



Center of Research in Astronomy, Astrophysics
and Geophysics
(Algiers Observatory)



Observation campaign of several stellar occultation by asteroids with low probability in Algeria



Presented by :

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Outline

- Introduction
- Participative Astronomy occultation in Algeria
- Occultation of Triton
- Stellar occultation by Kuiper Object 2014 MU69
- Study of stellar occultation by Near Earth Asteroids
- Near Future prospects
- Summary

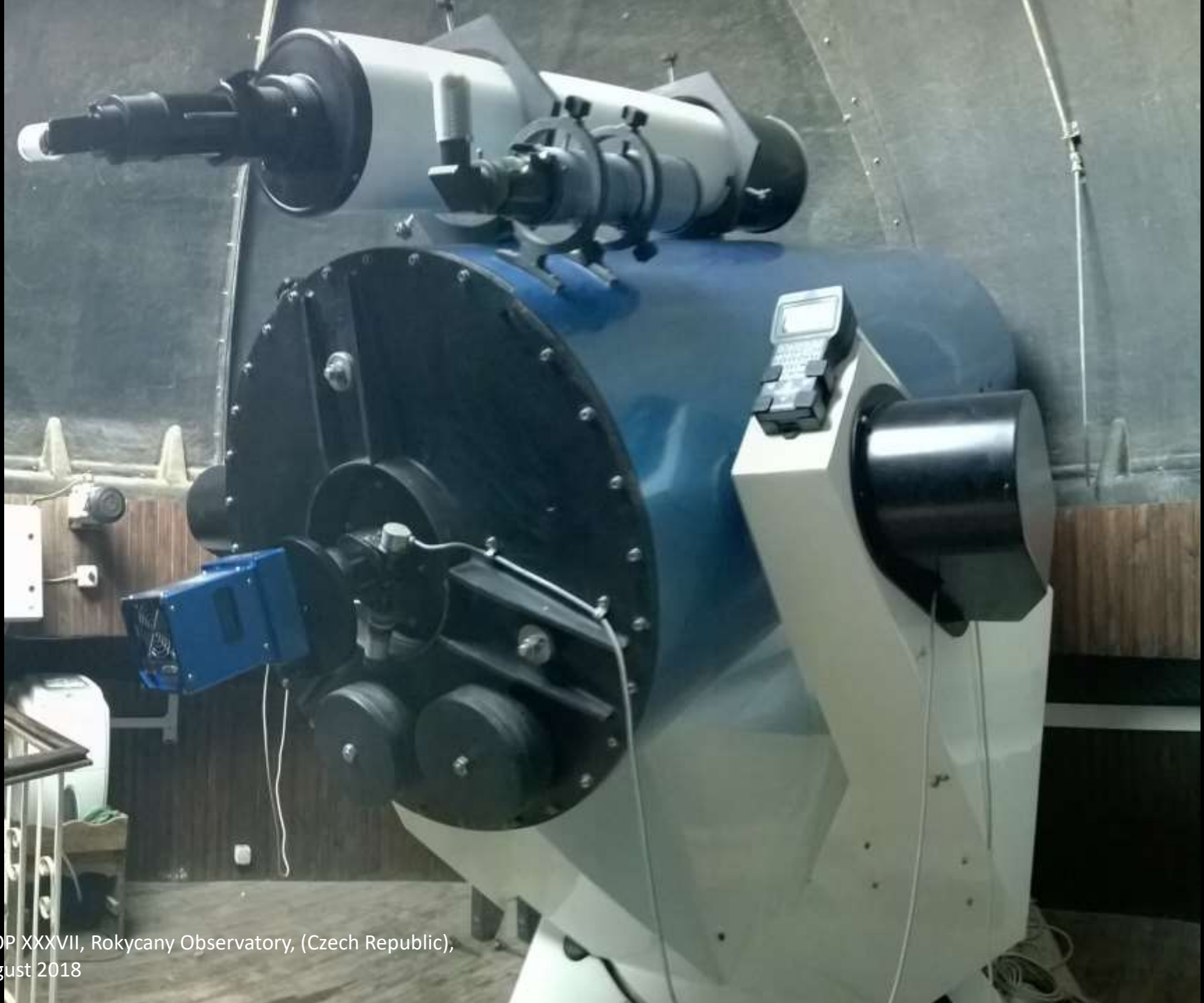
Introduction



The Centre for Research in Astronomy Astrophysics and Geophysics (CRAAG) comes from the creation of the Algiers Observatory in 1890 and after from the Institute of Meteorology and Physics of the Globe in Algiers (IMPGA) in 1931. The name of L'Observatoire d'Alger remained long after the independence of Algeria in 1962 until 1980.

In 1980, the Algerian ministry of high study and research created the National Center for Astronomy, Astrophysics and Geophysics (CNAAG) and in 1985, they change the establishment of the status of research center in Algeria, CRAAG was created.

64 asteroids were discovered including 858 El Djezair on May 26th 1916 and 859 Bouzareah on October 2nd 1916 by the french astronomer Frederic Sy. The first asteroid has the arabic name of the city of Algiers and the second has the arabic name of the village where the observatory built.



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Here the instruments that we used to observe occultation.

1 – Instruments that we can be moved throughout Algiers

- Celestron 8 with CGEM mount
- Celestron 11 with CGE Pro mount

2 – Fixed Instruments at Algiers Observatory

- A 200 mm Apochromatique Refractor guide F/D 9
- Ritchey-Chretien Telescope 810 mm F=6400 mm from the italian society Dub Optika.





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Since 2012, we observed several positive stellar occultation by asteroid using visual method.

We obtained for the first time a positive occultation using the video method with IOTA VTI Inserter during the observation of the Triton occultation on October 5, 2017.

We also obtained a positive occultation using the video method with IOTA VTI Inserter during the observation of the occultation of the star TYC 1310-00528-1 by 464 Megaira on January 12, 2018.

We have also obtained several negative observations but very often the weather was against us.

The 4th of August 2018, we organized an expedition to observe the stellar occultation by the object of Kuiper 2014MU69 in the extreme south of Algeria but it's was cloudy.

Participative Astronomy occultation in Algeria

There are hundreds astronomical associations and clubs.

There are more than 2,300 youth institutions (youth centers and science centers) across the country, including more than 80 institutions in Algiers which depend on the Ministry of Youth.

There are also hundreds of cultural centers (which depend on the Ministry of Culture) throughout the national territory.

An exhaustive census of more than 300 telescopes.

So, I started to form a network to observe stellar occultation by asteroids since 2016.

First national meeting in asteroidal occultation for observing 861 Aïda and 444 Gyptis in December 2016.

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وزارة الشباب والرياضة
Ministère de la Jeunesse et des Sports
Ministry of Youth and Sports



الجمعية الجزائرية للشباب هواة علم الفلك
Association Algérienne des Jeunes Astronomes Amateurs
Algerian Association of Youth Amateur Astronomers

بالتعاون مع
en collaboration avec
in collaboration with

مركز البحث في علم الفلك و الفيزياء الفلكية و الجيوفيزياء
Centre de Recherche en Astronomie, Astrophysique et Géophysique
Center for Research in Astronomy, Astrophysics and Geophysics

التريص الوطني الأول في رصد الإحتجابات الكويكبية
First national training course in asteroidal occultations
Premier stage national sur les occultations astéroïdes



10-8 ديسمبر 2016 - مركز تجمع وتحضير المواهب والنخب الرياضية بالسويدانية ، الجزائر
8-10 Decembre 2016, CRPTES - Souidania, Alger
8-10 December 2016, CRPTES - Souidania, Algiers

متعاملنا : وزارة الشباب والرياضة
Notre Partenaire : le Ministère de la Jeunesse et des Sports



AAJAA

الجمعية الجزائرية للشباب هواة علم الفلك ترحب بكم
L'Association Algérienne des Jeunes Astronomes
vous souhaite la bienvenue
Partenaire: le Ministère de la Jeunesse et des Sports

الجمعية الجزائرية للشباب هواة علم الفلك
L'Association Algérienne des Jeunes Astronomes
vous souhaite la bienvenue
Partenaire: le Ministère de la Jeunesse et des Sports



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861 Aida occults HIP 36411 on 2016 Dec 15 from 23h 58m to 24h 15m UT

Star:
Mv = 6.7 Mp = 8.0 Mr = 6.0
RA = 7 29 30.7615 (J2000)
Dec = 19 37 59.392 ...
[of Date: 7 30 31, 19 35 39]
Prediction of 2016 Nov 1.0

Max Duration = 5.5 secs
Mag Drop = 8.2 (8.5r)
Sun : Dist = 153 deg
Moon : Dist = 2 deg
: illum = 94 %
E 0.024"x 0.013" in PA 89

Asteroid:
Mag =14.9
Dia = 67km, 0.037"
Parallax = 3.495"
Hourly dRA =-1.637s
dDec = 6.89"

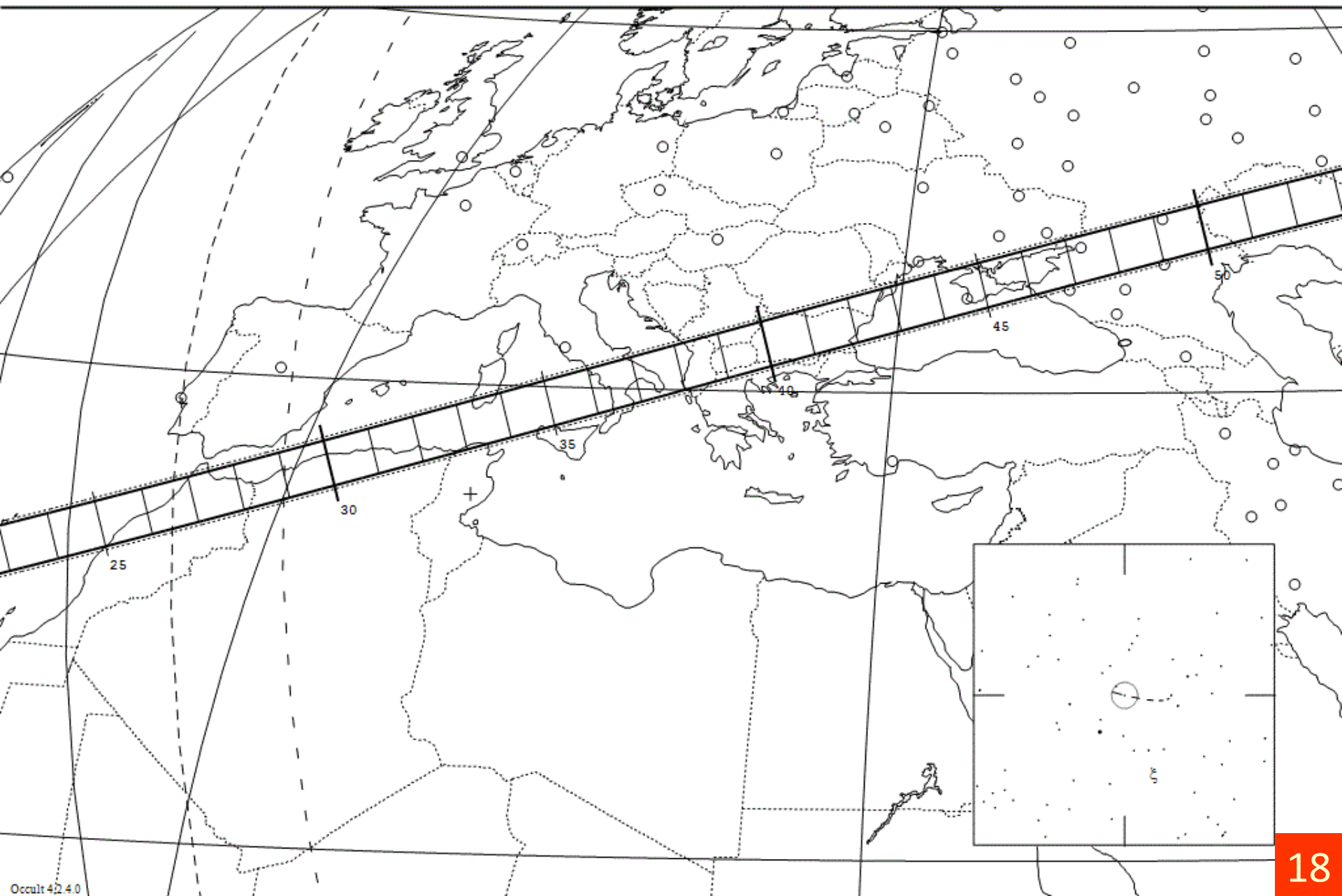


444 Gyptis occults TYC 0033-00648-1 on 2016 Dec 17 from 17h 17m to 18h 5m UT

Star:
Mv = 10.0 Mp = 10.6 Mr = 9.7
RA = 1 54 8.8279 (J2000)
Dec = 3 38 9.968 ...
[of Date: 1 55 2, 3 43 3]
Prediction of 2016 Sep 19.0

Max Duration = 55.5 secs
Mag Drop = 2.2 (2.1r)
Sun : Dist = 121 deg
Moon: Dist = 108 deg
: illum = 82 %
E 0.021"x 0.010" in PA 81

Asteroid:
Mag = 12.0
Dia = 193km, 0.149"
Parallax = 4.910"
Hourly dRA = 0.627s
dDec = 2.29"



Observation régionale de l'occultation stellaire
de l'étoile HIP 104172 par l'astéroïde 5247 Krylov
à Tichy (Béjaïa) le Dimanche 06 Août 2017 à 22h05mn

Regional observation of the stellar
occultation HIP 104172 by 5247
Krylov in Tichy (Bejaia) – Sunday
06th August 2017 at 21h05mn UT



الرصد الجهوي للاختجاب النجمي HIP104172
من طرف الكويكب 5247 كريلوف بتيشي (ولاية بجاية)
يوم الأحد 06 أوت 2017 على الساعة 22:05

Organismes amateurs participants

Association Sirius d'Astronomie de Béjaïa
Association Astér des astronomes amateurs de Kherrata – Béjaïa
Association Scientifique M'chedalali – Bouira
Club Horizon d'Astronomie – Tizi-Ouzou
Club Al-Bitani d'Astronomie – Alger
Ligue des activités scientifiques et techniques de jeunes de Sétif
Club d'Astronomie Tandra – Sétif
Centre des loisirs scientifiques de Bouj Bou Arramidj
Association Al-Battani d'Astronomie – Oran

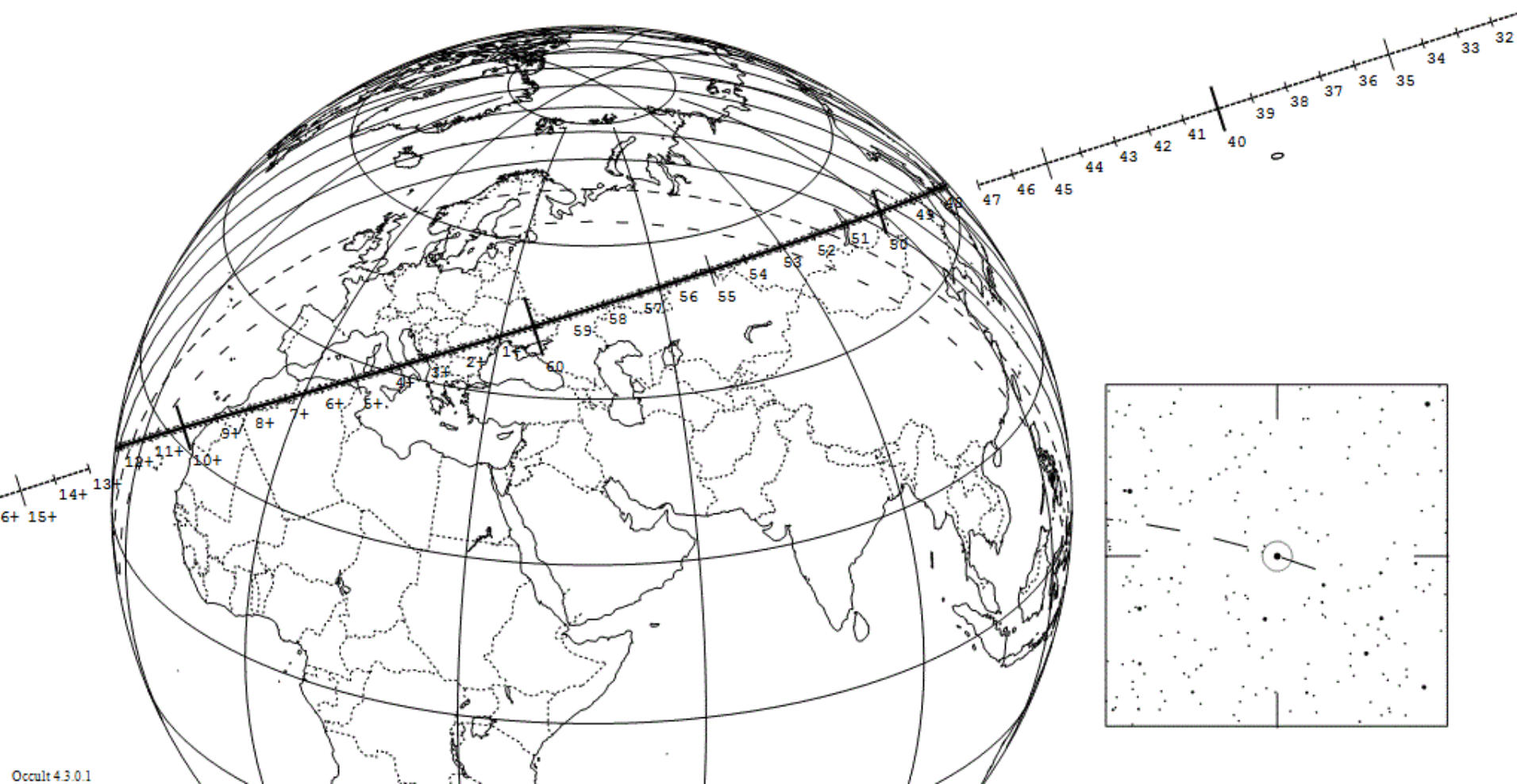
الجمعيات و الهيئات الهواة المشاركة
جمعية سيروس لعلم الفلك - بجاية
جمعية أستر لشباب هواة علم الفلك بخراتة - بجاية
الجمعية العلمية بشندة - البويرة
نادي أفق جرجرة لعلم الفلك - تيزي وزو
نادي البروني لعلم الفلك - الجزائر
رابطة النشاطات العلمية و التقنية للشباب - سطيف
النادي الفلكي طنجة - سطيف
مركز الشبيبة العلمية - برج بوعروريج
جمعية البتاني لعلم الفلك - وهران

