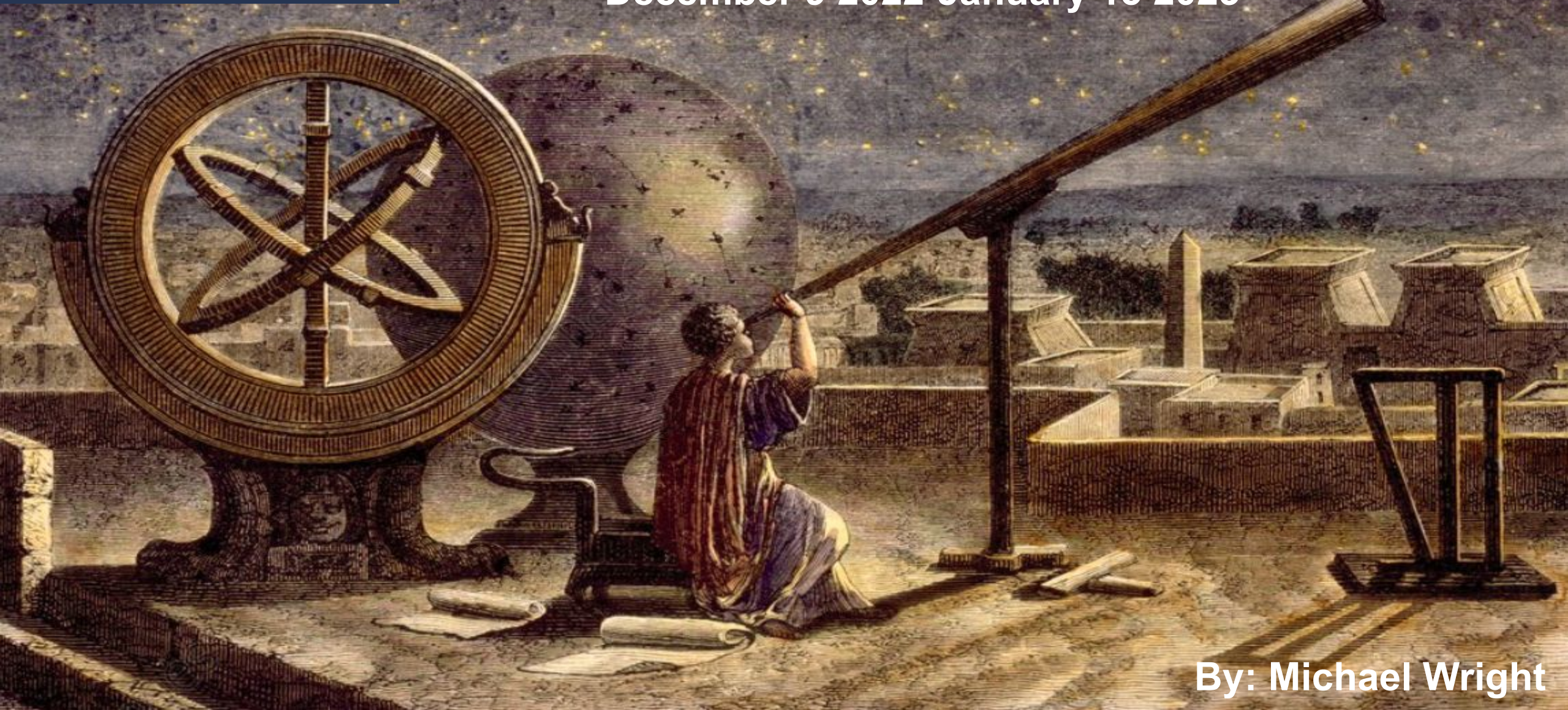




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KW Centre

What's Up?

December 9 2022-January 13 2023



By: Michael Wright

What's Up – Solar System

DATE	SOLAR SYSTEM SKY EVENTS
Dec. 11	Pollux 1.8°N of Moon at 3am
Dec. 14	Geminid Meteors Peak - 120/hr, moon 68% illumination rising at 10:45pm so view early
Dec. 16	Moon at Last Quarter
Dec. 21	Mercury at Greatest Elongation East - 20° from sun in evening sky - Nice Sight #2
Dec. 21	Winter Solstice at 21:48
Dec. 22	Ursid Meteor Shower Peaks at 10pm, about 10/hr from radiant near Kochab in UMi
Dec. 23	New Moon
Dec. 30	First Quarter
Jan. 03	Mars near moon in evening sky - nice binocular sight!
Jan. 04	Quadrantid Meteors Peak - 120/hr but unfavourable near-full moon
Jan. 08	Pallas at Opposition

