Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

December 2021

Membership Meeting
December 10th 2021
Herrett Center
CSI main campus at 7:00pm

Centennial Observatory
See Inside for Details

Faulkner Planetarium
See Inside for Details

www.mvastro.org

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Magic Valley Astronomical Society is a member of the Astronomical League

M-51 imaged by Rick Widmer & Ken Thomason Herrett Telescope - Shotwell Camera

President's Message

Club Members and Friends:

We have so much to share with all of you this month. First, as your new incoming President for 2021, and 2022; I want to offer a big thank you to Rob Mayer for his excellent leadership and tenure as our President the past several years.

As we reported earlier, elections in November concluded with Gary Leavitt as President, Jay Hartwell as Vice-President and Jim Tubbs as our Treasurer. Unfortunately, we weren't able to fill the secretarial position at that time. Anyone interested in helping us out in that area, please let me or Jay know.

Chris Anderson is reporting (via email) some good news regarding our annual Star Party at Castle Rocks State Park, July 29-30. Five campsites are being reserved along with space in either the Lodge or Bunkhouse. Please refer to his email and select preferences if you are interested.

Coming up in just a few days will be another comet opportunity. It's named C/2021 A1 (Leonard) and was discovered in January at Mount Lemmon Observatory in Arizona by GJ Leonard. As you know, these creatures can be some of the most undependable, unpredictable, yet spectacular events to hit the skies. I'm still in awe over Comet Neowise from July 2020. My favorite comet site is https://cometchasing.skyhound.com. I'm sure David will have more to say on that in the newsletter. So far, some predictors say Comet Leonard could be naked-eye by mid-December. Anyway, keep an eye out and camera ready for this one.

On another matter, we normally have our annual Christmas Party in December. And as you know, COVID didn't allow us to participate last year. This year it would be on the 11th. I'll be sending out an email on this in a few days to gauge interest. Meanwhile, we hope the Thanksgiving Holiday was good for all of you.

Clear Skies and Stay Safe
Gary Leavitt

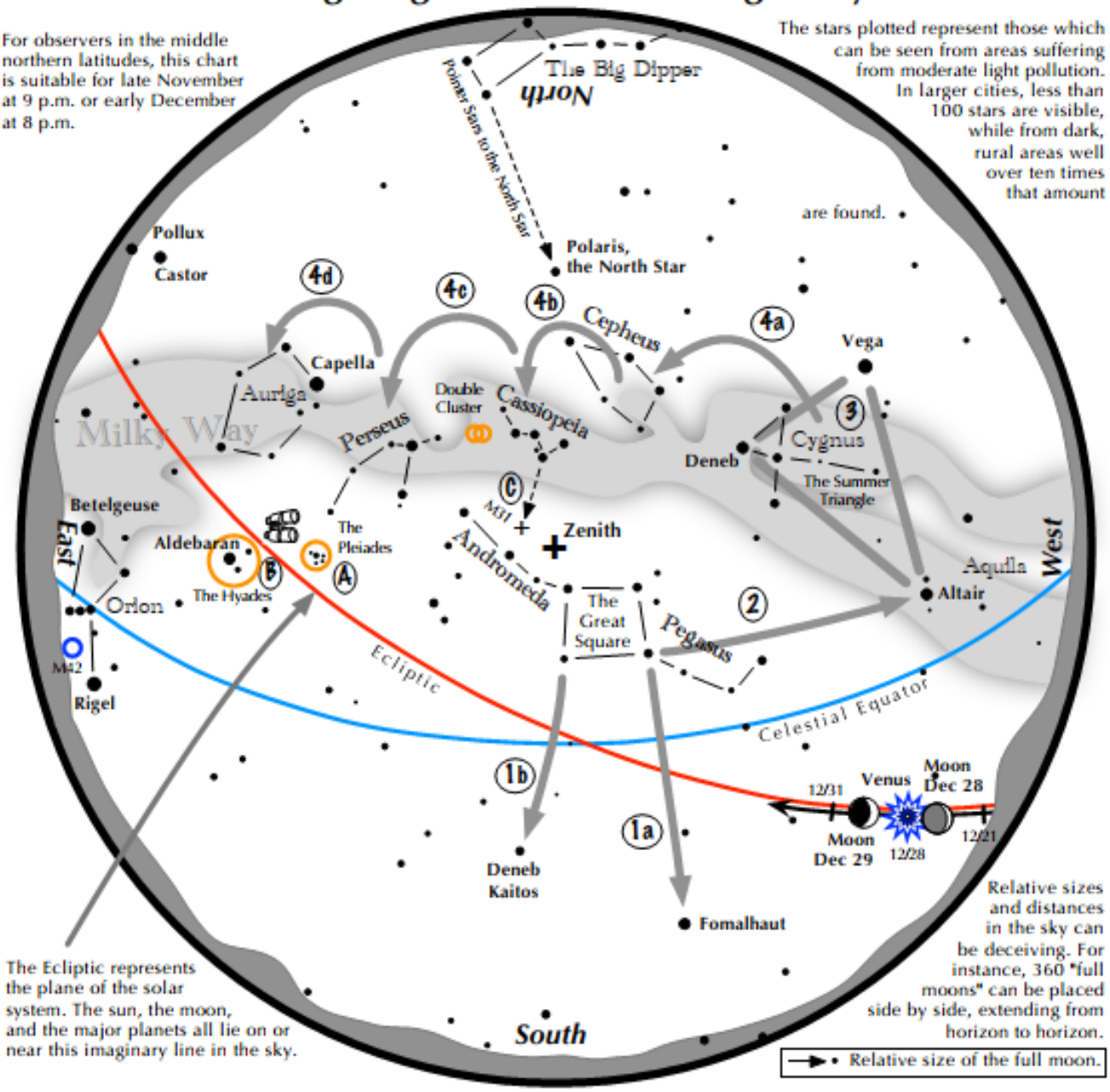
December 2021 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 New Moon  Lunation 1224
5	6	7	8	9	10	11 MVAS General Meeting 7:00pm at the Herrett Center Centennial Observatory Public Star Party 5:30p – 9:00p **Full Moon**
12	13	14 Centennial Observatory's Telescope Tuesday 5:30p – 9:00p	15	16	17	18
19 Full Ice Moon*  * Haida Tribe	20	21  Winter Solstice at 8:59am	22	23	24	25 Jul 
26	27 Last Quarter Moon 	28 Centennial Observatory's Telescope Tuesday 5:45p – 9:00p	29	30	31 New Year's Eve 	

Navigating the December Night Sky

For observers in the middle northern latitudes, this chart is suitable for late November at 9 p.m. or early December at 8 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 December night sky: Simply start with what you know or with what you can easily find.

1. Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second bright star in the south.
2. Draw another line, this time westward following the southern edge of the Square. It strikes Altair, part of the "Summer Triangle."
3. Locate Vega and Deneb, the other two stars of the "Summer Triangle. Vega is its brightest member while Deneb sits in the middle of the Milky Way.
4. Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, to Perseus, and finally to Auriga with its bright star Capella.

Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters.
C: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.
D: Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas.

The Night Sky This Month – December 2021

Sirius serving as a “Christmas Star”.

