

# Upcoming Important Planetary Events for North America

Steve Preston

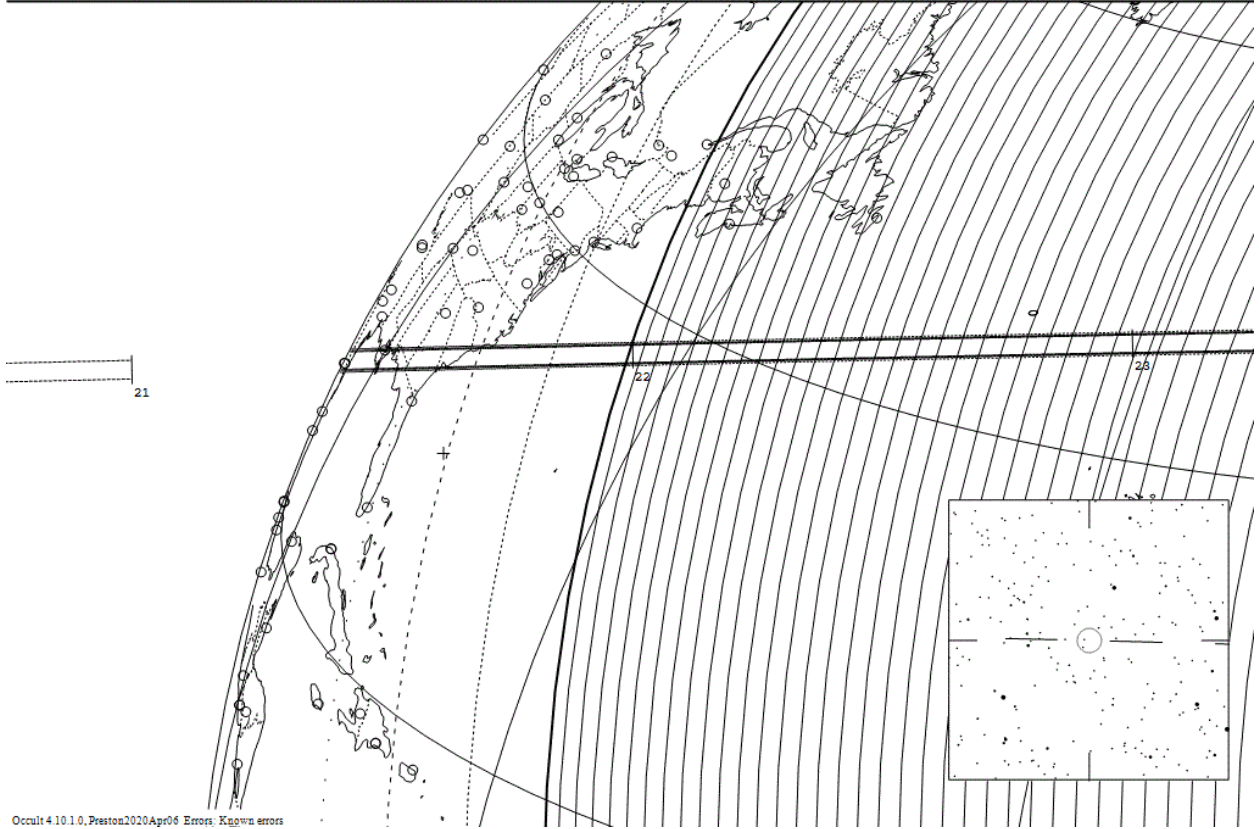
Jul 26, 2020

103 Hera occults UCAC4 547-17498 on 2020 Jul 30 from 9h 21m to 9h 26m UT

Star:  
 Mag V = 9.8; B = 11.1; R = 9.1  
 RA = 5 39 53.2903 (astrometric)  
 Dec = 19 23 35.341  
 [of Date: 5 41 4, 19 24 11]  
 Prediction of 2020 Apr 6.0

Max Duration = 2.2 secs  
 Mag Drop = 3.6 (3.6r)  
 Sun : Dist = 43°  
 Moon: Dist = 169°  
 : illum = 80 %  
 E 0.008"x 0.004" in PA 85

Asteroid: (in DAMIT, ISAM)  
 Mag = 13.3  
 Dia = 85km, 0.034"  
 Parallax = 2.579"  
 Hourly dRA = 3.956s  
 dDec = 1.27"

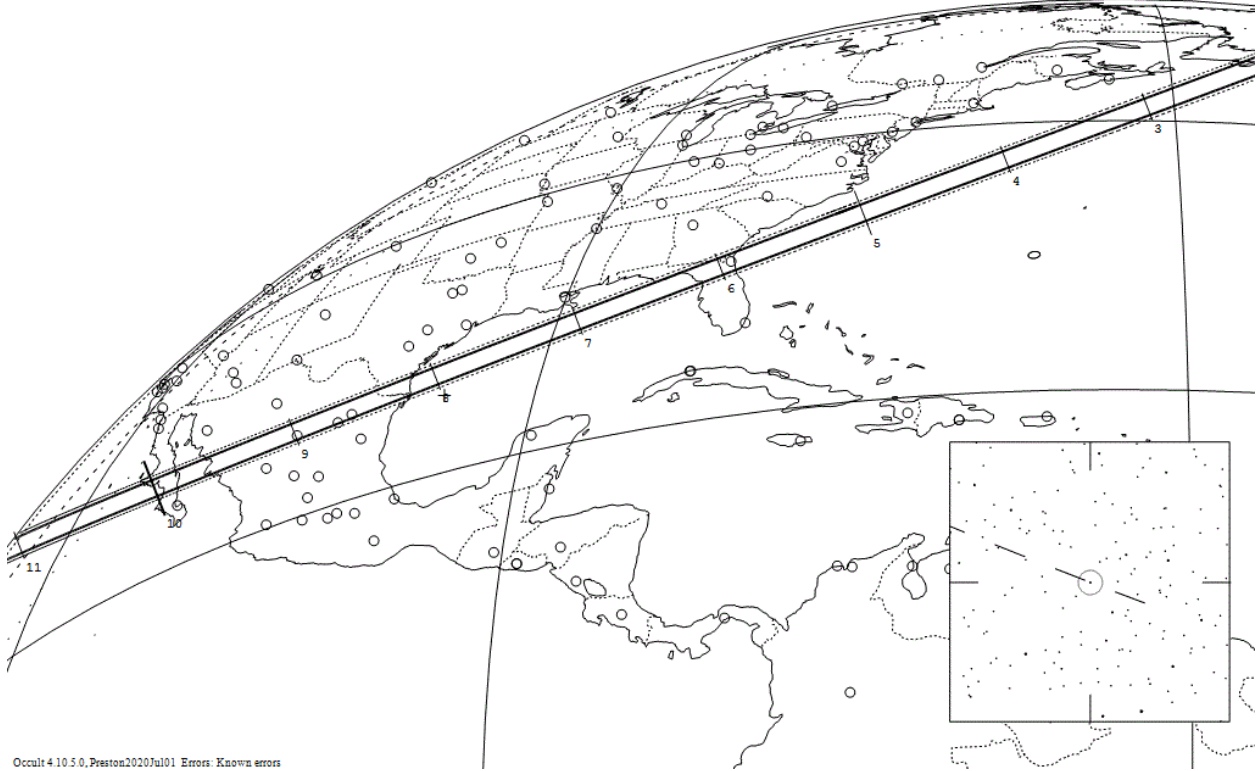


535 Montague occults TYC 6915-00209-1 on 2020 Jul 31 from 4h 1m to 4h 11m UT

Star:  
Mag V = 9.0  
RA = 20 30 3.1354 (astrometric)  
Dec = -26 21 42.688  
[of Date: 20 31 18, -26 17 30]  
Prediction of 2020 Jul 1.0

Max Duration = 6.9 secs  
Mag Drop = 3.9 (0.0r)  
Sun : Dist = 171°  
Moon: Dist = 39°  
illum = 87 %  
E 0.023"x 0.013" in PA 81

Asteroid:  
Mag = 12.9  
Dia = 78 ±5km, 0.066"  
Parallax = 5.436"  
Hourly dRA = -2.379"  
dDec = -12.42"