5247 Krylov occults HIP 104172 on 2017 Aug 6 from 20h 48m to 21h 12m UT

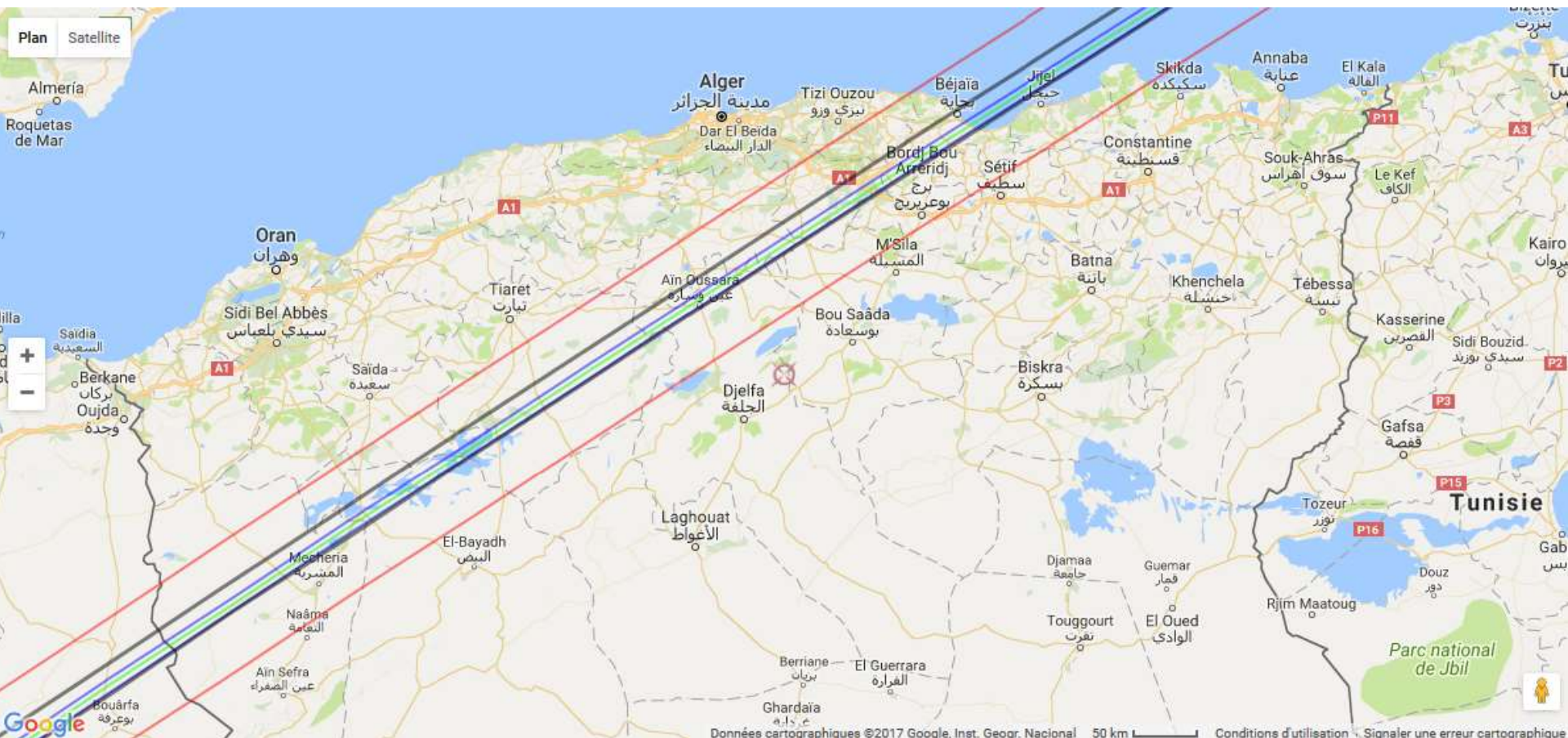
Star:
 Mv = 6.1
 RA = 21 6 23.5376 (J2000)
 Dec = 26 55 27.364
 [of Date: 21 7 11, 26 59 51]
 Prediction of 2017 Jun 28.0

Max Duration = 0.9 secs
 Mag Drop = 9.2
 Sun : Dist = 137 deg
 Moon: Dist = 45 deg
 : illum = 99 %
 E 0.084"x 0.038" in PA 79

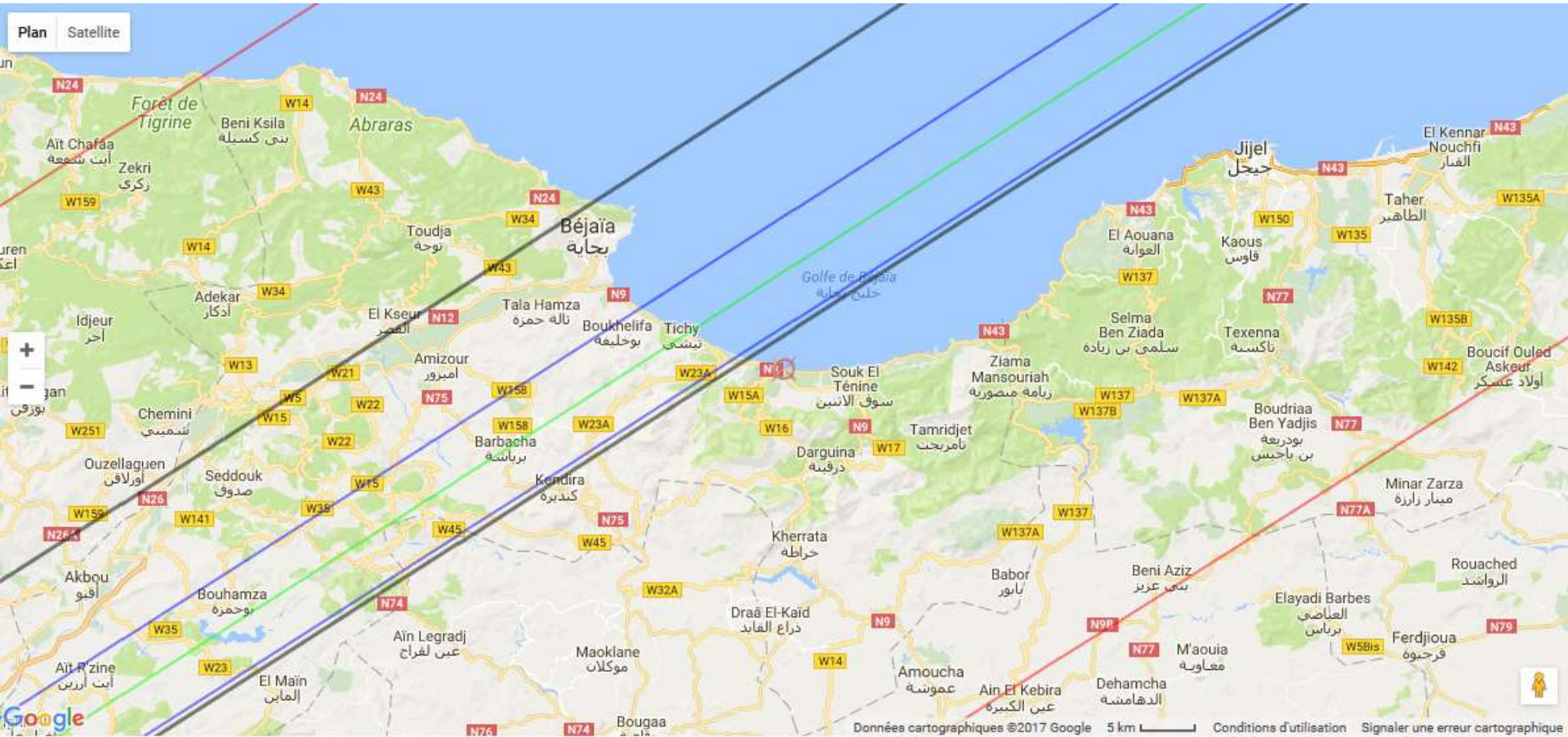
Asteroid:
 Mag =15.3
 Dia = 8km, 0.009"
 Parallax = 6.946"
 Hourly dRA =-2.220s
 dDec = -9.49"



The path of the occultation band throughout algerian territory of the star HIP 104172 Of the constellation of Cygnus by 5247 Krylov.



Zoom on the occultation band around Béjaïa city



12 telescopes divided on 6 teams through the central center of the path occultation. Each team was composed by 2 or 3 personnes.











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مركز البحث في علم الفلك و الفيزياء الفلكية و الجيوفيزياء
Direction de la jeunesse et des sports de la wilaya de Ghardaïa
مدرسة الشباب و الرياضة لولاية غرداية
Centre culturel de El-Atteuf - Ghardaïa
المركز الثقافي لبلدية العطف - غرداية
Association des activités des jeunes El-Atteuf - Ghardaïa
جمعية نشاطات الشباب لبلدية العطف - غرداية

Rencontre Nationale sur les Occultations Astéroïdales

Observation de l'occultation de l'étoile TYC 0186-01629-1 par l'astéroïde
392 Wilhelmina à Ghardaïa
Le Mardi 14 Novembre 2017 à 05h04 heure locale
Centre Culturel El-Atteuf - Ghardaïa



اطلقت الفلكي في رصد الاختجابات الكويكبية

رصد اختجاب النجم TYC 0186-01629-1 من طرف الكويكب 392 ويلهلمينا
بغرداية يوم الثلاثاء 14 نوفمبر 2017 على الساعة 05:04 بتوقيت المحيط
المركز الثقافي العطف - غرداية

The second national meeting on stellar occultation by asteroids on November 14, 2017 in Ghardaia. More than 11 Algerian departments represented by their associations or clubs participated with more than 30 people who used 20 telescopes to observe the occultation of the star TYC 0186-01629-1 of Canis Major constellation by asteroid 392 Wilhelmina.

392 Wilhelmina occults TYC 0186-01629-1 on 2017 Nov 14 from 3h 57m to 4h 23m UT

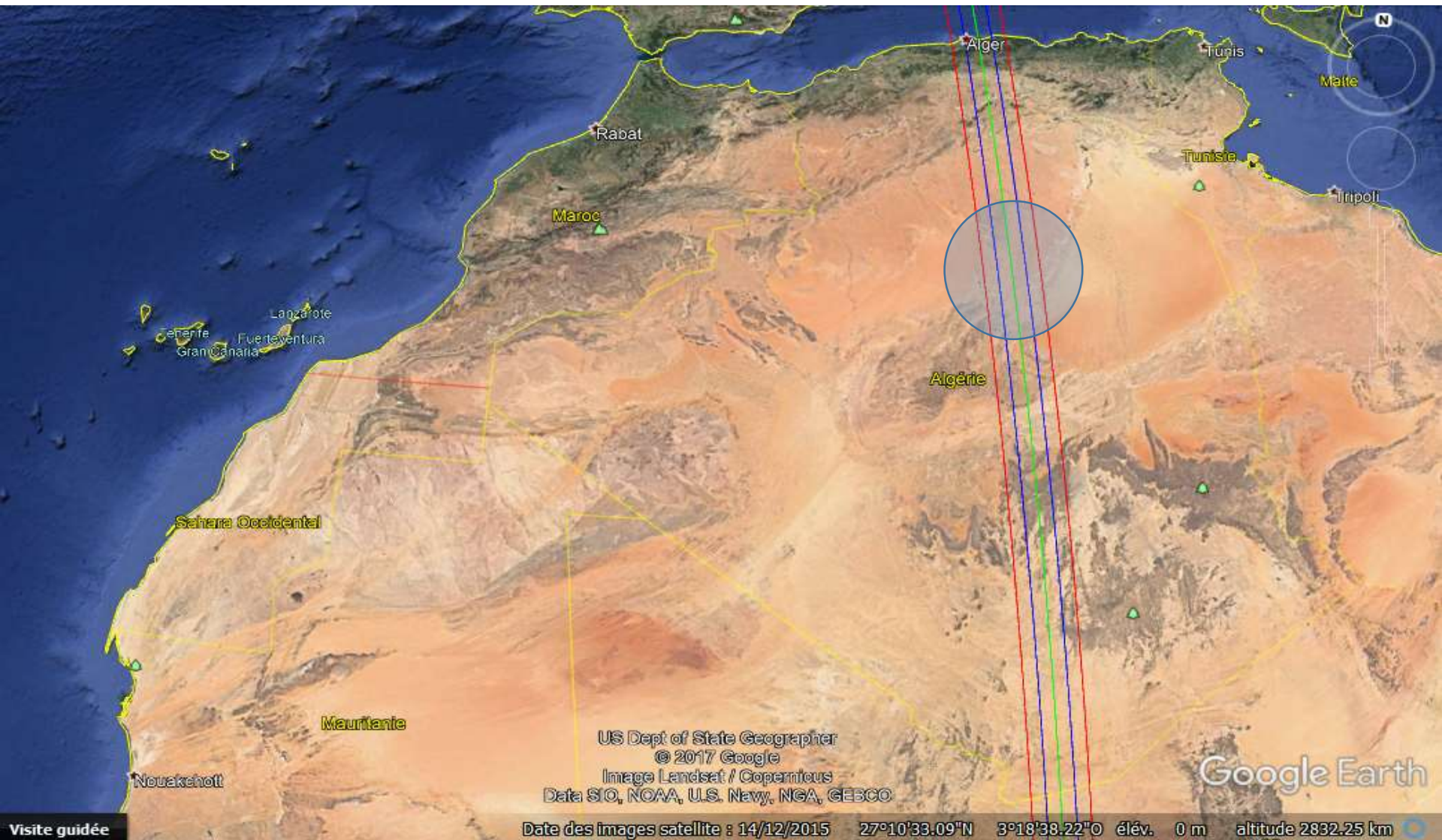
Star:
Mv = 9.8
RA = 7 33 28.8933 (J2000)
Dec = 4 45 15.548
[of Date: 7 34 26, 4 42 52]
Prediction of 2017 Jul 4.0

Max Duration = 8.5 secs
Mag Drop = 4.8
Sun : Dist = 116 deg
Moon: Dist = 70 deg
: illum = 18 %
E 0.019"x 0.011" in PA 82

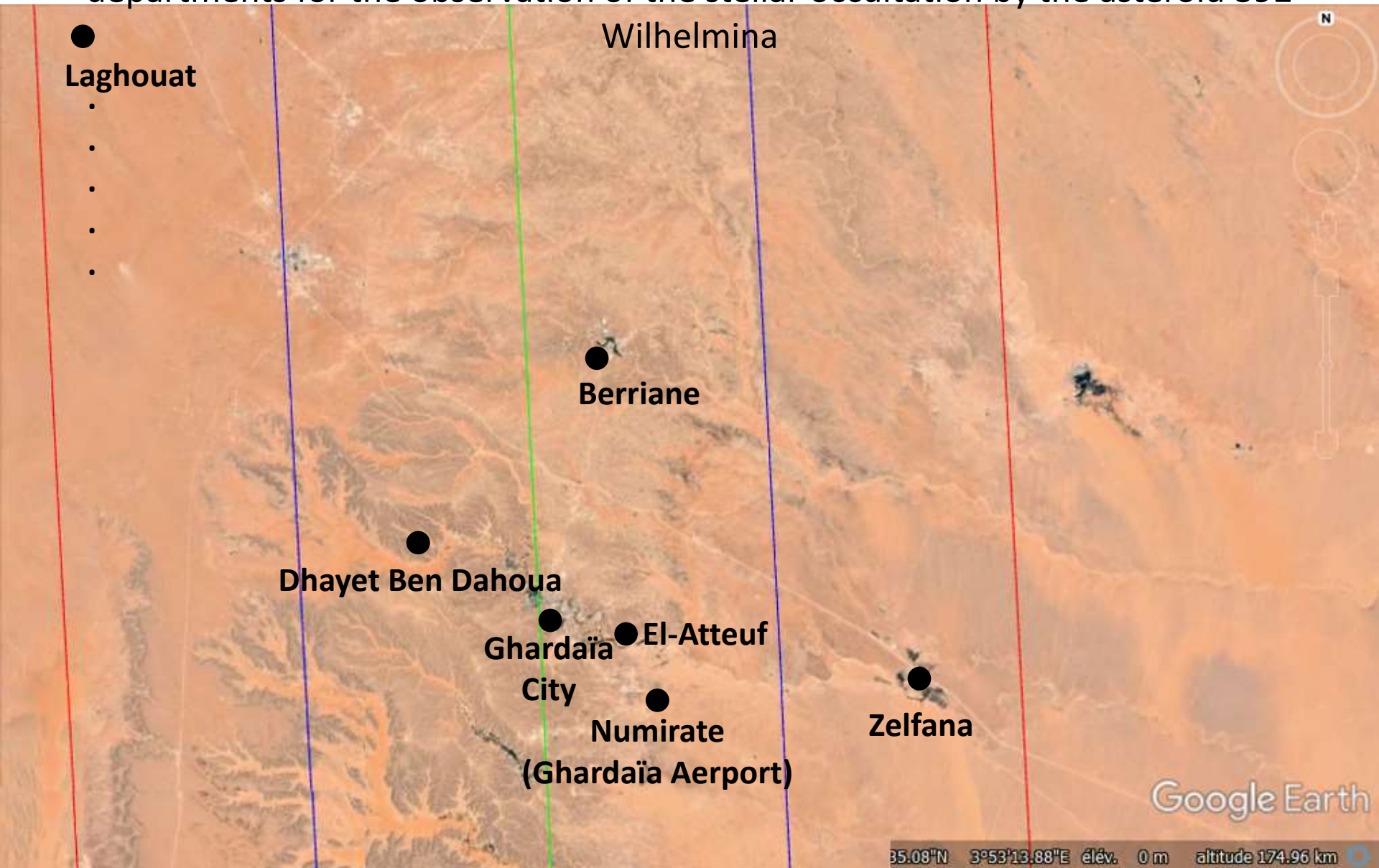
Asteroid:
Mag =14.6
Dia = 69km, 0.045"
Parallax = 4.146"
Hourly dRA = 0.195s
dDec =-18.72"



Overall distribution of the teams on the 7 observation sites of Laghouat and Ghardaïa departments for the observation of the stellar occultation by the asteroid 392 Wilhelmina



Overall distribution of the teams on the 7 observation sites of Laghouat and Ghardaïa departments for the observation of the stellar occultation by the asteroid 392





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ESOP XXXVII, Rokycany Observatory, (Czech Republic),
August 2018