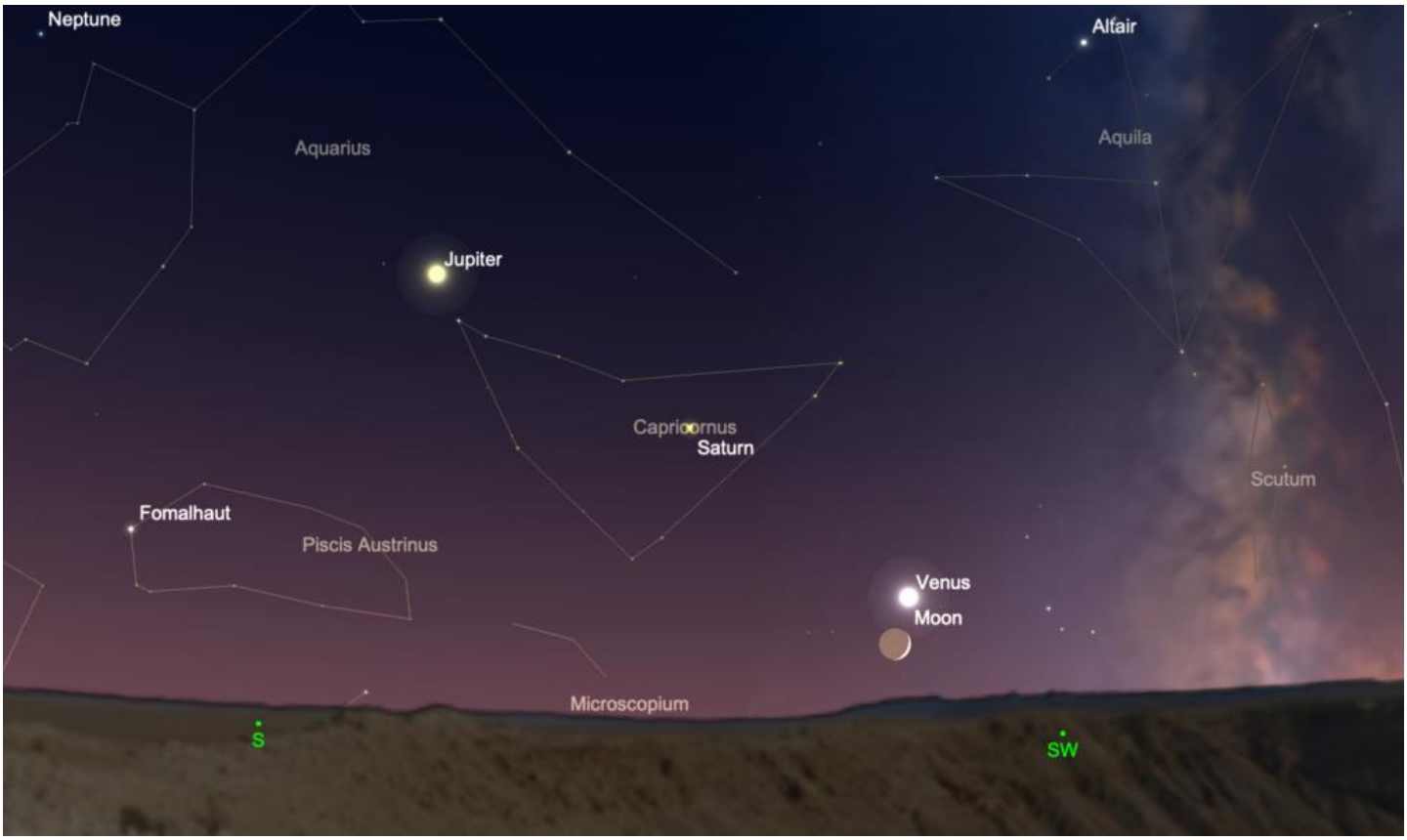
It was another challenging year on Earth. But it was a splendid year for us happy few who like to see what’s going on in the rest of the universe. As 2021 winds down, Jupiter and Saturn linger in the western sky after sunset. Mercury and Venus make a close but low conjunction in the evening sky later in the month. And the Geminid meteor shower enjoys a few hours of darkness in the early morning at mid-month. Here’s what to see in the night sky in December…

2 December 2021. Look for Jupiter, Saturn, and Venus lined up in the southwestern sky after sunset. The three planets remain visible here all month.

3 Dec. Venus reaches its greatest illuminated extent, that is, its greatest apparent size in the sky. It’s only 26% illuminated but its crescent spans about 41”. The planet shines at a dazzling magnitude -4.7 – about as bright as it ever gets – in the southwestern sky in the constellation Sagittarius after the Sun goes down.

4 Dec. New Moon, 07:43UT

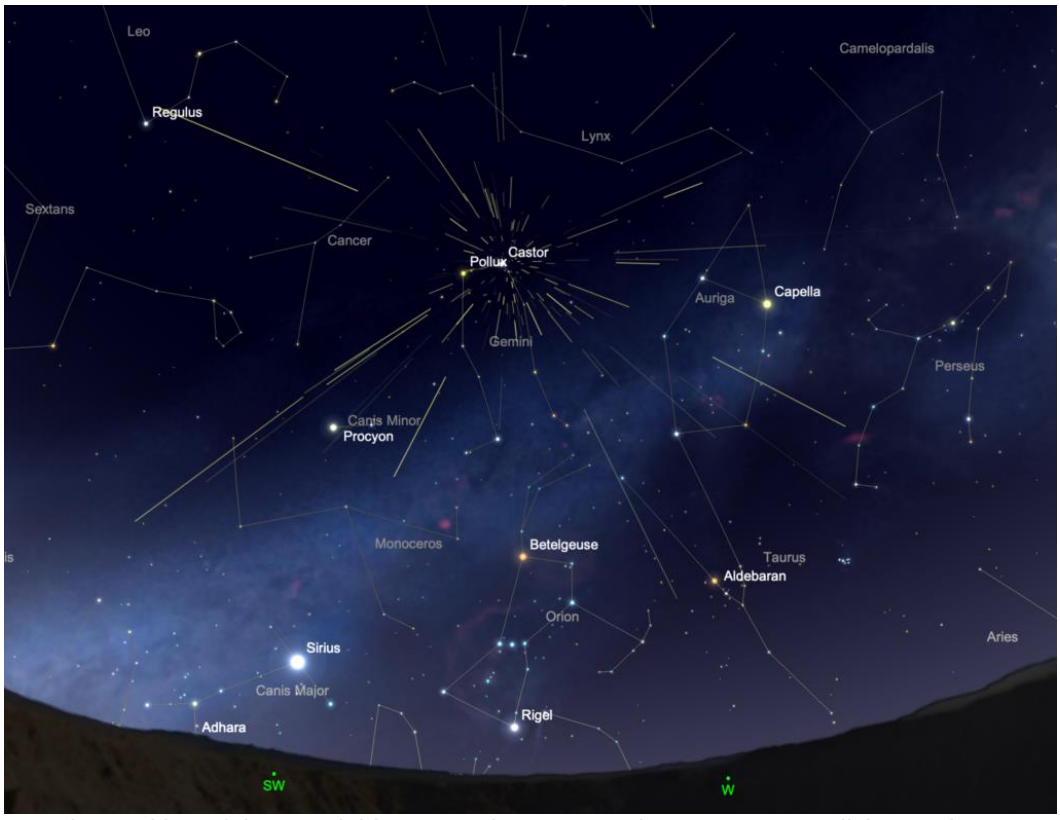
4 Dec. If you happen to find yourself in Antarctica today, a total solar eclipse passes across a narrow band from Berkner Island to Shepard Island. Details here…



Jupiter, Saturn, Venus and the crescent Moon looking southwest after sunset on Dec. 6, 2021. Click to Enlarge!

6-8 Dec. Look for the waxing crescent Moon passing Venus, Saturn, and then Jupiter on these nights in the southwestern sky after sunset. On the night of Dec. 6th, the Moon is just two degrees from Venus.

