

Graphics of Asteroid occultation observations.

2019 July

Introduction

The following graphics plot the 385 best observed Asteroid occultations (which is about 8% of all observed Asteroid occultation events).

The plots have a filename convention concatenating the asteroid number, asteroid name or provisional designation, and occultation date.

The heading for each plot gives the following information:

Line 1

Object identification, event date, ellipse size and orientation, and associated uncertainties.

Line 2

The offset of the shadow from the center of the earth, and associated uncertainty values.

Line 3 [Only when a double star is involved.]

The Separation and Position Angle of the components of the double star, with associated uncertainty.

Important. In all lines, an uncertainty value is only given if there has been a meaningful calculation of the particular quantity. Where there is no uncertainty value, usually the particular value has been assumed.

The coding used in the plots is as follows:

Event type

- * Disappearance events are plotted as red points.
- * Reappearance events are plotted as green points.
- * Miss events are plotted as grey lines.
- * For some events, the predicted central path is plotted. This is drawn using a purple dashed line.

Observing method

- * Events recorded visually are plotted with a '+'
- * Video/CCD observations are plotted with a small square.
- * Miss events are plotted with a 'x'.

Plot style

The plot is drawn in a manner that depends on the detail that is derived from the observations.

- * For the best-observed events, the observations are drawn without any best-fit ellipse, or joining pairs of observations. This better enables the irregularities in the asteroid profile to be visible.
- * For well-observed events, a best-fit ellipse is drawn through the observations. The ellipse illustrates the shape of the asteroid.
- * For poorly-observed events, a gray line joins the events of each observer. That is, it shows the time during

which the star was invisible to the observer.

Note: In a few cases, if the observed chord indicates that the diameter of the asteroid was larger than expected, a plot with only a single chord may show a circle fitted to the ends of the chord. Ordinarily a fit will not be made to a single chord.

Double stars

For a small number of events, a double star is involved. When this occurs, the plot includes a representation of the double star, drawn on the same projected scale as the plot of the asteroid.

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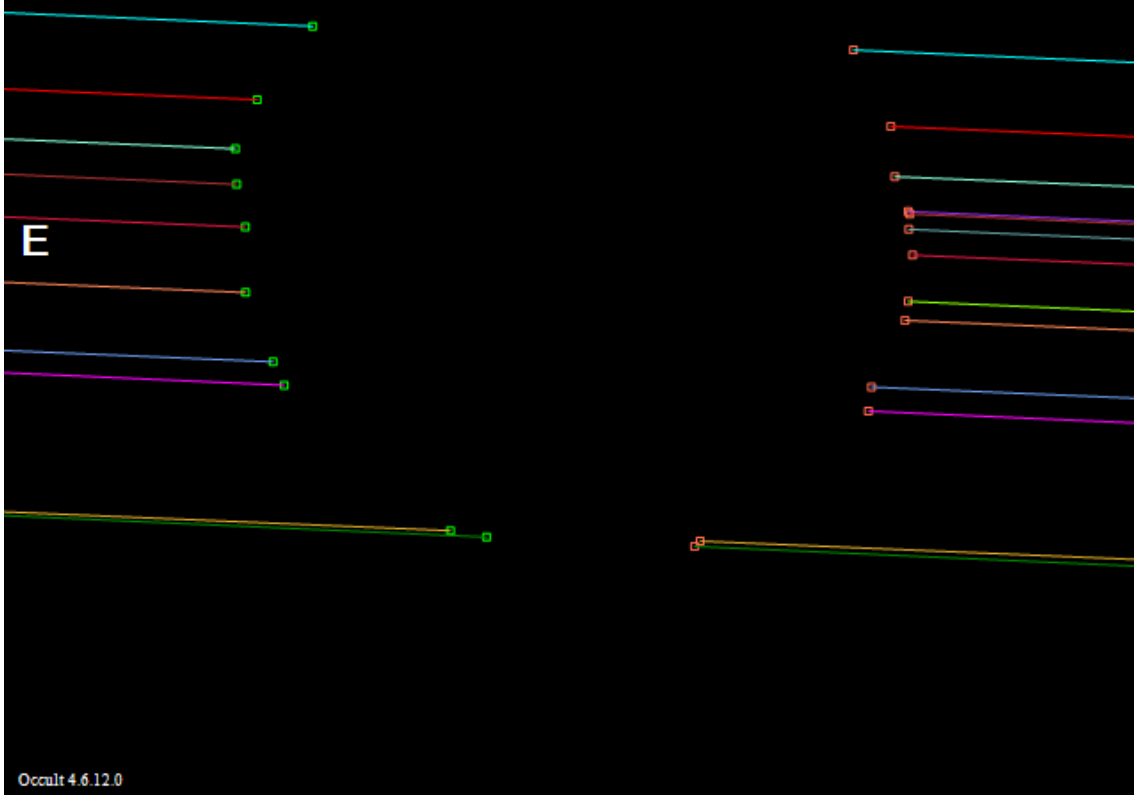
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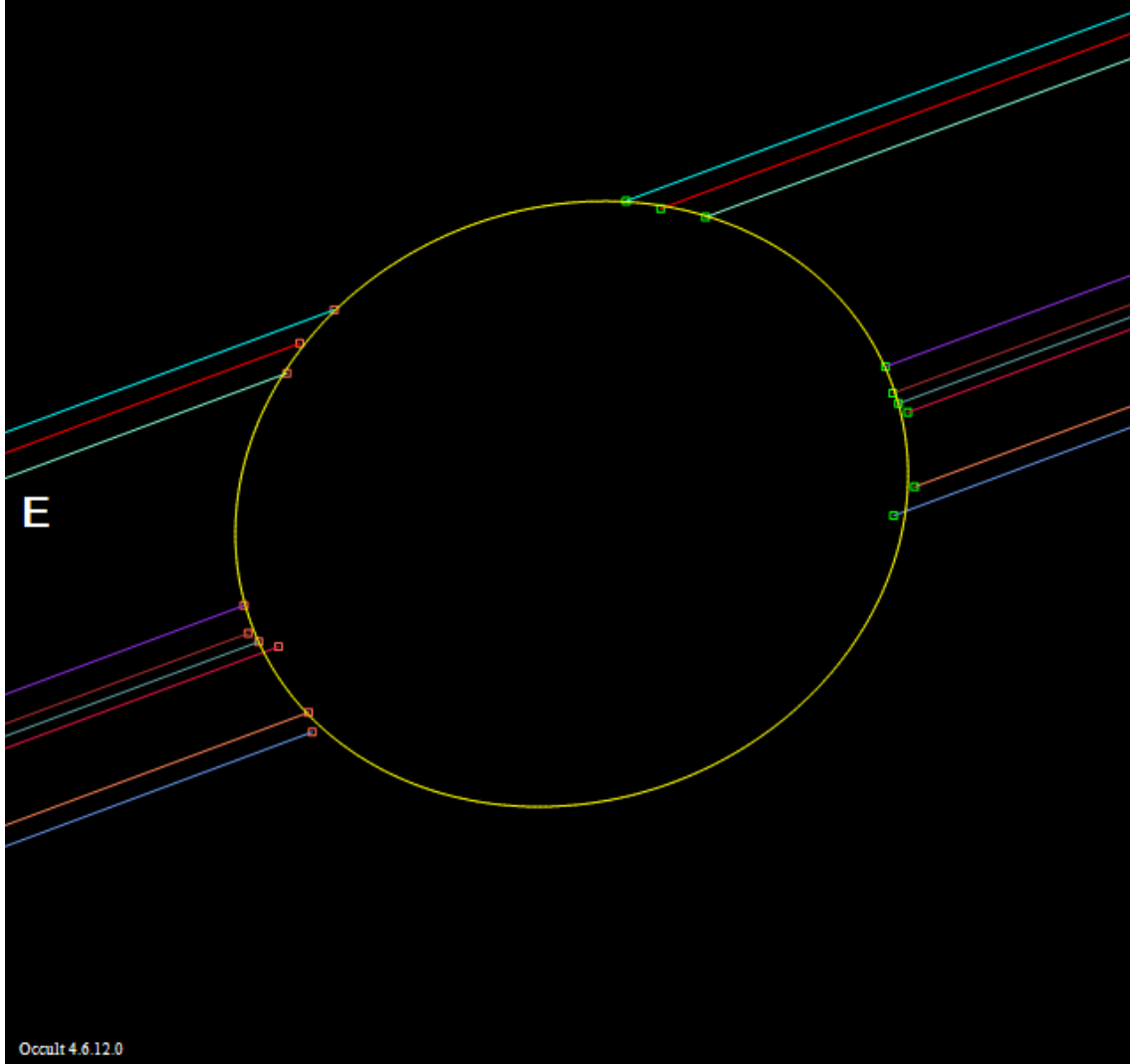
1_Ceres_1984Nov13

(1) Ceres 1984 Nov 13 $959.8 \pm 4.6 \times 907.7 \pm 8.3$ km. PA $61.5^\circ \pm 5.8^\circ$
Geocentric X -1581.7 ± 1.5 Y 1769.6 ± 3.8 km **N**



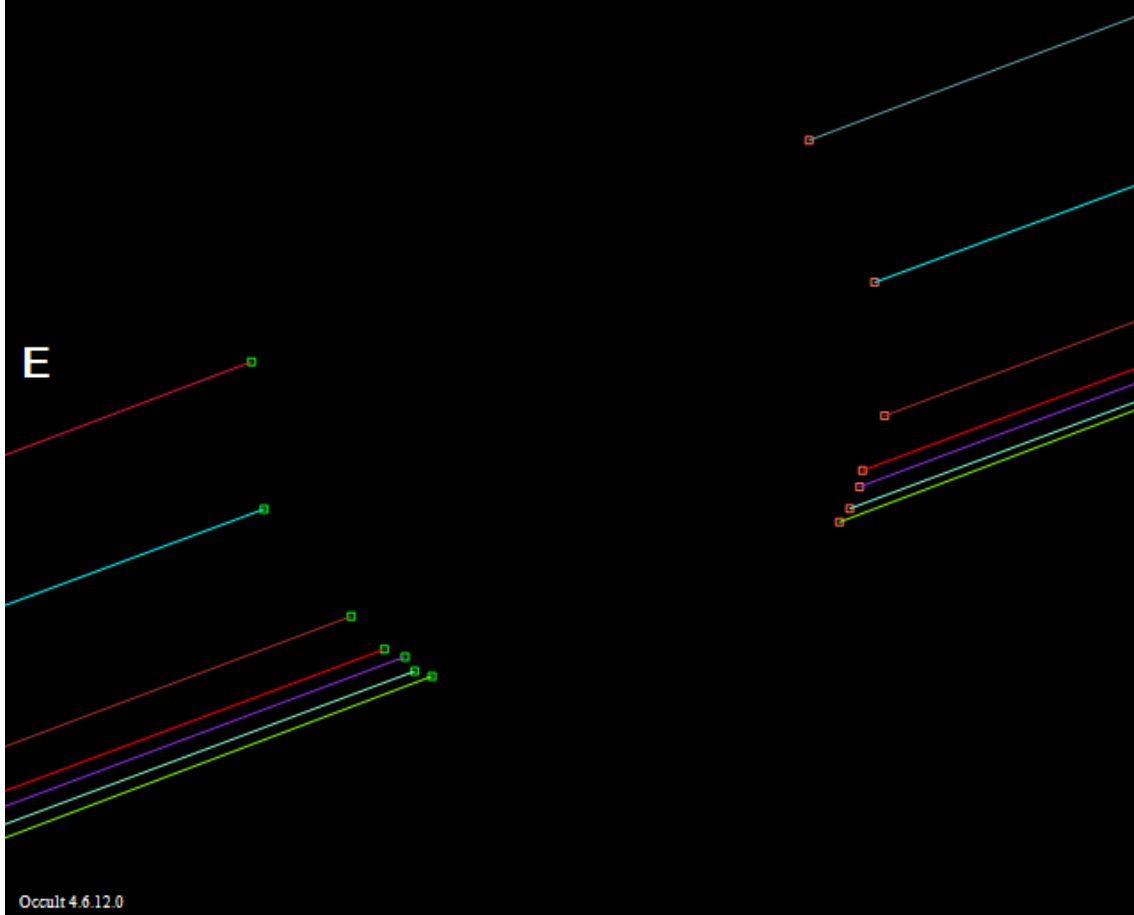
1_Ceres_2013Oct25

(1) Ceres 2013 Oct 25 $967.0 \pm 6.3 \times 837.2 \pm 20.9$ km, PA $111.3^\circ \pm 2.8^\circ$
Geocentric X -4768.6 ± 3.5 Y 3755.2 ± 7.4 km **N**



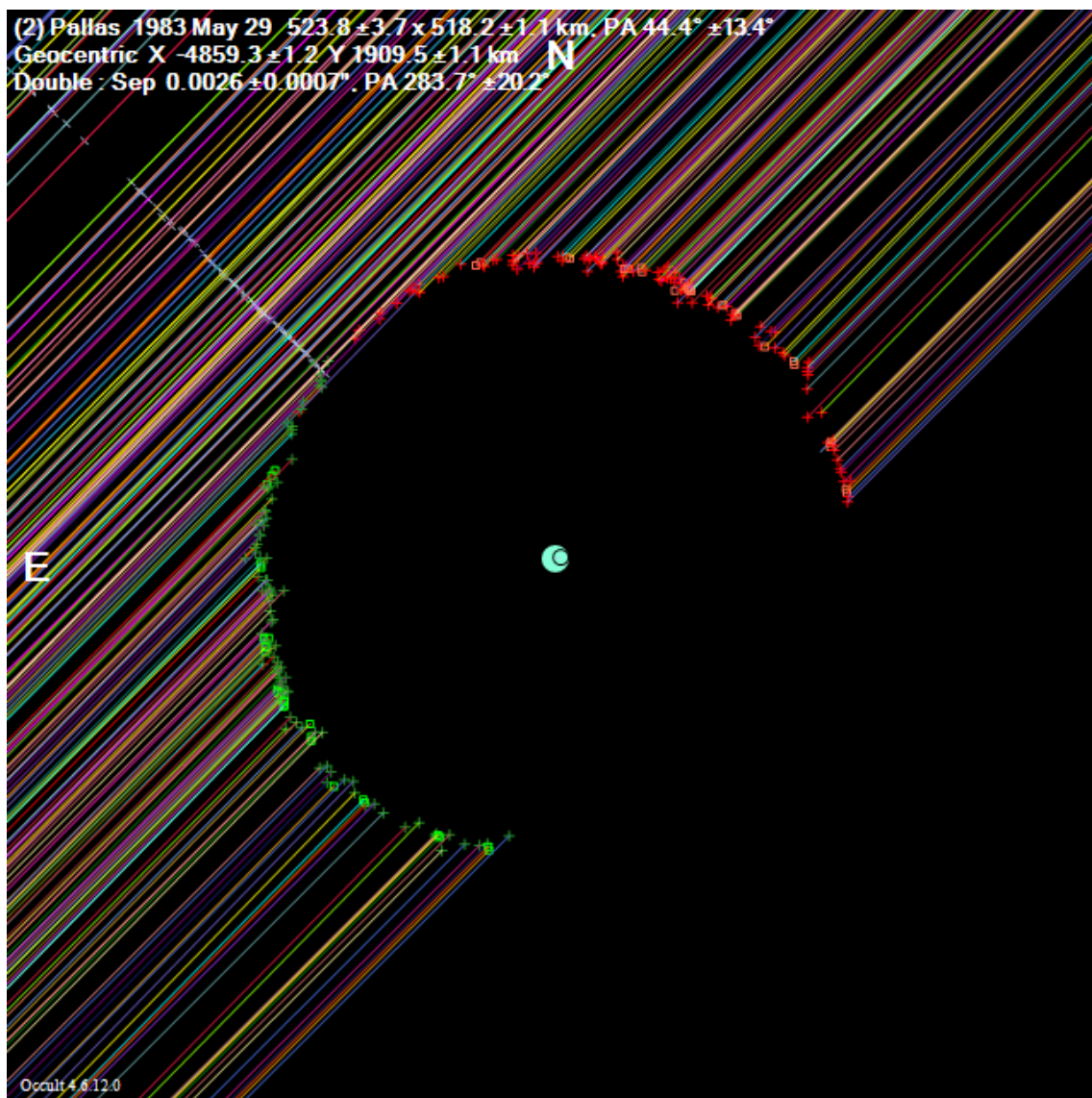
2_Pallas_1978May29

(2) Pallas 1978 May 29 $558.6 \pm 18.2 \times 524.5 \pm 26.9$ km, PA $148.0^\circ \pm 44.2^\circ$
Geocentric X -1936.5 ± 6.4 Y 1973.4 ± 13.1 km **N**



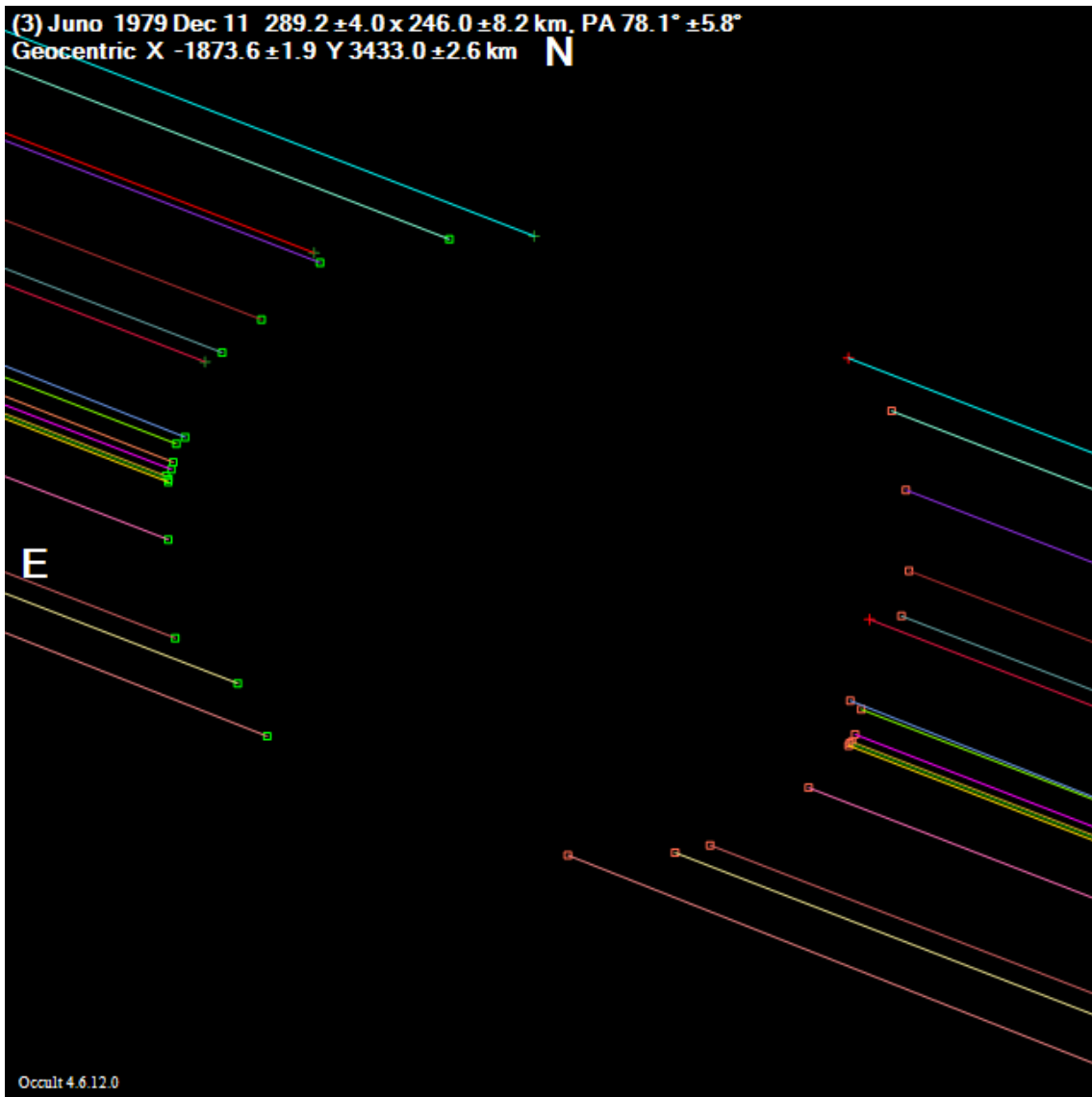
2_Pallas_1983May29

(2) Pallas 1983 May 29 523.8 ± 3.7 x 518.2 ± 1.1 km, PA 44.4° ± 13.4°
Geocentric X -4859.3 ± 1.2 Y 1909.5 ± 1.1 km N
Double Sep 0.0026 ± 0.0007", PA 283.7° ± 20.2°



3_Juno_1979Dec11

(3) Juno 1979 Dec 11 289.2 ± 4.0 x 246.0 ± 8.2 km. PA 78.1° ± 5.8°
Geocentric X -1873.6 ± 1.9 Y 3433.0 ± 2.6 km N

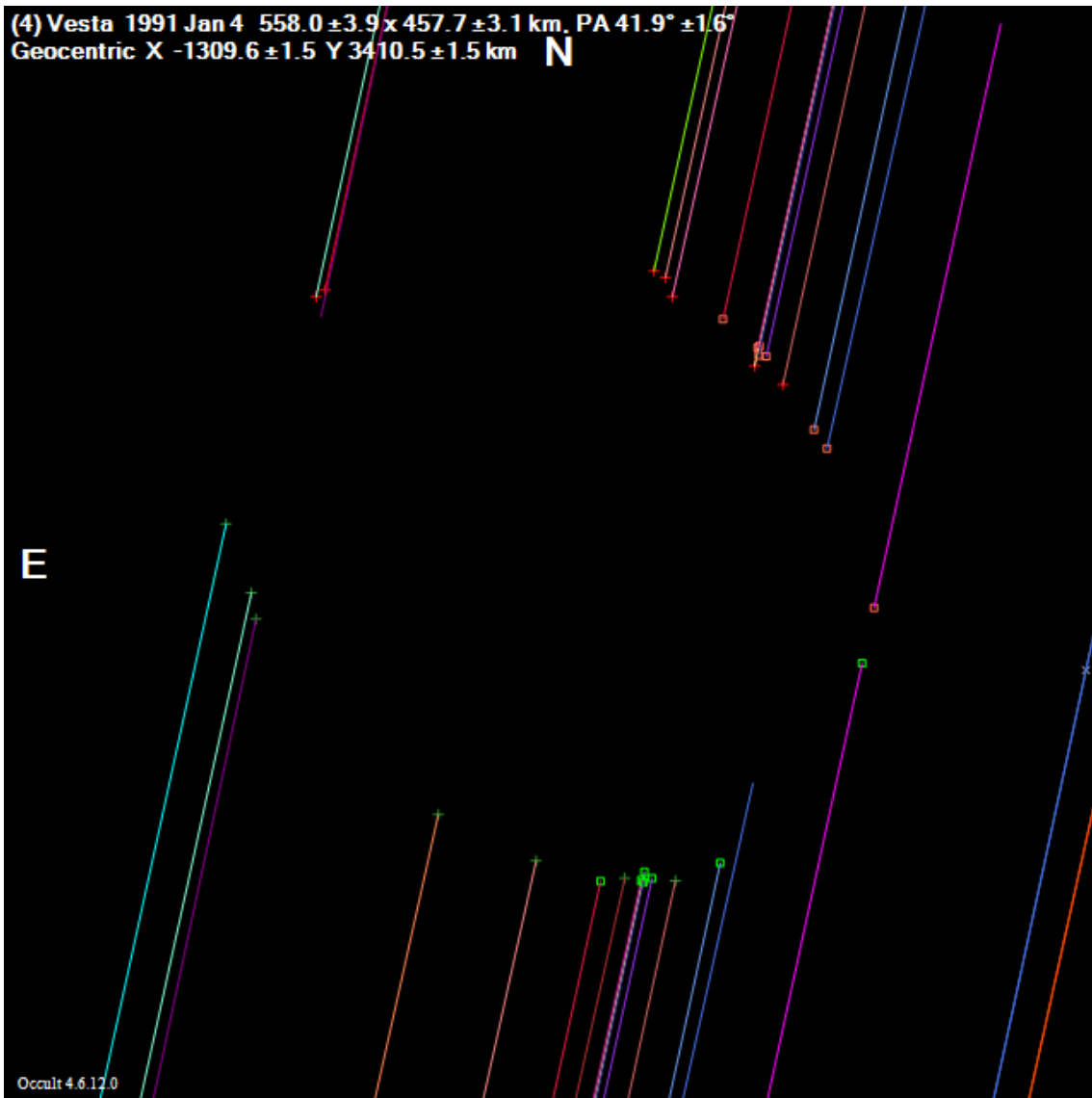


4_Vesta_1991Jan04

(4) Vesta 1991 Jan 4 $558.0 \pm 3.9 \times 457.7 \pm 3.1$ km, PA $41.9^\circ \pm 1.6^\circ$
Geocentric X -1309.6 ± 1.5 Y 3410.5 ± 1.5 km **N**

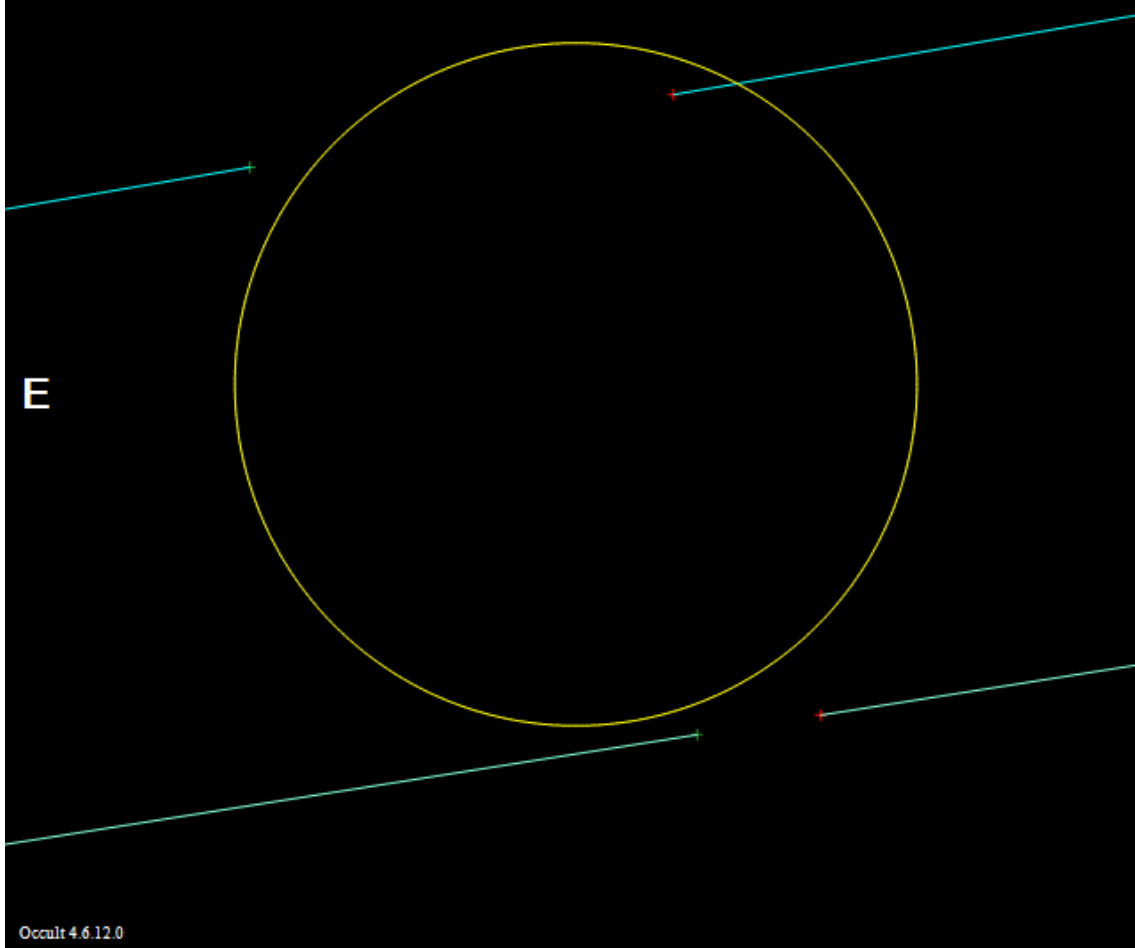
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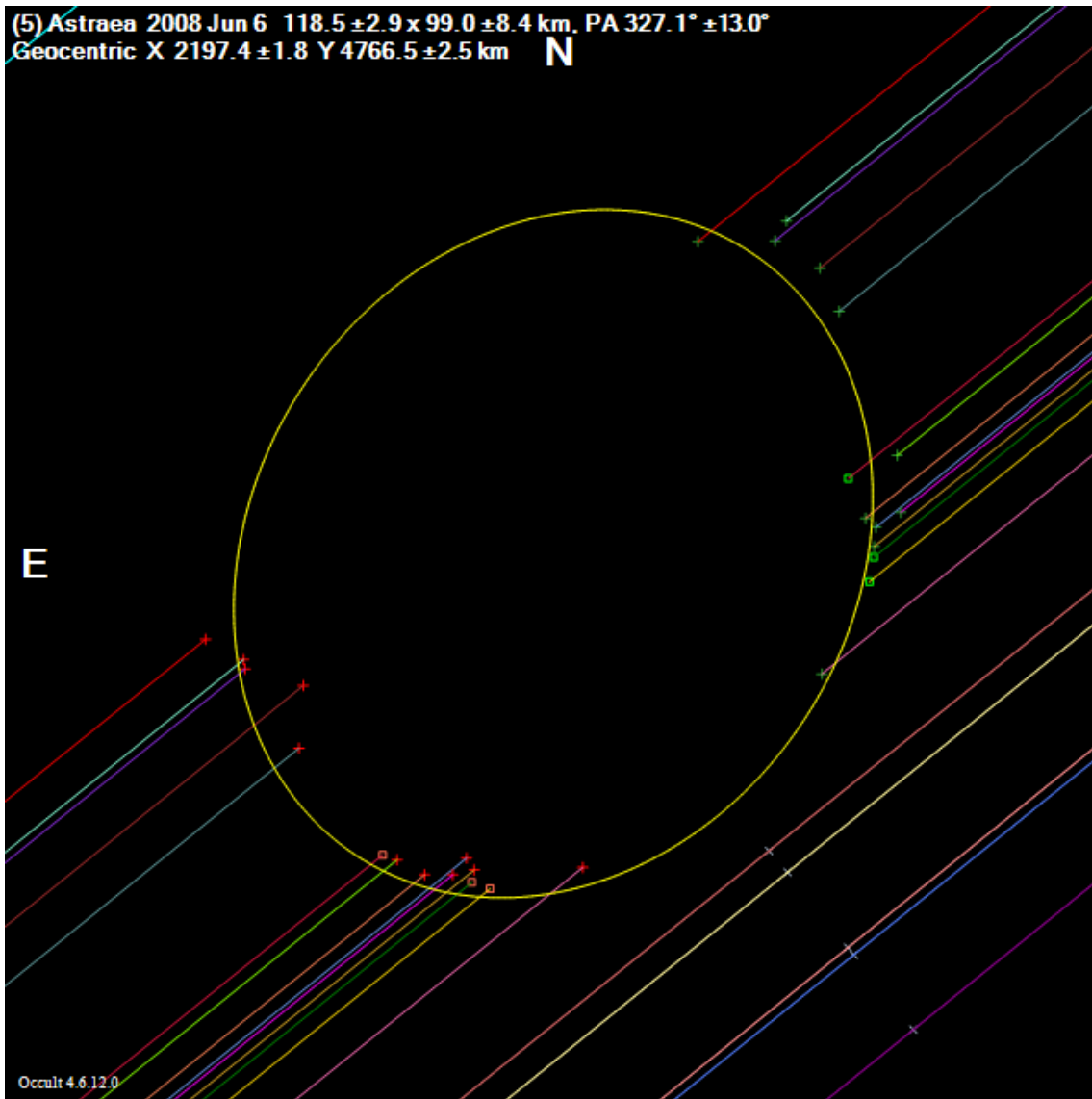
5_Astraea_2000May22

(5) Astraea-2000 May 22 108.0 x 108.0 km. PA 0.0°
Geocentric X 219.9 ± 6.5 Y -2614.2 ± 4.4 km **N**



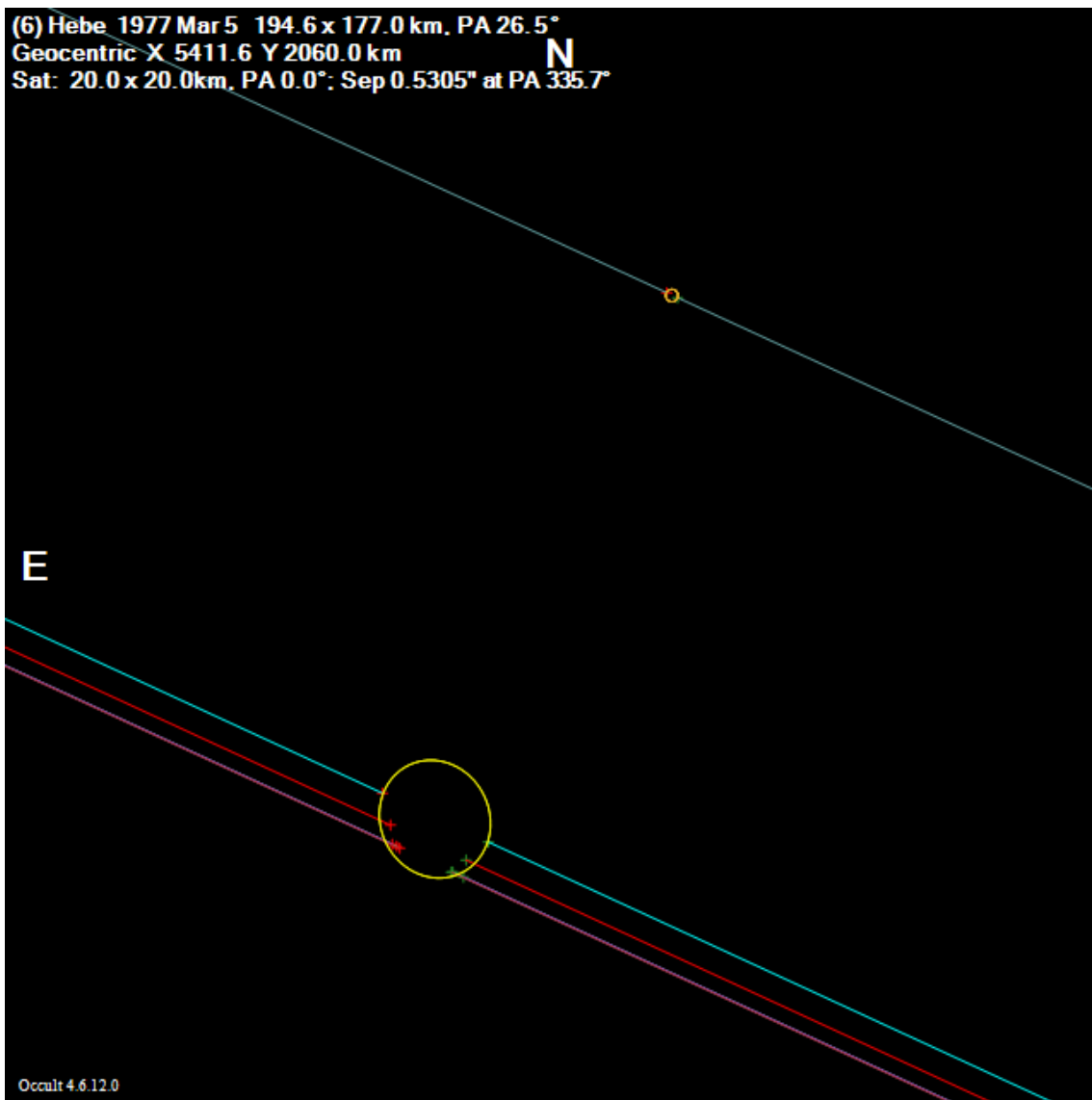
5_Astraea_2008Jun06

(5) Astraea 2008 Jun 6 $118.5 \pm 2.9 \times 99.0 \pm 8.4$ km, PA $327.1^\circ \pm 13.0^\circ$
Geocentric X 2197.4 ± 1.8 Y 4766.5 ± 2.5 km **N**



6_Hebe_1977Mar05

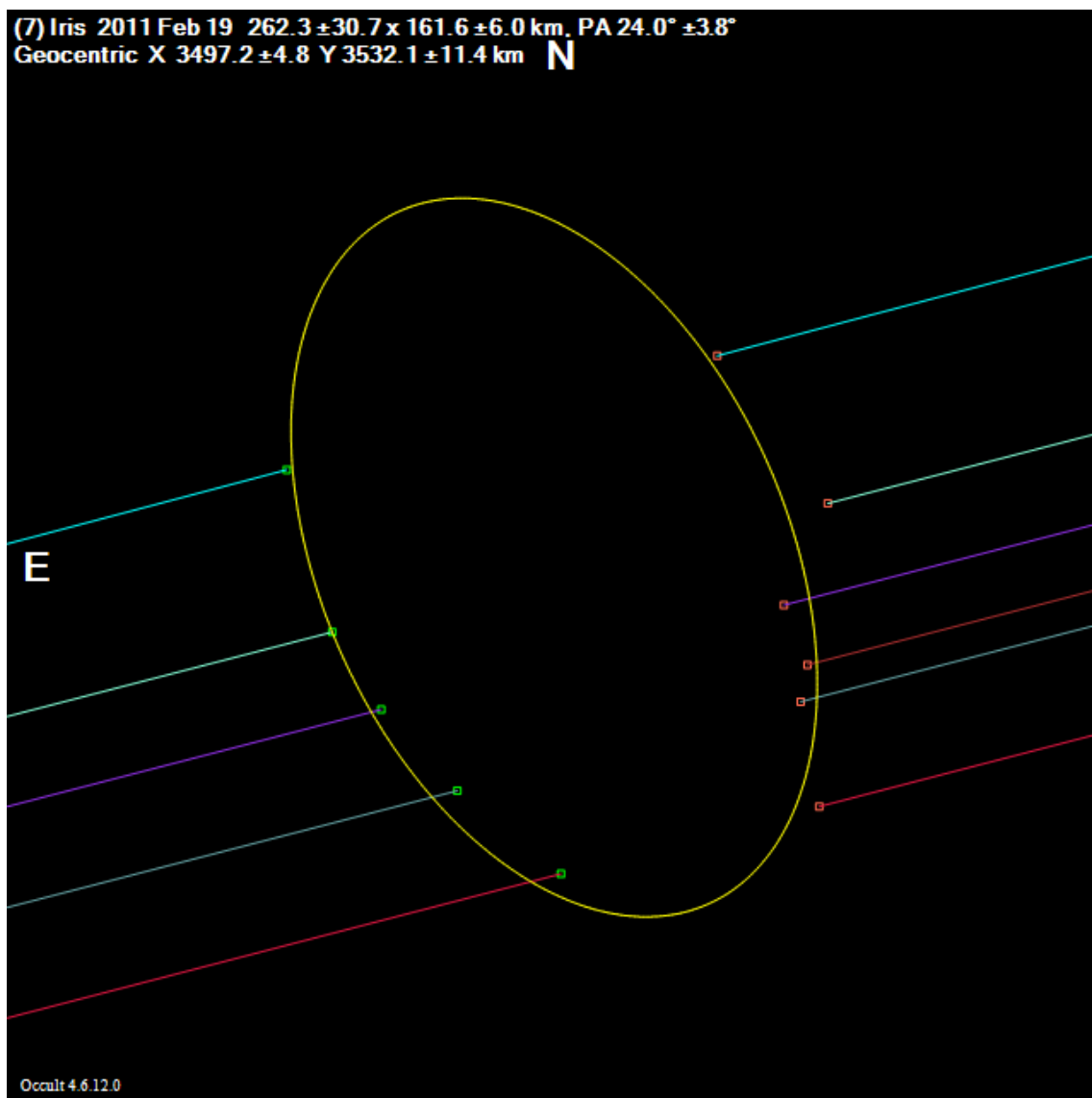
(6) Hebe 1977 Mar 5 194.6 x 177.0 km, PA 26.5°
Geocentric X 5411.6 Y 2060.0 km
Sat: 20.0 x 20.0 km, PA 0.0°; Sep 0.5305" at PA 335.7°



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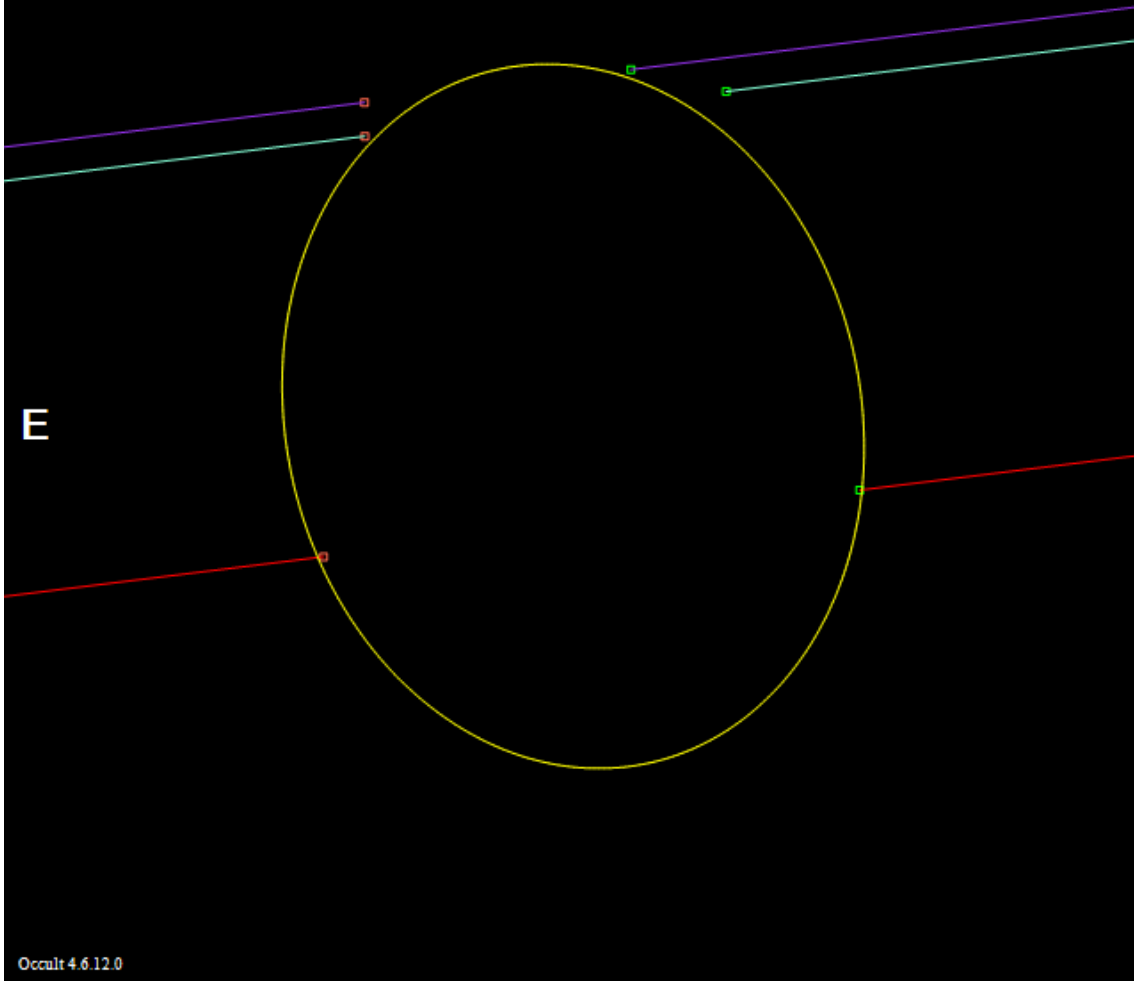
7_Iris_2011Feb19

(7) Iris 2011 Feb 19 $262.3 \pm 30.7 \times 161.6 \pm 6.0$ km, PA $24.0^\circ \pm 3.8^\circ$
Geocentric X 3497.2 ± 4.8 Y 3532.1 ± 11.4 km **N**



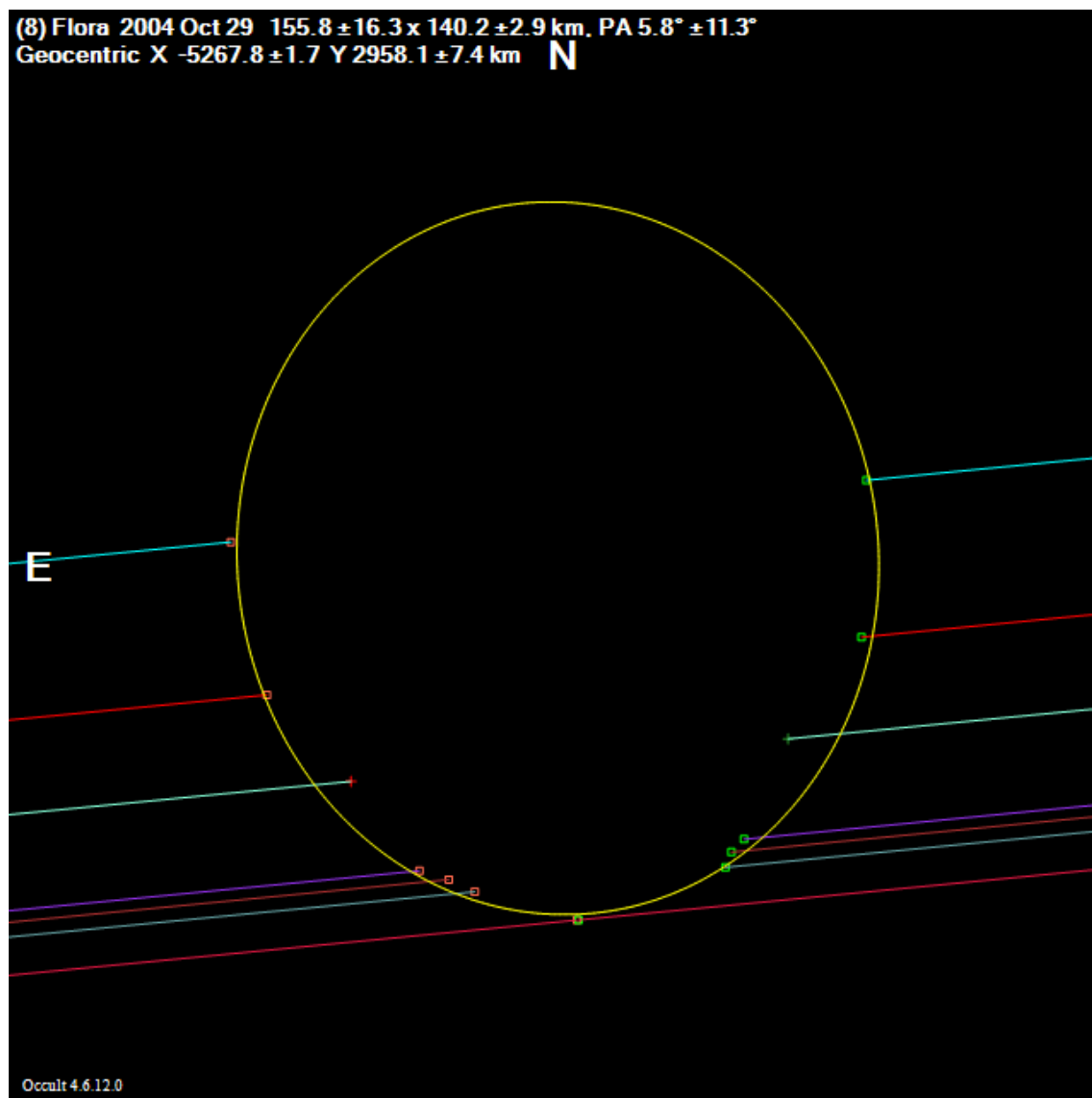
7_Iris_2016Mar01

(7) Iris 2016 Mar 1 $236.0 \pm 65.3 \times 191.4 \pm 18.6$ km, PA $12.4^\circ \pm 10.6^\circ$
Geocentric X -1305.3 ± 5.6 Y 5844.1 ± 25.0 km **N**



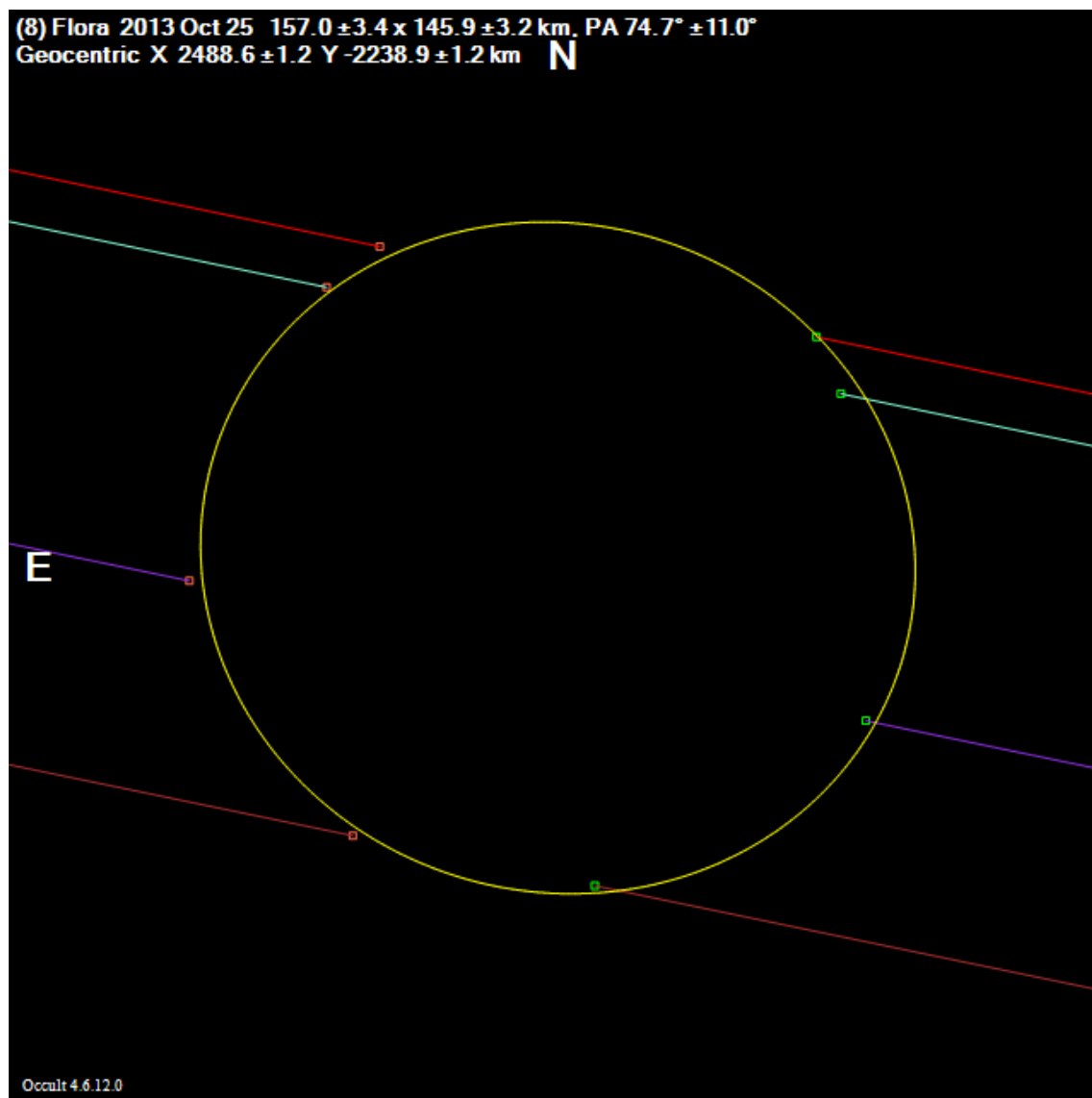
8_Flora_2004Oct29

(8) Flora 2004 Oct 29 $155.8 \pm 16.3 \times 140.2 \pm 2.9$ km. PA $5.8^\circ \pm 11.3^\circ$
Geocentric X -5267.8 ± 1.7 Y 2958.1 ± 7.4 km **N**



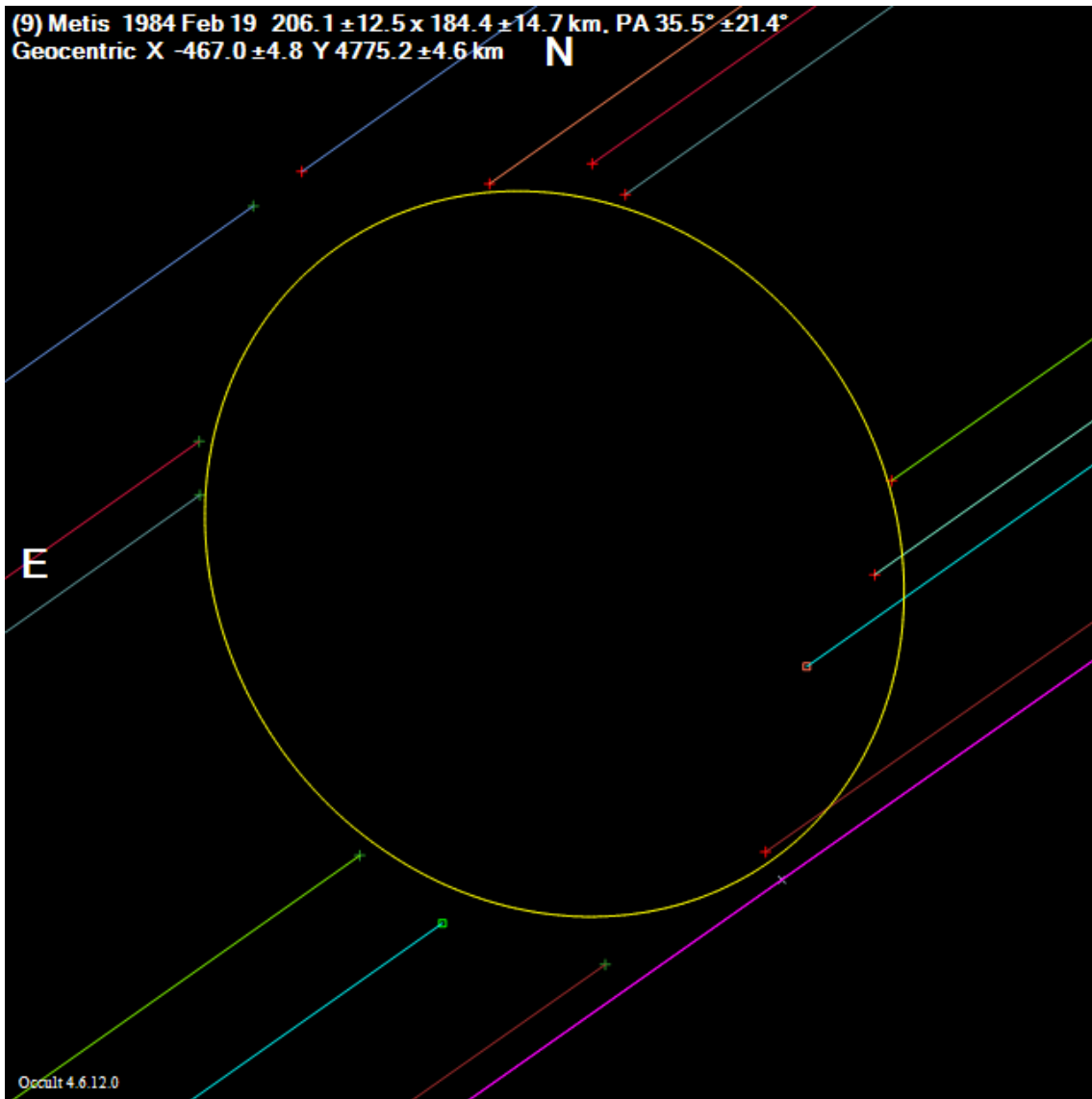
8_Flora_2013Oct25

(8) Flora 2013 Oct 25 $157.0 \pm 3.4 \times 145.9 \pm 3.2$ km. PA $74.7^\circ \pm 11.0^\circ$
Geocentric X 2488.6 ± 1.2 Y -2238.9 ± 1.2 km **N**



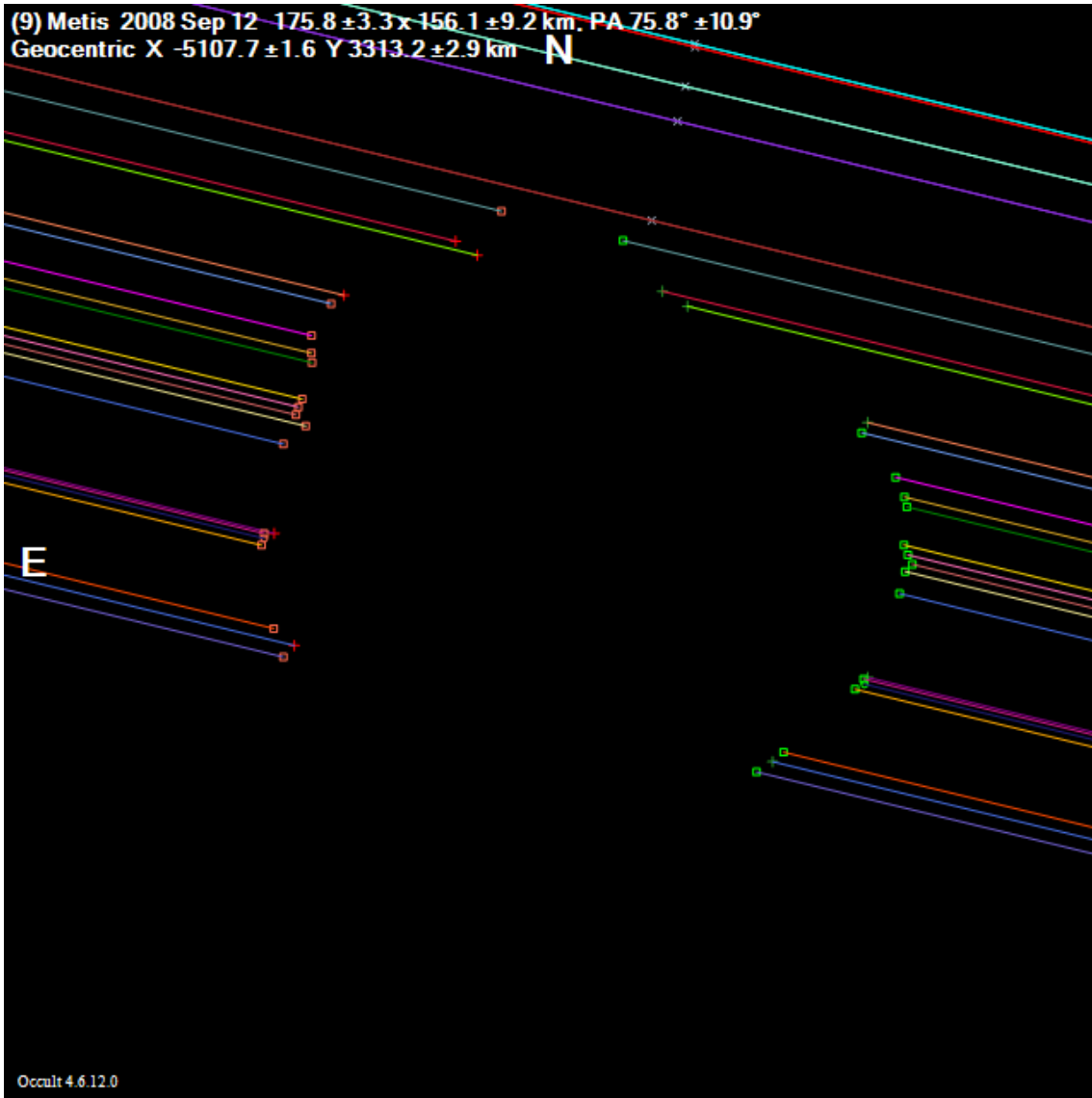
9_Metis_1984Feb19

(9) Metis 1984 Feb 19 $206.1 \pm 12.5 \times 184.4 \pm 14.7$ km, PA $35.5^\circ \pm 21.4^\circ$
Geocentric X -467.0 ± 4.8 Y 4775.2 ± 4.6 km **N**



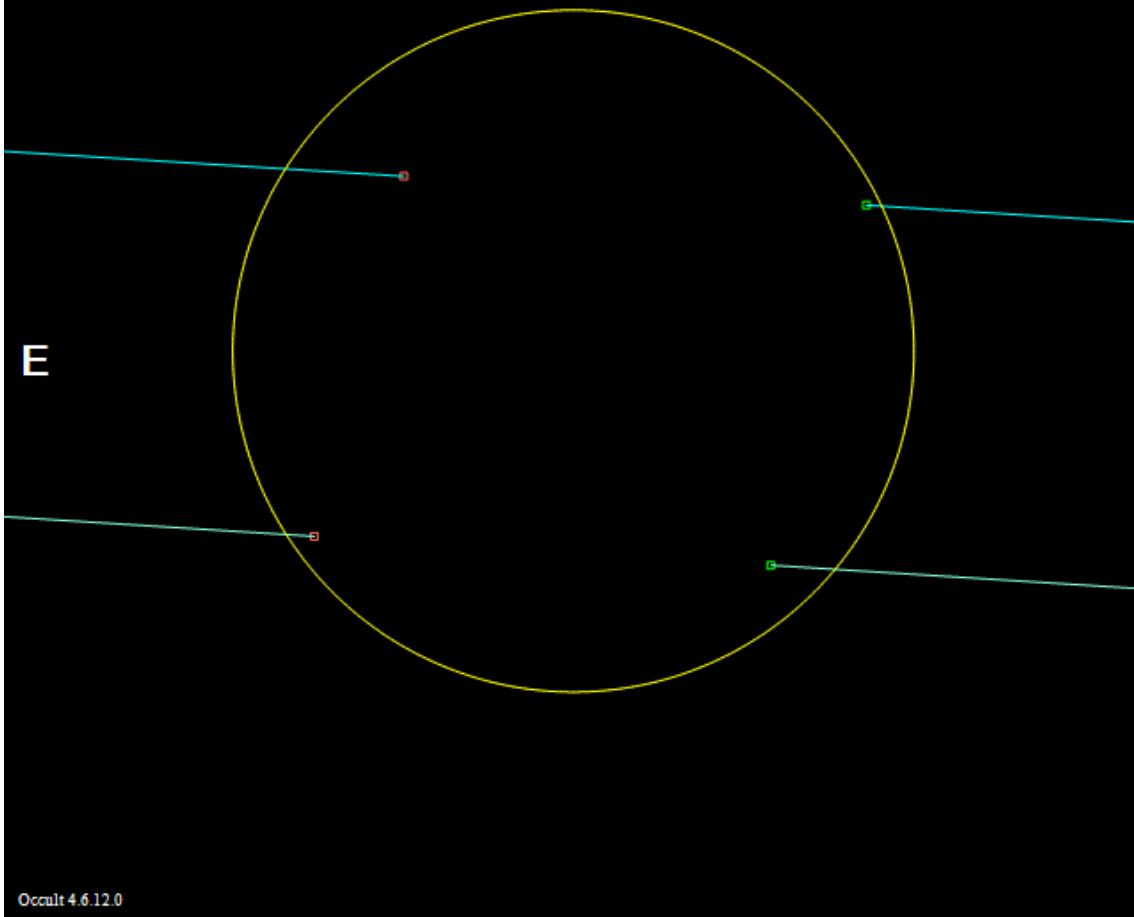
9_Metis_2008Sep12

(9) Metis 2008 Sep 12 $175.8 \pm 3.3 \times 156.1 \pm 9.2$ km. PA $75.8^\circ \pm 10.9^\circ$
Geocentric X -5107.7 ± 1.6 Y 3313.2 ± 2.9 km



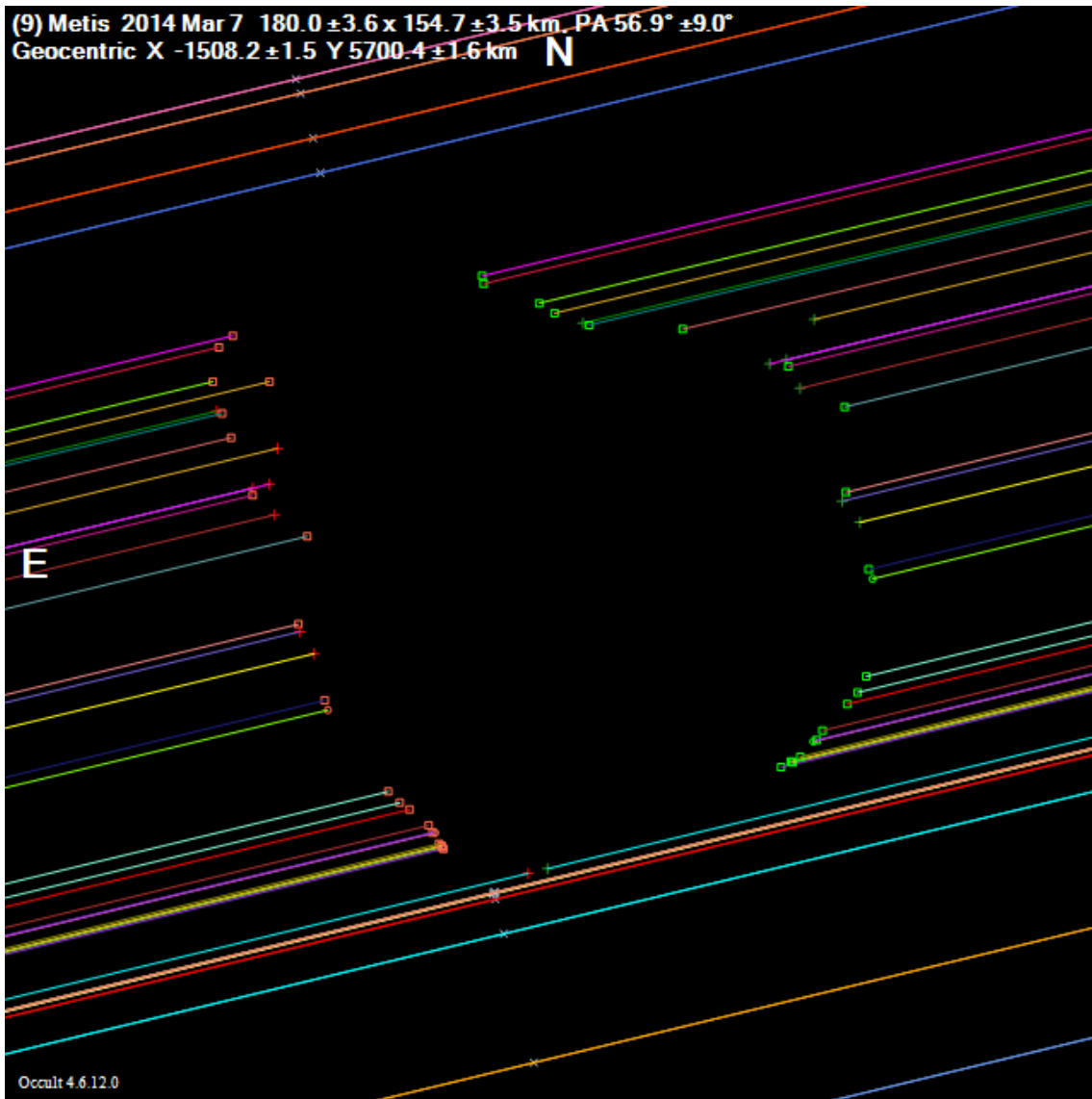
9_Metis_2012Oct08

(9) Metis 2012 Oct 8 180.0 x 180.0 km. PA 0.0°
Geocentric X -2889.3 ± 5.6 Y 1563.9 ± 6.9 km **N**



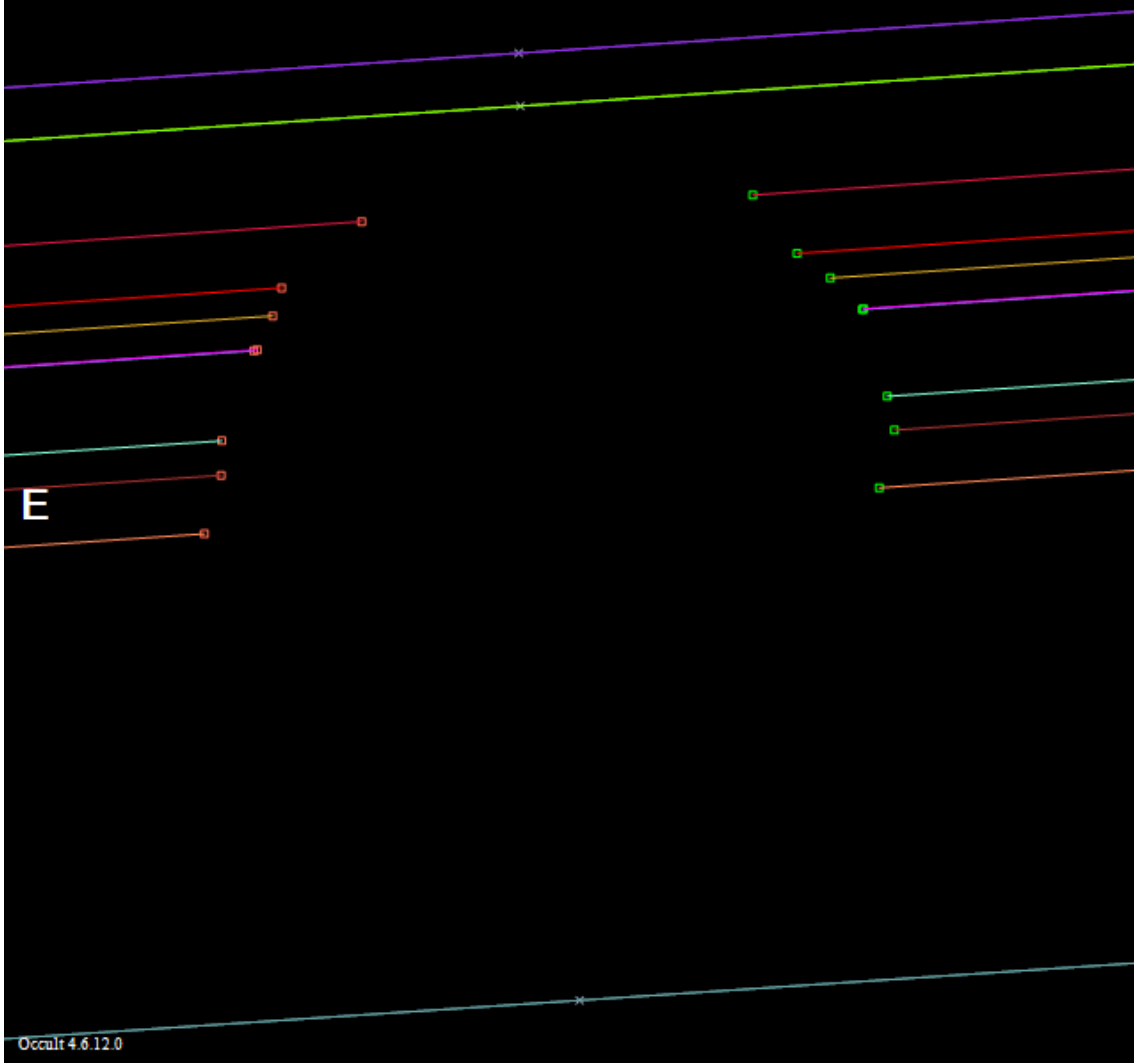
9_Metis_2014Mar07

(9) Metis 2014 Mar 7 $180.0 \pm 3.6 \times 154.7 \pm 3.5$ km. PA $56.9^\circ \pm 9.0^\circ$
Geocentric X -1508.2 ± 1.5 Y 5700.4 ± 1.6 km **N**



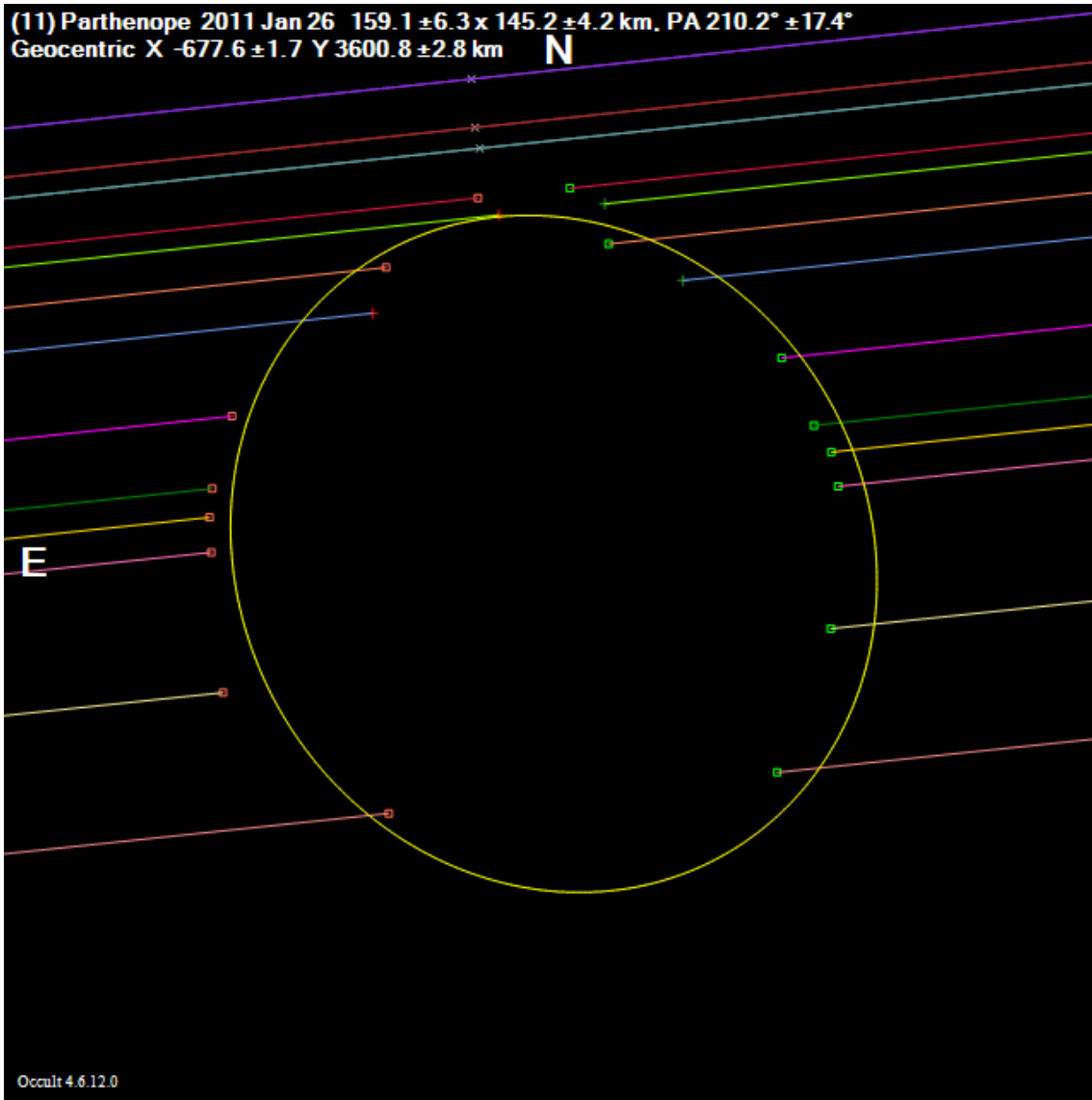
10_Hygiea_2014Sep05

(10) Hygiea 2014 Sep 5 $450.8 \pm 35.8 \times 411.5 \pm 82.5$ km, PA $120.0^\circ \pm 59.3^\circ$
Geocentric X -3138.8 ± 7.0 Y 3096.8 ± 39.8 km **N**



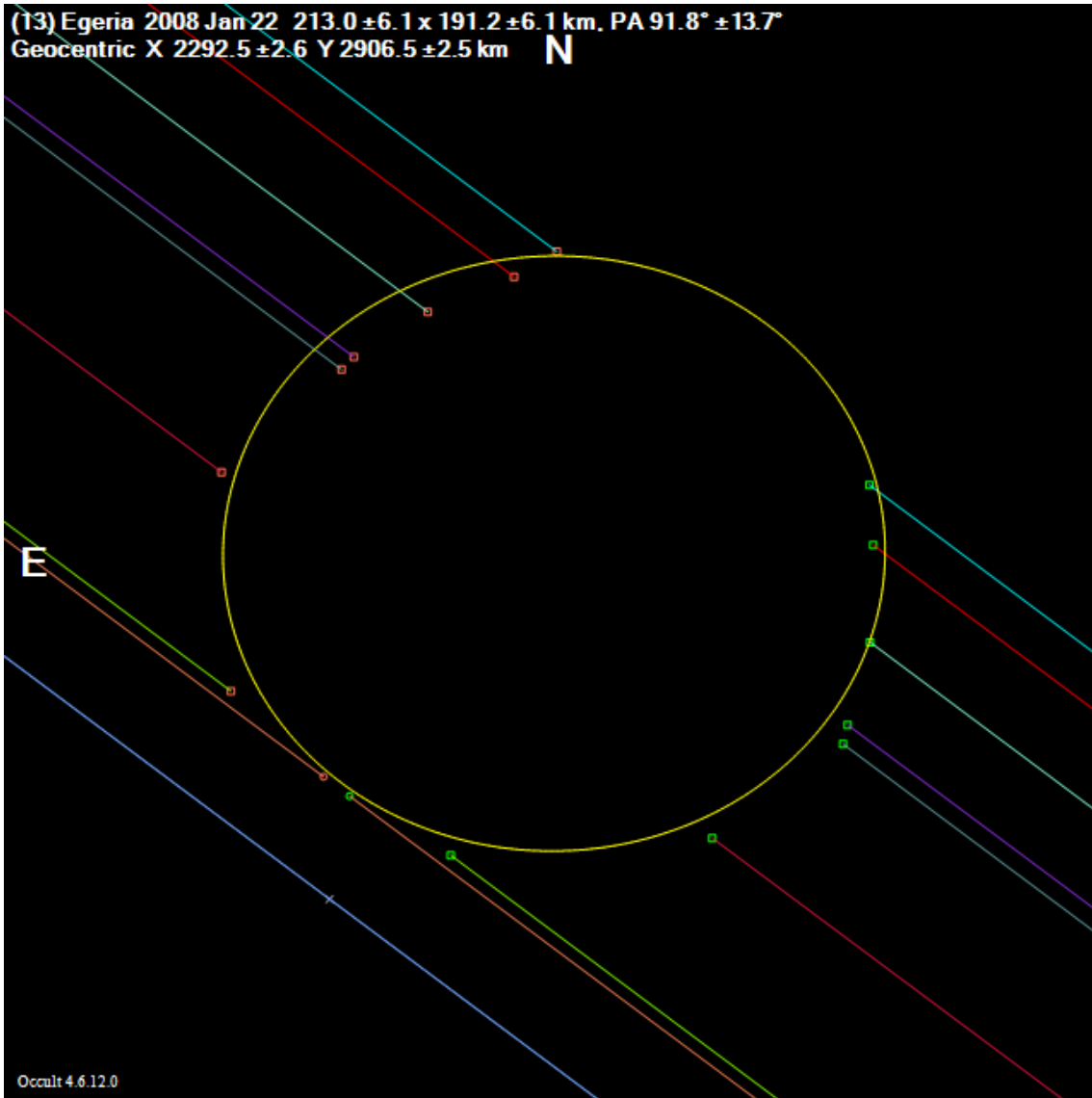
11_Parthenope_2011Jan26

(11) Parthenope 2011 Jan 26 $159.1 \pm 6.3 \times 145.2 \pm 4.2$ km, PA $210.2^\circ \pm 17.4^\circ$
Geocentric X -677.6 ± 1.7 Y 3600.8 ± 2.8 km



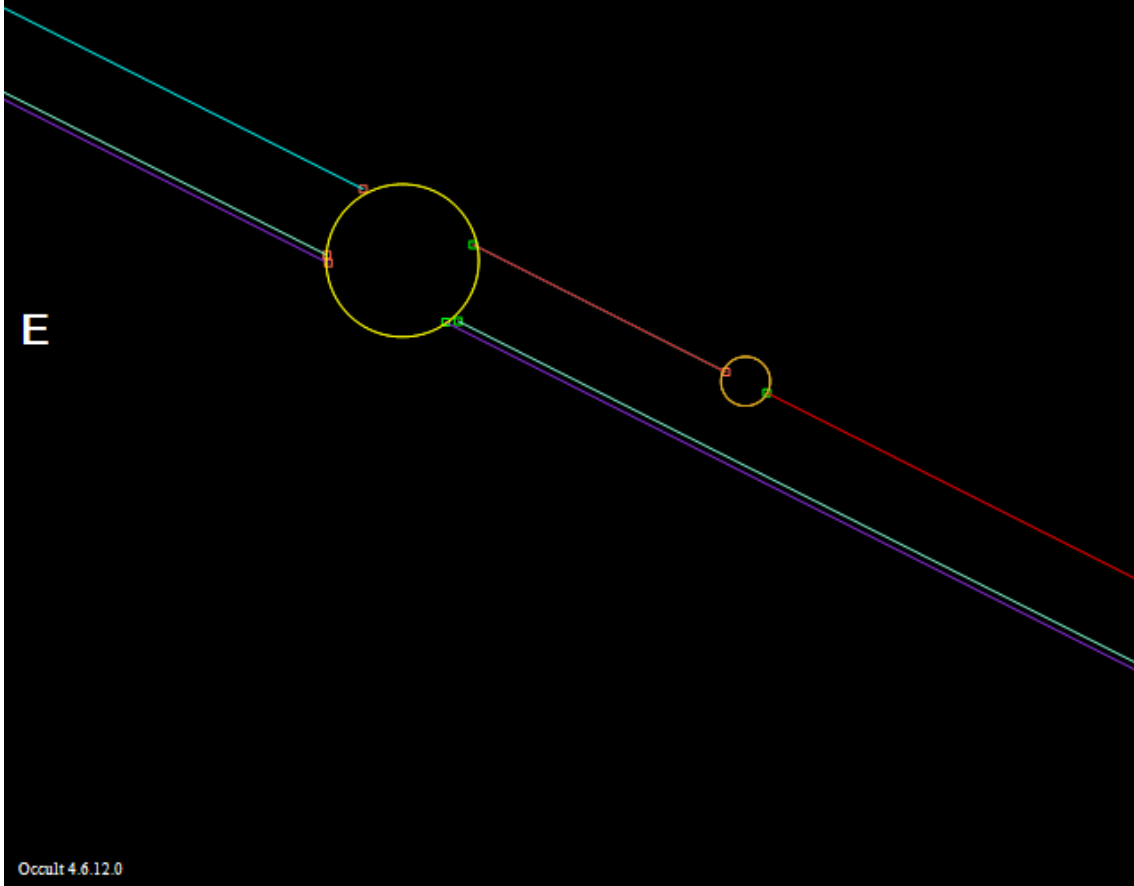
13_Egeria_2008Jan22

(13) Egeria 2008 Jan 22 $213.0 \pm 6.1 \times 191.2 \pm 6.1$ km. PA $91.8^\circ \pm 13.7^\circ$
Geocentric X 2292.5 ± 2.6 Y 2906.5 ± 2.5 km **N**



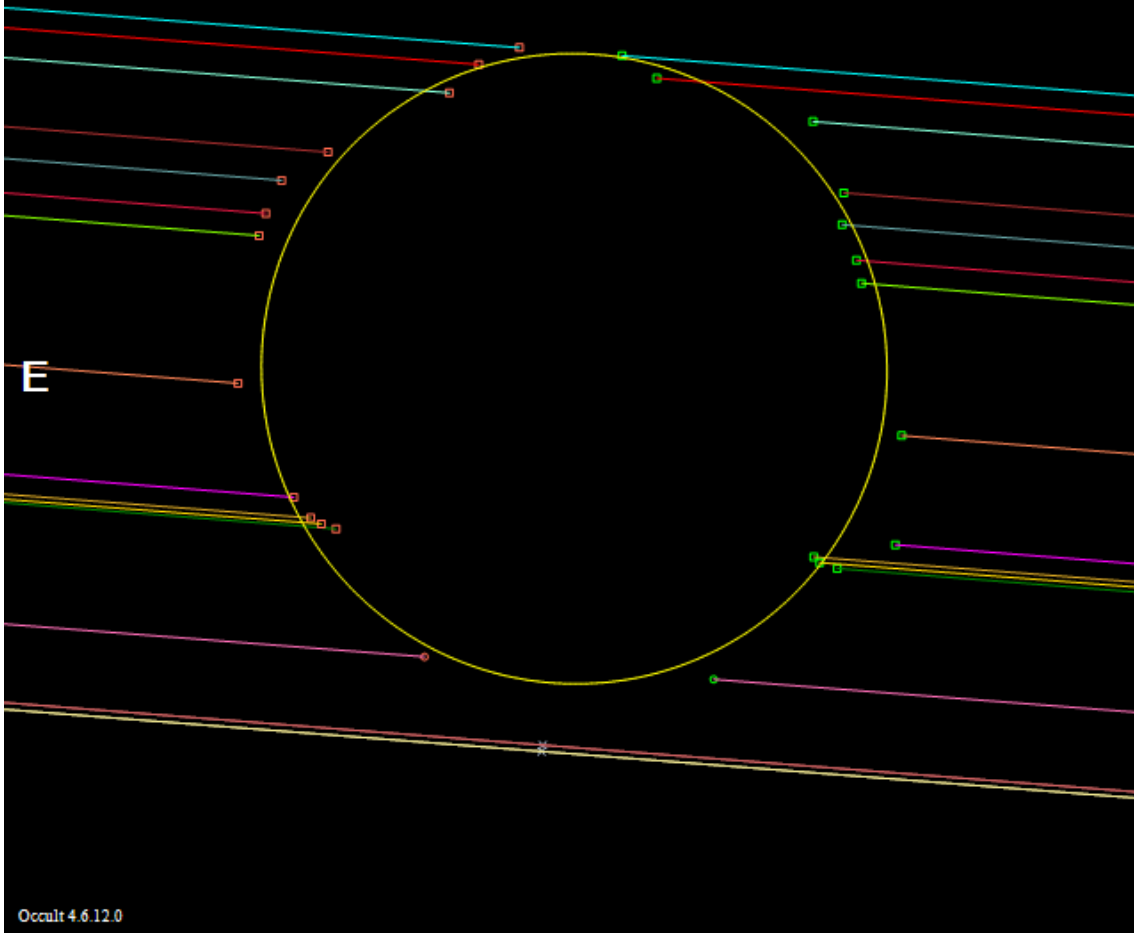
15_Eunomia_2019Apr27

(15) Eunomia 2019 Apr 27 248.0 x 248.0 km, PA 0.0°
Geocentric X -3677.7 ± 3.4 Y -2306.1 ± 4.7 km **N**
Sat: 80.0 x 80.0 km, PA 0.0°; Sep 0.3160" at PA 250.7°



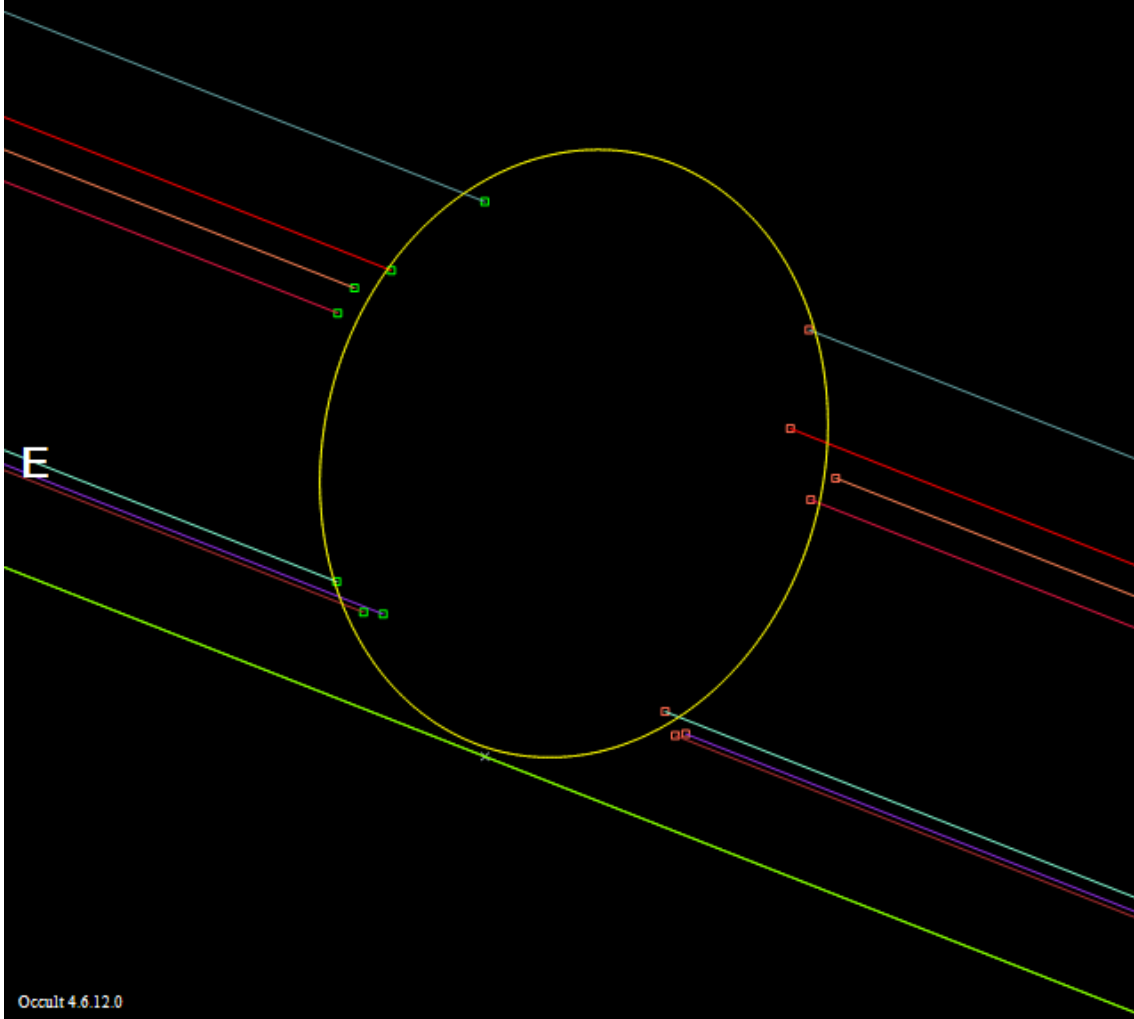
16_Psyche_2010Aug21

(16) Psyche 2010 Aug 21 $233.7 \pm 6.6 \times 231.6 \pm 4.3$ km. PA $21.1^\circ \pm 132.4^\circ$
Geocentric X -3644.9 ± 1.8 Y 2208.3 ± 2.8 km **N**



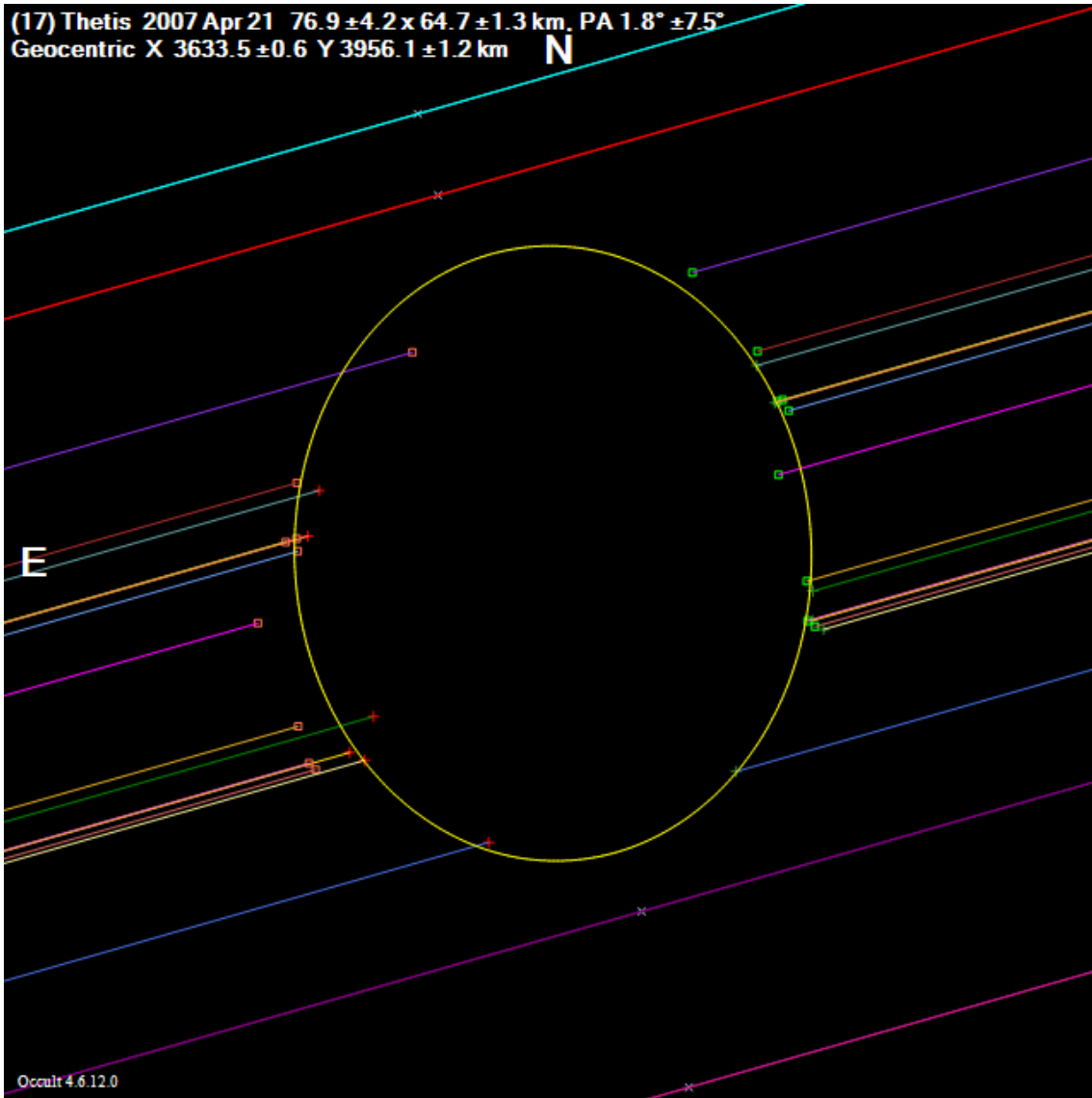
16_Psyche_2014Jul22

(16) Psyche 2014 Jul 22 $227.3 \pm 15.2 \times 185.6 \pm 6.7$ km, PA $166.0^\circ \pm 6.4^\circ$
Geocentric X -1218.4 ± 2.5 Y 5430.6 ± 4.2 km **N**



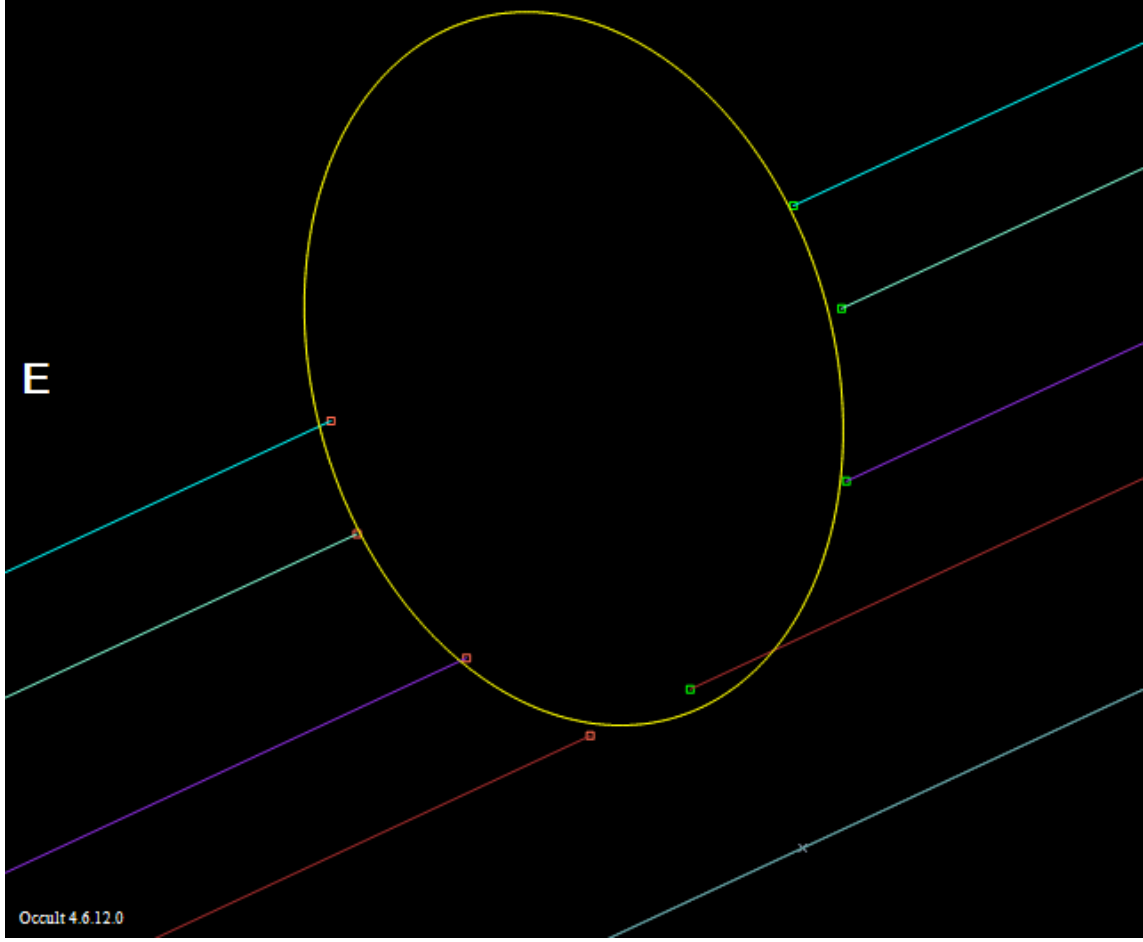
17_Thetis_2007Apr21

(17) Thetis 2007 Apr 21 $76.9 \pm 4.2 \times 64.7 \pm 1.3$ km. PA $1.8^\circ \pm 7.5^\circ$
Geocentric X 3633.5 ± 0.6 Y 3956.1 ± 1.2 km **N**



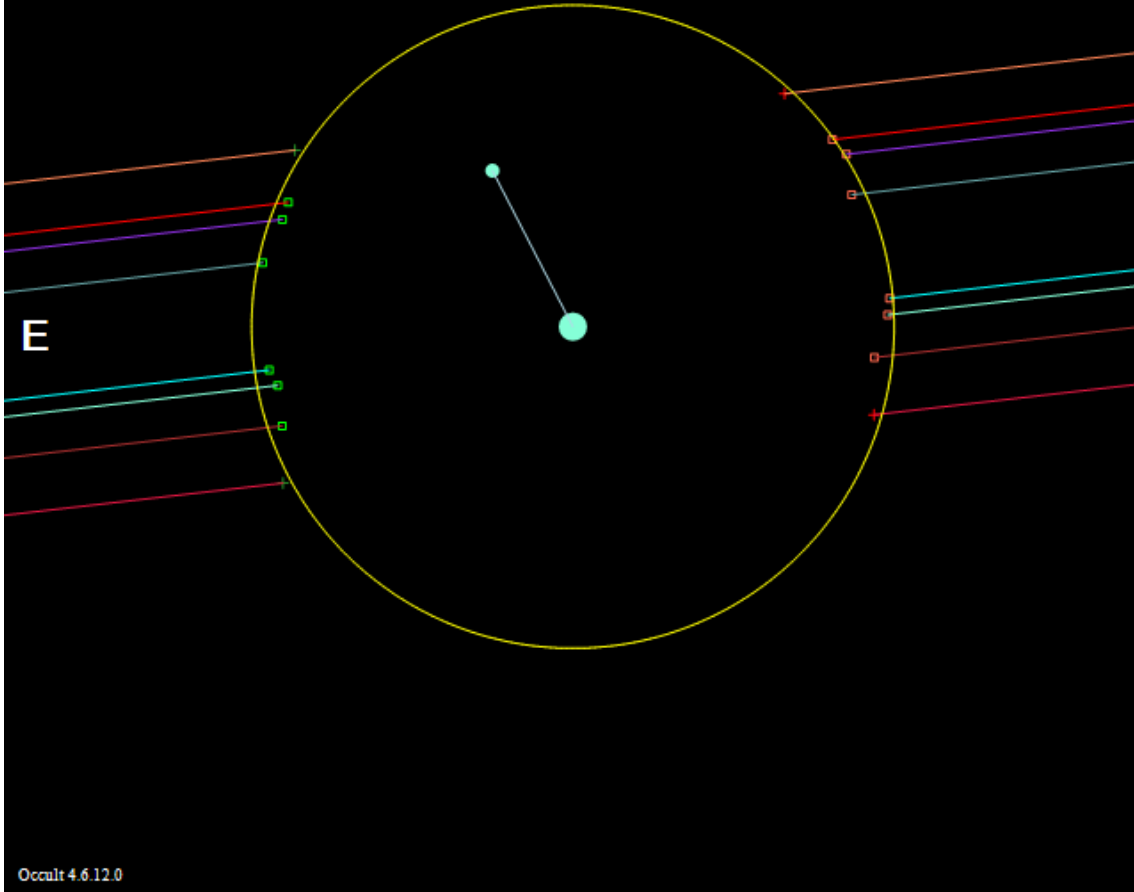
17_Thetis_2011Apr22

(17) Thetis 2011 Apr 22 $87.5 \pm 8.9 \times 62.8 \pm 1.4$ km. PA $15.8^\circ \pm 5.2^\circ$
Geocentric X 4880.7 ± 1.6 Y 3529.1 ± 3.8 km **N**



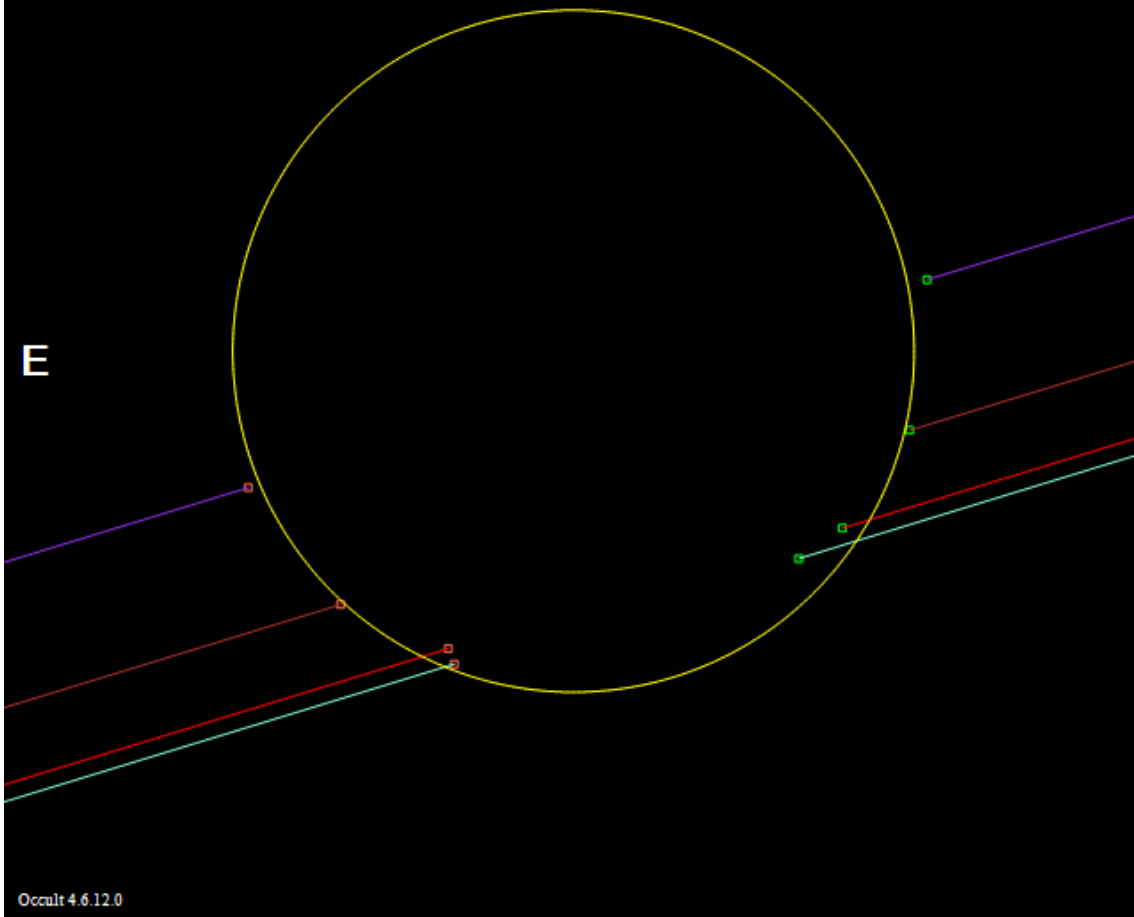
18_Melpomene_1978Dec11

(18) Melpomene 1978 Dec 11 $135.8 \pm 9.4 \times 135.8$ km, PA 0.0°
Geocentric X 3288.9 ± 0.7 Y 3535.5 ± 2.7 km **N**
Double : Sep $0.0459 \pm 0.0036''$, PA $27.3^\circ \pm 2.5^\circ$



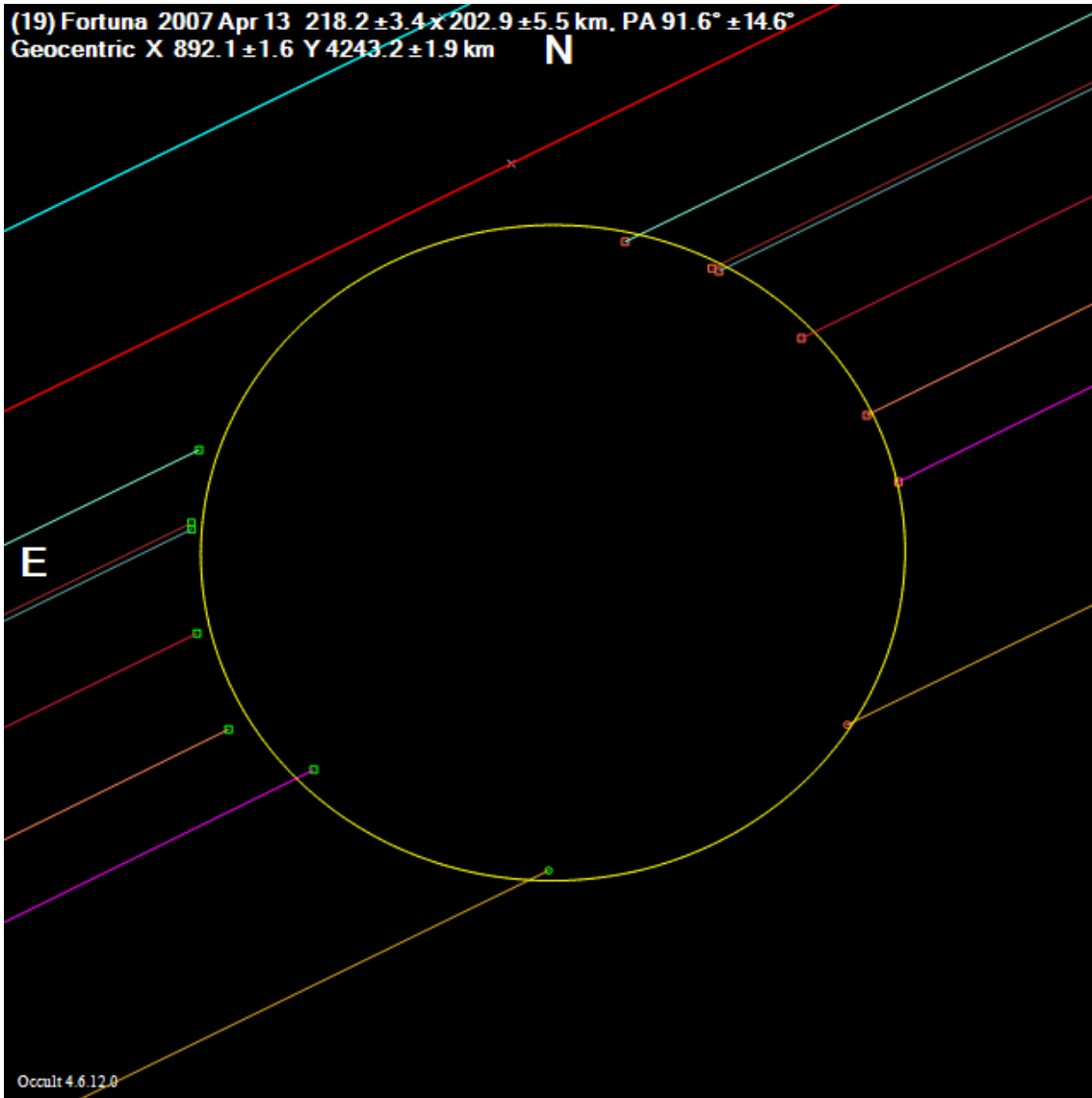
18_Melpomene_2017Nov19

(18) Melpomene 2017 Nov 19 $144.0 \pm 21.2 \times 144.0 \pm 6.0$ km, PA 0.0°
Geocentric X -2231.7 ± 2.2 Y 4869.4 ± 9.2 km **N**



19_Fortuna_2007Apr13

(19) Fortuna 2007 Apr 13 $218.2 \pm 3.4 \times 202.9 \pm 5.5$ km, PA $91.6^\circ \pm 14.6^\circ$
Geocentric X 892.1 ± 1.6 Y 4243.2 ± 1.9 km



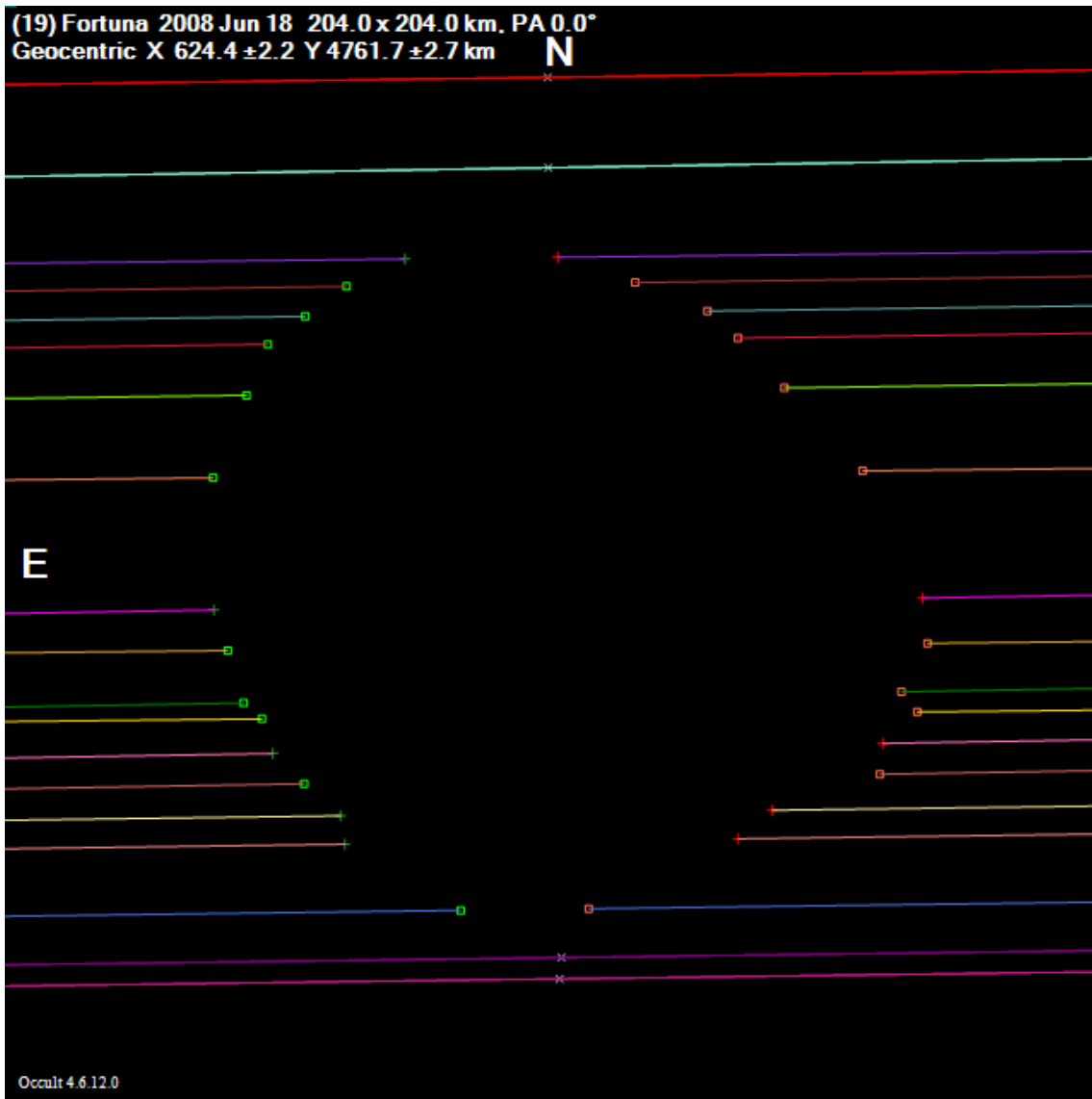
19_Fortuna_2008Jun18

(19) Fortuna 2008 Jun 18 204.0 x 204.0 km, PA 0.0°
Geocentric X 624.4 ± 2.2 Y 4761.7 ± 2.7 km

N

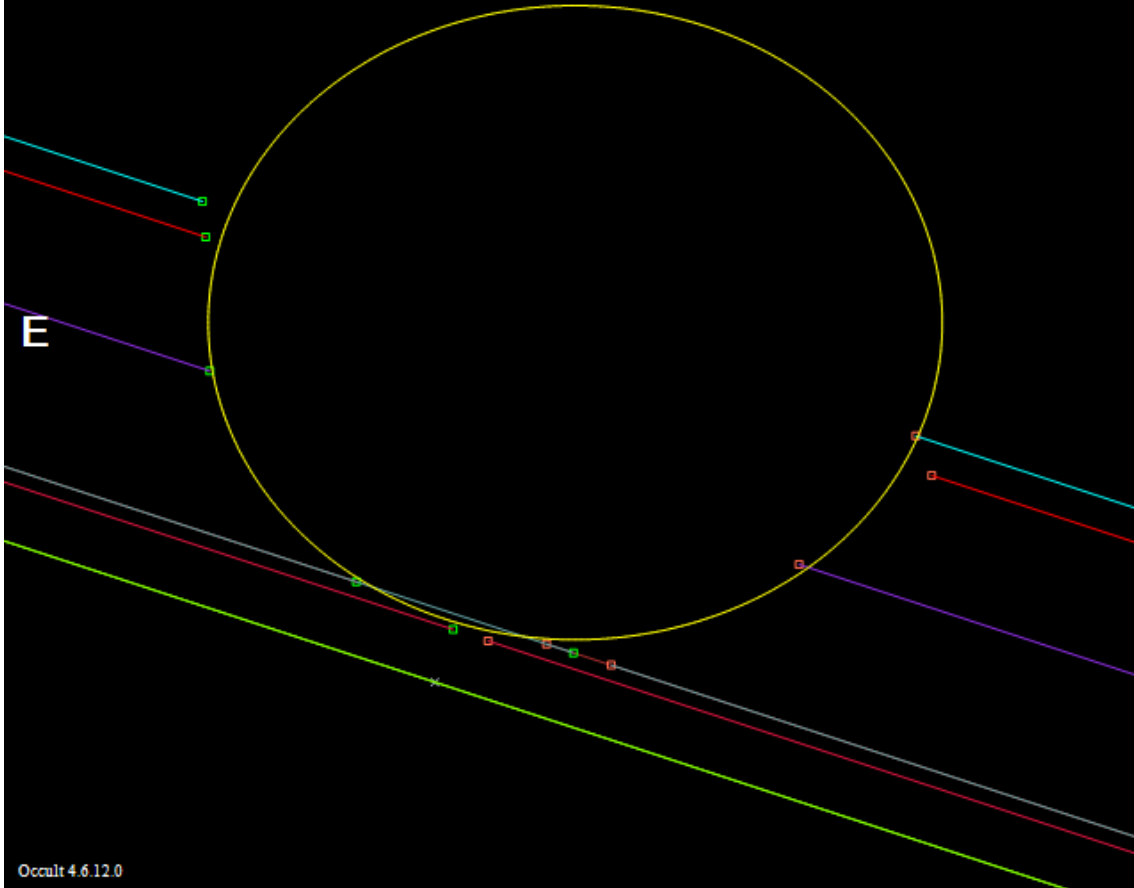
E

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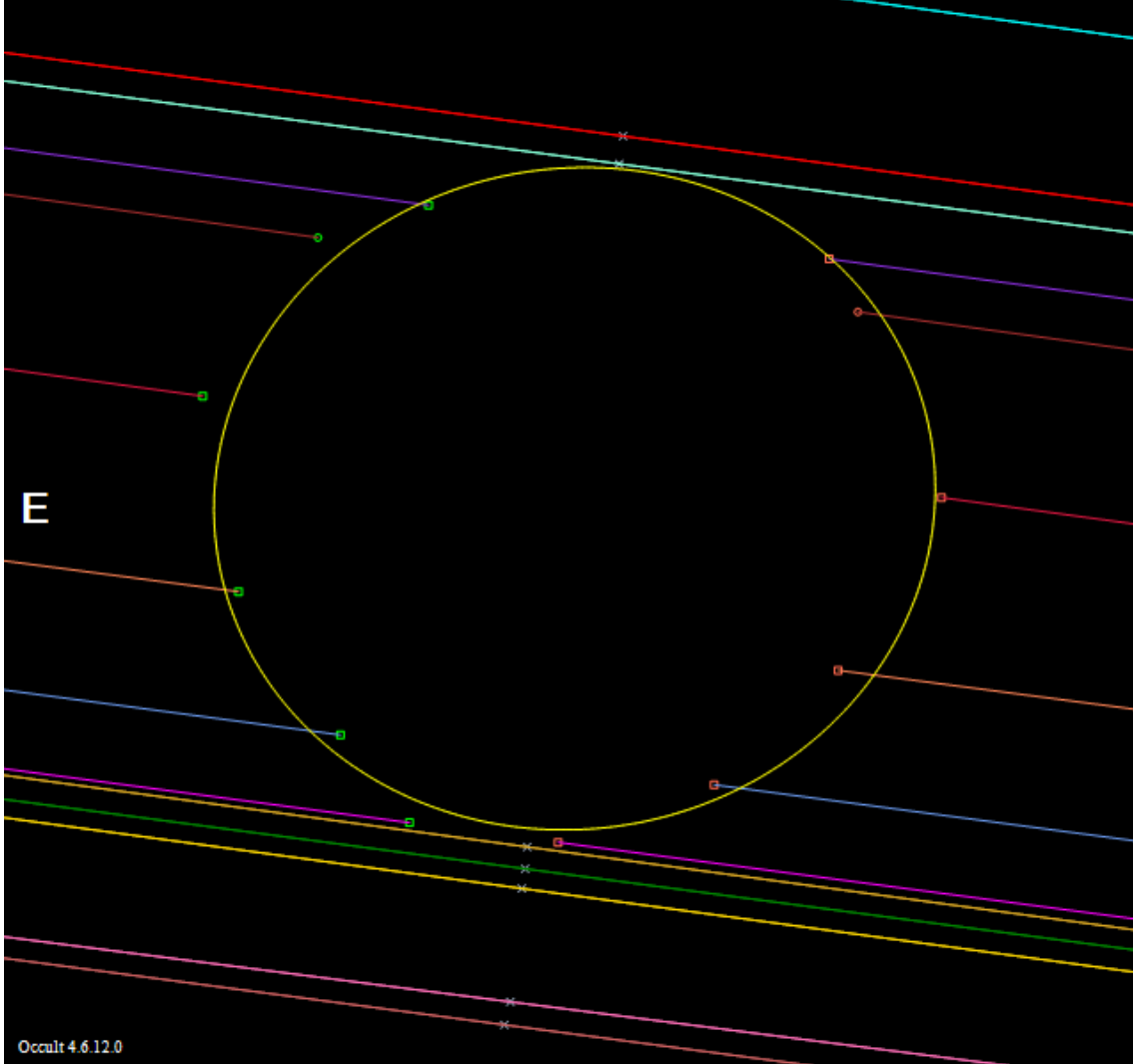
19_Fortuna_2016Aug13

(19) Fortuna 2016 Aug 13 219.0 x 189.0 km, PA 90.0°
Geocentric X -1322.8 ± 1.6 Y 5537.9 ± 1.4 km **N**



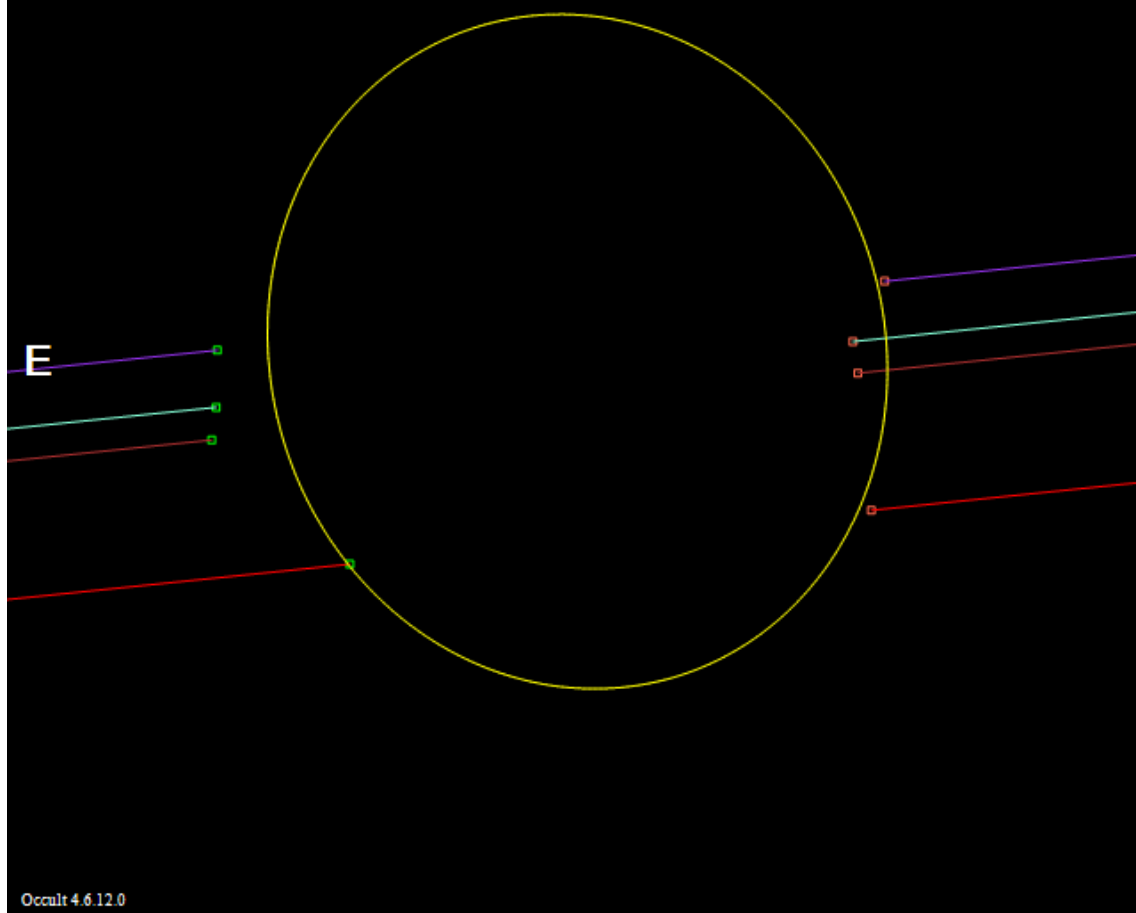
20_Massalia_2017Nov12

(20) Massalia 2017 Nov 12 $147.0 \pm 4.0 \times 134.2 \pm 4.2$ km. PA $99.6^\circ \pm 13.8^\circ$
Geocentric X -3606.6 ± 1.6 Y 2050.1 ± 1.6 km **N**



21_Lutetia_2017Feb10

(21) Lutetia 2017 Feb 10 $105.0 \pm 98.2 \times 95.0 \pm 5.9$ km, PA $196.7^\circ \pm 99.7^\circ$
Geocentric X 4059.8 ± 4.3 Y 1878.4 ± 25.8 km **N**

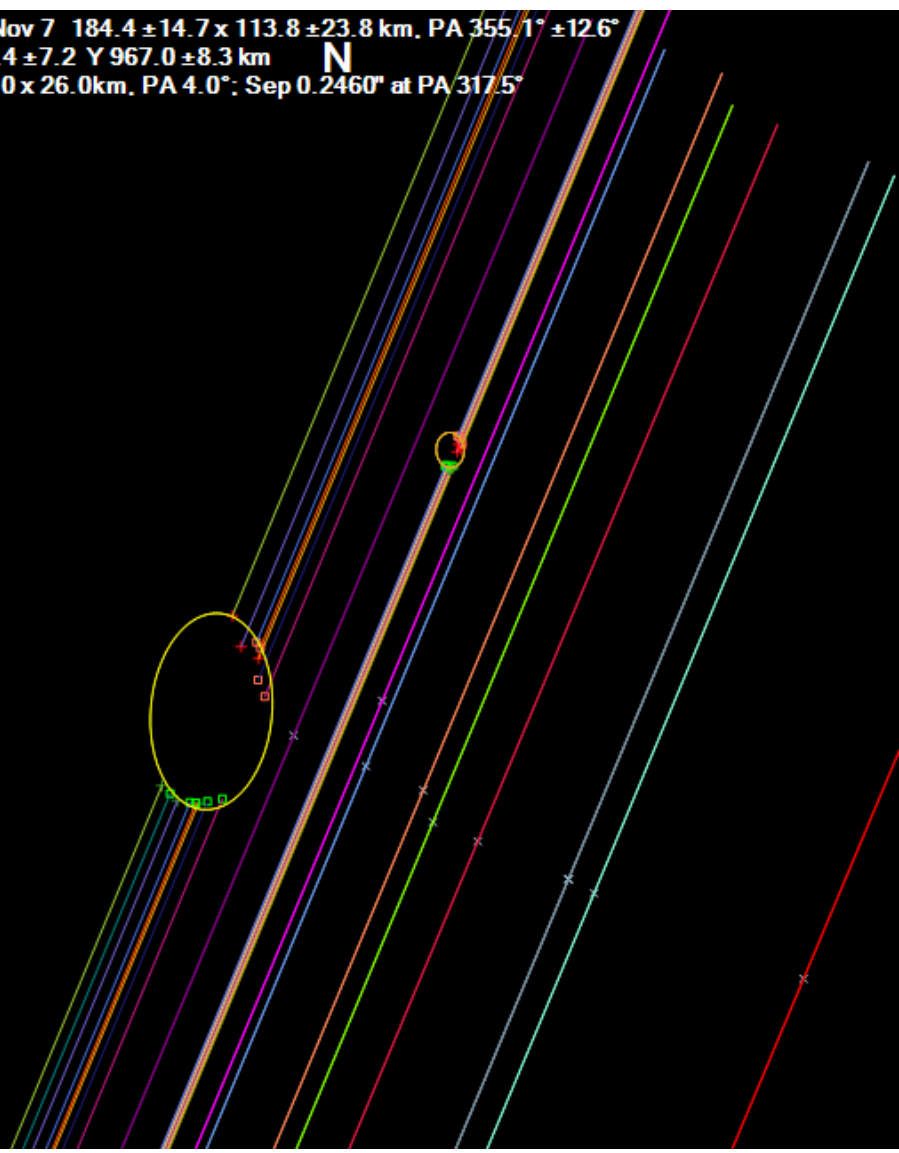


22_Kalliope_2006Nov07

(22) Kalliope 2006 Nov 7 184.4 ± 14.7 x 113.8 ± 23.8 km, PA 355.1° ± 12.6°
Geocentric X 2730.4 ± 7.2 Y 967.0 ± 8.3 km **N**
Sat: (22) 1 Linus 33.0 x 26.0km, PA 4.0°: Sep 0.2460" at PA 317.5°

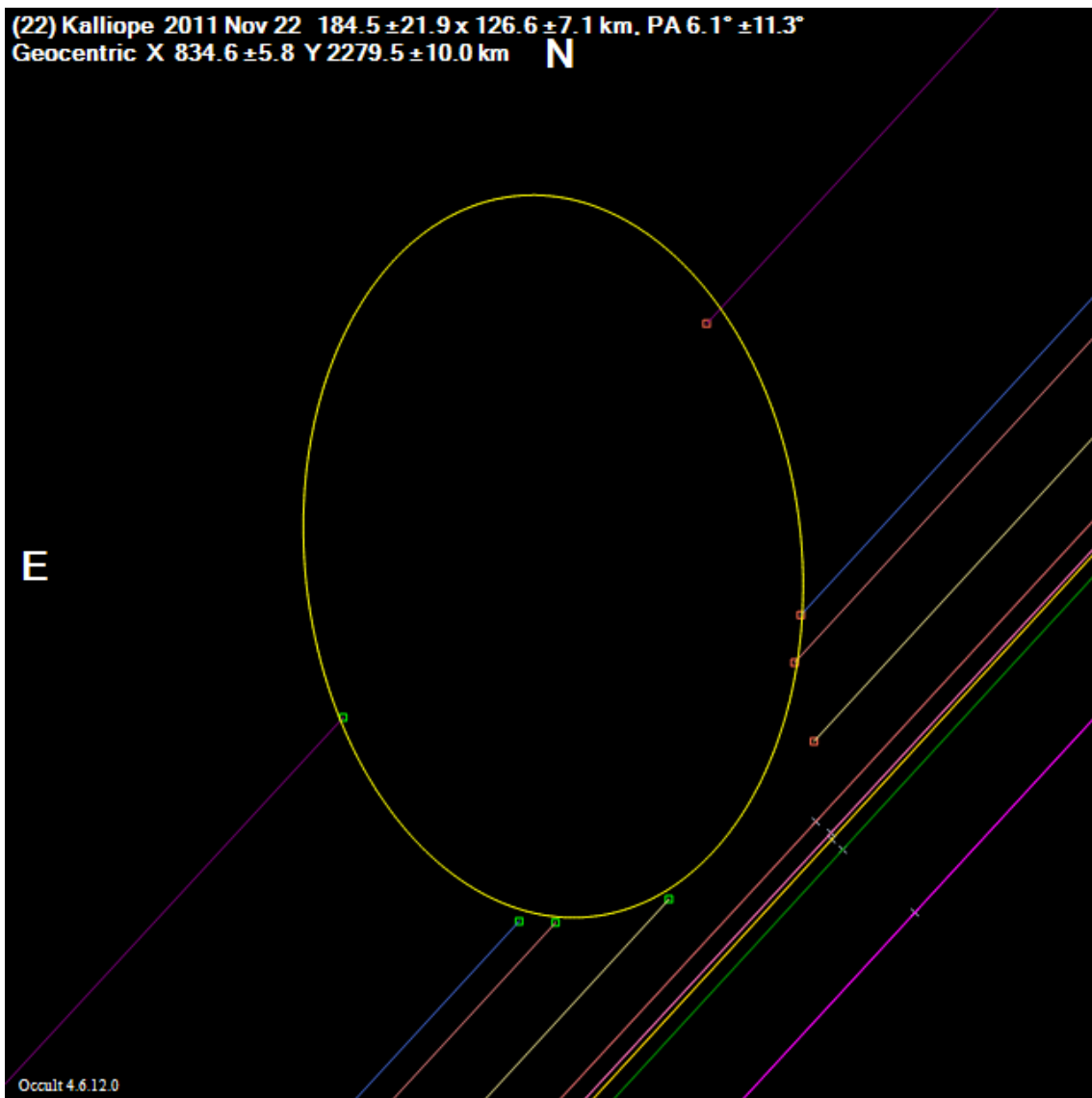
E

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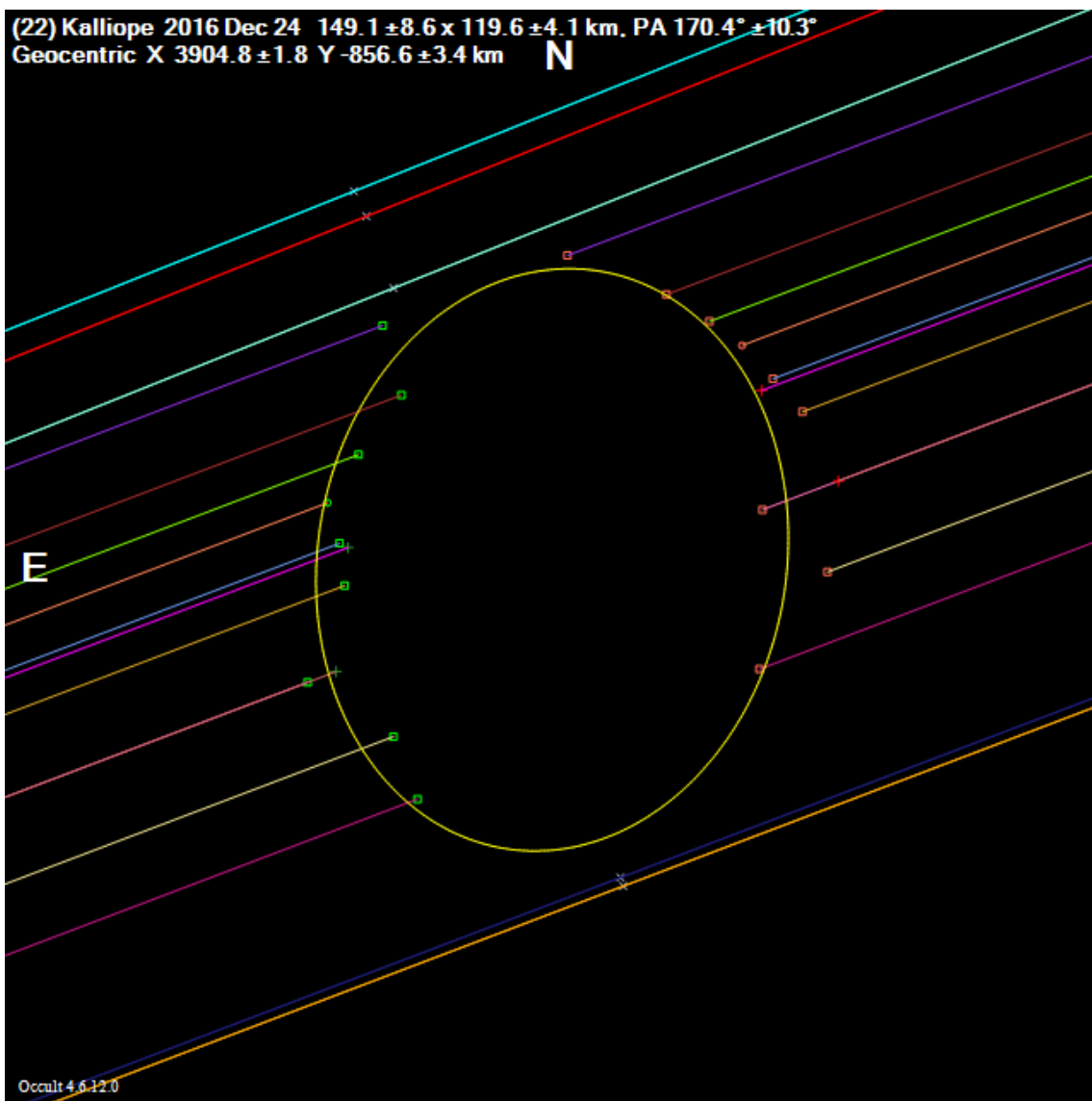
22_Kalliope_2011Nov22

(22) Kalliope 2011 Nov 22 $184.5 \pm 21.9 \times 126.6 \pm 7.1$ km, PA $6.1^\circ \pm 11.3^\circ$
Geocentric X 834.6 ± 5.8 Y 2279.5 ± 10.0 km **N**



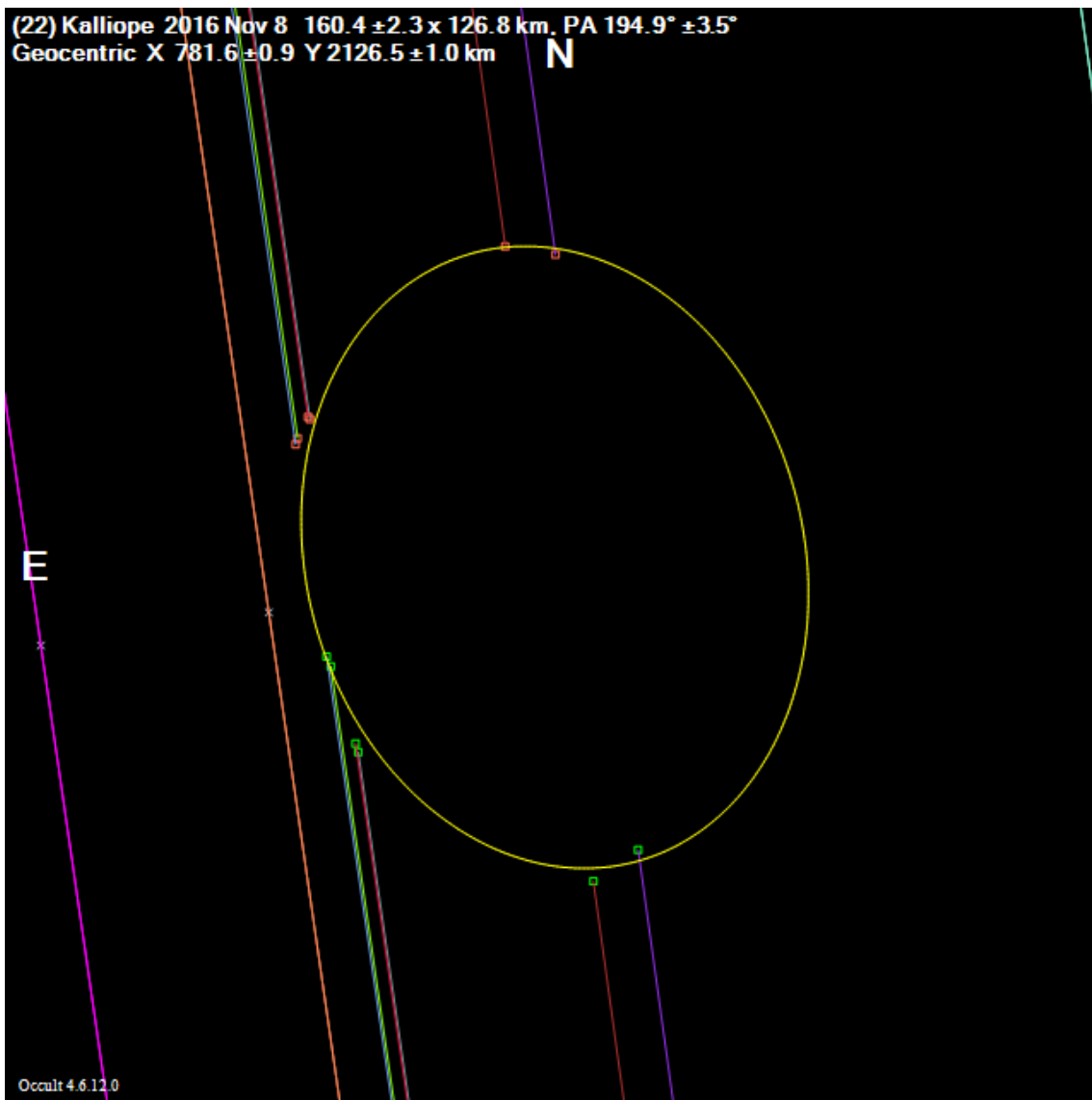
22_Kalliope_2016Dec24

(22) Kalliope 2016 Dec 24 $149.1 \pm 8.6 \times 119.6 \pm 4.1$ km, PA $170.4^\circ \pm 10.3^\circ$
Geocentric X 3904.8 ± 1.8 Y -856.6 ± 3.4 km **N**



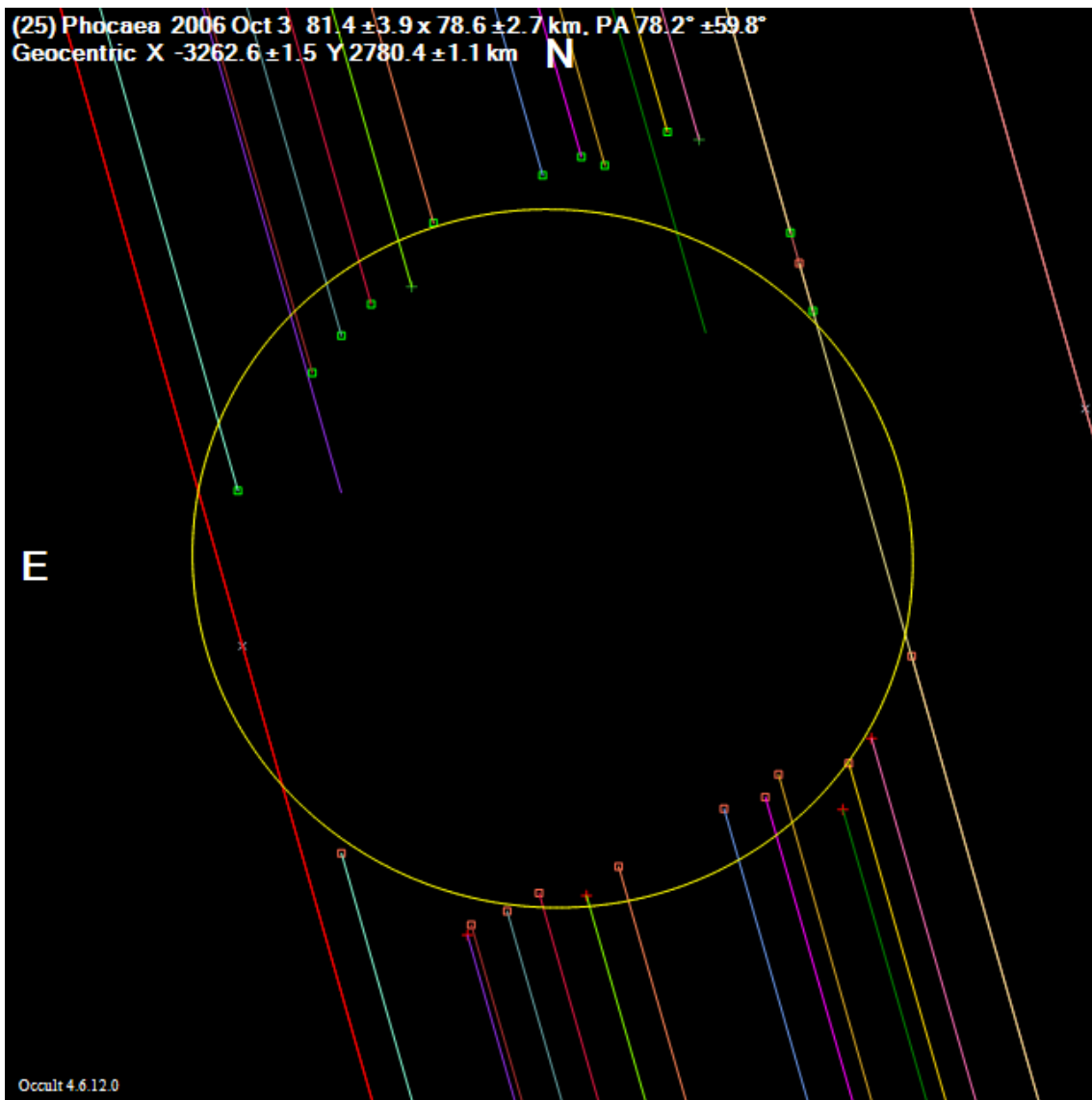
22_Kalliope_2016Nov08

(22) Kalliope 2016 Nov 8 $160.4 \pm 2.3 \times 126.8$ km, PA $194.9^\circ \pm 3.5^\circ$
Geocentric X 781.6 ± 0.9 Y 2126.5 ± 1.0 km



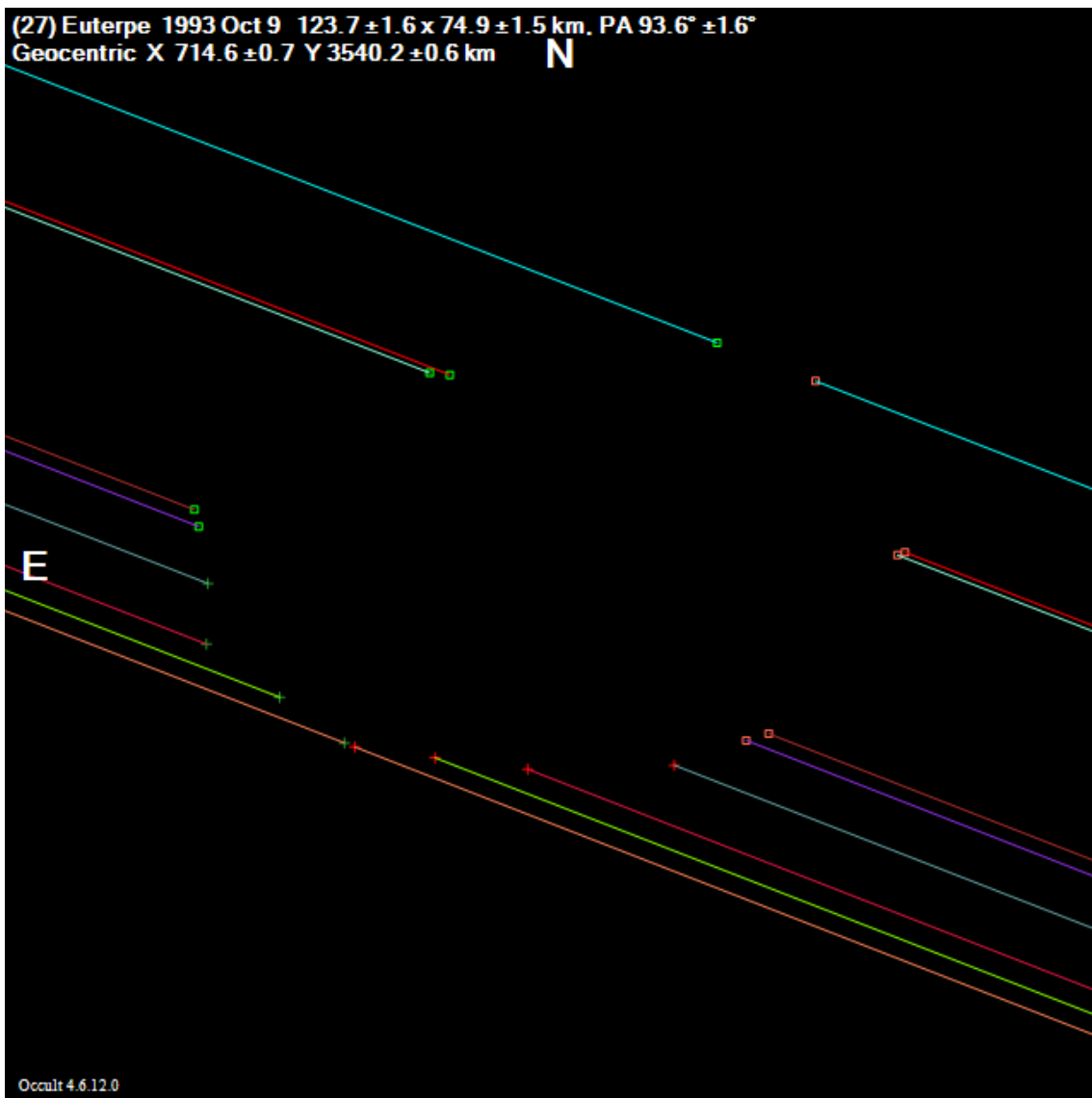
25_Phocaea_2006Oct03

(25) Phocaea 2006 Oct 3 $81.4 \pm 3.9 \times 78.6 \pm 2.7$ km. PA $78.2^\circ \pm 59.8^\circ$
Geocentric X -3262.6 ± 1.5 Y 2780.4 ± 1.1 km



27_Euterpe_1993Oct09

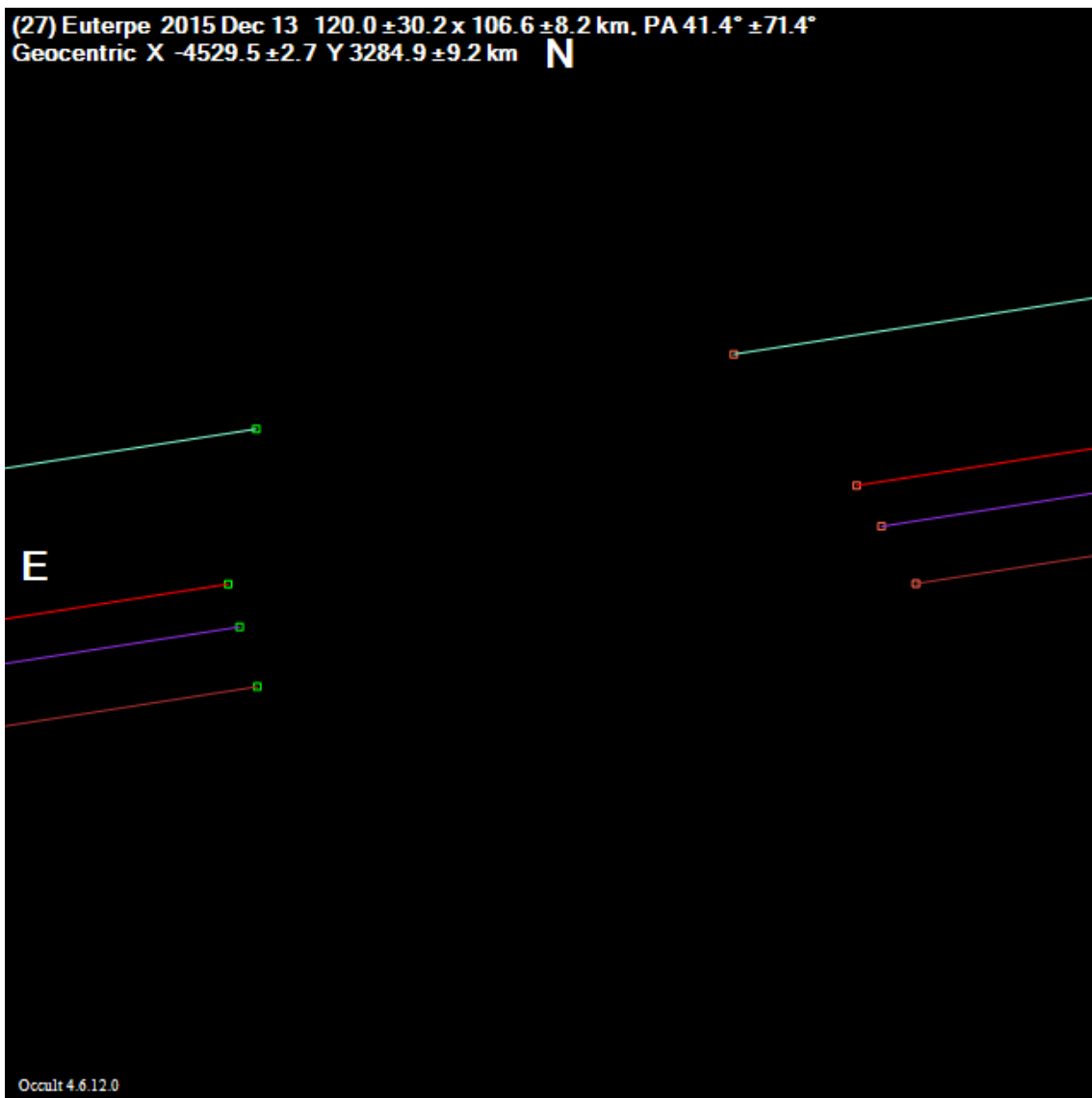
(27) Euterpe 1993 Oct 9 $123.7 \pm 1.6 \times 74.9 \pm 1.5$ km. PA $93.6^\circ \pm 1.6^\circ$
Geocentric X 714.6 ± 0.7 Y 3540.2 ± 0.6 km **N**



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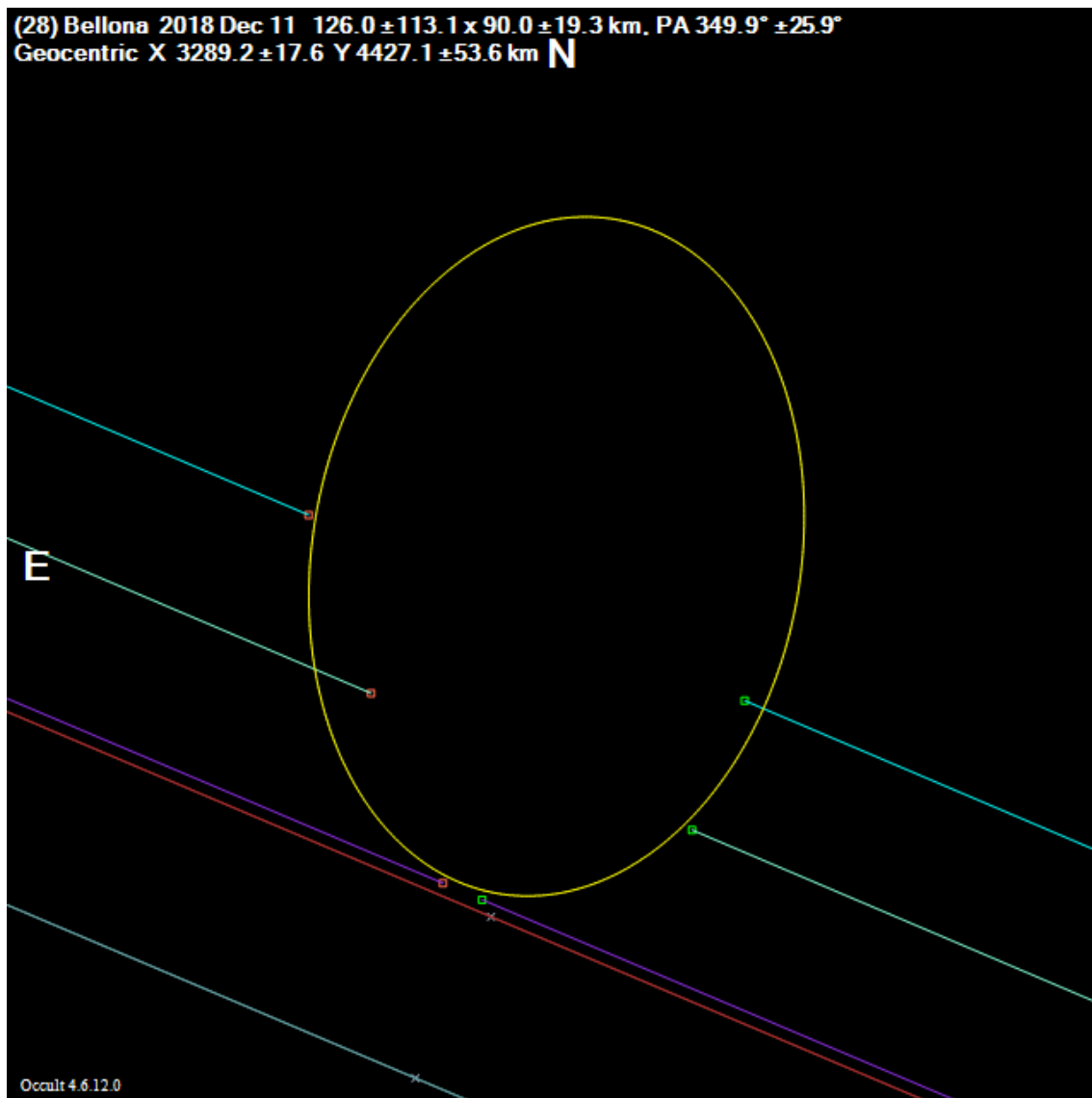
27_Euterpe_2015Dec13

(27) Euterpe 2015 Dec 13 $120.0 \pm 30.2 \times 106.6 \pm 8.2$ km, PA $41.4^\circ \pm 71.4^\circ$
Geocentric X -4529.5 ± 2.7 Y 3284.9 ± 9.2 km **N**



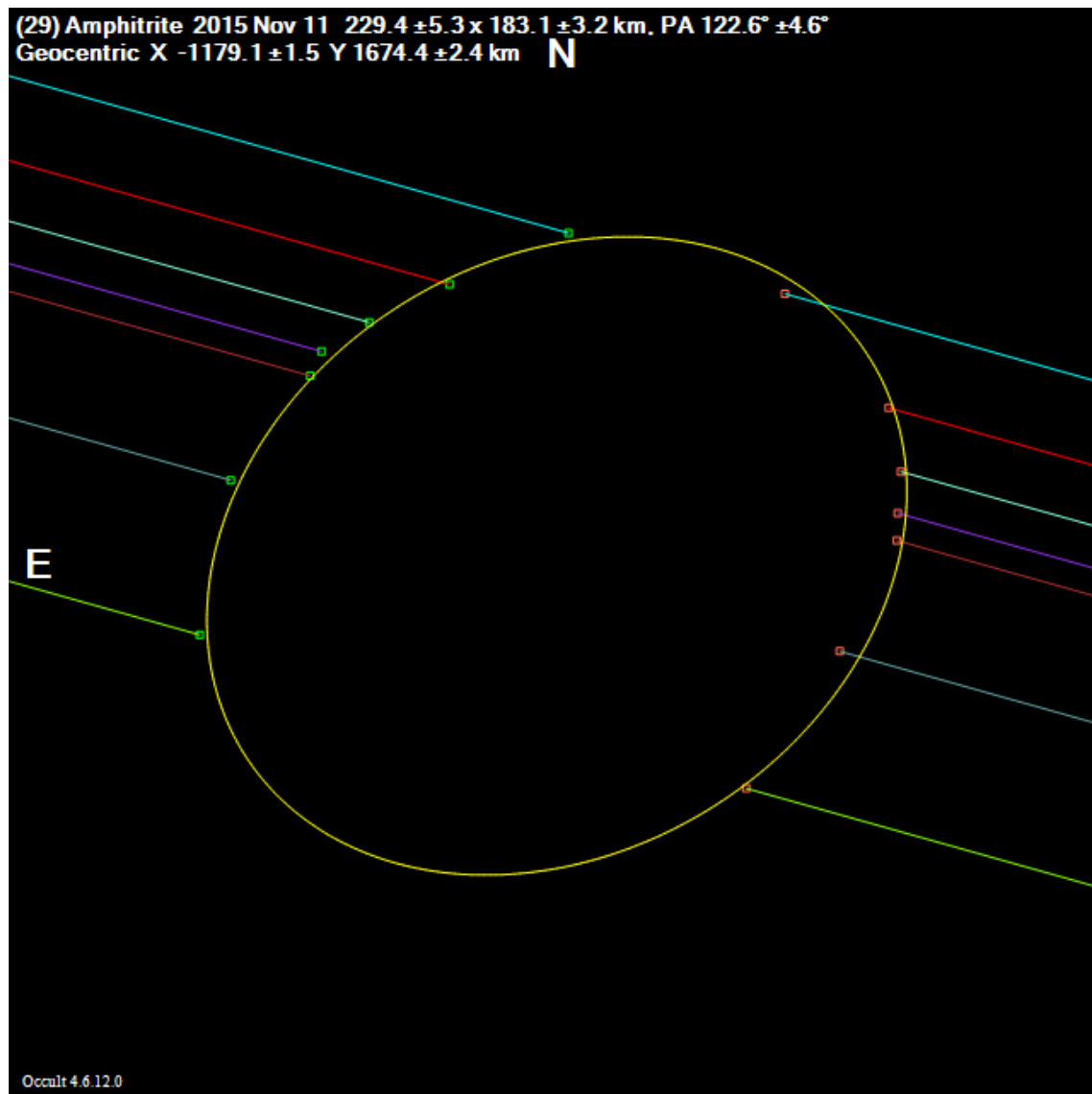
28_Bellona_2018Dec11

(28) Bellona 2018 Dec 11 $126.0 \pm 113.1 \times 90.0 \pm 19.3$ km, PA $349.9^\circ \pm 25.9^\circ$
Geocentric X 3289.2 ± 17.6 Y 4427.1 ± 53.6 km **N**



29_Amhitrite_2015Nov11

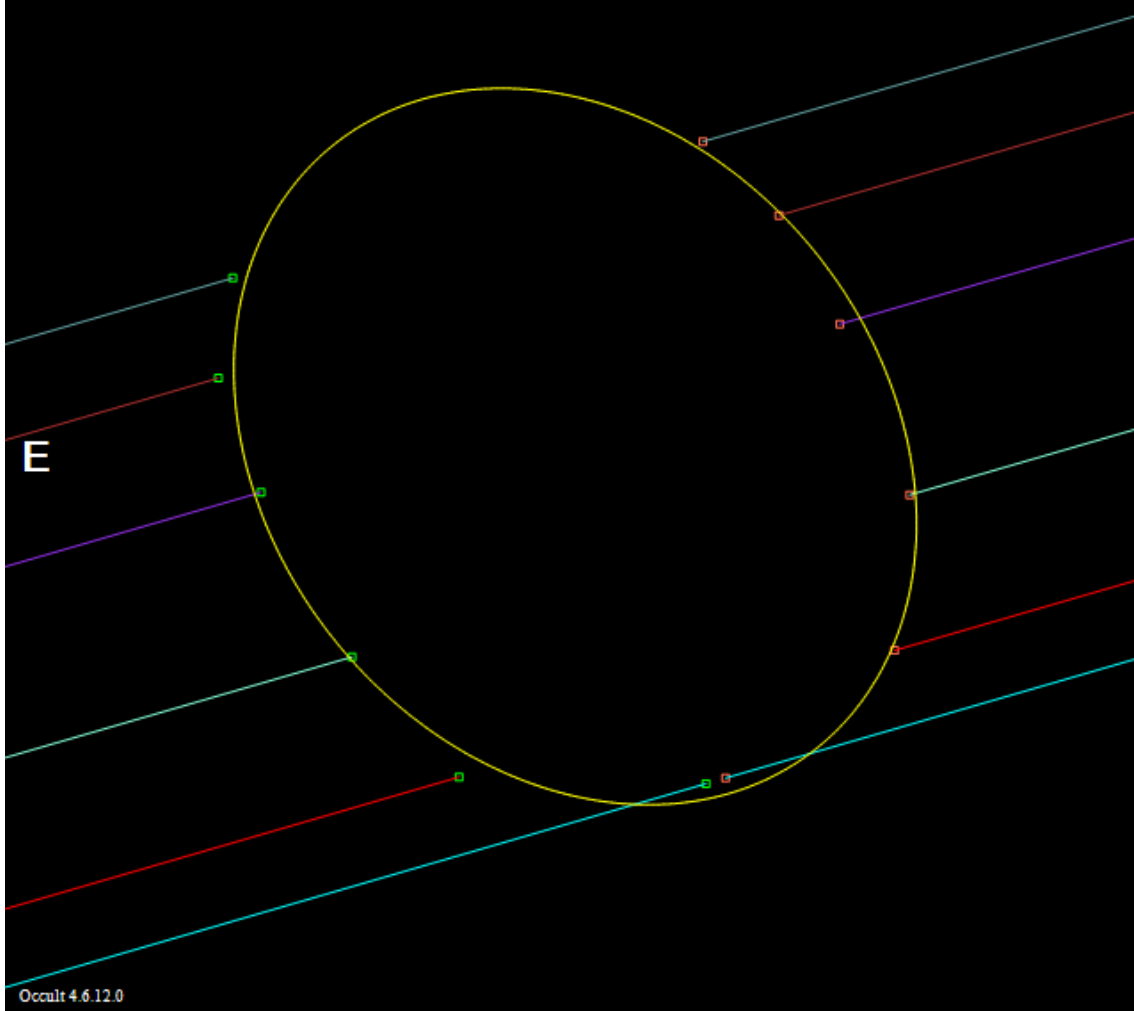
(29) Amhitrite 2015 Nov 11 $229.4 \pm 5.3 \times 183.1 \pm 3.2$ km. PA $122.6^\circ \pm 4.6^\circ$
Geocentric X -1179.1 ± 1.5 Y 1674.4 ± 2.4 km **N**



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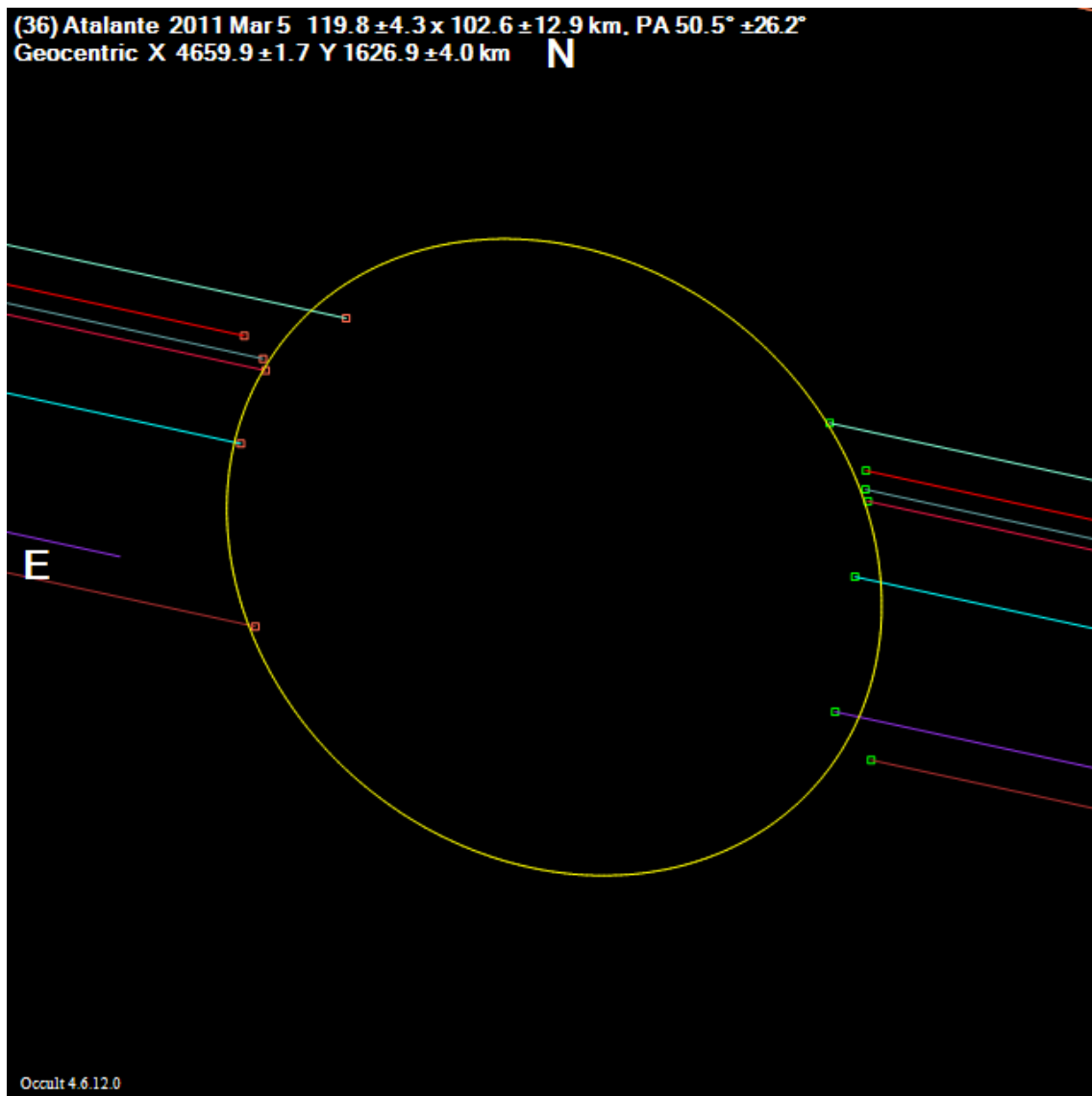
29_Amphitrite_2018Jul08

(29) Amphitrite 2018 Jul 8 $229.8 \pm 6.1 \times 183.7 \pm 3.4$ km, PA $38.8^\circ \pm 4.5^\circ$
Geocentric X 4101.3 ± 1.6 Y -132.4 ± 2.4 km **N**



36_Atalante_2011Mar05

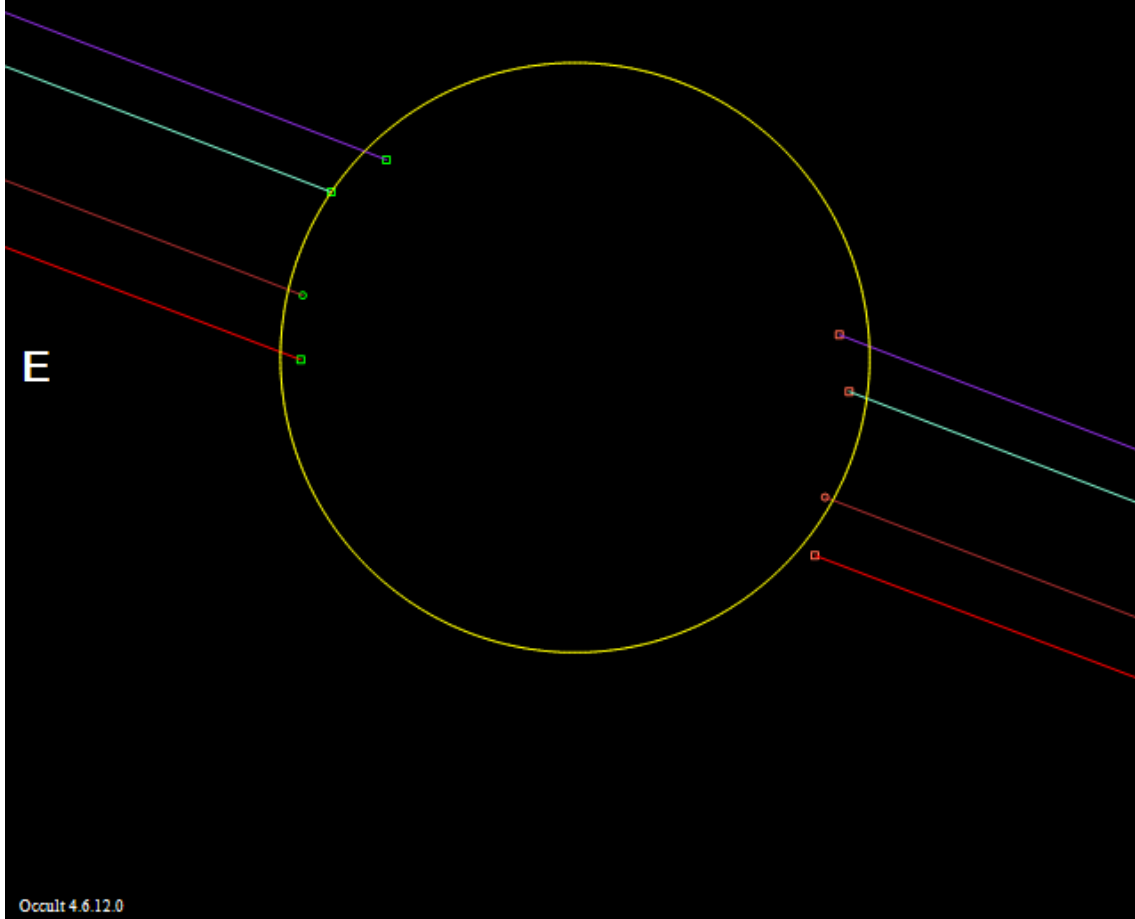
(36) Atalante 2011 Mar 5 $119.8 \pm 4.3 \times 102.6 \pm 12.9$ km, PA $50.5^\circ \pm 26.2^\circ$
Geocentric X 4659.9 ± 1.7 Y 1626.9 ± 4.0 km **N**



38_Leda_2018Dec05

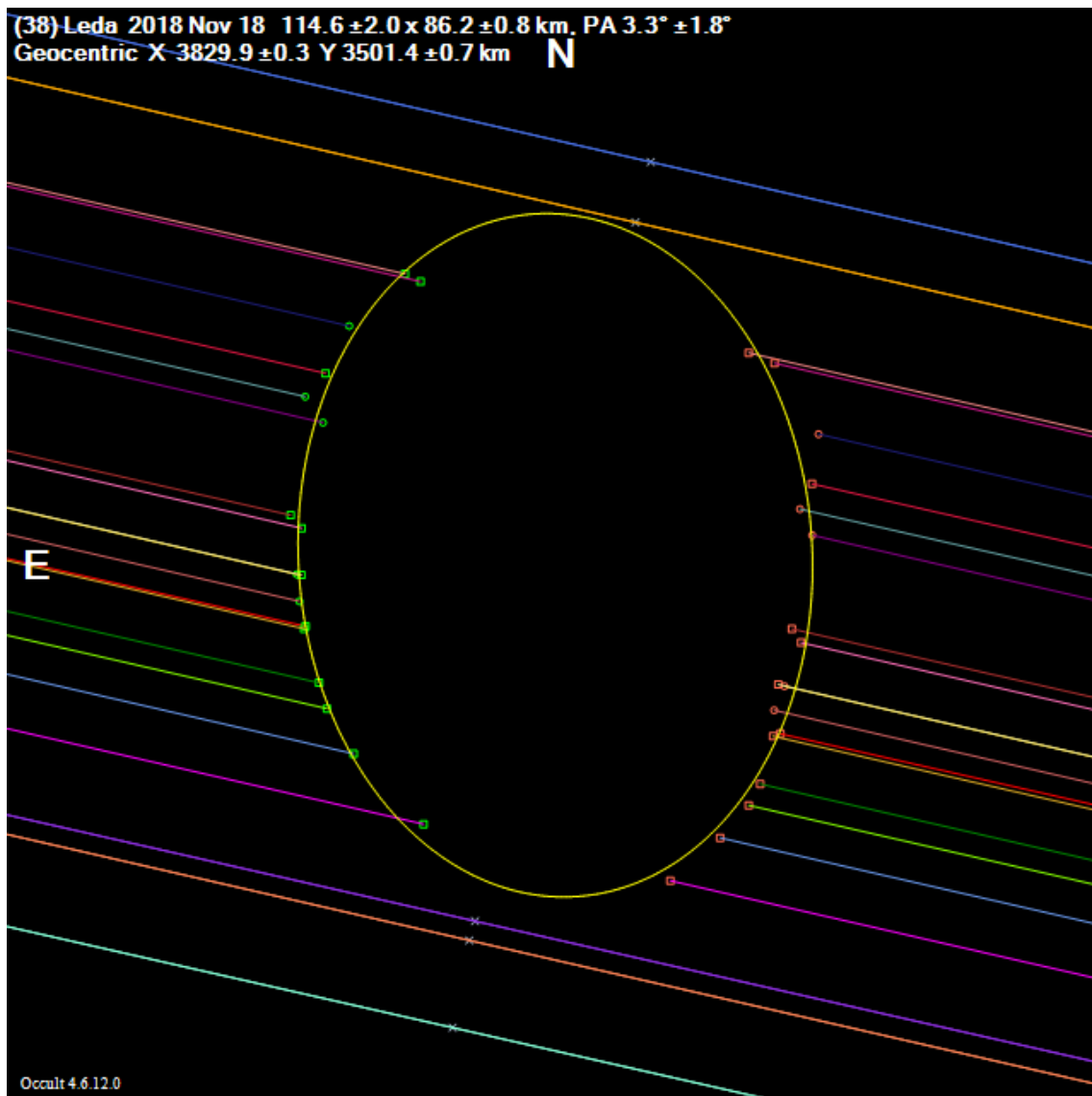
(38) Leda 2018 Dec 5 $95.0 \pm 5.7 \times 95.0$ km, PA 0.0°
Geocentric X -460.0 Y 1946.6 km

N



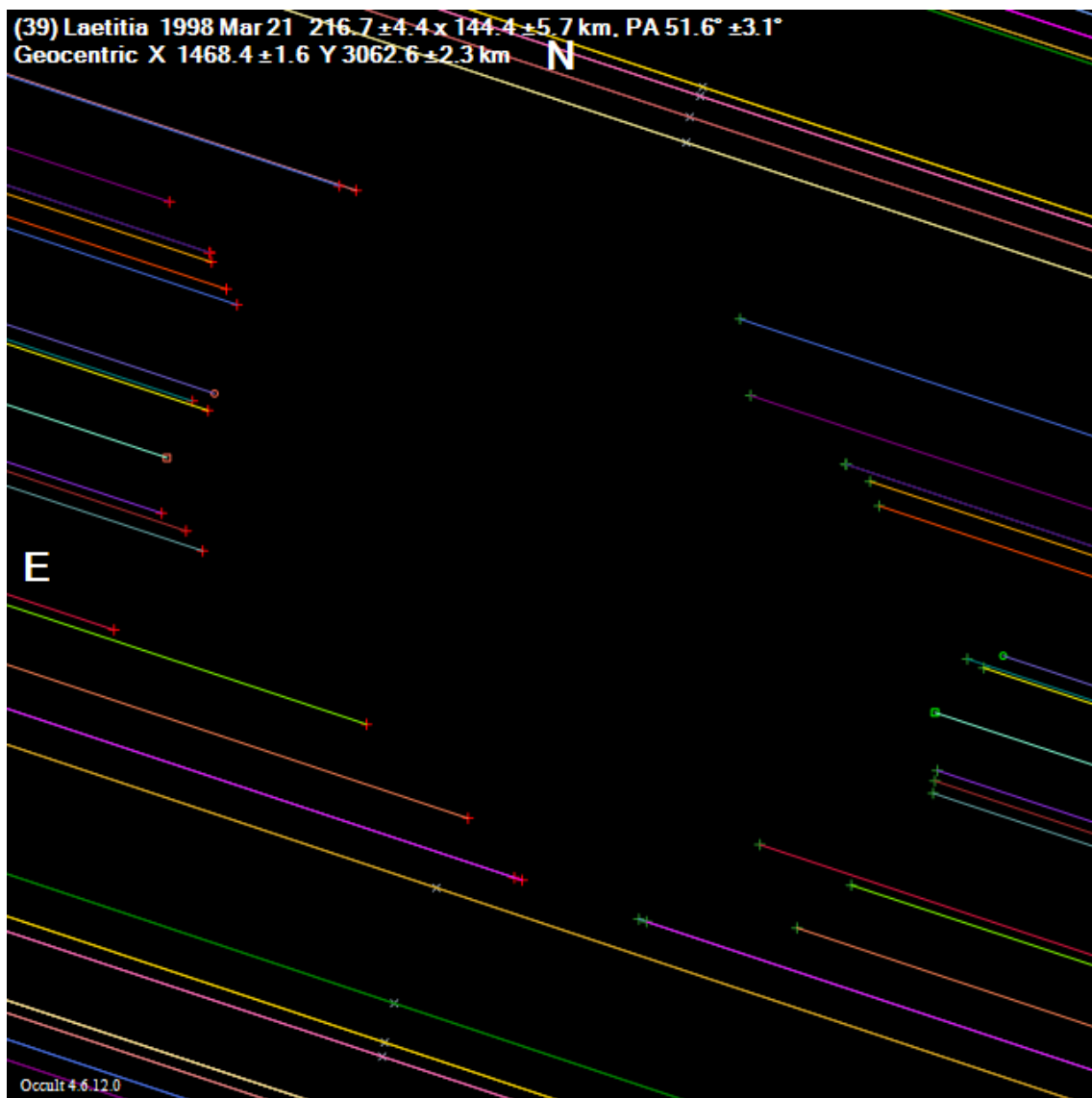
38_Leda_2018Nov18

(38)Leda 2018 Nov 18 $114.6 \pm 2.0 \times 86.2 \pm 0.8$ km. PA $3.3^\circ \pm 1.8^\circ$
Geocentric X -3829.9 ± 0.3 Y 3501.4 ± 0.7 km **N**



