Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015

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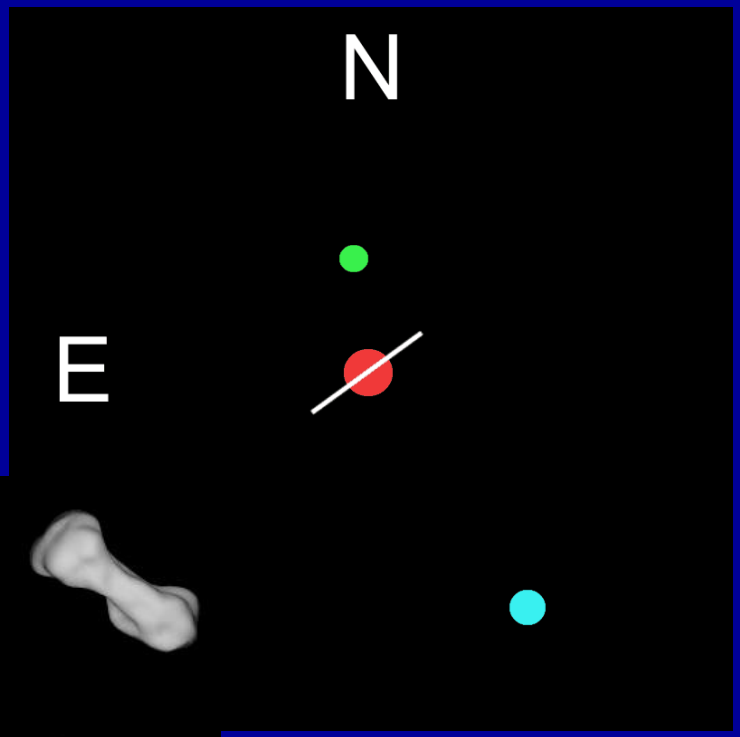
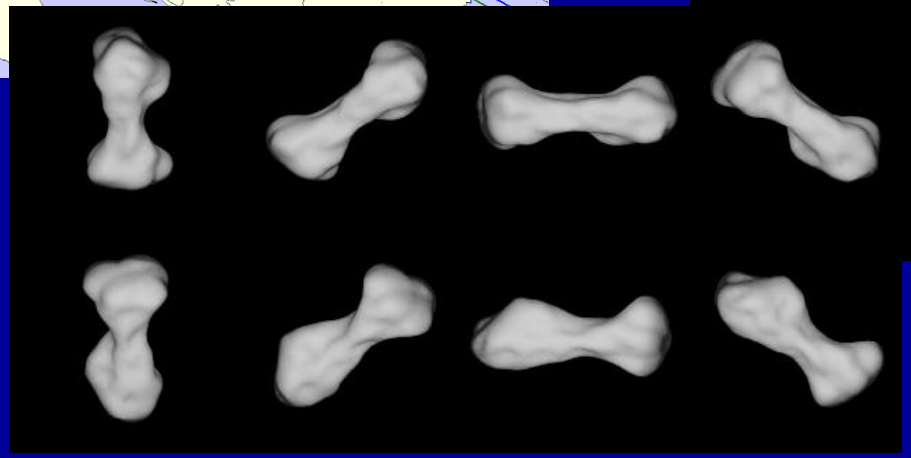
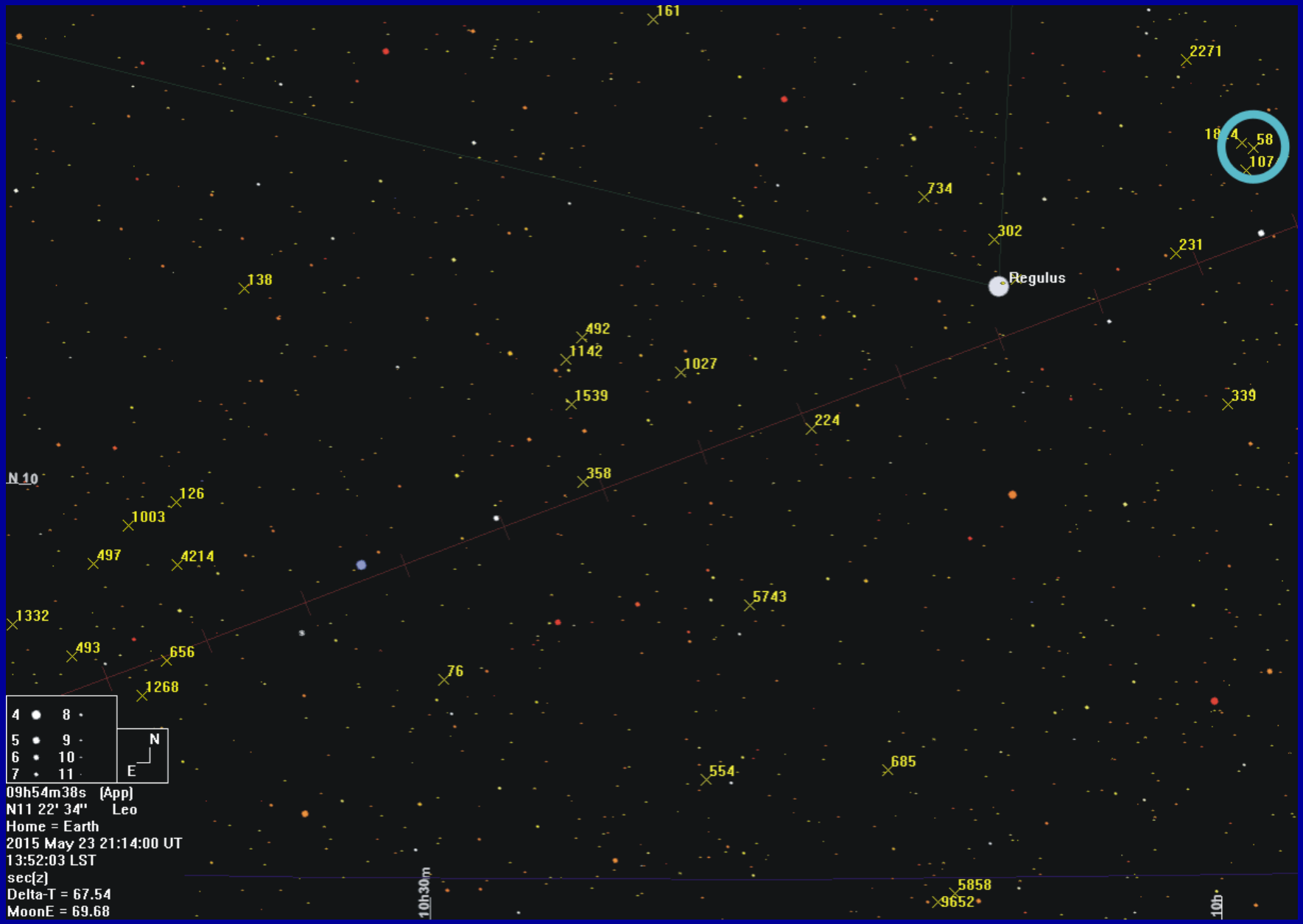




- 2015 May 23
- 21:14 UT
- (58) Concordia
- TYC 0835-00181-1
- 10.4 Vmag
- Max. dur: 5.4 sec
- Drop: 3.6 mag

Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



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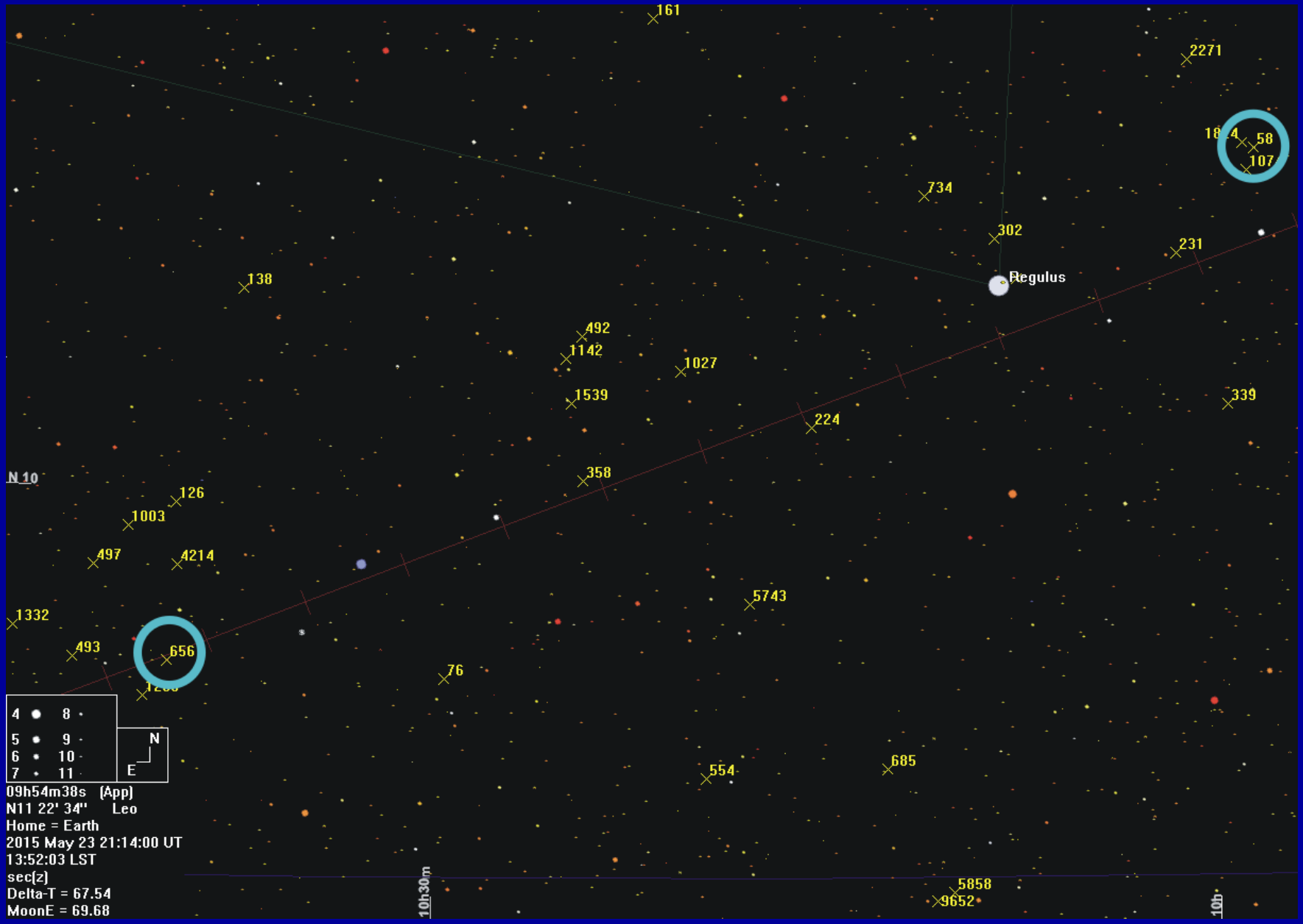

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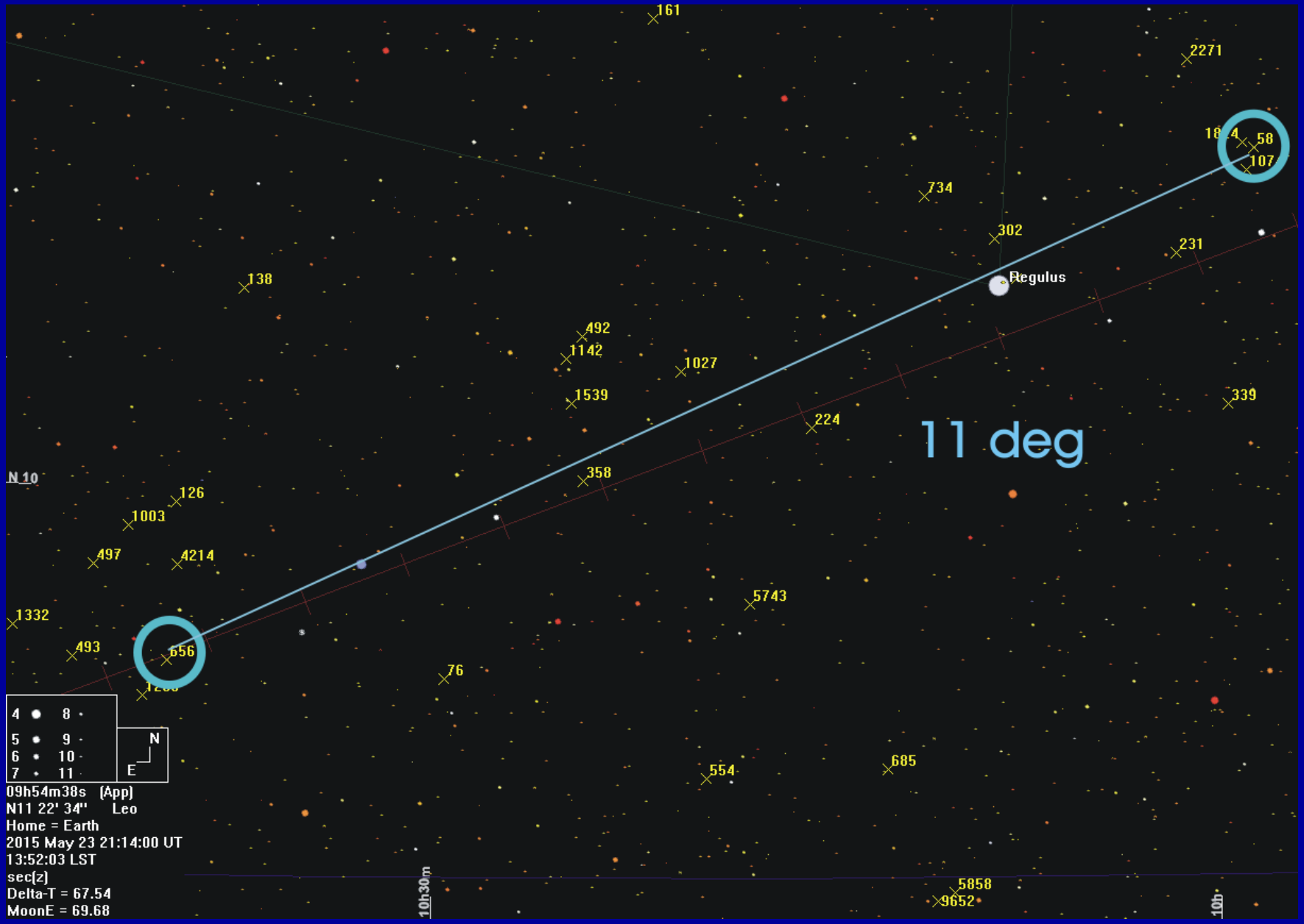