11 Dec. First Quarter Moon, 01:36UT



The position of the Geminid meteor shower near the star Castor. Click to Enlarge

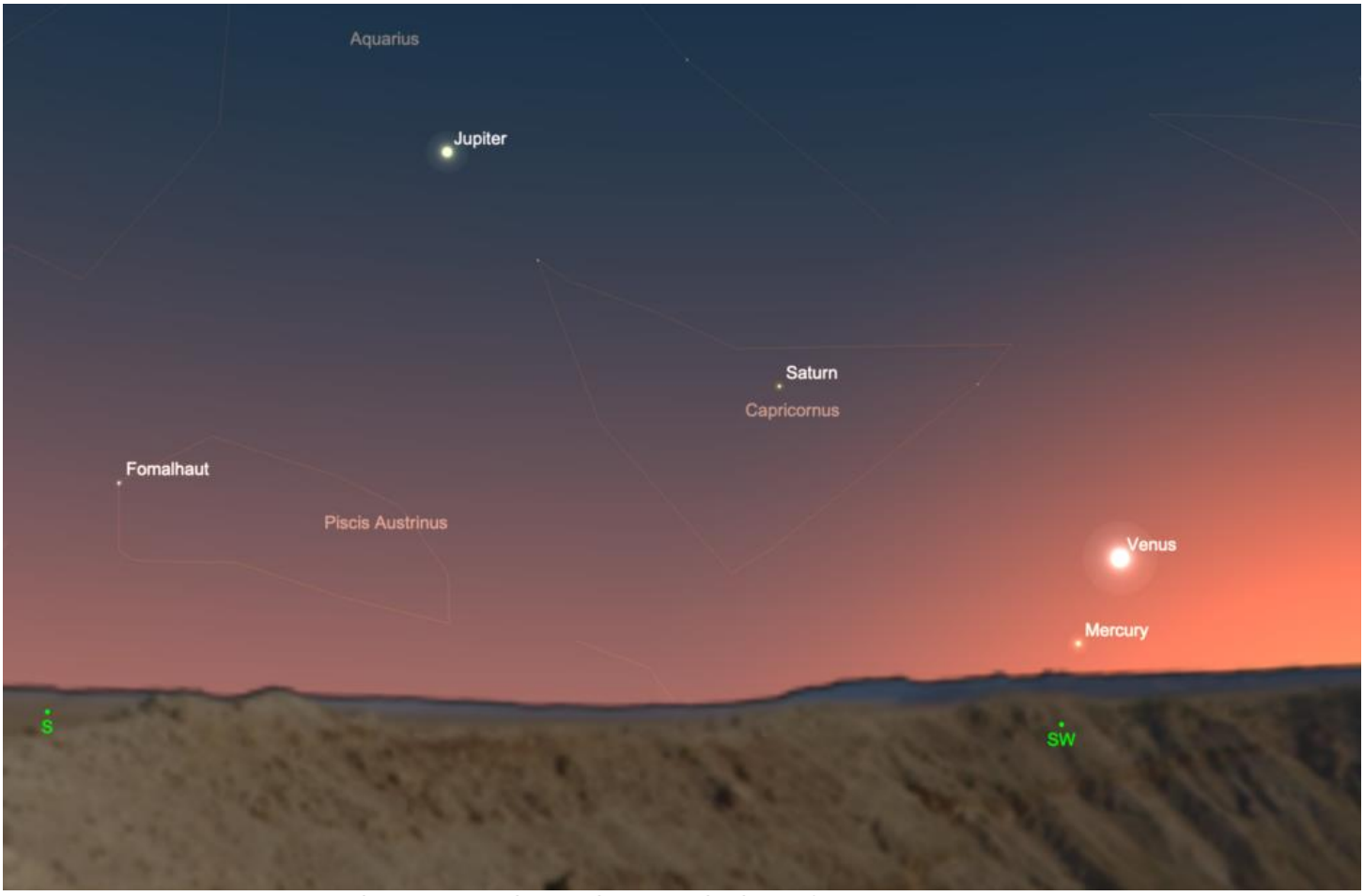
14 Dec. The usually reliable Geminid meteor shower peaks in the late hours of December 13 and into the early morning of the 14th. The waxing gibbous Moon obscures the faintest meteors this year, at least until it sets at about 3:30 a.m. So pre-dawn meteor watching is your best bet. Geminids can appear anywhere in the sky and trace their path back to a point near the star Castor in the constellation Gemini. Also, try looking after dark on the 13th for a few brighter Geminids that may enter the atmosphere at a shallow angle and burn slowly across the sky. The meteor shower happens on this date each year as the Earth passes through a stream of debris from the asteroid 3200 Phaethon, an Apollo asteroid discovered in 1983.

16 Dec. The brilliant gibbous Moon lies between the Hyades and Pleiades star clusters in the constellation Taurus.

19 Dec. Full Moon, 04:35UT

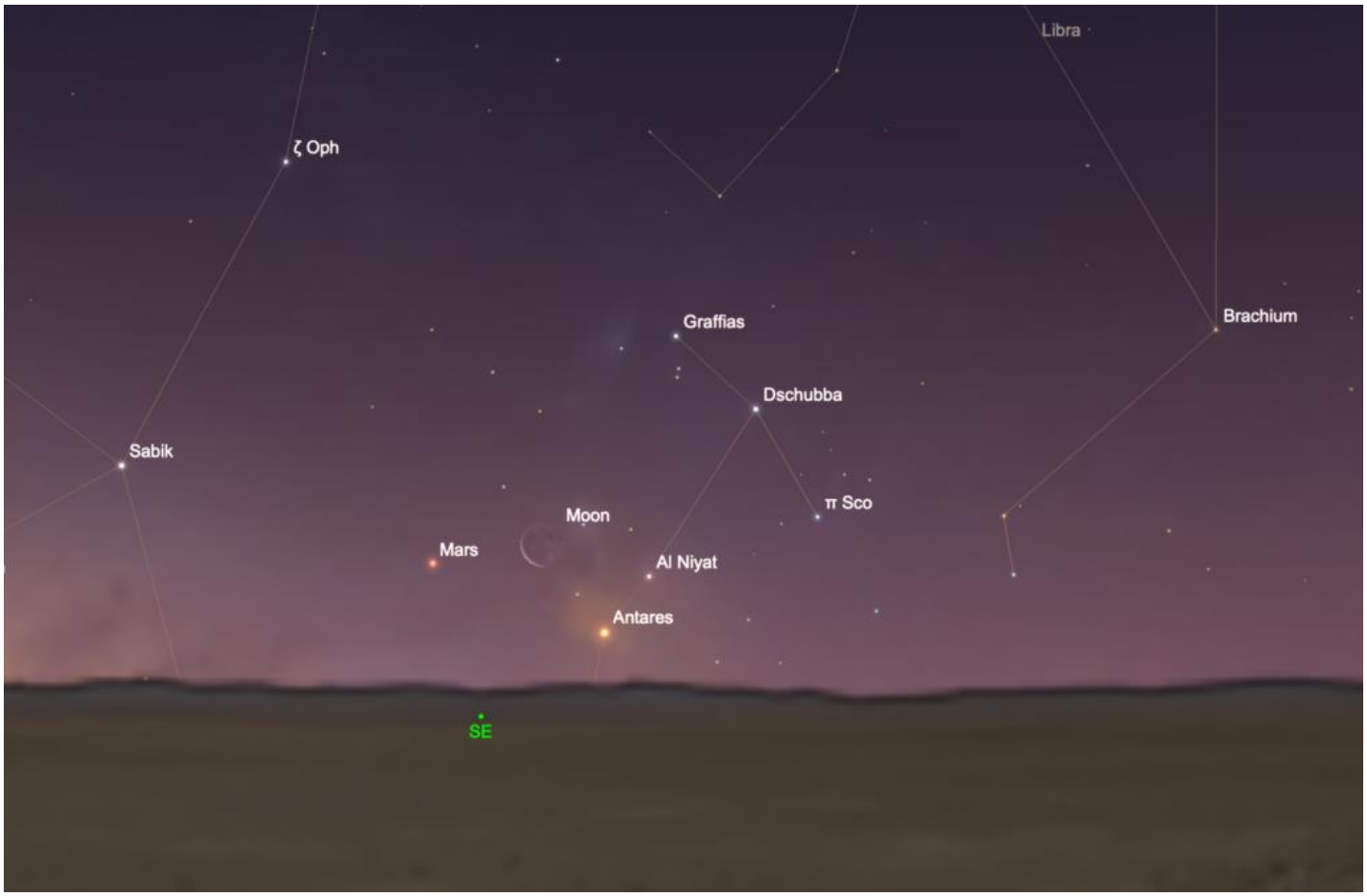
21 Dec. The December solstice arrives at 15:59 UT. This marks the beginning of winter in the northern hemisphere and summer in the south.