Morning Sky

Ceres - VIR
Pallas - CMa

Most of the Night

Mars – TAU
Jupiter – PSC
Uranus - ARI
Neptune - AQR

Evening Sky

Saturn - CAP
Vesta - AQR
Juno - AQR
Venus - SGR
Mercury - SGR
Pluto - SGR

PLANET
anner

Grey = Close to Sun



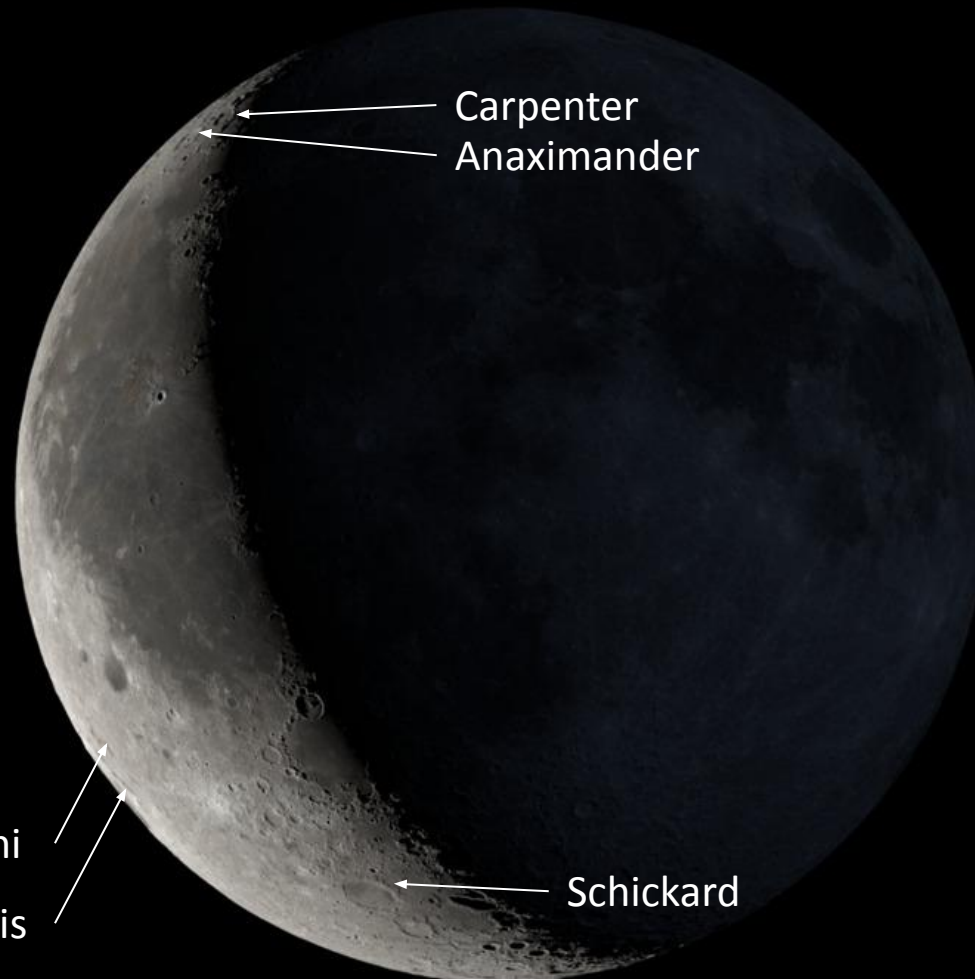
What's Up – Lunar Librations



Hommel
Mutus
Manzinus
Schomberger

Lacus Autumni
Lacus Veris

Southern Libration - December 13



Carpenter
Anaximander

Schickard

Western Libration - December 19



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What's Up – Lunar Librations



Nice Sight No. 1

**Geminid Meteor
Shower**

Wed. December 14

7:00 PM-10:45pm

View to E



Note that there are 3 other minor meteor showers active - the December Monocerotids, the α Hydrids and the December Leonis Minorids. The antihelion source is also very close. Can you trace each to the radiant?



