

Skylights

Newsletter of the Astronomical Society of Northern New England



SEPT 2017



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

September always marks the start of autumn for us in the northern hemisphere. This month that will happen at exactly 4:02 p.m. on Friday the 22nd. The sun on the ecliptic will be crossing downward over the celestial equator at this moment.

This is called the autumnal equinox and is one of only two days each year that the sun will rise due east and set due west for everyone on Earth except at the poles. Within a few days of this day, the days will also be 12 hours long for everyone except at the poles.

I hope some of you had planned to travel a little to see the great American Total Solar Eclipse that just happened on August 21st. The weather was quite good almost everywhere along the centerline which is very narrow. I was in eastern Idaho in the Grand Teton Valley to witness this incredible event that could be once-in-a-lifetime for some people, but most people immediately plan for the next one once they see their first one. It is well worth every effort and then goes far beyond your expectations.

The experience of having our moon's shadow engulf you and then staying in it for two and a half minutes was far more powerful than I had even imagined. I had seen all the partial phases before and had even witnessed an annular solar eclipse in Maine back in 1994. A total solar eclipse blows everything out of the water and each one is unique, so you should see as many as you can.

The last second of light created a diamond ring of the sun. You could sense the moon's shadow engulfing everyone around you, racing in from the west at over 1800 mph at this site. A few cheers arose right when this happened and then everyone was quiet and respectful as the true beauty of our sun blazed forth as its intricate corona became visible. Everyone was plunged into instant darkness near high noon to experience a few moments of exquisite celestial silence.

Several planets including Venus and Jupiter immediately became visible and a couple stars including Regulus in Leo also stood out. 360-degree twilight happened all around both horizons, even though it was perfectly clear all day and there was not a cloud in the sky for several days where we were at 7,000 feet above sea level. I could sense the entire atmosphere of the earth for the first time ever as it all turned an eerie pale orange color.

Complete polar opposites became unified in a unique way during that time. The brilliant and continuous light of our sun was suddenly taken over by the moon. The sun would always win out and soon start coming back, but I can see why ancient people had so much fear at this moment when their sun was suddenly taken away and it became dark. For me, the darkness we were all pitched into only engendered a greater sense of mystery and awe of the unknown, but no fear like it did for the ancients.

Almost none of us will ever go to the moon and only 12 humans have ever walked on the moon in our 200,000 history of

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modern humans, but a total solar eclipse is your chance to let the moon come to you! It may only be its shadow, but you do get a visceral sense of the moon itself that causes that shadow as it races over you at nearly three times the speed of sound, engulfing everything and everyone in sight.

For those brief 150 seconds, time itself became immaterial as the present moment of this all-encompassing experience completely took over everyone's attention. No matter what you hear or read about it or even how many movies you may watch of it, you have to experience it for yourself because it is far better than anything you can ever imagine.

Time and space became suspended for that moment and you could sense some of the great forces always at work in our solar system without even knowing the math behind them! The past, present, and future all became wrapped into one for that moment.

The earth we are all always on only became the platform from which to witness this precise and tremendous alignment of three mighty celestial bodies with your own insignificant human body.

I was completely transported off our familiar earth into a world where forces are unified and you get a very brief glimpse into the inner workings of our solar system and even our place in space that humans can't ordinarily do, at least not without knowing the math behind it and being able to visualize it all in three dimensions.

Three large groups of sunspots were also visible throughout the event and then three small red prominences rose above the solar limb during the totality, enhancing our sense of the sun's rotation.

A little of the true beauty of our consistent sun began to reveal itself as its corona or atmosphere blazed forth in all of its glory for that moment. Ironically, its luminous beauty can only really be seen and appreciated when the normal disk of the sun gets covered by the moon.

Since we are near a minimum now in our sunspot cycle, the coronal streamers spread farther out into space than usual and some of their intricate and ethereal structure was revealed.

I strongly felt that all of us are part of something far greater and more powerful than our ordinary everyday awareness would allow us to experience.

It was all over far too quickly as an even more brilliant diamond ring blazed forth out of the darkened sun for a second or two after the moon's umbra left the sun once again. It would still take another hour for the sun to get back to normal, but all of the anticipation was gone because we had just seen all those partial phases of the sun.

I was fortunate to get excellent pictures of the entire event as a reminder and to share with others. I am already planning to be at the right place and right time for the next two total solar eclipses. It is well worth every effort and you could gain practical insights into life that are priceless.

Back on Earth, we are losing Jupiter now since it will be setting about 2 hours after sunset. Notice that the King of the Planets will pass just 3 degrees above Spica in Virgo by the middle of the month.

Saturn will be up several hours longer. Be aware that the Cassini spacecraft will plunge into the ringed planet on the 15th, just one day after Saturn reaches eastern quadrature, 90 degrees east of the sun.

Most of the action takes place in the morning sky now. Venus rises at 4 am near Regulus in Leo and then look for Mercury and Mars a few degrees below and to the left by the end of the first week of this month. Mercury will make its best morning apparition for the year on the 12th. Our first planet will be less than half a degree above Mars on the morning of the 16th.

Sept.3. On this day in 1976, Viking 2 landed on Mars.

Sept.6. Venus, Mars, and Mercury are close in the morning sky. Full moon is at 3:02 a.m. EDT. This is the famous Harvest moon.

Sept.10. Spica is 3 degrees to the lower left of Jupiter.

Sept.12. The waning gibbous moon will occult Aldebaran in Taurus this morning, but the sun will already be up for most of the United States when this happens.

Sept.13. Last quarter moon is at 2:25 a.m.

Sept. 16. Regulus will be less than 5 degrees below Venus this morning.

Sept.18. Venus, Regulus, the thin waning crescent moon, Mars, and Mercury will form a nearly vertical 12-degree-long line low in the eastern morning sky this morning. Bring binoculars to see all of them better.

Sept.20. Venus is one degree above Regulus this morning. New moon is at 1:30 a.m.

Sept.22. Autumn begins at 4:02 p.m. EDT.

Sept. 23. On this day in 1846 J. Galle discovered Neptune.

Sept. 26. The moon will be 5 degrees above Saturn 1 hour after sunset tonight.

Sept. 28. First quarter moon is at 10:53 p.m.

Moon Phases

- Sept 6**
Full
- Sept 13**
Last Quarter
- Sept 20**
New
- Sept 27**
First Quarter

Moon Data

- Sept 6**
Neptune 0.8° north
of Moon
- Sept 9**
Uranus 4° north
of Moon
- Sept 13**
Moon at perigee
- Sept 17**
Venus 0.5° north
of Moon
- Sept 18**
Mars 0.1° south
of Moon
- Mercury 0.03°
north of Moon
- Sept 22**
Jupiter 4° south
of Moon
- Sept 26**
Saturn 3° south
of Moon
- Sept 27**
Moon at apogee

Submitted by Glenn Chaple



Sky Object of the Month – August 2017 (Courtesy LVAS Observer’s Challenge*)

NGC 6905 – Planetary Nebula in Delphinus (Mag. 11.1; Size 42” X 35”)

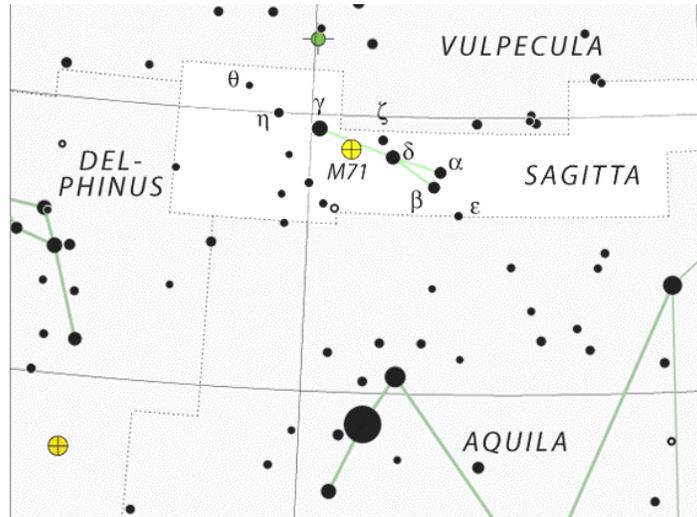
This month’s LVAS Observer’s Challenge takes us to the northwest corner of Delphinus and the 11th magnitude planetary NGC 6905, also known as the Blue Flash Nebula. The challenge begins right away when you try to find NGC 6905. At the 2000 coordinates RA: 20h22m23.0s Dec: +20°06’16”, it’s positioned in a star-rich part of the Milky Way, but away from any nearby bright stars. The best route for star-hoppers might be a 4 degree trip eastward from 5th magnitude eta (η) Sagittae (see charts below). In his book *Cosmic Challenge*, author Phil Harrington offers an interesting way to locate NGC 6905 without resorting to star-hopping or using GoTo technology. Simply center eta Sge in a low power eyepiece and wait 16 minutes. Earth’s 4 degree rotation during that time will bring NGC 6905 into view.

