Skylights

Newsletter of the Astronomical Society of Northern New England

JAN 2026

Skylights Editor:
Paul Kursewicz

Member of NASA's Night Sky Network

Astronomical League Member

ASNNE MISSION

ASNNE is an incorporated, non-profit, scientific and educational organization with three primary goals:

1) To have fun sharing our knowledge and interest with others.

2) To provide basic education in astronomy and related sciences to all who are interested.

3) To promote the science of Astronomy.

What's Up In January

By Bernie Reim

The month of January is named after the Roman god Janus, who faces both forward and backward at the same time. Janus is the god of transitions, passages, doorways, gates, and the god of all beginnings. Let us resolve to make this a better year than 2025 by learning from the past while at the same time creating a better future for all of us by living closer to our true potentials.

This is the first full month of winter for is in the northern hemisphere. The days are already getting longer, but they will still be quite short in comparison to the rest of the year. You will probably not really notice that the days are getting much longer until the middle of January, when we will have gained about 25 minutes over our shortest day of 8 hours and 55 minutes. The sun will set at 4:30 by the middle of this month and it will only set at 4:49 by the end of the month and we will have gained 56 minutes over our shortest day which was back on the winter solstice on Sunday, December 21 at 10:03 am EST. The sun only rose at an angle of 24 degrees above our eastern horizon on that day. Its height will now slowly increase every day it reaches its maximum of 68 degrees high on the summer solstice. It will be about 46 degrees high on our sky at this latitude on the spring and fall equinoxes.

The sun will keep rising later until the 9th of this month, even though it will also be setting later. The latest sunrise time of 7:14 am will be reached more than two weeks after the shortest day of the year at the winter solstice. This is because we orbit the sun in ellipses and not perfect circles and we are also tilted at 23.5 degrees to the ecliptic plane of our solar system.

There will be several good highlights this month that will make it well worth your time and effort to see if it will be clear. These include Jupiter reaching opposition on the 10th in Gemini, a strange metallic asteroid named Psyche looping through Taurus the Bull, Saturn still visible in our evening sky, Comet 24/P passing through Virgo, and the Quadrantid meteor shower peaking on the third in spite of a full moon.

Jupiter is the king of the planets and it will reach opposition on Saturday the 10th. That means it will rise at sunset, stay in the sky all night long in Gemini near Castor and Pollux, and not set until sunrise. That is always the best time to view any superior planet beyond the sun out to Neptune because they are also closest and largest in our sky and brightest at that time. Jupiter will reach minus 2.7 magnitude, or about 30 times brighter than Saturn is this month at first magnitude. A difference of 5 magnitudes equals 100 times difference in brightness. Each magnitude number represents a change of the fifth root of 100, which is about 2.5.

Jupiter is about 10 times larger than the earth and the sun is about another 10 times larger than Jupiter, so we have a nice scale here for the whole solar system. Mars is about half of our size and Venus is the same size as Earth, 8,000 miles in diameter.

Jupiter now has at least 95 moons orbiting around it. We are still finding more smaller moons all the time, including more moons of Saturn which is up to 146 now. When I first started studying astronomy in 1981 there were only 16 known moons of Jupiter. We have several big space telescopes now like the Hubble Space Telescope and the James Webb Space Telescope along with many much larger ground- based telescopes with much more sophisticated digital technology that has discovered many amazing things about our ever-expanding universe in the last 45 years than just more moons of Saturn and Jupiter.

You can see the 4 largest of its 95 moons just with a good pair of binoculars. They are, in order of their size, Ganymede, Callisto, Io, and Europa. They range from 3200 miles in diameter, the largest moon in our whole solar system in Ganymede down to Europa at just under 2000 miles in diameter. Io at 2260 miles in diameter is about the same size as our own moon. The 5th largest one is only about 100 miles in diameter.

Careful timings of the moon Io emerging from behind Jupiter by the Dutch astronomer and former mayor

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What's Up "*Continued from page 1*"

of Copenhagen, Ole Romer, way back in November of 1676 actually proved that the speed of light was not instantaneous and set the stage Einstein's General Theory of Relativity in 1916 which led to our current GPS technology and fiber optic cables and so much more that we take for granted today.

Galileo had thought about timing the speed of light 65 years before Ole Romer figured out how to do it, which was really a pure stroke of genius along with careful observations and data. Galileo put lights on mountaintops but over the distance of 20 miles or so light still seemed to be instantaneous. Ole Romer knew that Io orbited Jupiter about every 42 hours. However, for half of each year the precise timings of when he could see Io emerge from behind Jupiter would be progressively a few minutes longer than that set time and for the other half of the year, they would be progressively a few minutes shorter each day. The total was 11 minutes shorter when earth was at perihelion, or closest to the sun and Jupiter and up to 11 minutes longer when earth was at aphelion, or farthest away from the sun and Jupiter.

The diameter of our orbit around the sun each year is 186,000,000 miles, or 2 astronomical units, which is 93,000,000 miles or the average earth-sun distance in our slightly elliptical orbits around the sun. Mr. Romer showed that it took light 22 minutes to cover a distance of 186,000,000 miles. He determined that the speed of light was about 130,000 miles per second, which is not that far off the real answer of 186,000 miles per second. They did not know the exact distance to the sun at that time, but to figure out the speed of light that close to the real value or that light even had any speed at all was a huge achievement for 350 years ago.

There are many more exciting things to learn about our largest planet, but I will just mention a few more of them. We learned not too long ago, on July 16 of 1994 to be precise, that Jupiter with its strong magnetic and gravitational field (you would weigh 2.5 times your weight on Earth if you could walk on Jupiter) acts as a giant vacuum cleaner in our solar system to protect us from comets heading towards us from that part of the sky.

