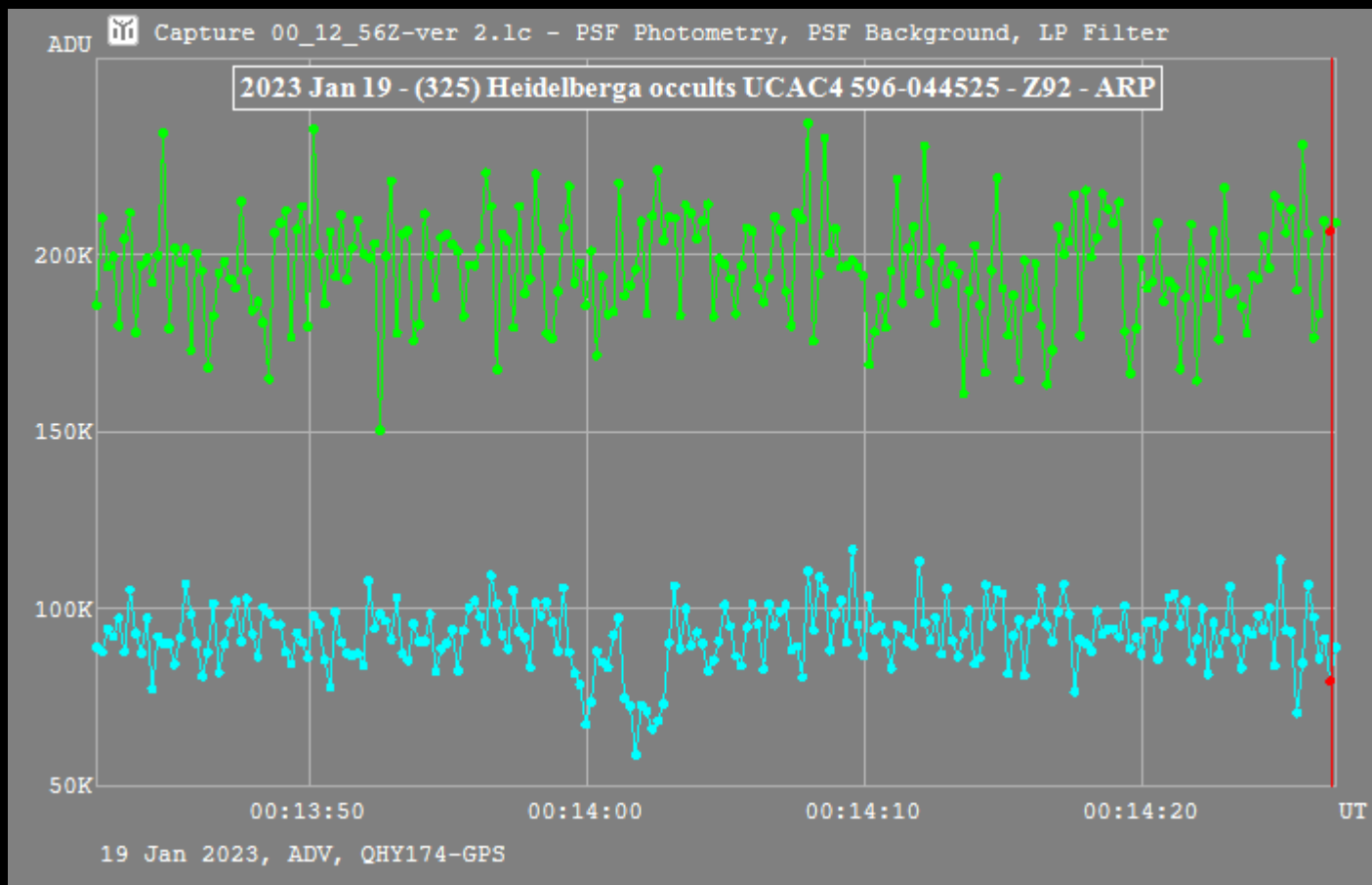


A grazing asteroidal occultation by (325) Heidelberga, 2023 January 19



Alex Pratt IOTA-ES, BAA

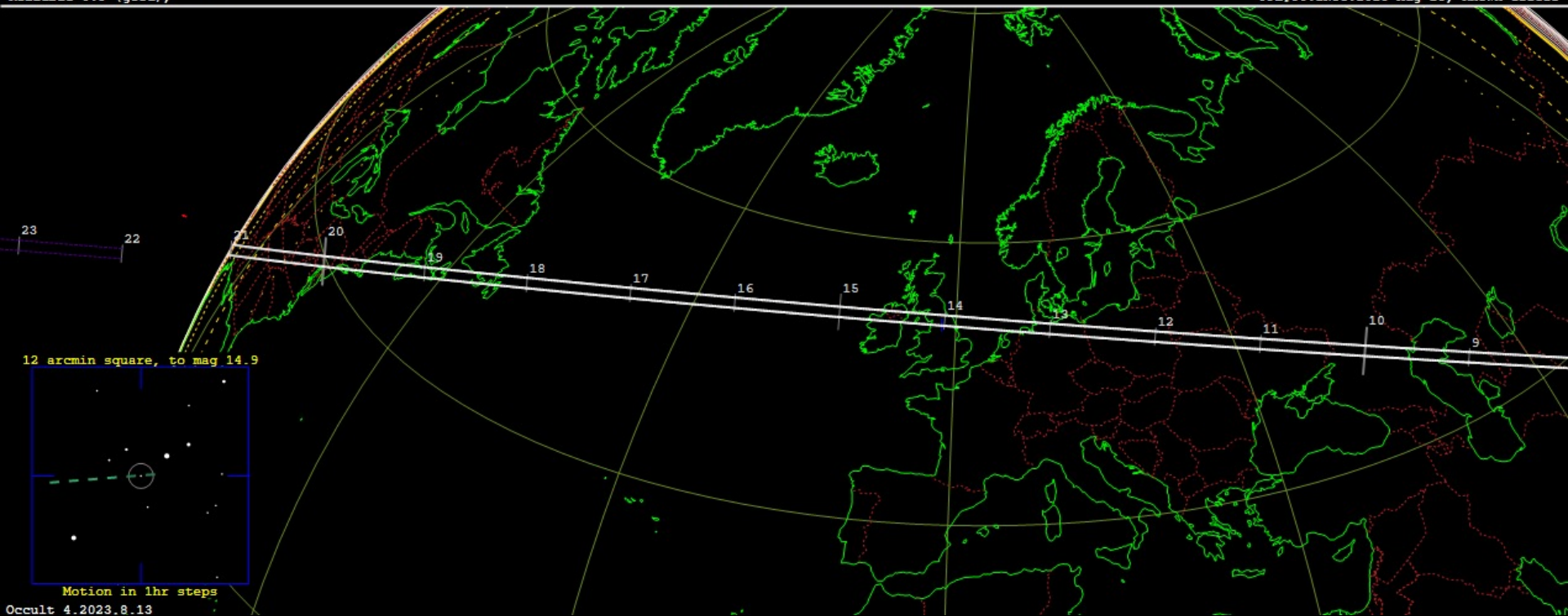
2023 January 19 – mag 13.1 Heidelberga occulted mag 13.9 star for up to 6s mag drop 0.4