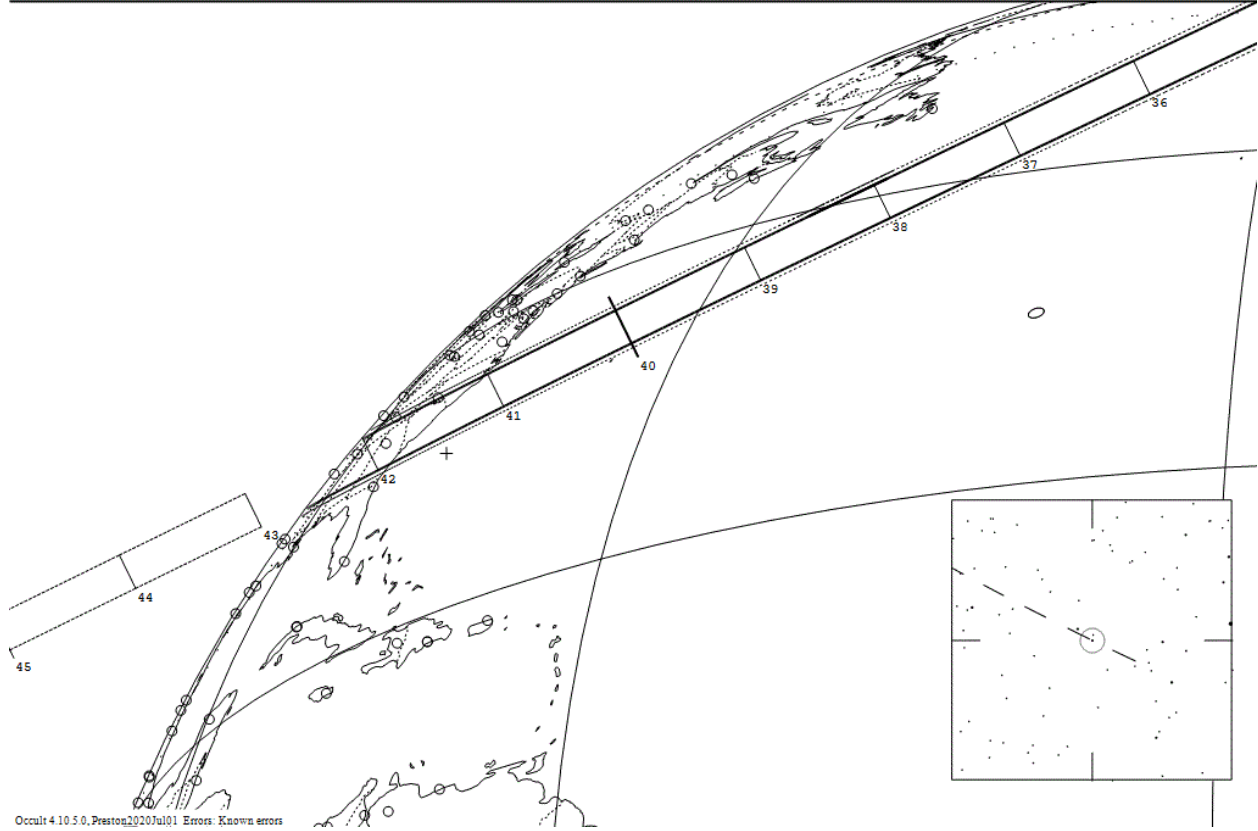
Occult 4.10.5.0, Preston2020Jul01 Errors: Known errors

106 Dione occults HIP 108708 on 2020 Aug 3 from 2h 34m to 2h 43m UT

Star:  
Mag V = 8.8  
RA = 22 14.8794 (astrometric)  
Dec = -19 18 46.162  
[of Date: 22 2 23, -19 12 46]  
Prediction of 2020 Jul 1.0

Max Duration = 15.9 secs  
Mag Drop = 3.0 (0.0r)  
Sun : Dist = 164°  
Moon: Dist = 22°  
illum = 100 %  
E 0.026"x 0.014" in PA 70

Asteroid:  
Mag = 11.7  
Dia = 168 ±10km, 0.118"  
Parallax = 4.466"  
Hourly dRA = -1.694s  
dDec = -11.74"

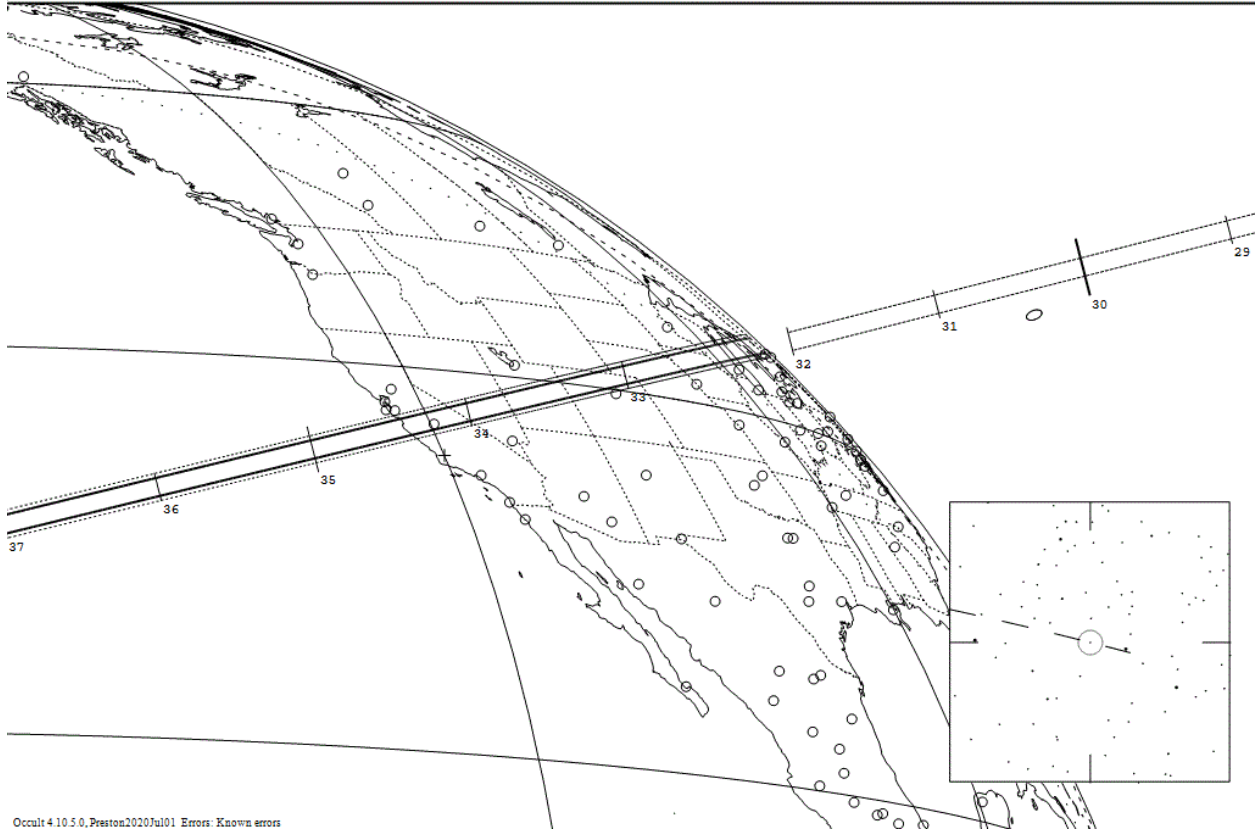


552 Sigelinde occults TYC 5204-00437-1 on 2020 Aug 20 from 9h 32m to 9h 48m UT

Star:  
Mag V = 9.8  
RA = 21 5 25.8764 (astrometric)  
Dec = -7 0 7.440 ...  
[of Date: 21 6 32, -6 55 6]  
Prediction of 2020 Jul 1.0

Max Duration = 7.4 secs  
Mag Drop = 4.1 (0.0r)  
Sun : Dist = 166°  
Moon: Dist = 148°  
illum = 3 %  
E 0.028"x 0.014" in PA 68

Asteroid:  
Mag = 13.9  
Dia = 84 ±5km, 0.057"  
Parallax = 4.341"  
Hourly dRA = -1.821s  
dDec = -6.91"



