SKYLIGHTS

Newsletter of the Astronomical Society of Northern New England

JUNE 2011

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 June

By Bernie Reim

This month always marks the beginning of summer for us in the Northern Hemisphere. This year the summer solstice will happen on Tuesday, June 21st. The sun will reach its highest point in the sky that day, creating the longest day and the shortest night of the year for us.

The warmer nights of late spring and early summer will offer us some interesting celestial highlights. The quartet of morning planets has lost one member, our first planet, Mercury, and the other three actors are drawing further apart. Jupiter will be the highest morning planet, rising three hours before the sun by the middle of June. Then our next-door neighbor, Mars, is next, nicely located right between the Pleiades and Hyades star clusters in Taurus. Last but not least will be brilliant Venus, situated very low on the east-northeastern horizon just half an hour before sunrise. Mercury will reappear in the evening sky right next to Castor and Pollux in Gemini by the end of June.

Saturn remains as the star of the night time celestial stage. After listening to and participating in an excellent presentation of the latest discoveries by the Cassini mission around Saturn, I will never look at the ringed jewel of our solar system the same way again. This is really a far more amazing planet than I had ever imagined, even though I had spent many hours over 30 years observing it carefully through many different telescopes and sharing it with others.

Its amazing ring system is far thinner than I thought it was. It is only between 20 and 40 feet thick. The sheparding moons that keep gaps open in the rings show that the rings act more like water than solid particles. The rings display lighter areas that correspond exactly to mathematical fractional resonances created by the moons that orbit outside of its ring system. There was even a major collision or near-collision event as recently as 1984 that created a serious disturbance in the rings from which they are still recovering. Saturn now looks much more like a finely tuned musical instrument within reach of our knowledge, rather than just a distant, cold, giant ball of gas nearly a billion miles away.

Saturn will end its westward or retrograde motion with respect to the stars on June 14, which also happens to be Flag Day. Then it will return to 8 months of direct, eastward motion again. Saturn will spend the entire month within half a degree or less of a 3rd-magnitude double star in Virgo named Porrima. Through a telescope you will be able to split this double star as a bonus to observing and enjoying the artistic and mathematical wonders of Saturn's exquisitely complex and finely tuned ring system.

We are in an eclipse season again, so there will be two eclipses this month. There will be a partial solar eclipse visible over the Arctic on June 1st during the new moon and a nice total lunar eclipse during full moon on the 15th visible almost everywhere except over North America. The next total solar eclipse will not be until November 13 of 2012, visible over Australia and South America. The next total solar eclipse visible over this country will not be until August 21, 2017.

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

The shadow cone of the moon will cut a narrow path across our continent from Oregon to South Carolina that day. We will be able to see part of a total lunar eclipse towards moon set on December 10 of this year.

Every June 30 marks the anniversary of a major dramatic event that happened just 103 years ago. At 7:17 am on that fateful morning, a giant fireball raced northward across the skies over Tunguska, Siberia. Eyewitnesses from 300 miles away heard deafening bangs and saw a fiery cloud on the horizon. Anyone within 40 miles was knocked to the ground or even knocked unconscious. Fortunately, this happened over a remote area of Siberia, and only a few reindeer herders were killed by this still mysterious event.

It was probably caused by a fragment of a comet or an asteroid about 50 meters across that exploded about 4 miles above the surface of Earth with the force of 10 megatons of TNT. That is 1,000 times the force of the atomic bomb we dropped over Hiroshima, or about the equivalent of one hydrogen bomb. No crater was ever found, but it did kill 80 million trees covering nearly 1,000 square miles. They did find microscopic silicate and magnetite spheres in the soil, but no larger meteorite pieces. There is a very intriguing lake named Cheko near the epicenter which may be young enough to have formed at the time of the explosion. This event did set the night sky aglow over Europe and Asia for several nights. It also caused reduced atmospheric transparency for several months around the world.

The explanations for this strange event vary from a black hole passing through the earth to antimatter explosions to the usual way out for anything that is not easily explainable, aliens caused it. An event like this happens about every 300 years, but most of them would happen over the oceans, since 70% of the earth is water. As recently as 1972, a 1000 ton stone skipped off our atmosphere over the Grand Teton Mountains in Jackson, Wyoming. If it would have come in at a slightly steeper angle, it would have hit Canada with the force of several atomic bombs.

June 1. New moon is at 5:03 p.m. EDT. A partial solar eclipse will happen over the Arctic.

June 4. The waxing crescent moon passes under Castor and Pollux in Gemini this evening one hour after sunset.

June 8. First quarter moon is at 10:11 p.m. Giovanni Cassini was born on this day in 1625. The current mission at Saturn is named in his honor, as is the largest gap in the rings of Saturn.

June 10. The waxing gibbous moon passes below Saturn and Spica in Virgo this evening one hour after sunset.

June 14. The nearly full moon can be seen just to the left of Antares in Scorpius, which, at 700 times the diameter of the sun, is one of the largest stars in our whole galaxy of over 200 billion stars.