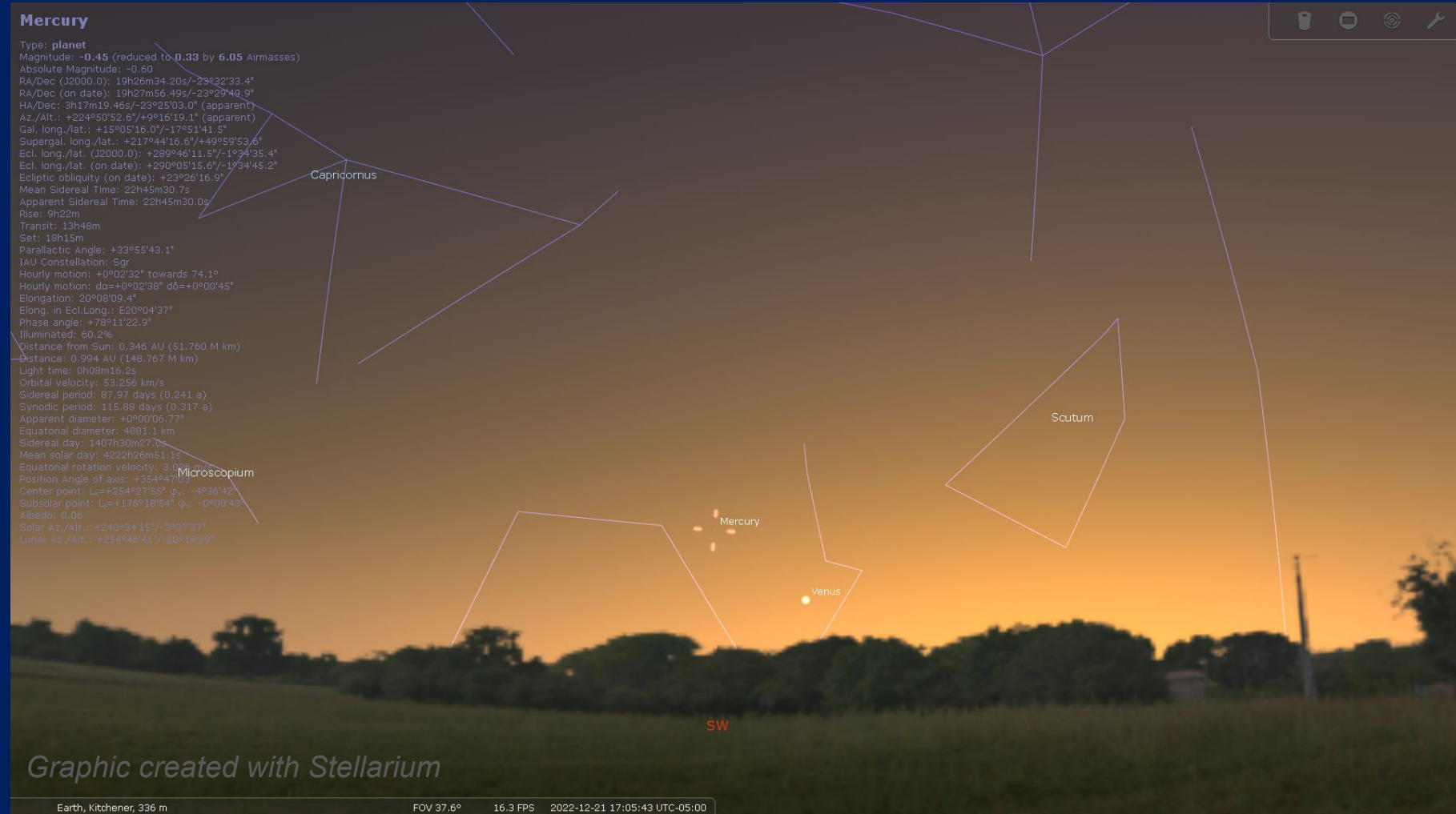
Nice Sight No. 2

Mercury at
Greatest
Elongation East

Wed. December 21

5:00pm

View to SW



Nice Sight No. 3

Ursid Meteor Shower

Wed. December 14

Peak at 10pm

View to N



Note the December Leonis Minorids are also active and the antihelion source is in Gemini.
Can you trace each meteor to their radiant?

