

# Skylights

Newsletter of the Astronomical Society of Northern New England



SEPT 2018



Member of NASA's



Astronomical League

## 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 September

By Bernie Reim

**A**utumn always begins for us in the northern hemisphere in the month of September. This year that will happen at 9:54 p.m. on Saturday the 22<sup>nd</sup>. This will mark the end of a long, hot summer as the nights will cool off and get more transparent even as they are getting shorter, already heading towards winter again.

Both the autumnal and the vernal equinox are interesting days on Earth because they mark the only two days each year when the sun rises due east and sets due west for everyone on Earth except for the poles. Within a few days of the equinoxes are also the only two days each year that are exactly 12 hours long for everyone on Earth except for the poles. The reason for that is our slightly elliptical orbit around the sun and our 23.5 degree tilt on our axis.

The days are always 12 hours long at the equator and they don't experience any seasons, but the rest of the world does. The seasonal changes are especially enjoyable in New England because this way there is a slow and continual transformation going on both in our view of the sky above us and on the earth below as we are always orbiting the sun and just tilting one hemisphere or the other a little more towards this life-giving natural force which effects everything.

The highlights this month include all four of the brightest planets still being visible in our evening sky at the same time. There will also be some nice conjunctions of the moon with all of those planets, but no good meteor showers until next month.

Venus is the brightest of the four and the first one to set in the west about one hour after sunset. Notice that it will be just one degree to the lower left of Spica in Virgo early this month. Our sister planet is still getting brighter in our sky as it continues to catch up with us in its orbit. We have already passed our other neighbor, Mars, but they are both still much closer to Earth than usual. Venus continues to get brighter even as it gets less illuminated by

the sun. It will be only 18% illuminated, similar to a waning crescent moon, by the end of the month.

Then continue east along the ecliptic and you will encounter Jupiter in Libra, just one constellation to the east of Venus. Notice that Venus will be catching up with Jupiter during this month, closing that gap to just 14 degrees by the end of the month. Jupiter has been back to its direct, eastward motion in the sky since the middle of July. So the King of the Planets continues to fade a little more as we are pulling farther ahead of it. It starts the month setting around 10 pm and ends the month setting 2 hours earlier.

Jupiter is still very close to a double star in Libra with the long Arabic name of Zubenelgenubi, but it is slowly drifting farther away from this star whose name simply means "the southern claw." Libra used to be part of Scorpius, the next constellation to the east.

Then continue eastward along the ecliptic about 30 degrees, the biggest gap between any of the four planets now visible simultaneously,

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and you will encounter Saturn in Sagittarius. Its rings are still tilted open near their maximum of 27 degrees, even though it is slowly dimming since it is a few months past its opposition now. You will easily see its largest moon, Titan, through a telescope and you could even see 4 or 5 more moons on a good night.

The last one in this great planetary line-up that has been with us all summer now is Mars. The red planet was at its best in 15 years just last month, but it will still be much brighter and larger than usual for another few months. It even got brighter than Jupiter last month, but Mars will fade a little more this month and become less bright than Jupiter again on the 7<sup>th</sup> as the earth is now pulling farther ahead of the red planet in our faster orbit around the sun.

I was able to see some detail on the Martian surface through several telescopes last month. I could see some dark markings and a hint of both the north and south polar icecaps. I didn't see any of the Martian atmosphere this time due to some planet-wide dust storms that are covering much of its surface.

There will be four close lunar conjunctions with the planets this month as the moon will nicely highlight each of those planets as they all move on their appointed paths along the ecliptic. We start with the slender crescent moon pointing out Venus on the 12<sup>th</sup>, then it will be just 4 degrees north of Jupiter on the 13<sup>th</sup>, then only 2 degrees north of Saturn on the 17<sup>th</sup>, and finally it will end this cycle 5 degrees north of Mars on the 20<sup>th</sup>. The moon moves about 12 degrees eastward along the ecliptic each day.

I attended the annual Stellafane convention last month. This is the oldest and one of the largest star parties in the world. Nearly 1000 avid amateur astronomers attended this summer. It was held during the peak of the Perseid Meteor Shower and near new moon. This is an annual pilgrimage for a diverse group of people that share a common interest. Everyone learns new things there and shares new experiences as they can peer through hundreds of great telescopes at the heavens above, always obtaining new views of our familiar sky and its myriad contents as we all expand our cosmic perspective of where we really are all the time.

