

# VILLAGES STAR

Newsletter of The Villages Astronomy Club

**Volume 6, Number 1**  
**January 2025**

Club Website:

<http://vlgastroclub.org/>

Facebook:

<https://www.facebook.com/groups/vlgastroclub/>

## **Club Officers & Directors**

President	Mark Graybill
Vice President	Ken Katta
Secretary	Randy Gilbert
Treasurer	Linda Meng
Space Academy	Toni Graybill
Public Relations	Jeffrey Kahler, Sr.

## **Newsletter Contact**

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(please include TVAstro in subject line)

## **UPCOMING EVENTS**

### **Exec Directors' Meeting, Jan. 3rd, 11am**

All members are welcome at our Executive Directors' Meetings, where our directors plan and prepare for future events and meeting. We have a busy schedule planned for the this winter including Starry Starry Nights in February. Fishhawk Recreation Center, 2318 Buttonwood Way, in the card room, from 11am to 12pm.

### **Telescope Workshop, January 6th, 6pm**

Join us to learn how to use or select a telescope, share your knowledge, and get a look at the sky. We will be at the Truman Rec Center picnic pavilion, located behind the pool. Bring your telescope, binoculars, or smart scope, or come to ask questions! Power available. Truman Rec Center Pavilion, 2705 Canal St.

### **Space Academy, January 6th, 6:30pm**

Join us at Truman Recreation Center's Studebaker room for our first Space Academy of 2025. Truman Recreation Center, Studebaker Room, 2705 Canal St.



**The Jellyfish Nebula in Gemini**  
**by Randy Gilbert with 94mm Refractor**

### **January 18th, 5pm:**

#### **Fruitland Park Astronomy Group**

The Fruitland Park Astronomy Group meets for an evening of observing and talk on the third Saturday of the month every month, conditions allowing. The meeting is at the Cales Soccer Field in Fruitland Park at 300 Shiloh Road (at the corner of Shiloh Road and Dixie Avenue, north of the Fruitland Park water tower.) Enter on Shiloh Road (some GPS's will guide you to the Dixie Avenue entrance.) Gate opens at 5pm. We will stay as late as conditions permit and people

are interested in observing. Bring power if required.

You can set up off your tailgate at this location if you like. The Villages Astronomy Club members and the public are welcome.

**General Meeting, Jan 21st, 6:30pm:  
Electronically Assisted Astronomy  
Techniques, by Randy Gilbert**

Join us at Laurel Manor Rec Center, 1985 Laurel Manor Drive, at 6:30pm for a presentation by our own Randy Gilbert on the many ways in which smart controllers and smart telescopes can enhance your ability to observe the skies, do astrophotography, and eliminate back strain!

Modern controllers are capable of figuring out where the telescope is pointed in the sky automatically, doing away with the largest problem with the prior generation of Go-To scopes. Now whether you are a casual observer on a limited budget or a dedicated observer working to build up the nee plus ultra observing and photography system, there is a solution for you.

Learn about the options and capabilities in Electronically Assisted Astronomy (EAA) devices, and how they make Florida observing so much easier and more resistant to our sky conditions spoiling the view. Learn about both new devices, and how to adapt old telescopes to EAA.



**Seestar S30, by ZWO**

**EAA Meeting, January 29th, Homestead  
Astronomy Park, 5:30 pm**

Join us at Homestead Astronomy Park for an evening of observing with smart telescopes! Owners of smart scopes or scopes with smart controllers are welcome as are those who are interested in learning more about the options to get started in Electronically Assisted Astronomy (EAA). We will keep the park open late for observing and photography if weather permits.

Note that these meetings follow the Lunar phase, so this year the meetings have shifted from the beginning of the month in 2024 to the end of the month in 2025!

**Calendar:** <https://vlgastroclub.org/calendar/>

**NEWS**

**2024 Record Setting Year in Spaceflight**

2024 saw a record-setting 259 orbital launches from around the world, more than double the number from prior years. 154 of those launches were performed by the U.S. SpaceX was the largest contributor of U.S. launches, with 134 launches of its Falcon 9 and Falcon Heavy rockets.

