May 2023 Astronomy Report

- ***Moon***:
  - Phases
  - From the Earth to the Moon (views from Tranquility Base)

- ***Planets:***
  - Evening planets - Mars, Venus
    - Venus best display of the year
    - Mars starts in Gemini and moves towards Cancer
  - Morning planets - Saturn, Jupiter, Mercury
    - Saturn in Aquarius (rising earlier)
    - Lunar occultation of Jupiter - May 17

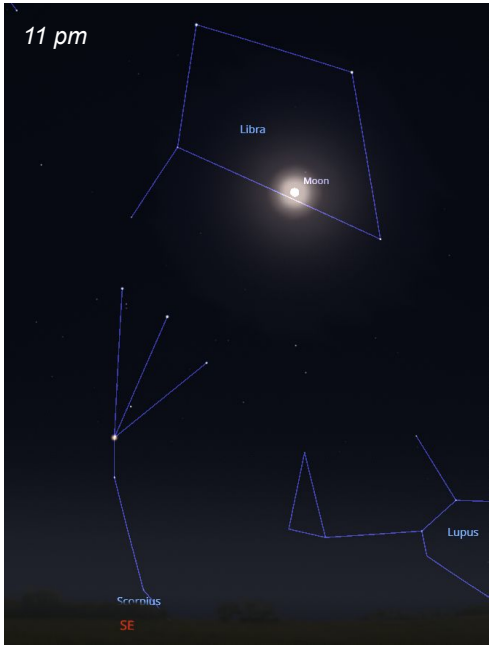
- ***Meteor Shower:***
  - Eta Aquariids

- ***Constellations:***
  - Dark Sky Star Party, May 20

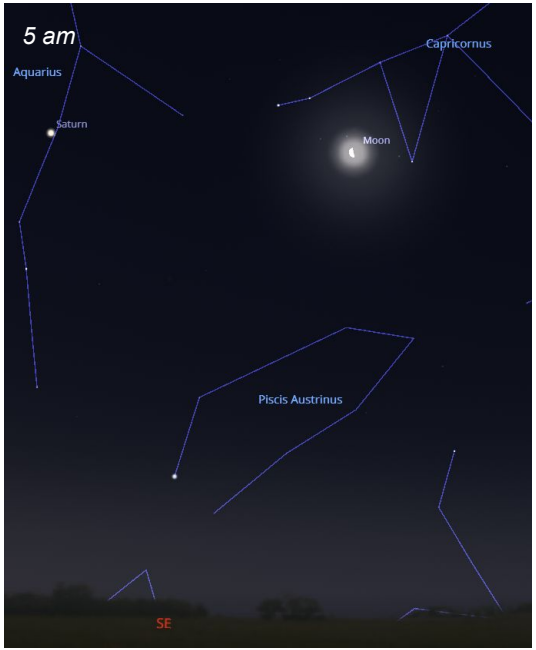
- ***Celestial Reference Points***
  - Vega

Moon - Phases

May 5 - Full Moon (Libra)

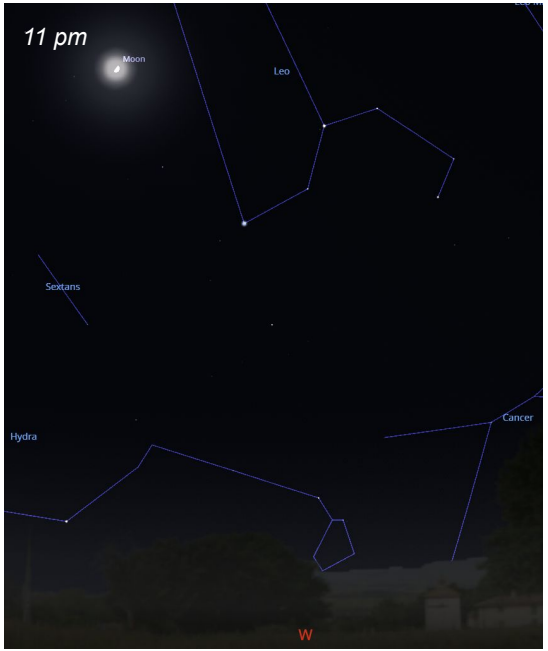


May 12 - Last Quarter (Capricornus)



May 19 - New Moon

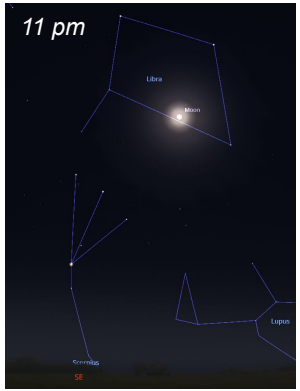
May 27 - First Quarter (Leo)

