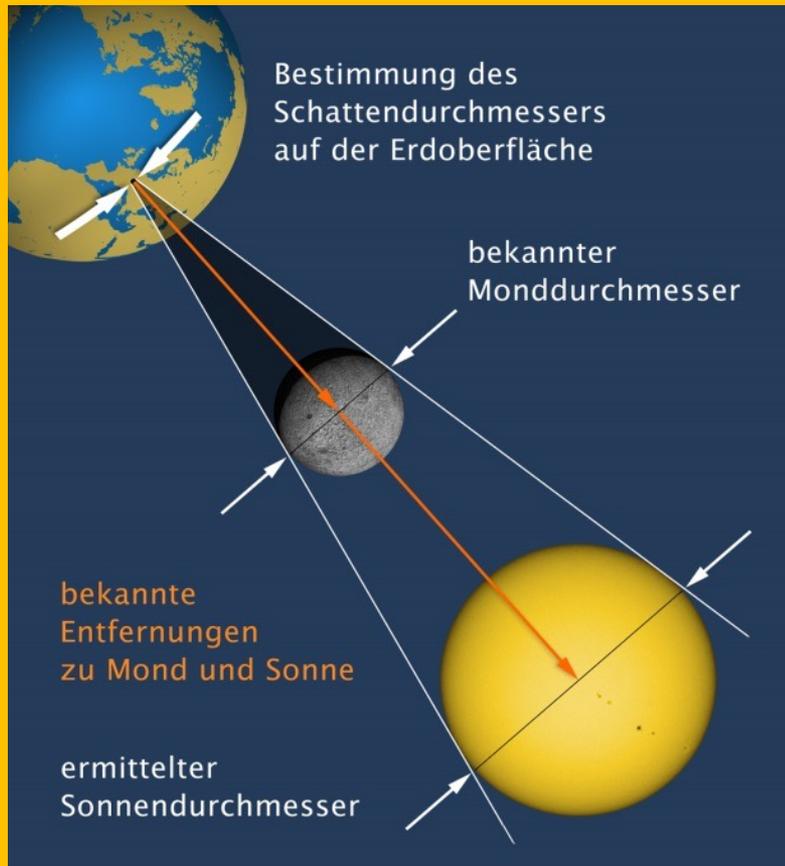


Konrad Guhl (IOTA/ES)

Baily beads observation on TSE20042023

Remember, prinzip and history:



- IOTA and IOTA/ES activity since many years
- Most accurate ground based methode
- 2012 (ESOP XXXI): Will „die“ in the next years due to spacecraft PICARD
- But, PICARD mission not so perfect like expected

Konrad Guhl (IOTA/ES)

Event- ddmmyyyy	Location	Expedition members	Paper
TSE04122002	AU	D., J., & W. Dunham, D. Herald, R. Venable	
ASE03102005	ES, TN	C. Sigismondi, P. Colona, P. Oliva, A. Selva, O. Canales, C. Perello, J. Rovira, M. Fernades-Ocana, C. schnabel, W. Strickling, S. Anderson, W. Rothe, T. Schäfer, K. Guhl	Solar Physics Volume 258, Issue 2 pp 191-202
TSE29032006	TK,EG	K. Guhl, B. Thome, D. Dunham, W. Warren, A. Tegtmeier, C. Tegtmeier, O. Farago, C. Sigismondi, P. Colona	Solar Physics Volume 258, Issue 2 pp 191-202
ASE22092006	FG	C. Sigismondi	Solar Physics Volume 258, Issue 2 pp 191-202
TSE01082008	RU,CN	S. Andersson, M. Haupt, K. Guhl, W. Rothe, A. Selva, A. Massalle, M Fernandez-Ocana, C. Schnabel, R. Nugent, C. Herold,	Solar Physics Volume 258, Issue 2 pp 191-202; JOA 2011-1;
ASE15012010	N, UG,	A. Tegtmeier, C. Tegtmeier, R. Nugent	JOA 2011-4, JOA 2012-2
ASE20052012	US	T. George, S. Preston, D. Dunham, T. Redding, L. Flemming, E. Iverson, D. Breit, S. Bumgarner, C. Herold, C. Kitting, W. Morgan, R. Noltenius, R. Nugent, A. Tegtmeier, T. Swift, R. Venable	JOA 2013-2
TSE09032016	ID	D. & J. Dunham, W. Hadiputrawan	
ASE01092016	TZ, MG	A. Tegtmeier, C. Tegtmeier, E. Guhl, K. Guhl	JOA 2016-04
TSE21082017	US	A. Tegtmeier, C. Tegtmeier, E. Guhl, K. Guhl	JOA 2018-03
TSE02072019	CL, AR	J. Dunham, D Dunham, R. Nugent, E. Guhl, K. Guhl	JOA 2020-02

