
- 54<sup>th</sup> Annual Meeting of the AAS Division for Planetary Sciences, 2-7 October 2022, London, Canada  
<https://dps.aas.org/meetings/future>

## List of the closest approaches in May

Five objects came closer than 0.4 lunar distances during the month of May. The miss distances quoted in the table are measured from the surface of the Earth.

Designator	Close approach date	Miss distance in lunar distances	Miss distance in Earth radii	Miss distance in km	Size range in m	H magnitude
2022 KP6	2022-05-25	0.03	1.7	11 000	4–8	29.4
2022 KQ5	2022-05-30	0.09	5.3	30 000	4–9	29.2
2022 KG1	2022-05-22	0.14	8.4	50 000	4–10	28.9
2022 J01	2022-05-10	0.16	9.9	60 000	9–21	27.3
2022 JM2	2022-05-06	0.38	23.2	150 000	7–16	27.9



On the early morning of 31 May, a bright fireball that exploded over Eastern Spain was automatically detected by the AMS81-Camera of the AllSky7-Network installed at the ESA ground station in Cebreros, near Madrid.

Combining this and other observations from Spanish collaborators, the object originating this fireball could be linked to the Tau Herculids (TAH), a stream of fragments of comet 73P/Schwassmann–Wachmann which was predicted to cross the Earth path during those days.

[Credit: ESA/AMS81 AllSky7 Fireball Network]

## 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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