

**THE DARK SKY OBSERVER**

The Dark Sky Observer is a publication of the North Jersey Astronomical Group (NJAG), whose purpose is to promote the study and knowledge of the science of astronomy.

The Dark Sky Observer needs your input!

Letters, comments, suggestions, book and product reviews, and articles are welcomed and encouraged. Contact the editor at 973-249-1926, kdconod@optonline.net, or at this address: Dark Sky Observer

North Jersey Astronomical Group  
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**VISIT OUR WEB PAGE AT**

<http://njagweb.tripod.com>.

Mary Lou West also maintains a web page at:  
<http://www.csam.montclair.edu/~west/njag.html>

**MEMBERSHIP**

Dues are only \$15.00 per year (\$20.00 for family and \$10.00 for student memberships). Benefits of membership include: \$10 discount on subscriptions to "Sky & Telescope" or "Astronomy" magazines ("Sky & Telescope" subscribers also get a 10% discount on all books, maps, and products at Sky Publishing); a subscription to this newsletter; an e-mail list for the latest club and astronomy news; use of our dark sky sites; field trips to local planetariums, science centers, and star parties; a lending library of astronomical books; a Telescope Loan Program; and star parties for special celestial events.

Make checks out to the NJAG and mail to: North Jersey Astronomical Group, P.O. Box 1472, Clifton, NJ 07015-1472. If you have any questions regarding membership, contact our Acting Membership Committee Chair, Gigi Inturrisi at: [g.inturrisi@verizon.net](mailto:g.inturrisi@verizon.net).

**UACNJ**

The NJAG is a member of the United Astronomy Clubs of New Jersey (UACNJ), a consortium of more than a dozen astronomy clubs, united to better help support, coordinate, and communicate ideas between stargazers in and around the state. The UACNJ operates an observatory at Jenny Jump State Forest near Hope, NJ which serves as the NJAG's dark sky site.

**SOME NOTES ON VIEWING MARS THIS SUMMER**

by Kevin Conod

The close approach of Mars will be August 27, 2003 at 5:46:18 a.m. But do not think that it is not worth looking at the planet until then, or that this is the only time Mars can be seen at its best.

Although it is true that Mars will be at its maximum size of 25.1 arc seconds on August 27, note that it will remain at 25 arc seconds from Aug. 22 through Sept. 3. So you have nearly two weeks to see the planet not just one night! Remember also that Mars will be larger than 20 arc seconds from July 20 all the way through Oct. 4. This close approach of Mars is being hailed as the nearest in history. This is somewhat misleading. It is true that this will be the closest in the last 60,000 years, but beats out the last closest approach (in 1924) by only 12,000 miles. That may sound like a lot, but it's only about 0.035% closer than in 1924.

Many are surprised at the red planet's small size when they see it through a telescope. Its maximum size of 25 arc seconds is 0.007 degrees! That's about the size of a crater on our own Moon.

Given its small size, here are some tips for viewing:

- Use a telescope of at least 4 to 6 inches in diameter.
- Many use a light red #23A filter to bring out some surface details (but if you have a scope smaller than 6 inches, the filter may not let enough light through)
- A steady view of the planet is key to seeing small details, so avoid observing through hot air currents rising off of cars, black top or roofs.
- You'll likely need a magnification of about 200 to see surface features, but remember not to use too much power. If the image is too unsteady or seems to "boil," back off to a longer focal length eyepiece and wait for those brief calm spells when the air is nice and steady.
- Mars will be low in the sky all summer, so try to observe when it is highest in the south:

DATE	BEST TIME TO VIEW
7/20	3:54 a.m.
8/22	1:34 a.m.
8/27	1:14 a.m.
9/3	12:35 a.m.
10/4	10:19 p.m.

**Skywatch for Mars!**

**Fri., August 22**

**9:00 p.m. to 12:00 mid**  
(Rain date: August 23)

Mars is closest to Earth in the last week of August. Join us at Riker Hill Park in Livingston for some free stargazing with our telescopes.

**NOTE:**

Our telescopes cannot see through clouds! Telescopes will be set up only if the weather permits (it is "clear" if you can see the Moon or ten stars).

If stargazing needs to be postponed or cancelled, a message will be left at 973-680-8420 after 6:00 p.m. on the evening of the event. Cosponsored by the Newark Museum and the Essex County Department of Parks.

**Directions****to Riker Hill Park**

- Take the NJ Turnpike to Exit 15W or Garden State Pkwy to Exit 145
- Take Route 280 West to Exit 4A
- Take Eisenhower Parkway south for about a mile.
- After the top of the hill, make a left onto Beaufort Ave.
- Make a right turn to continue on Beaufort. A few blocks down make a left at the sign for Riker Hill Art Park.
- Go straight at the stop sign. Keep to the right at the fork in the road.
- Telescopes will be set up in the field on your right at the very top of the hill.