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August 2018



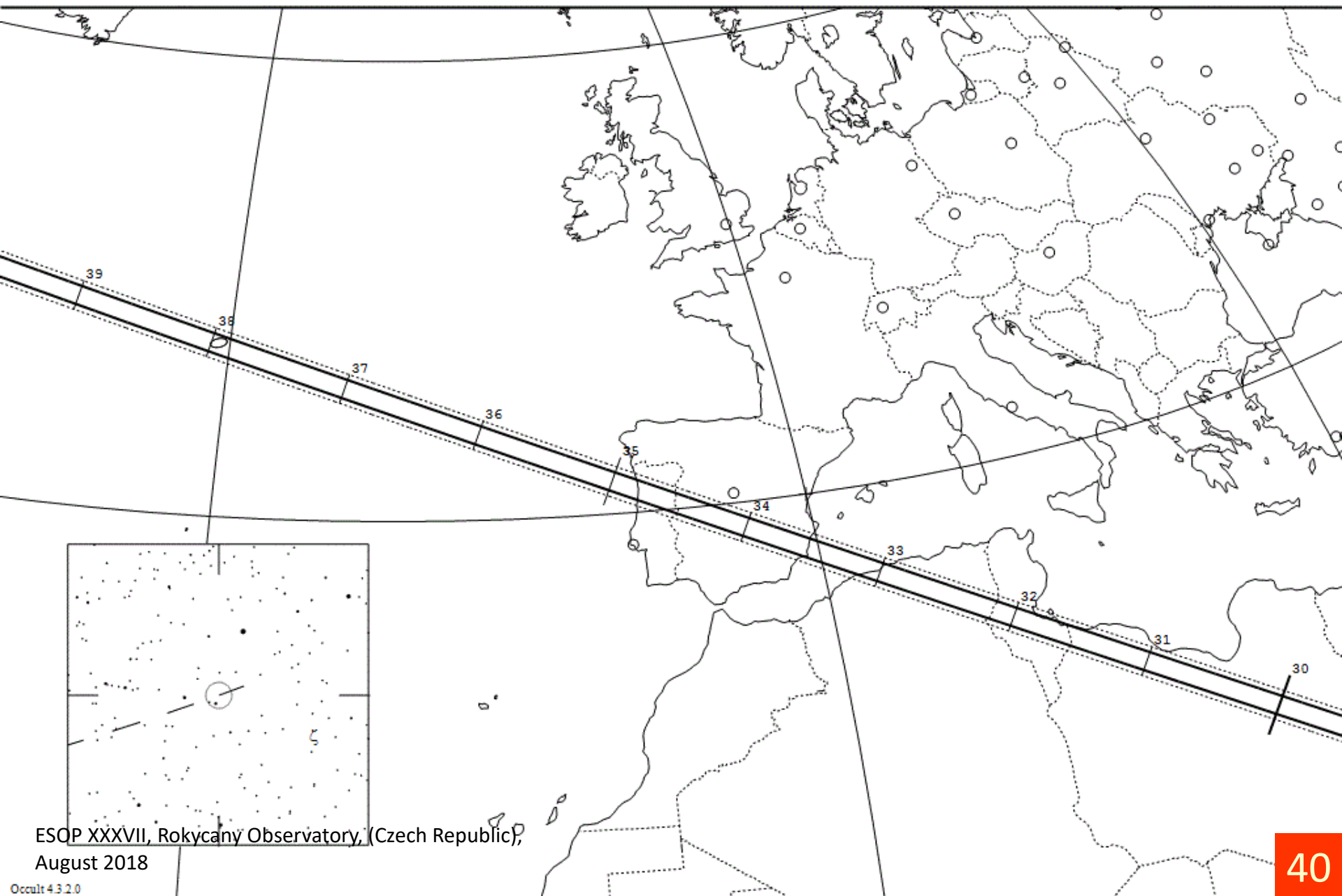
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464 Megaira occults TYC 1310-00528-1 on 2018 Jan 12 from 23h 25m to 23h 46m UT

Star:
Mv = 8.9
RA = 5 40 8.7166 (J2000)
Dec = 21 20 24.238
[of Date: 5 41 14, 21 20 48]
Prediction of 2017 Oct 12.0

Max Duration = 8.3 secs
Mag Drop = 4.7
Sun : Dist = 153 deg
Moon: Dist = 163 deg
: illum = 14 %
E 0.027"x 0.014" in PA 78

Asteroid:
Mag = 13.6
Dia = 80km, 0.061"
Parallax = 4.861"
Hourly dRA = -1.783s
dDec = 8.91"



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On Saturday January 13, 2018 at 00h33mn local time, the star TYC 1310-00528-1 of the constellation Taurus was occulted by the 464 Megaira.

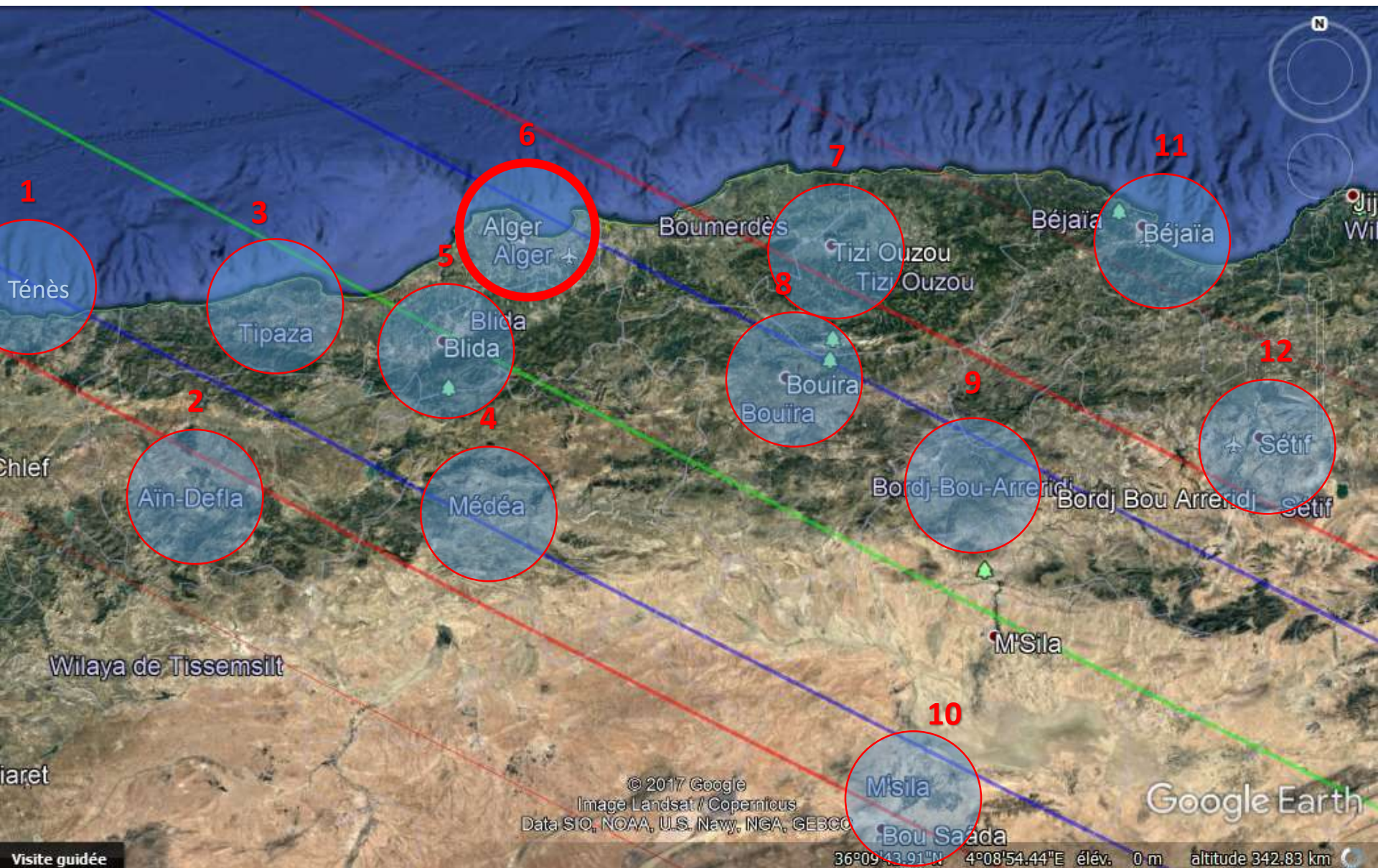


On Saturday January 13, 2018 at 00h33mn local time, the star TYC 1310-00528-1 of the constellation Taurus was occulted by the 464 Megaira.

More than 30 persons of the algerian occultation network participated.

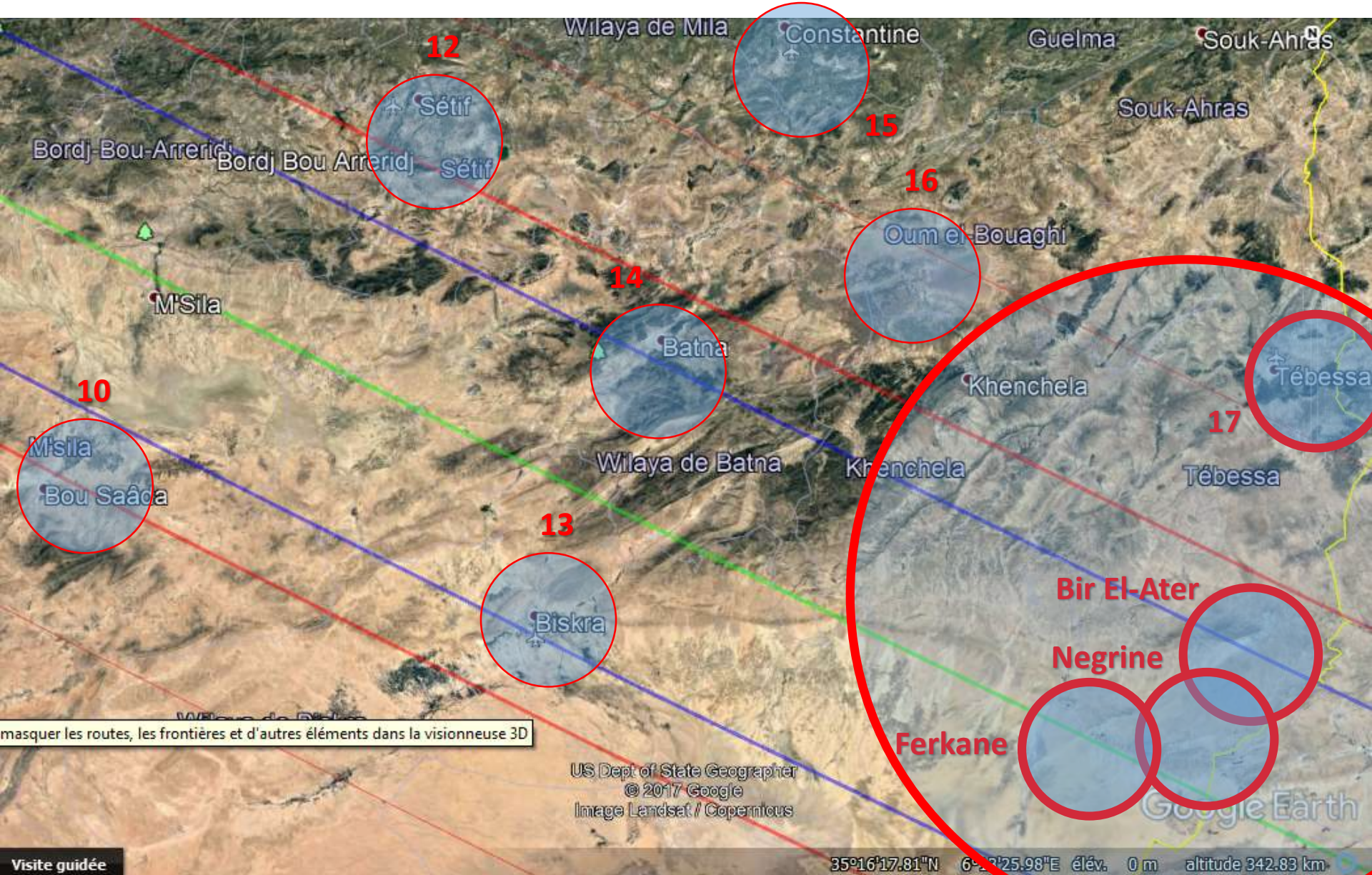


Global distribution on the Algerian territory of the observation sites of the stellar occultation by 464 Megaira



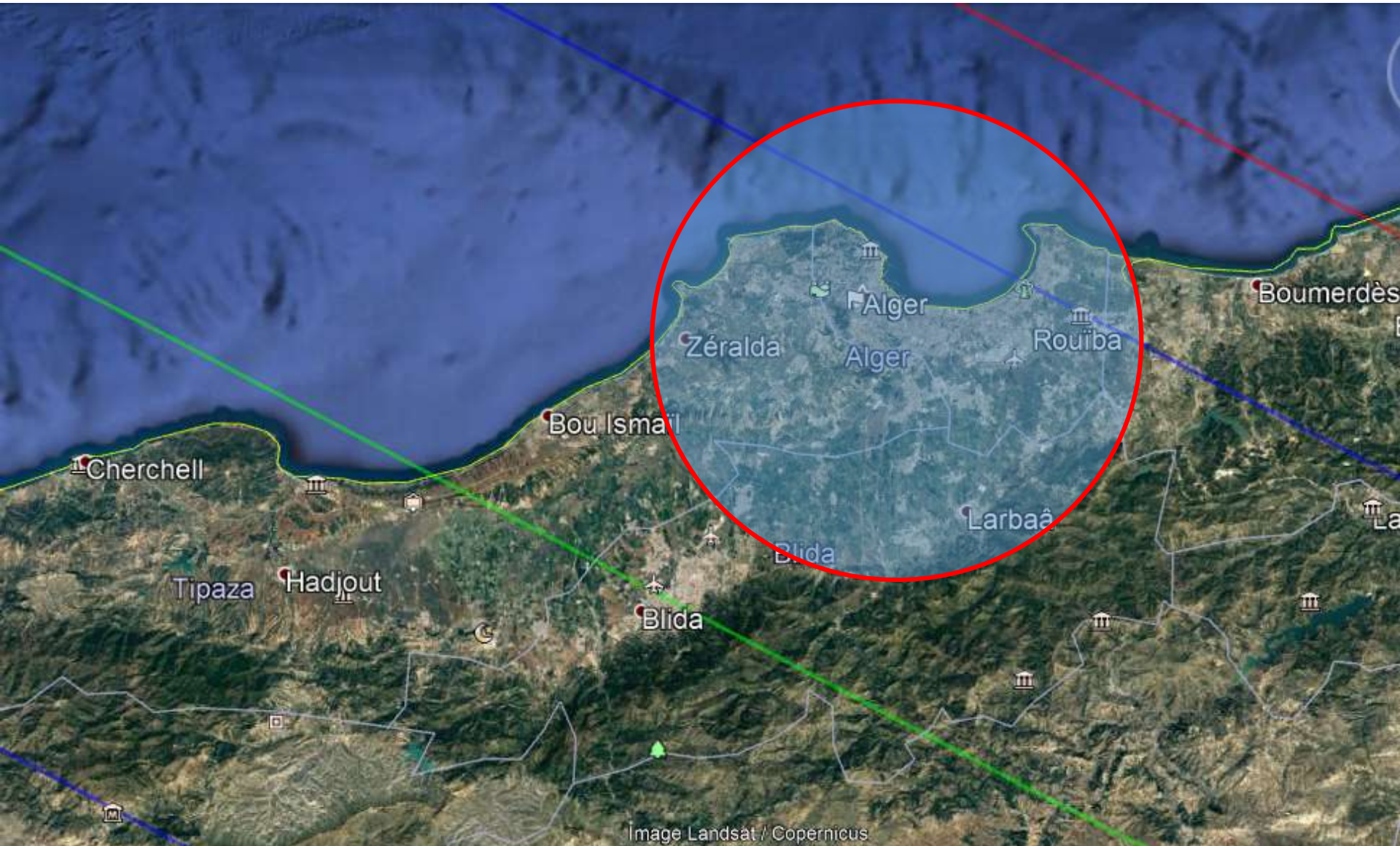
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Global distribution on the Algerian territory of the observation sites of the stellar occultation by 464 Megaira



ESOP XXXVII, Rokycany Observatory, (Czech Republic), August 2018

Global distribution on the City of Algiers of the observation sites of the stellar occultation by 464 Megaira

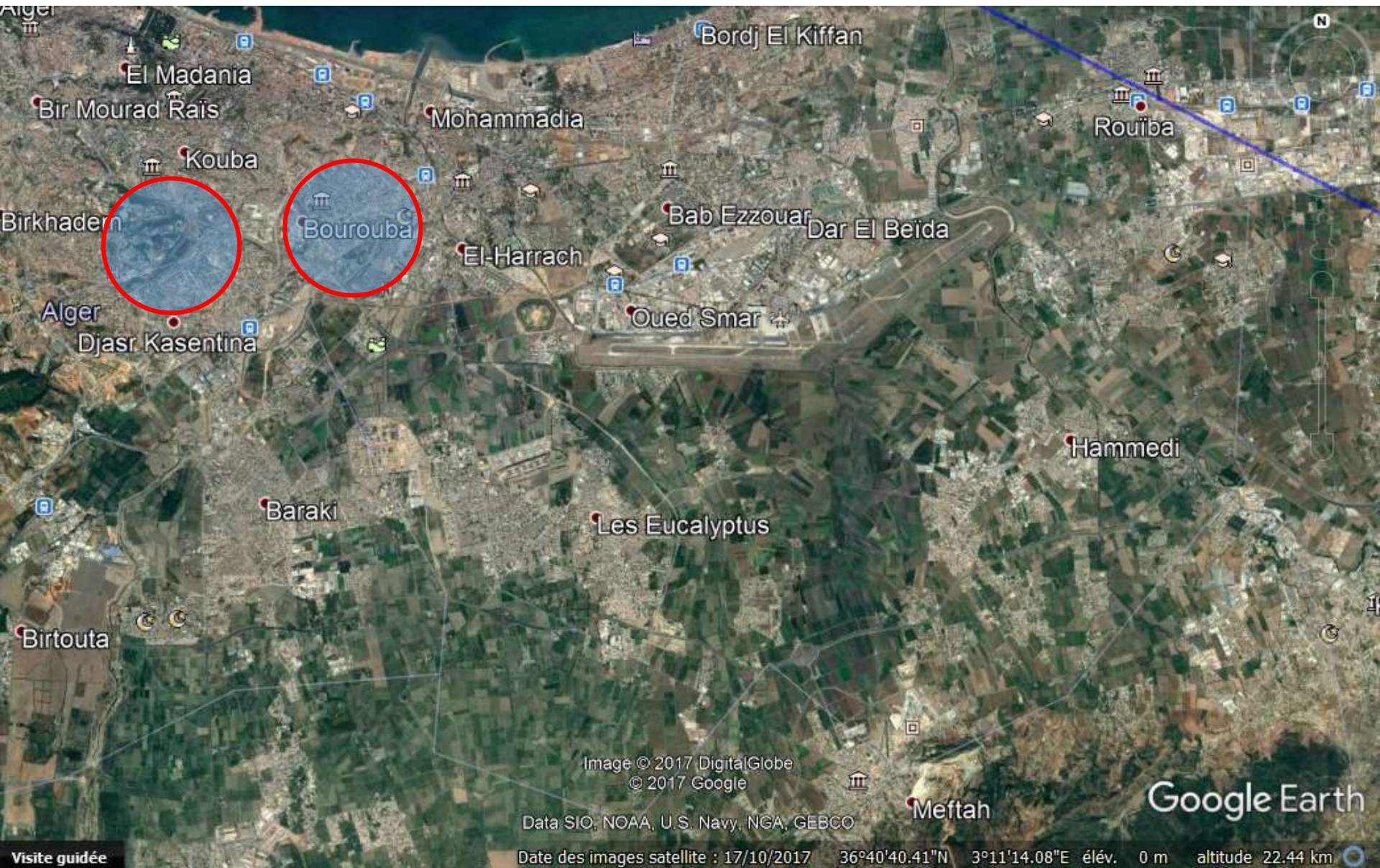


Global distribution on the City of Algiers of the observation sites of the stellar occultation by 464 Megaira