June 15. Full moon is at 4:14 p.m. This is also known as the Rose or Strawberry Moon. There will be a total lunar eclipse visible over Africa and Australia, most of Asia, and parts of Europe and South America.

June 20. Mars and the Pleiades fit into the same 5 degree binocular field of view in the morning eastern sky half an hour before sunrise.

June 21. Summer starts at 1:16 p.m. this Tuesday afternoon, marking the longest day of the year in the Northern Hemisphere.

June 23. Last quarter moon is at 7:48 a.m.

June 26. Charles Messier was born on this day in 1730. He was a French astronomer and comet hunter that established a catalog of 110 objects like galaxies, nebulae, and star clusters that proved not to be comets. He did also discover about a dozen comets. I have seen about 70 of the objects in the Messier catalog. About half of those 110 objects can be seen with just a good pair of binoculars.

June 28-30. The slender waning crescent moon will descend between Mars and Venus for 3 consecutive mornings in the eastern morning sky half an hour before sunrise.

Got any News?
Skylights Welcomes
your Input.

Moon Phases

June 1
New

June 8
First Quarter

June 15
Full

June 23
Last Quarter

Moon Data

June 10
Saturn 8° north of Moon

June 11
Moon at perigee

June 20
Neptune 6° south of Moon

June 23
Uranus 6° south of Moon

June 24
Moon at apogee

June 26
Jupiter 5° south of Moon

June 28
Mars 1.7° south of Moon

Sky Object of the Month – June 2011
beta (β) Scorpii
by Glenn Chaple

This month, we travel southward to the constellation Scorpius and the showpiece double star beta (â) Scorpii. Also known as Graffias or Akrab (take your pick – I'll go with Graffias), beta Scorpii is an eye-pleasing pair of magnitude 2.6 and 4.5 stars separated by 13.6 arc-seconds. The magnitudes and separation are quite similar to those of the better-know Mizar; indeed, Graffias rivals Mizar in visual splendor.

Graffias is an ideal target for any backyard astronomer, regardless of his/her experience or size telescope. Its brightness and prominent location (it's the uppermost of a vertical row of bright stars just west (to the right) of Antares) makes Graffias an easy-to-find target. An ample separation allows Graffias to be split with the smallest of telescopes and a magnification as low as 25X.

What makes beta Scorpii particularly intriguing are its colors. A number of observers describe the pair as blue-white, which is in keeping with their B-type spectra. But look closely. I've always seen the companion as decidedly bluish, even turquoise. What's your opinion?

There appears to be disagreement as to whether Graffias is a true binary pair or an optically aligned duo. The two have shown little movement relative to one another since the earliest measures in 1779, but they share a common proper motion. If Graffias is a binary system, the orbital period must be in excess of one thousand years. This must-see double star lies about 600 light years away.

Your comments on this column are welcome. E-mail me at gchaple@hotmail.com

RAINBOW... Imaged while driving on the highway (my wife was at the wheel).
Submitted by Paul Kursewicz

Principal Meteor Showers in 2011

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

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 .

NOTE: In addition to The Space Place website, there are two other fun and educational websites for kids? The *SciJinks Weather Laboratory* targets middle-schoolers. It explains the reasons for the seasons, the tides, and other weather and Earth science mysteries in colorful "Now I get it!" pages. *NASA Climate Kids* demystifies the "Big Questions" about global climate change using 4-6th-grade-level language, colorful illustrations, humor, interactivity, and games.

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**

Club Items For Sale

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.

Milky Way Safari

by Dauna Coulter and Dr. Tony Phillips

Safari, anyone? Citizen scientists are invited to join a hunt through the galaxy. As a volunteer for Zooniverse's Milky Way Project, you'll track down exotic creatures like mysterious gas bubbles, twisted green knots of dust and gas, and the notorious "red fuzzies."

"The project began about four months ago," says astrophysicist Robert Simpson of Oxford University. "Already, more than 18,000 people are scouting the Milky Way for these quarry."

The volunteers have been scrutinizing infrared images of the Milky Way's inner regions gathered by NASA's Spitzer Space Telescope. Spitzer's high resolution in infrared helps it pierce the cloaking haze of interstellar gas and dust, revealing strange and beautiful structures invisible to conventional telescopes. The Milky Way Project is helping astronomers catalogue these intriguing features, map our galaxy, and plan future research.

"Participants use drawing tools to flag the objects," explains Simpson. "So far they've made over a million drawings and classified over 300,000 images."

Scientists are especially interested in bubble-like objects believed to represent areas of active star formation. "Every bubble signifies hundreds to thousands of young, hot stars. Our volunteers have circled almost 300,000 bubble candidates, and counting," he says.

Humans are better at this than computers. Computer searches turn up only the objects precisely defined in a program, missing the ones that don't fit a specified mold. A computer would, for example, overlook partial bubbles and those that are skewed into unusual shapes.