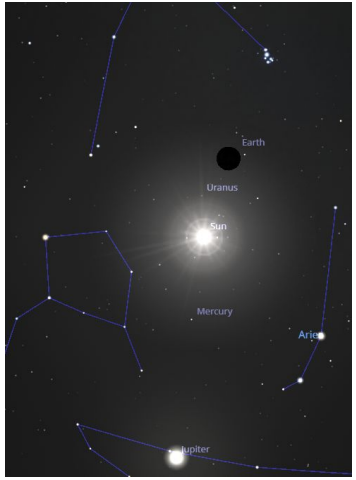


Perigee (229K miles) - 10th
Apogee (251K miles) - 25th

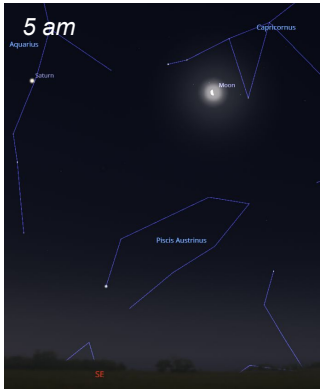
From the Earth to the Moon - Tranquility Base (Apollo 11)

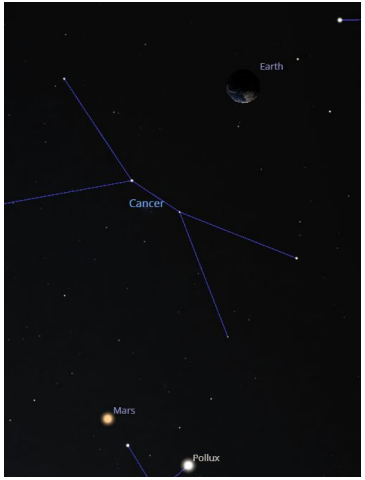
May 5 - Full Moon





May 12 - Last Quarter



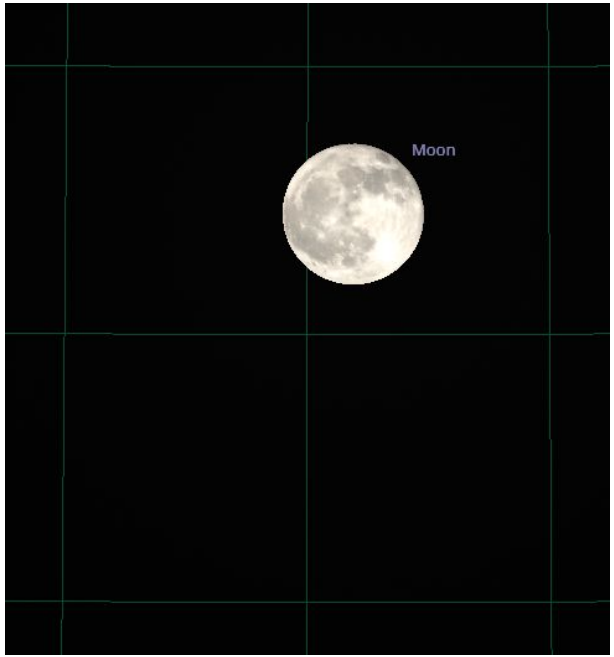


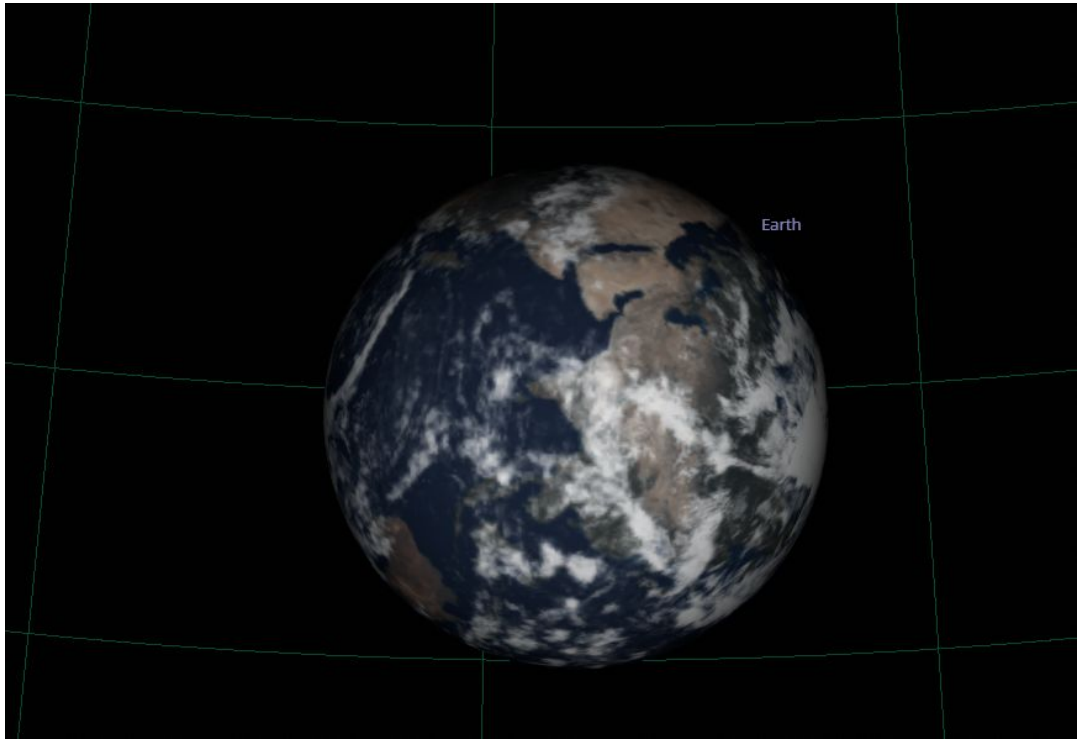
May 19 - New Moon

May 27 - First Quarter