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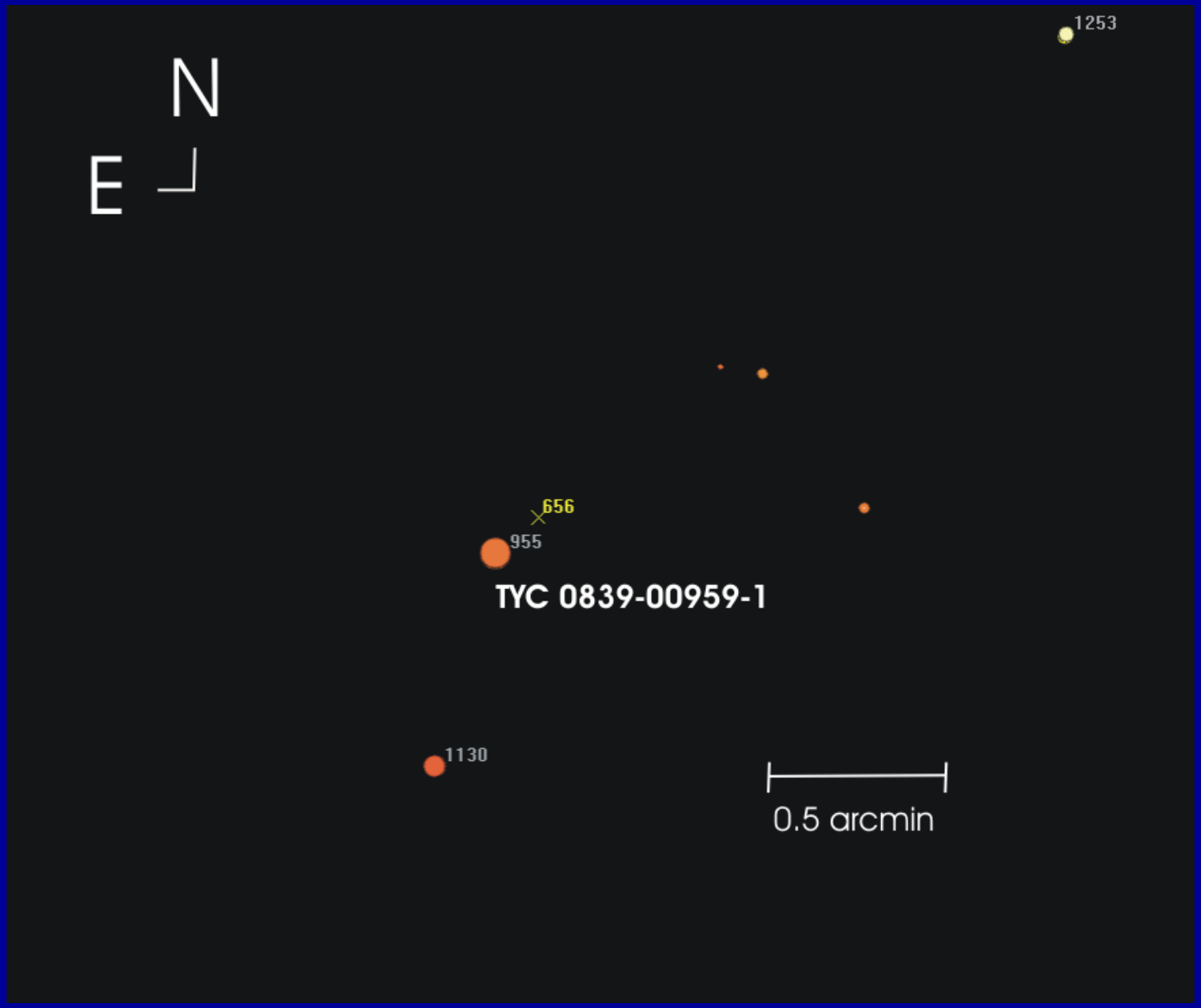
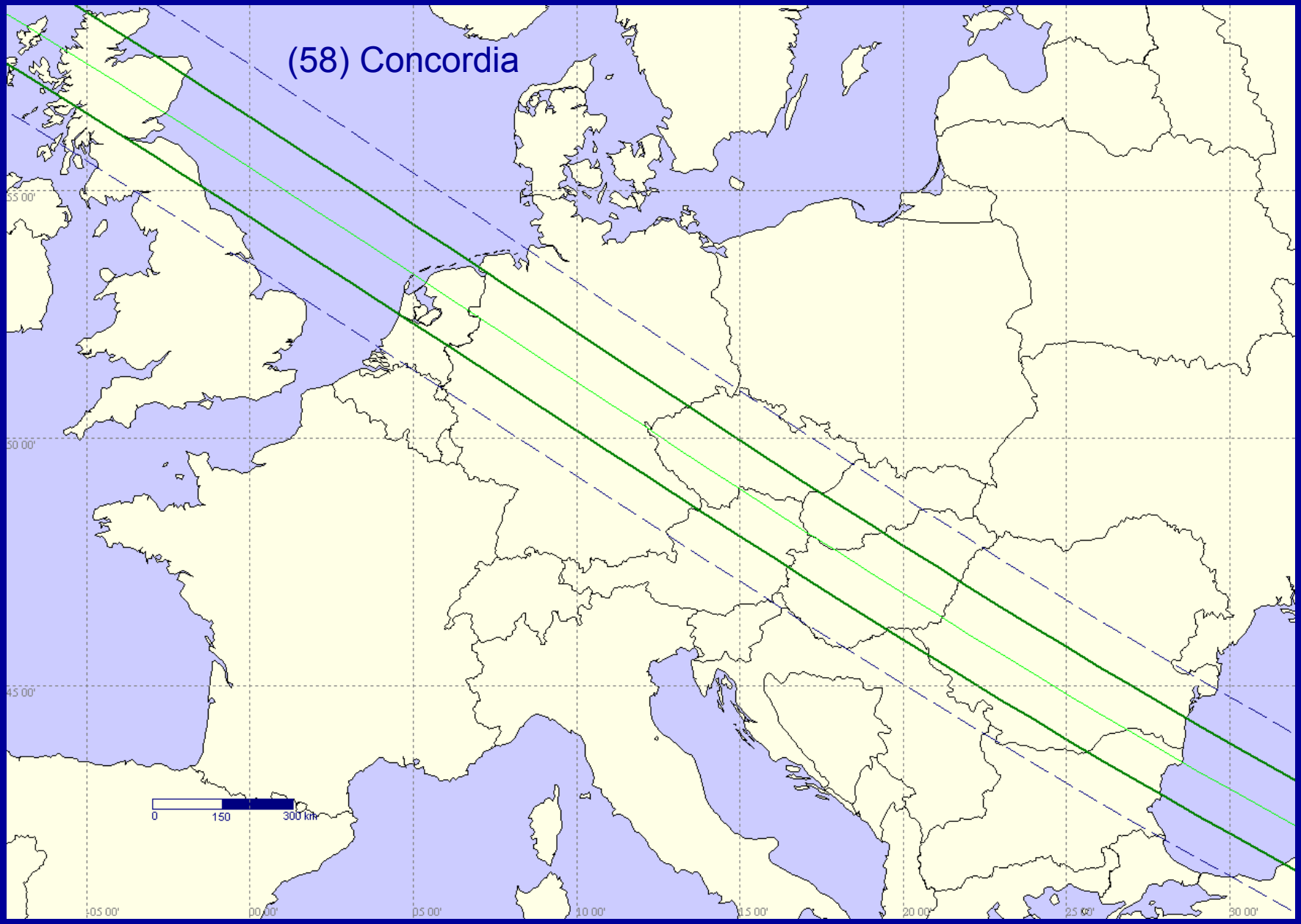

N
E
1253
656
955
TYC 0839-00959-1
1130
0.5 arcmin

- 2013 May 23
- 21:14 UT
- (58) Concordia
- TYC 0835-00181-1
- 10.4 Vmag
- Max. dur: 5.4 sec
- Drop: 3.6 mag
- Diam: 105 km
- Path: 137 km

- 2013 May 23
- 21:33 UT
- (656) Beagle
- TYC 0839-00959-1
- 9.6 Vmag
- Max. dur: 3.7 sec
- Drop: 5.6 mag
- Diam: 54 km
- Path: 104 km

Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



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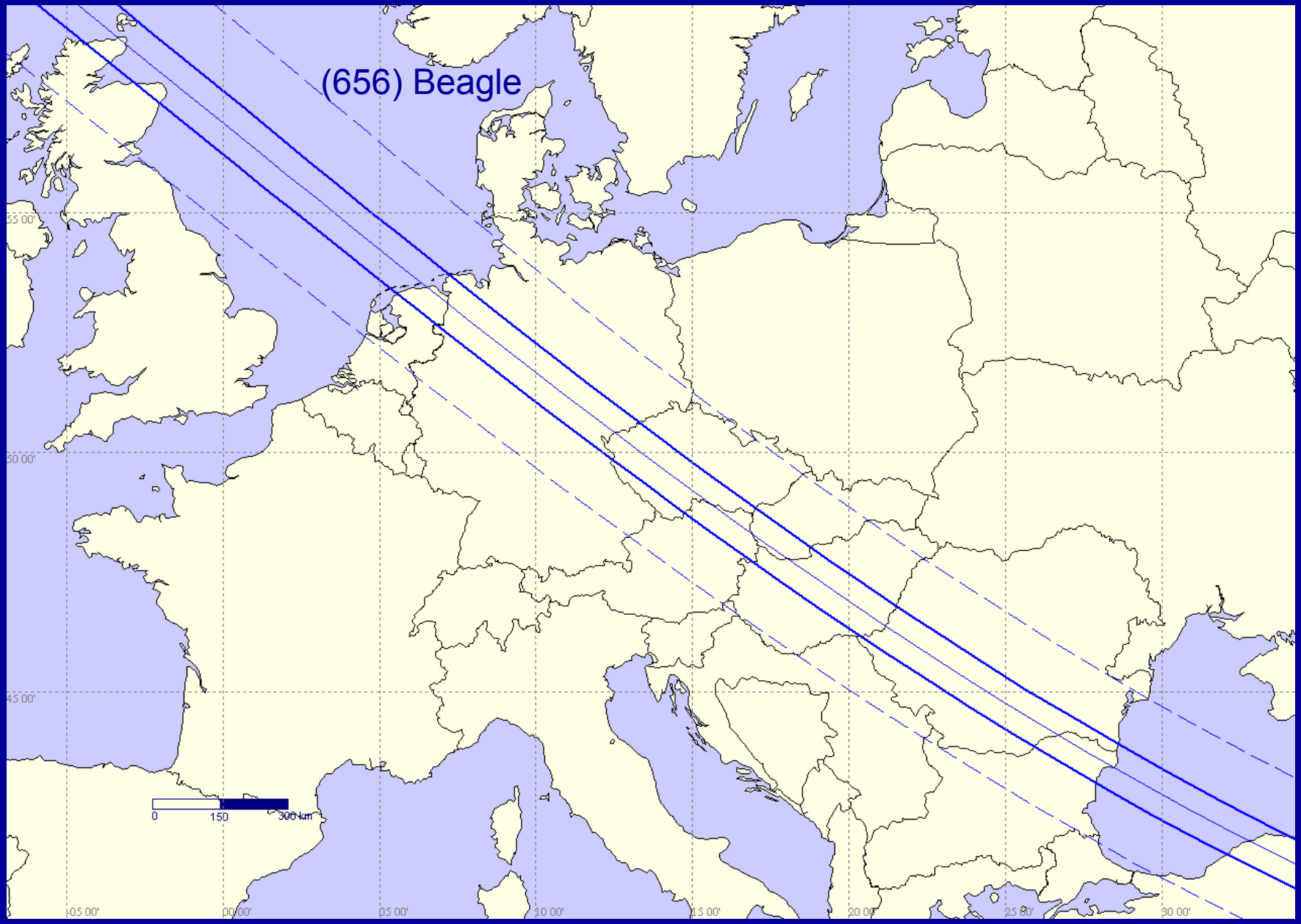
Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



