

ZÁKRYTY HVĚZD PLANETKAMI

A MUTUAL EVENTS



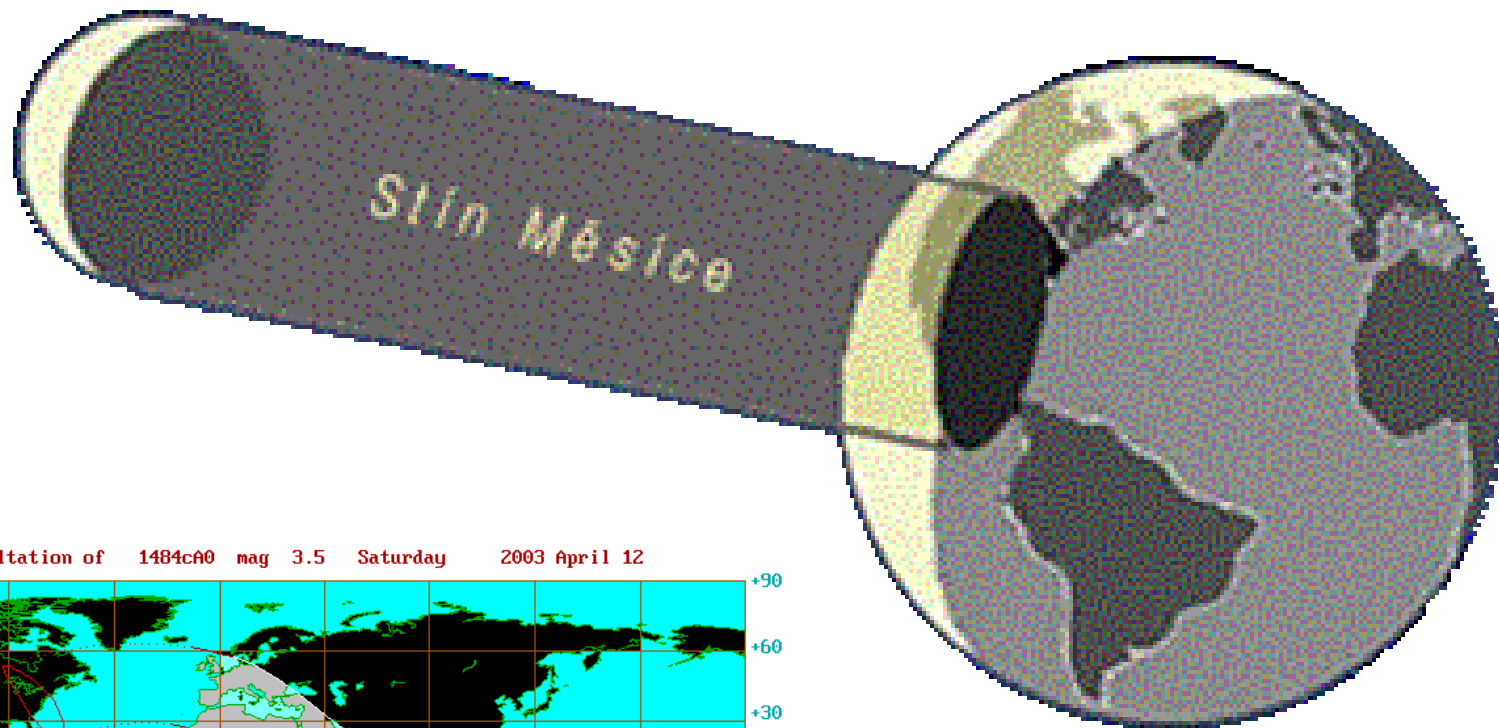
2021

ČESKO

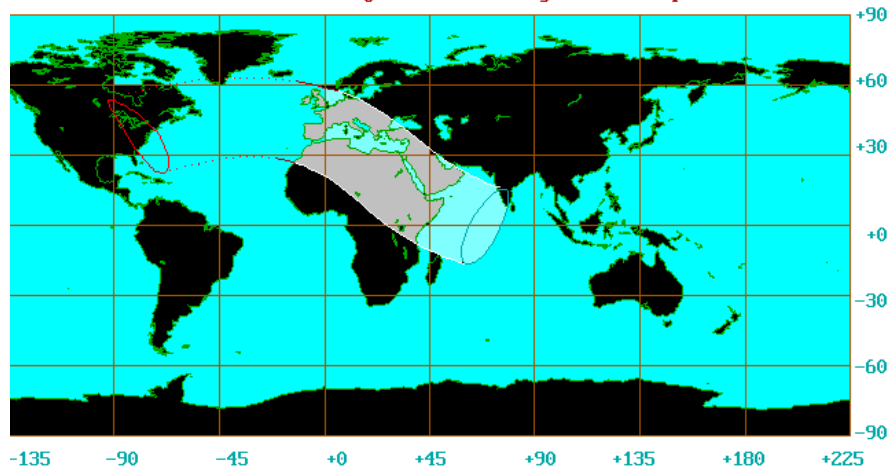
Hvězdárna
v Rokycanech
a Plzni
ZARok 2020

Stars Occultations by the Moon

Zákryty hvězd Měsícem 2021



Occultation of 1484cA0 mag 3.5 Saturday 2003 April 12



„Zastíněná“ hvězda při pohledu z
povrchu Země



ZDROJ

totálních a tečných zákrytů

<http://www.lunar-occultations.com/iota/occult4.htm>

OCCULT

Occultation Prediction Software
by David Herald

Occult 4.5.5.4 Main menu

Weather... Recording Timer Updates... Cascade forms Help Exit

Lunar Occultation predictions

- Asteroid predictions
- Asteroid observations
- Eclipses transits
- Ephemerides
- Lunar predictions
- Lunar observations
- Satellite phenomena
- Maintenance

Run with High Priority

Close all Lunar Prediction forms

DE430 (1550/2650), VSOP87A

Lunar occultation predictions : Occult v.4.5.5

with Prediction... Set Output filter Mag limit adjustment... show Recording Timer Weather forecasts... Help Exit

1. Select site for predictions
Use home Europe site
Set home -11.7 to 60.4, 19.4 to 67.8
Use single Rokycany, HvR, CZ
Filter search to sites in file

2. Star cat.
 XZ
 XZ < mag 9
 XZ < mag 7
 XZ < mag 4
 ZC

3. Objects
 Stars
 Planets
 Asteroids
 Grazes only
 Doubles only

4. Set UT dates
Start Year Month Day Starting at
2021 Oct 1 -6 hrs
End 2021 Oct 3 +6 hrs
Year Month Day Today +12hrs

5. Events for Site
Occultations
 Short Output
 Apply Filter

6. Events anywhere
Grazes Multi-site for 1 star World map

[2021 Oct 3]

Right-click on prediction for further options

Occultation prediction for Rokycany, HvR, CZ
E. Longitude 13 36 9.3, Latitude 49 45 6.3, Alt. 402m; Telescope dia 61cm; dMag 1.0

day	Time	P	Star	Sp	Mag	Mag	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B	RV	Cct	durn	R.A. (J2000)	Dec	Mdist	SV										
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	L	B	m/o	m/o	"/s	o	sec	h	m	s	o	m	s	Mm	m/s	
21	Oct	1	4	21	27.6	R	80105	A0	7.9	7.9	30-	66	-8	52	119	58N	317	355	303	-5.2	-5.3	+1.5	-1.0	.310	142.0	8	20	0.7	23	48	34	388.6	742.8
21	Oct	2	0	35	46.4	R	80626	K0	8.7	8.1	22-	56	8	67	80S	280	320	263	-5.3	-5.7	-0.2	+1.1	.559	178.3	9	5	52.8	21	3	15	388.4	1053.2	
21	Oct	2	1	23	13.5	R	80648	K0	8.7	8.2	22-	55	15	75	85S	285	327	269	-5.3	-5.8	+0.1	+1.1	.526	173.9	9	7	43.5	21	0	32	387.4	594.2	
21	Oct	2	3	50	47.1	R	80693	G0	8.4	8.1	21-	54	37	102	59S	260	303	242	-5.5	-5.9	+0.8	+1.8	.406	-156.9	9	12	42.5	20	40	24	384.6	824.6	
21	Oct	2	11	5	28.1	r	1393	G7	6.5+	6.0	19-	52	37	40	251	75N	307	266	288	-6.4	-5.7	+0.5	-2.0	.454	168.8	9	24	45.3	19	47	12	382.7	859.8
21	Oct	3	3	38	25.8	D	1484	cA0	3.5	3.5s	13-	42	24	93	-44N	69	112	49	-5.4	-6.2	+0.3	+2.4	.389	38.0	10	7	20.0	16	45	46	380.3	910.9	
R1484 = eta Leonis																																	
1484 is double: AB 3.5 8.4 0.10" 239.7, dT = -0.25sec																																	
1484 is a close double. Observations are highly desired																																	
1484 = NSV 4738, 3.46 to 3.60, V																																	
21	Oct	3	4	29	28.3	R	1484	cA0	3.5	3.5s	13-	42	-7	32	103	59N	327	8	306	-5.4	-6.2	+0.9	-0.7	.367	142.0	10	7	20.0	16	45	46	379.3	855.6
R1484 = eta Leonis																																	
1484 is double: AB 3.5 8.4 0.10" 239.7, dT = -0.01sec																																	
1484 is a close double. Observations are highly desired																																	
1484 = NSV 4738, 3.46 to 3.60, V																																	
21	Oct	3	13	19	48.4	r	1514	A1	6.2	6.2s	11-	38	28	24	265	60N	327	285	305	-6.4	-5.8	+0.0	-2.1	.461	150.8	10	21	50.3	14	58	33	378.1	969.0
R1514 = 42 Leonis																																	
1514 = NSV 4828, 6.09 to 6.17, V																																	



Co se z předpovědi dozvíme

Occultation prediction for Rokycany, HVR, CZ

E. Longitude 13 36 9.3, Latitude 49 45 6.3, Alt. 402m

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B					
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o
21	Jan	3	5	40	44.6	R	1514	A1	6.2	6.2s	83-	131	39	244	49N	329	292	307	-5.1	-5.8	+0.3	-2.3
21	Jan	18	19	59	19.6	D	60	K2	6.9	6.1	30+	67	14	248	49S	110	73	133	+3.0	+6.8	+0.9	-2.8
21	Jan	19	19	34	58.8	D	178	PF8	6.6*	6.3	39+	78	28	238	51N	30	357	52	+2.0	+6.3	+0.6	+0.8
21	Jan	21	22	9	37.4	D	404c	A7	5.2*	5.1v	59+	101	25	260	63N	45	4	61	-0.8	+4.3	+0.7	+0.0

ZÁHLAVÍ

zeměpisná délka
zeměpisná šířka
nadmořská výška

TABULKA

rok
měsíc
den
čas UT
fáze
označení hvězdy
spektrum
jasnost (V; R)
osvětlení Měsíce
elongace
výška Slunce
výška Měsíce
azimut Měsíce

rohový úhel CA
poziční úhel PA
Zenitový úhel VA
Wattsův úhel AA/WA
librace v délce
librace v šířce
přepočtový koeficient A
přepočtový koeficient B



Occultation prediction for Rokycany, HvR, CZ
 E. Longitude 13 36 9.3, Latitude 49 45 6.3, Alt. 402m

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration		A	B					
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o	
21	Jan	3	5	40	44.6	R	1514	A1	6.2	6.2s	83-	131	39	244	49N	329	292	307	-5.1	-5.8	+0.3	-2.3	
21	Jan	18	19	59	19.6	D	60	K2	6.9	6.1	30+	67	14	248	49S	110	73	133	+3.0	+6.8	+0.9	-2.8	
21	Jan	19	19	34	58.8	D	178	PF8	6.6*	6.3	39+	78	28	238	51N	30	357	52	+2.0	+6.3	+0.6	+0.8	
21	Jan	21	22	9	37.4	D	404	cA7	5.2*	5.1v	59+	101	25	260	63N	45	4	61	-0.8	+4.3	+0.7	+0.0	
21	Jan	26	3	13	25.9	D	954	cG8	6.1	5.6	92+	147	16	288	70S	113	71	110	-5.3	-1.1	-0.3	-1.8	
21	Jan	26	17	35	8.2	D	1052	KF8	6.8	6.5	95+	155	37	96	63S	126	171	119	-4.4	-2.2	+1.1	+0.3	
21	Jan	26	18	50	52.3	D	1058	K0	6.8	6.3	96+	156	49	112	33N	42	84	35	-4.6	-2.3	+0.6	+3.0	
21	Jan	26	22	21	15	D	1070	G5	5.2	4.7v	96+	157	64	200	17S	174	160	166	-5.2	-2.5	+9.9	+9.9	
21	Jan	27	0	45	14.9	D	1080	wM1	6.7	5.9s	96+	158	47	250	53S	138	96	130	-5.5	-2.5	+0.5	-2.9	
21	Jan	27	3	5	51.2	D	1092	F5	5.9	5.6	97+	159	25	278	89N	101	56	93	-5.7	-2.5	+0.2	-1.6	
21	Jan	27	19	34	3.7	D	1195	B8	6.8*	6.9	99+	168	46	110	50N	74	116	62	-4.8	-3.7	+1.0	+1.8	
21	Jan	27	22	7	43.7	D	1200	K0	6.9	6.4	99+	169	63	165	33S	173	183	160	-5.1	-3.8	+1.0	-7.7	
21	Jan	27	22	27	11.7	D	1208	DK1	6.4		99+	169	64	174	26N	52	56	39	-5.2	-3.8	+1.9	+2.2	
21	Jan	30	5	50	55.0	R	1479	F2	6.4	6.2	97-	162	-8	19	272	66S	254	212	233	-4.8	-5.4	+0.4	-1.3
21	Jan	30	21	57	48.2	R	1569	kA2	6.9	6.8V	94-	152	36	116	87N	287	323	264	-3.3	-6.1	+1.0	+0.7	
21	Feb	1	1	53	44.0	R	1702	M0	4.0	3.3v	87-	138	47	175	59N	319	322	296	-2.7	-6.0	+1.0	-1.3	
21	Feb	4	3	28	20.6	R	2064	DF4	6.3		56-	97	27	162	87S	285	297	268	+0.5	-3.5	+1.4	+0.2	
21	Feb	17	19	33	19.9	D	354	cB7	5.5*	5.5v	31+	68	28	252	80N	62	23	80	-0.4	+4.6	+0.8	-0.6	
21	Feb	17	20	46	23.9	D	360	SF0	6.7*	6.5v	32+	69	17	267	41S	122	81	139	-0.5	+4.5	+0.2	-3.4	
21	Feb	22	20	40	20.4	D	1015	cA3	6.5		78+	124	62	214	80S	105	82	100	-5.9	-2.1	+1.5	-1.2	
21	Feb	22	21	23	32.3	D	1019	SA5	6.8	6.6	78+	124	57	231	45S	139	106	134	-6.0	-2.1	+1.0	-3.2	
21	Feb	22	21	51	59.9	D	1023	SF8	6.4	6.2	78+	125	53	240	88S	97	59	92	-6.1	-2.1	+1.3	-1.3	
21	Feb	23	1	3	10.8	D	78706	WK2	7.0	6.1s	79+	126	24	280	33N	39	354	33	-6.4	-2.1	+1.0	+0.1	
21	Feb	25	2	46	42.6	D	1308	SA1	4.7	4.7	94+	151	23	277	77N	98	54	82	-6.6	-4.4	+0.2	-1.6	
21	Feb	26	18	58	54.0	D	1514	A1	6.2	6.2s	100+	172	30	103	55N	110	151	89	-4.4	-5.9	+0.7	+0.8	
21	Feb	28	4	3	34.1	R	1669	pF5	6.7*	6.5	99-	168	25	251	78S	261	223	238	-3.8	-5.6	+0.8	-1.3	
21	Mar	3	3	14	40.1	R	2028	cG8	6.5*	5.9	81-	129	29	192	76N	301	293	283	+0.8	-3.5	+1.3	-0.9	
21	Mar	4	4	38	37.9	R	2159	K5	5.2	4.4	71-	115	-11	22	199	67S	262	250	248	+2.0	-2.0	+1.7	-0.5
21	Mar	22	22	8	38.0	D	1097	SA1	6.9	6.9v	62+	104	39	262	65N	72	28	64	-7.3	-3.1	+1.0	-1.0	
21	Mar	23	23	44	36.0	D	1239	A4	6.6	6.5	73+	117	32	269	61N	75	31	62	-7.7	-4.2	+0.7	-1.2	
21	Mar	27	18	35	30.0	D	1702	M0	4.0	3.3v	99+	166	-11	25	111	60N	102	140	79	-3.9	-6.0	+0.7	+1.0
21	Mar	31	1	19	8.5	R	2092	K4	7.0	6.1	92-	148	26	182	44S	239	238	223	+1.3	-2.5	+2.6	+1.0	
21	Apr	2	4	6	10.1	R	2407	wF3	7.0	6.7	74-	119	-6	16	194	50N	317	308	312	+4.1	+1.0	+1.3	-1.0
21	Apr	16	19	38	1.9	D	761	pB5	6.7	e	18+	51	26	276	60N	54	10	58	-4.6	-0.2	+0.7	-0.5	
21	Apr	18	22	29	9.8	D	1058	K0	6.8	6.3	36+	74	16	289	31S	155	112	148	-7.0	-2.8	-0.9	-2.8	
21	Apr	22	19	10	42.8	D	1535	K0	6.9	6.3	76+	121	-10	54	171	55S	149	155	128	-7.3	-6.1	+1.0	-1.9
21	Apr	22	21	1	11.6	D	1544	M2	5.4	4.5v	76+	121	50	214	75N	99	77	78	-7.5	-6.0	+1.4	-1.0	
21	Apr	23	18	42	59.3	D	1647	A2	6.7	6.5	85+	134	-6	45	145	89N	116	138	93	-6.2	-6.2	+1.3	-0.1
21	Apr	23	21	32	41.0	D	1659	K0	6.7	6.0	85+	135	47	205	52N	79	63	56	-6.5	-6.0	+1.9	-0.3	
21	Apr	27	21	58	57.2	R	2159	K5	5.2	4.4	99-	168	20	152	82N	288	307	274	+1.0	-1.8	+1.1	+0.4	
21	Apr	27	22	3	24.1	R	2160	pA1	6.4	6.3	99-	168	20	153	54S	244	262	230	+1.0	-1.8	+2.1	+1.8	
21	Apr	29	0	38	30.0	R	2327	G3	6.7	6.4	95-	153	19	177	31N	340	342	331	+2.8	+0.3	+0.7	-1.0	
21	Apr	30	2	58	10.2	R	2499	K3	6.4*	5.6	87-	138	-7	14	195	45N	321	310	319	+4.3	+2.2	+1.4	-1.1
21	May	24	22	10	9.3	D	2092	K4	7.0	6.1	96+	158	26	189	58S	143	137	127	-2.0	-2.4	+1.0	-1.0	
21	May	25	21	28	30.9	D	2233	cG8	5.5		100+	172	20	164	40S	157	167	145	+0.1	-0.8	+0.6	-0.7	



Occultation prediction for Rokycany, HvR, CZ

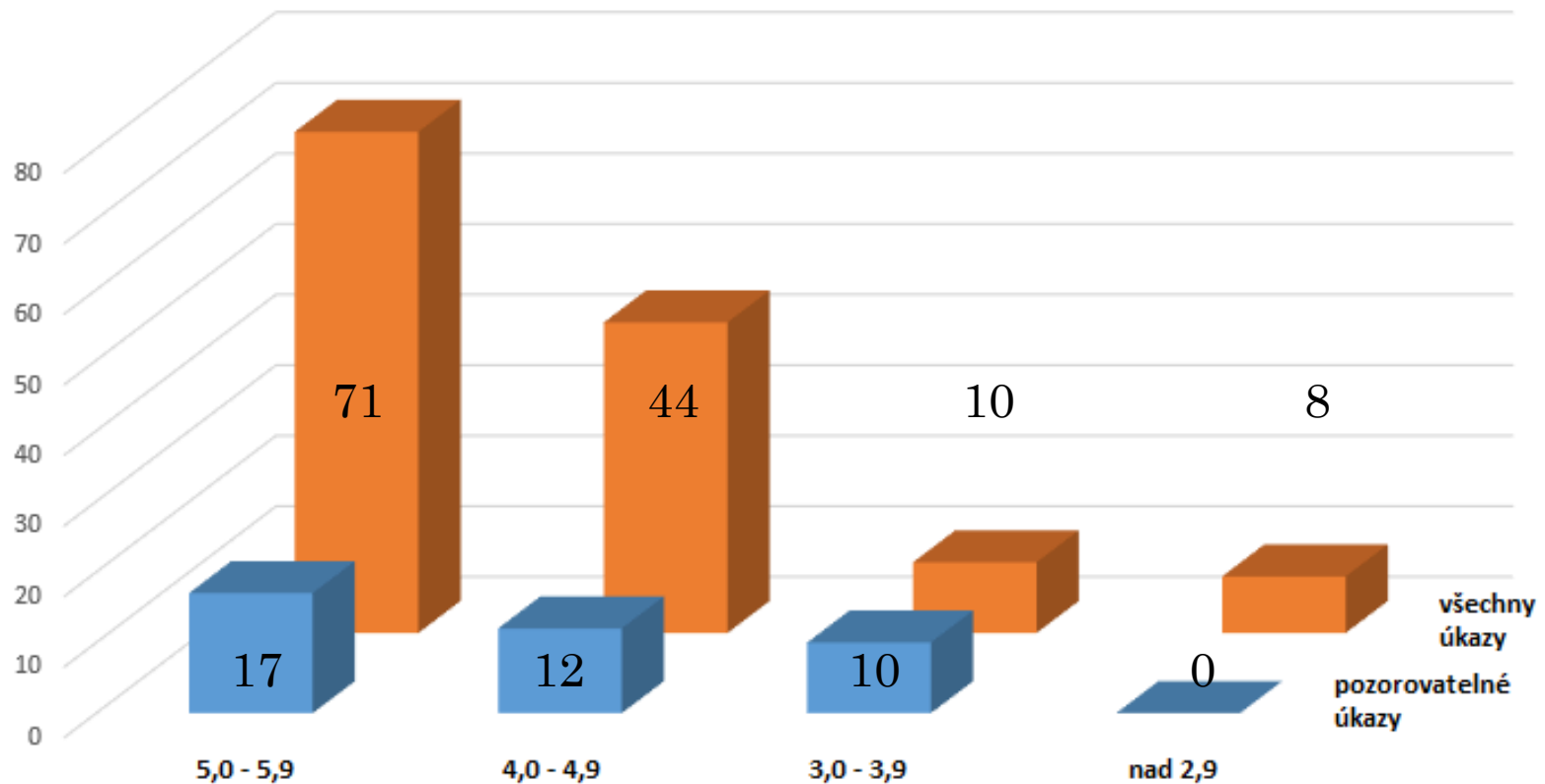
E. Longitude 13 36 9.3, Latitude 49 45 6.3, Alt. 402m

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Sun	Moon	CA	PA	VA	AA	Libration	A	B					
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt	Az	o	o	o	o	L	B	m/o	m/o
21 Jun	13	20	15	40.9	D	1239	A4	6.6	6.5	10+	38	-8	14	290	61S	128	86	114	-6.3	-4.5	-0.4	-1.8
21 Jun	23	23	34	53.8	D	2500	cB2	3.3*	3.4v	99+	169		14	198	73N	67	55	65	+1.1	+2.3	+1.4	-0.3
21 Jun	27	2	14	46.3	R	3018	G8	6.4	6.0	93-	148	-6	16	192	84S	258	250	274	+5.4	+6.5	+1.4	-0.2
21 Jul	27	0	14	0.0	R	3374	K3	6.1	5.4	90-	142		24	155	45S	210	226	233	+6.1	+7.5	+1.0	+1.6
21 Aug	6	2	28	32.1	R	79054	dK8	6.9	6.1	6-	28	-11	12	65	63S	254	294	246	-3.1	-3.3	-0.4	+1.6
21 Aug	21	22	22	58.2	D	3178	cA0	6.2	6.1	99+	171		21	174	78S	46	50	65	+4.5	+7.2	+1.2	+0.8
21 Aug	24	0	42	4.9	R	3458	K0	6.2	5.5	97-	161		31	185	68N	285	282	308	+5.1	+7.1	+2.3	-0.7
21 Aug	28	3	4	41.3	R		384cF7	5.6*	5.4	70-	114	-11	53	175	72S	235	239	252	+2.6	+3.3	+1.4	+1.7
21 Aug	31	23	48	40.4	R		880WK2	6.8	6.0	34-	71		15	69	60N	300	341	299	-1.9	-1.7	+0.2	+0.9
21 Sep	2	0	54	2.0	R	1030	WA3	3.1	2.3s	25-	59		17	71	56S	242	284	236	-3.0	-3.1	-0.3	+1.9
21 Sep	2	3	45	14.0	R	78778	cK0	6.8	6.0v	24-	58	-7	44	102	80N	287	331	280	-3.3	-3.4	+1.1	+0.9
21 Sep	3	3	31	43.4	R	1170	dG8	3.6	3.1	16-	47	-9	33	90	37S	231	276	219	-4.0	-4.4	+0.1	+2.7
21 Sep	14	19	11	5.4	D	2650	K3	4.7	3.8	60+	102		11	199	30S	147	134	150	+2.5	+4.2	+1.9	-1.6
21 Sep	17	22	22	44.0	D	3130	K0	5.4	4.8	89+	142		16	204	19N	353	337	12	+4.2	+7.0	-1.2	+2.8
21 Sep	20	1	43	7.1	D	3413	pK5	6.1	5.3	99+	167		16	231	90N	42	11	65	+4.5	+7.0	+0.5	+0.0
21 Sep	27	2	49	30	R	76729	pB9	6.9	6.9	68-	111		62	161	24N	329	342	335	-1.0	-0.7	+4.8	-9.1
21 Sep	28	1	49	55.5	R		835 B8	7.0	6.9	59-	101		53	119	79S	256	295	257	-2.0	-1.9	+1.2	+1.6
21 Oct	3	4	29	28.3	R	1484	cA0	3.5	3.5s	13-	42	-7	32	103	59N	327	8	306	-5.4	-6.2	+0.9	-0.7
21 Oct	4	4	32	38.5	R	1598	PF5	6.5	6.3	6-	29	-7	21	97	48N	343	24	320	-5.0	-6.2	+0.6	-1.4
21 Oct	16	16	54	48.6	D	3343	pB9	5.7	5.7	85+	134	-8	13	131	64N	36	66	58	+6.1	+7.6	+0.9	+2.0
21 Oct	17	18	9	54.0	D	3484	G5	6.9	6.4	92+	147		21	134	81S	67	95	90	+5.9	+7.2	+1.1	+1.6
21 Oct	22	22	23	6.5	R	510	K2	6.8	6.0	95-	154		49	129	74N	275	306	287	+1.5	+1.4	+1.6	+1.0
21 Oct	23	21	43	14.8	R		633cB9	5.5	5.5v	90-	144		40	104	54S	225	267	233	+0.3	+0.0	+0.3	+2.3
21 Oct	25	23	0	49.9	R		918 K0	7.0	6.5	76-	121		40	96	77S	257	302	255	-2.5	-2.8	+0.6	+1.8
21 Oct	27	0	0	57.3	R	1062	cB8	6.4*	6.5	67-	110		41	98	62N	303	349	296	-3.8	-4.1	+1.3	+0.3
21 Oct	30	3	15	0.1	R	1435	wK0	6.5	5.9	37-	74		42	114	48N	333	11	313	-6.4	-6.3	+1.1	-1.5
21 Oct	30	4	14	28.3	R	1436	K0	6.8	6.1	36-	74		50	130	64N	317	348	297	-6.5	-6.3	+1.3	-0.9
21 Oct	31	1	25	35.9	R	1544	M2	5.4	4.5v	27-	63		15	85	9S	213	255	191	-6.3	-6.4	-0.7	+7.5
21 Nov	1	3	30	51.7	R	1659	K0	6.7	6.0	18-	50		23	104	85S	292	332	270	-6.0	-6.1	+0.6	+0.8
21 Nov	13	20	42	26.0	D	3458	K0	6.2	5.5	73+	118		27	208	39N	12	355	35	+6.5	+7.1	+0.3	+1.5
21 Nov	19	19	26	52.5	R		595cK1	6.8	6.2	100-	175		37	102	66N	289	332	299	+1.5	+0.5	+1.2	+1.1
21 Nov	20	20	57	36.4	R		734 K0	6.6	6.0	98-	163		46	109	78N	274	315	278	+0.0	-1.1	+1.2	+1.3
21 Nov	23	4	29	35.7	R		1046cF8	7.0	6.7	88-	139		51	248	50S	232	190	226	-3.9	-4.0	+1.8	+0.4
21 Nov	23	4	46	7	R		1049 A2	6.8	6.7	88-	139		48	251	18S	200	157	193	-4.0	-4.0	+4.2	+7.3
21 Dec	11	17	55	7.5	D	3529	cG5	6.6*	6.0	57+	98		35	183	79N	55	53	78	+7.3	+6.8	+1.3	+0.7
21 Dec	15	21	40	42.9	D	450	K3	6.4	5.6	91+	144		54	208	45N	27	8	42	+3.2	+2.0	+1.1	+2.0
21 Dec	17	2	51	50.4	D		595cK1	6.8	6.2	96+	157		20	278	76S	92	48	101	+1.2	+0.3	+0.2	-1.6
21 Dec	17	21	41	21.8	D		709MB3	4.3		v	99+	166	63	169	48N	43	50	49	+0.7	-0.9	+1.3	+2.2
21 Dec	17	22	37	11.1	D	76729	pB9	6.9	6.9	99+	166		63	197	79N	74	62	80	+0.6	-0.9	+1.7	+0.4
21 Dec	18	4	15	18.6	D		734 K0	6.6	6.0	99+	168		17	286	73N	70	27	75	-0.3	-1.1	+0.2	-1.0
21 Dec	24	23	23	23.9	R		1569kA2	6.9	6.8v	71-	115		26	102	36S	236	276	214	-6.0	-6.3	+0.7	+3.8



Statistika 2021

110 POZOROVATELNÝCH ÚKAZŮ DO JASNOSTI
7,0 MAG



Grazing Lunar Occultation

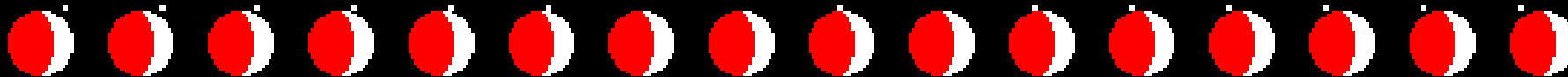
Tečné zákryty hvězd Měsícem 2021



Grazing Occultations near Rokycany Obs.

E. Longitude 13 36 9.0, Latitude 49 45 6.0, Alt. 400m

y	m	d	Time h m s	P	Star No	Sp D	Mag v	Mag r V	% ill	Elon Alt	Sun Alt	Moon Alt	CA o	Dist km	Az o
21	02	4	2 23 51	Gr	2060	G7	6.2	5.7	57-	98		22	12.9S	34km	40
21	09	27	2 41 28	Gr	76729	pB9	6.9	6.9	68-	111		62	11.9N	42km	334
21	11	23	4 38 52	Gr	1049	A2	6.8	6.7	88-	139		50	6.5S	40km	209
21	12	24	5 8 45	Gr	1484	cA0	3.5	3.5s	78-	124		50	-13.1N	151km	229



Grazing Occultation of 2060 G7 Magnitude **6.2** [Red = 5.7]
 R2060 = 2 Librae

Date: **2021 Feb 04 2h 22m, to 2021 Feb 04 2h 29m**

Nominal site altitude 0m

E. Longit.	Latitude	U.T.	Sun Alt	Moon Alt Az	TanZ	PA	AA	CA
o ' "	o ' "	h m s				o	o	o
12 0 0	51 0 11.3	2 22 25		21 144	2.65	211.0	193.41	12.60S
13 0 0	50 28 42.2	2 23 17		22 145	2.53	211.1	193.59	12.77S
14 0 0	49 56 24.1	2 24 13		22 146	2.42	211.3	193.76	12.95S
15 0 0	49 23 16.0	2 25 12		23 147	2.31	211.5	193.94	13.13S
16 0 0	48 49 17.2	2 26 15		24 148	2.21	211.7	194.12	13.31S
17 0 0	48 14 26.7	2 27 21		25 150	2.12	211.8	194.30	13.49S
18 0 0	47 38 43.8	2 28 30		26 151	2.03	212.0	194.48	13.67S

Path coordinates are referred to WGS84 (as used by GPS), with the nominal site altitude being referenced to Mean Sea Level. The path is adjusted for the effects of refraction at low moon altitudes.

Projected diameter of star 2 meters [CHARM/CADARS, 1 measures]

Librations Long +0.64 Lat -3.63
 P +193.93 D -3.42

Illumination of moon 57%-

Elongation of Moon 98

Vertical Profile Scale approx. 2.48 km/arcsec at mean distance of moon

Horizontal Scale Factor 1.66 deg/min

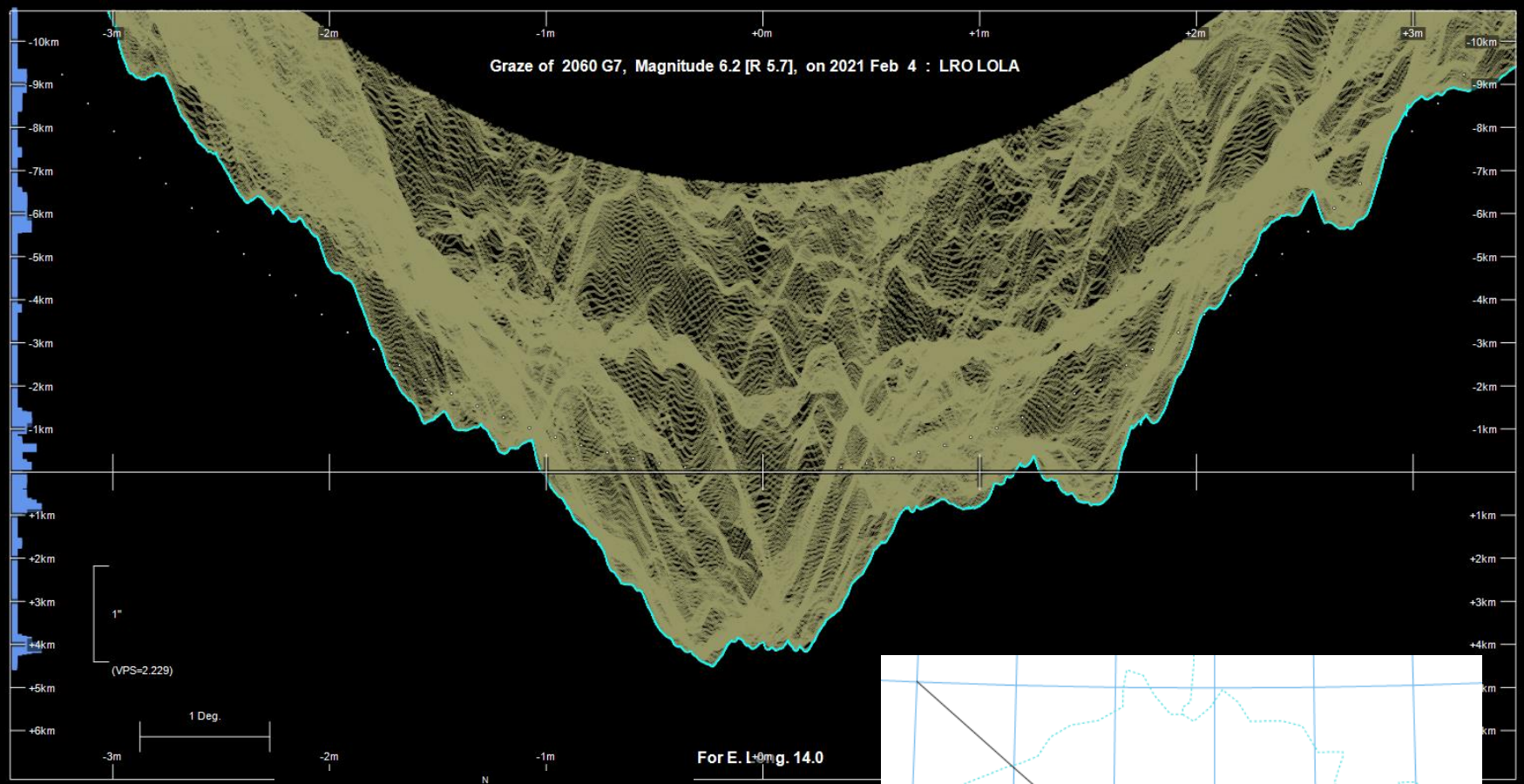
At longitude 15.00:

Limiting Magnitudes for various telescope apertures (in cm)

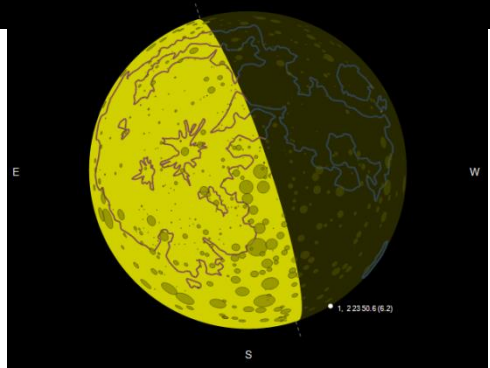
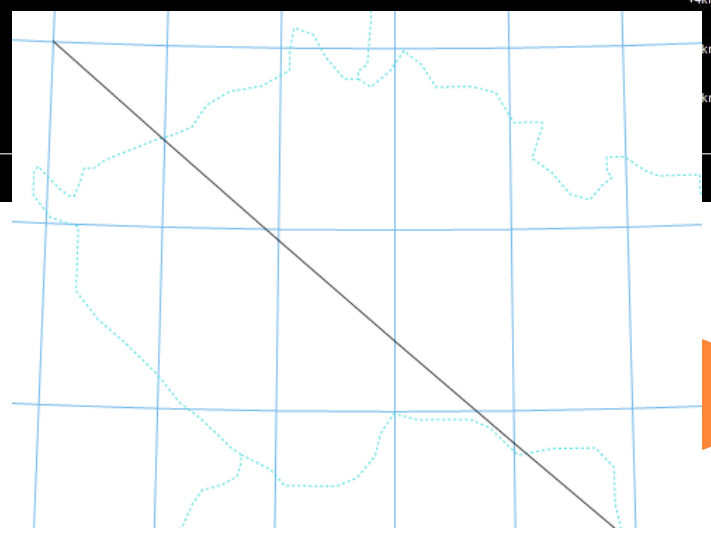
CA\Tdia	5	10	15	20	25	30	35
9.1	5.4	6.8	7.6	8.0	8.3	8.5	8.7
11.1	5.4	6.8	7.6	8.0	8.3	8.6	8.7
13.1	5.4	6.8	7.6	8.1	8.4	8.6	8.7
15.1	5.4	6.9	7.6	8.1	8.4	8.6	8.8
17.1	5.5	6.9	7.6	8.1	8.4	8.6	8.8



Graze of 2060 G7, Magnitude 6.2 [R 5.7], on 2021 Feb 4 : LRO LOLA



For E. Long. 14.0



Grazing Occultation of 76729pB9 Magnitude 6.9 [Red = 6.9]

Date: 2021 Sep 27 2h 39m, to 2021 Sep 27 2h 49m

Nominal site altitude 0m

E. Longit.	Latitude	U.T.	Sun	Moon	TanZ	PA	AA	CA
o ' "	o ' "	h m s	Alt	Alt Az		o	o	o
12 0 0	49 37 59.2	2 38 37		61 153	0.54	340.2	345.99	12.34N
13 0 0	49 58 31.1	2 40 24		62 156	0.54	340.5	346.24	12.09N
14 0 0	50 18 10.6	2 42 9		62 159	0.54	340.7	346.49	11.84N
15 0 0	50 36 58.5	2 43 52		62 162	0.54	341.0	346.74	11.59N
16 0 0	50 54 56.0	2 45 34		62 165	0.54	341.2	346.99	11.34N
17 0 0	51 12 4.2	2 47 14		62 168	0.54	341.5	347.24	11.09N
18 0 0	51 28 24.1	2 48 52		61 170	0.54	341.7	347.50	10.83N

Path coordinates are referred to WGS84 (as used by GPS), with the nominal site altitude being referenced to Mean Sea Level. The path is adjusted for the effects of refraction at low moon altitudes.

76729 is in the Kepler2 program, ID= 247597352

76729 is double:

This next pair is not confirmed

** 8.6 8.6 0.10" 90.0 (OCc 313) Graze path of ? approximately 0.1 km north, and 0.3 secs later compared to the primary

- refer to graze profile for exact distances

Librations Long -0.95 Lat -0.63
P +346.76 D +1.09

Illumination of moon 68%-

Elongation of Moon 111

Vertical Profile Scale approx. 2.12 km/arcsec at mean distance of moon

Horizontal Scale Factor 1.37 deg/min

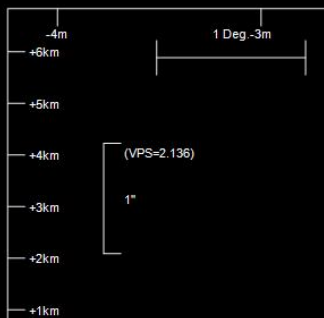
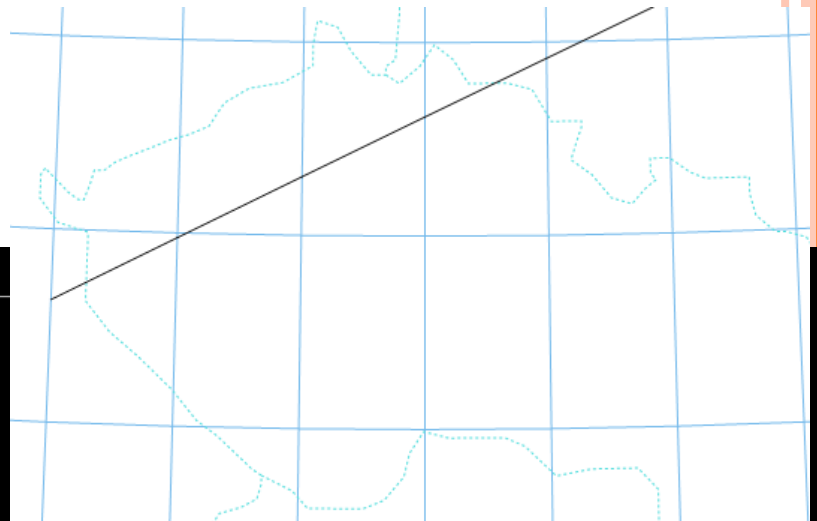
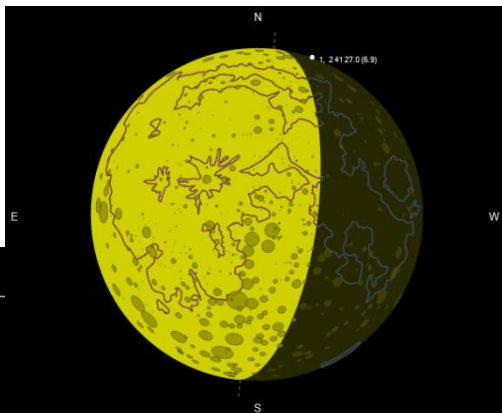
At longitude 15.00:

Limiting Magnitudes for various telescope apertures (in cm)

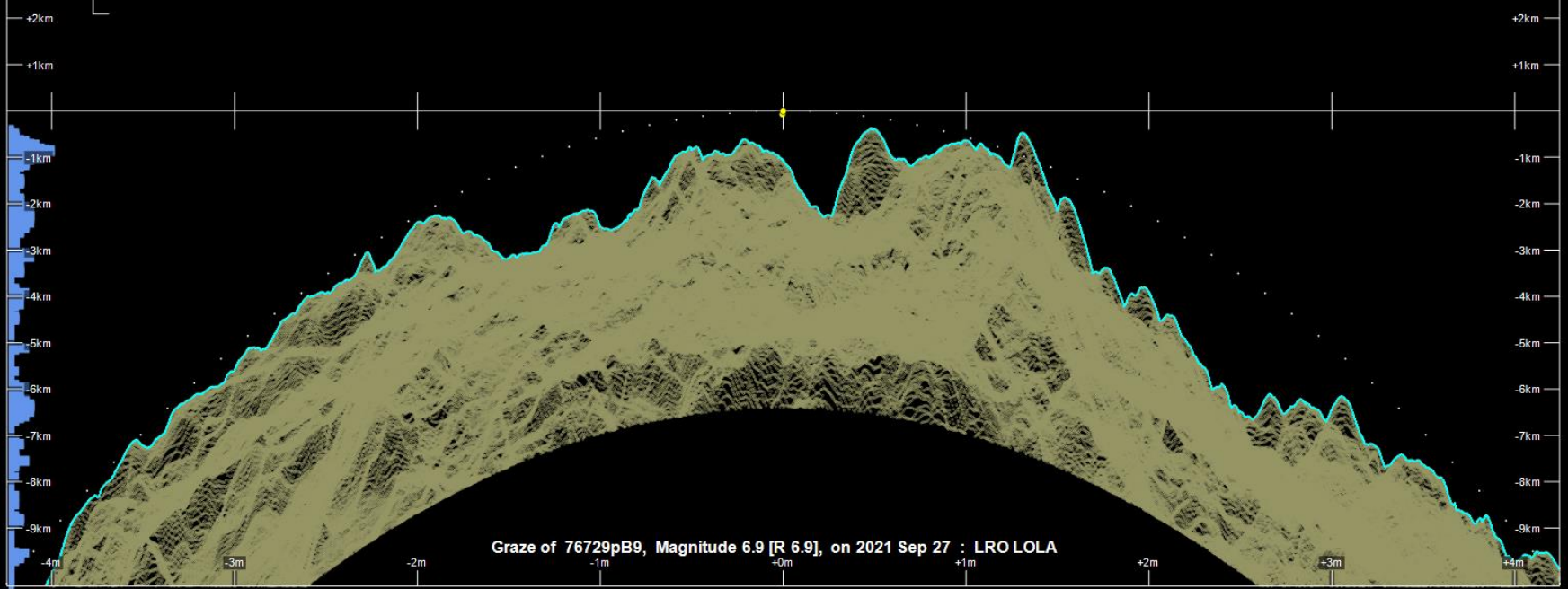
CA\Tdia	5	10	15	20	25	30	35
7.6	5.7	7.2	8.0	8.5	8.9	9.2	9.4
9.6	5.7	7.2	8.0	8.6	8.9	9.2	9.4
11.6	5.8	7.2	8.0	8.6	8.9	9.2	9.4
13.6	5.8	7.2	8.0	8.6	9.0	9.2	9.4
15.6	5.8	7.2	8.1	8.6	9.0	9.2	9.5



Occult 4.5.5.4



+0m
E. Long. 14.0



Graze of 76729pB9, Magnitude 6.9 [R 6.9], on 2021 Sep 27 : LRO LOLA

Grazing Occultation of 1049 A2 Magnitude **6.8** [Red = 6.7]
 Date: **2021 Nov 23 4h 36m, to 2021 Nov 23 4h 47m**

Nominal site altitude 0m

E. Longit.	Latitude	U.T.	Sun Alt	Moon Alt	TanZ	PA	AA	CA
° ' "	° ' "	h m s		Az		°	°	°
12 0 0	49 52 35.3	4 36 1	51	247	0.81	188.1	181.62	6.23S
13 0 0	49 32 37.2	4 37 47	50	249	0.83	188.3	181.82	6.42S
14 0 0	49 11 54.9	4 39 33	49	251	0.86	188.4	182.01	6.61S
15 0 0	48 50 28.7	4 41 19	49	253	0.88	188.6	182.19	6.80S
16 0 0	48 28 18.5	4 43 4	48	254	0.91	188.8	182.38	6.98S
17 0 0	48 5 24.5	4 44 49	47	256	0.93	189.0	182.55	7.16S
18 0 0	47 41 47.2	4 46 33	46	258	0.96	189.2	182.73	7.33S

Path coordinates are referred to WGS84 (as used by GPS), with the nominal site altitude being referenced to Mean Sea Level. The path is adjusted for the effects of refraction at low moon altitudes.