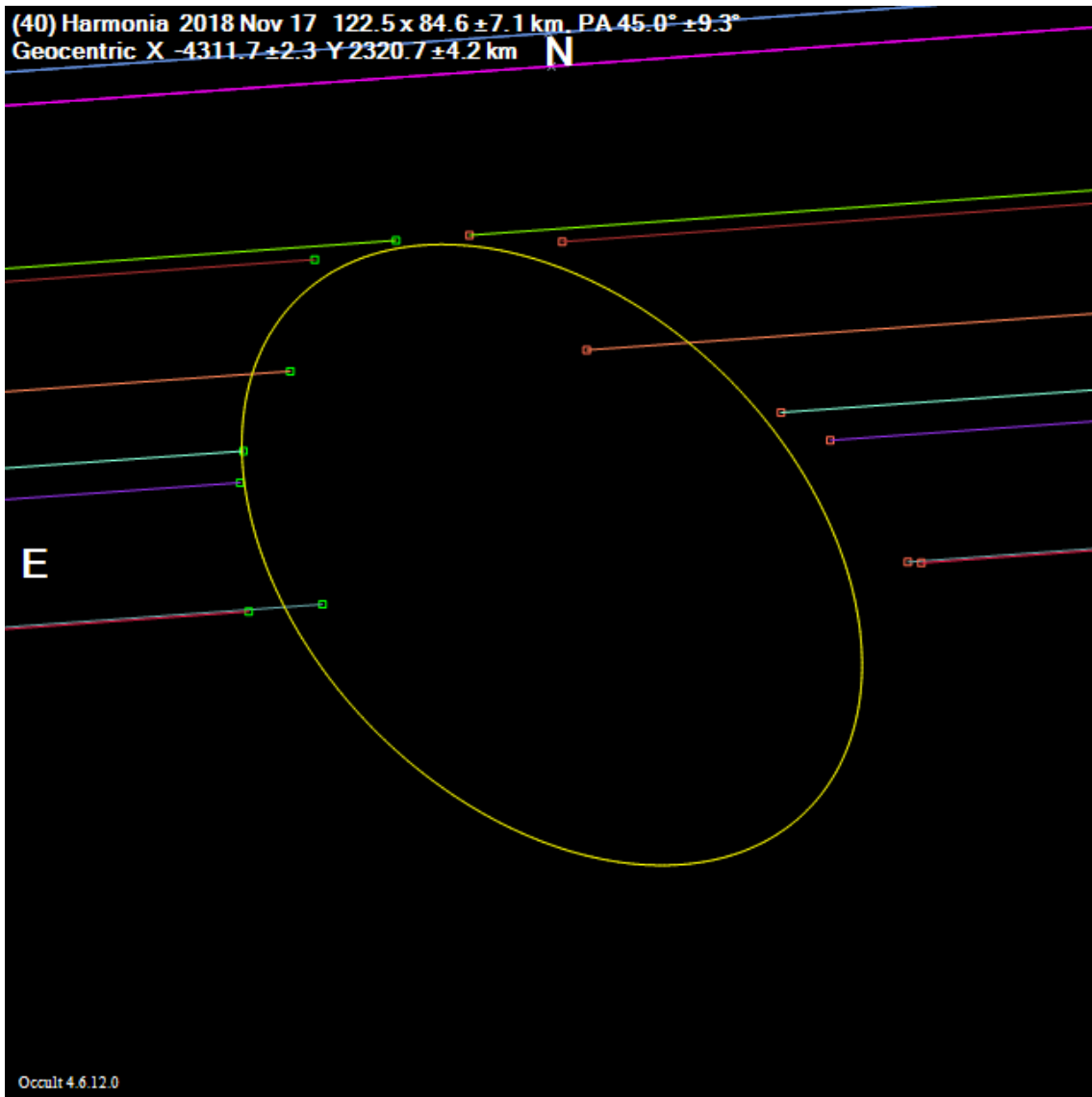
39_Laetitia_1998Mar21

(39) Laetitia 1998 Mar 21 $216.7 \pm 4.4 \times 144.4 \pm 5.7$ km. PA $51.6^\circ \pm 3.1^\circ$
Geocentric X 1468.4 ± 1.6 Y 3062.6 ± 2.3 km



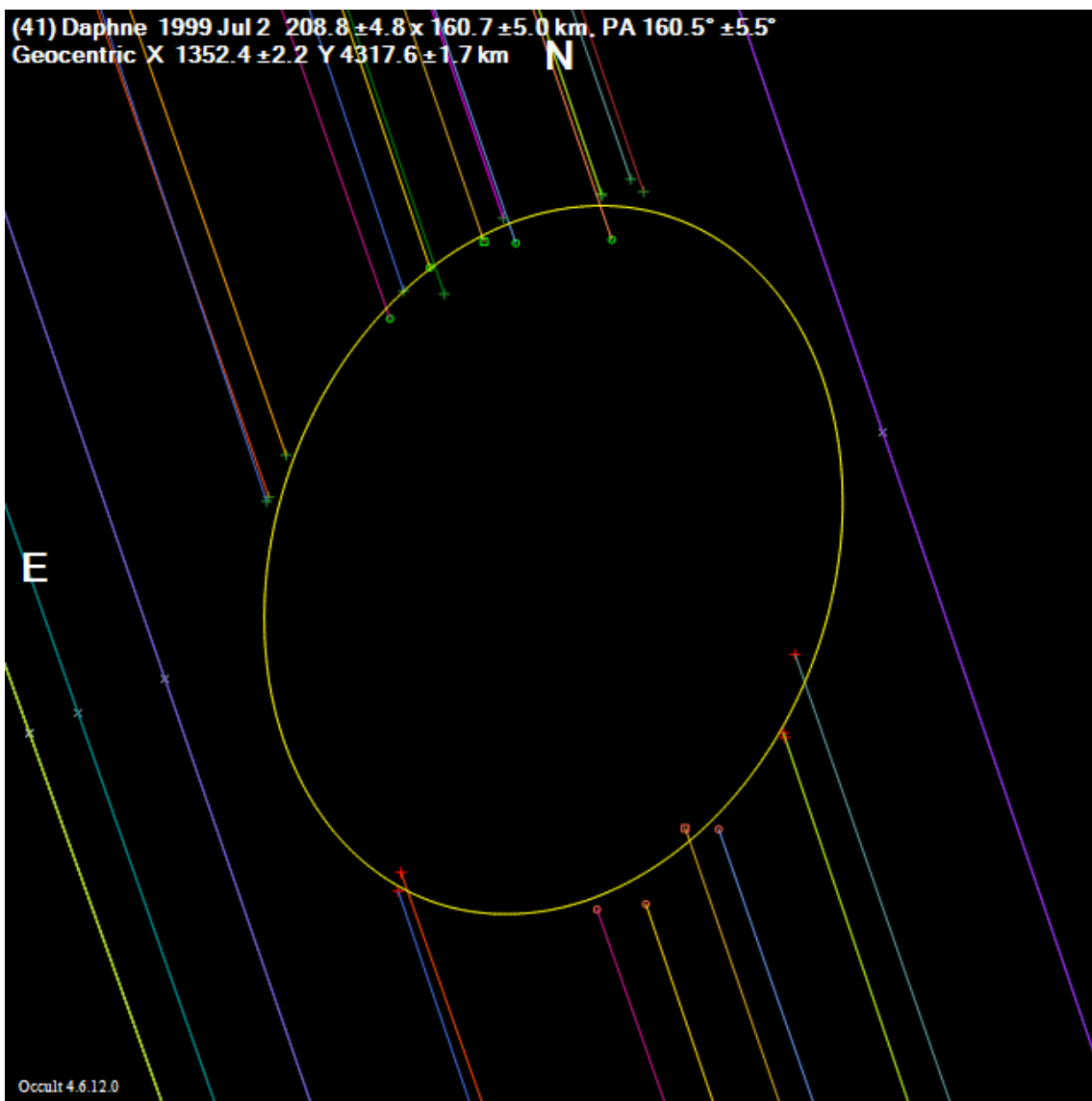
40_Harmonia_2018Nov17

(40) Harmonia 2018 Nov 17 122.5 x 84.6 ± 7.1 km PA 45.0° ± 9.3°
Geocentric X -4311.7 ± 2.3 Y 2320.7 ± 4.2 km



41_Daphne_1999Jul02

(41) Daphne 1999 Jul 2 $208.8 \pm 4.8 \times 160.7 \pm 5.0$ km, PA $160.5^\circ \pm 5.5^\circ$
Geocentric X 1352.4 ± 2.2 Y 4317.6 ± 1.7 km



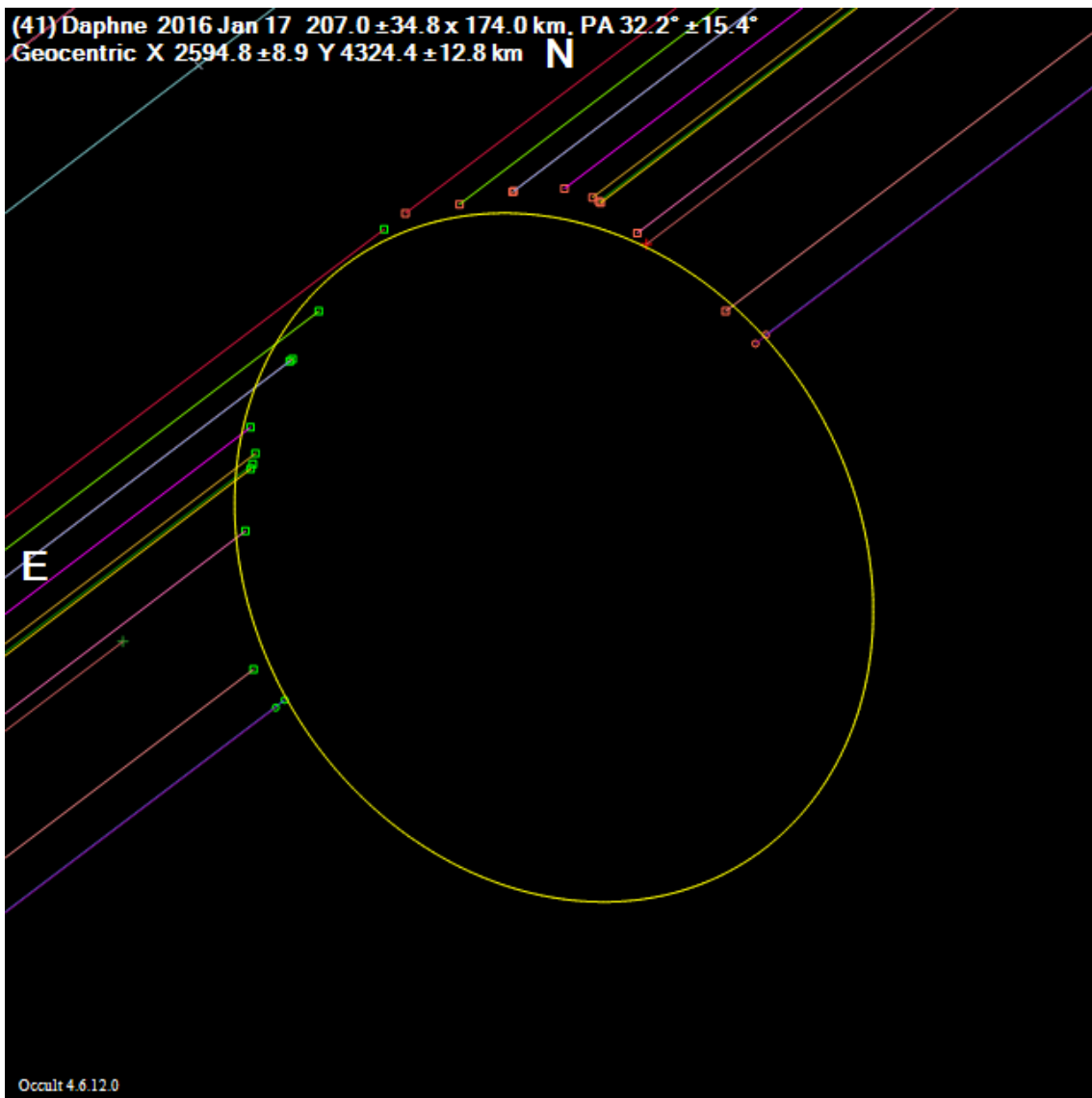
41_Daphne_2013Sep05

(41) Daphne 2013 Sep 5 $228.4 \pm 13.6 \times 166.0 \pm 45.7$ km. PA $151.1^\circ \pm 10.3^\circ$
Geocentric X 3230.7 ± 14.6 Y 5079.4 ± 9.9 km **N**



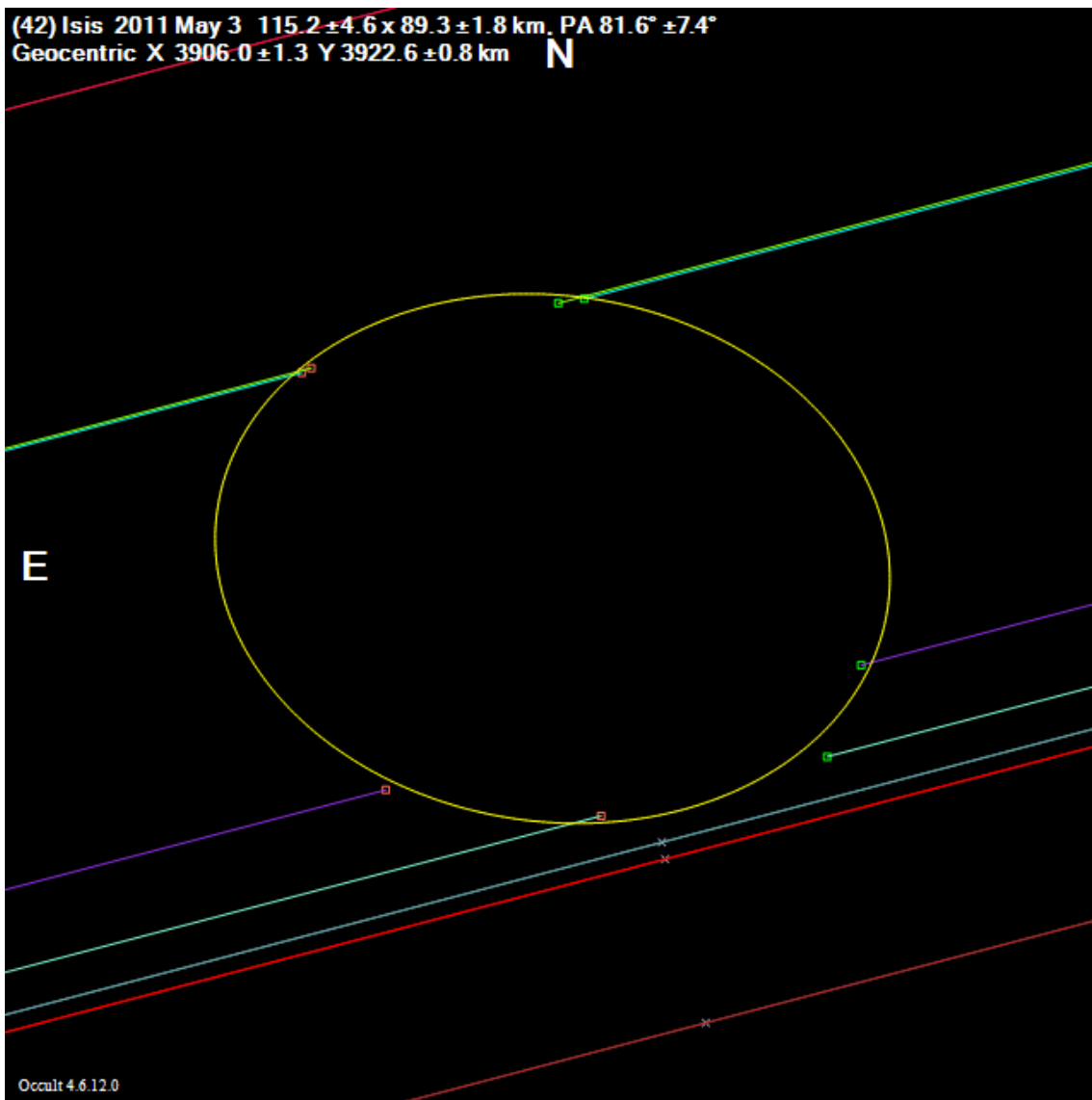
41_Daphne_2016Jan17

(41) Daphne 2016 Jan 17 207.0 ± 34.8 x 174.0 km. PA 32.2° ± 15.4°
Geocentric X 2594.8 ± 8.9 Y 4324.4 ± 12.8 km **N**



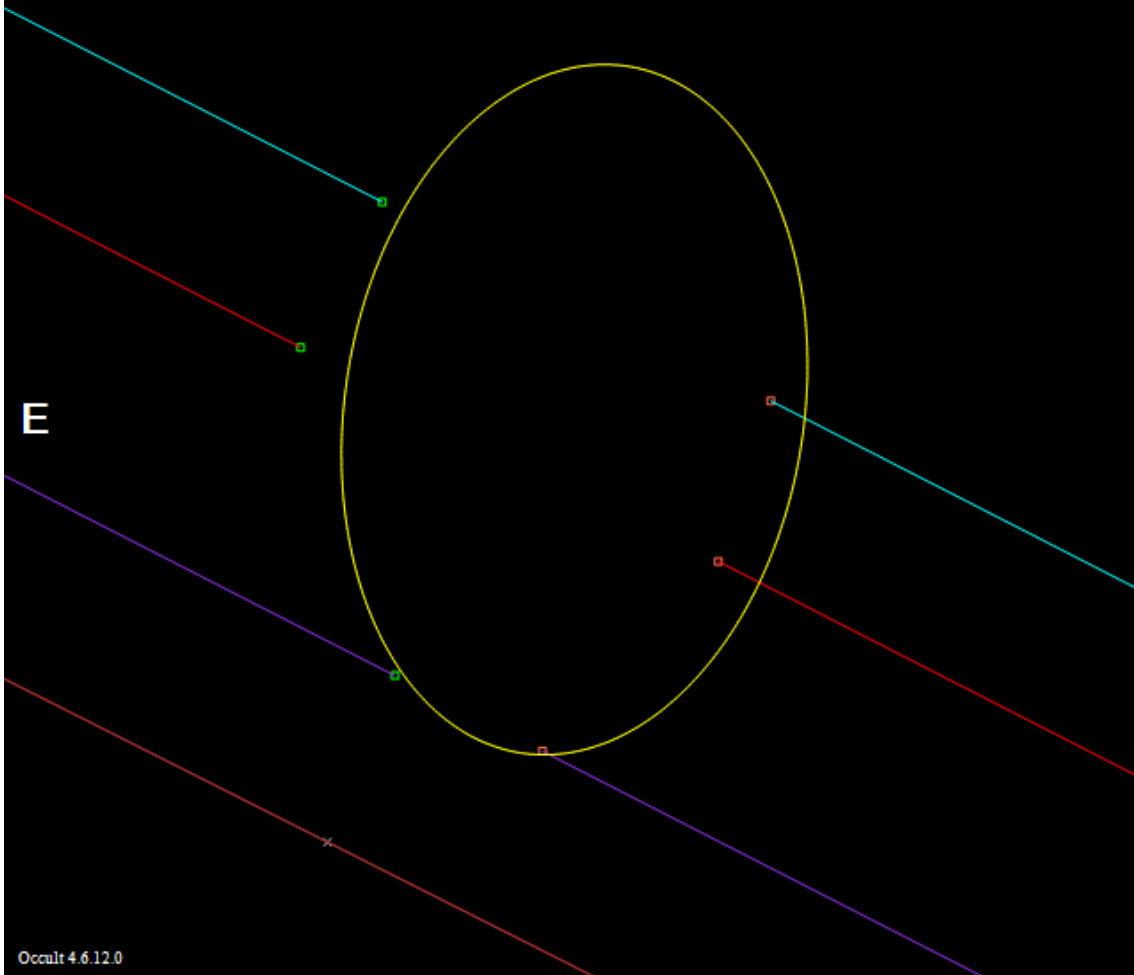
42_Isis_2011May03

(42) Isis 2011 May 3 $115.2 \pm 4.6 \times 89.3 \pm 1.8$ km, PA $81.6^\circ \pm 7.4^\circ$
Geocentric X 3906.0 ± 1.3 Y 3922.6 ± 0.8 km **N**



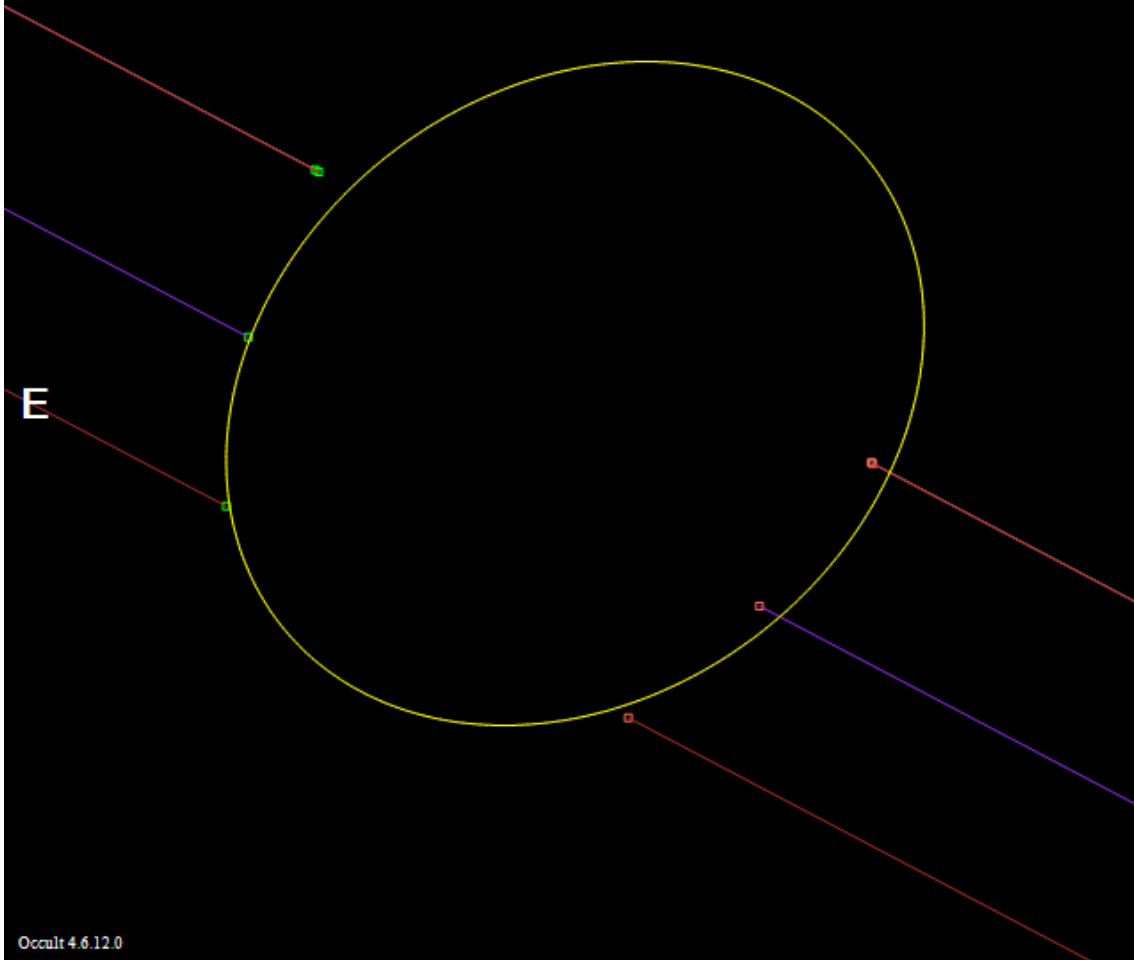
43_Ariadne_2008Sep20

(43) Ariadne 2008 Sep 20 66.4 x 43.9 km. PA 351.1° ± 10.6°
Geocentric X 2765.5 ± 1.6 Y 4046.9 ± 2.6 km N



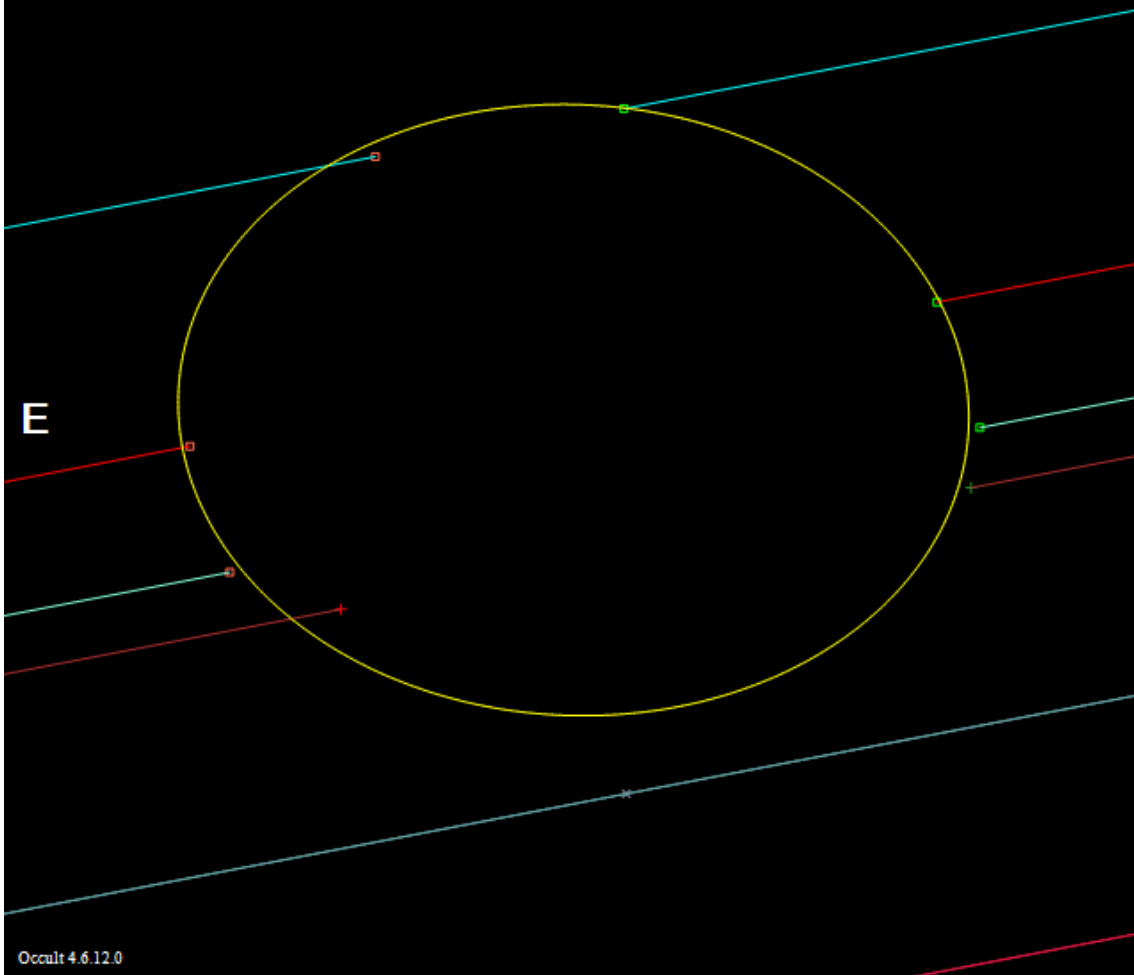
44_Nysa_2017Oct09

(44) Nysa 2017 Oct 9 $81.8 \pm 7.2 \times 66.1 \pm 2.3$ km, PA 128.0°
Geocentric X -4817.7 ± 1.9 Y 2829.5 ± 2.4 km **N**



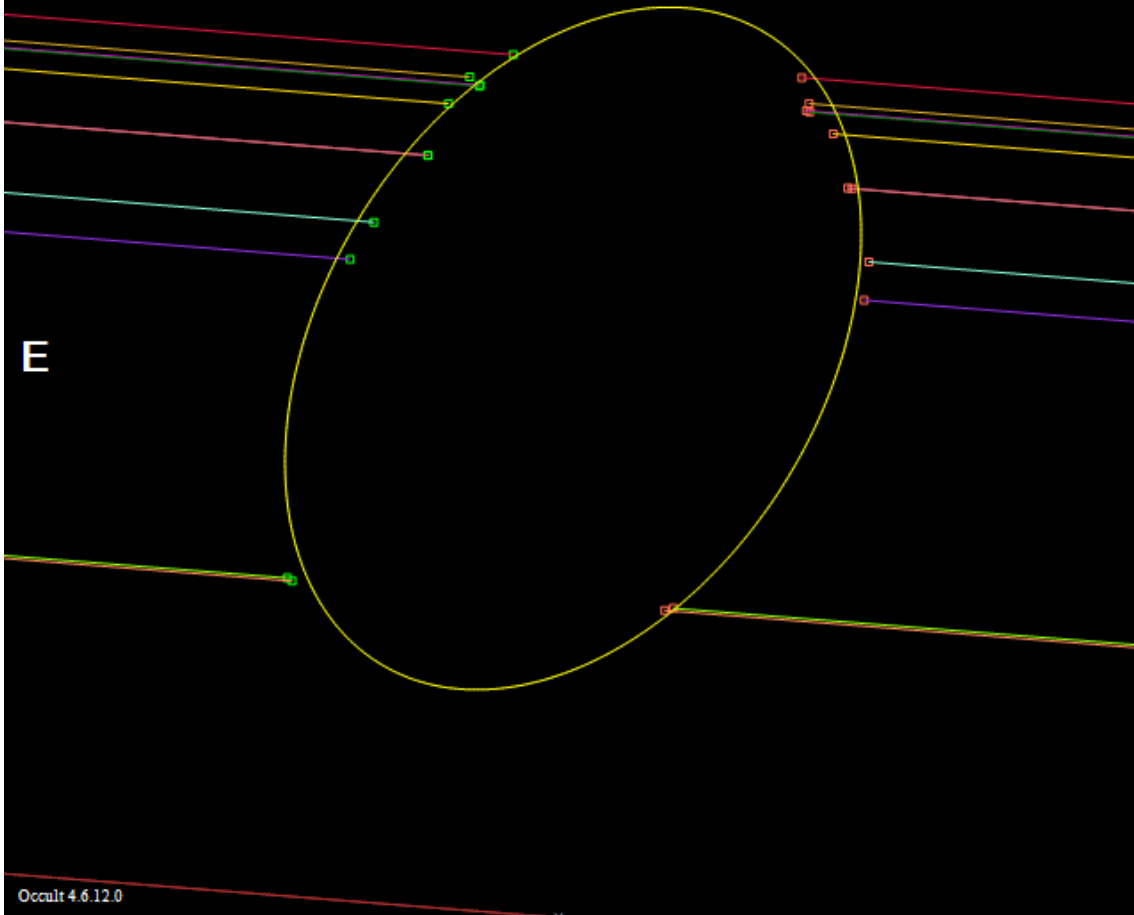
45_Eugenia_2013May20

(45) Eugenia 2013 May 20 $234.6 \pm 5.6 \times 181.0 \pm 11.4$ km, PA $87.3^\circ \pm 7.5^\circ$
Geocentric X 4704.7 ± 2.7 Y 2869.3 ± 5.1 km **N**



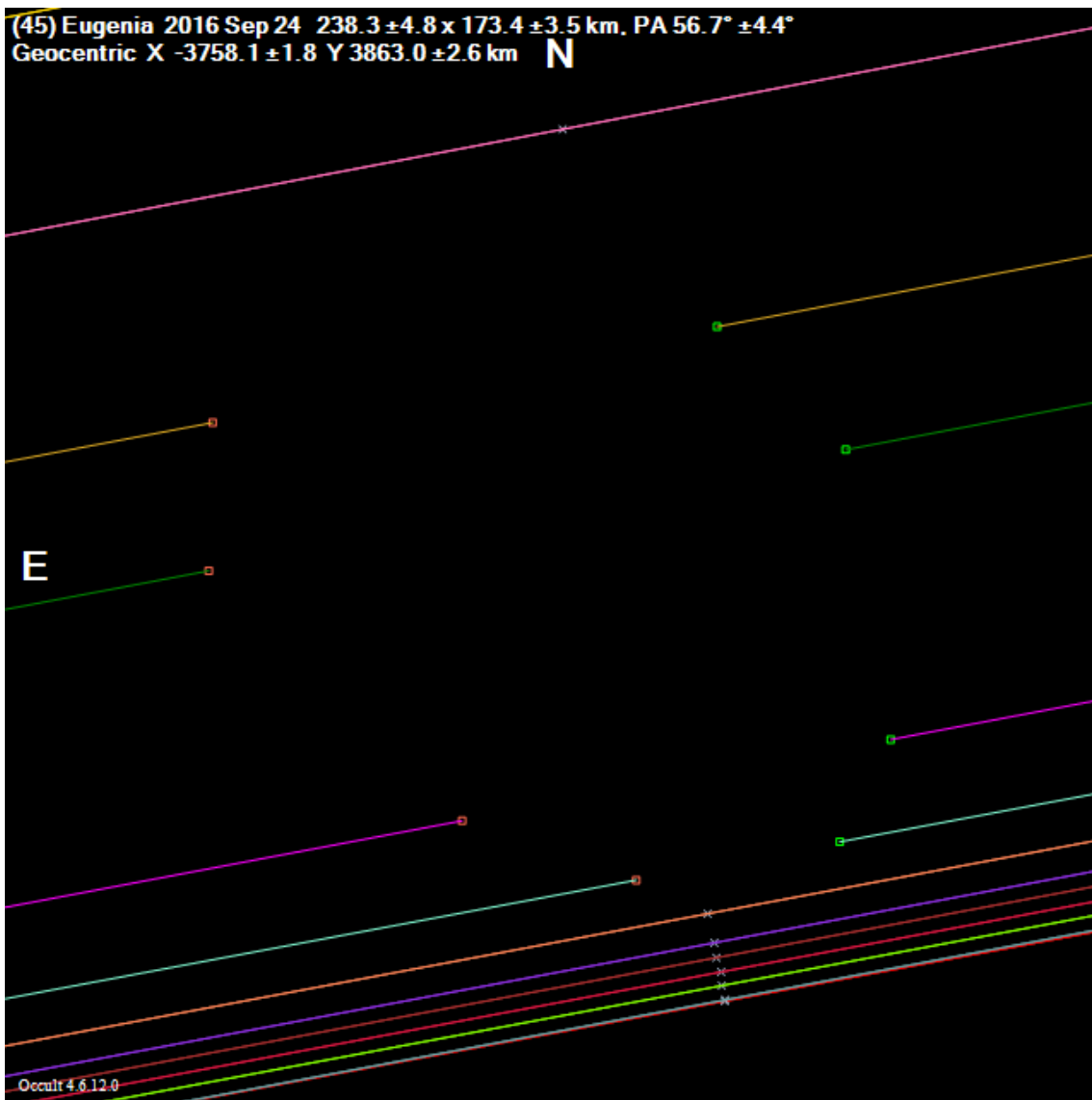
45_Eugenia_2014Jun13

(45) Eugenia 2014 Jun 13 $219.1 \pm 5.1 \times 148.6 \pm 2.8$ km, PA $148.4^\circ \pm 2.4^\circ$
Geocentric X -724.1 ± 1.1 Y 4945.1 ± 1.7 km **N**



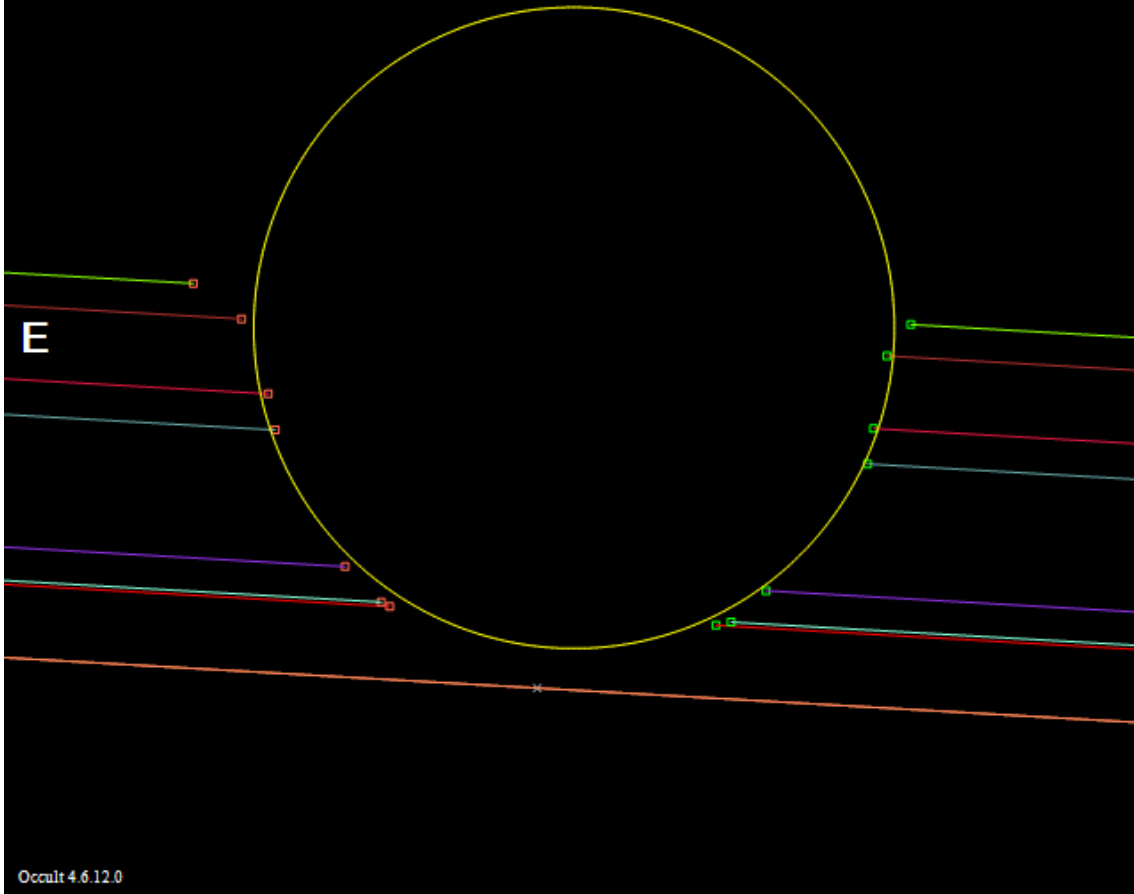
45_Eugenia_2016Sep24

(45) Eugenia 2016 Sep 24 $238.3 \pm 4.8 \times 173.4 \pm 3.5$ km, PA $56.7^\circ \pm 4.4^\circ$
Geocentric X -3758.1 ± 1.8 Y 3863.0 ± 2.6 km **N**



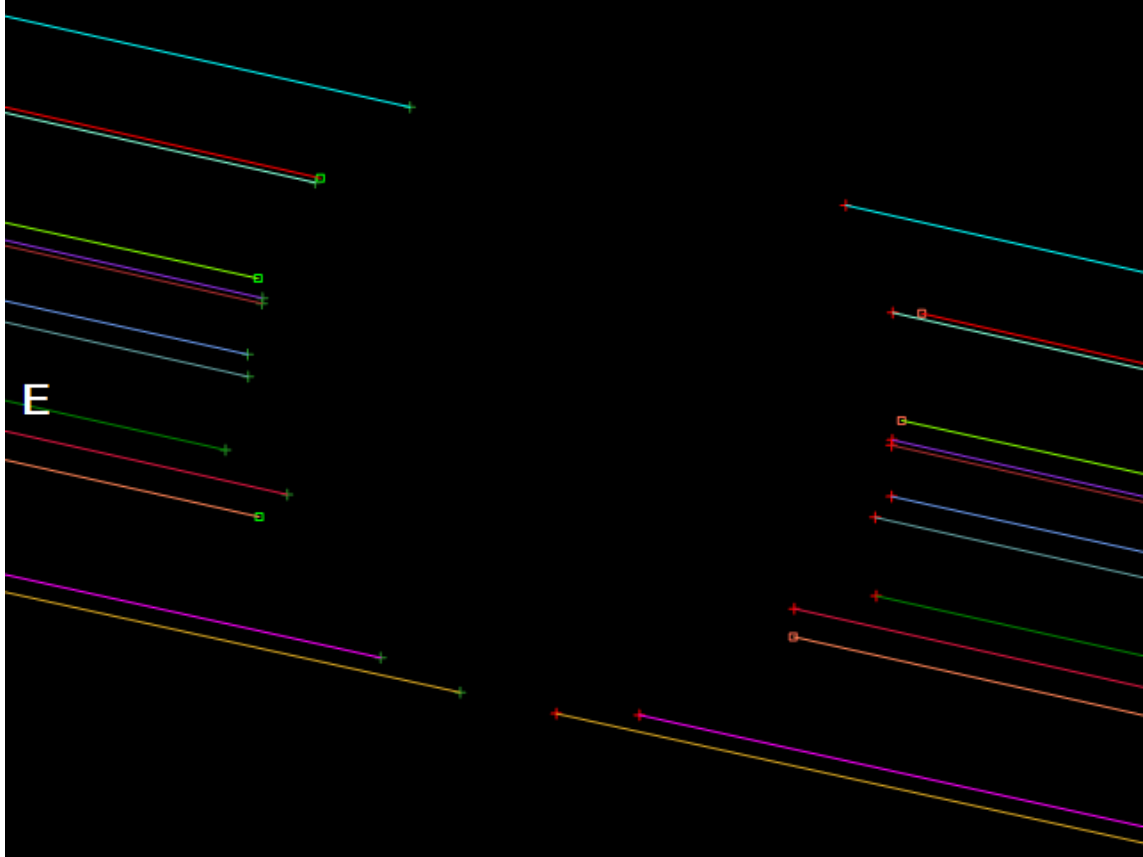
45_Eugenia_2017May02

(45) Eugenia 2017 May 2 $190.0 \pm 33.3 \times 190.0 \pm 4.4$ km, PA 0.0°
Geocentric X 4085.3 ± 1.7 Y 4507.1 ± 13.9 km **N**



47_Aglaja_1984Sep16

(47) Aglaja 1984 Sep 16 $136.3 \pm 1.7 \times 136.2 \pm 2.8$ km. PA $43.6^\circ \pm 1244.3^\circ$
Geocentric X -4545.2 ± 0.6 Y 3747.6 ± 1.2 km **N**



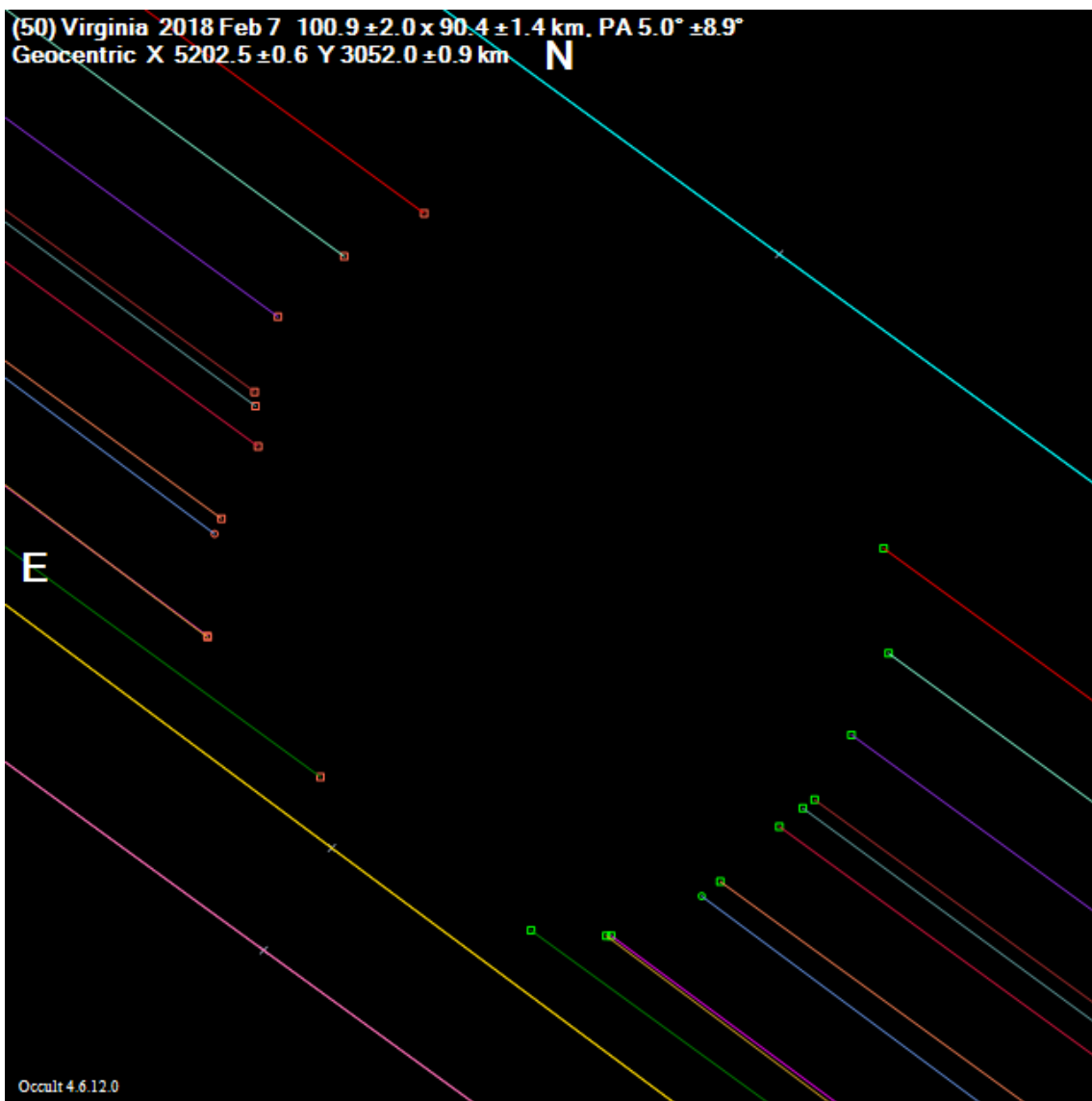
48_Doris_2011Sep14

(48) Doris 2011 Sep 14 $263.5 \pm 20.4 \times 150.2 \pm 35.3$ km, PA $39.0^\circ \pm 12.0^\circ$
Geocentric X -2045.6 ± 5.4 Y 4810.5 ± 19.8 km **N**



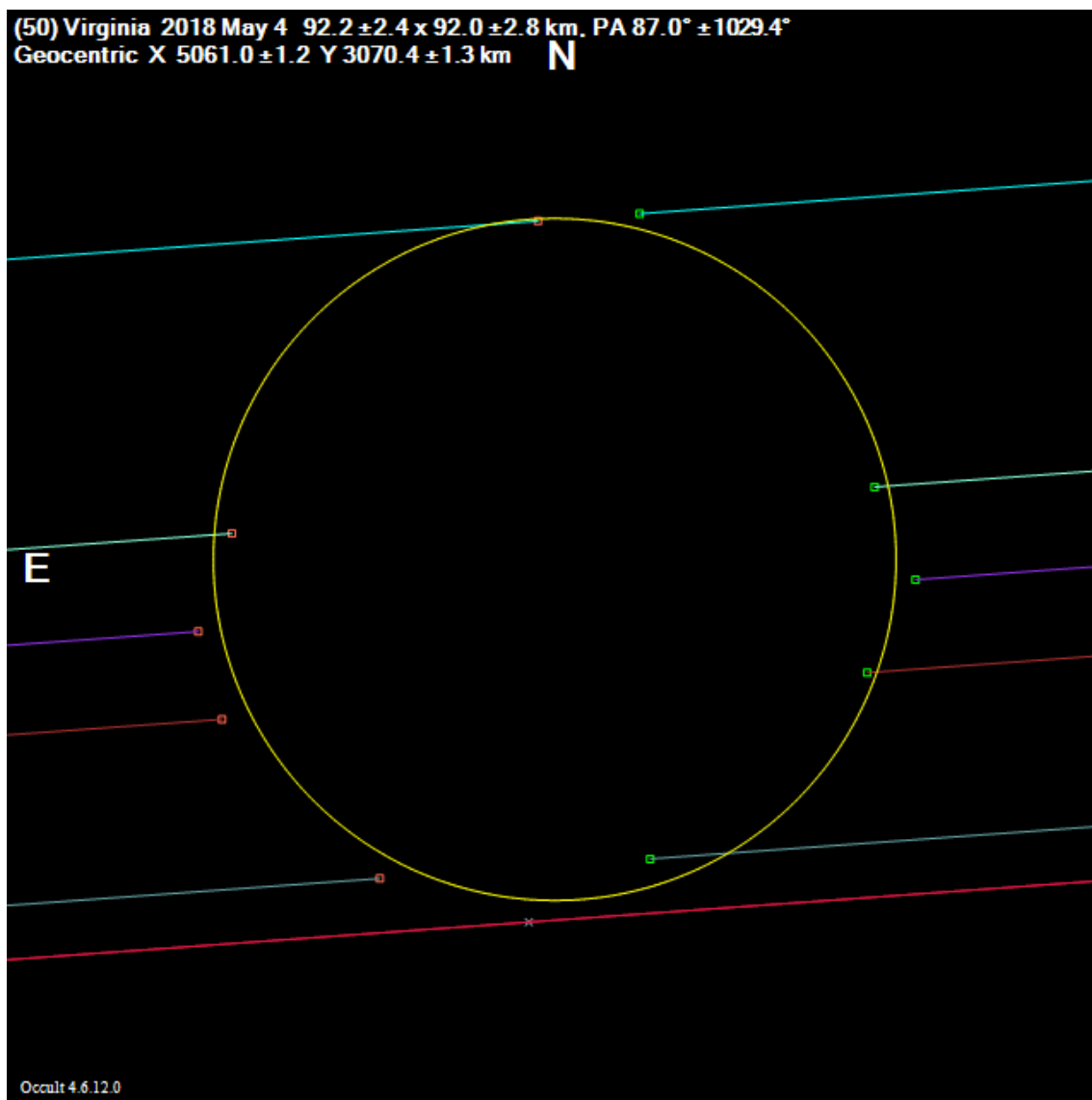
50_Virginia_2018Feb07

(50) Virginia 2018 Feb 7 $100.9 \pm 2.0 \times 90.4 \pm 1.4$ km. PA $5.0^\circ \pm 8.9^\circ$
Geocentric X 5202.5 ± 0.6 Y 3052.0 ± 0.9 km



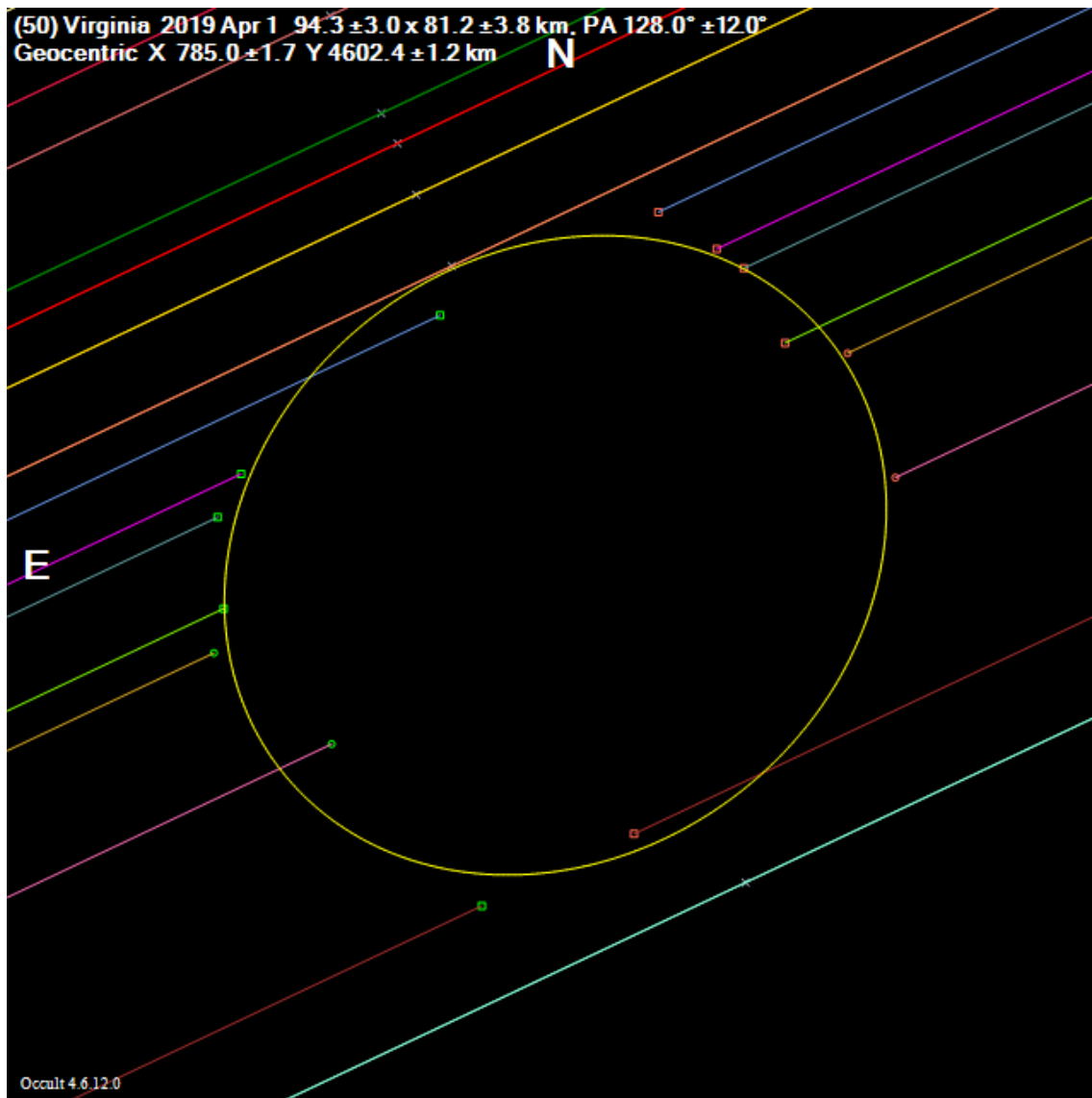
50_Virginia_2018May04

(50) Virginia 2018 May 4 $92.2 \pm 2.4 \times 92.0 \pm 2.8$ km. PA $87.0^\circ \pm 1029.4^\circ$
Geocentric X 5061.0 ± 1.2 Y 3070.4 ± 1.3 km N



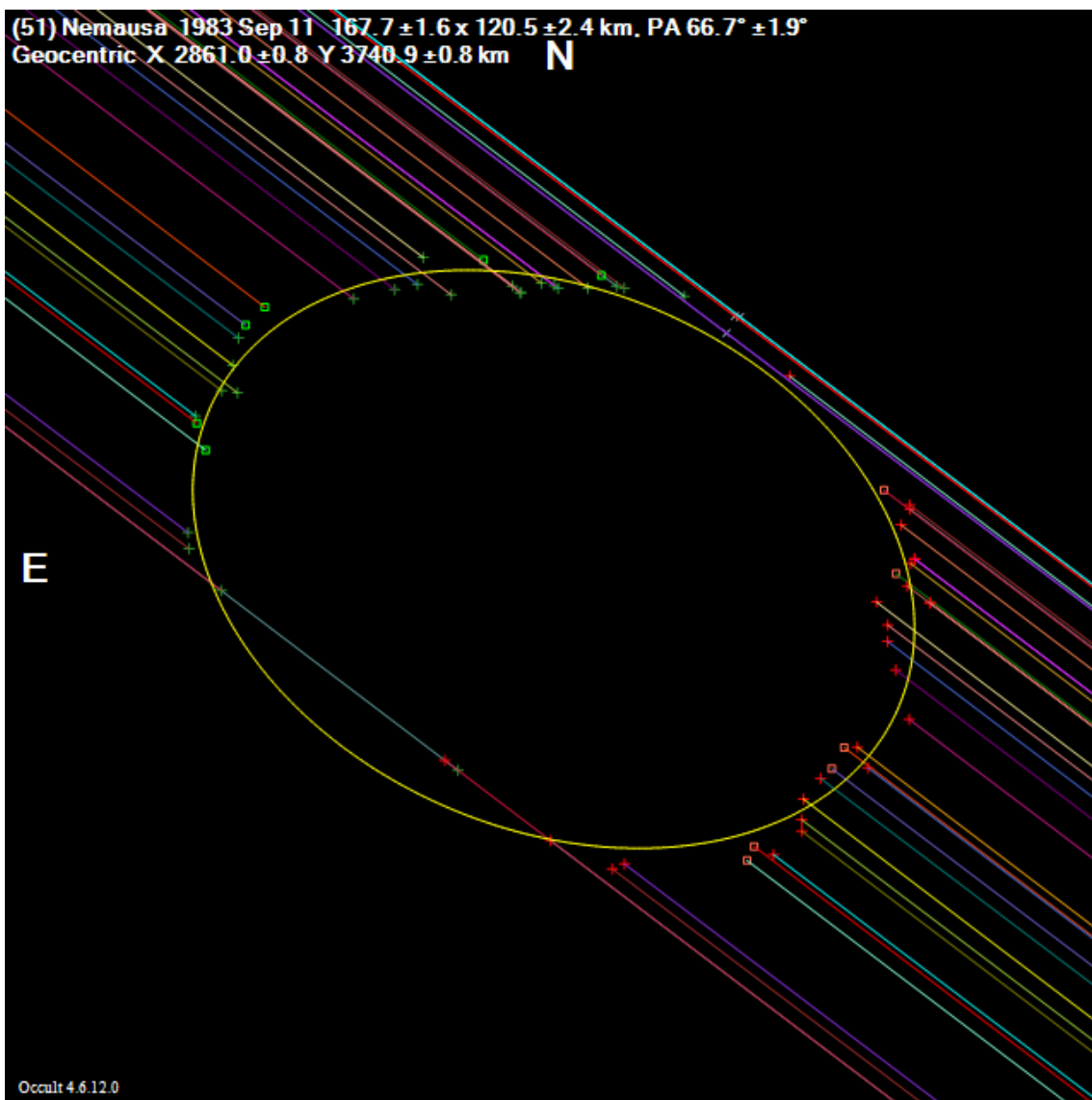
50_Virginia_2019Apr01

(50) Virginia 2019 Apr 1 $94.3 \pm 3.0 \times 81.2 \pm 3.8$ km. PA $128.0^\circ \pm 12.0^\circ$
Geocentric X 785.0 ± 1.7 Y 4602.4 ± 1.2 km



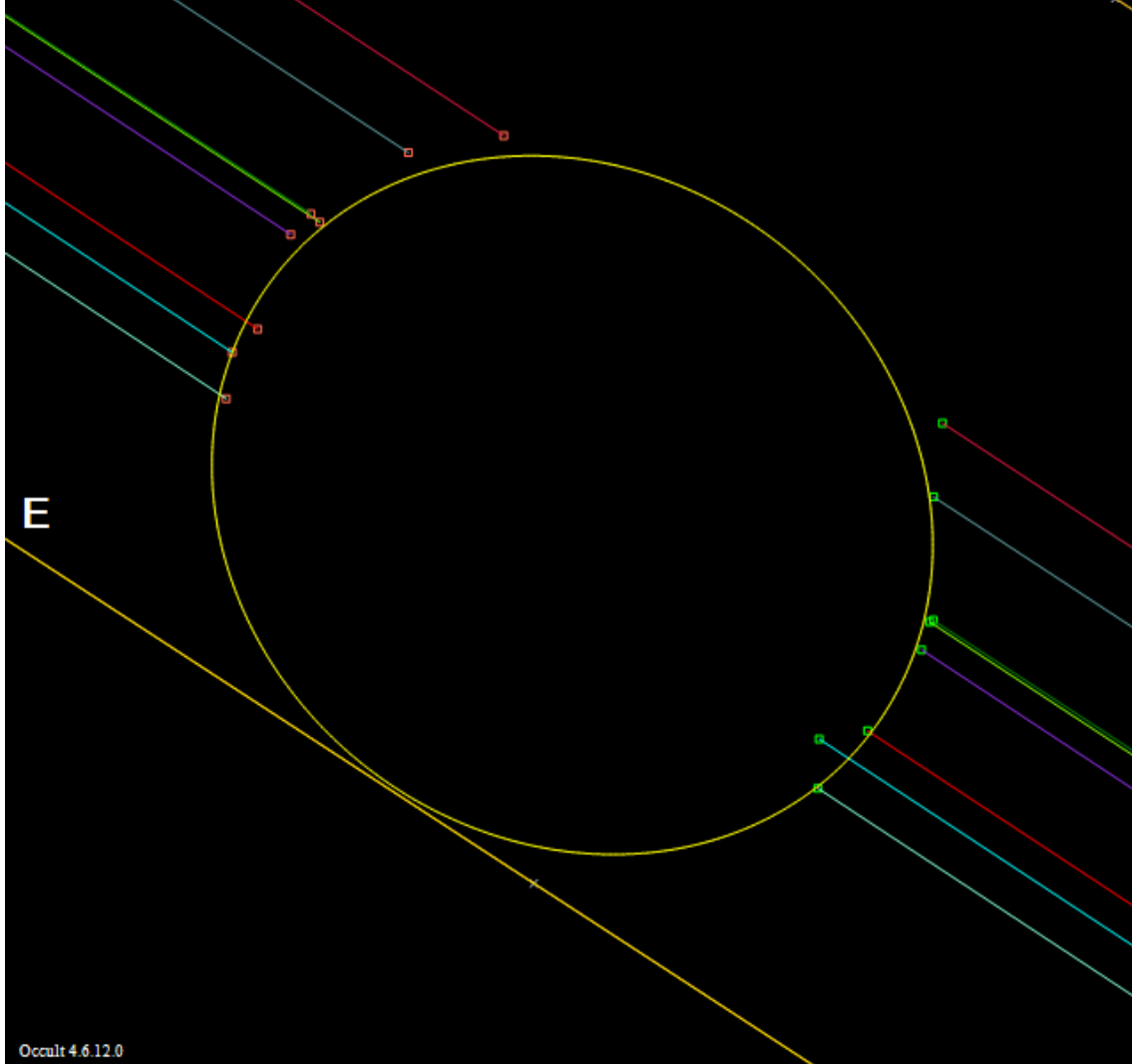
51_Nemausa_1983Sep11

(51) Nemausa 1983 Sep 11 $167.7 \pm 1.6 \times 120.5 \pm 2.4$ km, PA $66.7^\circ \pm 1.9^\circ$
Geocentric X 2861.0 ± 0.8 Y 3740.9 ± 0.8 km **N**



51_Nemausa_2014Mar08

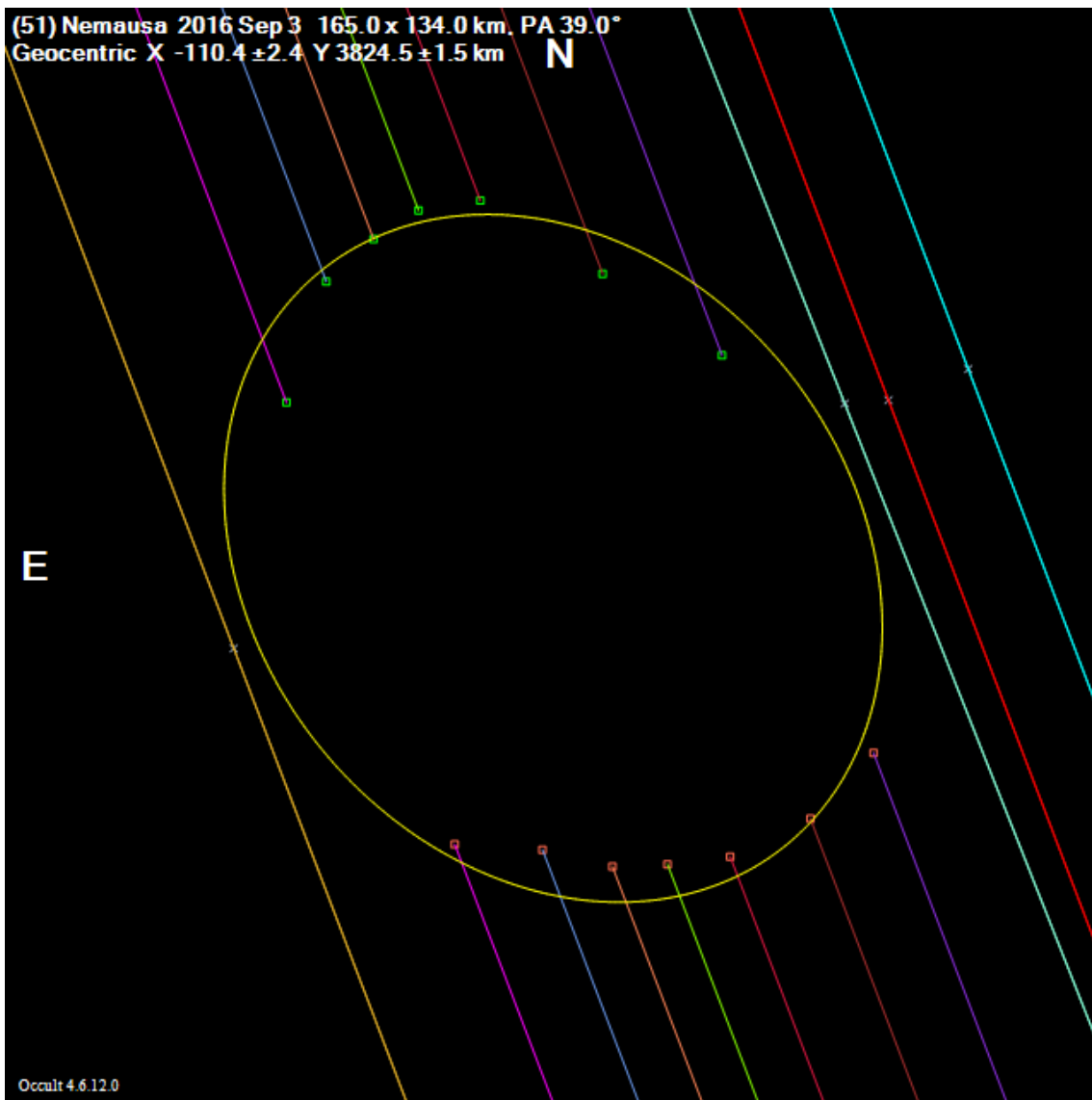
(51) Nemausa 2014 Mar 8 $161.9 \pm 2.2 \times 143.7 \pm 12.8$ km, PA $52.8^\circ \pm 9.3^\circ$
Geocentric X 19.3 ± 2.2 Y 3290.3 ± 3.2 km



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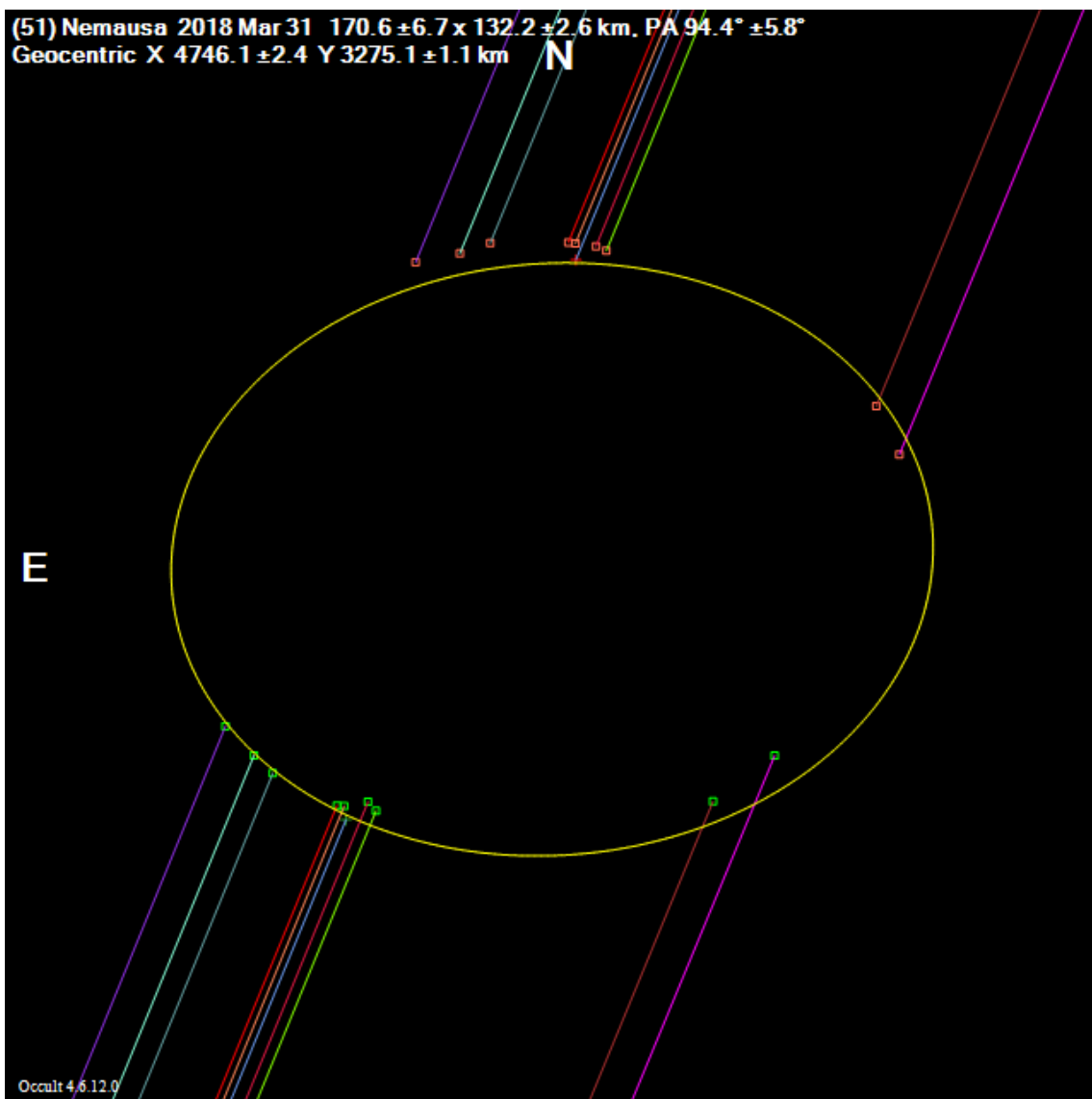
51_Nemausa_2016Sep03

(51) Nemausa 2016 Sep 3 165.0 x 134.0 km. PA 39.0°
Geocentric X -110.4 ± 2.4 Y 3824.5 ± 1.5 km



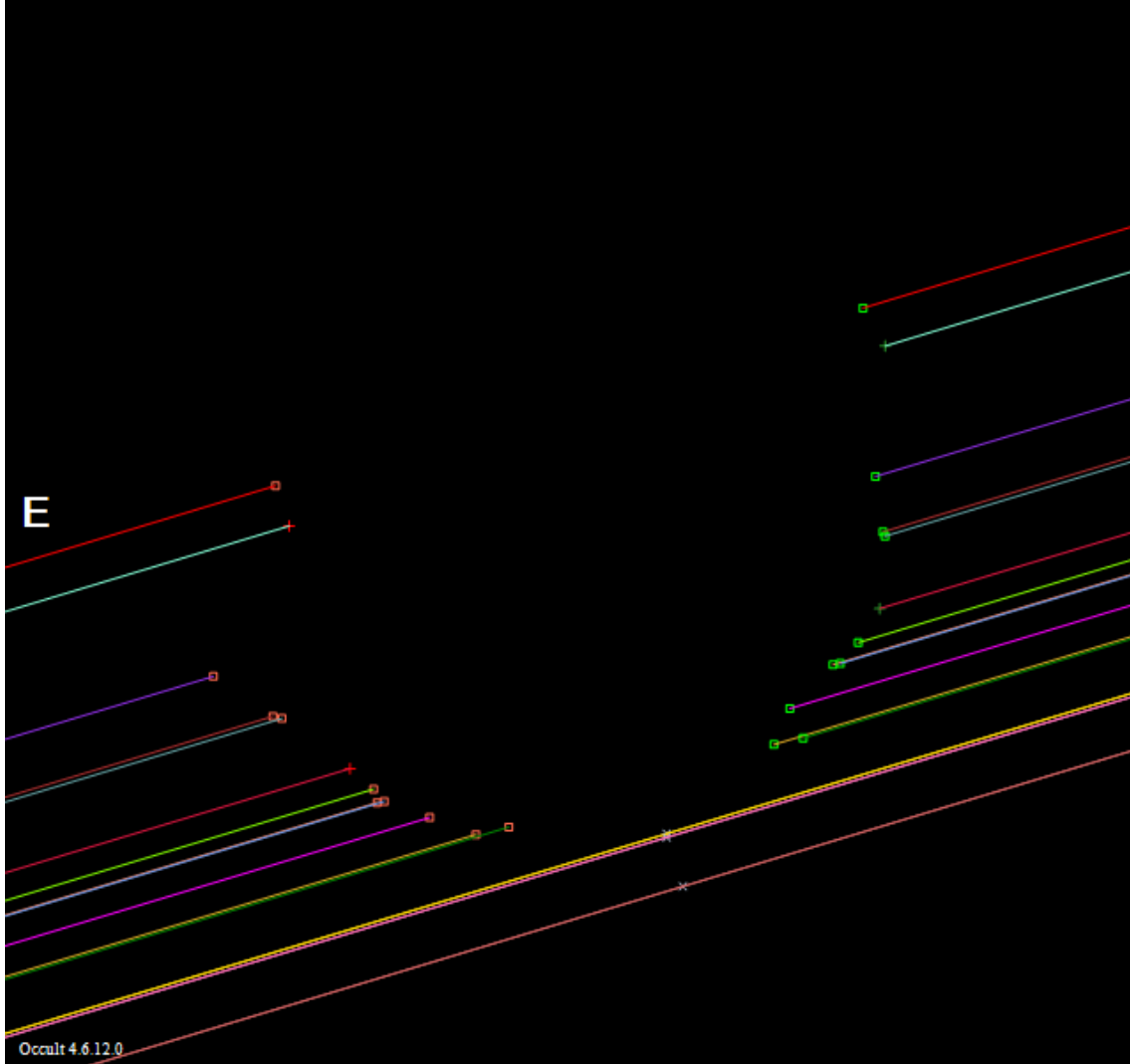
51_Nemausa_2018Mar31

(51) Nemausa 2018 Mar 31 $170.6 \pm 6.7 \times 132.2 \pm 2.6$ km, PA $94.4^\circ \pm 5.8^\circ$
Geocentric X 4746.1 ± 2.4 Y 3275.1 ± 1.1 km



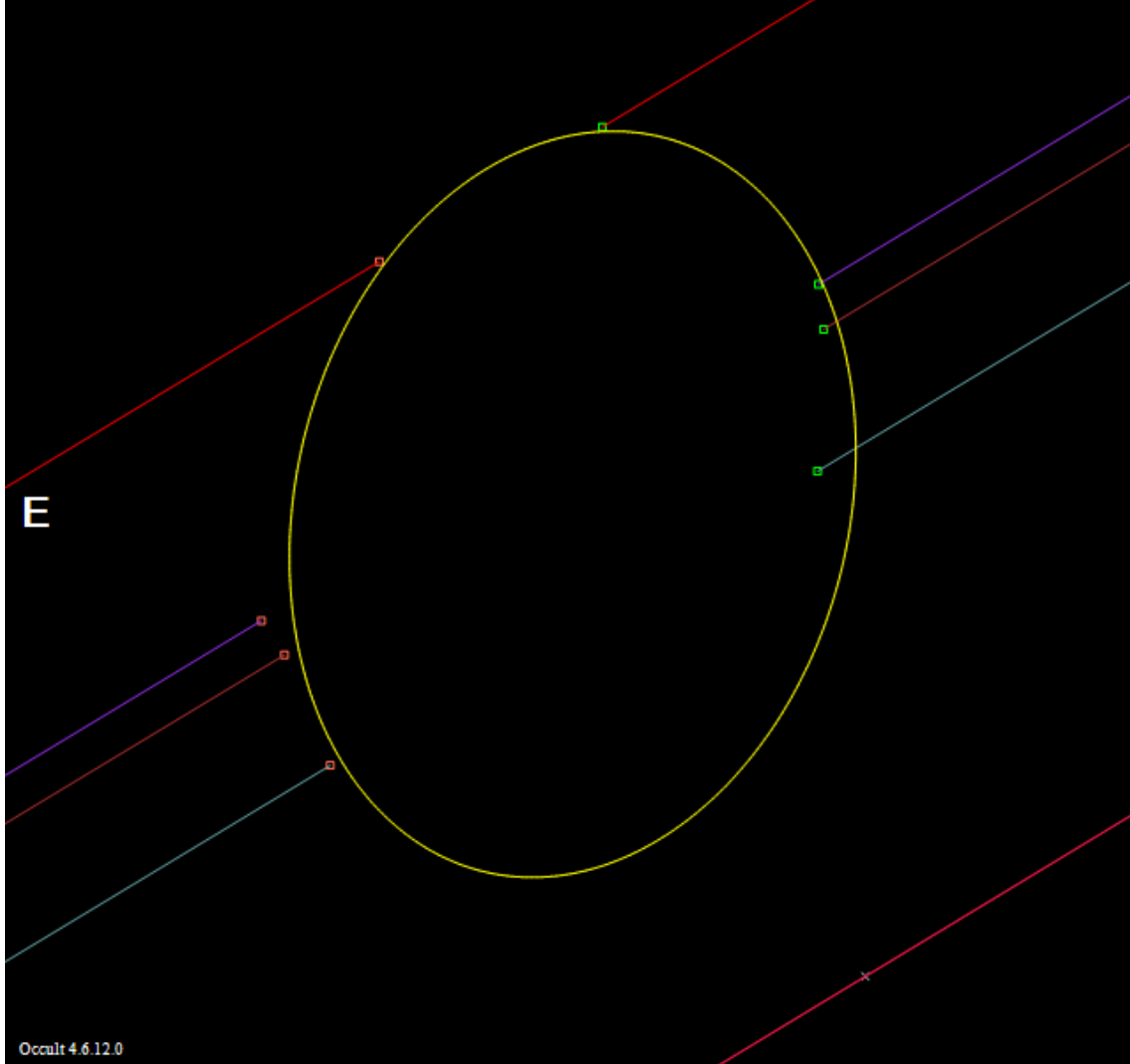
52_Europa_2005Dec03

(52) Europa 2005 Dec 3 $346.7 \pm 9.2 \times 286.4 \pm 20.0$ km. PA $125.0^\circ \pm 9.6^\circ$
Geocentric X -4164.6 ± 4.0 Y 3950.6 ± 9.0 km **N**



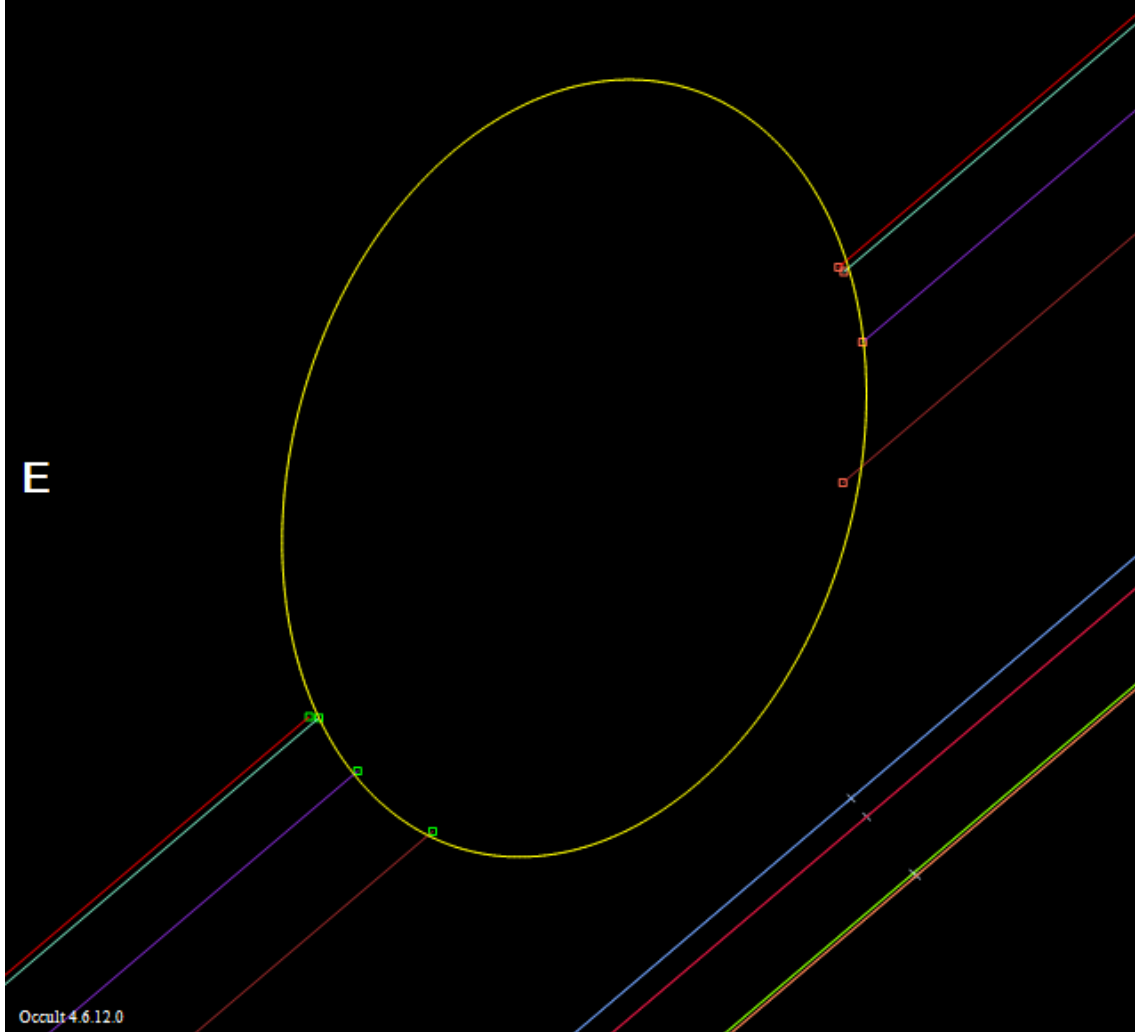
52_Europa_2011Jul04

(52) Europa 2011 Jul 4 376.9 ± 33.6 x 276.1 ± 15.6 km. PA 346.4° ± 11.8°
Geocentric X 4584.4 ± 6.0 Y 3002.9 ± 17.5 km **N**



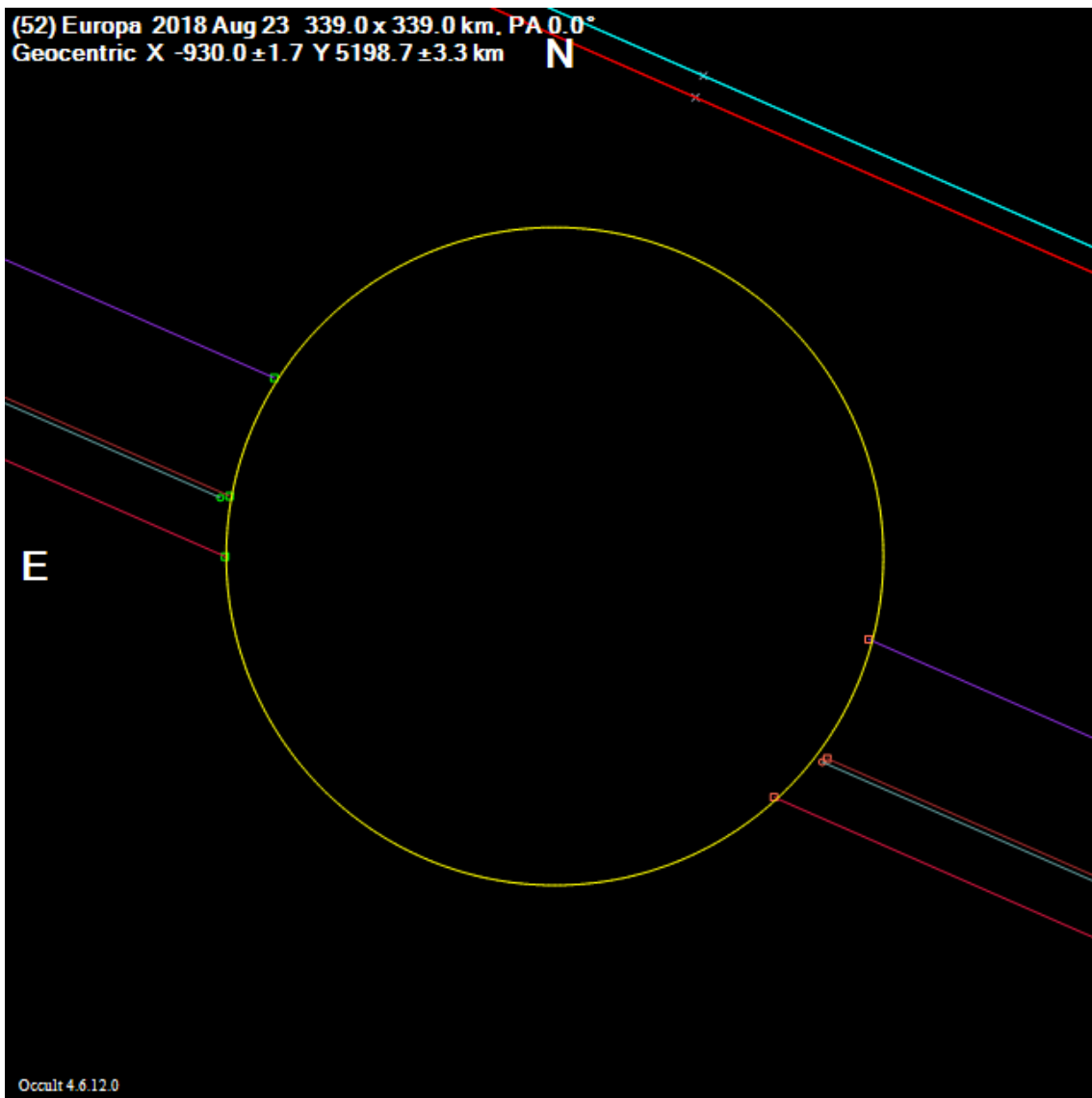
52_Europa_2011Mar03

(52) Europa 2011 Mar 3 393.9 ±57.5 x 279.2 ±48.1 km, PA 163.4° ±23.1°
Geocentric X 800.6 ±11.4 Y 2537.1 ±29.2 km **N**



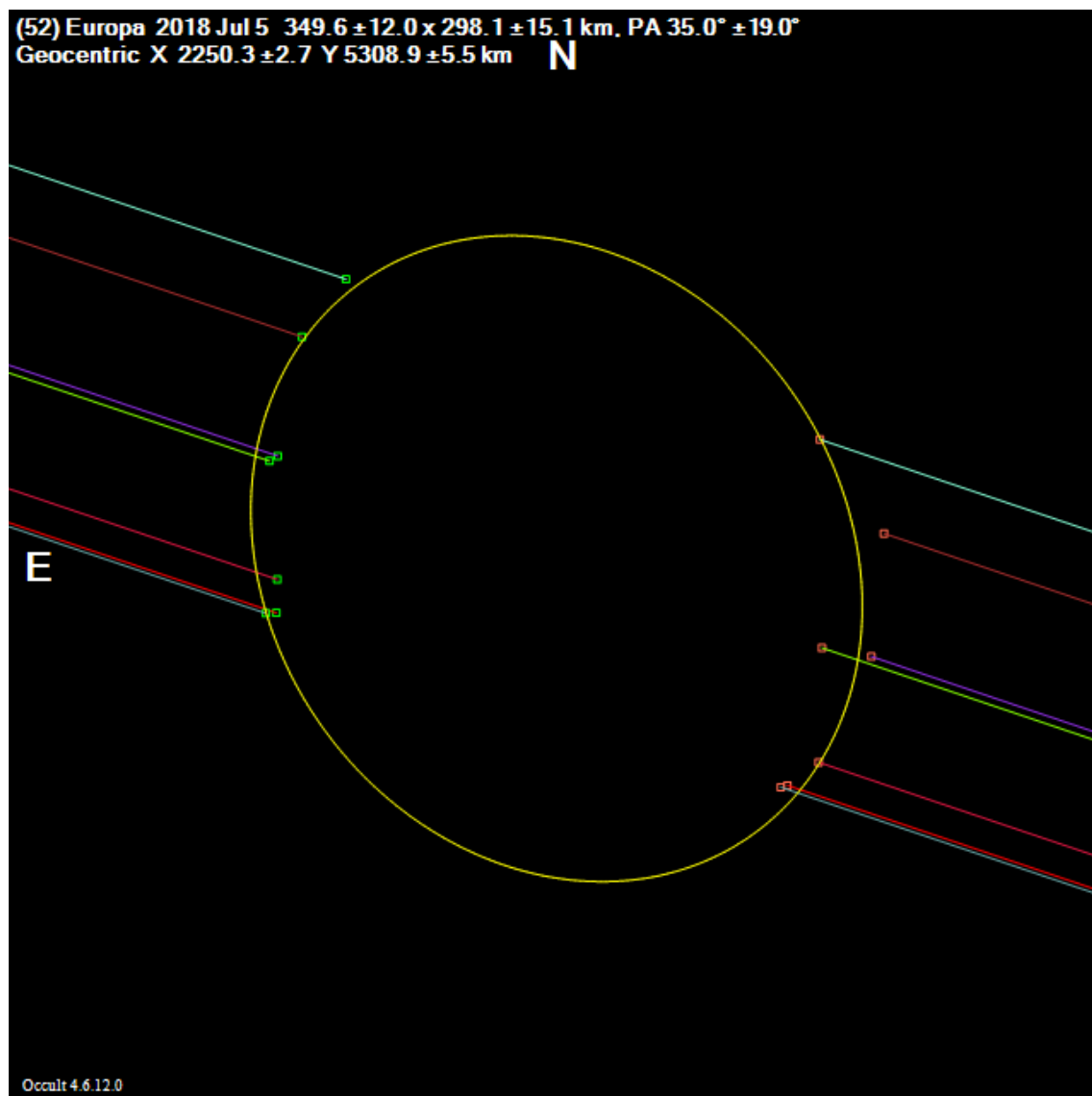
52_Europa_2018Aug23

(52) Europa 2018 Aug 23 339.0 x 339.0 km. PA 0.0°
Geocentric X -930.0 ± 1.7 Y 5198.7 ± 3.3 km



52_Europa_2018Jul05

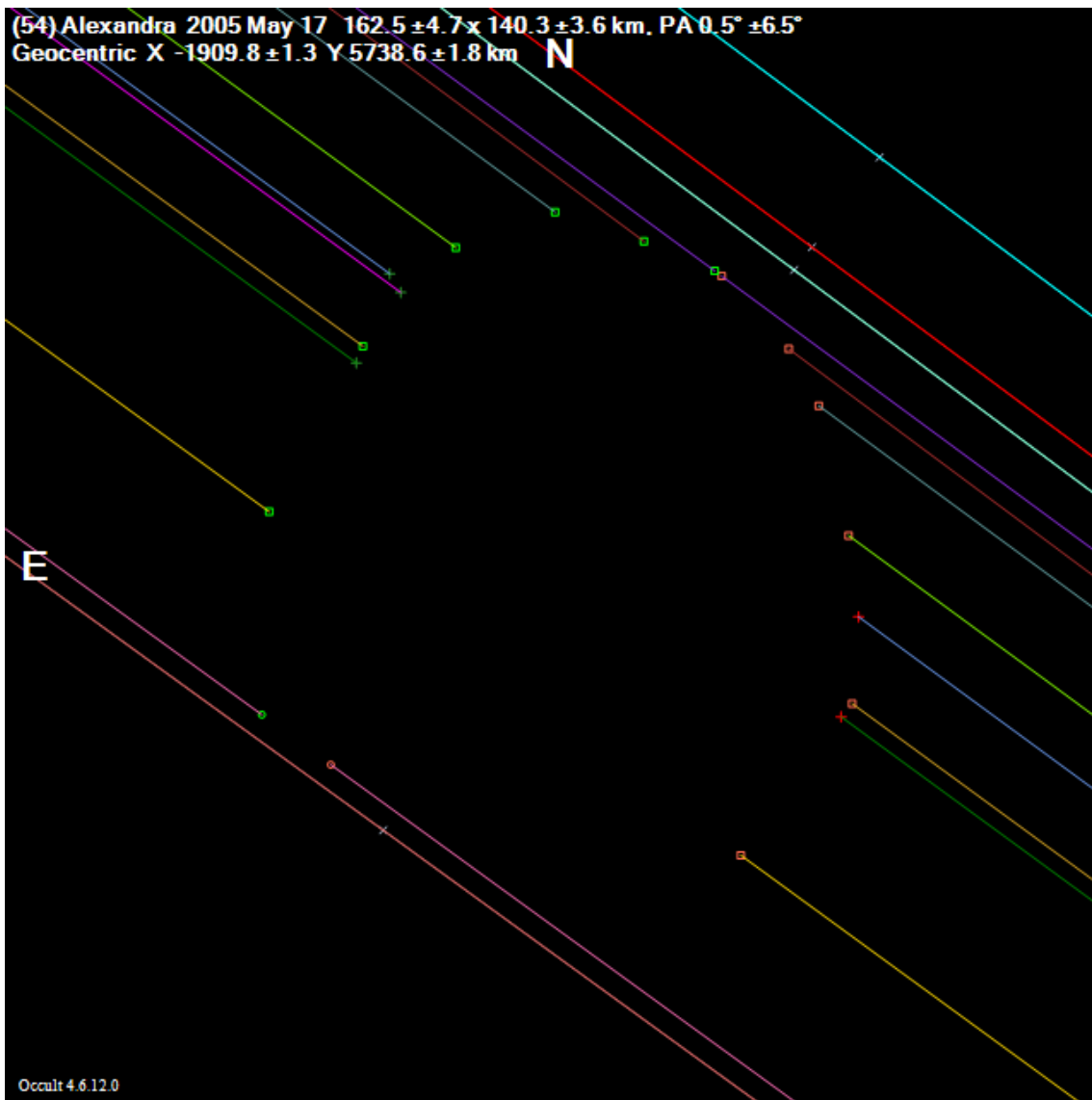
(52) Europa 2018 Jul 5 $349.6 \pm 12.0 \times 298.1 \pm 15.1$ km, PA $35.0^\circ \pm 19.0^\circ$
Geocentric X 2250.3 ± 2.7 Y 5308.9 ± 5.5 km **N**



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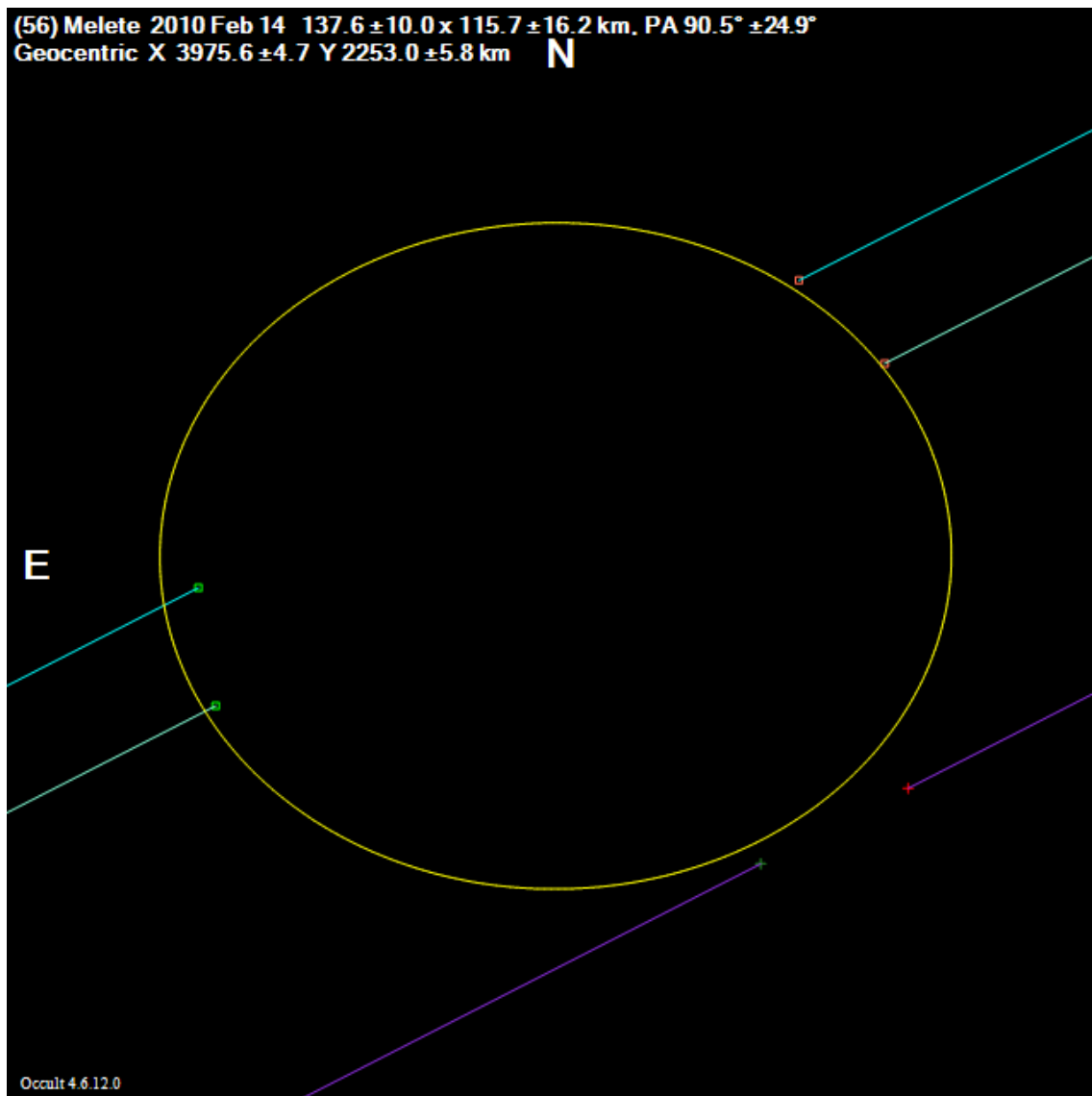
54_Alexandra_2005May17

(54) Alexandra 2005 May 17 $162.5 \pm 4.7 \times 140.3 \pm 3.6$ km. PA $0.5^\circ \pm 6.5^\circ$
Geocentric X -1909.8 ± 1.3 Y 5738.6 ± 1.8 km



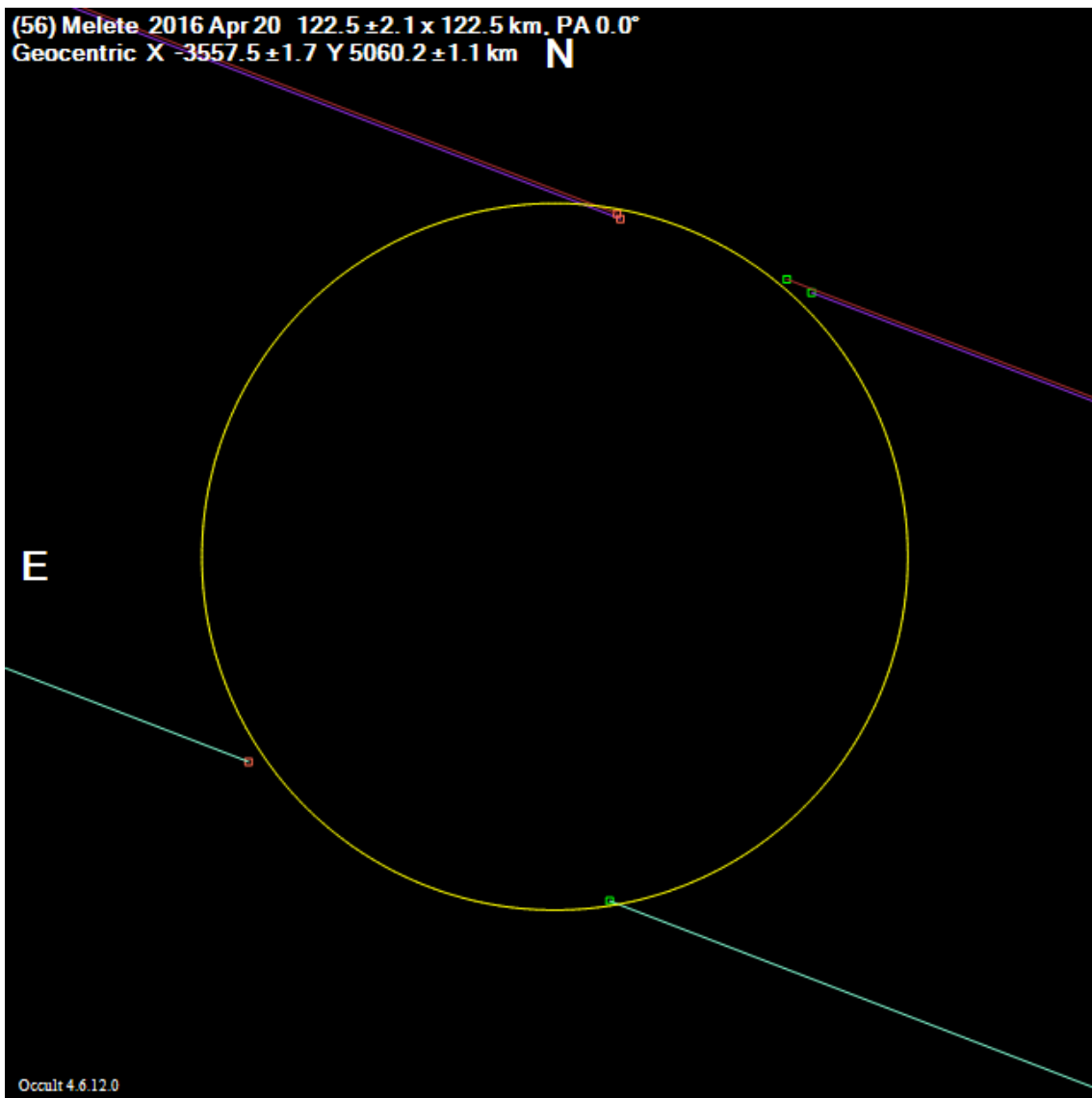
56_Melete_2010Feb14

(56) Melete 2010 Feb 14 $137.6 \pm 10.0 \times 115.7 \pm 16.2$ km. PA $90.5^\circ \pm 24.9^\circ$
Geocentric X 3975.6 ± 4.7 Y 2253.0 ± 5.8 km **N**



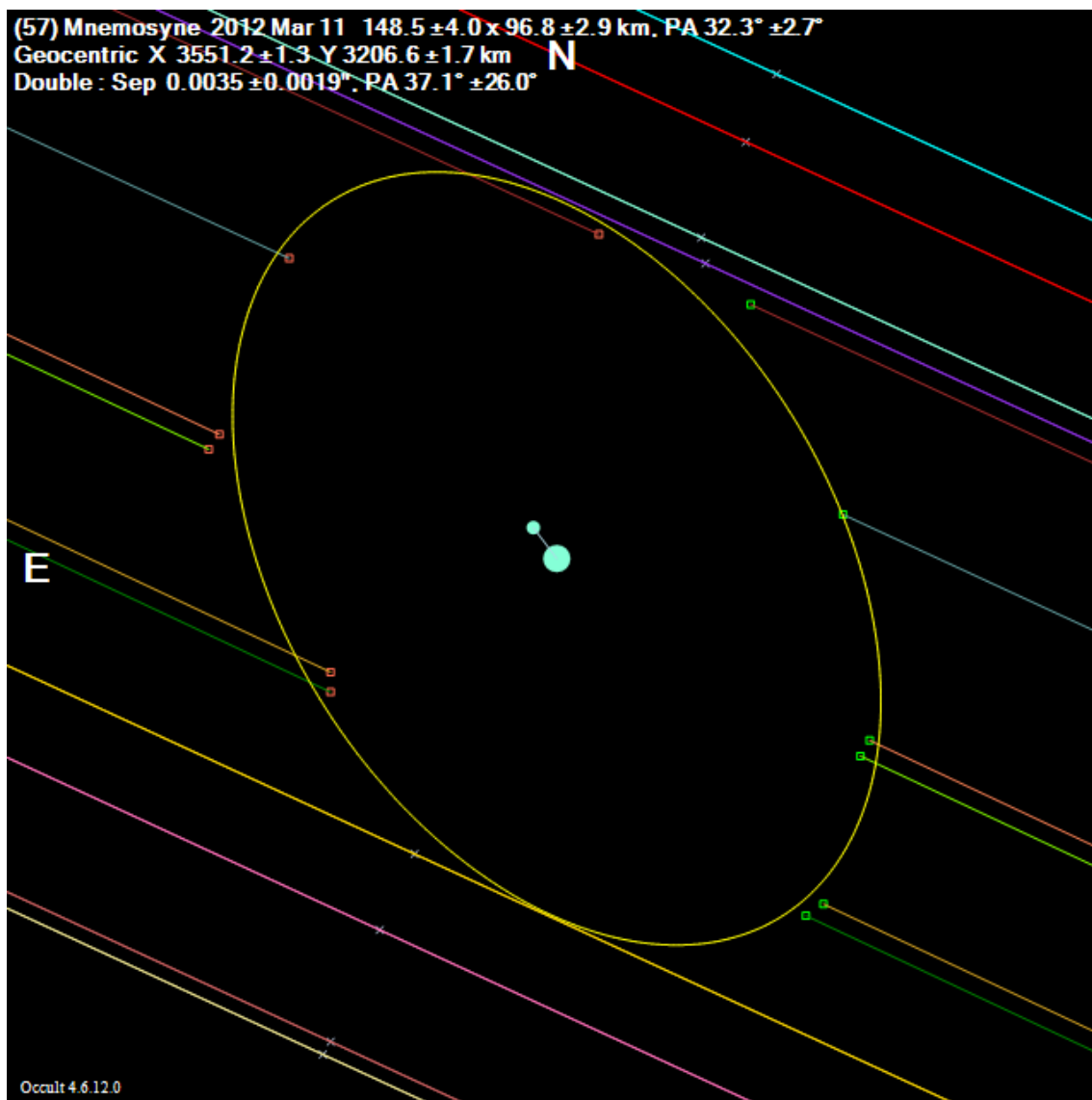
56_Melete_2016Apr20

(56) Melete 2016 Apr 20 122.5 ± 2.1 x 122.5 km, PA 0.0°
Geocentric X -3557.5 ± 1.7 Y 5060.2 ± 1.1 km **N**



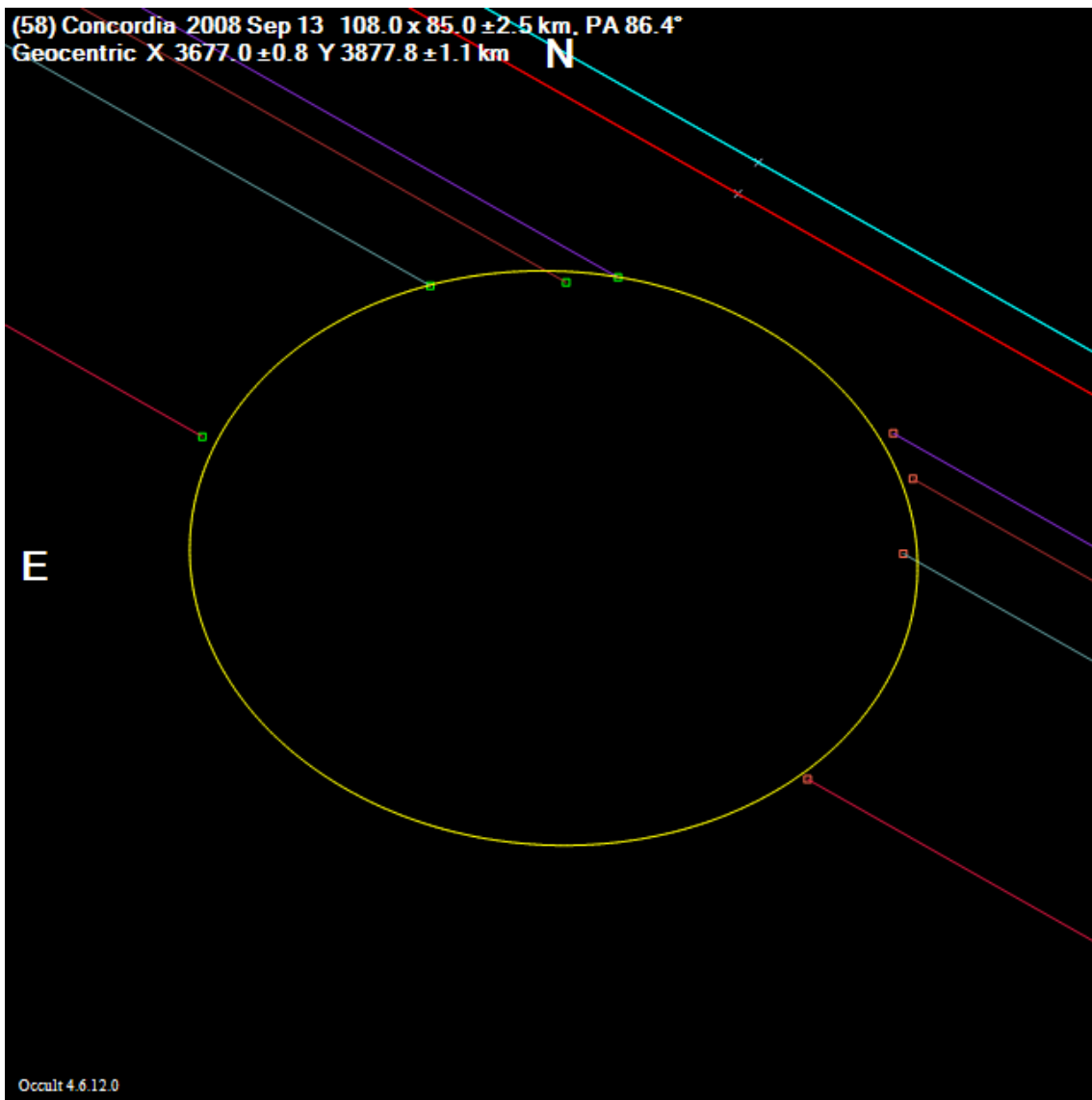
57_Mnemosyne_2012Mar11

(57) Mnemosyne 2012 Mar 11 $148.5 \pm 4.0 \times 96.8 \pm 2.9$ km, PA $32.3^\circ \pm 2.7^\circ$
Geocentric X 3551.2 ± 1.3 Y 3206.6 ± 1.7 km **N**
Double : Sep $0.0035 \pm 0.0019''$, PA $37.1^\circ \pm 26.0^\circ$



58_Concordia_2008Sep13

(58) Concordia - 2008 Sep 13 108.0 x 85.0 ± 2.5 km, PA 86.4°
Geocentric X 3677.0 ± 0.8 Y 3877.8 ± 1.1 km



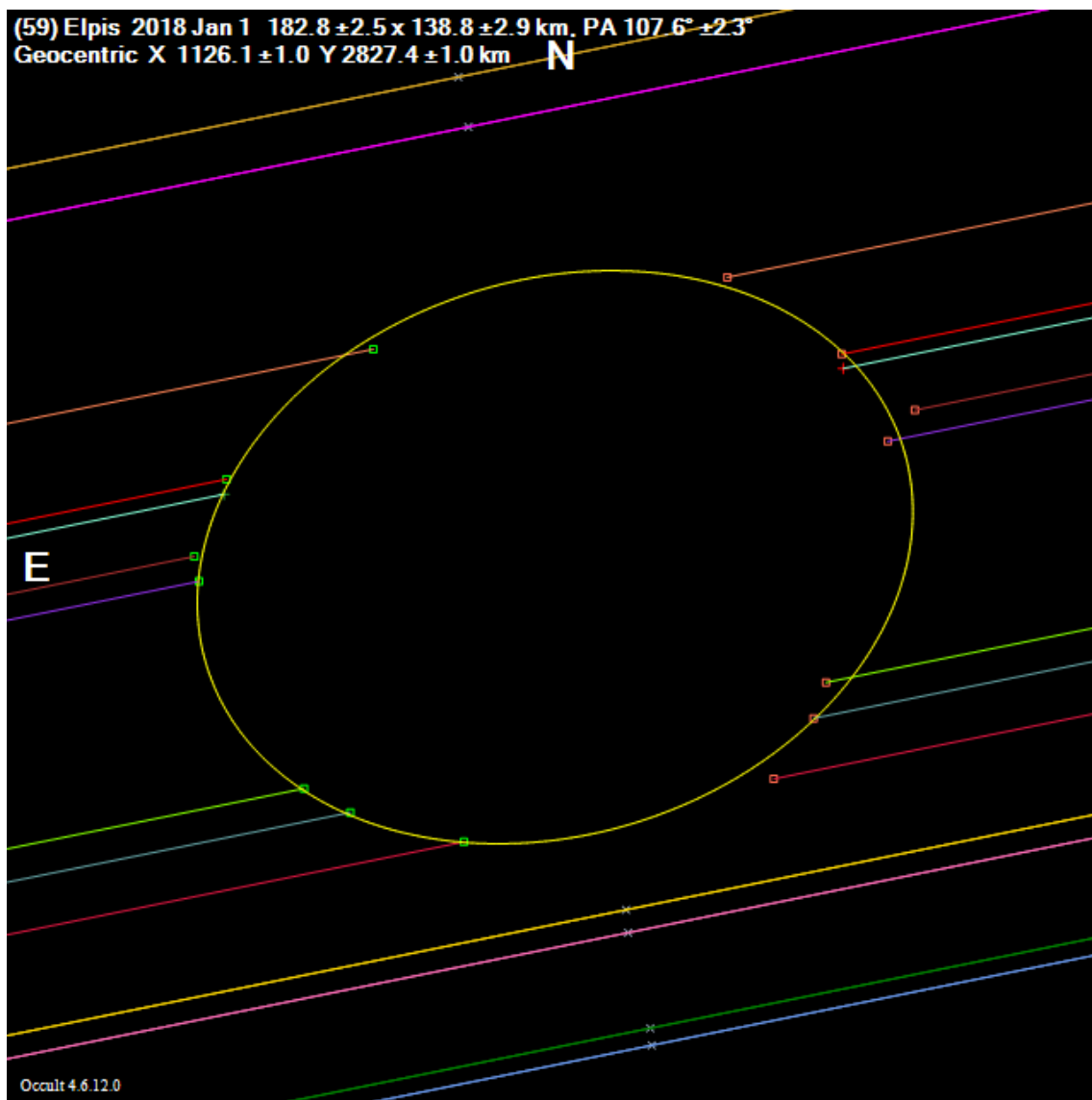
59_Elpis_2018Jan01

(59) Elpis 2018 Jan 1 $182.8 \pm 2.5 \times 138.8 \pm 2.9$ km. PA $107.6^\circ \pm 2.3^\circ$
Geocentric X 1126.1 ± 1.0 Y 2827.4 ± 1.0 km

N

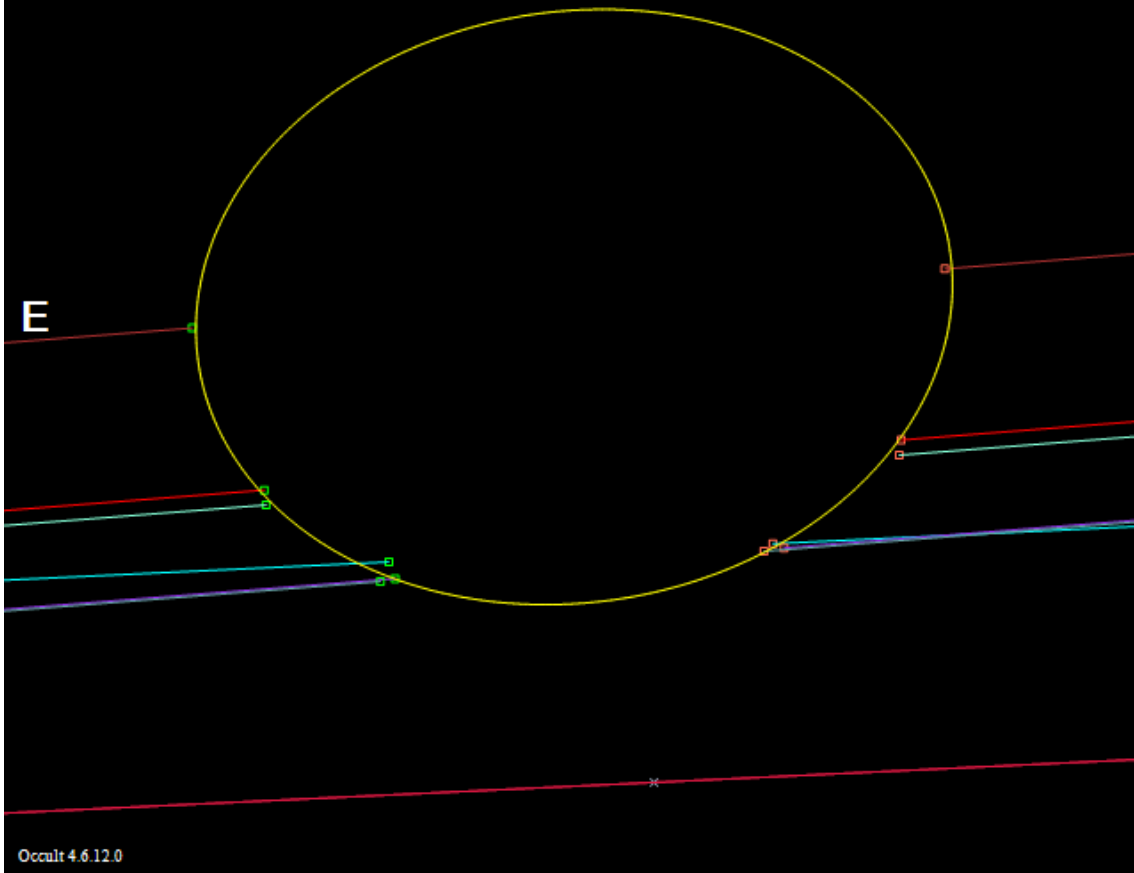
E

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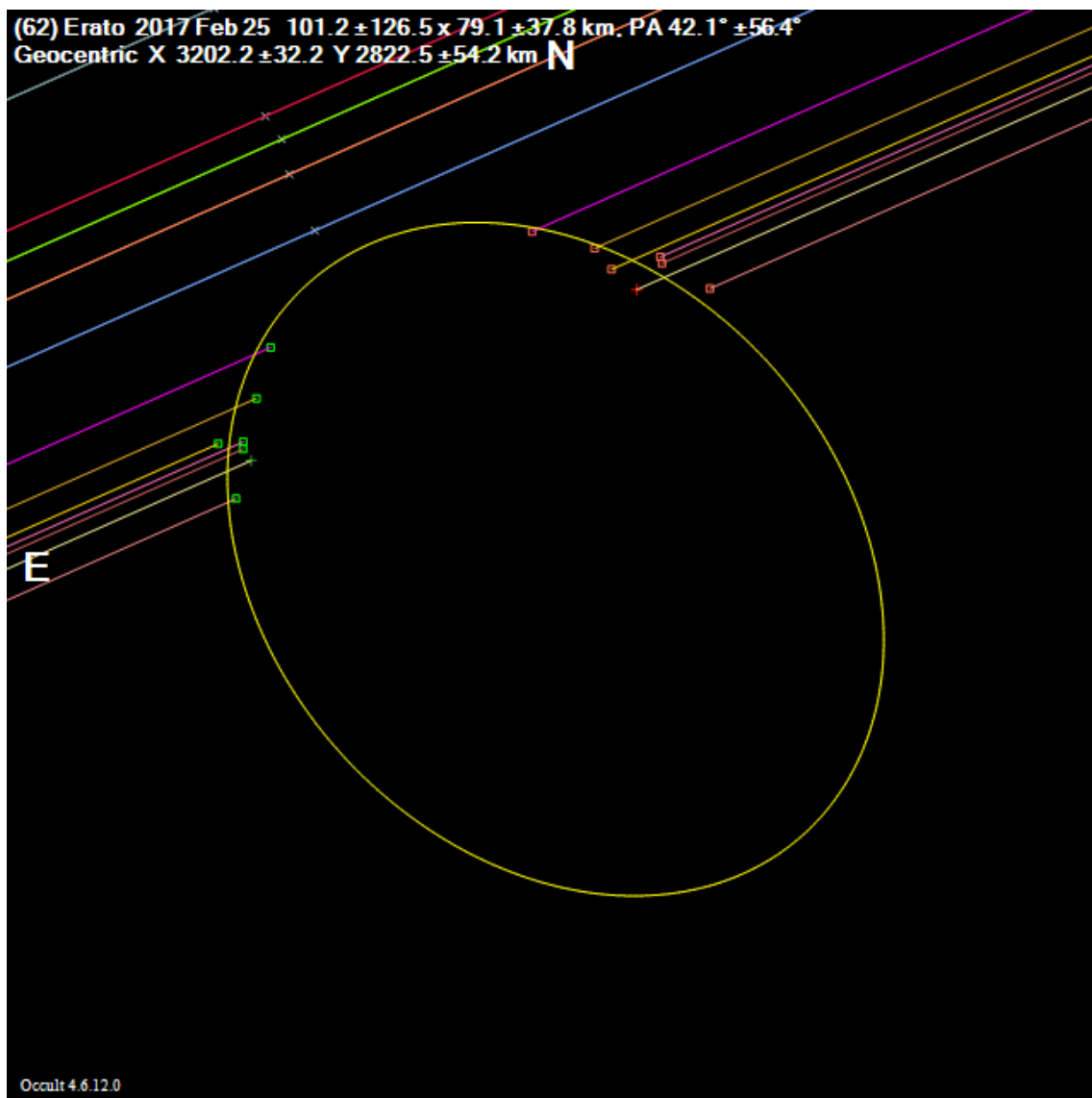
61_Danae_2010Oct18

(61) Danae 2010 Oct 18 $94.6 \pm 1.0 \times 73.5 \pm 4.1$ km. PA 98.6°
Geocentric X -1544.1 ± 0.4 Y 2183.8 ± 1.7 km **N**



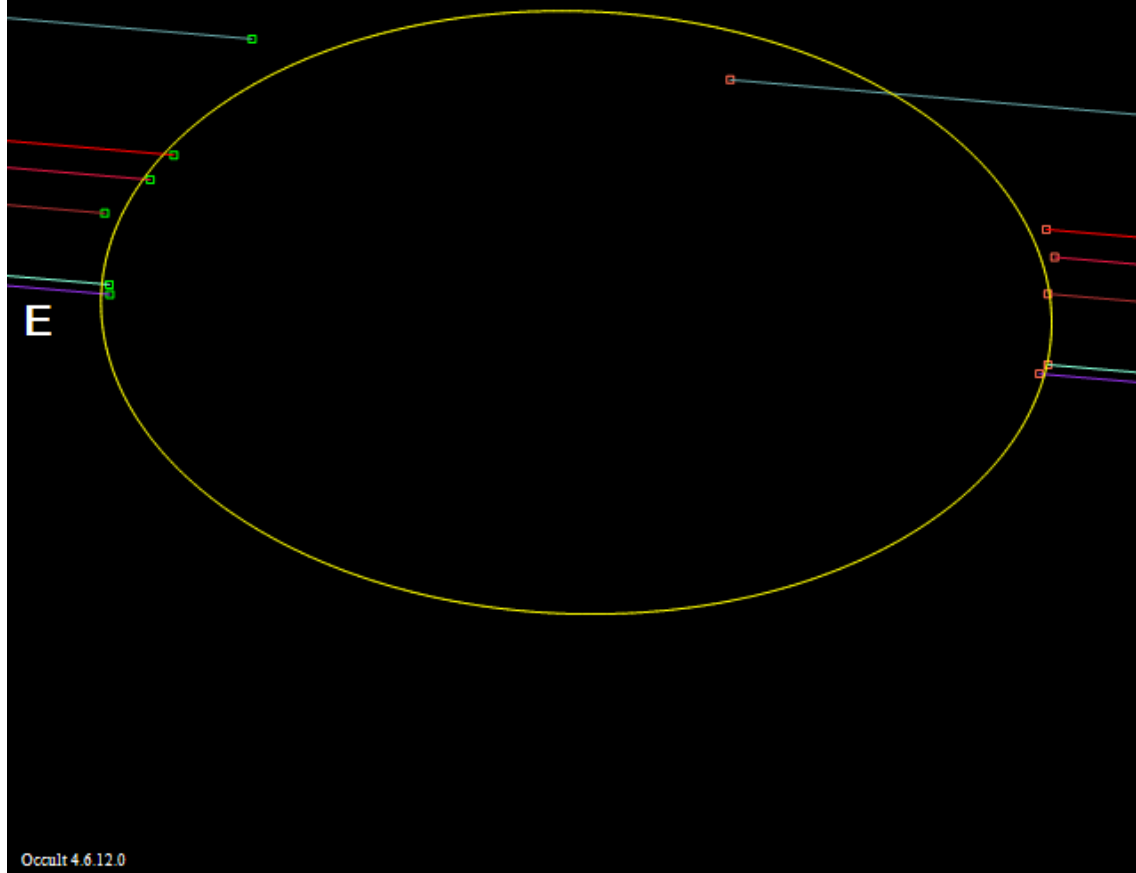
62_Erato_2017Feb25

(62) Erato 2017 Feb 25 $101.2 \pm 126.5 \times 79.1 \pm 37.8$ km. PA $42.1^\circ \pm 56.4^\circ$
Geocentric X 3202.2 ± 32.2 Y 2822.5 ± 54.2 km **N**



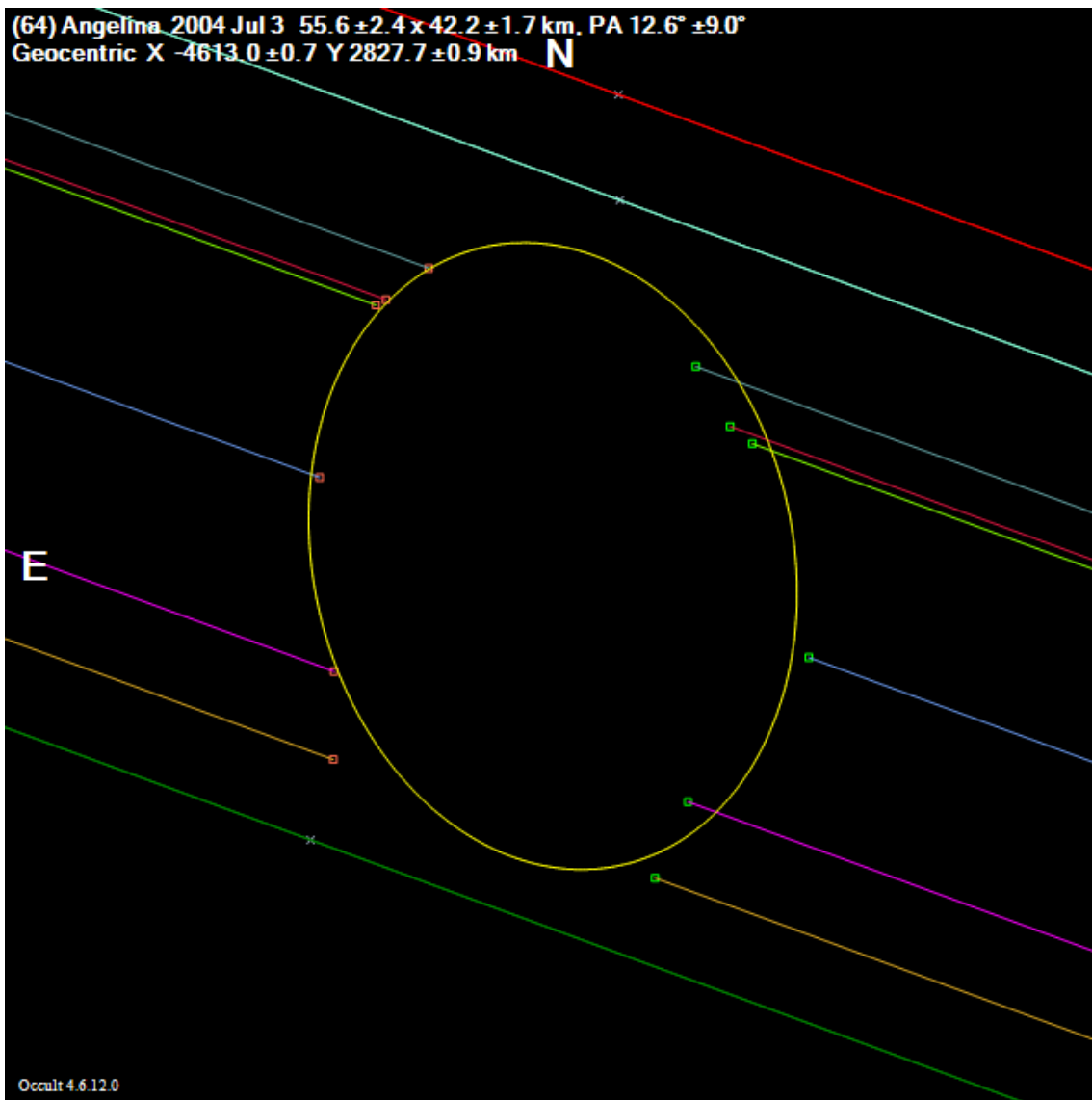
63_Ausonia_2015Dec25

(63) Ausonia 2015 Dec 25 139.0 x 88.0 km, PA 88.0°
Geocentric X 3608.9 ± 1.0 Y 1925.7 ± 1.6 km N



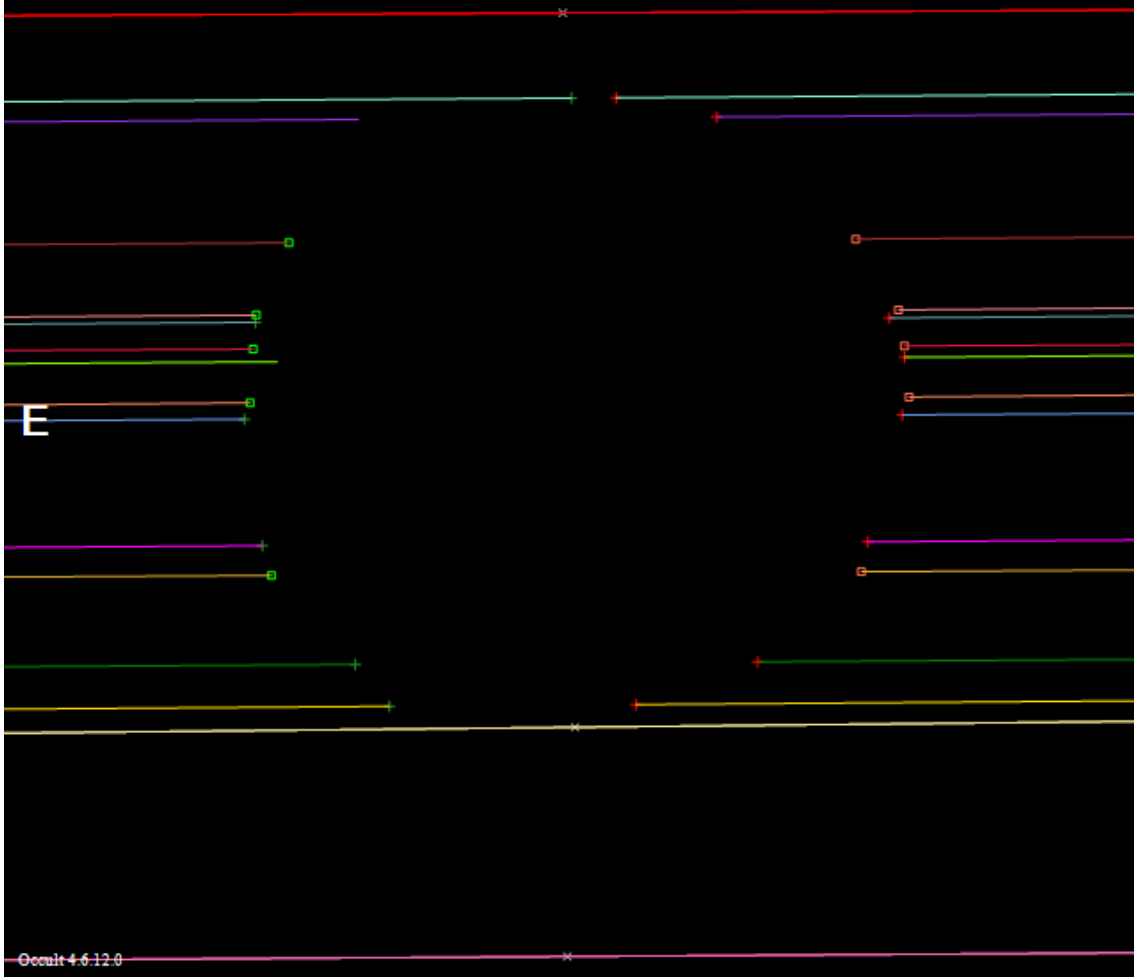
64_Angelina_2004Jul03

(64) Angelina_2004 Jul 3 55.6 ± 2.4 x 42.2 ± 1.7 km. PA 12.6° ± 9.0°
Geocentric X -4613.0 ± 0.7 Y 2827.7 ± 0.9 km **N**



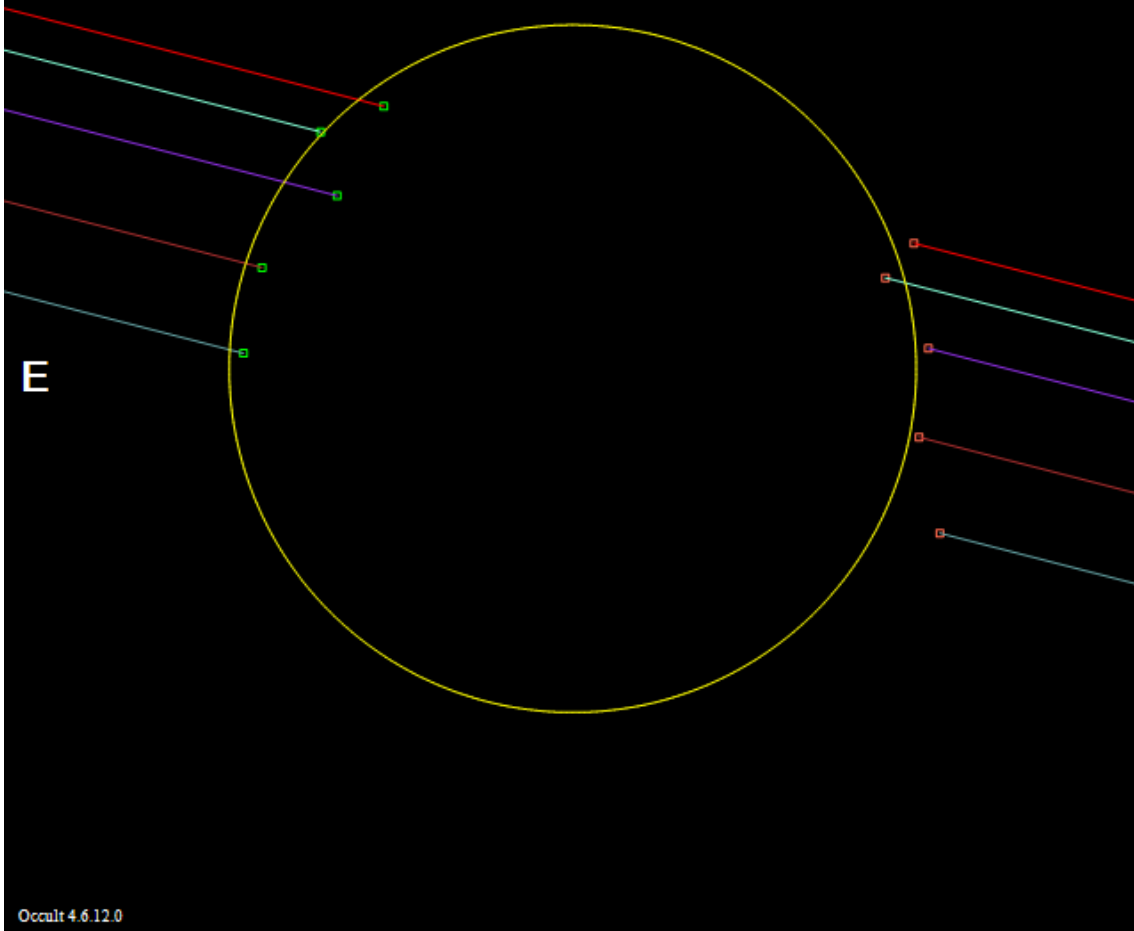
70_Panopaea_2006Dec14

(70) Panopaea 2006 Dec 14 $136.3 \pm 0.8 \times 126.9 \pm 1.4$ km, PA $108.7^\circ \pm 5.3^\circ$
Geocentric X -1003.7 ± 0.3 Y 1084.4 ± 0.6 km **N**



71_Niobe_2015Feb18

(71) Niobe 2015 Feb 18 83.0 x 83.0 km, PA 0.0°
Geocentric X 5373.4 ± 1.3 Y 2542.2 ± 2.7 km **N**



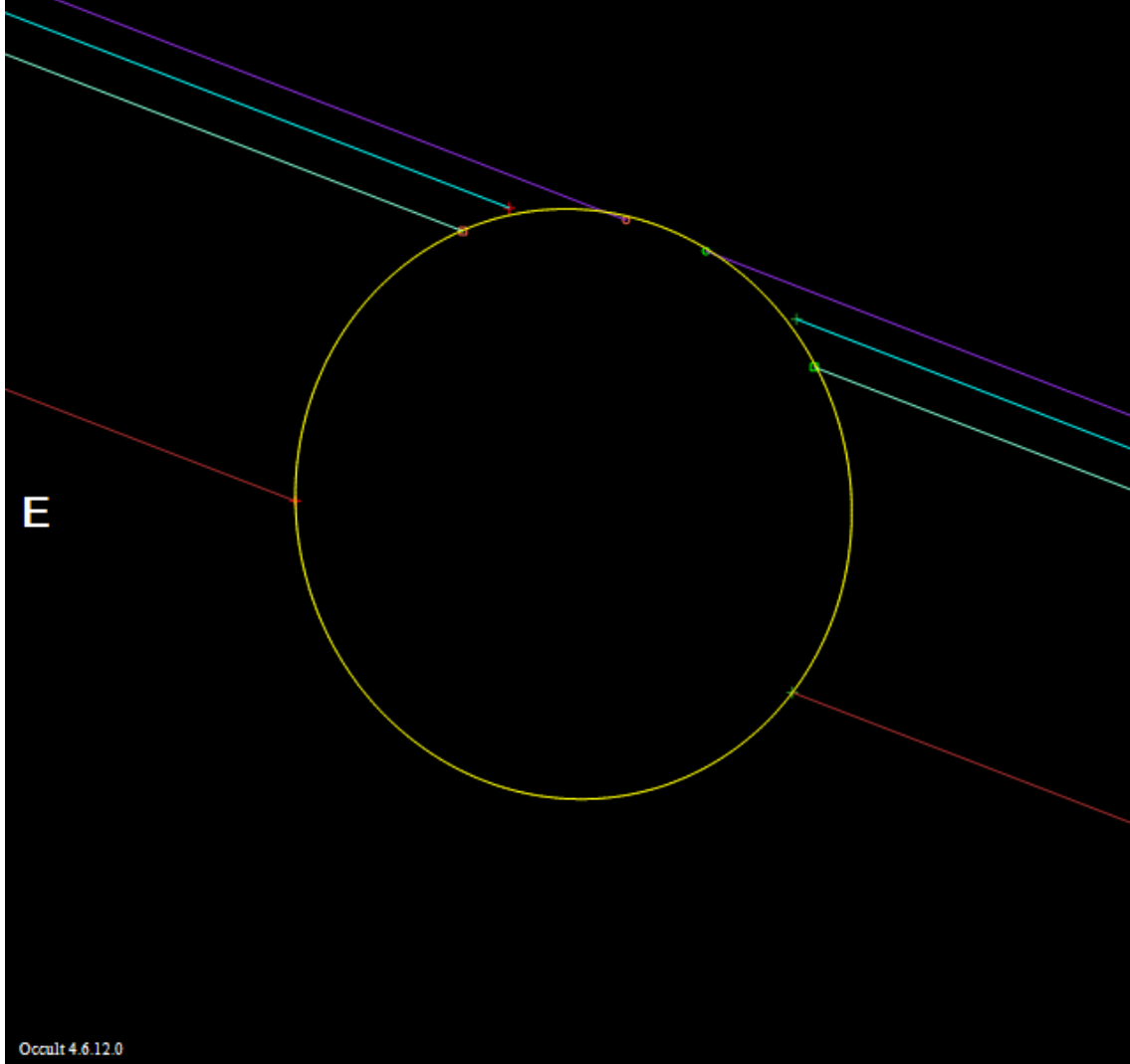
71_Niobe_2019Feb10

(71) Niobe 2019 Feb 10 $107.6 \pm 12.4 \times 77.4 \pm 1.7$ km, PA $80.1^\circ \pm 4.5^\circ$
Geocentric X -828.3 ± 4.9 Y 1068.8 ± 1.0 km



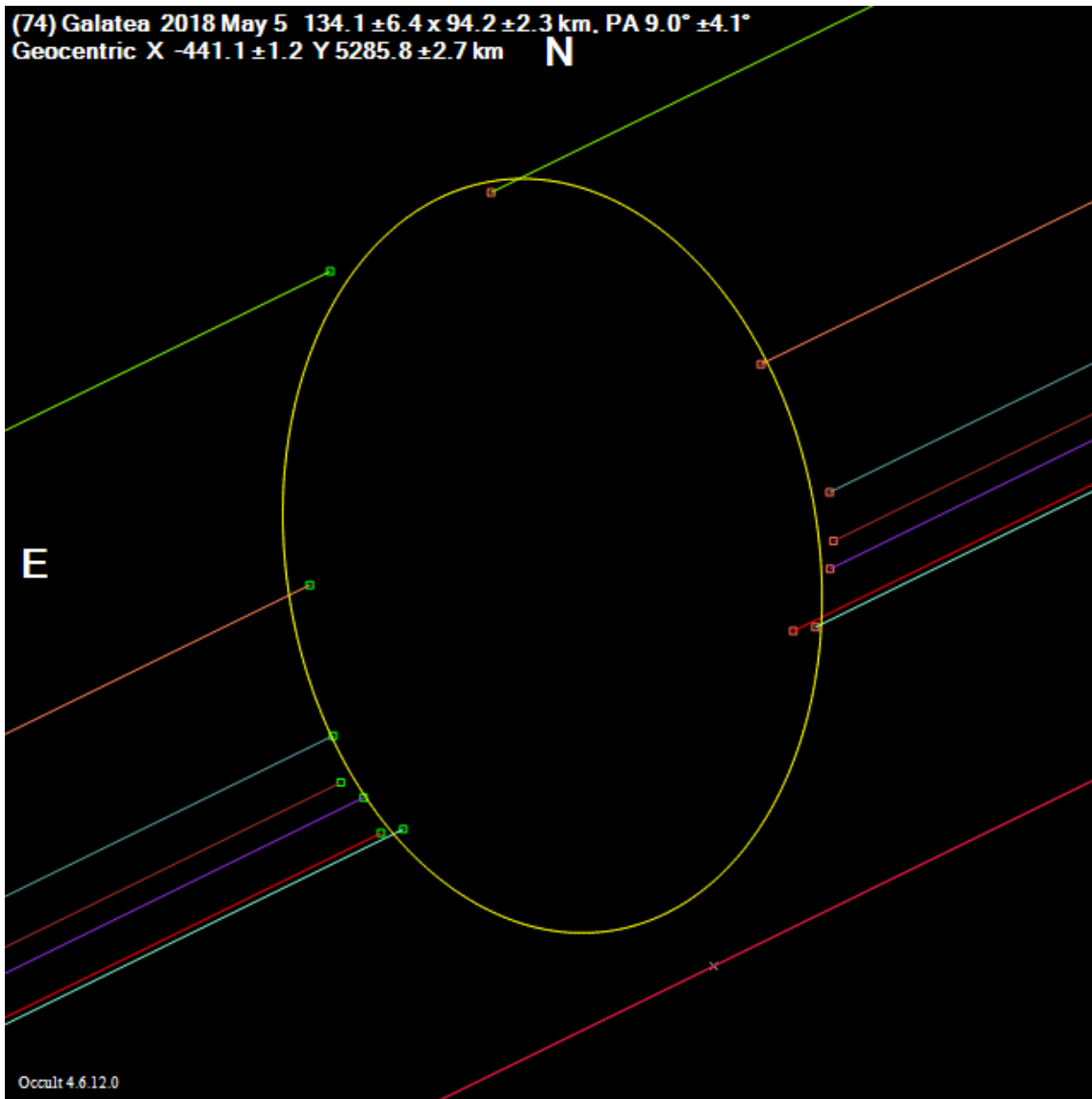
74_Galatea_2002Jan12

(74) Galatea 2002 Jan 12 $101.1 \pm 2.6 \times 94.8 \pm 1.4$ km. PA $12.6^\circ \pm 17.0^\circ$
Geocentric X 3229.2 ± 0.8 Y 3559.8 ± 1.4 km **N**



74_Galatea_2018May05

(74) Galatea 2018 May 5 $134.1 \pm 6.4 \times 94.2 \pm 2.3$ km. PA $9.0^\circ \pm 4.1^\circ$
Geocentric X -441.1 ± 1.2 Y 5285.8 ± 2.7 km **N**



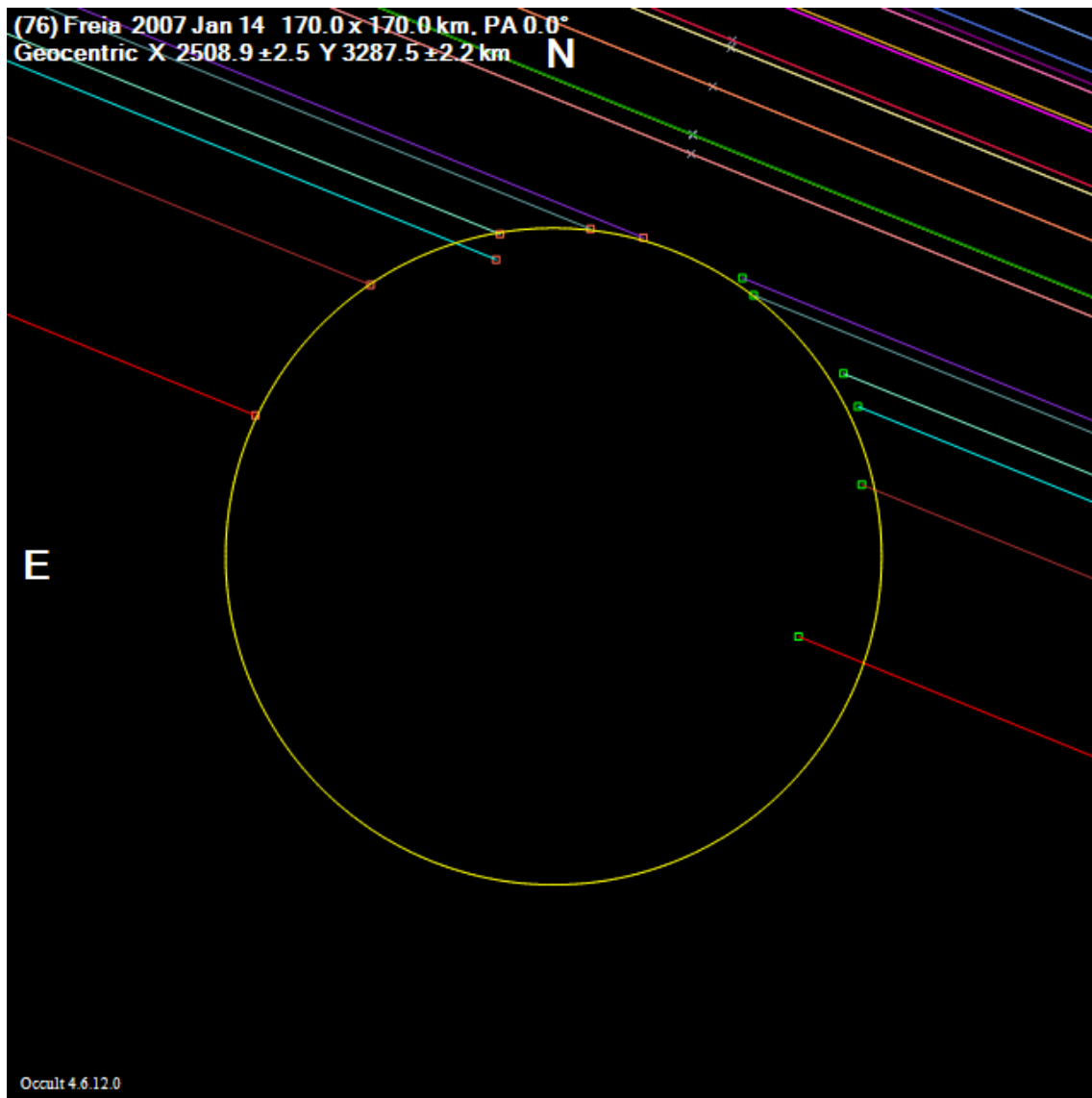
76_Freia_2007Jan14

(76) Freia - 2007 Jan 14 170.0 x 170.0 km. PA 0.0°
Geocentric X 2508.9 ± 2.5 Y 3287.5 ± 2.2 km

N

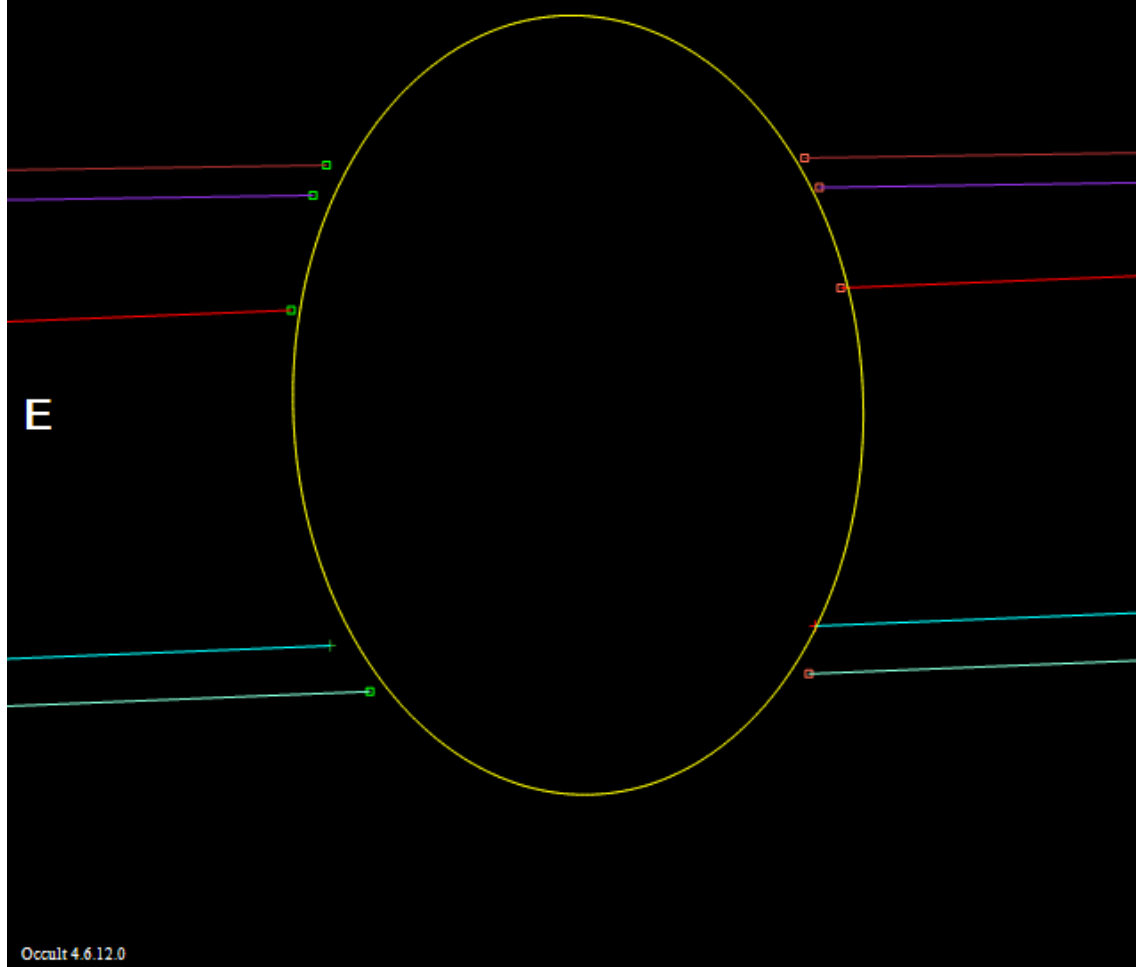
E

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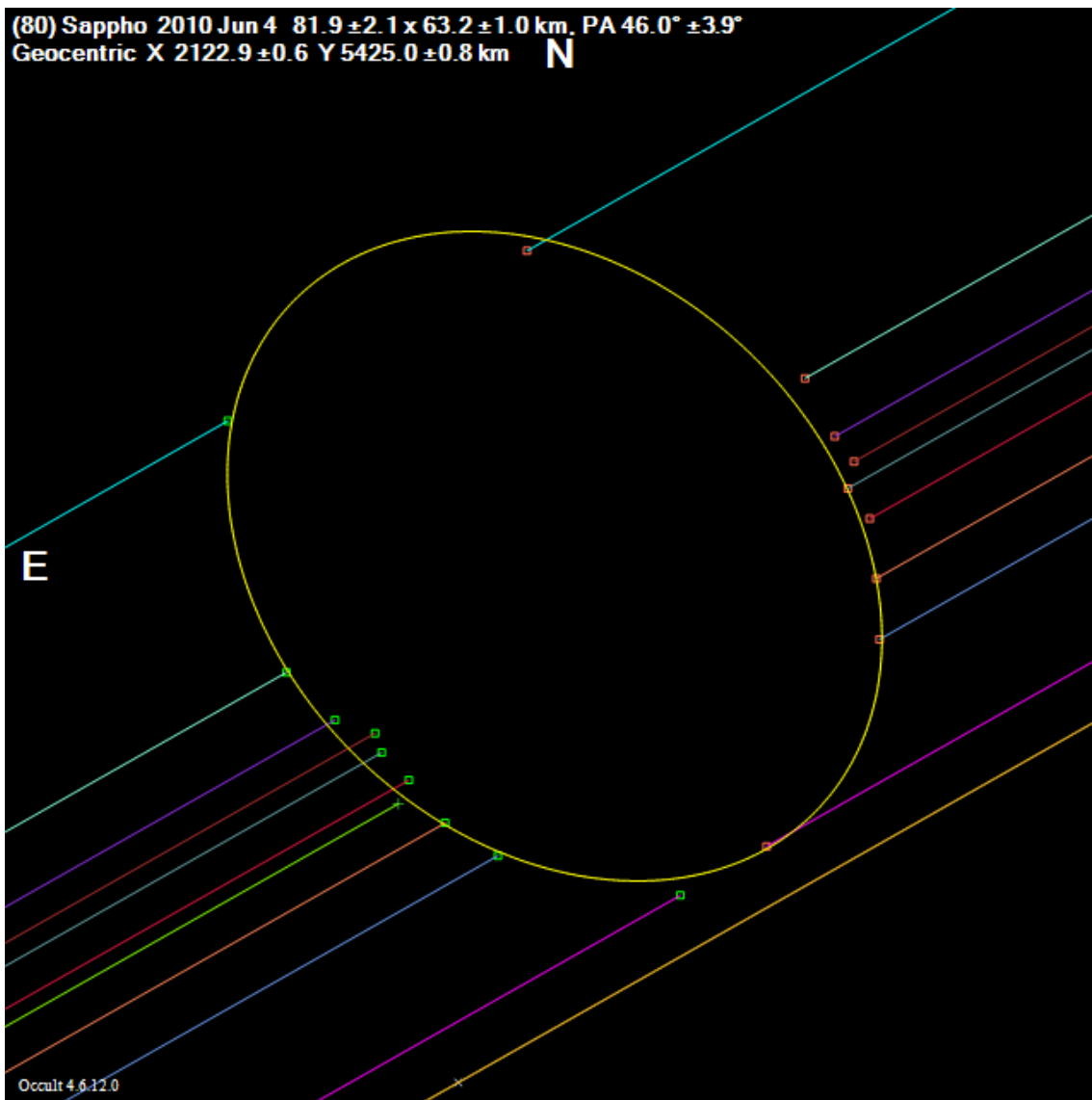
76_Freia_2008Jan17

(76) Freia 2008 Jan 17 194.0 x 142.0 ± 2.1 km, PA 2.1° ± 2.0°
Geocentric X -612.8 ± 0.9 Y 3219.7 ± 1.7 km **N**



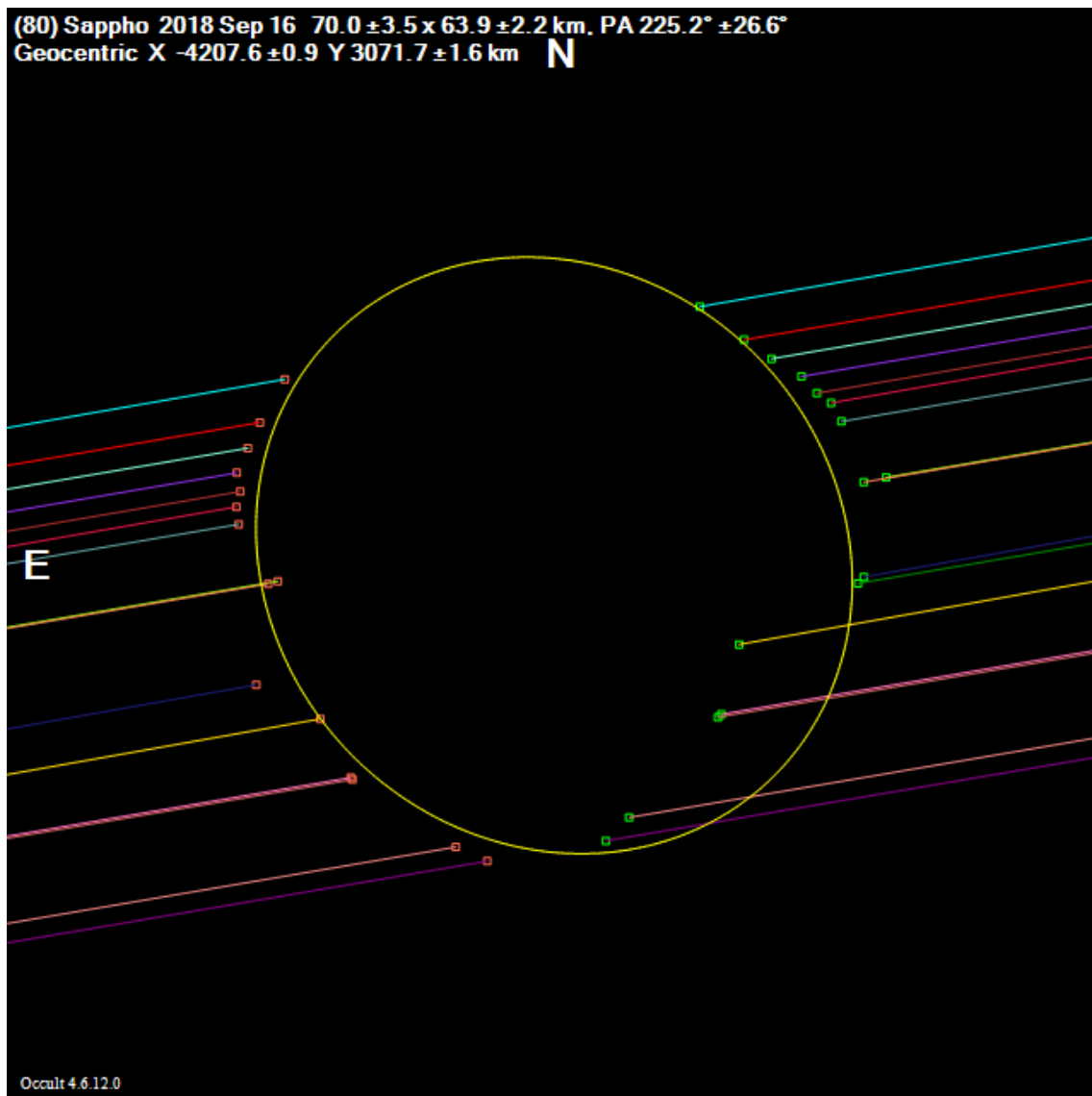
80_Sappho_2010Jun04

(80) Sappho 2010 Jun 4 $81.9 \pm 2.1 \times 63.2 \pm 1.0$ km. PA $46.0^\circ \pm 3.9^\circ$
Geocentric X 2122.9 ± 0.6 Y 5425.0 ± 0.8 km **N**



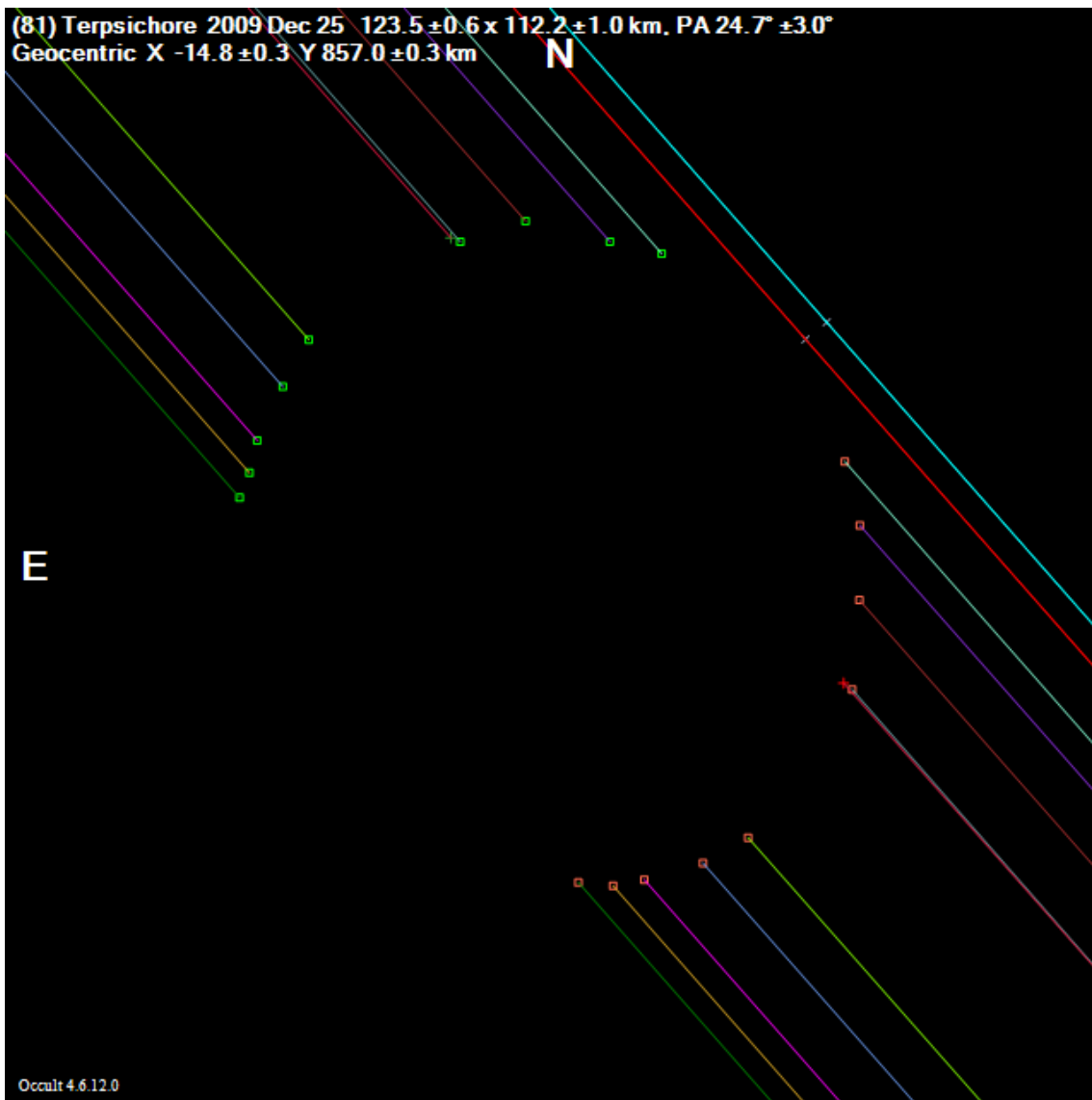
80_Sappho_2018Sep16

(80) Sappho 2018 Sep 16 $70.0 \pm 3.5 \times 63.9 \pm 2.2$ km. PA $225.2^\circ \pm 26.6^\circ$
Geocentric X -4207.6 ± 0.9 Y 3071.7 ± 1.6 km **N**



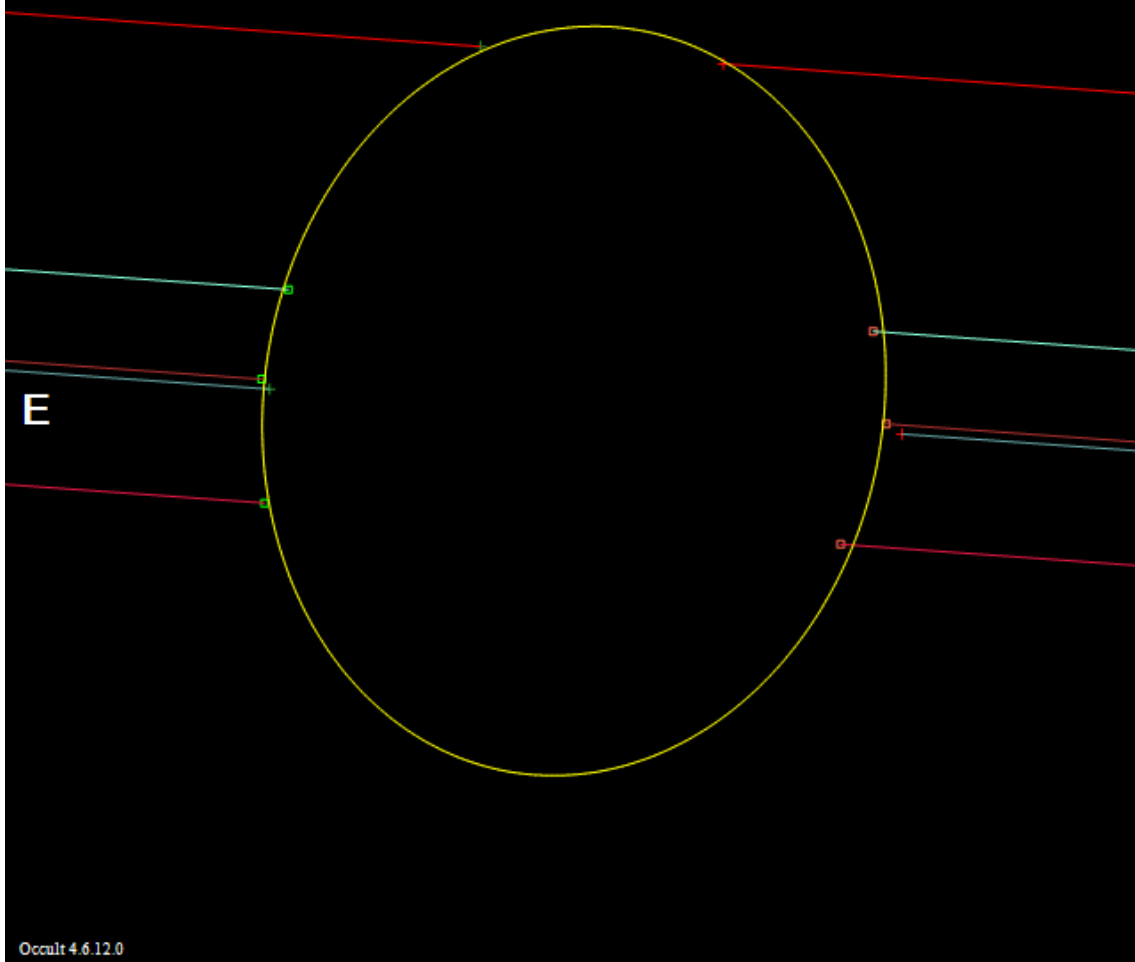
81_Terpsichore_2009Dec25

(81) Terpsichore 2009 Dec 25 $123.5 \pm 0.6 \times 112.2 \pm 1.0$ km, PA $24.7^\circ \pm 3.0^\circ$
Geocentric X -14.8 ± 0.3 Y 857.0 ± 0.3 km



81_Terpsichore_2009Nov19

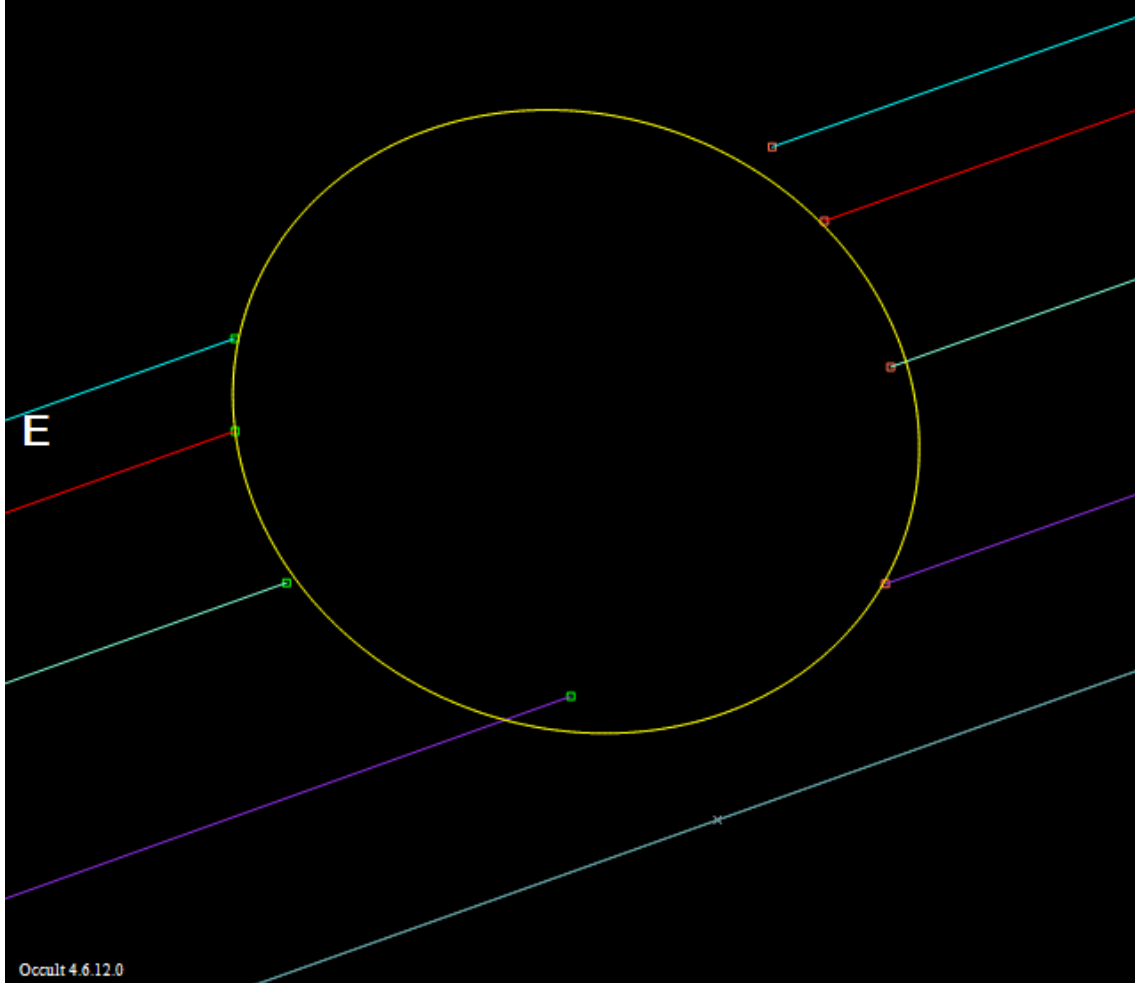
(81) Terpsichore 2009 Nov 19 $133.4 \pm 6.5 \times -109.8 \pm 1.2$ km. PA $350.1^\circ \pm 5.5^\circ$
Geocentric X 4617.9 ± 0.6 Y 3791.9 ± 2.3 km **N**



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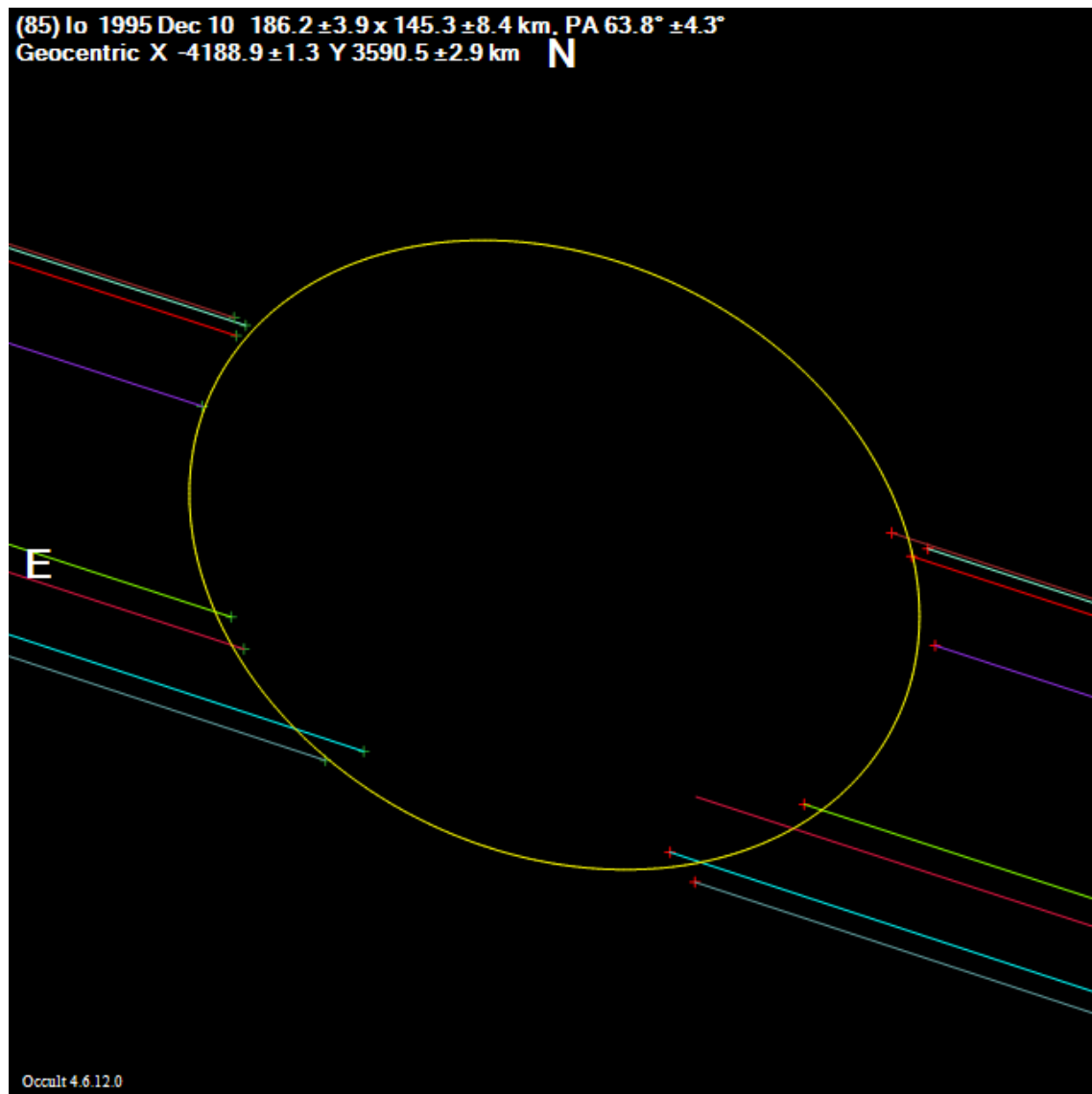
82_Alkmene_2014Sep18

(82) Alkmene 2014 Sep 18 $62.8 \pm 2.2 \times 55.2 \pm 2.2$ km. PA $69.5^\circ \pm 19.4^\circ$
Geocentric X 2723.9 ± 0.8 Y 5345.1 ± 1.2 km **N**



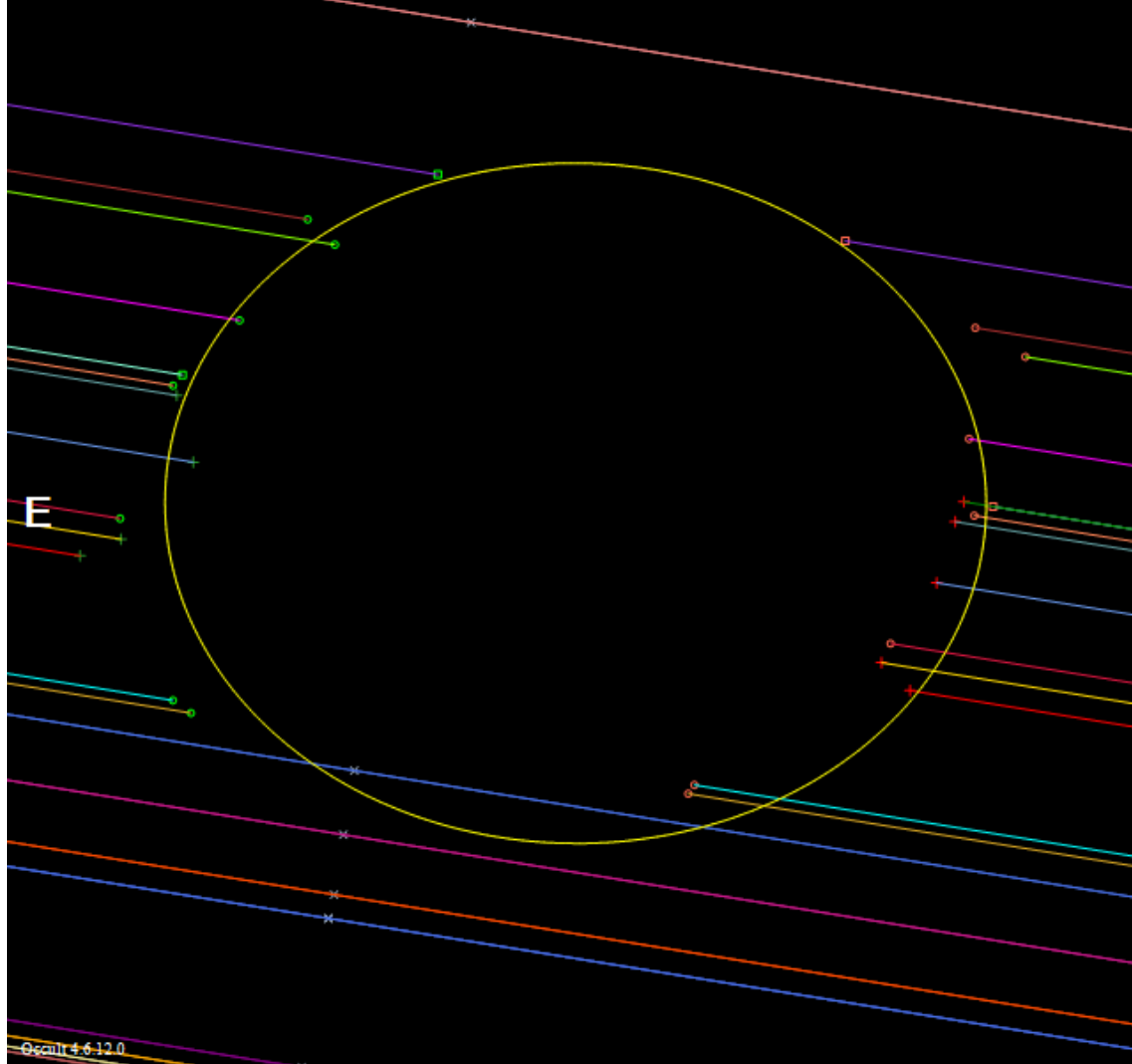
85_Io_1995Dec10

(85) Io 1995 Dec 10 $186.2 \pm 3.9 \times 145.3 \pm 8.4$ km, PA $63.8^\circ \pm 4.3^\circ$
Geocentric X -4188.9 ± 1.3 Y 3590.5 ± 2.9 km **N**