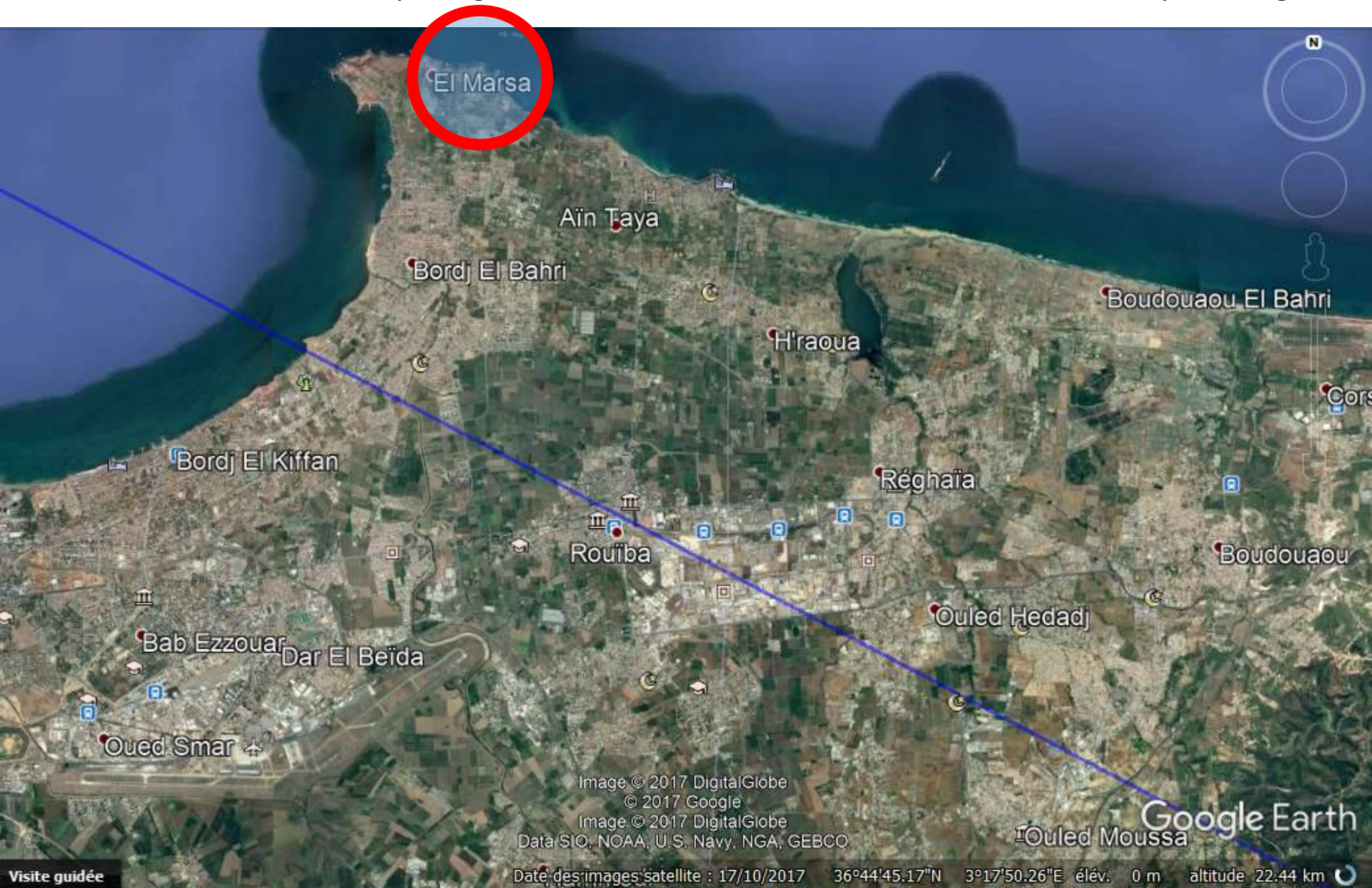
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August 2018

Global distribution on the City of Algiers of the observation sites of the stellar occultation by 464 Megaira



ESOP XXXVII, Rokycany Observatory, (Czech Republic),
August 2018

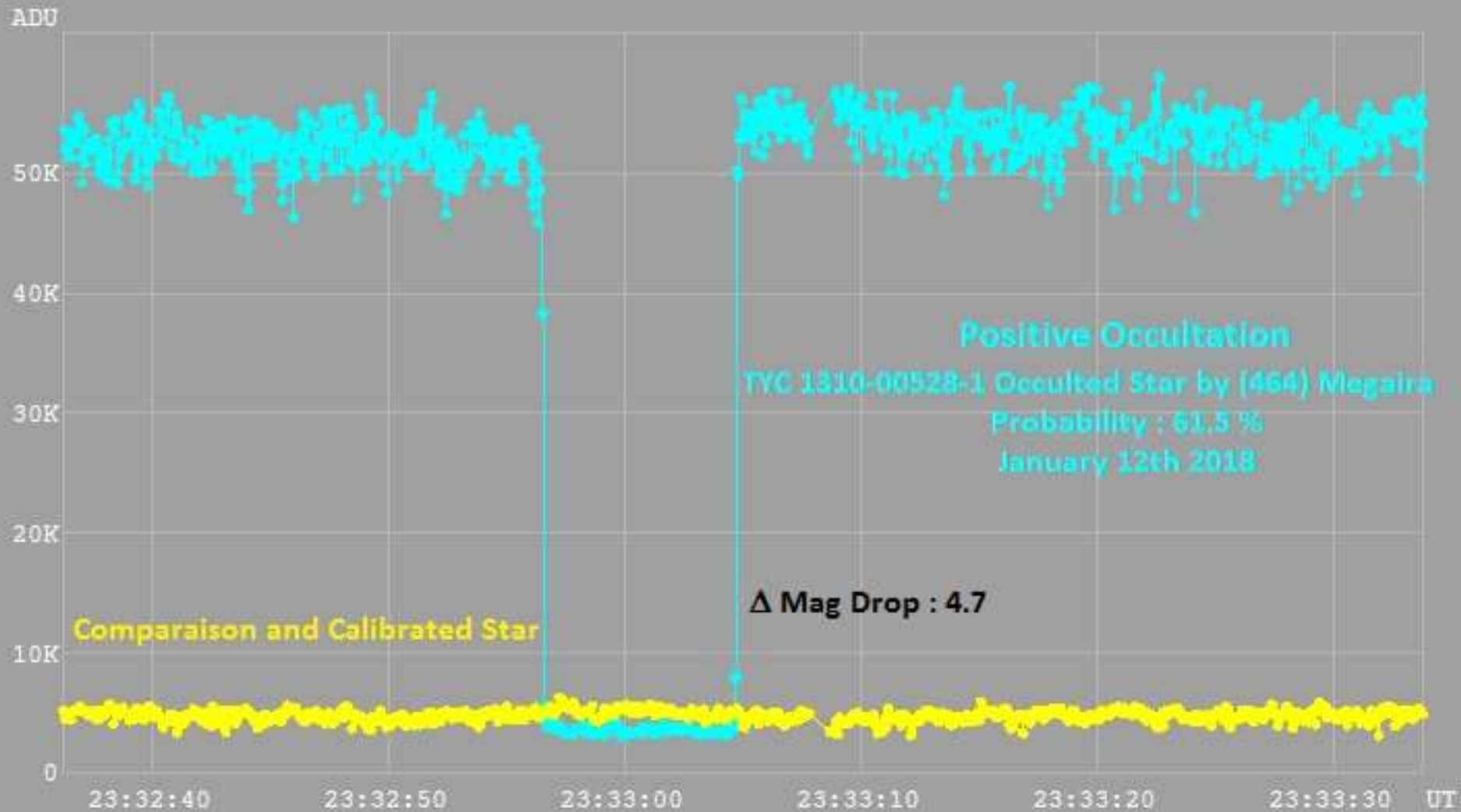
Global distribution on the City of Algiers of the observation sites of the stellar occultation by 464 Megaira



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August 2018

P9⌘

23:31:09 6773 6973 16885



2017/11/15 | 60036 | 1999 TD94 | TYC 1943-00758-1

O- | J.J. Castellani | 00:29:24 | 00:31:35 | M203 | VID | FR | W 00 02 40.6 | N 43 37 15.2 | 180 | WS |;

2017/11/14 | 392 | Wilhelmina | TYC 0186-01629-1

O- | Jean-Louis Dumont | 03:59:21 | 04:03:21 | M405 | CCD | FR | E 00 49 59.1 | N 47 13 23.9 | 91 | WS |;
O- | Joan Rovira | 03:58:47 | 04:06:20 | M200 | VID | ES | E 02 05 45.1 | N 41 49 05.4 | 827 | WS |;
O- | H. Fahis/M. Yahiaoui | | | M115 | VIS | DZ | E 03 36 12.3 | N 32 31 56.2 | 534 | WS |;
O- | A. Ghadi/M. Lounes | | | M130 | VIS | DZ | E 03 36 12.3 | N 32 31 56.2 | 534 | WS |;
O- | Djounai Baba Aissa | | | M203 | VID | DZ | E 03 44 41.9 | N 32 28 50.5 | 456 | WS |;
O- | D. Bouzid/L. Bal | | | L90 | VIS | DZ | E 03 46 29.4 | N 32 50 26.7 | 541 | WS |;
O- | M.L. Allik et al | | | L90 | VIS | DZ | E 04 13 09.5 | N 32 23 55.2 | 350 | WS |;
Observation with Z. Kebbab/Y. Berbar.;
O- | E.H. Safar et al | | | L90 | VIS | DZ | E 04 13 09.5 | N 32 23 55.4 | 350 | WS |;
Observation with Y. Hocine.;
O- | H. Addar/W. Belhadj | | | M130 | VIS | DZ | E 04 13 09.8 | N 32 23 55.4 | 350 | WS |;

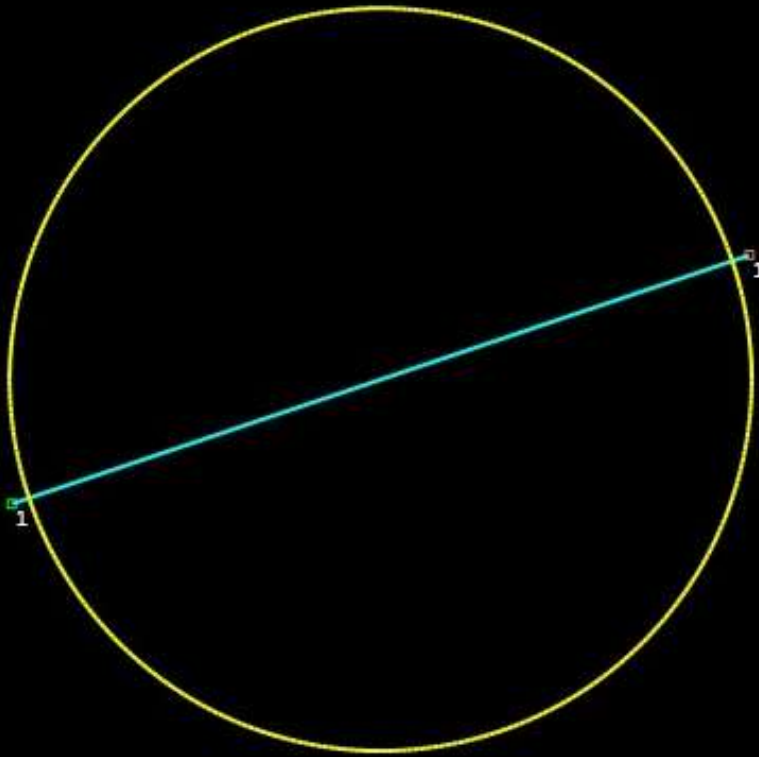
2017/11/14 | 2264 | Sabrina | 4UC565-015083

O- | Michal Rottenborn | 02:27:07 | 02:31:07 | M303 | VID | CZ | E 13 19 55.8 | N 49 42 26.4 | 326 | WS |;
O- | Jiri Kubanek | 02:27:02 | 02:31:13 | M203 | VID | CZ | E 13 52 30.9 | N 49 57 11.7 | 454 | WS |;

Plot event observations

with Plot... Plot options... Help Exit Adjust Miss times ->Editor {Observer & time}

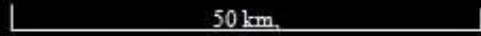
(464) Megaira 2018 Jan 12 79.0 x 79.0 km, PA 0.0°
Geocentric X 4890.2 ± 2.2 Y 3789.2 ± 6.7 km



Find best fit

Center X 0.0 193.4
 Center Y 0.0 -574.1
Major axis (km) 79.0 0.0
Minor axis (km) 79.0 0.0
Orientation 0.0 0.0
a/b=1.0
dM=0.0
Motion 9.65km/s, ...
Double star or double asteroid
Sepn (masec) 0.0 0.0
PA of 2nd 0.0 0.0
Show: Both Primary Secondary
A= 10.0 B= 10.0 PA= 0.0
 Circular Include Miss events
Plot scale Quality Not fitted
RMS fit 1.9 ± 0.1 km

1	BABA AISSA DJOUNAI
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Occultation of the star UCAC4 410-143659 by Triton on October 5th 2017

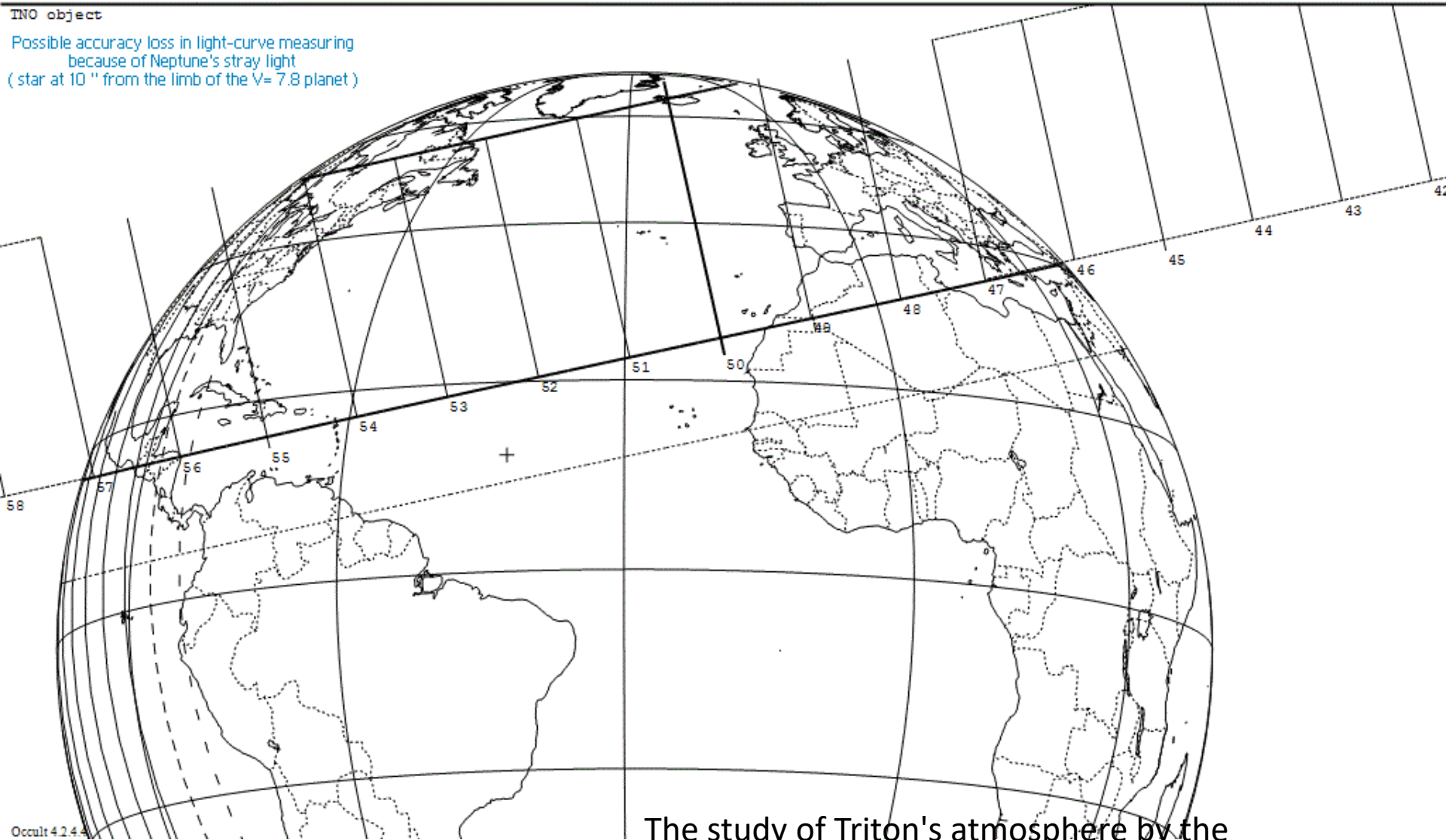
P8M01 Triton (I) occults 4U 410-143659 on 2017 Oct 5 from 23h 44m to 23h 59m UT

Star:
Mv = 12.4 Mp = 12.4 Mr = 12.4
RA = 22 54 18.4363 (J2000) **Gaia14** V= 12.7, R= 12.4
Dec = - 8 0 8.318
[of Date: 22 55 14, - 7 54 23]
Prediction of 2016 Nov 22.0

Max Duration = 161.0 secs
Mag Drop = 1.4 (1.1r)
Sun : Dist = 149 deg
Moon: Dist = 34 deg
: illum = 100 %
E 0.050"x 0.050" in PA 90