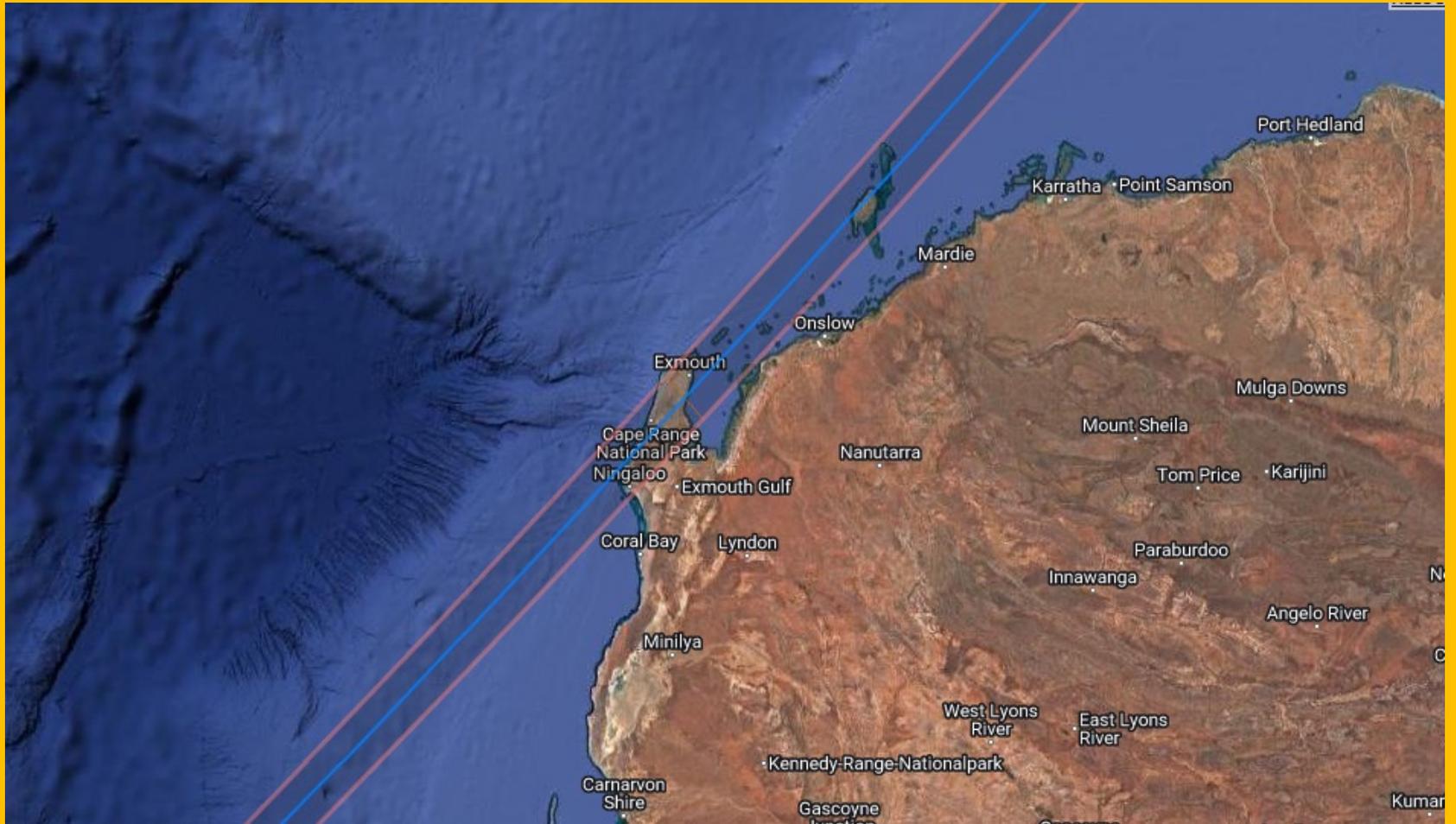
ASE = annular solar eclipse; TSE = total solar eclipse

AR, AU, ES, TN, TK, EG, FG, RU, CN, IN, UG, US, TZ, MG, CL, are the two letter codes of the countries for observation