27 Dec. Last Quarter Moon, 02:24UT



Mercury and Venus over the southwestern horizon after sunset on Dec. 28, 2021.

28-29 Dec. The year ends with a conjunction of the two inner planets Mercury and Venus very low in the southwestern sky after sunset. These two hot and rocky worlds fit nicely in a binocular field of view, but you will need a clear view of the southwestern horizon to spot them. Jupiter and Saturn, both well past opposition, lie to the upper left. Mercury shines at magnitude -0.7 about four degrees south of Venus which shines about thirty times brighter at magnitude -4.4. Over the coming days, Mercury moves a little higher as Venus drops quickly towards the Sun on its way to inferior conjunction early next month. For most of 2022, it will appear as the “Morning Star”.



Mars, Antares, and the crescent Moon in the southeastern sky on the morning of Dec. 31, 2021.

31 Dec. In the early morning twilight, look to the southeastern sky to see Mars, a slender waning crescent Moon, and the star Antares rise before the Sun. The Moon lies between Mars and Antares which are about five degrees apart. A view of the southeastern horizon and a pair of binoculars is all but essential to spot this conjunction. Note the similarity in color between planet and star. The name *Antares* is a nod to Mars, a planet which the ancient Greeks called *Ares*. *Ant-Ares* means “opposed” or “against” Mars. Presumably, this served as a reminder that the star, despite its resemblance, is “not Mars”. Mars shines about half as bright as the star during this conjunction.

Source: Brian Ventrudo https://cosmicpursuits.com/ used with permission of the author. If you're not already a subscriber to Cosmic Pursuits, you can sign up here.

Comet Leonard – December 2021

I was greeted by fairly nice moonless pre-dawn this morning looking for Comet Leonard. A previous attempt on Nov 28th provided a 40% crescent moon, which washed out any signs. Still, the comet was very faint about 15 degrees above Arcturus. Couldn't pick it up on my 10x30's and just barely on my 15x70 binocs. Anyway, wanted to see it so I attached my fast f/2 135mm Rokinon lens to my full frame Canon and found it near M3. The comet literature earlier this week said Leonard was moving fast towards Arcturus by the 3rd and that M3 would also be nearby. Never able to image M3 before. Just don't have the tools required of an 800mm+ focal length to do the Globular justice. Took 30 9sec subs at ISO 3200 in DSS and processed the stack in Photoshop with help from Noel Carboni's Astronomy Tools. Stars are a bit bloated due to increasing the magnification, but I wanted to see a tail and more of the globular.
Cheers and best wishes, Gary L

Comet C/2021 A1 (Leonard) is currently visible near the globular cluster M3 in the pre-dawn morning sky. Articles on Comet Leonard can be found at the following URLs:

https://www.universe...ns-in-december/
https://earthsky.org...brightest-2022/
https://britastro.org/node/26346
https://www.space.co...in-december-sky
https://skyandtelesc...et-leonard-get/
https://skynews.ca/t...vmzqecqFCc7xfgM

Magnitude estimates are posted at https://cobs.si/recent and light curves at https://cobs.si/anal...209&plot_type=0 and http://www.aerith.ne...1A1/2021A1.html and http://astro.vanbuit...nl/comet/2021A1

Finder charts are available at https://www.cometchasing.skyhound.com/ and https://theskylive.c...d-info#position and in the comets section of the Heavens Above website.

An article on Comet Leonard appears on pages 48 and 49 of the December 2021 issue of *Sky & Telescope.*

A spectacular image (click to enlarge) of the comet when it passed by NGC 4631 (the Whale Galaxy) and NGC 4656 (the Hockey Stick Galaxy) can be seen at http://www.alpo-astr..._A1-LRGB_112421

Ob

Observation by Ian Sharp: C/2021 A1 (Leonard) and M3 http://www.astro-sharp.com

Editor’s Note: I must say that these images are very nice, but sadly the Treasure Valley is under an inversion and the skies of late have been foggy.

Observatory and Planetarium Events

Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, December 11th, 2021	5:30 to 9:00 PM	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, December 14th, 2021	5:30 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission
Telescope Tuesday	Centennial Observatory	Tuesday, December 28th, 2021	5:45 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission

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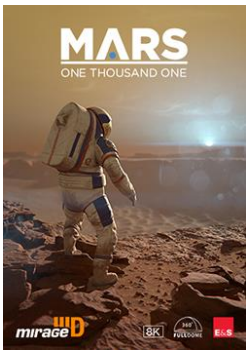
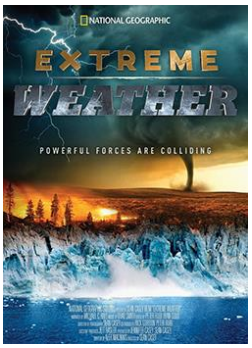
Faulkner Planetarium

Now Showing!





Visit the Herrett Center Video Vault

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

The James Webb Space Telescope: Ready for Launch!

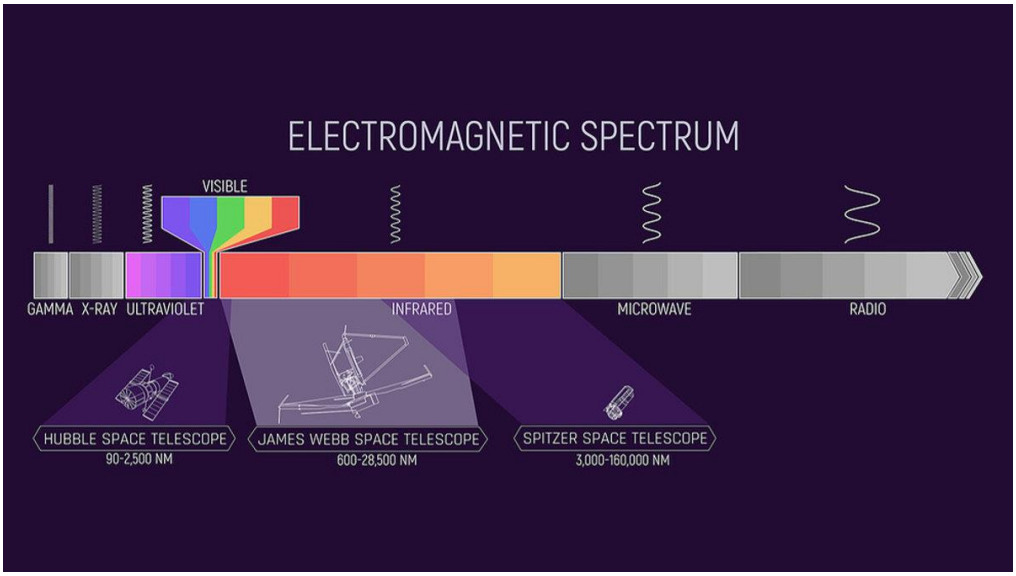
David Prosper

NASA's James Webb Space Telescope is ready for lift-off! As of this writing (November 15), the much-anticipated next-generation space telescope is being carefully prepared for launch on December 18, 2021, and will begin its mission to investigate some of the deepest mysteries of our universe.