China was the nation with the next-highest number of launches at 68.

Several launch vehicles saw their final flights in 2024, including Europe's original Vega rocket, now replaced by the Vega-C which had its first launch this year. The U.S. Delta IV rocket saw its final launch in April 2024. See our May, 2024 issue of the newsletter for our mega-article on the long history of the Delta launch vehicle family that ended with that launch.

Not included in the above totals were the four launches of SpaceX's new Starship ultra heavy lift vehicle, which continued testing, flying the final flight of the Version 1 of that vehicle.

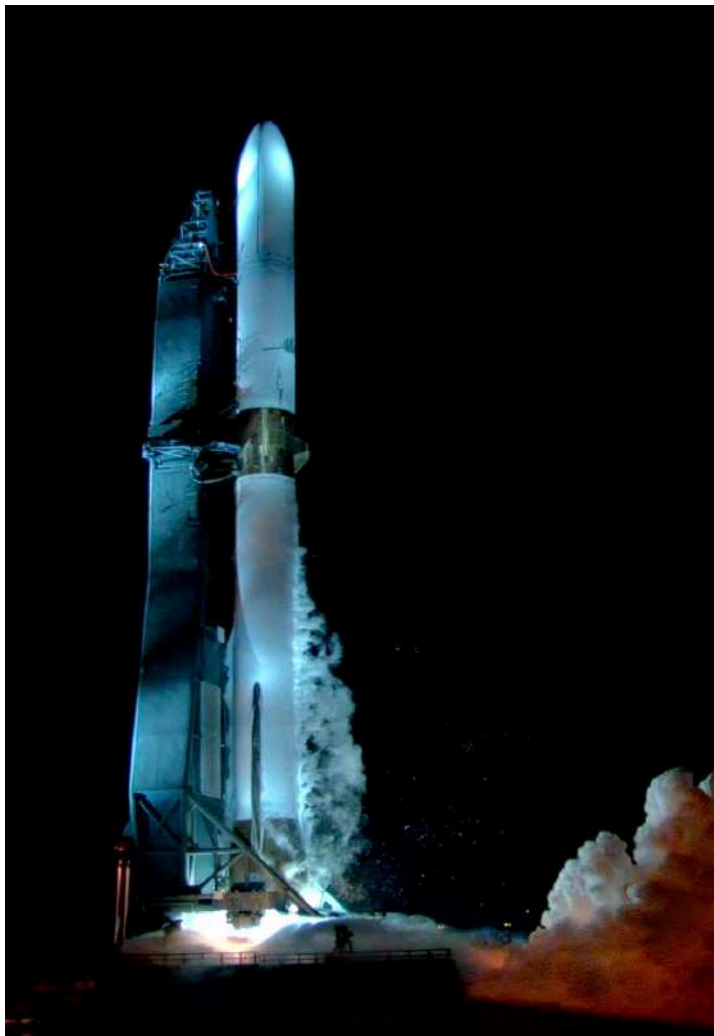
**2025 Will Go Further**

There will be no letup in the pace of space launches in 2025. SpaceX alone plans over 200

launches of its Falcon rockets, and up to 25 launches of the Starship depending on how its development goes. It's possible that SpaceX may have as many as 3 launch sites for the Starship by the end of 2025, including one at historic launch complex 39 in Florida!

Blue Origin will fly their first test flight of their reusable New Glenn launch vehicle, a reusable vehicle with a comparable lifting capacity to the Falcon Heavy. They have big plans for space stations and lunar flights with their new rocket.

China will continue to press forward in space as well, maintaining their space station and flying a new heavy rocket to support their ambitions of sending a crew to the Moon. Their semi-private industry is also working on developing a Falcon-style reusable vehicle.