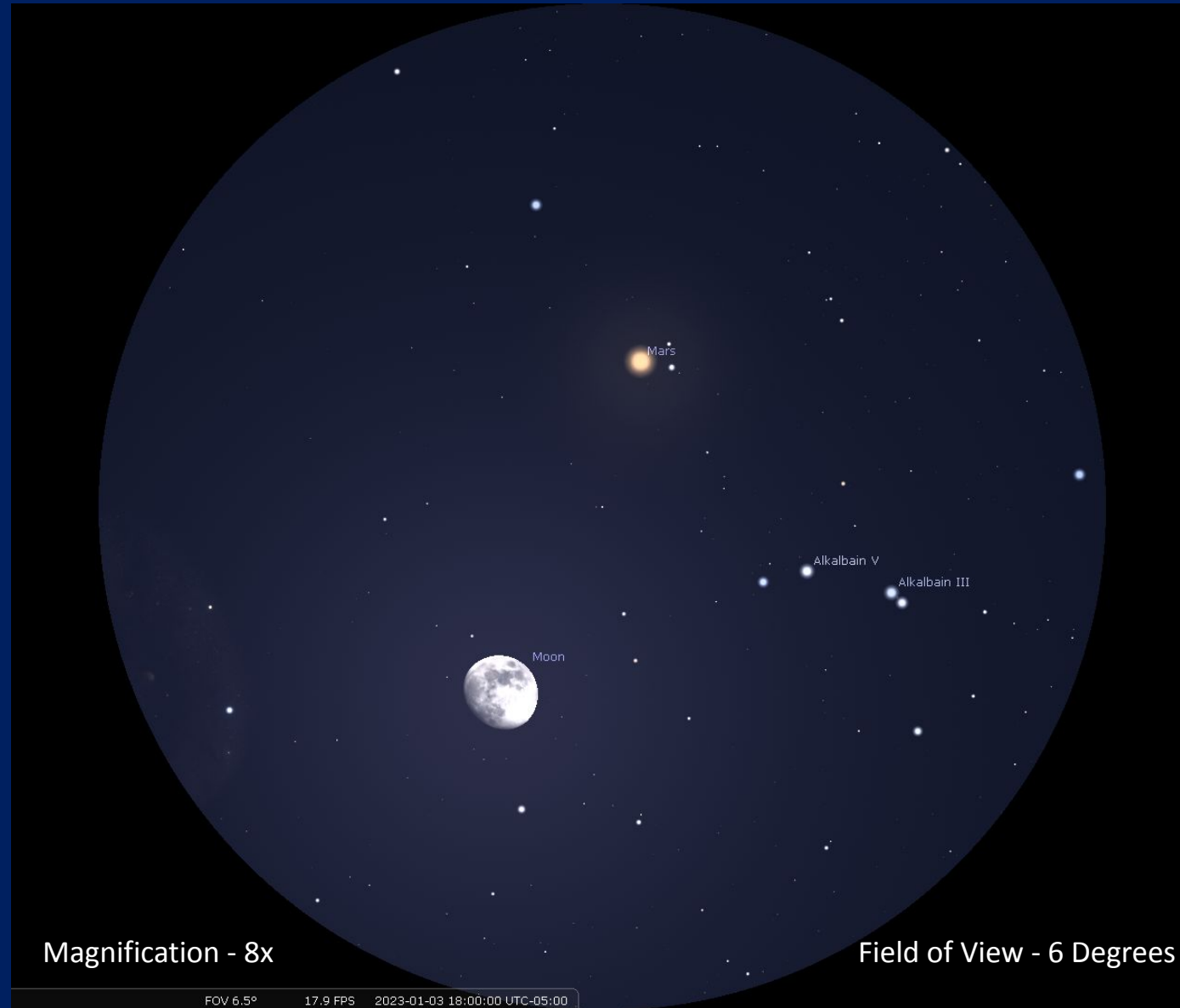
Nice Sight No. 4

Moon & Mars In Binoculars

Tues. Jan 3 2023

6:00pm

View to E



Graphic created with Stellarium



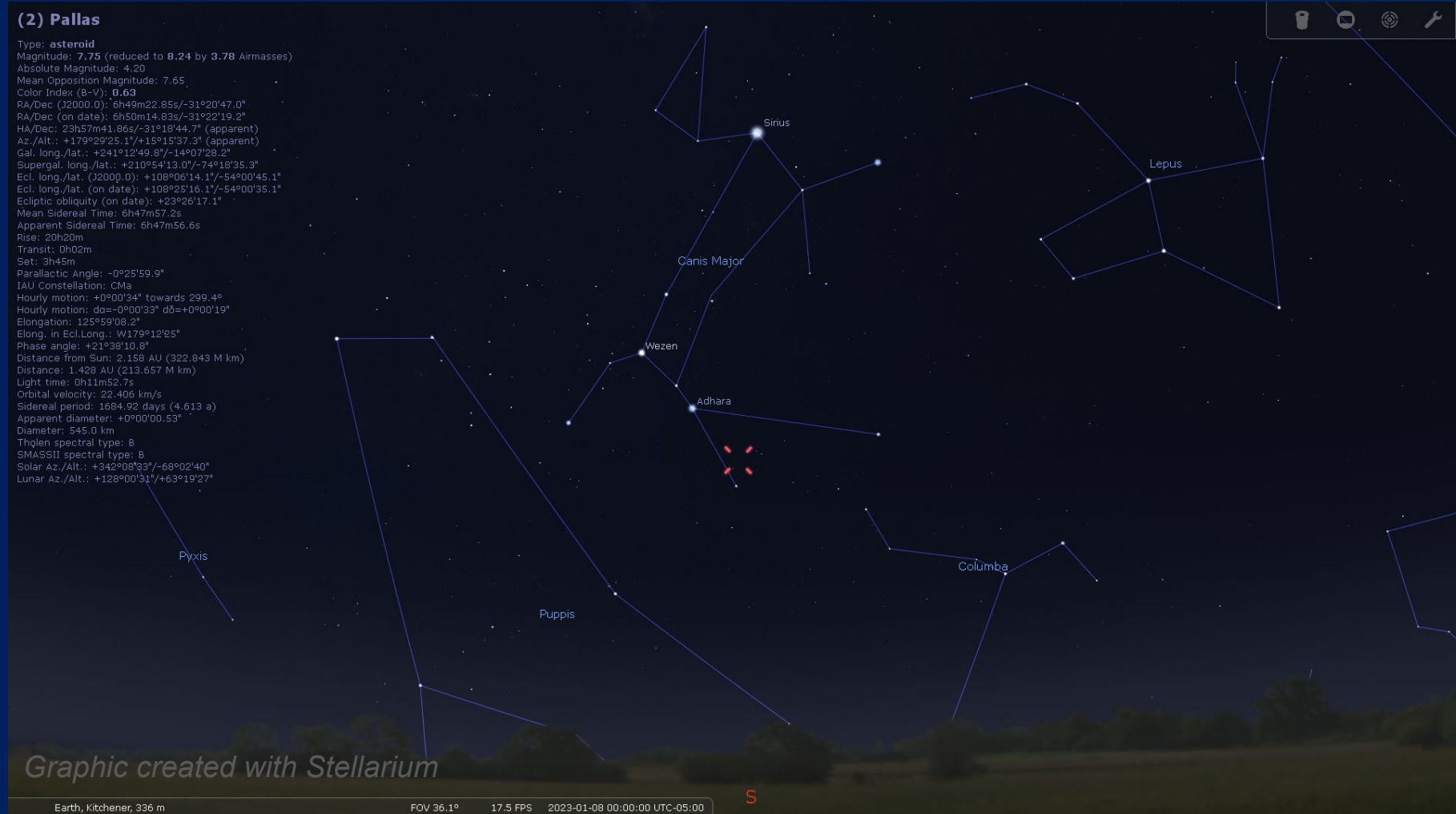
Nice Sight No. 5

Pallas at Opposition

Sun. January 8
2023

View at Midnight

View to S



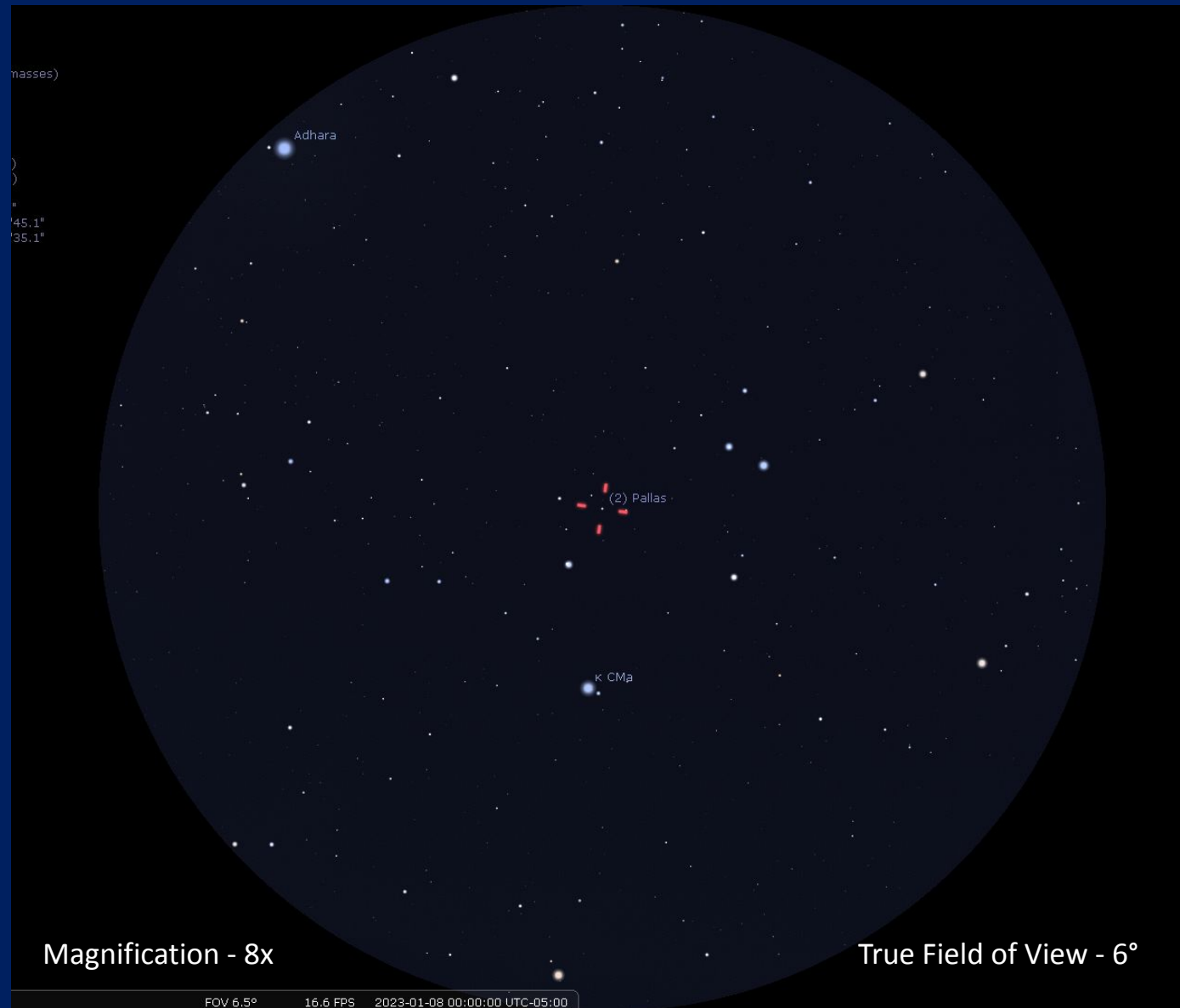
Nice Sight No. 5

Pallas at Opposition in Binoculars

Sun. January 8

Midnight

View to S



Graphic created with Stellarium

Pallas will be around magnitude 7.75 - use a good atlas to verify the starfield!

Evening Sky Highlights 1 - Taurus



10:00pm EST December 23, 2022

Facing South

Evening Sky Highlights 2 - Perseus



10:00pm EST December 23, 2022

Facing Overhead



December Deep Sky Highlights

The Bull and the Hero!

* = RASC Finest NGC

Catalogue #	Type	Cons	Details	Difficulty
M45	ocl&rn	Tau	Pleiades - gorgeous, best at low power, fine nebulosity in moderate scopes	easy
NGC1514*	pn	Tau	Crystal Ball Nebula - dark patches, central star m9.3	moderate
C41/Mel25	ocl	Tau	Hyades - wide open cluster, best in binoculars or widefield low power	easy
NGC1647	ocl	Tau	Pirate Moon Cluster - best at low power, many double stars	easy
NGC1746/50/58	ocl	Tau	Region of Overlapping Clusters - Wonderful binocular or widefield target	easy
NGC1807&17	ocl	Tau	Poor Man's Double Cluster - Two clusters surrounding a triangular dark gulf	easy
