

SKYLIGHTS

Newsletter of the Astronomical Society of Northern New England



FEB. 2009



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.



2009 Promises to be a big year for BIG telescopes (see the URL below):

http://www.philly.com/inquirer/magazine/20090119_2009_will_be_a_big.html

What's Up In February

By Bernie Reim

Winter is already half over, as Ground Hog Day marks its half way point. The days are getting noticeably longer, but there is still plenty of cold weather ahead and the nights are still longer than the days until spring starts late next month. There are many interesting celestial highlights to enjoy this month, as there are every month.

Our sister planet, Venus, reaches its maximum brilliancy for the year, three planets gather in the morning sky along with a crescent moon, our largest asteroid makes its closest approach in 2,000 years, the zodiacal light will be visible after sunset, and there will even be a lunar eclipse in the Northwest.

Venus will reach a magnitude of -4.8 this month, which is just over 100 times brighter than Saturn, which is the only other evening planet now visible. Venus will also reach fully 40 degrees above the western horizon, which is almost its highest ever possible. You should actually be able to see your own shadow cast by Venus on the snowy ground this month, as long as you are far enough away from any man-made light sources. It is amazing to think that this little Earth-sized planet, 50 million miles away, or half the distance to the sun, can bounce enough sunlight back to Earth for us to see our shadows. The same would not be true if you stood on Venus in a good space-suit, because your visibility would only be a few hundred feet, its atmosphere is 100 times the pressure of ours, and its temperature is 900 degrees F, hot enough to melt some metals. Those conditions were created by a runaway greenhouse effect because of all the carbon dioxide in its atmosphere.

Venus starts this month setting 4 hours after sunset, but it will then sink lower into our western sky again and set only 3 hours after

sunset by the end of the month. Its phase is getting thinner, but it is getting larger in the sky as it gets closer to Earth. You should be able to see its current waning crescent phase through a pair of binoculars. It will not completely sink back into our western sky until the end of March, when it reaches inferior conjunction with the sun. Watch for a close conjunction with the waxing crescent moon on Friday evening the 27th.

A trio of planets, Jupiter, Mars, and Mercury will be visible very low in the East-Southeastern sky 30 minutes before sunrise starting around the middle of this month. They will appear to perform a very slow-motion but no less fascinating dance from our point of view as each of these planets just continues along its regular orbits around the sun. Watch as a slender waning crescent moon passes right by this trio on the 22nd and 23rd. The trio will be bunched closest together on the 24th.

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What's Up "Continued from page 1"

Our largest asteroid, and the first one discovered just over 200 years ago, is named Ceres. It will be at opposition in Leo, not too far from Saturn, on the 25th. It will reach magnitude 6.9, so you would need binoculars to see it. Ceres is now our smallest official "dwarf planet". As the status of Pluto was downgraded to dwarf planet, the status of Ceres was upgraded. They both meet the first two conditions for a planet, that it orbits the sun by itself and is large enough to spin itself into a round shape, but they don't meet the third condition that the planet must clear its orbit of similar objects. Three other large asteroids were discovered right after Ceres. They are named Pallas, Vesta, and Juno. Ceres is nearly 600 miles in diameter, or about the size of Texas. By itself, Ceres has one third of the mass of all the 100,000 asteroids that we know about orbiting in the asteroid belt between Mars and Jupiter.

We sent a spacecraft named Dawn, launched in the fall of 2007, to visit Ceres and Vesta. Powered by a slow but efficient ion propulsion drive, it will not reach Vesta until 2011 and it will reach Ceres in 2015. By closely studying and photographing these two dwarf planets, Dawn will make many exciting new discoveries about the early formation of our solar system 4.6 billion years ago.

We already know that the growth of these two baby planets was interrupted by the formation of massive Jupiter. We also know that they turned out very different, Ceres is more primitive and wet and Vesta is more evolved and dry, but we don't know how and why that happened. Dawn will soon send us thousands of pictures of these fascinating alien worlds with much to tell us about our own formation. The timing of this new knowledge will be excellent, since we have already found over 300 planets in other solar systems around nearby stars in the past 13 years, and we just found the first few extra solar planets ever in infrared and even visible light only a few months ago.

The zodiacal light is always best visible in February and March about two hours after sunset in the western sky or in October and November two hours before sunrise in the eastern sky. I have only seen them twice, since you need very dark skies to see this subtle and ghostly glow forming a huge pyramid of dim pearly light above our horizon. It is caused by the glow of microscopic debris from comets

and asteroids all spread out along the ecliptic plane of our solar system.

Feb.2. First quarter moon is at 6:13 p.m. EST.

Feb. 3. The Pleiades will again be occulted by the moon tonight. I watched that happen several times before. You really get a great sense of our moon's constant motion around the earth as you watch it in real time through binoculars moving and covering up several stars in the Pleiades one by one.