**Successful Hot Fire Test of New Glenn, Preparing for January launch. Blue Origin image.**

United Launch Alliance's Vulcan launch vehicle saw its debut in 2024, intended to replace both the Delta IV and Atlas V rockets eventually. In 2025 we will see the new cargo vehicle Dream Chaser, a spaceplane built by Sierra Space, take to orbit for the first time as the newest ISS resupply vehicle.



**Dream Chaser Spaceplane by Sierra Space**

## **IN THE SKY THIS MONTH**

*Please also refer to the sky map on the last page of the newsletter.*

### **The Moon:**

1st Quarter, January 6th

Full Moon, January 13th

Last Quarter, January 21st

New Moon, January 29th

**Planetary Alignment--NOT!** Despite the internet and media like the Associated Press saying the "planets are in alignment", the fact is that they are not. Online images of planets lined up in a queue are nonsense. The planets travel along the ecliptic, an imaginary line in the sky that defines the plane of our solar system. The Sun, Moon, and the planets all travel across the sky within about 5 degrees of this line.

But they are not lined up. This month, Venus and Saturn are way over in the western sky as the Sun sets, while Mars is way over in the east. In space, they are all over the place with respect to the Sun and the Earth. No reasonable person would call this a line!

**Venus** rises ever higher as our evening

star, shining at magnitude -4.5 at the start of the month and brightening slightly to -4.8 at month end. It's disk illumination (phase) is shrinking from 55% illumination down to less than half at 39% at the end of the month, making this a great month to give Venus a telescopic examination at least once a week as it wanes. At least 40x magnification will reveal its phase.

Venus will be in conjunction with Saturn on the night of the 17th, with only 2.2 degrees between them. This is close enough to see both in a low power wide field view in a telescope.

Venus online finder chart:

<https://in-the-sky.org//data/object.php?id=P2>

**Saturn** is still a bright evening star through the month, and its rings get ever narrower as it approaches ring crossing in March. The planet shines at magnitude 1.1, and 16.3 arcsec across for the disk with the rings being about 32 arcsec.

Be sure to see Saturn's conjunction with Venus on the night of January 17th!

Saturn finder chart:

<https://in-the-sky.org//data/object.php?id=P6>

**Jupiter** is just past opposition this month, though it is still close enough you won't notice the difference. It shines brightly at mag -2.7 early in the month, dimming slightly to mag -2.6 at month's end.

Binoculars will reveal Jupiter's moons in a line along its equator. Any telescope will show the disk of Jupiter at 47 arcsec wide this month. Even low magnification (30-80x) will reveal the bands and zones, and higher magnification, steady air, and low humidity will show weather patterns including the Great Red Spot, which is much harder to observe now than it was 20-40 years ago.

Take advantage of the cold Polar Vortex air to get a close look at Jupiter!

The Sky & Telescope guide to observing Jupiter:

<https://skyandtelescope.org/observing/celestial-ob>

<https://in-the-sky.org//data/object.php?id=P5>

Jupiter observing information:

<https://in-the-sky.org//data/object.php?id=P5>

**Mars** rises shortly after sunset this month, at 14 arcsec across and fully illuminated this month will be prime time for observing the surface of Mars. It reaches opposition on the 15th, making this month the best time to observe it.

It will also be occulted by the Moon on the night of the 13th. It will disappear behind the Moon at about 9pm, then reappear about one hour later.

Large surface features of Mars can be seen at low to mid magnifications (80-150x) such as Syrtis Major, a large triangular dark area on Mars, or Arabia Terra, a large bright plain to the west of Syrtis Major. The season on Mars at present is spring in the north, and fall in the south, so the polar caps are in transition.

To see what features are visible at any time, you can use the virtual Mars globe at:

[MarsMap](#)

Online observing information for Mars:

<https://in-the-sky.org//data/object.php?id=P4>

**Mercury** has raced across the sky to be a morning star. It is best seen at the start of the month, then disappears into the Sun's glare at the end of the month. Binoculars are good for viewing Mercury to add it to your list of planets seen!