Occult 4.10.5.0, Preston2020Jul01 Errors: Known errors

2020-Sep-16 : SWRI campaign to observe an occultation by Eurybates:  
<http://lucy.swri.edu/occ/20200916Eurybates.html>

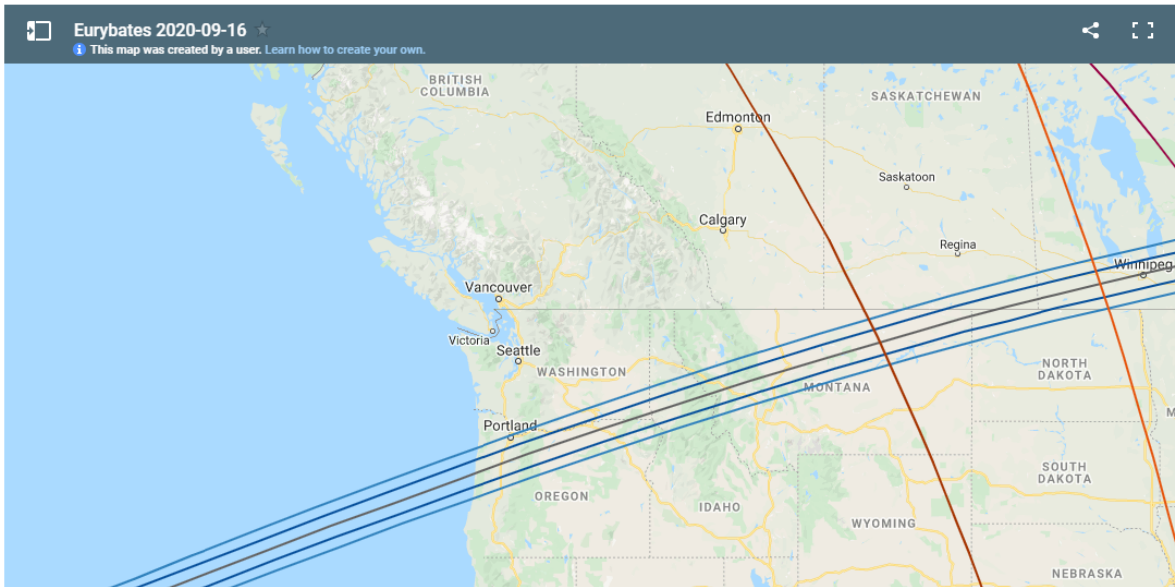


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## Eurybates Occultation 2020-09-16 ( $G^* = 14.5$ )

The interactive map below shows our current prediction for the stellar occultation by (3548) Eurybates on 2020 September 16 UT. The prediction is based on a Gaia DR2 position for the star, corrected for parallax and proper motion, and the v20200205194740 orbit estimate for Eurybates, which has a 1-sigma cross-track uncertainty of 9.5 km.

Geocentric mid-time of the event is 11:03:02 UT. Star position is RA 01:28:57.8, Dec +04:28:34 (J2000), and its magnitude is 15.52. Eurybates is moving at 13 km/s with respect to the star and its diameter is estimated to be 66 km, so central chords are expected to last 5.2 seconds.

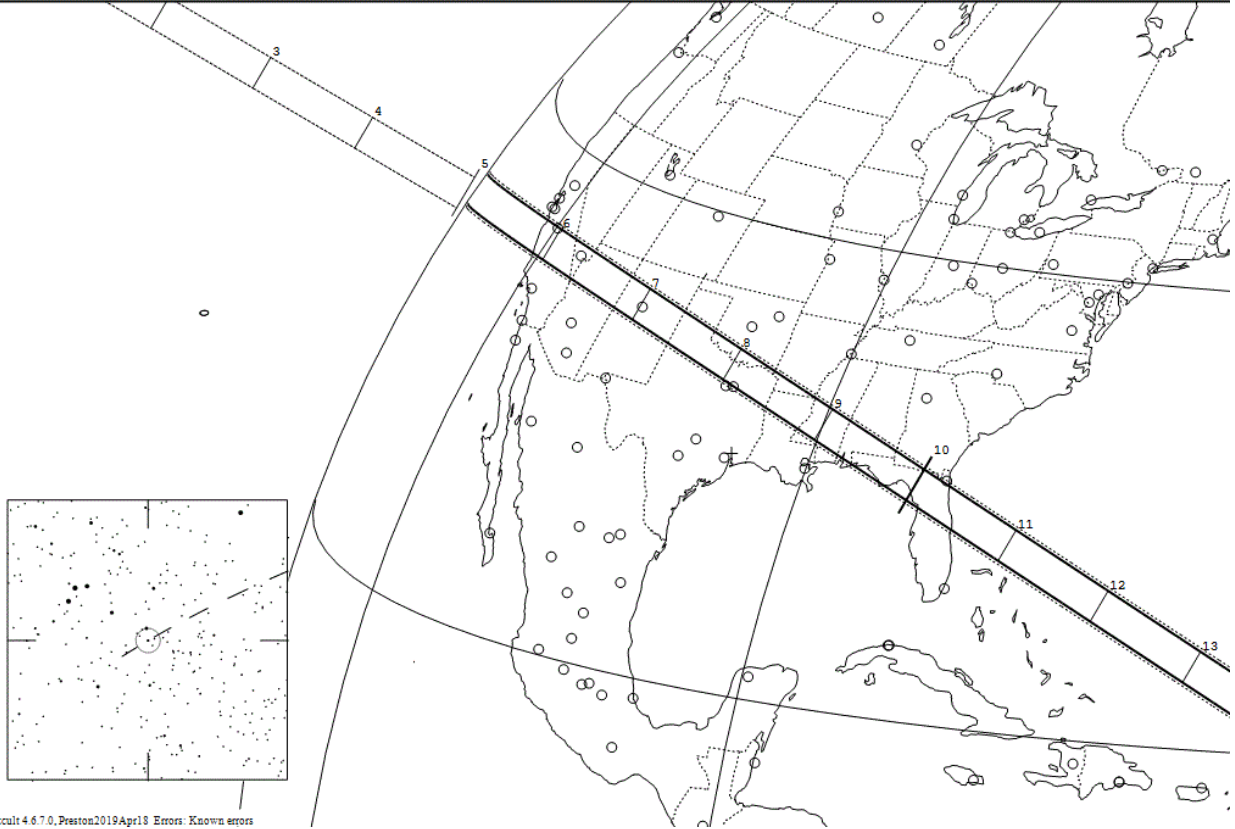


39 Laetitia occults HIP 30402 on 2020 Oct 15 from 8h 5m to 8h 29m UT

Star:  
Mag V = 8.6  
RA = 6 23 33.7612 (BCRS)  
Dec = 10 50 47.186  
[of Date: 6 24 42, 10 50 10]  
Prediction of 2019 Apr 25.0

Max Duration = 18.0 secs  
Mag Drop = 2.4 (0.0r)  
Sun : Dist = 106°  
Moon: Dist = 87°  
illum = 3%  
E 0.012"x 0.007" in PA 85

Asteroid: (in DAMIT, ISAM)  
Mag = 10.8  
Dia = 161km, 0.102"  
Parallax = 4.052"  
Hourly dRA = 1.197s  
dDec = -10.38"



