→ CAFS FOR 2023 BU

ESA's NEO Coordination Centre

Close approach fact sheet for asteroid 2023 BU

The small near-Earth asteroid 2023 BU will have a close encounter with Earth on 27 January 2023.

Fly-by date	2023-01-27
Closest approach time	00:27:10 UTC (± 25 s)
Fly-by distance from Earth surface	3 606 km, 0.009 Lunar Distances (± 4 km)
Fly-by speed	9.26 km/s
Size	3—8 m
Discovery date	2023-01-21
Discovery site	MARGO, Nauchnij

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 very small, changes in its orbital elements due to the Earth gravity are very noticeable.

Date before and after fly-by	Orbital period (year/day)	Aphelion distance (au)	Perihelion distance (au)	Eccentricity	Inclination (deg)
2022-12-28	0.982/359	1.051	0.925	0.064	2.357
2023-02-26	1.165/425	1.230	0.984	0.111	3.749

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

In the left image, the orbit of 2023BU is displayed (red line) – showing how it is affected by the close encounter with Earth. In the image to the right, the flyby trajectory (blue line) and the geostationary ring (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)
~ 1	Not applicable	Unknown	Unknown

Observational information

Peak brightness	Visual observability	Geometric observability
~ 10	Visually observable with medium sized telescope from the optimal location (South America), larger apertures required elsewhere.	The object's incoming and outgoing trajectories are both in the Northern sky, favoring observability from Northern latitudes both before and after the closest approach. However, the closest approach will happen over the Southern Pacific Ocean, and will only be observable (poorly) from Southern locations.

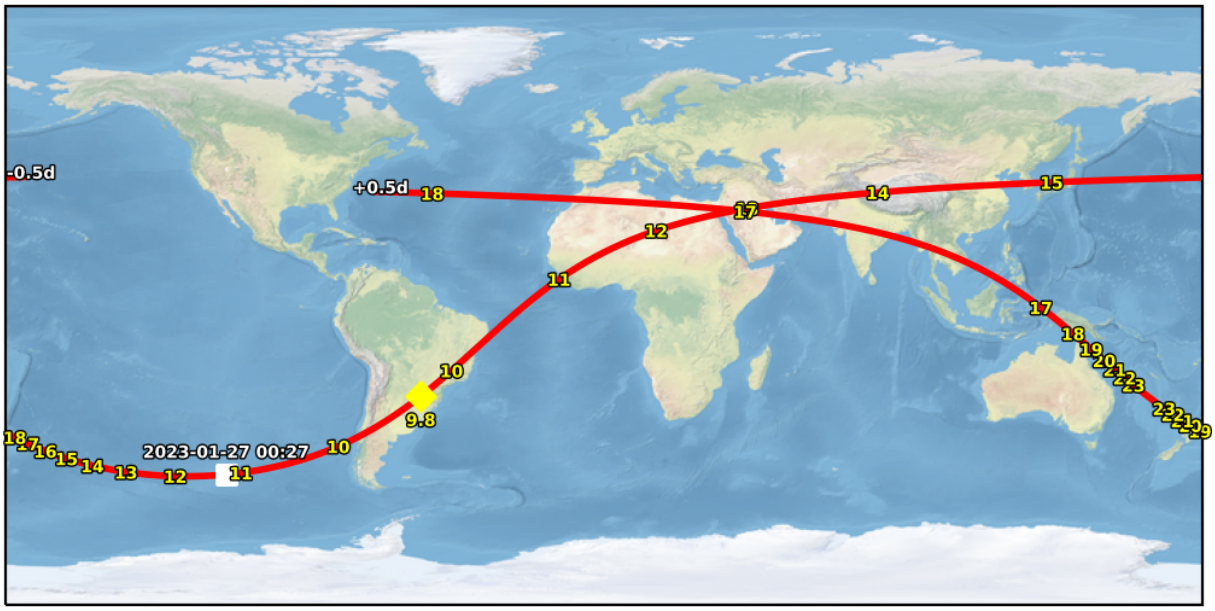
Other information

Encounter peculiarities	Previous encounter	Next encounter
None	2020-08-21	2066-01-28

Only encounters within 0.05 au are considered.

Asteroid ground track

The asteroid comes from mid-Northern latitudes, and heads South near close approach, reaching a peak brightness of about 10 over South America. Closest approach happens over the Southern Pacific Ocean, but by then the solar elongation is already lower, resulting in poorer observability conditions during and right after the closest distance. The object then recedes from Earth heading North again, and becomes observable again favoring Northern latitudes.



Links

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