Mercury online viewing chart:

<https://in-the-sky.org//data/object.php?id=P1>

**The Quadrantid Meteor Shower** peaks on Jan 3rd, and is best viewed in the early morning hours before sunrise. The Quadrantids have a very brief peak compared to most meteor showers which have good conditions for a week or more. With a dark Moon, it may be possible to see as many as 100 meteors per hour, but a rate of about 25 per hour is more likely. The Quadrantids are fast meteors, flashing across the sky rapidly. They produce regular fireballs. Look

for them around the radiant point in northern Bootis, the Herdsman.

More information on sky events this month:

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

## Club Calendar

Special events by The Villages Astronomy Club

Events not hosted by The Villages Astronomy Club

Notable dates with no event planned.

### January 2025

3 Exec Meeting, 11am Fishhawk

6 Telescope Workshop 6pm, Space Academy 6:30pm

18 Fruitland Park Observing, 5pm, 300 Shiloh St.  
Fruitland Park

19-20 Venus/Saturn Conjunction Closest Approach  
12:16am, 2 degrees, 31 arcminutes

21 General Meeting, Randy Gilbert, EAA Astronomy  
Techniques

Laurel Manor 6:30pm

29 EAA Meeting, Homestead Astronomy Park, 5:30pm

### February 2025

3 Telescope Workshop, Space Academy 6:30pm

7 Exec Meeting, 11am Fishhawk

8 Starry Starry Night, Waxing Gibbous Moon (8 day),  
Sunset 6:12pm, Observing 6:30-8:30, Saturn Sets  
Early, Venus, Jupiter, Mars

15 Fruitland Park Observing, 5pm, 300 Shiloh St.  
Fruitland Park

18 General Meeting Burt Salk, "Life on Mars: How  
volunteers in NASA's Mars simulator will live for a  
year", 6:30pm Laurel Manor

26 EAA Meeting, Homestead Astronomy Park, 7:15pm

28-March 1st The Villages Outdoor Expo,  
Everglades Rec Center, 10am-3pm each day

### March 2025

1 Outdoor Expo, see above

3 Telescope Workshop 7pm, Space Academy 6:30pm

7 Exec Meeting 11am Fishhawk Rec Center

9 DST Begins

13-14 Total Lunar Eclipse (Morning of 14th)  
Penumbral Contact 23:58, Umbral Contact 01:10,  
Totality 02:26-03:31, final umbral contact 04:48, final  
penumbral contact 06:00 No event.

15 Fruitland Park Observing, 5pm, 300 Shiloh St.  
Fruitland Park

18 General Meeting, Linda Meng, The Three Sisters of  
Astronomy

23 Saturn Ring Plane Crossing: See Saturn's Rings  
"disappear."

26 EAA Meeting, Homestead Astronomy Park, 6pm

29 Partial Solar Eclipse: NOT VISIBLE FROM THE  
VILLAGES

29 Boy Scout Merit Badge Class

Club Calendar on the web:

