

Quaoar Predicted to Occult 16th Magnitude Star in Serpens Fri 27th July Between 1:03am and 1:13am.

Background:-

(50000) Quaoar is a trans-Neptunian object of approximately 1100km diameter presently about 43 AU (5.7 light hours) away from the sun in an almost circular orbit (cf Pluto at 35 AU, 4.6 light hours). It has been seen in occultation just once (2011) with two effective chords, from which its present size has been derived. It also has a satellite (Weywot) of about 75km diameter whose orbit is not well described.

https://en.wikipedia.org/wiki/50000_Quaoar

Prediction:-

The Lucky Star prediction for Quaoar's occultation of the 27th July can be found here:-

<http://lesia.obspm.fr/lucky-star/predictions/single.php?p=8760>

http://www.kuriwaobservatory.com/RIO_TNO_Events/20180726_08658u_summary.html

There have been four prediction updates for this occultation, which implies that it is receiving regular attention.

This is a better scenario than the July Chariklo occ field test (Sun 1st July), where we were not able to observe the target star. The moon is the same 90%+ fullness and distance away, and the field is in the west.

However, the star is rather brighter, at mag.16.1 green (cf Chariklo 17.7) and mag.15 red (cf Chariklo 17.0). The field is also 11 degrees higher in altitude (41° vs 30°). The drop is 2.8 magnitudes (cf 1.4 for Chariklo).

So, all together it is a somewhat better prospect. The best thing is that Quaoar's occultation is expected to have a maximum duration of 52.6 seconds, cf Chariklo of 11 seconds. Even a cadence of 2 seconds per frame will produce a measurement of about +/-20km resolution, which would show Weywot as a 3 frame drop (max).

The Lucky Star prediction currently has Sydney in the 1-sigma zone (~15% chance). The RIO-TNO prediction has our chances at 50.5%, so if the graph stays the same shape, our chances might be anywhere from 15% to 50%. There are ten announced stations for this occ, from Steve Kerr in Rockhampton, to Martin Unwin in NZ's South Island near Queenstown.

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