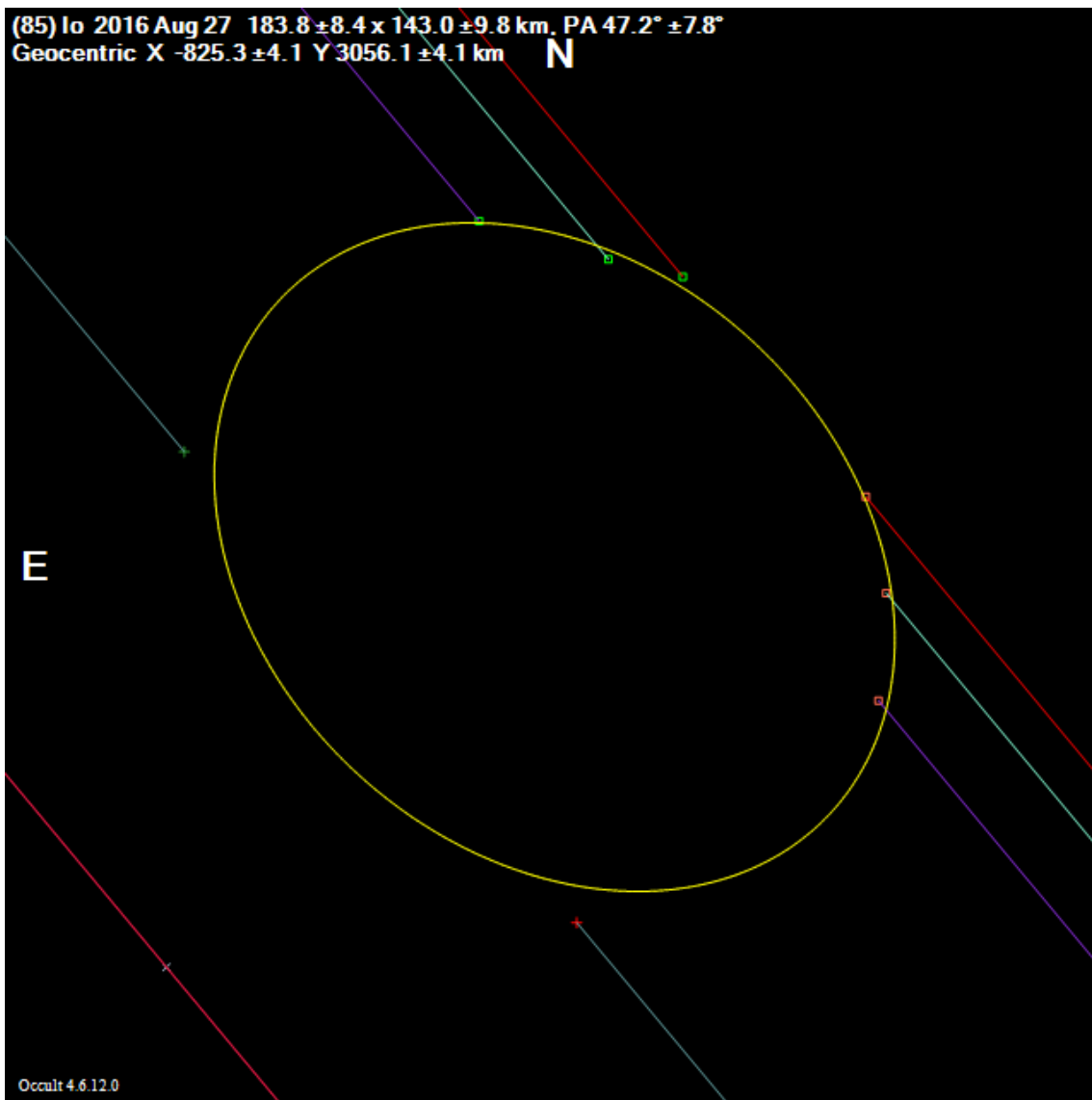
85_Io_2004Dec12

(85)Io_2004 Dec 12 $194.0 \pm 5.0 \times 160.6 \pm 7.0$ km, PA $89.5^\circ \pm 8.6^\circ$
Geocentric X -3504.8 ± 2.2 Y 4127.4 ± 2.7 km **N**



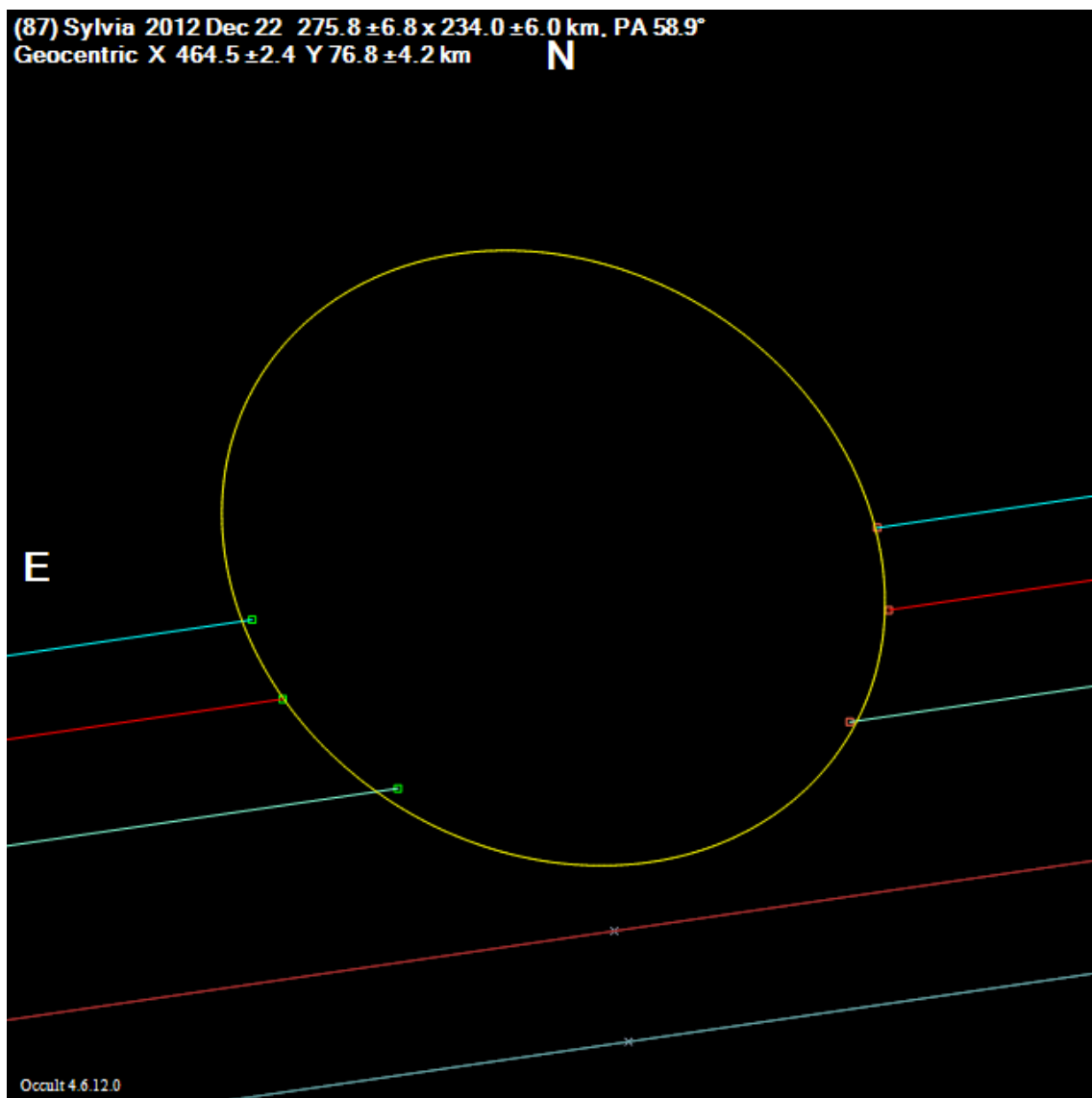
85_Io_2016Aug27

(85) Io 2016 Aug 27 $183.8 \pm 8.4 \times 143.0 \pm 9.8$ km, PA $47.2^\circ \pm 7.8^\circ$
Geocentric X -825.3 ± 4.1 Y 3056.1 ± 4.1 km



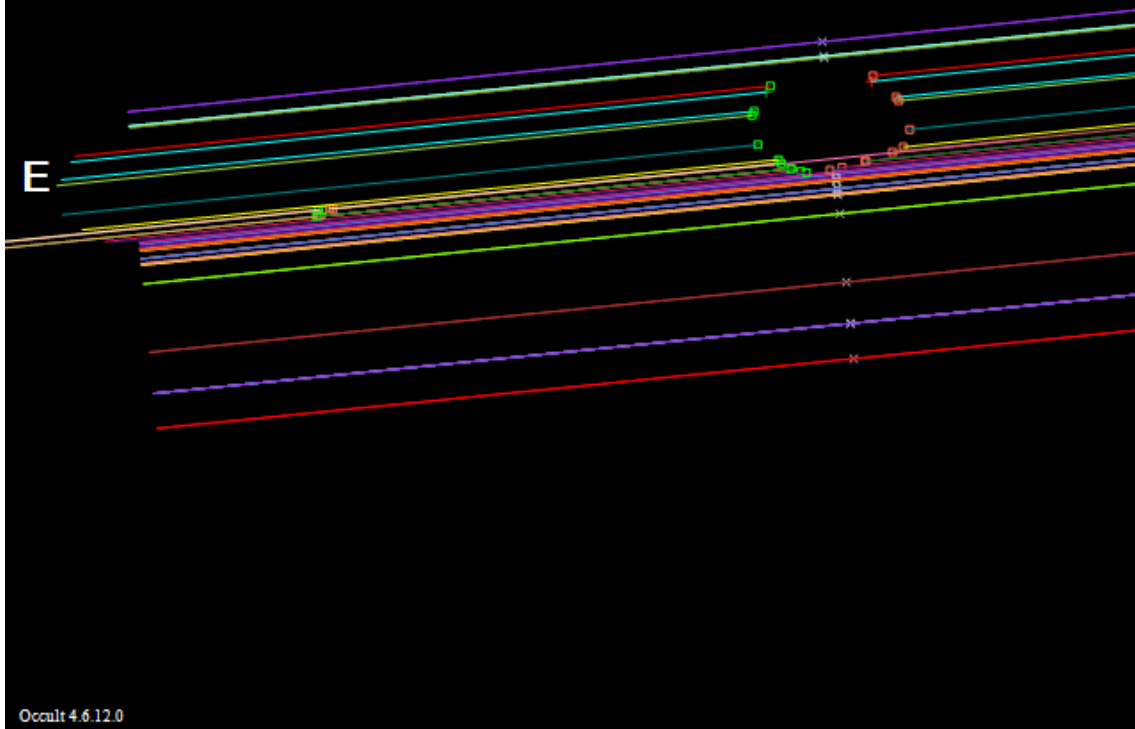
87_Sylvia_2012Dec22

(87) Sylvia 2012 Dec 22 275.8 ± 6.8 x 234.0 ± 6.0 km. PA 58.9°
Geocentric X 464.5 ± 2.4 Y 76.8 ± 4.2 km **N**



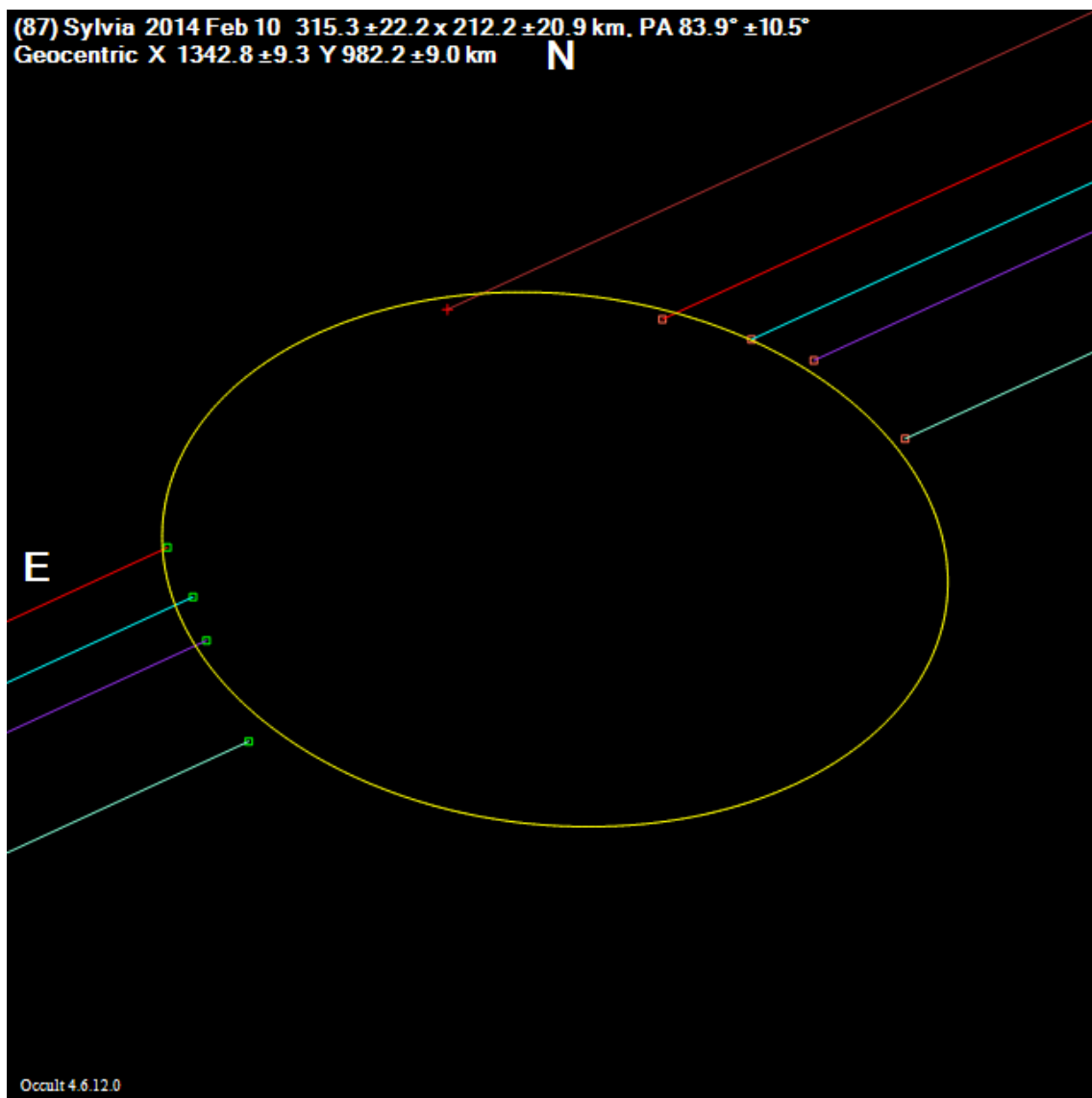
87_Sylvia_2013Jan06

(87) Sylvia 2013 Jan 6 $349.4 \pm 212.5 \times 231.8 \pm 220.0$ km, PA $93.1^\circ \pm 66.7^\circ$
Geocentric X 2615.1 ± 87.8 Y 2858.9 ± 88.1 km **N**
Sat: (87) 1 Romulus 33.0×18.0 km, PA 122.0° ; Sep $0.5999''$ at PA 99.6°



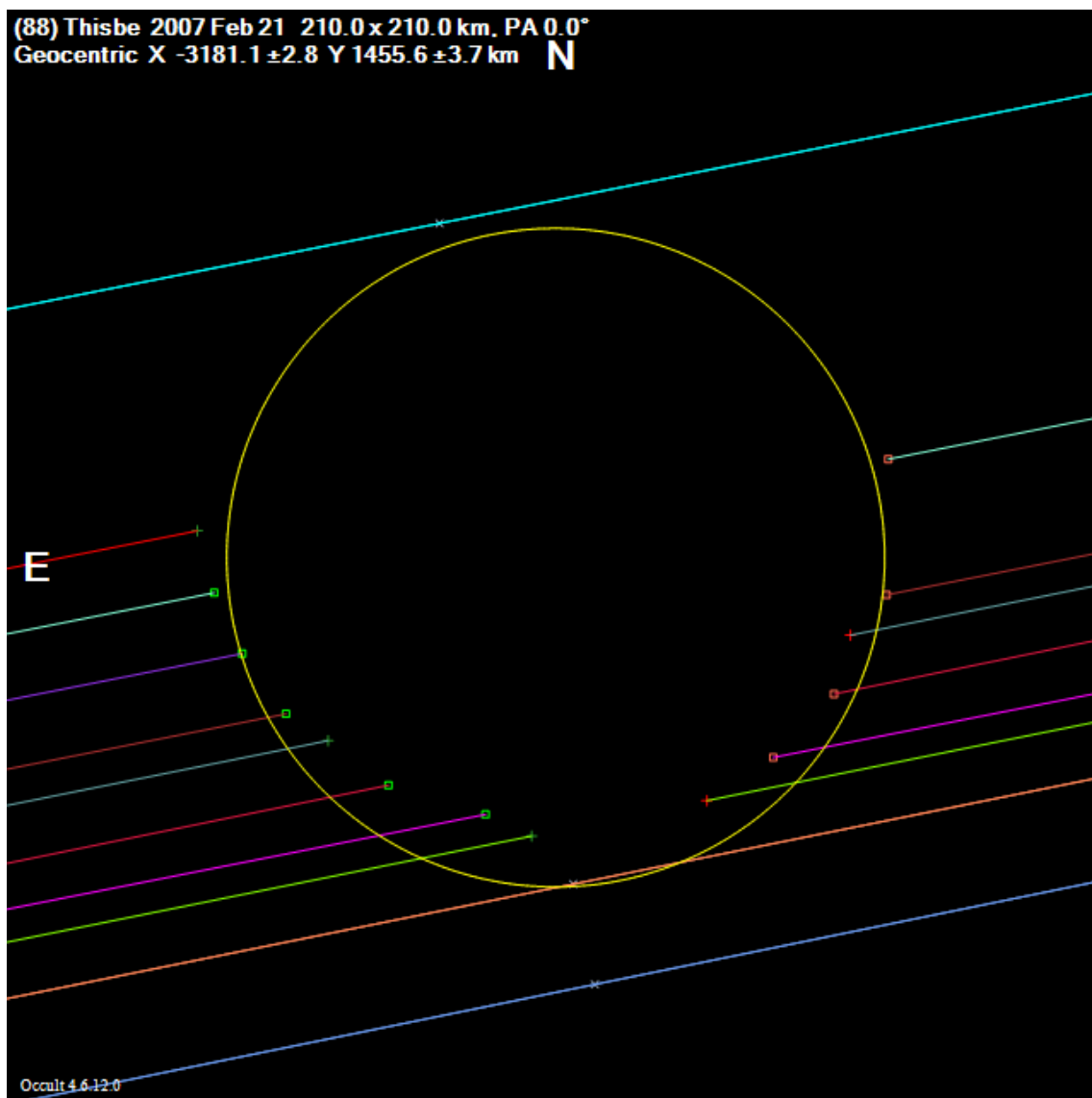
87_Sylvia_2014Feb10

(87) Sylvia 2014 Feb 10 $315.3 \pm 22.2 \times 212.2 \pm 20.9$ km, PA $83.9^\circ \pm 10.5^\circ$
Geocentric X 1342.8 ± 9.3 Y 982.2 ± 9.0 km **N**



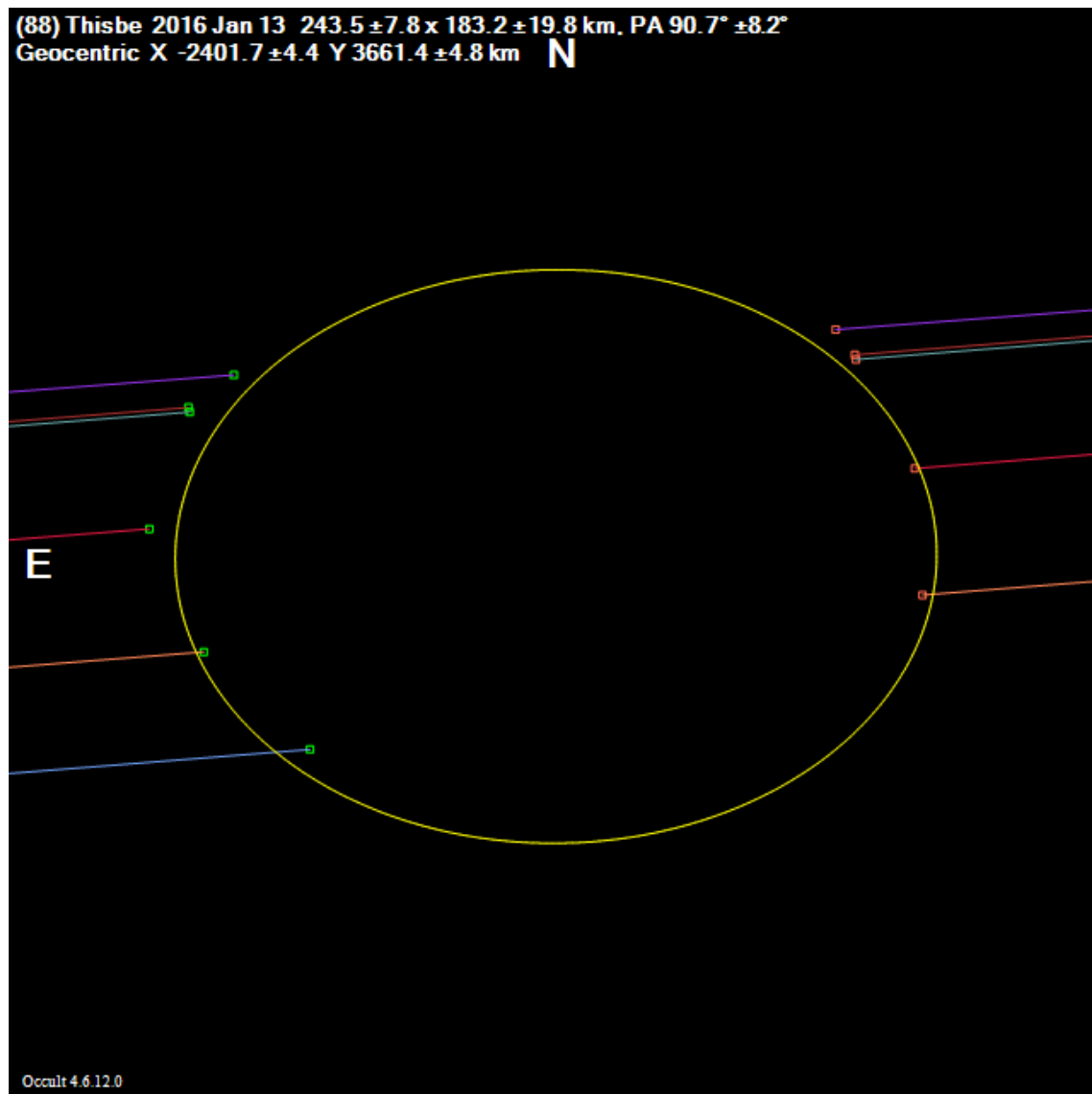
88_Thisbe_2007Feb21

(88) Thisbe 2007 Feb 21 210.0 x 210.0 km. PA 0.0°
Geocentric X -3181.1 ± 2.8 Y 1455.6 ± 3.7 km **N**



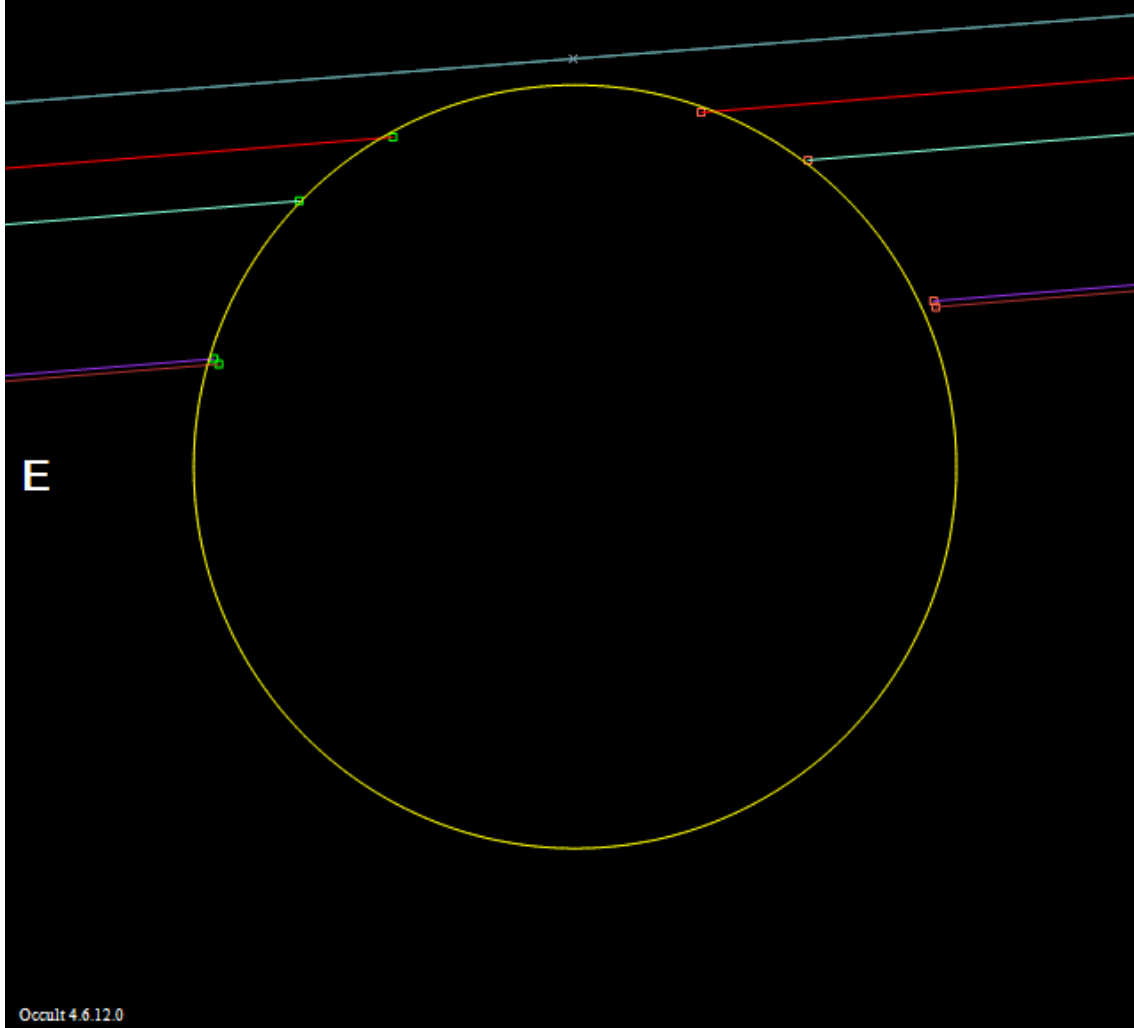
88_Thisbe_2016Jan13

(88) Thisbe 2016 Jan 13 $243.5 \pm 7.8 \times 183.2 \pm 19.8$ km. PA $90.7^\circ \pm 8.2^\circ$
Geocentric X -2401.7 ± 4.4 Y 3661.4 ± 4.8 km **N**



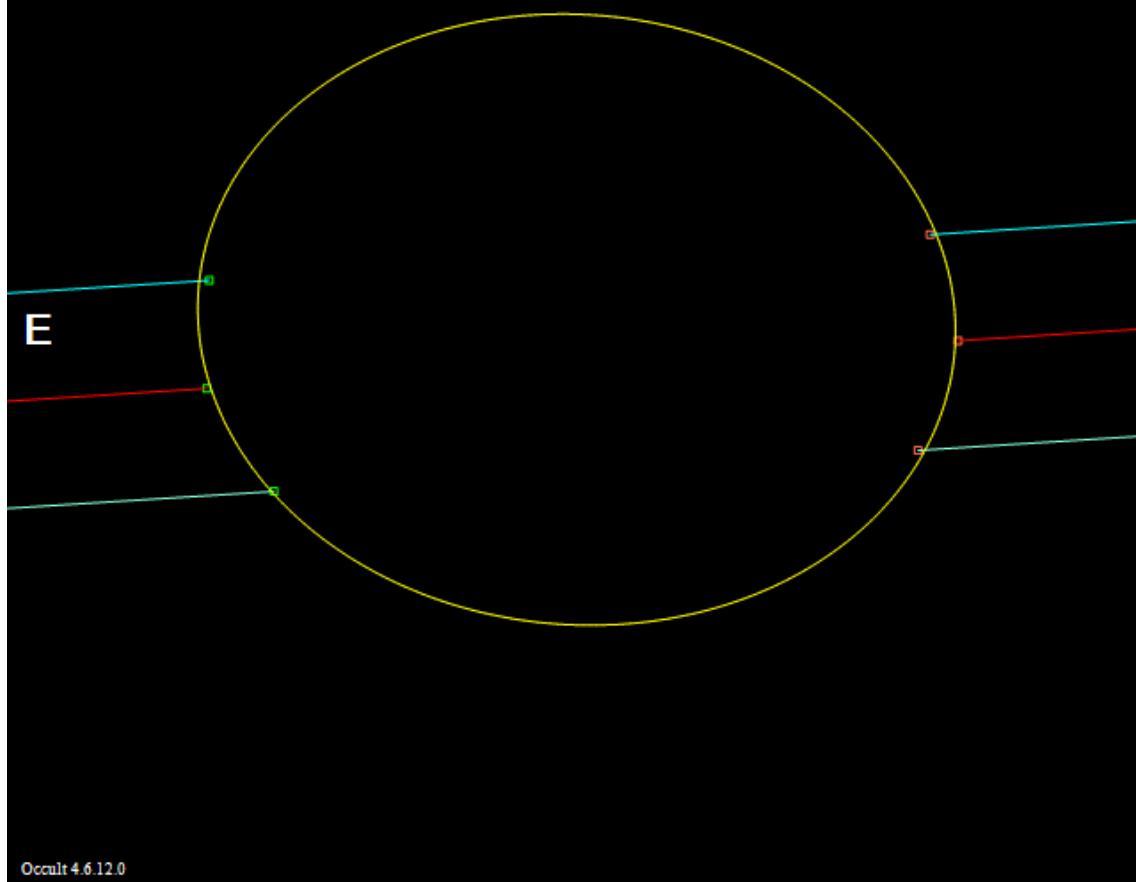
88_Thisbe_2016Jan14

(88) Thisbe 2016 Jan 14 234.0 x 234.0 km. PA 0.0°
Geocentric X -3468.6 ± 1.2 Y 3685.5 ± 1.5 km **N**



88_Thisbe_2016Jan21

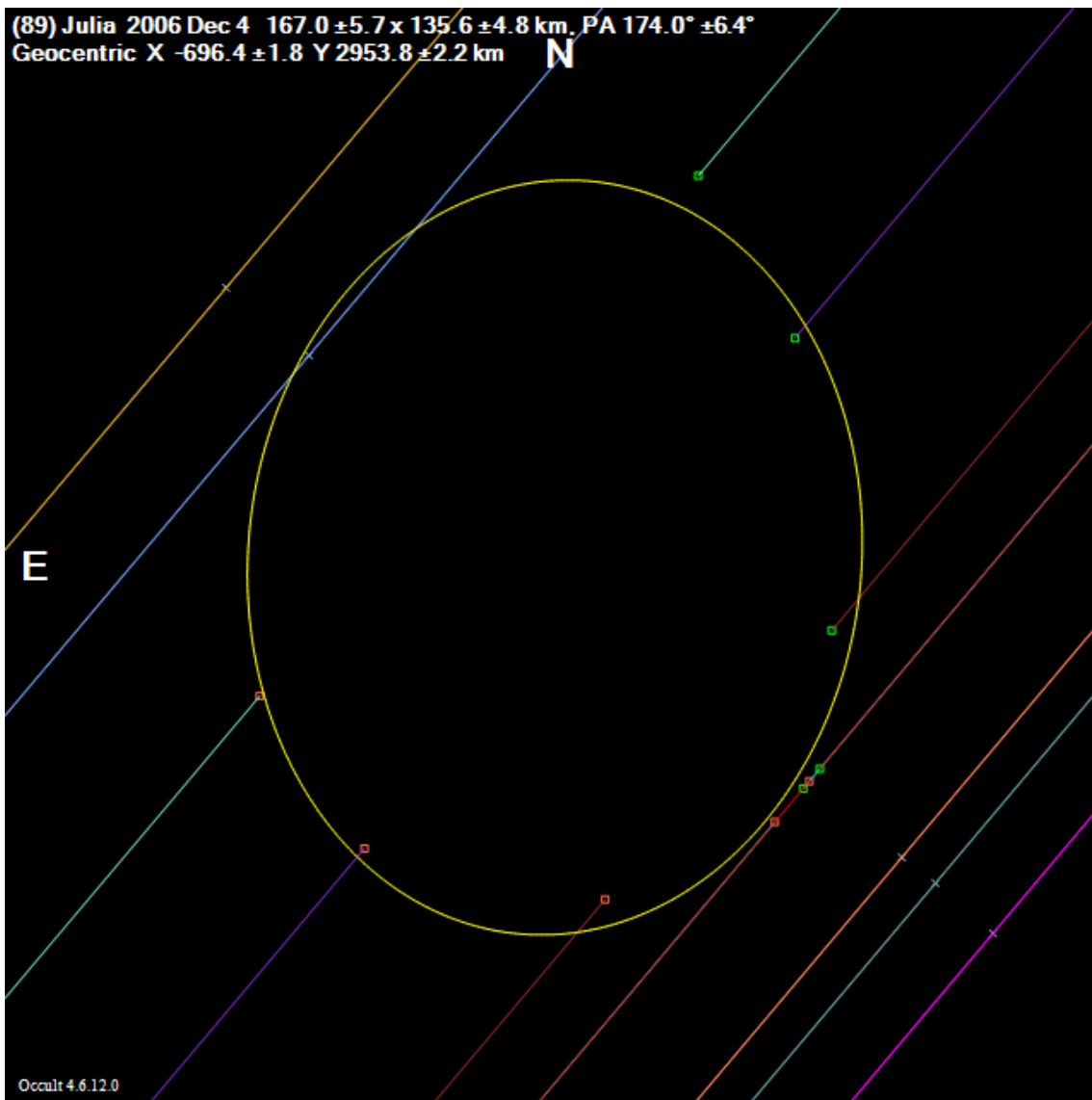
(88) Thisbe 2016 Jan 21 232.8 x 187.0 km, PA 85.1° ±2.5°
Geocentric X 4985.0 ±0.7 Y -3701.2 ±1.6 km **N**



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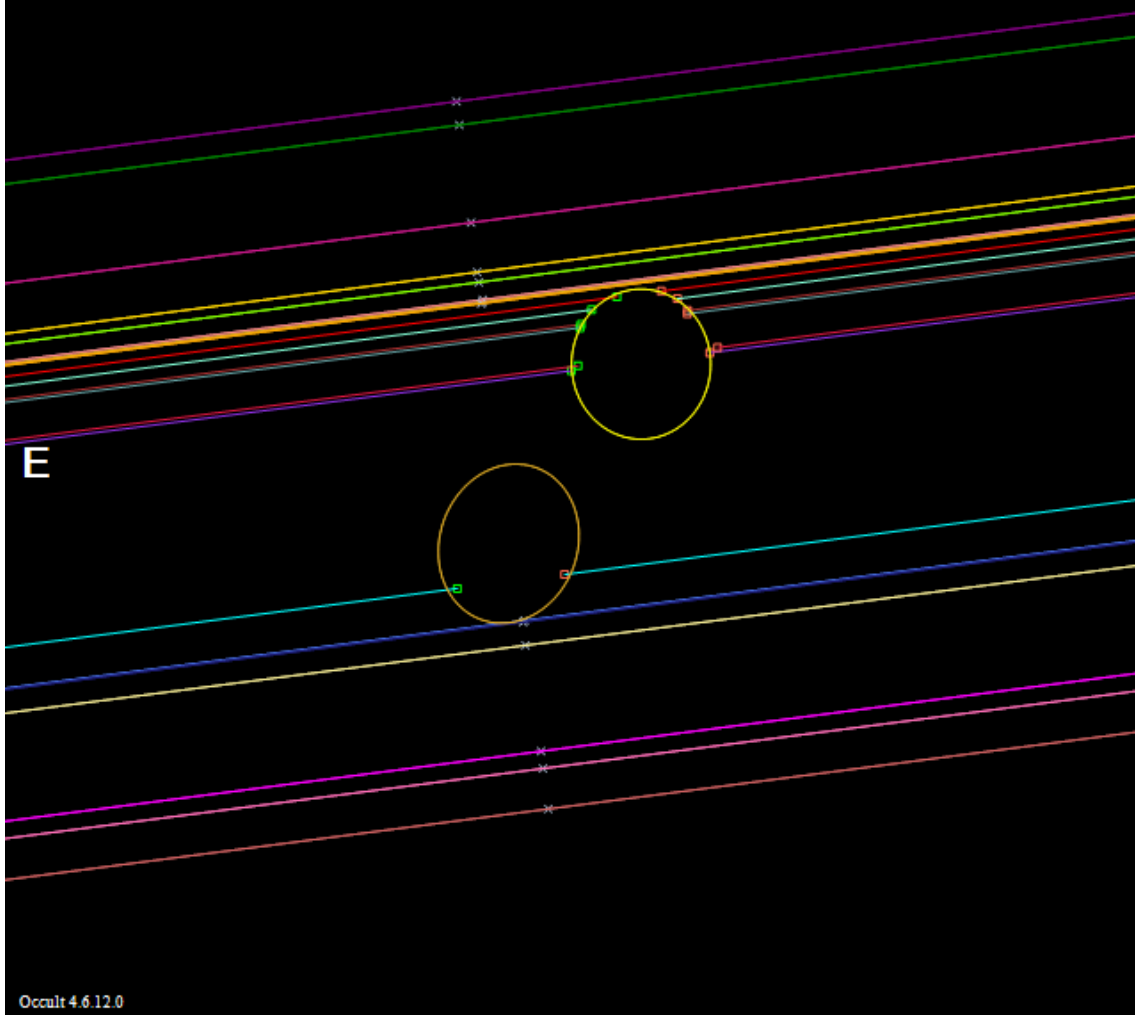
89_Julia_2006Dec04

(89) Julia 2006 Dec 4 $167.0 \pm 5.7 \times 135.6 \pm 4.8$ km, PA $174.0^\circ \pm 6.4^\circ$
Geocentric X -696.4 ± 1.8 Y 2953.8 ± 2.2 km



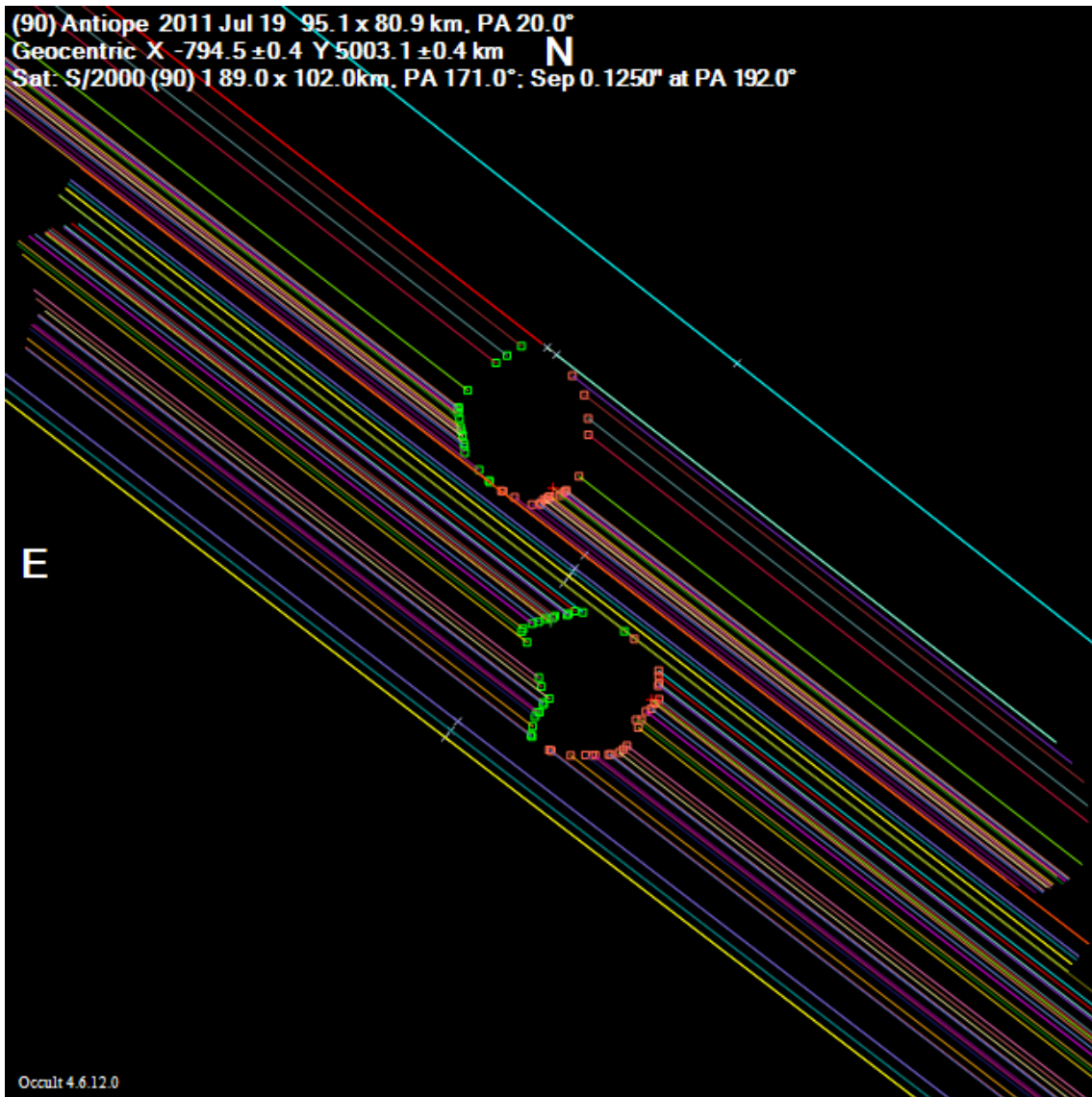
90_Antiope_2008Jan02

(90) Antiope 2008 Jan 2 $88.2 \pm 16.9 \times 81.8 \pm 2.7$ km, PA $180.2^\circ \pm 26.0^\circ$
Geocentric X 3260.7 ± 1.4 Y 1745.7 ± 7.3 km **N**
Sat: S/2000 (90) 195.0×81.0 km, PA 340.0° ; Sep $0.0700''$ at PA 143.5°



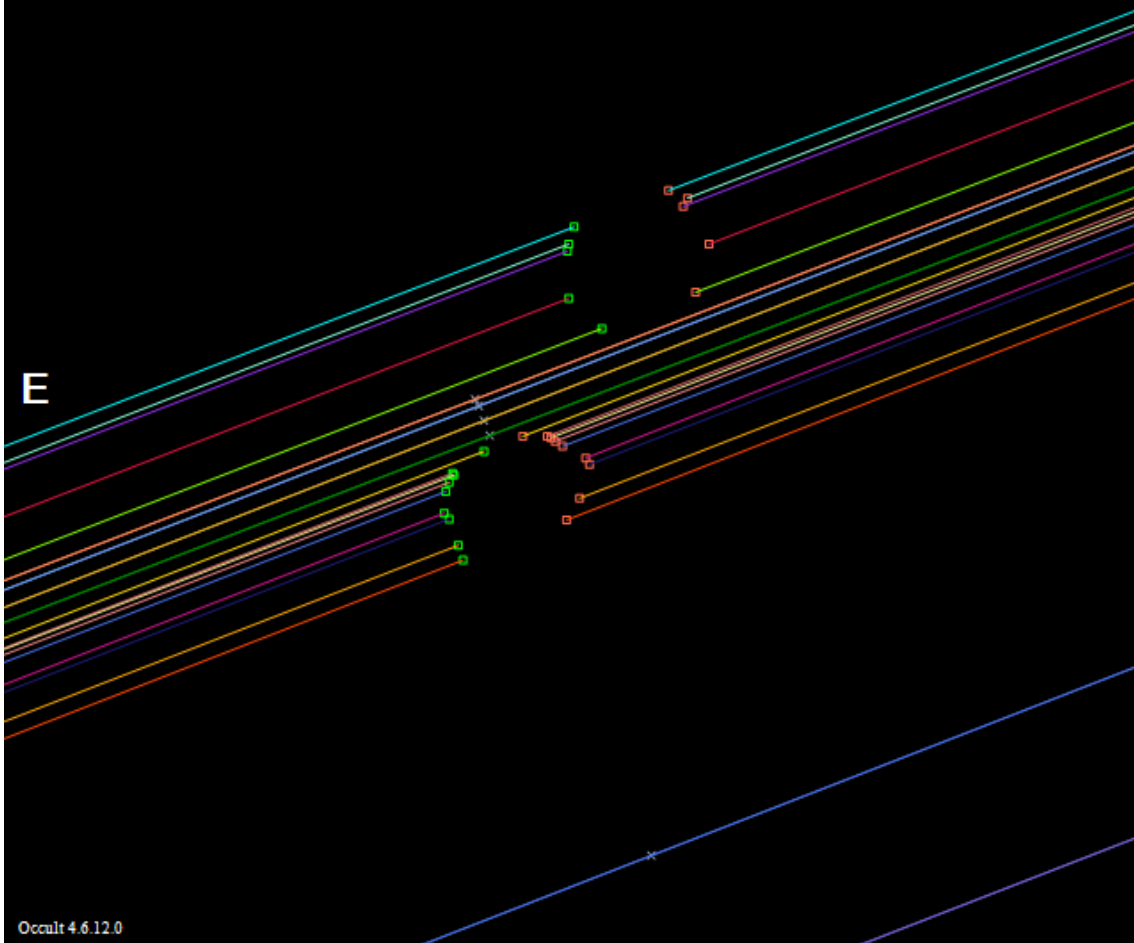
90_Antiope_2011Jul19

(90) Antiope 2011 Jul 19 95.1 x 80.9 km, PA 20.0°
Geocentric X -794.5 ± 0.4 Y 5003.1 ± 0.4 km **N**
Sat: S/2000 (90) 1 89.0 x 102.0 km, PA 171.0°; Sep 0.1250° at PA 192.0°



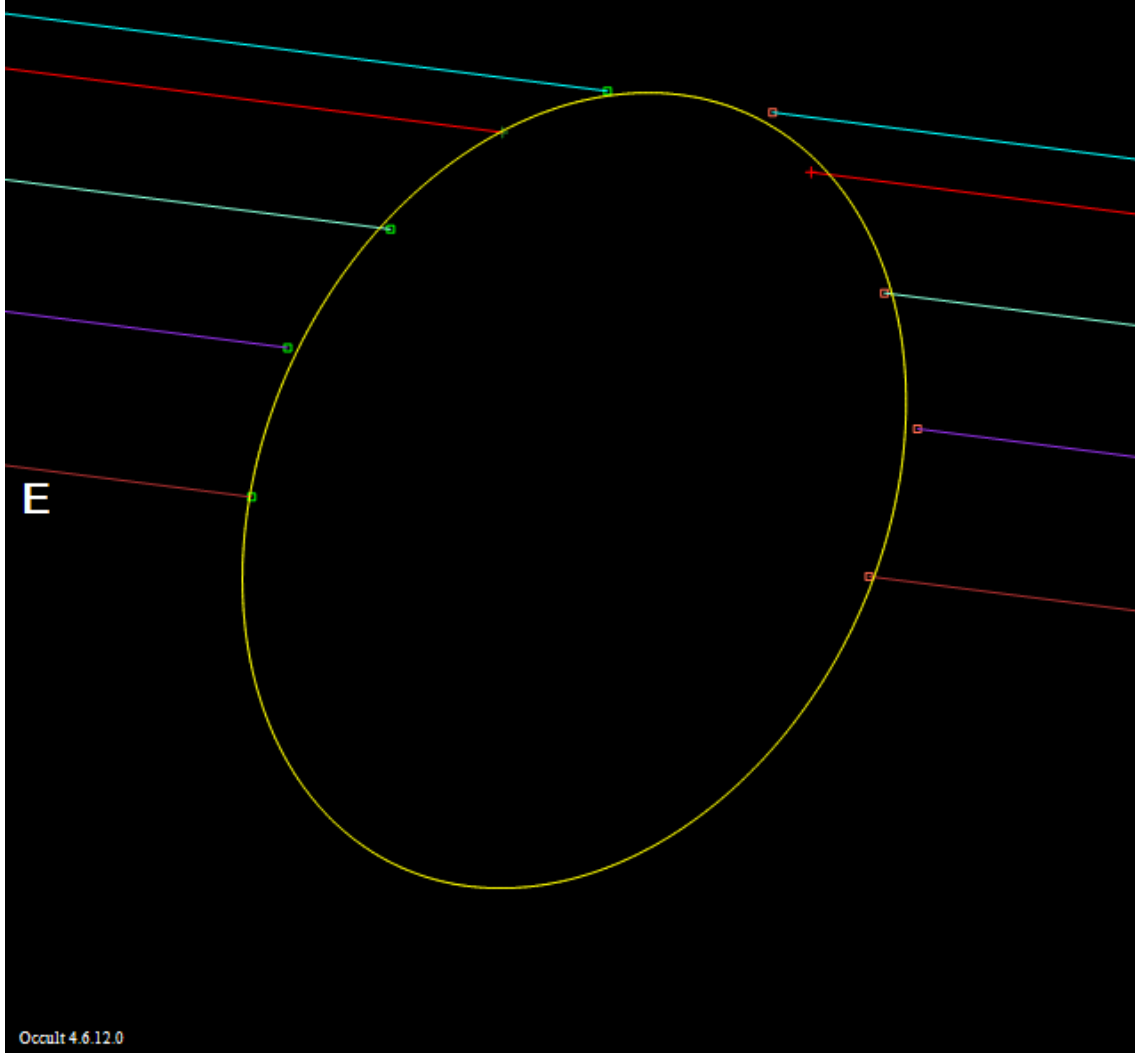
90_Antiope_2015Apr02

(90) Antiope 2015 Apr 2 $81.9 \pm 8.3 \times 77.3 \pm 3.3$ km, PA $16.4^\circ \pm 40.6^\circ$
Geocentric X -1214.5 ± 1.6 Y 3129.5 ± 2.9 km **N**
Sat: S/2000 (90) 193.7×81.0 km, PA 316.3° ; Sep $0.0893''$ at PA 332.7°



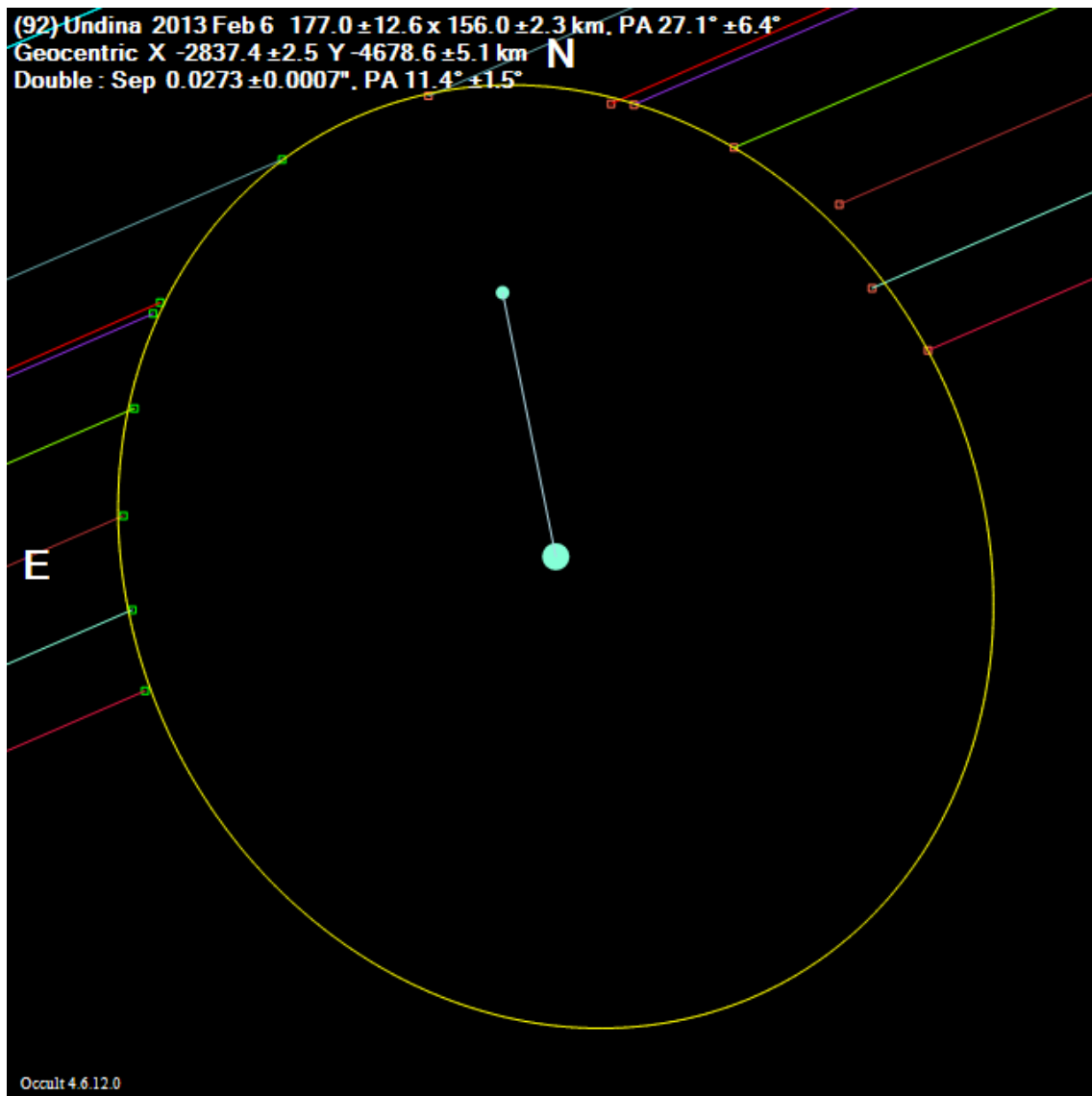
91_Aegina_2011Jul27

(91) Aegina 2011 Jul 27 $128.7 \pm 7.0 \times 96.3 \pm 1.5$ km. PA $154.6^\circ \pm 3.7^\circ$
Geocentric X -3910.6 ± 1.0 Y -985.2 ± 3.2 km **N**



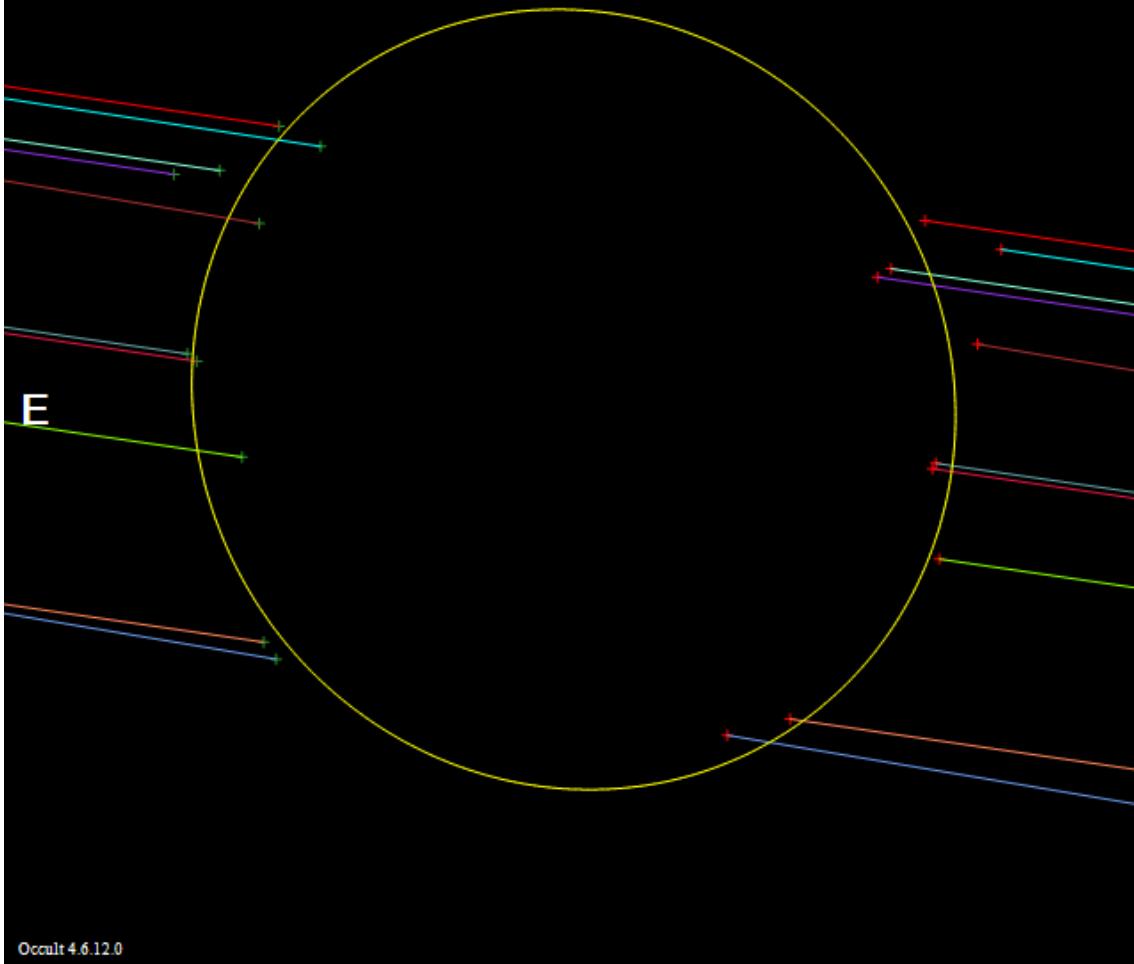
92_Undina_2013Feb06

(92) Undina 2013 Feb 6 $177.0 \pm 12.6 \times 156.0 \pm 2.3$ km, PA $27.1^\circ \pm 6.4^\circ$
Geocentric X -2837.4 ± 2.5 Y -4678.6 ± 5.1 km **N**
Double : Sep $0.0273 \pm 0.0007''$, PA $11.4^\circ \pm 1.5^\circ$



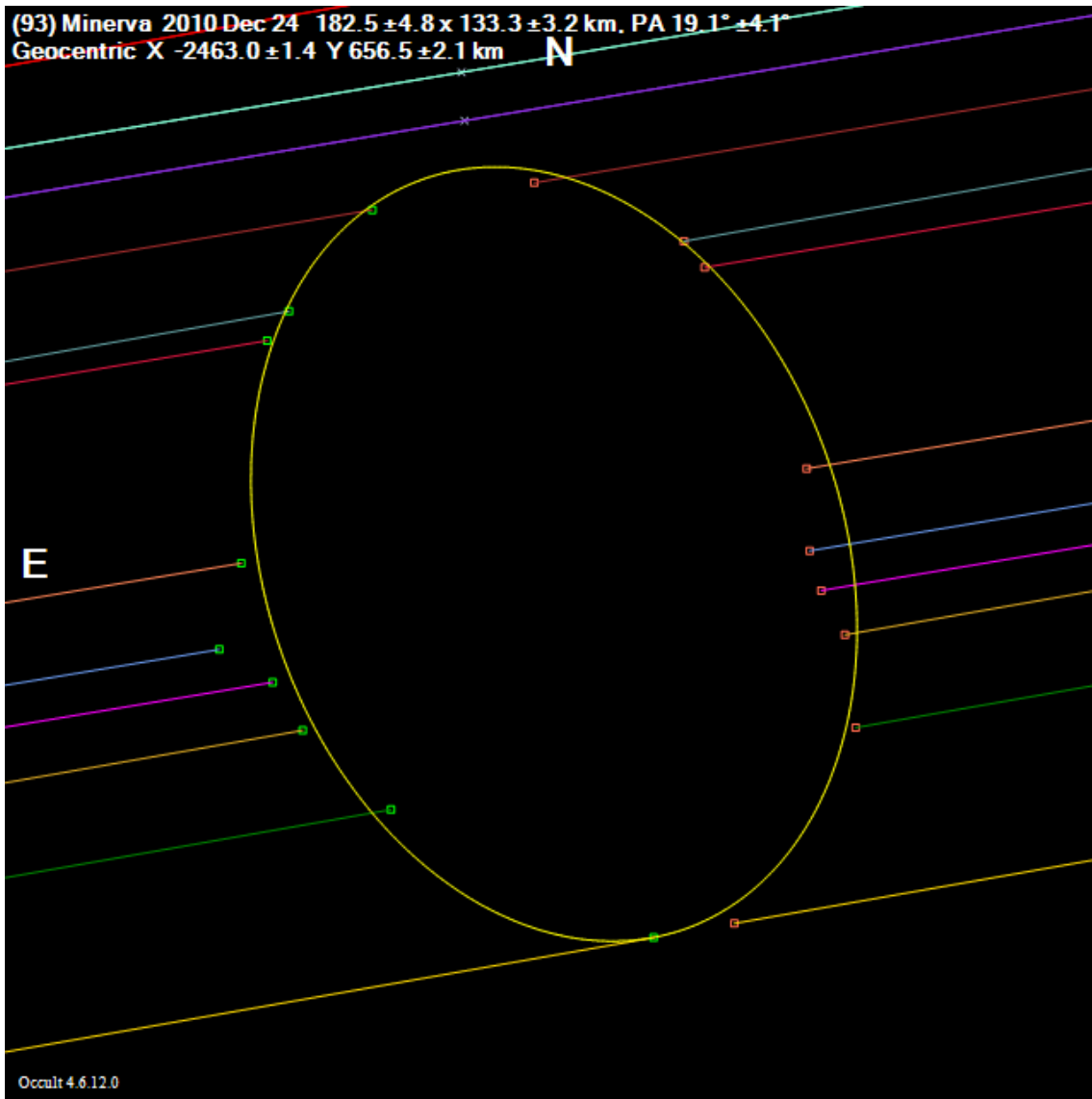
93_Minerva_1982Nov22

(93) Minerva 1982 Nov 22 $174.7 \pm 8.3 \times 166.7 \pm 6.3$ km, PA $32.0^\circ \pm 63.7^\circ$
Geocentric X -2189.2 ± 2.0 Y 1561.0 ± 3.9 km **N**



93_Minerva_2010Dec24

(93) Minerva 2010 Dec 24 $182.5 \pm 4.8 \times 133.3 \pm 3.2$ km, PA $19.1^\circ \pm 4.1^\circ$
Geocentric X -2463.0 ± 1.4 Y 656.5 ± 2.1 km



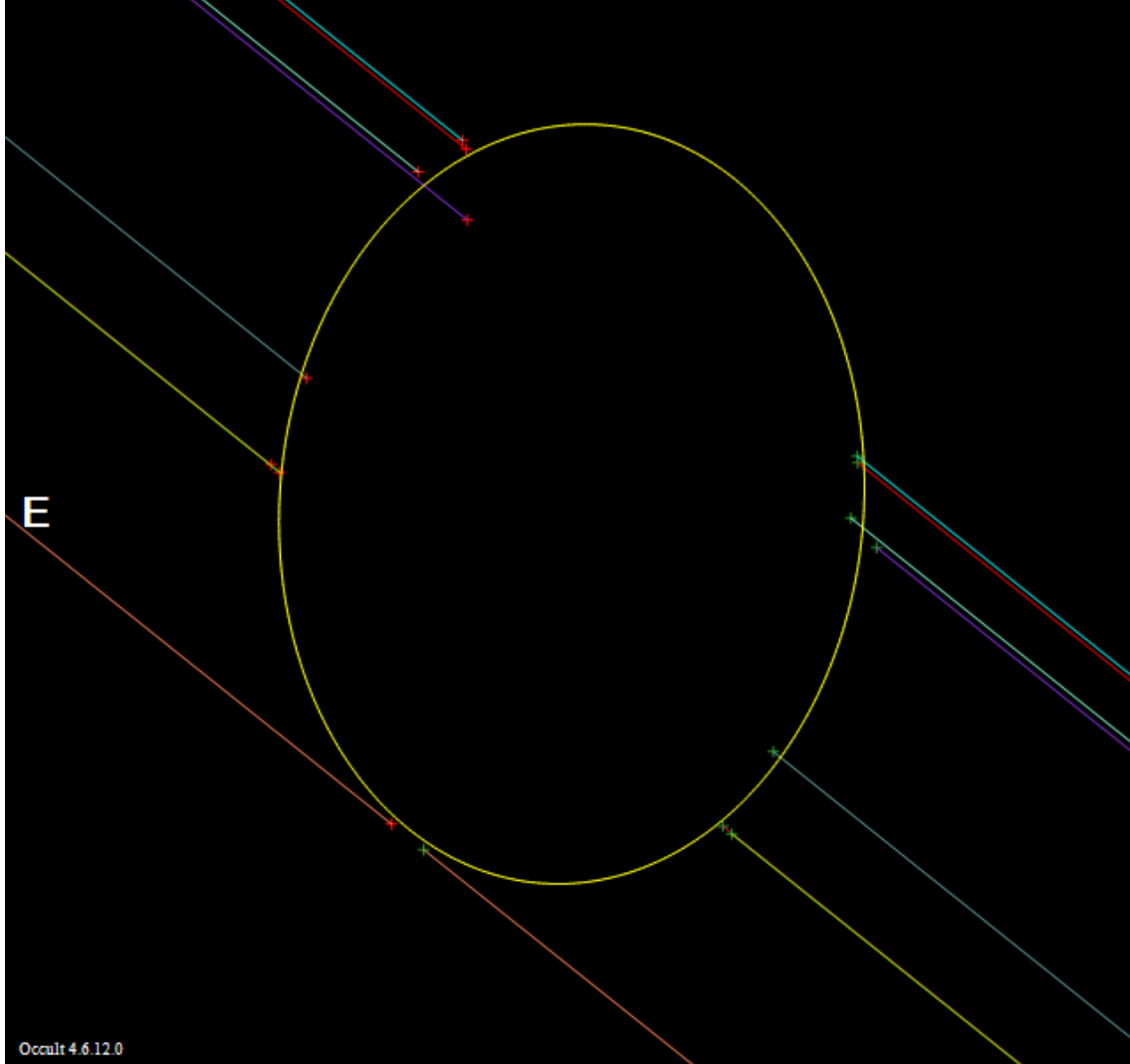
93_Minerva_2014Sep06

(93) Minerva 2014 Sep 6 $189.0 \pm 2.9 \times 147.0 \pm 4.6$ km, PA $30.4^\circ \pm 4.1^\circ$
Geocentric X -3257.2 ± 1.1 Y 2929.1 ± 1.7 km **N**
Sat: (93) II Gorgoneion 6.5×6.5 km, PA 0.0° ; Sep $0.1648''$ at PA 230.1°



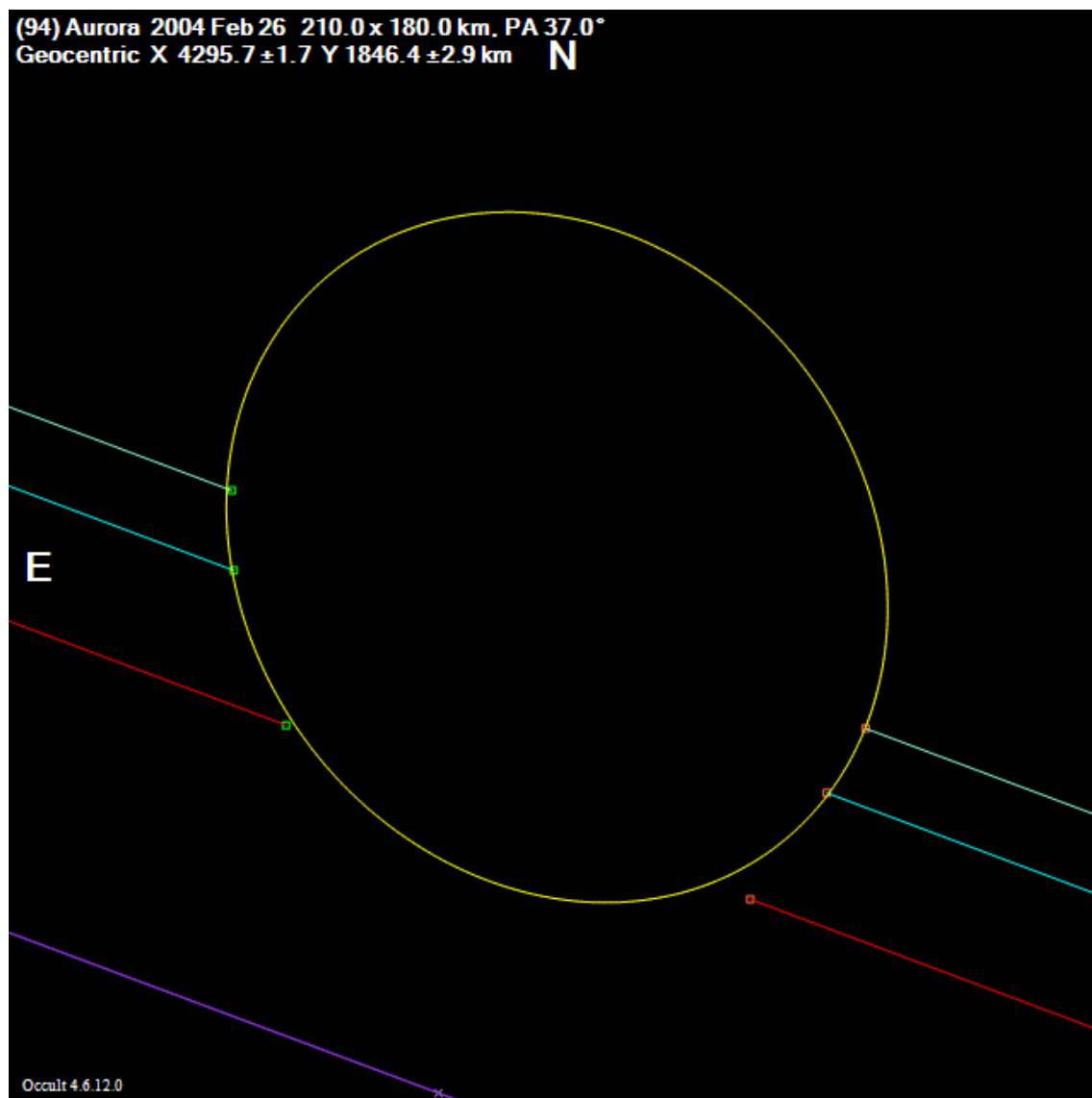
94_Aurora_2001Oct12

(94) Aurora 2001 Oct 12 $212.5 \pm 6.2 \times 163.2 \pm 3.7$ km. PA $175.0^\circ \pm 5.0^\circ$
Geocentric X 5303.5 ± 1.8 Y -2377.0 ± 2.4 km **N**



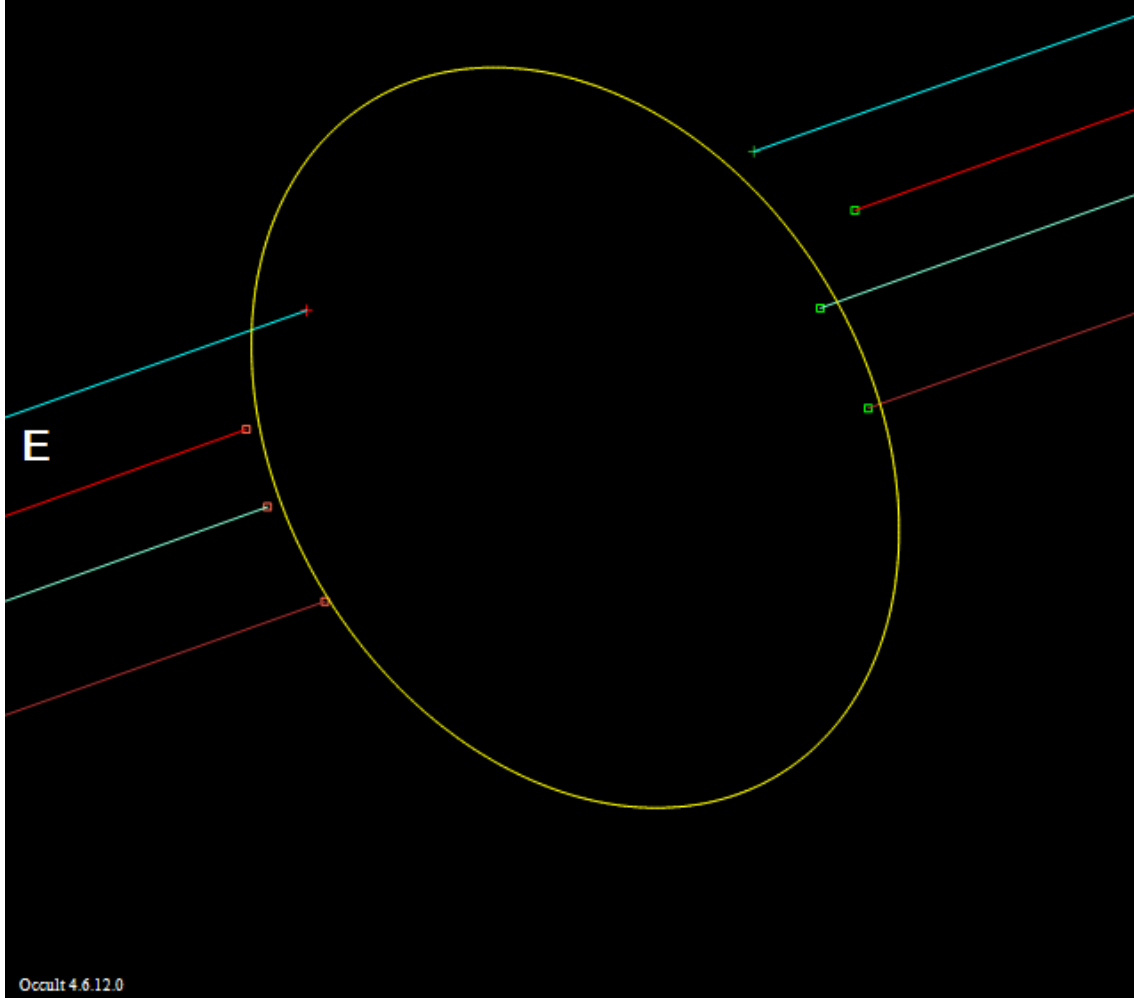
94_Aurora_2004Feb26

(94) Aurora 2004 Feb 26 210.0 x 180.0 km. PA 37.0°
Geocentric X 4295.7 ± 1.7 Y 1846.4 ± 2.9 km **N**



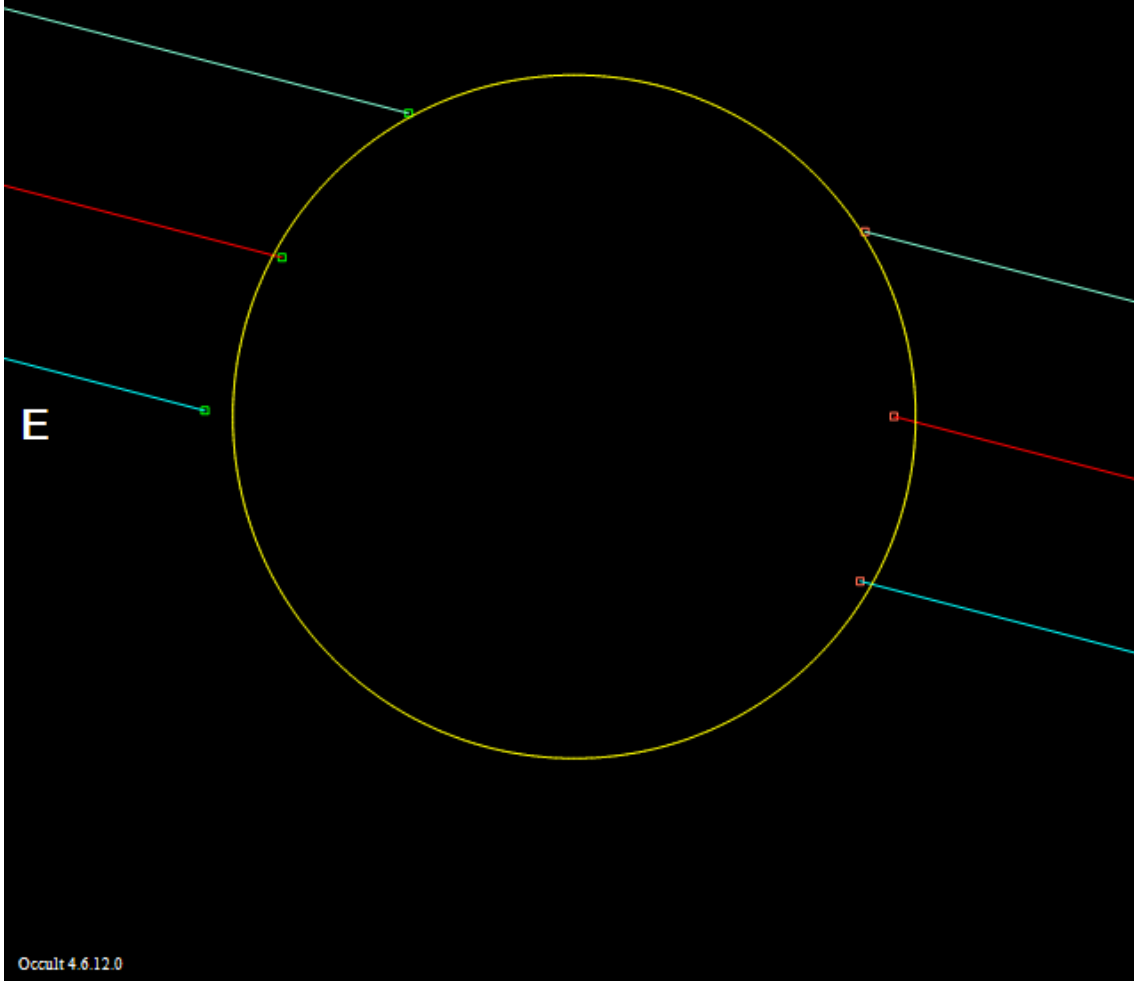
94_Aurora_2009Nov25

(94) Aurora 2009 Nov 25 $219.0 \pm 109.5 \times 164.0 \pm 8.3$ km. PA $31.0^\circ \pm 23.8^\circ$
Geocentric X -4100.8 ± 10.5 Y 2945.9 ± 22.3 km **N**



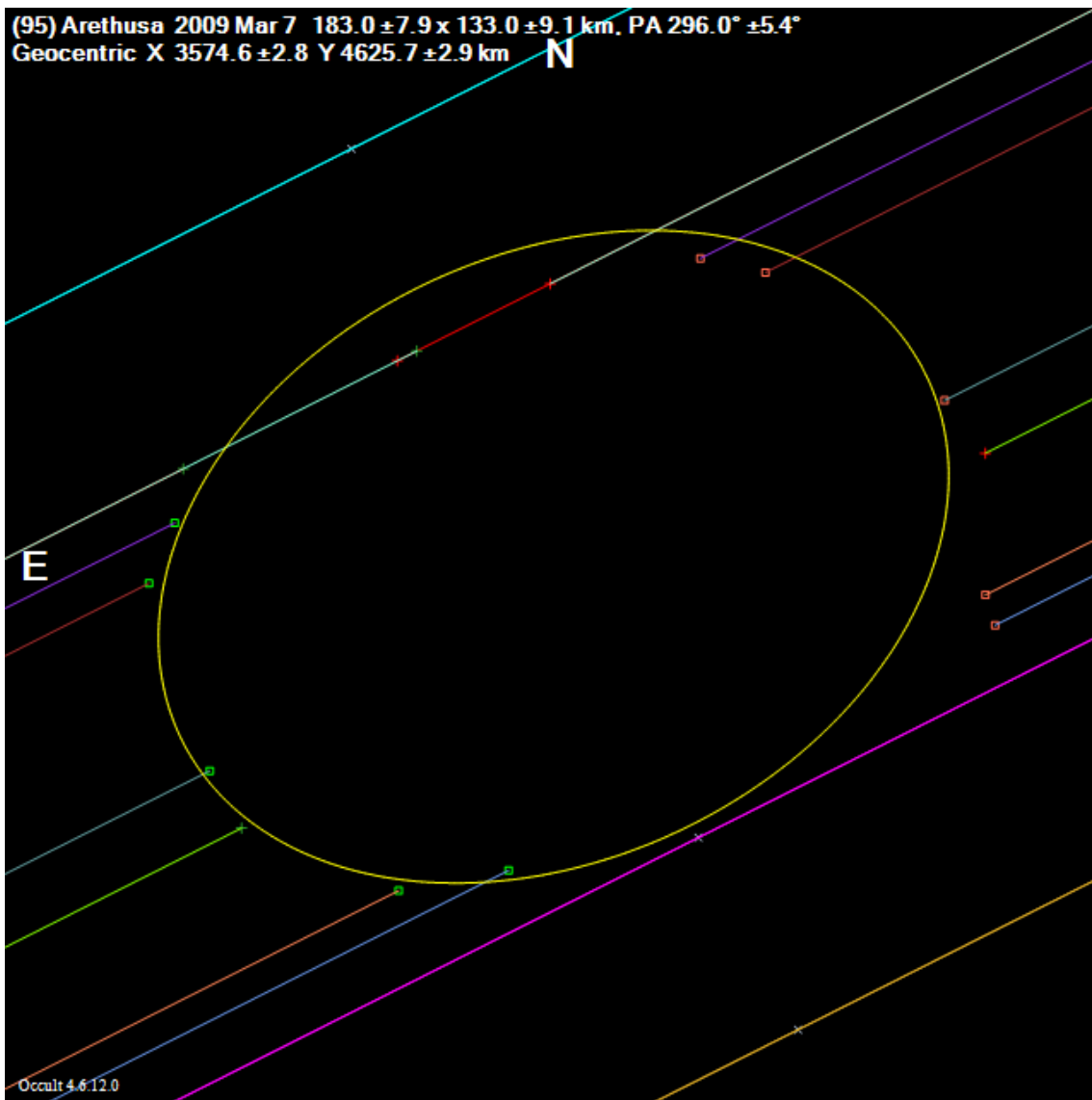
94_Aurora_2012Jun23

(94) Aurora 2012 Jun 23 190.0 x 190.0 km, PA 0.0°
Geocentric X 3902.7 ± 2.2 Y -509.8 ± 3.7 km **N**



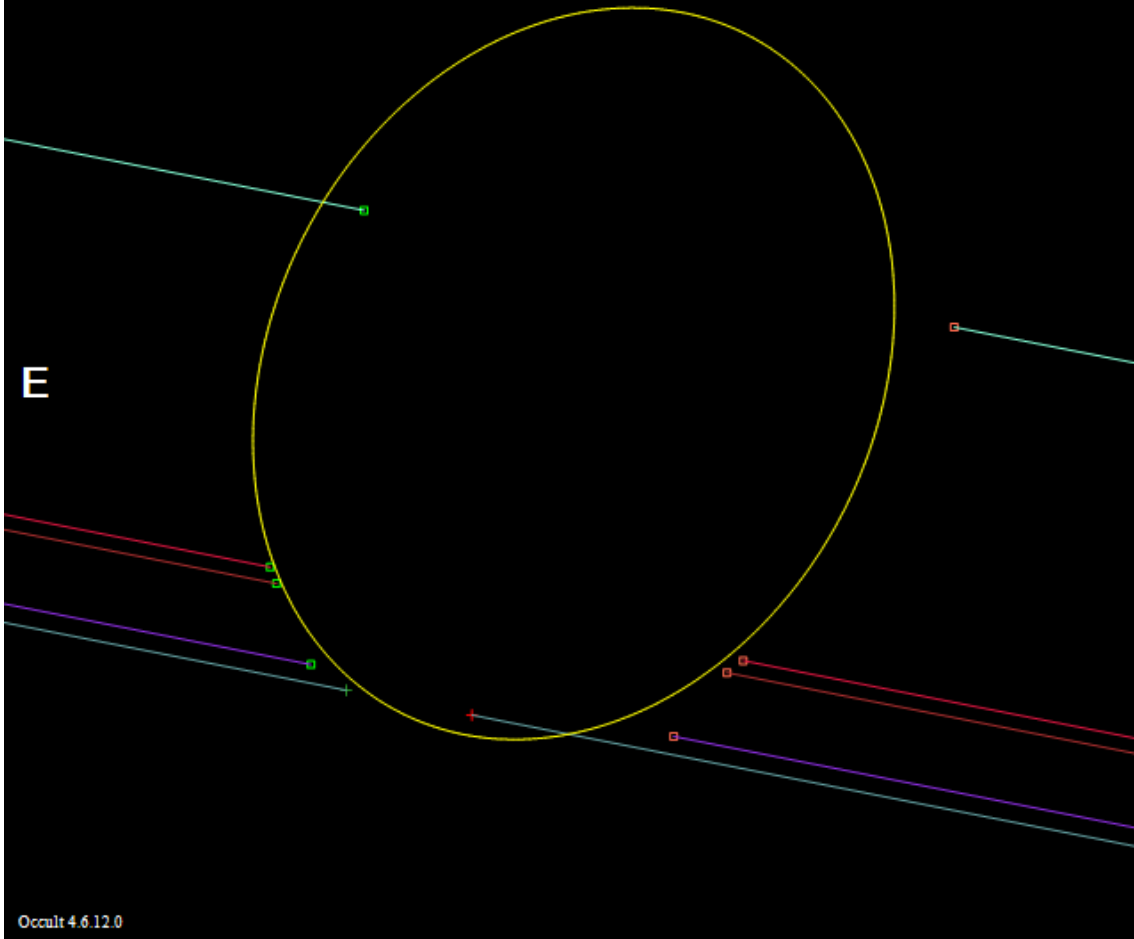
95_Arethusa_2009Mar07

(95) Arethusa 2009 Mar 7 $183.0 \pm 7.9 \times 133.0 \pm 9.1$ km. PA $296.0^\circ \pm 5.4^\circ$
Geocentric X 3574.6 ± 2.8 Y 4625.7 ± 2.9 km



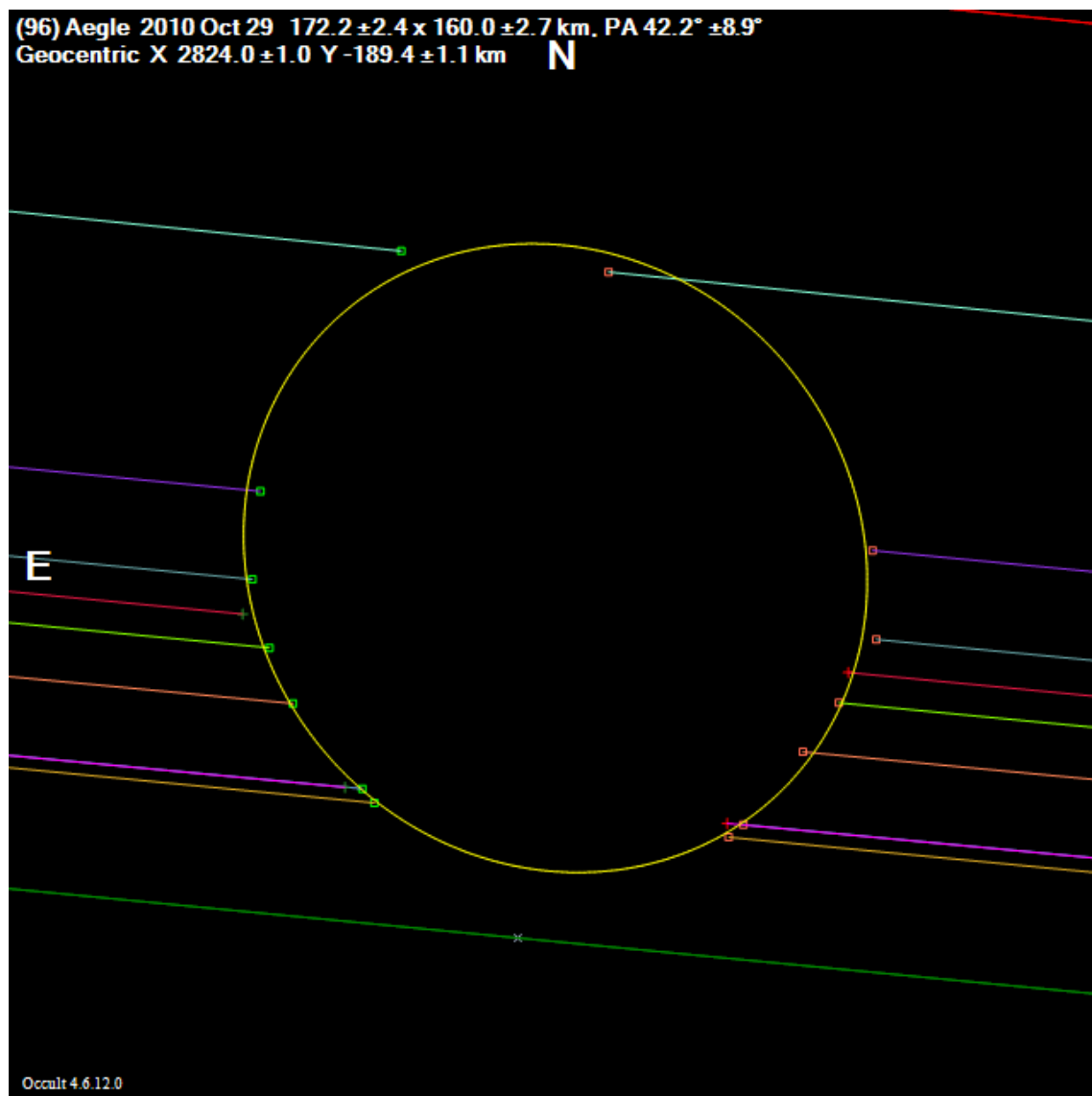
95_Arethusa_2018Dec28

(95) Arethusa 2018 Dec 28 $161.8 \pm 28.7 \times 128.8 \pm 7.2$ km. PA $152.7^\circ \pm 14.8^\circ$
Geocentric X -204.6 ± 4.3 Y 3848.9 ± 9.5 km **N**



96_Aegle_2010Oct29

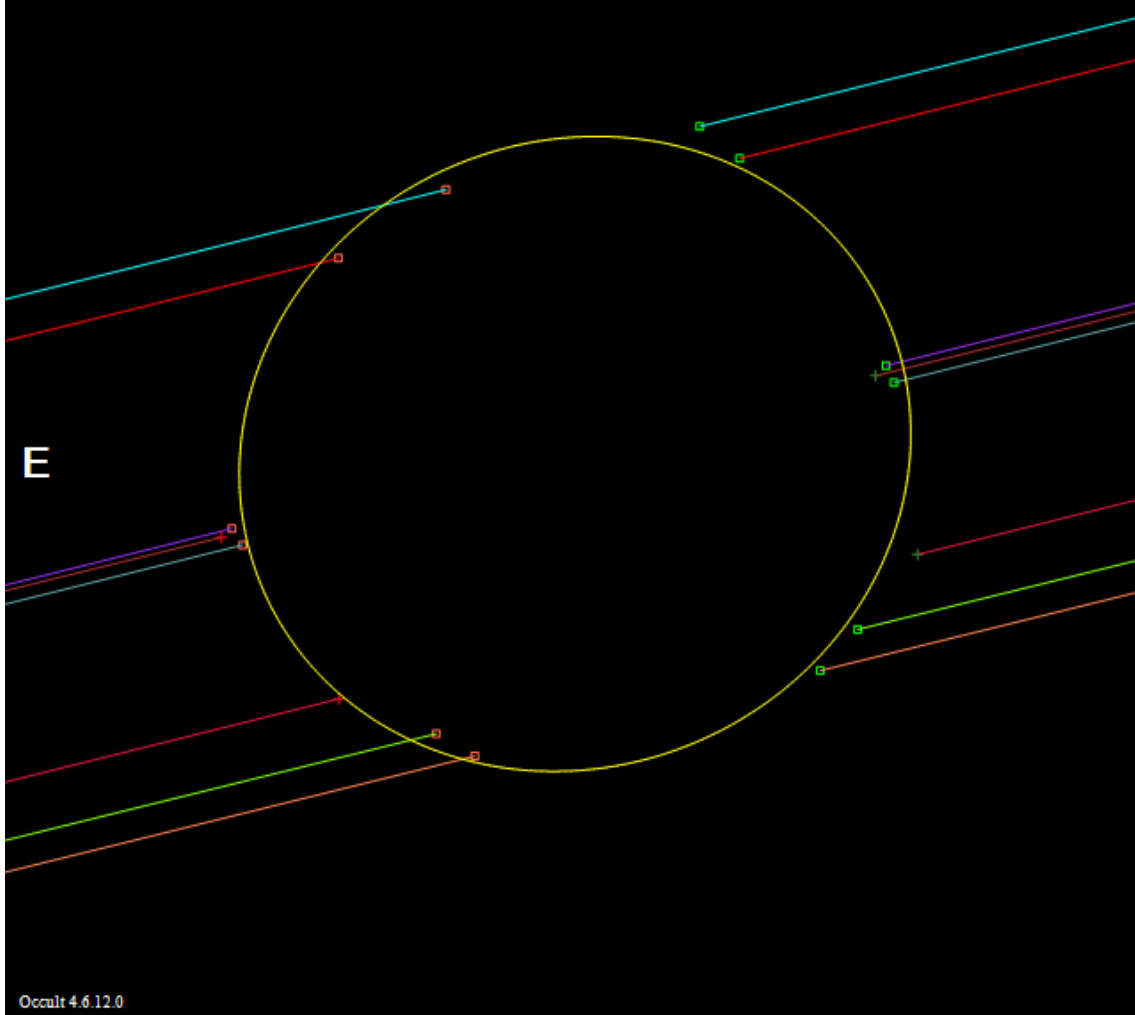
(96) Aegle 2010 Oct 29 $172.2 \pm 2.4 \times 160.0 \pm 2.7$ km, PA $42.2^\circ \pm 8.9^\circ$
Geocentric X 2824.0 ± 1.0 Y -189.4 ± 1.1 km **N**



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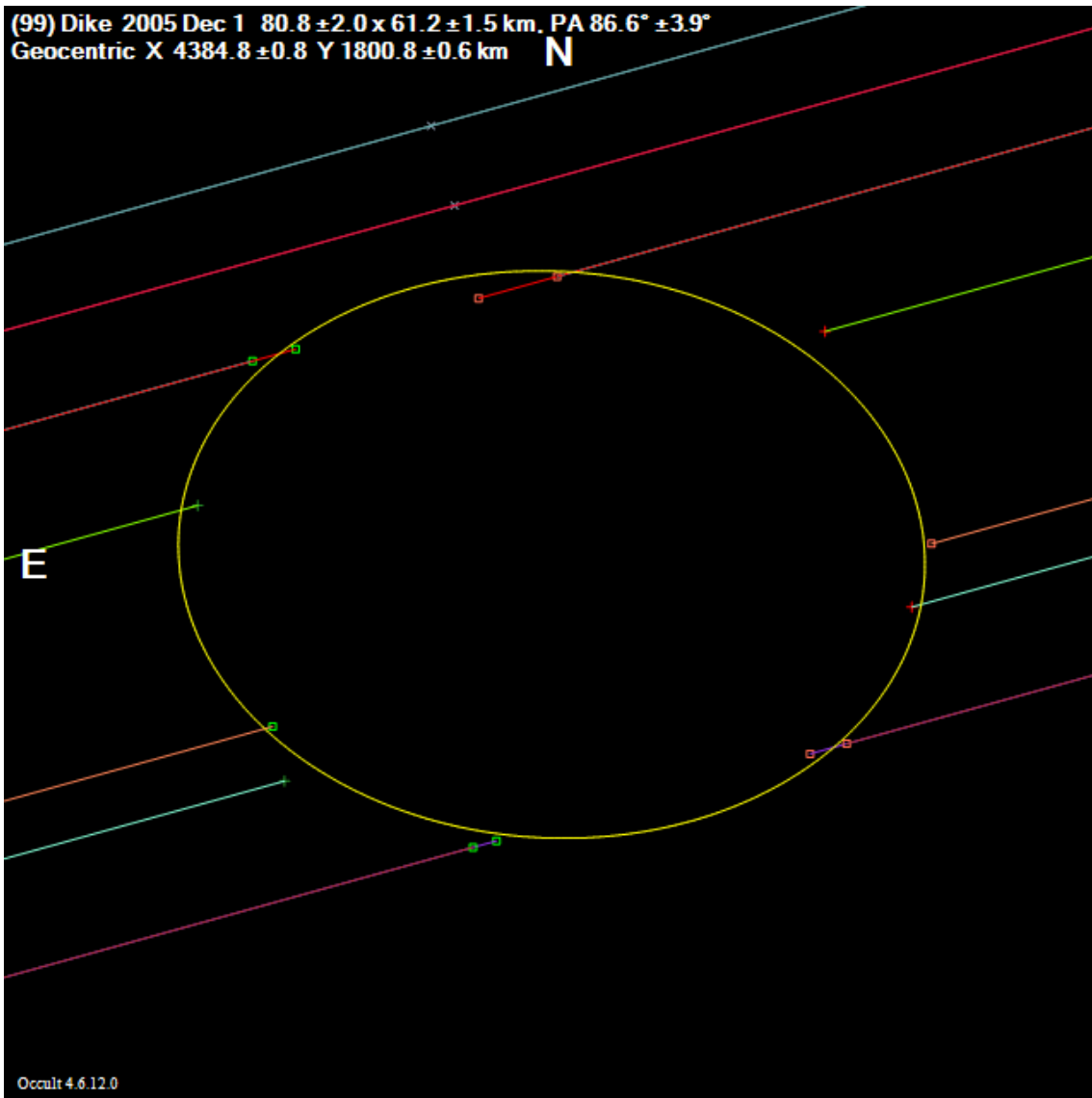
96_Aegle_2015Dec30

(96) Aegle 2015 Dec 30 $173.4 \pm 3.6 \times 159.2 \pm 4.0$ km. PA $114.1^\circ \pm 12.0^\circ$
Geocentric X 2957.9 ± 1.5 Y 1685.9 ± 1.6 km **N**



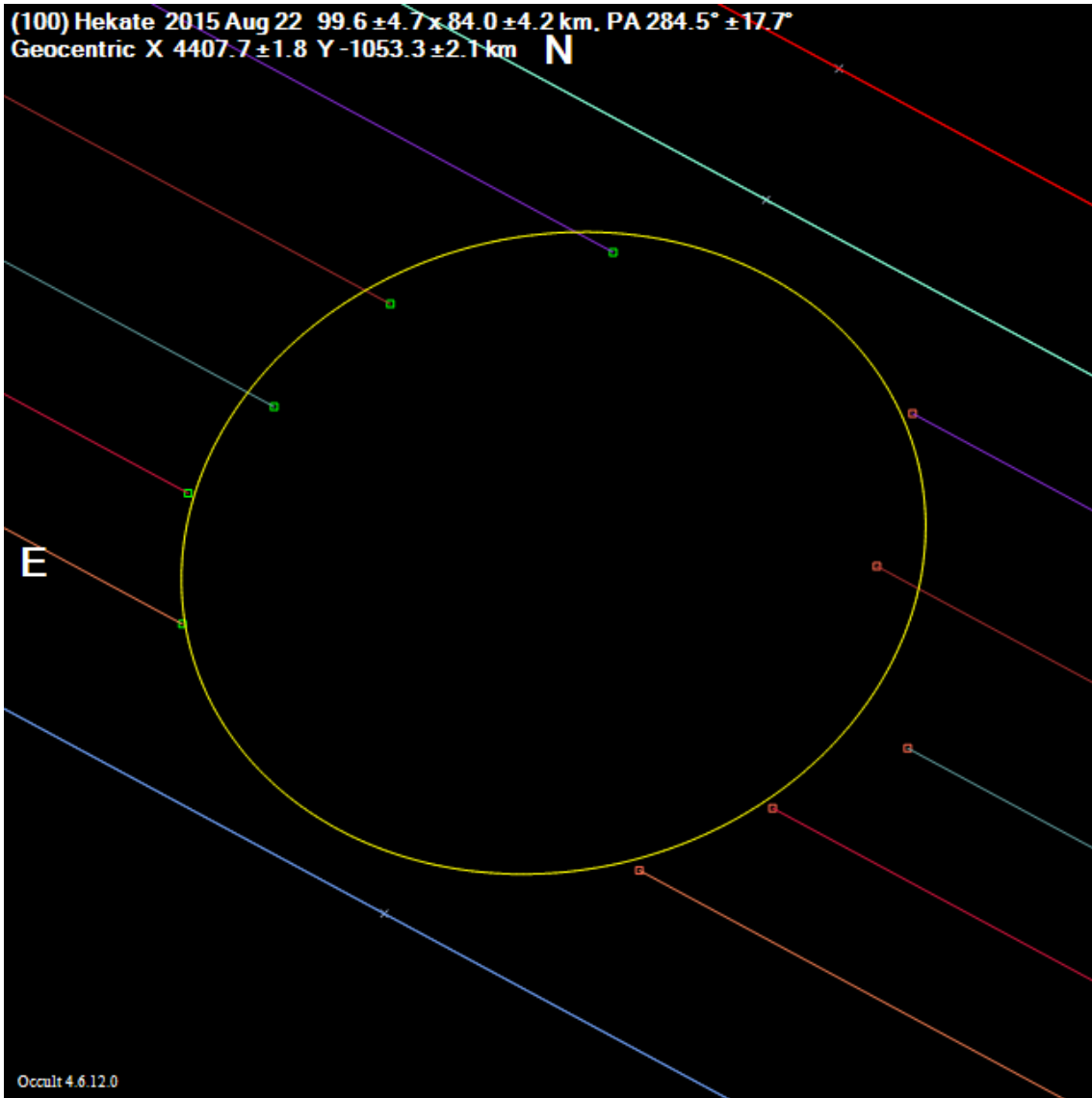
99_Dike_2005Dec01

(99) Dike 2005 Dec 1 $80.8 \pm 2.0 \times 61.2 \pm 1.5$ km. PA $86.6^\circ \pm 3.9^\circ$
Geocentric X 4384.8 ± 0.8 Y 1800.8 ± 0.6 km **N**



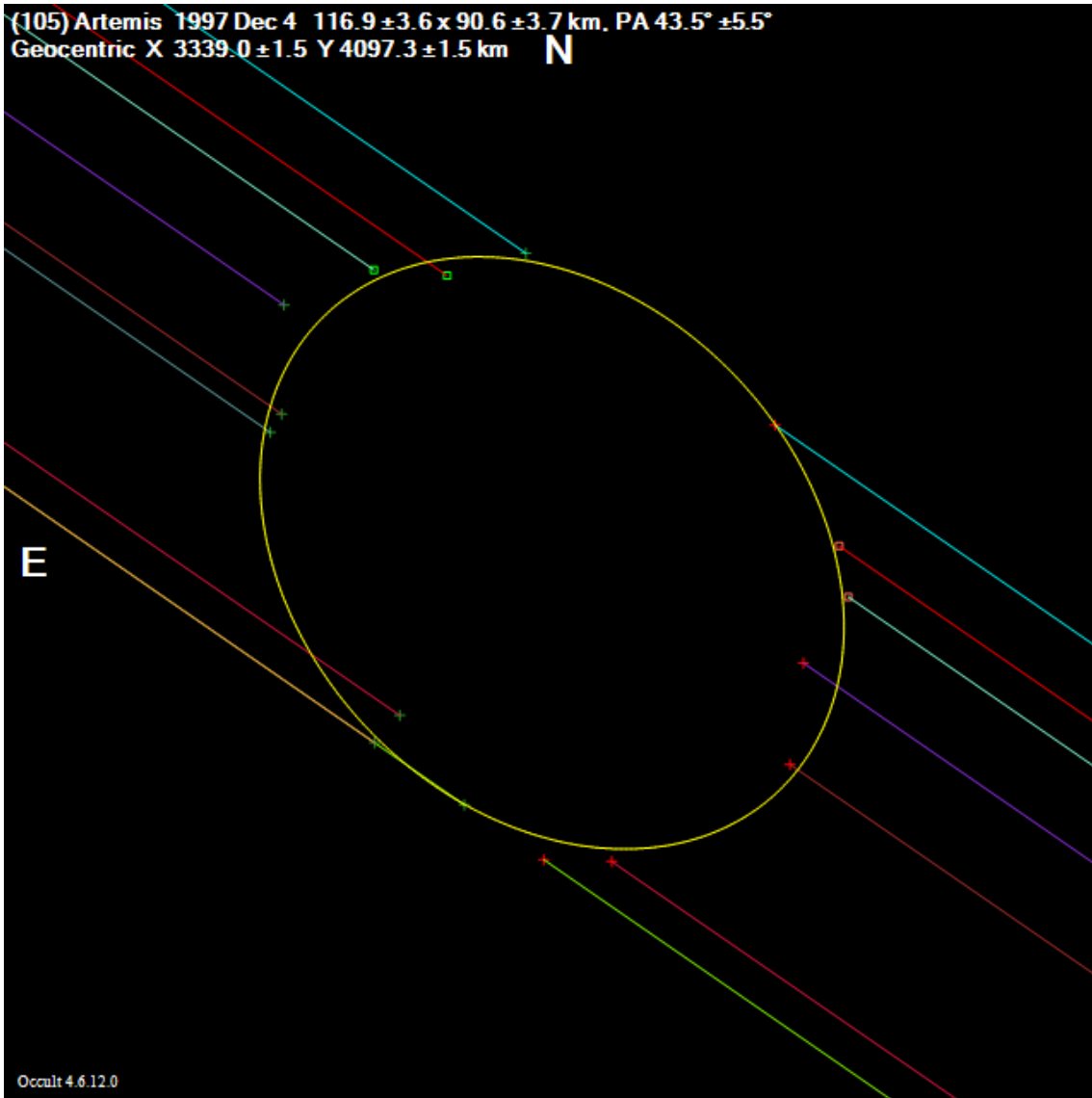
100_Hekate_2015Aug22

(100) Hekate 2015 Aug 22 $99.6 \pm 4.7 \times 84.0 \pm 4.2$ km, PA $284.5^\circ \pm 17.7^\circ$
Geocentric X 4407.7 ± 1.8 Y -1053.3 ± 2.1 km **N**



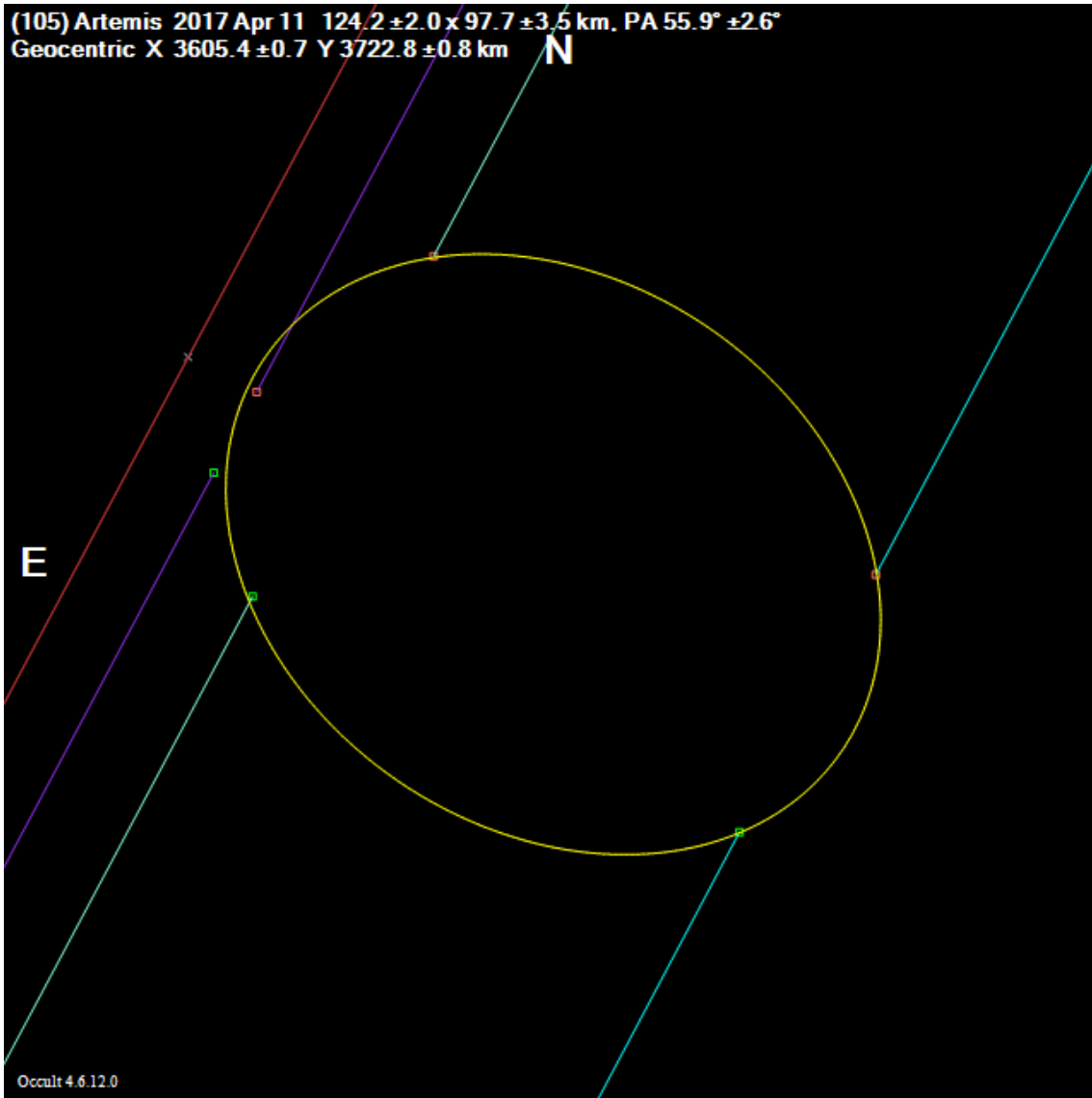
105_Artemis_1997Dec04

(105) Artemis 1997 Dec 4 $116.9 \pm 3.6 \times 90.6 \pm 3.7$ km, PA $43.5^\circ \pm 5.5^\circ$
Geocentric X 3339.0 ± 1.5 Y 4097.3 ± 1.5 km **N**



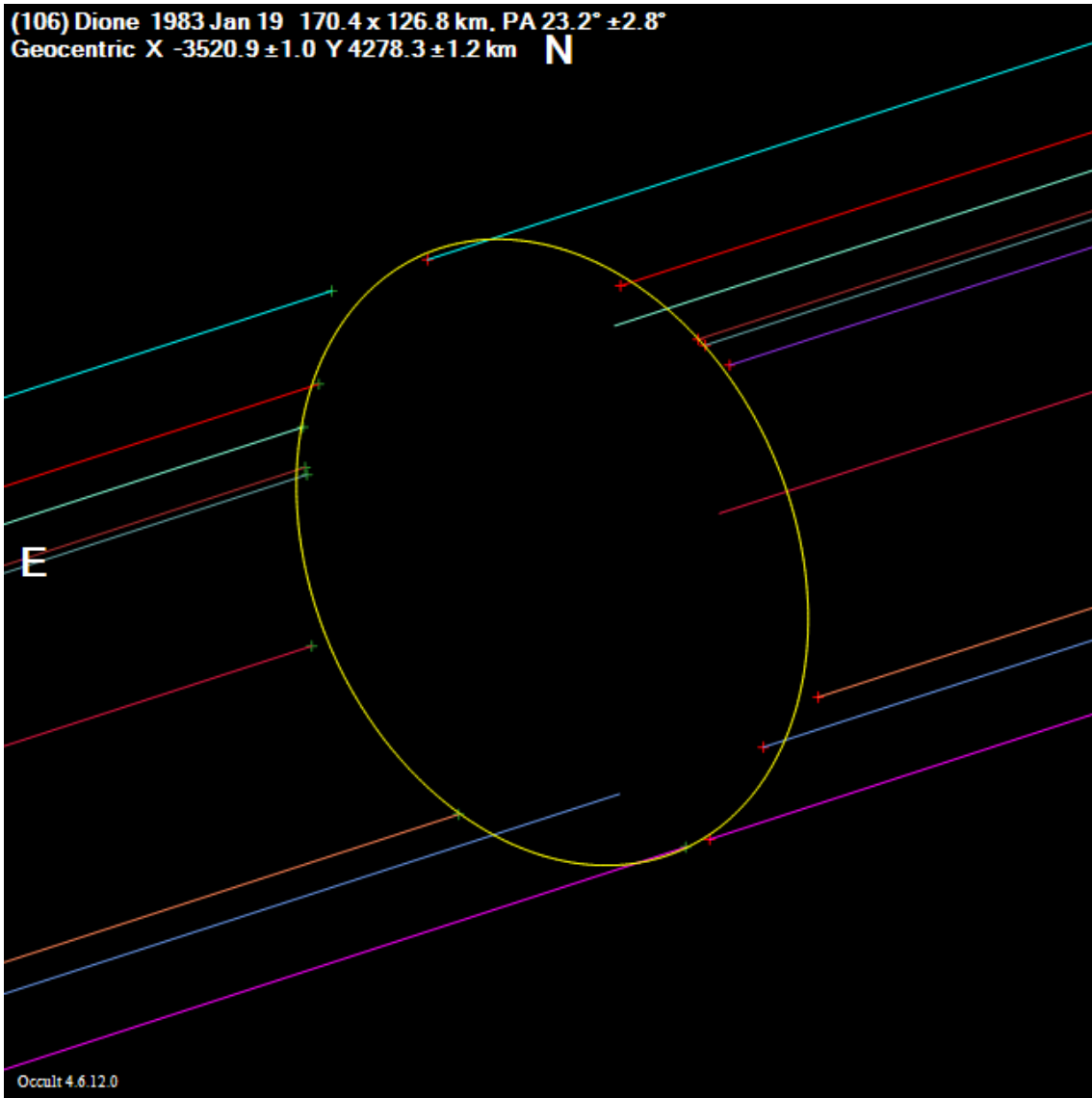
105_Artemis_2017Apr11

(105) Artemis 2017 Apr 11 $124.2 \pm 2.0 \times 97.7 \pm 3.5$ km. PA $55.9^\circ \pm 2.6^\circ$
Geocentric X 3605.4 ± 0.7 Y 3722.8 ± 0.8 km



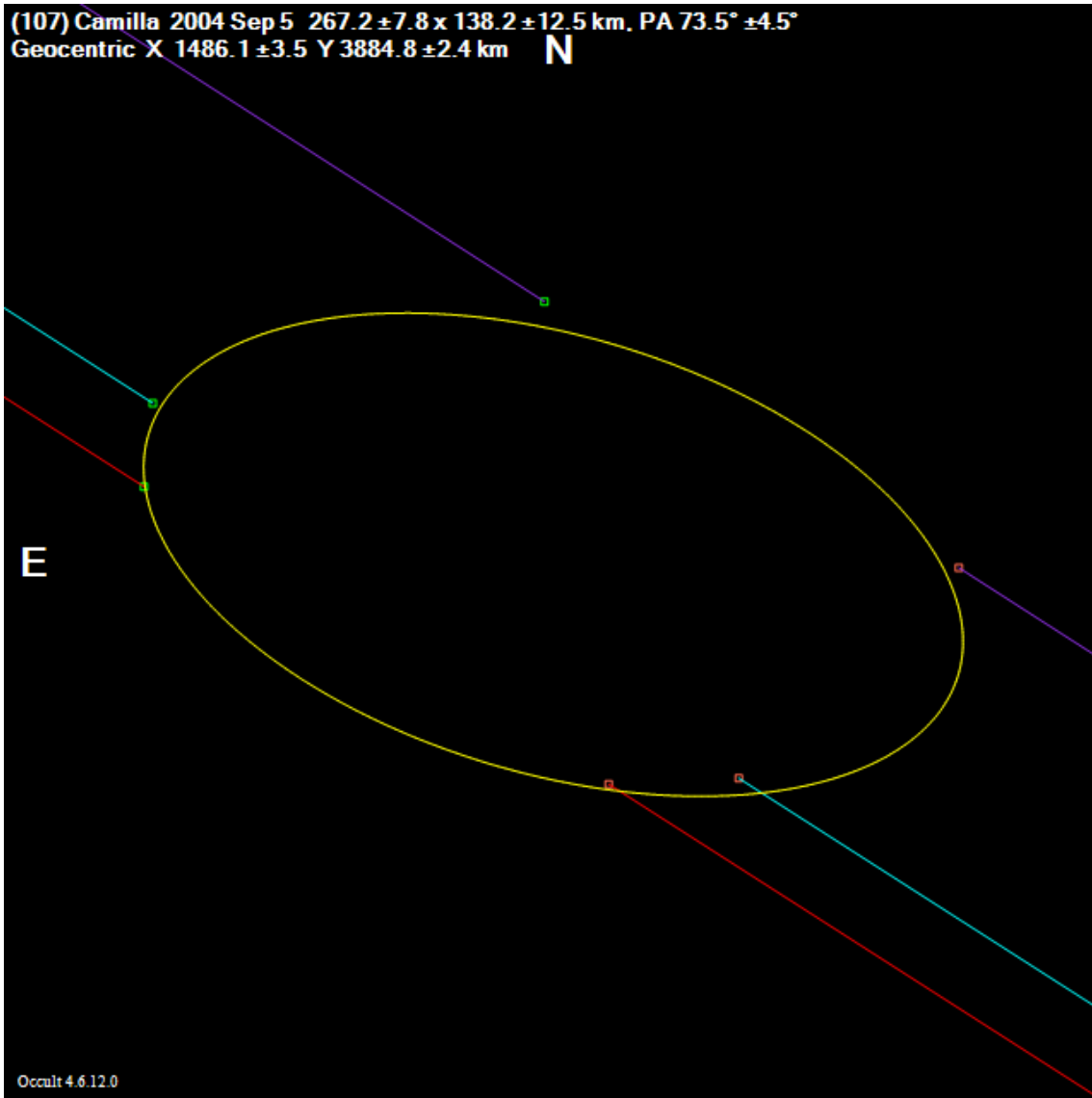
106_Dione_1983Jan19

(106) Dione 1983 Jan 19 170.4 x 126.8 km. PA 23.2° ± 2.8°
Geocentric X -3520.9 ± 1.0 Y 4278.3 ± 1.2 km **N**



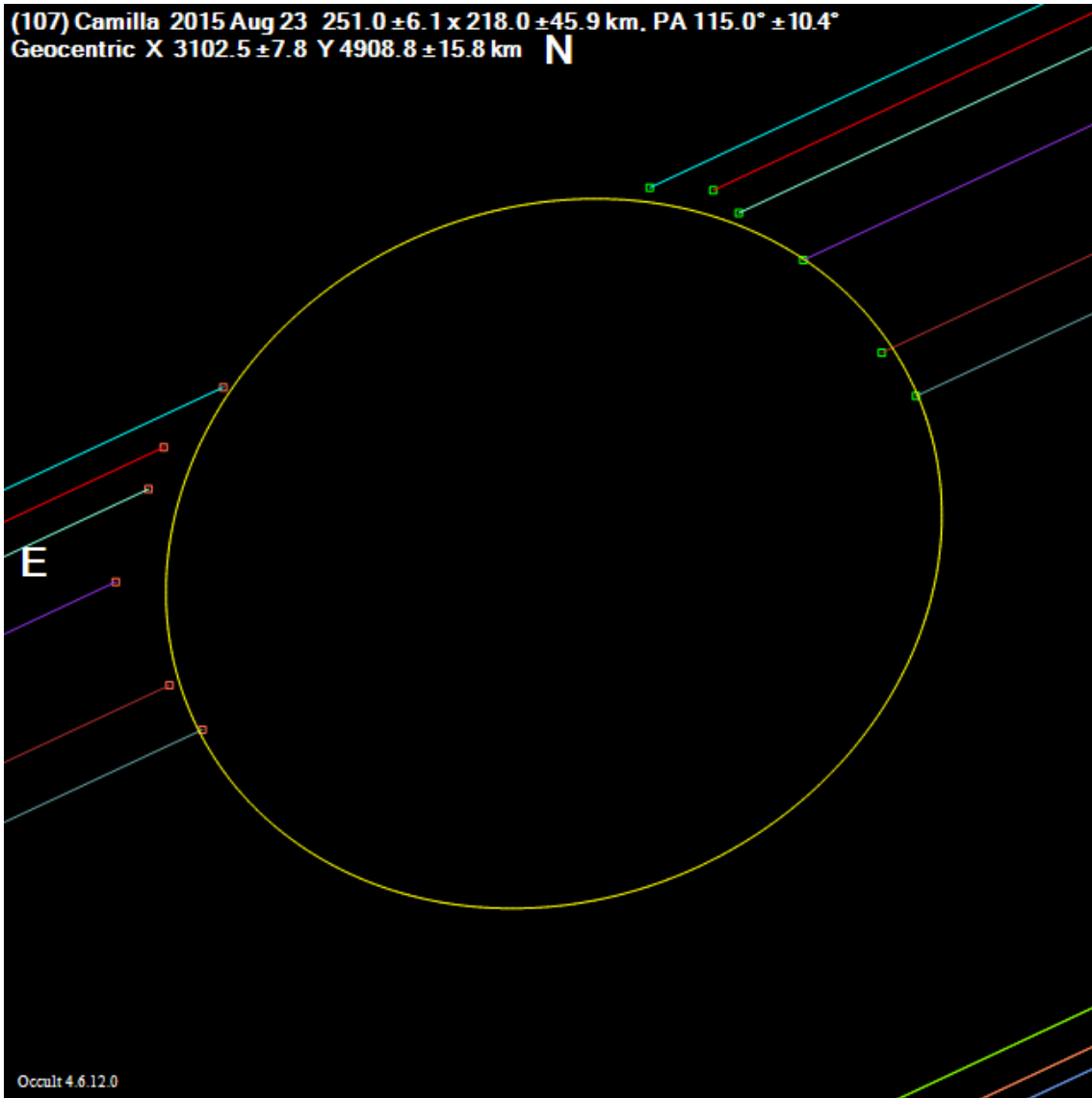
107_Camilla_2004Sep05

(107) Camilla 2004 Sep 5 $267.2 \pm 7.8 \times 138.2 \pm 12.5$ km. PA $73.5^\circ \pm 4.5^\circ$
Geocentric X 1486.1 ± 3.5 Y 3884.8 ± 2.4 km **N**

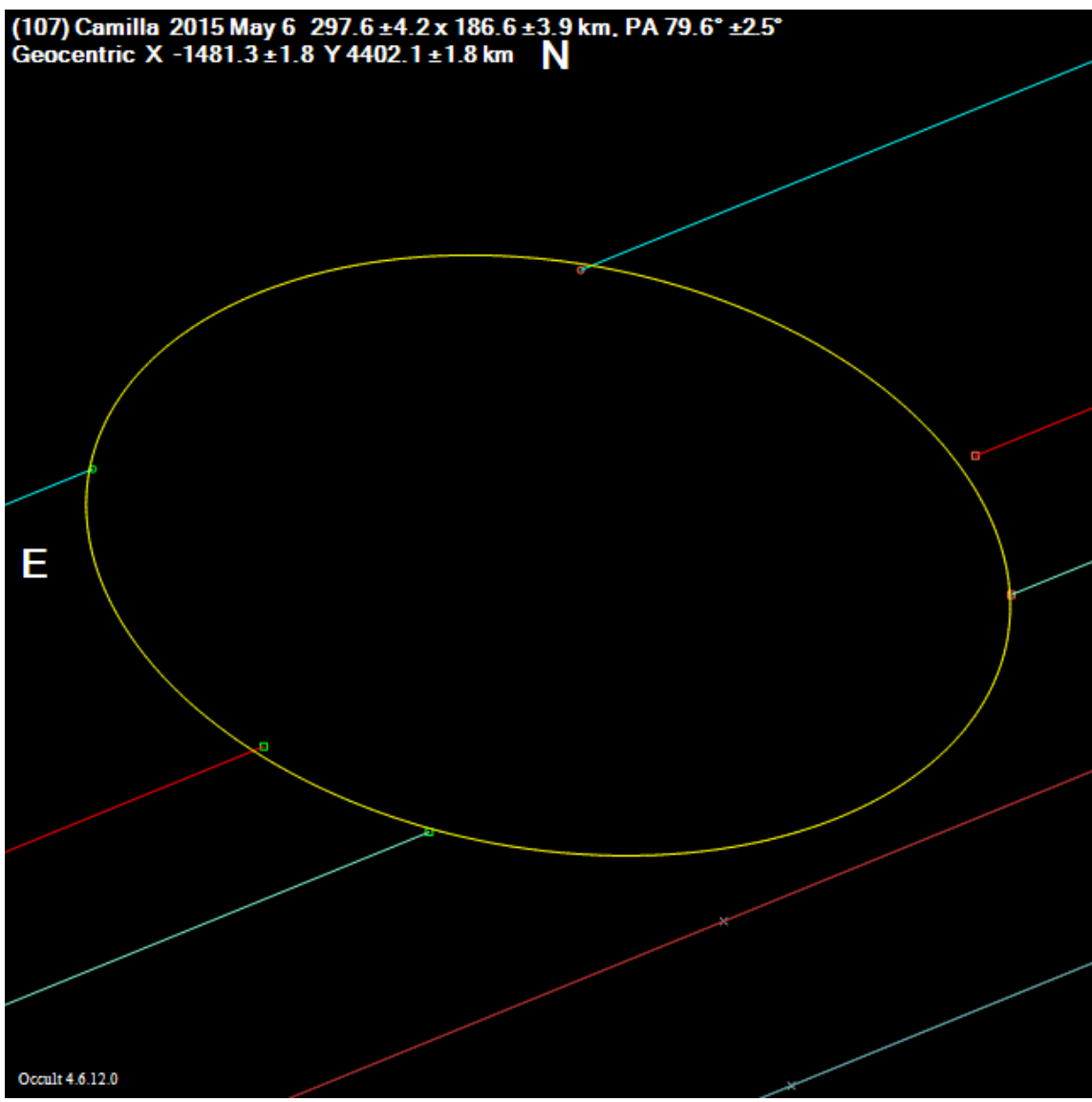


107_Camilla_2015Aug23

(107) Camilla 2015 Aug 23 $251.0 \pm 6.1 \times 218.0 \pm 45.9$ km, PA $115.0^\circ \pm 10.4^\circ$
Geocentric X 3102.5 ± 7.8 Y 4908.8 ± 15.8 km **N**

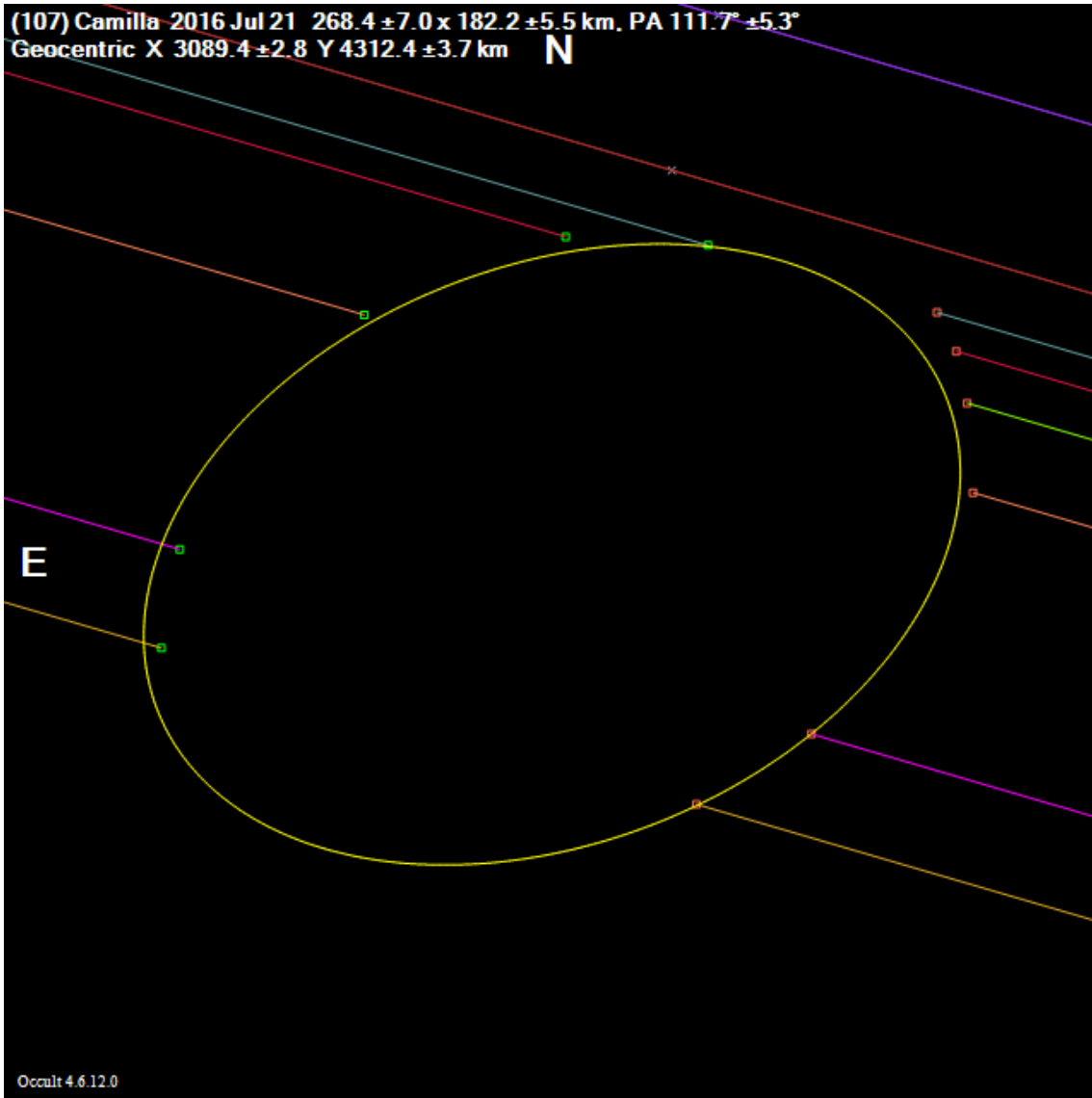


107_Camilla_2015May06



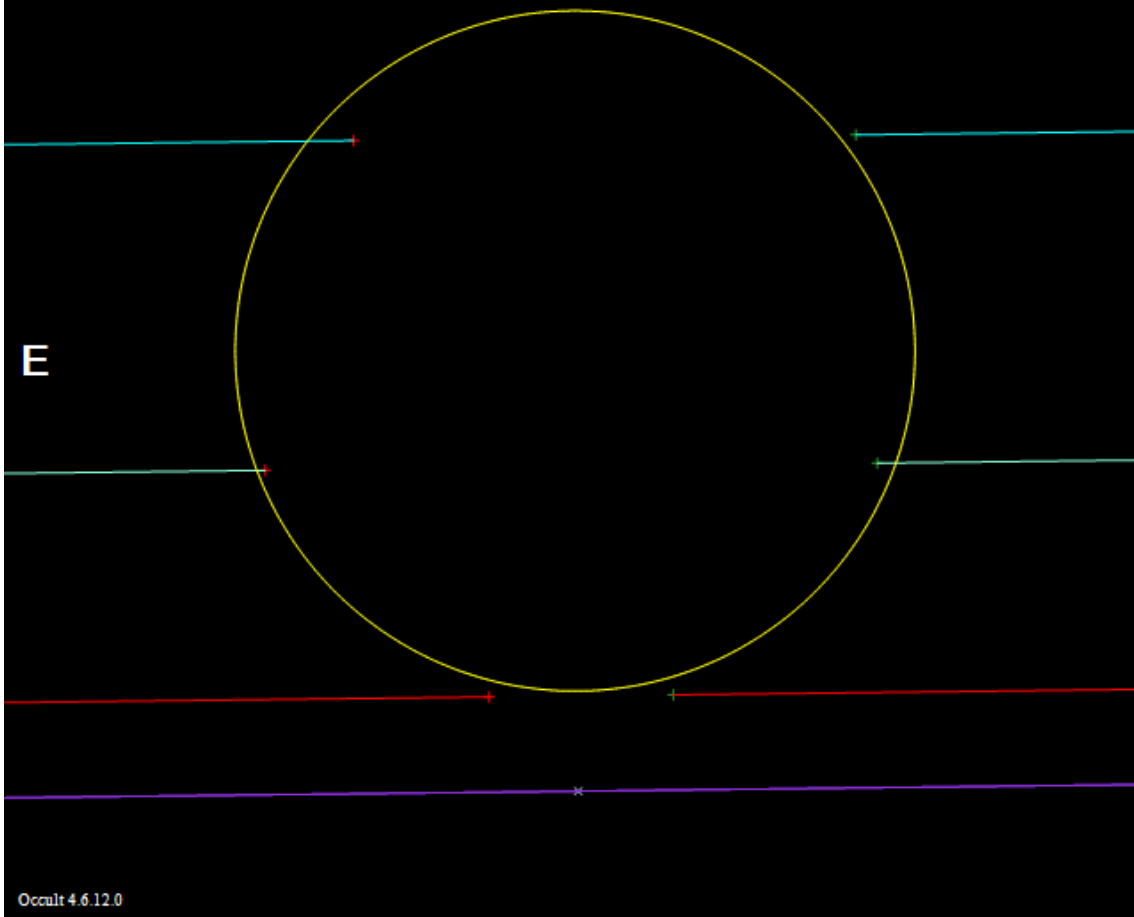
107_Camilla_2016Jul21

(107) Camilla - 2016 Jul 21 268.4 ± 7.0 × 182.2 ± 5.5 km, PA 111.7° ± 5.3°
Geocentric X 3089.4 ± 2.8 Y 4312.4 ± 3.7 km **N**



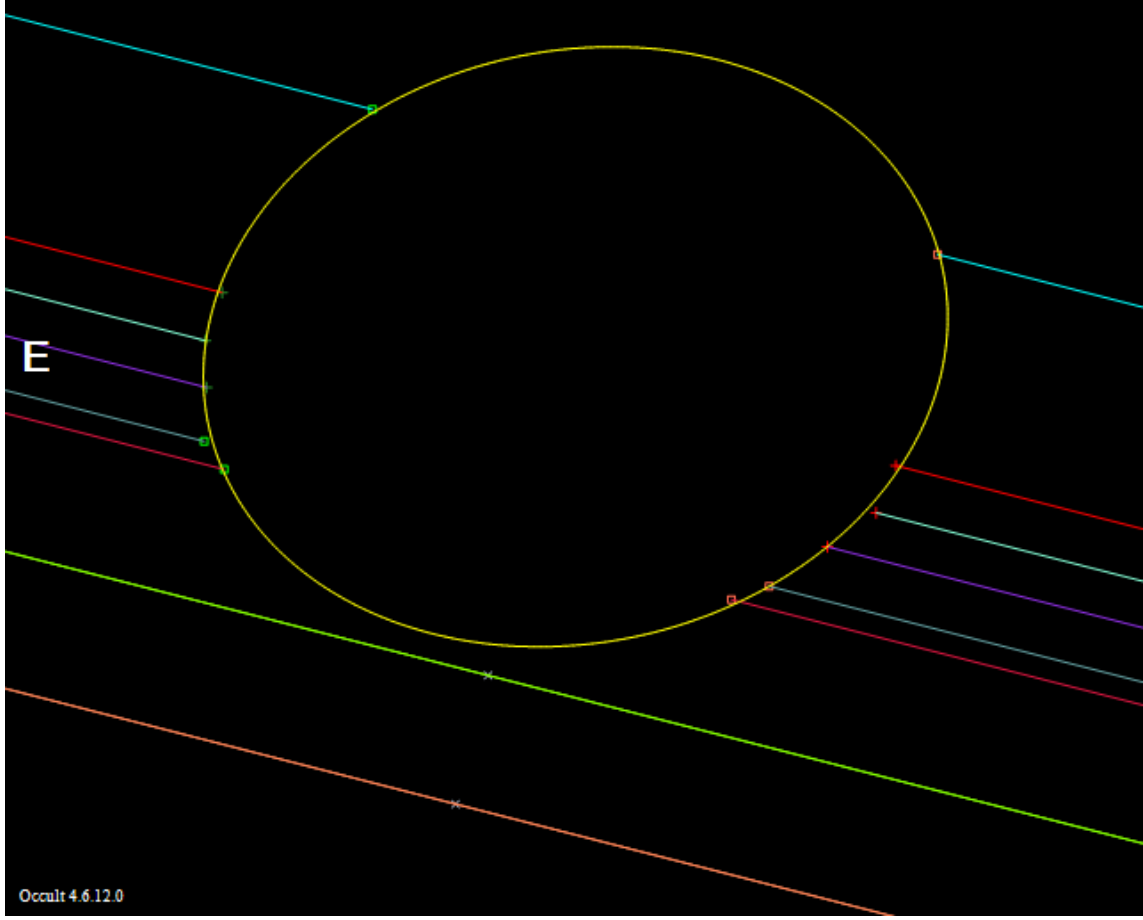
109_Felicitas_2003Mar29

(109) Felicitas 2003 Mar 29 89.0 x 89.0 km, PA 0.0°
Geocentric X 4105.7 ± 1.5 Y 1557.3 ± 1.5 km N



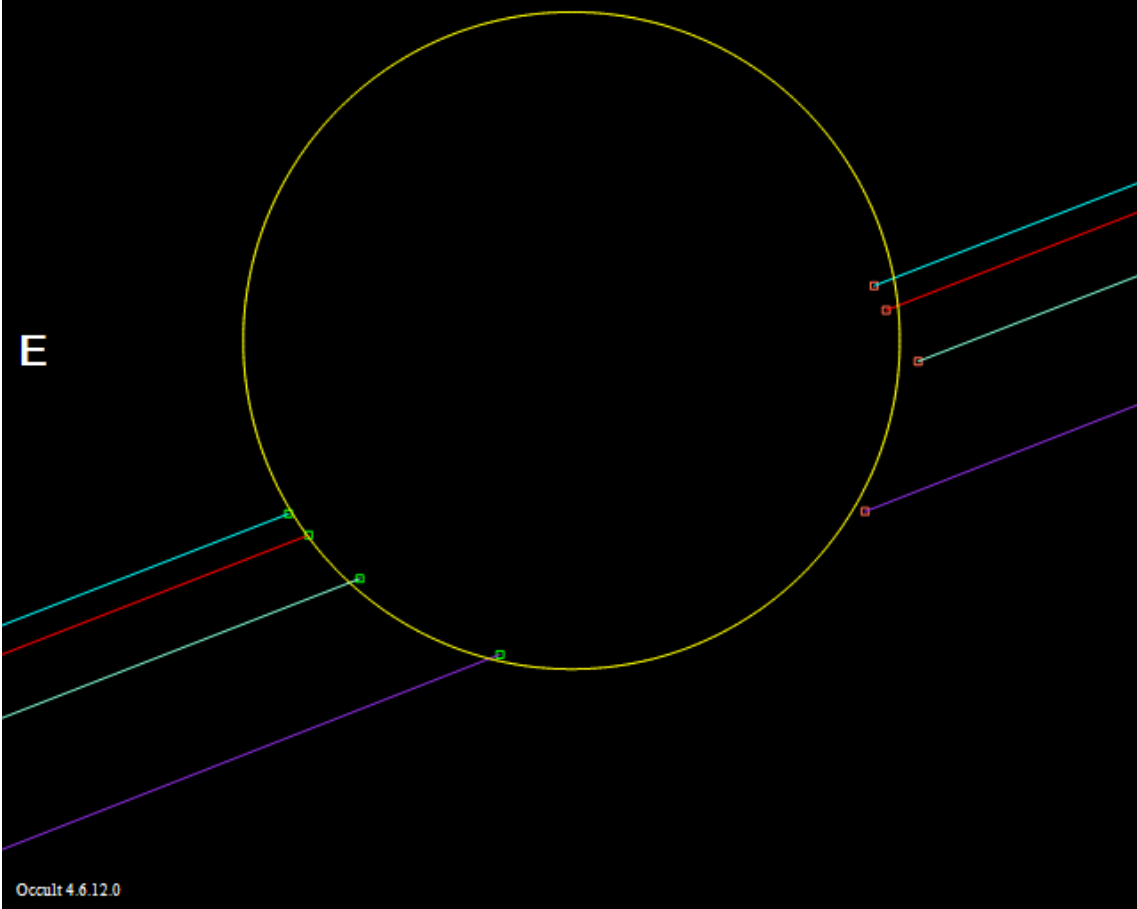
111_Ate_2008Aug24

(111) Ate 2008 Aug 24 $147.1 \pm 0.8 \times 115.9 \pm 1.8$ km. PA $102.1^\circ \pm 3.6^\circ$
Geocentric X -2436.9 ± 0.4 Y 5505.0 ± 0.5 km **N**



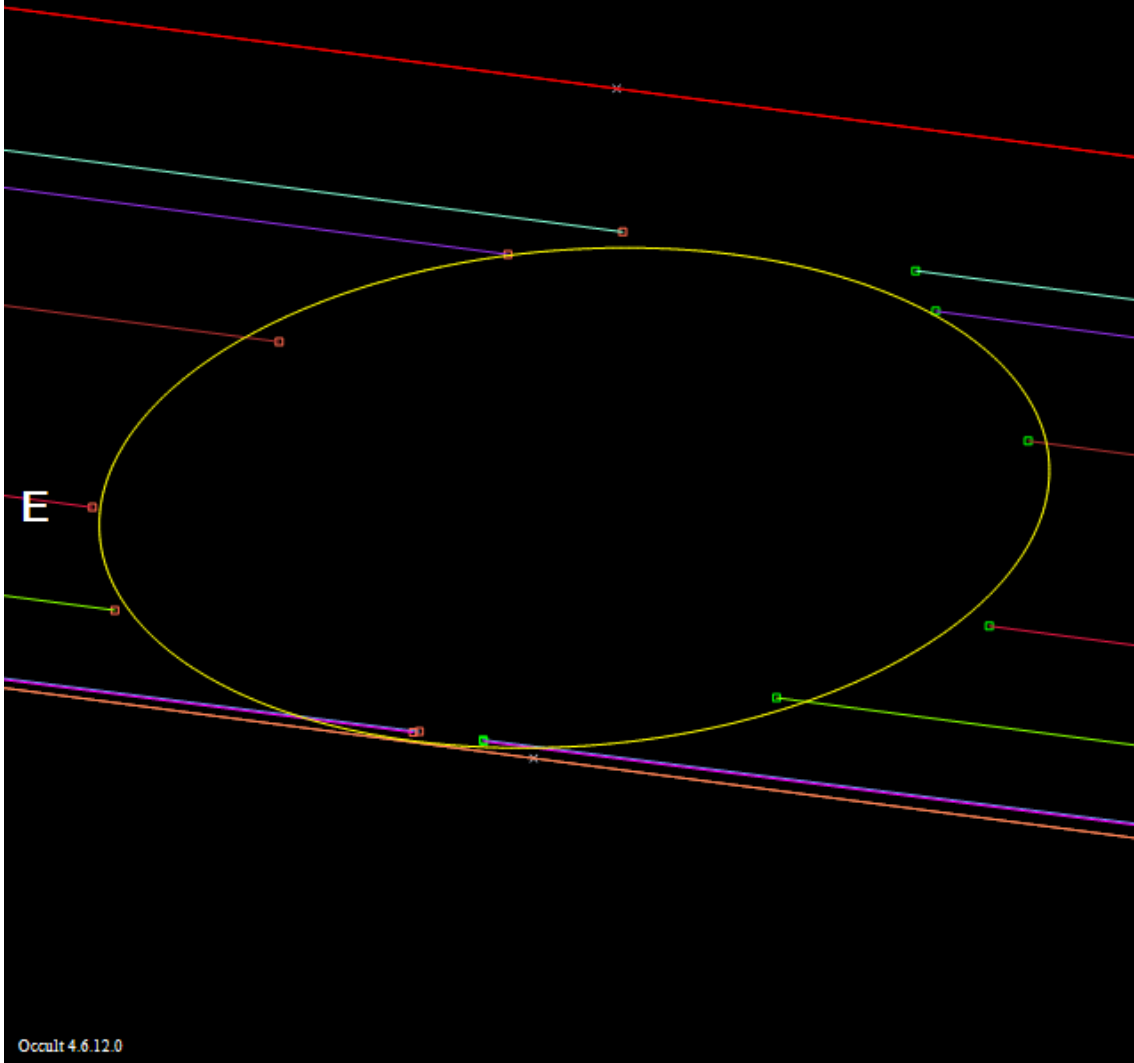
112_Iphigenia_2017Apr29

(112) Iphigenia 2017 Apr 29 70.0 x 70.0 km. PA 0.0°
Geocentric X -2630.9 ± 0.6 Y -2685.4 ± 0.9 km **N**



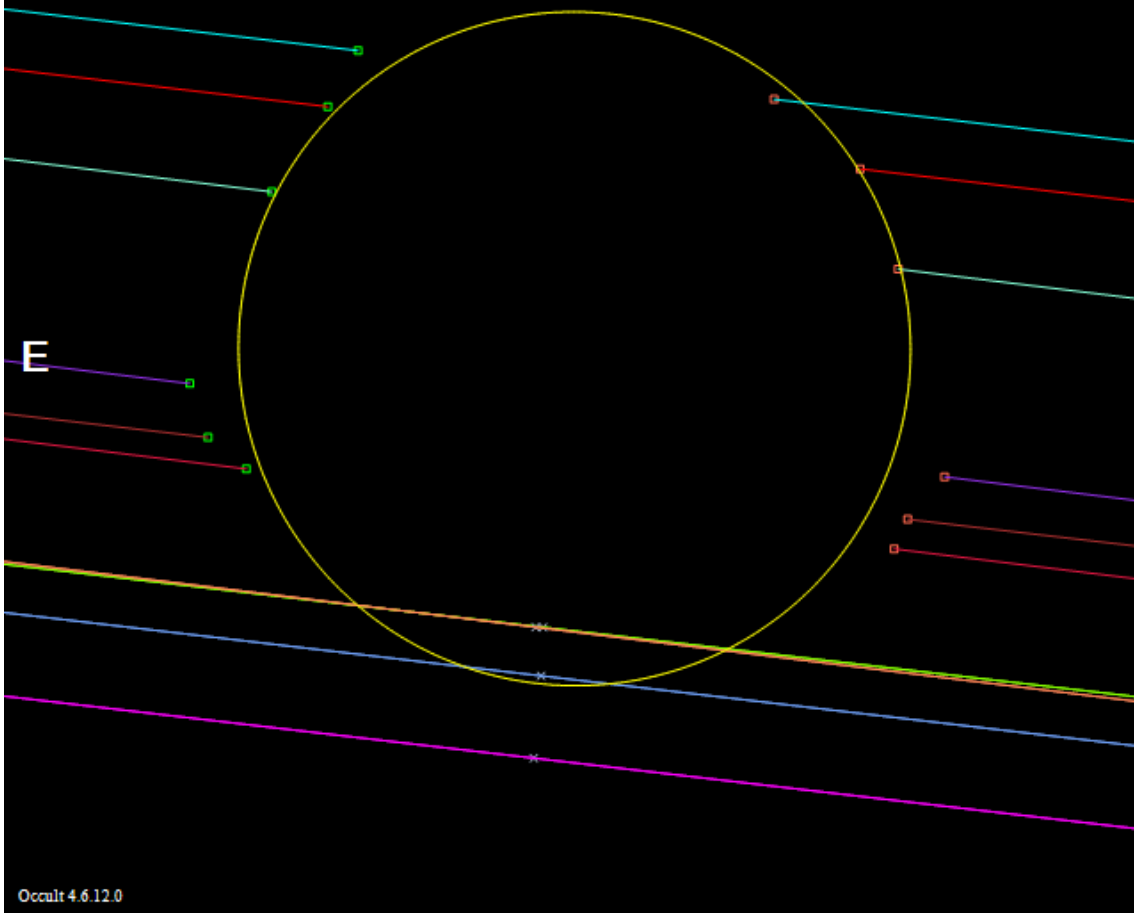
113_Amalthea_2017Mar14

(113) Amalthea 2017 Mar 14 $68.2 \pm 1.1 \times 35.5 \pm 0.7$ km, PA $94.5^\circ \pm 1.2^\circ$
Geocentric X 2548.1 ± 0.5 Y 1317.1 ± 0.3 km **N**



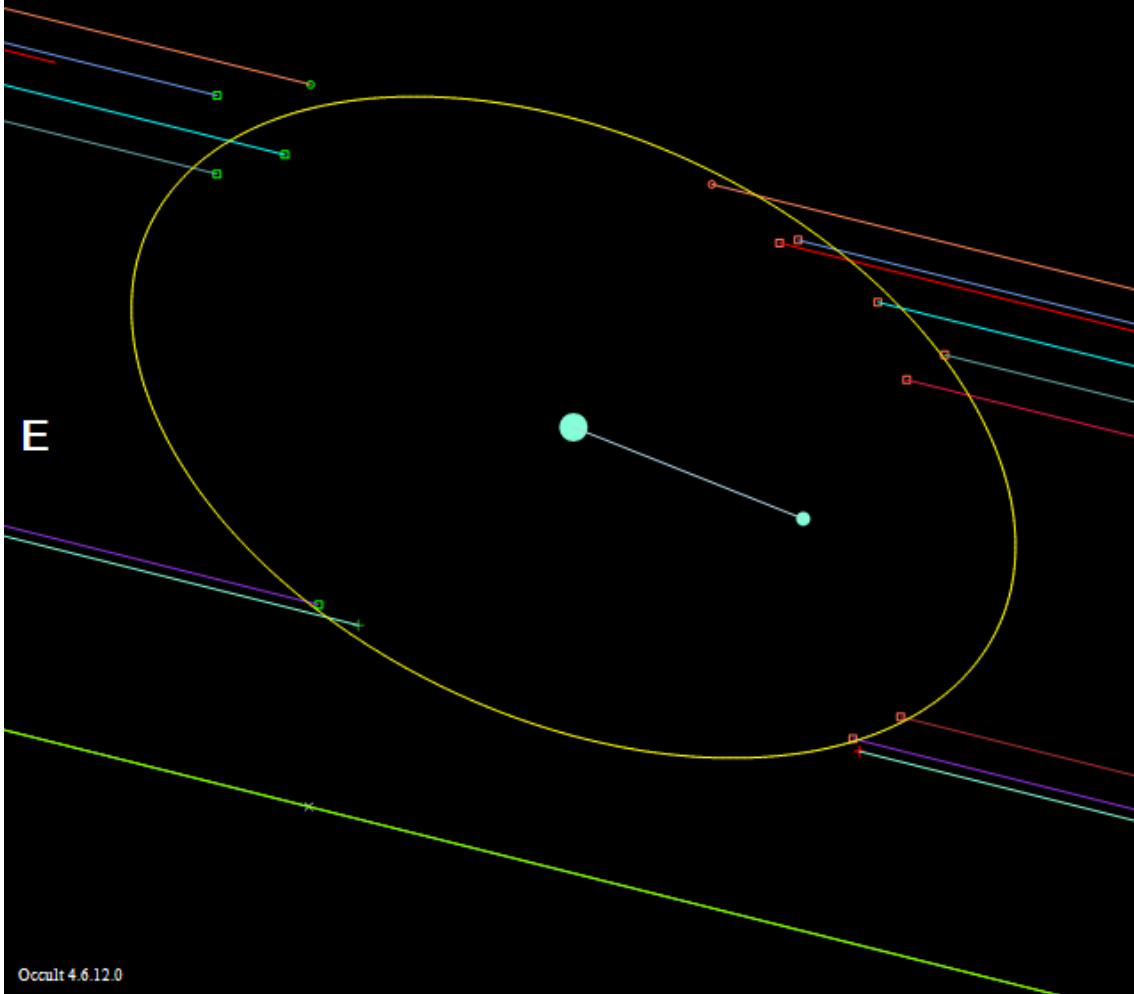
115_Thyra_2016Jan22

(115) Thyra 2016 Jan 22 $82.6 \pm 4.3 \times 82.3 \pm 3.8$ km, PA $32.0^\circ \pm 624.9^\circ$
Geocentric X -1204.1 ± 1.4 Y 1850.0 ± 1.9 km **N**



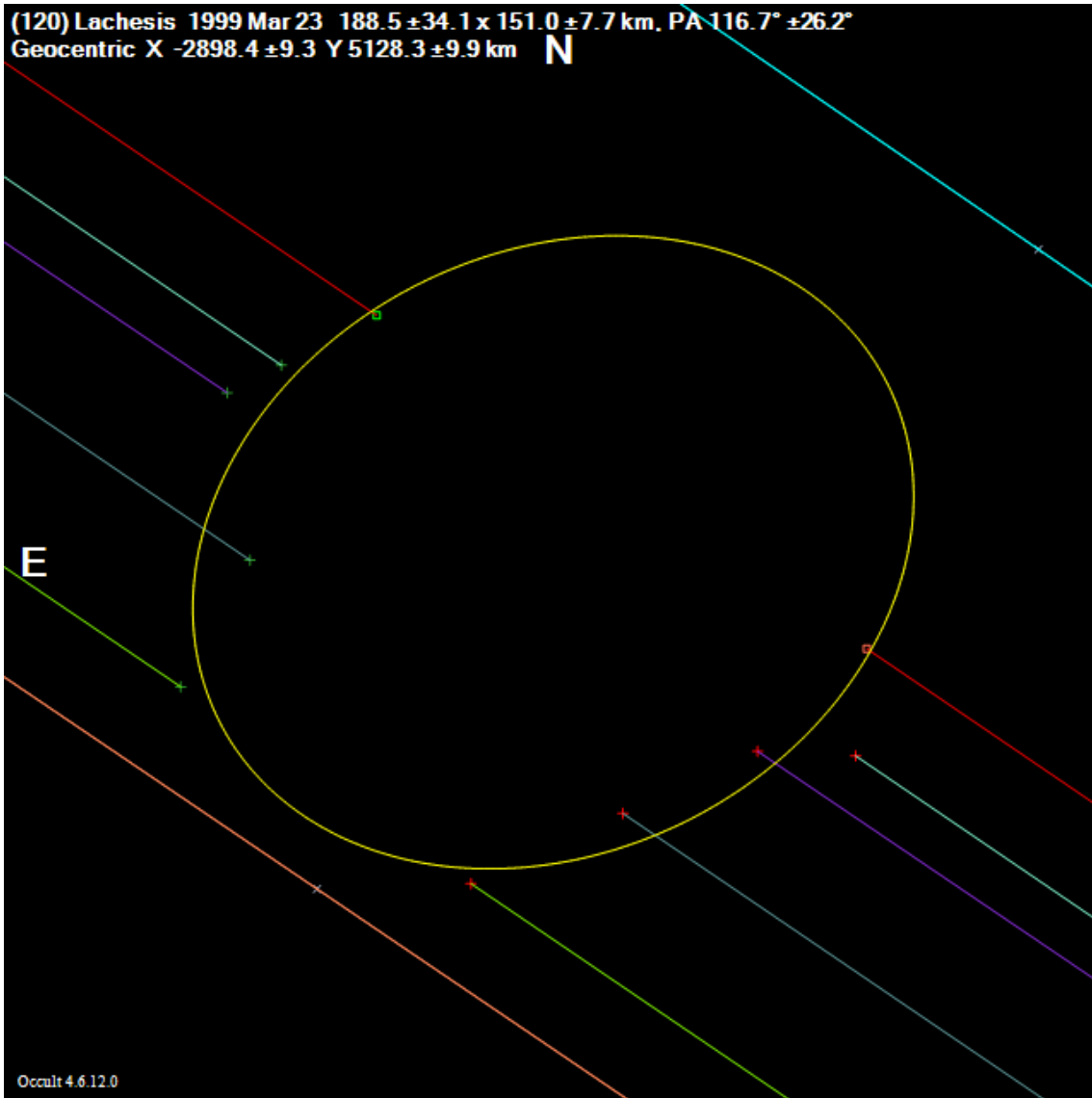
116_Sirona_2005Nov11

(116) Sirona 2005 Nov 11 $102.4 \pm 4.0 \times 63.4 \pm 2.7$ km, PA $64.7^\circ \pm 3.6^\circ$
Geocentric X -61.5 ± 2.1 Y 2709.4 ± 1.4 km **N**
Double : Sep $0.0187''$, PA 248.3°



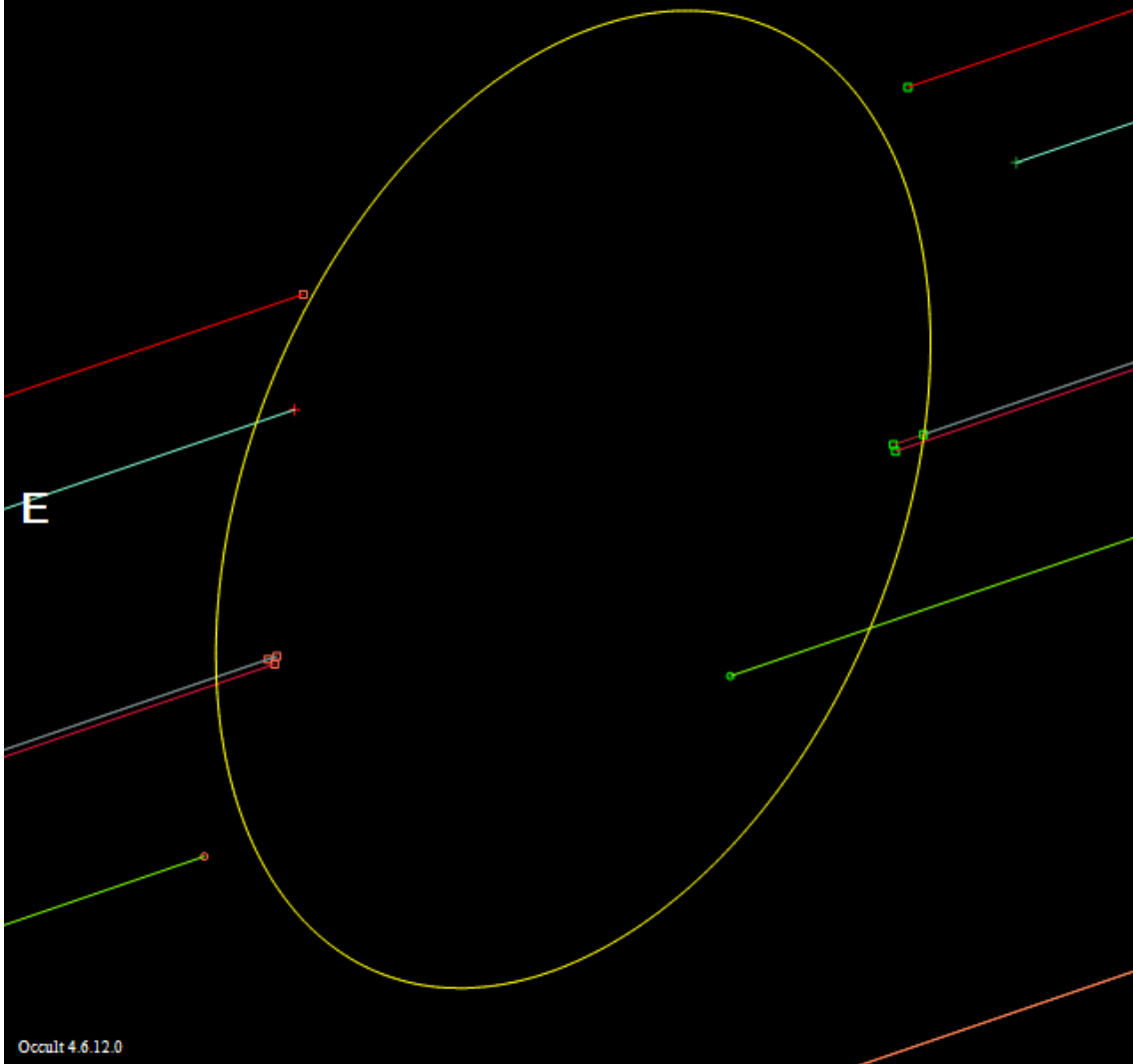
120_Lachesis_1999Mar23

(120) Lachesis 1999 Mar 23 $188.5 \pm 34.1 \times 151.0 \pm 7.7$ km, PA $116.7^\circ \pm 26.2^\circ$
Geocentric X -2898.4 ± 9.3 Y 5128.3 ± 9.9 km **N**



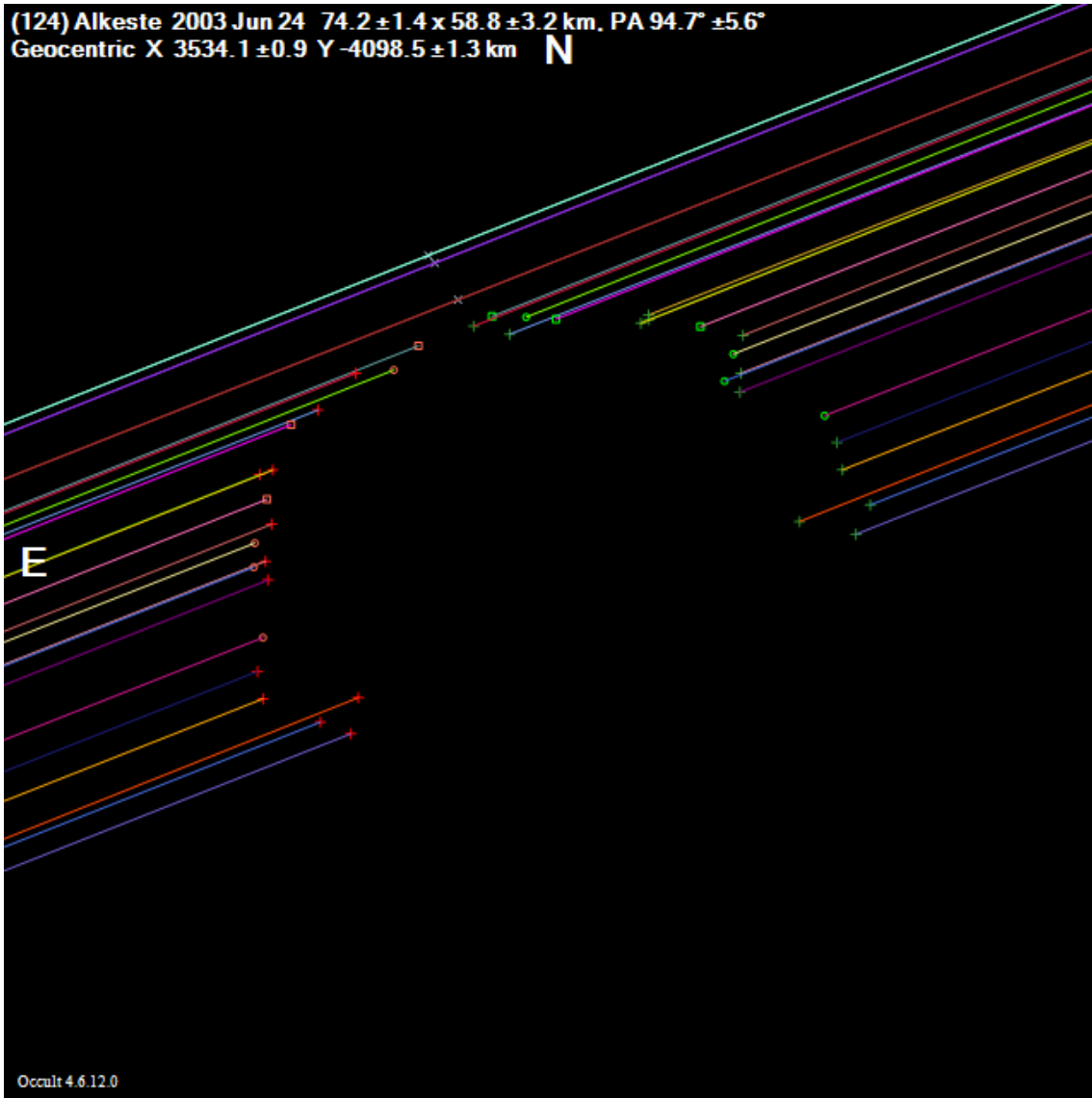
121_Hermione_2005Dec12

(121) Hermione 2005 Dec 12 $286.0 \pm 67.2 \times 181.0 \pm 15.8$ km. PA $157.5^\circ \pm 18.3^\circ$
Geocentric X -2079.9 ± 5.2 Y 5207.4 ± 16.4 km **N**



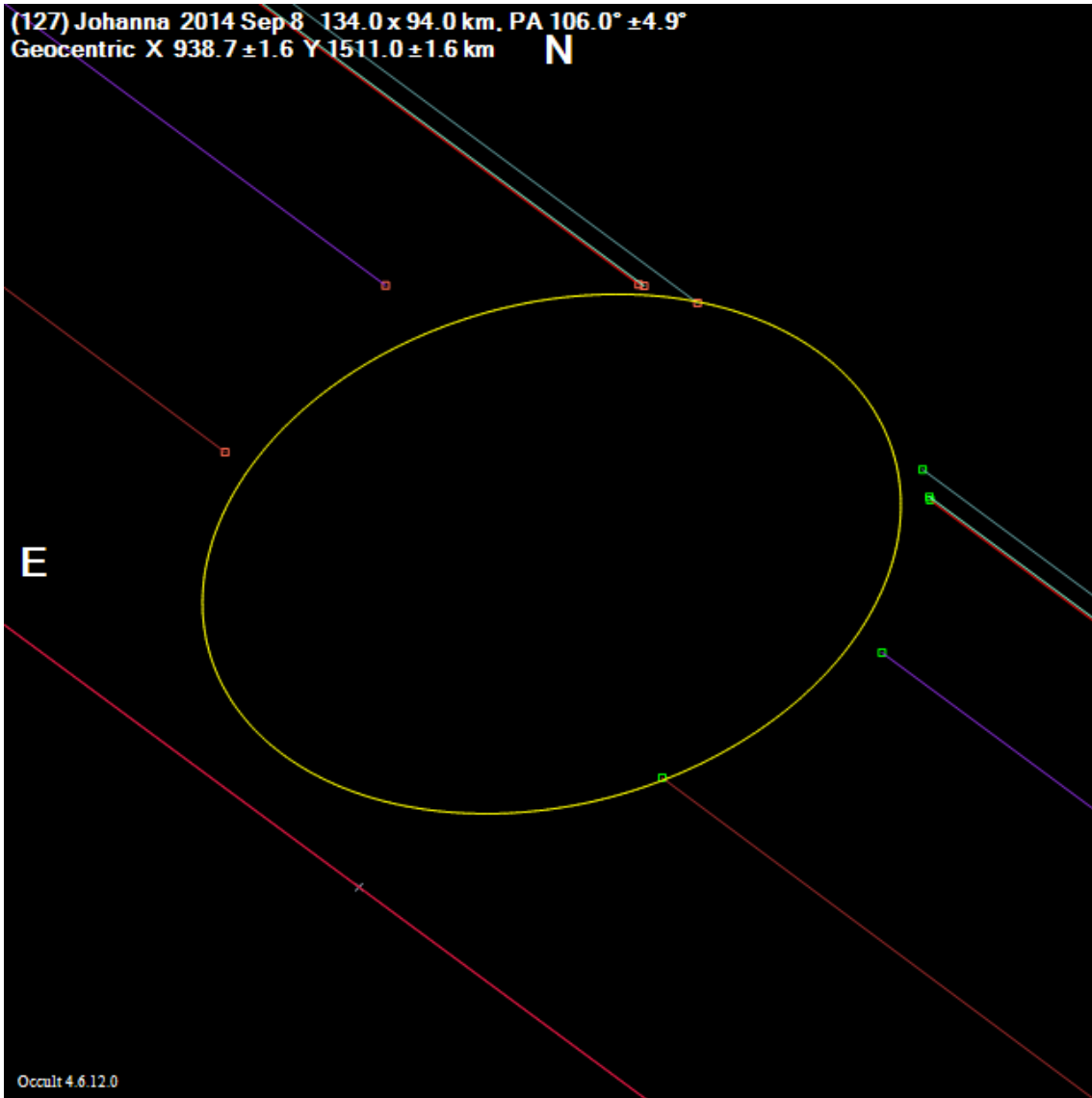
124_Alkeste_2003Jun24

(124) Alkeste 2003 Jun 24 $74.2 \pm 1.4 \times 58.8 \pm 3.2$ km. PA $94.7^\circ \pm 5.6^\circ$
Geocentric X 3534.1 ± 0.9 Y -4098.5 ± 1.3 km **N**



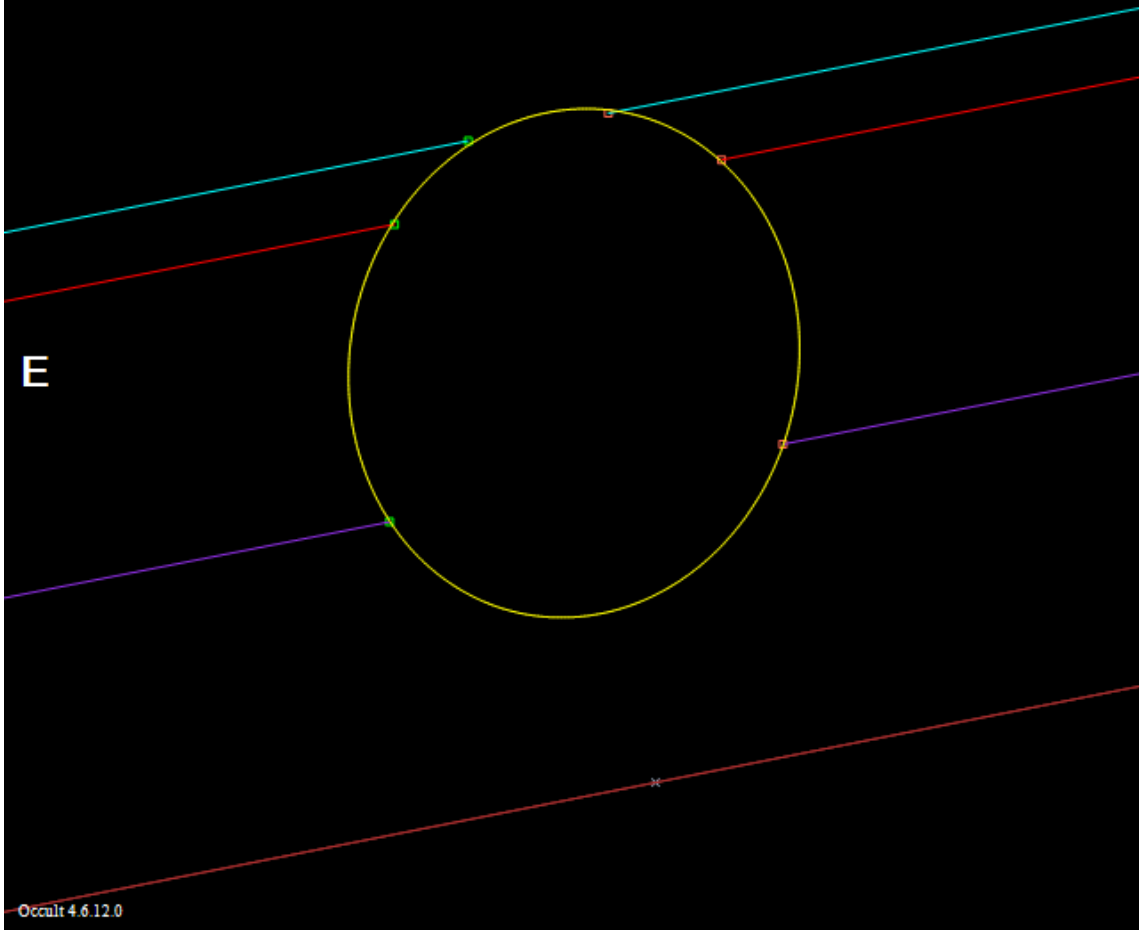
127_Johanna_2014Sep08

(127) Johanna 2014 Sep 8 134.0 x 94.0 km. PA 106.0° ± 4.9°
Geocentric X 938.7 ± 1.6 Y 1511.0 ± 1.6 km **N**



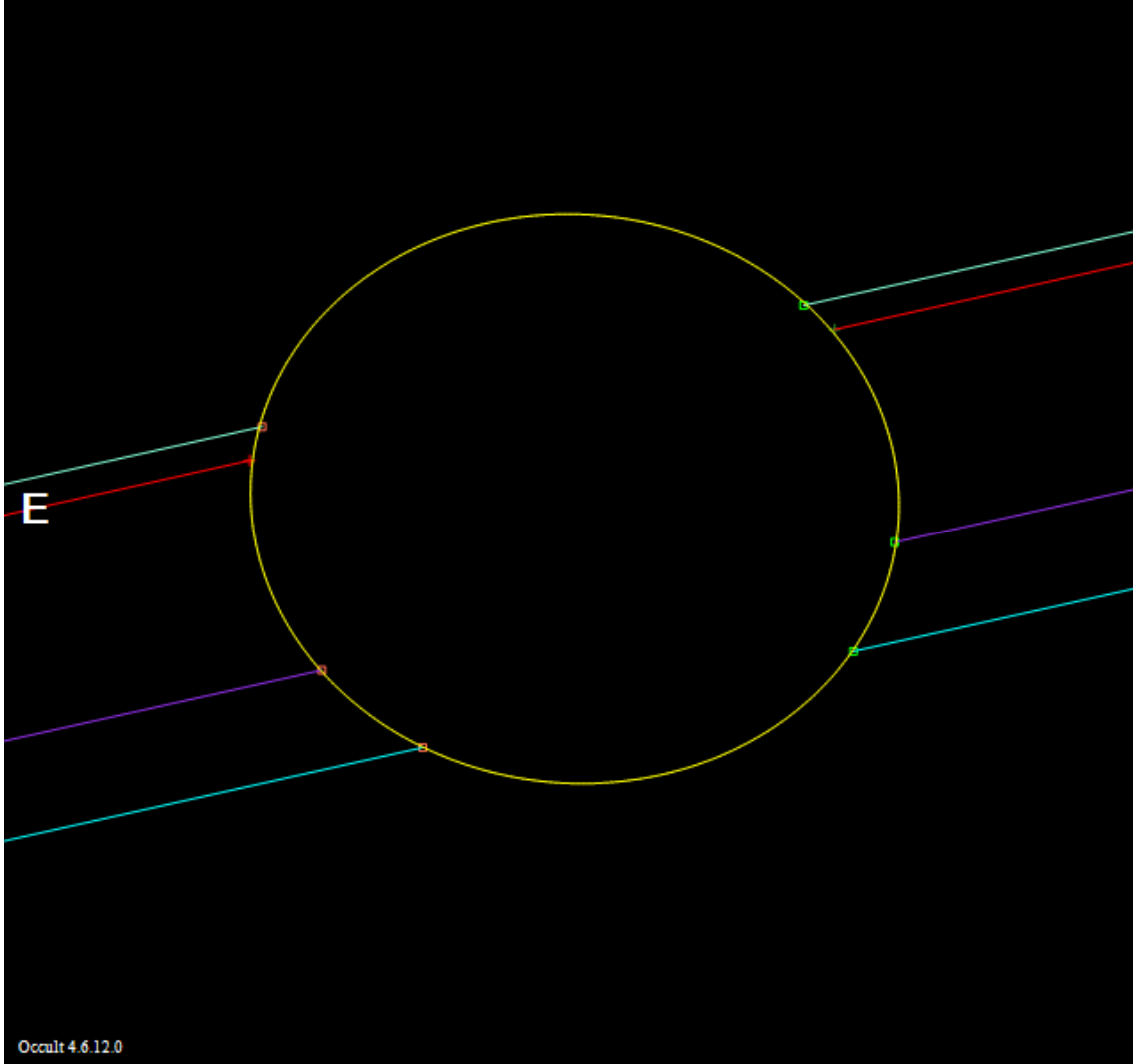
128_Nemesis_2009Dec04

(128) Nemesis 2009 Dec 4 $136.9 \pm 2.0 \times 120.0 \pm 1.1$ km, PA $347.5^\circ \pm 4.2^\circ$
Geocentric X 4432.0 ± 0.4 Y 2362.7 ± 0.8 km **N**



128_Nemesis_2012Mar30

(128) Nemesis 2012 Mar 30 $174.1 \pm 0.7 \times 152.5 \pm 1.8$ km, PA $85.1^\circ \pm 2.6^\circ$
Geocentric X -71.8 ± 0.3 Y -676.9 ± 0.4 km **N**



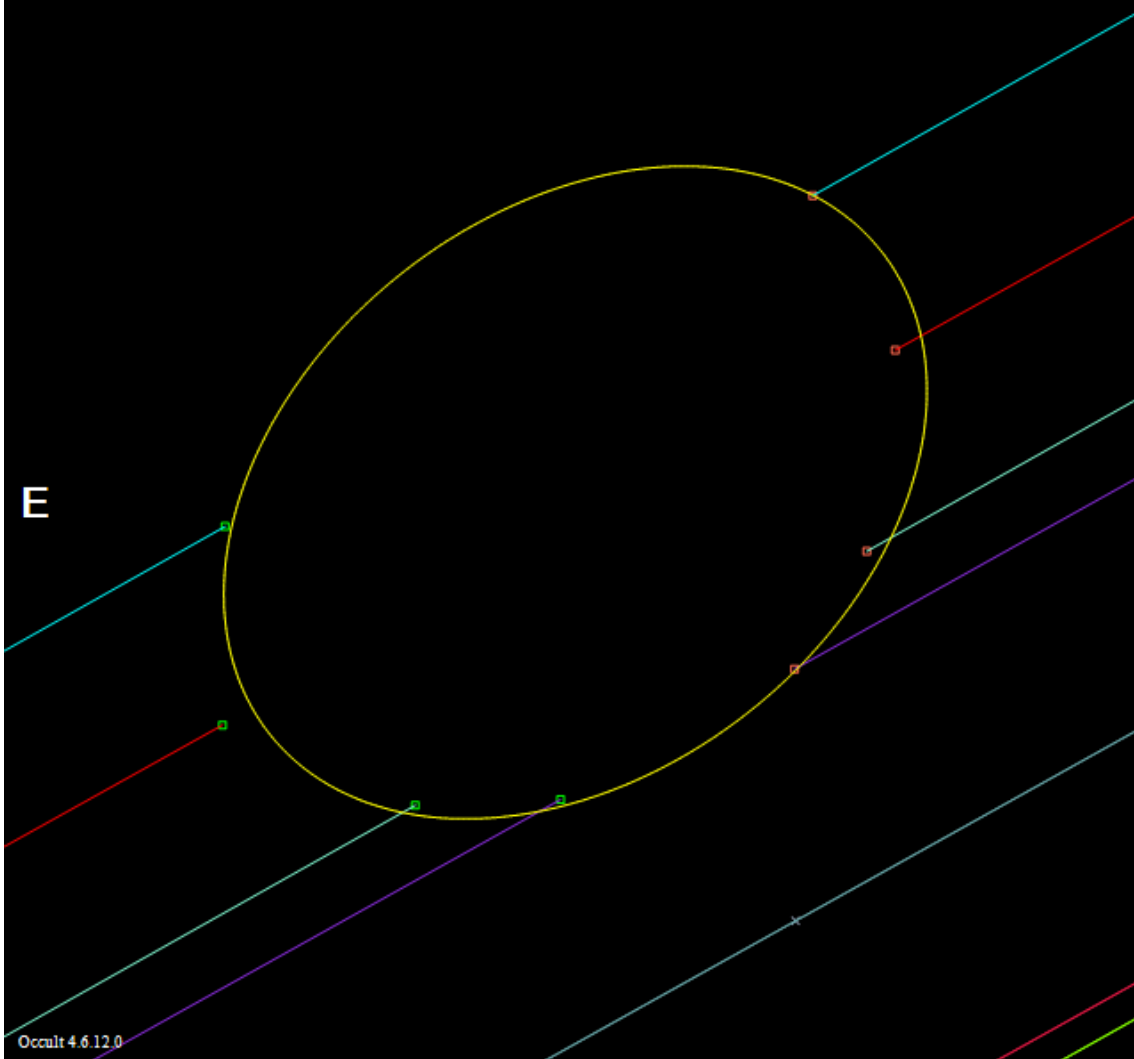
129_Antigone_2001Sep09

(129) Antigone 2001 Sep 9 $145.0 \pm 2.1 \times 114.4 \pm 3.4$ km. PA $57.8^\circ \pm 4.5^\circ$
Geocentric X -3263.3 ± 1.1 Y 4432.4 ± 1.2 km **N**