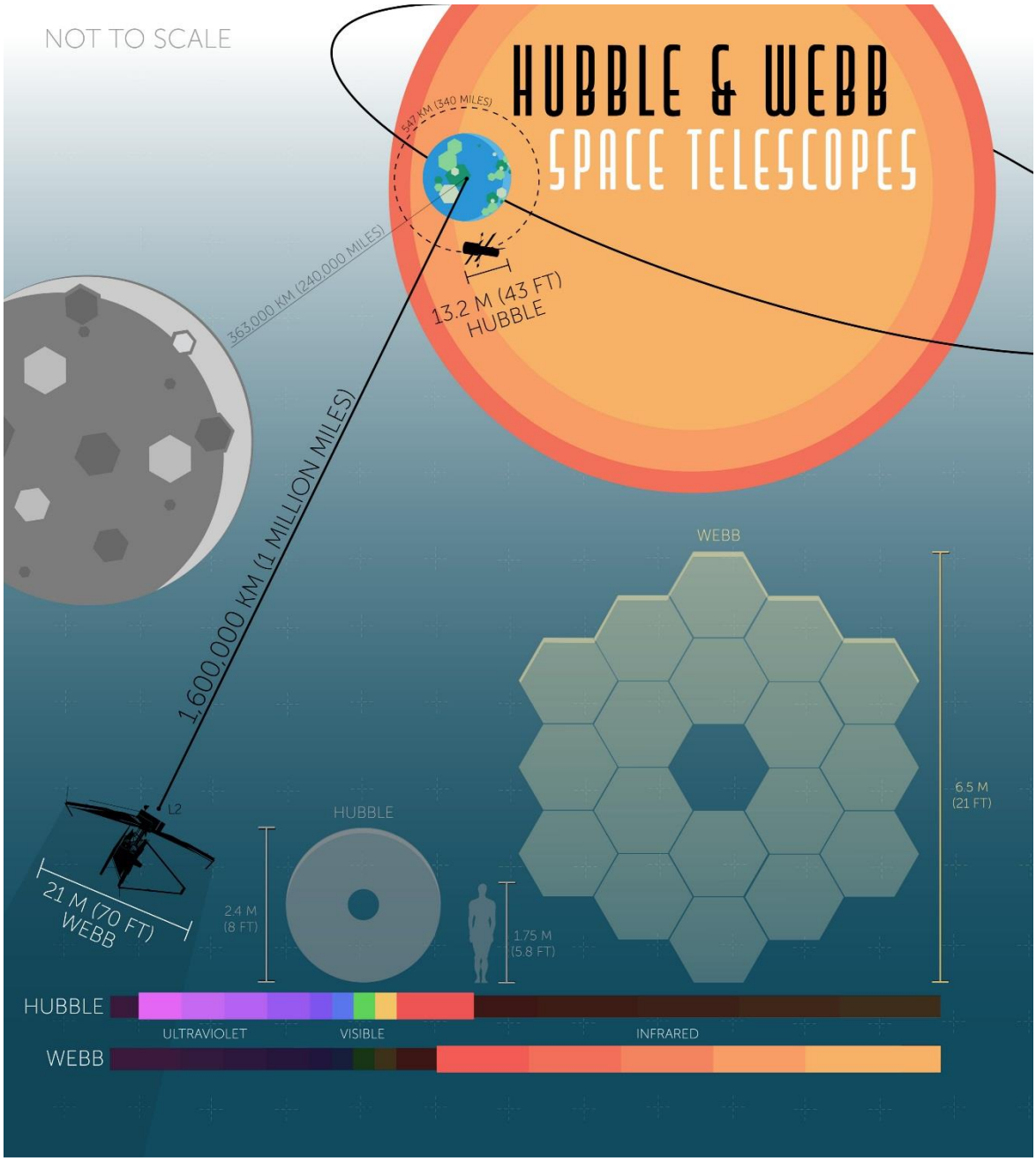
The development of the Webb began earlier than you might expect – the concept that would develop into Webb was proposed even before the launch of the Hubble in the late 1980s! Since then, its design underwent many refinements, and the telescope experienced a series of delays during construction and testing. While frustrating, the team needs to ensure that this extremely complex and advanced scientific instrument is successfully launched and deployed. The Webb team can't take any chances; unlike the Hubble, orbiting at an astronaut-serviceable 340 miles (347 km) above Earth, the Webb will orbit about one million miles away (or 1.6 million km), at Lagrange Point 2. Lagrange Points are special positions where the gravitational influence between two different bodies, like the Sun and Earth, "balance out," allowing objects like space telescopes to be placed into stable long-term orbits, requiring only minor adjustments - saving Webb a good deal of fuel.

Since this position is also several times further than the Moon, Webb's sunshield will safely cover the Moon, Earth, and Sun and block any potential interference from their own infrared radiation. Even the seemingly small amount of heat from the surfaces of the Earth and Moon would interfere with Webb's extraordinarily sensitive infrared observations of our universe if left unblocked. More detailed information about Webb's orbit can be found at bit.ly/webborbitinfo, and a video showing its movement at bit.ly/webborbitvideo.

Once in its final position, its sunshield and mirror fully deployed and instruments checked out, Webb will begin observing! Webb's 21-foot segmented mirror will be trained on targets as fine and varied as planets, moons, and distant objects in our outer Solar System, active centers of galaxies, and some of the most distant stars and galaxies in our universe: objects that may be some of the first luminous objects formed after the Big Bang! Webb will join with other observatories to study black holes - including the one lurking in the center of our galaxy, and will study solar systems around other stars, including planetary atmospheres, to investigate their potential for hosting life. Wondering how Webb's infrared observations can reveal what visible light cannot? The "Universe in a Different Light" Night Sky Network activity can help - find it at bit.ly/different-light-nsn. Find the latest news from NASA and Webb team as it begins its mission by following #UnfoldTheUniverse on social media, and on the web at nasa.gov/webb.



Webb will observe a wide band of the infrared spectrum, including parts observed by the Hubble - which also observes in a bit of ultraviolet light as well as visible - and the recently retired Spitzer Space Telescope. Webb will even observe parts of the infrared spectrum not seen by either of these missions! Credits: NASA and J. Olmstead (STScI)



Webb will follow up on many of Hubble's observations and continue its mission to study the most distant galaxies and stars it can - and as you can see in this comparison, its mirror and orbit are both huge in comparison, in order to continue these studies in an even deeper fashion! Credits: NASA, J. Olmsted (STScI)