M1	snr	Tau	Crab Nebula - ghostly elliptical supernova remnant, textured smoke	easy
NGC1587	g(E)	Tau	Paired elliptical galaxy, partner fainter requiring larger scopes	difficult
C14/NGC869&84*	ocl	Per	Double Cluster - one of the finest open cluster sights in the heavens!	easy
M76	pn	Per	Little Dumbell Nebula - bilobed planetary, try UHC or OIII filter	moderate
M34	ocl	Per	Spiral Cluster - bright swirl of stars, some see spiral pattern	easy
NGC1023*	g(SB0)	Per	Perseus Lenticular - ellipse of light nestled in splash of stars, bulge brighter	moderate
C24/NGC1275	g(peculiar)	Per	Perseus A - Brightest and central member of the surrounding Perseus Cluster	difficult
NGC1342	ocl	Per	Stingray Cluster - T shaped head with squiggly tail	moderate
NGC1499	en	Per	California Nebula - requires large aperture and an H-Beta filter	difficult
NGC1579	en+rn	Per	Northern Trifid Nebula - delta wing shape with extensions, use averted vision	moderate
NGC1245	ocl	Per	Starfish Cluster - small, beautiful star shaped cluster	difficult
Mel 20	ocl	Per	Alpha Persei Moving Group - wide open cluster, best in binoculars	easy
NGC1491*	en	Per	Fossil Footprint Nebula - lit by 11th mag star, bright patch surrounded by haze	moderate
NGC1528&45	ocl	Per	m&m Double Cluster - pair or pretty clusters, 28 in curved rows, 45 pentagram	moderate
NGC1624	ocl+en	Per	Faint cluster surrounded by 3' nebular glow, use UHC filter and higher power	difficult