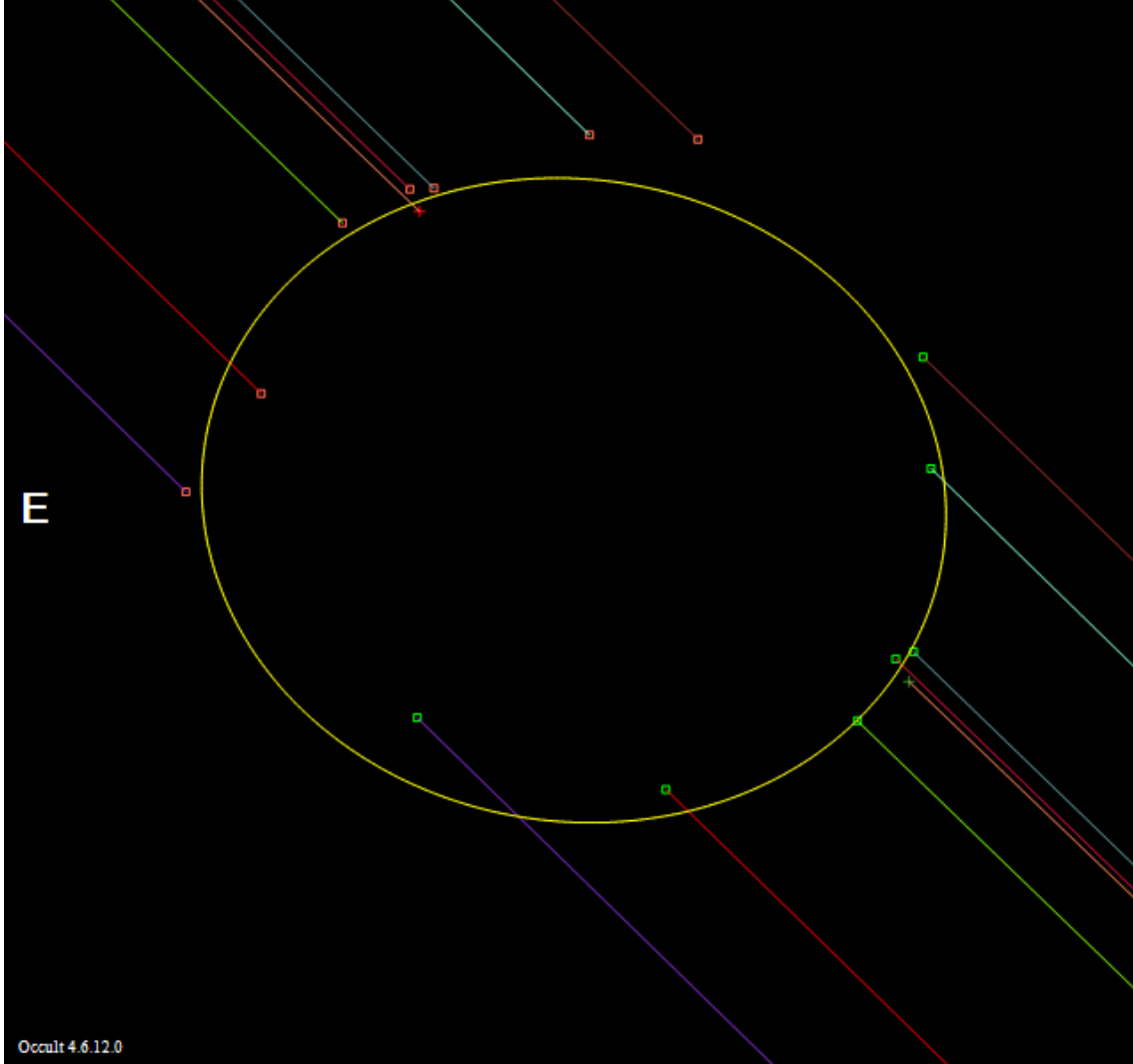
129_Antigone_2009Feb13

(129) Antigone 2009 Feb 13 $147.4 \pm 4.1 \times 105.8 \pm 6.8$ km, PA $128.2^\circ \pm 4.8^\circ$
Geocentric X -3688.5 ± 1.8 Y 3039.2 ± 2.5 km **N**



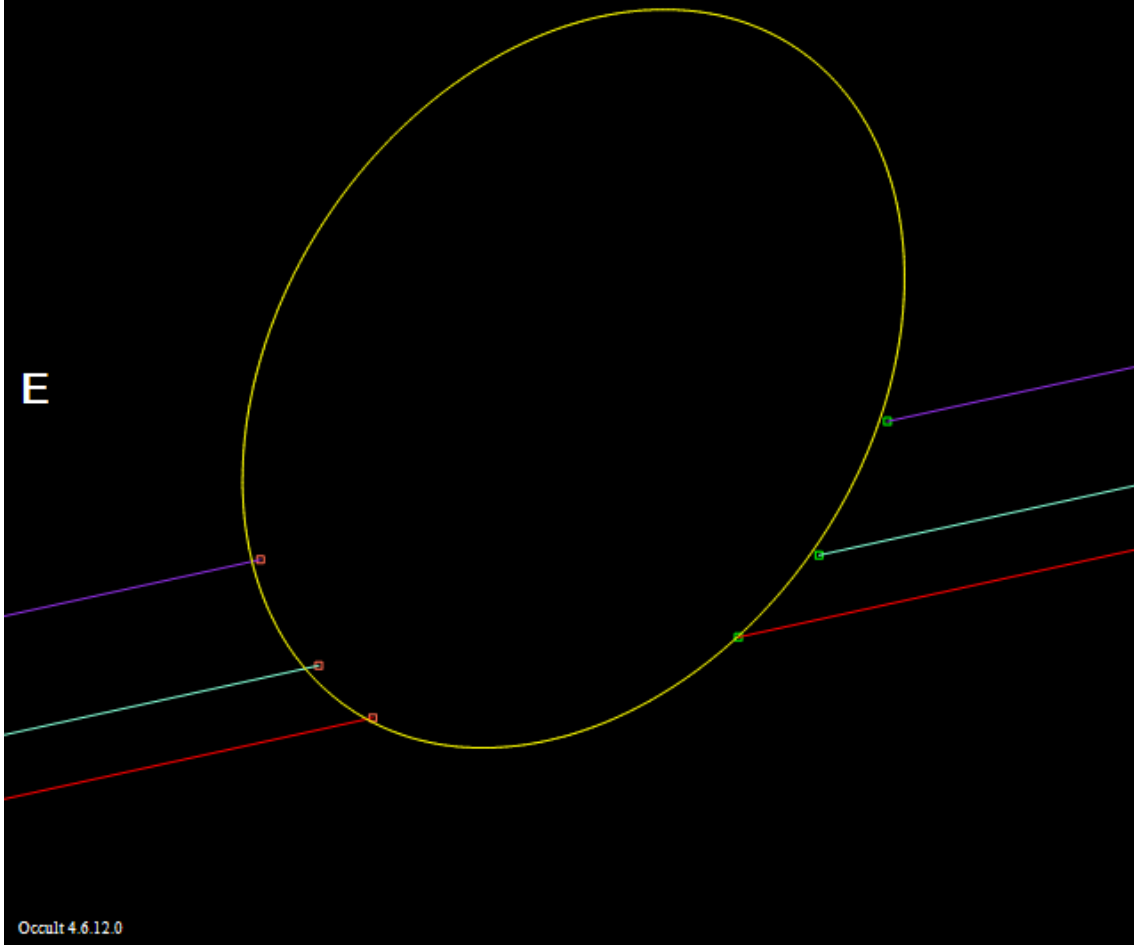
129_Antigone_2018Feb23

(129) Antigone 2018 Feb 23 $141.4 \pm 5.5 \times 121.5 \pm 5.9$ km, PA $81.3^\circ \pm 11.7^\circ$
Geocentric X 1710.5 ± 2.3 Y 3653.9 ± 2.3 km **N**



129_Antigone_2019Apr25

(129) Antigone 2019 Apr 25 150.8 x 111.5 ± 5.2 km. PA 325.8° ± 5.3°
Geocentric X 3678.2 ± 1.8 Y 2905.3 ± 2.0 km **N**



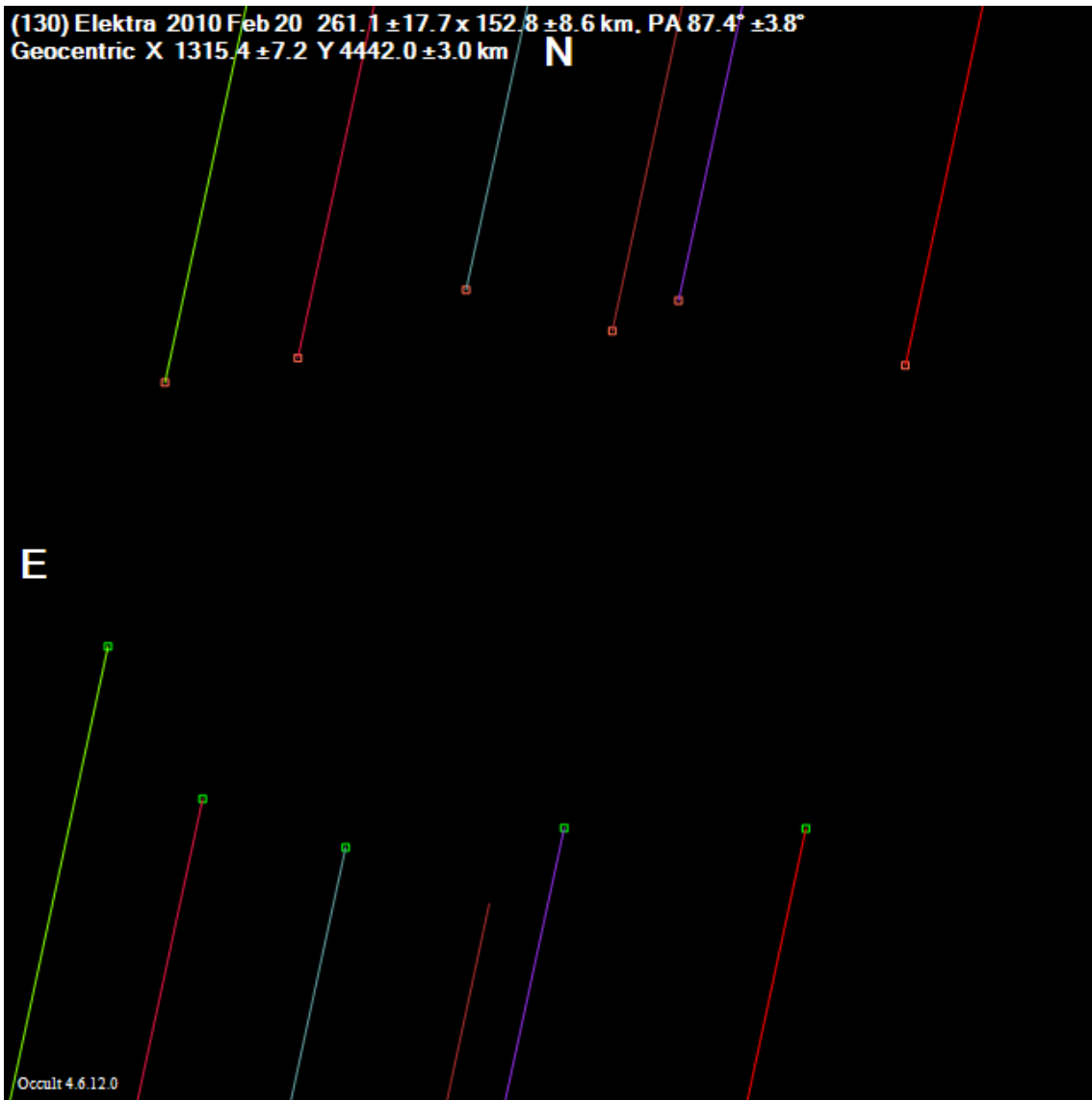
130_Elektra_2010Feb20

(130) Elektra 2010 Feb 20 $261.1 \pm 17.7 \times 152.8 \pm 8.6$ km, PA $87.4^\circ \pm 3.8^\circ$
Geocentric X 1315.4 ± 7.2 Y 4442.0 ± 3.0 km

N

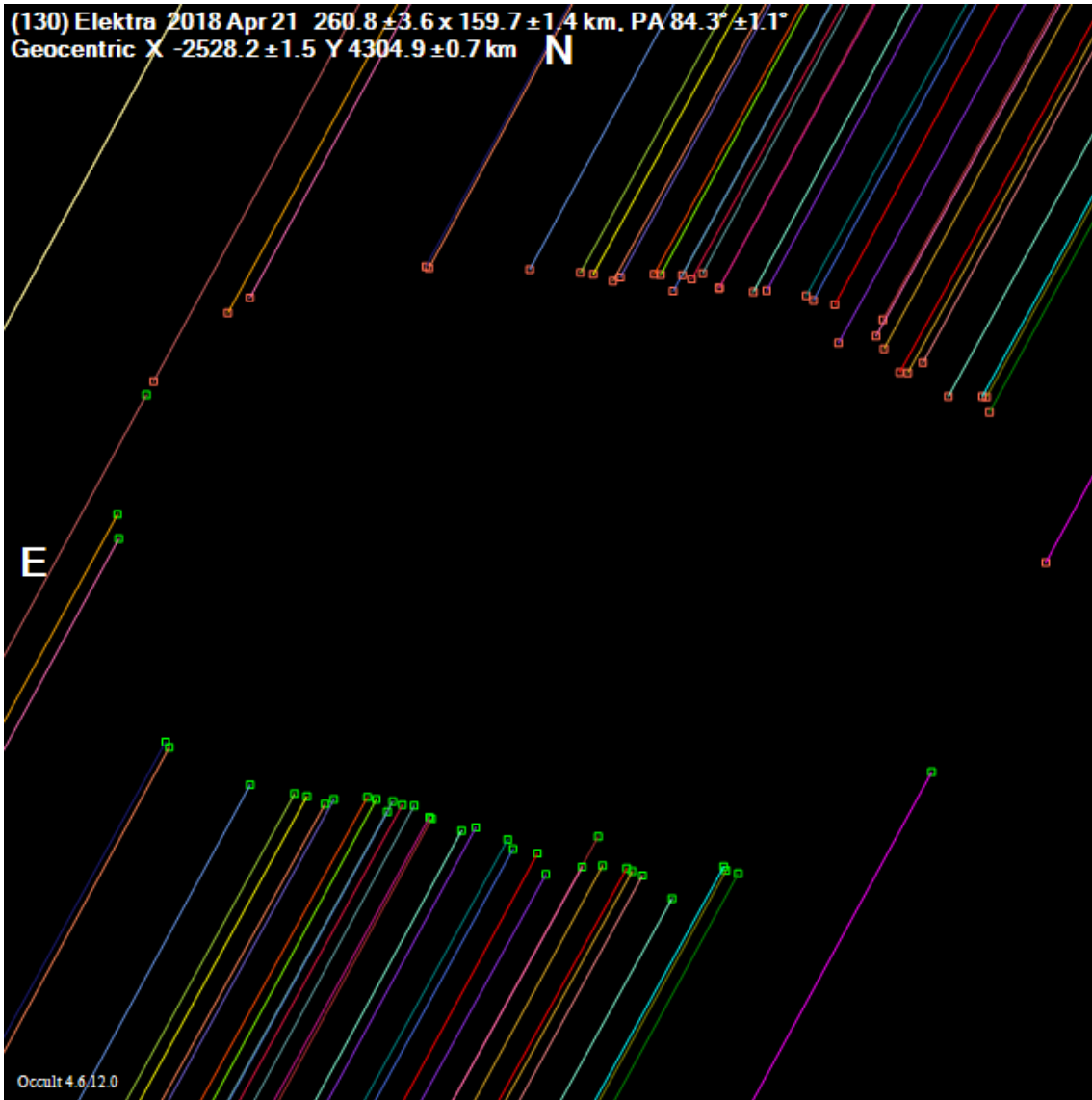
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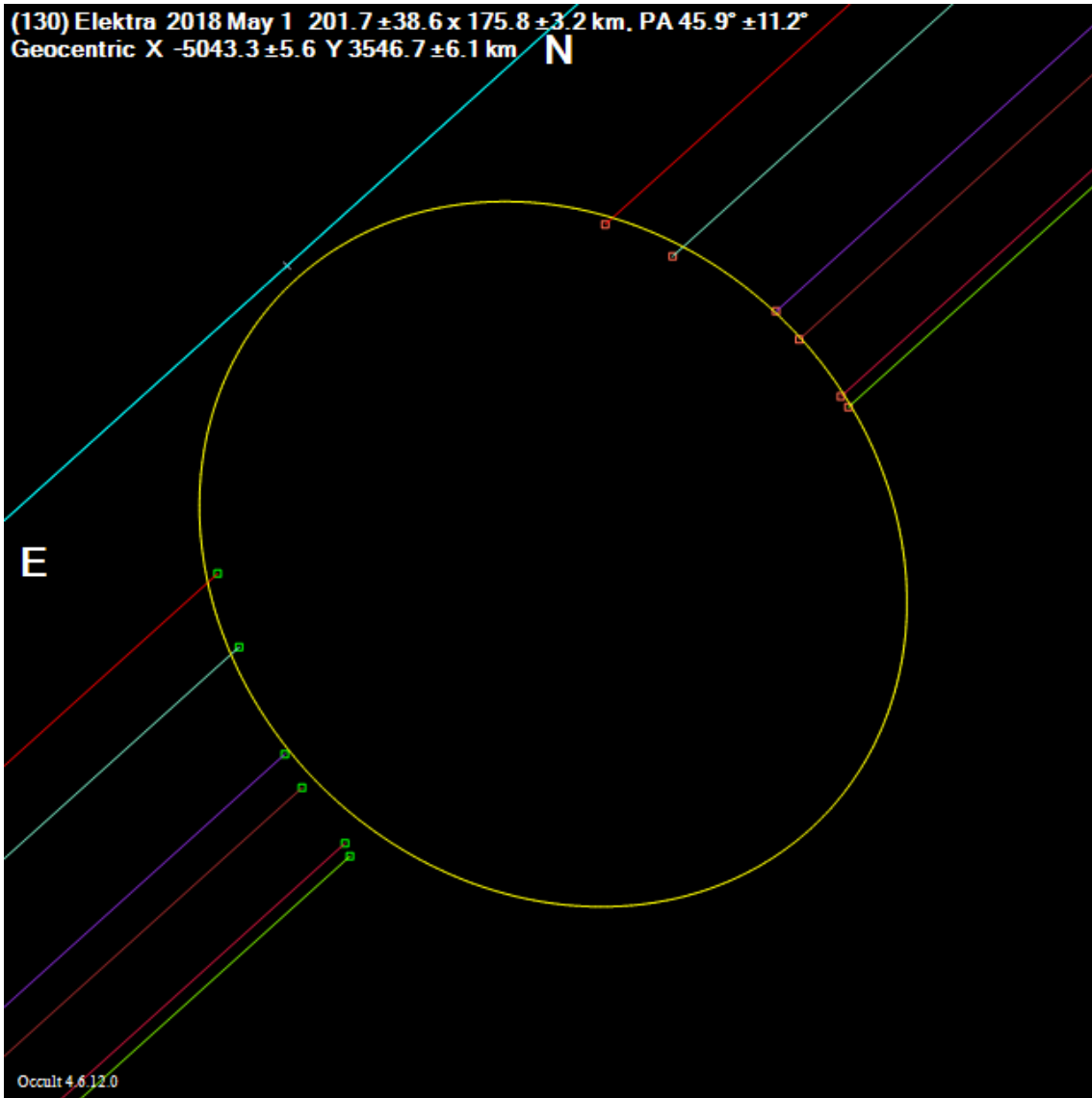
130_Elektra_2018Apr21

(130) Elektra 2018 Apr 21 $260.8 \pm 3.6 \times 159.7 \pm 1.4$ km, PA $84.3^\circ \pm 1.1^\circ$
Geocentric X -2528.2 ± 1.5 Y 4304.9 ± 0.7 km



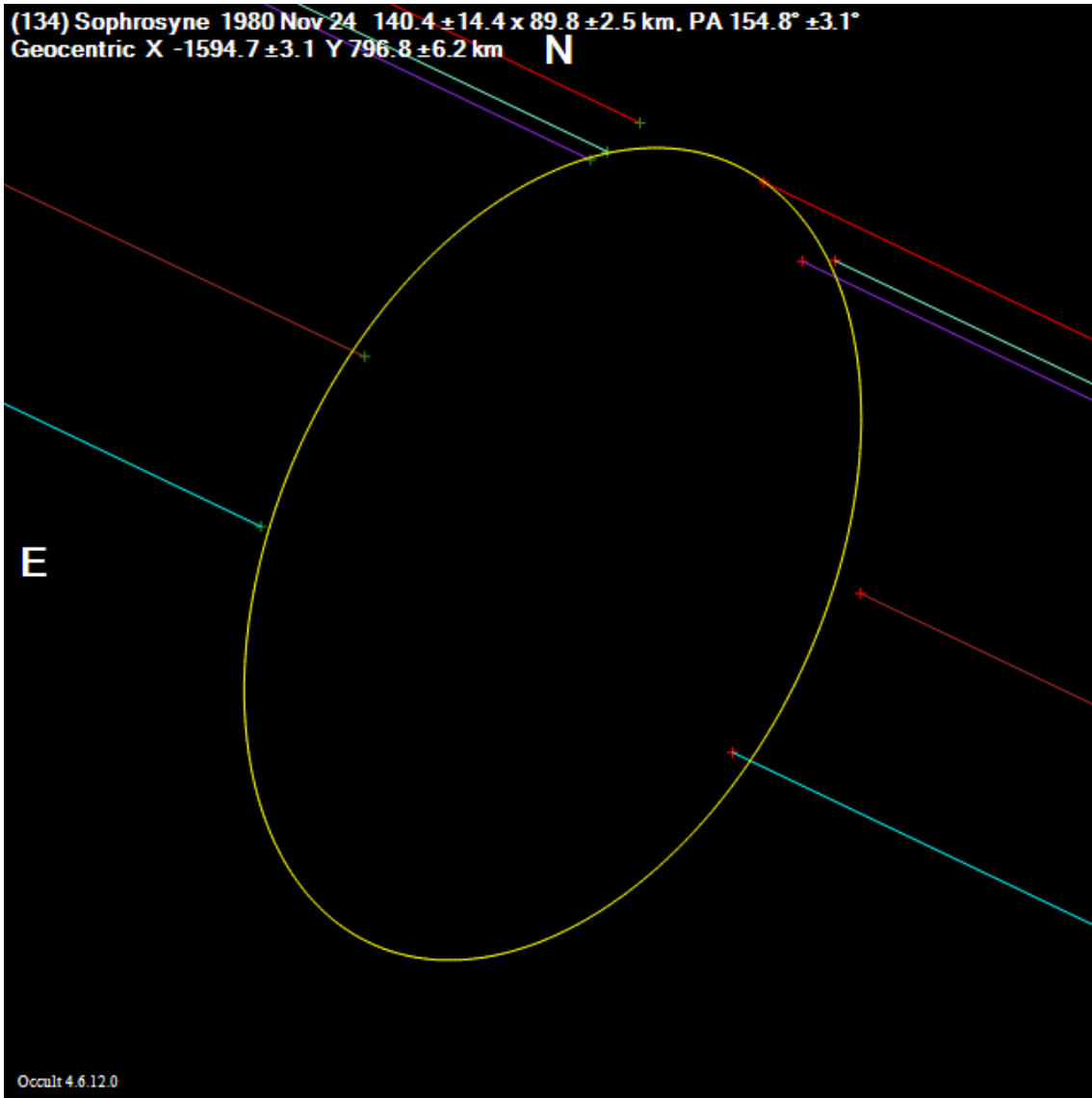
130_Elektra_2018May01

(130) Elektra 2018 May 1 $201.7 \pm 38.6 \times 175.8 \pm 3.2$ km, PA $45.9^\circ \pm 11.2^\circ$
Geocentric X -5043.3 ± 5.6 Y 3546.7 ± 6.1 km



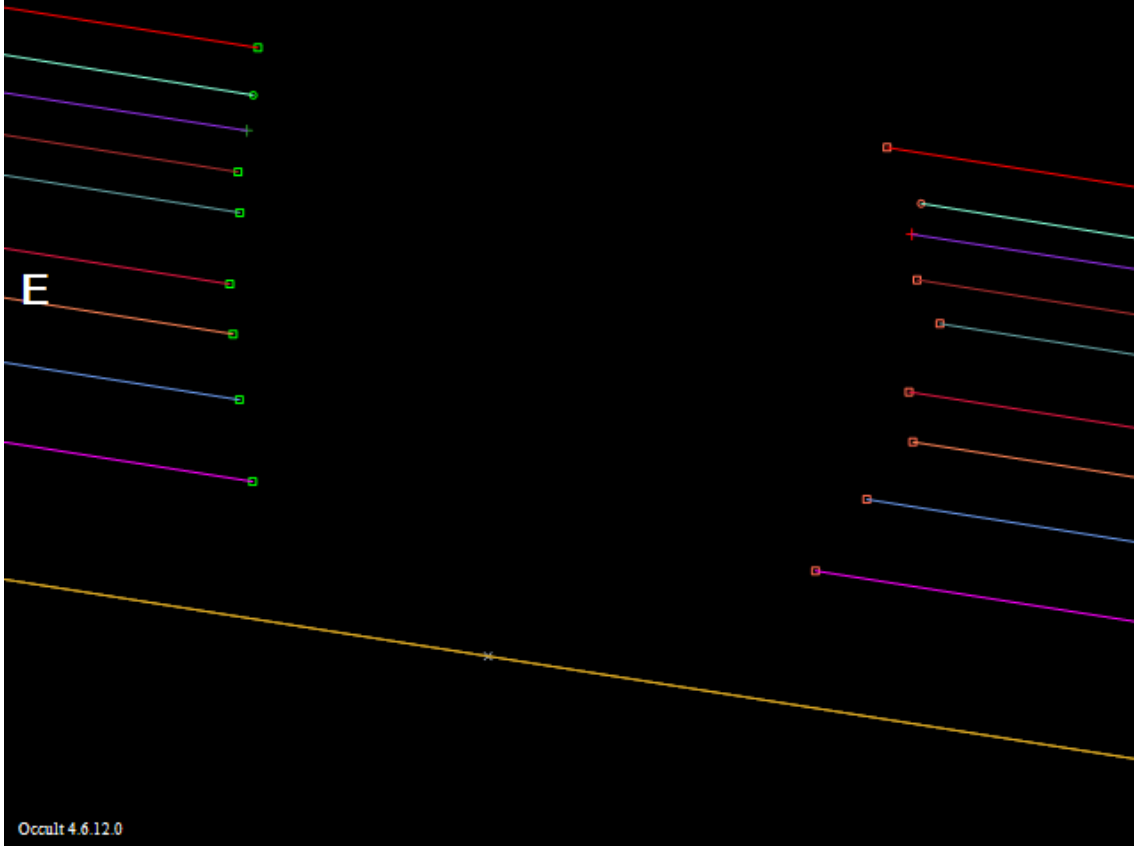
134_Sophrosyne_1980Nov24

(134) Sophrosyne 1980 Nov 24 $140.4 \pm 14.4 \times 89.8 \pm 2.5$ km. PA $154.8^\circ \pm 3.1^\circ$
Geocentric X -1594.7 ± 3.1 Y 796.8 ± 6.2 km



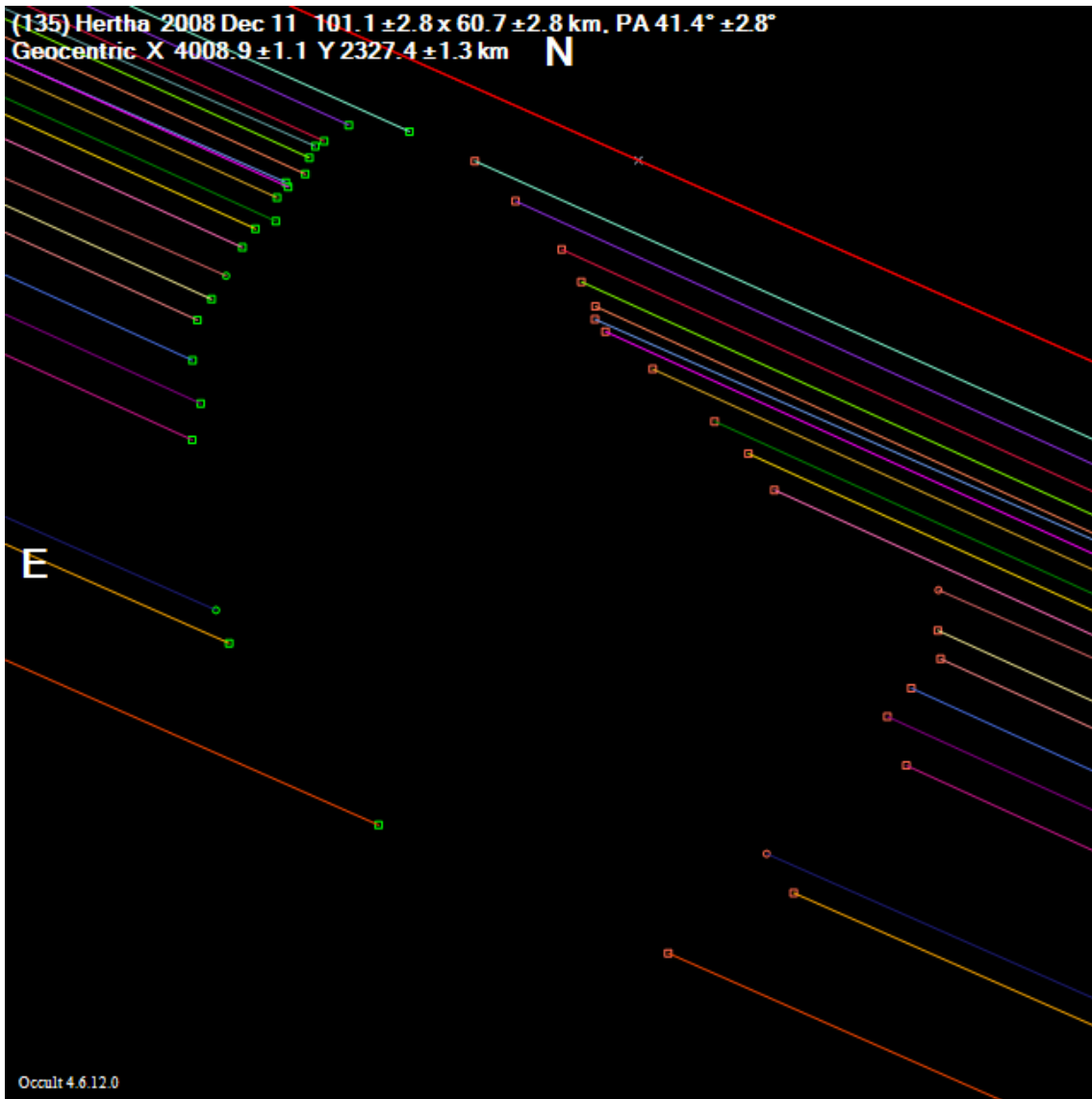
134_Sophrosyne_2013Nov26

(134) Sophrosyne 2013 Nov 26 $124.1 \pm 3.7 \times 110.2 \pm 1.1$ km, PA $11.2^\circ \pm 6.7^\circ$
Geocentric X 3662.2 ± 0.4 Y 546.1 ± 1.4 km **N**



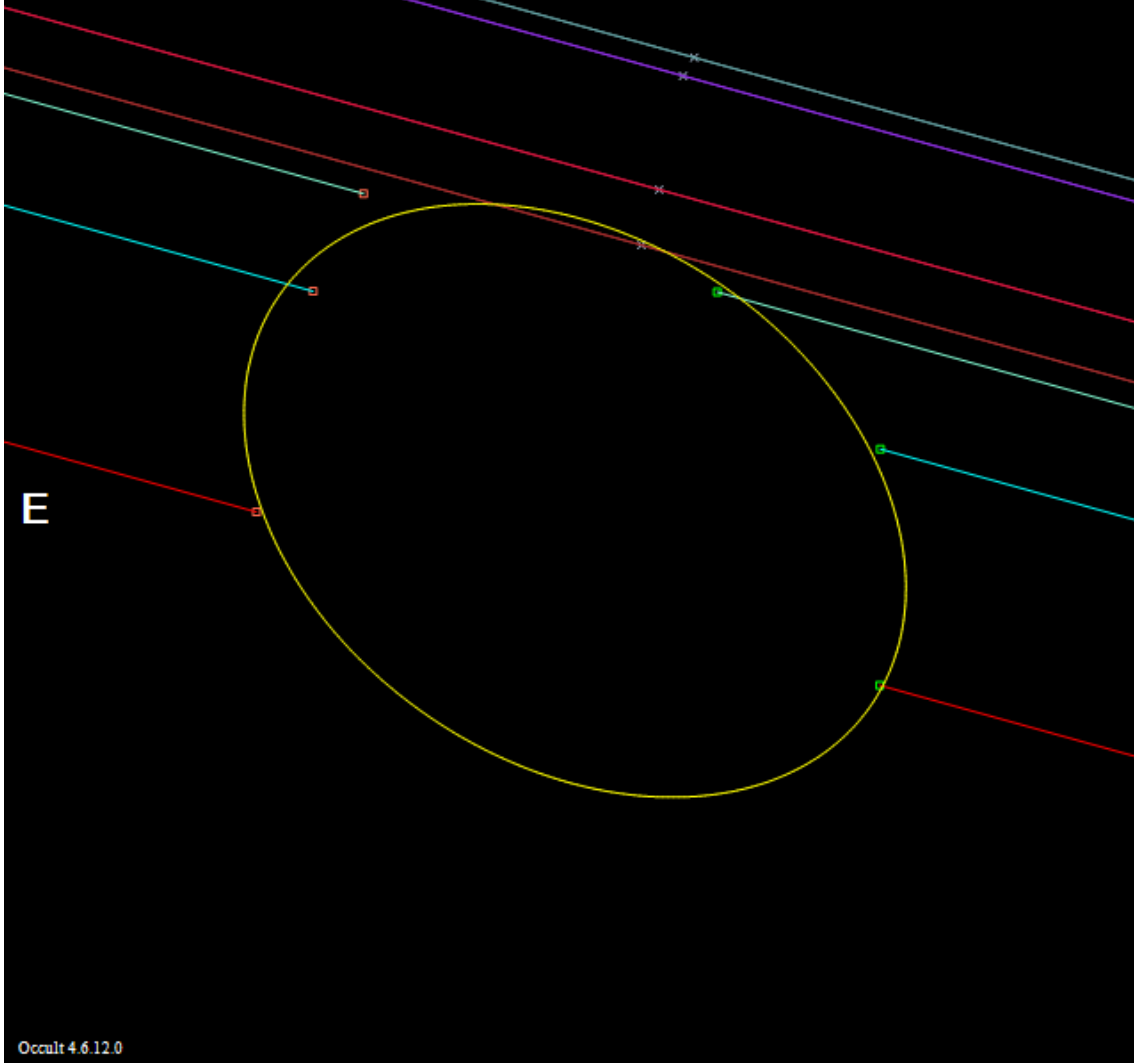
135_Hertha_2008Dec11

(135) Hertha 2008 Dec 11 $101.1 \pm 2.8 \times 60.7 \pm 2.8$ km, PA $41.4^\circ \pm 2.8^\circ$
Geocentric X 4008.9 ± 1.1 Y 2327.4 ± 1.3 km **N**



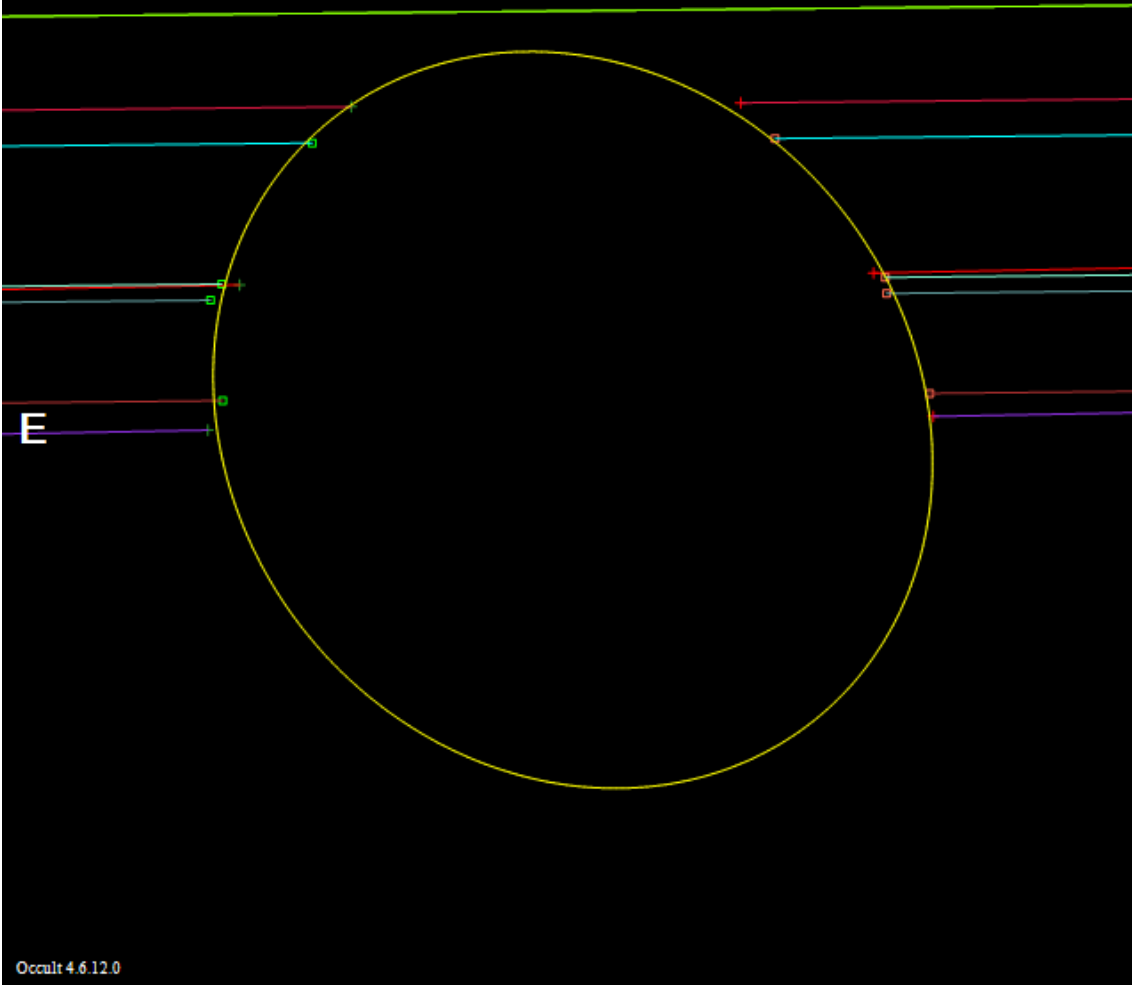
137_Meliboea_2014Jan17

(137) Meliboea 2014 Jan 17 $157.9 \pm 4.7 \times 114.3 \pm 8.9$ km, PA $55.3^\circ \pm 8.2^\circ$
Geocentric X 4723.2 ± 2.0 Y 3522.4 ± 4.2 km **N**



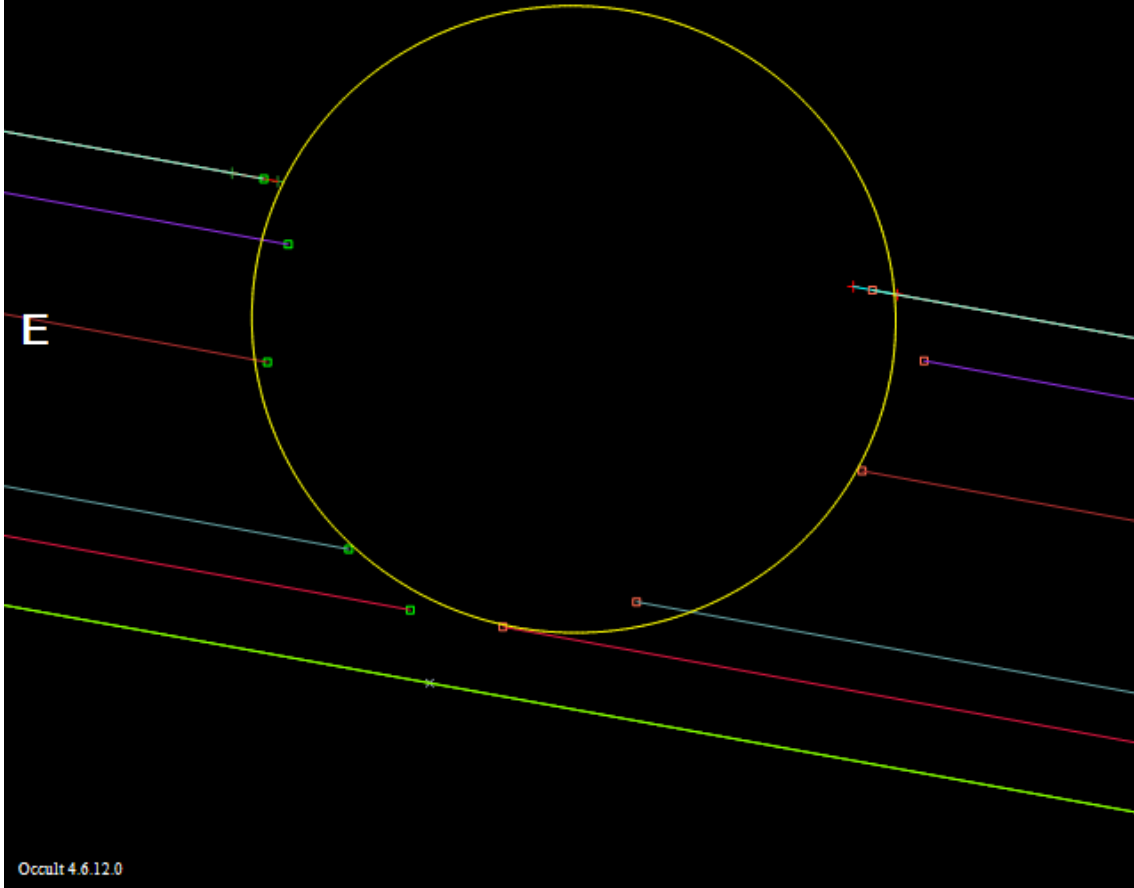
139_Juewa_2002Apr20

(139) Juewa 2002 Apr 20 $176.9 \pm 12.1 \times 156.7 \pm 6.7$ km, PA $39.5^\circ \pm 19.5^\circ$
Geocentric X 623.2 ± 1.2 Y 5374.3 ± 6.6 km **N**



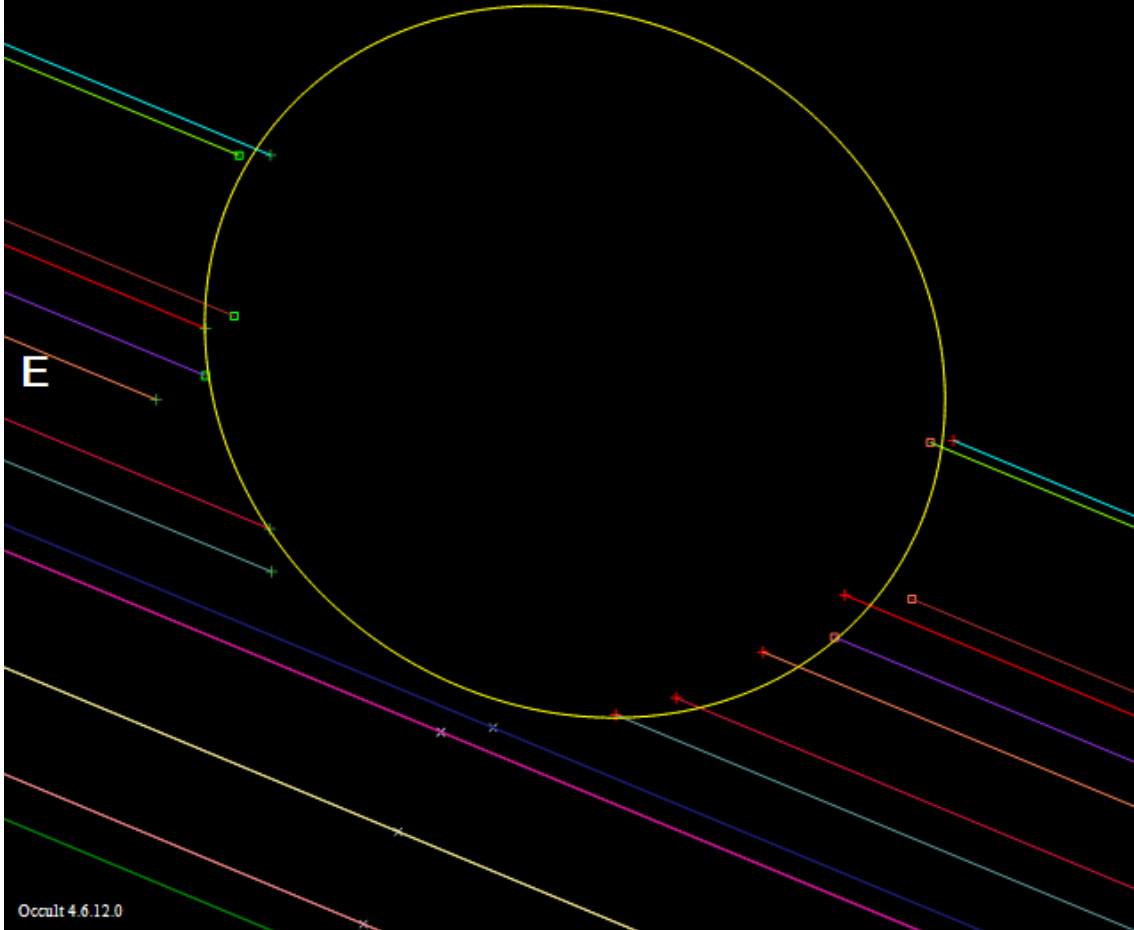
139_Juewa_2013Aug31

(139) Juewa 2013 Aug 31 $147.9 \pm 4.3 \times 143.8 \pm 17.5$ km. PA $84.4^\circ \pm 78.3^\circ$
Geocentric X -1724.8 ± 2.2 Y -3663.3 ± 7.6 km **N**



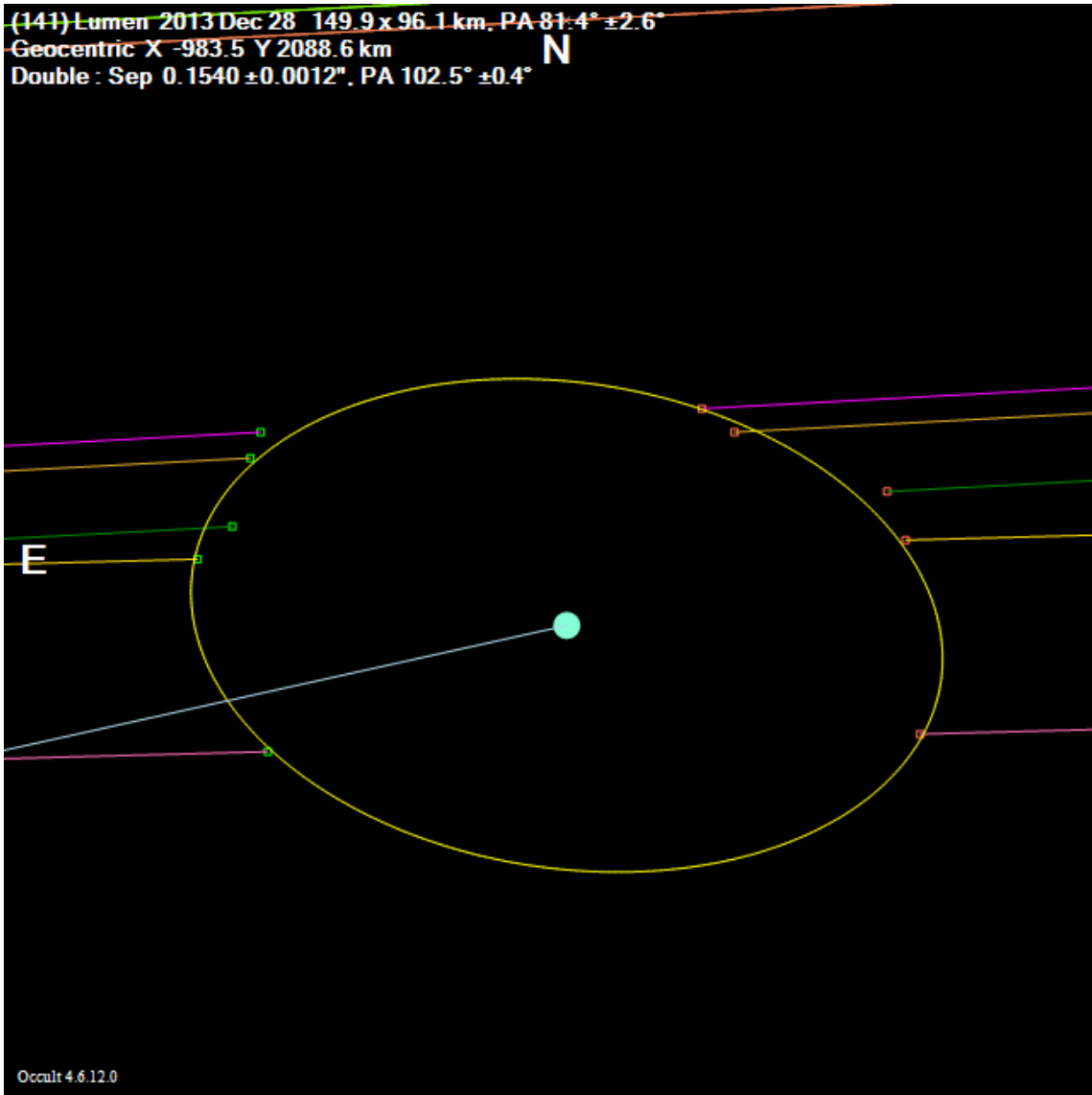
141_Lumen_2005Jan05

(141) Lumen 2005 Jan 5 $145.5 \pm 3.2 \times 129.8 \pm 15.5$ km. PA $55.3^\circ \pm 18.5^\circ$
Geocentric X -1485.8 ± 2.1 Y 57.1 ± 4.8 km **N**



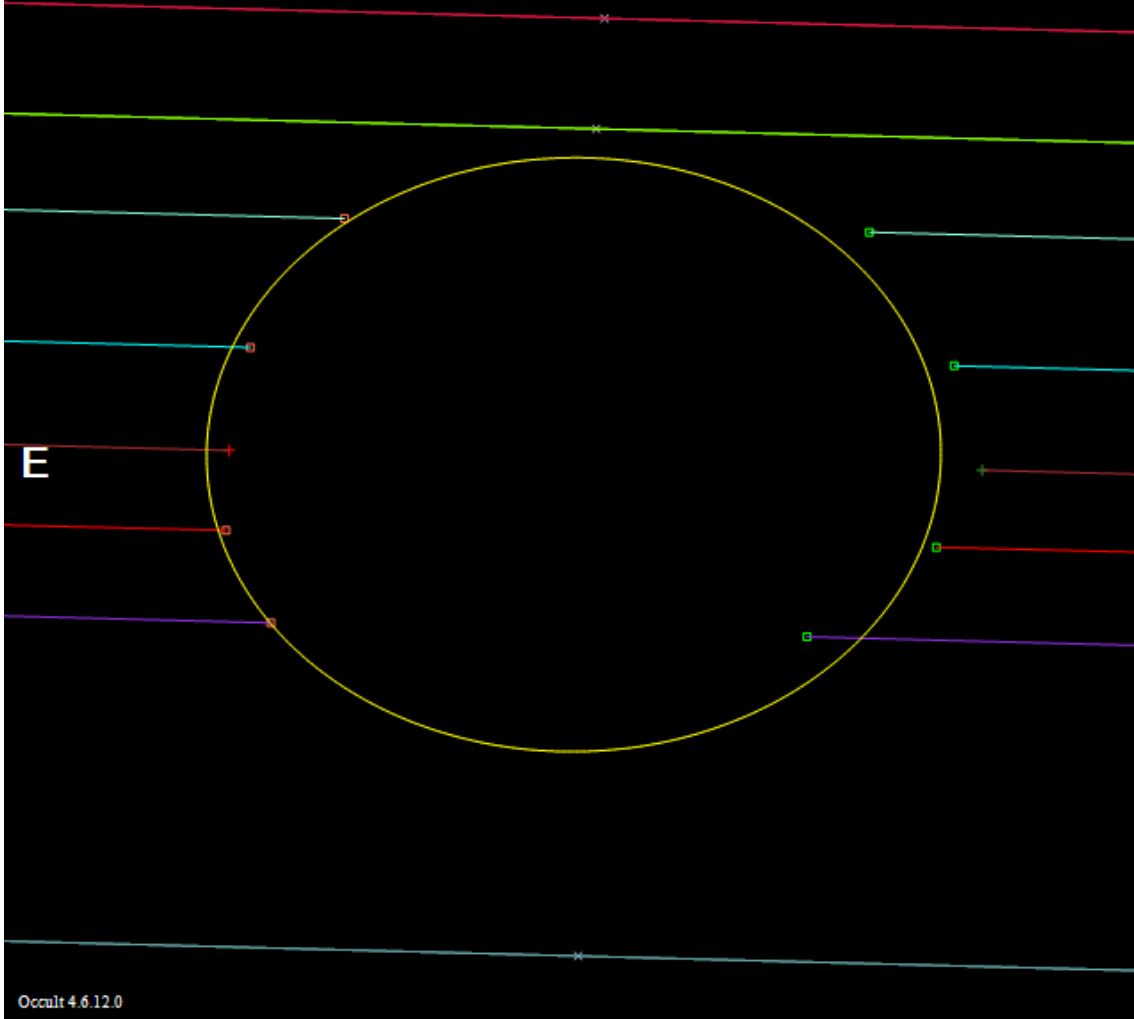
141_Lumen_2013Dec28

(141) Lumen 2013 Dec 28 149.9 x 96.1 km, PA 81.4° ± 2.6°
Geocentric X -983.5 Y 2088.6 km
Double : Sep 0.1540 ± 0.0012", PA 102.5° ± 0.4°



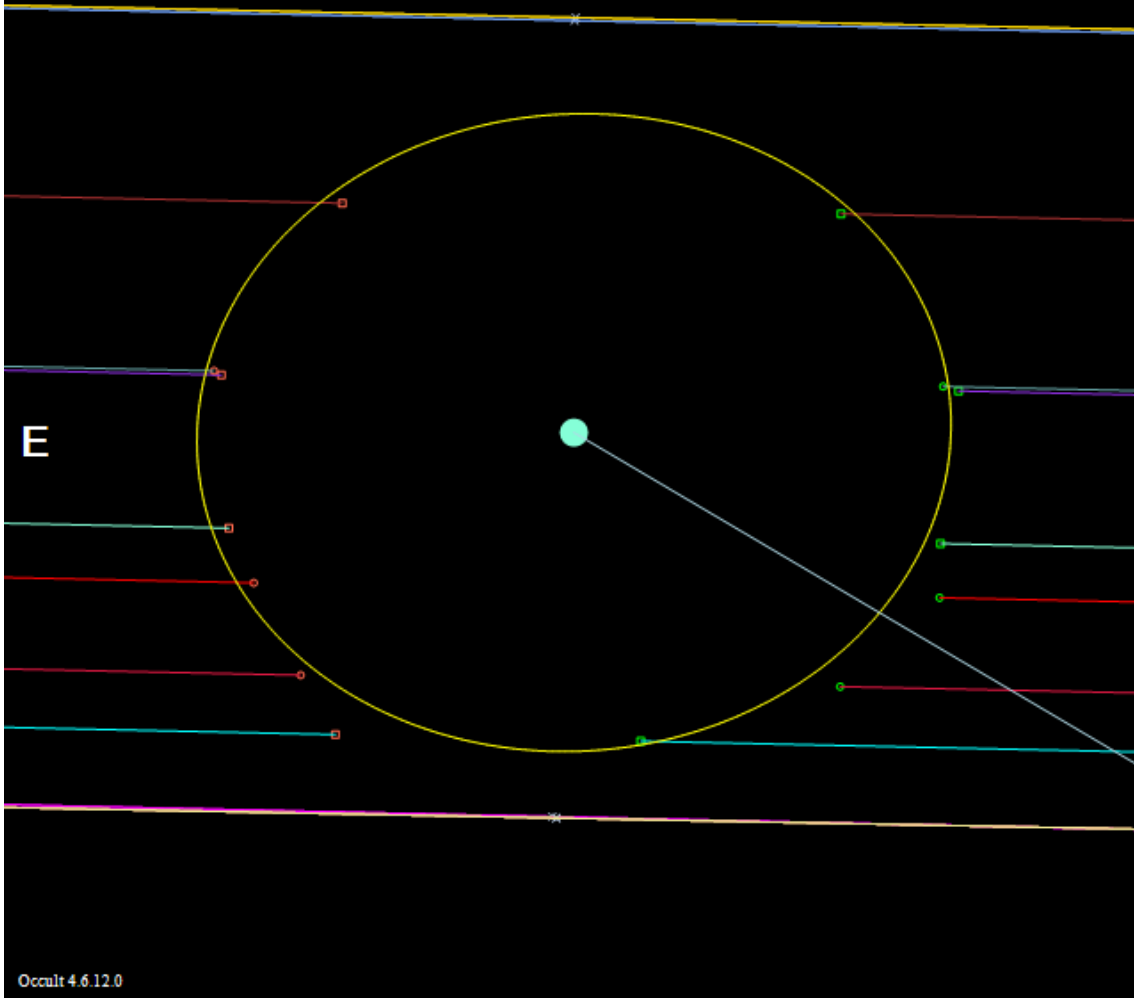
144_Vibilia_2006Sep15

(144) Vibia 2006 Sep 15 $155.2 \pm 5.4 \times 125.4 \pm 11.3$ km, PA $90.7^\circ \pm 8.0^\circ$
Geocentric X -4312.6 ± 2.0 Y 2705.2 ± 2.9 km **N**



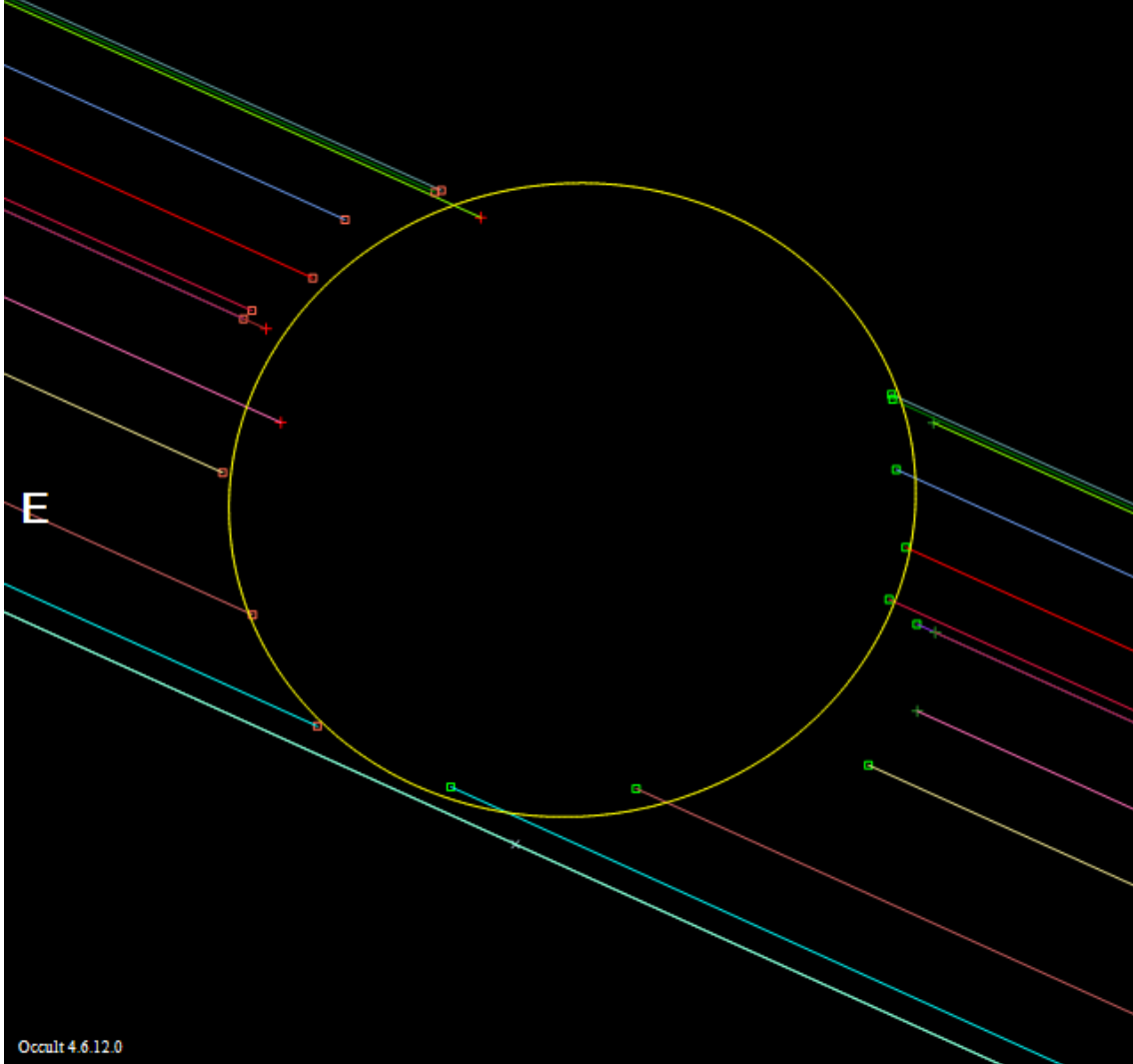
144_Vibilia_2006Sep19

(144) Vibia 2006 Sep 19 159.5 x 134.5 km. PA 94.4° ± 7.2°
Geocentric X -4641.2 ± 1.8 Y 3422.1 ± 6.2 km **N**
Double : Sep 0.2599 ± 0.0025", PA 239.5° ± 0.8°



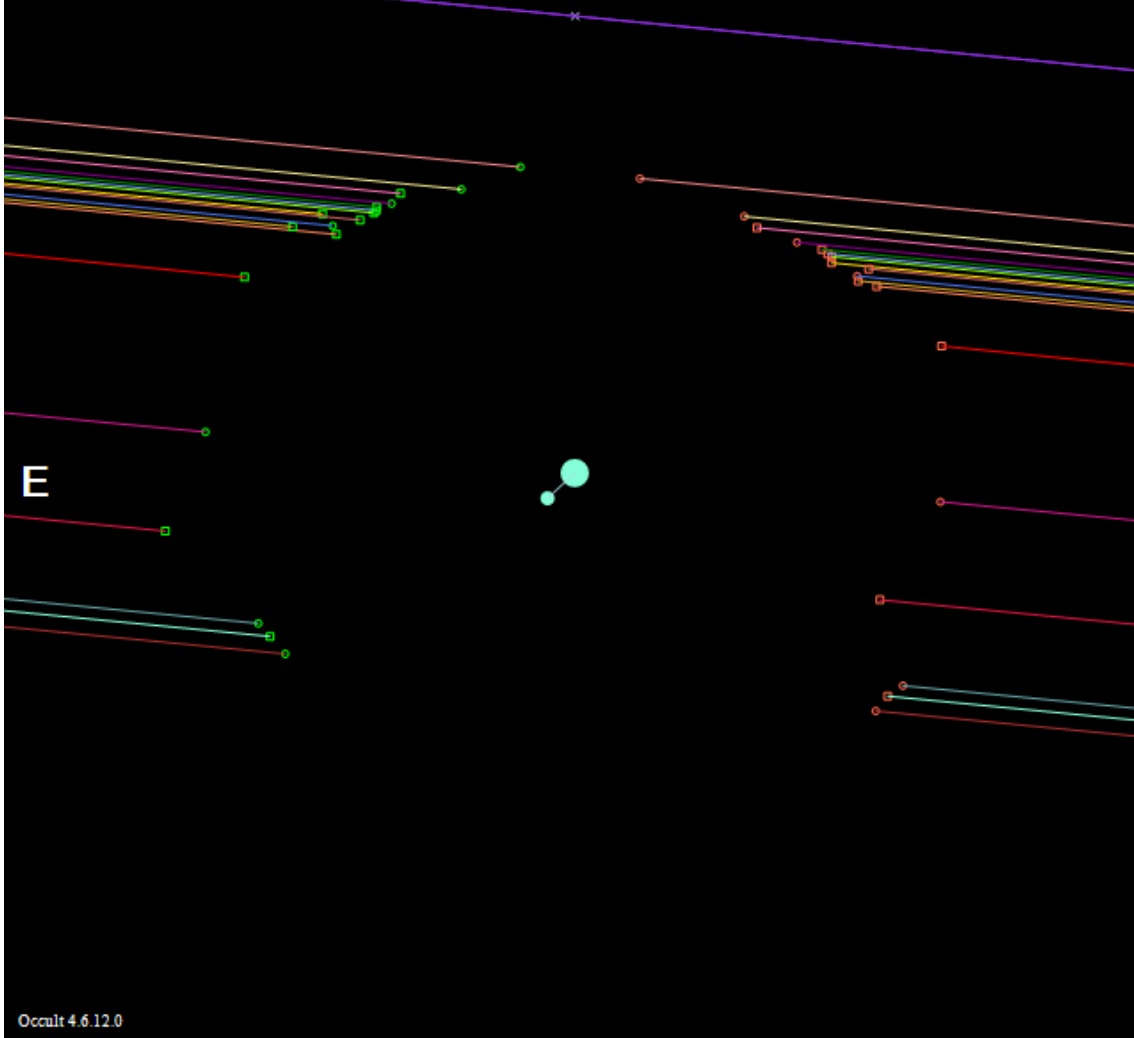
144_Vibilia_2011Jan25

(144) Vibia 2011 Jan 25 $145.5 \pm 4.1 \times 133.7 \pm 5.3$ km, PA $98.5^\circ \pm 20.9^\circ$
Geocentric X -870.5 ± 1.8 Y 2973.2 ± 2.2 km **N**



145_Adeona_2019Apr22

(145) Adeona 2019 Apr 22 $156.1 \pm 3.0 \times 119.0 \pm 3.3$ km, PA $263.2^\circ \pm 1.9^\circ$
Geocentric X -430.1 ± 1.0 Y 5685.2 ± 1.2 km **N**
Double : Sep $0.0053''$, PA 132.9°



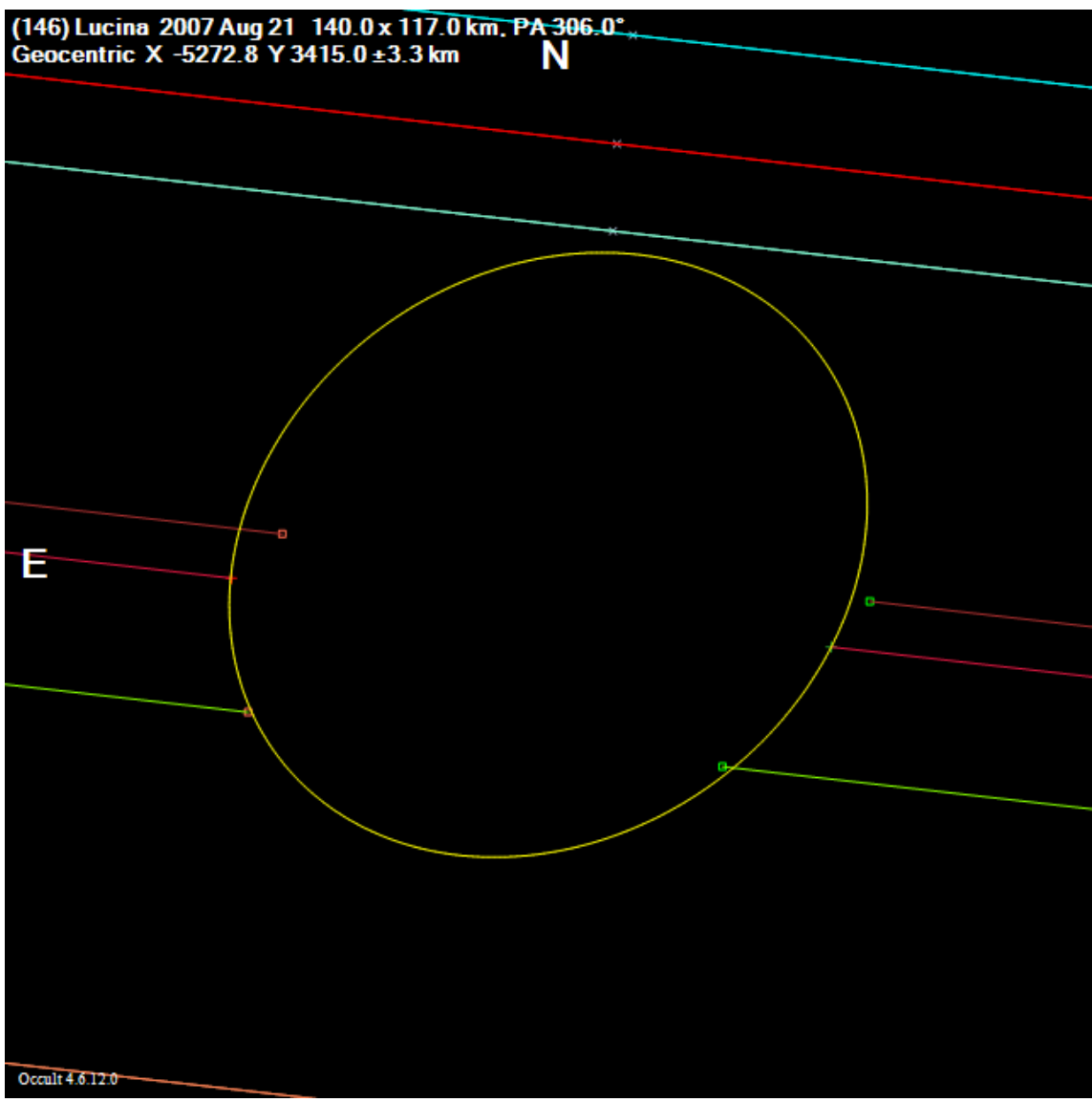
146_Lucina_2007Aug21

(146) Lucina 2007 Aug 21 140.0 x 117.0 km. PA 306.0°
Geocentric X -5272.8 Y 3415.0 ±3.3 km

N

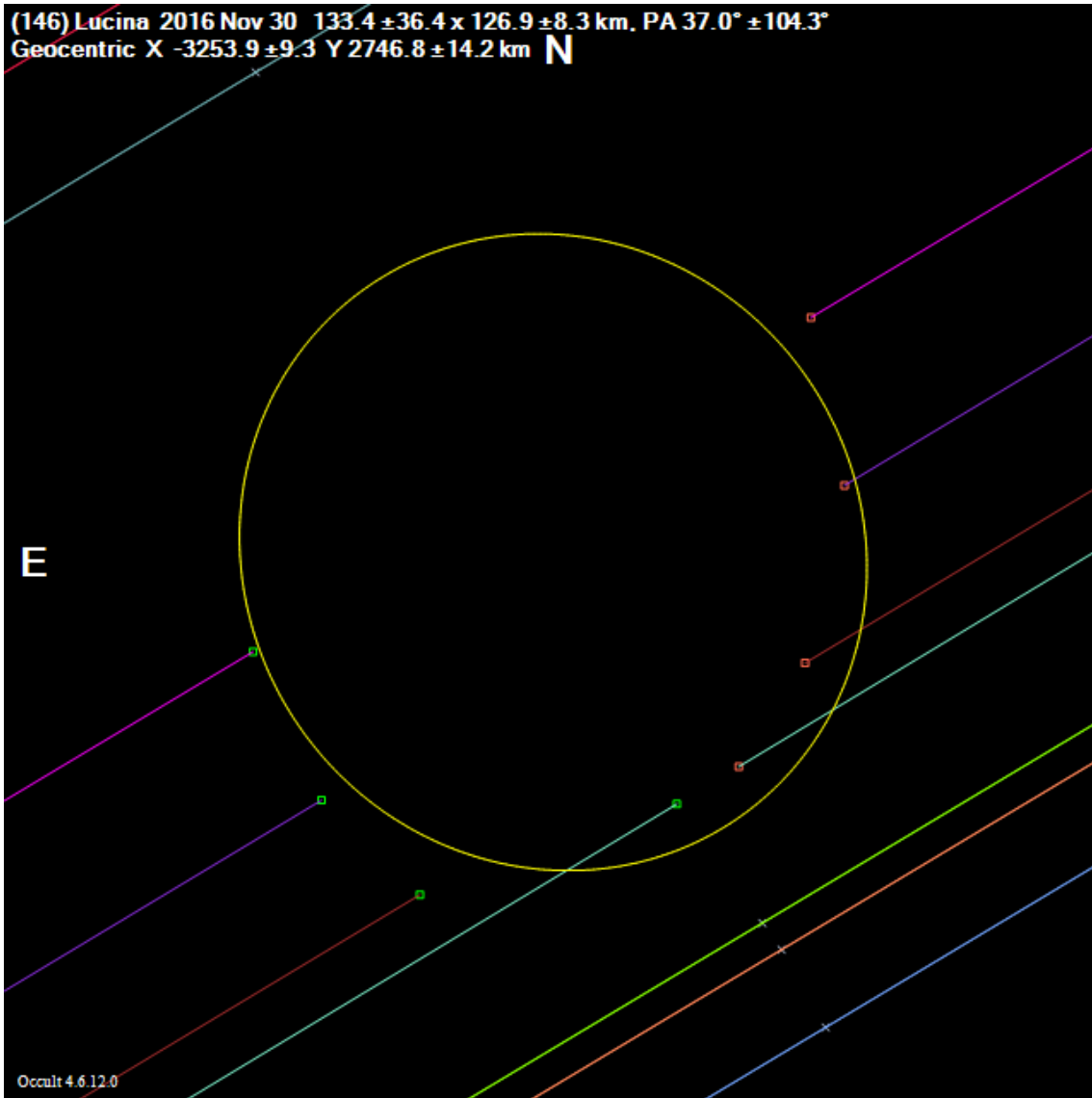
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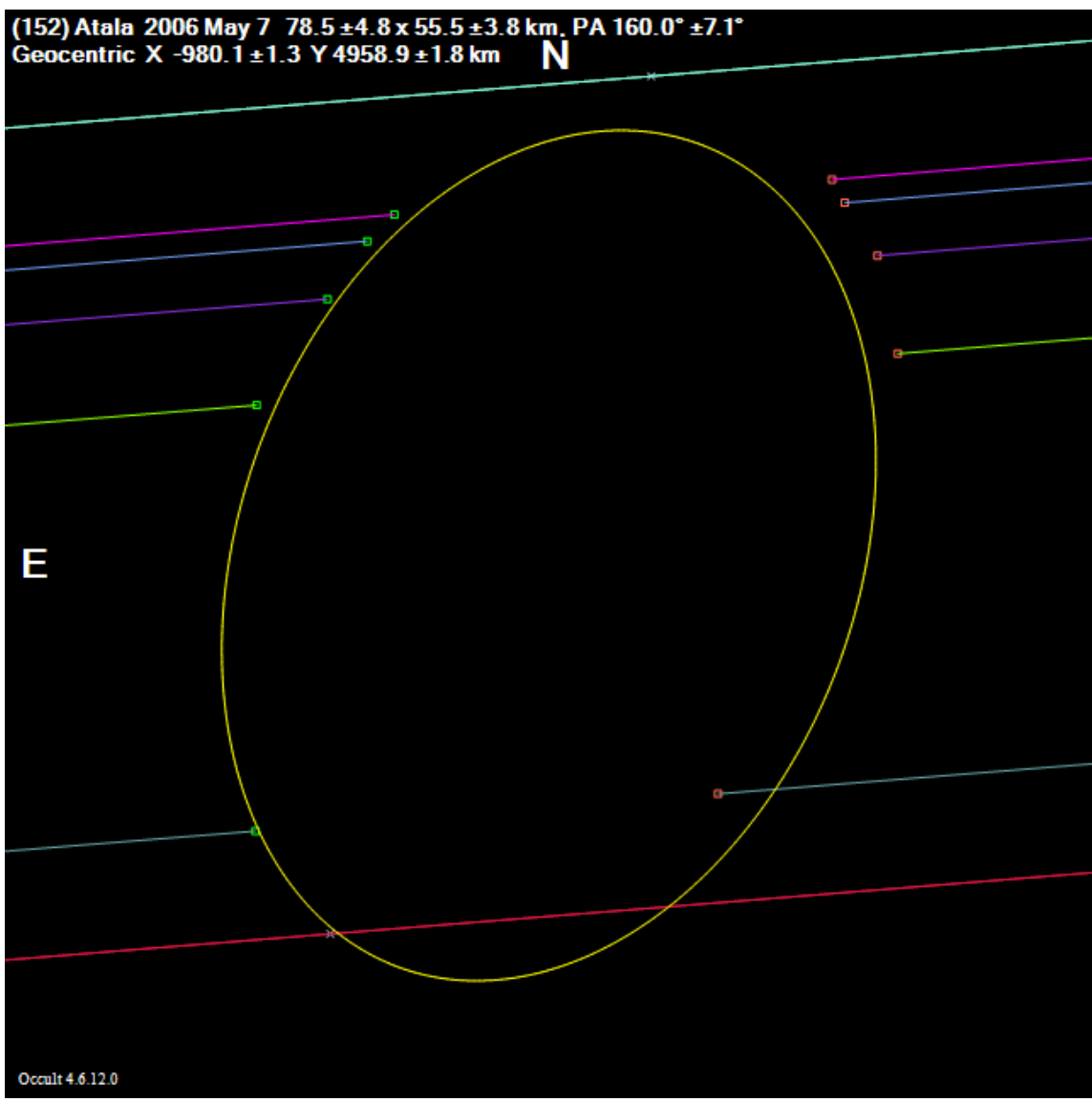


146_Lucina_2016Nov30

(146) Lucina 2016 Nov 30 $133.4 \pm 36.4 \times 126.9 \pm 8.3$ km. PA $37.0^\circ \pm 104.3^\circ$
Geocentric X -3253.9 ± 9.3 Y 2746.8 ± 14.2 km **N**



152_Atala_2006May07



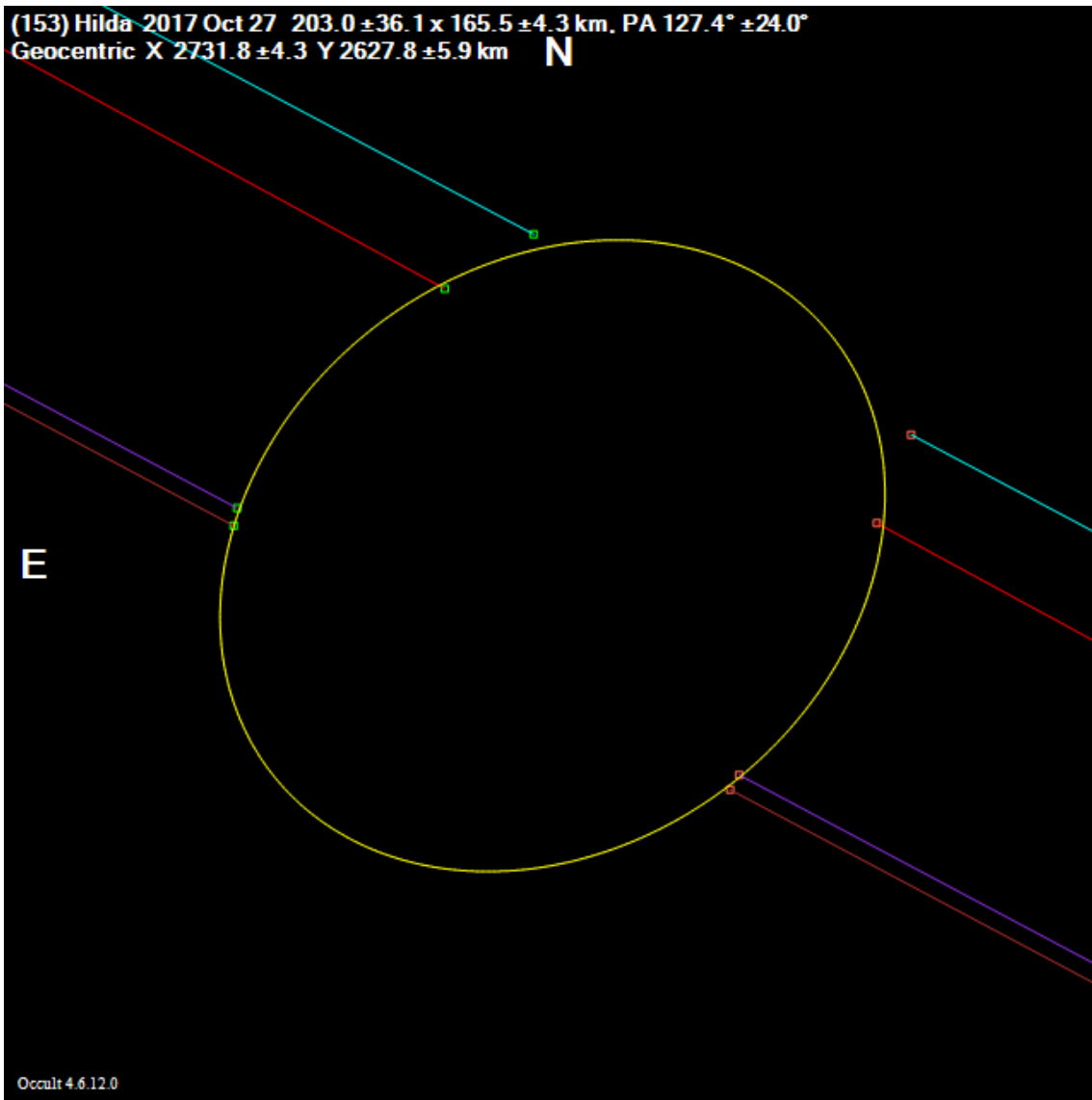
153_Hilda_2007Jul20

(153) Hilda 2007 Jul 20 $186.5 \pm 13.8 \times 146.0 \pm 3.4$ km, PA $10.9^\circ \pm 4.7'$
Geocentric X 2152.2 ± 1.4 Y 5459.4 ± 4.1 km **N**



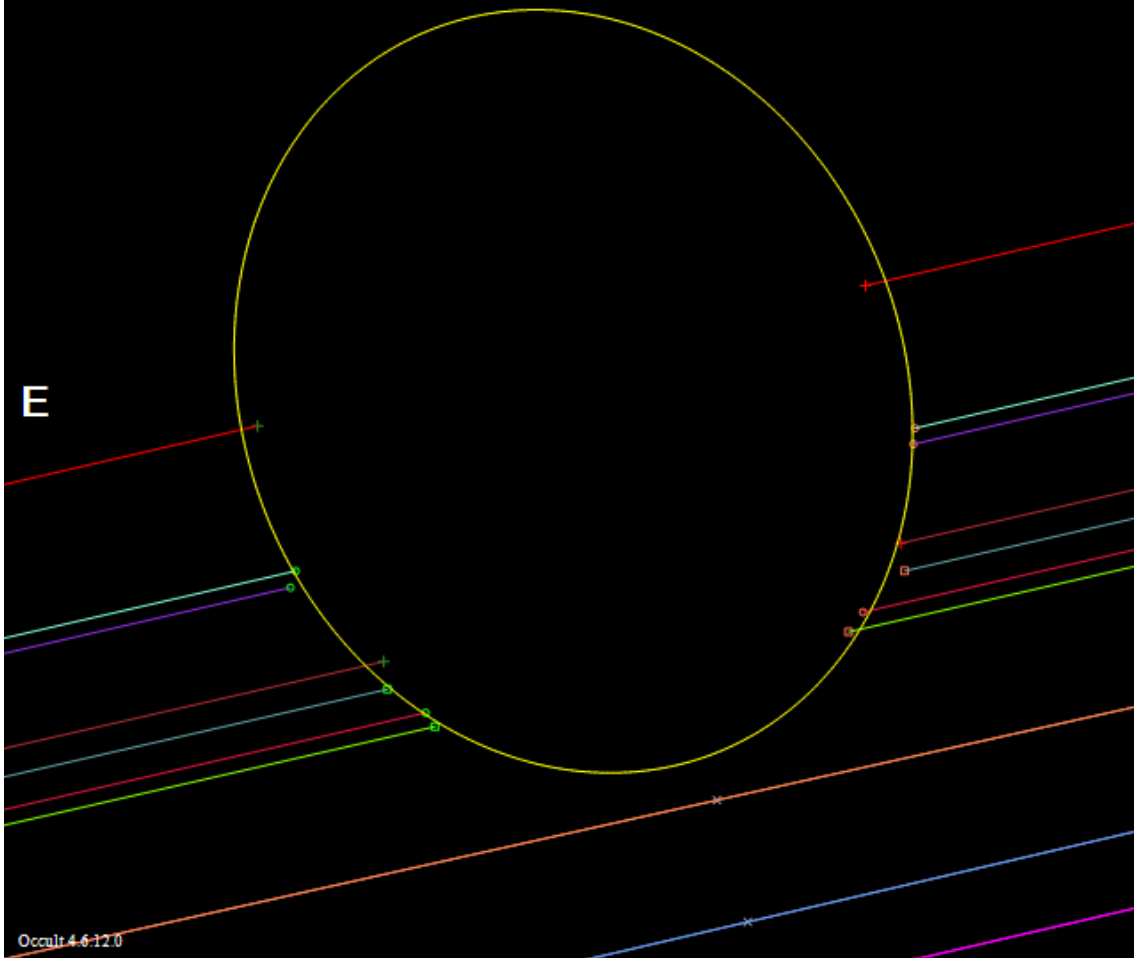
153_Hilda_2017Oct27

(153) Hilda 2017 Oct 27 203.0 ± 36.1 x 165.5 ± 4.3 km, PA 127.4° ± 24.0°
Geocentric X 2731.8 ± 4.3 Y 2627.8 ± 5.9 km **N**



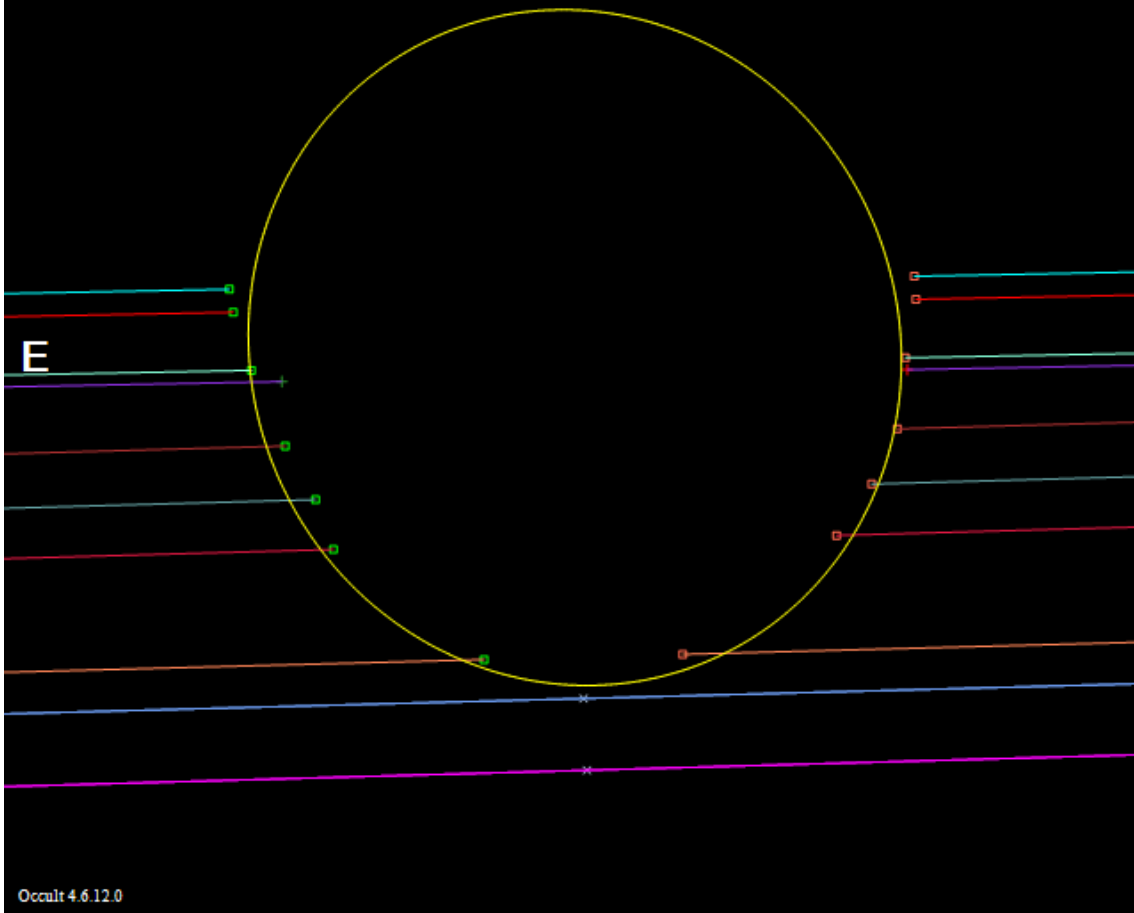
154_Bertha_2006Nov12

(154) Bertha 2006 Nov 12 210.0 x 179.0 ± 3.1 km, PA 21.5° ± 6.8°
Geocentric X -3244.8 ± 1.8 Y 2006.0 ± 2.1 km **N**

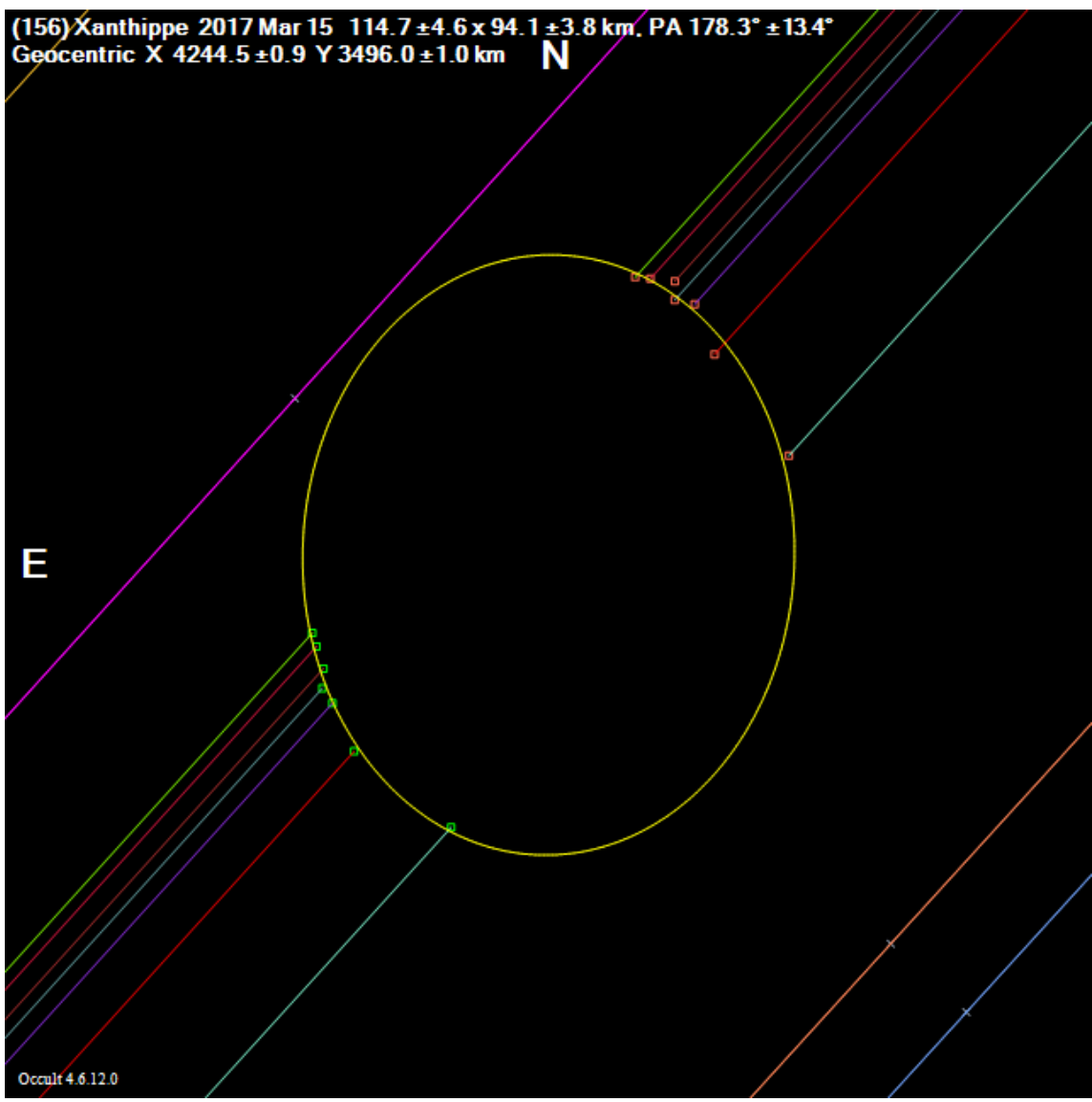


154_Bertha_2017Oct23

(154) Bertha 2017 Oct 23 184.0 x 175.0 km. PA 24.3° ±20.4°
Geocentric X -874.8 ±1.3 Y 3720.3 ±2.3 km N

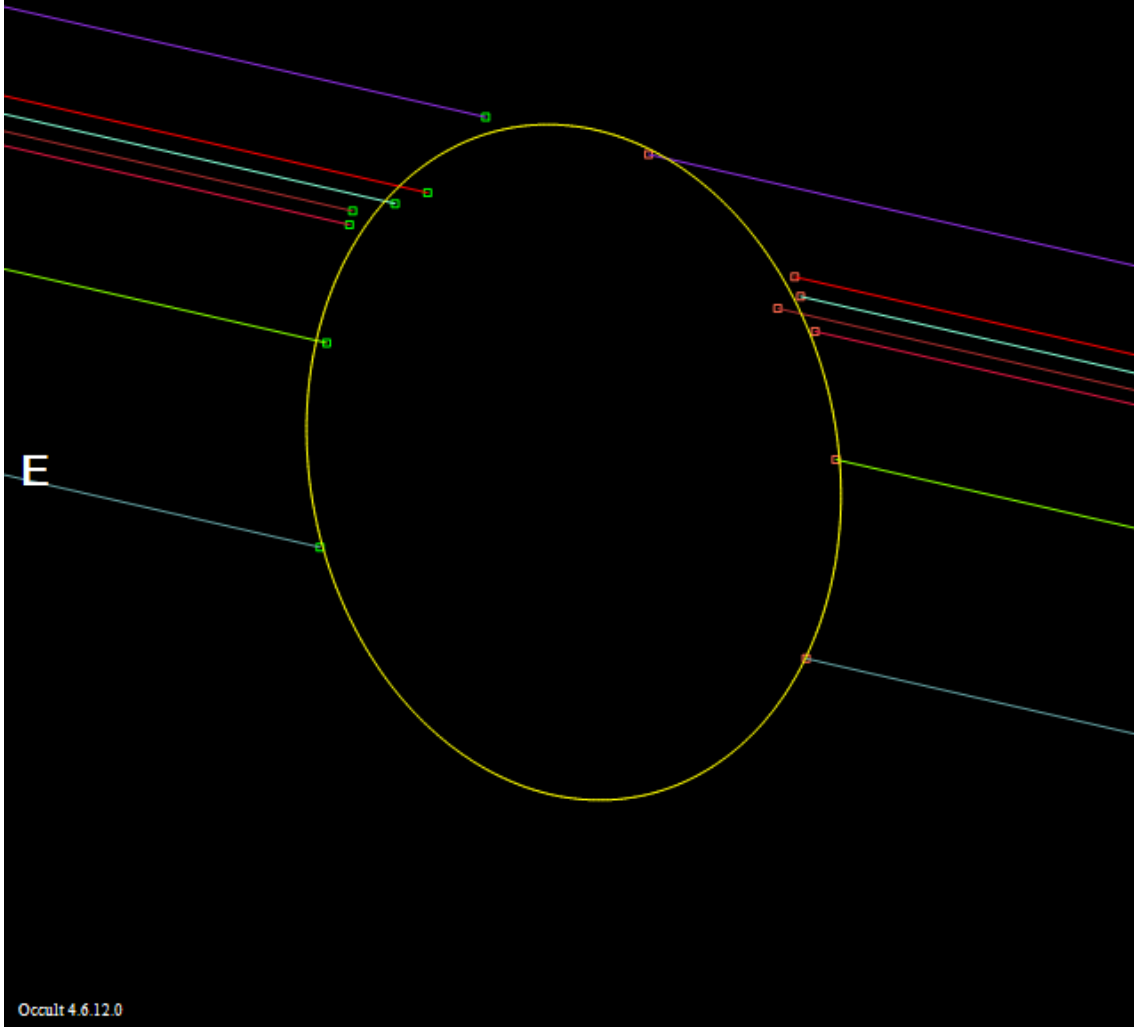


156_Xanthippe_2017Mar15



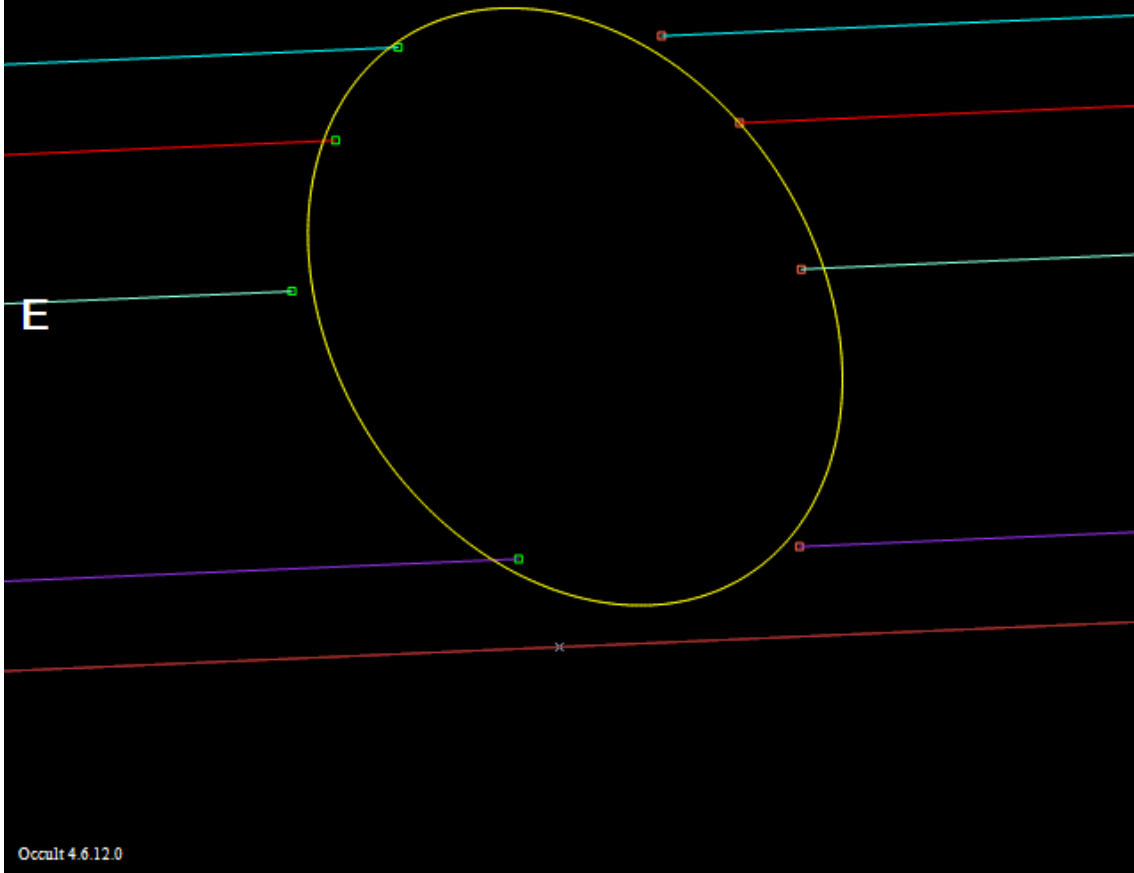
156_Xanthippe_2018Aug05

(156) Xanthippe 2018 Aug 5 $124.3 \pm 6.2 \times 96.5 \pm 2.1$ km. PA $11.2^\circ \pm 5.7'$
Geocentric X 4357.7 ± 1.0 Y 3808.3 ± 2.6 km **N**



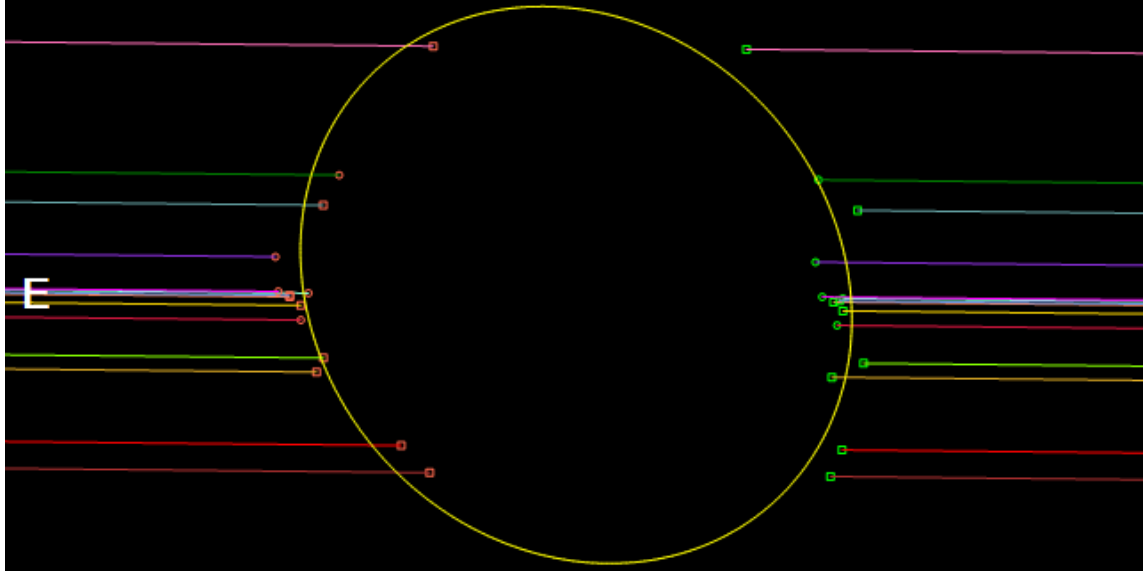
156_Xanthippe_2018Jul13

(156) Xanthippe 2018 Jul 13 $116.5 \pm 3.7 \times 88.7 \pm 3.1$ km, PA $32.8^\circ \pm 6.2^\circ$
Geocentric X 2753.9 ± 1.3 Y -2730.6 ± 1.5 km **N**



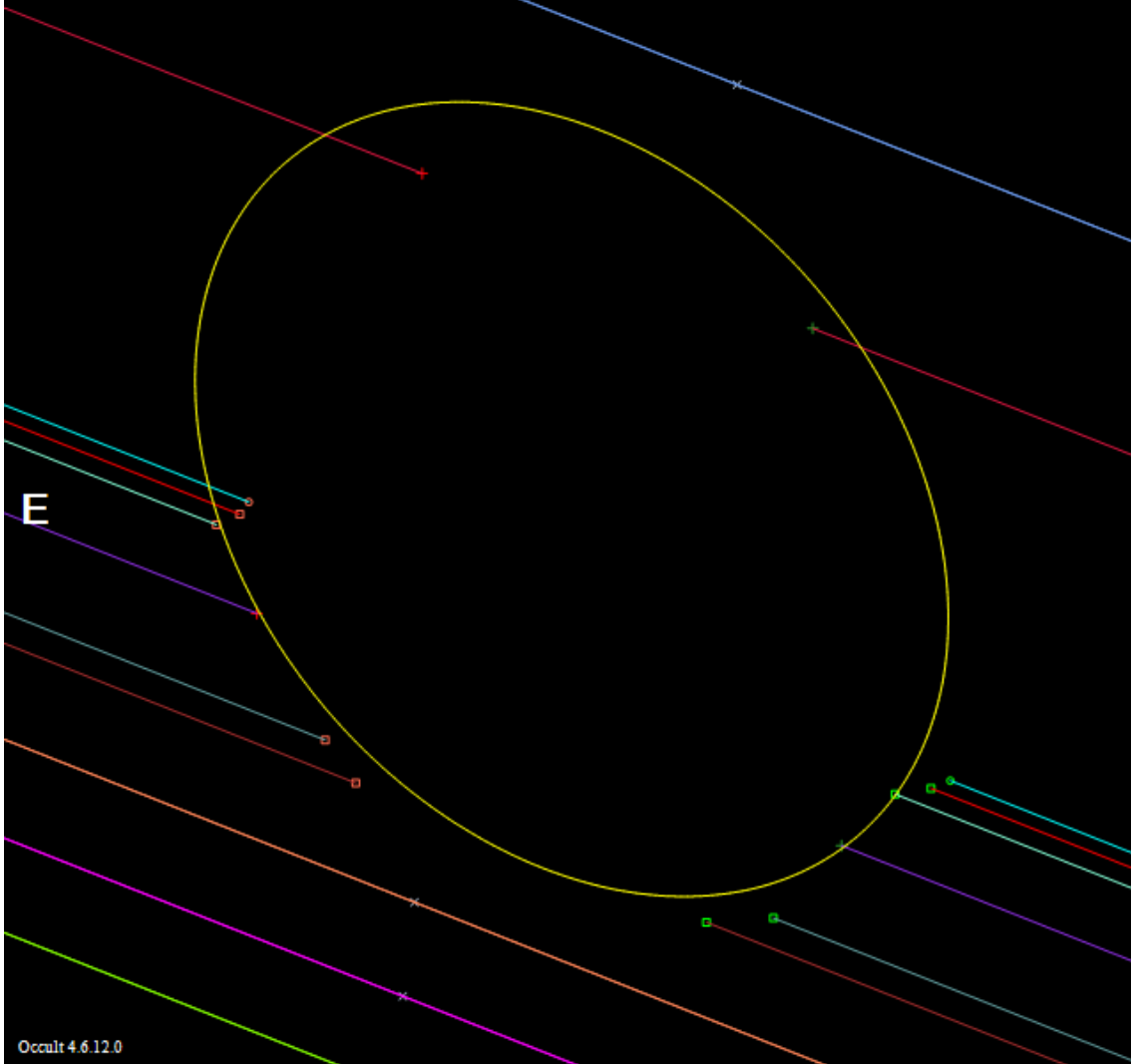
156_Xanthippe_2018Oct29

(156) Xanthippe 2018 Oct 29 $107.3 \pm 3.7 \times 94.8 \pm 2.9$ km, PA $42.9^\circ \pm 13.2^\circ$
Geocentric X 1352.2 ± 0.7 Y 5452.5 ± 1.7 km **N**



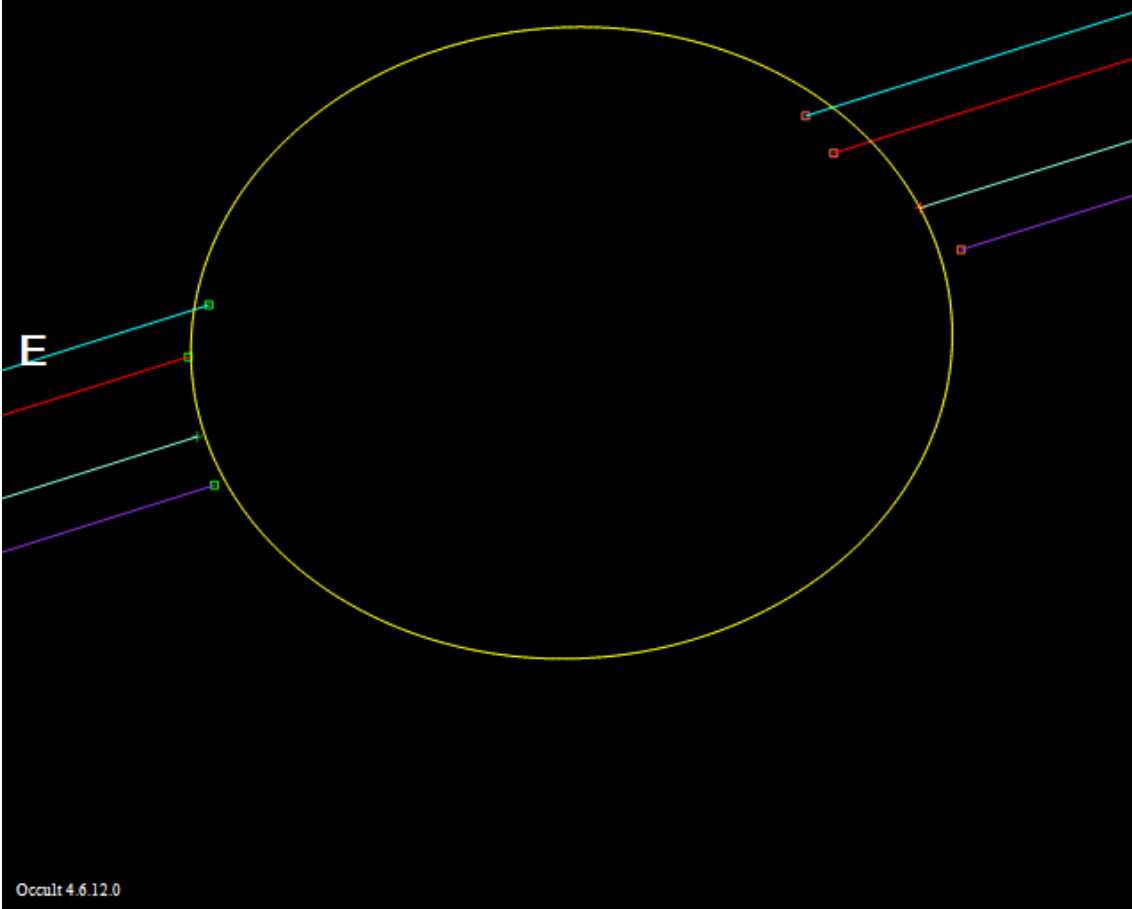
158_Koronis_2005Dec13

(158) Koronis 2005 Dec 13 $45.4 \pm 2.7 \times 33.2 \pm 2.6$ km. PA $40.0^\circ \pm 6.9^\circ$
Geocentric X 4879.4 ± 1.1 Y 3823.9 ± 1.2 km **N**



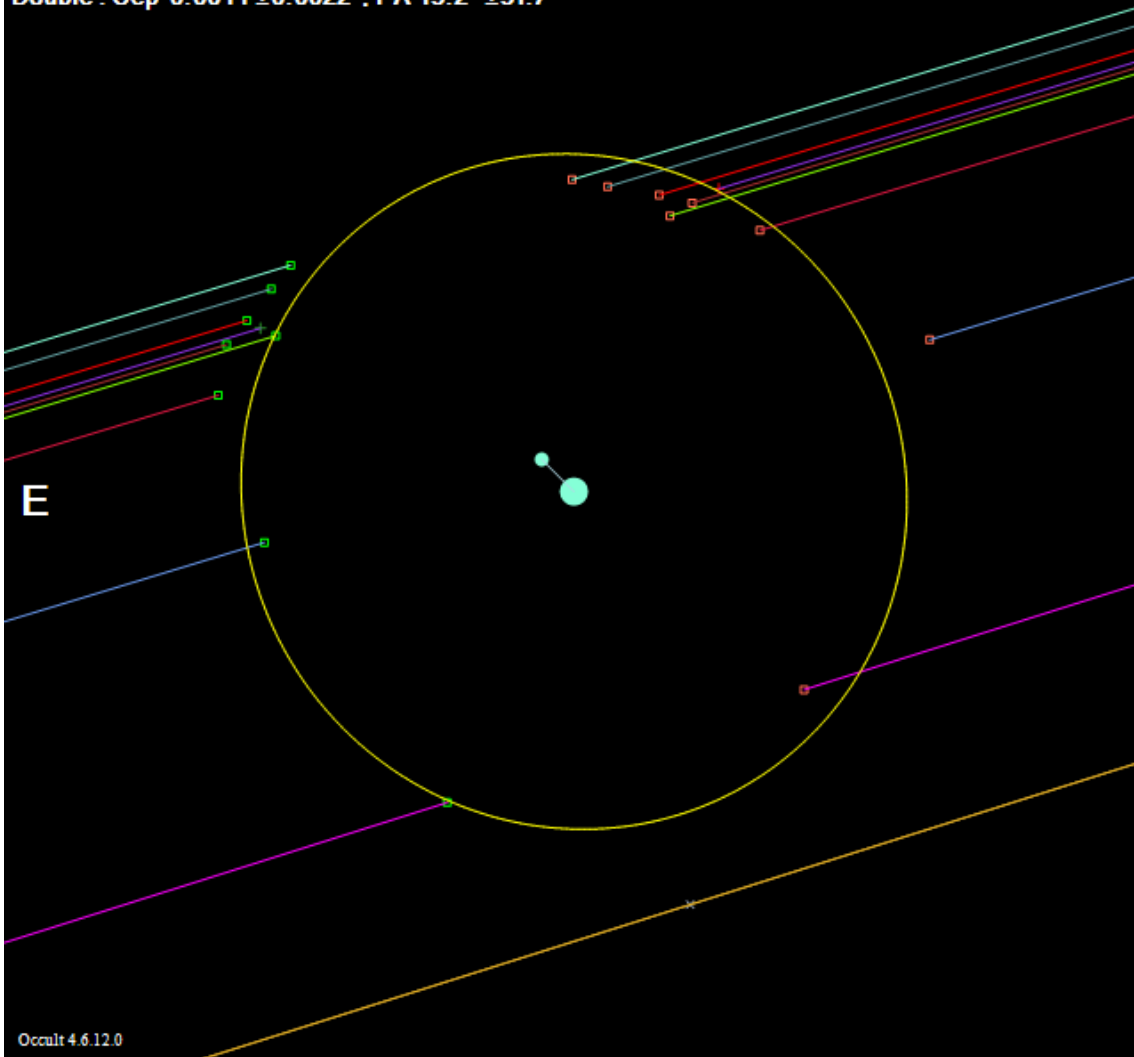
159_Aemilia_2009May02

(159) Aemilia 2009 May 2 144.4 x 119.5 km. PA 93.8°
Geocentric X -1931.7 ± 1.7 Y 4543.2 ± 2.9 km **N**



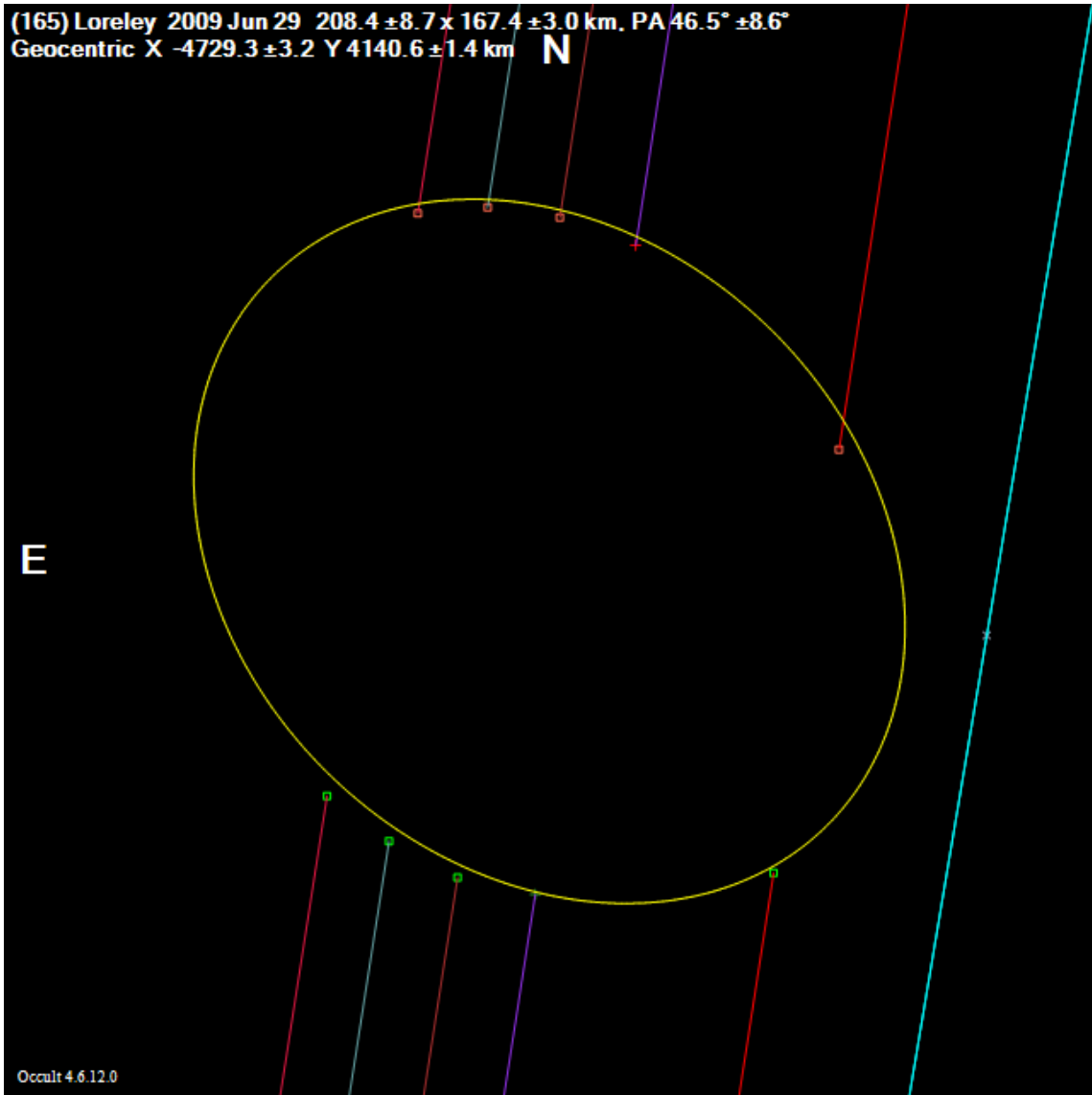
160_Una_2011Jan24

(160) Una 2011 Jan 24 $81.0 \pm 5.4 \times 78.6 \pm 4.1$ km, PA $32.0^\circ \pm 75.3^\circ$
Geocentric X -2396.4 ± 1.6 Y 2600.9 ± 1.8 km **N**
Double : Sep $0.0044 \pm 0.0022''$, PA $45.2^\circ \pm 31.7^\circ$



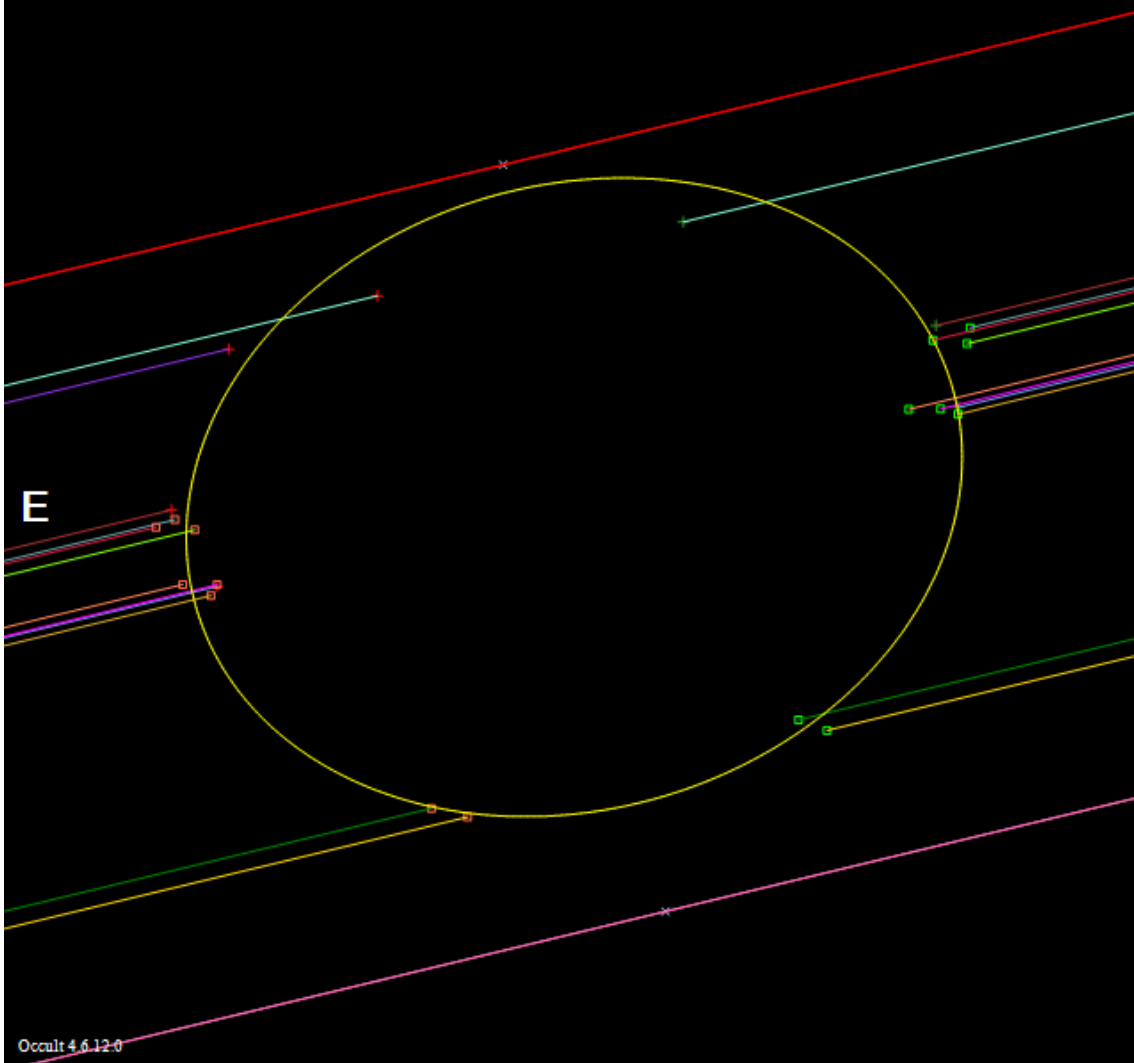
165_Loreley_2009Jun29

(165) Loreley 2009 Jun 29 $208.4 \pm 8.7 \times 167.4 \pm 3.0$ km, PA $46.5^\circ \pm 8.6^\circ$
Geocentric X -4729.3 ± 3.2 Y 4140.6 ± 1.4 km **N**



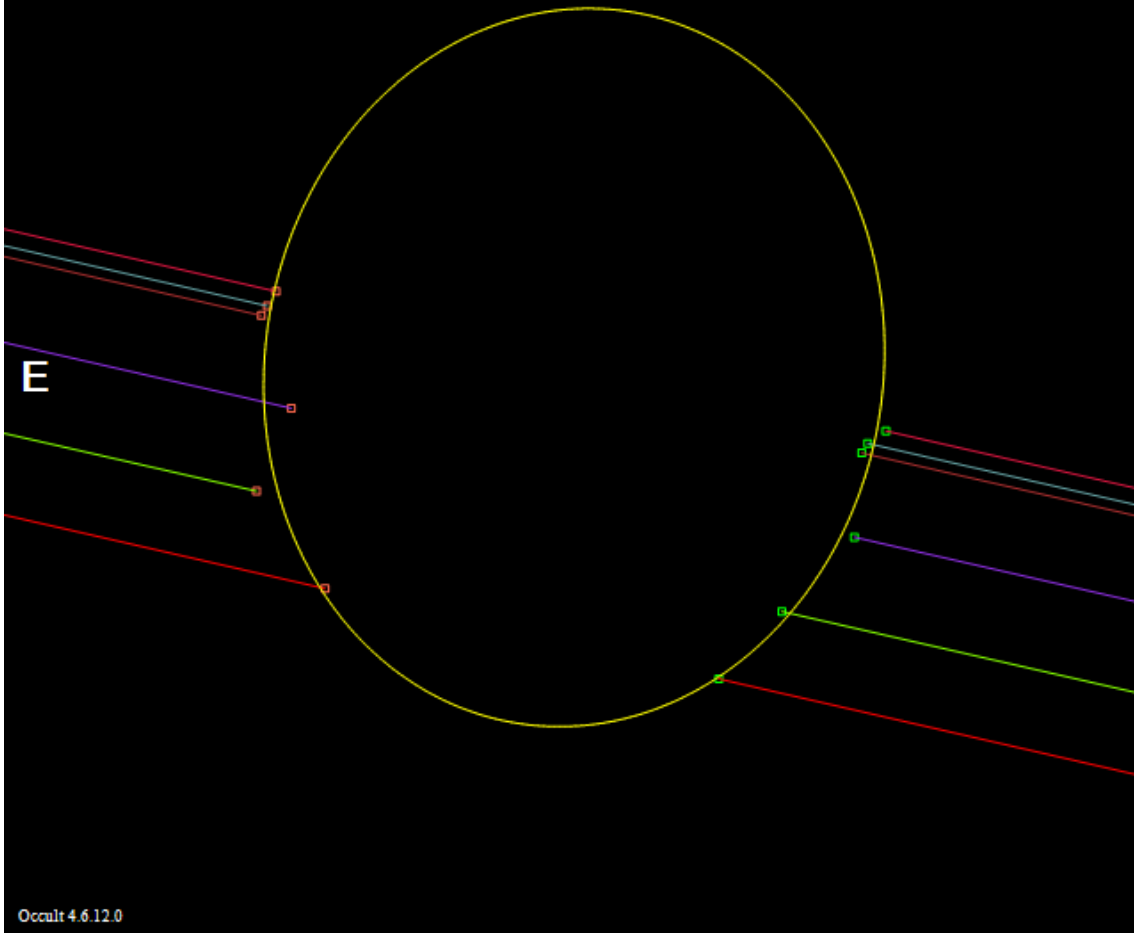
166_Rhodope_2005Oct19

(166) Rhodope 2005 Oct 19 $63.9 \pm 1.0 \times 50.6 \pm 2.6$ km, PA $106.3^\circ \pm 7.0^\circ$
Geocentric X -4217.1 ± 0.5 Y 3325.5 ± 1.1 km **N**



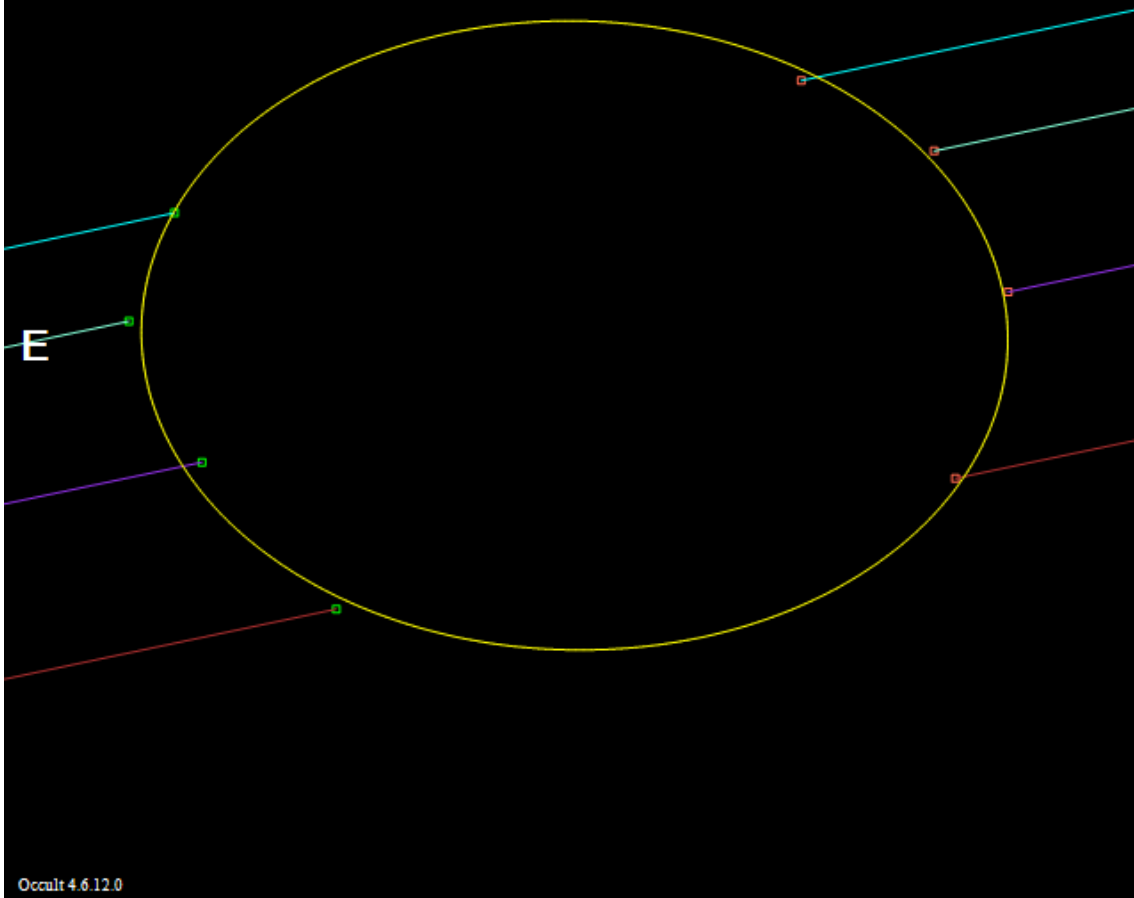
173_Ino_2015Apr09

(173) Ino 2015 Apr 9 153.7 ± 28.6 × 132.0 ± 2.3 km, PA 170.9° ± 9.4°
Geocentric X 3073.7 ± 2.4 Y 3547.7 ± 10.1 km **N**



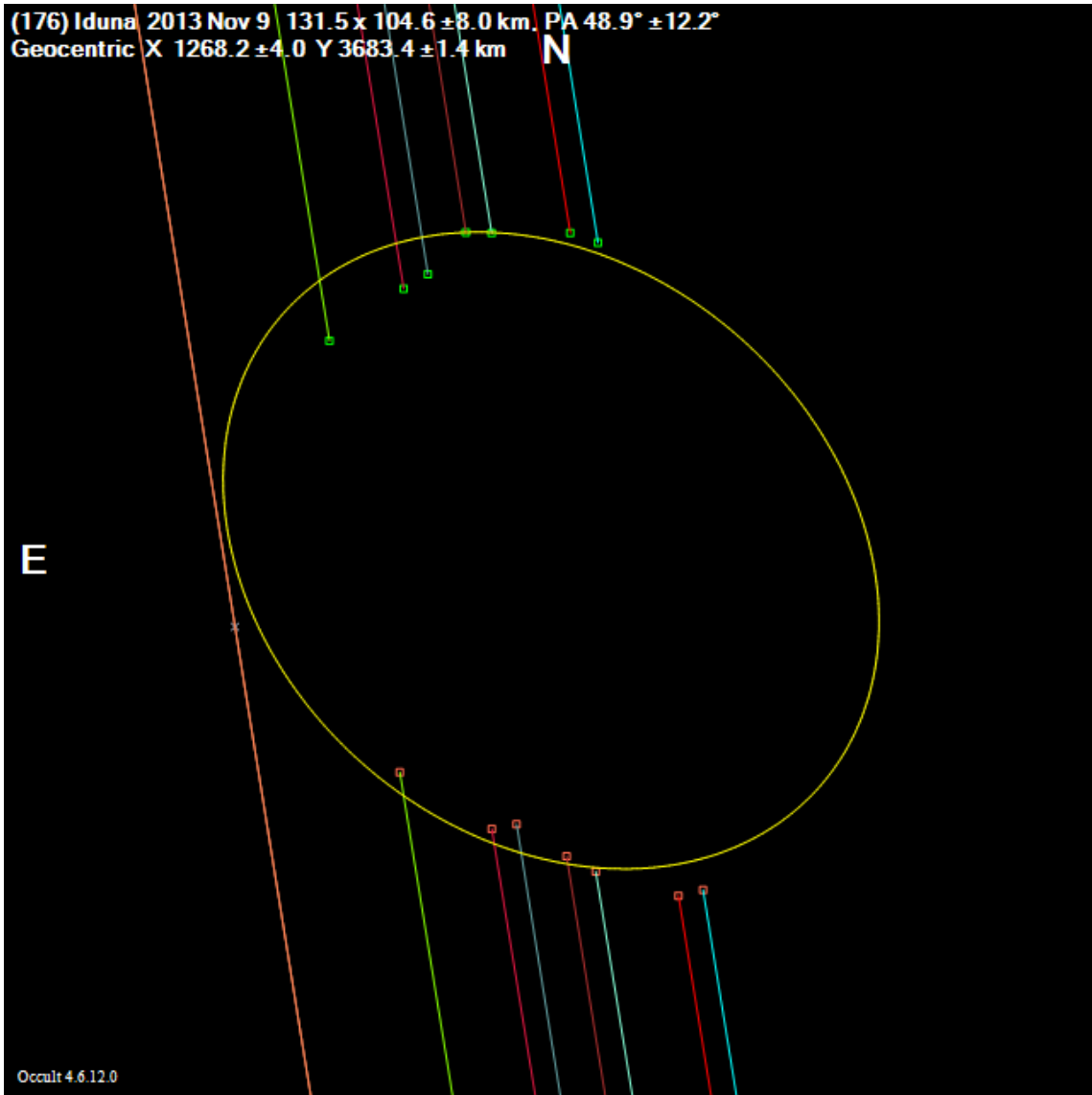
175_Andromache_2018Feb09

(175) Andromache 2018 Feb 9 $129.2 \pm 1.7 \times 93.7 \pm 3.5$ km, PA $88.9^\circ \pm 3.0^\circ$
Geocentric X 5117.5 ± 0.8 Y 2955.7 ± 0.9 km **N**



176_Iduna_2013Nov09

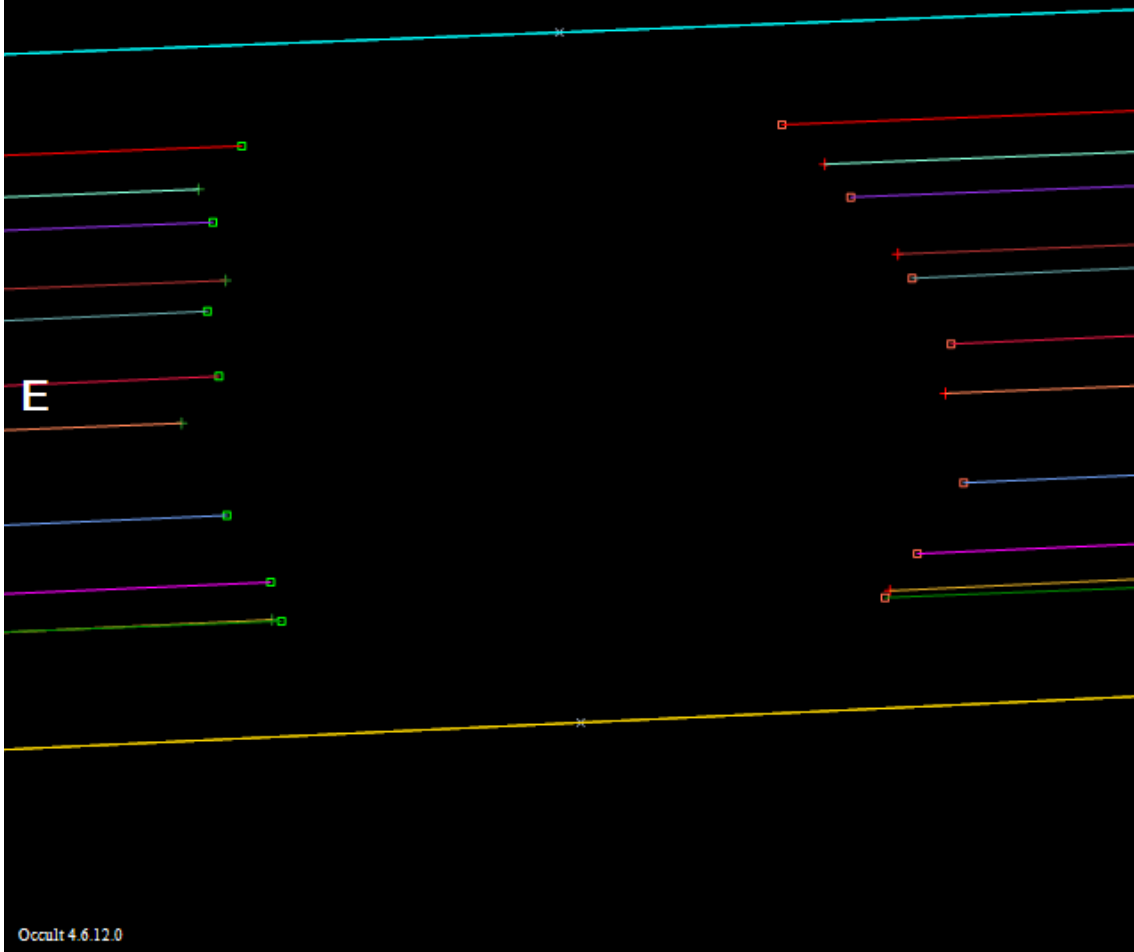
(176) Iduna 2013 Nov 9 131.5 x 104.6 ± 8.0 km, PA 48.9° ± 12.2°
Geocentric X 1268.2 ± 4.0 Y 3683.4 ± 1.4 km



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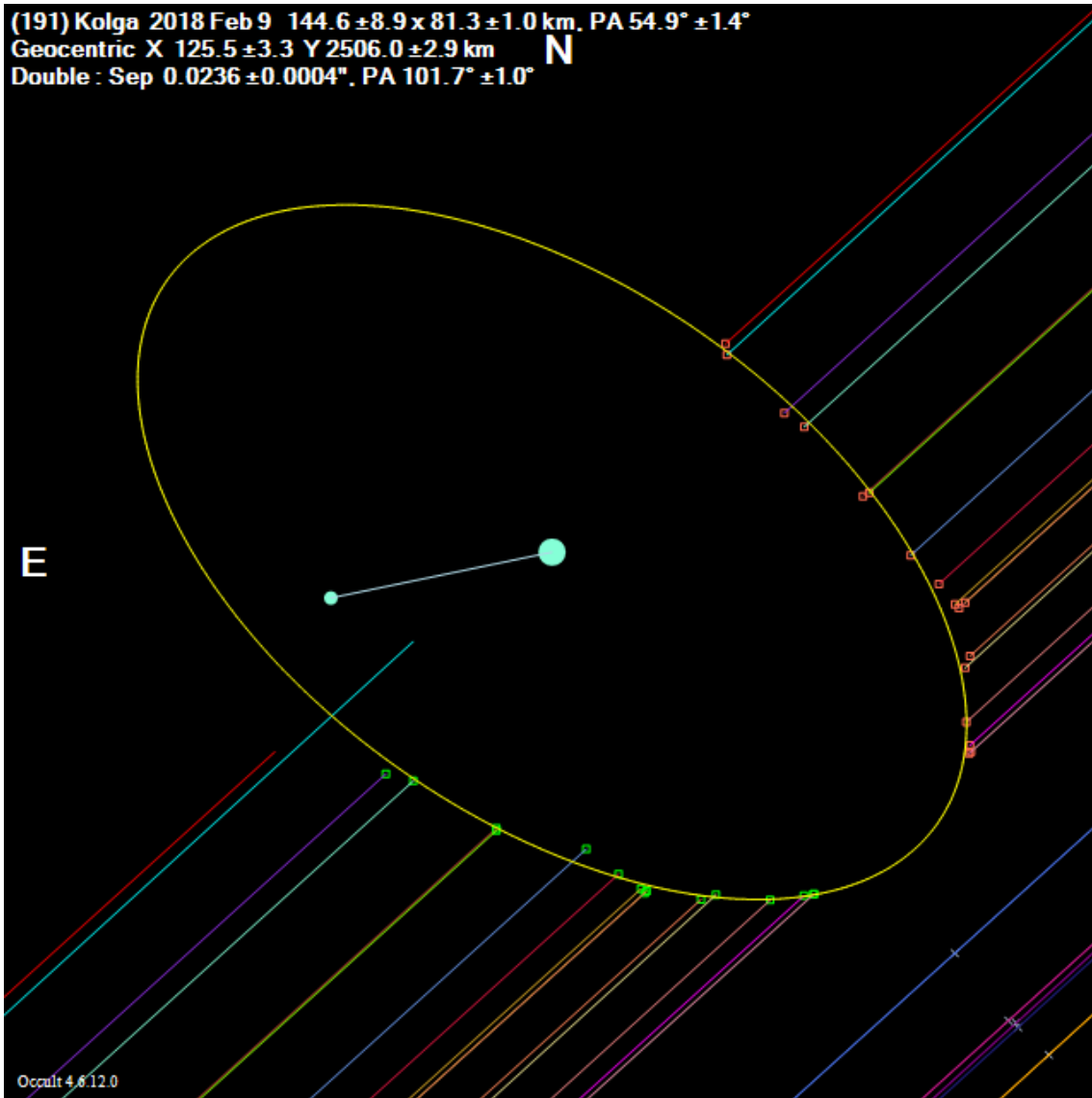
187_Lamberta_2007Dec20

(187) Lamberta 2007 Dec 20 $152.7 \pm 2.2 \times 131.4 \pm 3.8$ km, PA $69.6^\circ \pm 7.3^\circ$
Geocentric X -514.3 ± 0.9 Y -24.5 ± 1.4 km **N**



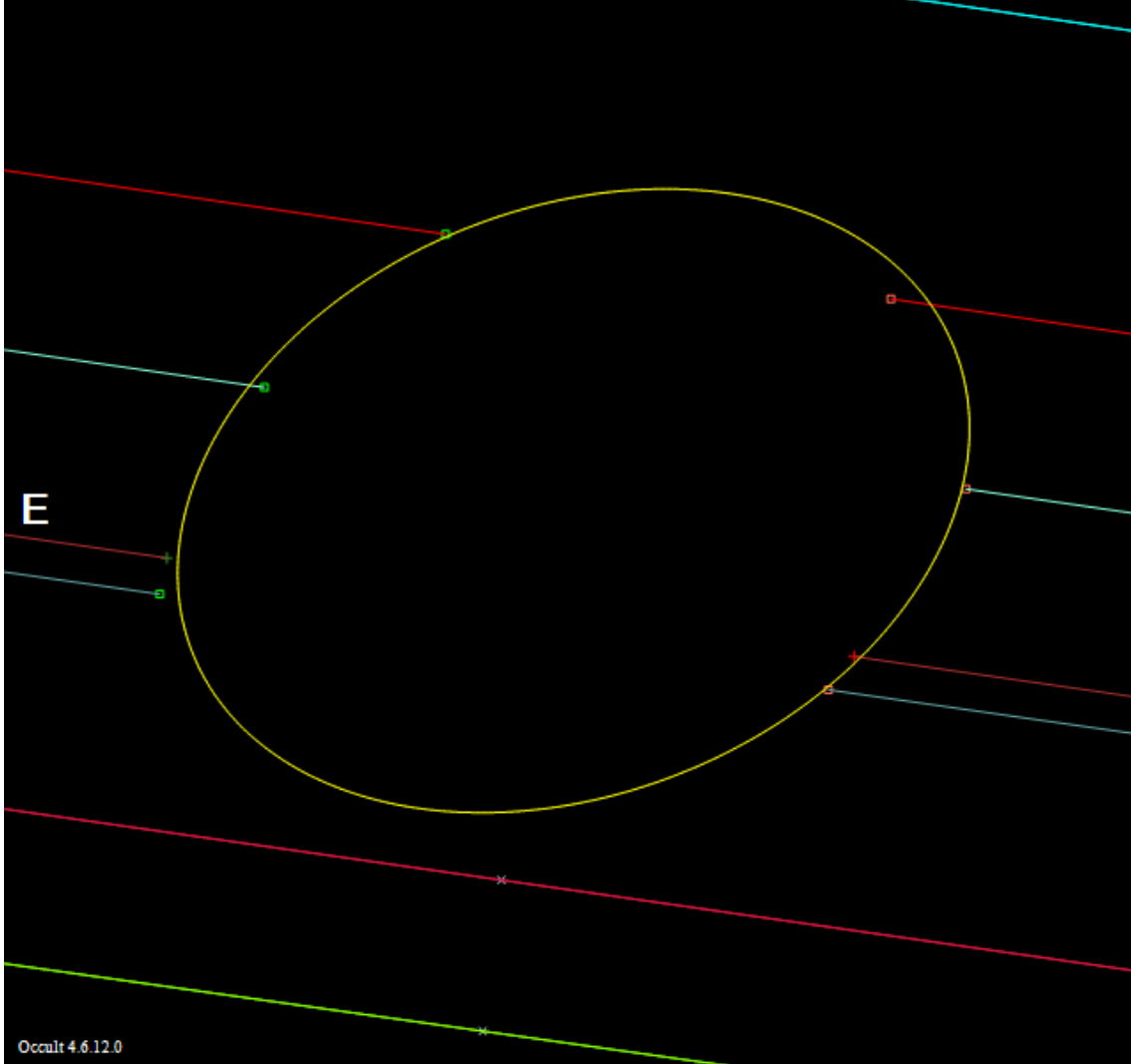
191_Kolga_2018Feb09

(191) Kolga 2018 Feb 9 $144.6 \pm 8.9 \times 81.3 \pm 1.0$ km, PA $54.9^\circ \pm 1.4^\circ$
Geocentric X 125.5 ± 3.3 Y 2506.0 ± 2.9 km
Double : Sep $0.0236 \pm 0.0004''$, PA $101.7^\circ \pm 1.0^\circ$



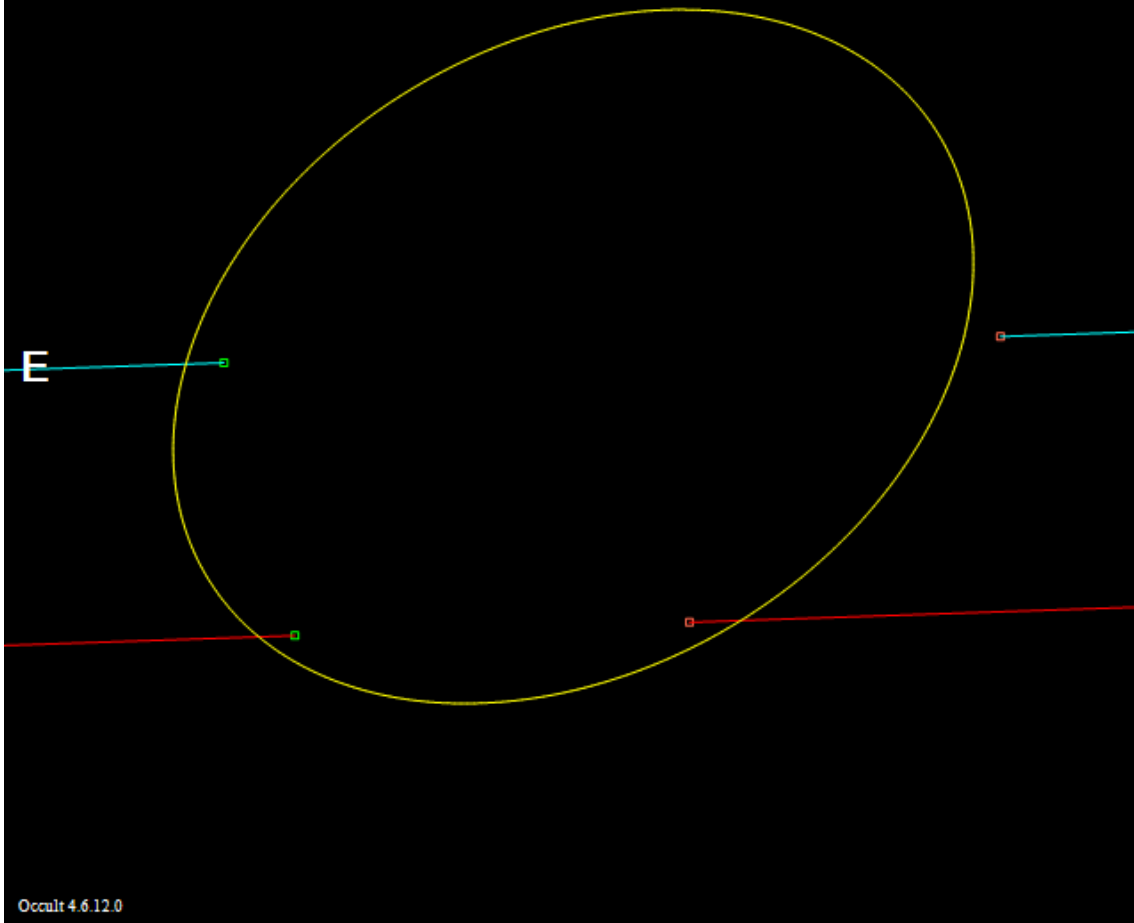
192_Nausikaa_2007Jun25

(192) Nausikaa 2007 Jun 25 $116.5 \pm 2.8 \times 83.1 \pm 3.6$ km, PA $111.9^\circ \pm 6.5^\circ$
Geocentric X 342.1 ± 1.1 Y 5849.5 ± 1.6 km **N**



196_Philomela_2014Dec18

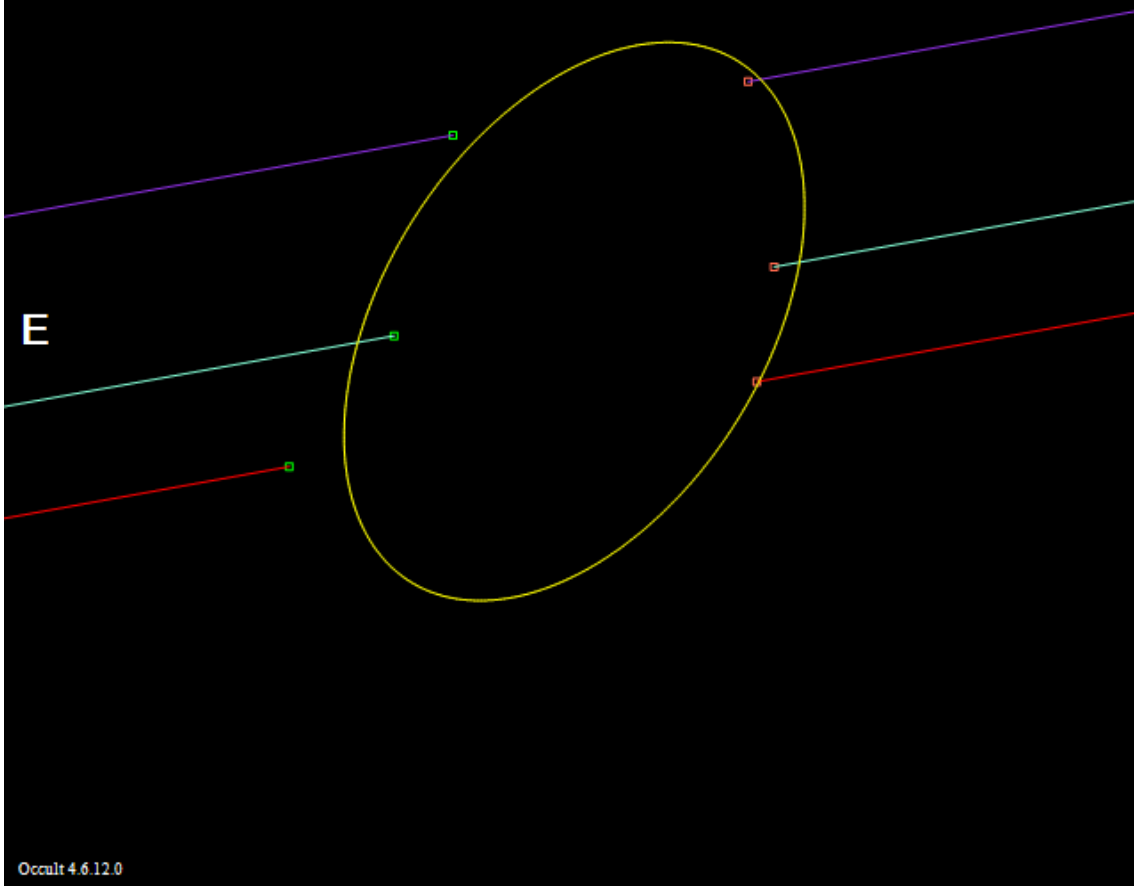
(196) Philomela 2014 Dec 18 171.0 x 125.0 km, PA 121.0° ± 9.9°
Geocentric X 4074.1 ± 3.8 Y -4644.4 ± 5.0 km **N**



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199_Byblis_2018Jan02

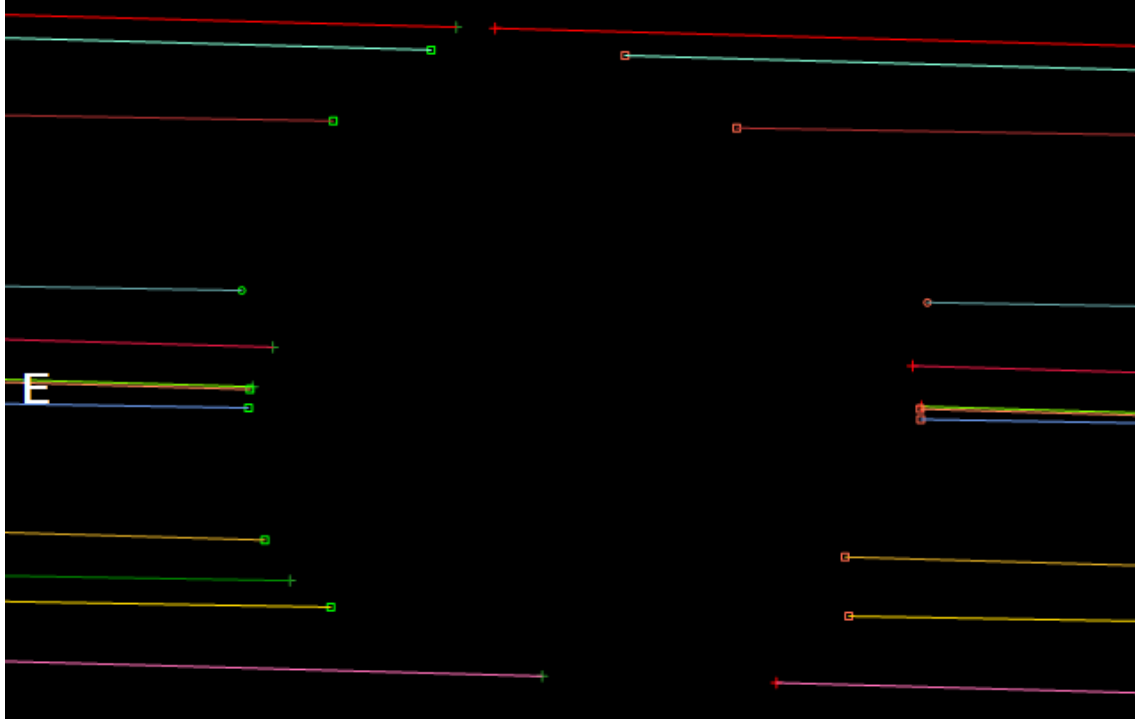
(199) Byblis 2018 Jan 2 65.0 x 40.3 ± 4.5 km, PA 327.6° ± 12.6°
Geocentric X 4539.8 ± 1.6 Y 3314.7 ± 3.2 km **N**



200_Dynamene_2006Oct09

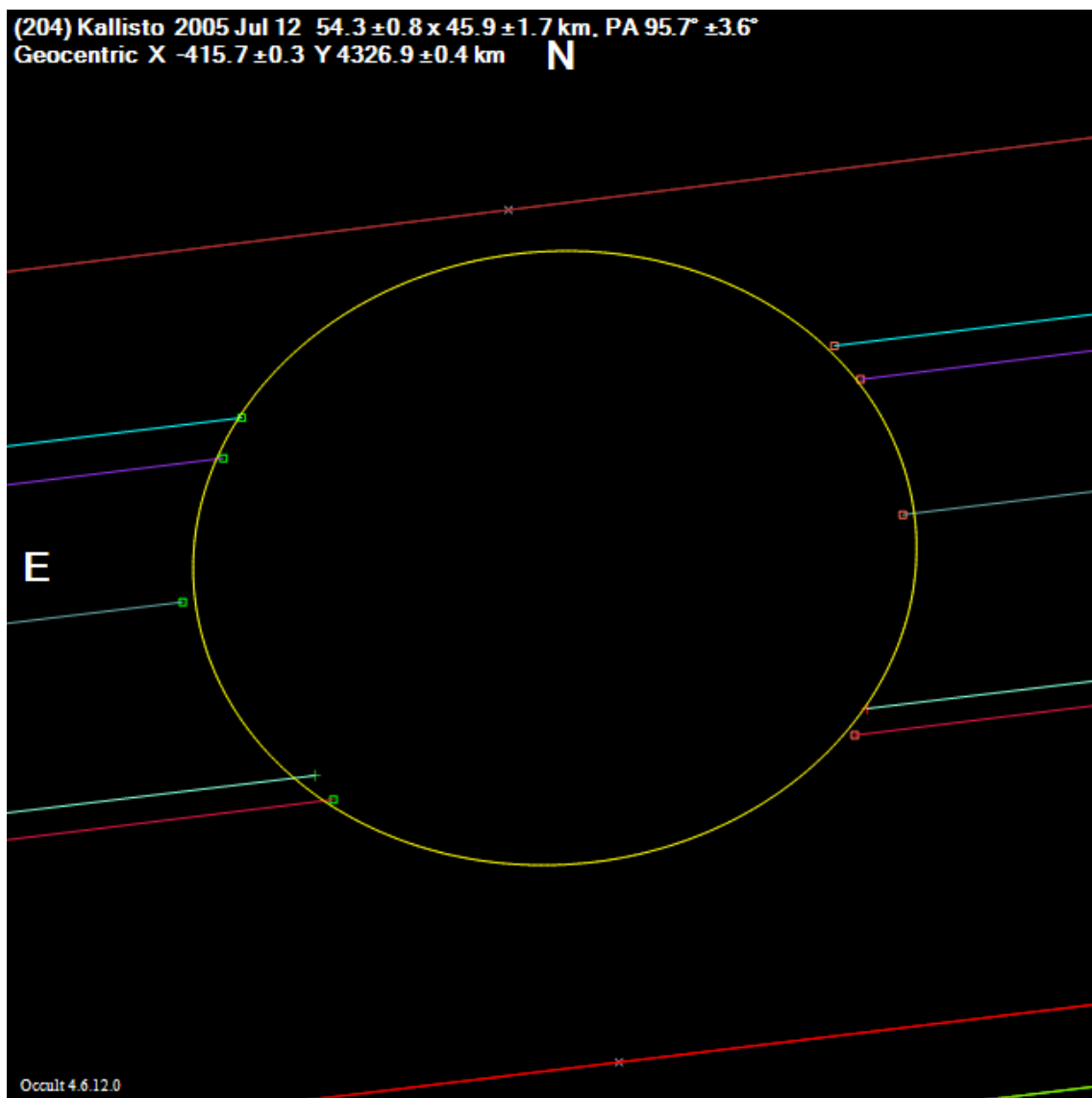
(200) Dynamene 2006 Oct 9 134.1 ± 2.8 x 124.2 ± 2.9 km. PA 46.7° ± 14.6°
Geocentric X 733.5 ± 1.0 Y 4823.2 ± 1.5 km

N



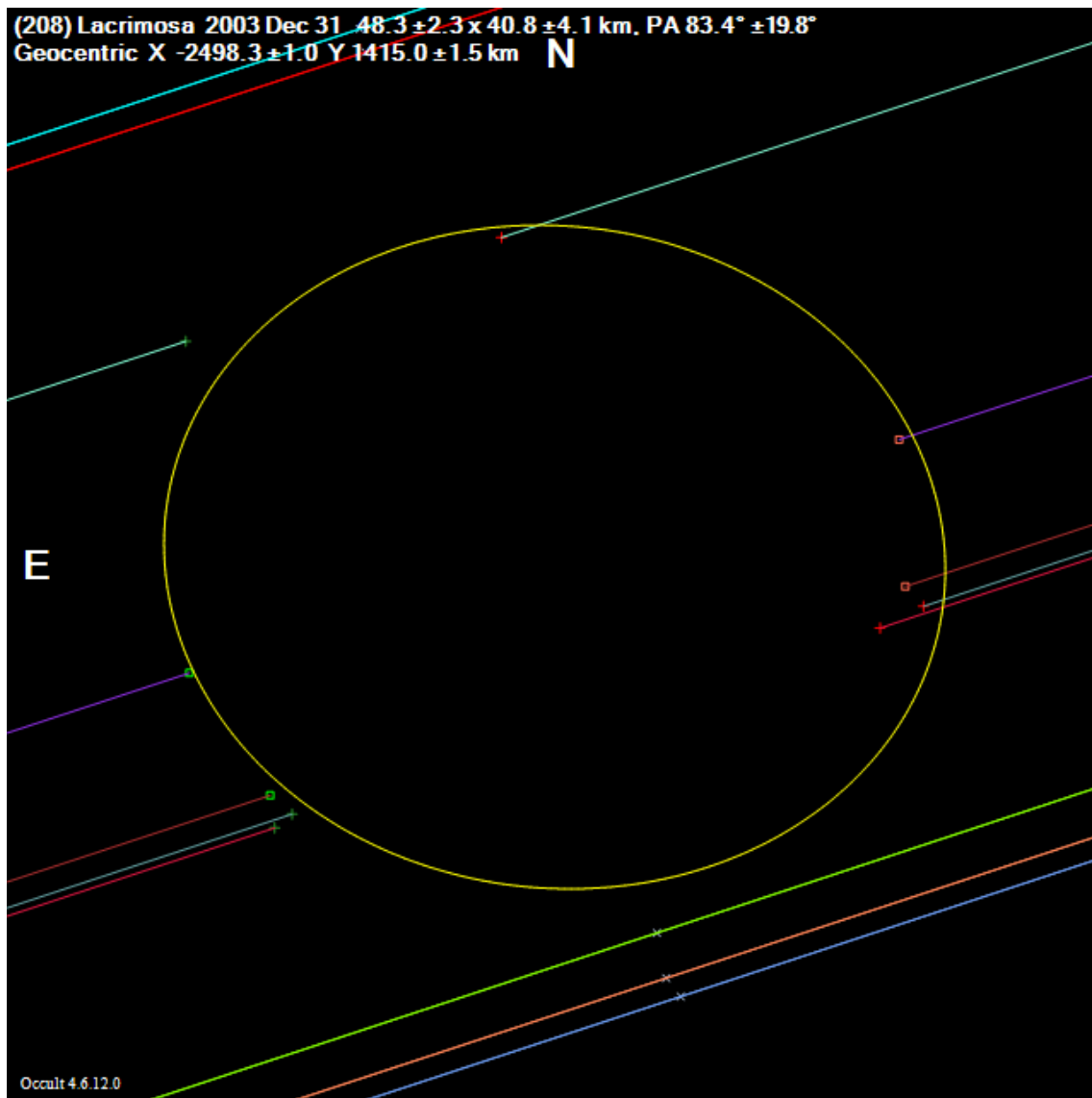
204_Kallisto_2005Jul12

(204) Kallisto 2005 Jul 12 $54.3 \pm 0.8 \times 45.9 \pm 1.7$ km, PA $95.7^\circ \pm 3.6^\circ$
Geocentric X -415.7 ± 0.3 Y 4326.9 ± 0.4 km **N**



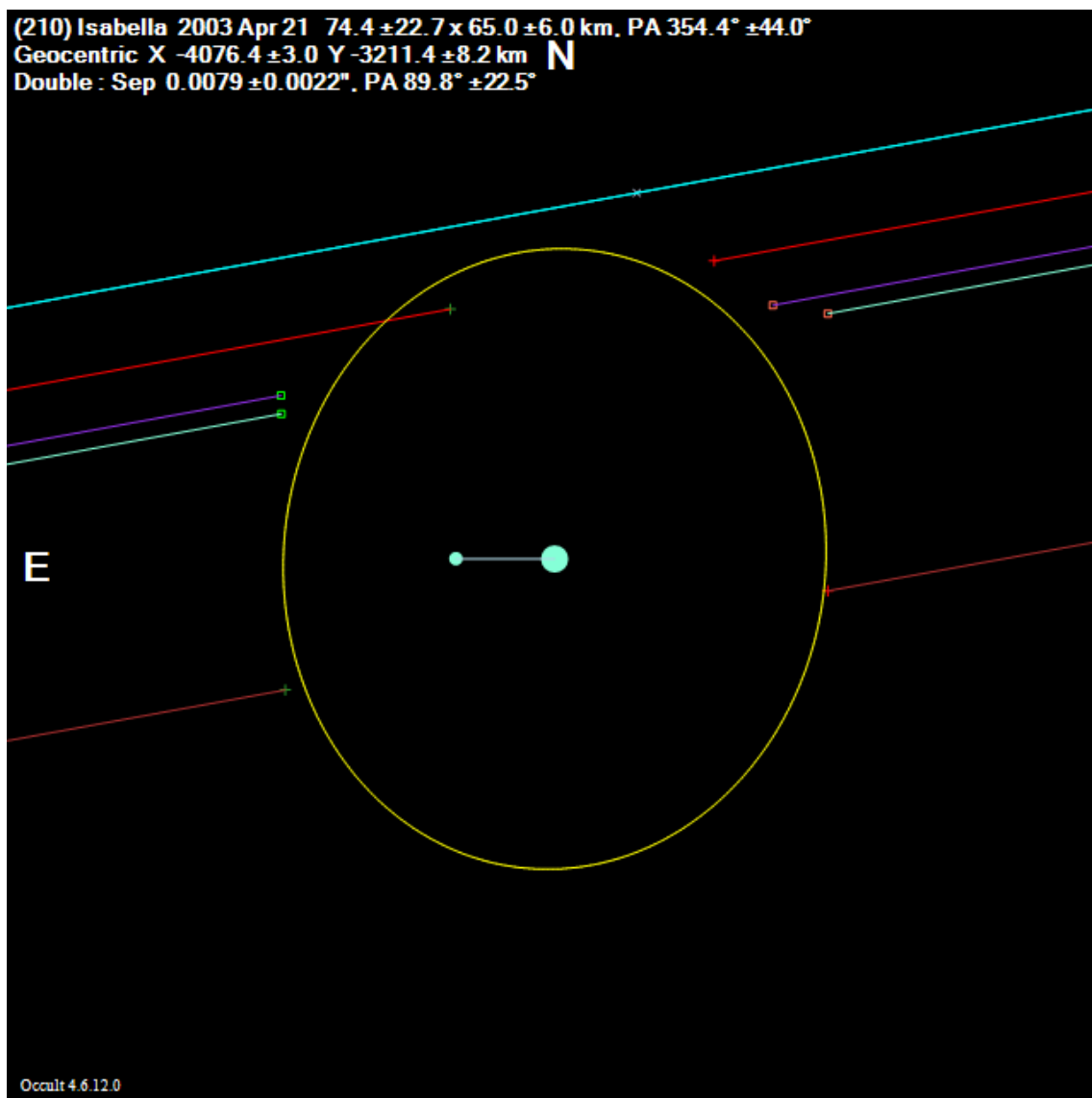
208_Lacrimosa_2003Dec31

(208) Lacrimosa 2003 Dec 31 $48.3 \pm 2.3 \times 40.8 \pm 4.1$ km, PA $83.4^\circ \pm 19.8^\circ$
Geocentric X -2498.3 ± 1.0 Y 1415.0 ± 1.5 km **N**



210_Isabella_2003Apr21

(210) Isabella 2003 Apr 21 $74.4 \pm 22.7 \times 65.0 \pm 6.0$ km. PA $354.4^\circ \pm 44.0^\circ$
Geocentric X -4076.4 ± 3.0 Y -3211.4 ± 8.2 km **N**
Double : Sep $0.0079 \pm 0.0022''$, PA $89.8^\circ \pm 22.5^\circ$



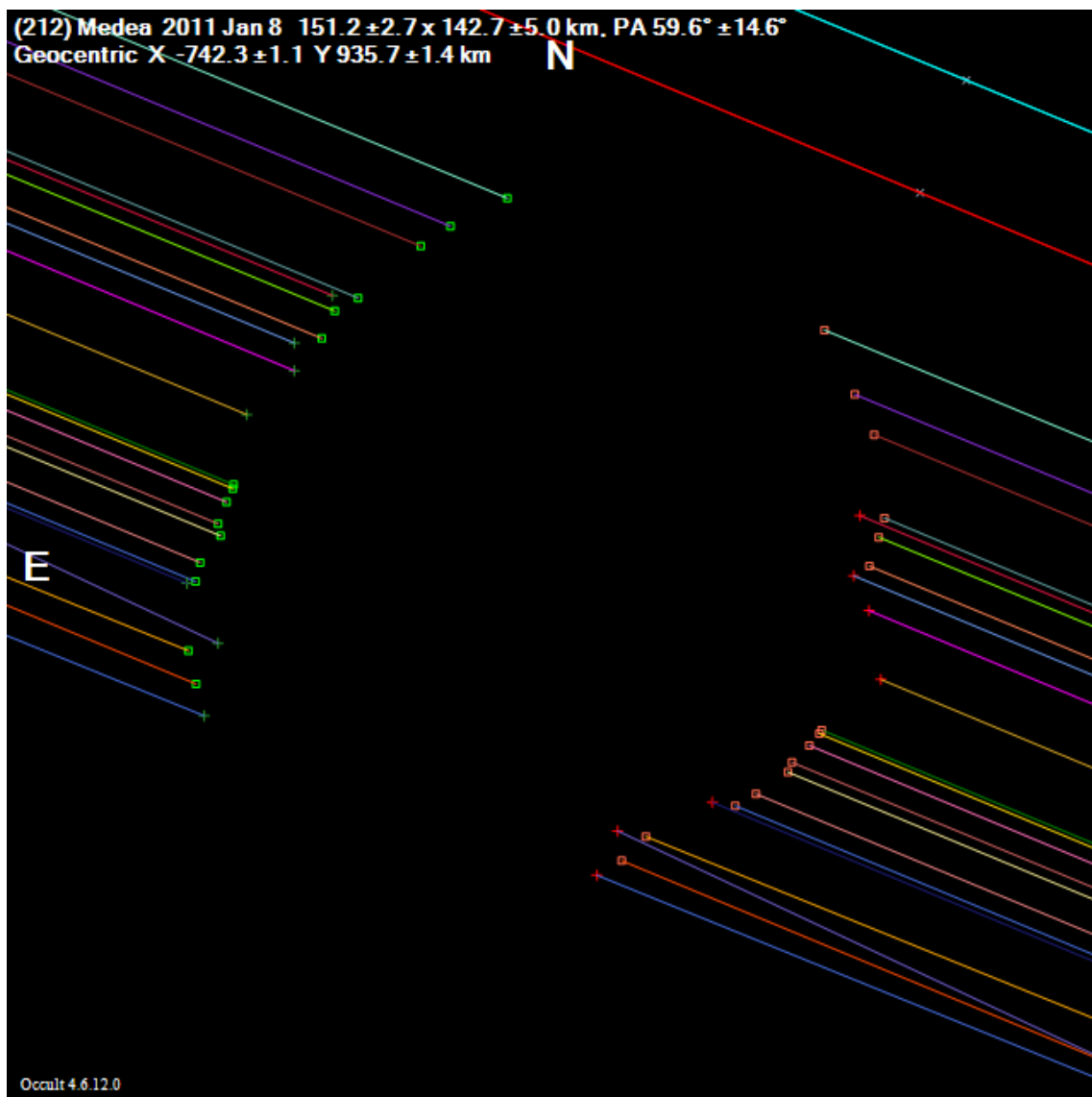
212_Medea_2011Jan08

(212) Medea 2011 Jan 8 $151.2 \pm 2.7 \times 142.7 \pm 5.0$ km. PA $59.6^\circ \pm 14.6^\circ$
Geocentric X -742.3 ± 1.1 Y 935.7 ± 1.4 km

N

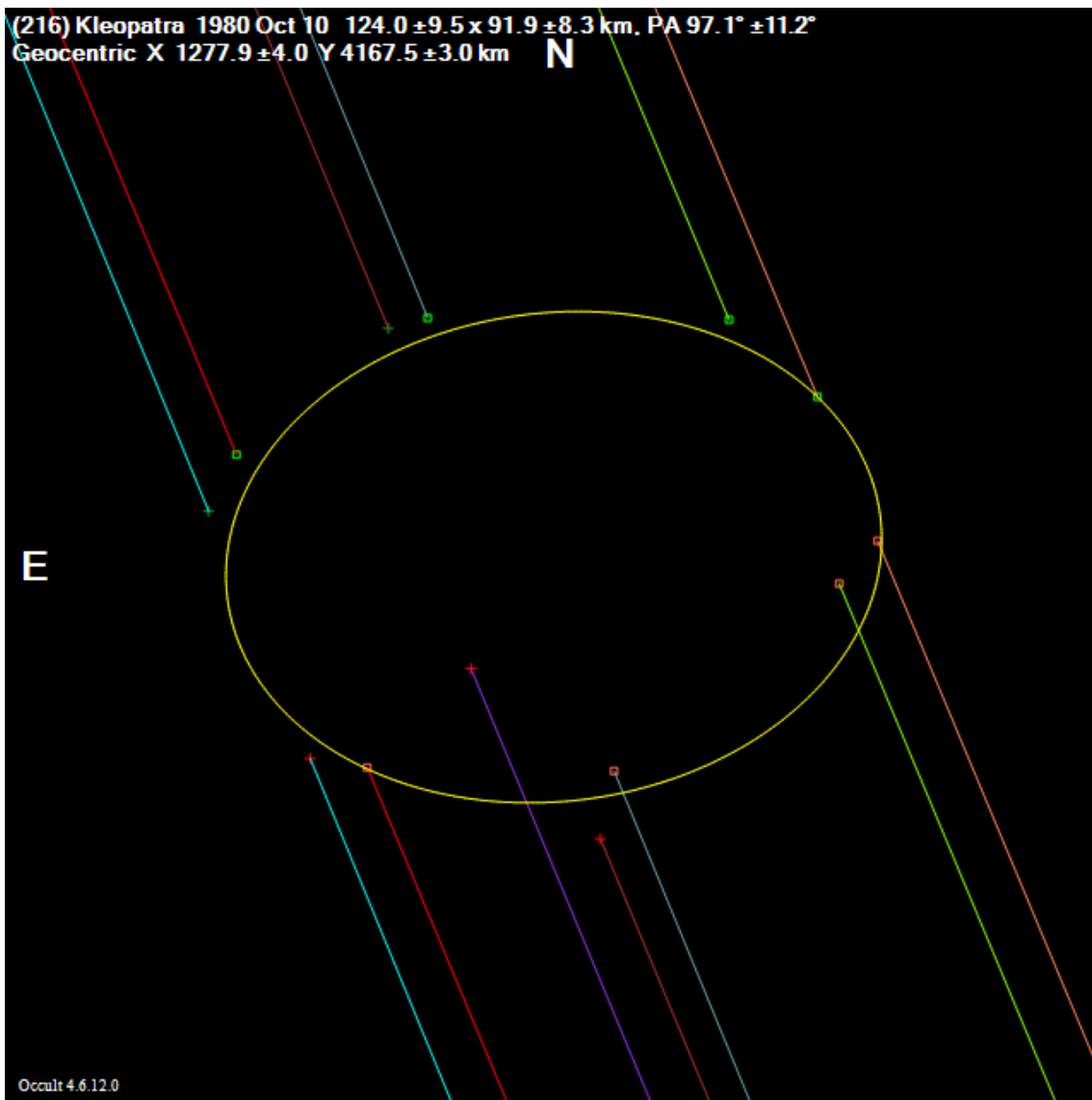
E

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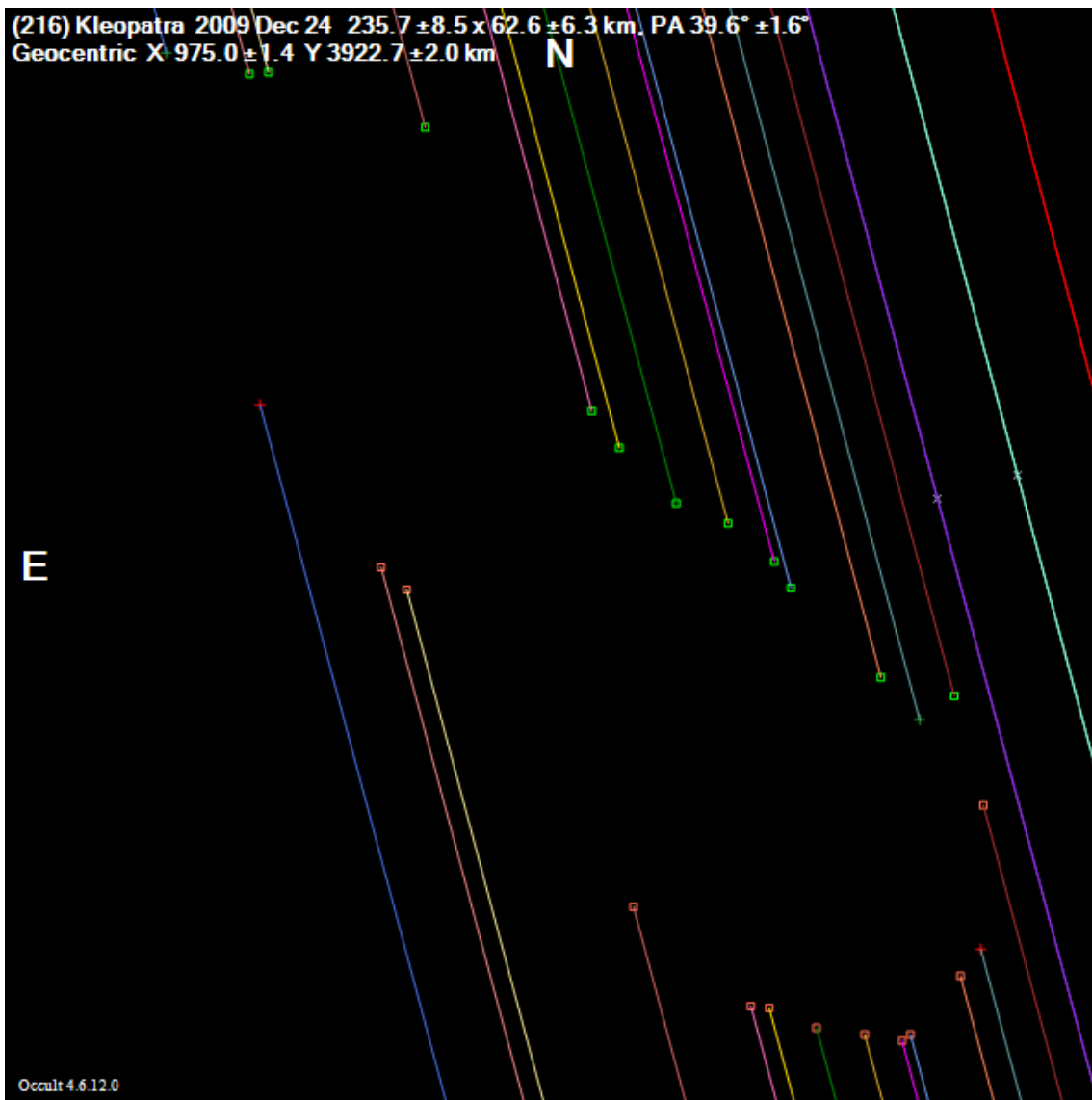
216_Kleopatra_1980Oct10

(216) Kleopatra 1980 Oct 10 $124.0 \pm 9.5 \times 91.9 \pm 8.3$ km, PA $97.1^\circ \pm 11.2^\circ$
Geocentric X 1277.9 ± 4.0 Y 4167.5 ± 3.0 km **N**