Earth / Moon - size difference

about ¼ the width of Earth





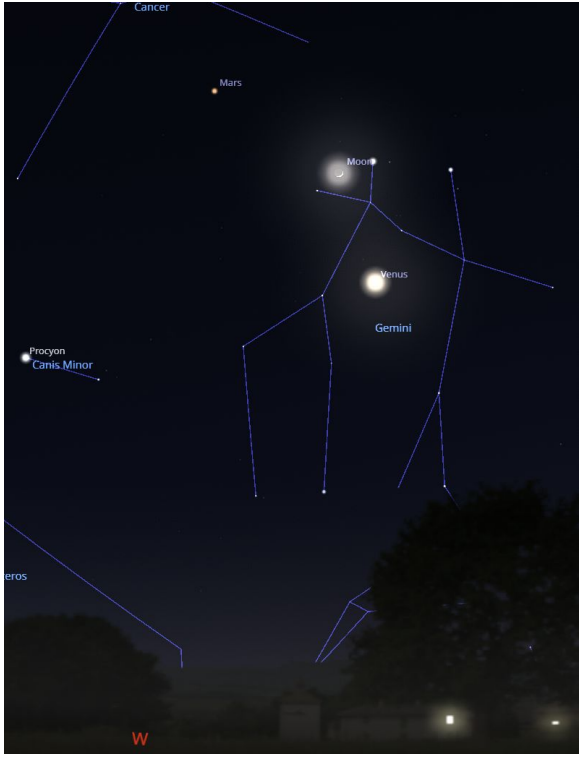
Both images - FOV 5 degrees

Planets - Moon, Mars & Venus, May 22-24

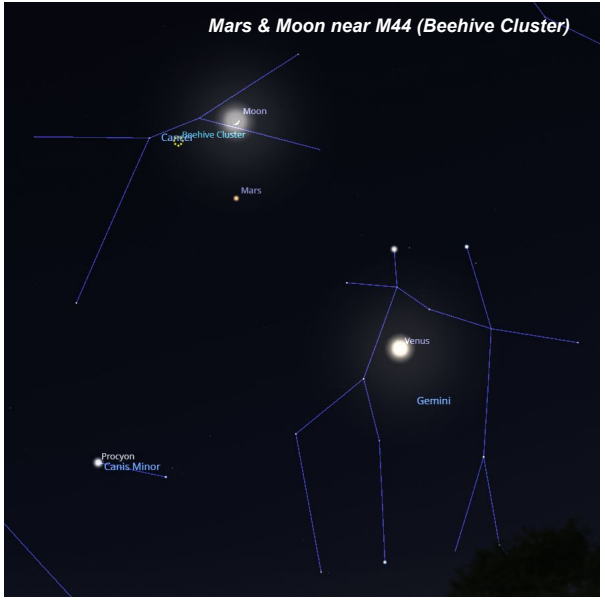
Venus starts the month between horns of Taurus and moves into Gemini during May (approaching Earth - inferior conjunction in August)
Mars starts the month in Gemini and moves into Cancer by end of May (sets before midnight)