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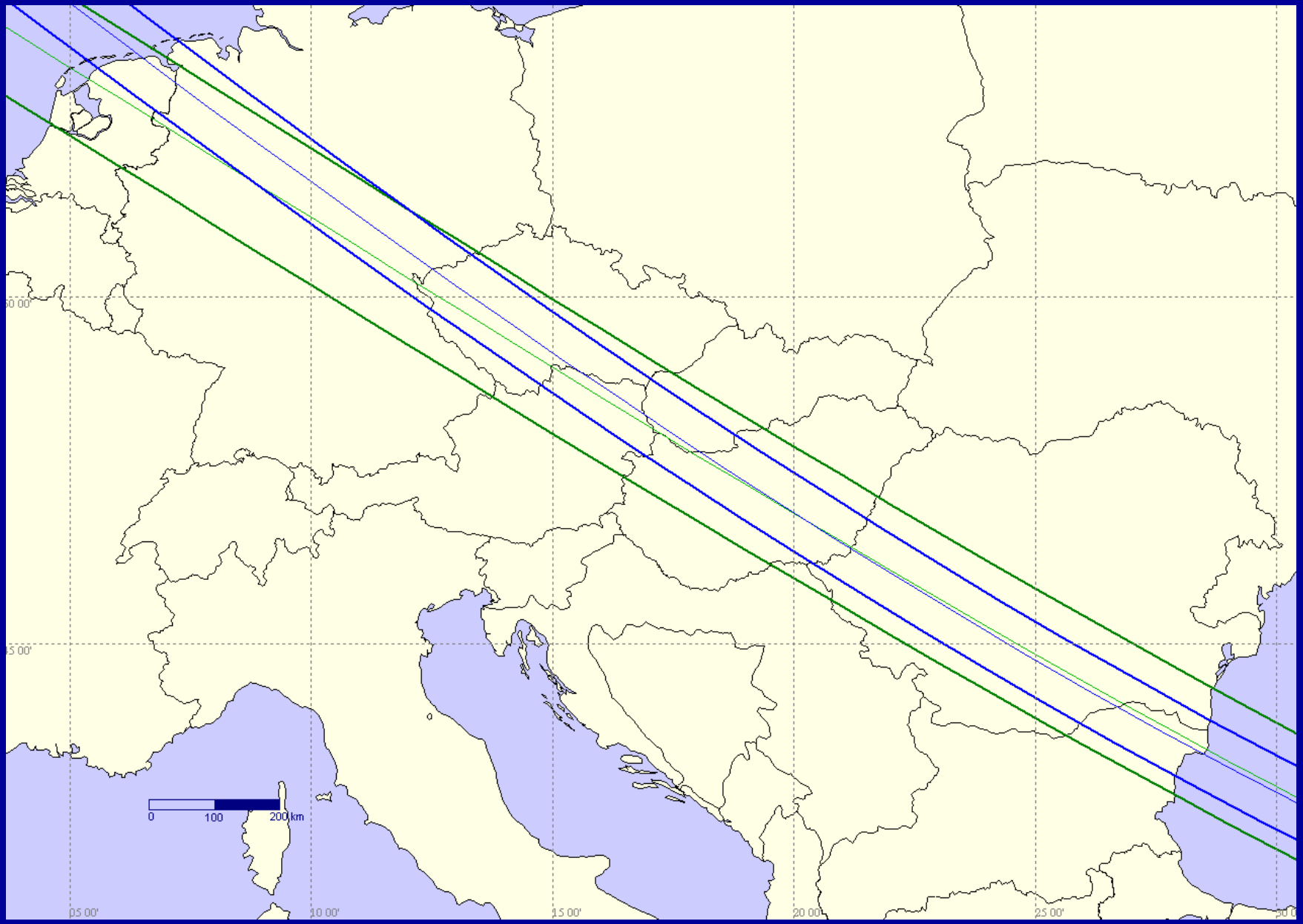

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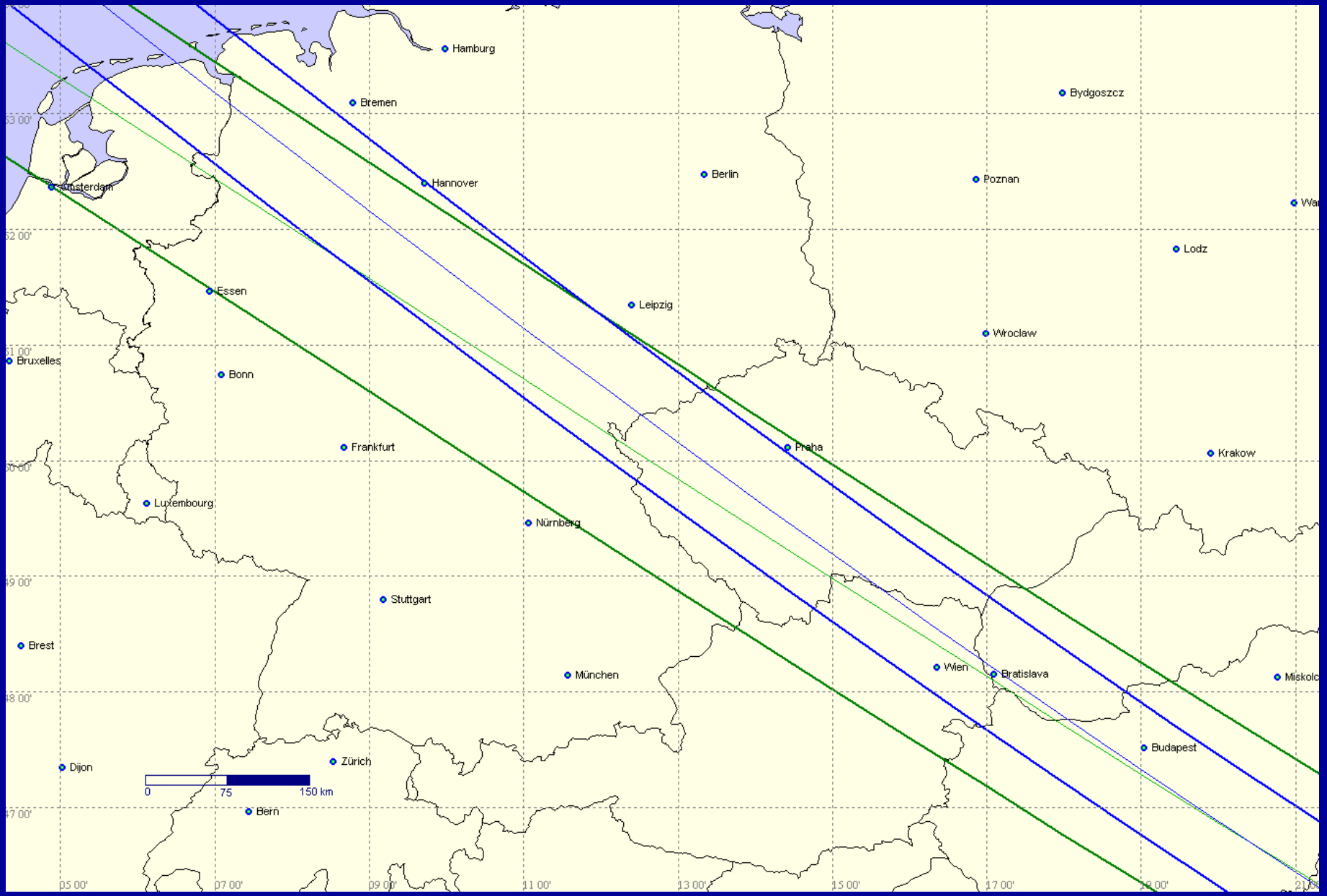

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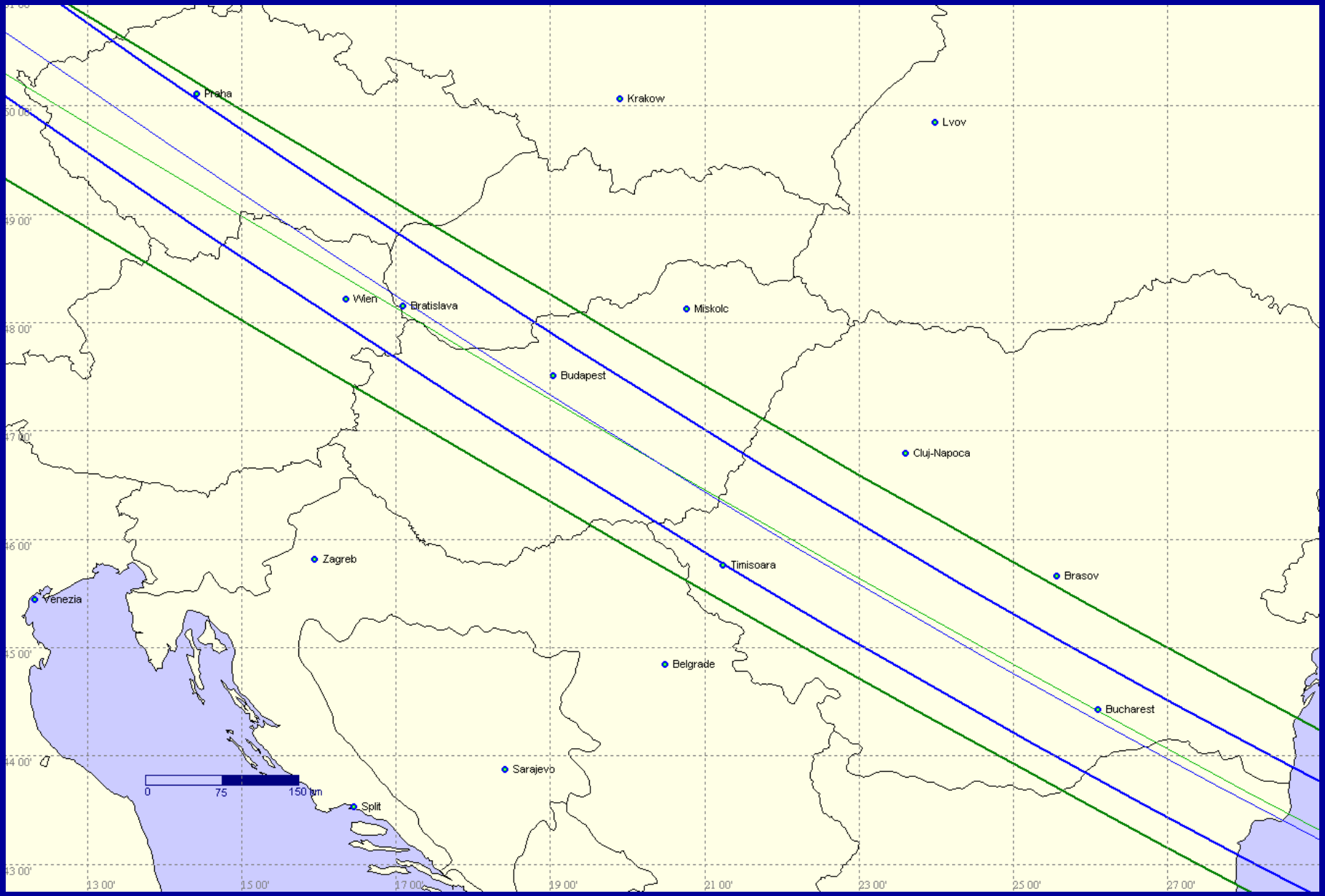

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Artist rendition, NASA

- 2015 Mar 12
- 01:06 UT
- (216) Kleopatra
- HIP 54599
- 8.1 Vmag
- Max. dur: 8.0 sec
- Drop: 3.9 mag

(216) Kleopatra

- Discovered 1880
  by Johann Palisa
- Main-Belt
- Dimensions:
  217 x 94 x 81 km
- Spin rate: 5.385 h
- Pole dir. 72°
- Delta mag ~1.3
- M-type