C A S S I N I R E G I O N G R A Z E

Librations Long -3.99 Lat -3.99
 P +182.45 D -3.58

Illumination of moon 88%-

Elongation of Moon 139

Vertical Profile Scale approx. 2.12 km/arcsec at mean distance of moon

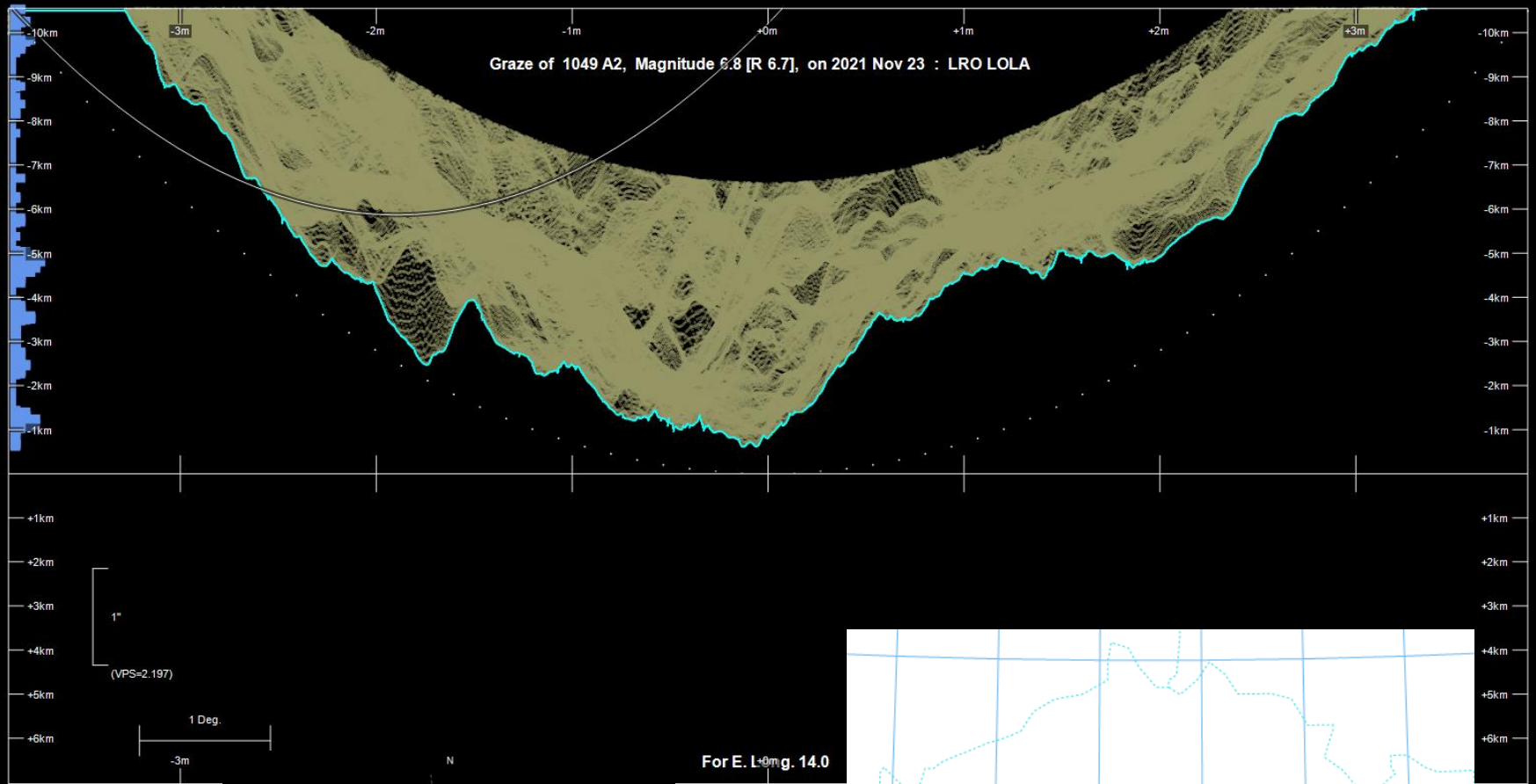
Horizontal Scale Factor 1.50 deg/min

At longitude 15.00:

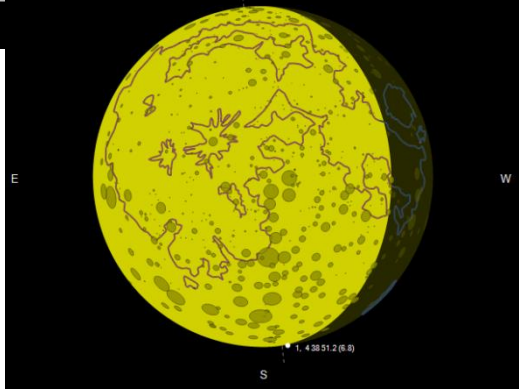
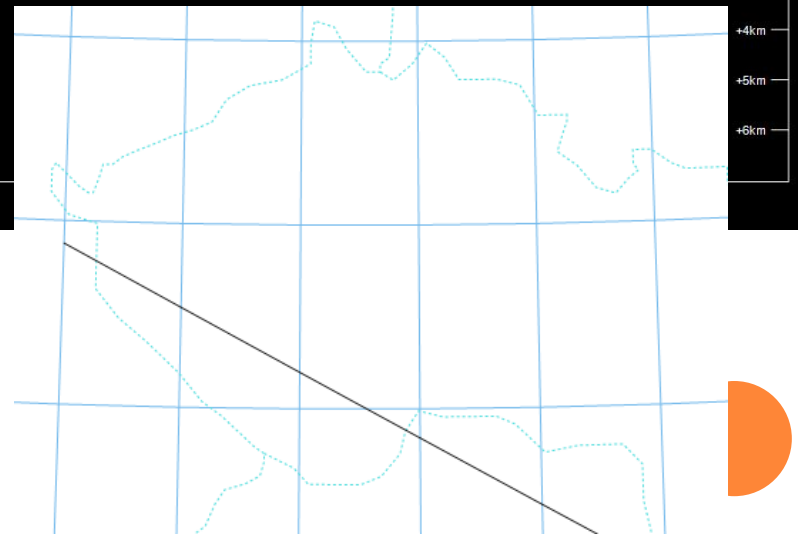
Limiting Magnitudes for various telescope apertures (in cm)

CA\Tdia	5	10	15	20	25	30	35
2.8	2.6	4.0	4.7	5.2	5.5	5.7	5.9
4.8	4.0	5.5	6.2	6.7	7.1	7.3	7.5
6.8	4.6	6.0	6.8	7.3	7.6	7.9	8.0
8.8	4.6	6.0	6.8	7.3	7.6	7.9	8.1
10.8	5.1	6.6	7.3	7.8	8.2	8.4	8.6





For E. Long. 14.0



Grazing Occultation of 1484cA0 Magnitude **3.5** [Red = 3.5] s

R1484 = eta Leonis

Date: **2021 Dec 24 5h 5m, to 2021 Dec 24 5h 19m**

Nominal site altitude 0m

E. Longit.	Latitude	U.T.	Sun Alt	Moon Alt Az	TanZ	PA	AA	CA
° ' "	° ' "	h m s				°	°	°
12 0 0	48 50 21.8	5 5 6		50 227	0.83	30.4	9.66	-12.89N
13 0 0	48 7 3.4	5 7 22		50 229	0.84	30.5	9.82	-13.05N
14 0 0	47 22 37.7	5 9 40		50 232	0.85	30.7	9.97	-13.20N
15 0 0	46 37 8.4	5 12 1		49 235	0.87	30.8	10.11	-13.34N
16 0 0	45 50 39.3	5 14 24		49 237	0.88	30.9	10.24	-13.47N
17 0 0	45 3 15.1	5 16 50		48 240	0.90	31.1	10.36	-13.59N
18 0 0	44 15 1.4	5 19 17	-11	47 242	0.92	31.2	10.46	-13.69N

Path coordinates are referred to WGS84 (as used by GPS), with the nominal site altitude being referenced to Mean Sea Level. The path is adjusted for the effects of refraction at low moon altitudes.

Projected diameter of star 1 meters [CHARM/CADARS, 4 measures]

1484 is variable:

1484 = NSV 4738, 3.46 to 3.60, V

1484 is double:

AB 3.5 8.4 0.10" 239.1 (WRH 18) Graze path of B approximately 0.2 km north, and 0.1 secs earlier compared to A

- refer to graze profile for exact distances

Librations Long -6.53 Lat -6.15
P +10.82 D +5.17

Illumination of moon 78%-

Elongation of Moon 124

Vertical Profile Scale approx. 2.41 km/arcsec at mean distance of moon

Horizontal Scale Factor 1.53 deg/min

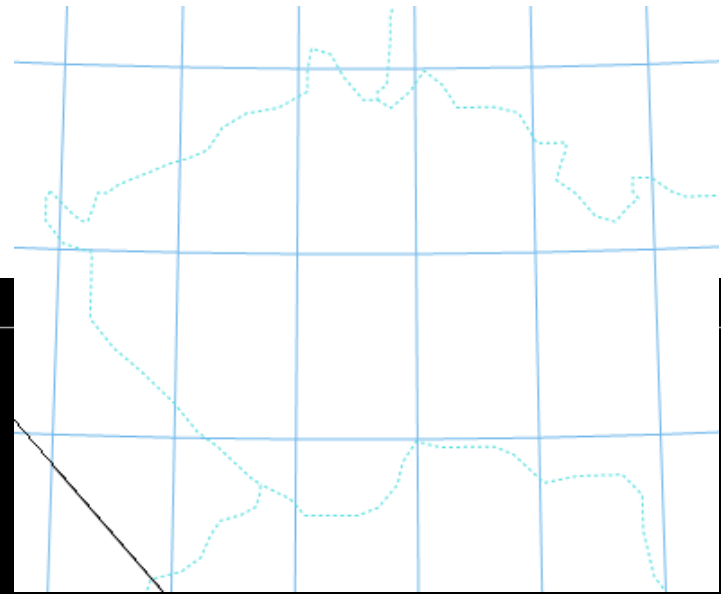
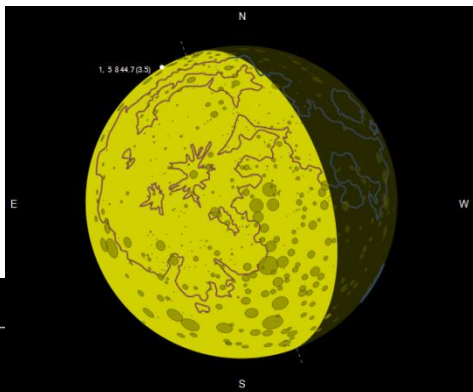
At longitude 15.00:

Limiting Magnitudes for various telescope apertures (in cm)

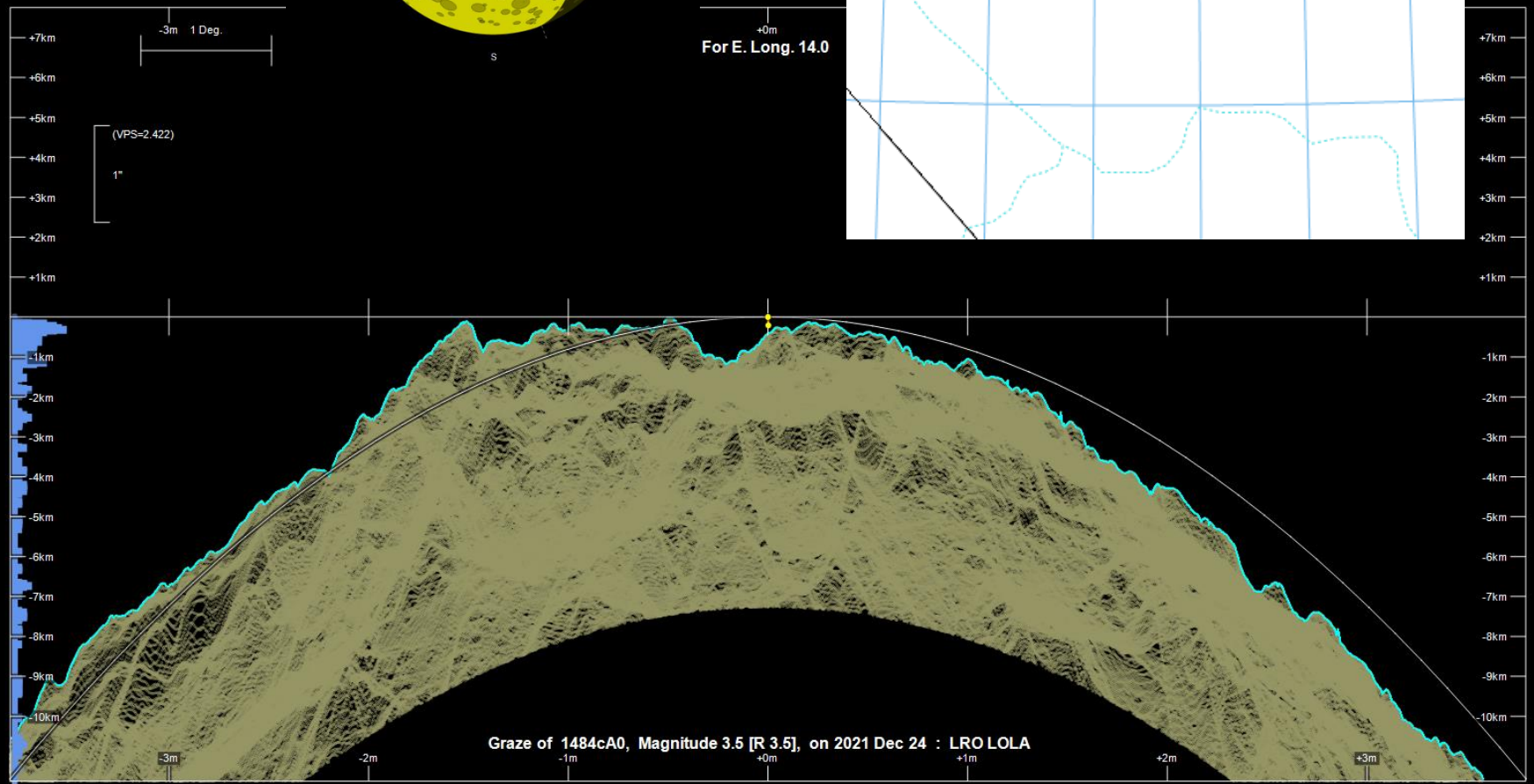
CA\Tdia	5	10	15	20	25	30	35
-17.3	2.7	4.2	4.9	5.4	5.7	5.9	6.1
-15.3	2.7	4.2	4.9	5.4	5.7	5.9	6.1
-13.3	2.7	4.2	4.9	5.4	5.7	5.9	6.1
-11.3	2.7	4.2	4.9	5.4	5.7	5.9	6.1
-9.3	2.7	4.2	4.9	5.4	5.7	5.9	6.1



Occult 4.5.5.4



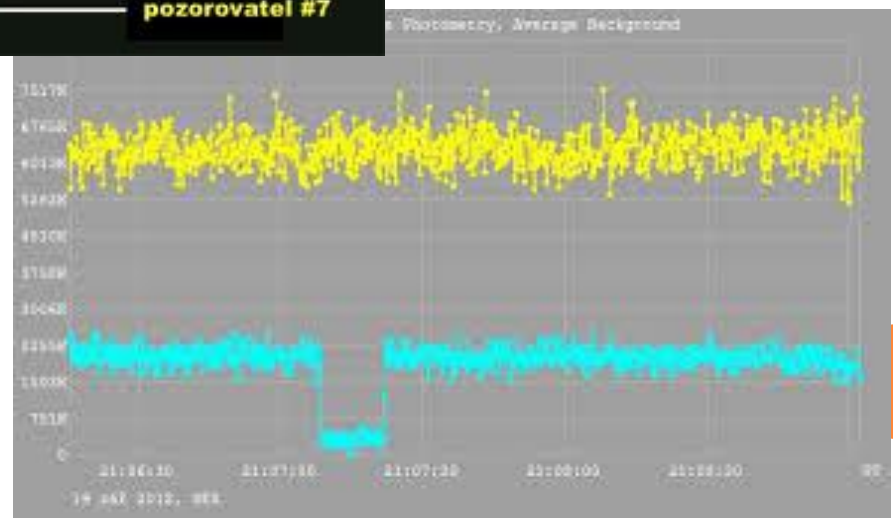
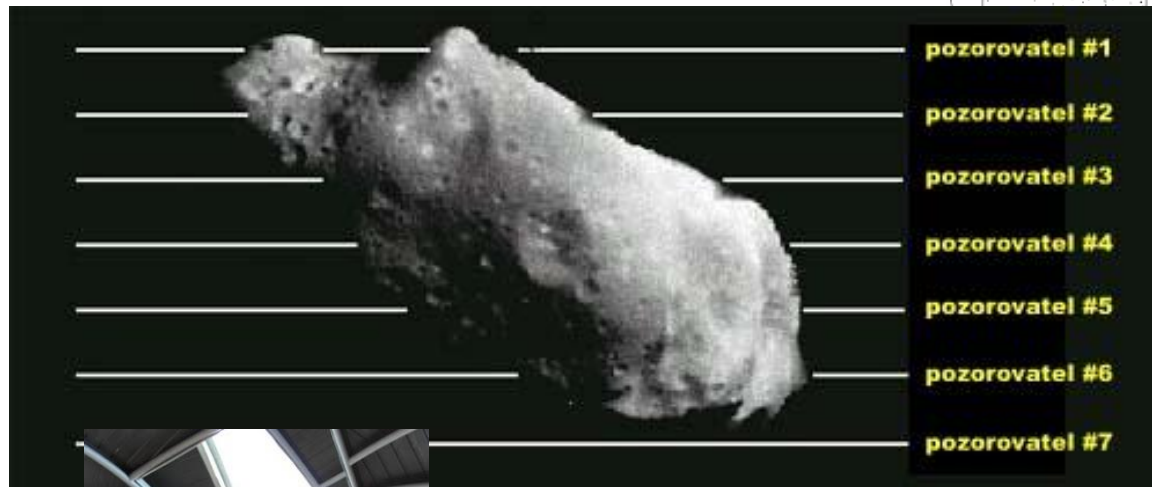
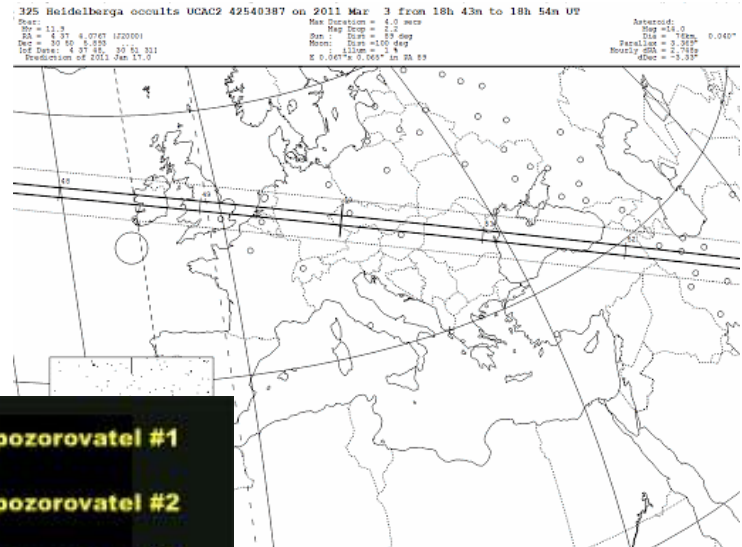
+0m
For E. Long. 14.0



Graze of 1484cA0, Magnitude 3.5 [R 3.5], on 2021 Dec 24 : LRO LOLA

Occultation by Minor Planet

Zákryty hvězd planetkami 2021



ZDROJE

<http://bedekkingen.vvs.be/predictions/>
<http://www.poyntsource.com/New/Future.htm>

Future Asteroid Events

Home Regional Events Google Maps Multimedia & Archive SF Asteroid Occultations SF Lunar Occultations

Asteroid Events Global TNO Predictions N America Pathmaps Honorable Mention Misc SF Grazes

All times UT unless otherwise noted

Future Global Asteroid Events

Updated 2020-10-13

Current Asteroid Event Details

Double star code.

1 = WDS, 2= double in other sources (4th interferometric, or star catalogue flag),
 4 = Variable star (listed in AAVSO Index file).

Values are cumulative, thus,

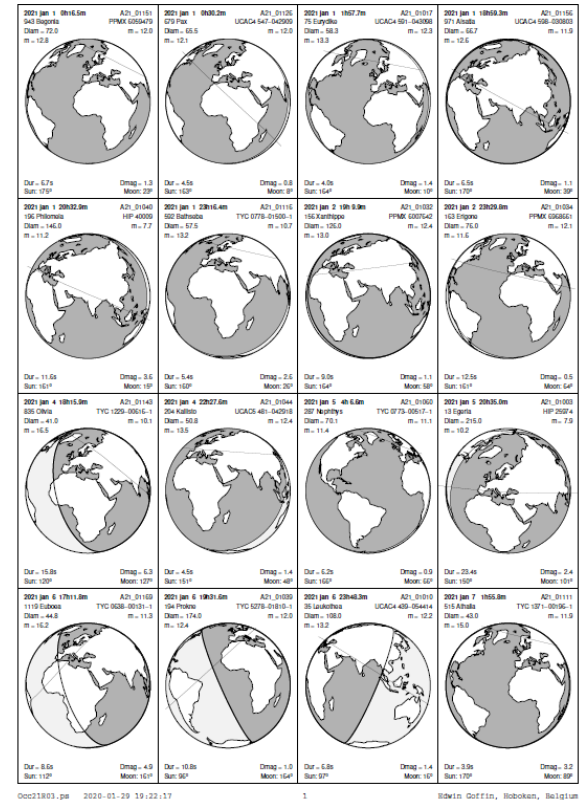
a 5 = a 1 (WDS) plus a 4 (AAVSO) and a 6 = a 2 (other sources) and a 4 (AAVSO).

For GoogleEarth KML files, please right click and SAVE AS, then open in GoogleEarth - This website prefers GoogleMaps

Future Events from Steve Preston - Scroll down for my preliminary listing for 2022

Date	U.T. Hr Mn	Minor Planet	Max Dur	Star Name	Star Star Mag Diam D	Delta Mag	Mapping Info	Observing Info
2020 Dec 16	08:29	971 Alsatia	6.1	TYC 1889-00556-1	11.2	1.93	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	03:28	1512 Oulu	16.3	TYC 0017-00285-1	11.2	5.34	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	03:46	345 Teracidina	11.7	TYC 0175-00078-1	9.3	2.47	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	05:19	326 Tamara	16.5	UCAC4-515-001782	12.3	1.80	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	07:08	601 Nerthus	5.7	TYC 4930-00213-1	11.7	4.14	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements DoubleInfo	
2020 Dec 17	08:16	443 Photographica	3.3	UCAC4 479-048342	11.4	2.80	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	14:59	423 Diotima	14.6	TYC 1849-00074-1	11.8	0.71	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	16:27	795 Fini	5.7	UCAC4-701-040742	12.3	2.25	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 17	19:43	1237 Genevieve	3.9	TYC 2457-00828-1	9.5	5.22	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	01:33	774 Armor	3.4	TYC 1338-01095-1	11.8	2.33	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	03:34	152 Atala	5.6	UCAC4 601-011008	12.1	1.10	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	07:52	892 Seeligeria	7.1	TYC 5380-00349-1	9.6	4.65	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	10:23	36 Atalante	9.7	UCAC4 504-053664	12.3	1.63	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	11:12	1022 Olympiada	2.0	UCAC4 503-016591	10.8	4.07	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	15:36	483 Seppina	5.2	UCAC4 436-008602	11.6	2.19	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	
2020 Dec 18	19:49	304 Olga	9.5	UCAC4 465-041493	12.5	2.12	Global GoogleMap GoogleEarth Path Sites Chart Stars Elements Elements	

Steve Preston (USA)



Edvin Goffin (Belgie)



datum	čas UT	planetka		hvězda	trv. pok	A	h	Sl	
mm dd	hm mm	jméno	Økm	mag	s	mag	°	°	
01 05	04 04	Nephtys	70	11,1	6,2	0,9	259	26	-28
01 10	20 25	Salonta	64	12,4	4,2	2,8	121	36	-47
01 10	22 42	Titania	78	11,2	7,9	1,3	107	67	-62
01 12	05 13	Genevieve	42	12,0	3,5	2,4	298	21	-16
01 20	17 49	Philomela	146	12,5	10,7	0,2	80	29	-21
02 20	22 41	Chalaea	101	10,4	12,8	1,8	244	31	-50
03 07	19 11	Konstitutsiya	53	10,6	3,7	5,6	154	67	-22
06 01	23 49	Abnoba	43	11,5	4,4	1,1	179	29	-17
06 08	02 00	Victoria	117	9,4	16,9	0,9	169	33	-8
06 09	22 27	Artemis	123	11,9	17,2	0,5	139	51	-17
07 08	20 23	Hildrun	70	11,9	7,6	2,8	191	40	-9
07 15	21 43	Aemilia	131	10,8	9,3	2,3	166	21	-16
09 07	01 17	Peraga	98	9,9	3,7	3,4	88	33	-27
09 14	20 11	Hebe	186	12,2	24,3	0,1	201	18	-26
10 01	22 32	Thuringia	57	11,9	4,3	2,6	64	33	-44
10 08	18 41	Eudora	46	12,2	7,3	1,2	165	24	-22
10 23	20 13	Menelaus	72	12,1	4,2	5,2	127	43	-40
10 23	03 15	Lorelai	160	12,3	13,4	0,9	264	51	-24
10 31	03 58	Camelia	77	11,7	5,9	2,1	283	14	-19
11 19	21 32	Thuringia	57	12,4	9,3	1,6	76	12	-56
11 21	03 10	Tolosa	48	9,8	16,1	3,6	194	64	-31
11 26	05 37	Malabar	89	10,2	10,2	3,9	232	15	-9
11 29	04 23	Anahita	52	11,5	5,7	0,9	261	38	-21
12 02	22 58	Lumen	135	11,9	24,0	0,6	265	35	-62
12 07	15 51	Lilium	48	11,5	4,1	4,1	81	26	-7
12 22	05 43	Eucharis	107	9,9	12,9	2,7	221	40	-12
12 29	00 54	Posnania	42	11,1	3,8	3,4	277	55	-56



287 Nephthys & TYC 0773-00517-1

2021 Jan 5 4^h 6.6^m U.T.

Planet: a = 2.35, e = 0.02
V. mag. = 11.38 Diam. = 70.1 km = 0.07"
 μ = 39.16"/h π = 6.14" Ref. = EG2019

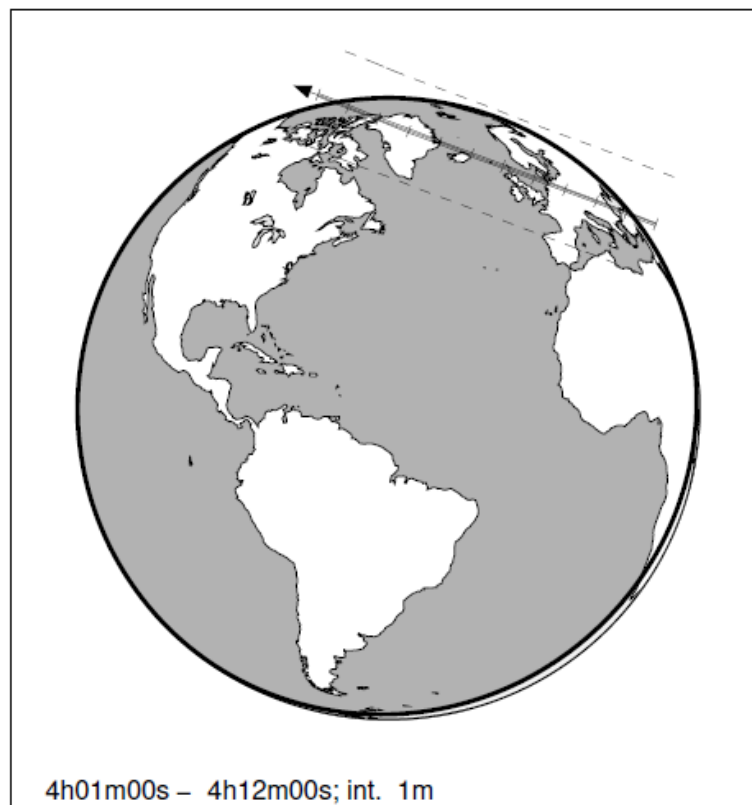
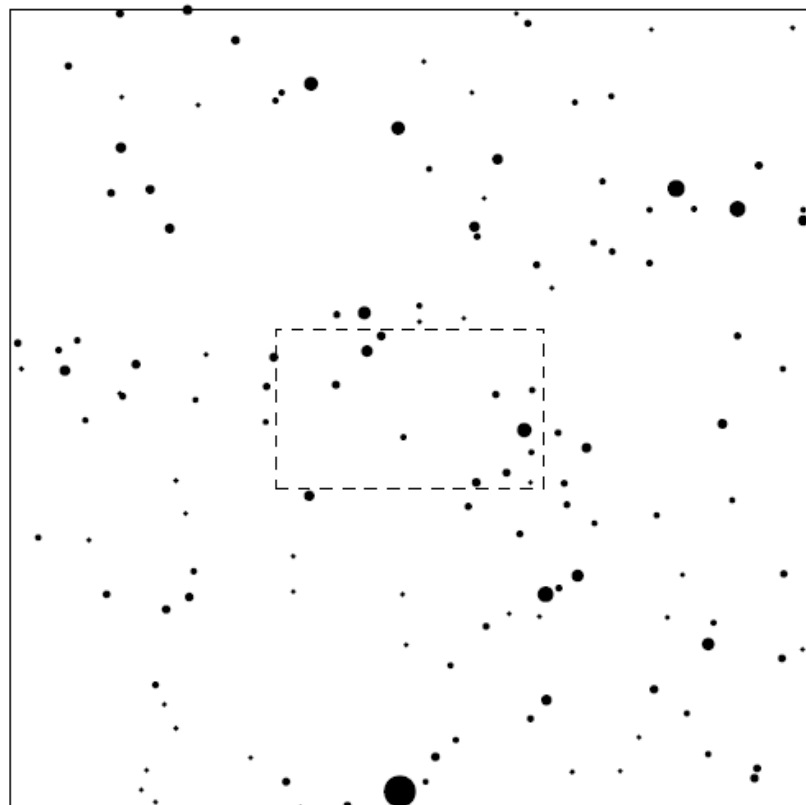
Star: Source cat. GDR2a
 α = 7^h38^m34.642^s δ = +12°24'09.85"
Vmag = 11.05 Bmag = 11.23

Δm = 0.9

Max. dur. = 6.2s

Sun : 166°

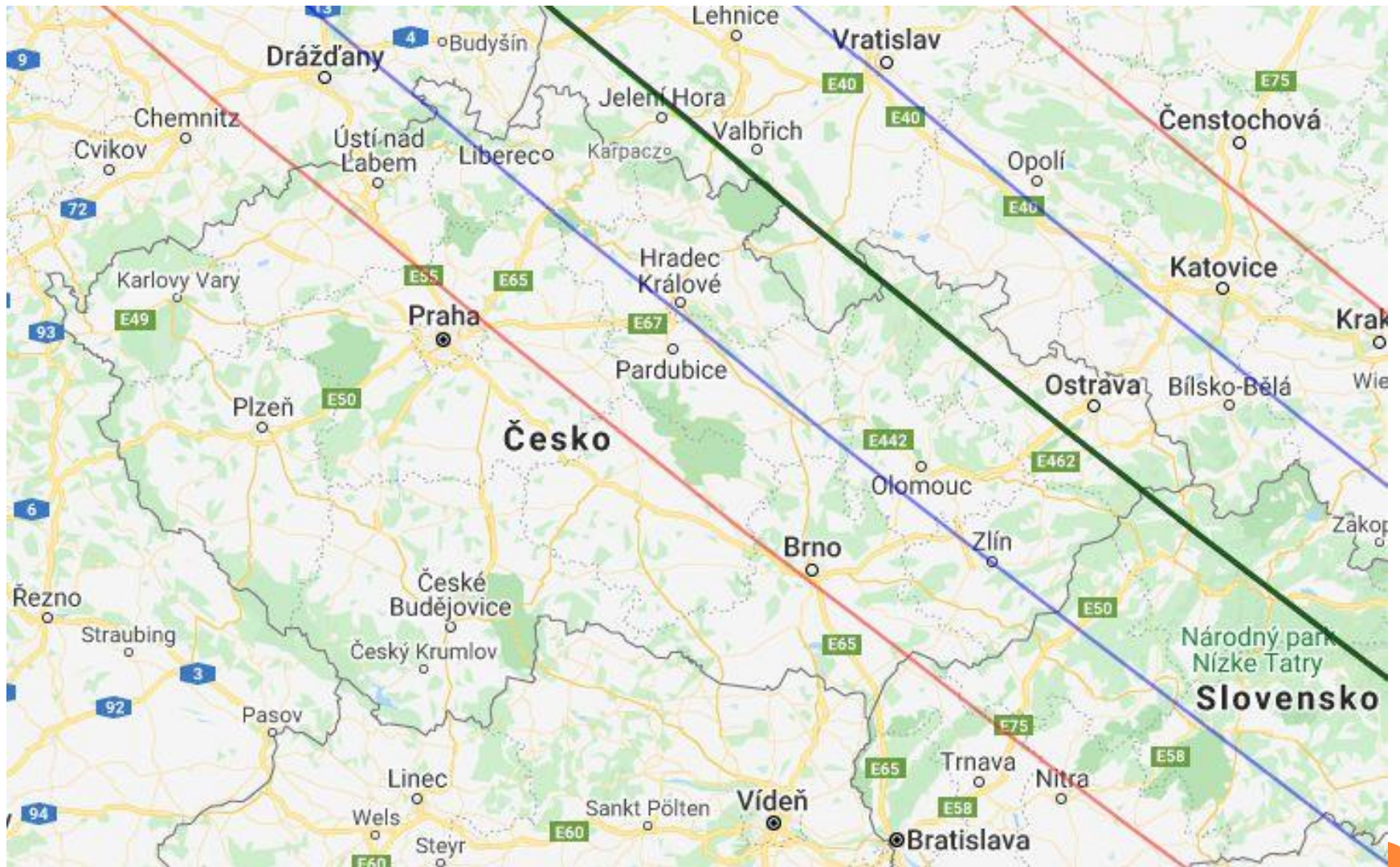
Moon : 66° , 64%



287 Nephthys & TYC 0773-00517-1

2021 jan 5 4^h 6.6^m U.T.





1436 Salonta & UCAC4 503-044608

2021 jan 10 20^h22.5^m U.T.

Planet: $a = 3.14$, $e = 0.07$
V. mag. = 15.12 Diam. = 63.6 km = 0.04"
 $\mu = 31.70''/h$ $\pi = 3.70''$ Ref. = EG2019

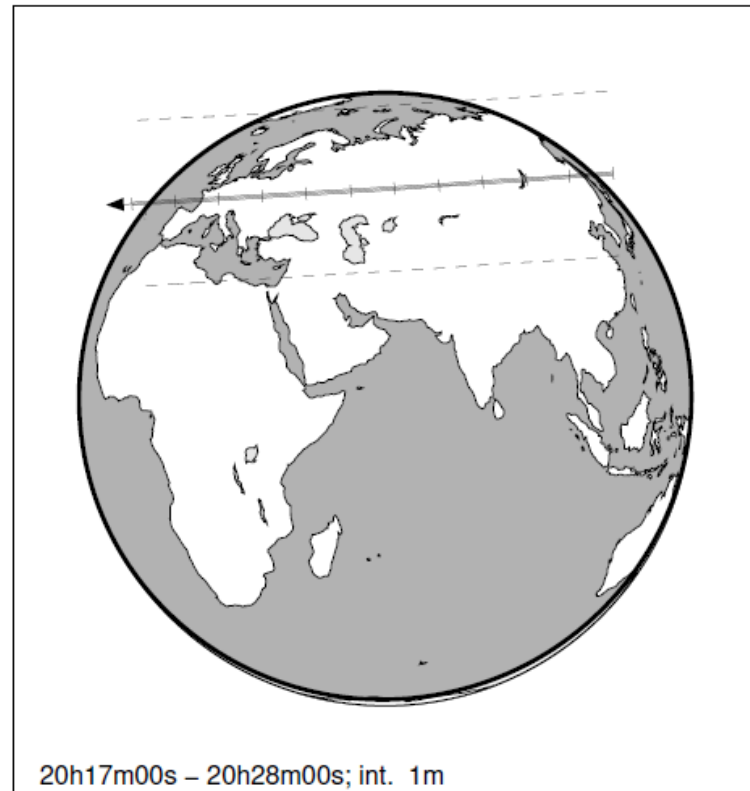
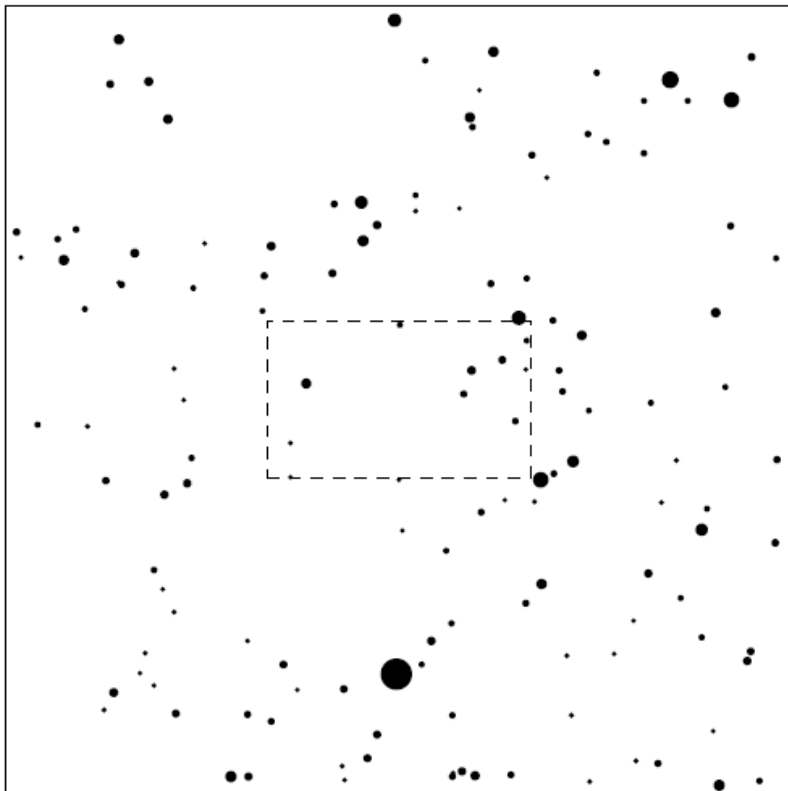
Star: Source cat. GDR2a
 $\alpha = 7^h39^m06.785^s$ $\delta = +10^\circ27'40.08''$
Vmag = 12.37 Bmag = 12.90

$\Delta m = 2.8$

Max. dur. = 4.2s

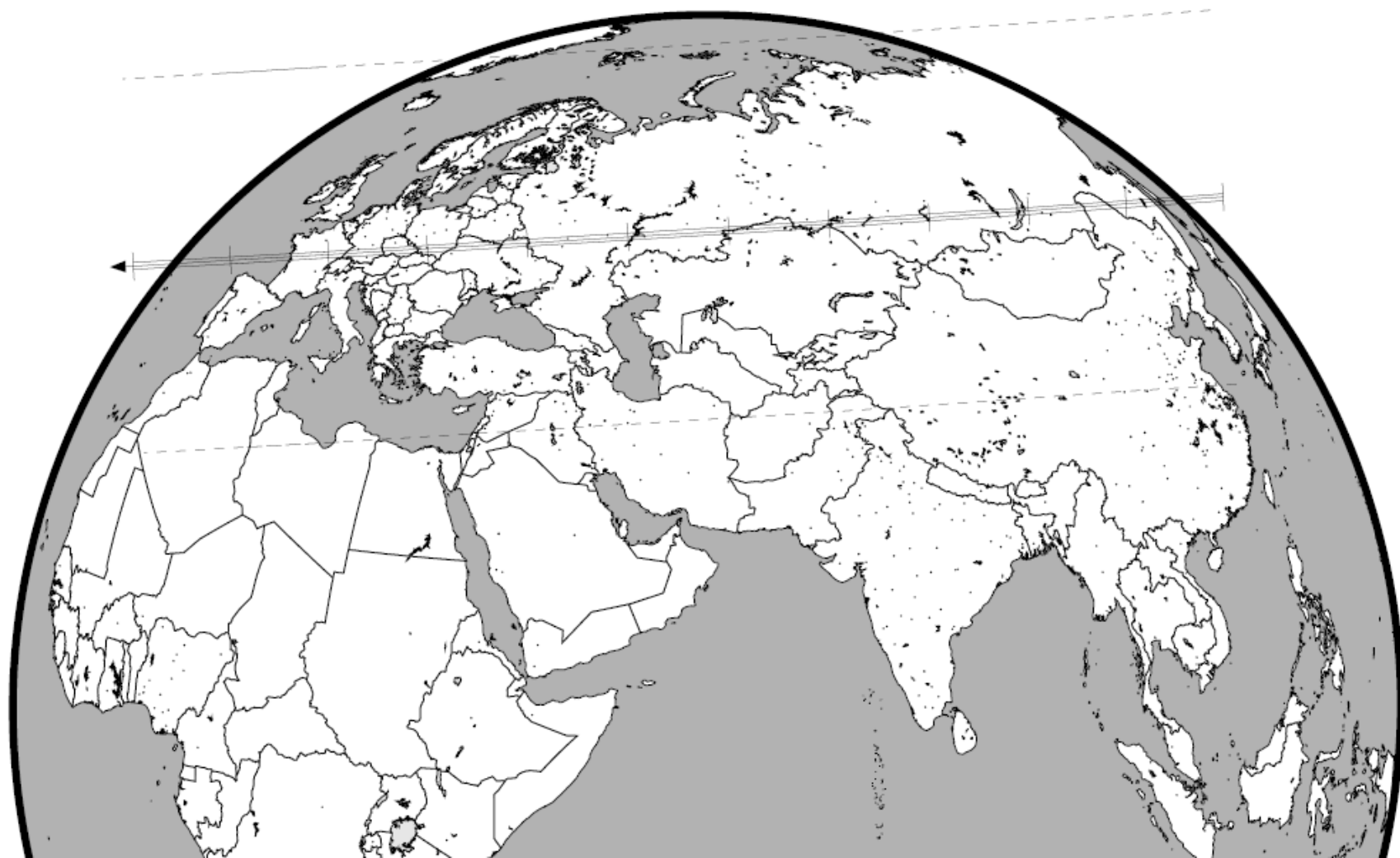
Sun : 168°

Moon : 143° , 7%



1436 Salonta & UCAC4 503-044608

2021 jan 10 20^h22.5^m U.T.