The next challenge is in determining the smallest aperture that will pick up NGC 6905. It has reportedly been seen with a 4-inch scope, but its low surface brightness mandates dark skies. Larger instruments will reveal a north-south elongation. Can you detect its bluish color (not as obvious as the nick-name might imply) and glimpse its 14th magnitude central star?

NGC 6905 was discovered by [William Herschel](#) in 1784, hence its designation H.IV 64 or 16⁴ (signifying the 16th entry in Class 4 [Planetary Nebulae] of his deep sky catalog) on older star atlases. Its distance uncertain, but may be in excess of 4000 light years.

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www.constellation-guide.com

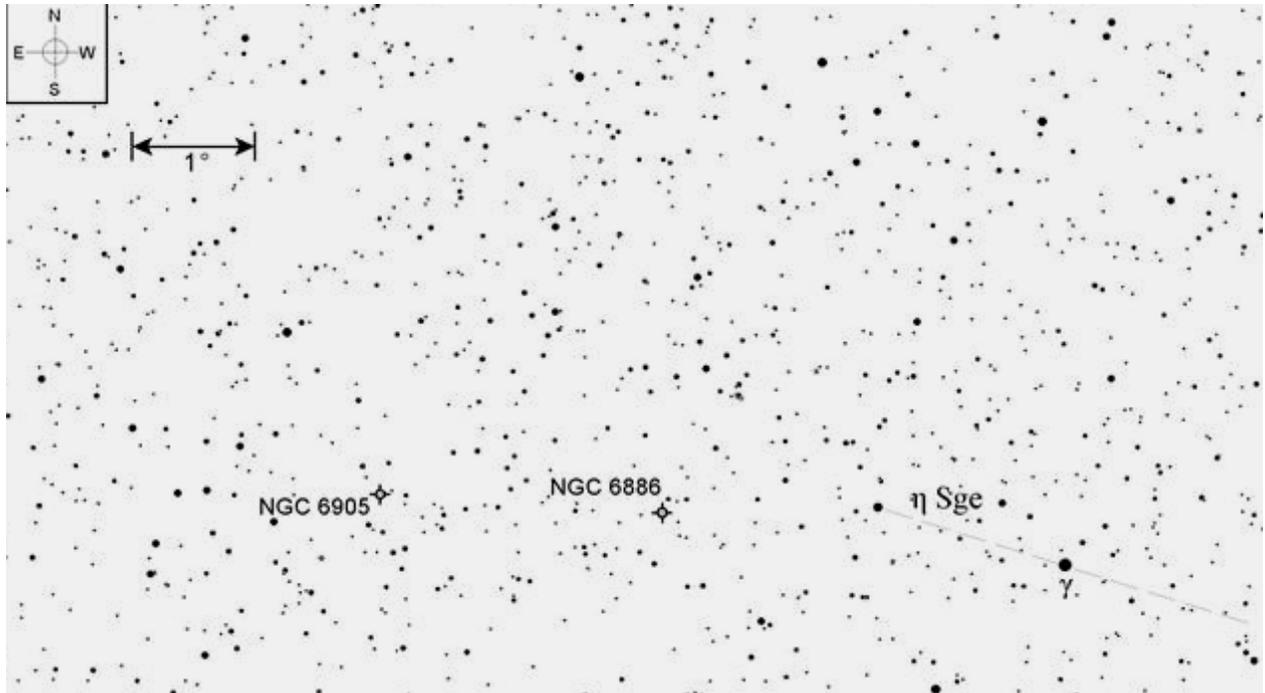
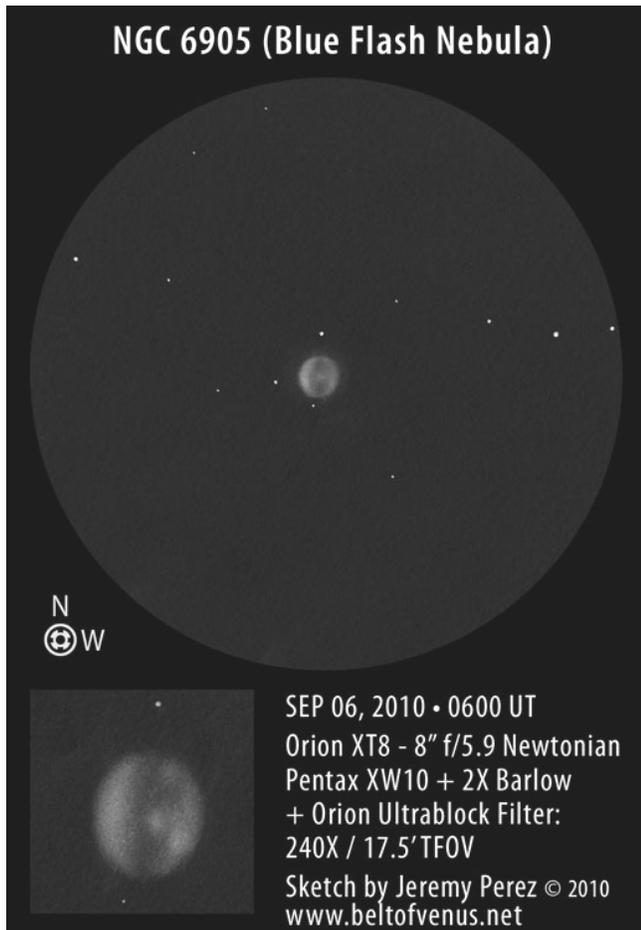


