

→ CAFS FOR 2019 XS

ESA's NEO Coordination Centre

Close approach fact sheet for asteroid 2019 XS

The medium-sized asteroid 2019 XS will have a close encounter with Earth on 9 November 2021. The asteroid is the subject of an International Asteroid Warning Network (IAWN) observing campaign designed to provide observers with an opportunity to assess the accuracy of their timing measurements.

Fly-by date	2021-11-09
Closest approach time	03:47:09 UTC (± 6 s)
Fly-by distance from Earth surface	567 536 km, 1.5 Lunar Distances (± 16 km)
Fly-by speed	10.7 km/s
Size range	40–100 m
Discovery date	2019-12-02
Discovery site	Mt. Lemmon Survey

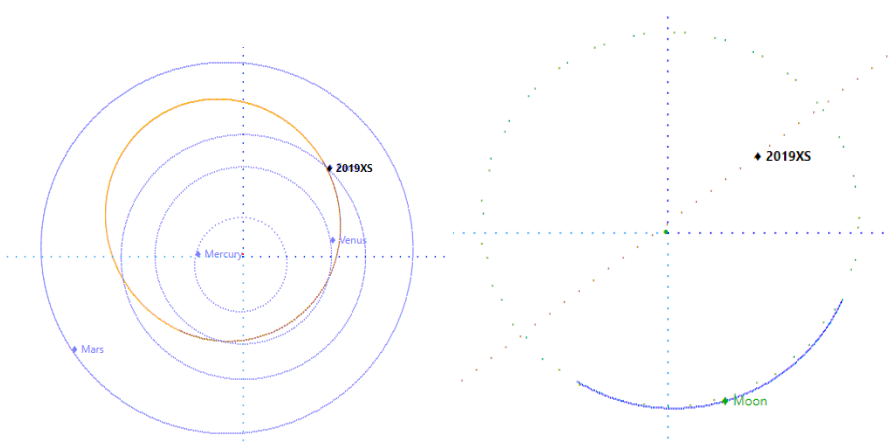
All error bars quoted in this table correspond to one standard deviation.

Orbit information

As the approach distance of the nominal trajectory to the Earth is relatively large, changes in its orbital elements due to the Earth gravity are almost not noticeable. The current orbital solution at NEOCC includes Yarkovsky acceleration.

Date before and after fly-by	Orbital period (year/day)	Aphelion distance (au)	Perihelion distance (au)	Eccentricity	Inclination (deg)
2021-10-10	1.006/367.5	1.3329	0.6754	0.3274	4.191
2021-12-09	1.007/367.7	1.3325	0.6766	0.3265	4.447

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



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
13.9	Metre-size telescopes	Emerging from solar conjunction at far Southern declinations, and therefore only observable from very Southern latitudes, until the day of close approach. After close approach, the object will become easily observable worldwide, being close to opposition.

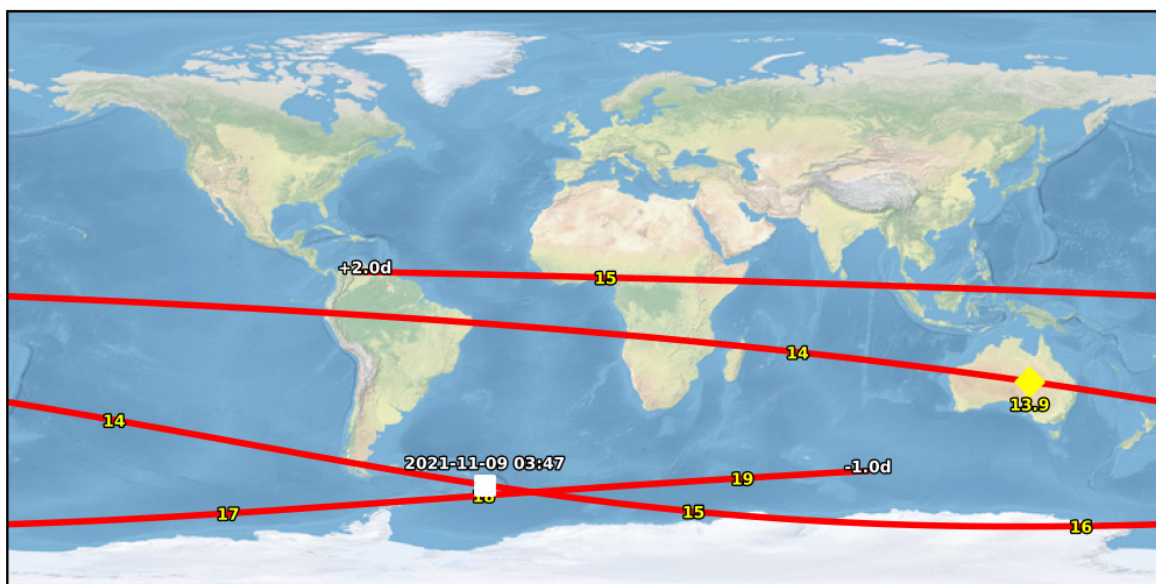
Other information

Encounter peculiarities	Previous encounter	Next encounter
None	2020-11-07	2022-11-10

Only encounters within 0.05 au are considered.

Asteroid ground track

The ground track provided below represents the movement of the sub-asteroid point over the Earth, starting one day before the closest approach, and extending for 2 days. The asteroid is emerging from solar conjunctions over the Southern hemisphere, and at high phase angles, implying a faint magnitude and nearly unobservable conditions. After the time of close approach (white square), the ground track moves North, towards the equator, resulting in worldwide observability opportunities. Visual magnitude values are provided along the ground track (numbers in yellow).



Links

NEO information:

<https://neo.ssa.esa.int/search-for-asteroids?sum=1&des=2019XS>

Orbit visualiser:

<https://tinyurl.com/w76vmdg2>

Close approaches page:

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

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