There are hands-on workshops as well as many great presentations for everyone. I attended some on astrophotography, light pollution, variable stars, and binoculars. The main speaker was Samuel Hale, the grandson of George Ellery Hale, the most famous telescope maker in the world who designed and built the 4 largest telescopes in the world from 1898 through 1938.

Todd Mason also gave a great presentation. He made the documentary "Journey to Palomar" and now he creates computer graphics of the largest new telescopes in the world to show people what they look like and how they will really work when completed. These include the Large Synoptic Survey Telescope which will find thousands of potentially hazardous asteroids, the Giant Magellan Telescope with its 7 mirror segments equal to 25 meters, and the Extremely Large Telescope with a 39 meter mirror, nearly 4 times larger than the largest telescope in the world today. They should see first light within 7 years or so and they will likely completely revolutionize our current limited understanding of our universe.

Sept. 2. Last quarter moon is at 10:39 p.m. EDT.

Sept. 3. On this day in 1976, Viking 2 landed on Mars, just weeks after Viking 1.

Sept. 9. New moon is at 2:03 p.m.

Sept. 11. Mary Watson Whitney was born on this day in 1847. She was an American astronomer who worked under Maria Mitchell and then ran the Vassar Observatory herself in New York for many years. She helped publish about 100 papers, mostly on comets and asteroids, and double and variable stars.

Sept.12. The moon will be near Venus tonight.

Sept. 13. The moon will be near Jupiter tonight.

Sept.16. First quarter moon is at 7:16 p.m.

Sept.17. John Goodricke was born on this day in 1764. He was an English astronomer who discovered the first Cepheid Variable star, Delta Cephei in Cepheus in 1784. You can find this star for yourself without optical aid and see that it varies in brightness every night. Then John also calculated the 68 hour period of Algol, an eclipsing binary star in Perseus. The moon is near Saturn tonight.

Sept.20. The waxing gibbous moon will be near Mars tonight.

Sept.22. Fall begins today at 9:54 p.m. as the sun crosses downward over the celestial equator.

Sept.23. J. Galle discovered Neptune on this day in 1846. Two other astronomers calculated exactly where this planet should be based on its influences on other planets. Neptune is at its best in Aquarius now, but you will need a telescope to see it. It only made one orbit by 2011, 165 years after it was discovered.

Sept.24. Full moon is at 10:54 p.m. This is the famous Harvest Moon since it is closest to the equinox.

## Moon Phases

**Sept 2**  
Last Quarter

**Sept 9**  
New

**Sept 16**  
First Quarter

**Sept 24**  
Full

## Moon Data

**Sept 7**  
Moon at perigee

**Sept 12**  
Venus 10° south  
of Moon

**Sept 13**  
Jupiter 4° south  
of Moon

**Sept 17**  
Saturn 2° south  
of Moon

**Sept 19**  
Moon at apogee

**Sept 20**  
Mars 5° south  
of Moon

**Sept 23**  
Neptune 2° north  
of Moon

**Sept 27**  
Uranus 5° north  
of Moon

## Submitted by Glenn Chaple



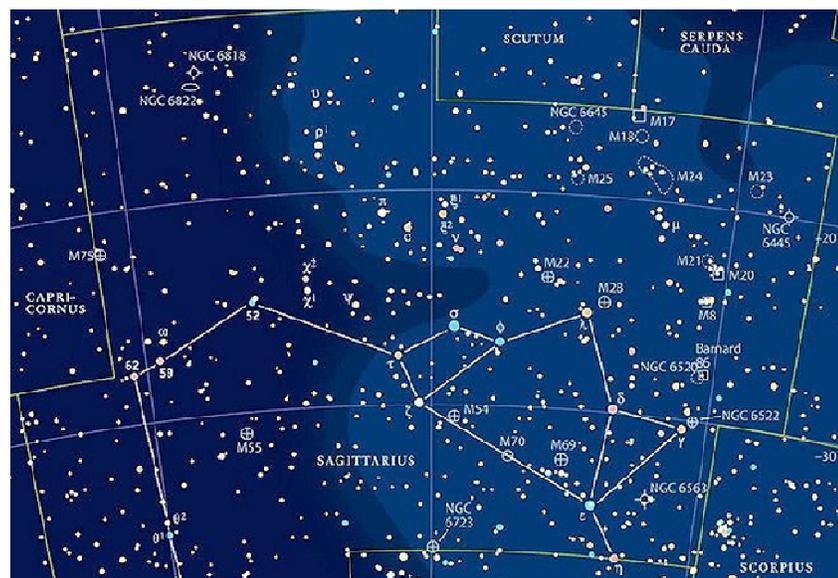
## **LVAS OBSERVER'S CHALLENGE\* – SEPTEMBER, 2018** **NGC 6818 (“Little Gem Nebula”) – Planetary Nebula in Sagittarius** **MAGNITUDE: 9.3                      SIZE: 15” X 22”**

Tucked away in the northeast corner of Sagittarius is the relatively little-known planetary nebula NGC 6818, aka the “Little Gem Nebula.” Its anonymity is understandable when you consider that it competes with the treasure trove of deep-sky wonders that dot the western half of the constellation. Its relatively remote location doesn't help, either. Your best bet is to star-hop from rho 1 Sagittarii, which is shown on both finder charts below.