593 Titania & TYC 2983-00734-1

2021 jan 10 22^h40.3^m U.T.

Planet: $a = 2.70, e = 0.22$
V. mag. = 12.07 Diam. = 78.2 km = 0.09"
 $\mu = 41.17''/h$ $\pi = 7.39''$ Ref. = EG2019

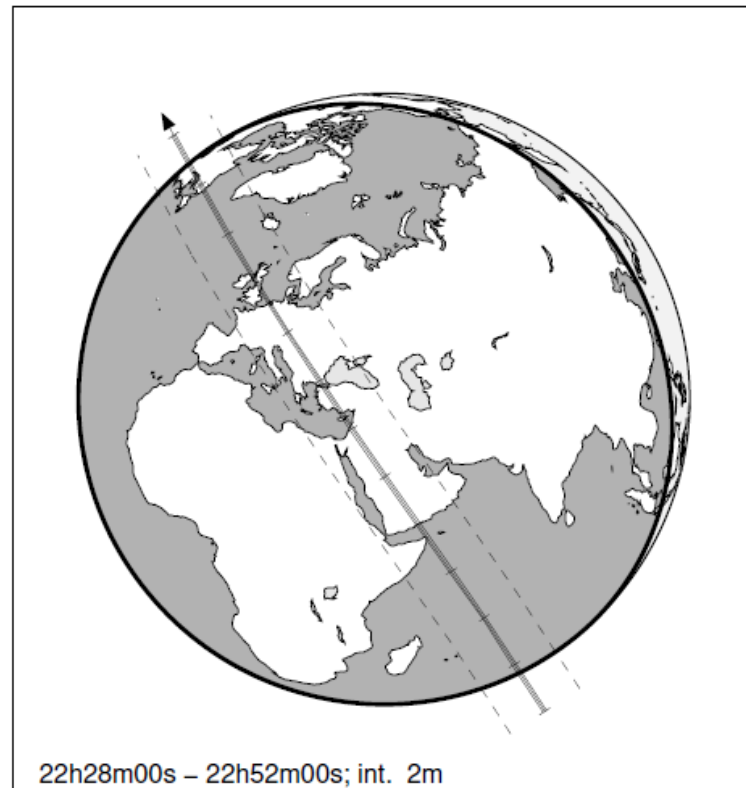
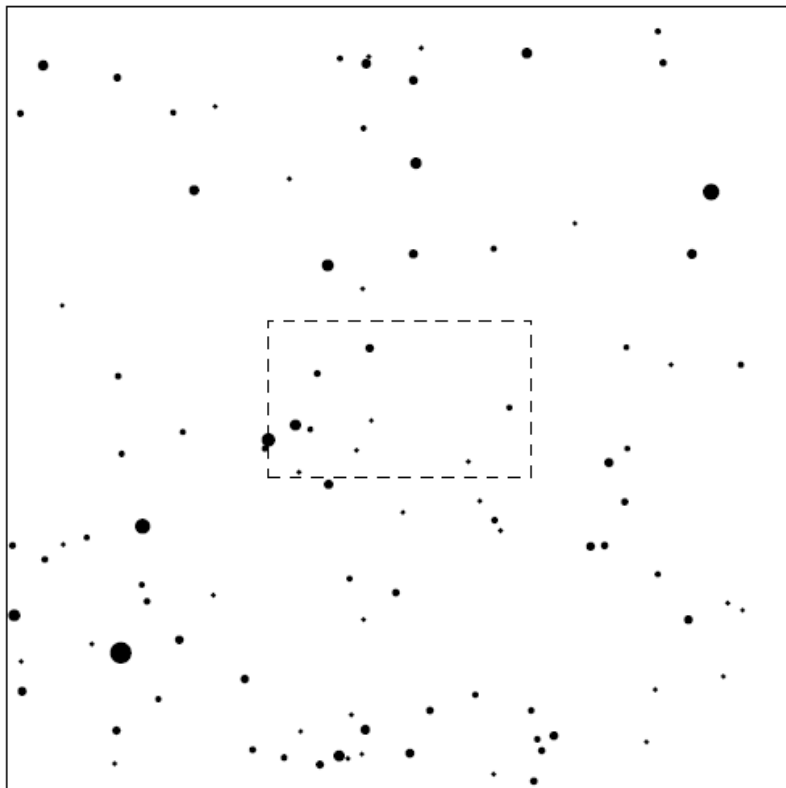
Star: Source cat. GDR2a
 $\alpha = 8^h53^m34.675^s$ $\delta = +39^\circ14'04.38''$
Vmag = 11.22 Bmag = 11.52

$\Delta m = 1.3$

Max. dur. = 7.9s

Sun : 154°

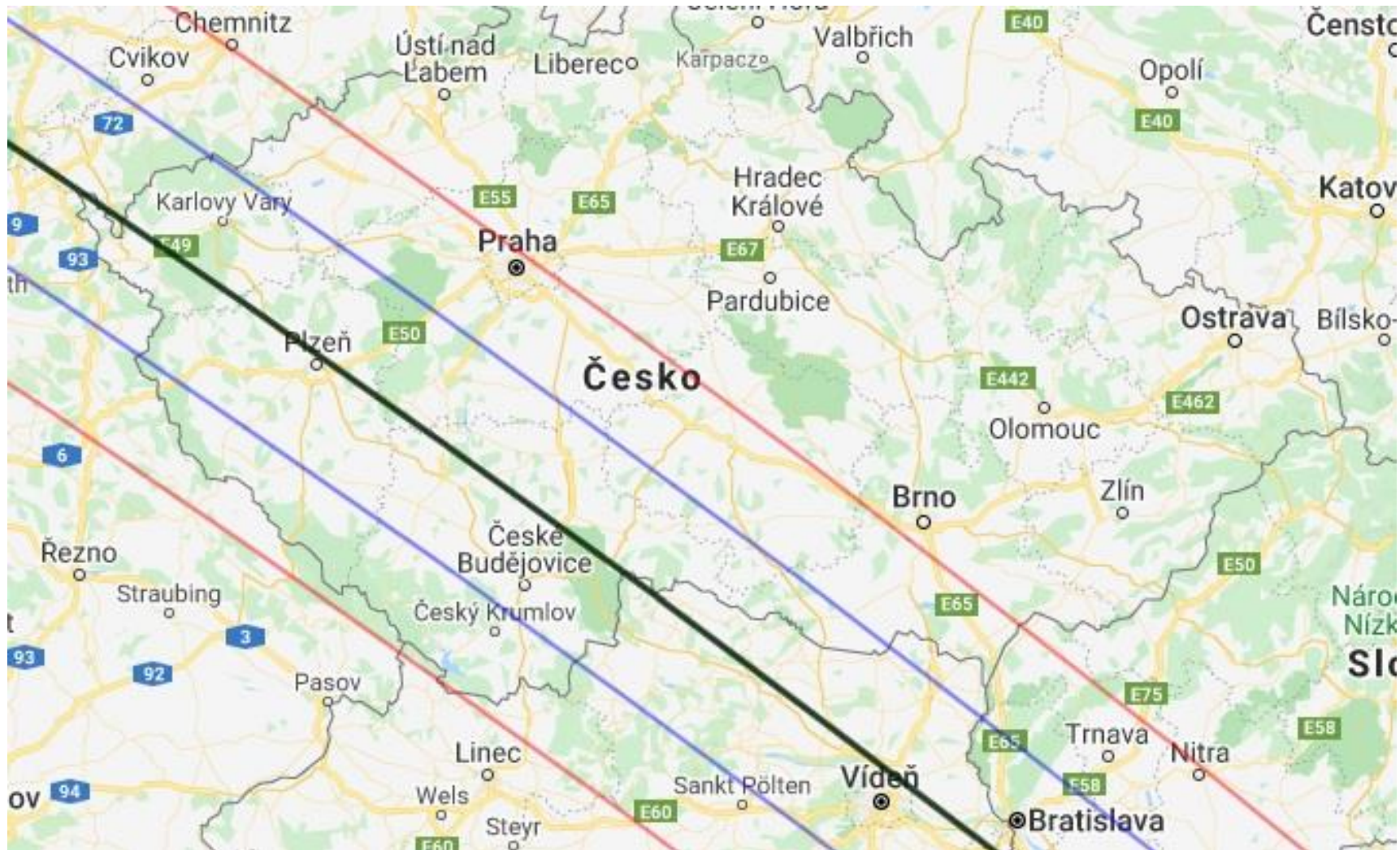
Moon : 132° , 7%



593 Titania & TYC 2983-00734-1

2021 jan 10 22^h40.3^m U.T.





1237 Genevieve & TYC 2446-01359-1

2021 Jan 12 5^h17.9^m U.T.

Planet: $a = 2.61$, $e = 0.08$
V. mag. = 14.36 Diam. = 42.0 km = 0.03"
 $\mu = 35.62''/h$ $\pi = 5.24''$ Ref. = EG2019

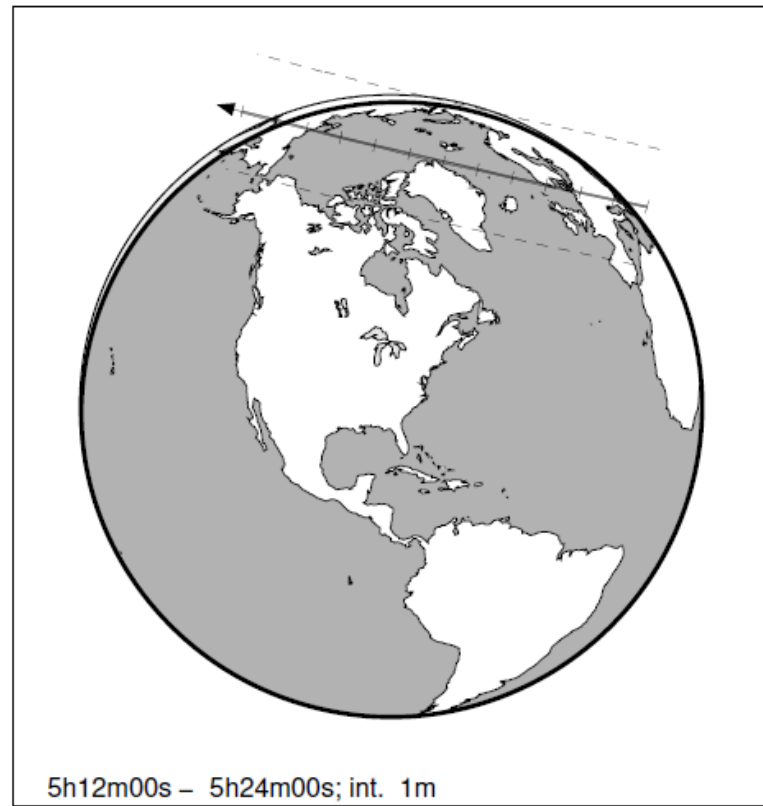
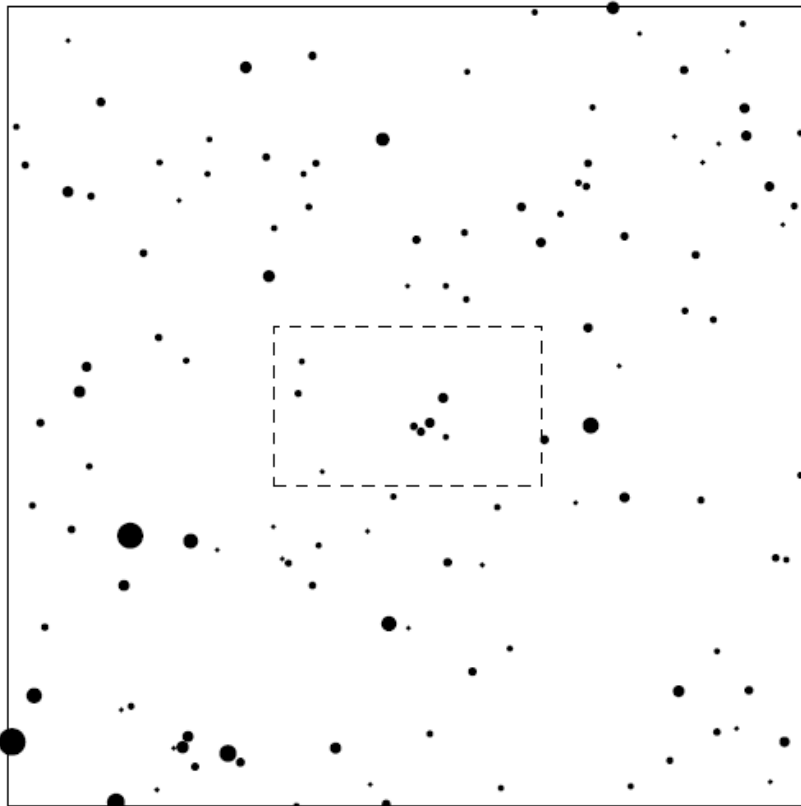
Star: Source cat. GDR2a
 $\alpha = 7^h09^m24.738^s$ $\delta = +34^\circ19'16.22''$
Vmag = 12.04 Bmag = 12.59

$\Delta m = 2.4$

Max. dur. = 3.5s

Sun : 166°

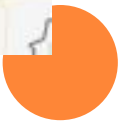
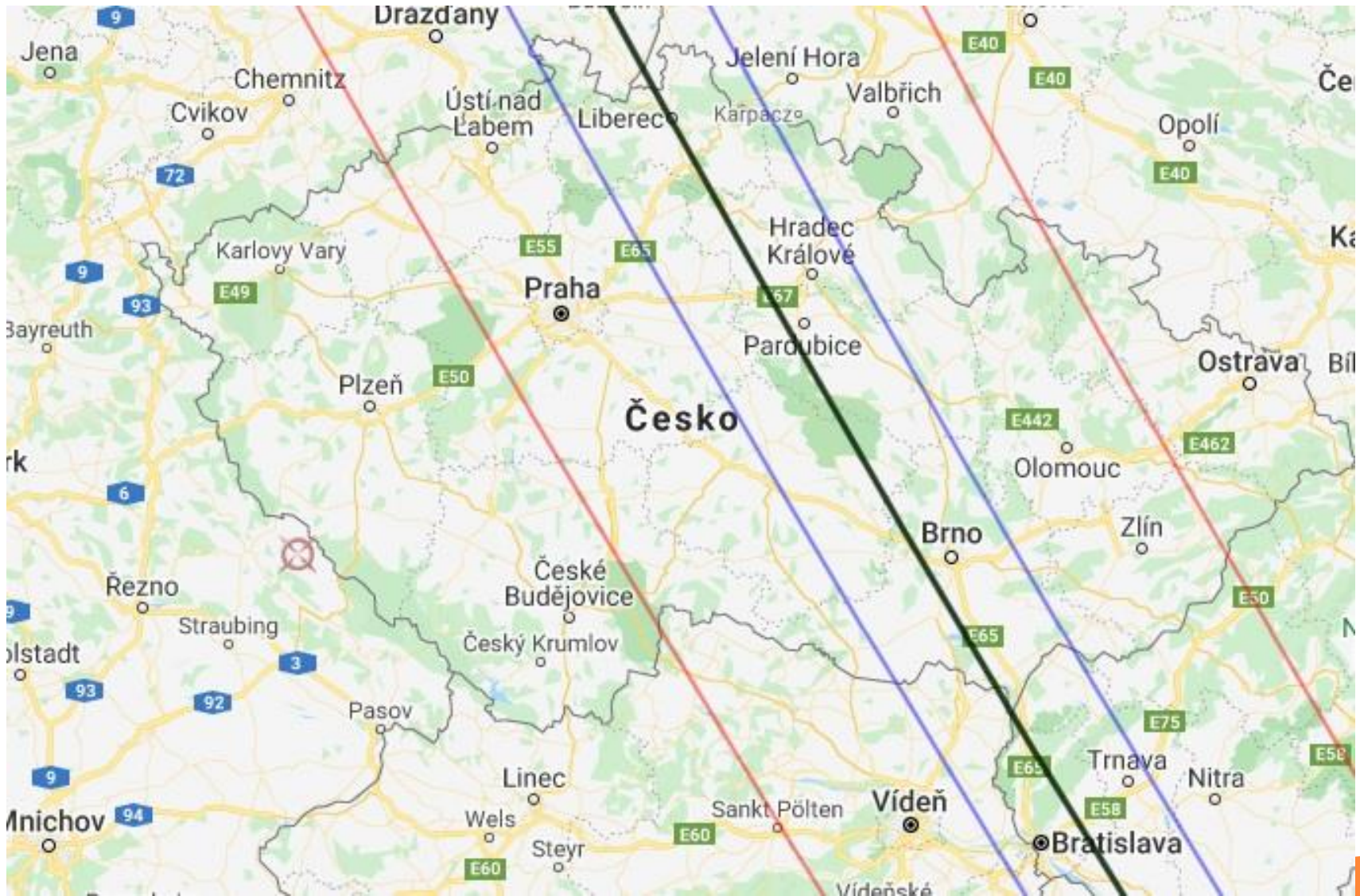
Moon : 169° , 1%



1237 Genevieve & TYC 2446-01359-1

2021 Jan 12 5^h17.9^m U.T.





196 Philomela & UCAC4 592-042146

2021 jan 20 17^h42.8^m U.T.

Planet: $a = 3.12, e = 0.03$
V. mag. = 11.03 Diam. = 146.0 km = 0.09"
 $\mu = 30.98''/h$ $\pi = 4.03''$ Ref. = EG2019

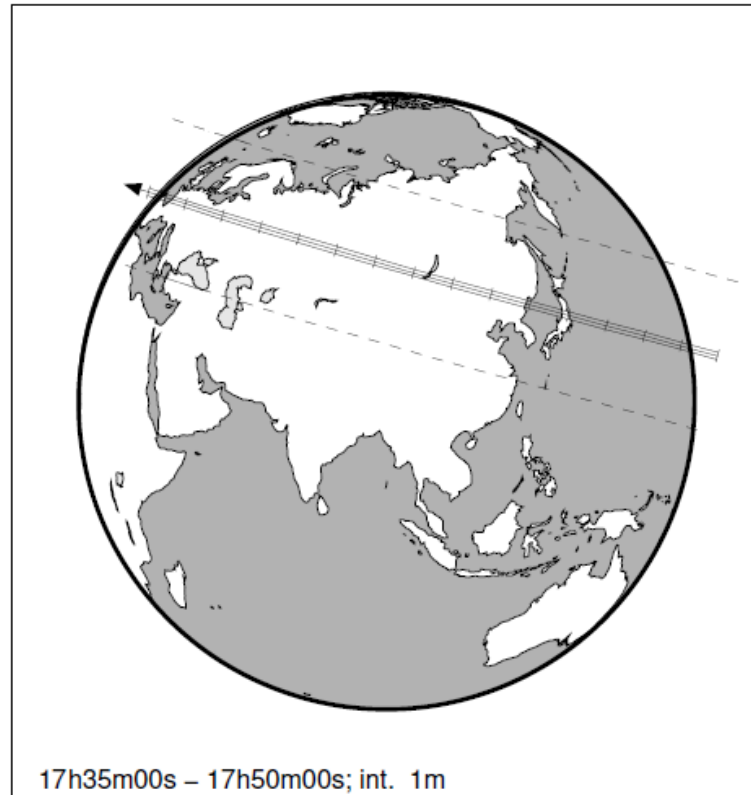
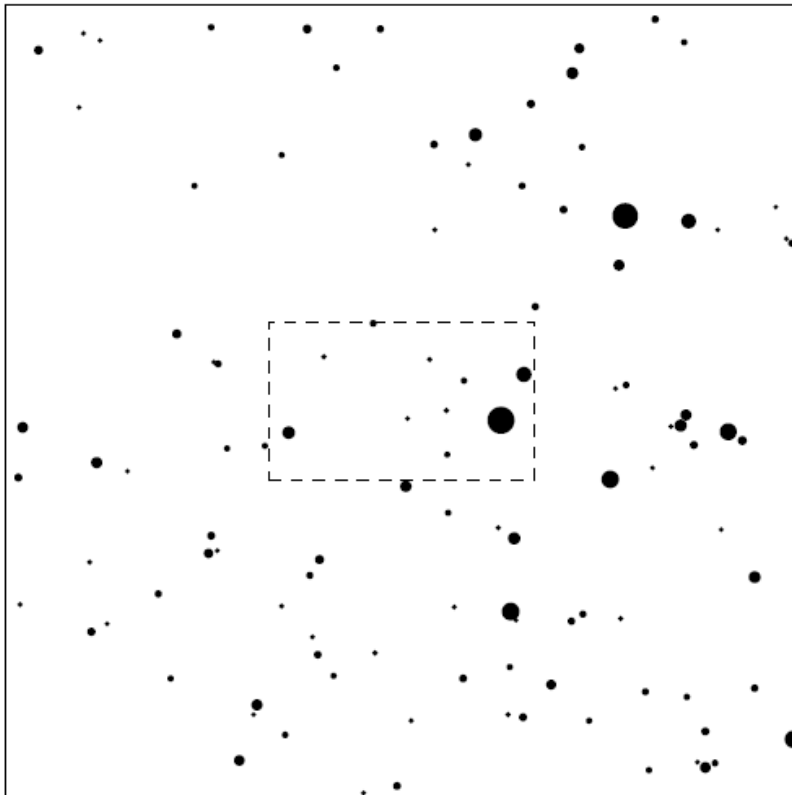
Star: Source cat. GDR2a
 $\alpha = 7^h53^m50.763^s$ $\delta = +28^\circ23'10.87''$
Vmag = 12.48 Bmag = 12.89

$\Delta m = 0.3$

Max. dur. = 10.7s

Sun : 170°

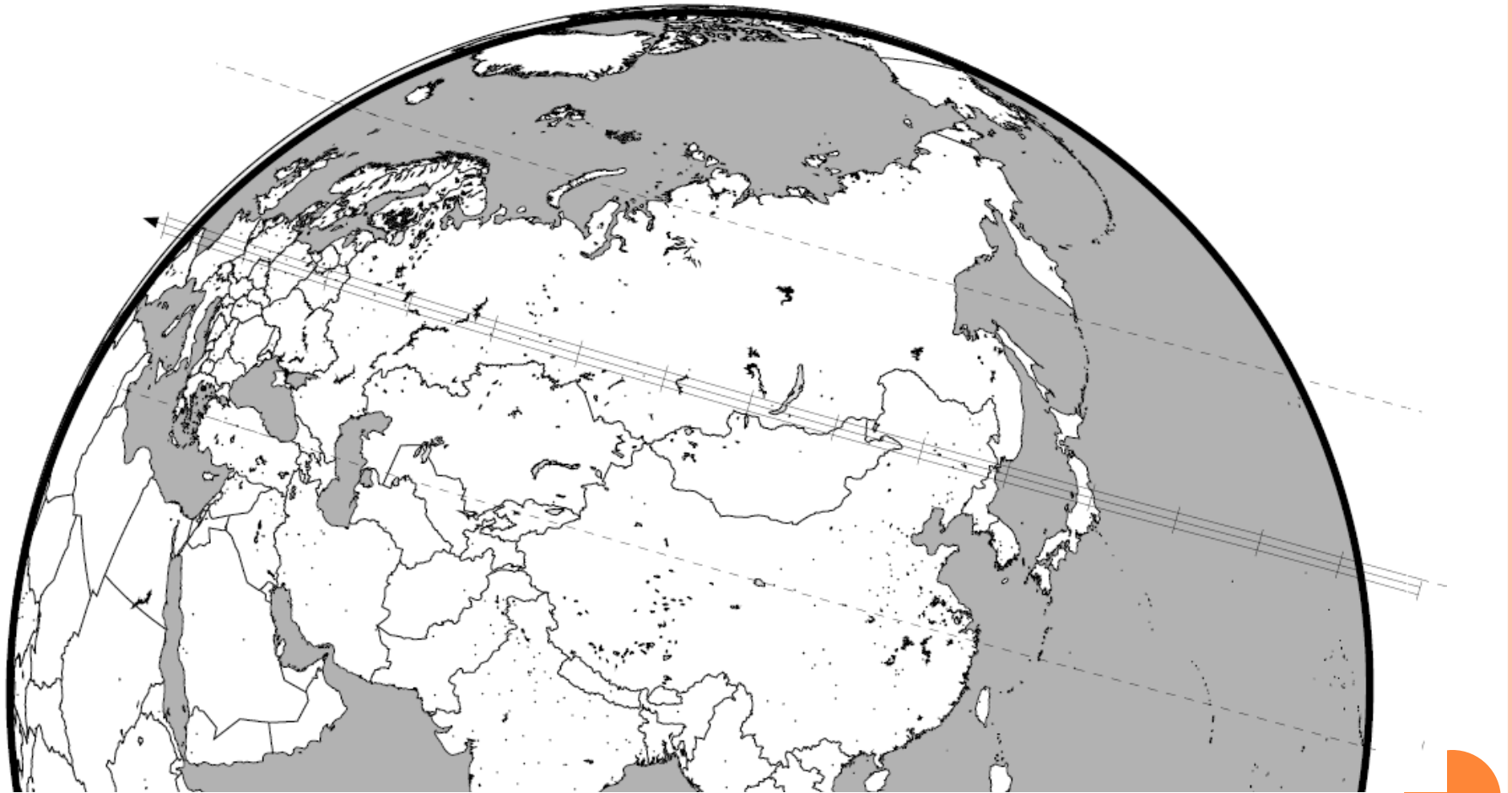
Moon : 86° , 49%

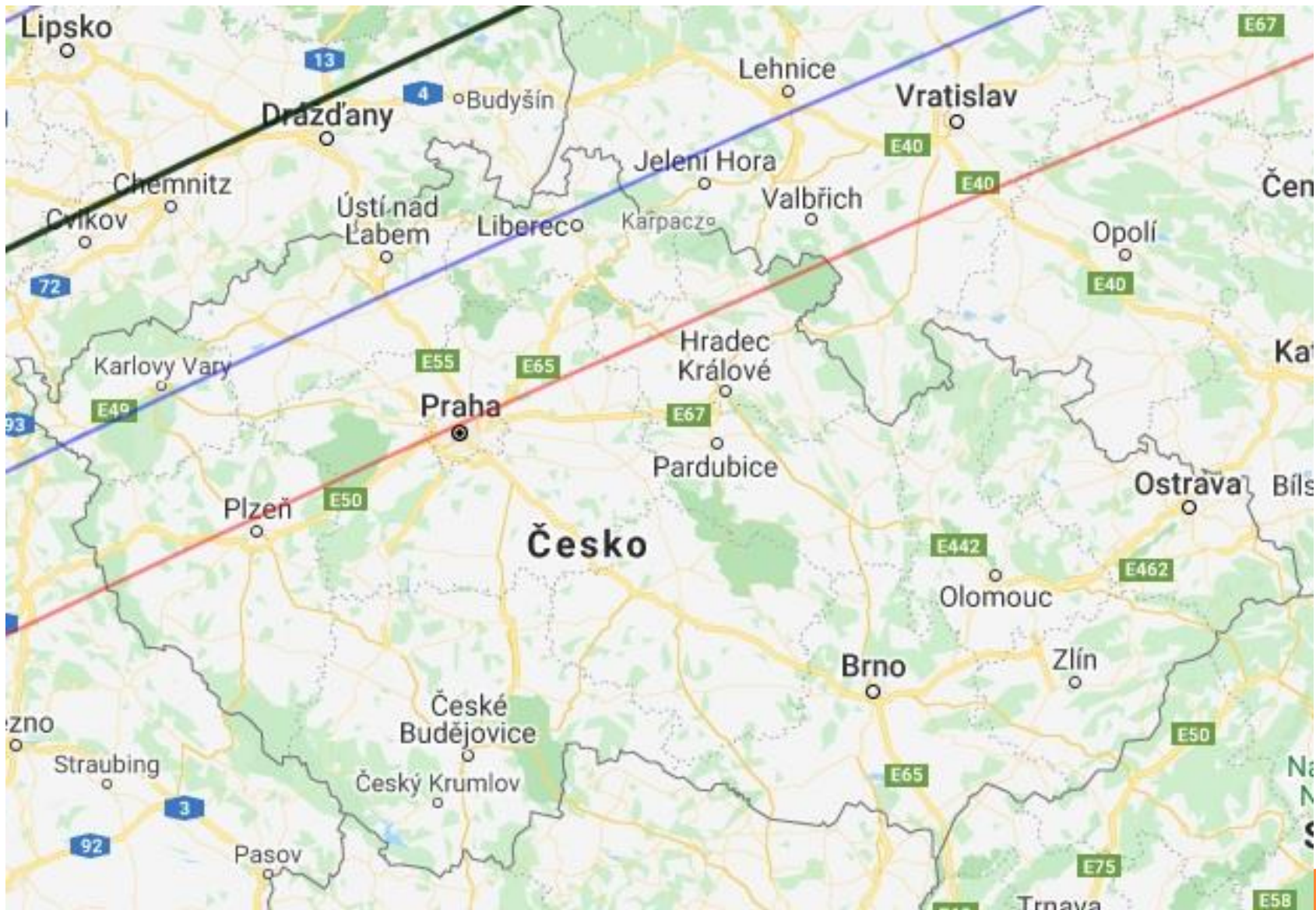


17h35m00s – 17h50m00s; int. 1m

196 Philomela & UCAC4 592-042146

2021 jan 20 17^h42.8^m U.T.





313 Chaldaea & TYC 0730-02054-1

2021 feb 20 22^h29.6^m U.T.

Planet: $a = 2.38, e = 0.18$
V. mag. = 12.02 Diam. = 101.0 km = 0.11"
 $\mu = 31.22''/h$ $\pi = 7.01''$ Ref. = EG2019

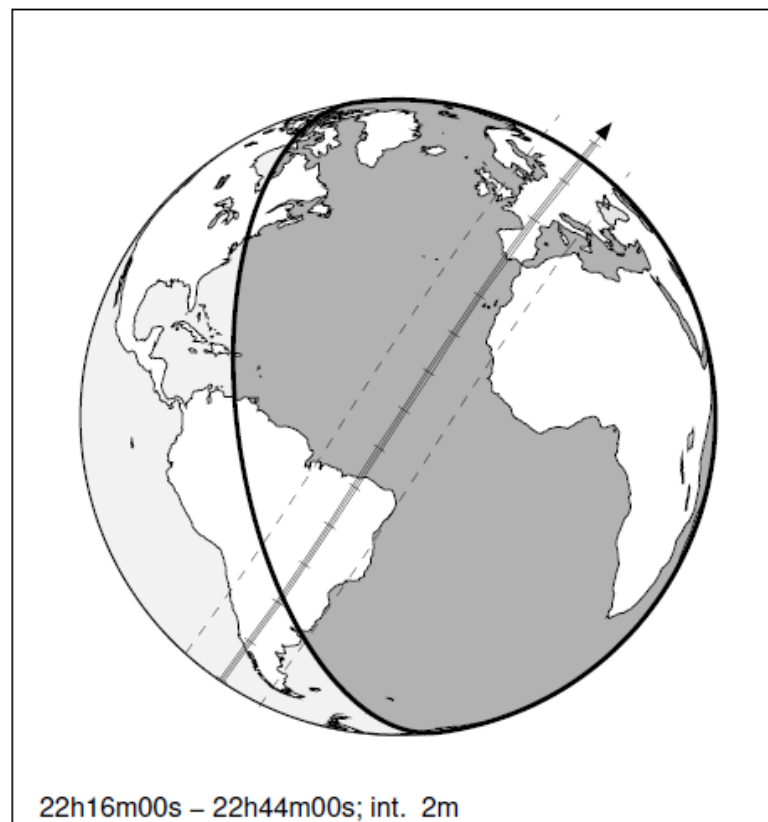
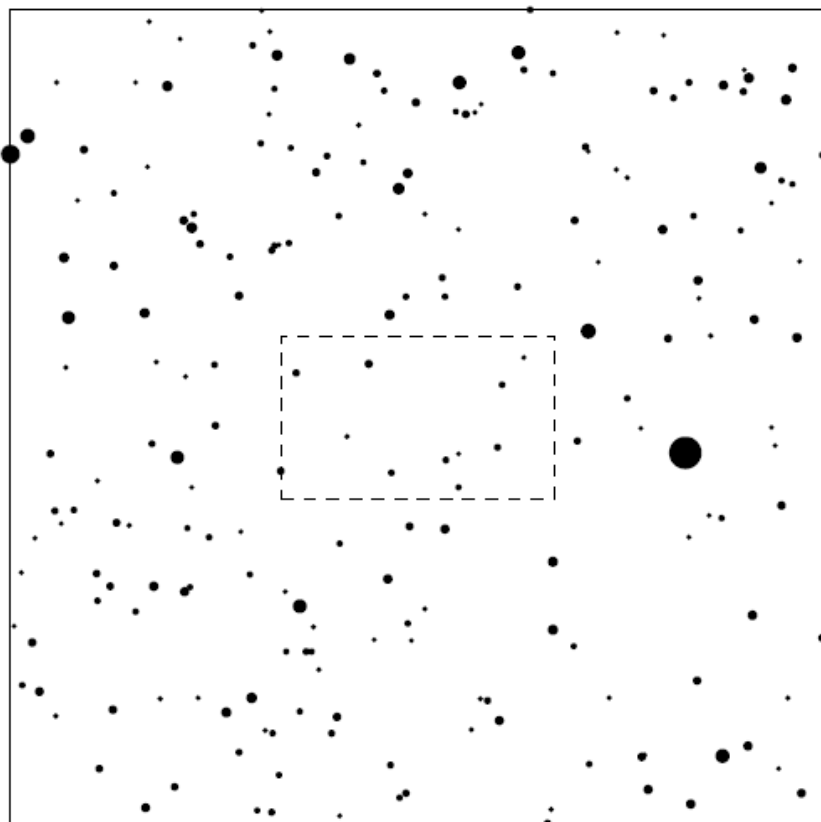
Star: Source cat. GDR2a
 $\alpha = 6^h15^m01.973^s$ $\delta = + 8^\circ03'50.41''$
Vmag = 10.42 Bmag = 10.97

$\Delta m = 1.8$

Max. dur. = 12.8s

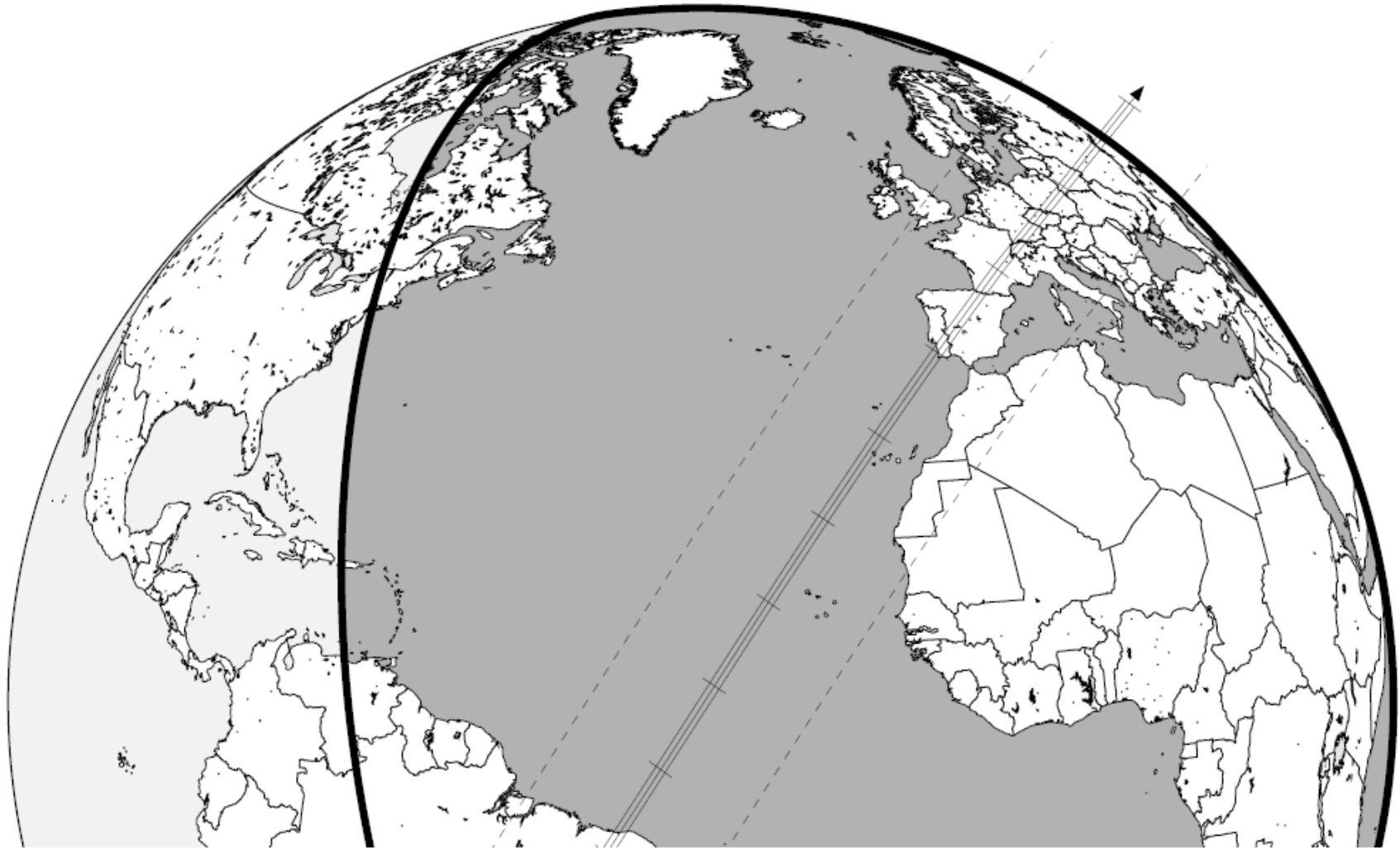
Sun : 120°

Moon : 24° , 61%



313 Chaldaea & TYC 0730-02054-1

2021 feb 20 22^h29.6^m U.T.





2008 Konstitutsiya & TYC 3358-00791-1

2021 mar 7 19^h 9.3^m U.T.

Planet: $a = 3.21, e = 0.10$
V. mag. = 16.17 Diam. = 52.5 km = 0.02"
 $\mu = 23.10''/h$ $\pi = 2.85''$ Ref. = EG2019

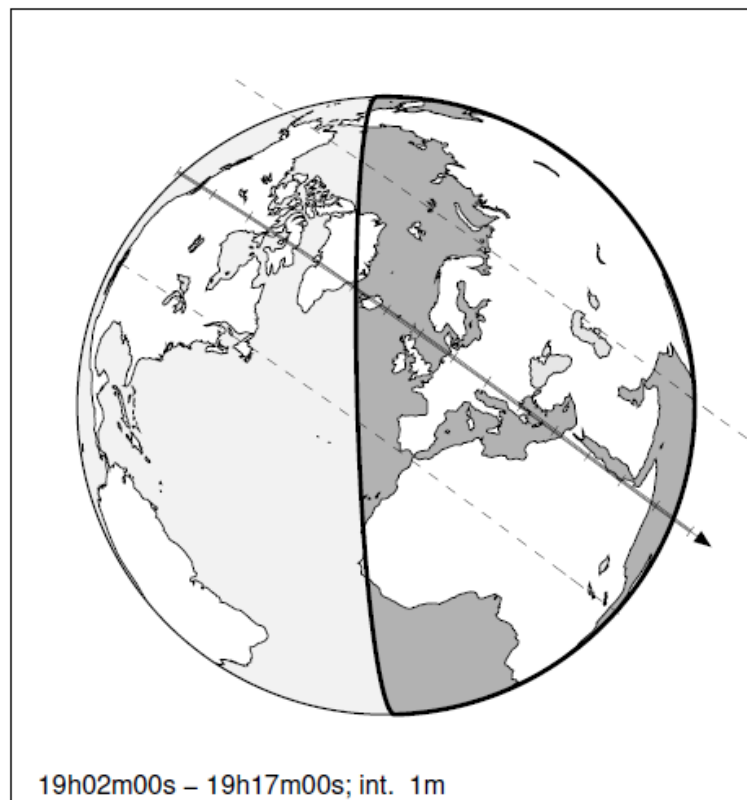
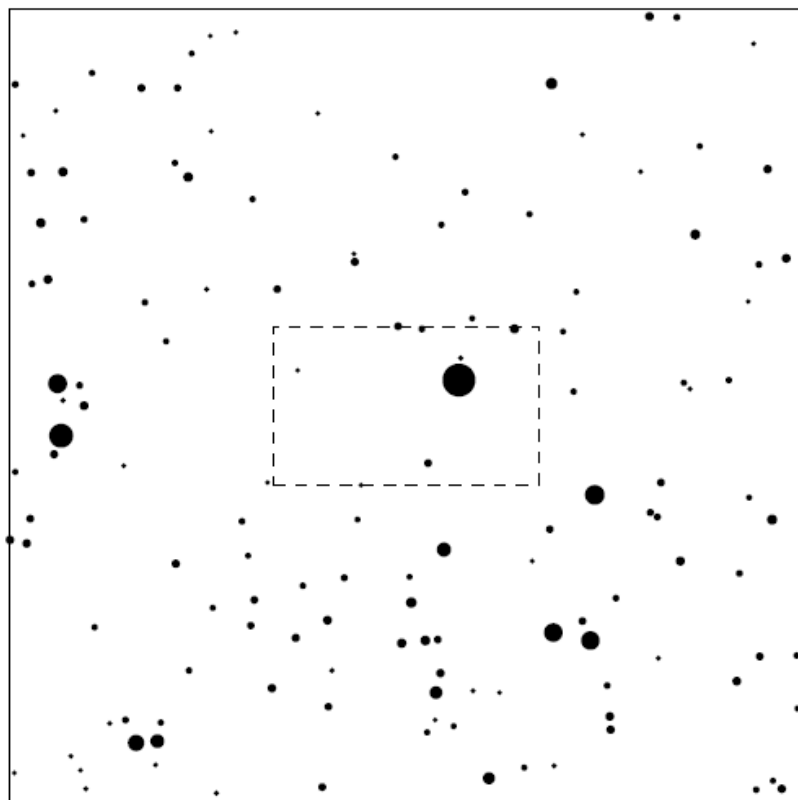
Star: Source cat. GDR2a
 $\alpha = 5^h 22^m 22.445^s$ $\delta = +45^\circ 30' 47.84''$
Vmag = 10.58 Bmag = 11.44

$\Delta m = 5.6$

Max. dur. = 3.7s

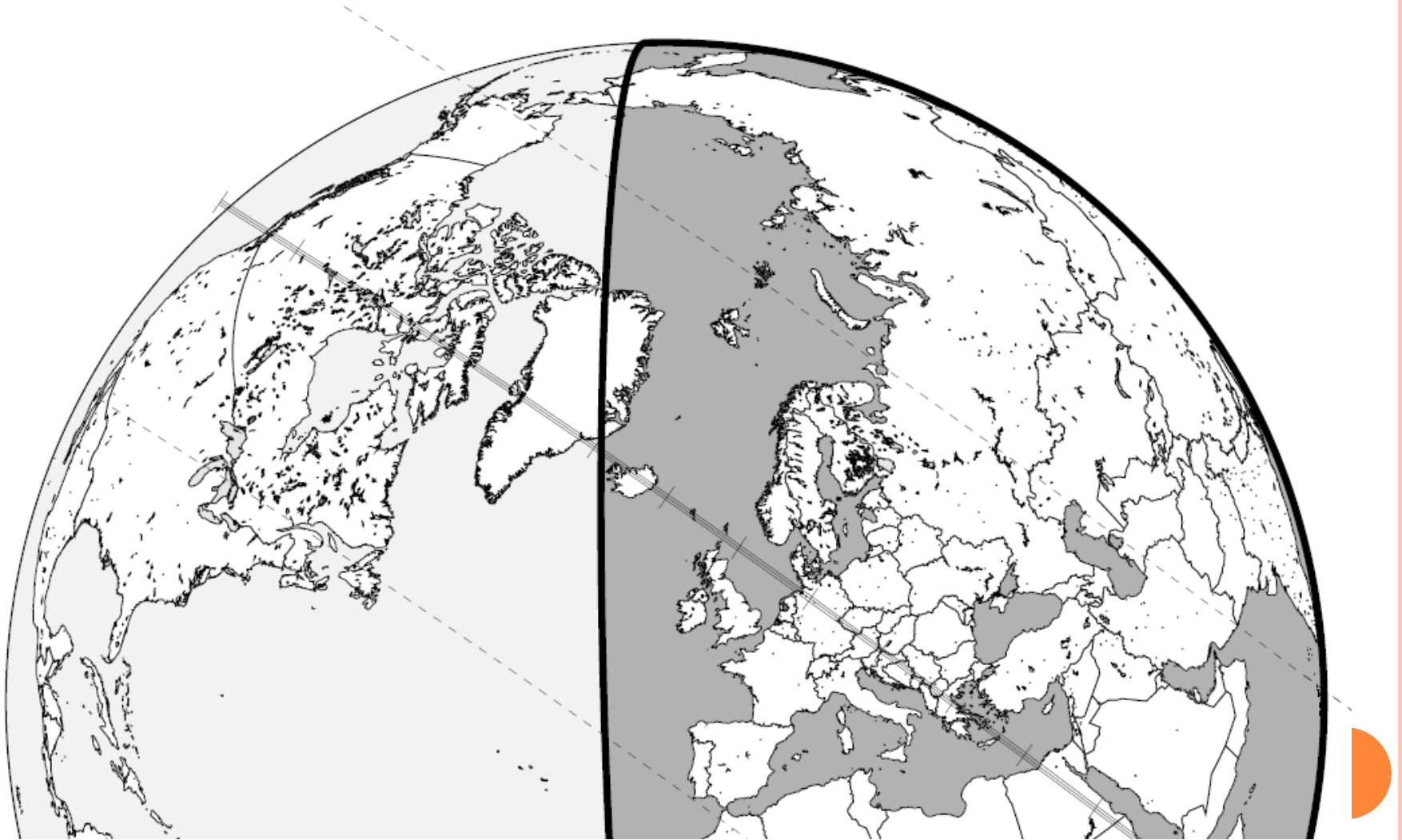
Sun : 95°

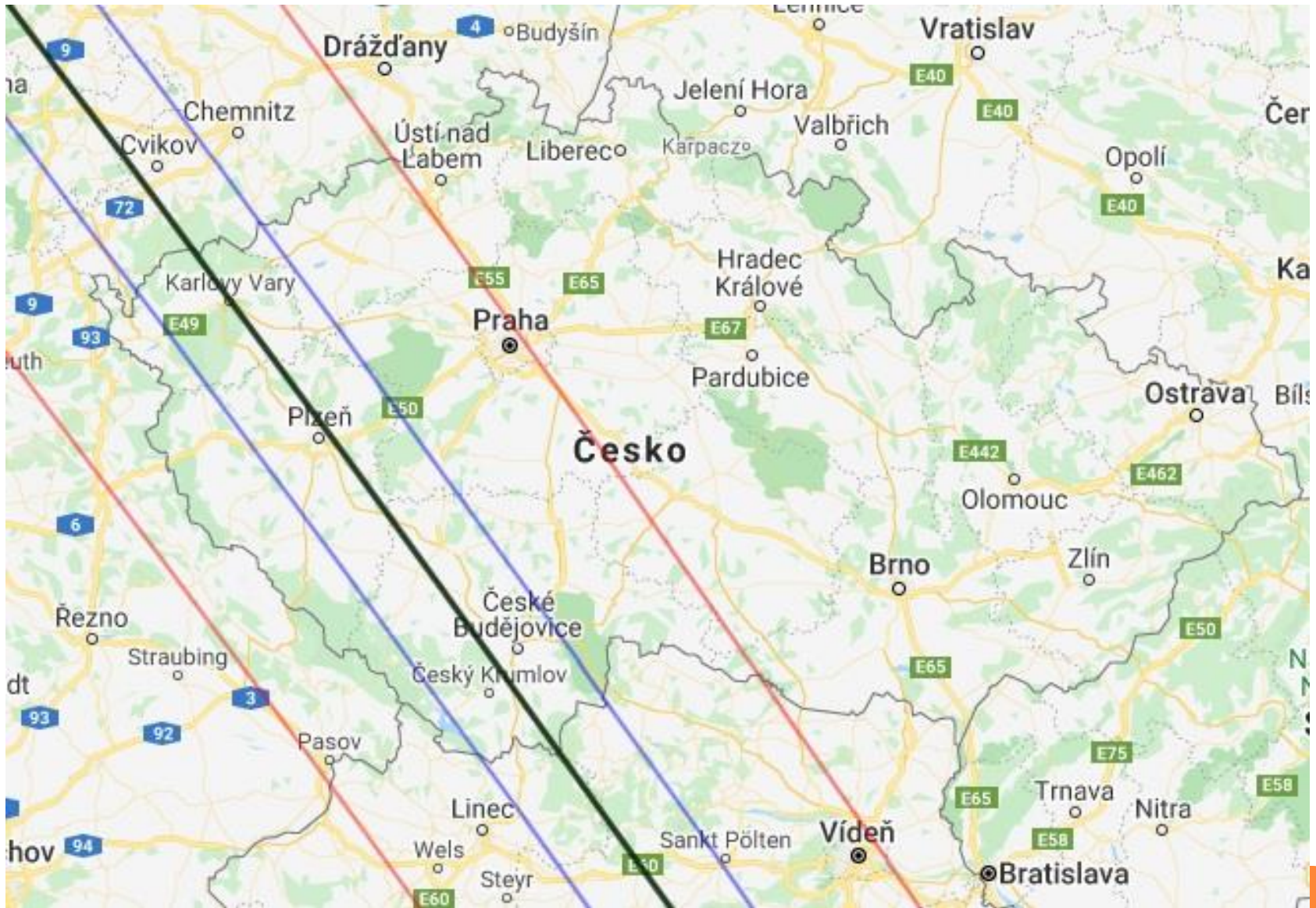
Moon : 154° , 31%



2008 Konstitutsiya & TYC 3358-00791-1

2021 mar 7 19^h 9.3^m U.T.