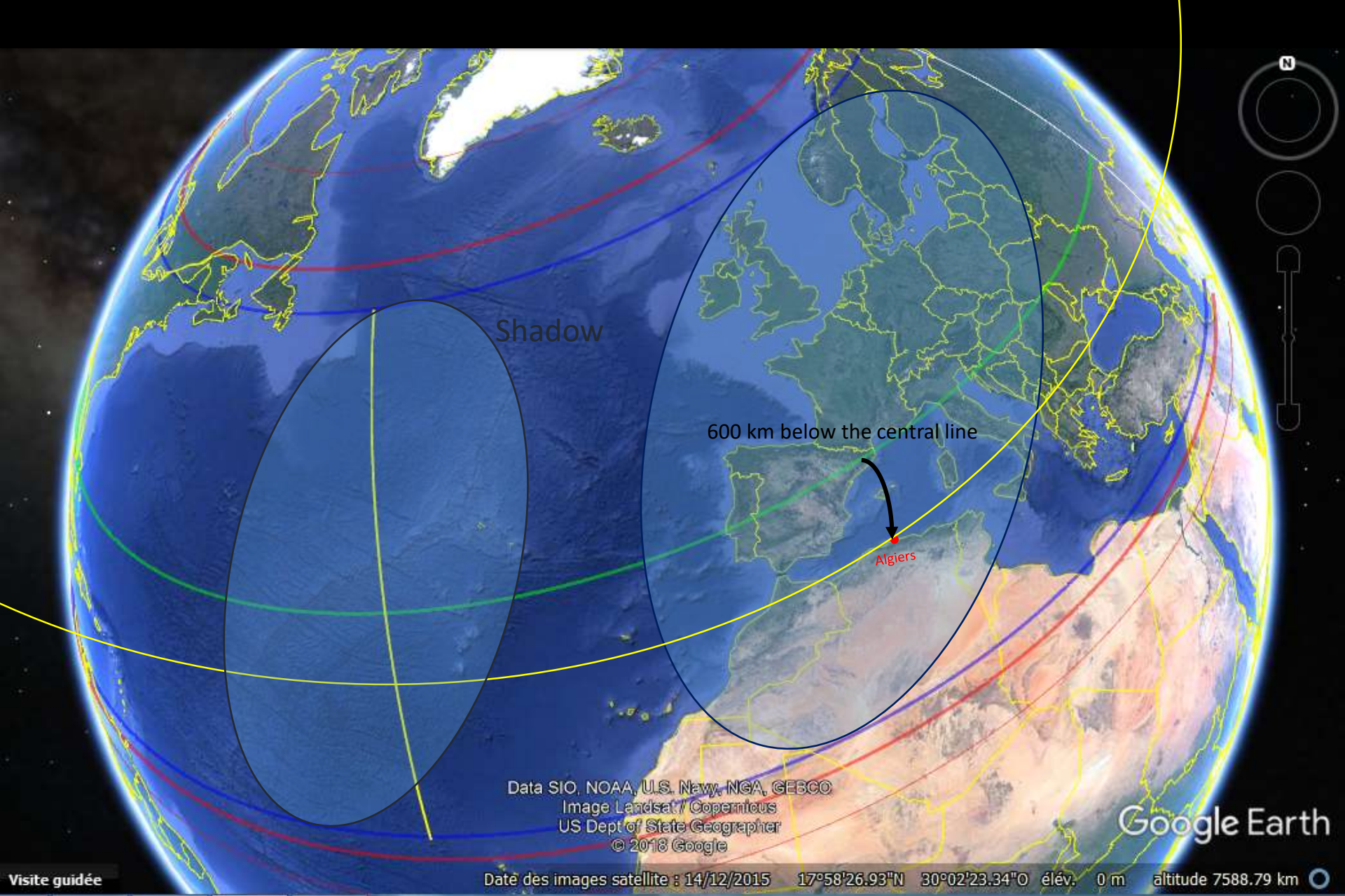
Asteroid:
Mag = 13.5
Dia = 2705km, 0.128"
Parallax = 0.302"
Hourly dRA = -0.188s
dDec = -0.62"

TNO object
Possible accuracy loss in light-curve measuring
because of Neptune's stray light
(star at 10" from the limb of the V= 7.8 planet)



Occult 4.2.4.4

The study of Triton's atmosphere by the occultation method makes it possible to identify and understand its evolution in time.



Neptune
Mag 7.6



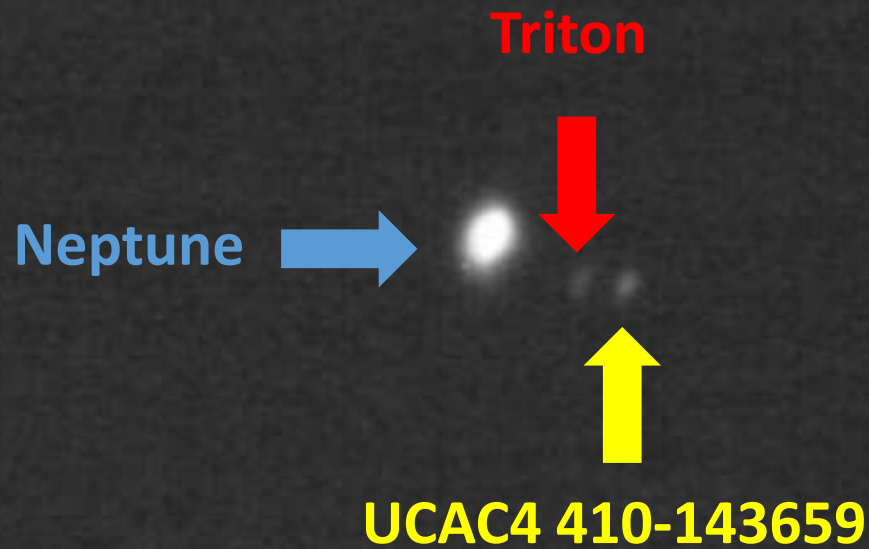
Triton
Mag 13.5



UCAC4 410-143659
Mag 12.4



One night before occultation



Two hours before occultation

P9 22:01:07 7372 7572 283135



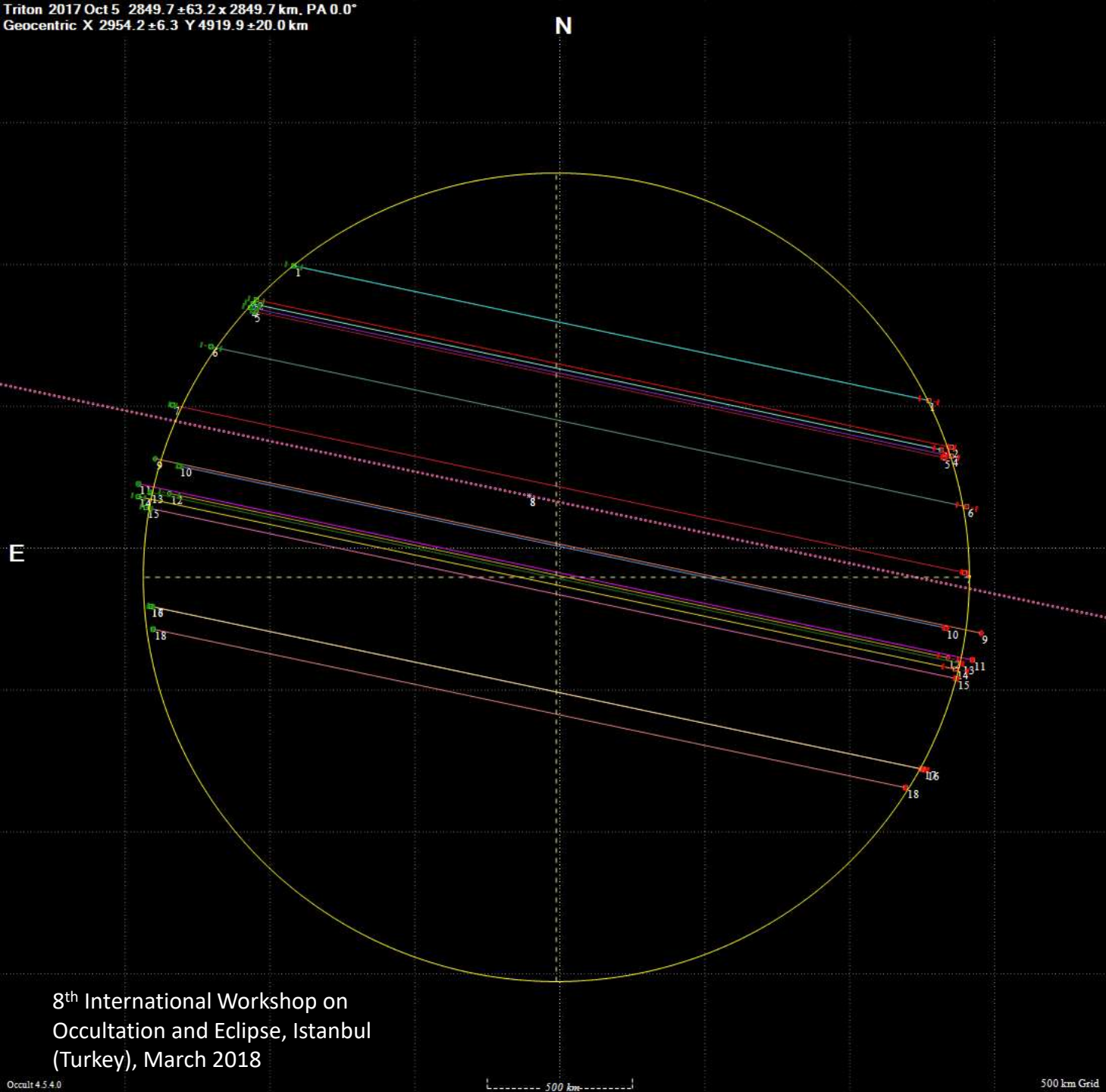
During the occultation

P9 23:47:37 0452 0652 602605

Satellites: 8 HDOP: 1.1
UTC: 23:54:10 2017-10-05
Latitude: 3647.8683 N
Longitude: 00301.9332 E
Altitude: 356.6 M MSL
WGS84 separation: 47.0 M

CPU clock 999920 Hz
Adj clock 1000000 Hz
vSync 20000 CPU us
External PAL Fullscreen
Almanac 23h 2017-10-05

Coordinates obtained by IOTA VTI Inserter



Find best fit

Center X -12.3 -0.4
 Center Y -178.3 0.1

Major axis (km) 2849.7 -6.2
 Minor axis (km) 2849.7 0.0
 Orientation 0.0 0.0

a/b=1.00
 dM=0.00
 Motion 16.70km/s, X

Double star or double asteroid
 Sepn (masec) 0.0 0.0
 PA of 2nd 0.0 0.0

Show: Both Primary Secondary
 A= 10.0 B= 10.0 PA= 0.0

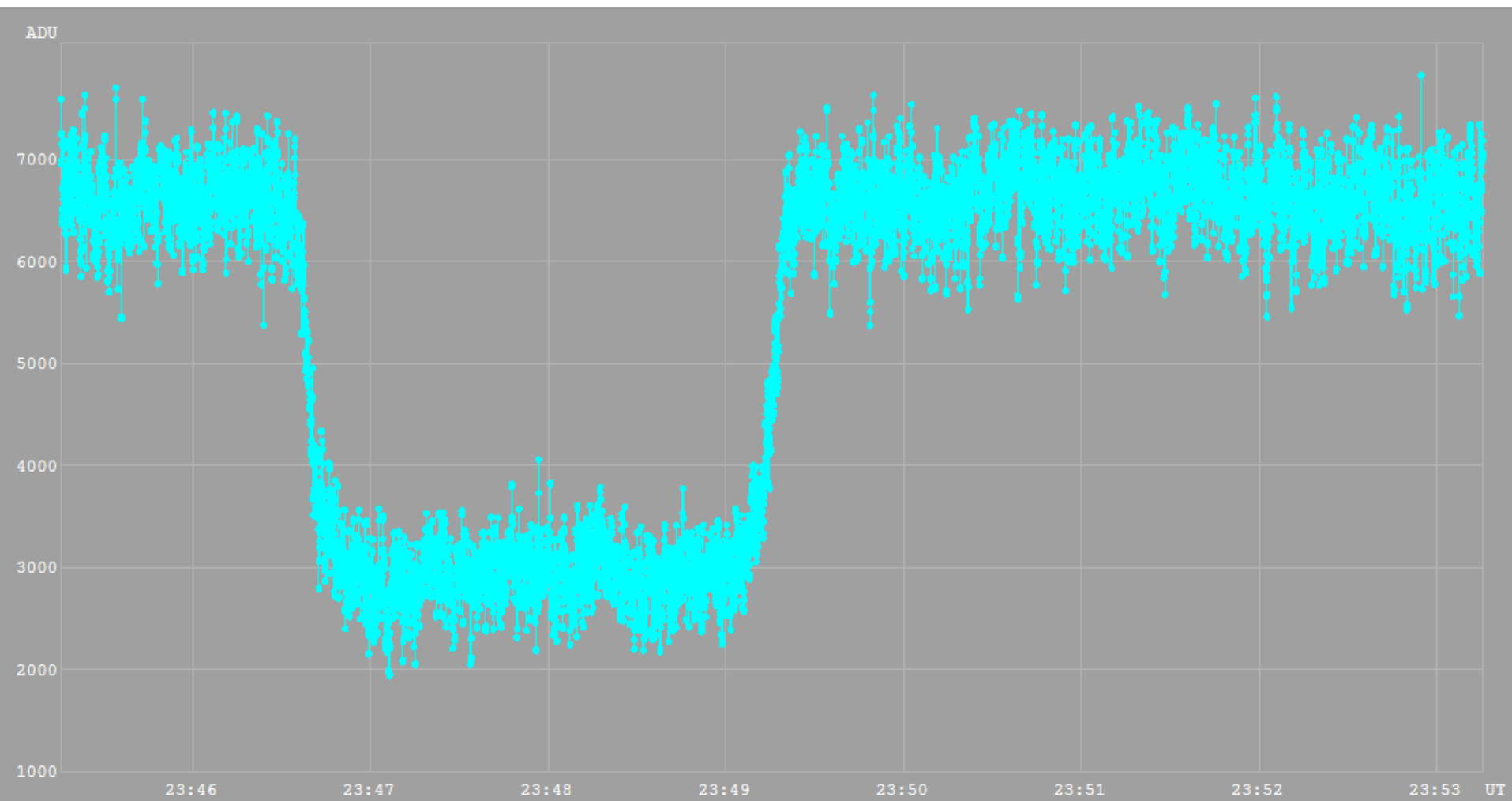
Circular Include Miss events

Plot scale Quality of the fit Not fitted
 RMS fit -2.2 ±29.7 km Opacity

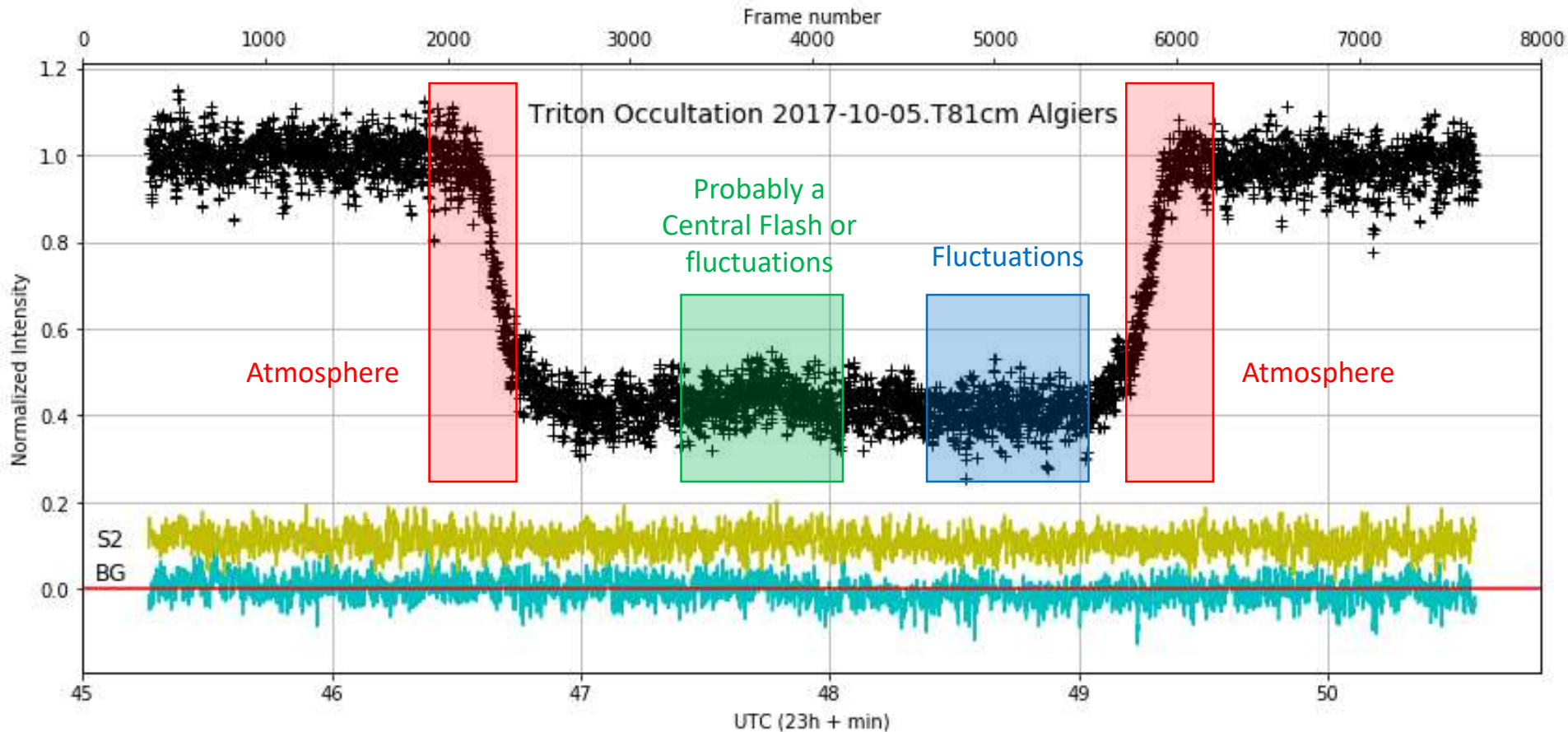
1	Alex Pratt, UK
2	John Talbot, UK
3	Tim Haymes, UK
4	Philip Denyer, UK
5	Malcolm Jennings, UK
6	Bernd Klemt, DE
7	Bjoern Kattentidt, DE
8 (P)	Prediction
9	Marc Delcroix, FR
10	Gerard Vaudesca, FR
11	J Ferreira/P Machado/P I
12	Matthieu Conjat, FR
13	R Goncalves/M Ferreira,
14	Pietro Baruffetti, IT
15	C Perello/A Selva/V Cabe
16	Luigi Morrone, IT
17	A Noschese/A Vecchione,
18	D Baba Aissa/Z Grigahcen

8th International Workshop on
 Occultation and Eclipse, Istanbul
 (Turkey), March 2018

Light Curve obtained by TANGRA software



After reduce data light Curve processed and normalized



Special thanks for **Bruno Sicardy** and **Mike Kretlow**

**Expedition to Observe
Stellar Occultation of
Next New Horizons
Spacecraft Flyby
Target ULTIMA THULE
2014 MU69 at
Tamanrasset (ALGERIA)
on 4 August 2018**



New Horizons Probe



Goal : Flyby of Pluto system in 2015 and a Kuiper objet in 2019


The Occultation of MU20180804 Star by the Kuiper Object **ULTIMA THULE** 2014 MU 69 in August 4th 2018

The prediction is based on a Gaia DR2 pre-release position for the star and the orbit estimate for ULTIMA THULE 2014MU69. This orbit includes all data up through March 21th 2018. The event will be at 01:24 UT. The time at Senegal is 1:21:30 and Colombia is 1:26 UT. Star position is RA 19:04:21.5, Dec -20:35:37 (J2000).

TYC 6291-398-1 Star

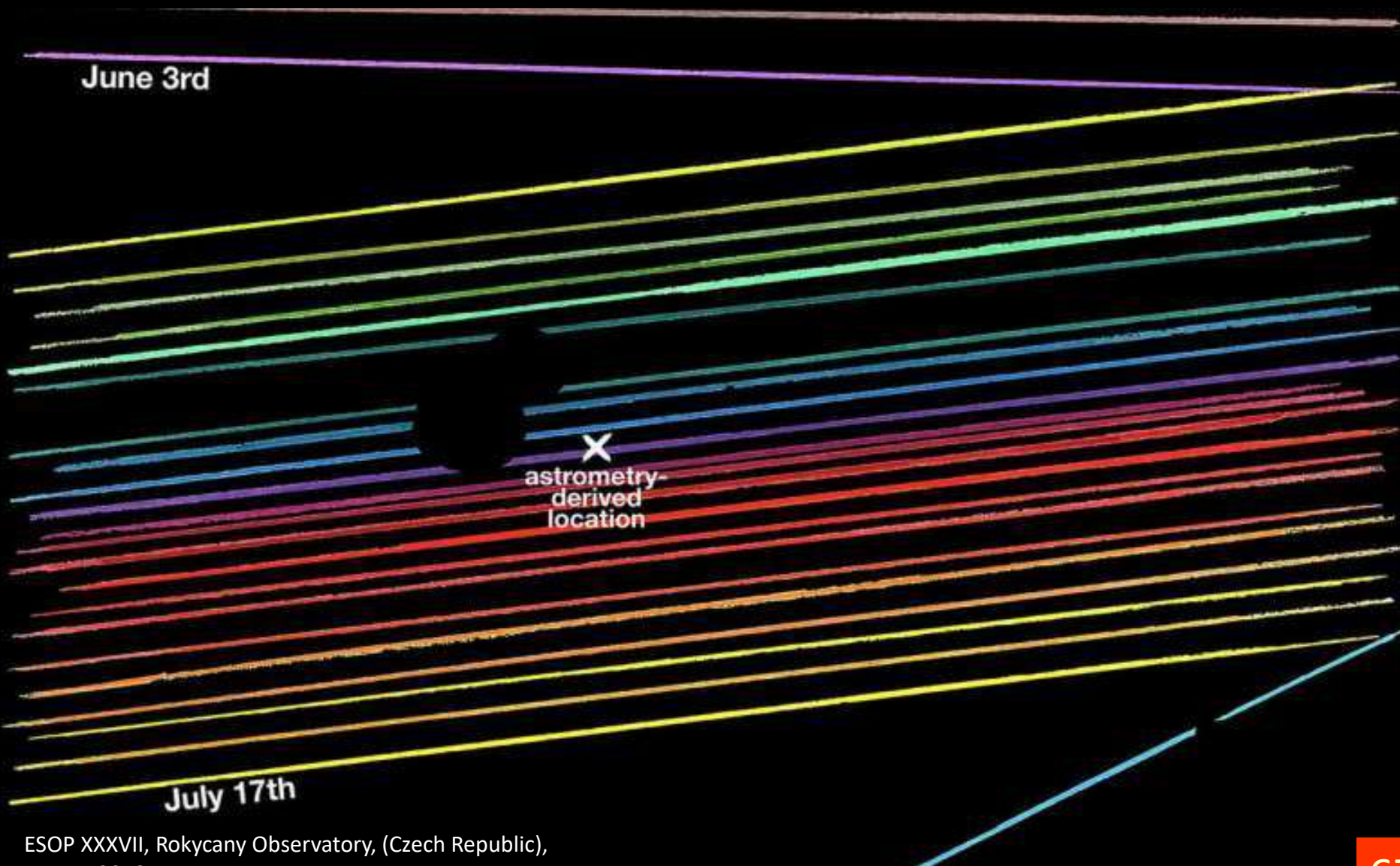
Magnitude of the occulted Star : 13.3

Duration of the occultation : 1 to 2 seconds

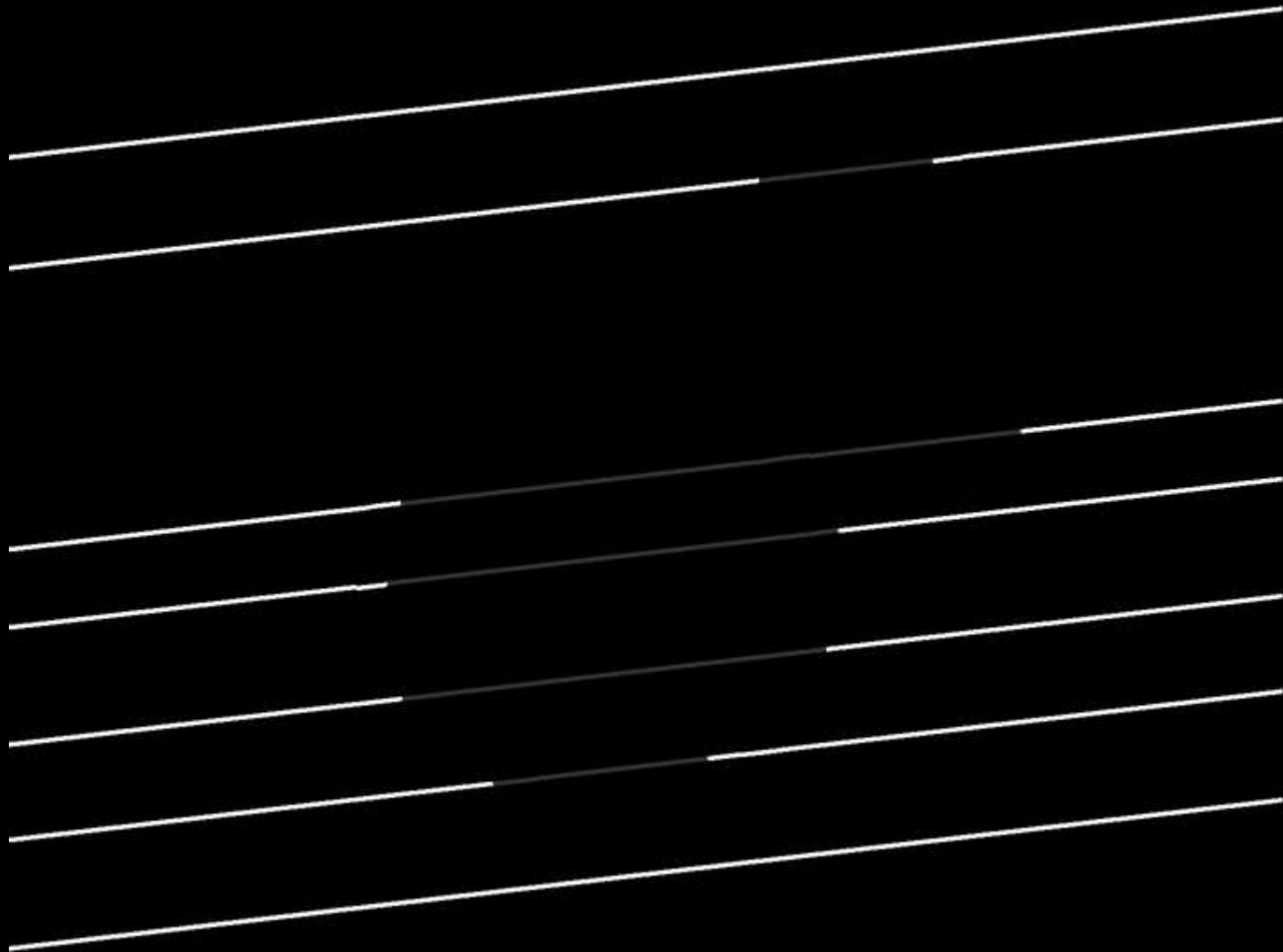
A photograph of Professor Marc BUIE, a man with glasses and a goatee, sitting at a workstation. He is smiling and holding up his right hand with five fingers spread. He is wearing a dark jacket with a NASA patch. In front of him is a laptop with a 'REGIN' sticker. To his left is a mouse and another laptop. In the background, other people are visible, including a woman working on a laptop and a man in a dark jacket. The setting appears to be a control room or observation station.

Professor Marc BUIE
NASA supervisor of the occultation campaign
of MU20180804 Star by the Kuiper Object
2014 MU 69 in August 4th 2018

Chords obtained by the observation of the Stellar occultation of 2014 MU69 in July 17th 2017, Argentina



Occultation by KBO 2014 MU69 on July 17, 2017
Argentina



The path of the occultation in the world Map



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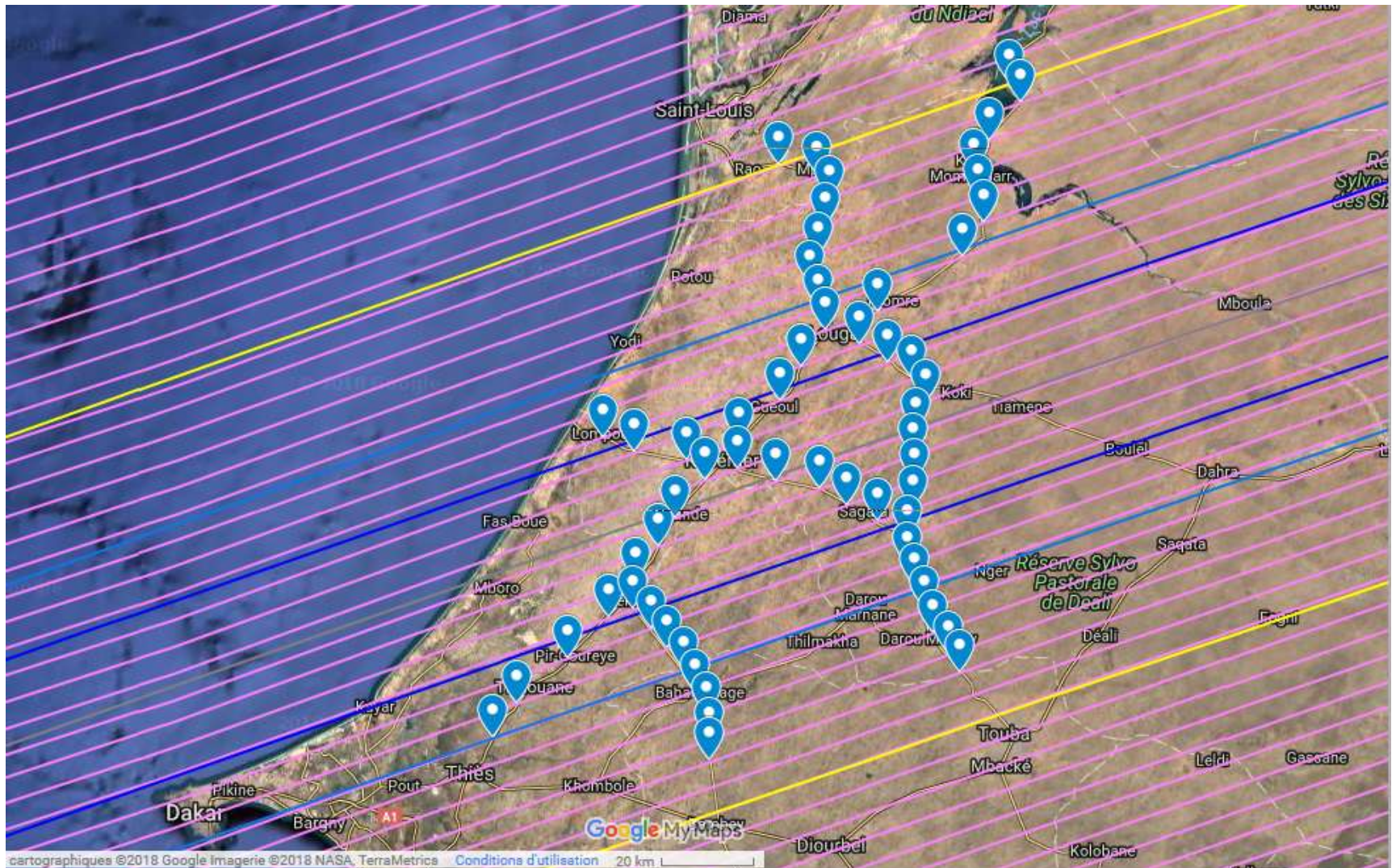
The path of the occultation in Senegal, Mauritania and Mali



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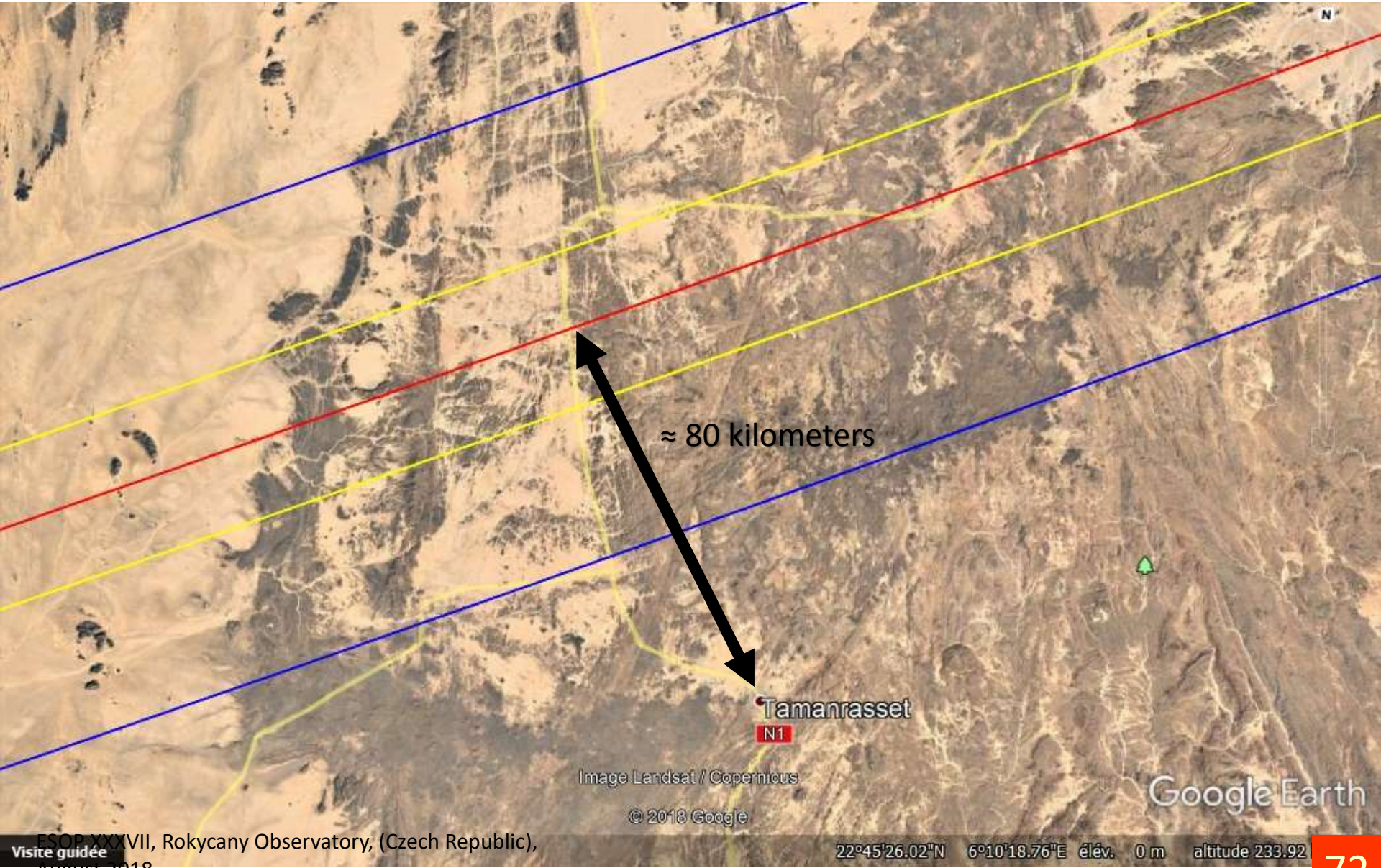
August 2018

Distribution of the 23 NASA telescopes stations throughout the occultation band in Senegal

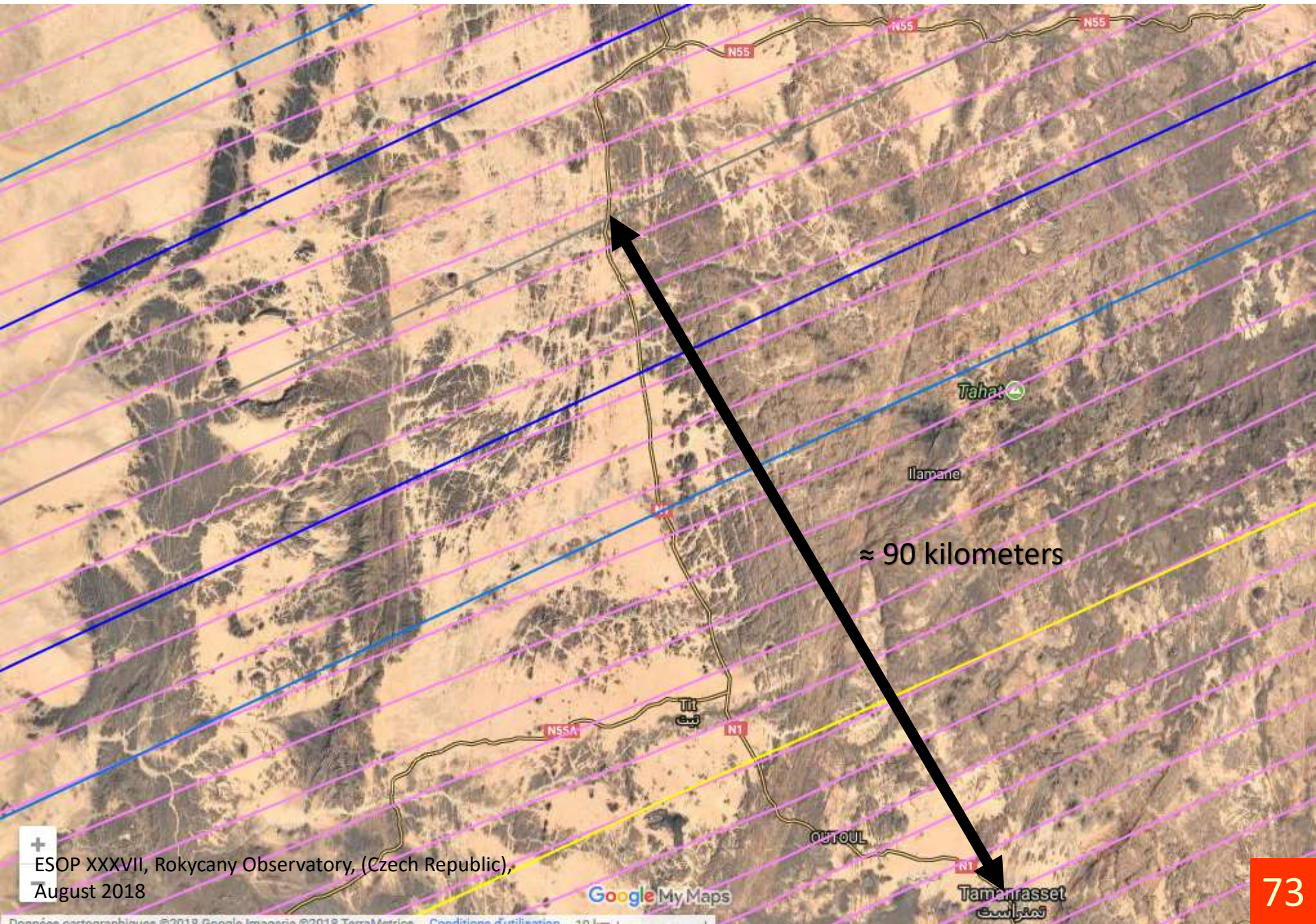


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Zoom on the path prediction of the occultation in Tamanrasset