Evening Sky Highlights 3 - Cassiopeia & Camelopardalis



Andromeda

Mirfak

Stock 23

NGC1501

NGC1502

IC1848

Stock 2

IC289

Kemble 1

NGC1569

IC1805

Camelopardalis
C5

C7

C13

C10

M103

NGC281

C8

Cassiopeia

NGC225

NGC1961

NGC7789

NGC2146

M52
C11

Hrr12

NGC2655

Lacerta

10:00pm EST December 23, 2022

Facing North/Overhead



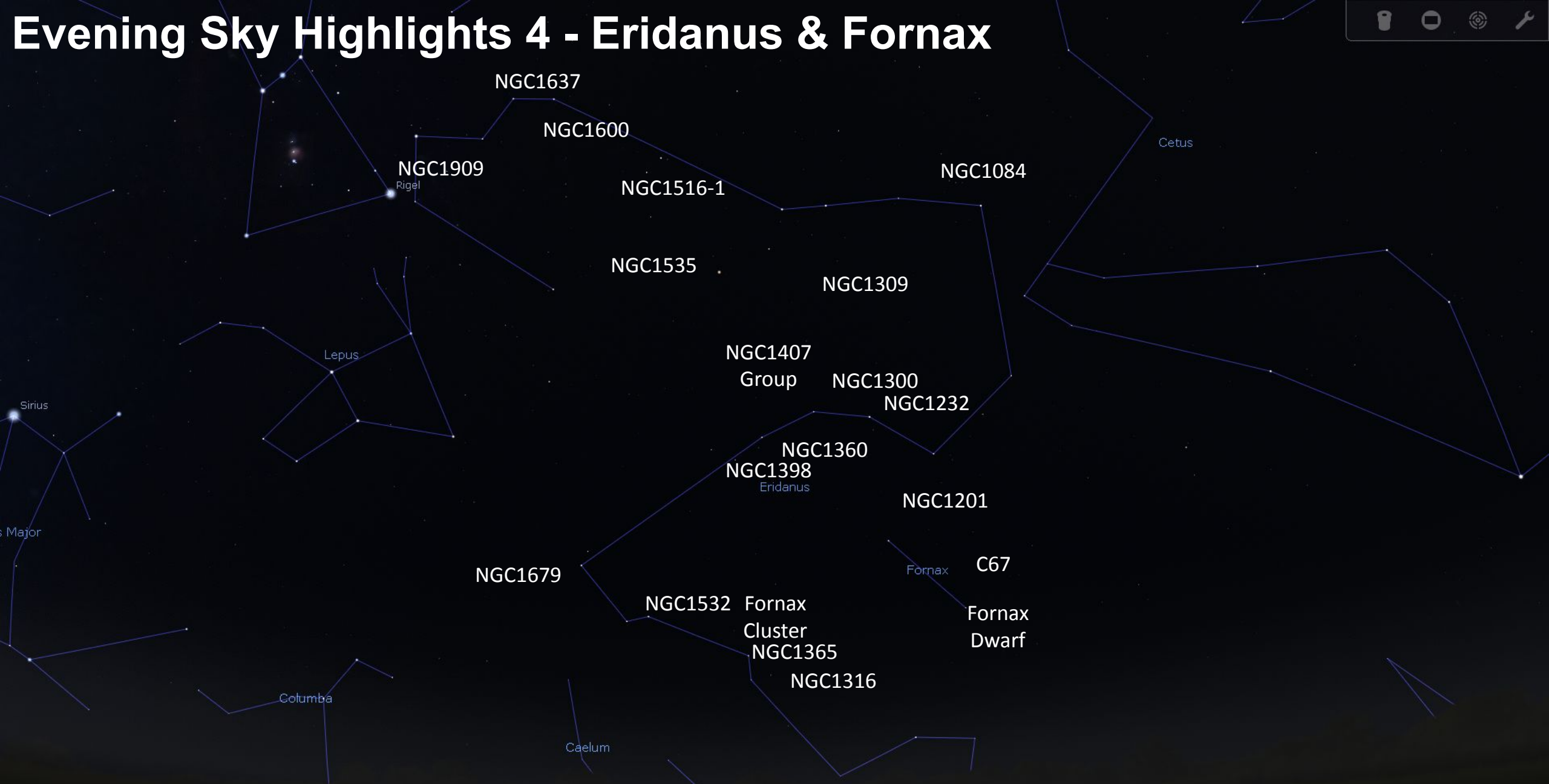
December Deep Sky Highlights

The Queen and the Giraffe!