May 22, 9 pm

May 23, 9 pm



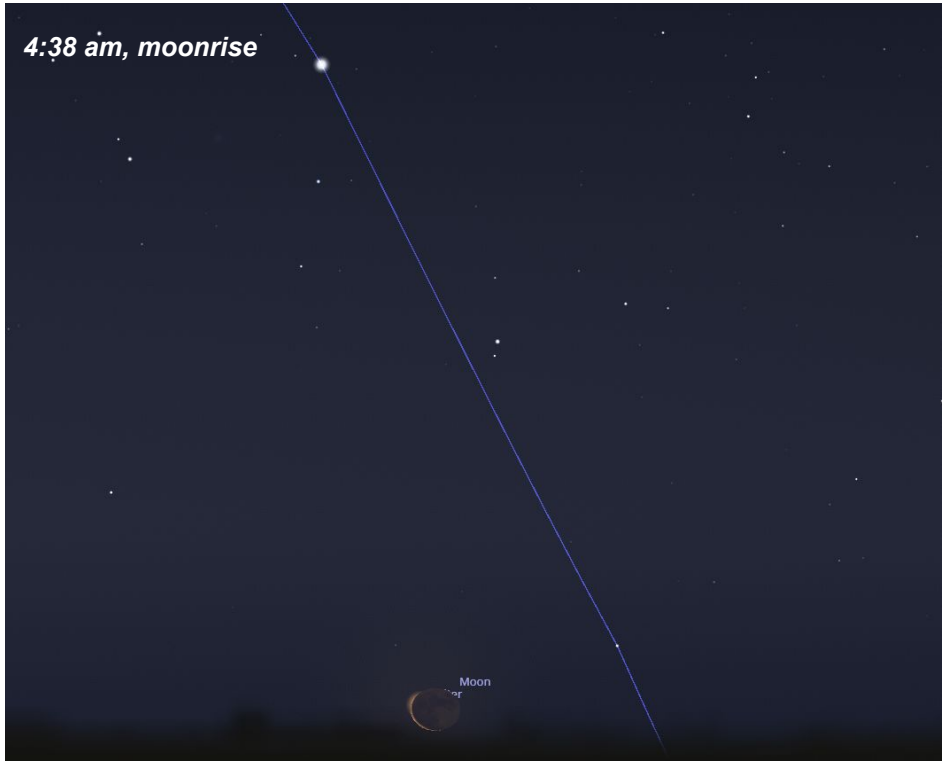
May 24, 9 pm

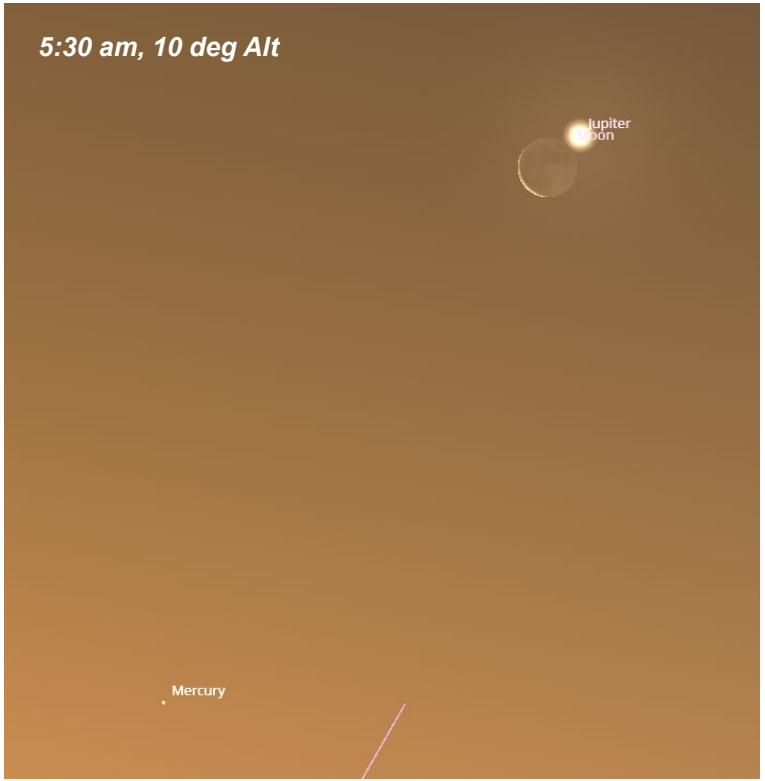


all images - FOV 45 degrees