Zoom on the latest path prediction of the occultation in Tamanrasset



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Google My Maps

Illustration of the eventual shape of 2014 MU69



**Flyby illustration of the eventual double Kuiper object 2014 MU69
by New horizons in January 1st 2019**





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Study of stellar occultation by asteroids with low probability

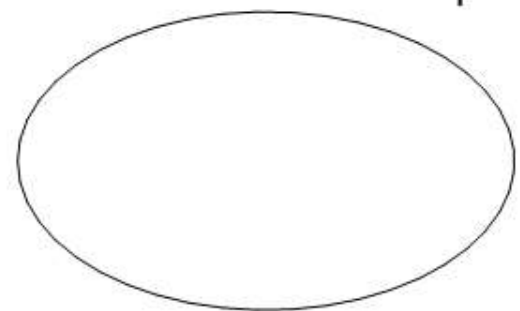
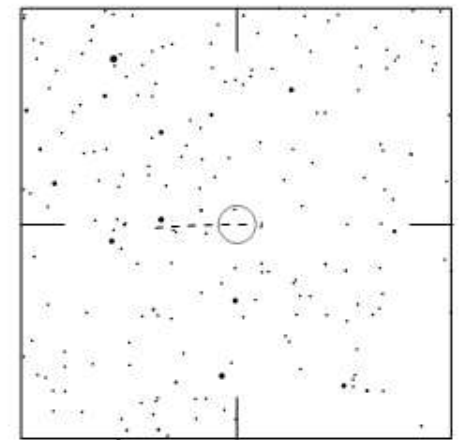
8405 Asbolus occults 4UC 650-023547 on 2017 Nov 20 from 20h 47m to 20h 56m UT

Star:
Mv = 14.5
RA = 4 52 5.9827 (J2000)
Dec = 39 59 3.252
[of Date: 4 53 21, 40 0 39]
Prediction of 2017 Nov 15.5

Max Duration = 3.4 secs
Mag Drop = 7.9 (10.4r)
Sun : Dist = 155 deg
Moon : Dist = 157 deg
illum = 5 %
E 0.250"x 0.150" in PA 90

Asteroid:
Mag = 22.4
Dia = 84km, 0.006"
Parallax = 0.435"
Hourly dRA = -0.521s
dDec = 0.03"

Prediction is from RIO_TNO feed. Contact RIO_TNO group with any observations
TNO object



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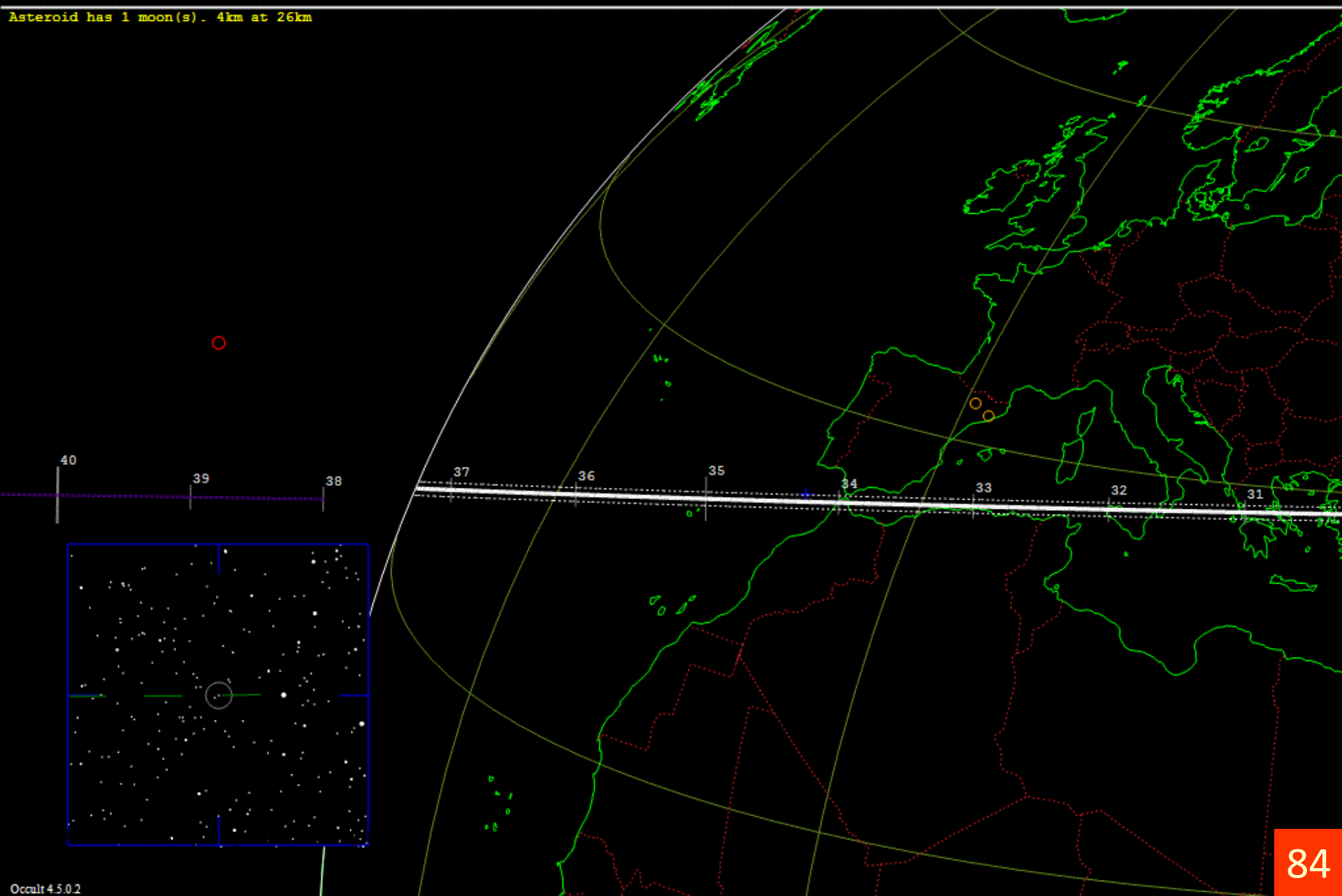
2121 Sevastopol occults TYC 1317-00116-1 on 2017 Dec 6 from 22h 20m to 22h 37m UT

Star:
Mv = 10.4 Mp = 10.4 Mr = 10.4
RA = 6 5 37.2448 (J2000)
Dec = 17 7 25.953
[of Date: 6 6 40, 17 7 9]
Prediction of 2017 Nov 30.0

Max Duration = 0.8 secs
Mag Drop = 5.1 (4.7r)
Sun : Dist = 163 deg
Moon: Dist = 30 deg
: illum = 85 %
E 0.030"x 0.030" in PA 90

Asteroid:
Mag =15.5
Dia = 9km, 0.008"
Parallax = 5.930"
Hourly dRA =-2.730s
dDec = 0.59"

Asteroid has 1 moon(s). 4km at 26km



ADU



TYC 1317-00116-1 Star supposed to be occulted
Mag 10.7

30K

25K

20K

TYC 1317-00440-1 Comparison Star
Mag 12.2

15K

10K

22:32:00

22:32:30

22:33:00

22:33:30

22:34:00

UT

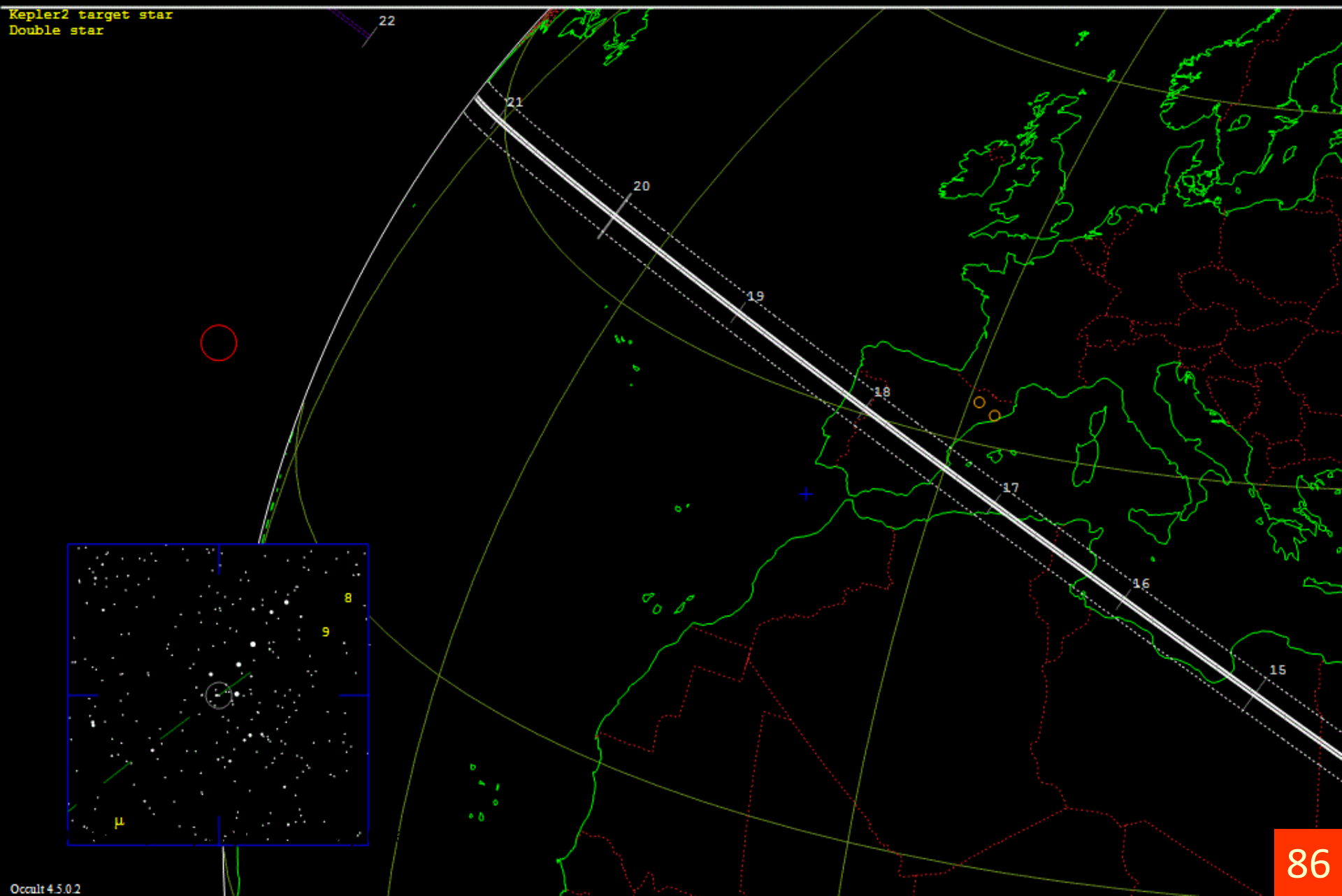
41042 1999 VB2 occults TYC 1878-00338-1 on 2017 Dec 6 from 23h 6m to 23h 21m UT

Star:
Mv = 9.0 Mp = 9.0 Mr = 9.0
RA = 6 19 53.7090 (J2000)
Dec = 23 15 54.393
[of Date: 6 21 0, 23 15 15]
Prediction of 2017 Nov 30.0

Max Duration = 1.3 secs
Mag Drop = 7.7 (7.3r)
Sun : Dist = 160 deg
Moon: Dist = 27 deg
: illum = 84 %
E 0.070"x 0.070" in PA 90

Asteroid:
Mag =16.7
Dia = 18km, 0.014"
Parallax = 4.798"
Hourly dRA =-2.202s
dDec = 22.37"

Kepler2 target star
Double star

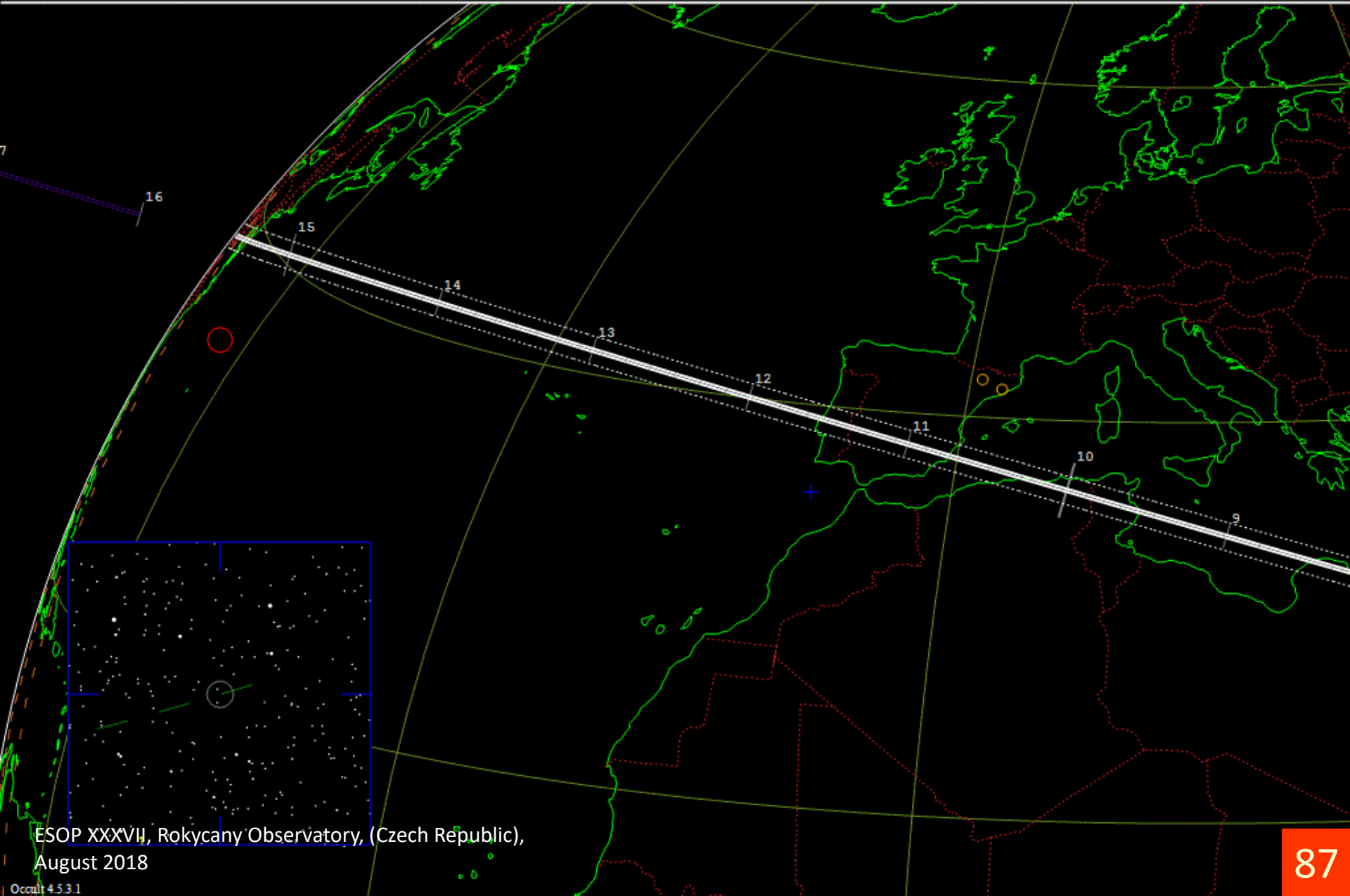


2684 Douglas occults TYC 771-00743-1 on 2018 Jan 9 from 23h 1m to 23h 15m UT

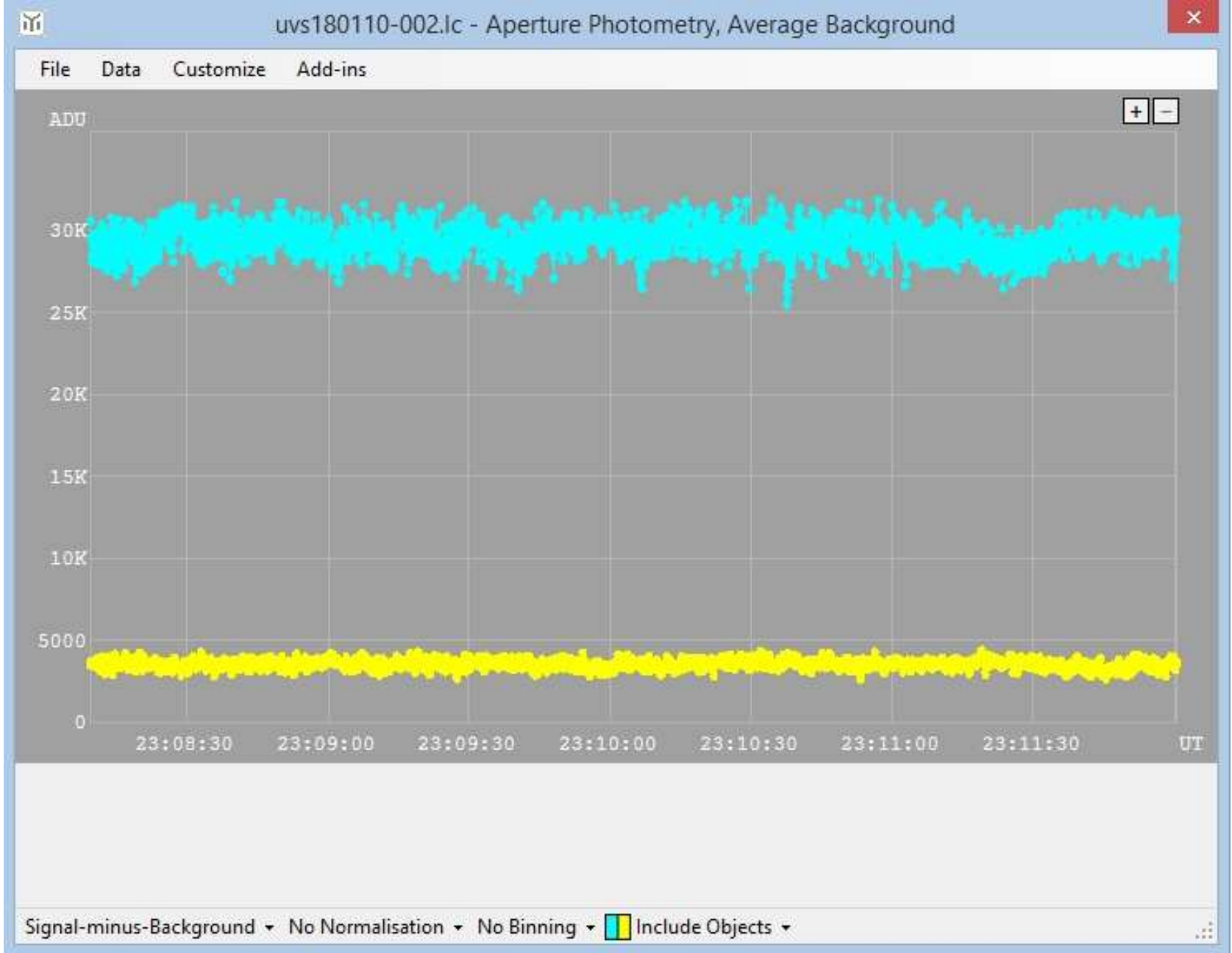
Star:
Mv = 10.3 Mp = 10.3 Mr = 10.3
RA = 7 22 42.1416 (J2000)
Dec = 12 34 55.738
[of Date: 7 23 43, 12 32 40]
Prediction of 2018 Jan 6.0