TSE2022 Apr20



TSE2022 Apr20



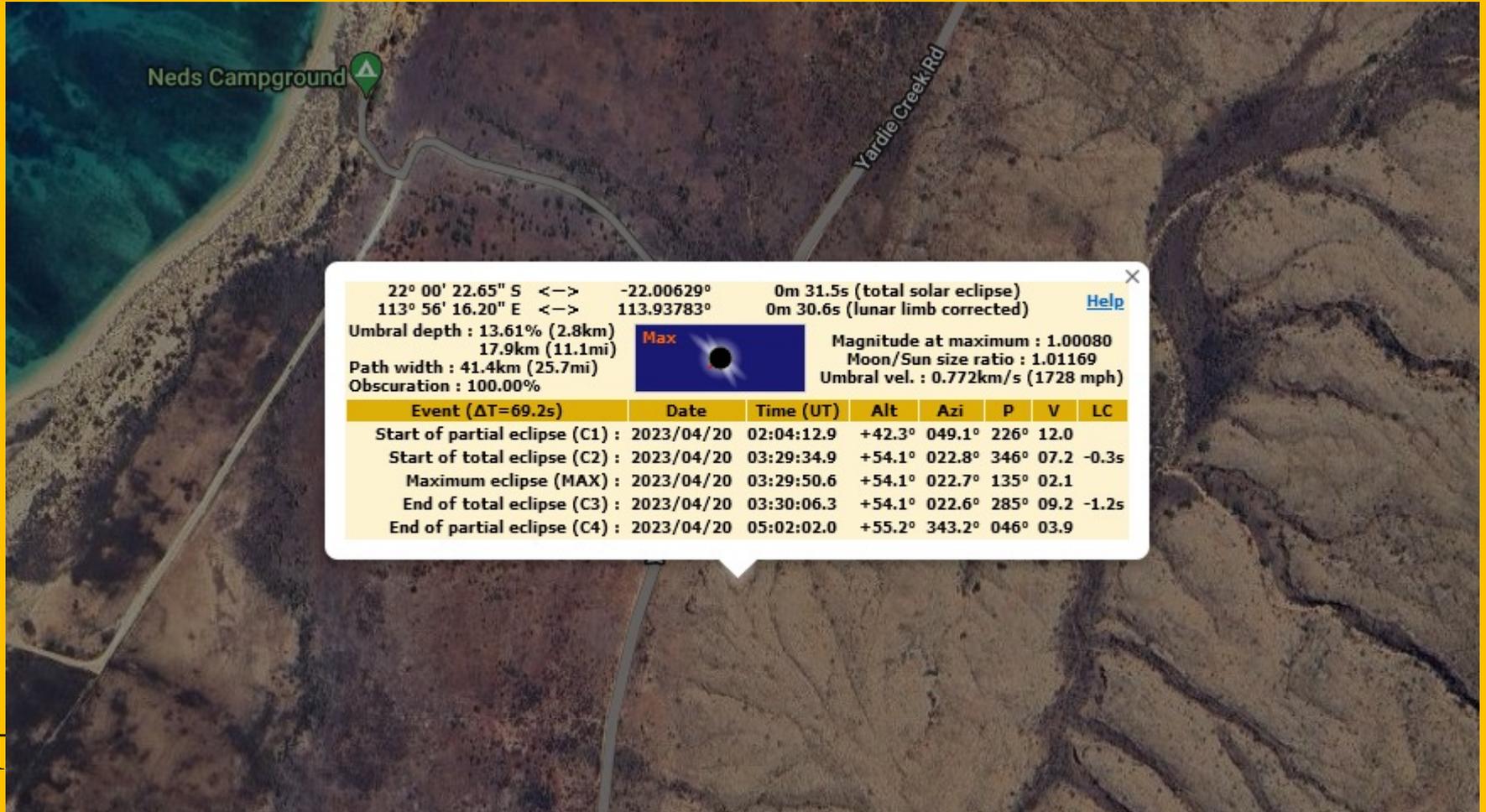
ESOP 2023

TSE2022 Apr20



ESOP 2023

IOTA/ES station

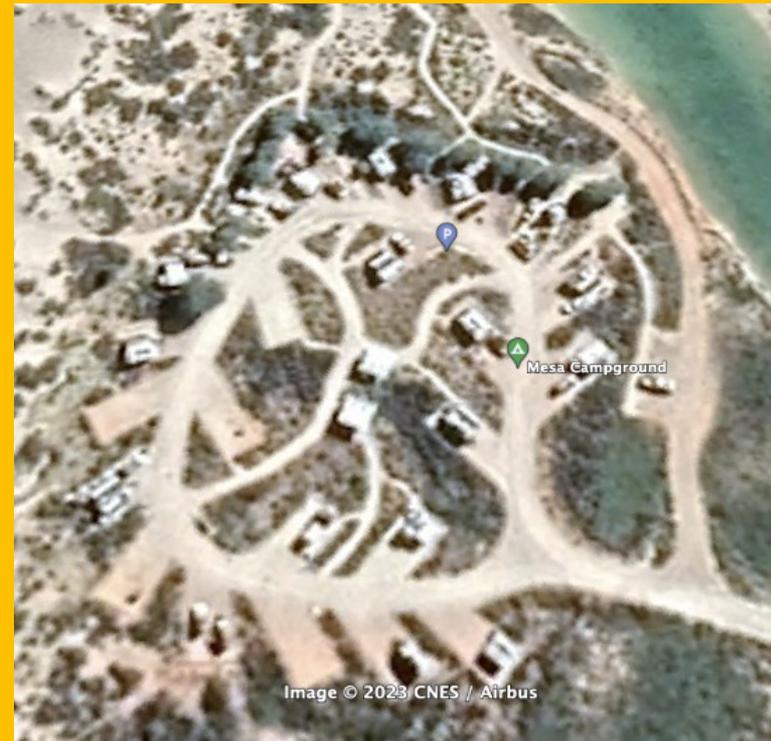


T

http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html



Thanks to Luca!







First shock in the camp

Protokoll zur durchgeführten Gepäckkontrolle Minutes concerning inspected baggage

Nako T1 GNK-2	Details Passagiername Passenger name Gepäcknummer Bag tag number Flugnummer Flight number Re-inspection label number	GUHL, ELKEILONAMRS 0157491993 QR 082
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Sehr geehrter Fluggast,
Ihr Gepäck wurde einer Röntgenkontrolle der Luftsicherheitsbehörde unterzogen und danach einer weiteren Überprüfung zugeführt, da Anlass zur Nachkontrolle bestand.

Dear passenger,
Your baggage was subjected to an X-ray inspection by the aviation security authority and then subjected to a further inspection as to assess its safety beyond doubt.

- Dabei wurden keine Gegenstände entnommen. | No items were removed during the inspection.
- Dabei wurden folgende Gegenstände beanstandet, da sie gegen die geltenden Sicherheitsvorschriften verstoßen, und wurden daraufhin: | The following items were removed because they were in breach of safety regulations and then:
 - in einen flugtauglichen Zustand versetzt. | I restored to an airworthy condition.
 - aufbewahrt (siehe Beiblatt). | I stored (see information sheet attached).
 - vernichtet. | I destroyed.
8 x Batterie | battery

Eventuelle Beschädigungen | Possible damage

- Das Gepäckstück war bereits vor dem Öffnen beschädigt. | The baggage was already damaged before it was opened.
- Es kam beim Öffnen zu folgender Beschädigung: | The following damage occurred when the bag was opened.

Sollte es zu einer Beschädigung gekommen sein, wenden Sie sich bitte an Ihre Fluggesellschaft.
Ihr Gepäckstück wurde von Beauftragten des Flughafens im Beisein eines Mitarbeiters der Luftsicherheitsbehörde wieder verschlossen und gesichert, sofern es verschlossen war. Im Rahmen der Bemühungen um größtmögliche Sicherheit im Luftverkehr danken wir Ihnen für Ihr Verständnis.

If your baggage was damaged during the re-inspection, kindly contact your airline.
Your baggage was closed and secured by an airport agent in the presence of a security officer, provided it was locked. As part of our efforts to ensure highest security standards in air traffic, we thank you for your understanding.

04.04.2023
Datum | Date

14304081
Ausweisnummer, Signum Kontrolleur | ID, signum security agent

18199130
Ausweisnummer, Signum Gepäcköffner | ID, signum authorized staff member

Weitere Informationen finden Sie auf www.lba.de (Presse- und Öffentlichkeitsarbeit/Passagierinformation/Gefahrgut im Passagiergepäck).
Further information at www.lba.de