Feb. 4. Clyde Tombaugh was born on this day in 1906. He discovered Pluto on Feb 18 of 1930. In the past few years we have discovered 4 objects larger and farther away than Pluto, so it clearly had to be reclassified. Ceres and even the sun were actually called planets at one time.

Feb. 7. The moon is at perigee, or closest to the earth today.

Feb.9. Full moon is at 9:49 a.m. This is also called the Wolf, Snow, or Hunger Moon.

Feb. 10. Saturn will pass near the moon this evening in Leo the Lion. Saturn begins the month rising around 9 pm, but will end the month by rising around 7 pm.

Feb. 15. Galileo was born on this day in 1564. He used the first telescope in 1609 to discover all kinds of amazing things that we now take for granted, like craters on the moon, sunspots, the rings of Saturn, and 4 moons of Jupiter. This whole year of 2009 is the International Year of Astronomy to celebrate the 400th anniversary of the telescope. Its theme is "The Universe-Yours to Discover".

Feb. 16. Last quarter moon is at 4:37 p.m.

Feb. 19. Nicholas Copernicus, a Polish priest and astronomer, was born on this day in 1473. He first said that the sun must be the center of our solar system, and not the earth, which was falsely believed for thousands of years. Galileo and Kepler later proved his heliocentric theory with actual math and observations.

Feb.24. New moon is at 8:35 p.m.

Feb. 25. Ceres will be at its closest approach to Earth in 2000 years today.

Moon Phases

Feb 2
First Quarter

Feb 9
Full

Feb 16
Last Quarter

Feb 24
New

Moon Data

Feb 7
Moon at perigee

Feb 11
Saturn 6° north
of Moon

Feb 17
Antares .04° south
of Moon

Feb 19
Moon at apogee

Feb 22
Mercury 1.1° south
of Moon

Jupiter 0.7° south
of Moon

Feb 23
Mars 1.7° south
of Moon

Feb 27
Venus 1.3° north
of Moon



ASNNE Business Meeting

Minutes

January 2nd, 2009

Present: Ron Burk (president), Br. Albert Heinrich, Joyce and Wesley Brann, David Bianchi, Jim Hatch, Joan Chamberlin, Sara Dinyari, Richard Beaulieu (secretary).

We thought of reserving the current newsletter to the dues paying members only. It would be a perk for those who paid.

We voted to keep it open to the public.

The club star party will be January 23rd. Maybe the Boy Scouts can make it then.

We are trying to come up with a list of projects to be done at meetings if we don't have a speaker, such as making flashlights with red lenses, or taking a telescope apart to wash the mirror.

So far, we have 27 members for '09. Ron will send an email to all '08 members who haven't paid yet. If they don't pay up, they will be removed from the list.

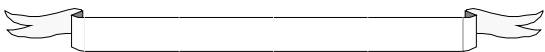
We need new signs at the observatory road. Sara will see to it.

We will try to alert members by email that the sky will be clear that night.

We are offering a scholarship to Sara to take a course on grant writing.

Ron will visit a technical school to try to get a class project going to redo our website.

Respectfully submitted,
Richard Beaulieu




ASNNE on NHPR

By Paul Kursewicz

I was listening to *New Hampshire Public Radio* in my car on Thursday morning, January 8th. A one hour program called, "The Exchange" was airing. The topic of conversation was: **Preparing for Astronomy's Big Year**. Since 2009 is the International Year of Astronomy, the people on the program talked about what that means. They also talked about other "astronomical" news. For instance:

- The new galaxy found right behind the Milky Way.
- New details on our galaxy's black hole.
- The death of the **Mars Phoenix Lander**, after a long and productive life.

Throughout the program, our club was mentioned several times!!!

Why? Because of a guest speaker named, **John Gianforte**. John was one of the co-founders of our club. So, when the host spoke to John during the one our program she would often say: "*John Gianforte, astronomy instructor for Granite State College and co-founder of the **Astronomical Society of Northern New England**.*" So our club got some free publicity. The other guest speaker was **Mal Cameron**, education specialist and coordinator of the NASA Educator Resource Center at the **Christa McAuliffe Planetarium**.

You can listen to the broadcast (which last about 51 minutes) by going to this website: <http://www.nhpr.org>

At NHPR's home page, select "The Exchange." Then select "Archives." Pick "January, 8th 2009": "**Preparing for Astronomy's Big Year.**"

**Principal
Meteor
Showers in
2009**

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*

Got any News? 
Skylights welcomes your Input.

Here are some suggestions:

*Book reviews -- Items for sale -- New equipment -- Ramblings --
Star parties -- Observing -- Photos.*

Club Items For Sale



Our club has merchandise for sale at:
www.cafepress.com/asne

All money raised goes to our operating fund.

Any design can be put on any item.
Just let our Director, David Bianchi, know.

SHOP CATEGORIES

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Superstar Hide and Seek

by Dr. Tony Phillips

It sounds like an impossible task: Take a star a hundred times larger in diameter and millions of times more luminous than the Sun and hide it in our own galaxy where the most powerful optical telescopes on Earth cannot find it.