**See our web page for a map.**

**STARLINE**

For a weekly update on the night sky, call the StarLine at 973-680-8420.



## Concerts Under the Stars

New Jersey Botanical Gardens in Ringwood

The NJBG is once again sponsoring its free summer concert series on select Fridays at the New Jersey State Botanical Garden in Ringwood. Weather permitting, the NJAG will be providing telescopes for stargazing following the concerts on June 27 and July 25. Grab a lawn chair or blanket and come enjoy a wide range of musical talent in these magnificent and beautiful surroundings. The concerts begin at 7:15 p.m. Refreshments will be available for purchase. The concerts are free, but a \$2 donation is appreciated. Concerts are moved indoors in bad weather. See the NJBG web site for details and directions: [www.njbg.org](http://www.njbg.org)

## Astronomy Community

Astronomy bed & breakfasts have popped up over the last several years in dark areas such as the Star Hill Inn in New Mexico and Arizona's Skywatcher's Inn.

Well-known astrophotographer Jack Newton started his own establishment in British Columbia, but now he's started a whole astronomy community in Arizona called the Arizona Sky Village. Its 430 acres will be divided up into 74 lots. Each lot will have space for a house and observatory. A 30-inch telescope will also be available as a community telescope! Sounds like a great place to retire!

For details see: [www.arizonaskyvilage.com](http://www.arizonaskyvilage.com)

## Telescope Simulator

Jim Coughlin discovered this nifty telescope simulator online: [www.stic.net/mattwier](http://www.stic.net/mattwier)  
You'll need Flash installed in order to view it.

## Report on the Fels Planetarium Trip

By Gigi Inturrisi  
[ginturrisi@comcast.net](mailto:ginturrisi@comcast.net)

Eleven of us went on a Field Trip to the Fels Planetarium in the Franklin Institute located in Philadelphia, PA. We were scheduled to see the show "The Wonders of the Universe" upon our arrival, which we all looked forward to after our long 2-hour trip up there.

The one thing that gives me such a warm feeling is watching the children experiencing astronomy for the first time. There were a lot of children at the show, and I sat back and watch the children mesmerized by their experience.

We wandered our separate ways meeting up for lunch in the cafeteria. It was a great experience to wander around in a different atmosphere besides the Rose Center. It's totally contrary to the Rose Center, since the Franklin Institute is a very old building (named after none other than Ben Franklin).

We all had a great time. Personally, I believe it is important to get together as a Club in different type gatherings. Star parties and social events are fun, but to go on a Field Trip with people that have the same love of astronomy as you have opens up tons of avenues of conversations and learning experiences.

I look forward to our next Field Trip.



NJAG members inspect a large telescope at the Franklin Institute's "Space Command" exhibit."


## Report on Pleasant Acres Campground Event

By Gene Faulkner [ebfaulkner@msn.com](mailto:ebfaulkner@msn.com)





As for PAC, the event was held inside the pavilion. Books, software, flashlights, keychains and telescopes were given away. Joe Marzullo went with me and he gave a talk to the kids (and adults) on the planets. A very good presentation Joe - thanks again. Joe asked questions as he showed the planets, and among those present was a small boy named Mike. He had his hand up on every question. He also introduced himself: "My name is Mike, and I know everything about space!" He knew the planets, and most of the moons of each planet. His dad owned a 10" Meade and now owns an 8". That's where he gets his info. CUTE!

Due to the RAIN, which was very heavy from the time we got to Butler to the time we arrived at camp, not to many people made it for camping. However, we did have about 20 kids and 10 adults. Everyone enjoyed the program, and especially the gifts. A surprise: just as Joe and I arrived, and prepared to set up for the evening, John Miksits arrived, which surprised us because we did not know that he was coming! Thanks to John who helped give out the raffle tickets, and helped with the drawing.

**S** **TUMP THE ASTRONOMERS** 

Have a question about astronomy?  
Send it in to Kevin Conod at the address on page 1  
or to [kdconod@optonline.net](mailto:kdconod@optonline.net)  
and we'll try to have an answer in the next newsletter.