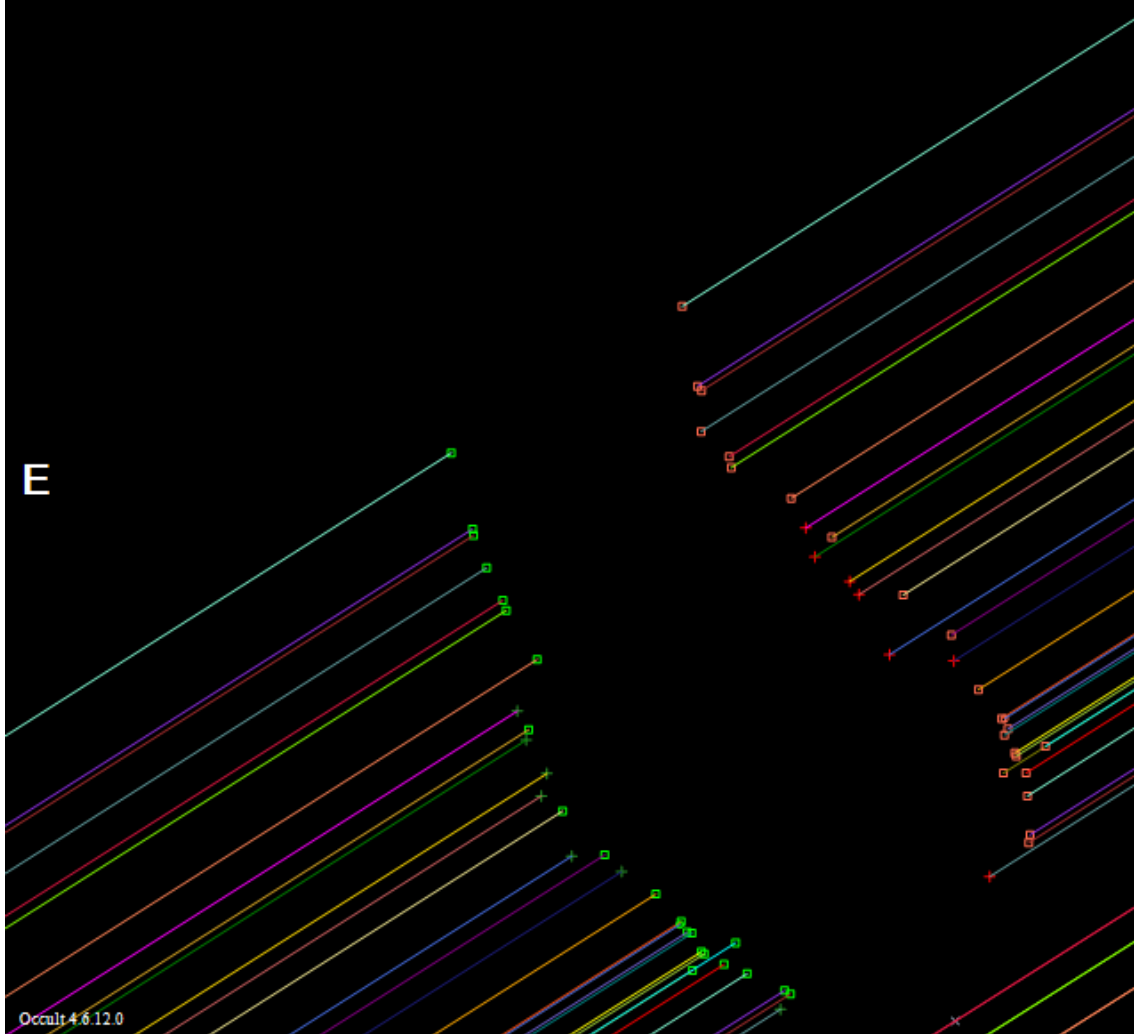
216_Kleopatra_2009Dec24

(216) Kleopatra 2009 Dec 24 $235.7 \pm 8.5 \times 62.6 \pm 6.3$ km, PA $39.6^\circ \pm 1.6^\circ$
Geocentric X 975.0 ± 1.4 Y 3922.7 ± 2.0 km



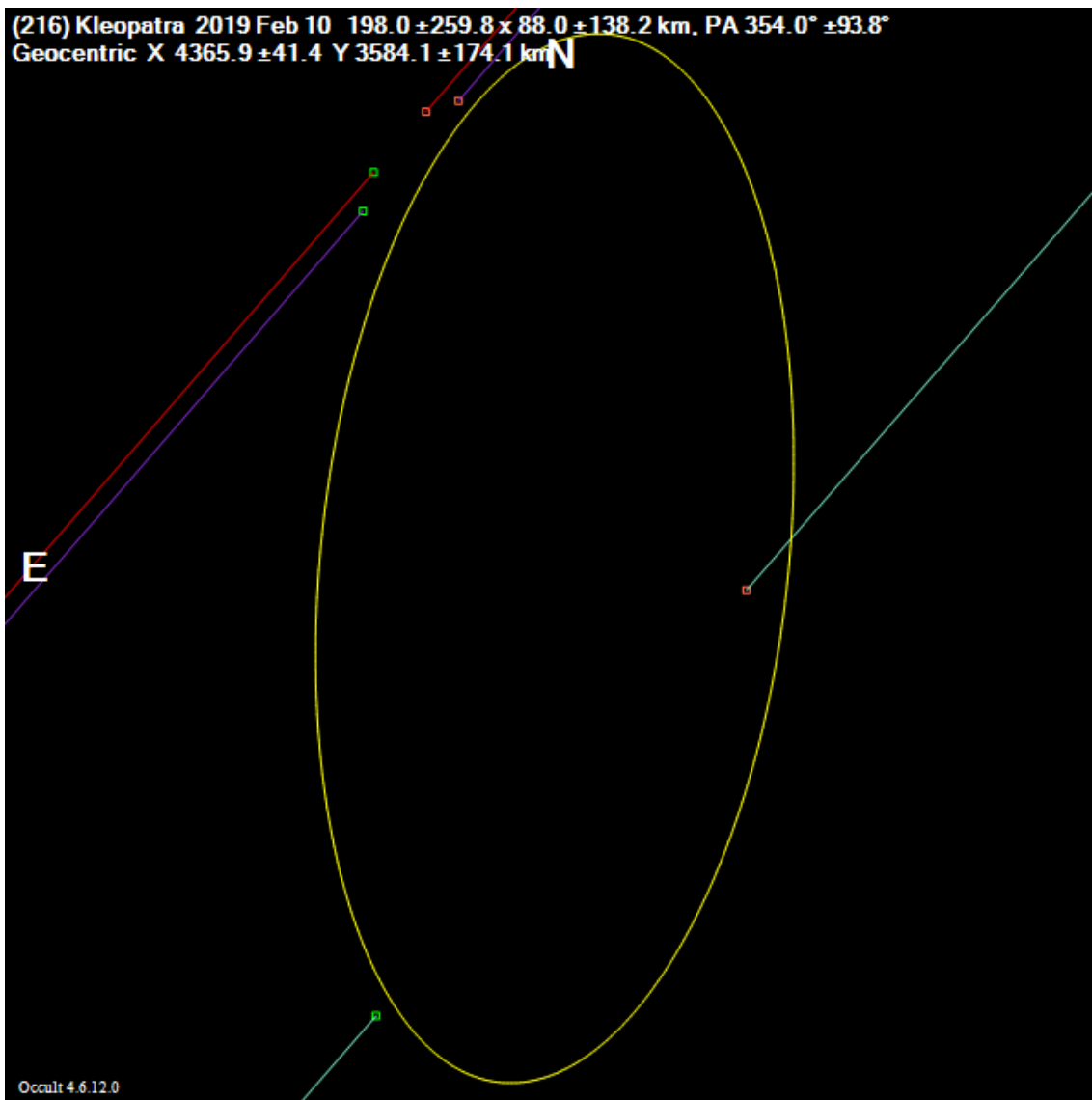
216_Kleopatra_2015Mar12

(216) Kleopatra 2015 Mar 12 $239.0 \pm 11.1 \times 58.9 \pm 4.7$ km, PA $35.9^\circ \pm 1.6^\circ$
Geocentric X 1922.6 ± 1.8 Y 5331.1 ± 1.2 km **N**



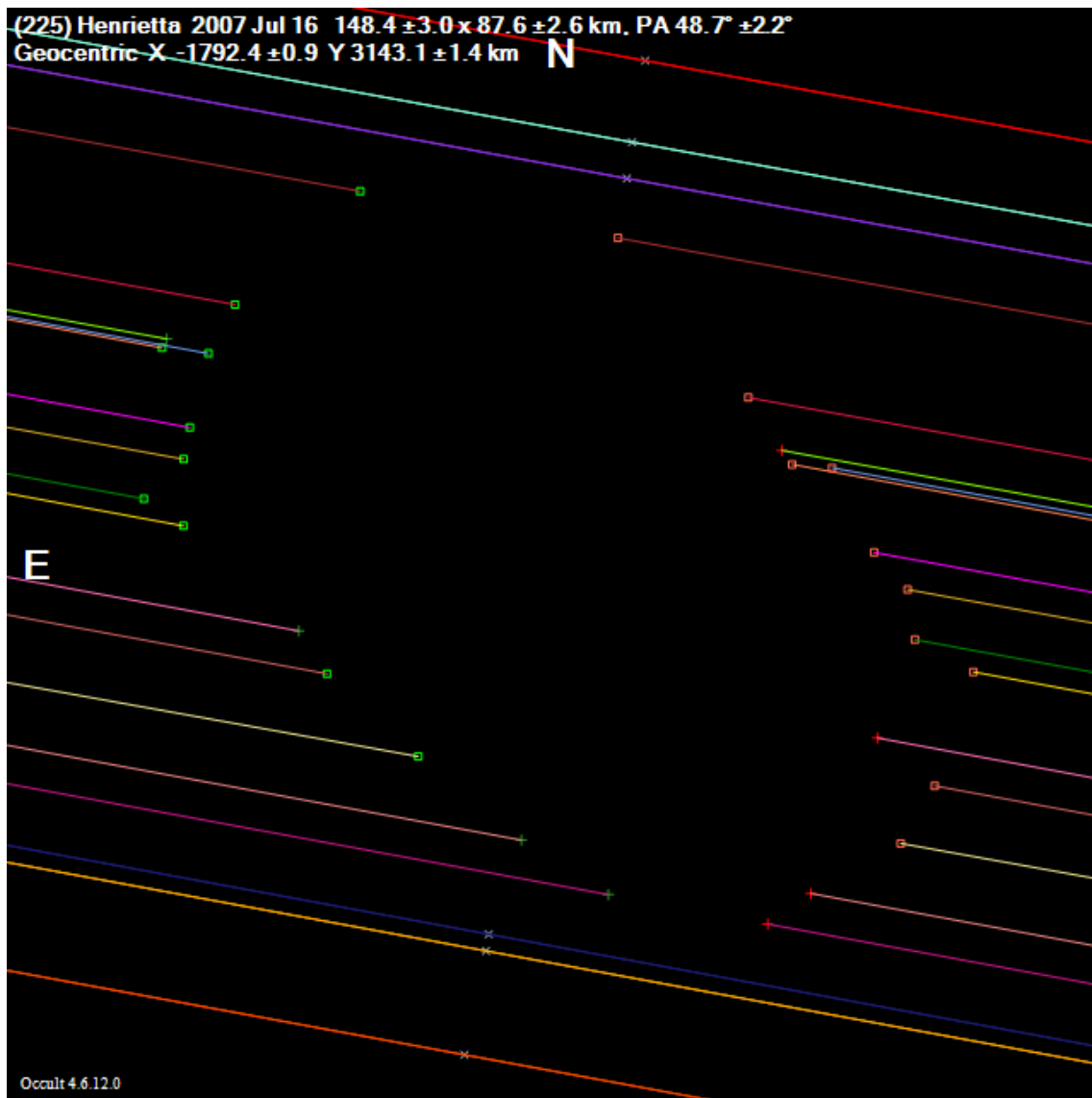
216_Kleopatra_2019Feb10

(216) Kleopatra 2019 Feb 10 $198.0 \pm 259.8 \times 88.0 \pm 138.2$ km. PA $354.0^\circ \pm 93.8^\circ$
Geocentric X 4365.9 ± 41.4 Y 3584.1 ± 174.1 km



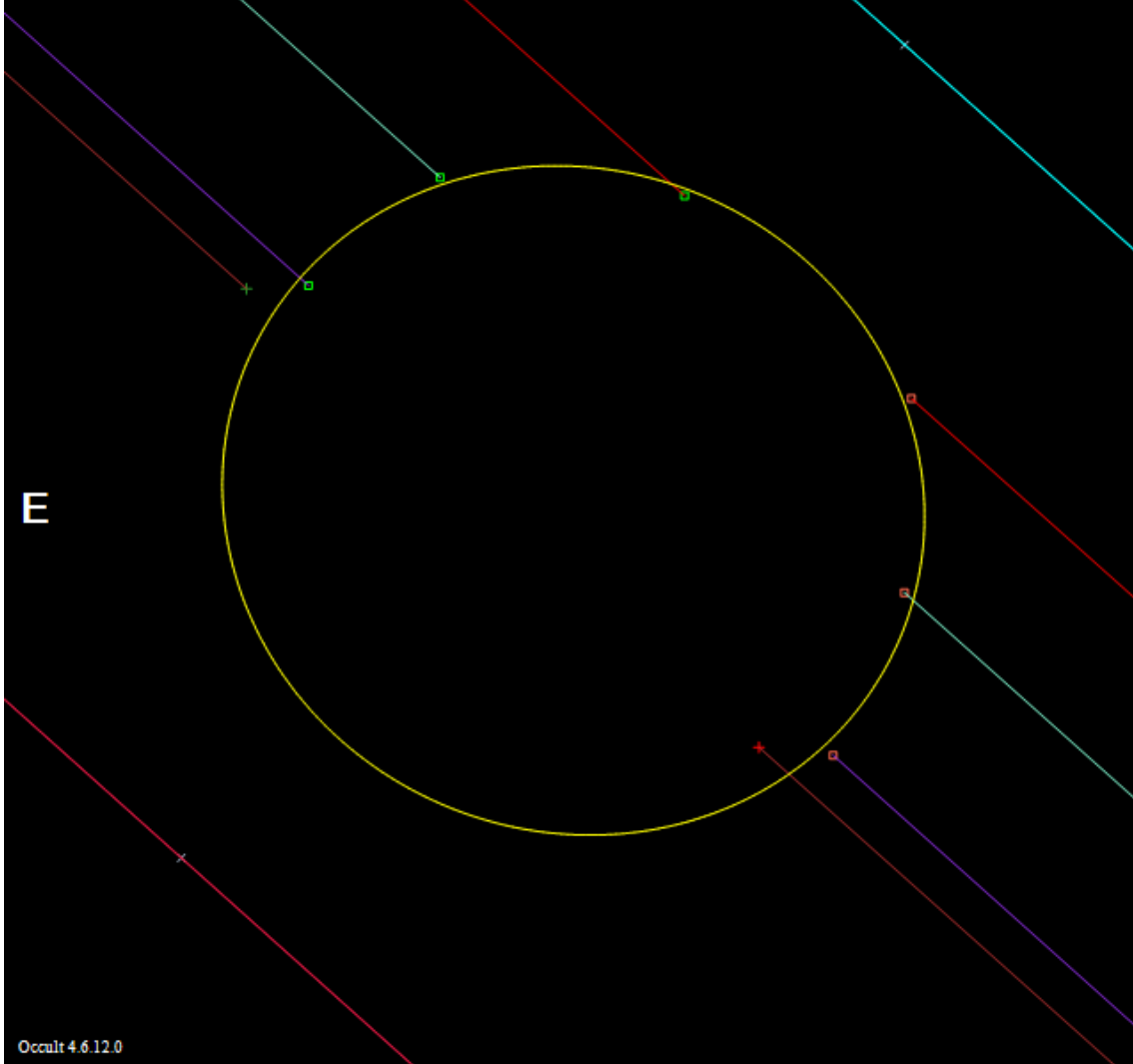
225_Henrietta_2007Jul16

(225) Henrietta 2007 Jul 16 148.4 ± 3.0 \times 87.6 ± 2.6 km, PA $48.7^\circ \pm 2.2^\circ$
Geocentric X -1792.4 ± 0.9 Y 3143.1 ± 1.4 km



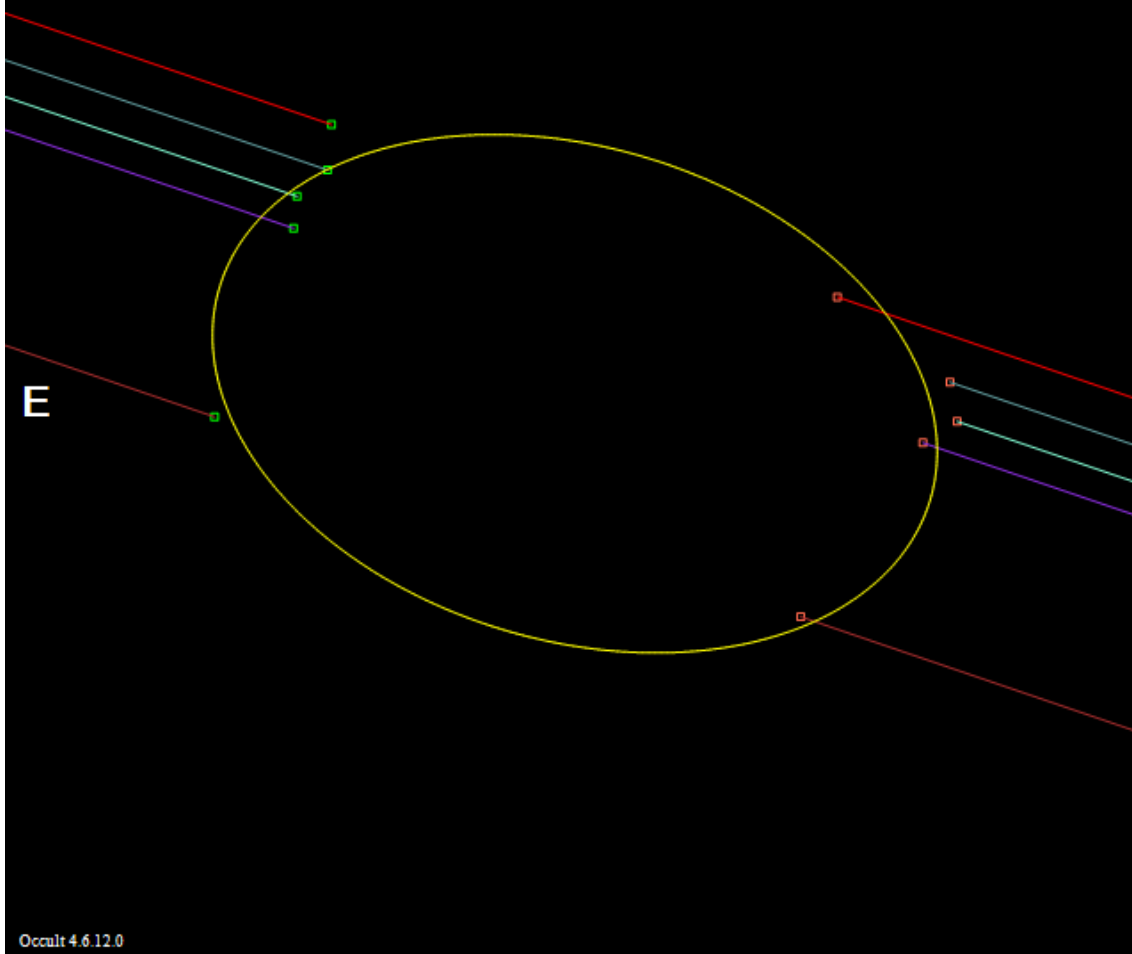
225_Henrietta_2014Oct28

(225) Henrietta 2014 Oct 28 $114.6 \pm 5.2 \times 107.0 \pm 17.4$ km, PA $67.7 \pm 58.1^\circ$
Geocentric X -1102.5 ± 6.0 Y -3576.8 ± 6.0 km **N**



229_Adelinda_2015Oct21

(229) Adelinda 2015 Oct 21 $113.3 \pm 4.3 \times 75.3 \pm 8.8$ km, PA $73.4^\circ \pm 4.4^\circ$
Geocentric X 5101.1 ± 1.7 Y 3432.6 ± 1.8 km **N**

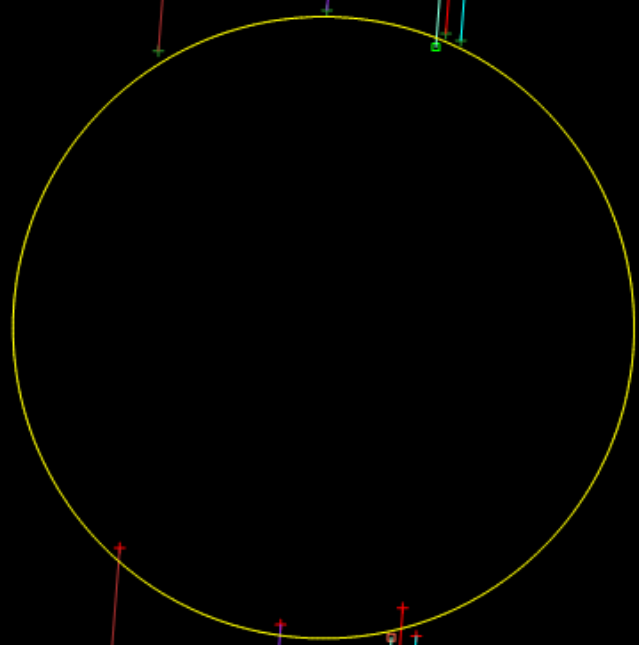


230_Athamantis_1991Jan21

(230) Athamantis 1991 Jan 21 $100.7 \pm 1.4 \times 100.7$ km, PA 0.0°
Geocentric X 1078.9 ± 1.8 Y 5104.2 ± 0.6 km **N**

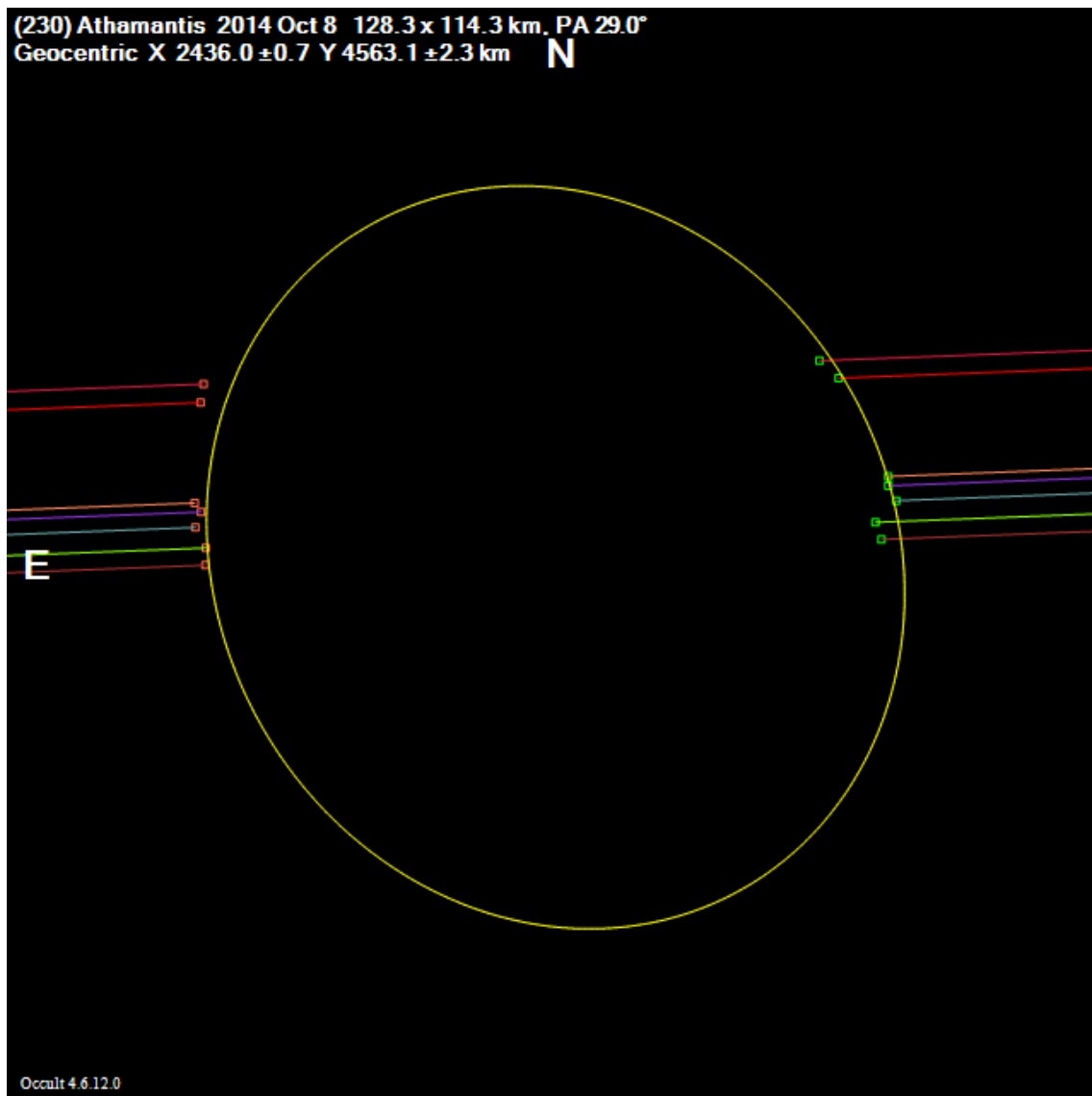
E

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230_Athamantis_2014Oct08

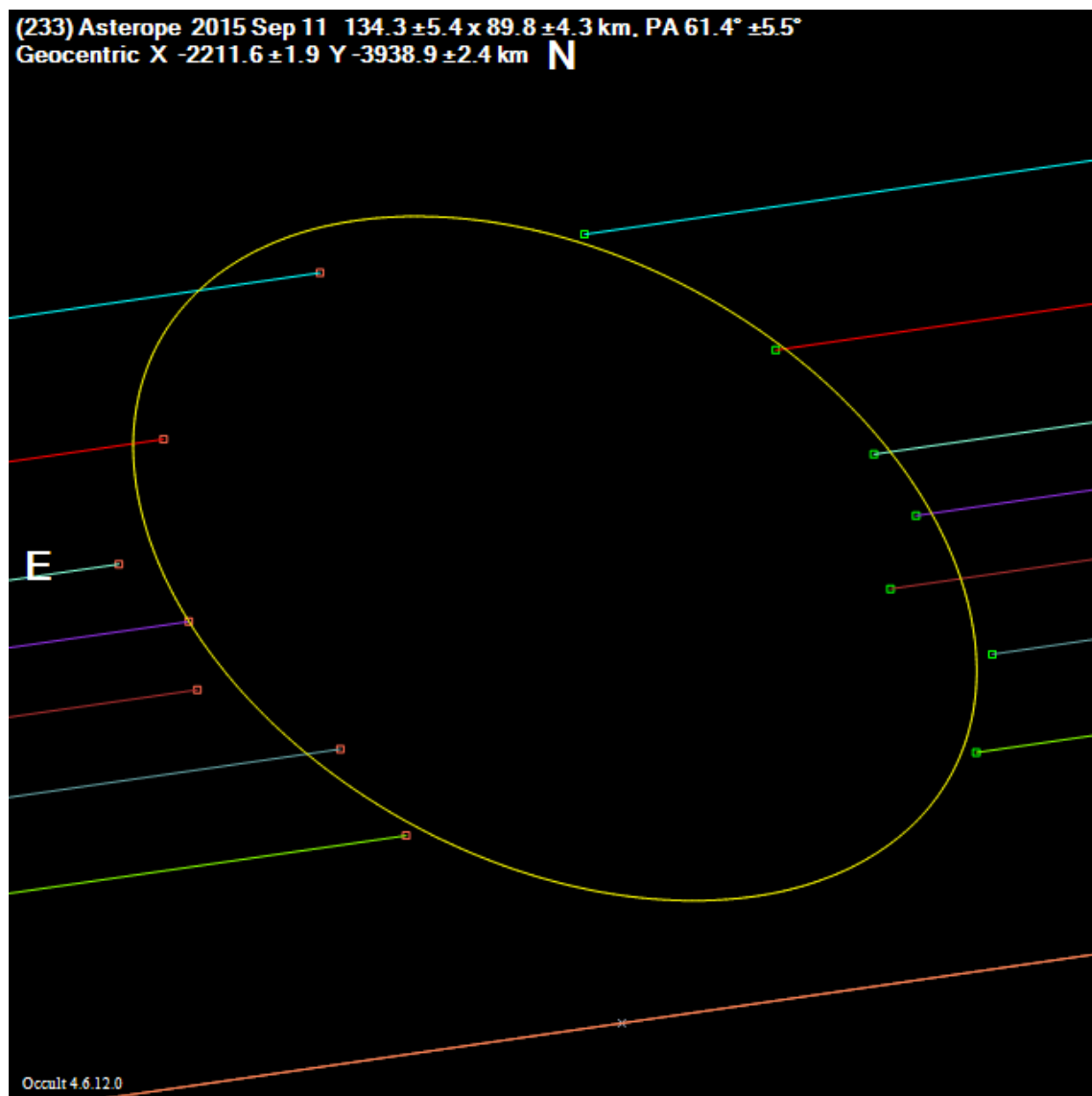
(230) Athamantis 2014 Oct 8 128.3 x 114.3 km, PA 29.0°
Geocentric X 2436.0 ± 0.7 Y 4563.1 ± 2.3 km **N**



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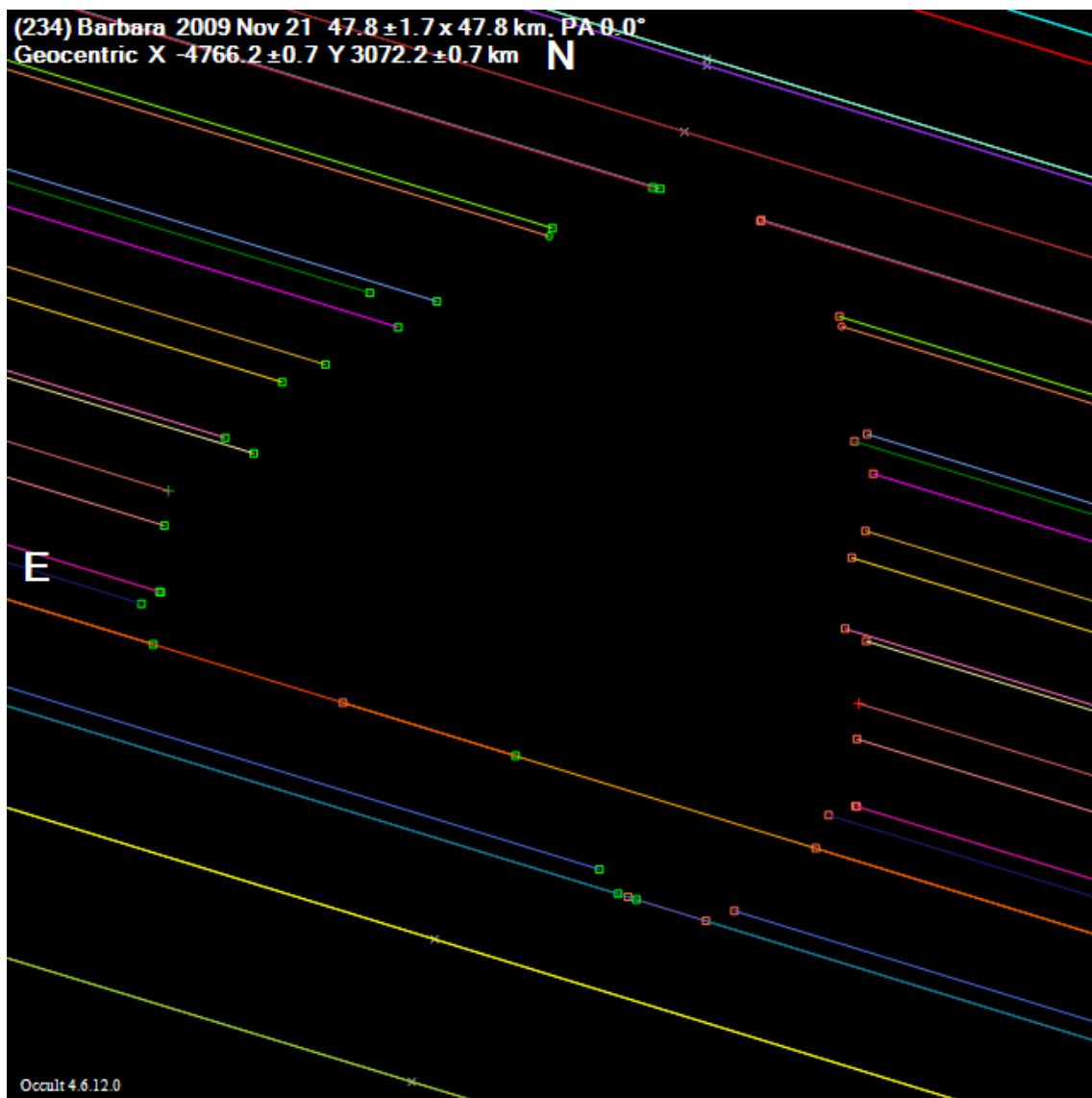
233_Asterope_2015Sep11

(233) Asterope 2015 Sep 11 $134.3 \pm 5.4 \times 89.8 \pm 4.3$ km. PA $61.4^\circ \pm 5.5^\circ$
Geocentric X -2211.6 ± 1.9 Y -3938.9 ± 2.4 km **N**



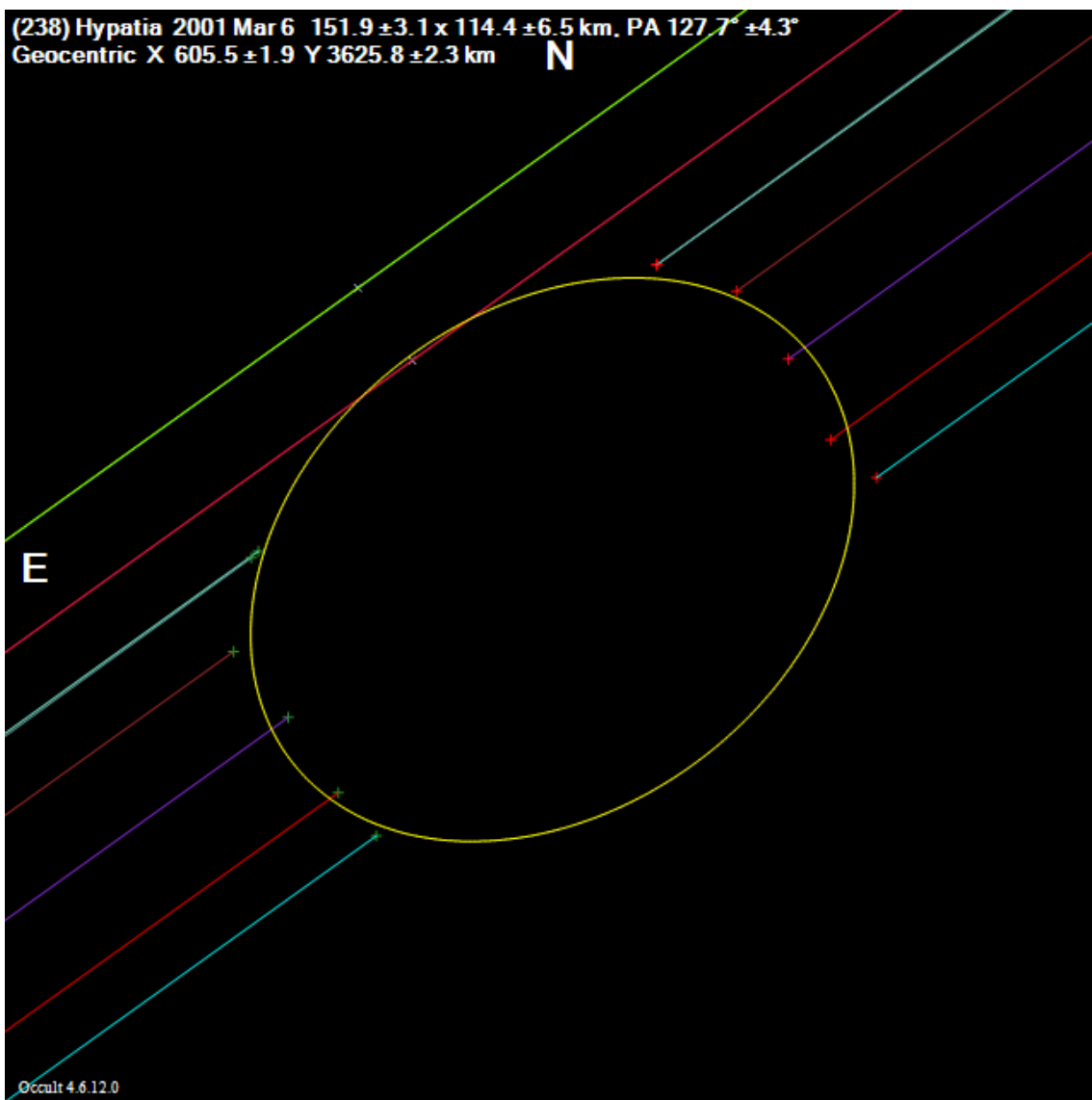
234_Barbara_2009Nov21

(234) Barbara 2009 Nov 21 $47.8 \pm 1.7 \times 47.8$ km. PA 0.0°
Geocentric X -4766.2 ± 0.7 Y 3072.2 ± 0.7 km **N**



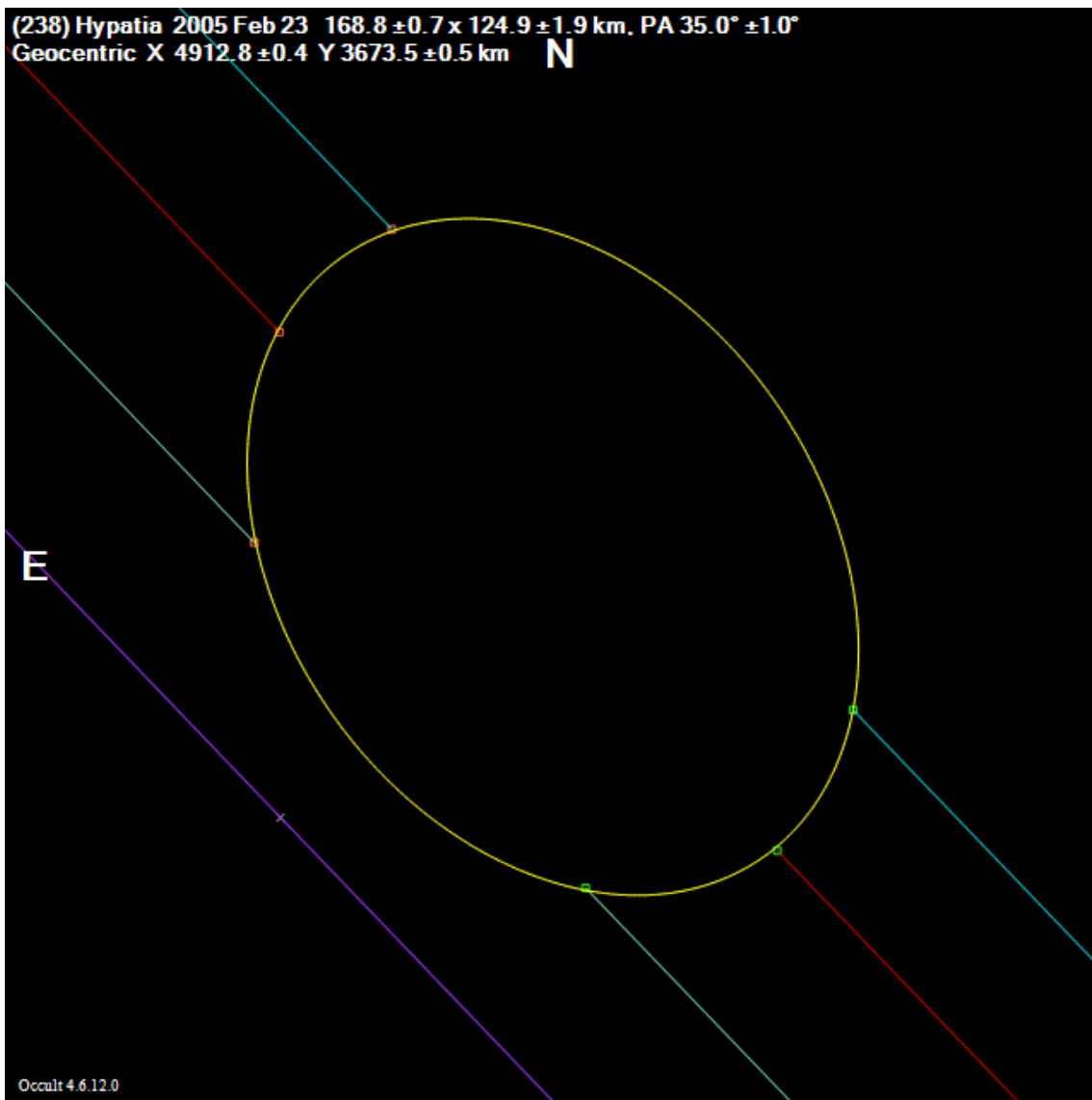
238_Hypatia_2001Mar06

(238) Hypatia 2001 Mar 6 $151.9 \pm 3.1 \times 114.4 \pm 6.5$ km. PA $127.7^\circ \pm 4.3^\circ$
Geocentric X 605.5 ± 1.9 Y 3625.8 ± 2.3 km **N**



238_Hypatia_2005Feb23

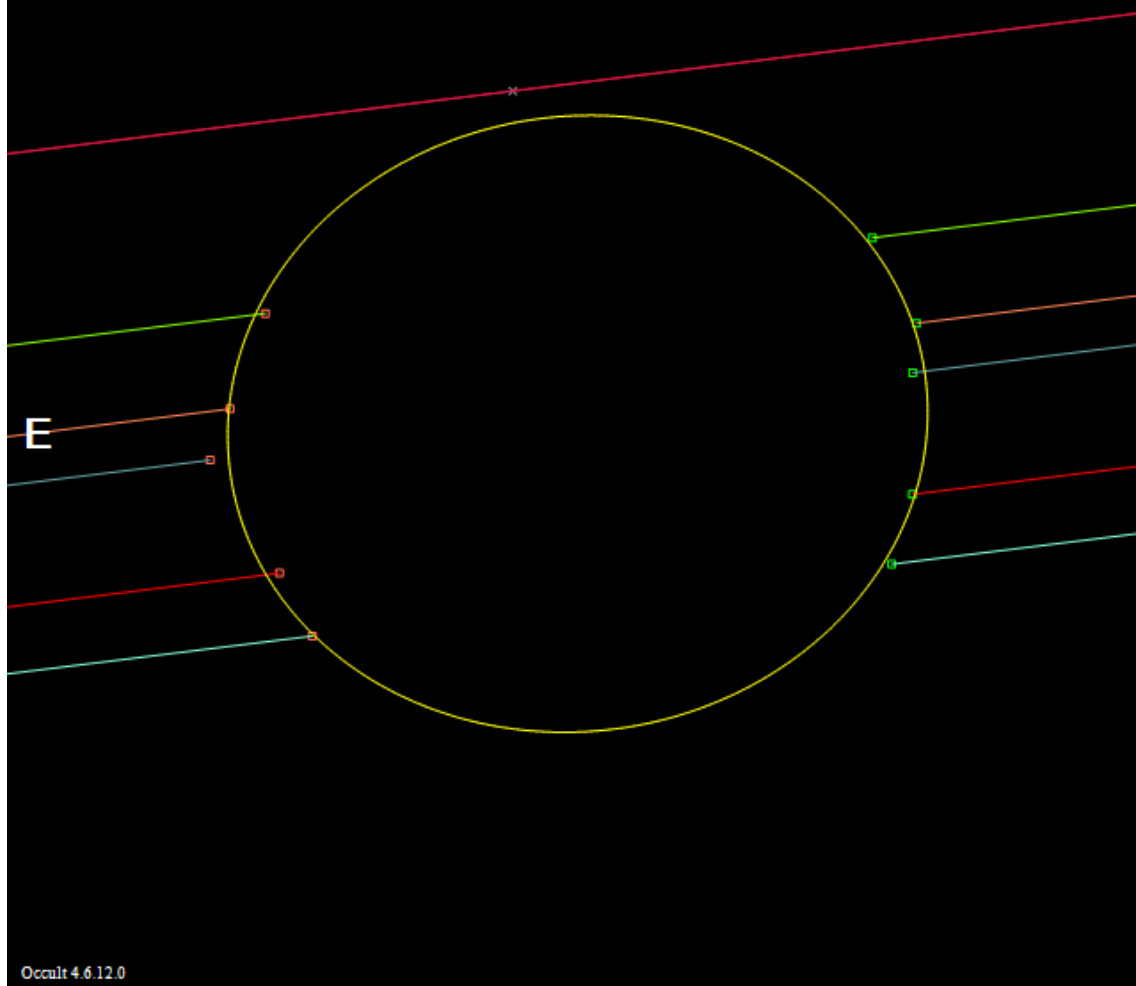
(238) Hypatia 2005 Feb 23 $168.8 \pm 0.7 \times 124.9 \pm 1.9$ km. PA $35.0^\circ \pm 1.0^\circ$
Geocentric X 4912.8 ± 0.4 Y 3673.5 ± 0.5 km **N**



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241_Germania_2014Apr18

(241) Germania 2014 Apr 18 $181.5 \pm 2.4 \times 158.9 \pm 10.4$ km. PA $98.3^\circ \pm 5.6^\circ$
Geocentric X 3551.5 ± 0.8 Y 4055.3 ± 1.9 km **N**



247_Eukrate_2015Oct22

(247) Eukrate 2015 Oct 22 $157.9 \pm 31.8 \times 133.1 \pm 6.8$ km, PA $126.5^\circ \pm 26.5^\circ$
Geocentric X -3921.9 ± 7.9 Y -158.6 ± 11.3 km **N**



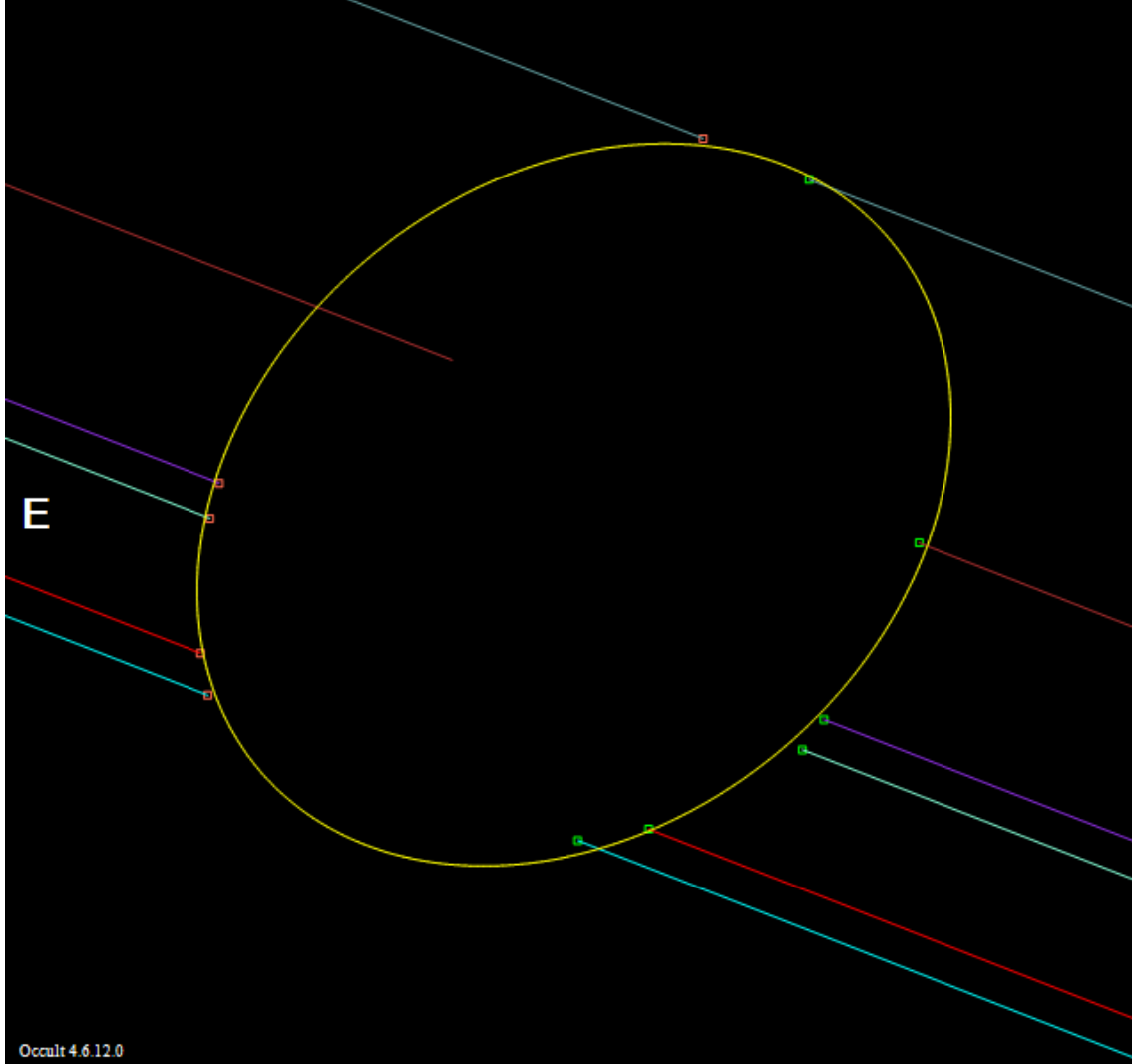
247_Eukrate_2018May12

(247) Eukrate 2018 May 12 $142.4 \pm 6.0 \times 140.7 \pm 6.1$ km, PA 80.0°
Geocentric X 3911.3 ± 2.7 Y 1226.3 ± 2.5 km **N**



247_Eukrate_2018Oct01

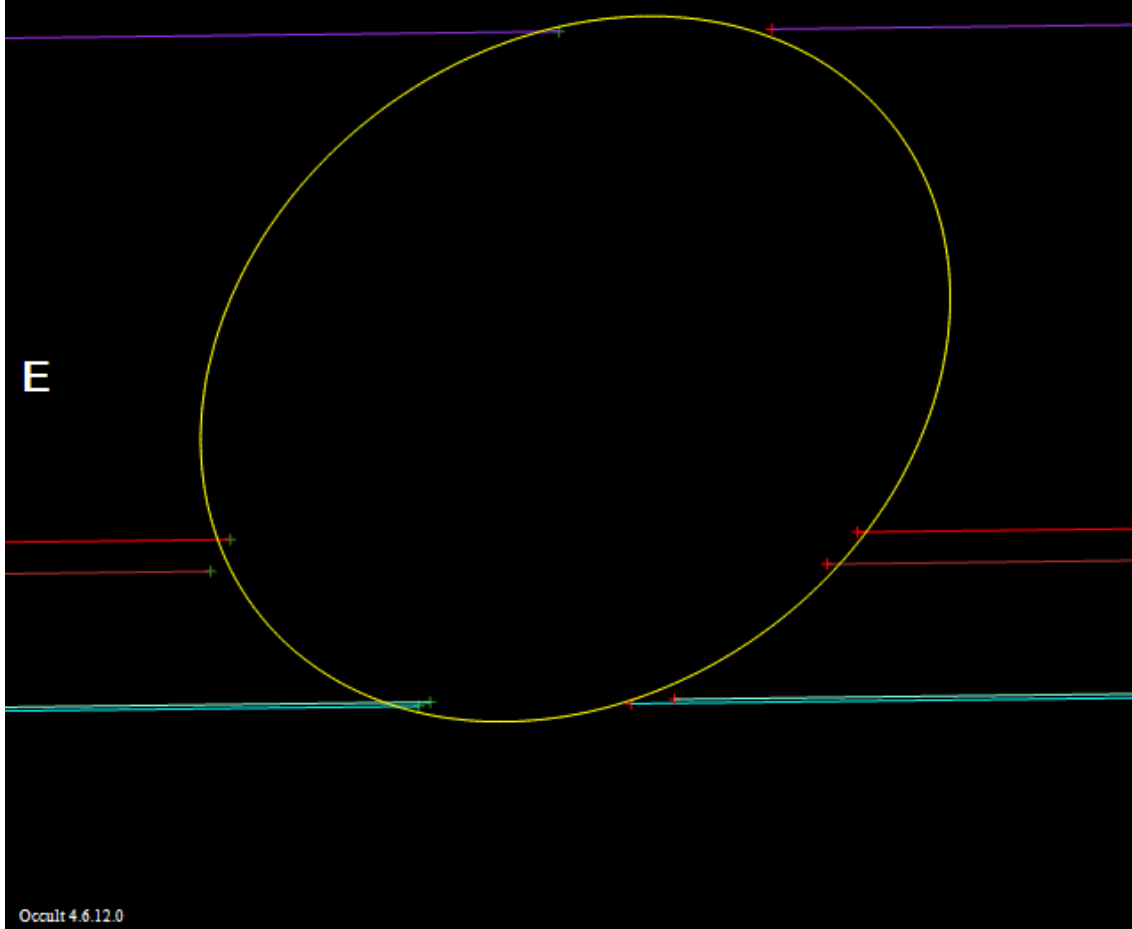
(247) Eukrate 2018 Oct 1 $172.4 \pm 2.6 \times 134.3 \pm 2.3$ km. PA $129.9^\circ \pm 2.3^\circ$
Geocentric X 4531.8 ± 0.9 Y -237.0 ± 1.0 km **N**



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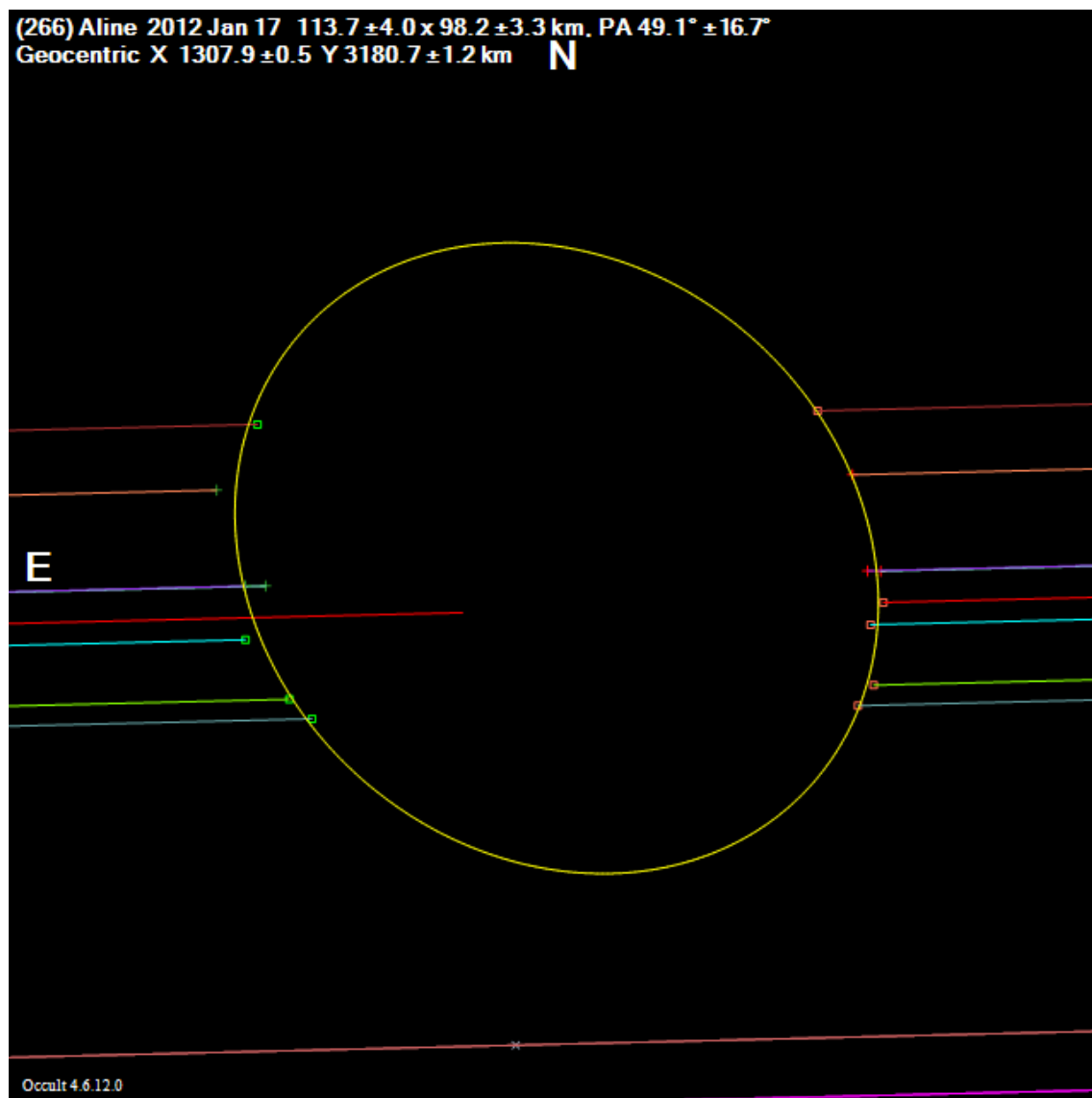
248_Lameia_1998Jun27

(248) Lameia 1998 Jun 27 $60.0 \pm 1.4 \times 48.5 \pm 1.2$ km. PA $126.5^\circ \pm 4.1^\circ$
Geocentric X -3646.0 ± 0.7 Y -1445.1 ± 0.4 km **N**



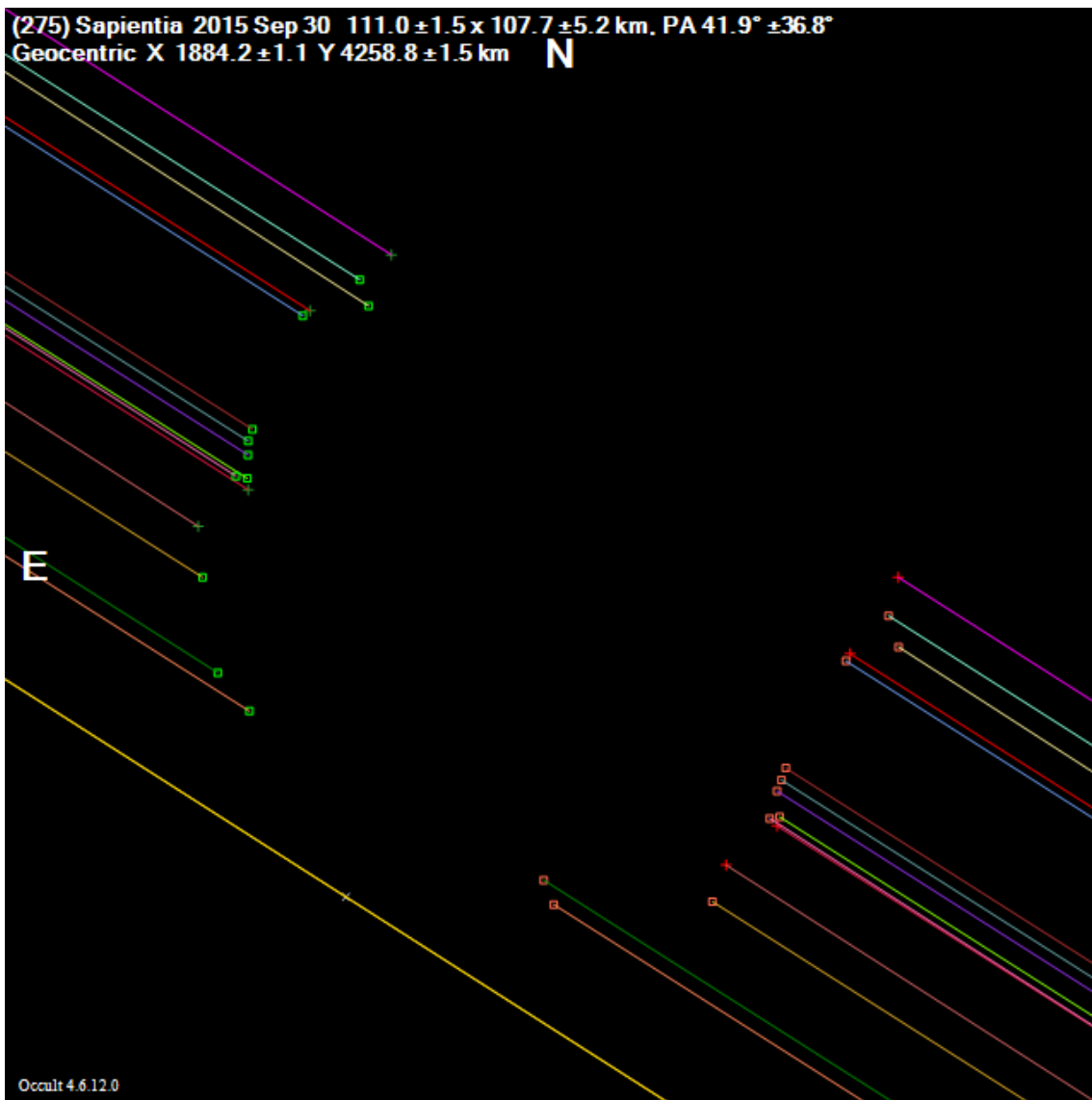
266_Aline_2012Jan17

(266) Aline 2012 Jan 17 $113.7 \pm 4.0 \times 98.2 \pm 3.3$ km. PA $49.1^\circ \pm 16.7^\circ$
Geocentric X 1307.9 ± 0.5 Y 3180.7 ± 1.2 km **N**



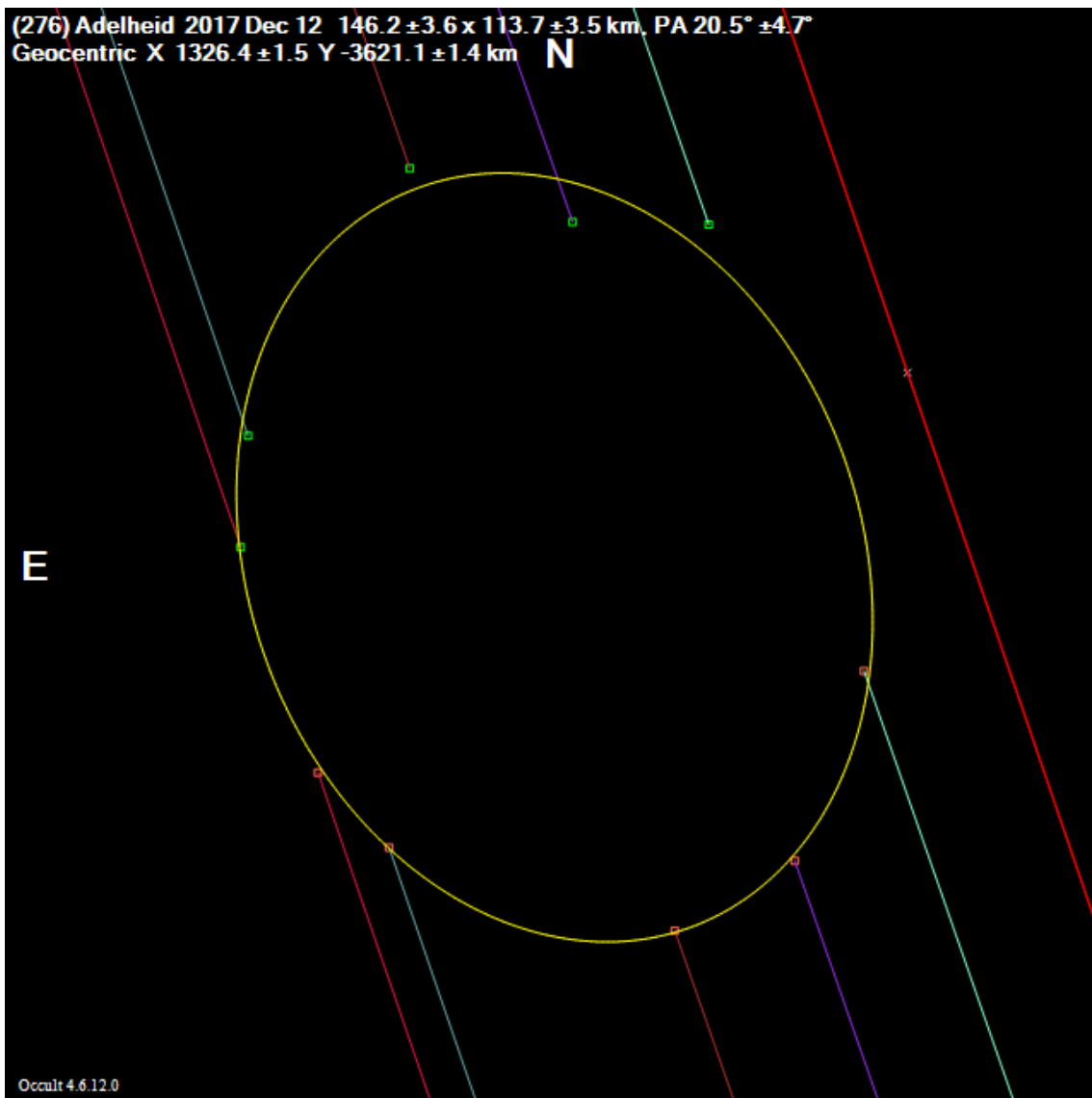
275_Sapientia_2015Sep30

(275) Sapientia 2015 Sep 30 $111.0 \pm 1.5 \times 107.7 \pm 5.2$ km, PA $41.9^\circ \pm 36.8^\circ$
Geocentric X 1884.2 ± 1.1 Y 4258.8 ± 1.5 km **N**



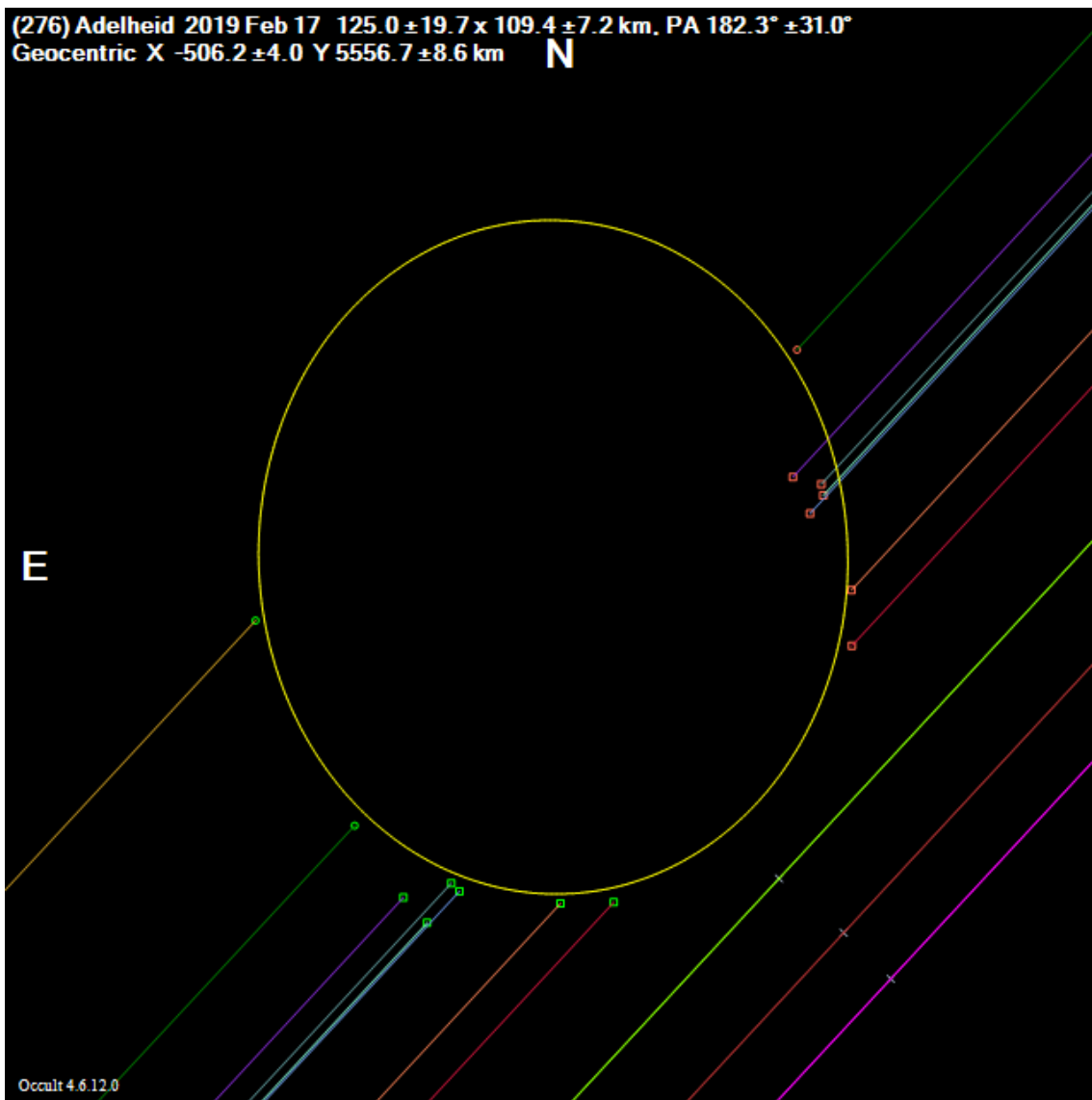
276_Adelheid_2017Dec12

(276) Adelheid 2017 Dec 12 $146.2 \pm 3.6 \times 113.7 \pm 3.5$ km, PA $20.5^\circ \pm 4.7^\circ$
Geocentric X 1326.4 ± 1.5 Y -3621.1 ± 1.4 km **N**



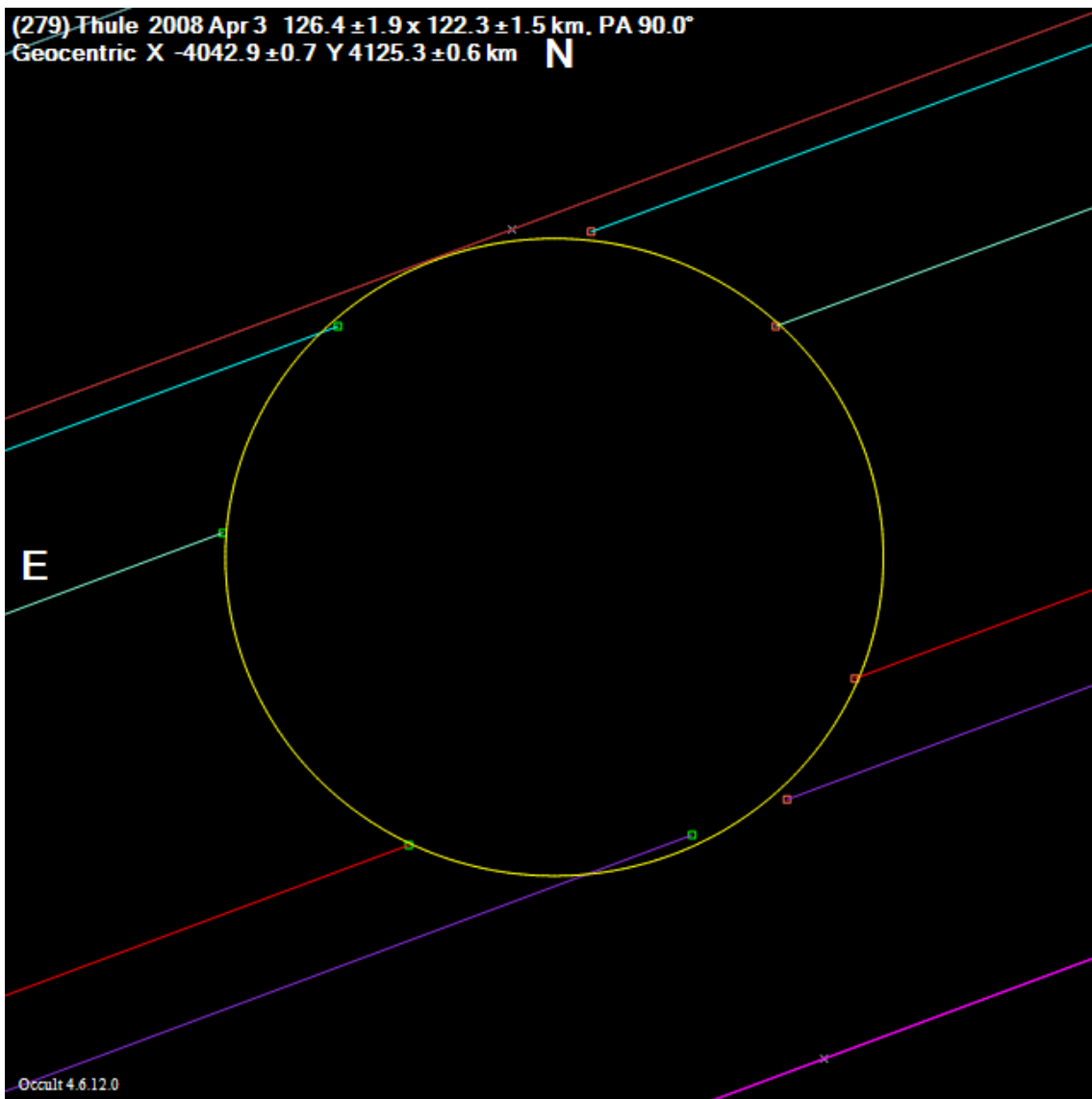
276_Adelheid_2019Feb17

(276) Adelheid 2019 Feb 17 125.0 ± 19.7 x 109.4 ± 7.2 km, PA 182.3° ± 31.0°
Geocentric X -506.2 ± 4.0 Y 5556.7 ± 8.6 km **N**



279_Thule_2008Apr03

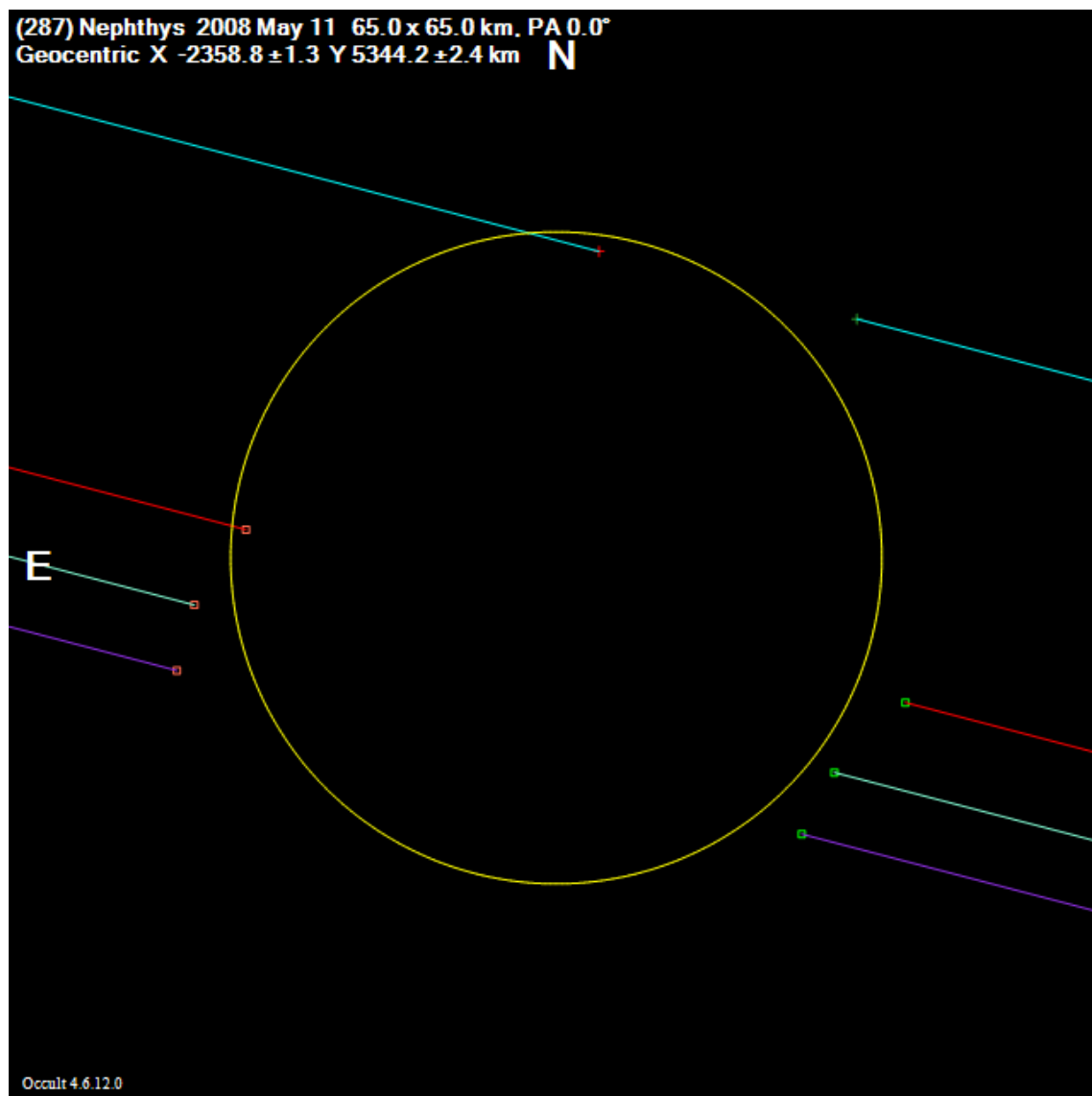
(279)Thule 2008 Apr 3 $126.4 \pm 1.9 \times 122.3 \pm 1.5$ km. PA 90.0°
Geocentric X -4042.9 ± 0.7 Y 4125.3 ± 0.6 km **N**



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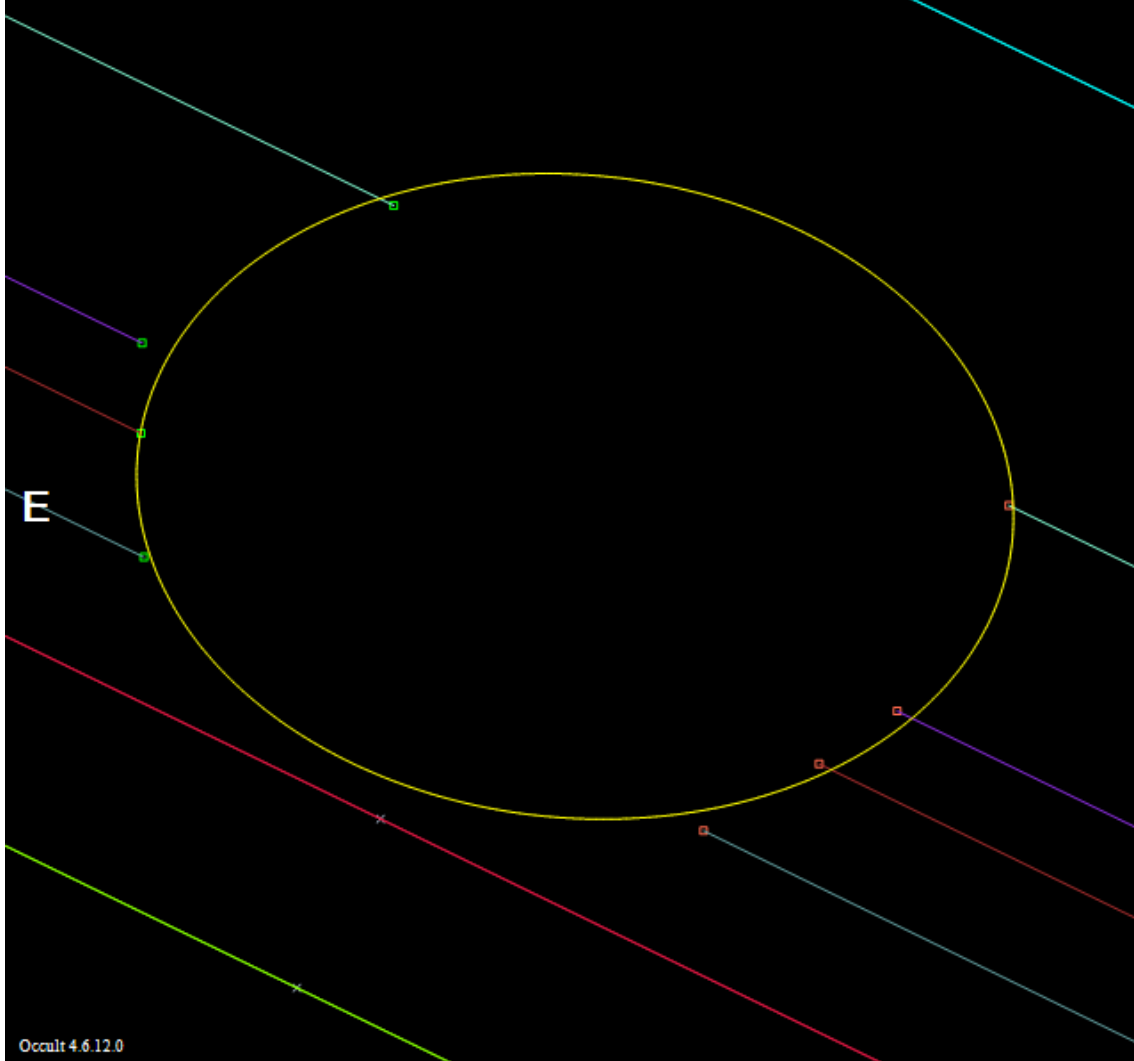
287_Nepthys_2008May11

(287) Nephthys 2008 May 11 65.0 x 65.0 km. PA 0.0°
Geocentric X -2358.8 ± 1.3 Y 5344.2 ± 2.4 km **N**



306_Unitas_2004Jul06

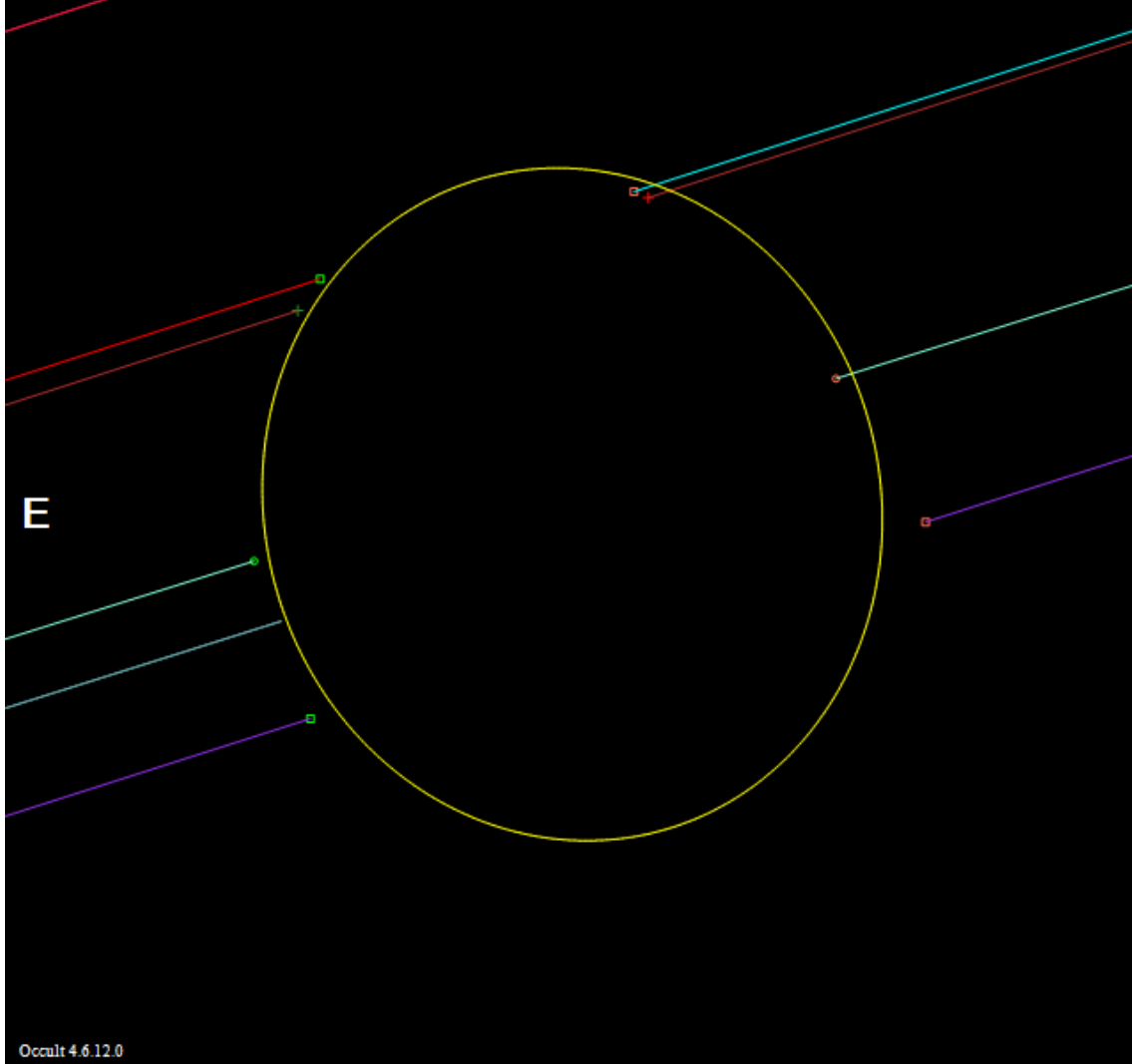
(306) Uitas 2004 Jul 6 $60.5 \pm 1.1 \times 44.2 \pm 2.4$ km, PA $84.2^\circ \pm 5.9^\circ$
Geocentric X 2358.1 ± 0.5 Y 4597.3 ± 0.6 km **N**



308_Polyxo_2000Jan10

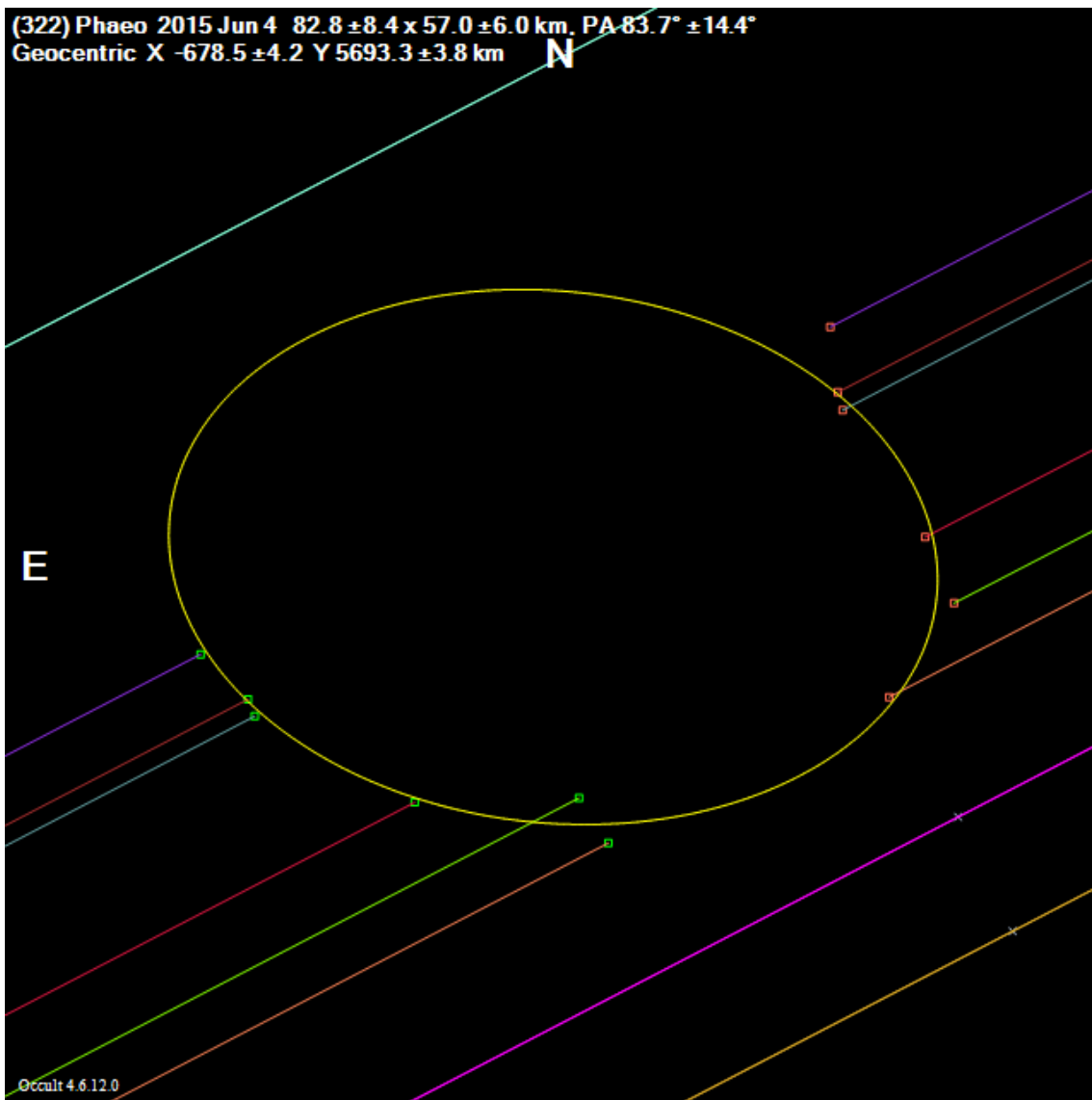
(308) Polyxo 2000 Jan 10 134.7 x 122.7 km, PA 15.0°
Geocentric X -4223.4 Y 3278.5 km

N



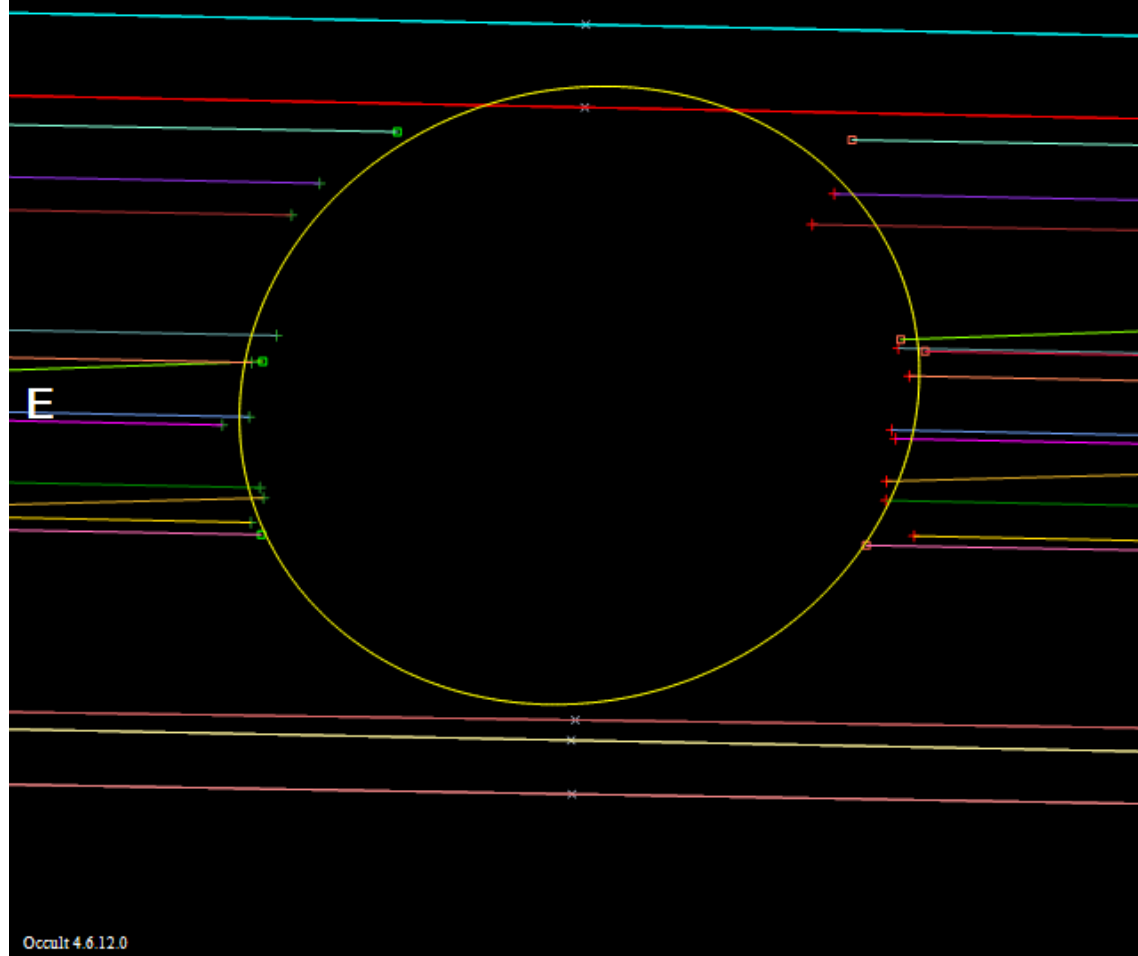
322_Phaeo_2015Jun04

(322) Phaeso 2015 Jun 4 $82.8 \pm 8.4 \times 57.0 \pm 6.0$ km. PA $83.7^\circ \pm 14.4^\circ$
Geocentric X -678.5 ± 4.2 Y 5693.3 ± 3.8 km



324_Bamberg_1987Dec08

(324) Bamberg 1987 Dec 8 $236.0 \pm 4.0 \times 209.3 \pm 8.8$ km, PA $108.4^\circ \pm 11.9^\circ$
Geocentric X 3554.0 ± 1.6 Y 1120.4 ± 3.9 km **N**



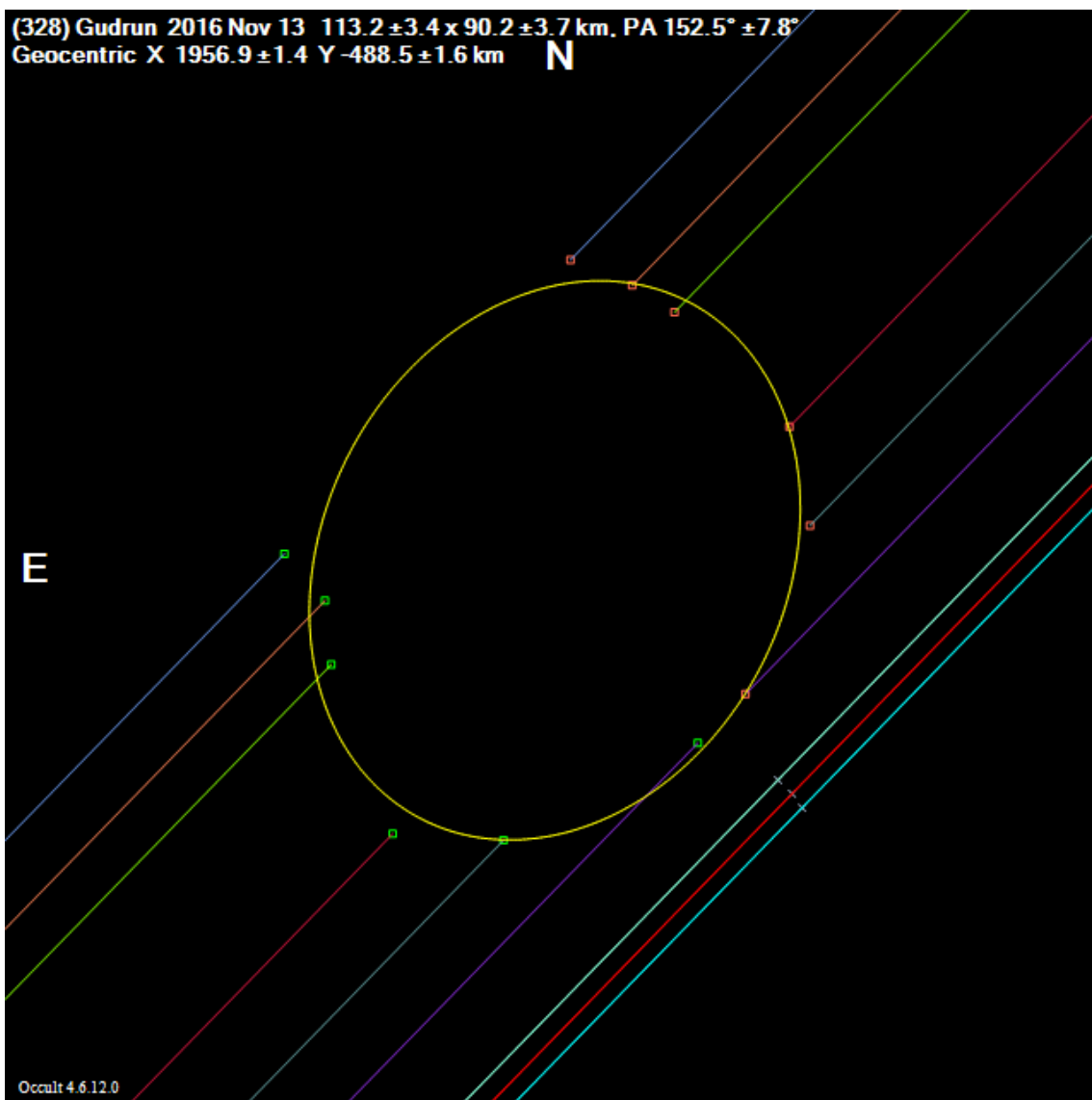
324_Bamberga_2007Apr20

(324) Bamberga 2007 Apr 20 $229.5 \pm 3.0 \times 216.0 \pm 10.5$ km, PA $101.3^\circ \pm 14.7^\circ$
Geocentric X -4459.0 ± 1.2 Y -2926.8 ± 2.0 km **N**



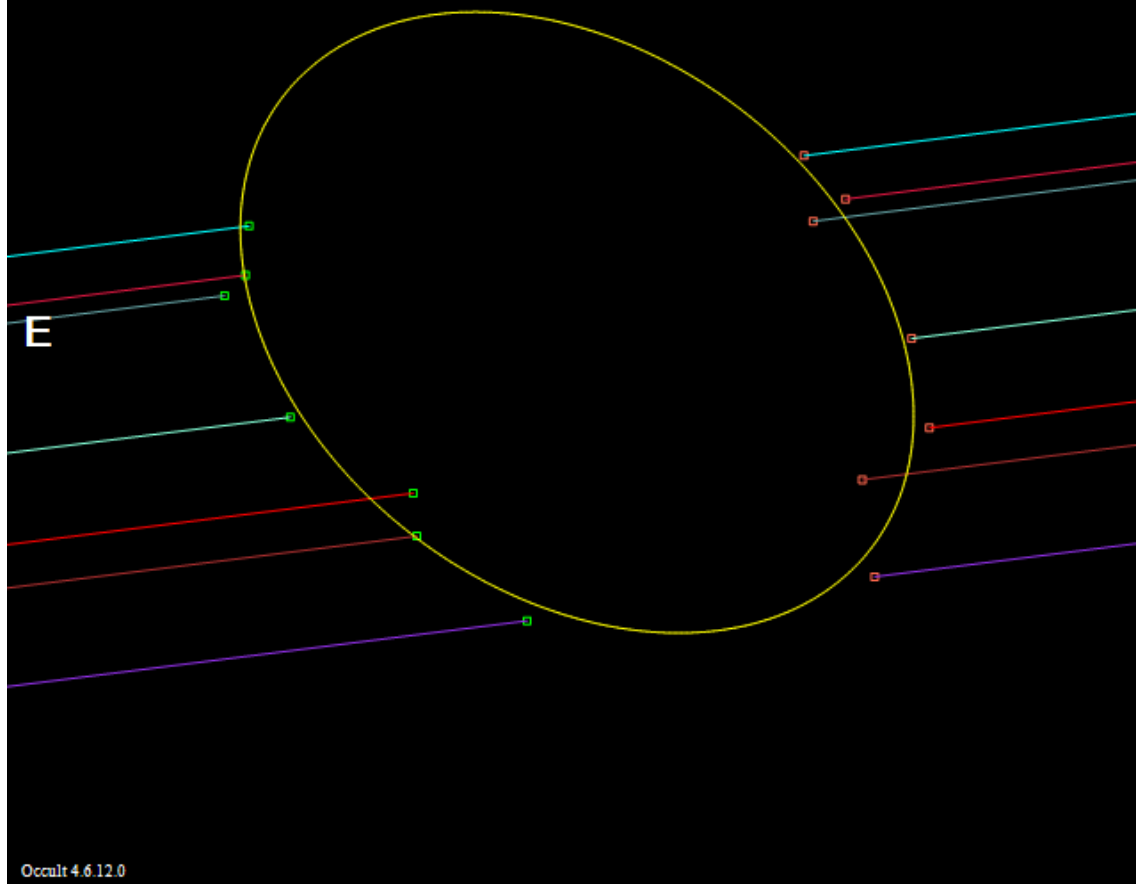
328_Gudrun_2016Nov13

(328) Gudrun 2016 Nov 13 $113.2 \pm 3.4 \times 90.2 \pm 3.7$ km, PA $152.5^\circ \pm 7.8^\circ$
Geocentric X 1956.9 ± 1.4 Y -488.5 ± 1.6 km **N**



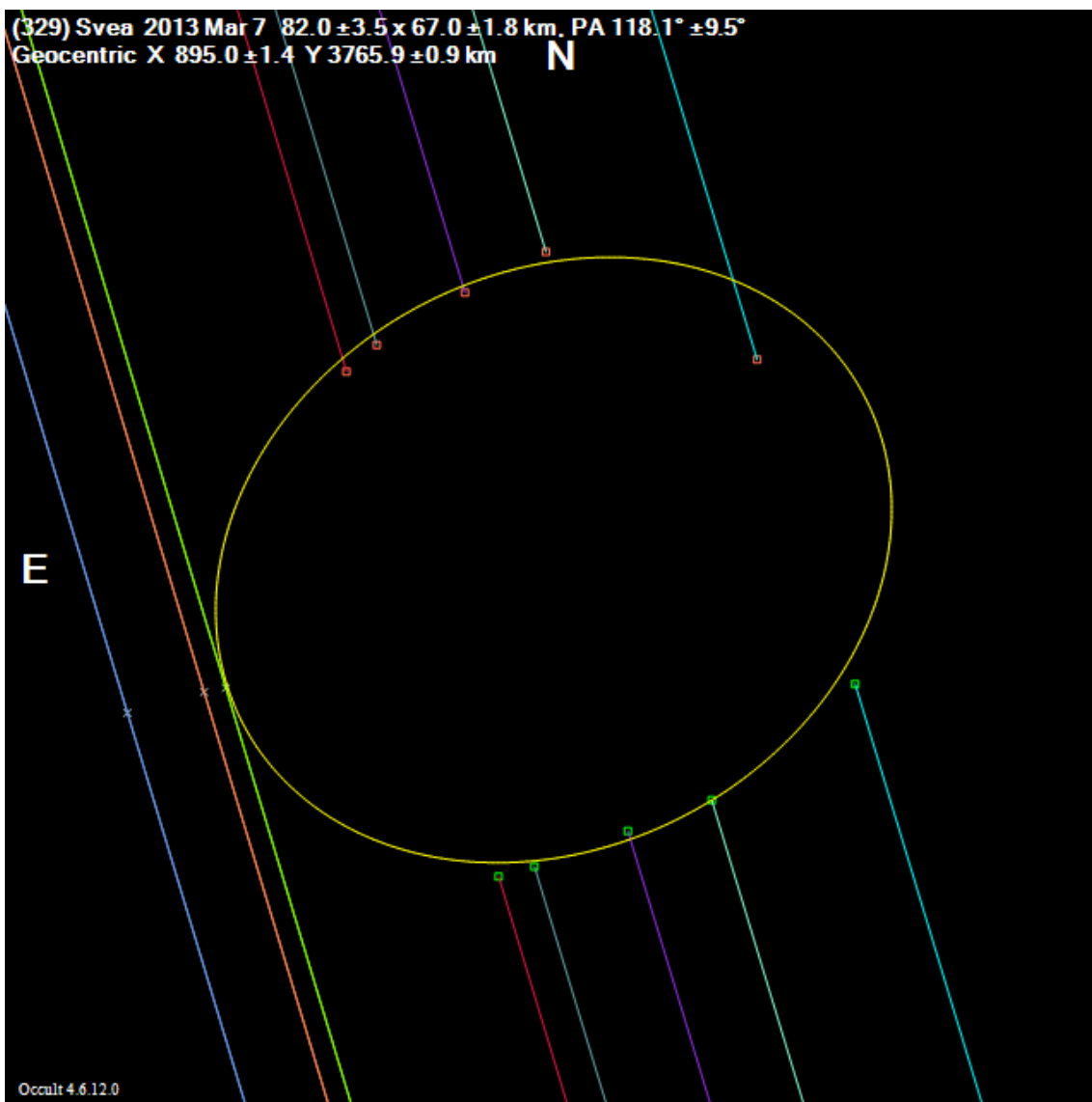
329_Svea_2011Dec28

(329) Svea 2011 Dec 28 $83.5 \pm 4.9 \times 60.5 \pm 2.4$ km, PA $52.6^\circ \pm 10.0^\circ$
Geocentric X 469.0 ± 1.1 Y 3821.6 ± 2.1 km **N**



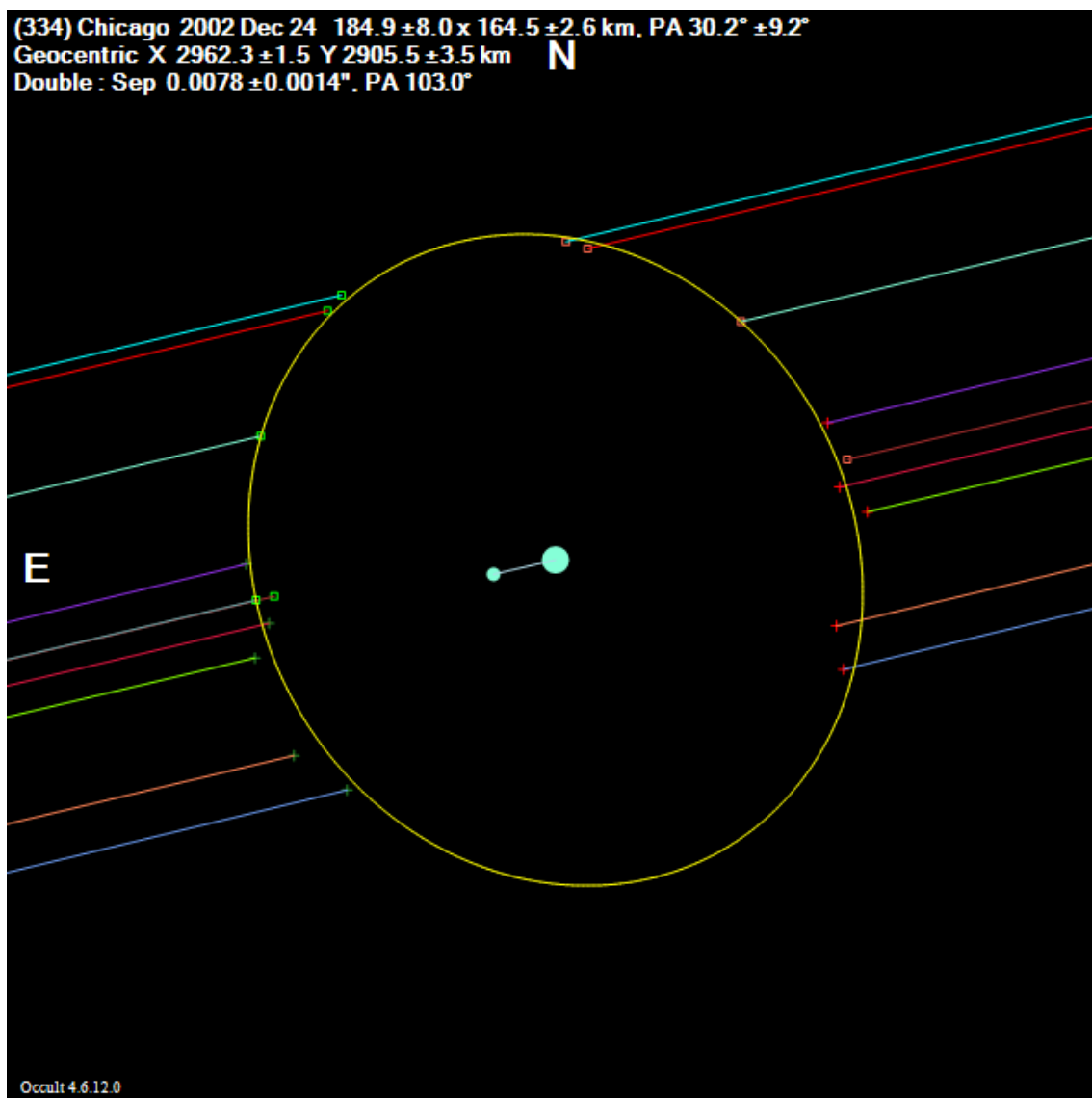
329_Svea_2013Mar07

(329) Svea 2013 Mar 7 $82.0 \pm 3.5 \times 67.0 \pm 1.8$ km, PA $118.1^\circ \pm 9.5^\circ$
Geocentric X 895.0 ± 1.4 Y 3765.9 ± 0.9 km



334_Chicago_2002Dec24

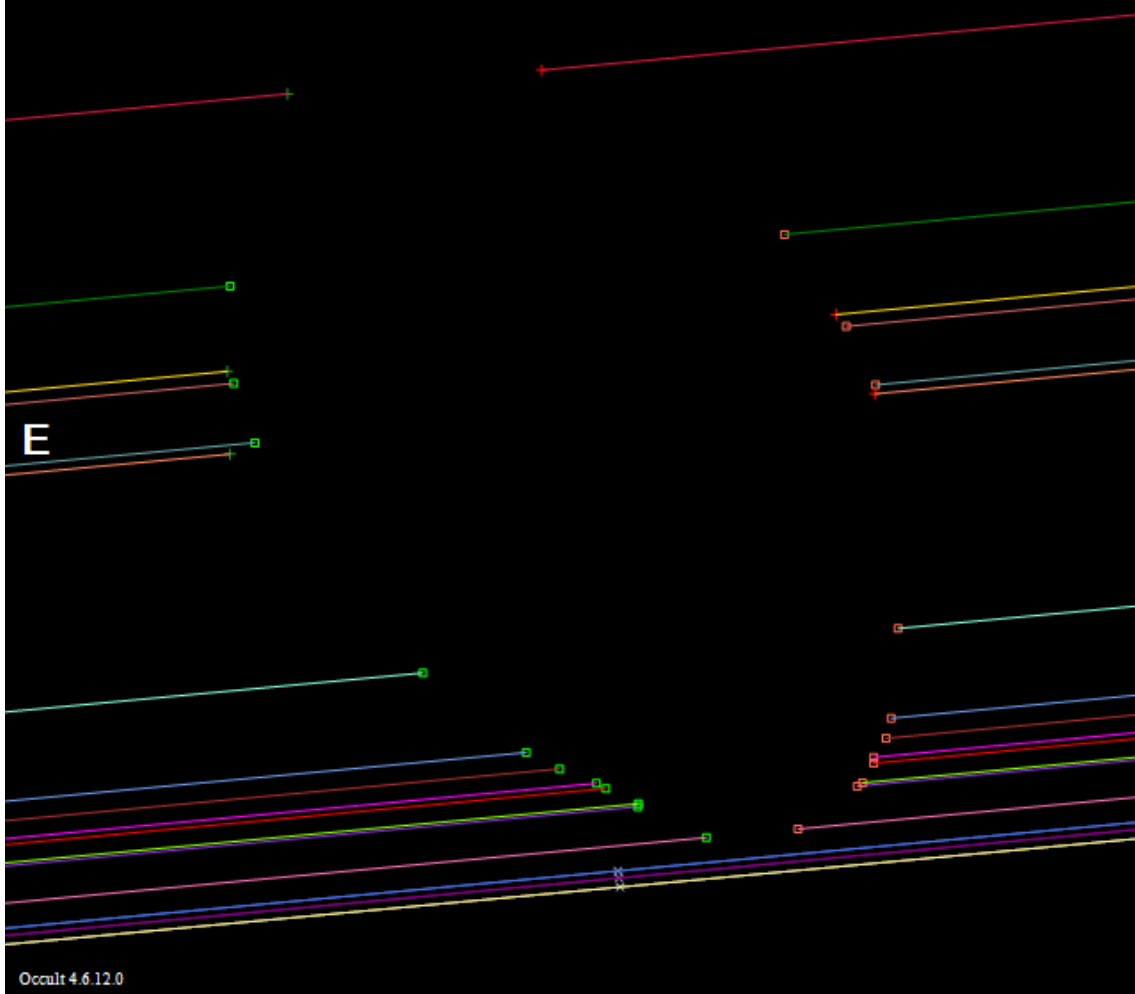
(334) Chicago 2002 Dec 24 $184.9 \pm 8.0 \times 164.5 \pm 2.6$ km, PA $30.2^\circ \pm 9.2^\circ$
Geocentric X 2962.3 ± 1.5 Y 2905.5 ± 3.5 km **N**
Double : Sep $0.0078 \pm 0.0014''$, PA 103.0°



334_Chicago_2017Dec21

(334) Chicago 2017 Dec 21 $236.0 \pm 4.8 \times 149.0 \pm 2.3$ km, PA $37.6^\circ \pm 1.6^\circ$
Geocentric X 70.1 ± 1.3 Y 1752.6 ± 2.2 km

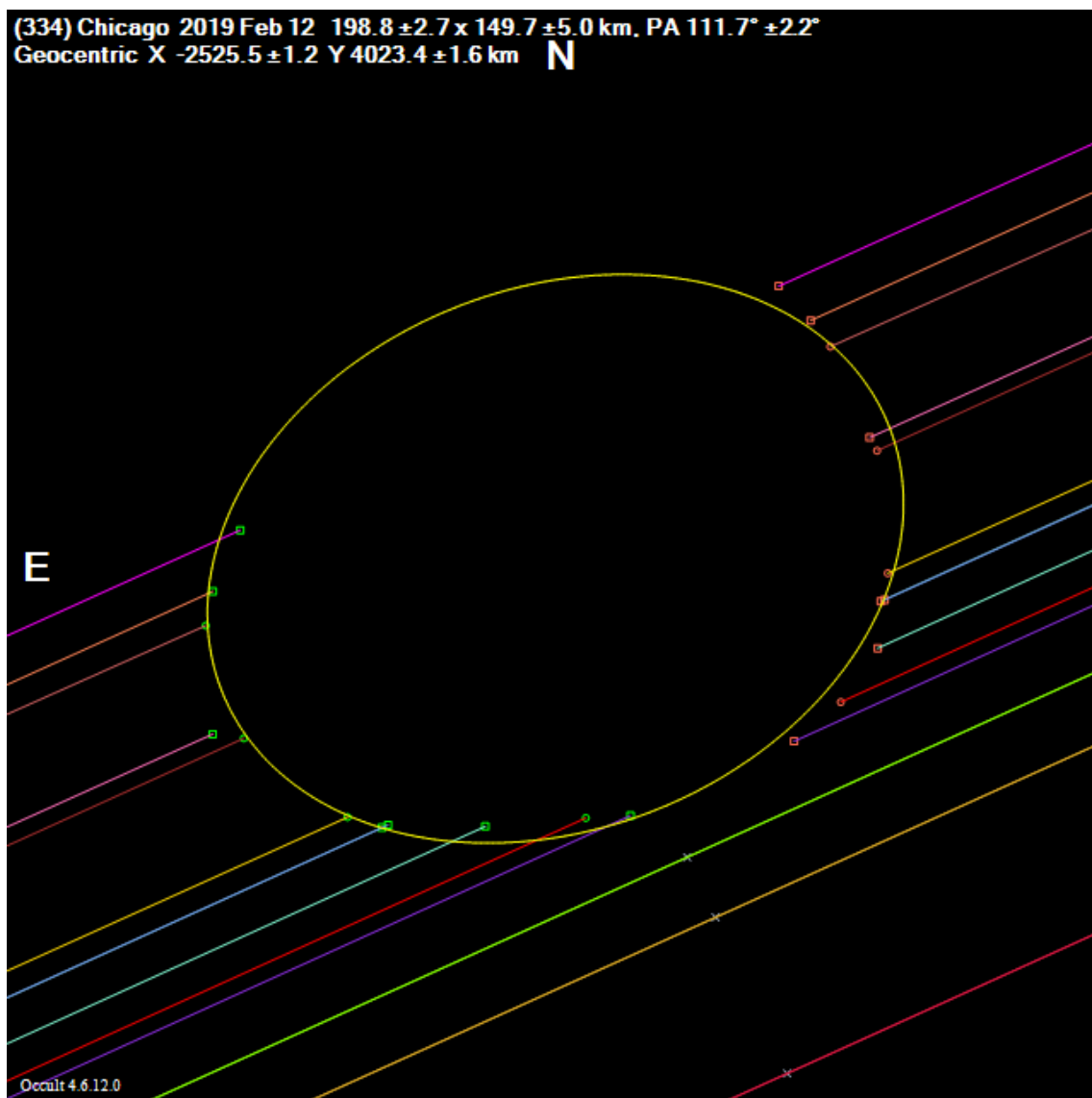
N



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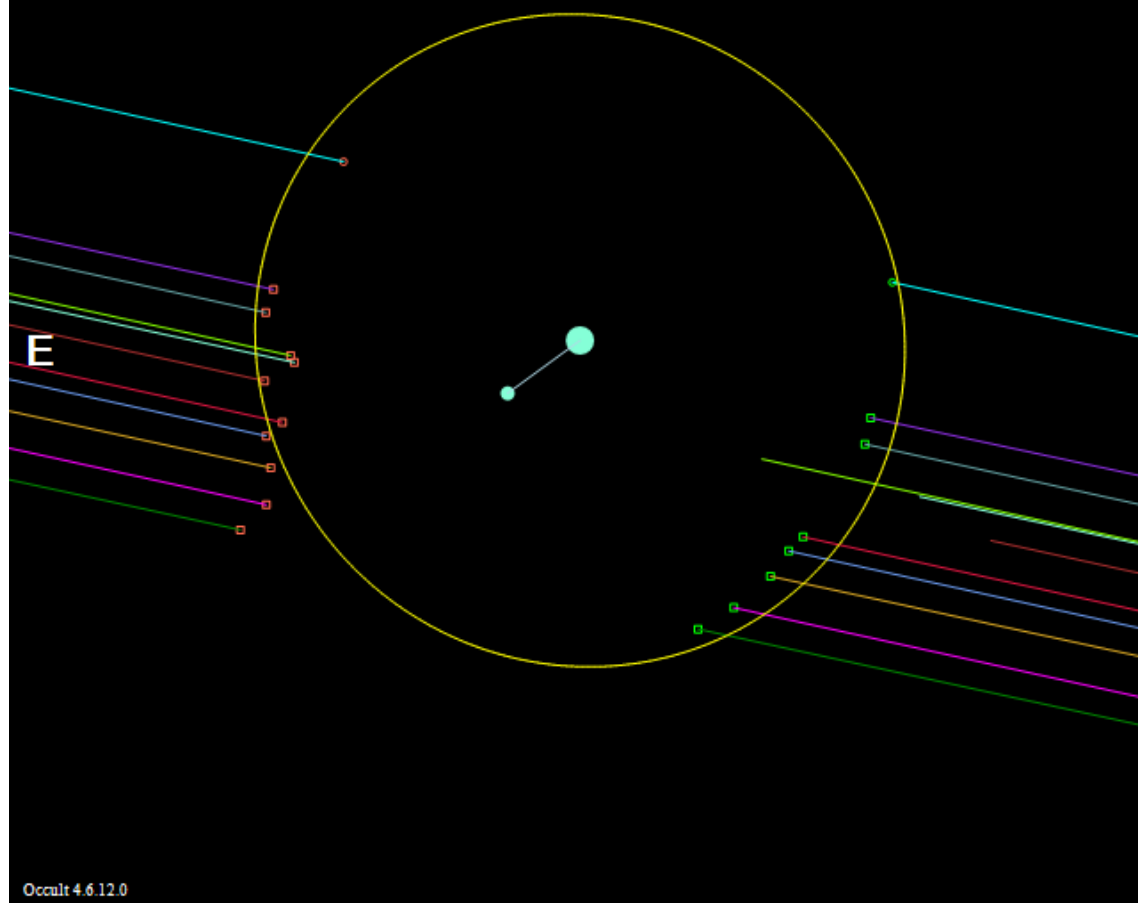
334_Chicago_2019Feb12

(334) Chicago 2019 Feb 12 $198.8 \pm 2.7 \times 149.7 \pm 5.0$ km, PA $111.7^\circ \pm 2.2^\circ$
Geocentric X -2525.5 ± 1.2 Y 4023.4 ± 1.6 km **N**



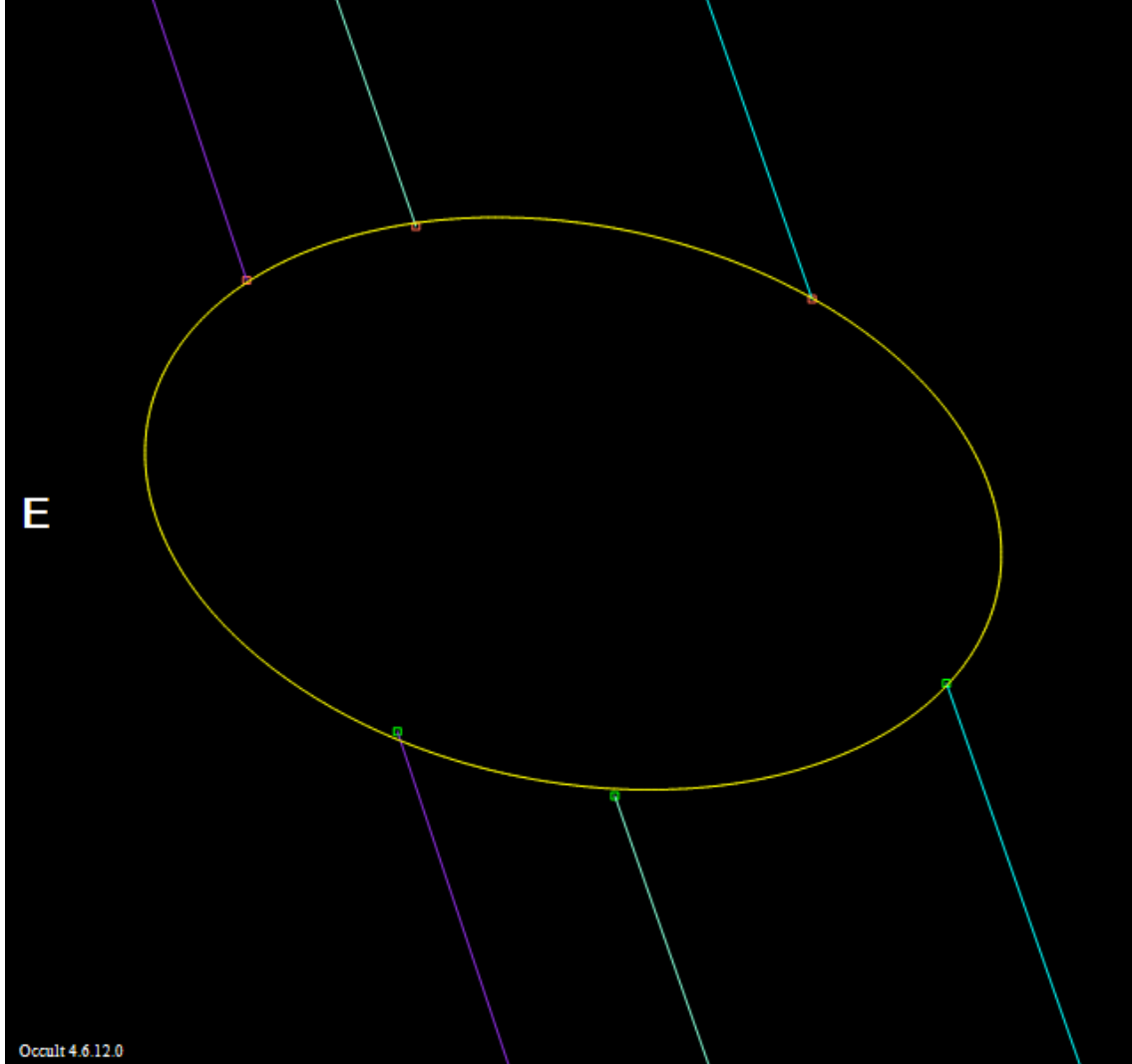
336_Lacadiera_2009Apr16

(336) Lacadiera 2009 Apr 16 $67.2 \pm 4.6 \times 65.3 \pm 8.2$ km, PA $41.7^\circ \pm 174.3^\circ$
Geocentric X 4124.3 ± 1.2 Y 3857.8 ± 3.3 km **N**
Double : Sep $0.0074 \pm 0.0018''$, PA $126.1^\circ \pm 15.0^\circ$



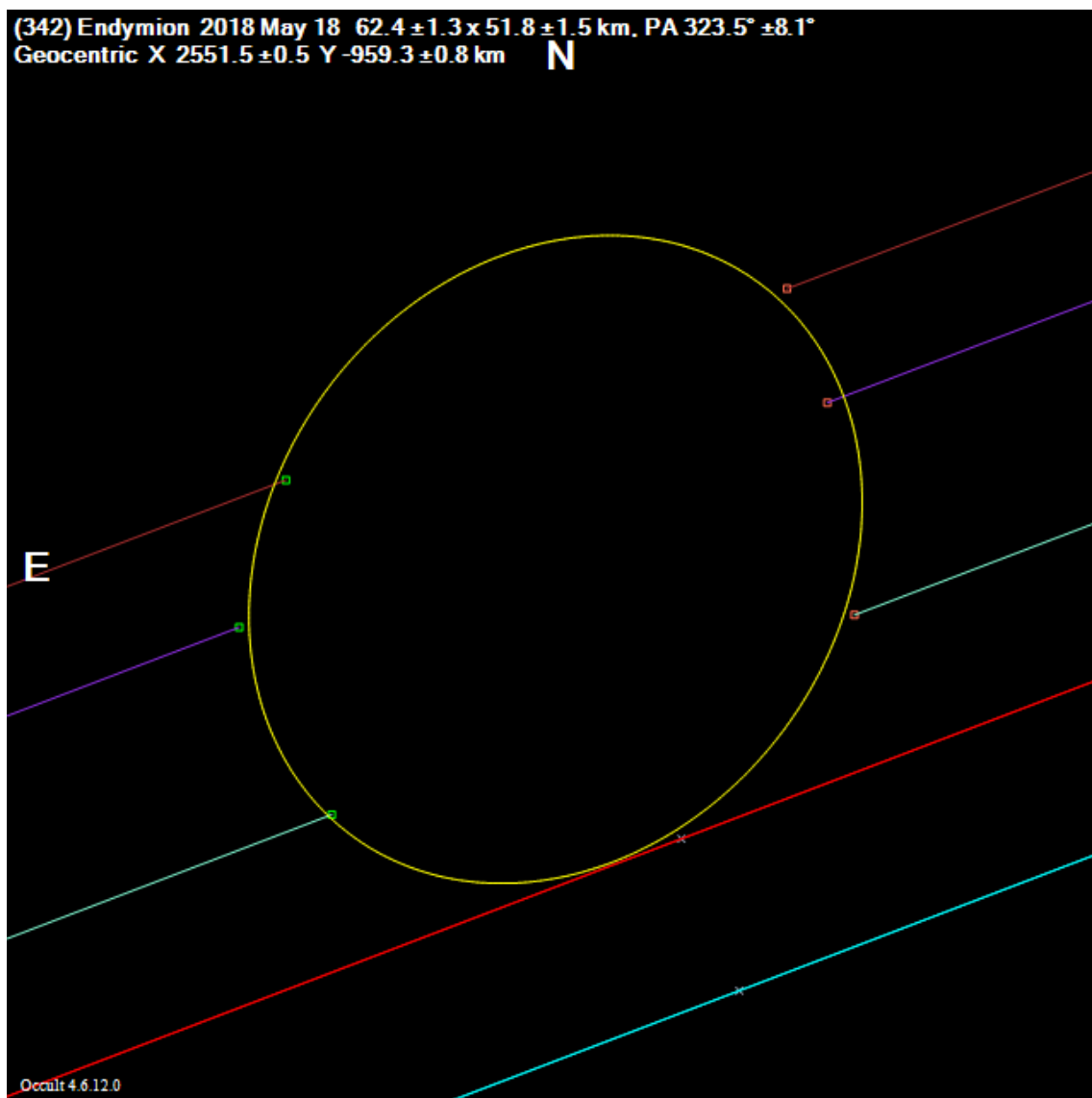
337_Devosa_2014Dec11

(337) Devosa 2014 Dec 11 $81.2 \pm 1.2 \times 52.1 \pm 0.4$ km. PA $78.4^\circ \pm 1.2^\circ$
Geocentric X -1673.2 ± 0.3 Y 523.1 ± 0.1 km **N**



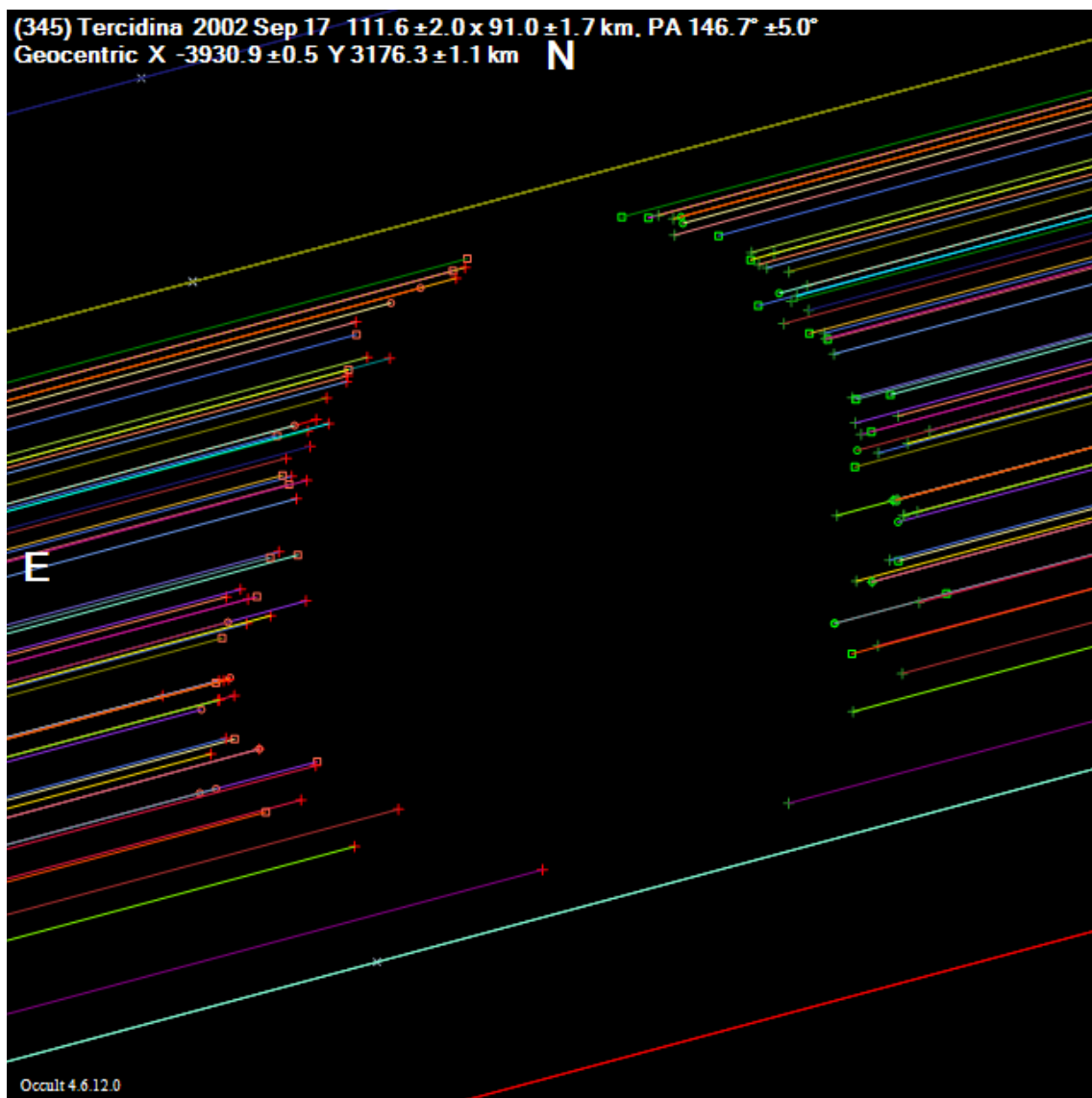
342_Endymion_2018May18

(342) Endymion 2018 May 18 $62.4 \pm 1.3 \times 51.8 \pm 1.5$ km. PA $323.5^\circ \pm 8.1^\circ$
Geocentric X 2551.5 ± 0.5 Y -959.3 ± 0.8 km **N**



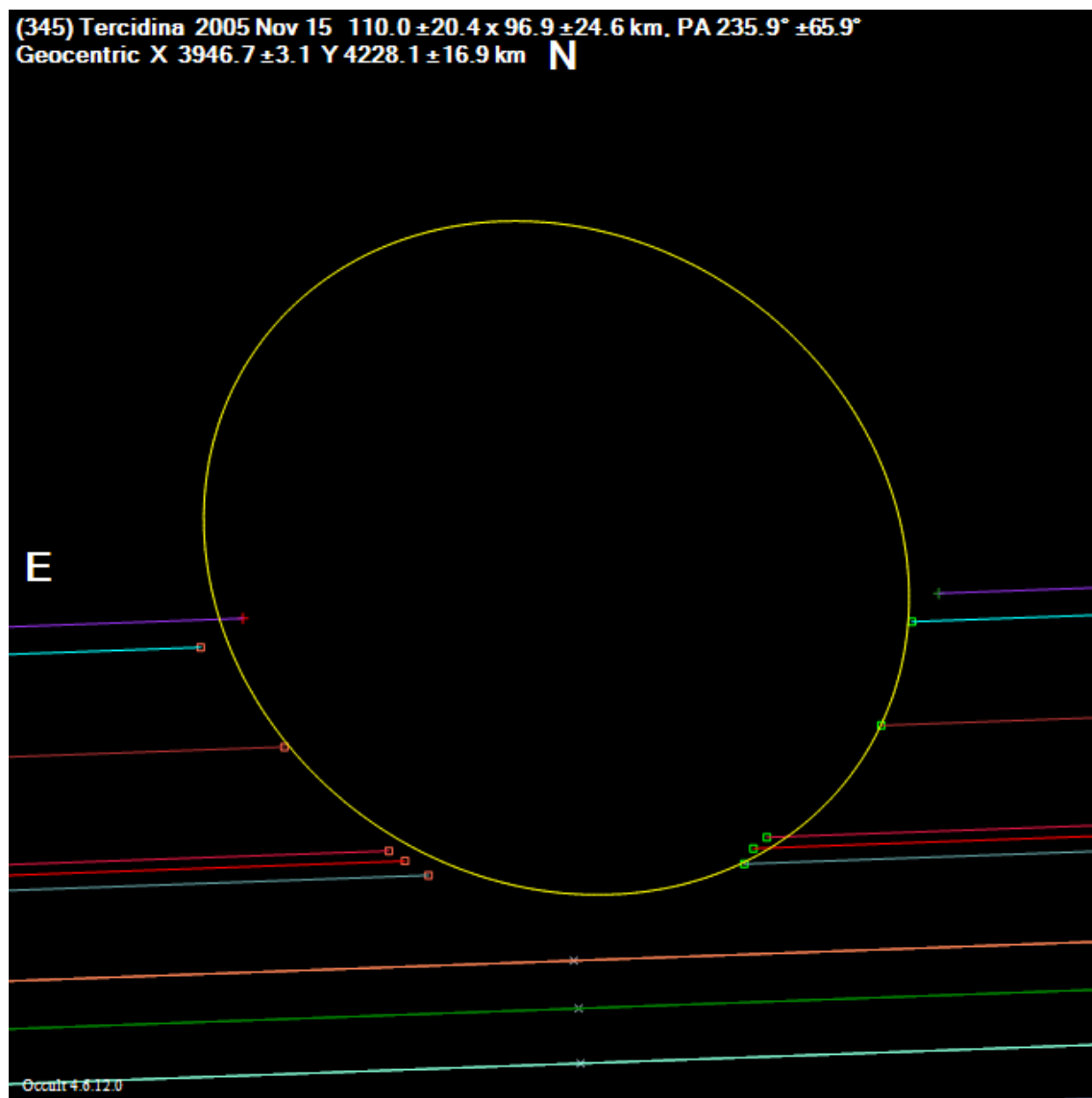
345_Tercidina_2002Sep17

(345) Tercidina 2002 Sep 17 $111.6 \pm 2.0 \times 91.0 \pm 1.7$ km, PA $146.7^\circ \pm 5.0^\circ$
Geocentric X -3930.9 ± 0.5 Y 3176.3 ± 1.1 km **N**



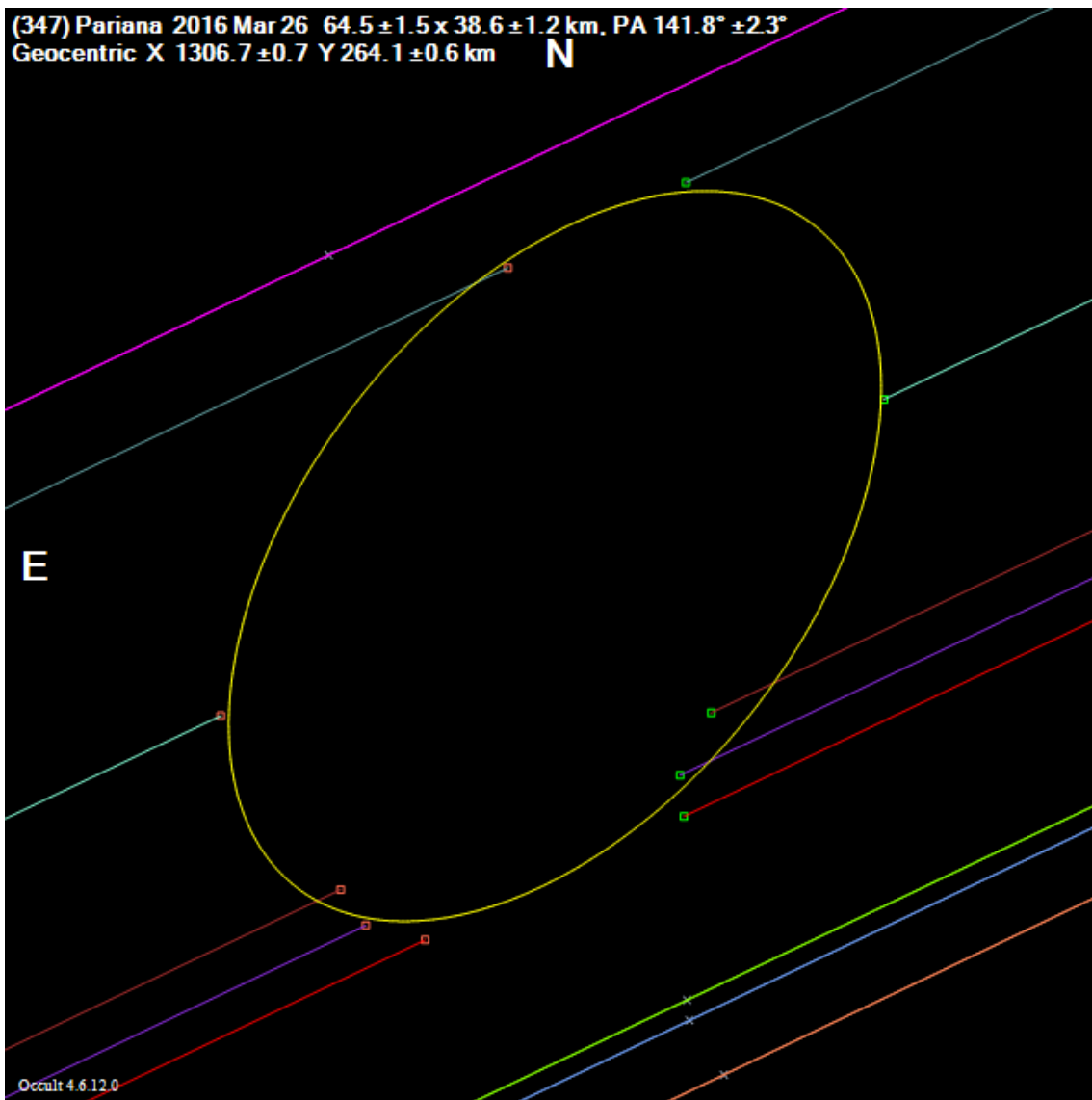
345_Tercidina_2005Nov15

(345) Tercidina 2005 Nov 15 $110.0 \pm 20.4 \times 96.9 \pm 24.6$ km. PA $235.9^\circ \pm 65.9^\circ$
Geocentric X 3946.7 ± 3.1 Y 4228.1 ± 16.9 km **N**



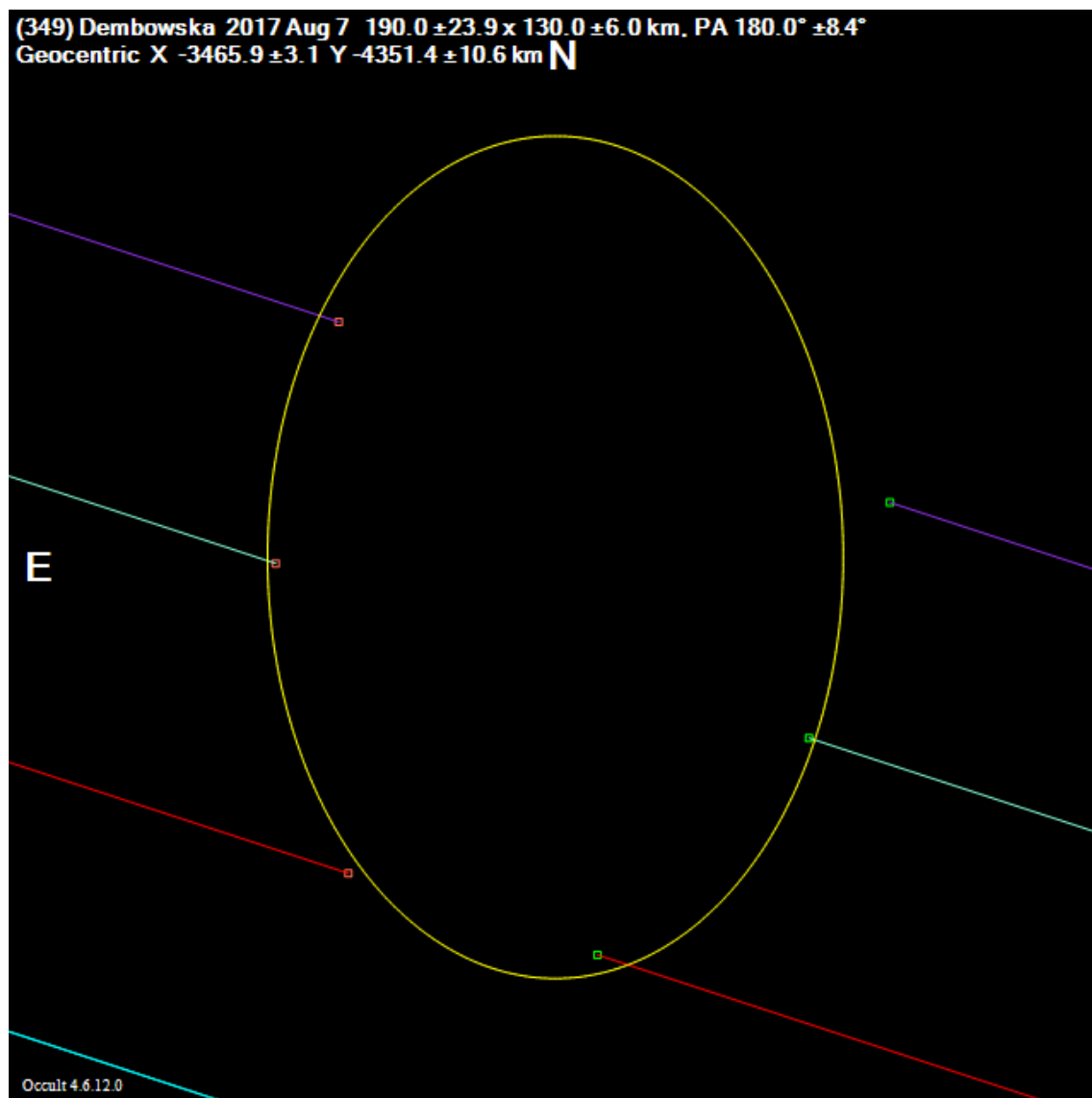
347_Pariana_2016Mar26

(347) Pariana 2016 Mar 26 $64.5 \pm 1.5 \times 38.6 \pm 1.2$ km. PA $141.8^\circ \pm 2.3^\circ$
Geocentric X 1306.7 ± 0.7 Y 264.1 ± 0.6 km **N**



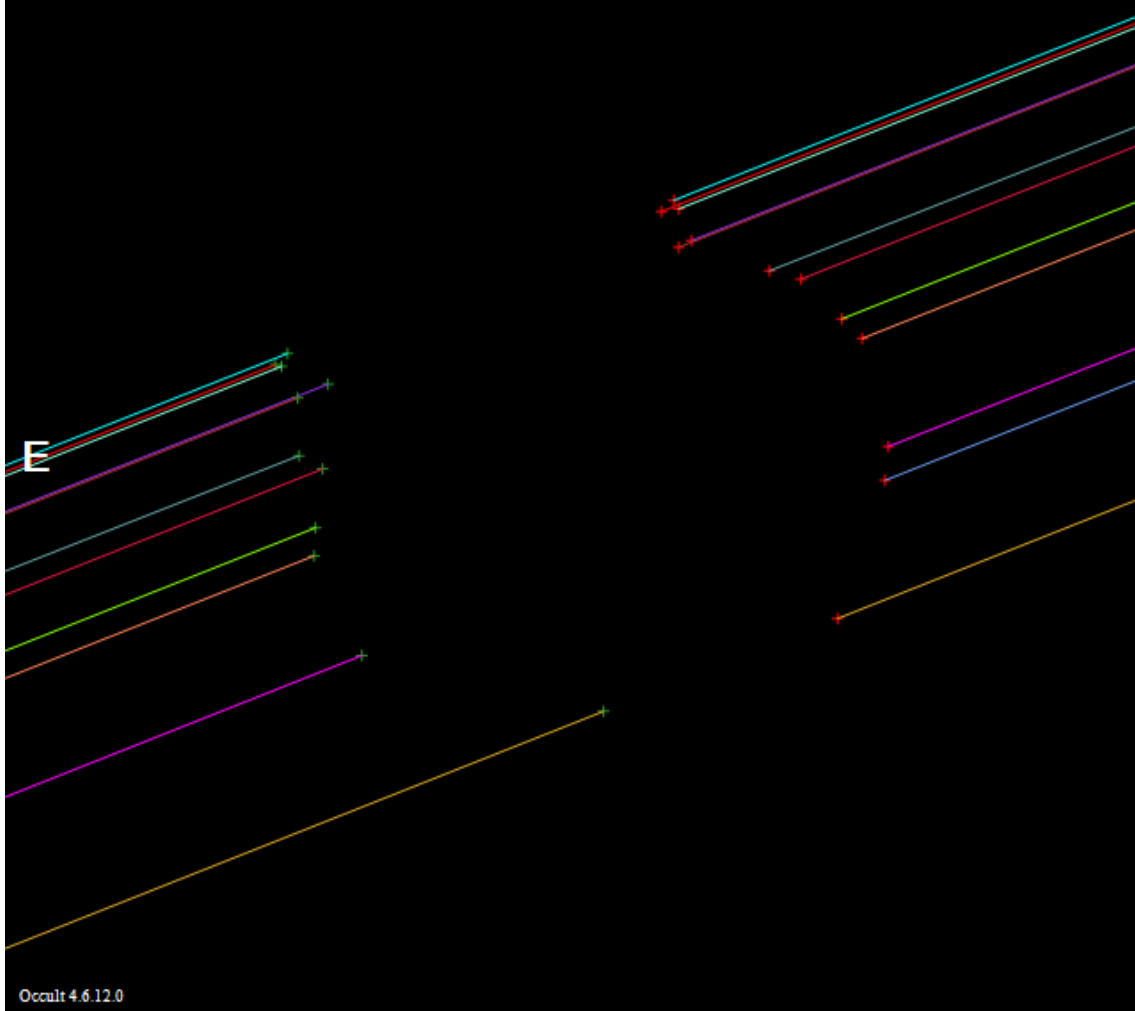
349_Dembowska_2017Aug07

(349) Dembowska 2017 Aug 7 $190.0 \pm 23.9 \times 130.0 \pm 6.0$ km, PA $180.0^\circ \pm 8.4^\circ$
Geocentric X -3465.9 ± 3.1 Y -4351.4 ± 10.6 km **N**



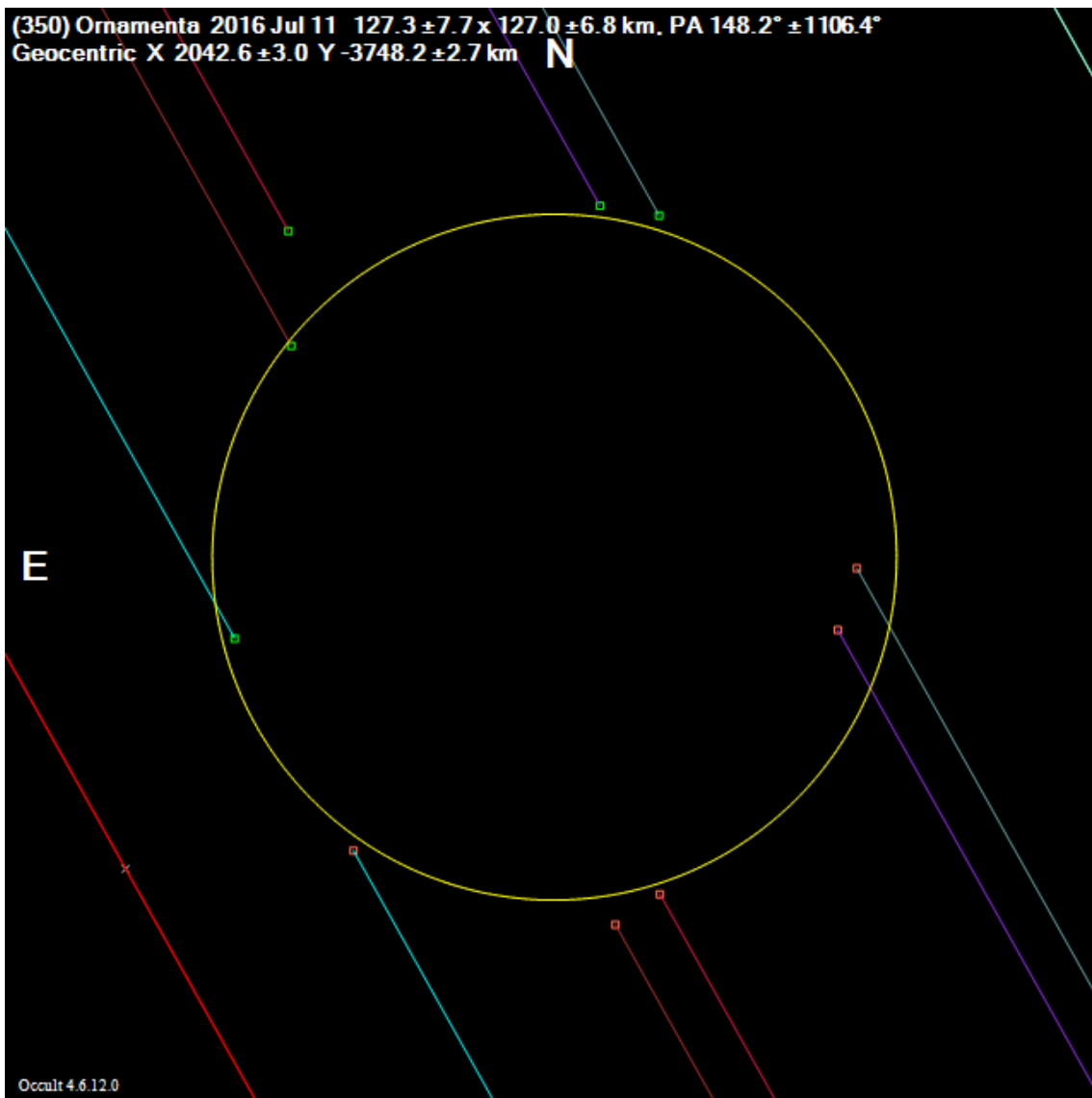
350_Ornamenta_2002Nov14

(350) Ornamenta 2002 Nov 14 $115.4 \pm 7.0 \times 94.3 \pm 3.0$ km, PA $39.0^\circ \pm 8.4^\circ$
Geocentric X -1955.0 ± 1.4 Y 2835.4 ± 2.2 km **N**



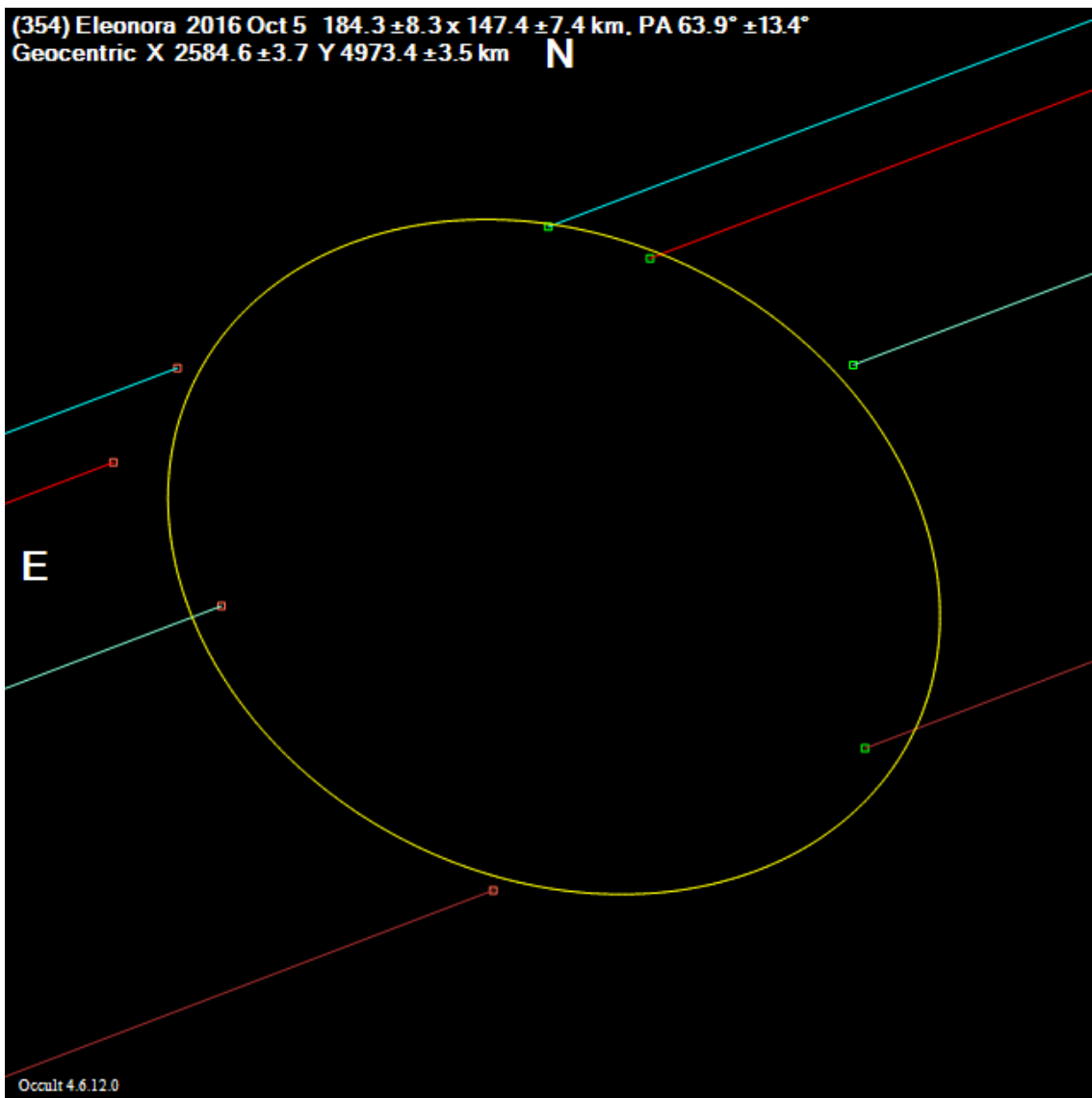
350_Ornamenta_2016Jul11

(350) Ornamenta 2016 Jul 11 $127.3 \pm 7.7 \times 127.0 \pm 6.8$ km, PA $148.2^\circ \pm 1106.4^\circ$
Geocentric X 2042.6 ± 3.0 Y -3748.2 ± 2.7 km



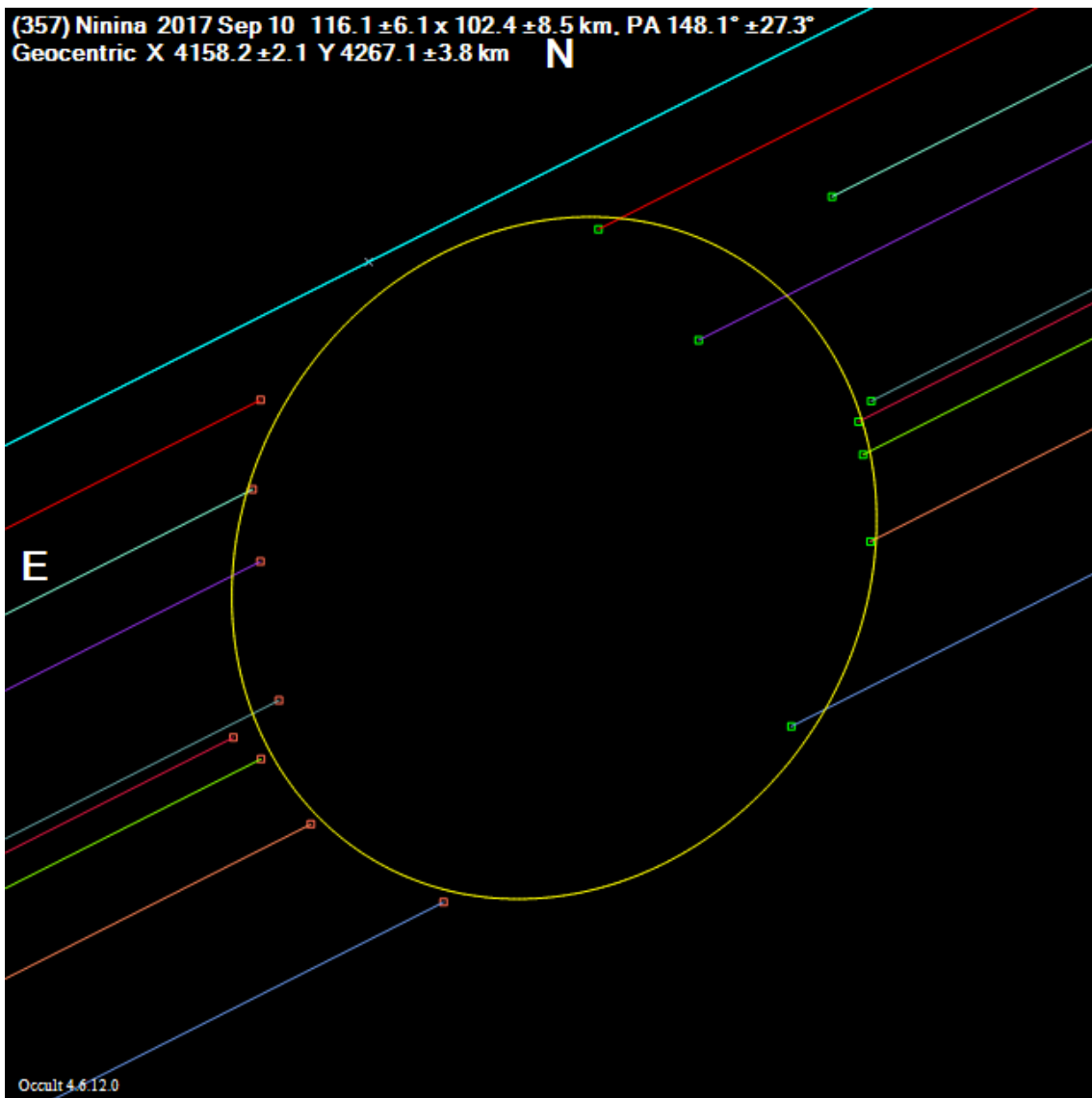
354_Eleonora_2016Oct05

(354) Eleonora 2016 Oct 5 $184.3 \pm 8.3 \times 147.4 \pm 7.4$ km, PA $63.9^\circ \pm 13.4^\circ$
Geocentric X 2584.6 ± 3.7 Y 4973.4 ± 3.5 km **N**



357_Ninina_2017Sep10

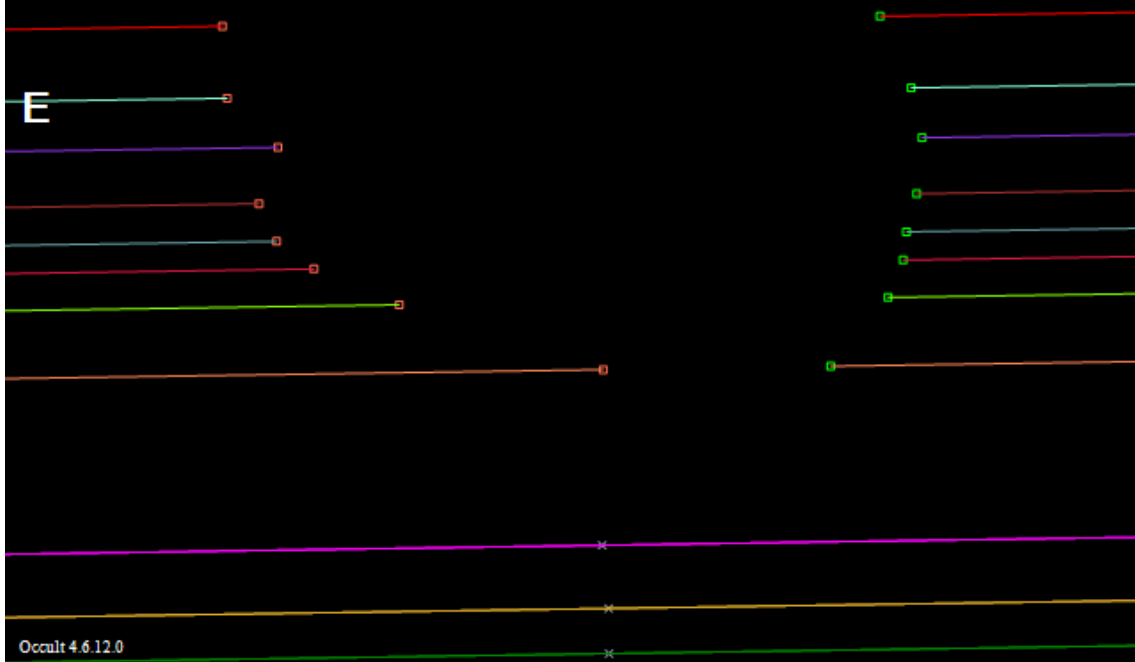
(357) Ninina 2017 Sep 10 $116.1 \pm 6.1 \times 102.4 \pm 8.5$ km. PA $148.1^\circ \pm 27.3^\circ$
Geocentric X 4158.2 ± 2.1 Y 4267.1 ± 3.8 km **N**



360_Carlova_2011Aug15

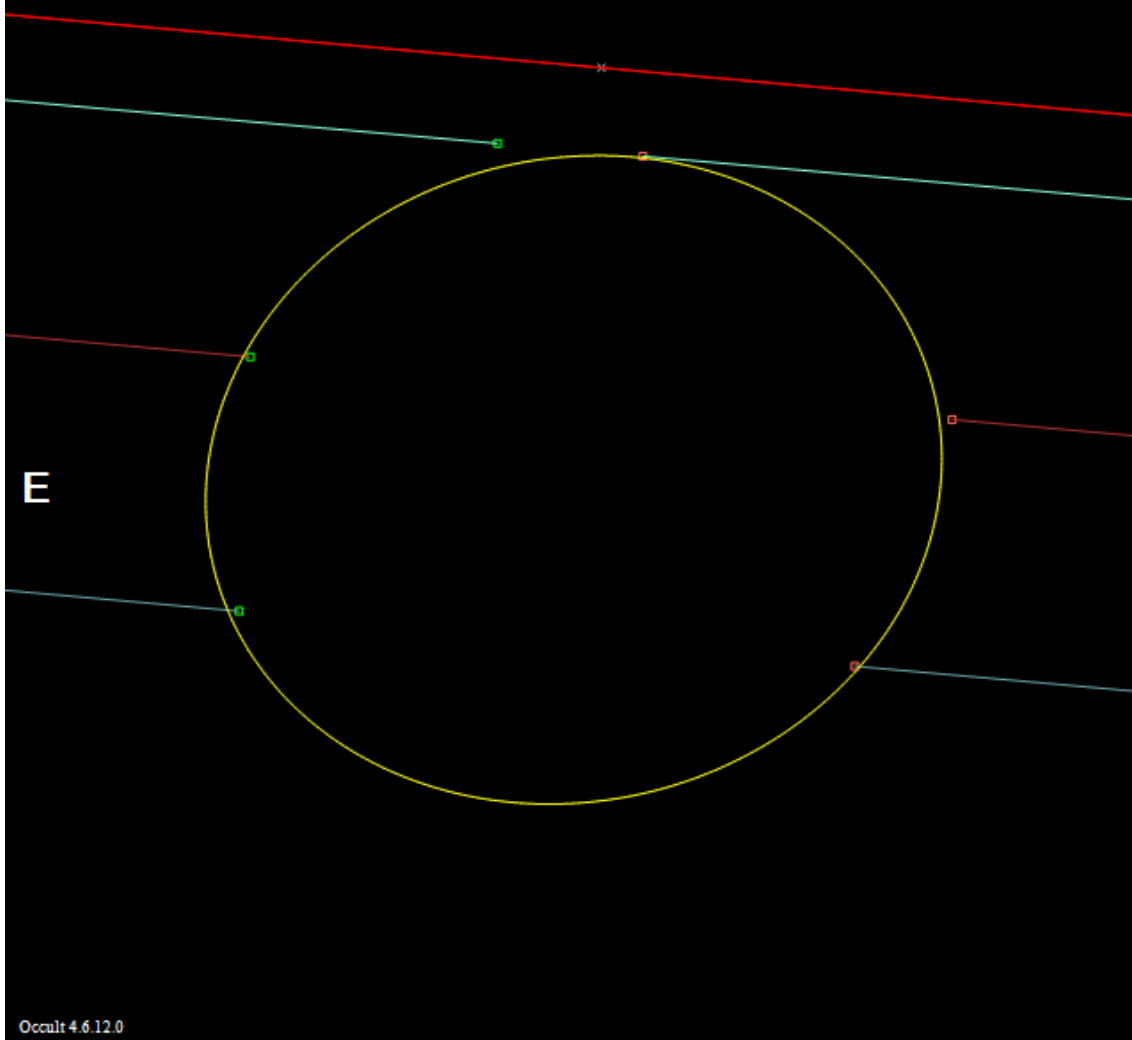
(360) Carlova 2011 Aug 15 $140.0 \pm 12.0 \times 105.0 \pm 6.7$ km, PA $47.7^\circ \pm 12.5^\circ$

Geocentric X -5183.7 ± 2.3 Y 3177.8 ± 6.3 km **N**



365_Corduba_2013Dec16

(365) Corduba 2013 Dec 16 $108.9 \pm 2.4 \times 94.3 \pm 3.4$ km, PA $103.7^\circ \pm 10.0^\circ$
Geocentric X 3649.5 ± 1.0 Y 3020.1 ± 1.6 km **N**



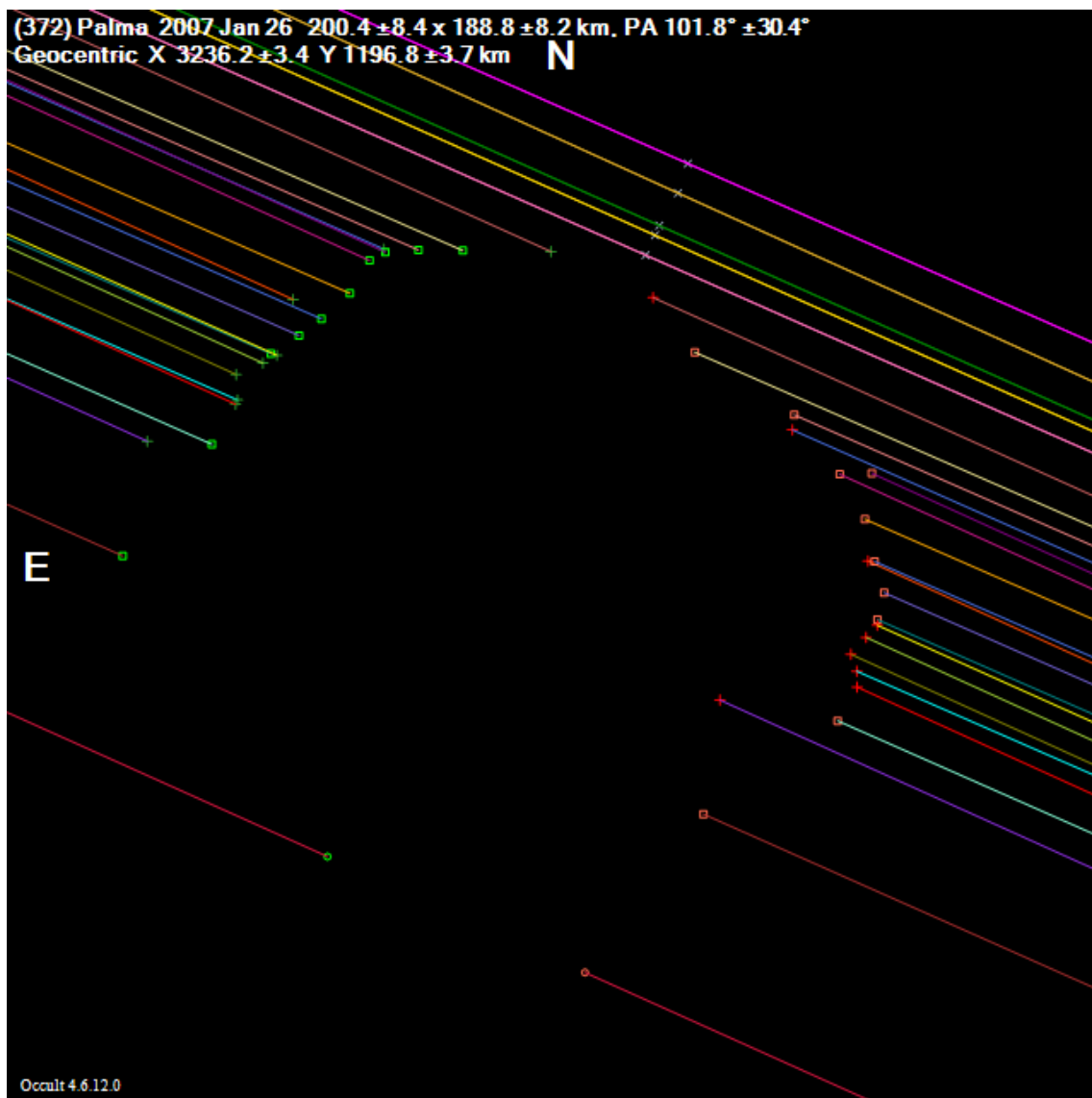
372_Palma_2005Oct12

(372) Palma 2005 Oct 12 $235.5 \pm 76.6 \times 182.5 \pm 4.2$ km, PA $342.9^\circ \pm 19.2^\circ$
Geocentric X 1458.3 ± 1.7 Y 4626.7 ± 6.8 km **N**



372_Palma_2007Jan26

(372) Palma 2007 Jan 26 $200.4 \pm 8.4 \times 188.8 \pm 8.2$ km, PA $101.8^\circ \pm 30.4^\circ$
Geocentric X 3236.2 ± 3.4 Y 1196.8 ± 3.7 km **N**

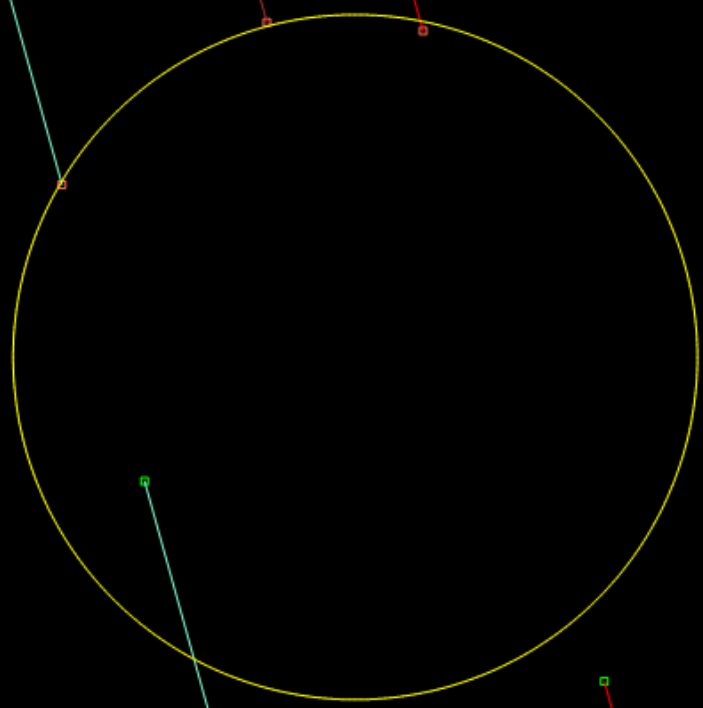


372_Palma_2011Aug10

(372) Palma 2011 Aug 10 186.0 x 186.0 km. PA 0.0°
Geocentric X -4212.4 ± 9.6 Y 3784.5 ± 7.2 km **N**

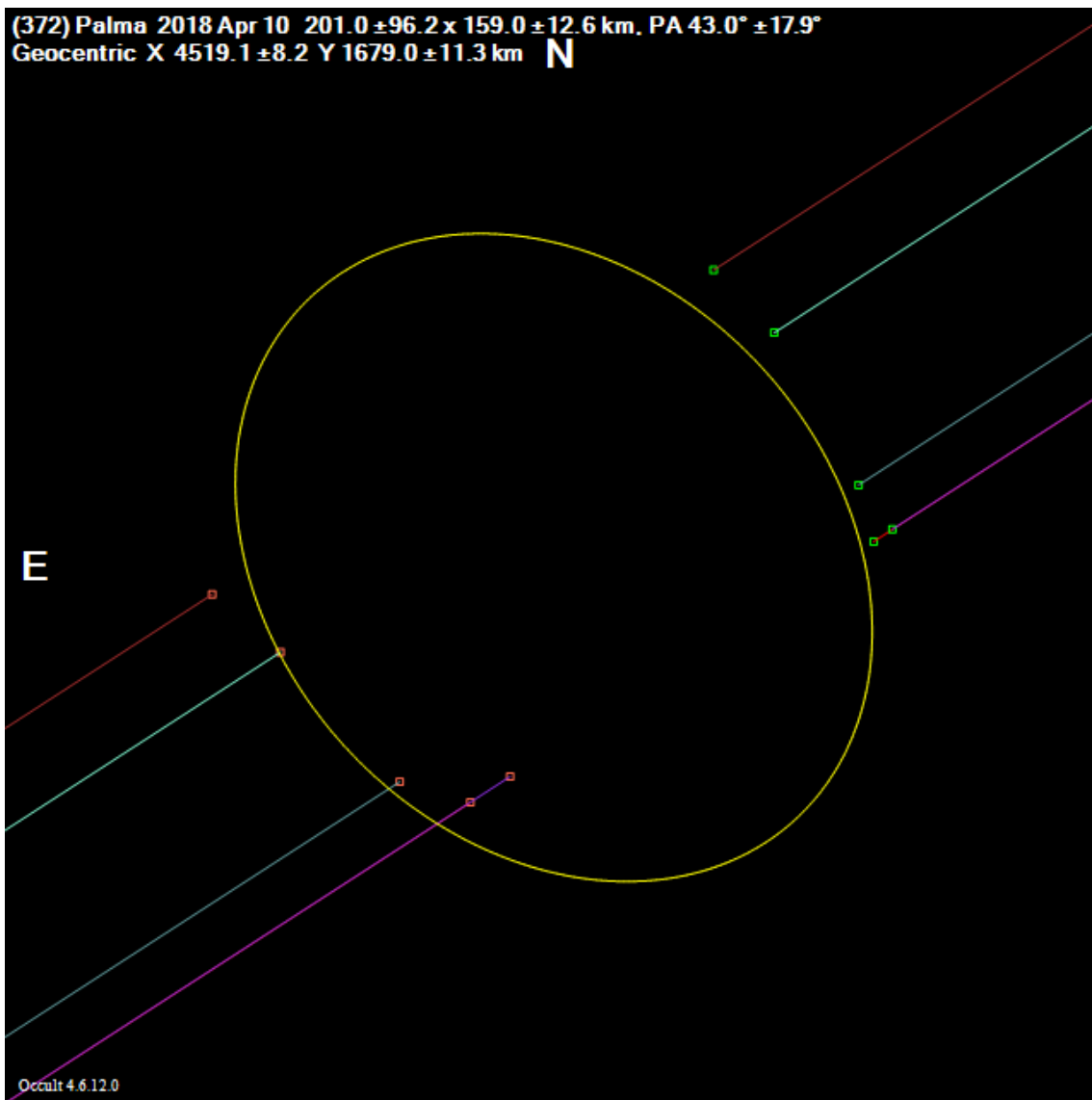
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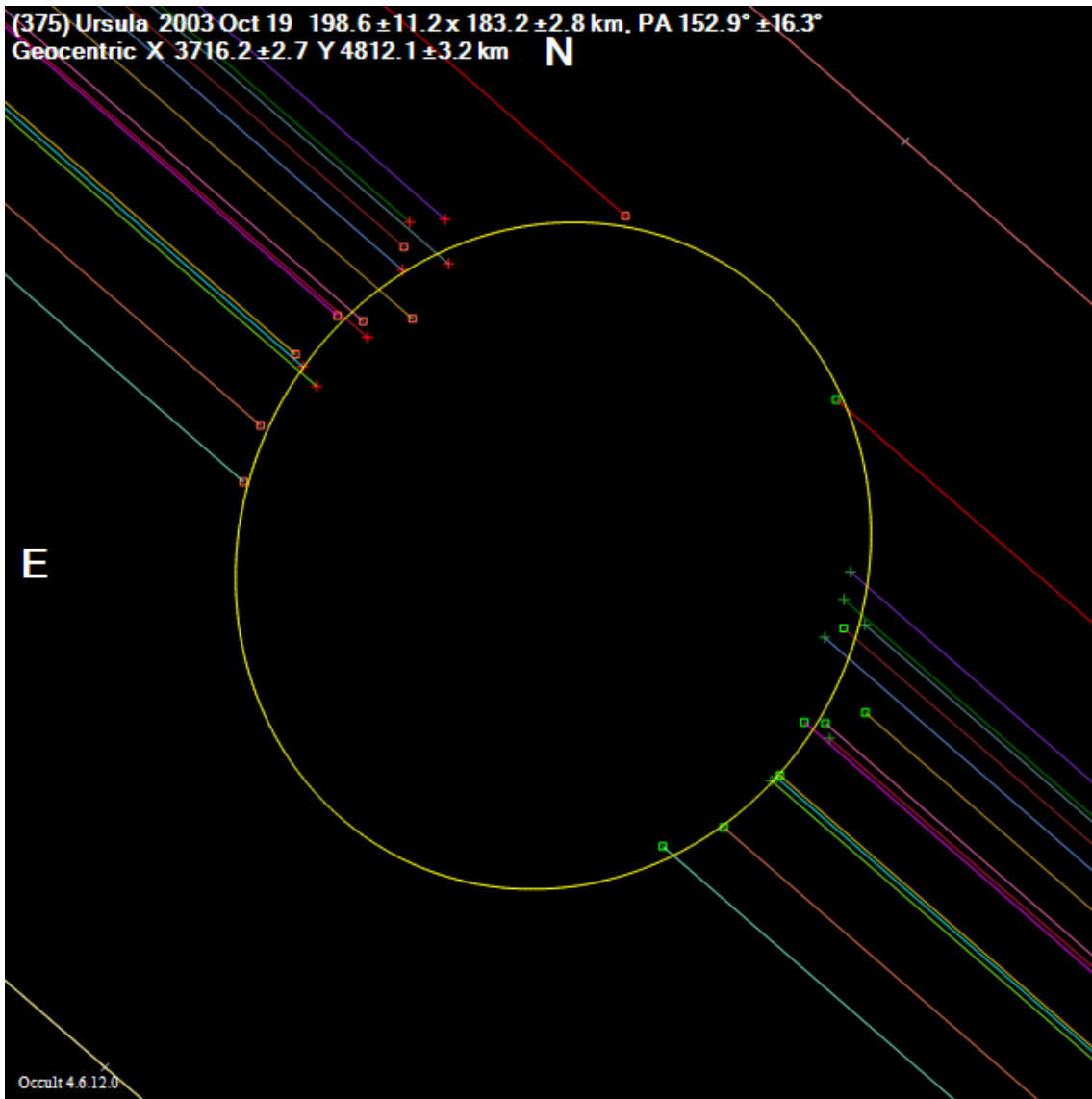
372_Palma_2018Apr10