325 Heidelberga occults UCAC4 596-044525 on 2023 Jan 19 from 0h 6m to 0h 21m UT

Star: (Dia < 0.1 mas)
Mv 13.9; Mb 14.1; Mr 13.5
RA = 8 16 34.5114 (astrometric)
Dec = 29 5 0.591
[of Date: 8 18 0, 29 0 43]
Prediction of 2023 Sep 5.9
Reliable 0.9 (good),

Durations: Max = 5.9 secs
1km = 0.079 secs, 1mas = 0.11 secs
Mag Drop: 0.43 [33%]v, 0.41 [32%]r
Sun : Dist = 171°
Moon: Dist = 138°, illum = 12%
1 σ Err: $\pm(9.0 \times 0.8)$ mas in PA 109°

Asteroid:
Mag = 13.1
Dia = 75 \pm 4km, 52 mas
Parallax = 4.462"
Hourly dRA = -2.413s
dDec = 2.52"
JPL#90:INTG:2023-Aug-23, Known errors



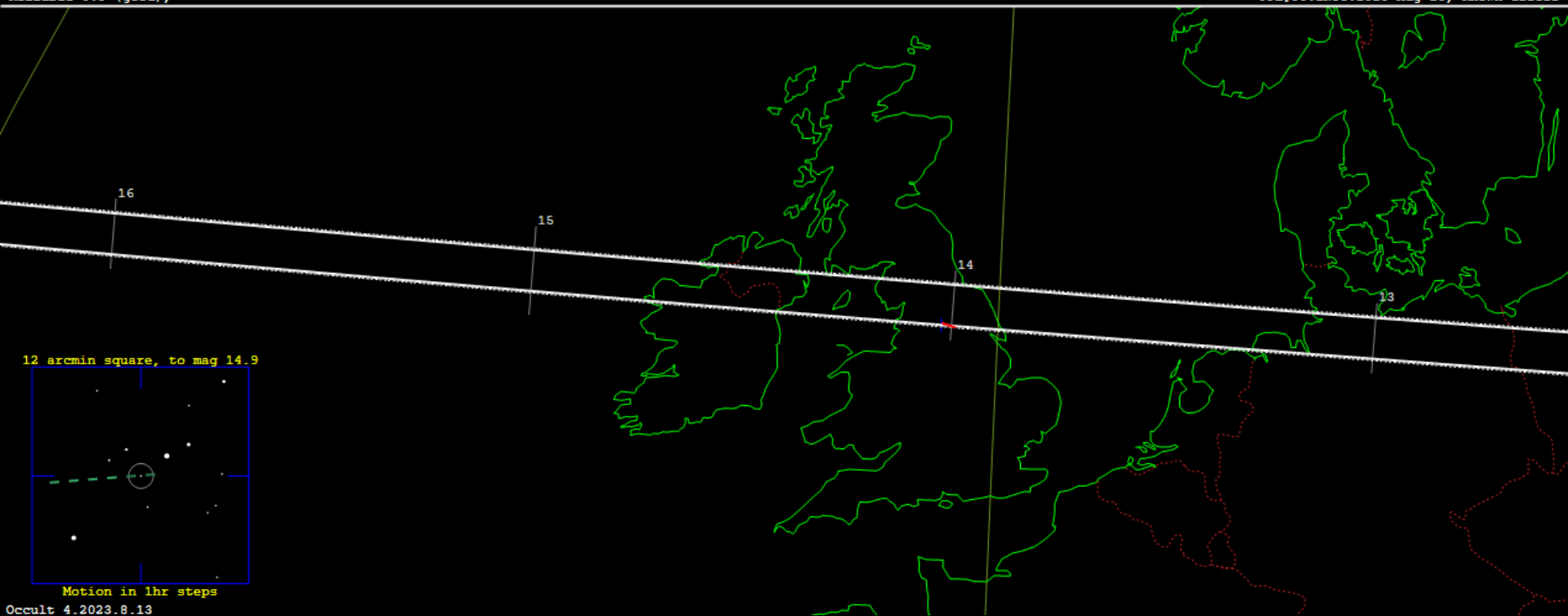
2023 January 19 – mag 13.1 Heidelberga occulted mag 13.9 star for up to 6s mag drop 0.4