456 Abnoba & UCAC4 396-071033

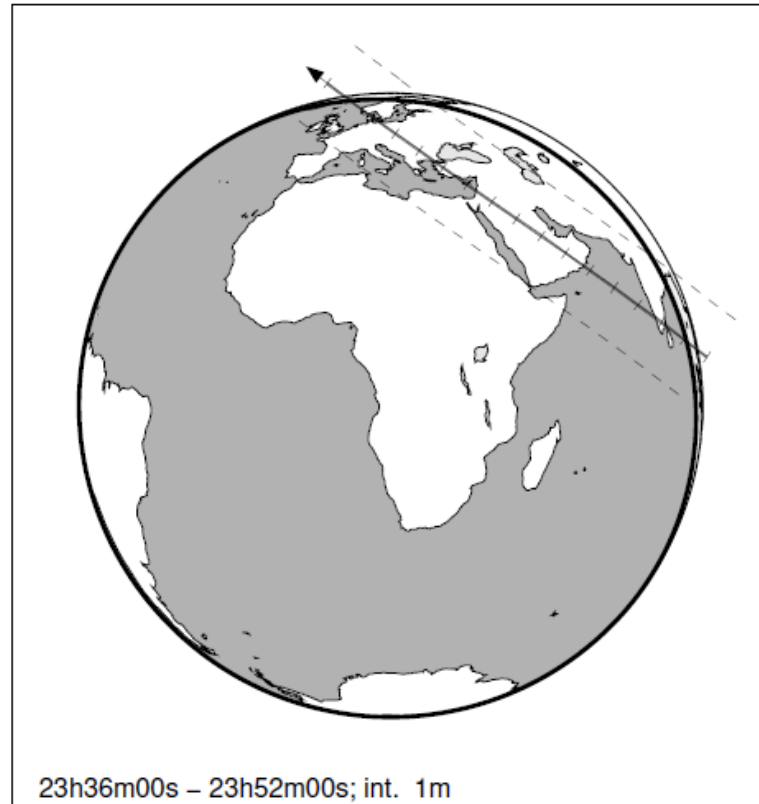
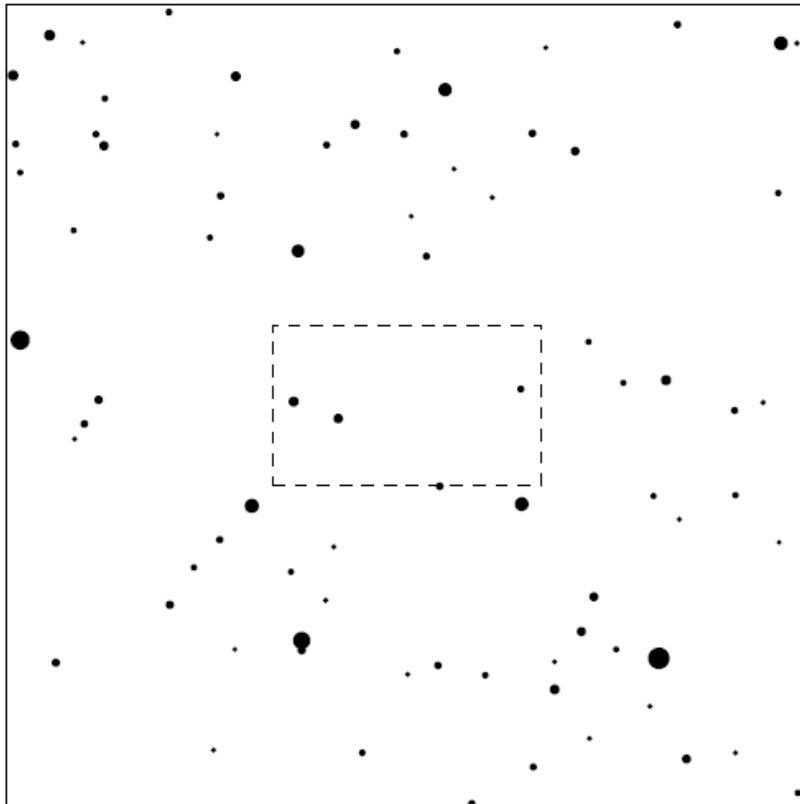
2021 jun 1 23^h43.8^m U.T.

Planet: $a = 2.79$, $e = 0.18$
V. mag. = 12.15 Diam. = 43.1 km = 0.04"
 $\mu = 37.01''/h$ $\pi = 6.64''$ Ref. = EG2019

$\Delta m = 1.1$ Max. dur. = 4.4s

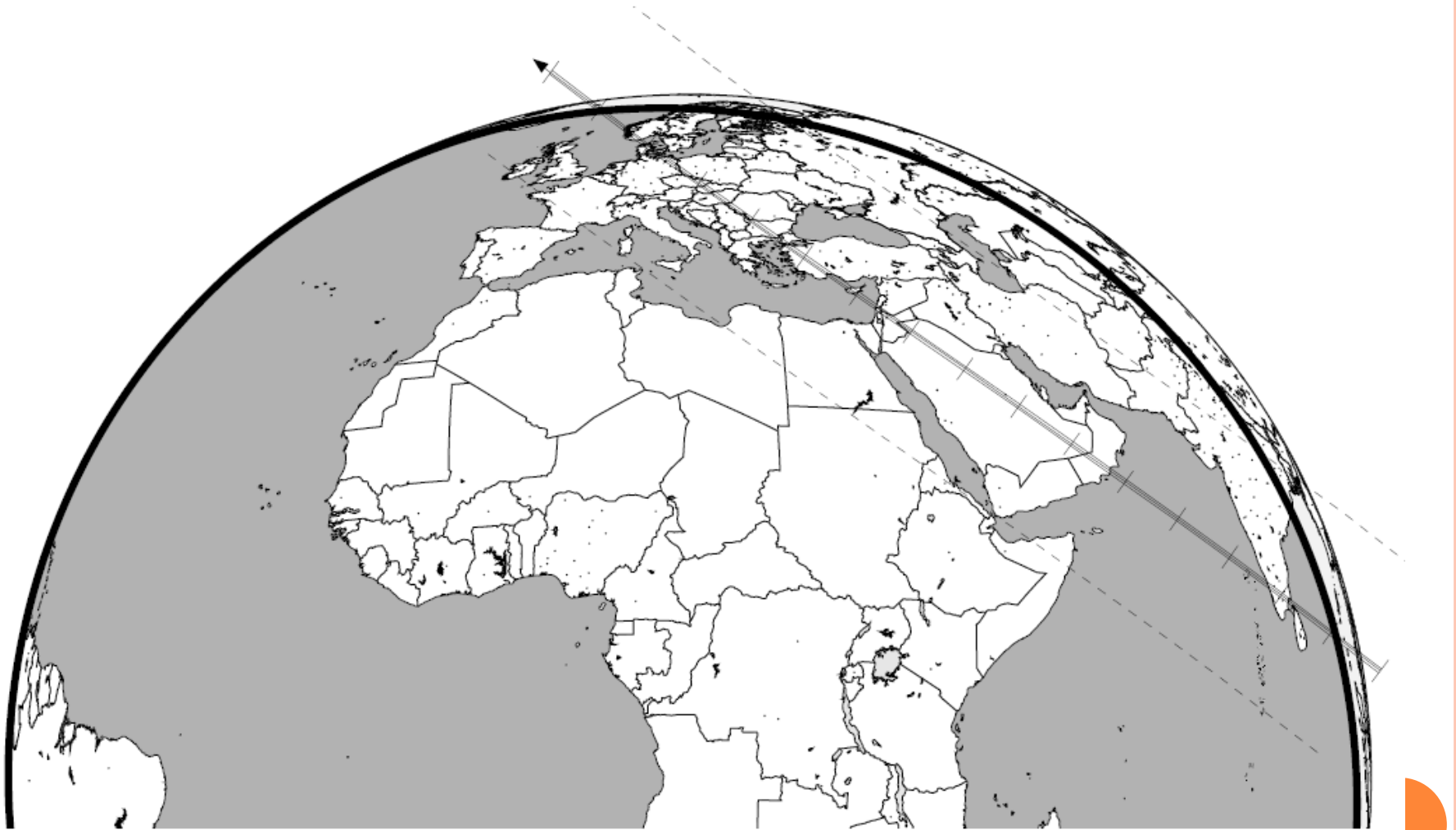
Star: Source cat. GDR2a
 $\alpha = 17^h 29^m 33.987^s$ $\delta = -10^\circ 59' 39.44''$
Vmag = 11.51 Bmag = 13.46

Sun : 163° Moon : 77° , 53%



456 Abnoba & UCAC4 396-071033

2021 jun 1 23^h43.8^m U.T.





12 Victoria & TYC 5189-00339-1

2021 jun 8 1^h49.6^m U.T.

Planet: $a = 2.33, e = 0.22$
V. mag. = 9.77 Diam. = 117.0 km = 0.15"
 $\mu = 32.77''/h$ $\pi = 8.37''$ Ref. = EG2019

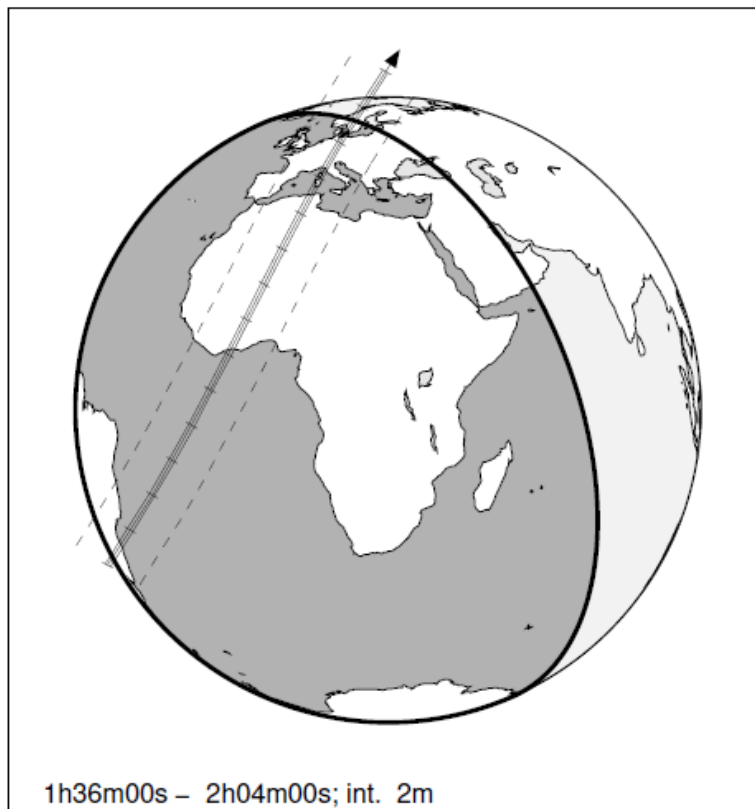
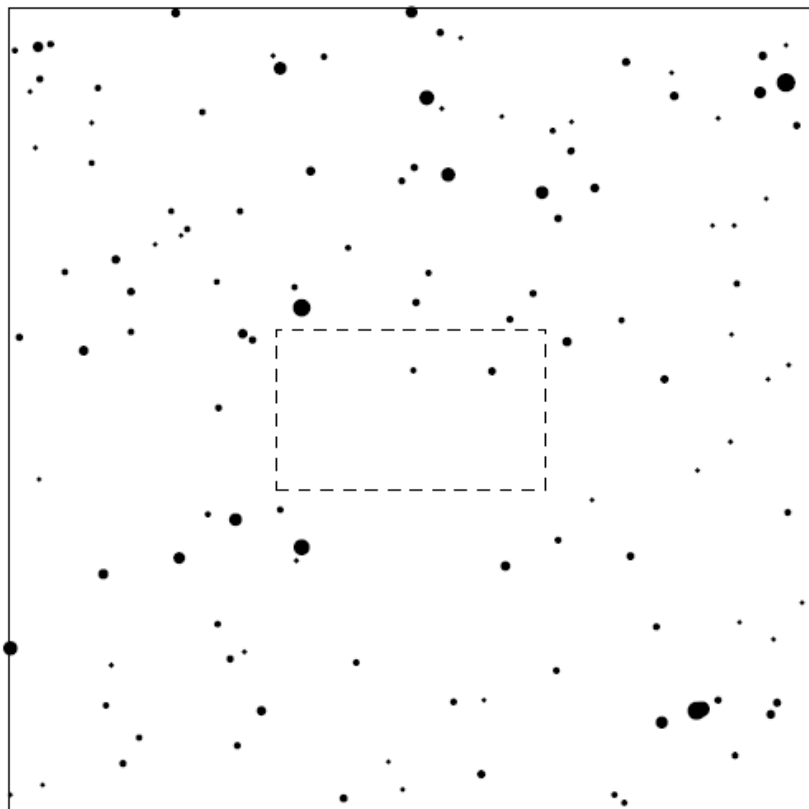
Star: Source cat. GDR2a
 $\alpha = 20^{\text{h}}39^{\text{m}}30.871^{\text{s}}$ $\delta = -6^{\circ}55'43.51''$
Vmag = 9.42 Bmag = 10.43

$\Delta m = 0.9$

Max. dur. = 16.9s

Sun : 125°

Moon : 101° , 5%



12 Victoria & TYC 5189-00339-1

2021 jun 8 1^h49.6^m U.T.





105 Artemis & UCAC4 533-072522

2021 jun 9 22^h19.0^m U.T.

Planet: $a = 2.37, e = 0.18$
V. mag. = 11.34 Diam. = 123.0 km = 0.15"
 $\mu = 32.12''/h$ $\pi = 7.97''$ Ref. = EG2019

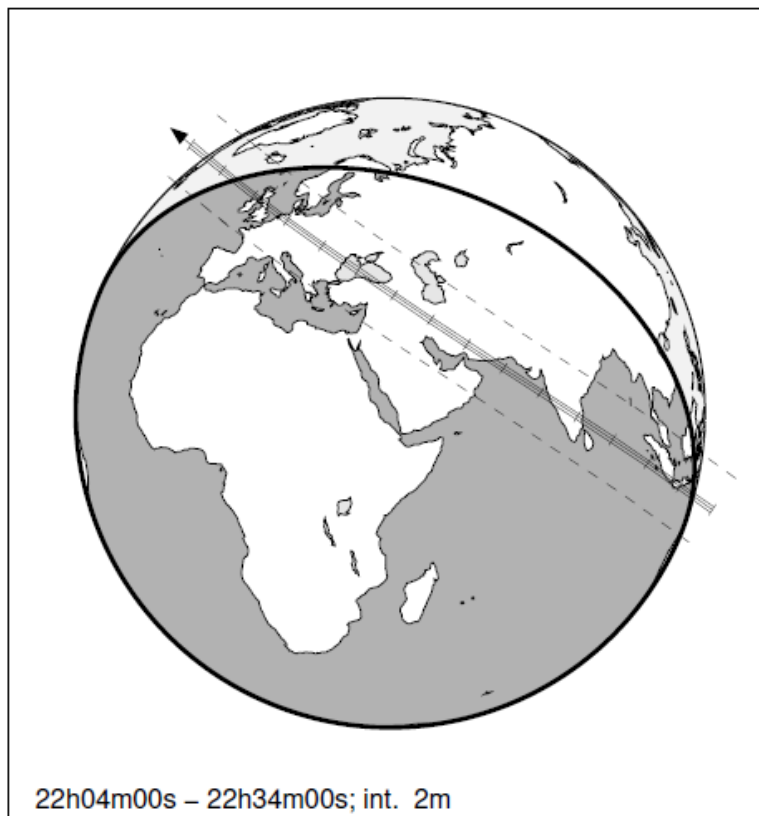
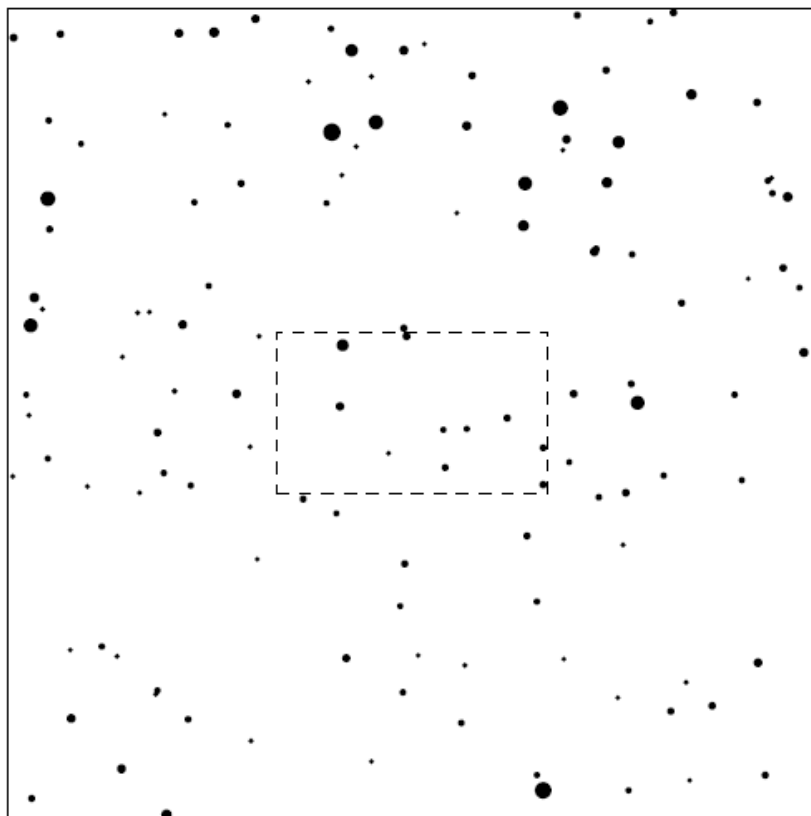
Star: Source cat. GDR2a
 $\alpha = 18^h17^m29.678^s$ $\delta = +16^\circ34'18.90''$
Vmag = 11.92 Bmag = 12.36

$\Delta m = 0.5$

Max. dur. = 17.2s

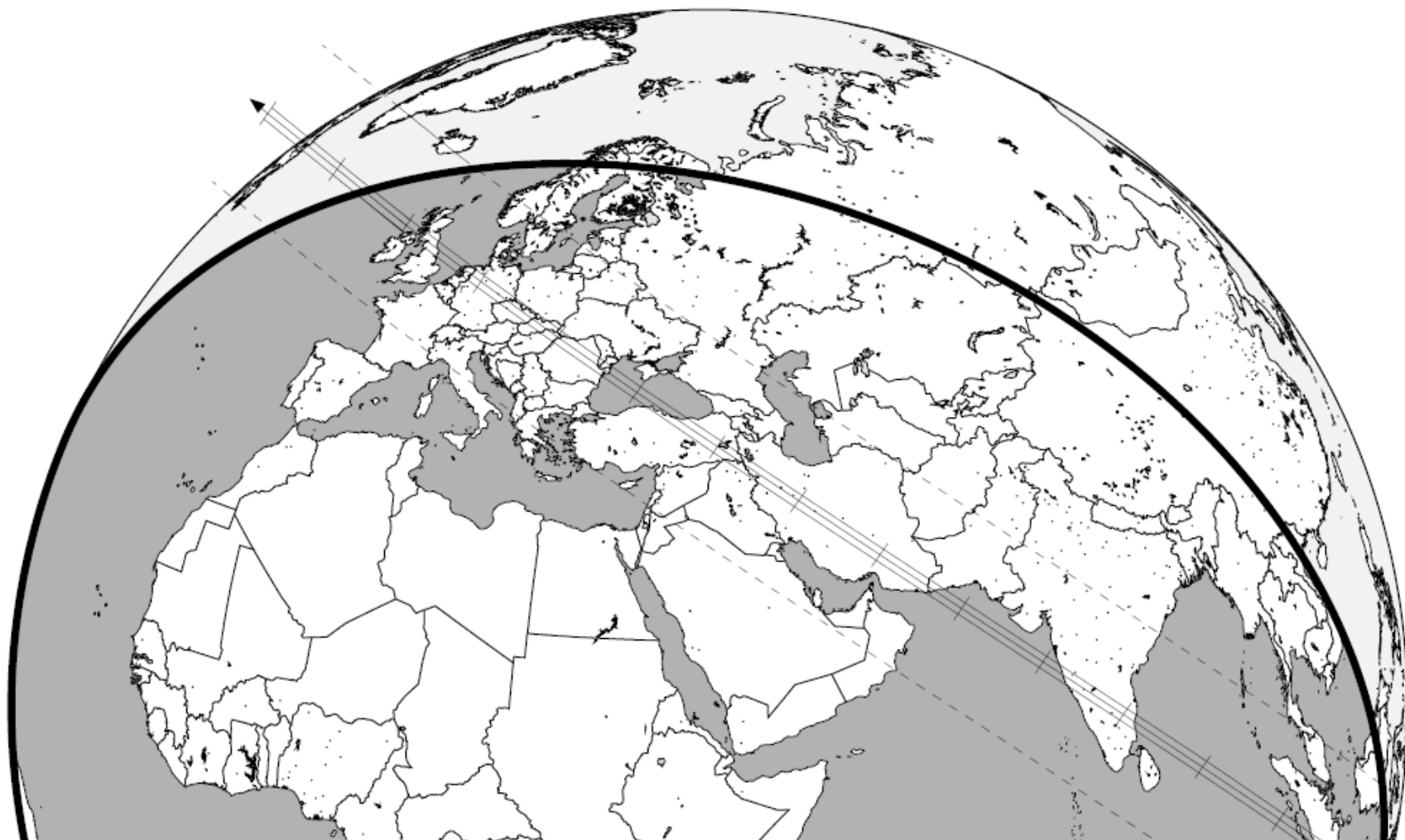
Sun : 137°

Moon : 135° , 0%



105 Artemis & UCAC4 533-072522

2021 jun 9 22^h19.0^m U.T.





928 Hildrun & TYC 0352-00273-1

2021 jul 8 20^h32.0^m U.T.

Planet: $a = 3.13, e = 0.15$
V. mag. = 14.63 Diam. = 69.7 km = 0.04"
 $\mu = 18.94''/h$ $\pi = 3.64''$ Ref. = EG2019

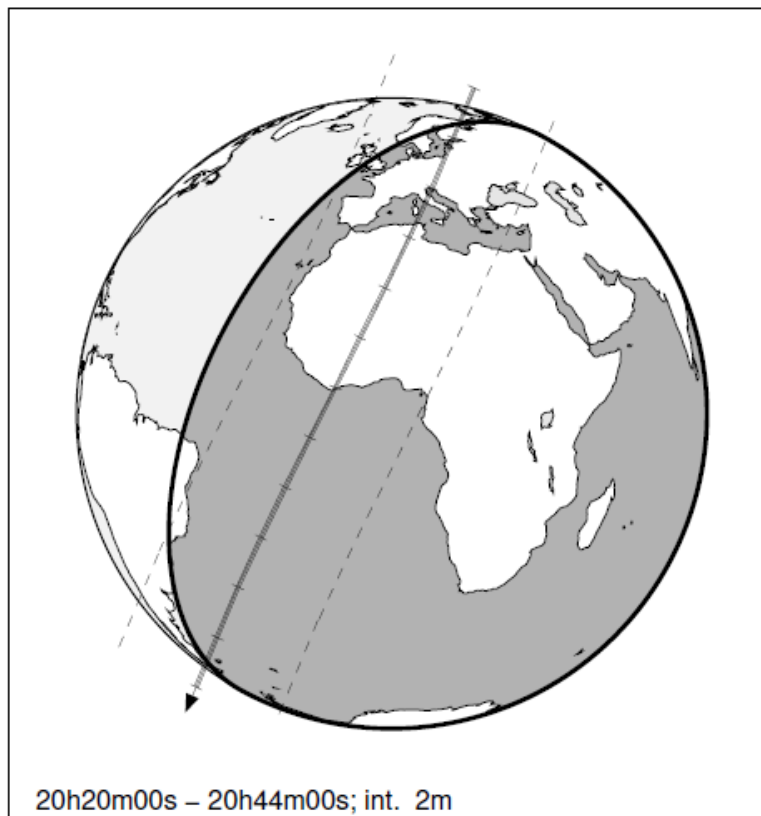
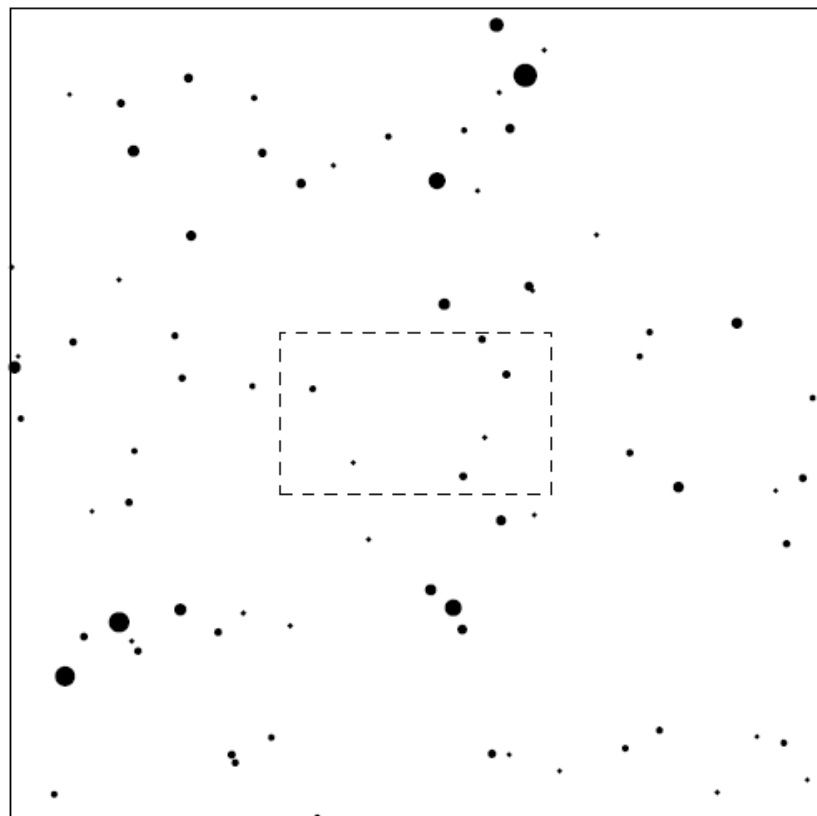
Star: Source cat. GDR2a
 $\alpha = 15^{\text{h}}52^{\text{m}}24.621^{\text{s}}$ $\delta = +0^{\circ}10'24.09''$
Vmag = 11.92 Bmag = 12.28

$\Delta m = 2.8$

Max. dur. = 7.6s

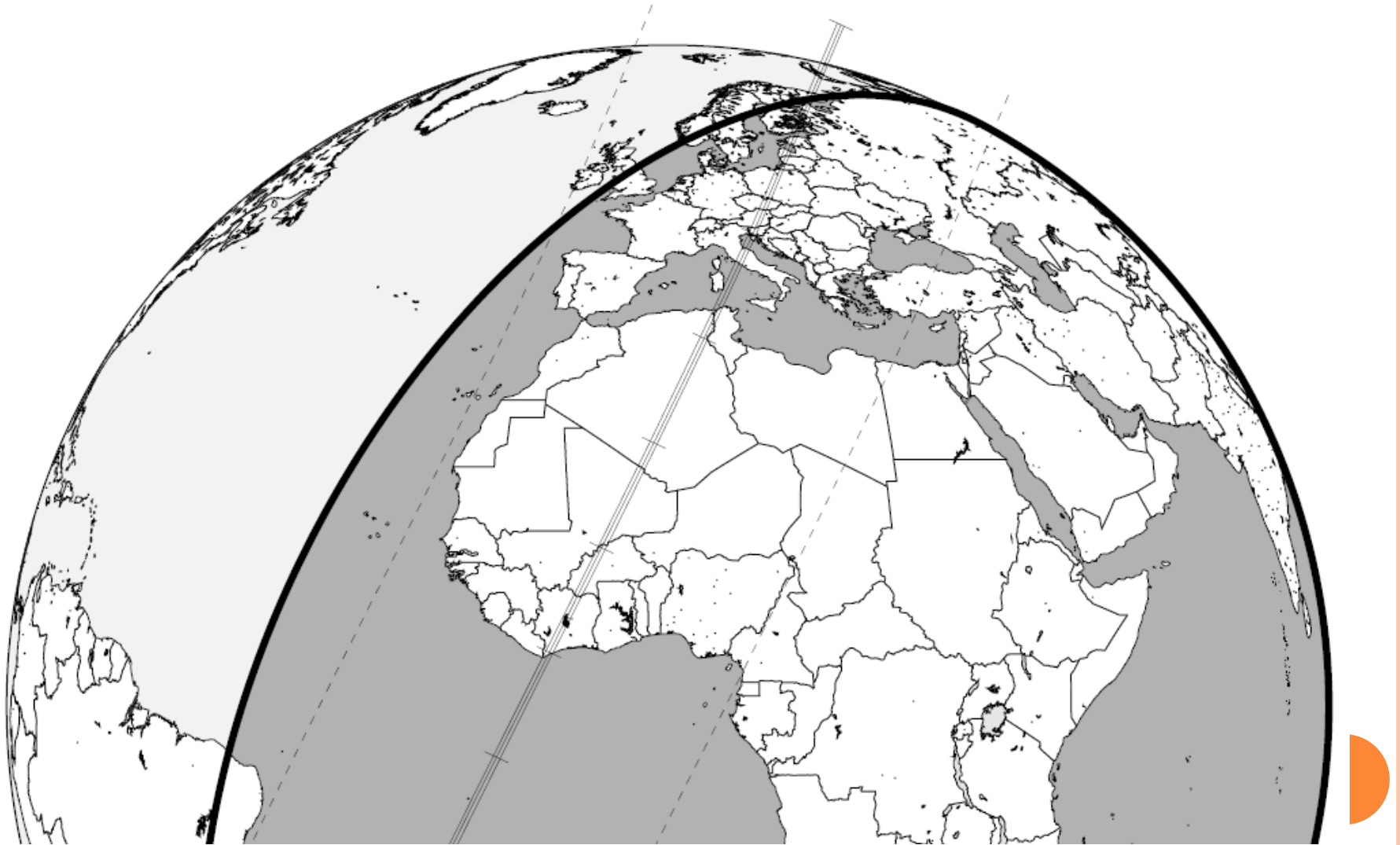
Sun : 126°

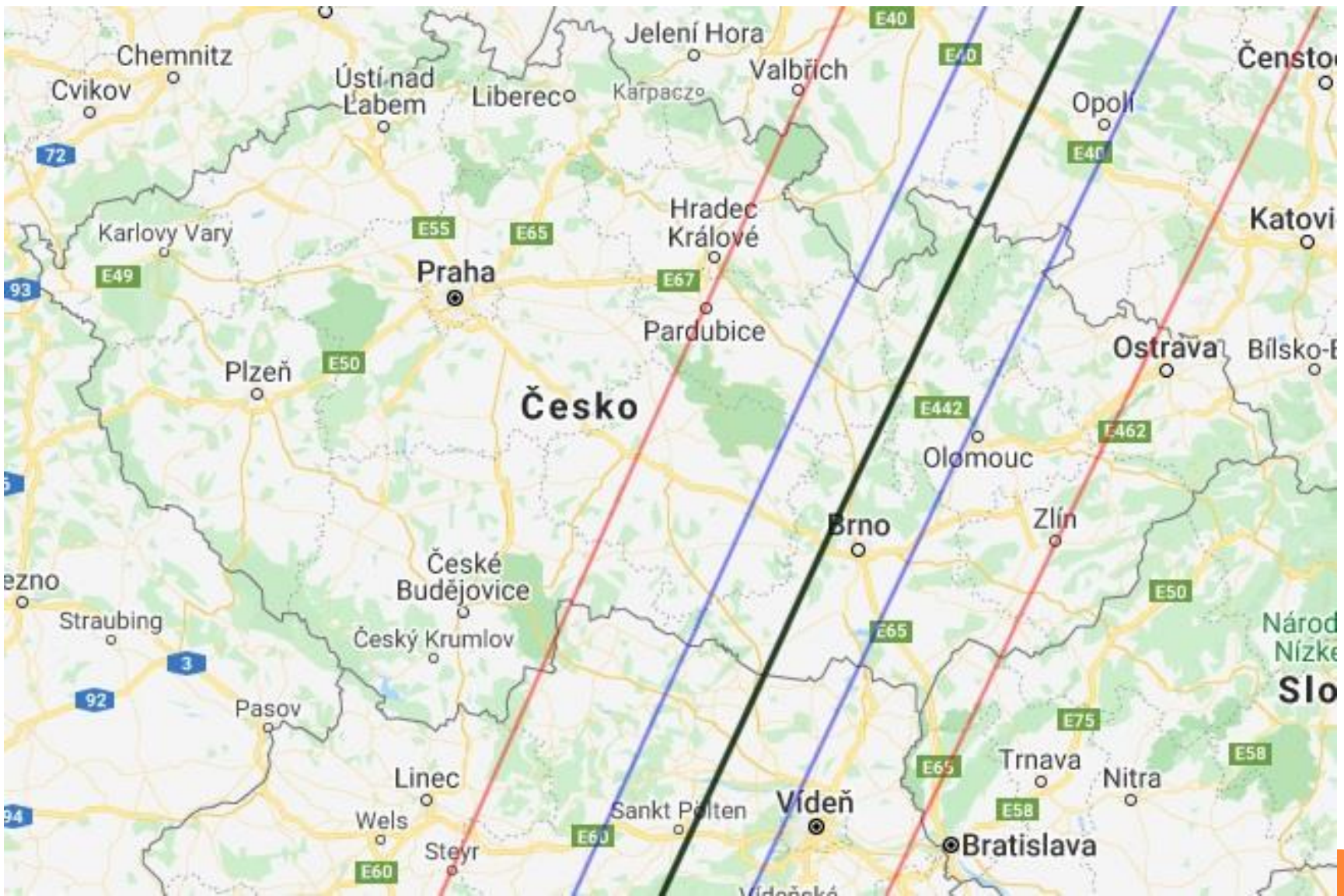
Moon : 137° , 1%



928 Hildrun & TYC 0352-00273-1

2021 jul 8 20^h32.0^m U.T.





159 Aemilia & UCAC4 357-175456

2021 jul 15 21^h44.2^m U.T.