Although NGC 6818 is within reach of a common 60mm refractor, you'll want to save it for a dark moonless night. Work with a magnifying power of 100X or more. Can you detect its bluish color with a small-aperture scope? What detail do you see with a large-aperture instrument?

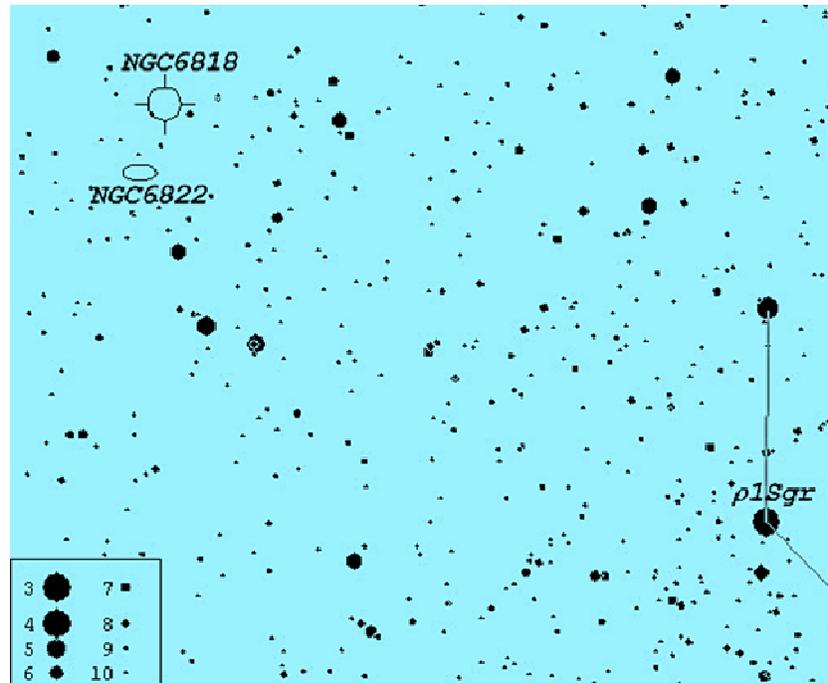
At a distance of approximately 6000 light years, NGC 6818 is about one-half light year in diameter. It was discovered by William Herschel on August 8, 1787.

(Extra challenge) About a half degree south-southeast of NGC 6818 is the notoriously difficult Barnard's Galaxy (NGC 6822). This dwarf galaxy was the August, 2014, LVAS Observer's Challenge. A 9<sup>th</sup> magnitude galaxy whose light is spread over an area half the size of a full moon, it will require an evening of exceptional darkness. Barnard's Galaxy is actually better seen with a large binocular or rich-field telescope than with a large aperture scope.



astronomy.com

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[www.astrostuff.com](http://www.astrostuff.com)



[astro.dur.ac.uk](http://astro.dur.ac.uk)

\*The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, the LVAS will be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to either Roger Ivester ([rogerivester@me.com](mailto:rogerivester@me.com)) or Fred Rayworth ([queex@embarqmail.com](mailto:queex@embarqmail.com)). To find out more about the LVAS Observer's Challenge or access past reports, log on to [lvastronomy.com/index.php/observer-s-challenge](http://lvastronomy.com/index.php/observer-s-challenge)

## Principal Meteor Showers in 2018

**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*

## RED ALERT – Downward Pointing Lasers

NASA is planning to use (or is already using) downward pointing lasers which are mounted on their spacecrafts. For those of us who look at the night sky through a telescope, or a pair of binoculars, this is a potential hazard. If a laser beam enters our instrument at the very time we are viewing, eye injury or blindness could occur. Contact physicist, Dr. Jennifer Inman, [jennifer.a.inman@nasa.gov](mailto:jennifer.a.inman@nasa.gov) and tell her your concerns about this perilous issue. Why should we have to live in fear each time we look into a telescope or a pair of binoculars? This is unacceptable!