## Stellafane

One of the nation's oldest star parties, the 68th annual Stellafane convention will be held Aug. 1 – 3, 2003. The focus of Stellafane is amateur telescope making, but the site on Breezy Hill in Springfield, VT is also known for its dark skies. Many attendees camp out in fields on the site, though there are also local hotels as well. For registration and details, see: [www.stellafane.com](http://www.stellafane.com)

## South Jersey Star Party

The South Jersey Star Party is rapidly becoming a New Jersey tradition. The event will be held this year on Sept 26, 27, & 28. Admission is \$10, camping fee is \$5 (\$20 per family plus a \$10 camping fee). Details will be posted soon on the South Jersey Astronomy Club's web site at:  
<http://members.aol.com/sjastroc/sjac-splb.html>

## UACNJ Symposium

The UACNJ's 9th Annual Symposium will be held on Saturday, September 20, beginning at 1:30 p.m., this event is directed towards individuals who wish to learn more about amateur astronomy as well as having topics for more advanced amateurs. The programs include both general and technical presentations. The event concludes with an evening lecture and star party. Free admission. For details, see: [www.uacnj.org](http://www.uacnj.org)



## Monster Trucks on Mars

by Patrick L. Barry and Dr. Tony Phillips

We all know what Mars rovers look like now: Robotic platforms, bristling with scientific instruments, trundling along on small metallic wheels. Planetary rovers of the future, however, might look a little different-like miniature monster trucks!

Enormous, inflatable tires can easily roll right over the rocks and rugged terrain of alien planets, just as they bound over old cars like as many speed bumps.

That's the idea behind a novel concept for robotic planetary rovers known as the "big wheels inflatable rover." Unlike rovers similar to the Sojourner robot that explored the surface of Mars in 1997 that depend on instructions sent from Earth or complex programmed intelligence to steer through rough terrain, this rover has three beach ball-like tires roughly five feet across that make it a true off-road vehicle.

"We sent this rover out to Death Valley, to a place called Mars Hill that has a general geological formation like Mars, and nothing could stop it," says Jack Jones, the mastermind of the inflatable rover concept at JPL. "It just kept going and going and going."

Lots of current research is devoted to developing advanced robotic intelligence that allows rovers to detect rocks in their path and maneuver around them. The alternative to such on-the-spot intelligence is tedium: Ground controllers on Earth working out the maneuvers by hand and waiting an hour or more for the instructions to travel to the distant planet.

A "big wheels" rover would need such computer intelligence to avoid very large boulders, but Jones asks, "Why worry about every little rock, pebble, and crack when you can just roll right over most of them?"

Jones imagines a scenario where multiple inflatable-wheel rovers could be sent out to explore the Martian terrain-easily and quickly traversing the rugged terrain. Samples gathered by the rovers could be returned to a central, stationary laboratory module for detailed analysis.

"The Martian surface is really very, very rough with a lot of rocks, and to be banging this laboratory equipment up and down over all of these rocks aboard the rovers doesn't make much sense," Jones says. "I suspect it might be better to leave it in a central location."

At the moment it's all very speculative; NASA currently has no definite plans to send inflatable rovers to Mars. But who knows, one day monster truck-like vehicles could be zipping over Mars' rough, red surface.

Kids can baffle their friends with a robot puzzle (including a "Big Wheels" rover) they make themselves at [http://spaceplace.nasa.gov/robots/robot\\_puzzle.htm](http://spaceplace.nasa.gov/robots/robot_puzzle.htm). For adults, find out more about NASA's inflatable rover program at [http://www.jpl.nasa.gov/adv\\_tech/rovers/summary.htm](http://www.jpl.nasa.gov/adv_tech/rovers/summary.htm).

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## SKY CALENDAR

### July

- 2 Crescent Moon near Jupiter
- 3 Moon near Regulus
- 4 Earth at aphelion (2:00 a.m.)
- 13 Mars brighter than Jupiter
- 17 Moon very close to Mars
- 25 Jupiter & Mercury very close  
(but very low)
- 28 Southern Delta-Aquarid  
Meteor Shower

### August

- 1 Moon near Mars
- 14 Mercury at greatest  
elongation
- 23 Moon near Saturn (Dawn)
- 27 Mars closest approach to  
Earth in 73,000 years
- 28 Mars at opposition

L to r, John Miksits, Joe Marzullo and Mary Lou West enjoyed the displays at the Fels Planetarium... including the unexpected sign below! For more on their adventures, see the story on page 2. →



→  
 Here's a game to try with your favorite young astronomer! It's a great perspective on the respective distances of the planets, and (shhhh! don't tell!) you're sneaking a little basic math in, too.



### Make Your Own Personal Pocket SOLAR SYSTEM

You'll need a measuring tape and a piece of cord or string that's 31 feet long. Use beads or markers to make your model.

**Beads:** string 9 small beads on your string first, then tie 1 large Sun bead on the end. Glue or tie the small beads at the distances shown at right.

**Markers:** tie a knot at the end of the string to represent the Sun. Mark the distances shown at right for your scale model.

On this scale Jupiter (the biggest planet) is about the size of the period at the end of this sentence.

1 inch = 10 million miles

PLANET	FROM SUN
Mercury	.3.6"
Venus	.6.7"
Earth	.9.3"
Mars	.14.2"
Jupiter	.48.4"
Saturn	.88.7"
Uranus	.178.0"
Neptune	.279.0"
Pluto	.367.0"