325 Heidelberga occults UCAC4 596-044525 on 2023 Jan 19 from 0h 6m to 0h 21m UT

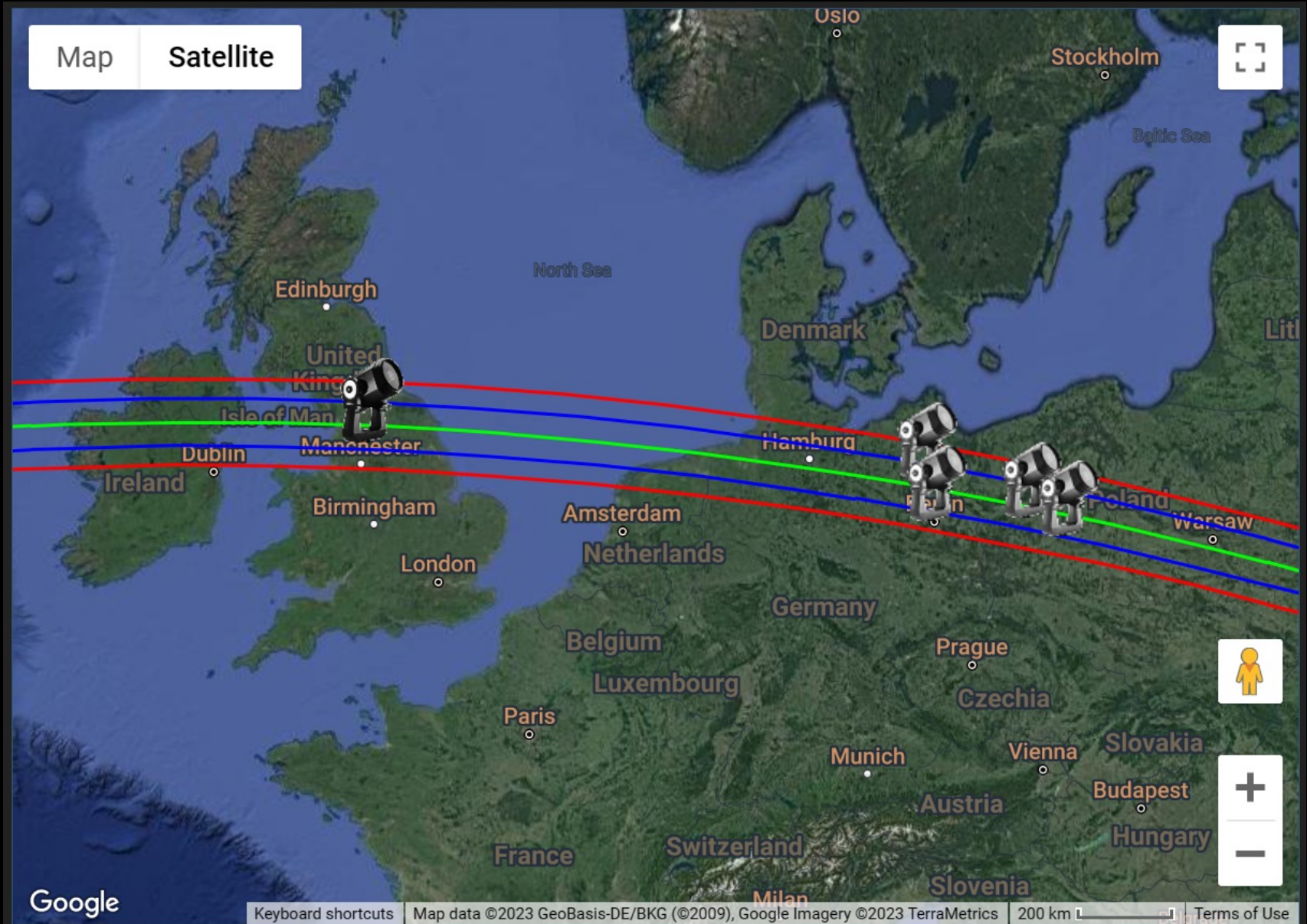
Star: (Dia < 0.1 mas)
Mv 13.9; Mb 14.1; Mr 13.5
RA = 8 16 34.5114 (astrometric)
Dec = 29 5 0.591
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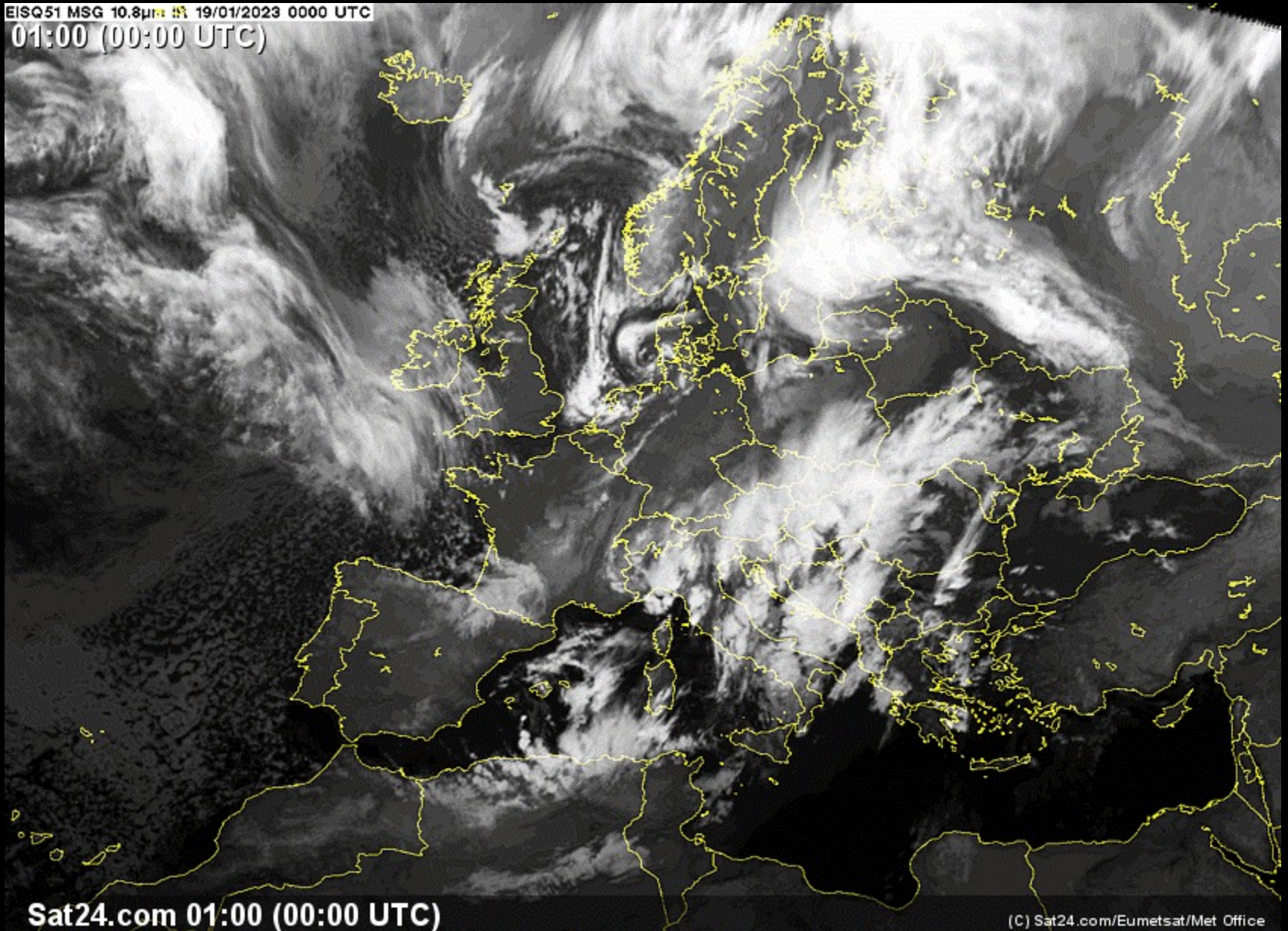