The latest issue of the Space Place Newsletter: News and Notes for Formal and Informal Educators can be found at: <http://spaceplace.nasa.gov/en/educators>.

Space Place is a NASA website for elementary school-aged kids, their teachers, and their parents.

## Check out our great sites for kids:



The Space Place website (<http://spaceplace.nasa.gov>)



The SciJinks Weather Laboratory at <http://scijinks.gov>



NASA Climate Kids at <http://climate.nasa.gov/kids>

## Our Club has Merchandise for Sale at: [www.cafepress.com/asnne](http://www.cafepress.com/asnne)



*ALL money raised goes to our operating fund.*

*Any design can be put on any item.*

*Just let our club member, David Bianchi, know.*

**This article is provided by NASA Space Place.**  
With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit [spaceplace.nasa.gov](http://spaceplace.nasa.gov) to explore space and Earth science!



## A Trip Through the Milky Way

By Jane Houston Jones and Jessica Stoller-Conrad

Feeling like you missed out on planning a last vacation of summer? Don't worry—you can still take a late summertime road trip along the Milky Way!

The waning days of summer are upon us, and that means the Sun is setting earlier now. These earlier sunsets reveal a starry sky bisected by the Milky Way. Want to see this view of our home galaxy? Head out to your favorite dark sky getaway or to the darkest city park or urban open space you can find.

While you're out there waiting for a peek at the Milky Way, you'll also have a great view of the planets in our solar system. Keep an eye out right after sunset and you can catch a look at Venus. If you have binoculars or a telescope, you'll see Venus's phase change dramatically during September—from nearly half phase to a larger, thinner crescent.

Jupiter, Saturn and reddish Mars are next in the sky, as they continue their brilliant appearances this month. To see them, look southwest after sunset. If you're in a dark sky and you look above and below Saturn, you can't miss the summer Milky Way spanning the sky from southwest to northeast.

You can also use the summer constellations to help you trace a path across the Milky Way. For example, there's Sagittarius, where stars and some brighter clumps appear as steam from a teapot. Then there is Aquila, where the Eagle's bright Star Altair combined with Cygnus's Deneb and Lyra's Vega mark what's called the "summer triangle." The familiar W-shaped constellation Cassiopeia completes the constellation trail through the summer Milky Way. Binoculars will reveal double stars, clusters and nebulae all along the Milky Way.

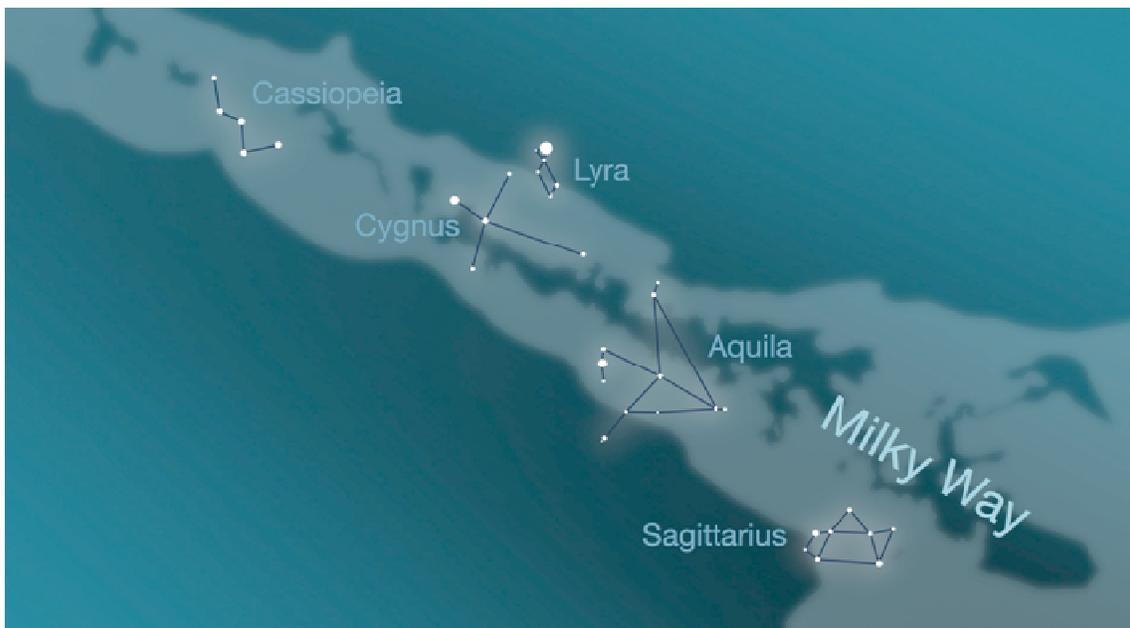
*"Continued on page 7"*

Between Sept. 12 and 20, watch the Moon pass from near Venus, above Jupiter, to the left of Saturn and finally above Mars!