But it is not impossible. In fact, there could be dozens to hundreds of such stars hiding in the Milky Way right now. Furiously burning their inner stores of hydrogen, these hidden superstars are like ticking bombs poised to 'go supernova' at any moment, possibly unleashing powerful gamma-ray bursts. No wonder astronomers are hunting for them.

Earlier this year, they found one.

"It's called the Peony nebula star," says Lidia Oskinova of Potsdam University in Germany. "It shines like 3.2 million suns and weighs in at about 90 solar masses."

The star lies behind a dense veil of dust near the center of the Milky Way galaxy. Starlight traveling through the dust is attenuated so much that the Peony star, at first glance, looks rather dim and ordinary. Oskinova's team set the record straight using NASA's Spitzer Space Telescope. Clouds of dust can hide a star from visible-light telescopes, but Spitzer is an infrared telescope able to penetrate the dusty gloom.

"Using data from Spitzer, along with infrared observations from the ESO's New Technology Telescope in Chile, we calculated the Peony star's true luminosity," she explains. "In the Milky Way galaxy, it is second only to another known superstar, Eta Carina, which shines like 4.7 million suns."

Oskinova believes this is just the tip of the iceberg. Theoretical models of star formation suggest that one Peony-type star is born in our galaxy every 10,000 years. Given that the lifetime of such a star is about one million years, there should be 100 of them in the Milky Way at any given moment.

Could that be a hundred deadly gamma-ray bursts waiting to happen? Oskinova is not worried.

"There's no threat to Earth," she believes. "Gamma-ray bursts produce tightly focused jets of radiation and we would be extremely unlucky to be in the way of one. Furthermore, there

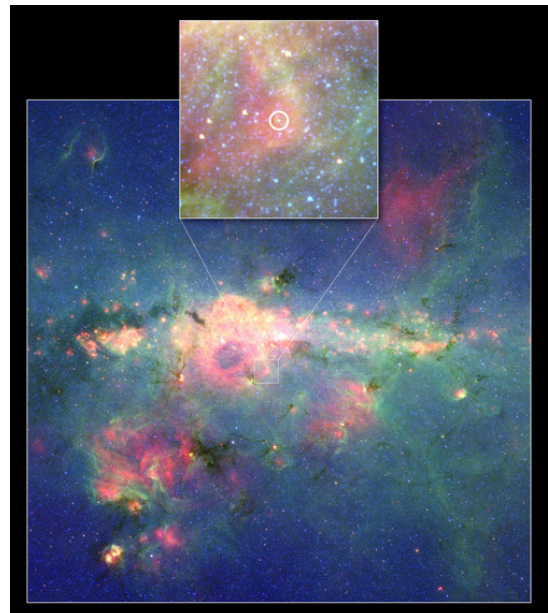
don't appear to be any supermassive stars within a thousand light years of our planet."

Nevertheless, the hunt continues. Mapping and studying supermassive stars will help researchers understand the inner workings of extreme star formation and, moreover, identify stars on the brink of supernova. One day, astronomers monitoring a Peony-type star could witness with their own eyes one of the biggest explosions since the Big Bang itself.

Now *that* might be hard to hide.

Find out the latest news on discoveries using the Spitzer at www.spitzer.caltech.edu. Kids (of all ages) can read about "Lucy's Planet Hunt" using the Spitzer Space Telescope at spaceplace.nasa.gov/en/kids/spitzer/lucy.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Caption:

The "Peony Nebula" star is the second-brightest found in the Milky Way Galaxy, after Eta Carina. The Peony star blazes with the light of 3.2 million suns.

Club Meeting & Star Party Dates

Date	Subject	Location
Feb. 6	5:30-6:30 PM: Business Meeting 6:40-7:30PM: Social Hour and Joan's Beginner Astronomy Class (Topic TBD). 7:30-9:30PM: Club Meeting: *Bernie Reim's "What's Up." *Astro Shorts & Astro News. *NASA Night Sky Network Activity. *Dark Skies: Friendly Lighting Updates. *Open Discussion Topic:TBD. *Guest Speaker: TBD.	Masonic Hall West Kennebunk, Me.
Feb. 20 Rain Date Feb. 21	Open Observing Session 6:30-10:30PM. The public is welcome to join club members and enjoy the night sky.	Starfield Observatory, West Kennebunk, Me.

Directions to ASNNE event locations

Directions to Masonic Hall

From I-95:

If coming southbound, take Exit 25 off of I-95. Come out to Rte. 35. Turn left at stop sign and turn right at next stop sign. Proceed straight ahead and you will see a variety store on the left and the Masonic Hall will be on the right.

If coming northbound, take Exit 25 off of I-95. Turn right at the stop sign and cross over I-95. Proceed straight for about 1/2 mile. There will be a variety store on the left and the Masonic Hall will be on the right.

Directions to Starfield Observatory

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

2009 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 _____

Sky & Telescope (\$32.95) _____ Astronomy (\$34) _____

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 _____