<https://vlgastroclub.org/calendar/>



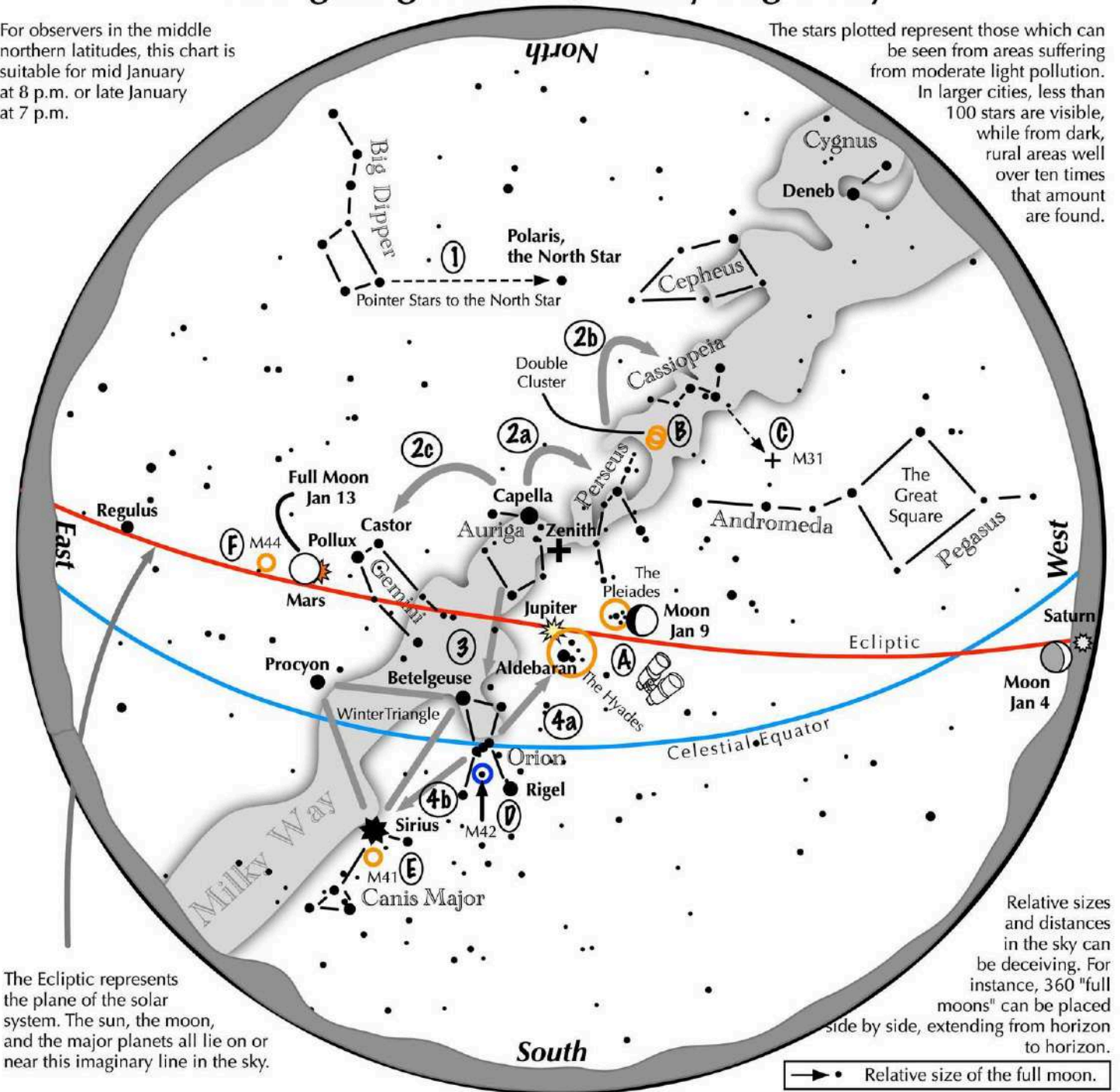
A simple and handy telescope dolly created by member Jerry Guyer. The support for the tripod legs can be removed, allowing the dolly to be used for other purposes.

See Monthly Sky Chart Next Page

# Navigating the mid January Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

## Navigating the winter night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
- 4 Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