Phil Harrington's Cosmic Challenge

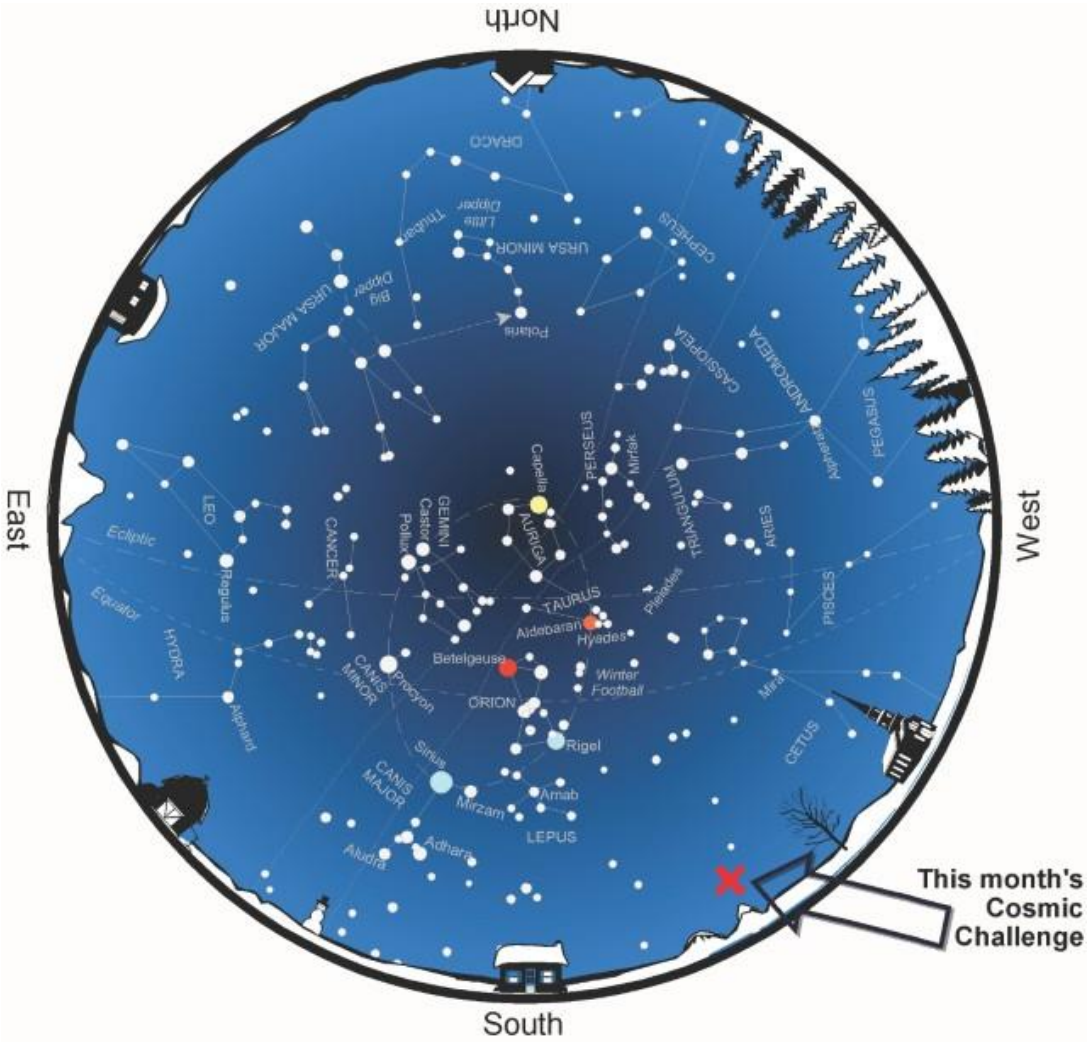
Abell Galaxy Cluster 373

This month's suggested aperture range:

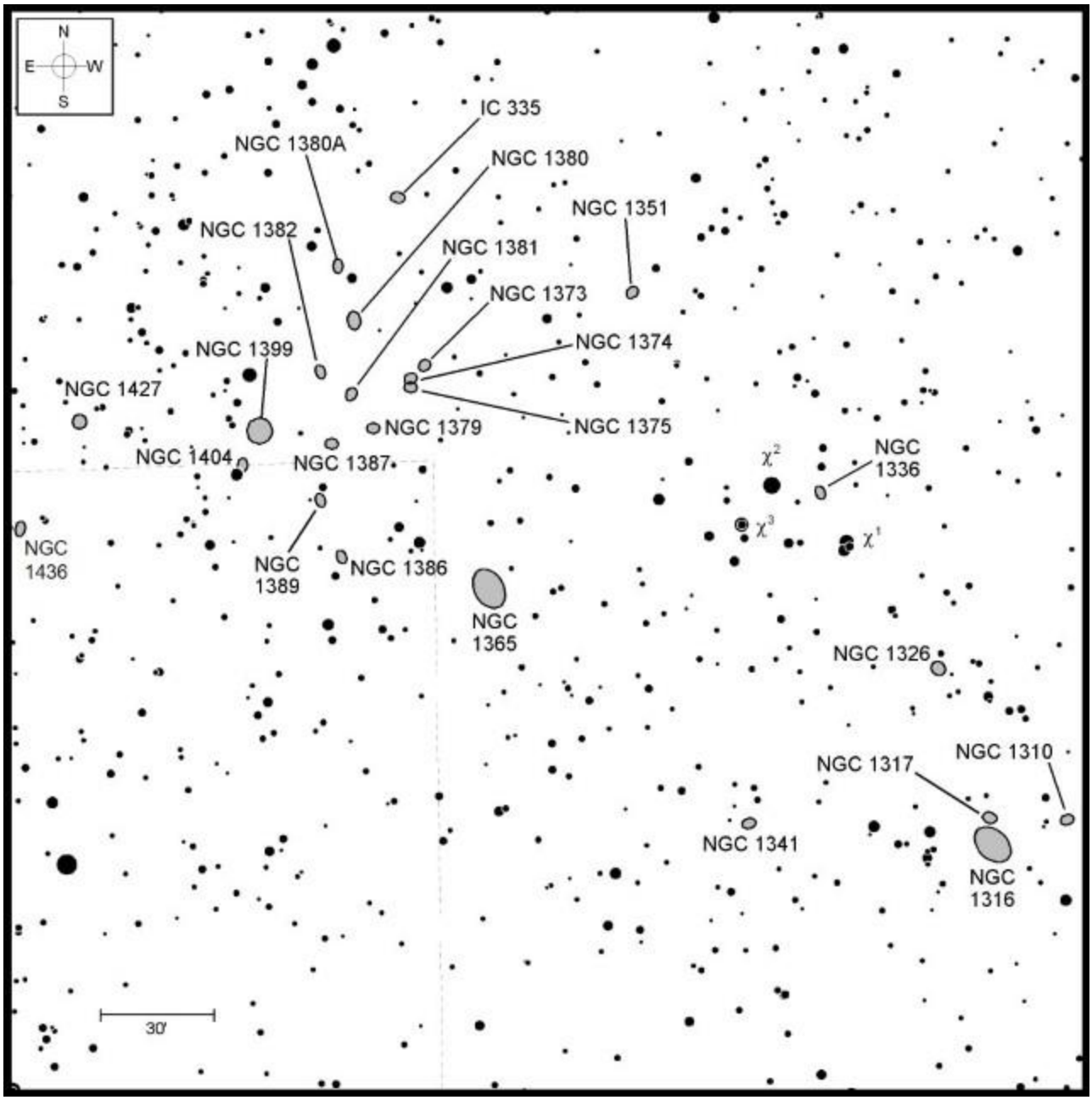

6- to 9¼-inch (15-23.5 cm) telescopes
(pictured Meade LS-6 & Celestron C-9 ¼)

Target	Type	RA	DEC	Constellation	Magnitude	Size
AGCS 373	Galaxy cluster	03h 38.5m	-35° 27.0'	Fornax	--	180'

Nestled in the southeast corner of the dim late-fall/early-winter constellation Fornax, adjacent to the distinctive triangle formed by 6th-magnitude Chi-1 (χ-1), Chi-2 (χ-2), and Chi-3 (χ-3) Fornacis, is an attractive cluster of galaxies known as Abell Galaxy Cluster - Southern Supplement (AGCS) 373.



Above: Late evening star map showing the location of this month's Cosmic Challenge.
Credit: *Map adapted from* ***Star Watch*** *by Phil Harrington*



Above: Finder chart for this month's Cosmic Challenge.
Credit: *Chart adapted from* ***Cosmic Challenge*** *by Phil Harrington*
Click on the chart to open a printable PDF version in a new window

In addition to his research that led to the discovery of more than 80 new planetary nebulae in the 1950s, American astronomer George O. Abell also examined the overall structure of the universe. He did so by studying and cataloging 2,712 galaxy clusters that had been captured on the then-new National Geographic Society-Palomar Observatory Sky Survey taken with the 48-inch Samuel Oschin Schmidt camera at Palomar Observatory. In 1958, he published the results of his study in a paper entitled "The Distribution of Rich Clusters of Galaxies" in the Astrophysical Journal Supplement (vol. 3, p.211). Although Abell died in 1983, his catalog was expanded in 1989 by Harold Corwin and Ronald Olowin with the publication of their article "A Catalog of Rich Clusters of Galaxies," again in the Astrophysical Journal Supplement (vol. 70, p. 1-138). The Corwin/Olowin addendum to Abell's original catalog encompasses a total of 4,073 rich galaxy clusters.