Planet: $a = 3.10, e = 0.11$
V. mag. = 12.99 Diam. = 131.0 km = 0.07"
 $\mu = 28.71''/h$ $\pi = 3.63''$ Ref. = EG2019

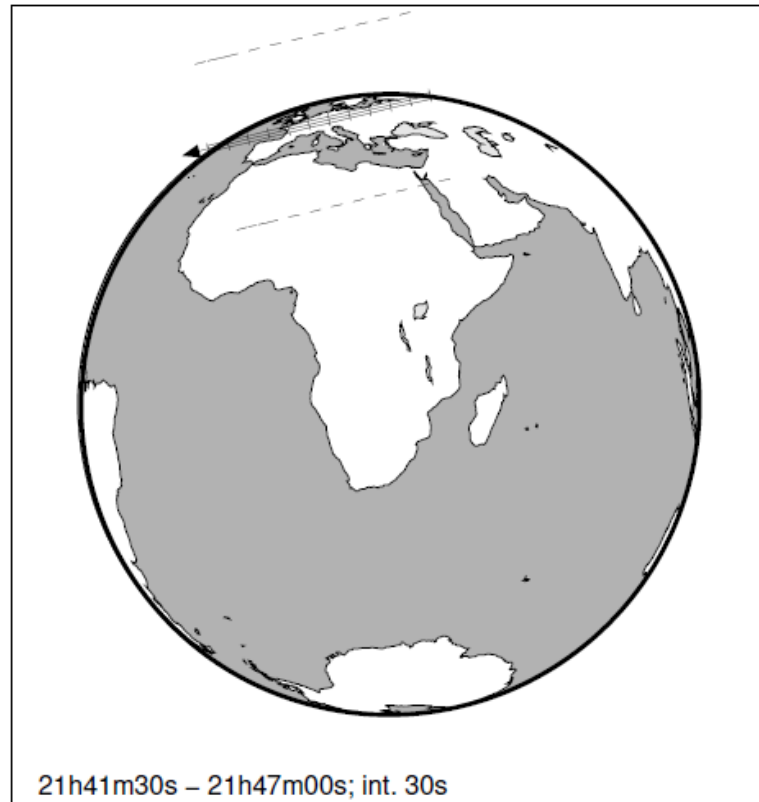
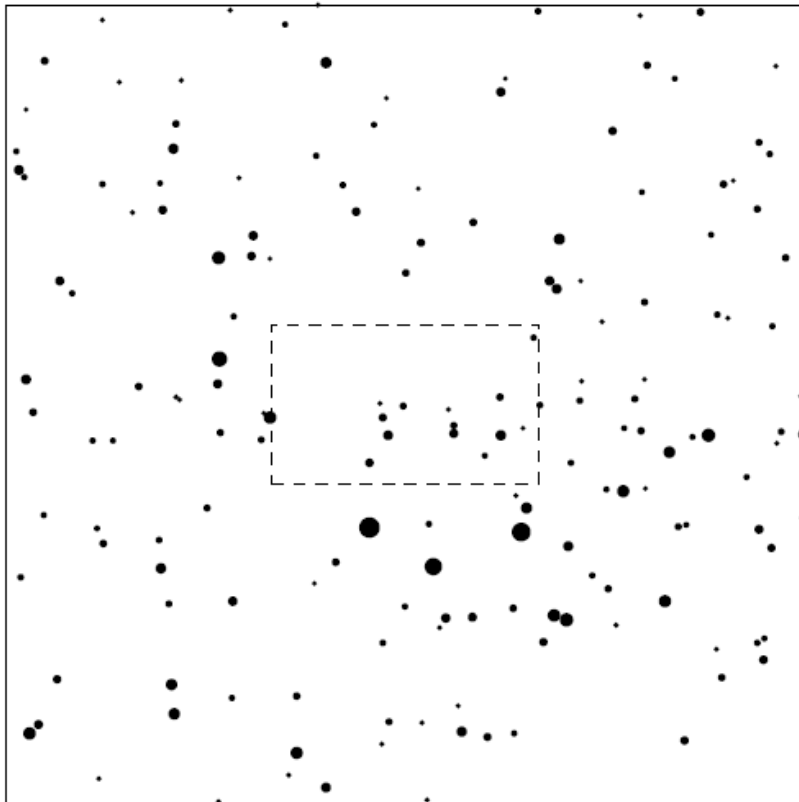
Star: Source cat. GDR2a
 $\alpha = 19^{\text{h}}06^{\text{m}}58.146^{\text{s}}$ $\delta = -18^{\circ}41'56.12''$
Vmag = 10.83 Bmag = 12.14

$\Delta m = 2.3$

Max. dur. = 9.3s

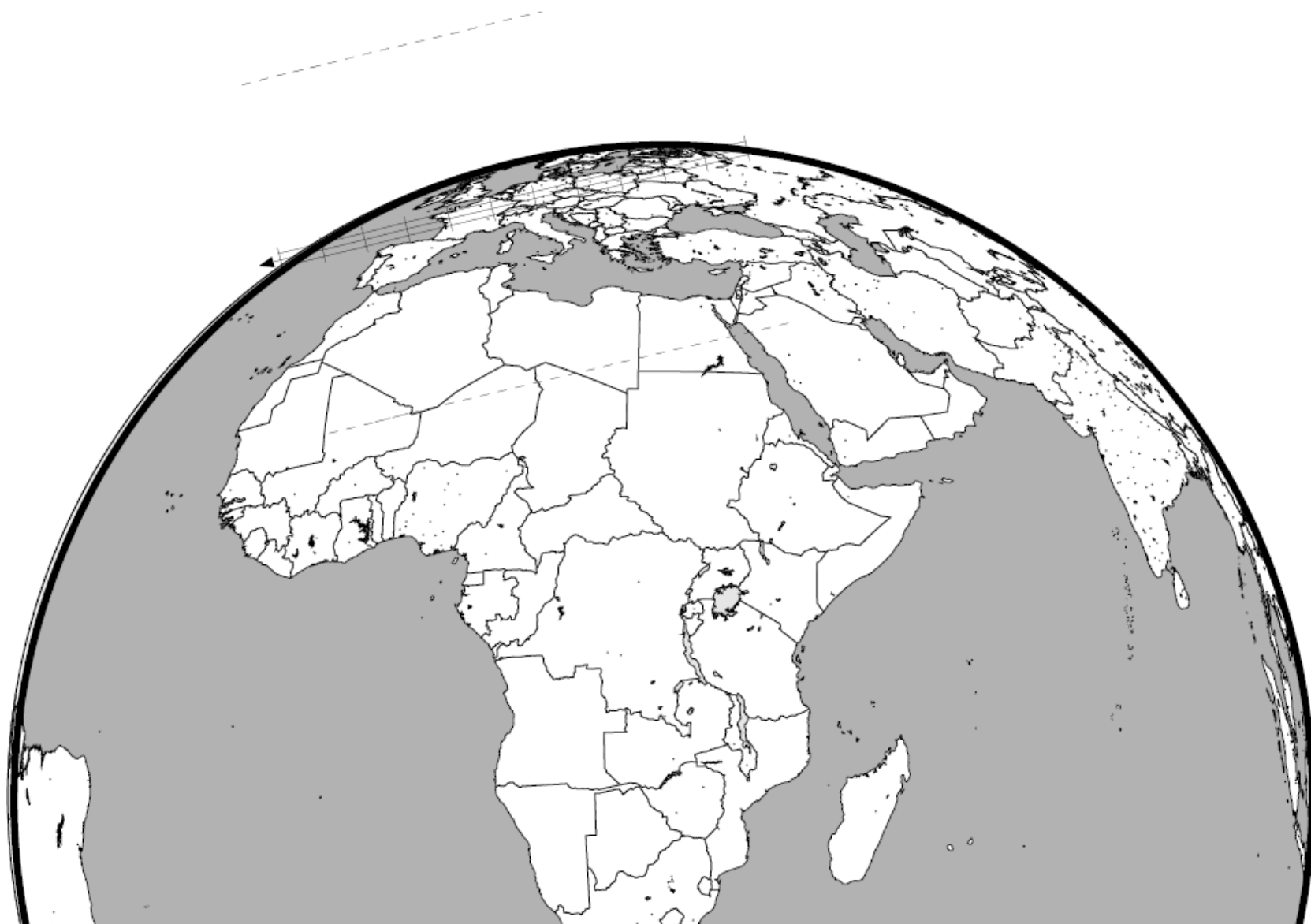
Sun : 171°

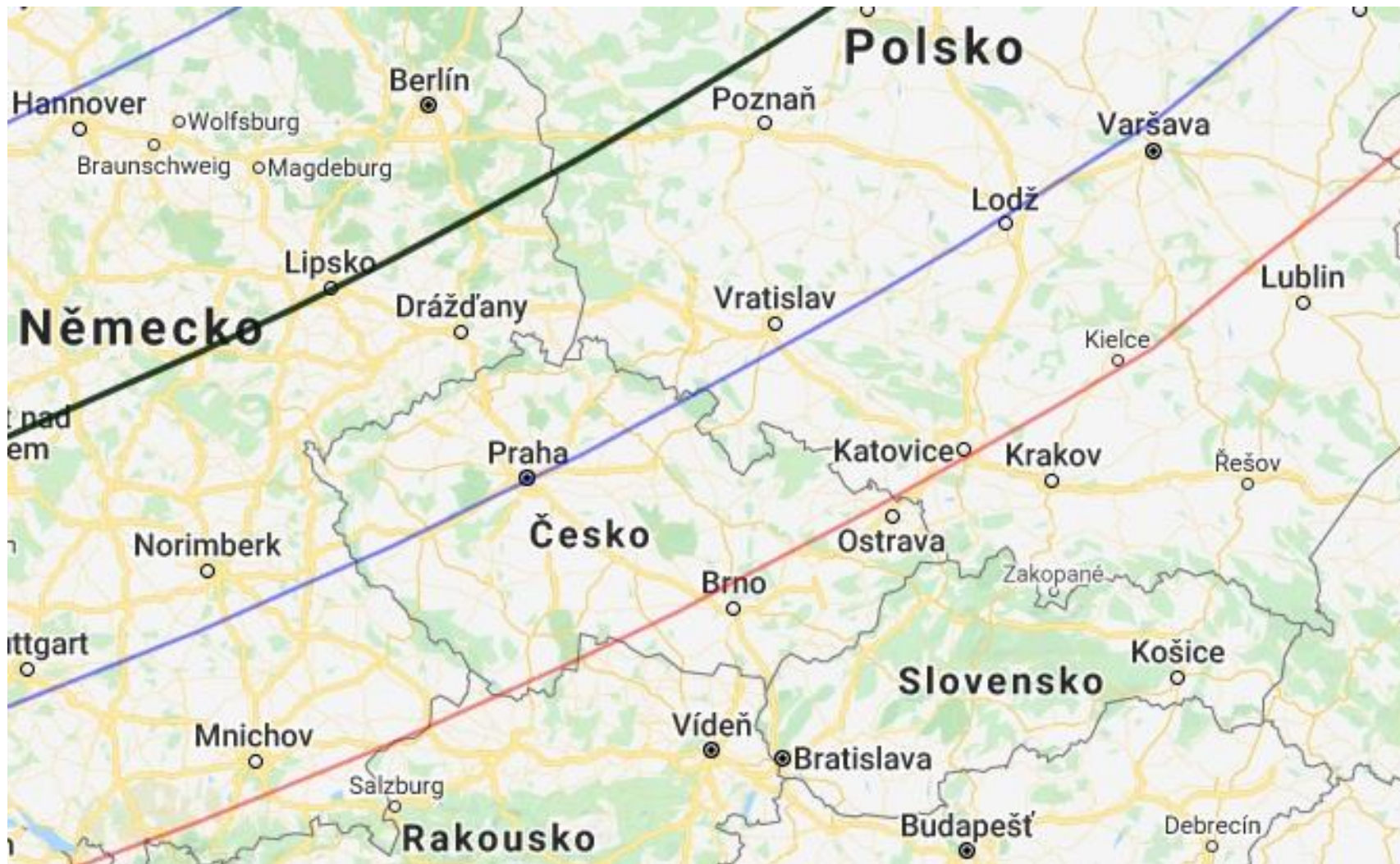
Moon : 102° , 33%



159 Aemilia & UCAC4 357-175456

2021 jul 15 21^h44.2^m U.T.





554 Peraga & TYC 1867-02366-1

2021 sep 7 1^h19.4^m U.T.

Planet: a = 2.37, e = 0.15
V. mag. = 13.28 Diam. = 98.5 km = 0.07"
 μ = 65.62"/h π = 4.38" Ref. = EG2019

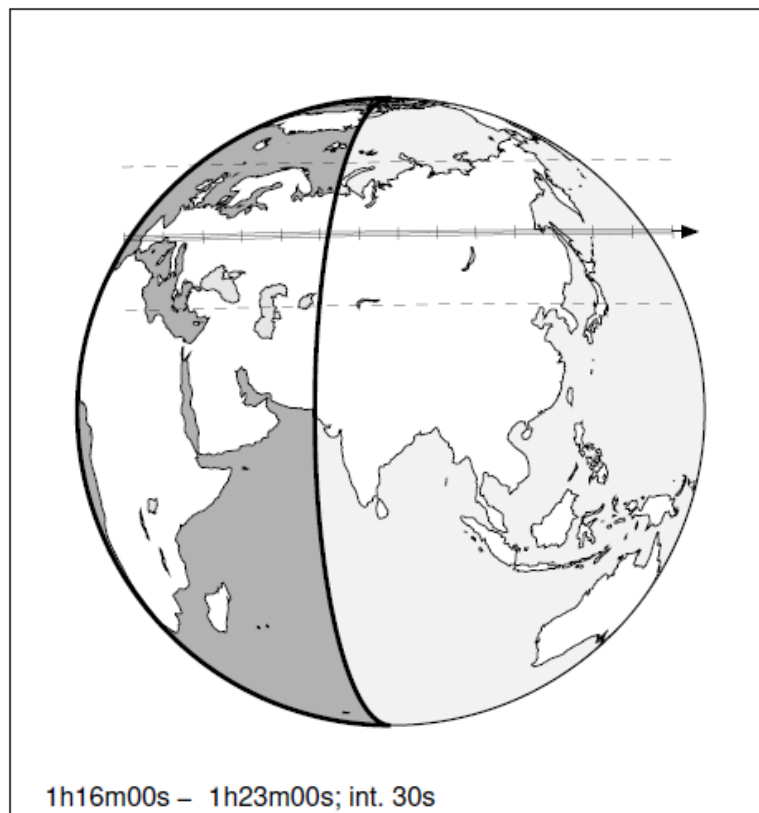
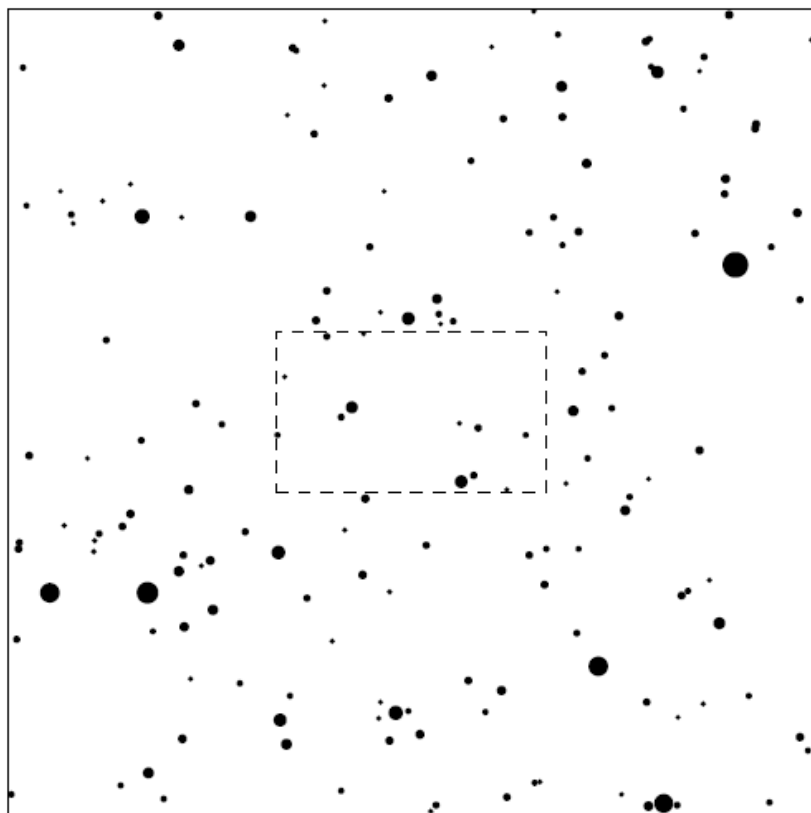
Star: Source cat. GDR2a
 α = 5^h53^m07.814^s δ = +25°52'20.21"
Vmag = 9.92 Bmag = 10.03

Δm = 3.4

Max. dur. = 3.7s

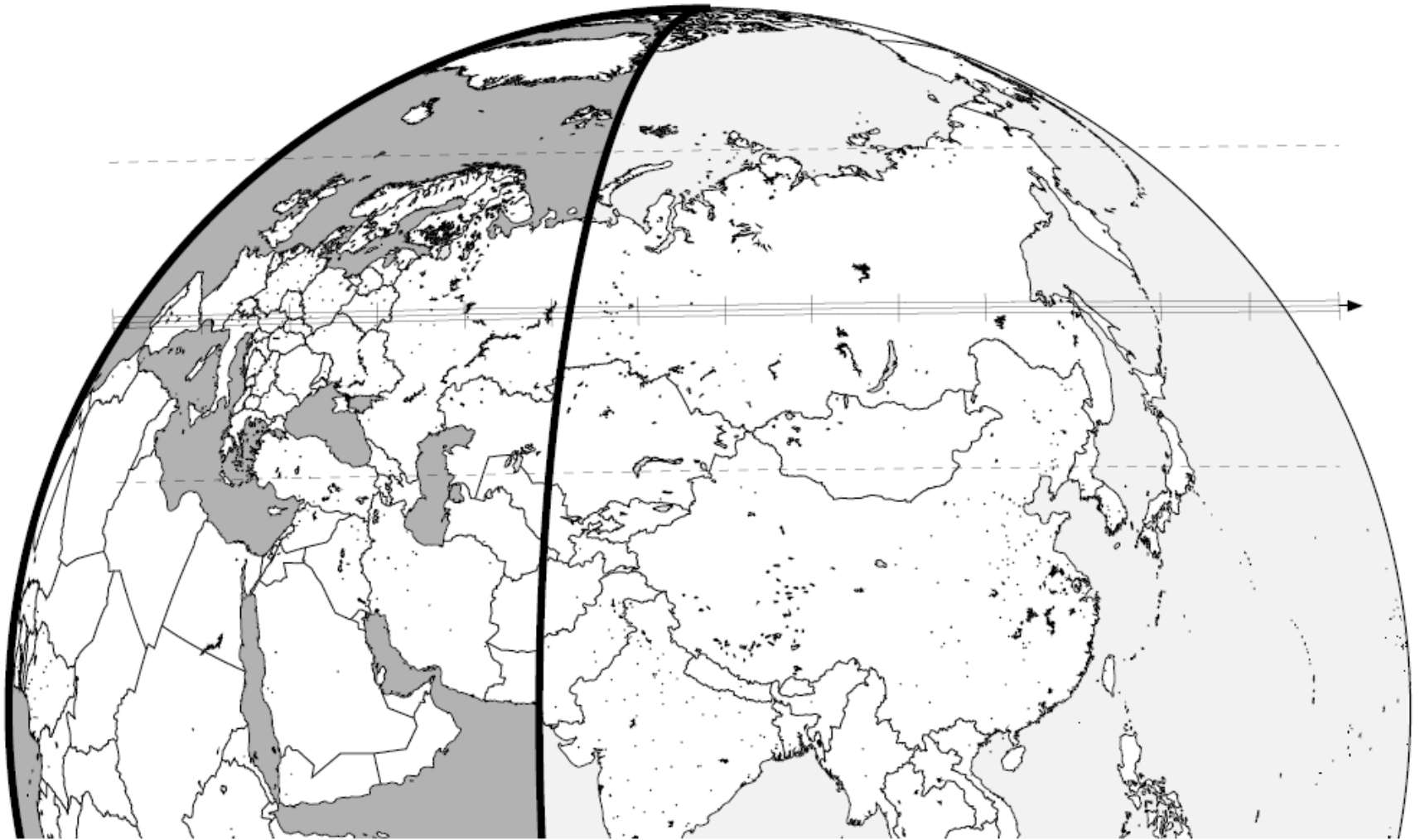
Sun : 75°

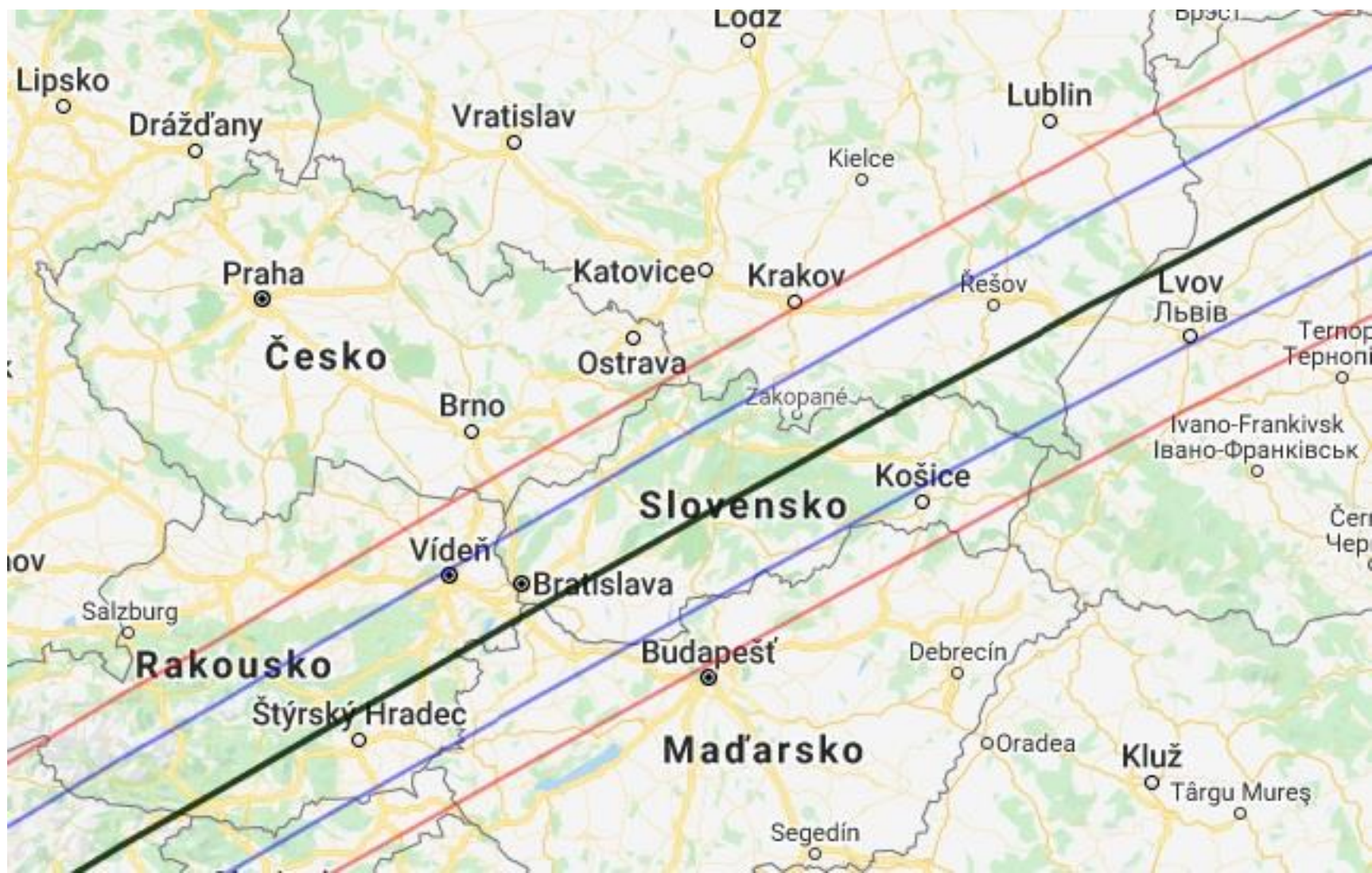
Moon : 76° , 0%



554 Peraga & TYC 1867-02366-1

2021 sep 7 1^h19.4^m U.T.





6 Hebe & UCAC4 350-173498

2021 sep 14 20^h17.4^m U.T.

Planet: $a = 2.43$, $e = 0.20$
V. mag. = 9.30 Diam. = 186.0 km = 0.17"
 $\mu = 25.15''/h$ $\pi = 5.82''$ Ref. = EG2019

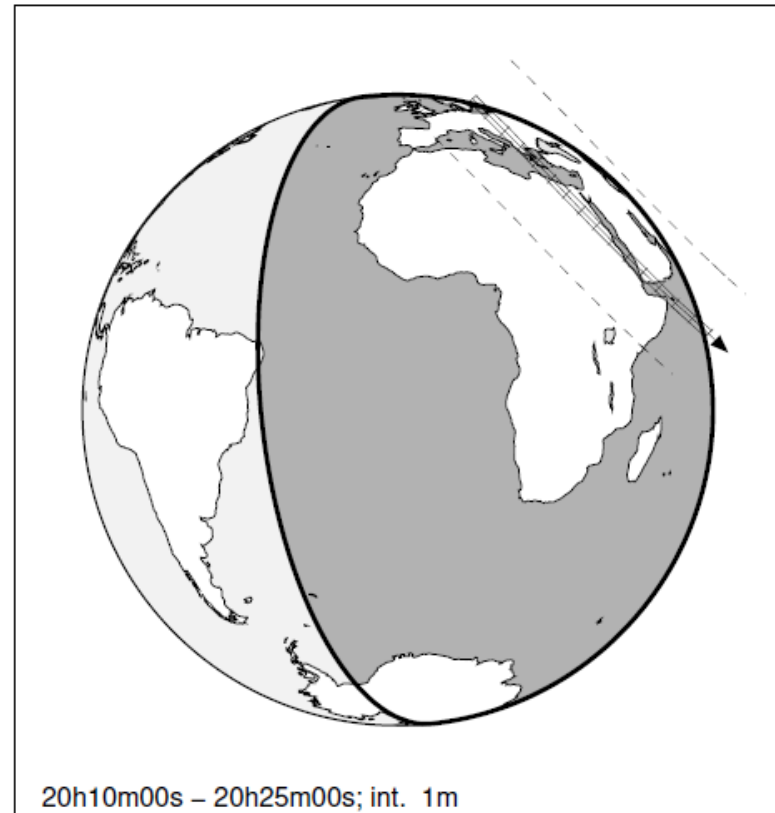
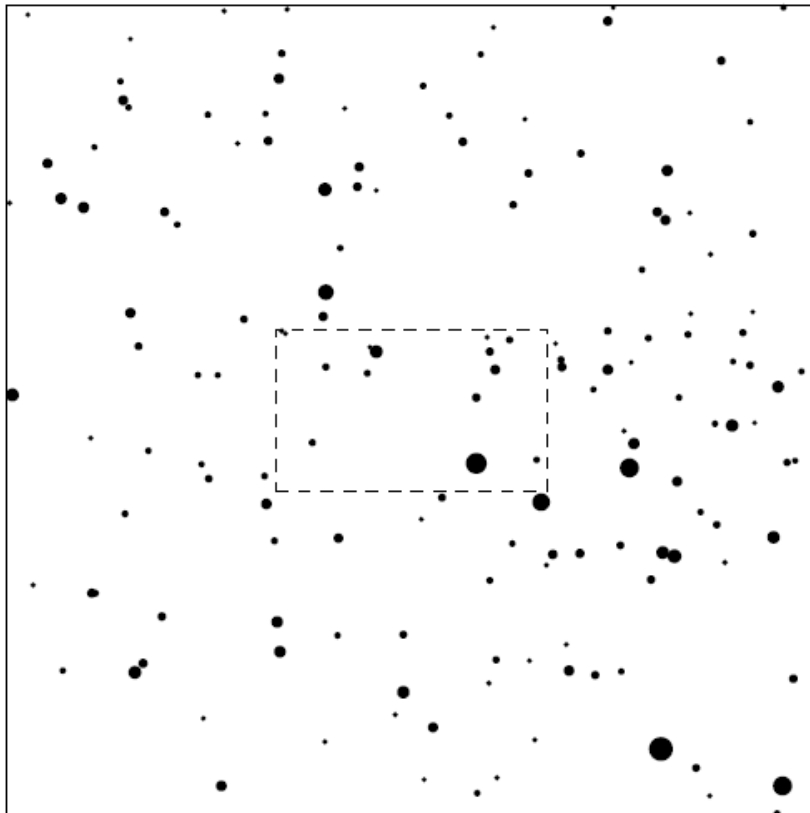
Star: Source cat. GDR2a
 $\alpha = 19^h14^m54.041^s$ $\delta = -20^\circ02'14.97''$
Vmag = 12.15 Bmag = 12.55

$\Delta m = 0.1$

Max. dur. = 24.3s

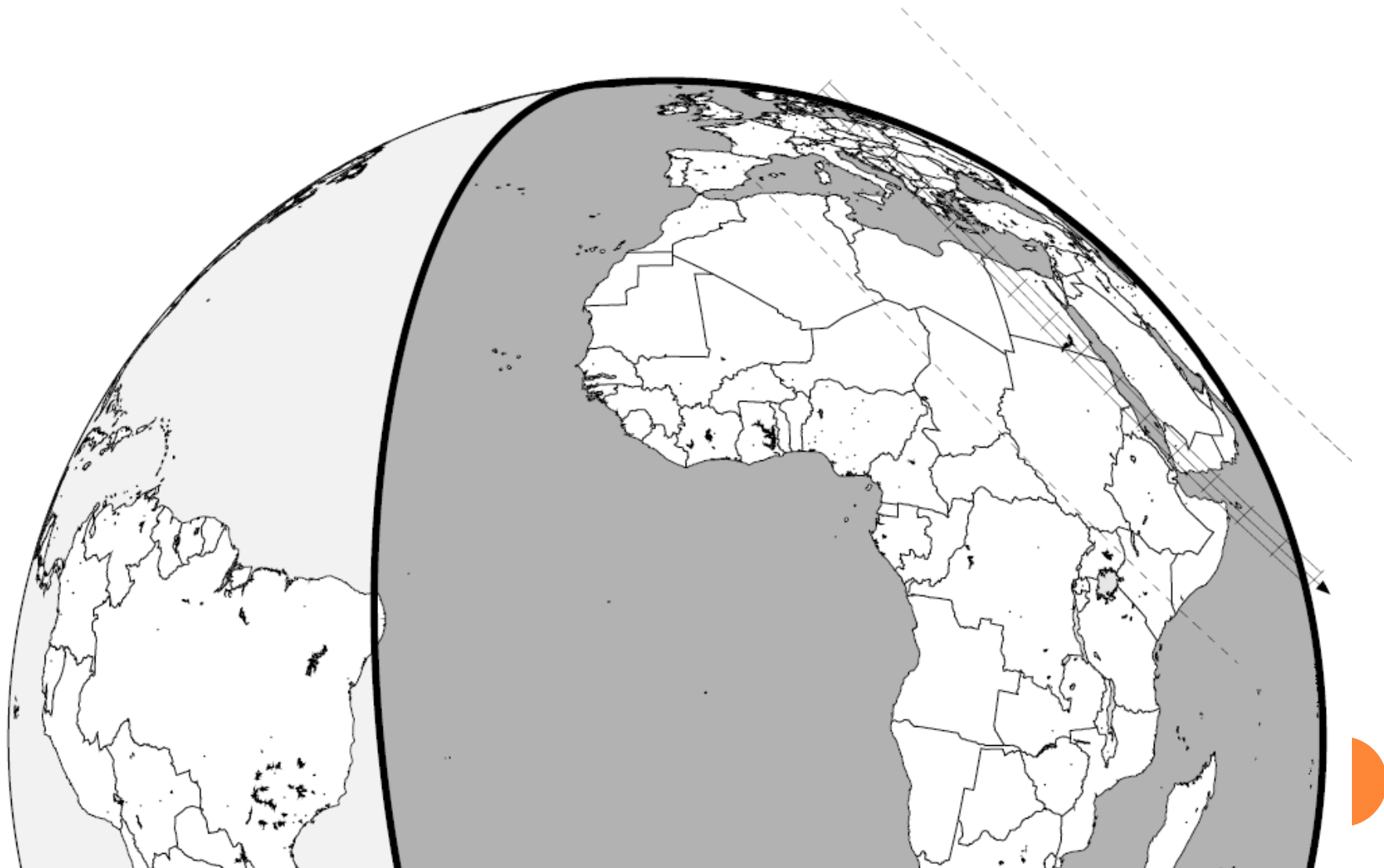
Sun : 115°

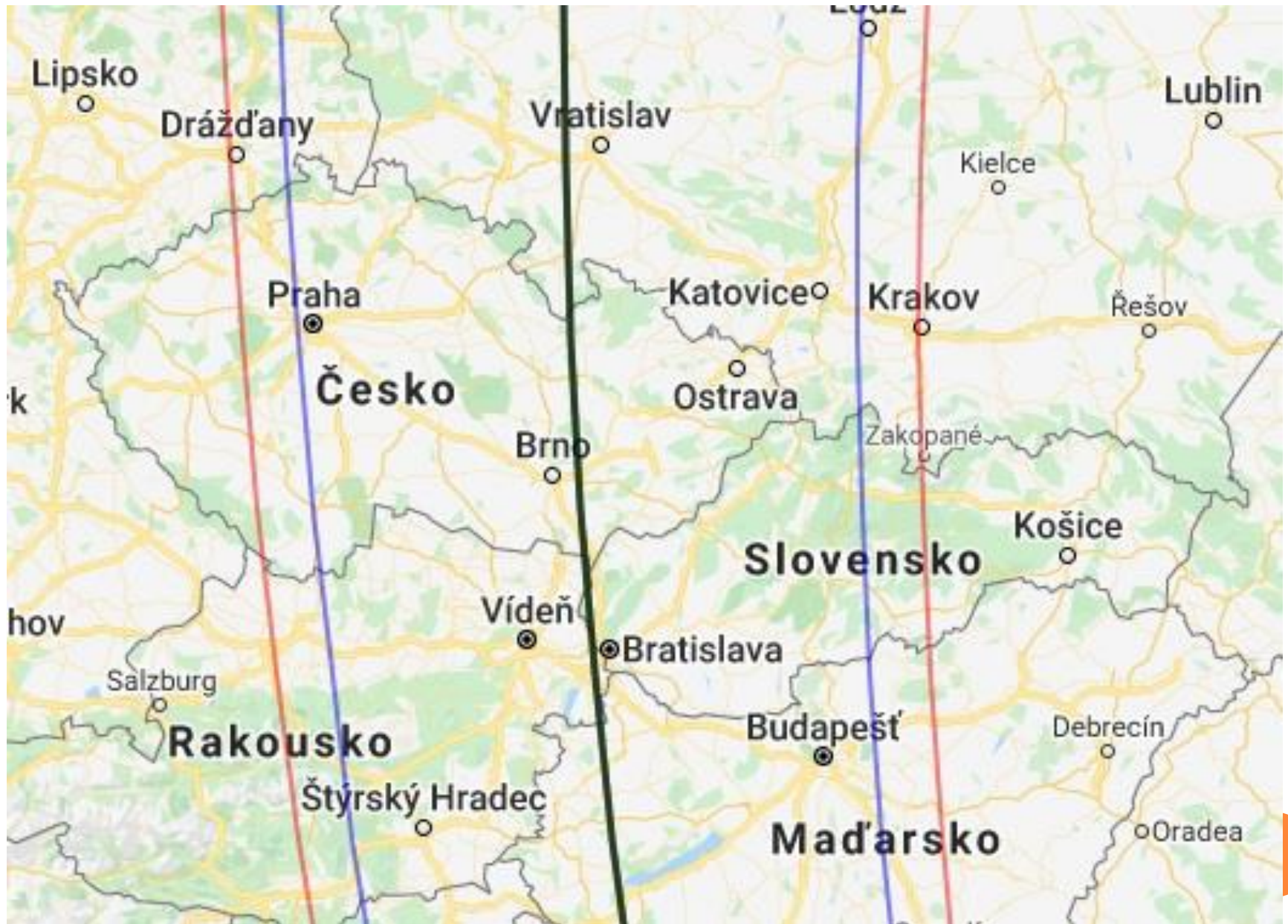
Moon : 14°, 61%



6 Hebe & UCAC4 350-173498

2021 sep 14 20^h17.4^m U.T.





934 Thuringia & UCAC4 654-037194

2021 oct 1 22^h35.2^m U.T.

Planet: $a = 2.75, e = 0.22$
V. mag. = 14.49 Diam. = 57.1 km = 0.04"
 $\mu = 36.74"/h$ $\pi = 4.90''$ Ref. = EG2019

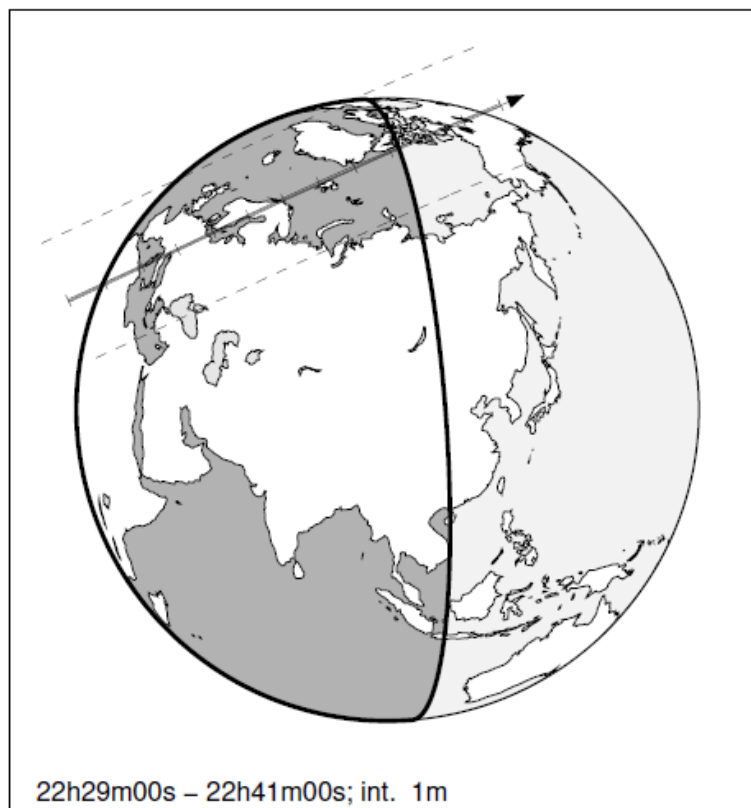
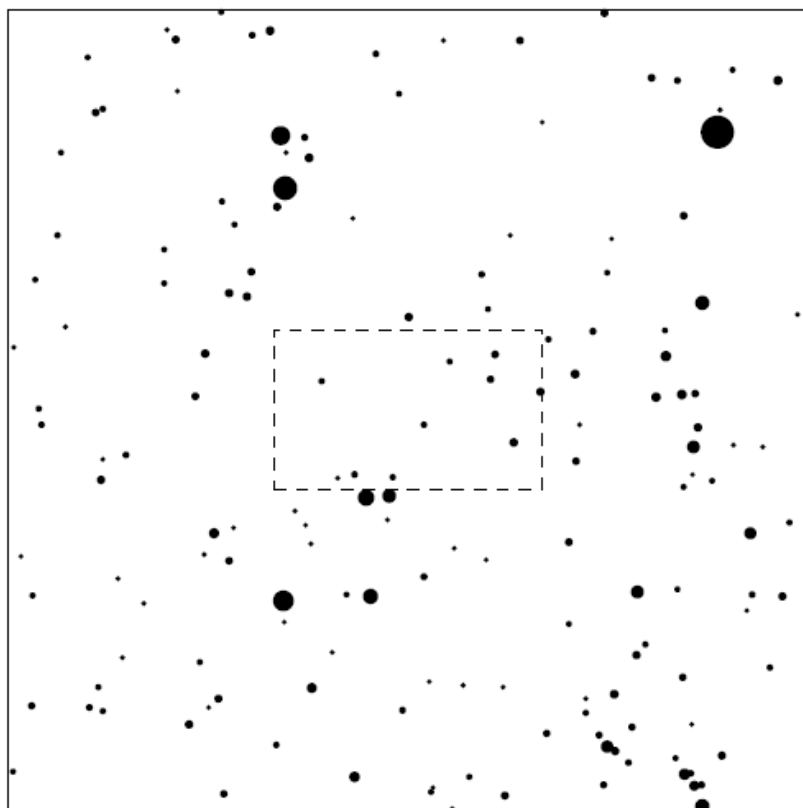
Star: Source cat. GDR2a
 $\alpha = 5^h47^m22.025^s$ $\delta = +40^\circ47'52.90''$
Vmag = 11.94 Bmag = 12.13

$\Delta m = 2.6$

Max. dur. = 4.3s

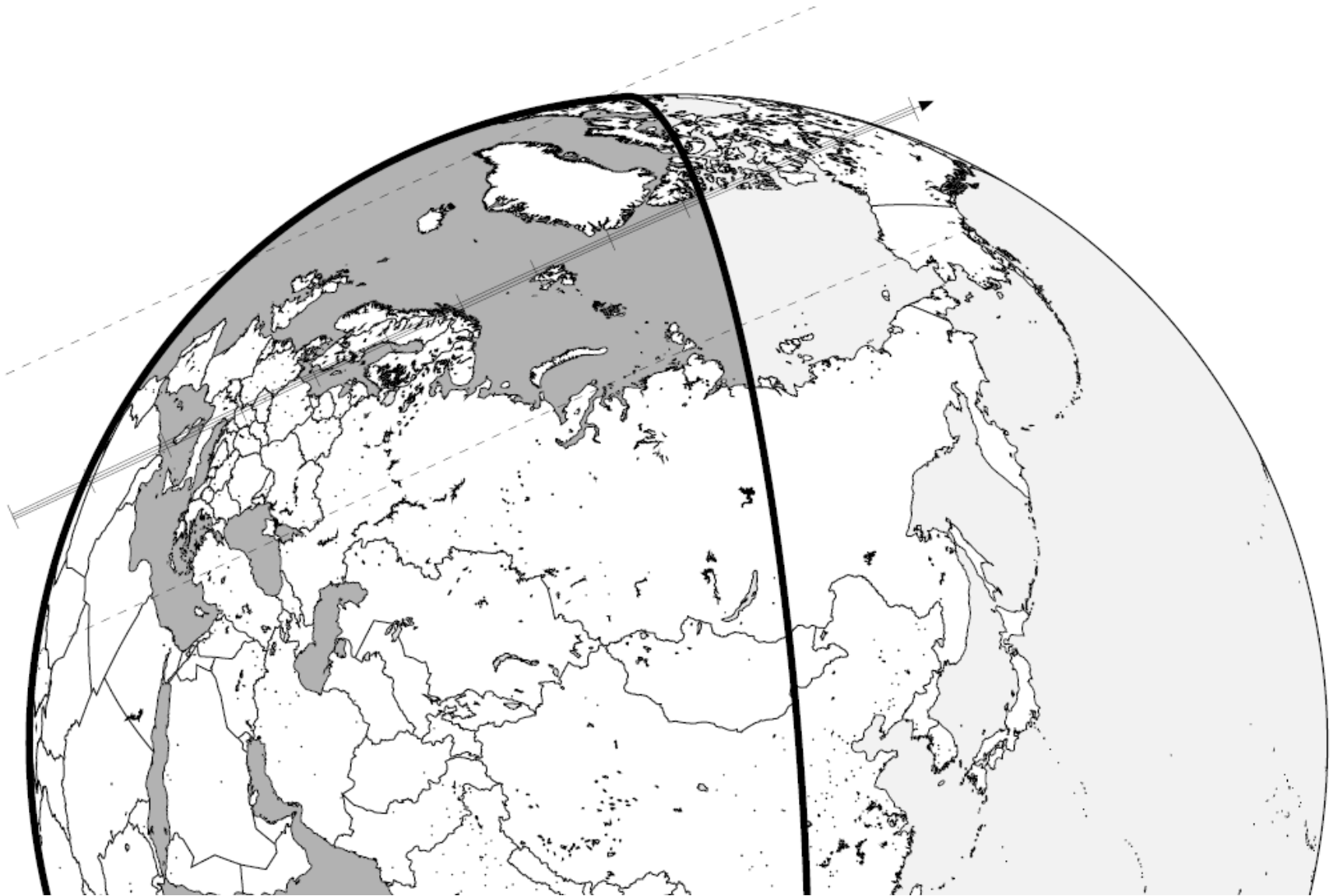
Sun : 100°

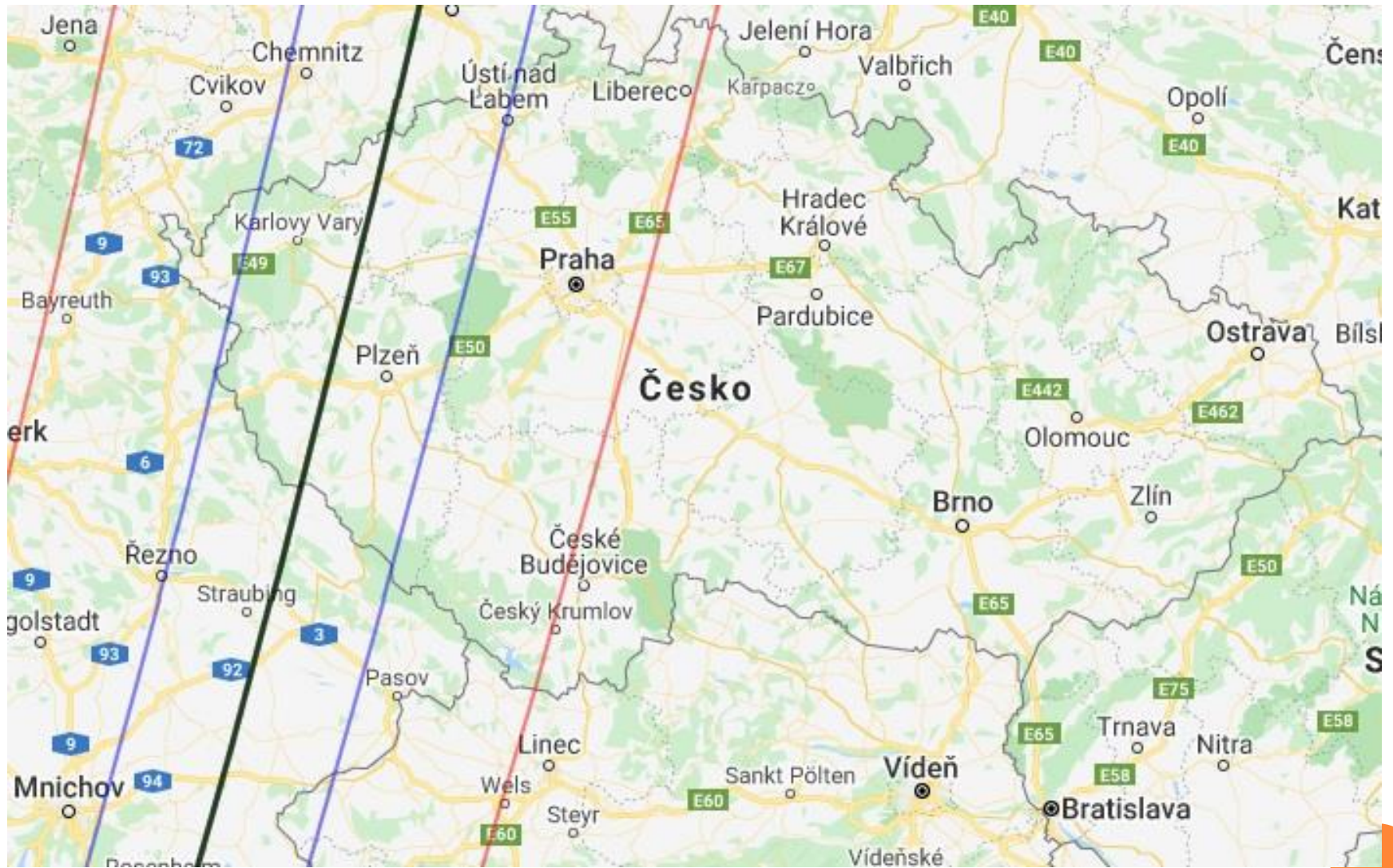
Moon : 45° , 23%



934 Thuringia & UCAC4 654-037194

2021 oct 1 22^h35.2^m U.T.





217 Eudora & UCAC4 376-176395

2021 oct 8 18^h48.8^m U.T.