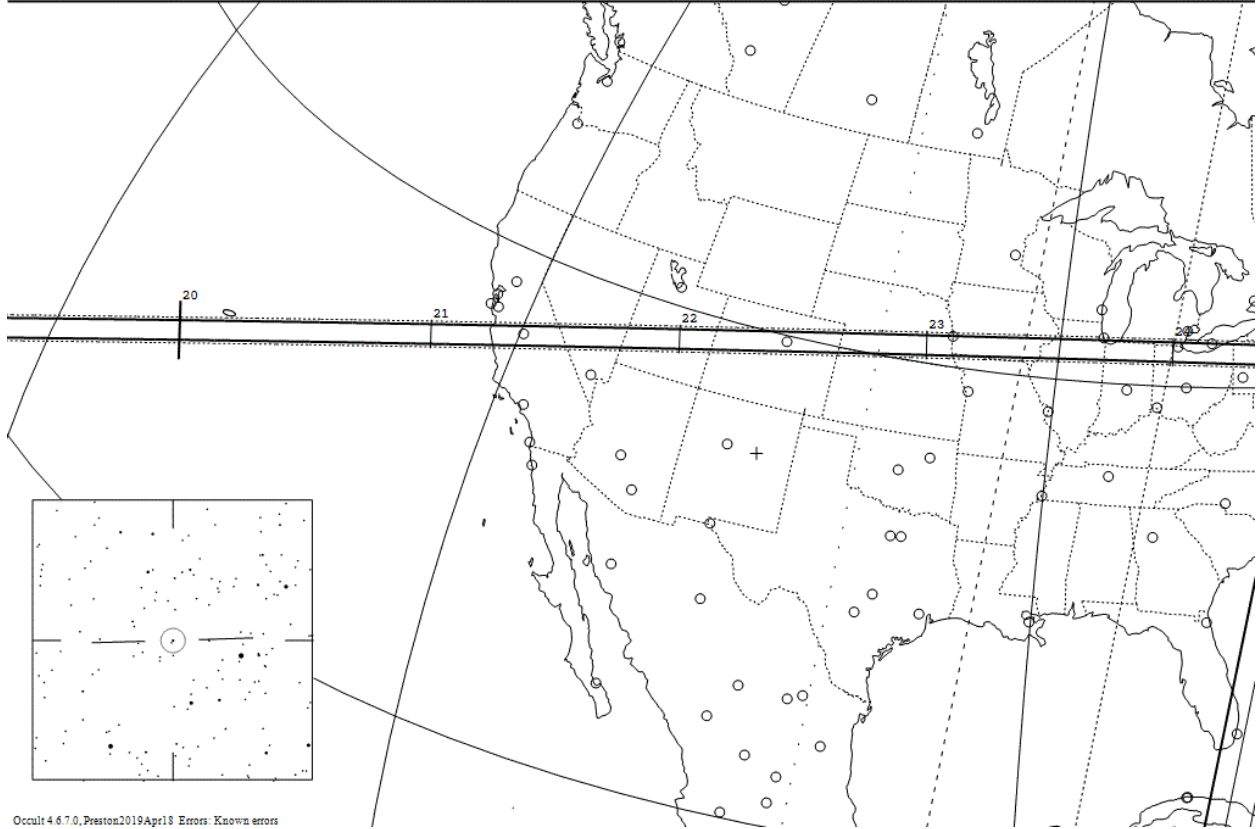
Occult 4.6.7.0, Preston2019Apr18 Errors: Known errors

109 Felicitas occults TYC 1938-01174-1 on 2020 Oct 19 from 11h 19m to 11h 30m UT

Star:  
Mag V = 8.8  
RA = 7 58 29.6744 (BCRS)  
Dec = 29 57 41.674  
[of Date: 7 59 46, 29 54 16]  
Prediction of 2019 Apr 25.0

Max Duration = 4.7 secs  
Mag Drop = 4.1 (0.0r)  
Sun : Dist = 91°  
Moon: Dist = 127°  
illum = 10 %  
E 0.024"x 0.010" in PA 106

Asteroid:  
Mag = 12.8  
Dia = 89km, 0.075"  
Parallax = 5.363"  
Hourly dRA = 4.419s  
dDec = -1.83"



Occult 4.6.7.0, Preston2019Apr18 Errors: Known errors



# 2020-Oct-21 : SWRI Campaign for occultation by Orus

<http://lucy.swri.edu/occ/20201021Orus.html>

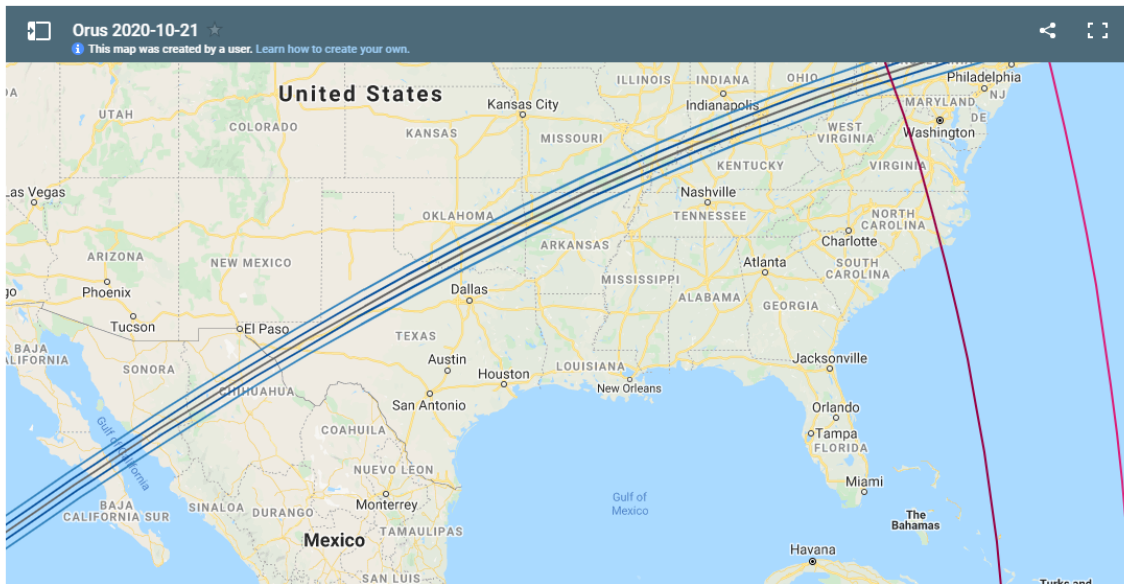


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## Orus Occultation 2020-10-21 ( $G^* = 16.1$ )

The interactive map below shows our current prediction for the stellar occultation by (21900) Orus on 2020 October 21 UT. The prediction is based on a Gaia DR2 position for the star, corrected for parallax and proper motion, and the v20200213210304 orbit estimate for Orus, which has a 1-sigma cross-track uncertainty of 10.7 km.

Geocentric mid-time of the event is 06:14:54 UT. Star position is RA 23:16:36.7, Dec +06:10:54 (J2000), and its magnitude is 16.95. Orus is moving at 11 km/s with respect to the star and its diameter is estimated to be 51 km, so central chords are expected to last 4.5 seconds.