"People are more flexible. They tend to pick out patterns computers don't pick up and find things that just look interesting. They're less precise, but very complementary to computer searches, making it less likely we'll miss structures that deserve a closer look. And just the sheer numbers of eyes on the prize mean more comprehensive coverage."

Along the way the project scientists distill the volunteers' data to eliminate repetitive finds (such as different people spotting the same bubbles) and other distortions.

The project's main site (http://www.milkywayproject.org) includes links to a blog and a site called Milky Way Talk. Here "hunters" can post comments, chat about images they've found, tag the ones they consider especially intriguing, vote for their favorite images (see the winners at http://talk.milkywayproject.org/collections/CMWS00002u), and more.

Zooniverse invites public participation in science missions both to garner interest in science and to help scientists achieve their goals. More than 400,000 volunteers are involved in their projects at the moment. If you want to help with the Milky Way Project, visit the site, take the tutorial, and … happy hunting!

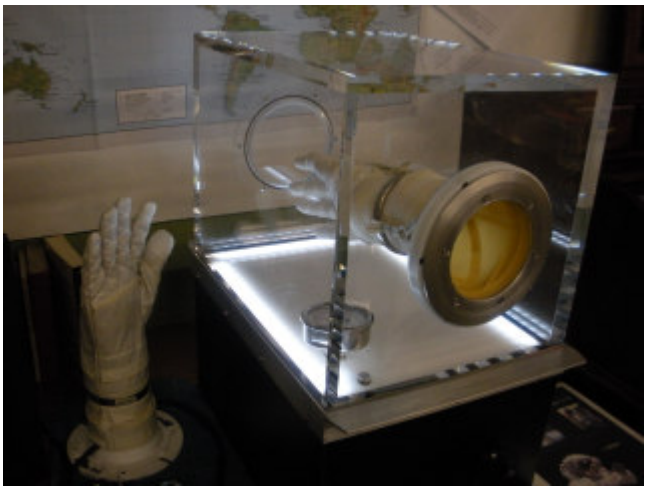
You can get a preview some of the bubbles at Spitzer's own web site, http://www.spitzer.caltech.edu/. Kids will enjoy looking for bubbles in space pictures while playing the Spitzer concentration game at http://spaceplace.nasa.gov/spitzer-concentration/.

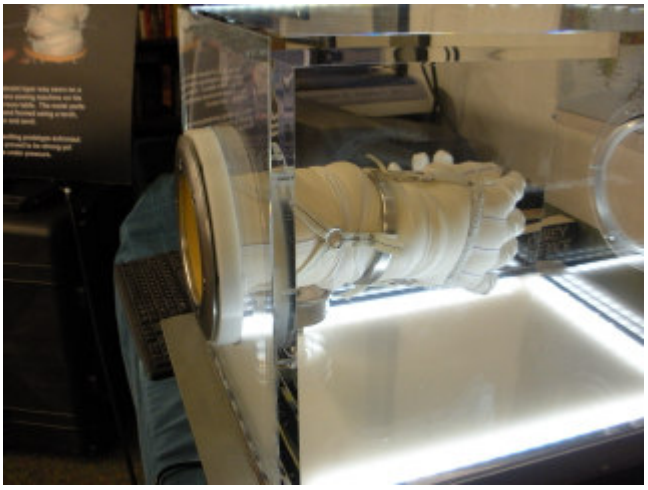
This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Caption:
Volunteers study infrared images of our galaxy from the Spitzer Space Telescope, identifying interesting features using the special tools of the Milky Way Project, part of the Citizen Science Alliance Zooniverse web site.

At our last meeting **Dwight M. Lanpher** brought along the **"Hand's in Space"** demonstration box. He thought that might make a nice complement showing another direct NASA connection to Maine. Club members could try out the space glove in a simulated zero pressure environment.

Submitted by Paul Kursewicz





Club Meeting & Star Party Dates

Date	Subject	Location
June 3	**ASNNE Club Meeting:** **6:30-7:30 PM:** Business Meeting **6:45-7:30PM:** Joan's Beginner Astronomy Class (Public walk-ins welcome). **7:30-9:30PM:** Club Meeting: - Bernie Reim's "What's Up." - Astro Shorts & Astro News - Where's Pluto? Planet, Dwarf Planet, Plutoid, KBO, Plutino. **Guest Speaker: Dr. Bryan Penprase**. Topic: "The Power of Stars" How Celestial Observations Have Shaped Civilization. This book is one that came from 17 years of Dr. Penprase's teaching at Pomona College in Claremont, California.	The New School, Kennebunk, Me.
June 24	Club/Public Star Party (*Visit website for updates and or cancellations*).	Starfield Observatory, West Kennebunk, Me.
July 1	Guest Speaker: Peter Lord. Executive Director of the Island Astronomy Institute.	The New School, Kennebunk, Me.
August 5	Guest Speaker: Ian Durham. Topic: Relativity for Dummies.	The New School, 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 Starfield Observatory [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.

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

2011 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_____