Planet: $a = 2.87$, $e = 0.31$
V. mag. = 12.95 Diam. = 45.7 km = 0.05"
 $\mu = 24.55''/h$ $\pi = 6.94''$ Ref. = EG2019

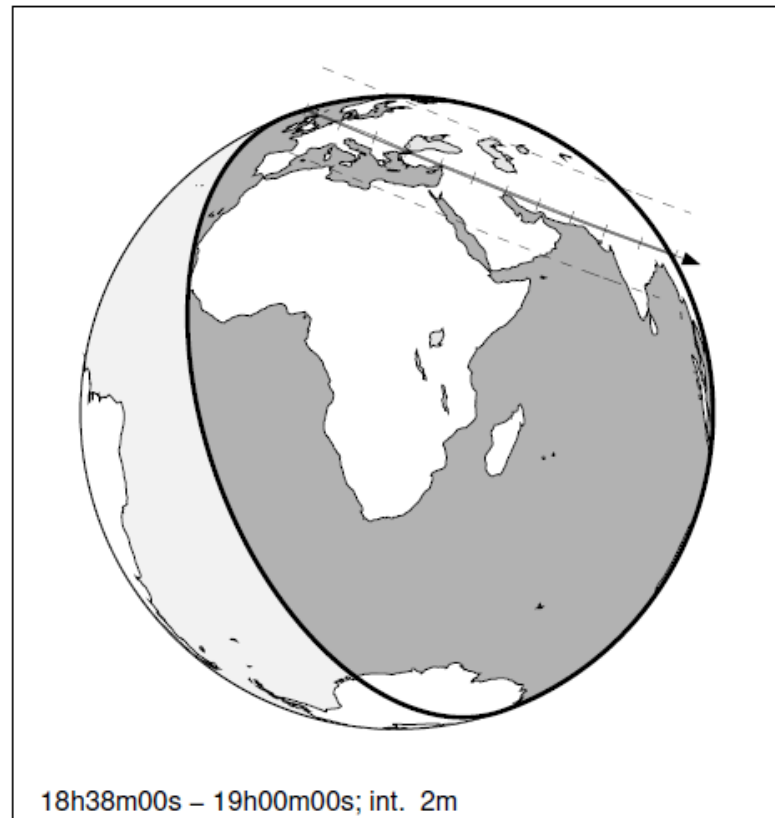
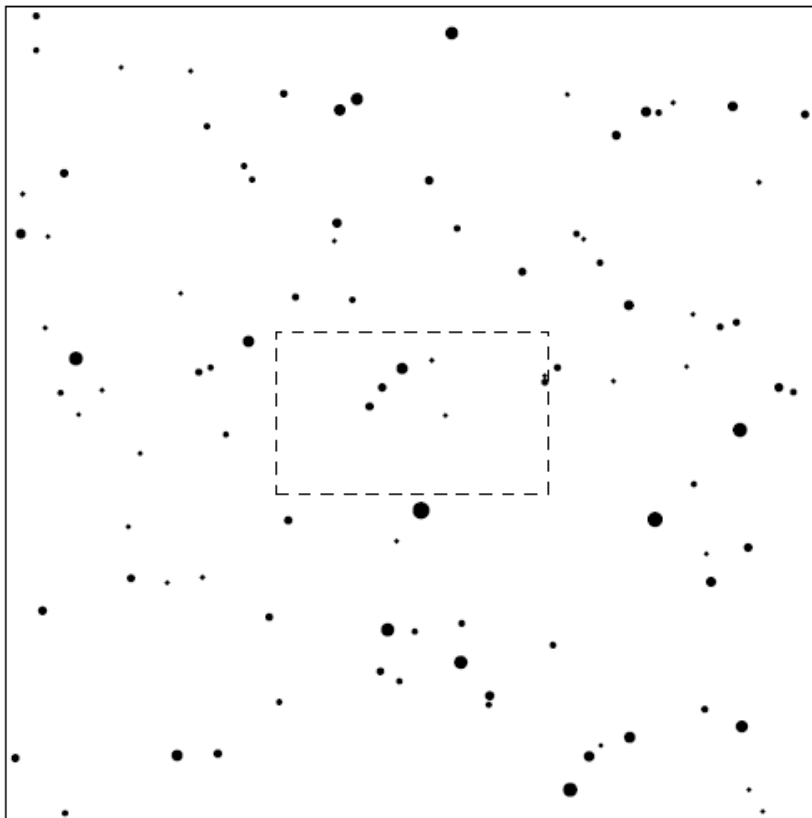
Star: Source cat. GDR2a
 $\alpha = 21^{\text{h}}40^{\text{m}}46.790^{\text{s}}$ $\delta = -14^{\circ}51'41.90''$
Vmag = 12.19 Bmag = 12.62

$\Delta m = 1.2$

Max. dur. = 7.3s

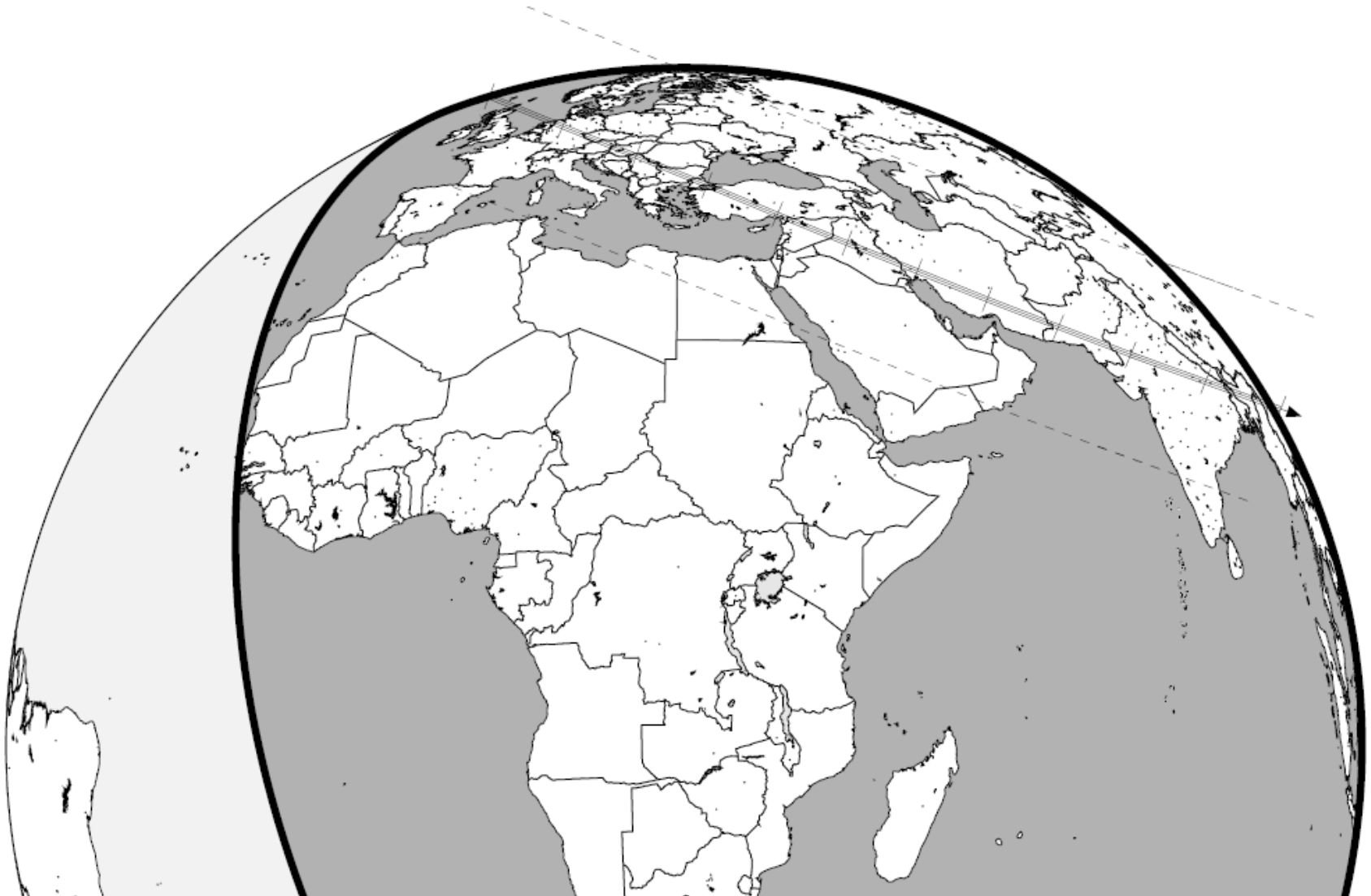
Sun : 127°

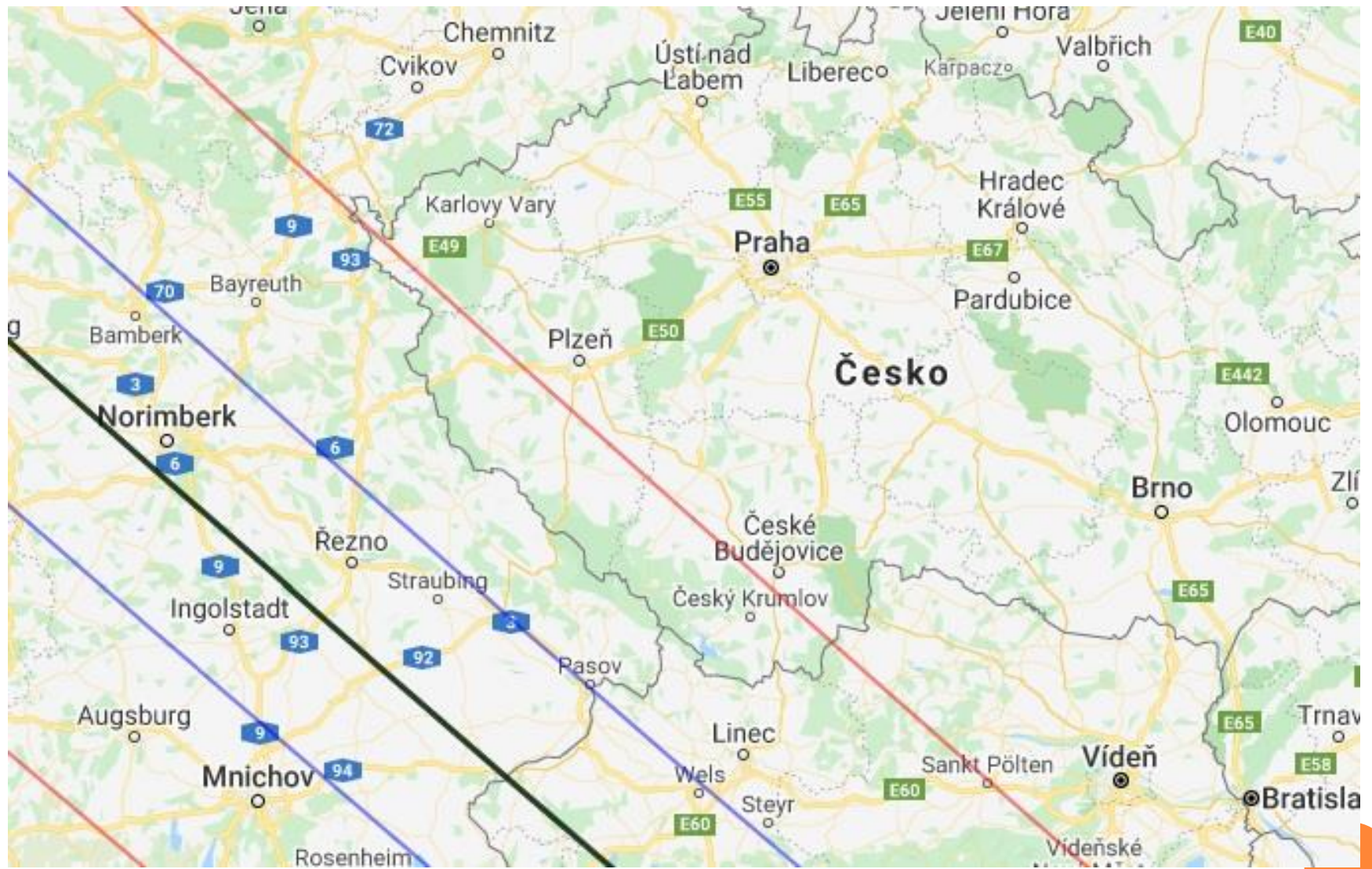
Moon : 95° , 7%



217 Eudora & UCAC4 376-176395

2021 oct 8 18^h48.8^m U.T.





1647 Menelaus & Gaia 105-0009352

2021 oct 21 20^h12.0^m U.T.

Planet: $a = 5.24$, $e = 0.02$
V. mag. = 17.22 Diam. = 72.0 km = 0.02"
 $\mu = 19.77''/h$ $\pi = 2.04''$ Ref. = EG2019

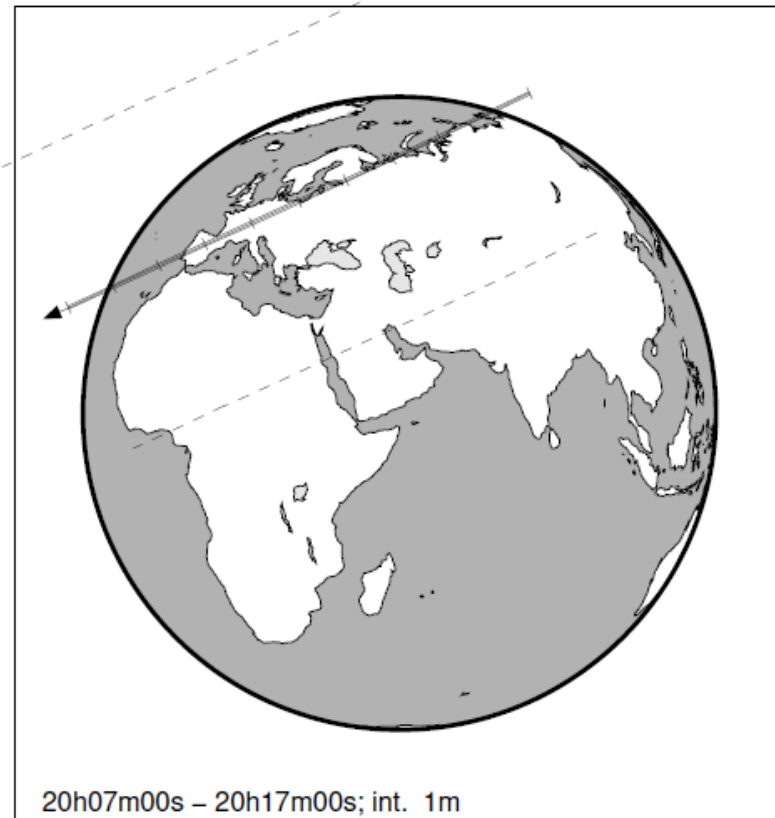
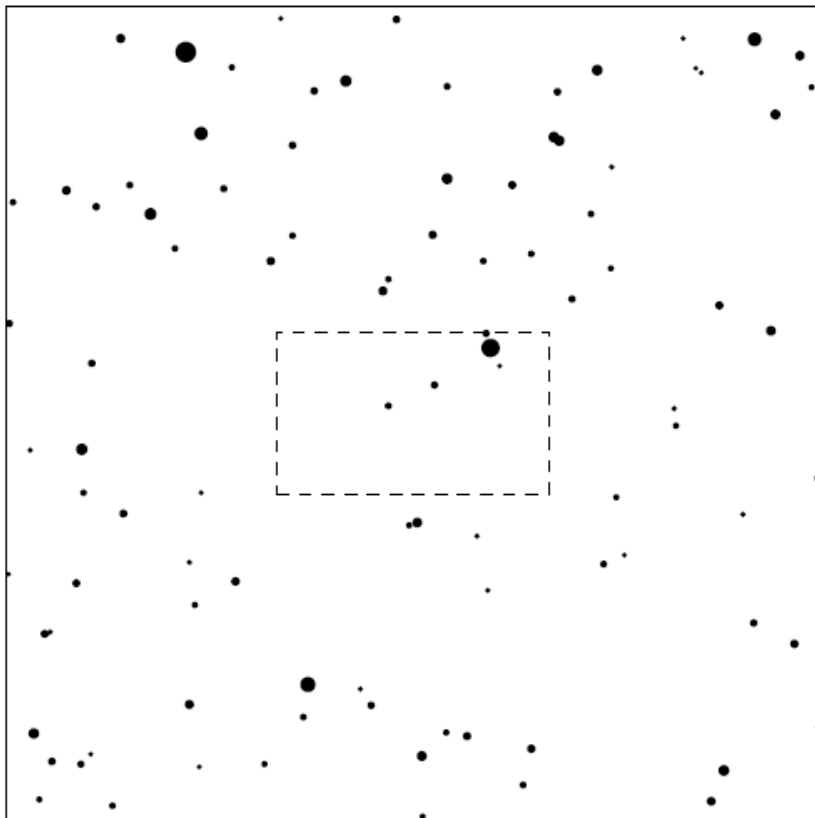
$\Delta m = 5.2$

Max. dur. = 4.2s

Star: Source cat. GDR2a
 $\alpha = 1^h37^m24.648^s$ $\delta = +14^\circ09'05.62''$
Vmag = 12.05 Bmag = 12.14

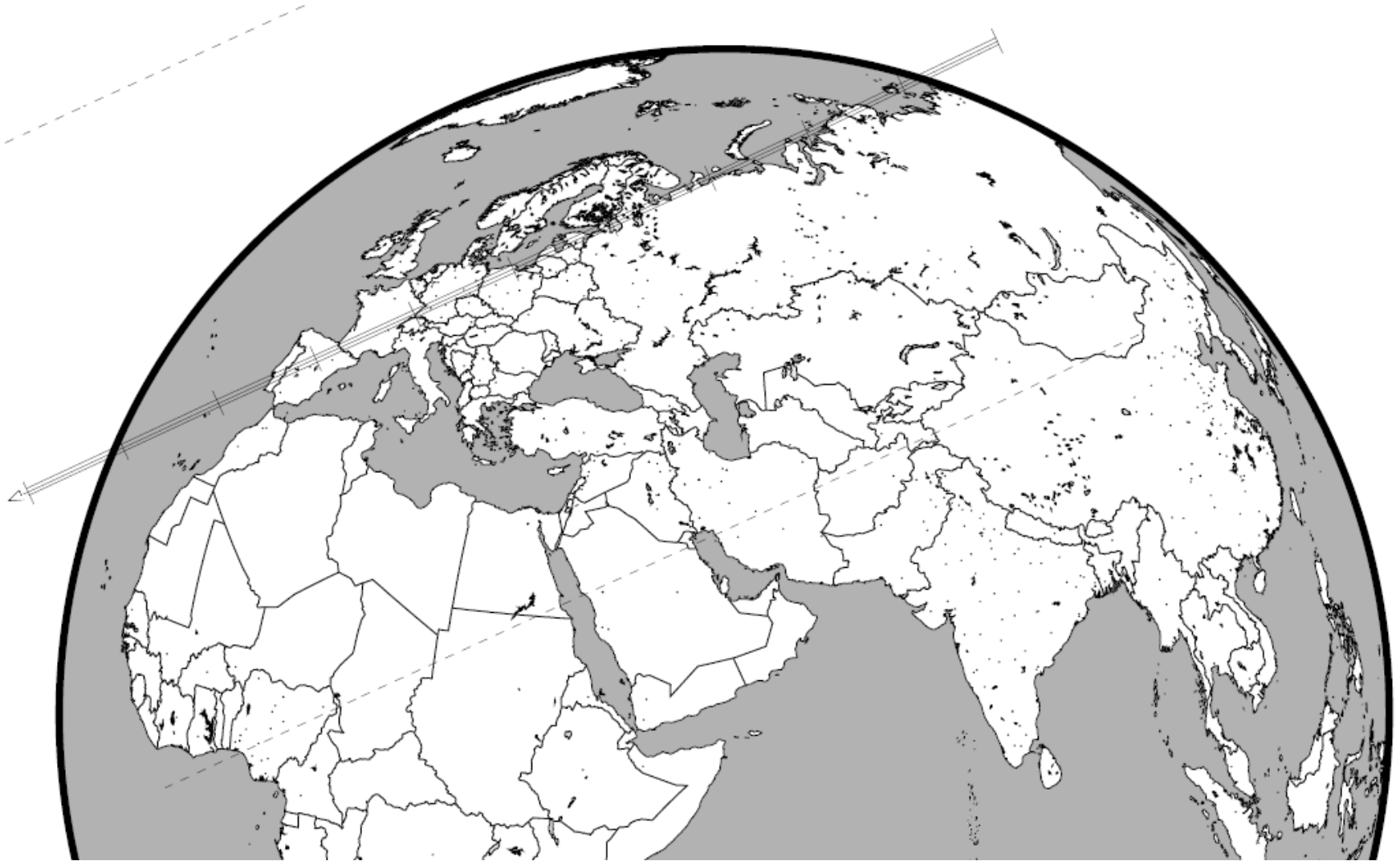
Sun : 176°

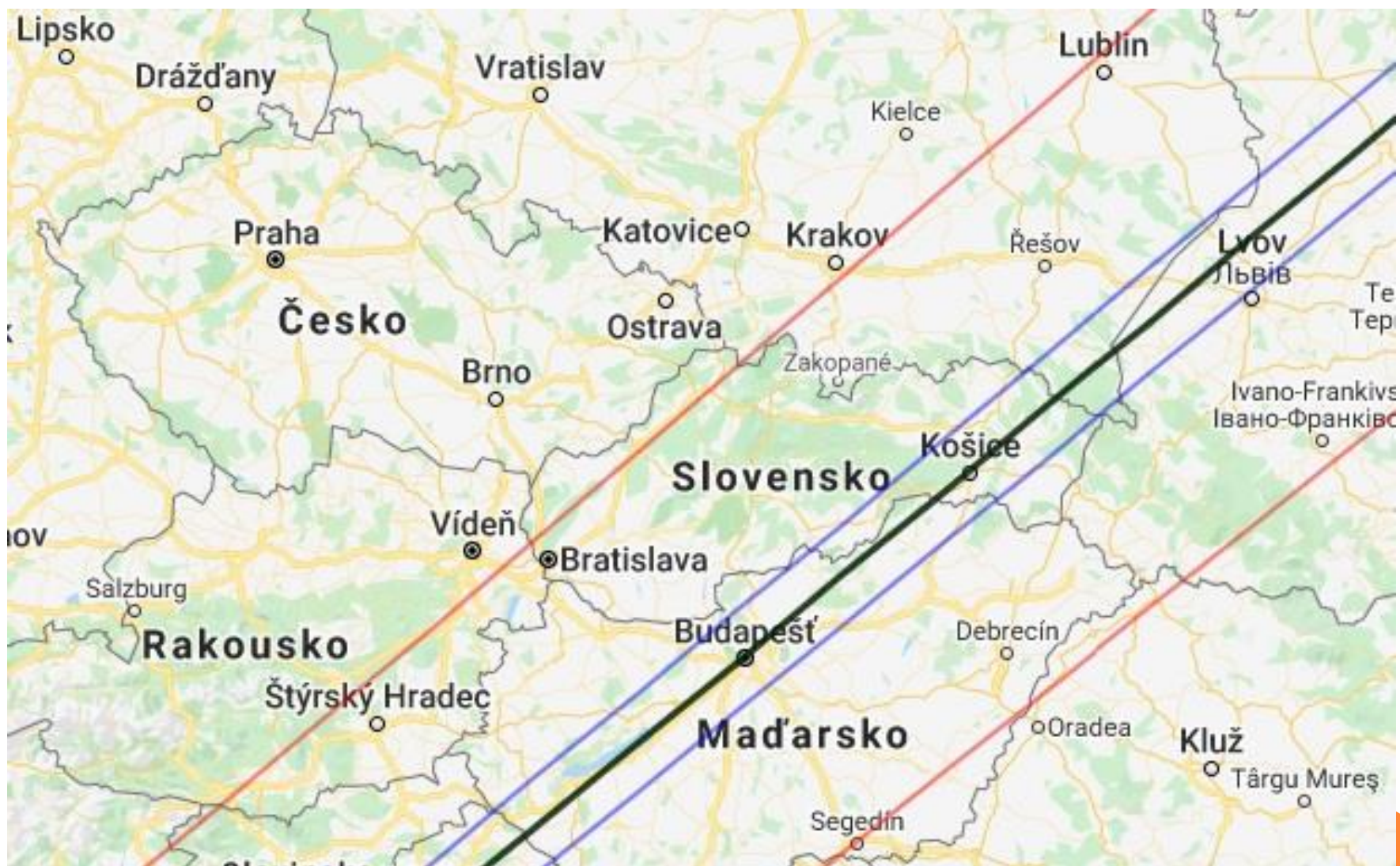
Moon : 15° , 99%



1647 Menelaus & Gaia 105-0009352

2021 oct 21 20^h12.0^m U.T.





165 Loreley & PPMX 3858404

2021 oct 23 3^h19.7^m U.T.

Planet: $a = 3.13$, $e = 0.08$
V. mag. = 12.58 Diam. = 160.0 km = 0.10"
 $\mu = 25.62''/h$ $\pi = 3.80''$ Ref. = EG2019

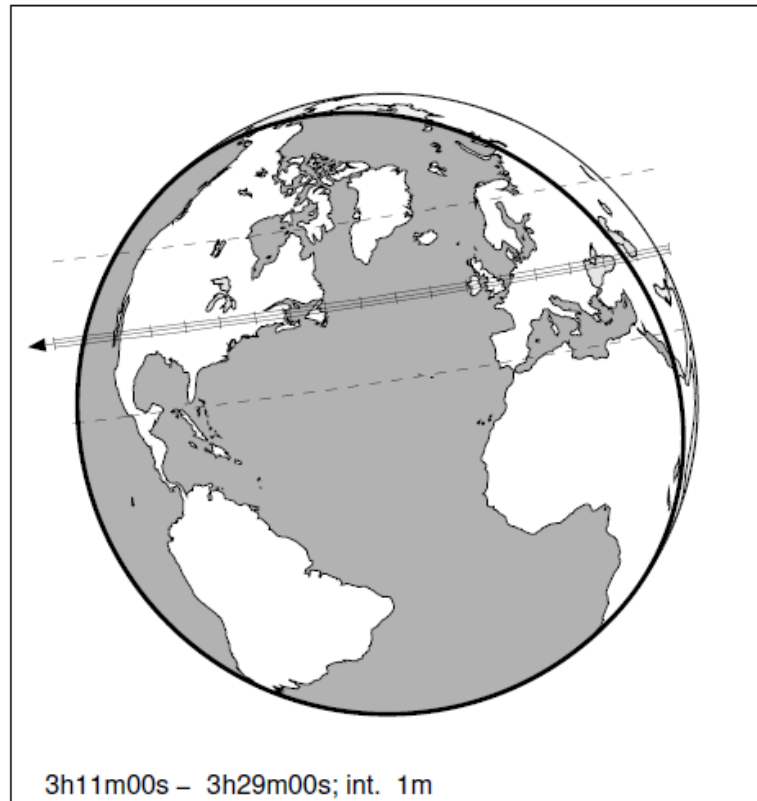
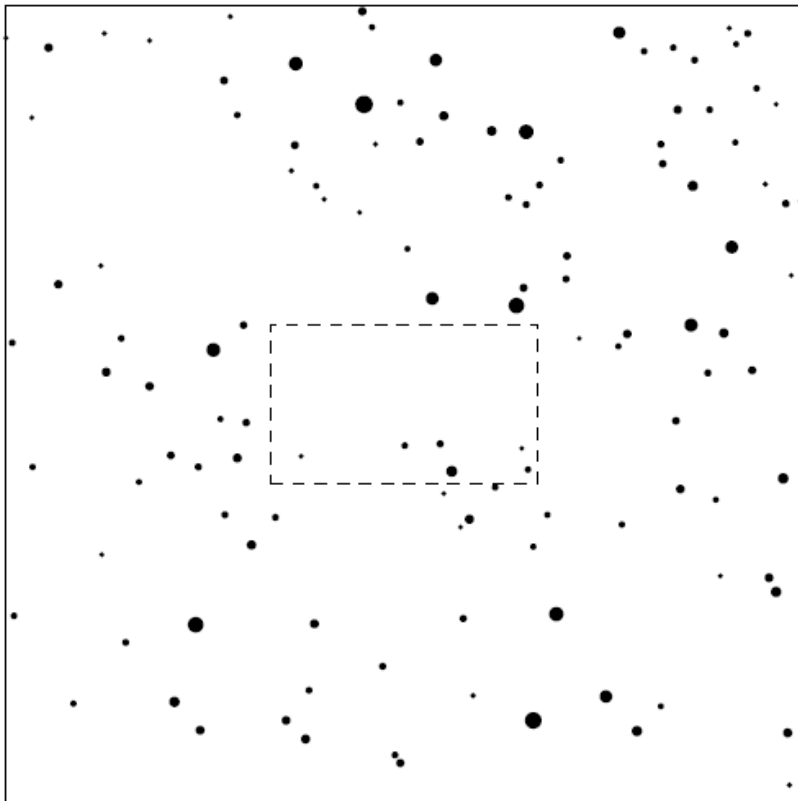
Star: Source cat. PPMX
 $\alpha = 3^h01^m36.103^s$ $\delta = +33^\circ12'14.52''$
Vmag = 12.30 mag =

$\Delta m = 0.9$

Max. dur. = 13.4s

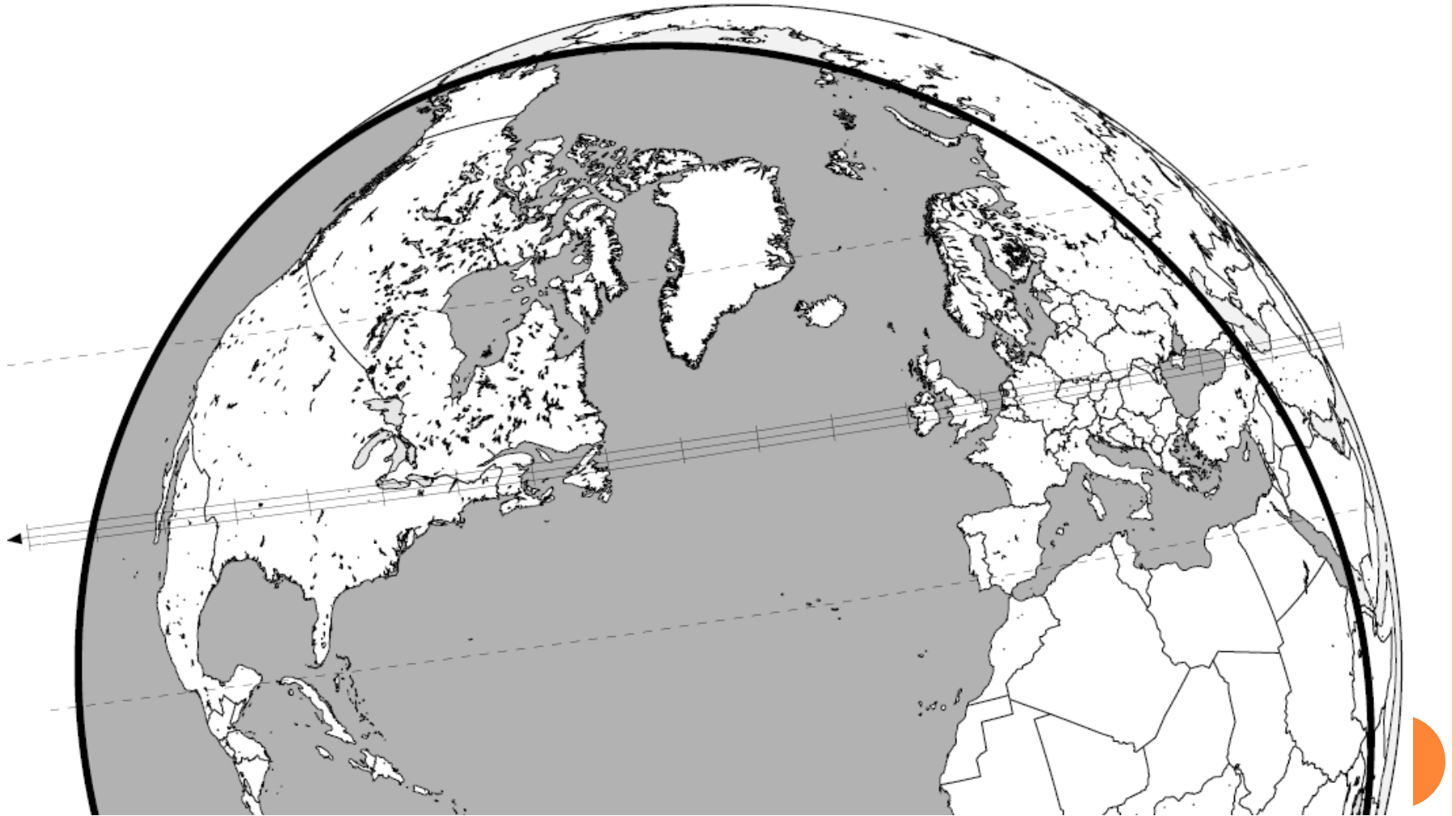
Sun : 152°

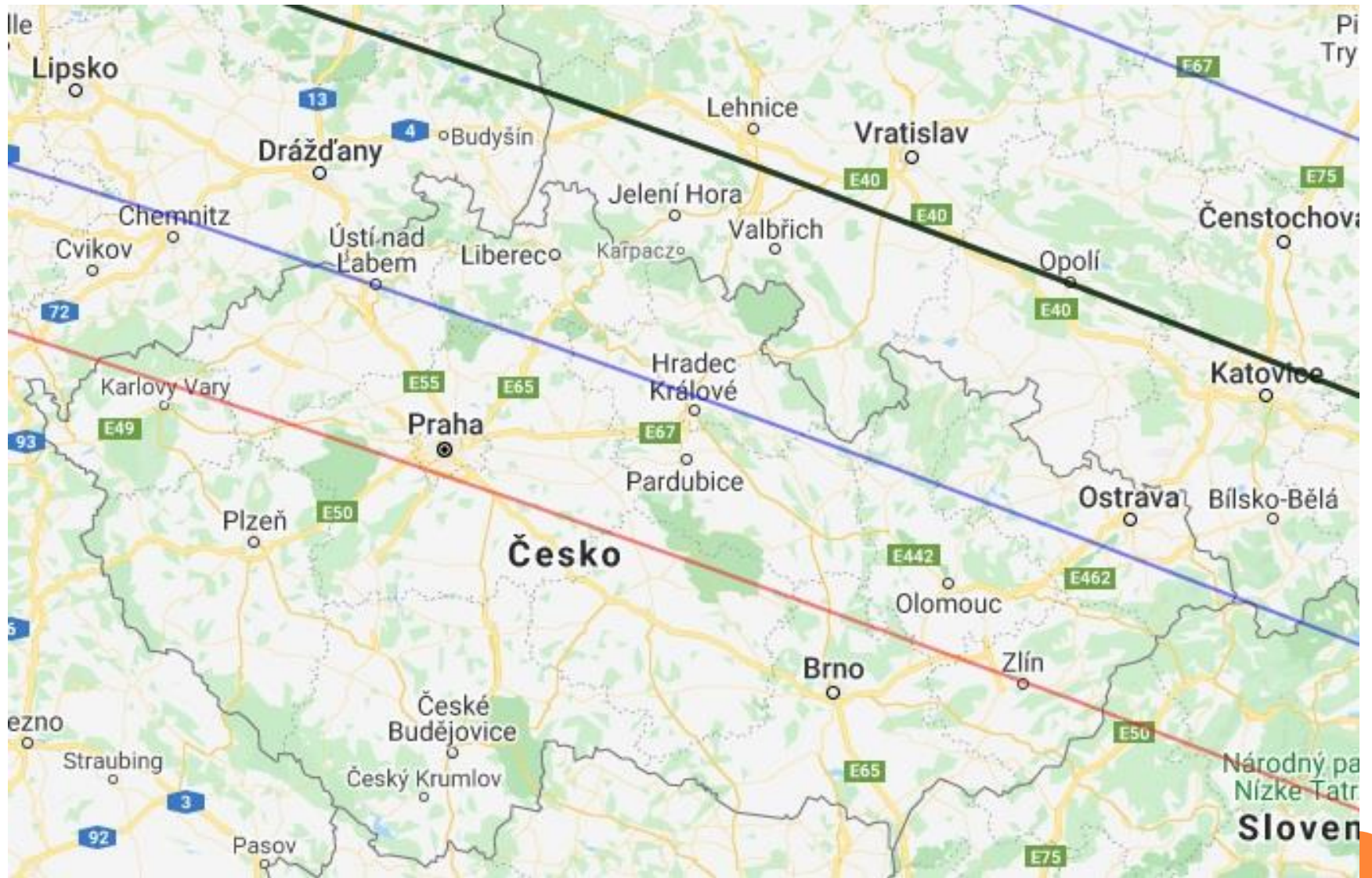
Moon : 17° , 94%



165 Loreley & PPMX 3858404

2021 oct 23 3^h19.7^m U.T.





957 Camelia & UCAC4 543-002712

2021 oct 31 4^h 6.5^m U.T.

Planet: $a = 2.92$, $e = 0.08$
V. mag. = 13.67 Diam. = 76.6 km = 0.06"
 $\mu = 35.02''/h$ $\pi = 4.78''$ Ref. = EG2019

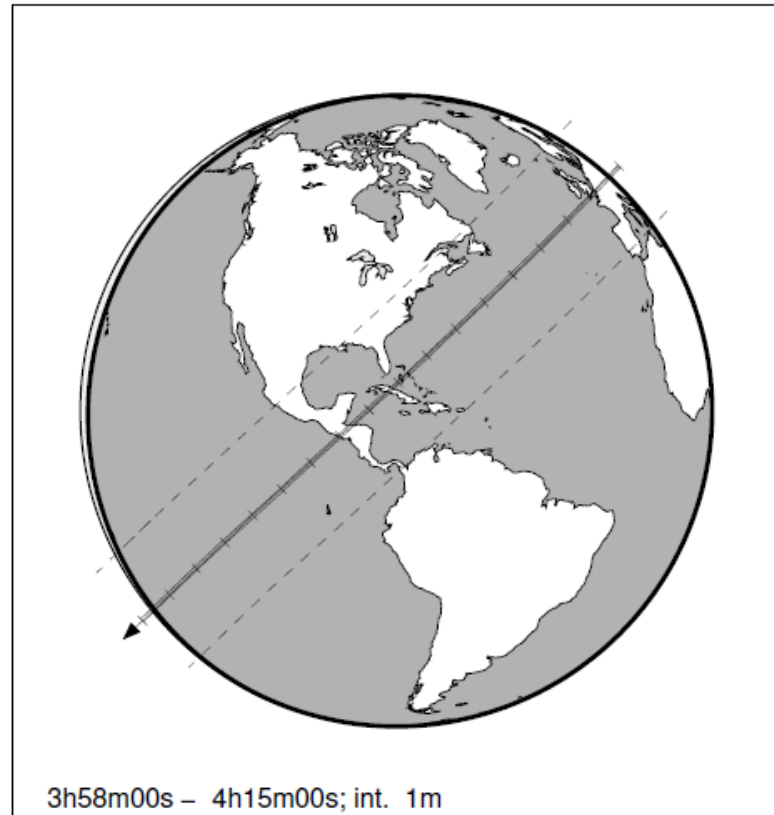
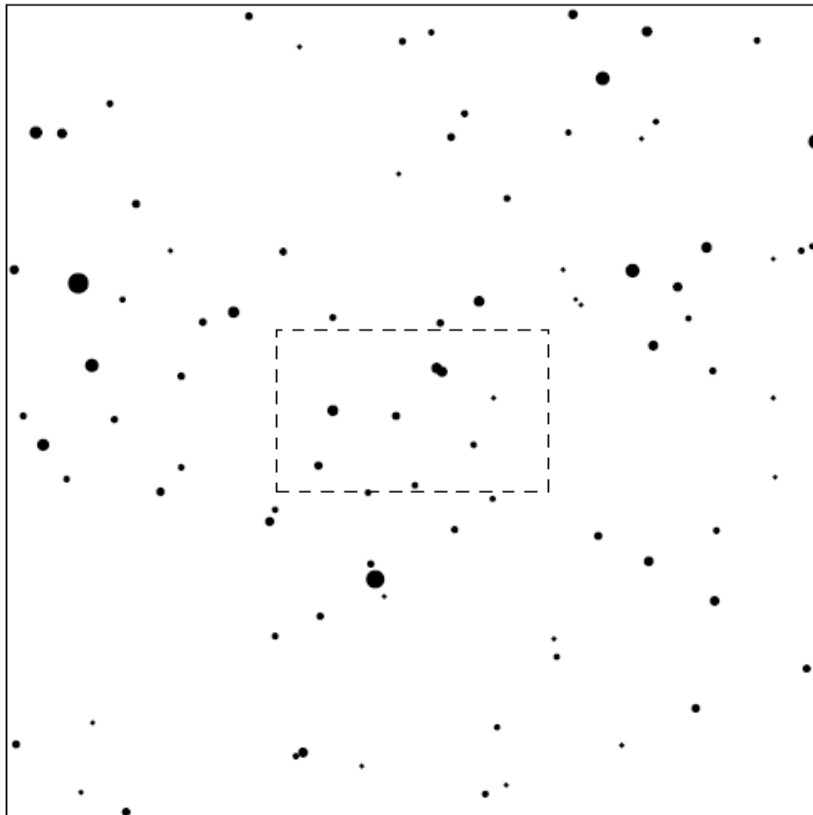
Star: Source cat. GDR2a
 $\alpha = 1^{\text{h}}28^{\text{m}}36.165^{\text{s}}$ $\delta = +18^{\circ}27'26.44''$
Vmag = 11.74 Bmag = 12.16

$\Delta m = 2.1$

Max. dur. = 5.9s

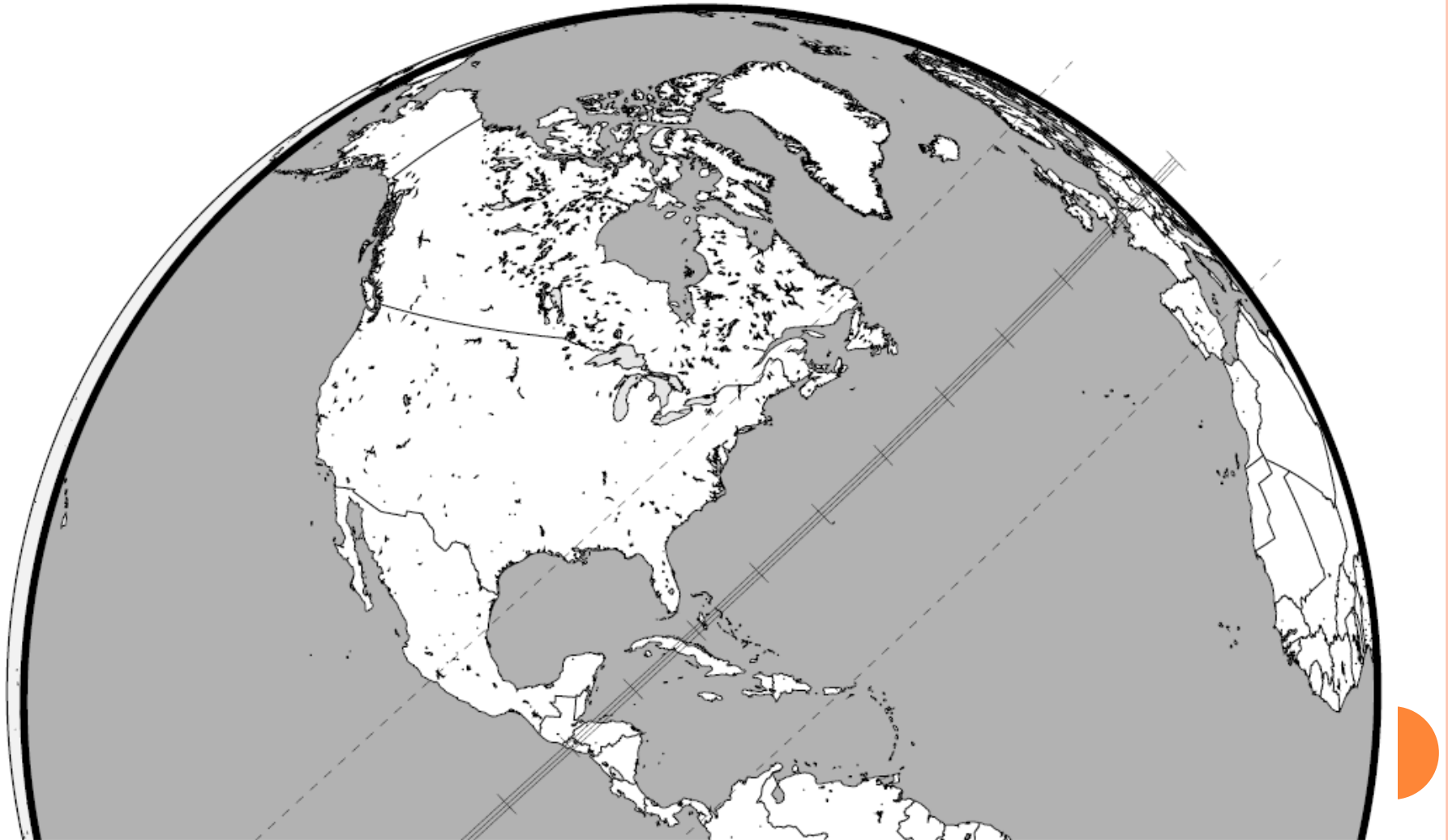
Sun : 166°

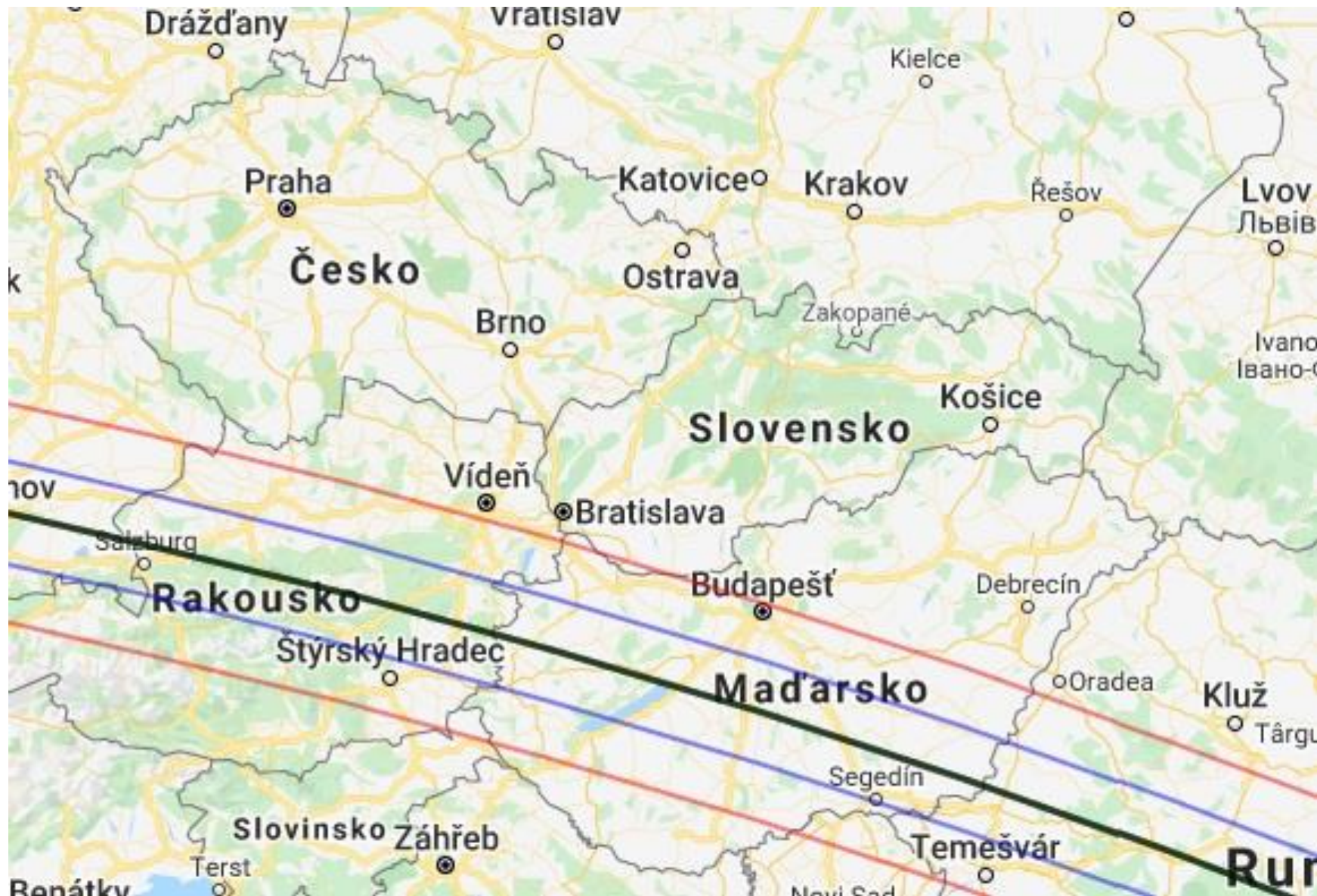
Moon : 126° , 27%



957 Camelia & UCAC4 543-002712

2021 oct 31 4^h 6.5^m U.T.