(372) Palma 2018 Apr 10 $201.0 \pm 96.2 \times 159.0 \pm 12.6$ km, PA $43.0^\circ \pm 17.9^\circ$
Geocentric X 4519.1 ± 8.2 Y 1679.0 ± 11.3 km **N**



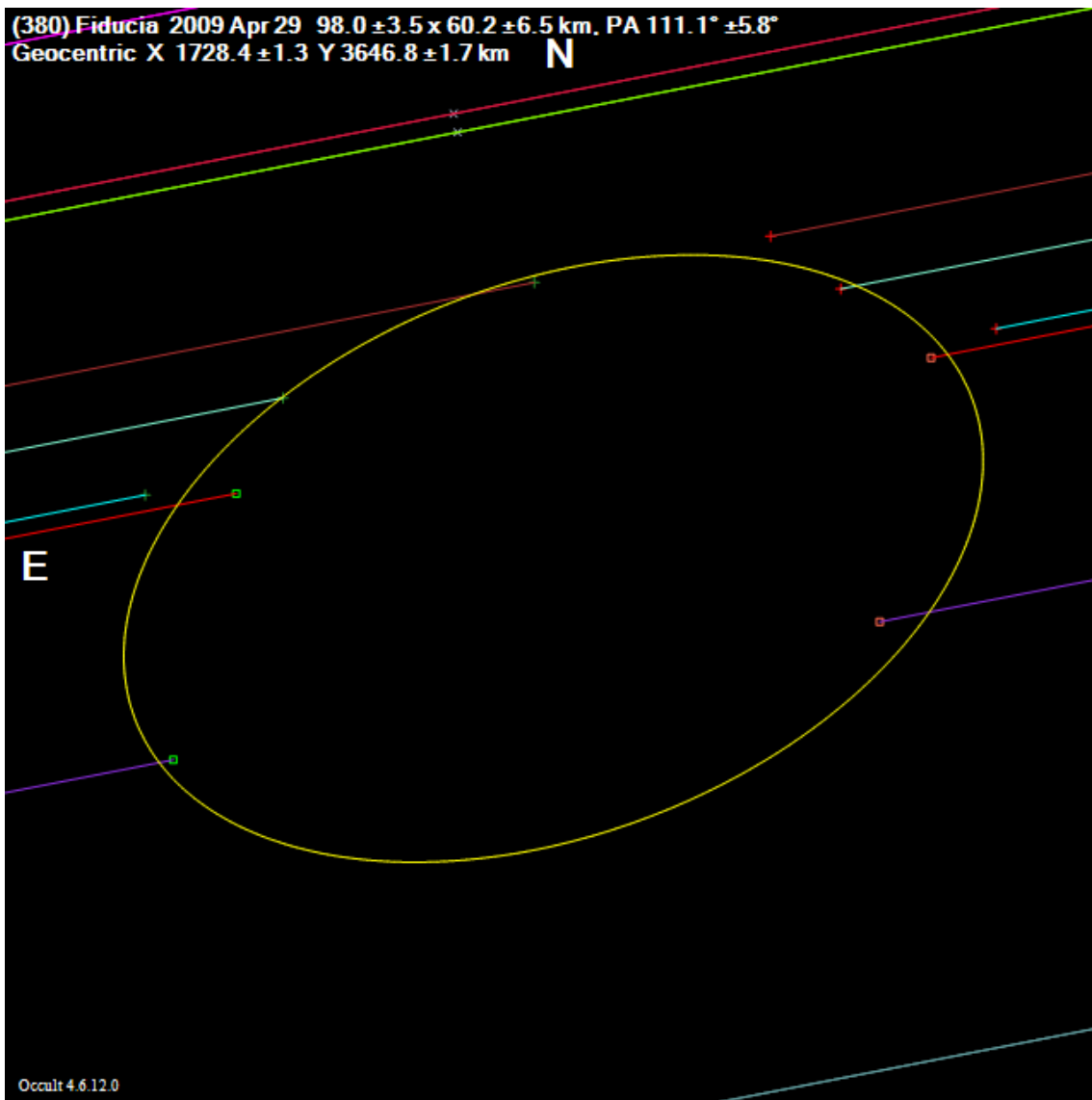
375_Ursula_2003Oct19

(375) Ursula 2003 Oct 19 $198.6 \pm 11.2 \times 183.2 \pm 2.8$ km, PA $152.9^\circ \pm 16.3^\circ$
Geocentric X 3716.2 ± 2.7 Y 4812.1 ± 3.2 km **N**



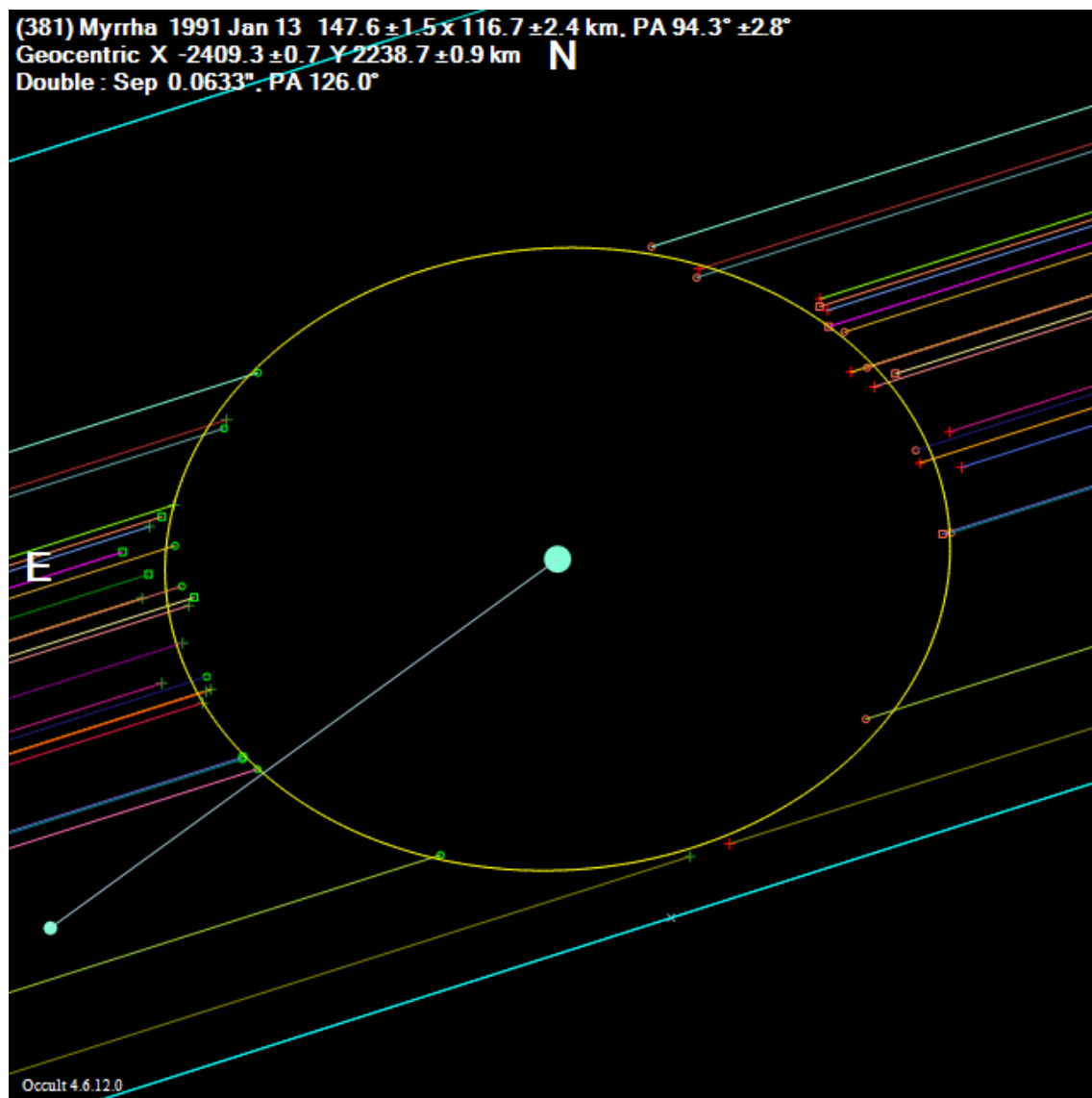
380_Fiducia_2009Apr29

(380) Fiducia 2009 Apr 29 $98.0 \pm 3.5 \times 60.2 \pm 6.5$ km. PA $111.1^\circ \pm 5.8^\circ$
Geocentric X 1728.4 ± 1.3 Y 3646.8 ± 1.7 km **N**



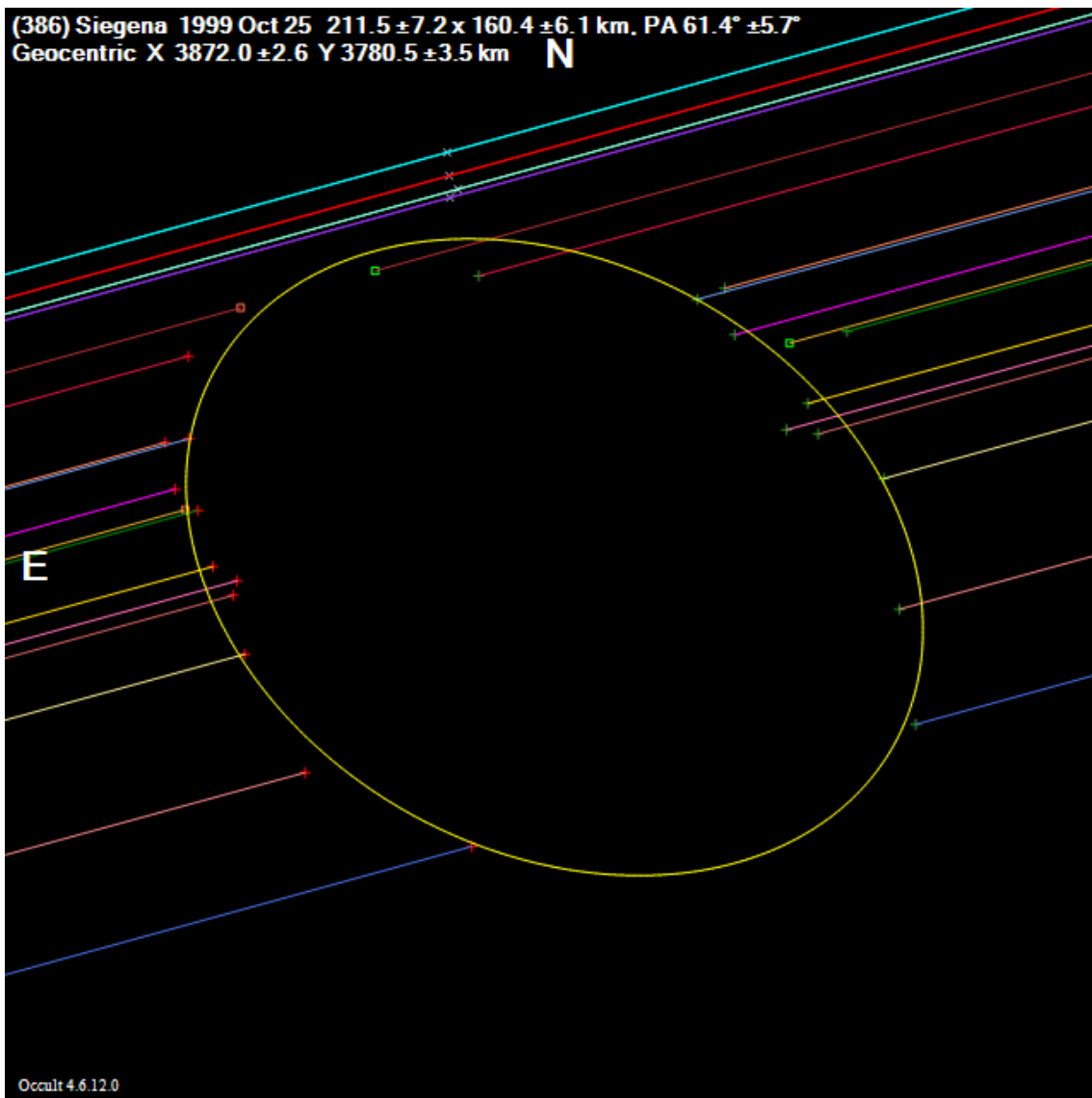
381_Myrrha_1991Jan13

(381) Myrrha 1991 Jan 13 $147.6 \pm 1.5 \times 116.7 \pm 2.4$ km, PA $94.3^\circ \pm 2.8^\circ$
Geocentric X -2409.3 ± 0.7 Y 2238.7 ± 0.9 km **N**
Double : Sep $0.0633''$, PA 126.0°



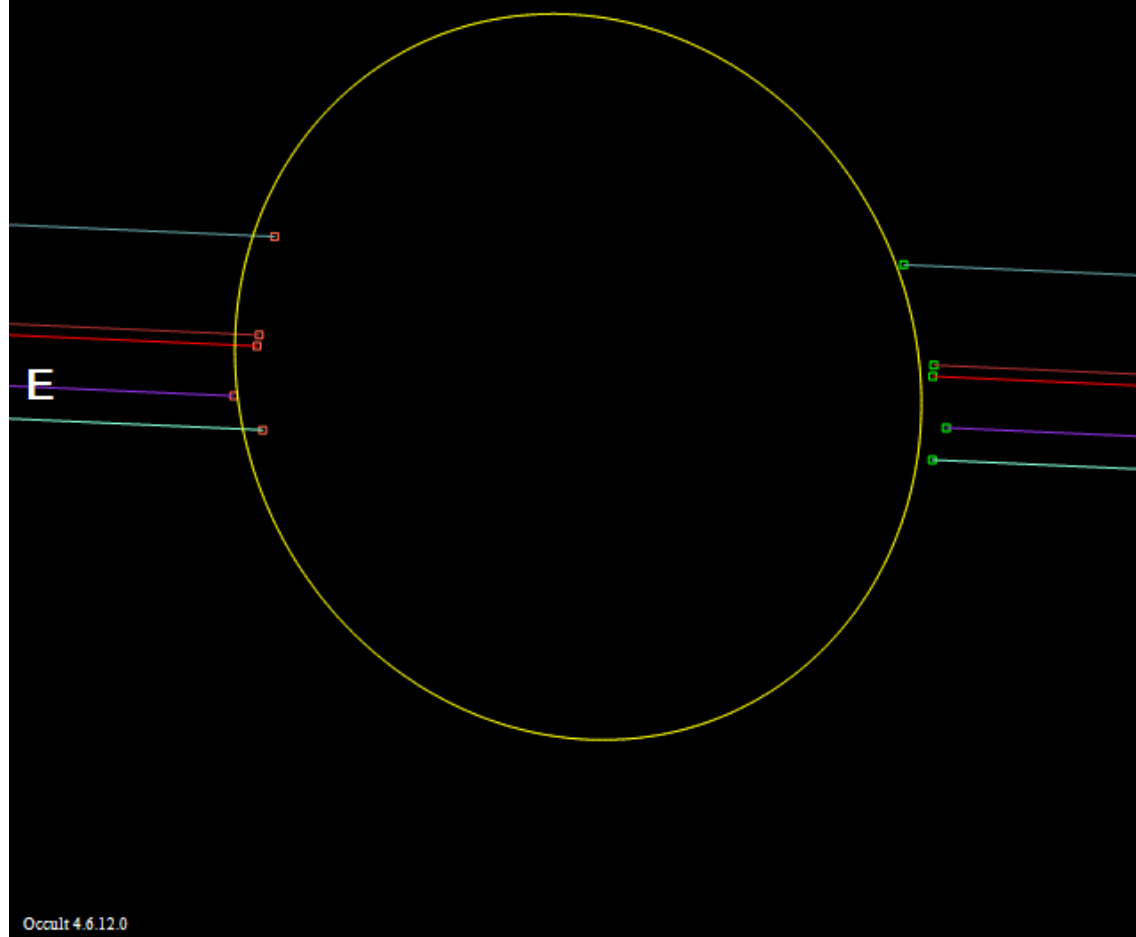
386_Siegena_1999Oct25

(386) Siegena 1999 Oct 25 $211.5 \pm 7.2 \times 160.4 \pm 6.1$ km, PA $61.4^\circ \pm 5.7'$
Geocentric X 3872.0 ± 2.6 Y 3780.5 ± 3.5 km **N**



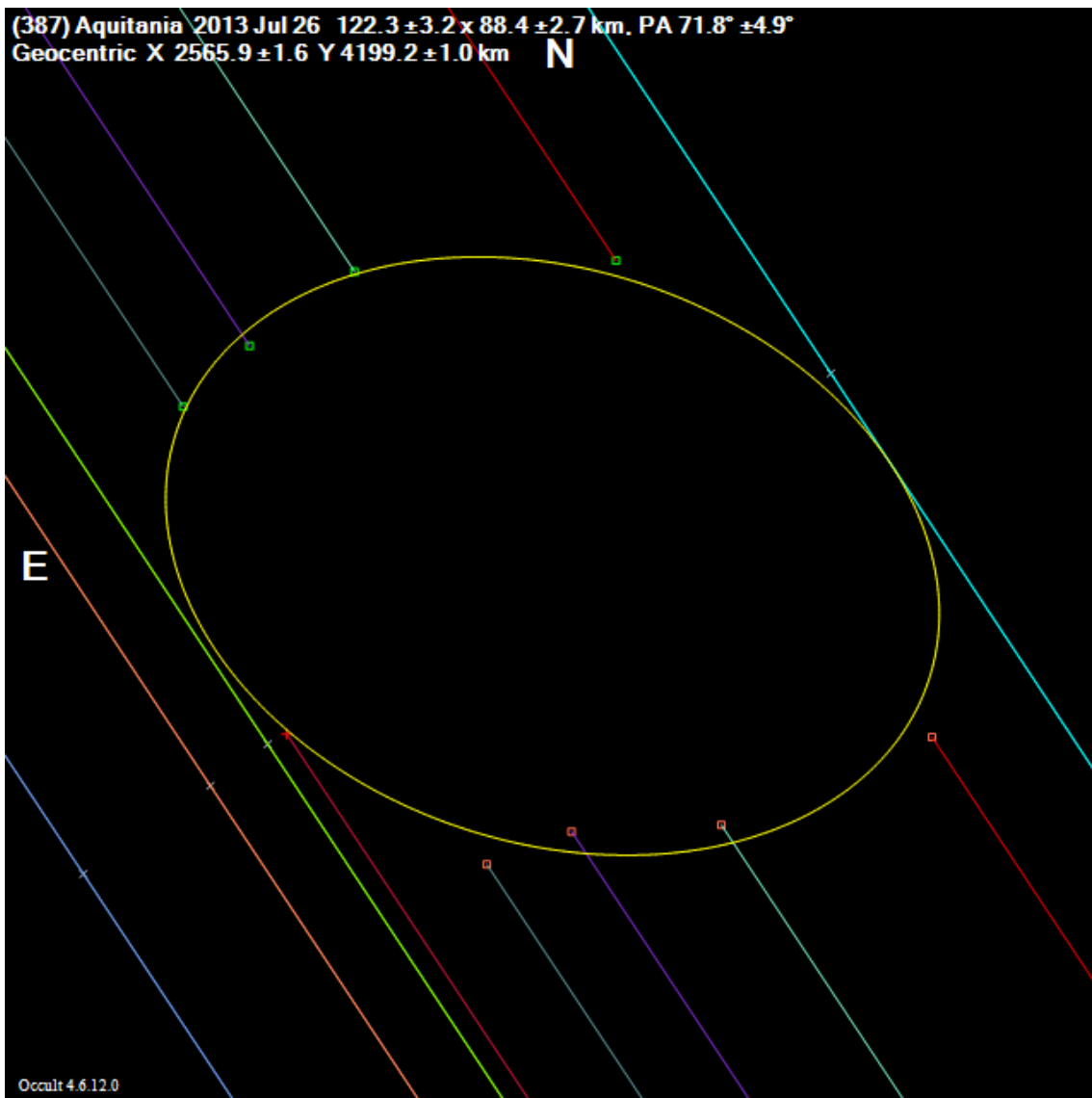
386_Siegena_2017May16

(386) Siegena 2017 May 16 $193.7 \pm 72.8 \times 176.8 \pm 17.0$ km, PA $26.4^\circ \pm 124.5^\circ$
Geocentric X 2608.5 ± 1.6 Y 3290.6 ± 12.3 km **N**



387_Aquitania_2013Jul26

(387) Aquitania 2013 Jul 26 $122.3 \pm 3.2 \times 88.4 \pm 2.7$ km, PA $71.8^\circ \pm 4.9^\circ$
Geocentric X 2565.9 ± 1.6 Y 4199.2 ± 1.0 km **N**

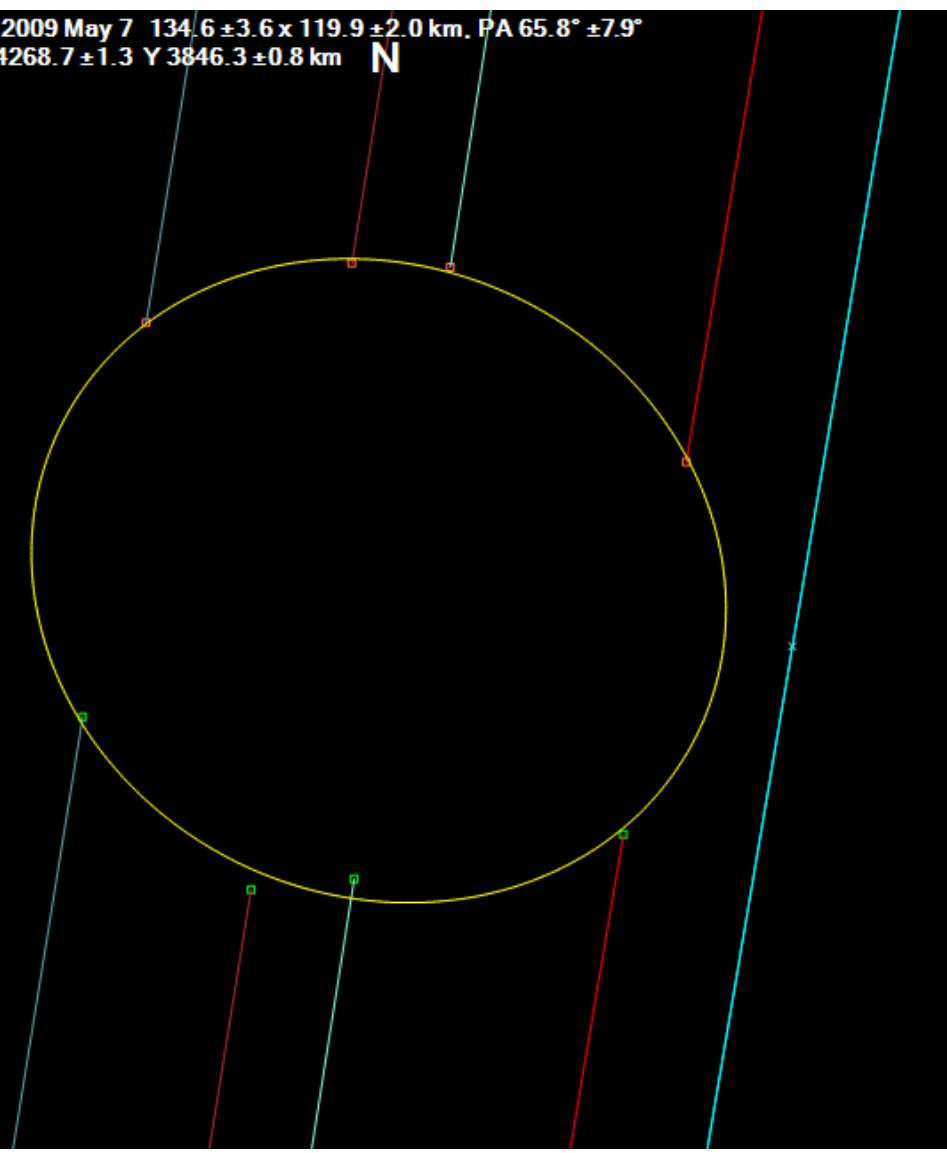


393_Lampetia_2009May07

(393) Lampetia 2009 May 7 $134.6 \pm 3.6 \times 119.9 \pm 2.0$ km, PA $65.8^\circ \pm 7.9^\circ$
Geocentric X -4268.7 ± 1.3 Y 3846.3 ± 0.8 km **N**

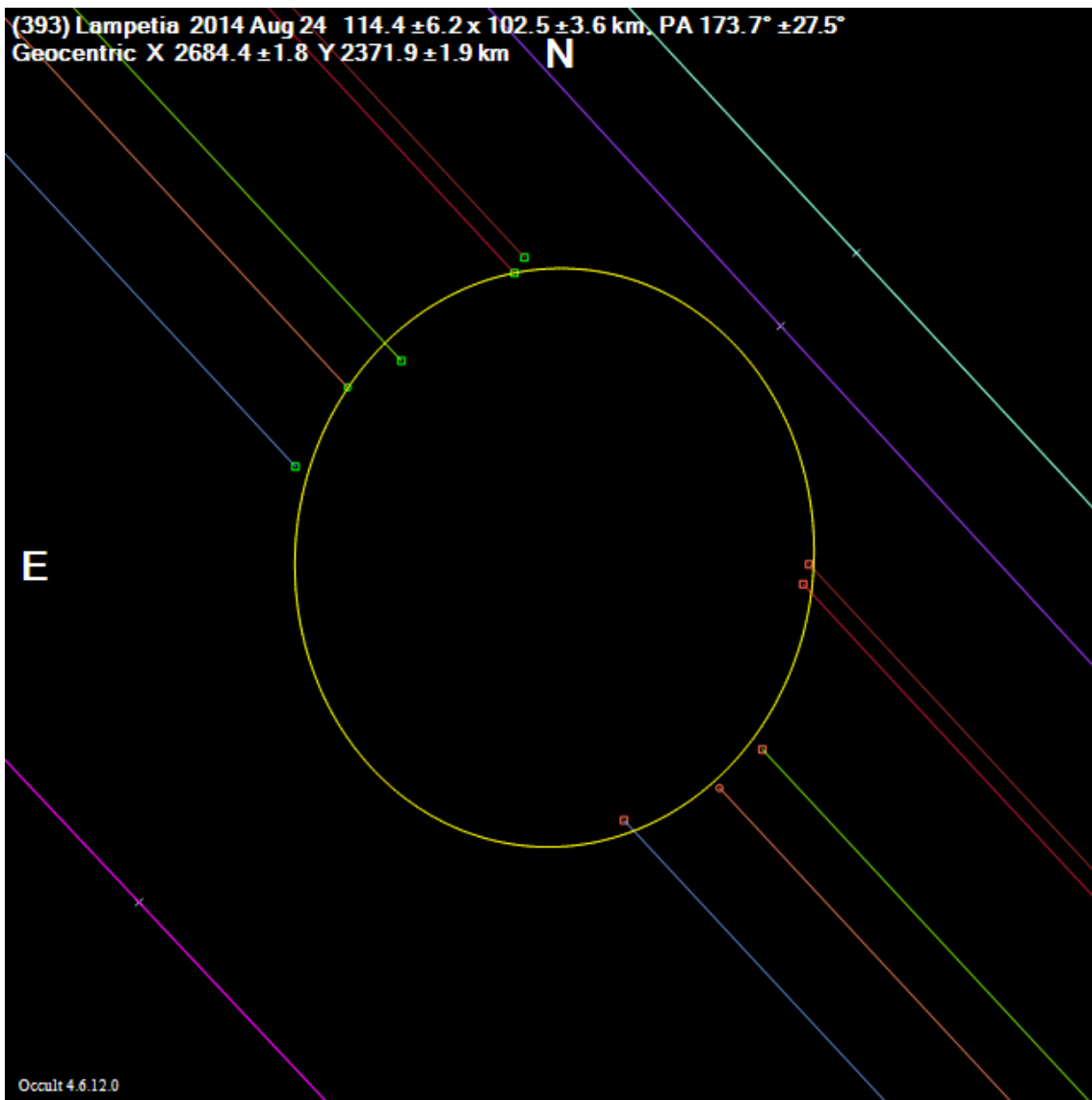
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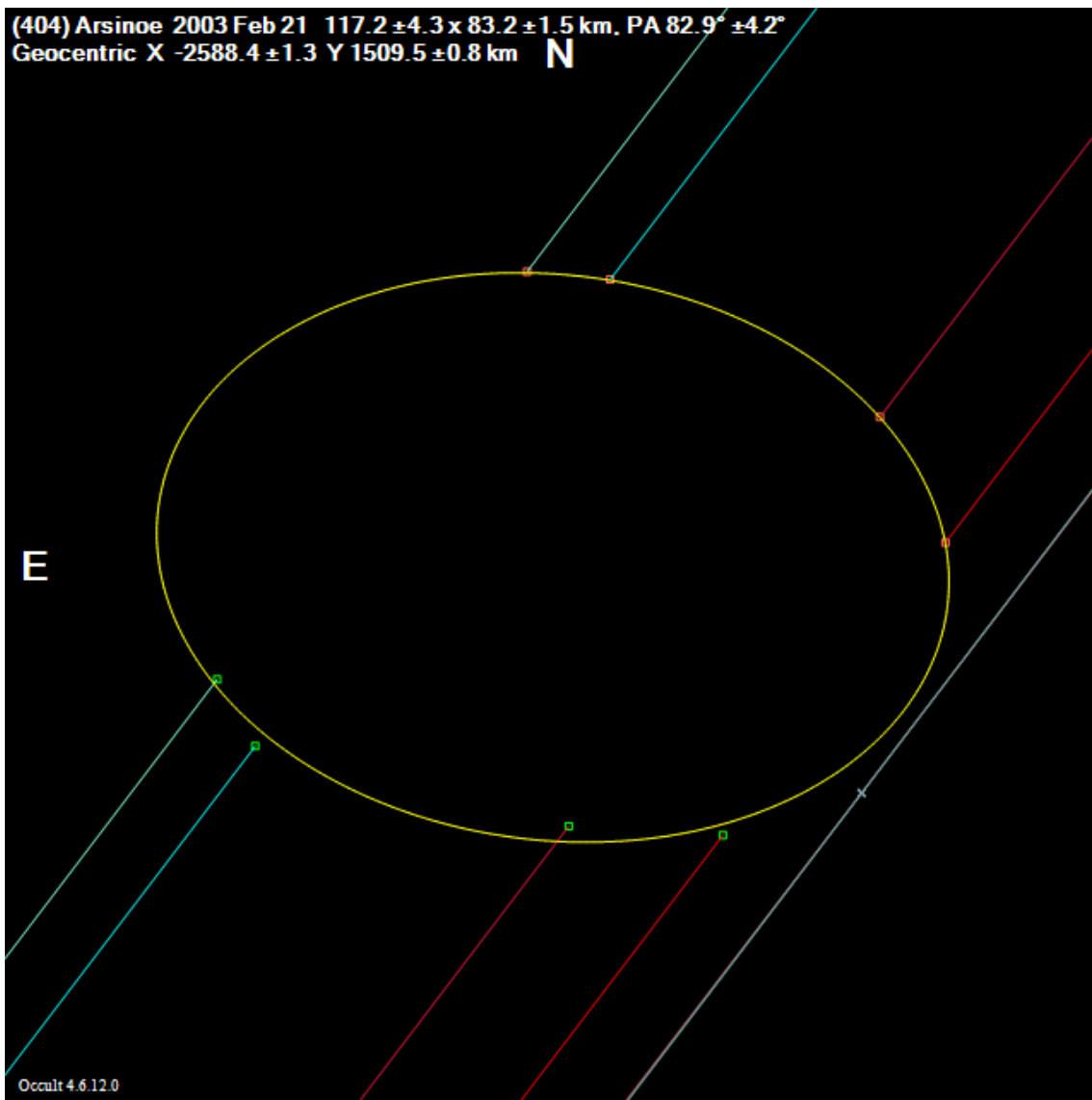
393_Lampetia_2014Aug24

(393) Lampetia 2014 Aug 24 $114.4 \pm 6.2 \times 102.5 \pm 3.6$ km, PA $173.7^\circ \pm 27.5^\circ$
Geocentric X 2684.4 ± 1.8 Y 2371.9 ± 1.9 km



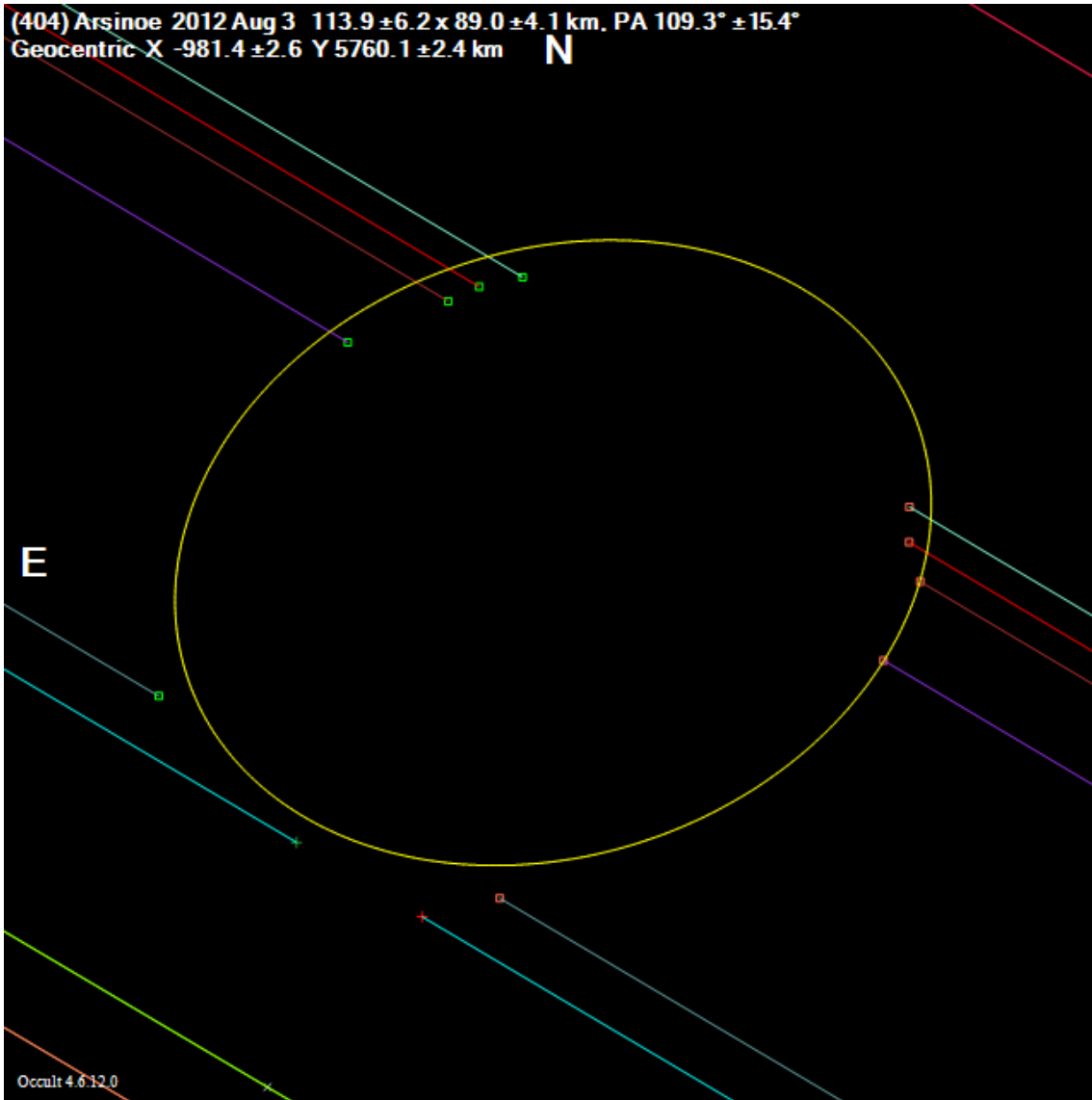
404_Arsinoe_2003Feb21

(404) Arsinoe 2003 Feb 21 $117.2 \pm 4.3 \times 83.2 \pm 1.5$ km. PA $82.9^\circ \pm 4.2^\circ$
Geocentric X -2588.4 ± 1.3 Y 1509.5 ± 0.8 km **N**



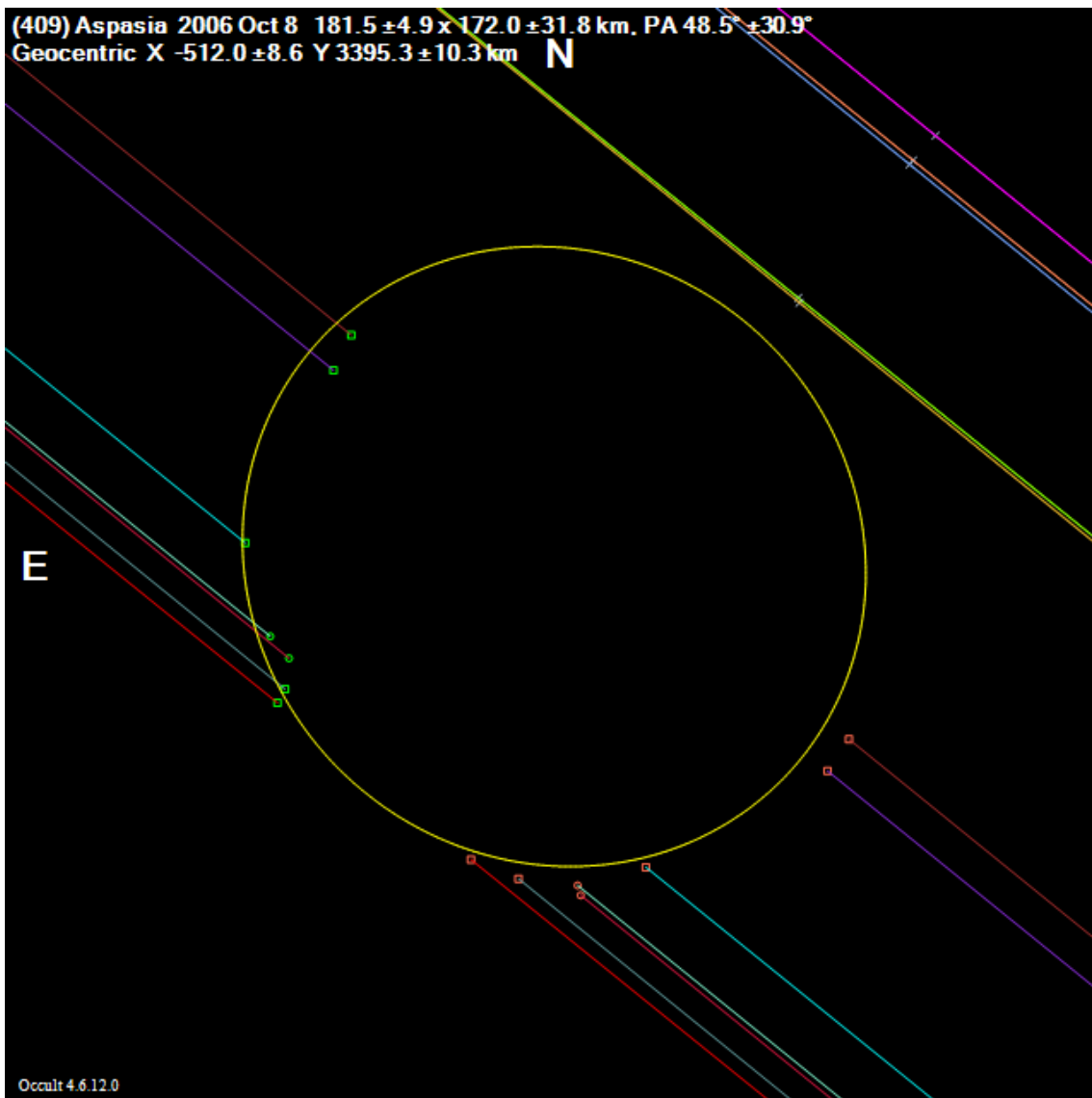
404_Arsinoe_2012Aug03

(404) Arsinoe 2012 Aug 3 $113.9 \pm 6.2 \times 89.0 \pm 4.1$ km, PA $109.3^\circ \pm 15.4^\circ$
Geocentric X -981.4 ± 2.6 Y 5760.1 ± 2.4 km **N**



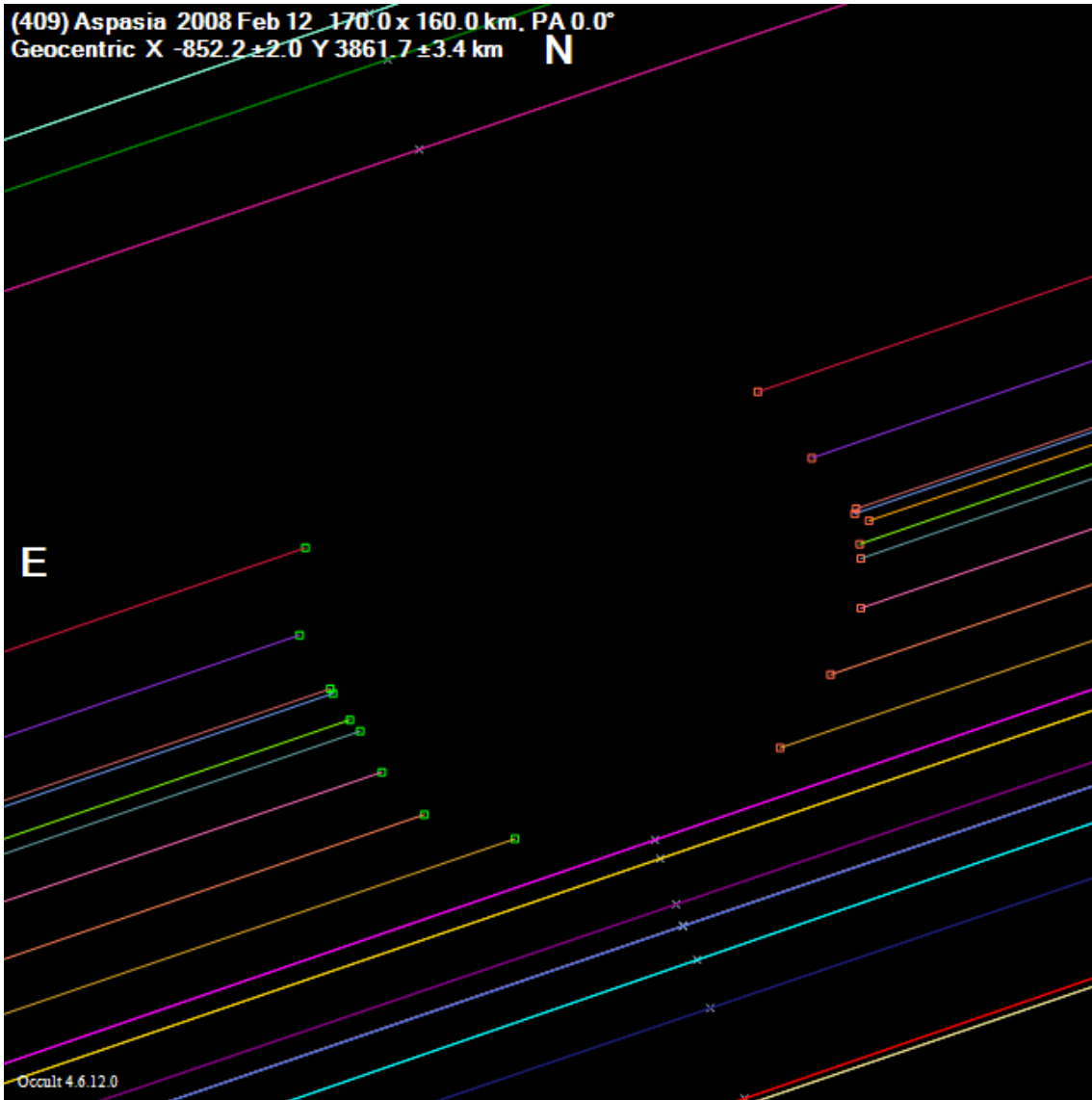
409_Aspasia_2006Oct08

(409) Aspasia 2006 Oct 8 $181.5 \pm 4.9 \times 172.0 \pm 31.8$ km. PA $48.5^\circ \pm 30.9^\circ$
Geocentric X -512.0 ± 8.6 Y 3395.3 ± 10.3 km **N**



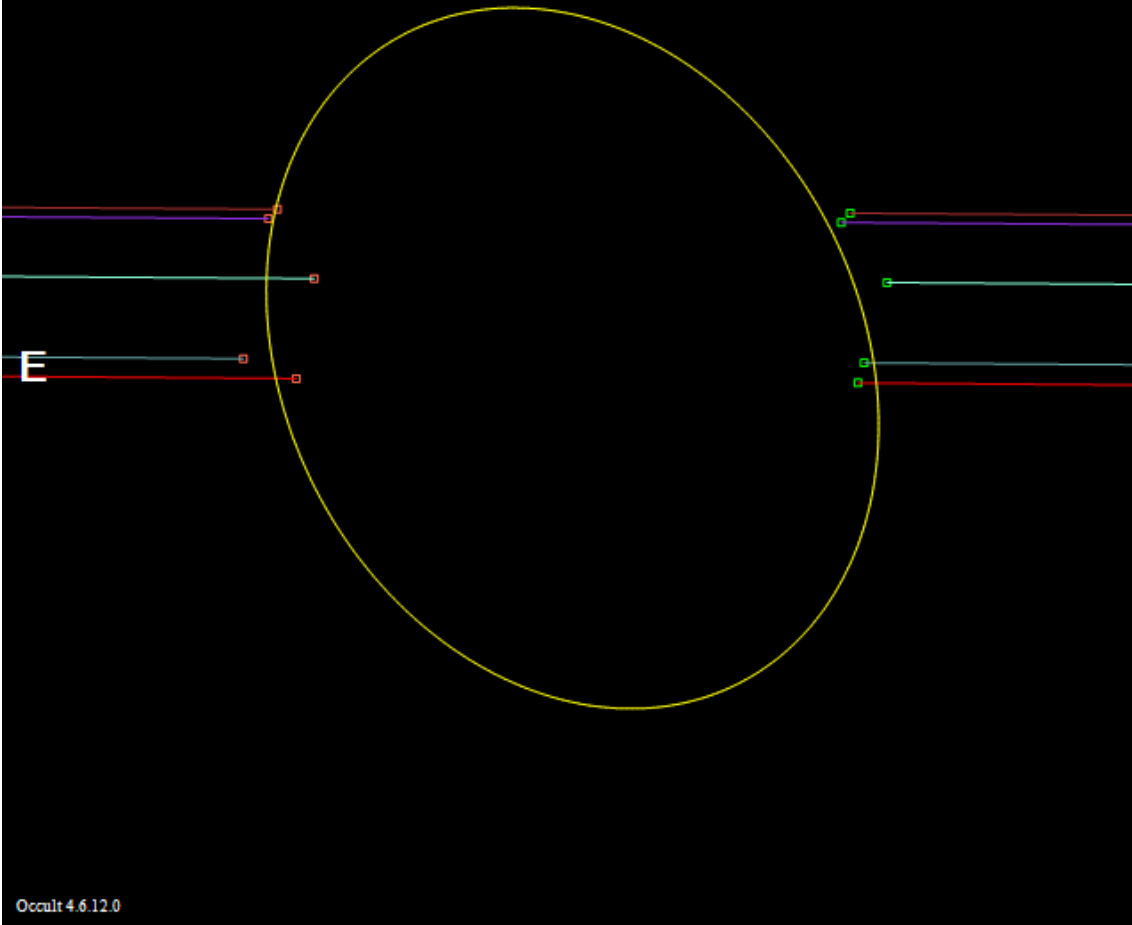
409_Aspasia_2008Feb12

(409) Aspasia 2008 Feb 12 170.0 x 160.0 km. PA 0.0°
Geocentric X -852.2 ± 2.0 Y 3861.7 ± 3.4 km **N**



409_Aspasia_2015Aug20

(409) Aspasia 2015 Aug 20 200.0 ± 252.4 x 158.0 ± 37.8 km. PA 27.4° ± 125.1°
Geocentric X -3438.9 ± 10.5 Y 2946.5 ± 59.2 km **N**



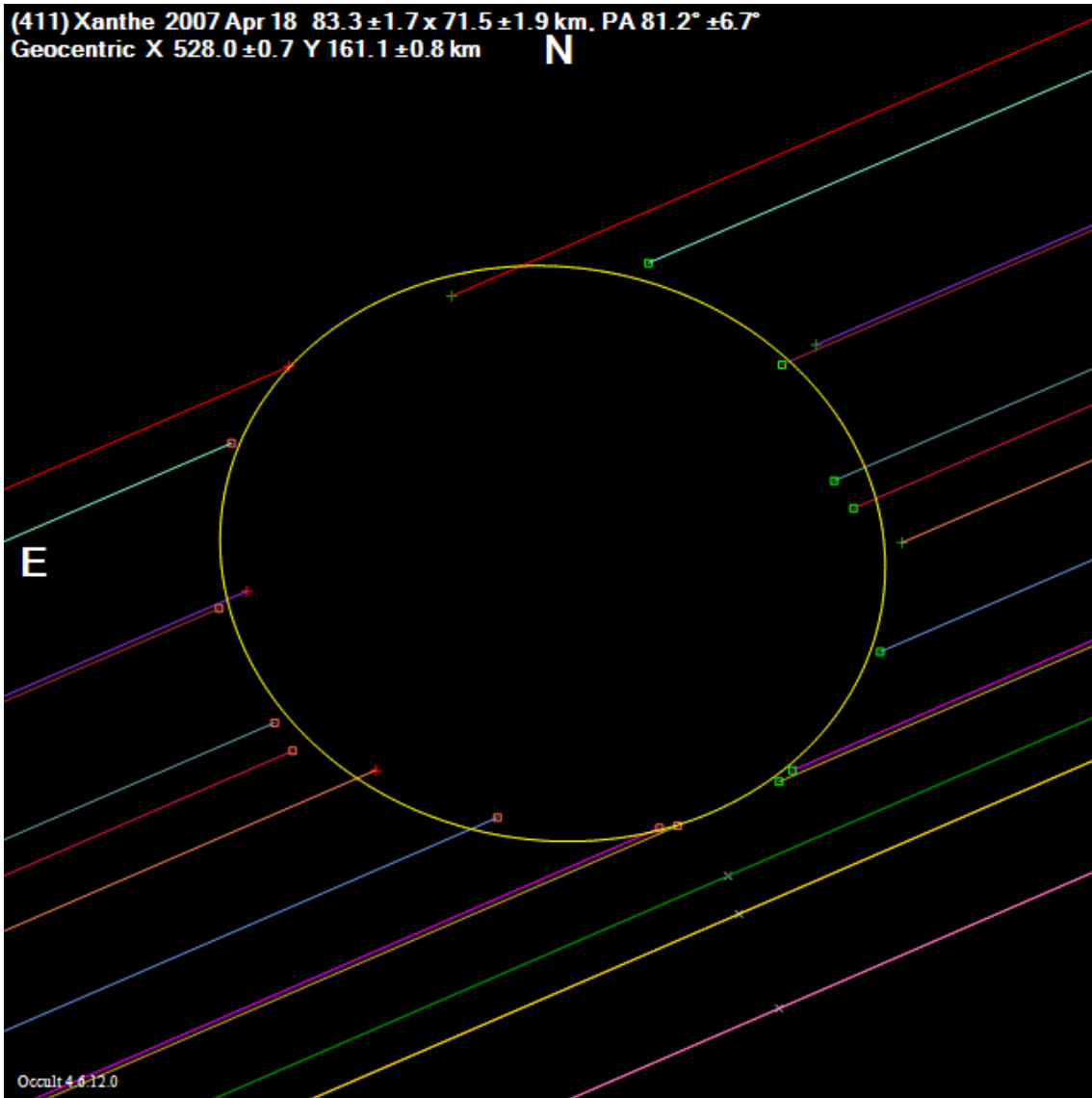
409_Aspasia_2015Sep04

(409) Aspasia 2015 Sep 4 183.9 ± 8.9 x 145.5 ± 6.6 km, PA 24.8° ± 9.1°
Geocentric X -4119.5 ± 3.0 Y 2630.9 ± 3.4 km **N**



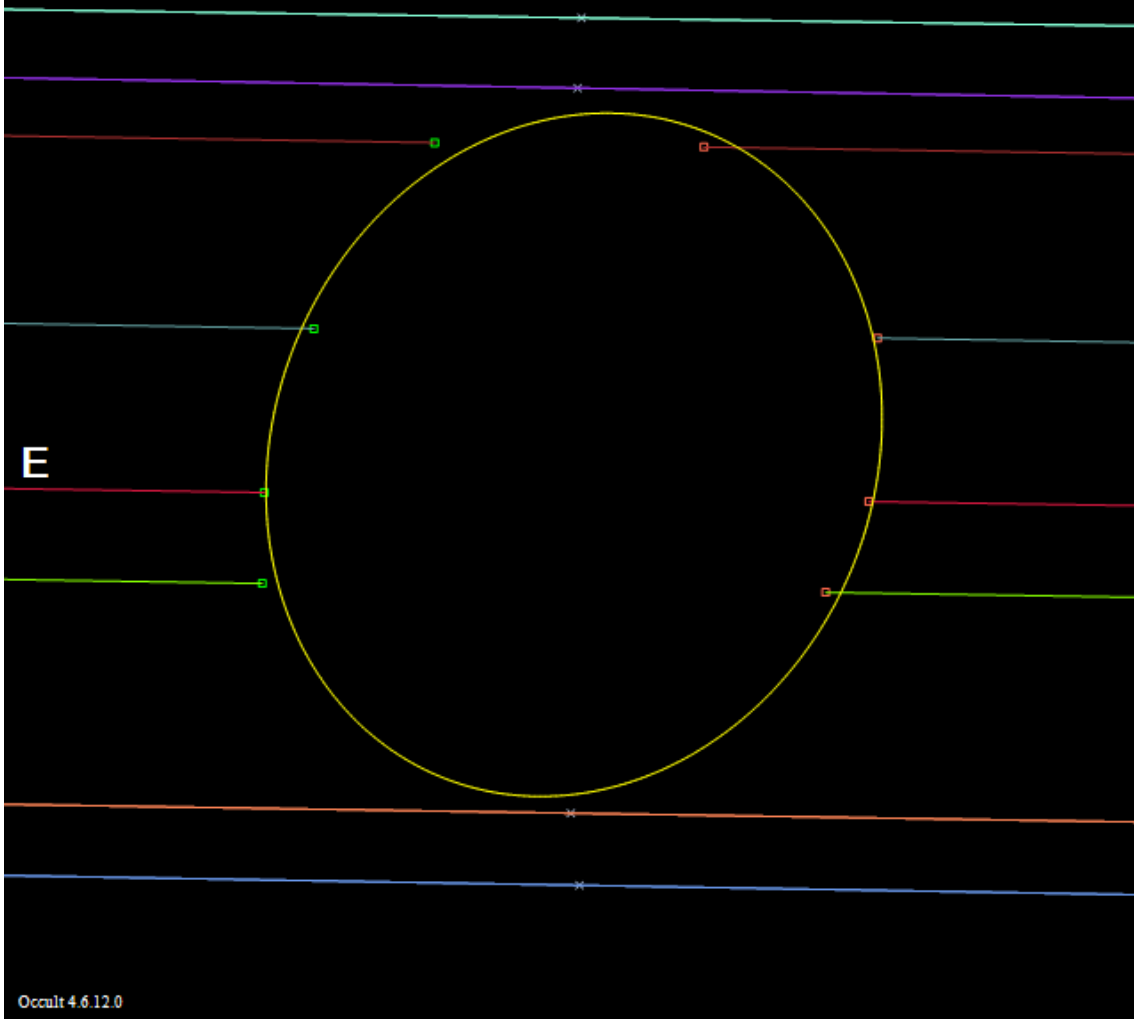
411_Xanthe_2007Apr18

(411) Xanthe 2007 Apr 18 $83.3 \pm 1.7 \times 71.5 \pm 1.9$ km, PA $81.2^\circ \pm 6.7^\circ$
Geocentric X 528.0 ± 0.7 Y 161.1 ± 0.8 km **N**



419_Aurelia_2006Dec05

(419) Aurelia 2006 Dec 5 $135.9 \pm 7.9 \times 117.1 \pm 2.5$ km, PA $156.9^\circ \pm 11.8^\circ$
Geocentric X -3991.0 ± 1.1 Y 2401.7 ± 3.4 km **N**



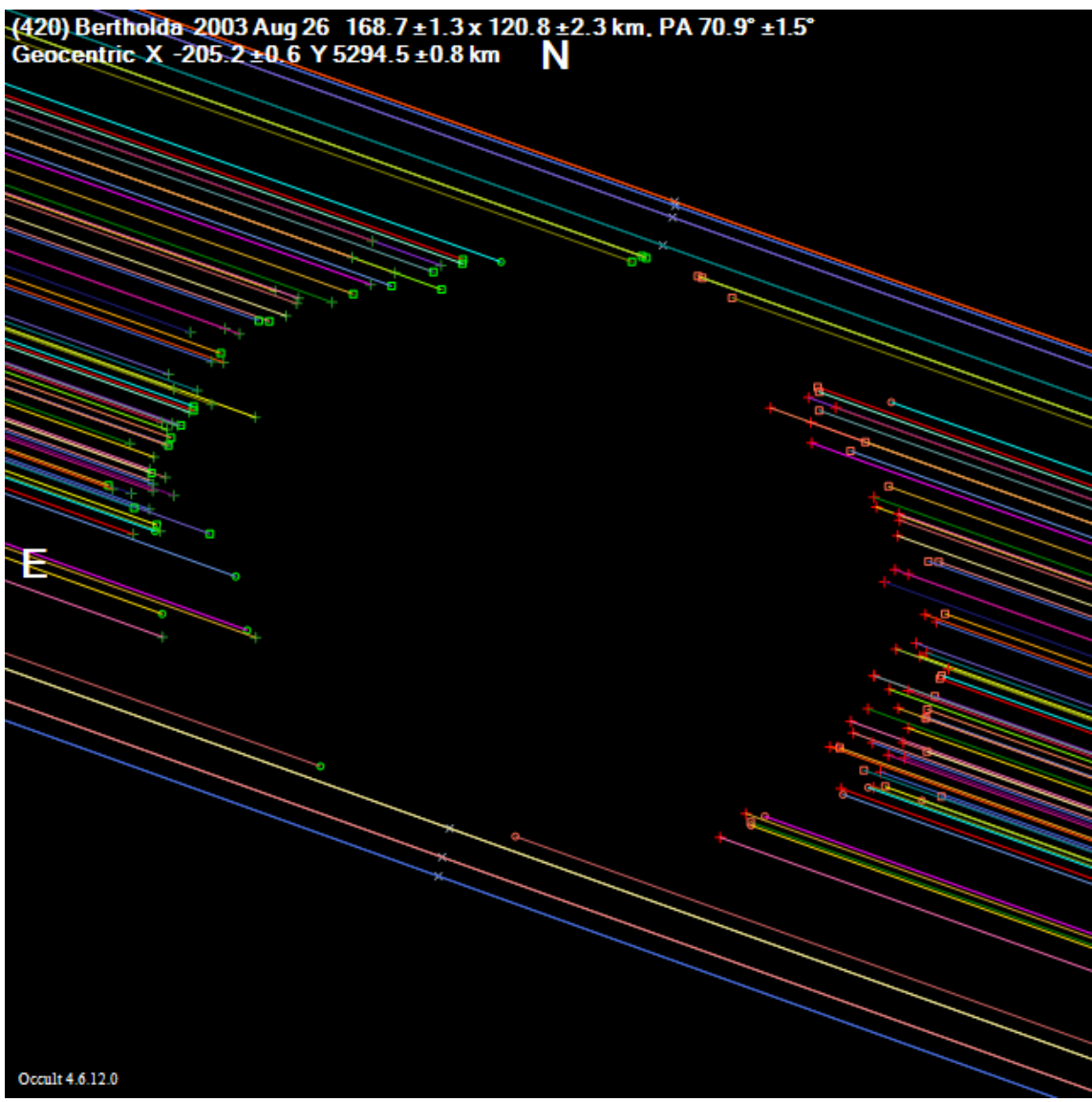
420_Bertholda_2003Aug26

(420) Bertholda 2003 Aug 26 $168.7 \pm 1.3 \times 120.8 \pm 2.3$ km, PA $70.9^\circ \pm 1.5^\circ$
Geocentric X -205.2 ± 0.6 Y 5294.5 ± 0.8 km

N

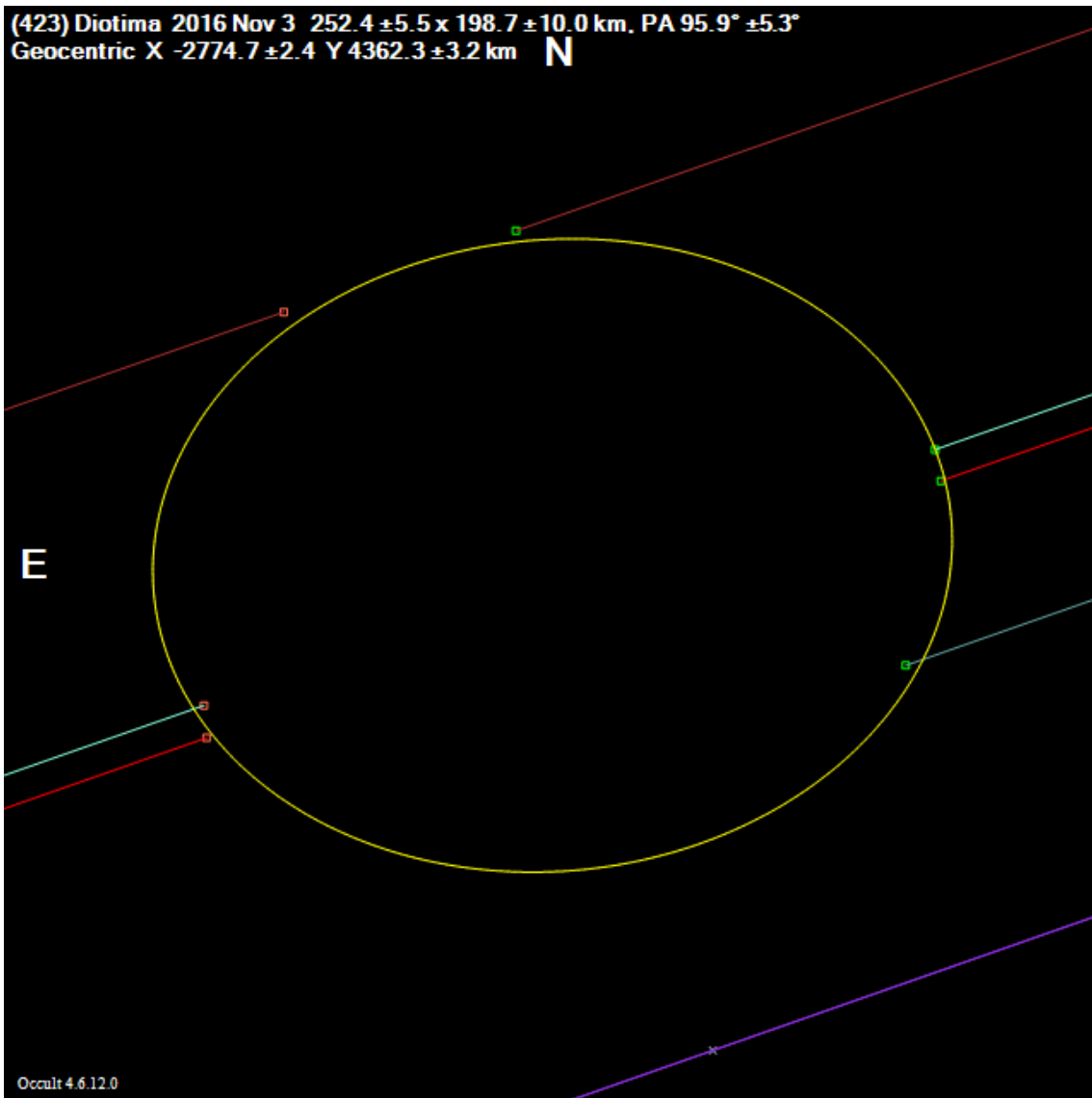
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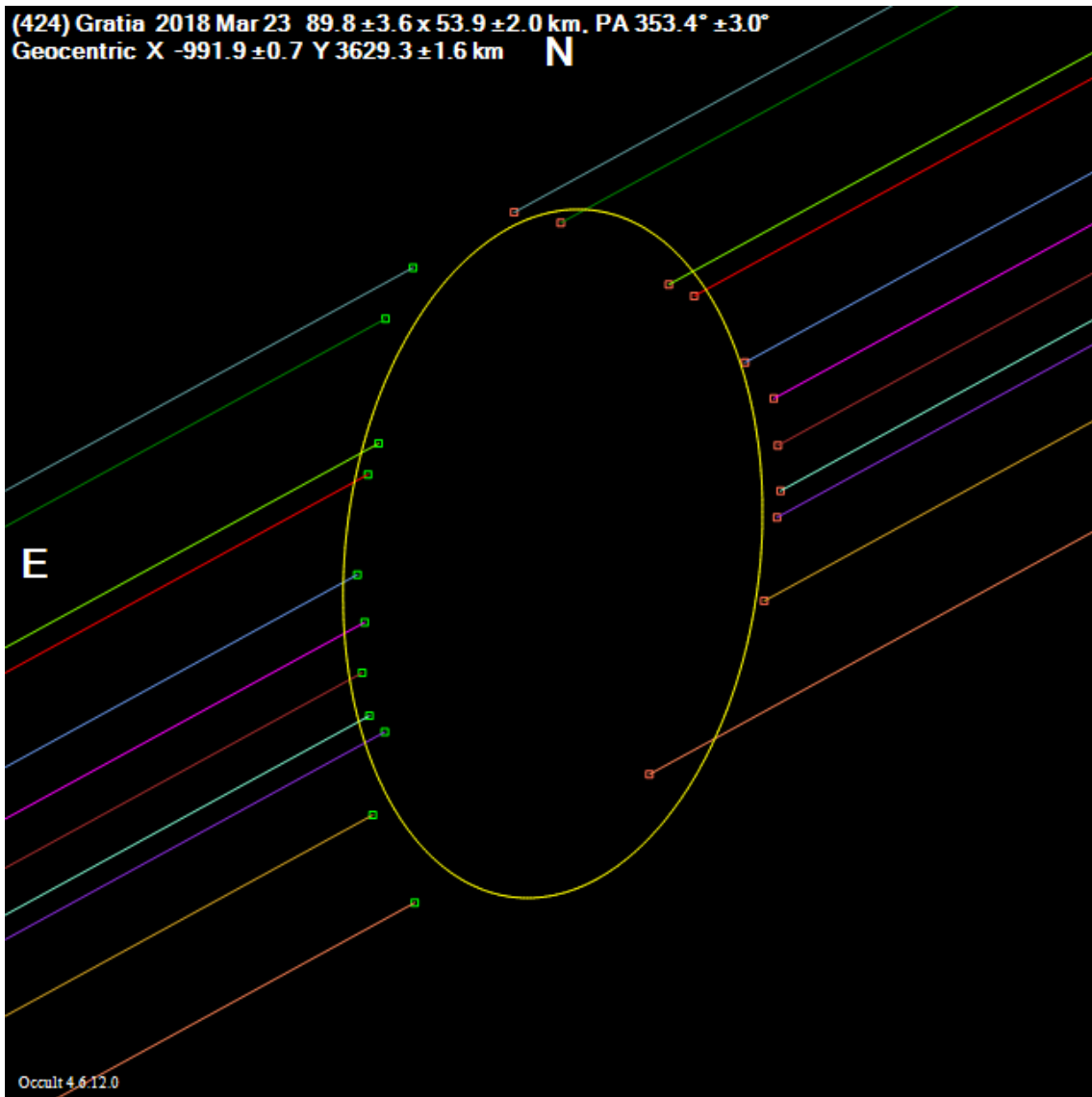
423_Diotima_2016Nov03

(423) Diotima 2016 Nov 3 $252.4 \pm 5.5 \times 198.7 \pm 10.0$ km. PA $95.9^\circ \pm 5.3^\circ$
Geocentric X -2774.7 ± 2.4 Y 4362.3 ± 3.2 km **N**



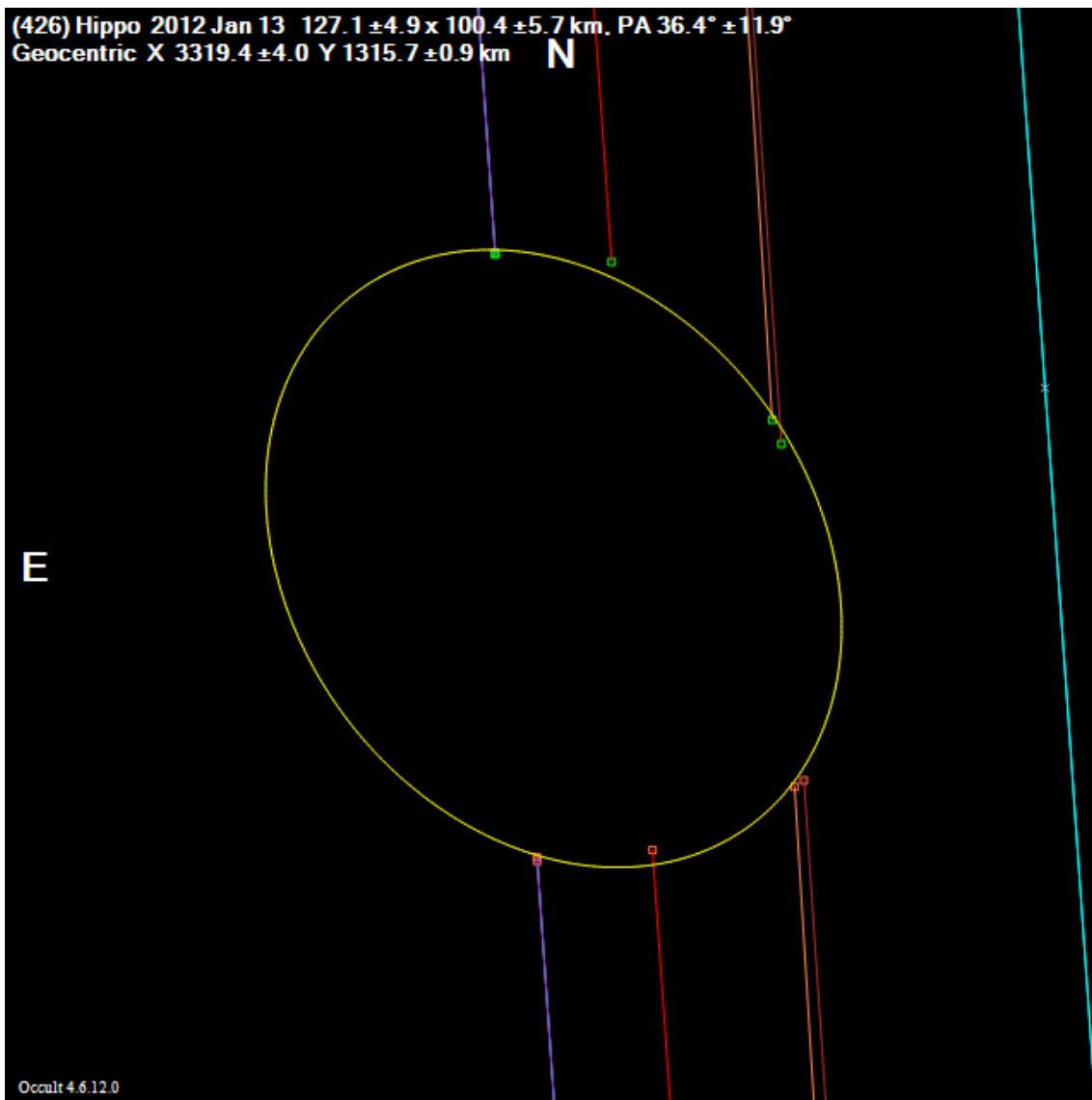
424_Gratia_2018Mar23

(424) Gratia 2018 Mar 23 $89.8 \pm 3.6 \times 53.9 \pm 2.0$ km. PA $353.4^\circ \pm 3.0^\circ$
Geocentric X -991.9 ± 0.7 Y 3629.3 ± 1.6 km **N**



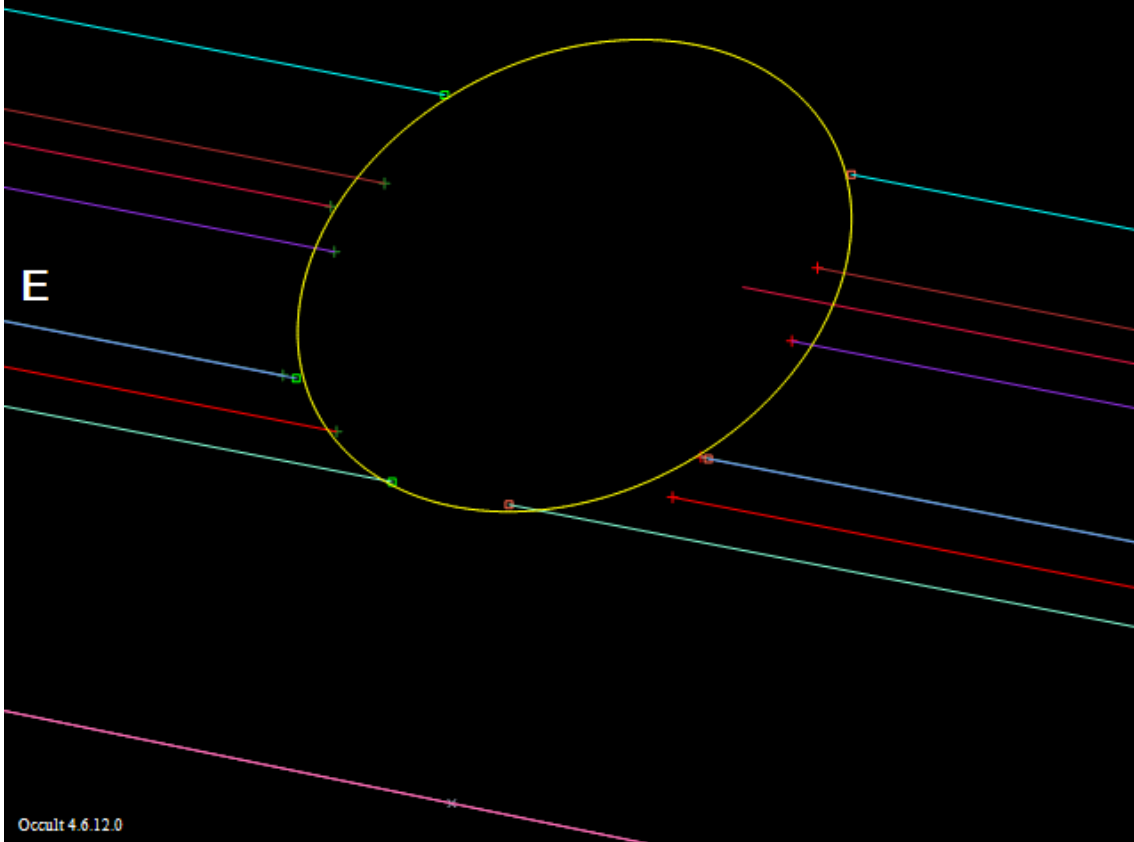
426_Hippo_2012Jan13

(426) Hippo 2012 Jan 13 $127.1 \pm 4.9 \times 100.4 \pm 5.7$ km, PA $36.4^\circ \pm 11.9^\circ$
Geocentric X 3319.4 ± 4.0 Y 1315.7 ± 0.9 km



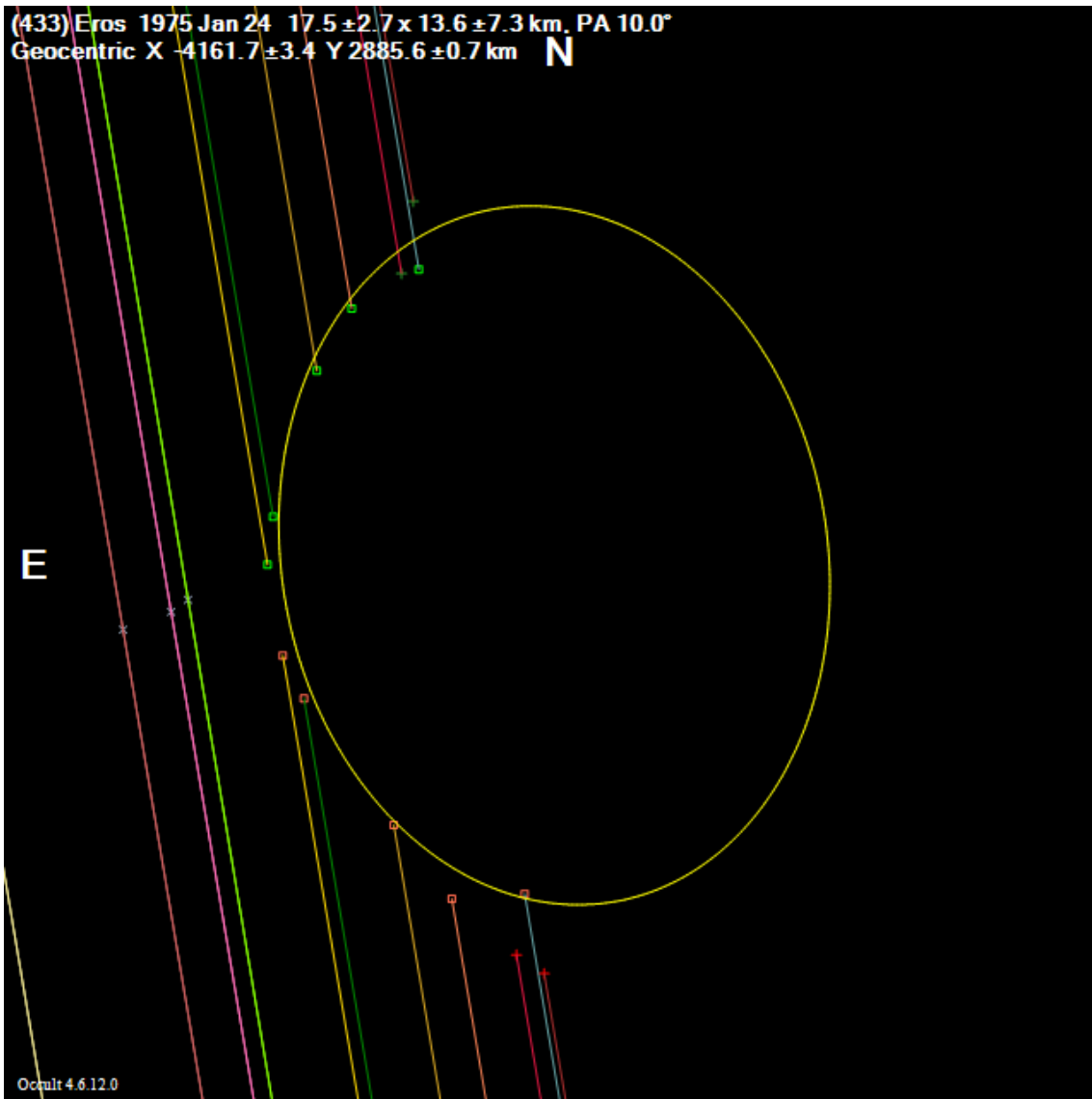
431_Nephele_2002Nov03

(431) Nephele 2002 Nov 3 $79.5 \pm 2.0 \times 59.3 \pm 1.8$ km, PA $118.0^\circ \pm 6.3^\circ$
Geocentric X -4415.6 ± 0.8 Y 3366.3 ± 1.1 km **N**



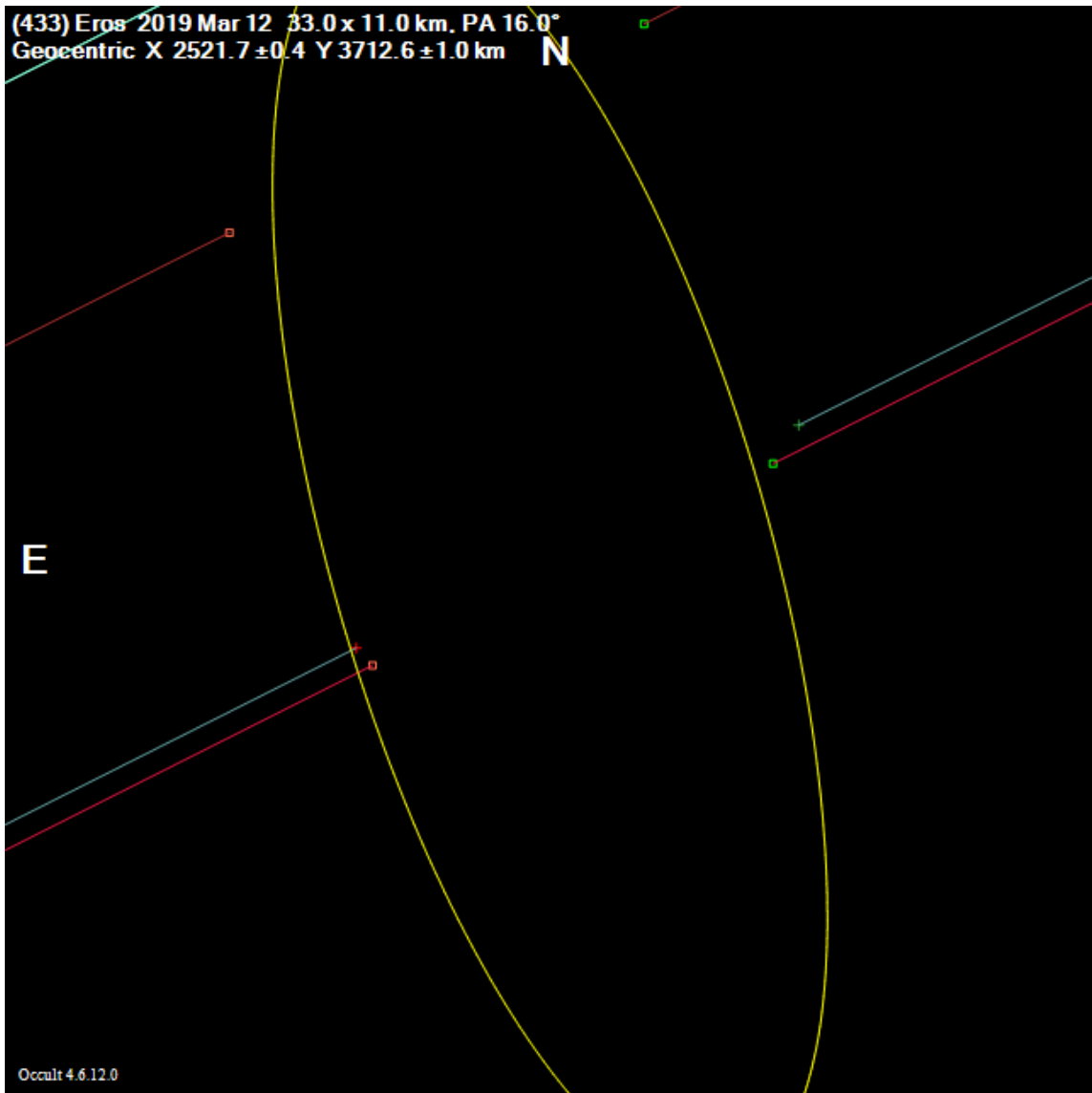
433_Eros_1975Jan24

(433) Eros 1975 Jan 24 $17.5 \pm 2.7 \times 13.6 \pm 7.3$ km, PA 10.0°
Geocentric X -4161.7 ± 3.4 Y 2885.6 ± 0.7 km **N**



433_Eros_2019Mar12

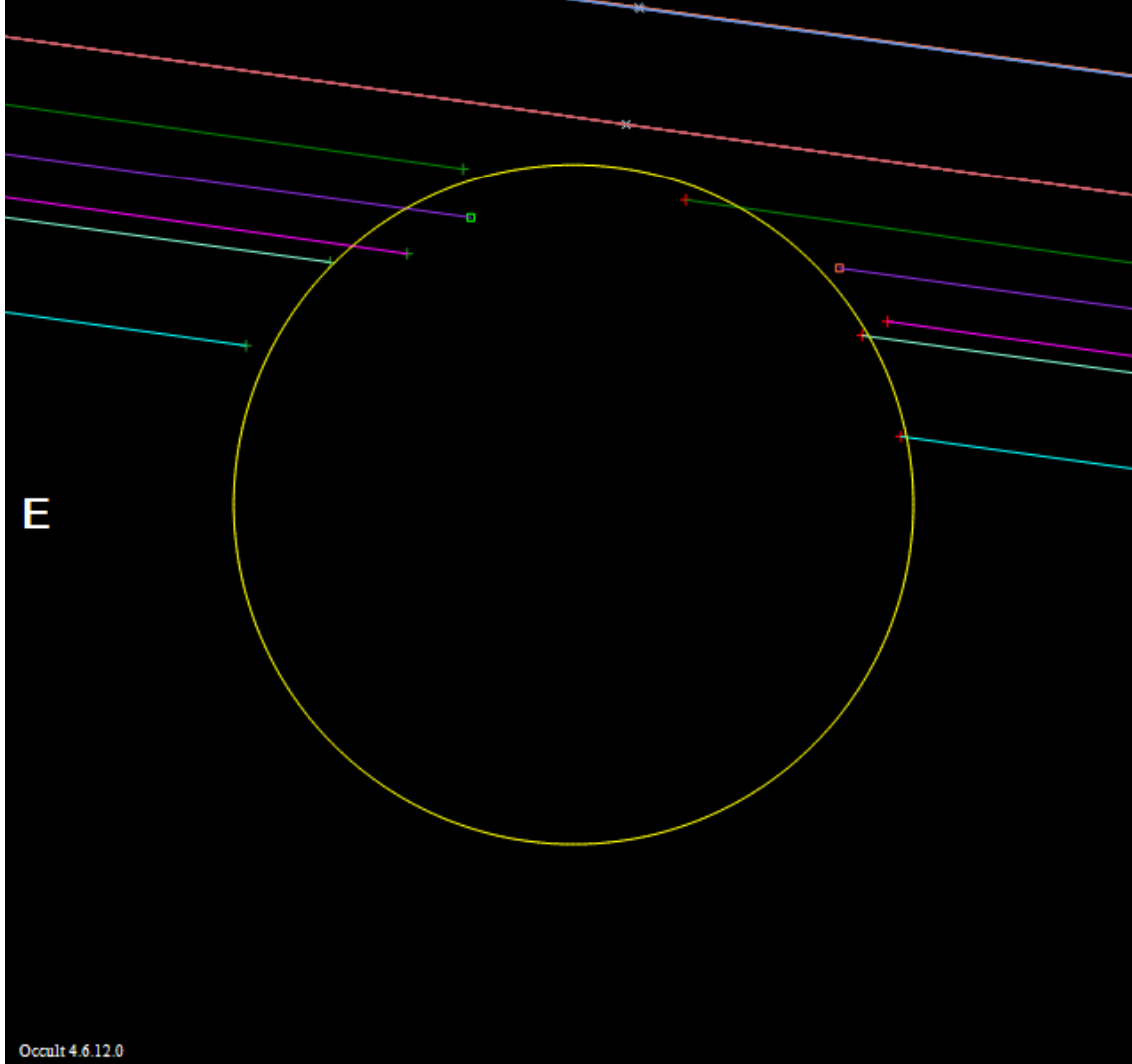
(433) Eros 2019 Mar 12 33.0 x 11.0 km, PA 16.0°
Geocentric X 2521.7 ± 0.4 Y 3712.6 ± 1.0 km



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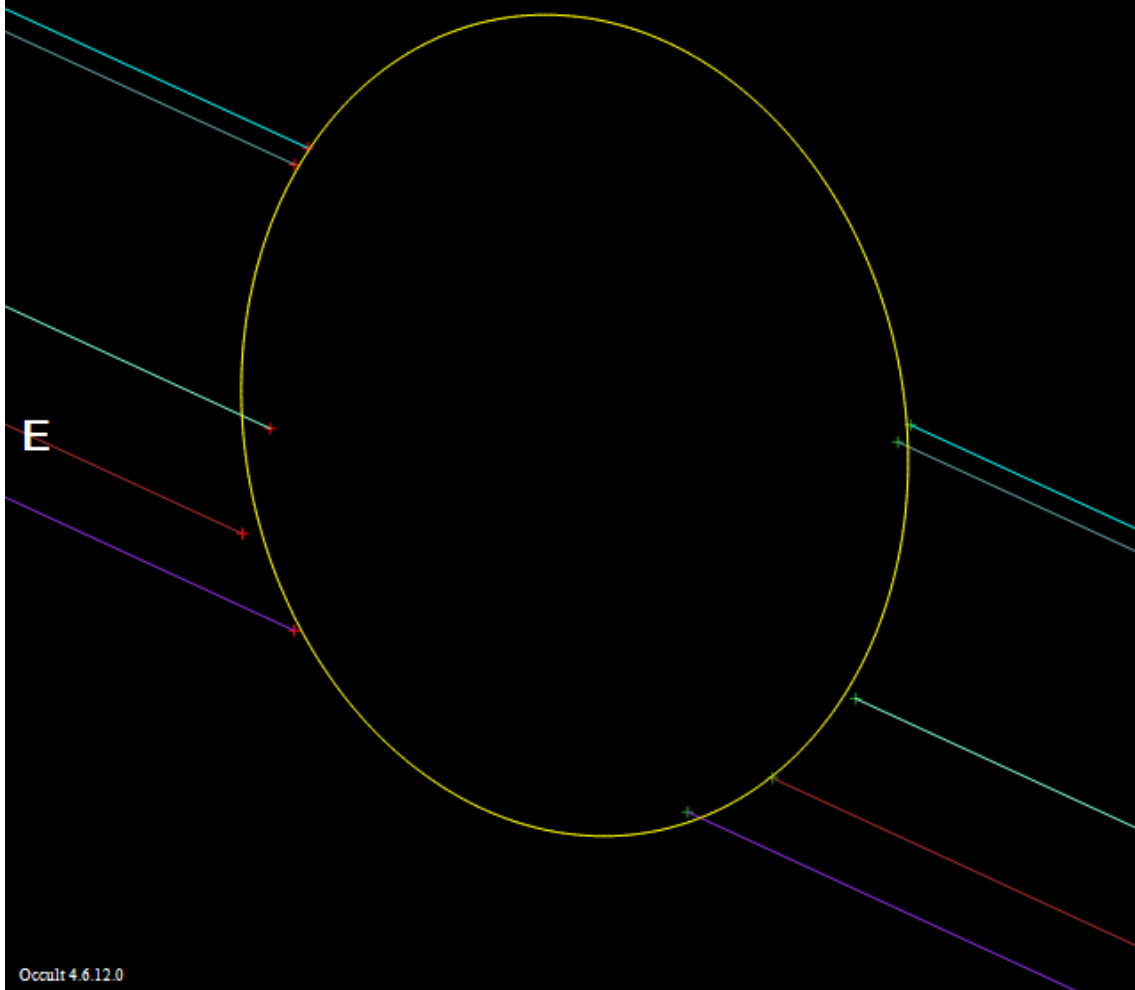
441_Bathilde_2003Jan11

(441) Bathilde 2003 Jan 11 65.0 x 65.0 km. PA 0.0°
Geocentric X -1995.7 ± 1.0 Y 3385.3 ± 0.9 km **N**



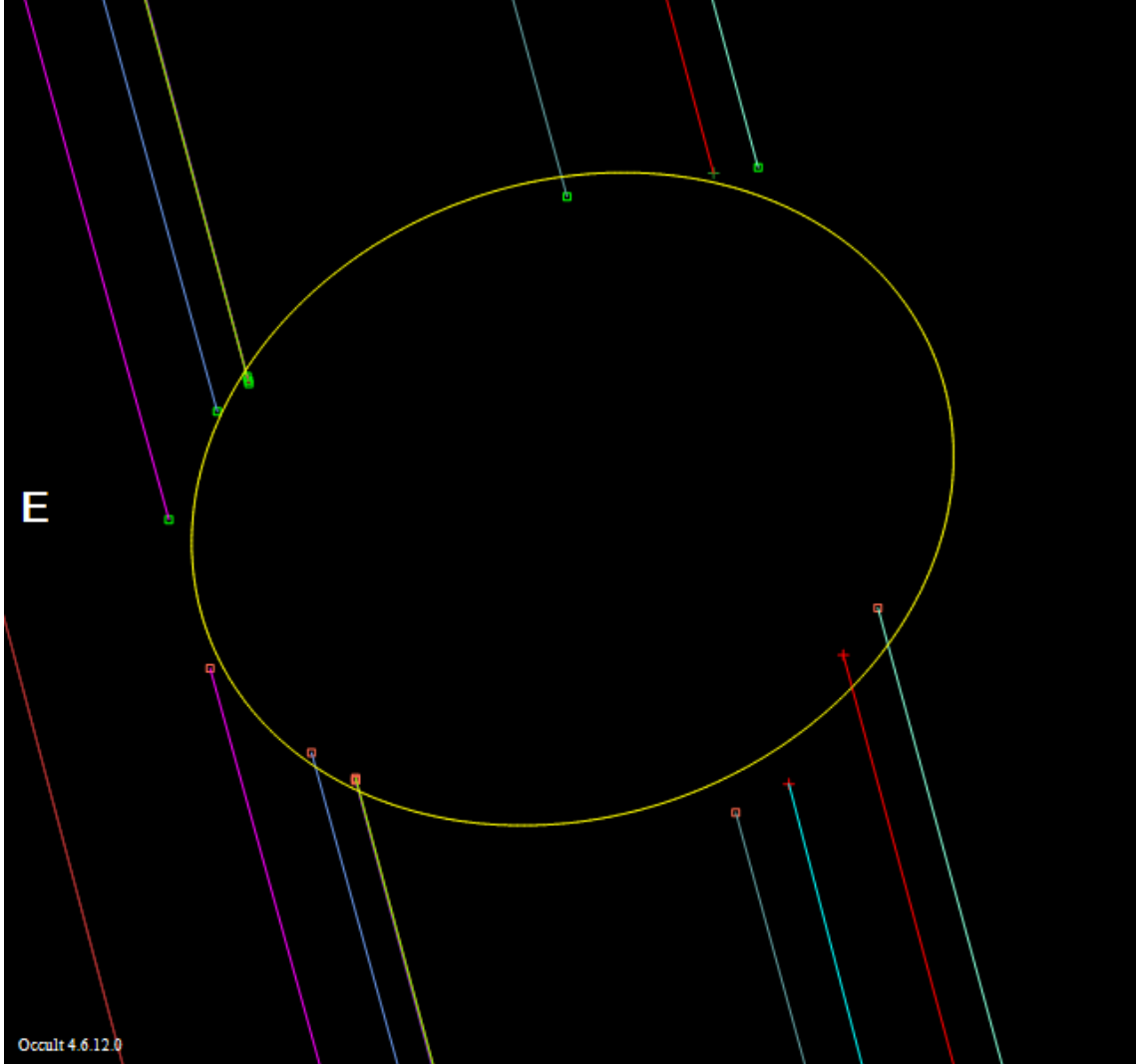
444_Gyptis_1994Jan08

(444) Gyptis 1994 Jan 8 $192.8 \pm 9.9 \times 153.9 \pm 2.9$ km. PA $11.3^\circ \pm 10.2^\circ$
Geocentric X 4335.9 ± 1.4 Y -4032.1 ± 3.6 km **N**



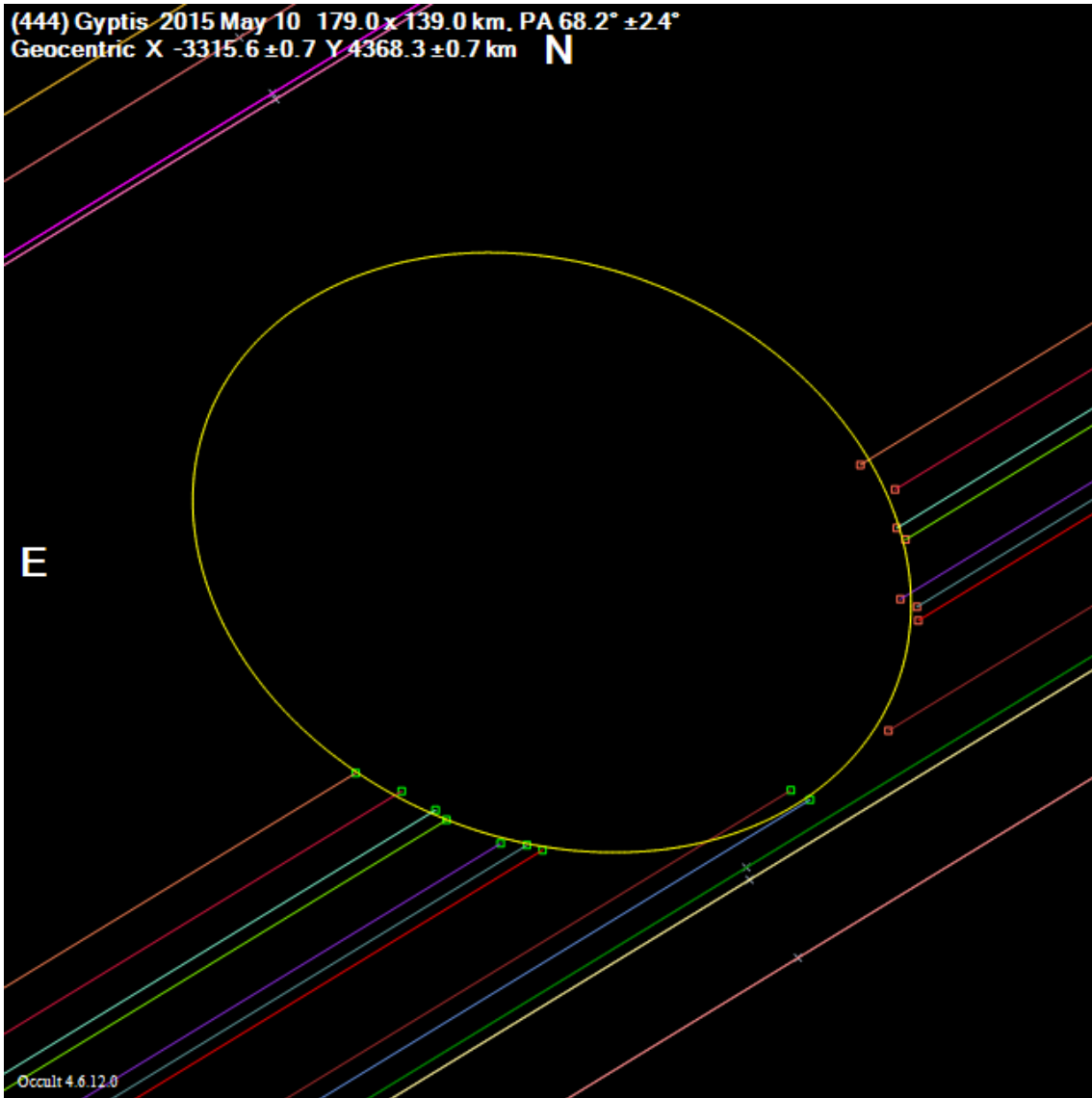
444_Gyptis_2007Oct14

(444) Gyptis 2007 Oct 14 $181.9 \pm 8.2 \times 148.2 \pm 5.2$ km. PA $110.2^\circ \pm 4.8^\circ$
Geocentric X -2448.3 ± 2.8 Y 3572.9 ± 1.9 km **N**



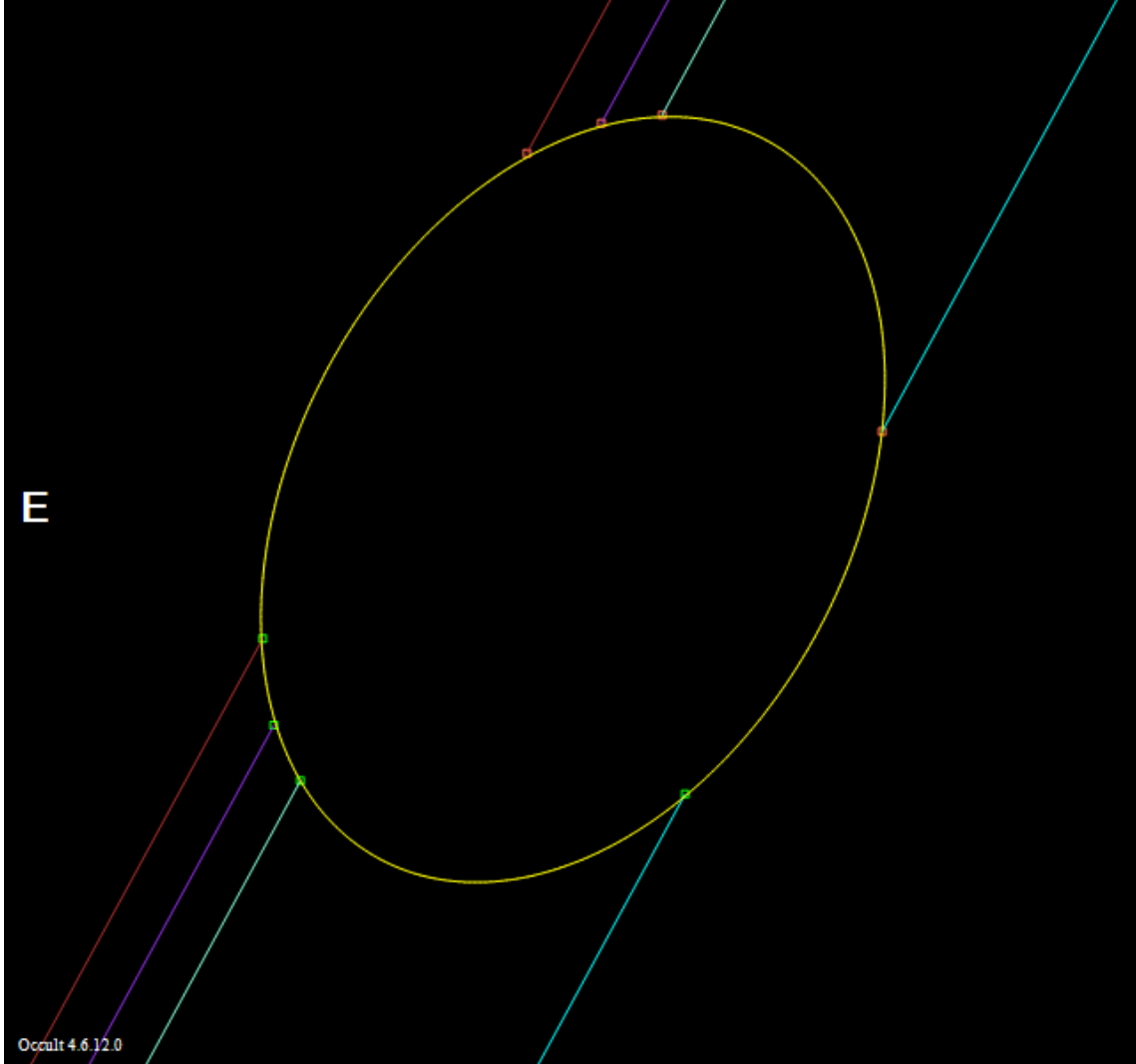
444_Gyptis_2015May10

(444) Gyptis 2015 May 10 179.0 x 139.0 km. PA 68.2° ± 2.4°
Geocentric X -3315.6 ± 0.7 Y 4368.3 ± 0.7 km **N**



444_Gyptis_2018Mar18

(444) Gyptis 2018 Mar 18 $190.8 \pm 0.6 \times 130.1 \pm 0.5$ km. PA $151.7^\circ \pm 0.3^\circ$
Geocentric X 900.7 ± 0.2 Y 3023.8 ± 0.2 km **N**



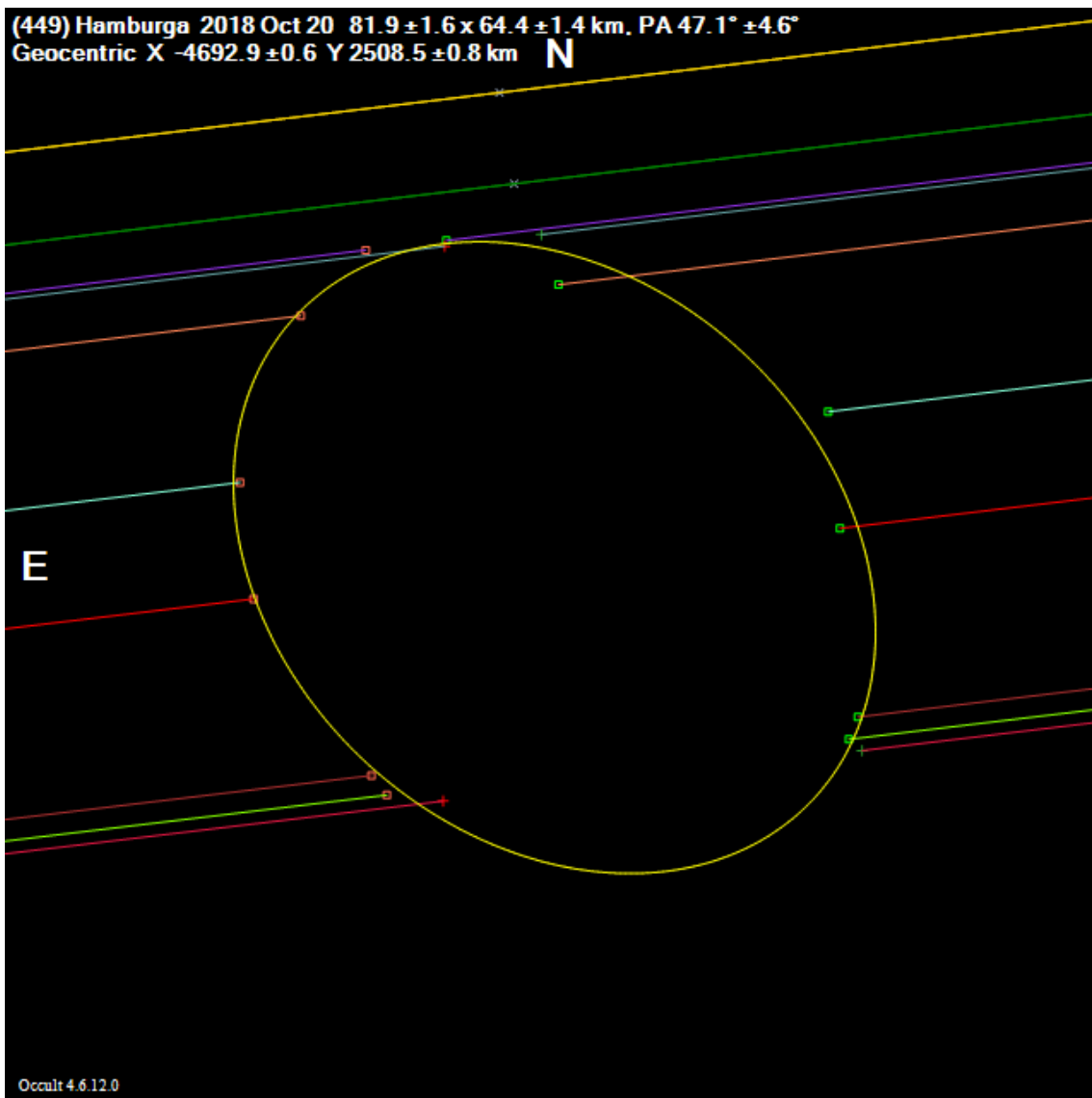
449_Hamburga_2009Sep09

(449) Hamburga 2009 Sep 9 $84.4 \pm 2.2 \times 55.7 \pm 1.8$ km. PA $325.5^\circ \pm 3.4^\circ$
Geocentric X -2110.5 ± 0.8 Y 3472.6 ± 0.9 km **N**



449_Hamburga_2018Oct20

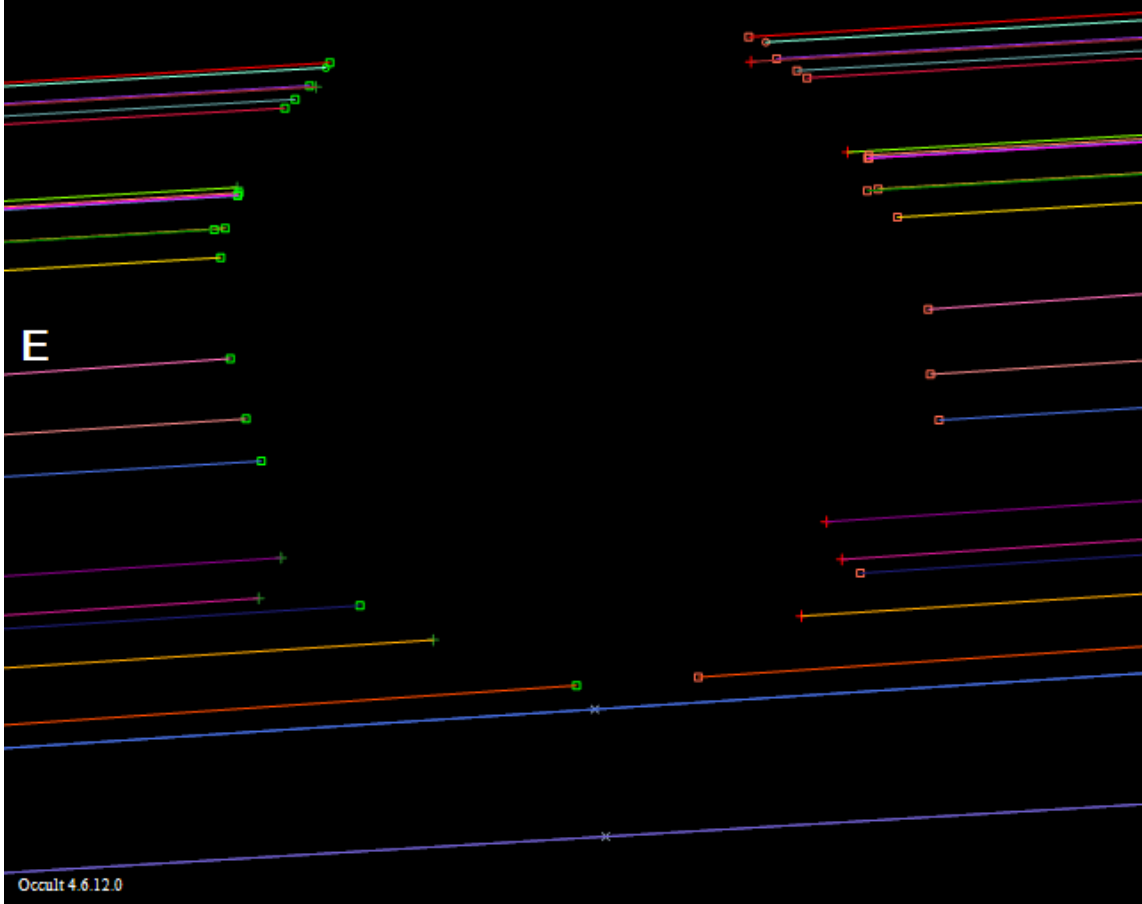
(449) Hamburga 2018 Oct 20 $81.9 \pm 1.6 \times 64.4 \pm 1.4$ km, PA $47.1^\circ \pm 4.6^\circ$
Geocentric X -4692.9 ± 0.6 Y 2508.5 ± 0.8 km **N**



451_Patientia_2016Oct05

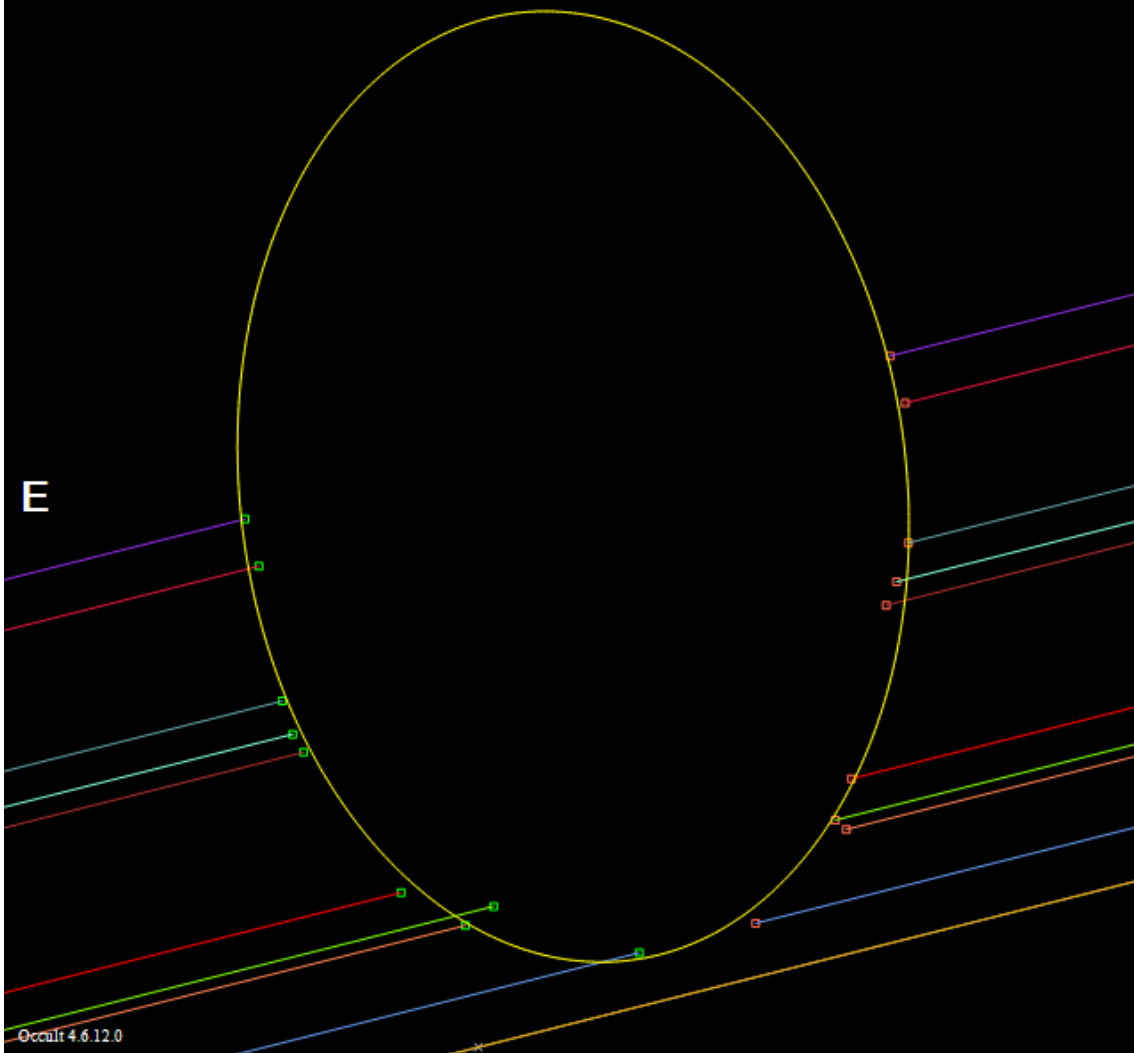
(451) Patientia 2016 Oct 5 258.4 ± 3.4 x 241.4 ± 3.1 km, PA 45.8° ± 10.6°
Geocentric X 944.2 ± 1.2 Y 5479.5 ± 1.6 km

N



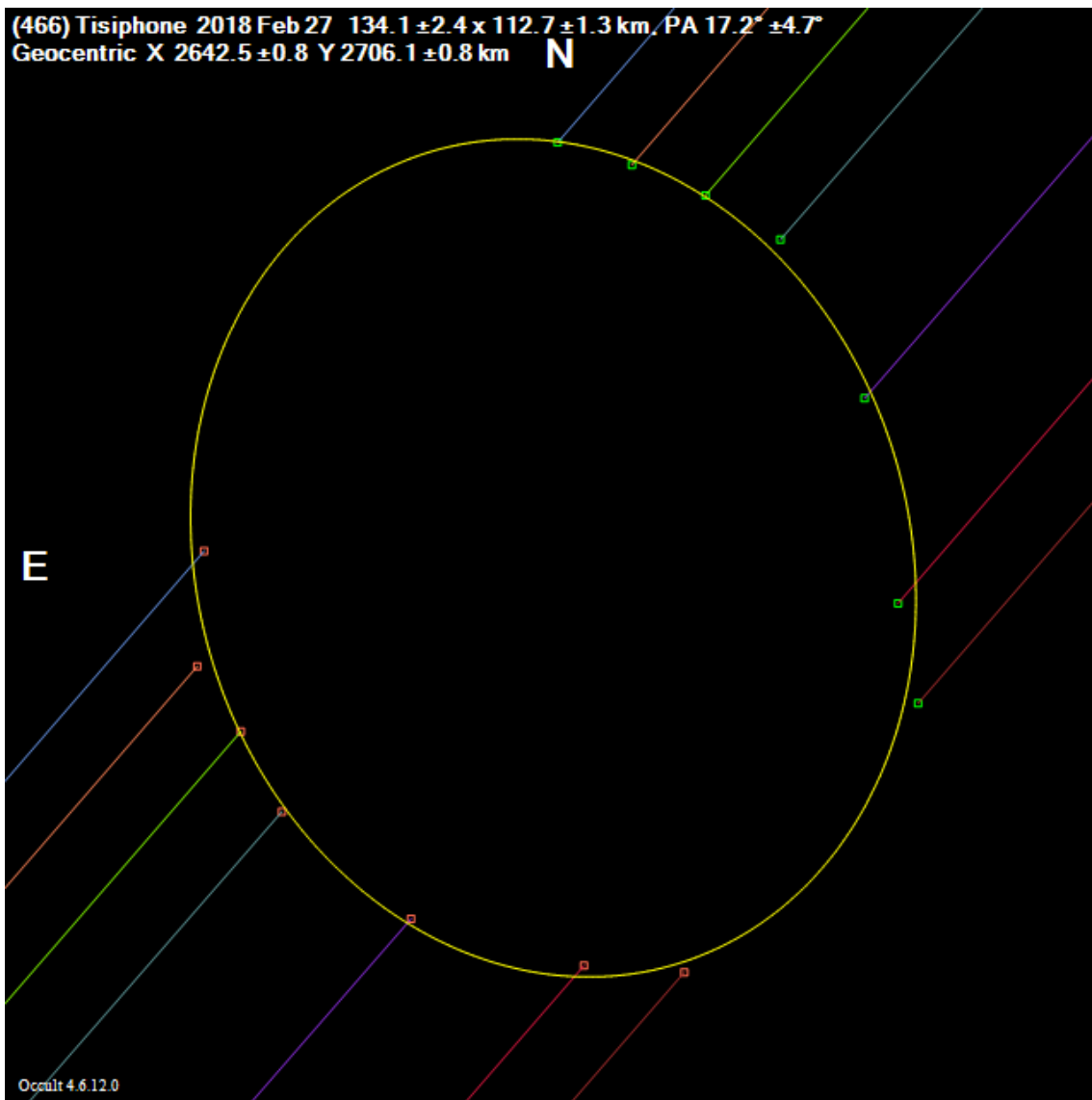
464_Megaira_2017Dec18

(464) Megaira 2017 Dec 18 $107.5 \pm 6.4 \times 75.2 \pm 1.0$ km, PA $6.7^\circ \pm 2.1^\circ$
Geocentric X 1733.9 ± 0.7 Y 1781.5 ± 2.9 km **N**



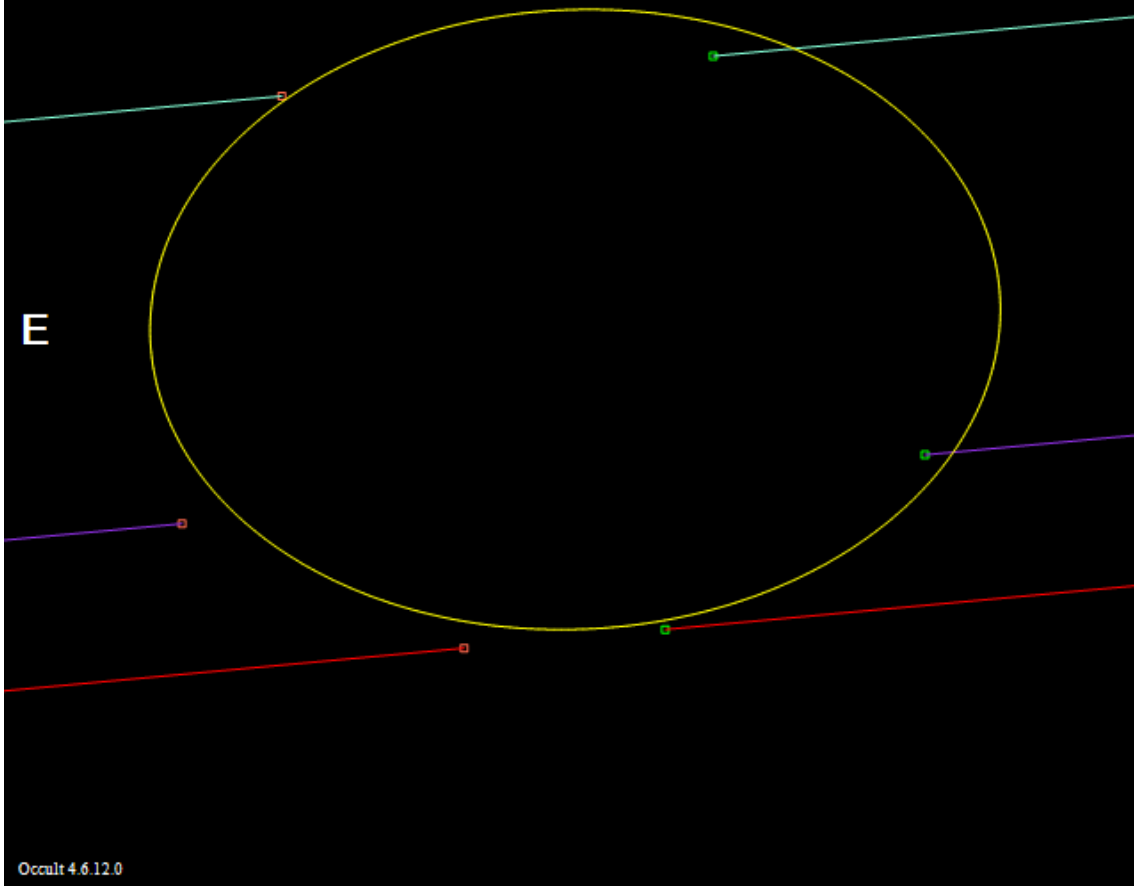
466_Tisiphone_2018Feb27

(466) Tisiphone 2018 Feb 27 $134.1 \pm 2.4 \times 112.7 \pm 1.3$ km, PA $17.2^\circ \pm 4.7^\circ$
Geocentric X 2642.5 ± 0.8 Y 2706.1 ± 0.8 km **N**



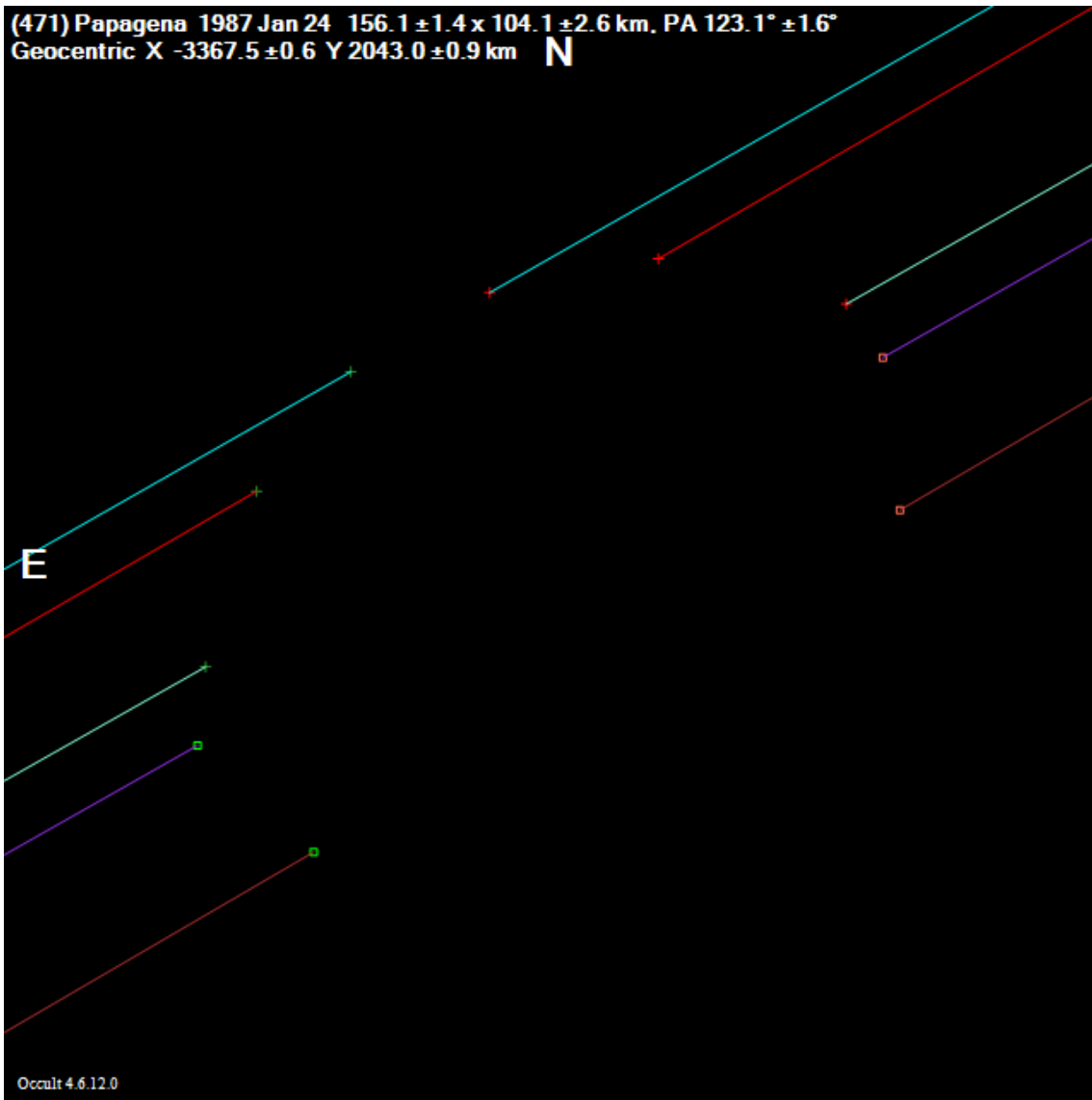
468_Lina_2009Sep21

(468) Lina 2009 Sep 21 $78.5 \pm 5.2 \times 57.1 \pm 2.9$ km, PA $92.9^\circ \pm 8.0^\circ$
Geocentric X 2460.5 ± 2.1 Y 5767.1 ± 1.3 km **N**



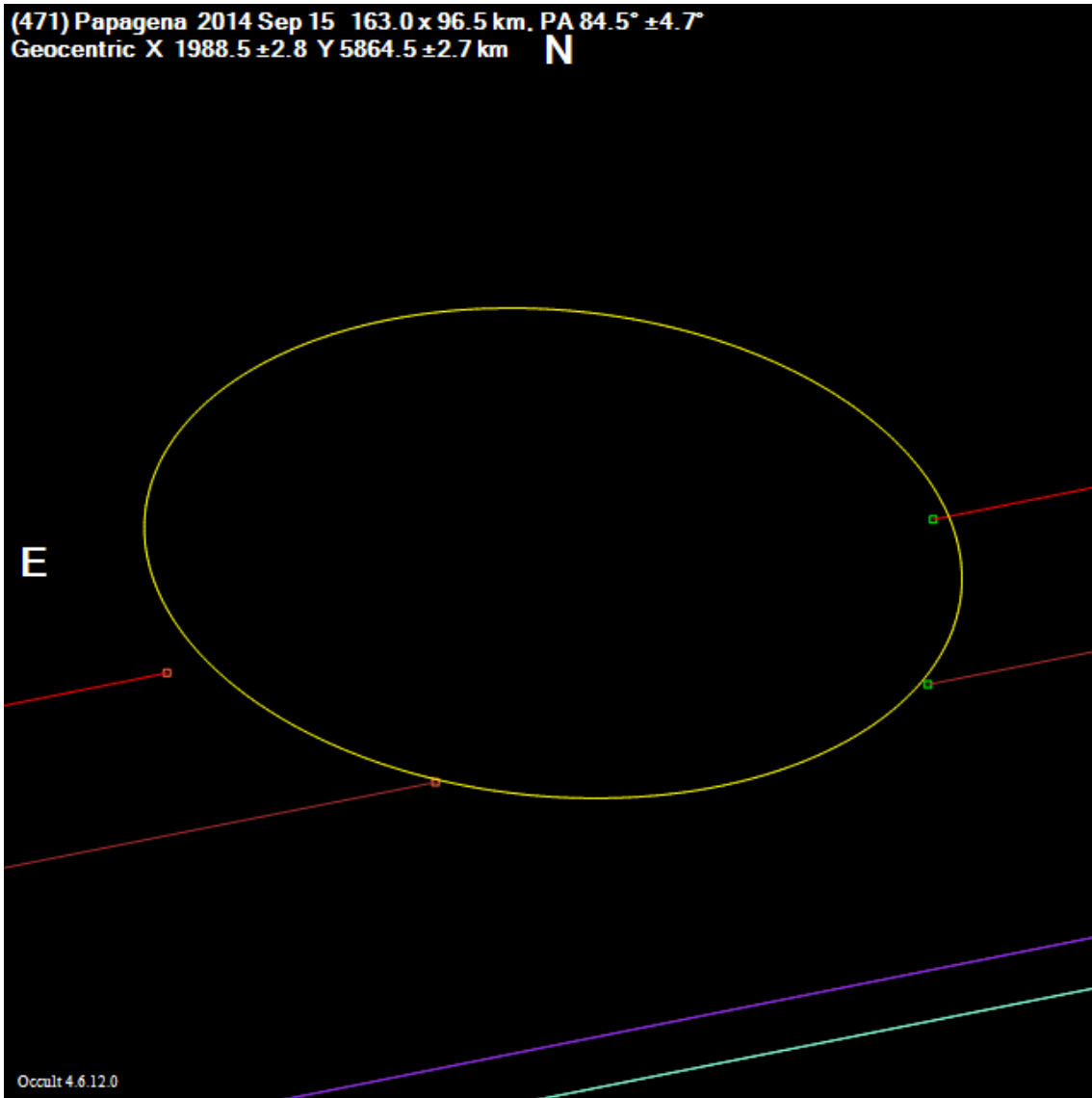
471_Papagena_1987Jan24

(471) Papagena 1987 Jan 24 $156.1 \pm 1.4 \times 104.1 \pm 2.6$ km, PA $123.1^\circ \pm 1.6^\circ$
Geocentric X -3367.5 ± 0.6 Y 2043.0 ± 0.9 km **N**



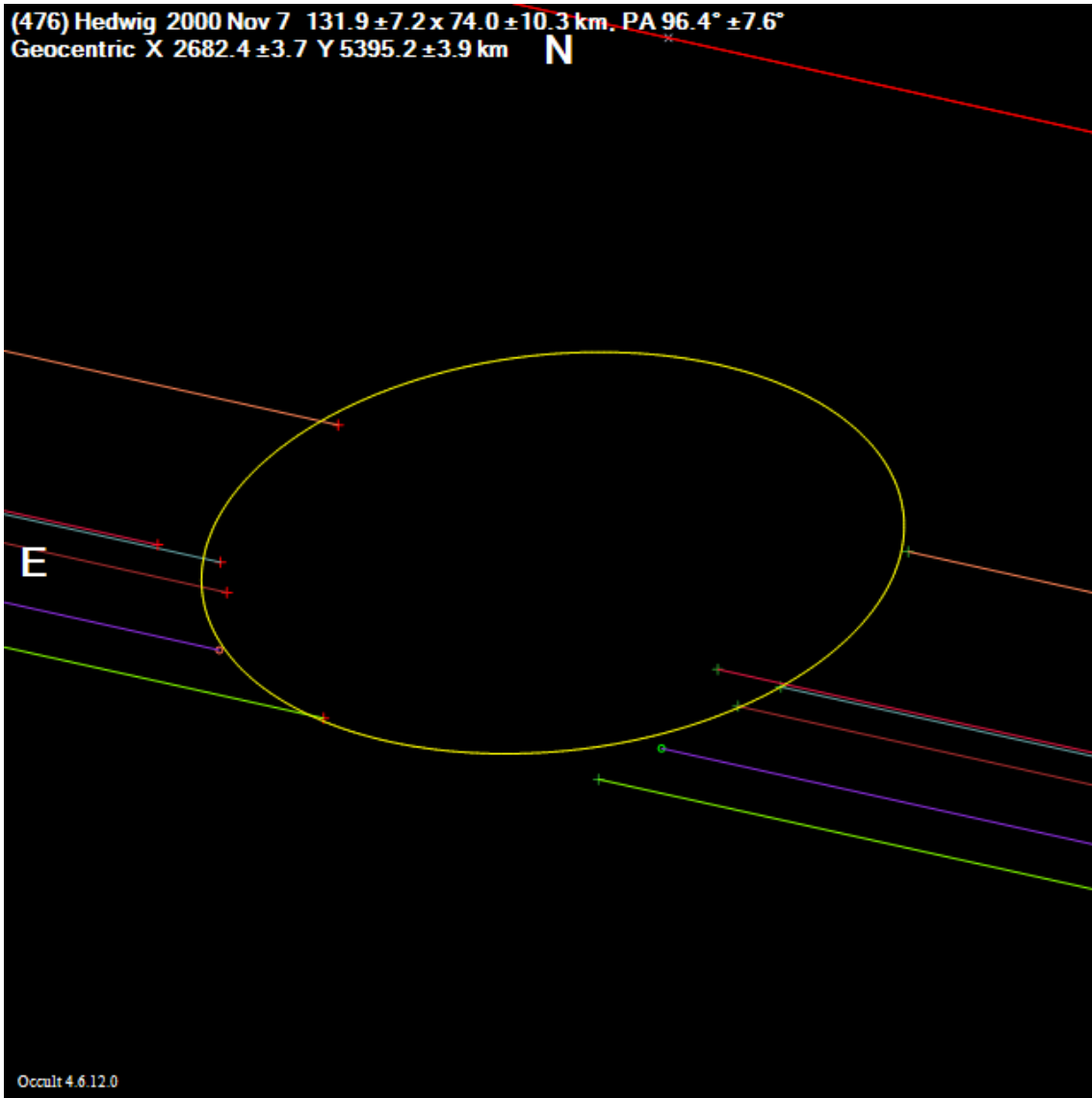
471_Papagena_2014Sep15

(471) Papagena 2014 Sep 15 163.0 x 96.5 km, PA 84.5° ± 4.7°
Geocentric X 1988.5 ± 2.8 Y 5864.5 ± 2.7 km **N**



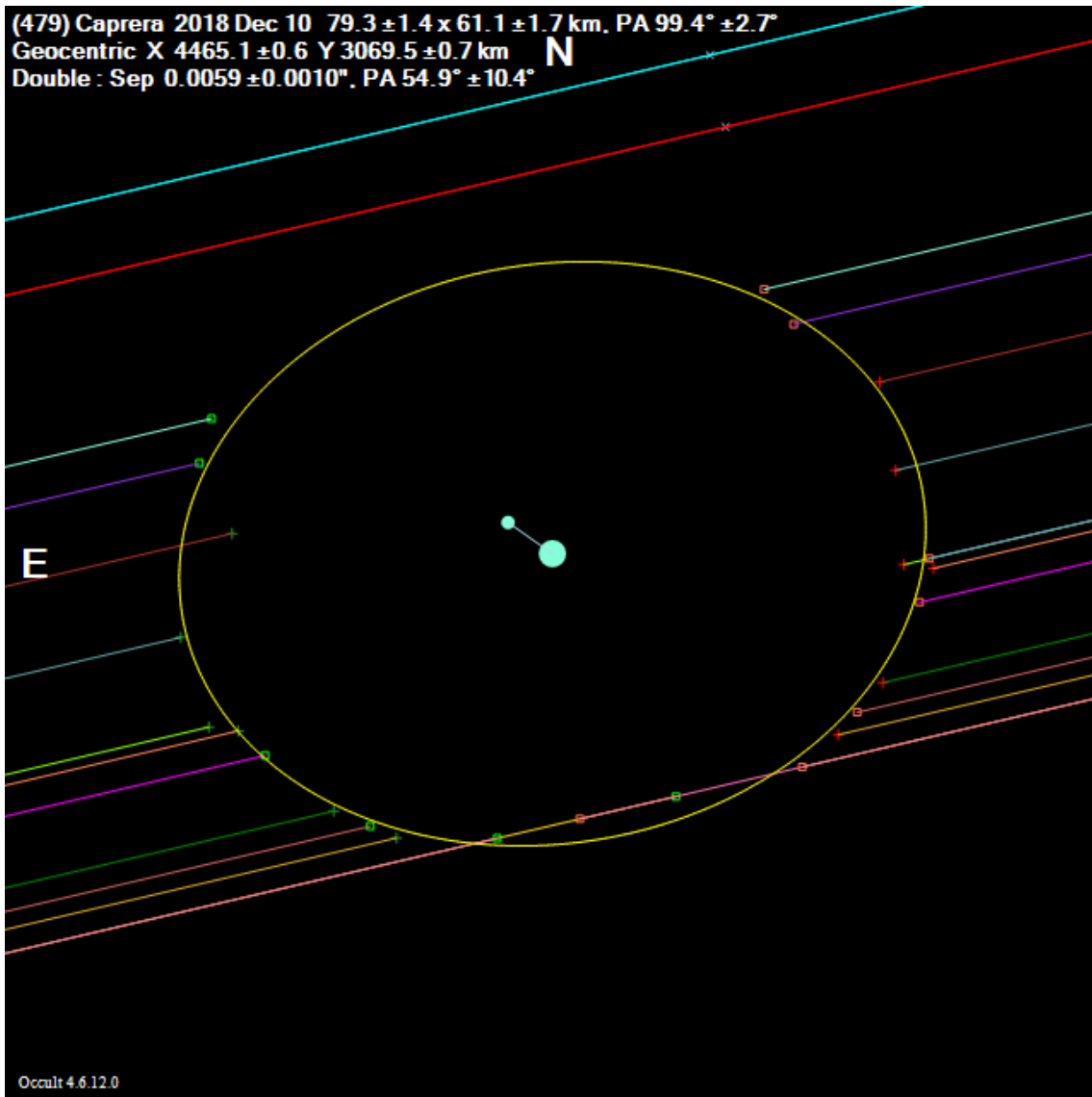
476_Hedwig_2000Nov07

(476) Hedwig 2000 Nov 7 $131.9 \pm 7.2 \times 74.0 \pm 10.3$ km, PA $96.4^\circ \pm 7.6^\circ$
Geocentric X 2682.4 ± 3.7 Y 5395.2 ± 3.9 km **N**



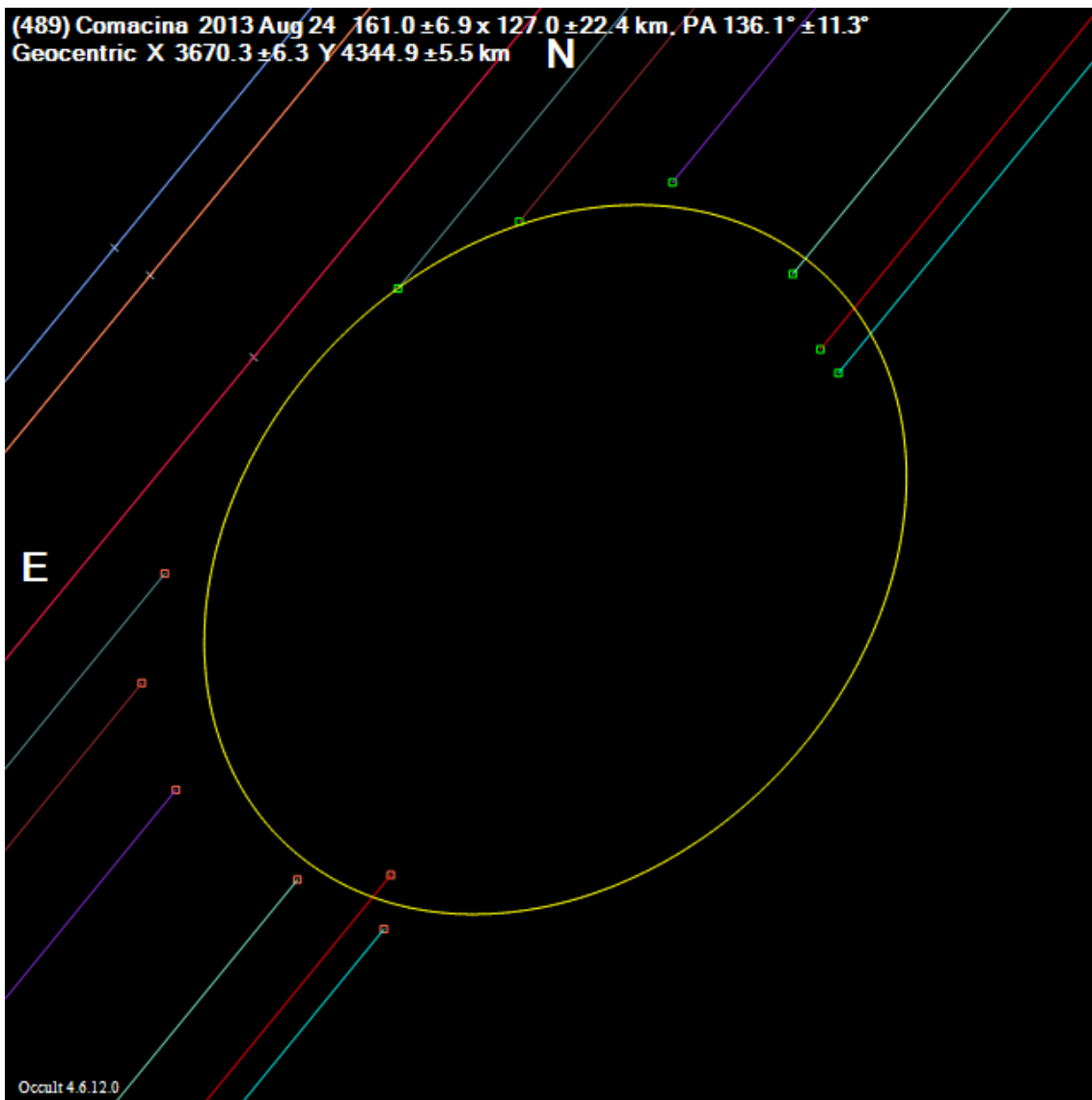
479_Caprera_2018Dec10

(479) Caprera 2018 Dec 10 $79.3 \pm 1.4 \times 61.1 \pm 1.7$ km, PA $99.4^\circ \pm 2.7^\circ$
Geocentric X 4465.1 ± 0.6 Y 3069.5 ± 0.7 km **N**
Double : Sep $0.0059 \pm 0.0010''$, PA $54.9^\circ \pm 10.4^\circ$



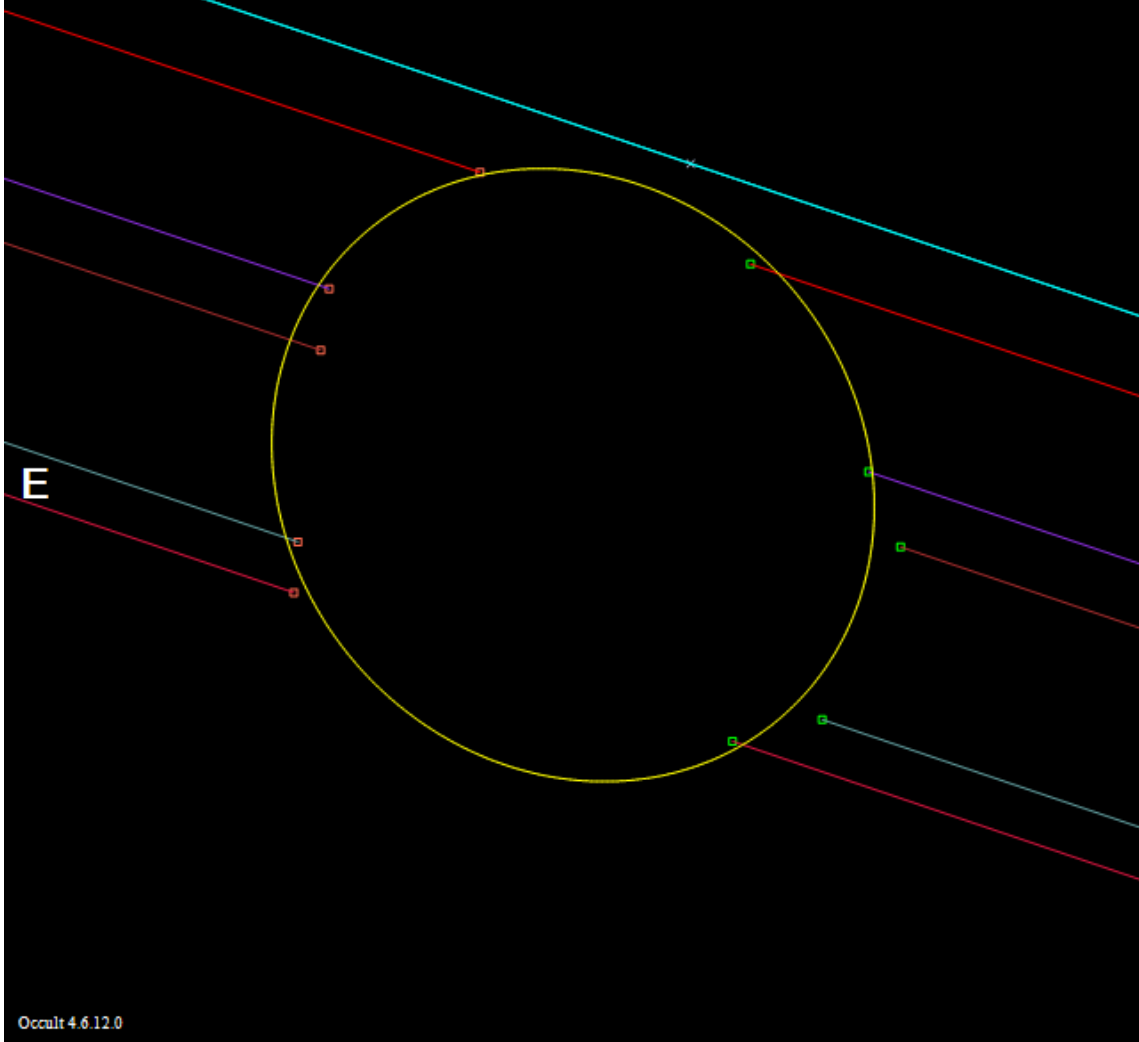
489_Comacina_2013Aug24

(489) Comacina 2013 Aug 24 $161.0 \pm 6.9 \times 127.0 \pm 22.4$ km, PA $136.1^\circ \pm 11.3^\circ$
Geocentric X 3670.3 ± 6.3 Y 4344.9 ± 5.5 km



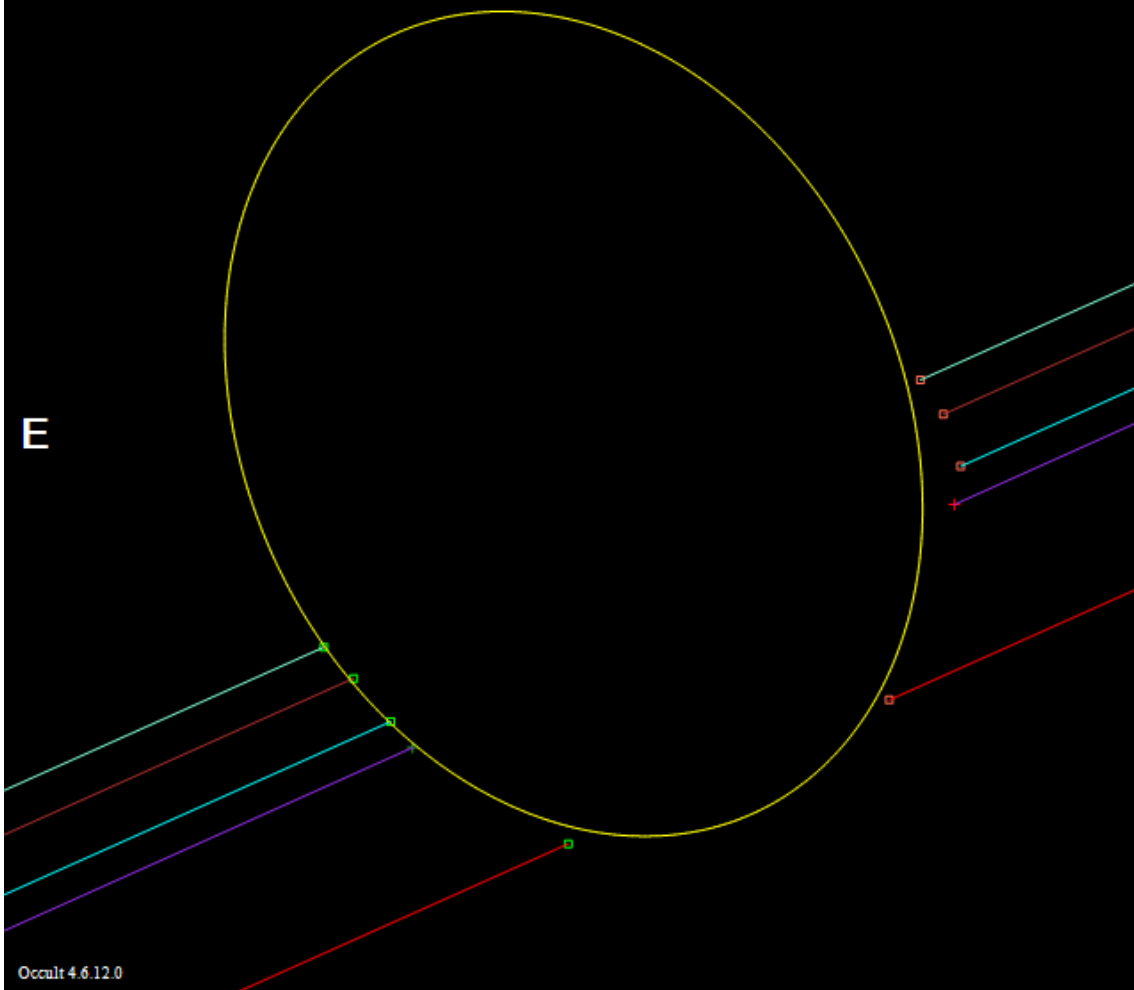
489_Comacina_2015Jan10

(489) Comacina 2015 Jan 10 $126.6 \pm 3.6 \times 114.0 \pm 4.8$ km, PA $40.5^\circ \pm 19.1^\circ$
Geocentric X 3987.4 ± 1.5 Y 4359.9 ± 2.1 km **N**



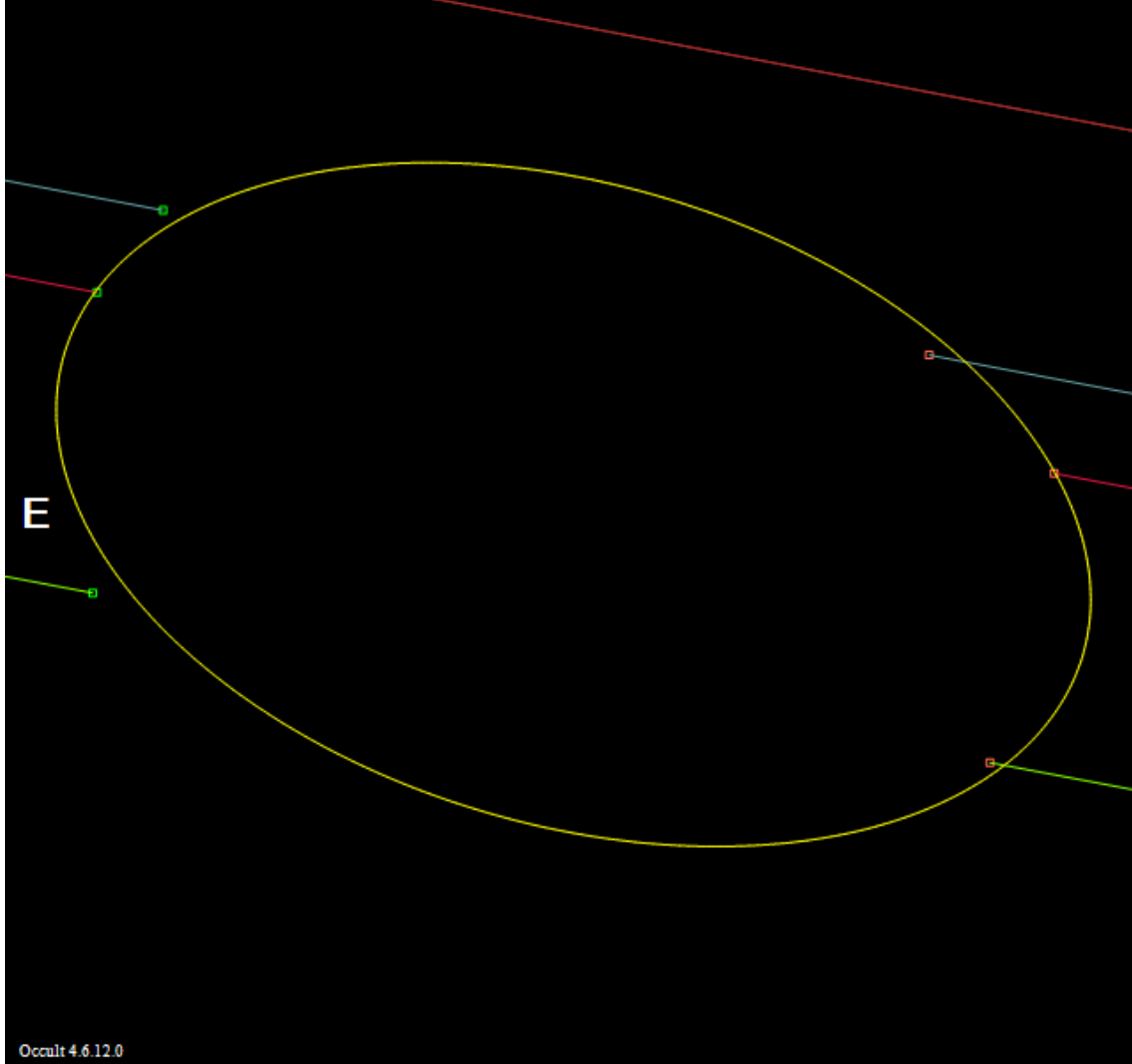
490_Veritas_2006Jan28

(490) Veritas 2006 Jan 28 $141.0 \pm 54.9 \times 108.0 \pm 10.3$ km, PA $25.4^\circ \pm 10.0^\circ$
Geocentric X -3020.7 ± 9.9 Y 2796.4 ± 23.7 km **N**



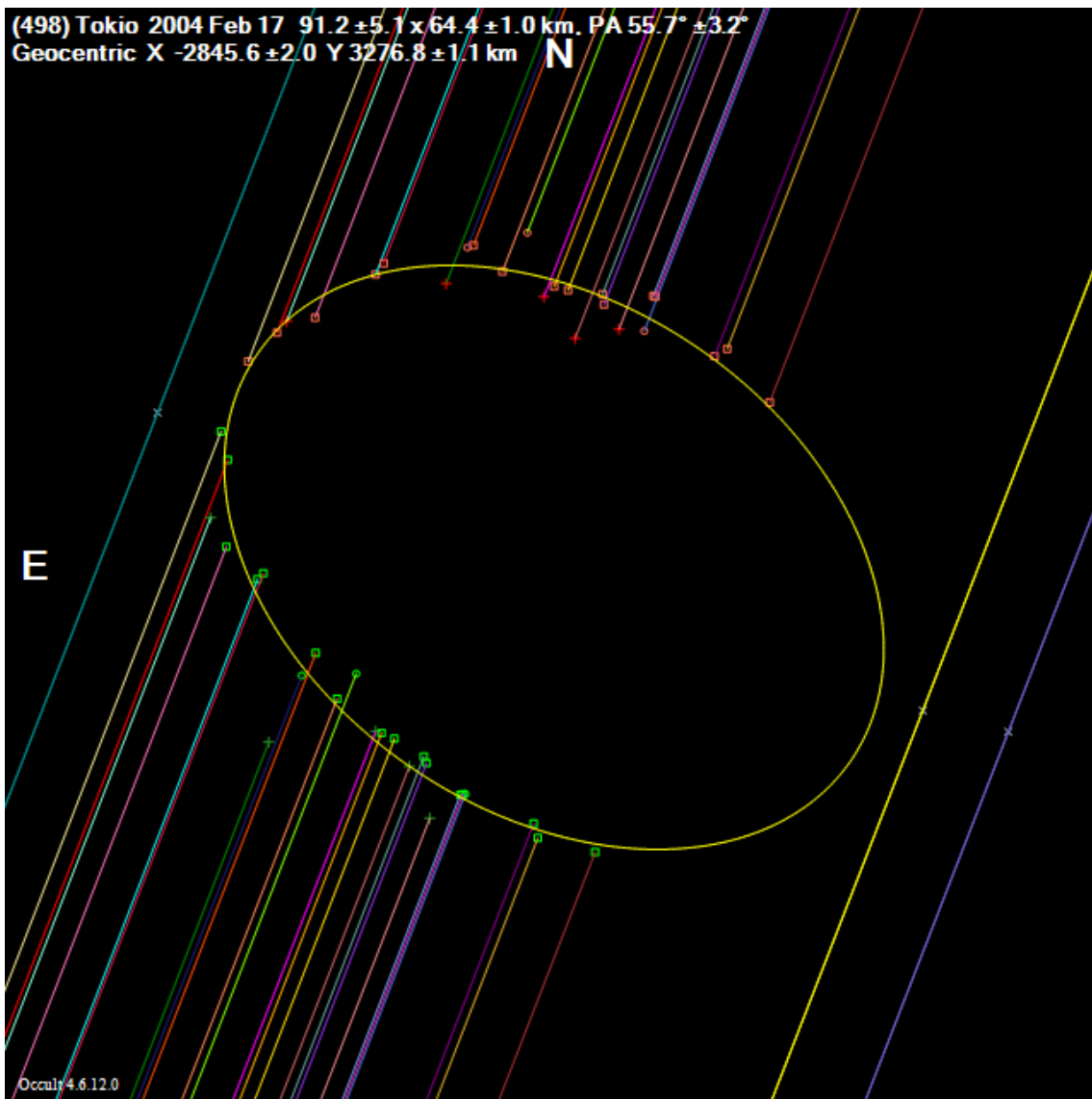
497_Iva_2019Feb09

(497) Iva 2019 Feb 9 $58.8 \pm 1.6 \times 35.4 \pm 3.1$ km, PA $73.5^\circ \pm 2.1^\circ$
Geocentric X -226.4 ± 0.5 Y 405.9 ± 0.5 km **N**



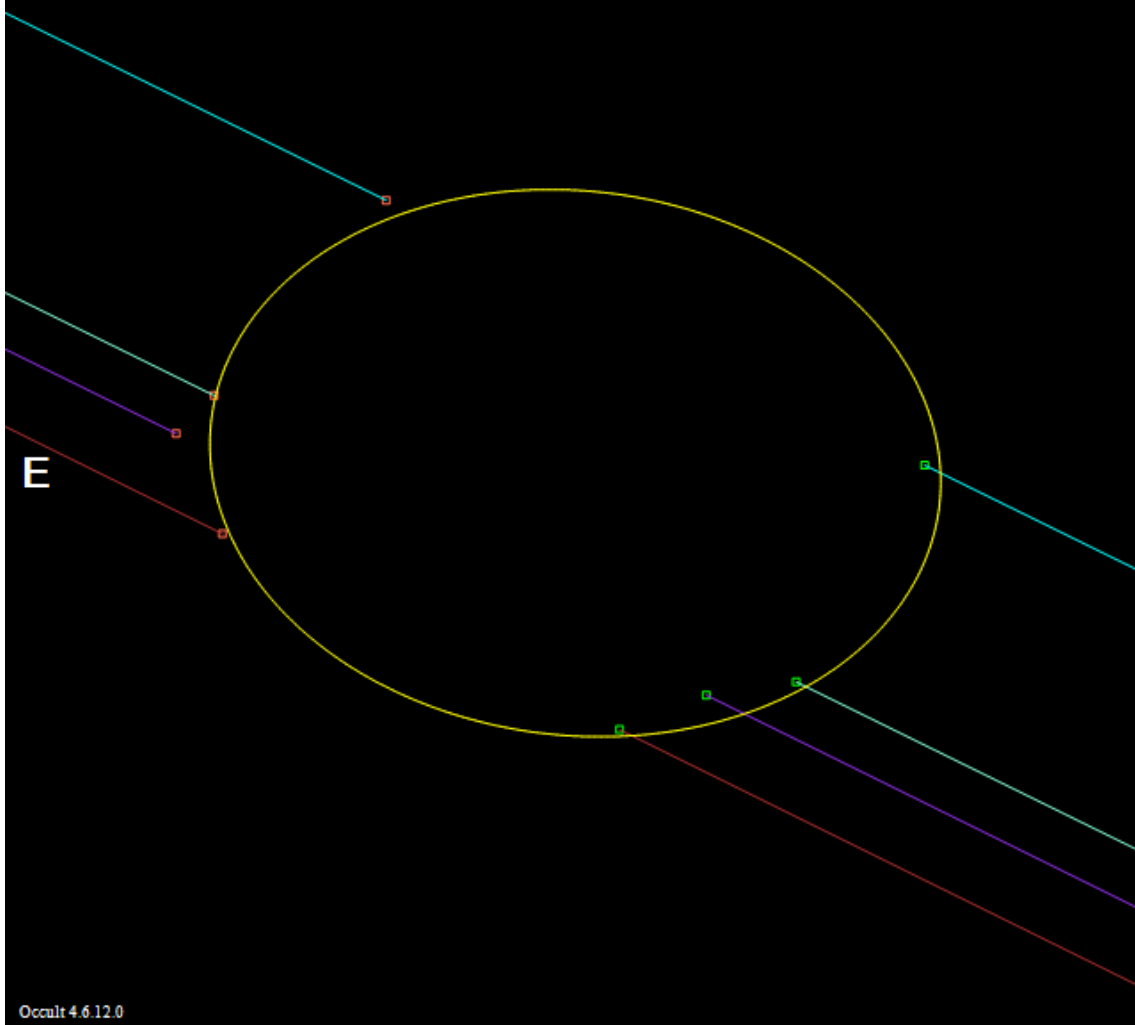
498_Tokio_2004Feb17

(498) Tokio 2004 Feb 17 $91.2 \pm 5.1 \times 64.4 \pm 1.0$ km. PA $55.7^\circ \pm 3.2^\circ$
Geocentric X -2845.6 ± 2.0 Y 3276.8 ± 1.1 km



505_Cava_2018Mar04

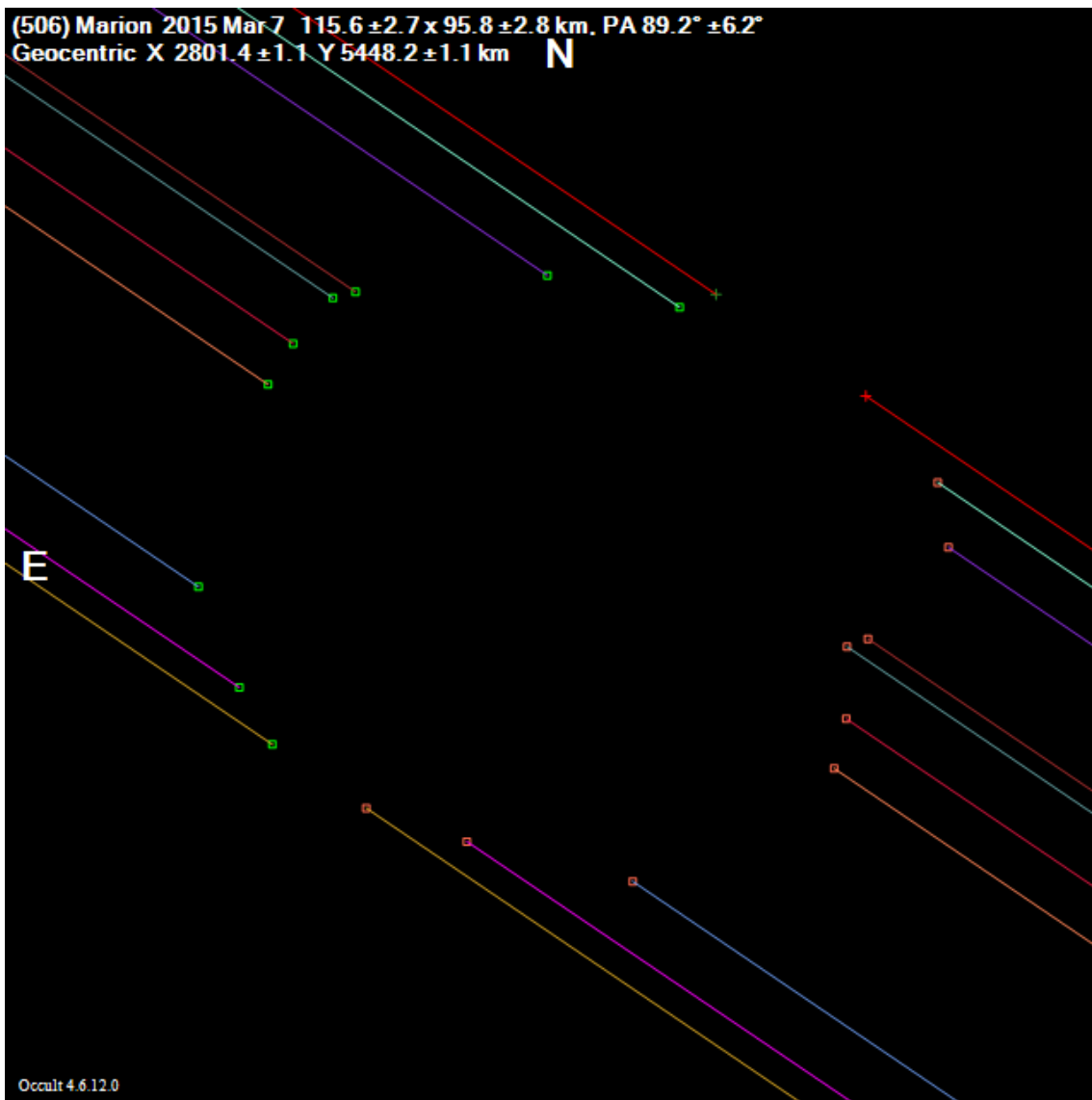
(505) Cava 2018 Mar 4 $118.1 \pm 3.6 \times 87.6 \pm 7.3$ km, PA $83.4^\circ \pm 10.4^\circ$
Geocentric X 4679.9 ± 1.7 Y 3290.6 ± 1.9 km **N**



Occult 4.6.12.0

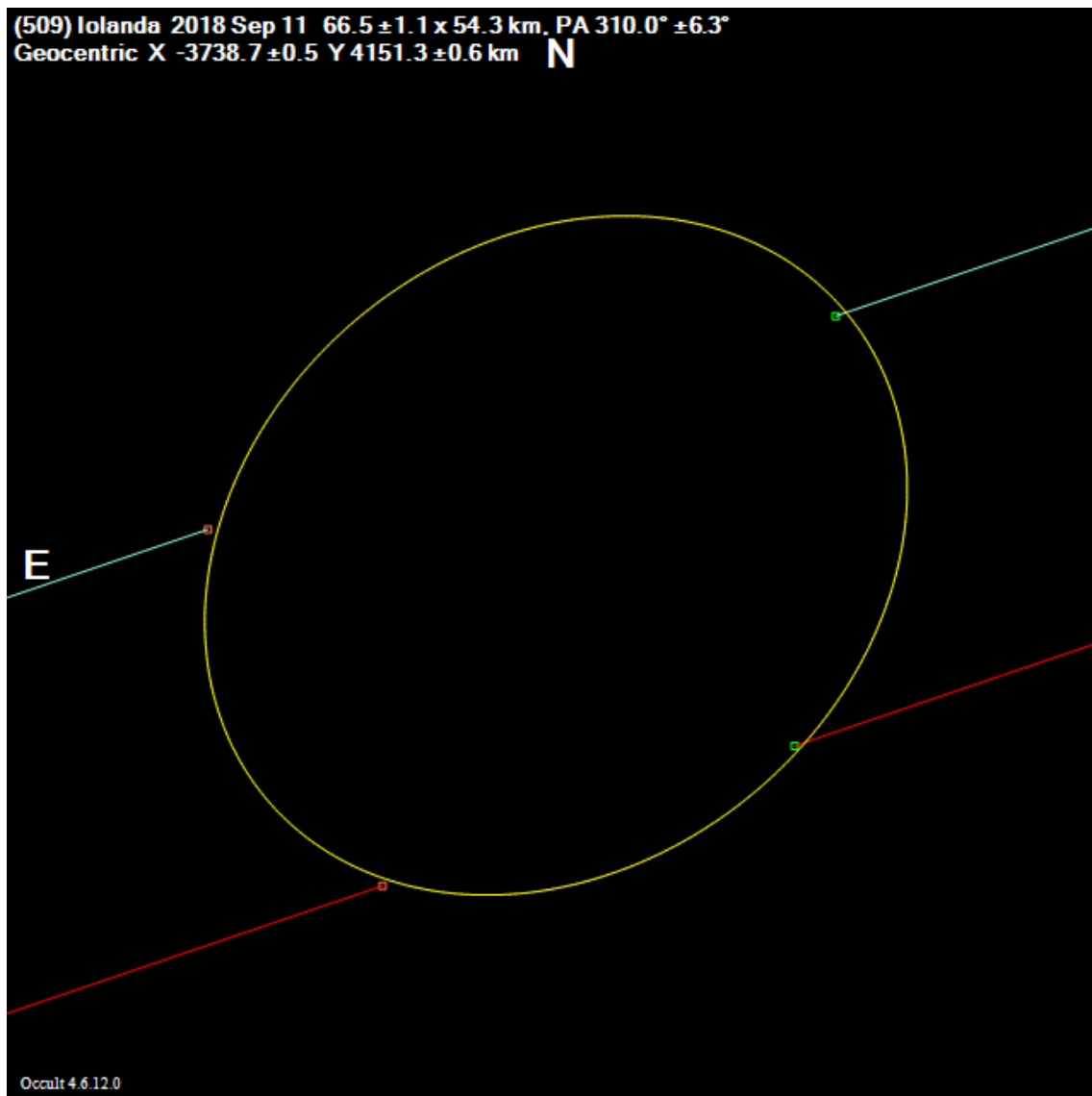
506_Marion_2015Mar07

(506) Marion 2015 Mar 7 $115.6 \pm 2.7 \times 95.8 \pm 2.8$ km, PA $89.2^\circ \pm 6.2^\circ$
Geocentric X 2801.4 ± 1.1 Y 5448.2 ± 1.1 km **N**



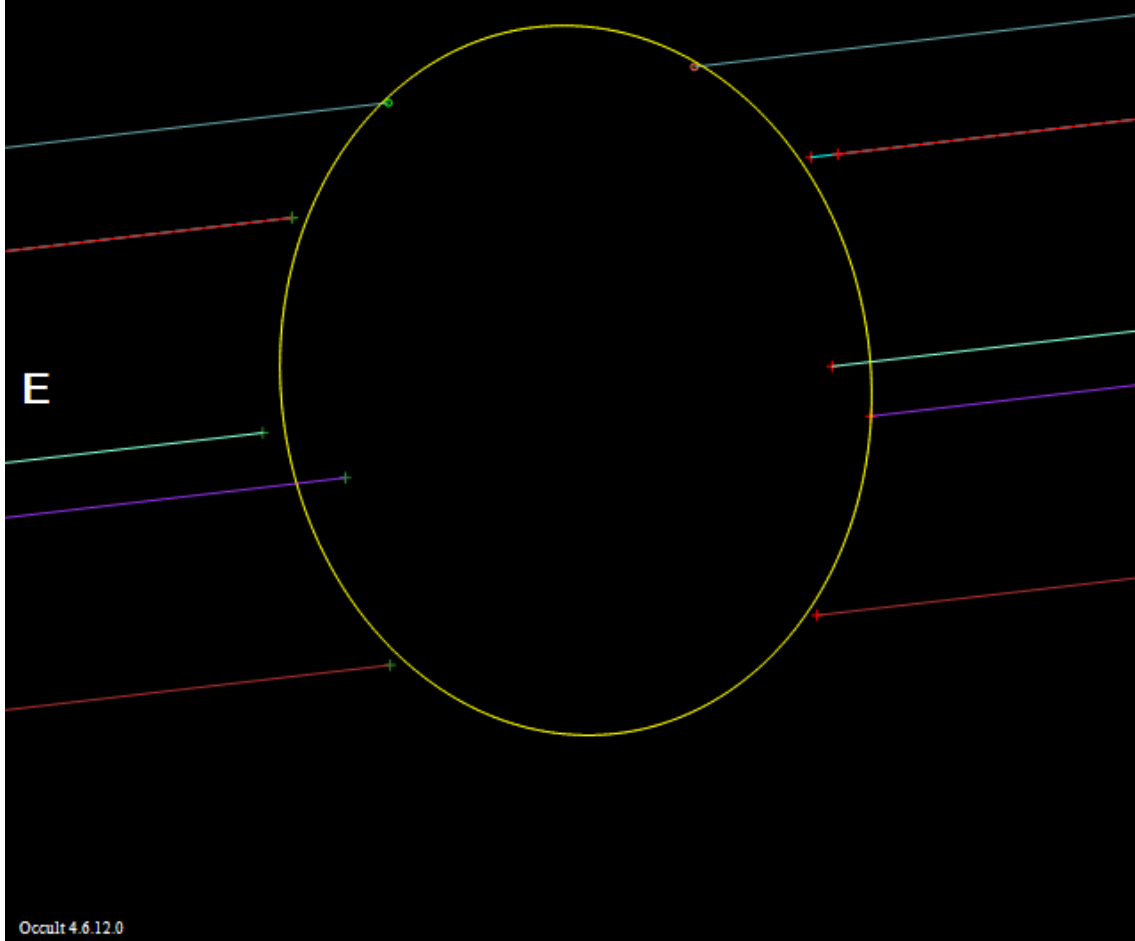
509_Iolanda_2018Sep11

(509) Iolanda 2018 Sep 11 $66.5 \pm 1.1 \times 54.3$ km, PA $310.0^\circ \pm 6.3^\circ$
Geocentric X -3738.7 ± 0.5 Y 4151.3 ± 0.6 km **N**



521_Brixia_1989Oct23

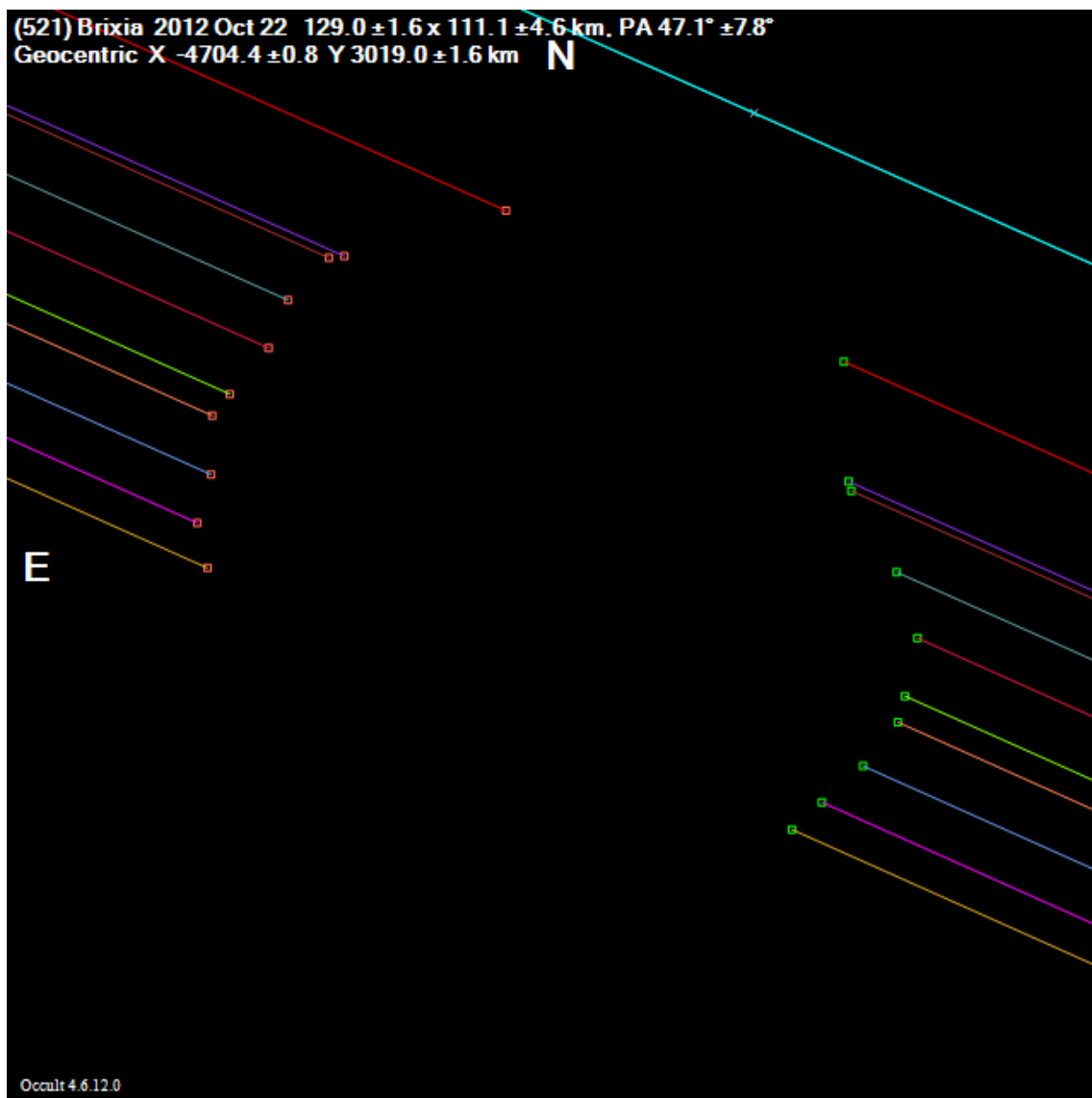
(521) Brixia 1989 Oct 23 $118.6 \pm 7.6 \times 98.5 \pm 4.0$ km, PA $6.4^\circ \pm 8.4^\circ$
Geocentric X 3601.4 ± 1.6 Y 5121.9 ± 2.8 km **N**