BER FLUGHAFEN
BERLIN
BRANDENBURG

vernichtet. | I destroyed.
8 x Batterie | battery



second shock in the camp







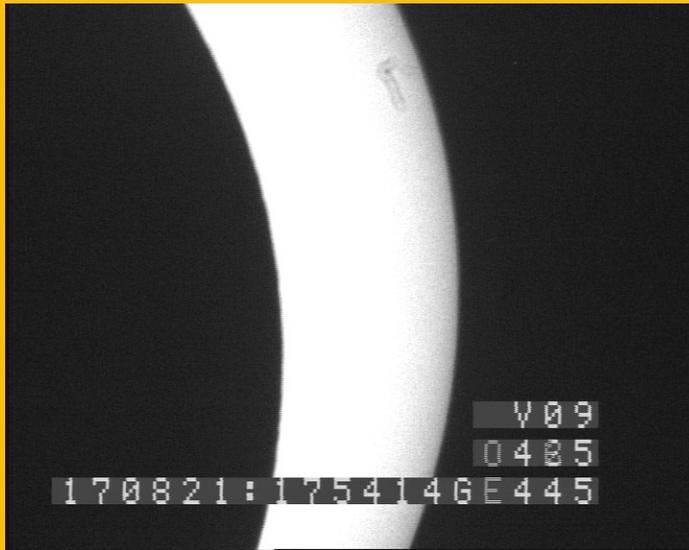




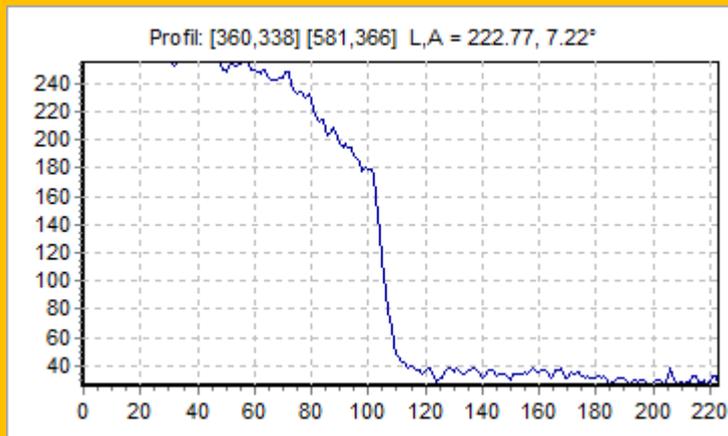


Results:

In the past we did video observation with the WATEC camera, brightness of limb – controlled by gain of WATEC:

