What's Up Basics

January 2026 - *by Laurie V. Ansorge*

New year, new way! What's Up/Basics is now in the monthly updates to enjoy on your schedule, your way.

Links to Observing charts for the Month:

Astronomical League (A.L.) *(see pages 5 & 6)*

"Navigating the …Night Sky" https://www.astroleague.org/wp-content/uploads/2025/12/2026-January.pdf

"Navigating the …Morning Sky" https://www.astroleague.org/wp-content/uploads/2025/12/2026-Jan-am.pdf

"Night Sky Guides" https://www.astroleague.org/navigating-the-night-sky-guides/

Skymaps downloadable charts: https://www.skymaps.com/downloads.html

Where are the comets and are they visible *(see page 7)*? https://theskylive.com/comets

A.L. Challenge observation: https://www.astroleague.org/new-ai-observing-challenge-3i-atlas/ *(A.L. Challenges are usually short time, lower involvement, great ways to dip into observing programs.)*

Basics for the month *(see pages 8 - 10)*:

Need for telescopes, magnification with relative sizes of objects https://www.astroleague.org/outreach/

There's always a planetary line up!

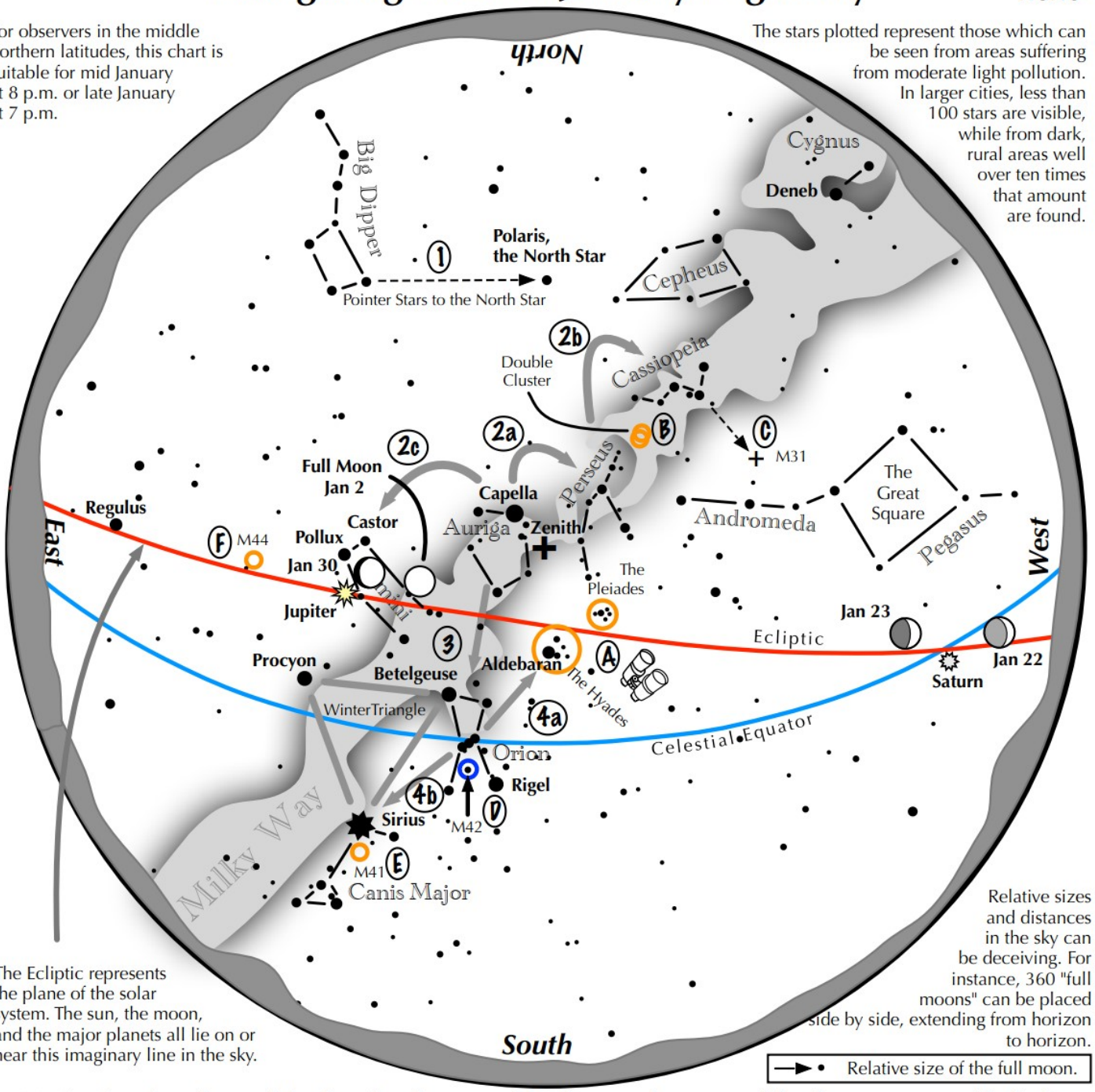
Flat Earth or Spherical Earth?

Navigating the mid January Night Sky

2026

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.

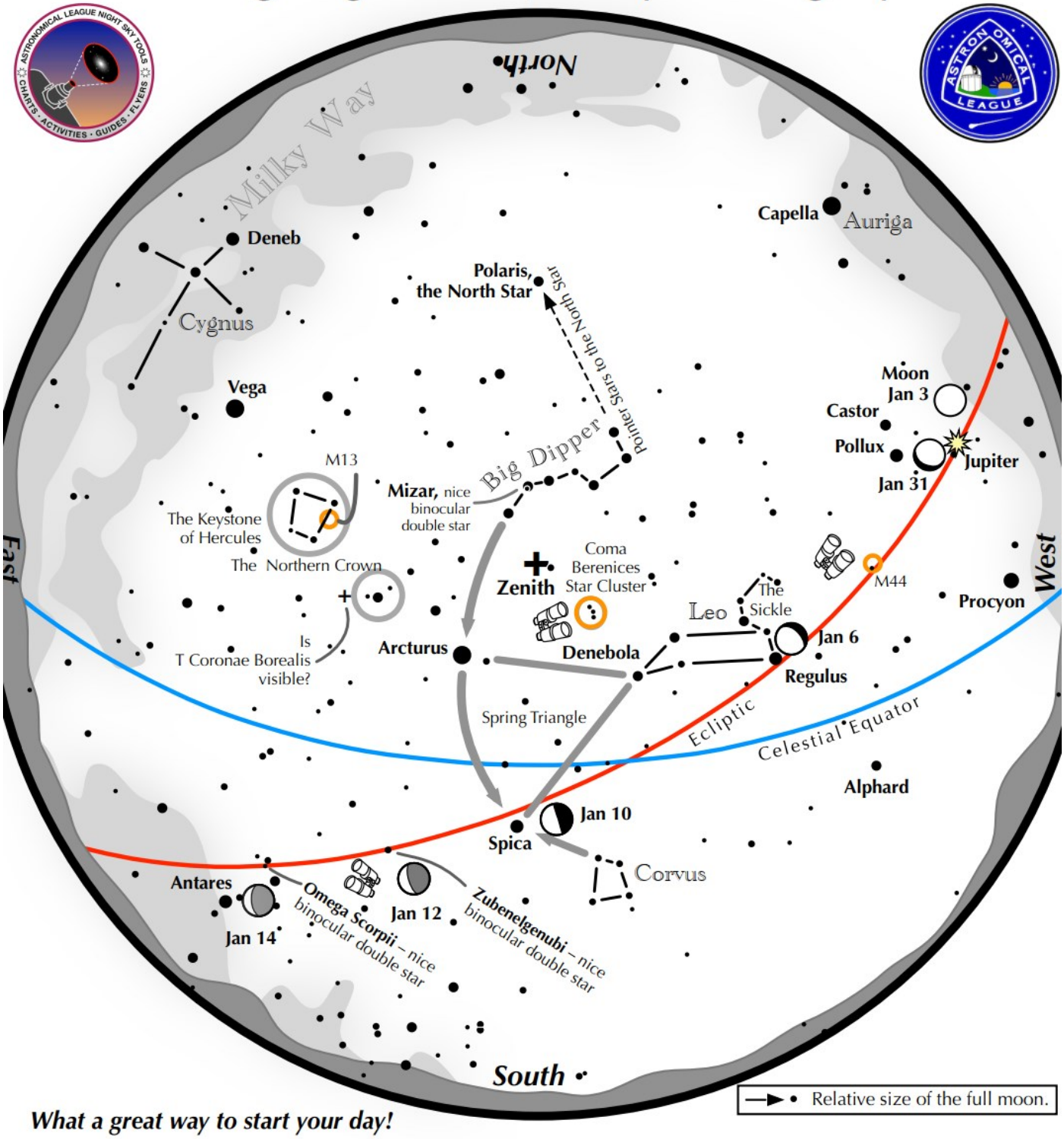
1. Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
2. Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from 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: Examine 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.

Navigating the mid January Morning Sky

2026

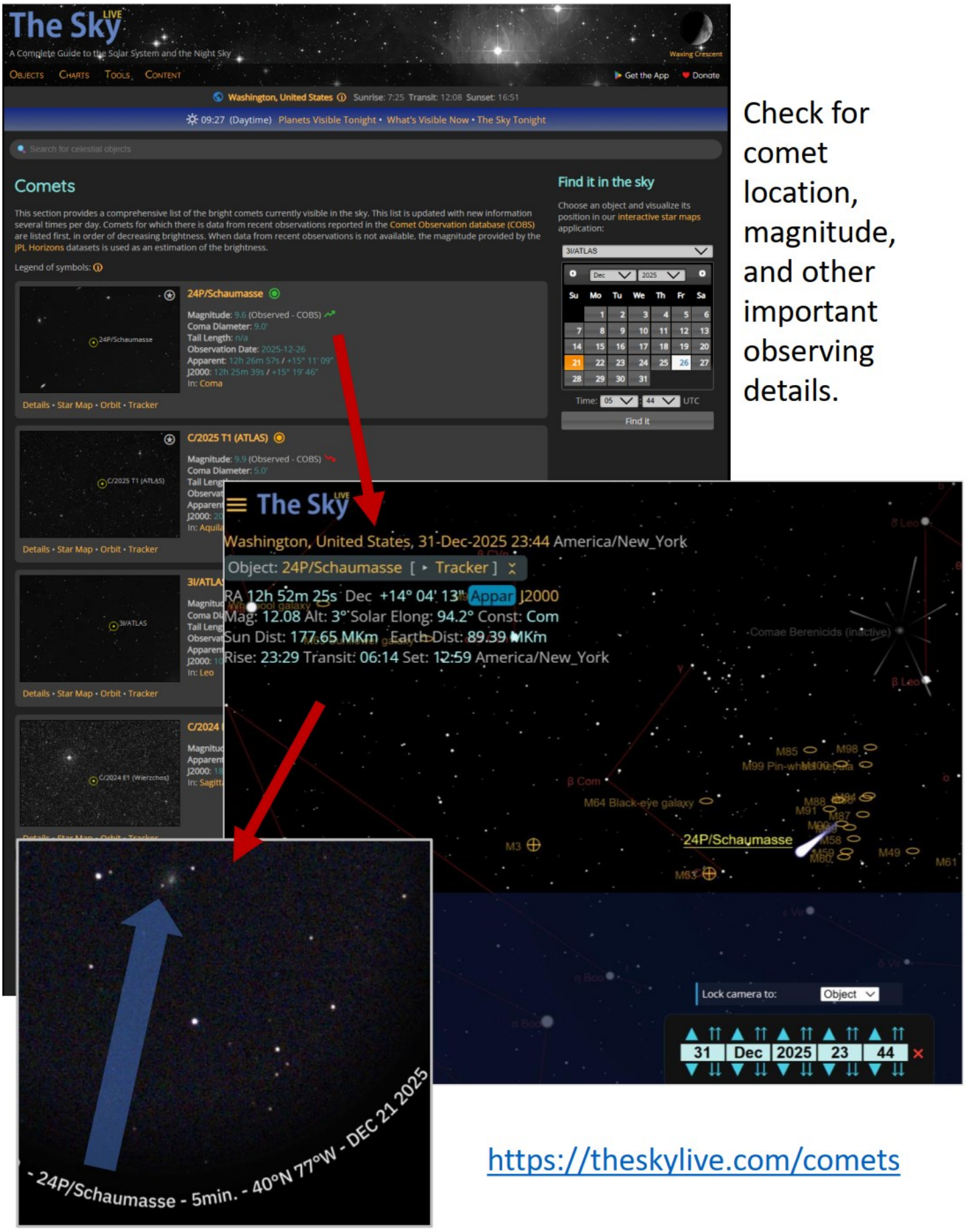


What a great way to start your day!

For observers in the middle northern latitudes, this chart is suitable for mid January at 5:30 a.m.

Late sunrises in January provide opportunities for early morning skywatching.

- Bright Jupiter shines in the west-northwest and moves below Pollux in Gemini.
- The third quarter moon floats near Spica on January 10.
- The waning crescent moon glows near Antares on January 14.
- Continue watching for a sudden and rapid brightening of T Coronae Borealis. When will it explode?
- A great time for viewing the Big Dipper, Leo, and Hercules. And it is time for galaxy viewing!



Check for comet location, magnitude, and other important observing details.

https://theskylive.com/comets

The Astronomical League
www.astroleague.org/outreach

Our Moon

Apparent Diameter:
30 arc minutes = 1800 arc seconds
True Diameter: 2160 miles
Average distance from Earth:
240,000 miles

Langrenus: 82 miles in diameter,
and about the same apparent size as Jupiter!

Section of the waxing crescent moon when it is four days past new.

The Need for Telescopes

Our solar system is very large and the planets are very far away. So far that, even though some of them are much larger than Earth, their angular sizes are qite small. Consequently, they always appear star-like to the unaided eye. A telescope is required to magnify their pinpoint appearances, making them visible as small disks for study. Magnifications of greater than 100 power are often needed.

Compare the relative apparent sizes of the moon and the bright planets with this circle which represents a typical low-power field of view. In many low-power eyepieces, the moon is about the same size as the field of view.

Mercury *(greatest elongation)*

Venus (greatest brilliancy)

Mars *(closest)*

Mars *(farthest)*

Callisto

Ganymede

Jupiter
and its four large moons
Callisto, Ganymede, Io, and Europa

Io

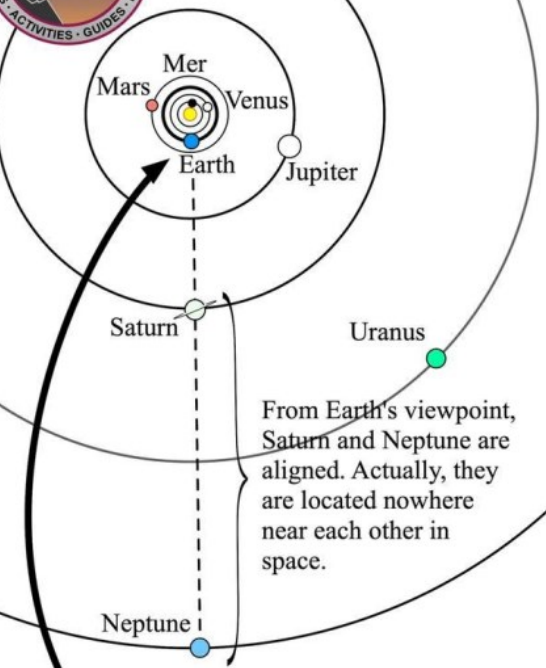
Europa

Saturn
and its rings and its large moon Titan

We all know how large the moon appears in our sky. While Venus, the planet that approaches closest to Earth, has a true diameter of over three times that of our moon, it is always at least 108 times farther away. As a result, its small angular size in the sky is comparable to the apparent sizes of the larger lunar craters. The other planets appear even smaller.

	Apparent Diameter (arc sec)	Actual Diameter (miles)	Distance at closest approach (miles)
Mercury (closest)	10	3025	57 million
Venus (closest)	60	7500	26 million
Earth	---	7900	---
Moon	1800	2160	220,000
Mars (closest)	25	4200	35 million
Jupiter	47	88,000	390 million
Saturn (planet)	19	75,000	794 million
Saturn (rings)	40	155,000	794 million

A planetary line up is taking place – always



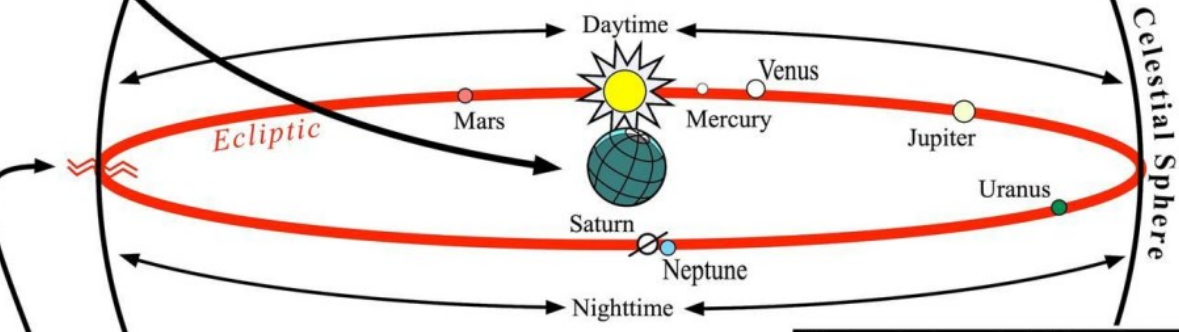
Our view from Earth

It is often said in social media circles and in internet postings that certain planets are in a special line up or are "aligned." **What is not said is that the planets are always in a constantly changing line up.**

Since all the planets reside on or near the plane of the solar system, they always trace a line across the sky from Earth's point of view. That line closely follows the ecliptic, the plane of Earth's orbit around the sun. As a consequence, the planets always appear to line up in some order which is always changing.

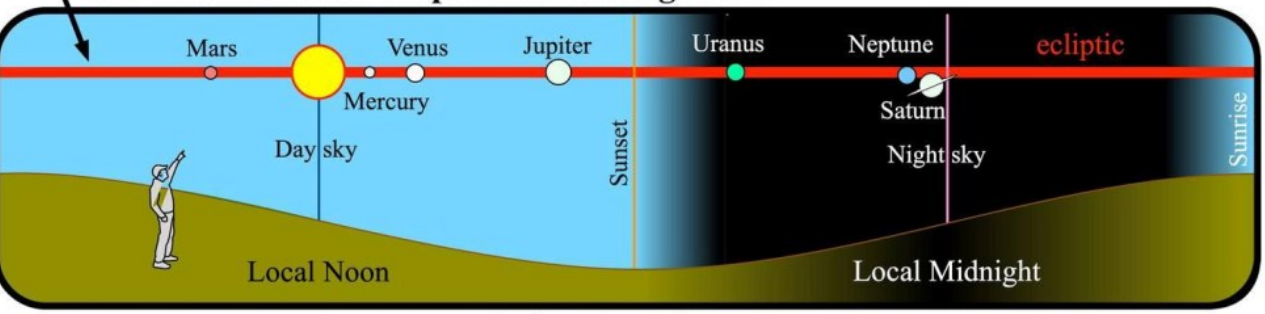
As planets orbit the sun, they occasionally appear to pass each and become "aligned." Even though for a short period they appear close to each other in the sky, they are never near each other in space.

View from Earth of the sun and planets along the ecliptic



Neptune is always invisible to the unaided eye, while Uranus is visible only under the best sky conditions.

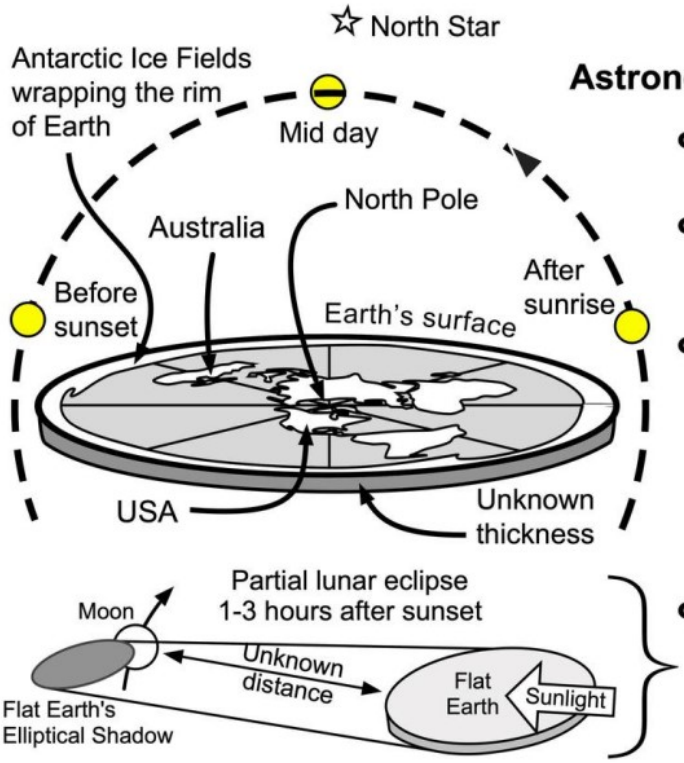
Cut and uncurl the ecliptic into a straight line



A planetary line up

Flat Earth vs Spherical Earth

An evaluation from the perspective of visual astronomy



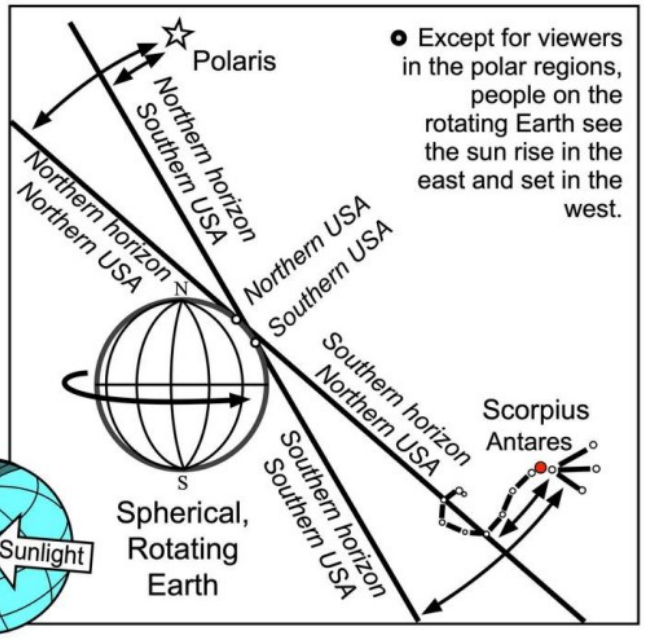
Astronomical Consequences of a Flat Earth

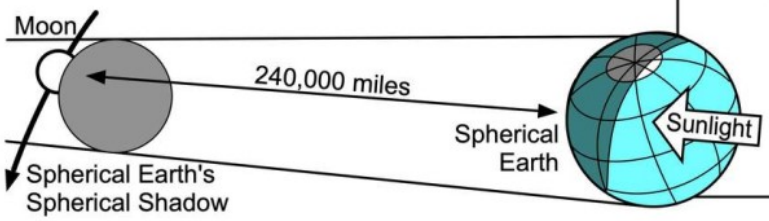
- The sun should be visible someplace in the sky for everyone at the same time. (It is not.)
- The sun sets in the east, south, north, or west depending where you are on Earth. (Except for west, this is never seen.)
- At night, the North Star and the constellation Scorpius should be visible to everyone at the same time. (They are not. The North Star is never visible from the southern hemisphere. When Scorpius is visible from North America, it is not from Asia, and vice versa.)
- When a total lunar eclipse occurs one to three hours before sunrise or after sunset, Earth would cast an elliptical shadow on the lunar surface. (This is never seen.)

Bottom Line: <u>No</u> astronomical evidence exists that supports the Flat Earth model while disputing the Spherical Earth model.

Astronomical Consequences of a Spherical Earth

- The farther south one goes, the higher the southern stars climb above the horizon. For instance, Antares rises higher as viewed from the southern US than from the northern. This is consistent with what we see.
- The farther north one goes, the higher the North Star shines above the horizon. This is exactly what we see.
- The curvature of Earth's circular shadow cast on a spherical moon is consistent with a spherical Earth. This is exactly what we see.





Of course, a substantial amount of well-proven, non-astronomical evidence also exists.