Max Duration = 1.1 secs
Mag Drop = 5.8 (5.4r)
Sun : Dist = 171 deg
Moon: Dist = 102 deg
 : illum = 40 %
E 0.040"x 0.040" in PA 90

Asteroid:
Mag = 16.1
Dia = 16km, 0.010"
Parallax = 4.001"
Hourly dRA = -2.099s
dDec = 9.06"



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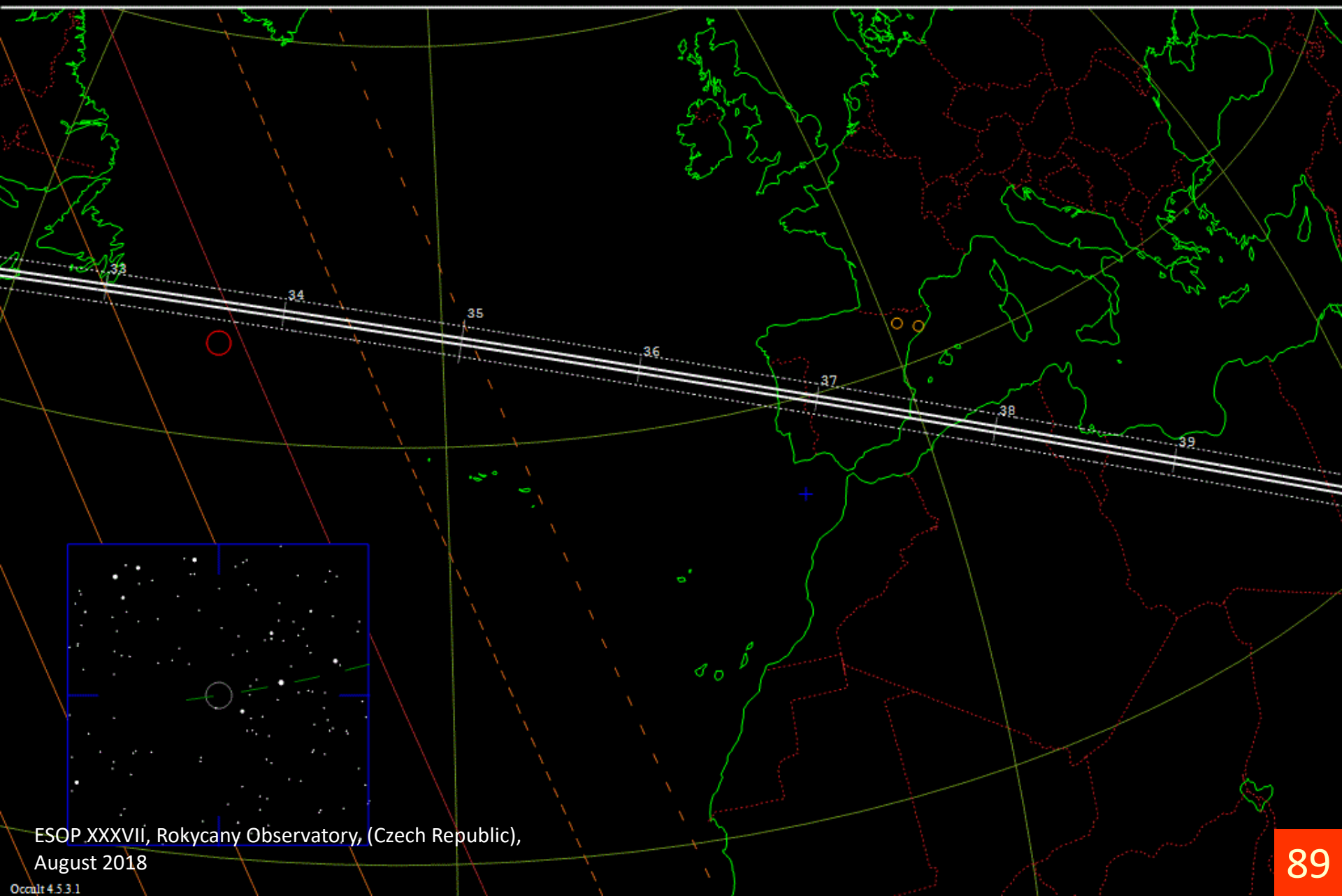


1360 Tarka occults 4UC 616-003042 on 2018 Jan 16 from 19h 28m to 19h 41m UT

Star:
Mv = 12.4 Mp = 12.4 Mr = 12.4
RA = 1 6 38.7090 (J2000)
Dec = 33 5 55.795
[of Date: 1 7 38, 33 11 44]
Prediction of 2018 Jan 6.0

Max Duration = 2.1 secs
Mag Drop = 4.7 (4.3r)
Sun : Dist = 92 deg
Moon: Dist = 94 deg
: illum = 0 %
E 0.030"x 0.030" in PA 90

Asteroid: (in DAMIT, ISAM)
Mag =17.1
Dia = 34km, 0.016"
Parallax = 3.040"
Hourly dRA = 2.179s
dDec = -4.17"



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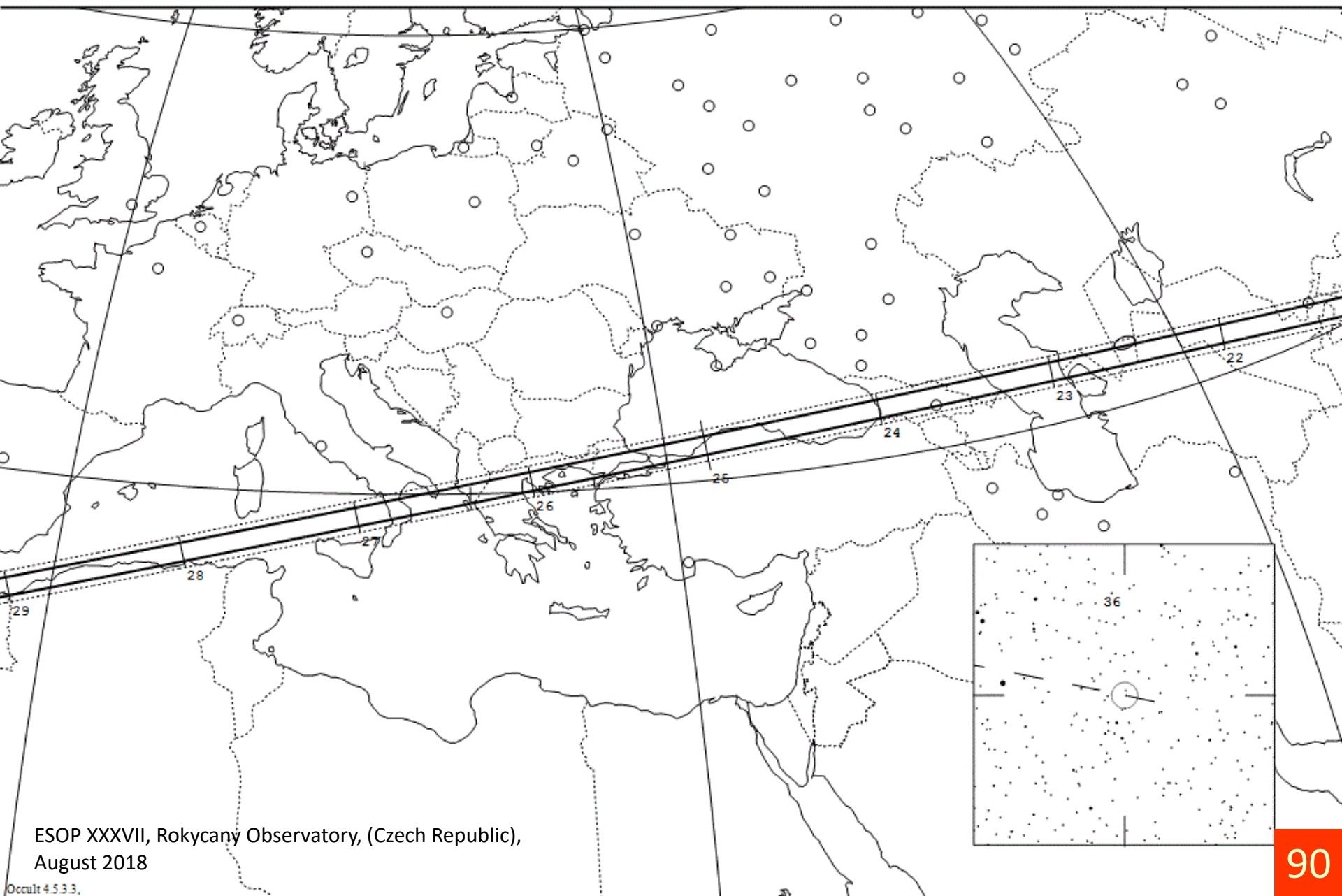
Occult 4.53.1

777 Gutemberga** occults 2UCAC 39296533 on 2018 Jan 24 from 21h 19m to 21h 36m UT

Star:
Mv = 11.7
RA = 6 50 53.6647 (J2000)
Dec = 21 4 57.332
[of Date: 6 51 59, 21 3 29]
Prediction of 2018 Jan 17.0

Max Duration = 6.4 secs
Mag Drop = 2.8
Sun : Dist = 157 deg
Moon: Dist = 67 deg
: illum = 50 %
E 0.029"x 0.016" in PA 71

Asteroid:
Mag =14.4
Dia = 79km, 0.050"
Parallax = 4.028"
Hourly dRA =-1.939s
dDec = -5.64"



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Occult 4.5.3.3.

I'm interesting to observe Near Earth Asteroids by occultation method.

There is 39 Near Earth Asteroids that have more than 4 kilometers of diameter.

6 of them are Potentially Hazardous Asteroids.

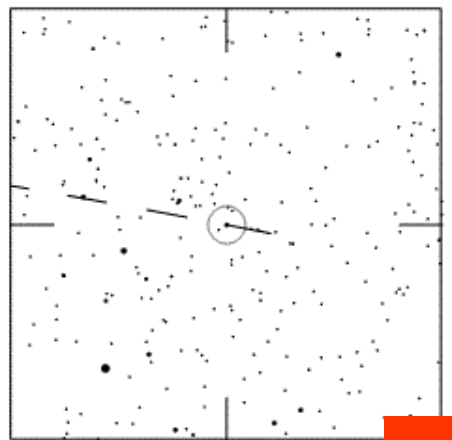
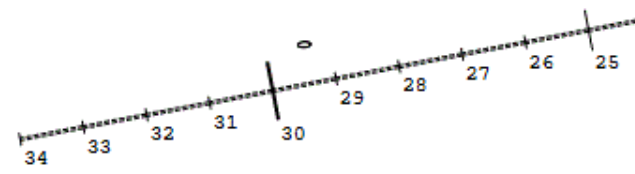
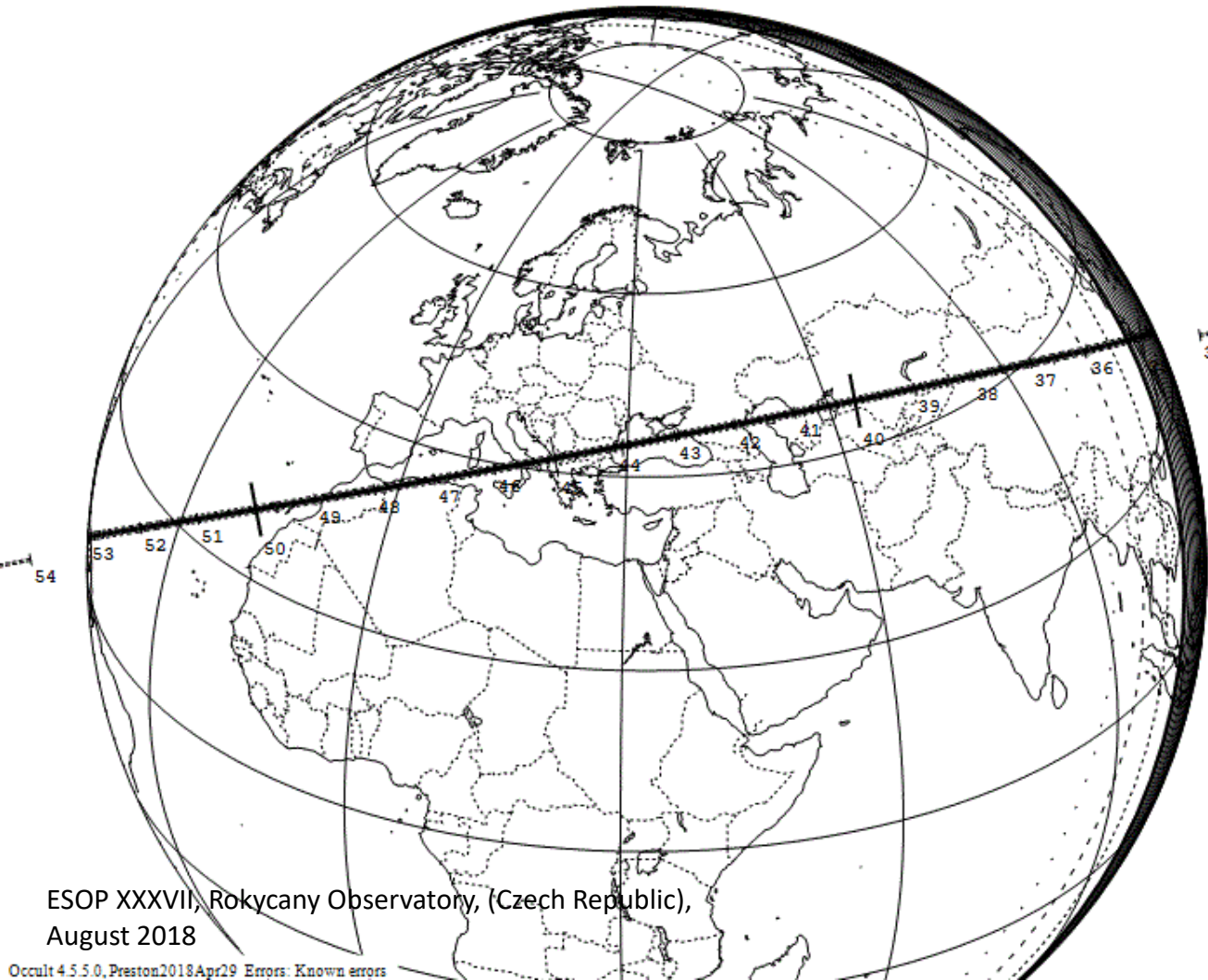
Next interesting occultation to observe in Algeria with the amateur network in Astronomy

1339 Desagneaux occults TYC 2403-00937-1 on 2018 Nov 28 from 22h 35m to 22h 53m UT

Star:
Mv = 8.5
RA = 5 24 34.8930 (J2000)
Dec = 30 35 10.846
[of Date: 5 25 48, 30 36 3]
Prediction of 2018 May 15.0

Max Duration = 2.3 secs
Mag Drop = 6.3 (0.0r)
Sun : Dist = 154 deg
Moon : Dist = 60 deg
: illum = 62 %
E 0.048"x 0.021" in PA 86

Asteroid: (in DAMIT, ISAM)
Mag =14.8
Dia = 26km, 0.019"
Parallax = 4.635"
Hourly dRA =-2.249s
dDec = -5.58"



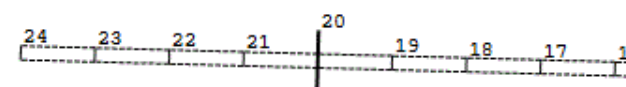
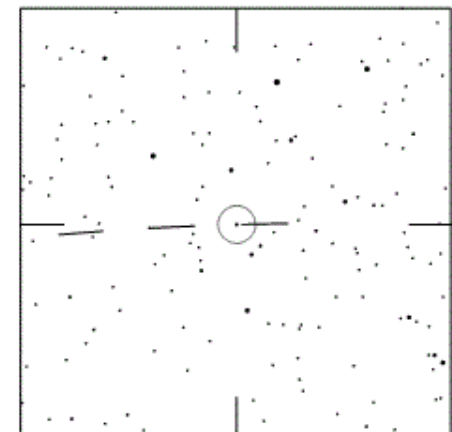
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August 2018

804 Hispania occults TYC 3360-00271-1 on 2018 Dec 8 from 21h 24m to 21h 41m UT

Star:
 Mv = 9.1
 RA = 5 40 57.9144 (J2000)
 Dec = 46 6 20.599
 [of Date: 5 42 23, 46 6 45]
 Prediction of 2018 May 15.0

Max Duration = 11.3 secs
 Mag Drop = 3.2 (0.0r)
 Sun : Dist = 156 deg
 Moon: Dist = 154 deg
 : illum = 3 %
 E 0.022"x 0.014" in PA 89

Asteroid:
 Mag = 12.2
 Dia = 147km, 0.101"
 Parallax = 4.391"
 Hourly dRA = -3.111s
 dDec = 0.86"



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 August 2018

Summary

We are interesting by stellar occultation by asteroids with low probability observation like NEA (Near-Earth Asteroids) and TNO (TransNeptunian Objets).

I hope to characterize next year some of the 39 Near-Earth Asteroids that have more than 4 kilometers using 5 telescopes coupled with IOTA occultation kit.

We create an Algerian Amateurs Astronomers Network to observe stellar occultations by asteroids visually to develop participative astronomy in Algeria.

We wish to create a relationship with other partners around the world and especially from IOTA in order to develop this research in Algeria.

Thank you for your attention!