934 Thuringia & PPMX 3065862

2021 nov 19 21^h22.9^m U.T.

Planet: $a = 2.75$, $e = 0.22$
V. mag. = 13.70 Diam. = 57.1 km = 0.06"
 $\mu = 21.45''/h$ $\pi = 6.19''$ Ref. = EG2019

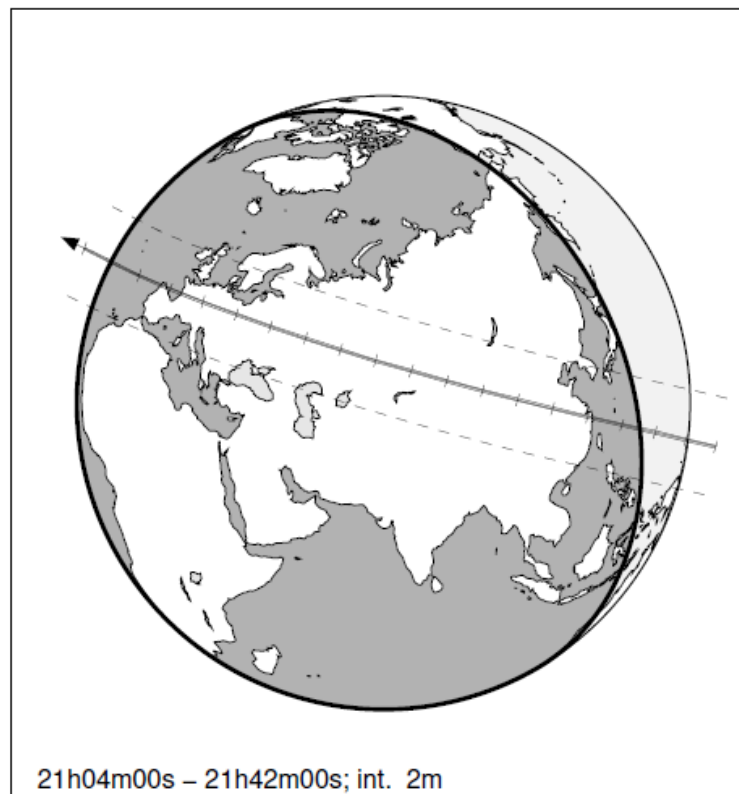
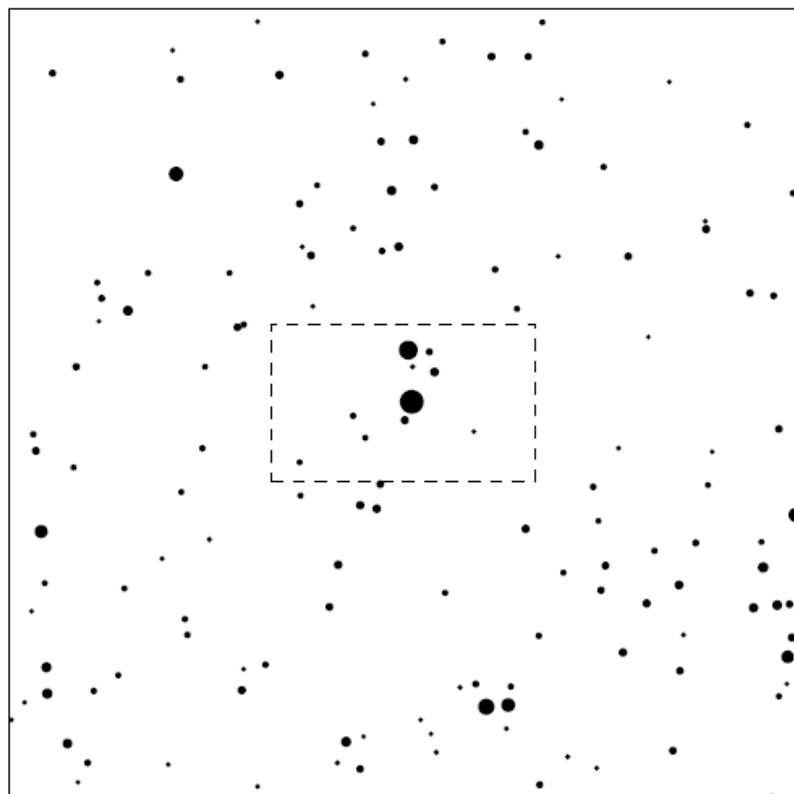
Star: Source cat. PPMX
 $\alpha = 6^{\text{h}}00^{\text{m}}27.921^{\text{s}}$ $\delta = +44^{\circ}55'56.78''$
Vmag = 12.42 mag =

$\Delta m = 1.6$

Max. dur. = 9.3s

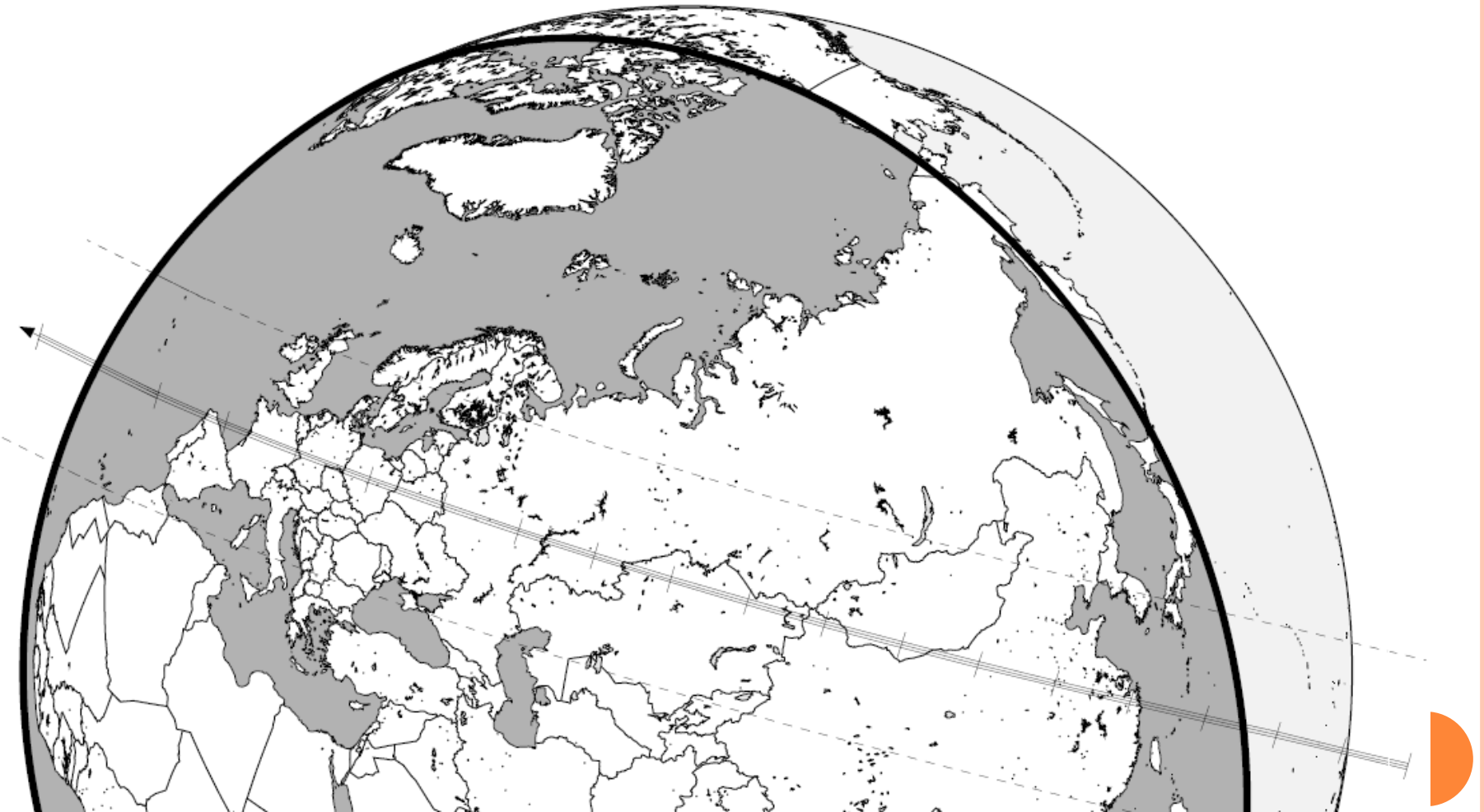
Sun : 141°

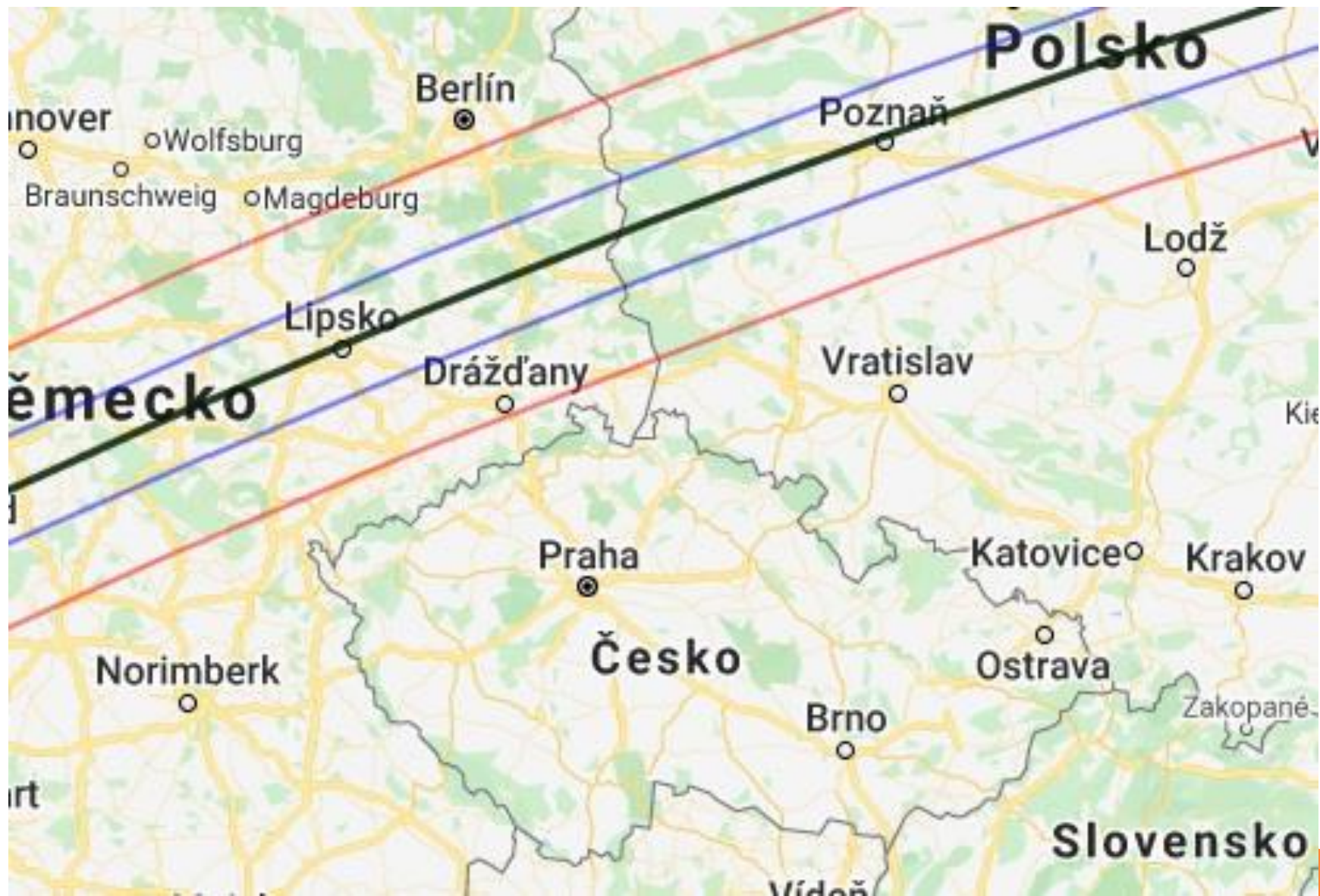
Moon : 34° ,100%



934 Thuringia & PPMX 3065862

2021 nov 19 21^h22.9^m U.T.





138 Tolosa & TYC 1911-00407-1

2021 nov 21 3^h 1.9^m U.T.

Planet: a = 2.45, e = 0.16
V. mag. = 13.36 Diam. = 47.5 km = 0.03"
 μ = 7.25"/h π = 4.34" Ref. = EG2019

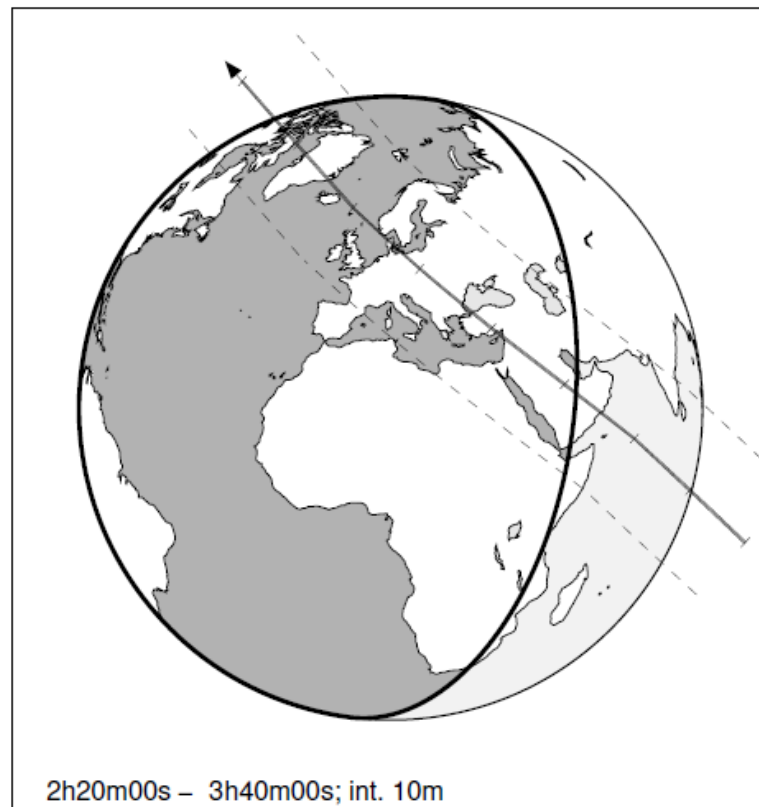
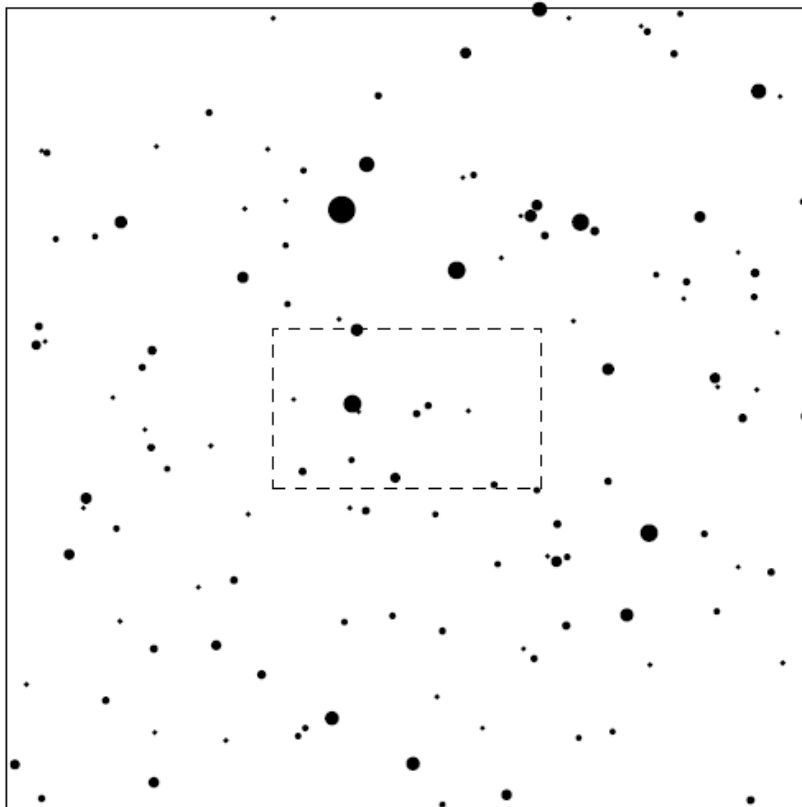
Star: Source cat. GDR2a
 α = 7^h40^m00.188^s δ = +24°18'59.20"
Vmag = 9.81 Bmag = 10.44

Δm = 3.6

Max. dur. = 16.1s

Sun : 125°

Moon : 35° , 97%



2h20m00s – 3h40m00s; int. 10m



138 Tolosa & TYC 1911-00407-1

2021 nov 21 3^h 1.9^m U.T.





754 Malabar & TYC 5400-02907-1

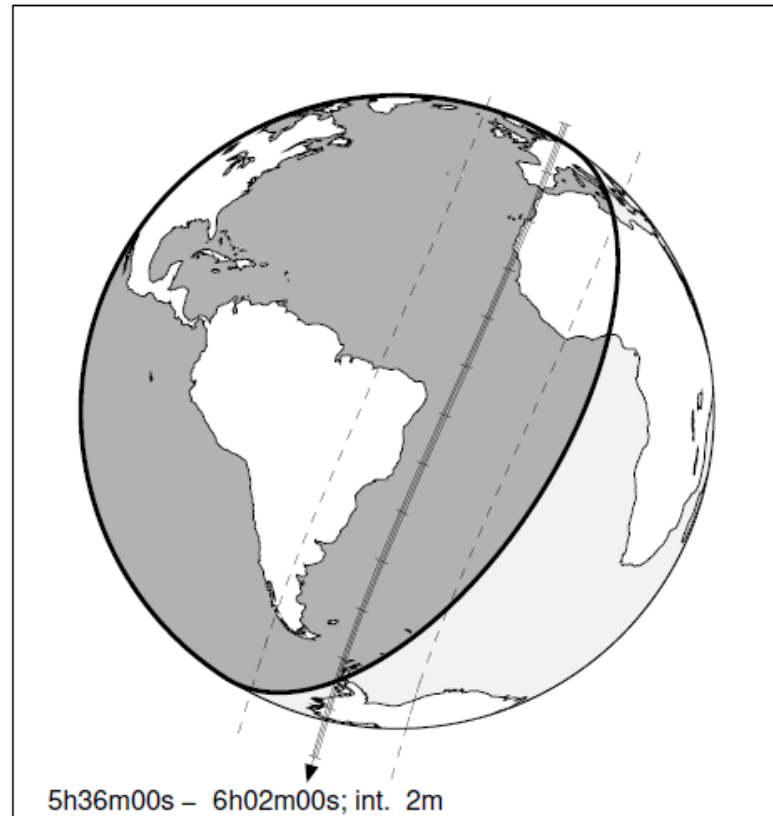
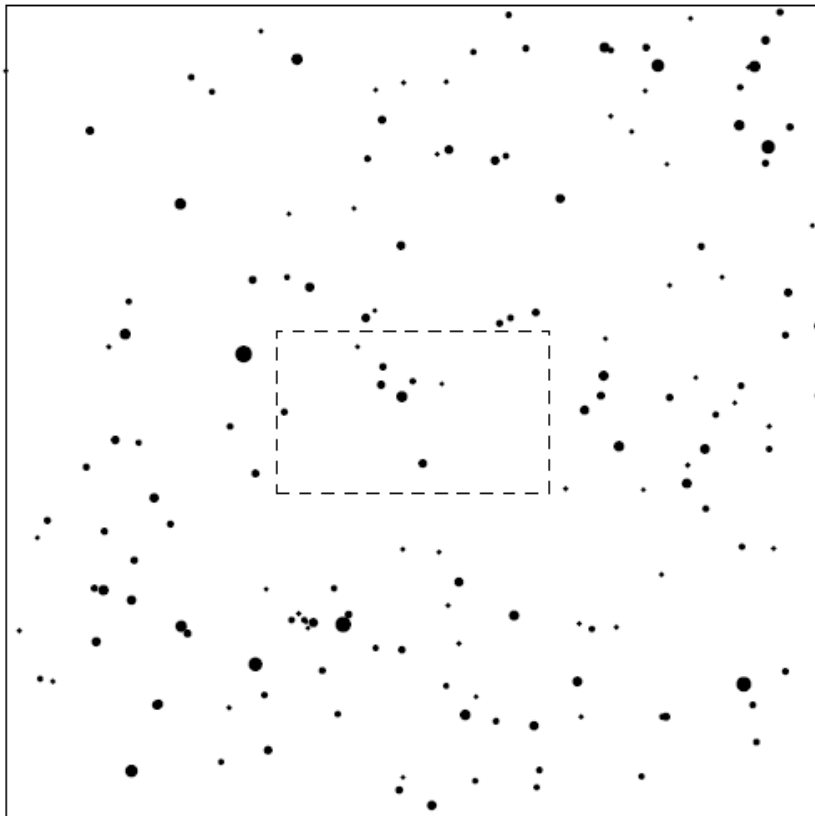
2021 nov 26 5^h48.5^m U.T.

Planet: a = 2.99, e = 0.05
V. mag. = 14.09 Diam. = 89.1 km = 0.06"
 μ = 19.72"/h π = 3.98" Ref. = EG2019

Δm = 3.9 Max. dur. = 10.2s

Star: Source cat. GDR2a
 α = 7^h28^m34.633^s δ = -10°36'46.11"
Vmag = 10.23 Bmag = 11.73

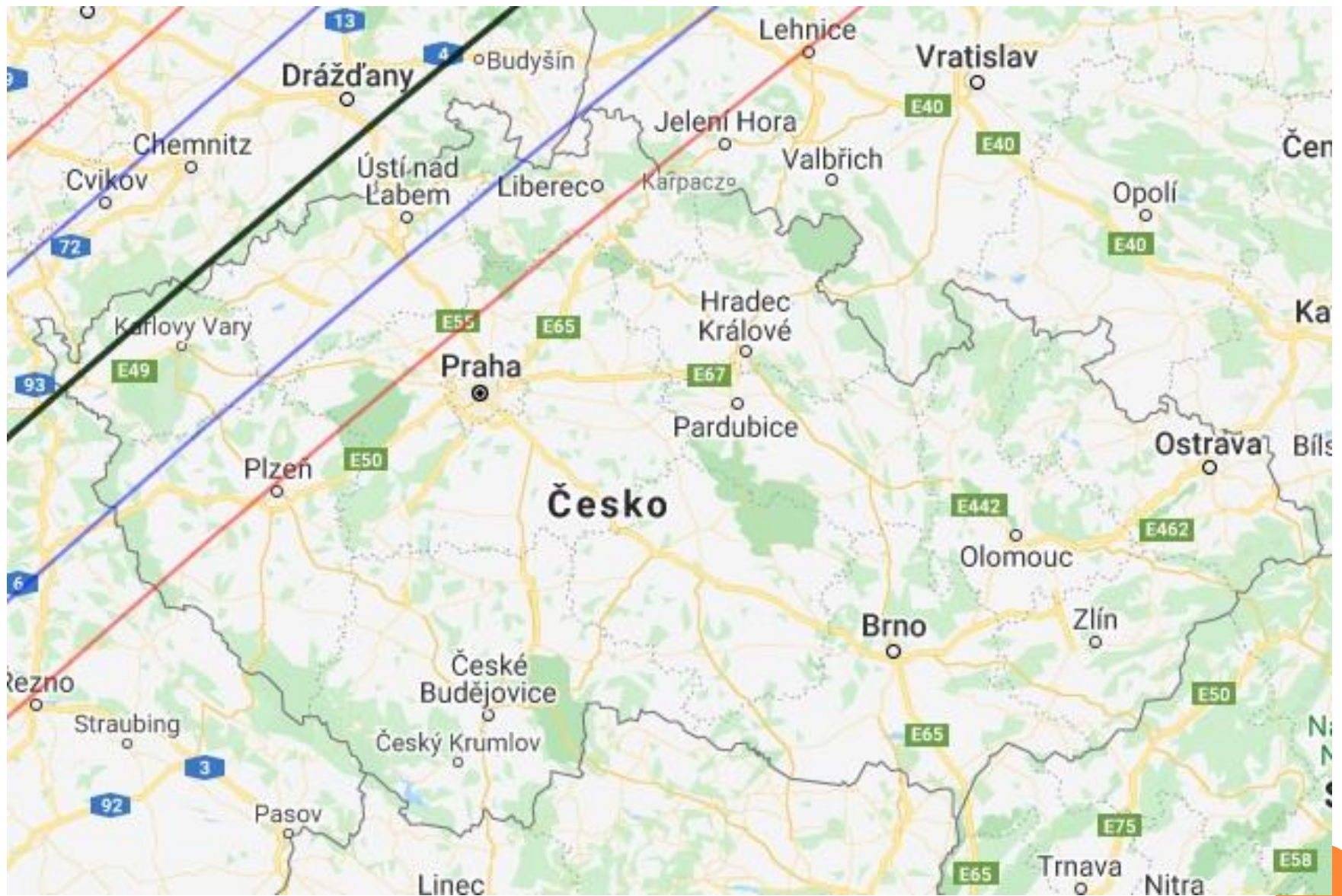
Sun : 121° Moon : 43° , 63%



754 Malabar & TYC 5400-02907-1

2021 nov 26 5^h48.5^m U.T.





270 Anahita & TYC 1863-01724-1

2021 nov 29 4^h30.4^m U.T.

Planet: $a = 2.20$, $e = 0.15$
V. mag. = 11.70 Diam. = 52.2 km = 0.06"
 $\mu = 35.36''/h$ $\pi = 6.79''$ Ref. = EG2019

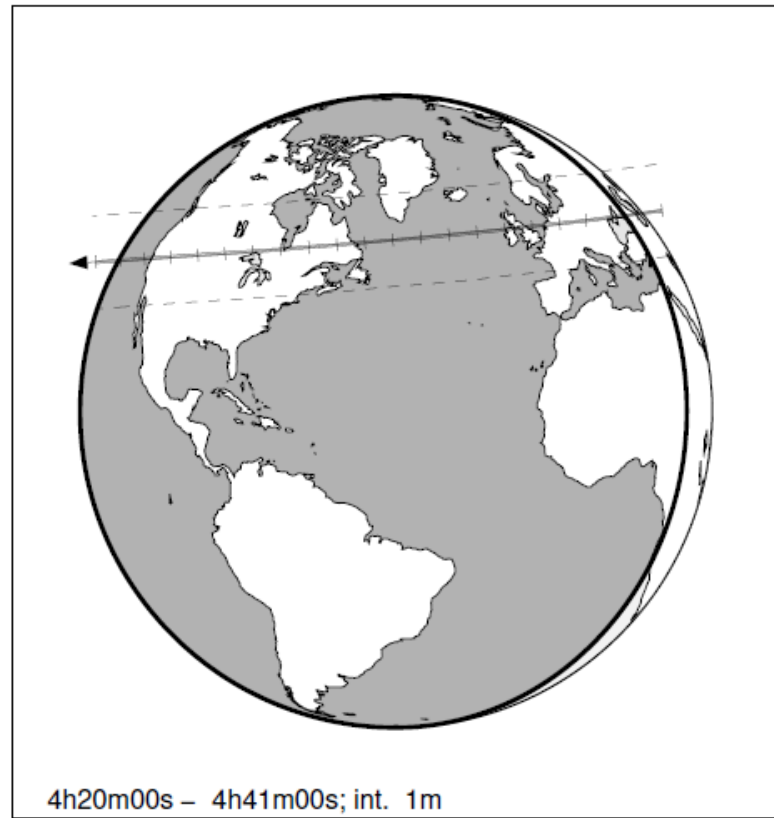
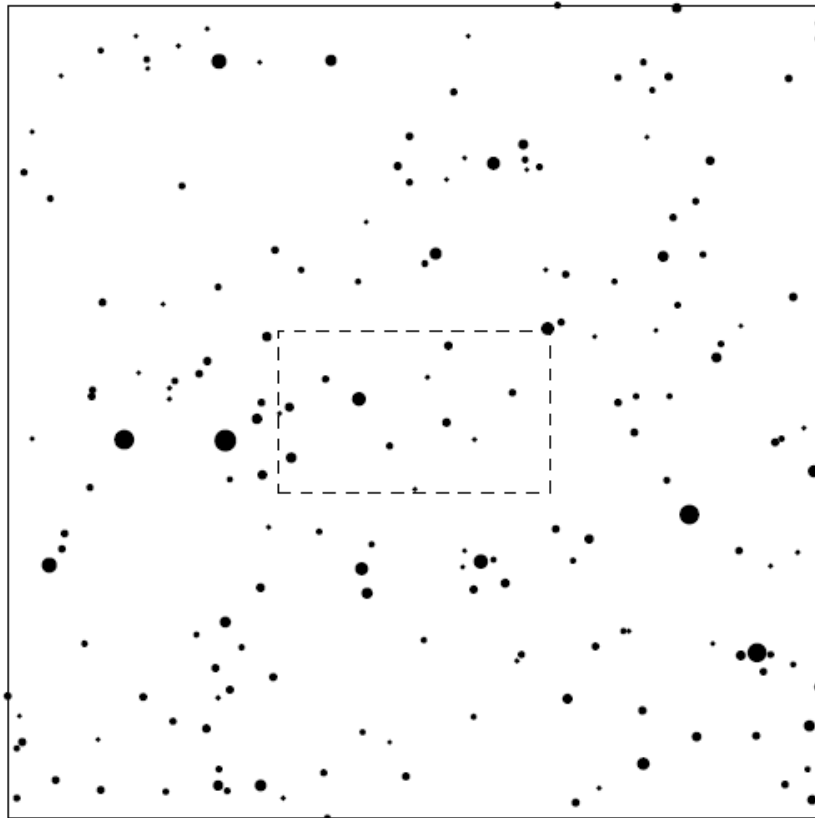
Star: Source cat. GDR2a
 $\alpha = 5^h59^m43.284^s$ $\delta = +23^\circ02'14.09''$
Vmag = 11.48 Bmag = 11.75

$\Delta m = 0.9$

Max. dur. = 5.7s

Sun : 156°

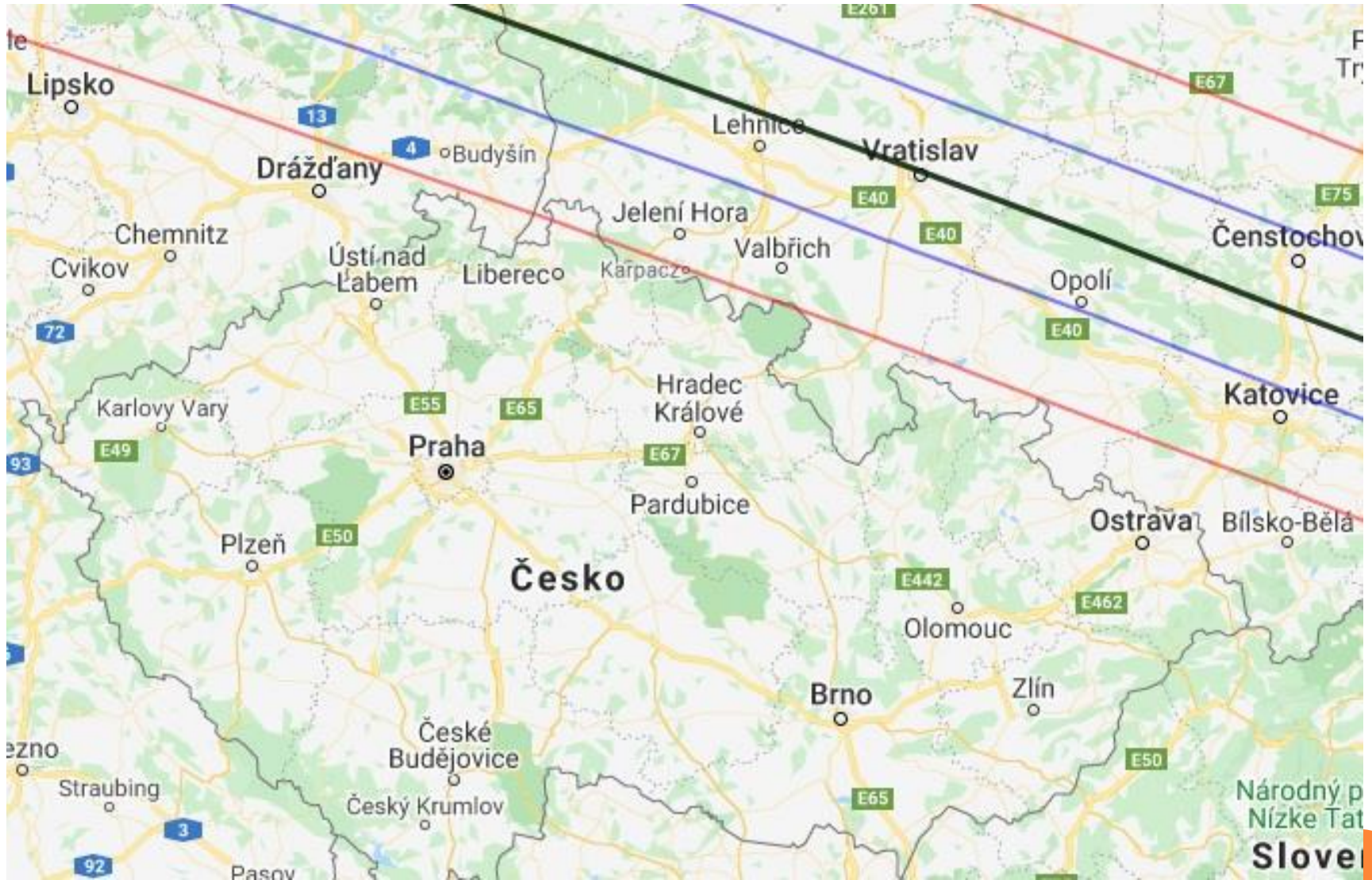
Moon : 87° , 33%



270 Anahita & TYC 1863-01724-1

2021 nov 29 4^h30.4^m U.T.





141 Lumen & UCAC4 565-001115

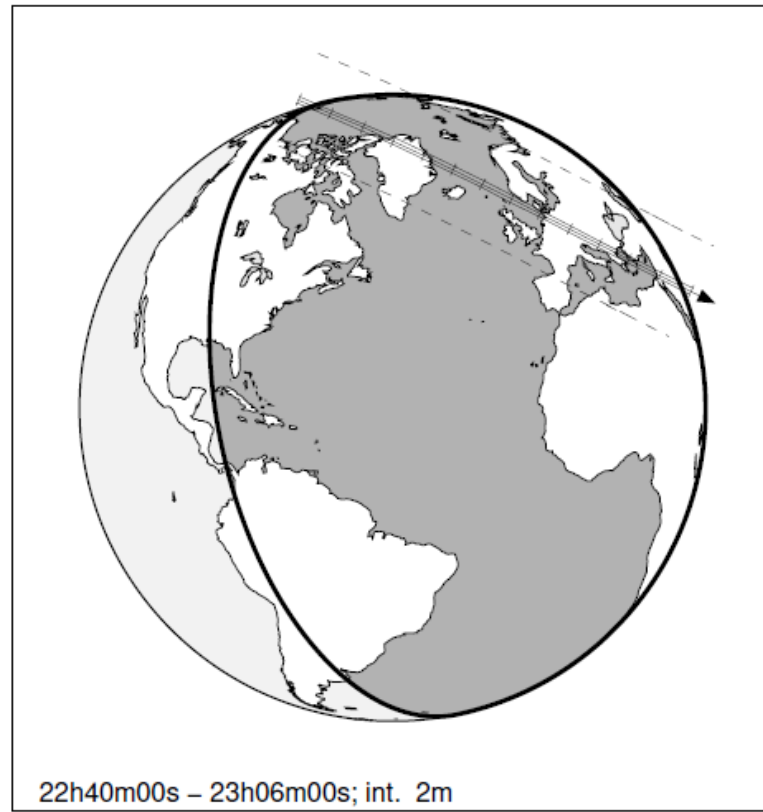
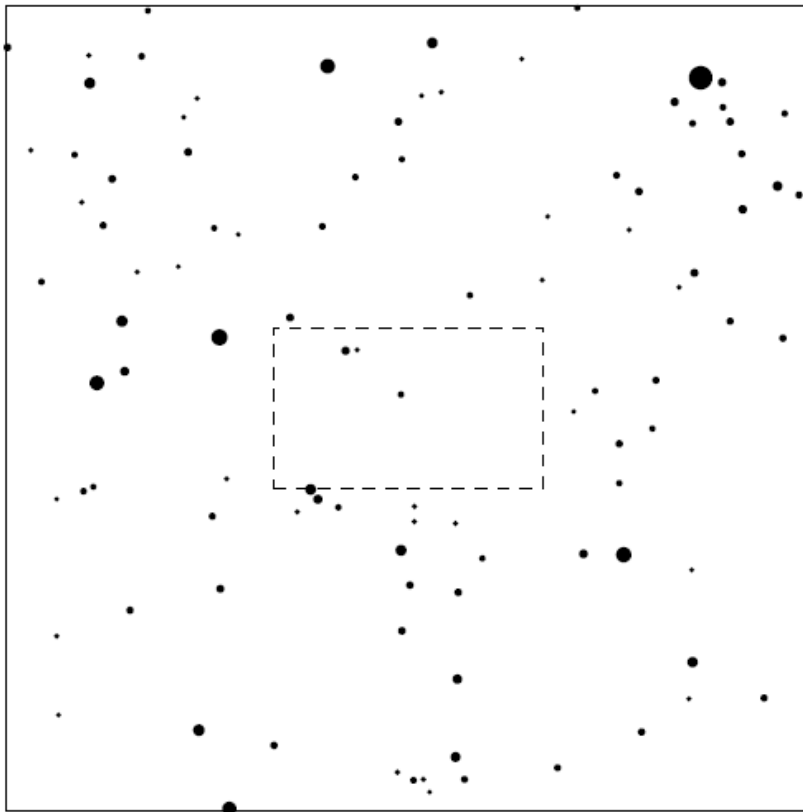
2021 dec 2 22^h53.0^m U.T.

Planet: $a = 2.67, e = 0.21$
V. mag. = 11.67 Diam. = 135.0 km = 0.13"
 $\mu = 19.81''/h$ $\pi = 6.23''$ Ref. = EG2019

$\Delta m = 0.6$ Max. dur. = 24.0s

Star: Source cat. GDR2a
 $\alpha = 0^h32^m02.639^s$ $\delta = +22^\circ56'50.57''$
Vmag = 11.90 Bmag = 12.22

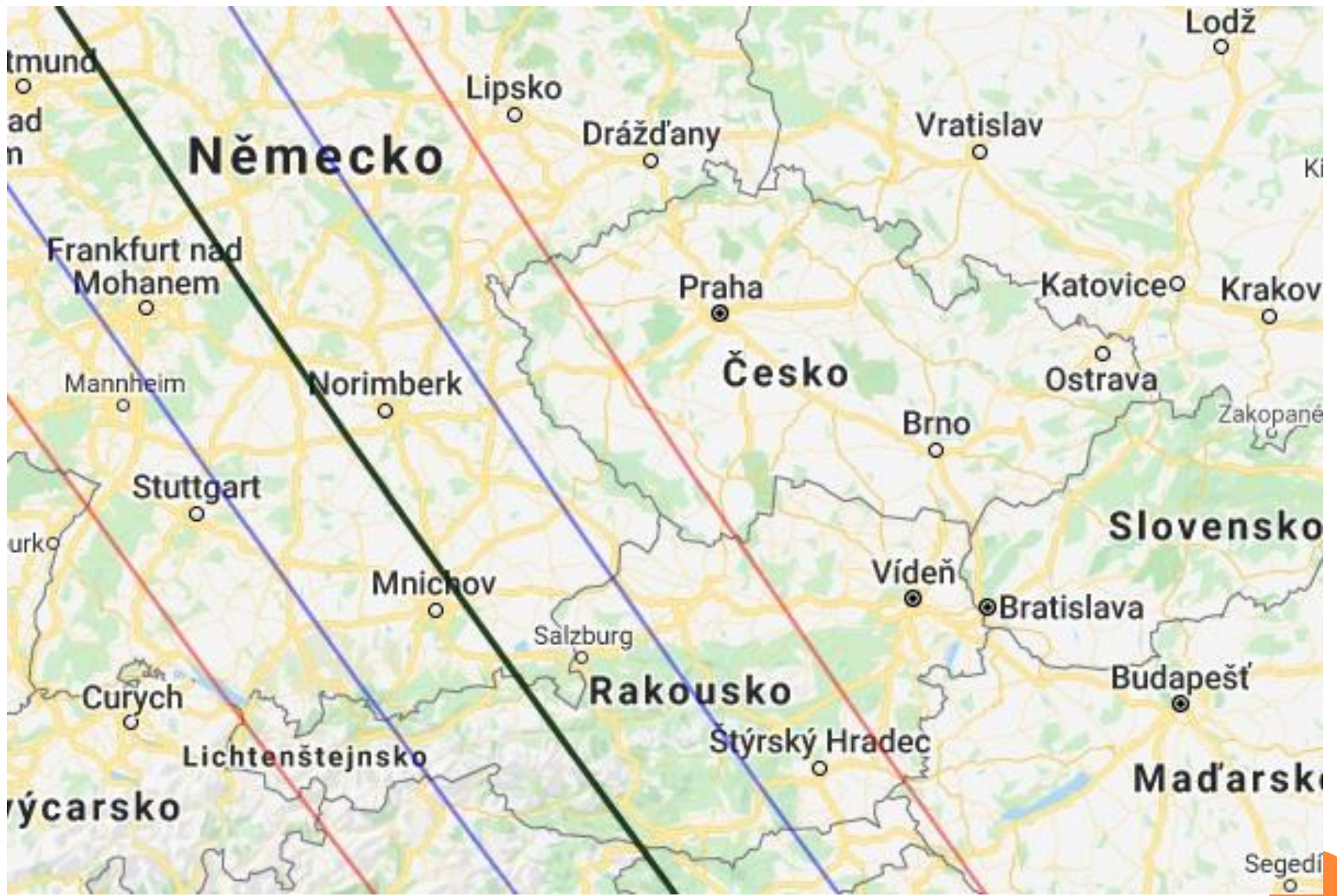
Sun : 123° Moon : 141° , 3%



141 Lumen & UCAC4 565-001115

2021 dec 2 22^h53.0^m U.T.