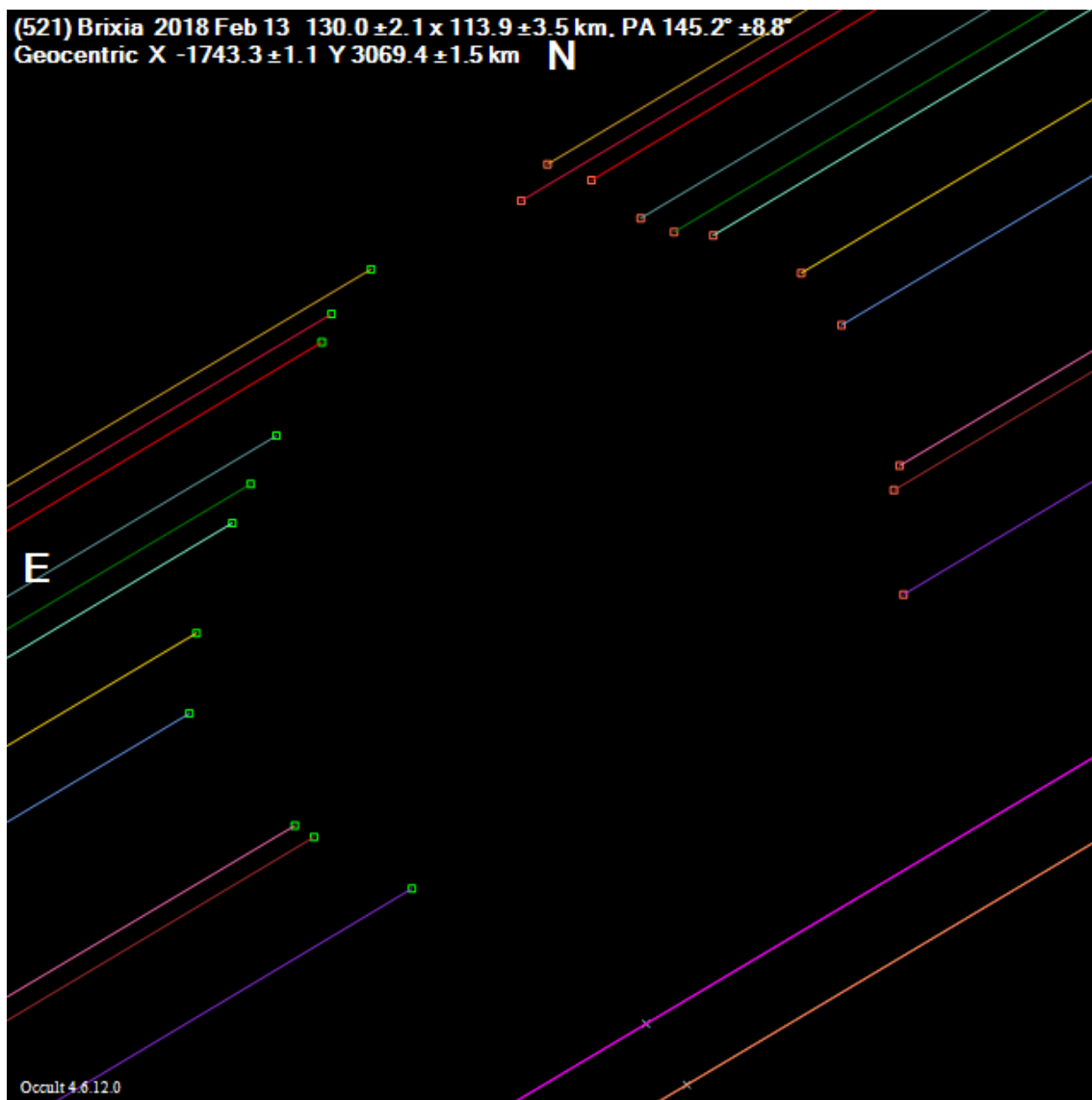
Occult 4.6.12.0

521_Brixia_2012Oct22

(521) Brixia 2012 Oct 22 $129.0 \pm 1.6 \times 111.1 \pm 4.6$ km, PA $47.1^\circ \pm 7.8^\circ$
Geocentric X -4704.4 ± 0.8 Y 3019.0 ± 1.6 km **N**

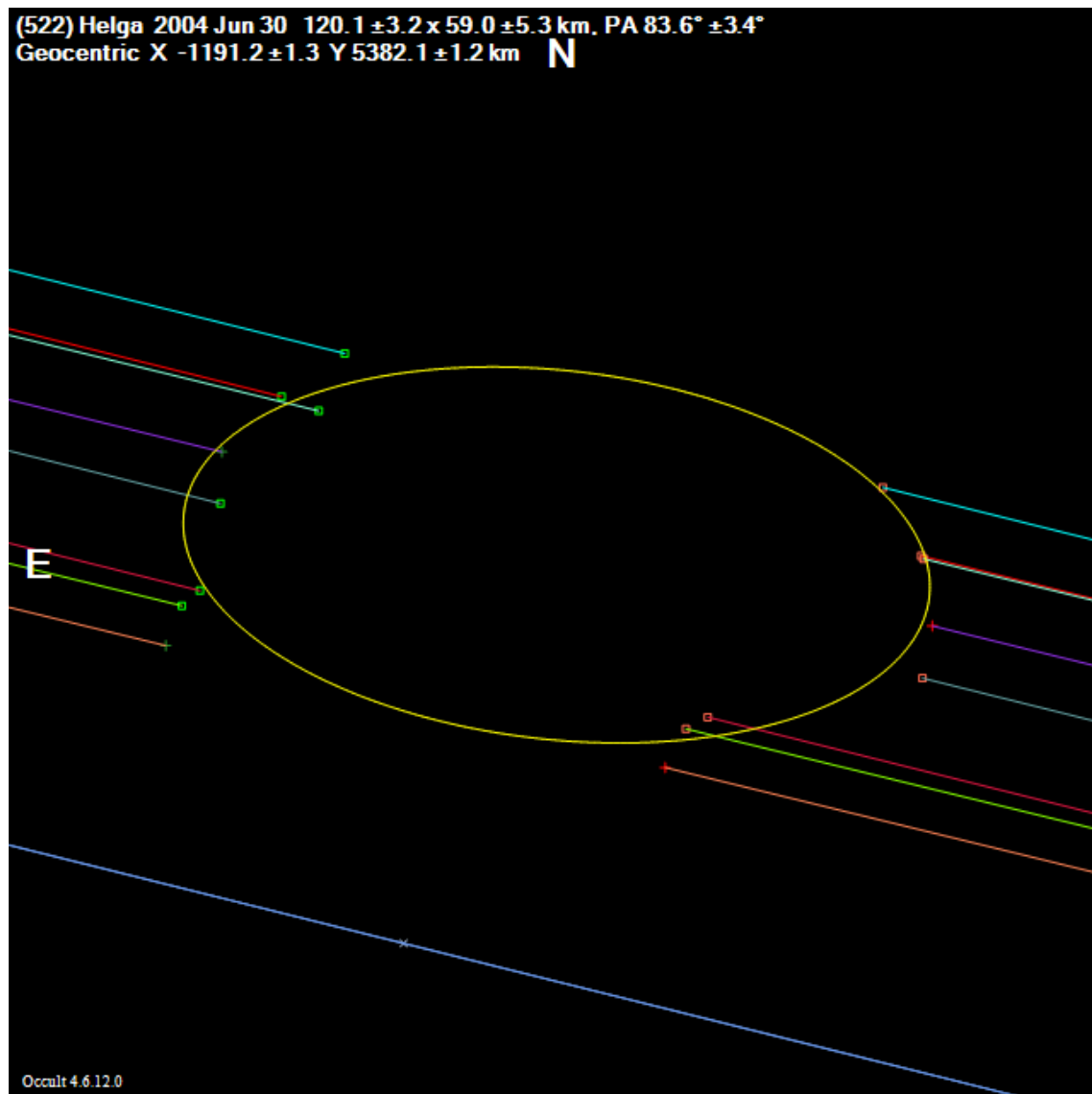


521_Brixia_2018Feb13



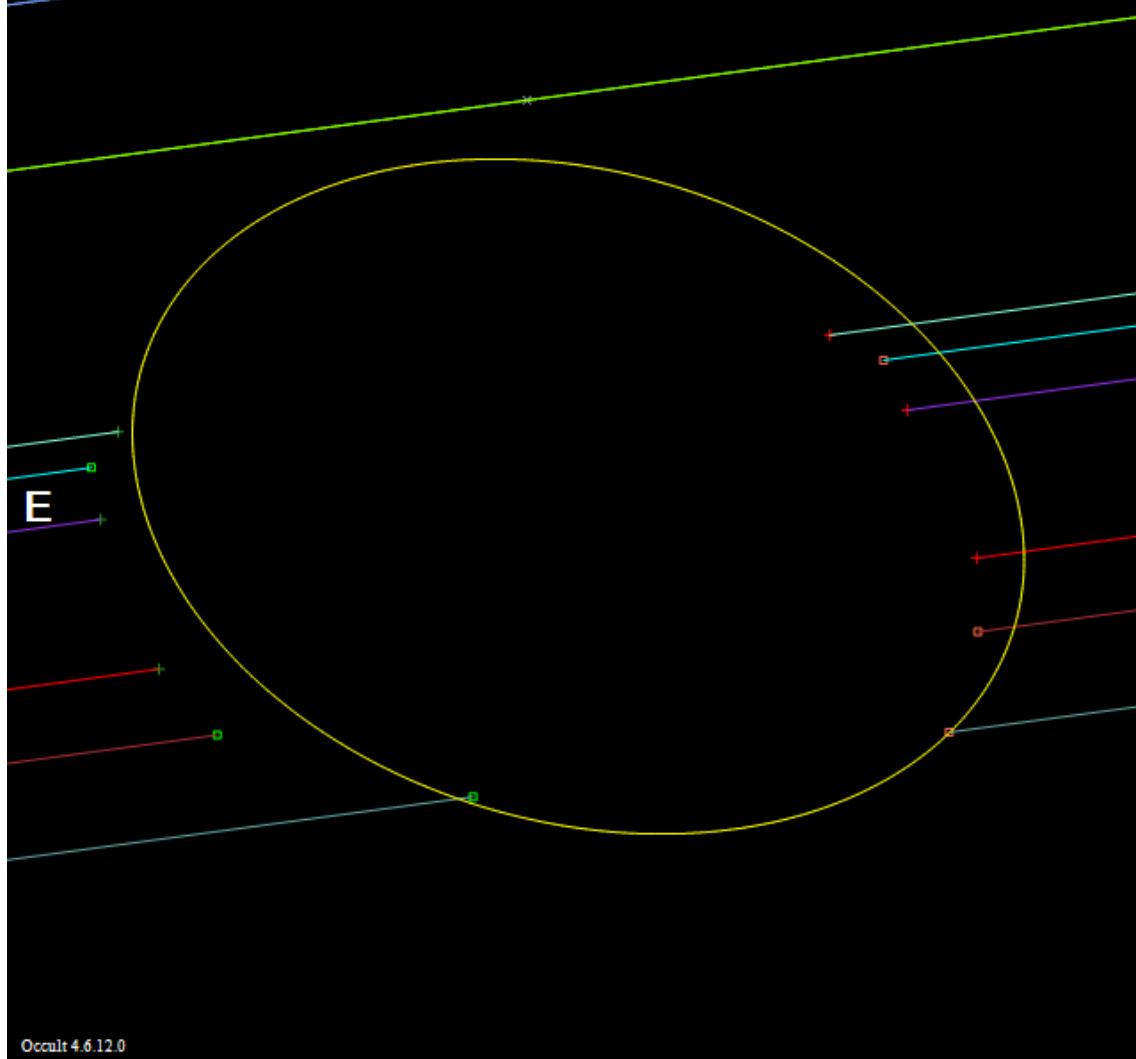
522_Helga_2004Jun30

(522) Helga 2004 Jun 30 $120.1 \pm 3.2 \times 59.0 \pm 5.3$ km, PA $83.6^\circ \pm 3.4^\circ$
Geocentric X -1191.2 ± 1.3 Y 5382.1 ± 1.2 km **N**



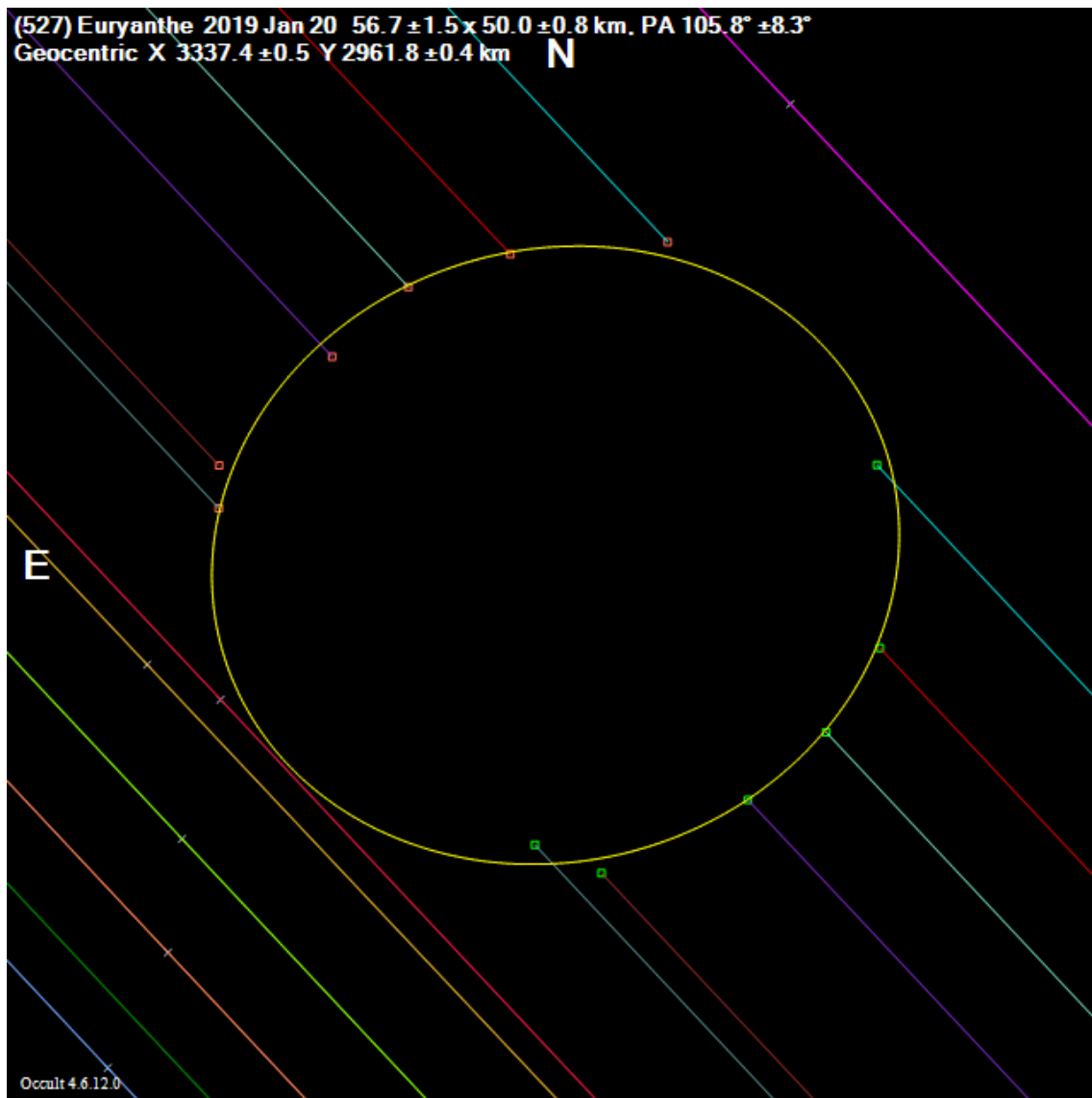
526_Jena_2008Jan19

(526) Jena 2008 Jan 19 $56.4 \pm 3.1 \times 40.2$ km. PA $73.3^\circ \pm 10.2^\circ$
Geocentric X 2844.9 ± 1.3 Y 1891.3 ± 1.7 km **N**



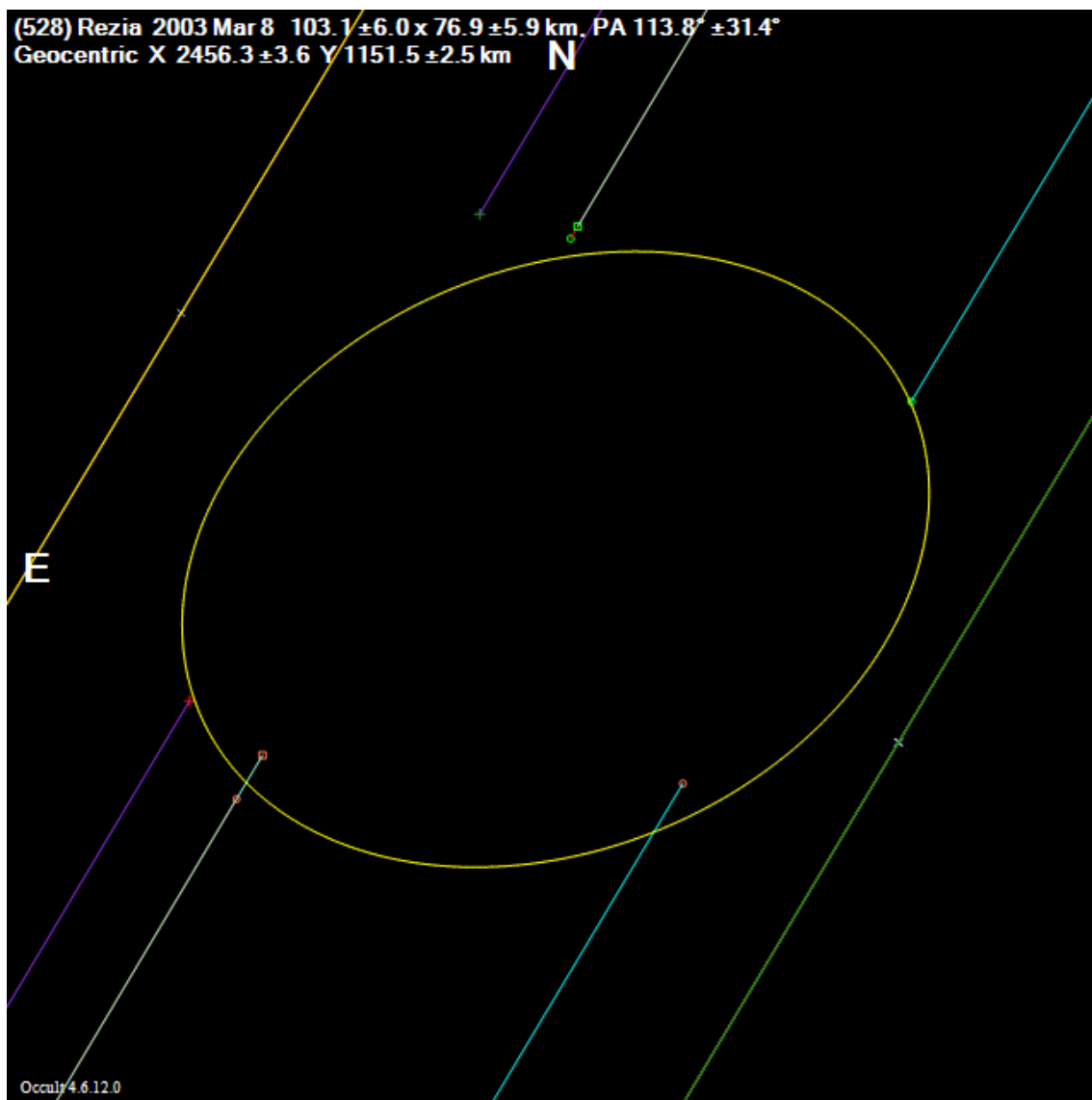
527_Euryanthe_2019Jan20

(527) Euryanthe 2019 Jan 20 $56.7 \pm 1.5 \times 50.0 \pm 0.8$ km. PA $105.8^\circ \pm 8.3^\circ$
Geocentric X 3337.4 ± 0.5 Y 2961.8 ± 0.4 km **N**



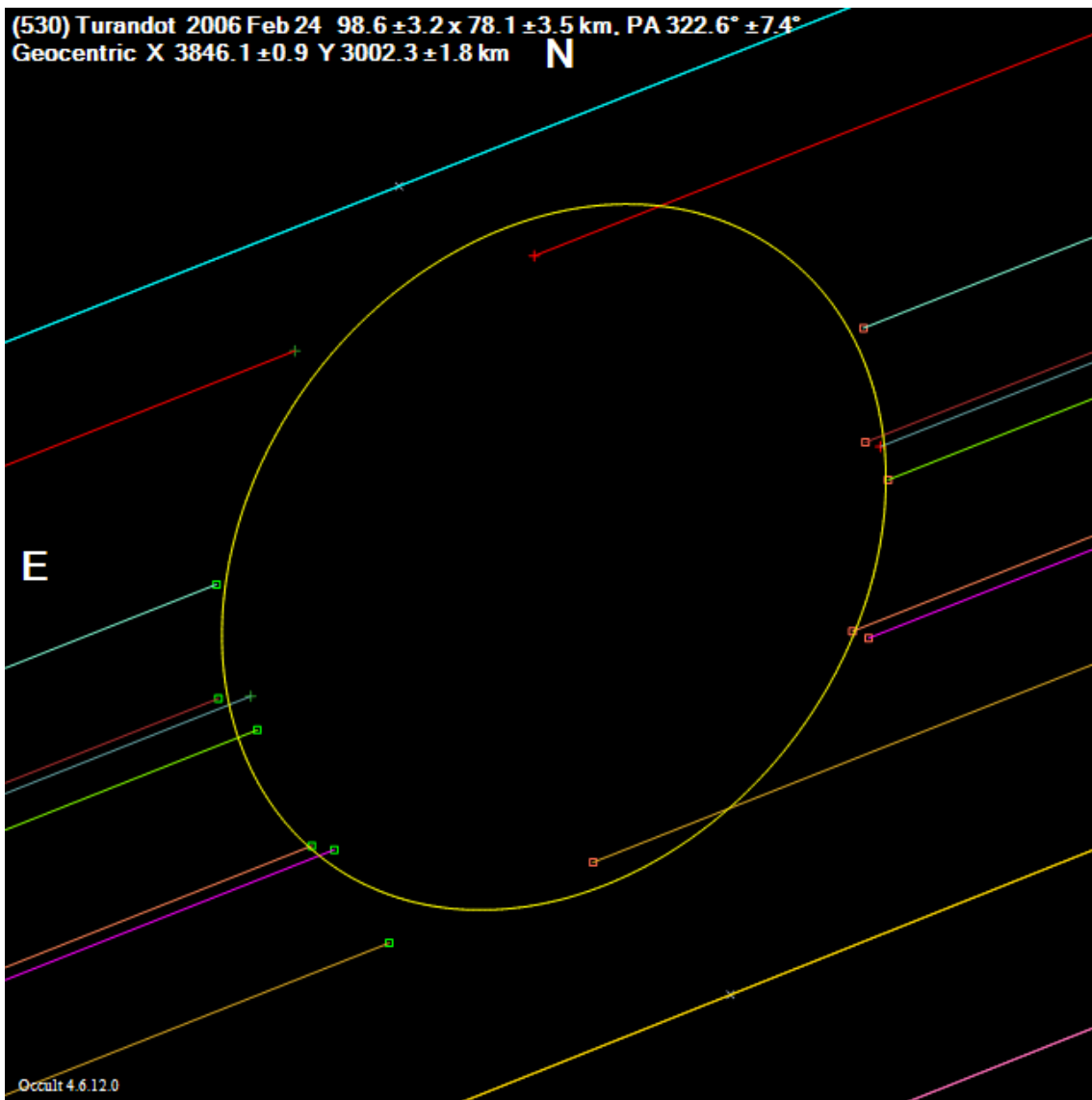
528_Rezia_2003Mar08

(528) Rezia 2003 Mar 8 $103.1 \pm 6.0 \times 76.9 \pm 5.9$ km, PA $113.8^\circ \pm 31.4^\circ$
Geocentric X 2456.3 ± 3.6 Y 1151.5 ± 2.5 km



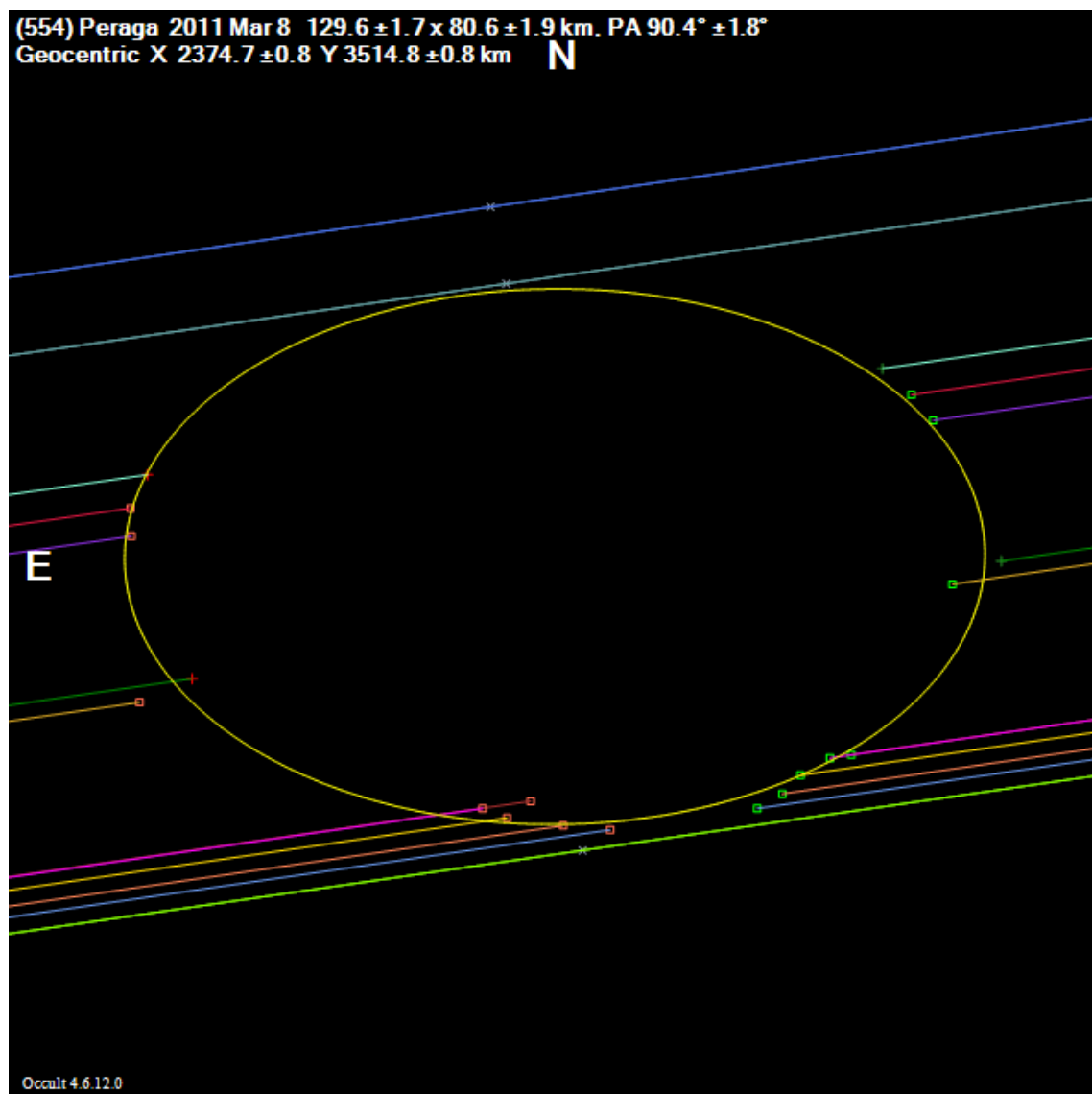
530_Turandot_2006Feb24

(530) Turandot 2006 Feb 24 $98.6 \pm 3.2 \times 78.1 \pm 3.5$ km. PA $322.6^\circ \pm 7.4^\circ$
Geocentric X 3846.1 ± 0.9 Y 3002.3 ± 1.8 km **N**



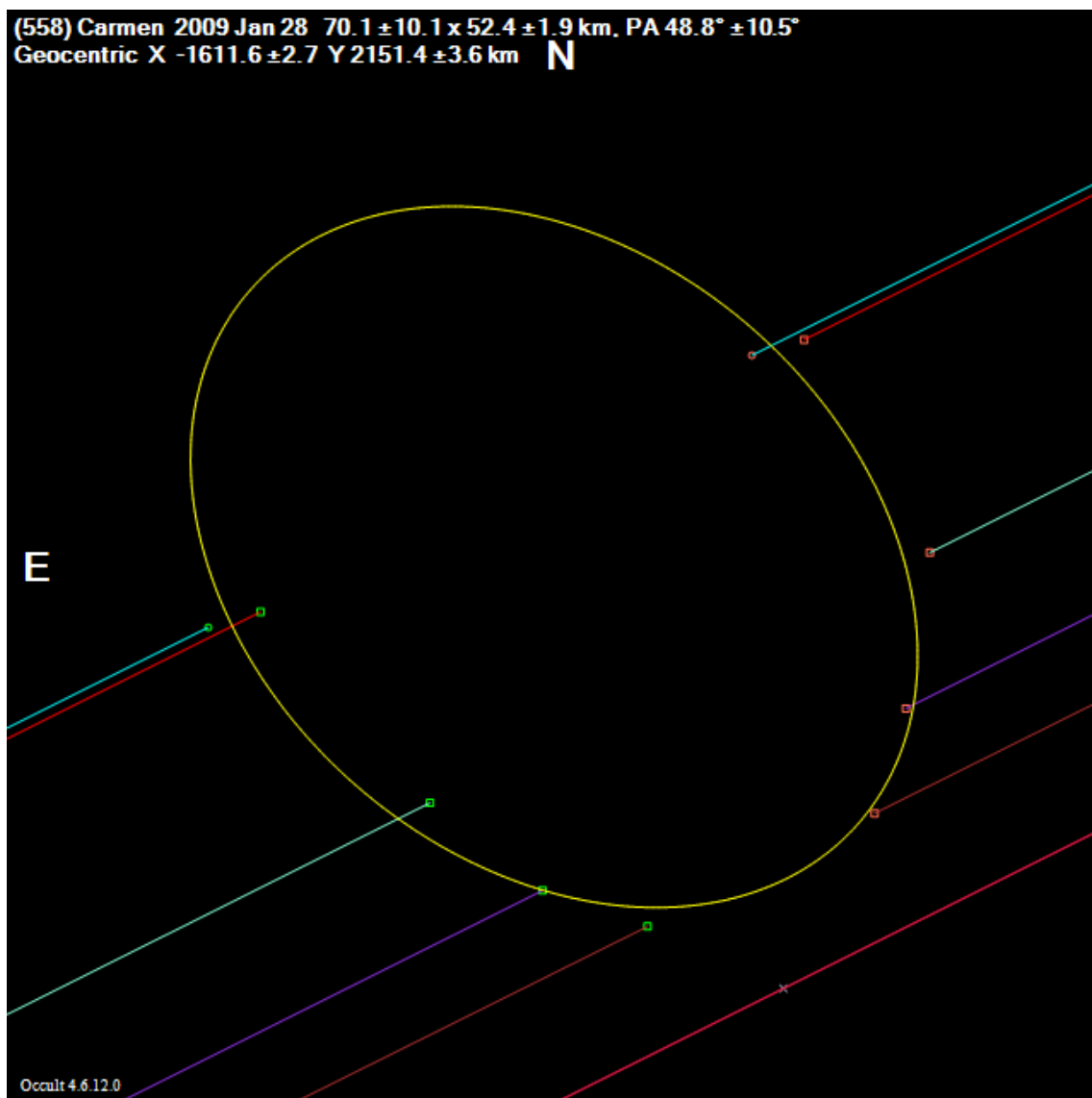
554_Peraga_2011Mar08

(554) Peraga 2011 Mar 8 $129.6 \pm 1.7 \times 80.6 \pm 1.9$ km. PA $90.4^\circ \pm 1.8^\circ$
Geocentric X 2374.7 ± 0.8 Y 3514.8 ± 0.8 km **N**



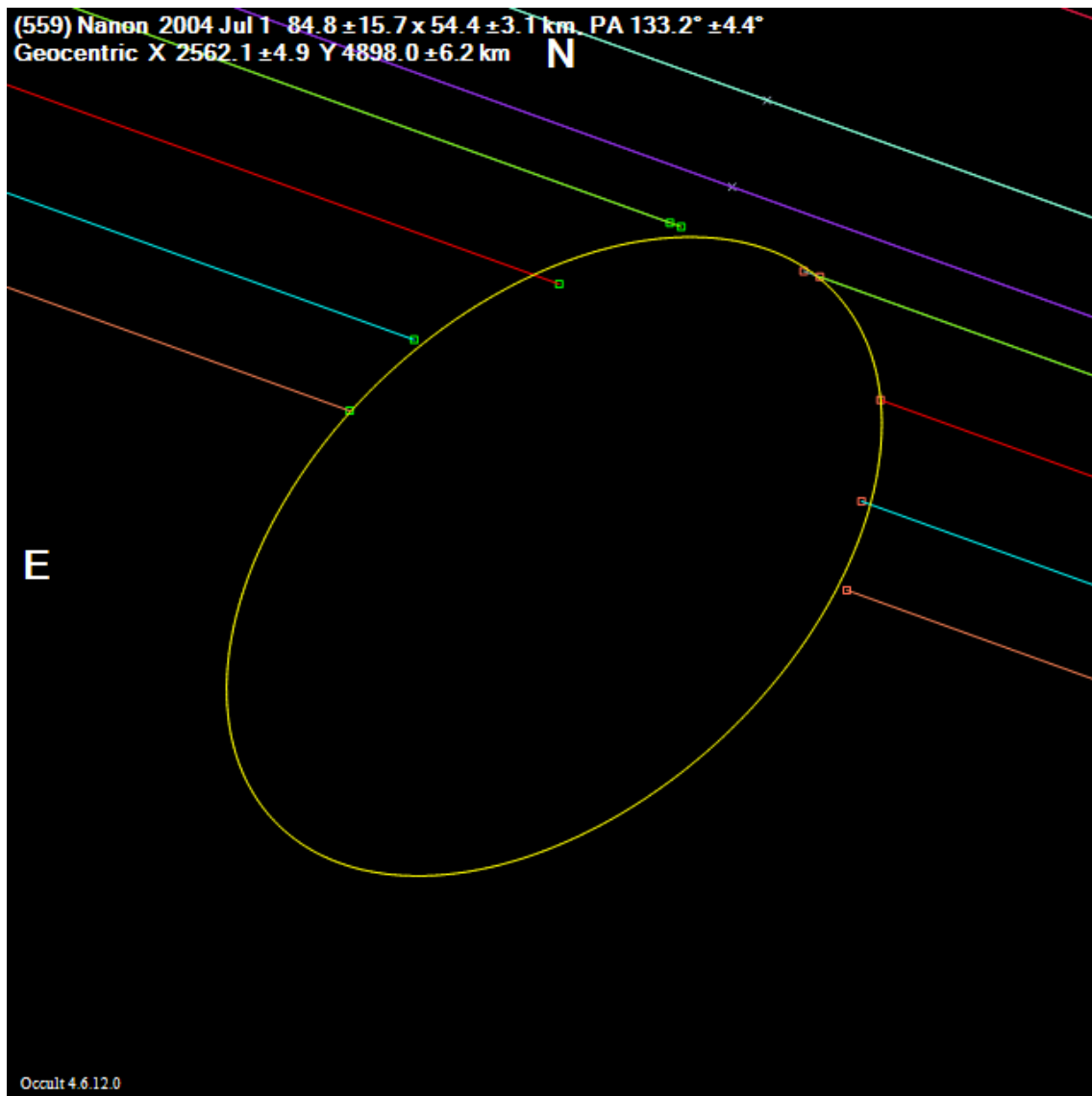
558_Carmen_2009Jan28

(558) Carmen 2009 Jan 28 $70.1 \pm 10.1 \times 52.4 \pm 1.9$ km. PA $48.8^\circ \pm 10.5^\circ$
Geocentric X -1611.6 ± 2.7 Y 2151.4 ± 3.6 km **N**



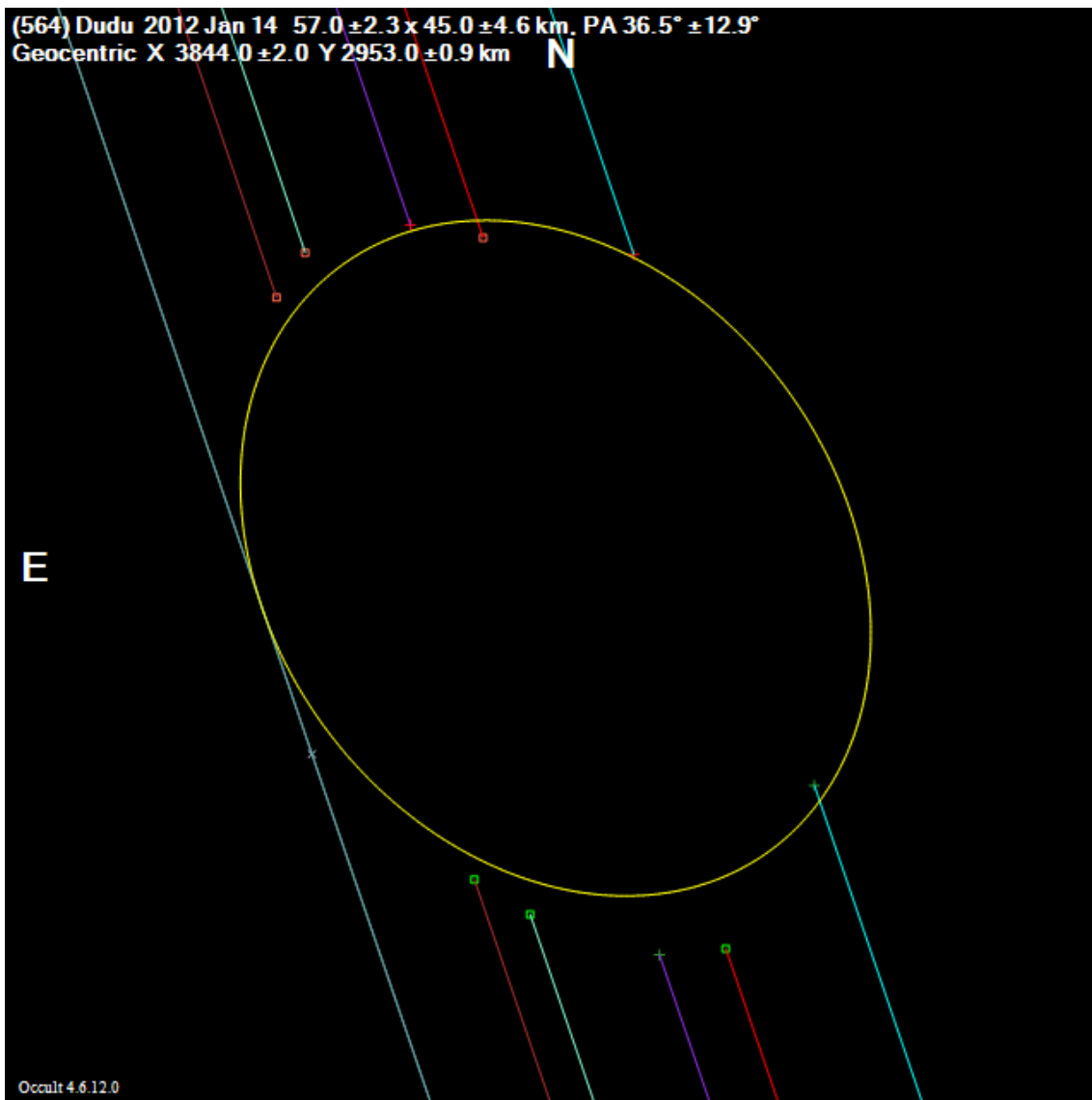
559_Nanon_2004Jul01

(559) Nanon 2004 Jul 1 $84.8 \pm 15.7 \times 54.4 \pm 3.1$ km PA $133.2^\circ \pm 4.4^\circ$
Geocentric X 2562.1 ± 4.9 Y 4898.0 ± 6.2 km **N**



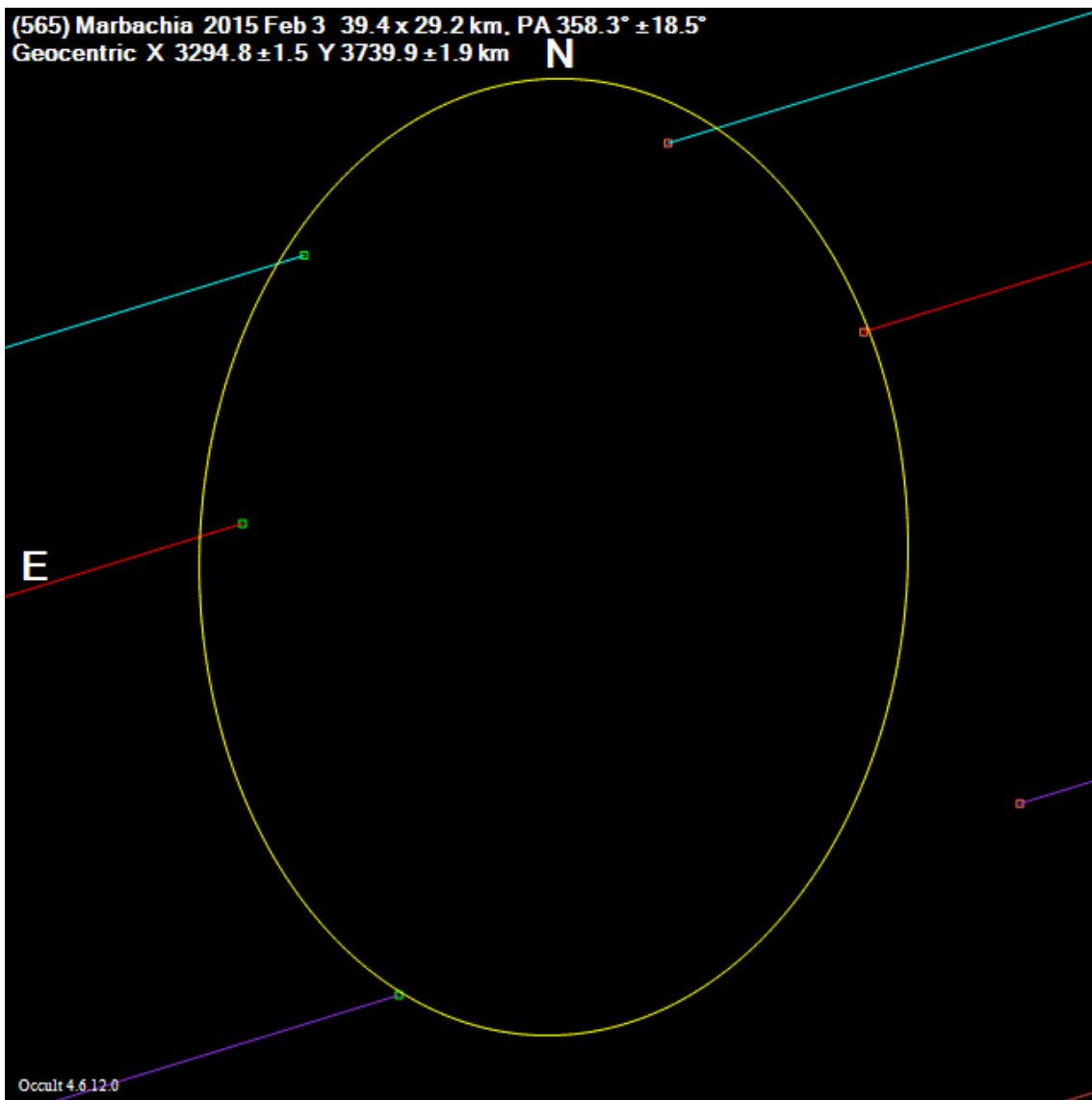
564_Dudu_2012Jan14

(564) Dudu 2012 Jan 14 $57.0 \pm 2.3 \times 45.0 \pm 4.6$ km. PA $36.5^\circ \pm 12.9^\circ$
Geocentric X 3844.0 ± 2.0 Y 2953.0 ± 0.9 km



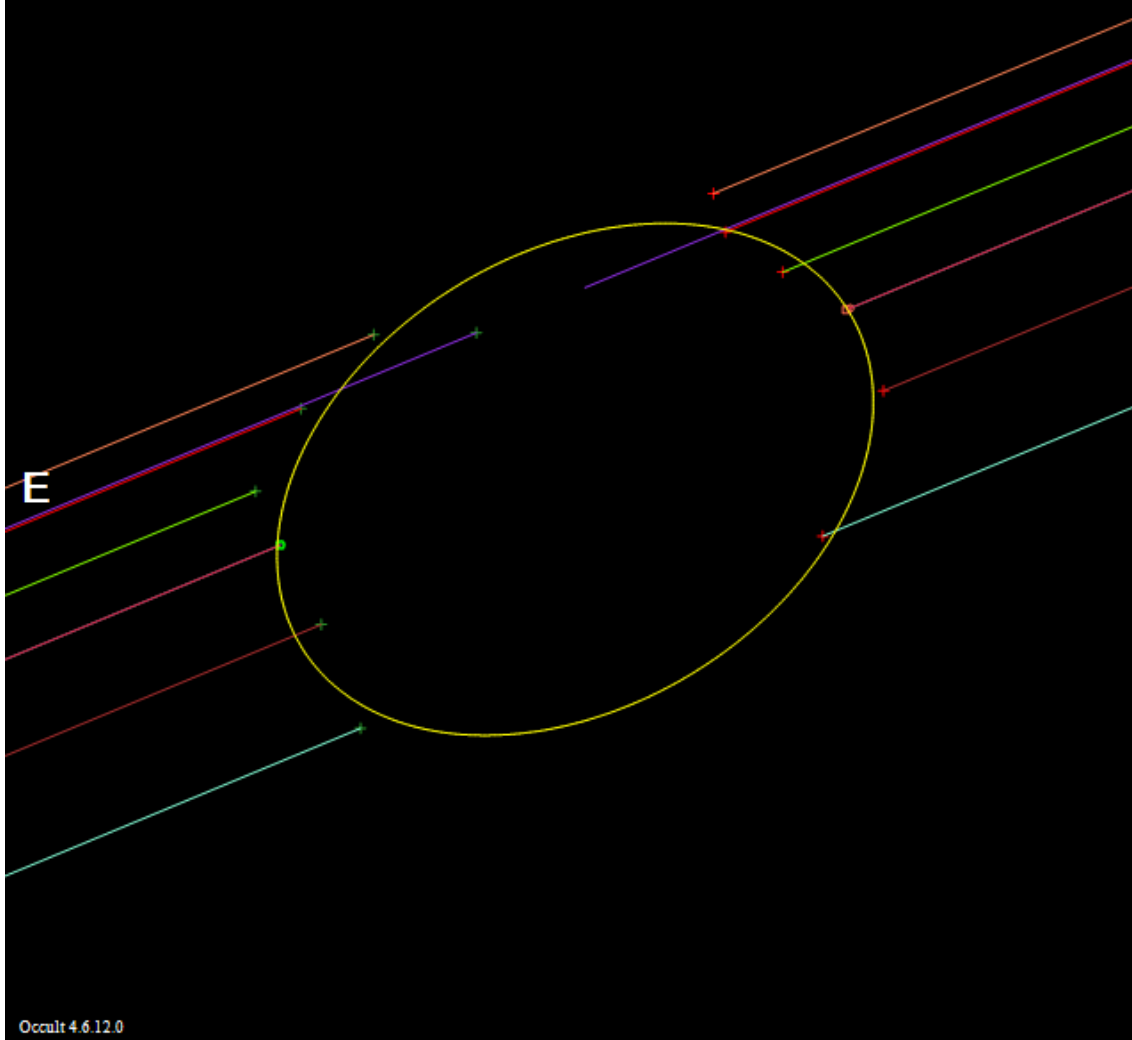
565_Marbachia_2015Feb03

(565) Marbachia 2015 Feb 3 39.4 x 29.2 km. PA 358.3° ± 18.5°
Geocentric X 3294.8 ± 1.5 Y 3739.9 ± 1.9 km



566_Stereoskopia_2004Mar23

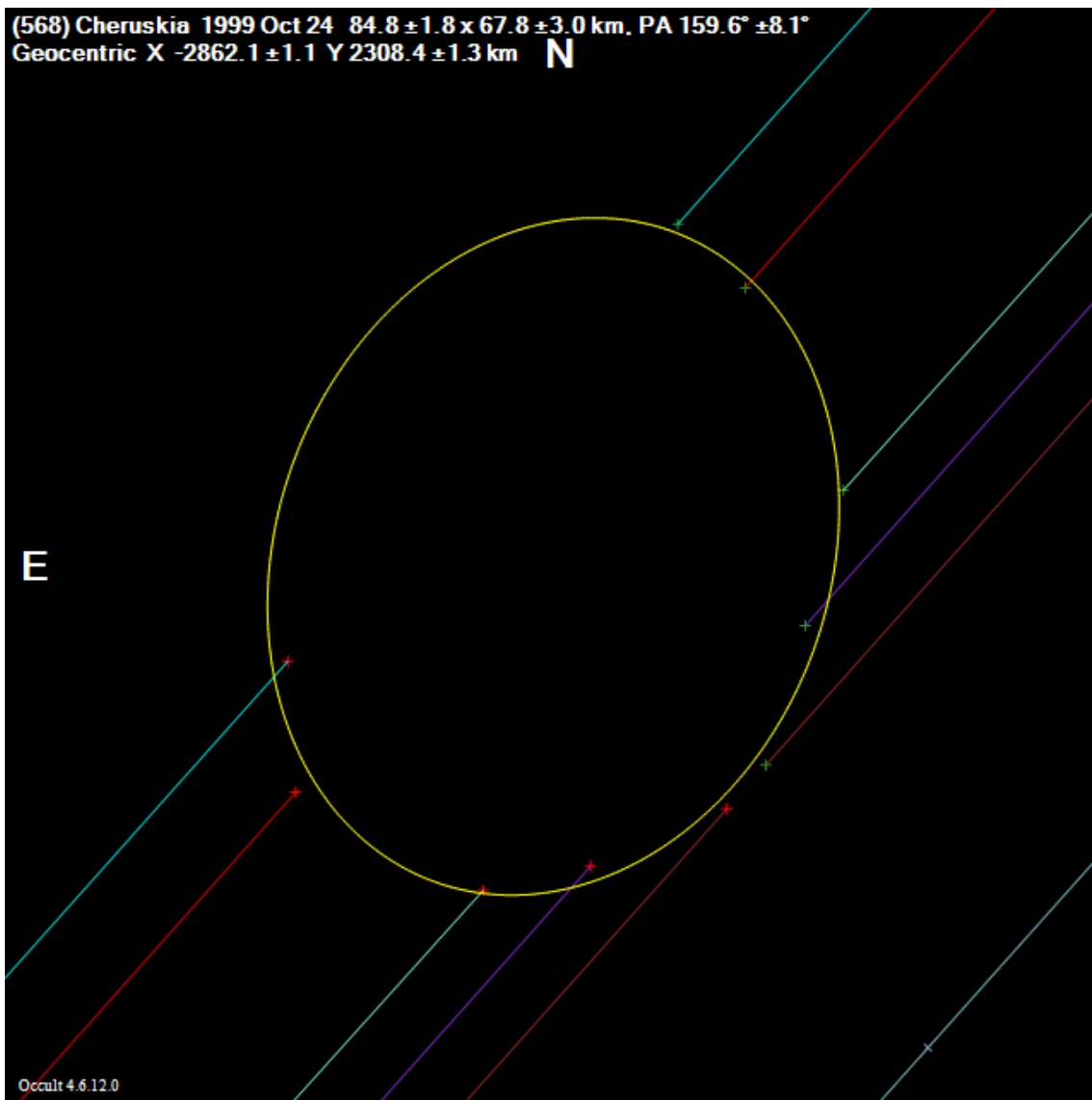
(566) Stereoskopia 2004 Mar 23 $159.8 \pm 4.4 \times 112.8 \pm 9.7$ km. PA $121.5^\circ \pm 6.4^\circ$
Geocentric X 1159.3 ± 2.1 Y 5183.9 ± 3.5 km **N**



Ocult 4.6.12.0

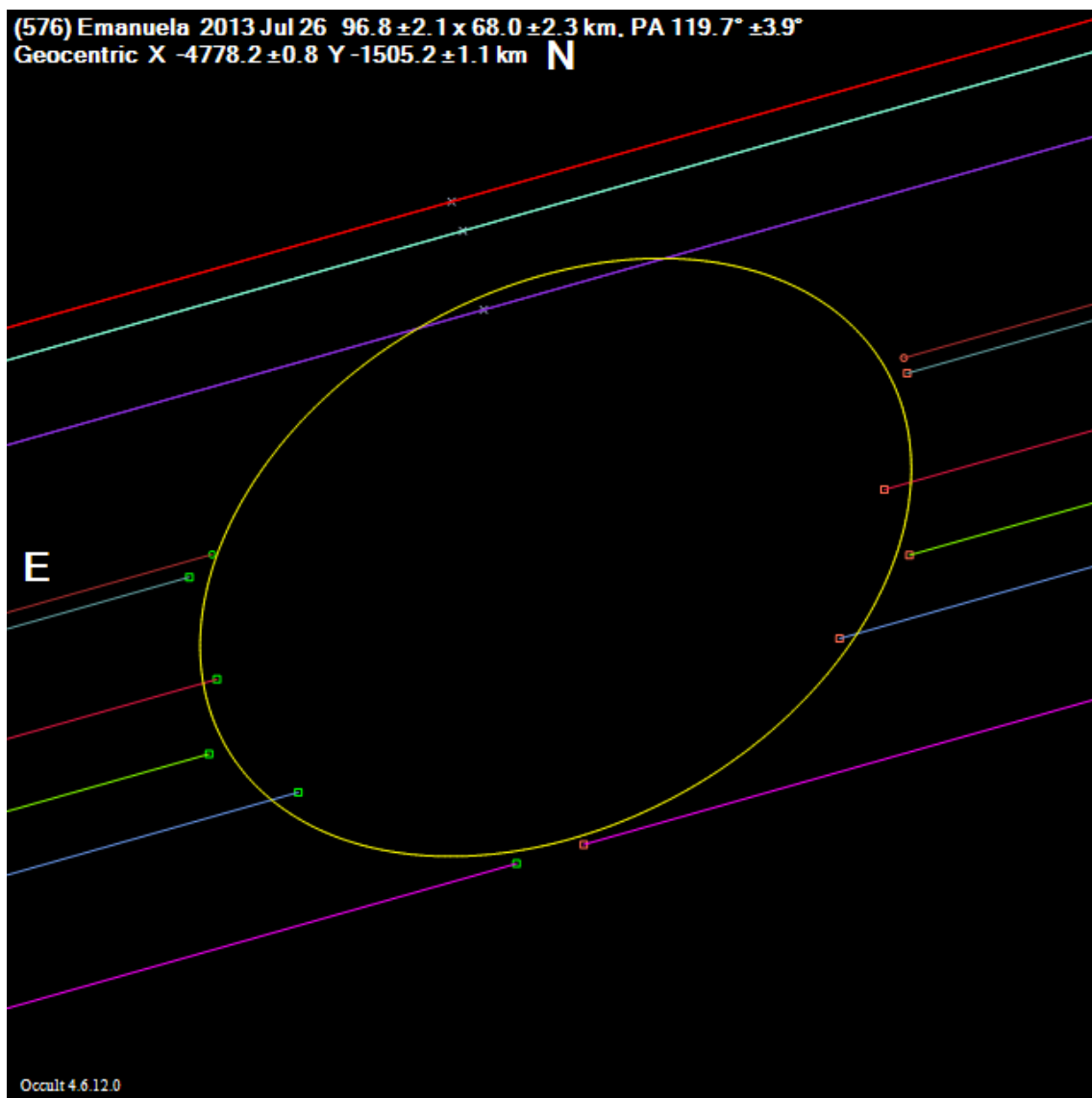
568_Cheruskia_1999Oct24

(568) Cheruskia 1999 Oct 24 $84.8 \pm 1.8 \times 67.8 \pm 3.0$ km, PA $159.6^\circ \pm 8.1^\circ$
Geocentric X -2862.1 ± 1.1 Y 2308.4 ± 1.3 km **N**



576_Emanuela_2013Jul26

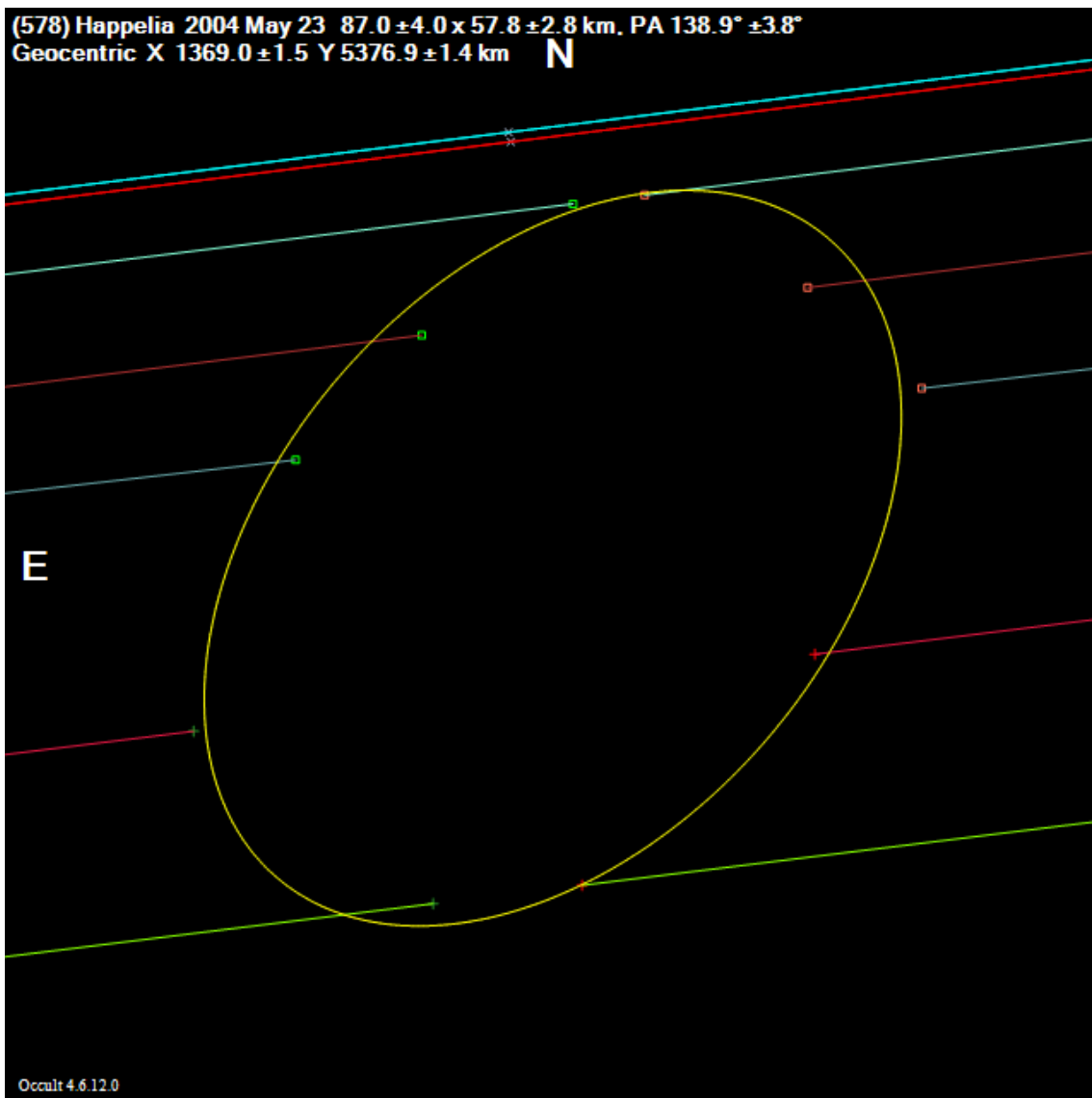
(576) Emanuela 2013 Jul 26 $96.8 \pm 2.1 \times 68.0 \pm 2.3$ km, PA $119.7^\circ \pm 3.9^\circ$
Geocentric X -4778.2 ± 0.8 Y -1505.2 ± 1.1 km **N**



Ocult 4.6.12.0

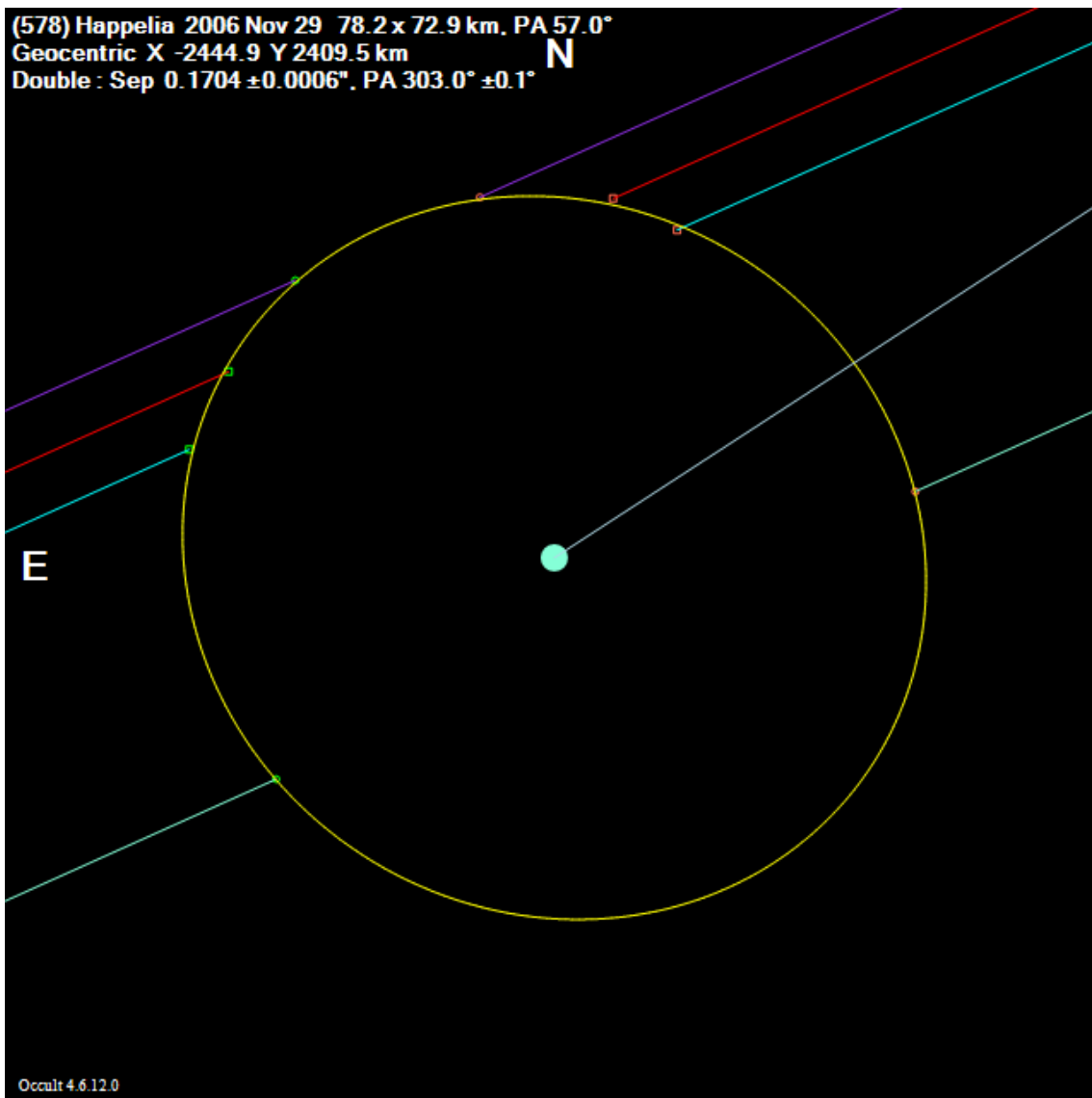
578_Happelia_2004May23

(578) Happelia 2004 May 23 $87.0 \pm 4.0 \times 57.8 \pm 2.8$ km, PA $138.9^\circ \pm 3.8^\circ$
Geocentric X 1369.0 ± 1.5 Y 5376.9 ± 1.4 km **N**



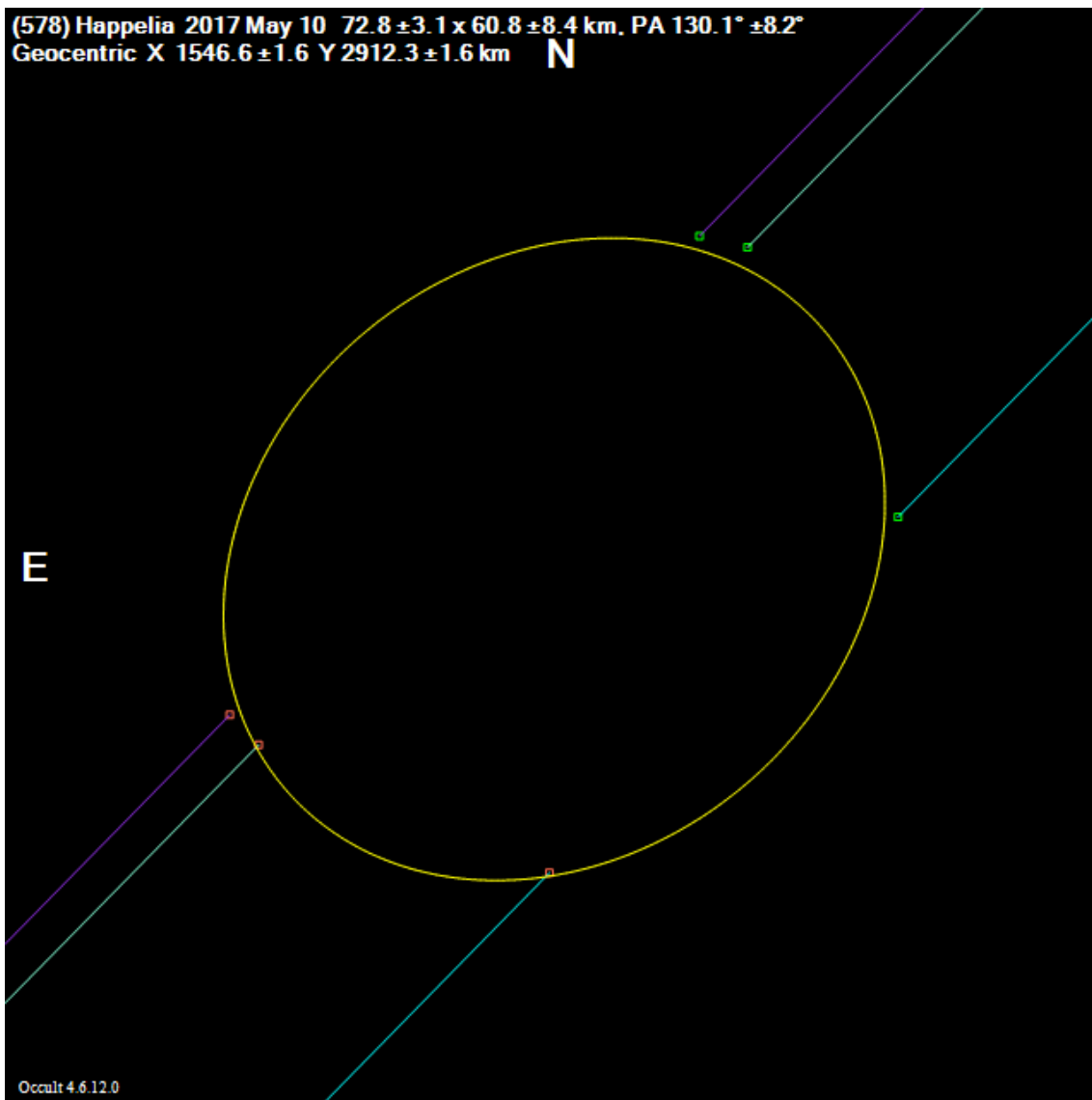
578_Happelia_2006Nov29

(578) Happelia 2006 Nov 29 78.2 x 72.9 km, PA 57.0°
Geocentric X -2444.9 Y 2409.5 km
Double : Sep 0.1704 ± 0.0006", PA 303.0° ± 0.1°



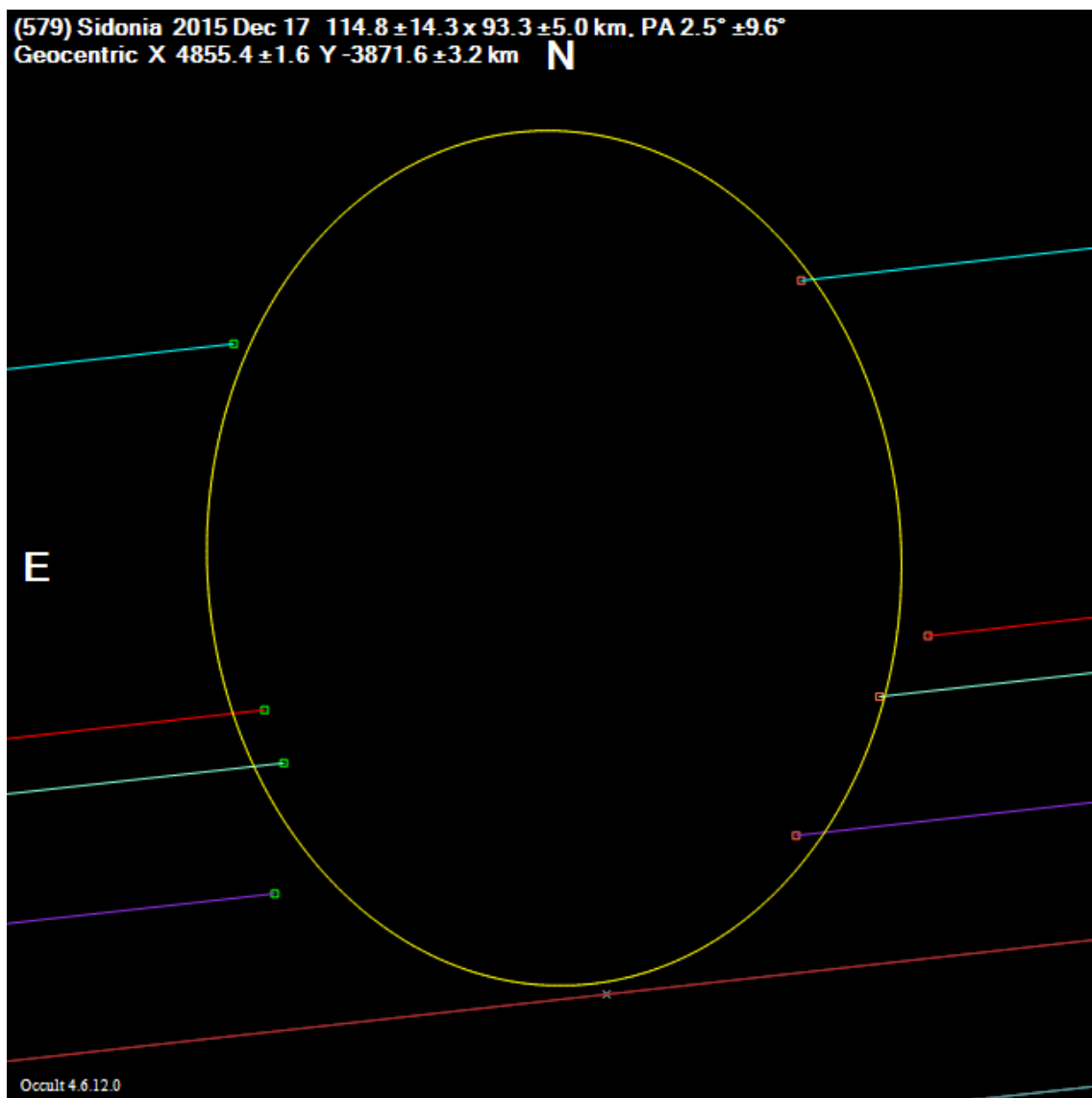
578_Happelia_2017May10

(578) Happelia 2017 May 10 $72.8 \pm 3.1 \times 60.8 \pm 8.4$ km, PA $130.1^\circ \pm 8.2^\circ$
Geocentric X 1546.6 ± 1.6 Y 2912.3 ± 1.6 km **N**



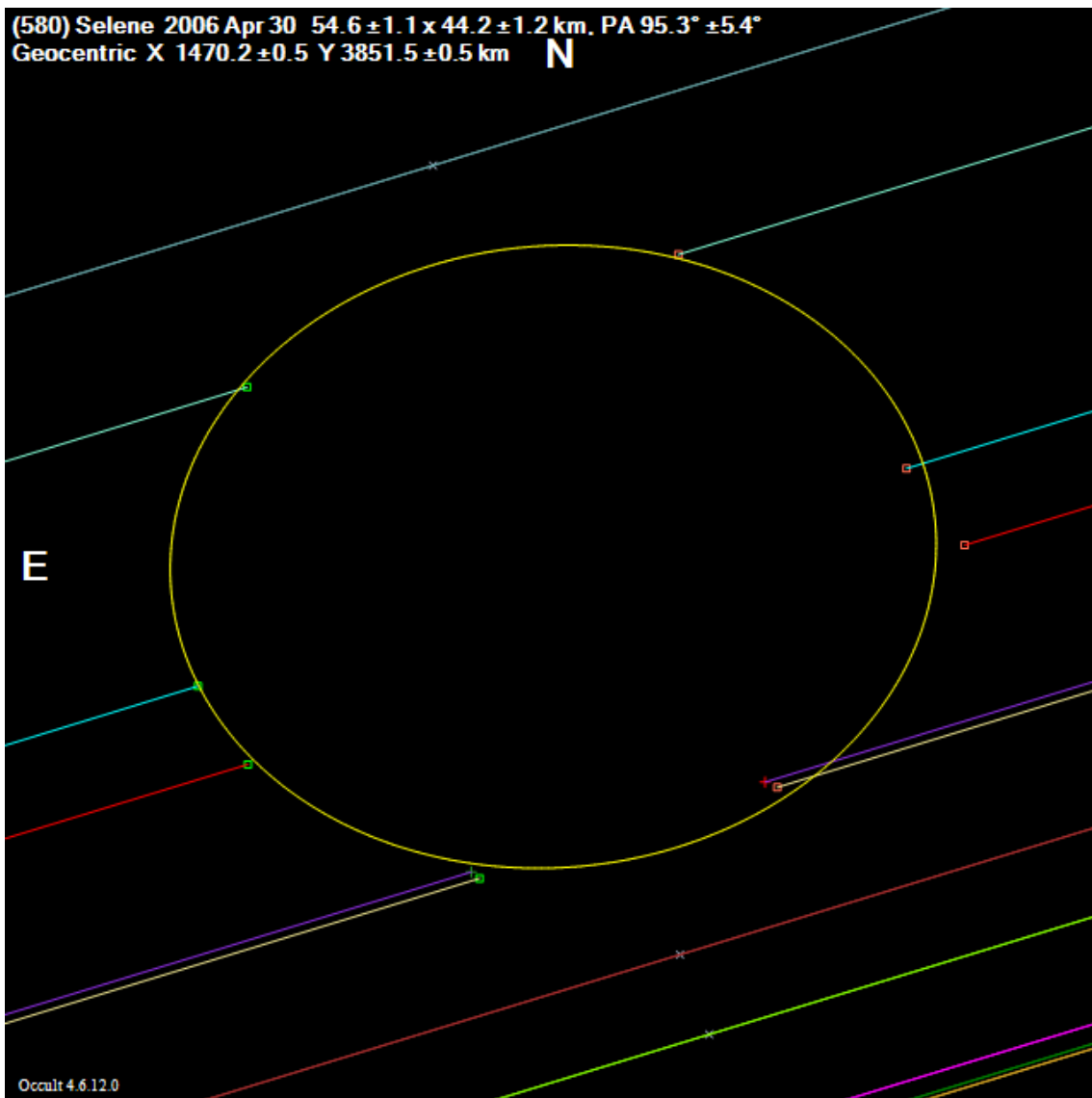
579_Sidonia_2015Dec17

(579) Sidonia 2015 Dec 17 $114.8 \pm 14.3 \times 93.3 \pm 5.0$ km, PA $2.5^\circ \pm 9.6^\circ$
Geocentric X 4855.4 ± 1.6 Y -3871.6 ± 3.2 km **N**



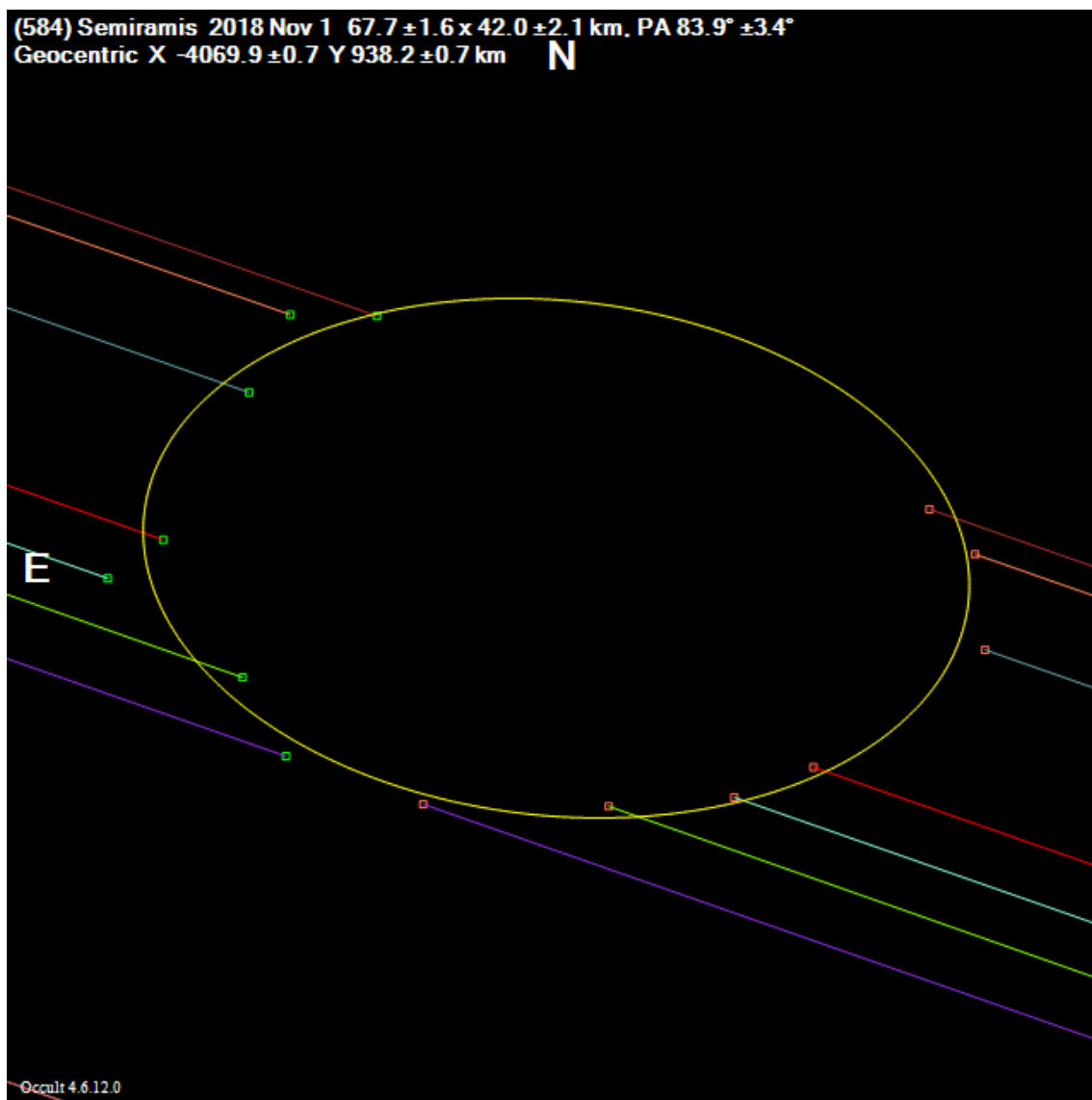
580_Selene_2006Apr30

(580) Selene 2006 Apr 30 $54.6 \pm 1.1 \times 44.2 \pm 1.2$ km, PA $95.3^\circ \pm 5.4^\circ$
Geocentric X 1470.2 ± 0.5 Y 3851.5 ± 0.5 km **N**



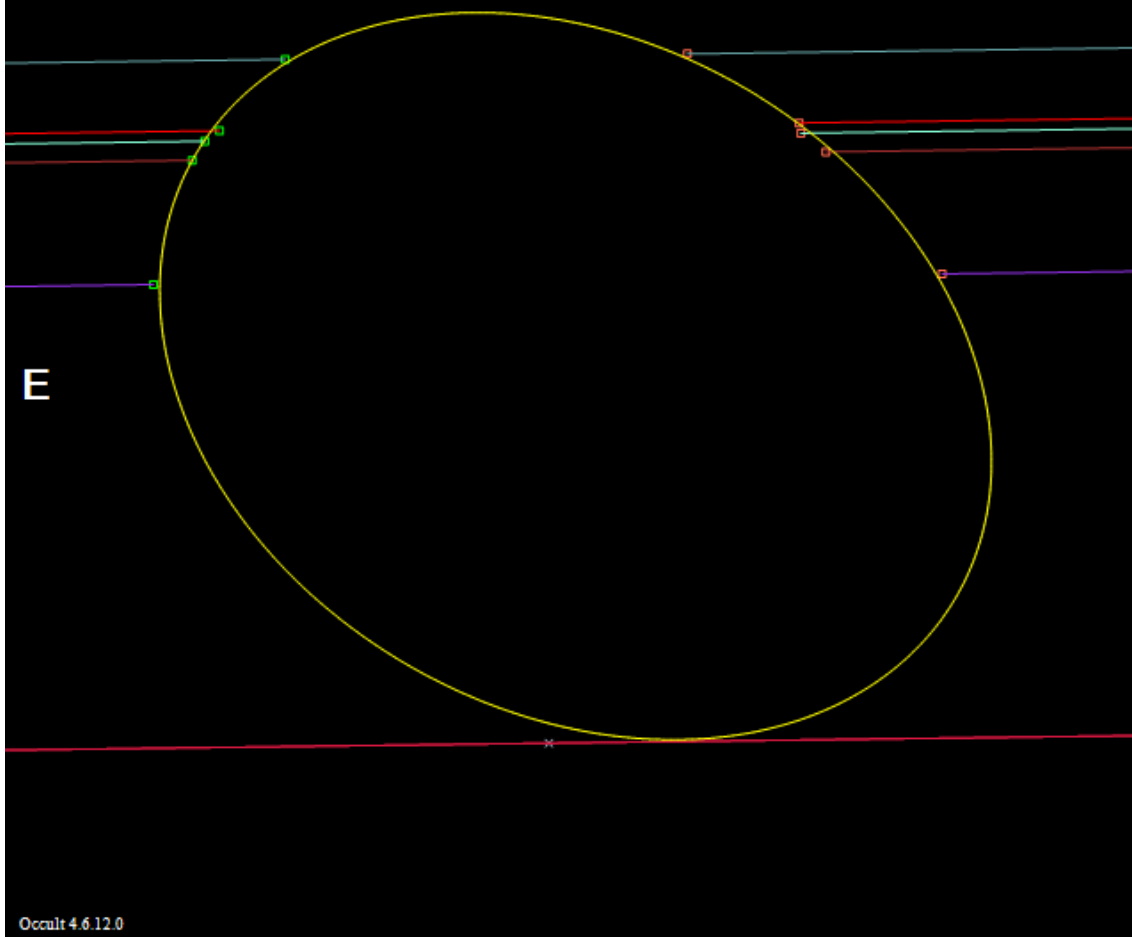
584_Semiramis_2018Nov01

(584) Semiramis 2018 Nov 1 $67.7 \pm 1.6 \times 42.0 \pm 2.1$ km, PA $83.9^\circ \pm 3.4^\circ$
Geocentric X -4069.9 ± 0.7 Y 938.2 ± 0.7 km **N**



589_Croatia_2015Dec20

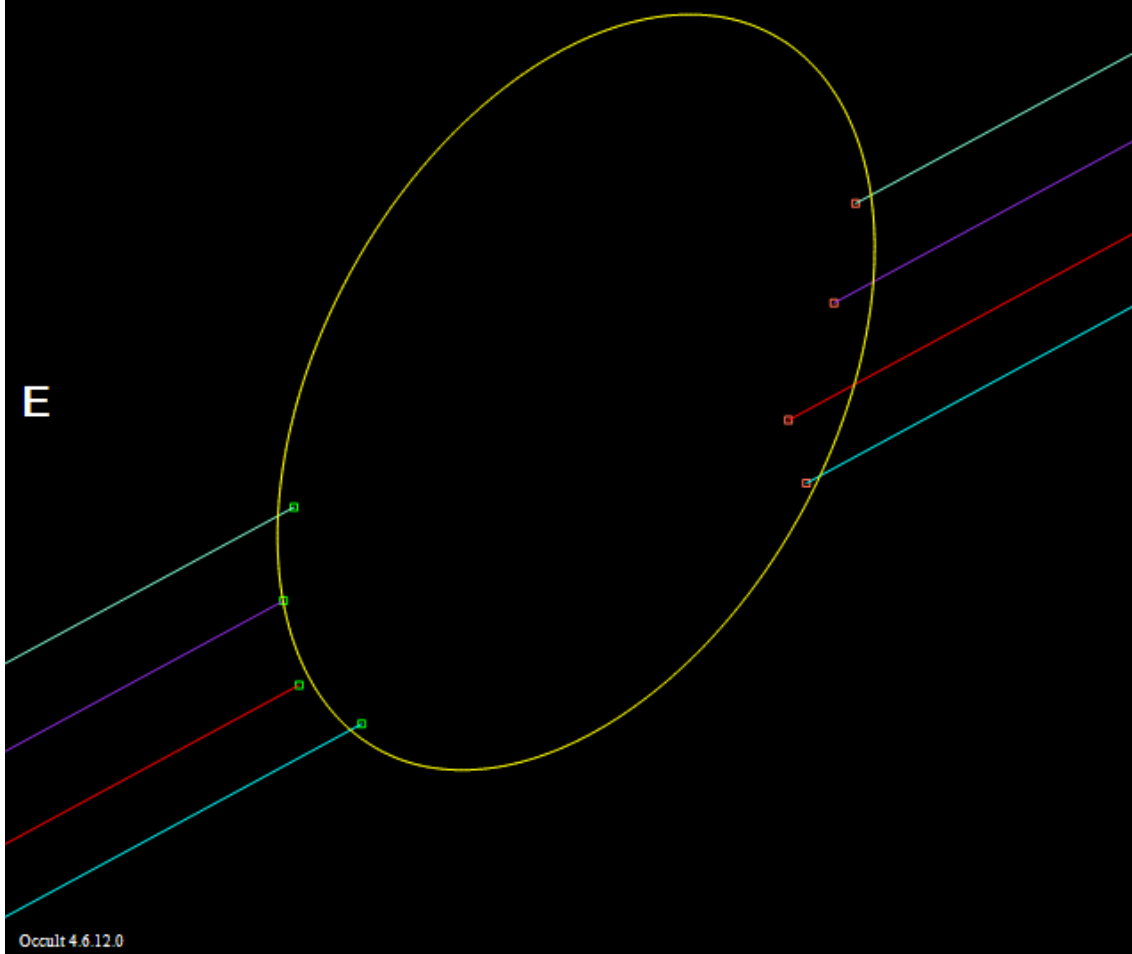
(589) Croatia 2015 Dec 20 $116.6 \pm 1.5 \times 88.5 \pm 1.0$ km, PA $60.0^\circ \pm 1.4^\circ$
Geocentric X -2881.6 ± 0.8 Y 4538.5 ± 0.3 km **N**



Occult 4.6.12.0

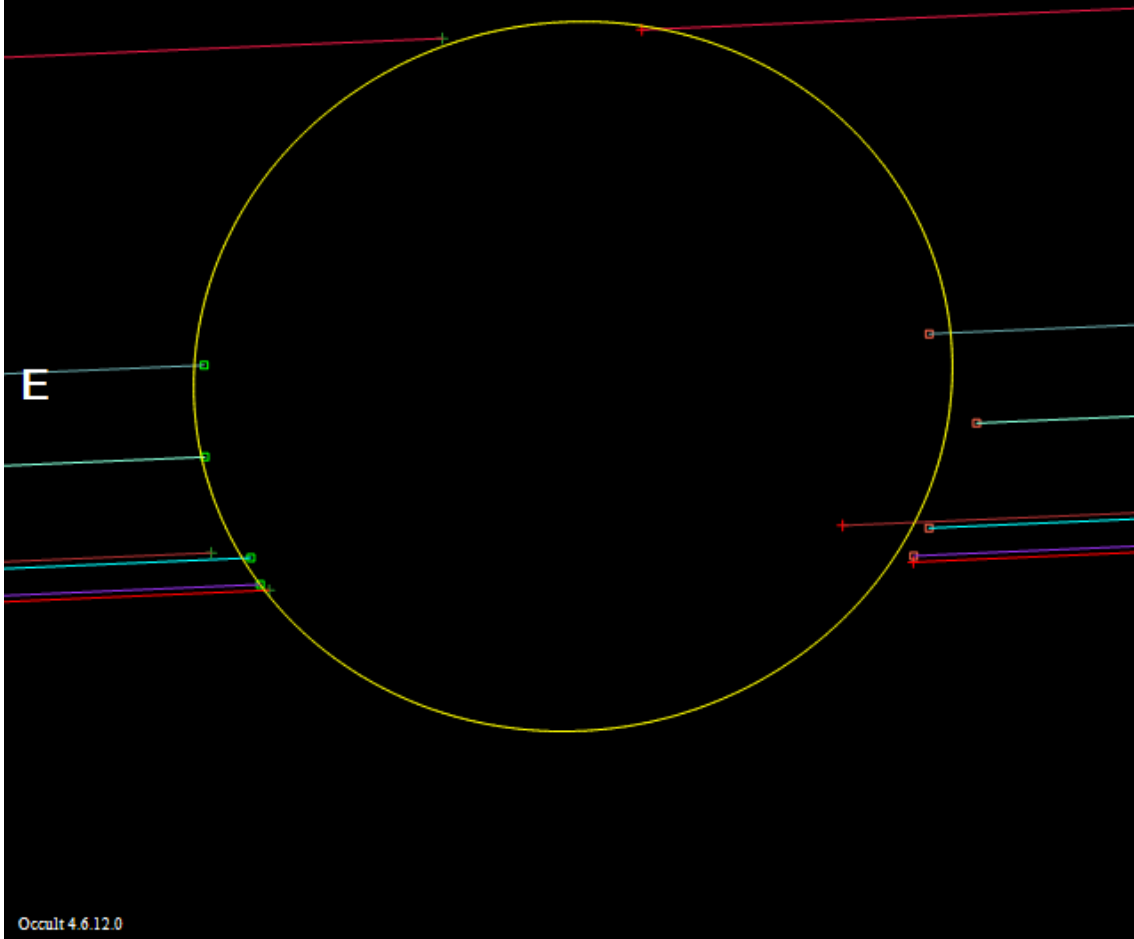
595_Polyxena_2018Dec04

(595) Polyxena 2018 Dec 4 $125.7 \pm 20.4 \times 78.7 \pm 13.7$ km, PA $330.9^\circ \pm 19.2^\circ$
Geocentric X -4225.2 ± 1.4 Y 165.4 ± 9.1 km **N**



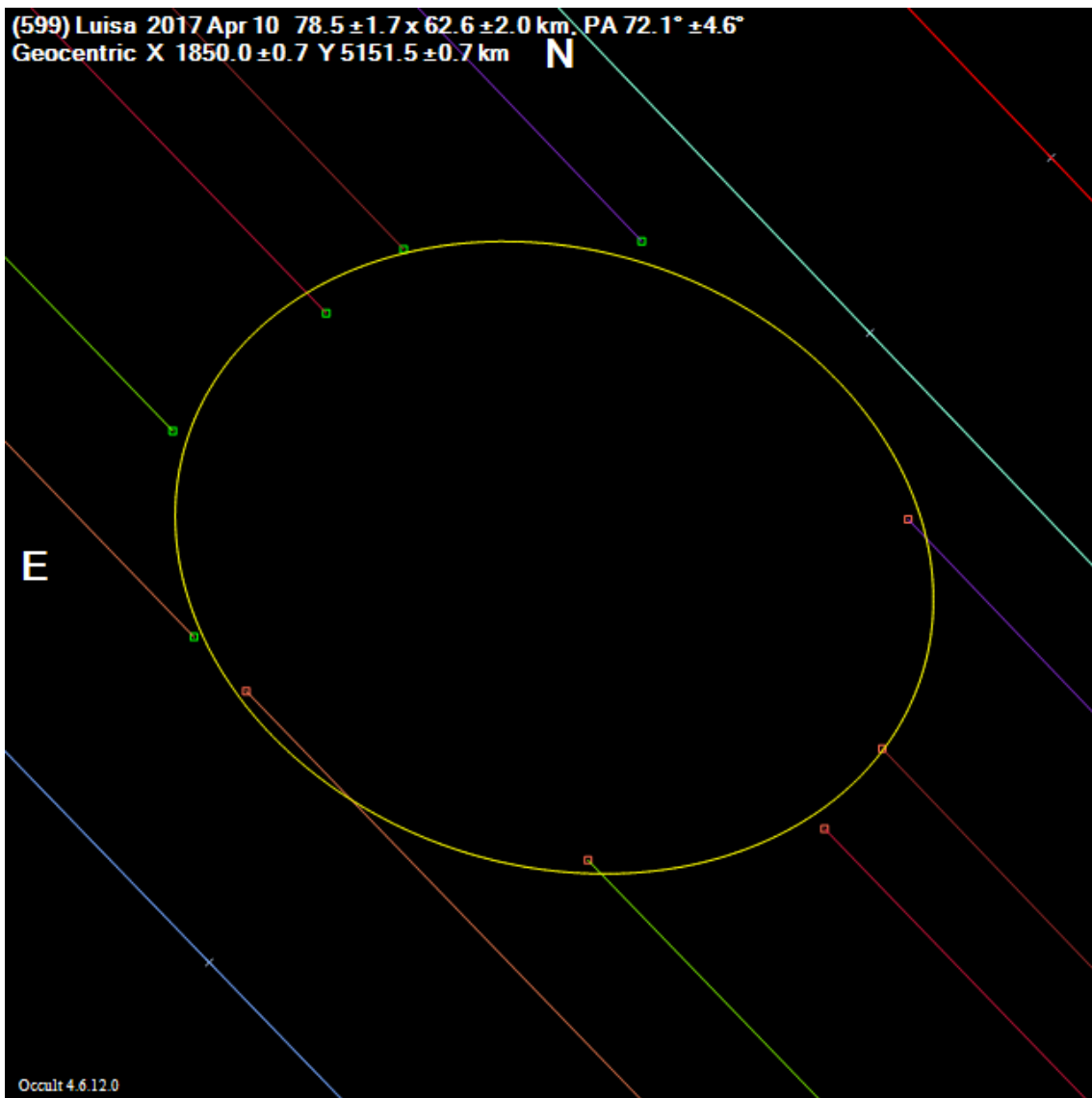
599_Luisa_2009Dec29

(599) Luisa 2009 Dec 29 $74.5 \pm 1.9 \times 69.3 \pm 4.5$ km, PA $100.6^\circ \pm 26.2^\circ$
Geocentric X 3965.4 ± 0.9 Y 3241.1 ± 1.5 km **N**



599_Luisa_2017Apr10

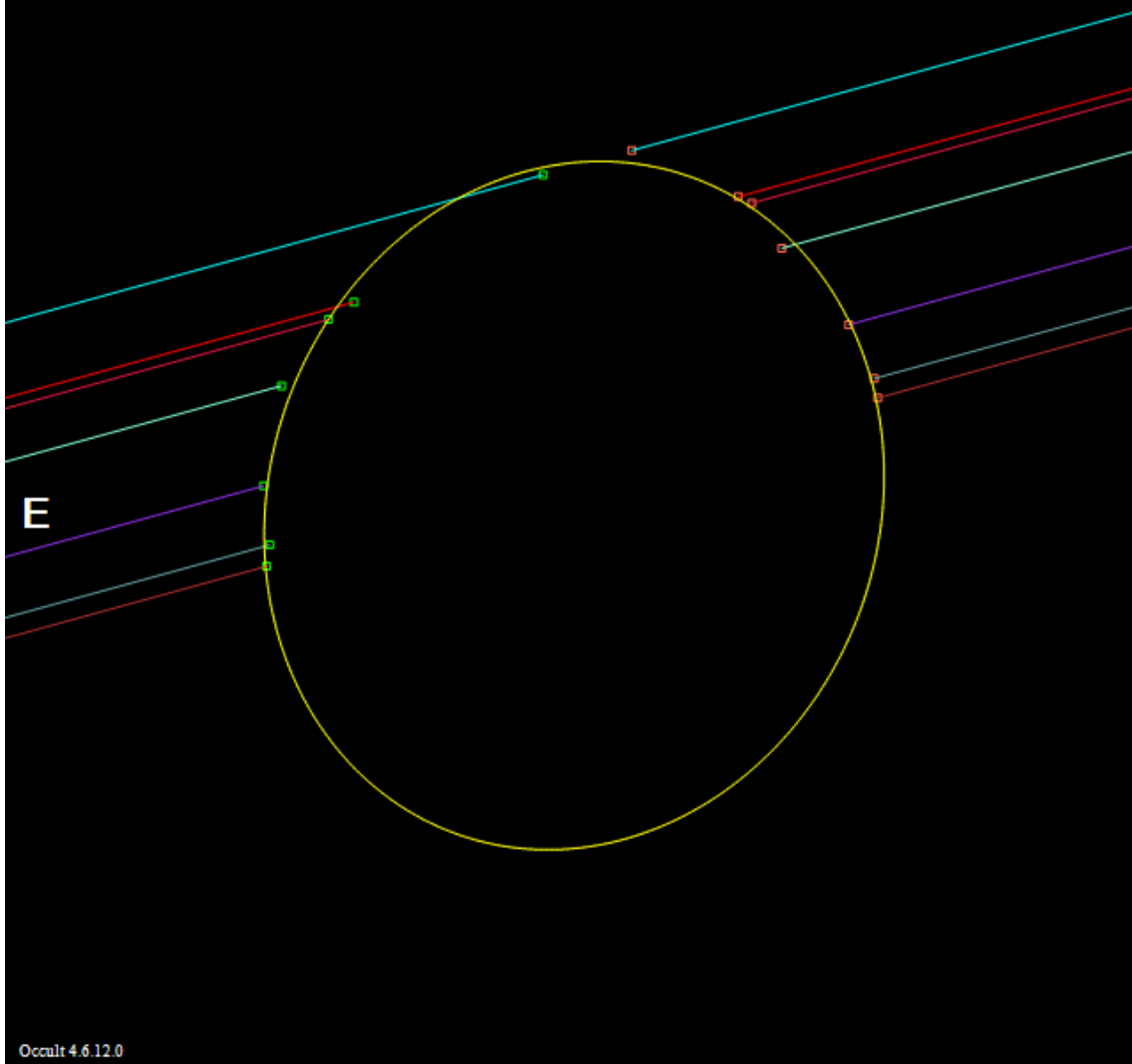
(599) Luisa 2017 Apr 10 $78.5 \pm 1.7 \times 62.6 \pm 2.0$ km, PA $72.1^\circ \pm 4.6^\circ$
Geocentric X 1850.0 ± 0.7 Y 5151.5 ± 0.7 km **N**



602_Marianna_2013Dec12

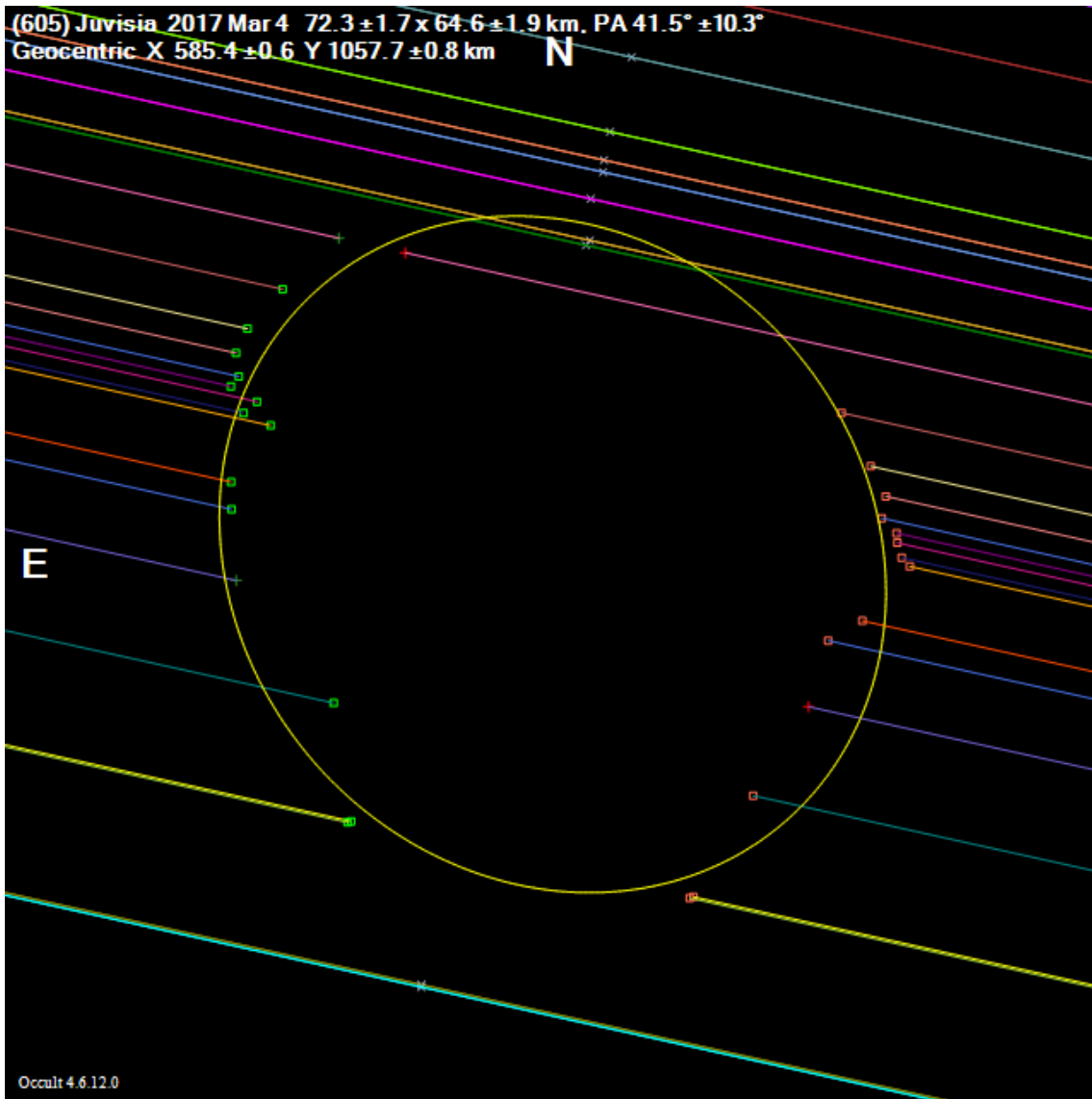
(602) Marianna 2013 Dec 12 $125.6 \pm 8.4 \times 109.8 \pm 4.0$ km. PA $160.4^\circ \pm 14.6^\circ$
Geocentric X 2060.4 ± 1.0 Y 254.4 ± 4.6 km

N



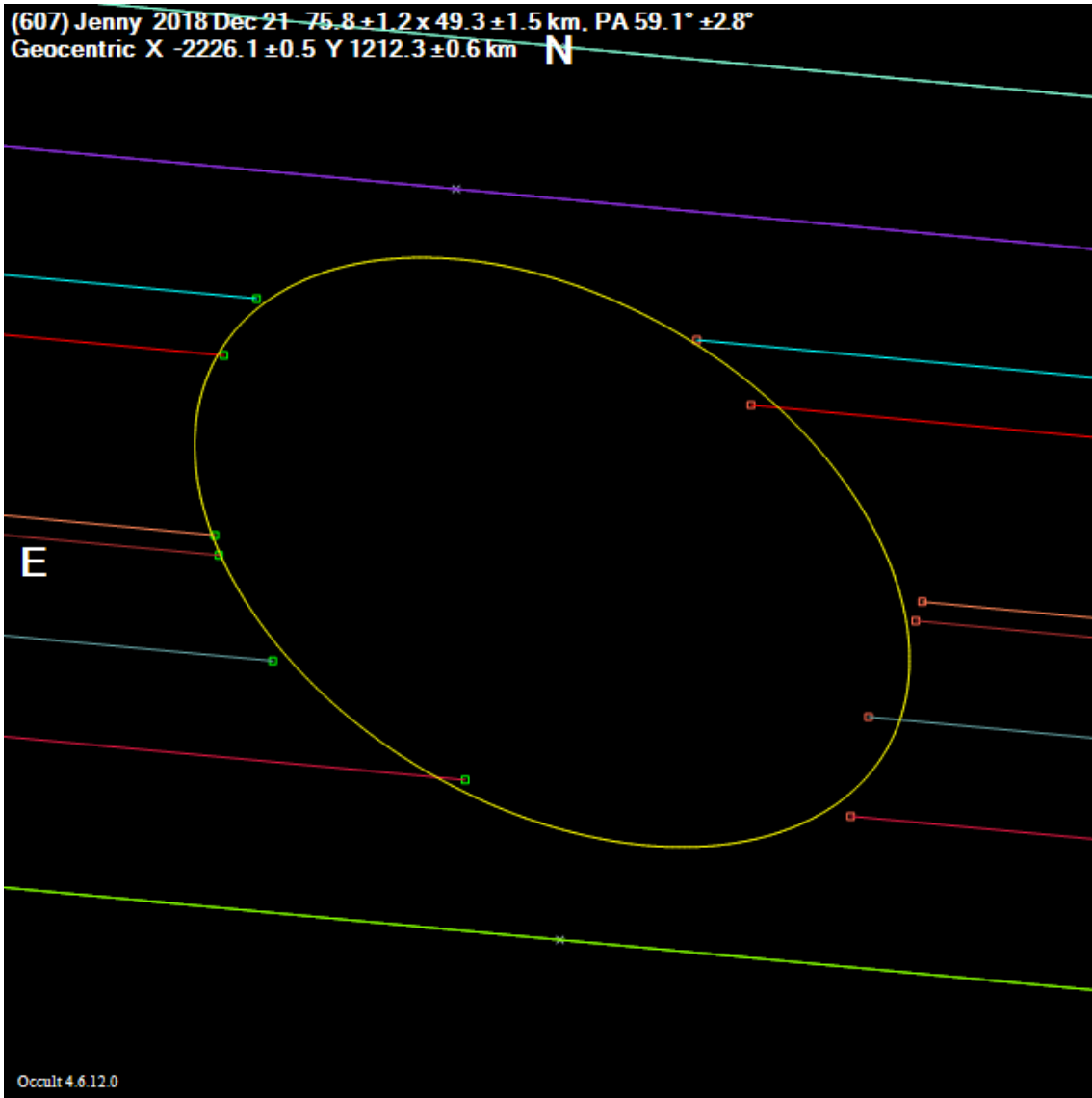
605_Juvisia_2017Mar04

(605) Juvisia 2017 Mar 4 $72.3 \pm 1.7 \times 64.6 \pm 1.9$ km. PA $41.5^\circ \pm 10.3^\circ$
Geocentric X 585.4 ± 0.6 Y 1057.7 ± 0.8 km



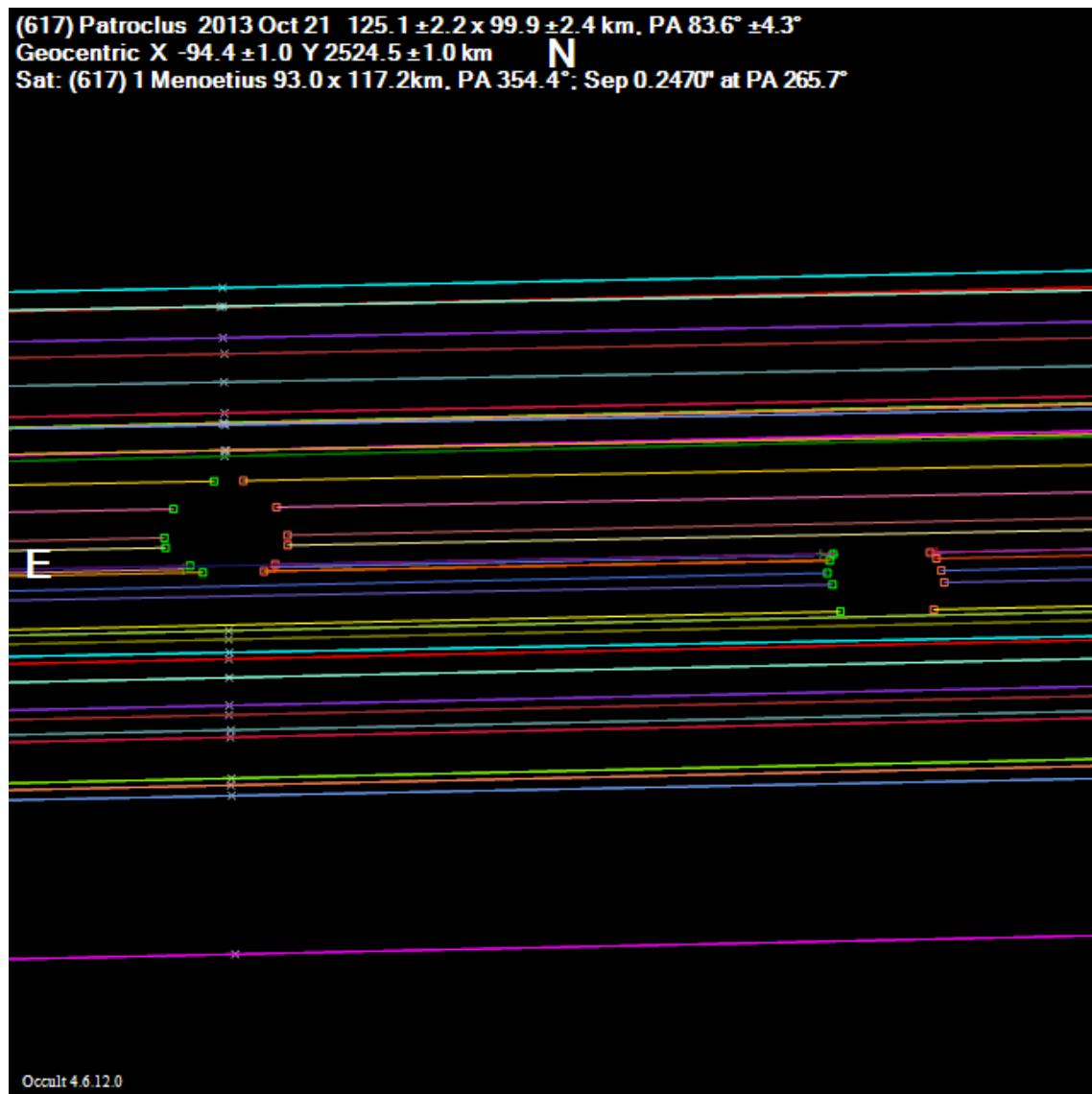
607_Jenny_2018Dec21

(607) Jenny 2018 Dec 21 $75.8 \pm 1.2 \times 49.3 \pm 1.5$ km. PA $59.1^\circ \pm 2.8^\circ$
Geocentric X -2226.1 ± 0.5 Y 1212.3 ± 0.6 km **N**



617_Patroclus_2013Oct21

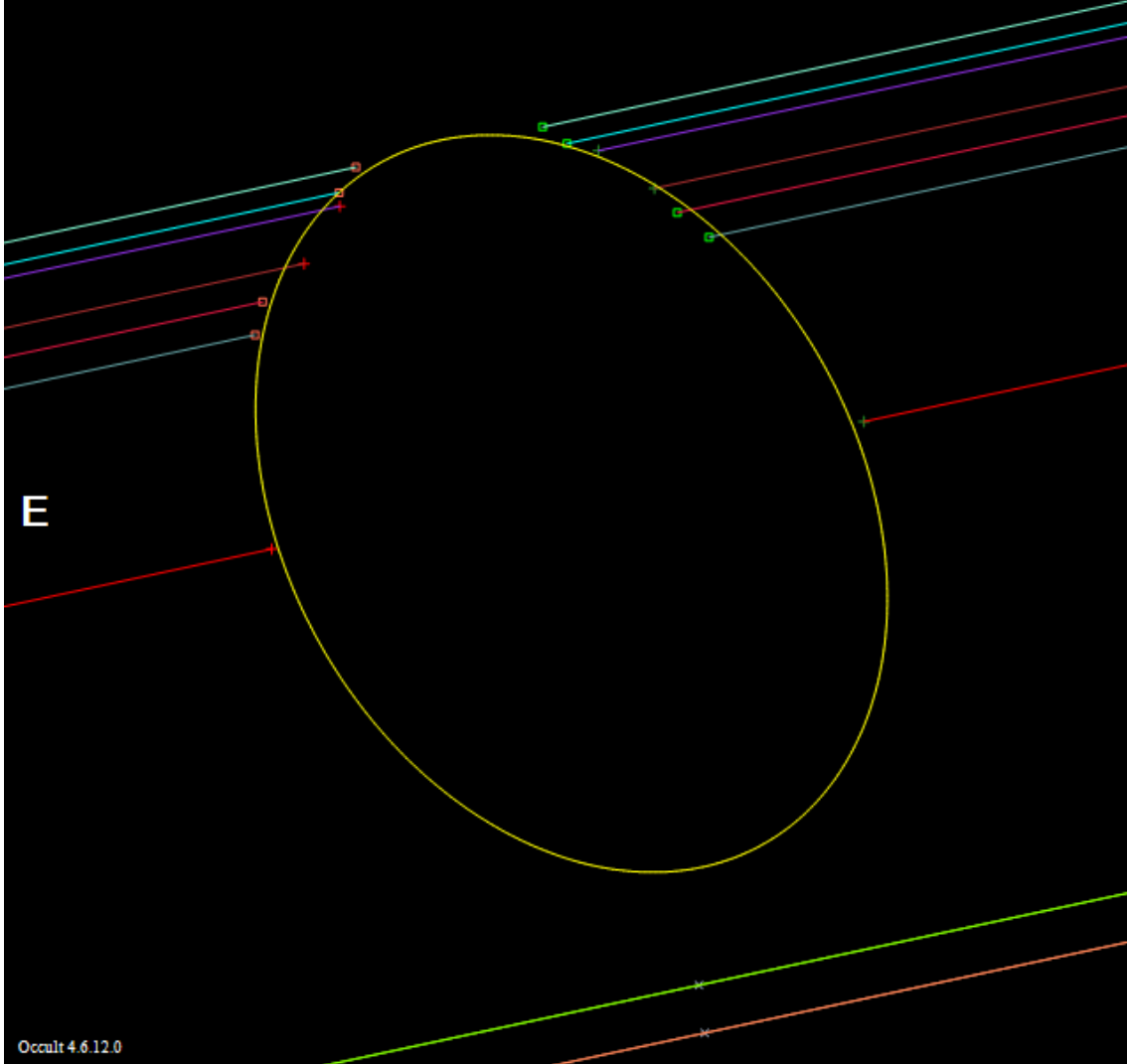
(617) Patroclus 2013 Oct 21 $125.1 \pm 2.2 \times 99.9 \pm 2.4$ km, PA $83.6^\circ \pm 4.3^\circ$
Geocentric X -94.4 ± 1.0 Y 2524.5 ± 1.0 km **N**
Sat: (617) 1 Menoetius 93.0×117.2 km, PA 354.4° ; Sep $0.2470''$ at PA 265.7°



654_Zelinda_2012Jan06

(654) Zelinda 2012 Jan 6 152.0 x 112.0 km, PA 29.5°
Geocentric X 1414.6 Y 1407.6 km

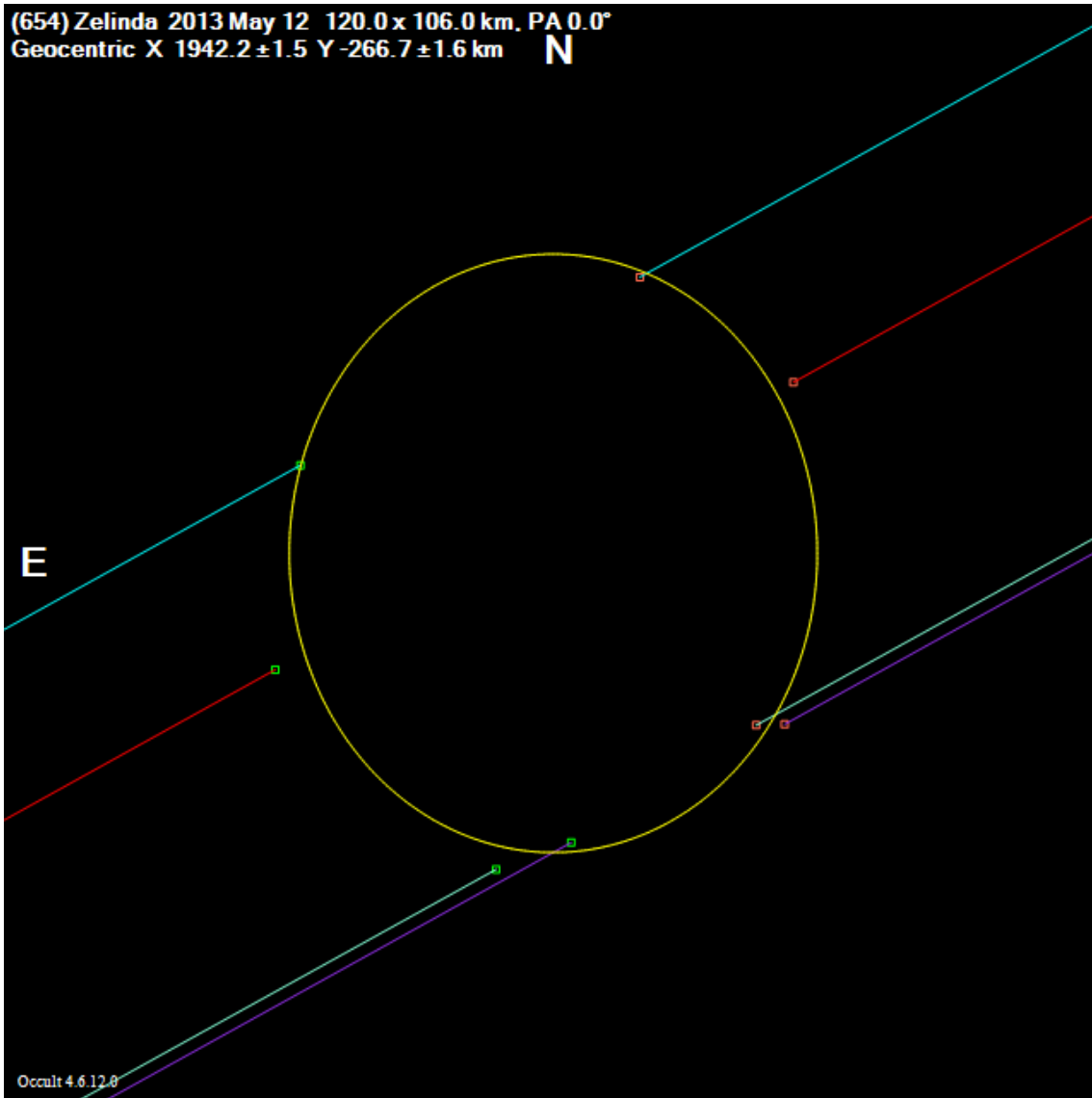
N



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654_Zelinda_2013May12

(654) Zelinda 2013 May 12 120.0 x 106.0 km. PA 0.0°
Geocentric X 1942.2 ± 1.5 Y -266.7 ± 1.6 km N



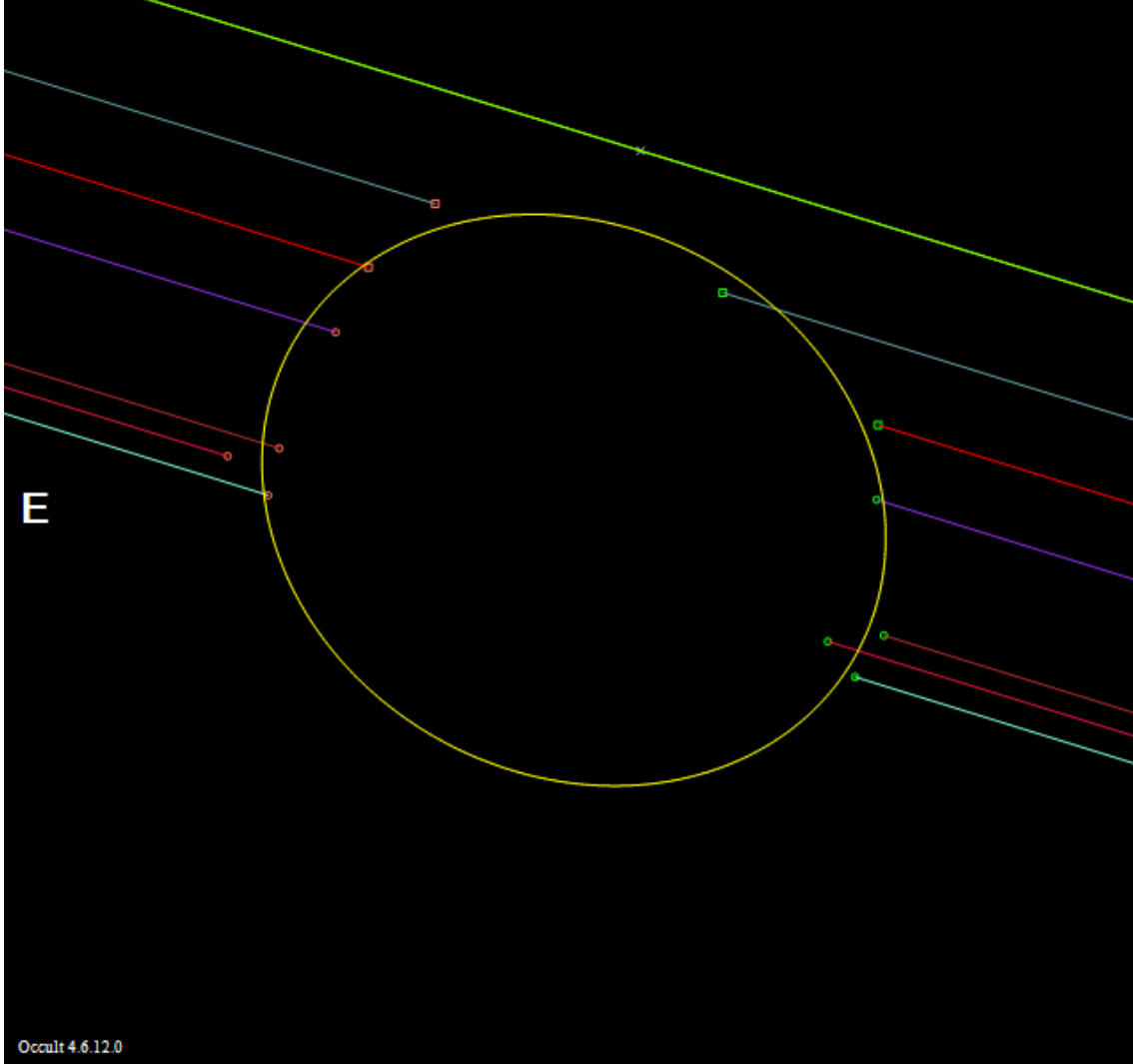
654_Zelinda_2015Dec31

(654) Zelinda 2015 Dec 31 $147.1 \pm 24.0 \times 121.1 \pm 4.2$ km, PA $111.4^\circ \pm 9.9^\circ$
Geocentric X -514.9 ± 10.3 Y 3281.0 ± 4.6 km **N**



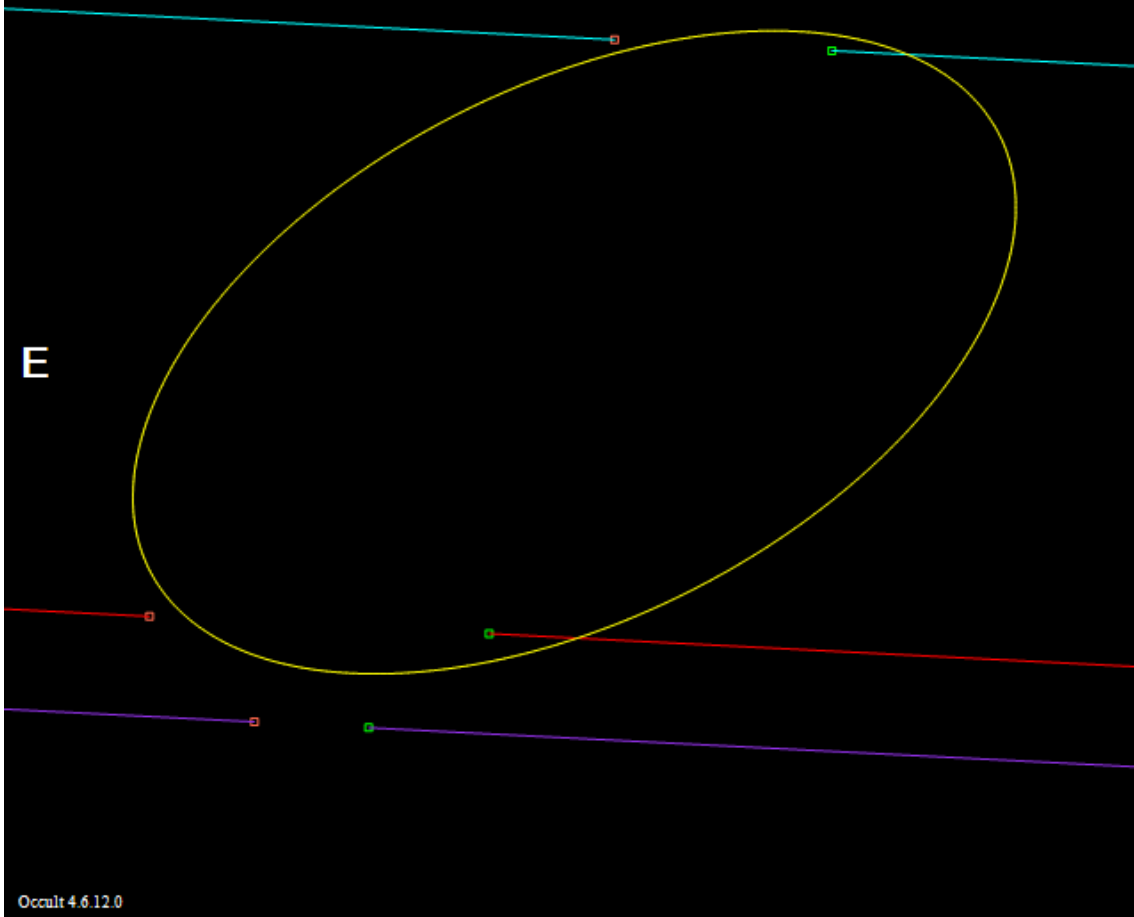
663_Gerlinde_2019Mar28

(663) Gerlinde 2019 Mar 28 $96.0 \pm 2.6 \times 81.9 \pm 9.8$ km, PA $62.0^\circ \pm 14.4^\circ$
Geocentric X 2459.0 ± 1.4 Y 4380.0 ± 3.5 km **N**



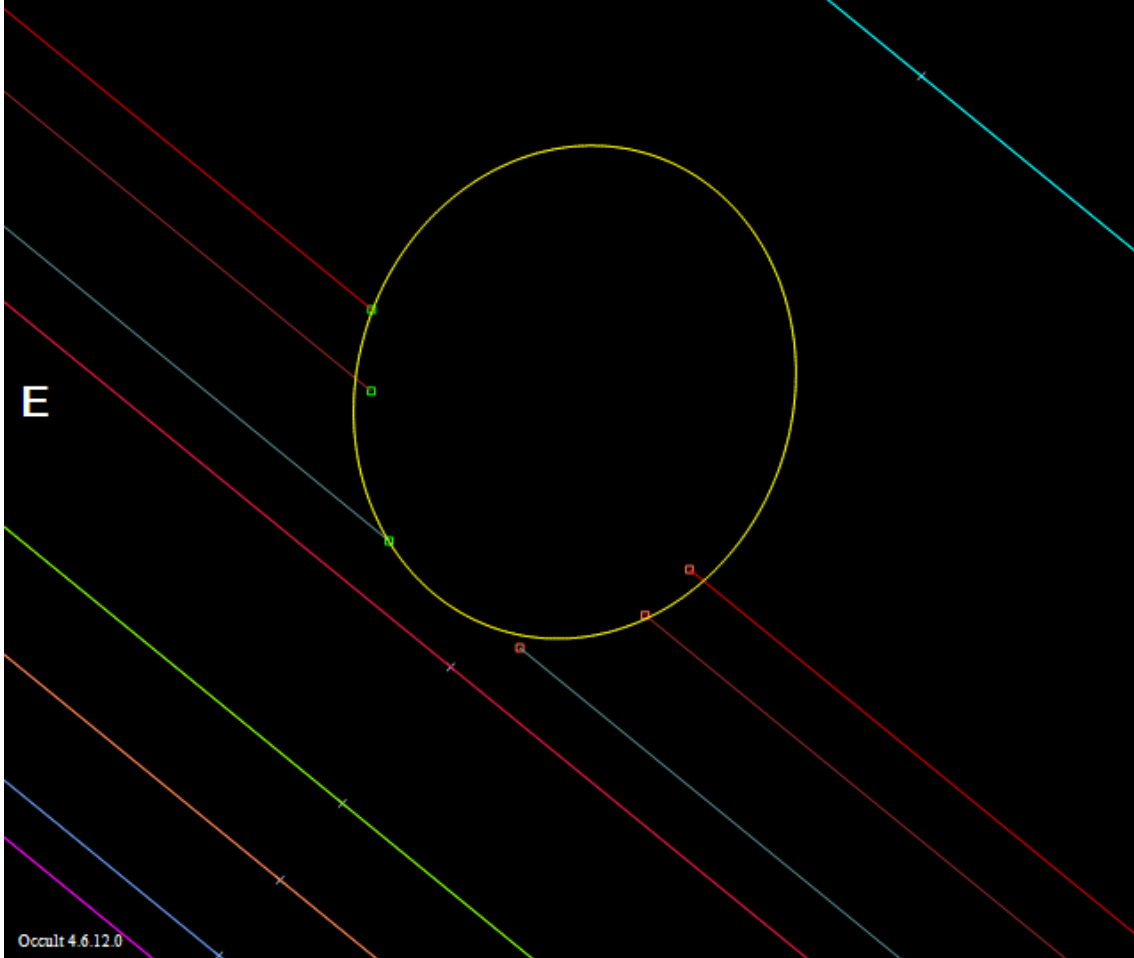
675_Ludmilla_2013Nov08

(675) Ludmilla 2013 Nov 8 $91.3 \pm 15.9 \times 50.7 \pm 13.7$ km, PA $117.2^\circ \pm 21.3^\circ$
Geocentric X 4099.0 ± 6.3 Y 4573.4 ± 1.4 km **N**



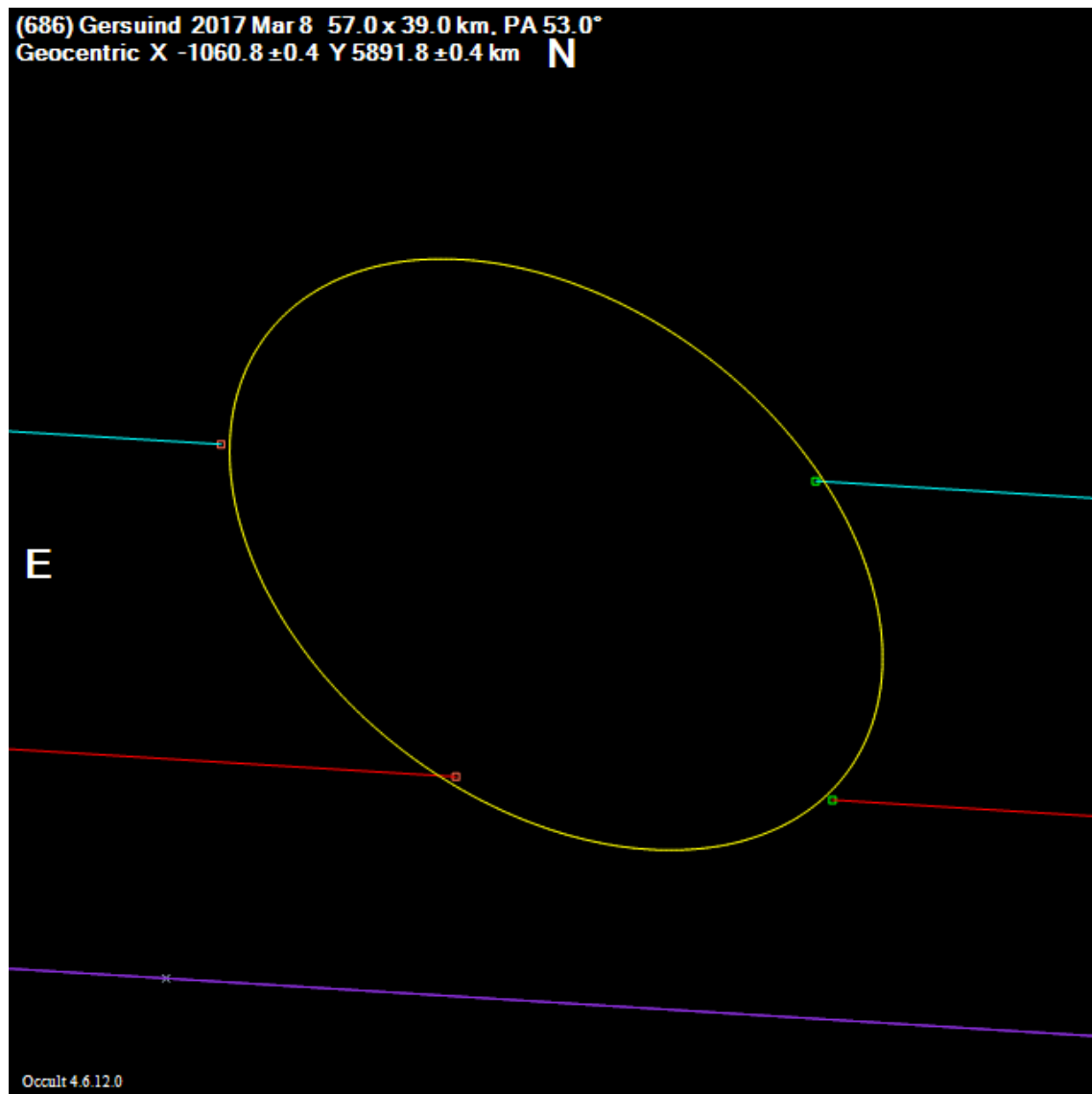
679_Pax_2015Jul17

(679) Pax 2015 Jul 17 $42.6 \pm 20.5 \times 37.3 \pm 6.3$ km, PA $162.2^\circ \pm 56.2^\circ$
Geocentric X -1824.0 ± 5.9 Y 5464.4 ± 8.6 km **N**



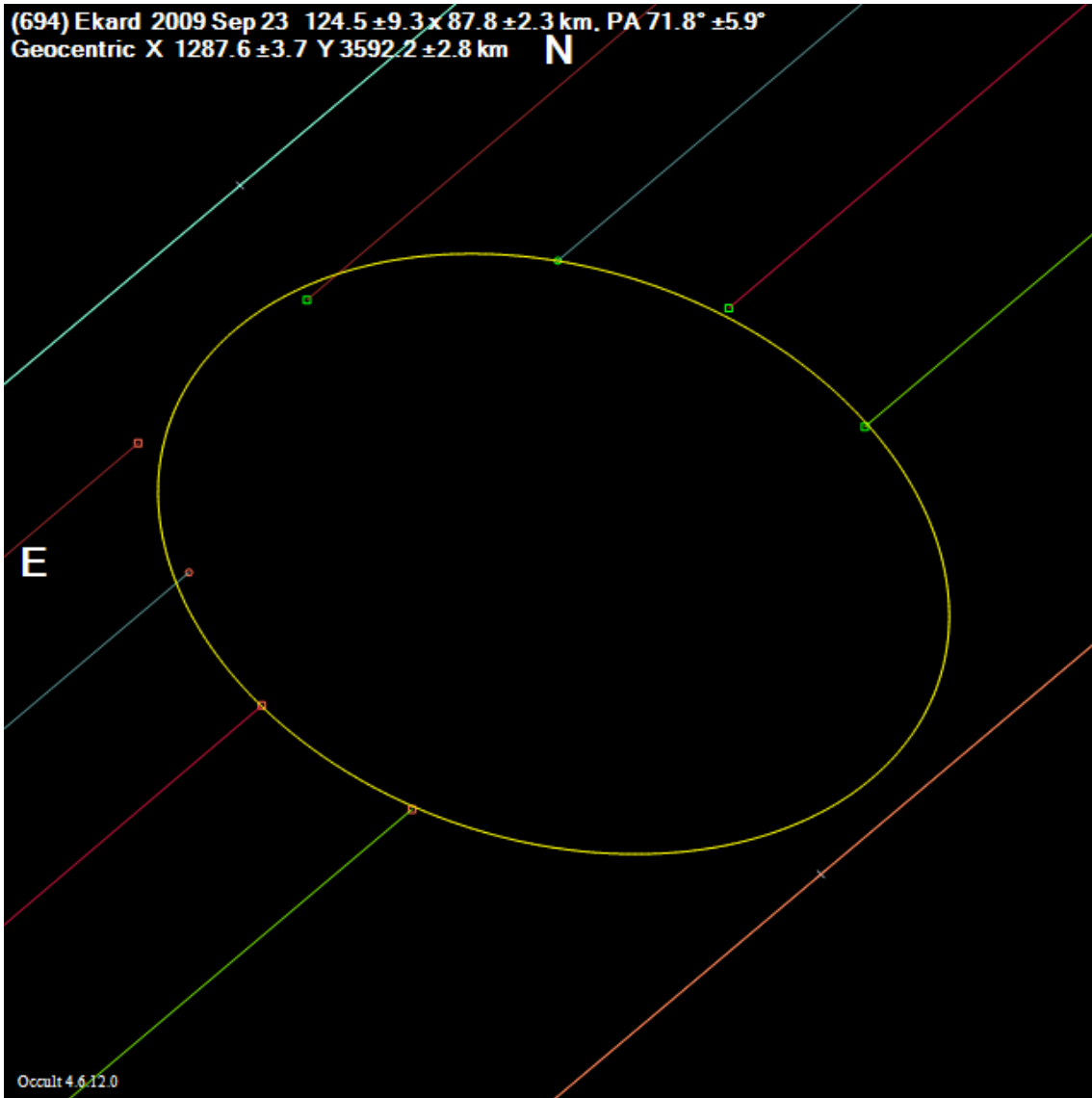
686_Gersuind_2017Mar08

(686) Gersuind 2017 Mar 8 57.0 x 39.0 km, PA 53.0°
Geocentric X -1060.8 ± 0.4 Y 5891.8 ± 0.4 km **N**



694_Ekard_2009Sep23

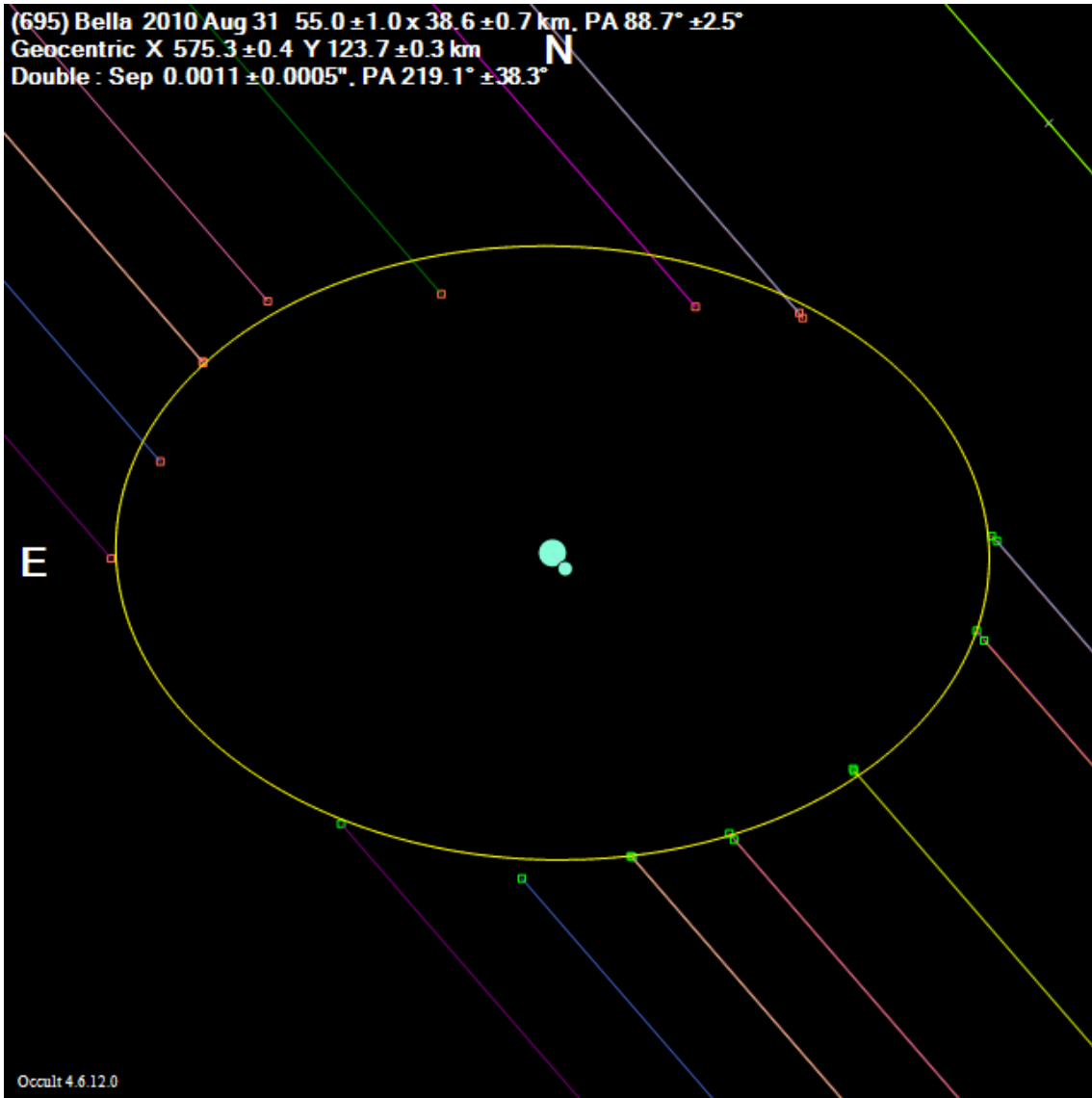
(694) Ekard 2009 Sep 23 $124.5 \pm 9.3 \times 87.8 \pm 2.3$ km, PA $71.8^\circ \pm 5.9^\circ$
Geocentric X 1287.6 ± 3.7 Y 3592.2 ± 2.8 km **N**



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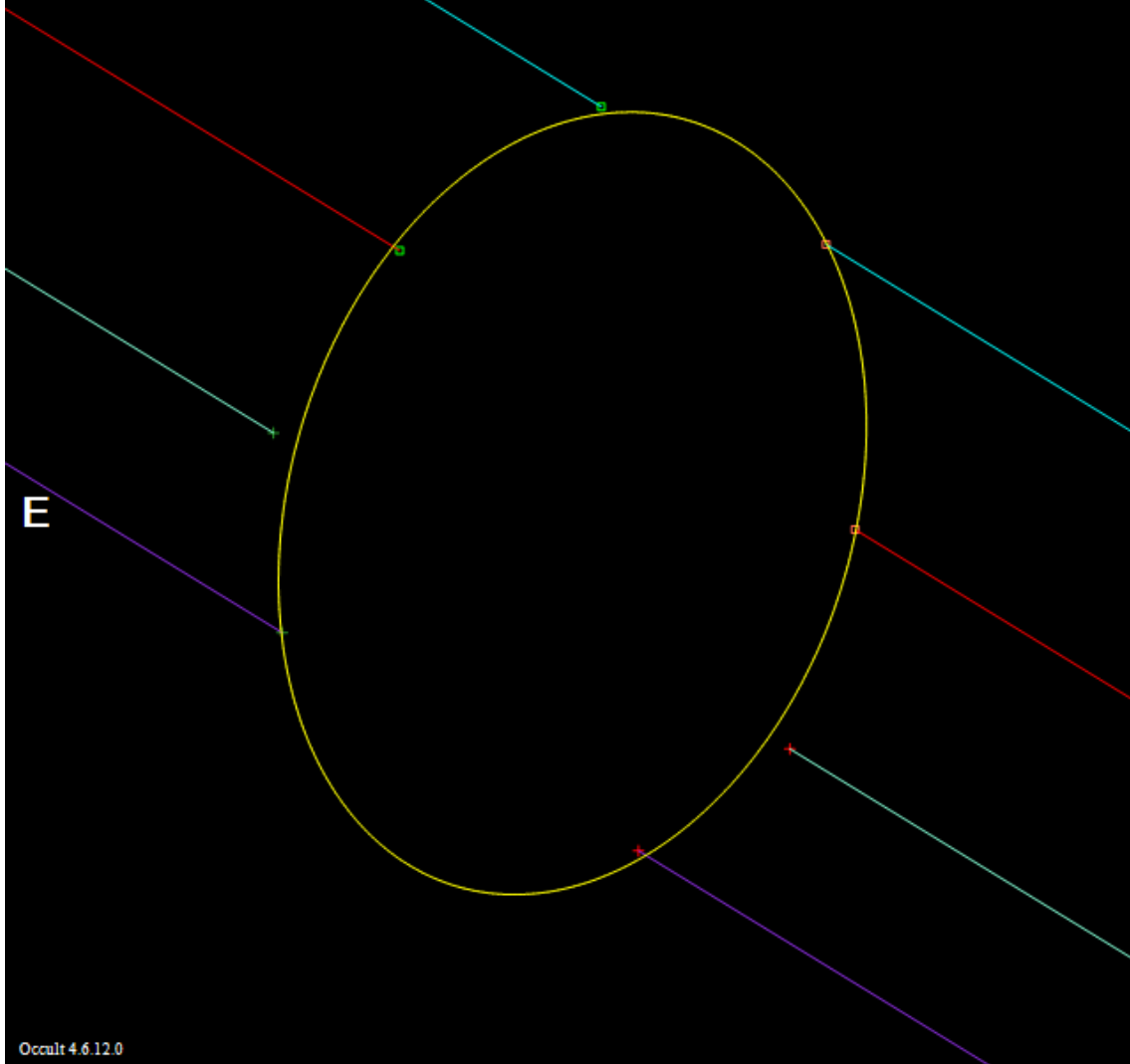
695_Bella_2010Aug31

(695) Bella 2010 Aug 31 $55.0 \pm 1.0 \times 38.6 \pm 0.7$ km, PA $88.7^\circ \pm 2.5^\circ$
Geocentric X 575.3 ± 0.4 Y 123.7 ± 0.3 km
Double : Sep $0.0011 \pm 0.0005''$, PA $219.1^\circ \pm 38.3^\circ$



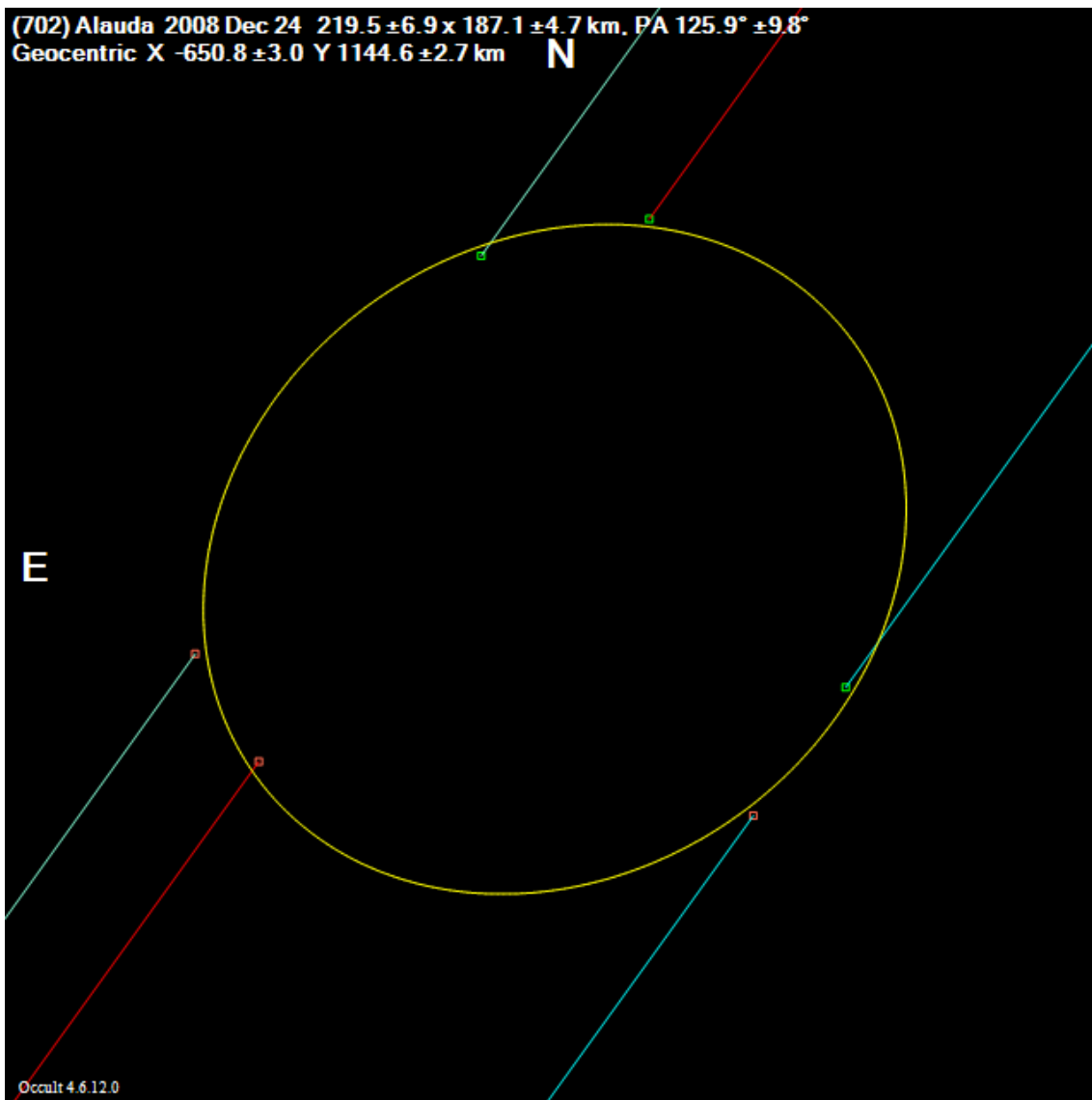
697_Galilea_2007Jan08

(697) Galilea 2007 Jan 8 $88.0 \pm 3.7 \times 62.0 \pm 1.5$ km. PA $162.8^\circ \pm 3.7^\circ$
Geocentric X -1318.0 ± 1.0 Y -446.1 ± 1.5 km **N**



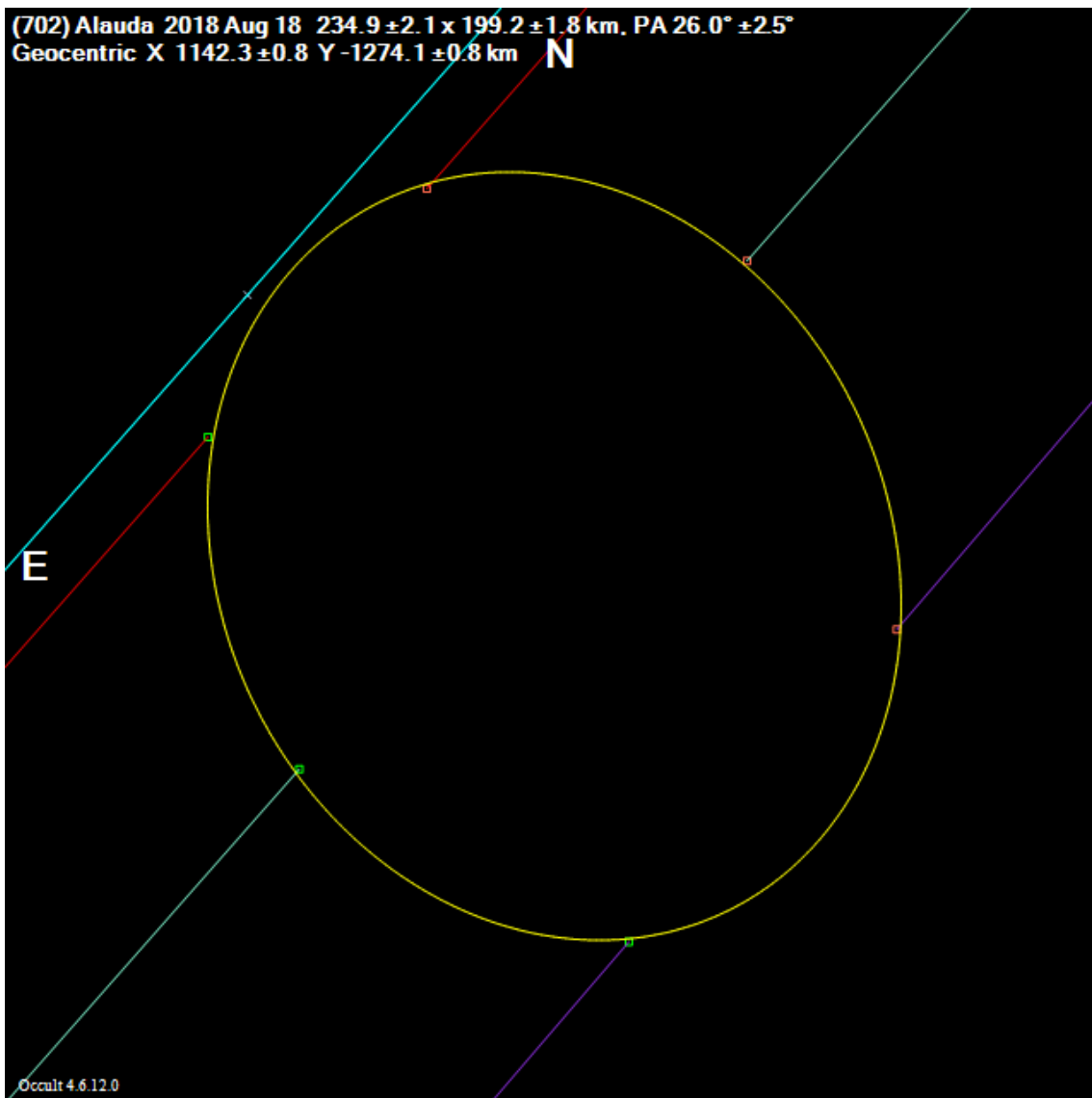
702_Alauda_2008Dec24

(702) Alauda 2008 Dec 24 $219.5 \pm 6.9 \times 187.1 \pm 4.7$ km, PA $125.9^\circ \pm 9.8^\circ$
Geocentric X -650.8 ± 3.0 Y 1144.6 ± 2.7 km **N**



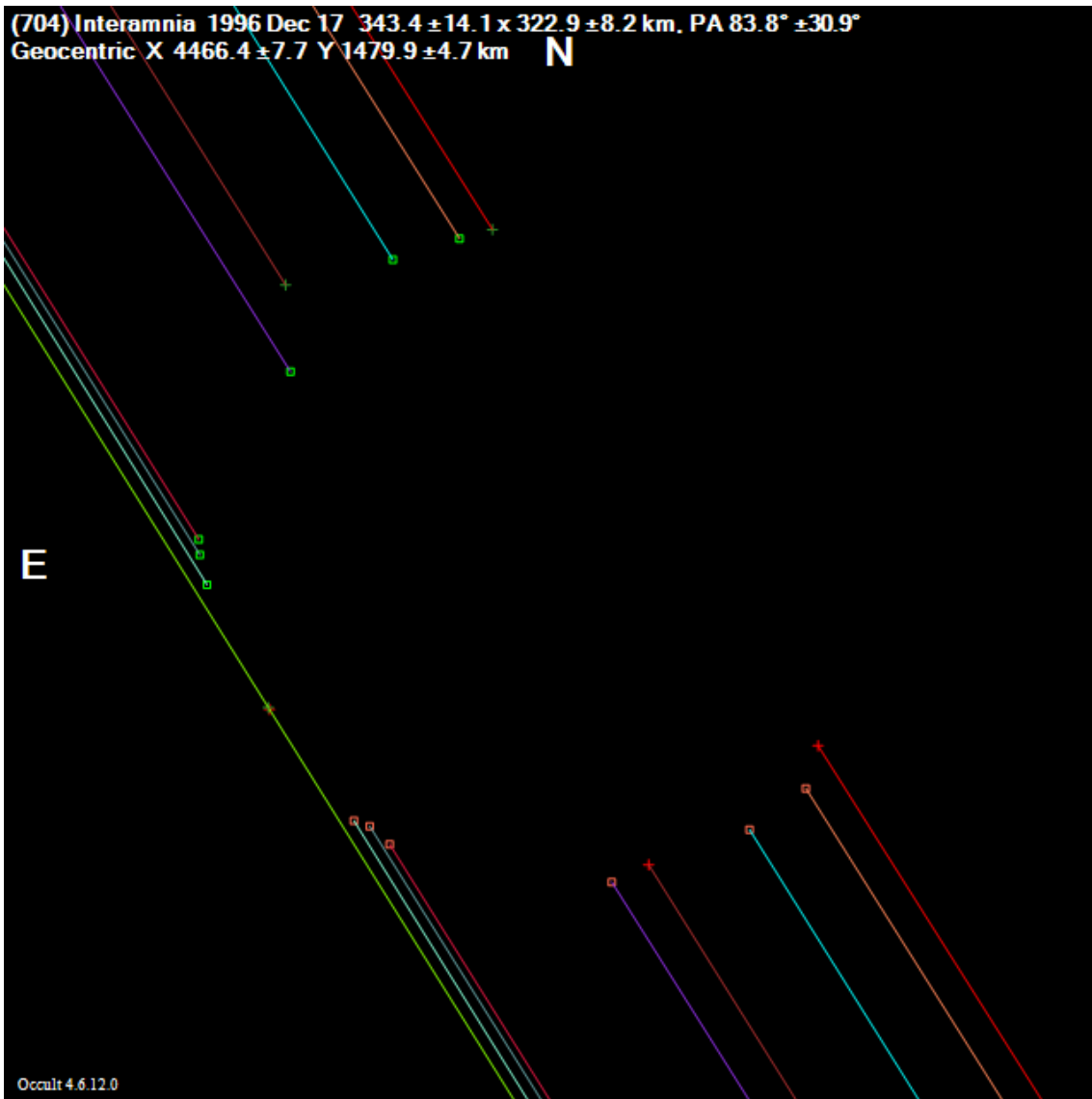
702_Alauda_2018Aug18

(702) Alauda 2018 Aug 18 $234.9 \pm 2.1 \times 199.2 \pm 1.8$ km, PA $26.0^\circ \pm 2.5^\circ$
Geocentric X 1142.3 ± 0.8 Y -1274.1 ± 0.8 km



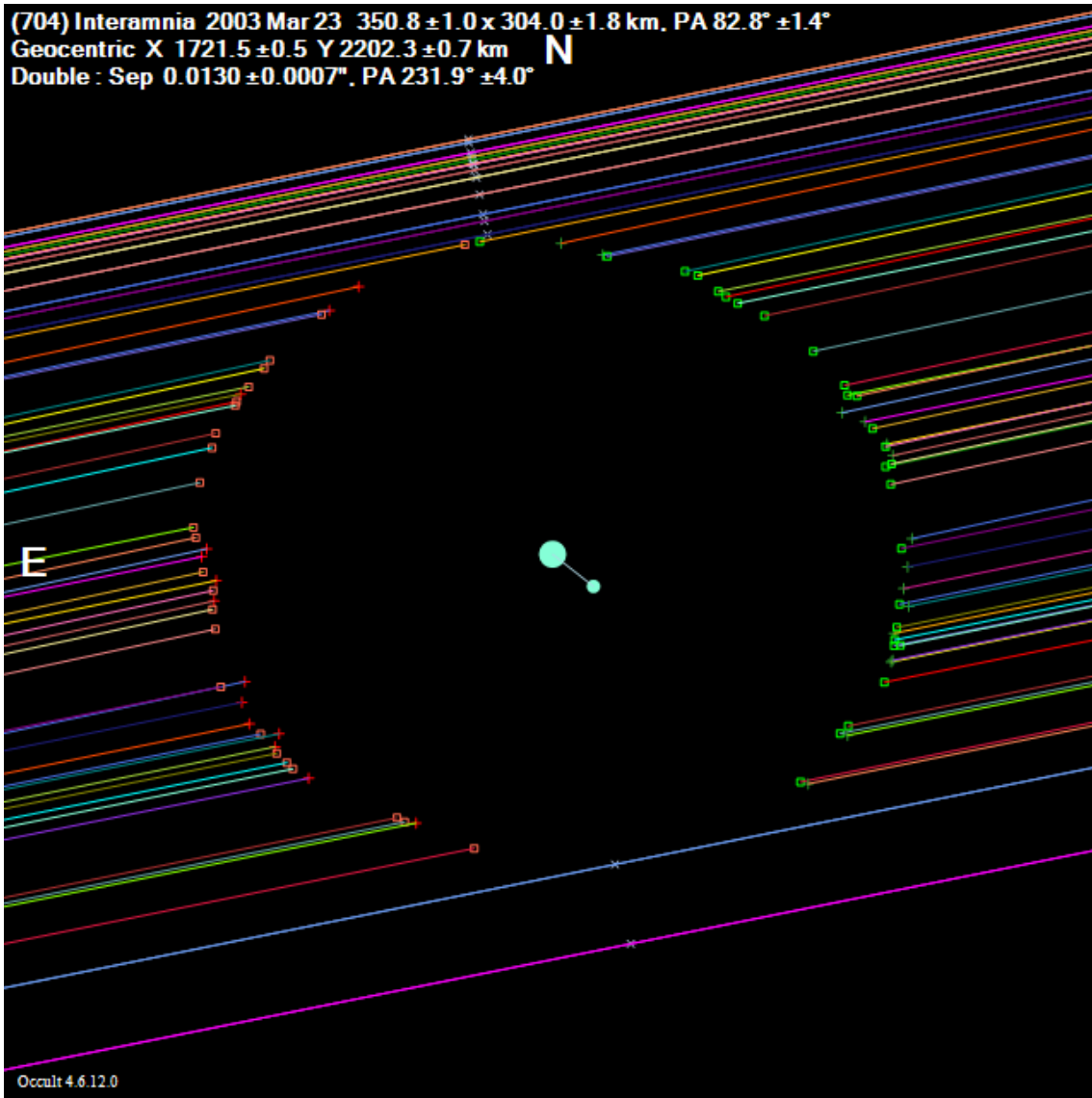
704_Interamnia_1996Dec17

(704) Interamnia 1996 Dec 17 $343.4 \pm 14.1 \times 322.9 \pm 8.2$ km. PA $83.8^\circ \pm 30.9^\circ$
Geocentric X 4466.4 ± 7.7 Y 1479.9 ± 4.7 km **N**



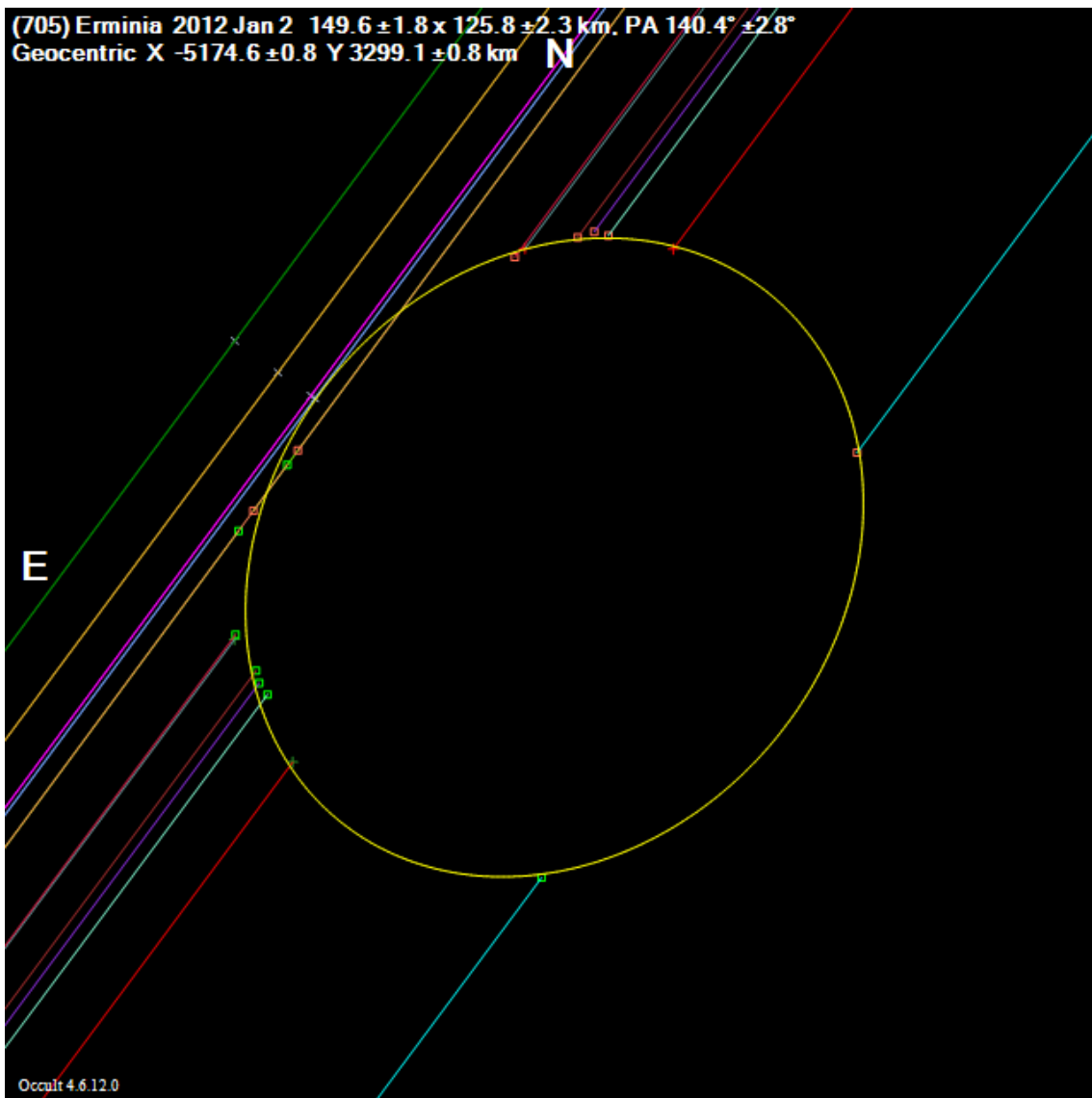
704_Interamnia_2003Mar23

(704) Interamnia 2003 Mar 23 $350.8 \pm 1.0 \times 304.0 \pm 1.8$ km, PA $82.8^\circ \pm 1.4^\circ$
Geocentric X 1721.5 ± 0.5 Y 2202.3 ± 0.7 km **N**
Double : Sep $0.0130 \pm 0.0007''$, PA $231.9^\circ \pm 4.0^\circ$



705_Erminia_2012Jan02

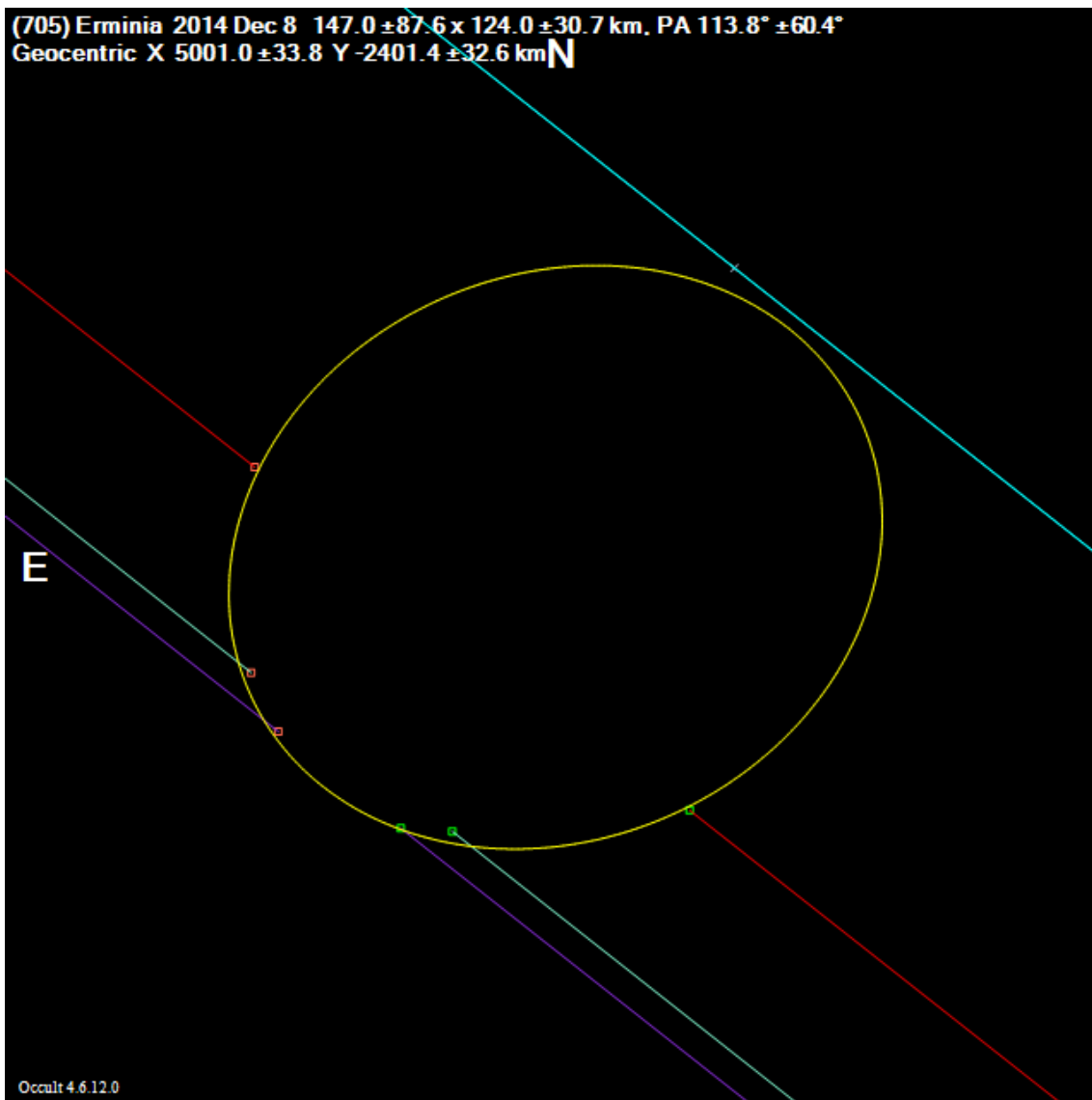
(705) Erminia 2012 Jan 2 $149.6 \pm 1.8 \times 125.8 \pm 2.3$ km. PA $140.4^\circ \pm 2.8^\circ$
Geocentric X -5174.6 ± 0.8 Y 3299.1 ± 0.8 km



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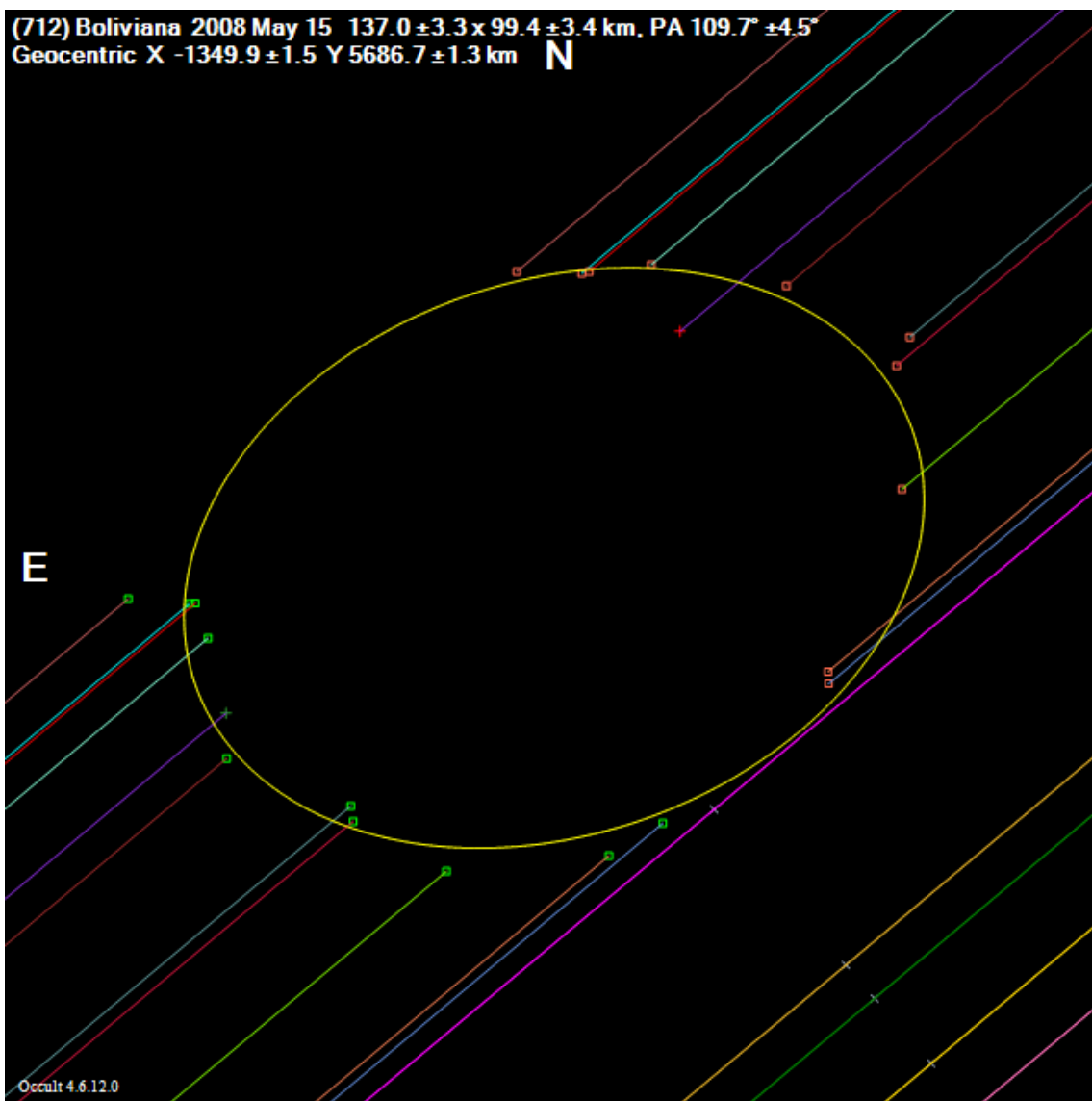
705_Erminia_2014Dec08

(705) Erminia 2014 Dec 8 $147.0 \pm 87.6 \times 124.0 \pm 30.7$ km. PA $113.8^\circ \pm 60.4^\circ$
Geocentric X 5001.0 ± 33.8 Y -2401.4 ± 32.6 km **N**



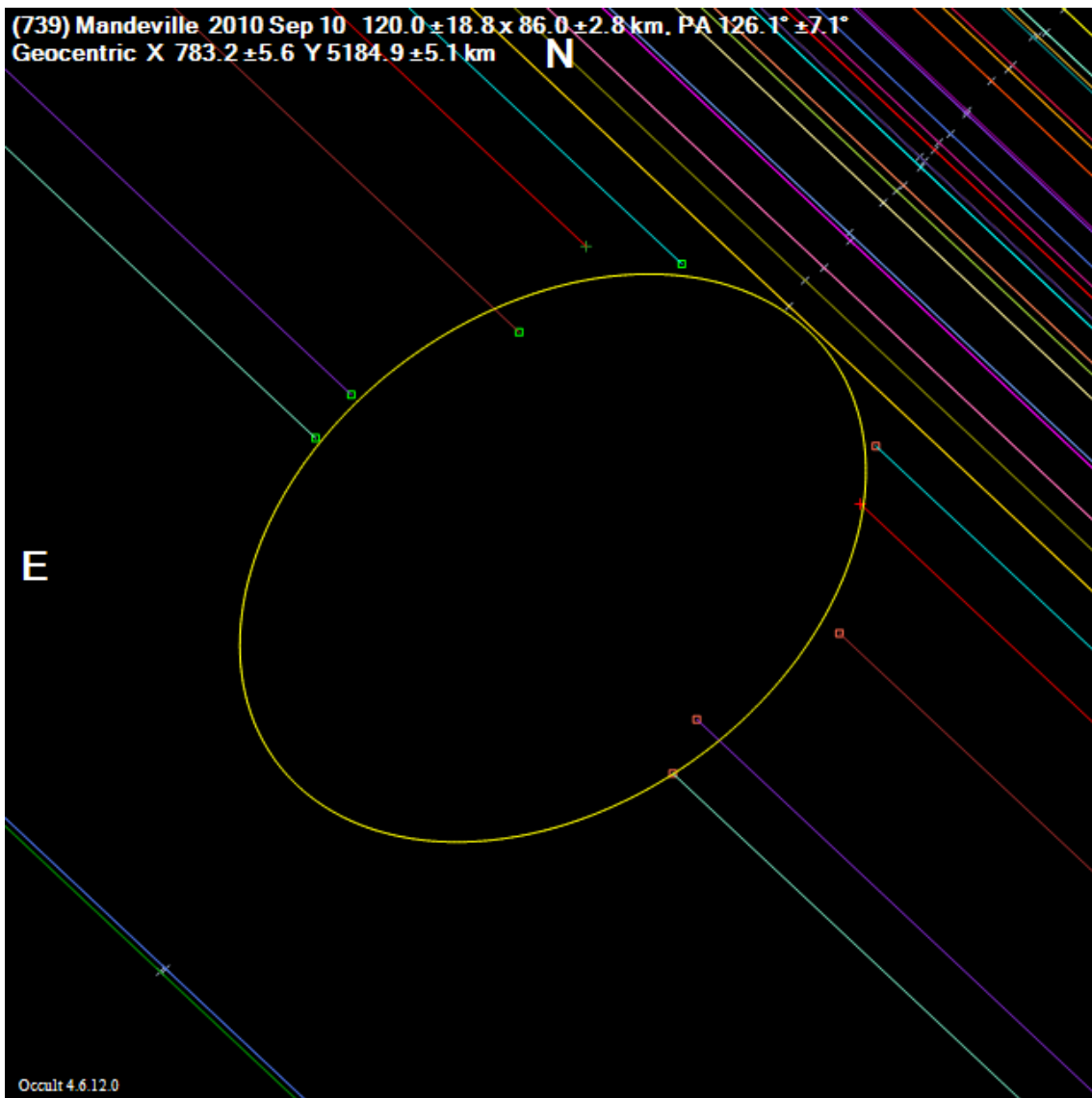
712_Boliviana_2008May15

(712) Boliviana 2008 May 15 $137.0 \pm 3.3 \times 99.4 \pm 3.4$ km, PA $109.7^\circ \pm 4.5^\circ$
Geocentric X -1349.9 ± 1.5 Y 5686.7 ± 1.3 km **N**