Also known informally as the Fornax Galaxy Cluster, AGCS 373 lies nearby as galaxy clusters go, at an estimated distance of 62 million light-years. At least 18 of its members are within range of 6- to 9¼-inch telescopes.

Let's start with two of the most interesting. In 1966, American astronomer Halton Arp published his monumental Atlas of Peculiar Galaxies, a photographic survey of oddball galaxies that he made with the 200-inch Hale reflecting telescope and

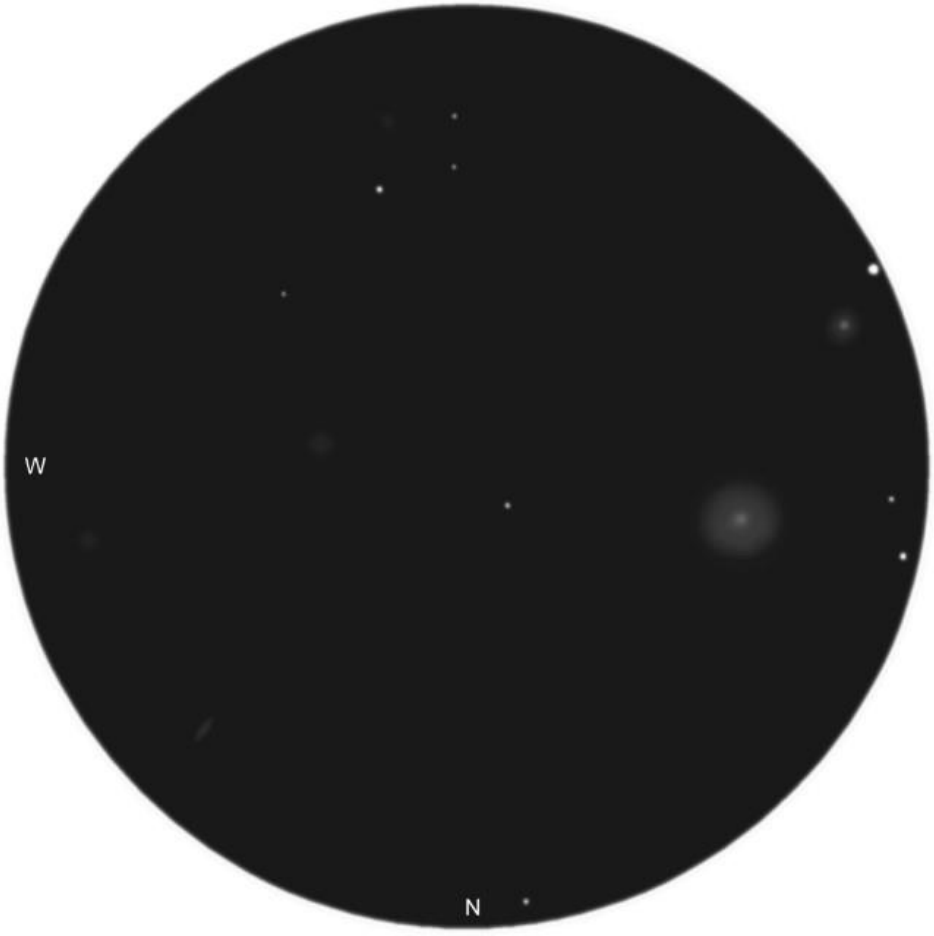
the 48-inch Schmidt telescope at Palomar between 1961 and 1966. The Arp catalog's 338 entries comprise a fascinating collection of interacting and merging galaxies. Most of the Arps are in the realm of large and giant backyard scopes, although a dozen entries involve Messier objects. [Those include M32 (Arp 168), M49 (Arp 134), M51 (Arp 85), M60 (Arp 116), M65 (Arp 317), M66 (Arp 16 and Arp 317), M77 (Arp 37), M82 (Arp 337), M87 (Arp 152), M90 (Arp 76), and M101 (Arp 26).]

Arp 154 involves two of the galaxies within the Fornax cluster. NGC 1316, at 9th magnitude the brightest galaxy in the bunch, is set in the group's western suburbs. Deep photographs reveal that NGC 1316 contains many dust clouds and is surrounded by a complex envelope of faint material, several loops of which appear to engulf a smaller galaxy, NGC 1317, 6' to the north. Astronomers consider this to be a case of galactic cannibalism, with larger NGC 1316 devouring its smaller companion. The merger is further signaled by strong radio emissions being telegraphed from the scene.

In my 8-inch reflector, NGC 1316 appears as a bright, slightly oval disk with a distinctly brighter nucleus. NGC 1317, about 11th magnitude and 2' across, is visible in a 6-inch scope, although averted vision may be needed to pick it out. Try about 150x for the best view.

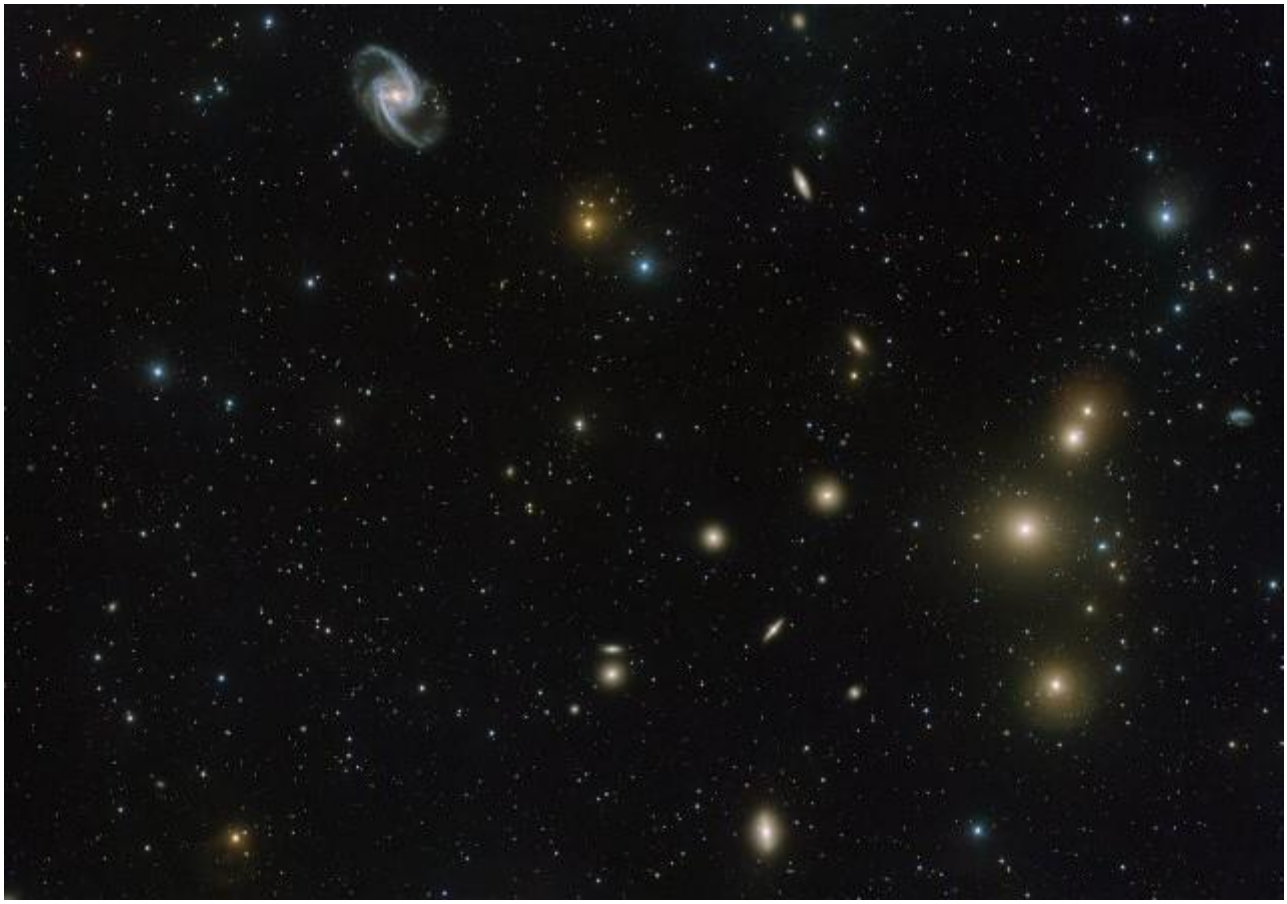
With NGC 1317 centered in your field, turn off your telescope drive and wait five minutes. The Earth will turn your view eastward to NGC 1341, a challenging 12th-magnitude barred spiral. I could only see it fleetingly with my 8-inch reflector from a dark site on the south shore of Long Island, New York. Its featureless disk, only 1½' long, is just north of a faint star.