Comet Shoemaker-Levy 9 broke into 21 pieces early in 1994 and this string of highly dangerous 0.6 mile-in-diameter chunks of this comet started plowing right into Jupiter around 8 pm on July 16. I was right there with my telescope along with about 50 people at Maine Maritime Academy in Castine as I was giving a presentation as part of L.L. Bean's annual Sea Kayaking seminar. I did not see the first impact, but I did see 5 of the next 20 impacts over the next 6 days. Each piece struck on the far side of Jupiter at about 35 miles per second, creating a fireball of about 50,000 degrees F as measured by the Galileo mission near Jupiter and the Hubble Space Telescope. Each one created a huge mushroom cloud and left giant black spots the size of the earth, 8,000 miles across and easily visible in a small telescope. Each one had the force of about 1 million megatons of TNT. By comparison, the largest hydrogen bomb ever dropped, the Tsar Bomba, had the force of 50 megatons of TNT and the world's entire nuclear arsenal is about 14,000 megatons of TNT. Each impact had the force of about 100 times that of our entire nuclear arsenal. The asteroid that hit us 66 million years ago had a force of about 100 million megatons, or about 100 times greater than each of these 21 pieces of Comet Shoemaker-Levy 9. Even with all of those numbers to help you visualize the enormous force of these impacts, it is almost beyond human comprehension to really understand how much energy over a very short period of time this really is.

That terrific event served as a wake-up call for us on Earth to track more near earth asteroids and most importantly the potentially hazardous asteroids that cross over our orbit at some point. As long as we are not there at the same time, everything is ok. There are at least 2500 of these. Most of the bigger ones have been found, but only a small percentage of the smaller ones have been found and tracked and they are still potentially very dangerous if they actually hit us somewhere, especially if it is a populated area. Now we have a dozen or so major telescopes just dedicated to searching for these asteroids with more on the way including one in space by next year.

This was the first time in modern history that such a momentous event had ever been seen, much less studied and recorded by good equipment. Smaller impacts on Jupiter happened 3 more times since 1994, showing that Jupiter truly could have saved the earth many times from such devastating life-ending impacts. Life could quite possibly not even have evolved on Earth without Jupiter taking many of the hits for us!

As if all of these great things that Jupiter can do for us are not enough, you can also listen to radio sounds from this wonderful planet along with seeing it through a telescope or even without one. On two occasions, I have heard the radio sounds that are created when Jupiter's magnetic fields interact with the torus of material that is constantly being emitted from Io, the most volcanically active place in our whole solar system. Due to the strength and proximity of Jupiter's gravity, Io is basically turning itself inside out every few million years or so. I heard several series of S-bursts that sound like popcorn popping and also L-bursts that are much more interesting. They almost sound like whale songs, but without the variations and obviously original creativity and musicality of the famous Humpback whale songs that Paul Winter has incorporated into his music. But they do have an underwater quality to them. They range from about 30 MHz to a few Kilohertz. You can listen to them online.

There is a fairly new project that NASA is doing now which involves assigning sounds to some of the great images taken by the Chandra X-ray space telescope along with several other telescopes. They scan across these iconic images for 20 seconds or so assigning different sounds and frequencies to the different colors and elements captured in these

"*Continued on page 3* "

Moon Phases

Jan 3
Full

Jan 10
Last Quarter

Jan 18
New

Jan 26
First Quarter

Moon Data

Jan 1
Moon at Perigee
223,910mi

Jan 3
Moon shortly after sunset rises alongside Jupiter

Jan 13
Moon at Apogee
251,927

Jan 14
Waning crescent within 3° of Antares in dawn sky

Jan 27
1 hour after sunset Moon 2° left of Pleiades

Jan 29
Moon at Perigee
227,342mi

What's Up "*Continued from page 2*"

photographs. Now you can also "listen" to the remnants of a supernova explosion or the "Pillars of Creation" where many new stars are being born or the center of our Milky Way Galaxy where a supermassive black hole lurks that is 4 million times the mass of our sun. The result is not exactly a fine-tuned symphony orchestra, but the unearthly sounds will definitely give you a much better comprehension and appreciation of the powerful events always happening somewhere within our galaxy and therefor the universe at large.

Saturn is certainly overshadowed by Jupiter this month, but it also has many fascinating stories to tell. I will leave those for another time. Saturn is about 30 times fainter than our "star" for this month, Jupiter. Saturn has been back to it normal eastward motion against the fixed background since its own opposition took place back in early September of this year. Saturn will cross from Aquarius into Pisces during the middle of the month. It is just under a billion miles away, or twice as far as Jupiter. It takes light about an hour and twenty minutes to get back from Saturn, whereas it only takes 42 minutes for light to get to us from Jupiter.

You should be able to see at least 2 or 3 of Saturn's largest moons in a small telescope. Its biggest moon is Titan, which is the second largest one in our solar system at 3000 miles in diameter, right behind Ganymede at 3200 miles. Its famous rings are still very thin, but they will open up to about 2 degrees by the end of this month. Neptune is still very close by, ranging from 1.7 to 3.5 degrees up and to the left of the ringed planet. Neptune is about another 500 times fainter than Saturn and it only covers one eight of the sky that Saturn does. It is also 2.8 billion miles away, or about 3 times as far as Saturn. They will both set before midnight and a couple of hours earlier by next month.

Venus reaches superior conjunction with the sun on the 6th and Mars will reach conjunction with the sun on the 9th, so neither one of our close neighbors will be visible this whole month. You may just catch a short glimpse of Mercury on New Year's Day morning very low on the eastern horizon. Mercury will reach its own superior conjunction with the sun on the 21st.

The highly metallic asteroid named 16 Psyche will be making a loop through Taurus just above the orange star named Aldebaran this month. It contains about 1 percent of the mass of all the millions of asteroids in the asteroid belt between Mars and Jupiter. It is potato-shaped and about 173 miles in diameter. The four largest asteroids, Ceres, Vesta, Pallas, and Hygiea account for about half of the mass of all of our millions of asteroids. That shows you how much smaller most of them really are. Metallic asteroids like this one are the source for most of the nickel-iron meteorites that we find on Earth.

NASA's Dawn spacecraft studied Vesta in 2012. It discovered that Vesta did not have a core and was probably not a protoplanet. Instead, it could be planetary shrapnel that broke off from another planet. Dawn went on to study Ceres until 2018. It discovered that Ceres is covered with frozen water and it has a crust that is 90% ice. It may have even harbored some life, similar to Europa around Jupiter and Enceladus around Saturn. We launched a new mission on 10/13/23 to study 16 Psyche. It should arrive there in 2029, solving many mysteries about this metallic mountain in space for us along with raising many more new questions, as all good space missions do.

The Quadrantid meteor shower will peak on Saturday morning the third. It will be a full moon that night, so most of the meteors will be washed out. It will still be well worth trying to catch a few meteors if it is clear and not too cold or windy because this shower is known to produce many fireballs or bolides. This shower is caused by the earth passing through the debris trail of an asteroid 2003 EH1, which is probably the leftover core of a once-active comet. The only other meteor shower each year directly caused by asteroid instead of a comet are the December 13th Geminids which are caused by 3200 Phaethon.

This shower has a very narrow peak and the weather is not usually good for this one. You could see 100 an hour is everything were favorable, but this year you will be very lucky to see 3 or 4 per hour plus a fireball or two.

Jan.1. On this day in 1801 Giuseppe Piazzi discovered the largest of all asteroids, Ceres.

Jan.3. Full moon is at 5:03 am EST. This is also known as the Wolf Moon. The Quadrantid meteor shower peaks this morning. Earth is at perihelion, or closest to the sun at 91.4 million miles at noon today. Since we are also close to perigee, there could be super high tides, especially if we also have a winter storm today.

Jan. 7. On this day in 1610 Galileo discovered 3 of the 4 largest moons of Jupiter.

Jan.8. Stephen Hawking was born on this day in 1942. He discovered that even Black holes will eventually evaporate due to Hawking radiation.

Jan. 10. Jupiter is at opposition. It will still be much brighter and closer than usual for the rest of this winter, so enjoy the sight of this king of our planets, 10 times our size and still 10 times smaller than the sun. Last quarter moon is at 10:48 a.m.

Jan. 14. On this day in 2005 the Huygens probe landed on Titan, the largest moon of Saturn and the only moon with an atmosphere. Titan has lakes of liquid ethane and liquid methane and its temperature is minus 259 degrees F.

Jan. 18. New moon is at 2:52p.m.

Jan. 19. On this day in 2006, the New Horizons mission was launched to Pluto.

Jan. 25. First quarter moon is at 11:47 p.m.

Jan. 30. The moon passes 4 degrees north of Jupiter in Gemini this evening.

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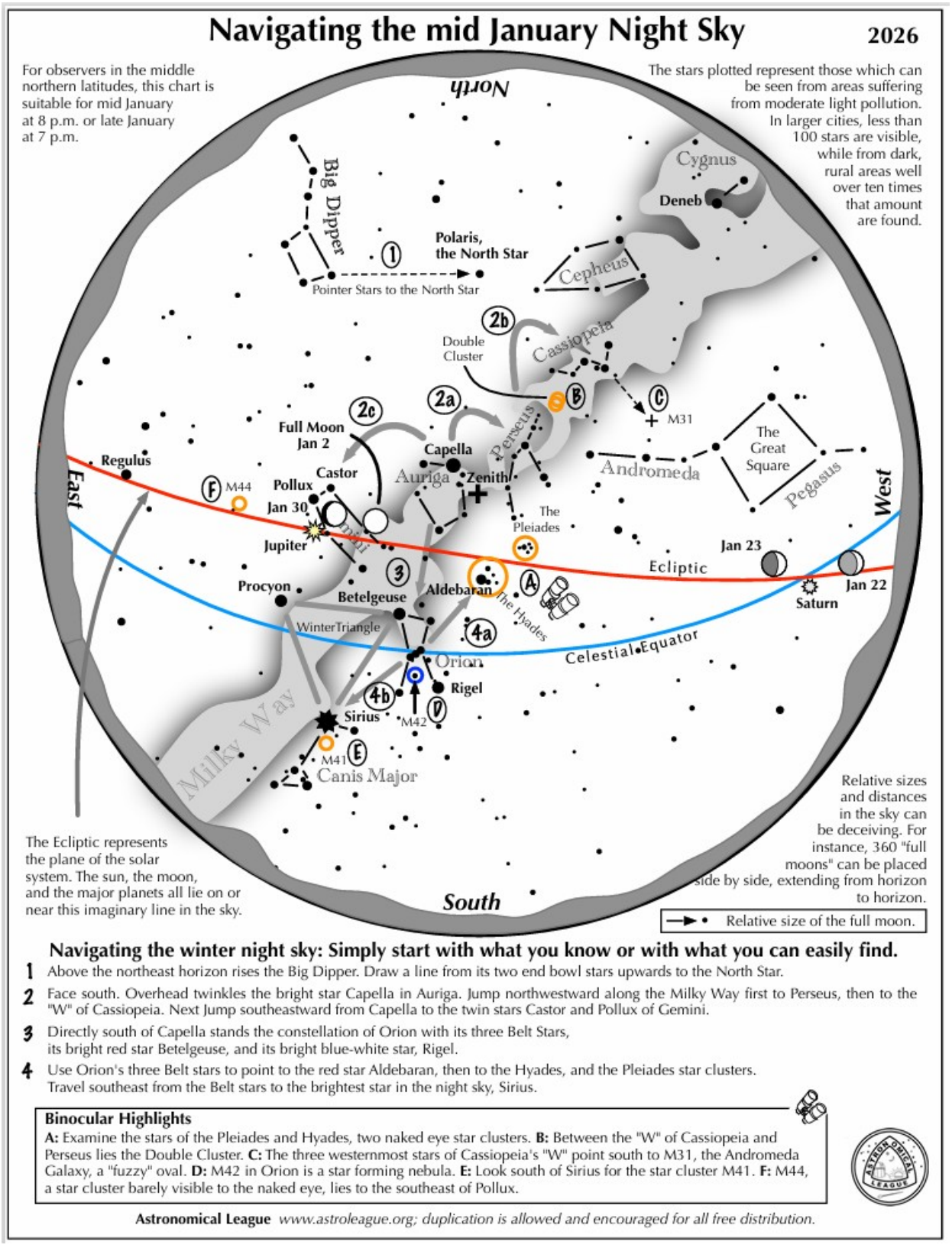


Navigating the winter night sky: Simply start with what you know or with what you can easily find.

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.

Principal Meteor Showers in 2026

January 4
Quadrantids

April 22
Lyrids

May 6
Eta Aquarids

July 30
Delta Aquarids

August 12
Perseids

October 9
Draconid

October 21
Orionids

November 9
Taurids

November 18
Leonids

November 26
Andromedids

December 14
Geminids

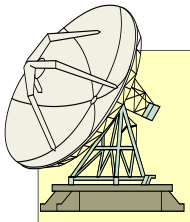
December 22
Ursids

Note: Dates are for maximum

MEMBERSHIP DUES

Membership fees are for the calendar year beginning in January and ending in December. Dues (see page 19 for prices) are payable to the treasurer during November for the upcoming year. New members who join during or after the month of July shall pay half the annual fee, for the balance of the year. Checks should be made payable to the Astronomical Society of Northern New England (A.S.N.N.E). If you would like to mail in your dues, use the form on page 19. Or you can use PayPal via asnne.astronomy@gmail.com

A Member who has not paid current dues by the January meeting will be dropped from membership, (essentially a two-month grace period.) Notice of this action shall be given to the Member by the Treasurer. Reinstatement shall be by payment of currently due dues.



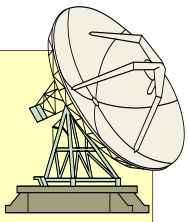
Got any News?

Skylights Welcomes Your Input.

Here are some suggestions:

Book reviews -- Items for sale -- New equipment --

Ramblings -- Star parties -- Observing -- Photos.



Our club has Merchandise for Sale at: https://www.cafepress.com/shop/ASNNE/products

All money raised goes to our operating fund.
Any design can be put on any item.

Contact David Bianchi dadsnorlax@yahoo.com for further details.

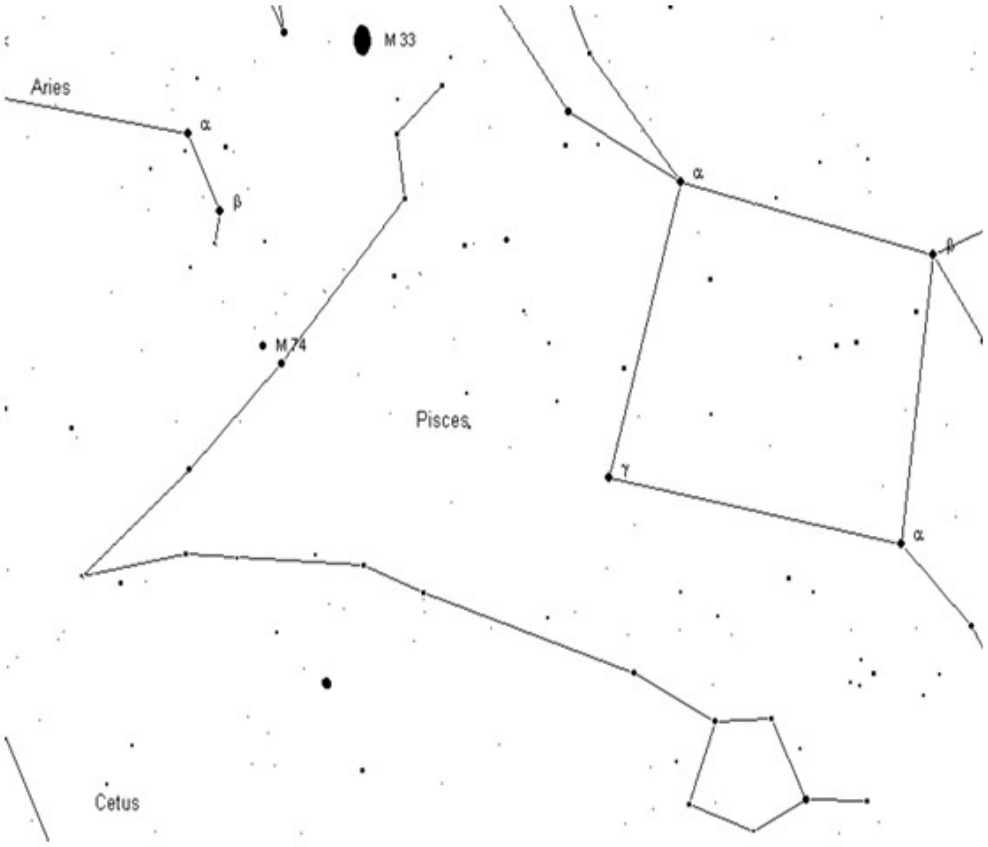
NOTE: The Jan 2026 Sky Object of the Month was previously featured as the Jan 2012 issue.

Sky Object of the Month – January 2026
M74 – Galaxy in Pisces
by Glenn Chaple

Last month, we explored the galaxy M33, a notoriously difficult telescopic target due to its extremely low surface brightness. For the same reason, M74 is even more challenging; in fact, many consider it the most visually demanding of all the Messier objects. Upon discovering this galaxy in 1780, the French astronomer Pierre Mechain remarked, "It is quite broad, very dim, and extremely difficult to observe." M33 is commonly described as a 6th magnitude star defocused until its light is spread over an area twice the apparent diameter of the moon. With M74, we have a magnitude 9.5 star whose light is extended over an area 10 arc-minutes across. No wonder M74 bears the nick-name the "Phantom Galaxy!"

The good news is that M74 can be captured if you know where to look and (most importantly!) observe from a clear, dark sky. In fact, I've glimpsed it (albeit faintly) with a 3-inch f/6 reflector. Viewed with averted vision, it appeared as a ghostly blob of light. The key was in conducting my search with a low power (30X) eyepiece.

M74 is situated 15 degrees south of its elusive cousin and 1 ½ degrees east and slightly north of the 4th magnitude star eta () Piscium (refer to the accompanying finder chart). In size, it's essentially an equal to our Milky Way. M74 lies about 32 million light years away, about 15 times more distant than M33.



Finder chart for M74
From Cartes du Ciel

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.org to find local clubs,

Betelgeuse and the Crab Nebula: Stellar Death and Rebirth

Originally posted by Dave Prosper: February 2020
Last Updated by Kat Troche: December 2025

Image: Crab Nebula by Paul Kursewicz
Canon PowerShot SX50 HS Camera, FL 2400mm (digital zoom), ISO 1600, 14 x 2min, 1-20-20

What happens when a star dies? In 2019, **Betelgeuse** dimmed in brightness, sparking speculation that it may soon explode as a supernova. While it likely won't explode quite yet, we can preview its fate by observing the nearby **Crab Nebula.**

"Continued on page 8 "

A view of the constellations Orion and Taurus, along with notable features:
Betelgeuse in Orion, and Aldebaran and the Crab Nebula in Taurus.
Stellarium Web

Betelgeuse is easy to find as the red-hued shoulder star of Orion. A variable star, Betelgeuse, usually competes with the brilliant blue-white Rigel for the position of the brightest star in Orion. Betelgeuse is a young star, estimated to be a few million years old, but due to its giant size, it leads a fast and furious life. This massive star, known as a supergiant, exhausted the hydrogen fuel in its core and began to fuse helium instead, which caused the outer layers of the star to cool and swell dramatically in size. Betelgeuse is one of the few stars for which we have any detailed surface observations, due to its vast size – somewhere between the diameters of the orbits of Mars and Jupiter – and its relatively close distance of about 642 light-years. Betelgeuse is also a "runaway star," with its remarkable speed possibly triggered by a merger with a smaller companion star. If that is the case, Betelgeuse may actually have millions of years left! So, Betelgeuse may not explode soon after all, or it might explode tomorrow! We have much more to learn about this intriguing star.

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This image of the Crab Nebula combines data from five different telescopes: The Very Large Array (radio) in red; Spitzer Space Telescope (infrared) in yellow; Hubble Space Telescope (visible) in green; XMM-Newton (ultraviolet) in blue; and Chandra X-ray Observatory (X-ray) in purple. It is known as the expanding gaseous remnant from a star that self-detonated as a supernova, briefly shining as brightly as 400 million suns.

The **Crab Nebula** (M1) is relatively close to Betelgeuse in the sky, in the nearby constellation of Taurus. Its ghostly, spidery gas clouds result from a massive explosion; a supernova observed by astronomers in 1054! A backyard telescope allows you to see some details. Still, only advanced telescopes reveal the rapidly spinning neutron star found in its center: the last stellar remnant from that cataclysmic event. These gas clouds were created during the giant star's violent demise and expand ever outward to enrich the universe with heavy elements like silicon, iron, and nickel. These element-rich clouds are like a cosmic fertilizer, making rocky planets like our own Earth possible. Supernovae also send out powerful shock waves that help trigger star formation. In fact, if it weren't for a long-ago supernova, our solar system – along with all of us – wouldn't exist! You can learn much more about the Crab Nebula in a video from NASA's James Webb Space Telescope: bit.ly/CrabNebulaVisual

Want to know more about the life cycle of stars? Explore stellar evolution with "The Lives of Stars" activity and handout at bit.ly/starlifeanddeath, part of our *SUPERNOVA!* toolkit.

Astro-Imaging with a SmartEye

Submitted by Paul Kursewicz

Globular Cluster M15 (no cropping)

12.5-inch Obsession on EQ Platform, f/5, FL 1590 w/Tele Vue Paracorr
IR-cut Filter, 36subs, 5sec, 350 Gain, 9-3-25
Fit Files stacked in Deep Sky Stacker — Total time: 3 minutes
Photo Editing Software Used: PixInsight, Photoshop, Siril, AstroSurface

Messier 15 (sometimes known as the Great Pegasus Cluster) is a globular cluster in the constellation Pegasus. It is one of the oldest (around 12 billion years old) and densest clusters ever discovered. This ball of stars measures about 210 light years across, yet more than half of the stars you see are packed into the central area in a space just slightly more than ten light years in size. It's about 35,000 ly away.

"Continued on page 11"

Astro-Imaging with a Dwarf3

Submitted by Paul Kursewicz

NGC 253 & NGC 288

Dwarf PNG file
Photo Editing Software Used: PixInsight, Photoshop, Siril, AstroSurface
Total Exposure Time: 49minutes

60sec, 60gain, 49subs, FL 737mm, Astro Filter 11-22-25

Took this picture and the following during our club's & guests open observing session at our observatory. What was very unusual on this night was how clear the low southern sky was. So, I took advantage of this time imaging several deep sky objects in the constellation Sculptor. Above, I was able to capture two objects: **The Silver Coin Galaxy** (NGC 253), and **Globular Cluster** NGC 288. The Silver Coin Galaxy is 11.4 million light years away making it one of the closest galaxies. It spans approximately 105,000 light years in diameter. The Globular Cluster is approximately 27,000 light years away, and bright enough to be seen in binoculars.

"Continued on page 12

Astro-Imaging with a Dwarf3

Submitted by Paul Kursewicz

String of Pearls Galaxy (NGC 55)

Dwarf PNG file
Photo Editing Software Used: PixInsight, Photoshop, Siril, AstroSurface
Total Exposure Time: 2hr 3minutes

60sec, 60gain, 123subs, FL 737mm, Astro Filter 11-22-25

Taking advantage of the clear southern sky I decided to go after an object that sits a lot lower in the sky than the Siver Coin Galaxy. I went after the **String of Pearls Galaxy**. It touches Sculptor's southern boarder boundary as well as Pheonix's northern boarder boundary. So all of the stars seen below the galaxy are in the constellation Pheonix. NGC 55 has a declination of –39° 13' 10" which places it very low in the sky for us here (see the next page).

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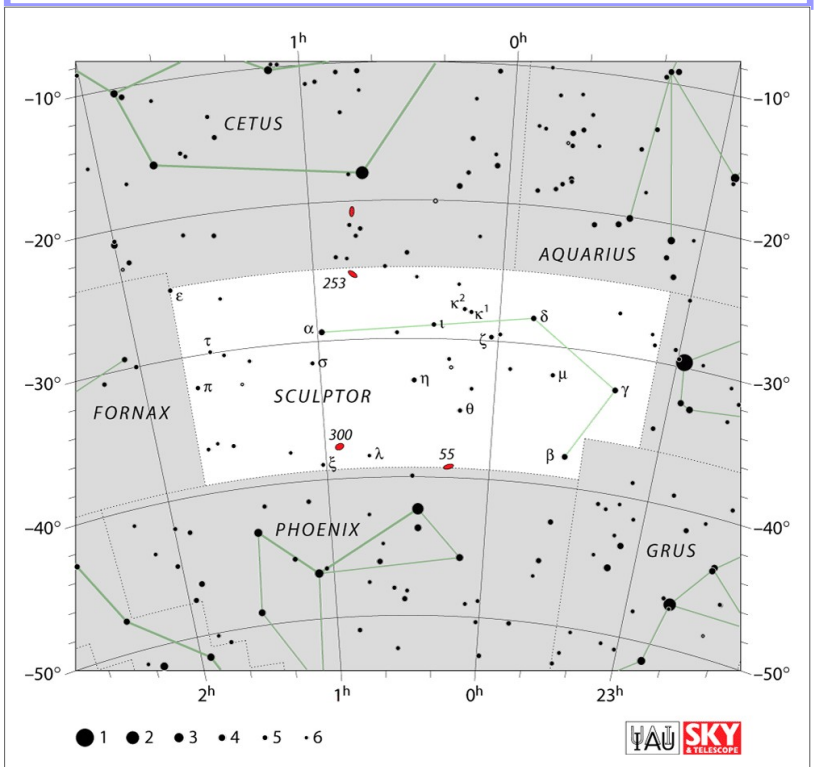
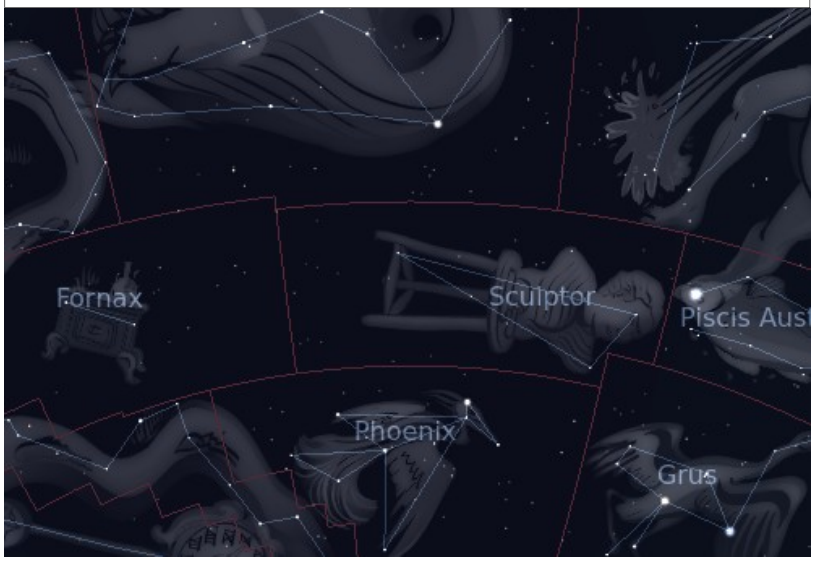
Locating NGC 253 & NGC 55





theplanets.org

The French astronomer Nicolas-Louis de Lacaille first described the constellation in French as *l'Atelier du Sculpteur* (the sculptor's studio) in 1751–52, depicting a three-legged table with a carved head on it, and an artist's mallet and two chisels on a block of marble alongside it. The name was later shortened to Sculptor.

"Continued on page 14"

Point and Shoot Camera Astro-Imaging

Canon PowerShot SX50 HS

Submitted By Paul Kursewicz

Sunspot Complex 4294-4296

JPEG Mode, FL 1800mm (digital zoom), f/6.5, ISO 400, Single Image, 1/1250sec, 12-1-25

Setting the camera dial to Auto Focus I took several hand-held shots and then selected the best one. A Thousand Oaks Solar Filter was used. I also did some quick editing to the image. This was one of the biggest sunspot groups of the past 10 years. From end to end, it measured ~111,847 miles, and at least five of the dark cores are individually larger than Earth. NASA's Mars rover saw it first.

An Astronomer's Nightmare

Submitted by Paul Kursewicz

I read about the impending doom of these bright light pollution causing satellites many years ago. And now, this nightmare may come to fruition. The article appeared in the ***January issue of Sky&Tel magazine***. I did a partial screenshot of the article.

BRIGHT SATELLITES

A New Kind of Satellite Could Damage Your Eyes

MANY COMMUNICATION satellites in low-Earth orbit are unintentionally bright; however, soon a new type of satellite could purposefully beam sunlight to Earth's surface at night.

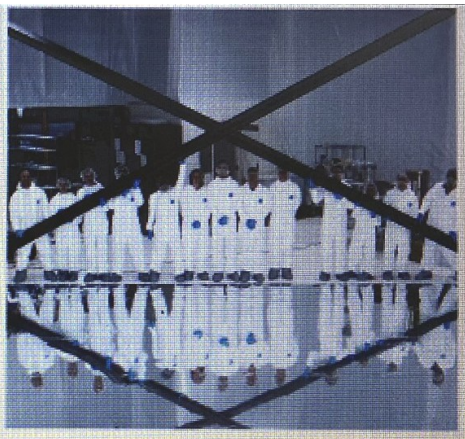
Reflect Orbital has raised $20 million in funding for their planned constellation and intends to launch a demonstration spacecraft next year to advertise their services to potential customers. That satellite will rival the full Moon in brightness, reflecting sunlight using a specially shaped expanse of Mylar film that will stretch over 324 square meters (3,490 square feet).

To create more light, the company plans to launch even larger satellites over the next several years. Those bigger spacecraft would each cover about three-fourths of an acre and far exceed the full Moon's brightness, illuminating spots on the ground 5 kilometers (3 miles) across.

Once those satellites are in orbit, nearly all of the stars would disappear for observers within illuminated areas on the ground. Residents of municipalities and other entities that purchase illumination would be deprived of darkness at night, not to mention the beauty of the starlit sky.

Reflect Orbital states that its main motivation is selling reflected sunlight to solar energy farms (though research funding has also come from other sources, such as the Air Force). Speaking at the International Conference on Energy from Space in 2024, CEO Ben Nowack said, "It would be really great if we could get some solar energy before the Sun rises and after sunset, because then you could actually charge higher prices and make a lot more money."

Besides a likely increase in diffuse brightness across the night sky, these satellites pose safety and environmental hazards as well. John Barentine (Dark Sky Consulting) pointed out that research on eye safety — conducted by James Laframboise (a physicist and amateur astronomer) and Ralph Chou (a professor of optometry) — warns that sunlight reflecting off of satellites this large might damage human eyes. The effects of reflected sunlight on wildlife has raised additional concerns (*S&T:* Jan. 2024, p. 34).



▲ Reflect Orbital employees pose with a large mirror surface.

However, resistance is building. The U.S. Federal Communications Commission (FCC) must license the company before it launches any satellites. As of press time, organizations were preparing to submit comments on Reflect Orbital's proposal to the FCC.

■ ANTHONY MALLAMA

SkyandTelescope

Club Christmas/Holiday Party

Submitted by Paul Kursewicz

At the December club meeting we had our annual Christmas/Holiday Pot Luck Dinner. Plenty of goodies to eat and pleasant company. A very brief business meeting was conducted. Later, Dave gave a PowerPoint presentation which show-cased members photos as well as some selected web images.

Club Meeting & Star Party Dates

Date	Subject	Location
Jan 2	**ASNNE Club Meeting:** **Business Meeting will start at 6:00 PM.** **Club Meeting (in house & on Zoom): 7:30-9:30 PM** **Guest Speaker:** We do not have a guest speaker this month. **Bernie Reim** - "What's UP" **Astro Shorts:** (news, stories, jokes, reports, questions, photos, observations etc.)	**The New School, Kennebunk, Me.**
Last Month	**Last month we had our Christmas/Holiday Party & Meeting at The New School.**	
TBD	**Club/Public Star Party: Weather permitting.**	**Talmage Observatory at Starfield West Kennebunk, Me.**

Directions to ASNNE event locations

Directions to The New School in Kennebunck [38 York Street (Rt1) Kennebunk, ME]

For directions to The New School you can use this link to the ASNNE NSN page and then click on "get directions" from the meeting location. Enter your starting location to generate a road map with complete directions. It works great. http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=137

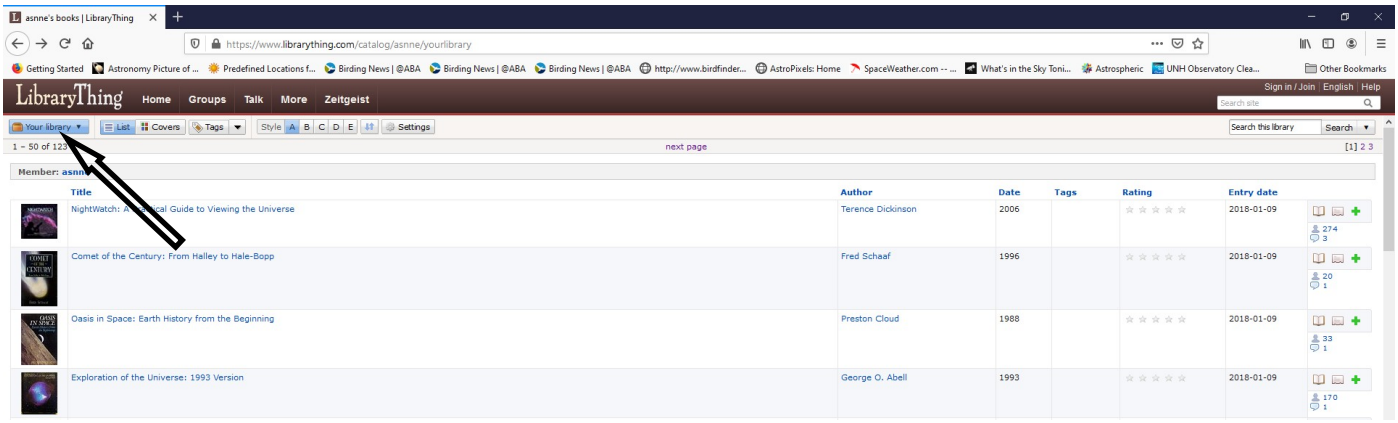
Directions to Talmage Observatory at Starfield [Alewive Road, Kennebunk, ME]

From North:
Get off turnpike at exit 32, (Biddeford) turn right on Rt 111. Go 5 miles and turn left on Rt 35. Go 2 miles on Rt 35 over Kennebunk River to very sharp 90 degree left turn. The entrance to the Starfield Observatory site is at the telephone pole at the beginning of the large field on the left. Look for the ASNNE sign on the pole.

From South:
Get off the turnpike at exit 25 in Kennebunk. After toll both turn right on Rt 35. Go up over the turnpike and immediately turn right on Rt 35. About 4 miles along you will crest a hill and see a large field on your right. Continue until you reach the end of the field. Turn right into the Starfield Observatory site at the last telephone pole along the field. Look for the ASNNE sign on the pole. If you come to a very sharp 90 degree right turn you have just passed the field.

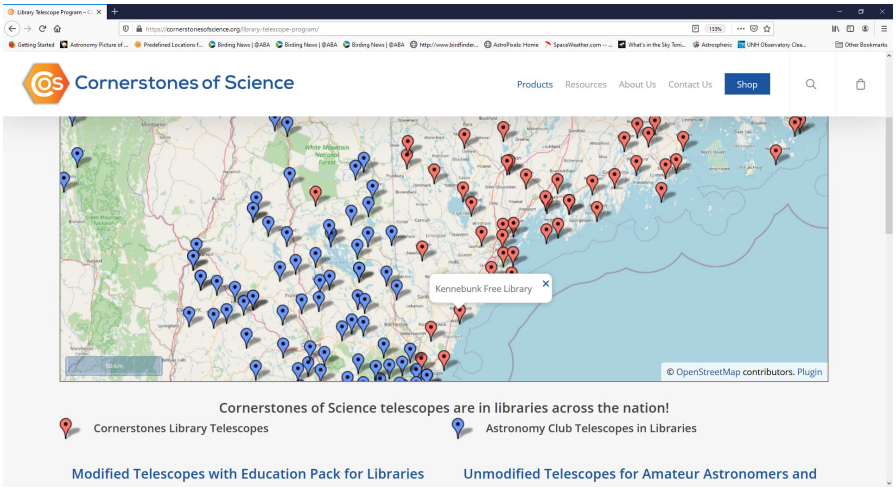
Astronomy Club & Library Resources

Our club has a library of astronomy books which are stored at The New School in Kennebunk, Maine (our monthly club meeting location). To request a book(s), contact one of the club officers. A listing of books is provided here: https://www.librarything.com/profile/asnne . After clicking on the link, a window will open. Click on "Your library" near the upper left corner (as shown by the arrow below). Then scroll down to the end of the page to go to the next page.



Would you like to borrow a telescope? While many astronomy clubs may have a scope to lend out, there are also many libraries which have telescopes for their guests to use. Here are a couple of links.

The following link will bring up an active map (see screen shot below) of the USA showing the libraries which have telescopes to lend out: https://cornerstonesofscience.org/library-telescope-program/



The below link will show a list of known participating library locations for the state of Maine.
https://www.librarytelescope.org/locations/usa/maine

To join **ASNNE**, please fill out the below membership form. *Checks should be made payable to: Astronomical Society of Northern New England (A.S.N.N.E).* For more details, please visit our website: **http://www.asnne.org**

Astronomical Society of Northern New England
P.O. Box 201
Kennebunk, ME 04043-1338

2026 Membership Registration Form

(Print, fill out and mail to address above) or Use PayPal via asnne.astronomy@gmail.com

Name(s for family): _____

Address: _____
City/State: _____ Zip code: _____

Telephone # _____

E-mail: _____

Membership (check one):
Individual $50 _____ Family $ 60 _____ Student under 21 years of age $10 _____ Donation_____

Total Enclosed_____

Tell us about yourself:
1. Experience level: Beginner____ Some Experience ____ Advanced_____

2. Do you own any equipment? (Y/N) And if so, what types?

_____
3. Do you have any special interests in Astronomy?

_____
4. What do you hope to gain by joining ASNNE?

_____
5. How could ASNNE best help you pursue your interest in Astronomy?

_____
6. ASNNE's principal mission is public education. We hold many star parties for schools and the general public for which we need volunteers for a variety of tasks, from operating telescopes to registering guests to parking cars. Would you be interested in helping?
Yes_____ No_____

7. ASNNE maintains a members-only section of its web site for names, addresses and interests of members as a way for members to contact each other. Your information will not be used for any other purpose. Can we add your information to that portion of our web site?

Yes_____ No_____