Lunar Occultation of Jupiter - May 17

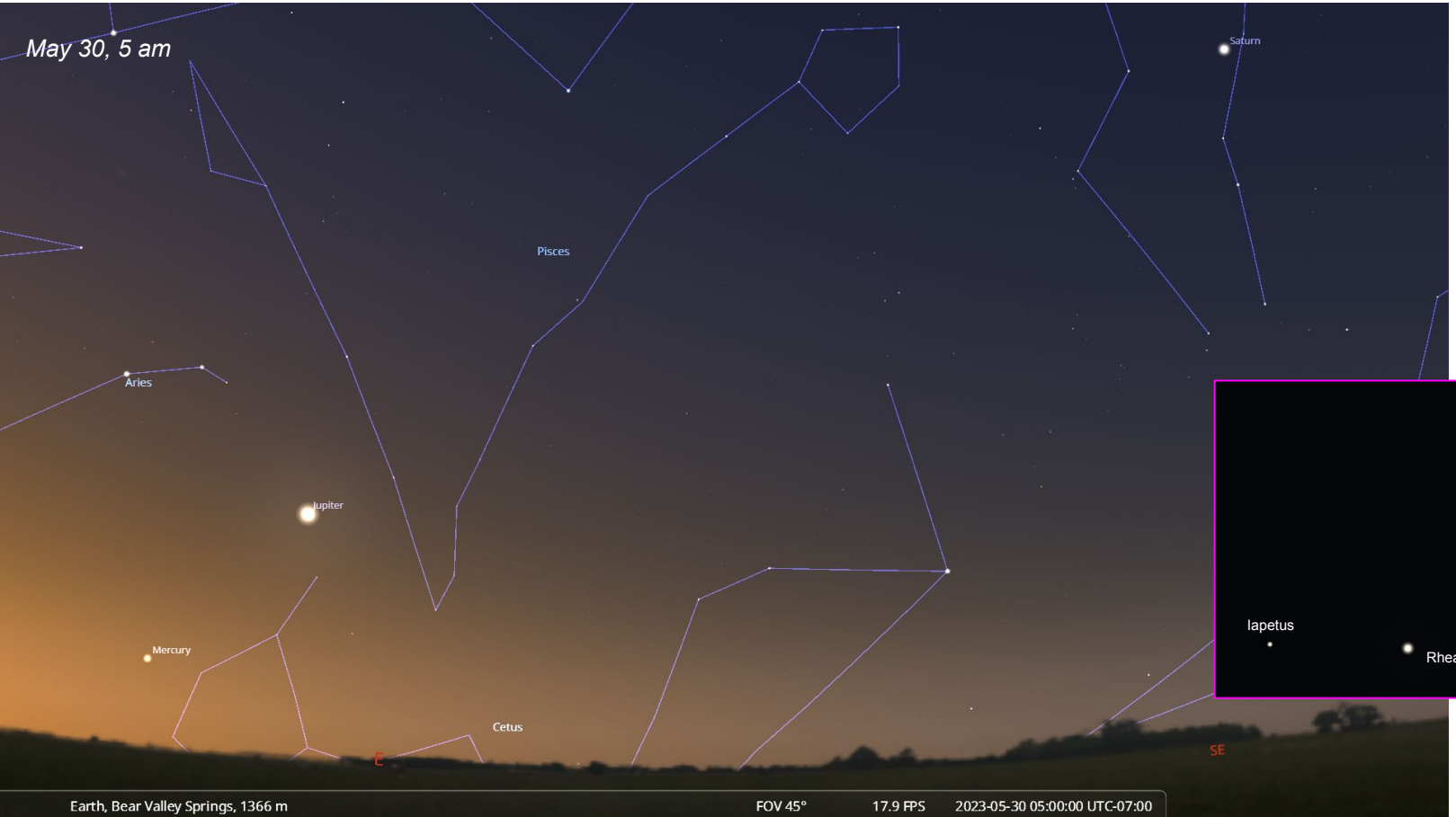
Challenging view due to low on eastern horizon, morning twilight