Chart adapted from [Cosmic Challenge](#) by Phil Harrington.

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www.perezmedia.net

www.astronomia.com

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

Principal Meteor Showers in 2017

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 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



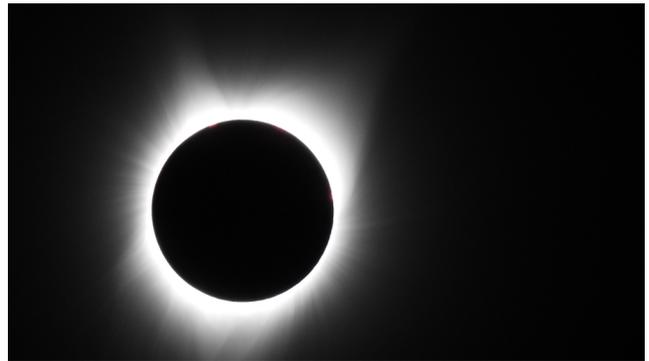
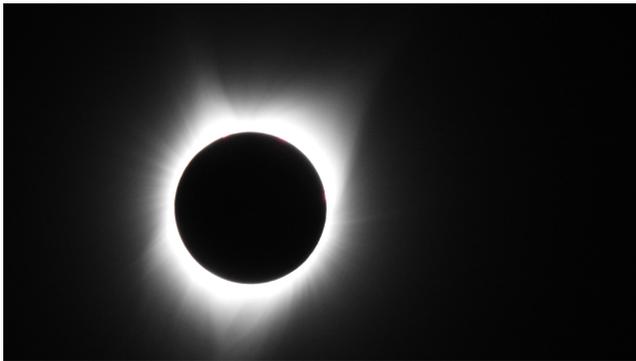
All money raised goes to our operating fund.

Any design can be put on any item.

Just let our club member, David Bianchi, know.