2023 January 19 – mag 13.1 Heidelberga occulted mag 13.9 star for up to 6s mag drop 0.4



Cloud cover over Europe – Sat24

EISQ51 MSG 10.8µm # 19/01/2023 0000 UTC
01:00 (00:00 UTC)



Sat24.com 01:00 (00:00 UTC)

(C) Sat24.com/Eumetsat/Met Office

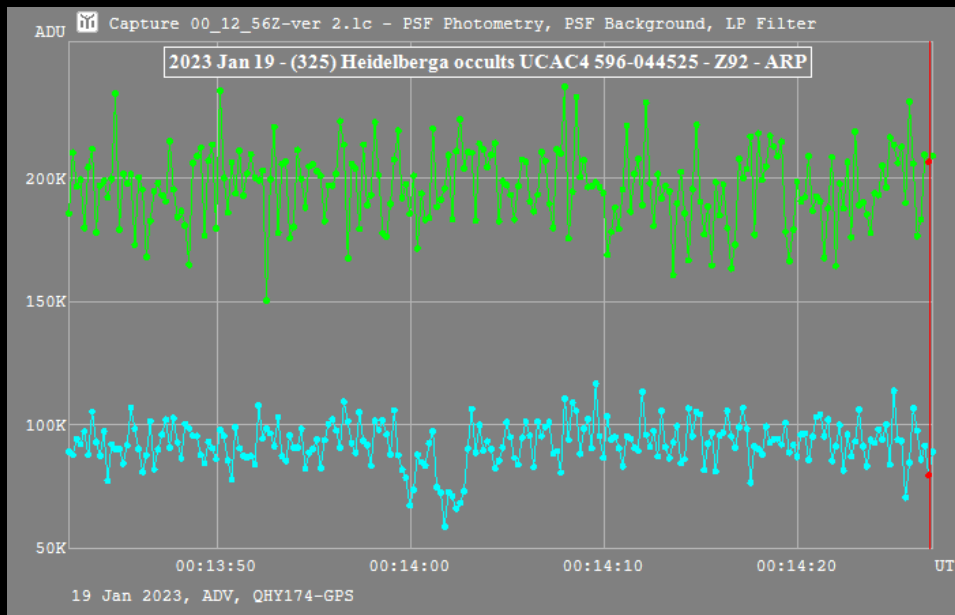
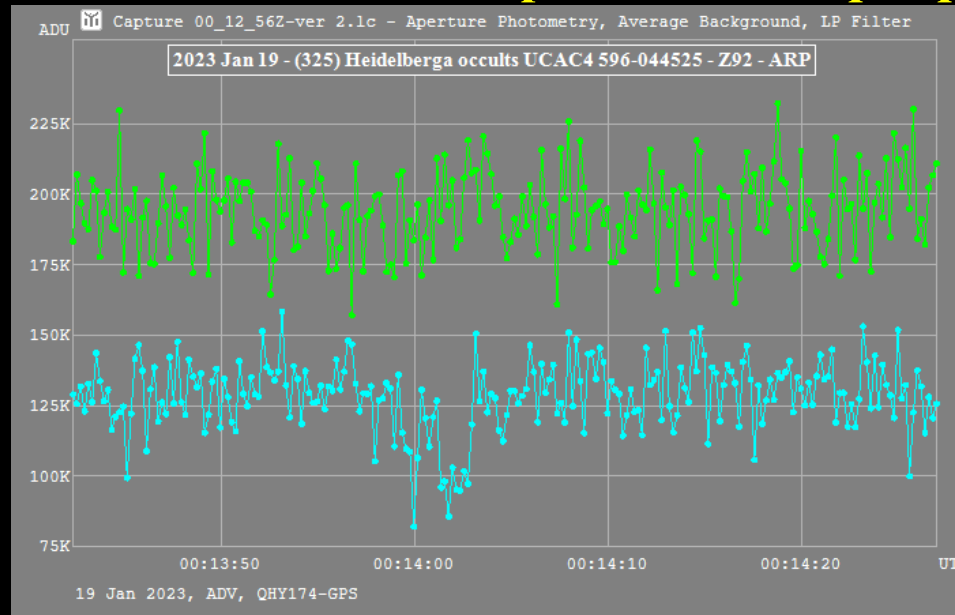
Registered stations - *OccultWatcher*

Station sorts for (325) Heidelberga on 19 Jan 2023

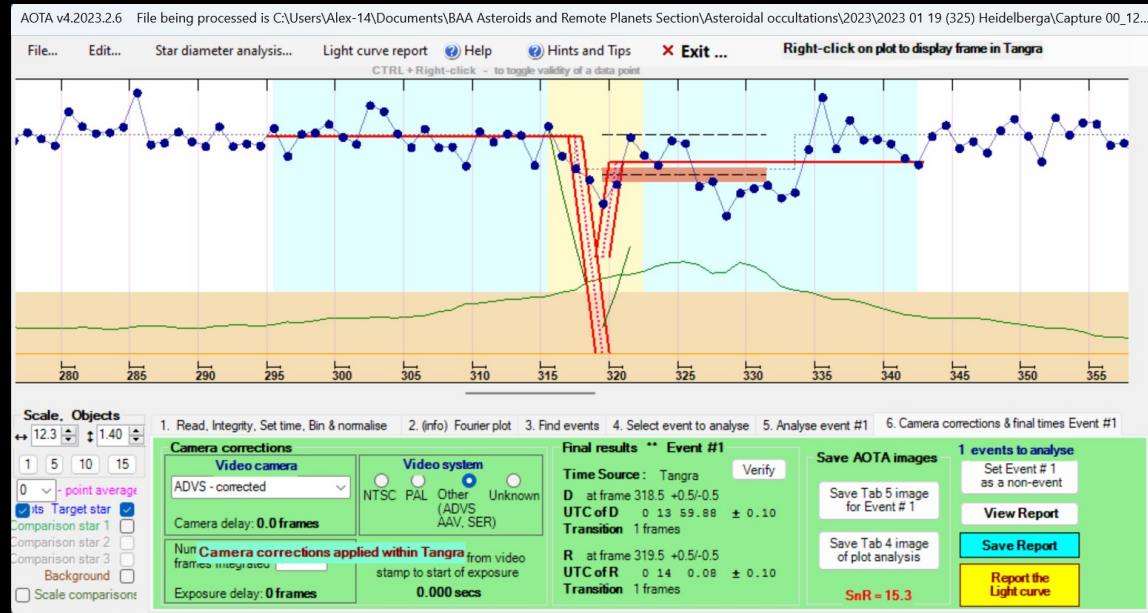
Distance (Occult)	Prob.	Cloudy	Station info	Submitted by	Country	City
147.6 km	0.1%	-	== Right limit plus 3-Sigma ==			
112.3 km	2.3%	-	== Right limit plus 2-Sigma ==			
77.0 km	15.8%	-	== Right limit plus 1-Sigma ==			
41.8 km	49.1%	-	=== Right limit ===			
18.6 km @8°	70.1%	60%	(7) Sternwarte Comthurey : video ...	Konrad Guhl	Brandenburg	Marwitz
9.5 km @308°	74.7%	50%	(3) Green K Home : video + gps	Kevin Green	USA	Westport
0.0 km	76.4%	-	==== Centre Line ====			
-17.9 km @187°	70.6%	100%	(1) Chalin : photoelectric + gps	Anna Marciniak	Poland	Poznań
-26.8 km @183°	63.9%	10%	(4) Z92 : video + gps	Alex Pratt	England	Leeds
-37.6 km @155°	53.5%	40%	(6) Scheck A Home : video + gps	Andrew Scheck	USA	Scaggsville, MD
-39.2 km @188°	51.8%	100%	(2) Borowiec : photoelectric + gps	Anna Marciniak	Poland	Poznań
-41.8 km	49.1%	-	=== Left limit ===			
-60.8 km @188°	29.3%	100%	(8) Weber C Home : video + gps	Christian Weber	Germany	Berlin
-77.0 km	15.8%	-	== Left limit plus 1-Sigma ==			
-112.3 km	2.3%	-	== Left limit plus 2-Sigma ==			
-147.6 km	0.1%	-	== Left limit plus 3-Sigma ==			

Observation from Leeds

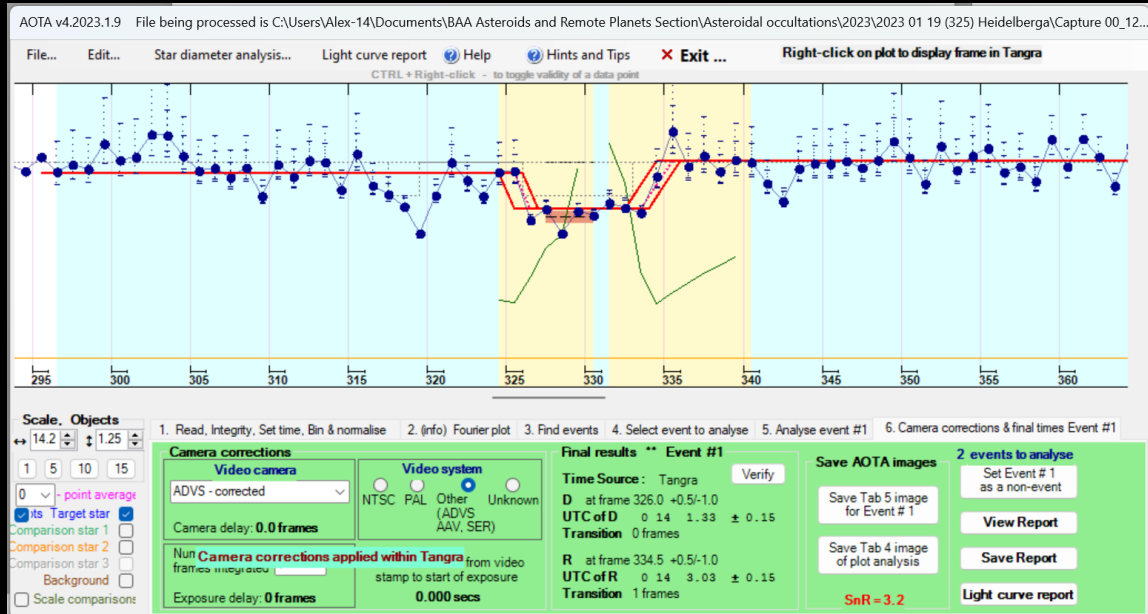
C11 - QHY174M-GPS - 200 ms exposures – *SharpCap and Tangra*



Observation from Leeds Analysis - AOTA



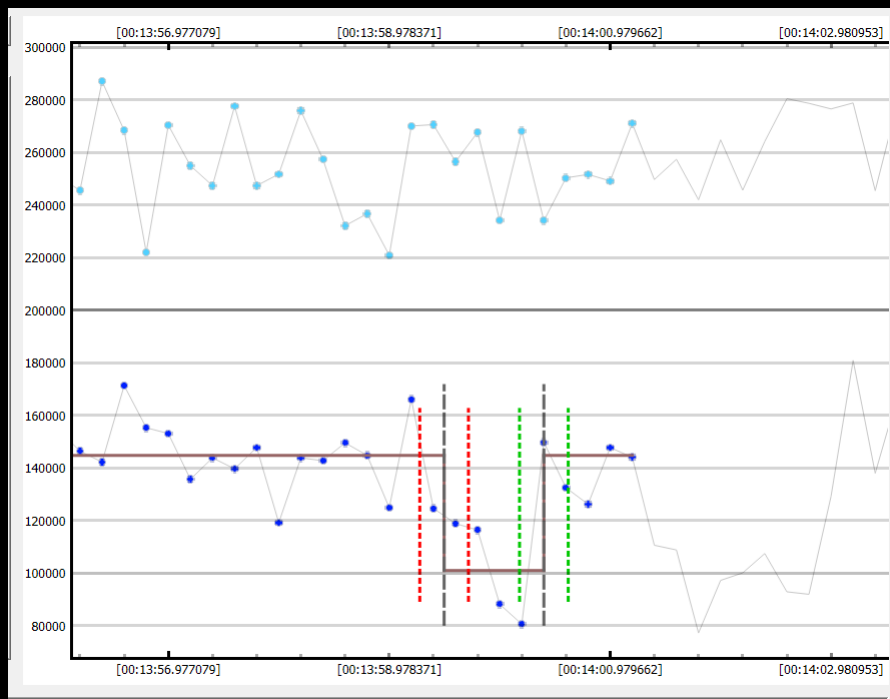
0.4 s?



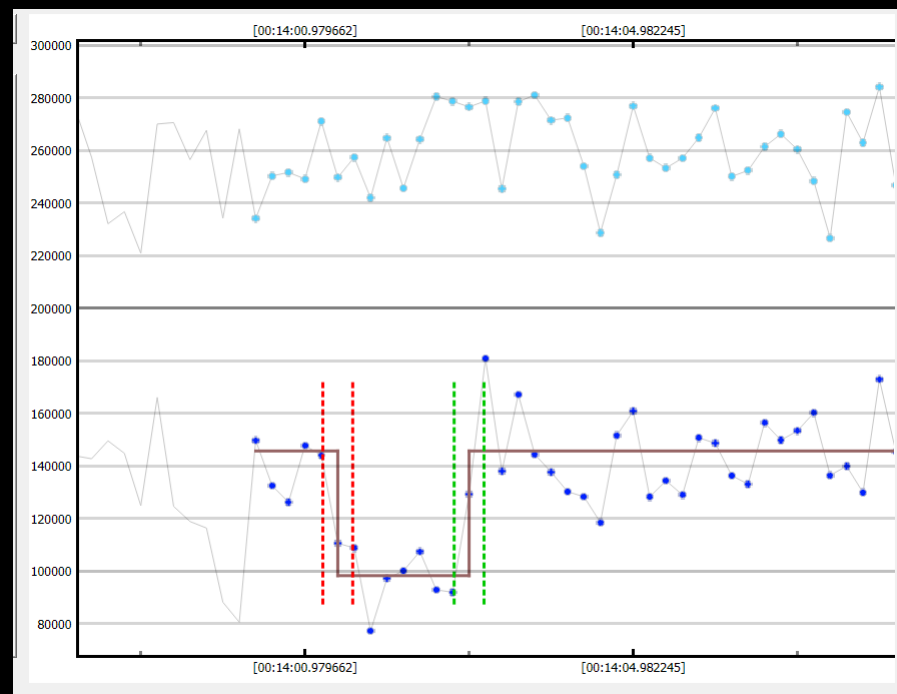
1.70 s

Observation from Leeds

Analysis – *PyOTE* – Christian Weber



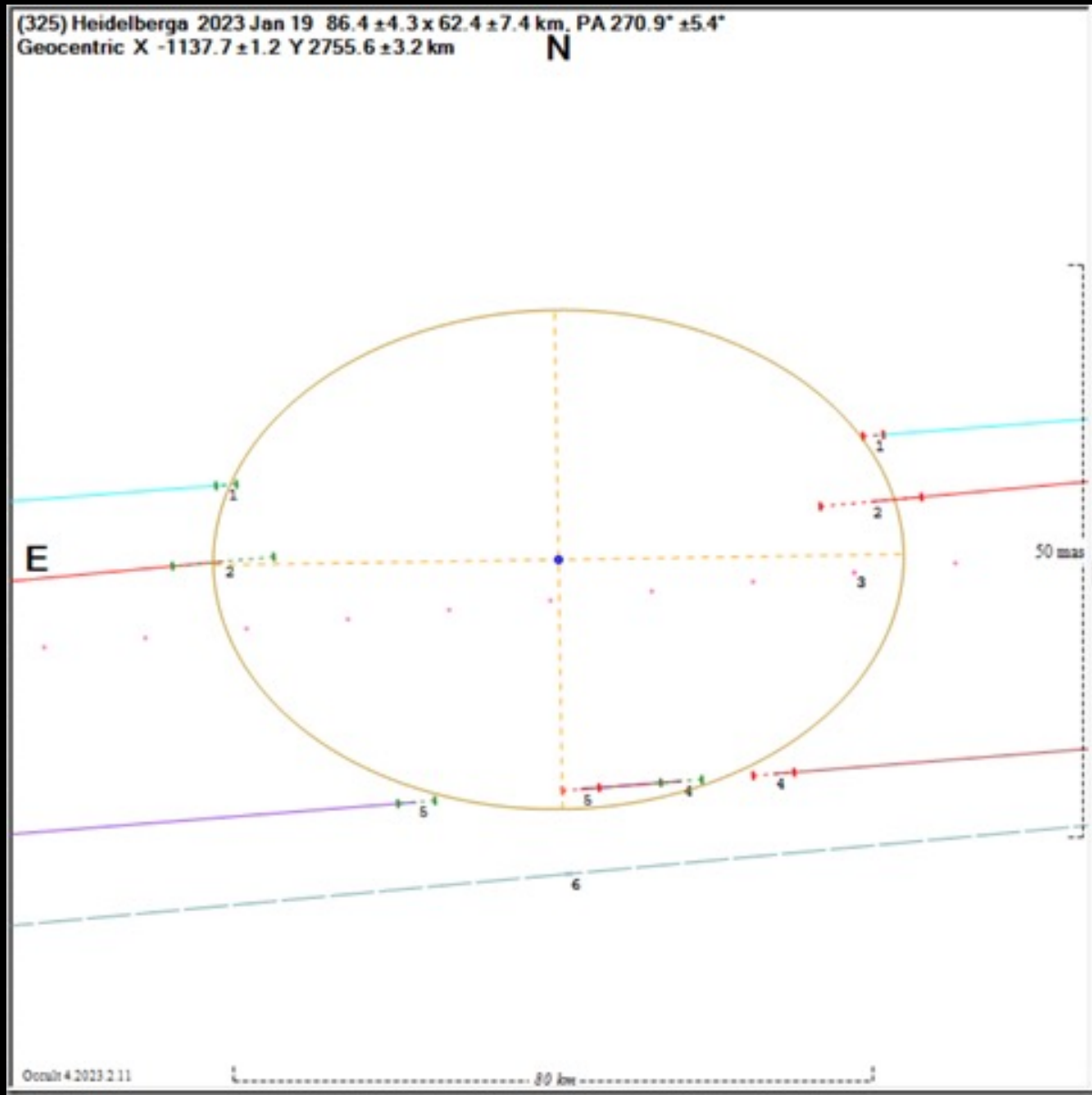
0.90 s



1.60 s

Observation from Leeds

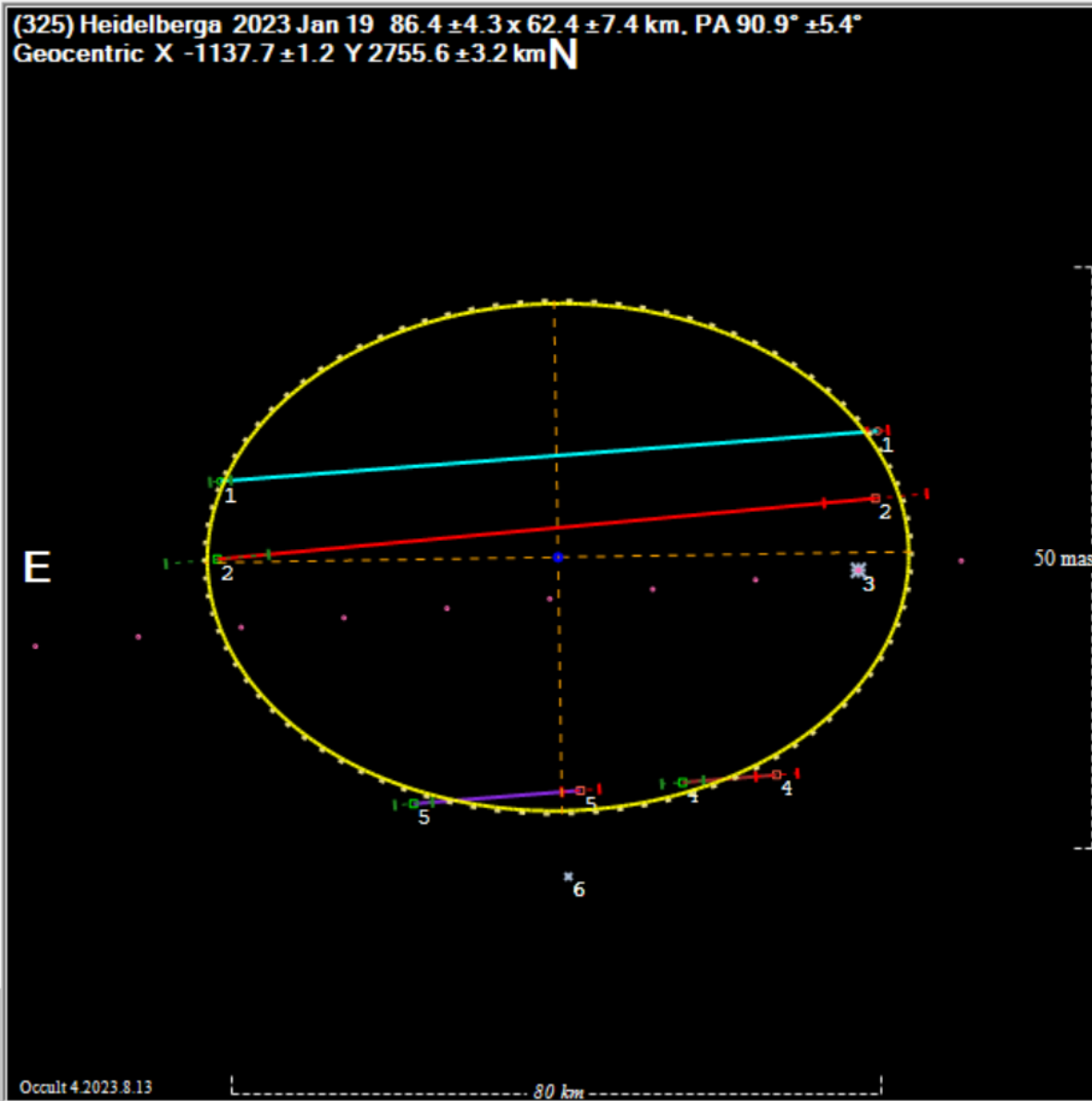
Chord fitting – *Occult* – Dave Herald



Observed chords - Occult

Plot event observations : Occult v.4.2023.8.13

with Plot... Plot options... Help Keep form on top Exit Set 'Miss' Times →Editor {Observer & time}



Find best fit

Center X 1.3 0.0 Mass X 0.0
 Center Y 7.4 0.0 Mass Y 0.0
 Major axis (km) 86.4 0.0 Shape model
 Minor axis (km) 62.4 0.0 a/b: 1.38, dMag: 0.35
 Orientation 90.9 0.0 Motion: 12.80 km/s

Circular Use assumed diameter Include Miss events

Double stars - show Both Primary Secondary

Quality of the fit
 Flag for future review

P Scale

L Size normal x 2 x 5 **Form opacity**

O Scroll range x1.25

T

RMS fit -0.2 ± 1.9 km

—	1	Konrad Guhl, near Neust
—	2	K Green, near Westport
•••••	3 (P)	Predicted
—	5	Alex Pratt, near Leeds
—	4	Alex Pratt, near Leeds
—	6 (M)	A Scheck, near Scaggsvi