* = RASC Finest NGC

Catalogue #	Type	Cons	Details	Difficulty
M52	ocl	Cas	The Scorpion - best at moderate power, looks like a scorpion with claws & tail	easy
C11/NGC7635*	en	Cas	Bubble Nebula - delicate flower, requires large aperture and UHC filter	difficult
NGC7789*	ocl	Cas	Caroline's Haystack - magnificent, large open cluster for low power or binocs	easy
vdB 1	rn	Cas	Small, hazy reflection nebula near Caph, takes magnification well	moderate
NGC189	ocl	Cas	Small, round, compressed cluster with bluish comet-like sheen	moderate
NGC225	ocl	Cas	Sailboat Cluster - best at low power, half moon shaped hull with little sail	easy
NGC281	en+ocl	Cas	PacMan Nebula - visible even in binoculars in dark skies, like breath on mirror	moderate
C13/NGC457*	ocl	Cas	Dragonfly Cluster - also known as the Owl or E.T., absolutely thrilling form	easy
M103	ocl	Cas	Some bright stars surrounded by a Christmas Tree shaped splash of others	easy
C10/NGC663*	ocl	Cas	Horseshoe Cluster - two pairs of stars form the ends, graceful U shape	easy
C8/NGC559	ocl	Cas	Ghost's Goblet - best at moderate power, 50-60 stars	moderate
Stock 2	ocl	Cas	Stitchpunks or The Muscle Man - large, pretty open cluster near Double Cluster	easy
IC1805 & IC1848	en+ocl	Cas	Heart & Soul Nebulae - Nebulosity faint, needs aperture, nice open clusters within	difficult
IC289*	pn	Cas	Dim oval smudge, use UHC or OIII and high magnification!	difficult
Stock 23	ocl/asterism?	Cam	Pazmino's Cluster - 4 bright stars in irregular trapezoid surrounded by others	moderate
Kemble 1	asterism	Cam	Kemble's Cascade - stream of stars, many pairs, wonderful in binocs or scanning widefield	easy
NGC1502	ocl	Cam	Jolly Roger/Golden Harp Cluster - gorgeous, brilliant topaz double star at its core	moderate
NGC1501*	pn	Cam	Blue Oyster Nebula - Very small - need at least 120X, faint annulus, use UHC or OIII	moderate
C5/IC342	g(SABcd)	Cam	The Hidden Galaxy - Dim face-on spiral, can be seen in binoculars under pristine dark skies	difficult
NGC1569	g(IrrBm)	Cam	Small starburst magellanic dwarf irregular; nearby but dim, needs aperture	difficult
NGC2146	g(SB(s)ab pec)	Cam	Dusty Hand Galay - distorted barred spiral, dark lane through the core	moderate
NGC1961	g(SAB(rs)c)	Cam	Arp 184 - distorted spiral, bright core, use low to medium power for arms	moderate
NGC2655*	g(SAB0a)	Cam	Soft, roundish glow with a delicate core, slightly egg shaped with averted vision	moderate
C7/NGC2403*	g(SABcd)	Cam	Fireworks Galaxy - well-defined elliptical glow with lens-shaped core, patchy texture	moderate

Evening Sky Highlights 4 - Eridanus & Fornax



10:00pm EST December 23, 2022

S

Facing South

December Deep Sky Highlights

A Flowing River of Galaxies!

* = RASC Finest NGC

** = RASC Deep Sky Challenge

Catalogue #	Type	Cons	Details	Difficulty
NGC1909	rn	Eri	Witchhead Nebula - reflection nebula requires large aperture and dark skies	difficult
NGC1637	g(SAB(rs)c)	Eri	2' faint blotch with slight brightening to centre in small scopes	difficult
NGC1600	g(E3)	Eri	Elongated, somewhat concentrated core	moderate
NGC1516A&B	g(Sc)	Eri	Tight interacting pair, A brighter on SSE end, B requires bigger aperture	difficult
NGC1535*	pn	Eri	Cleopatra's Eye - double shell, round appearance and bluish Neptune-like disc	moderate
NGC1309	g(SB0(rs))	Eri	Elongated 2'x1', very fine stellar nucleus, smooth oval halo	moderate
NGC1084	g(SA(s)c)	Eri	Small but very condensed ellipse of light, feathery rim, arm features hard	moderate
NGC1232*	g(SAB(rs)cd)	Eri	Eye of God - round cometary glow, spiral arms with aperture	moderate
NGC1300	g(SB(s)bc)	Eri	Bar obvious, moderate aperture or greater reveals fainter spiral arms	moderate
NGC1407 Group	g(E0)	Eri	Eridanus A, a fine elliptical with swarm of ellipticals and lenticulars nearby	moderate
NGC1398	g((R)SB(r)ab)	For	Ellipse gradually brighter to middle then suddenly to bright stellar nucleus	moderate
NGC1360	pn	For	Robin's Egg Nebula - Simple yet spectacular. Delicate mottling.	moderate
NGC1201	g(E0)	For	Stellar nucleus with very fine halo surrounding it	moderate
C67/NGC1097	g(SBbc)	For	Clumpy ellipse with star-like core, faint arms & companion in large scopes	moderate
Fornax Dwarf**	g(dE)	For	Very large, low surface brightness. Globular NGC1049 in 10+ inch scopes.	difficult
Fornax Cluster	galaxy cluster	For	Veritable playground of galaxies of all brightness levels, but so far south	difficult
NGC1365	g(SBb)	For	Bright core and bar, would be a real attention grabber if farther above horizon	difficult
NGC1316	g((R)SAB(s)0)	For	Fornax A - sharply bright core surrounded by halo with even concentration	difficult
NGC1532	g(SB(s)b pec)	Eri	Crisp spindle of light with central hub brightening to core. Faint companion.	difficult
NGC1679	g(SB/lrr)	Cae	Round, diffuse and faint surrounded by 3 stars; bizarre shape with aperture	difficult



What's Up? Resources

RASC Observer's Handbook - The Sky By Month

NASA SVS Moon Viewer: <https://svs.gsfc.nasa.gov/4955>

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

The Sky Live: <https://theskylive.com/>

Time and Date: <https://www.timeanddate.com/>

Deep Sky Observer's Companion: <http://www.docdb.net/index.php>

Messier 45

The Pleiades



Messier 45

NGC (not listed!)

Type: Open Cluster

Constellation: Taurus

RA: 03h47.5m

Dec: +24°06′

Magnitude: 1.5

Diameter: 2°

Distance: ~444 light-years

Discovered By: Known since antiquity



Photo: Palomar Observatory

Messier 45

This young open cluster is composed of hot, blue luminous stars that are less than 100 million years old.

The reflection nebulae surrounding the stars are in fact not the remainders of the cluster's birth cloud, but are just dust the cluster is passing through.

Although it is dominated by the light of its 14 brightest blue members, the cluster may contain upwards of 1000 stars.



Photo: Adam Block

Finding Messier 45 - December/January Evenings



Located 15° northwest of Aldebaran, the 'eye of the bull'.

What does Messier 45 look like?