(216) Kleopatra

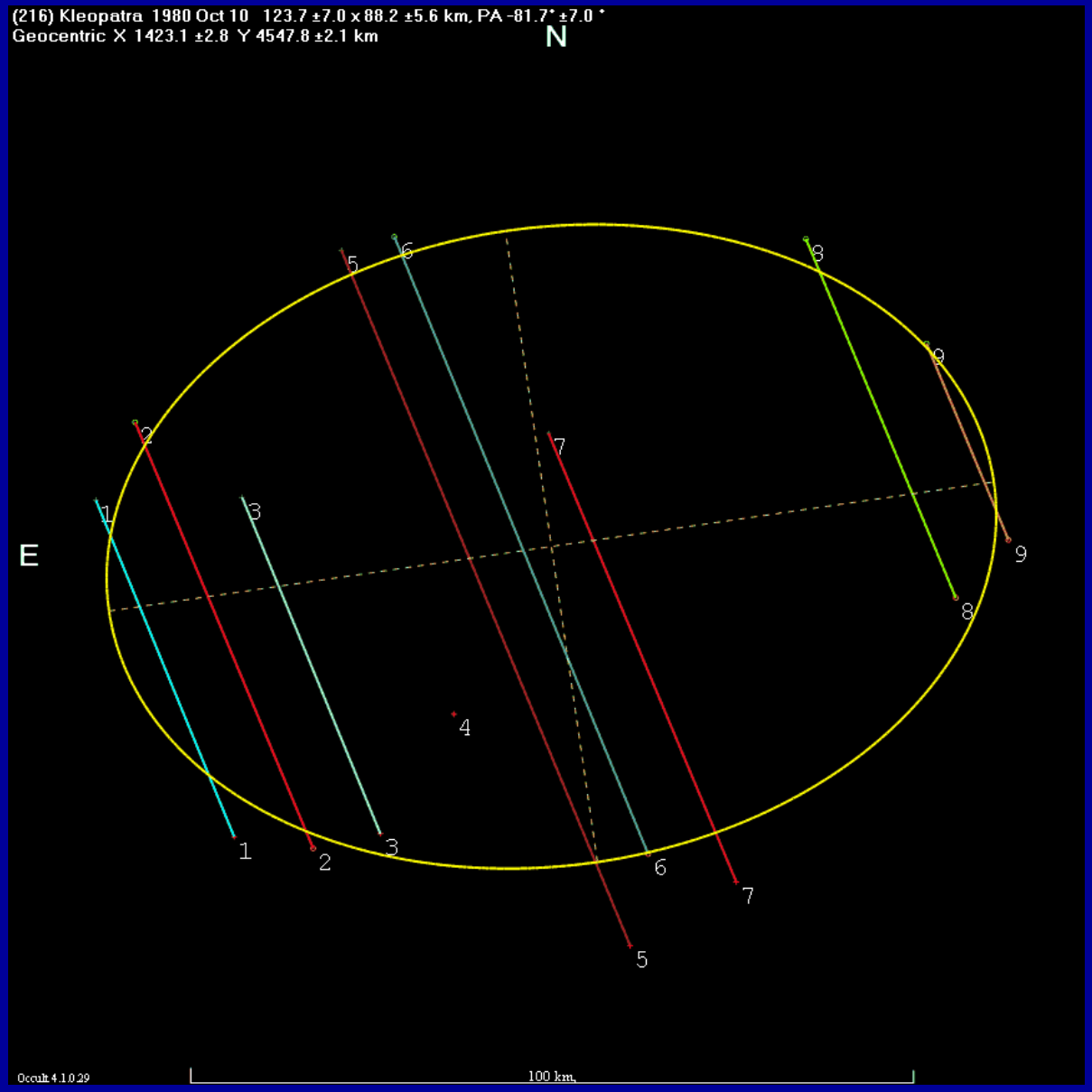
- Discovered 1880 by Johann Palisa
- Main-Belt
- Dimensions: 217 x 94 x 81 km
- Spin rate: 5.385 h
- Pole dir. 72°
- Delta mag ~1.3
- M-type

- Previous Occultations: 9 observed (1980 – 2009)

  Very succesful observations in 1980, 1991 and 2009

  In 2000 and 2001 single chords by J. Lecacheux

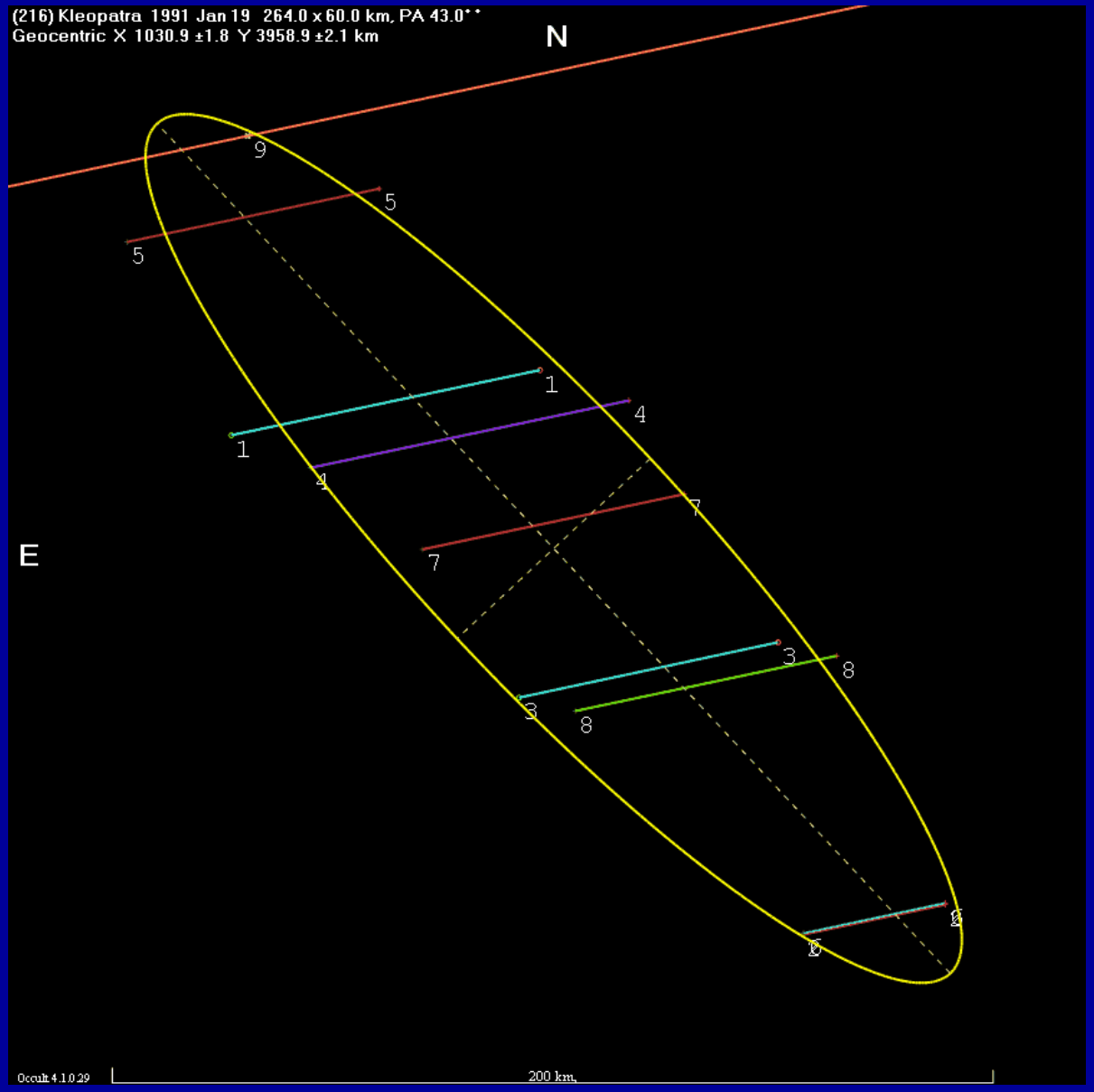
Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



- 1980 Oct 10
- 124 x 88 km
- U.S.A./Canada
- 8 chords
- 1 observer disapp. only
- Video observations (2, 6, 8, 9)

Data: Herald, D. OCCULT V4
Asteroidal observations

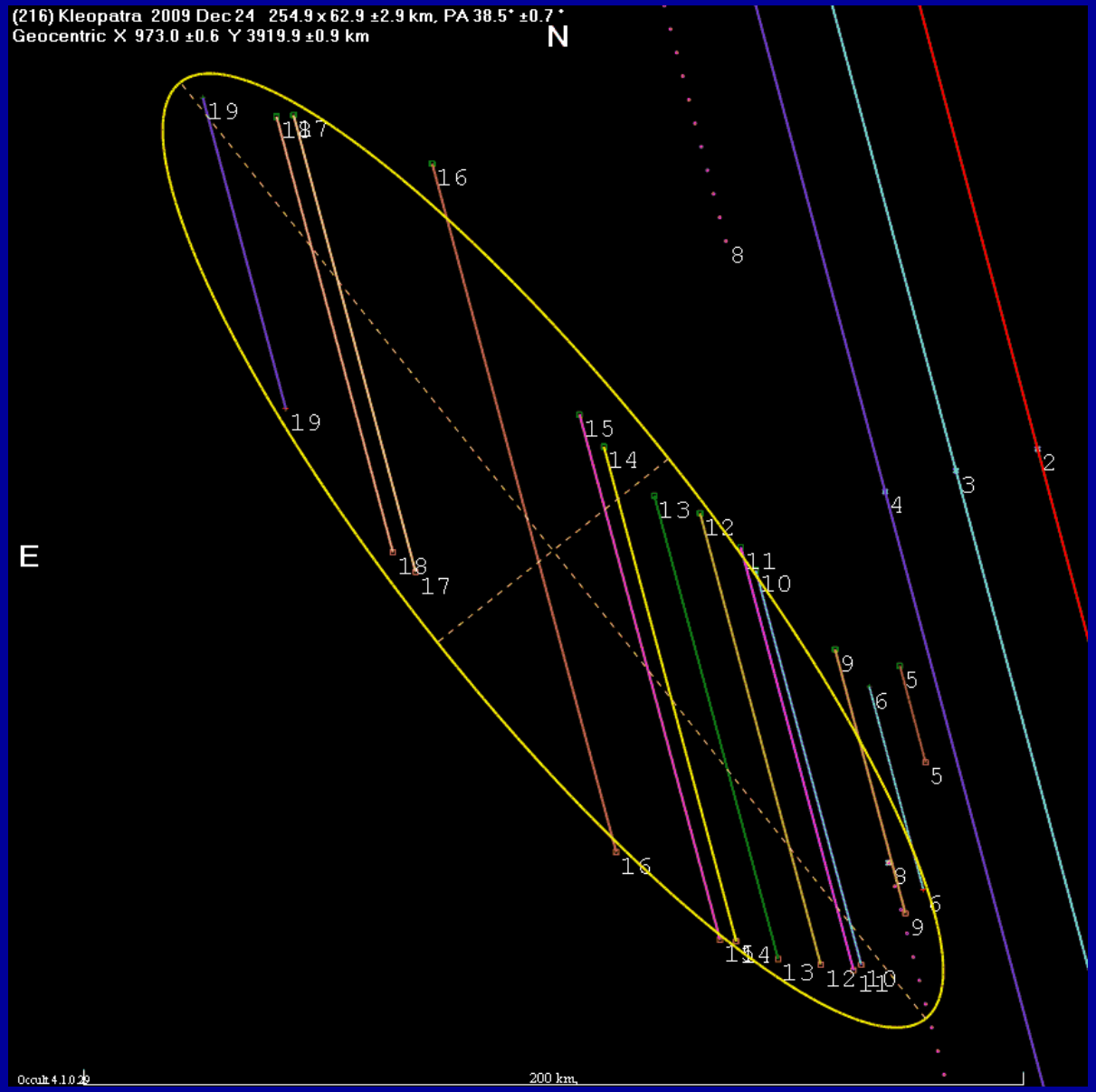
Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



- 1991 Jan 19
- 264 x 60 km
- U.S.A.
- 8 chords
- 1 double chord
- Video observations (1,3)

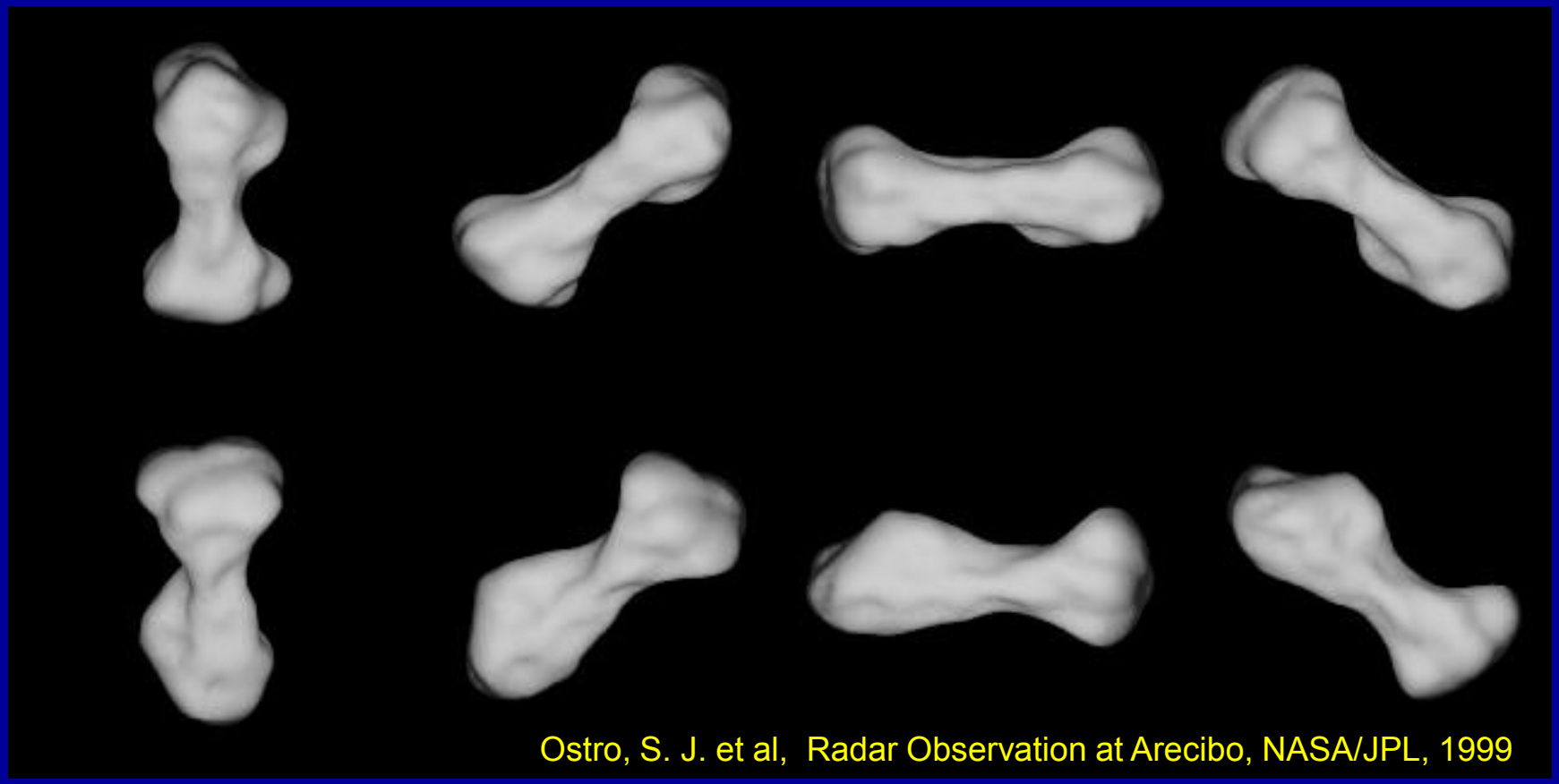
Data: Herald, D. OCCULT V4
Asteroidal observations

Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



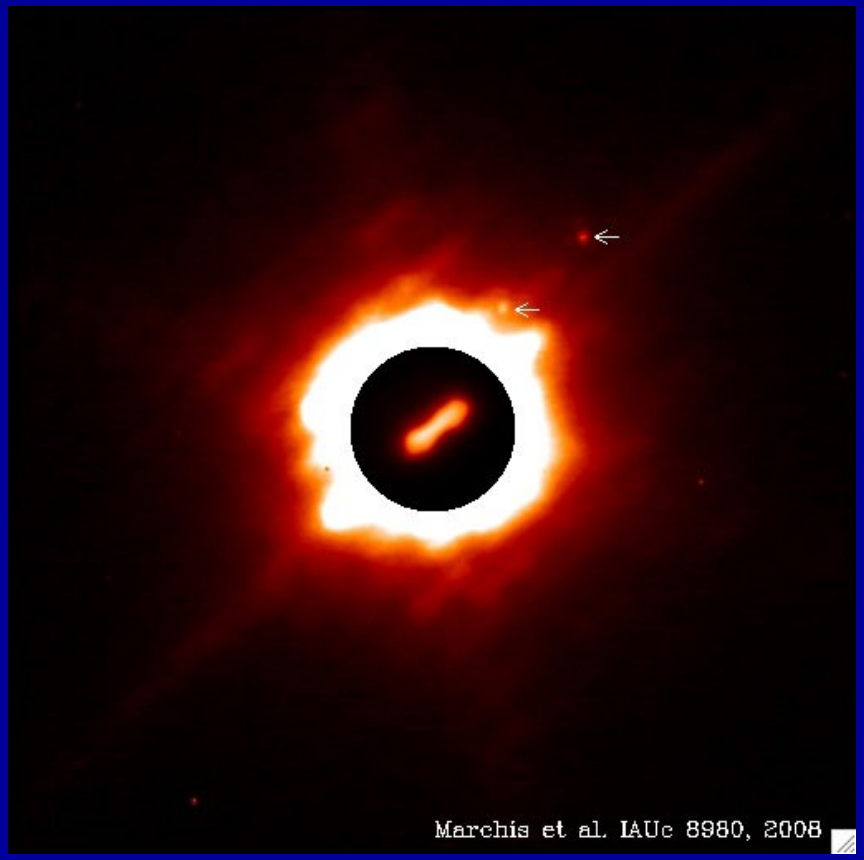
- 2009 Dec 24
- 255 x 63 km
- U.S.A.
- 12 chords
- team observed blink at chord 6
- Visual observations (6,19)

Data: Herald, D. OCCULT V4
Asteroidal observations



Dimensions: 217 x 94 x 81 km

The Moons of Kleopatra



- 2 satellites

Discovered 2008

Franck Marchis et al. with the adaptive optic of the Keck II, Hawaii

The Moons of Kleopatra

- S/2008 (216) 1
- Alexhelios
- Diam: 8.9 km
- Semimajor Axis: 678 km
- Orb. Per. 2.32 d

The Moons of Kleopatra

- S/2008 (216) 1
- Alexhelios
- Diam: 8.9 km
- Semimajor Axis: 678 km
- Orb. Per. 2.32 d

- S/2008 (216) 2
- Cleoselene
- Diam: 6.9 km
- Semimajor Axis: 454 km
- Orb. Per. 1.24 d

Animation Franck Marchis

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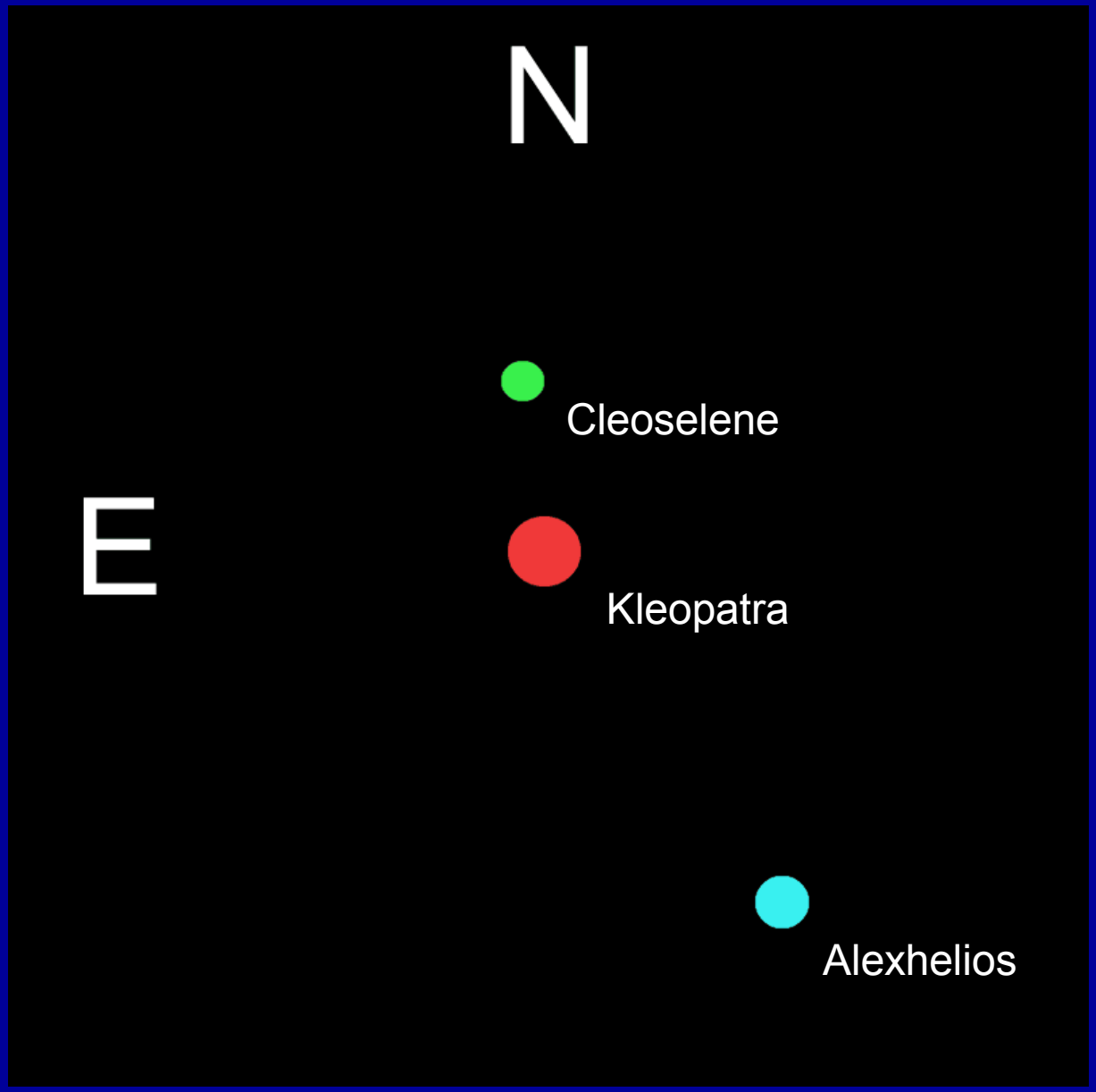
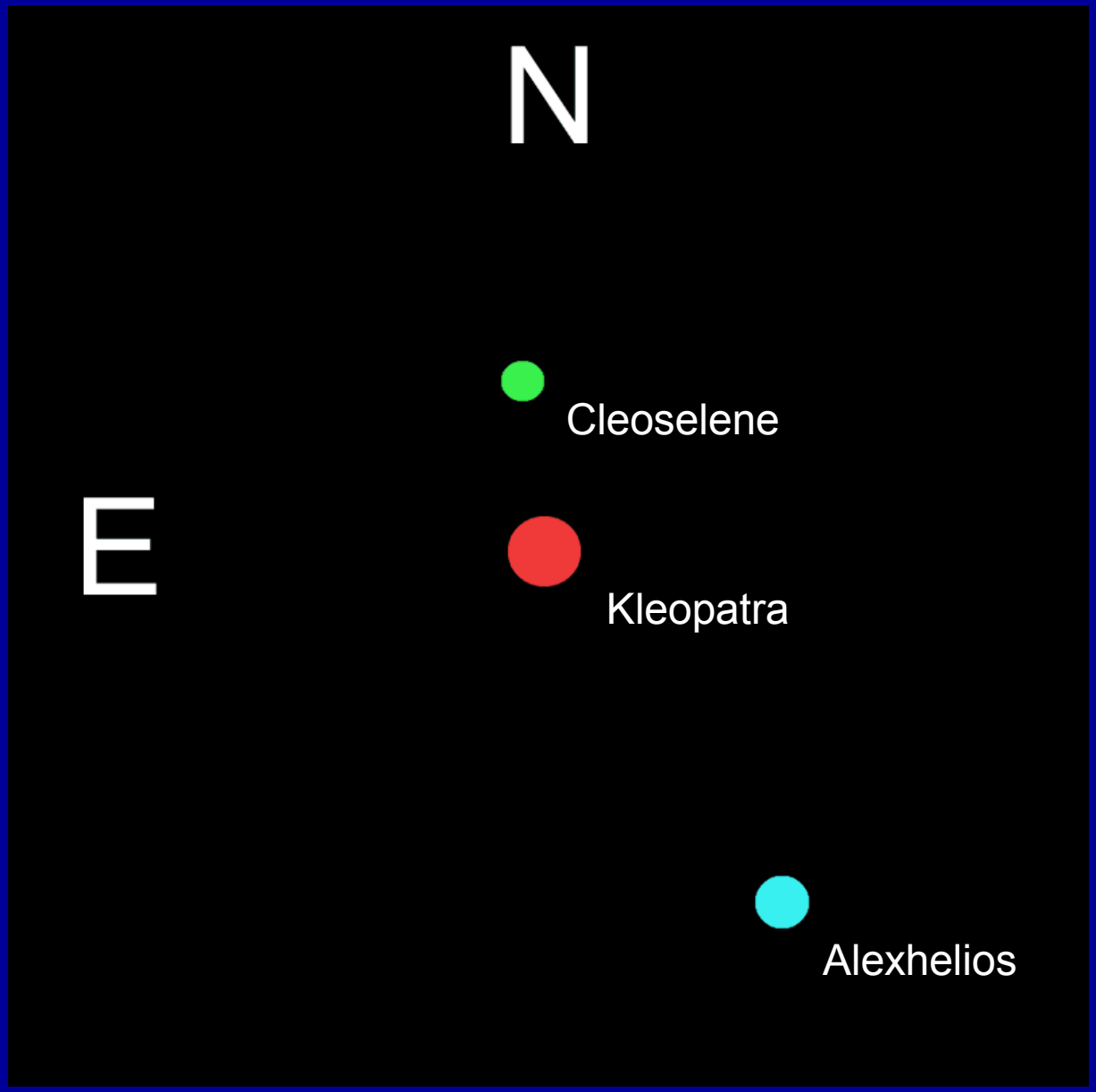


01:08 UT

Data IMCCE Miriade,
J. Lecacheux

Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



01:08 UT

Alexhelios
PA 214 °
Sep 302 mas

Cleoselene
PA 7 °
Sep 114 mas

Data IMCCE Miriade,
J. Lecacheux

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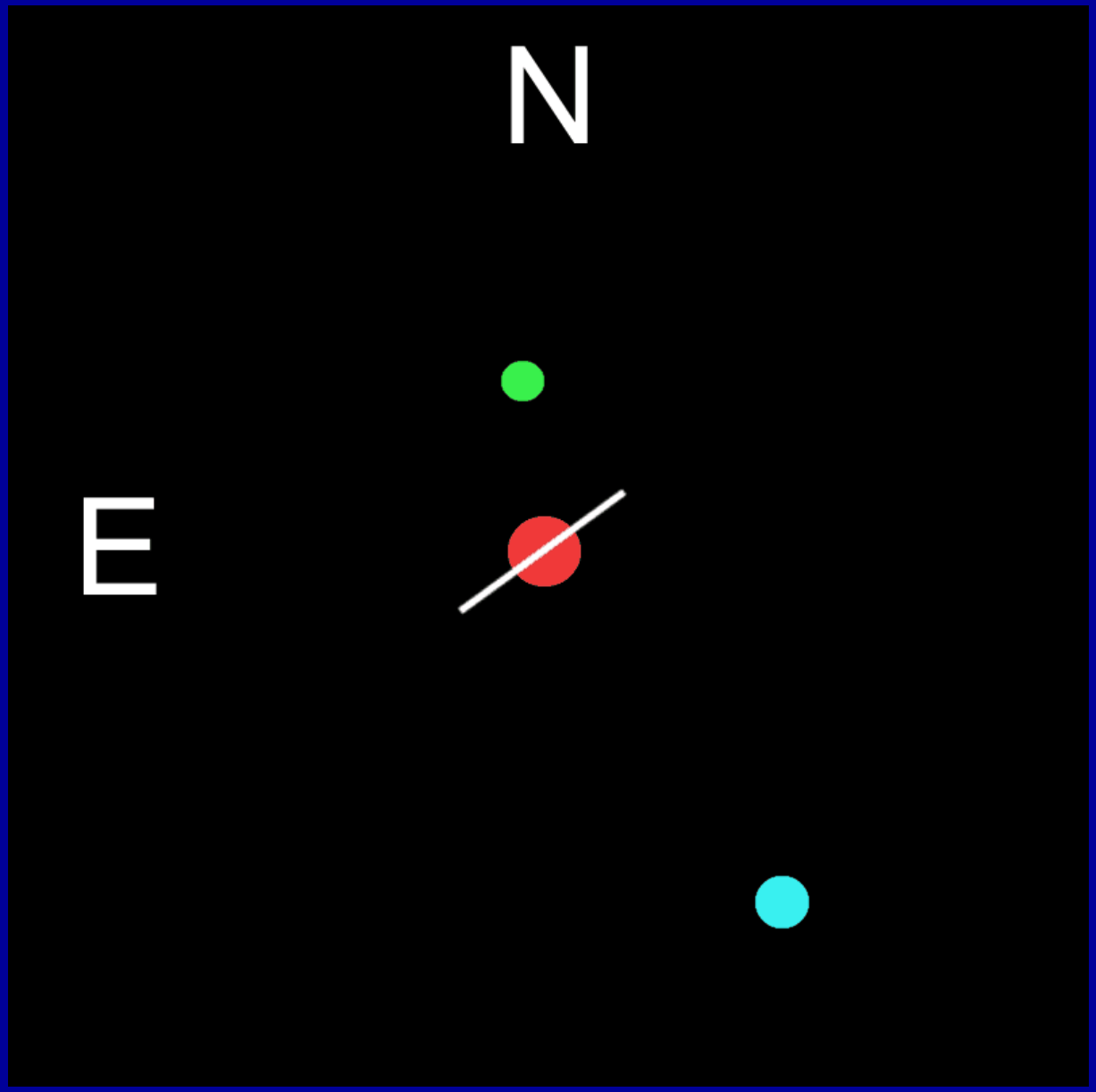

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Kleopatra‘s
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PA 308 °

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Oliver Klös, IOTA-ES

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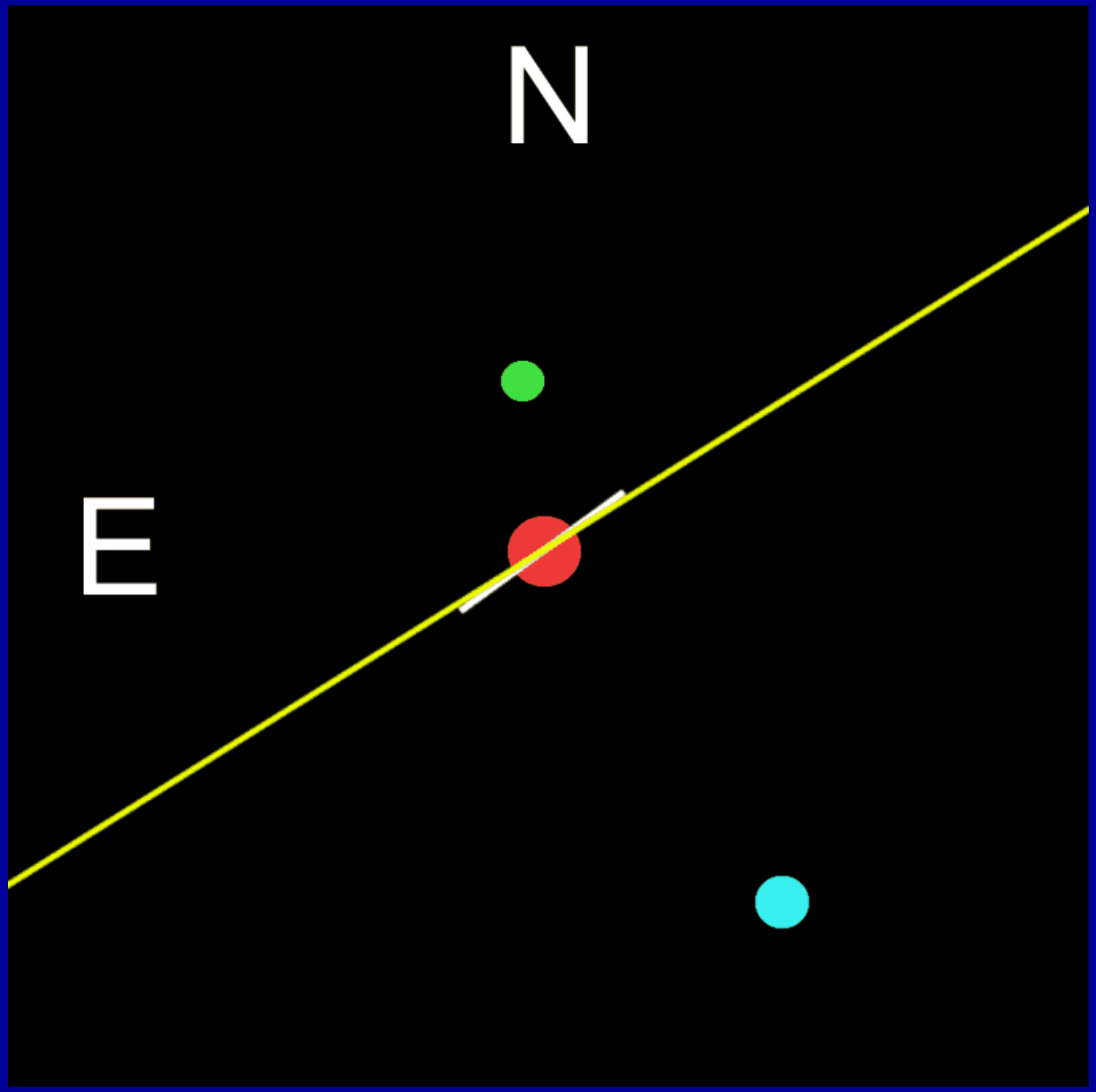

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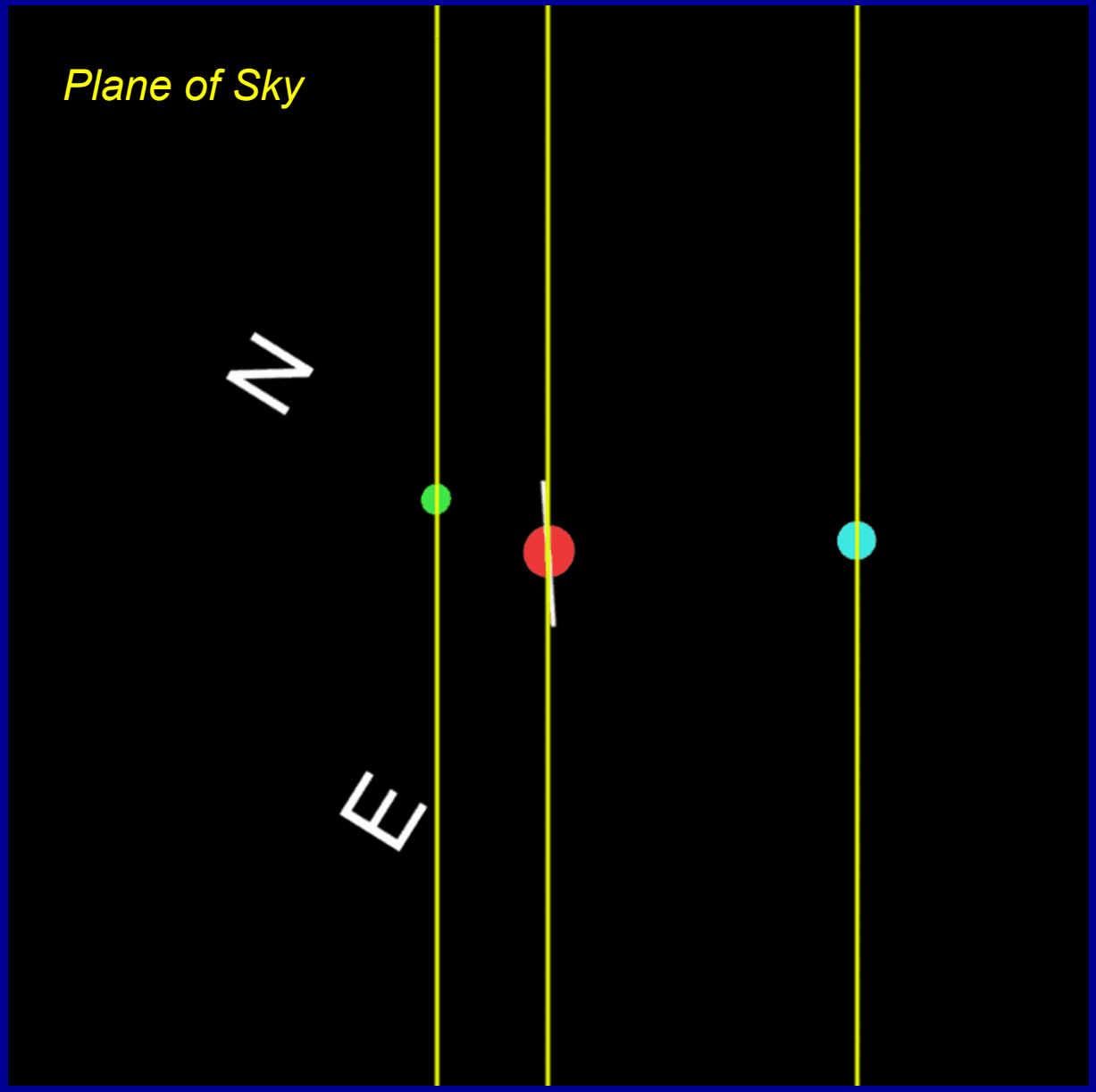
PA 308 °

J2000 Motion
Vector
PA 302 °

Data IMCEE Miriade,
J. Lecacheux

Oliver Klös, IOTA-ES



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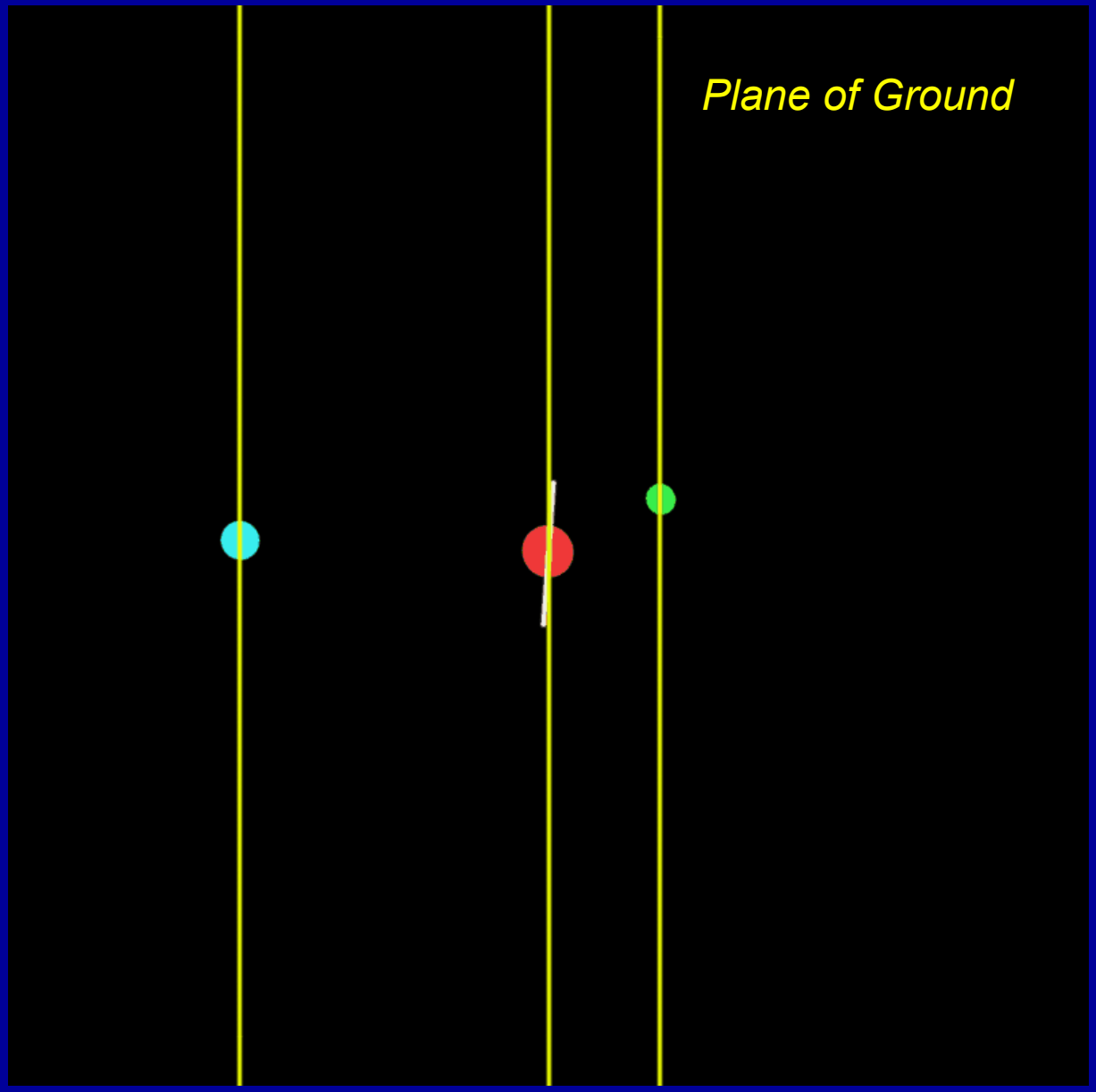

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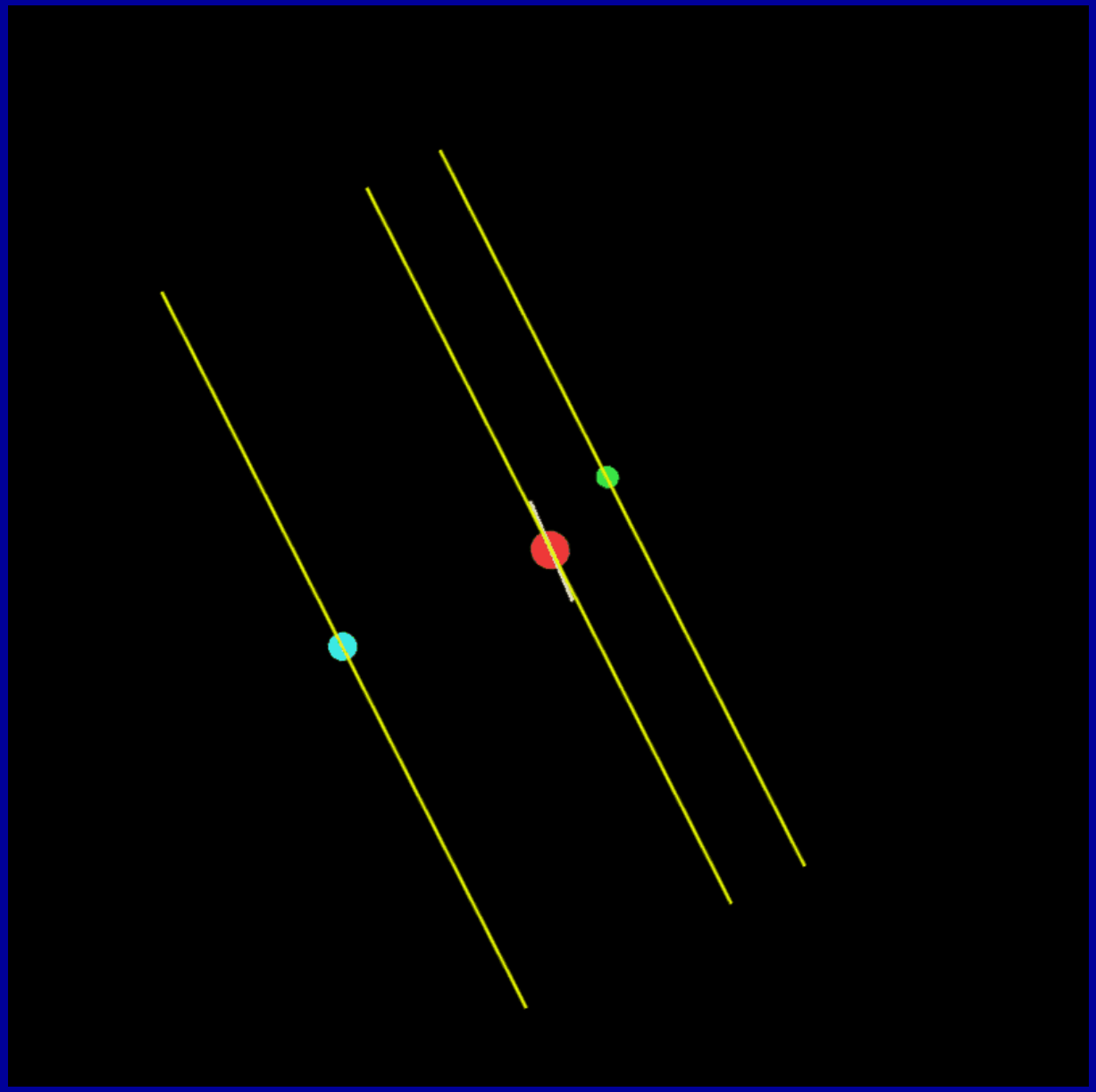

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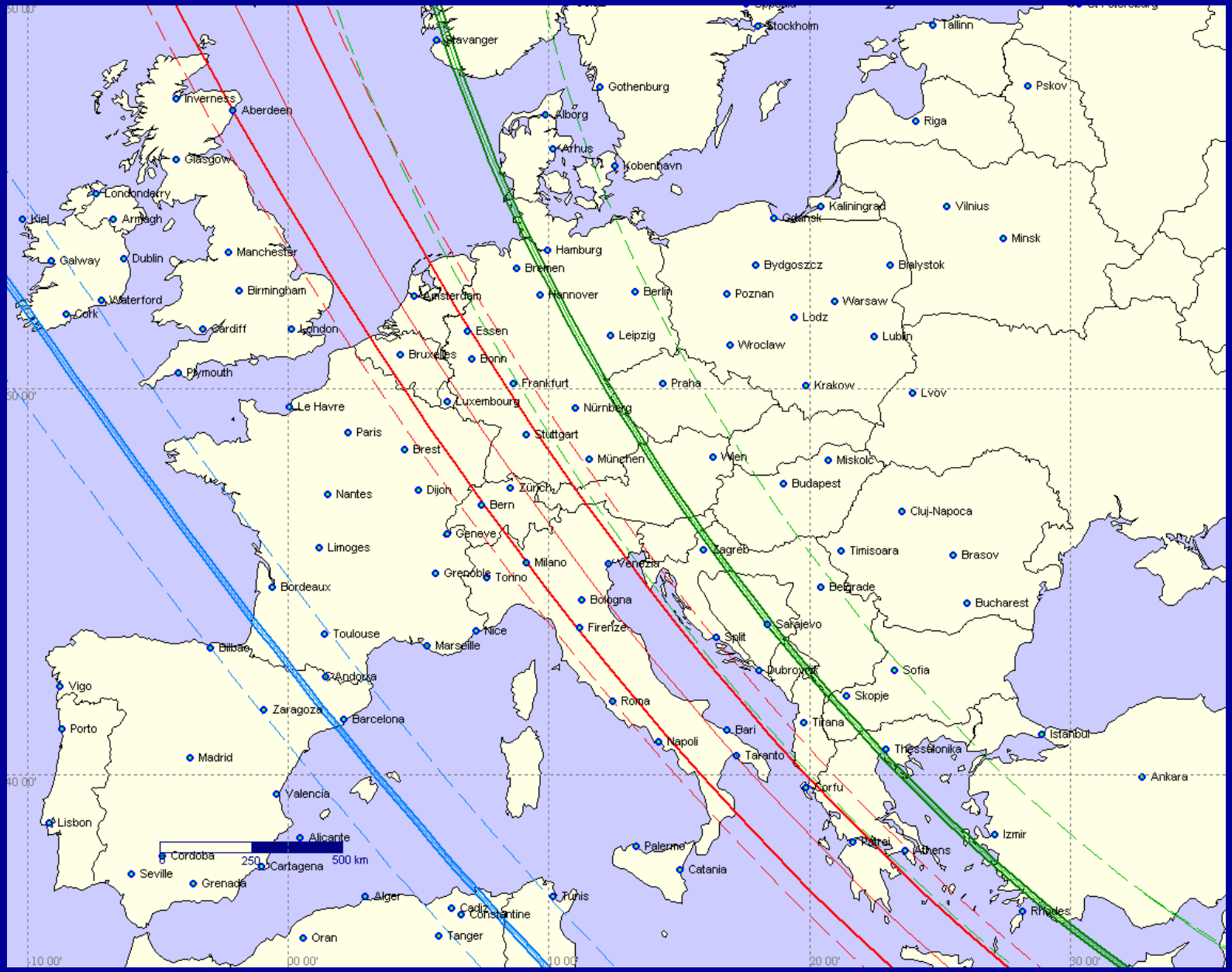

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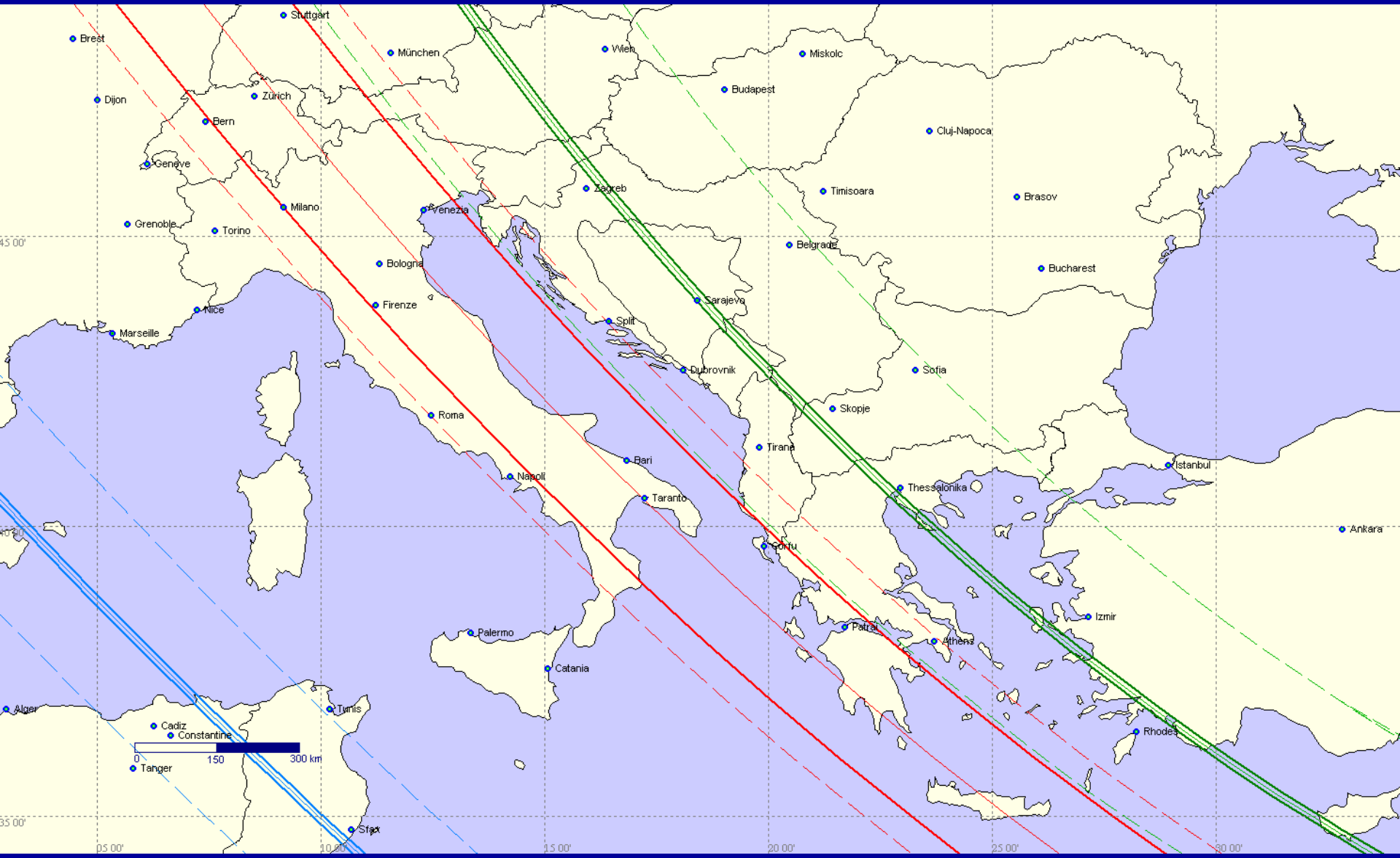

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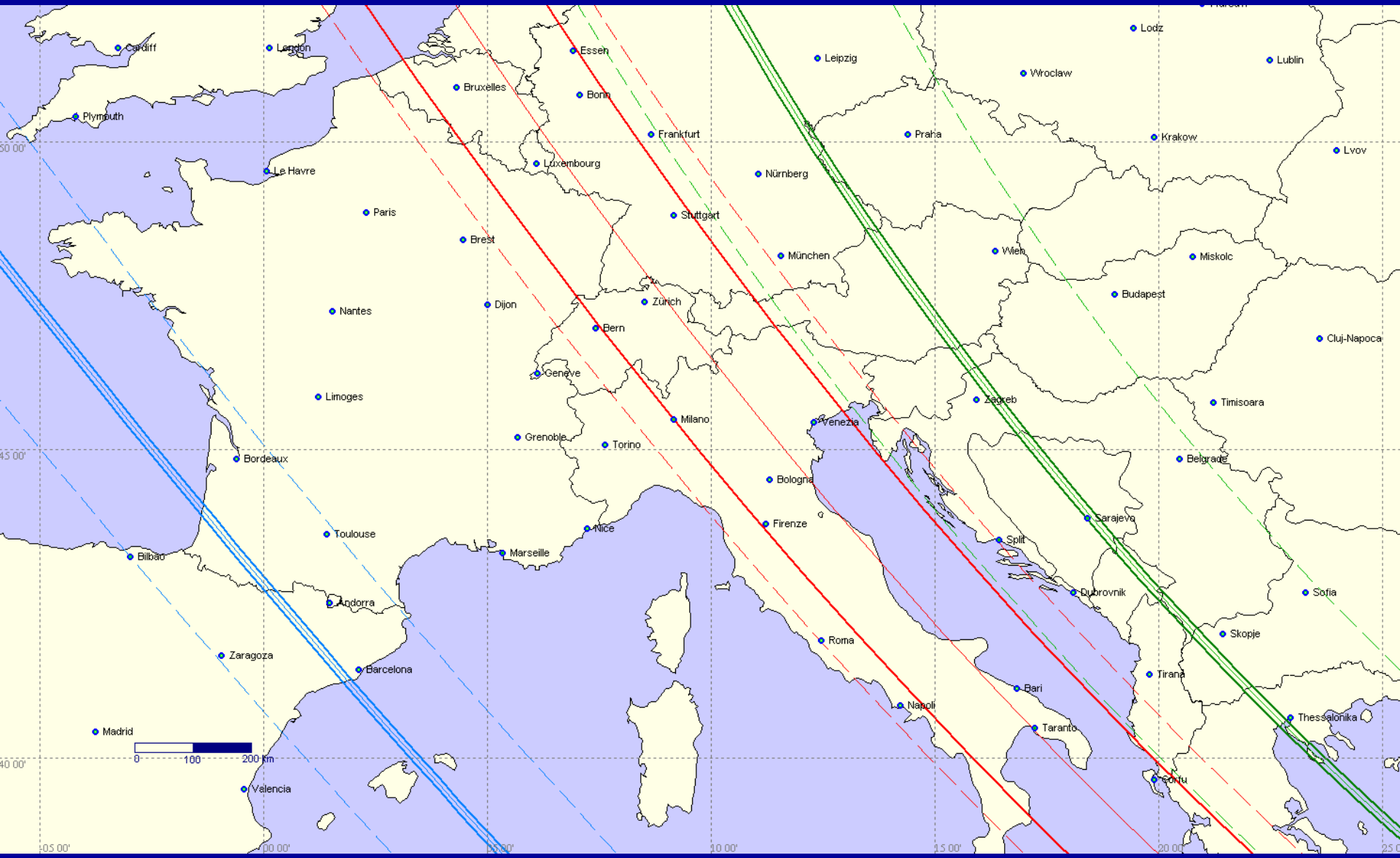

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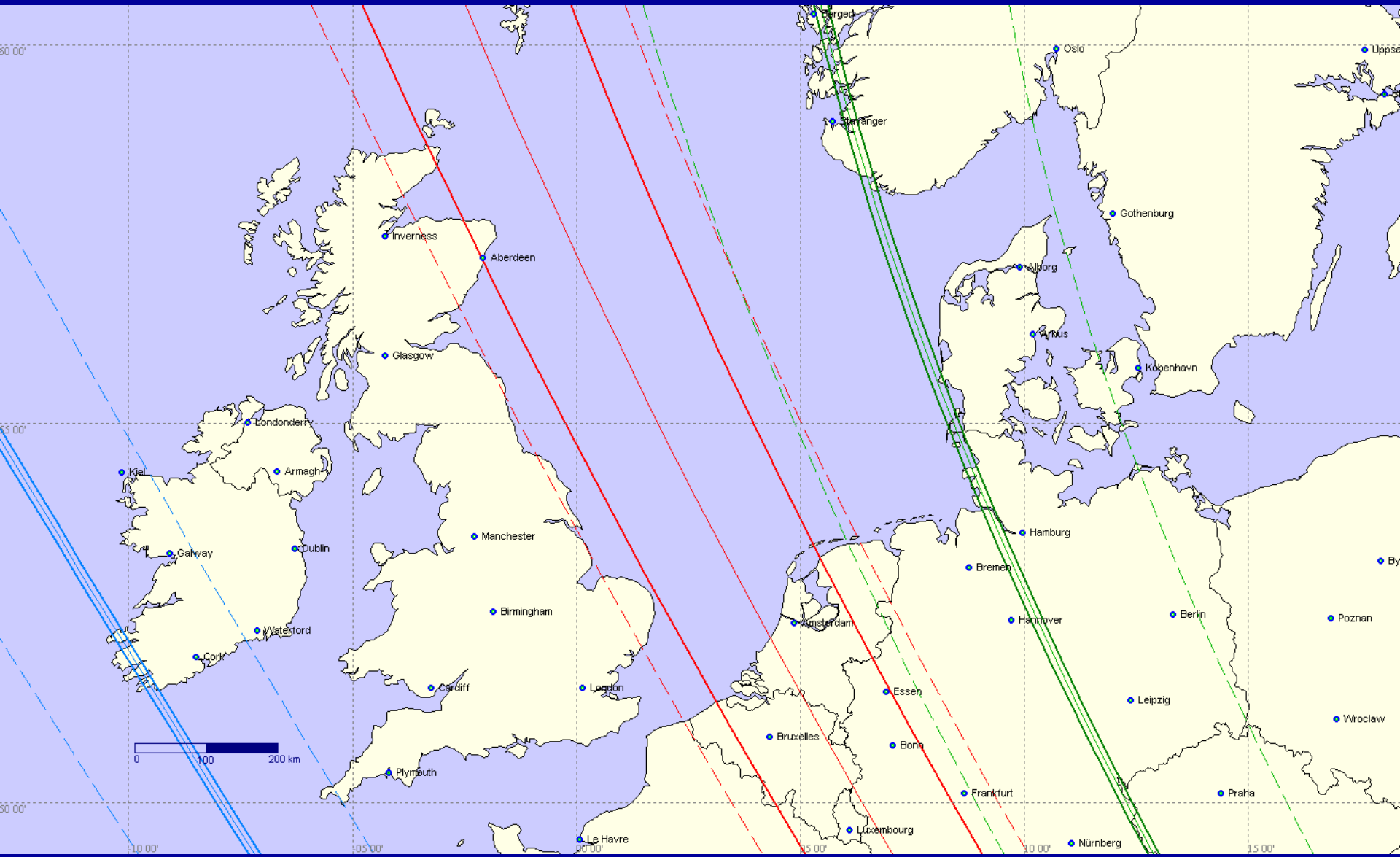

- 2015 Mar 12
- 01:06 UT
- (216) Kleopatra
- HIP 54599
- 8.1 Vmag
- Max. dur: 8.0 sec
- Drop: 3.9 mag
- Mean dia: 112 km

- 2015 Mar 12
- 01:06 UT
- (216) Kleopatra
- HIP 54599
- 8.1 Vmag
- Max. dur: 8.0 sec
- Drop: 3.9 mag
- Mean dia: 112 km
- Path width: 237 km

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- 01:06 UT
- (216) Kleopatra
- HIP 54599
- 8.1 Vmag
- Max. dur: 8.0 sec
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- Path width: 237 km

- Alexhelios
  Max dur. 0.6 sec
  Path width ~16 km
- Cleoselene
  Max dur. 0.5 sec
  Path width ~ 16 km

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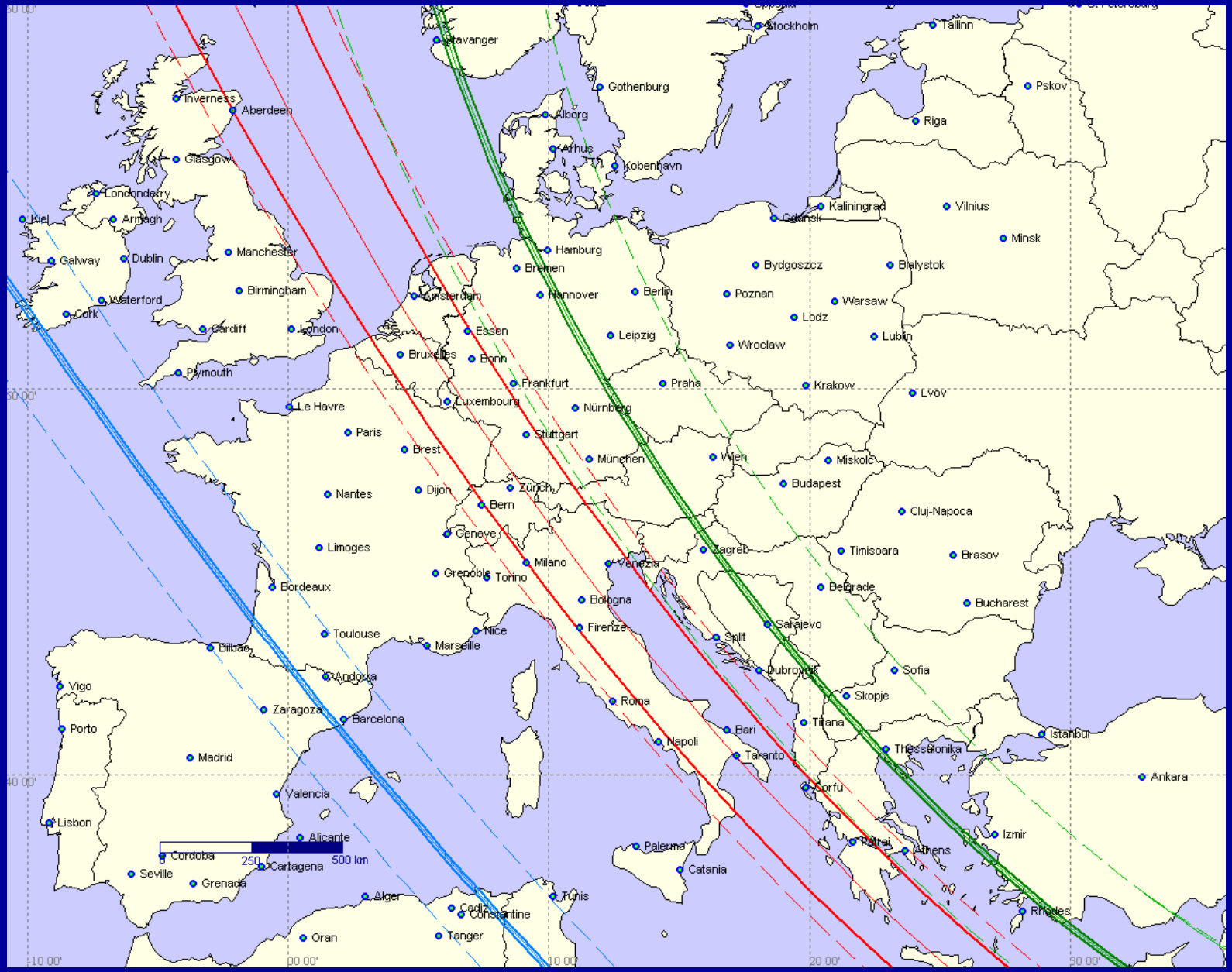
Kleopatra, Concordia & Beagle – Occultation Highlights in Europe 2015



Oliver Klös, IOTA-ES

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Many thanks to:
Edwin Goffin, Jean Lecacheux, Dave Herald, IMCCE, Franck Marchis and Steve Preston

Links:

- Steve Preston's Predictions:
  www.asteroidoccultation.com
- Marchis, Descamps, et al. *Icarus*, Triplicity and physical characteristics of Asteroid (216) Kleopatra Feb. 2011
  http://arxiv.org/abs/1011.5263

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