Observed chords – *Occult*

Observed chord lengths : Occult v.4.2023.8.13

with Chords...  Help  Exit

sort by Number sort by Name

287	Nepthys	7	65.0	sm
289	Nenetta	1	34.9	sm
290	Bruna	1	10.0	sm
292	Ludovica	1	30.7	sm
293	Brasilia	3	57.0	sm
294	Felicia	6	55.4	
295	Theresia	2	28.4	
297	Caecilia	5	39.5	sm
298	Baptistina	3	20.7	
300	Geraldina	5	74.1	
301	Bavaria	3	54.1	sm
302	Clarissa	10	37.0	sm
303	Josephina	8	101.6	
304	Olga	13	68.9	sm
305	Gordonia	5	48.5	sm
306	Unitas	6	47.7	sm
307	Nike	4	58.2	
308	Polyxo	13	136.5	
309	Fraternitas	3	42.5	
310	Margarita	3	32.4	sm
312	Pierretta	2	48.9	sm
313	Chaldaea	24	93.6	sm
314	Rosalia	6	60.6	sm
316	Goberta	4	54.6	
317	Roxane	1	17.7	sm
318	Magdalena	11	83.8	
319	Leona	2	60.8	
320	Katharina	1	24.5	sm
322	Phaao	5	72.0	sm
323	Brucia	3	31.4	
324	Bamberga	18	231.0	
325	Heidelberga	7	75.0	
326	Tamara	14	93.1	sm
327	Columbia	1	27.5	sm
328	Gudrun	12	129.3	sm
329	Svea	9	76.1	sm
331	Etheridgea	5	75.0	sm
332	Siri	5	40.6	sm
333	Badenia	7	74.1	sm
334	Chicago	11	178.3	sm
335	Roberta	10	95.6	sm

Observed chord lengths

Length	#	Observer	
325 Heidelberga	2005 Jan 21	Tycho2 1765-00663-1	
70.0 km	1	S Basso	
50.8 km	2	S Bolzoni	
325 Heidelberga	2010 Aug 25	UCAC4 599-013091	
88.8 km	1	Libor Smid	
325 Heidelberga	2011 Mar 3	UCAC4 605-014899	
78.6 km	3	Siegfried Gebhard	
25.8 km	4	Tomas Janik	
325 Heidelberga	2012 Mar 25	Tycho2 0839-01544-1	
45.2 km	1	G Nason	
325 Heidelberga	2020 Aug 12	UCAC4 296-221742	
67.4 km	1	T Barry	
81.6 km	2	P Nosworthy	
325 Heidelberga	2022 Sep 17	UCAC4 595-041415	
80.8 km	1	P Maley	
82.6 km	2	T George	
325 Heidelberga	2023 Jan 19	UCAC4 596-044525	
81.2 km	1	Konrad Guhl	
81.4 km	2	K Green	
20.6 km	5	Alex Pratt	
11.6 km	4	Alex Pratt	

Satellite IR diameters for asteroid (325)

NEOWISE 61.7 ± 7.4km
AcuA 81.9 ± 5.4km
IRAS 75.7 ± 7.8km

Weighted diameter = 74.3 ± 3.8 km

No shape models

(325) Heidelberga, 2024 January 24 - Occult

325 Heidelberga occults UCAC4 401-054753 on 2024 Jan 24 from 21h 52m to 22h 24m UT

Star: (Dia < 0.1 mas)
 Mv 13.9; Mb 14.2; Mr 13.4
 RA = 13 1 51.2745 (astrometric)
 Dec = - 9 51 3.395
 [of Date: 13 3 7, - 9 58 50]
 Prediction of 2023 Sep 11.9
 Reliable 0.9 (good),

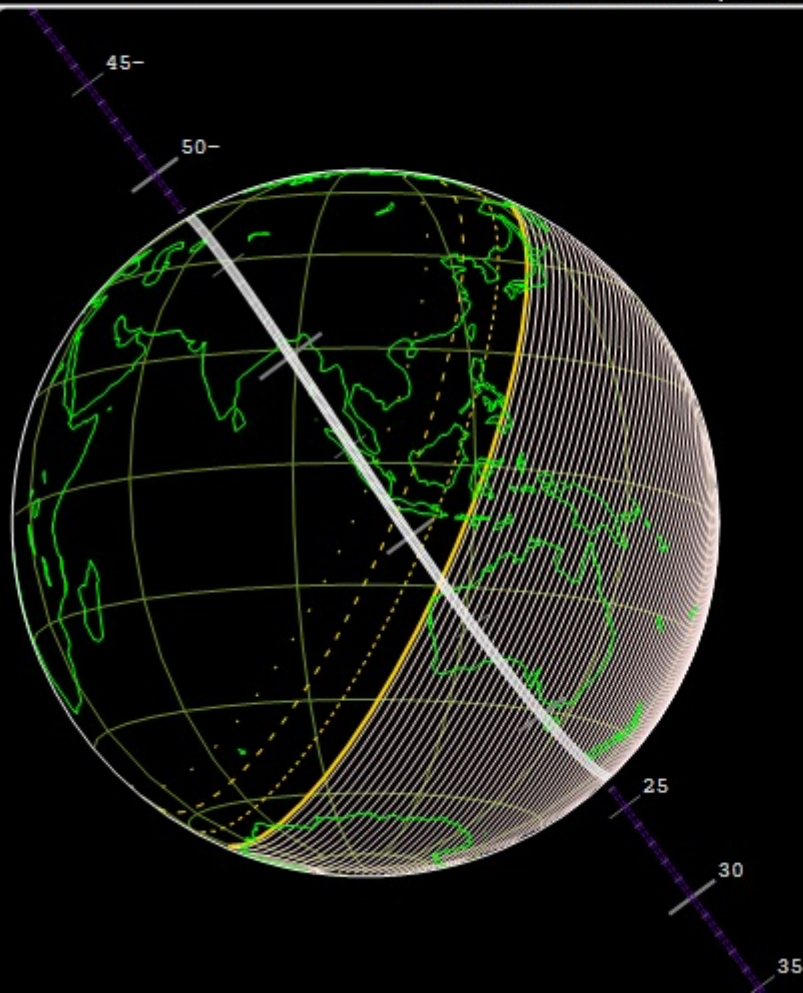
Durations: Max = 11.1 secs
 1km = 0.15 secs, 1mas = 0.33 secs
 Mag Drop: 1.3 [70%]v, 1.3 [70%]r
 Sun : Dist = 106°
 Moon: Dist = 84°, illum = 99%
 1σ Err: ±(17.0 x 17.0) mas in PA 90°

Asteroid:
 Mag = 14.8
 Dia = 75 ±4km, 34 mas
 Parallax = 2.878"
 Hourly dRA = 0.445s
 dDec = -8.83"
 AstorbINTG:2022 Jul 05, Star+PeakEphemUncert

12 arcmin square, to mag 14.9



Occult 4.2023.8.18



Keep observing Heidelberga!



New Observation reported! (BE, NEGATIVE)

Click [here](#) to review



New Observation reported! (BE, POSITIVE)

Click [here](#) to review