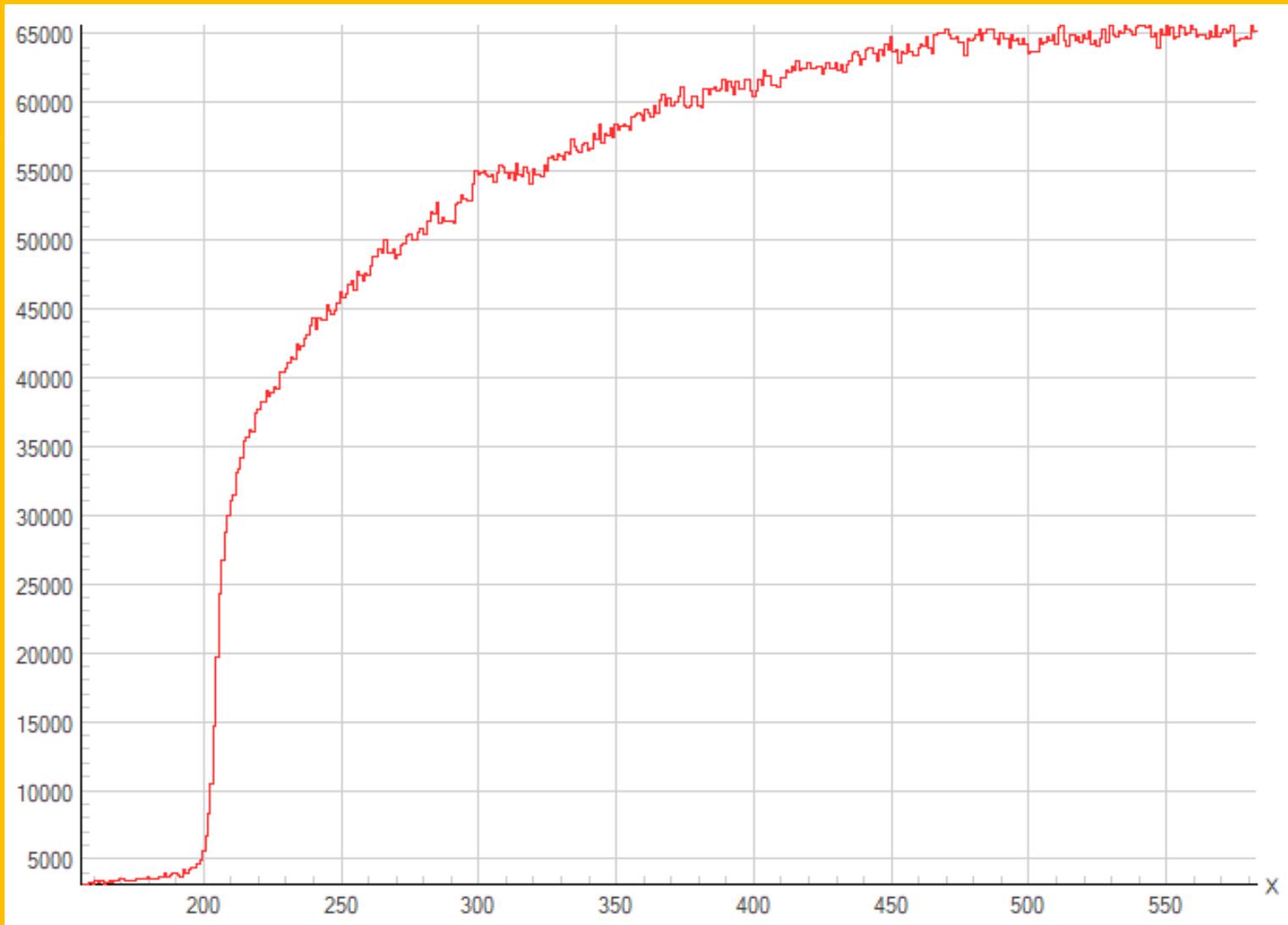


Picture during partial phase for exposition adjustment



Brightness vs. radius

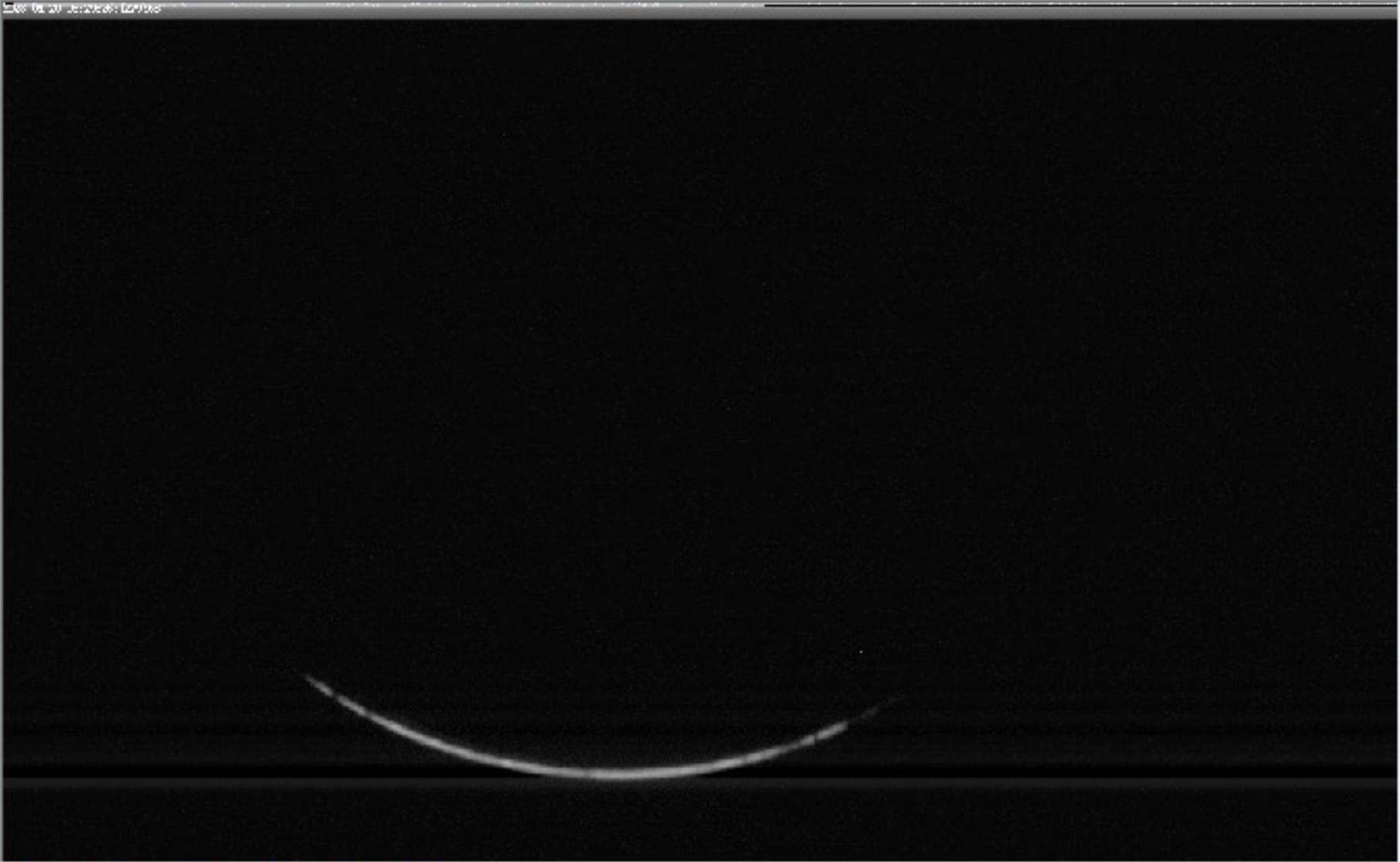
since
2019, 12 bit:



2022 Apr 20, 100/1000 + IOTA/ES + 535nm filter
QHY 174 100ms

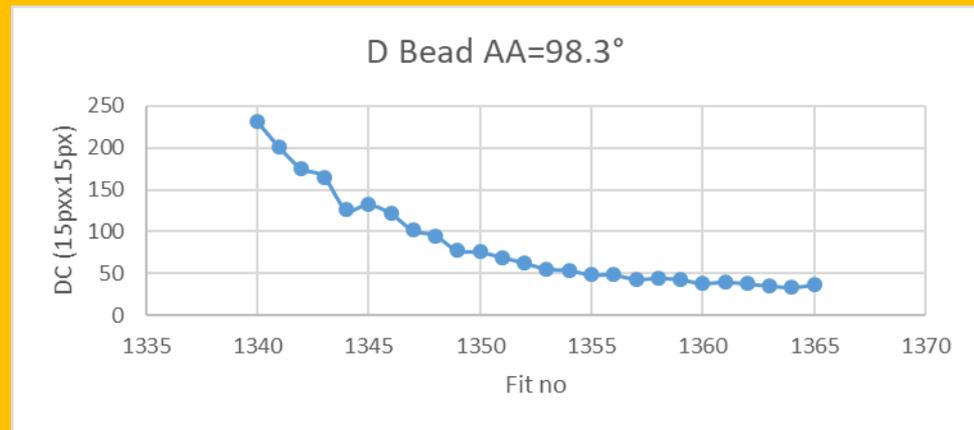
Analyses file

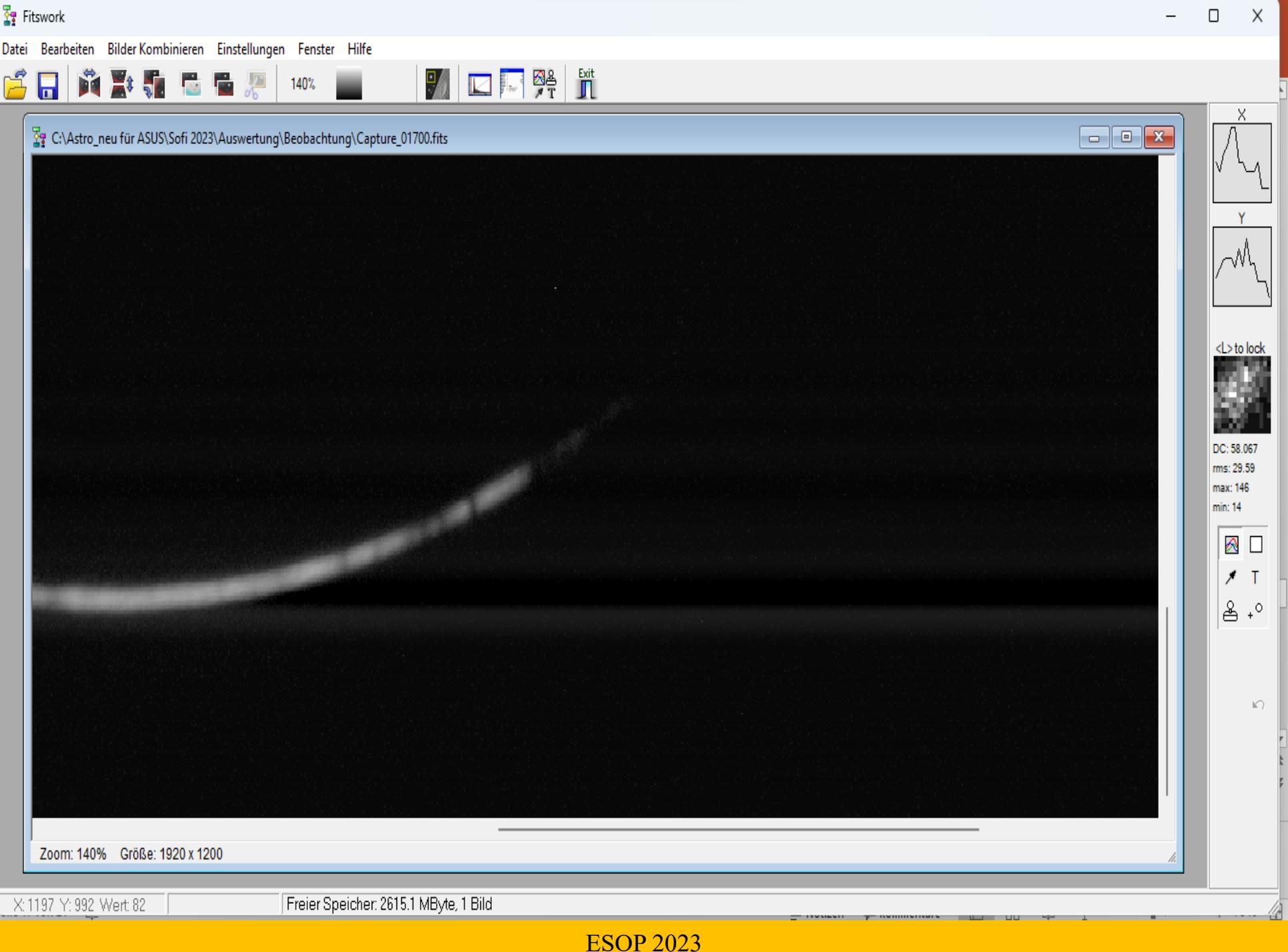
- Identify bead
- Measure D and R,
- Simulate with Occult, find O-C



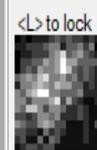
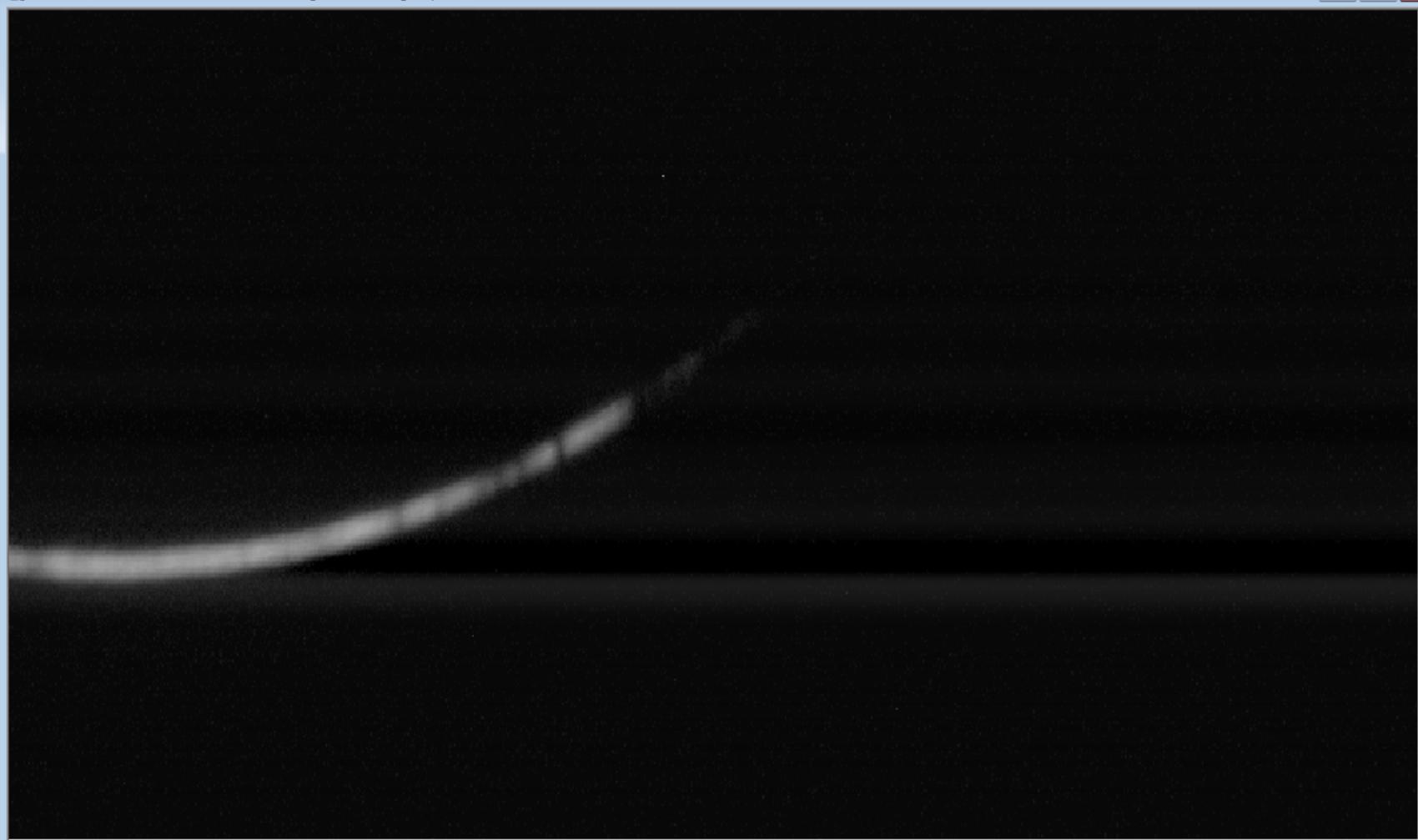
Zoom: 35% Größe: 1920 x 1200

- Analyse pictures by FITSworks
- disappearance: light curve was created by using photometry on the FITS images until the disappearance.
- reappearance, the X,Y coordinates of the appeared bead were first determined. Then the brightness of this position was measured on the previously recorded FITS. The first image with a measurable signal at the position determines the time of reappearance.