Total Solar Eclipse Photos

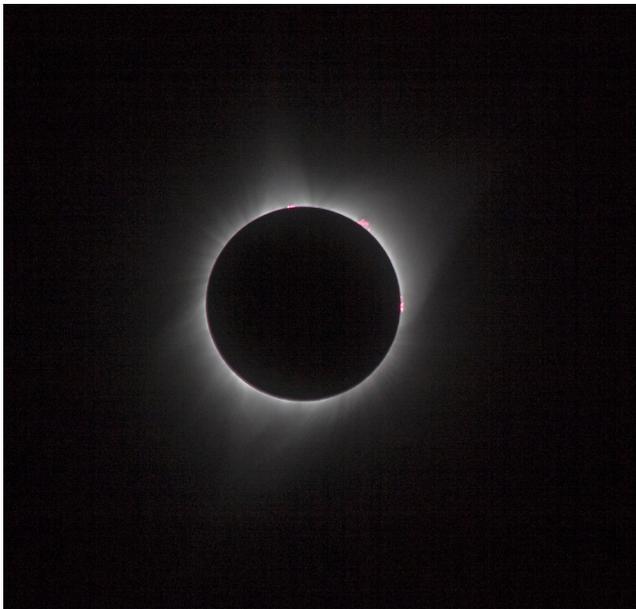
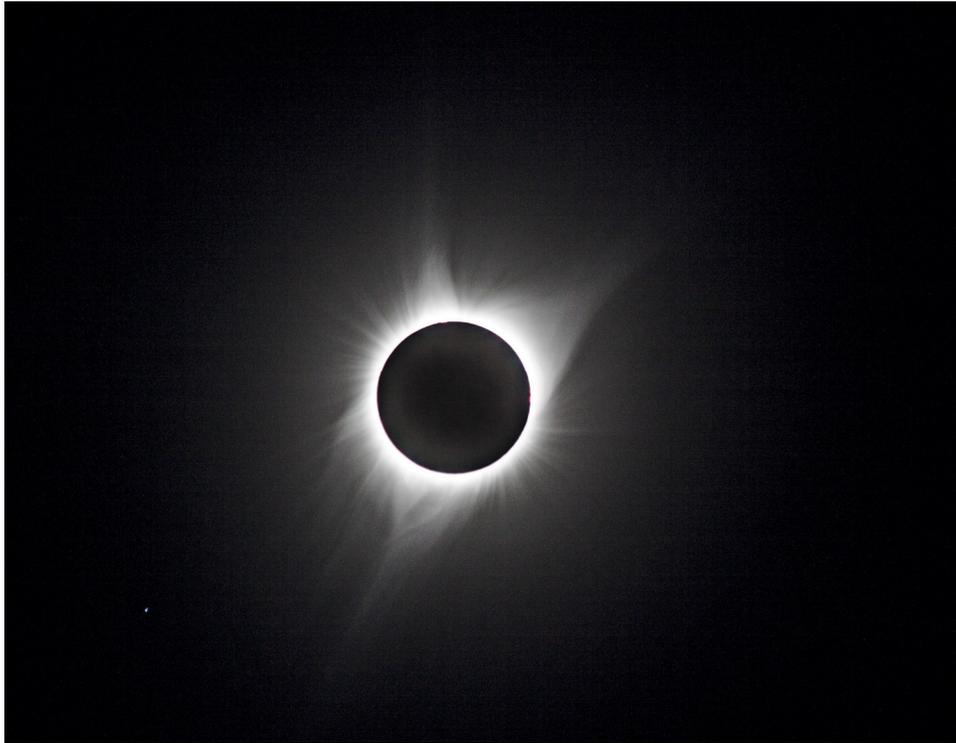
Submitted by Bernie Reim



“Gary’s photos appear on the next page”

Total Solar Eclipse Photos

Submitted by Gary Asperschlager



“Paul’s photos appear on the next page”

Total Solar Eclipse Photos

Submitted by Paul Kursewicz



Composite image: The partial images are from stills, the coronal image is a “snap shot” taken from my video recording.



Diamond Ring: A “snap shot” taken from my video recording

Club Meeting & Star Party Dates

Date	Subject	Location
Sept 15,16,17	<p style="text-align: center;">Starfest</p> <p>ASNNE's Annual Weekend Star party</p> <p>Our regular club meeting will be on Saturday, the 16th at the observatory.</p> <p>On site camping. No running water or electricity. Porta potty on site. TYO Trash please.</p> <p>Friday night: - observing session - all night if you like.</p> <p>Saturday: Day time solar viewing. Night Observing.</p> <p>BBQ.</p> <p>Tent Talks: Astronomy Trivia. Raffle prizes. Speakers/Topic: August 21, 2017 Total Solar Eclipse.</p>	Starfield Observatory, West Kennebunk, Me.
TBD	Club/Public Star Party (<i>Check List-serve / website for updates 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

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

2017 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 _____