This month, both Neptune and brighter Uranus can also be spotted with some help from a telescope. To see them, look in the southeastern sky at 1 a.m. or later. If you stay awake, you can also find Mercury just above Earth's eastern horizon shortly before sunrise. Use the Moon as a guide on Sept. 7 and 8.

Although there are no major meteor showers in September, cometary dust appears in another late summer sight, the morning zodiacal light. Zodiacal light looks like a cone of soft light in the night sky. It is produced when sunlight is scattered by dust in our solar system. Try looking for it in the east right before sunrise on the moonless mornings of Sept. 8 through Sept 23.

You can catch up on all of NASA's current—and future—missions at [www.nasa.gov](http://www.nasa.gov)



*Caption: This illustration shows how the summer constellations trace a path across the Milky Way. To get the best views, head out to the darkest sky you can find. Credit: NASA/JPL-Caltech*

## Point and Shoot Camera Astroimaging

**Canon Powershot SX50 HS**

*Image & write-up submitted by Paul Kursewicz*

**Kemble's Cascade**

**Specs: FL unknown, ISO 800, 22 x 1-1/2 min exposures, 08-10-18**



Kemble's Cascade (shown left of center) represents a Waterfall of stars that cascade from the north down to the south, which then empties into a pool of stars (Open Cluster NGC 1502). The Cascade resides in the constellation Camelopardalis and is best observed with binoculars (expect to see about 15-25 stars). Although the Cascade is associated with the Winter skies, I took this picture in August around 11:00 pm when is just cleared the northern tree tops at Starfield. Because it is not a naked-eye object and lies in a difficult constellation to detect, it is often overlooked by many stargazers. The way that I remember its location is when Perseus begins to rise, I look just above it. And then using the top two stars in Cassiopeia's "W," I draw an imaginary line connecting the two and then go left the same distance. Kemble's Cascade was named after Father Lucian Kemble, a Franciscan friar and amateur astronomer, who spotted the asterism with his 7×35 binoculars from Alberta, Canada. He mentioned it to Walter Scott Huston who then wrote an article about it in the December 1980 issue of Sky & Telescope magazine. Huston described the asterism as "Kemble's Cascade."

## Club Meeting & Star Party Dates

Date	Subject	Location
Sept 14,15,16	<p style="text-align: center;"><b><u>Annual Starfest Star Party</u></b></p> <p>ASNNE's Weekend Star Party: On site camping. No running water or electricity. Porta potty on site. TYO Trash please. BYO seating.</p> <p><b>Friday:</b> Gates open in the AM and tent set-up in the afternoon. Observatory open for Solar Viewing and will remain open all night.</p> <p><b>Saturday:</b> Solar viewing H-alpha on Zeiss.</p> <p>10am - 12pm Raffle tables and BBQ set-up. 12pm - 2pm Astronomy Jeopardy Game. 2pm - 5pm BBQ \$6 (Hot Dogs, Hamburgers, Sweet Corn, Chips. BYO your own desert). 5pm - 6pm Raffle prizes awarded. 6pm to whenever Tent Talks: Speakers/Topic: TBD.</p> <p>Bernie Reim's What's Up; Astro Shorts. Astro "B" Movie Theater (Fri and or Sat night).</p> <p>All night observing.</p>	Starfield Observatory, West Kennebunk, Me
TBD	Club/Public Star Party <i>Check List-serve / website for updates and or cancellations</i>	Starfield Observatory, West Kennebunk, Me.

### Directions to ASNNE event locations

#### Directions to The New School in Kennebunk [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](http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=137)

#### Directions to Starfield Observatory [Alewife 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.

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 1338  
 Kennebunk, ME 04043-1338

**2018 Membership Registration Form**

(Print, fill out and mail to address above)

Name(s for family): \_\_\_\_\_

Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip code: \_\_\_\_\_

Telephone # \_\_\_\_\_

E-mail: \_\_\_\_\_

Membership (check one):

Individual \$35 \_\_\_\_\_ Family \$ 40 \_\_\_\_\_ 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 \_\_\_\_\_