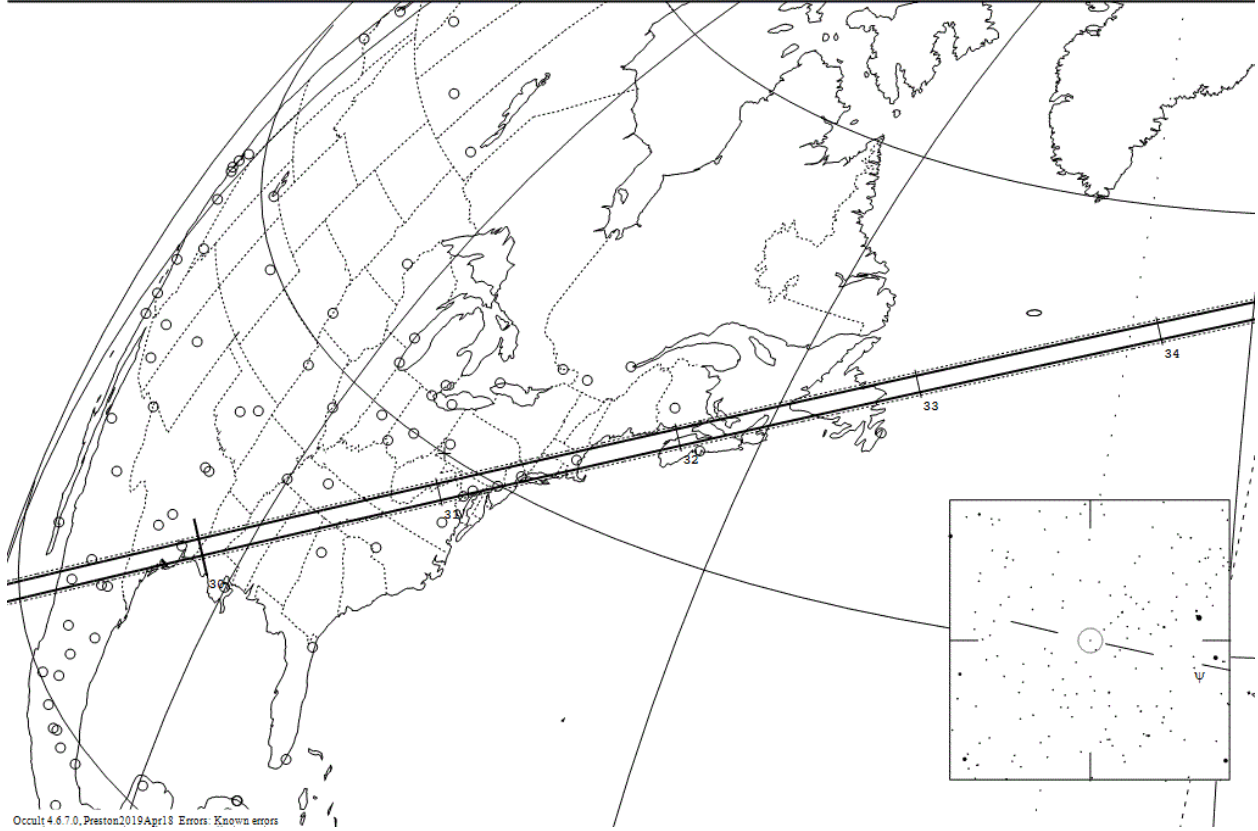


593 Titania occults TYC 1931-01786-1 on 2020 Oct 27 from 7h 29m to 7h 39m UT

Star:  
Mag V = 9.5  
RA = 8 13 39.6992 (BCRS)  
Dec = 25 41 5.426  
[of Date: 8 14 54, 25 37 18]  
Prediction of 2019 Apr 25.0

Max Duration = 4.1 secs  
Mag Drop = 4.1 (0.0r)  
Sun : Dist = 94°  
Moon: Dist = 133°  
illum = 84 %  
E 0.025"x 0.010" in PA 88

Asteroid:  
Mag = 13.6  
Dia = 77km, 0.059"  
Parallax = 4.863"  
Hourly dRA = 3.763s  
dDec = 11.56"

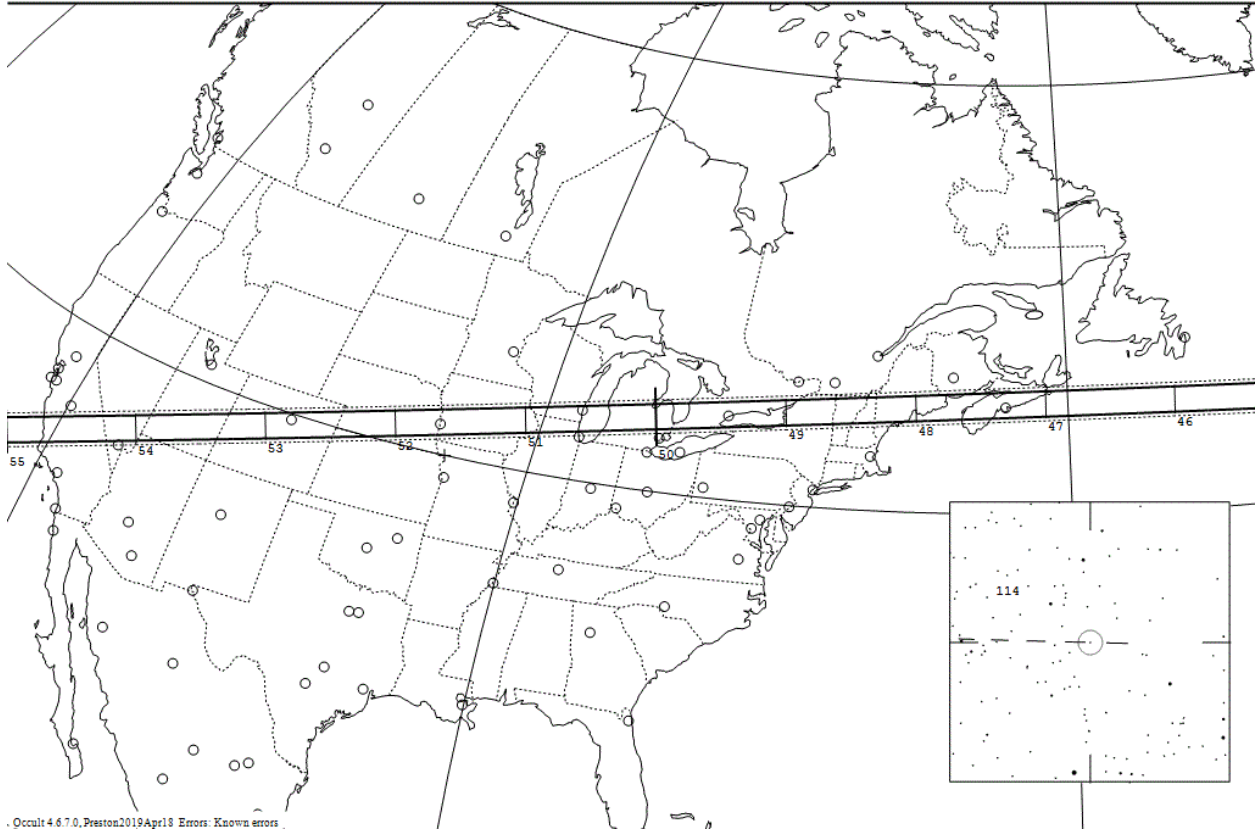


171 Ophelia occults TYC 1308-01881-1 on 2020 Nov 16 from 5h 37m to 5h 58m UT

Star:  
Mag V = 9.6  
RA = 5 24 40.8263 (BCRS)  
Dec = 21 30 37.902  
[of Date: 5 25 56, 21 31 42]  
Prediction of 2019 Apr 25.0

Max Duration = 12.1 secs  
Mag Drop = 3.4 (0.0r)  
Sun : Dist = 153°  
Moon: Dist = 167°  
illum = 2 %  
E 0.028"x 0.012" in PA 84

Asteroid: (in DAMIT, ISAM)  
Mag = 12.9  
Dia = 115km, 0.075"  
Parallax = 4.149"  
Hourly dRA = -1.591s  
dDec = -0.52"



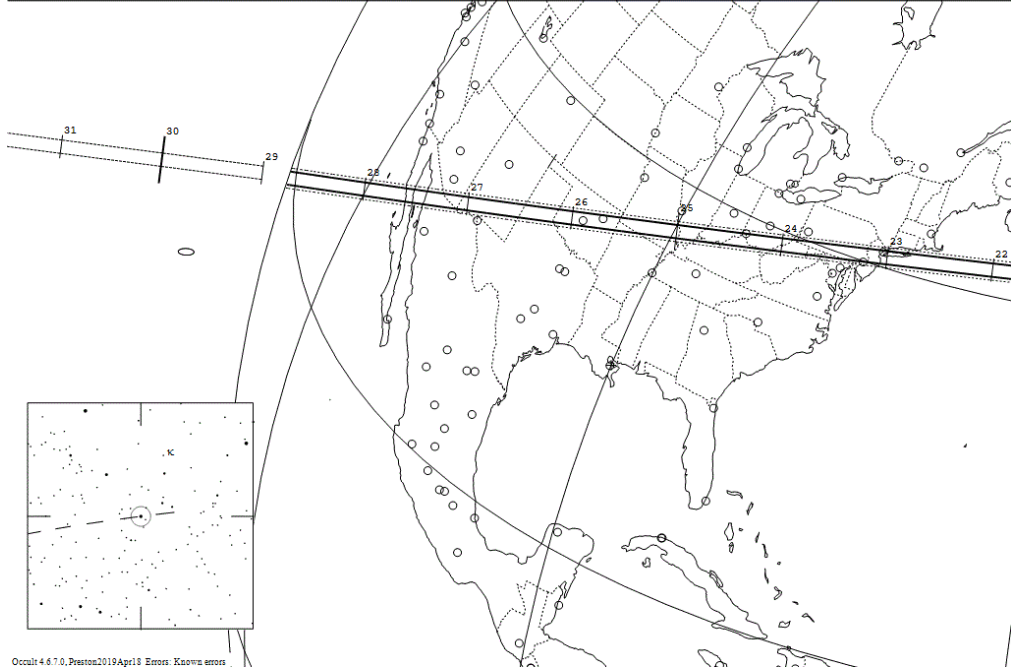
Occult 4.67.0, Preston2019Apr18 Errors: Known errors