C:\Astro_neu für ASUS\Sofi 2023\Auswertung\Beobachtung\Capture_01700.fits



DC: 58.067
rms: 29.59
max: 146
min: 14

Navigation and tool icons including a cursor, a target, and a zoom-in icon.

Zoom: 140% Größe: 1920 x 1200

Baily Beads Main form : Occult v.4.2023.7.9

File.... Animated GIF... Show.... Help stay on Top

Date & Site

year mth day
Date 2023 4 20

Site name Mesa Camp

E. Longitude 113 56 15.3 dms
 dm.m
 d.dd

Latitude -22 0 22.4

Datum WGS84

Altitude 2 m
 ft

Draw as mirror image

Plot Parameters

Central axis angle 43.00

For full disk, set scale to 0.4 or less Scale 5.0

Offsets
RA 0.00 Dec 0.00

Correction to solar radius at unit distance 0.00

LOLA

Time for the plot

h m s
UTC 3 29 26.4

Change time
Step size (secs) 0.1 + -

Animation

Step size 0.1 **Stop** Pause
 29 26.4

Duration 0 Resume - 10 steps back

Animation On Auto-save

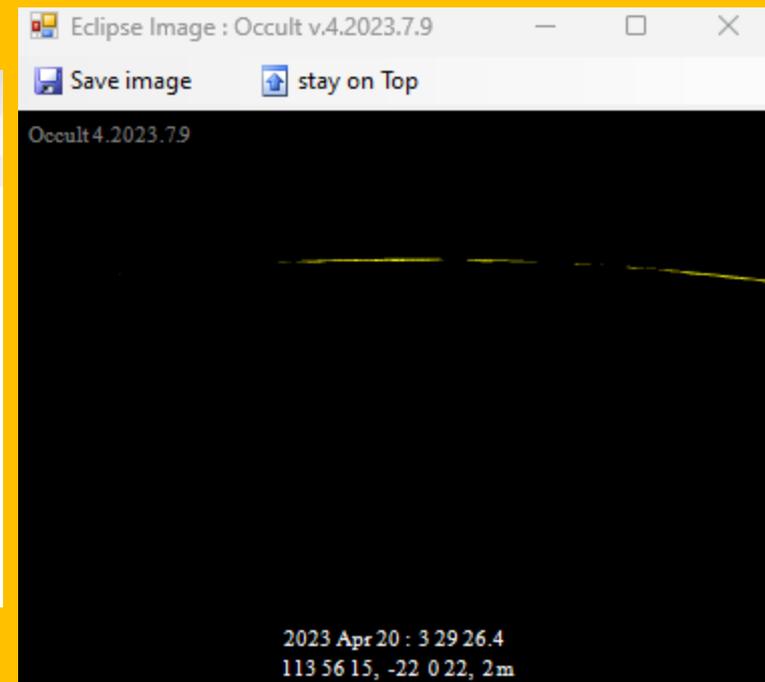
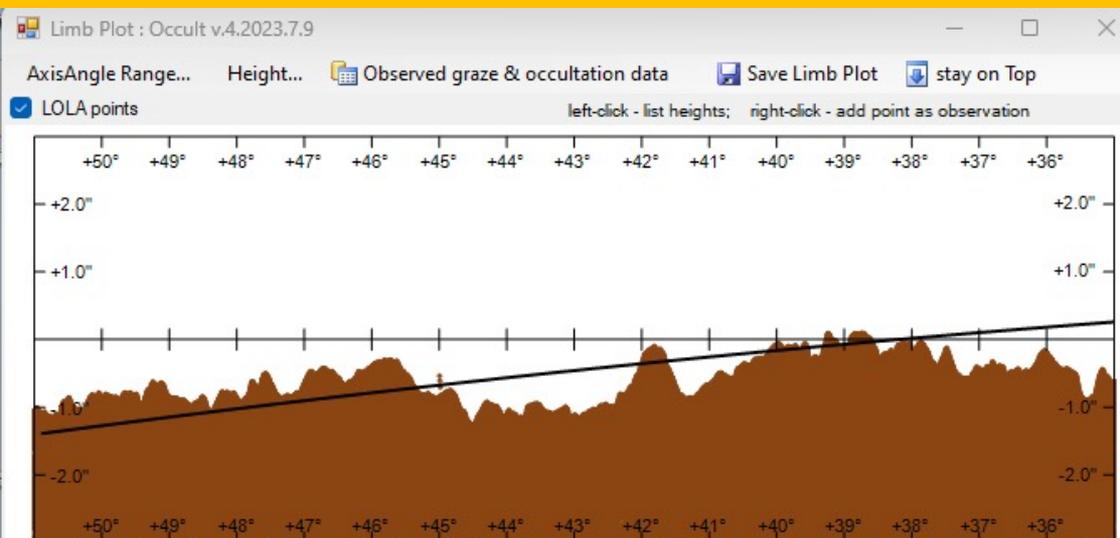
Plot

Librations and Moon-Sun offset

L	B	C	x''	y''
5.01	0.12	340.91	-0.71	12.97

Cursor location on Eclipse image

AA Height



Results:

2023AUN1			
time UTC	Axis Angle	Type	Variation solar radius Δr_s
03:28:52.7	99.3°	D	0.55"
03:28:52.9	98.3°	D	0.6"
03:29:00.4	90.3°	D	0.32"
03:29:00.9	89.0°	D	0.25"
03:29:18.6	67.2°	D	0.37"
03:29:23.3	55.1°	D	0.48"
03:29:25.9	50.8°	D	0.39"
03:29:27.4	48.3°	D	0.34"
03:29:28,1	47,3°	D	0.61"
08:29:29,2	41,3°	D	0.33"
03:29:58.0	324.8°	R	0.34"
03:29:59.1	330.8°	R	0.31"
03:30:01.2	322.3°	R	0.33"
03:30:05.1	295.1°	R	0.35"
03:30:05.1	282.5	R	0.30"
03:30:05.7	308.8	R	0.24

Results:

solar radius in OCCULT is 959.63“

avarage delta solar radius from 2023AUN1 is 0.38“

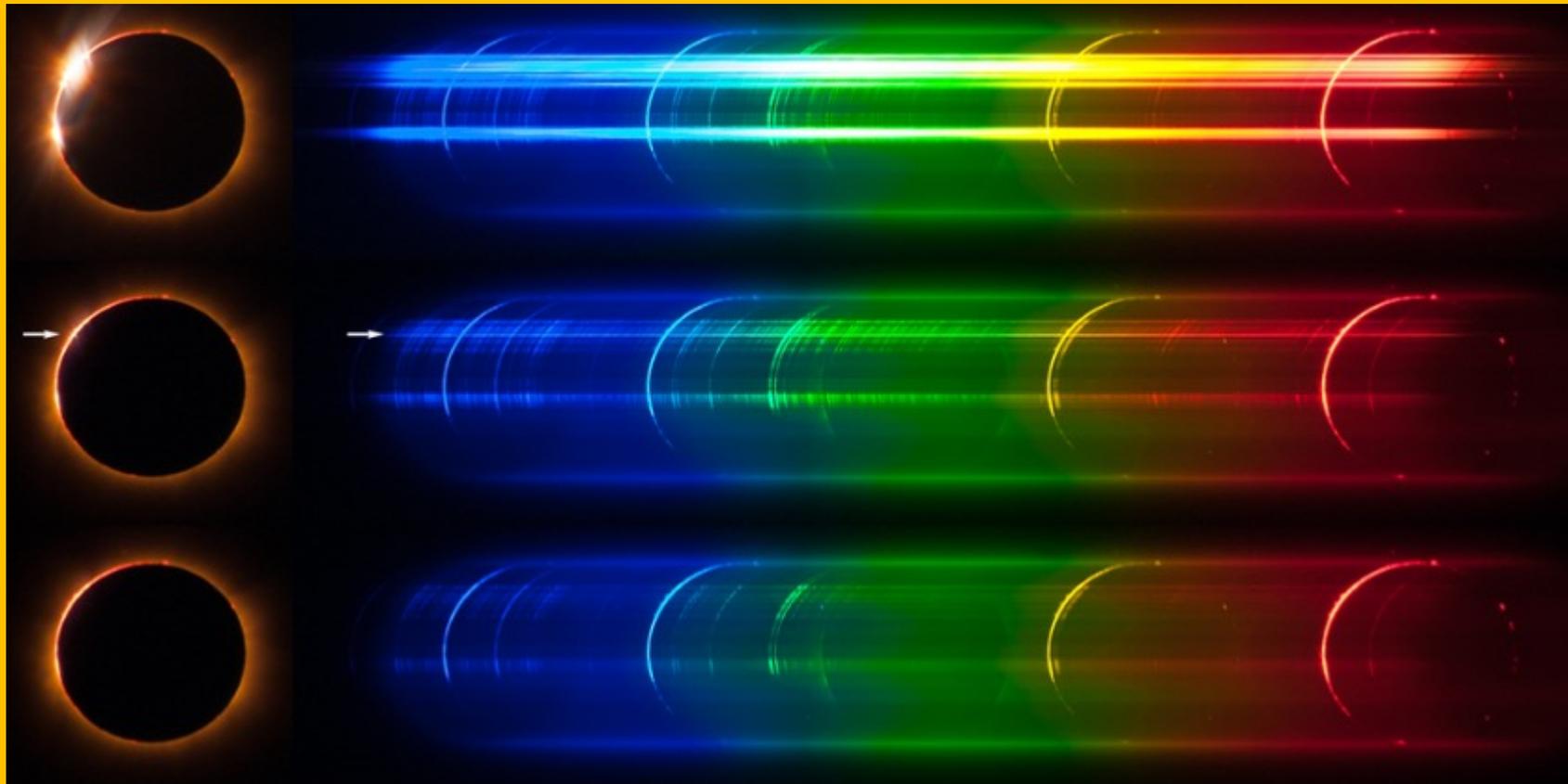
→ solar radius 960.01“ +/-0.12

other observation (Luca Quaglia):

JOA 2/2022

Estimating the Eclipse Solar Radius from Flash Spectrum Videos

Luca Quaglia · Sydney, New South Wales · Australia · besselianelements@gmail.com
John Irwin · Guildford, England · United Kingdom · john@jir1667.plus.com
Konstantinos Emmanouilidis · Thessaloniki · Greece · conemmil@gmail.com
Alessandro Pessi · Milan · Italy · issepela@gmail.com



Photometric experiment

Solar Phys (2015) 290:2617–2648
DOI 10.1007/s11207-015-0787-8



A Novel Technique for Measuring the Solar Radius from Eclipse Light Curves – Results for 2010, 2012, 2013, and 2015

Phillippe Lamy¹ · Jean-Yves Prado² · Olivier Floyd³ ·
Patrick Rocher⁴ · Guillaume Faury^{1,3} · Serge Koutchmy⁵

Received: 15 April 2015 / Accepted: 18 September 2015 / Published online: 9 November 2015
© Springer Science+Business Media Dordrecht 2015

Abstract We report on a novel technique for measuring the solar radius during total solar eclipses that exploits light curves recorded just before and after second and third contacts. The measurements are performed by pre-programmed photometers that are deployed over the eclipse paths and are operated without supervision. The recorded light curves are compared to synthetic light curves calculated from high-accuracy ephemerides and lunar-limb profiles constructed from the topographic model of the Moon provided by the *Kaguya* lunar space mission. A minimization process between the two sets of curves yields the solar radius. Altogether, seventeen determinations have been obtained during the past four total eclipses with the following averages (at a wavelength of 540 nm and scaled

Photometric experiment



End of the day.....



Guhl ESOP 2023

Konrad Guhl (IOTA/ES)

...thank you!