→ CAFS FOR 2023 DZ2

ESA's NEO Coordination Centre

Close approach fact sheet for asteroid 2023 DZ2

The large asteroid 2023 DZ2 will have a close encounter with Earth on 25 March 2023. The estimated impact probability is: 0

Fly-by date	2023-03-25
Closest approach time	19:50:00 UTC (± 71 s)
Fly-by distance from Earth surface	168288 km, 0.438 Lunar Distances (± 96 km)
Fly-by speed	7.78 km/s
Size range	42-94 m
Discovery date	2023-02-27
Discovery site	La Palma

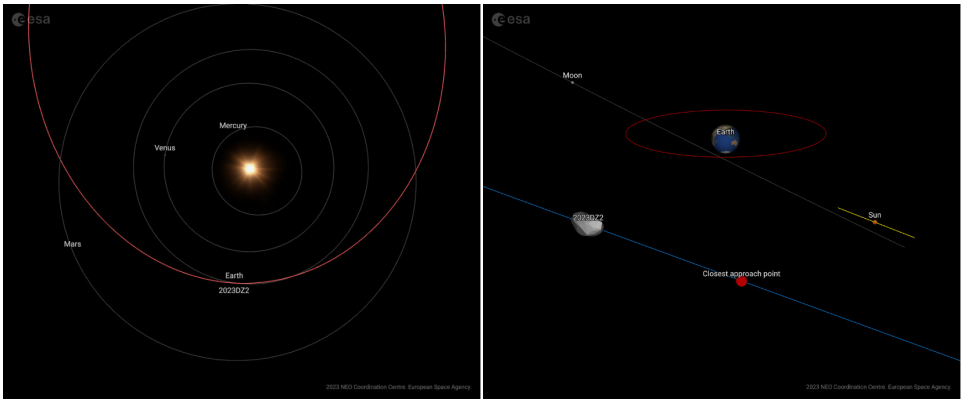
All error bars quoted in this table correspond to one standard deviation.

Orbit information

As the approach distance of the nominal trajectory to the Earth is relatively small, changes in its orbital elements due to the Earth gravity are noticeable.

Date before and after fly-by	Orbital period (year/day)	Aphelion distance (au)	Perihelion distance (au)	Eccentricity	Inclination (deg)
2023-02-23	3.165/1156	3.317	0.994	0.539	0.081
2023-04-24	3.008/1098	3.176	0.991	0.524	0.149

All orbital elements in this table are referred to the ecliptic at the epoch of J2000.0



In image to the left, the orbit is reported – showing how it will be affected by the close flyby. In image to the right, the flyby trajectory (blue line) and a geostationary orbit (red line) are visualised. N.B.: the size of the object has been magnified.

Physical and mitigation information

Days to closest approach	Cumulative impact probability	Composition	Rotation period (hours)
~ 5	Not applicable	Unknown	Unknown

IAWN call for rapid response characterisation campaign, focusing on physical characterisation (rotational properties, binary nature, compositional properties, albedo, diameter, shape etc.).

Observational information

Peak brightness	Visual observability	Geometric observability
9.7	Optically observable with small telescopes or large binoculars around the time of close approach.	The object will be placed around opposition at the time of close approach, making the event easily observable from the entire world. After close approach, the object will head towards more southern declination, but it will still remain easily observable.

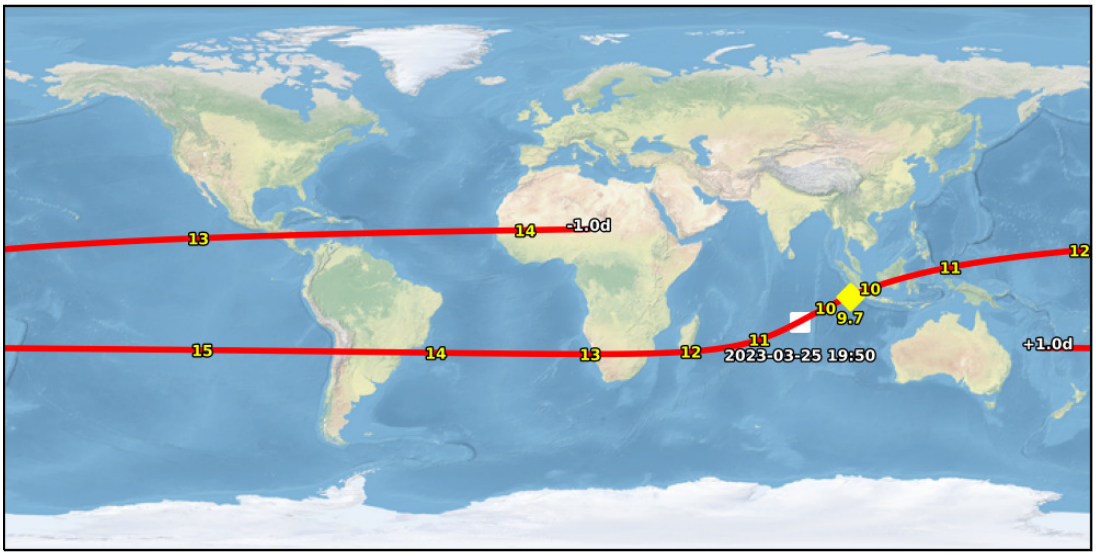
Other information

Encounter peculiarities	Previous encounter	Next encounter
None	2004-04-17	2026-04-04

Only encounters within 0.05 au are considered.

Asteroid ground track

The map shows the position of the sub-asteroid point projected over the surface of the Earth, from one day before impact to one day after. It shows that the asteroid remains near the equator, guaranteeing good observability worldwide. The closest approach (white square) and the brightest point (yellow diamond) will happen over the Indian Ocean.



Links

NEO information:
https://neo.ssa.esa.int/search-for-asteroids?sum=1&des=2023DZ2
Orbit visualiser:
https://neotools.ssa.esa.int/ovt?object=2023DZ2
Close approaches page:
https://neo.ssa.esa.int/close-approaches