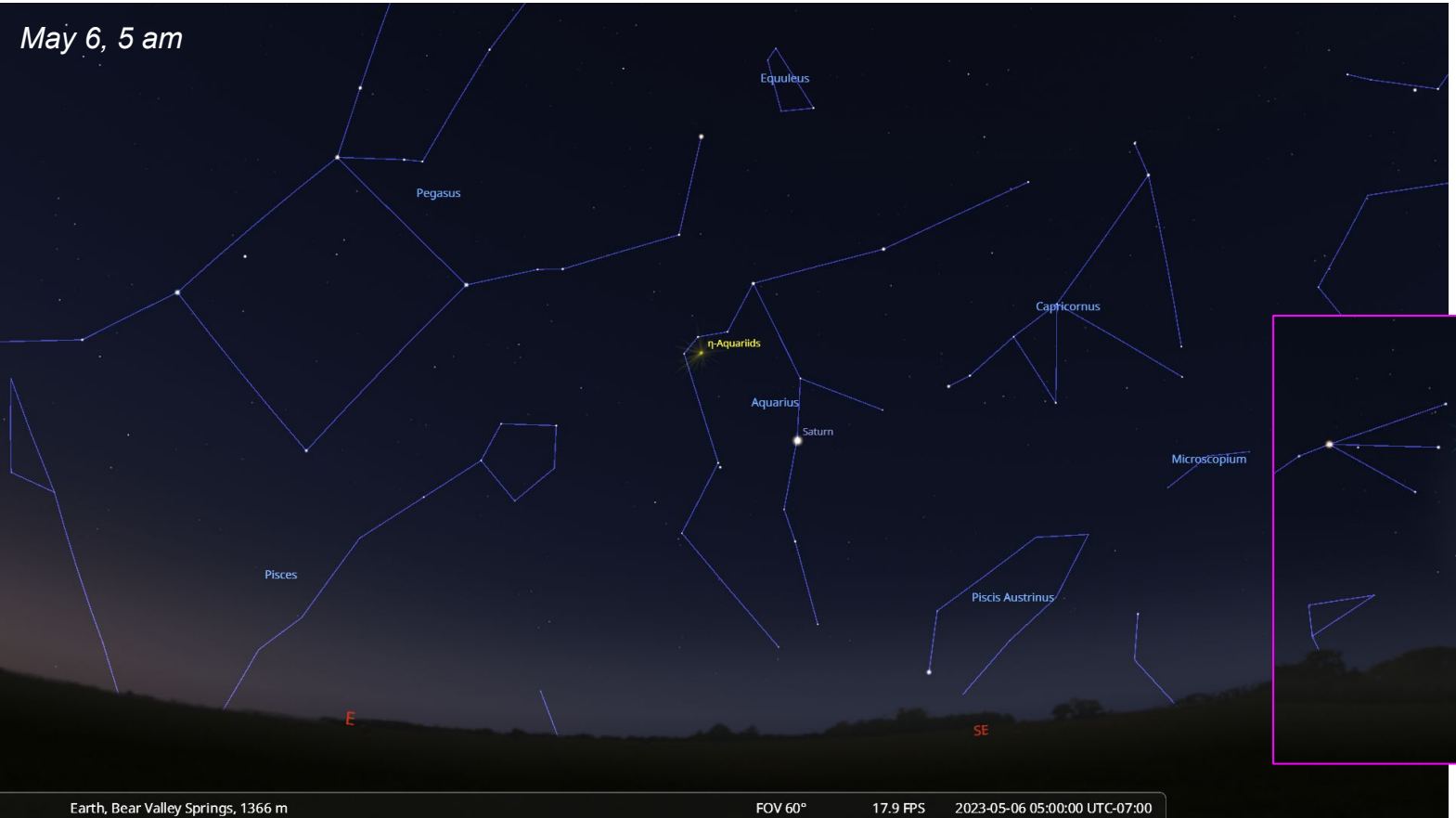
Morning Planets - Saturn, Jupiter, Mercury

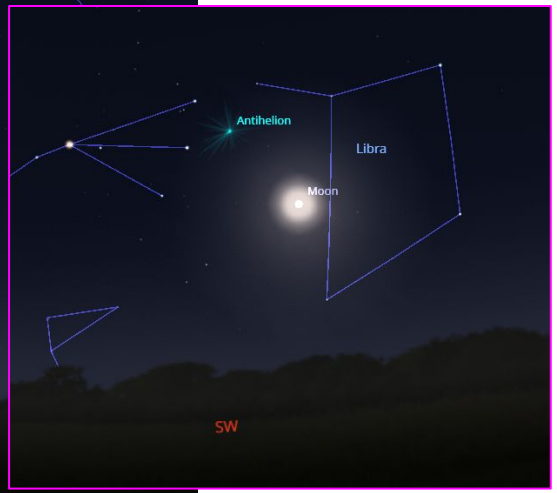
Saturn rises earlier (~2 hours) during May, in Aquarius
Jupiter & Mercury reappear in morning sky



Meteor Shower - Eta Aquariids

- *associated with Halley's Comet*
- *active April 19 - May 28; peak date May 6*
- *50 meteors/hour peak rate - affected by full moon (better viewing May 4 after moon sets shortly after 5 am)*





