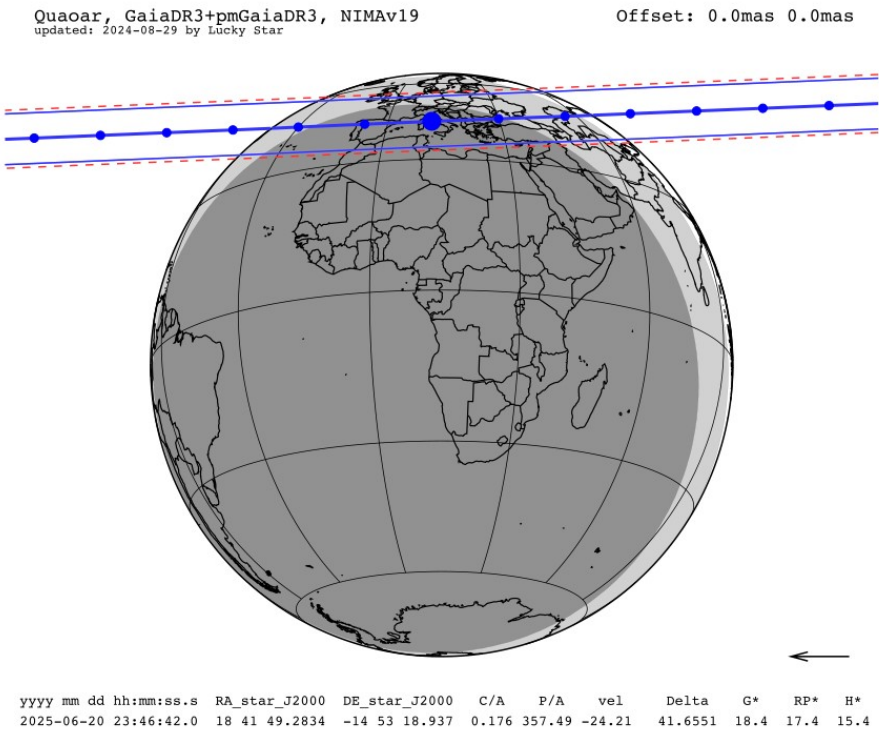


Occultation by Quaoar (2025-06-20)

[Link to the global page](#)

Map	Circumstances	Star & Object	Sky Map	Interactive Map
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Occultation map



[Download map](#)

Information about the map:

- The straight and continue lines are the shadow limits considering the estimated radius; when the shadow crosses the Earth's surface, the path is projected on the Earth;
- Each blue dot is spaced by one minute and the big blue dot corresponds to the nominal occultation time (which is the geocentric closest approach);
- The arrow shows the direction of the shadow motion;
- The 1-σ precision along the path is represented by the red dotted line;
- The star G* and J* are the G (from Gaia) and J (from 2MASS) magnitudes, *normalized to a body moving at 20km/s* in order to enhance very slow events;
- The body offset is at the upper right corner, if JPL ephemeris is used;
- Areas in dark grey correspond to full night (Sun elevation below -18 degrees) and areas in light grey correspond to twilight (Sun elevation between -18 and 0 degrees) while daytime is in white;
- Be careful, the dates are from the moment of the event in Universal Time, the night of the event may begin at the date before.

Occultation circumstances

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Local circumstances

Longitude	01°49'03.0"E
Latitude	43°26'43.5"N

Mid-time	23h47m15s ± 00m05s
Impact parameter	102 ± 79 km
Object elevation	30.7°
Expected duration	45.1s
Object azimuth	165.6°
Sun elevation	-23.3°
Moon elevation	-9.7°
Probability of occultation	100%

Global circumstances

Date	Fri. 20 Jun. 2025 23:46:42
Star position (ICRF)	18 41 49.2834 -14 53 18.937
C/A	0.176 arcsec
P/A	357.49 °
velocity	-24.21 km/s
Geocentric distance Δ	41.6551 au
G mag*	18.4
J mag*	17.4
H mag*	15.4
Magnitude drop	1.1
Uncertainty in time	5.0 sec
Uncertainty in C/A	2.6 mas
Uncertainty in projected distance	79.0 km
Probability of occultation on centrality	100.0%
Maximum duration	45.9 sec
Moon distance to the object	107.5°
Fraction of illuminated Moon	26.0 %
Solar elongation	166.6°

Star & Object data

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Occulted star

Star source ID	4103489407614726016
Stellar catalogue	GaiaDR3
Star astrometric position in catalogue (ICRF)	18 41 49.2863 -14 53 18.940
Star astrometric position with proper motion (ICRF)	18 41 49.2834 -14 53 18.937
Star apparent position (date)	18 43 18.0117 -14 51 52.002
Proper motion	μRA* = (-4.4 ± 0.2)mas/yr; μDEC = (0.3 ± 0.2) mas/yr
Source of proper motion	GaiaDR3
Uncertainty in the star position	RA* = 1.8 mas; DEC= 1.6 mas
G magnitude	18.2
RP magnitude (source: GaiaDR3)	17.2
BP magnitude (source: GaiaDR3)	19.1
J magnitude (source: 2MASS)	15.9

H magnitude (source: 2MASS)	15.2
K magnitude (source: 2MASS)	14.7
RUWE (source: Gaia)	1.02
Duplicity flag (source: Gaia)	false

Objet

Object	Quaoar
Diameter	1110.0 km
Apparent diameter	36.7 mas
Object astrometric position (ICRF)	18 41 49.2829 -14 53 18.761
Object apparent position (date)	18 43 18.0111 -14 51 51.826
Uncertainty in position	RA* = 3.6mas DEC = 2.1mas
Apparent magnitude	18.8
Ephemeris	NIMAv19
Dynamic class ⁽¹⁾	cubewano
Semi major axis	43.5 au
Eccentricity	0.041 au
Inclination	8.0°
Perihelion	41.7 au
Aphelion	45.3 au

⁽¹⁾ Data from the johnston archive list.

Sky map (Aladin)

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[link to sky-map](#)

For declination above -25 °, Pan-STARRS survey is displayed by default whereas below -25 °, DSS is displayed.

Interactive Map

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The large blue line represents the centrality of the nominal prediction. The thin blue lines represent the body's limits of the nominal prediction. Red dotted lines show the $1-\sigma$ uncertainty on the body's limits. The white area represents the daylight part on Earth and the blue area represents the region on Earth where the object is not visible. The shadow at nominal time is displayed. The Sun symbol indicates the place where the Sun is at the zenith at the nominal time. The star symbol indicates the place where the occulted star is at the zenith at the nominal time. Grey zone represents the night area.

By clicking on one place, you will have an infobox with :

- **Coordinates:** longitude and latitude;
- **p and Δd:** Impact parameter (i.e. projected distance to the central line) and σ distance; Δd is $(p-r)/\sigma_d$ where r is the object radius and σ_d is the uncertainty in distance;
- **mid time:** mid time of the occultation at the selected place;
- **expected duration:** expected duration of the occultation at the selected place;
- **Probability:** Probability to observe the occultation on the specified place. This depends on the distance to the centrality, the size of the object and the uncertainty in the geocentric closest approach;
- **Object elevation:** Object's elevation above the horizon at the selected place at the mid time.
- **Sun elevation:** Sun's elevation above the horizon at the selected place at the mid time.

Once the place selected, the shadow at mid-time of the occultation for the location is displayed. The chord for your location appears in as a green dotted line. Sun and star symbols as well as the night area and area where the star is not visible are adjusted at the mid-time of your location.

Last update: 2024-08-29 • [Lucky Star project](#)