Naked Eye:

A fuzzy tight little cluster of stars - how many can you see? Most see six or seven. Some people call them the 'Seven Sisters', others mistake it for the Little Dipper.

Binoculars:

Wonderful sprinkling of stars in binocs, with a dipper or shopping cart shape.

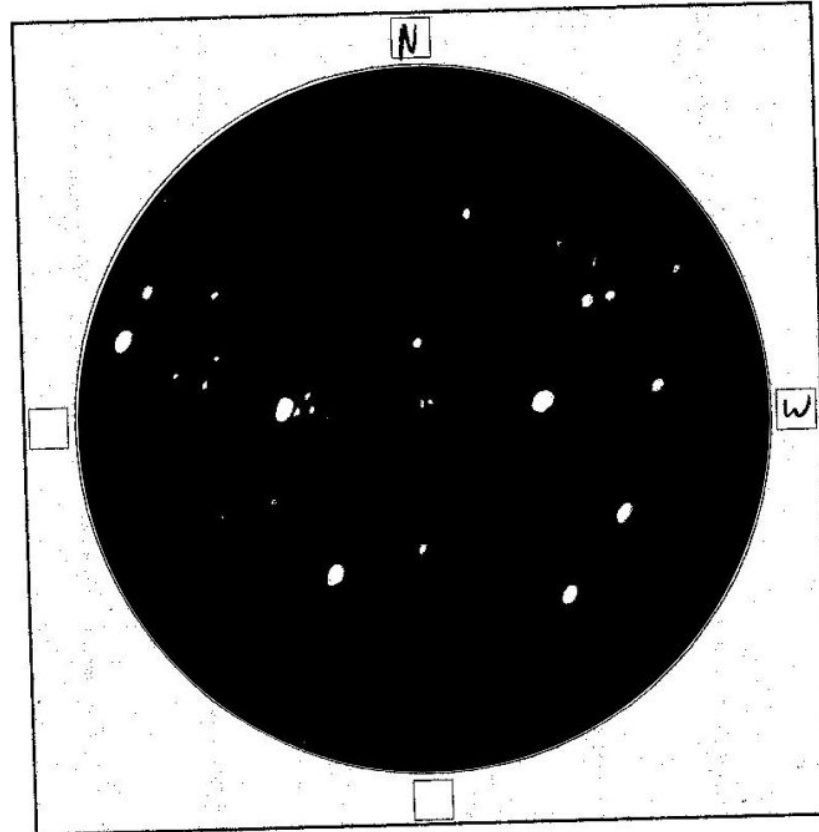
Small Telescope:

Requires low-power, wide-field views. Glistening blue jewels, which under perfectly dark and transparent skies are surrounded by faint gauzy veils of nebulosity even in a 4-inch scope.

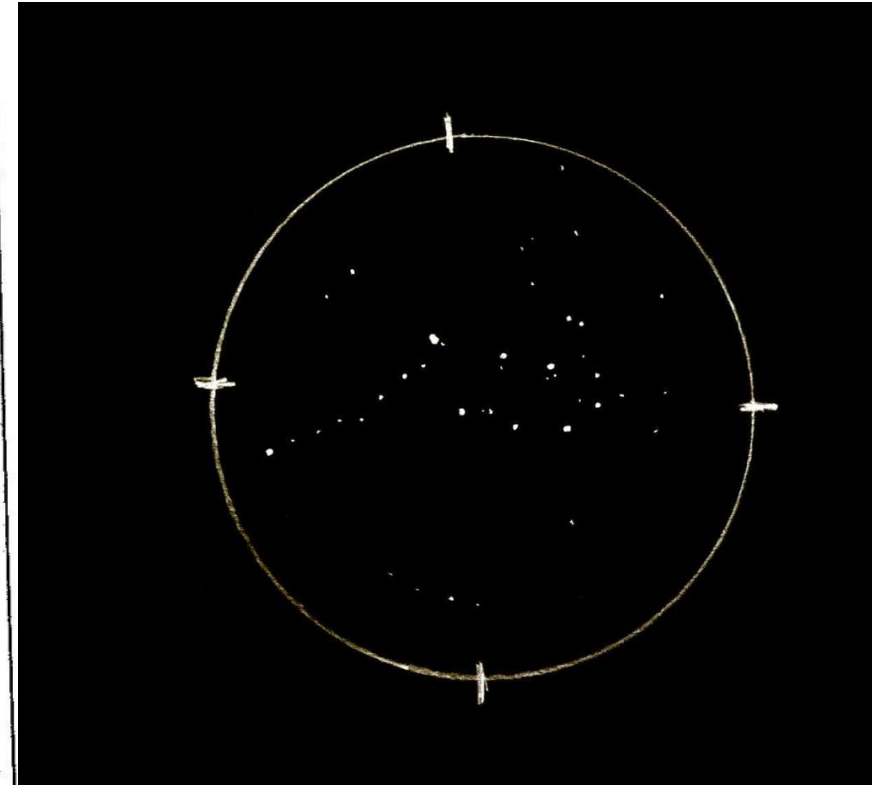
Sketches of Messier 45



Pleiades (Messier 45)
Nikon 10x70 SP IF Astroluxe
Angel Insua. 12-3-13



Michael Wright
114mm Newtonian EQ @32x
October 25, 2014



Ghazale Adampour
Binoculars - 70mm 20x

References

Alan Dyer. 2022. “The Messier Catalogue” in J.S. Edgar, ed, Observer’s Handbook 2022. The Royal Astronomical Society of Canada.

Stephen James O’Meara. 2014. The Messier Objects. 2nd ed. Cambridge University Press.

Messier 45. Wikipedia.org. Accessed August 3, 2022.