333 Badenia occults HIP 29793 on 2020 Nov 28 from 4h 7m to 4h 29m UT

Star:  
 Mag V = 7.2  
 RA = 6 16 22.1920 (BCRS)  
 Dec = 28 51 6.827  
 [of Date: 6 17 42, 28 50 36]  
 Prediction of 2019 Apr 26.0

Max Duration = 7.9 secs  
 Mag Drop = 6.6 (0.0r)  
 Sun: Dist = 35°  
 Moon: Dist = 52°  
 Illum = 95%  
 E 0.031" x 0.013" in PA 93

Asteroid:  
 Mag = 13.9  
 Dia = 76m, 0.053"  
 Parallax = 4.454"  
 Hourly dRA = -1.809s  
 dDec = 3.07"



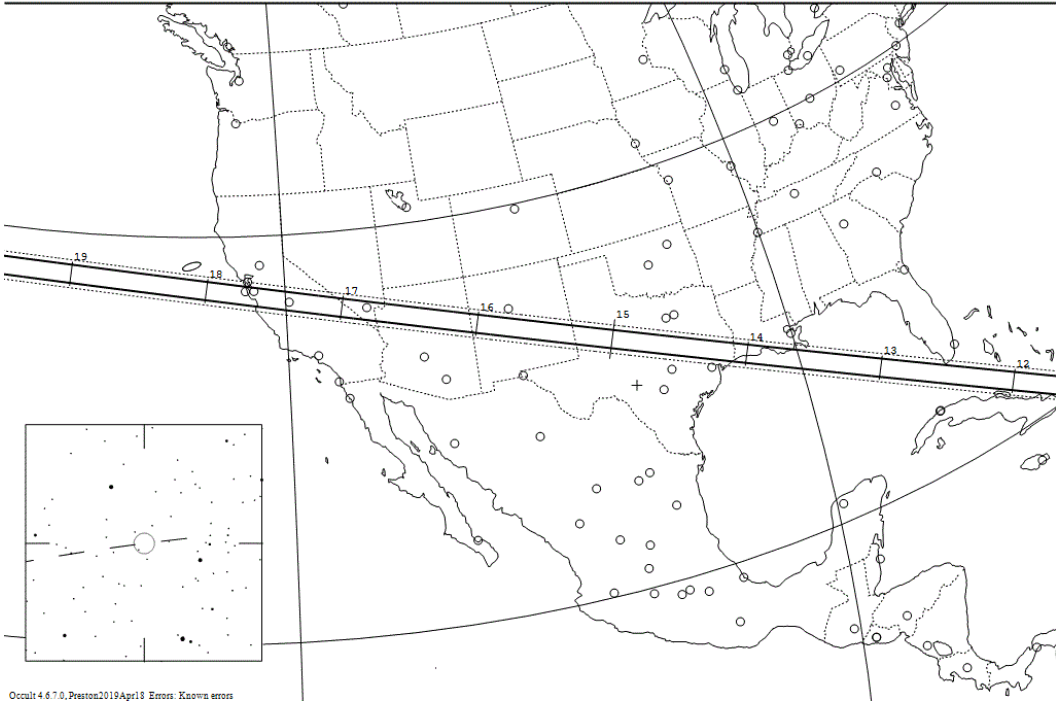
Occult 4.6.7.0, Preston2019 April 8 Errors: Known errors

250 Bettina occults TYC 2384-00604-1 on 2020 Nov 28 from 8h 9m to 8h 27m UT

Star:  
 Mag V = 9.1  
 RA = 4 25 55.0072 (BCRS)  
 Dec = 36 2 42.249  
 [of Date: 4 27 19, 36 5 30]  
 Prediction of 2019 Apr 26.0

Max Duration = 8.3 secs  
 Mag Drop = 2.6 (0.0r)  
 Sun: Dist = 165°  
 Moon: Dist = 32°  
 Illum = 95%  
 E 0.039" x 0.014" in PA 72

Asteroid: (in DMIT, ISAM)  
 Mag = 11.9  
 Dia = 99m, 0.076"  
 Parallax = 4.893"  
 Hourly dRA = -2.682s  
 dDec = 4.21"

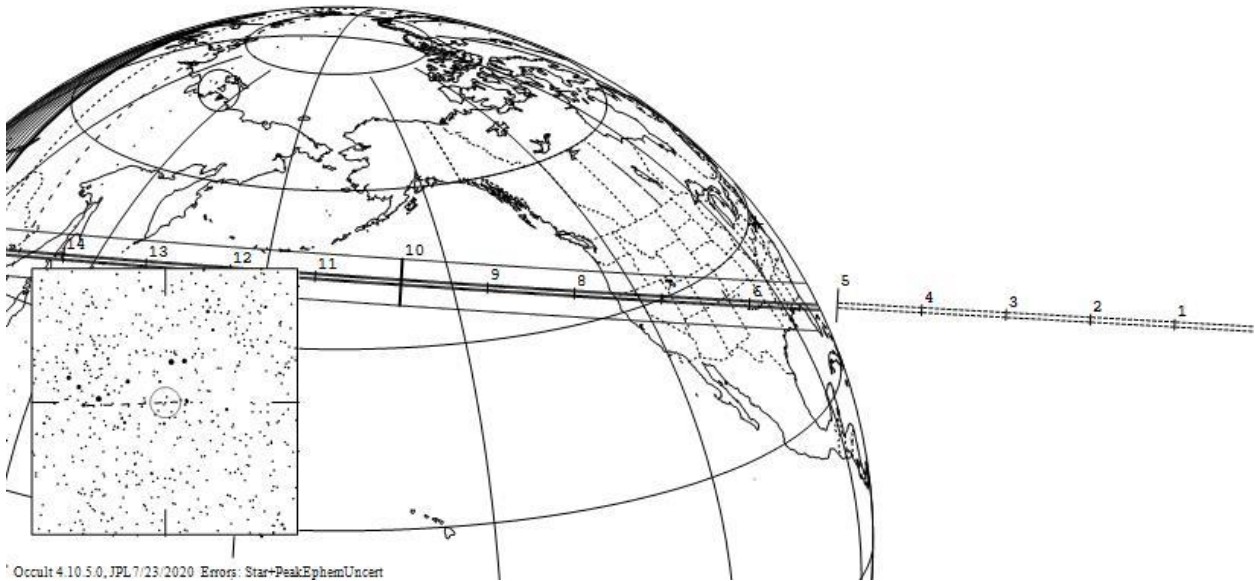


Occult 4.6.7.0, Preston2019 April 8 Errors: Known errors

60558 Echeclus occults UCAC4 544-017918 on 2021 Jan 19 from 9h 5m to 9h 16m UT

Star:	Max Duration = 3.5 secs	Asteroid:
Mag V = 11.0; B = 12.0; R = 10.4	Mag Drop = 8.8 (8.9r)	Mag = 19.7
RA = 5 43 5.0106 (astrometric)	Sun : Dist = 146°	Dia = 59 ±10km, 0.009"
Dec = 18 40 37.092	Moon: Dist = 73°	Parallax = 0.930"
[of Date: 5 44 19, 18 41 8]	: illum = 36 %	Hourly dRA = -0.620s
Prediction of 2020 Jul 23.0	E 0.036"x 0.036" in PA 90	dDec = 0.50"