1092 Liliu & TYC 1787-01137-1

2021 dec 7 15^h48.4^m U.T.

Planet: $a = 2.90$, $e = 0.08$
V. mag. = 15.54 Diam. = 47.6 km = 0.03"
 $\mu = 26.33''/h$ $\pi = 4.00''$ Ref. = EG2019

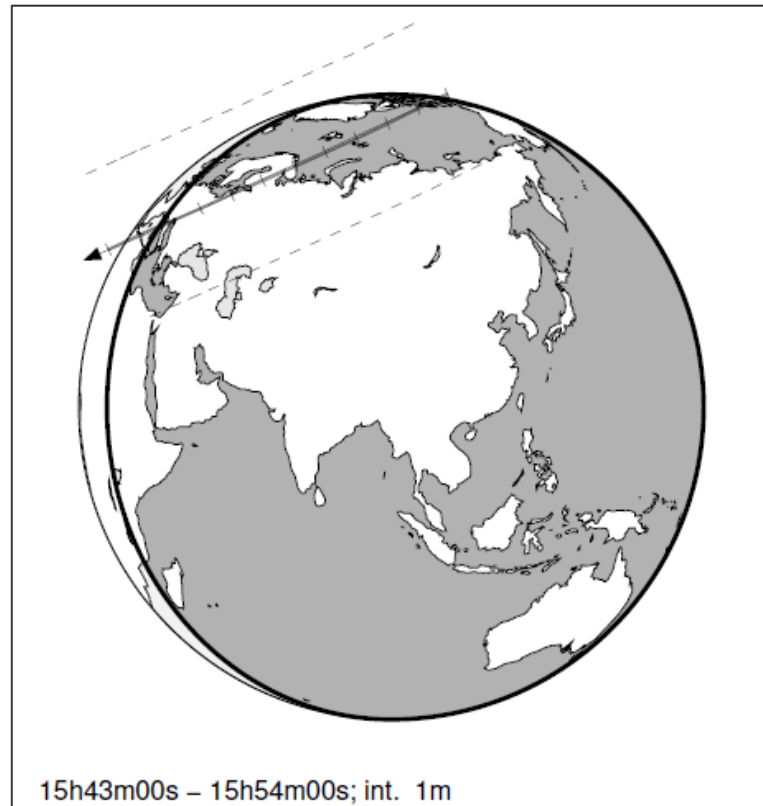
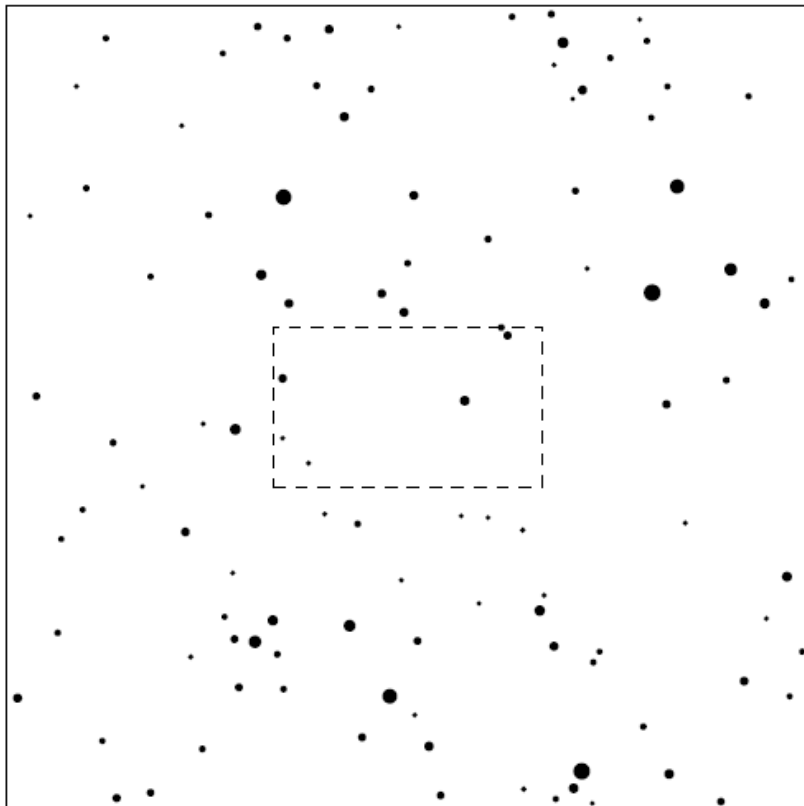
Star: Source cat. GDR2a
 $\alpha = 3^h10^m07.945^s$ $\delta = +25^\circ07'59.96''$
Vmag = 11.46 Bmag = 12.16

$\Delta m = 4.1$

Max. dur. = 4.1s

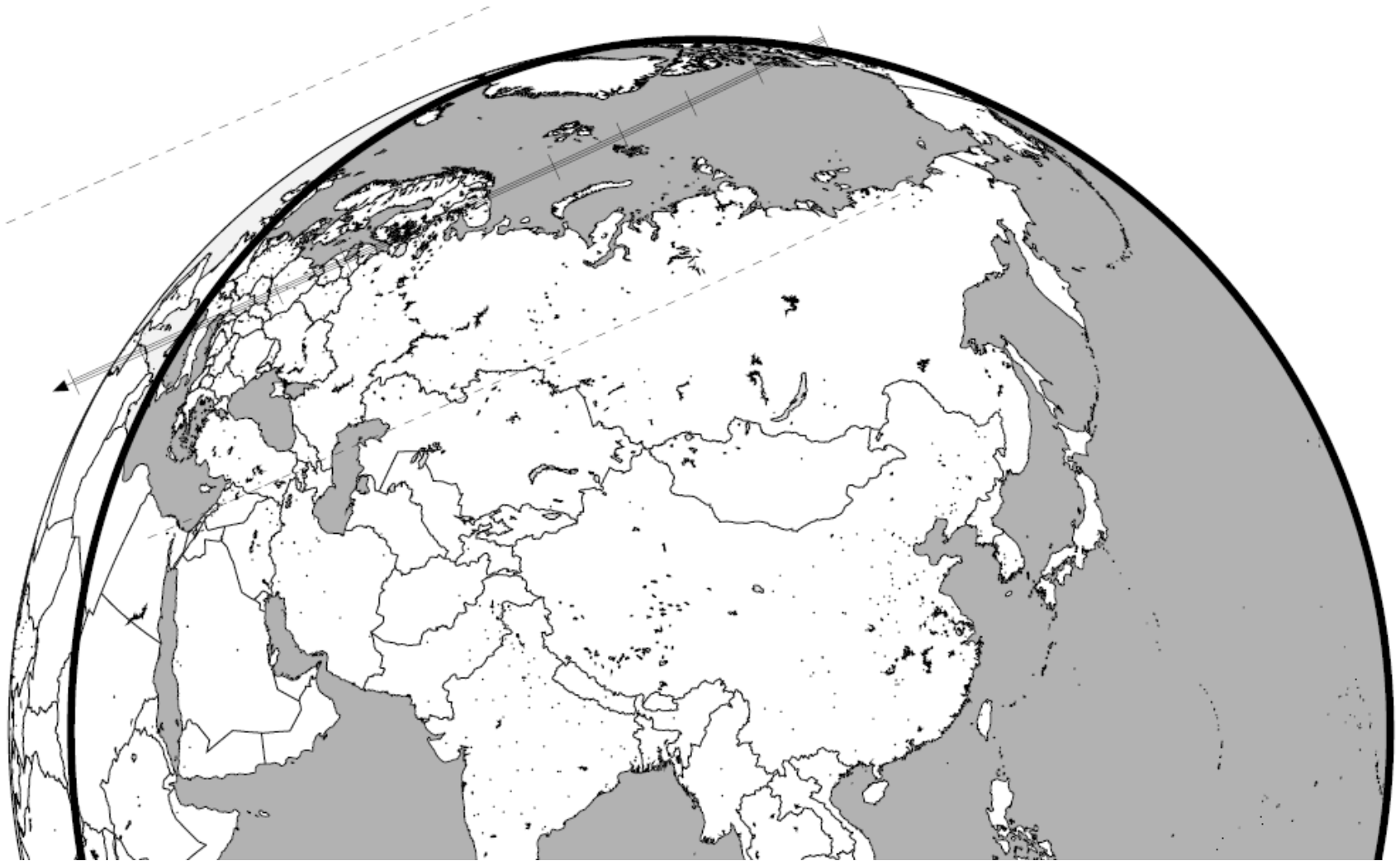
Sun : 155°

Moon : 110° , 16%



1092 Liliu & TYC 1787-01137-1

2021 dec 7 15^h48.4^m U.T.





181 Eucharis & HIP 52224

2021 dec 22 5^h36.3^m U.T.

Planet: a = 3.14, e = 0.20
V. mag. = 12.46 Diam. = 107.0 km = 0.07"
 μ = 20.17"/h π = 4.31" Ref. = EG2019

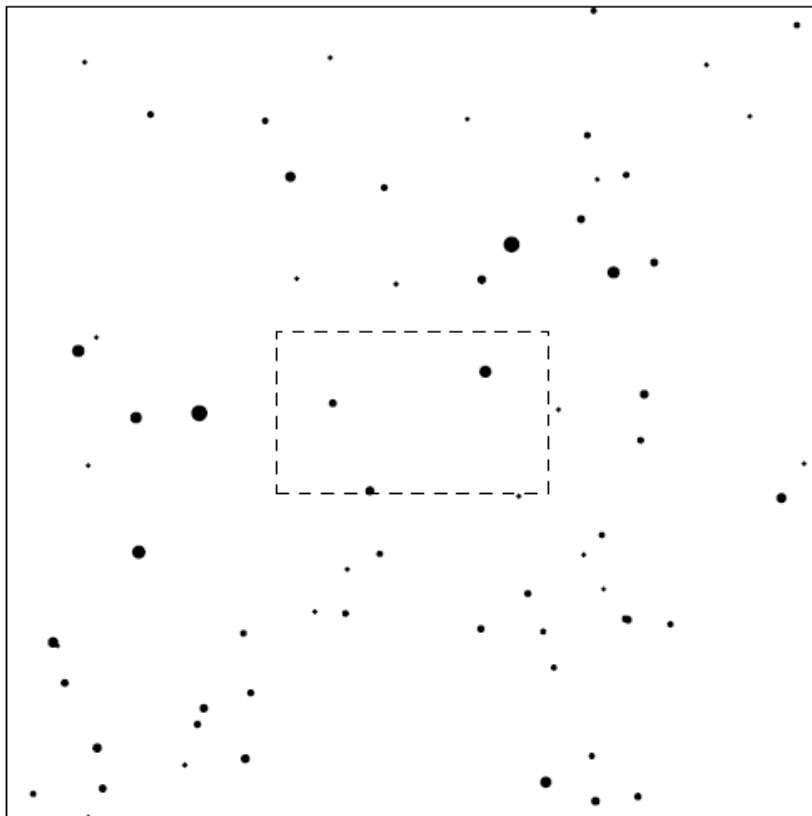
Star: Source cat. GDR2a
 α = 10^h40^m12.970^s δ = + 6°12'10.46"
Vmag = 9.87 Bmag = 10.46

Δm = 2.7

Max. dur. = 12.9s

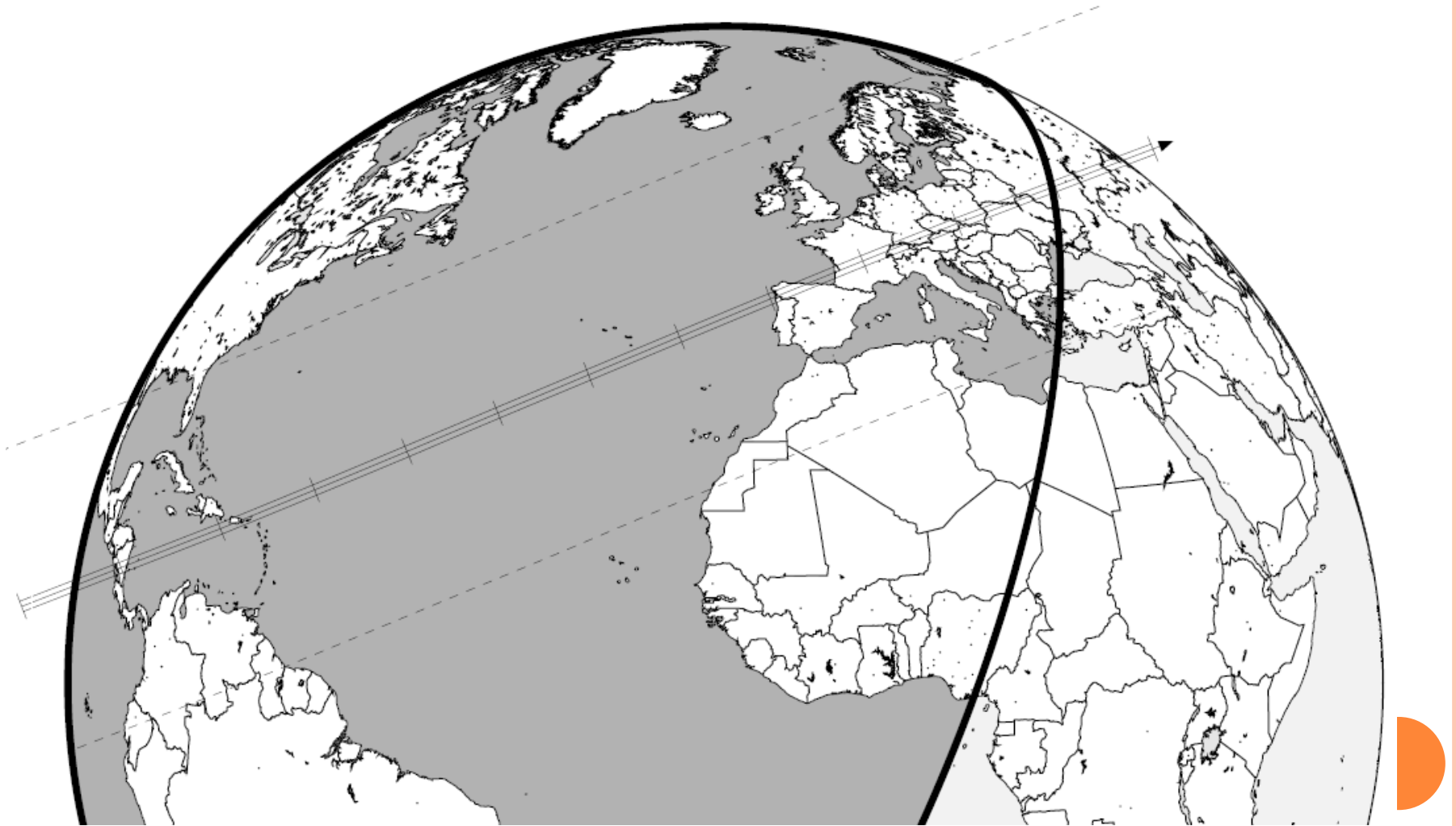
Sun : 111°

Moon : 36° , 92%



181 Eucharis & HIP 52224

2021 dec 22 5^h36.3^m U.T.





1572 Posnania & UCAC4 660-029180

2021 dec 29 0^h59.8^m U.T.

Planet: $a = 3.10$, $e = 0.21$
V. mag. = 14.44 Diam. = 41.7 km = 0.03"
 $\mu = 27.11''/h$ $\pi = 4.37''$ Ref. = EG2019

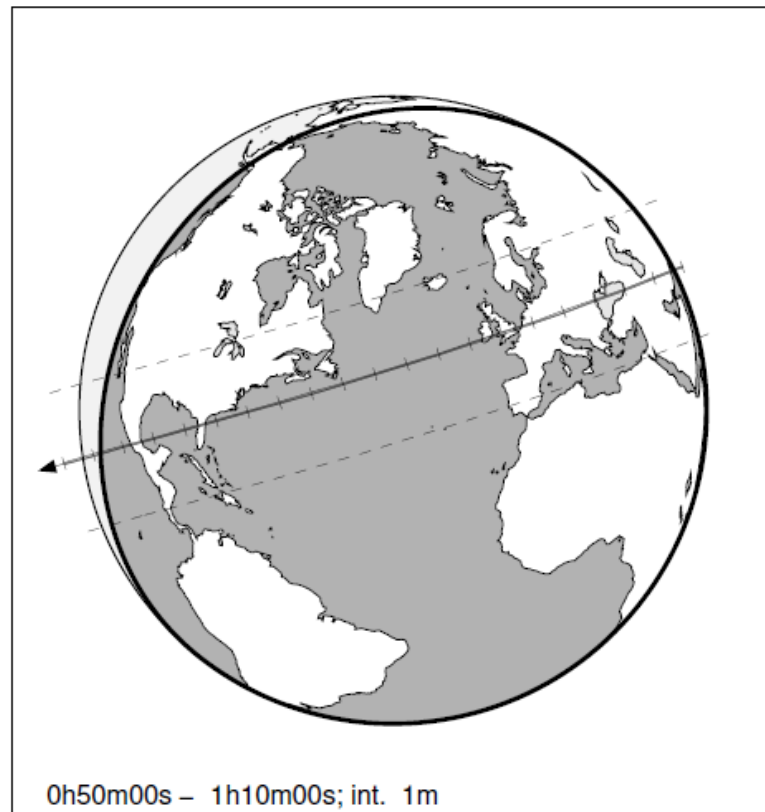
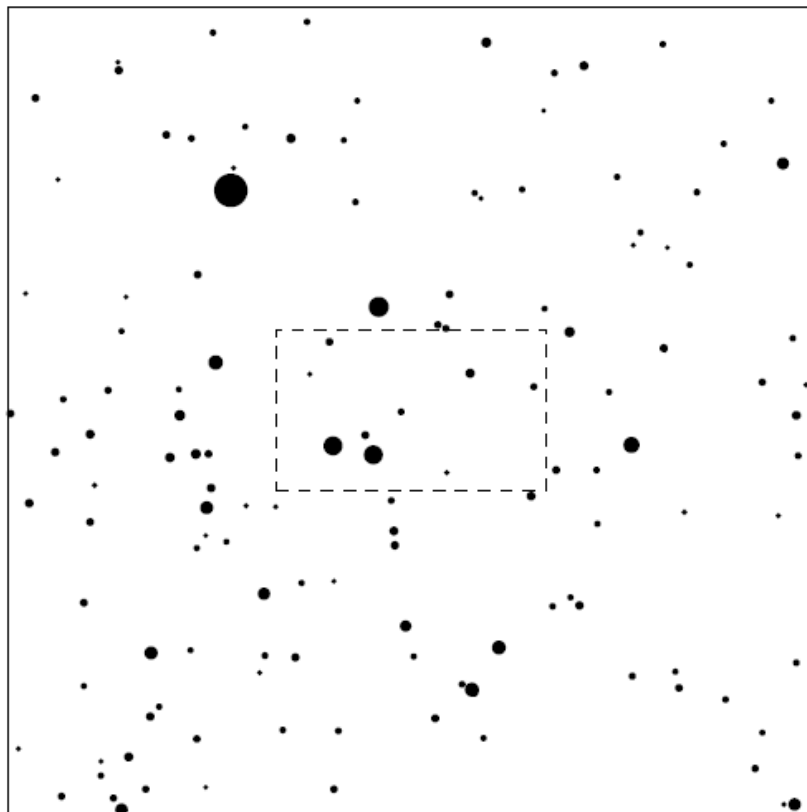
Star: Source cat. GDR2a
 $\alpha = 4^{\text{h}}58^{\text{m}}43.077^{\text{s}}$ $\delta = +41^{\circ}54'28.65''$
Vmag = 11.12 Bmag = 11.85

$\Delta m = 3.4$

Max. dur. = 3.8s

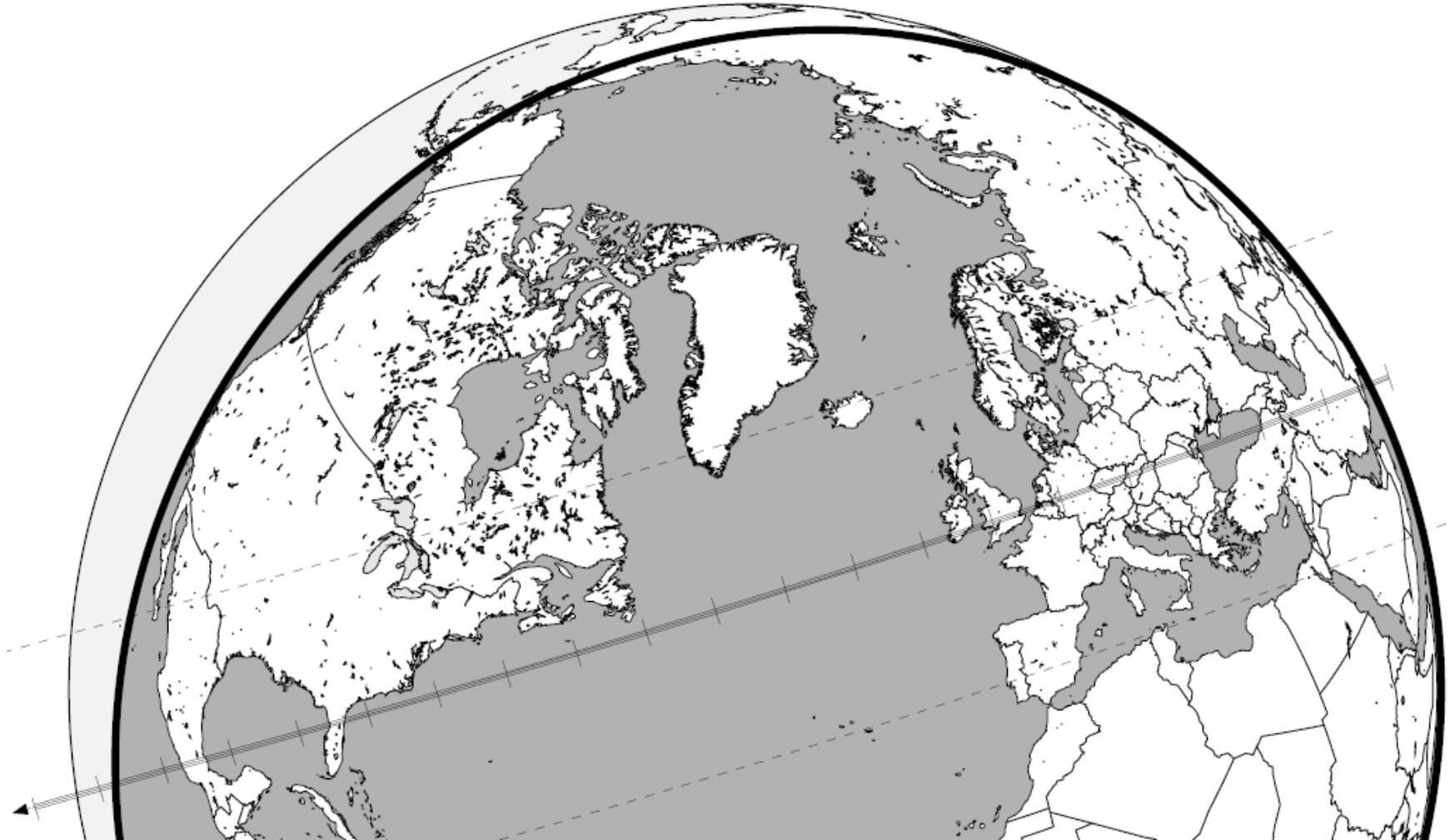
Sun : 153°

Moon : 130° , 29%



1572 Posnania & UCAC4 660-029180

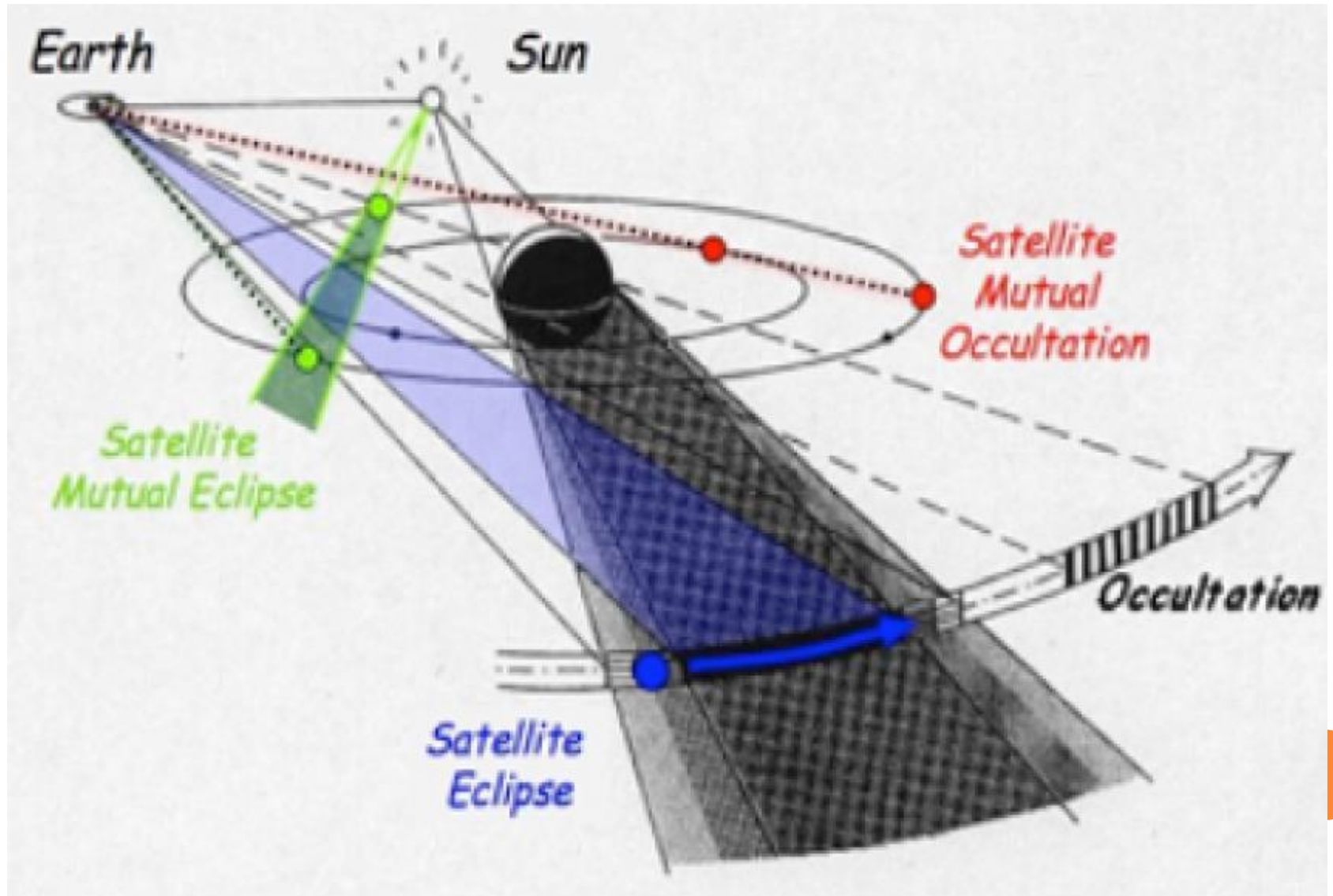
2021 dec 29 0^h59.8^m U.T.





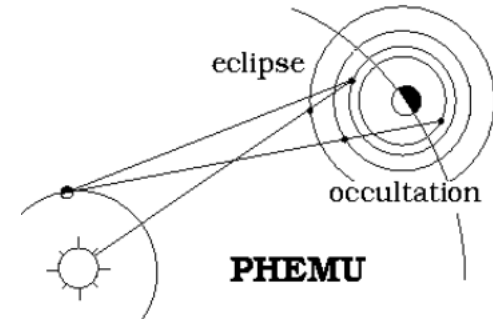
Mutual Events

Vzájemné úkazy Jupiterových měsíců 2021



ZDROJ

<http://nsdb.imcce.fr/multisat/nsszph517he.htm>



Institut de mécanique céleste et de calcul des éphémérides,
Observatoire de Paris

imcce INSTITUT DE MÉCANIQUE CÉLESTE ET DE CALCUL DES ÉPHÉMÉRIDES

[NSDC Observations](#) | [Ephemerides](#) | [Bibliography](#) | [Parameters](#) | [Links to the Web](#)

Natural Satellites Ephemeride Server. MULTI-SAT.

Ephemerides of the mutual eclipses and occultations of the Galilean satellites of Jupiter

in 2021

To see the ephemerides of the events which are observed at your observatory with circumstances (object and sun altitudes, Moon phase) enter Observatory code (XXX) See the list or enter **500** to see all the events.

(Explanation of the data in output)

Number of events: 242
The first event: 3 January 2021
The last event: 16 November 2021
Really, 192 events are observable from 3 Mars 2021 to 16 November 2021

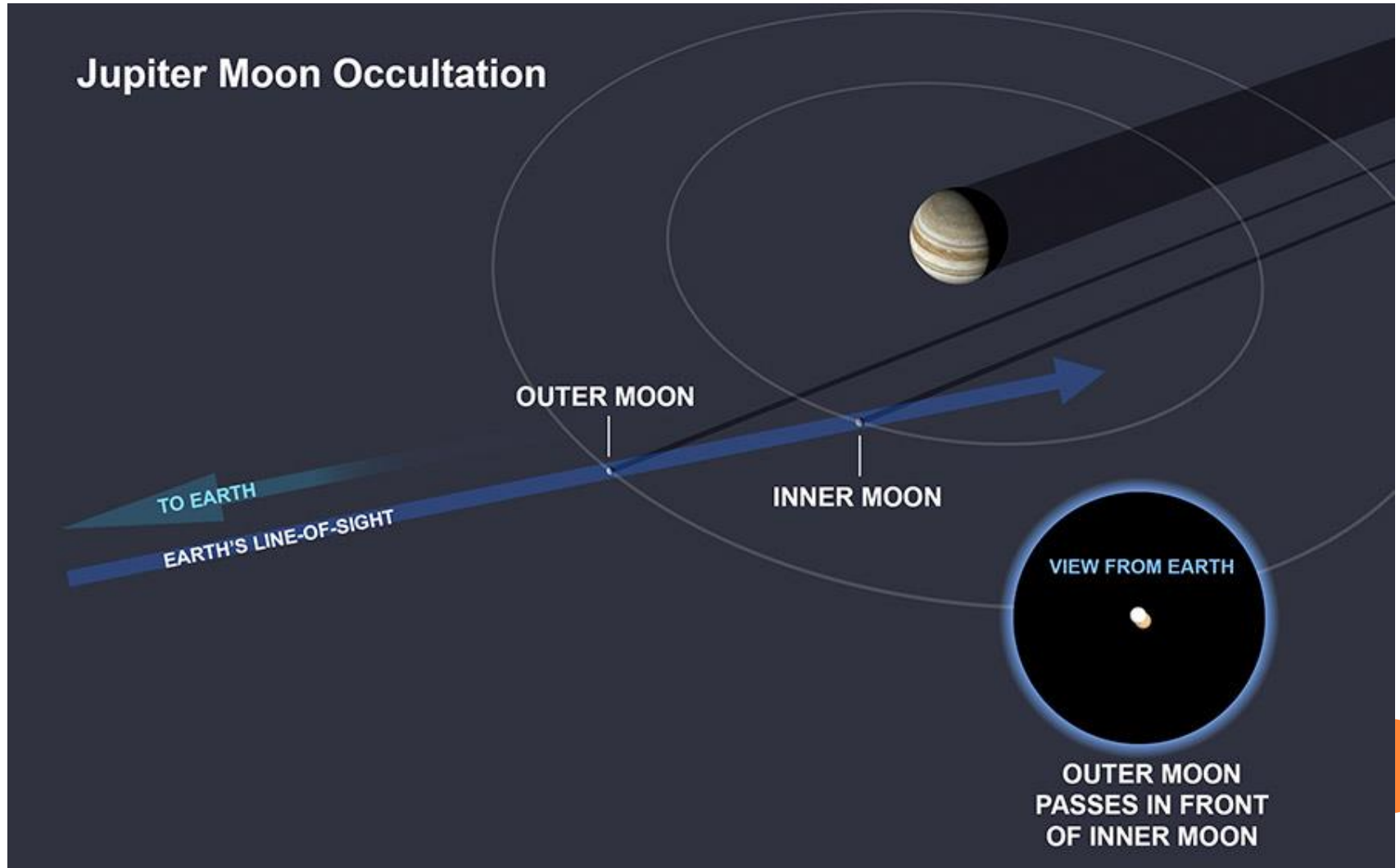
[See](#) Earth-Sun-Jupiter configuration parameters
[See](#) References to the papers on the subject

Comments.
These are ephemerides in the form of a table being immediately appearing in a separate window. They are calculated previously with the main software of the MULTI-SAT server as it is called running by the item **Search for mutual occultations and eclipses and eclipses of satellites by planet.**
The theory by V.Lainey 2.0 is used.
Advantage of this form is that you have immediately ephemerides only for those events which are observed at your observatory.

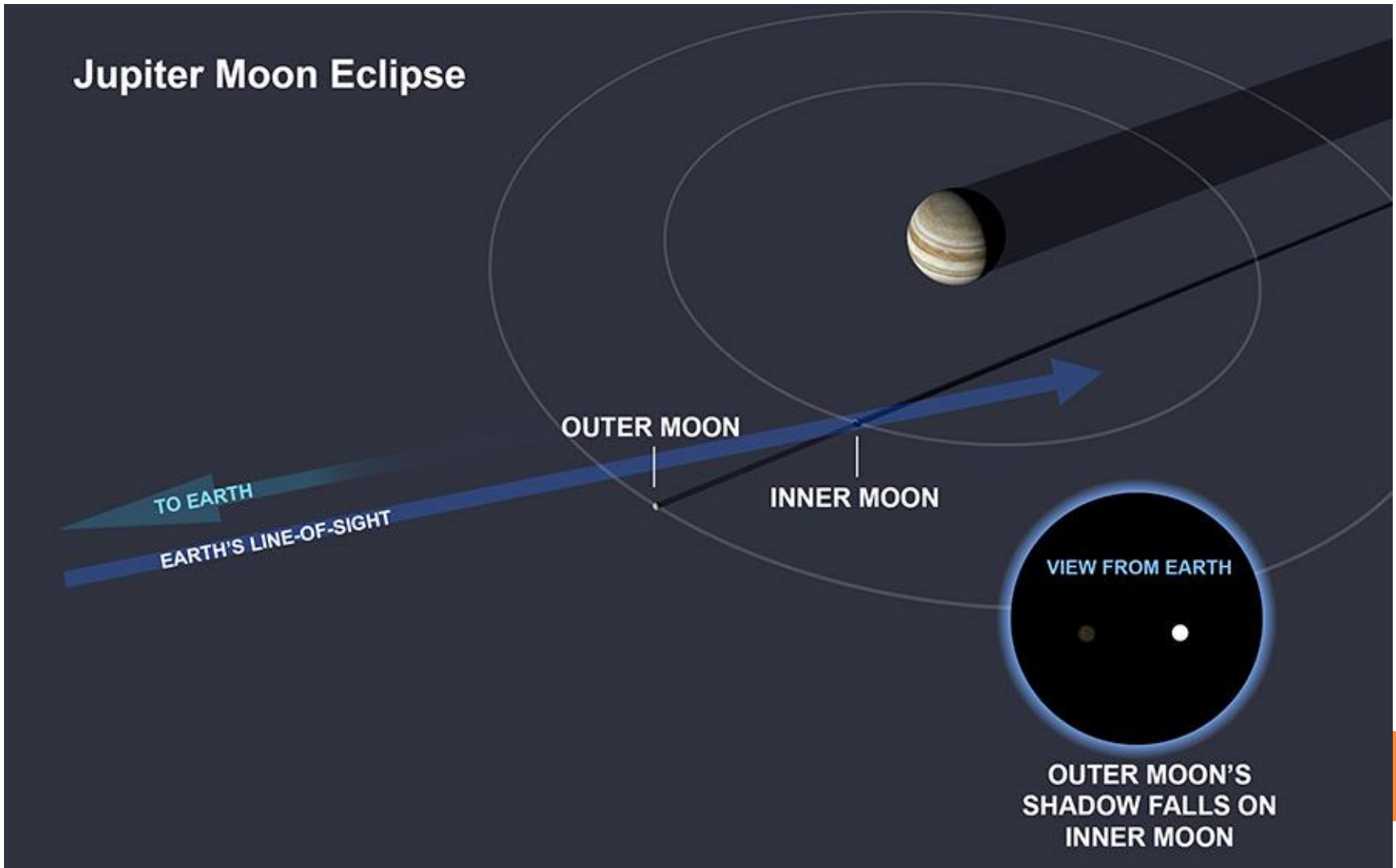
[Copyright](#) | [Objectiv](#) | [How to use](#) | [Sources](#) | [Nomenclature](#) | [Credit](#)



Occultation - zákryt



Eclipse - zatmění



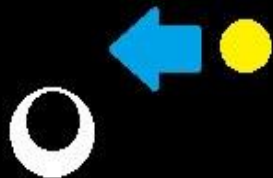
Typy zatmění a zákrytů

Eclipses:

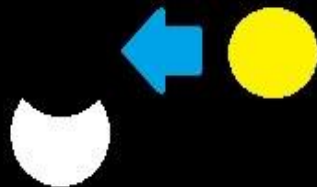
Total-



Annular-

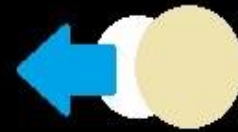


Partial-



Occultations:

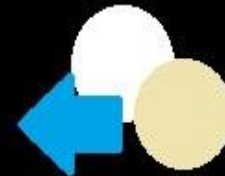
Total-



Annular-



Partial-



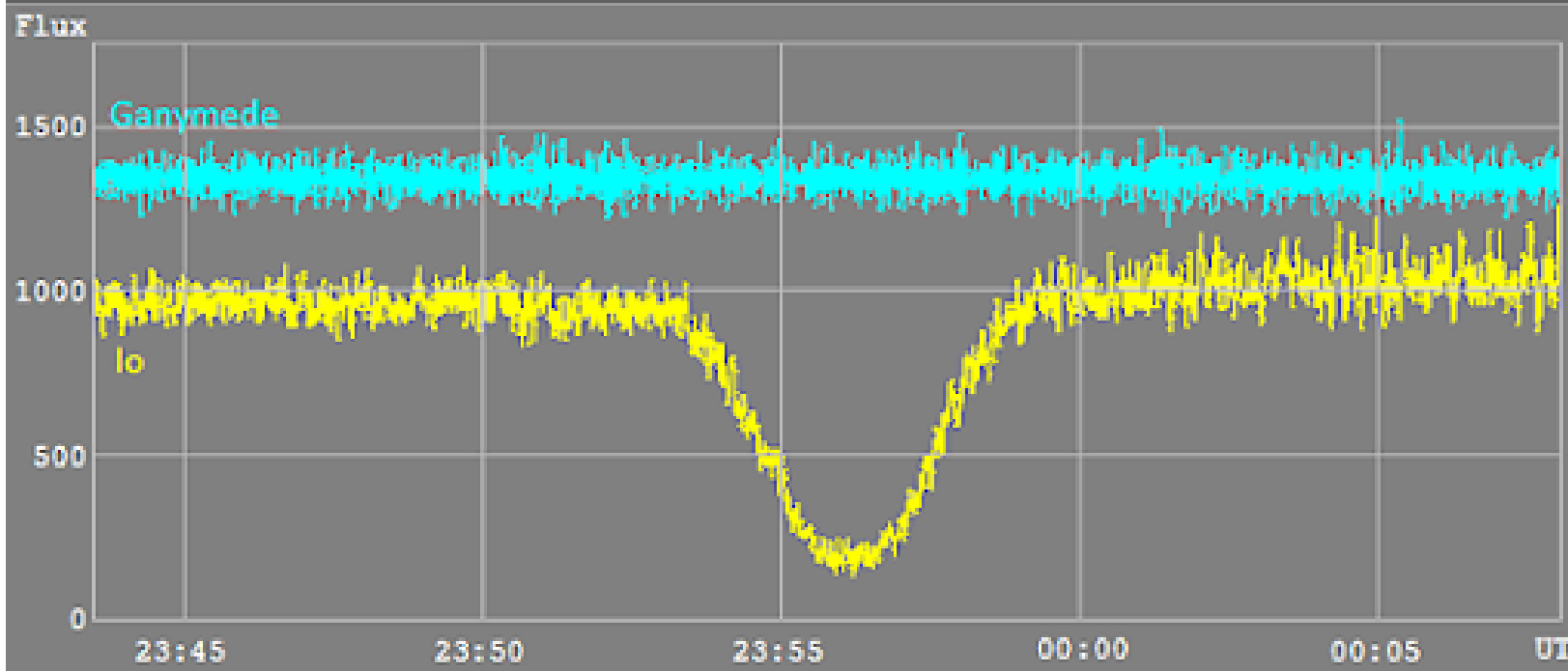
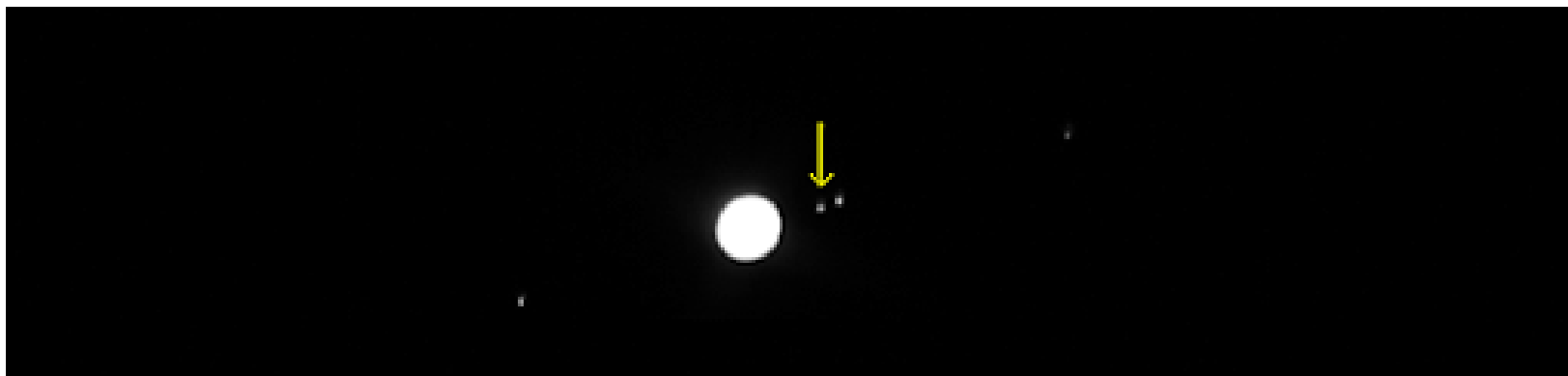
v5.19.11 Planet: Jupiter (INPOP17a)
Observatory N: K61 - Rokycany Observatory
Timescale: UTC
Mean equator and equinox of J2000. ICRF.
Mutual events of satellites:

m	d	h	m	h	m	Type	Dur(m)	Impact	m	Δm	limb(")	dist(")	h(°)	Sun(°)
1	7	16	42	17	07	2E1	24.0	0.057	5.1	0.870	77.00	6.12	0.211	-11.964
4	1	3	37	3	46	3E2	7.7	0.420	4.7	0.465	43.62	55.99	2.660	-10.883
4	27	2	34	2	41	2E3	6.7	0.696	4.6	0.162	51.73	69.46	6.821	-11.381
6	7	1	36	1	42	1E2	4.9	0.648	4.6	0.205	112.72	45.15	19.087	-10.056
6	29	22	00	22	05	1E3	3.8	0.849	4.1	0.054	85.40	72.85	2.082	-15.727
7	1	21	43	21	47	1E2	2.9	0.925	4.4	0.019	127.71	34.82	0.679	-14.968
7	4	0	06	0	10	3E1	3.7	0.896	4.0	0.040	85.08	64.74	20.674	-16.407
7	7	0	47	0	50	1E3	1.8	0.970	4.0	0.005	96.70	65.92	25.231	-14.600
7	9	0	05	0	08	1E2	1.4	0.985	4.4	0.002	130.49	30.49	22.518	-16.963
8	1	22	00	0	06	3O2	124.8	0.997	4.0	0.000	149.17		19.547	-20.845
8	8	20	13	21	19	3E2	65.0	0.635	4.0	0.205	84.22	7.68	10.134	-13.777
8	30	19	2	19	16	3E2	12.6	0.766	4.0	0.120	205.20	13.26	12.708	-11.394



Výsledky měření

fotometrická křivka



Zákryty hvězd tělesy sluneční soustavy (a příbuzné úkazy)

NIKDY NEKONČÍCÍ ZÁBAVA

**Pojďte
pozorovat
s námi**