There is another barred spiral, NGC 1326, about halfway between NGC 1316 and Chi-1. In the 8-inch, it appeared as an 11th-magnitude oval smudge visually measuring about 2' long and half as wide. It also has a stellar nucleus centered within. The heart of the Fornax cluster lies at right ascension 03h 38.5m, declination -35° 27.0', halfway between the Chi Fornacis triangle to the west and Sigma (σ) Eridani to the east. A telescope with a 1° field aimed toward this position will embrace eight galaxies brighter than 14th magnitude, with 10th-magnitude elliptical NGC 1399 lying dead center (shown below). This galaxy, set 15' south of a 7th-magnitude field star, appears as a perfectly round glow 2' in diameter with a brighter nucleus.



Above: A portion of the Fornax Galaxy Cluster through the author's 8-inch (20cm) f/7 reflector. NGC 1399 is the bright galaxy to the right (east) of center.

Below: This VLT Survey Telescope image shows the central part of the Fornax Galaxy Cluster in great detail. At the upper left is the elegant barred-spiral galaxy NGC 1365 and to the right the big elliptical NGC 1399.
Credit: ESO. Acknowledgement: Aniello Grado and Luca Limatola



NGC 1404, another 10th-magnitude elliptical, is just 10' south and slightly east of NGC 1399. I found it slightly oval with its long axis stretching 2'. Like many of the galaxies in this cluster, NGC 1404 has a brighter nucleus. Another 20' west-southwest of NGC 1399 lies NGC 1387. I was surprised at how bright this spiral appeared in my 8-inch, considering it is listed as magnitude 10.8.

NGC 1389 is 14' south and a bit east of NGC 1387, just over the border into Eridanus. Averted vision is a must for any scope smaller than 10 inches. Most references label this 2'-long elliptical as 12th magnitude, but I estimate it to be a half magnitude fainter. Somewhat brighter and larger is the elliptical NGC 1386, found about 15' south-southwest of NGC 1389 and set a bit deeper into Eridanus. At 120x, I saw its brighter nucleus.

Moving back to NGC 1387, you can sweep 14' north-northwest to NGC 1381, a faint, 12th-magnitude, cigar-shaped elliptical 2' long. About the same distance west-northwest of NGC 1387 is another 12th-magnitude galaxy, NGC 1379. It appears as a circular glow about 1 ' across.

NGC 1374 measures just 1' in diameter, but should be visible in a good 4-inch scope. Can you see NGC 1375 located just 2' to its south? It's a magnitude fainter, so a 6-inch might be required. A third, fainter smudge is an equal distance to the north of NGC 1374. That's NGC 1373, a tough target in a 6-inch.

A 4-inch, however, should show the long, thin disk of NGC 1380 to the northeast of the NGC 1374 trio. Because of its distinctive lenticular shape, this 10th-magnitude galaxy is an intriguing target for astrophotographers.

Another object with a pronounced shape is the barred spiral NGC 1365, which, at 10th magnitude, is the third brightest member of the Fornax cluster. Visually it appears as an oval nebulous patch that grows steadily brighter toward its center. Photographically it is one of the most impressive examples of a barred spiral south of the celestial equator. It has long curving arms that extend north and south from a pronounced central bar running east and west.

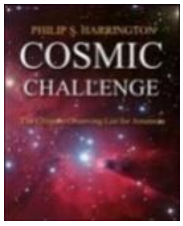
The table below lists these as well as several other galaxies in the area are within range of amateur telescopes. Be sure to pay homage to each.

Members of AGCS 373 (Highlighted entries are discussed above)

Object	RA	Dec	Magnitude	Size
NGC 1310	03 21.1	-37 06.1	13	1.9'x1.5'
NGC 1316	03 22.6	-37 12.8	9.4	11.1'x7.2'
NGC 1317	03 22.7	-37 06.2	11.9	2.5'x2.2'
NGC 1326	03 23.9	-36 27.9	11.5	3.9'x2.8'
NGC 1336	03 26.5	-35 42.8	13.4	2.1'x1.4'
NGC 1341	03 28.0	-37 09.0	13.3	1.5'x1.2'
NGC 1351	03 30.6	-34 51.2	12.4	2.8'x1.7'
NGC 1350	03 31.1	-33 37.7	11.2	5.8'x2.7'
NGC 1365	03 33.6	-36 08.3	10.3	11.3'x6.6'
NGC 1373	03 35.0	-35 10.3	13.3	1.1'x1.0'
NGC 1374	03 35.3	-35 13.6	11.0	2.5'x2.4'
NGC 1375	03 35.3	-35 16.0	12.2	2.2'x0.9'
IC 335	03 35.5	-34 26.8	13.4	2.5'x0.6'
NGC 1379	03 36.1	-35 26.5	11.9	2.3'x2.3'
NGC 1380	03 36.4	-34 58.6	9.9	4.8'x2.7'
NGC 1381	03 36.5	-35 17.7	11.5	2.3'x0.7'
NGC 1380A	03 36.8	-34 44.4	13.4	2.6'x0.8'
NGC 1386	03 36.8	-36 00.0	11.2	3.4'x1.3'
NGC 1387	03 37.0	-35 30.4	10.8	2.8'x2.6'
NGC 1389	03 37.2	-35 44.8	12.6	2.2'x1.3'
NGC 1399	03 38.5	-35 27.0	9.9	6.9'x6.4'
NGC 1404	03 38.9	-35 35.6	10.9	3.4'x3.0'
NGC 1427	03 42.3	-35 23.6	11.8	3.6'x2.4'
NGC 1436	03 43.6	-35 51.2	11.7	2.9'x1.9'

Have a favorite challenge object of your own? I'd love to hear about it, as well as how you did with this month's challenge. Contact me through my website or post to this month's discussion forum.

Until next month, remember that half of the fun is the thrill of the chase. Game on!



About the Author: Phil Harrington writes the monthly *Binocular Universe* column in Astronomy magazine and is the author of 9 books on astronomy, including Cosmic Challenge: The Ultimate Observing List for Amateurs.

About the Magic Valley Astronomical Society

Magic Valley Astronomical Society
550 Sparks St.
Twin Falls, ID

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy.
Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be:
$20.00 for individuals, families, and $10.00 for students.
Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President Robert Mayer, for more information on these and other benefits.

Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon.

Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA.