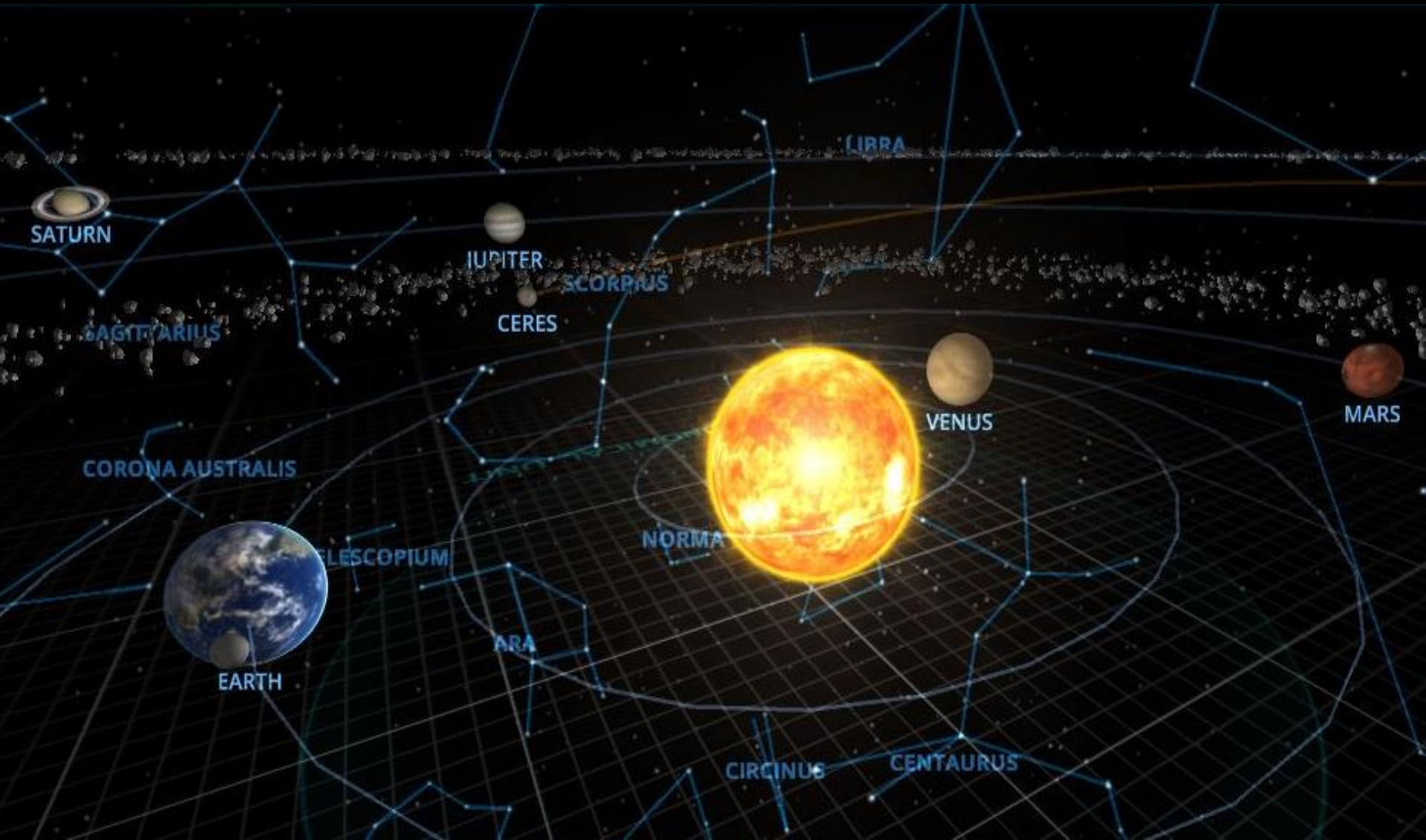


What's Up

Nov - Dec 2020



Inner Planets

Mercury

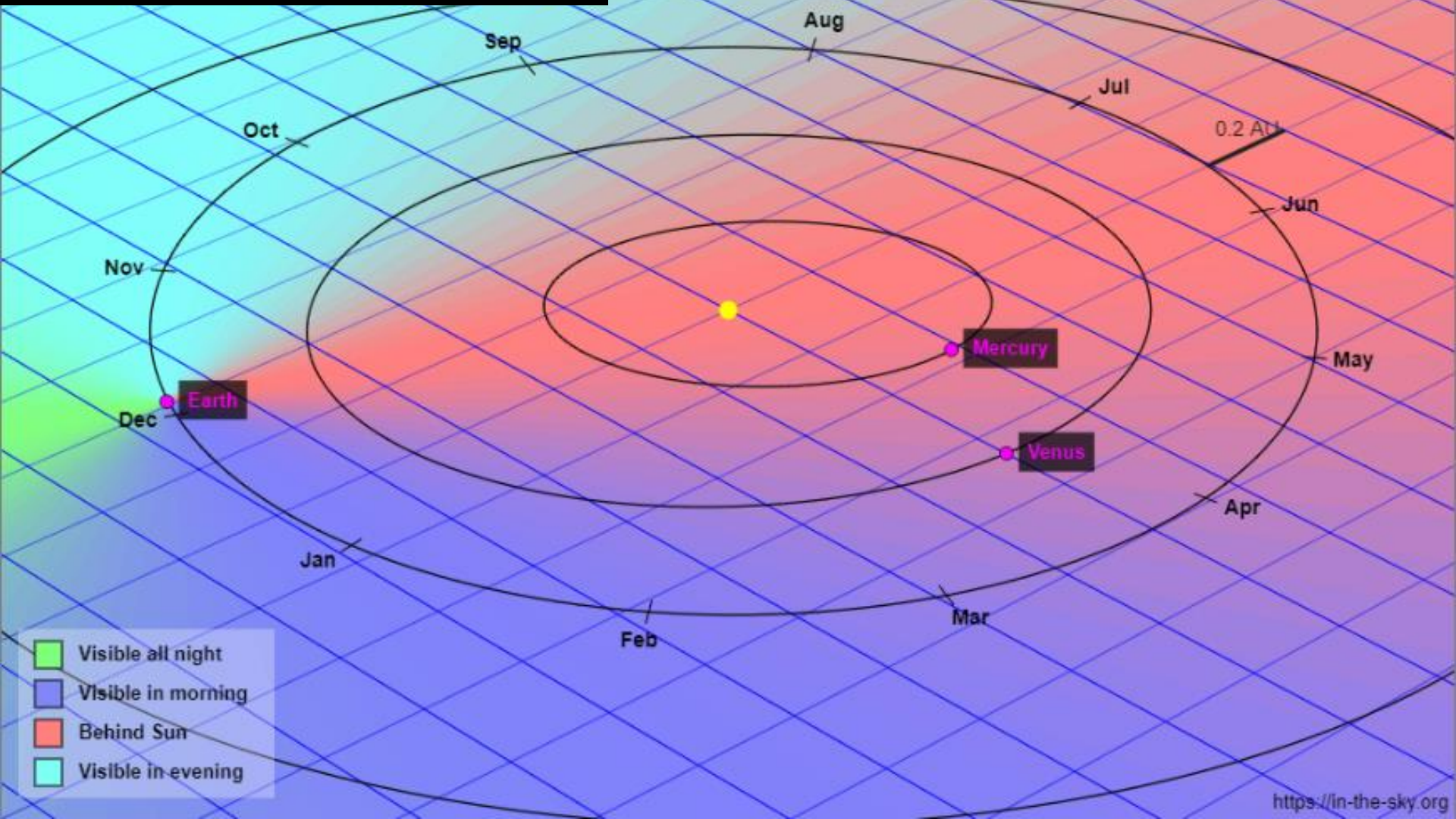


Mercury will pass superior solar conjunction (19 Dec 2020) it will reach its highest point in the sky during daytime and is no higher than 6° above the horizon at dawn.

Venus



Venus visible as a morning object, returning closer to the Sun. It is visible in the dawn sky, rising at 04:57 (EST) – 2 hours and 32 minutes before the Sun – and reaching an altitude of 19° above the south-eastern horizon.



Outer Planets

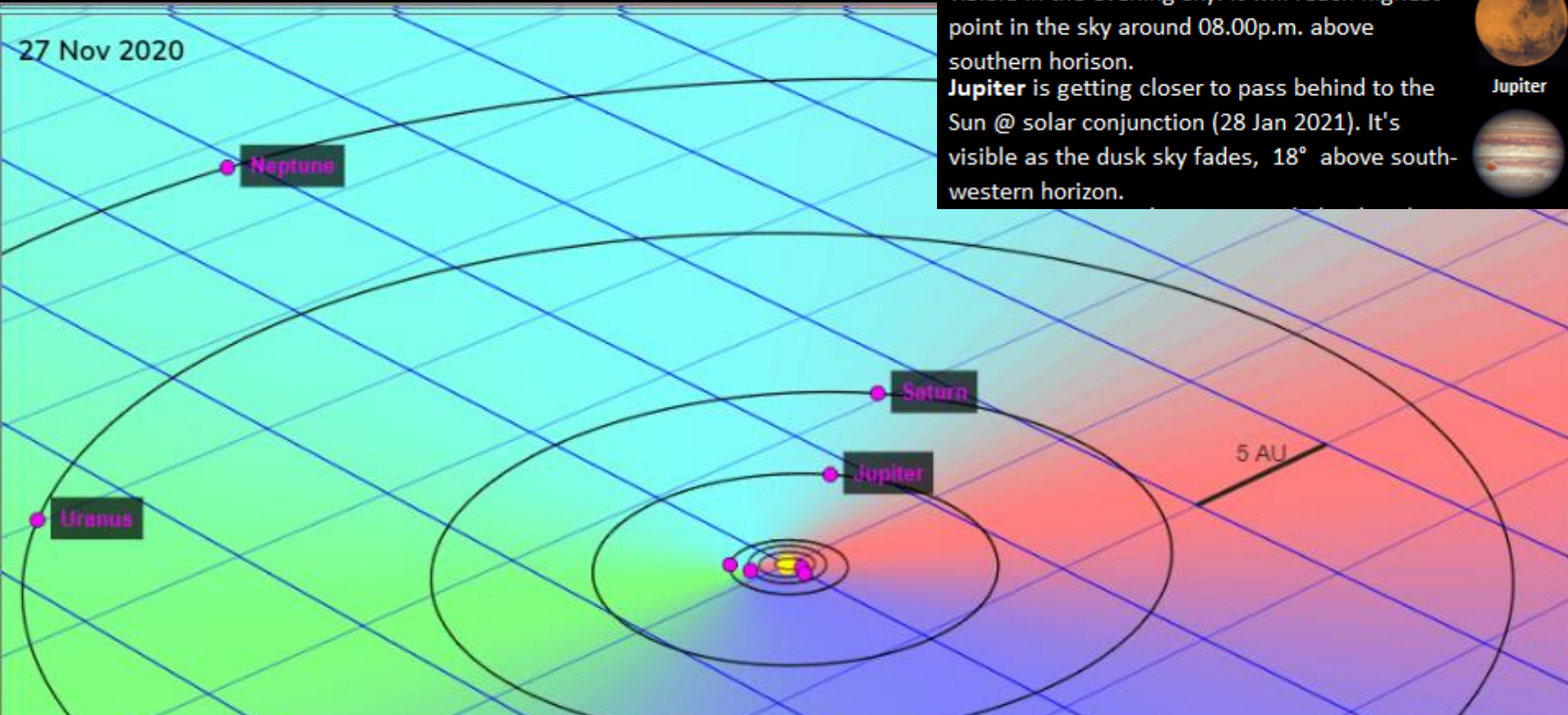
Mars passed opposition in 13 Oct and it's visible in the evening sky. It will reach highest point in the sky around 08.00p.m. above southern horizon.
Jupiter is getting closer to pass behind to the Sun @ solar conjunction (28 Jan 2021). It's visible as the dusk sky fades, 18° above south-western horizon.



Mars

Jupiter

27 Nov 2020



Neptune

Uranus

Saturn

Jupiter

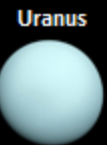
5 AU

Saturn is getting closer to pass behind to the Sun @ solar conjunction (23 Jan 2021). It's visible as the dusk sky fades, 16° above south-western horizon.



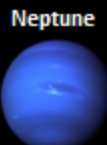
Saturn

Uranus is currently an early evening object. It will becoming accessible ss the dusk sky fades, 41° above your south-eastern horizon.



Uranus

Neptune is currently an early evening object. It will becoming accessible ss the dusk sky fades, 40° above your south-eastern horizon.

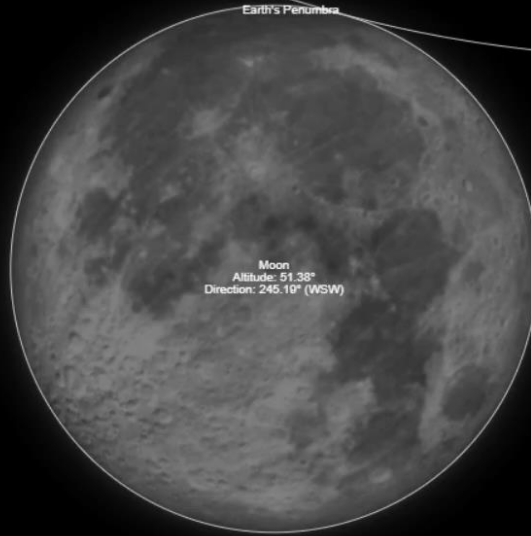


Neptune

- Visible all night
- Visible in morning
- Behind Sun
- Visible in evening



Month Dec	Day 15	Year 2020						
	Right Ascension	Declination	Rise	Culm	Set	Approx Mag.	Observable	Constellation
Sun	17h30m18s	-23°15'39"	7:50	12:18	16:45	-26.70		Ophiuchus
Moon	17h49m11s	-24°08'26"	8:13	12:37	17:00	-5.7	Not observable	Sagittarius
Mercury	17h17m34s	-24°04'28"	7:41	12:05	16:29	-1.2	Not observable	Ophiuchus
Venus	15h47m46s	-18°38'40"	5:46	10:35	15:24	-4	06:41 until 07:28	Libra
Mars	01h15m11s	+08°26'31"	13:26	20:01	2:41	-0.7	17:11 until 01:50	Pisces
Jupiter	20h03m52s	-20°52'31"	10:12	14:51	19:30	-2	17:07 until 18:33	Sagittarius
Saturn	20h06m55s	-20°37'12"	10:14	14:54	19:34	0.6	17:28 until 18:14	Sagittarius
Uranus	02h18m32s	+13°21'22"	14:09	21:05	4:04	5.7	18:02 until 02:01	Aries
Neptune	23h17m22s	-05°45'55"	12:23	18:04	23:45	7.9	18:02 until 21:32	Aquarius

Month Jan	Day 15	Year 2021						
	Right Ascension	Declination	Rise	Culm	Set	Approx Mag.	Observable	Constellation
Sun	19h46m46s	-21°10'17"	7:54	12:32	17:10	-26.70		Sagittarius
Moon	21h25m09s	-19°48'27"	9:26	14:10	18:54	-9.2	17:31 until 17:58	Capricornus
Mercury	20h52m33s	-19°15'00"	8:51	13:38	18:24	-0.9	Not observable	Capricornus
Venus	18h33m25s	-23°09'03"	6:51	11:19	15:47	-3.9	Not observable	Sagittarius
Mars	02h03m40s	+13°43'41"	11:51	18:48	1:49	0.1	17:44 until 00:47	Aries
Jupiter	20h33m00s	-19°19'17"	8:32	13:18	18:04	-1.9	Not observable	Capricornus
Saturn	20h21m26s	-19°53'01"	8:23	13:06	17:50	0.6	Not observable	Capricornus
Uranus	02h17m01s	+13°14'36"	12:06	19:01	2:00	5.8	18:24 until 23:52	Aries
Neptune	23h19m22s	-05°32'22"	10:22	16:04	21:46	7.9	18:24 until 19:34	Aquarius

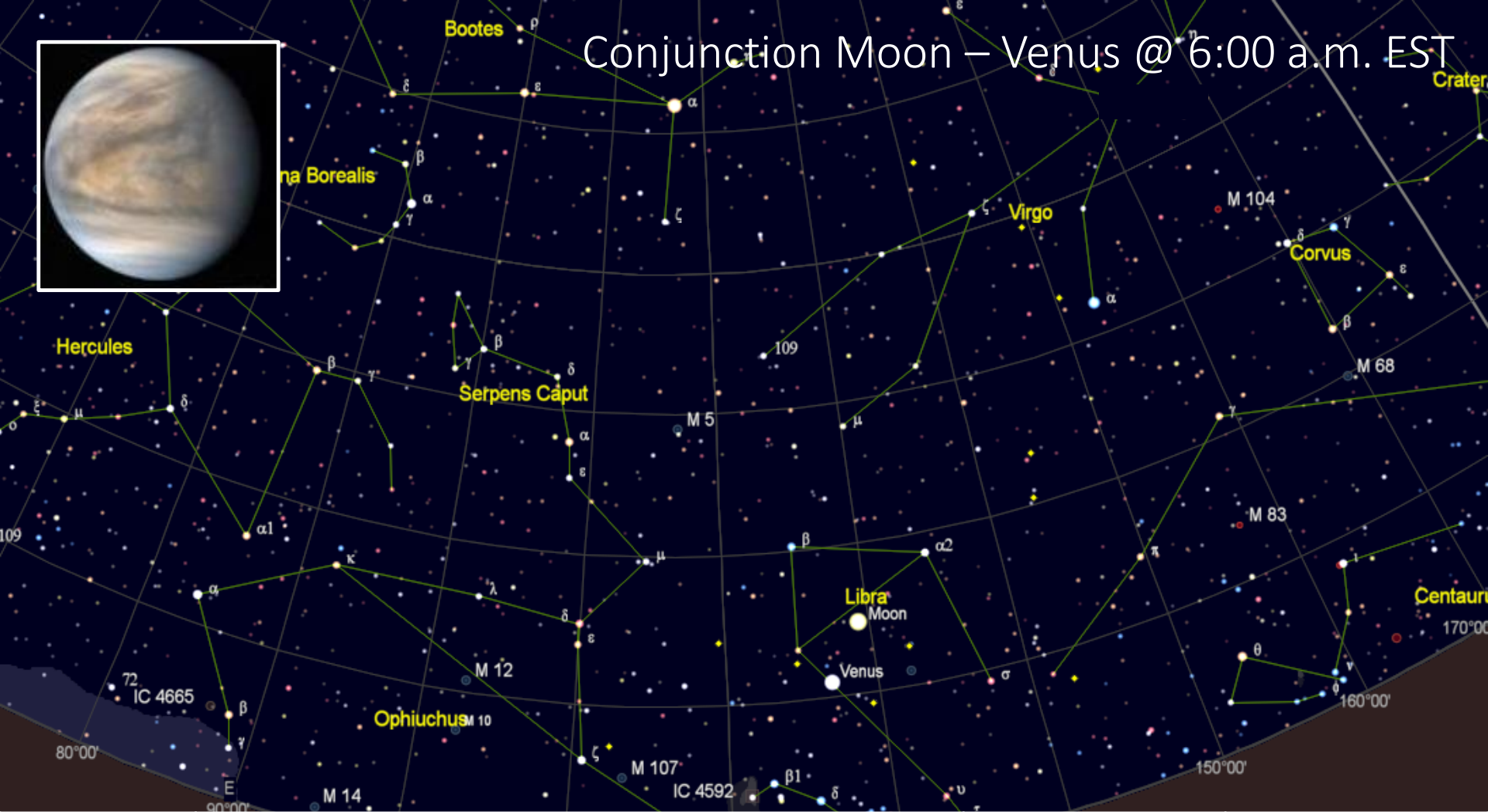
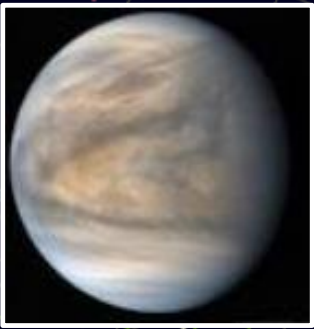


LIVE

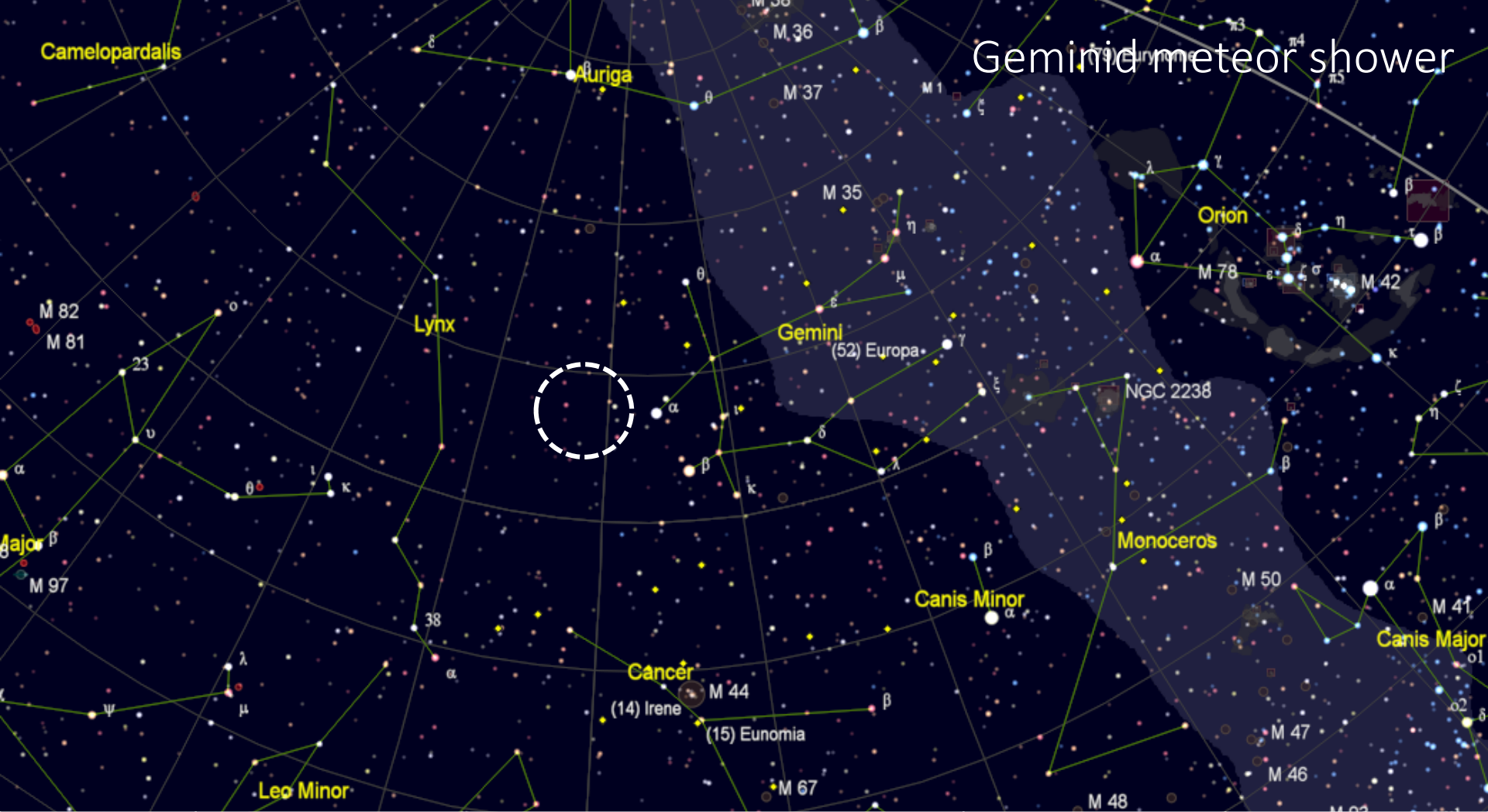




Date	Event	Sun 		Moon 100% 	
Monday Nov 30 2020	Penumbral lunar eclipse from 02:33 EST to 06:54 EST. Maximum will be @ 04:44 EST	Rise 07:30 am	Set 04:42 pm	Rise 05:04 pm	Set 07:23 am

Conjunction Moon – Venus @ 6:00 a.m. EST

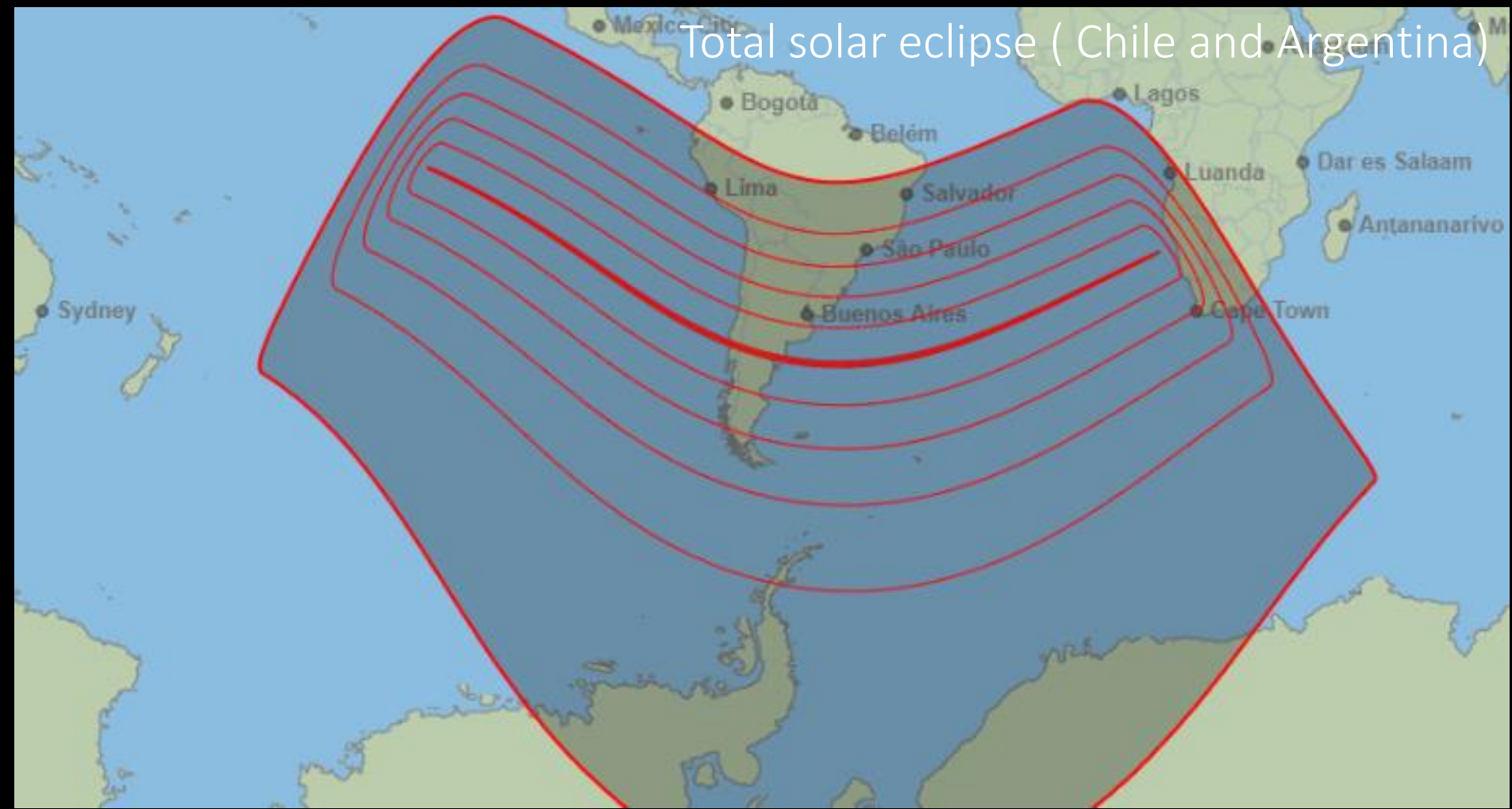



Date	Event	Sun		Moon 4%	
		Rise	Set	Rise	Set
Saturday Dec 12 2020	Conjunction Moon (mag -9.4) and Venus (mag -4.0) @ 03:40 p.m. EST in constellation Libra. Moon passing 0°47' to the north of Venus.	07:42 am	04:40 pm	05:15 am	03:18 pm
				Waning Crescent	



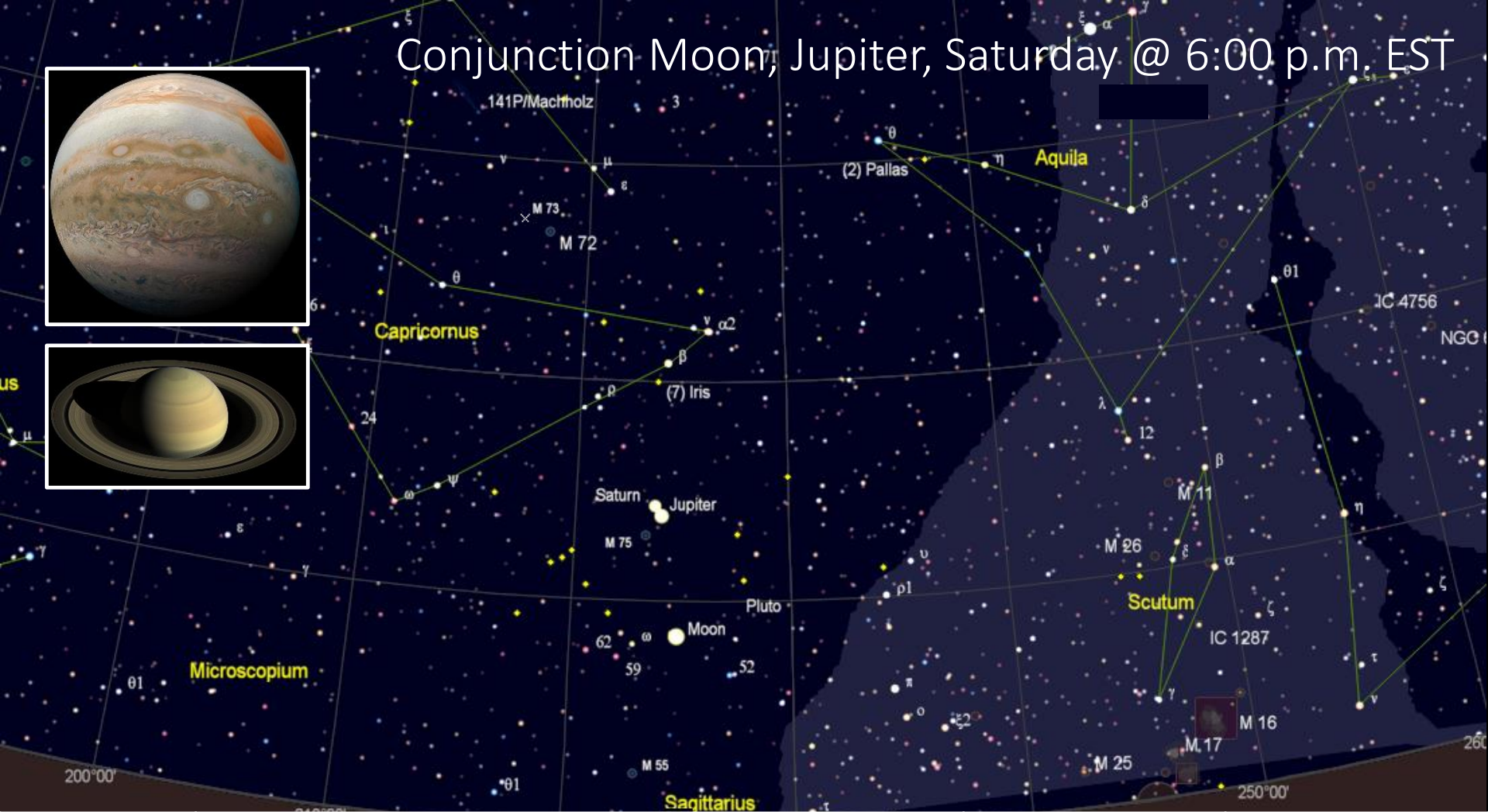
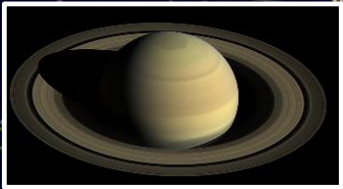
Date	Event	Sun 		Moon 0% 	
Saturday Dec 13~14 2020	Geminid meteor shower active from Dec 4 to Dec 17. Estimated 120 meteors per hour during the peak. Geminid is associated to asteroid 3200 Phaethon. Asteroid orbit 1.4 years the Sun.	Rise 07:44 am	Set 04:41 pm	Rise 07:47 am	Set 04:39 pm
				Waning Crescent	

Total solar eclipse (Chile and Argentina)



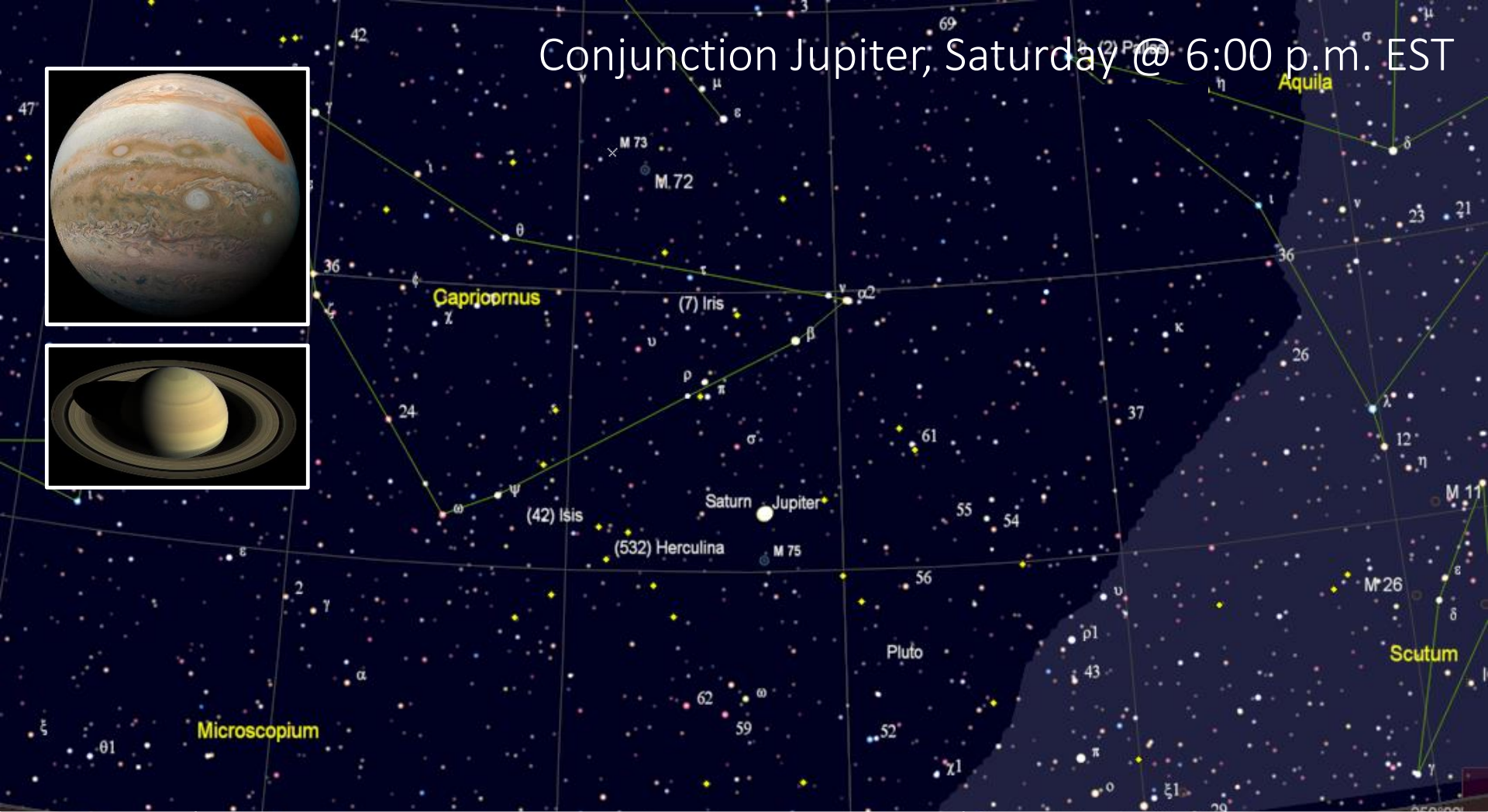
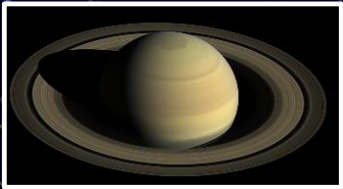
Date	Event	Sun 		Moon 100% 	
Monday Dec 14 2020	Total solar eclipse from 08:34 EST to 01:53 EST, visible from Chile and Argentina.	Rise 07:30 am	Set 04:42 pm	Rise 05:04 pm	Set 07:23 am
				Full	

Conjunction Moon, Jupiter, Saturday @ 6:00 p.m. EST



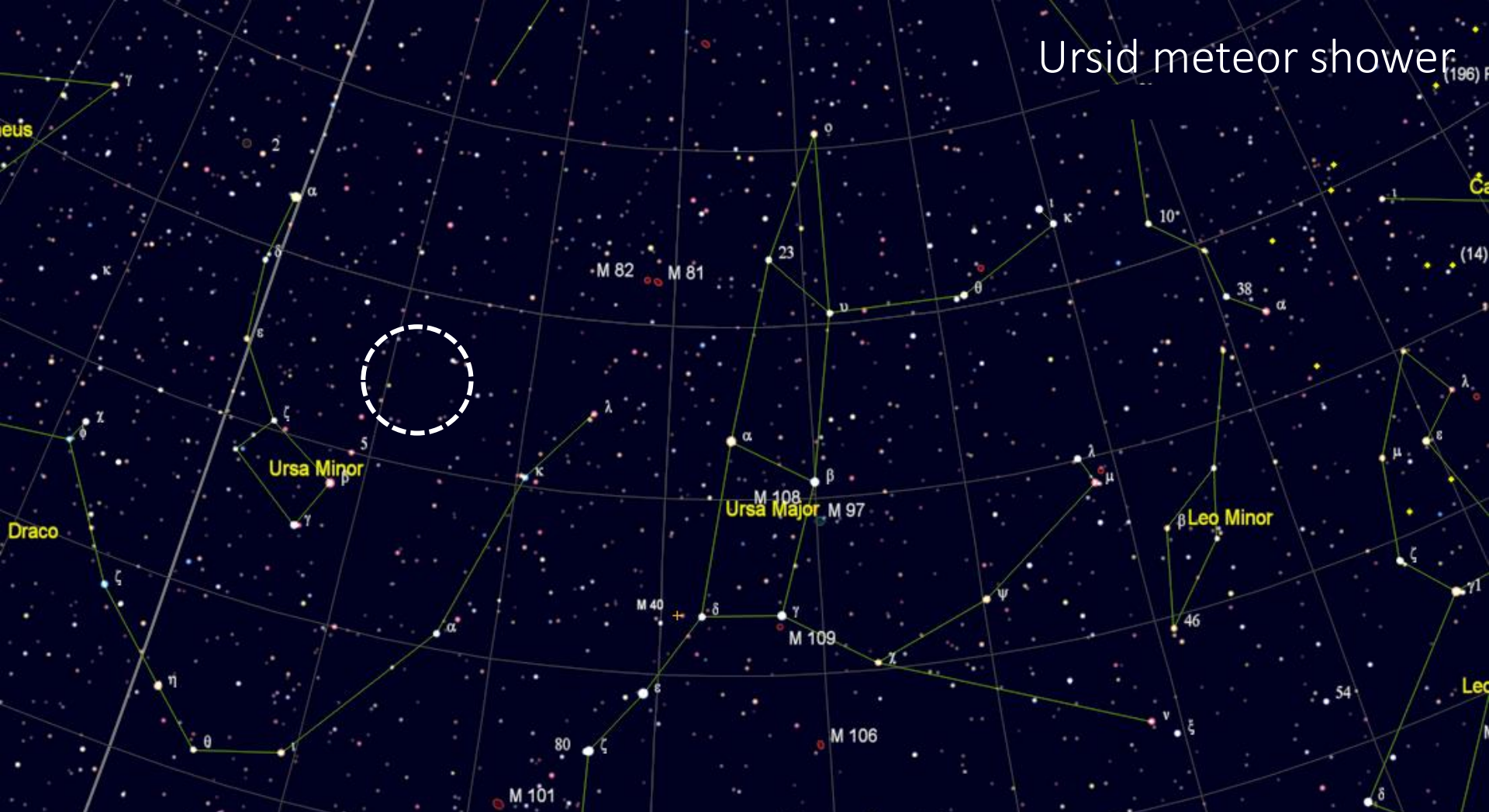
Date	Event	Sun		Moon 8%	
		Rise	Set	Rise	Set
Wednesday Thursday Dec 16-17 2020	Conjunction Moon (mag -10) ~ Jupiter (mag -2) @ 11:30 p.m. EST ; ~ Saturn (mag 0.5) @ 00:20 a.m. EST ; in constellation Sagittarius. Moon passing 2°55' to the south of Jupiter and 3°05' to the south of Saturn;	07:45 am	04:41 pm	09:56 am	06:38 pm
				Waxing Crescent	



Conjunction Jupiter, Saturday @ 6:00 p.m. EST



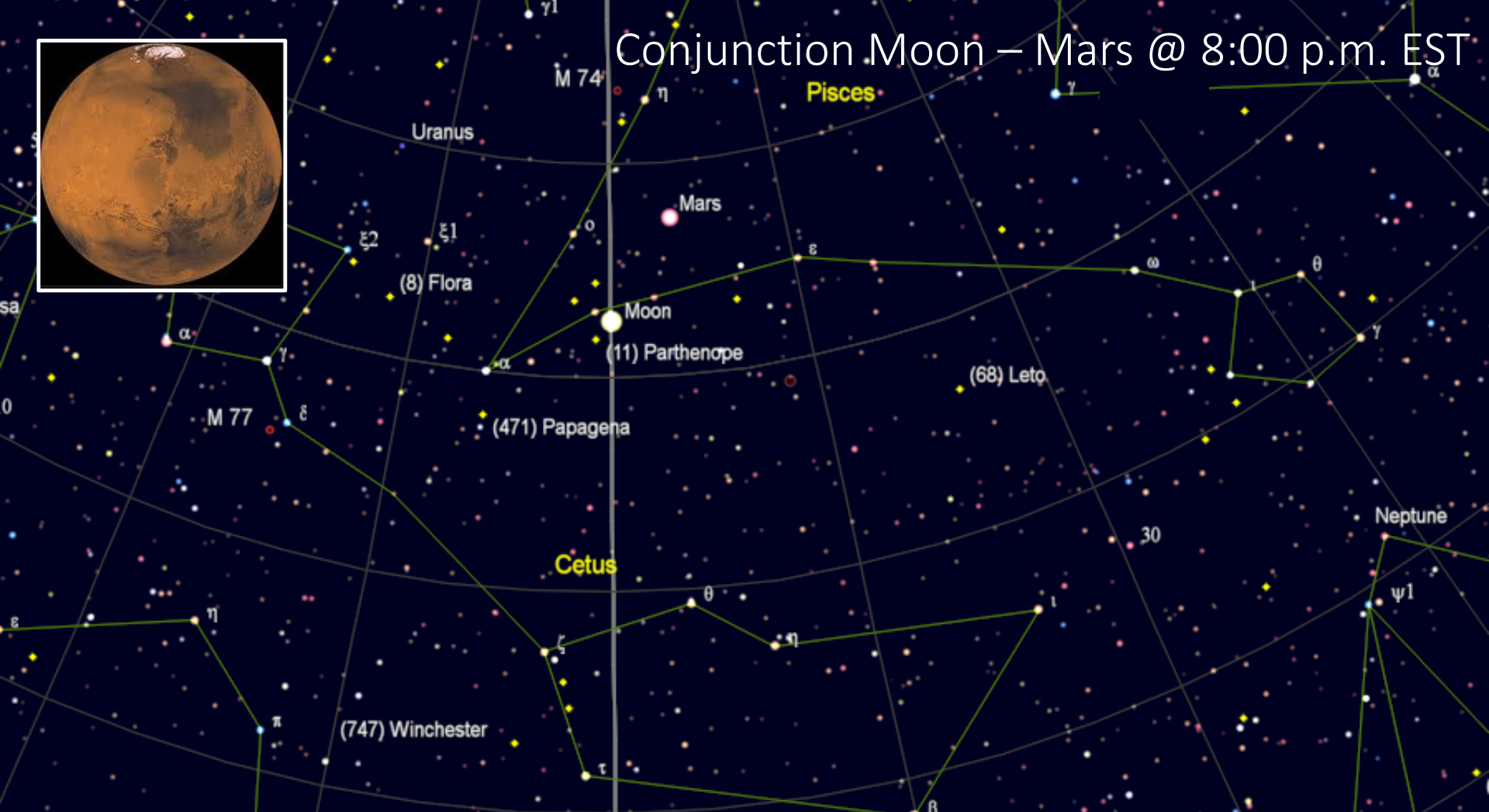
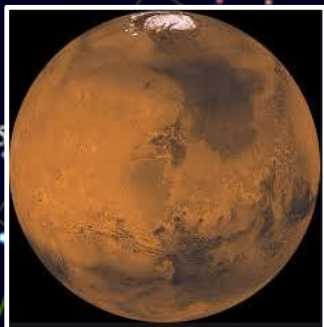
Date	Event	Sun		Moon 45%	
		Rise	Set	Rise	Set
Monday Dec 21 2020	Conjunction Jupiter (mag -2) ~ Saturn (mag 0.5) @ 08:24 a.m. EST ; in constellation Capricornus. Jupiter passing 0°06' to the south of Saturn;	07:48 am	04:43 pm	12:40	00:06 am
				Waxing Crescent	



Ursid meteor shower



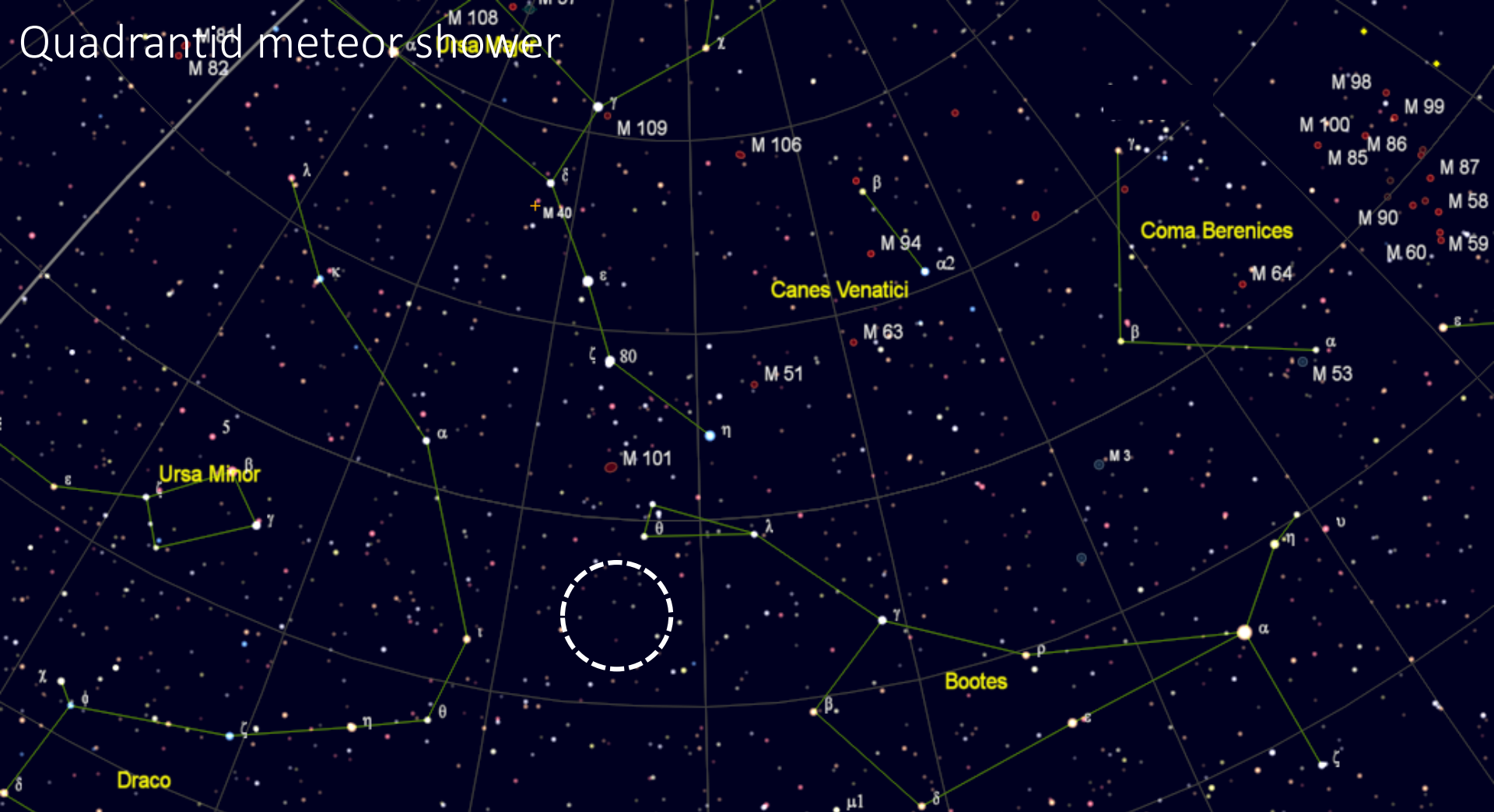
Date	Event	Sun 		Moon 55% 	
Tuesday Dec 22 2020	Ursid meteor shower active from Dec 17 to Dec 26. Estimated 10 meteors per hour during the peak. Parent is.	Rise 07:48 am	Set 04:44 pm	Rise 01:00 pm	Set 00:07 am
				Waxing Gibbous	



Conjunction Moon – Mars @ 8:00 p.m. EST



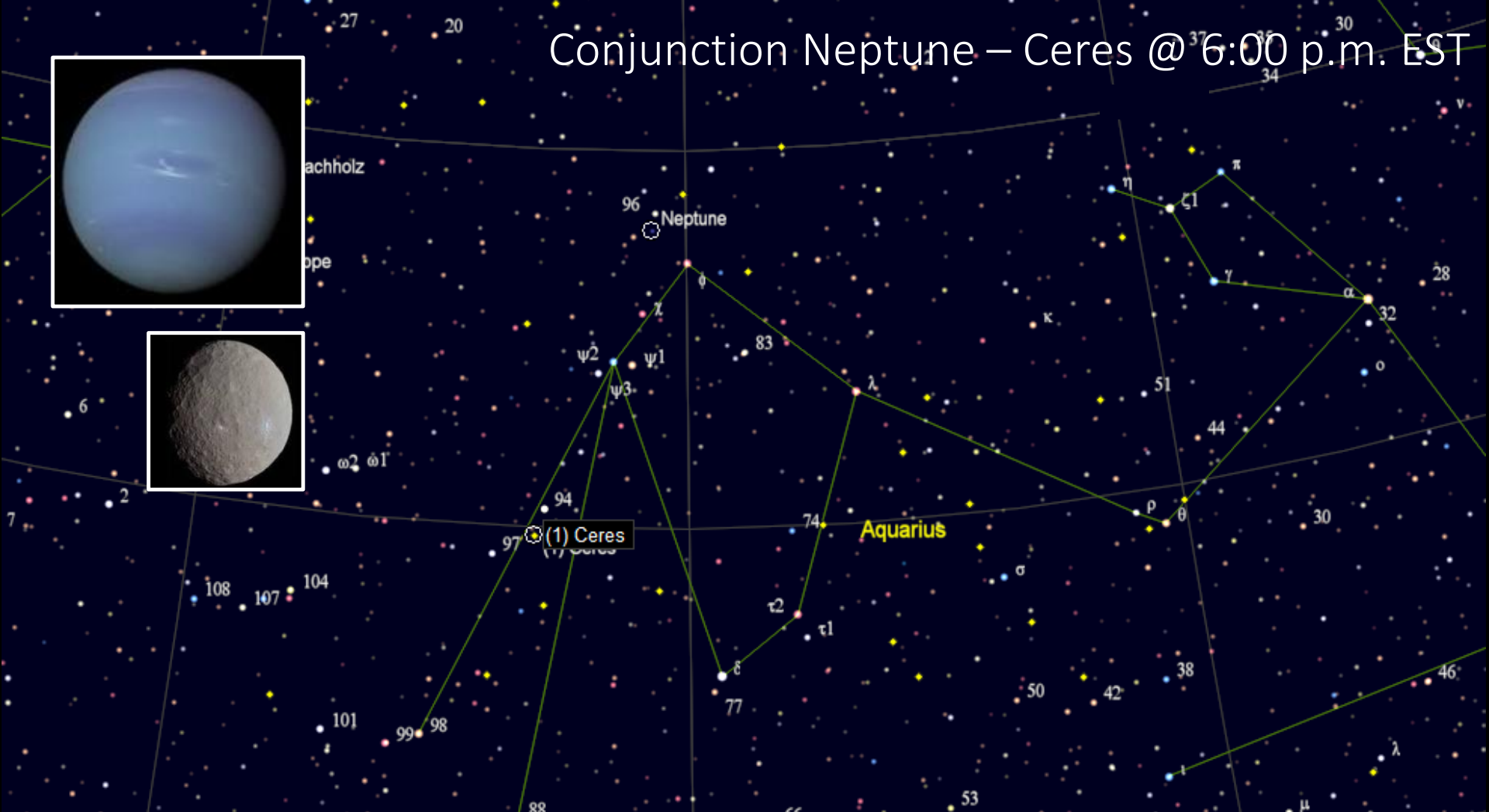
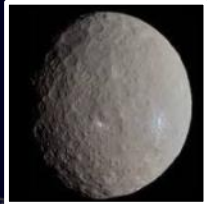
Date	Event	Sun 		Moon 66% 	
Wednesday Dec 23 2020	Conjunction Moon (mag -12.1) and Mars (mag -0.5) @ 01:31 p.m. EST in constellation Pisces. Moon passing 5°34' to the south of Mars.	Rise 07:50 am	Set 04:44 pm	Rise 01:20 pm	Set 01:09 am
				Waxing Gibbous	

Quadrantid meteor shower



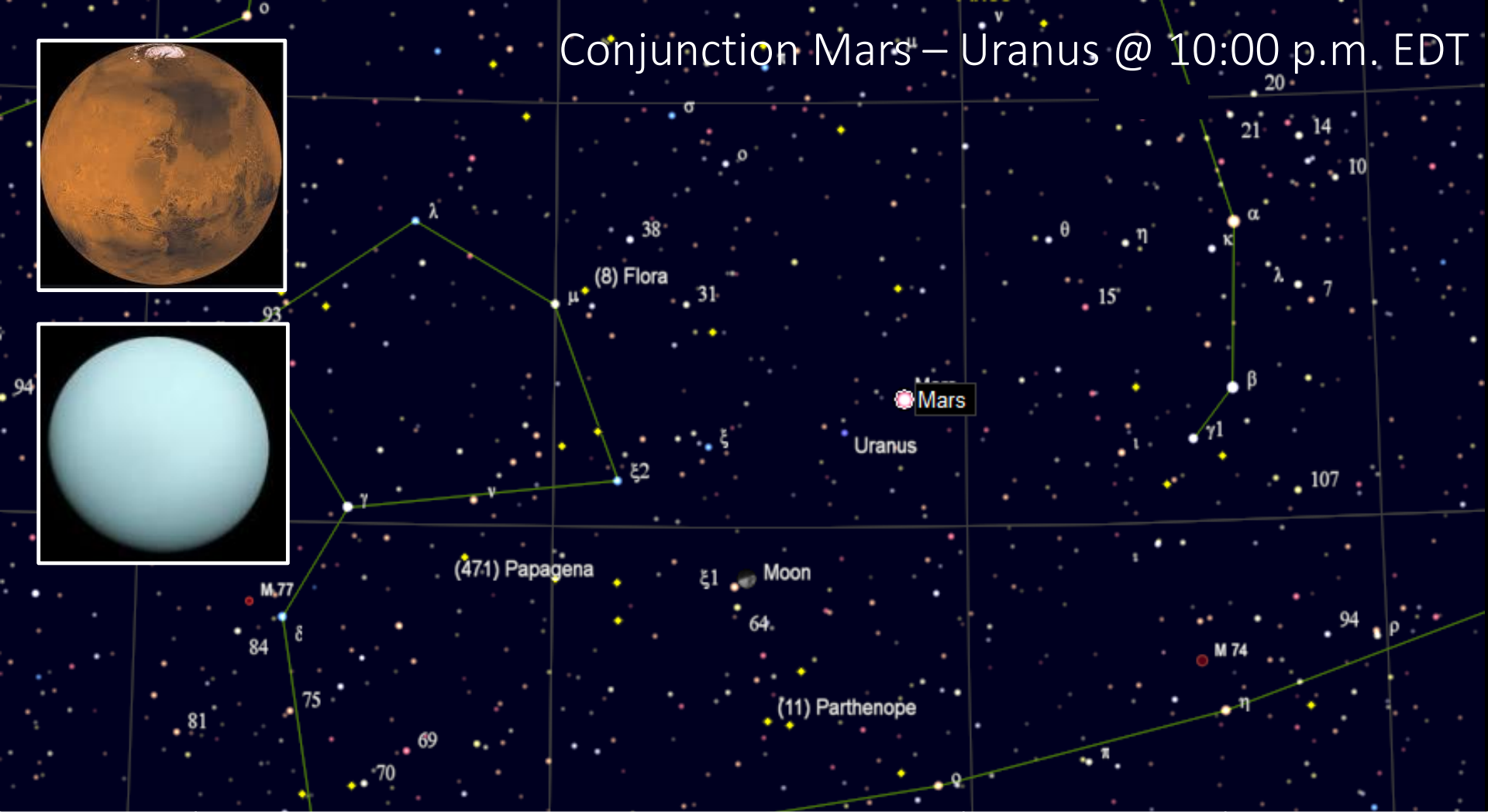
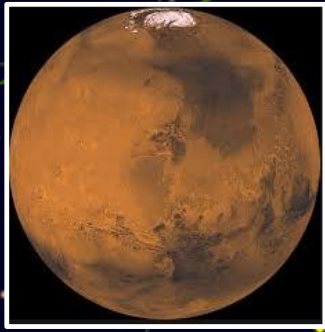
Date	Event	Sun 		Moon 75% 	
Sunday Jan 03 ~ 04 2021	Quadrantid meteor shower active from Dec 12 to Jan 12. Estimated 120 meteors per hour during the peak around 4 a.m.. Parent is asteroid 2003 EH1.	Rise 07:51 am	Set 04:54 pm	Rise 10:05 pm	Set 11:02 am
				Waning Gibbous	

Conjunction Neptune – Ceres @ 6:00 p.m. EST



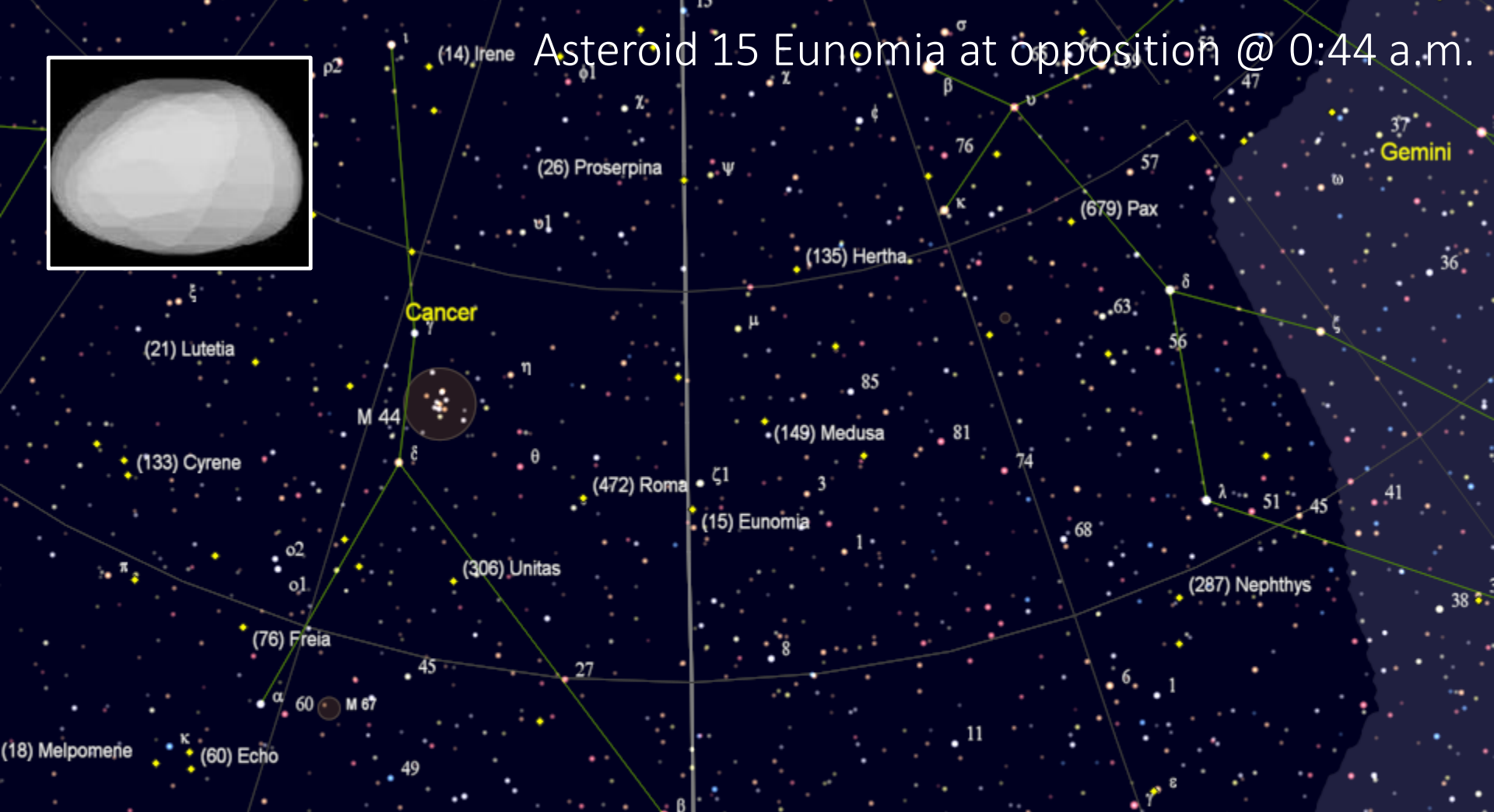
Date	Event	Sun		Moon 8%	
		Rise	Set	Rise	Set
Sunday Jan 10 2021	Conjunction Neptune (mag 7.9) and Ceres (mag 9.4) @ 11:37 a.m. EST in constellation Aquarius. Neptune passing 8°37' to the north of Ceres. Both are at the same right ascension.	07:50 am	05:00 pm	05:25 am	02:30 pm
				Waning Crescent	



Conjunction Mars – Uranus @ 10:00 p.m. EDT



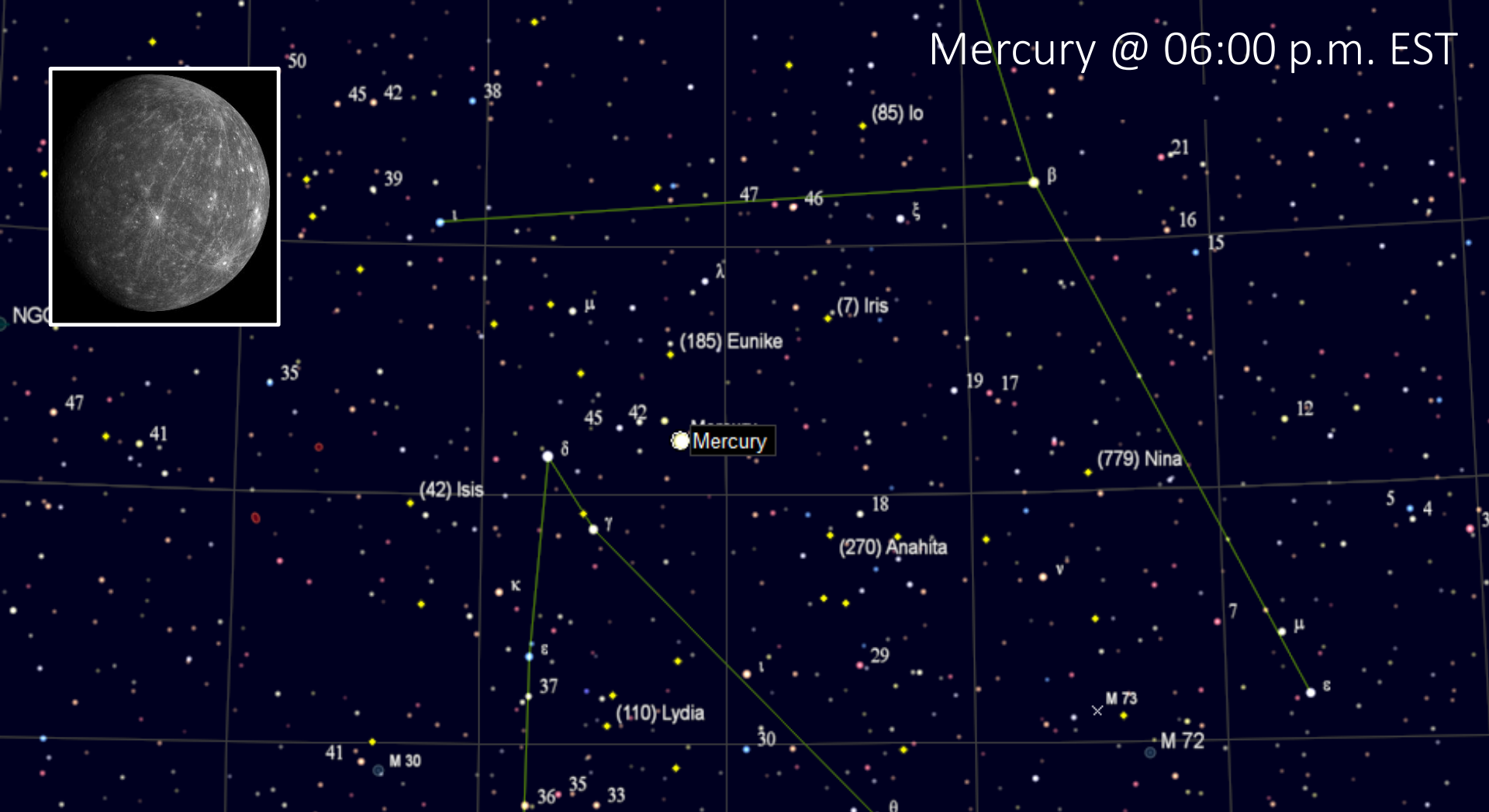
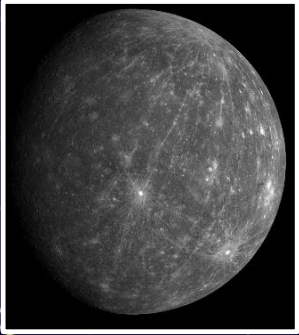
Date	Event	Sun		Moon 53%	
		Rise	Set	Rise	Set
Thursday Jan 21 2021	Conjunction Mars (mag 0.2) and Uranus (mag 5.8) @ 06:34 p.m. EST in constellation Aries. Mars passing 1°44' to the north of Uranus.	07:44 am	05:14 pm	12:07 pm	00:55 am
				Waxing Gibbous	



Asteroid 15 Eunomia at opposition @ 0:44 a.m.



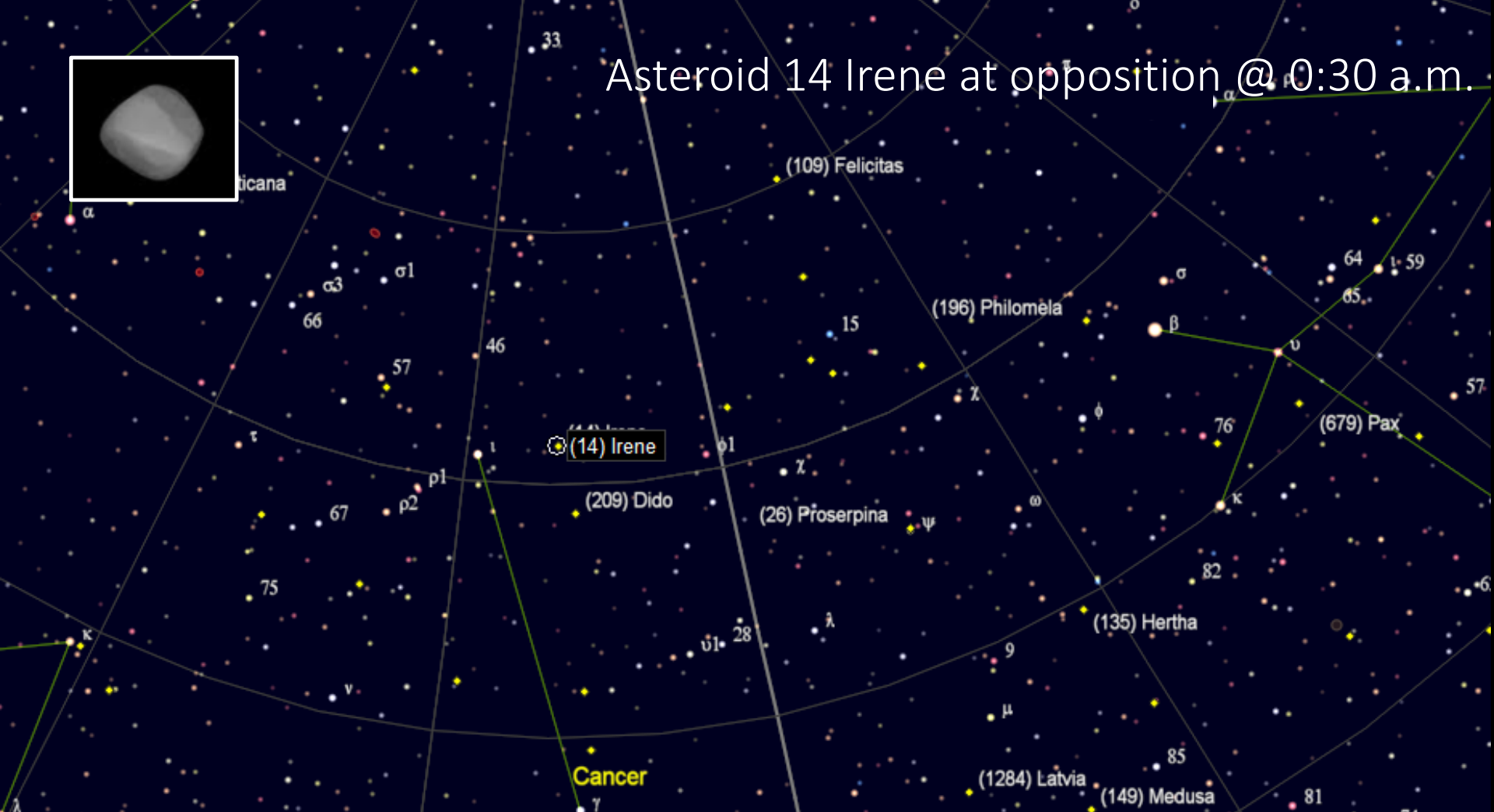
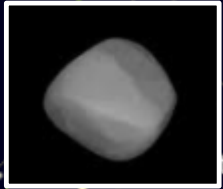
Date	Event	Sun 		Moon 53% 	
Thursday Jan 21 2021	Asteroid 15 Eunomia (mag 8.4) will be well placed in constellation Cancer. Highest point @ 00:44 a.m. EST, 63° above southern horizon.	Rise 07:44 am	Set 05:14 pm	Rise 12:07 pm	Set 00:55 am
				Waxing Gibbous	



Mercury @ 06:00 p.m. EST



Date	Event	Sun 		Moon 78% 	
Saturday Jan 23 2021	Mercury (mag -0.7) greatest elongation east @ 08:59 a.m. EST in constellation Capricornus. (15° above horizon).	Rise 07:45 am	Set 05:17 pm	Rise 01:04 pm	Set 02:58 am
				Waxing Gibbous	

Asteroid 14 Irene at opposition @ 0:30 a.m.



Date	Event	Sun 		Moon 82% 	
Sunday Jan 24 2021	Asteroid 14 Irene (mag 9.3) will be well placed in constellation Cancer. Highest point @ 00:44 a.m. EST, 73° above southern horizon.	Rise 07:42 am	Set 05:16 pm	Rise 01:41 pm	Set 03:59 am
				Waxing Gibbous	

Messier List

OBJ	TYPE	CON	Constalation	RA	DEC	MAG		Best to see as 9P
M31	GAL	And	Andromeda	00:42.7	+41:16	3.4	easy	November
M32	GAL	And	Andromeda	00:42.7	+40:52	8.1	easy	November
M110	GAL	And	Andromeda	00:40.4	+41:41	8.1	hard	November
M74	GAL	Psc	Pisces	01:36.7	+15:47	9.4	very hard	November
M77	GAL	Cet	Cetus	02:42.7	-00:01	8.9	moderate	December
M34	OCL	Per	Perseus	02:42.0	+42:47	5.2	easy	December
M76	PLN	Per	Perseus	01:42.4	+51:34	10.1	moderate	December
M33	GAL	Tri	Triangulum	01:33.9	+30:39	5.7	hard	December
M42	C/N	Ori	Orion	05:35.4	-5:27	4	very easy	January
M43	C/N	Ori	Orion	05:35.6	-5:16	9	easy	January
M78	NEB	Ori	Orion	05:46.7	+00:03	8	moderate	January
M1	SNR	Tau	Taurus	05:34.5	+22:01	8.4	moderate	January
M45	OCL	Tau	Taurus	03:47.0	+24:07	1.2	very easy	January
M52	OCL	Cas	Cassiopeia	23:24.2	+61:35	6.9	easy	Circumpolar
M103	OCL	Cas	Cassiopeia	01:33.2	+60:42	7.4		Circumpolar
M102	GAL	Dra	Draco	15:06.5	+55:46	9.9		Circumpolar
M40	OTH	UMa	Ursa Major	12:22.3	+58:05	9.1	easy	Circumpolar
M81	GAL	UMa	Ursa Major	09:55.6	+69:04	6.9	easy	Circumpolar
M82	GAL	UMa	Ursa Major	09:55.8	+69:41	8.4	easy	Circumpolar
M97	PLN	UMa	Ursa Major	11:14.8	+55:01	9.9	very hard	Circumpolar
M101	GAL	UMa	Ursa Major	14:03.2	+54:21	7.9	very hard	Circumpolar
M108	GAL	UMa	Ursa Major	11:11.5	+55:40	10	hard	Circumpolar
M109	GAL	UMa	Ursa Major	11:57.6	+53:23	9.8	hard	Circumpolar

What's Up 2020

Objects under City view

Object	Const.	Type	RA	Dec.	Mag(s).	Best to see
g And	And	DS	2h 03.9m	+42° 20'	2.1, 4.8	November
M31	And	GX	0h 42.7m	+41° 16'	3.5	November
NGC 7662	And	PN	23h 25.9m	+42° 33'	8.3	November
NGC 253	ScI	GX	0h 47.6m	-25° 17'	7.1	November
g Ari	Ari	DS	1h 53.5m	+19° 18'	3.9, 3.9	December
32 Eridani	Eri	DS	3h 54.3m	-2° 57'	4.7, 5.9	December
q Eri	Eri	DS	2h 58.3m	-40° 18'	3.2, 4.1	December
M34	Per	OC	2h 42.1m	+42° 45'	5.2	December
NGC 869/884	Per	OC	2h 21.0m	+57° 08'	4.3, 4.4	December
Betelgeuse	Ori	Star	5h 55.3m	+7° 24'	0.5	January
M42	Ori	NB	5h 35.4m	-5° 27'	3.7	January
Rigel	Ori	DS	5h 14.7m	-8° 12'	0.1, 6.8	January
s Ori	Ori	MS	5h 38.7m	-2° 36'	3.7, 6.3, 6.7, 8.8	January
Aldebaran	Tau	Star	4h 36.1m	+16° 31'	0.9	January
Hyades	Tau	OC	4h 20m	+16° 	—	January
M1	Tau	NB	5h 34.5m	+22° 01'	8.4	January
M45	Tau	OC	3h 47.0m	+24° 07'	1.5	January
h Cas	Cas	DS	0h 49.1m	+57° 49'	3.5, 7.2	Circumpolar
i Cas	Cas	MS	2h 29.1m	+67° 24'	4.5, 6.9	Circumpolar
s Cas	Cas	DS	23h 59.0m	+55° 45'	5.0, 7.1	Circumpolar
n Dra	Dra	DS	17h 32.2m	+55° 11'	4.9, 4.9	Circumpolar
NGC 6543	Dra	PN	17h 58.6m	+66° 38'	8.1	Circumpolar
M81	UMa	GX	9h 55.6m	+69° 04'	6.9	Circumpolar
M82	UMa	GX	9h 55.8m	+69° 41'	8.4	Circumpolar
Mizar	UMa	DS	13h 23.9m	+54° 56'	2.2, 3.9	Circumpolar
x Uma	UMa	DS	11h 18.2m	+31° 32'	4.3, 4.8	Circumpolar

X = Galaxy; GC = Globular cluster; OC = Open cluster; NB = Nebula; PN = Planetary nebula; DS = Double star; MS = Multiple star; SC = Starcloud; QSO = Quasar; RA and Dec. are equinox 2000.0; SA 2000.0 = Sky Atlas 2000 chart number

"The events described in this presentation are just a fiction. Any similarity to any real celestial events is pure coincidence"

Just joking

Clear Sky!

Observers HandBook 2020 Editor: James S.Edgar

Software :

Chart du Ciel : <https://www.ap-i.net/skychart/en/start>

Stellarium : <https://stellarium.org/>

<https://svs.gsfc.nasa.gov/>

<https://solarsystem.nasa.gov/planets/overview/>

<https://in-the-sky.org/>

<http://www.astronomy.com/>

<https://www.solarsystemscope.com/>

www.astropixels.com

www.timeanddate.com