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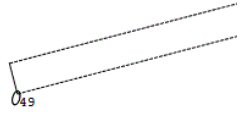
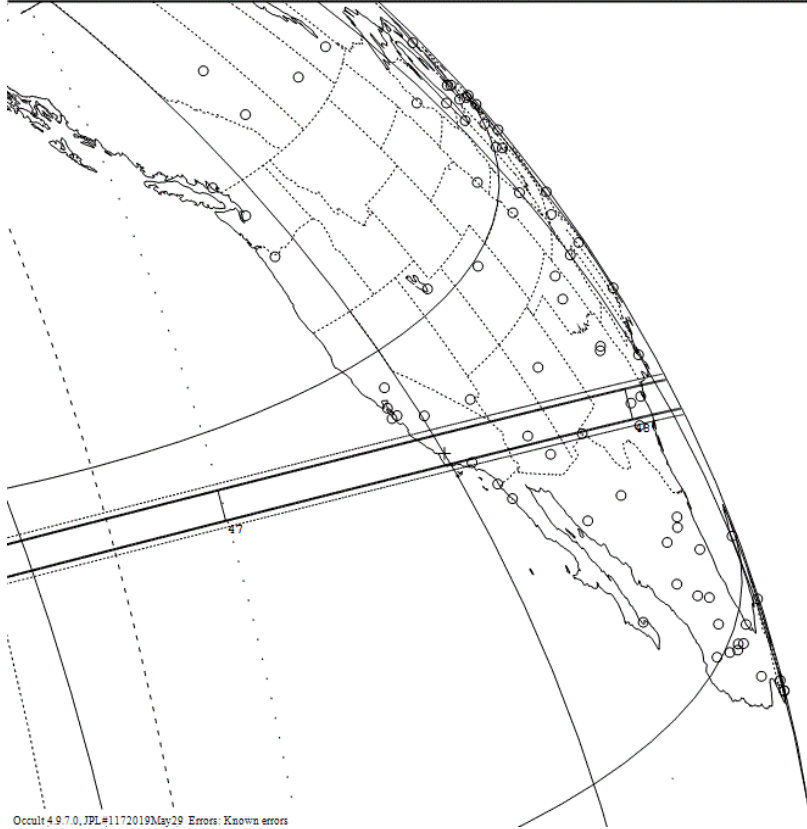
Occult 4.10.5.0, JPL 7/23/2020 Errors: Star+PeakEphemUncert

8 Flora occults HIP 19975 on 2021 Mar 18 from 4h 41m to 4h 48m UT

Star:  
Mag V = 7.2  
RA = 4 17 1.2290 (BCRS)  
Dec = 19 40 30.470  
[of Date: 4 18 14, 19 43 32]  
Prediction of 2020 Mar 7.0

Max Duration = 4.6 secs  
Mag Drop = 3.5 (0.0r)  
Sun : Dist = 68°  
Moon: Dist = 15°  
illum = 20 %  
E 0.021"x 0.010" in PA 15

Asteroid: (in DAMIT, ISAM)  
Mag = 10.7  
Dia = 144km, 0.093"  
Parallax = 4.150"  
Hourly dRA = 5.038s  
dDec = 18.64"



Occult 4970.JPL#1172019May29 Errors: Known errors

## 2021-Apr-2 Jupiter Occults mag 5.8 star 44 Capricorni

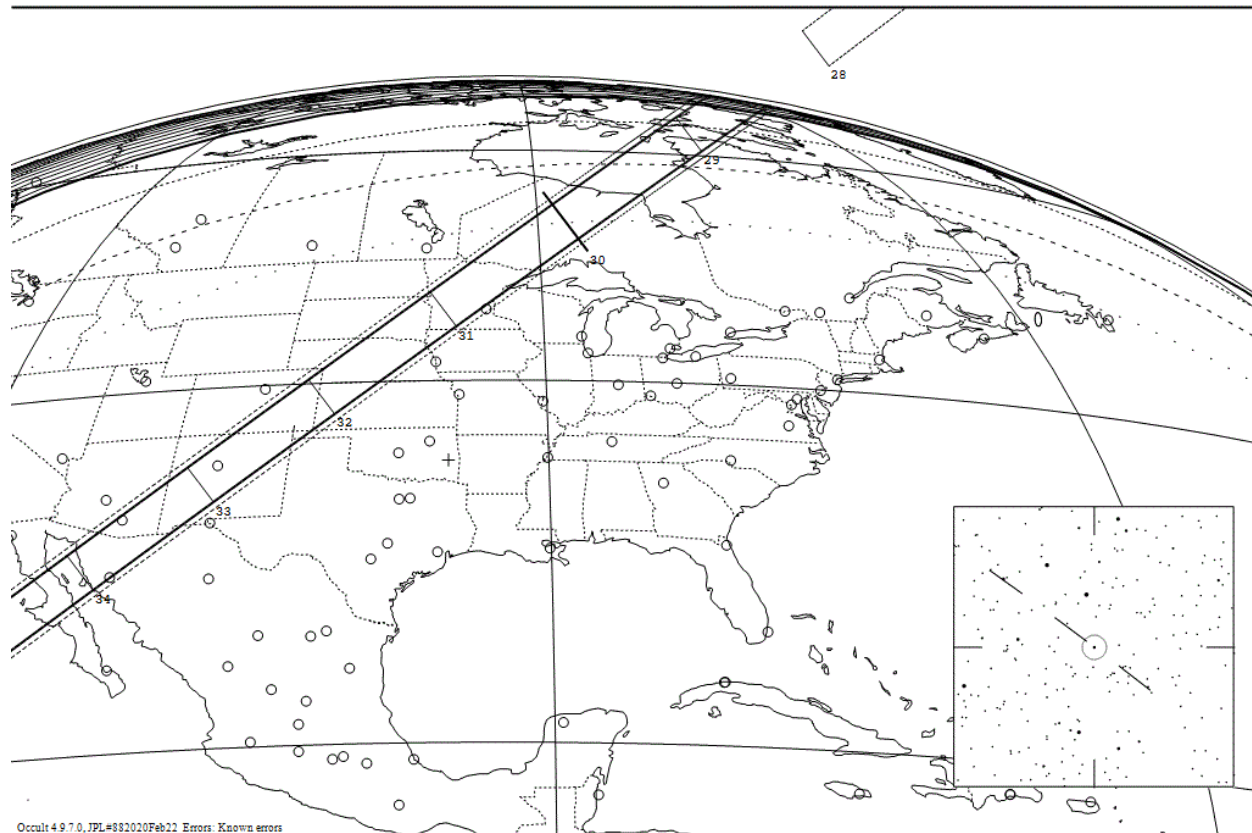
- Duration of 72 minutes
- Reappearance visible from much of the Eastern USA and Canada

6 Hebe occults HIP 95949 on 2021 Jul 26 from 5h 28m to 5h 43m UT

Star:  
Mag V = 8.2  
RA = 19 30 44.3919 (BCRS)  
Dec = -11 51 35.914  
[of Date: 19 31 57, -11 48 50]  
Prediction of 2020 Mar 7.0

Max Duration = 18.4 secs  
Mag Drop = 0.9 (0.0 $\sigma$ )  
Sun : Dist = 165°  
Moon: Dist = 41°  
illum = 94 %  
E 0.034"x 0.016" in PA 177

Asteroid: (in DAMIT, ISAM)  
Mag = 8.4  
Dia = 200km, 0.219"  
Parallax = 6.977"  
Hourly dRA = -2.323s  
dDec = -25.91"



