

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 973-586-0612, kdconod@optonline.net, or at this address:

Dark Sky Observer
North Jersey Astronomical Group
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VISIT OUR WEB PAGE AT

www.njastro.org.

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 Membership Committee Chair, Jim Coughlin, at woodwrench@aol.com.

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.

UPCOMING MEETINGS

November Meeting

The November Meeting will be on Wednesday the 8th. Program will be "Irish Astronomy: Through the Ages" by Kevin Conod, Manager and Astronomer at the Newark Museum's Dreyfuss Planetarium.

December Meeting

The December Meeting will be on Wednesday the 13th. NJAG will hold its annual Winter Solstice Celebration. Please bring a snack or light fare to share.

Wednesday monthly meetings are free and open to the public - all are welcomed; light refreshments will be served. Meetings are held at 8:00 p.m. in Richardson Hall, Room 232 at Montclair State University.

TELESCOPE NIGHTS

By Mary Lou West

We have had some good Public Telescope Nights already this fall. They started September 7 and will finish December 14, 2006, from 8 – 9 PM as usual on clear Thursdays. We said good-bye to Jupiter early on the first night as it quickly set behind Mallory Hall. There are no more bright planets visible but the Moon is sometimes spectacular.

On the nights when the Moon is about first quarter or full we begin at 7:30, early enough so that small children can come and still get to bed by 8 PM. The Montclair State University Child Care Center brought several families on September 28 to see the Moon. The two and three year olds danced to their own music, but the four and five year olds were able to see craters and plains. They also appreciated the contrasting colors of the Albireo pair. We have also enjoyed Epsilon Lyrae, the double double, M57, the Ring Nebula, the globular cluster M13, Uranus, Neptune, the coathanger, and passing military satellites. The student assistant this fall is Elizabeth Taylor. (I kid you not.) Nick Maloupis, another physics major, has also been very helpful. They are both quick learners.

Jim Coughlin and Joe Marzullo have brought telescopes and laptops to share with the public. We usually have about thirty people look through the telescopes, some very briefly on their way to evening classes, others for much longer.

Later we go inside for hot cocoa, snacks, and talk. Come join us! Extra helpers are always needed and much appreciated. The schedule can be found at www.csam.montclair.edu/~west/tele.html.

Our Thursday night Telescope Nights at Montclair State will run through December 14 (except November 23). Telescopes will be set up on Thursday nights, weather permitting, from 8:00 - 9:00 p.m. All are welcome; bring the whole family!

KIDS TELESCOPE NIGHTS

Telescope Night will begin at 7:30 p.m. for little kids on 10/26, 11/2, 11/30

ASTROPHOTO CONTEST

I would like to congratulate the winners of the 2005 Astrophotography Contest and also all who had participated. Overall there were a total of four photos entered, one per category. The following are the winners whose names will appear on the Astro contest display at Montclair State.

Deep Sky • Adrian Oradean and his beautiful photo of the Rosette Nebula. Adrian combined several filters, in the autumn of 05 to get this blossom to pop out of the sky. Great photo.

Solar System • Angelo Restivo was able to get the moon to come alive by holding a digital camera up to a pair of 7X50 binoculars. Nice steady shot.

Wide Field • Adrian Oradean comes through again with the cone nebula. With 16 hours of combined frames and a lot of patience, this photo was breathtaking.

General Topic • Marylou West captured a double rainbow over West Orange, NJ with her digital camera. She never did find the pot of gold but has this beautiful photo to remember the event. Nice job.