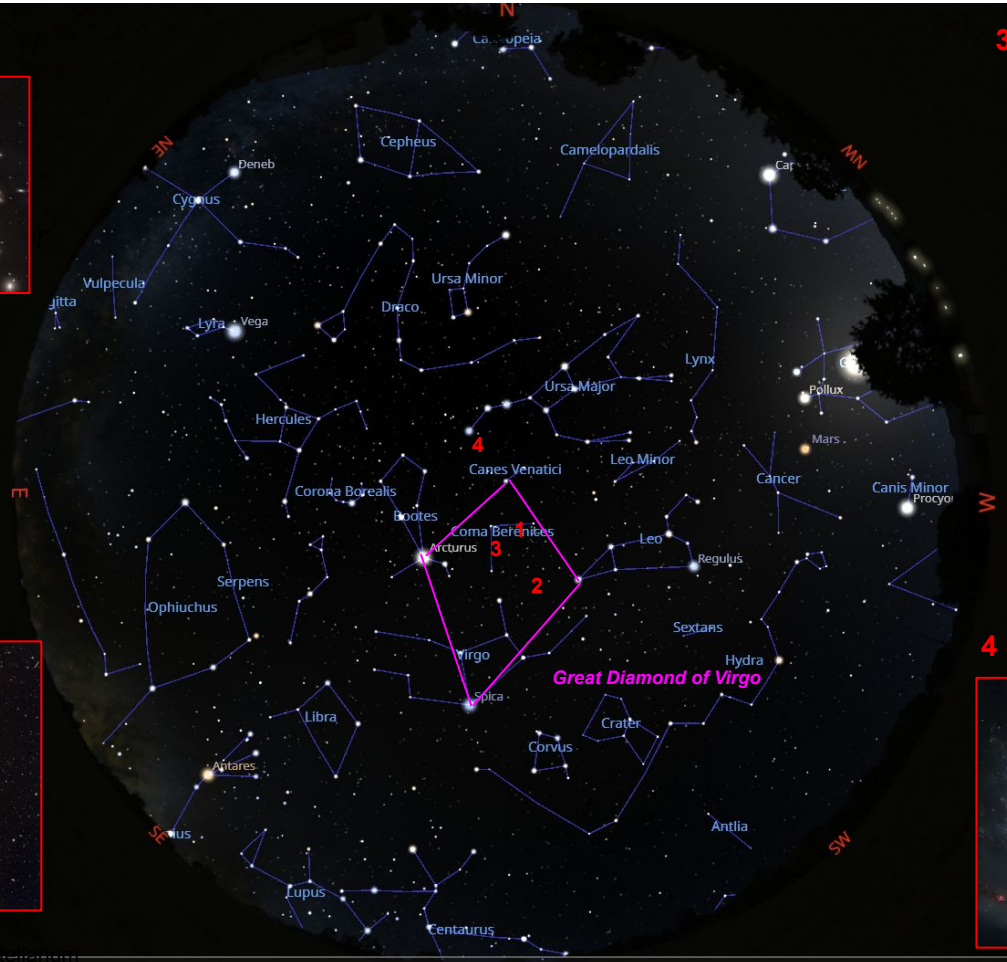
May constellations

Dark Sky Star Party - Amberwood Ct, May 20

10pm view

1 - Coma Cluster

2 - Virgo Cluster



3 - Black Eye Galaxy (M64)

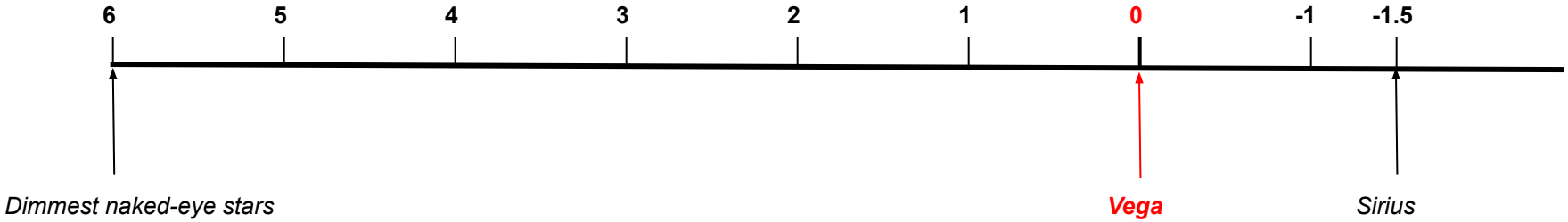
4 - Whirlpool Galaxy (M51)

Earth, Bear Valley Springs, 1366 m S FOV 180° 17.6 FPS 2023-05-20 22:00:00 UTC-07:00

Celestial References *"Starting Points in the Sky"*

Star Brightness Scale

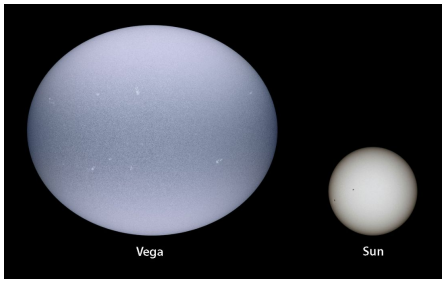
Positive numbers - dimmer
Negative numbers - brighter



Star Color Scale

(B-V) color			temperature
small	(< 0.5)	blue	hot
	0	← Vega	
big	(> 2.0)	red	cool

comparison to Sun

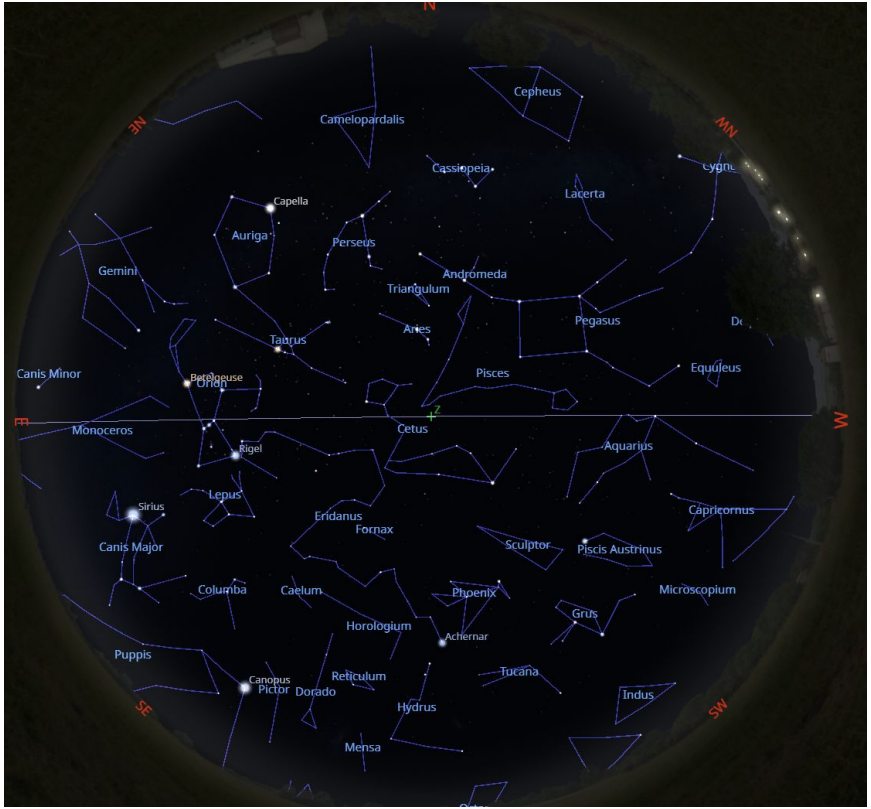


Sources: Astronomy magazine; Stellarium

Celestial References *"Starting Points in the Sky"*

Celestial Equator *Any star on the celestial equator can be seen anywhere in the world*

Equator - Summer view



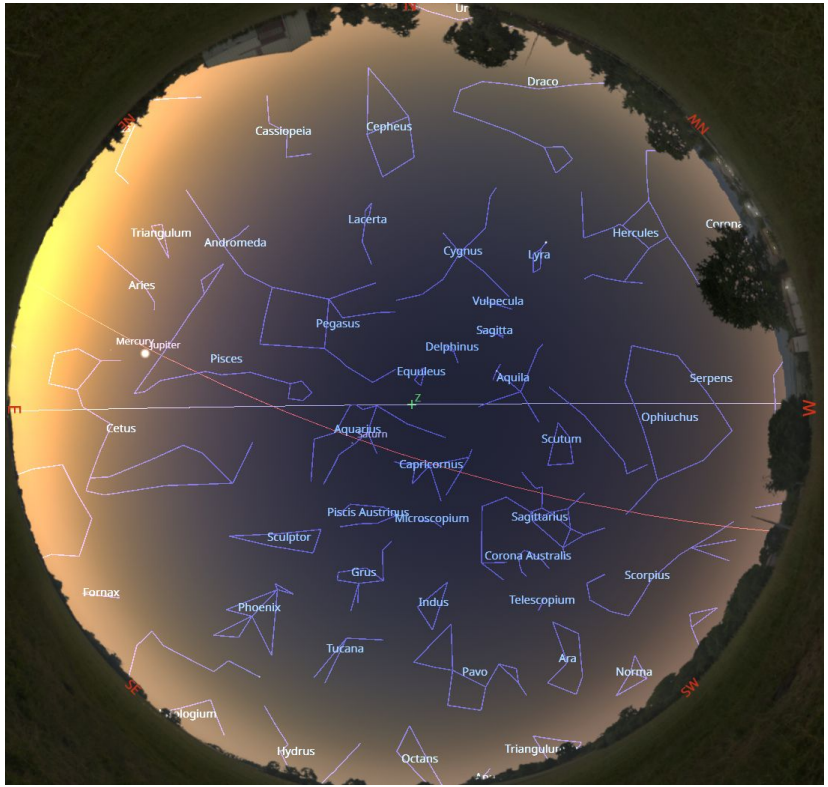
Equator - Winter view

Sources: Astronomy magazine; Stellarium

Celestial References *"Starting Points in the Sky"*

Celestial Motion

Direction of Earth around the Sun (18.5 miles/second)



Equator view

Direction of solar system around Milky Way (140 miles/second)

Bear Valley view

Sources: Astronomy magazine; Stellarium