### Binocular Highlights

**A:** Examining the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.

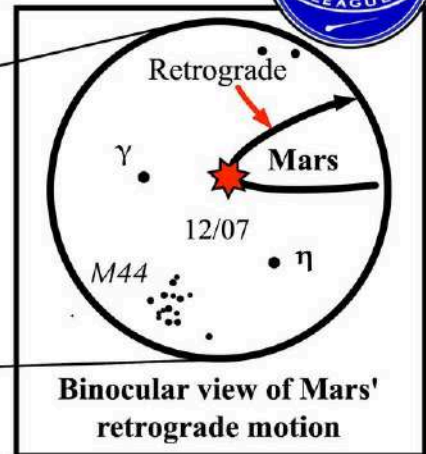
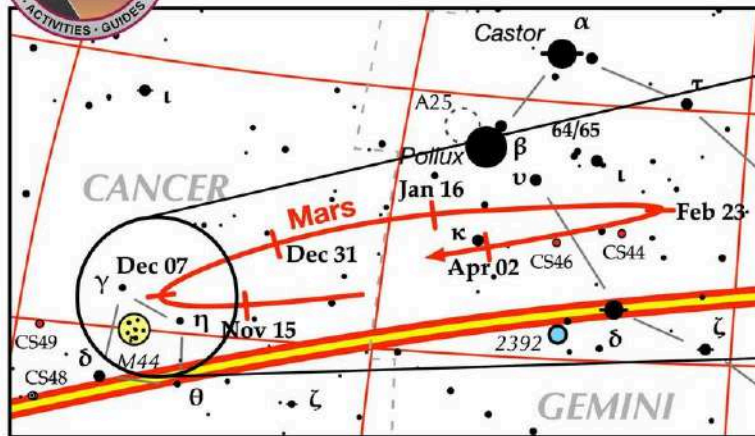
Astronomical League [www.astroleague.org/outreach](http://www.astroleague.org/outreach); duplication is allowed and encouraged for all free distribution.





# Observing Project: Retrograde Motion of Mars

See this for yourself!



## Relative apparent size of Mars



94% illuminated

Dec. 7, 2024  
 Magnitude: -0.6  
 Diameter: 12 seconds  
 Distance: 71 million miles



100% illuminated

Opposition  
 Jan. 16, 2025  
 Magnitude: -1.4  
 Diameter: 15 seconds  
 Distance: 60 million miles



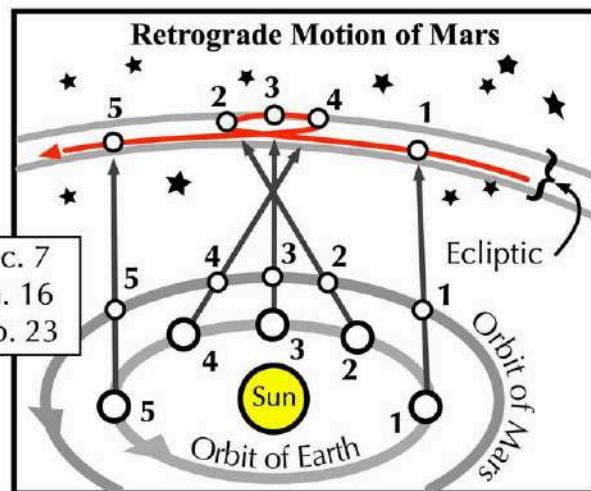
94% illuminated

Feb. 23, 2025  
 Magnitude: -0.4  
 Diameter: 11 seconds  
 Distance: 76 million miles

Over the next four months, observe Mars using binoculars on every clear night, then plot its changing position among the background stars.

Mars nears M44, the Beehive star cluster, in central Cancer in early December. It reaches its closest point to it on December 7, after which it enters retrograde motion, inching westward each evening until February 23, 2025. Mars then lies in central Gemini.

Mars will also be growing in angular size as Earth slowly overtakes it on January 16, 2025. (Actually, the two planets are closest on January 11. The discrepancy is due to Mars' elliptical orbit.) At this time, it shows its largest angular size – 15 arc seconds – until April 2031. By February 23, the Red Planet ceases moving westward nightly, shifting its direction eastward (called prograde motion).



2: Dec. 7  
 3: Jan. 16  
 4: Feb. 23

**Mars at its brightest, largest & closest:**  
 Jan. 11, 2025  
 -1.4 mag., 15 arc seconds, 59.8 million miles  
 It won't come any closer until Apr 11, 2031.

**Why do this activity?** This planetary dance can only be explained if both Earth and Mars orbit our sun following definable elliptical paths. Our view from Earth clearly shows this to those people who take the time to look carefully enough.