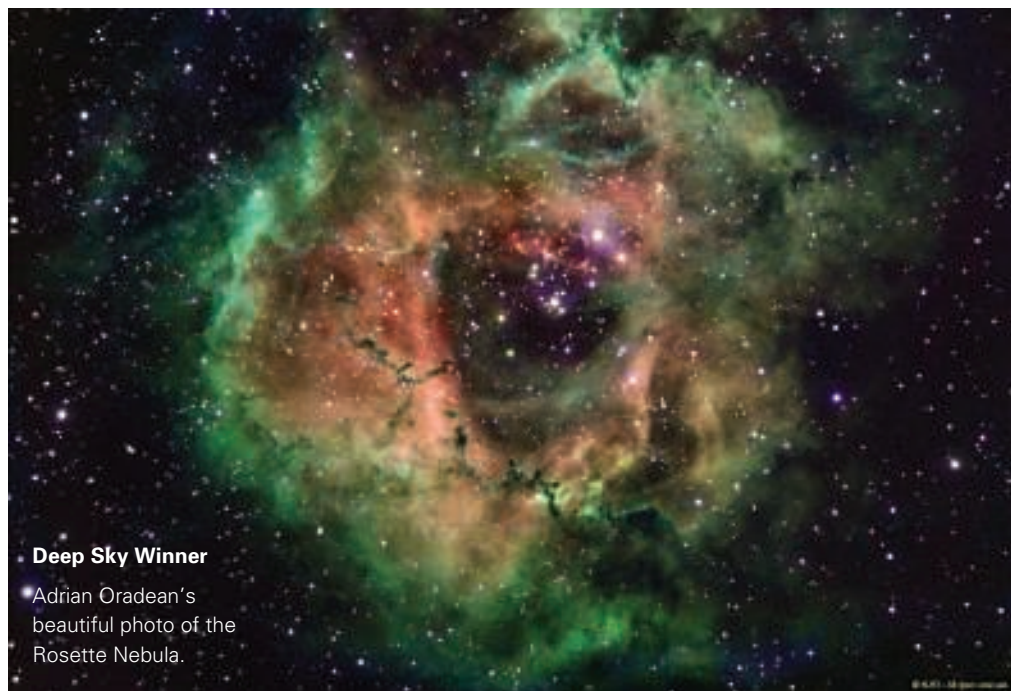
Every year, the NJAG gives a one year free membership for the best photo of the astrophotography contest. This year, there was a tie, but the tie was with the same person. I would like to offer special congratulations to Adrian Oradean in these spectacular photos. Enjoy your one year membership, on us.

Thank you for all who participated and keep up the good work.

With every year that passes, good affordable digital cameras are easier to obtain. Good luck to all in taking your prize-winning photo for next year's contest.

Keeping the shutters open,

Angelo Restivo, Astrophoto Committee



Deep Sky Winner

Adrian Oradean's beautiful photo of the Rosette Nebula.

MERCURY TRANSIT

By Kevin Conod

A transit occurs when a planet crosses in front of the Sun. These events are similar to a solar eclipse, except the planets are so small they do not block a significant amount of Sun.

Transits of Venus are quite rare – only seven have occurred since the invention of the telescope. On the other hand Mercury, with its much smaller orbit, transits the Sun more frequently: more than a dozen times a century.

The last Mercury transit was visible from New Jersey on June 8, 2004. It occurred just after sunrise on a very humid June morning, so not many amateur astronomers got to see it. In fact I nearly missed it myself. I went to Island Beach State Park to see the event, but the morning haze at the beach was so thick that I could not even see the Sun through my solar filter! Fortunately another amateur showed up with a 3-inch Questar. Its aperture was small enough and the haze thick enough to allow brief viewing without a solar filter.

The next Mercury Transit is coming up on Wednesday, November 8. Unfortunately, sunset is just after transit maximum and so the entire event is not visible from New Jersey. The event starts at 2:12 p.m. Second Contact at 2:14 p.m. is when Mercury is fully on the disk of the Sun. Transit maximum is at 4:41 p.m. and the Sun sets at 4:45 p.m.

During the Venus Transit in June 2004, the planet was 58 arc seconds wide – visible to the naked eye (with eclipse shades). Mercury is only 10 arc seconds wide, nearly 6 times smaller than Venus and below the resolution of the eye. So this will primarily be a telescopic object and you will need a good solar filter.



You could also use a Sun Spotter (www.starlab.com) or less expensive version called a Solarscope (www.solarscope.com).

The Newark Museum will be having a Mercury Transit event from 2:00 to 4:00 p.m. Mary Lou West will also be having an event at Montclair State.

Volunteers are needed for both events, so please join us! (E-mail me at kdconod@yahoo.com if you are interested in volunteering)



STAR PARTY @ MKA

On Friday night, September 29, 2006 several NJAG members had a lively star party at Montclair Kimberley Academy Middle School. It was the night of the fifth graders' sleepover in the school gym, so 8-10 PM was no problem. The night was beautifully clear with a first quarter Moon, and no clouds at all. Gene Falkner, Joe Marzullo, Marc Eifenbein, and Mary Lou West set up their telescopes on the grass at the edge of the sports field. Dr. Nancy Pi-Sunyer sent the students out in groups of 10, so it took over an hour for all 61 kids to circulate around the telescopes. We all looked at the Moon for a while until it got low in the treetops, and the Alpine Valley was gone. Then Marc had the best view because he picked up his telescope and tripod and carried it along the field to sight at a gap in the trees. Manual tracking was fine for the Moon at low power, which still showed stark craters and mountain shadows on the mare plains. Gene showed the color contrast of Albireo, which intrigued the students, most of whom had never seen a blue star before. Joe found Uranus, clearly a disk and not a point of light like a star. My Astroscan showed the white (double) double and Vega, 26 light years away which was very interesting to the parents and teachers, but not to eleven year olds. The highlight for most of the students was the array of images that Joe and Gene had on their computers from previous observing sessions. Saturn just blew them away, as usual. Gene gave away some astronomical books to the most persistently interested students, so we hope they continue this interest in astronomy. After packing up the telescopes we enjoyed coffee, hot chocolate, and doughnuts at Dunkin Donuts on Route 23.