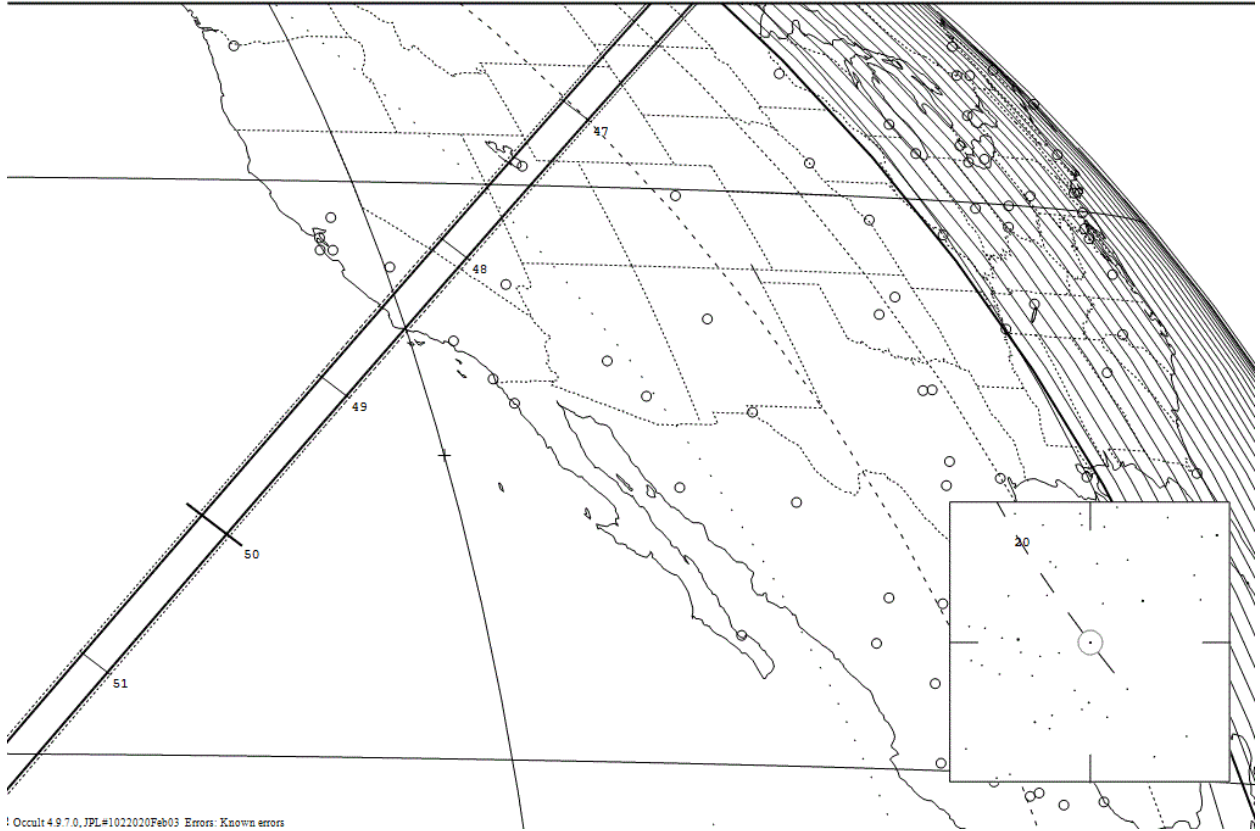


191 Kolga occults HIP 3957 on 2021 Sep 7 from 11h 45m to 12h 8m UT

Star:  
Mag V = 8.7; B = 9.5; R = 8.3  
RA = 0 50 47.5461 (BCRS)  
Dec = -1 55 20.661  
[of Date: 0 51 54, -1 48 14]  
Prediction of 2020 Mar 7.0

Max Duration = 10.7 secs  
Mag Drop = 4.3 (4.3r)  
Sun : Dist = 153°  
Moon: Dist = 160°  
illum = 0 %  
E 0.020"x 0.004" in PA 14

Asteroid: (in DAMIT)  
Mag = 13.0  
Dia = 101km, 0.081"  
Parallax = 5.112"  
Hourly dRA = -1.101s  
dDec = -21.60"



! Occult 4970.JPL#1022020Feb03 Errors: Known errors

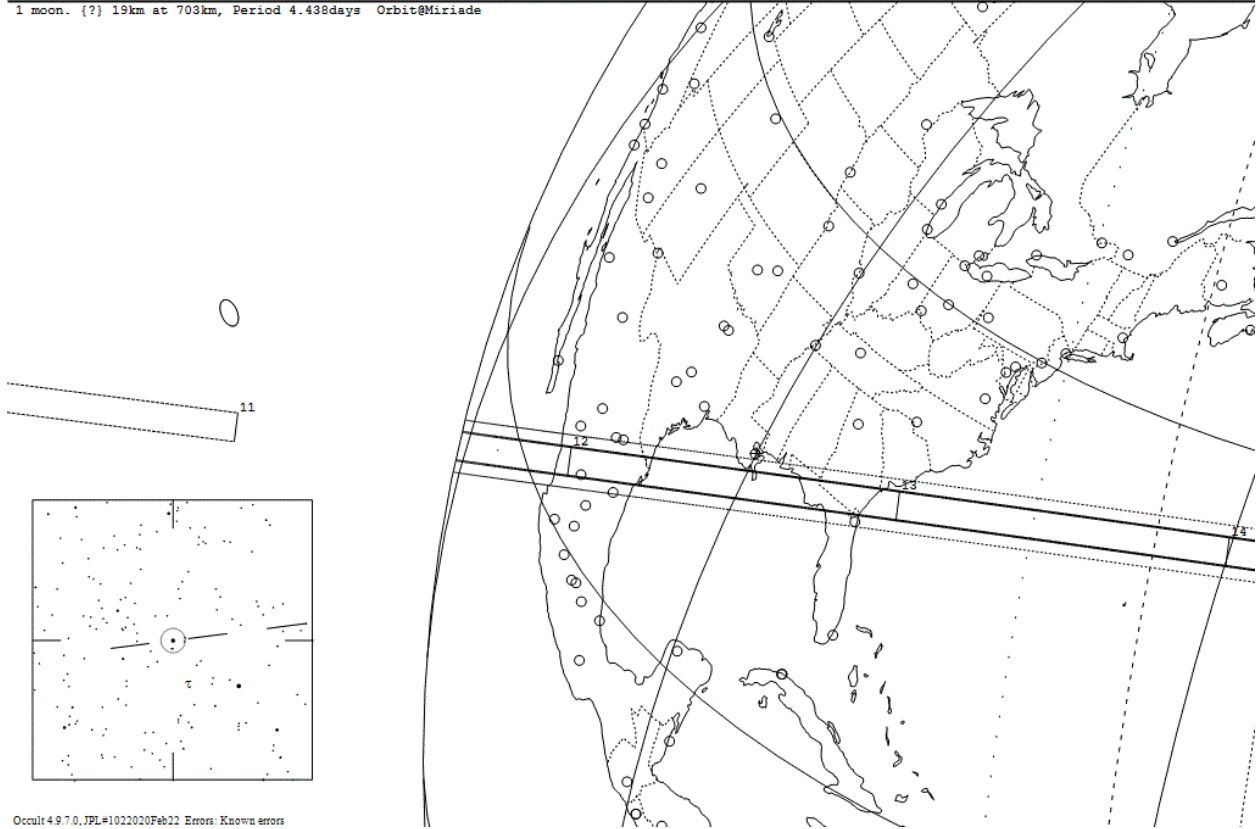
762 Pulcova occults HIP 34733 on 2021 Sep 20 from 9h 12m to 9h 20m UT

Star:  
 Mag V = 7.1  
 RA = 7 11 28.9188 (BCRS)  
 Dec = 30 28 21.501  
 [of Date: 7 12 50, 30 26 11]  
 Prediction of 2020 Mar 7.0

Max Duration = 5.1 secs  
 Mag Drop = 6.9 (0.0r)  
 Sun : Dist = 72°  
 Moon: Dist = 116°  
 : illum = 99 %  
 E 0.029"x 0.016" in PA 157

Asteroid: (in DAMIT, ISAM)  
 Mag = 14.0  
 Dia = 132km, 0.059"  
 Parallax = 2.871"  
 Hourly dRA = 3.211s  
 dDec = -5.35"

1 moon. {?} 19km at 703km, Period 4.438days Orbit@Mirriade



Occult 49-70.JPL#1022020Feb22 Errors: Known errors

# 2021-Oct-20 : SWRI Campaign for occultation by Eurybates

<http://lucy.swri.edu/occ/20211020Eurybates.html>



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## Eurybates Occultation 2021-10-20 ( $G^* = 12.3$ )

The interactive map below shows our current prediction for the stellar occultation by (3548) Eurybates on 2021 October 20 UT. The prediction is based on a Gaia DR2 position for the star, corrected for parallax and proper motion, and the v20200205215427 orbit estimate for Eurybates, which has a 1-sigma cross-track uncertainty of 20.0 km.

Geocentric mid-time of the event is 12:03:27 UT. Star position is RA 03:56:45.3, Dec +22:24:10 (J2000), and its magnitude is 13.49. Eurybates is moving at 11 km/s with respect to the star and its diameter is estimated to be 66 km, so central chords are expected to last 6.0 seconds.