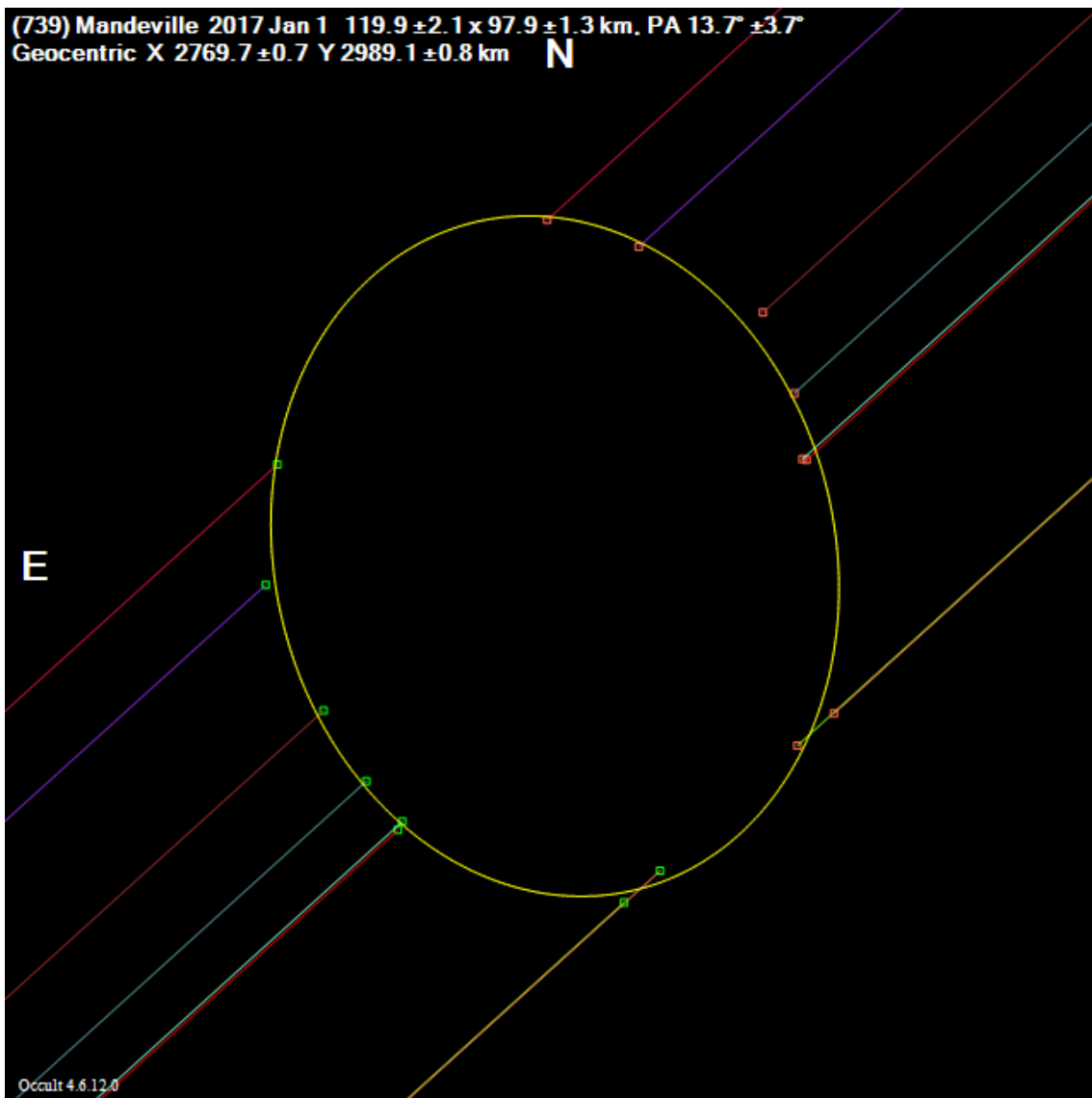
739_Mandeville_2010Sep10

(739) Mandeville 2010 Sep 10 $120.0 \pm 18.8 \times 86.0 \pm 2.8$ km. PA $126.1^\circ \pm 7.1^\circ$
Geocentric X 783.2 ± 5.6 Y 5184.9 ± 5.1 km



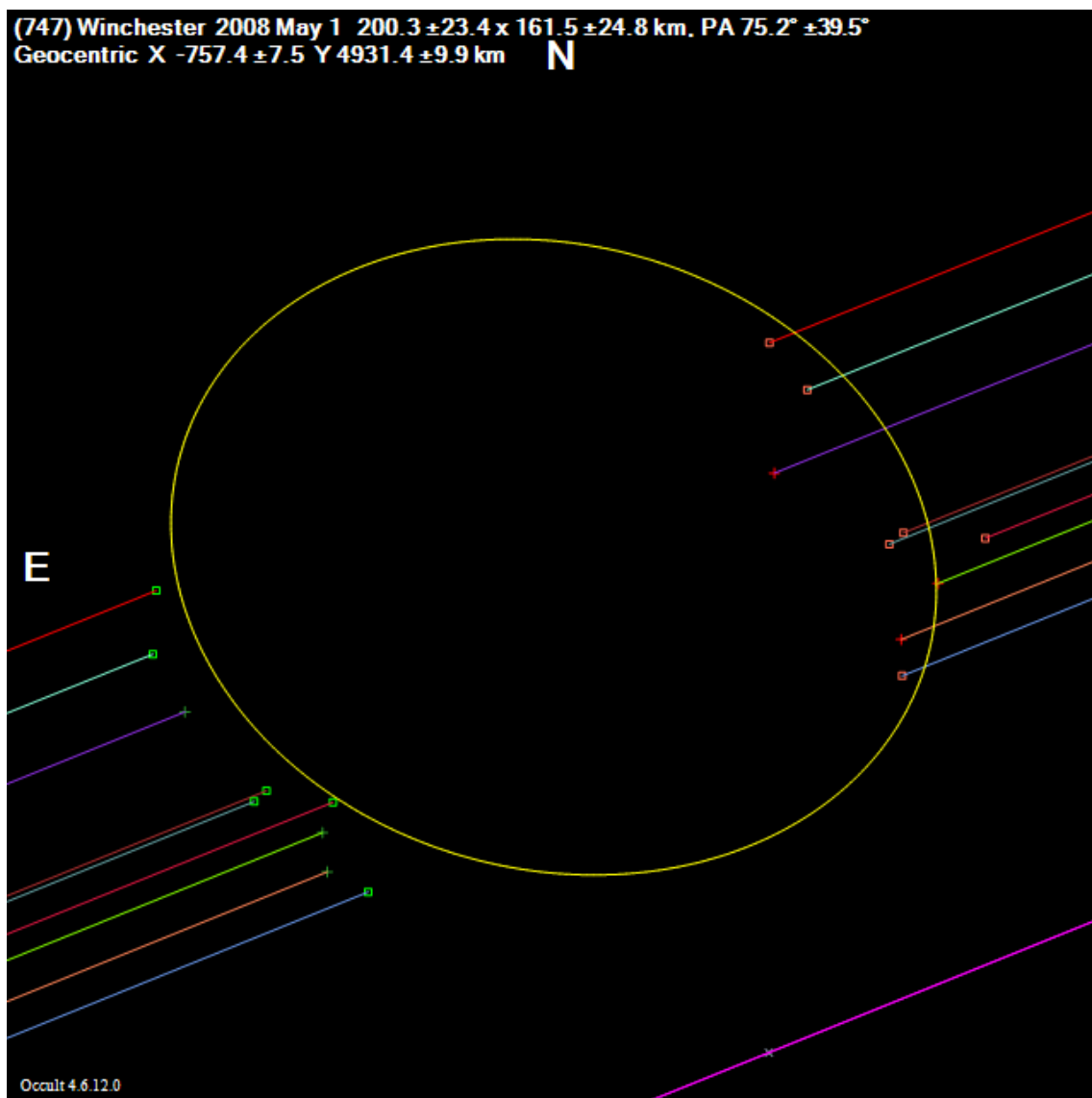
739_Mandeville_2017Jan01

(739) Mandeville 2017 Jan 1 $119.9 \pm 2.1 \times 97.9 \pm 1.3$ km, PA $13.7^\circ \pm 3.7^\circ$
Geocentric X 2769.7 ± 0.7 Y 2989.1 ± 0.8 km **N**



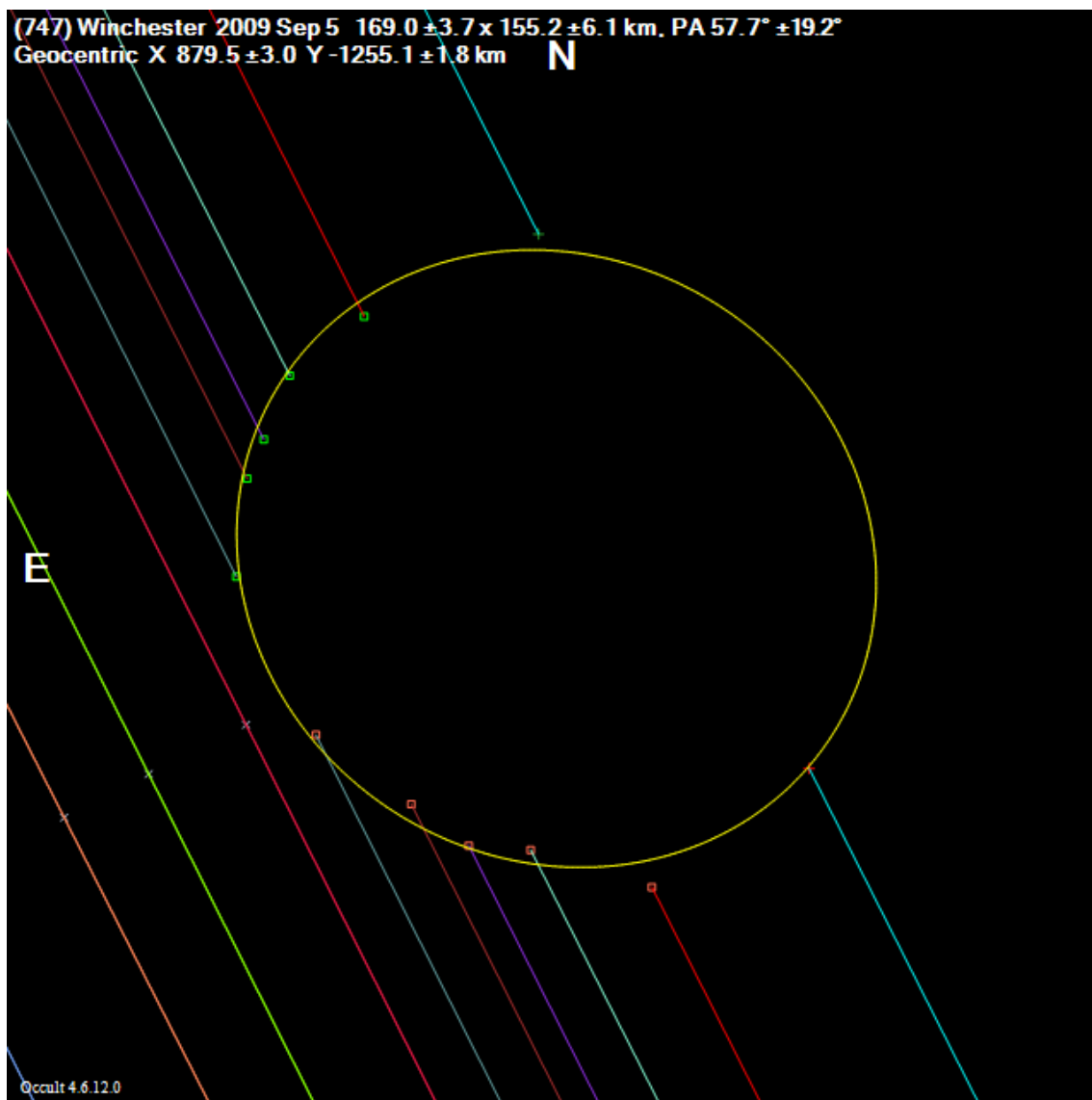
747_Winchester_2008May01

(747) Winchester 2008 May 1 $200.3 \pm 23.4 \times 161.5 \pm 24.8$ km, PA $75.2^\circ \pm 39.5^\circ$
Geocentric X -757.4 ± 7.5 Y 4931.4 ± 9.9 km **N**



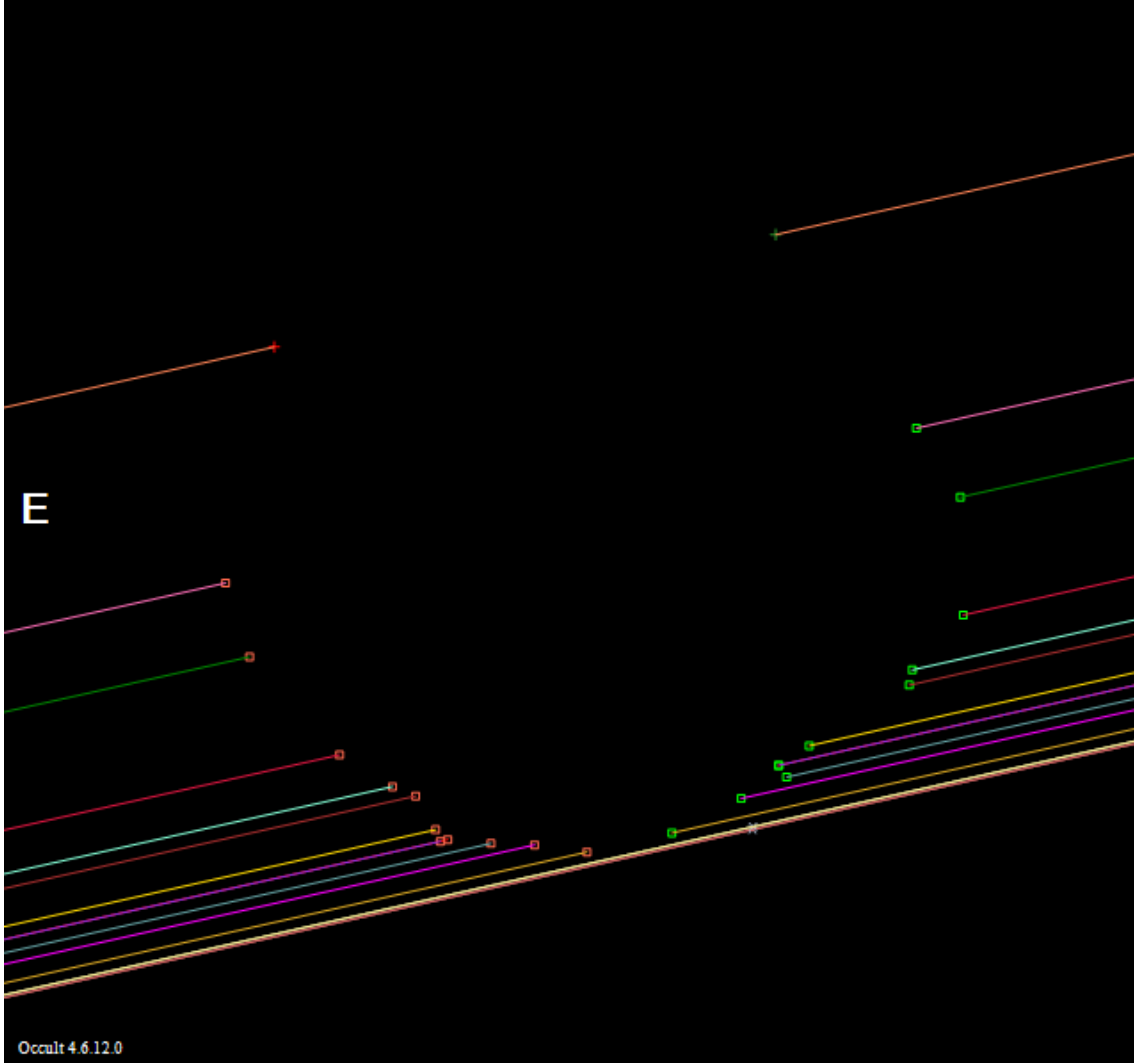
747_Winchester_2009Sep05

(747) Winchester 2009 Sep 5 $169.0 \pm 3.7 \times 155.2 \pm 6.1$ km, PA $57.7^\circ \pm 19.2^\circ$
Geocentric X 879.5 ± 3.0 Y -1255.1 ± 1.8 km **N**



747_Winchester_2014Oct17

(747) Winchester 2014 Oct 17 $188.0 \pm 4.3 \times 164.0 \pm 9.8$ km, PA 98.4°
Geocentric X 3052.6 ± 1.7 Y 4966.2 ± 4.4 km **N**

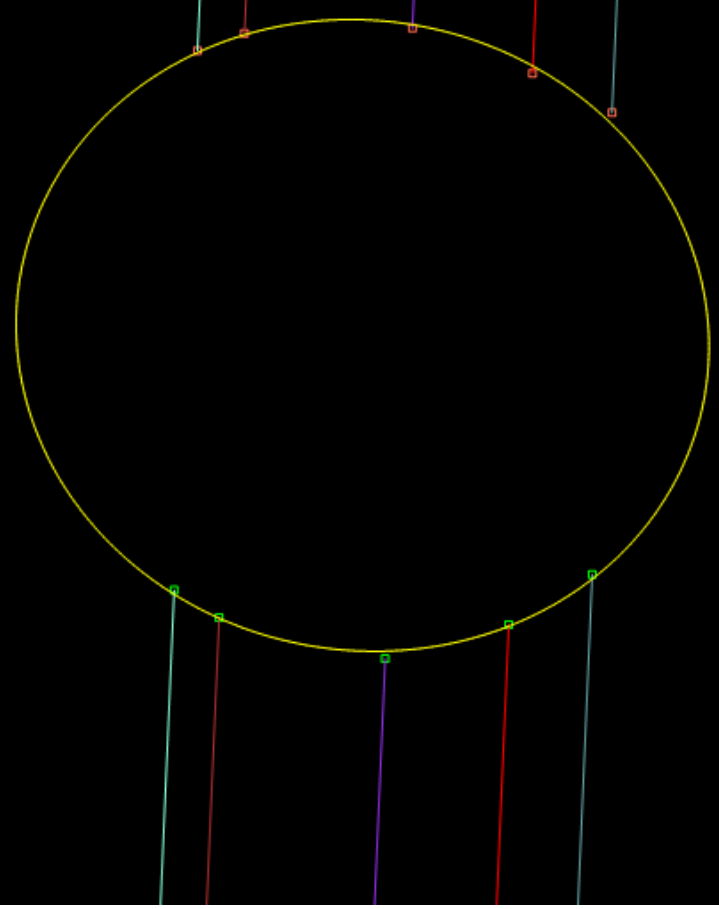


747_Winchester_2016Jan19

(747) Winchester 2016 Jan 19 $172.8 \pm 4.6 \times 156.4 \pm 1.3$ km, PA $79.7^\circ \pm 4.1^\circ$
Geocentric X -1662.3 ± 1.0 Y 3219.5 ± 0.4 km **N**

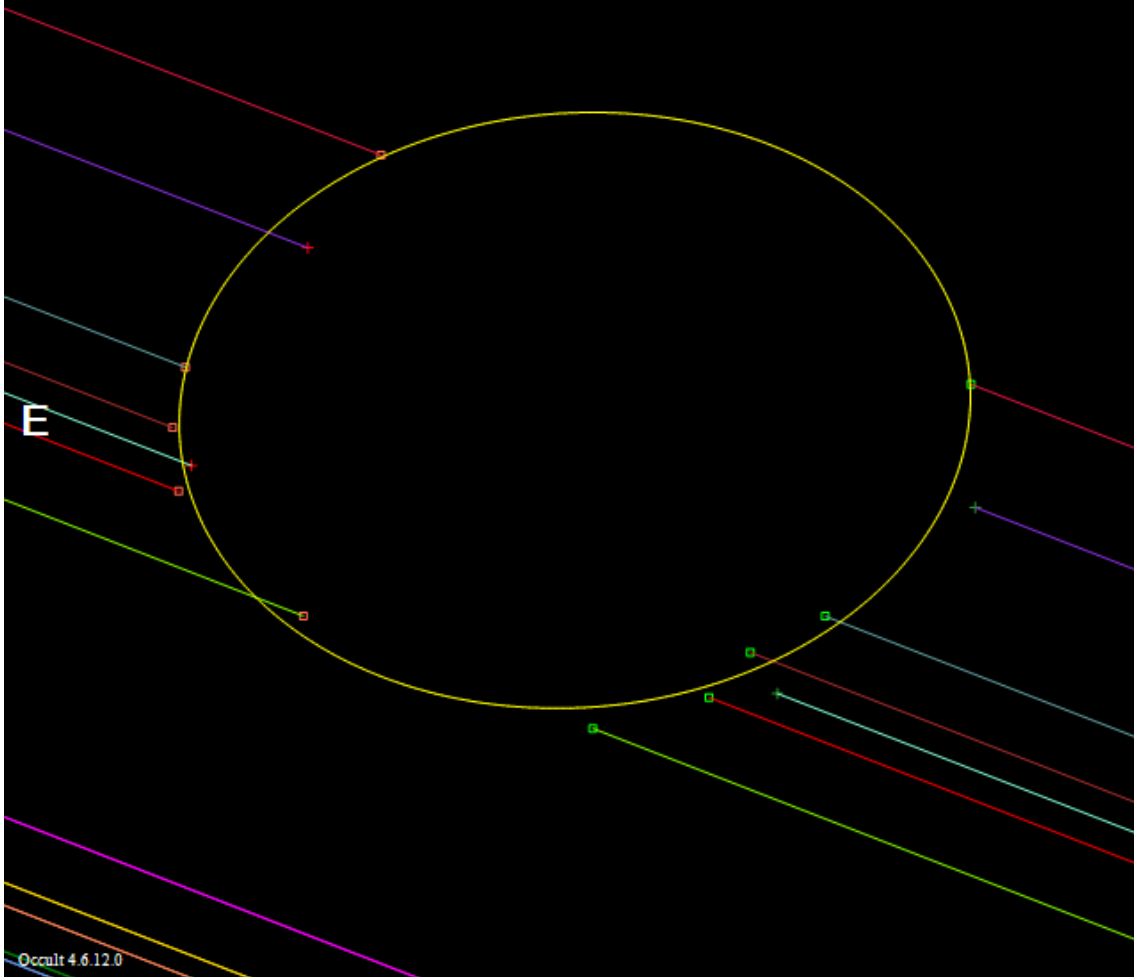
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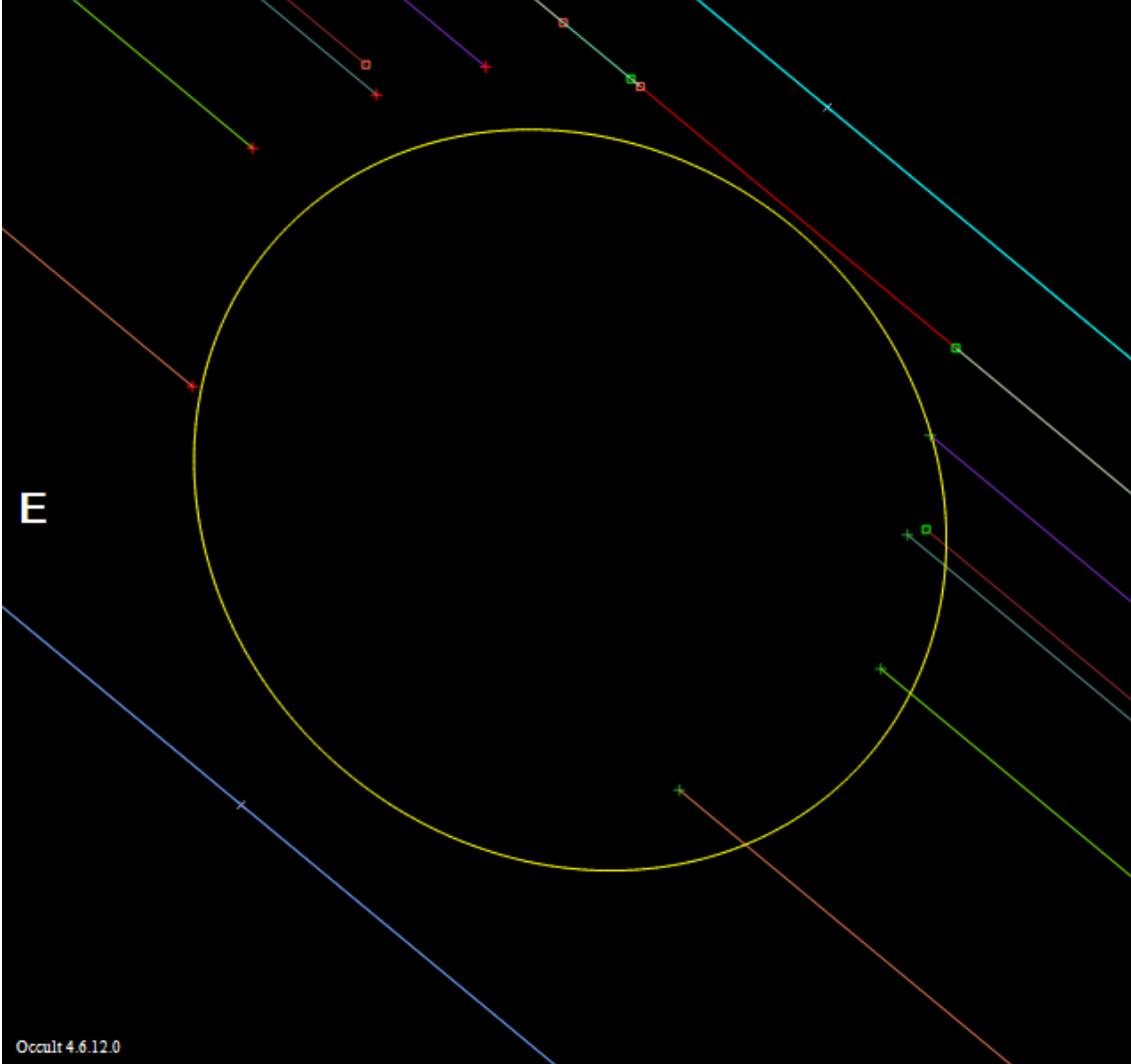
747_Winchester_2016Mar22

(747) Winchester 2016 Mar 22 197.0 ± 4.8 x 147.7 ± 6.9 km, PA 94.5° ± 6.4°
Geocentric X 4740.5 ± 2.4 Y 3000.1 ± 2.8 km **N**



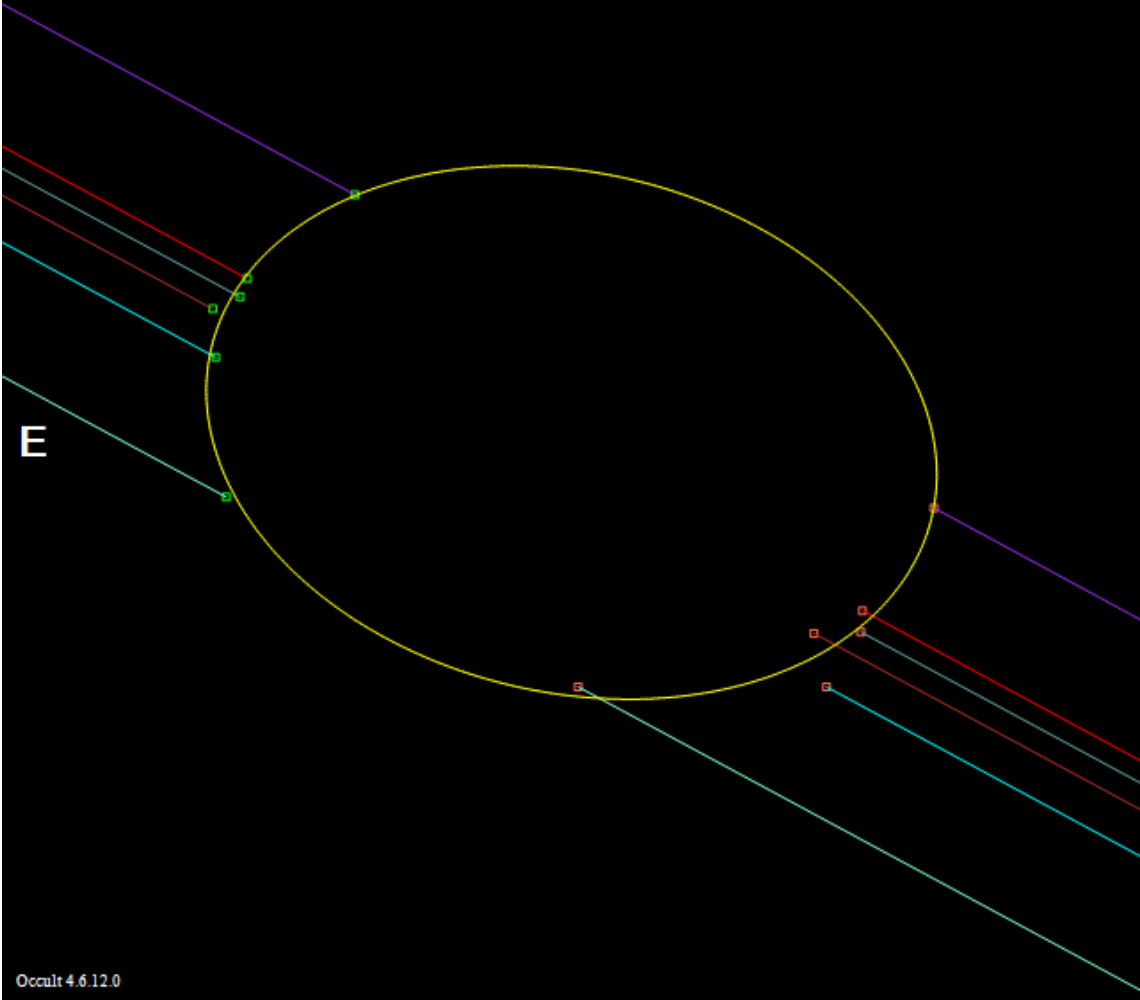
757_Portlandia_2003Dec07

(757) Portlandia 2003 Dec 7 $38.6 \pm 3.4 \times 34.6 \pm 7.4$ km, PA $49.2^\circ \pm 39.1^\circ$
Geocentric X -1542.0 ± 2.5 Y 4234.7 ± 2.4 km **N**



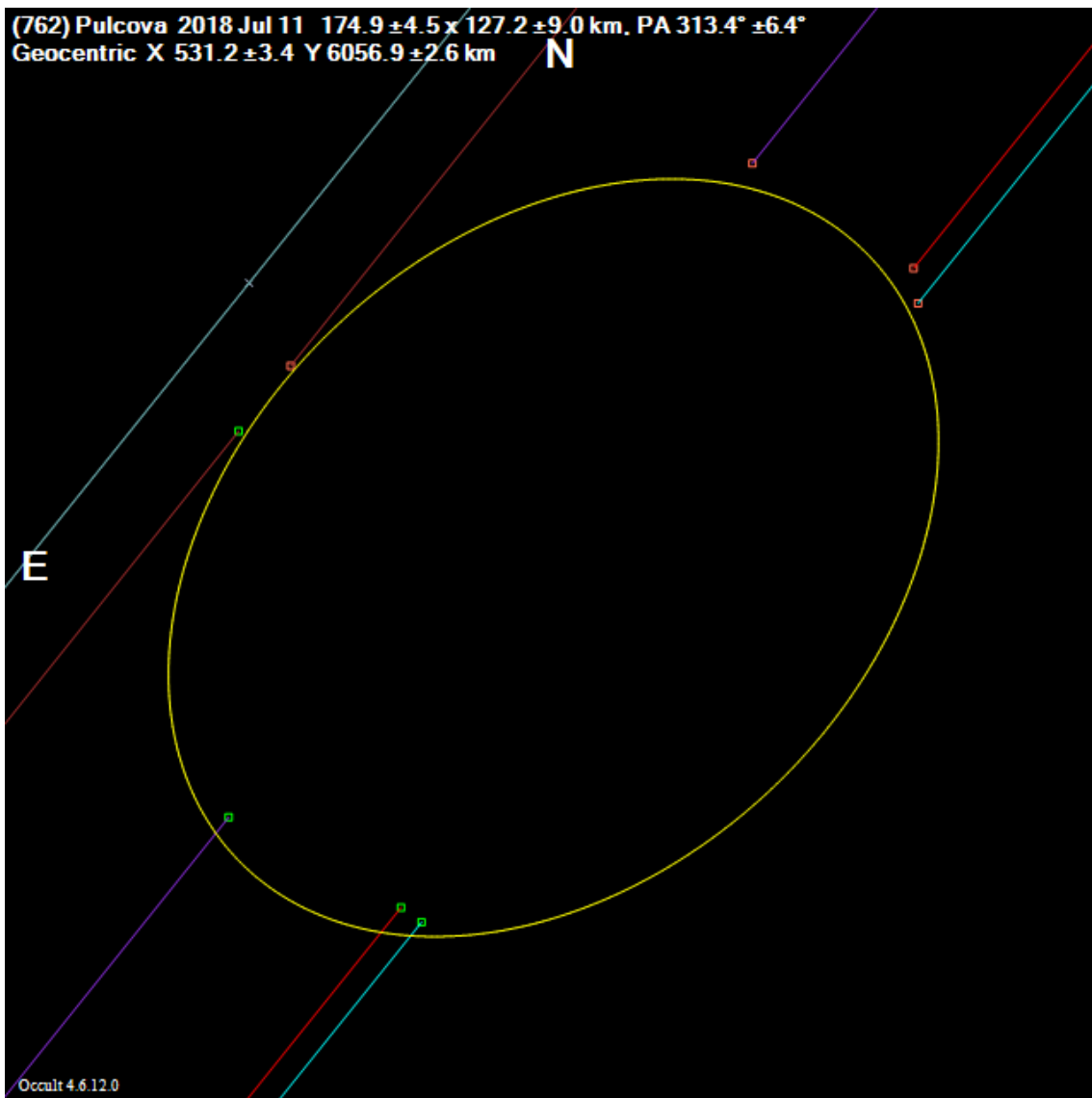
760_Massinga_2012Feb29

(760) Massinga 2012 Feb 29 $80.2 \pm 1.5 \times 56.3 \pm 3.7$ km, PA $77.0^\circ \pm 4.6^\circ$
Geocentric X -3795.1 ± 1.0 Y 4418.2 ± 1.0 km **N**



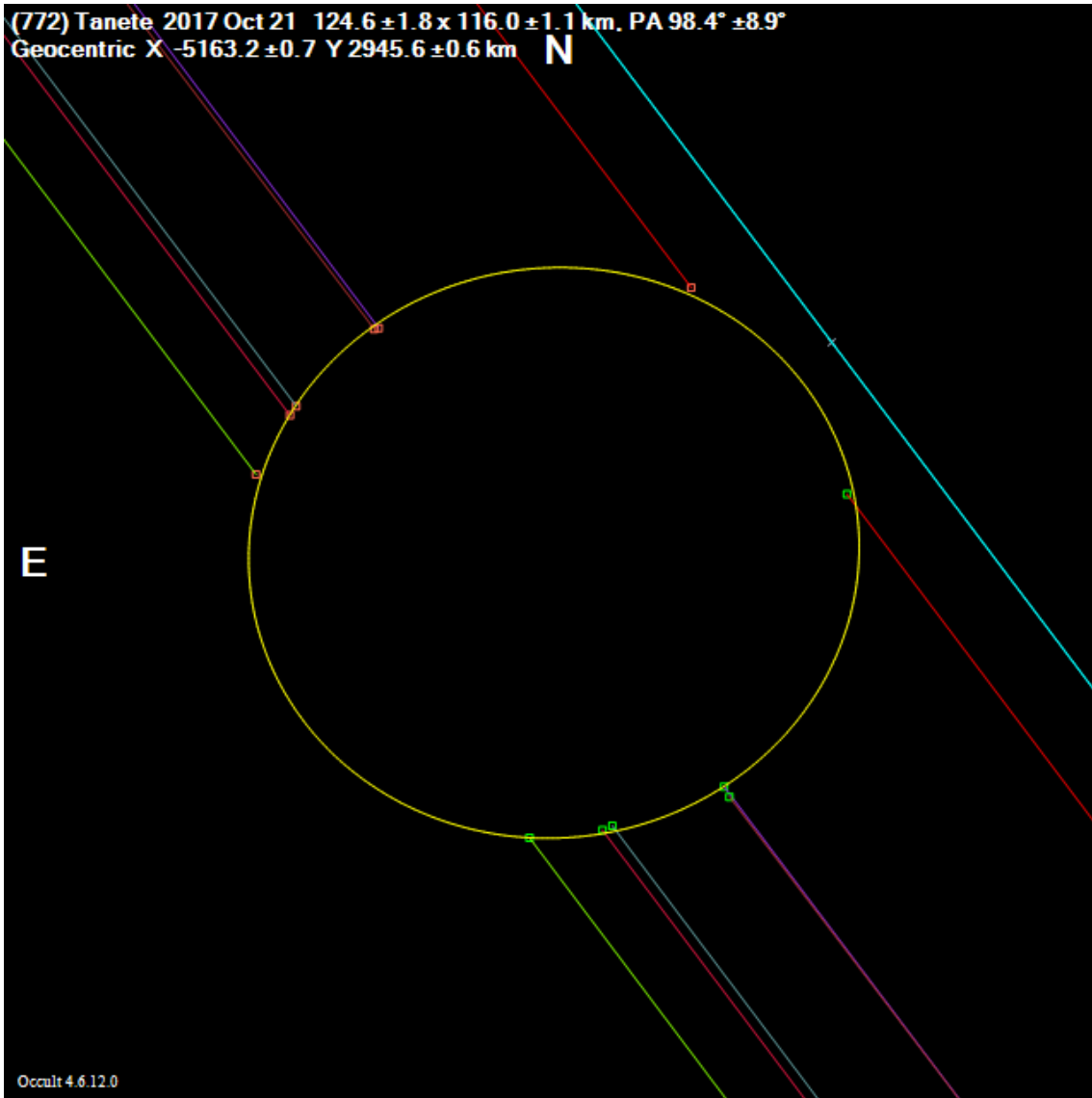
762_Pulcova_2018Jul11

(762) Pulcova 2018 Jul 11 $174.9 \pm 4.5 \times 127.2 \pm 9.0$ km, PA $313.4^\circ \pm 6.4^\circ$
Geocentric X 531.2 ± 3.4 Y 6056.9 ± 2.6 km



772_Tanete_2017Oct21

(772) Tanete 2017 Oct 21 $124.6 \pm 1.8 \times 116.0 \pm 1.1$ km. PA $98.4^\circ \pm 8.9^\circ$
Geocentric X -5163.2 ± 0.7 Y 2945.6 ± 0.6 km **N**

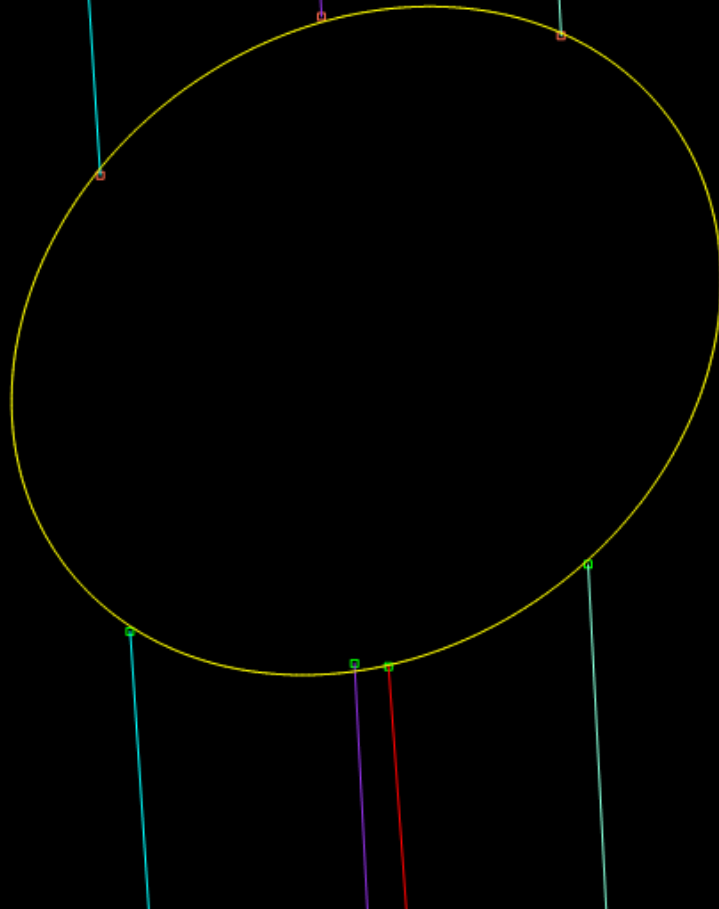


776_Berbericia_2019Feb08

(776) Berbericia 2019 Feb 8 $169.7 \pm 2.5 \times 140.1 \pm 1.2$ km. PA $305.7^\circ \pm 3.5^\circ$
Geocentric X 4679.5 ± 0.9 Y 1646.6 ± 0.5 km **N**

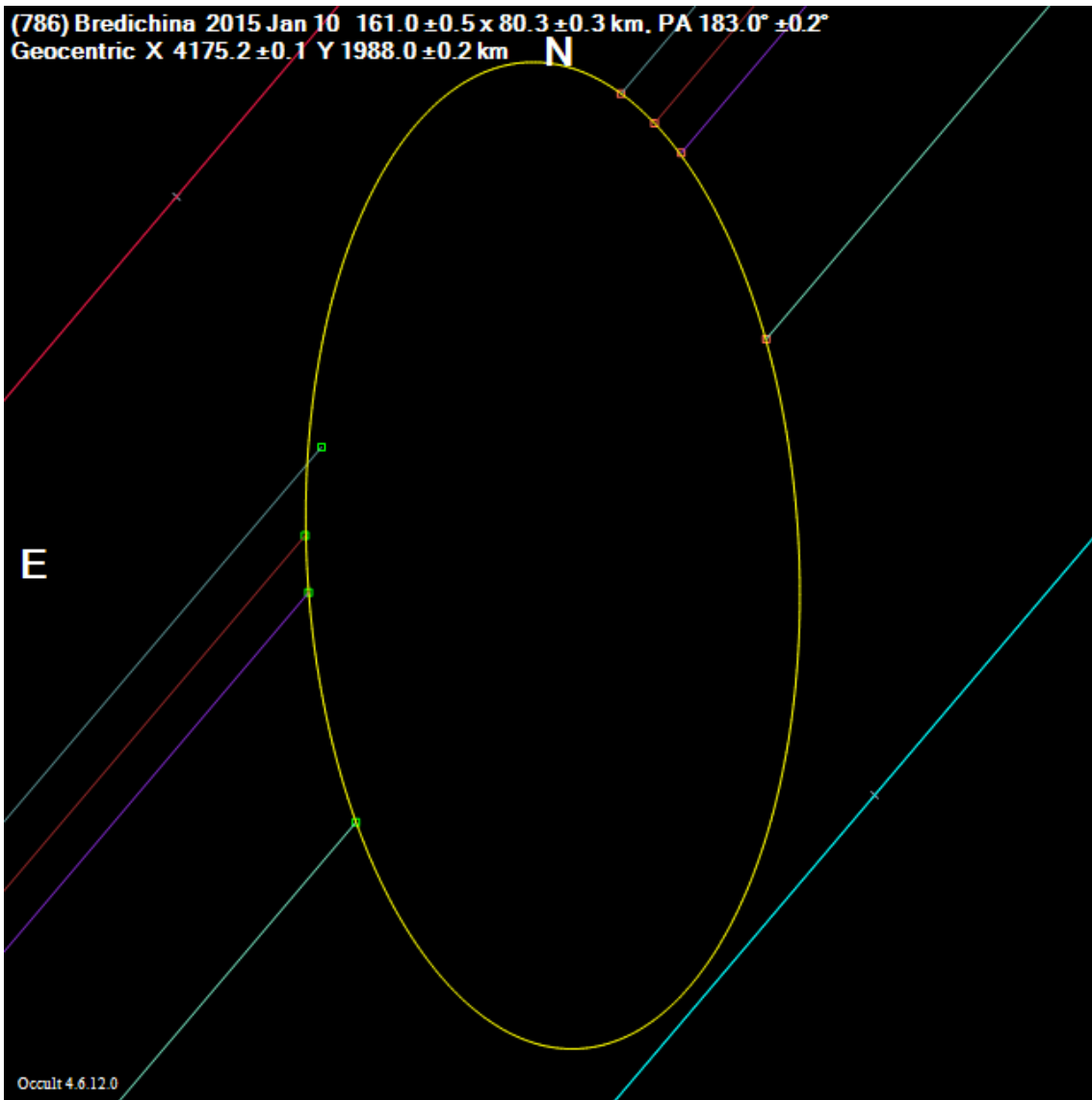
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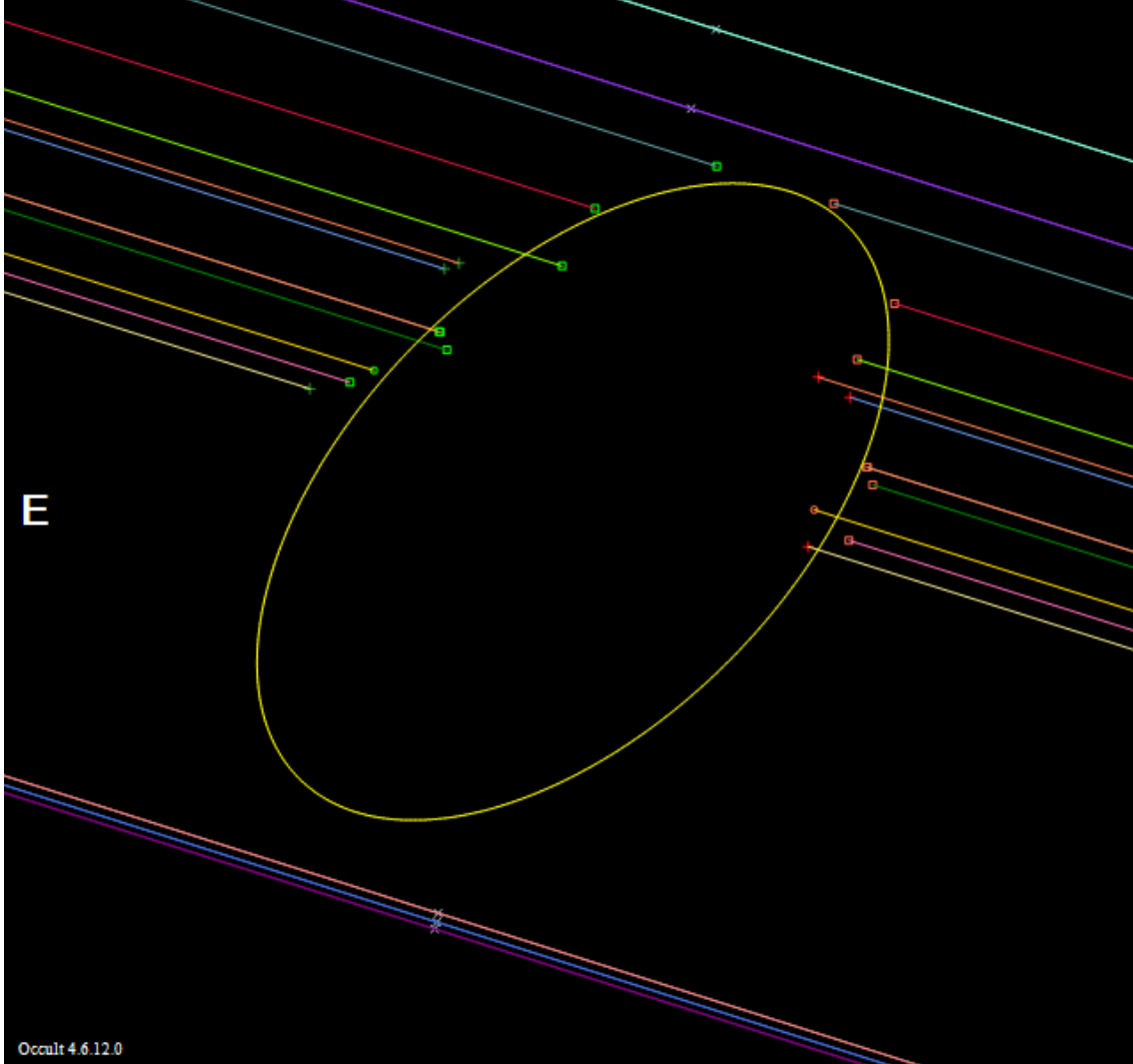
786_Bredichina_2015Jan10

(786) Bredichina 2015 Jan 10 $161.0 \pm 0.5 \times 80.3 \pm 0.3$ km. PA $183.0^\circ \pm 0.2^\circ$
Geocentric X 4175.2 ± 0.1 Y 1988.0 ± 0.2 km



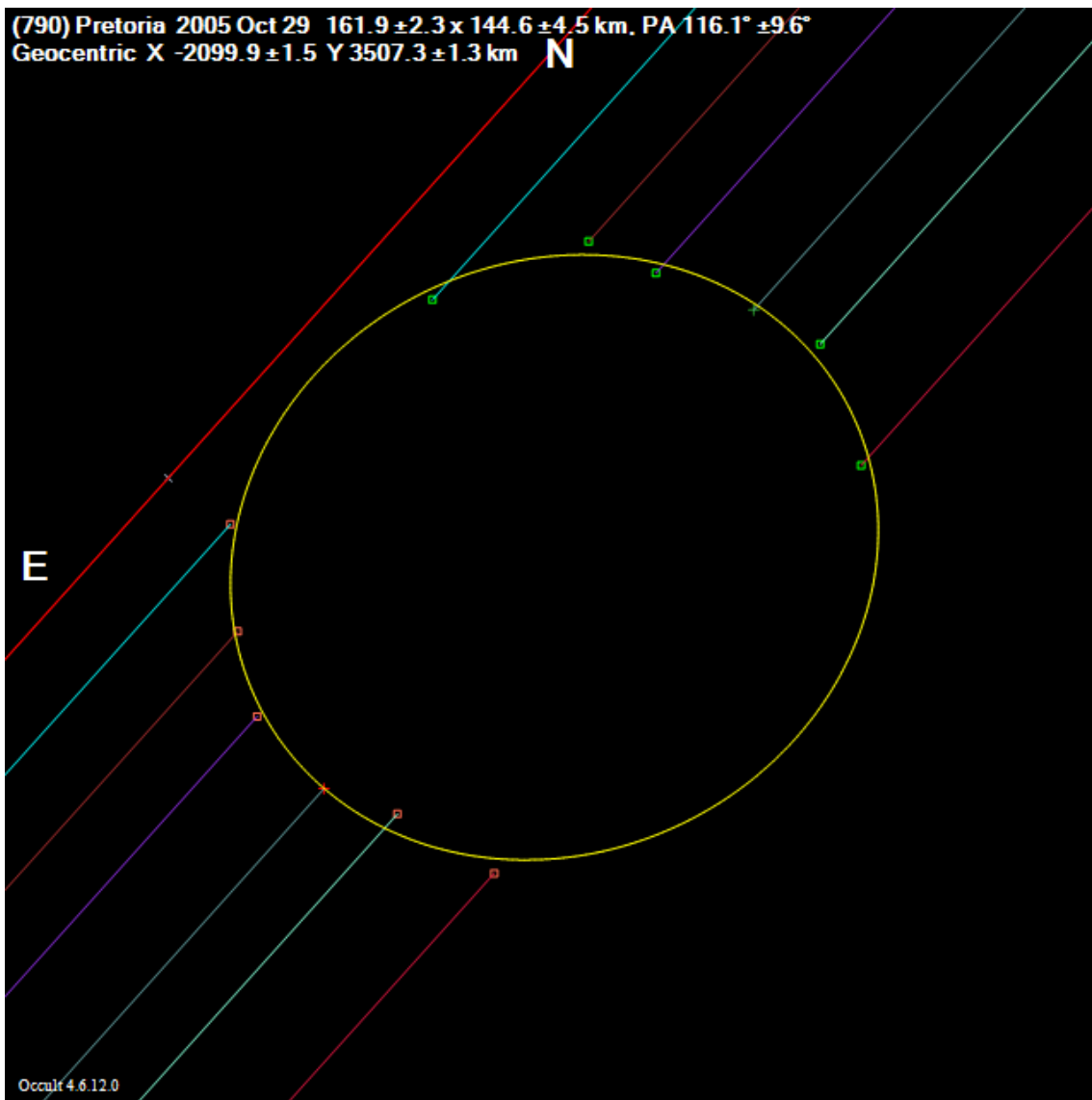
788_Hohensteina_2014Jul08

(788) Hohensteina 2014 Jul 8 $132.9 \pm 31.2 \times 76.1 \pm 5.8$ km. PA $315.4^\circ \pm 5.5^\circ$
Geocentric X -377.0 ± 9.6 Y 3785.5 ± 12.5 km **N**



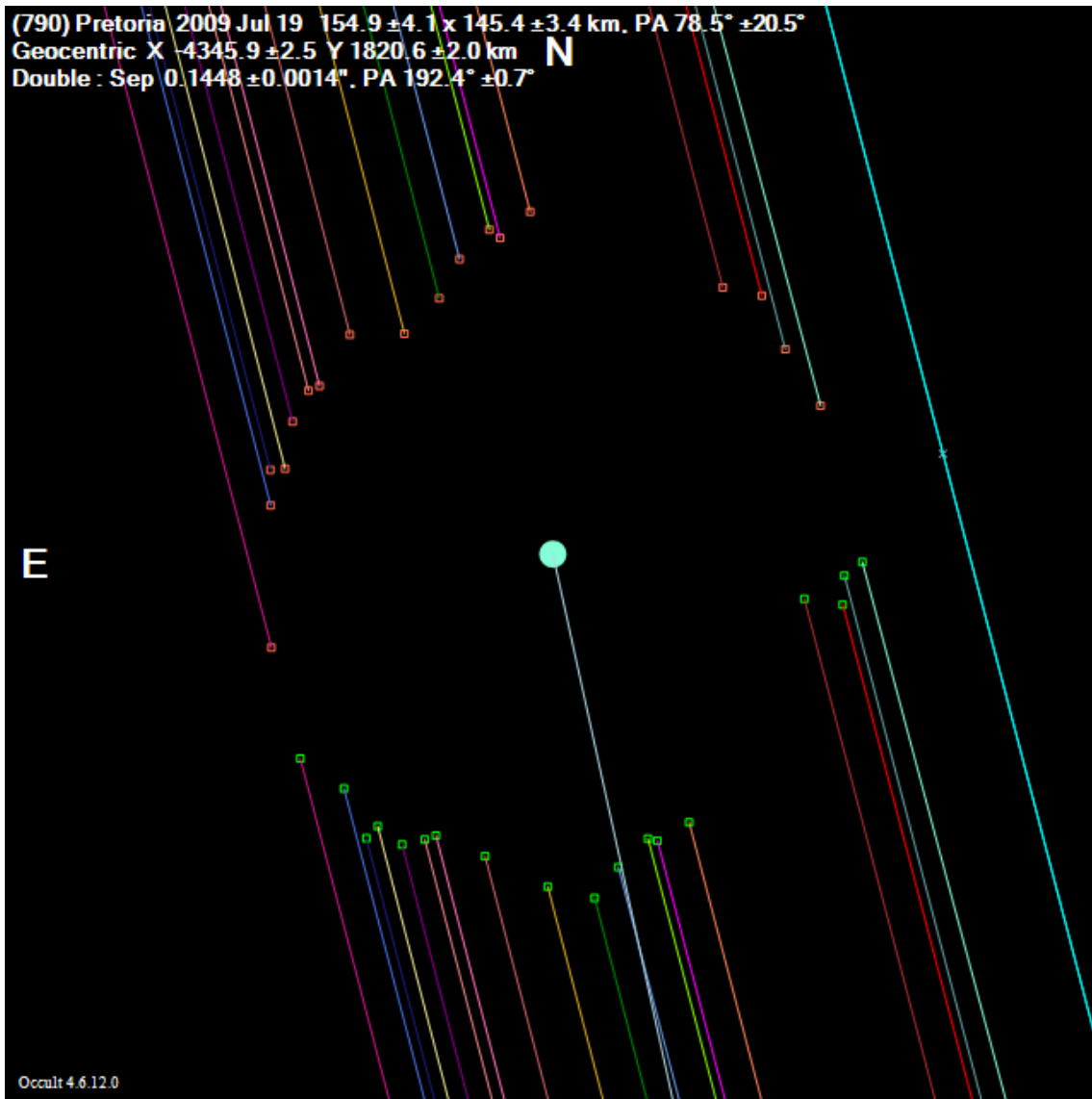
790_Pretoria_2005Oct29

(790) Pretoria 2005 Oct 29 $161.9 \pm 2.3 \times 144.6 \pm 4.5$ km. PA $116.1^\circ \pm 9.6^\circ$
Geocentric X -2099.9 ± 1.5 Y 3507.3 ± 1.3 km



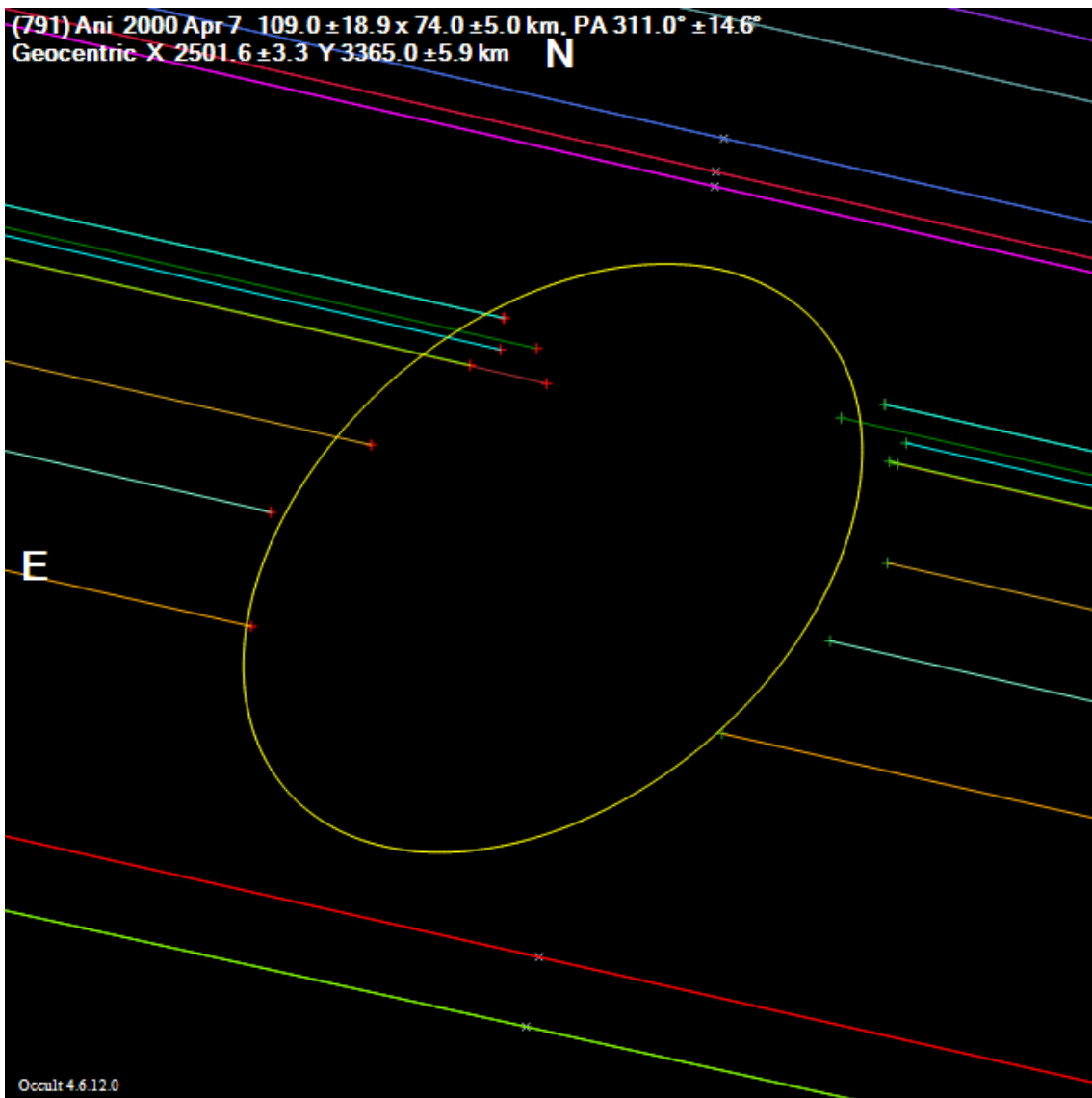
790_Pretoria_2009Jul19

(790) Pretoria 2009 Jul 19 $154.9 \pm 4.1 \times 145.4 \pm 3.4$ km, PA $78.5^\circ \pm 20.5^\circ$
Geocentric X -4345.9 ± 2.5 Y 1820.6 ± 2.0 km N
Double : Sep $0.1448 \pm 0.0014''$, PA $192.4^\circ \pm 0.7^\circ$



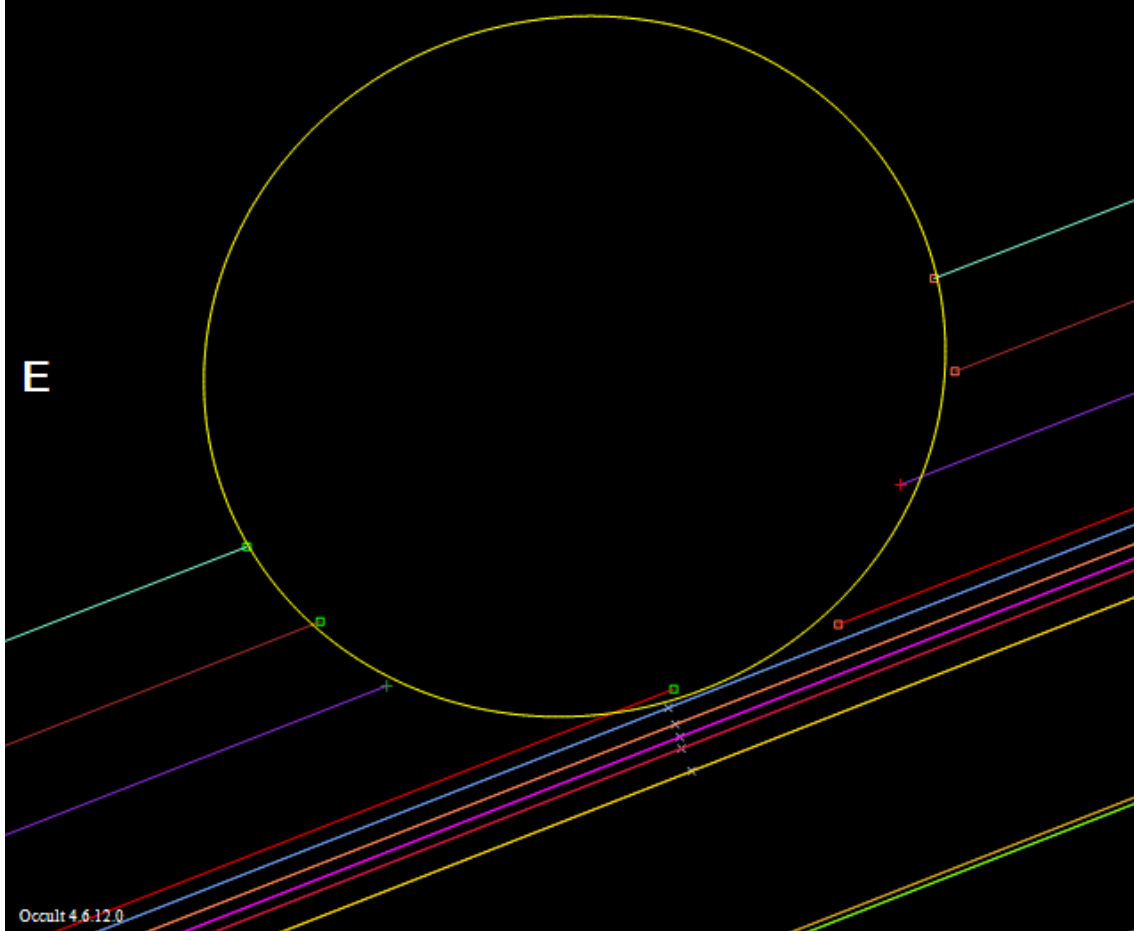
791_Ani_2000Apr07

(791) Ani 2000 Apr 7 $109.0 \pm 18.9 \times 74.0 \pm 5.0$ km, PA $311.0^\circ \pm 14.6^\circ$
Geocentric X 2501.6 ± 3.3 Y 3365.0 ± 5.9 km



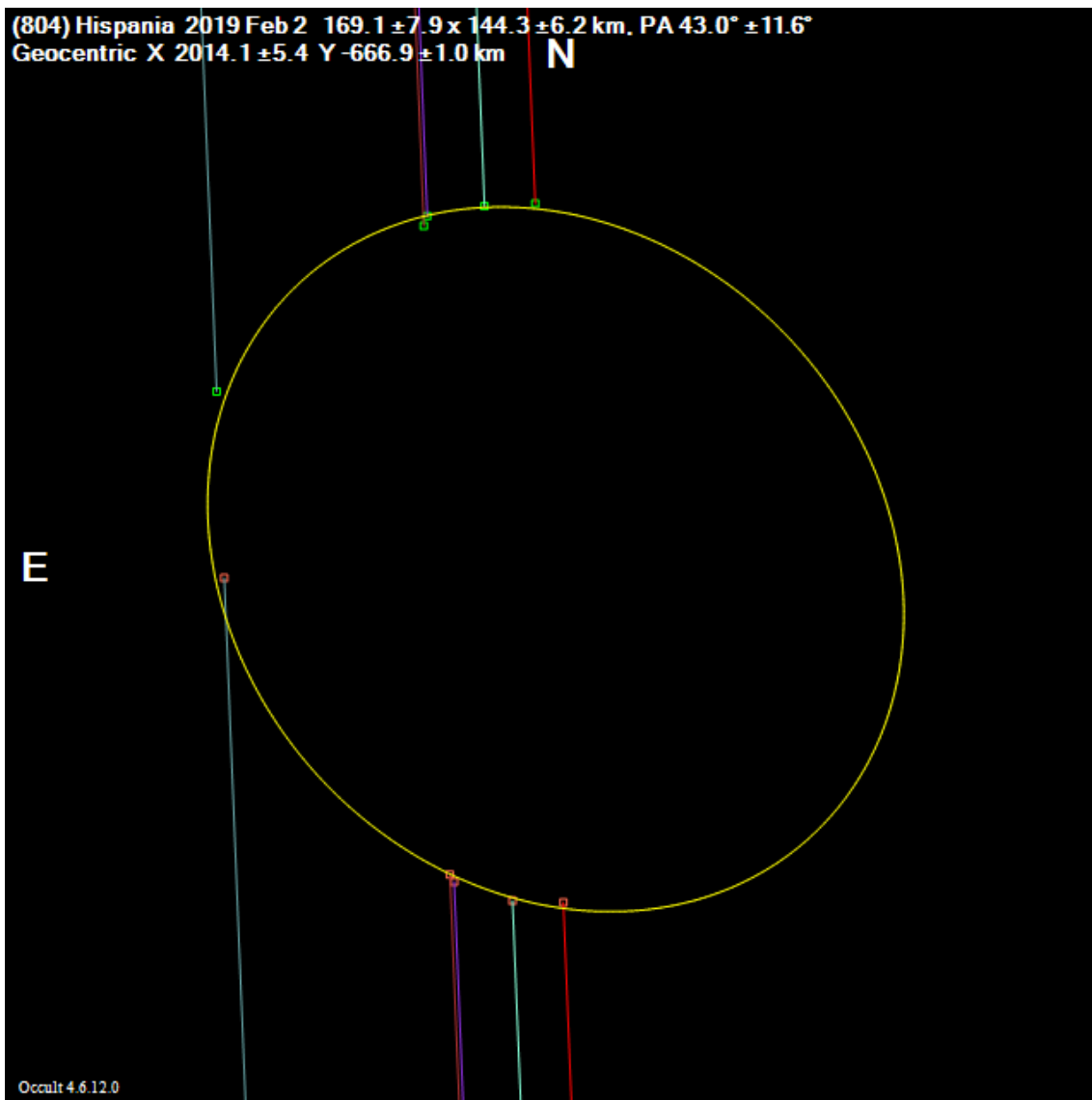
804_Hispania_2018Nov23

(804) Hispania 2018 Nov 23 $161.7 \pm 5.4 \times 150.5 \pm 25.0$ km, PA $108.2^\circ \pm 26.5^\circ$
Geocentric X -4532.8 ± 4.8 Y 908.1 ± 11.0 km **N**



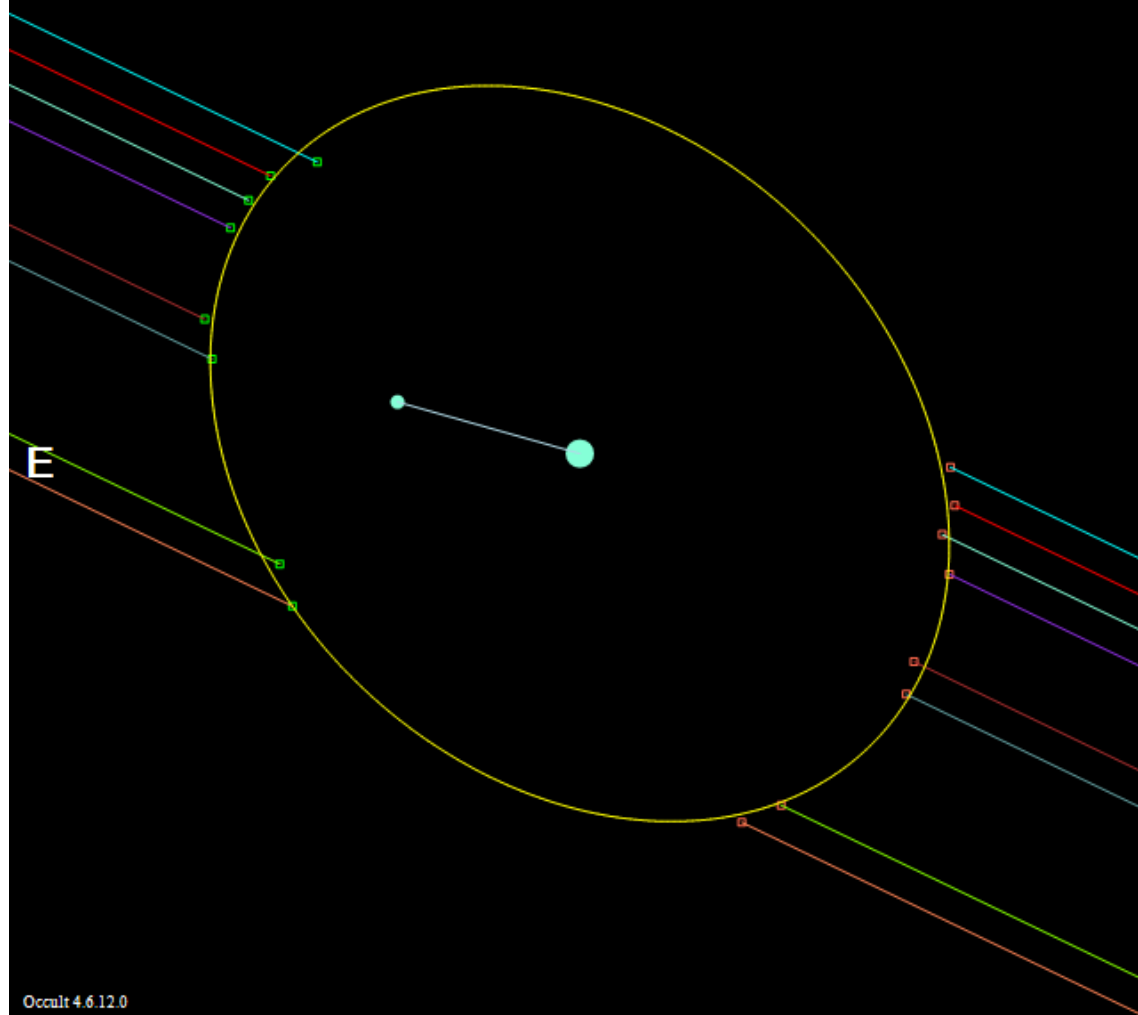
804_Hispania_2019Feb02

(804) Hispania 2019 Feb 2 $169.1 \pm 7.9 \times 144.3 \pm 6.2$ km, PA $43.0^\circ \pm 11.6^\circ$
Geocentric X 2014.1 ± 5.4 Y -666.9 ± 1.0 km



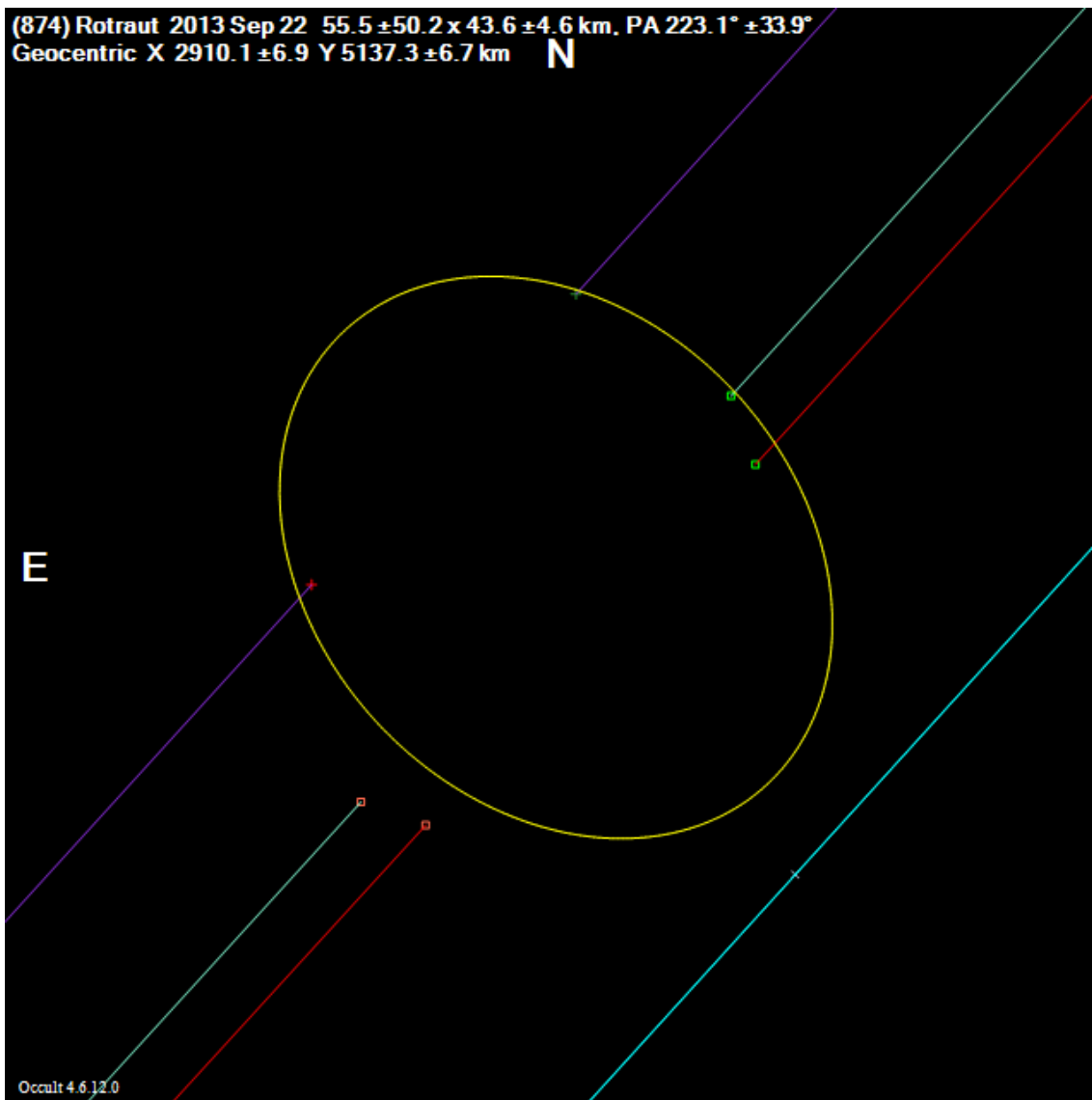
834_Burnhamia_2017Aug23

(834) Burnhamia 2017 Aug 23 $76.6 \pm 0.6 \times 59.4 \pm 1.6$ km, PA $45.6^\circ \pm 3.3^\circ$
Geocentric X -1976.0 ± 0.4 Y 4879.7 ± 0.6 km **N**
Double : Sep $0.0143 \pm 0.0004''$, PA $74.2^\circ \pm 2.7^\circ$



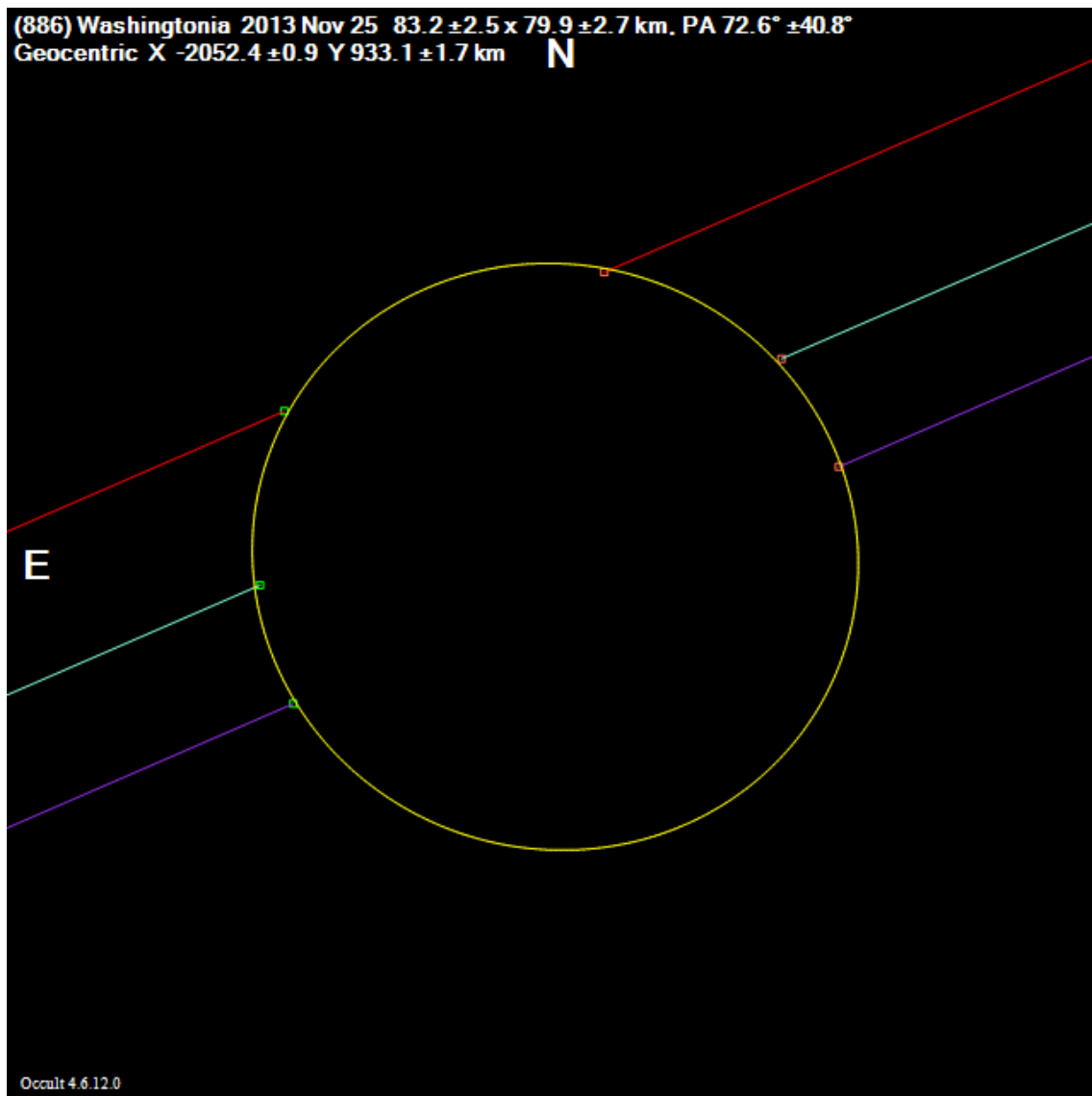
874_Rotraut_2013Sep22

(874) Rotraut 2013 Sep 22 $55.5 \pm 50.2 \times 43.6 \pm 4.6$ km. PA $223.1^\circ \pm 33.9^\circ$
Geocentric X 2910.1 ± 6.9 Y 5137.3 ± 6.7 km **N**



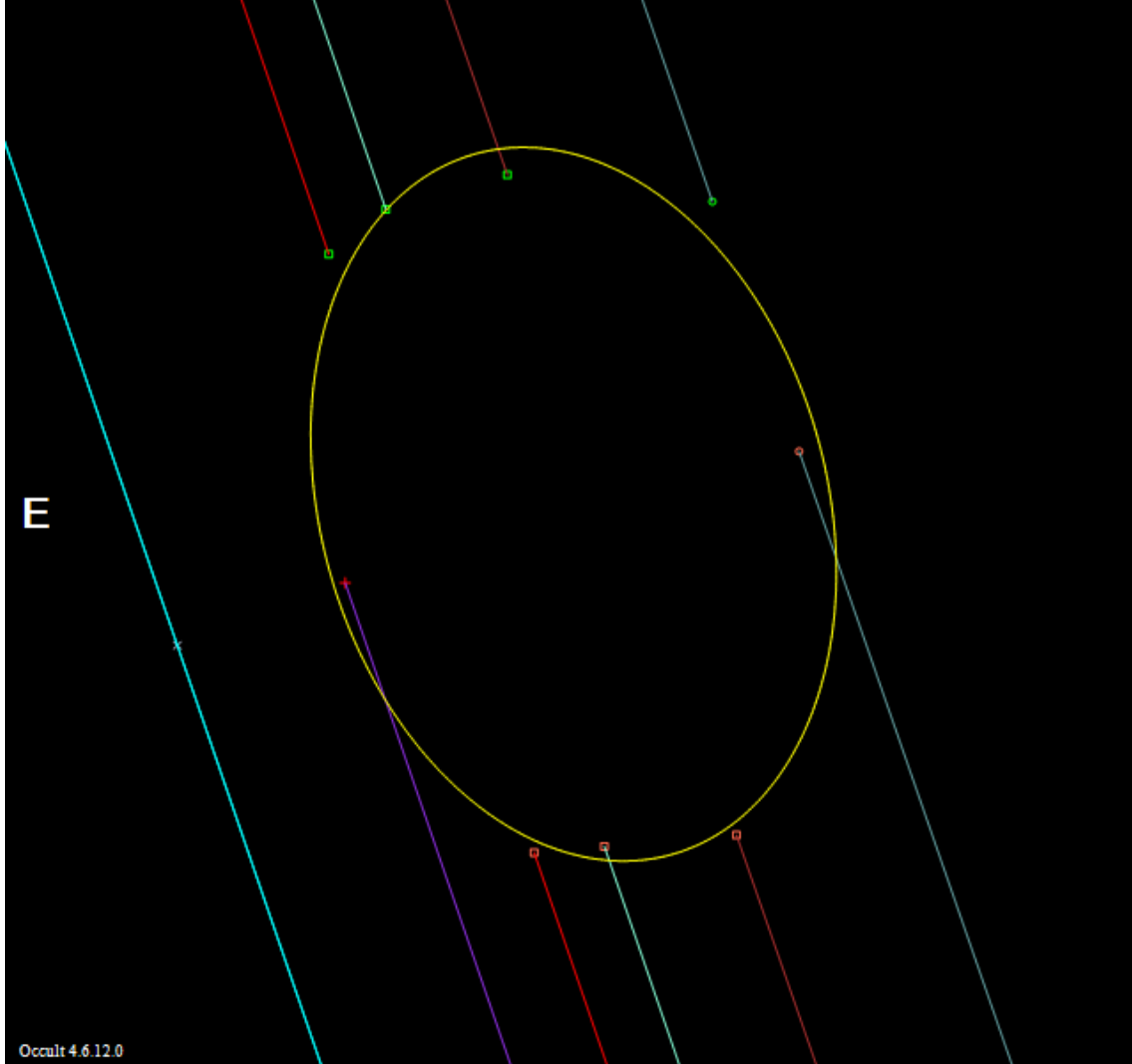
886_Washingtonia_2013Nov25

(886) Washingtonia 2013 Nov 25 $83.2 \pm 2.5 \times 79.9 \pm 2.7$ km, PA $72.6^\circ \pm 40.8^\circ$
Geocentric X -2052.4 ± 0.9 Y 933.1 ± 1.7 km **N**



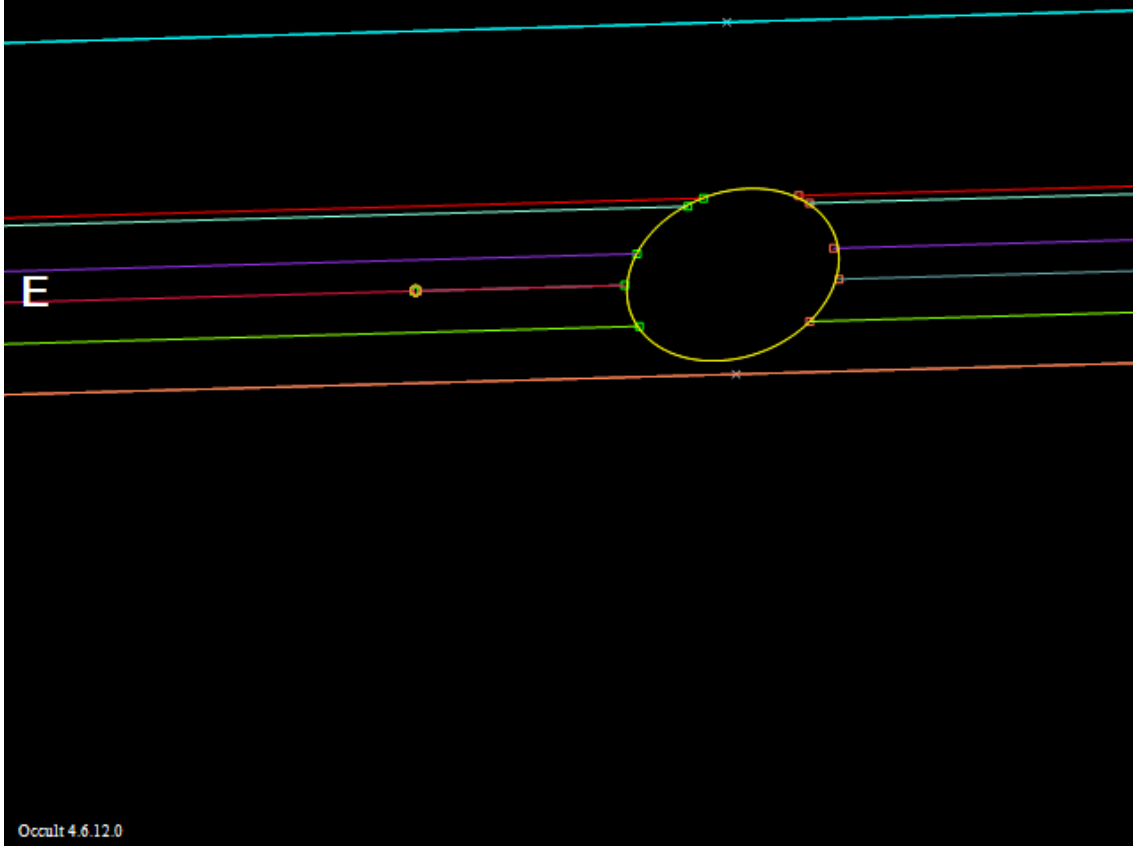
893_Leopoldina_2010Aug30

(893) Leopoldina 2010 Aug 30 $83.5 \pm 2.1 \times 58.1 \pm 3.6$ km, PA $15.8^\circ \pm 4.9^\circ$
Geocentric X -2343.7 ± 1.3 Y -2489.5 ± 1.0 km **N**



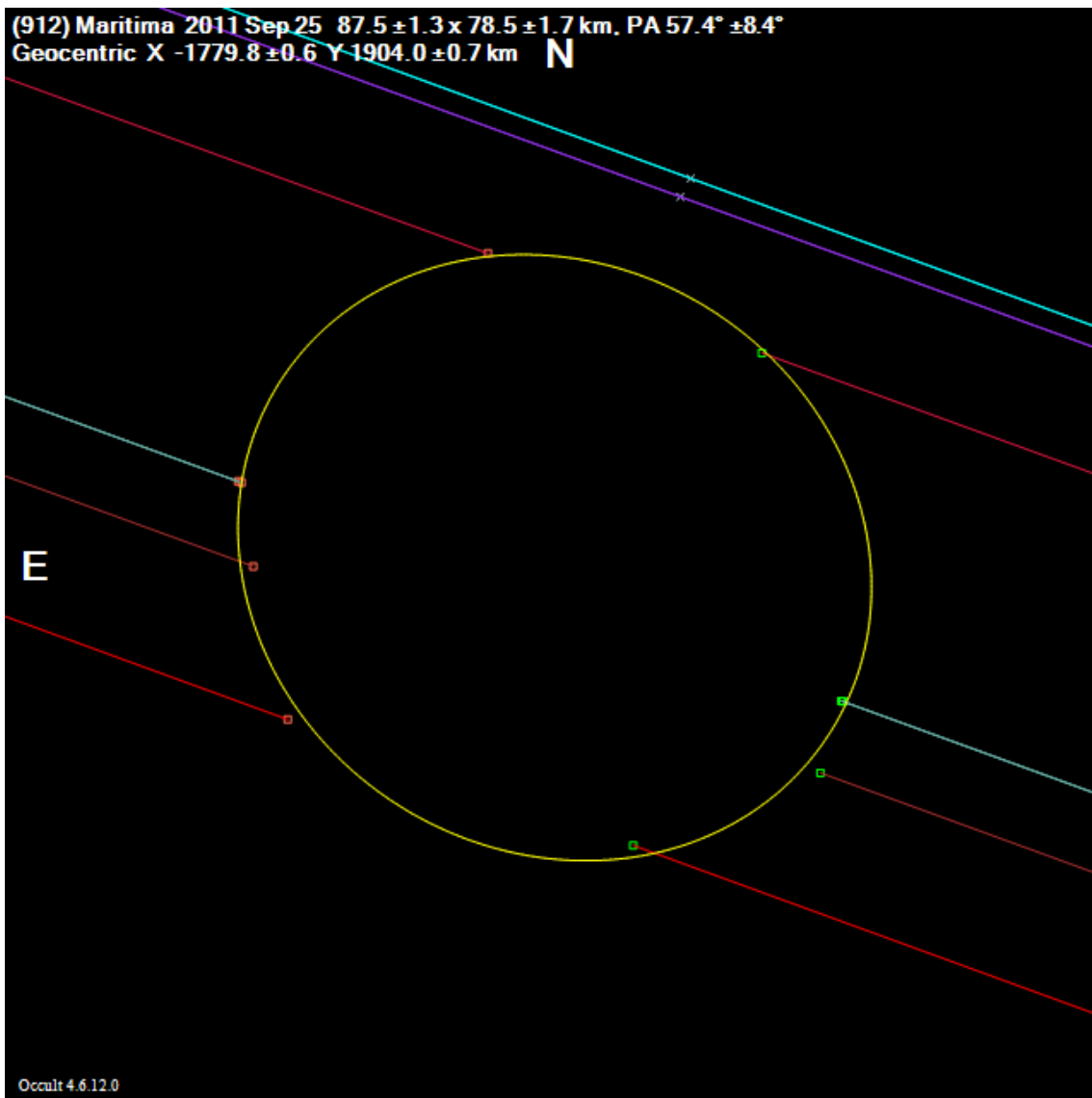
911_Agamemnon_2012Jan19

(911) Agamemnon 2012 Jan 19 $190.6 \pm 1.9 \times 143.7 \pm 3.0$ km, PA $110.9^\circ \pm 2.6^\circ$
Geocentric X 4649.1 ± 0.8 Y 3114.5 ± 1.3 km **N**
Sat: 9.0×9.0 km, PA 289.0° ; Sep 0.0930° at PA 92.8°



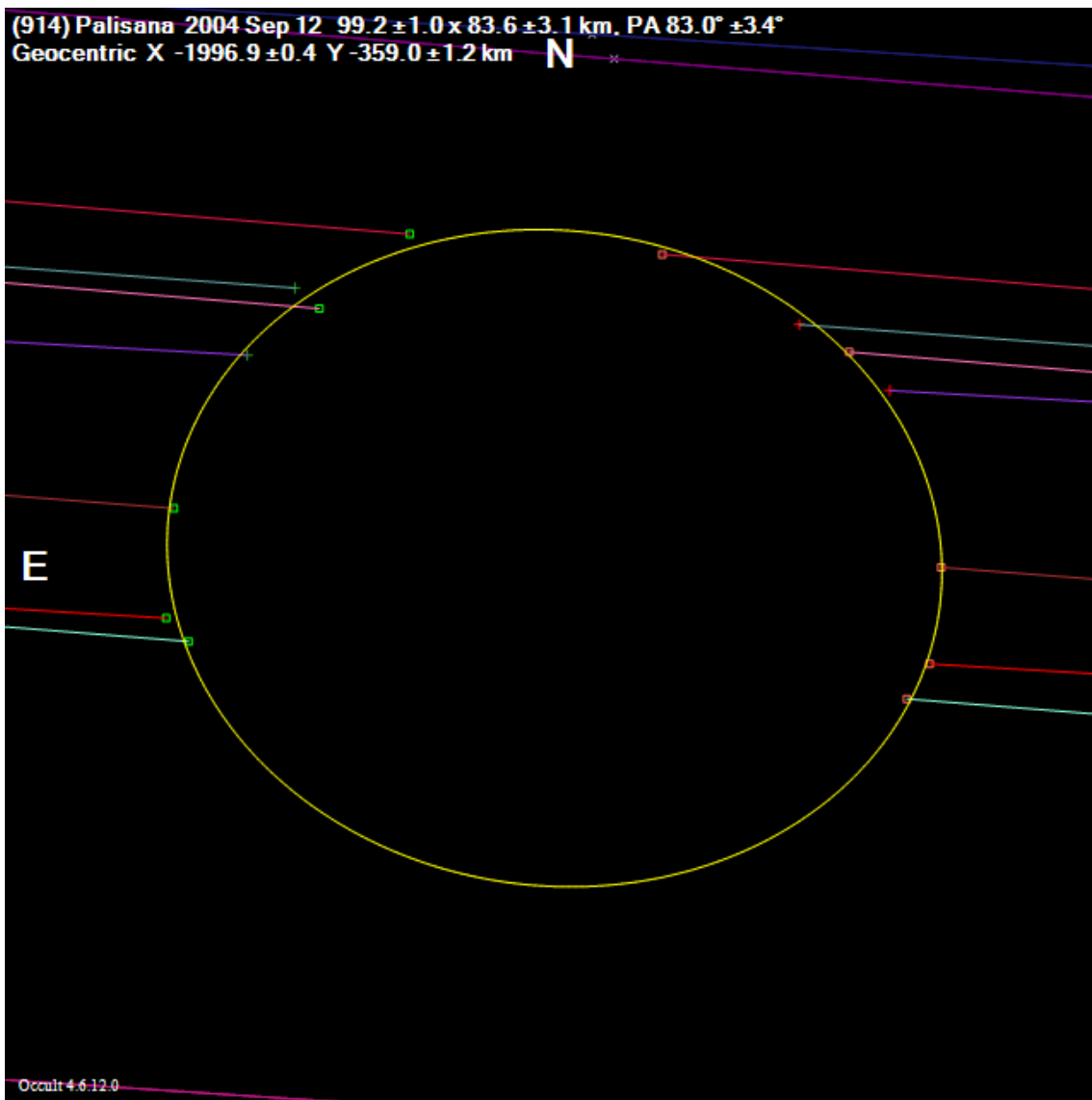
912_Maritima_2011Sep25

(912) Maritima 2011 Sep 25 $87.5 \pm 1.3 \times 78.5 \pm 1.7$ km. PA $57.4^\circ \pm 8.4^\circ$
Geocentric X -1779.8 ± 0.6 Y 1904.0 ± 0.7 km **N**



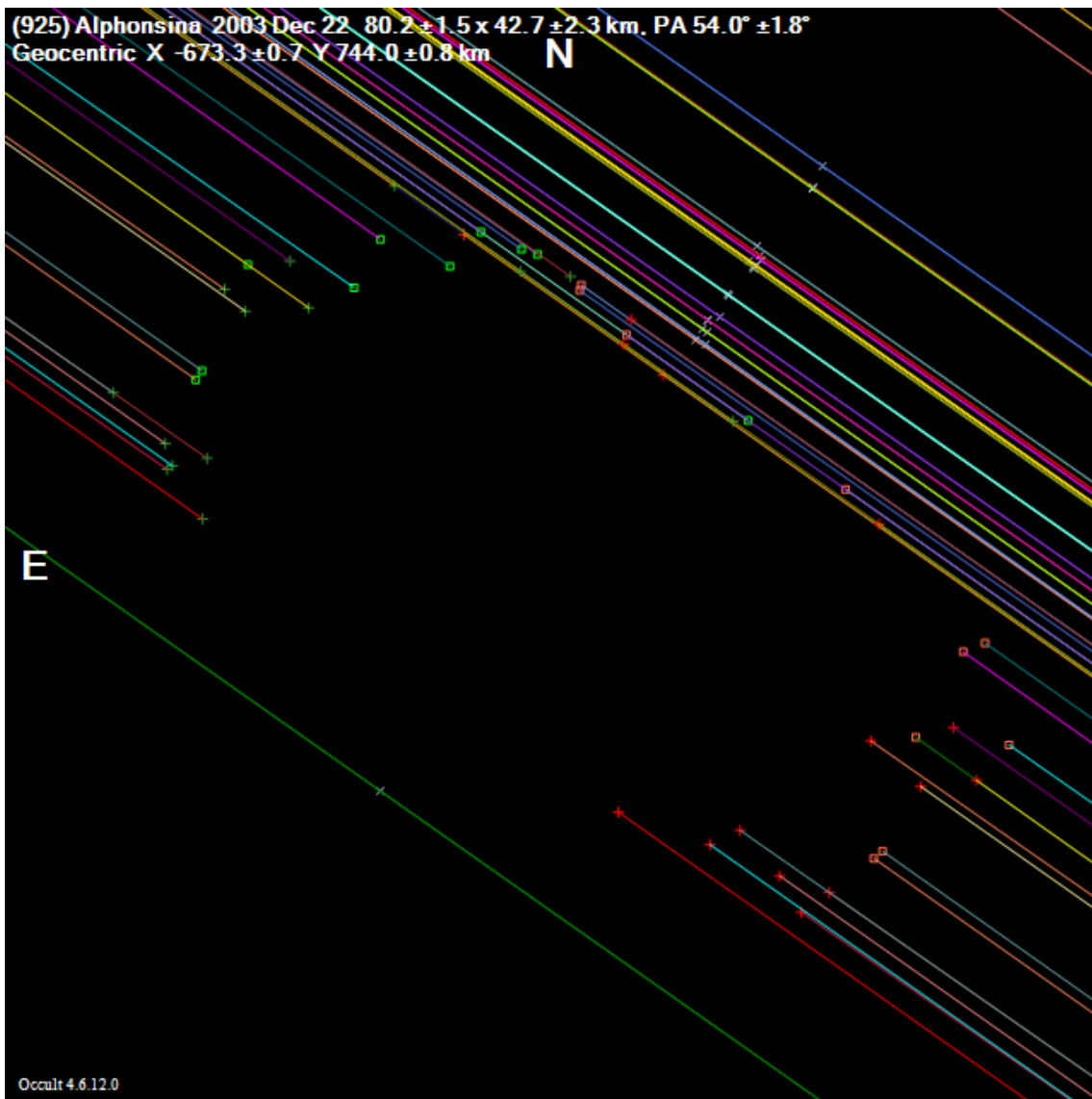
914_Palisana_2004Sep12

(914) Palisana 2004 Sep 12 $99.2 \pm 1.0 \times 83.6 \pm 3.1$ km. PA $83.0^\circ \pm 3.4^\circ$
Geocentric X -1996.9 ± 0.4 Y -359.0 ± 1.2 km



925_Alphonsina_2003Dec22

(925) Alphonsina 2003 Dec 22 $80.2 \pm 1.5 \times 42.7 \pm 2.3$ km, PA $54.0^\circ \pm 1.8^\circ$
Geocentric X -673.3 ± 0.7 Y 744.0 ± 0.8 km



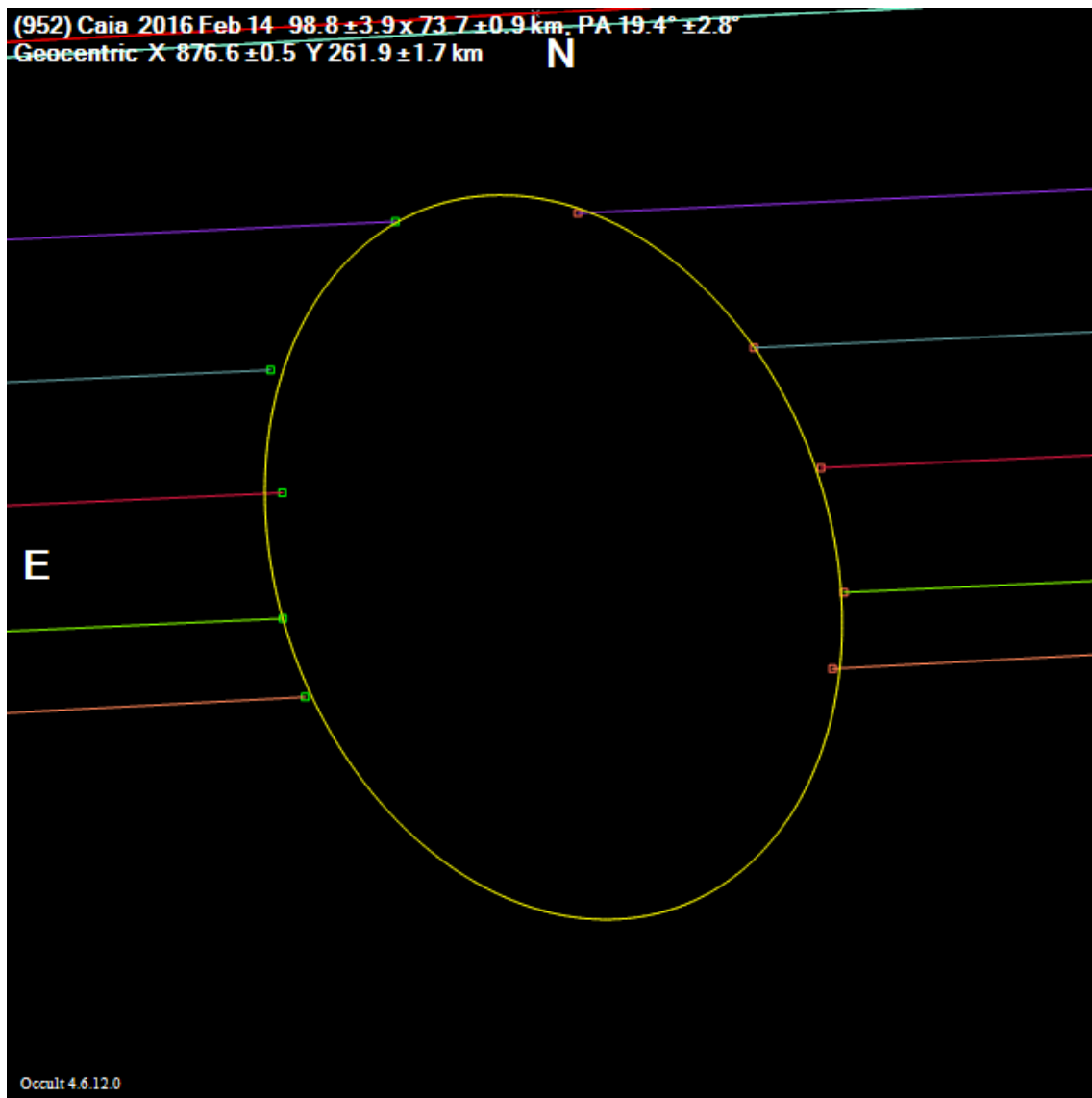
952_Caia_2016Feb14

(952) Caia 2016 Feb 14 $98.8 \pm 3.9 \times 73.7 \pm 0.9$ km, PA $19.4^\circ \pm 2.8^\circ$
Geocentric X 876.6 ± 0.5 Y 261.9 ± 1.7 km

N

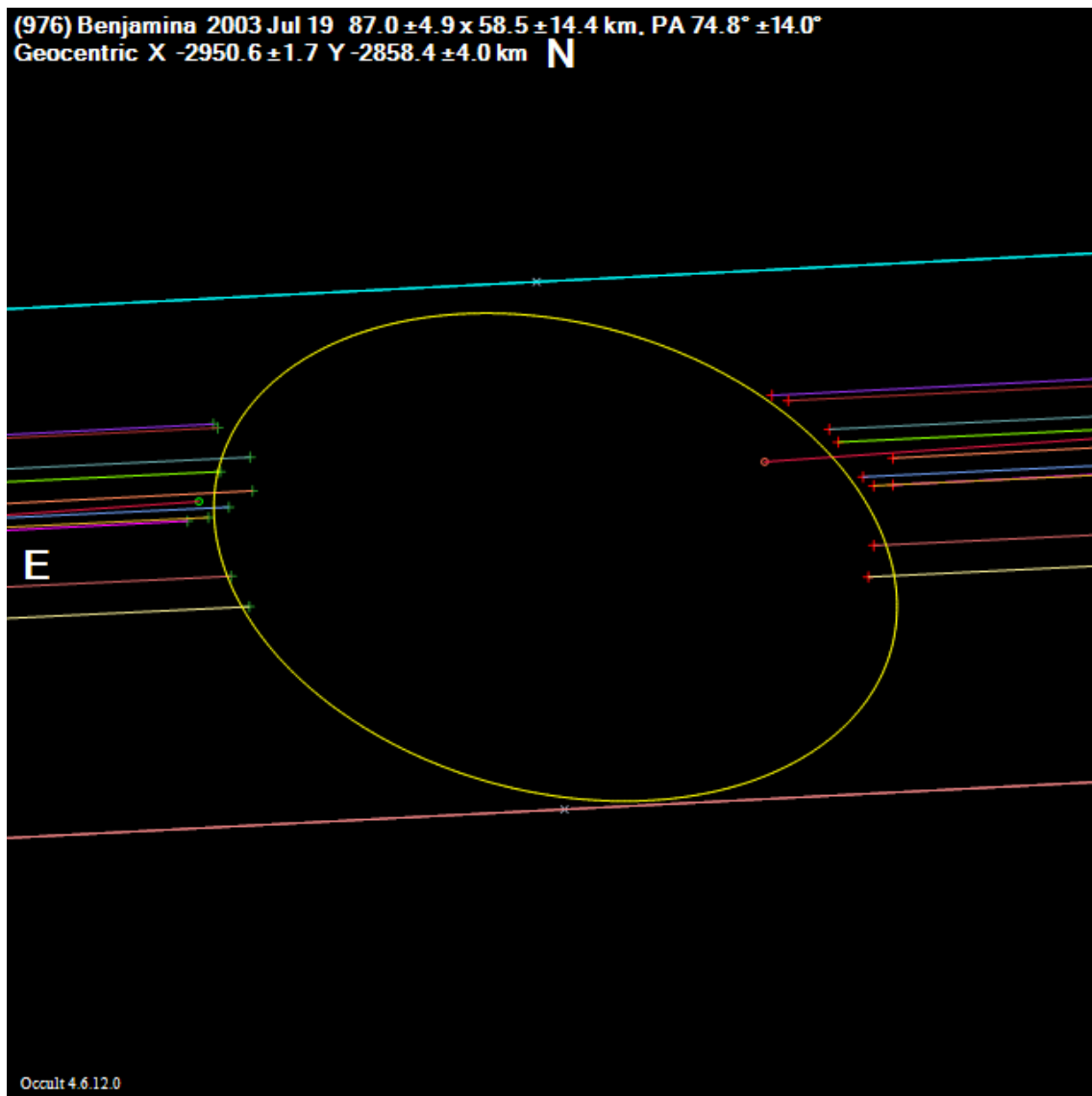
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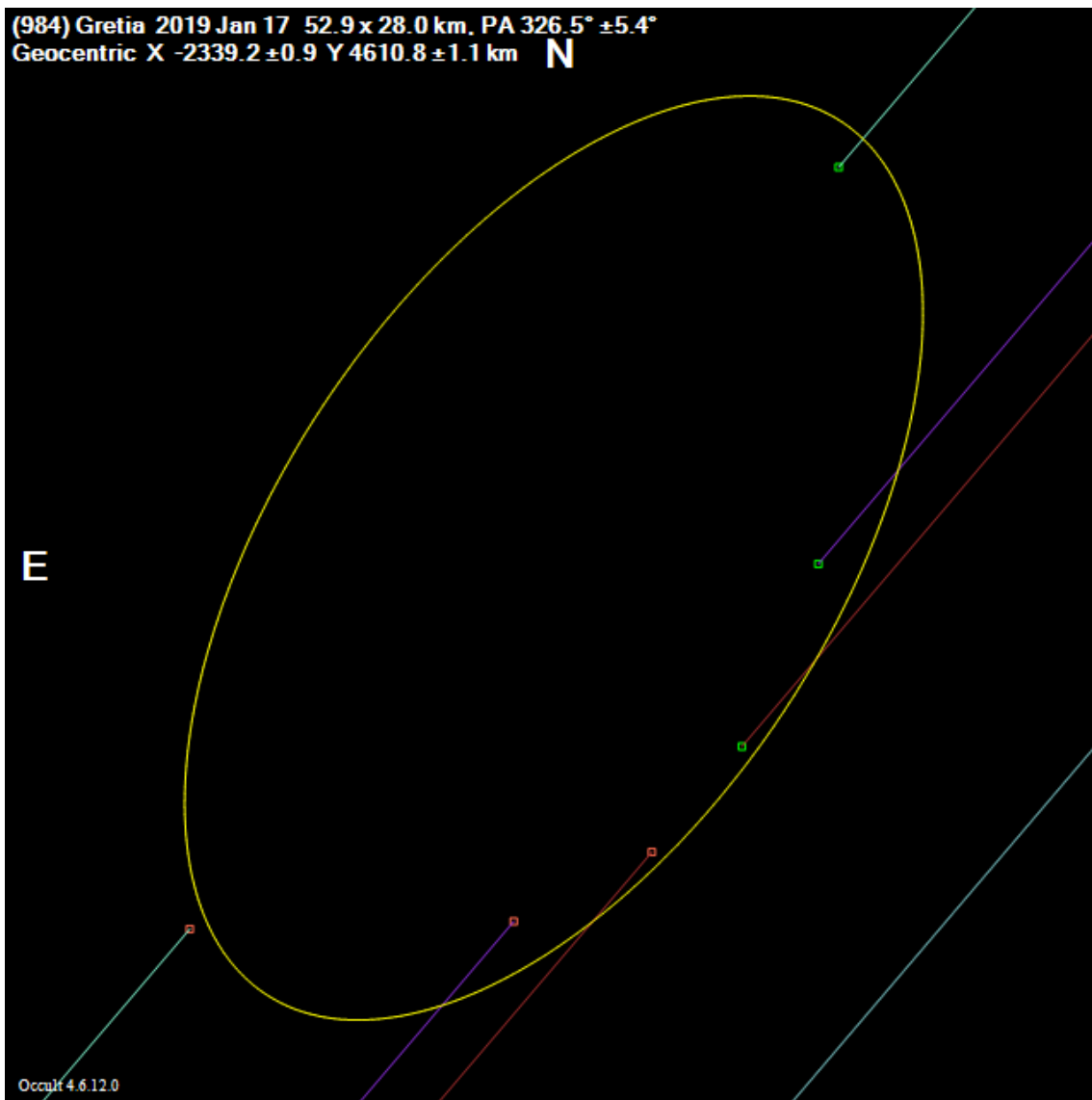
976_Benjamina_2003Jul19

(976) Benjamina 2003 Jul 19 $87.0 \pm 4.9 \times 58.5 \pm 14.4$ km, PA $74.8^\circ \pm 14.0^\circ$
Geocentric X -2950.6 ± 1.7 Y -2858.4 ± 4.0 km **N**



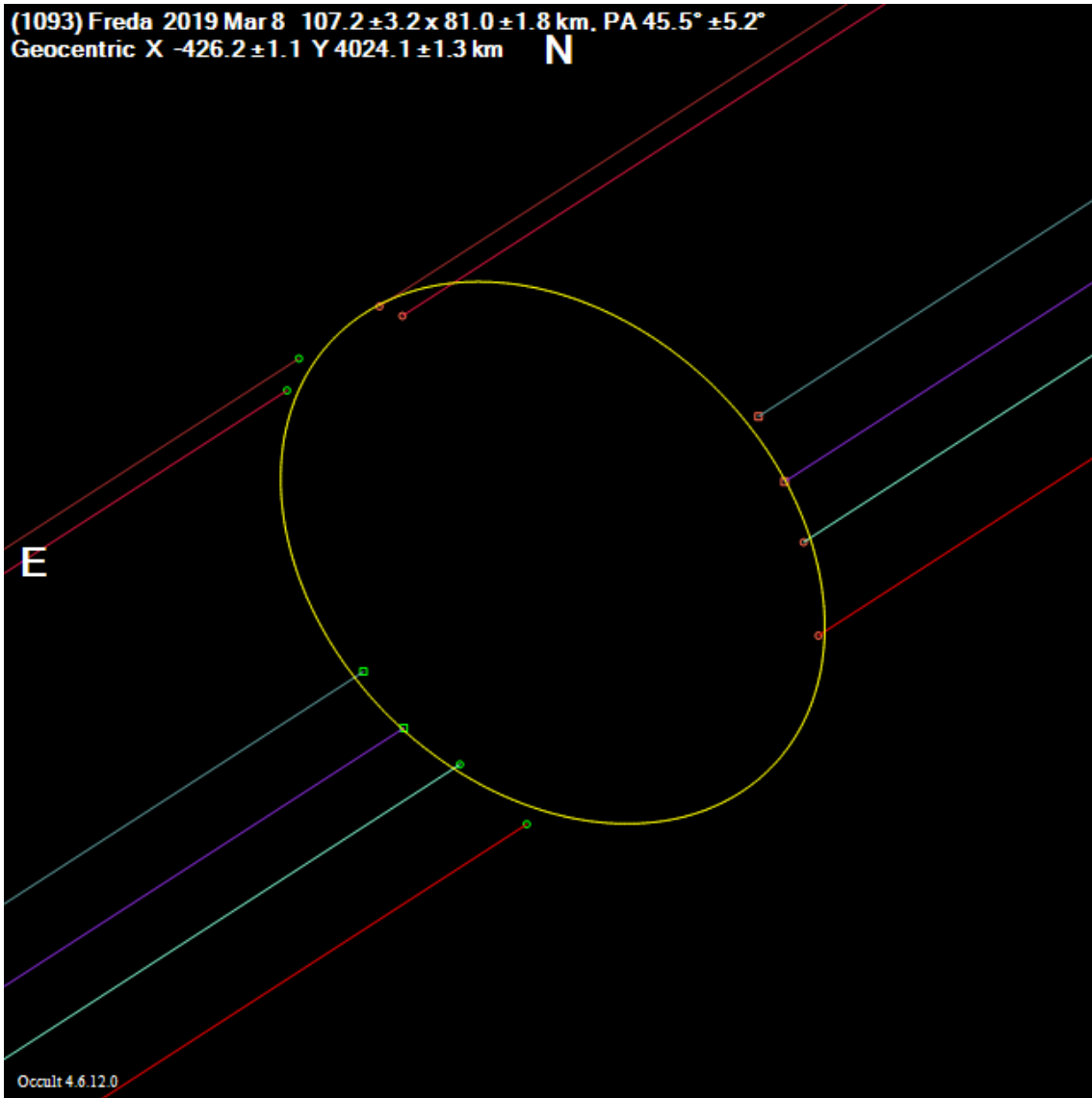
984_Gretia_2019Jan17

(984) Gretia 2019 Jan 17 52.9 x 28.0 km, PA 326.5° ± 5.4°
Geocentric X -2339.2 ± 0.9 Y 4610.8 ± 1.1 km **N**



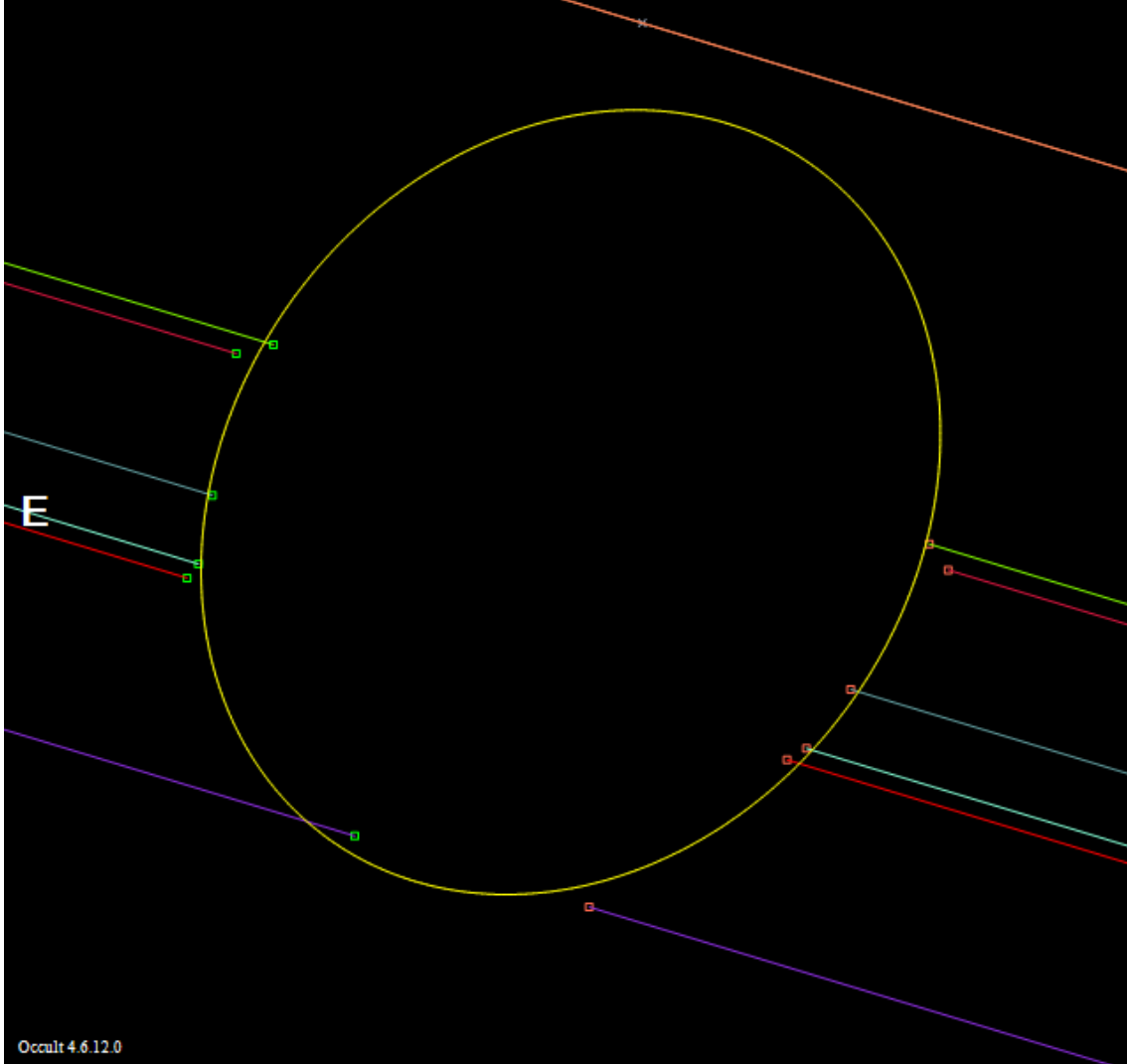
1093_Freda_2019Mar08

(1093) Freda 2019 Mar 8 $107.2 \pm 3.2 \times 81.0 \pm 1.8$ km, PA $45.5^\circ \pm 5.2^\circ$
Geocentric X -426.2 ± 1.1 Y 4024.1 ± 1.3 km **N**



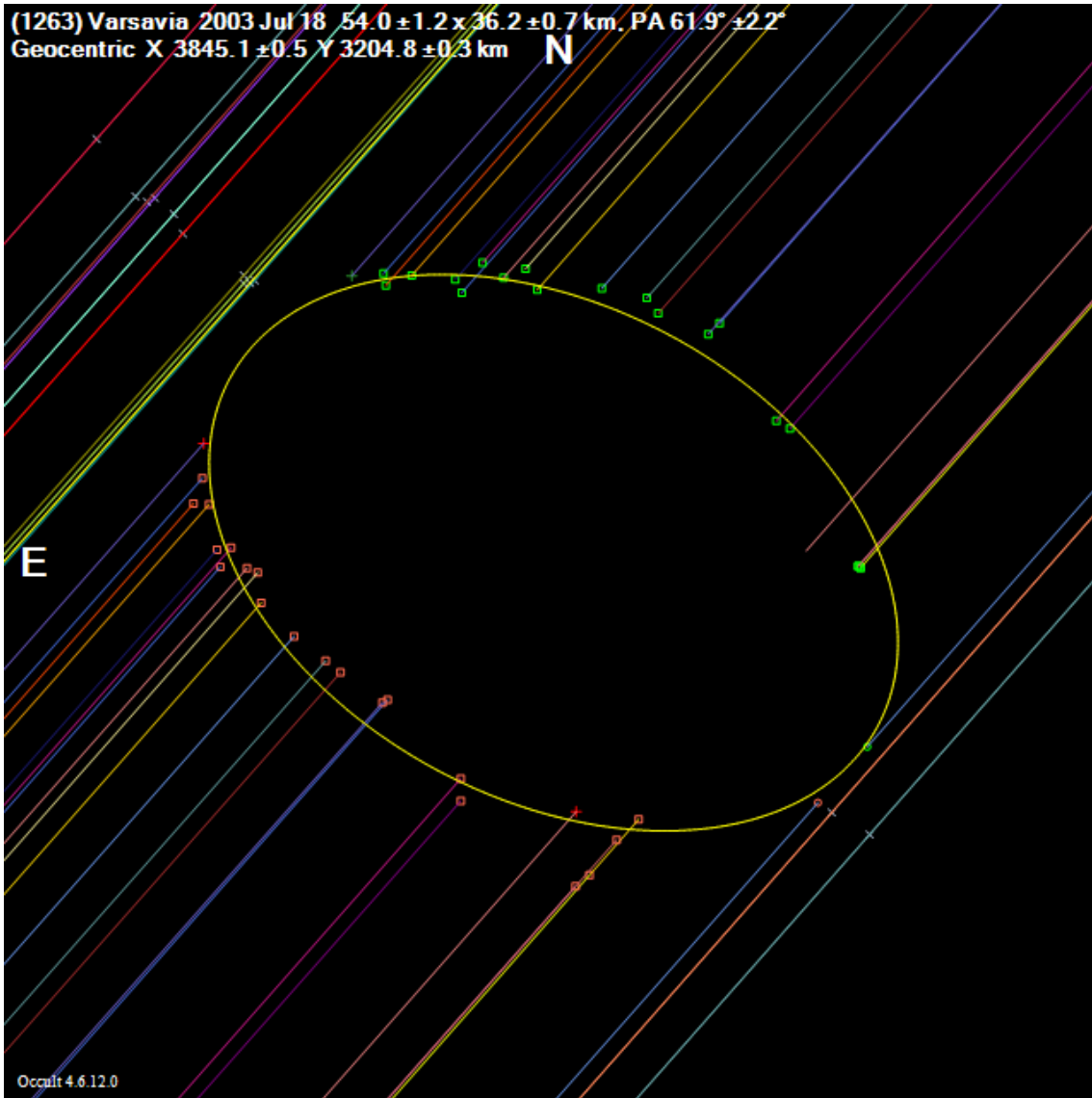
1114_Lorraine_2015Dec02

(1114) Lorraine 2015 Dec 2 $83.2 \pm 6.0 \times 69.1 \pm 1.4$ km, PA $144.3^\circ \pm 8.6^\circ$
Geocentric X -1064.4 ± 1.2 Y 3774.1 ± 2.6 km **N**



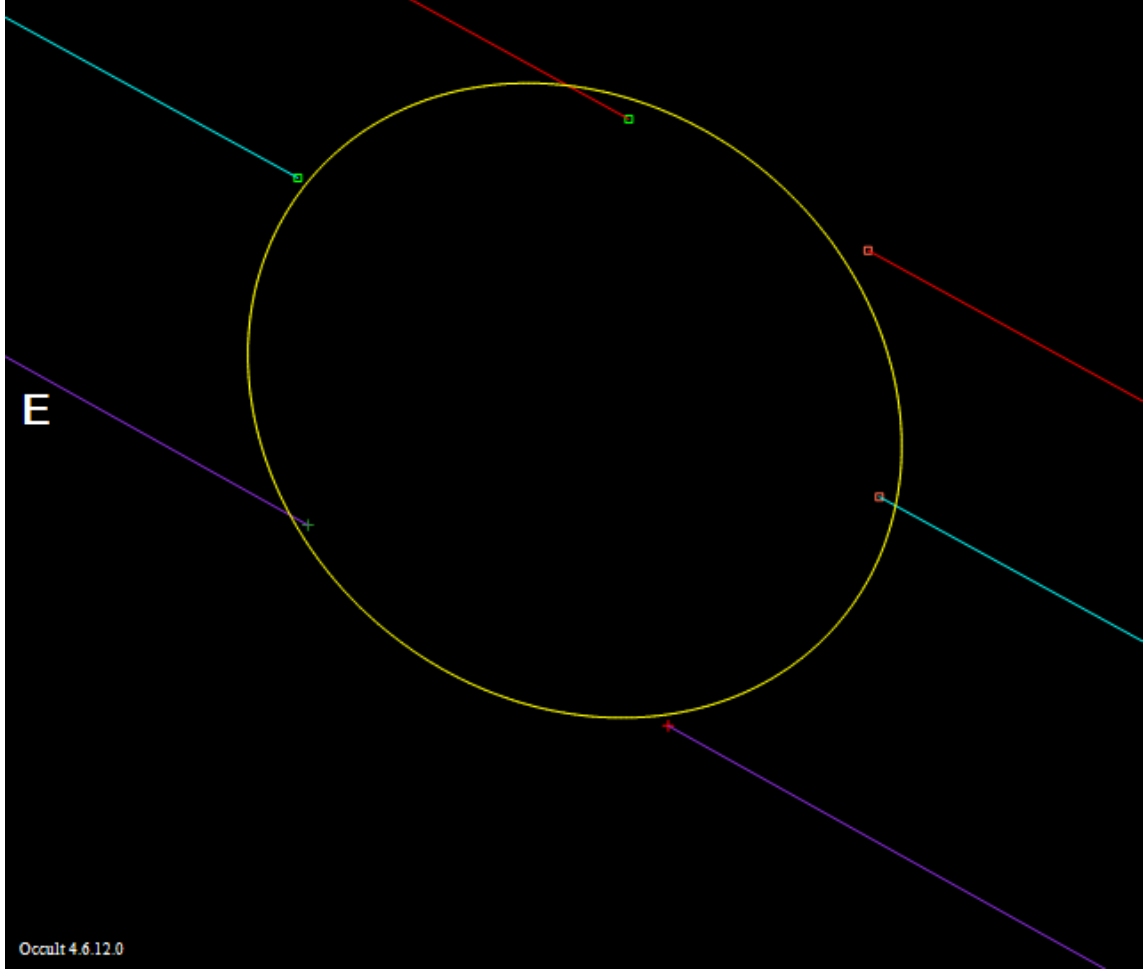
1263_Varsavia_2003Jul18

(1263) Varsavia 2003 Jul 18 $54.0 \pm 1.2 \times 36.2 \pm 0.7$ km, PA $61.9^\circ \pm 2.2^\circ$
Geocentric X 3845.1 ± 0.5 Y 3204.8 ± 0.3 km



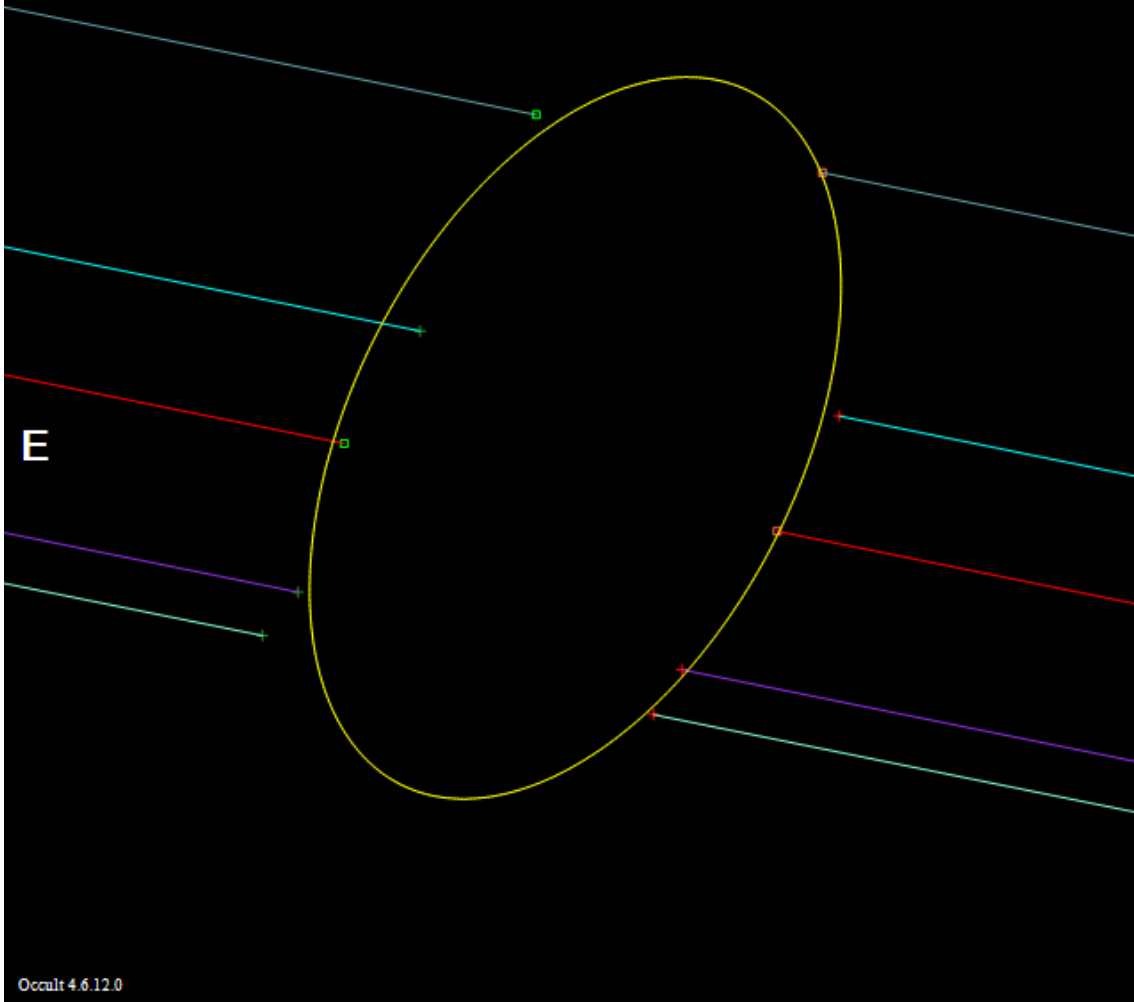
1309_Hyperborea_2012Nov24

(1309) Hyperborea 2012 Nov 24 $59.5 \pm 2.1 \times 51.3 \pm 2.9$ km. PA $51.0^\circ \pm 16.0^\circ$
Geocentric X 1848.9 ± 1.1 Y 3906.5 ± 1.3 km **N**



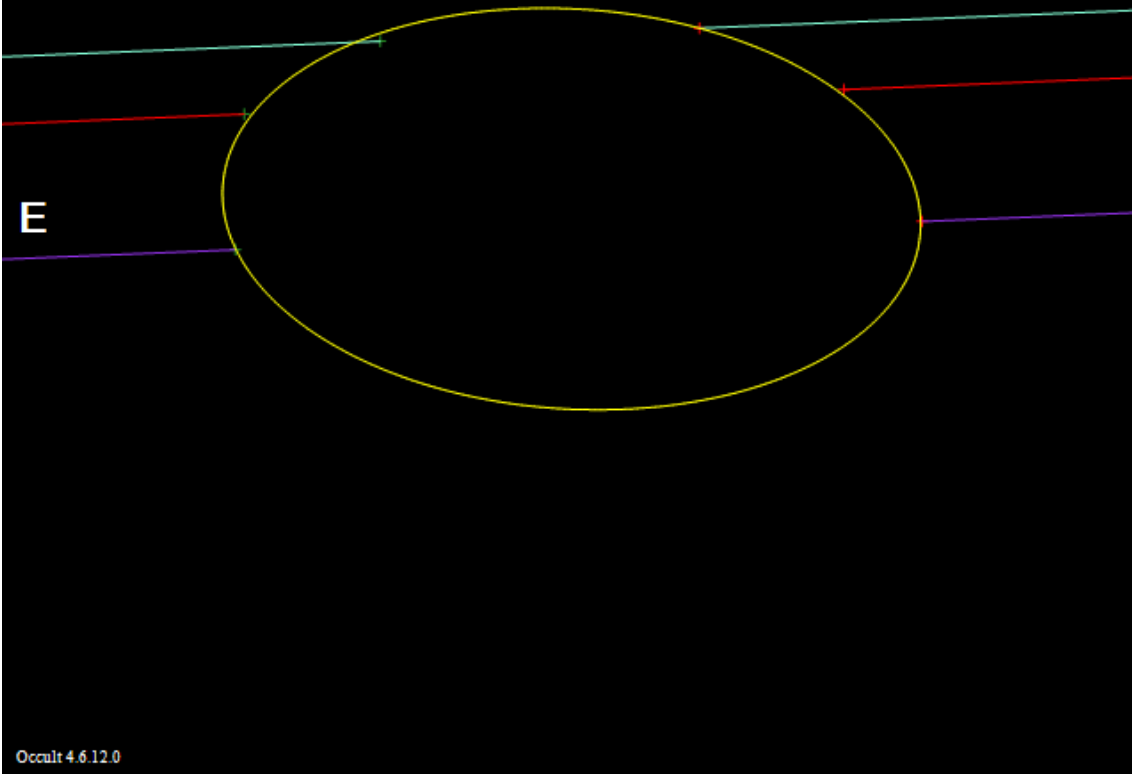
1437_Diomedes_1997Nov07

(1437) Diomedes 1997 Nov 7 174.0 x 100.6 ± 4.1 km. PA 333.2° ± 3.0°
Geocentric X -5021.3 ± 2.0 Y 1972.2 ± 3.4 km **N**



1512_Oulu_2002May07

(1512) Oulu 2002 May 7 85.9 x 49.1 \pm 2.5 km, PA 86.3° \pm 1.3°
Geocentric X -1250.1 \pm 0.5 Y -1027.8 \pm 1.0 km **N**

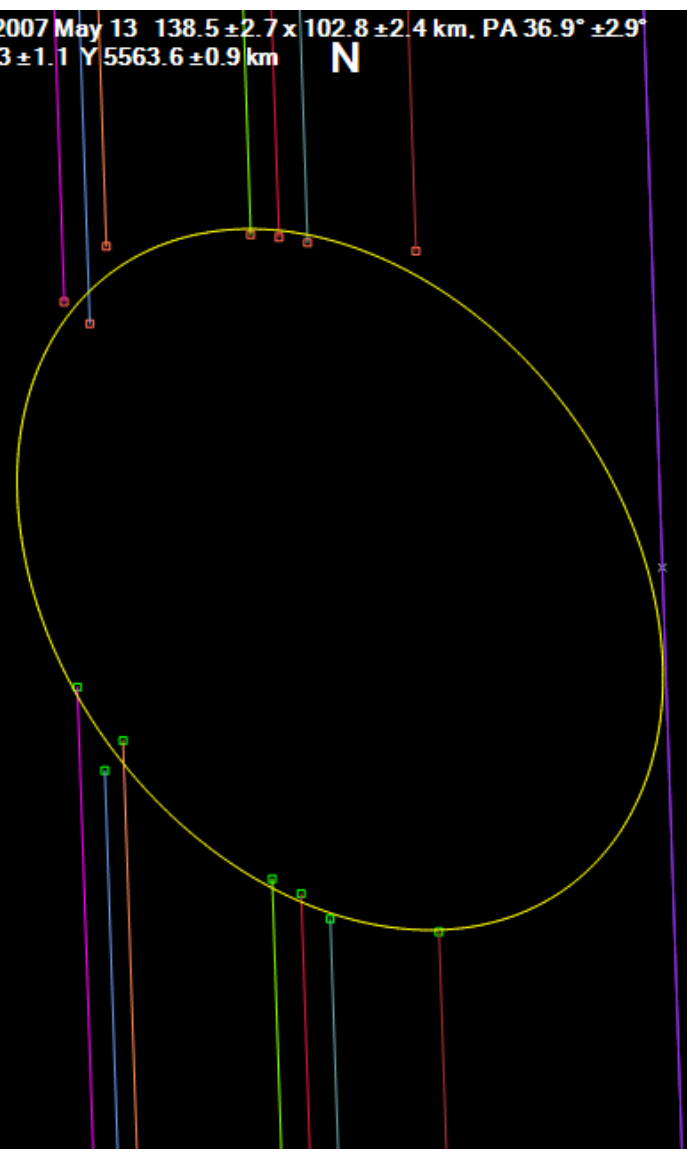


1867_Deiphobus_2007May13

(1867) Deiphobus 2007 May 13 $138.5 \pm 2.7 \times 102.8 \pm 2.4$ km, PA $36.9^\circ \pm 2.9^\circ$
Geocentric X 404.3 ± 1.1 Y 5563.6 ± 0.9 km **N**

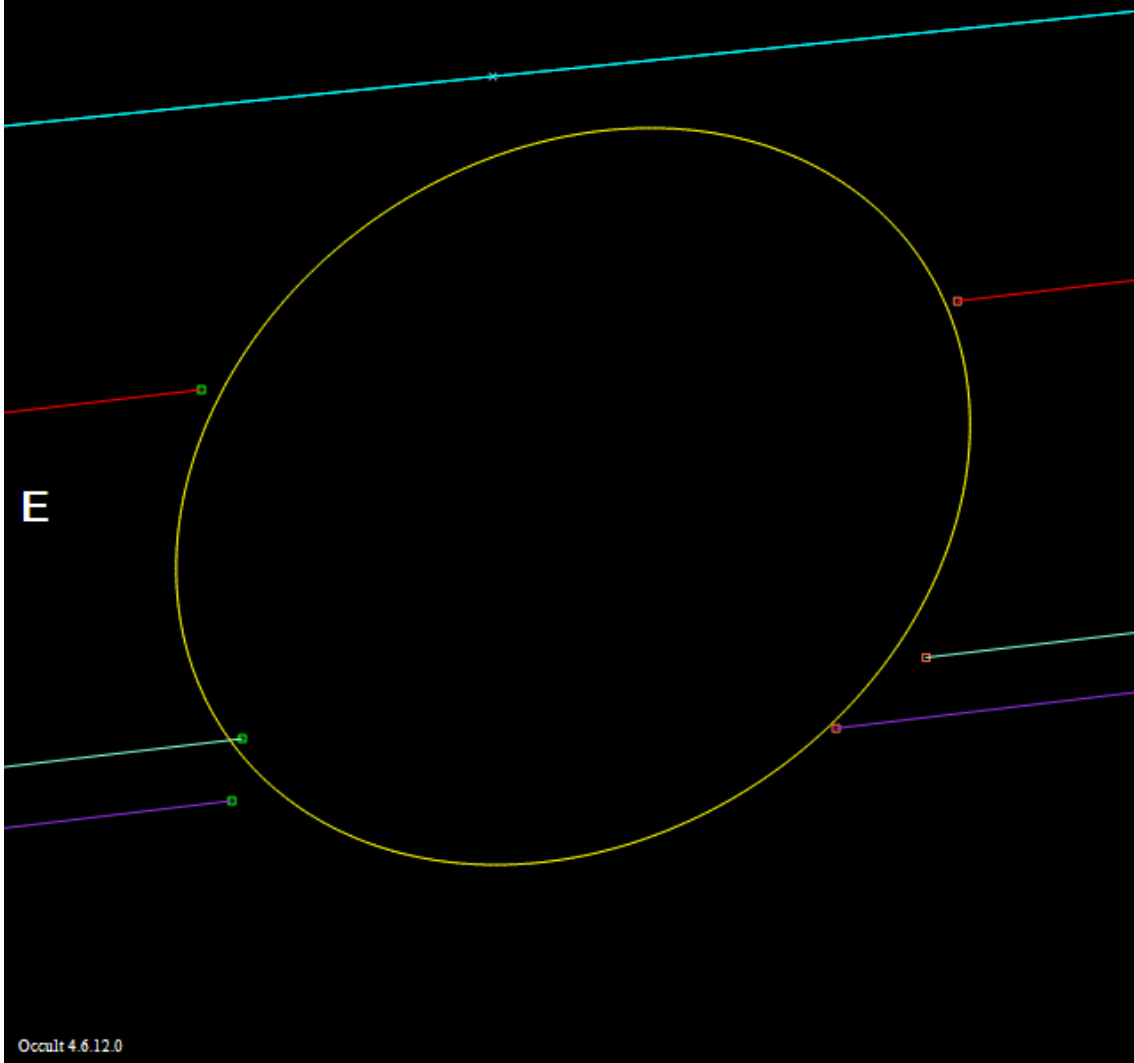
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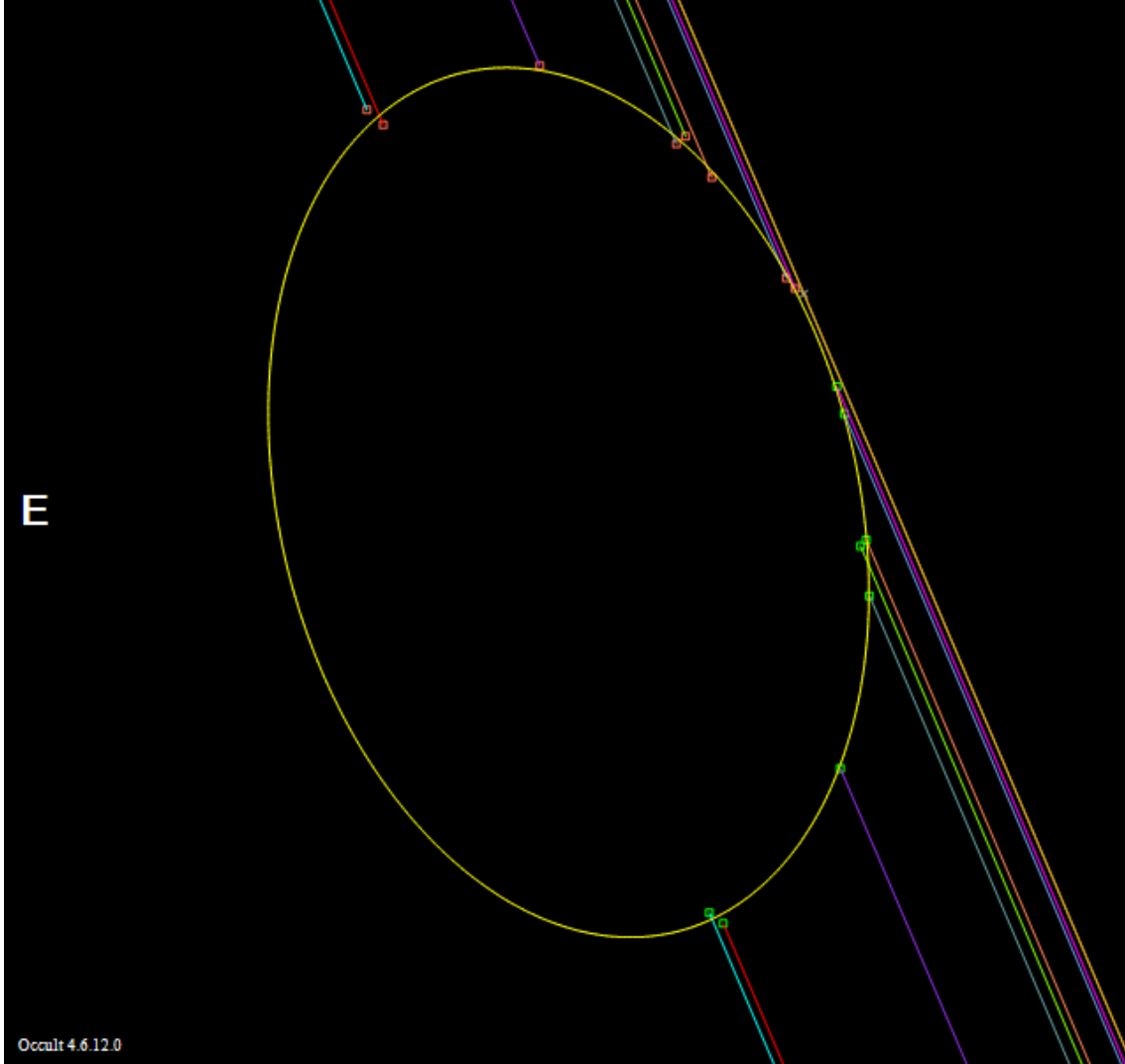
4709_Ennomos_2011Aug11

(4709) Ennomos 2011 Aug 11 $105.0 \pm 3.2 \times 85.0 \pm 11.6$ km. PA $124.4^\circ \pm 35.5^\circ$
Geocentric X -4135.0 ± 1.1 Y 3564.4 ± 3.5 km **N**



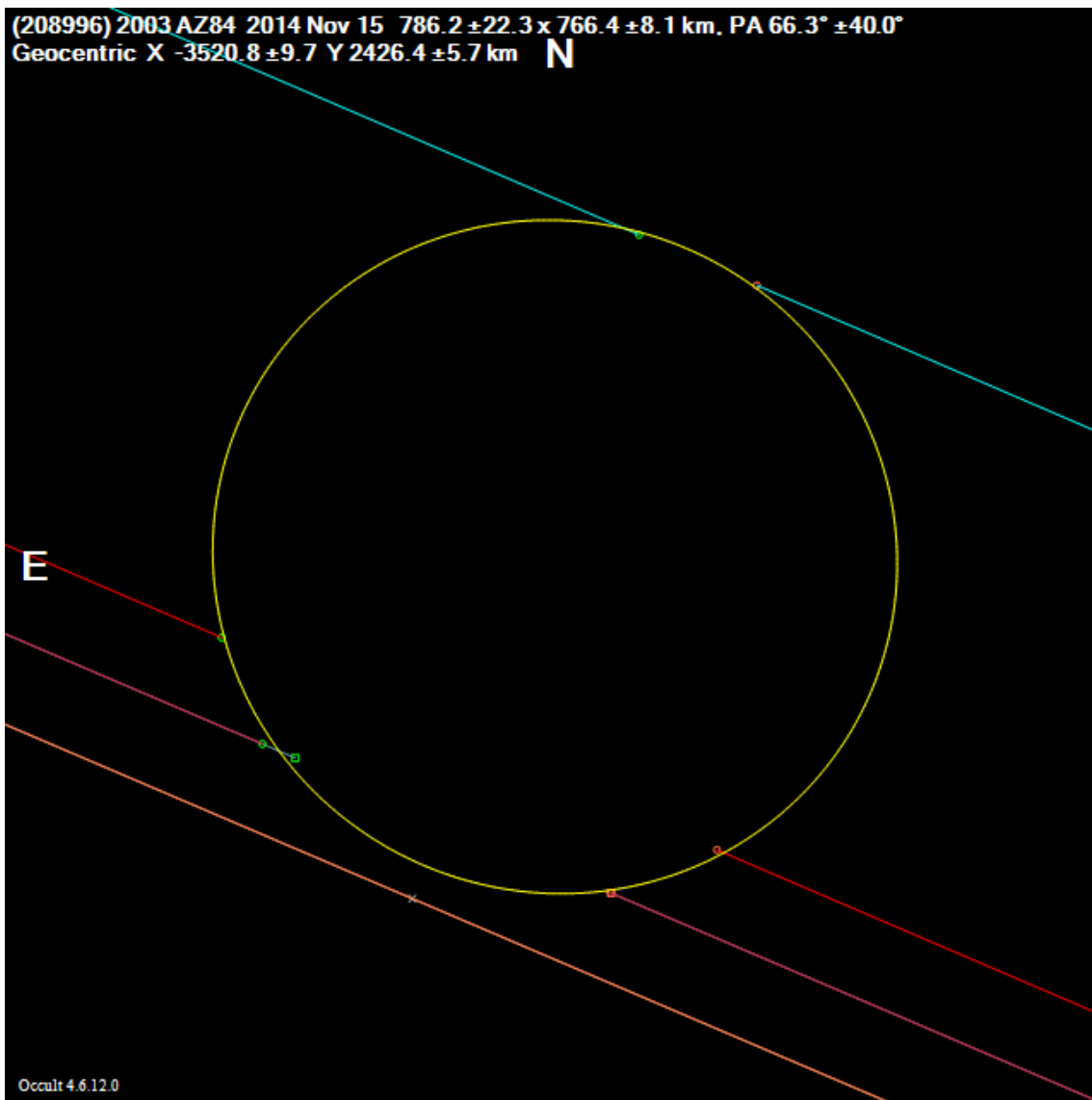
136108_Haumea_2017Jan21

(136108) Haumea 2017 Jan 21 $1705.7 \pm 11.2 \times 1112.9 \pm 37.1$ km, PA $14.3^\circ \pm 1.3^\circ$
Geocentric X -1976.7 ± 15.3 Y 3202.4 ± 10.4 km **N**



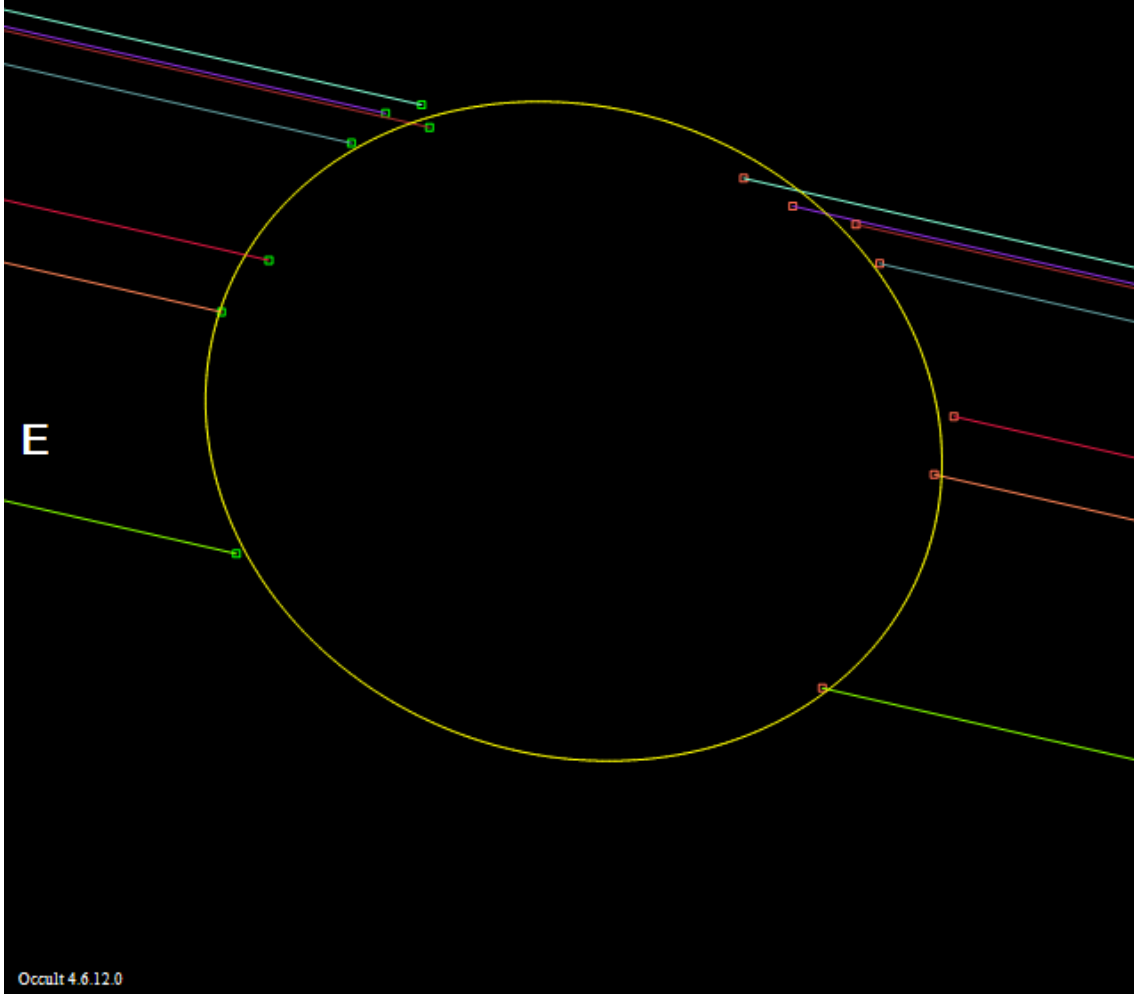
208996_2003AZ84_2014Nov15

(208996) 2003 AZ84 2014 Nov 15 786.2 ±22.3 x 766.4 ±8.1 km. PA 66.3° ±40.0°
Geocentric X -3520.8 ±9.7 Y 2426.4 ±5.7 km **N**



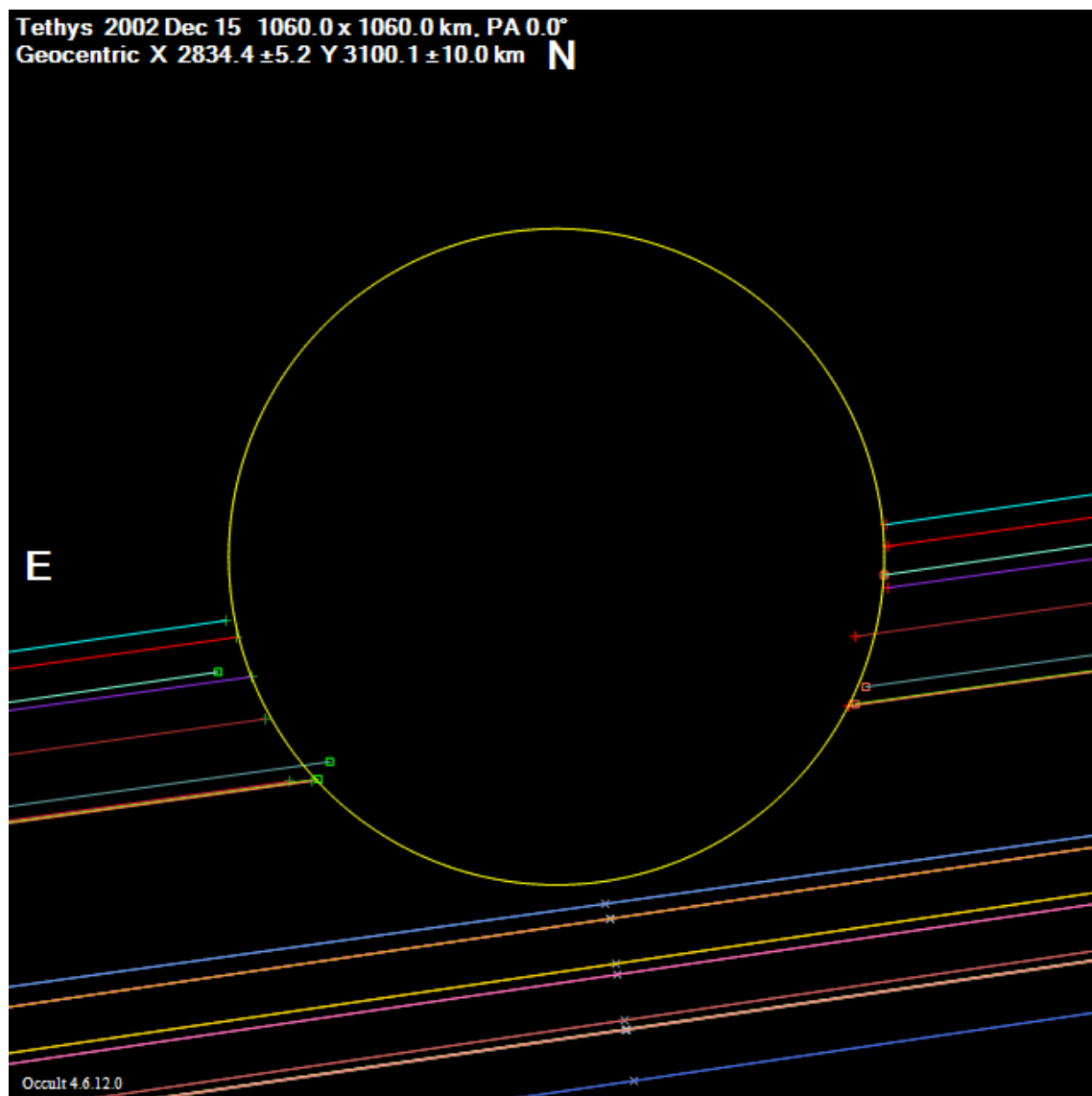
229762_2007UK126_2014Nov15

(229762) 2007 UK126 2014 Nov 15 $655.8 \pm 11.6 \times 566.8 \pm 19.6$ km, PA $70.0^\circ \pm 5.9^\circ$
Geocentric X 2213.7 ± 5.1 Y 3890.3 ± 7.2 km **N**



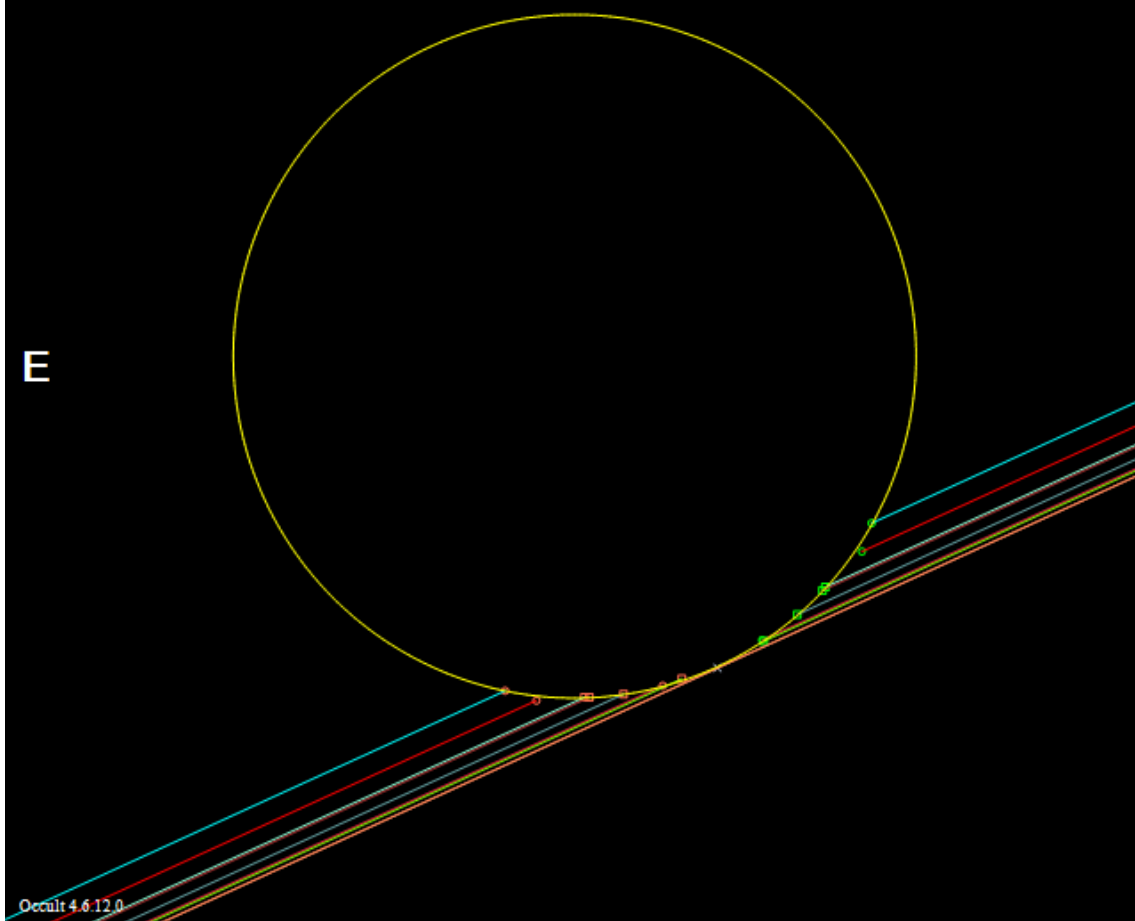
P6M03_Tethys_2002Dec15

Tethys 2002 Dec 15 1060.0 x 1060.0 km, PA 0.0°
Geocentric X 2834.4 ± 5.2 Y 3100.1 ± 10.0 km **N**



P6M05_Rhea_2014Sep13

Rhea 2014 Sep 13 1528.0 x 1528.0 km, PA 0.0°
Geocentric X 4495.5 ± 3.0 Y 5244.7 ± 1.9 km **N**



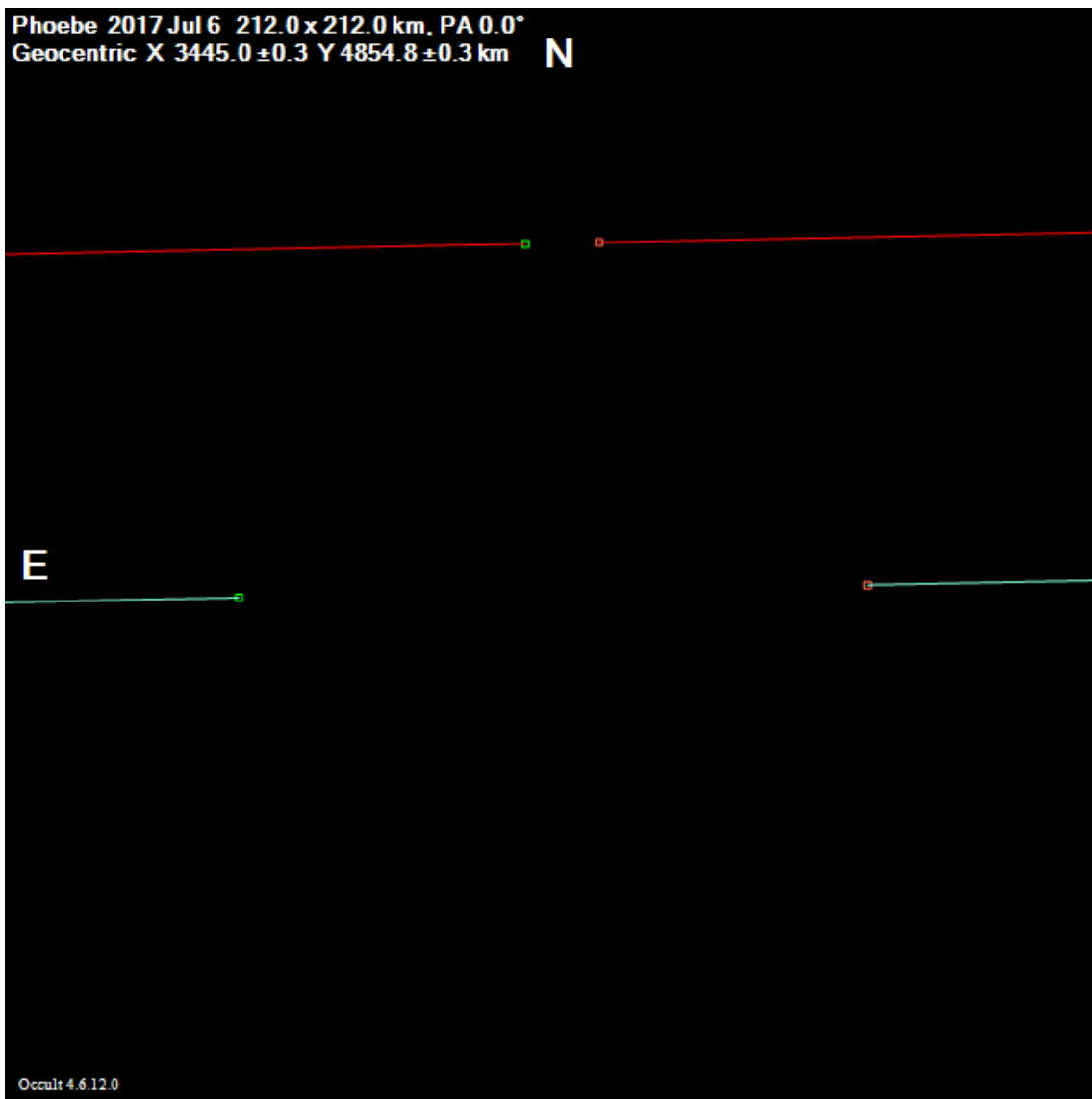
P6M09_Phoebe_2017Jul06

Phoebe 2017 Jul 6 212.0 x 212.0 km, PA 0.0°
Geocentric X 3445.0 ± 0.3 Y 4854.8 ± 0.3 km

N

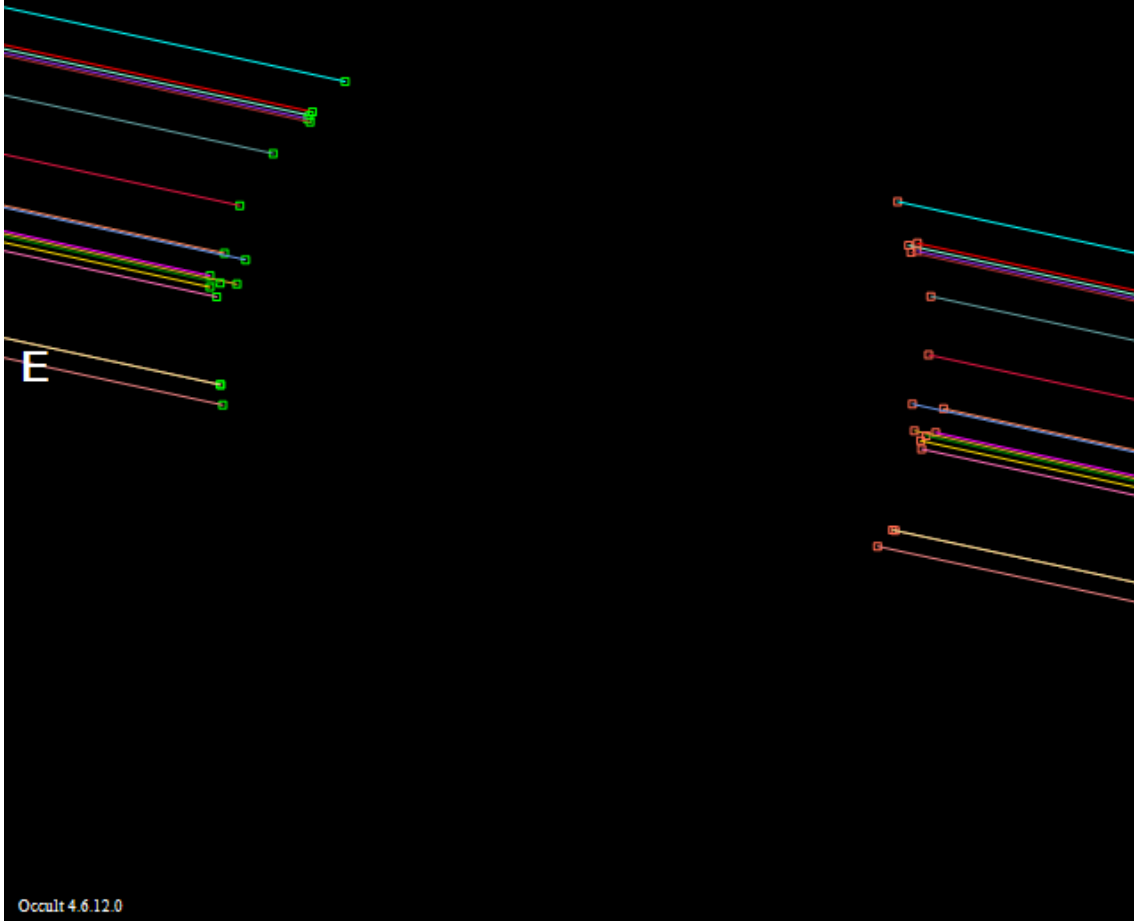
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P8M01_Triton_2017Oct05

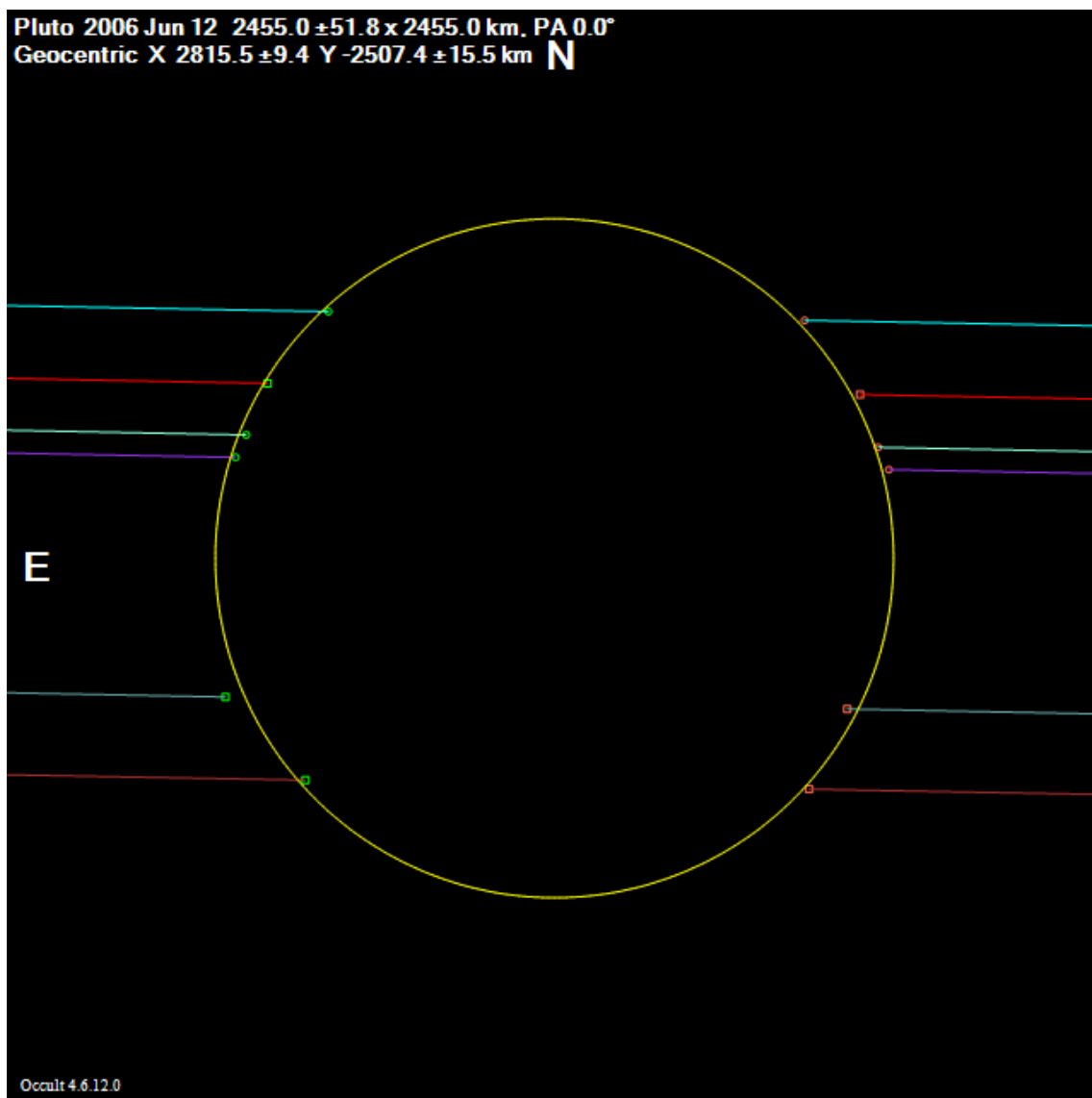
Triton 2017 Oct 5 2847.4 x 2847.4 km, PA 0.0°
Geocentric X 2395.4 ± 6.2 Y 4795.8 ± 15.1 km **N**



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P9M00_Pluto_2006Jun12

Pluto 2006 Jun 12 2455.0 ±51.8 x 2455.0 km. PA 0.0°
Geocentric X 2815.5 ±9.4 Y -2507.4 ±15.5 km **N**



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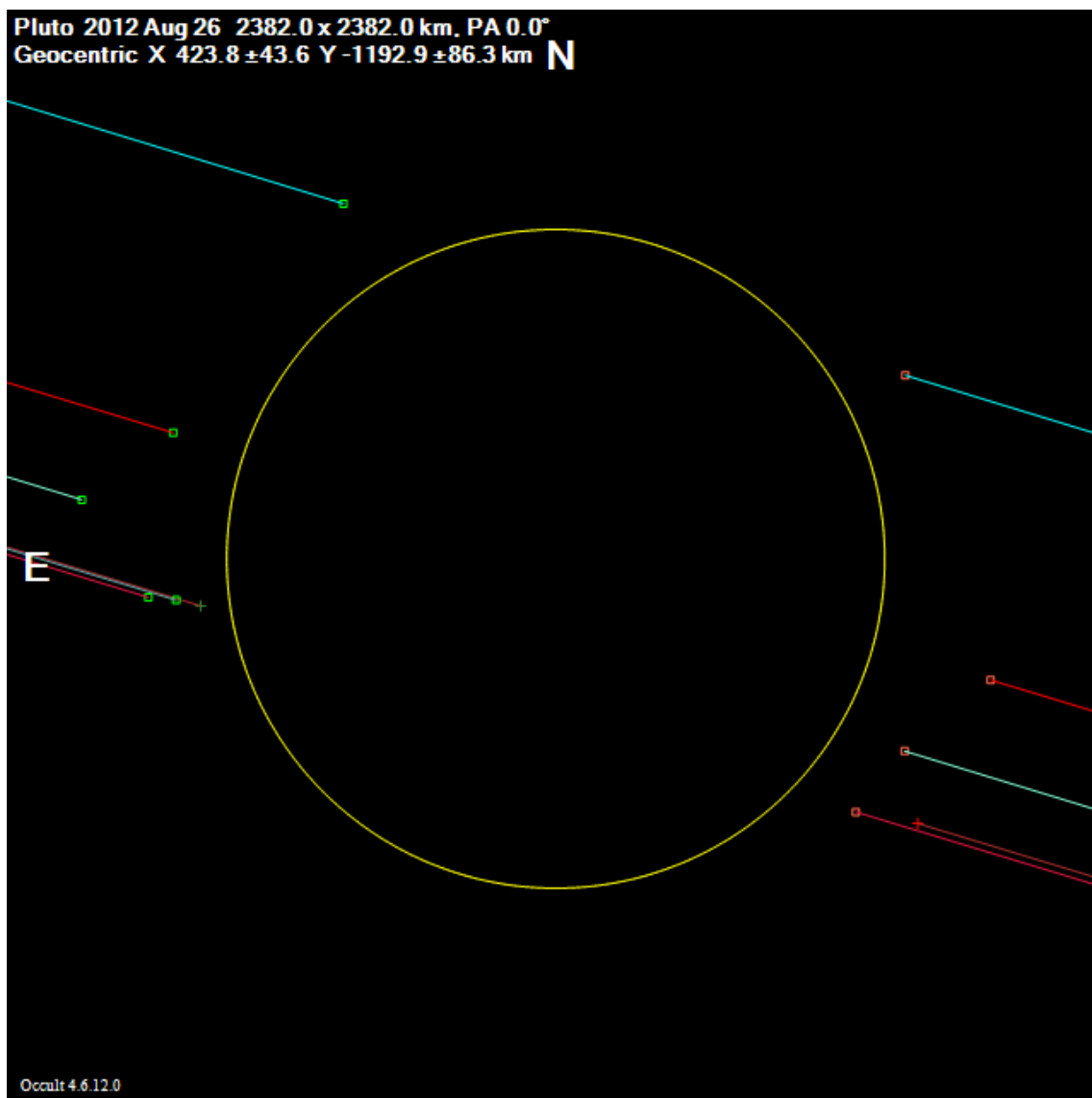
P9M00_Pluto_2008Jun22

Pluto 2008 Jun 22 2376.0 x 2376.0 km, PA 0.0°
Geocentric X -13249.9 ±50.5 Y -4371.0 ±69.8 km
Sat: Pluto I Charon 1212.0 x 1212.0km, PA 0.0°; Sep 0.5720" at PA 69.8°



P9M00_Pluto_2012Aug26

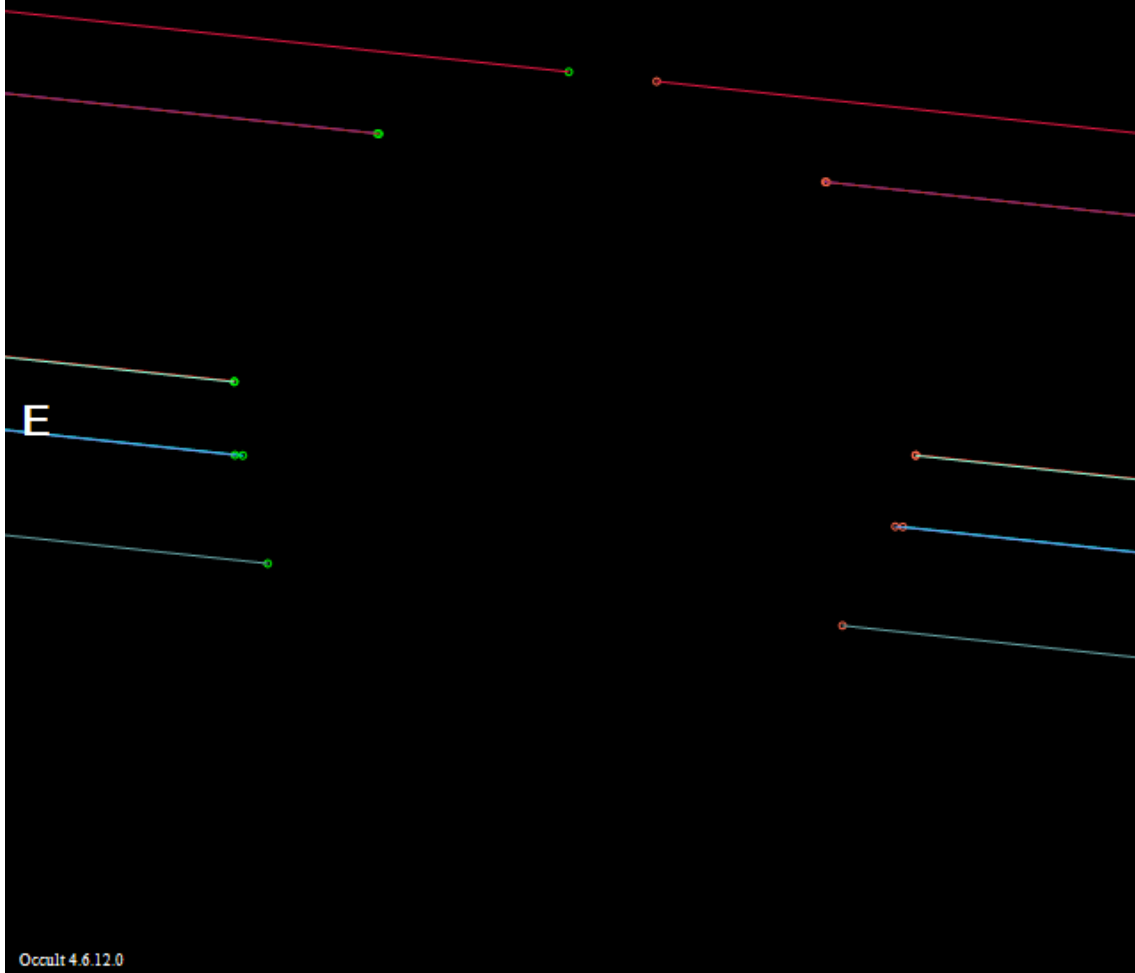
Pluto 2012 Aug 26 2382.0 x 2382.0 km, PA 0.0°
Geocentric X 423.8 ± 43.6 Y -1192.9 ± 86.3 km **N**



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P9M01_Charon_2005Jul11

Charon 2005 Jul 11 1208.0 x 1208.0 km. PA 0.0°
Geocentric X 1077.2 ± 1.2 Y -1528.1 ± 1.8 km **N**



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