Mary Lou West

STAGGERING DISTANCE

By Dr. Tony Phillips

Tonight, when the sun sets and the twilight fades to black, go outside and look southwest. There's mighty Jupiter, gleaming brightly. It looks so nearby, yet Jupiter is 830 million km away. Light from the sun takes 43 minutes to reach the giant planet, and for Earth's fastest spaceship, New Horizons, it's a trip of 13 months.

That's nothing.

Not far to the left of Jupiter is Pluto. Oh, you won't be able to see it. Tiny Pluto is almost 5 billion km away. Sunlight takes more than 4 hours to get there, and New Horizons 9 years. From Pluto, the sun is merely the brightest star in a cold, jet-black sky.

That's nothing.

A smidgen to the right of Pluto, among the stars of the constellation Ophiuchus, is Voyager 1. Launched from Florida 29 years ago, the spacecraft is a staggering 15 billion km away. It has traveled beyond all the known planets, beyond the warmth of the sun, almost beyond the edge of the solar system itself.

Now that's something.

"On August 15, 2006, Voyager 1 reached the 100 AU mark—in other words, it is 100 times farther from the Sun than Earth," says Ed Stone, Voyager project scientist and the former director of NASA's Jet Propulsion Laboratory. "This is an important milestone in our exploration of the Solar System. No other spacecraft has gone so far."

At 100 AU (100 astronomical units or 9.3 billion miles), Voyager 1 is in a strange realm called "the heliosheath."

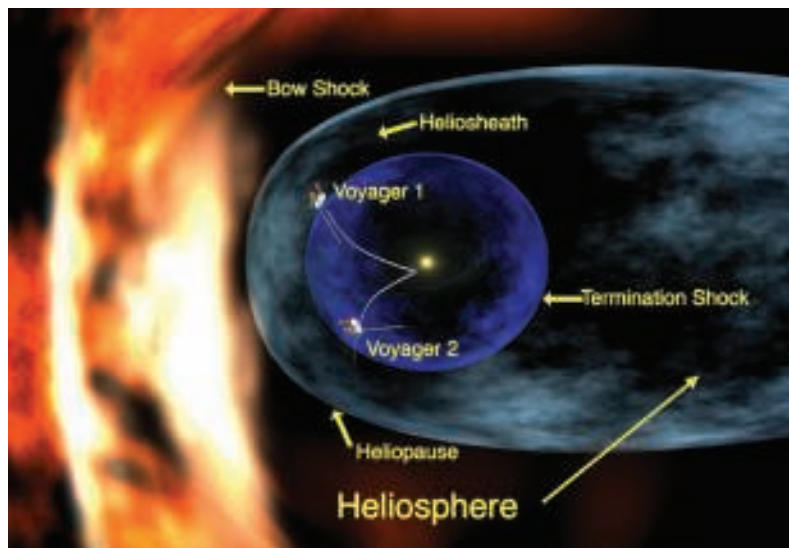
As Stone explains, our entire solar system—planets and all—sits inside a giant bubble of gas called the heliosphere. The sun is responsible; it blows the bubble by means of the solar wind. Voyager 1 has traveled all the way from the bubble's heart to its outer edge, a gassy membrane dividing the solar system from interstellar space. This "membrane" is the heliosheath.

Before Voyager 1 reached its present location, researchers had calculated what the heliosheath might be like. "Many of our predictions were wrong," says Stone. In situ, Voyager 1 has encountered unexpected magnetic anomalies and a surprising increase in low-energy cosmic rays, among other things. It's all very strange—"and we're not even out of the Solar System yet."

To report new developments, Voyager radios Earth almost every day. At the speed of light, the messages take 14 hours to arrive. Says Stone, "it's worth the wait."

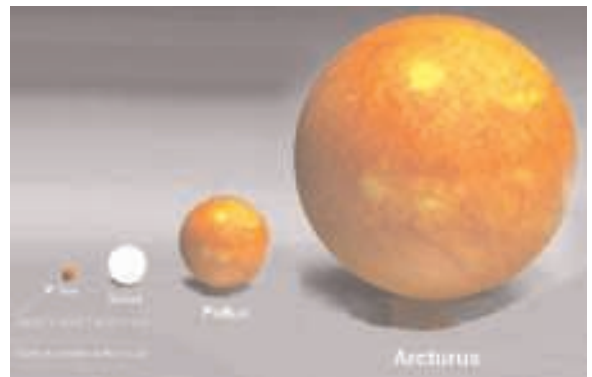
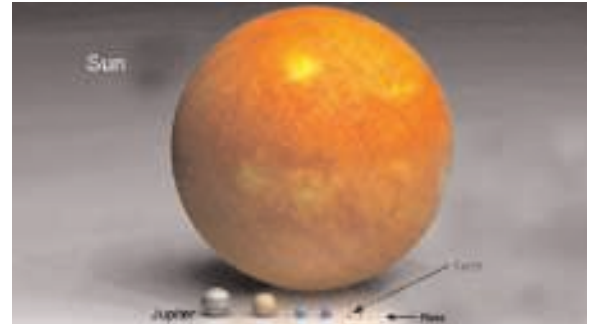
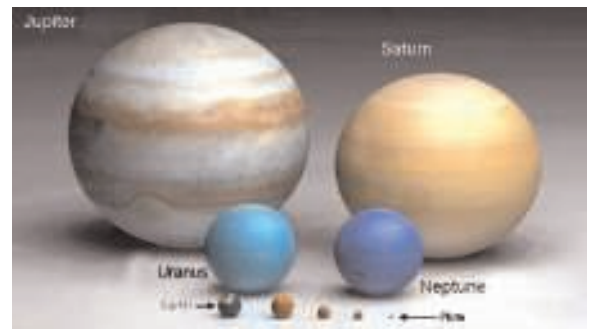
Keep up with the Voyager mission at voyager.jpl.nasa.gov. To learn the language of Voyager's messages, kids (of all ages) can check out spaceplace.nasa.gov/en/kids/vgr_fact1.shtml.

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SKY CALENDAR

October

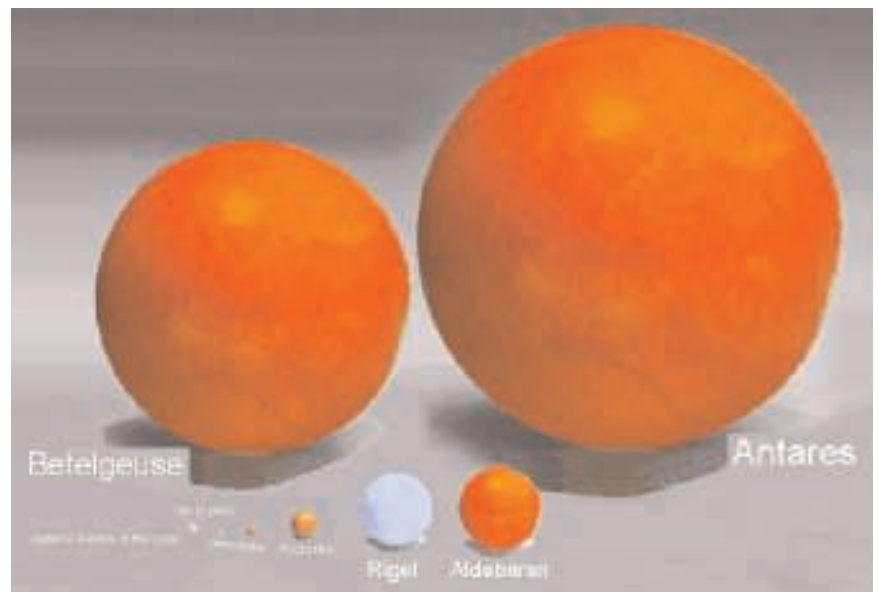
- 9 Moon near Pleiades
- 16 Saturn below Crescent Moon (dawn)
- 21 Orionid Meteor Shower
- 24 Crescent Moon near Mercury & Jupiter
- 29 Daylight Saving Time Ends

November

- 8 Transit of Mercury
- 13 Saturn above Moon (dawn)
- 17-19 Leonid Meteor Shower
- 25 Best morning appearance of Mercury

December

- 4 Moon near Pleiades (M45)
- 13-14 Geminid Meteor Shower
- 18 Jupiter, Mars & Moon together (dawn)
- 21 Winter Solstice (7:22 p.m.)



UPSCALING An interesting perspective

STUMP THE ASTRONOMERS

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

